AUS 6

Eaton® Aeroquip®
Fluid Conveyance Products

Hose
Hose Fittings

Adapters
Tube Fittings

Accessories
Equipment

Full line of high performing products

EATON
Powering Business Worldwide

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NOTE: This is a concise catalogue and Eaton Fluid Power has many other Aeroquip products in the worldwide range. Contact **EATON FLUID POWER** or your nearest distributor for further information.

Powering Business Worldwide

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HOSE - PICTORIAL INDEX

Aeroquip Hose Series

P/No Series		Size Inside Diameter	Applications	Construction	Hose Specifications	Page No.
GH663 Matchmate - White Layline		-4 to -32 1/4" to 2"	Hydraulic system service with glycol base fluids	Synthetic rubber tube, single wire braid synthetic rubber cover	EN853 Type 1SN Exceeds SAE100R1AT Complies with AS1180 10B 13A (FRAS)	A4
GH781 Matchmate - Two Wire 1/2 SAE Bend Radius Green Layline		-4 to -32 1/4" to 2"	Hydraulic system service with petroleum and water - glycol base fluids	Synthetic rubber tube, double wire braid reinforcement synthetic rubber cover	EN857 Type 2SC Exceeds SAE100R16 ISO 11237-1 Type 2SC Complies with AS1180 10B 13A (FRAS)	A4
GH793 Matchmate - Two Wire Red Layline		-4 to -32 1/4" to 2"	Hydraulic system service with petroleum and water - glycol base fluids rubber cover	Synthetic rubber tube, double wire braid reinforcement and synthetic rubber cover	EN853 Type 2SN Excedds SAE100R2AT ISO 1436-1 Type 2SN Complies with AS1180 10B 13A (FRAS)	A5
FC735 BRIUSER Two Wire1/2 SAE Bend Radius Green Layline		-4 to -20 1/ 4" to 1 1/4"	High Abrasive hydraulic applications with petroleum and water - glycol base fluids	Synthetic rubber tube, double wire braid reinforcement and with synthetic intermediate rubber cover and BRUISER outer cover	EN857 Type 2SC Exceeds SAE100R16 ISO 11237-1 Type 2SC	A5
RB2AT RAZORBACK - Two Wire		-4 to -16 1/4" to 1"	Hydraulic system service with petroleum ans water - glycol base fluids	Synthetic rubber tube, double wire braid reinforcement and synthetic rubber cover	EN853 Type 2SN	A6
GH195 Matchmate Blue Two Wire Gold Layline		-4 to -32 1/ 4" to 2"	Hydraulic system service with petroleum, fire-resistant and - glycol base and water fluids, fuel and lubricating systems	AQP elastomer rubber tube, double wire braid reinforcement and AQP elastomer blue rubber cover	EN853 Type 2SN Exceeds SAE100R2AT ISO 1436-1 Type 2SN Complies with AS1180 10B 13A (FRAS)	A6
GH493 Matchmate-Four wire 1/2 SAE Bend Radius Yellow Layline		-6 to -32 3/8" to 2"	Hydraulic system service with petroleum ans water - glycol base fluids	Synthetic rubber tube, four spiral wire reinforcement and synthetic rubber cover	SAE100R12 EN 856 Type R12 Complies with AS1180 10B 13A (FRAS)	A7
FC736 BRIUSER Four Wire Yellow Layline		-6 to -32 3/8" to 2"	High Abrasive hydraulic applications with petroleum and water - glycol basefluids	Synthetic rubber tube, four wire reinforcement and with synthetic intermediate rubber cover and BRUISER outer cover	SAE100R12 EN 856 Type R12	A7
GH355 Waterblast Hose - 1000 BAR		-8 1/2"	High Pressure Waterblast	Synthetic rubber tube, four spiral wire reinforcement and synthetic rubber cover		A8
GH506 Four Heavy Spiral		-12 to -32 3/4" to 2"	High pressure hydraulic applications with petroleum andwater - glycol base fluids	Synthetic rubber tube, four spiral wire reinforcement and synthetic rubber cover	EN856 Type 4SH Complies with AS1180 10B 13A (FRAS)	A8
FC273 Four / Six Heavy Spiral		-12 to -32 3/4" to 2"	High pressure hydraulic applications with petroleum and water - glycol base fluids	Synthetic rubber tube, 4 & 6 spiral wire reinforcement and synthetic rubber cover	SAE100R13 EN856 Type R13 ISO 3862 Type R13	A9
FC450 Four Spiral - CAT hose		-6 to -32 3/8" to 2"	High pressure hydraulic applications with petroleum and water - glycol base fluids	Synthetic rubber tube, four spiral wire reinforcement and synthetic rubber cover	SAE100R12	A9
GH466 Six Spiral Hose 6000 PSI / 2 million cycle		-20 to -32 1 1/4" to 2"	High pressure hydraulic applications with petroleum and water - glycol base fluids	Synthetic rubber tube, six spiral wire reinforcement and synthetic rubber cover	EN856 Type 6SP	A10
FC659 Four Wire Hose 1/2 SAE Bend Radius		-6 to -32 3/8" to 2"	Hydraulic system service with petroleum ans water - glycol base fluids	Synthetic rubber tube, four spiral wire reinforcement and synthetic rubber cover	SAE100R12 EN856 Type R12	A10

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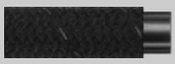
Aeroquip Hose Series

P/No Series		Size Inside Diameter	Applications	Construction	Hose Specifications	Page No.
FC606 Six Spiral Hose		-16 to -24 1" to 1 1/2"	High pressure hydraulics, hydrostatic transmissions	Synthetic rubber tube, six spiral wire"reinforcement and synthetic rubber cover	SAE100R15	A11
FC350 Engine and Air brake		-4 to -24 3/ 16" to 1 3/8"	Hydraulics, fuel and lubricatingoils, air and water	AQP elastomer tube, polyester inner""braid, single wire braid reinforcement, black polyester oils	FMVSS 106	A11
FC300 AQP SAE100R5		-4 to -40 3/ 16" to 2 3/8"	Hydraulic system service with petroleum, fire-resistant and water - glycol base "fluids, fuel and lubricating systems	AQP elastomer tube, polyester inner" "braid, single wire braid reinforcement, blue polyester braid cover	Exceeds SAE100R5	A12
1503 SAE100R5		-4 to -24 3/ 16" to 1 3/8"	Hydraulic system service with petroleum ans water - glycol base fluids	Synthetic rubber tube, polyester inner" braid, single wire braid reinforcement, black polyester braid cover	SAE1005	A12
2807 Teflon Hose		-3 to -20 1/8" to 1 1/8"	Hot air, compressor discharge most" chemical applications	Extruded Teflon tube with single wire stainless steel reinforcement	SAE100R14A	A13
FC332 Low Pressure Textile Hose		-4 to -12 1/4" to 3/4"	Hydraulics, fuel and lubricating oils," air and water	AQP elastomer rubber tube, single textile"braid reinforcement AQP elastomer blue rubber cover		A13
FC598 Low Pressure Textile Hose		-4 to -12 1/4" to 3/4"	Hydraulics, fuel and lubricating oils," air and water	AQP elastomer rubber tube, single textile braid reinforcement AQP elastomer black rubber cover		A14
FC619 Suction / Transfer Hose SAE 1/2 Bend Radius		-12 to -48 3/4" to 3"	Suction and transfer applications for petroleum fluids, fuels, lubricating oils, gasoline, water and many other industrial fluids.	Synthetic rubber tube, reinforcement consisting of a helical wire, two textile braids and synthetic rubber cover	Exceeds SAE100R4	A14
GH134 / FC505 Air Conditioning Hose		-4 to -16 3/16" to 7/8"	Refrigeration and Air Conditioning Systems	Nylon vaneer tube, stabilized synthetic braided reinforcement and chlorobutyl rubber cover	SAE J2064 Type Type E Class 1	A15
SC-GTW AGA Approved LPG Hose		-6 & -10 5/16" & 1/2"	Designed for butane and propane, natural and town gas applications on either mobile or stationary equipment.	Conductive Teflon tube single stainless wire braid fire retardent polyester cover	AS1869 Class D	A15
FC693 Use with Skydrol / Hyjet Fuels		-4 to -8 1/4" to 1/2"	Hydraulic systems using phosphate ester or water based fluids. Specifically designed to use with aviation gound support equipment	Synthetic EPDM tube, double wire braid reinforcement and green EPDM cover		A16
FC636 Use with Skydrol / Hyjet Fuels		-12 to -24 3/4"to 1 1/2"	Hydraulic systems using phosphate ester or water based fluids. Specifically designed to use with aviation gound support equipment	Synthetic EPDM tube, four wire wire spiral reinforcement and green EPDM cover		A13
FC234 Marine Fuel Hose		-05 to -16 1/4" to 7/8"	Diesel fuel, gasolinbe, hot lube oil and water	AQP elastomer tube, brass plated wire braid reinforcement braided refactory insulation and blue AQP elastomer cover	USCG, ABS & DNV	A17
FC414 Pressure Washer		-06 3/8"	Pressure Washer application	Synthetic rubber tube, 1 wire braid reinforcement, & synthetic rubber cover		A17

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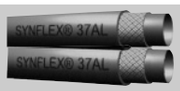
Aeroquip Hose Series

P/No Series		Size Inside Diameter	Applications	Construction	Hose Specifications	Page No.
FC695 High Pressure Air Hose		-24 & -32 1 1/2" & 2"	Suitable for high temperature and pressure air.	AQP elastomer rubber tube, double wire braid reinforcement, textile braid and a perforated blue rubber cover		A18
FC579 Jacking Hose		-4 & -6 1/4" & 3/8"	Hydraulic jacking system service	Synthetic rubber tube, double wire braid reinforcement and synthetic rubber cover	IJ100	A18
3130 Thermoplastic Hose		-2 to -16 1/8" to 1"	General hydraulics & gas transfer	Black perforated polyurethane cover, synthetic fibre reinforcement and nylon core tube	SAE100R7	A19
37AL Thermoplastic Hose Non Conductive		-3 to -8 3/16" to 1/2"	Electric utility truck hydraulic systems	Orange polyurethane cover, synthetic fibre reinforcement and polyester tube	SAE100R7 ANSI A92.2	A20
3800 Thermoplastic Hose		-2 to -8 1/8" to 1/2"	General hydraulics & gas transfer	Black perforated polyurethane cover, aramid fibre reinforcement and nylon core tube	SAE100R8	A21
3840 Thermoplastic Hose Non Conductive		-4 to -8 1/4" to 1/2"	Electric utility truck hydraulic systems	Orange polyurethane cover, aramid fibre reinforcement and polyester tube	SAE100R8	A21
3V10 Thermoplastic Hose High Pressure		-3 to -6 3/16" to 3/8"	High pressure hydraulic tools & rescue equipment	Black perforated polyurethane cover, aramid fibre reinforce ment and nylon core tube		A22
3VEO Thermoplastic Hose High Pressure Non Cond.		-3 to -6 3/16" to 3/8"	High Pressure system that may conduct high voltage	Orange polyurethane cover, aramid fibre reinforcement and nylon tube		A22
3770 (30CT X 2) Thermoplastic Hose Twinline		-4 to -8 1/4" to 1/2"	General hydraulics, forklifts & gas transfer	Black perforated polymetric cover synthetic fibre reinforcement, polymetric core tube - Twinline	SAE100R18	A23
3770 (37AL X 2) Thermoplastic Hose Twinline - Non Conductive		-4 to -8 1/4" to 1/2"	Electric utility truck hydraulic systems	Orange polyurethane cover, synthetic fibre reinforcement and polyester tube Twinline	SAE100R7 ANSI A92.2	A23
3770 (3800 X 2) Thermoplastic Hose Twinline		-4 to -8 1/4" to 1/2"	General hydraulics & gas transfer	Black perforated polyurethane cover, aramid fibre reinforce ment and nylon core tube. Twinline	SAE100R8	A23
3770 (3840 X 2) Thermoplastic Hose Twinline - Non Conductive		-4 to -8 1/4" to 1/2"	Electric utility truck hydraulic systems	Orange polyurethane cover, aramid fibre reinforcement and polyester tube. Twinline	SAE100R8	A23

GH663 MATCHMATE GLOBAL™ O R1AT / 1SN

Single wire braid meets EN853
Type 1SN, ISO 1436-1, Type 1SN
Exceeds SAE 100R1AT performance
Complies with AS2660, test requirements
AS1180 10B and 13A (FRAS)

Construction: Synthetic rubber tube, single wire braid reinforcement and DURA-TUFF synthetic rubber cover. White layline.

Application: Hydraulic system service with petroleum and water-glycol base fluids, for general industrial service.

Operating Temperature Range: -40°C. to +127°C

TTC CRIMP FITTINGS
REUSABLE FITTINGS

Triple Crown Advantage

HI-IMPULSE

Part Number	GH663								
Dash Size	-4	-6	-8	-10	-12	-16	-20	-24	-32
Hose I.D. (inches)	0.25	0.38	0.50	0.62	0.75	1.00	1.25	1.50	2.00
Hose O.D (inches)	0.53	0.69	0.81	0.93	1.09	1.41	1.71	1.99	2.52
Maximum Operating Pressure (psi)	3700	3400	2900	2030	2000	1500	1000	750	600
Minimum Burst Pressure (psi)	14800	13600	11600	8120	8000	6000	4000	3000	2400
Minimum Bend Radius (inches)	4.00	5.00	7.00	7.90	9.50	12.00	16.50	20.00	25.00
Vacuum Service (in./Hg)									
Weight (kg/m)	0.24	0.37	0.45	0.50	0.67	1.01	1.31	1.57	1.95
Protective Coil Spring. 900564	-1S	-2S	-15S	-4S	-5S	-6S	-9S	-8S	-13S
Nylon Abrasion Sleeve. FC425	-12	-16	-16	-18	-24	-24	-32	-38	-46

GH781 MATCHMATE GLOBAL™ OO R16 / 2SN

Two wire braid meets or exceeds EN857
Type 2SC, ISO 11237-1, Type 2SC
Exceeds SAE 100R16
Complies with AS2660, test requirements
AS1180 10B and 13A (FRAS)

Construction: Synthetic rubber tube, double wire braid reinforcement and DURA-TUFF synthetic rubber cover. Green layline.

Application: Hydraulic system service with petroleum and water-glycol base fluids, for general industrial service.

Operating Temperature Range: -40°C. to +127°C

TTC CRIMP FITTINGS
REUSABLE FITTINGS

Triple Crown Advantage

HI-IMPULSE AT 1/2 BEND RADIUS

Part Number	GH781								
Dash Size	-4	-6	-8	-10	-12	-16	-20	-24	-32
Hose I.D. (inches)	0.25	0.38	0.50	0.63	0.75	1.00	1.25	1.50	2.00
Hose O.D (inches)	0.53	0.69	0.81	0.93	1.10	1.42	1.65	2.03	2.53
Maximum Operating Pressure (psi)	6500	5300	4500	4000	3500	3000	2500	2000	1600
Minimum Burst Pressure (psi)	26000	21200	18000	16000	14000	12000	10000	8000	6400
Minimum Bend Radius (inches)	2.00	2.50	3.50	4.00	4.75	6.00	8.25	10.00	12.50
Vacuum Service (in./Hg)									
Weight (kg/m)	0.33	0.43	0.58	0.66	0.79	1.07	1.63	2.09	2.83
Protective Coil Spring. 900564	-1S	-2S	-14S	-4S	-5S	-7S	-9S	-8S	-13S
Nylon Abrasion Sleeve. FC425	-12	-16	-16	-20	-24	-24	-32	-38	-46

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GH793 MATCHMATE GLOBAL™ OO R2AT / 2SN

Two wire braid meets EN853
Type 2SN, ISO 1436-1, Type 2SN
Exceeds SAE 100R2AT performance
Complies with AS2660, test requirements
AS1180 10B and 13A (FRAS)

Construction: Synthetic rubber tube, double wire braid reinforcement and DURA-TUFF synthetic rubber cover. Red layline.

Application: Hydraulic system service with petroleum and water-glycol base fluids, for general industrial service.

Operating Temperature Range: -40ºC. to +127ºC

TTC CRIMP FITTINGS
REUSABLE FITTINGS

Triple Crown Advantage

HI-IMPULSE

Part Number	GH793									
Dash Size	-4	-6	-8	-10	-12	-16	-20	-24	-32	
Hose I.D. (inches)	0.25	0.38	0.50	0.63	0.75	1.00	1.25	1.50	2.00	
Hose O.D (inches)	0.60	0.75	0.87	0.98	1.16	1.50	1.92	2.15	2.51	
Maximum Operating Pressure (psi)	6500	5800	5000	4000	3500	3000	2500	2000	1600	
Minimum Burst Pressure (psi)	26000	23000	20000	16000	14000	12000	10000	8000	6400	
Minimum Bend Radius (inches)	4.00	5.00	7.00	8.00	9.50	12.00	16.50	20.00	25.00	
Vacuum Service (in./Hg)										
Weight (kg/m)	0.39	0.57	0.69	0.81	0.98	1.51	2.30	2.50	3.31	
Protective Coil Spring. 900564	-1S	-2S	-3S	-4S	-5S	-7S	-8S	-10S	-13S	
Nylon Abrasion Sleeve. FC425	-12	-16	-16	-20	-24	-20	-32	-38	-46	

FC735 BRUISER™ OO R16/ 2SN

Double wire braid exceeds EN857
Type 2SC, ISO 11237-1, Type 2SC
Exceeds SAE 100R16 performance

Construction: Synthetic rubber tube, double wire braid reinforcement and synthetic rubber intermediate cover and BRUISER outer cover. Green layline.

Application: High abrasion applications. Hydraulic system service with petroleum and water base fluids, general industrial service.

Operating Temperature Range: -40ºC. to +100ºC

TTC CRIMP FITTINGS

HI-IMPULSE AT 1/2 BEND RADIUS

Part Number	FC735									
Dash Size	-04	-06	-08	-10	-12	-16	-20			
Hose I.D. (inches)	0.25	0.38	0.50	0.63	0.75	1.00	1.25			
Hose O.D (inches)	0.53	0.69	0.81	0.93	1.10	1.42	1.70			
Maximum Operating Pressure (psi)	*5000	5000	4250	3625	3125	2500	2250			
Minimum Burst Pressure (psi)	*20000	20000	17000	14500	12500	10000	9000			
Minimum Bend Radius (inches)	2.00	2.50	3.50	4.00	4.75	6.00	8.25			
Vacuum Service (in./Hg)										
Weight (kg/m)	0.33	0.43	0.58	0.66	0.79	1.07	1.63			
Protective Coil Spring. 900564	-1S	-2S	-3S	-4S	-5S	-7S	-9S			
Nylon Abrasion Sleeve. FC425	-12	-15	-16	-18	-20	-24	-32			

** Meets SAE100R2 pressures.*

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Hose

RAZORBACK EN 853 2SN

EN 853 2SN

Construction: Synthetic rubber tube, double wire braid and abrasive and wear resistant synthetic rubber cover.

Operating Temperature Range:-40°C to +100°C

Application: Hydraulic system service with petroleum and water-glycol base fluids

HOSE SUPPLIED IN BULK ON REELS. NOT QUALIFIED TO USE WITH AEROQUIP FITTINGS.

Part Number	RB 2AT									
Dash Size	-4	-6	-8	-12	-16					
Hose I.D. (inches)	0.25	0.38	0.50	0.75	1.00					
Hose O.D. (inches)	0.60	0.75	0.88	1.15	1.50					
Maximum Operating Pressure (psi)	5800	4800	4000	3125	2393					
Minimum Burst Pressure (psi)	23200	19200	16000	12500	9425					
Minimum Bend Radius (inches)	4.00	5.25	7.00	9.50	12.00					
Weight (Kg/m)	0.33	0.50	0.59	0.85	1.35					

GH195 *MATCHMATE BLUE* OO R2AT / 2SN

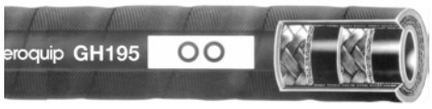
Double wire braid meets EN853
Type 2SN, ISO 1436-1, Type 2SN
Exceeds SAE 100R2AT performance
AQP Elastomer
Complies with AS2660, test requirements
AS1180 10B and 13A (FRAS)

Construction: AQP elastomer tube, double wire braid reinforcement and blue AQP elastomer cover.

Operating Temperature Range: -40°C. to +150°C

Application: Hydraulic system service with petroleum, fire resistant and water base fluids, fuel and lubricating systems.

TTC CRIMP FITTINGS
REUSABLE FITTINGS



***HI-IMPULSE* / AQP**

Part Number	GH195									
Dash Size	-4	-6	-8	-10	-12	-16	-20	-24	-32	
Hose I.D. (inches)	0.25	0.38	0.50	0.63	0.75	1.00	1.25	1.50	2.00	
Hose O.D (inches)	0.60	0.75	0.87	0.99	1.16	1.49	1.92	2.15	2.67	
Maximum Operating Pressure (psi)	5800	5000	4250	3250	3000	2500	2250	1750	1500	
Minimum Burst Pressure (psi)	23200	20000	17000	13000	12000	10000	9000	7000	6000	
Minimum Bend Radius (inches)	4.00	5.00	7.00	8.00	9.50	12.00	16.50	20.00	25.00	
Vacuum Service (in./Hg)										
Weight (kg/m)	0.40	0.58	0.69	0.81	1.00	1.45	2.39	2.59	3.38	
Protective Coil Spring. 900564	-1S	-15S	-3S	-54S	-5S	-7S	-8S	-10S	-13S	
Nylon Abrasion Sleeve. FC425	-12	-16	-18	-20	-22	-28	-32	-38	-46	

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GH493 MATCHMATE GLOBAL™ OOOO R12

Four heavy spiral wire EN856 Type R12
SAE 100R12 EN856 4SP
Performance (-8 thru -16)
Complies with AS2660, test requirements
AS1180 10B and 13A (FRAS)

Construction: Synthetic rubber tube, 4 spiral wire reinforcement and DURA-TUFF synthetic rubber cover. Yellow layline.

Application: Hydraulic system service with petroleum and water-glycol base fluids, for general industrial service.

Operating Temperature Range: -40°C. to +127°C

TTC12 CRIMP FITTINGS

Triple Crown Advantage

Part Number	GH493									
Dash Size	-6	-8	-10	-12	-16	-20	--24	-32		
Hose I.D. (inches)	0.38	0.50	0.63	0.75	1.00	1.25	1.50	2.00		
Hose O.D (inches)	0.79	0.92	1.11	1.20	1.48	1.83	2.12	2.64		
Maximum Operating Pressure (psi)	6500	6000	6000	5500	5100	4500	4000	4000		
Minimum Burst Pressure (psi)	26000	24000	24000	22000	20400	18000	16000	16000		
Minimum Bend Radius (inches)	2.50*	3.50*	4.00*	4.75*	6.00*	8.25*	10.00*	12.50*		
Vacuum Service (in./Hg)										
Weight (kg/m)	0.70	0.88	1.03	1.37	1.82	2.45	3.13	4.19		
Protective Coil Spring. 900564	-15S	-3S	-4S	-5S	-6S	-9S	-8S	-10S		
Nylon Abrasion Sleeve. FC425	-16	-20	-20	-24	-28	-32	-38	-46		

* 1/2 SAE bend radius with TTC12 fittings.

FC736 BRUISER ™ OOOO R12

Four heavy spiral wire EN856 Type R12
SAE 100R12

Construction: Synthetic rubber tube, 4 spiral wire reinforcement and synthetic intermediate rubber cover and BRUISER outer cover.

Application: High abrasion situations. Hydraulic system service with petroleum and water base fluids, for general industrial service.

Operating Temperature Range: -40°C. to +121°C

TTC12 CRIMP FITTINGS

Part Number	FC736									
Dash Size	-6	-8	-10	-12	-16	-20	-24	-32		
Hose I.D. (inches)	0.38	0.50	0.62	0.75	1.00	1.25	1.50	2.00		
Hose O.D. (inches)	0.79	0.92	1.11	1.20	1.48	1.83	2.17	2.69		
Maximum Operating Pressure (psi)	*5500	*5000	*5000	4000	4000	3000	2500	2500		
Minimum Burst Pressure (psi)	*22000	*20000	*20000	16000	16000	12000	10000	10000		
Minimum Bend Radius (inches)	5.00	7.00	9.50	9.50	12.00	16.50	20.00	25.00		
Vaccum Service (in/Hg)										
Weight (kg/m)	0.70	0.88	1.19	1.37	1.82	2.45	2.01	2.94		
Protective Coil Spring. 900564	-14S	-4S	-5S	-6S	-7S	-8S	-8S	-10S		
Nylon Abrasive Sleeve. FC425	-15	-18	-20	-24	-24	-32	-38	-46		

*4,000 psi working pressure and 16,000 psi burst with TTC12 fittings.

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Hose

GH355 / GH506 WATERBLAST

Four heavy spiral wire

Construction: Synthetic rubber tube, 4 spiral wire reinforcement and synthetic rubber cover.

Operating Temperature Range: GH506 -40°C. to +100°C
GH355 -40°C. to +70°C

Application very high pressure waterblast

INTERNAL / EXTERNAL SKIVE ONLY
Contact Eaton

Part Number	GH355		GH506							
Dash Size	-8		-12							
Hose I.D. (inches)	0.50		0.75							
Hose O.D (inches)	0.98		1.26							
Maximum Operating Pressure (psi)	14500		11600							
Minimum Burst Pressure (psi)	36250		29000							
Minimum Bend Radius (inches)	8.00		11.00							
Vacuum Service (in./Hg)										
Weight (kg/m)	1.21		1.61							
Protective Coil Spring. 900564	-4S		-6S							
Nylon Abrasion Sleeve. FC425	-20		-24							

GH506 4SH

Four heavy spiral wire
EN856 4SH
Complies with AS2660, test requirements
AS1180 10B and 13A (FRAS)

Construction: Synthetic rubber tube, 4 spiral wire reinforcement and synthetic rubber cover.

Operating Temperature Range: -40°C. to +100°C

Application: High pressure hydraulic system service with petroleum, water glycol base fluids and general industrial service.

TTC SPIRAL

Part Number		GH506								
Dash Size	-12	-16	-20	-24	-32					
Hose I.D. (inches)	0.75	1.00	1.25	1.50	2.00					
Hose O.D (inches)	1.27	1.51	1.79	2.10	2.68					
Maximum Operating Pressure (psi)	6090	5510	5075	4350	3625					
Minimum Burst Pressure (psi)	24360	22040	20300	17400	14500					
Minimum Bend Radius (inches)	11.00	13.38	18.10	22.00	27.55					
Vacuum Service (in./Hg)										
Weight (kg/m)	0.65	2.25	2.50	3.90	4.80					
Protective Coil Spring. 900564	-6S	-7S	-9S	-10S	-11S					
Nylon Abrasion Sleeve. FC425	-24	-28	-32	-38	-46					

EATON
Powering Business Worldwide

Hose

FC273 / FC 273B (BRUISER) — SAE100R13

Four or six spiral wire EN856 Type R13
SAE 100R13 1SO 3862 Type R13
Complies with AS2660, test requirements
AS1180 10B and 13A (FRAS)

Construction: Synthetic rubber tube, multiple heavy spiral wire (6 plies for -20,-24 and -32) Black synthetic rubber cover.

Application: High pressure hydraulic systems. For petroleum and water base fluids and general industrial service.

Operating Temperature Range: -40°C. to +121°C

TTC SPIRAL

Part Number	FC273 / FC273B									
Dash Size	-12	-16	-20	-24	-32					
Hose I.D. (inches)	0.75	1.00	1.25	1.50	2.00					
Hose O.D (inches)	1.26	1.52	1.96	2.26	2.80					
Maximum Operating Pressure (psi)	5000	5000	5000	5000	5000					
Minimum Burst Pressure (psi)	20000	20000	20000	20000	20000					
Minimum Bend Radius (inches)	9.50	12.00	16.50	20.00	25.00					
Vacuum Service (in./Hg)										
Weight (kg/m)	1.61	2.10	3.77	4.99	7.45					
Protective Coil Spring. 900564	-6S	-7S	-8S	-10S	-11S					
Nylon Abrasion Sleeve. FC425	-24	-28	-38	-40	-54					

FC450 — CAT HOSE

Construction: Synthetic rubber tube, 4 spiral reinforcement and gray synthetic rubber cover.

Application: Hydraulic system service with petroleum and water base fluids, for general industrial service.

Operating Temperature Range: -40°C. to +121°C

ONLY FOR USE WITH CAT CRIMP OR REUSABLE FITTINGS

Part Number	FC450									
Dash Size	-6	-8	-12	-16	-20	-24	-32			
Hose I.D. (inches)	0.38	0.50	0.75	1.00	1.25	1.50	2.00			
Hose O.D (inches)	0.81	0.94	1.21	1.50	1.85	2.10	2.63			
Maximum Operating Pressure (psi)	4000	4000	4000	4000	3000	2500	2500			
Minimum Burst Pressure (psi)	16000	16000	16000	16000	12000	10000	10000			
Minimum Bend Radius (inches)	5.00	7.00	9.50	12.00	16.50	20.00	25.00			
Vacuum Service (in./Hg)										
Weight (kg/m)	0.70	0.88	1.37	1.82	2.45	3.13	4.19			
Protective Coil Spring. 900564	-3S	-4S	-6S	-7S	-8S	-10S	-13S			
Nylon Abrasion Sleeve. FC425	-16	-18	-24	-28	-32	-40	-46			

EATON
Powering Business Worldwide

Hose

GH466 — 6SP/R15

Six heavy spiral wire
EN856 6SP / R15

Construction: Synthetic rubber tube, 6 spiral reinforcement and synthetic rubber cover.

Application: Hydraulic system service with petroleum and water base fluids, for general industrial service.

Operating Temperature Range: −40°C. to +100°C

TTC SPIRAL INTERNAL SKIVE
Contact Eaton

Part Number	GH466									
Dash Size	-20	-24	-32							
Hose I.D. (inches)	1.25	1.50	2.00							
Hose O.D (inches)	1.94	2.26	2.82							
Maximum Operating Pressure (psi)	5510 6090*	5510 6090*	6090*							
Minimum Burst Pressure (psi)	22040 24000*	22040 24000*	24000*							
Minimum Bend Radius (inches)	16.50	20.08	24.80							
Vacuum Service (in./Hg)										
Weight (kg/m)	3.48	4.63	6.70							
Protective Coil Spring. 900564	-8S	-10S	-11S							
Nylon Abrasion Sleeve. FC425	-38	-40	-54							

* Pressure with internal/external skive fittings

FC659 — R12

Four spiral wire
Exceeds SAE 100R12
EN856 Type R12

Construction: Synthetic rubber tube, 4 heavy spiral wire reinforcement, synthetic rubber cover.

Application: Hydraulic system service with petroleum and water base fluids, for general industrial use.

Operating Temperature Range: -40C to +121C

TTC12 CRIMP FITTINGS

Part Number	FC659									
Dash Size	-06	-08	-10	-12	-16	-20	-24	-32		
Hose I.D. (inches)	0.38	0.50	0.63	0.75	1.00	1.25	1.50	2.00		
Hose O.D (inches)	0.80	0.93	1.08	1.21	1.49	1.84	2.12	2.63		
Maximum Operating Pressure (psi)	4000	4000	4000	4000	4000	3000	2500	2500		
Minimum Burst Pressure (psi)	16000	16000	16000	16000	16000	12000	10000	10000		
Minimum Bend Radius (inches)	2.50*	3.50*	4.75*	4.75*	6.00*	8.25*	10.00*	12.50*		
Vacuum Service (in./Hg)										
Weight (kg/m)	0.70	0.85	1.04	1.34	1.80	2.40	3.07	4.43		
Protective Coil Spring. 900564	-3S	-4S	-4S	-6S	-7S	-8S	-10S	-13S		
Nylon Abrasion Sleeve. FC425	-16	-18	-20	-24	-28	-32	-40	-46		

** 1/2 SAE bend radius*

Powering Business Worldwide

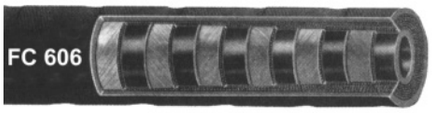
Hose

FC606 / FC 606B (BRUISER) SAE100R15

Six spiral wire
SAE 100R15

Construction: Synthetic rubber tube, 6 spiral wire reinforcement, synthetic rubber cover.

Operating Temperature Range: -40°C. to +121°C



Application: High pressure hydraulics, hydrostatic transmissions.

TTC SPIRAL
INTERNAL SKIVE CRIMP
Contact Eaton

Part Number	FC606									
Dash Size	-16	-20	-24							
Hose I.D. (inches)	1.00	1.25	1.50							
Hose O.D. (inches)	1.65	1.95	2.30							
Maximum Operating Pressure (psi)	6000	6000	6000							
Minimum Burst Pressure (psi)	24000	24000	24000							
Minimum Bend Radius (inches)	12.00	16.50	20.00							
Vaccum Service (in/Hg)										
Weight (kg/m)	2.67	3.62	4.72							
Protective Coil Spring. 900564	-9S	-8S	-10S							
Nylon Abrasive Sleeve. FC425	-32	-38	-40							

FC350 AQP FMVSS106

Engine & air brake

FMVSS106

Construction: AQP elastomer tube, polyester inner braid, single wire braid reinforcement and black polyester braid cover.

Application: Hydraulics, fuel and lubricating oils, air and water.

Operating Temperature Range: -49°C. to +150°C,
Except : air +121°C
water + 82C

SAE100R5
REUSABLE FITTINGS
CRIMP: CONTACT EATON

Part Number	**FC350**									
Dash Size	**-04**	**-05**	**-06**	**-08**	**-10**	**-12**	**-16**	**-20**	**-24**	
Hose I.D. (inches)	0.19	0.25	0.31	0.41	0.50	0.63	0.88	1.12	1.38	
Hose O.D (inches)	0.52	0.58	0.68	0.77	0.94	1.08	1.23	1.50	1.75	
Maximum Operating Pressure (psi)	2000	1500	1500	1250	1250	750	400	300	250	
Minimum Burst Pressure (psi)	8000	6000	6000	5000	5000	3000	1600	1200	1000	
Minimum Bend Radius (inches)	0.75	1.00	1.25	1.75	2.25	2.75	3.50	4.50	5.50	
Vacuum Service (in./Hg)	28	28	28	28	28	20	15	15	11	
Weight (kg/m)	0.22	0.34	0.35	0.43	0.59	0.68	0.74	0.87	1.02	

EATON
Powering Business Worldwide

Hose

FC300 AQP — SAE100R5

Single wire braid
Exceeds SAE100R5
AQP Elastomer

Construction: AQP elastomer tube, polyester inner braid, single wire braid reinforcement and blue polyester braid cover.

Application: Hydraulics handling petroleum base fluids and air, diesel and lubricating oils, fire resistant hydraulic fluids and other industrial fluids.

Operating Temperature Range: -49°C. to +150°C
Except : air +121 C

SAE100R5
REUSABLE FITTINGS

CRIMP: CONTACT EATON

Part Number	FC300											
Dash Size	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32**	-40	
Hose I.D. (inches)	0.19	0.25	0.31	0.41	0.50	0.63	0.88	1.12	1.38	1.81	2.38	
Hose O.D (inches)	0.52	0.58	0.67	0.76	0.93	1.08	1.27	1.50	1.75	2.22	2.88	
Maximum Operating Pressure (psi)	3000	3000	2250	2000	1750	1500	800	625	500	300	300	
Minimum Burst Pressure (psi)	12000	12000	9000	8000	7000	6000	3200	2500	2000	1200	1200	
Minimum Bend Radius (inches)	3.00	3.38	4.00	4.62	5.50	6.50	7.38	9.00	10.50	13.25	24.00	
Vacuum Service (in./Hg)	28	28	28	28	28	28	*20	*20	*15	*11	*8	
Weight (kg/m)	0.19	0.24	0.34	0.39	0.55	0.69	0.66	0.78	1.00	1.40	2.23	
Fire Sleeve. 624	-11	-12	-14	-16	-18	-20	-24	-28	-32	-38	-50	

1503 — SAE100R5

SAE100R5

Construction: Synthetic rubber tube, textile inner braid, single wire braid reinforcement and synthetic rubber impregnated textile braid cover.

Application: For hydraulics.air,fuel and lubricating oils.

Operating Temperature Range: −40C to +121C
Except air +71°C

SAE100R5
REUSABLE FITTINGS
CRIMP: CONTACT EATON

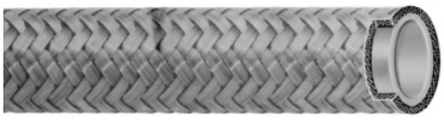
Part Number	1503											
Dash Size	-4	-5	-6	-8	-10	-12	-16	-20	-24	-32	-40	
Hose I.D. (inches)	0.19	0.25	0.31	0.41	0.50	0.63	0.88	1.12	1.38	1.81	2.38	
Hose O.D (inches)	0.52	0.58	0.68	0.77	0.92	1.08	1.23	1.50	1.75	2.23	2.88	
Maximum Operating Pressure (psi)	3000	3000	2250	2000	1750	1500	800	625	500	350	350	
Minimum Burst Pressure (psi)	12000	12000	9000	8000	7000	6000	3200	2500	2000	1400	1400	
Minimum Bend Radius (inches)	3.00	3.38	4.00	4.62	5.50	6.50	7.38	9.00	10.50	13.25	24.00	
Vacuum Service (in./Hg)	28	28	28	28	28	28	20	20	15	11	11	
Weight (kg/m)	0.19	0.24	0.34	0.39	0.55	0.68	0.68	0.77	1.00	1.28	1.43	

2807 TEFLON SAE100R14A

Teflon / Stainless Steel
SAE100R14A

Construction: Extruded Teflon tube with stainless steel single wire braid reinforcement.

Operating Temperature Range: −73°C. to +260°C



Application: Hot air, compressor discharge and most chemical applications. Not recommended for steam−cold water cycling.

REUSABLE FITTINGS
CRIMP FITTINGS CONTACT EATON

Part Number	2807									
Dash Size	−3	−4	−5	−6	−8	−10	−12	−16	−20	
Hose I.D. (inches)	0.14	0.19	0.26	0.32	0.42	0.51	0.64	0.88	1.12	
Hose O.D (inches)	0.25	0.30	0.37	0.43	0.54	0.63	0.76	1.03	1.29	
**Maximum Operating Pressure (psi)	3000	3000	3000	2500	2000	1500	1200	1000	625	
Minimum Burst Pressure (psi)	12000	12000	12000	10000	8000	6000	4800	4000	2500	
Minimum Bend Radius (inches)	1.50	2.00	3.00	4.00	5.25	6.50	7.75	9.00	16.00	
Vacuum Service (in./Hg)	28	28	28	*28	*28	*28	*28	*12	*12	
Weight (kg/m)	0.06	0.09	0.12	0.15	0.18	0.24	0.27	0.39	0.51	

** Maximum negative pressure for -16 and larger are suitable for hose which has suffered no external damage or kinking. If greater negative pressures are required for -16 and larger hoses, the use of an internal support coil is recommended. Use of an internal support coil in -06 and larger PTFE hose is recommended for tube support where extended or continuous service at high temperature together with low or negative pressure is expected.*

*** Steam 200 psi at +300 ° F max. Engineering information is available for specific critical temperature requirements. Contact Aeroquip.*

FC332 AQP TEXTILE

Construction: AQP elastomer tube, textile braid reinforcement, AQP elastomer cover.

Operating Temperature Range: -40°C. to +150°C
Except air +121°C, water +82°C

Application: Diesel and lubricating oils, air and water. Not recommended for impulsing applications.

SOCKETLESS FITTINGS

Part Number	FC332									
Dash Size	-04	-06	-08	-10	-12					
Hose I.D. (inches)	0.25	0.38	0.50	0.63	0.75					
Hose O.D (inches)	0.49	0.63	0.75	0.91	1.04					
Maximum Operating Pressure (psi)	300	300	300	300	300					
Minimum Burst Pressure (psi)	1200	1200	1200	1200	1200					
Minimum Bend Radius (inches)	3.00	3.00	5.00	6.00	7.00					
Vacuum Service (in./Hg)	28	28	28	18	18					
Weight (kg/m)	0.12	0.18	0.22	0.30	0.42					

EATON
Powering Business Worldwide

Hose

FC 598 BLACK COVER AQP TEXTILE

Construction: AQP elastomer tube, textile braid reinforcement, black AQP elastomer cover.

Application: low pressure return lines in hydraulic systems

Operating Temperature
Range:-40°C to +150°C
Except air: +121°C
Except water: +82°C

SOCKETLESS FITTINGS

Part Number	FC598									
Dash Size	-4	-6	-8	-10	-12					
Hose I.D. (inches)	0.25	0.38	0.50	0.63	0.70					
Hose O.D. (inches)	0.50	0.62	0.75	0.91	1.03					
Maximum Operating Pressure (psi)	250	250	250	250	250					
Minimum Burst Pressure (psi)	1000	1000	1000	1000	1000					
Minimum Bend Radius (inches)	2.50	3.00	4.00	5.00	6.00					
Vaccum Service (in/Hg)	28	28	28	18	18					
Weight (kg/m)	0.12	0.19	0.22	0.30	0.42					

FC619 SUCTION / TRANSFER SAE100R4

Wire inserted suction
SAE100R4
Flexible 1/2 SAE Bend Radius

Construction : Synthetic rubber tube, reinforcement consisting of a helical wire between two textile braids and a synthetic rubber cover.

Appilcatios: Suction and transfer applications for petroleum fluids, fuel, lubricating oils, gasoline, water and many other industrial fluids.

Operating Temperature
Range: -40°C to +135°C

TTC CRIMP FITTINGS (-12 TO -32)
CRIMP FITTINGS (-40 TO -48)
Contact Eaton

Part Number	FC619									
Dash Size	-12	-16	-20	-24	-32	-40	-48			
Hose I.D. (inches)	0.75	1.00	1.25	1.50	2.00	2.50	3.00			
Hose O.D. (inches)	1.21	1.48	1.75	2.04	2.55	3.12	3,75			
Maximum Operating Pressure (psi)	*300	*250	*200	*150	*100	62	62			
Minimum Burst Pressure (psi)	1200	1000	800	600	400	250	225			
Minimum Bend Radius (inches)	2.50	3.00	4.00	5.00	6.00	18.00	18.00			
Vaccum Service (in/Hg)	28	28	28	28	28	28	28			
Weight (kg/m)	0.69	0.83	1.16	1.49	1.83	2.35	3.36			

*Maximum working pressure for band clamp type fittings is 50psi

EATON
Powering Business Worldwide

Hose

GH134 / FC 505 — SAE J2064 Type E Class 1

Multi - Refrigerant Hose

Construction: Nylon veneer tube, stabilized synthetic braided reinforcement and chlorobutyl rubber cover.

Operating Temperature Range: -40°C. to +125°C

Application: Transportation refrigeration and air conditioning systems using R-134a, R12, R22, R404 and R407.

E-Z CLIP FITTINGS
CRIMP FITTINGS CONTACT EATON

Part Number	GH 134							FC505		
Dash Size	-6	-8	-10	-12	-16			-4		
Hose I.D. (inches)	0.31	0.41	0.50	0.63	0.88			0.20		
Hose O.D. (inches)	0.58	0.70	0.78	0.98	1.23			0.44		
Maximum Operating Pressure (psi)	500	500	500	500	500			500		
Minimum Burst Pressure (psi)	2500	2500	2500	2500	2500			2500		
Minimum Bend Radius (inches)	2.00	2.50	3.00	4.00	7.00			1.50		
Vaccum Service (in/Hg)										
Weight (kg/m)	0.13	0.16	0.22	0.27	0.33			0.10		

SC-GTW — AS1869 Class D

Conforms to AS1869 Class D
AGA approval No. 7576

Construction: Conductive teflon tube single stainless steel wire braid and a fire retardent black and blue around polyester cover

Operating Temperature Range: -20°C to +125°C

Application: Designed for butane and propane, natural & town gas, applications on either mobile or stationary equipment.

CRIMP FITTINGS
Contact Eaton

Part Number	SC-GTW							
Dash Size			SC-6 GTW	SC -10 GTW				
Hose I.D. (inches)			0.31	0.50				
Hose O.D. (inches)			0.54	0.75				
Maximum Operating Pressure (psi)			377	377				
Minimum Operating Pressure (psi)			1508	1508				
Minimum Burst Pressure (psi)			4.0	6.5				
Vacuum Service (in/Hg)								
Weight (kg/m)			0.18	0.27				
Protective Coil Spring 900564								
Nylon Abrasive Sleeve FC425								

FC693 EPDM HOSE

Specifically designed for use with Skydrol LD4, Skydrol 500B Hyjet IVA Plus

Construction: Synthetic EPDM tube, two wire braid reinforcement and green EPDM cover.

Application: Hydraulic systems using phosphate ester or water glycol fluids. Specifically designed for use on aviation ground support equipment.

Operating Temperature Range: -40°C. to +75°C

TTC CRIMP FITTINGS

Part Number	FC693									
Dash Size	-04	-06	-08							
Hose I.D. (inches)	0.25	0.38	0.50							
Hose O.D (inches)	0.60	0.75	0.87							
Maximum Operating Pressure (psi)	5000	4000	3500							
Minimum Burst Pressure (psi)	20000	16000	14000							
Minimum Bend Radius (inches)	4.00	5.00	7.00							
Vacuum Service (in./Hg)										
Weight (kg/m)	0.37	0.54	0.60							

FC636 EPDM HOSE

Specifically designed for use with Skydrol LD4, Skydrol 500B Hyjet IVA Plus

Construction: Synthetic EPDM tube, 4 spiral wire reinforcement and green EPDM cover.

Application: Hydraulic systems using phosphate ester or water glycol fluids. Specifically designed for use on aviation ground support equipment.

Operating Temperature Range: −40°C. to +75°C

TTC12 CRIMP FITTINGS

Part Number	FC636									
Dash Size	-12	-16	-20	-24						
Hose I.D. (inches)	0.75	1.00	1.25	1.50						
Hose O.D (inches)	1.20	1.48	1.83	2.12						
Maximum Operating Pressure (psi)	4000	4000	3000	2500						
Minimum Burst Pressure (psi)	16000	16000	12000	10000						
Minimum Bend Radius (inches)	9.50	12.00	16.50	20.00						
Vacuum Service (in./Hg)										
Weight (kg/m)	1.31	1.74	2.31	2.92						
Protective Coil Spring. 900564	-6S	-7S	-8S	-10S						
Nylon Abrasion Sleeve. FC425	-24	-28	-32	-38						

EATON
Powering Business Worldwide

Hose

FC234 AQP — MARINE HOSE

Fuel and oil
Fire resistant US COAST GUARD, DNV AND AMERICAN BUREAU OF SHIPPING.

Construction: AQP elastomer tube, brass plated steel wire reinforcement, braided refactory insulation and blue AQP elastomer cover.

Application: Diesel fuel, gasoline, hot lube oil and water.

Operating Temperature Range: -40°C. to +150°C
Except : air +121C

SAE100R5 REUSABLE FITTINGS
CRIMP FITTINGS: CONTACT EATON

Part Number	FC234									
Dash Size	-05	-06	-08	-10	-12	-16				
Hose I.D. (inches)	0.25	0.31	0.41	0.50	0.63	0.88				
Hose O.D (inches)	0.58	0.68	0.76	0.94	1.08	1.24				
Maximum Operating Pressure (psi)	1500	1500	1250	1250	750	400				
Minimum Burst Pressure (psi)	6000	6000	5000	5000	3000	1600				
Minimum Bend Radius (inches)	1.00	1.25	1.75	2.25	2.75	3.50				
Vacuum Service (in./Hg)	28	28	28	28	20	16				
Weight (kg/m)	0.33	0.37	0.45	0.67	0.72	0.76				

FC414 — PRESSURE WASHER HOSE

Pressure washer hose

Construction: Synthetic rubber tube, 1 wire braid reinforcement synthetic rubber cover

Application: Pressure washer applications

Operating Temperature Range: -40°C to +121°C
Intermittent peak temp. +135°C

TTC CRIMP FITTINGS

Part Number	FC 414									
Dash Size	-06									
Hose I.D. (inches)	0.38									
Hose O.D. (inches)	0.68									
Maximum Operating Pressure (psi)	3000									
Minimum Burst Pressure (psi)	12000									
Minimum Bend Radius (inches)	5.00									
Vaccum Service (in/Hg)										
Weight (kg/m)	0.31									
Protective Coil Spring. 900564	-2S									
Nylon Abrasive Sleeve. FC425	-15									

EATON
Powering Business Worldwide

Hose

FC695 HIGH PRESSURE AIR HOSE

High Pressure Air Hose

Construction: AQP elastomer tube, 2 wire braid reinforcement, textile braid and perforated blue AQP elastomer cover to prevent blistering when used for pneumatic applications

Application: suitable for high temperature and pressure air

Operating Temperature
Range: -40ºC to +121ºC

TTC CRIMP FITTINGS

Part Number	FC 695									
Dash Size	-24	-32								
Hose I.D. (inches)	1. 50	2.00								
Hose O.D. (inches)	2.20	2.70								
Maximum Operating Pressure (psi)	1750	1500								
Minimum Burst Pressure (psi)	7000	6000								
Minimum Bend Radius (inches)	19.68	25.00								
Vaccum Service (in/Hg)										
Weight (kg/m)	2.59	3.40								
Protective Coil Spring. 900564	-10S	-13S								
Nylon Abrasive Sleeve. FC425	-38	-46								

FC 579 10,000PSI JACK HOSE

Jacking Hose
Meets the performance requirements of the material handling institute spec.
IJ100

Construction: Synthetic rubber tube, double wire braid reinforcement and synthetic rubber cover.

Application: Hydraulic jacking system service with petroleum and water base fluid.

Operating Temperature
Range:-40°C to +100°C

TTC CRIMP FITTINGS

Part Number	FC 579									
Dash Size	-04	-06								
Hose I.D. (inches)	0.25	0.38								
Hose O.D. (inches)	0.53	0.69								
Maximum Operating Pressure (psi)	10,000	10,000								
Minimum Burst Pressure (psi)	20,000	20,000								
Minimum Bend Radius (inches)	2.00	2.50								
Vaccum Service (in/Hg)										
Weight (kg/m)	0.33	0.43								

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SYNFLEX

Medium Pressure Hose

3130 Medium Pressure Hose

Meets SAE 100R7 Specifications

PART NUMBER	NOMINAL I.D.		MAXIMUM O.D.		MINIMUM BEND RADIUS		MAXIMUM WORKING PRESSURE		MINIMUM BURST PRESSURE		WEIGHT LB	WEIGHT KG	SWAGE DIE	PERMANENT FITTING SERIES*
	in	mm	in	mm	in	mm	psi	bar	psi	bar	100ft	100m	Part No. 4540	Steel
3130-02**	1/8	3.2	.335	8.5	1/2	13	2,500	172	10,000	689	2.6	3.7	302	903
3130-03	3/16	4.8	.427	10.8	3/4	19	3,000	207	12,000	827	4.5	6.8	303	903
3130-04	1/4	6.4	.510	13.0	1-1/4	32	3,000	207	12,000	827	6.1	8.5	304	903
3130-05	5/16	7.9	.594	15.1	1-3/4	44	2,500	172	10,000	689	7.5	10.3	305	903
3130-06	3/8	9.5	.669	17.0	2	51	2,250	155	9,000	620	8.4	14.1	306	903
3130-08	1/2	12.7	.816	20.7	3	76	2,000	138	8,000	552	11.4	21.0	308	903
3130-12	3/4	19.1	1.067	27.1	5	127	1,250	86	5,000	345	17.6	28.7	312	903
3130-16	1	25.4	1.340	34.0	8	203	1,000	69	4,000	276	31.1	39.3	316	903*

** SAE 100R7 does not apply to 1/8" size. The nylon core tube is a single wall and not bonded to the reinforcement.

Features
- Long continuous lengths
- Low elongation
- Best value 100R7 hose

Applications
- General hydraulics
- Material handling
- Forklift
- High pressure gas transfer
- Chemical transfer

Construction
- Black perforated polyurethane Cover
- Spiraled or braided synthetic fiber reinforcement
- Nylon-lined core tube

Temperature Range
- -40°F to 212°F (-40°C to 100° C) or to 150°F (66°C), with water-based or fire-resistant fluids

Powering Business Worldwide

SYNFLEX

Medium Pressure Hose

37AL Non-Conductive Medium Pressure Hose

Complies With ANSI A92.2 for Vehicle Mounted Aerial Devices
Meets SAE 100R7 Non-Conductive Requirements

PART NUMBER	NOMINAL I.D.		MAXIMUM O.D.		MINIMUM BEND RADIUS		MAXIMUM WORKING PRESSURE		MINIMUM BURST PRESSURE		WEIGHT LB	KG	SWAGE DIE	PERMANENT FITTING SERIES*
	in	mm	in	mm	in	mm	psi	bar	psi	bar	100ft	100m	Part No. 4540	Steel
37AL-03	3/16	4.8	.425	10.8	3/4	19	3,000	207	12,000	827	4.8	7.1	303	903
37AL-04	1/4	6.4	.485	12.3	1-1/4	32	3,000	207	11,000	759	6.0	8.9	3W4	903
37AL-05	5/16	7.9	.580	14.7	1-3/4	44	3,000	207	10,000	689	7.5	11.2	305	903
37AL-06	3/8	9.5	.635	16.1	2	51	3,000	207	9,000	620	9.5	14.1	306	903
37AL-08	1/2	12.7	.815	20.7	3	76	3,000	207	9,000	620	14.3	21.3	308	903

Features

- SAE J517 non-conductive hose construction
- Less than 50 micro-amperes leakage when subjected to 75,000 volts/ft for 5 minutes
- Flexible in low temperatures
- Abrasion resistant cover
- UV resistant cover
- **Can use both permanently attached and reusable fittings**
- Long continuous lengths

Applications

- Electric utility truck Hydraulic systems
- Mobile equipment (picker, utility vehicles)

Construction

- Orange non-perforated non-stick polyurethane cover
- Braided synthetic fiber reinforcement
- Polyester core tube

Temperature Range

- -65°F to 212°F (-54°C to 100°C) or to 140°F (60°C), with water-based or fire-resistant fluids

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SYNFLEX

3800 High Pressure Hose

Meets SAE 100R8 Specification

PART NUMBER	NOMINAL I.D.		MAXIMUM O.D.		MINIMUM BEND RADIUS		MAXIMUM WORKING PRESSURE		MINIMUM BURST PRESSURE		WEIGHT LB	KG	SWAGE DIE	PERMANENT FITTING SERIES*
	in	mm	in	mm	in	mm	psi	bar	psi	bar	100ft	100m	Part No. 4540	Steel
3800-02	1/8	3.2	.335	8.5	13/16	20	6,000	552	24,000	1,655	3.2	4.8	302	98E
3800-03	3/16	4.8	.432	11.0	1-1/2	38	5,000	460	20,000	1,379	5.6	8.3	303	903
3800-04	1/4	6.4	.532	13.5	2	51	5,000	460	20,000	1,379	7.9	11.8	304	903
3800-06	3/8	9.5	.667	16.9	2-1/2	64	4,000	368	16,000	1,103	10.6	15.8	306	903
3800-08	1/2	12.7	.837	21.3	4	102	3,500	322	14,000	965	14.6	21.7	308	903

Features

- 100R8 hose performance with 100R7 hose dimensions – for fitting versatility
- Low volumetric expansion

Applications

- General hydraulics
- High pressure gas and chemical transfer
- Machine tools
- Mobile equipment
- Agricultural equipment
- Marine steering

Construction

- Black perforated polyurethane cover
- Braided high tensile aramid fiber reinforcement
- Nylon core tube

Temperature Range

- -40°F to 212° F (-40°C to 100°C) or to 150°F (66°C), with water-based or fire-resistant fluids

3840 Non-Conductive High Pressure Hose

Meets SAE 100R8 Specification

PART NUMBER	NOMINAL I.D.		MAXIMUM O.D.		MINIMUM BEND RADIUS		MAXIMUM WORKING PRESSURE		MINIMUM BURST PRESSURE		WEIGHT LB	KG	SWAGE DIE	PERMANENT FITTING SERIES*
	in	mm	in	mm	in	mm	psi	bar	psi	bar	100 ft	100 m	Part No. 4540	Steel
3840-03	3/16	4.8	.432	11.0	1-1/2	38	5,000	345	20,000	1,379	5.6	8.3	303	903
3840-04	1/4	6.4	.532	13.5	2	51	5,000	345	20,000	1,379	7.9	11.8	304	903
3840-06	3/8	9.5	.667	16.9	2-1/2	64	4,000	276	6,000	1,103	10.6	15.8	306	903
3840-08	1/2	12.7	.837	21.3	4	102	3,500	241	14,000	965	14.6	21.7	308	903

Features

- SAE J517 non-conductive hose construction. Less than 50 micro-amperes leakage when subjected to 246,000 volts/m for 5 minutes
- 100R8 hose performance with 100R7 hose dimensions for fitting versatility
- Low volumetric expansion
- UV resistant cover

Applications

- General hydraulic systems that may contact high voltage sources
- Aerial equipment
- Mobile machinery
- Rescue tools

Construction

- Non-conductive marking and color code
- Orange polyurethane non-perforated cover
- Braided high tensile aramid fiber reinforcement
- Nylon core tube

Temperature Range

- -40°F to 212°F (-40°C to 100°C) or to 150°F (66°C), with water-based or fire-resistant fluids

SYNFLEX

3V10 Very High Pressure Hose

PART NUMBER	NOMINAL I.D.		MAXIMUM O.D.		MINIMUM BEND RADIUS		MAXIMUM WORKING PRESSURE		MINIMUM BURST PRESSURE		WEIGHT LB	WEIGHT KG	SWAGE DIE	PERMANENT FITTING SERIES*
	in	mm	in	mm	in	mm	psi	bar	psi	bar	100ft	100m		
3V10-03	3/16	4.8	.520	13.2	1-1/2	38	10,000	919	40,000	2,758	8.1	12.1	Synflex 3V10 hose is available only as completed assemblies through the factory or Eaton Synflex authorized assemblers.	
3V10-04	1/4	6.4	.595	15.1	2-1/2	64	10,000	919	40,000	2,758	10.6	15.8		
3V10-06	3/8	9.5	.780	19.8	3	76	8,000	735	32,000	2,205	16.4	24.4		

Features
- Compact size
- Low elongation
- Designed for permanent high pressure fittings with hose guards
- Lightweight

Applications
- High pressure hydraulic tools
- Rescue equipment and tools
- High pressure test equipment

Construction
- Black perforated polyurethane cover
- Spiraled high tensile aramid fiber reinforcement
- Nylon-lined core tube

Temperature Range
- -40°F to 150° F (-40°C to 66°C)

3VE0 Non-Conductive Very High Pressure Hose

PART NUMBER	NOMINAL I.D.		MAXIMUM O.D.		MINIMUM BEND RADIUS		MAXIMUM WORKING PRESSURE		MINIMUM BURST PRESSURE		WEIGHT LB	WEIGHT KG	SWAGE DIE	PERMANENT FITTING SERIES*
	in	mm	in	mm	in	mm	psi	bar	psi	bar	100ft	100m		
3VE0-03	3/16	4.8	.520	13.2	1-1/2	38	10,000	919	40,000	2,758	8.1	12.1	Synflex 3VEO Hose is available only as completed assemblies through the factory or Eaton Synflex authorized assemblers.	
3VE0-04	1/4	6.4	.595	15.1	2-1/2	64	10,000	919	40,000	2,758	10.6	15.8		
3VE0-06	3/8	9.5	.780	19.8	3	76	8,000	735	32,000	2,205	16.4	24.4		

Features
- SAE J517 non-conductive hose construction. Less than 50 micro-amperes leakage when subjected to 75,000 volts/ft for 5 minutes
- Compact size
- Low elongation
- UV resistant cover
- Designed for permanent high pressure fittings with hose guards

Applications
- General hydraulic systems that may contact high voltage sources
- Rescue equipment and tools
- Mobile machinery
- Aerial equipment

Construction
- Non-conductive marking and color code
- Orange polyurethane non-perforated cover
- Spiraled high tensile aramid fiber reinforcement
- Nylon-lined core tube

Temperature Range
- -40°F to 150°F (-40°C to 66°C)

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SYNFLEX

3770 Twin-Line: 30CT Constant Pressure
Meets or Exceeds SAE 100R18 Specifications

PART NUMBER	NUMBER OF HOSE	NOMINAL I.D.	SYNFLEX HOSE SERIES	AVAILABLE LENGHTS
3770-20C33	2	1/4"	30CT-04	250
3770-20C43	2	5/16"	30CT-05	250
3770-20C53	2	3/8"	30CT-06	250
3770-20C63	2	1/2"	30CT-08	250

3770 Twin-Line: 3800 Medium Pressure Hose
Meets or Exceeds SAE 100R8 Specifications

PART NUMBER	NUMBER OF HOSE	NOMINAL I.D.	SYNFLEX HOSE SERIES	AVAILABLE LENGHTS
3770-28033	2	1/4"	3800-04	250
3770-28043	2	5/16"	3800-05	250
3770-28053	2	3/8"	3800-06	250
3770-28063	2	1/2"	3800-08	250

3770 Twin-Line: 37AL Non-Conductive Medium Pressure Hose
Complies with ANSI A92.2 for Vehicle-Mounted Aerial Devices
Meets or Exceeds SAE 100R18 Specifications

PART NUMBER	NUMBER OF HOSE	NOMINAL I.D.	SYNFLEX HOSE SERIES	AVAILABLE LENGHTS
3770-27A33	2	1/4"	38AL-04	250
3770-27A53	2	3/8"	38AL-06	250
3770-27A63	2	1/2"	38AL-08	250

3770 Twin-Line: 3840 Non-Conductive High Pressure Hose

PART NUMBER	NUMBER OF HOSE	NOMINAL I.D.	SYNFLEX HOSE SERIES	AVAILABLE LENGHTS
3770-28433	2	1/4"	3840-04	250
3770-28453	2	3/8"	3840-06	250
3770-28463	2	1/2"	3840-08	250

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Hose Fitting Index

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Hose Fitting Index

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How To Order

Global Crimp Sockets, Nipples and Fittings

Global Part Numbering System

Part numbers collapse to the shortest possible number of digits:
It is assumed that a global fitting has a straight configuration unless a code is added to designate otherwise.
e.g., 1SA8FJ8 has a straight configuration
1SA8FJA8 has a 45° elbow configuration
Dashes and unnecessary zeros are not used.
e.g., 1/4" is designated by "4" not "–4" or "04"
5/8" is designated by "10" not "–10"

Global Crimp Sockets

Complete socket number: **1S A 8**
Global 2-piece part number
Wire braid construction
A = Single wire braid
B = Double wire braid
Hose size*

Global Material Designation

Global crimp nipples, sockets and fittings standard material is zinc plated carbon steel. Items so designated in catalog are available in stainless steel.

Crimp fittings

Fittings are ordered as complete assemblies or as component parts.
Complete fitting number: **FJ9896– 20 20 S**
Basic part number
Pipe or port size
Mating hose size
Material designation suffix

Crimp socket

Complete socket number: **FC2717– 20 S**
Basic part number
Socket hose size
Material designation suffix

Crimp nipple

Complete nipple number: **FC2710– 20 20 S**
Basic part number
Socket or port size
Socket hose size
Material designation suffix

Reusable fittings

Fittings are ordered as complete assemblies.
Complete number: **412– 8 10 S**
Basic part number
Pipe or port size (in 16ths of an inch)
Mating hose size
Material designation suffix

Global Crimp Nipples/Fittings

Complete nipple part number: **1S A 8 FJ A 8**
Product group code
1S = Global 2-piece part number
1A = TTC fitting part number
1B = TTC12 fitting part number
1G = OTC Global fitting part number
1E = Spiral TTC fitting part number for four-spiral hose
1Z = Spiral TTC fitting part number for six-spiral hose
Material stock code
If material is round stock, then this position collapses.
A = inch hex stock
(metric hex, this position collapses)
For 1 1/4" Braided Hose Fittings:
P = 1-wire braid hose socket with no hex
R = 1-wire braid hose socket with inch hex
T = 2-wire braid hose socket with no hex
V = 2-wire braid hose socket with inch hex
End connection size*
End connection code
BF = BSP Female Swivel (1 hex)
BP = BSP Male Parallel
BT = BSP Male Tapered
CT = Cat Flange
DK = 24 Male (light duty)
DL = DKO Female Swivel (light duty)
DS = DKO Female Swivel (heavy duty)
EK = 24 Male (heavy duty)
FH = Flange Code 62
FJ = Female JIC Swivel
FL = Flange Code 61
FR = Female ORS
FS = Female SAE Swivel
JF = JIS Female Swivel
JM = BSP Female Swivel (2 hexes)
KF = Komatsu Female Swivel
KS = Komatsu Split Flange
MB = Male Boss O-Ring
MF = Male Inverted Flare
MJ = Male JIC
MP = Male Pipe
MR = Male ORS
PF = Female Pipe Swivel
PS = Pipe Swivel
Connecting end configuration code
If nipple has a straight configuration, then this position collapses.
A = 45°
B = 90°, standard or short drop
C = 90°, long drop
D = 22 1/2°
E = 67 1/2°
F = 30°
G = 60°
Hose size*
Material Designation
C = stainless steel, if fitting is zinc plated carbon steel (standard), this position collapses.

**When ordering sizes 3, 4, 5, 6 and 8 the part number requires only single digits.*

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Socket Data

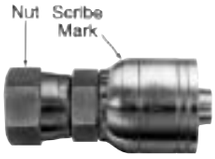
Crimp Socket data—Socket to hose correct combinations

Use of the correct Eaton socket with a given Aeroquip hose is essential for proper assembly and performance. Virtually all Eaton hose sockets are marked with the socket part number and dash size. Using this number, from the following table, the correct hose or hoses may be found and dash sizes matched, to assure the correct combination.

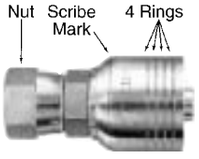
Global Non-Skive Socket Identification (TTC, TTC-20, and TTC12 Sockets)

Through-the Cover fitting sockets for one wire and two wire braid hose in all sizes except –20 have one and two rings plus a scribe mark and TTC–(size) stamped on the socket. In the –20 size there are two sockets, one for one wire braid hose with one ring on the socket and one for two wire braid hose with two rings on the socket plus a scribe mark. Both –20 sockets have TTC–20 stamped on the sockets. Through-the Cover fitting sockets for four spiral hose have four rings plus a scribe mark and TTC12–(size) stamped on the socket.

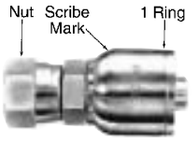
SCRIBE MARK: *For TTC and TTC12 Fittings, the scribe mark identifies crimp length indicator for assembly; See Document A-EQCR-TM001-E for details.*



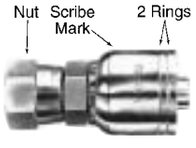
TTC-



TTC12-



TTC-20



TTC-20

Global Over the Cover Identification (OTC Sockets)

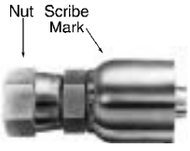
Over the cover global fitting sockets have 1G(size) and a scribe mark stamped on the socket.

Global Skive Socket Identification

1SA sockets are stamped 1SA(size) for one wire braid hose and 1SB sockets are stamped 1SB(size) for two wire braid hose. 1SA sockets have one ring and 1SB sockets have two rings grooved around the circumference of each socket.

Global Identification Marking

Global hose fittings are identified with the Eaton trademark and the hose size. In addition, global sockets are identified with the following:



1G

1SA

1SB

Identification Marking	Fitting Style	Hose/Socket Description
1 ring 1SA(size)	skive	One wire braid hose and skive type socket
2 rings 1SB(size)	skive	Two wire braid hose and skive type socket
2 rings 1 ring 1 scribe mark TTC–(size)	Thru-the-cover	One wire and two wire braid hose and TTC socket
4 rings 1 scribe mark TTC12–(size)	Spiral thru-the-cover	Four spiral wire hose and TTC12 socket
1 ring 1 scribe mark TTC–20	Thru-the-cover (–20 size only)	One wire braid –20 size hose and TTC socket
2 rings 1 scribe mark TTC–20	Thru-the-cover (–20 size only)	Two wire braid –20 size hose and TTC socket
1 scribe mark 1G (size)	Over the cover	Textile braid and suction hoses and OTC socket (SAE 100R3, R4 and R6 hose styles)

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Socket Data

Crimp sockets	Socket base part number	Aeroquip hose base part no.	Dash sizes
	1SA	2681	–03 to –32
		FC194	–04 to –20
		FC211	–04 to –16
		FC310	–04 to –20
		FC510	–04 to –20
		FC639/FC839B	–04 to –08
		GH194	–04 to –20
		GH663	–04 to –32
		GH681	–04 to –08
	1SB	2781	–4 to –32
		FC195	–04 to –32
		FC212	–04 to –32
		FC466	–04 to –12
		FC498/FC598	–04 to –12
		FC579	–04, – 06
		FC639/FC839B	–10 to –16
		FC735	–04 to –20
		FC849/FC849B	–06 to –12
		GH120	–04 to –20
		GH195	–04 to –32
		GH781	–04 to –20
		GH793	–04 to –32
	FC1410	FC136	–12, –16
		FC736	–12, –16
		FC323	–12, –16
		GH493	–12, –16
		FC324	–12, –16
	FW1097	FC699	–4 to –20

Crimp sockets	Socket base part number	Aeroquip hose base part no.	Dash sizes
	FC3471	FC136 GH493 FC736	–06 to –10
	FC1347	FC363	–08 to –32
		FC364	–08 to –32
	FC1601	FC606	–16, –20
	FC2540	FC136	–16 to –32
		FC736	–16 to –20
		FC254	–08, –16 to –32
		FC273	–16
		FC323	–16 to –32
		FC324	–16
		FC325	–16
	FC2717	FC254	–12
		FC273	–12, –20 to –32
		FC323	–12
		FC324	–12
		FC325	–12
	FC3023	2661	–40*, –48*
		FC619	–40*, –48*
	FC3443	2807 FC807 FC465	–05, –06, –10
	FC3596	2807 FC807 FC465	–03, –04, –08 –12, –16

* Contact Eaton for crimp assembly information.

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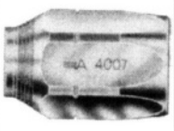
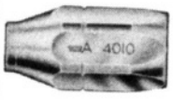
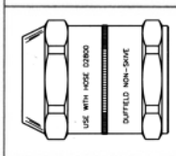
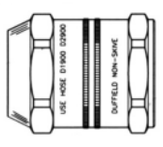
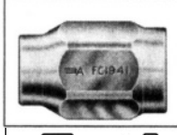
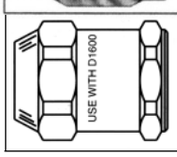
Reusable Socket Data—Socket to hose correction combinations

Use of the correct Aeroquip socket with a given Aeroquip hose is essential for proper assembly and performance. Virtually all Aeroquip hose sockets are marked with the socket part number and dash size. Using this number, from the table below, the correct hose or hoses may be found and dash sizes matched, to assure the correct combination.

Reusable sockets	Socket base part number	Aeroquip hose base part number	Dash sizes
	1206	2807, FC186, FC465	all
	1208	2808	all
	1210	303, 1503, 1540, 2580, 2651, FC234, FC300, FC321, FC350, FC355, FC558, FC802	–4 to –12
	1212	302A, 1503, 1540, 2580, 2651, FC234, FC300, FC321, FC350, FC355, FC558	–16 to –48
	1214	2550, 2554, 2555, 2570	all
	1219	1531, 1531A	all
	4007	FC136 GH493	–6, –12
	4010	1529	–4 to –12 –20 to –32
		2766	–4 to –12 –20 to –32
		2781	–4 to –12 –20 to –32
		FC195	–4 to –12 –20 to –32

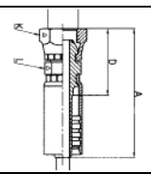
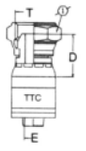
Reusable sockets	Socket base part number	Aeroquip hose base part number	Dash sizes
	4013	1529	–16
		2766	–16
		2781	–16
		FC136	–08, –16
		FC195	–16
		FC324	–08
		GH493	–8, –16
	FC2383	FC136 GH493	–20, –24
	RS1AT	GH663	all
	FC2642	FC310	all
		FC510	–04 to –16
	RS2AT	GH195 GH793	all
	FC1941	FC372, FC373	all
	RS16AT	GH781	-04 to -16

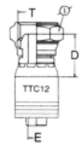
EATON
Powering Business Worldwide

Fittings

BF
BSP
Female Swivel

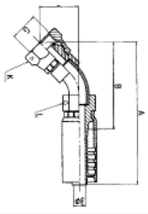
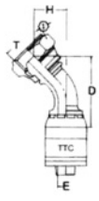
SYNFLEX	GLOBAL CRIMP FITTINGS		GLOBAL SPIRAL TTC	
ONE PIECE	TTC	TTC12	4 WIRE	6 WIRE
3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636	GH506 FC273-12 & -16	FC273-20 to -32 GH466-20 & -24 FC606-16 & -20

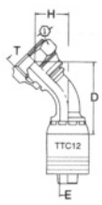



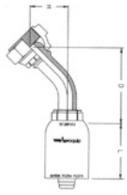



Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
1/4-19	-04	90304 - 04B000	1A4BF4	18.9						
3/8-19	-04	90304 - 06B000	1A6BF4	19.6						
1/4-19	-05									
3/8-19	-06	90306 - 06B000	1A6BF6	21.1	1B6BF6	21.1				
1/2-14	-06	90306 - 08B000	1A8BF6	22.6						
1/2-14	-08	90308 - 08B000	1A8BF8	23.8	1B8BF8	23.8				
5/8-14	-08		1A10BF8	24.5	1B10BF8	24.5				
1/2-14	-10		1A8BF10	24.0	1B8BF10	24.0				
5/8-14	-10		1A10BF10	24.7	1B10BF10	24.7				
3/4-14	-10		1A12BF10	24.9	1B12BF10	24.9				
3/4-14	-12	90312 - 12B000	1A12BF12	25.3	1B12BF12	25.3	1E12BF12	38.0		
1-11	-12						1E16BF12	36.7		
1-11	-16	90316 - 16B000	1A16BF16	27.6	1B16BF16	27.6	1E16BF16	41.9		
1 1/4-11	-16						1E20BF16	39.9		
1 1/4-11	-20		1AP20BF20*	29.6	1B20BF20	29.6	1E20BF20	45.9		
1 1/4-11	-20		1AT20BF20**	29.6						
1 1/2-11	-24		1A24BF24	33.7	1B24BF24	33.7	1E24BF24	75.5	1Z24BF24	75.5
2-11	-32		1A32BF32	35.2			1E32BF32	81.5	1Z32BF32	81.5
2 1/2-11	-40									

BFA
BSP
45 ^{0} Swept Bend
Female Swivel





Thread	Hose	Part No	Part No.	D	Part No.	D	Part No.	D	Part No.	D
1/4-19	-04	90304 - 04B040	1A4BFA4	39.0						
3/8-19	-06	90306 - 06B040	1A6BFA6	44.5	1B6BFA6	44.5				
1/2-14	-06		1A8BFA6	53.8						
1/2-14	-08	90308 - 08B040	1A8BFA8	46.9	1B8BFA8	46.9				
5/8-14	-10		1A10BFA10	59.0	1B10BFA10	59.0				
3/4-14	-12	90312 - 12B040	1A12BFA12	56.0	1B12BFA12	56.0	1E12BFA12	76.0		
1-11	-12						1E16BFA12	85.4		
1-11	-16	90316 - 16B040	1A16BFA16	62.3	1B16BFA16	62.3	1E16BFA16	90.6		
1 1/4-11	-16						1E20BFA16	101.9		
1 1/4-11	-20		1AP20BFA20*	76.5	1B20BFA20	76.5	1E20BFA20	107.9		
1 1/4-11	-20		1AT20BFA20**	76.5						
1 1/2-11	-24		1A24BFA24	83.5	1B24BFA24	83.5	1E24BFA24	130.2		
2-11	-32		1A32BFA32	118.0			1E32BFA32	164.8		

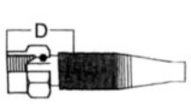
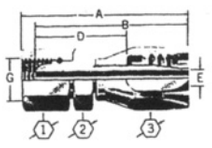
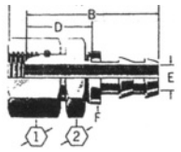
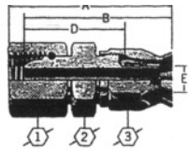
BFA * CL
BSP
45^0 Close
Female Swivel

BF

BSP
Female Swivel

REUSABLE

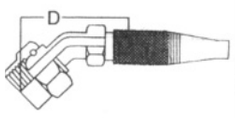
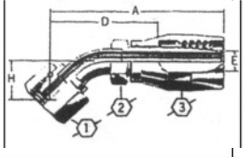
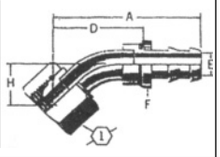
1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC234 1503 FC234	FC332 FC662	2807

Thread	Hose	Part no.	D	Part no.	D	Part no.	D	Part no.	D
1/4-19	-04	DSR01-0404		07.421-4-4	29.0	07.390-4-4	10.4	07.022-4-4	26.0
3.8-19	-04								
1/4-19	-05			07.421-4-5				07.022-4-5	26.0
3/8-19	-06	DSR01-0606		07.421-6-6	31.0	07.390-6-6	10.4	07.022-4-5	26.0
1/2-14	-06	DSR01-0806		07.421-8-6	33.0				
1/2-14	-08	DSR01-0808		07.421-8-8	35.0	07.390-8-8	11.4	07.022-8-8	33.0
5/8-14	-08	DSR01-1008							
1/2-14	-10			07.421-8-10	35.0				
5/8-14	-10			07.421-10-10	35.0	07.390-10-10	12.5	07.022-10-10	37.0
3/4-14	-10	DSR01-1210							
3/4-14	-12	DSR01-1212		07421-12-12	38.0	07.390-12-12	13.0	07.022-12-12	42.0
1-11	-12	DSR01-1612							
1-11	-16	DSR01-1616		07.421-16-16	36.0			07.022-16-16	48.5
1-1/4-11	-16								
1-1/4-11	-20			07.421-20-20	37.0				
1 1/4-11	-20								
1 1/2-11	-24			07.421-24-24	42.0				
2-11	-32			07.421-32-32	43.0				
2 1/2	-40			07.421-40-40					

BFA

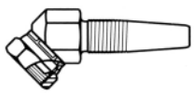
BSP
45° Swept Bend
Female Swivel

Thread	Hose	Part no.	D	Part no.	D	Part no.	D	Part no.	D
1/4-19	-04	DSR51-0404		07.045-4-4	37.0				
3.8-19	-06	DSR51-0606		07.045-6-6	44.0				
1/2-14	-06								
1/2-14	-08	DSR51-0808		07.045-8-8	46.0	07.422-8-8			
5/8-14	-10								
3/4-14	-12	DSR51-1212		07.045-12-12	65.0				
1-11	-12								
1-11	-16	DSR51-1616		07.045-16-16	85.0				
1-1/4-11	-16								
1-1/4-11	-20			07.045-20-20	67.0				
1-1/2-11	-24			07.045-24-24	75.0				
2-11	-32			07.045-32-32	84.0				

BFA * CL

BSP
45° Close
Female Swivel



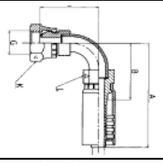
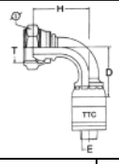
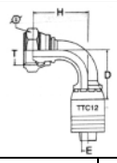
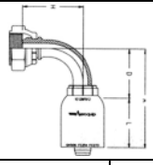
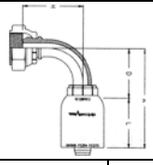
Thread	Hose	Part no.	D	Part no.	D	Part no.	D	Part no.	D
1/4-19	-04	DSR03-0404							
3.8-19	-06	DSR03-0606							
1/2-14	-06								
1/2-14	-08	DSR03-0808							
5/8-14	-10								

*Use with 1 wire hose **Use with 2 wire hose

EATON
Powering Business Worldwide

Fittings

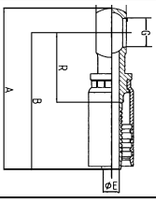
BFB
BSP Female
90 ° Swept Bend
Female Swivel

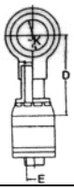
	SYNFLEX	GLOBAL CRIMP FITTINGS				GLOBAL SPIRAL TTC			
	ONE PIECE	TTC		TTC12		4 WIRE		6 WIRE	
	3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695		GH493 FC736 FC659 FC636		GH506 FC273-12 & -16		FC273-20 to -32 GH466-20 & -24 FC606-16 & -20	
									
Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
1/4-19	-04	90304 - 04B090	1A4BFB4	25.1						
3/8-19	-06	90306 - 06B090	1A6BFB6	34.5	1B6BFB6	34.5				
1/2-14	-06		1A8BFB6	34.0						
1/2-14	-08	90308 - 08B090	1A8BFB8	39.0	1B8BFB8	39.0				
5/8-14	-08		1A10BFB8	53.5						
3/4-14	-08		1A12BFB8	63.5						
5/8-14	-10		1A10BFB10	53.5	1B10BFB10	53.5				
3/4-14	-12	90312 - 12B090	1A12BFB12	56.0	1B12BFB12	56.0	1E12BFB12	69.5		
1-11	-12						1E16BFB12	80.6		
1-11	-16	90316 - 16B090	1A16BFB16	58.6	1B16BFB16	58.6	1E16BFB16	85.8		
1 1/4-11	-16						1E20BFB16	98.7		
1 1/4-11	-20		1AP20BFB20*	73.0	1B20BFB20	73.0	1E20BFB20	104.7		
1 1/4-11	-20		1AT20BFB20**	73.0						
1 1/2-11	-24		1A24BFB24	80.2	1B24BFB24	80.2	1E24BFB24	127.1	1Z24BFB24	127.1
2-11	-32		1A32BFB32	128.0			1E32BFB32	167.7	1Z32BFB32	167.7

BFB*CL
BSP Female Swivel
90 ° Close

Thread	Hose	Part no.	Part no.	D	Part no.	D	Part no.	D	Part no.	D
1/4-19	-03									
1/4-19	-04									
1/4-19	-06									
1/4-19	-06									
1/4-19	-08									

BJ
Banjo





Diameter	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
10	-04	90304-10BM00								
12	-04	90304-12BM00	1A6BJ4							
14	-06	90306-14BM00	1A8BJ6	27.2						
16	-06	90306-16BM00	1A10BJ6							

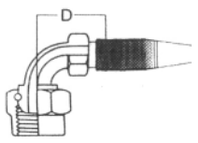
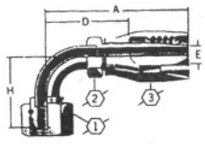
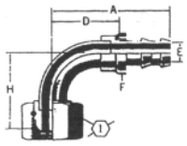
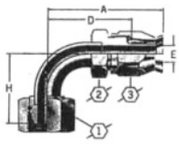
*Use with 1 wire hose **Use with 2 wire hose

EATON
Powering Business Worldwide

BFB
BSP Female
90 ⁰ Swept Bend
Female Swivel

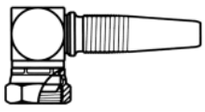
REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807

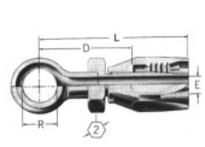
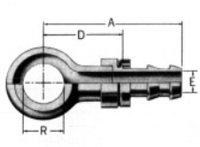
Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
1/4-19	**-04**	DSR50-0404	32.0	07.011-4-4	30.0	07.140-4-4	18.0	07.339-4-4	28.0
3/8-19	**-06**	DSR50-0606	39.0	07.011-6-6	39.0	07.140-6-6	27.0	07.339-6-6	32.5
1/2-14	**-06**								
1/2-14	**-08**	DSR50-0808	44.0	07.011-8-8	43.0	07.140-8-8	30.0	07.339-8-8	35.5
5/8-14	**-08**								
3/4-14	**-08**								
5/8-14	**-10**	DSR50-1010		07.011-10-10	47.0	07.140-10-10	33.0	07.339-10-10	41.5
3/4-14	**-12**	DSR50-1212	68.0	07.011-12-12	66.0	07.140-12-12	48.0	07.339-12-12	59.5
1-11	**-12**								
1-11	**-16**	DSR50-1616	90.0	07.011-16-16	76.0			07.339-16-16	65.6
1 1/4-11	**-16**								
1 1/4-11	**-20**			07.011-20-20	70.0			07.339-20-20	75.0
1 1/2-11	**-24**			07.011-24-24	77.0				
2-11	**-32**			07.011-32-32	106.0				

BFB*CL
BSP Female
90 ⁰ Close



Thread	Hose	Part no.	D	Part no.	D	Part no.	D	Part no.	D
1/4-19	-04	DSR04-0404							
3/8-19	-06	DSR04-0606							
1/2-19	-06	DSR04-0806							
1/2-14	-08	DSR04-0808							
3/4-14	-12	DSR04-1212							
1-11	-16	DSR04-1616							

BJ
Banjo

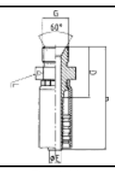
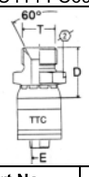



Diameter	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D
10	**-04**				11.057-4-4	21		
12	**-04**				11.057-6-4	22		
14	**-06**		11.027-8-6		11.057-8-6	23		
16	**-06**				11.057-10-6	26		
					11.057-13-8	28		
					11.057-20-12	36		

Powering Business Worldwide

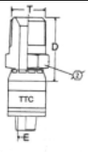
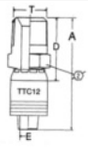
Fittings

BP
BSP Male Parallel

	SYNFLEX	GLOBAL CRIMP FITTINGS		GLOBAL SPIRAL TTC	
	ONE PIECE	TTC	TTC12	4 WIRE	6 WIRE
	3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636	GH506 FC273-12 & -16	FC273-20 to -32 GH466-20 & -24 FC606-16 & -20
					

Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
1/4-19	-04	90304 - 04R100	1A4BP4	27.2						
3/8-19	-06	90306 - 06R100	1A6BP6	29.6						
1/2-14	-08	90308 - 08R100	1A8BP8	36.5						
3/4-14	-12	90312 - 12R100	1A12BP12	40.9						
1-11	-16	90316 - 16R100	1A16BP16	46.8						
1 1/4-11	-20		1AT20BP20*	52.2						
1 1/4-11	-20		1AT20BP20*	52.2						
1 1/2-11	-24		1A24BP24	54.5						
2-11	-32		1A32BP32	60.4						

BT
BSP Male Taper

Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D	Part No.	D
1/8-27	-04			1A2BT4	23.0						
1/4-19	-04			1A4BT4	27.2						
1/4-19	-06										
3/8-19	-06			1A6BT6	29.6						
1/2-14	-06			1A8BT6	37.3	1B6BT6	37.3				
3/8-19	-08			1A6BT8	30.9						
1/2-14	-08			1A8BT8	36.5	1B8BT8	36.5				
1/2-14	-10			1A8BT10	38.2						
3/4-14	-10			1A12BT10	40.8						
3/4-14	-12			1A12BT12	40.9	1B12BT12	40.9				
1-11	-12			1A16BT12	46.8						
3/4-14	-16			1A12BT16	42.0						
1-11	-16			1A16BT16	46.8	1B16BT16	46.8				
1 1/4-11	-20			1AP20BT20*	52.2	1B20BT20	52.2				
1 1/4-11	-20			1AT20BT20**	52.2						
1 1/2-11	-24			1A24BT24	54.5	1B24BT24	54.5				
2-11	-32			1A32BT32	60.2						

* Use with 1 wire hose ** Use with 2 wire hose

EATON
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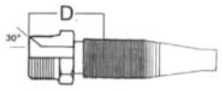
BP
BSP Male Parallel

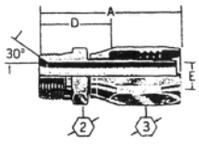
REUSABLE

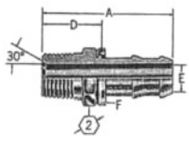
1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC234 1503 FC234	FC332 FC662	2807

Thread	Hose	Part no.	D	Part no.	D	Part no.	D	Part no.	D

BT
BSP Male Taper





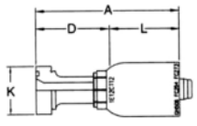
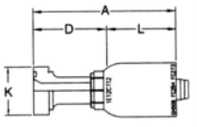


Thread	Hose	Part no.	D	Part no.	D	Part no.	D	Part no.	D
1/8-27	-04	DSR02-0204		07.545-2-4	26.5	351-2-4			
1/4-19	-04	DSR02-0404		07.545-4-4	31.0	351-4	27.0		
1/4-19	-06	DSR02-0406				351-4.6	29.5		
3/8-19	-04	DSR02-0604		07.545-6-6	32.5				
3/8-19	-06	DSR02-0606				351-6	29.0		
1/2-14	-06	DSR02-0806							
1/2-14	-08	DSR02-0808		07.545-8-8	40.0	351-8	33.5		
5/8-14	-10	DSR02-1010							
3/4-14	-12	DSR02-1212		07.545-12-12	42.0	351-12	37.0		
1-11	-16	DSR02-1616		07.545-16-16					
1 1/4-11	-20			07.545-20-20					
1 1/2-11	-24			07.545-24-24					
2-11	-32			07.545-32-32					

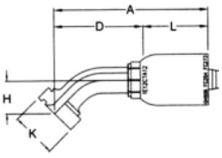
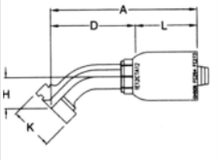
EATON
Powering Business Worldwide

Fittings

CT
CAT Flange
Straight

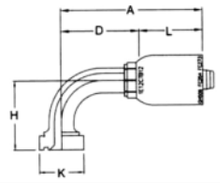
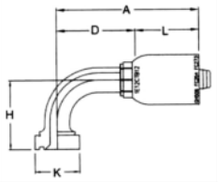
			GLOBAL CRIMP FITTINGS						GLOBAL SPIRAL TTC			
			TWO PIECE		TTC		TTC12		4 WIRE		6 WIRE	
			FC372 FC373 FC901 FC902 GH663 GH781 GH793 FC735 GH195		GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695		GH493 FC736 FC659 FC636		GH506 FC273-12&-16		FC273-20 to -32 GH466-20 & -24 FC606-16 & -20	
												
Flange Size	Hose	K	Part No.	D	Part No.	D	Part No.	D	Part No.	D	Part No.	D
-12	-12	1.62							1E12CT12	66.0		
-16	-12	1.88							1E16CT12	70.0		
-16	-16	1.88							1E16CT16	75.0	1Z16CT16	75.0
-20	-16	2.12							1E20CT16	71.0	1Z20CT16	71.0
-20	-20	2.12							1E20CT20	77.5	1Z20CT20	77.5
-24	-20	2.5									1Z24CT20	112.3
-24	-24	2.5									1Z24CT24	113.3
-32	-24	3.13									1Z32CT24	124.2
-32	-32	3.13									1Z32CT32	126.5

CTA
CAT Flange
45º Swept Bend

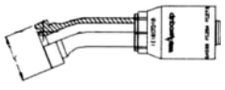
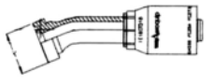
Flange Size	Hose	K	Part No.	D	Part No.	D	Part No.	D	Part No.	D	Part No.	D
-12	-12	1.62							1E12CTA12	84.2		
-16	-12	1.88							1E16CTA12	94.8		
-16	-16	1.88							1E16CTA16	100.0	1Z16CTA16	100.0
-20	-16	2.12							1E20CTA16	115.2	1Z20CTA16	115.2
-20	-20	2.12							1E20CTA20	121.2	1Z20CTA20	121.2
-24	-20	2.50									1Z24CTA20	132.5
-24	-24	2.50									1Z24CTA24	133.5
-32	-24	3.13									1Z32CTA24	170.4
-32	-32	3.13									1Z32CTA32	172.5

CTB
CAT Flange
90º Swept Bend

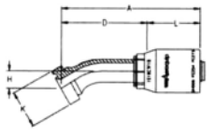
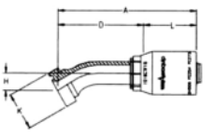



Flange Size	Hose	K	Part No.	D	Part No.	D	Part No.	D	Part No.	D	Part No.	D
-12	-12	1.62							1E12CTB12	75.0		
-16	-12	1.88							1E16CTB12	86.4		
-16	-16	1.88							1E16CTB16	91.6	1Z16CTB16	91.6
-20	-16	2.12							1E20CTB16	107.4	1Z20CTB16	107.4
-20	-20	2.12							1E20CTB20	113.4	1Z20CTB20	113.4
-24	-20	2.50									1Z24CTB20	126.1
-24	-24	2.50									1Z24CTB24	127.1
-32	-24	3.13									1Z32CTB24	165.6
-32	-32	3.13									1Z32CTB32	167.7

CTD
CAT Flange
22.5º Swept Bend

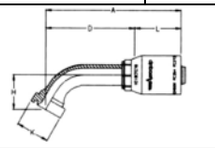
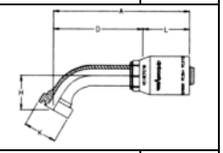
			GLOBAL CRIMP FITTING						GLOBAL SPIRAL TTC			
			TWO PIECE		TTC		TTC12		4 WIRE		6 WIRE	
			FC372 FC373 FC901 FC902 GH663 GH781 GH793 FC735 GH195		GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695		GH493 FC736 FC659 FC636		GH506 FC273-12&-16		FC273-20 to -32 GH466-20 & -24 FC606-16 & -20	
												
Flange Size	Hose	K	Part No,	D	Part No.	D	Part No.	D	Part No.	D	Part No.	D
-12	-12	1.62							1E12CTD12	92.9		
-16	-16	1.88							1E16CTD16	109.8	1Z12CTD16	109.8
-20	-16	2.12							1E20CTD16	126.9		
-20	-20	2.12									1Z20CTD20	132.9
-24	-20	2.50									1Z24CTD20	145.1
-24	-24	2.50									1Z24CTD24	146.1

CTF
CAT Flange
30º Swept Bend

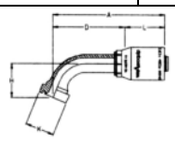
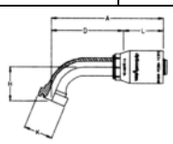
Flange Size	Hose	K	Part No.	D	Part No.	D	Part No.	D	Part No.	D	Part No.	D
-12	-12	1.62							1E12CTF12	90.7		
-16	-16	1.88							1E16CTF16	107.4	1Z16CTF16	107.4
-20	-16	2.12							1E20CTF16	124.1		
-20	-20	2.12									1Z20CTF20	130.1
-24	-20	2.50									1Z24CTF20	142.1
-24	-24	2.50									1Z24CTF24	143.1
-32	-24	3.13									1Z32CTF24	182.5
-32	-32	3.13									1Z32CTF32	184.6

CTG
CAT Flange
60º Swept Bend

Flange Size	Hose	K	Part No.	D	Part No.	D	Part No.	D	Part No.	D	Part No	D
-12	-12	1.62							1E12CTG12	103.1		
-16	-16	1.88							1E16CTG16	124.3	1Z16CTG16	124.3
-20	-16	2.12							1E20CTG16	147.4		
-20	-20	2.12									1Z20CTG20	153.4
-24	-20	2.50									1Z24CTG20	171.4
-24	-24	2.50									1Z24CTG24	172.4
-32	-24	3.13									1Z32CTG24	225.2
-32	-32	3.13									1Z32CTG32	227.3

CTE
CAT Flange
67.5º Swept Bend

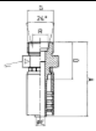
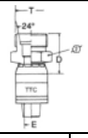
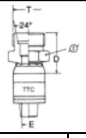



Flange Size	Hose	K	Part No.	D	Part No.	D	Part No.	D	Part No.	D	Part No.	D
-12	-12	1.62							1E12CTE12	97.2		
-16	-16	1.88							1E16CTE16	117.5	1Z16CTE16	117.5
-20	-16	2.12							1E20CTE16	139.1		
-20	-20	2.12									1Z20CTE20	145.1
-24	-20	2.50									1Z24CTE20	162.0
-24	-24	2.50									1Z24FTE24	163.0

EATON
Powering Business Worldwide

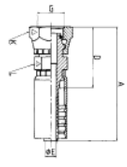
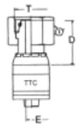
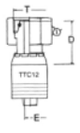
Fittings

DK
24° Metric
Male Light

		SYNFLEX	GLOBAL CRIMP FITTINGS				GLOBAL SPIRAL TTC			
		ONE PIECE	TTC		TTC12		4 WIRE		6 WIRE	
		3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695		GH493 FC736 FC659 FC636		GH506 FC273−12 & −16		FC273−20 to −32 GH466−20 & −24 FC606−16 & −20	
										
Thread	**Hose**	**Part No.**	**Part No.**	**D**	**Part No**	**D**	**Part No**	**D**	**Part No**	**D**
M12 X 1.5	−04		1A5DK4	21.3						
M14 X 1.5	−04	90304 − 14SL00	1A6DK4	21.1						
M16 X 1.5	−06	90306 − 16SL00	1A8DK6	26.7	1B8DK6	26.7				
M18 X 1.5	−06	90306 − 18SL00	1A10DK6	23.7	1B10DK6	23.7				
M18 X 1.5	−08		1A10DK8	24.8	1B10DK8	24.8				
M22 X 1.5	−08	90308 − 22SL00	1A12DK8	26.3	1B12DK8	26.3				
M22 X 1.5	−10									
M26 X 1.5	−10		1A16DK10	26.6	1B16DK10	26.6				
M26 X 1.5	−12									
M30 X 2.0	−12	90312 − 30SL00	1A20DK12	31.8	1B20DK12	31.8				
M30 X 2.0	−16									
M36 X 2.0	−16	90316 − 36SL00	1A25DK16	31.6	1B25DK16	31.6				
M36 X 2.0	−20									
M45 X 2.0	−20		1AT32DK20**	35.4	1B32DK20	35.4				
M45 X 2.0	−24									
M52 X 2.0	−24		1A40DK24	38.7	1B40DK24	38.7				
M52 X 2.0	−30									

DL
DKO-Light

Female Swivel

Thread	**Hose**	**Part No.**	**Part No.**	**D**	**Part No**	**D**	**Part No**	**D**	**Part No**	**D**
M12 X 1.5	−04		1A5DL4	24.6						
M14 X 1.5	−04	90304 − 14JL00	1A6DL4	22.6						
M16 X 1.5	−04	90304 − 16JL00	1A8DL4	24.8						
M16 X 1.5	−06	90306 − 16JL00	1A8DL6	31.6	1B8DL6	31.6				
M18 X 1.5	−06	90306 − 18JL00	1A10DL6	25.9	1B10DL6	25.9				
M18 X 1.5	−08									
M22 X 1.5	−08	90308 − 22JL00	1A12DL8	28.6	1B12DL8	28.6				
M26 X 1.5	−08	90308 − 26JL00	1A16DL8	29.9	1B16DL8	29.9				
M22 X 1.5	−10									
M26 X 1.5	−10		1A16DL10	29.8	1B16DL10	29.8				
M30 X 2.0	−12	90312 − 30JL00								
M30 X 2.0	−12		1A20DL12	32.3	1B20DL12	32.3				
M36 X 2.0	−16									
M36 X 2.0	−16		1A25DL16	33.8	1B25DL16	33.8				
M45 X 2.0	−20									
M45 X 2.0	−20		1AP32DL20*	39.7	1B32DL20	39.7				
M45 X 2.0	−20		1AT32DL20**	39.7						
M52 X 2.0	−24									
M52 X 2.0	−32		1A40DL24	40.9						

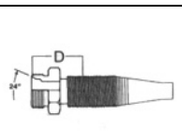
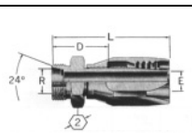
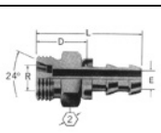
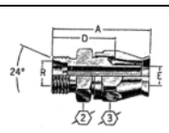
DKL
DKL Light
Female Swivel

Thread								

*Use with 1 wire hose **Use with 2 wire hose

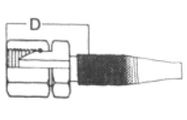
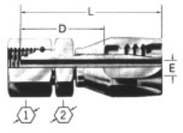
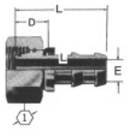
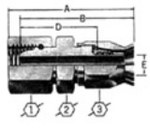
DK
24° Metric
Male Light

REUSABLE

	1 & 2 WIRE		SAE100R5		SOCKETLESS		TEFLON	
	GH663 GH793 GH781 GH195		FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234		FC332 FC662		2807	
								
Thread	**Hose**	**Part No.**	**D**	**Part No.**	**D**	**Part No.**	**D**	**Part No.**	**D**
				11.003-6-4	27.0	11.021-6-4	20.0	07.056-6-5	25.0
						11.021-8-4	20.0		
				11.003-10-6	31.0	11.021-10-6	21.0	07.056-10-6	25.5
				11.003-12-8	33.0			07.056-12-8	26.5
						11.021-15-8	22.0		
				11.003-15-10	33.0			07.056-15-10	28.5
M26 X 1.5	**-08**	DSR81-2608				11.021-18-10	22.0		
				11.003-18-12	34.0			07.056-18-12	33.0
						11.021-22-12	25.0		
				11.003-22-16	34.0			07.056-22-16	36.5
M36 X 2.0	**-12**	DSR81-3612							
				11.003-28-20	34.0			07.056-28-20	40.0
				11.003-35-24	36.0				
				11.003-42-32	38.5				

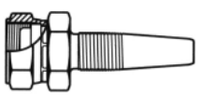
DL
DKO-Light

Female Swivel

Thread	**Hose**	**Part No.**	**D**	**Part No.**	**D**	**Part No.**	**D**	**Part No.**	**D**
M12 X 1.5	**-04**			GA15772-4	32.0	GA15705-4	19.0	07.046-4-4	28.0
M14 X 1.5	**-04**					GA15523-4	16.0		
M16 X 1.5	**-04**								
M16 X 1.5	**-06**			GA15772-6	34.0	GA15705-6	19.0	07.046-8-6	29.0
M18 X 1.5	**-06**					GA15523-6	19.0		
M18 X 1.5	**-08**			GA15772-8	38.0			07.046-10-8	30.0
M22 X 1.5	**-08**					GA15523-8	19.0		
M26 X 1.5	**-08**							07.046-13-10	31.0
M22 X 1.5	**-10**			GA15772-10	38.0				
M26 X 1.5	**-10**					GA15523-10	20.0		
M26 X 1.5	**-12**			GA15772-12	41.0			07.046-16-12	37.5
M30 X 2.0	**-12**					GA15523-12	22.0		
M30 X 2.0	**-16**			GA15772-16	39.0			07.046-22-16	41.0
M36 X 2.0	**-16**								
M36 X 2.0	**-20**			GA15772-20	39.0			07.046-28-20	44.0
M45 X 2.0	**-20**								
M45 X 2.0	**-20**								
M45 X 2.0	**-24**			GA15772-24	35.0				
M52 X 2.0	**-24**								
M52 X 2.0	**-32**			GA15772-32	42.0				

DKL
DKL Light
Female Swivel

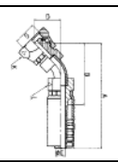
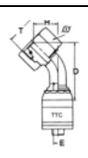


Thread	Hose	Part no.	D	Part no.	D	Part no.	D	Part no.	D
M12 X 1.5	-04	DSR79-1204							
M12 X 1.5	-06	DSR79-1206							
M16 X 1.5	-08	DSR79-1608							
M26 X 1.5	-08	DSR79-2608							

EATON
Powering Business Worldwide

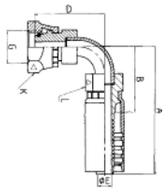
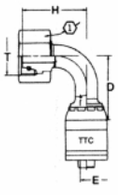
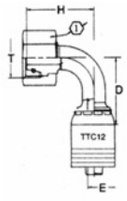
DLA

DKO-Light
45º Swept Bend
Female Swivel

		SYNFLEX	GLOBAL CRIMP FITTINGS				GLOBAL SPIRAL TTC			
		TWO PIECE	TTC		TTC12		4 WIRE		6 WIRE	
		3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695		GH493 FC736 FC659 FC636		GH506 FC273−12 &−16		FC273−20 to −32 GH466−20 & −24 FC606−16 & −20	
										
Thread	Hose	Part No	Part No	D	Part No	D	Part No	D	Part No	D
M12 X 1.5	−04		1A5DLA4	35.0						
M14 X 1.5	−04	90304 − 14JL40	1A6DLA4	39.0						
M16 X 1.5	−06		1A8DLA6	41.5						
M18 X 1.5	−06	90306 − 18JL40	1A10DLA6	44.5						
M18 X 1.5	−08									
M22 X 1.5	−08	90308 − 22JL40	1A12DLA8	47.0						
M22 X 1.5	−10									
M26 X 1.5	−10		1A16DLA10	59.0						
M26 X 1.5	−12	90312 − 26JL40								
M30 X 2.0	−12	90312 − 30JL40	1A20DLA12	56.0						
M30 X 2.0	−16									
M36 X 2.0	−16		1A25DLA16	77.0						
M36 X 2.0	−20									
M45 X 2.0	−20		1AP32DLA20*	73.0						
M45 X 2.0	−20		1AT32DLA20**	73.0						
M45 X 2.0	−24									
M52 X 2.0	−24		1A40DLA24	87.7						
M52 X 2.0	−32									

DLB

DKO-Light
90º Swept Bend
Female Swivel

Thread	Hose	Part No.	Part No.	D	Part No	D	Part No	D	Part No	D
M12 X 1.5	−04		1A5DLB4	26.5						
M14 X 1.5	−04	90304 − 14JL90	1A6DLB4	28.5						
M16 X 1.5	−06		1A8DLB6	32.0	1B8DLB6	32.0				
M18 X 1.5	−06	90306 − 18JL90	1A10DLB6	35.0						
M18 X 1.5	−08									
M22 X 1.5	−08	90308 − 22JL90	1A12DLB8	39.0	1B12DLB8	39.0				
M26 X 1.5	−08		1A16DLB8	58.5						
M22 X 1.5	−10									
M26 X 1.5	−10		1A16DLB10	53.5						
M26 X 1.5	−12	90312 − 26JL90								
M30 X 2.0	−12	90312 − 30JL90	1A20DLB12	64.8	1B20DLB12	64.8				
M30 X 2.0	−16									
M36 X 2.0	−16		1A25DLB16	66.0						
M36 X 2.0	−20									
M45 X 2.0	−20		1AP32DLB20*	76.0						
M45 X 2.0	−20		1AT32DLB20**	76.0						
M45 X 2.0	−24									
M52 X 2.0	−24		1A40DLB24	100.0						
M52 X 2.0	−32									

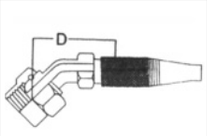
* Use with 1 wire hose ** Use with 2 wire hose

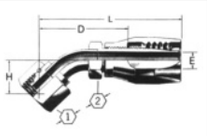
DLA

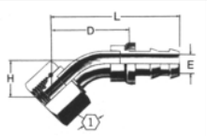
DKO-Light
45º Swept Bend
Female Swivel

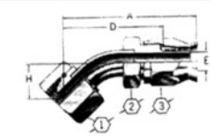
REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807





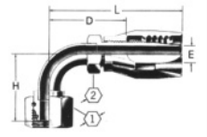


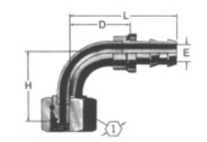


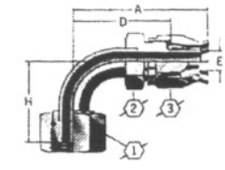
Thread	Hose	Part No	D	Part No	D	Part No	D	Part No	D
M12 X 1.5	-04			GA15065-4	37.0	GA15708-4	31.0	07.048-4-4	37.5
M14 X 1.5	-04					GA15069-4	33.0		
M16 X 1.5	-06			GA15065-6	47.0	GA15708-6	37.0	07.048-8-6	42.5
M18 X 1.5	-06					GA15069-6	45.0		
M18 X 1.5	-08			GA15065-8	57.0			07.048-10-8	43.5
M22 X 1.5	-08					GA15069-8	56.0		
M22 X 1.5	-10			GA15065-10	52.0			07.048-13-10	48.0
M26 X 1.5	-10					GA15069-10	53.0		
M26 X 1.5	-12			GA15065-12	66.0			07.048-16-12	59.0
M30 X 2.0	-12					GA15069-12	59.0		
M30 X 2.0	-16			GA15065-16	69.0			07.048-22-16	62.0
M36 X 2.0	-16								
M36 X 2.0	-20			GA15065-20	78.0			07.048-28-20	78.0
M45 X 2.0	-20								
M45 X 2.0	-20								
M45 X 2.0	-24			GA15065-24	75.0				
M52 X 2.0	-24								
M52 X 2.0	-32			GA15065-32	92.0				

DLB

DKO-Light
90º Swept Bend
Female Swivel







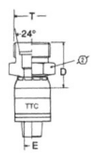
Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
M12 X 1.5	-04			GA15067-4	35.0	GA15711-4	21.0	07.049-4-4	28.0
M14 X 1.5	-04					GA15071-4	23.0		
M16 X 1.5	-06			GA15067-6	37.0	GA15711-6	27.0	07.049-8-6	32.0
M18 X 1.5	-06					GA15071-6	30.0		
M18 X 1.5	-08			GA15067-8	43.0			07.049-10-8	35.5
M22 X 1.5	-08					GA15071-8	34.0		
M26 X 1.5	-08								
M22 X 1.5	-10			GA15067-10	47.0			07.049-13-10	41.5
M26 X 1.5	-10					GA15071-10	47.0		
M26 X 1.5	-12			GA15067-12	61.0			07.049-16-12	52.0
M30 X 2.0	-12					GA15071-12	50.0	07.049-22-16	53.5
M30 X 2.0	-16			GA15067-16	60.0				
M36 X 2.0	-16								
M36 X 2.0	-20			GA15067-20	64.0			07.049-28-20	73.0
M45 X 2.0	-20								
M45 X 2.0	-20								
M45 X 2.0	-24			GA15067-24	72.0				
M52 X 2.0	-24								
M52 X 2.0	-32			GA15067-32	96.0				

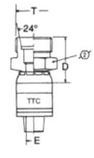
Powering Business Worldwide

Fittings

EK
24 Metric
Male Heavy

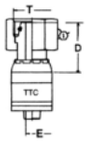
SYNFLEX	GLOBAL CRIMP FITTINGS		GLOBAL SPIRAL TTC	
ONE PIECE	TTC	TTC12	4 WIRE	6 WIRE
3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636	GH506 FC273-12 &-16	FC273-20 to -32 GH466-20 & -24 FC606-16 & -20

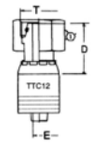


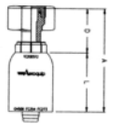


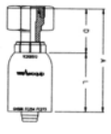
Thread	Hose	Tube	Part No.	D	Part No.	D	Part No	D	Part No	D	Part No	D
M16 X 1.5	-04	8			1A5EK4	24.1						
M18 X 1.5	-04	10			1A6EK4	23.6						
M20 X 1.5	-06	12			1A8EK6	25.0	1B8EK6	25.0				
M22 X 1.5	-06	14			1A10EK6	27.3	1B10EK6	27.3				
M24 X 1.5	-08	16			1A12EK8	28.3	1B12EK8	28.3				
M24 X 1.5	-10											
M30 X 2.0	-10	20			1A16EK10	32.6	1B16EK10	32.6				
M30 X 2.0	-12	20										
M36 X 2.0	-12	25			1A20EK12	35.3	1B20EK12	35.3				
M42 X 2.0	-12											
M42 X 2.0	-16	30			1A25EK16	37.9	1B25EK16	37.9				
M52 X 2.0	-16											
M52 X 2.0	-20	38			1AP32EK20*	44.0						
M52 X 2.0	-20				1AT32EK20**	44.0						

DS
DKO-Heavy
Female Swivel









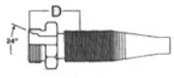
Thread	Hose	Tube	Part No.	D	Part No.	D	Part No	D	Part No	D	Part No	D
M16 X 1.5	-04	8			1A5DS4	26.2						
M18 X 1.5	-04	10			1A6DS4	27.4						
M20 X 1.5	-06	12			1A8DS6	28.5	1B8DS6	28.5				
M22 X 1.5	-06	14			1A10DS6	31.6	1B10DS6	31.6				
M22 X 1.5	-08	14			1A10DS8	35.8	1B10DS8	35.8				
M24 X 1.5	-08	16			1A12DS8	32.7	1B12DS8	32.7				
M24 X 1.5	-10	16			1A12DS10	26.7	1B12DS10	26.7				
M30 X 2.0	-10	20			1A16DS10	37.5	1B16DS10	37.5				
M30 X 2.0	-12	25			1A16DS12	30.1	1B16DS12	30.1				
M36 X 2.0	-12	25			1A20DS12	41.8	1B20DS12	41.8	1E20DS12	53.4		
M42 X 2.0	-12								1E25DS12	51.6		
M36 X 2.0	-16	25			1A20DS16	31.3	1B20DS16	31.3				
M42 X 2.0	-16	30			1A25DS16	44.1	1B25DS16	44.1	1E25DS16	56.8	1Z25DS16	56.8
M52 X 2.0	-16								1E32DS16	57.3	1Z32DS16	57.3
M52 X 2.0	-20	38			1AP32DS20*	49.7	1B32DS20	49.7	1E32DS20	63.3	1Z32DS20	63.3
M52 X 2.0	-20	38			1AT32DS20**	49.7						
M52 X 2.0	-24											

* Use with 1 wire hose ** Use with 2 wire hose

EK
24 Metric
Male Heavy

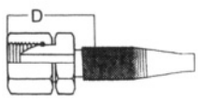
REUSABLE

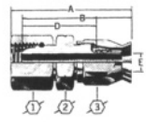
1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807



Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
M16 X 1.5	-04								
M18 X 1.5	-04								
M20 X 1.5	-06								
M22 X 1.5	-06								
M24 X 1.5	-08								
M24 X 1.5	-10								
M30 X 2.0	-10								
M30 X 2.0	-12								
M36 X 2.0	-12								
M36 X 2.0	-16								
M42 X 2.0	-16								
M52 X 2.0	-16								
M52 X 2.0	-20								
M52 X 2.0	-20								

DS
DKO-Heavy
Female Swivel





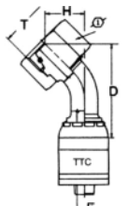
Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
M16 X 1.5	-04	R16DS4						07.161-8-4	29.5
M18 X 1.5	-04								
M20 X 1.5	-06							07.161-12-6	29.0
M22 X 1.5	-06								
M22 X 1.5	-08							07.161-14-8	30.0
M24 X 1.5	-08								
M24 X 1.5	-10							07.161-16-10	33.0
M30 X 2.0	-10								
M30 X 2.0	-12							07.161-20-12	38.0
M36 X 2.0	-12								
M45 X 2.0	-12								
M36 X 2.0	-16							07.161-25-16	39.5
M42 X 2.0	-16								
M42 X 2.0	-20							07.161-30-20	44.0
M52 X 2.0	-20								
M52 X 2.0	-20								
M52 X 2.0	-24								

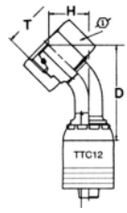
Powering Business Worldwide

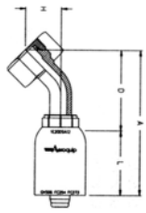
Fittings

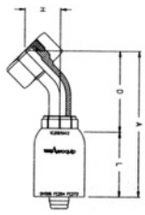
DSA
DKO - Heavy
45 Swept Bend
Female Swivel

SYNFLEX	GLOBAL CRIMP FITTINGS		GLOBAL SPIRAL TTC	
ONE PIECE	TTC	TTC12	4 WIRE	6 WIRE
3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636	GH506 FC273-12 & -16	FC273-20 to -32 GH466-20 & -24 FC606-16 & -20



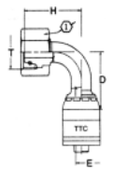


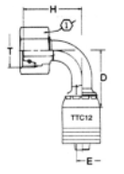


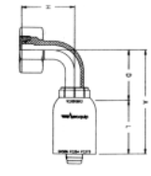


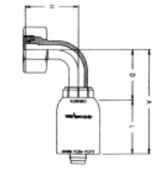
Thread	Hose	Tube	Part No.	D	Part No.	D	Part No	D	Part No	D	Part No	D
M18 X 1.5	-04	10			1A6DSA4	38.0						
M20 X 1.5	-06	12			1A8DSA6	43.0						
M22 X 1.5	-06	14			1A10DSA6	43.5						
M24 X 1.5	-08	16			1A12DSA8	50.0	1B12DSA8	50.0				
M24 X 1.5	-10											
M30 X 2.0	-10	20			1A16DSA10	55.5	1B16DSA10	55.5				
M30 X 2.0	-12	20			1A16DSA12	58.9	1B16DSA12	58.9				
M36 X 2.0	-12	25			1A20DSA12	68.0	1B20DSA12	68.0	1E20DSA12	85.3		
M42 X 2.0	-12								1E25DSA12	94.4		
M42 X 2.0	-16	30			1A25DSA16	68.0	1B25DSA16	68.0	1E25DSA16	99.6	1Z25DSA16	99.6
M52 X 2.0	-16								1E32DSA16	112.3	1Z32DSA16	112.3
M52 X 2.0	-20	38			1AP32DSA20*	94.7			1E32DSA20	118.3	1Z32DSA20	118.3
M52 X 2.0	-20				1AT32DSA20**	94.7						

DSB
DKO-Heavy
90 Swept Bend
Female Swivel









Thread	Hose	Tube	Part No.	D	Part No.	D	Part No	D	Part No	D	Part No	D
M16 X 1.5	-04	8			1A5DSB4	28.5						
M18 X 1.5	-04	10			1A6DSB4	31.0						
M20 X 1.5	-06	12			1A8DSB6	35.0	1B8DSB6	35.0				
M22 X 1.5	-06	14			1A10DSB6	38.5	1B10DSB6	38.5				
M24 X 1.5	-08	16			1A12DSB8	44.0	1B12DSB8	44.0				
M24 X 1.5	-10											
M30 X 2.0	-10	20			1A16DSB10	48.0	1B16DSB10	48.0				
M30 X 2.0	-12	20			1A16DSB12	59.3	1B16DSB12	59.3				
M36 X 2.0	-12	25			1A20DSB12	59.0	1B20DSB12	59.0	1E20DSB12	75.0		
M42 X 2.0	-12	30							1E25DSB12	86.4		
M42 X 2.0	-16	30			1A25DSB16	64.0	1B25DSB16	64.0	1E25DSB16	91.8	1Z25DSB16	91.8
M52 X 2.0	-16								1E32DSB16	107.4	1Z32DSB16	107.4
M52 X 2.0	-20								1E32DSB20	113.4	1Z32DSB20	113.4

* Use with 1 wire hose ** Use with 2 wire hose

DSA

DKO - Heavy
45 Swept Bend
Female Swivel

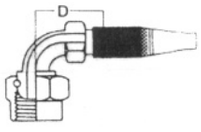
REUSABLE

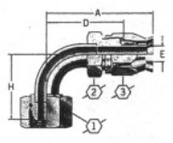
1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807

Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
M18 X 1.5	-04								
M20 X 1.5	-06								
M22 X 1.5	-06								
M24 X 1.5	-08								
M24 X 1.5	-10								
M30 X 2.0	-10								
M30 X 2.0	-12								
M36 X 2.0	-12								
M36 X 2.0	-16								
M42 X 2.0	-16								
M52 X 2.0	-16								
M52 X 2.0	-20								
M52 X 2.0	-20								

DSB

DKO-Heavy
90 Swept Bend
Female Swivel

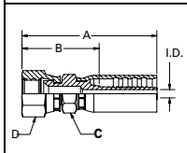
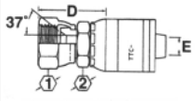
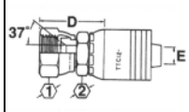
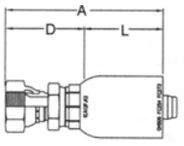
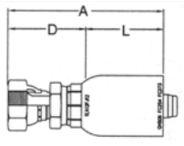




Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
M16 X 1.5	-04							07.163-8-4	28.0
M18 X 1.5	-04								
M20 X 1.5	-06							07.163-12-6	
M22 X 1.5	-08							07.163-14-8	35.5
M24 X 1.5	-08								
M24 X 1.5	-10							07.163-16-10	41.5
M30 X 2.0	-10								
M30 X 2.0	-12							07.163-20-12	52.5
M36 X 2.0	-12								
M36 X 2.0	-16							07.163-25-16	53.5
M42 X 2.0	-16								
M42 X 2.0	-20							07.163-30-20	75.0
M52 X 2.0	-20								

EATON
Powering Business Worldwide

Fittings

FJ	SYNFLEX	GLOBAL CRIMP FITTINGS		GLOBAL SPIRAL TTC	
JIC **Female Swivel**	ONE PIECE	TTC	TTC12	4 WIRE	6 WIRE
	3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636	GH506 FC273-12 & -16	FC273-20 to -32 GH466-20 & -24 FC606-16 & -20
					

Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
3/8-24	-03	90303 - 035400								
3/8-24	-04		1AA3FJ4	26.0						
7/16-20	-04	90304 - 045400	1AA4FJ4*	27.0						
1/2-20	-04	90304 - 055400	1AA5FJ4	27.0						
9/16-18	-04	90304 - 065500	1AA6FJ4	28.0						
7/16-20	-06	90306 - 045400	1AA4FJ6	30.0	1BA4FJ6	30.0				
1/2-20	-06	90306 - 055400	1AA5FJ6	31.5						
9/16-18	-06	90306 - 065500	1AA6FJ6*	32.5	1BA6FJ6	32.5				
3/4-16	-06	90306 - 085400	1AA8FJ6	33.3	1BA8FJ6	33.3				
3/4-16	-08	90308 - 085400	1AA8FJ8*	37.0	1BA8FJ8	37.0				
7/8-14	-08	90308 - 105400	1AA10FJ8	37.3	1BA10FJ8	37.3				
1 1/16-12	-08	90308 - 125400	1AA12FJ8	39.6	1BA12FJ8	39.6				
1 5/16-12	-08		1AA16FJ8	48.0	1BA16FJ8	48.0				
7/8-14	-10		1AA10FJ10*	41.0	1BA10FJ10	41.0				
1 1/16-12	-10		1AA12FJ10	39.9	1BA12FJ10	39.9				
7/8-14	-12	90312 - 105400	1AA10FJ12	41.4	1BA10FJ12	41.4				
1 1/16-12	-12	90312 - 125500	1AA12FJ12*	41.9	1BA12FJ12	41.9	1EA12FJ12	59.2		
1 3/16-12	-12	90312 - 145500	1AA14FJ12	41.9	1BA14FJ12	41.9				
1 5/16-12	-12	90312 - 165500	1AA16FJ12	43.7	1BA16FJ12	43.7	1EA16FJ12	61.6		
1 1/16-12	-16		1AA12FJ16	45.7	1BA12FJ16	45.7				
1 5/16-12	-16	90316 - 165500	1AA16FJ16*	49.0	1BA16FJ16	49.0	1EA16FJ16	66.8	1ZA16FJ16	66.8
1 5/8-12	-16		1AA20FJ16	46.0	1BA20FJ16	46.0	1EA20FJ16	68.7		
1 5/16-12	-20				1BA16FJ20	43.9				
1 5/16-12	-20		1AR16FJ20**	44.0						
1 5/16-12	-20		1AV16FJ20***	44.0						
1 5/8-12	-20		1AR20FJ20**	47.8	1BA20FJ20	47.8	1EA20FJ20	74.7	1ZA20FJ20	74.7
1 5/8-12	-20		1AV20FJ20***	47.8						
1 7/8-12	-20				1BA24FJ20	51.6	1EA24FJ20	92.5	1ZA24FJ20	92.5
1 7/8-12	-24		1AA24FJ24	52.6	1BA24FJ24	52.6	1EA24FJ24	93.5	1ZA24FJ24	93.5
1 7/8-12	-32		1AA24FJ32	53.8						
2 1/2-12	-32		1AA32FJ32	60.2	1BA32FJ32	60.2	1EA32FJ32	108.0	1ZA32FJ32	108.0

Note. *= also available in 316 stainless steel

add suffix 'C'

Use with 1 wire hose * Use with 2 wire hose

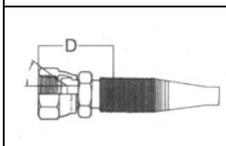
EATON
Powering Business Worldwide

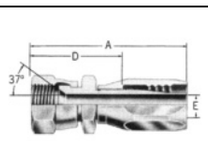
Fittings

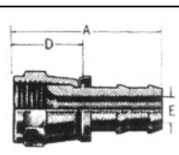
FJ
JIC
Female Swivel

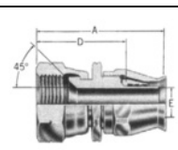
REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807









Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
3/8–24	–03							190600–3S	
3/8–24	–04					4741–3–4B	17.5		
7/16–20	–04	1R4FJ4		4411–4S*	25.40	4797–4B	18.0	63–190600–4*	28.7
1/2–20	–04	1R5FJ4		4411–5–4S	28.0				
9/16–18	–04	1R6FJ4		4411–6–4S	28.0	4741–6–4B	20.6		
1/2–20	–06					4741–5–6B	20.3		
9/16–18	–06	1R6FJ6		4411–6S*	29.2	4741–6B	20.3		
9/16–20	–08	1R6FJ8						63–190600–6*	31.0
3/4–16	–06	1R8FJ6							
3/4–16	–08	1R8FJ8		4411–8S*	35.0	4797–8B	23.6	63–190600–8*	34.3
7/8–14	–08	1R10FJ8		4411–10–8S	38.1				
1 1/16–12	–08	1R12FJ8							
1 5/16–12	–08								
7/8–14	–10	1R10FJ10		4411–10S*	38.4	4797–10B	26.7	63–190600–10*	39.1
1 1/16–12	–10	1R12FJ10		4411–12–10S	39.6				
7/8–14	–12								
1 1/16–12	–12	1R12FJ12		4411–12S*	40.1	4741–12B	30.2	63–190600–12*	42.4
1 3/16–12	–12	1R14FJ12							
1 5/16–12	–12	1R16FJ12		4411–16–12S	42.9				
1 1/16–12	–16								
1 5/16–12	–16	1R16FJ16		4411–16S	39.6			63–190600–16*	48.5
1 5/8–12	–16	1R20FJ16							
1 5/16–12	–20								
1 5/16–12	–20								
1 5/16–12	–20								
1 5/8–12	–20			4411–20S	41.7			63–190600–20	57.5
1 5/8–12	–20								
1 7/8–12	–20								
1 7/8–12	–24			4411–24S	46.5				
1 7/8–12	–32								
2 1/2–12	–32			4411–32S	51.6				

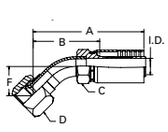
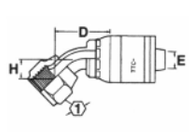
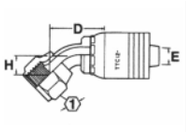
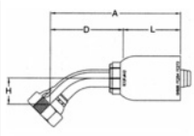
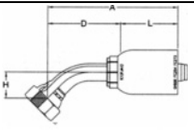
*= Available in Brass
Order 411–*B

* = Available in
stainless steel
delete Õ–63Ôadd ÕÔ

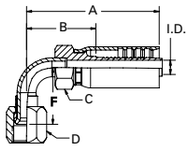
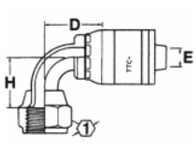
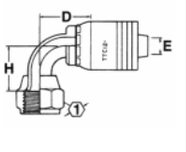
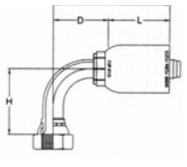
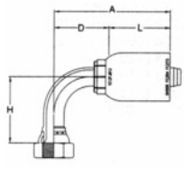
Powering Business Worldwide

Fittings

FJA
JIC / SAE
45 ⁰ Swept Bend
Female Swivel

		SYNFLEX	GLOBAL CRIMP FITTINGS				GLOBAL SPIRAL TTC			
		ONE PIECE	TTC		TTC12		4 WIRE		6 WIRE	
		3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695		GH493 FC736 FC659 FC636		GH506 FC273-12 & -16		FC273-20 to -32 GH466-20 & -24 FC606-16 & -20	
										
Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
3/8-24	-03									
7/16-20	-04	90304 - 045540	1AA4FJA4	26.4						
1/2-20	-04	90304 - 055540	1AA5FJA4	28.5						
9/16-18	-04	90304 - 065540	1AA6FJA4	29.7						
9/16-18	-06	90306 - 065540	1AA6FJA6	33.3	1BA6FJA6	33.3				
3/4-16	-06	90306 - 085540	1AA8FJA6	40.9	1BA8FJA6	40.9				
3/4-16	-08	90308 - 085540	1AA8FJA8	41.9	1BA8FJA8	41.9				
7/8-14	-08	90308 - 105540	1AA10FJA8	47.2	1BA10FJA8	47.2				
3/4-16	-10									
7/8-14	-10		1AA10FJA10	45.5						
1 1/16-12	-10		1AA12FJA10	56.4	1BA12FJA10	56.4				
7/8-14	-12									
1 1/16-12	-12	90312 - 125540	1AA12FJA12	60.0	1BA12FJA12	60.6	1EA12FJA12	76.90		
1 5/16-12	-12									
1 5/16-12	-16	90316 - 165540	1AA16FJA16	66.7	1BA16FJA16	66.7	1EA16FJA16	88.4		
1 5/8-12	-16		1AA20FJA16	67.3			1EA20FJA16	105.2		
1 5/8-12	-20		1AR20FJA20*	68.8	1BA20FJA20	68.8	1EA20FJA20	111.2	1ZA20FJA20	111.2
1 5/8-12	-20		1AV20FJA20**	68.8						
1 7/8-12	-24				1BA24FJA24	85.1	1EA24FJA24	130.2	1ZA24FJA24	130.2

FJB
JIC / SAE
90 ⁰ Swept Bend
Female Swivel

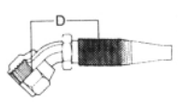
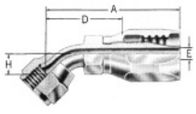
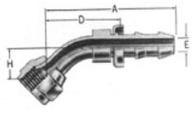
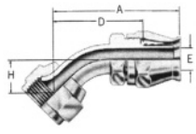
Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
7/16-20	-04	90304 - 0455S0	1AA4FJB4	23.4						
1/2-20	-04	90304 - 0555S0	1AA5FJB4	25.0						
9/16-18	-04	90304 - 0655S0	1AA6FJB4	27.4						
9/16-18	-06	90306 - 0655S0	1AA6FJB6	31.0	1BA6FJB6	31.0				
3/4-16	-06	90306 - 0855S0	1AA8FJB6	36.1	1BA8FJB6	36.1				
9/16-18	-08		1AA6FJB8	32.0						
3/4-16	-08	90308 - 0855S0	1AA8FJB8	36.1	1BA8FJB8	36.1				
7/8-14	-08	90308 - 1055S0	1AA10FJB8	40.9	1BA10FJB8	40.9				
7/8-14	-10		1AA10FJB10	39.4						
1 1/16-12	-10		1AA12FJB10	54.9	1BA12FJB10	54.9				
1 1/16-12	-12	90312 - 1255S0	1AA12FJB12	55.1	1BA12FJB12	55.1	1EA12FJB12	69.5		
1 5/16-12	-12	90312 - 1655S0	1AA16FJB12	55.1	1BA16FJB12	55.1	1EA16FJB12	80.6		
1 5/16-12	-16	90316 - 1655S0	1AA16FJB16	55.9	1BA16FJB16	55.9	1EA16FJB16	85.8		
1 5/8-12	-16						1EA20FJB16	98.9		
1 5/8-12	-20		1AR20FJB20*	64.0	1BA20FJB20	64.0	1EA20FJB20	104.9	1ZA20FJB20	104.9
1 5/8-12	-20		1AV20FJB20**	64.0						
1 7/8-12	-24		1AA24FJB24	71.4	1BA24FJB24	71.4	1EA24FJB24	127.1	1ZA24FJB24	127.1

* Use with 1 wire hose ** Use with 2 wire hose

FJA
JIC / SAE
45 Swept Bend
Female Swivel

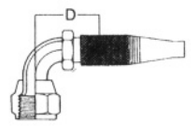
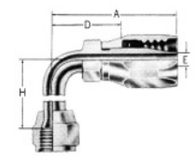
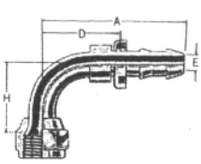
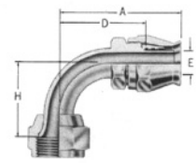
REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807

Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
3/8–24	–03							190773–3S	
7/16–20	–04	DSR99–0704	32.5	190297–4S	28.0			190773–4S	26.7
1/2–20	–04	DSR99–0804							
9/16–18	–04	DSR99–0904							
9/16–18	–06	DSR99–0906	34.3	190265–6S	33.8			190773–6S	30.50
3/4–16	–06	DSR99–1206	43.2	190297–8–6S	44.2				
3/4–16	–08	DSR99–1208	44.5	190297–8S	46.7	FC5849–0808S	32.5	190773–8S	41.7
7/8–14	–08	DSR99–1408	49.3						
3/4–16	–10			190297–8–10S	47.0				
7/8–14	–10		50.5	190297–10S	47.0				
1 1/16–12	–10								
7/8–14	–12			190297–10–12S	49.5				
1 1/16–12	–12	DSR99–1712	57.9	190265–12S	56.1			190773–12S	56.1
1 5/16–12	–12	DSR99–2116		190265–16–12S	61.7				
1 516–12	–16		70.9	190265–16S	61.7				
1 5/8–12	–16								
1 5/8–12	–20			190265–20S	72.4				
1 5/8–12	–20								
1 7/8–12	–24								

FJB
JIC / SAE
90 ^{0} Swept Bend
Female Swivel

Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
7/16–20	–04	1R4FJB4		190296–4S	25.2	191321–4S	17.80	190772–4S	24.1
1/2–20	–04	1R5FJB4							
9/16–18	–04	1R6FJB4							
9/16–18	–06	1R6FJB6		190261–6S	31.2	190516–6S	21.1	190772–6S	27.90
3/4–16	–06	1R8FJB6				191321–8–6S	26.4		
9/16–18	–08								
3/4–16	–08	1R8FJB8		190296–8S	40.9	191321–8S	26.7	190772–8S	35.80
7/8–14	–08	1R10FJB8							
7/8–14	–10	1R10FJB10		190296–10S	41.9			190772–10S	37.90
1 1/16–12	–10								
1 1/16–12	–12	1R12FJB12		190261–12S	55.1			190772–12S	55.10
1 5/16–12	–12	1R14FJB12							
1 5/16–12	–16	1R16FJB16		190261–16S	57.9			190772–16S	63.30
1 5/8–12	–16								
1 5/8–12	–20			190261–20S	67.3				
1 5/8–12	–20								
1 7/8–12	–24								

Powering Business Worldwide

Fittings

FJB *CL

Close Female Swivel

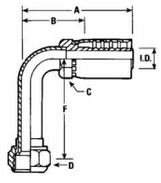
SYNFLEX	GLOBAL CRIMP FITTINGS		GLOBAL SPIRAL TTC	
ONE PIECE	TTC	TTC12	4 WIRE	6 WIRE
3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636	GH506 FC273-12 & -16	FC273-20 to-32 GH466-20 &-24 FC606-16 &-20

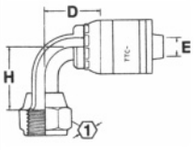
Thread	Hose										

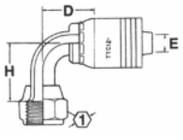
FJC

JIC / SAE

Swept Bend Female Swivel







Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
7/16-20	-04	90304 - 0455L0	1AA4FJC4							
1/2-20	-04	90304 - 0555L0	1AA5FJC4							
9/16-18	-06	90306 - 0655L0	1AA6FJC6		1BA6FJC6					
3/4-16	-06	90306 - 0855L0	1AA8FJC6							
3/4-16	-08	90308 - 0855L0	1AA8FJC8		1BA8FJC8					
7/8-14	-08	90308 - 1055L0	1AA10FJC8							
7/8-14	-10		1AA10FJC10							
1 1/16-12	-12	90312 - 1255L0	1AA12FJC12							
1 5/16-12	-16	90316 - 1655L0	1AA16FJC16							
1 5/8-12	-20									
1 5/8-12	-20									

EATON
Powering Business Worldwide

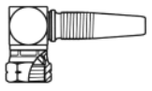
Fittings

FJB *CL

JIC / SAE

90⁰ Close Female Swivel

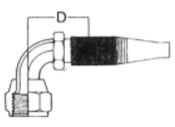
REUSABLE			
1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807

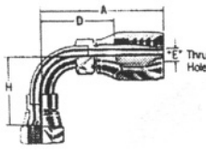


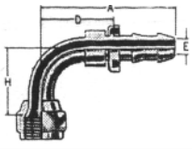
Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
7/16–20	–04	DSR07–0704							
9/16–18	–04	DSR07–0904							
9/16–18	–06	DSR07–0906							
3/4–16	–06	DSR07–1206							
3/4–16	–08	DSR07–1208							
7/8–14	–08	DSR07–1408							
1 1/16–12	–12	DSR07–1712							

FJC

90⁰ Long Drop Swept Bend Female Swivel





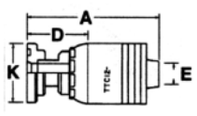
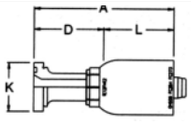
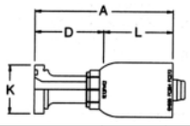


Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
7/16–20	–04	DSR98–0704	29.7	190265–4S	25.2				
1/2–20	–04	DSR98–0804							
9/16–18	–06	DSR98–0806	31.8	190260–6S	31.2	190465–6S	21.1		
9/16–18	–06		40.4						
3/4–16	–06	DSR98–1206	41.7	190295–8S	43.9				
3/4–16	–08	DSR98–1208	48.0						
7/8–14	–08	DSR98–1408	49.3						
7/8–14	–10		56.9	190295–10S	48.3				
1 1/16–12	–12		70.6	190260–12S	55.1				
1 5/16–12	–16		85.3	190260–16S	57.9				
1 5/8–12	–20			190260–20S	67.3				
1 5/8–12	–20								

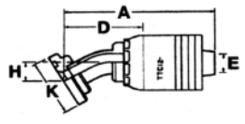
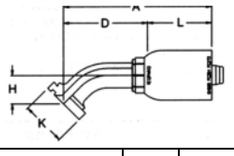
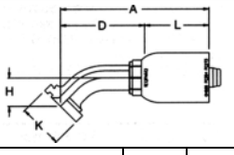
Powering Business Worldwide

Fittings

FH
Code 62 Flange

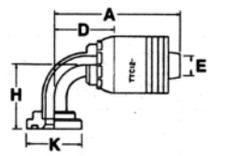
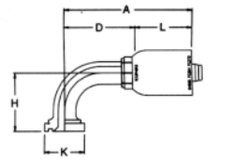
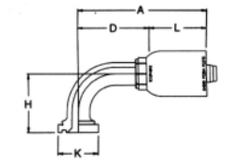
			GLOBAL CRIMP FITTINGS						GLOBAL SPIRAL TTC					
			TTC			TTC12			4 WIRE			6 WIRE		
			GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695			GH493 FC736 FC659 FC636			GH506 FC273-12 & -16			FC273-20 TO -32 GH466-20 & -24 FC606-16 & -20		
														
Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-8	-08	1.25				1B8FH8	52.3							
-12	-08	1.63				1B12FH8	53.3							
-12	-12	1.63				1B12FH12	53.9		1E12FH12	60.8				
-16	-12	1.88				1B16FH12	53.9		1E16FH12	65.0				
-16	-16	1.88				1B16FH16	54.4		1E16FH16	70.2		1Z16FH16	70.2	
-20	-16	2.13				1B20FH16	62.0		1E20FH16	67.6		1Z20FH16	67.6	
-20	-20	2.13				1B20FH20	63.8		1E20FH20	73.6		1Z20FH20	73.6	
-24	-20	2.50				1B24FH20	64.5		1E24FH20	110.6		1Z24FH20	110.6	
-24	-24	2.50				1B24FH24	64.5		1E24FH24	111.6		1Z24FH24	111.6	
-32	-24	3.13							1E32FH24	122.6		1Z32FH24	122.6	
-32	-32	3.13				1B32FH32	66.8		1E32FH32	124.7		1Z32FH32	124.7	

FHA
Code 62 Flange
45⁰ Swept Bend

Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-12	-12	1.63				1B12FHA12	64.5	25.4	1E12FHA12	80.3	27.0			
-16	-12	1.88							1E16FHA12	91.5	32.0			
-16	-16	1.88				1B16FHA16	76.2	27.0	1E16FHA16	96.7	32.0	1Z16FHA16	96.7	32.0
-20	-16	2.13				1B20FHA16	87.6	29.2	1E20FHA16	112.4	39.0	1Z20FHA16	112.4	39.0
-20	-20	2.13				1B20FHA20	89.4	29.2	1E20FHA20	118.4	39.0	1Z20FHA20	118.4	39.0
-24	-20	2.50							1E24FHA20	131.3	45.0	1Z24FHA20	131.3	45.0
-24	-24	2.50				1B24FHA24	108.0	35.8	1E24FHA24	132.2	45.0	1Z24FHA24	132.2	45.0
-32	-24	3.13							1E32FHA24	169.2	57.5	1Z32FHA24	169.2	57.4
-32	-32	3.13				1B32FHA32	128.3	50.8	1E32FHA32	171.3	57.5	1Z32FHA32	171.3	57.4

FHB
Code 62 Flange
90⁰ Swept Bend

Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-8	-08	1.25				1B8FHB8	42.4	41.4						
-12	-12	1.63				1B12FHB12	58.4	54.1	1E12FHB12	75.0	59.0			
-16	-12	1.88				1B16FHB12	72.1	60.5	1E16FHB12	86.4	71.0			
-16	-16	1.88				1B16FHB16	72.6	60.5	1E16FHB16	91.6	71.0	1Z16FHB16	91.6	71.0
-20	-16	2.13				1B20FHB16	88.9	66.5	1E20FHB16	107.4	89.0	1Z20FHB16	107.4	89.0
-20	-20	2.13				1B20FHB20	90.7	66.5	1E20FHB20	113.4	89.0	1Z20FHB20	113.4	89.0
-24	-20	2.50							1E24FHB20	126.1	104.0	1Z24FHB20	126.1	104.0
-24	-24	2.50				1B24FHB24	110.5	79.3	1E24FHB24	127.1	104.0	1Z24FHB24	127.1	104.0
-32	-24	3.13							1E32FHB24	165.6	138.0	1Z32FHB24	165.6	138.0
-32	-32	3.13				1B32FHB32	120.0	114.3	1E32FHB32	167.7	138.0	1Z32FHB32	167.7	138.0

FH
Code 62 Flange

REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793	FC350 FC300 FC355 FC802 FC621 FC 558 1503 FC234	FC332 FC662	2807

Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-8	-08	1.25												
-12	-08	1.63												
-12	-12	1.63												
-16	-12	1.88												
-16	-16	1.88												
-20	-16	2.13												
-20	-20	2.13												
-24	-20	2.50												
-24	-24	2.50												
-32	-24	3.13												
-32	-32	3.13												

FHA
Code 62 Flange
45^0 Swept Bend

Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-12	-12	1.63												
-16	-12	1.88												
-16	-16	1.88												
-20	-16	2.13												
-20	-20	2.13												
-24	-20	2.50												
-24	-24	2.50												
-32	-24	3.13												
-32	-32	3.13												

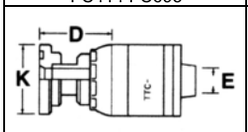
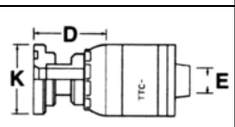
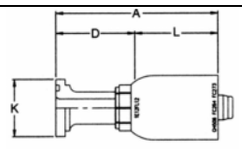
FHB
Code 62 Flange
90^0 Swept Bend

Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-8	-08	1.25												
-12	-12	1.63												
-16	-12	1.88												
-16	-16	1.88												
-20	-16	2.13												
-20	-20	2.13												
-24	-20	2.50												
-24	-24	2.50												
-32	-24	3.13												
-32	-32	3.13												

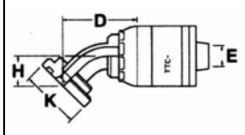
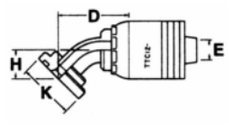
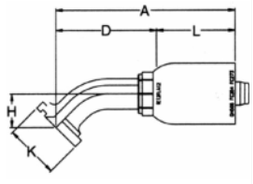
EATON
Powering Business Worldwide

Fittings

FL
Code 61 Flange

	GLOBAL CRIMP FITTINGS							GLOBAL SPIRAL TTC					
	TTC				TTC12			4 WIRE			6 WIRE		
	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695				GH493 FC736 FC659 FC636			GH506 FC273-12 & -16			FC273-20 TO -32 GH466-20 & -24 FC606-16 & -20		
													
Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No	D	H
-8	-08	1.19	1A8FL8	52.3		1B8FL8	52.3							
-12	-08	1.50	1A12FL8	53.3		1B12FL8	53.3							
-12	-10	1.50	1A12FL10	53.3		1B12FL10	53.3							
-12	-12	1.50	1A12FL12	53.9		1B12FL12	53.9		1E12FL12	54.5				
-16	-12	1.75	1A16FL12	53.9		1B16FL12	53.9		1E16FL12	51.1				
-20	-12	2.00	1A20FL12	61.5		1B20FL12	61.5							
-12	-16	1.50	1A12FL16	54.5										
-16	-16	1.75	1A16FL16	54.5		1B16FL16	54.5		1E16FL16	56.3				
-20	-16	2.00	1A20FL16	62.0		1B20FL16	62.0		1E20FL16	60.5				
-24	-16	2.38	1A24FL16	62.7		1B24FL16	62.7							
-16	-20	1.75	1AT16FL20**	56.1		1B16FL20	56.1							
-20	-20	2.00	1AT20FL20**	63.8		1B20FL20	63.8		1E20FL20	66.5				
-24	-20	2.38	1AT24FL20**	64.5		1B24FL20	64.5		1E24FL20	88.8				
-32	-20	2.81	1AT32FL20**	64.5		1B32FL20	64.5							
-24	-24	2.38	1A24FL24	65.5		1B24FL24	65.5		1E24FL24	89.8				
-32	-24	2.81	1A32FL24	65.5		1B32FL24	65.5		1E32FL24	92.9				
-32	-32	2.81	1A32FL32	66.8		1B32FL32	66.8		1E32FL32	95.0				
-40	-32	3.31	1A40FL32	66.8		1B40FL32	66.8							

FLA
Code 61 Flange
45⁰ Swept Bend

Flange Size	Hose Size	'K' Dia in	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No	D	H
-08	-08	1.19	1A8FLA8	50.3	19.8	1B8FLA8	50.3	19.8						
-12	-08	1.50	1A12FLA8	64.0	25.4	1B12FLA8	64.0	25.4						
-12	-10	1.50	1A12FLA10	63.3	25.4	1B12FLA10	63.3	25.4						
-12	-12	1.50	1A12FLA12	64.5	25.7	1B12FLA12	64.5	25.7	1E12FLA12	80.3	27.0			
-16	-12	1.75	1A16FLA12	75.4	27.0	1B16FLA12	75.4	27.0	1E16FLA12	91.5	32.0			
-16	-16	1.75	1A16FLA16	76.2	27.0	1B16FLA16	76.2	27.0	1E16FLA16	96.7	32.0			
-20	-16	2.00	1A20FLA16	87.6	29.2	1B20FLA16	87.6	29.2	1E20FLA16	112.4	39.0			
-16	-20	1.75	1AT16FLA20**	77.7	29.2	1B16FLA20	77.7	29.2						
-20	-20	2.00	1AT20FLA20**	89.4	30.0	1B20FLA20	89.4	30.0	1E20FLA20	118.4	39.0			
-24	-20	2.38	1AT24FLA20**	106.7	35.8	1B24FLA20	106.7	35.8	1E24FLA20	131.3	45.0			
-20	-24	2.00	1A20FLA24	69.1	27.4									
-24	-24	2.38	1A24FLA24	108.0	35.8	1B24FLA24	108.0	35.8	1E24FLA24	132.2	45.0			
-24	-32	2.38	1A24FLA32	109.0	35.8									
-32	-24	2.81							1E32FLA24	169.2	57.5			
-32	-32	2.81	1A32FLA32	140.0	50.8	1B32FLA32	140.0	50.8	1E32FLA32	171.3	57.5			
-40	-32	3.31	1A40FLA32	83.6	33.0									

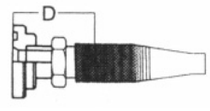
* Use with 1 wire hose ** Use with 2 wire hose

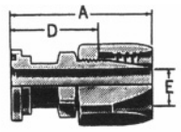
FL

Code 61 Flange

REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807

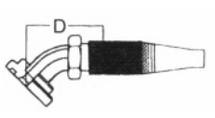


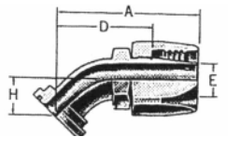


Flange Size	Hose Size	'K'	Part No	D	H	Part No	D	H	Part No	D	H	Part No	D	H
-8	-08	1.19	DSR12-0808			4775-8S	41.1							
-12	-08	1.50												
-12	-10	1.50												
-12	-12	1.50	DSR12-1212			4775-12S	40.4							
-16	-12	1.75				4775-16-12S	50.3							
-20	-12	2.00				4775-20-12S	50.3							
-12	-16	1.50												
-16	-16	1.75	DSR12-1616			4775-16S	38.1							
-20	-16	2.00				4775-20-16S	41.0							
-16	-20	1.75												
-20	-20	2.00				4775-20S	56.1							
-20	-24	2.00				4775-20-24	56.4							
-32	-20	2.81												
-24	-24	2.38				4775-24S	65.0							
-32	-24	2.81				4775-32-24S	65.0							
-24	-32	2.38				4775-24-32S	65.5							
-32	-32	2.81				4775-32S	78.2							
-40	-32	3.31				4775-40-32S	79.8							

FLA

Code 61 Flange
45 Swept Bend



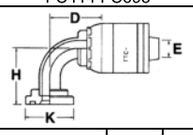
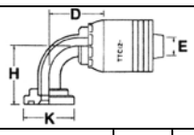
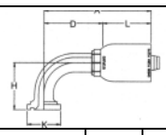


Flange Size	Hose Size	K' Dia in	Part No	D	H	Part No	D	H	Part No	D	H	Part No	D	H
-8	-08	1.19	DSR14-0808			4777-8S	58.4	25.4						
-12	-08	1.50												
-12	-10	1.50												
-12	-12	1.50	DSR14-1212			4777-12S	62.2	25.4						
-16	-12	1.75				4777-16-12S	62.2	25.4						
-16	-16	1.75	DSR14-1616			4777-16S	64.3	28.5						
-20	-16	2.00				4777-20-16S	64.3	28.5						
-20	-20	2.00				4777-20S	69.9	28.5						
-24	-20	2.38				4777-24-20S	69.9	28.5						
-20	-24	2.00												
-24	-24	2.38				4777-24S	74.2	28.5						
-24	-32	2.38				4777-24-32S	74.9	28.5						
-32	-24	2.81				4777-32-24S	84.6	28.5						
-32	-32	2.81				4777-32S	84.6	28.5						
-40	-32	3.31				4777-40-32S	85.9	33.0						

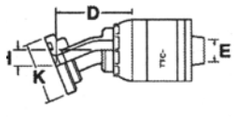
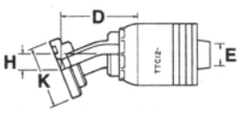
Powering Business Worldwide

Fittings

FLB
Code 61 Flange
90⁰ Swept Bend

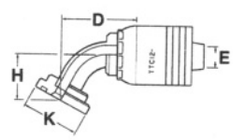
			GLOBAL CRIMP FITTINGS						GLOBAL SPIRAL TTC					
			TTC			TTC12			4 WIRE			6 WIRE		
			GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695			GH493 FC736 FC659 FC636			GH506 FC273-12 & -16			FC273-20 TO -32 GH466-20 & -24 FC606-16 & -20		
														
Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-8	-08	1.19	1A8FLB8	42.4	41.4	1B8FLB8	42.4	41.4						
-12	-08	1.50	1A12FLB8	57.9	54.1	1B12FLB8	57.9	54.1						
-12	-10	1.50	1A12FLB10	58.2	54.1	1B12FLB10	58.2	54.1						
-12	-12	1.50	1A12FLB12	58.4	54.1	1B12FLB12	58.4	54.1	1E12FLB12	75.0	59.0			
-16	-12	1.75	1A16FLB12	72.1	60.5	1B16FLB12	72.1	60.5	1E16FLB12	86.4	71.0			
-12	-16	1.50	1A12FLB16	72.4	2.17									
-16	-16	1.75	1A16FLB16	72.6	60.5	1B16FLB16	72.6	60.5	1E16FLB16	91.6	71.0			
-20	-16	2.00	1A20FLB16	89.0	64.5	1B20FLB16	89.0	64.5	1E20FLB16	107.4	89.0			
-24	-16	2.37	1A24FLB16	107.7	79.2	1B24FLB16	107.7	79.2						
-16	-20	1.75	1AT16FLB20**	74.7	60.5	1B16FLB20	74.7	60.5						
-20	-20	2.00	1AT20FLB20**	90.7	79.3	1B20FLB20	90.7	79.3	1E20FLB20	113.4	89.0			
-24	-20	2.37	1AT24FLB20**	109.5	79.3	1B24FLB20	109.5	79.3	1E24FLB20	126.1	104.0			
-16	-24	1.75	1A16FLB24	75.4	60.5	1B16FLB24	75.4	60.5						
-20	-24	2.00	1A20FLB24	91.7	66.5									
-24	-24	2.37	1A24FLB24	110.5	79.2	1B24FLB24	110.5	79.2	1E24FLB24	127.1	104.0			
-32	-24	2.81	1A32FLB24	138.4	114.3	1B32FLB24	138.4	114.3	1E32FLB24	165.6	138.0			
-32	-32	2.81	1A32FLB32	139.5	114.3	1B32FLB32	119.9	114.3	1E32FLB32	167.7	138.0			
-40	-32	3.31	1A40FLB32	119.5	115.8	1B40FLB32	119.9	115.8						

FLD
Code 61 Flange
22 1/2⁰ Swept Bend

Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-12	-12	1.50				1B12FLD12	71.6	11.2						
-16	-16	1.75	1A16FLD16	82.3	11.4	1B16FLD16	82.3	11.4						
-20	-16	2.00				1B20FLD16	95.8	11.7						
-20	-20	2.00	1AT20FLD20**	97.3	11.7	1B20FLD20	97.3	11.7						
-24	-20	2.37				1B24FLD20	116.3	14.2						
-24	-24	2.37				1B24FLD24	117.6	14.2						
-32	-32	2.81				1B32FLD32	117.6	22.4						

FLE
Code 61 Flange
67 1/2⁰ Swept Bend



Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-12	-12	1.50				1B12FLE12	69.9	40.4						
-16	-16	1.75				1B16FLE16	81.8	44.2						
-20	-20	2.00				1B20FLE20	95.5	46.5						
-24	-20	2.37				1B24FLE20@P	105.5	46.5						
-24	-24	2.37				1B24FLE24	115.3	54.4						

* Use with 1 wire hose ** Use with 2 wire hose

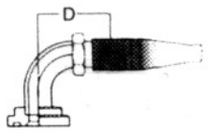
EATON
Powering Business Worldwide

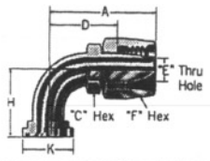
Fittings

FLB
Code 61 Flange
90" Swept Bend

REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH 663 GH 793 GH 781 GH 195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807





Flange Size	Hose Size	'K'	Part No	D	H	Part No	D	H	Part No	D	H	Part No	D	H
-8	-08	1.19	DSR13-0808	41.9	41.1	4779-8S	44.0	41.1						
-12	-08	1.50	DSR13-1208	41.7	41.1									
-12	-12	1.50	DSR13-1212	62.0	53.9	4779-12S	55.0	62.0						
-16	-12	1.75	DSR13-1612	62.0	53.9	4779-16-12S	55.0	62.0						
-12	-16	1.50				4779-12-16S	51.6	62.0						
-16	-16	1.75	DSR13-1616	65.0	60.5	4779-16S	58.0	65.0						
-20	-16	2.00				4779-20-16S	58.0	65.0						
-16	-20	1.75				4779-16-20S	61.0	65.0						
-20	-20	2.00				4779-20S	67.3	63.5						
-24	-20	2.37				4779-24-20S	67.3	63.5						
-20	-24	2.00				4779-20-24S	67.6	63.5						
-24	-24	2.37				4779-24S	75.4	70.0						
-24	-32	2.37				4779-24-32	75.7	70.0						
-32	-32	2.81				4779-32S	90.2	82.6						
-40	-32	3.31				4779-40-32S	90.2	84.0						

FLD
Code 61 Flange
22 1/2^0 Swept Bend

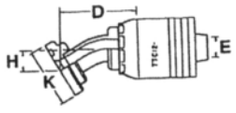
Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-12	-12	1.50												
-16	-16	1.75												
-20	-16	2.00												
-20	-20	2.00												
-24	-20	2.37												
-24	-24	2.37												
-32	-32	2.81												

FLE
Code 61 Flange
67 1/2^0 Swept Bend

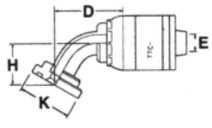
Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-12	-12	1.50												
-16	-16	1.75												
-20	-20	2.00												
-24	-20	2.37												
-24	-24	2.37												

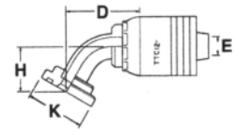
EATON
Powering Business Worldwide

FLF
Code 61 Flange
30" Swept Bend

GLOBAL CRIMP FITTINGS								GLOBAL SPIRAL TTC					
TTC					TTC12			4 WIRE			6 WIRE		
GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC659					GH493 FC736 FC659 FC636			GH506 FC273-12 & -16			FC273-20 TO -32 GH466-20 & -24 FC606-16 & -20		
													
Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-08	-08	1.19				1B8FLF8	54.6	12.7						
-12	-12	1.50				1B12FLF12	70.0	15.7						
-16	-12	1.75				1B16FLF12	81.0	16.2						
-16	-16	1.75				1B16FLF16	81.8	16.2						
-20	-16	2.00				1B20FLF16	93.7	17						
-20	-20	2.00				1B20FLF20	95.5	17						
-24	-20	2.37				1B24FLF20	114.0	20.8						
-24	-24	2.37				1B24FLF24	115.0	20.8						
-32	-24	2.37				1B32FLF24@P	120.7	20.8						

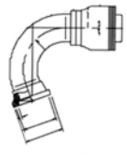
FLG
Code 61 Flange
60" Swept Bend





Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-08	-08	1.19				1B8FLG8	61.0	28.7						
-12	-12	1.50				1B12FLG12	82.0	35.3						
-16	-12	1.75				1B16FLG12	98.0	38.4						
-16	-16	1.75	1A16FLG16	98.8	38.4	1B16FLG16	98.8	38.4						
-20	-16	2.00				1B20FLG16	116.8	39.9						
-20	-20	2.00				1B20FLG20	118.6	39.9						
-24	-20	2.37				1B24FLG20	142.4	46.0						
-24	-24	2.37	1A24FLG24	143.5	46.0	1B24FLG24	143.5	46.0						
-32	-32	2.81				1B32FLG32	132.0	72.9						

1F20292
Code 61 Flange
110" Swept Bend



Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-16	-16	1.75				1F20292-1616-S	58.7	72.0						
-20	-16	2.00												
-20	-20	2.00				1F20292-2020-S	66.0	80.0						
-24	-20	2.37				1F20292-2420-S	66.0	80.0						
-24	-24	2.37				1F20292-2424-S	86.0	106						
-32	-32	2.81				1F20292-3232-S	100.0	135.0						

EATON
Powering Business Worldwide

FLF
Code 61 Flange
30" Swept Bend

REUSABLE

1&2 WIRE	SAE100RS	SOCKETLESS	TEFLOW
GH 663 GH 793 GH 781 GH 195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807

Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-08	-08	1.19												
-12	-12	1.50												
-16	-12	1.75												
-16	-16	1.75												
-20	-16	2.00												
-20	-20	2.00												
-24	-20	2.37												
-24	-24	2.37												
-32	-24	2.37												

FLG
Code 61 Flange
60" Swept Bend

Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-08	-08	1.19												
-12	-12	1.50												
-16	-12	1.75												
-16	-16	1.75												
-20	-16	2.00												
-20	-20	2.00												
-24	-20	2.37												
-24	-24	2.37												
-32	-32	2.81												

1F20292
Code 61 Flange
110" Swept Bend

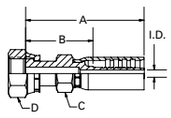
Flange Size	Hose Size	'K'	Part No.	D	H	Part No.	D	H	Part No.	D	H	Part No.	D	H
-16	-16	1.75												
-20	-16	2.00												
-20	-20	2.00												
-24	-20	2.37												
-24	-24	2.37												
-32	-32	2.81												

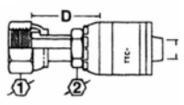
Powering Business Worldwide

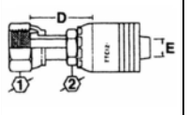
Fittings

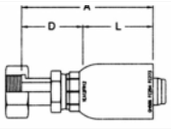
FR
ORS
Female Swivel

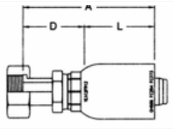
SYNFLEX	GLOBAL CRIMP FITTINGS		GLOBAL SPIRAL TTC	
ONE PIECE	TTC	TTC12	4 WIRE	6 WIRE
3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636	GH506 FC273-12 & -16	FC273-20 to -32 GH466-20 & -24 FC606-16 & -20





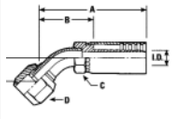


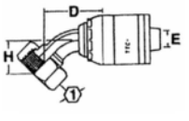


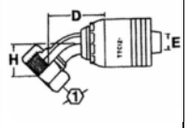


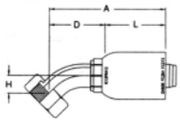
Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
9/16-18	-04	90304 - 044000	1AA4FR4	26.2						
11/16-16	-04	90304 - 064000	1AA6FR4	28.5						
9/16-16	-06		1AA4FR6	28.5						
11/16-16	-06	90306 - 064000	1AA6FR6	31.5	1BA6FR6	31.5				
13/16-16	-06		1AA8FR6	33.5	1BA8FR6	33.5				
11/16-16	-08		1AA6FR8	34.0	1BA6FR8	34.0				
13/16-16	-08	90308 - 084000	1AA8FR8	38.0	1BA8FR8	38.0				
1-14	-08	90308 - 104000	1AA10FR8	37.3	1BA10FR8	37.3				
1 3/16-12	-08		1AA12FR8	41.4	1BA12FR8	41.4				
13/16-16	-10		1AA8FR10	38.4	1BA8FR10	38.4				
1-14	-10		1AA10FR10	40.9	1BA10FR10	40.9				
1 3/16-12	-10		1AA12FR10	41.4	1BA12FR10	41.4				
1-14	-12		1AA10FR12	41.2	1BA10FR12	41.2				
1 3/16-12	-12	90312 - 124000	1AA12FR12	43.7	1BA12FR12	43.7	1EA12FR12	50.9		
1 7/16-12	-12		1AA16FR12	45.5	1BA16FR12	45.5	1EA16FR12	39.6		
1 3/16-12	-16		1AA12FR16	47.2	1BA12FR16	47.2				
1 7/16-12	-16	90316 - 164000	1AA16FR16	49.3	1BA16FR16	49.3	1EA16FR16	54.5	1ZA16FR16	54.5
1 11/16-12	-16		1AA20FR16	52.8	1BA20FR16	52.8	1EA20FR16	41.4	1ZA20FR16	41.4
1 11/16-12	-20		1AV20FR20**	54.6	1BA20FR20	54.6	1EA20FR20	61.7	1ZA20FR20	61.7
2-12	-20		1AV24FR20**	54.6	1BA24FR20	54.6				
2-12	-24		1AA24FR24	55.6	1BA24FR24	55.6	1EA24FR24	48.9	1ZA24FR24	48.9

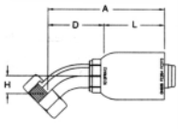
FRA
ORS
45⁰ Swept Bend
Female Swivel











Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
9/16-18	-04	90304 - 044040	1AA4FRA4	30.5						
11/16-16	-04		1AA6FRA4	34.3						
9/16-18	-06		1AA4FRA6	33.0						
11/16-16	-06	90306 - 064040	1AA6FRA6	35.6	1BA6FRA6	35.6				
13/16-16	-06		1AA8FRA6	41.4	1BA8FRA6	41.4				
13/16-16	-08	90308 - 084040	1AA8FRA8	42.4	1BA8FRA8	42.4				
1-14	-08		1AA10FRA8	51.0						
1 3/16-12	-08		1AA12FRA8	59.7						
1-14	-10		1AA10FRA10	47.5						
1 3/16-12	-10		1AA12FRA10	59.7						
1 3/16-12	-12	90312 - 124040	1AA12FRA12	60.2	1BA12FRA12	60.2	1EA12FRA12	73.9		
1 7/16-12	-12		1AA16FRA12	72.6			1EA16FRA12	83.4		
1 7/16-12	-16		1AA16FRA16	73.7	1BA16FRA16	73.7	1EA16FRA16	88.4	1ZA16FRA16	88.4
1 11/16-12	-16						1EA20FRA16	98.9	1ZA20FRA16	98.9
1 11/16-12	-20		1AV20FRA20**	85.6	1BA20FRA20	85.6	1EA20FRA20	104.8	1ZA20FRA20	104.8
2-12	-20		1AV24FRA20**	95.5						
2-12	-24		1AA24FRA24	68.8						

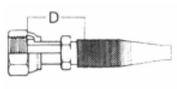
* Use with 1 wire hose ** Use with 2 wire hose

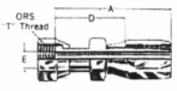
EATON
Powering Business Worldwide

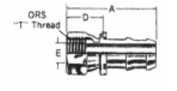
FR
ORS
Female Swivel

REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807

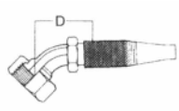


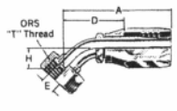


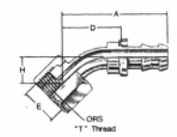


Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
9/16-18	-04	DSR4J-0904		FJ9706-0404S	34.0	FJ7044-0404S	17.3		
9/16-18	-06								
11/16-16	-06	DSR4J-1106		FJ9706-0606S	38.9	FJ7044-0606S	19.3		
13/16-16	-06								
11/16-16	-08								
13/16-16	-08	DSR4J-1308		FJ9706-0808S	50.3	FJ7044-0808S	23.4		
1-14	-08								
1 3/16-12	-08								
13/16-16	-10								
1-14	-10	DSR4J-1610		FJ9706-1010S	52.8	FJ7044-1010S	25.9		
1 3/16-12	-10								
1 14	-12								
1 3/16-12	-12	DSR4J-1912		FJ9706-1212S	53.6	FJ7044-1212S	28.5		
1 7/16-12	-12								
1 3/16-12	-16								
1 7/16-12	-16	DSR4J-2316		FJ9706-1616S	56.6				
1 11/16-12	-16								
1 11/16-12	-20			FJ9706-2020S	57.9				
2-12	-20								
2-12	-24			FJ9706-2424S	61.0				

FRA
ORS
45 ^{0} Swept Bend
Female Swivel





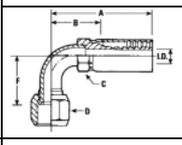
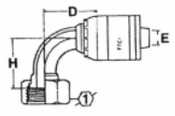
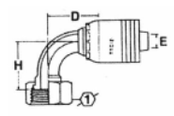
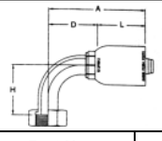
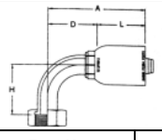


Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
9/16-18	-04	DSR7J-0904		FJ9707-0404S	30.7	FJ7023-0404S	22.6		
9/16-18	-06								
11/16-16	-06	DSR7J-1106		FJ9707-0606S	34.8	FJ7023-0606S	24.6		
13/16-16	-06								
13/16-16	-08	DSR7J-1308		FJ9707-0808S	47.8	FJ7023-0808S	33.5		
1-14	-08								
1 3/16-12	-08								
1-14	-10	DSR7J-1610		FJ9707-1010S	52.8				
1 3/16-12	-10								
1 3/16-12	-12	DSR7J-1912		FJ9707-1212S	53.6	FJ7023-1212S	48.3		
1 7/16-12	-12								
1 7/16-12	-16	DSR7J-2316		FJ9707-1616S	59.7				
1 11/16-12	-16								
1 11/16-12	-20			FJ9707-2020S	69.1				
2-12	-20								
2-12	-24			FJ9707-2424S	72.9				

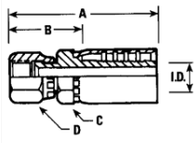
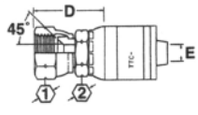
EATON
Powering Business Worldwide

Fittings

FRB
ORS Female
90⁰ S / BEND

		SYNFLEX	GLOBAL CRIMP FITTINGS				GLOBAL SPIRAL TTC			
		ONE PIECE	TTC		TTC12		4 WIRE		6 WIRE	
		3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695		GH493 FC736 FC659 FC636		GH506 FC273-12 & -16		FC273-20 to -32 GH466-20 & -24 FC606-16 & -20	
										
Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
9/16-18	-04	90304 - 0440S0	1AA4FRB4	29.7						
11/16-16	-04		1AA6FRB4	33.0						
9/16-18	-06		1AA4FRB6	30.7						
11/16-16	-06	90306 - 0640S0	1AA6FRB6	34.0	1BA6FRB6	34.0				
13/16-16	-06		1AA8FRB6	41.1	1BA8FRB6	41.1				
13/16-12	-08	90308 - 0840S0	1AA8FRB8	42.4	1BA8FRB8	42.4				
1-4	-08		1AA10FRB8	48.5	1BA10FRB8	48.5				
1 3/16-12	-08		1AA12FRB8	57.9	1BA12FRB8	57.9				
1-4	-10		1AA10FRB10	48.5	1BA10FRB10	48.5				
1 3/16-12	-10		1AA12FRB10	58.2	1BA12FRB10	58.2				
1 3/16-12	-12	90312 - 1240S0	1AA12FRB12	58.4	1BA12FRB12	58.4	1EA12FRB12	69.5		
1 7/16-12	-12		1AA16FRB12	72.4	1BA16FRB12	72.4	1EA16FRB12	80.5		
1 7/16-12	-16		1AA16FRB16	72.9	1BA16FRB16	72.9	1EA16FRB16	85.6	1ZA16FRB16	85.6
1 11/16-12	-16		1AA20FRB16	89.0			1EA20FRB16	98.7	1ZA20FRB16	98.7
1 11/16-12	-20		1AV20FRB20**	90.7	1BA20FRB20	90.7	1EA20FRB20	104.6	1ZA20FRB20	104.6
2-12	-24		1AA24FRB24	71.4						

FS
SAE Female

Thread	Hose	Part No.	Part No.	D	Part No.	D	Part No.	D	Part No.	D
7/16-20	-04	90304 - 045400	1AA4FS4	27.2						
1/2-20	-04	90304 - 055400	1AA5FS4	27.4						
1/2-20	-05									
7/16-20	-06		1AA4FS6	30.2						
5/8-18	-06	90306 - 06A000	1AA6FS6	33.3						
3/4-16	-06	90306 - 085400	1AA8FS6	33.3						
3/4-16	-08	90308 - 085400	1AA8FS8	37.1						
7/8-14	-08	90308 - 105400	1AA10FS8	37.6						
7/8-14	-10									
1 1/16-12	-12	90312 - 12A000	1AA12FS12	41.9						

FSB
SAE Female
90⁰ S/Bend

Thread	Hose	Part No.									

***Use with 1 wire hose ** Use 2 wire hose**

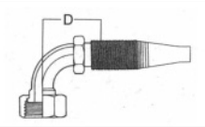
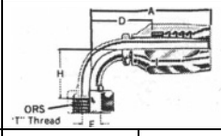
EATON
Powering Business Worldwide

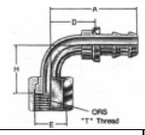
Fittings

FRB
ORS Female
90° S / BEND

REUSABLE

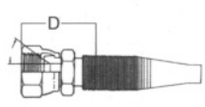
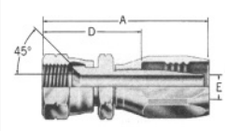
1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807

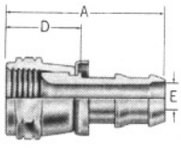
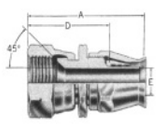





Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
9/16–18	–04	1R4FRB4		FJ9708–0404S	26.7	FJ7358–0404S	19.6		
11/16–16	–04								
9/16–18	–06								
11/16–16	–06	1R6FRB6		FJ9708–0606S	26.7	FJ7358–0606S	23.6		
13/16–16	–06								
13/16–16	–08	1R8FRB8		FJ9708–0808S	26.7	FJ7358–0808S	26.7		
1–14	–08								
1 3/16–12	–08								
1–14	–10	1R10FRB10		FJ9708–1010S	44.2				
1 3/16–12	–10								
1 3/16–12	–12	1R12FRB12		FJ9708–1212S	55.1	FJ7358–1212S	48.3		
1 7/16–12	–12								
1 7/16–12	–16	1R16FRB16		FJ9708–1616S	57.9				
1 1/16–12	–16								
1 1/16–12	–20			FJ9708–2020S	67.3				
2–12	–24			FJ9708–2424S	75.4				

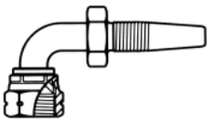
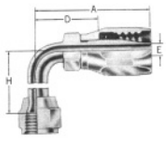
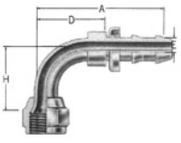
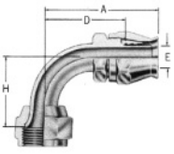
FS
SAE Female

Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
7/16–20	–04	1R4FS4		4401–4S*	31.0	4797–4B	18.0	63–190990–4	28.5
1/2–20	–04	1R5FS4				4797–5–4B	19.6		
1/2–20	–05			4401–5S*	34.0			63–190990–5	29.7
7/16–20	–06								
5/8–18	–06	1R6FS6		4401–6S*	37.1	4739–6B	20.6	63–190990–6	31.8
3/4–16	–06	1R8FS6				4797–8–6B	23.6		
3/4–16	–08	1R8FS8		4401–8S*	41.1	4797–8B	23.6	63–190990–8	34.5
7/8–14	–08	1R10FS8				4797–10–8B	26.9		
7/8–14	–10			4401–10S*	46.0	4797–10B	26.9	63–190990–10	39.1
1 1/16–14	–12			4401–12S*	48.8	4739–12B	30.2	63–190990–12	42.4

FSB
SAE Female
90° S/Bend

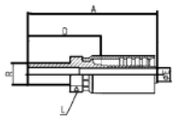
Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
5/8–18	–06	DSR95-1006	23	190302–6S	31.2	190328–6S	21.0	FC9171–0606S	28.0
3/4–16	–06	DSR95-1206	28					FC9171–1212S	55.6
7/8–14	–08	DSR95-1408	31						
1 1/16–14	–12			190302–12S	55.1				

EATON
Powering Business Worldwide

Fittings

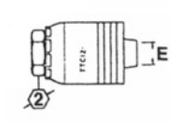
LM
Metric Standpipe

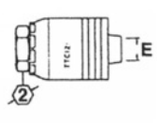
SYNFLEX	GLOBAL CRIMP FITTINGS		GLOBAL SPIRAL TTC	
ONE PIECE	TTC	TTC12	4 WIRE	6 WIRE
3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636	GH506 FC273-12 & -16	FC273-20 to -32 GH466-20 & -24 FC606-16 & -20



Tube OD mm	Hose	Part No	Part No	D	Part No	D	Part No	D	Part No	D
6	-04	90304 - 06N000								
8	-04	90304 - 08N000								
10	-04	90304 - 10N000								
10	-06	90306 - 10N000								
12	-06	90306 - 12N000								
15	-08	90308 - 15N000								
16	-08	90308 - 16N000								
22	-12	90312 - 22N000								
28	-16	90316 - 28N000								

LS
Life Saver





Bore	Hose	Part No	D	Part No	D	Part No	D	Part No	D	Part No	D
1/4"	-04			1A4LS4							
5/16"	-05										
3/8"	-06			1A6LS6		1B6LS6					
1/2"	-08			1A8LS8		1B8LS8					
5/8"	-10			1A10LS10		1B10LS10					
3/4"	-12			1A12LS12		1B12LS12					
1"	-16			1A16LS16		1B16LS16					
1 1/4"	-20			1AT20LS20**		1B20LS20					
1 1/2"	-24			1A24LS24							
2"	-32			1A32LS32							

* Use with 1 wire hose ** Use with 2 wire hose

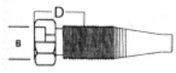
LM
Metric Standpipe

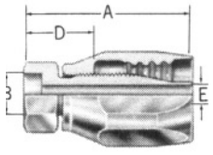
REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807

Tube OD mm	Hose	Part No	D	Part No	D	Part No	D	Part No	D
6	-04								
8	-04								
10	-04								
10	-06								
12	-06								
15	-08	DSR5F-1508							
16	-08	DSR5F-1608							
18	-10	DSR5F-1810							
20	-10	DSR5F-2010							
22	-12								
25	-16	DSR5F-2516							
28	-16	DSR5F-2816							

LS
Life Saver



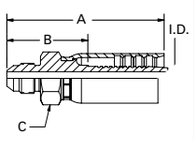
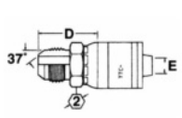
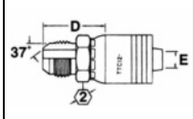


Bore	Hose	Part No	D	Part No	D	Part No	D	Part No	D
1/4"	-04	DSR4G-0404		190000-4S	16.5				
5/16"	-05			190000-5S	19.0				
3/8"	-06	DSR4G-0606		190000-6S	18.5				
1/2"	-08	DSR4G-0808		190000-8S	22.6				
5/8"	-10	DSR4G-1010		190000-10S	22.9				
3/4"	-12	DSR4G-1212		190000-12S	23.4				
1"	-16			190000-16S	19.8				
1 1/4"	-20			190000-20S	22.9				
1 1/2"	-24								
2"	-32								

Powering Business Worldwide

Fittings

MJ
Male JIC

	SYNFLEX	GLOBAL CRIMP FITTINGS		GLOBAL SPIRAL TTC	
	ONE PIECE	TTC	TTC12	4 WIRE	6 WIRE
	3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636	GH506 FC273-12 & -16	FC273-20 to -32 GH466-20 & -24 FC606-16 & -20
					

Thread	Hose	Part No	Part No.	D	Part No.	D	Part No.	D	Part No.	D
7/16-20	-04	90304 - 045000	1AA4MJ4	27.2						
1/2-20	-04	90304 - 055000	1AA5MJ4	28.2						
9/16-18	-04	90304 - 065000	1AA6MJ4	23.6						
9/16-18	-06	90306 - 065000	1AA6MJ6	29.7	1BA6MJ6	29.7				
3/4-16	-06	90306 - 085000	1AA8MJ6	28.2	1BA8MJ6	28.2				
3/4-16	-08	90308 - 085000	1AA8MJ8	35.8	1BA8MJ8	35.8				
7/8-14	-08	90308 - 105000	1AA10MJ8	31.8	1BA10MJ8	31.8				
1 1/16-12	-08	90308 - 125000	1AA12MJ8	36.1	1BA12MJ8	36.1				
7/8-14	-10		1AA10MJ10	39.9	1BA10MJ10	39.9				
1 1/16-12	-10		1AA12MJ10	36.3	1BA12MJ10	36.3				
7/8-14	-12		1AA10MJ12	40.4	1BA10MJ12	40.4				
1 1/16-12	-12	90312 - 125000	1AA12MJ12	44.5	1BA12MJ12	44.5				
1 3/16-12	-12	90312 - 145000	1AA14MJ12	39.1	1BA14MJ12	39.1				
1 5/16-12	-12	90312 - 165000	1AA16MJ12	39.6	1BA16MJ12	39.6				
1 5/16-12	-16	90316 - 165000	1AA16MJ16	48.3	1BA16MJ16	48.3				
1 5/8-12	-20		1AR20MJ20*	54.9	1BA20MJ20	54.9				
1 5/8-12	-20		1AV20MJ20**	54.9						
1 7/8-12	-24		1AA24MJ24	63.2	1BA24MJ24	63.2				
1 1/2-12	-32		1AA32MJ32	73.9						

* Use with 1 wire hose ** Use with 2 wire hose

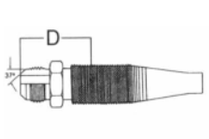
EATON
Powering Business Worldwide

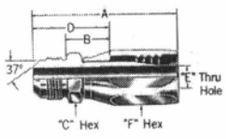
Fittings

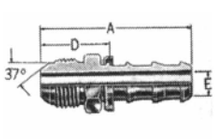
MJ
Male JIC

REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807

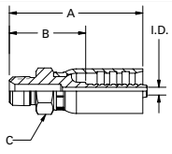
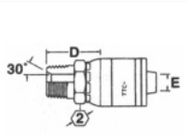
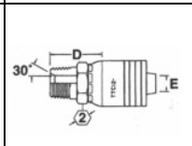
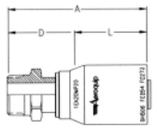
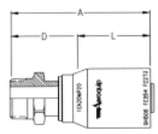






Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
7/16-20	-04	DSR09-0704		4414-4S	28.0	190672-4B	22.4		
1/2-20	-04	DSR09-0804							
9/16-18	-04	DSR09-0904							
9/16-18	-06	DSR09-0906		4414-6S	31.0	190672-6B	22.6		
3/4-16	-06	DSR09-1206							
3/4-16	-08	DSR09-1208		4414-8S	36.1				
7/8-14	-08	DSR09-1408							
1 1/16-12	-08	DSR09-1708							
7/8-14	-10	DSR09-1410		4414-10S	40.6				
1 1/16-12	-10	DSR09-1710		4414-12-10S	44.7				
7/8-14	-12								
1 1/16-12	-12	DSR09-1712		4414-12S	45.2				
1 3/16-12	-12								
1 5/16-12	-12			4414-16-12S	46.5				
1 5/16-12	-16	DSR09-2116		4414-16S	43.0				
1 5/8-12	-20			4414-20S	47.2				
1 5/8-12	-20								
1 7/8-12	-24			4414-24S	50.5				
2 1/2-12	-32			4414-32S	60.5				

EATON
Powering Business Worldwide

MP **NPT Male**		**SYNFLEX**	**GLOBAL CRIMP FITTINGS**				**GLOBAL SPIRAL TTC**			
		ONE PIECE	**TTC**		**TTC12**		**4 WIRE**		**6 WIRE**	
		3130 37AL 3800 3840 3770	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695		GH493 FC736 FC659 FC636		GH506 FC273-12&-16		FC273-20 to -32 GH466-20 & -24 FC606-16 & -20	
										
Thread	**Hose**	**Part No**	**Part No.**	**D**	**Part No.**	**D**	**Part No.**	**D**	**Part No.**	**D**
1/8-27	**-04**	90304 - 021000	1AA2MP4	22.9						
1/4-18	**-04**	90304 - 041000	1AA4MP4	28.5						
3/8-18	**-04**	90304 - 061000	1AA6MP4	24.6						
1/4-18	**-05**	90305 - 041000								
1/4-18	**-06**	90306 - 041000	1AA4MP6	29.7	1BA4MP6	29.7				
3/8-18	**-06**	90306 - 061000	1AA6MP6	32.0	1BA6MP6	32.0				
1/2-14	**-06**	90306 - 081000	1AA8MP6	32.0	1BA8MP6	32.0				
1/4-18	**-08**		1AA4MP8	31.0	1BA4MP8	31.0				
3/8-18	**-08**	90308 - 061000	1AA6MP8	33.3	1BA6MP8	33.3				
1/2-14	**-08**	90308 - 081000	1AA8MP8	39.6	1BA8MP8	39.6				
3/4-14	**-08**		1AA12MP8	35.0	1BA12MP8	35.0				
1/2-14	**-10**		1AA8MP10	39.6	1BA8MP10	39.6				
3/4-14	**-10**		1AA12MP10	35.3	1BA12MP10	35.3				
1/2-14	**-12**	90312 - 081000	1AA8MP12	40.1	1BA8MP12	40.1				
3/4-14	**-12**	90312 - 121000	1AA12MP12	45.4	1BA12MP12	45.4	1EA12MP12	53.7		
1-11 1/2	**-12**		1AA16MP12	40.0	1BA16MP12	40.4				
3/4-14	**-16**		1AA12MP16	42.2	1BA12MP16	42.2				
1-11 1/2	**-16**	90316 - 161000	1AA16MP16	46.7	1BA16MP16	46.7	1EA16MP16	60.4		
1 1/4-11 1/2	**-16**		1AA20MP16	43.4	1BA20MP16	43.4				
1-11 1/2	**-20**		1AV16MP20**	48.5	1BA16MP20	48.5				
1 1/4-11 1/2	**-20**		1AV20MP20**	45.0	1BA20MP20	45.0	1EA20MP20	69.8	1ZA20MP20	69.8
1 1/2-11 1/2	**-24**		1AA24MP24	59.7	1BA24MP24	59.7	1EA24MP24	72.6	1ZA24MP24	72.6
2-11 1/2	**-32**		1AA32MP32	66.0	1BA32MP32	66.0	1EA32MP32	75.2	1ZA32MP32	75.2
2-11 1/2	**-32**						1EA32AP32*	86.2	1ZA32AP32*	86.2

** Use with 2 wire hose

* Conforms to API 5B Tread Standard for Male pipe Fittings.

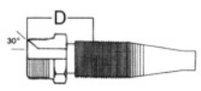
EATON
Powering Business Worldwide

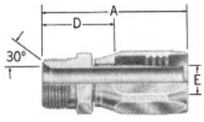
Fittings

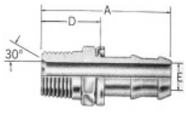
MP
NPT Male

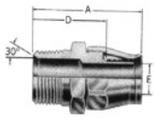
REUSABLE

1 & 2 WIRE	SAE100R5	SOCKETLESS	TEFLON
GH663 GH793 GH781 GH195	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807









Thread	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D
1/8-27	-04	DSR10-0204		4412-2-4S	23.6	4738-2-4B	16.5	38-190627-2-4*	22.6
1/4-18	-04	DSR10-0404		4412-4-4S	28.5	4738-4-4B	21.1	38-190627-4-4	27.4
3/8-18	-04								
1/4-18	-05			4412-4-5S	30.0			38-190627-4-5	27.2
1/4-18	-06	DSR10-0406		4412-4-6S	31.2	4738-4-6B	22.6	38-190627-4-6	28.7
3/8-18	-06	DSR10-0606		4412-6-6S	31.2	4738-6-6B	22.6	38-190627-6-6	28.7
1/2-14	-06	DSR10-0806							
1/4-18	-08								
3/8-18	-08			4412-6-8S	33.8	4738-6-8B	22.6	38-190627-6-8	29.5
1/2-14	-08	DSR10-0808		4412-8-8S	40.1	4738-8-8B	29.0		
3/4-14	-08								
1/2-14	-10			4412-8-10S	40.4	4738-8-10B	29.0	38-190627-8-10	37.1
3/4-14	-10			4412-12-10S	42.0				
1/2-14	-12			4412-8-12S	42.7				
3/4-14	-12	DSR10-1212		4412-12-12S	42.4	4738-12-12B	30.7	38-190627-12-12	41.0
1-11 1/2	-12								
3/4-16	-16								
1-11 1/2	-16	DSR10-1616		412-16-16S	43.7			38-190627-16-16	47.2
1 1/4-11 1/2	-16								
1-11 1/2	-20								
1 1/4-11 1/2	-20			412-20-20S	47.5			38-190627-20-20	
1 1/2-11 1/2	-24			412-24-24S	51.6				
2-11 1/2	-32			412-32-32S	55.9				

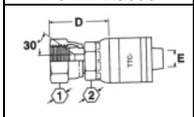
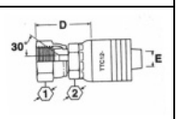
EATON
Powering Business Worldwide

Fittings

JF
JIS
Female Swivel

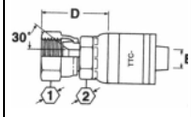
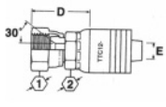
GLOBAL CRIMP FITTINGS

	TTC	TTC12
	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636

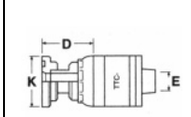
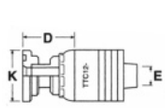
Thread	Hose	Part No.	D	Part No.	D
1/4-19	-04	1A4JF4	29.8		
3/8-19	-06	1A6JF6	33.9	1B6JF6	33.9
1/2-14	-08	1A8JF8	36.6	1B8JF8	36.6
3/4-14	-12	1A12JF12	43.1	1B12JF12	43.1
1-11	-16	1A16JF16	49.2	1B16JF16	49.2
1 1/4-11	-20	1AP20JF20*	49.2		
1 1/4-11	-20	1AT20JF20**	58.1	1B20JF20	58.1
1 1/2-11	-24	1A24JF24	63.4	1B24JF24	63.4
2-11	-32	1A32JF32	72.4	1B32JF32	72.4

KF
Komatsu
Female Swivel

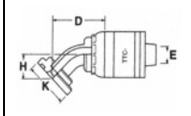
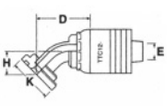
Thread	Hose	Part No.	D	Part No.	D
M14 X 1.5	-04	1A4KF4	32.7		
M18 X 1.5	-06	1A6KF6	35.1	1B6KF6	35.1
M22 X 1.5	-08	1A8KF8	39.8	1B8KF8	39.8
M24 X 1.5	-10	1A10KF10	46.0	1B10KF10	46.0
M24 X 1.5	-12	1A10KF12	46.4	1B10KF12	46.4
M30 X 1.5	-12	1A12KF12	51.3	1B12KF12	51.3
M33 X 1.5	-16	1A16KF16	57.0	1B16KF16	57.0
M36 X 1.5	-20	1AP20KF20*	69.4		
M36 X 1.5	-20	1AT20KF20**	69.4		
M42 X 1.5	-24	1A24KF24	74.2		

KS
Komatsu
Split Flange

Flange Size	Hose	Part No.	D	Part No.	D
-10	-10	1A10KS10		1B10KS10	

KSA
Komatsu
Split Flange
45° S/Bend

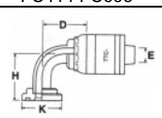
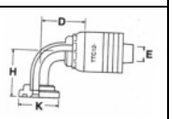



Flange Size	Hose	Part No.	D	Part No.	D
-10	-10	1A10KSA10	56.7	1B10KSA10	56.7

KSB
Komatsu
90° S/Bend

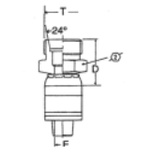
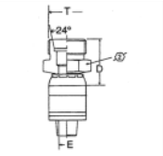
GLOBAL CRIMP FITTINGS

	TTC	TTC12
	GH663 GH781 GH793 FC735 FRH GH195 2661 FC619 FC611 FC693 FC414 FC695	GH493 FC736 FC659 FC636

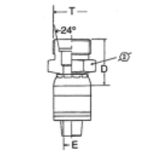
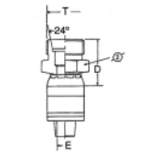
Flange Size	D	Part No.	D	Part No.	D
-10	-10	1A10KSB10	48.5	1B10KSB10	48.5

MG
Gaz Male

Thread	D	Part No.	D	Part No.	D
M20 X 1.5	-06	1A13MG6	24.1		
M24 X 1.5	-08	1A17MG8	25.3	1B17MG8	25.3
M30 X 1.5	-10	1A21MG10	29.5	1B21MG10	29.5
M36 X 1.5	-12	1A27MG12	29.9	1B27MG12	29.9
M45 X 1.5	-16	1A34MG16	32.5	1B34MG16	32.5
M52 X 1.5	-20	1AT42MG20**	36.2	1B42MG20	36.2

MM
Millimetrique
Male

Thread	D	Part No.	D	Part No.	D
M12 X 1	-04	1A6MM4	22.9		
M14 X 1.5	-04	1A8MM4	21.1		
M18 X 1.5	-06	1A12MM6	23.7	1B12MM6	23.7
M20 X 1.5	-06	1A14MM6	24.1	1B14MM6	24.1
M22 X 1.5	-08	1A15MM8	26.3	1B15MM8	26.3
M24 X 1.5	-08	1A16MM8	28.3	1B16MM8	28.3
M27 X 1.5	-10	1A18MM10	29.5	1B18MM10	29.5
M27 X 1.5	-10	1A20MM10	29.5	1B20MM10	29.5
M30 X 1.5	-12	1A22MM12	29.9	1B22MM12	29.9
M33 X 1.5	-12	1A25MM12	29.9	1B25MM12	29.9

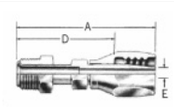
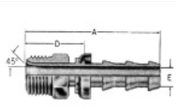
* Use with 1 wire hose ** Use with 2 wire hose

EATON
Powering Business Worldwide

Fittings

MF
Male Inverted Flare

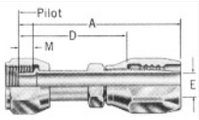
CRIMP	REUSABLE	
TEFLON	SAE100R5	SOCKETLESS
2807	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662

Thread	Hose	Part No.	D	Part No.	D	Part No.	D
3/8-24	-04						
7/16-24	-04			190111-4S	43.4	4740-4B	19.0
1/2-20	-04					4740-5-4B	20.8
1/2-20	-05			190111-5S	46.7		
1/2-20	-06			190111-5-6S	46.2		
5/8-18	-06			190111-6S	46.2	4740-6B	21.8
5/8-18	-08			190111-6-8S	50.3		
3/4-18	-08			190111-8S	52.1	4740-8B	23.9

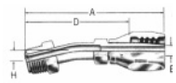
Bump Tube
O'ring Female Swivel

REUSABLE
SAE100R5
FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234



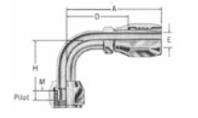
Thread	Hose	Part No.	D
5/8-18	-06	FC7048-0606S	45.0
3/4-16	-08	FC7048-0808S	54.0
7/8-14	-10	FC7048-1010S	59.0
1 1/16-14	-12	FC7048-1212S	62.0	

Male Inverted Flare 15° Swept Bend



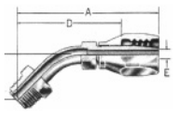
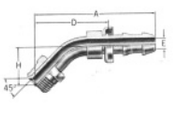
Thread	Hose	Part No.	D	Part No.	D
5/8-18	-06			190350-6S	60.0

Bump Tube
O'ring Female Swivel 90° Swept Bend



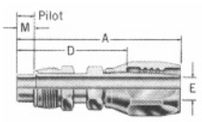
Thread	Hose	Part No.	D
5/8-18	-06	FC7573-0606S	46.2
3/4-16	-08	FC7573-0808S	59.7
7/8-14	-10	FC7573-1010S	74.4
1 1/16-14	-10	FC7573-1210S	86.4
1 1/16-14	-12	FC7573-1212S	87.0

MFA
Male Inverted Flare 45° Swept Bend

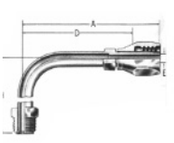
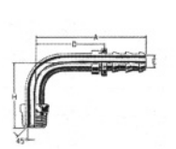
Thread	Hose	Part No.	D	Part No.	D	Part No.	D
3/8-24	-04						
7/16-24	-04			190371-4S	50.6	190944-4S	43.2
1/2-20	-05			190371-5S	53.8		
5/8-18	-06			190371-6S	53.3	190944-6S	43.2
3/4-18	-08			190371-8S	56.9		
7/8-18	-10			190371-10S	36.6		

Bump Tube
Male



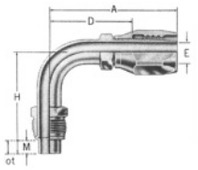
Thread	Hose	Part No.	D in.
5/8-18	-06	FC7646-0606S	54.1
3/4-18	-08	FC7646-0808S	57.9
7/8-18	-10	FC7646-1010S	65.0

MFB
Male Inverted Flare 90° Swept Bend

Thread	Hose	Part No.	D	Part No.	D	Part No.	D
3/8-24	-04						
7/16-24	-04			190235-4S	41.1	190327-4S	33.8
1/2-20	-05			190235-5S	44.5		
5/8-18	-06			190235-6S	44.0	190327-6S	33.8
11/16-18	-06			190235-7-6S	44.0		
5/8-18	-08			190235-6-8S	48.0		
3/4-18	-08			190235-8S	48.0	190327-8S	33.8

Bump Tube
Male 90° Swept Bend



Thread	Hose	Part No.	D
5/8-18	-06	FC7662-0606S	40.4
7/8-18	-10	FC7662-1010S	50.5

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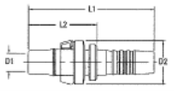
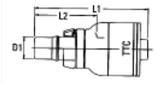
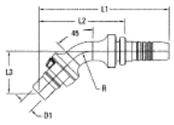
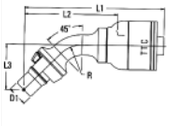
Fittings

MC
Male STC.

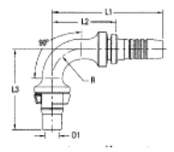
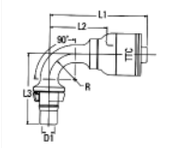
GLOBAL CRIMP FITTINGS						GLOBAL SPIRAL TTC			
TWO PIECE		TTC		TTC 12		4 WIRE		6 WIRE	
FC372 FC373 FC901 FS902 GH663 GH781 GH793 FC735 GH195		GH663 GH781 GH793 GC735 FRH GH195 2661 FC618 FC611 FC683 FC414 FC695		GH493 FC736 FC659 FC636		GH506 FC273-12-16		FC273-20 to 32 GH466-20 to 24 FC606-16 to 20	
									
Coupling	Hose	Part No.	D	Part No.	D	Part No.	D	Part No.	D	Part No.	D
-6	-04	IS6MC4		IA6MC4							
-6	-06	IS6MC6		IA6MC6							
-6	-08	IS8MC6		IA8MC6							
-8	-08	IS8MC8		IA8MC8							
-10	-10	IS10MC10		IA10MC10							
-12	-12	IS12MC12		IA12MC12							
-16	-16	IS16MC16		IA16MC16							

MCA
Male STC. 45° Swept Bend

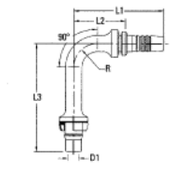
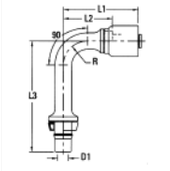
Coupling	Hos	art No.	D	P	D	Thread	D	Part No.	D	Part No.	D
-6	-06										
-8	-06	IS8MCA6	0.87	IA8MCA6	0.87						
-8	-08	IS8MCA8	1.17	IA8MCA8	1.17						
-10	-10	IS10MCA10	1.32	IA10MCA10	1.32						
-12	-12	IS12MCA12	1.60	IA12MCA12	1.60						
-16	-16	IS16MCA16	1.89	IA16MCA16	1.89						

MCB
Male STC. 90° Swept Bend

Coupling	Hose	Part No.	D	Part No.	D	Thread	D	Part No.	D	Part No.	D
-6	-06	IS6MCB6	1.56	IA6MCB6	1.56						
-8	-08	IS8MCB8	2.09	IA8MCB8	2.09						
-10	-10	IS10MCB10	2.36	IA10MCB10	2.36						
-12	-12	IS12MCB12	2.98	IA12MCB12	2.98						
-16	-16	IS16MCB16	3.54	IA16MCB16	3.54						

MCC
Male STC. 90° Swept Bend- Long Drop

Coupling	Hose	Part No.	D	Part No.	D	Thread	D	Part No.	D	Part No.	D
-6	-06	IS6MCC6	2.78	IA6MCC6	2.78						
-8	-08	IS8MCC8	3.46	IA8MCC8	3.46						
-10	-10	IS10MCC10	3.87	IA10MCC10	3.87						
-12	-12	IS12MCC12	4.87	IA12MCC12	4.89						

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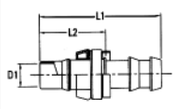
MC
Male STC

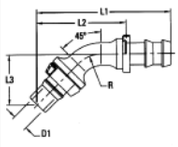
REUSABLE

1&2 WIRE	SAE 100R5	SOCKETLESS	TEFLON
GH1663 GH793	FC350 FC300 FC355 FC802 FC621 FC558 1503 FC234	FC332 FC662	2807



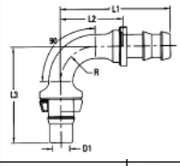
Coupling	Hose	SOCKETLESS
-6	-04	
-6	-06	FJ5783-0606S
-6	-08	FJ5783-0608S
-8	-08	FJ5783-0808S
-10	-10	FJ5783-1010S
-12	-12	FJ5783-1212S

MCA
Male STC
45° Swept Bend



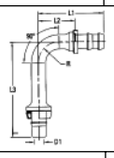
Coupling	Hose	SOCKETLESS	D
-6	-06	FJ3128-0606S	0.86
-6	-06		
-8	-08	FJ3128-0808S	1.15
-10	-10	FJ3128-1010S	1.32
-12	-12	FJ3128-1212S	1.60
-16	-16		

MCB
Male STC
90° Swept Bend



Coupling	Hose	SOCKETLESS	D
-6	-06	FJ3031-0606S	1.54
-8	-08	FJ3031-0808S	2.06
-10	-10	FJ3031-1010S	2.38
-12	-12	FJ3031-1212S	2.98
-16	-16		

MCC
Male STC
90° Swept Bend - Long Drop



Coupling	Hose	SOCKETLESS	D
-6	-06	FJ3005-0606S	2.76
-8	-08	FJ3005-0808S	3.44
-10	-10	FJ3005-1010S	3.87
-12	-12	FJ3005-1212S	4.87

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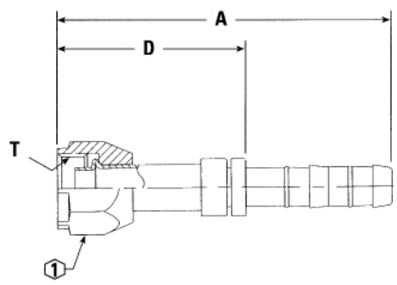
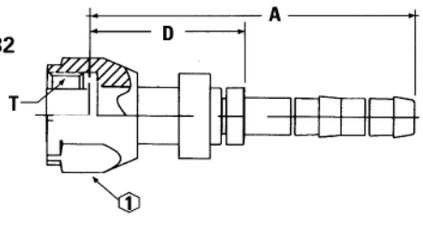
FJ5984



Straight – Female O-ring (short pilot)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ5984-0606S	5/8-18	6	3.14	1.62	—	—	0.75
FJ5984-0608S	5/8-18	8	3.16	1.62	—	—	0.75
FJ5984-0808S	3/4-16	8	3.56	2.02	—	—	0.88
FJ5984-0810S	3/4-16	10	3.57	2.02	—	—	0.88
FJ5984-1008S	7/8-14	8	3.62	2.08	—	—	0.88
FJ5984-1010S	7/8-14	10	3.63	2.08	—	—	1.06
FJ5984-1012S	7/8-14	12	3.66	2.08	—	—	1.06
FJ5984-1210S	1-1/16-14	10	4.25	2.62	—	—	1.25
FJ5984-1212S	1-1/16-14	12	4.25	2.67	—	—	1.25

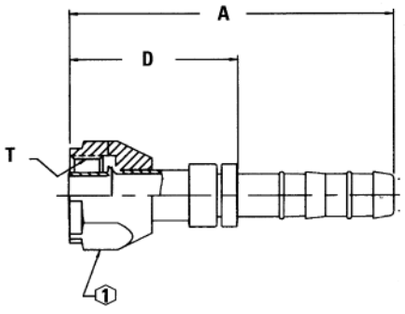
FJ3632



Straight - Female O-ring (long pilot)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3632-0806S	3/4-16	6	2.91	1.36			0.875

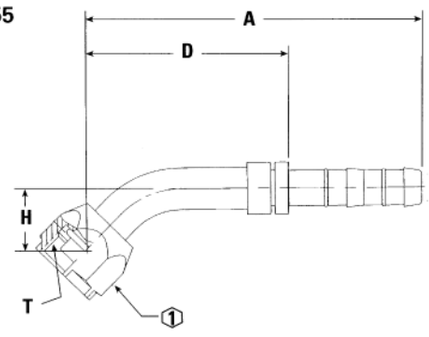
FJ3408



Straight – Female O-ring, Metric Thread (long pilot)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3408-0808S	M20 x 1.5	8	3.20	1.66	—	—	0.94
FJ3408-0810S	M20 x 1.5	10	3.21	1.66	—	—	0.94
FJ3408-1212S	M27 x 2	12	4.25	2.67	—	—	1.25

FJ3055



45° Elbow Female O-ring (short pilot)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3055-01-0606S	5/8-18	6	3.60	2.08	—	0.67	0.75
FJ3055-02-0608S	5/8-18	8	3.62	2.08	—	0.67	0.75
FJ3055-03-0808S	3/4-16	8	3.94	2.40	—	0.73	0.88
FJ3055-04-0810S	3/4-16	10	3.95	2.40	—	0.73	0.88
FJ3055-05-1010S	7/8-14	10	4.37	2.81	—	1.19	1.06
FJ3055-06-1012S	7/8-14	12	4.46	2.88	—	1.25	1.06
FJ3055-07-1212S	1-1/16-14	12	5.33	3.75	—	1.47	1.25

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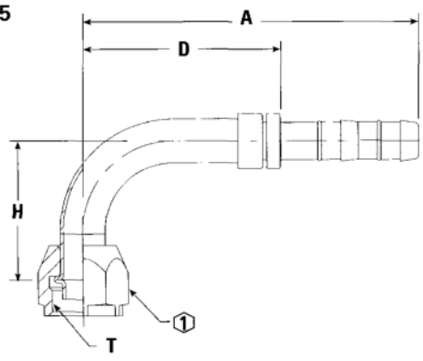
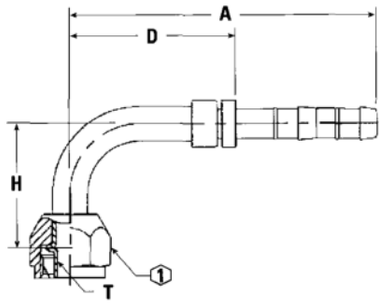
FJ5985



90° Elbow – Female O-ring (short pilot)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ5985-0606S	5/8-18	6	3.32	1.79	—	1.38	0.75
FJ5985-0608S	5/8-18	8	3.33	1.79	—	1.38	0.75
FJ5985-0806S	3/4-16	6	3.86	2.33	—	1.62	0.88
FJ5985-0808S	3/4-16	8	3.77	2.23	—	1.62	0.88
FJ5985-0810S	3/4-16	10	3.78	2.23	—	1.62	0.88
FJ5985-1010S	7/8-14	10	4.22	2.67	—	1.89	1.06
FJ5985-1012S	7/8-14	12	4.24	2.67	—	1.89	1.06
FJ5985-1210S	1-1/16-14	10	4.76	3.31	—	2.56	1.25
FJ5985-1212S	1-1/16-14	12	4.74	3.16	—	2.56	1.25

FJ3288

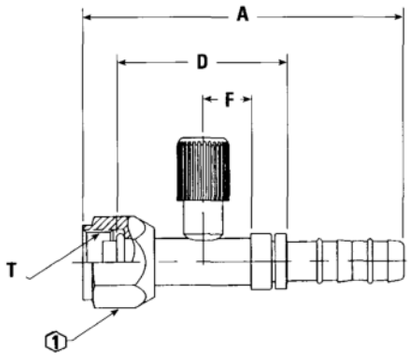


90° Female O-ring (long pilot)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3288-01-0606S	5/8-18	6	3.32	1.79	–	1.38	0.75
FJ3288-02-0808S	3/4-16	8	3.77	2.23	–	1.62	0.88
FJ3288-03-0806S	3/4-16	6	3.75	2.33	–	1.62	0.88
FJ3288-04-0810S*	3/4-16	10	3.78	2.23	–	1.62	0.88

*May not be available.

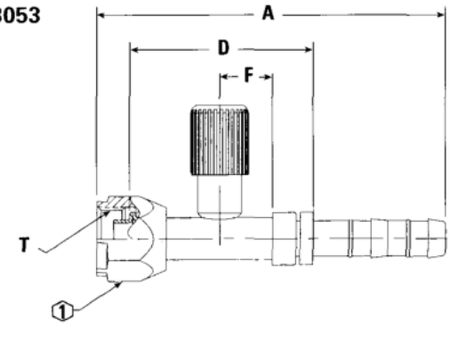
FJ3054



Straight – Female O-ring (short pilot) with R134a Low Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3054-1010S	7/8-14	10	4.24	2.25	0.63	—	1.06
FJ3054-1012S	7/8-14	12	4.27	2.25	0.63	—	1.06
FJ3054-1212S	1-1/16-14	12	4.58	2.43	0.54	—	1.25

FJ3053



Straight – Female O-ring (short pilot) with R134a High Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3053-0606S	5/8-18	6	3.91	2.10	0.63	—	0.75
FJ3053-0806S*	3/4-16	6	4.06	2.26	0.63	—	0.88
FJ3053-0808S	3/4-16	8	4.09	2.16	0.63	—	0.88
FJ3053-0810S	3/4-16	10	4.09	2.16	0.63	—	0.88

*May not be available.

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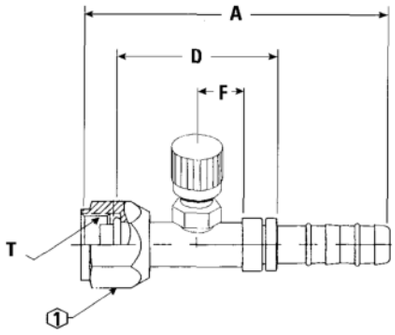
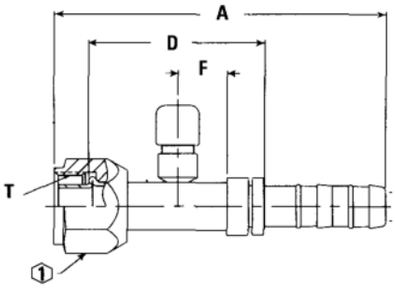
FJ3162



Straight – Female O-ring (long pilot) with Switch Port (7/16-20 thd)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3162-0808S	3/4-16	8	4.09	2.16	0.79	—	0.88
FJ3162-1010S	7/8-14	10	4.25	2.25	0.79	—	1.06
FJ3162-1012S	7/8-14	12	4.27	2.25	0.79	—	1.06
FJ3162-1212S	1-1/16-14	12	4.86	2.71	0.79	—	1.25

FJ3416

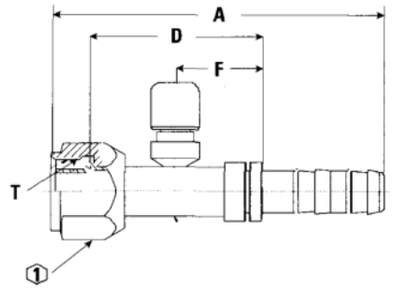


Straight – Female O-ring (long pilot) with Switch Port (M10 X 1.25)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3416-01-1010S	7/8-14	10	4.25	2.25	.63	—	1.06
FJ3416-02-0808S*	3/4-16	8	4.86	2.53	.79	—	1.06

*May not be available

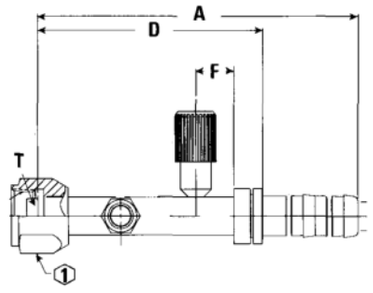
FJ3461



Straight – Female O-ring (long pilot) with Switch Port (M12 X 1.25)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3461-01-1010S	7/8-14	10	4.25	2.25	.63	—	1.06
FJ3461-02-1012S	7/8-14	12	4.27	2.25	.63	—	1.06
FJ3461-03-1212S	1-1/16-14	12	4.86	2.71	.54	—	1.25

FJ3363



Straight – Female O-ring (short pilot), with R134a High side port and female switch connection, (1/8-27 thread)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3363-03-0808S	3/4-16	8	5.16	3.62	.63	—	.88
FJ3363-02-0810S	3/4-16	10	5.54	3.62	.63	—	.88

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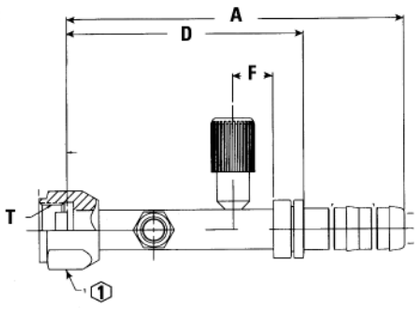
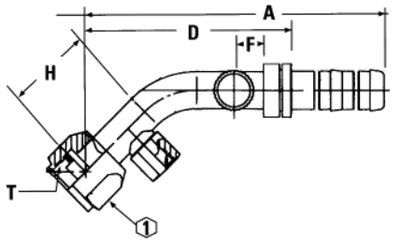
FJ3363



Straight – Female O-ring (short pilot), with R134a Low side port and female switch connection, (1/8-27 thread)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3363-01-1012S	7/8-14	12	5.30	3.72	.63	—	1.06

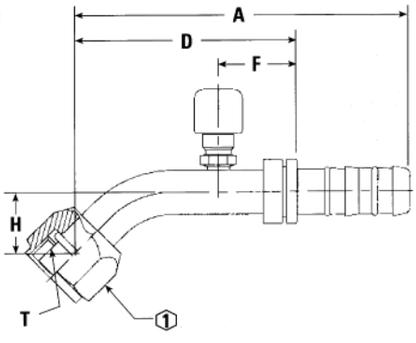
FJ3365



45° - Female O-ring (Short Pilot) with R134a Low Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3365-01-1012S	7/8-14	12	5.09	3.51	.50	1.43	1.125

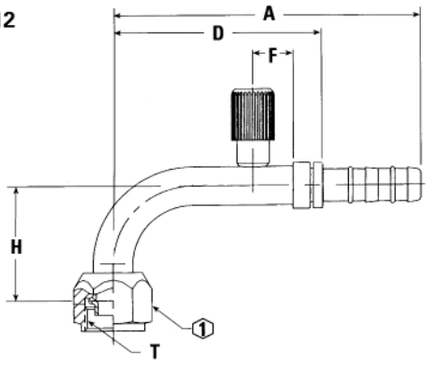
FJ3230



45° Female O-ring (long pilot) with Switch Port (7/16-20 thd)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3230-01-0810S	3/4-16	10	4.61	2.58	0.63	0.80	0.88
FJ3230-02-1012S	7/8-14	12	4.73	2.67	0.63	0.89	1.06
FJ3230-03-0808S	3/4-16	8	4.43	2.40	0.63	0.73	0.88
FJ3230-04-1010S	7/8-14	10	5.00	2.97	0.63	1.19	1.06

FJ3012



90° Female O-ring (short pilot) with R134a Low Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3012-02-1010S	7/8-14	10	4.88	3.33	0.63	1.89	1.06
FJ3012-01-1012S	7/8-14	12	4.83	3.25	0.63	1.89	1.06
FJ3012-03-1212S	1-1/16-14	12	5.10	3.52	0.63	2.56	1.25

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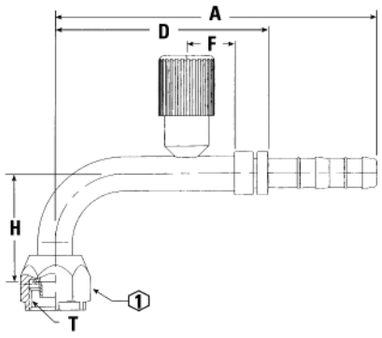
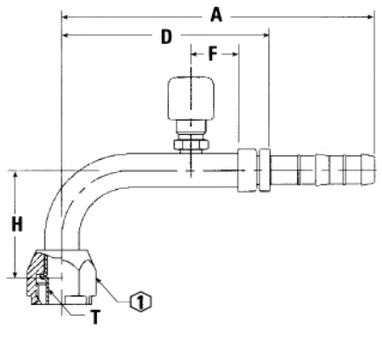
FJ3013



90° Female O-ring (short pilot) with R134a High Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3013-02-0606S	5/8-18	6	4.35	2.82	0.63	1.38	0.75
FJ3013-03-0808S	3/4-16	8	4.61	3.07	0.69	1.62	0.88
FJ3013-01-0810S	3/4-16	10	4.53	2.98	0.69	1.62	0.88

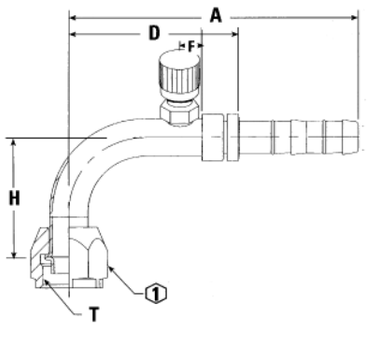
FJ3289



90° Female O-ring (long pilot) with Switch Port (7/16-20 thd)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3289-01-0808S	3/4-16	8	4.61	2.59	0.69	1.62	0.88
FJ3289-02-1010S	7/8-14	10	4.80	2.77	0.63	1.93	1.06
FJ3289-03-0606S	5/8-18	6	4.35	2.82	0.69	1.35	0.75
FJ3289-04-0810S	3/4-16	10	4.62	2.59	0.69	1.62	0.88
FJ3289-05-1012S	7/8-14	12	4.82	2.77	.63	1.93	1.06

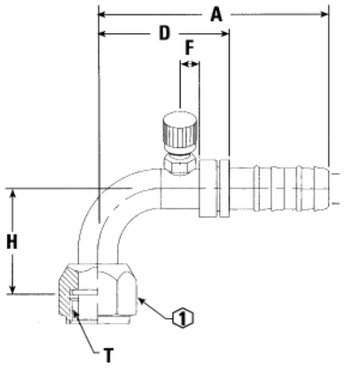
FJ3163



90° Elbow – Female O-ring (short pilot) with Switch Port (7/16-20 thd)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3163-01-1010S	7/8-14	10	4.80	3.25	0.79	1.89	1.06
FJ3163-02-1212S	1-1/16-14	12	5.08	3.50	0.79	2.56	1.25

FJ3047



90° Female O-ring (long pilot) with Charge Port (7/16-20Thd) – 45° Port Rotation

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3047-1012S	7/8-14	12	4.06	2.48	0.50	1.69	1.06

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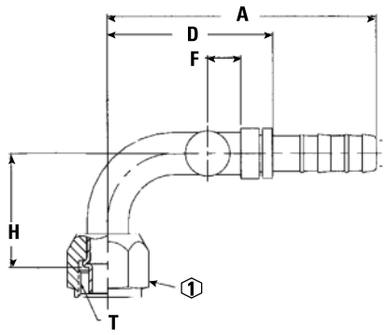
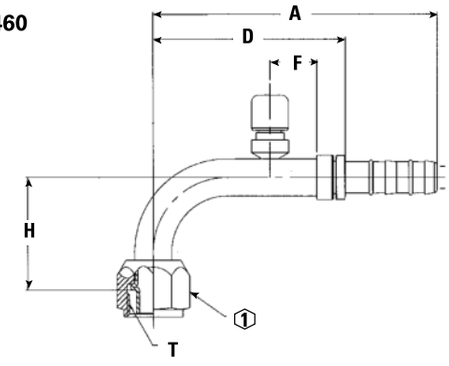
FJ3444



90° Female O-ring (long pilot) with Switch Port (7/16-20Thd) – 90° Port Rotation

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3444-1010S	7/8-14	10	4.03	2.48	.50	1.69	1.06

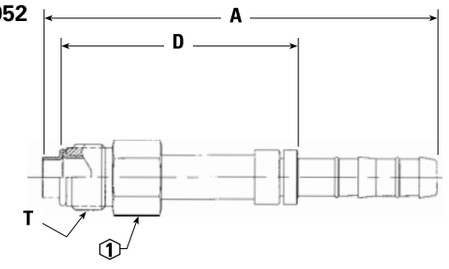
FJ3460



90° Female O-ring (long pilot) with Switchport (M12 X 1.25)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3460-01-1010S	7/8-14	10	4.80	3.25	0.79	1.89	1.06
FJ3460-01-1012S	7/8-14	12	4.83	3.25	0.79	1.89	1.06
FJ3460-03-1212S	1-1/16-14	12	5.08	3.50	.54	2.56	1.25

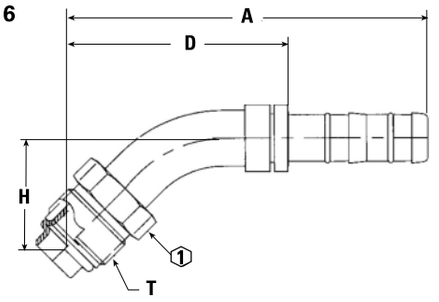
FJ3052



Straight Male O-ring (short pilot)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3052-0606S	5/8-18	6	3.41	1.70	—	—	0.62
FJ3052-0608S	5/8-18	8	3.43	1.70	—	—	0.62
FJ3052-0808S	3/4-18	8	4.37	2.64	—	—	0.75
FJ3052-1010S	7/8-18	10	3.66	1.92	—	—	0.88
FJ3052-1012S	7/8-18	12	3.68	1.92	—	—	0.88
FJ3052-1212S	1-1/16-16	12	3.68	1.92	—	—	1.06

FJ3116



45° Male O-ring (short pilot)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3116-01-0606S	5/8-18	6	3.99	2.47	—	0.94	0.62
FJ3116-03-0808S	3/4-18	8	4.59	2.83	—	1.20	0.75
FJ3116-02-1010S	7/8-18	10	4.65	3.10	—	1.46	0.88
FJ3116-04-0608S	5/8-18	8	4.01	2.47	—	0.94	0.62

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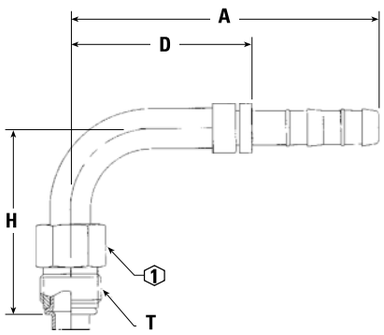
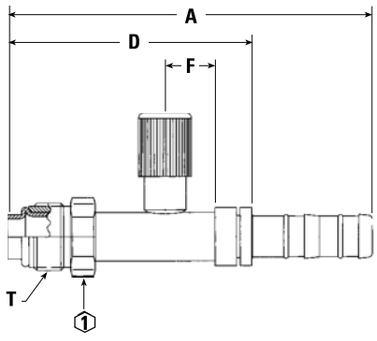
FJ3019



90° Male O-ring (short pilot)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3019-03-0606S	5/8-18	6	3.33	1.80	—	1.77	0.62
FJ3019-02-0608S	5/8-18	8	3.34	1.80	—	1.77	0.62
FJ3019-04-0808S	3/4-18	8	3.77	2.23	—	2.31	0.75
FJ3019-06-0810S	3/4-18	10	3.78	2.23	—	2.31	0.75
FJ3019-01-1012S	7/8-18	12	4.24	2.67	—	2.45	0.88
FJ3019-05-1212S	1-1/16-16	12	4.22	2.64	—	2.79	1.06
FJ3019-07-1010S	7/8-18	10	4.22	2.67	—	2.453	0.88

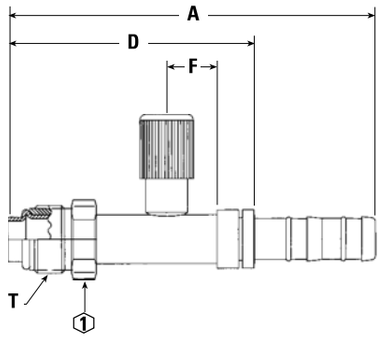
FJ3132



Straight Male O-ring (short pilot) with R134a Low Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3132-01-1010S	7/8-18	10	4.43	2.70	0.63	—	0.88
FJ3132-02-1012S	7/8-18	12	4.46	2.70	0.63	—	0.88

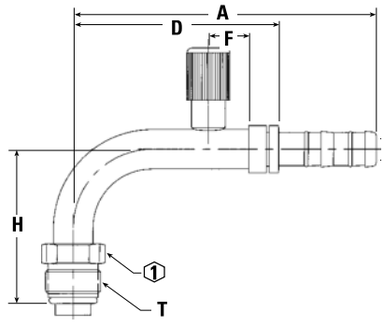
FJ3131



Straight Male O-ring (short pilot) with R134a High Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3131-01-0606S	5/8-18	6	4.18	2.47	0.63	—	0.62
FJ3131-02-0808S	3/4-18	8	4.58	2.85	0.63	—	0.75
FJ3131-03-1010S	7/8-18	10	4.34	2.61	0.63	—	0.88

FJ3134



90° Elbow Male O-ring (short pilot) with R134a High Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3134-01-0606S	5/8-18	6	4.34	2.82	0.63	1.75	0.62
FJ3134-02-0808S	3/4-18	8	4.61	3.07	0.63	2.31	0.75
FJ3134-03-1010S	7/8-18	10	4.81	3.25	0.63	2.34	0.88

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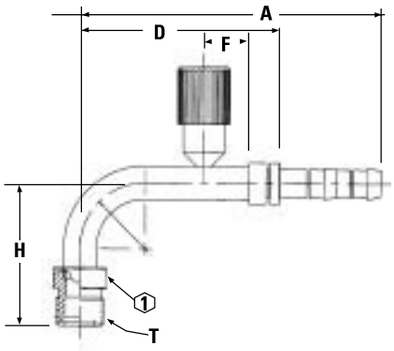
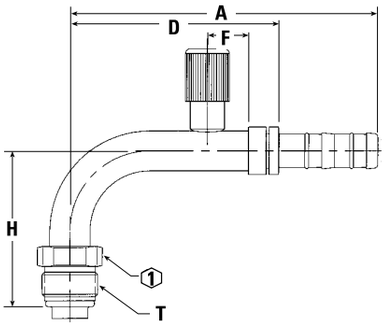
FJ3611



90° Male MIO with R134a High Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3611-01-0808S	3/4-16	8	4.61	3.07	.69	2.17	0.813

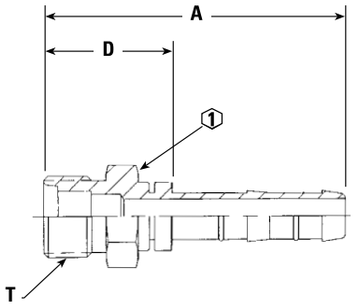
FJ3135



90° Elbow Male O-ring (short pilot) with R134a Low Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3135-01-1010S	7/8-18	10	4.81	3.25	0.63	2.34	0.88
FJ3135-02-1012S	7/8-18	12	4.81	3.25	0.63	2.34	0.88

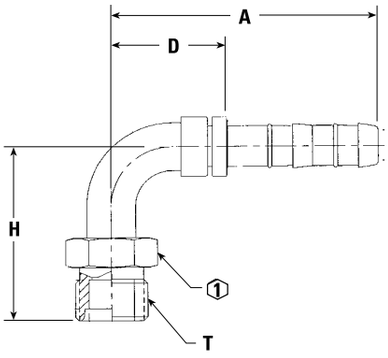
FJ3026



Male MIO (male insert O-ring) Straights

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3026-0606S	5/8-18	6	3.36	1.83	—	—	0.690
FJ3026-0808S	3/4-16	8	2.69	1.15	—	—	0.810
FJ3026-1010S	7/8-14	10	2.90	1.35	—	—	0.940
FJ3026-1012S	7/8-14	12	4.11	2.50	—	—	0.940
FJ3026-1212S	1-1/16-14	12	4.29	2.71	—	—	1.125

FJ3056



90° Male MIO – (male insert O-ring)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3056-01-0606S	5/8-18	6	2.50	0.98	—	1.44	0.69
FJ3056-02-0808S	3/4-16	8	2.74	1.20	—	1.82	0.81
FJ3056-03-1010S	7/8-14	10	3.09	1.54	—	2.13	0.94
FJ3056-04-0810S	3/4-16	10	2.75	1.20	—	1.82	0.81

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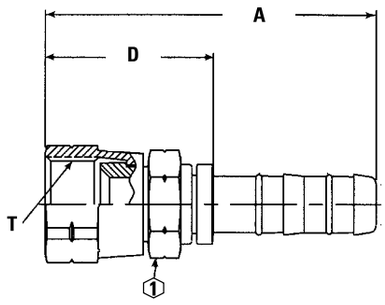
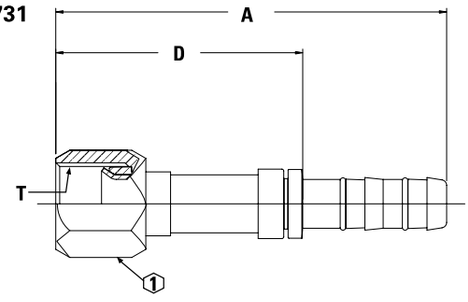
FJ3057



Female SAE 45° Flares

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3057-01-0606S	5/8-18	6	2.88	1.35	—	—	0.56
FJ3057-02-0608S	5/8-18	8	3.14	1.62	—	—	0.75
FJ3057-03-0808S	3/4-16	8	2.96	1.42	—	—	0.69
FJ3057-04-0810S	3/4-16	10	3.56	2.02	—	—	0.88
FJ3057-05-1010S	7/8-14	10	3.63	2.08	—	—	1.00
FJ3057-06-1012S	7/8-14	12	3.66	2.08	—	—	1.00
FJ3057-07-1212S	1-1/16-14	12	3.20	1.62	—	—	1.25

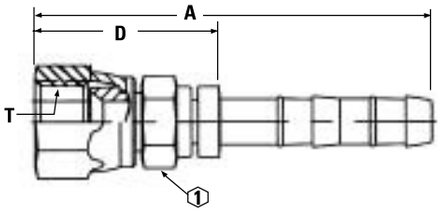
FJ3731



Straight - Female 37° Flare

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3731-1010S	7/8-14	10	4.21	2.66			1

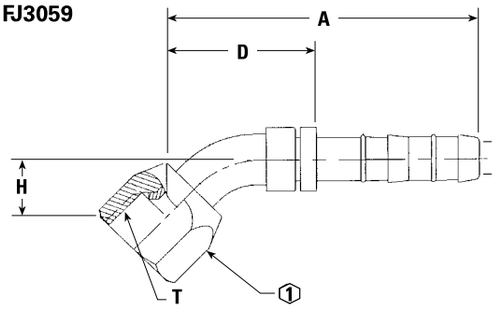
FJ3508



Straight - Female 37° Flare - Braze Design - Special Order Only

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3508-0606S	9/16-18	6	2.85	1.32			0.563
FJ3508-0808S	3/4-16	8	2.96	1.42			0.688
FJ3508-1010S	7/8-14	10	3.15	1.59			0.875
FJ3508-1212S	1 1/16-12	12	3.2	1.62			1.25

FJ3059



45° Female SAE 45° and Universal Flares

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3059-01-0606S†	5/8-18	6	2.61	1.08	—	0.39	0.75
FJ3059-02-0608S†	5/8-18	8	2.62	1.08	—	0.39	0.75
FJ3059-03-0808S*	3/4-16	8	2.97	1.43	—	0.55	0.88
FJ3059-04-0810S*	3/4-16	10	2.98	1.43	—	0.55	0.88
FJ3059-05-1010S*	7/8-14	10	3.08	1.53	—	0.63	1.00
FJ3059-06-1012S*	7/8-14	12	3.11	1.53	—	0.63	1.00

†Double notch in nut for universal type identification
*Universal Flare

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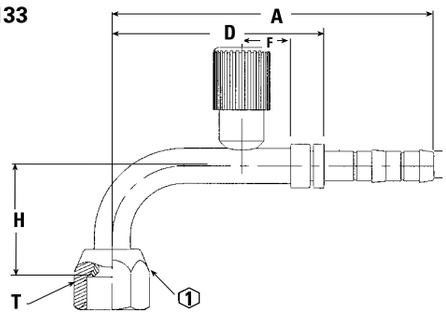
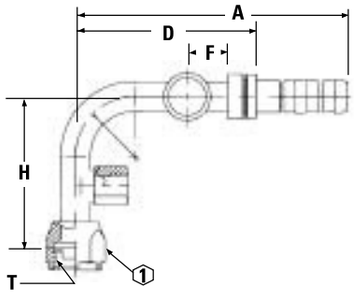
FJ3133



90° Female SAE 45° With High Side Charge Port (R134a)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3133-01-0606S	5/8-18	6	4.35	2.82	0.63	1.28	0.75
FJ3133-02-0808S	3/4-16	8	4.61	3.07	0.63	1.53	0.88
FJ3133-03-1010S	7/8-14	10	4.80	3.25	0.63	1.84	0.88

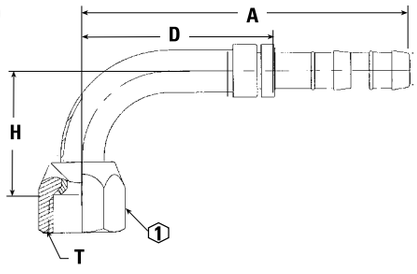
FJ3366



SAE 90° with R134a C/Port and Switch Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3366-01-0810S	3/4-16	10	4.62	3.07	.69	2.53	0.875
FJ3366-02-0808S	3/4-16	8	4.61	3.07	.69	2.53	0.875

FJ3149

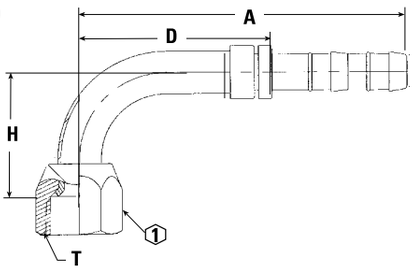


90° Female SAE 45° and Universal Flares

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3149-01-0606S†	5/8-18	6	2.51	0.98	—	0.85	0.75
FJ3149-02-0608S†	5/8-18	8	2.52	0.98	—	0.85	0.75
FJ3149-03-0808S*	3/4-16	8	2.74	1.20	—	1.09	0.88
FJ3149-04-1010S*	7/8-14	10	3.09	1.54	—	1.19	1.00
FJ3149-05-1012S*	7/8-14	12	3.09	1.54	—	1.19	1.00
FJ3149-06-1212S†	1-1/16-14	12	3.68	2.11	—	1.80	1.25

†Double notch in nut for universal type identification
*Universal Flare

FJ3509



90° Female JIC

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3509-0606S	9/16-18	6	2.50	.98	—	2.18	.69
FJ3509-0608S	9/16-18	8	2.52	.98	—	2.18	.69
FJ3509-1212S	1-1/16-12	12	3.36	1.78	—	3.73	1.25

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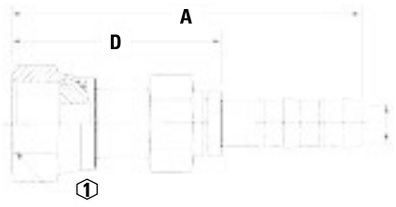
GA23911

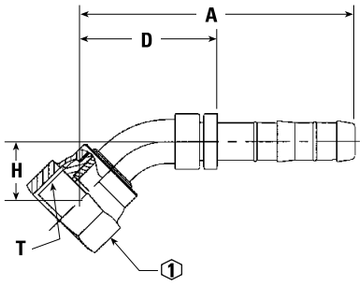


Straight – ORS Female Swivel Metric Hex NutΔ

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
GA23911-6-6	1-1/16-16	6	2.95	1.43	–	–	22mm
GA23911-8-8	1-3/16-16	8	3.17	1.62	–	–	24mm
GA23911-10-12	1-14	12	3.32	1.74	–	–	30mm
GA23911-10-10	1-14	10	3.33	1.78	–	–	30mm
GA23911-12-12	1-3/16-12	12	3.38	1.80	–	–	36mm

ΔMetric Hex

FJ3161
GA23912

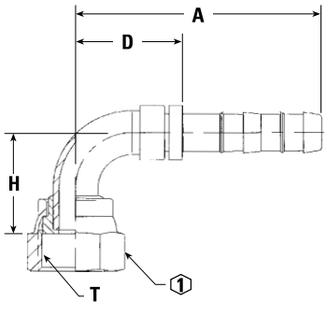


45° ORS Female Swivel

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3161-01-0606S	11/16-16	6	2.65	1.12	—	0.44	0.81
GA23912-8-8*	13/16-16	8	3.02	1.47	—	0.59	29mm
GA23912-10-10*	1-14	10	3.22	1.67	—	0.70	30mm
GA23912-10-8*	1-14	8	3.50	1.96	—	0.68	30mm
GA23912-12-12*	1-3/16-12	12	4.23	2.65	—	0.83	36mm

Δ*Metric Hex

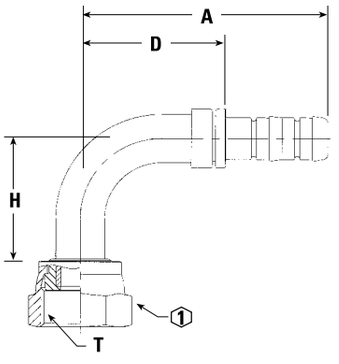
FJ5994



90° ORS Female Swivel

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ5994-01-0606S	1-1/16-16	6	2.50	0.98	—	0.91	0.81
FJ5994-02-0808S	13/16-16	8	2.74	1.20	—	1.15	0.94
FJ5994-04-1010S	1-14	10	3.09	1.53	—	1.27	1.12
FJ5994-03-1212S	1-3/16-12	12	3.36	1.78	—	1.90	1.38
FJ5994-05-0406S	9/16-18	6	2.44	0.92	—	0.82	0.69
FJ5994-05-1012S	1-14	12	3.11	1.53	—	1.78	1.13
FJ5994-07-0806S	13/16-16	6	2.66	1.10	—	1.15	0.94

FJ3319



90° ORS Female Swivel (long drop)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3319-1212S	1-3/16-12	12	3.82	2.24	—	2.38	1.13

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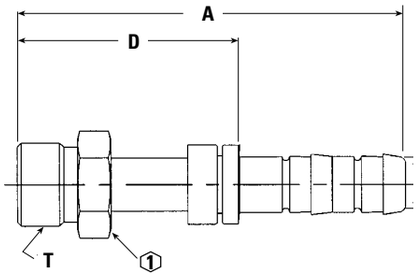
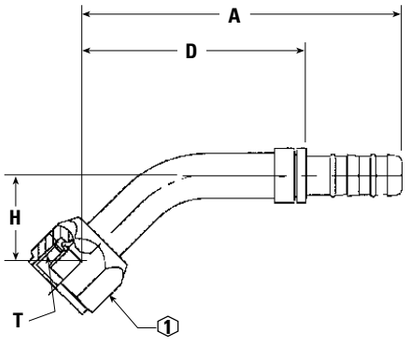
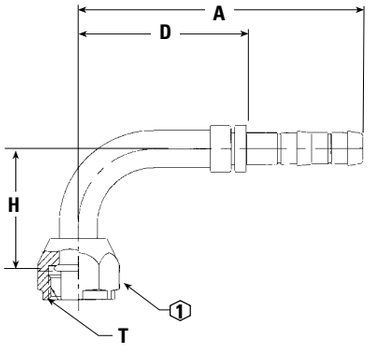


PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3136-0810S	M20 x 1.5	10	3.62	2.07	0.69	—	0.88

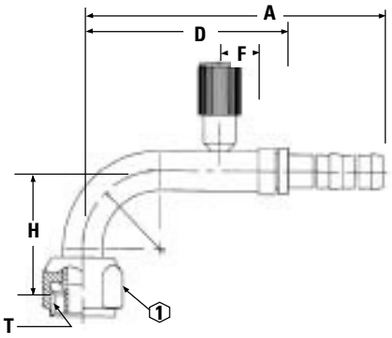


PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3192-02-1212S	M27x2	12	4.74	3.17	—	1.47	1.25



PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3111-01-0808S	M20 x 1.5	8	3.77	2.23	—	1.62	0.94
FJ3111-02-0810S	M20 x 1.5	10	3.78	2.23	—	1.62	0.94
FJ3111-03-0806S*	M20 x 1.5	6	3.75	2.23	—	1.62	0.94
FJ3409-1212S	M27 x 2	12	4.74	3.16	—	2.56	1.25

*Non-Stock item



PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3892-01-1010S	M24 X 1.5	10	4.88	3.33	.63	1.89	1.125

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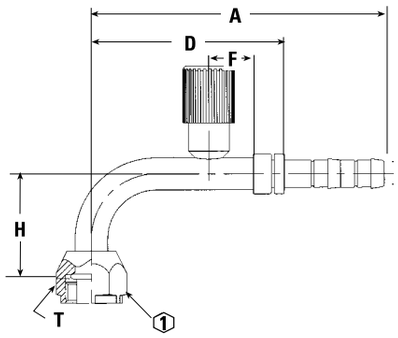
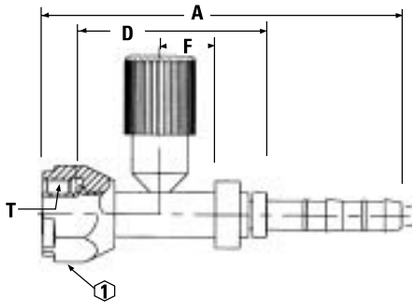
FJ3112



90° Female O-ring (long pilot) Metric Thread with High Side Charge Port (R134a)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3112-01-0808S	M20 x 1.5	8	4.52	2.98	0.69	1.62	0.94
FJ3112-02-0810S	M20 x 1.5	10	4.53	2.98	0.69	1.62	0.94
FJ3112-03-0806S	M20 x 1.5	8	4.50	2.98	0.69	1.62	0.94

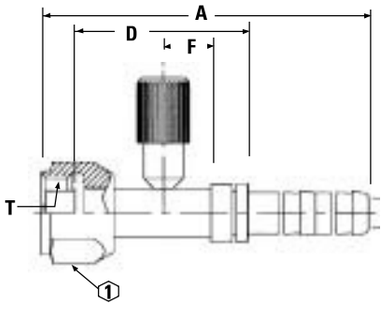
FJ3890



Straight - Female O-ring (long pilot) with R134a High Side Port (Metric Thread)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3890-01-0806S	M20 X 1.5	6	4.06	2.16	.63		0.94

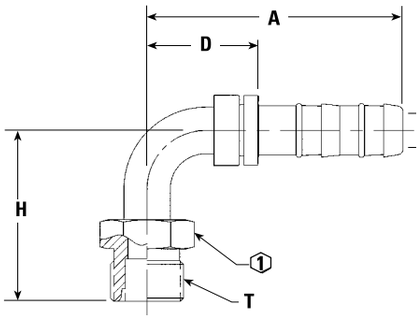
FJ3891



Straight - Female O-ring (long pilot) with R134a Low Side Port (Metric Thread)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3891-01-1010S	M24 X 1.5	10	4.24	2.25	.62		1.125

FJ3113



90° Male O-ring (rigid) Metric Thread

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3113-0810S	M20 x 1.5	8	2.75	1.20	—	1.82	0.88

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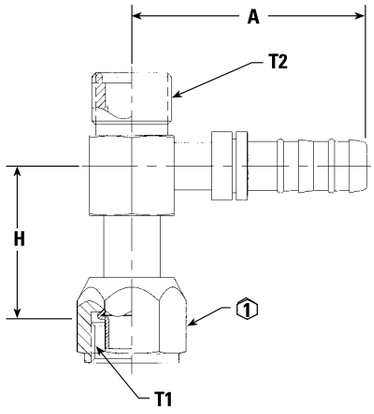
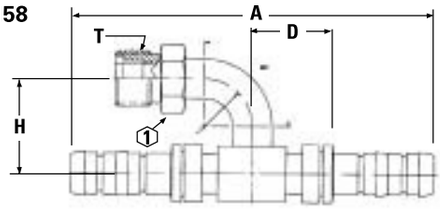
FJ3067
FJ3495



GM Tie In – Metric Tee

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3067-1212S	M27 x 2	12	3.12	—	—	2.02	1.25
FJ3495-0808S	M20 x 1.5	8	2.71	—	—	1.68	0.94

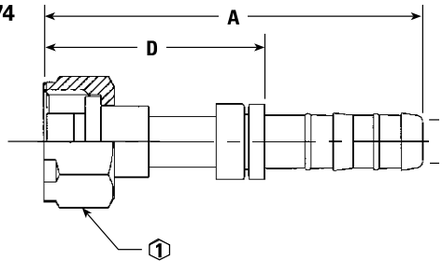
EJ3158



Tee Style Fitting with Male O-ring Connection

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
EJ3158-101212S	7/8-14	12	5.67	1.26	—	1.49	0.94

FJ3274

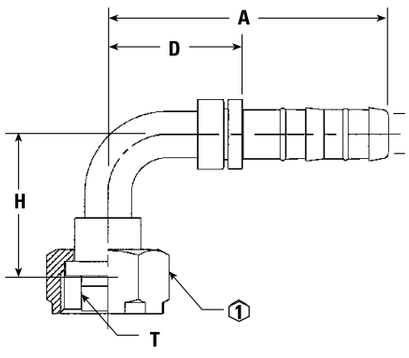


Straight – Female RotaLok

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3274-1010S	1-14	10	3.69	2.14	—	—	1.13
FJ3274-1012S*	1-14	12	3.75	2.14	—	—	1.13

*May not be available

FJ3225



90° Female RotaLok

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3225-1010S	1-14	10	2.98	1.43	—	1.52	1.13

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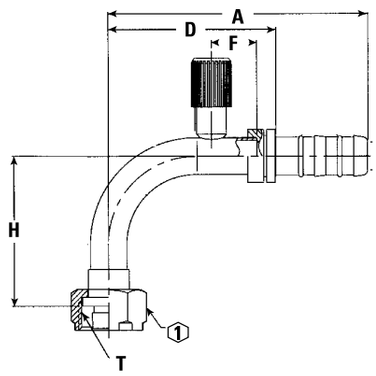
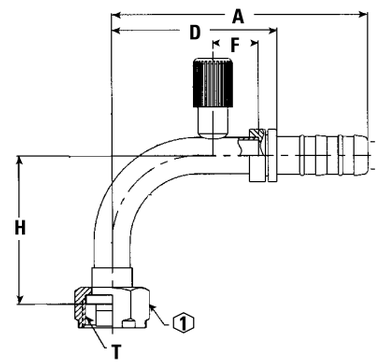
FJ3510



90° Female Rotalok with R134a Low Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3510-1012S	1-14	12	4.48	2.88	.79	2.58	1.13

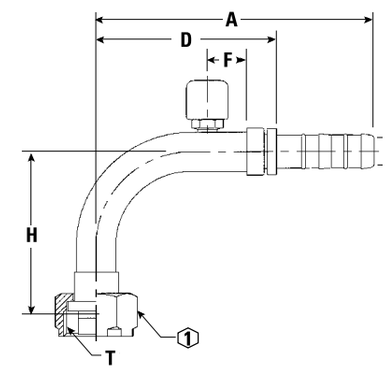
FJ3511



90° Female Rotalok with R134a High Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3511-1010S	1-14	10	4.43	2.88	.79	2.58	1.13

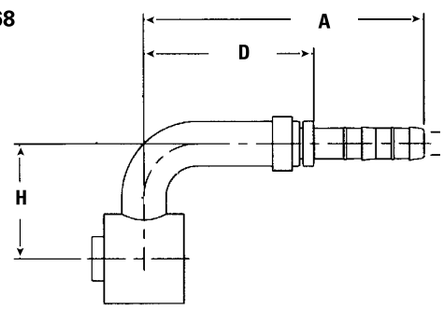
FJ3226



90° Female RotaLok with Switch Port (7/16-20 thread)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3226-1010S	1-14	10	4.43	2.88	0.63	2.56	1.13

FJ3568



90° GM Block Style

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3568-1008S	—	8	3.92	2.38	—	1.60	—
FJ3568-1010S	—	10	3.83	2.28	—	2.31	—
FJ3568-1012S	—	12	3.86	2.28	—	2.38	—

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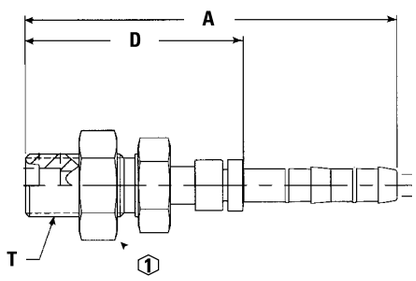
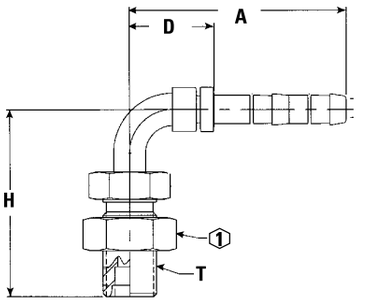
FJ3513



Straight Bulkhead

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3513-0606S	5/8-18	6	3.69	2.16	—	—	.94
FJ3513-0808S	3/4-16	8	3.93	2.39	—	—	1.0
FJ3513-1010S	7/8-14	10	4.49	2.94	—	—	1.13
FJ3513-1212S	$1^{1}/_{16}$-14	12	4.45	2.87	—	—	1.375

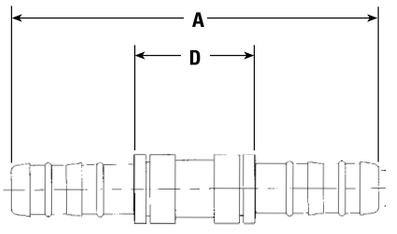
FJ3514



90° Male Bulkhead

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3514-0606S	5/8-18	6	2.50	.98	—	2.15	.94
FJ3514-0808S	3/4-16	8	2.74	1.20	—	2.61	1.0
FJ3514-1010S	7/8-14	10	3.08	1.53	—	3.26	1.13
FJ3514-1012S	7/8-14	12	3.11	1.53	—	3.26	1.13
FJ3514-1212S	1-1/16-14	12	3.69	2.11	—	3.78	1.38

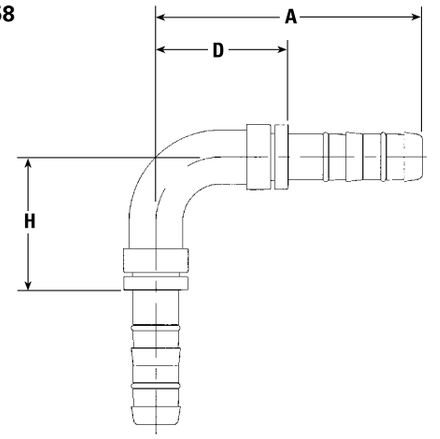
FJ3045



Straight Splicer

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3045-0606S	—	6	4.63	1.58	—	—	—
FJ3045-0808S	—	8	4.76	1.68	—	—	—
FJ3045-1010S	—	10	5.68	2.58	—	—	—
FJ3045-1212S	—	12	4.72	1.57	—	—	—
FJ3045-1008S	—	10, 8	5.78	2.69	—	—	—

FJ3058



90° Splicer

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3058-01-0606S	—	6	2.71	1.18	—	2.71	—
FJ3058-02-0808S	—	8	2.98	1.43	—	2.98	—
FJ3058-03-1010S	—	10	3.08	1.53	—	3.08	—
FJ3058-04-1212S	—	12	3.68	2.11	—	3.68	—

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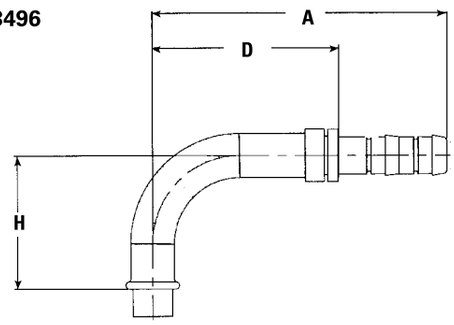
Fittings

FJ3496

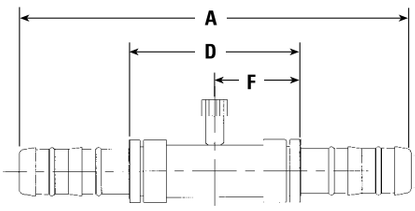


90° Pilot Connection (long pilot)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3496-01-1010S	—	10	4.22	2.67	—	1.89	—

* Consult applications engineer for additional sizes.

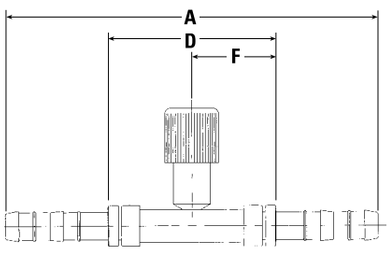
FJ3171



Splicer with SwitchPort 7/16-20Thd

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3171-0606S	—	6	5.41	2.36	1.18	—	—
FJ3171-0808S	—	8	5.61	2.52	1.26	—	—
FJ3171-1010S	—	10	5.54	2.44	1.22	—	—
FJ3171-1212S	—	12	5.60	2.44	1.22	—	—

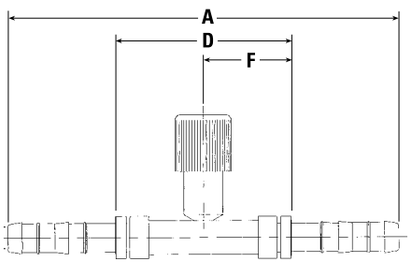
FJ5995



Splicer with High Side R134a Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ5995-0606S	—	6	5.41	2.36	1.18	—	—
FJ5995-0808S	—	8	5.61	2.52	1.26	—	—
FJ5995-1010S	—	10	5.62	2.52	1.26	—	—
FJ5995-1212S	—	12	5.67	2.52	1.26	—	—

FJ5986



Splicer with R134a Low Side Port

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ5986-1010S	—	10	5.54	2.44	1.22	—	—
FJ5986-1212S	—	12	5.60	2.44	1.22	—	—

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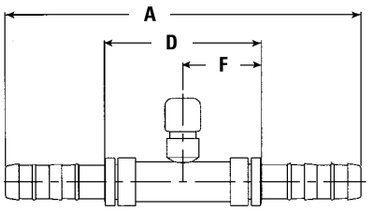
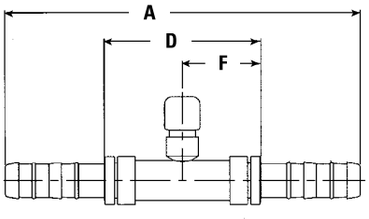
FJ3427



Splicer with High Side Switch Port (M10 X 1.25)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3427-0808S	—	8	5.61	2.52	1.26	—	—
FJ3427-1010S	—	10	5.54	2.44	1.22	—	—

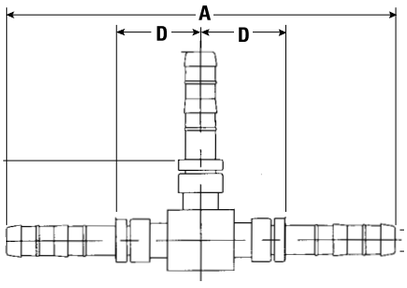
FJ3428



Splicer with Low Side Switch Port (M12 X 1.25)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3428-1212S	—	12	5.59	2.44	1.22	—	—

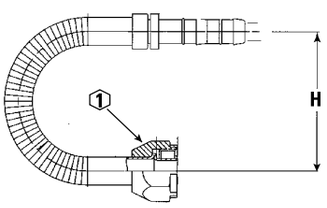
FJ3066



"T" Splicer – 3 Hose Connector

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3066-0808S	—	8	5.48	2.40	—	—	—
FJ3066-1010S	—	10	5.62	2.52	—	—	—
FJ3066-1212S	—	12	5.67	2.52	—	—	—
FJ3066-101212S	—	10x12x12	5.67	2.52	—	—	—
FJ3066-060808S	—	6 x 8 x 8	5.48	2.40	—	—	—

FJ3623



180° Female O-ring Pilot

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3623-0808S	M20 x 1.5	8	—	—	—	2.50	.94

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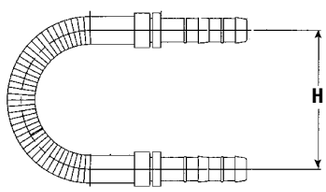
Fittings

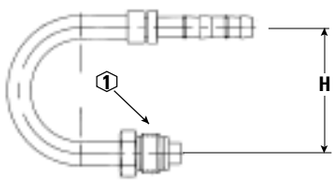
FJ3624



180° Splicer

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3624-0808S	—	8	—	—	—	2.50	—

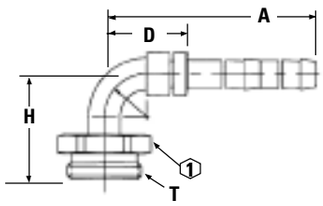
FJ3804



180° Male O-ring

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3804-0606S	5/8-18	6	—	—	—	2.00	.625

FJ3914



90° 5400 Coupling Thread

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3914-03-1210S	1 1/4-18	10	3.08	1.53	—	1.73	1.375
FJ3914-04-0806S	7/8-20	6	2.5	0.98	—	1.23	1.000

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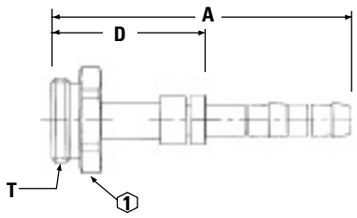
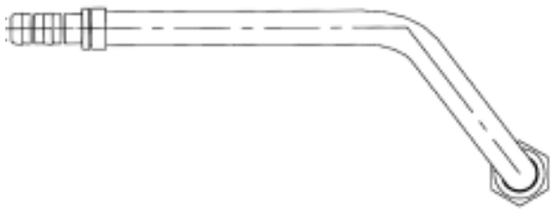
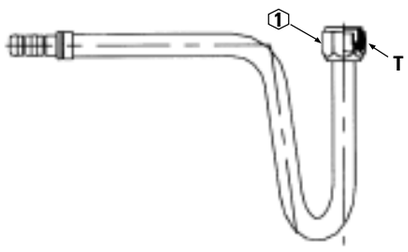
Fittings



PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3970-0606S	7/8-20	6	3.14	1.82	—	—	1.000



PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3734-1212S	1 1/16-14	12	—	—	—	—	1.25



PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3801-1212S	1 1/16-14	12	—	—	—	—	1.25

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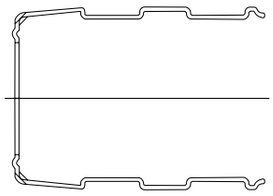
E-Z Clip System™

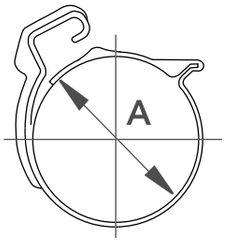
Cages, Clips and Lifesaver s

Cages / Fitting to Hose Attachment



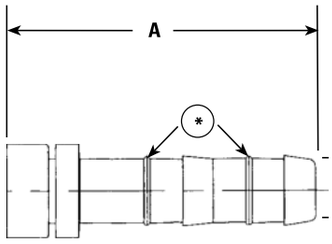
PART NUMBER	CAGE SIZE	HOSE DESCRIPTION
1F40105-04C	-04	Cages for size -04 hose
1F40105-06C	-06	Cages for size -06 hose
1F40105-08C	-08	Cages for size -08 hose
1F40105-10C	-10	Cages for size -10 hose
1F40105-12C	-12	Cages for size -12 hose

Clips Hose / Cage Connection



PART NUMBER	A REF	DESCRIPTION
1F40104-04C	14 mm	Clips for size -04 hose
1F40104-06C	18 mm	Clips for size -06 hose
1F40104-08C	20.5 mm	Clips for size -08 hose
1F40104-10C	23 mm	Clips for size -10 hose
1F40104-12C	27.5 mm	Clips for size -12 hose

Lifesaver Braze Nipple



PART NUMBER	TH'D "T"	HOSE SIZE	A REF
FF12262-0606S	—	6	2.01
FF12262-0608S	—	8	2.02
FF12262-0808S	—	8	2.02
FF12262-0810S	—	10	2.03
FF12262-1010S	—	10	2.03
FF12262-1012S	—	12	2.06
FF12262-1212S	—	12	2.11

*O-rings packaged separately

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E-Z Clip System™

E-Z Clip Size 4**

Refrigeration/air conditioning SAE J2064 Type E Class 1, Multi-refrigerant

PART NUMBER	HOSE I.D. INCHES	HOSE O.D. INCHES	MAXIMUM OPERATING PRESSURE PSI	MINIMUM BURST PRESSURE PSI	MINIMUM BEND RADIUS INCHES	VACUUM *SERVICE* INCH/HG	WEIGHT PER FOOT POUNDS
	MM/INCHES	MM/INCHES	BAR	BAR	MM/INCHES	INCHES	POUNDS
FC505-04	5.08/.20	11.2/.44	500	2500	38.0/1.50	29.5	07

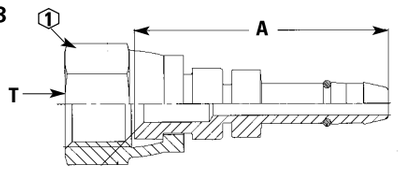
Construction: Nylon veneer tube, stabilized synthetic braided reinforcement and chlorobutyl rubber cover.

Application: Transportation refrigeration and air conditioning systems using R-134a, R-12, R-22 or R-502 (contact Eaton for additional refrigerants).

Operating Temperature Range: –40°F to +275°F (–40°C to +135°C).

*All sizes will withstand full negative pressure for charging purposes.

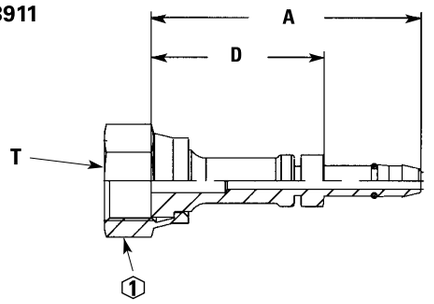
GA24048



Straight Female SAE Flare

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
GA24048-4-4	7/16	4	1.34	—	—	—	14mm

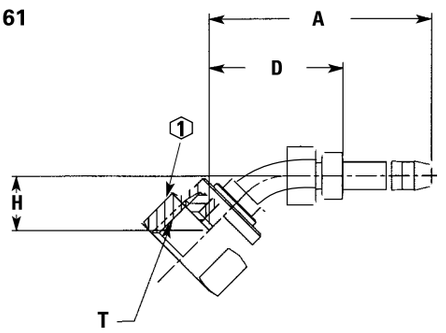
GA23911



Straight Female ORS

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
GA23911-4-4	9/16-18	4	1.86	1.19	—	—	17mm

FJ3161



45° Female ORS

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3161-05-0404S	9/16-18	4	1.68	1.01	—	.41	.69

**FC505 is qualified for the EZ Clip System in size 4 only.

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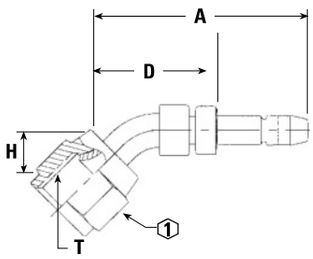
E-Z Clip System™

E-Z Clip Size 4**

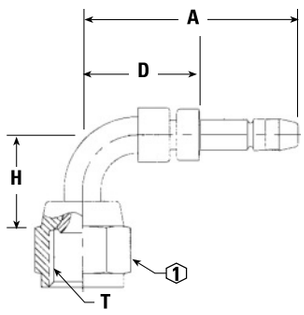
FJ3059



45° Universal Swivel (SAE 37° or 45°)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3059-0404S	7/16-20	4	1.57	0.91	—	0.33	0.56

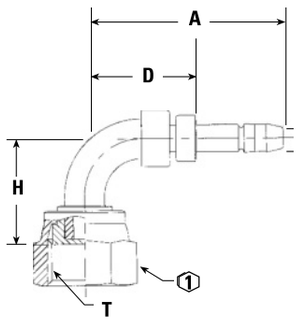
FJ3149



90° Universal Swivel (SAE 37° or 45°)

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
FJ3149-0404S	7/16-20	4	2.47	0.8	—	0.68	0.56

GA23913



90° ORS Swivel

PART NUMBER	TH'D "T"	HOSE SIZE	A REF	D REF	F REF	H REF	① REF
GA23913-4-4	9/16-18	4	1.79	1.12	—	0.82	17mm

**FC505 is qualified for the EZ Clip System in size 4 only.

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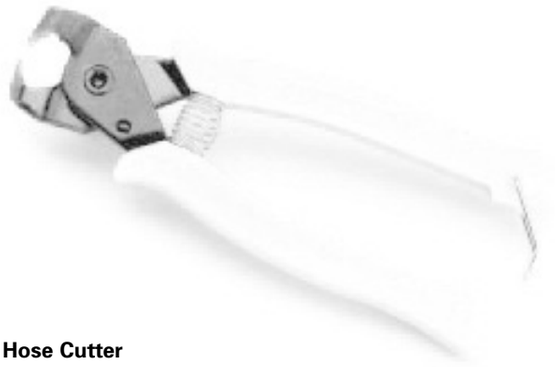
E-Z Clip System™
Assembly Tools

Pliers / Connecting Tool



PART NUMBER	DESCRIPTION
FT1357	Connecting Tool

Hose Cutter

PART NUMBER	DESCRIPTION
FT1356	Hose Cutter
FT1356-2-1	Replacement Blade

Core Tool

PART NUMBER	DESCRIPTION
42-05-100	Core Tool
FF90192-02	High Side Core*
FF90192-01	Low Side Core*
FF90193-02	High Side Cap
FF90193-01	Low Side Cap
FF9872-04	Cap for 7/16-20 Thd. port

*For Aeroquip high flow charge ports only.


FF90192-02


FF90192-01


FF90193-02, FF90193-01


FF9872-04

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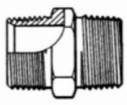
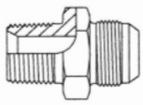
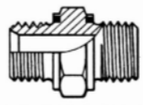
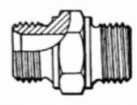
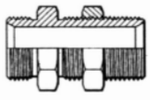
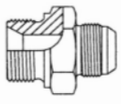
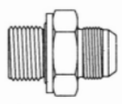
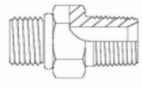
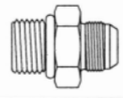
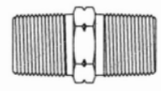
Adaptors- Pictorial Index

NIPPLES	4008/135/D4	4009/DB15	B2015/D217	D232	E135/E136/D185
					
	BSPT X BSPT	BSPT X JIC	BSPT X BSPP	BSPP O-RING	BSPP X BSPP
	PAGE C10	PAGE C15	PAGE C10	PAGE C11	PAGE C10
D274	D226	GG106/D256	6821/D95	202702/D52	2083/DA4
					
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PAGE C11	PAGE C17	PAGE C17	PAGE C18	PAGE C19	PAGE C29
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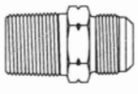
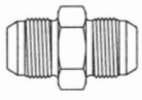
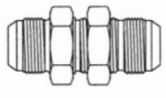
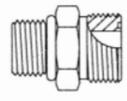
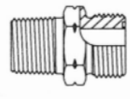
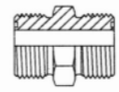
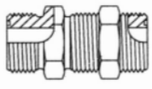
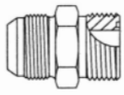
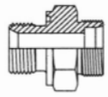
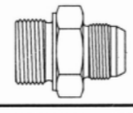
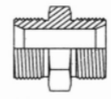
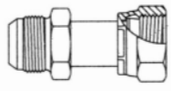
					
NPT X JIC	JIC X JIC	JIC BULKHEAD	UNO' X ORSF	NPT X ORSF	ORSF X ORSF
PAGE C32	PAGE C22	PAGE C22	PAGE C34	PAGE C37	PAGE C35
FF1994/DA263	DA264	D248	D160	D147	D159
					
ORSF BULKHEAD	JIC X ORSF	BSPP X DIN HEAVY	DIN HEAVY	JIC X METRIC	DIN X DIN
PAGE C35	PAGE C32	PAGE C38	PAGE C38	PAGE C38	PAGE C38
FF1854	DA272				
					
ORSF X UNO' LONG	JIC X ORSF LONG				
PAGE C34	PAGE C37				
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	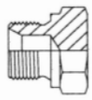	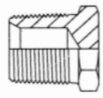	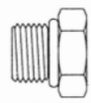	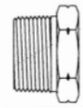	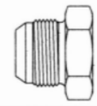
	BSPP	BSPT	UNO'	NPT	JIC
	PAGE C11	PAGE C11	PAGE C21	PAGE C29	PAGE C26

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	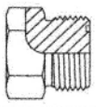		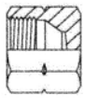	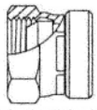	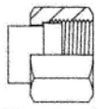
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	PAGE C36		PAGE C26	PAGE C14	PAGE C36
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	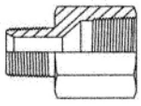	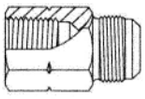	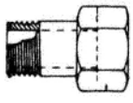		
	BSPT M X F	NPT X JIC MXF	ORSF MXF		
	PAGE C11	PAGE C15	PAGE C33	PAGE C35	
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	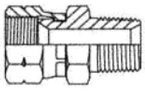	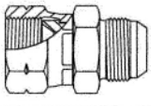	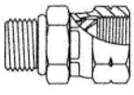	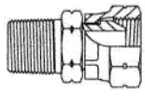	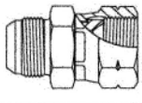
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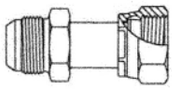
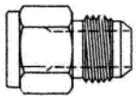
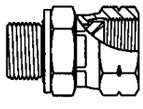
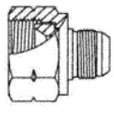
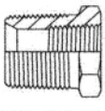
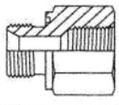
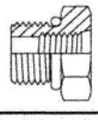
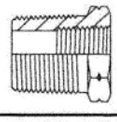
	PAGE C12	PAGE C15	PAGE C20	PAGE C30	PAGE C24
DA272	**2215**	**DA226**	**TUBE REDUCER**	**221501/DA13**	
					
JIC X ORSF MXF	JIC M X F	BSPP X JIC MXF		JIC MXF	
PAGE C37	PAGE C24	PAGE C15		PAGE C24	
REDUCING BUSH	**4813/D6**	**D233**	**FF1010/D12**	**2081/D21**	
					
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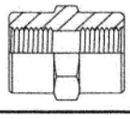
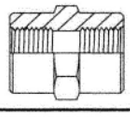
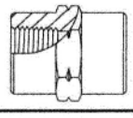
	PAGE C12	PAGE C12	PAGE C20	PAGE C30	
SOCKET	**D278**	**B2096/DB67**	**2096/D67**		
					
	BSPP X BSPP	BSPT X BSPT	NPT X NPT		
	PAGE C13	PAGE C14	PAGE C31		

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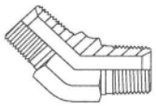
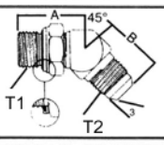
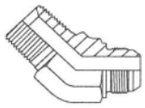
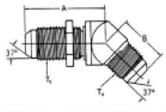
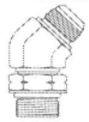
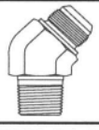
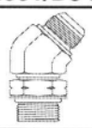
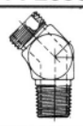
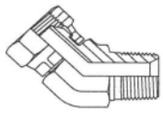
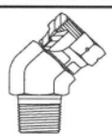
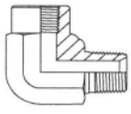
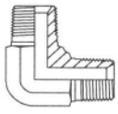
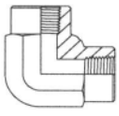
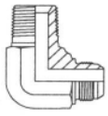
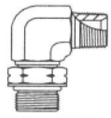
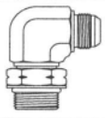
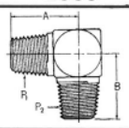
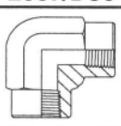
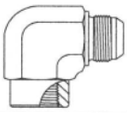
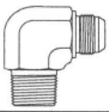
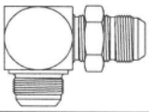
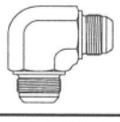
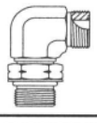
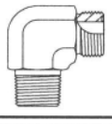
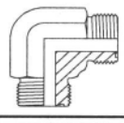
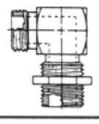
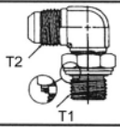
ELBOW 45 DEGREE	**D24**	**GG206**	**GG210/D33**	**2042**	**2061/D54**
					
	BSPT MXM	BSPP X JIC MXM	BSPT X JIC MXM	JIC BULKHEAD	UNO' X JIC MXM
	PAGE C11	PAGE C17	PAGE C15	PAGE C22	PAGE C19
2023/D41	**FF2068/D266**	**2061/D54**	**FF2093**		
					
NPT X JIC MXM	UNO' X ORSF MXM	UNO' X JIC MXM	ORSF X NPT MXM		
PAGE C32	PAGE C34	PAGE C19	PAGE C37		
ADAPTOR UNION 45 DEGREE	**D283**	**2049/D46**	**2070/D51**		
					
	BSPT X BSPP MXF	NPT X NPSM MXF	JIC MXF		
	PAGE C13	PAGE C30	PAGE C26		
ELBOW 90 DEGREE	**B2089/D30**	**4012/D5**	**B2087/D31**	**6720/DB17**	**D96**
					
	BSPT MXF	BSPT MXM	BSPT FXF	BSPT X JIC MXM	BSPT X UNO' MXM
	PAGE C13	PAGE C11	PAGE C14	PAGE C16	PAGE C18
2062/D53	**2085**	**2087/D38**	**2025/D43**	**2024/D17**	**2043/D94**
					
UNO' X JIC MXM	NPT X NPT	NPT FXF	NPT X JIC FXM	NPT X JIC MXM	JIC BULKHEAD
PAGE C19	PAGE C29	PAGE C31	PAGE C33	PAGE C32	PAGE C23
2039/D18	**FF1868/DB262**	**FF2032/D265**	**FF2035/D262**	**FF2030**	**GG306/D257**
					
JIC MXM	UNO' X ORSF MXM	NPT X ORSF MXM	ORSF MXM	ORSF BULKHEAD	BSPP X JICMXM
PAGE C23	PAGE C24	PAGE C37	PAGE C35	PAGE C35	PAGE C17

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ADAPTOR UNION 90 DEGREE	**B2047/DB45**	**2047/D45**	**2071/D50**	**D183-FF5163**	**D182-FF5164**
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	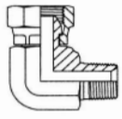	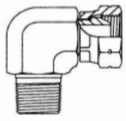	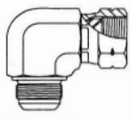		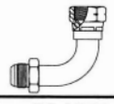
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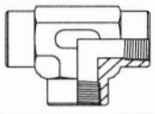
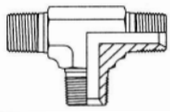
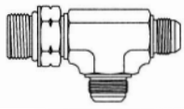
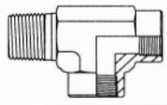
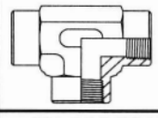
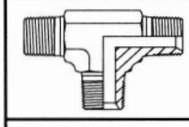
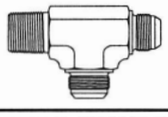
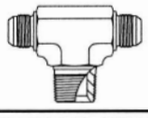
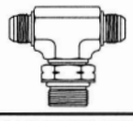
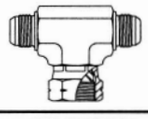
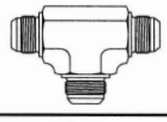
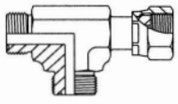
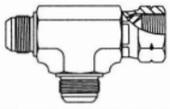
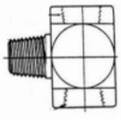
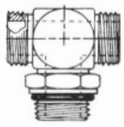
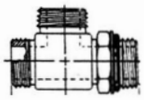
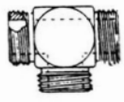
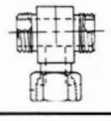
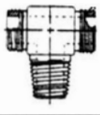
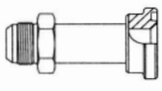
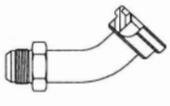
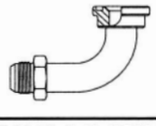
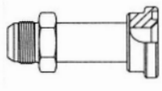
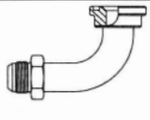
	PAGE C13	**PAGE C31**	**PAGE C25**	**PAGE C25**	**PAGE C25**
TEE	**B2090/D68**	**B2257/D69**	**203005/D80**	**2092/D72**	**2090/D71**
					
	BSPT FEMALE	**BSPT MALE**	**UNO' X JIC MALE**	**NPT MXFXF**	**NPT FEMALE**
	PAGE C14	**PAGE C11**	**PAGE C21**	**PAGE C31**	**PAGE C31**
2257	**2028/D74**	**D77**	**DA80**	**203101/DA81**	**2033/D20**
					
NPT MALE	**NPT X JIC MALE**	**JIC X BSPT MALE**	**JIC X UNO' MALE**	**JIC MXMXF**	**JIC MALE**
PAGE C29	**PAGE C33**	**PAGE C16**	**PAGE C20**	**PAGE C26**	**PAGE C23**
FF2114/D270	**203102/DA82**	**2091**	**FF1861**	**FF1865**	**FF1898**
					
ORSF MXFXM	**JIC M X F X M**	**NPT F X F X M**	**ORSF X UNO' MALE**	**ORSF X UNO' MALE**	**ORSF MALE**
PAGE C35	**PAGE C26**	**PAGE C31**	**PAGE C34**	**PAGE C34**	**PAGE C35**
FF1857	**FF2001**				
					
ORSF M X M X F	**ORSF X NPT MALE**				
PAGE C35	**PAGE C37**				
SAE FLANGE FITTINGS	**500025/D188**	**500023/D191**	**500024/D184**	**FF5541**	**FF5540**
					
	C61 FLG X JICM	**C61 FLG X JICM 45**	**C61 FLG X JICM 90**	**C62 FLG X JICM**	**C62 FLG X JICM 90**
	PAGE C28	**PAGE C28**	**PAGE C28**	**PAGE C28**	**PAGE C28**

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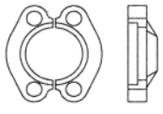
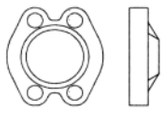
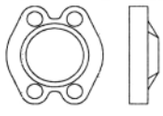
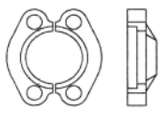
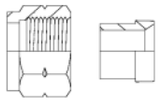
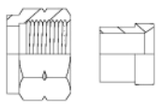
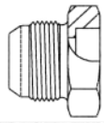
SAE FLANGES	**449-74446/D90**	**D238**	**D239**	**FC3425/D206**	
					
	C61 SPLIT FLANGE	**C61 FLANGE**	**C62 FLANGE**	**C62 SPLIT FLANGE**	
	PAGE C39	**PAGE C39**	**PAGE C39**	**PAGE C39**	
TUBE NUT & SLEEVE	**1290-900605/D14**	**FC2875-FF9605**	**TUBEWELD FITTINGS**	**73014/TW1**	**TW25**
					
	JIC FLARE TYPE	**JIC FLARELESS**		**JIC X TUBE**	**JIC FEM' X TUBE**
	PAGE C27	**PAGE C27**		**PAGE C26**	**PAGE C26**
4624/TW5		**SEALS O-RINGS**	**DS/D215**	**D216**	**FF9446/DR8**
					
C61 FLG X TUBE			**BSPP SEAL**	**METRIC SEAL**	**ORSF O-RING**
PAGE C39			**PAGE C40**	**PAGE C40**	**PAGE C40**
FF9446/DR5	**FF90178**	**FF90319**	**1F40106**		
					
FLANGE O-RING	**BUMP TUBE O-RING**	**CAT FLG O-RING**	**E-Z CLIP HOSE TAIL**		
PAGE C40	**PAGE C40**	**PAGE C40**	**PAGE C40**		

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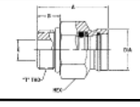
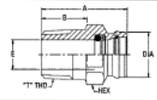
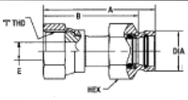
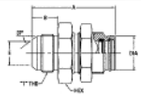
STC NIPPLES	**FF3042**	**FF3089**	**FF3236**	**FF3318T**	**FF3412**
					
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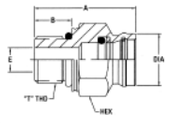
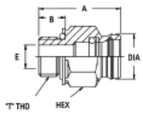
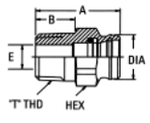
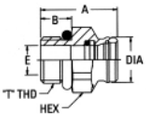
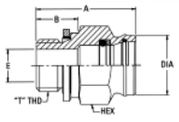
	PAGE C41	**PAGE C41**	**PAGE C41**	**PAGE C41**	**PAGE C42**
	FF3061	**FF3284**	**FF3503**	**FF3509**	**FF3218**
					
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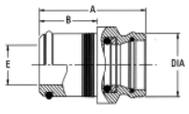
	PAGE C42	**PAGE C42**	**PAGE C42**	**PAGE C43**	**PAGE C43**
	FF3113				
					
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	PAGE C43				
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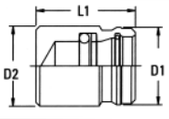
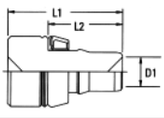
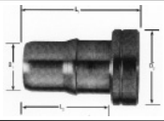
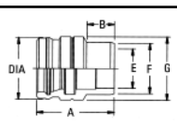
					
	FEMALE STC			**MALE STC PLUG**	
	PAGE C44			**PAGE C44**	
	FF40107	**FF3059**			
STC TUBEWELD					
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	PAGE C44	**PAGE C44**			

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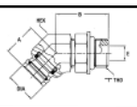
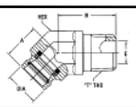
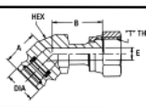
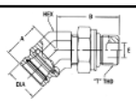
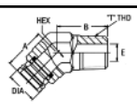
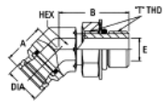
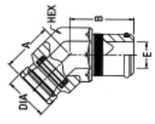
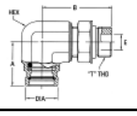
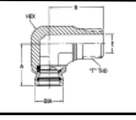
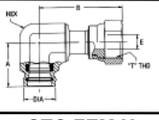
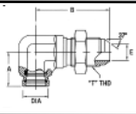
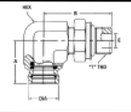
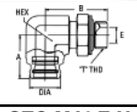
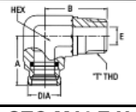
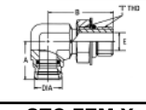
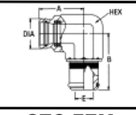
					
	STC FEM X UNO	**STC FEM X NPTF**	**STC FEM X ORSF FEM**	**STC FEM X UNO IS06149**	**STC FEM X BSPT**
	PAGE C41	**PAGE C41**	**PAGE C41**	**PAGE C41**	**PAGE C41**
	FF3511	**FF3162**			
					
	STC FEM X BSPP	**STC FEM PRESS ON**			
	PAGE C41	**PAGE C41**			
STC ELBOW 90 DEGREE	**FF3046**	**FF3056**	**FF3246**	**FF3044**	**FF3067**
					
	STC FEM UNO	**STC FEM X NPTF**	**STC FEM X ORSF FEM**	**STC X JIC BULKHEAD**	**STC FEM X ISO6149 UNO**
	PAGE C41	**PAGE C41**	**PAGE C41**	**PAGE C42**	**PAGE C42**
	FF3286	**FF3507**	**FF3513**	**FF3115**	
					
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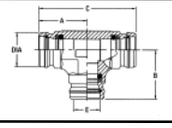
	PAGE C42	**PAGE C42**	**PAGE C43**	**PAGE C43**	
	FF3178				
STC TEE					
	STC FEM				
	PAGE C43				

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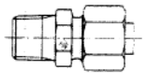
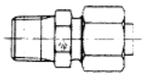
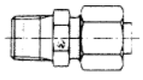
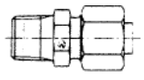
WALTERSCHEID TUBE FITTINGS

METRIC TUBE NUT			**METRIC CUTTING RING**	
	DIN LIGHT / HEAVY SERIES			DIN LIGHT / HEAVY SERIES
	PAGE C36			PAGE C36
NIPPLES STRAIGHT DIN LIGHT/HEAVY				
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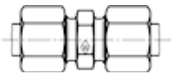
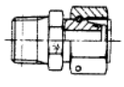
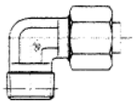
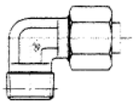
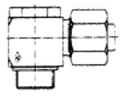
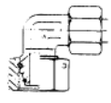
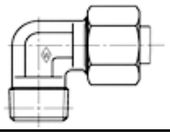
	PAGE C51	PAGE C51	PAGE C50	PAGE C49
				
	METRIC TUBE UNION	METRIC BULKHEAD UNION	METRIC TUBE FEMALE SWIVEL X BSPP MALE	
	PAGE C55	PAGE C53	PAGE C52	
ELBOW 90 DEGREE DIN LIGHT/HEAVY				
	METRIC X BSPT MALE	METRIC X NPT MALE	METRIC X BSPP BANJO BOLT	METRIC TUBE X METRIC FEMALE SWIVEL
	PAGE C47	PAGE C55	PAGE C49	PAGE C49
				
	METRIC TUBE UNION			
	PAGE C48			

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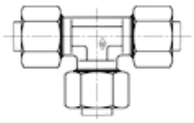
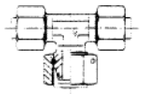
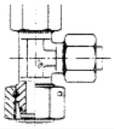
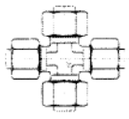
WALTERSCHEID TUBE FITTINGS

TEE **DIN** **LIGHT/HEAVY**				
	METRIC TUBE UNION	METRIC TUBE X METRIC FEMALE SWIVEL	METRIC TUBE X METRIC FEMALE SWIVEL	
	PAGE C53	PAGE C53	PAGE C54	
CROSS **DIN** **LIGHT/HEAVY**				
	TUBE UNION			
	PAGE C48			

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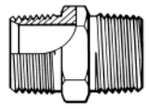
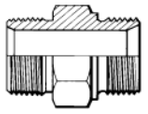
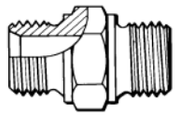
Adaptors

BSP / BSP







THREAD 1	THREAD 2	BSPT X BSPT M X M		BSPT X BSPP M X M		BSPP X BSPP M x M	
BSP	BSP	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
		Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1/8-28	1/8-28	4008-2	D4-0202			E136-2	D185-0202
1/8-28	1/4-19	135-2-4	D4-0402				
1/8-28	3/8-19	135-2-6	D4-0602				
1/4-19	1/4-19	4008-4	D4-0404	B2015-4-4	D217-0404	E136-4	D185-0404
1/4-19	3/8-19	135-4-6	D4-0604	B2015-4-6	D217-0406		
1/4-19	1/2-14	135-4-8	D4-0804				
3/8-19	1/4-19			B2015-6-4		E135-6-4	D185-0406
3/8-19	3/8-19	4008-6	D4-0606	B2015-6-6	D217-0606	E136-6	D185-0606
3/8-19	1/2-14	135-6-8	D4-0806	B2015-6-8			
3/8-19	1-11	135-6-16	D4-1606				
1/2-14	1/4-19			B2015-8-4	D217-0804	E135-8-4	
1/2-19	3/8-19			B2015-8-6	D217-0806	E135-8-6	D185-0806
1/2-14	1/2-14	4008-8	D4-0808	B2015-8-8	D217-0808	E136-8	D185-0808
1/2-14	5/8-14	135-8-10	D4-1008				
1/2-14	3/4-14	135-8-12	D4-1208	B2015-8-12			
1/2-14	1-11	135-8-16	D4-1608				
5/8-14	1/2-14					E135-10-8	
5/8-14	5/8-14	4008-10	D4-1010			E136-10	
5/8-14	3/4-14	135-10-12	D4-1210				
5/8-14	1/4-19					E135-12-4	
3/4-14	1/2-14			B2015-12-8	D217-1208	E135-12-8	D185-1208
3/4-14	3/4-14	4008-12	D4-1212	B2015-12-12	D217-1212	E136-12	D185-1212
3/4-14	1-11	135-12-16	D4-1612				
3/4-14	1 1/4-11	135-12-20	D4-2012				
1-11	3/4-14			B2015-16-12	D217-1612	E135-16-12	D185-1612
1-11	1-11	4008-16	D4-1616	B2015-16-16	D217-1616	E136-16	D185-1616
1-11	1 1/4-11	135-16-20	D4-2016			E135-20-16	
1 1/4-11	1 1/4-11	4008-20	D4-2020	B2015-20-20		E136-20	D185-2020
1 1/2-11	1 1/4-11	135-20-24	D4-2420			E135-24-20	
1 1/2-11	1 1/2-11	4008-24	D4-2424	B2015-24-24		E136-24	D185-2424
1 1/2-11	2-11					E135-32-24	
2-11	1 1/2-11	135-24-32	D4-3224				
2-11	2-11	4008-32	D4-3232	B2015-32-32		E136-32	D185-3232

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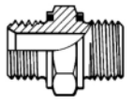
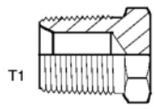
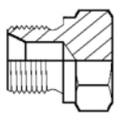
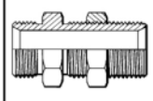
Adaptors

BSP / BSP



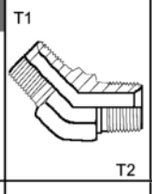


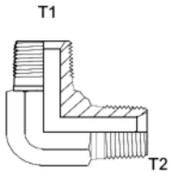


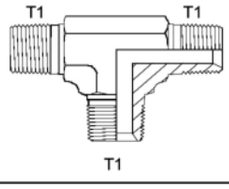


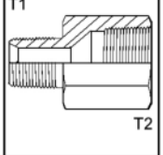
THREAD 1	THREAD 2	BSPP X BSPP M X M	BSPT PLUG		BSPP PLUG		BSPP X BSPP BULKHEAD
BSP	BSP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	DUFFIELD
		Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1/8-18	1/8-18		B2082-2	D59-02			
1/4-19	1/4-19	D232-0404	B2082-4	D59-04	B2086-4	D227-04	D274-0404
3/8-19	1/4-19	D232-0604					
3/8-19	3/8-19	D232-0606	B2082-6	D59-06	B2086-6	D227-06	D274-0606
1/2-14	3/8-19	D232-0806					
1/2-14	1/2-14	D232-0808	B2082-8	D59-08	B2086-8	D227-08	D274-0808
3/4-14	1/2-14	D232-1208					
3/4-14	3/4-14	D232-1212	B2082-12	D59-12	B2086-12	D227-12	D274-1212
1-11	3/4-14	D232-1612					
1-11	1-11	D232-1616	B2082-16	D59-16	B2086-16	D227-16	
1 1/4-11	1-11	D232-2016					
1 1/4-11	1 1/4-11	D232-2020	B2082-20	D59-20	B2086-20	D227-20	
1 1/2-11	1 1/4-11	D232-2420					
1 1/2-11	1 1/2-11	D232-2424	B2082-24	D59-24	B2086-24	D227-24	
1 1/2-11	2-11	D232-2432					
2-11	2-11	D232-3232	B2082-32	D59-32	B2086-32	D227-32	

BSP / BSP









THREAD 1	THREAD 2	BSPT X BSPT ELBOW 45 MXM	BSPT X BSPT 90 MXM		BSPT MALE TEE		BSPT M X F FIXED ADPT
BSP	BSP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	DUFFIELD
		Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1/8-28	1/8-28		4012-2		B2257-2		
1/4-19	1/8-28		4012-4-2	D5-0402			
1/4-19	1/4-19		4012-4	D5-0404	B2257-4	D69-040404	D34-0404
1/4-19	3/8-19						D34-0406
3/8-19	1/4-19		4012-6-4				
3/8-19	3/8-19		4012-6	D5-0606	B2257-6	D69-060606	
3/8-19	1/2-14						D34-0608
1/2-14	1/4-19		4012-8-4	D5-0804			
1/2-14	3/8-19		4012-8-6	D5-0806			
1/2-14	1/2-14	D24-0808	4012-8	D5-0808	B2257-8	D69-080808	
1/2-14	3/4-14						D34-0812
3/4-14	1/2-14	D24-1208	4012-12-8	D5-1208			
3/4-14	3/4-14	D24-1212	4012-12	D5-1212	B2257-12	D69-121212	
1-11	1/11		4012-16	D5-1616	B2257-16	D69-161616	
1 1/4-11	1 1/4-11		4012-20-20	D5-2020			
1 1/2-11	1 1/2-11		4012-24-24	D5-2424			

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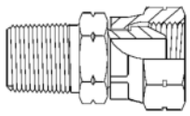
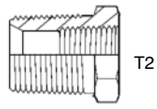
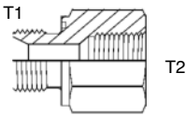
Adaptors

BSP / BSP







THREAD 1	THREAD 2	BSPT X BSPP M X F		BSPT REDUCING BUSH		BSPP REDUCING BUSH	
BSP	BSP	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	DUFFIELD	
		Part No.	Part No.	Part No.	Part No.	Part No.	
1/8-28	1/8-28						
1/4-19	1/8-28			4813-4-2	D6-0402		
1/4-19	1/4-19	B2045-4	DB44-0404				
3/8-19	1/8-28			4813-6-2	D6-0602		
3/8-19	1/4-19			4813-6-4	D6-0604	D233-0604	
3/8-19	3/8-19	B2045-6	DB44-0606				
1/2-19	1/8-28			4813-8-2			
1/2-14	1/4-19			4813-8-4	D6-0804	D233-0804	
1/2-14	3/8-19			4813-8-6	D6-0806	D233-0806	
1/2-14	1/2-14	B2045-8	DB44-0808				
3/4-14	1/4-19			4813-12-4			
3/4-14	3/8-19			4813-12-6	D6-1206	D233-1206	
3/4-14	1/2-14			4813-12-8	D6-1208	D233-1208	
3/4-14	3/4-14	B2045-12	DB44-1212				
1-11	3/8-19			4813-16-6			
1-11	1/2-14			4813-16-8	D6-1608	D233-1608	
1-11	3/4-14			4813-16-12	D6-1612	D233-1612	
1-11	1-11	B2045-16	DB44-1616				
1 1/4-11	3/4-14			4813-20-12	D6-2012	D233-2012	
1 1/4-11	1-11			4813-20-16	D6-2016	D233-2016	
1 1/2-11	3/4-14			4813-24-12			
1 1/2-11	1-11			4813-24-16	D6-2416		
1 1/2-11	1 1/4-11			4813-24-20	D6-2420		
2-11	1-11			4813-32-16			
2-11	1 1/4-11			4813-32-20			
2/11	1 1/2-11			4813-32-24	D6-3224		

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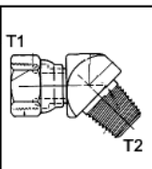
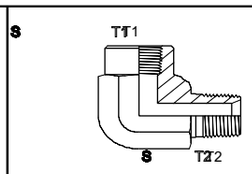
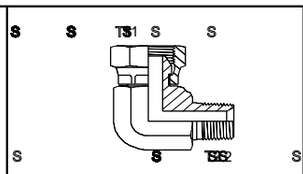
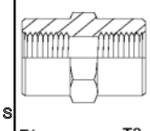
BSP / BSP









THREAD 1	THREAD 2	BSPT X BSPT M X F 45	BSPT X BSPT M X F 90		BSPT X BSPP M X F 90		BSPP SOCKET
BSP	BSP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	DUFFIELD
		Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1/8–28	1/8–28		B2089-2-2S	D30-0202	B2047-2	DB45-0202	
1/8–28	1/4–28		B2089-2-4S				
1/4–19	1/8–28		B2089-4-2S				
1/4–19	1/4–19		B2089-4-4S	D30-0404	B2047-4	DB45-0404	D278-04
1/4–19	3/8–19		B2089-4-6S				
3/8–19	1/4–19		B2089-6-4S	D30-0604			
3/8–19	3/8–19	D283-0606	B2089-6-6S	D30-0606	B2047-6	DB45-0606	D278-06
3/8–19	1/2–14		B2089-6-8S	D30-0608			
1/2–14	3/8–19		B2089-8-6S	D30-0806			
1/2–14	1/2–14	D283-0808	B2089-8-8S	D30-0808	B2047-8	DB45-0808	D278-08
1/2–14	3/4–14		B2089-8-12S	D30-0812			
3/4–14	1/2–14		B2089-12-8S				
3/4–14	3/4–14	D283-1212	B2089-12-12S	D30-1212	B2047-12	DB45-1212	D278-12
1–11½	1–11½	D283-1616	B2089-16-16S	D30-1616	B2047-16	DB45-1616	D278-16
1 1/4–11½	1 1/4–11½		B2089-20-20S		B2047-20	DB45-2020	D278-20
1 1/2–11½	1 1/2–11½						D278-24
2–11½	2–11½						D278-32

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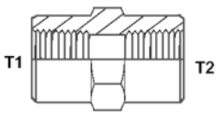
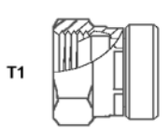
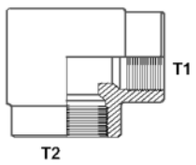
BSP / BSP

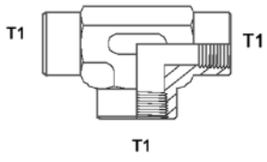






THREAD 1	THREAD 2	BSPT SOCKET		BSPP SWIVEL CAP		BSPT X BSPT F X F 90	
BSP	BSP	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
		Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1/8-28	1/8-28	B2096-2	DB67-02			B2087-2-2S	D31-0202
1/4-19	1/8-28					B2087-4-2S	
1/4-19	1/4-19	B2096-4	DB67-04	B210292-4		B2087-4-4S	D31-0404
3/8-19	1/4-19					B2087-6-4S	
3/8-19	3/8-19	B2096-6	DB67-06	B210292-6	D280-06	B2087-6-6S	D31-0606
1/2-14	3/8-19					B2087-8-6S	
1/2-14	1/2-14	B2096-8	DB67-08	B210292-8	D280-08	B2087-8-8S	D31-0808
3/4-14	1/2-14					B2087-12-8S	
3/4-14	3/4-14	B2096-12	DB67-12	B210292-12	D280-12	B2087-12-12S	D31-1212
1-11	3/4-14					B2087-16-12S	
1-11	1-11	B2096-16	DB67-16	B210292-16	D280-16	B2087-16-16S	D31-1616
1 1/4-11	1 1/4-11	B2096-20	DB67-20	B210292-20		B2087-20-20S	D31-2020
1 1/2-11	1 1/2-11	B2096-24	DB67-24	B210292-24		B2087-24-24	
2-11	2-11	B2096-32	DB67-32	B210292-32			

BSP / BSP



THREAD 1	THREAD 2	BSPT FEMALE TEE					
BSP	BSP	AEROQUIP	DUFFIELD				
		Part No.	Part No.				
1/8-28	1/8-28	B2090-2					
1/4-19	1/8-28						
1/4-19	1/4-19	B2090-4	D68-040404				
3/8-19	1/4-19						
3/8-19	3/8-19	B2090-6	D68-060606				
1/2-14	3/8-19						
1/2-14	1/2-14	B2090-8	D68-080808				
3/4-14	1/2-14						
3/4-14	3/4-14	B2090-12	D68-121212				
1-11	3/4-14						
1-11	1-11	B2090-16	D68-161616				
1 1/4-11	1 1/4-11	B2090-20	D68-202020				
1 1/2-11	1 1/2-11						
2-11	2-11						

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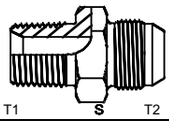
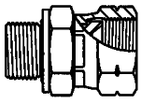
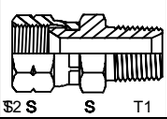
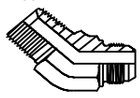
Adaptors

BSPT / JIC









THREAD 1	THREAD 2	BSPT x JIC M x M		BSPP x JIC M X F	BSPT X JIC F X M	BSPT x JIC M X M 45	
BSPT	JIC	AEROQUIP	DUFFIELD	DUFFIELD	DUFFIELD	AEROQUIP	DUFFIELD
		Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1/8–28	3/8–24	4009-2-3					
1/8–28	7/16–20	4009-2-4	DB15-0207			GG210-NP04-02	
1/8–28	1/2–20	4009-2-5	DB15-0208				
1/8–28	9/16–18	4009-2-6	DB15-0209				
1/4–19	7/16–20	4009-4-4	DB15-0407	DA226-0407		GG210-NP04-04	D33-0407
1/4–19	1/2–20	4009-4-5	DB15-0408			GG210-NP05-04	D33-0408
1/4–19	9/16–18	4009-4-6	DB15-0409	DA226-0409	DB47-0409	GG210-NP06-04	D33-0409
1/4–19	3/4–16	4009-4-8	DB15-0412				
3/8–19	7/16–20	4009-6-4	DB15-0607				
3/8–19	1/2–20	4009-6-5					
3/8–19	9/16–18	4009-6-6	DB15-0609	DA226-0609		GG210-NP06-06	D33-0609
3/8–19	3/4–16	4009-6-8	DB15-0612	DA226-0612	DB47-0612	GG210-NP08-06	D33-0612
3/8–19	7/8–14	4009-6-10	DB15-0614				D33-0614
3/8–19	1 1–16–12	4009-6-12					
1/2–14	7/16–20	4009-8-4					
1/2–14	9/16–18	4009-8-6	DB15-0809				
1/2–14	3/4–16	4009-8-8	DB15-0812	DA226-0812		GG210-NP08-08	D33-0812
1/2–14	7/8–14	4009-8-10	DB15-0814	DA226-0814	DB47-0814	GG210-NP10-08	D33-0814
1/2–14	1 1/16–12	4009-8-12	DB15-0817			GG210-NP12-08	D33-0817
3/4–14	9/16–18	4009-12-6					
3/4–14	3/4–16	4009-12-8	DB15-1212				
3/4–14	7/8–14	4009-12-10	DB15-1214				
3/4–14	1 1/16–12	4009-12-12	DB15-1217	DA226-1217	DB47-1217	GG210-NP12-12	D33-1217
3/4–14	1 3/16–12	4009-12-14	DB15-1219				
3/4–14	1 5/16–12	4009-12-16	DB15-1221				
1–11	3/4–16	4009-16-8	DB15-1612				
1–11	7/8–14	4009-16-10					
1–11	1 1/16–12	4009-16-12	DB15-1617				
1–11	1 3/16–12	4009-16-14	DB15-1619				
1–11	1 5/16–12	4009-16-16	DB15-1621	DA226-1621	DB47-1621	GG210-NP16-16	D33-1621
1–11	1 5/8–12	4009-16-20	DB15-1626				
1 1/4–1	1 5/16–12	4009-20-16	DB15-2021				
1 1/4–1	1 5/8–12	4009-20-20	DB15-2026	DA226-2026		GG210-NP20-20	D33-2026
1 1/4–1	1 7/8–12	4009-20-24	DB15-2430				
1 1/2–1	1 7/8–12	4009-24-24					
1 1/2–1	1 5/8–12	4009-24-20					
2–11	2 1/2–12	4009-32-32	DB15-3240				

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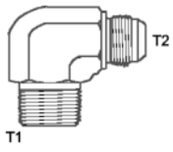
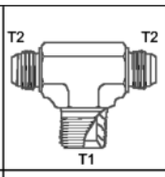
BSPT / JIC





THREAD 1	THREAD 2	BSPT X JIC M X M 90		JIC X JIC X BSP MALE TEE			
BSPT	JIC	AEROQUIP	DUFFIELD	DUFFIELD			
		Part No	Part No.	Part No			
1/8-28	3/8-24						
1/8-28	7/16-20	6720-2-4	DB17-0207	D77-070702			
1/8-28	1/2-20	6720-2-5	DB17-0208				
1/8-28	9/16-18	6720-2-6	DB17-0209				
1/4-19	7/16-20	6720-4-4	DB17-0407	D77-070704			
1/4-19	1/2-20	6720-4-5	DB17-0408	D77-080804			
1/4-19	9/16-18	6720-4-6	DB17-0409	D77-090904			
1/4-19	3/4-16	6720-4-8	DB17-0412				
3/8-19	1/2-20	6720-6-5	DB17-0608				
3/8-19	9/16-18	6720-6-6	DB17-0609				
3/8-19	3/4-16	6720-6-8	DB17-0612	D77-121206			
3/8-19	7/8-14	6720-6-10	DB17-0614				
1/2-14	9/16-18	6720-8-6	DB17-0809				
1/2-14	3/4-16	6720-8-8	DB17-0812	D77-121208			
1/2-14	7/8-14	6720-8-10	DB17-0814	D77-141408			
1/2-14	1 1/16-12	6720-8-12	DB17-0817				
3/4-14	3/4-16	6720-12-8					
3/4-14	7/8-14	6720-12-10	DB17-1214				
3/4-14	1 1/16-12	6720-12-12	DB17-1217				
3/4-14	1 5/16-12	6720-12-16	DB17-1221				
1-11	1 1/16-12	6720-16-12					
1-11	1 5/16-12	6720-16-16	DB17-1621				
1-11	1 5/8-12	6720-16-20	DB17-1626				
1 1/4-11	1 5/8-12	6720-20-20	DB17-2026				

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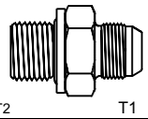
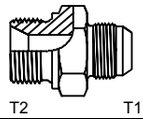
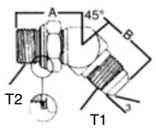
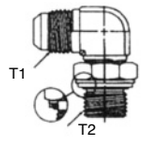
BSPP/JIC



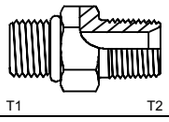


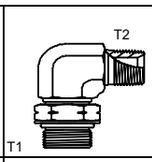




THREAD 1	THREAD 2	BSPP x JIC M X M		BSPP X JIC M X M DOWTY SEAL	BSPP X JIC M X M 45	BSPP X JIC M X M 90	
JIC	BSPP	AEROQUIP	DUFFIELD	DUFFIELD	AEROQUIP	AEROQUIP	DUFFIELD
		Part No	Part No	Part No	Part No	Part No	Part No
7/16-20	1/8-28	GG106-NP04-02	D256-0207		GG206-NP04-02	GG306-NP04-02	D257-0207
1/2-20	1/8-28				GG206-NP05-02		
7/16-20	1/4-19	GG106-NP04-04	D256-0407	D226-0407		GG306-NP04-04	D257-0407
1/2-20	1/4-19			D226-0408			
9/16-18	1/4-19	GG106NP06-04	D256-0409	D226-0409	GG206-NP06-04	GG306-NP06-04	D257-0409
3/4-16	1/4-19	GG106-NP08-04	D256-0412			GG306-NP08-04	D257-0412
7-16-20	3/8-19	GG106-NP04-06	D256-0607	D226-0607		GG306-NP04-06	D257-0607
9/16-18	3/8-19	GG106-NP06-06	D256-0609	D226-0609	GG206-NP06-06	GG306-NP06-06	D257-0609
3/4-16	3/8-19	GG106-NP08-06	D256-0612	D226-0612	GG206-NP08-06	GG306-NP08-06	D257-0612
7/8-14	3/8-19	GG106-NP10-06	D256-0614	D226-0614	GG206-NP10-06	GG306-NP10-06	D257-0614
7/16-20	1/2-14	GG106-NP04-08	D256-0807			GG306-NP04-08	D257-0807
9/16-18	1/2-14	GG106-NP06-08	D256-0809	D226-0809		GG306-NP06-08	D257-0809
3/4-16	1/2-14	GG106-NP08-08	D256-0812	D226-0812	GG206-NP08-08	GG306-NP08-08	D257-0812
7/8-14	1/2-14	GG106-NP10-08	D256-0814	D226-0814	GG206-NP10-08	GG306-NP10-08	D257-0814
1 1/16-12	1/2-14	GG106-NP12-08	D256/0817	D226-0817	GG206-NP12-08	GG306-NP12-08	D257-0817
3/4-16	3/4-14	GG106-NP08-12	D256-1212	D226-1212	GG206-NP08-12		
7/8-14	3/4-14	GG106-NP10-12	D256-1214	D226-1214	GG206-NP10-12	GG306-NP10-12	D257-1214
1 1/6-12	3/4-14	GG106-NP12-12	D256-1217	D226-1217	GG206-NP12-12	GG306-NP12-12	D257-1217
1 5-16-12	3/4-14	GG106-NP16-12	D256-1221	D226-1221		GG306-NP16-12	D257-1221
1 1/16-12	1-11	GG106-NP12-16		D226-1617	GG206-NP12-16	GG306-NP12-16	D257-1617
1 5/16-12	1-11	GG106-NP16-16	D256-1621	D226-1621	GG206-NP16-16	GG306-NP16-16	D257-1621
1 5/8-12	1-11	GG106-NP20-16				GG306-NP20-16	
1 1/16-12	1 1/4-11	GG106-NP12-20					
1 5/16-12	1 1/4-11	GG106-NP16-20					
1 5/8-12	1 1/4-11	GG106-NP20-20	D256-2026	D226-2026	GG206-NP20-20	GG306-NP20-20	
1 7/8-12	1 1/4-11	GG106-NP24-20					
1 5/8-12	1 1/2-11	GG106-NP20-24					
1 7/8-12	1 1/2-11	GG106-NP24-24			GG206-NP24-24		
1 7/8-12	2-11	GG106-NP24-32					
2 1/2-12	2-11	GG106-NP32-32					

BSPT/UNO





THREAD 1	THREAD 2	BSPT X UNO M x M		BSPT X UNO M X M 90			
UNO	BSPT	AEROQUIP	DUFFIELD	DUFFIELD			
		Part No.	Part No.	Part No.	Part No	Part No	Part No
7/16-20	1/4-19			D96-0704			
9/16-18	3/8-19			D96-0906			
3/4-16	3/8-19	6821-8-6	D95-1206				
3/4-16	1/2-14	6821-8	D95-1208				
7/8-14	3/8-19	6821-10-6	D95-1406				
7/8-14	1/2-14	6821-10-8	D95-1408	D96-1408			
7/8-14	3/4-14	6821-10-12	D95-1412				
1 1/16-12	1/2-14	6821-12-8	D95-1708				
1 1/16-12	3/4-14	6821-12	D95-1712	D96-1712			
1 5/16-12	1-11	6821-16	D95-2116	D96-2116			

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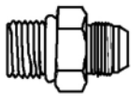
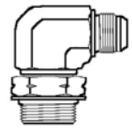
UNO' / JIC





THREAD 1	THREAD 2	UNO' x JIC M x M		UNO' x JIC M X M 45		UNO' X JIC M X M 90	
UNO'	JIC	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
		Part No	Part no	Part No	Part No	Part No	Part No
7/16-20	7/16-20	202702-4-4S	D52-0707	2061-4-4S	D54-0707	2062-4-4S	D53-0707
7/16-20	1/2-20	202702-4-5S					
7/16-20	9/16-18	202702-4-6S	D52-0709			2062-4-6S	D53-0709
7/16-20	3/4-16	202702-4-8S					
1/2-20	7/16-20	202702-5-4S	D52-0807			2062-5-4S	
1/2-20	1/2-20	202702-5-5S	D52-0808	2061-5-5S	D54-0808	2062-5-5S	D53-0808
1/2-20	9/16-18	202702-5-6S					
9/16-18	7/16-20	202702-6-4S	D52-0907			2062-6-4S	D53-0907
9/16-18	9/16-18	202702-6-6S	D52-0909	2061-6-6S	D54-0909	2062-6-6S	D53-0909
9/16-18	3/4-16	202702-6-8S	D52-0912			2062-6-8S	D53-0912
9/16-18	7/8-14	202702-6-10S					
3/4-16	7/16-20	202702-8-4S	D52-1207				
3/4-16'	1/2-20	202702-8-5S	D52-1208				
3/4-16	9/16-18	202702-8-6S	D52-1209			2062-8-6S	D53-1209
3/4-16	3/4-16	202702-8-8S	D52-1212	2061-8-8S	D54-1212	2062-8-8S	D53-1212
3/4-16	7/8-14	202702-8-10S	D52-1214	2061-8-10S	D54-1214	2062-8-10S	D53-1214
3/4-16	1 1/16-12	202702-8-12S	D52-1217			2062-8-12S	
7/8-14	9/16-18	202702-10-6S	D52-1409			2062-10-6S	D53-1409
7/8-14	3/4-16	202702-10-8S	D52-1412	2061-10-8S	D54-1412	2062-10-8S	D53-1412
7/8-14	7/8-14	202702-10-10S	D52-1414	2061-10-10S	D54-1414	2062-10-10S	D53-1414
7/8-14	1 1/16-12	202702-10-12S	D52-1417			2062-10-12S	D53-1417
1 1/16-12	3/4-16	202702-12-8S	D52-1712			2062-12-8S	D53-1712
1 1/16-12	7/8-14	202702-12-10S	D52-1714			2062-12-10S	D53-1714
1 1/16-12	1 1/16-12	202702-12-12S	D52-1717	2061-12-12S	D54-1717	2062-12-12S	D53-1717
1 1/16-12	1 5/16-12	202702-12-16S	D52-1721	2061-12-16S	D54-1721	2062-12-16S	D53-1721
1 1/16-12	1 5/8-12	202702-12-20S					
1 3/16-12	7/8-14	202702-14-10S					
1 3/16-12	1 1/16-12	202702-14-12S	D52-1917				
1 3/16-12	1 5/16-12	202702-14-16S	D52-1921			2062-14-16S	
1 5/16-12	3/4-16	202702-16-8S				2062-16-8S	
1 5/16-12	7/8-14	202702-16-10S	D52-2114				
1 5/16-12	1 1/16-12	202702-16-12S	D52-2117	2061-16-12S	D54-2117	2062-16-12S	D53-2117
1 5/16-12	1 5/16-12	202702-16-16S	D52-2121	2061-16-16S	D54-2121	2062-16-16S	D53-2121
1 5/16-12	1 5/8-12	202702-16-20S	D52-2126			2062-16-20S	
1 5/8-12	1 1/16-12	202702-20-12S	D52-2617	2061-20-12S	D54-2617		
1 5/8-12	1 5/16-12	202702-20-16S	D52-2621	2061-20-16S	D54-2621	2062-20-16S	D53-2621
1 5/8-12	1 5/8-12	202702-20-20S	D52-2626	2061-20-20S	D54-2626	2062-20-20S	D53-2626
1 5/8-12	1 7/8-12	202702-20-24S					
1 7/8-12	1 5/16-12	202702-24-16S					

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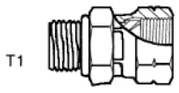
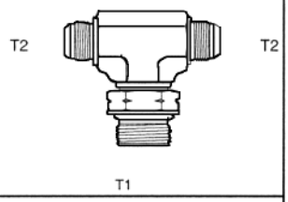
Adaptors

UNO' / JIC





THREAD 1	THREAD 2	UNO' x JIC M X F		UNO' REDUCER		UNO' X JIC M X M X M TEE	
UNO'RING	JIC	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
		Part No	Part No			Part No	Part No
7/16-20	7/16-20	2266-4-4S	DB66-0707			203003-4-4S	DA80-070707
7/16-20	3/4-16			FF1010-0408S			
1/2-20	7/16-20						
1/2-20	1/2-20					203003-5-5S	DA80-080808
9/16-18	7/16-20					203003-6-4S	DA80-090907
9/16-18	9/16-18	2266-6-6S	DB66-0909			203003-6-6S	
9/16-18	3/4-16	2266-6-8S				203003-6-8S	DA80-090912
3/4-16	9/16-18			FF1010-0806S			
3/4-16	3/4-16	2266-8-8S	DB66-1212			203003-8-8S	DA80-121212
3/4-16	7/8-14					203003-8-10S	DA80-121214
7/8-14	9/16-18			FF1010-1006S	D12-1409		
7/8-14	3/4-16			FF1010-1008S			
7/8-14	7/8-14	2266-10-10S	DB66-1414			203003-10-10S	DA80-141414
1 1/16-12	3/4-16			FF1010-1208S	D12-1712		
1 1/16-12	7/8-14			FF1010-1210S			
1 1/16-12	1 1/16-12	2266-12-12S	DB66-1717			203003-12-12S	DA80-171717
1 1/16-12	1 5/16-12			FF1010-1216S			
1 5/16-12	3/4-16			FF1010-1608S	D12-2112		
1 5/16-12	1 1/16-12			FF1010-1612S	D12-2117		
1 5/16-12	1 5/16-12	2266-16-16S	DB66-2121			203003-16-16S	
1 5/8-12	1 1/16-12			FF1010-2012S			
1 5/8-12	1 5/16-12			FF1010-2016S	D12-2621		
1 5/8-12	1 5/8-12					203003-20-20S	

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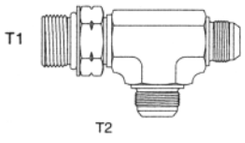
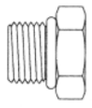
Adaptors

UNO' / JIC





THREAD 1	THREAD 2	UNO' x JIC M X M X M TEE		UNO'PLUG			
UNO'	JIC	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD		
		Part No	Part No				
7/16-20	7/16-20	203005-4-4S	D80-070707	900598-4S	D62-07		
1/2-20	1/2-20	203005-5-5S	D80-080808	900598-5S	D62-08		
9/16-18	7/16-20	203005-6-4-4S					
9/16-18	9/16-18	203005-6-6S	D80-090909	900598-6S	D62-09		
3/4-16	3/4-16	203005-8-8S	D80-121212	900598-8S	D62-12		
7/8-14	3/4-16	203005-10-8S	D80-141412				
7/8-14	7/8-14	203005-10-10S	D80-141414	900598-10S	D62-14		
7/8-14	1 1/16-12						
1 1/16-12	3/4-16						
1 1/16-12	1 1/16-12	203005-12-12S	D80-171717	900598-12S	D62-17		
1 3/16-12	1 3/16-12			900598-14S	D62-19		
1 5/16-12	1 5/16-12	203005-16-16S	D80-212121	900598-16S	D62-21		
1 5/8-12	1 5/8-12	203005-20-20S		900598-20S	D62-26		
1 7/8-12	1 7/8-12			900598-24S	D62-30		
2 1/2-12	2 1/2-12			900598-32S			

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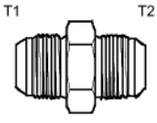
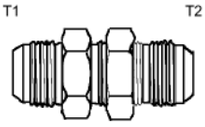
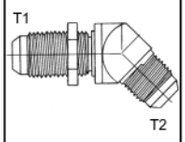
Adaptors

JIC / JIC







THREAD 1	THREAD 2	JIC x JIC M x M		JIC x JIC BULKHEAD		JIC x JIC BULKHEAD 45	
JIC	JIC	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	
		Part No.	Part No.	Part No.	Part No.	Part No.	
3/8-24	3/8-24	2027-3-3S					
7/16-20	7/16-20	2027-4-4S	D16-0707	2041-4-4S	D93-0707		
1/2-20	7/16-20	2027-5-4S					
1/2-20	1/2-20	2027-5-5S	D16-0808	2041-5-5S			
9/16-18	7/16-20	2027-6-4S					
9/16-18	1/2-20	2027-6-5S					
9/16-18	9/16-18	2027-6-6S	D16-0909	2041-6-6S	D93-0909	2042-6-6S	
3/4-16	7/16-20	2027-8-4S					
3/4-16	9/16-18	2027-8-6S	D16-1209				
3/4-16	3/4-16	2027-8-8S	D16-1212	2041-8-8S	D93-1212	2042-8-8S	
7/8-14	9/16-18	2027-10-6S					
7/8-14	3/4-16	2027-10-8S	D16-1412				
7/8-14	7/8-14	2027-10-10S	D16-1414	2041-10-10S	D93-1414		
1 1/16-12	3/4-16	2027-12-8S	D16-1712				
1 1/16-12	7/8-14	2027-12-10S	D16-1714				
1 1/16-12	1 1/16-12	2027-12-12S	D16-1717	2041-12-12S	D93-1717		
1 3/16-12	1 3/16-12	2027-14-14S	D16-1919				
1 5/16-12	1 1/16-12	2027-16-12S	D16-2117				
1 5/16-12	1 5/16-12	2027-16-16S	D16-2121	2041-16-16S	D93-2121		
1 5/8-12	1 5/16-12	2027-20-16S	D16-2621				
1 5/8-12	1 5/8-12	2027-20-20S	D16-2626	2041-20-20S			
1 7/8-12	1 7/8-12	2027-24-24S	D16-3030.	2041-24-24S			
2 1/2-12	2 1/2-12	2027-32-32S	D16-4040				

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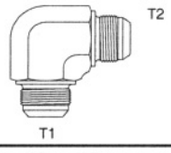
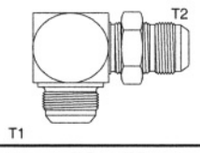
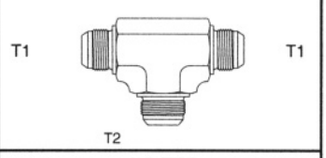
JIC / JIC







THREAD 1	THREAD 2	JIC x JIC M X M 90		JIC x JIC BULKHEAD 90		JIC TEE M X M X M	
JIC	JIC	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
		Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
7/16-20	7/16-20	2039-4-4S	D18-0707	2043-4-4S		2033-4-4S	D20-070707
1/2-20	1/2-20	2039-5-5S	D18-0808			2033-5-5S	D20-080808
9/16-18	9/16-18	2039-6-6S	D18-0909	2043-6-6S	D94-0909	2033-6-6S	D20-090909
3/4-16	9/16-18	2039-8-6S					
3/4-16	3/4-16	2039-8-8S	D18-1212	2043-8-8S	D94-1212	2033-8-8S	D20-121212
7/8-14	3/4-16	2039-10-8S	D18-1412			2033-10-8S	D20-141412
7/8-14	7/8-14	2039-10-10S	D18-1414	2043-10-10S	D94-1414	2033-10-10S	D20-141414
1 1/16-12	1 1/16-12	2039-12-12S	D18-1717	2043-12-12S	D94-1717	2033-12-12S	D20-171717
1 5/16-12	1 5/16-12	2039-16-16S	D18-2121			2033-16-16S	D20-212121
1 5/8-12	1 5/8-12	2039-20-20S	D18-2626			2033-20-20S	D20-262626

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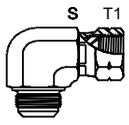
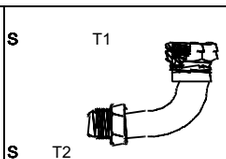
JIC / JIC		S T1 T2		A 37° T1 T2	S T1 T2	T2	
THREAD 1	THREAD 2	JIC x JIC F X M RED'R		JIC X JIC F X M BUSH	JIC X JIC F X M BUSH	JIC X JIC F X M 45	
JIC	JIC	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
		Part No.	Part No	Part No	Part No	Part No.	Part No.
7/16-20	7/16-20					2070-4-4S	D51-0707
1/2-20	1/2-20						
9/16-18	7/16-20	221501-6-4S	DA13-0907				
9/16-18	9/16-20					2070-6-6S	D51-0909
3/4-16	7/16-20	221501-8-4S	DA13-1207				
3/4-16	9/16-20	221501-8-6S	DA13-1209				
3/4-16	3/4-16					2070-8-8S	D51-1212
7/8-14	9/16-20	221501-10-6S	DA13-1409				
7/8-14	3/4-16			2215-10-8S	DA44-1412		
7/8-14	7/8-14					2070-10-10S	D51-1414
7/8-14	1 1/16-12			2215-10-12S			
1 1/16-12	7/16-20	221501-12-4S	DA13-1707				
1 1/16-12	9/16-18	221501-12-6S	DA13-1709				
1 1/16-12	3/4-16	221501-12-8S	DA13-1712				
1 1/16-12	7/8-14			2215-12-10S	DA44-1714		
1 1/16-12	1 1/16-12					2070-12-12S	D51-1717
1 1/16-12	1 5/16-12			2215-12-16S			
1 5/16-12	9/16-18	221501-16-6S					
1 5/16-12	3/4-16	221501-16-8S	DA13-2112				
1 5/16-12	1 1/16-12	221501-16-12S	DA13-2117				
1 5/16-12	1 5/16-12					2070-16-16S	D51-2121
1 5/16-12	1 5/8-12			2215-16-20S			
1 5/8-12	1 5/16-12	221501-20-16S	DA13-2621				
1 5/8-12	1 5/8-12					2070-20-20S	
1 7/8-12	1 5/8-12			2215-24-20S		2070-24-24S	

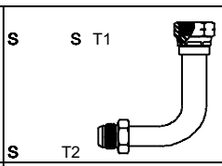
JIC / JIC



JIC X JIC
F X M 90



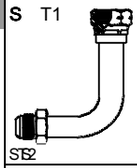
JIC X JIC
F X M BEND 90
R10 PRESSURE



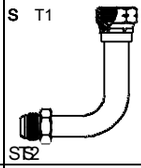
JIC X JIC
F X M 90 LONG
R10 PRESSURE

THREAD 1	THREAD 2	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
JIC	JIC	Part No	Part No	Part No.	Part No.	Part No.	Part No.
7/16–20	7/16–20	2071-4-4S	D50-0707				
1/2–20	1/2–20	2071-5-5S	D50-0808				
9/16–18	9/16–18	2071-6-6S	D50-0909				
3/4–16	3/4–16	2071-8-8S	D50-1212	FF5163-0808S	D182-1212	FF5164-0808S	D183-1212
7/8–14	7/8–14	2071-10-10S	D50-1414				
7/8–14	1 1/16–12	2071-10-12S	D50-1417				
1 1/16–12	1 1/16–12	2071-12-12S	D50-1717	FF5163-1212S	D182-1717	FF5164-1212S	D183-1717
1 5–16–12	1 1/16–12						
1 5/16–12	1 5/16–12	2071-16-16S	D50-2121	FF5163-1616S	D185-2121	FF5164-1616S	D183-2121
1 5/8–12	1 5/8–12	2071-20-20S	D50-2626	FF5163-2020S	D185-2626	FF5164-2020S	D183-2626
1 7/8–12	1 7/8–12	2071-24-24S	D50-3030	FF5163-2424S			

JIC / JIC



JIC X JIC
F X M 90
R9 PRESSURE



JIC X JIC
F X M LONG
R9 PRESSURE

THREAD 1	THREAD 2	AEROQUIP	DUFFIELD				
JIC	JIC	Part No	Part No				
7/16–20	7/16–20	500454-4S	504095-4S				
1/2–20	1/2–20	500454-5S	504095-5S				
9/16–18	9/16–18	500454-6S	504095-6S				
3/4–16	3/4–16	500454-8S	504095-8S				
7/8–14	7/8–14	500454-10S	504095-10S				
1 1/16–12	1 1/16–12	500454-12S	504095-12S				
1 5/16–12	1 5/16–12	500454-16S	504095-16S				
1 5/8–12	1 5/8–12	500454-20S	504905-20S				

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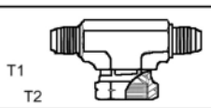
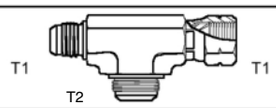
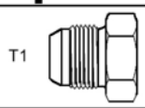
JIC / JIC

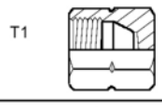


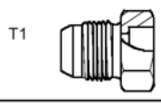




THREAD 1	THREAD 2	JIC TEE M X M X F		JIC TEE M X F X M		JIC PLUG	
JIC	JIC	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
3/8-24	3/8-24					900599-3S	
7/16-20	7/16-20	203101-4-4S	DA81-070707	203102-4-4S	DA82-070707	900599-4S	D61-07
1/2-20	1/2-20	203101-5-5S	DA81-080808	203102-5-5S	DA82-080808	900599-5S	D61-08
9/16-19	9/16-18	203101-6-6S	DA81-090909	203102-6-6S	DA82-090909	900599-6S	D61-09
3/4-16	3/4-16	203101-8-8S	DA81-121212	203102-8-8S	DA82-121212	900599-8S	D61-12
7/8-14	7/8-14	203101-10-10S	DA81-141414	203102-10-10S	DA82-141414	900599-10S	D61-14
1 1/16-12	1 1/16-12	203101-12-12S	DA81-171717	203102-12-12S	DA82-171717	900599-12S	D61-17
1 5/16-12	1 5/16-12	203101-16-16S	DA81-212121	203102-16-16S	DA82-212121	900599-16S	D61-21
1 5/8-12	1 5/8-12	203101-20-20S	DA81-262626	203102-20-20S	DA82-262626	900599-20S	D61-26
1 7/8-12	1 7/8-12			203102-24-24S	DA82-303030	900599-24S	D61-30
2 1/2-12	2 1/2-12					900599-32S	

JIC / JIC





THREAD 1	TUBE OD	JIC CAP		JIC MALE TUBEWELD		JIC FEMALE TUBEWELD	
JIC		AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	DUFFIELD	
		Part No.	Part No.	Part No.	Part No.	Part No.	
3/8-24	3/16	210292-3S					
7/16-20	1/4	210292-4S	D8-07	73014-4S	TW1-0704		
1/2-20	5/16	210292-5S	D8-08				
9/16-18	3/8	210292-6S	D8-09	73014-6S	TW1-0906	TW25-0906	
9/16-18	1/2					TW25-0908	
3/4-16	3/8					TW25-1206	
3/4-16	1/2	210292-8S	D8-12	73014-8S	TW1-1208	TW25-1208	
3/4-16	5/8					TW25-1210	
7/8-14	1/2					TW25-1408	
7/8-14	5/8	210292-10S	D8-14	73014-10S	TW1-1410	TW25-1410	
7/8-14	3/4					TW25-1412	
7/8-14	7/8					TW25-1414	
1 1/16-12	3/4	210292-12S	D8-17	73014-12S	TW1-1712	TW25-1712	
1 1-16-12	7/8					TW25-1714	
1 1/16-12	1					TW25-1716	
1 5/16-12	1	210292-16S	D8-21	73014-16S	TW1-2116	TW25-2116	
1 5/16-12	1 1/8					TW25-2118	
1 5/16-12	1 1/4					TW25-2120	
1 5/8-12	1 1/4	210292-20S	D8-26	73014-20S	TW1-2620	TW25-2620	
1 5/8-12	1 1/4					TW25-2620	
1 5/8-12	1 1/2					TW25-2624	
1 7/8-12	1 1/2	210292-24S	D8-30	73014-24S	TW1-3024	TW25-3024	
2 1/2-12	2	210292-32S		73014-32S	TW1-4032	TW25-4032	

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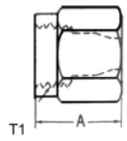
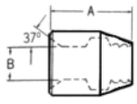
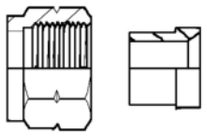
IMPERIAL TUBE FITTINGS

FLARELESS





FLARE TYPE



THREAD 1	TUBE 0D	NUT AEROQUIP Part No.	FERRULE DUFFIELD Part No.	NUT AEROQUIP Part No.	SLEEVE AEROQUIP Part No.	NUT & SLEEVE DUFFIELD Part No.
7/16-20	1/4"	FC2875-04S	FF9605-04S	1290-4S	900605-4S	D14-07
9/16-18	3/8"	FC2875-06S	FF9605-06S	1290-6S	900605-6S	D14-09
3/4-16	1/2"	FC2875-08S	FF9605-08S	1290-8S	900605-8S	D14-12
7/8-14	5/8"	FC2875-10S	FF9605-10S	1290-10S	900605-10S	D14-14
1 1/16-12	3/4"	FC2875-12S	FF9605-12S	1290-12S	900605-12S	D14-17
1 3/16-12	7/8"			1290-14S	900605-14S	D14-19
1 5/16-12	1"	FC2875-16S	FF9605-16S	1290-16S	900605-16S	D14-21
1 5/8-12	1 1/4"	FC2875-20S	FF9605-20S	1290-20S	900605-20S	D14-26
1 7/8"	1 1/2"	FC2875-24S	FF9605-24S	1290-24S	900605-24S	D14-30

ASSEMBLY INSTRUCTIONS

1. Cut the tube square (+-1°).
2. Deburr the tube internally and externally. Clean all grit and dirt from the I.D. and O.D.
3. Slide the nut and then the ferrule onto the tube . Make sure the tapered end of the ferrule points toward the nut.
4. Lubricate all mating surfaces of nut, ferrule and body with a heavy lubricant such as Aerolube.
5. Place the end of the tube against the JIC flare body.
6. Slide the ferrule and nut against the body and tighten the nut onto the body 'hand tight' Mark the nut in relation to the body for location.
7. Hold the tube against the body and tighten the nut 1 and 1/4 turns for -3 to -10 and 1 and 1/2 turns for -12 to -32
8. After disassembly retighten one hex flat.

ASSEMBLY INSTRUCTIONS

1. Cut the tube square with a tube cutter or fine tooth hacksaw.
2. Deburr the tube internally and externally. Clean all grit and dirt from the I.D. and O.D.
3. Place the nut then the sleeve onto the tube.The threaded end of the nut and flared end of the sleeve must face the end of the tube.
4. Flare the end of the tube with a flaring tool to provide a 37 degree flare. Check the flare for correct diameter, excessive thin out and burrs and cracks.
5. Assemble the nut and sleeve to the body. Turn the nut hand tight then wrench tighten. Consult Aeroquip for torque values.

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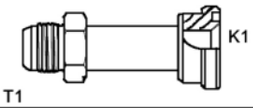
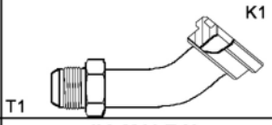
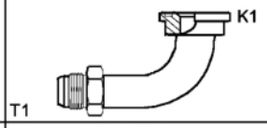
Adaptors

JIC/FLANGE

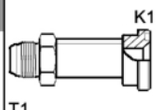


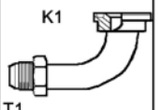




THREAD 1	FLANGE SIZE	FLANGE DIA K 1- CODE 61	JIC MALE X FLANGE R9 PRESSURE		JIC MALE X FLANGE 45 R9 PRESSURE		JIC MALE X FLANGE 90 R9 PRESSURE	
JIC			AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
			Part No	Part No	Part No	Part No	Part No	Part No
3/4-16	1/2	1.19	500025-8S		500023-8S		500024-8S	D184-1208
1 1/16-12	3/4	1.5	500025-12S	D188-1712	500023-12S	D191-1712	500024-12S	D184-1712
3/4-16	3/4	1.5	500025-12-8S	D188-1208	500023-12-8S		500024-12-8S	
7/8-14	3/4	1.5	500025-12-10S	D188-1412			500024-12-10S	D184-1412
7/8-14	1	1.75	500025-16-10S		500023-16-10S		500024-16-10S	D184-1416
7/8-14	1 1/4	2					500024-20-10S	D184-1420
1 1/16-12	1	1.75	500025-16-12S	D188-1716	500023-16-12S		500024-16-12S	D184-1716
1 5/16-12	1	1.75	500025-16S	D188-2116	500023-16S	D191-2116	500024-16S	D184-2116
1 1/16-12	1 1/4	2			500023-20-12S		500024-20-12S	
1 5/16-12	1 1/4	2	500025-20-16S	D188-2120	500023-20-16S	D191-2120	500024-20-16S	D184-2120
1 7/8-12	1 1/4	2	500025-20-24S		500023-20-24S	D191-3020	500024-20-24S	D184-3020
1 5/8-12	1 1/4	2	500025-20S	D188-2620	500023-20S	D191-2620	500024-20S	D184-2620
1 7/8-12	1 1/2	2.38	500025-24S	D188-3024	500023-24S	D191-3024	500024-24S	D184-3024
1 5/16-12	1 1/2	2.38	500025-24-16S		500023-24-16S		500024-24-16S	D184-2124
1 5/8-12	1 1/2	2.38	500025-24-20S	D188-2624	500023-24-20S	D191-2624	500024-24-20S	D184-2624
2 1/2-12	1 1/2	2.38			500023-24-32S	D191-4024		
1 5/16-12	2	2.81	500025-32-16S					
1 5/8-12	2	2.81	500025-32-20S					
1 7/8-12	2	2.81	500025-32-24S				500024-32-24S	
2/1/2-12	2	2.81	500025-32S		500023-32S		500024-32S	

JIC /FLANGE





THREAD 1	FLANGE SIZE	FLANGE DIA K1 CODE 62	JIC MALE X FLANGE R11 PRESSURE	JIC MALE FLANGE 90 R11 PRESSURE
JIC			AEROQUIP	AEROQUIP
			Part No	Part No
1 1-16-12	3/4	1.63	FF5541-1212S	
1 5/16-12	1	1.87	FF5541-1616S	FF5540-1616S
1 5/16-12	1 1/4	2.13	FF5541-2016S	FF5540-2016S
1 5/8-12	1 1/4	2.13	FF5541-2020S	FF5540-2020S
1 5/16-12	1 1/2	2.5	FF5541-2416S	FF5540-2416S
1 5/8-12	1 1/4	2.5	FF5541-2420S	FF5540-2420S
1 7/8-12	1 1/2	2.5	FF5541-2424S	FF5540-2424S

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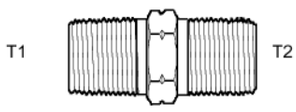
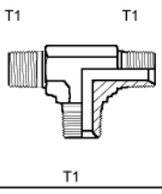
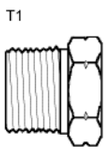
Adaptors

NPT / NPT







THREAD 1	THREAD 2	NPT x NPT M x M		NPT x NPT M X M 90	NPT TEE M X M X M	NPT PLUG	
NPT	NPT	AEROQUIP	DUFFIELD	AEROQUIP	AEROQUIP	AEROQUIP	DUFFIELD
		Part No	Part No	Part No	Part No	Part No	Part No
1/8-27	1/8-27	2083-2-2S		2085-2-2S	2257-2-2S	2082-2S	D60-02
1/4-18	1/8-27	2083-4-2S					
1/4-18	1/4-18	2083-4-4S	DA4-0404	2085-4-4S	2257-4-4S	2082-4S	D60-04
3/8-18	1/4-18	2083-6-4S		2085-6-4S			
3/8-18	3/8-18	2083-6-6S	DA4-0606	2085-6-6S	2257-6-6S	2082-6S	D60-06
1/2-14	3/8-18	2083-8-6S	DA4-0806	2085-8-6S			
1/2-14	1/2-14	2083-8-8S	DA4-0808	2085-8-8S	2257-8-8S	2082-8S	D60-08
3/4-14	1/2-14	2083-12-8S		2085-12-8S			
3/4-14	3/4-14	2083-12-12S	DA4-1212	2085-12-12S	2257-12-12S	2082-12S	D60-12
1-11 1/2	3/4-14	2083-16-12S	DA4-1612	2085-16-12S			
1-11 1/2	1-11 1/2	2083-16-16S	DA4-1616	2085-16-16S	2257-16-16S	2082-16S	D60-16
1 1/4-11 1/2	1-11 1/2	2083-20-16S					
1 1/4-11 1/2	1 1/4-11 1/2	2083-20-20S	DA4-2020			2082-20S	D60-20
1 1/2-11 1/2	1 1/4-11 1/2	2083-24-20S	DA4-2420				
1 1/2-11 1/2	1 1/2-11 1/2	2083-24-24S	DA4-2424			2082-24S	D60-24
2-11 1/2	2-11 1/2	2083-32-32S				2082-32S	D60-32

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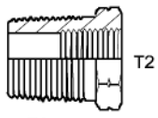
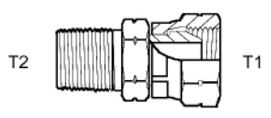
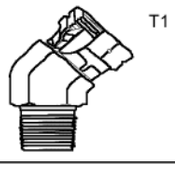
Adaptors

NPT / NPT

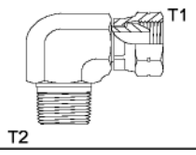
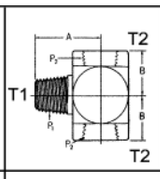
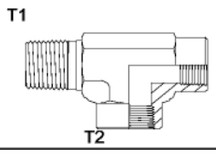


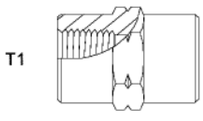
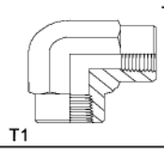
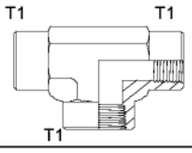




THREAD 1	THREAD 2	NPT X NPT F X M BUSH		NPSM X NPT F X M		NPSM X NPT F X M 45	
NPT	NPT	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
		Part No	Part No	Part No	Part No	Part No	Part No
1/8-27	1/8-27			2045-2-2S	D44-0202	2049-2-2S	
1/4-18	1/8-27	2081-4-2S	D21-0402				
1/4-18	1/4-18			2045-4-4S	D44-0404	2049-4-4S	D46-0404
3/8-18	1/8-27	2081-6-2S	D21-0602				
3/8-18	1/4-18	2081-6-4S	D21-0604	2045-6-4S			
3/8-18	3/8-18			2045-6-6S	D44-0606	2049-6-6S	D46-0606
3/8-18	1/2-14					2049-6-8S	
1/2-14	1/8-27	2081-8-2S	D21-0802				
1/2-14	1/4-18	2081-8-4S	D21-0804				
1/2-14	3/8-18	2081-8-6S	D21-0806	2045-8-6S		2049-8-6S	
1/2-14	1/2-14			2045-8-8S	D44-0808	2049-8-8S	D46-0808
3/4-14	1/4-18	2081-12-4S	D21-1204				
3/4-14	3/8-18	2081-12-6S	D21-1206				
3/4-14	1/2-14	2081-12-8S	D21-1208				
3/4-14	3/4-14			2045-12-12S	D44-1212	2049-12-12S	D46-1212
1-11 1/2	1/4-18	2081-16-4S	D21-1604				
1-11 1/2	3/8-18	2081-16-6S	D21-1606				
1-11 1/2	1/2-14	2081-16-8S	D21-1608				
1-11 1/2	3/4-14	2081-16-12S	D21-1612	2045-16-12S			
1-11 1/2	1-11 1/2			2045-16-16S	D44-1616	2049-16-16S	D46-1616
1 1/4-11 1/2	3/4-14	2081-20-12S	D21-2012				
1 1/4-11 1/2	1-11 1/2	2081-20-16S	D21-2016				
1 1/4-11 1/2	1 1/4-11 1/2			2045-20-20S	D44-2020		
1 1/2-11 1/2	3/4-14	2081-24-12S	D21-2412				
1 1/2-11 1/2	1 1/4-11 1/2	2081-24-20S	D21-2420				
1 1/2-11 1/2	1 1/2-11 1/2			2045-24-24S			
2-11 1/2	3/4-14	2081-32-12S	D21-3212				
2-11 1/2	2-11 1/2			2045-32-32S			
2 1/2-8	2-11 1/2	2081-40-32S	D21-4032				

Adaptors

NPT / NPT							
THREAD 1	THREAD 2	NPSM X NPT F X M 90		NPT TEE F X F X M	NPT TEE M X F X F		
NPT	NPT	AEROQUIP	DUFFIELD	AEROQUIP	AEROQUIP	DUFFIELD	
		Part No	Part No	Part No	Part No	Part No	
1/8-27	1/8-27	2047-2-2S	D45-0202	2091-2-2S	2092-2-2S		
1/4-18	1/4-18	2047-4-4S	D45-0404	2091-4-4S	2092-4-4S	D72-040404	
1/4-18	3/8-18	2047-4-6S					
3/8-18	3/8-18	2047-6-6S	D45-0606	2091-6-6S	2092-6-6S	D72-060606	
3/8-18	1/2-14	2047-6-8S					
1/2-14	3/8-18	2047-8-6S					
1/2-14	1/2-14	2047-8-8S	D45-0808	2091-8-8S	2092-8-8S	D72-080808	
3/4-14	1/2-14	2047-12-8S					
3/4-14	3/4-14	2047-12-12S	D45-1212	2091-12-12S	2092-12-12S	D72-121212	
3/4-14	1- 11/1/2	2047-12-16S					
1-11 1/2	1-11 1/2	2047-16-16S	D45-1616	2091-16-16S	2092-16-16S		

NPT / NPT							
THREAD 1	THREAD 2	NPT X NPT SOCKET		NPT X NPT F X F 90		NPT TEE F X F X F	
NPT	NPT	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
		Part No	Part No	Part No	Part No	Part No	Part No
1/8-27	1/8-27	2096-2S	D67-02	2087-2-2S	D38-0202	2090-2-2S	D71-020202
1/4-18	1/8-27			2087-4-2S			
1/4-18	1/4-18	2096-4S	D67-04	2087-4-4S	D38-0404	2090-4-4S	D71-040404
3/8-18	1/4-18			2087-6-4S			
3/8-18	3/8-18	2096-6S	D67-06	2087-6-6S	D38-0606	2090-6-6S	D71-060606
1/2-14	3/8-18			2087-8-6S			
1/2-14	1/2-14	2096-8S	D67-08	2087-8-8S	D38-0808	2090-8-8S	D71-080808
3/4-14	1/2-14			2087-12-8S			
3/4-14	3/4-14	2096-12S	D67-12	2087-12-12S	D38-1212	2090-12-12S	D71-121212
3/4-14	1- 11/1/2						
1-11 1/2	1-11 1/2	2096-16S	D67-16	2087-16-16S	D38-1616	2090-16-16S	D71-161616

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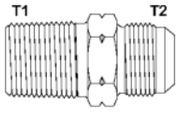
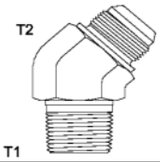
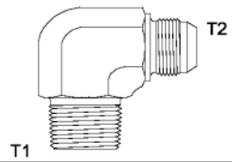
Adaptors

NPT / JIC



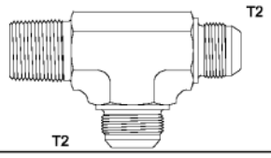


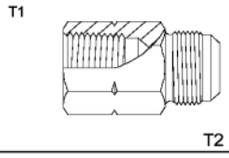


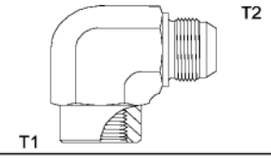
THREAD 1	THREAD 2	NPT x JIC M x M		NPT x JIC M X M 45		NPT X JIC M X M 90	
NPT	JIC	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
		Part No	Part No	Part No	Part No	Part No	Part No
1/8-27	3/8-24	2021-2-3S				2024-2-3S	
1/8-27	7/16-20	2021-2-4S	D15-0207	2023-2-4S	D41-0207	2024-2-4S	D17-0207
1/8-27	1/2-20	2021-2-5S	D15-0208	2023-2-5S	D41-0208	2024-2-5S	D17-0208
1/8-27	9/16-18	2021-2-6S	D15-0209			2024-2-6S	D17-0209
1/4-18	7/16-20	2021-4-4S	D15-0407	2023-4-4S	D41-0407	2024-4-4S	D17-0407
1/4-18	1/2-20	2021-4-5S	D15-0408	2023-4-5S	D41-0408	2024-4-5S	D17-0408
1/4-18	9/16-18	2021-4-6S	D15-0409	2023-4-6S	D41-0409	2024-4-6S	D17-0409
1/4-18	3/4-16	2021-4-8S	D15-0412	2023-4-8S	D41-0412	2024-4-8S	D17-0412
3/8-18	7/16-20	2021-6-4S	D15-0607			2024-6-4S	D17-0607
3/8-18	9/16-18	2021-6-6S	D15-0609	2023-6-6S	D41-0609	2024-6-6S	D17-0609
3/8-18	3/4-16	2021-6-8S	D15-0612	2023-6-8S	D41-0612	2024-6-8S	D17-0612
3/8-18	7/8-14	2021-6-10S	D15-0614	2023-6-10S	D41-0614	2024-6-10S	D17-0614
3/8-18	1 1/16-12	2021-6-12S	D15-0617				
1/2-14	7/16-20	2021-8-4S	D15-0807				
1/2-14	9/16-18	2021-8-6S	D15-0809	2023-8-6S	D41-0809	2024-8-6S	D17-0809
1/2-14	3/4-16	2021-8-8S	D15-0812	2023-8-8S	D41-0812	2024-8-8S	D17-0812
1/2-14	7/8-14	2021-8-10S	D15-0814	2023-8-10S	D41-0814	2024-8-10S	D17-0814
1/2-14	1 1/16-12	2021-8-12S	D15-0817	2023-8-12S	D41-0817	2024-8-12S	D17-0817
3/4-14	9/16-18	2021-12-6S	D15-1209			2024-12-6S	D17-1209
3/4-14	3/4-16	2021-12-8S	D15-1212	2023-12-8S	D41-1212	2024-12-8S	D17-1212
3/4-14	7/8-14	2021-12-10S	D15-1214	2023-12-10S	D41-1214	2024-12-10S	D17-1214
3/4-14	1 1/16-12	2021-12-12S	D15-1217	2023-12-12S	D41-1217	2024-12-12S	D17-1217
3/4-14	1 3/16-12						
3/4-14	1 5/16-12	2021-12-16S	D15-1221	2023-12-16S	D41-1221	2024-12-16S	D17-1221
1-11 1/2	1 1/16-12	2021-16-12S				2024-16-12S	D17-1617
1-11 1/2	1 5/16-12	2021-16-16S		2023-16-16S	D41-1621	2024-16-16S	D17-1621
1-11 1/2	1 5/8-12	2021-16-20S				2024-16-20S	D17-1626
1 1/4-11 1/2	1 5/16-12	2021-20-16S					
1 1/4-11 1/2	1 5/8-12	2021-20-20S		2023-20-20S	D41-2026	2024-20-20S	D17-2026
1 1/2-11 1/2	1 7/8-12	2021-24-24S				2024-24-24S	
2-11 1/2	2 1/2-12	2021-32-32S				2024-32-32S	

Adaptors

NPT / JIC







THREAD 1	THREAD 2	NPT X JIC TEE M X M X M		NPT x JIC F X M		NPT X JIC F X M 90	
NPT	JIC	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD
		Part No	Part No	Part No	Part No	Part No	Part No
1/8-27	3/8-24	2028-2-3S					
1/8-27	7/16-20	2028-2-4S	D74-020707	2022-2-4S	D64-0207	2025-2-4S	D43-0207
1/8-27	1/2-20	2028-2-5S				2025-2-5S	D43-0208
1/8-27	9/16-18					2025-2-6S	
1/4-18	7/16-20	2028-4-4S		2022-4-4S	D64-0407	2025-4-4S	D43-0407
1/4-18	1/2-20	2028-4-5S		2022-4-5S	D64-0408	2025-4-5S	D43-0408
1/4-18	9/16-18	2028-4-6S	D74-040909	2022-4-6S	D64-0409	2025-4-6S	D43-0409
1/4-18	3/4-16					2025-4-8S	D43-0412
3/8-18	7/16-20					2025-6-4S	
3/8-18	9/16-18	2028-6-6S		2022-6-6S	D64-0609	2025-6-6S	D43-0609
3/8-18	3/4-16	2028-6-8S	D74-061212	2022-6-8S	D64-0612	2025-6-8S	D43-0612
3/8-18	7/8-14	2028-6-10S					
1/2-14	9/16-18	2028-8-6S				2025-8-6S	D43-0809
1/2-14	3/4-16	2028-8-8S	D7-081212	2022-8-8S	D64-0812	2025-8-8S	D43-0812
1/2-14	7/8-14	2028-8-10S	D74-081414	2022-8-10S	D64-0814	2025-8-10S	D43-0814
1/2-14	1 1/16-12			2022-8-12S	D64-0817	2025-8-12S	D43-0817
3/4-14	7/8-14			2022-12-10S			
3/4-14	1 1/16-12	2028-12-12S	D74-121717	2022-12-12S	D64-1217	2025-12-12S	D43-1217
3/4-14	1 5/16-12	2028-12-16S					
1-11 1/2	1 5/16-12	2028-16-16S	D74-162121	2022-16-16S	D64-1621	2025-16-16S	D43-1621
1 1/4-11 1/2	1 5/8-12	2028-20-20S				2025-20-20S	D43-2026
1 1/2-11 1/2	1 7/8-12					2025-24-24S	
2-11 1/2	2 1/2-12					2025-32-32S	

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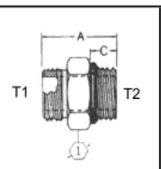
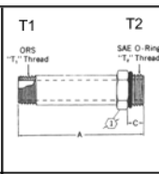
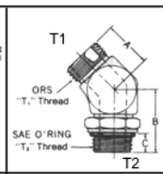
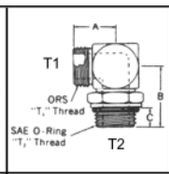
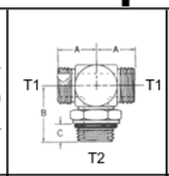
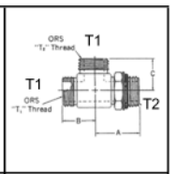
UNO/ORS							
THREAD 1	THREAD 2	ORS x UNO' M x M	ORS x UNO' M x M	ORS x UNO' M x M 45	ORS x UNO' M x M 90	ORS x UNO M x M x M TEE	ORS x UNO' M x M x M TEE
ORS	UNO'	AEROQUIP	AEROQUIP	AEROQUIP	AEROQUIP	AEROQUIP	AEROQUIP
		Part No	Part No	Part No	Part No	Part No	Part No
9/16-18	3/8-24	FF1852T0403S					
9/16-18	7/16-20	FF1852T0404S	FF1854T0404S	FF2068T0404S	FF1868T0404S	FF1861T0404S	FF1865T0404S
9/16-18	1/2-20	FF1852T0405S			FF1868T0405S		
9/16-18	9/16-18	FF1852T0406S		FF2068T0406S	FF1868T0406S		FF1865T0406S
9/16-18	3/4-16	FF1852T0408S		FF2068T0408S	FF1868T0408S		
11/16-16	3/8-24	FF1852T0603S					
11/16-16	7/16-20	FF1852T0604S		FF2068T0604S	FF1868T0604S		FF1865T0604S
11/16-16	1/2-20	FF1852T0605S			FF1868T0605S		
11/16-16	9/16-18	FF1852T0606S	FF1854T0606S	FF2068T0606S	FF1868T0606S	FF1861T0606S	FF1865T0606S
11/16-16	3/4-16	FF1852T0608S	FF1854T0608S	FF2068T0608S	FF1868T0608S	FF1861T0608S	
11/16-16	7/8-14	FF1852T0610S			FF1868T0610S		
11/16-16	1 1/16-12	FF1852T0612S			FF1868T0612S		
11/16-16	1 5/16-12	FF1852T0616S					
13/16-16	9/16-18	FF1852T0806S		FF2068T0806S	FF1868T0806S		FF1865T0806S
13/16-16	3/4-16	FF1852T0808S	FF1854T0808S	FF2068T0808S	FF1868T0808S	FF1861T0808S	FF1865T0808S
13/16-16	7/8-14	FF1852T0810S		FF2068T0810S	FF1868T0810S		
13/16-16	1 1/16-12	FF1852T0812S			FF1868T0812S		FF1865T0812S
13/16-16	1 3/16-12	FF1852T0814S					
13/16-16	1 5/16-12	FF1852T0816S					
1-14	3/4-16	FF1852T1008S		FF2068T1008S	FF1868T1008S		
1-14	7/8-14	FF1852T1010S	FF1854T1010S	FF2068T1010S	FF1868T1010S	FF1861T1010S	FF1865T1010S
1-14	1 1/16-12	FF1852T1012S		FF2068T1012S	FF1868T1012S		FF1865T1012S
1 3/16-12	9/16-18	FF1852T1206S					
1 3/16-12	3/4-16	FF1852T1208S			FF1868T1208S		
1 3/16-12	7/8-14	FF1852T1210S		FF2068T1210S	FF1868T1210S	FF1861T1210S	
1 3/16-12	1 1/16-12	FF1852T1212S	FF1854T1212S	FF2068T1212S	FF1868T1212S	FF1861T1212S	FF1865T1212S
1 3/16-12	1 5/16-12	FF1852T1216S		FF2068T1216S			
1 7/16-12	7/8-14	FF1852T1610S					
1 7/16-12	1 1/16-12	FF1852T1612S		FF2068T1612S	FF1868T1612S		
1 7/16-12	1 5/16-12	FF1852T1616S	FF1854T1616S	FF2068T1616S	FF1868T1616S	FF1861T1616S	FF1865T1616S
1 7/16-12	1 5/8-12	FF1852T1620S					
1 11/16-12	1 5/8-12	FF1852T2020S	FF1854T2020S	FF2068T2020S	FF1868T2020S	FF1861T2020S	FF1865T2020S
1 11/16-12	1 7/8-12	FF1852T2024S					
2-12	1 7/8-12	FF1852T2424S	FF1854T2424S	FF2068T2424S	FF1868T2424S	FF1861T2424S	FF1868T2424S

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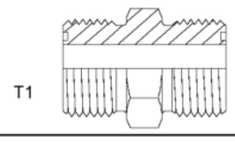
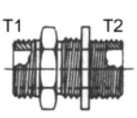
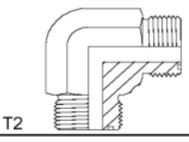
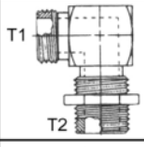
ORS / ORS



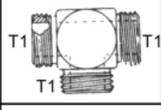


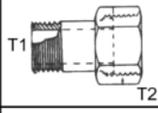


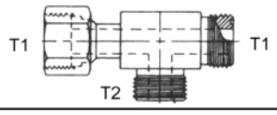


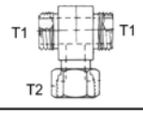
THREAD 1	THREAD 2	ORS x ORS M X M		ORS x ORS BULKHEAD	ORS X ORS M X M 90		ORS X ORS BULKHEAD 90
ORS	ORS	AEROQUIP	DUFFIELD	AEROQUIP	AEROQUIP	DUFFIELD	AEROQUIP
		Part No	Part No	Part No	Part No	Part no	Part No
9/16-18	9/16-18	FF2000T0404S	D263-0909	FF1994T0404S	FF2035T0404S	D262-0909	FF2030T0404S
11/16-16	9/16-18	FF2000T0604S			FF2035T0604S		
11/16-16	11/16-16	FF2000T0606S	D263-1111	FF1994T0606S	FF2035T0606S	D262-1111	FF2030T0606S
13/16-16	11-16-16	FF2000T0806S					FF2030T0806S
13/16-16	13/16-16	FF2000T0808S	D263-1313	FF1994T0808S	FF2035T0808S	D262-1313	FF2030T0808S
13/16-16	1-14						
1-14	1-14	FF2000T1010S		FF1994T1010S	FF2035T1010S		FF2030T1010S
1 3/16-12	13/16-12	FF2000T1208S			FF2035T1208S		
1 3/16-12	1-14	FF2000T1210S					
1 3/16-12	1 3/16-12	FF2000T1212S	D263-1919	FF1994T1212S	FF2035T1212S	D262-1919	FF2030T1212S
1 7/16-12	1 3/16-12	FF2000T1612S					
1 7/16-12	1 7/16-12	FF2000T1616S	D263-2323	FF1994T1616S	FF2035T1616S	D262-2323	FF2030T1616S
1 11/16-12	1 11/16-12	FF2000T2020S		FF1994T2020S	FF2035T2020S		FF2030T2020S
2-12	2-12	FF2000T2424S		FF1994T2424S	FF2035T2424S		FF2030T2424S

ORS / ORS









THREAD 1	THREAD 2	ORS x ORS MALE TEE	ORS x ORS M X F	ORS X ORS F X M X M TEE		ORS x ORS M X M X F TEE	
ORS	ORS	AEROQUIP	AEROQUIP	AEROQUIP	DUFFIELD	AEROQUIP	
		Part No	Part No	Part No	Part No	Part No	
9/16-18	9/16-18	FF1898T0404S		FF2114T0404S	D270-090909	FF1857T0404S	
9/16-18	11/16-16		FF2281T0406S				
9/16-18	13/16-16		FF2281T0408S				
9/16-18	1-14		FF2281T0410S				
9/16-18	1 3/16-12		FF2281T0412S				
11/16-16	11/16-16	FF1898T0606S		FF2114T0606S	D270-111111	FF1857T0606S	
11/16-16	13/16-16	FF1898T0608S	FF2281T0608S				
11-16-16	1-14		FF2281T0610S				
11/16-16	1 3/16-12		FF2281T0612S				
13/16-16	13/16-16	FF1898T0808S		FF2114T0808S	D270-131313	FF1857T0808S	
13/16-16	1-14		FF2281T0810S				
13/16-16	1 3/16-12		FF2281T0812S				
13/16-16	1 7/16-12		FF2281T0816S				
1-14	1-14	FF1898T1010S		FF2114T1010S		FF1857T1010S	
1 3/16-12	1 3/16-12	FF1898T1212S		FF2114T1212S	D270-191919	FF1857T1212S	
1 3/16-12	1 7/16-12	FF1898T1216S					
1 7/16-12	1 7/16-12	FF1898T1616S	FF2281T1616S	FF2114T1616S	D270-232323	FF1857T1616S	
1 7/16-12	1 11-16-12		FF2281T1620S				
1 11/16-12	1 7/16-12	FF1898T2016S					
1 11/16-12	1 11/16-12	FF1898T2020S		FF2114T2020S		FF1857T2020S	
2-12	2-12	FF1898T2424S		FF2114T2424S		FF1857T2424S	

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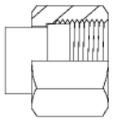
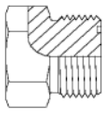
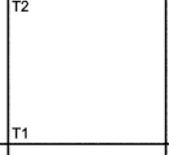
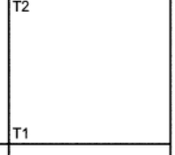
ORS / ORS









THREAD 1	THREAD 2	ORS CAP		ORS PLUG			
ORS	ORS	AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD		
		AEROQUIP	DUFFIELD	AEROQUIP	DUFFIELD		
9/16-18	9/16-18	FF9863-04S	D273-09	FF9767-04S	D271-09		
9/16-18	11/16-16						
9/16-18	13/16-16						
9/16-18	1-14						
9/16-18	1 3/16-12						
11/16-16	9/16-18						
11/16-16	11/16-16	FF9863-06S	D273-11	FF9767-06S	D271-11		
11/16-16	13/16-16						
11-16-16	1-14						
11/16-16	1 3/16-12						
13/16-16	11-16-16						
13/16-16	13/16-16	FF9863-08S	D273-13	FF9767-08S	D271-13		
13/16-16	1-14						
13/16-16	1 3/16-12						
13/16-16	1 7/16-12						
1-14	1-14	FF9863-10S	D273-16	FF9767-10S	D271-16		
1 3/16-12	13/16-12						
1 3/16-12	1-14						
1 3/16-12	1 3/16-12	FF9863-12S	D273-19	FF9767-12S	D271-19		
1 3/16-12	1 7/16-12						
1 7/16-12	1 3/16-12						
1 7/16-12	1 7/16-12	FF9863-16S	D273-23	FF9767-16S	D271-23		
1 7/16-12	1 11-16-12						
1 11/16-12	1 7/16-12						
1 11/16-12	1 11/16-12	FF9863-20S	D273-27	FF9767-20S	D271-27		
2-12	2-12	FF9863-24S	D273-32	FF9767-24S	D271-32		

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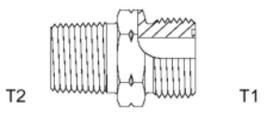
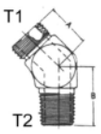
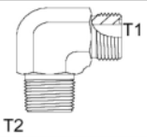
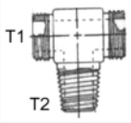
Adaptors

ORS / NPT



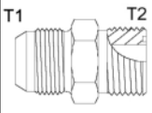


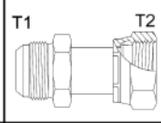




THREAD 1	THREAD 2	ORS x NPT M x M		ORS x NPT M x M 45	ORS x NPT M x M 90		ORS x NPT M x M x M TEE
		Part No	Part No	Part No	Part No	Part No	Part No
ORS	NPT	AEROQUIP	DUFFIELD	AEROQUIP	AEROQUIP	DUFFIELD	AEROQUIP
9/16-18	1/8-27	FF2031T0402S	D264-0209	FF2093T0402S	FF2032T0402S	D265-0209	FF2001T0402S
9/16-18	1/4-18	FF2031T0404S		FF2093T0404S	FF2032T0404S		FF2001T0404S
9/16-18	3/8-18	FF2031T0406S		FF2093T0406S			
9/16-18	1/2-14	FF2031T0408S					
11/16-16	1/8-27	FF2031T0602S			FF2032T0602S		
11/16-16	1/4-18	FF2031T0604S		FF2093T0604S	FF2032T0604S		FF2001T0604S
11/16-16	3/8-18	FF2031T0606S		FF2093T0606S	FF2032T0606S		FF2001T0606S
11/16-16	1/2-14	FF2031T0608S		FF2093T0608S	FF2032T0608S	D265-0811	
13/16-16	1/4-18	FF2031T0804S		FF2093T0804S			
13/16-16	3/8-18	FF2031T0806S		FF2093T0806S	FF2032T0806S		FF2001T0806S
13/16-16	1/2-14	FF2031T0808S		FF2093T0808S	FF2032T0808S		FF2001T0808S
13/16-16	3/4-14	FF2031T0812S			FF2032T0812S		
1-14	1/2-14	FF2031T1008S		FF2093T1008S	FF2032T1008S	D265-0816	
1-14	3/4-14	FF2031T1012S			FF2032T1012S	D265-1216	
1-14	1-11 1/2	FF2031T1016S					
1 3/16-12	1/2-14	FF2031T1208S			FF2032T1208S		
1 3/16-12	3/4-14	FF2031T1212S		FF2093T1212S	FF2032T1212S	D265-1219	FF2001T1212S
1 3/16-12	1-11 1/2	FF2031T1216S			FF2032T1216S		
1 7/16-12	3/4-14	FF2031T1612S			FF2032T1612S		
1 7/16-12	1-11 1/2	FF2031T1616S	D264-1623	FF2093T1616S	FF2032T1616S	D265-1623	FF2001T1616S
1 7/16-12	1 1/4-11 1/2	FF2031T1620S					
1 11/16-12	1 11 1/2	FF2031T2016S			FF2032T2016S		
1 11-16-12	1 1/4-11 1/2	FF2031T2020S		FF2093T2020S	FF2032T2020S		FF2001T2020S
2-12	1 1/2-11 1/2	FF2031T2424S		FF2093T2424S	FF2032T2424S		FF2001T2424S

ORS/JIC





THREAD 1	THREAD 2	JIC X ORS M X M	JIC X ORS M X F LONG				
		Part No	Part No				
JIC	ORS	DUFFIELD	DUFFIELD				
7/16-20	9/16-18	DA264-0709	DA272-0709				
9/16-18	11/16-16	DA264-0911	DA272-0911				
3/4-16	13/16-16	DA264-1213	DA272-1213				
7/8-14	13/16-16	DA264-1413					
7/8-14	1-14	DA264-1416	DA272-1416				
1 1/16-12	1 3/16-12	DA264-1719	DA272-1719				
1 5/16-12	1 7/16-12	DA264-2123	DA272-2123				

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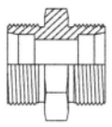
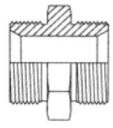
Adaptors

METRIC MALE DIN 24 DEGREE



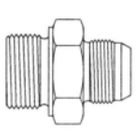
THREAD 1	THREAD 2	TUBE OD	Part No DUFFIELD
M18 X 1.5	M18 X 1.5	10MM	D160-1818
M20 X 1.5	M20. X 1.5	12MM	D160-2020
M24 X 1.5	M24 X1.5	16MM	D160-2424
M30 X 2.0	M30 X 2.0	20MM	D160-3030
M36 X 2.0	M36 X 2.0	25MM	D160-3636

METRIC MALE DIN 60 DEGREE



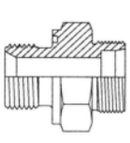
THREAD 1	THREAD 2	TUBE OD	Part No DUFFIELD
M10 X 1.0	M10 X 1.0		D159-1010
M12 X 1.5	M12 X 1.5		D159-1212
M16 X 1.5	M16 X 1.5		D159-1616
M18 X 1.5	M18 X 1.5		D159-1818
M22 X 1.5	M22 X 1.5		D159-2222
M26 X 1.5	M26 X 1.5		D159-2626
M30 X 1.5	M30. X 1.5		D159-3030

JIC X METRIC MALE



THREAD 1 JIC	THREAD 2 METRIC		Part No DUFFIELD
7/16-20	M10 X 1.0		D147-0710
7/16-20	M12 X 1.5		D147-0712
9/16-18	M12 X 1.5		D147-0912
9/16-18	M14 X 1.5		D147-0914
9/16-18	M16 X 1.5		D147-0916
9/16-18	M18 X 1.5		D147-0918
3/4-16	M16 X 1.5		D147-1216
3/4-16	M18 X 1.5		D147-1218
3/4-16	M22 X 1.5		D147-1222
7/8-14	M18 X 1.5		D147-1418
7/8-14	M22 X 1.5		D147-1422
1 1/16-12	M18 X 1.5		D147-1718
1 1/16-12	M22 X 1.5		D147-1722
1 1/16-12	M27 X 2.0		D147-1727
1 1/16-12	M33 X 2.0		D147-1733
1 5/16-12	M26 X 1.5		D147-2126
1 5/16-12	M33 X 2.0		D147-2133
1 5/16-12	M42 X 2.0		D147-2142
1 5/8-12	M42 X 2.0		D147-2642
1 5/8-12	M48 X 2.0		D147-2648

BSP X METRIC MALE



THREAD 1 BSP	THREAD 2 METRIC		Part No DUFFIELD
1/4-19	M18 X 1.5		D248-0418
1/4-19	M24 X 1.5		D248-0424
3/8-19	M18 X 1.5		D248-0618
3/8-19	M20 X 1.5		D248-0620
3/8-19	M24 X 1.5		D248-0624
1/2-14	M24 X 1.5		D248-0824
1/2-14	M30 X 2.0		D248-0830
1/2-14	M36 X 2.0		D248-0836
3/4-14	M30 X 2.0		D248-1230
3/4-14	M36 X 2.0		D248-1236
3/4-14	M42 X 2.0		D248-1242
1-11	M36 X 2.0		D248-1636
1-11	M42 X 2.0		D248-1642
1-11	M52 X 2.0		D248-1652
1 1/4-11	M42 X 2.0		D248-2042
1 1/4-11	M52 X 2.0		D248-2052
1 1/2-11	M52 X 2.0		D248-2452
1 1/2-11	M66 X 2.0		D24-/2468
2/11	M68 X 2.0		D248-3268

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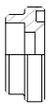
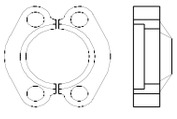
BRAZE FLANGE
CODE 61



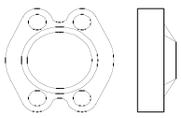
FLANGE	TUBE	HEAD DIAÕ	AEROQUIP Part No	DUFFIELD Part No
1/2	3/8	1.19	4624-8-6S	
1/2	1/2	1.19	4624-8S	TW5-0808
3/4	1/2	1.50	4624-12-8S	
3/4	5/8	1.50	4624-12-10S	TW5-1210
3/4	3/4	1.50	4624-12S	TW5-1212
3/4	1	1.50	4624-12-16S	TW5-1216
1	3/4	1.75	4624-16-12S	TW5-1612
1	1	1.75	4624-16S	TW5-1616
1	1 1/4	1.75	4624-16-20S	TW5-1620
1 1/4	1	2.00	4624-20-16S	TW5-2016
1 1/4	1 1/4	2.00	4624-20S	TW5-2020
1 1/4	1 1/2	2.00	4624-20-24S	TW5-2024
1 1/2	1	2.38	4624-24-16S	TW5-2416
1 1/2	1 1/4	2.38	4624-24-20S	TW5-2420
1 1/2	1 1/2	2.38	4624-24S	TW5-2424
2	2	2.81	4624-32S	TW5-3232
2 1/2	2	3.31	4624-40-32S	TW5-4032

FLANGE CLAMP
CODE 62 TWO PIECE



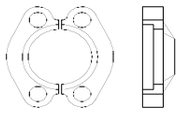
FLANGE		" A "	AEROQUIP Part No	DUFFIELD Part No
1/2		1.59	FC3425-8-449	
3/4		2.00	FC3425-12-449	D206-12
1		2.25	FC3425-16-449	D206-16
1 1/4		2.63	FC3425-20-449	D206-20
1 1/2		3.13	FC3425-24-449	D206-24
2		3.81	FC3425-32-449	D206-32

FLANGE CLAMP
CODE 62 ONE PIECE



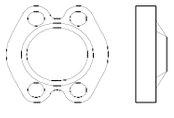
FLANGE		" A "	DUFFIELD Part No	
1/2		1.59	D239-08	
3/4		2.00	D239-12	
1		2.25	D239-16	
1 1/4		2.63	D239-20	
1 1/2		3.13	D239-24	
2		3.81	D239-32	

FLANGE CLAMP
CODE 61 TWO PIECE



FLANGE		" A "	AEROQUIP Part No	DUFFIELD Part No
1/2		1.50	449-74446-8	D90-08
3/4		1.88	449-74446-12	D90-12
1		2.06	449-74446-16	D90-16
1 1/4		2.31	449-74446-20	D90-20
1 1/2		2.75	449-74446-24	D90-24
2		3.06	449-74446-32	D90-32
2 1/2		3.50	449-74446-40	D90-40

FLANGE CLAMP
CODE 61 ONE PIECE



FLANGE		" A "	DUFFIELD Part No	
1/2		1.50	D238-08	
3/4		1.88	D238-12	
1		2.06	D238-16	
1 1/4		2.31	D238-20	
1 1/2		2.75	D238-24	
2		3.06	D238-32	

O'RING
E-Z CLIP HOSE TAIL

70^{O} Durometer

HNBR

-40^{O}C to +121^{O}C

PORT SIZE	'A'	DASH SIZE	AEROQUIP Part No
3/8	0.217	-6	1F40106-06
1/2	0.315	-8	1F40106-08
5/8	0.374	-10	1F40106-10
3/4	0.472	-12	1F40106-12

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Adaptors

O'RING SAE FLANGE

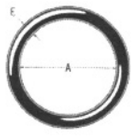
90° Durometer
Buna-N
Nitrile Rubber
-40°C to +121°C

FLANGE	'A'	DASH SIZE	AEROQUIP Part No	DUFFIELD Part No
1/2	0.734	-8	FF9446-210	DR508
3/4	0.984	-12	FF9446-214	DR512
1	1.296	-16	FF9446-219	DR516
1 1/4	1.484	-20	FF9446-222	DR520
1 1/2	1.859	-24	FF9446-225	DR524
2	2.234	-32	FF9446-228	DG532

Diameter 'E' = 0.139

O'RING ORS

90° Durometer
Buna-N
Nitrile Rubber
-40°C to +121°C



PORT SIZE	'A'	'E'	AEROQUIP Part No	DUFFIELD Part No
-4	0.301	0.07	FF9446-11	DR809
-6	0.364	0.07	FF9446-12	DR811
-8	0.489	0.07	FF9446-14	DR813
-10	0.614	0.07	FF9446-16	DR816
-12	0.739	0.07	FF9446-18	DR819
-16	0.926	0.07	FF9446-21	DR823
-20	1.176	0.07	FF9446-25	DR827
-24	1.489	0.07	FF9446-29	DR832

O'RING BUMP TUBE

70 Durometer
HNBR

PORT SIZE	'A'	'E'	AEROQUIP Part No	
-6	0.301	0.0625	FF90178-11	
-8	0.426	0.0625	FF90178-13	
-10	0.551	0.0625	FF90178-15	
-12	0.676	0.06	FF90178-17	

CAT FLANGE D - RING

70 Durometer
Buna N
Use with Cat Flanges

	'A'	B'	AEROQUIP Part No	
-12	1.27	1	FF90319-12	
-16	1.52	1.25	FF90319-16	
-20	1.77	1.5	FF90319-20	
-24	2.03	1.76	FF90319-24	
-32	2.78	2.52	FF90319-32	

BSPP METAL BACK SEAL

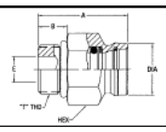
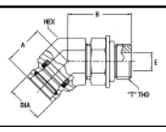
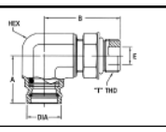
THREAD SIZE	OD	ID	AEROQUIP Part No	DUFFIELD Part No
1/4-19	20.6	13.7	DS-4	D215-04
3/8-19	23.8	17.25	DS-6	D215-06
1/2-14	28.6	21.5	DS-8	D215-08
5/8-14	31.8	23.5	DS-10	D215-10
3/4-14	34.95	27.00	DS-12	D215-12
1-11	42.8	33.85	DS-16	D215-16
1 1/4-11	52.4	42.9	DS-20	D215-20
1 1/2-11	58.6	48.4	DS-24	D215-24
2-11	73.05	60.5	DS-32	D215-32

METRIC METAL BACK SEAL

THREAD SIZE	OD	ID	DUFFIELD Part No	
M6	11.0	6.7	D216-06	
M8	13.4	8.5	D216-08	
M10	16.0	10.3	D216-10	
M12	18.0	12.7	D216-12	
M14	22.0	14.70	D216-14	
M16	24.0	16.7	D216-16	
M18	26.0	18.7	D216-18	
M20	28.0	20.7	D216-20	
M22	30.0	22.7	D216-22	
M26	35.0	26.7	D216-26	
M27	35.0	27.3	D216-27	
M33	42.0	33.7	D216-33	
M42	53.0	42.7	D216-42	
M48	59.0	48.7	D216-48	

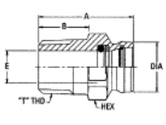
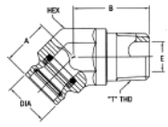
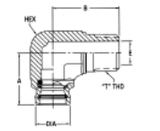
Adaptors

STC
FEMALE STC TO UNO MALE

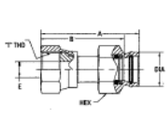
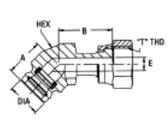
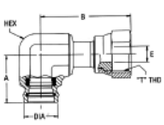
STC SIZE	UNO THREAD	Straight	45 Degree	90 Degree		
-6	7/16-20	FF3042-0406S	FF3038-0406S	FF3046-0406S		
-6	9/16-18	FF3042-0606S	FF3038-0606S	FF3046-0606S		
-8	9/16-18	FF3042-0608S				
-6	3/4-16	FF3042-0806S		FF3046-0806S		
-8	3/4-16	FF3042-0808S	FF3038-0808S	FF3046-0808S		
-10	3/4-16	FF3042-0810S				
-8	7/8-14	FF3042-1008S		FF3046-1008S		
-10	7/8-14	FF3042-1010S	FF3038-1010S	FF3046-1010S		
-12	7/8-14	FF3042-1012S				
-10	1 1/16-12	FF3042-1210S				
-12	1 1/16-12	FF3042-1212S		FF3046-1212S		
-16	1 5/16-12	FF3042-1616S		FF3046-1616S		

STC
FEMALE STC TO MALE NPTF

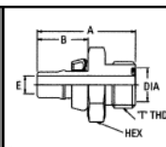
STC SIZE	NPTF THREAD	Straight	45 Degree	90 Degree		
-6	1/4-18	FF3089-0406S	FF3093-0406S			
-6	3/8-18	FF3089-0606S	FF3093-0606S	FF3056-0606S		
-8	3/8-18	FF3089-0608S		FF3056-0608S		
-6	1/2-14	FF3089-0806S				
-8	1/2-14	FF3089-0808S	FF3093-0808S	FF3056-0808S		
-10	1/2-14	FF3089-0810S	FF3093-0810S			
-10	3/4-14	FF3089-1210S				
-12	3/4-14	FF3089-1212S	FF3093-1212S	FF3056-1212S		

STC
FEMALE STC TO FEMALE ORSF

STC SIZE	ORSF THREAD	Straight	45 Degree	90 Degree		
-6	11/16-16	FF3236-0606S	FF3362-0606S	FF3246-0606S		
-8	13/16-16	FF3236-0808S		FF3246-0808S		

STC
MALE STC TO MALE ORSF



STC SIZE	ORSF THREAD	Straight				
-6	11/16-16	FF3318T-0606S				

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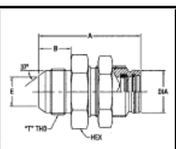
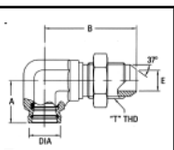
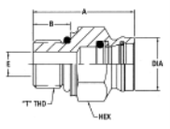
STC
FEMALE STC TO JIC MALE BULKHEAD

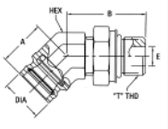


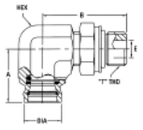


STC SIZE	JIC THREAD	Straight	90 Degree			
-10	1 1/16-16		FF3044-1210S			
-12	1 5/16-12	FF3412-1612S				
-16	1 5/16-12		FF3044-1616S			

STC
FEMALE STC TO METRIC MALE ISO 6149

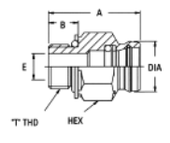


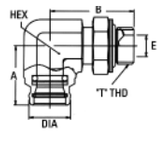




STC SIZE	UNO THREAD	Straight	45 Degree	90 Degree		
-6	M10X1	FF3061-1006S				
-6	M12X1.5	FF3061-1206S				
-6	M14X1.5	FF3061-1406S	FF3065-1406S	FF3067-1406S		
-8	M14X1.5	FF3061-1408S				
-6	M16X1.5	FF3061-1606S	FF3065-1606S	FF3067-1606S		
-8	M16X1.5	FF3061-1608S				
-10	M16X1.5	FF3061-1610S				
-6	M18X1.5	FF3061-1806S				
-8	M18X1.5	FF3061-1808S	FF3065-1808S	FF3067-1808S		
-10	M18X1.5	FF3061-1810S	FF3065-1810S	FF3067-1810S		
-12	M18X1.5	FF3061-1812S				
-10	M22X1.5	FF3061-2210S		FF3067-2210S		
-12	M22X1.5	FF3061-2212S	FF3065-2212S	FF3067-2212S		
-12	M27X1.5		FF3065-2712S	FF3067-2712S		

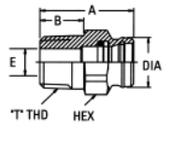
STC
FEMALE STC 'O' RING BOSS DIN 3852

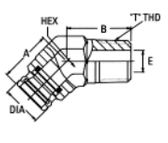


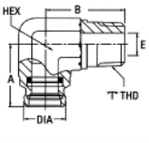


STC SIZE	UNO	Straight	90 Degree			
- 8	M16X1.5	FF3284-1608S				
- 8	M18X1.5	FF3284-1808S	FF3286-1808S			
-12	M26X1.5	FF3284-2612S				

STC
FEMALE STC TO MALE BSPT







STC SIZE	BSPT THREAD	Straight	45 Degree	90 Degree		
- 6	1/4 - 19	FF3503-0406S	FF3505-0406S	FF3507-0406S		
- 6	3/8 - 19	FF3503-0606S	FF3505-0606S	FF3507-0606S		
- 8	1/2 - 14	FF3503-0808S	FF3505-0808S	FF3507-0808S		
-12	3/4 - 12	FF3503-1212S	FF3505-1212S	FF3507-1212S		

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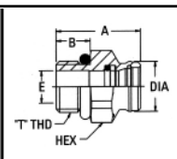
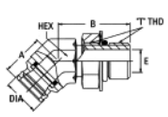
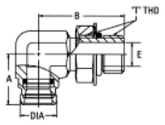
STC
FEMALE STC TO MALE BSPP (SPECIAL JIS)

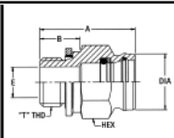






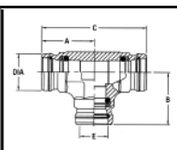
STC SIZE	BSPP THREAD	Straight	45 Degree	90 Degree		
- 6	1/4 - 19	FF3509-0406S	FF3511-0406S	FF3513-0406S		
- 6	3/8 - 19	FF3509-0606S	FF3511-0606S	FF3513-0606S		
- 8	1/2 - 14	FF3509-0808S	FF3511-0808S	FF3513-0808S		
-12	3/4 - 12	FF3509-1212S	FF3511-1212S	FF3513-1212S		

STC
FEMALE STC TO MALE BSPP DIN 3852



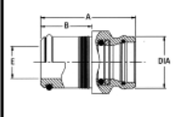
STC SIZE	BSPP THREAD	Straight				
- 6	1/4 - 19	FF3218-0406S				
- 6	3/8 - 19	FF3218-0606S				
- 6	1/2 - 14	FF3218-0806S				
- 8	3/8 - 19	FF3218-0608S				
- 8	1/2 - 14	FF3218-0808S				
-10	1/2 - 14	FF3218-0810S				
-10	3/4 - 14	FF3218-1210S				
-12	3/4 - 14	FF3218-1212S				

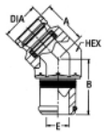
STC
FEMALE STC TEE

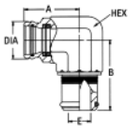


STC SIZE		Tee				
- 8		FF3178-0808S				

STC
FEMALE STC TO PRESS FIT







STC SIZE	PRESS FIT	Straight	45 Degree	90 Degree		
- 8	- 8	FF3113-02-0808S	FF3162-0808S	FF3115-0808S		
-10	-10			FF3115-1010S		

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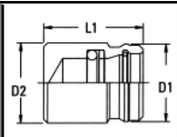
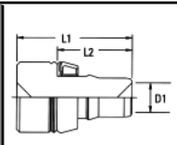
STC
STC CAP



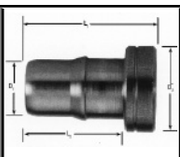
STC SIZE		Straight
- 6		FF90202-06S
- 8		FF90202-08S
-10		FF90202-10S
-12		FF90202-12S
-16		FF90202-16S

STC
STC PLUG



STC SIZE		Straight
- 6		FF90384-06S
- 8		FF90384-08S
-10		FF90384-10S
-12		FF90384-12S
-16		FF90384-16S

STC
BRAZE ON MALE



STC SIZE	TUBE SIZE	Straight
- 6	3/8	IF40107-0606AB
- 8	1/2	IF40107-0808AB
- 8	5/8	IF40107-1008AB
-10	5/8	IF40107-1010AB
-12	3/4	IF40107-1212AB
-12	1	IF40107-1612AB

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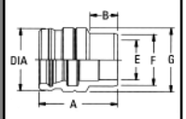
STC
BRAZE-ON
FEMALE SPUD



STC SIZE	BSPP THREAD	Straight				
- 6	3/8	FF3059-0606S				
- 8	1/2	FF3059-0808S				
-10	5/8	FF3059-1010S				
-12	3/4	FF3059-1212S				

Din Light / Heavy Series Metric Nut		
Part No	**Reference No**	**Description**
WAL039838	M-4LL	8x1mm - 4mm Extra Light Tube
WAL039840	M-6LL	10x1mm - 6mm Extra Light Tube
WAL039841	M-8LL	12x1mm - 8mm Extra Light Tube
WAL039842	M-6L	12x1.5mm - 6mm Light
WAL039843	M-8L	14x1.5mm - 8mm Light
WAL039844	M-10L	16x1.5mm - 10mm Light
WAL039845	M-12L	18x1.5mm - 12mm Light
WAL039846	M-15L	22x1.5mm - 15mm Light
WAL039847	M-18L	26x1.5mm - 18mm Light
WAL039848	M-22L	30x2mm - 22mm Light
WAL039849	M-28L	36x2mm - 28mm Light
WAL039850	M-35L	45x2mm - 35mm Light
WAL039851	M-42L	52x2mm - 42mm Light
WAL039852	M-6S	14x1.5mm - 6mm Heavy
WAL039853	M-8S	16x1.5mm - 8mm Heavy
WAL039854	M-10S	18x1.5mm - 10mm Heavy
WAL039855	M-12S	20x1.5mm - 12mm Heavy
WAL039856	M-14S	22x1.5mm - 14mm Heavy
WAL039857	M-16S	24x1.5mm - 16mm Heavy
WAL039858	M-20S	30x2mm - 20mm Heavy
WAL039859	M-25S	36x2mm - 25mm Heavy
WAL039860	M-30S	42x2mm - 30mm Heavy
WAL039861	M-38S	52x2mm - 38mm Heavy

Din Light / Heavy Series Metric Cutting Ring		
Part No	**Reference No**	**Description**
WAL039862	S-R 4LL	CUTTING RING - 4mm Extra Light Tube
WAL039864	S-R 6LL	CUTTING RING -6 mm Extra Light Tube
WAL039865	S-R 8LL	CUTTING RING - 8mm Extra Light Tube
WAL372404	P-R6LS	CUTTING RING -6LS
WAL372405	P-R8LS	CUTTING RING -8LS
WAL372406	P-R10LS	CUTTING RING -10LS
WAL372407	P-R12LS	CUTTING RING -12LS
WAL372408	P-R15L	CUTTING RING -15L
WAL372409	P-R18L	CUTTING RING -18L
WAL372410	P-R22L	CUTTING RING -22L
WAL372411	P-R28L	CUTTING RING -28L
WAL372412	P-R35L	CUTTING RING -35L
WAL372413	P-R42L	CUTTING RING -42L
WAL372414	P-R14S	CUTTING RING -14S
WAL372415	P-R16S	CUTTING RING -16S
WAL372416	P-R20S	CUTTING RING -20S
WAL372417	P-R25S	CUTTING RING -25S
WAL372418	P-R30S	CUTTING RING -30S
WAL372419	P-R38S	CUTTING RING -38S

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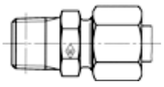
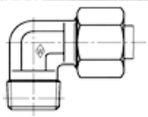
Straight Male Stud
Din Light / Heavy Metric x UN "O" Ring Male



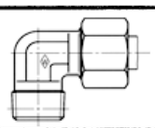
Part No	Reference No	Description
WAL373157	P-GEV6 L/9/16-18 UNF	6mm Tube - 9/16 UNO ring
WAL373158	P-GEV8 L/7/16-20 UNF	8mm Tube - 7/16 UNO ring
WAL373159	P-GEV8 L/9/16-20 UNF	8mm Tube - 9/16 UNO ring
WAL373160	P-GEV10 L/7/16-20 UNF	10mm Tube - 7/16 UNO ring
WAL373161	P-GEV10 L/9/16-18 UNF	10mm Tube - 9/16 UNO ring
WAL373162	P-GEV10 L/ 3/4-16 UNF	10mm Tube - 3/4 UNO ring
WAL373164	P-GEV12 L/9/16-18 UNF	12mm Tube - 9/16 UNO ring
WAL373165	P-GEV12 L/ 3/4-16 UNF	12mm Tube - 3/4 UNO ring
WAL373166	P-GEV12 L/ 7/8-14 UNF	12mm Tube - 7/8 UNO ring
WAL373168	P-GEV15 L/ 3/4-16 UNF	15mm Tube - 3/4 UNO ring
WAL373169	P-GEV15 L/ 7/8-14 UNF	15mm Tube - 7/8 UNO ring
WAL373170	P-GEV18 L/ 3/4-16 UNF	18mm Tube - 3/4 UNO ring
WAL373171	P-GEV18 L/ 7/8-14 UNF	18mm Tube - 7/8 UNO ring
WAL373172	P-GEV22 L/ 7/8-14 UNF	22mm Tube - 7/8 UNO ring
WAL373173	P-GEV22 L/1 1/16-12 UNF	22mm Tube - 1.1/16 UNO ring
WAL373174	P-GEV28 L/ 7/8-14 UNF	28mm Tube - 7/8 UNO ring
WAL373175	P-GEV28 L/1 5/16-12 UNF	28mm Tube - 1.5/16 UNO ring
WAL373177	P-GEV35 L/1 5/8-12 UNF	35mm Tube - 1.5/8 UNO ring
WAL374346	P-GEV42 L/1 5/8-12 UNF	42mm Tube - 1.5/8 UNO ring
WAL373180	P-GEV12 S/ 3/4-16 UNF	12mm Tube - 3/4 UNO ring
WAL373182	P-GEV16 S/ 3/4-16 UNF	16mm Tube - 3/4 UNO ring
WAL373183	P-GEV16 S/ 7/8-14 UNF	16mm Tube - 7/8 UNO ring
WAL373184	P-GEV20 S/ 3/4-16 UNF	20mm Tube - 3/4 UNO ring
WAL373185	P-GEV20 S/ 7/8-14 UNF	20mm Tube - 7/8 UNO ring
WAL373186	P-GEV20 S/1 1/16-12 UNF	20mm Tube - 1.1/16 UNO ring
WAL373189	P-GEV25 S/1 5/16-12 UNF	25mm Tube - 1.5/16 UNO ring
WAL373191	P-GEV30 S/1 5/8-12 UNF	30mm Tube - 1.5/8 UNO ring

90deg Elbow
Din Light / Heavy Metric x BSPT Male



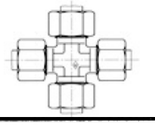
Part No	Reference No	Description
WAL038408	S-WEV4 LLRK	4mm Extra Light Tube - 1/8 BSPT
WAL038410	S-WEV6 LLRK	6mm Extra Light Tube - 1/8 BSPT
WAL038411	S-WEV8 LLRK	8mm Extra Light Tube - 1/8 BSPT
WAL373195	P-WEV6 LRK	6mm Tube - 1/8 BSPT
WAL373196	P-WEV6 L/R 1/4K	6mm Tube - 1/4 BSPT
WAL373197	P-WEV8 LRK	8mm Tube - 1/4 BSPT
WAL373198	P-WEV10 LRK	10mm Tube - 1/4 BSPT
WAL373199	P-WEV10 L/R 3/8K	10mm Tube - 3/8 BSPT
WAL373201	P-WEV12 LRK	12mm Tube - 3/8 BSPT
WAL373200	P-WEV12 L/R 1/4K	12mm Tube - 1/4 BSPT
WAL373202	P-WEV15 LRK	15mm Tube - 1/2 BSPT
WAL373203	P-WEV18 LRK	18mm Tube - 1/2 BSPT
WAL373204	P-WEV6 SRK	6mm Tube - 1/4 BSPT
WAL373205	P-WEV8 SRK	8mm Tube - 1/4 BSPT
WAL373206	P-WEV10 SRK	10mm Tube - 3/8 BSPT
WAL373207	P-WEV12 SRK	12mm Tube - 3/8 BSPT
WAL373208	P-WEV14 SRK	14mm Tube - 1/2 BSPT
WAL373209	P-WEV16 SRK	16mm Tube - 1/2 BSPT

90deg
Din Light / Heavy Metric Tube Union



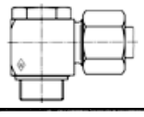
Part No	Reference No	Description
WAL038576	S-WV4 LL	4mm Extra Light Tube
WAL038578	S-WV6 LL	6mm Extra Light Tube
WAL038579	S-WV8 LL	8mm Extra Light Tube
WAL373385	P-WV6 L	6mm Tube Din Light
WAL373386	P-WV8 L	8mm Tube Din Light
WAL373387	P-WV10 L	10mm Tube Din Light
WAL373388	P-WV12 L	12mm Tube Din Light
WAL373389	P-WV15 L	15mm Tube Din Light
WAL373390	P-WV18 L	18mm Tube Din Light
WAL373391	P-WV22 L	22mm Tube Din Light
WAL373392	P-WV28 L	28mm Tube Din Light
WAL373393	P-WV35 L	35mm Tube Din Light
WAL373394	P-WV42 L	42mm Tube Din Light
WAL373395	P-WV6 S	6mm Tube Din Heavy
WAL373396	P-WV8 S	8mm Tube Din Heavy
WAL373397	P-WV10 S	10mm Tube Din Heavy
WAL373398	P-WV12 S	12mm Tube Din Heavy
WAL373399	P-WV14 S	14mm Tube Din Heavy
WAL373400	P-WV16 S	16mm Tube Din Heavy
WAL373401	P-WV20 S	20mm Tube Din Heavy
WAL373402	P-WV25 S	25mm Tube Din Heavy
WAL373403	P-WV30 S	30mm Tube Din Heavy
WAL373404	P-WV38 S	38mm Tube Din Heavy

Cross
Din Light / Heavy Metric Tube Union



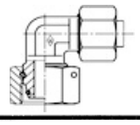
Part No	Reference No	Description
WAL038624	S-KV4 LL	4mm Extra Light Tube
WAL038626	S-KV6 LL	6mm Extra Light Tube
WAL038627	S-KV8 LL	8mm Extra Light Tube
WAL373431	P-KV6 L	6mm Tube Din Light
WAL373432	P-KV8 L	8mm Tube Din Light
WAL373433	P-KV10 L	10mm Tube Din Light
WAL373434	P-KV12 L	12mm Tube Din Light
WAL373435	P-KV15 L	15mm Tube Din Light
WAL373436	P-KV18 L	18mm Tube Din Light
WAL373437	P-KV22 L	22mm Tube Din Light
WAL373438	P-KV28 L	28mm Tube Din Light
WAL373439	P-KV35 L	35mm Tube Din Light
WAL373440	P-KV42 L	42mm Tube Din Light
WAL373441	P-KV6 S	6mm Tube Din Heavy
WAL373442	P-KV8 S	8mm Tube Din Heavy
WAL373443	P-KV10 S	10mm Tube Din Heavy
WAL373444	P-KV12 S	12mm Tube Din Heavy
WAL373445	P-KV14 S	14mm Tube Din Heavy
WAL373446	P-KV16 S	16mm Tube Din Heavy
WAL373447	P-KV20 S	20mm Tube Din Heavy
WAL373448	P-KV25 S	25mm Tube Din Heavy
WAL373449	P-KV30 S	30mm Tube Din Heavy
WAL373450	P-KV38 S	38mm Tube Din Heavy

Banjo
Din Light / Heavy Metric x BSPP Banjo Bolt



Part No	Reference No	Description
WAL607051	P-RSWV6 LR-WD	6mm Tube Din Light - 1/8 BSPP Bolt
WAL606501	P-RSWV6 L/R 1/4-WD	6mm Tube Din Light - 1/4 BSPP Bolt
WAL607052	P-RSWV8 LR-WD	8mm Tube Din Light - 1/4 BSPP Bolt
WAL607053	P-RSWV10 LR-WD	10mm Tube Din Light - 1/4 BSPP Bolt
WAL607054	P-RSWV12 L/R 1/4-WD	12mm Tube Din Light - 1/4 BSPP Bolt
WAL607055	P-RSWV12 LR-WD	12mm Tube Din Light - 3/8 BSPP Bolt
WAL607056	P-RSWV15 LR-WD	15mm Tube Din Light - 1/2 BSPP Bolt
WAL607057	P-RSWV18 LR-WD	18mm Tube Din Light - 1/2 BSPP Bolt
WAL607058	P-RSWV22 LR-WD	22mm Tube Din Light - 3/4 BSPP Bolt
WAL607059	P-RSWV28 LR-WD	28mm Tube Din Light - 1" BSPP Bolt
WAL607060	P-RSWV35 LR-WD	35mm Tube Din Light - 1.1/4 BSPP Bolt
WAL607061	P-RSWV42 LR-WD	42mm Tube Din Light - 1.1/2 BSPP Bolt
WAL607062	P-RSWV6 S	6mm Tube Din Heavy - 1/4 BSPP Bolt
WAL607063	P-RSWV8 S	8mm Tube Din Heavy - 1/4 BSPP Bolt
WAL607064	P-RSWV10 S	10mm Tube Din Heavy - 3/8 BSPP Bolt
WAL607065	P-RSWV12 S	12mm Tube Din Heavy - 3/8 BSPP Bolt
WAL607066	P-RSWV14 S	14mm Tube Din Heavy - 1/2 BSPP Bolt
WAL607067	P-RSWV16 S	16mm Tube Din Heavy - 1/2 BSPP Bolt
WAL607068	P-RSWV20 S	20mm Tube Din Heavy - 3/4 BSPP Bolt
WAL607069	P-RSWV25 S	25mm Tube Din Heavy - 1" BSPP Bolt
WAL607070	P-RSWV30 S	30mm Tube Din Heavy - 1.1/4 BSPP Bolt
WAL607071	P-RSWV38 S	38mm Tube Din Heavy - 1.1/2 BSPP Bolt

90deg Elbow
Din Light / Heavy Metric Tube
x Metric Female Swivel



Part No	Reference No	Description
WAL374555	P-EWVD6 L	6mm Tube Light - 6mm Tube Light Female Swivel
WAL374556	P-EWVD8 L	8mm Tube Light - 8mm Tube Light Female Swivel
WAL374557	P-EWVD10 L	10mm Tube Light - 10mm Tube Light Female Swivel
WAL372992	P-EWVD12 L	12mm Tube Light - 12mm Tube Light Female Swivel
WAL374558	P-EWVD15 L	15mm Tube Light - 15mm Tube Light Female Swivel
WAL374559	P-EWVD18 L	18mm Tube Light - 18mm Tube Light Female Swivel
WAL374560	P-EWVD22 L	22mm Tube Light - 22mm Tube Light Female Swivel
WAL374561	P-EWVD28 L	28mm Tube Light - 28mm Tube Light Female Swivel
WAL374562	P-EWVD35 L	35mm Tube Light - 35mm Tube Light Female Swivel
WAL374563	P-EWVD42 L	42mm Tube Light - 42mm Tube Light Female Swivel
WAL374564	P-EWVD6 S	6mm Tube Heavy - 6mm Tube Heavy Female Swivel
WAL374565	P-EWVD8 S	8mm Tube Heavy - 8mm Tube Heavy Female Swivel
WAL374566	P-EWVD10 S	10mm Tube Heavy - 10mm Tube Heavy Female Swivel
WAL374567	P-EWVD12 S	12mm Tube Heavy - 12mm Tube Heavy Female Swivel
WAL374568	P-EWVD14 S	14mm Tube Heavy - 14mm Tube Heavy Female Swivel
WAL374569	P-EWVD16 S	16mm Tube Heavy - 16mm Tube Heavy Female Swivel
WAL374570	P-EWVD20 S	20mm Tube Heavy - 20mm Tube Heavy Female Swivel
WAL374571	P-EWVD25 S	25mm Tube Heavy - 25mm Tube Heavy Female Swivel
WAL374572	P-EWVD30 S	30mm Tube Heavy - 30mm Tube Heavy Female Swivel
WAL374573	P-EWVD38 S	38mm Tube Heavy - 38mm Tube Heavy Female Swivel

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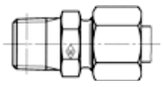
Powering Business Worldwide

Straight with Captive Seal Din Light / Heavy Metric x BSPP Male stud		
Part No	**Reference No**	**Description**
WAL373115	P-GEV6 LR-WD	6mm Tube - 1/8 BSPP
WAL605925	P-GEV6 L/R 1/4-WD	6mm Tube - 1/4 BSPP
WAL373116	P-GEV8 LR-WD	8mm Tube - 1/4 BSPP
WAL605926	P-GEV8 L/R 1/8-WD	8mm Tube - 1/8 BSPP
WAL605927	P-GEV8 L/R 3/8-WD	8mm Tube - 3/8 BSPP
WAL373117	P-GEV10 LR-WD	10mm Tube - 1/4 BSPP
WAL602560	P-GEV10 L/R 3/8-WD	10mm Tube - 3/8 BSPP
WAL605928	P-GEV10 L/R 1/2-WD	10mm Tube - 3/8 BSPP
WAL373119	P-GEV12 LR-WD	12mm Tube - 3/8 BSPP
WAL373118	P-GEV12 L/R 1/4-WD	12mm Tube - 1/4 BSPP
WAL602513	P-GEV12 L/R 1/2-WD	12mm Tube - 1/2 BSPP
WAL373120	P-GEV15 LR-WD	15mm Tube - 1/2 BSPP
WAL605443	P-GEV15 L/R 3/8-WD	15mm Tube - 3/8 BSPP
WAL373121	P-GEV18 LR-WD	18mm Tube - 1/2 BSPP
WAL605215	P-GEV18 L/R 3/4-WD	18mm Tube - 3/4 BSPP
WAL373122	P-GEV22 LR-WD	22mm Tube - 3/4 BSPP
WAL373123	P-GEV28 LR-WD	28mm Tube - 1" BSPP
WAL373124	P-GEV35 LR-WD	35mm Tube - 1 1/4 BSPP
WAL373125	P-GEV42 LR-WD	42mm Tube - 1 1/2 BSPP
WAL373126	P-GEV6 SR-WD	6mm Tube - 1/4 BSPP
WAL373127	P-GEV8 SR-WD	8mm Tube - 1/4 BSPP
WAL604229	P-GEV8 S/R 3/8-WD	8mm Tube - 3/8 BSPP
WAL373128	P-GEV10 SR-WD	10mm Tube - 3/8 BSPP
WAL605114	P-GEV10 S/R 1/4-WD	10mm Tube - 1/4 BSPP
WAL605932	P-GEV10 S/R 1/2-WD	10mm Tube - 1/2 BSPP
WAL373129	P-GEV12 SR-WD	12mm Tube - 3/8 BSPP
WAL605933	P-GEV12 S/R 1/4-WD	12mm Tube - 1/4 BSPP
WAL604466	P-GEV12 S/R 1/2-WD	12mm Tube - 1/2 BSPP
WAL373130	P-GEV14 SR-WD	14mm Tube - 1/2 BSPP
WAL373131	P-GEV16 SR-WD	16mm Tube - 1/2 BSPP
WAL605222	P-GEV16 S/R 3/8-WD	16mm Tube - 3/8 BSPP
WAL604561	P-GEV16 S/R 3/4-WD	16mm Tube - 3/4 BSPP
WAL373132	P-GEV20 SR-WD	20mm Tube - 3/4 BSPP
WAL373133	P-GEV25 SR-WD	25mm Tube - 1" BSPP
WAL604562	P-GEV25 S/R 3/4-WD	25mm Tube - 3/4 BSPP
WAL373134	P-GEV30 SR-WD	30mm Tube - 1 1/4 BSPP
WAL373135	P-GEV38 SR-WD	38mm Tube - 1 1/2 BSPP

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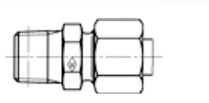
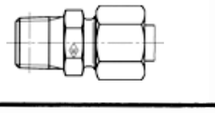
Powering Business Worldwide

Straight
Din Light / Heavy Metric x BSPT Male



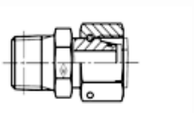
Part No	Reference No	Description
WAL038218	S-GEV-4LLRK	4mm Extra Light Tube - 1/8 BSPT
WAL038220	S-GEV-6LLRK	6mm Extra Light Tube - 1/8 BSPT
WAL038221	S-GEV-8LLRK	8mm Extra Light Tube - 1/8 BSPT
WAL373003	P-GEV-6 LR 1/4 K	6mm Tube - 1/4 BSPT
WAL373004	P-GEV-8 LRK	8mm Tube - 1/4 BSPT
WAL373005	P-GEV-8 L/R 3/8 K	8mm Tube - 3/8 BSPT
WAL373006	P-GEV-10 LRK	10mm Tube - 1/4 BSPT
WAL373007	P-GEV-10 L/R 3/8 K	10mm Tube - 3/8 BSPT
WAL373008	P-GEV-12 LRK	12mm Tube - 3/8 BSPT
WAL373009	P-GEV-12 LR 1/4 K	12mm Tube - 1/4 BSPT
WAL373010	P-GEV-12 LR 1/2 K	12mm Tube - 1/2 BSPT
WAL373011	P-GEV-15 LRK	15mm Tube - 1/2 BSPT

Straight
Din Light / Heavy Metric x NPT Male



Part No	Reference No	Description
WAL038241	S-GEV-4 LL 1/8 NPT	4mm Extra Light Tube - 1/8 NPT
WAL038243	S-GEV-6 LL 1/8 NPT	6mm Extra Light Tube - 1/8 NPT
WAL038244	S-GEV-8 LL 1/8 NPT	8mm Extra Light Tube - 1/8 NPT
WAL373026	P-GEV-6 L/ 1/8 NPT	6mm Tube - 1/8 NPT
WAL373027	P-GEV-6 L/ 1/4 NPT	6mm Tube - 1/4 NPT
WAL373028	P-GEV-8 L/ 1/4 NPT	8mm Tube - 1/4 NPT
WAL373029	P-GEV-10 L/ 1/4 NPT	10mm Tube - 1/4 NPT
WAL373030	P-GEV-10 L/ 3/8 NPT	10mm Tube - 3/8 NPT
WAL373031	P-GEV-12 L/ 1/4 NPT	12mm Tube - 1/4 NPT
WAL373032	P-GEV12 L/ 3/8 NPT	12mm Tube - 3/8 NPT
WAL373033	P-GEV-12 L/ 1/2 NPT	12mm Tube - 1/2 NPT
WAL373034	P-GEV-15 L/ 1/2 NPT	15mm Tube - 1/2 NPT
WAL373035	P-GEV-18 L/ 1/2 NPT	8mm Tube - 1/2 NPT
WAL373036	P-GEV-22 L/ 3/4 NPT	22mm Tube - 3/4 NPT
WAL373037	P-GEV-28 L/1 NPT	28mm Tube - 1" NPT
WAL373038	P-GEV-35 L/1 1/4 NPT	35mm Tube - 1.1/4 NPT
WAL373039	P-GEV-42 L/1 1/2 NPT	42mm Tube - 1.1/2 NPT
WAL373040	P-GEV-6 S/ 1/4 NPT	6mm Tube - 1/4 NPT
WAL373041	P-GEV-8 S/ 1/4 NPT	8mm Tube - 1/4 NPT
WAL373042	P-GEV-10 S/ 1/4 NPT	10mm Tube - 1/4 NPT
WAL373043	P-GEV-10 S/ 3/8 NPT	10mm Tube - 3/8 NPT
WAL373044	P-GEV-12 S/ 1/4 NPT	12mm Tube - 1/4 NPT
WAL373045	P-GEV-12 S/ 3/8 NPT	12mm Tube - 3/8 NPT
WAL373046	P-GEV-12 S/ 1/2 NPT	12mm Tube - 1/2 NPT
WAL373047	P-GEV-14 S/ 1/2 NPT	14mm Tube - 1/2 NPT
WAL373048	P-GEV-16 S/ 1/2 NPT	16mm Tube - 1/2 NPT
WAL373049	P-GEV-20 S/ 3/4 NPT	20mm Tube - 3/4 NPT
WAL373050	P-GEV-25 S/1 NPT	25mm Tube - 1" NPT
WAL373051	P-GEV-30 S/1 1/4 NPT	30mm Tube - 1.1/4 NPT
WAL373052	P-GEV-38 S/1 1/2 NPT	38mm Tube - 1.1/2 NPT

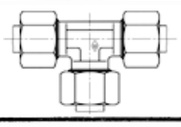
Straight
Din Light / Heavy Metric Tube Female Swivel -Male BSPP



Part No	Reference No	Description
WAL063661	EGESD6 LR-WD	6mm Tube Light Female Swivel - 1/8 BSPP Male
WAL063662	EGESD8 LR-WD	8mm Tube Light Female Swivel - 1/4 BSPP Male
WAL063663	EGESD10 LR-WD	10mm Tube Light Female Swivel - 1/4 BSPP Male
WAL063665	EGESD12 LR-WD	12mm Tube Light Female Swivel - 3/8 BSPP Male
WAL063664	EGESD12 L/R 1/4-WD	12mm Tube Light Female Swivel - 1/4 BSPP Male
WAL063666	EGESD15 LR-WD	15mm Tube Light Female Swivel - 1/2 BSPP Male
WAL063667	EGESD18 LR-WD	188mm Tube Light Female Swivel - 1/2 BSPP Male
WAL063668	EGESD22 LR-WD	22mm Tube Light Female Swivel - 3/4 BSPP Male
WAL063669	EGESD28 LR-WD	28mm Tube Light Female Swivel - 1" BSPP Male
WAL063670	EGESD35 LR-WD	35mm Tube Light Female Swivel - 1.1/4 BSPP Male
WAL063671	EGESD42 LR-WD	42mm Tube Light Female Swivel - 1.1/2 BSPP Male
WAL063672	EGESD6 SR-WD	6mm Tube Heavy Female Swivel - 1/4 BSPP Male
WAL063673	EGESD8 SR-WD	8mm Tube Heavy Female Swivel - 1/4 BSPP Male
WAL063674	EGESD10 SR-WD	10mm Tube Heavy Female Swivel - 3/8 BSPP Male
WAL063675	EGESD12 SR-WD	12mm Tube Heavy Female Swivel - 3/8 BSPP Male
WAL063676	EGESD12 S/R 1/2-WD	12mm Tube Heavy Female Swivel - 1/2 BSPP Male
WAL063677	EGESD14 SR-WD	14mm Tube Heavy Female Swivel - 1/2 BSPP Male
WAL063678	EGESD16 SR-WD	16mm Tube Heavy Female Swivel - 1/2 BSPP Male
WAL063679	EGESD20 SR-WD	20mm Tube Heavy Female Swivel - 3/4 BSPP Male
WAL063680	EGESD25 SR-WD	25mm Tube Heavy Female Swivel - 1" BSPP Male
WAL063681	EGESD30 SR-WD	30mm Tube Heavy Female Swivel - 1.1/4 BSPP Male
WAL063682	EGESD38 SR-WD	38mm Tube Heavy Female Swivel - 1.1/2 BSPP Male

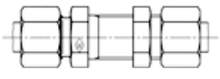
Powering Business Worldwide

Equal Tee
Din Light / Heavy Metric Tube Union



Part No	Reference No	Description
WAL038600	S-TV4 LL	4mm Extra Light Tube
WAL038602	S-TV6 LL	6mm Extra Light Tube
WAL038603	S-TV8 LL	8mm Extra Light Tube
WAL373408	P-TV6 L	6mm Tube Din Light
WAL373409	P-TV8 L	8mm Tube Din Light
WAL373410	P-TV10 L	10mm Tube Din Light
WAL373411	P-TV12 L	12mm Tube Din Light
WAL373412	P-TV15 L	15mm Tube Din Light
WAL373413	P-TV18 L	18mm Tube Din Light
WAL373414	P-TV22 L	22mm Tube Din Light
WAL373415	P-TV28 L	28mm Tube Din Light
WAL373416	P-TV35 L	35mm Tube Din Light
WAL373417	P-TV42 L	42mm Tube Din Light
WAL373418	P-TV6 S	6mm Tube Din Heavy
WAL373419	P-TV8 S	8mm Tube Din Heavy
WAL373420	P-TV10 S	10mm Tube Din Heavy
WAL373421	P-TV12 S	12mm Tube Din Heavy
WAL373422	P-TV14 S	14mm Tube Din Heavy
WAL373423	P-TV16 S	16mm Tube Din Heavy
WAL373424	P-TV20 S	20mm Tube Din Heavy
WAL373425	P-TV25 S	25mm Tube Din Heavy
WAL373426	P-TV30 S	30mm Tube Din Heavy
WAL373427	P-TV38 S	38mm Tube Din Heavy

Straight
Din Light / Heavy Metric Bulkhead Union



Part No	Reference No	Description
WAL373451	P-GSV6 L	6mm Tube Din Light
WAL373452	P-GSV8 L	8mm Tube Din Light
WAL373453	P-GSV10 L	10mm Tube Din Light
WAL373454	P-GSV12 L	12mm Tube Din Light
WAL373455	P-GSV15 L	15mm Tube Din Light
WAL373456	P-GSV18 L	18mm Tube Din Light
WAL373457	P-GSV22 L	22mm Tube Din Light
WAL373458	P-GSV28 L	28mm Tube Din Light
WAL373459	P-GSV35 L	35mm Tube Din Light
WAL373460	P-GSV42 L	42mm Tube Din Light
WAL373461	P-GSV6 S	6mm Tube Din Heavy
WAL373462	P-GSV8 S	8mm Tube Din Heavy
WAL373463	P-GSV10 S	10mm Tube Din Heavy
WAL373464	P-GSV12 S	12mm Tube Din Heavy
WAL373465	P-GSV14 S	14mm Tube Din Heavy
WAL373466	P-GSV16 S	16mm Tube Din Heavy
WAL373467	P-GSV20 S	20mm Tube Din Heavy
WAL373468	P-GSV25 S	25mm Tube Din Heavy
WAL373469	P-GSV30 S	30mm Tube Din Heavy
WAL373470	P-GSV38 S	38mm Tube Din Heavy

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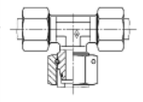
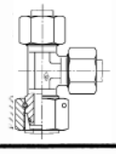
Branch Tee **M/Tube x M/ Tube x Metric Fem Swivel**	
Part No	**Reference No**	**Description**
WAL374574	P-ETVD6 L	6mm Tube Light - 6mm Tube Light Female Swivel
WAL374575	P-ETVD8 L	8mm Tube Light - 8mm Tube Light Female Swivel
WAL374576	P-ETVD10 L	10mm Tube Light - 10mm Tube Light Female Swivel
WAL374577	P-ETVD12 L	12mm Tube Light - 12mm Tube Light Female Swivel
WAL374578	P-ETVD15 L	15mm Tube Light - 15mm Tube Light Female Swivel
WAL374579	P-ETVD18 L	18mm Tube Light - 18mm Tube Light Female Swivel
WAL374580	P-ETVD22 L	22mm Tube Light - 22mm Tube Light Female Swivel
WAL374581	P-ETVD28 L	28mm Tube Light - 28mm Tube Light Female Swivel
WAL374582	P-ETVD35 L	35mm Tube Light - 35mm Tube Light Female Swivel
WAL374583	P-ETVD42 L	42mm Tube Light - 42mm Tube Light Female Swivel
WAL374584	P-ETVD6 S	6mm Tube Heavy - 6mm Tube Heavy Female Swivel
WAL374585	P-ETVD8 S	8mm Tube Heavy - 8mm Tube Heavy Female Swivel
WAL374586	P-ETVD10 S	10mm Tube Heavy - 10mm Tube Heavy Female Swivel
WAL374587	P-ETVD12 S	12mm Tube Heavy - 12mm Tube Heavy Female Swivel
WAL374588	P-ETVD14 S	14mm Tube Heavy - 14mm Tube Heavy Female Swivel
WAL374589	P-ETVD16 S	16mm Tube Heavy - 16mm Tube Heavy Female Swivel
WAL374590	P-ETVD20 S	20mm Tube Heavy - 20mm Tube Heavy Female Swivel
WAL374591	P-ETVD25 S	25mm Tube Heavy - 25mm Tube Heavy Female Swivel
WAL374592	P-ETVD30 S	30mm Tube Heavy - 30mm Tube Heavy Female Swivel
WAL374593	P-ETVD38 S	38mm Tube Heavy - 38mm Tube Heavy Female Swivel

Run Tee **M/Tube x Metric Fem Swivel x M/ Tube**	
Part No	**Reference No**	**Description**
WAL374594	P-ELVD6 L	6mm Tube Light - 6mm Tube Light Female Swivel
WAL374595	P-ELVD8 L	8mm Tube Light - 8mm Tube Light Female Swivel
WAL374596	P-ELVD10 L	10mm Tube Light - 10mm Tube Light Female Swivel
WAL372991	P-ELVD12 L	12mm Tube Light - 12mm Tube Light Female Swivel
WAL374597	P-ELVD15 L	15mm Tube Light - 15mm Tube Light Female Swivel
WAL374598	P-ELVD18 L	18mm Tube Light - 18mm Tube Light Female Swivel
WAL374599	P-ELVD22 L	22mm Tube Light - 22mm Tube Light Female Swivel
WAL374600	P-ELVD28 L	28mm Tube Light - 28mm Tube Light Female Swivel
WAL374601	P-ELVD35 L	35mm Tube Light - 35mm Tube Light Female Swivel
WAL374602	P-ELVD42 L	42mm Tube Light - 42mm Tube Light Female Swivel
WAL374603	P-ELVD6 S	6mm Tube Heavy - 6mm Tube Heavy Female Swivel
WAL374604	P-ELVD8 S	8mm Tube Heavy - 8mm Tube Heavy Female Swivel
WAL374605	P-ELVD10 S	10mm Tube Heavy - 10mm Tube Heavy Female Swivel
WAL374606	P-ELVD12 S	12mm Tube Heavy - 12mm Tube Heavy Female Swivel
WAL374607	P-ELVD14 S	14mm Tube Heavy - 14mm Tube Heavy Female Swivel
WAL374608	P-ELVD16 S	16mm Tube Heavy - 16mm Tube Heavy Female Swivel
WAL374609	P-ELVD20 S	20mm Tube Heavy - 20mm Tube Heavy Female Swivel
WAL374610	P-ELVD25 S	25mm Tube Heavy - 25mm Tube Heavy Female Swivel
WAL374611	P-ELVD30 S	30mm Tube Heavy - 30mm Tube Heavy Female Swivel
WAL374612	P-ELVD38 S	38mm Tube Heavy - 38mm Tube Heavy Female Swivel

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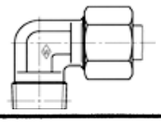
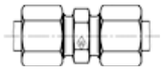
90deg Elbow
Din Light / Heavy Metric x NPT Male



Part No	Reference No	Description
WAL038383	S-WEV4 LL/ 1/8NPT	4mm Extra Light Tube - 1/8 NPT
WAL038385	S-WEV6 LL/ 1/8NPT	6mm Extra Light Tube - 1/8 NPT
WAL038386	S-WEV8 LL/ 1/8NPT	8mm Extra Light Tube - 1/8 NPT
WAL373228	P-WEV6 L/ 1/8NPT	6mm Tube - 1/4 NPT
WAL373229	P-WEV8 L/ 1/4NPT	8mm Tube - 1/4 NPT
WAL373230	P-WEV10 L/ 1/4NPT	10mm Tube - 1/4 NPT
WAL373231	P-WEV12 L/ 1/4NPT	12mm Tube - 1/4 NPT
WAL373232	P-WEV12 L/ 3/8NPT	12mm Tube - 3/8 NPT
WAL373233	P-WEV15 L/ 1/2NPT	15mm Tube - 1/2 NPT
WAL373234	P-WEV18 L/ 1/2NPT	18mm Tube - 1/2 NPT
WAL373235	P-WEV22 L/ 3/4NPT	22mm Tube - 3/4 NPT
WAL373236	P-WEV28 L/ 1NPT	28mm Tube - 1" NPT
WAL373239	P-WEV6 S/ 1/4NPT	6mm Tube - 1/4 NPT
WAL373240	P-WEV8 S/ 1/4NPT	8mm Tube - 1/4 NPT
WAL373241	P-WEV10 S/ 3/8NPT	10mm Tube - 3/8 NPT
WAL373242	P-WEV12 S/ 3/8NPT	12mm Tube - 3/8 NPT
WAL373243	P-WEV14 S/ 1/2NPT	14mm Tube - 1/2 NPT
WAL373244	P-WEV16 S/ 1/2NPT	16mm Tube - 1/2 NPT
WAL373245	P-WEV20 S/ 3/4NPT	20mm Tube - 3/4 NPT
WAL373246	P-WEV25 S/ 1NPT	25mm Tube - 1" NPT

Straight
Din Light / Heavy Metric Tube Union



Part No	Reference No	Description
WAL038557	S-GV4 LL	4mm Extra Light Tube
WAL038559	S-GV6 LL	6mm Extra Light Tube
WAL038560	S-GV8 LL	8mm Extra Light Tube
WAL373362	P-GV6 L	6mm Tube Din Light
WAL373363	P-GV8 L	8mm Tube Din Light
WAL373364	P-GV10 L	10mm Tube Din Light
WAL373365	P-GV12 L	12mm Tube Din Light
WAL373366	P-GV15 L	15mm Tube Din Light
WAL373367	P-GV18 L	18mm Tube Din Light
WAL373368	P-GV22 L	22mm Tube Din Light
WAL373369	P-GV28 L	28mm Tube Din Light
WAL373370	P-GV35 L	35mm Tube Din Light
WAL373371	P-GV42 L	42mm Tube Din Light
WAL373372	P-GV6 S	6mm Tube Din Heavy
WAL373373	P-GV8 S	8mm Tube Din Heavy
WAL373374	P-GV10 S	10mm Tube Din Heavy
WAL373375	P-GV12 S	12mm Tube Din Heavy
WAL373376	P-GV14 S	14mm Tube Din Heavy
WAL373377	P-GV16 S	16mm Tube Din Heavy
WAL373378	P-GV20 S	20mm Tube Din Heavy
WAL373379	P-GV25 S	25mm Tube Din Heavy
WAL373380	P-GV30 S	30mm Tube Din Heavy
WAL373381	P-GV38 S	38mm Tube Din Heavy

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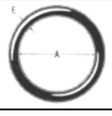
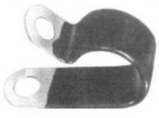
O'RING
UNO'RINGPORT

90° Durometer
Buna−N
Nitrile Rubber
−40°C to +121°C



PORTSIZE	PartNo.
-4	22617−4
-5	22617−5
-6	22617−6
-8	22617−8
-10	22617−10
-12	22617−12
-16	22617−16
-20	22617−20
-24	22617−24
-32	22617−32

SUPPORT
CLAMP



CLOSEDID	PartNo.
0.250	900729−18
0.380	900729−19
0.560	900729−2
0.630	900729−21
0.690	900729−3
0.750	900729−4
0.940	900729−6
1.000	900729−23
1.130	900729−9
1.190	900729−27
1.250	900729−24
1.310	900729−25
1.500	900729−10
1.560	900729−11
1.750	900729−12
1.810	900729−28
2.000	900729−13
2.060	900729−29
2.250	900729−14
2.500	900729−30
2.630	900729−31
2.750	900729−15
2.880	900729−16
3.560	900729−17

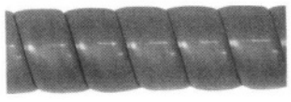
ARMOUR
COILSPRING

ID"	PartNo.
0.61	900564−1S
0.67	900564−12S
0.73	900564−2S
0.91	900564−3S
1.04	900564−4S
1.18	900564−5S
1.34	900564−6S
1.66	900564−7S
1.87	900564−9S
2.38	900564−10S
2.88	900564−11S

GUARDIAN
PROTECTION SLEEVE

ID"	PartNo.
1.22"	FF90754 −122
1.42"	FF90754 −142
1.73"	FF90754 −173
2.09"	FF90754 −209
2.38"	FF90754 −238
2.88"	FF90754 −288
3.66"	FF90754 −366
0.91"	FF90754 −91
0.98"	FF90754 −98

PLASTIC
COILSL EEVE



ID"	PartNo.
0.25	900952−4
0.38	900952−6
0.50	900952−8
0.63	900952−10
0.75	900952−12
1.00	900952−16
2.16	900952−35
2.60	900952−42
3.11	900952−50

NYLON
ABRASIONSLEEVE

MSHA APPROVED

ID"	PartNo.
0.71	FC425−12
1.00	FC425−16
1.13	FC425−18
1.25	FC425−20
1.75	FC425−28
2.07	FC425−32
2.38	FC425−38
2.54	FC425−40
2.86	FC425−46
3.34	FC425−54
3.66	FC425−59

FIRESLEEVE

Meets SAE1072And
NFE48−084

ID"	PartNo.
0.50	624−8
0.56	624−9
0.62	624−10
0.75	624−12
0.81	624−13
0.88	624−14
1.00	624−16
1.12	624−18
1.25	624−20
1.38	624−22
1.50	624−24
1.62	624−26
1.75	624−28
1.88	624−30
2.00	624−32
2.38	624−38
2.62	624−42
2.88	624−46
3.12	624−50
3.38	624−54
3.75	624−60

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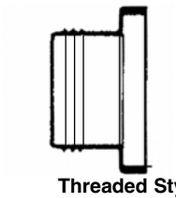
PLASTIC THREAD PROTECTORS

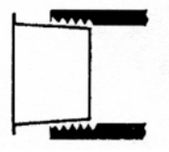
B.S.P. THREAD FEMALE PLUGS



Threaded Style

Part No.	Suits Female Threads
SP28001	1/8” B.S.P.
SP28002	1/4” B.S.P.
SP28003	3/8” B.S.P.
SP28004	1/2” B.S.P.
SP28005	5/8” B.S.P.
SP28006	3/4” B.S.P.
SP28008	1” B.S.P.
SP28009	1 1/4” B.S.P.
SP280010	1 1/2” B.S.P.
SP280011	2” B.S.P.

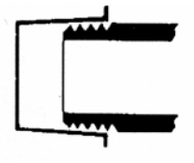
U.N.F. THREAD FEMALE PLUGS



Non Threaded Style Threaded Style

Part No.	Suits Female Threads
SP33006	7/16” - 20 UNF
SP33008	1/2” - 20 UNF
SP33010	9/16” - 18 UNF
SP33011	5/8” - 18 UNF
SP33014	3/4” - 16 UNF
SP33018	7/8” - 14 UNF
SP33021	1 1/16” - 12:1 1/16” 14 UNF
SP33024	1 5/16” - 12:1 5/16” 14 UNF
* **SP33015**	1 5/8” - 12 UNF
* **SP33017**	1 7/8” - 12 UNF
* **SP33019**	2 1/2” - 12 UNF

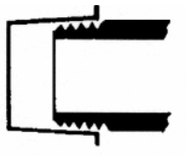
B.S.P./N.P.T. THREAD MALE CAPS



Non Threaded Style

Part No.	Suits Female Threads
SP33007	1/8” B.S.P./N.P.T.
SP33011	1/4” B.S.P./N.P.T.
SP33014	3/8” B.S.P./N.P.T.
SP33019	1/2” B.S.P./N.P.T.
SP33020	5/8” B.S.P./N.P.T.
SP33022	3/4” B.S.P./N.P.T.
SP33025	1” B.S.P./N.P.T.
SP33029	1 1/4” B.S.P./N.P.T.
SP33030	1 1/2” B.S.P./N.P.T.
SP33042	2” B.S.P./N.P.T.

U.N.F. THREAD MALE CAPS



Non Threaded Style

Part No.	Suits Female Threads
SP33009	7/16” - 20 UNF
SP33010	1/2” - 20 UNF
SP33012	9/16” - 18 UNF
SP33014	5/8” - 18 UNF
SP33017	3/4” - 16 UNF
SP33020	7/8” - 14 UNF
* **SP27013**	1 1/16” - 12:1 1/16” 14 UNF
* **SP27015**	1 5/16” - 12:1 5/16” 14 UNF
* **SP27017**	1 5/8” - 12 UNF
* **SP27018**	1 7/8” - 12 UNF
* **SP33019**	2 1/2” - 12 UNF

EATON
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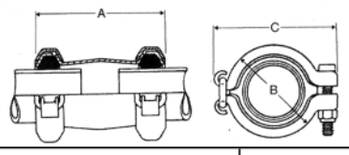
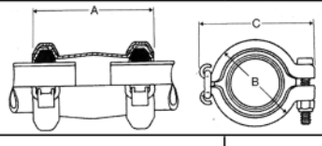
Flexmaster

FLEXMASTER JOINTS FOR RIGID PIPE



PIPE SIZE	PIPE OD	A	B	C	STANDARD TYPE	SELF-RESTRAINT TYPE
.50	.840	2.25	1.65	2.53	NH1600C050B0225	NH1650C050B0225
.75	1.050	2.50	1.86	2.75	NH1600C075B0250	NH1650C075B0250
1.00	1.315	2.88	2.37	3.48	NH1600C100B0288	NH1650C100B0288
1.25	1.660	3.25	2.71	3.85	NH1600C125B0325	NH1650C125B0325
1.50	1.900	3.50	2.96	4.11	NH1600C150B0350	NH1650C150B0350
2.00	2.375	4.00	3.43	4.60	NH1600C200B0400	NH1650C200B0400
2.50	2.875	6.50	4.73	6.23	NH1600C250B0650	NH1650C250B0650
3.00	3.500	6.50	5.36	6.87	NH1600C300B0650	NH1650C300B0650
3.50	4.000	6.50	5.86	7.38	NH1600C350B0650	NH1650C350B0650
4.00	4.500	6.50	6.36	7.89	NH1600C400B0650	NH1650C400B0650
5.00	2.563	6.50	8.22	10.62	NH1600C500B0650	NH1650C500B0650
6.00	6.625	6.50	8.86	11.24	NH1600C600B0650	NH1650C600B0650

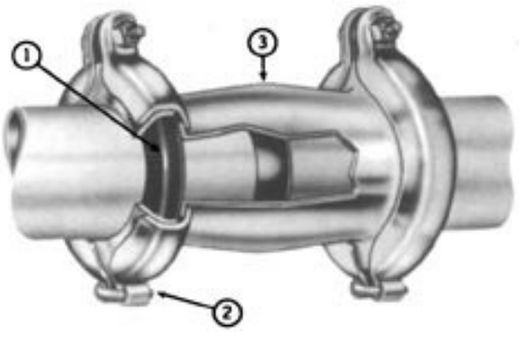
FLEXMASTER JOINTS FOR INCH SIZE TUBE



TUBE SIZE	A	B	C		STANDARD TYPE	SELF-RESTRAINT TYPE
1.00	2.50	1.86	2.75		NH1625C100B0250	NH1675C100B0250
1.25	2.88	2.37	3.48		NH1625C125B0288	NH1675C125B0288
1.38	3.00	2.55	3.68		NH1625C138B0300	NH1675C138B0300
1.50	3.00	2.55	3.68		NH1625C150B0300	NH1675C150B0300
1.75	3.50	2.96	4.11		NH1625C175B0350	NH1675C175B0350
2.00	3.50	3.06	4.20		NH1625C200B0350	NH1675C200B0350
2.25	4.00	3.43	4.60		NH1625C225B0400	
2.38	4.00	3.43	4.60		NH1600C200B0400	NH1650C200B0400
2.5	4.00	3.55	4.72		NH1625C250B0400	NH1675C250B0400
2.75	4.00	4.73	6.23		NH1625C275B0400	
2.88	6.50	4.73	6.23		NH1600C250B0650	NH1650C250B0650
3.00	5.00	4.86	6.34		NH1625C300B0500	NH1675C300B0500
3.25	6.50	5.11	6.60		NH1625C325B0650	
3.50	6.50	5.36	6.87		NH1600C300B0650	NH1650C300B0650
4.50	6.50	6.36	7.89		NH1600C400B0650	NH1650C400B0650

Features

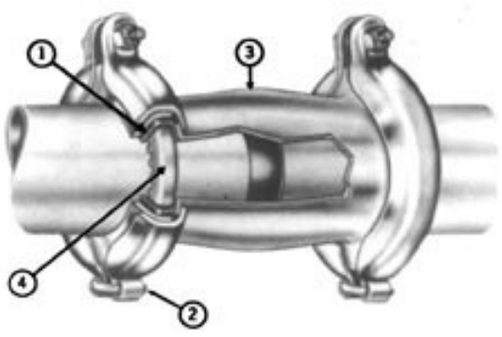
Fleximaster Joints in Standard and Self-restrained Configurations



Standard Features

1. Gasket provides compression seal when tightened against tube or pipe.
2. Hinged coupling provides for quick, easy assembly.
3. Bulged sleeve allows for ±4° angular misalignment.

   All gasket materials listed on page 4 are available in the standard style, increasing the number of suitable applications.



Self-Restrained Features

1. Gasket provides compression seal when tightened against tube or pipe.
2. Hinged coupling provides for quick, easy assembly.
3. Bulged sleeve allows for ±4° angular misalignment.

   Plus

4. Notched channel ring which grips pipe firmly to restrict movement along pipe or tubing.

   Gasket materials available include the C (Buna-N) and D (EPDM) compounds.

Flexmaster joints are available in both standard and self-restrained styles. The self-restrained style has a stainless steel gripping ring inside each gasket. This feature allows the joint to maintain a firm grip on the pipe or tube, preventing movement along the pipe or tube.

The bulged, straight-through Flexmaster joints accommodate angular misalignment up to ±4° per end. Tees, elbows, and crosses accommodate angular misalignment up to ±2° per end. See pages 10 thru 17 for the angular misalignment allowed on each specific part. Flexmaster joints are designed for up to 300 psi (2.07 MPa) service, depending on application and size. Refer to pressure ratings on page 4.

Flexmaster joints absorb vibration and are ideal for making quick connections and disconnections when repairing or disassembling a system. They can be furnished with several types of gasket compounds and sleeve materials, including stainless steel for marine and corrosive applications.

Flexmaster joints are currently in use in thousands of applications throughout the world. For typical Flexmaster joint applications see photos on page 2.

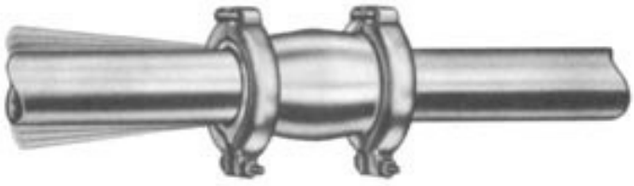
Features

Save Time - Make Pipe And Tube Connection Easier

Used on Plain End Tube or Pipe

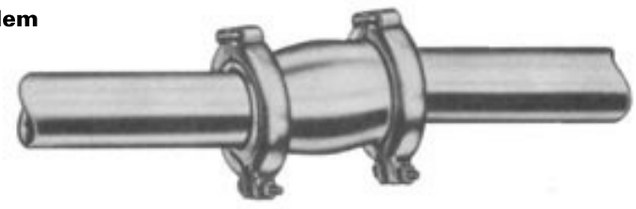
No threading, flanging, welding, grooving or other special end preparation of tube or pipe is required. Use pipe after it is cut to appropriate lengths. The Flexmaster joint will accommodate large tolerances in the length of the gap. See Table 1, page 9 for insertion depth tolerances.

Absorbs Vibration



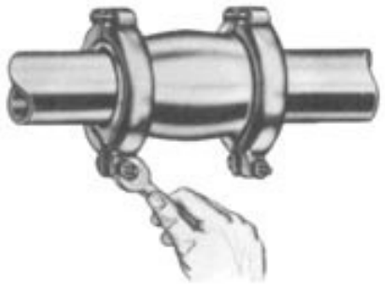
Pipe vibration and noise can be drastically reduced with Flexmaster joints. The resilient, thick rubber of the Flexmaster joint gasket absorbs vibration and noise. Use of the self-restrained style restricts movement along vibrating pipes and tubes.

Even Misaligned Piping is No Problem



The Flexmaster joint design eliminates flanged bolt holes and pipe threads that require careful alignment. The Flexmaster bulged joint permits up to a total of ±4° angular installation misalignment at each end while maintaining a leakproof seal.

Easy to Install



Installation time can be slashed by using Flexmaster joints. Basic assembly tools are all that's needed. After extensive use, the gaskets can be replaced easily and quickly. See page 8 for complete assembly instructions.

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Technical Data

GASKET TEMPERATURE RATINGS††

C BUNA-N (Standard)	water	**-25° F. to +180° F.** (-32° C. to +82° C.)
	oils	**-25° F. to +215° F.** (-32° C. to +121° C.)
V Fluorocarbon		**-25° F. to +450° F.** (-32° C. to +232° C.)
S Silicone		**-65° F. to +350° F.** (-54° C. to +177° C.)
D EPDM	water and water/glycol mixture	**+20° F. to +275° F.** (+29° C. to +137° C.)
G Mineral Fiber Non-asbestos		**+70° F. to +1200° F.** (+21° C. to +649° C.)
N BUNA-N (High temp.)	water and steam	**-25° F. to +225° F.** (-32° C. to +107° C.)
	oils	**-25° F. to +250° F.** (-32° C. to +121° C.)

†† Maximum temperature ratings are meant as a guide only.
For extreme temperature conditions, consult factory.

VACUUM RATINGS †

Size Range Pipe	Tube	Standard Gasket	Self-Restrained Gasket
All sizes	All sizes	**25 in. Hg.** 1.79 bar	**25 in. Hg.** 1.79 bar

NOTE:

° F., inches, in. Hg., psi in bold

° C., mm, bar, MPa in light

EATON GASKET INDENTIFIER CHART

Gasket Designation	Gasket Compound	Gasket Color	Identifying Color Patch
C	Buna N (std)	Black	Yellow or White
N	Buna N (high temp)	Black	Rust Orange
D	EPDM	Black	Dark Blue
V	Fluorocarbon	Black	Light Green
S	Silicone	Rust Orange	None
B***	Butyl	Off White	None
G***	Mineral Fiber	Metallic Silver	None

*** Obsolete

PRESSURE RATINGS †

Size Range Pipe	Tube	Standard Gasket	Self-Restrained Gasket
3/8 - 3/4	**1/2 - 1 3/8** 12.7 - 35.1	**300 psi** (2.07 MPa)	**300 psi** (2.07 MPa)
1-2	**1 1/2 - 2 1/2** 38.1 - 63.5	**200 psi** (1.38 MPa)	**200 psi** (1.38 MPa)
2 1/2 - 6	**3 - 6** 76.2 - 152.4	**150 psi** (1.03 MPa)	**150 psi** (1.03 MPa)

† **Warning**: The Flexmaster joint is designed to seal pipe and tube connections. The Flexmaster joint is not intended to hold piping systems together. Normal hangers, guides, anchors and other external piping restraints must be used to restrain the piping or tubing system from movement.

PIPE AND TUBE MATERIALS WHICH CAN BE CONNECTED BY FLEXMASTER JOINTS*

Pipe or Tube Material	Standard Gasket	Self-Restrained Gasket**
Carbon Steel	X	X
Stainless Steel	X	X
Aluminum	X	Not Recommended
P.V.C. (Plastic)	X	Not Recommended
Copper	X	Not Recommended

* All piping and tubing connected by Flexmaster joints must meet the nominal O.D. dimensions presented on pages 10 - 17.

** Piping and Tubing, which use self-restrained gaskets, must have a hardness between 45-85 on a Rockwell "B" scale (45 - 85 Rb).

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Technical Data

Gasket Selector Chart

Gasket Material: C – BUNA-N (standard)
D – EPDM
N – BUNA-N (high temperature)
V – Fluorocarbon
S – Silicone

Key: G – GOOD
F – FAIR
– Not Recommended

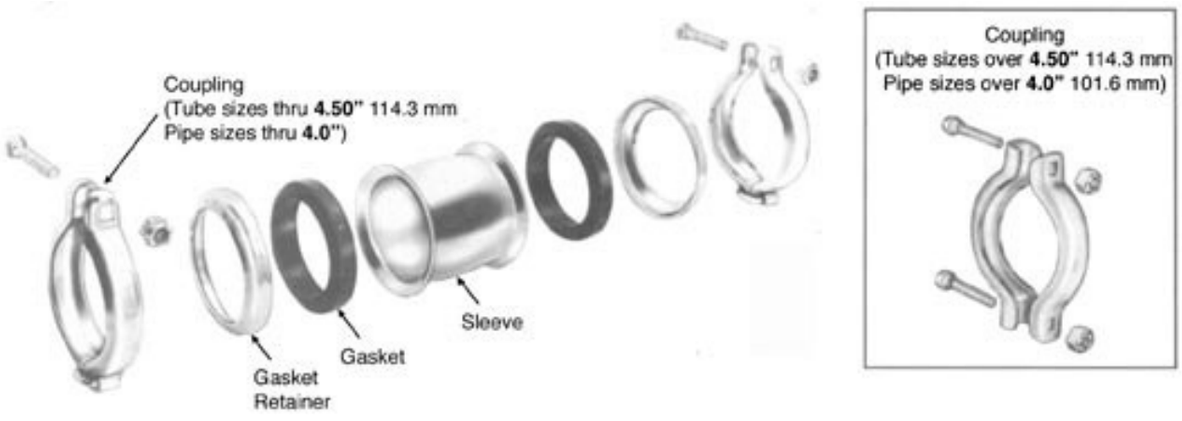
An important consideration in the selection of a gasket material is to avoid undesirable chemical reaction between the agent carried and the gasket material. The gasket selector chart indicates the compound most serviceable in specific agents.

FLUID	GASKET MATERIAL			
	D	C/N	V	S
Acetic Acid (concentrated) RT	F	F	G	F
Acetic Acid (dilute) RT (to 10%)	F	F	G	G
Acetic Acid Vapors	F	F	F	F
Acedit Anhydride	-	F	-	F
Acetone	G	-	-	F
Acetylene	G	G	G	F
Air	G	G	G	G
Air (Hot) 215°	G	F	G	G
Alcohols, Aliphatic	G	F	G	G
Alcohols, Aromatic	F	-	F	F
Alkaline Solutions (Hydroxides)	F	G	F	G
Aluminum Salt solutions	G	G	G	G
Ammonia Gas (Cold)	G	G	-	-
Ammonia, Liquid (Anhydrous)	G	G	-	F
Ammonia Aqueous	G	F	-	G
Ammonium Salt Solutions	G	G	F	F
Aniline Dyes	F	-	G	F
Aniline Oils	F	-	F	F
Asphalt	-	-	G	-
Benzine (Gasoline)	-	G	G	-
Bromine	-	-	G	-
Butylene	-	F	G	-
Calcium Hypochlorite (no free Chlorine)	G	-	G	F
Calcium Salt solutions	G	G	G	F
Carbolic Acid (Phenol) RT or Hot	F	-	G	-
Carbon Dioxide (Dry)	G	G	F	F
Carbonic Acid	G	F	G	G
Carbon Disulphide RT	-	-	G	-
Carbon Tetrachloride RT	-	-	G	-
Chlorinated Solvents	-	-	G	G
Chlorine (Dry)	-	-	G	-
Chlorine (wet or solutions)	F	-	G	-
Cottonseed Oil	G	G	G	G
Creosote (wood or coal tar)	-	G	G	-
Chromic Acid 50%	-	F	G	-
Citric Acid	G	G	G	G
Copper Salt Solutions	G	F	G	G
Diesel Fuel	-	G	G	-
Ethers RT	F	F	G	-
Ethylene Glycol	G	G	G	G
Ethylene Dichloride	-	-	G	G
Ferric Salt Solutions	G	G	G	G
Ferrous Salt Solutions	G	G	G	G
Formaldehyde RT	F	-	-	G
Fuel Oil	-	G	F	-
Furfural	G	-	-	-
Freon 12 (Refrigerant)	G	G	G	-
Freon 13 (Refrigerant)	F	G	G	-
Gasoline (Sour or refined)	-	G	G	-
Glycerin (Glycerol)	G	G	G	G
Heptane	-	G	G	-
Hexane	-	G	G	-

FLUID	GASKET MATERIAL			
	D	C/N	V	S
Hydraulic Oils Straight Petroleum Base	-	G	G	-
Water Petroleum Emulsion	-	G	G	F
Water Glycol	G	G	G	F
Straight Phosphate Ester	G	-	F	F
Phosphate Ester/Petroleum Blend	-	-	F	-
Ester Blend	G	G	F	F
Silicone Oils	G	G	G	-
Hydrochloric Acid RT	G	F	G	-
Hydrofluoric Acid (48% sol) RT	-	-	G	-
Hydrolube	G	G	G	F
Hydrogen Peroxide (dilute)	F	F	G	G
Hydrogen Peroxide (concentrated)	-	-	F	F
Hydrogen Sulfide (dry) RT	F	F	-	-
Hydrogen Sulfide (wet) RT	F	-	G	-
Hypochlorite Solutions (no free Chlorine)	G	F	G	F
Kerosene RT	-	G	G	-
Linseed Oil	-	G	G	-
Lube Oil (Mineral)	-	G	G	-
Lubricating Oils (Diester Base)	-	F	G	-
Magnesium Salt Solutions	G	G	G	G
Mercuric Chloride	G	G	G	-
Mercury	G	G	G	F
Mineral Oil	-	G	G	G
Naphtha	-	F	G	-
Napthalene	-	-	G	-
Nitric Acid (less than 20%)	F	-	G	-
Oleic Acid	-	G	F	-
Oxalic Acid	G	F	G	F
Oxygen, Gaseous	G	F	G	G
Paraffin	-	G	G	F
Petroleum Oils (Sour or Refined)	-	G	G	-
Phosphoric Acid (Commercial)	G	-	G	-
Potassium Salt Solutions	G	G	G	G
Pydraul C Series, F	F	-	G	F
Pydraul F Series	G	-	-	-
Sodium Salt solutions	G	G	G	F
Steam	F	-	-	-
Sulfur	G	-	-	-
Sulfur Dioxide (wet or dry)	G	-	-	F
Sulfuric Acid (10-75%)	F	-	G	-
Sulfuric Acid (75-95%)	-	-	G	-
Sulfuric Acid (95%) RT	-	-	G	-
Sulfurous Acid	-	F	G	-
Tannic Acid	F	G	F	F
Trichlorethylene	-	-	G	-
Turpentine	-	F	G	-
Vegetable Oils	G	G	G	G
Water (fresh or salt) cold	G	G	G	G
Water (fresh or salt) hot +215° F. max.	G	!!	G	-
Xylene	-	-	G	-
Zinc Salt Solutions	G	G	G	G

!! C maximum +180° F., N maximum +225° F.

Technical Data



Standard (Un-Restrained) Style

Self-Restrained Style

NH16XX ( ) 000 ( ) 000

Basic Part Number (from pages 10 - 17)
Example: NH1600

Gasket Material:

C = BUNA-N (standard)
D = EPDM
*N = BUNA-N (high temperature)
*S = Silicone
*V = Fluorocarbon
*G = Mineral Fiber
(Exhaust Applications not subject to flexing)

* Available in Standard (Un-Restrained) Model Only.

Size of Pipe or Tube to be connected
(in hundredths of inch) Example: .75" = 075

Sleeve Material:

B = Plated Steel (Standard)
S = Stainless Steel (Sleeve only-
consult Eaton for availability)

Joint Length (in thousands of inch).
Example: 2.5" = 0250
Style is available in lengths shown. Other lengths are available in multiples of 1-inch on special requests. Contact Eaton for availability.

Example Part Number: NH1600C075B0250

Complete assemblies may be ordered by the procedure shown above.
Standard components may be ordered as shown on page 7.

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Gasket Material: C – BUNA-N (standard)
D – EPDM
N – BUNA-N (high temperature)
V – Fluorocarbon
S – Silicone
(Other materials available. Consult Eaton.)

		COUPLING	STRAIGHT SLEEVES	GASKET RETAINER	GASKETS →									
Tube size (inches)	Tube O.D. (inches)	Includes Nut & Bolt Standard	Standard	Standard	Standard Gasket	Material Available from Stock C	D*	G	N*	S	V	Self Restrained Gasket	Material Available from Stock C	D*
1.00	1.00	NH100085-075YF	NK1237-075B0250	NK1000023-075	NK1000064X100	X	X	X	-	X	X	NK1000062X100	X	-
1.25	1.25	NH100085-100YF	NK1237-100B0288	NK1000023-100	NK1000064X125	X	X	-	X	X	X	NK1000062X125	X	X
1.38	1.38	NH100086-150YF	NK1237-138B0300	NK1000056-138	NK1000064X138	X	-	-	-	X		NK1000062X138	X	-
1.50	1.50	NH100086-150YF	NK1238-150B0300	NK1000056-150	NK1000064X150	X	X	-	-	X	X	NK1000062X150	X	X
1.75	1.75	NH100085-150YF	NK1238-175B0350	NK1000056-175	NK1000064X175	X	X	-	-	-	-	NK1000062X175	X	-
2.00	2.00	NH100086-200YF	NK1238-200B0350	NK1000056-200	NK1000064X200	X	X	X	-	X	X	NK1000062X200	X	-
2.25	2.25	NH100085-200YF	NK1238-225B0400	NK1000056-225	NK1000064X225	X	X	-	-	-	-			
2.50	2.50	NH100086-250YF	NK1238-250B0400	NK1000056-250	NK1000064X250	X	X	-	-	X	X	NK1000062X250	X	X
2.88	2.88	NH100085-250YF	NK1237-250B0650	NK1000023-250	NK1000063X250	X	X	X		X	X	NK1000061X250	X	-
3.00	3.00	NH100086-300YF	NK1238-300B0500	NK1000056-300	NK1000064X300	X	X	-	X	X	X	NK1000062X300	X	-
3.25	3.25	NH100086-325YF	NK1238-325B0650	NK1000056-325	NK1000064X325	X	-	-	-	-	-	NK1000062X325	X	-
3.50	3.50	NH100085-300YF	NK1237-300B0650	NK1000023-300	NK1000063X300	X	X	X	X	X	X	NK1000061X300	X	X
4.00	4.00	NH100085-350YF	NK1237-350B0650	NK1000023-350	NK1000063X350	X	X	X	X	X	X	NK1000061X350	X	X
4.50	4.50	NH100085-400YF	NK1237-400B0650	NK1000023-400	NK1000063X400	X	X	-	X	X	X	NK1000061X400	X	X
5.00	5.00	NH100086-500YF	NK1238-500B0650	NK1000056-500	NK1000064X500	X	X	-	-	-	-	NK1000062X500	X	X
Pipe Size (inches)	Pipe O.D. (inches)													
.38	.675	NH100085-038YF	NK1237-038B0200	NK1000023-038	NK1000063X038	X	-	-	-	-	X			
.50	.840	NH100085-050YF	NK1237-050B0225	NK1000023-050	NK1000063X050	X	X	-	X	X	X	NK1000061X050	X	-
.75	1.050	NH100085-075YF	NK1237-075B0250	NK1000023-075	NK1000063X075	X	-	X	X	X	X	NK1000061X075	X	-
1.00	1.315	NH100085-100YF	NK1237-100B0288	NK1000023-100	NK1000063X100	X	X	-	X	X	X	NK1000061X100	X	X
1.25	1.660	NH100085-125YF	NK1237-125B0325	NK1000023-125	NK1000063X125	X	X	-	X	X	X	NK1000061X125	X	X
1.50	1.900	NH100085-150YF	NK1237-150B0350	NK1000023-150	NK1000063X150	X	X	-	X	X	X	NK1000061X150	X	X
2.00	2.375	NH100085-200YF	NK1237-200B0400	NK1000023-200	NK1000063X200	X	X	-	X	X	X	NK1000061X200	X	X
2.50	2.875	NH100085-250YF	NK1237-250B0650	NK1000023-250	NK1000063X250	X	X	X	X	X	X	NK1000061X250	X	X
3.00	3.500	NH100085-300YF	NK1237-300B0650	NK1000023-300	NK1000063X300	X	X	X	X	X	X	NK1000061X300	X	X
3.50	4.000	NH100085-350YF	NK1237-B3500650	NK1000023-350	NK1000063X350	X	X	X	X	X	X	NK1000061X350	X	X
4.00	4.500	NH100085-400YF	NK1237-400B0650	NK1000023-400	NK1000063X400	X	X	-	X	X	X	NK1000061X400	X	X
5.00	5.563	NH100085-500YF	NK1237-500B0650	NK1000023-500	NK1000063X500	X	X	-	X	-	X	NK1000061X500	X	-
6.00	6.625	NH100085-600YF	NK1237-600B0650	NK1000023-600	NK1000063X600	X	X	-	X	-	X	NK1000061X600	X	X

*These gasket materials can be ordered in sizes other than those listed. Contact Eaton for availability.

BOLT PART NUMBERS

JOINT SIZE (inches)		BOLT PART NUMBER	NUT PART NUMBER
Tube	Pipe	Carbon Steel	Carbon Steel
.50 to 1.12	.38 to .75	56519A4-7	56535A4C-C
1.25 to 2.50	1 to 2	56519A5-8	56535A5C-C
2.75 to 5	2.50 to 4	56519A6-12	56535A6C-C
6	5 to 6	56519A8-16	56535A8C-C

Stainless steel bolting is recommended for replacement where mineral fiber gaskets are used or when high temperatures exist.
Contact Eaton for replacement bolts and nuts on High Temperature Flexmaster joint for +1200° F. (+649° C.)

Pipe and Tubing Preparation and Flexmaster Joint Installation Instructions

1. Pipe (Tube) End Preparation

- Deburr and clean pipe (tube) ends.
- Surface should be free of deep scratches, gouges, dents, dirt, etc.

2. Joint Installation

- Install retainer (1), gasket* (2) and sleeve (3) on one side of pipe in sequence shown in Figure 1.
- Install remaining retainer (4) and gasket (5) on other pipe end.
- Position retainer (4) and gasket (5) to proper pipe insertion depth ("D") as shown in Table 1.
- Slide sleeve (3) to gasket (5) and move gasket (2) and retainer (1) into position as shown in Figure 2. Pipe must be inserted to proper depth ("D") into both gaskets as shown in Table 1.

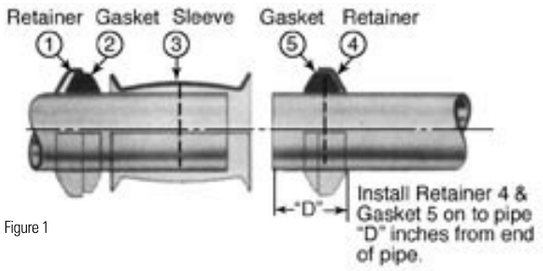

Figure 1

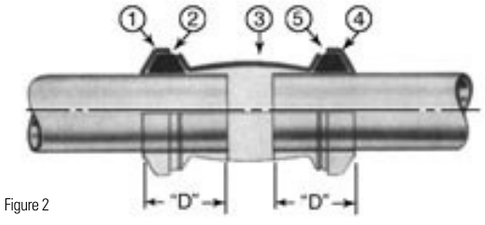

Figure 2

***3. Special Notes**

- Assembly of gaskets can be made easier by dipping gaskets in water or the fluid to be sealed. The use of other rubber lubricants can be detrimental to the life of the gaskets. Never lubricate the metal parts.
- Self-restrained gasket installation. To simplify installation of a self-restrained gasket, install lower gasket halfway onto the pipe first, leaving the split area in the steel retaining ring free at the top. See Figure 3. Then, stretch the gasket and split area of the retaining ring until they slip over the tube or pipe and into position.
  Refer to Figure 3.

Figure 3

4. Coupler Installation

Install both V-couplings, encompassing the retainer, gasket and sleeve as shown in Figure 4. Do not tighten either coupling until the entire joint is assembled (See Figure 2). Tighten nuts to the torque specified in Table 2. Do NOT lubricate the nut or bolt before assembly. The gap method outline in Table 3 may be used for standard gaskets only.

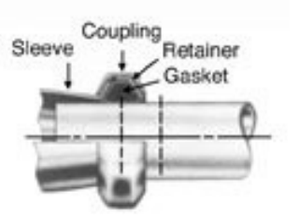

Figure 4

WARNING Maximum temperature ratings are meant as a guide only. For extreme temperature conditions, consult factory.

Improper installation, use or selection of the Flexmaster joints can result in personal injury, property damage or death.

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TABLE 1. REQUIRED INSERTION DEPTH* OF PIPE AND TUBE

Pipe Size	"D" min.	"D" max.	Tube Size	"D" min.	"D" max.
.38	**.71** 18	**1.00** 25.4	**.75** 19.1	**.74** 18.8	**1.10** 27.9
.50	**.71** 18	**1.09** 27.7	**.88** 22.3	**.65** 16.5	**1.00** 25.4
.75	**1.00** 25.4	**1.21** 30.7	**1.00** 25.4	**.72** 18.3	**1.21** 30.7
1.00	**1.14** 29	**1.39** 35.3	**1.12** 28.4	**.93** 23.6	**1.21** 30.7
1.25	**1.15** 29.2	**1.56** 39.6	**1.25** 31.8	**1.16** 29.5	**1.40** 35.6
1.50	**1.16** 29.5	**1.62** 41.1	**1.38** 35.1	**1.20** 30.5	**1.46** 37.1
2.00	**1.18** 30	**1.84** 46.7	**1.50** 38.1	**1.18** 30	**1.45** 36.8
2.50	**1.68** 42.7	**2.38** 60.5	**1.75** 44.5	**1.22** 31	**1.69** 42.9
3.0	**1.70** 43.2	**2.40** 61	**2.00** 50.8	**1.15** 29.2	**1.68** 42.7
3.50	**1.72** 33.7	**2.42** 61.5	**2.25** 57.2	**1.24** 31.5	**1.84** 46.7
4.00	**1.74** 44.2	**2.44** 62	**2.38** 60.3	**1.18** 30	**1.84** 46.7
5.00	**2.08** 52.8	**2.24** 56.9	**2.50** 63.5	**1.17** 29.7	**1.83** 46.5
6.00	**1.86** 47.2	**2.33** 59.2	**2.75** 69.9	**1.74** 44.2	**1.90** 48.3
			2.88 73.0	**1.68** 42.7	**2.38** 60.5
			3.00 76.2	**1.67** 42.4	**2.30** 58.4
			3.25 82.6	**1.67** 42.4	**2.48** 63
			3.50 88.9	**1.70** 43.2	**2.40** 61
			4.00 101.6	**1.72** 33.7	**2.42** 61.5
			4.50 114.3	**1.74** 44.2	**2.44** 62
			5.00 127	**1.75** 44.5	**2.07** 52.6

*Dimensions shown are for standard, straight, bulged sleeves only. Elbow, tees and specials must meet the minimum insertion depths.

NOTE: **inches and inch-lbs in bold**, mm and N•m in light.

TABLE 2. FLEXMASTER JOINT ASSEMBLY TIGHTENING GUIDE. TORQUE METHOD OF INSTALLATION**

Size	Standard	Self-Restrained
.75" to 1.12" Tube (19.1 to 28.4 mm) **.38" to .75" Pipe**	**40-60 inch-lbs.** (4.55-6.88 N•m)	**40-60 inch-lbs.** (4.55-6.88 N•m)
1.25" to 2.75" Tube (31.8 to 69.9 mm) **1" to 2" Pipe**	**90-100 inch-lbs.** (10.14-12.39 N•m)	**140-160 inch-lbs.** (15.78-18.13 N•m)
2.88" to 3.50" Tube (73 to 88.9 mm) **2.50" to 3" Pipe**	**180-200 inch-lbs.** (20.27-22.52 N•m)	**220-240 inch-lbs.** (24.79-27.14 N•m)
4" to 5" Tube (101.6 to 127 mm) **3.50" to 4" Pipe**	**240-260 inch-lbs.** (27.14-29.28 N•m)	**280-300 inch-lbs.** (31.53-33.8 N•m)
6" Tube (152.4 mm) **5" to 6" Pipe**	**300-360 inch-lbs.** (33.8-36.15 N•m)	**480-500 inch-lbs.** (54.05-56.42 N•m)

**Note: the torque values specified are for an un-lubricated (dry) nut and bolt.

TABLE 3. OPTIONAL CLEARANCE METHOD FOR INSTALLATION OF STANDARD GASKETS.

(Self-restrained gaskets must be installed by Torque Method.)

Tube Size	Pipe Size	Dimension X ±.06 1.5
.50, .63, .75 12.7, 16.0, 19.1	3/8, 1/2	**.62** 15.8
1.00, 1.13 25.4, 28.7	3/4	**.69** 17.5
1.25, 1.38 31.8, 35.1	**1**	**.94** 23.9
1.50, 1.75 38.1, 44.5	**1** 1/4	**.94** 23.9
	1 1/2	**.94** 23.9
2.25 57.2	**2**	**.88** 22.4
2.50, 2.75 63.5, 69.9	**2** 1/2	**1.50** 38.1
3.00, 3.25 76.2, 82.6	**3**	**1.56** 39.6
	3 1/2	**1.56** 39.6
	4	**1.56** 39.6
5.00, 6.00 127, 152.4	**5, 6**	Use Torque Method

EATON
Powering Business Worldwide

B5600 SERIES
ISO 7241/1 SERIES A

Industrial Interchange for General hydraulic Service.



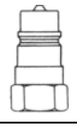



THREAD	RATED FLOW	MAXIMUM WORKING PRESSURE	COMPLETE COUPLING	FEMALE COUPLING HALF	MALE COUPLING HALF	DUST CAP FOR MALE	DUST PLUG FOR FEMÕ	BACK UP OÕ RING (BUNA−N)
BSPP	(USGPM)	PSI	Part No.	Part No.	Part No.	Part No.	Part No.	Part No
1/4−19	1	5000	B5600-4	G5622-4-4	G5623-4-4	5657-4	5659-4	22550-112
3/8−19	6	4000	B5600-6	G5622-6-6	G5623-6-6	5657-6	5659-6	22550-115
1/2−14	12	4000	B5600-8-10	G5622-8-10	G5623-8-10	5657-10	5659-10	22550-211
3/4−14	28	4000	B5600-12	G5622-12-12	G5623-12-12	5657-12	5659-12	22550-123
1−11	50	4000	B5600-16	G5622-16-16	G5623-16-16	5657-16	5659-16	22550-126

5600 SERIEES
ISO 7241/1 SERIES A

Industrial Interchange for General hydraulis Service






THREAD	RATED FLOW	MAXIMUM WORKING PRESSURE	COMPLETE COUPLING	FEMALE COUPLING HALF	MALE COUPLING HALF	DUST CAP FOR MALE	DUST PLUG FOR FEMÕ	BACK UP OÕ RING (BUNA−N)
NPT	(USGPM)	PSI	Part No.	Part No.	Part No.	Part No.	Part No.	Part No
1/8−27	1	5000	5600-2-4S	5601-2-4S	5602-2-4S	5657-4	5659-4	22550-112
1/4−18	1	5000	5600-4-4S	5601-4-4S	5602-4-4S	5657-4	5659-4	22550-112
3/8−18	6	4000	5600-6-6S	5601-6-6S	5602-6-6S	5657-6	5659-6	22550-115
1/2−14	12	4000	5600-8-10S	5601-8-10S	5602-8-10S	5657-10	5659-10	22550-211
3/4−14	28	4000	5600-12-10S	5601-12-10S	5602-12-10S	5657-12	5659-12	22550-123
3/4−14	28	4000	5600-12-12S	5601-12-12S	5602-12-12S	5657-12	5659-12	22550-123
1−11 1/2	50	4000	5600-16-16S	5601-16-16S	5602-16-16S	5657-16	5659-16	22550-126

BIR SERIES
ISO A SERIES

General Industrial & Agricultural Use. Pioneer 3000-4, 5600 Series and Faster SNV Sinterchange



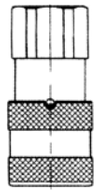


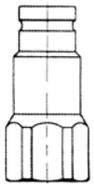
THREAD	RATED FLOW	MAXIMUM WORKING PRESSURE	FEMALE COUPLING HALF	MALE COUPLING HALF		DUST CAP FOR MALE	DUST PLUG FOR FEMÕ	SEAL KITS BUNA N OÕRING
BSPP	(USGPM)	PSI	Part No.	Part No.		Part No.	Part No.	Part No
1/4−19	1	5000	BIR-14F	BIR-14M		5657-4	5659-4	BIR-14SK
3/8−19	6	4350	BIR-38F	BIR-38M		5657-6	5659-6	BIR-38SK
1/2−14	12	3625	BIR-12F	BIR-12M		5657-10	5659-10	BIR-12SK
3/4−14	28	3625	BIR-34F	BIR-34M		5657-12	5659-12	BIR-34SK
1−11	50	3330	BIR-100F	BIR-100M		5657-16	5659-16	BIR-100SK

EATON
Powering Business Worldwide

FD89 FLAT FACE
COUPLINGS

1/4" TO 1 1/4"meets dimensional requirements of ISO 16028
3/8" meets HTMA standard





THREAD BSP	FLOW LPM	MAXIMUM WORKING PRESSURE PSI	FEMALE COUPLING HALF	MALE COUPLING HALF		
			Part No	Part No		
1/4-19	12	4350	FD89-1006-04-04	FD89-1007-04-04		
3/8-19	23	4350	FD89-1006-06-06	FD89-1007-06-06		
1/2-14	45	3625	FD89-1006-08-06	FD89-1007-08-06		
1/2-14	45	3625	FD89-1006-08-08	FD89-1007-08-08		
3/4-14	74	3625	FD89-1006-12-08	FD89-1007-12-08		
3/4-14	74	3625	FD89-1006-12-12	FD89-1007-12-12		
1-11	100	3625	FD89-1006-16-16	FD89-1007-16-16		
1 1/4-11	189	3625	FD89-1006-20-20	FD89-1007-20-20		
1 1/2-11	288	2900	FD89-1006-24-24	FD89-1007-24-24		
2.11	379	2900	FD89-1006-32-32	FD89-1007-32-32		

THREAD NPT	FLOW LPM	MAXIMUM WORKING PRESSURE PSI	FEMALE COUPLING HALF	MALE COUPLING HALF		
			Part No	Part No		
1/4-18	12	4350	FD89-1001-04-04	FD89-1002-04-04		
3/8-18	23	4350	FD89-1001-06-06	FD89-1002-06-06		
1/2-14	45	3625	FD89-1001-08-06	FD89-1002-08-06		
1/2-14	45	3625	FD89-1001-08-08	FD89-1002-08-08		
3/4-14	74	3625	FD89-1001-12-08	FD89-1002-12-08		
3/4-14	74	3625	FD89-1001-12-12	FD89-1002-12-12		
1-11 1/2	100	3625	FD89-1001-16-16	FD89-1002-16-16		
1 1/4-11 1/2	189	3625	FD89-1001-20-20	FD89-1002-20-20		
1 1/2-11 1/2	288	2900	FD89-1001-24-24	FD89-1002-24-24		
2-11 1/2	379	2900	FD89-1001-32-32	FD89-1002-32-32		

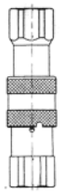
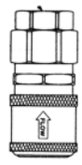
THREAD UNO	FLOW LPM	MAXIMUM WORKING PRESSURE PSI	FEMALE COUPLING HALF	MALE COUPLING HALF		
			Part No	Part No		
1 1/16-12	74	3625	FD89-1005-12-08	FD89-1004-12-08		
1 1-16-12	74	3625	FD89-1005-12-12	FD89-1004-12-12		

EATON
Powering Business Worldwide

Couplings

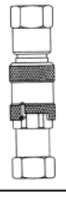
FD49 SERIES
FLAT FACE LOW SPILL

HTMA Interchange

THREAD	RATED FLOW	MAXIMUM WORKING PRESSURE	COMPLETE COUPLING	FEMALE COUPLING HALF	MALE COUPLING HALF	DUST CAP MALE & FEMALE
NPT	(USGPM)	PSI	Part No.	Part No.	Part No.	Part No.
3/8-18	10	3000	FD49-1000-06-06	FD49-1001-06-06	FD49-1002-06-06	FD49-1042-06
1/2-14	10	3000	FD49-1000-08-06	FD49-1001-08-06	FD49-1002-08-06	FD49-1042-06

FD35 SERIES
HYDRAULIC TOOL 'ARC LATCH'




THREAD	RATED FLOW	MAXIMUM WORKING PRESSURE	COMPLETE COUPLING	FEMALE COUPLING HALF	MALE COUPLING HALF	DUST CAP MALE & FEMALE
NPT	(USGPM)	PSI	Part No.	Part No.	Part No.	Part No.
3/8-18	2	10,000	FD35-1000-06-06	FD35-1001-06-06	FD35-1002-06-06	FD35-1042-06

FD90 SERIES
DIAGNOSTIC



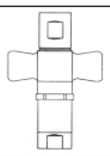
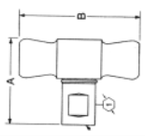
THREAD	RATED FLOW	MAXIMUM WORKING PRESSURE	FEMALE COUPLING HALF	MALE COUPLING HALF	MALE COUPLING HALF WITH CAP	DUST CAP FOR MALE HALF
NPT	(USGPM)	PSI	Part No.	Part No.	Part No.	
1/8-27		7000	FD90-1021-02-04	FD90-1012-02-04		FD90-1040-04
1/4-18		7000	FD90-1021-04-04	FD90-1012-04-04		FD90-1040-04
UNO						
3/8-24		7000		FD90-1044-03-04	FD90-1004-03-04	FD90-1040-04
7/16-20		7000	FD90-1041-04-04	FD90-1044-04-04	FD90-1004-04-04	FD90-1040-04
1/2-20		7000		FD90-1044-05-04	FD90-1004-05-04	FD90-1040-04
9/16-18		7000		FD90-1044-06-04	FD90-1004-06-04	FD90-1040-04

EATON
Powering Business Worldwide

Couplings

5100 SERIES
BRASS
LOW SPILL

Screw together design for low spill fluid transfer.

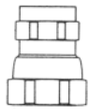
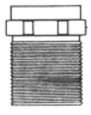


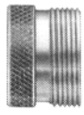
THREAD	RATED FLOW	MAXIMUM WORKING PRESSURE	COMPLETE COUPLING	FEMALE COUPLING HALF	MALE COUPLING HALF	STEEL DUST CAP WITH CHAIN	STEEL DUST PLUG WITH CHAIN	REPAIR KIT (BUNA-N)
NPT	(USGPM)	PSI	Part No.	Part No.	Part No.	Part No.	Part No.	Part No
3/8-18	7	3000	5100-8B*	5100-S5-8B	5100-S2-8B	5100-S7-8	5100-S9-8	FF098-08
1/2-14	18	3000	5100-10B*	5100-S5-10B	5100-S2-10B	5100-S7-12	5100-S9-12	FF098-10
3/4-14	18	3000	5100-12B	5100-S5-12B	5100-S2-12B	5100-S7-12	5100-S9-12	FF098-10
1-11 1/2	40	3000	5100-16B	5100-S5-16B	5100-S2-16B	5100-S7-16	5100-S9-16	FF098-16
1 1/4-11 1/2	75	2750	5100-20B	5100-S5-20B	5100-S2-20B	5100-S7-20	5100-S9-20	FF098-20

*= Note Coupling size and interface size are different.

5400 SERIES
REFRIGERANT

Allows uncoupling of charged systems.

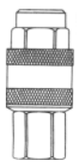



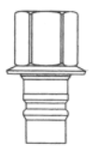


THREAD	RATED FLOW	MAXIMUM WORKING PRESSURE	FEMALE COUPLING HALF	MALE COUPLING HALF	DUST CAP	DUST PLUG		
	(USGPM)	PSI	Part No.	Part No.	Part No.	Part No.		
	2	3000	5400-S5-4	5400-S2-4	5400-S6-4	5400-S8-4		
	14	1750	5400-S5-8	5400-S2-8	5400-S6-8	5400-S8-8		
	35	700	5400-S5-12	5400-S2-12	5400-S6-12	5400-S8-12		
	75	700	5400-S5-16	5400-S2-16	5400-S6-16	5400-S8-16		

FD69 SERIES
WATER BLAST
10,000PSI

Straight through design with 'Arc Latch' retainers.





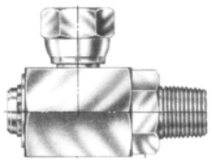
THREAD	RATED FLOW	MAXIMUM WORKING PRESSURE	COMPLETE COUPLING	FEMALE COUPLING HALF	MALE COUPLING HALF			
NPT	(USGPM)	PSI	Part No.	Part No.	Part No.			
1/2-14	45	10000	FD69-1000-080808	FD69-1001-08-08	FD69-1002-08-08			

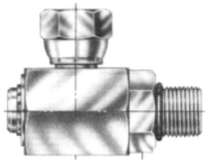
EATON
Powering Business Worldwide

Swivel Joints

FS65000
90 DEGREE
3000 PSI

Pressure balanced.
Buna-N seals.

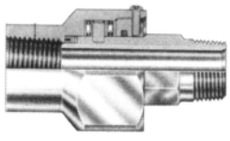




NOMINAL SIZE	THREAD	FEMALE x MALE NPSM x NPT	BODY THREAD	SHAFT THREAD	MALE x MALE JIC x UNO'RING	SEAL KIT
	NPT	Part No.	JIC	UNO'RING	Part No.	Part No.
1/4"	1/4-18	FS65000-0404-01				10-62017-01
3/8"	3/8-18	FS65000-0606-01	3/4-16	3/4-16	FS65009-0808-01	10-62018-01
1/2"	1/2-14	FS65000-0808-01	7/8-14	7/8-14	FS65009-1010-01	10-62019-01
3/4"	3/4-14	FS65000-1212-01	1 1/16-12	1 1/16-12	FS65009-1212-01	10-62020-01
1"	1-11 1/2	FS65000-1616-01				10-62021-01

FS59000
STRAIGHT
5000PSI

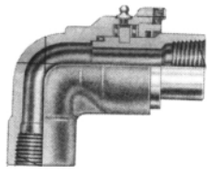
Full flow style with
double roller bearings.



NOMINAL SIZE	THREAD	FEMALE x MALE NPT x NPT	SEAL KIT	SEAL AND BEARING KIT	
	NPT	Part No.	Part No.	Part No.	
1/4"	1/4-18	FS59004-0404-01	FF974-04-01	FF975-04-01	
3/8"	3/8-18	FS59004-0606-75	FF074-06-75	FF975-06-75	
1/2"	1/2-14	FS59004-0808-75	FF974-08-75	FF975-08-75	
3/4"	3/4-14	FS59004-1212-75	FF974-12-75	FF975-12-75	
1"	1-11 1/2	FS59004-1616-75	FF974-16-75	FF975-16-75	

FS59000
90 DEGREE
1000PSI

Low pressure style
suitable for hose reels



NOMINAL SIZE	THREAD	FEMALE x FEMALE NPT x NPT	SEAL KIT		
	NPT	Part No.	Part No.		
1"	1 11 1/2	FS59000-1616-01	FF028-16-01		

EATON
Powering Business Worldwide

Crimp Assembly Equipment

ProCrimp® 1380

The ProCrimp 1380 crimp machine from Eaton crimps all your hose needs up to and including –20 SAE100R12 hose styles and the popular MatchMate Plus hose and fittings program (shown with optional die holder kit FT1380–2–4). The ProCrimp 1380 is electronically controlled to give fast, accurate crimps the first time and every time you need a hose assembly. The electronic keypad is easy to adjust, with up to 10 programmable crimp settings. For hose styles and sizes used less frequently simply enter the 3 digit code of that hose.

Ordering Instructions

FT1380–115 115V crimp machine 60 Hz

FT1380–115–5 2-Wire braid hose package FT1380–115 with the 5 die cages needed to crimp the 5 most popular GH793 or GH781 2-wire hose sizes: –4, –6, –8, –12 and –16
Die Cages
FT1380–200–M150
FT1380–200–M210
FT1380–200–M240
FT1380–200–M320
FT1380–275–M370

FT1380–115–8 Braided and spiral hose package FT1380–115–5 with the 3 additional die cages — capable of crimping all MatchMate Plus hoses through –20
Die Cages
FT1380–200–M180
FT1380–200–M280
FT1380–275–M465
* Must also order FT1380-275-M420 to crimp GH194-20 and GH663-20

FT1380–2–3 FT1330 to FT1380 Die Cage conversion kit — back plate, bolts and instructions necessary to convert an FT1330 die cage to an FT1380 die cage. Simply remove the FT1330 back plate and replace it with the new FT1380 back plate.

FT1380–2–4 Optional die holder kit — Kit includes 4 die holder plates each of which will hold 2 die cages. Holes are pre-drilled on base of ProCrimp machine to accept these 4 plates.

FT1380-4 Optional fitting backstop-kit includes backstop and 5/32" hex wrench. The backstop allows the 1380 to crimp PTFE hose and be utilized for a fitting locator to increase efficiency.

Electrical Requirements

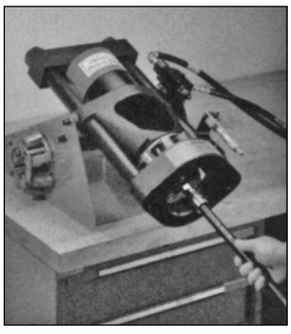
USA: FT1380–115 standard machine uses 115V, 60 Hz, 1.5 hp

Brazil: FT1380–1–2 standard machine uses 230V, 60 Hz, 1 hp

Australia: FT1380–230 standard machine uses 230V, 50 Hz, 1 hp

Canada: FT1380–115 standard machine. Requires CSA (Canadian Standards Association) approval. The FT1380–115 is CSA approved and is so noted on the nameplate.

ProCrimp® 1380P



Perfect for maintenance and repair of all your hose needs and designed to be used in remote or portable stations, the ProCrimp 1380P will handle through -20 SAE100R12 hose and fittings. All die cages, crimp diameters and approved hose and fitting combinations are identical to Eaton's popular FT1380 crimper. Crimp diameters are controlled using a micrometer and specially designed hydraulic circuit that allows for precise and adjustable finished crimp diameters.

The ProCrimp 1380P may be ordered separately or with your choice of three power options, including a high volume hand pump, an Air/Hydraulic power unit or a 12-volt DC power unit.

Ordering Instructions

FT1380P-1-1 Machine with hand pump

FT1380P-1-1-5 Machine with hand pump and 5 die cages

FT1380P-1-1-8 Machine with hand pump and 8 die cages

FT1380P-1-2 Machine with Air/Hydraulic pump

FT1380P-1-2-5 Machine with Air/Hydraulic pump and 5 die cages

FT1380P-1-2-8 Machine with Air/Hydraulic pump and 8 die cages

FT1380P-1-3 Machine only

FT1380P-1-3-5 Machine with 5 die cages

FT1380P-1-3-8 Machine with 8 die cages

FT1380P-1-4 Machine with 12 volt DC pump

FT1380P-1-4-5 Machine with 12 volt DC pump and 5 die cages

FT1380P-1-4-8 Machine with 12 volt DC pump and 8 die cages

FT1380-4 Optional fitting backstop-kit includes backstop and 5/32" hex wrench. The backstop allows the 1380P to crimp PTFE hose and be utilized for a fitting locator to increase efficiency.

5 die cages	8 die cages
FT1380-200-M150	Include the 5 die cages plus:
FT1380-200-M210	FT1380-200-M180
FT1380-200-M240	FT1380-200-M280
FT1380-200-M320	FT1380-275-M465
FT1380-275-M370	

Powering Business Worldwide

ET1000 Portable, Light Duty, Positive Stop Crimp Machine

Eaton is proud to add the ET1000 crimp machine to its line of portable crimpers. While being our most economical crimp machine to-date, the new ET1000 machine boasts a broad crimp capability with an ease-of-use that is sure to please hose assemblers.

This new crimp machine has been approved to crimp:

- All 1-wire and 2-wire braided MatchMate Plus hoses in sizes 1/4" through 1 1/4" using MatchMate Plus TTC fittings.
- All 4-wire spiral MatchMate Plus hoses in sizes 3/8" through 1", using MatchMate Plus TTC12 fittings.

The new ET1000 crimp machine builds on the success of the prior FT1370 portable crimp machine by using the same basic frame and construction design, but employs a 2-piece split half collet assembly in lieu of the traditional ProCrimp die cages. The correct hose assembly crimp diameter is obtained by the use of a spacer ring that controls the stroke length of the cylinder during the crimping operation.

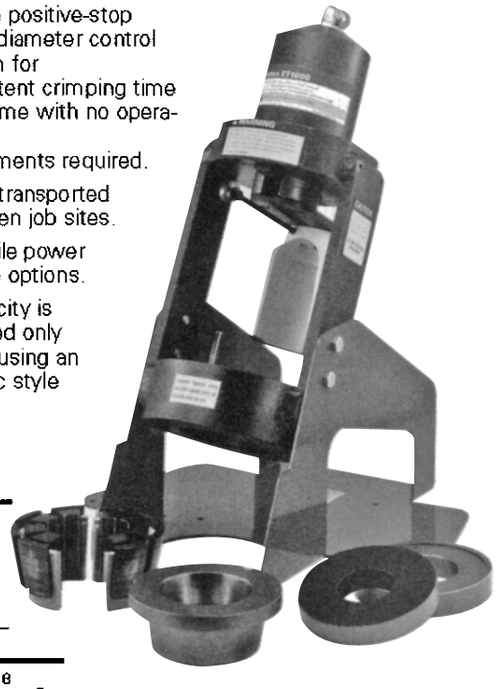
This new crimp machine may be ordered separately or with one of four power supplies: hand-pump, air/hydraulic pump, 12-volt DC power unit, or a 110-volt AC power unit.

Features

- Pusher slides out of position.
- Compatible with the Aeroquip MatchMate Plus hose and fittings.
- Can be mounted on service vehicles due to its portable design.
- Can be powered with virtually any 10,000 psi hydraulic power source (min. 36 cubic inch pump reservoir capacity).
- Utilizes 2-piece collet assemblies.
- Spacer rings control the crimp diameter.

Benefits

- Sliding pusher allows for easier fitting insertion into the machine.
- Simple positive-stop crimp diameter control system for consistent crimping time after time with no operator adjustments required.
- Easily transported between job sites.
- Versatile power source options.
- Electricity is required only when using an electric style pump.



Specifications

Dimensions-22 inches high, 16 inches wide, 14 inches in depth
Weight 70 lbs. (without pump)

ET1000 Crimp Machine Part Numbers

For tooling and crimping information, refer to the Collet/Spacer Ring Selector Chart, A-EQCR-MG001-E.

All part numbers include the basic crimp machine.

ET1000-001 = No pump, no tooling (basic machine only)
ET1000-002 = Hand-pump, no tooling
ET1000-003 = Air/hydraulic pump, no tooling
ET1000-004 = 110 volt 1/2HP electric pump, no tooling
ET1000-005 = 12 V DC pump, no tooling

ET1000 Crimp Machine Package Part Numbers

These machine packaged part numbers offer a variety of pumps with the same tooling package including all collets and spacer rings to crimp:

1-wire and 2-wire braided MatchMate Plus Hoses (sizes 1/4" through 1 1/4") using TTC fittings
GH493, 4-wire spiral MatchMate Plus Hose (sizes 3/8" through 1") using TTC12 fittings

ET1000-006 = No pump, but includes complete MatchMate Plus Collet and Spacer Ring Tooling package described above
ET1000-007 = Air/hydraulic pump, and complete MatchMate Plus Collet and Spacer Ring Tooling package described above
ET1000-008 = 110 Volt electric pump, and complete MatchMate Plus Collet and Spacer Ring Tooling package described above
ET1000-009 = 2-Stage hand pump, and complete MatchMate Plus Collet and Spacer Ring Tooling package described above
ET1000-010 = 12 Volt DC pump, and complete MatchMate Plus Collet and Spacer Ring Tooling package described above

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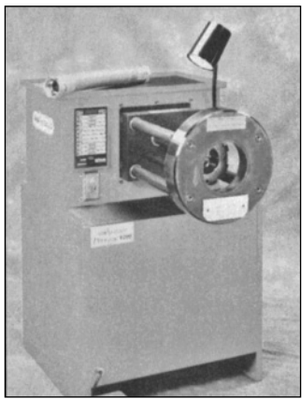
ProCrimp® 1390



Crimped hose assembly machine

Hose Specifications

All styles from 3/16" through 2" I.D. including four and six spiral wire requiring internal skive crimp style fittings.

Features

- Front-end loading design
- Electronic key pad control of crimp diameter
- Power return stroke, return limit control
- Drop-in tooling (crimp die cages)
- Backstop fitting locator
- Width 29", Depth 28", Height 49", Weight 825 lbs.
- Worklamp

Ordering Instructions

FT1390–115	Aeroquip crimp machine, 115V, single phase, 60 Hz, 1 hp motor
FT1390–115–12	Kit includes FT1390-115 machine plus the die cages to crimp –4 through –32 MatchMate Plus fittings.
FT1092	NEVER-SEEZ lubricant

Electrical Requirements

Standard

115V, single phase, 60 Hz, 1 hp.

Optional 230 Volt Machines

FT1390–23050	230V, single phase, 50 Hz crimp machine
FT1390–23050-12	FT1390–23050 with 12 die cages.
FT1390–23060	230V, single phase, 60 Hz crimp machine
FT1390–23060-12	FT1390–23060 with 12 die cages.

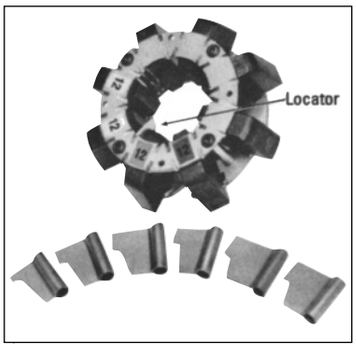
Crimp Die Cages

Eaton crimp die cages provide simple "drop-in" tooling for the FT1390 crimp machine. See Crimp Die Cage Applications chart or contact Eaton. Refer to website for current crimp specifications.

Crimp Die Cage Storage Cabinet

Eaton recommends crimp die cages be kept free of dust or dirt. As an option, a cabinet is offered which has the capability of storing nine crimp die cages. Order by part number FT1283.

MatchMate Plus fitting locators



For use with FT1380 and FT1330 "M" Series die cages

Consistent crimping of MatchMate Plus fittings is greatly simplified when using new fitting locators. The locators are designed for easy installation and use on the Eaton FT1380 or FT1330 "M" series die cages noted below.

Ordering Instructions

The locator kits can be ordered as part number FT1330–XL. Each kit contains locators to accommodate -4, -6, -8, -10, -12 and -16 MatchMate Plus fittings and installation instructions.

		MatchMate Plus Hoses			
Locator Suffix	**Die Cage Suffix**	**GH663, GH194**	**GH793, GH195**	**GH781**	**GH493**
–4, –4P	–M150	–4	–4	–4	
–6, –6P	–M180	–6			
	–M210		–6	–6	–6
–8, –8P	–M240	–8	–8	–8	
–10, –10P	–M280		–10	–10	–8
–12, –12P	–M320	–12	–12	–12	–12
–16	–M370	–16	–16	–16	–16
None required	–M465		–20	–20	–20

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Crimp Cages for FT1380

M-Series Crimp Die Cage Applications

Die Cage Part Number	Crimp Range mm	Crimp Range in
FT1380–275–M070	7,0 to 9,0	0.28 to 0.35
FT1380–275–M090	9,0 to 12,0	0.35 to 0.47
FT1380–275–M120	12,0 to 15,0	0.47 to 0.59
FT1380–200–M150*†	15,0 to 18,0	0.59 to 0.71
FT1380–200–M180*†	18,0 to 21,0	0.71 to 0.83
FT1380–200–M210*†	21,0 to 24,0	0.83 to 0.95
FT1380–200–M240*†	24,0 to 28,0	0.95 to 1.10
FT1380–200–M280*†	28,0 to 32,0	1.10 to 1.26
FT1380–200–M320*†	32,0 to 37,0	1.26 to 1.46
FT1380–275–M370*	37,0 to 42,0	1.46 to 1.66
FT1380–275–M420	42,0 to 46,5	1.66 to 1.83
FT1380–275–M465*	46,5 to 52,0	1.83 to 2.05

†Can be ordered as FT1380-275-SIZE for tool steel dies vs. powdered metal dies.
**FT1380–115–8 kit includes these 8 die cages.*

NOTE: Additional dies and die cage assemblies also available.
Refer to website or contact Eaton.

Hose Styles

- Smooth Bore PTFE
- SAE100R1AT
- SAE100R2AT
- HI-PAC
- SAE100R6
- SAE100R8
- SAE100R17
- Convoluted PTFE
- SAE100R1
- SAE100R2A
- SAE100R4
- SAE100R7
- SAE100R12
- Polyon

For crimp specifications on Global Skive type fittings and Global TTC & TTC12 refer to website or contact Eaton for specialty hoses.

Barrel Crimp Die Cage Applications

Die Cage Part Number	Hose Size	Hose Styles
FT1380-275-R5-04	-04	SAE100R5
FT1380-275-R5-05	-05	
FT1380-275-R5-06	-06	
FT1380-275-R5-08	-08	
FT1380-275-R5-10	-10	
FT1380-275-R5-12	-12	
FT1380-275-R5-16	-16	
FT1380-275-R5-20	-20	

Die Cage Repair Kit *Complete kit, less dies.*

To Repair	Order
FT1380–200–size	FT1380–2–9
FT1380–275–size	FT1380–2–9
FT1380–201–size	FT1380–2–9A

Tooling Compatability Chart

Crimp Machines

	FT1008	FT1049	FT1204	FT1208	FT1209	FT1244	FT1307	FT1310	FT1320	FT1330	FT1340	FT1360	FT1370	FT1380	FT1380P	FT1390	ET1000
FT1008-100-Size	X																
FT1049-100-Size		X															
FT1204-100-Size			X		X'	X	X'				X'	X'				X'	
FT1208-100-Size				X													
FT1209-200-Size					X		X				X	X				X	
FT1307-200-Size					X		X				X	X				X	
FT1310-200-Size								X									
FT1330-200-Size									X	X							
FT1330-275-Size									X	X							
FT1380-200-Size													X	X	X		
FT1380-201-Size													X	X	X		
FT1380-275-Size													X	X	X		
FT1390-200-Size					X		X				X	X				X	
ET1000-Size																	X

' Individual dies. Requires the use of die cage kit FT1307-2-9 or removable die cage FT1307-2-13.

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Crimp Cages for FT1390

FT1307-200-Size, FT1209-200-Size & FT1390-200-Size die cages can be used in the FT1390 crimp machine.

Die Cage Part Number	Crimp Range mm	Crimp Range in
FT1307–200–M070	7,0 to 9,0	0.28 to 0.35
FT1307–200–M090	9,0 to 12,0	0.35 to 0.47
FT1307–200-M120	12,0 to 15,0	0.47 to 0.59
FT1307–200–M150*	15,0 to 18,0	0.59 to 0.71
FT1307–200–M180*	18,0 to 21,0	0.71 to 0.83
FT1307–200–M210*	21,0 to 24,0	0.83 to 0.95
FT1307–200–M240*	24,0 to 28,0	0.95 to 1.10
FT1307–200–M280*	28,0 to 32,0	1.10 to 1.26
FT1307–200–M320*	32,0 to 37,0	1.26 to 1.46
FT1307–200–M370*	37,0 to 42,0	1.46 to 1.66
FT1307–200–M420*	42,0 to 46,5	1.66 to 1.83
FT1307–200–M465*	46,5 to 52,0	1.83 to 2.05
FT1307–200–M520*	52,0 to 55,0	2.05 to 2.17
FT1307–200–M550*	55,0 to 69,0	2.17 to 2.71
FT1307–200–M690*	69,0 to 73,0	2.72 to 2.87

†Can be ordered as FT1380-275-SIZE for tool steel dies vs. powdered metal dies.
**FT1390–115–12 kit includes these 12 die cages.*

NOTE: Additional dies and die cage assemblies also available. Refer to website or contact Eaton.

NOTE: FT1209-200-Size & FT1390-200-Size are for use with internal skive and Global Spiral TTC fittings (SAE100R11 & SAE100R13 hose styles).

NOTE: FT1390-200-Size dies cages are hinged to allow ease of use when crimping large elbows.

NOTE: All dies are machined from tool steel.

Hose Styles

- Smooth Bore PTFE
- Polyon
- SAE100R1
- SAE100R2A
- SAE100R4
- SAE100R7
- SAE100R12
- Convoluted PTFE
- SAE100R1AT
- SAE100R2AT
- HI-PAC
- SAE100R6
- SAE100R8
- SAE100R17

For crimp specifications on Global Skive type fittings and Global TTC & TTC12 refer to website or contact Eaton for specialty hoses.

Barrel Crimp Die Cage Applications

Die Cage Part Number	Hose Size	Hose Styles
FT1307–200-R5-04	-04	SAE100R5
FT1307–200-R5-05	-05	
FT1307–200-R5-06	-06	
FT1307–200-R5-08	-08	
FT1307–200-R5-10	-10	
FT1307–200-R5-12	-12	
FT1307–200-R5-16	-16	
FT1307–200-R5-20	-20	
FT1307–200-R5-24	-24	
FT1307–200-R5-32	-32	

Die Cage Repair Kit *Complete kit, less dies.*

To Repair	Order
FT1307–200–size	FT1307–2–9
FT1390–200–size	FT1390–2–9
FT1209–200–size	FT1209–2–9

Crimp Collets and Spacers for ET1000

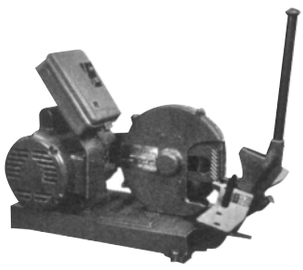
Collet Part Numbers
ET1000DC-M150S
ET1000DC-M195S
ET1000DC-M230S
ET1000DC-M250S
ET1000DC-M295S
ET1000DC-M320S
ET1000DC-M390S
ET1000DC-M430S
ET1000DC-M475S

Spacer Ring Part Numbers	
ET1000SR-M115D	(Yellow)
ET1000SR-M265D	(Black)
ET1000SR-M395D	(Silver)
ET1000SR-M190D	(Lt. Green)
T-400-37	(Green)
T-400-38	(Red)
ET1000SR-M100A	(Purple)
ET1000SR-M315A	(Orange)
T-400-112	(Tan)

Accessory Part Numbers
1.5 oz. tube of high efficiency PTFE grease = 140-06701

Die Ring Adapter - For Smaller Collets
ET1000AR-001

S1104
Hose cut off machine



Hose Specifications

- Single and Double Wire Reinforced, 1/4" to 3" I.D.
- Four and Six Spiral Wire Reinforced, 1/4" to 1 1/2" I.D. with optional blades FT1101–1 and FT1101–2, spiral wire capacity is increased to 2"

Features

- Compact, 22" x 24"
- Light, 130 lbs.
- Dual V-belt drive
- 10" cutting blade
- U.L. listed

**A 3 hp, 230V AC, single phase machine is also available but not recommended because of reduced torque and less capability when cutting larger size hose. Order by part number S1104–230.*

Electrical Requirements

3 hp, 230/460V, 3 phase, 60 Hz.

Machine wired for 230V AC. Change connections as shown on motor plate for 460V. Also, replace 230V motor heater with 460V motor heater included with machine.

Ordering Instructions

Machine:

S1104 Basic machine, 230/460V, 3 phase, 60 Hz

S1026 Hose measuring gauge attachment

FT1215 Hose reel attachment

S1118 Coolant spray system (required when cutting spiral wire hose)

SC1709 10" Replacement cutting blade

SC1772 Welded steel table

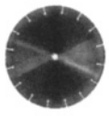
Optional Cutting Blades

FT1101–1

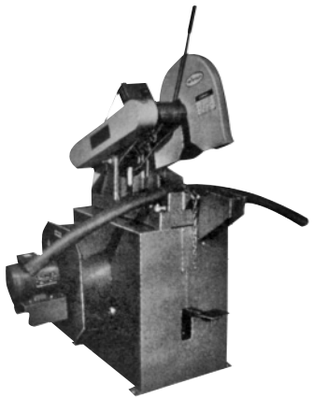
10" Scalloped Blade

FT1101–2

10" Abrasive Blade



FT1260
Hose cut off machine



Hose Specifications

- All Hose Constructions – 1/4" to 4" I.D.

Features

- Built in safety features
- Easy to operate
- 16" abrasive wheel
- Heavy duty design
- Low maintenance
- V shaped vise
- U.L. listed

Ordering Instructions

Machine:

FT1260–1–1 Base machine with stand. 230/460V, 3 phase, 60 Hz

FT1260–1–2 Base machine with stand and fume exhauster. 230/460V, 3 phase 60 Hz

FT1260–1–3 Base machine with stand. 230V, single phase, 60 Hz

FT1260–1–4 Base machine with stand and fume exhauster. 230V, single phase, 60 Hz

FT1260–2–5 Optional hood (can be used only with the –1–2 and the –1–4 models) Eaton recommends the use of FT1260–2–5, optional hood.

Replacement Components:

FT1260–3–1
Replacement 16" fiberglass reinforced abrasive wheel

Electrical Requirements

Electrical requirements will vary depending on options selected.

Contact Eaton for additional information.

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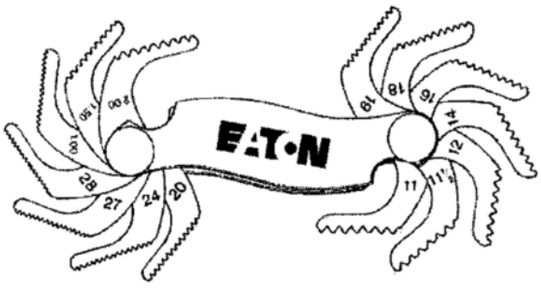
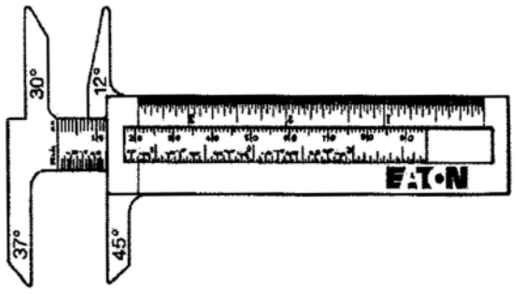
Powering Business Worldwide

Appendices Index

Alphabetical Index





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Hose Dash Size to Maximum Operating Pressure

Pressures expressed in psi/bar.

See pages 349-355 for Fluid Compatibility

Hose tube identification chart

1. Synthetic rubber
2. PTFE
3. Thermoplastic
4. AQP
5. Special application hose
6. EPDM

HOSE TO FITTING PAGE REFERENCE CHART

Hose Part Number	Page	Tube	Hose -02	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32	-40	-48
FC252	0	5					50/3	50/3	40/3	40/3	35/2					
FC352*	0	5						100/7	100/7	100/7	90/6	85/6	85/6	75/5	60/4	50/3
2550	0	5					225/16									
2554	0	5					225/16									
2570	0	5					225/16	225/16	225/16							
FC829	0	6						225/16								
FC629	0	1					225/16	225/16								
2575	0	1			250/17		250/17	250/17	200/14	200/12						
FC647	0	1			360/25		300/21	300/21	250/17	250/17						
2556	0	1			360/25		300/21	300/21	250/17	250/17						
FC332	0	4			250/17		250/17	250/17	250/17	250/17						
2565	0	1			300/21		250/17	200/14	175/12	125/9						
1531	0	5							300/21	300/21	300/21	300/21				
1531A	0	5											300/21			
2661*	0	4								300/21††	250/17††	200/14††	150/10††	100/7††	62/4	56/4
FC619	0	1								300/21††	250/17††	200/14††	150/10††	100/7††	62/4	56/4
CR170	0	5			350/24		350/24	350/24		350/24						
FC321	0	5			350/24	350/24	350/24	350/24	350/24	350/24	350/24					
FC498	0	4			400/28		400/28	400/28	350/24	350/24						
FC598	0	4			400/28		400/28	400/28	350/24	350/24						
FC466	0	1			400/28		400/28	400/28	350/24	350/24						
FC699	0	5			400/28		400/28	400/28	350/24	350/24	250/17					
302A	0	1									800/55	600/41	500/34	350/24		
2580	0	1			1000/69	800/55	650/45	625/43	600/41	550/38	500/34	450/31	400/28	350/24		
2583	0	1			1250/86		1125/78	1000/69		750/52	565/39	375/26				
FC650	0	4			1000/69		1000/69	1000/69	1000/69	1000/69						
FC364	0	2						1250/86		1100/76	1000/69	1000/69	750/52	500/34	100/7	100/7
FC363	0	2						1250/86		1100/76	1000/69	1000/69	750/52	500/34		
FC355	0	4			1500/103	1500/103	1500/103	1250/86	1250/86	750/52	400/28	300/21	250/17	200/14		
FC234	0	5				1500/103	1500/103	1250/86	1250/86	750/52	400/28					
FC350	0	4			2000/138	1500/103	1500/103	1250/86	1250/86	750/52	400/28	300/21	250/17			
FC563	0	2						1250/86		1100/76	1000/69	1000/69	750/52	500/34		
2808	0	2						2750/190	2500/172	1750/121	1500/103	1125/78	800/55			
FC211	0	1			2750/190		2250/155	2000/138		1250/86	1000/69					
FC465	0	2		3000/207	3000/207	3000/207	2500/172	2000/138	1500/103	1200/83	1000/69	625/43				
2807	0	2		3000/207	3000/207	3000/207	2500/172	2000/138	1500/103	1200/83	1000/69	625/43				
FC807	0	2			3000/207	3000/207	2500/172	2000/138	1500/103	1200/83	1000/69					
FC300	0	4			3000/207	3000/207	2250/155	2000/138	1750/121	1500/103	800/55	625/43	500/34	300/21	300/21	
FC611	0	6			3000/207		2250/155	2000/138		1250/86	1000/69	625/43	500/34	375/26		
1503	0	1			3000/207	3000/207	2250/155	2000/138	1750/121	1500/103	800/55	625/43	500/34	350/24	350/24	
2651	0	1			3000/207	3000/207	2250/155	2000/138	1750/121	1500/103	800/55	625/43	500/34	350/24	350/24	
303	0	1			3000/207	3000/207	2000/138	2000/138	1750/121	1500/103						
FC639/ FC839B	0	1			3000/207		3000/207	3000/207	3000/207	3000/207	3000/207					

† Pressure rating with reusable style fittings.
‡ Pressure rating with Global crimp style fittings.
§ 10,000 psi for static jack hose applications. See hose page for details.
¥ 10,000 psi for water blast applications. See hose page for details.
* See hose page for dash sizes not listed.
†† 50 psi max with band clamp style fittings.

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Hose Dash Size to Maximum Operating Pressure

Pressures expressed in psi/bar.

This table is intended as a guide in the selection of hose by maximum operating pressure. It is not a guarantee. Final selection is further dependent on fluid and ambient temperature, concentration of fluid, intermittent or continuous exposure, etc.

For further details on a specific hose see the respective catalog pages or contact Eaton Corporation at 14615 Lone Oak Road, Eden Prairie, MN 55344 USA 952/937-9800.

HOSE TO FITTING PAGE REFERENCE CHART

Hose Part Number	Page	Tube	Hose -02	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32	-40	-48
GH681	0	1			3000/207		3000/207	3000/207								
FC194	0	4			3250/224		3000/207	2500/172	2000/138	1750/121	1250/86	900/62				
GH194	0	4			3250/224		3000/207	2500/172	2000/138	1800/124	1300/90	900/62				
GH663	0	1			3250/224		3000/207	2500/172		1800/124	1300/90	950/66	725/50	580/40		
					2750/190†		2250/155†	2000/138†		1250/86†	1000/69†					
2681	0	1		4000/276	3250/224	3250/224	3000/207	2500/172	2000/138	1800/124	1300/90	900/62	700/48	600		
GH493	0	1					4000/276	4000/276	4000/276	4000/276	4000/276	3000/207	2500/172	2500/172		
FC323	0	4								3000/207	3000/207	3000/207	3000/207	3000/207		
FC324	0	4						4000/276		4000/276	4000/276					
FC469	0	2						4000/276	4000/276	3500/241						
FC849/ FC849B	0	0			4000/276		4000/276	4000/276	4000/276	4000/276						
FC212	0	1			5000/345		4000/276	3500/241		2250/155	2000/138	1625/112	1250/86	1125/78		
FC310	0	1			5000/345		4000/276	3500/241	2750/190	2250/155	2000/138	1625/112				
FC693	0	6			5000/345		4000/276	3500/241								
GH120	0	1			5000/345		4000/276	3500/241	2750/190	2250/155	2000/138	1625/112	1250/86	1125/78		
FC510	0	4			5000/345		4000/276	3500/241	2750/190	2250/155	2000/138	1625/112				
FC325	0	4								5000/345	5000/345					
FC273/ FC273B	0	1								5000/345	5000/345	5000/345	5000/345	5000/345		
FC659	0	1					4000/276	4000/276	4000/276	4000/276	4000/276	3000/207	2500/172	2500/172		
FC136	0	1					5500/379§ 4000/276‡	5000/345 4000/276‡	5000/345 4000/276‡	4000/276	4000/276	3000/207	2500/172	2500/172		
FC636	0	6								4000/276	4000/276	3000/207	2500/172			
FC735	0	1			5000/345		5000/345	4250/293	3625/250	3125/216	2500/172	2250/155				
FC736	0	1					5500/379	5000/345	5000/345	4000/276	4000/276	3000/207	2500/172	2500/172		
							4000/276‡	4000/276‡	4000/276‡							
2766	0	1			5000/345		4000/276	3500/241		2250/155	2000/138	1625/112	1250/86	1000/69		
2781	0	1			5000/345		4000/276	3500/241	3250/224	3000/207	2000/138	1625/112	1750/121	1250/86		
					5750/397‡		5000/345‡	4250/293‡	3625/250‡	3125/216‡	2500/172‡	2250/155‡	1800/124‡	1500/103‡		
FC195	0	4			5000/345		4000/276	3500/241	2750/190	3000/207	2000/138	1625/112	1750/121	1250/86		
					5750/397‡		5000/345‡	4250/293‡	3250/224‡	3125/216‡	2500/172‡	2250/155‡	1800/124‡	1500/103‡		
GH195	0	4			5750/397		5000/345	4250/293	3250/224	3000/207	2500/172	2250/155	1750/121	1500/103		
GH781	0	1			5750/400		5000/345	4250/293	3625/250	3125/216	2500/172	2250/155	1800/124	1300/90		
GH793	0	1			5750/397		5000/345	4250/293	3625/250	3125/216	2500/172	2250/155	1800/124	1300/90		
					5000/345†		4000/276†	3500/241†	2750/190†	2250/155†	2000/138†					
GH506	0	1								6090/420	5510/380	5075/350	4250/293	3625/250		
FC254	0	1						7500/517¥		6250/431	5000/345	4000/276	3000/207	3000/207		
GH466	0	1										5510/380				
FC606/ FC606B	0	1									6000/414	6000/414	6000/414			
FC579***	0	1			10000/690§		10000/690§									

† Pressure rating with reuseable style fittings.
‡ Pressure rating with Global crimp style fittings.
§ 10,000 psi for static jack hose applications. See hose page for details.
¥ 10,000 psi for water blast applications. See hose page for details.
* See hose page for dash sizes not listed.
†† 50 psi max with band clamp style fittings.

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Agency Listings

Government Agencies

DOT/FMVSS – US Department of Transportation, Federal Motor Vehicle Safety Standard

FDA – US Food and Drug Administration (tubes only)

MIL/DOD – US Military Specification, Dept. of Defense

MSHA – US Mine Safety and Health Administration

USCG/MMT – US Coast Guard, Merchant Marine Technical (SAE J1942 has replaced USCG approval)

DNV – Det Norske (Norwegian) Veritas

CGA – Canadian Gas Association

The listings below are intended only as guides in identifying which Aeroquip hoses comply with requirements of various agencies. For current and complete information, contact Eaton.

Industry Agencies

AAR – American Association of Railroads

DIN – Deutsche (German) Industrial Norme (Replaced by EN)

EN – Committee for European Normalization

ABS– American Bureau of Shipping

SAE – Society of Automotive Engineers

UL – Underwriters Laboratories

ISO – International Standards Organization

★ = Approved details available from Eaton

*Listing may vary by hose style and size, some hoses may require firesleeve or special procedures depending on specific applications, contact Eaton for details.

		GOVERNMENT							INDUSTRY						
Hose Part Number	Page	DOT/ FMVSS	CGA	DNV	FDA*	MIL/ DOD	MSHA	USCG/ MMT*	ISO	EN	DIN	AAR	ABS	SAE	UL
1503	0	106 Type All		★				★						100R5, J1402	
1531	0											M618			
1531A	0											M618			
2550	0	106 Type All						★						J1402	
2554															
2556	0			★			★								
2565	0					MIL-H-13444 Type I									
2570	0	106 Type All						★						J1402	
2580	0					MIL-H-24136/3	★	★							
2583	0			★			★			EN 854 Type R3				100R3	
2651	0			★			★	★					★		
2661	0						★	★					★+	100R4	
2681	0			★			★	★	1436 Type 1ST	EN 853 Type 1ST	20 022 Type 1ST			100R1A	
2781	0			★			★	★	1436 Type 1ST	EN 853 Type 2ST	20 022 Type 2ST			100R2A	
2807	0			★				★					★	100R14A	
2808	0							★					★		
302A	0					MIL-DTL-8794									
303	0					MIL-DTL-8794									
CR170	0		Type III												
FC136	0			★			★	★	3862 Type R12	EN 856 Type R12			★	100R12	
FC194	0			★+			★	★	1436 Type 1ST	EN 856 Type 1ST	20 022 Type 1ST			100R1A, J1019	
FC195	0						★	★	1436 Type 2ST	EN 856 Type 1ST	20 022 Type 1ST			100R2A	
FC211	0						★	★	1436 Type R1AT					100R2AT	
FC212	0						★	★	1436 Type R1AT					100R2AT	
FC234	0			★			★	★					★	J1527 Type A1	
FC252	0														

★ = Approved details available from Eaton
§ = In size -04 meets ISO 1436 Type R2AT
+ = Firesleeve required. Contact Eaton for details.
‡ = Does not meet in -04 size

Agency Listings

		GOVERNMENT							INDUSTRY						
Hose Part Number	Page	DOT/ FMVSS	CGA	DNV	FDA*	MIL/ DOD	MSHA	USCG/ MMT*	ISO	EN	DIN	AAR	ABS	SAE	UL
FC254	0			★			★	★					★	100R11	
FC273	0			★			★	★	3862 Type R13	EN 856 Type R13			★	100R13	
FC273B	0								3862 Type R13	EN 856 Type R13				100R13	
FC300	0	106 Type All		★				★					★	100R5, J1019, J1402	
FC310	0						★	★		EN 857 Type 1SC			★	100R16	
FC321	0														UL21
FC323	0						★	★					★	100R11, 100R12	
FC324	0							★	★	EN 856	Type R12		★	100R12	
FC325	0						★	★		EN 856 Type R13				100R13	
FC332	0												★+		
FC350	0	106 Type All		★+				★	★				★	J1402	
FC352	0													20R1	
FC355	0	106 Type All											★	J1402	
FC363	0				★			★							
FC364	0				★										
FC465	0													100R14B	
FC466	0									EN 854 Type R6				100R6	
FC469	0														
FC498	0						★			EN 854 Type R6				100R6	
FC510	0						★	★		EN 857 Type 1SC				100R2AT	
FC555	0														
FC558	0													J2064 Type B Class 1	
FC563	0														
FC579	0						★								
FC598	0													100R6	
FC606	0						★			3862 Type R15			★	100R15	
FC606B	0									3862 Type R15				100R15	
FC611	0														
FC619	0				★		★						★+	100R4	
FC629	0	106 Type All												J1402	
FC636	0														
FC639	0						★						★	100R17	
FC647	0														
FC650	0														

★ = Approved details available from Eaton.
+ Firesleeve required. Contact Eaton for details.
‡Applies only to hose that has suffered no damage, has been properly assembled with hose guards and tested to required proof test pressure.

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Agency Listings

		GOVERNMENT							INDUSTRY						
Hose Part Number	Page	DOT/ FMVSS	CGA	DNV	FDA*	MIL/ DOD	MSHA	USCG/ MMT*	ISO	EN	DIN	AAR	ABS	SAE	UL
FC659	0			★			★	★		E3862 Type R12	EN 856 Type R12		★	100R12	
FC693	0														
FC699	0														
FC735	0									1436 Type 2SN§	20 022 Type 2SN	‡		100R16	
FC736	0									3862 Type R12	EN856 Type R12			100R12	
FC807	0													100R14A	
FC829	0	106 Type All											J1420		
FC839B	0													100R17	
FC849	0						★	★					★		
FC849B	0														
GH120	0						★							100R16	
GH194	0			★+			★		1436 Type 1SN	EN 853 Type 1SN	20 022 Type 1SN		★	100R1AT	
GH195	0						★	★	1436 Type 2SN	EN 853 Type 2SN	20 022 Type 2SN		★	100R2AT	
GH466	0						★								
GH493	0			★			★	★	3862 Type R12	EN 853 TypeR12			★	100R12	
GH506	0			★			★		3862 Type 4SH	EN856 Type 4SH	20 023 Type T2				
GH663	0			★			★	★††	1436 Type 1SN	EN 853 Type 1SN	20 022 Type 1SN		★	100R1AT	
GH681	0						★				DIN20022 Type 1				
GH781	0			★			★	★		EN 853 Type 2SC			★	100R16	
GH793	0			★			★	★	1436 Type 2SN	EN 853 Type 2SN	20 022 Type 2SN		★	100R2AT	

★ = Approved details available from Eaton.
+ Firesleeve required. Contact Eaton for details.
†† = -4 thru -16 only

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Fluid Compatibility

Fluid compatibility

This chart indicates the suitability of various elastomers and metals for use with fluids to be conveyed. It is intended as a guide only and is not a guarantee. Final selection of the proper hose style, seal, or material of metal components is further dependent on many factors including pressure, fluid and ambient temperature, concentration, duration of exposure, etc.

How to use the chart

1. The chart has separate sections for rating elastomers for use as hose inner tubes and as seals. Ratings for a given elastomer may not always be the same in both sections.

2. Both the elastomer and the metal must be considered when determining suitability of a combination for a hose assembly, adapter with o-ring, swivel joint or coupling.

3. Locate the fluid to be conveyed and determine the suitability of the elastomeric and metal components according to the resistance ratings shown for each.

4. Specific hose part numbers can be found under the inner tube material groupings in the Hose Tube Identification Chart below.

5. Dimensional and operating specifications for each hose can be found on the catalog pages shown with each hose part number.

6. Information on o-rings and seal options for swivel joints and couplings, and how to specify them, are shown in the respective sections of this catalog.

7. For further details on the products shown in this catalog, and their applications, contact:

Eaton
14615 Lone Oak Road
Eden Prairie, MN 55344
USA
952/937-9800;
Fax: 952/974-7722
www.hydraulics.eaton.com

Resistance key rating

E = Excellent – Fluid has little or no effect.

G = Good – Fluid has minor to moderate effect.

C = Conditional – Service conditions should be described to Eaton Aeroquip for determination of suitability for application.

U = UNSATISFACTORY

The differences between ratings "E" and "G" are relative. Both indicate satisfactory service. Where there is a choice, the materials rated "E" may be expected to give better or longer service than those rated "G".

NOTE: Special precautions are necessary in gaseous applications due to the potential volume of gaseous fluid in the system. Unless the cover is perforated, hose styles with rubber or thermoplastic covers are not suitable for gases above 250 psi. Hose styles with perforated covers are so noted in their construction descriptions.

⚠ WARNING
Compatibility of hose fittings with conveyed fluid is an essential factor in avoiding chemical reactions that may result in release of fluids or failure of the connection with the potential of causing severe personal injury or property damage.

Hose tube identification chart

1. Nitrile				
302A (p.26)	FC136 (p.52)	FC619 (p.34)	GH120 (p.45)	
303 (p.26)	FC211 (p.38)	FC639/ (p.42)	GH466 (p.55)	
1503 (p.26)	FC212 (p.44)	FC606 (p.56)	GH493 (p.51)	
2556 (p.34)	FC254 (p.53)	FC647 (p.33)	GH506 (p.55)	
2565 (p.34)	FC273/ (p.54)	FC659 (p.52)	GH663 (p.39)	
2580 (p.37)	FC273B (p.54)	FC735 (p.46)	GH681 (p.42)	
2583 (p.37)	FC310 (p.41)	FC736 (p.53)	GH781 (p.47)	
2651 (p.25)	FC466 (p.35)	FC849/ (p.43)	GH793 (p.48)	
2681 (p.38)	FC579 (p.57)	FC849B (p.44)		
2781 (p.47)		FC849B (p.43)		
2. PTFE				
2807 (p.28)	FC363 (p.31)	FC465 (p.29)	FC563 (p.32)	
2808 (p.30)	FC364 (p.31)	FC469 (p.30)	FC807 (p.29)	
3. Thermoplastic Elastomer				
4. AQP				
2661 (p.35)	FC323 (p.50)	FC350 (p.23)	FC598 (p.36)	
FC194 (p.40)	FC324 (p.50)	FC355 (p.23)	FC650 (p.24)	
FC195 (p.49)	FC325 (p.51)	FC498 (p.36)	FC699 (p.24)	
FC234 (p.25)	FC332 (p.33)	FC510 (p.41)	GH194 (p.39)	
FC300 (p.27)		FC598 (p.36)	GH195 (p.48)	
5. Special Application Hose (Not Included in Fluid Chart)				
FC234	FC650		Fuel	(pp.25, 24)
CR170	FC321		LPG	(pp.27, 28)
1531	1531A		Railroad Air Brake	(p.22)
FC252	FC352	FC629 FC829	Silicone	(p.20)
2550	2554	2570 FC350	Truck Air Brake	(pp.21-23)
6. EPDM Rubber				
FC611 (p.40)	FC636 (p.49)	FC693 (p.46)		

SEAL ELASTOMER DATA

Seal Elastomer	Application Specification	Max. Operating Temperature Range
Buna-N†	none	–40°C to +121°C [–40°F to +250°F]
Neoprene	none	–54°C to +100°C [–65°F to +212°F]
EPR (Ethylene Propylene Rubber)/EPDM	none	–54°C to +149°C [–65°F to +300°F]
Viton*	MIL-R-25897	–29°C to +204°C [–15°F to +400°F]

†Buna-N temperature range -65°F to +225°F. Also per MIL-R-6855.
*Viton is a trademark of E.I. DuPont.

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Fluid Compatibility

E = EXCELLENT
G = GOOD
C = CONDITIONAL
U = UNSATISFACTORY

FLUID	Nitrile 1	PTFE 2	Thermoplastic Elastomer 3	AQP 4	Special Application Hose 5	EPDM 6	Buna-N	Neoprene	EPR	Viton®	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
	HOSE						SEALS						METAL				
Acetaldehyde	U	E	C	U		G	U	C	C	U	U	G	G	E	E	E	E
Acetic Acid, 10%	U	E	C	C		E	U	U	E	G	U	C	U	U	C	C	U
Acetic Acid, Glacial	U	E	C	C		E	U	U	C	U	U	C	U	U	C	C	C
Acetone	U	E	G	U		E	U	U	G	U	U	G	E	E	E	E	E
Acetophenone	U	E	–	U		E	U	U	E	U	U	–	E	E	E	C	E
Acetyl Acetone	U	E	U	U		E	U	U	G	U	U	G	U	C	C	C	C
Acetyl Chloride	U	E	U	U		U	U	U	U	E	U	U	C	C	C	U	E
Acetylene[1]	G	E	G	G		E	U	U	G	E	G	G	E	E	E	E	E
Air, Hot (Up to +160°F)[1]	E	E	E	E		E	E	E	E	E	E	E	E	E	E	E	E
Air, Hot (161°F – 200°F)[1]	C	E	U	E		E	G	G	E	E	G	G	E	E	E	E	E
Air, Hot (201°F – 300°F)[1]	U	E	U	C		G	U	U	G	E	U	U	E	E	E	E	E
Air Wet, below 160°F[1]	E	E	C	E		E	E	E	E	E	G	C	U	G	E	E	E
Aluminum Chloride, 10% aq	E	E	E	E		E	E	E	E	E	G	E	U	U	U	U	U
Aluminum Fluoride, 10% aq	E	E	E	U		E	E	E	E	E	G	E	U	U	U	E	C
Aluminum Nitrate, 10% aq	E	E	E	C		E	E	E	E	E	G	E	U	U	C	C	C
Aluminum Sulfate, 10% aq	E	E	G	E		E	E	E	E	E	–	G	U	C	E	C	C
Alums, 10% aq	E	E	E	E		E	E	E	E	E	E	E	U	C	E	C	C
Ammonia, Cold	E	G	U	U		E	E	E	E	U	–	–	E	U	E	E	E
Ammonia, Hot	U	G	U	U		C	U	G	G	U	–	–	E	U	E	E	E
Ammonia, Anhydrous	C	U	U	C		E	E	E	E	U	–	–	E	U	E	E	E
Ammonia, Aqueous	G	G	U	C		E	E	E	E	U	–	–	E	U	E	E	E
Ammonium Carbonate, 10% aq	U	E	C	U		E	U	E	E	U	–	C	C	U	C	C	C
Ammonium Chloride, 10% aq	E	E	C	U		E	E	E	E	U	–	–	U	U	C	U	C
Ammonium Hydroxide, 10% aq	U	E	U	U		E	C	C	E	C	U	U	G	U	C	C	U
Ammonium Nitrate, 10% aq	E	E	C	U		E	E	G	E	U	G	C	G	U	G	G	U
Ammonium Phosphate, 10% aq	E	E	C	U		E	E	E	E	–	G	C	U	C	G	U	G
Ammonium Sulfate/Sulfide, 10% aq	E	E	C	U		E	E	E	E	U	G	C	U	U	G	U	G
Amyl Acetate	U	E	U	U		E	U	U	G	U	U	U	E	E	E	E	E
Amyl Alcohol	G	E	E	C		E	G	C	E	G	C	E	G	G	E	U	G
Aniline, Aniline Oil	U	E	U	U		E	U	U	G	U	U	U	E	U	E	G	G
Aniline Dyes	U	E	U	U		E	U	G	G	G	U	U	U	C	G	C	G
Asphalt, < 200°F	C	E	G	G		U	G	C	U	E	G	G	E	G	E	C	E
ASTM #1	E	E	E	E		U	E	E	C	E	E	E	E	E	E	E	E
ASTM #2	E	E	E	E		U	E	G	U	E	G	E	E	E	E	E	E
ASTM #3	E	E	E	E		U	E	G	U	E	G	E	E	E	E	E	E
Automatic Trans. Fluid [2]	G	E	G	G		U	E	G	U	E	C	G	E	E	E	E	E
Barium Chloride, 10% aq	E	E	C	C		E	E	E	E	E	G	C	U	G	G	G	G
Barium Hydroxide, 105 aq	E	E	G	C		E	E	E	E	E	E	G	G	U	G	U	G
Barium Sulfide, 10% aq	E	E	C	C		E	E	E	E	E	G	C	C	U	G	U	U
Benzene, Benzol	U	E	U	U		U	U	U	U	E	U	C	G	E	E	G	E
Benzoic Acid	U	E	C	U		U	U	U	E	C	C	U	G	G	G	G	G
Benzyl Alcohol	U	E	C	U		E	U	G	G	E	C	C	E	G	E	G	G
Black Sulfate Liquor	G	E	C	C		E	C	C	C	E	U	C	E	C	E	U	U
Blast Furnace Gas	C	U	C	G		U	U	U	U	E	U	C	E	C	E	U	U
Borax, 10% aq	E	E	G	C		E	G	G	E	E	G	G	E	E	E	G	–
Boric Acid, 10% aq	E	E	C	E		E	G	G	G	E	G	G	U	G	C	C	C
Brine	G	E	C	C		C	E	G	E	E	G	C	U	G	G	U	E
Bromine, Dry	U	E	U	U		U	U	U	U	E	U	U	U	C	U	C	C
Butane[1]	LPG Approved Hose Only						E	C	U	E	–	–	E	E	E	E	E
Butyl Acetate	U	E	U	U		E	U	U	G	U	U	C	E	E	E	E	E
Butyl Alcohol	E	E	G	G		C	E	E	G	E	G	G	G	G	G	G	G
Butyl Cellosolve	U	E	U	U		E	U	U	G	U	U	C	E	E	E	E	E
Butylene (Butene)[1]	C	E	–	C		U	C	U	U	E	U	–	E	E	E	E	E
Butyl Stearate	U	E	–	U		U	G	U	U	E	–	–	G	G	G	G	G
Butyraldehyde	U	E	–	U		E	U	U	G	U	U	–	E	E	E	E	G
Calcium Acetate, 10% aq	G	E	C	C		E	G	G	E	U	U	C	G	G	G	C	G
Calcium Bisulfate, 10% aq	U	E	C	G		U	E	E	U	E	G	G	U	C	C	U	U
Calcium Chloride, 10% aq	E	E	E	C		E	E	E	E	E	E	E	G	G	C	G	

FLUID	Nitrile 1	PTFE 2	Thermoplastic Elastomer 3	AQP 4	Special Application Hose 5	EPDM 6	Buna-N	Neoprene	EPR	Viton®	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
	HOSE						SEALS						METAL				
Calcium Hydroxide, 10% aq	E	E	C	C		E	E	E	E	E	U	C	G	G	G	U	G
Calcium Hypochlorite, 10% aq	C	E	C	U		E	E	U	E	E	U	C	U	G	C	U	U
Calcium Nitrate, 10% aq	E	E	E	G		E	E	E	E	E	E	E	G	G	G	G	G
Carbitol	G	E	G	C		G	G	G	G	G	U	G	E	E	E	E	E
Carbolic Acid (Phenol)	U	E	U	U		C	U	U	G	E	U	U	U	E	E	–	–
Carbonic Acid	C	E	C	U		E	G	E	E	E	C	C	U	C	E	G	E
Carbon Dioxide, Dry gas[1]	E	E	E	E		E	G	G	E	E	G	E	E	E	E	E	E
Carbon Disulfide	U	E	U	U		U	U	U	E	E	C	C	G	G	G	E	G
Carbon Monoxide	E	E	E	E		E	G	G	E	E	G	E	E	E	E	E	E
Carbon Tetrachloride	U	E	U	U		U	U	U	E	E	U	U	U	G	G	U	E
Castor Oil	E	E	G	E		G	E	E	G	E	G	G	E	E	E	E	E
Cellosolve Acetate	U	E	U	U		E	U	U	G	U	U	U	U	U	E	G	E
China Wood Oil (Tung Oil)	E	E	C	G		U	G	G	U	E	U	C	E	G	E	E	E
Chlorine	U	G	U	U		U	U	U	G	U	U	U	C	C	C	C	C
Chloroacetic Acid	U	E	U	U		E	U	U	G	U	U	U	U	U	U	U	G
Chloroacetone	U	E	U	U		E	U	U	E	U	U	U	G	G	G	U	G
Chlorobenzene	U	E	U	U		U	U	U	G	U	U	U	G	G	G	G	G
Chloroform	U	E	U	U		U	U	U	E	U	U	U	G	G	G	G	G
O-Chlorophenol	U	E	U	U		U	U	U	E	U	U	U	G	G	G	U	G
Chlosulfonic Acid	U	U	U	U		U	U	U	U	U	U	U	G	U	G	G	C
Chrome Plating Solution	U	E	–	U		U	U	U	G	E	U	–	C	U	U	U	U
Chromic Acid	U	E	–	U		C	U	U	C	E	U	–	C	U	U	U	U
Citric Acid	G	E	C	G		E	E	E	E	E	E	C	C	C	C	C	C
Coke Oven Gas	U	E	–	U		E	U	U	E	E	U	–	E	C	E	U	U
Copper Chloride, 10% aq	E	E	E	G		E	E	E	E	E	G	E	U	U	U	U	U
Copper Cyanide, 10% aq	E	E	–	G		E	E	E	E	E	E	–	E	U	G	U	G
Copper Sulfate, 10% aq	E	E	G	G		E	E	E	E	E	G	G	U	C	G	U	G
Cotton Seed Oil	E	E	E	G		G	E	G	C	E	E	E	E	E	E	E	E
Creosote (Coal Tar)	G	E	U	G		U	G	C	U	E	U	U	E	C	E	E	E
Crude Oil	G	E	C	E		U	E	G	U	E	G	C	G	U	G	U	U
Cyclohexanol	C	E	C	G		C	E	G	U	E	C	C	E	E	E	C	E
Cyclohexanone	U	E	G	U		G	U	U	G	U	G	G	E	E	E	E	E
Detergent/Water Solution	E	E	C	G		E	E	E	E	E	C	C	G	E	E	E	E
Diacetone Alchohol (Acetol)	U	E	U	U		E	U	U	E	U	C	C	E	E	E	E	E
Dibenzyl Ether	U	E	–	U		G	U	U	G	U	–	–	G	G	G	G	G
Diesel Oil [2]	G	E	C	G		U	E	C	U	E	C	C	E	E	E	E	E
Diethylamine	C	E	–	C		C	G	G	G	U	–	–	E	U	E	–	E
Dioctyl Phthalate (DOP)	U	E	C	C		G	U	U	G	G	C	C	E	E	E	E	E
Dowtherm A&E	U	E	–	U		U	U	U	U	E	–	–	G	U	E	E	E
Ethyl Alcohol (Ethanol)	E	E	C	E		E	E	E	E	E	C	C	E	E	E	G	E
Ethyl Acetate	U	E	C	U		G	U	U	G	U	C	C	E	E	E	E	E
Ethyl Benzene	U	E	–	U		U	U	U	G	U	E	U	E	G	G	G	E
Ethyl Cellulose	G	E	U	U		G	G	G	G	U	C	C	E	G	G	G	G
Ethyl Chloride	C	E	U	U		U	U	U	U	E	U	U	E	E	E	G	G
Ethylene Dichloride	U	E	U	U		U	U	U	U	G	U	U	G	C	G	G	G
Ethylene Glycol	E	E	C	G		E	E	E	E	E	C	C	U	G	E	E	E
Ferric Chloride, 10% aq	E	E	–	G		E	E	G	E	E	–	–	U	U	U	U	U
Ferric Nitrate, 10% aq	E	E	C	E		E	E	E	E	E	C	C	U	U	G	U	U
Ferric Sulfate, 10% aq	E	E	C	E		E	G	G	E	E	C	C	U	U	E	U	U
Formaldehyde	U	E	C	U		E	C	C	G	G	C	C	E	E	E	G	G
Formic Acid	G	E	U	C		C	G	E	U	U	U	U	U	C	C	C	C
Fuel Oil	E	E	G	E		U	E	G	U	E	G	G	E	E	E	E	E
Furfural	U	E	–	U		G	C	C	G	U	U	–	G	G	G	G	G
Gallic Acid, Solution	G	E	–	C		G	G	G	G	E	U	–	U	–	G	C	G
Gasoline [2]	C	E	E	G		U	E	C	U	E	E	E	E	E	E	E	E
Gasohol [2]	C	E	G	C		U	G	G	U	E	E	E	E	E	E	G	E
Glycerine/Glycerol	E	E	E	E		E	E	E	E	E	G	E	E	G	E	E	E
Green Sulfate Liquor	G	E	–	U		E	G	G	E	E	–	–	U	U	E	U	U
Helium[1]	E	G	C	E		E	E	E	E	E	E	E	E	E	E	E	E

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®Viton is a E.I. DuPont trademark.
Note [1] - Rubber-covered hose must be perforated to allow gas to escape.
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Powering Business Worldwide

Fluid Compatibility

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	HOSE						SEALS						METAL				
Heptane	E	E	E	C		U	E	G	U	E	G	G	E	E	E	E	E
Hexaldehyde	U	E	–	U		E	U	G	G	U	U	–	G	G	E	E	G
Hexane	E	E	E	E		U	E	G	U	E	G	G	E	E	E	E	E
Hydraulic Oils [2]																	
Ester Blend	C	E	C	G		E	E	U	U	E	U	E	E	E	E	E	E
Phos. Ester/Petroleum Blend	U	E	C	U		U	U	U	U	C	U	G	E	E	E	E	E
Silicone Oils	E	E	E	E		E	E	E	E	E	E	E	E	E	E	E	E
Straight Petroleum Base	E	E	E	E		U	E	G	U	E	E	E	E	E	E	E	E
Straight Phosphate Ester	U	E	C	U		E	U	U	G	C	U	G	E	E	E	E	E
Water Glycol	E	E	C	C		E	E	E	E	E	C	C	E	E	E	G	E
Water Petroleum Emulsion	E	E	C	G		U	E	G	U	E	C	C	C	E	E	G	E
Hydrobromic Acid	U	E	U	E		G	U	U	E	E	U	U	E	U	E	E	U
Hydrochloric Acid, Cold	U	E	U	U		G	U	U	G	E	U	U	U	U	U	U	U
Hydrocyanic Acid	C	E	–	U		E	C	C	E	E	–	–	E	E	G	E	G
Hydrofluoric Acid	U	E	U	U		U	U	U	C	U	U	U	U	U	U	U	C
Hydrofluorosilic Acid	E	E	–	G		G	G	G	E	E	–	–	U	U	U	U	U
Hydrogen[1]	G	C	C	G		E	E	E	E	E	E	E	E	E	E	E	E
Hydrogen Peroxide	C	E	G	G		G	G	G	E	G	G	G	U	U	G	E	U
Hydrogen Sulfide, Dry	U	C	C	U		E	U	G	E	U	–	G	E	G	G	G	G
Isocyanate	U	E	U	U		U	U	U	G	E	U	U	G	–	G	–	–
Iso Octane	G	E	E	G		U	E	G	U	E	G	E	E	E	E	E	E
Isopropyl Acetate	U	E	C	U		C	U	U	G	U	U	C	E	–	E	E	E
Isopropyl Alcohol	G	E	C	G		E	G	G	E	E	U	C	E	E	G	E	E
Isopropyl Ether	G	E	–	C		U	G	U	U	U	C	–	G	G	G	–	–
JP-4, JP-5	E	E	G	E		U	E	U	U	E	U	G	E	E	E	E	E
Kerosene	G	E	G	E		U	E	U	U	E	U	G	E	E	E	E	E
Lacquer/Lacquer Solvents	U	E	U	U		U	U	U	U	U	U	G	U	E	E	E	E
Lime Sulfur	U	E	C	U		E	U	E	E	E	C	C	G	U	G	–	U
Linseed Oil	E	E	G	G		U	E	G	U	E	G	G	E	E	E	E	E
LPG[1]	LPG Approved Hose Only						E	G	U	E	–	–	E	E	E	E	E
Lubricating Oils[2]	See Hydraulic Oils						See Hydraulic Oils						See Hydraulic Oils				
Magnesium Chloride, 10% aq	E	E	C	E		E	E	E	E	E	C	C	E	C	C	G	G
Magnesium Hydroxide, 10% aq	G	E	C	G		E	G	G	E	E	C	C	E	G	E	E	G
Magnesium Sulfate, 10% aq	E	E	C	E		E	E	E	E	E	C	C	E	E	E	E	E
Maleic Acid	U	E	C	C		G	U	U	U	E	C	C	E	G	G	G	G
Maleic Anhydride	U	E	C	U		C	U	U	U	E	C	C	G	U	E	G	E
Malic Acid	G	E	–	G		U	G	U	G	–	–	U	–	E	G	E	E
Mercuric Chloride	G	E	E	G		G	E	E	E	E	E	E	U	U	U	U	U
Mercury	E	E	E	E		E	E	E	E	E	E	E	E	U	E	U	G
Methanol	E	E	C	E		E	G	G	E	U	C	C	G	G	E	C	E
Methyl Bromide	C	E	U	U		U	G	U	U	E	U	U	E	E	G	U	E
Methyl Chloride	U	E	U	U		U	U	U	U	E	U	U	E	E	E	U	G
Methyl Butyl Ketone	U	E	U	U		E	U	U	E	U	C	C	E	E	E	–	E
Methyl Ethyl Ketone	U	E	U	U		E	U	U	E	U	U	G	G	G	G	G	G
Methylene Chloride	U	E	U	U		U	U	U	U	G	U	U	G	G	G	G	G
Methyl Isobutyl Ketone	U	E	U	U		E	U	U	U	U	U	U	G	G	G	G	G
Methyl Isopropyl Ketone	U	E	U	C		E	U	U	U	U	U	U	G	G	G	G	G
Methyl Salicylate	U	E	–	U		C	U	U	C	U	–	–	E	G	G	E	G
MIL-L-2104	E	E	E	E		U	E	G	U	E	E	E	E	E	E	G	E
MIL-H-5606	E	E	E	E		U	E	G	U	E	E	E	E	E	E	E	E
MIL-H-6083	E	E	E	E		U	E	E	U	E	E	E	E	E	E	–	E
MIL-L-7808	G	E	G	G		U	G	U	U	E	G	G	G	G	E	–	–
MIL-L-23699	E	E	–	G		U	G	U	U	E	–	–	E	E	E	E	E
MIL-H-46170	G	E	–	G		C	E	G	U	E	–	–	E	E	E	–	E
MIL-H-83282	G	E	–	G		U	E	U	U	E	–	–	E	E	E	–	E
Mineral Oils	E	E	G	E		U	E	G	U	E	G	G	E	E	E	E	E
Naphtha	C	E	G	E		U	C	U	U	E	C	G	–	–	–	–	–
Naphthalene	U	E	U	U		U	U	U	U	E	C	G	E	G	E	G	G
Naphthenic Acid	U	E	–	U		U	C	U	U	E	–	–	–	G	E	G	G

FLUID	Nitrile 1	PTFE 2	Thermoplastic Elastomer 3	AQP 4	Special Application Hose 5	EPDM 6	Buna-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
	HOSE						SEALS						METAL				
Natural Gas[1]	LPG Approved Hose Only						E	E	U	E	–	–	G	G	G	G	G
Nickel Acetate, 10% aq	G	C	U	G		E	C	C	E	G	U	U	G	C	E	G	E
Nickel Chloride, 10% aq	E	E	U	E		E	E	G	E	E	U	U	U	U	G	U	G
Nickel Sulfate, 10% aq	E	E	U	E		E	E	E	E	E	U	U	U	G	G	U	G
Nitric Acid, to 10%	U	E	U	U		G	U	U	U	E	U	C	U	U	E	U	U
Nitric Acid, over 10%	U	C	U	U		U	U	U	U	G	U	U	U	U	E	C	U
Nitrobenzene	U	E	U	U		E	U	U	U	G	U	U	E	G	E	E	E
Nitrogen[1]	E	E	E	E		E	E	E	E	E	E	E	E	E	E	E	E
Octyl Alcohol	C	E	E	U		U	E	E	E	E	E	E	E	E	E	E	E
Oleic Acid	G	E	G	U		U	U	U	C	G	G	E	C	E	G	C	G
(Fuming Sulfuric Acid)																	
Oleum	U	E	U	U		U	E	G	U	E	G	G	E	E	E	E	E
Ortho-Dichlorobenzene	U	E	–	U		U	U	U	E	–	–		G	G	G	G	G
Oxalic Acid, 10% aq	C	E	C	C		E	G	G	E	E	C	C	U	C	C	C	C
Oxygen[1]	U	U	U	U		E	–	–	–	–	–	–	G	G	G	G	G
Palmitic Acid	E	E	E	E		G	E	G	G	E	–	E	G	–	E	G	G
Para-Dichlorobenzene	U	E	–	U		U	U	U	U	E	–	–	G	G	G	G	G
Pentane[1]	LPG Approved Hose Only						E	E	U	E	U	G	G	G	G	E	G
Perchloric Acid	U	E	U	U		G	E	G	G	E	U	U	U	U	U	U	U
Perchloroethylene	U	E	U	U		U	U	U	U	E	U	U	C	G	G	G	E
Petroleum Base Oils	G	E	E	E		U	E	G	U	E	E	E	E	E	E	E	E
Phenol (Carbolic Acid)	U	E	U	U		U	U	U	G	E	U	U	U	E	E	E	G
Phosphate Ester[2]	U	E	C	U		E	U	U	G	C	U	G	E	E	E	E	E
Phosphoric Acid 20%	U	E	U	U		E	U	U	G	E	U	U	U	E	U	C	E
Phosphorous Trichloride	U	E	U	U		E	U	U	E	E	U	U	C	U	C	E	E
Potassium Acetate, 10% aq	G	E	–	G		E	G	G	E	U	–	–	C	G	C	U	G
Potassium Chloride, 10% aq	E	E	E	E		E	E	E	E	E	E	E	E	C	E	U	G
Potassium Cyanide, 10% aq	E	E	E	G		E	E	E	E	E	E	E	C	U	G	U	C
Potassium Dichromate, 10% aq	E	E	E	E		E	E	E	E	E	E	E	C	C	C	C	C
Potassium Hydroxide, to 10%	G	E	C	C		E	G	G	E	G	C	C	G	G	G	U	E
Potassium Hydroxide, over 10%	C	E	C	E		U	C	C	E	U	U	U	G	G	G	U	E
Potassium Nitrate, 10% aq	E	E	E	E		E	E	E	E	E	E	E	G	G	E	G	–
Potassium Sulfate, 10% aq	E	E	E	E		E	E	E	E	E	E	E	–	–	–	–	–
Propane[1] (Liquified)	LPG Approved Hose Only						C	–	–	–	–	–	E	E	E	E	E
Propyl Acetate	U	E	–	U		G	U	U	G	U	–	–	E	–	E	E	E
Propyl Alcohol	E	E	U	E		E	E	E	E	E	U	U	E	E	E	E	E
Propylene	U	E	–	U		U	U	U	U	E	–	–	E	E	E	E	E
Refrigerant R-12[1]	E	–	G	G		C	G	E	C	E	E	E	E	E	E	E	E
Refrigerant R-13[1]	E	–	G	G		G	G	E	C	E	E	E	E	E	E	E	E
Refrigerant R-22[1]	U	C	U	U		E	U	E	C	U	U	U	E	E	E	E	E
Refrigerant R-134a[1]	C	C	U	U		E	E	C	U	U	U	E	E	E	E	E	E
Sewage	G	E	E	G		E	E	E	E	E	U	E	G	G	G	G	G
Silicone Oils	G	E	E	G		E	E	E	E	E	E	E	E	E	E	E	E
Soap (Water Solutions)	E	E	C	E		E	E	E	E	E	C	C	E	E	E	U	E
Sodium Acetate, 10% aq	G	U	–	G		E	G	G	E	U	–	–	E	E	G	E	E
Sodium Bicarbonate, 10% aq	E	E	E	E		E	E	E	E	E	E	E	G	G	E	G	E
Sodium Borate, 10% aq	E	E	E	E		E	E	E	E	E	E	E	E	E	E	G	–
Sodium Carbonate, 10% aq	E	E	E	E		E	E	E	E	E	E	E	E	G	E	U	E
Sodium Chloride, 10% aq	E	E	E	G		E	E	E	E	E	E	E	U	C	C	C	E
Sodium Cyanide, 10% aq	E	E	E	E		E	E	E	E	E	E	E	E	–	C	U	U
Sodium Hydroxide, to 10%	C	E	G	C		E	U	G	E	E	G	G	C	G	C	U	C
Sodium Hydroxide, over 10%	U	E	C	U		E	U	U	G	E	C	C	C	C	C	U	C

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FLUID	Nitrile 1	PTFE 2	Thermoplastic Elastomer 3	AQP 4	Special Application Hose 5	EPDM 6	Buna-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
	HOSE						SEALS						METAL				
Sodium Hypochlorite, 10% aq	C	E	C	G		G	C	C	E	C	C	C	U	U	U	U	C
Sodium Metaphosphate, 10% aq	E	E	E	E		E	E	E	E	E	E	E	E	G	G	U	G
Sodium Nitrate, 10% aq	G	E	E	G		E	G	G	E	–	E	E	E	C	E	E	E
Sodium Perborate, 10% aq	G	E	–	G		E	G	G	E	E	–	–	C	U	C	U	C
Sodium Peroxide, 10% aq	G	E	–	G		G	G	G	E	E	U	–	U	U	C	C	C
Sodium Phosphates, 10% aq	E	E	E	C		E	E	E	E	E	E	E	U	E	G	U	E
Sodium Silicate, 10% aq	E	E	E	G		E	E	E	E	E	E	E	E	E	E	E	E
Sodium Sulfate, 10% aq	E	E	E	G		E	E	E	E	E	E	E	C	G	G	G	G
Sodium Sulfide, 10% aq	E	E	E	G		E	E	E	E	E	E	E	C	U	C	U	G
Sodium Thiosulfate, 10% aq	G	E	E	G		E	G	E	E	E	E	E	U	U	C	G	E
Soy Bean Oil	E	E	G	C		U	E	G	U	E	G	G	E	E	E	E	E
Stannic Chloride	G	E	C	G		E	E	G	E	E	C	C	U	U	U	U	U
Steam[1] (up to 388°F)	U	E	U	U		G	U	U	C	C	U	U	E	E	E	G	E
Stearic Acid	G	E	G	G		G	G	G	G	E	G	G	C	C	E	C	E
Stoddard Solvent	G	E	U	E		U	E	G	U	E	U	U	E	E	E	E	E
Styrene	U	E	U	U		U	U	U	U	G	U	U	E	E	E	E	E
Sulfur, Slurry	C	E	G	E		E	U	E	E	E	G	G	E	U	G	E	E
Sulfur Chloride, Wet	U	E	–	U		U	U	U	U	E	–	–	G	–	G	G	U
Sulfur Dioxide, Dry	U	E	U	U		E	U	U	G	E	U	U	E	G	G	E	G
Sulfur Trioxide	U	E	U	U		C	U	U	G	E	U	U	G	C	G	G	G
Sulfuric Acid, to 10%	U	E	U	U		E	U	G	U	E	C	C	U	G	C	–	E
Sulfuric Acid, over 10%	U	E	U	U		U	U	U	U	G	U	U	C	C	C	U	C
Sulfurous Acid	U	E	U	G		G	C	C	U	G	U	U	U	C	C	C	U
Tannic Acid	G	E	G	G		E	G	E	E	E	G	G	E	E	E	C	E
Tar (Bituminous)	G	E	G	G		U	G	U	U	E	G	G	E	G	E	E	E
Tartaric Acid	E	E	G	E		G	E	G	G	E	G	G	U	C	C	E	E
Tertiary Butyl Alcohol	G	E	G	E		G	G	G	G	E	G	G	G	G	G	G	G
Titanium Tetrachloride	U	E	–	U		U	C	U	U	E	–	–	E	U	G	U	
Toluene (Toluol)	U	E	U	U		U	U	U	U	E	U	U	E	E	E	E	E
Trichlorethylene	U	E	U	U		U	U	U	U	E	U	U	E	G	E	E	E
Tricresyl Phosphate	U	E	U	U		U	U	U	E	G	U	U	E	–	C	–	G
Triethanolamine	G	E	U	G		E	U	E	U	U	U	U	E	U	E	E	E
Tung Oil	E	E	C	U		U	G	G	U	E	U	C	E	G	E	E	E
Turpentine	E	E	G	G		U	G	U	U	E	G	G	G	G	G	G	G
Varnish	C	E	G	G		U	G	U	U	E	G	G	E	G	E	E	E
Vinyl Chloride	U	E	U	U		U	U	U	U	E	U	U	E	U	C	E	E
Water (to +150°F)	E	E	E	C		E	E	E	E	E	E	E	C	G	E	G	E
Water (+151°F to +200°F)	C	E	U	U		E	E	E	E	E	U	U	C	G	E	G	E
Water (+201°F to +350°F)	U	E	U	U		E	U	U	G	G	U	U	C	G	E	G	E
Water Glycol	E	E	C	E		E	E	E	E	E	C	C	E	E	E	G	E
Water Petroleum Emulsion[2]	E	E	C	C		U	E	G	U	E	C	C	C	E	E	G	E
Xylene	U	E	C	U		U	U	U	U	E	U	C	E	E	E	E	E
Zinc Chloride, 10% aq	E	E	E	E		E	E	E	E	E	E	E	E	U	U	C	G
Zinc Sulfate, 10% aq	E	E	–	E		E	E	E	E	E	–	–	U	C	G	C	G

This chart is intended for reference use only
The information in this chart pertains strictly to material compatibility and is not intended to be used as an application guide.
For information on specific applications not included in this catalog, please contact Eaton Aeroquip.

*Viton is a E.I. DuPont trademark.
Note [1] - Rubber-covered hose must be perforated to allow gas to escape.
Note [2] - Due to the widely different additives in these fluids, testing should be done on the actual fluid being considered.

Hydraulic fluids & lubricating oils

The following is a representative list of fluids and manufacturers. The fluids are grouped under generic "family" heads and arranged alphabetically. For each generic "family" listing we have included maximum fluid temperature recommendations for the four hose classifications on page 349 (1 through 4). Two maximum fluid temperature ratings are listed under designations of "H" and "LP".

The "H" designation is for hydraulic service up to the maximum rated operating pressure of any particular hose in the classification. The "LP" designation is for low-pressure service such as lubricating oil systems or low-pressure hydraulic return lines.

The letter "U" in the box indicates unsatisfactory resistance to the fluid type.

Fluid temperature ratings are predicated on maximum allowable ambient temperatures as follows:

Classifications 1 and 3 (Synthetic Rubber and Thermoplastic Elastomer)

"H" fluid temp. ratings: +140°F ambient

"LP" fluid temp. ratings: +180°F ambient

Classification 2 (PTFE)

"H" fluid temp. ratings: +400°F ambient

"LP" fluid temp ratings: +400°F ambient

Classification 4 (AQP)

"H" fluid temp. ratings: +160°F ambient

"LP" fluid temp. ratings: +250°F ambient

(If "H" fluid temperature is +225°F or less, allowable ambient temperature may be increased to +200°F)

Ambient temperatures in excess of those recommended, in conjunction with maximum fluid temperatures, can materially shorten the service life of the hose.

CAUTION: The fluid manufacturer's recommended maximum operating temperature for any specific namebrand fluid should be scrupulously observed by the user. These recommended temperatures can vary widely between name brands of different fluid compositions, even though they fall into the same generic "family" of fluids.

Exceeding the manufacturer's recommended maximum temperature can result in fluid breakdown, producing by-products that are harmful to elastomeric products, as well as other materials in the system. If a manufacturer's recommended maximum temperature for his specific fluid is lower than that for the hose rating, it should take precedence over the hose rating for service usage.

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Fluid Compatibility

STRAIGHT PETROLEUM-BASE

Maximum fluid temperature recommendation**

HOSE CLASSIFICATIONS (SEE P. 349)	1	2	3	4
H	+200°F	+400°F	+200°F	+300°F
LP	+250°F	+450°F	+200°F	+300°F

Fluid Name

Aircraft Hydraulic Oil AA
Ambrex Oils
Arco A.T.F. Dexron
Arco A.T.F. Type F
Arco Fleet Motor
Arco H.T.F. C-2 Fluid
Arco H.T.C. 100 Fluid
Arco 303 Fluid
ATF Special
Automatic Transmission Fluid (Dexron)

Carnea Oils
Citgo Amplex
Citgo ATF, Type F
Citgo ATF, Dexron
Citgo Extra Duty Circulating Oils Mineral Oil (Heavy Duty) (R & O)
Citgo Motor Oils
Citgo Pacemaker Series Mineral Oil (R & O)
Citgo Pacemaker T Series Mineral Oil (R & O)
Citgo Pacemaker XD Series Mineral Oil (Heavy Duty) (R & O)
Citgo Sentry
Citgo Tractor Hydraulic Fluid
Conoco 303 Fluid
Custom Motor Oil

Dectol R & O Oils
Delo 400 Motor Oils
Delvac Oils
Delvac SHC
Delvac Special 10W-30
Donax T Oils
DTE Oils
Duro
Duro AW

EP Hydraulic Oils
EP Industrial Oils
EP Machine Oils
Energol HL68
Energol HLP C68
Etna Oils
Exxon ATF

Factovis 52 – Conventional R & O Hydraulic Fluid

Gulf Harmony AW
Gulf Security AW
Glide

Hulburt 27 Series
Hydraulic Series
Hydraulic Oils
Hydroil Series

Industron 53 – Anti Wear Hydraulic Fluid

Lubrite Motor 20W-40

Mobil AFT 210
Mobil AFT 220
Mobilfluid 62
Mobilfluid 423
Mobil Hydraulic Oils
Mobiloil Special
Mobiloil Super 10W-40

NUTO Oils

OC Turbine Oils

Peaco Oils
Pennbell Oils
Power-Tran Fluid

Quadroil Series

Rando Oils
Rando Oils HD
Redind Oils
Regal Oils R & O
Rimula Oils
Rotella Oils
Rotella T Oils
RPM Delo 200 Motor Oils
RPM Delo 300 Motor Oils
RPM Delo Special Motor Oils
Rubilene

Shell Brand
Special Motor Oils
Sun R & O Oils
Suntac HP Oils
Suntac WR Oils
Sunvis 700 Oils
Sunvis 800 Oils
Sunvis 900 Oils
Super Hydraulic Oils
Supreme Motor Oils

Tellus Oils
Teresstic Oils
Torque Fluids
Torque Fluid 47
Torque Fluid 56
Tractor Hydraulic Fluid

Union ATF Dexron
Union ATF Type F
Union C-2 Fluid
Union C-P Oil
Union Custom Motor Oil
Union Gas Engine Oil
Union Guardol Motor Oil
Union Heavy Duty Motor Oil
Union Hydraulic Oil AW
Union Hydraulic Tractor Fluid
Union Premium Motor Oil
Union S-1 Motor Oil
Union Special Motor Oil
Union Super Motor Oil
Union Torque Correction Fluid
Union Turbine Oil
Union Turbine Oil XD
Union Unax
Union Unax AW
Union Unax R & O
Union Unax RX
Union Unitec Motor Oil
Univis J13
Univis J26
Univis P32

Vactra Oils
Vitrea Oils

Way Lubricants

XD-3 Motor Oils

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Fluid Compatibility

WATER AND PETROLEUM OIL EMULSION (FR)

Maximum fluid temperature recommendation**

HOSE CLASSIFICATIONS (SEE P. 349)	1	2	3	4
H	+200°F	+250°F	+150°F	+200°F
LP	+200°F	+250°F	+150°F	+200°F

Fluid Name

Fluid Name
Aqualube
Astrol #587

Chevron FR Fluid D
Chrysler L-705
Citgo Pacemaker Invert FR Fluid
Conoco FR Hydraulic Fluid

Dasco IFR
Duro FR-HD

Fire Resistant Hydrafluid
Fire Resistant Hydraulic Fluid B
FR 3110 Hydraulic Fluid (invert)
Fyre-Safe W/O

Gulf R & D FR Fluid

Houghto-Safe 5046
Houghto-Safe 5046W
Hulsafe 500
Hy-Chock Oil
Hydrasol A

Ironsides #814-A
Irus Fluid 905

Kutwell 40

Masol Fire Resistant Fluid
Meltran FR 900
Mine Guard
Mobilmet S122

Penn Drake Hydraqua Fluid
Permamul FR
Puro FR Fluid
Pyrogard C
Pyrogard D

Quintolubric 957 Series
Quintolubric 958 Series

Regent Hydrolube #670

SAFOIL Hydraulic Fluid Anti-Wear
Sinclair Duro FR-HD
Solvac 1535G
Staysol FR
Sunsafe F

Union FR Fluid
Union Soluble Oil HD

Veedol Auburn FRH
Veedol Auburn FRH Concentrate

***See CAUTION on page 349 for maximum fluid temperatures and limiting ambient temperatures.*

WATER AND GLYCOL SOLUTION

Maximum fluid temperature recommendation**

HOSE CLASSIFICATIONS (SEE P. 349)	1	2	3	4
H	+200°F	+250°F	+150°F	C
LP	+200°F	+250°F	+150°F	C

Fluid Name

Chem-Trend HF-18
Chem-Trend HF-20
Chevron Glycol FR Fluids
Citgo Glycol FR Fluids
Citgo Glycol FR-20 XD
Citgo Pacemaker

Dasco FR 150
Dasco FR 200
Dasco FR 200 B
Dasco FR 310

Fyrguard 150
Fyrguard 200
Fyre-Safe 225

Gulf FR Fluid G-200
Gulf FR Fluid – G Series

Houghto-Safe 271
Houghto-Safe 416
Houghto-Safe 520
Houghto-Safe 525
Houghto-Safe 616
Houghto-Safe 620
Houghto-Safe 625
Houghto-Safe 640
Hydra Safe 620
Hydra Safe 625
Hydraulic Safety Fluid 200
Hydraulic Safety Fluid 300
Hyspin AF-1
Hyspin AF-2
Hyspin AF-3

Maxmul
Maxmul FR
Melsyn 200
Melsyn Glycol FR

Nyvac FR Fluid
Nyvac FR 200 Fluid
Nyvac 20 (WG)
Nyvac 30 (WG)

Park Water Glycol Hydraulic Fluid
Pennzoil Fluid FR 2X

Quintolubric 700 Series

Santosafe W/G 15
Santosafe W/G 20
Santosafe W/G 30
Standard Glycol FR #15
Standard Glycol FR #20
Standard Glycol FR #25

Ucon Hydrolube 150 CP
Ucon Hydrolube 200 CP
Ucon Hydrolube 275 CP
Ucon Hydrolube 300 CP
Ucon Hydrolube 550 CP
Ucon Hydrolube 900 CP
Ucon Hydrolube 150 DB
Ucon Hydrolube 275 DB
Ucon Hydrolube 150 LT
Ucon Hydrolube 200 LT

Ucon Hydrolube 275 LT
Ucon Hydrolube 300 LT
Ucon M-1
Ucon Hydrolube 200 NM
Ucon Hydrolube 300 NM

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Fluid Compatibility

STRAIGHT PHOSPHATE-ESTER (FR)

Maximum fluid temperature recommendation**

HOSE CLASSIFICATIONS (SEE P. 349)				
1	2	3	4	
H	U	+400°F	+200°F	U
LP	U	+400°F	+200°F	U

Fluid Name

FR Fluids
Fyrquel 90
Fyrquel 150
Fyrquel 220
Fyrquel 300
Fyrquel 550
Fyrquel 1000
Fyrquel 150 R & O
Fyrquel 220 R & O
Fyrquel 550 R & O

Gulf FR Fluid P-37
Gulf FR Fluid P-40
Gulf FR Fluid P-43
Gulf FR Fluid P-45
Gulf FR Fluid P-47

Houghto-Safe 1010
Houghto-Safe 1055
Houghto-Safe 1115
Houghto-Safe 1120
Houghto-Safe 1130

Pyrogard 51
Pyrogard 53
Pyrogard 55

Safetytex 215

Skydraul 500A
Skydraul 7000

Univis P12

ESTER BLEND TURBINE OILS

Maximum fluid temperature recommendation**

HOSE CLASSIFICATIONS (SEE P. 349)				
1	2	3	4	
H	-	-	-	-
LP	+250°F	+450°F	+200°F	+300°F

Fluid Name

Stauffer Jet I
Stauffer Jet II

SILICONE OILS

Maximum fluid temperature recommendation**

HOSE CLASSIFICATIONS (SEE P. 349)				
1	2	3	4	
H	+200°F	+400°F	+200°F	+300°F
LP	+250°F	+450°F	+200°F	+300°F

Fluid Name

Dow Corning 200 Fluid (100CS)
Dow Corning QF1-2023
Dow Corning 4-3600
Dow Corning 3-3672

POLYOL-ESTER

Maximum fluid temperature recommendation**

HOSE CLASSIFICATIONS (SEE P. 349)				
1	2	3	4	
H	+200°F	+400°F	-	+225°F
LP	+200°F	+400°F	-	+250°F

Fluid Name

Quintolubric 822 Series

***See NOTE on page 349 for maximum fluid temperatures and limiting ambient temperatures.*

LUBRICANT COMPATIBILITY CHART

	Hose Style						
Lubricant	FC802	FC505	FC555	FC558	GH134	FC665	FC765
Mineral Oil	Y	Y	Y	N	N	Y	Y
PAG	Y	Y	Y	Y	Y	Y	Y
Ester Oil	Y	Y	Y	Y	Y	Y	Y
Alkylbenzene	Y	Y	Y	N	N	Y	Y

Y = Compatible
N = Non-compatible

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SAE Recomended Practices

Selection, installation and maintenance of hose and assemblies — SAE J1273 October 1996

The following recommendations on selection, installation and maintenance of hose assemblies was established by the S.A.E. in 1991. Please read these general instructions carefully. More detailed information on many of these subjects is covered in this catalog.

1. Scope—Hose (also includes hose assemblies) has a finite life and there are a number of factors which will reduce its life.

This recommended practice is intended as a guide to assist system designers and/or users in the selection, installation, and maintenance of hose. The designers and users must make a systematic review of each application and then select, install, and maintain the hose to fulfill the requirements of the application. The following are general guidelines and are not necessarily a complete list.

WARNING: IMPROPER SELECTION, INSTALLATION, OR MAINTENANCE MAY RESULT IN PREMATURE FAILURES, BODILY INJURY, OR PROPERTY DAMAGE.

2. References

2.1 Applicable Documents—The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

J516—Hydraulic Hose Fittings

J517—Hydraulic Hose

3. Selection—The following is a list of factors which must be considered before final hose selection can be made.

3.1 Pressure—After determining the system pressure, hose selection must be made so that the recommended maximum operating pressure is equal to or greater than the system pressure. Surge pressures higher than the maximum operating pressure will shorten hose life and must be taken into account by the hydraulic designer.

3.2 Suction—Hoses used for suction applications must be selected to insure the hose will withstand the negative pressure of the system.

3.3 Temperature—Care must be taken to insure that fluid and ambient temperatures, both static and transient, do not exceed the limitations of the hose. Special care must be taken when routing near hot manifolds.

3.4 Fluid Compatibility—Hose selection must assure compatibility of the hose tube, cover and fittings with the fluid used. Additional caution must be observed in hose selection for gaseous applications.

3.5 Size—Transmission of power by means of pressurized fluid varies with pressure and rate of flow. The size of the components must be adequate to keep pressure losses to a minimum and avoid damage to the hose due to heat generation or excessive turbulence.

3.6 Routing—Attention must be given to optimum routing to minimize inherent problems.

3.7 Environment—Care must be taken to insure that the hose and fittings are either compatible with or protected from the environment to which they are exposed. Environmental conditions such as ultraviolet light, ozone, salt water, chemicals, and air pollutants can cause degradation and premature failure and, therefore, must be considered.

3.8 Mechanical Loads—External forces can significantly reduce hose life. Mechanical loads which must be considered include excessive flexing, twist, kinking, tensile or side loads, bend radius, and vibration. Use of swivel-type fittings or adapters may be required to insure no twist is put into the hose. Unusual applications may require special testing prior to hose selection.

3.9 Abrasion—While hose is designed with a reasonable level of abrasion resistance, care must be taken to protect the hose from excessive abrasion which can result in erosion, snagging and cutting of the hose cover. Exposure of the reinforcement will significantly accelerate hose failure.

3.10 Proper End Fitting—Care must be taken to insure proper compatibility exists between the hose and coupling selected based on the manufacturer's recommendations substantiated by testing to industry standards such as SAE J517. End fitting components from one manufacturer are usually not compatible with end fitting components supplied by another manufacturer (i.e., using a hose fitting nipple from one manufacturer with a hose socket from another manufacturer). It is the responsibility of the fabricator to consult the manufacturer's written instructions or the manufacturer directly for proper end fitting componentry.

3.11 Length—When establishing proper hose length, motion absorption, hose length changes due to pressure, as well as hose and machine tolerances must be considered.

3.12 Specifications and Standards—When selecting hose, government, industry and manufacturers' specifications and recommendations must be reviewed as applicable.

3.13 Hose Cleanliness—Hose components vary in cleanliness levels. Care must be taken to insure that the assemblies selected have an adequate level of cleanliness for the application.

3.14 Electrical Conductivity—Certain applications require that hose be nonconductive to prevent electrical current flow. Other applications require the hose to be sufficiently conductive to drain off static electricity. Hose and fittings must be chosen with these needs in mind.

4. Installation—After selection of proper hose, the following factors must be considered by the installer.

4.1 Pre-Installation Inspection—Prior to installation, a careful examination of the hose must be performed. All components must be checked for correct style, size and length. In addition, the hose must be examined for cleanliness, I.D. obstructions, blisters, loose cover, or any other visible defects.

4.2 Follow Manufacturers' Assembly Instructions—Hose assemblies may be fabricated by the manufacturer, an agent for or customer of the manufacturer, or by the user. Fabrication of permanently attached fittings to hydraulic hose requires specialized assembly equipment. Field-attachable fittings (screw style and segment clamp style) can usually be assembled without specialized equipment although many manufacturers provide equipment to assist in the operation.

SAE J517 hose from one manufacturer is usually not compatible with SAE J516 fittings supplied by another manufacturer. It is the responsibility of the fabricator to consult the manufacturer's written assembly instructions or the manufacturers directly before intermixing hose and fittings from two manufacturers. Similarly, assembly equipment from one manufacturer is usually not interchangeable with that of another manufacturer. It is the responsibility of the fabricator to consult the manufacturer's written instructions or the manufacturer directly for proper assembly equipment. Always follow the manufacturer's instructions for proper preparation and fabrication of hose assemblies.

4.3 Minimum Bend Radius—Installation at less than minimum bend radius may significantly reduce hose life. Particular attention must be given to preclude sharp bending at the hose/fitting juncture.

4.4 Twist Angle and Orientation—Hose installations must be such that relative motion of machine components produces bending of the hose rather than twisting.

4.5 Securement—In many applications, it may be necessary to restrain, protect, or guide the hose to protect it from damage by unnecessary flexing, pressure surges, and contact with other mechanical components. Care must be taken to insure such restraints do not introduce additional stress or wear points.

4.6 Proper Connection of Ports—Proper physical installation of the hose requires a correctly installed port connection while insuring that no twist or torque is put into the hose.

4.7 Avoid External Damage—Proper installation is not complete without insuring that tensile loads, side loads, kinking, flattening, potential abrasion, thread damage, or damage to sealing surfaces are corrected or eliminated.

4.8 System Check Out—After completing the installation, all air entrapment must be eliminated and the system pressurized to the maximum system pressure and checked for proper function and freedom from leaks.

NOTE: Avoid potential hazardous areas while testing.

5. Maintenance—Even with proper selection and installation, hose life may be significantly reduced without a continuing maintenance program. Frequency should be determined by the severity of the application and risk potential. A maintenance program should include the following as a minimum.

5.1 Hose Storage—Hose products in storage can be affected adversely by temperature, humidity, ozone, sunlight, oils, solvents, corrosive liquids and fumes, insects, rodents and radioactive materials. Storage areas should be relatively cool and dark and free of dust, dirt, dampness and mildew.

5.2 Visual Inspection—Any of the following conditions requires replacement of the hose:

(a) Leaks at fitting or in hose (leaking fluid is a fire hazard)

(b) Damaged, cut, or abraded cover (any reinforcement exposed)

(c) Kinked, crushed, flattened, or twisted hose

(d) Hard, stiff, heat cracked or charred hose

(e) Blistered, soft, degraded, or loose cover

(f) Cracked, damaged, or badly corroded fittings

(g) Fitting slippage on hose

5.3 Visual Inspection—The following items must be tightened, repaired, or replaced as required:

(a) Leaking port conditions

(b) Clamps, guards, shields

(c) Remove excessive dirt buildup

(d) System fluid level, fluid type, and any air entrapment

5.4 Functional Test—Operate the system at maximum operating pressure and check for possible malfunctions and freedom from leaks.

NOTE: Avoid potential hazardous areas while testing.

5.5 Replacement Intervals—Specific replacement intervals must be considered based on previous service life, government or industry recommendations, or when failures could result in unacceptable down time, damage, or injury risk.

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Flow Capacities

Flow capacities of hose assemblies at suggested flow velocities

The chart below is designed and provided as an aid in the determination of the correct hose size.

Example: At 13 U.S. gallons per minute, what is proper hose size within the suggested velocity range for pressure lines?

Solution: Locate 13 U.S. gallons per minute in the left hand column and 10 feet per second in the right hand column (the center of the suggested velocity range for pressure lines). Lay a straightedge across the two points. The inside diameter is shown in the center column nearest the straight edge.

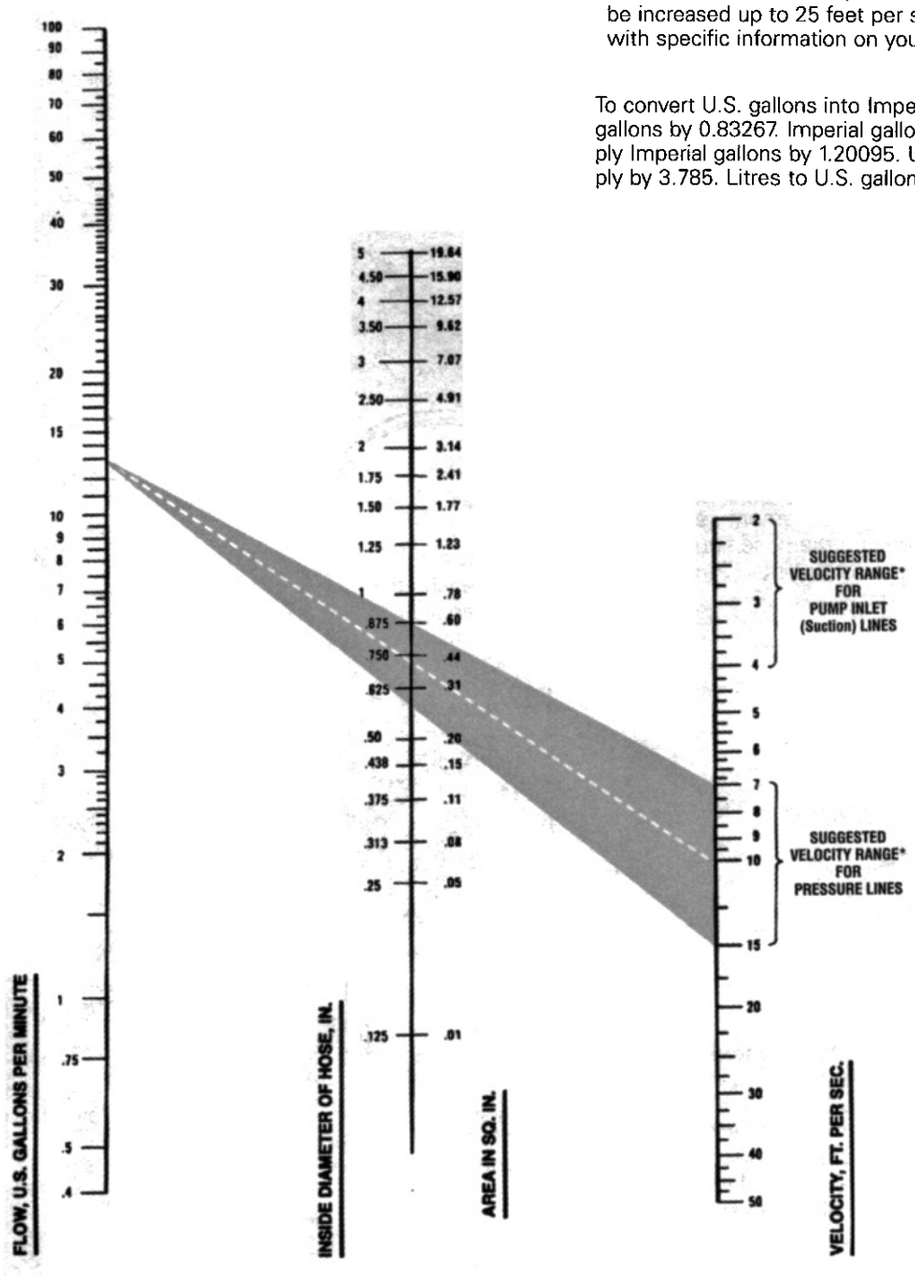
For suction hose, follow the same procedure except use suggested velocity range for pump inlet lines in the right hand column.

Based on Formula

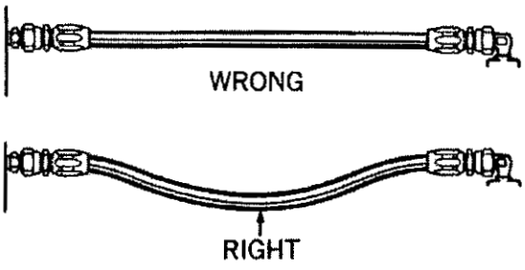
$$\text{AREA (SQ. IN.)} = \frac{\text{G.P.M. x 0.3208}}{\text{VELOCITY (FT./SEC.)}}$$

*Suggestions are for oils having a maximum viscosity of 315 S.S.U. at +100°F (+38°C) and operating at temperatures between +65°F and +155°F (+54°C to +69°C). Under certain conditions, velocities in pressure lines can be increased up to 25 feet per second. Contact Aeroquip with specific information on your application.

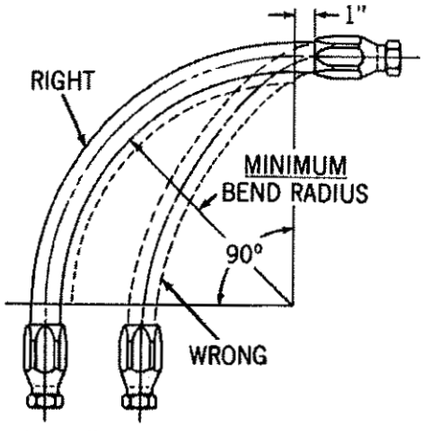
To convert U.S. gallons into Imperial gallons multiply U.S. gallons by 0.83267. Imperial gallons into U.S. gallons multiply Imperial gallons by 1.20095. U.S. gallons to litres multiply by 3.785. Litres to U.S. gallons, multiply by 0.2642.



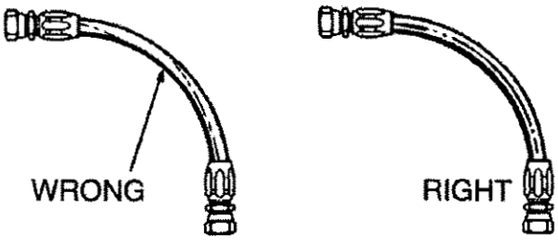
Hose Routing and Installation



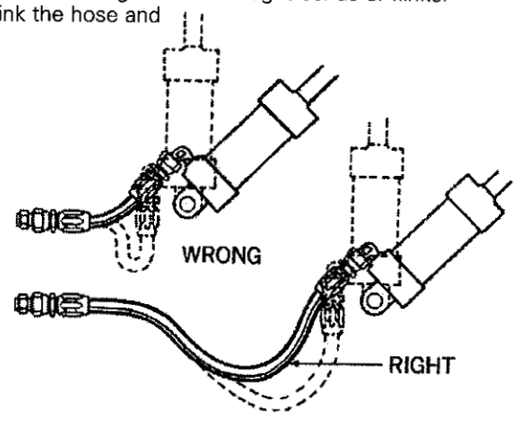
Under pressure, a hose may change in length. Always provide some slack in the hose to allow for this shortening or elongation. (However, excessive slack in hose lines may cause poor appearance.)



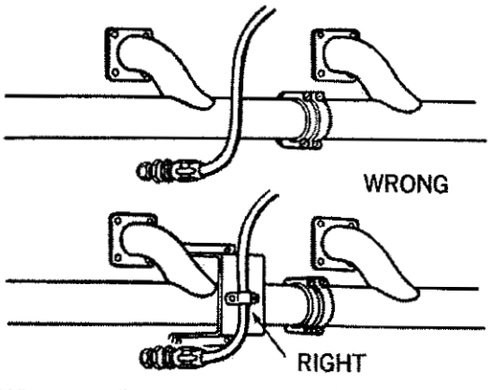
At bends, provide sufficient hose so that it does not have a bend radius less than its recommended minimum bend radius. Too tight a bend may kink the hose and restrict or stop the fluid flow. In many cases the proper use of adapters and hose fittings can eliminate tight bends or kinks.



If a hose is installed with a twist in it, operating pressures tend to force it straight. This can loosen the fitting nut. Twisting can cause reinforcement separation and the hose could burst at the point of strain.

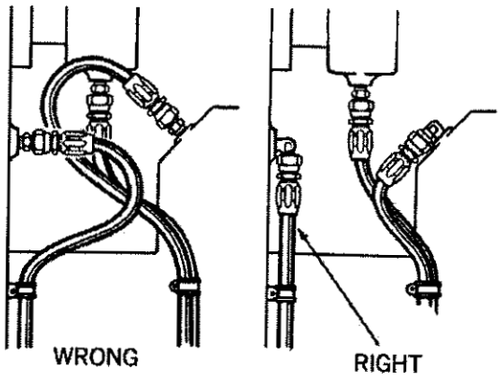


In applications where there is considerable vibration or flexing, allow additional hose length. The metal hose fittings, of course, are not flexible, and proper installation protects metal parts from undue stress, and avoids kinks in the hose.



When hose lines pass near an exhaust manifold or other heat source, they should be insulated by a heat resistant boot, firesleeve or a metal baffle. In any application, brackets and clamps keep hoses in place and reduce abrasion.

For installations where abrasion to hose cover cannot be prevented with the use of clamps or brackets, a steel protective coil or abrasion resistant sleeve should be placed over the hose.



When 90° adapters were used, this assembly became neater-looking and easier to inspect and maintain. It uses less hose, too!

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Analyzing Failures

Everyone in maintenance encounters hose failures. Normally, there is no problem. The hose is replaced and the equipment goes back in operation. Occasionally the failures come too frequently – the same equipment with the same problems keep popping up. At this point the task is to determine and correct the cause of these repeated failures.

Improper application

Beginning with the most obvious, the most common cause of hose failures – Improper Application – compare the hose specifications with the requirements of the application.

Pay particular attention to the following areas:

1. The maximum operating pressure of the hose.
2. The recommended temperature range of the hose.
3. Whether the hose is rated for vacuum service.
4. The fluid compatibility of the hose.

Check all of these areas against the requirements of the application. If they don't match up, you need to select another hose. It's a good idea at this point to call on your local hose distributor for assistance in selecting the proper hose. Eaton's distributors, for example, are well equipped to perform this service for you. Distributor personnel attend special training courses in hydraulics and hose application conducted by the company. Or, if your problem is particularly difficult, the distributor can call on the services of Eaton's Field Engineering Staff. The company will send in a hose and hydraulic specialist to study the problem and come up with a solution.

Improper assembly and installation

The second major cause of premature hose failure is improper assembly and installation procedures. This can involve anything from using the wrong fitting on a hose, to poor routing of the hose.

Eaton provides excellent training material that you can use to combat this problem. A little time spent in training your maintenance people could pay big dividends in reduced downtime.

You can make use of the material available from Eaton to improve your hose assembly and installation techniques.

This material is available free from
Eaton Corporation
14615 Lone Oak Road,
Eden Prairie, MN 55344
USA, 952/937-9800.

External damage

External damage can range from abrasion and corrosion, to hose that is crushed by a lift truck. These are problems that can normally be solved simply once the cause is identified. The hose can be re-routed or clamped, or a fire sleeve or abrasion guard can be used.

In the case of corrosion, the answer may be as simple as changing to a hose with a more corrosion resistant cover or re-routing the hose to avoid the corrosive element.

Faulty equipment

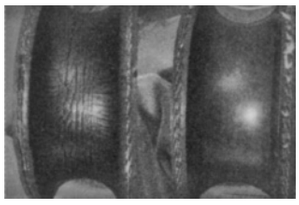
Too frequent or premature hose failure can be the symptom of a malfunction in your equipment. This is a factor that should be considered since prompt corrective action can sometimes avoid serious and costly equipment breakdown. Reprints of an article on "Troubleshooting Hydraulic Systems," which tells you how to spot problems in a hydraulic system are available from Eaton.

Faulty hose

Occasionally a failure problem will lie in the hose itself. The most likely cause of a faulty rubber hose is old age. Check the lay line on the hose to determine the date of manufacture. (2Q99 means second quarter 1999.) The hose may have exceeded its recommended shelf life. If you suspect that the problem lies in the manufacture of the hose (and don't jump to this conclusion until you have exhausted the other possibilities) contact your distributor. Given effective quality control methods, the odds of a faulty batch of hose being released for sale are extremely small. So make sure that you haven't overlooked some other problem area.

Analyzing failures

A physical examination of the failed hose can often offer a clue to the cause of the failure. Following are 22 symptoms to look for along with the conditions that could cause them:



1. Symptom: The hose tube is very hard and has cracked.

Cause: Heat has a tendency to leach the plasticizers out of the tube. This is a material that gives the hose its flexibility or plasticity.

Aerated oil causes oxidation to occur in the tube. This reaction of oxygen on a rubber product will cause it to harden. Any combination of oxygen and heat will greatly accelerate the hardening of the hose tube. Cavitation occurring inside the tube would have the same effect.

2. Symptom: The hose is cracked both externally and internally but the elastomeric materials are soft and flexible at room temperature.

Cause: The probable reason is intense cold ambient conditions while the hose was flexed. Most standard hoses are rated to –40°F (–40°C). Some AQP hoses are rated at –55°F (–49°C). Military specified hoses are generally rated to –65°F (–54°C). PTFE hose is rated to –100°F (–73°C). Some Everflex Polyon thermoplastic hoses are rated at –65°F (–54°C).

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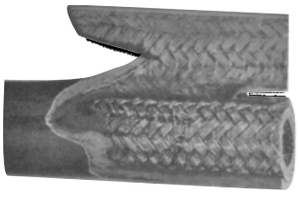
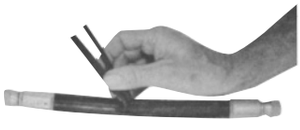
3. Symptom: The hose has burst and examination of the wire reinforcement after stripping back the cover reveals random broken wires the entire length of the hose.



Cause: This would indicate a high frequency pressure impulse condition. SAE impulse test requirements for a double wire braid reinforcement are 200,000 cycles at 133% of recommended working pressure. The SAE impulse test requirements for a four spiral wrapped reinforcement (100R12) are 500,000 cycles at 133% maximum operating and at +250°F (121°C). If the extrapolated impulses in a system amount to over a million in a relatively short time a spiral reinforced hose would be the better choice.

4. Symptom: The hose has burst, but there is no indication of multiple broken wires the entire length of the hose. The hose may



have burst in more than one place.

Cause: This would indicate that the pressure has exceeded the minimum burst strength of the hose. Either a stronger hose is needed or the hydraulic circuit has a malfunction which is causing unusually high pressure conditions.

5. Symptom: Hose has burst. An exam-ination indicates the the wire braid is rusted and the cover has been cut, abraded or deteriorated badly.

Cause: The primary function of the cover is to protect the reinforcement. Elements that may destroy or remove the hose covers are:

1. Abrasion
2. Cutting
3. Battery Acid
4. Steam Cleaners
5. Chemical Cleaning Solutions
6. Muriatic Acid (for cement clean-up)
7. Salt Water
8. Heat
9. Extreme Cold

Once the cover protection is gone the wire reinforcement is susceptible to attack from moisture or other corrosive matter.

6. Symptom: Hose has burst on the outside bend and appears to be elliptical in the bent section. In the case of a pump supply line, the pump is noisy and very hot. The exhaust line on the pump is hard and brittle.

Cause: Violation of the minimum bend radius is most likely the problem in both cases. Check the minimum bend radius and make sure that the application is within specifications. In the case of the pump supply line partial collapse of the hose is causing the pump to cavitate creating both noise and heat. This is a most serious situation and will result in catastrophic pump failure if not corrected.

7. Symptom: Hose appears to be flattened out in one or two areas and appears to be kinked. It has burst in this area and also appears to be twisted.

Cause: Torquing of a hydraulic control hose will tear loose the reinforcement layers and allow the hose to burst through the enlarged gaps between the braided plaits of wire strands. Use swivel fittings or joints to be sure there is no twisting force on a hydraulic hose.

8. Symptom: Hose type has broken loose from the reinforcement and piled up at the end of the hose. In some cases it may protrude from the end of the hose fitting.

Cause: The probable cause is high vacuum or the wrong hose for vacuum service. No vacuum is recommended for double wire braid, 4 and 6 spiral wire hose unless some sort of internal coil support is used. Even though a hose is rated for vacuum service, if it is kinked, flattened out or bent too sharply this type of failure may occur.

9. Symptom: Hose has burst about six to eight inches away from the end fitting. The wire braid is rusted. There are no cuts or abrasions of the outer cover.

Cause: Improper assembly of the hose end fitting allowing moisture to enter around the edge of the fitting socket. The moisture will wick through the reinforcement. The heat generated by the system will drive it out around the fitting area but six to eight inches away it will be entrapped between the inner line and outer cover causing corrosion of the wire reinforcement.

10. Symptom: There are blisters in the cover of the hose. If one pricks the blisters, oil will be found in them.

Cause: A minute pin hole in the hose tube is allowing the high pressure oil to seep between it and the cover. Eventually it will form a blister wherever the cover adhesion is weakest. In the case of a screw together reusable fitting insufficient lubrication of the hose and fitting can cause this condition because the dry tube will adhere to the rotating nipple and tear enough to allow seepage. Faulty hose can also cause this condition.

11. Symptom: Blistering of the hose cover where a gaseous fluid is being used.

Cause: The high pressure gas is effusing through the hose tube, gathering under the cover and eventually forming a blister wherever the adhesion is weakest. Specially constructed hoses are available for high pressure gaseous applications. Your supplier can advise you on the proper hose to use in these cases.

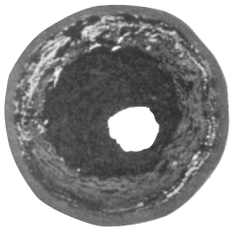
12. Symptom: Fitting blew off of the end of the hose.

Cause: It may be that the wrong fitting has been put on the hose. Recheck manufacturer's specifications and part numbers.

In the case of a crimped fitting the wrong machine setting may have been used resulting in over or undercrimping. The socket of a screw together fitting for multiple wire braided hose may be worn beyond its tolerance. The swaging dies in a swaged hose assembly may be worn beyond the manufacturer's tolerances.

The fitting may have been applied improperly to the hose. Check manufacturer's instructions. The hose may have been installed without leaving enough slack to compensate for the possible 4% shortening that may occur when the hose is pressurized. This will impose a great force on the fitting. The hose itself may be out of tolerance.

13. Symptom: The tube of the hose is badly deteriorated with evidences of extreme swelling. In some cases the hose tube may be partially "washed out."



Cause: Indications are that the hose tube is not compatible with the agent being carried. Even though the agent is normally compatible, the addition of heat can be the catalyst that can cause inner liner deterioration. Consult your hose supplier for a compatibility list or present him with a sample of the fluid being conducted by the hose for analysis. Make sure that the operating temperatures both internal and external do not exceed recommendations.

14. Symptom: Hose has burst. The hose cover is badly deteriorated and the surface of the rubber is crazed.

Cause: This could be simply old age. The crazed appearance is the effect of weathering and ozone over a period of time. Try to determine the age of the hose. Some manufacturers print or emboss the cure date on the outside of the hose. As an example, Aeroquip hose would show "4Q01" which would mean that the hose was manufactured during the fourth quarter (October, November or December) of 2001.

15. Symptom: Hose is leaking at the fitting because of a crack in the metal tube adjacent to the braze on a split flange head.

Cause: Because the crack is adjacent to the braze and not in the braze this is a stress failure brought on by a hose that is trying to shorten under pressure and has insufficient slack in it to do so.

We have cured dozens of these problems by lengthening the hose assembly or changing the routing to relieve the forces on the fitting.

16. Symptom: A spiral reinforced hose has burst and literally split open with the wire exploded out and badly entangled.

Cause: The hose is too short to accommodate the change in length occurring while it is pressured.

17.Symptom: Hose is badly flattened out in the burst area. The tube is very hard down stream of the burst but appears normal up stream of the burst.

Cause: The hose has been kinked either by bending it too sharply or by squashing it in some way so that a major restriction was created. As the velocity of the fluid increases through the restriction the pressure decreases to the vaporization point of the fluid being conveyed. This is commonly called cavitation, and causes heat and rapid oxidation to take place which hardens the tube of the hose down stream of the restriction.

18.Symptom: Hose has not burst but it is leaking profusely. A bisection of the hose reveals that the tube has been gouged through to the wire braid for a distance of approximately two inches.

Cause: This failure would indicate that erosion of the hose tube has taken place. A high velocity needle like fluid stream being emitted from an orifice and impinging at a single point on the hose tube will hydraulically remove a section of it. Be sure that the hose is not bent close to a port that is orificed.

In some cases where high velocities are encountered particles in the fluid can cause considerable erosion in bent sections of the hose assembly.

19. Symptom: The hose fitting has been pulled out of the hose. The hose has been considerably stretched out in length. This may not be a high pressure application.

Cause: Insufficient support of the hose. It is very necessary to support very long lengths of hose, especially if they are vertical. The weight of the hose along with the weight of the fluid inside the hose in these cases is being imposed on the hose fitting. This force can be transmitted to a wire rope or chain by clamping the hose to it much like the utilities support bundles of wire from pole to pole. Be sure to leave sufficient slack in the hose between clamps to make up for the possible 4% shortening that could take place when the hose is pressurized.

20. Symptom: The hose has not burst but it is leaking profusely. An examination of the bisected hose reveals that the tube has burst inwardly.

Cause: This type of failure is commonly referred to as hose tube blow down. It is usually associated with very low viscosity fluids such as air, nitrogen, freon and other gases. What happens is that under high pressure conditions the gases will effuse into the pores of the hose tube charging them up like miniature accumulators. If the pressure is very suddenly reduced to zero the entrapped gases literally explode out of the tube often tearing holes in it. In some hose constructions a second hose tube made from a plastic such as nylon, is inserted into the hose.

A small leak will allow the gaseous fluid to seep between the two inner liners and when the pressure is reduced to zero the innermost liner will collapse because of the entrapped pressure around its outer diameter.

21. Symptom: PTFE hose assembly has collapsed internally in one or more places.

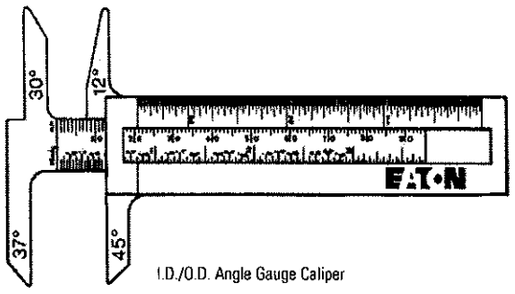
Cause: One of the most common causes for this is improper handling of the PTFE assembly. PTFE is a thermoplastic material which is not rubber-like. When bent sharply it simply collapses. This type of collapse is localized in one area and is radial. When the PTFE tube is folded longitudinally in one or more places this could be the result of heat (which softens the hose tube) along with vacuum conditions inside of it. Because of the additional tension of the wire braid reinforcement inherent with this type of hose, there is always a radial tension on the tube trying to push it in. Rapid cycling from a very hot agent in the hose to a very cold agent in the hose can produce the same type of failure. Eaton offers an internal support coil that will eliminate this problem.

22. Symptom: A PTFE hose assembly has developed a pin hole leak or several pin hole leaks.

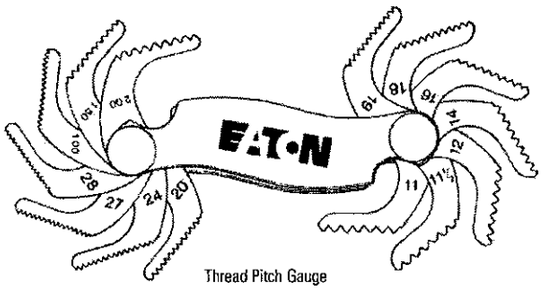
Cause: This situation occurs when a petroleum base fluid, with a low viscosity, is flowing at a high velocity. This condition can generate high voltage due to static electricity. The high voltage is seeking a ground connection and the only ground connection available is the braided stainless steel reinforcement. This causes an electric arc, which penetrates through the PTFE tube as it travels to the reinforcement. Specially constructed PTFE tubes are available that have enough carbon black in them so as to be conductive. They will "drain off" the static electricity and preclude this problem.

How to Identify Fluid Connectors

Measuring Tools—Order part number FT1341 for The Indentification Tool Kit. A seat angle gauge, thread pitch gauge and an I.D./O.D. caliper are necessary to make accurate measurements of commonly used connectors. Eaton offers a unique new caliper than offers the capabilities of both a caliper and a seat angle gauge in one unit.

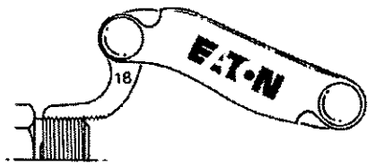


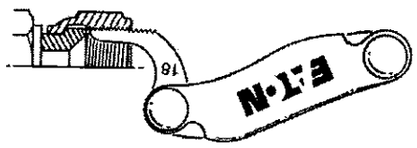
I.D./O.D. Angle Gauge Caliper



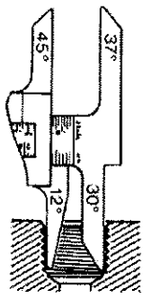
Thread Pitch Gauge

How to Measure Threads



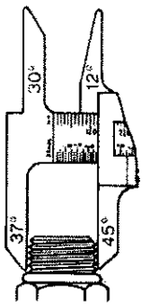


Use a thread pitch gauge to determine the number of threads per inch or the distance between threads in metric connections. Place the gauge on the threads until the fit is snug. Match the measurement to the charts.



I.D.

Measure the thread diameter with an I.D./O.D. caliper as shown.

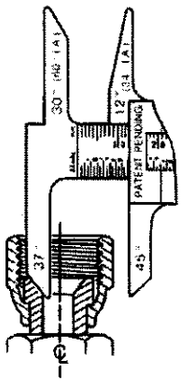


O.D.

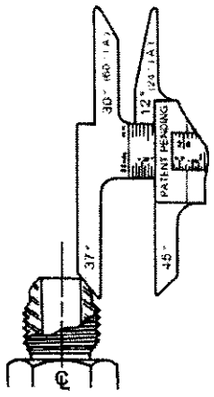
Match the measurements to the charts.

How to Measure Sealing Surface Angles

Female connections are usually measured by inserting the gauge into the connection and placing it on the sealing surface. If the centerlines of the connection and gauge are parallel, the correct angle has been determined.



Male flare type connectors are usually measured by placing the gauge on the sealing surface. If the centerlines of the connection and gauge are parallel, the correct angle has been determined.



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Thread Size Chart

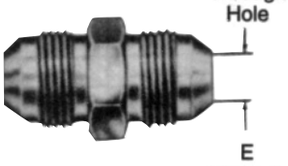
The following chart is intended as a quick reference guide for thread size by dash size.

Dash size	N.P.T.F.	N.P.S.M. Approx. Dia.	SAE 45° Auto. Refrig.	SAE 37° (J.I.C.) Hydraulic	SAE O-Ring Boss	P.T.T. 30° Automotive	SAE Invert. Flare	ORS
-02	1/8–27	1/8–27	5/16–24	5/16–24	5/16–24		5/16–24	
-03			3/8–24	3/8–24	3/8–24		3/8–24	
-04	1/4–18	1/4–18	7/16–20	7/16–20	7/16–20		7/16–24	9/16–18
-05			1/2–20	1/2–20	1/2–20		1/2–20	
-06	3/8–18	3/8–18	5/8–18	9/16–18	9/16–18		5/8–18	11/16–16
-07			11/16–24				11/16–18	
-08	1/2–14	1/2–14	3/4–16	3/4–16	3/4–16		3/4–18	13/16–16
-10			7/8–14	7/8–14	7/8–14		7/8–18	1–14
-12	3/4–14	3/4–14	1 1/16–14	1 1/16–12	1 1/16–12		1 1/16–16	1 3/16–12
-14				1 3/16–12	1 3/16–12			
-16	1–11 1/2	1–11 1/2		1 5/16–12	1 5/16–12	1 5/16–14		1 7/16–12
-20	1 1/4–11 1/2	1 1/4–11 1/2		1 5/8–12	1 5/8–12	1 5/8–14		1 11/16–12
-24	1 1/2–11 1/2	1 1/2–11 1/2		1 7/8–12	1 7/8–12	1 7/8–14		2–12
-32	2–11 1/2	2–11 1/2		2 1/2–12	2 1/2–12	2 1/2–12		
-40	2 1/2–8	2 1/2–8		3–12	3–12			
-48	3–8	3–8		3 1/2–12	3 1/2–12			

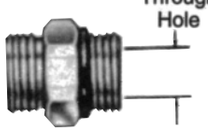
Through hole dimensions

All dimensions are nominal. In jump size bodies, the minimum through hole dimensions will correspond to the smallest dash size.

SAE 37°



ORS



Dash Size	E through hole SAE 37° mm	SAE 37° in	ORS mm	ORS in
-03	3,0	0.12		
-04	4,3	0.17	4,3	0.17
-05	5,8	0.23		
-06	7,6	0.30	6,6	0.26
-08	9,9	0.39	9,7	0.38
-10	12,2	0.48	12,2	0.48
-12	15,5	0.61	15,5	0.61
-16	21,3	0.84	20,6	0.81
-20	25,8	1.08	26,7	1.05
-24	33,3	1.31	33,3	1.31
-32	45,2	1.78		

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How to Measure Non-Threaded Connections

Four Bolt Flange—First measure the port hole diameter using the caliper. Next, measure the longest bolt hole spacing from center-to-center or measure the flange head diameter.

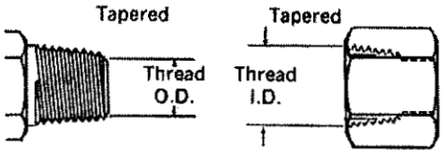
Staplok—Measure the male diameter with the O.D. portion of the caliper. Measure the female half by inserting the I.D. portion of the caliper into the through hole.

Dash Numbers

Most fluid piping system sizes in the United States are measured by dash numbers. These are universally used abbreviations for the size of the component expressed as the numerator of the fraction with the denominator always being 16. For example, a –04 port is $^4/_{16}$ or $^1/_4$-inch. Dash numbers are usually nominal (in name only) and are abbreviations that make ordering of components easier.

American Connections

NPTF (National Pipe Tapered Fuel)



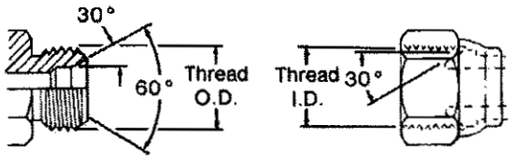
This connection is still widely used in fluid power systems, even though it is not recommended by the National Fluid Power Association (NFPA) for use in hydraulic applications. The thread is tapered and the seal takes place by deformation of the threads.

NPTF Threads

Measure thread diameter and subtract $^1/_4$-inch to find the nominal pipe size.

Inch Size	Dash size	Nominal Thread size	Male Thread O.D. inch		Female thread I.D. inch	
			fraction	decimal	fraction	decimal
$^1/_8$	02	$^1/_8$-27	$^{13}/_{32}$	.41	$^3/_8$	.38
$^1/_4$	04	$^1/_4$-18	$^{17}/_{32}$	.54	$^1/_2$	.49
$^3/_8$	06	$^3/_8$-18	$^{11}/_{16}$	.68	$^5/_8$	.63
$^1/_2$	08	$^1/_2$-14	$^{27}/_{32}$	.84	$^{25}/_{32}$	.77
$^3/_4$	12	$^3/_4$-14	$1^1/_{16}$	1.05	1	.98
1	16	1-11 $^1/_2$	$1^5/_{16}$	1.32	$1^1/_4$	1.24
$1^1/_4$	20	$1^1/_4$-11 $^1/_2$	$1^{21}/_{32}$	1.66	$1^{19}/_{32}$	.58
$1^1/_2$	24	$1^1/_2$-11 $^1/_2$	$1^{29}/_{32}$	1.90	$1^{13}/_{16}$	1.82
2	32	2-11 $^1/_2$	$2^3/_8$	2.38	$2^5/_{16}$	2.30

NPSM (National Pipe Straight Mechanical)



Male Half — Female Half

This connection is sometimes used in fluid power systems. The female half has a straight thread and an inverted 30° seat. The male half of the connection has a straight thread and a 30° internal chamfer. The seal takes place by compression of the 30° seat on the chamfer. The threads hold the connection mechanically.

NOTE: A properly chamfered NPTF male will also seal with the NPSM female.

Inch Size	Dash size	Nominal Thread size	Male Thread O.D. inch		Female thread I.D. inch	
			fraction	decimal	fraction	decimal
$^1/_8$	02	$^1/_8$-27	$^{13}/_{32}$	.41	$^3/_8$	.38
$^1/_4$	04	$^1/_4$-18	$^{17}/_{32}$	.54	$^1/_2$	.49
$^3/_8$	06	$^3/_8$-18	$^{11}/_{16}$	.68	$^5/_8$	.63
$^1/_2$	08	$^1/_2$-14	$^{27}/_{32}$	.84	$^{25}/_{32}$	.77
$^3/_4$	12	$^3/_4$-14	$1^1/_{16}$	1.05	1	.98
1	16	1-11 $^1/_2$	$1^5/_{16}$	1.32	$1^1/_4$	1.24
$1^1/_4$	20	$1^1/_4$-11 $^1/_2$	$1^{21}/_{32}$	1.66	$1^{19}/_{32}$	.58
$1^1/_2$	24	$1^1/_2$-11 $^1/_2$	$1^{29}/_{32}$	1.90	$1^{13}/_{16}$	1.82
2	32	2-11 $^1/_2$	$2^3/_8$	2.38	$2^5/_{16}$	2.30

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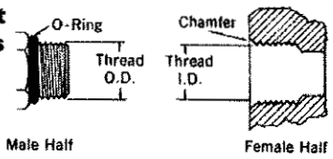
American Connections

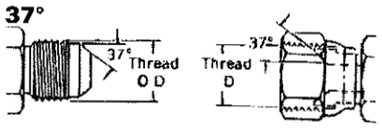
SAE J1926 Straight Thread O-Ring Boss (ORB)



This port connection is recommended by the NFPA for optimum leakage control in medium and high pressure hydraulic systems. The male connector has a straight thread and an O-Ring. The female port has a straight thread, a machined surface (minimum spotface) and a chamfer to accept the O-Ring. The seal takes place by compressing the O-Ring into the chamfer. The threads hold the connection mechanically.

Inch Size	Dash size	Nominal Thread size	Male Thread O.D. inch		Female Thread O.D. inch	
			fraction	decimal	fraction	decimal
1/8	02	5/16-24	5/16	.31	9/32	.27
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-20	7/16	.44	13/32	.39
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	9/16-18	9/16	.56	17/32	.51
1/2	08	3/4-16	3/4	.75	3/4	.69
5/8	10	7/8-14	7/8	.88	13/16	.81
3/4	12	1 1/16-12	1 1/16	1.06	1	.98
7/8	14	1 3/16-12	1 3/16	1.19	1 1/8	1.13
1	16	1 5/16-12	1 5/16	1.31	1 1/4	1.23
1 1/4	20	1 5/8-12	1 5/8	1.63	1 9/16	1.54
1 1/2	24	1 7/8-12	1 7/8	1.88	1 13/16	1.79
2	32	2 1/2-12	2 1/2	2.50	2 7/16	2.42

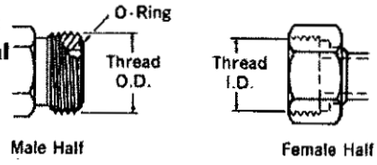
SAE J514 37° Hydraulic



This connection is very common in fluid power systems. Both the male and female halves of the connections have 37° seats. The seal takes place by establishing a line contact between the male flare and the female cone seat. The threads hold the connection mechanically. CAUTION: In the –02, –03, –04, –05, –08 and –10 sizes, the threads of the SAE 45° flare and the SAE 37° flare are the same. However, the sealing surface angles are not the same.

Inch Size	Dash size	Nominal Thread size	Male Thread O.D. inch		Female Thread O.D. inch	
			fraction	decimal	fraction	decimal
1/8	02	5/16-24	5/16	.31	9/32	.27
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-20	7/16	.44	13/32	.39
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	9/16-18	9/16	.56	17/32	.51
1/2	08	3/4-16	3/4	.75	3/4	.69
5/8	10	7/8-14	7/8	.88	13/16	.81
3/4	12	1 1/16-12	1 1/16	1.06	1	.98
7/8	14	1 3/16-12	1 3/16	1.19	1 1/8	1.13
1	16	1 5/16-12	1 5/16	1.31	1 1/4	1.23
1 1/4	20	1 5/8-12	1 5/8	1.63	1 9/16	1.54
1 1/2	24	1 7/8-12	1 7/8	1.88	1 13/16	1.79
2	32	2 1/2-12	2 1/2	2.50	2 7/16	2.42

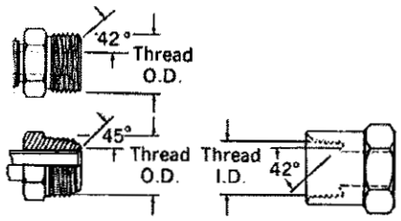
ORS SAE J1453 O-Ring Face Seal



This connection offers the very best leakage control available today. The male connector has a straight thread and an O-Ring in the face. The female has a straight thread and a machined flat face. The seal takes place by compressing the O-Ring onto the flat face of the female, similar to the split flange type fitting. The threads hold the connection mechanically.

Inch Size	Dash size	Nominal Thread size	Male Thread O.D. inch		Female Thread O.D. inch	
			fraction	decimal	fraction	decimal
1/4	04	9/16-18	9/16	.56	17/32	.51
3/8	06	11/16-16	11/16	.69	5/8	.63
1/2	08	13/16-16	13/16	.82	3/4	.75
5/8	10	1-14	1	1.00	15/16	.93
3/4	12	1 3/16-12	1 3/16	1.19	1 1/8	1.11
1	16	1 7/16-12	1 7/16	1.44	1 3/8	1.36
1 1/4	20	1 11/16-12	1 11/16	1.69	1 5/8	1.61
1 1/2	24	2-12	2	2.00	1 15/16	1.92

SAE J512 Inverted



This connection is frequently used in automotive systems. The male connector can either be a 45° flare in the tube fitting form or a 42° seat in the machined adapter form. The female has a straight thread with a 42° inverted flare. The seal takes place on the flared surfaces. The threads hold the connection mechanically.

Inch Size	Dash size	Nominal Thread size	Male Thread O.D. inch		Female Thread O.D. inch	
			fraction	decimal	fraction	decimal
1/8	02	5/16-24	5/16	.32	9/32	.28
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-24	7/16	.44	13/32	.40
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	5/8-18	5/8	.63	9/16	.57
7/16	07	11/16-18	11/16	.69	5/8	.63
1/2	08	3/4-18	3/4	.75	23/32	.70
5/8	10	7/8-18	7/8	.88	13/16	.82
3/4	12	1 1/16-16	1 1/16	1.06	1	1.00

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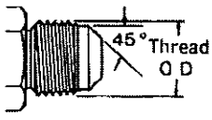
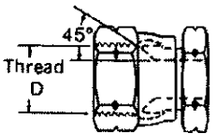
SAE J512 45°



Male Half



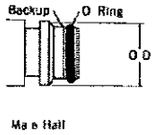
Female Half

This connection is commonly used in refrigeration, automotive and truck piping systems. The connector is frequently made of brass. Both the male and female connectors have 45° seats. The seal takes place between the male flare the female cone seat.

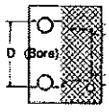
The threads hold the connection mechanically. CAUTION: In the –02, –03, –04, –05, –08 and –10 sizes, the threads of the SAE 45° flare and the SAE 37° flare are the same. However, the sealing surface angles are not the same.

Inch Size	Dash size	Nominal Thread size	Male Thread O.D. inch		Female Thread O.D. inch	
			fraction	decimal	fraction	decimal
1/8	02	5/16-24	5/16	0.31	9/32	0.27
3/16	03	3/8-24	3/8	0.38	11/32	0.34
1/4	04	7/16-20	7/16	0.44	13/32	0.39
5/16	05	1/2-20	1/2	0.50	15/32	0.45
3/8	06	5/8-18	5/8	0.63	9/16	0.57
1/2	08	3/4-16	3/4	0.75	11/16	0.69
5/8	10	7/8-14	7/8	0.88	13/16	0.81
3/4	12	1 1/16-14	1 1/16	1.06	1	0.99
7/8	14	1 1/4-12	1 1/4	1.25	1 5/32	1.16
1	16	1 3/8-12	1 3/8	1.38	1 9/32	1.29

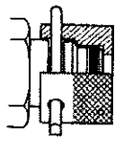
Staplok (SAE J1467)



Male Half



Female Half



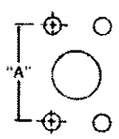
Staplok™ Connected

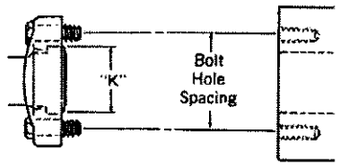
This is a radial O-Ring seal connection developed in Germany and commonly used for hydraulic application in underground mines. The male contains an exterior O-Ring and backup ring, plus a groove to accept the "staple". The female has a smooth bore with two holes for the stable. A "U" shaped retaining clip or staple is inserted through the two holes, passing through the groove in the male to lock the connection together. The seal takes place by contact between the O-Ring in the male and the smooth bore of the female.

Inch Size	Dash size	Nominal Thread size	Male Thread O.D. inch		Female Thread O.D. inch	
			fraction†	decimal	fraction	decimal
1/4	04		9/32	.586	1 9/32	.597
3/8	06		25/32	.783	51/64	.794
1/2	08		15/16	.940	61/64	.951
3/4	12		1 9/64	1.137	1 9/64	1.148
1	16		1 17/32	1.529	1 35/64	1.540
1 1/4	20		1 13/16	1.806	1 13/16	1.817
1 1/2	24		2 5/32	2.163	2 11/64	2.174
2	32		2 33/64	2.517	2 17/32	2.528

†Measure to the closest 1/64-inch.

SAE J518 4-Bolt Flange*





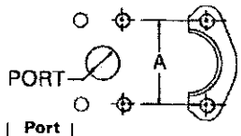
Male Half

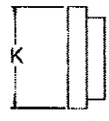
Female Half

This connection is commonly used in fluid power systems. There are two pressure ratings. Code 61 is referred to as the "standard" series and Code 62 is the "6000 psi" series. The design concept for both series is the same, but the bolt hole spacing and flanged head diameters are larger for the higher pressure, Code 62 connection.

The female (port) is an unthreaded hole with four bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an O-Ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the O-Ring, which is compressed between the flanged head and the flat surface surrounding the port. The threaded bolts hold the connection together.

*SAE J518, JIS B 8363, ISO/DIS 6162 and DIN 20066 are interchangeable, except for bolt sizes.





Inch Size (Dash size)	Port Hole I.D. inch fract. (deci.)	Bolt Dimension inch		Bolt Hole Spacing "A" inch (decimal)		Flanged Head Dia. "K" inch (dec)	
		Cd. 61	Cd. 62	Cd. 61	Cd.62	Cd. 61	Cd. 62
1/2 (08)	1/2 (.50)	5/16-18x1 1/4	5/16-18x1 1/4	1 1/2 (1.50)	1 19/32 (1.59)	1 3/16 (1.19)	1 1/4 (1.25)
3/4 (12)	3/4 (.75)	3/8-16x1 1/4	3/8-16x1 1/2	1 7/8 (1.88)	2 (2.00)	1 1/2 (1.50)	1 5/8 (1.63)
1 (16)	1 (1.00)	3/8-16x1 1/4	7/16-14x1 3/4	2 1/16 (2.06)	2 1/4 (2.25)	1 3/4 (1.75)	1 7/8 (1.88)
1 1/4 (20)	1 1/4 (1.25)	7/16-14x1 1/2	1/2-13x1 3/4	2 5/16 (2.31)	2 5/8 (2.63)	2 (2.00)	2 1/8 (2.13)
1 1/2 (24)	1 1/2 (1.50)	1/2-13x1 1/2	5/8-11x2 1/4	2 3/4 (2.75)	3 1/8 (3.12)	2 3/8 (2.38)	2 1/2 (2.50)
2 (32)	2 (2.00)	1/2-13x1 1/2	3/4-10x2 3/4	3 1/16 (3.06)	3 13/16 (3.81)	2 13/16 (2.81)	3 1/8 (3.12)

How to Measure

Four Bolt Flange—First measure the port hole diameter using the caliper. Next, measure the longest bolt hole spacing from center-to-center (Dimension "A") or measure the flanged head diameter.

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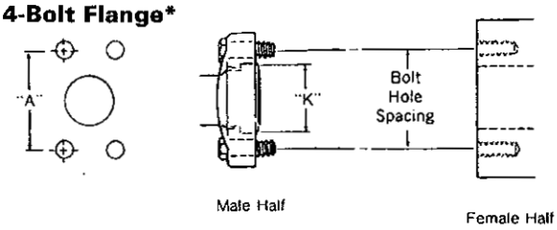
ISO connections

ISO/DIS 6162
4-Bolt Flange*



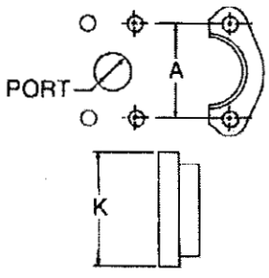
This connection is commonly used in fluid power systems. There are two pressure ratings. PN 35/350 bar (Code 61) is the "standard" series and PN 415 bar (Code 62) is the high pressure series. The design concept for both series is the same, but the bolt hole spacing and flanged head diameters are larger for the higher pressure, PN 415 bar connection. Both metric and inches bolts are used. The port will have an "M" stamped on it if metric bolts are required.

The female (port) is an unthreaded hole with four bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an O-Ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the O-Ring, which is compressed between the flanged head and the flat surface surrounding the port. The threaded bolts hold the connection together.

*ISO/DIS 6162, DIN 20066, JIS B 8363 and SAE J518 are interchangeable, except for bolt sizes.

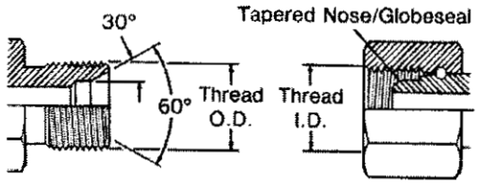
Size	Port Hole	Bolt Dimensions Spacing		Bolt Hole "A"	
		PN 35/350 Bar (Cd.61)	PN 415 Bar (Cd. 62)	PN 35/350 Bar (Cd. 61)	PN 415 Bar (Cd. 62)
mm in [dash]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]
13 (1/2) [08]	12,7 [.50]	M8 x 1.25 x 30 (5/16–18 x 1 1/4)	M8 x 1.25 x 30 (5/16–18 x 1 1/4)	38.10 [1.50]	40.49 [1.57]
19 (3/4) [12]	19,1 [.75]	M10 x 1.5 x 35 (3/8–16 x 1 1/4)	M10 x 1.5 x 40 (3/8–16 x 1 1/2)	47.63 [1.88]	50.80 [2.00]
25 (1) [16]	25,4 [1.00]	M10 x 1.5 x 35 (3/8–16 x 1 1/4)	M12 x 1.75 x 45 (7/16–14 x 1 3/4)	52.37 [2.06]	57.15 [2.25]
32 (1 1/4) [20]	31,8 [1.25]	M12 x 1.75 x 40 (7/16–14 x 1 1/2)	M14 x 2 x 50 (1/2–13 x 1 3/4)	58.72 [2.31]	66.68 [2.63]
38 (1 1/2)	38,1 [1.50]	M14 x 2 x 40 (1/2–13 x 1 1/2)	M16 x 2 x 55 (5/8–11 x 2 1/4)	[2.75]	[3.13]
51 (2) [32]	50,8 [2.00]	M14 x 2 x 40 (1/2–13 x 1 1/2)	M20 x 2.5 x 70 (3/4–10 x 2 3/4)	77.77 [3.06]	96.82 [3.81]

Inch Size	Flanged Head Dia. "K"			
	PN 35/350 Bar (Cd.61)		PN 415 Bar (Cd. 62)	
	mm	in	mm	in
1/2	30.18	1.19	31.75	1.25
3/4	38.10	1.50	41.28	1.63
1	44.45	1.75	47.63	1.88
1 1/4	50.80	2.00	53.98	2.13
1 1/2	60.33	2.38	63.50	2.50
2	71.42	2.81	79.38	3.13



German Connections

DIN 7631 Series



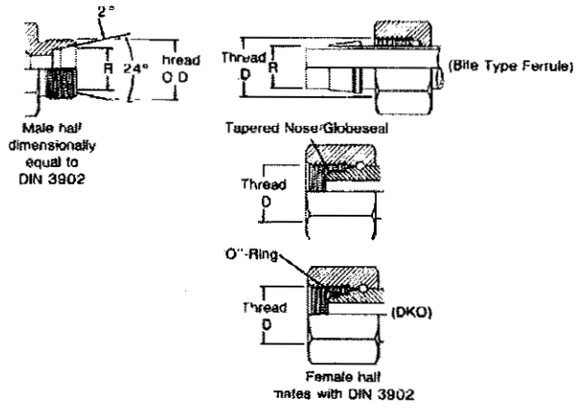
Male half dimensionally equal to DIN 7631

Female half mates with DIN 7631

This connection is frequently used in hydraulic systems. The male has a straight metric thread and a 60° (included angle) recessed cone. The female has a straight thread and a tapered nose/Globeseal seat. The seal takes place by contact between the cone of the male and the nose of the tapered nose/Globeseal flareless swivel. The threads hold the connection mechanically.

Use With Pipe/Tube O.D.		Metric Thread Size	Male Thread O.D.		Female Thread I.D.	
mm	in		mm	in	mm	in
6	0.24	M12 x 1.5	12	0.47	10,5	0.41
8	0.32	M14 x 1.5	14	0.55	12,5	0.49
10	0.39	M16 x 1.5	16	0.63	14,5	0.57
12	0.47	M18 x 1.5	18	0.71	16,5	0.65
15	0.59	M22 x 1.5	22	0.87	20,5	0.81
18	0.71	M26 x 1.5	26	1.02	24,5	0.96
22	0.87	M30 x 1.5	30	1.18	28,5	1.12
28	1.10	M38 x 1.5	38	1.50	36,5	1.44
35	1.38	M45 x 1.5	45	1.77	43,5	1.71
42	1.65	M52 x 1.5	52	2.04	50,5	1.99

DIN 3902 Series



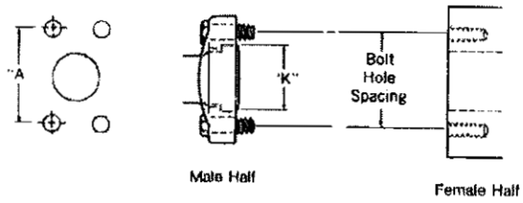
This connection style consists of a common male and three different female halves.

The male has a straight metric thread, a 24° included angle and a recessed counterbore that matches the tube O.D. used with it. The female may be a tube, nut and ferrule, a tapered nose/Globeseal flareless swivel or a tapered nose/Globeseal flareless swivel with an O-Ring in the nose (DKO type).

Tube O.D. "R" Dim. l.Rh.*		Tube O.D. "R" Dim. s.Rh.†		Metric Thread Size	Male Thread O.D.		Female Thread I.D.	
mm	in.	mm	in		mm	in	mm	in
6	0.24			M12 x 1.5	12	0.47	10.5	0.41
8	0.32	6	0.24	M14 x 1.5	14	0.55	12.5	0.49
10	0.39	8	0.32	M16 x 1.5	16	0.63	14.5	0.57
12	0.47	10	0.39	M18 x 1.5	18	0.71	16.5	0.65
12	0.47			M20 x 1.5	20	0.78	18.5	0.73
15	0.59	14	0.55	M22 x 1.5	22	0.87	20.5	0.81
16	0.63			M24 x 1.5	24	0.94	22.5	0.89
18	0.71			M26 x 1.5	26	1.02	24.5	0.96
22	0.87	20	0.78	M30 x 2.0	30	1.18	28	1.11
28	1.10	25	0.98	M36 x 2.0	36	1.41	34	1.34
30	1.18			M42 x 2.0	42	1.65	40	1.57
35	1.38			M45 x 2.0	45	1.77	43	1.70
42	1.65	38	1.50	M52 x 2.0	52	2.04	50	1.97

*l.Rh. is a light duty system.
†s.Rh. is a heavy duty system.

DIN 20066 4-Bolt Flange*



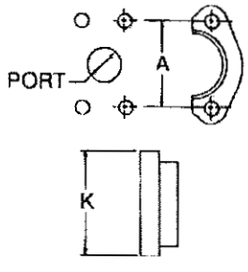
This connection is commonly used in fluid power systems. There are two pressure ratings. Form R (Code 61) is referred to as the "standard duty" series and Form S (Code 62) is the "heavy duty" series. The design concept for both series is the same, but the bolt hole spacing and flanged head diameters are larger for the higher pressure, Form S connection. Both metric and inch bolts are used.

The female (port) is an unthreaded hole with four bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an O-Ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the O-Ring, which is compressed between the flanged head and the flat surface surrounding the port. The threaded bolts hold the connection together.

*DIN 20066, IS/DIS 6166, JIS B 8363 and SAE J518 are interchangeable, except for bolt sizes.

Size mm (inch) [dash]	Port Hole	Bolt Dimensions		Bolt Hole Spacing	
		Form R. (Cd. 61)	Form S (Cd. 62)	Form R (Cd. 61)	Form S (Cd. 62)
	mm (in)			mm (in)	mm (in)
12 (1/2) [08]	12.7 (.50)	M8 x 1.25 x 30 5/16-18 x 1 1/4	M8 x 1.25 x 30 5/16-18 x 1 1/4	38.10 (1.50)	40.49 (1.57)
20 (3/4) [12]	19.1 (.75)	M10 x 1.5 x 30 3/8-16 x 1 1/4	M10 x 1.5 x 40 3/8-16 x 1 1/2	47.63 (1.88)	50.80 (2.00)
25 (1) [16]	25.4 (1.00)	M10 x 1.5 x 35 3/8-16 x 1 1/4	M12 x 1.75 x 45 7/16-14 x 1 3/4	52.37 (2.06)	57.15 (2.25)
32 (1 1/4) [20]	31.7 (1.25)	M10 x 1.75 x 40 7/16-14 x 1 1/2	M14 x 2 x 45 1/2-13 x 1 3/4	58.72 (2.31)	66.68 2.63)
40 (1 1/2) [24]	38.0 (1.50)	M12 x 1.75 x 40 1/2-13 x 1 1/2	M16 x 2 x 55 5/8-11 x 2 1/4	69.85 (2.75)	79.38 (3.13)
50 (2) [32]	50.8 (2.00)	M12 x 1.75 x 40 1/2-13 x 1 1/2	M20 x 2.5 x 70 3/4-10 x 2 3/4	77.77 (3.06)	96.82 (3.81)

Inch Size	Flanged Head Dia. "K"			
	FORM R (Cd. 61)		FORM S (Cd. 62)	
	mm	in	mm	in
1/2	30.18	1.19	31.75	1.25
3/4	38.10	1.50	41.28	1.63
1	44.45	1.75	47.63	1.88
1 1/4	50.80	2.00	53.98	2.13
1 1/2	60.33	2.38	63.50	2.50
2	71.42	2.81	79.38	3.13



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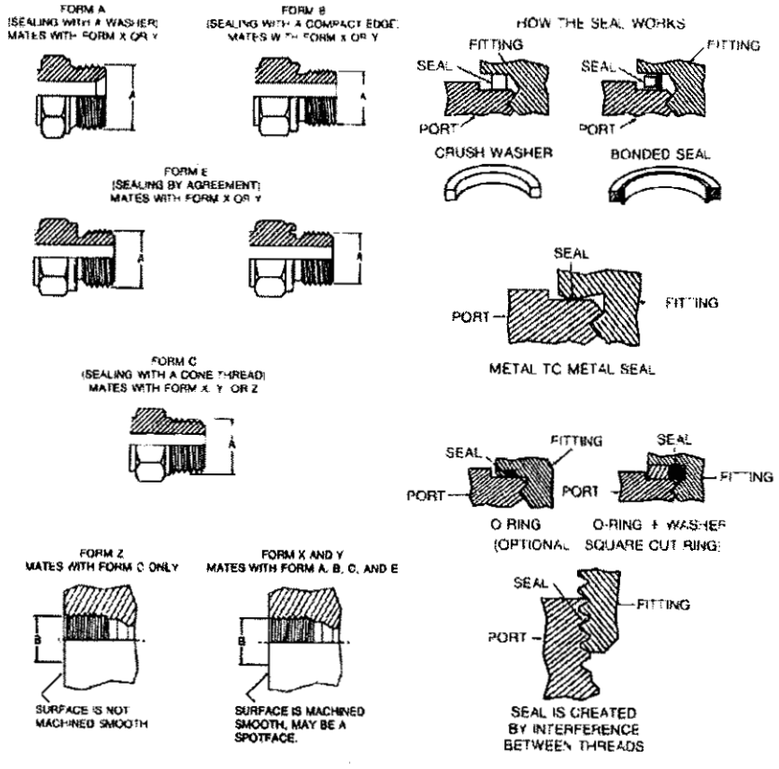
DIN 3852 Male Connectors and Female Ports

DIN 3852 Metric Threads

Metric Thread	Male Thread O.D. "A"		Female Thread I.D. "B"	
	mm	in.	mm	in.
M12 x 1.5	12	0.47	10,5	0.41
M14 x 1.5	14	0.55	12,5	0.49
M16 x 1.5	16	0.63	14,5	0.57
M18 x 1.5	18	0.71	16,5	0.65
M20 x 1.5	20	0.78	18,5	0.73
M22 x 1.5	22	0.87	20,5	0.81
M24 x 1.5	24	0.94	22,5	0.89
M26 x 1.5	26	1.02	24,5	0.96
M27 x 2	27	1.06	25	0.98
M30 x 1.5	30	1.18	28,5	1.12
M30 x 2	30	1.18	28	1.10
M33 x 2	33	1.30	31	1.22
M36 x 1.5	36	1.41	34,5	1.36
M36 x 2	36	1.41	34	1.33
M38 x 1.5	38	1.49	36,5	1.43
M38 x 2	38	1.49	36	1.41
M42 x 1.5	42	1.65	40,5	1.60
M42 x 2	42	1.65	40	1.57
M45 x 1.5	45	1.77	43,5	1.71
M45 x 2	45	1.77	43	1.69
M48 x 1.5	48	1.89	46,5	1.83
M48 x 2	48	1.89	46	1.81
M52 x 1.5	52	2.04	50,5	1.89
M52 x 2	52	2.04	50	1.97

For DIN 3852 Whitworth pipe thread dimensions, see BSPT/BSPP dimensions. They are the same.



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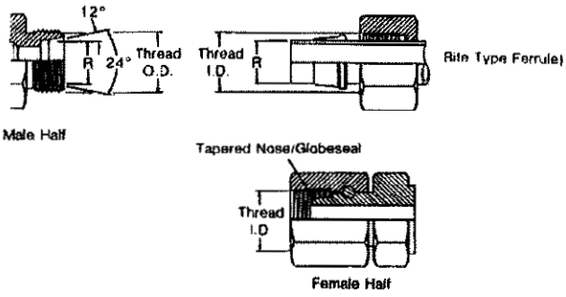
French Connections

Millimetrique and GAZ Series



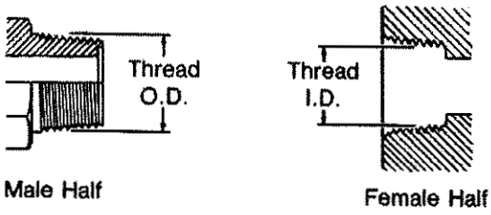
This connection consists of a common male and two different females. The Millimetrique Series is used with whole number metric O.D. tubing and the GAZ Series is used with fractional number metric O.D. pipe size tubing.

Millimetrique and GAZ Threads

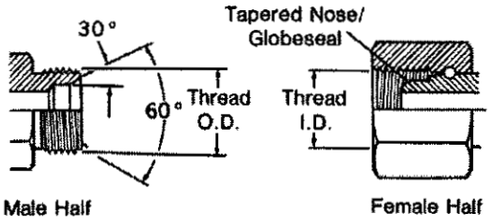
Tubing O.D. "R" dim.		"Gaz" Pipe O.D. "R" dim.		Metric Thread size	Male Thread O.D.		Female Thread I.D.	
mm	in	mm	in		mm	in	mm	in
6	0.24			M12 x 1.5	12	0.47	11	0.43
8	0.32			M14 x 1.5	14	0.55	12.5	0.49
10	0.39			M16 x 1.5	16	0.63	14.5	0.57
12	0.47			M18 x 1.5	18	0.71	16.5	0.65
14	0.55	13.25	0.52	M20 x 1.5	20	0.78	18.5	0.73
15	0.59			M22 x 1.5	22	0.87	20.5	0.81
16	0.63	16.75	0.66	M24 x 1.5	24	0.94	22.5	0.89
18	0.71			M27 x 1.5	27	1.06	25.5	1.00
22	0.87	21.25	0.83	M30 x 1.5	30	1.18	28.5	1.12
25	0.98			M33 x 1.5	33	1.30	31.5	1.24
28	1.10	26.75	1.05	M36 x 1.5	36	1.41	34.5	1.36
30	1.18			M39 x 1.5	39	1.54	37.5	1.48
32	1.25			M42 x 1.5	42	1.65	40.5	1.60
35	1.38	33.50	1.32	M45 x 1.5	45	1.77	43.5	1.71
38	1.50			M48 x 1.5	48	1.89	46.5	1.83
40	1.57	42.25	1.66	M52 x 1.5	52	2.04	50.5	1.99
45	1.77			M54 x 2.0	54	2.12	52	2.05
		48.25	1.90	M58 x 2.0	58	2.28	55	2.16

British Connections

British Standard Pipe (BSP)



This BSPT (tapered) connection is similar to the NPT, except that the thread pitches are different in most sizes, and the thread form and O.D.s are close but not the same. Sealing is accomplished by thread distortion. A thread sealant is recommended.



The BSP (parallel) male is similar to the NPSM male except the thread pitches are different in most sizes.

The female swivel BSPP has a tapered nose/Globeseal flareless swivel which seals on the cone seat of the male.

BSPT/BSPP Threads

Inch Size	Dash size	Nominal Thread size	Male Thread O.D. Inch		Female Thread O.D. Inch	
			fraction	decimal	fraction	decimal
1/8	02	1/8–28	3/8	0.38	11/32	0.35
1/4	04	1/4–19	33/64	0.52	15/32	0.47
3/8	06	3/8–19	21/32	0.65	19/32	0.60
1/2	08	1/2–14	1 13/16	0.82	3/4	0.75
5/8	10	5/8–14	7/8	0.88	13/16	0.80
3/4	12	3/4–14	11/32	1.04	31/32	0.97
1	16	1–11	15/16	1.30	1 7/32	1.22
1 1/4	20	1 1/4–11	1 21/32	1.65	1 9/16	1.56
1 1/2	24	1 1/2–11	1 7/8	1.88	1 25/32	1.79
2	32	2–11	2 11/32	2.35	2 1/4	2.26

*Frequently, the thread size is expressed as a fractional dimension preceded by the letter "G" or the letter "R". The "G" represents a parallel thread and the "R" indicates a tapered thread. For example, BSPP 3/8–19 may be expressed as G 3/8, and BSPT 3/8–19 may be expressed as R3/8.

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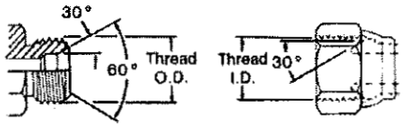
Japanese Connections

JIS 30° Male Inverted Seat, Parallel Pipe Threads

(Threads per JIS B 0202)



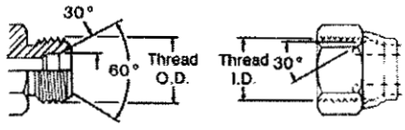
Male Half Female Half

The JIS parallel is similar to the BSPP connection. The JIS parallel thread and the BSPP connection are interchangeable.

Size	Size (dash)	Nominal Thd. Size (similar to bspp)	Male Thread O.D.		Female Thread I.D.	
			fraction	mm	fraction	mm
1/4	6 (04)	1/4–19	33/64	13.2	15/32	11.9
3/8	9 (06)	3/8–19	21/32	16.7	19/32	15.3
1/2	12 (08)	1/2–14	13/16	21.0	3/4	19.2
3/4	19 (12)	3/4–14	1 1/32	26.4	31/32	24.6
1	25 (16)	1–11	1 5/16	33.3	1 7/32	30.9
1 1/4	32 (20)	1 1/4–11	1 21/32	41.9	1 9/16	39.6
1 1/2	38 (24)	1 1/2–11	1 7/8	47.8	1 25/32	45.5
2	50 (32)	2–11	2 11/32	59.7	2 1/4	57.4

JIS 30° Male (Inverted) Seat, Metric Threads

(Threads per JIS B 0207)



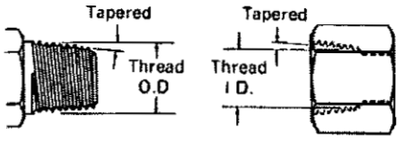
Male Half Female Half

The JIS parallel (metric) is the same as the JIS parallel (PF), except for the thread difference.

Inch Size	Dash Size Equivalent	Thread Size	Male Thread O.D.		Female Thread I.D.	
			fraction	mm	fraction	mm
6	04	M14 x 1.5	14	0.55	12.5	0.49
9	06	M18 x 1.5	18	0.71	16.5	0.65
12	08	M22 x 1.5	22	0.87	20.5	0.81
19	12	M30 x 1.5	30	1.18	28.5	1.12
25	16	M33 x 1.5	33	1.30	31.5	1.24
32	20	M42 x 1.5	42	1.65	40.5	1.60

JIS Tapered Pipe (PT)

(Threads per JIS B 0203)



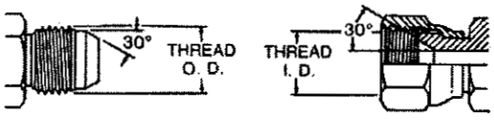
Male Half Female Half

The JIS tapered thread is similar to the BSPT connection in design, appearance and dimensions. The JIS tapered thread and the BSPT connection are interchangeable.

Size	Size (dash)	Nominal Thd. Size (similar to bspt)	Male Thread O.D.		Female Thread I.D.	
			fraction	mm	fraction	mm
1/4	6 (04)	1/4–19	33/64	13.2	15/32	11.9
3/8	9 (06)	3/8–19	21/32	16.7	19/32	15.3
1/2	12 (08)	1/2–14	13/16	21.0	3/4	19.2
3/4	19 (12)	3/4–14	1 1/32	26.4	31/32	24.6
1	25 (16)	1–11	1 5/16	33.3	1 7/32	30.9
1 1/4	32 (20)	1 1/4–11	1 21/32	41.9	1 9/16	39.6
1 1/2	38 (24)	1 1/2–11	1 7/8	47.8	1 25/32	45.5
2	50 (32)	2–11	2 11/32	59.7	2 1/4	57.4

JIS 30° Female (Cone) Seat, Parallel Pipe Threads

(Threads per JIS B 0202)



MALE HALF FEMALE HALF

The Japanese JIS 30° flare is similar to the American SAE 37° flare connection in application as well as sealing principles. However, the flare angle and dimensions are different. The threads are similar to BSPP.

Size	Size (dash)	Nominal Thd. Size (similar to bspp)	Male Thread O.D.		Female Thread I.D.	
			fraction	mm	fraction	mm
1/4	6 (04)	1/4–19	33/64	13.2	15/32	11.9
3/8	9 (06)	3/8–19	21/32	16.7	19/32	15.3
1/2	12 (08)	1/2–14	13/16	21.0	3/4	19.2
3/4	19 (12)	3/4–14	1 1/32	26.4	31/32	24.6
1	25 (16)	1–11	1 5/16	33.3	1 7/32	30.9
1 1/4	32 (20)	1 1/4–11	1 21/32	41.9	1 9/16	39.6
1 1/2	38 (24)	1 1/2–11	1 7/8	47.8	1 25/32	45.5
2	50 (32)	2–11	2 11/32	59.7	2 1/4	57.4

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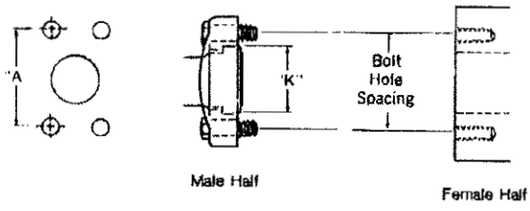
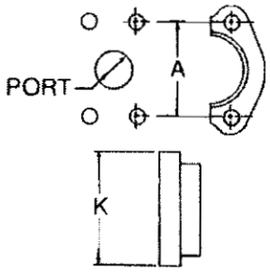
JIS B 8363 4-Bolt Flange*





Inch size	Flanged Head dia. "K"			
	Type I Bar (Cd.61)		Type II Bar (Cd. 62)	
	mm	in	mm	in
1/2	30,18	1.19	31,75	1.25
3/4	38,10	1.50	41,28	1.63
1	44,45	1.75	47,63	1.88
1 1/4	50,80	2.00	53,98	2.13
1 1/2	60,33	2.38	63,50	2.50
2	71,42	2.81	79,38	3.13

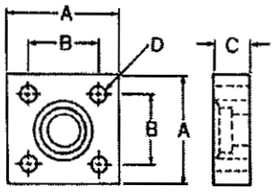
This connection is commonly used in fluid power systems. There are two pressure ratings. Type I (Code 61) is referred to as the "standard" series and Type II (Code 62) is the "6000 psi" series. The design concept for both series is the same, but the bolt hole spacing and flanged head diameters are larger for the higher pressure, Type II connection. Both metric and inch bolts are used.

The female (port) is an unthreaded hole with four bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an O-Ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the O-Ring, which is compressed between the flanged head and the flat surface surrounding the port. The threaded bolts hold the connection together.

*JIS B 8363, ISO/DIS 6162, DIN 20066, and SAE J518 are interchangeable, except for bolt sizes.

Size mm Inch [dash]	Port Hole mm (inch)	Bolt Dimensions mm & inch		Bolt Hole Spacing "A" mm (inch)	
		TYPE I (Cd.61)	TYPE II (Cd. 62)	TYPE I (Cd. 61)	TYPE II (Cd. 62)
12 (1/2) [08]	12.7 (0.50)	M8 x 1.25 x 30 5/16–18 x 1 1/4	M8 x 1.25 x 30 5/16–18 x 1 1/4	38.10 (1.50)	40.49 (1.57)
19 (3/4) [12]	19.1 (0.75)	M10 x 1.5 x 30 3/8–16 x 1 1/4	M10 x 1.5 x 40 3/8–16 x 1 1/2	47.63 (1.88)	50.80 (2.00)
25 (1) [16]	25.4 (1.00)	M10 x 1.5 x 30 3/8–16 x 1 1/4	M12 x 1.75 x 45 7/16–14 x 1 3/4	52.37 (2.06)	57.15 (2.25)
32 (1 1/4) [20]	31.7 (1.25)	M12 x 1.5 x 40 7/16–14 x 1 1/2	M14 x 2 x 45 1/2–13 x 1 3/4	58.72 (2.31)	66.68 2.63)
38 (1 1/2) [24]	38.0 (1.50)	M12 x 1.75 x 40 1/2–13 x 1 1/2	M16 x 2 x 55 5/8–11 x 2 1/4	69.85 (2.75)	79.38 (3.13)
50 (2) [32]	50.8 (2.00)	M12 x 1.75 x 40 1/2–13 x 1 1/2	M20 x 2.5 x 70 3/4–10 x 2 3/4	77.77 (3.06)	96.82 (3.81)

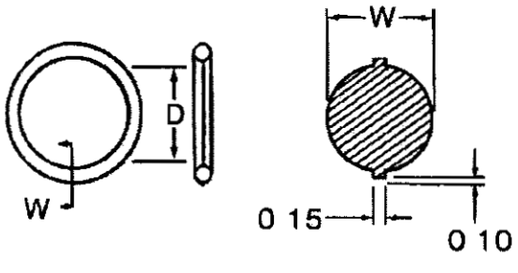
JIS 210 Kgf/cm² 4-Bolt Square Flange



The JIS 4-Bolt square flange connection is similar in concept to the SAE 4-bolt flange connection, except that the JIS bolt pattern is square and the flange itself is different.

Size mm	Approx. inch size	Bolt Size mm (Bolt length for long design)	Dim. "A" mm (inch)	Dim. "B" mm (inch)	Dim. "C" mm (inch)	Bolt Hole Dia "D" mm (inch)
12	1/2	M10 x 1.5 x 55 (80)	63 (2.48)	40 (1.57)	22 (0.87)	11 (0.43)
19	3/4	M10 x 1.5 x 55 (80)	68 (2.67)	45 (1.77)	22 (0.87)	11 (0.43)
25	1	M12 x 1.75 x 70 (100)	80 (3.15)	53 (2.09)	28 (1.10)	13 (0.51)
32	1 1/4	M12 x 1.75 x 70 (100)	90 (3.54)	63 (2.48)	28 (1.10)	13 (0.51)
38	1 1/2	M16 x 2.0 x 90 (130)	100 (3.94)	70 (2.76)	36 (1.42)	18 (0.71)
50	2	M16 x 2.0 x 90 (130)	112 (4.41)	80 (3.15)	36 (1.42)	18 (0.71)

JIS 210 Kgf/cm² O-Ring



Nominal size mm	Dim. "D" mm	Dim. "W" mm
12	24.4 ± 0.15	3.1 ± 0.1
19	29.4 ± 0.15	3.1 ± 0.1
25	34.4 ± 0.15	3.1 ± 0.1
32	39.4 ± 0.15	3.1 ± 0.1
38	49.4 ± 0.15	3.1 ± 0.1
50	59.4 ± 0.15	3.1 ± 0.1

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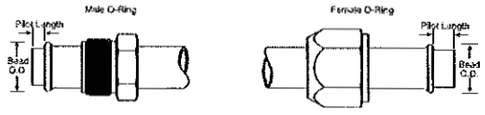
How to Identify O-Ring Pilot Thread Sizes

This connection is common to air conditioning systems, both in vehicle and commercial applications. Both the male and female halves of the connections have a pilot, either long or short. The seal takes place by compressing an O-ring adjacent to the bead of the tube. The threads hold the connection together mechanically.

		Male Thread			Female Thread		
Inch Size	Dash Size	O.D. (inch) Nominal Thread	O.D. (inch) Fraction	O.D. (inch) Decimal	I.D. (inch) Nominal Thread	I.D. (inch) Fraction	I.D. (inch) Decimal
3/8	06	5/8 - 18	5/8	0.62	5/8 - 18	9/16	0.57
1/2	08	3/4 - 18	3/4	0.75	3/4 - 16	11/16	0.69
5/8	10	7/8 - 18	7/8	0.87	7/8 - 14	13/16	0.81
3/4	12	1 1/16 -16	1 1/16	1.06	1 1/16 - 14	1	0.99

Inch Size	Nominal Tube Size	Long Pilot		Short Pilot	
		Bead O.D. (inch)	Pilot Length	Bead O.D. (inch)	Pilot Length
3/8	06	0.52	0.28	0.52	0.19
1/2	08	0.64	0.39	0.64	0.19
5/8	10	0.77	0.39	0.77	0.19
3/4	12	0.91	0.39	0.91	0.19



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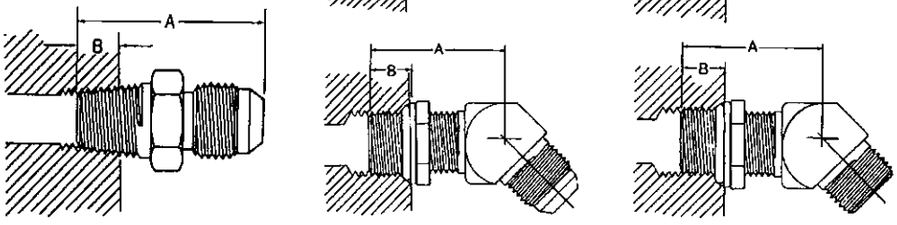
Thread Engagement Nominal Dimensions

Dimensions may vary due to tolerance conditions.
Listed below are the thread engagement dimensions (B) which must be taken into consideration when making connection with ports or appropriate female adapters.
The "B" dimension must be subtracted from the overall length (A) to insure proper connection.



Dash Size	Male Pipe		SAE O-ring Boss SAE J1926 with 37° Flare J514		SAE O-ring Boss SAE J1926 with ORS J1453	
	Straight and Angled Dimension "B"		Straight and Adjustable Dimension "B"		Straight and Adjustable Dimension "B"	
	mm	in	mm	in	mm	in
–02	6,4	0.25				
–04	9,7	0.38	9,1	0.36	10,9	0.43
–05			9,1	0.36	10,9	0.43
–06	9,7	0.38	9,1	0.39	11,9	0.47
–08	12,7	0.50	10,9	0.43	14,0	0.55
–10			12,7	0.50	16,0	0.63
–12	15,7	0.62	15,0	0.59	18,5	0.73
–14			15,0	0.59		
–16	17,5	0.69	15,0	0.59	18,5	0.73
–20	17,5	0.69	15,0	0.59	18,5	0.73
–24	17,5	0.69	15,0	0.59	18,5	0.73
–32	19,1	0.75	15,0	0.59		

Allowable bulkhead thickness for ORS:

Dash Size	Hole Diameter	ORS Bulkhead Thickness			
		MIN		MAX	
	in	mm	in	mm	in
–04	.575 +.015/–.000	5,1	0.20	12,7	0.50
–06	.700 +.015/–.000	5,1	0.20	15,0	0.59
–08	.825 +.015/–.000	5,6	0.22	15,0	0.59
–10	1.015 +.015/–.000	5,8	0.23	15,0	0.59
–12	1.200 +.015/–.000	6,4	0.25	15,0	0.59
–16	1.450 +.015/–.000	6,4	0.25	15,2	0.60
–20	1.715 +.015/–.000	6,4	0.25	15,2	0.60
–24	2.030 +.015/–.000	6,4	0.25	15,2	0.60

For 37° Flare:

Dash Size	Hole Diameter	37° Bulkhead Thickness Straights				37° Bulkhead Thickness Shapes			
		MIN		MAX		MIN		MAX	
	in	mm	in	mm	in	mm	in	mm	in
–03	.391 +.016/–.000	1,3	0.05	10,4	0.41	3,3	0.13	6,4	0.25
–04	.453 +.016/–.000	1,3	0.05	10,4	0.41	3,3	0.13	7,1	0.28
–05	.516 +.016/–.000	1,3	0.05	10,4	0.41	3,3	0.13	7,1	0.28
–06	.578 +.016/–.000	1,3	0.05	11,2	0.44	3,3	0.13	7,6	0.30
–08	.766 +.016/–.000	1,3	0.05	11,2	0.44	4,1	0.16	8,6	0.34
–10	.891 +.016/–.000	1,3	0.05	11,9	0.47	4,1	0.16	9,1	0.36
–12	1.076 +.016/–.000	1,3	0.05	11,9	0.47	4,1	0.16	9,7	0.38
–16	1.328 +.016/–.000	1,3	0.05	11,9	0.47	4,1	0.16	9,7	0.38
–20	1.656 +.031/–.000	1,3	0.05	11,9	0.47	4,1	0.16	9,7	0.38
–24	1.906 +.031/–.000	1,3	0.05	11,9	0.47	4,1	0.16	9,7	0.38

Dimensions may vary due to tolerance conditions.

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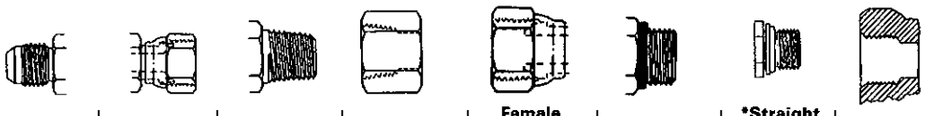
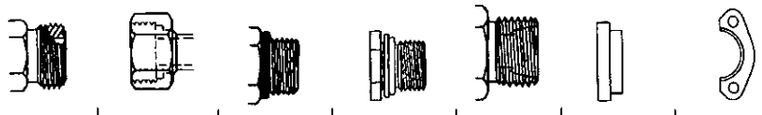
Thread Style Pressure Performance/ Maximum Operating Pressure

The following table is a breakdown of hydraulic pressure performance by thread style and size for steel products. The table is based on limited laboratory test data and is intended only as an approximate guide to field performance of Eaton products. Figures shown are maximum operating pressures in BAR (psi), based upon a 4:1 safety factor relative to the connection minimum burst pressure. Testing was conducted at SAE recommended assembly torque in hardened test blocks. The pressure rating must be adjusted for any change in mating part material. The maximum operating pressure for the adapter or tube fitting body must be the lower of the chosen mating end types.



Dash Size	Inch Size	SAE100R2 Maximum Operating Pressure		SAE 37° Flare Male (JIC)		SAE 37° Flare Swivel (JIC)		Male Pipe NPTF		Female Pipe NPTF		Female Pipe Swivel NPSM		*Male O-ring Boss		*Straight Thread O-ring Adjustable		Female O-ring Boss	
		bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
–2	1/8							700,0	10000	350,0	5000	420,0	6000						
–4	1/4	350,0	5000	595,0	8500	385,0	5500	655,0	9500	315,0	4500	350,0	5000	525,0	7500	315,0	4500	315,0	4500
–5	5/16	297,0	4250	595,0	8500	350,0	5000							525,0	7500	245,0	3500	245,0	3500
–6	3/8	280,0	4000	490,0	7000	280,0	4000	560,0	8000	245,0	3500	280,0	4000	525,0	7500	280,0	4000	245,0	3500
–8	1/2	245,0	3500	20,0	6000	280,0	4000	420,0	6000	245,0	3500	245,0	3500	525,0	7500	280,0	4000	210,0	3000
–10	5/8	192,0	2750	385,0	5500	210,0	3000							525,0	7500	280,0	4000	175,0	2500
–12	3/4	157,0	2250	280,0	4000	210,0	3000	350,0	5000	210,0	3000	245,0	3500	350,0	5000	245,0	3500	124,1	1800
–14	7/8	140,0	2000	280,0	4000	210,0	3000							350,0	5000	210,0	3000	117,2	1700
–16	1	140,0	2000	245,0	3500	175,0	2500	280,0	4000	175,0	2500	210,0	3000	315,0	4500	175,0	2500	112,0	1600
–20	1 1/4	113,0	1625	245,0	3500	140,0	2000	210,0	3000	140,0	2000	140,0	2000	315,0	4500	140,0	2000	105,0	1500
–24	1 1/2	87,0	1250	140,0	2000	105,0	1500	140,0	2000	105,0	1500	105,0	1500	245,0	3500	140,0	2000	105,0	1500
–32	2	78,0	1125	87,0	1250	87,0	1250	140,0	2000	98,0	1400	105,0	1500	140,0	2000				

*For non "ORS" adapters



Dash Size	Inch Size	SAE100r2 Maximum Operating Pressure		ORS Male		ORS Female Swivel		For ORS Adapters ORB/STR		For ORS Adapters ORB/ADJ		Male SAE Flareless		Flange Code 61		Flange Code 62	
		bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
–2	1/8																
–4	1/4	350,0	5000	630,0	9000	630,0	9000	630,0	9000	420,0	6000	420,0	6000				
–5	5/16	297,0	4250														
–6	3/8	280,0	4000	630,0	9000	630,0	9000	630,0	9000	420,0	6000	420,0	6000				
–8	1/2	245,0	3500	630,0	9000	560,0	8000	630,0	9000	420,0	6000	420,0	6000	350,0	5000	420,0	6000
–10	5/8	192,0	2750	630,0	9000	560,0	8000	630,0	9000	420,0	6000	350,0	5000				
–12	3/4	157,0	2250	420,0	6000	420,0	6000	420,0	6000	420,0	6000	315,0	4500	350,0	5000	420,0	6000
–14	7/8	140,0	2000														
–16	1	140,0	2000	420,0	6000	420,0	6000	420,0	6000	350,0	5000	280,0	4000	350,0	5000	420,0	6000
–20	1 1/4	113,0	1625	315,0	4500	315,0	4500	315,0	4500	315,0	4500			280,0	4000	420,0	6000
–24	1 1/2	87,0	1250	280,0	4000	280,0	4000	280,0	4000	210,0	3000			210,0	3000	420,0	6000
–32	2	78,0	1125											210,0	3000	420,0	6000

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Maximum Operating Pressures Bar/PSI for Hydraulic Tubing (SAEJ356, J524, J525, J526, J527)

Tube O.D.	Dash Size	Tubing Wall Thickness (in inches)											
		.028	.035	.049	.065	.083	.095	.109	.120	.134	.148	.156	.188
		bar psi	bar psi	bar psi	bar psi	bar psi	bar psi	bar psi	bar psi	bar psi	bar psi	bar psi	bar psi
.19	–03	297,0 4250	375,0 5450										
.25	–04	213,0 3100	272,0 3950	396,0 5750	420,0 6000								
.31	–05	169,0 2450	213,0 3100	315,0 4500	420,0 6000								
.38	–06	140,0 2000	175,0 2550	251,0 3650	350,0 5000	420,0 6000	420,0 6000						
.50	–08		127,0 1850	186,0 2700	251,0 3650	335,0 4800	388,0 5550	420,0 6000	420,0 6000				
.62	–10		105,0 1500	145,0 2100	196,0 2850	258,0 3750	299,0 4350	353,0 5050	392,0 5600				
.75	–12		84,0 1200	122,0 1750	162,0 2350	210,0 3050	248,0 3550	286,0 4150	322,0 4600				
1.00	–16		62,0 900	89,0 1300	122,0 1750	157,0 2250	182,0 2600	210,0 3000	231,0 3350	262,0 3800	294,0 4200		
1.25	–20			70,0 1000	93,0 1350	122,0 1750	143,0 2050	162,0 2350	182,0 2650	189,0 2700	203,0 2950	217,0 3100	259,0 3750
1.50	–24				79,0 1150	100,0 1450	119,0 1700	134,0 1950	148,0 2150	171,0 2450	171,0 2450	182,0 2600	220,0 3150
2.00	–32				58,0 850	77,0 1100	87,0 1250	100,0 1450	112,0 1600	126,0 1800	140,0 2000	147,0 2100	178,0 2550

Maximum operating pressure ratings at specified wall thickness are based upon recommended tubing ratings per SAEJ1065 as well as limited laboratory test data. Operating pressures are based upon a 4:1 safety factor relative to tube burst data. Eaton recommends a maximum operating pressure of the joint which is the lesser of the tubing rating or the mating connector rating.

Recommended Wall Thickness (Inches) for Tube Fitting Applications

Tube	Dash	Versil-Flare SAE 37° Flare	Versil-Flare SAE 37° Flareless	ORS-BR SAE O-Ring Face Seal	ORS-TF SAE O-ring Face Seal
.19	–03	.028 – .035	.028 – .035		
.25	–04	.028 – .065	.028 – .065	.028 – .065	.028 – .065
.31	–05	.028 – .065	.028 – .065		
.38	–06	.028 – .065	.028 – .095	.035 – .083	.028 – .065
.50	–08	.035 – .083	.035 – .120	.035 – .109	.035 – .120
.62	–10	.035 – .095	.035 – .120	.035 – .120	.035 – .095
.75	–12	.035 – .109	.035 – .120	.035 – .120	.049 – .120
1.00	–16	.035 – .120	.035 – .134	.049 – .148	.049 – .134
1.25	–20	.049 – .120	.049 – .188	.049 – .188	.049 – .156
1.50	–24	.065 – .120	.065 – .188	.065 – .188	.065 – .188
2.00	–32	.065 – .134	.065 – .188		

Recommended Hydraulic Tubing Material Specifications

Hydraulic Tubing SAE Specifications

Versil-Flare SAE 37° Flare	Versil-Flare SAE 37° Flareless	ORS-BR SAE O-ring Face Seal	ORS-TF SAE O-ring Face Seal
SAEJ524	SAEJ356	SAEJ356	SAEJ356
SAEJ525	SAEJ524	SAEJ524	SAEJ524
	SAEJ525	SAEJ525	SAEJ525
	SAEJ527	SAEJ526	SAEJ526

Hydraulic tubing material description: SAEJ356 electric resistance welded flash controlled low carbon steel, SAEJ524 seamless annealed low carbon steel, SAEJ525 electric resistance welded cold worked annealed, SAEJ526 single wall welded low carbon steel (automotive), SAEJ527 brazed double wall low carbon steel (automotive). The maximum hardness of the above tubing should not exceed Rockwell B65.

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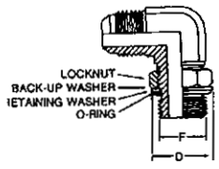
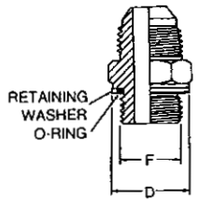
Metric Thread Dimensions Conversion Adapters

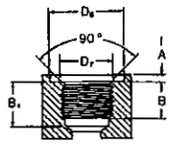
Sealing is achieved by means of an O-Ring, retaining washer and a properly machined port. The O-Ring is "captured" by the I.D. of the retaining washer. The port may be of the spot faced or a flat machined surface as long as the D6 dimension is met.

Assembly instructions for adjustable type adapters are presented on page 309.





DIN 3852 LARGE SPOTFACE



EQUIVALENT TODIN 3852 FORM X

Dimensions in mm

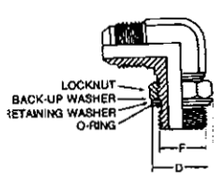
Thread Size	M 10 x 1	M 12 x 1.5	M 14 x 1.5	M 16 x 1.5	M 18 x 1.5	M 20 x 1.5	M 22 x 1.5	M 26 x 1.5	M 27 x 2	M 33 x 2	M 42 x 2	M 48 x 2
F Thread Dia.	10.0	12.0	14.0	16.0	18.0	20.0	22.0	26.0	27.0	33.0	42.0	48.0
A max	1.0	1.5	1.5	1.5	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5
B min (full thread)	12.0	12.0	12.0	12.0	12.0	14.0	14.0	16.0	16.0	18.0	20.0	22.0
B1 min	13.5	18.5	18.5	18.5	18.5	20.5	20.5	22.5	24.0	26.0	28.0	30.0
D max	15.7	18.7	19.7	23.2	26.2	28.2	30.2	35.2	36.2	43.2	52.7	58.7
D6 min	16.2	19.2	20.2	23.7	26.9	28.9	30.7	35.7	36.7	44.4	53.4	59.9
D7 max	10.2	12.2	14.2	16.2	18.2	20.2	22.2	26.2	27.2	33.3	42.3	48.3

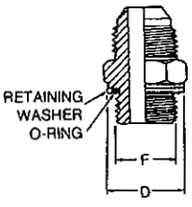
BSPP (Parallel) Threads

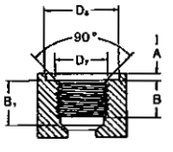
Sealing is achieved by means of an O-Ring, retaining washer and a properly machined port.

The O-Ring is "captured" by the I.D. of the retaining washer. The compression is controlled by the thickness of the retaining washer.

The port may be of the spot faced or a flat machined surface as long as the D6 dimension is met.





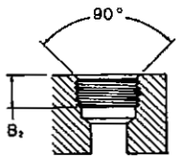


Thread Size	G 1/8"-28		G 1/4"-19		G 3/8"-19		G 1/2"-14		G 3/4"-14		G 1"-11		G 11/4"-11		G 11/2"-11	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
F Thread Dia.	9,7	0.38	13,2	0.50	16,7	0.66	20,9	0.83	26,4	1.04	33,3	1.31	41,9	1.65	47,8	1.88
A max	1,0	0.04	2,0	0.08	2,05	0.10	2,5	0.10	2,5	0.10	2,5	0.10	2,5	0.10	2,5	0.10
B min	8,0	0.31	12,0	0.47	12,0	0.47	14,0	0.63	16,0	0.63	18,0	0.71	20,0	0.79	22,0	0.87
B1 min (full thread)	13,0	0.51	18,5	0.73	18,5	0.73	22,0	0.94	24,0	0.94	27,0	1.06	29,0	1.14	31,0	1.22
D max	15,7	0.62	19,7	0.78	24,0	0.94	28,7	1.38	35,2	1.38	43,2	1.70	52,7	2.07	58,7	2.31
D6 min	16,2	0.64	20,2	0.81	24,9	0.98	29,4	1.43	36,4	1.43	44,4	1.75	53,4	2.10	59,9	2.36
D7 max	10,0	0.39	13,4	0.53	16,9	0.67	21,2	1.05	26,7	1.05	33,6	1.32	42,3	1.67	48,2	1.90

BSPT (Tapered) Threads

Port Sealing

Sealing is achieved by means of metal to metal deformation of the adapter and port threads.



Thread Size	R 1/8"-28		R 1/4"-19		R 3/8"-19		R 1/2"-14		R 3/4"-14		R 1"-11		R 11/4"-11		R 1 1/2"-11	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
B2 min (full thread)	5,5	0.22	8,5	0.33	8,5	0.33	10,5	0.41	13,0	0.51	14,5	0.57	17,0	0.67	17,0	0.67

Recommended Parallel Connection Assembly Torque

Eaton recommends that a torque wrench be used to assure proper fitting assembly of these connections.

The values listed are for steel connections. Contact Eaton for torque values for other materials.

Straight Thread O-Ring Boss Low Pressure with 37° (SAEJ514)

Dash Size	Thread Size (inches)	Jam Nut or Straight Fitting Torque lb.-ft.	Jam Nut or Straight Fitting Torque Newton Meters
–03	3/8-24	8-9	12-13
–04	7/16-20	13-15	18-20
–05	1/2-20	14-15	19-21
–06	9/16-18	23-24	32-33
–08	3/4-16	40-43	55-57
–10	7/8-14	43-48	59-64
–12	1 1/16-12	68-75	93-101
–14	1 3/16-12	83-90	113-122
–16	1 5/16-12	112-123	152-166
–20	1 5/8-12	146-161	198-218
–24	1 7/8-12	154-170	209-230
–32	2 1/2-12	218-240	296-325

Straight Thread O-Ring Boss High Pressure with ORS (J1453)

Dash Size	Thread Size (inches)	Jam Nut or Straight Fitting Torque lb.-ft.	Jam Nut or Straight Fitting Torque Newton Meters
–03	3/8-24	8-10	11-13
–04	7/16-20	14-16	20-22
–05	1/2-20	18-20	24-27
–06	9/16-18	24-26	33-35
–08	3/4-16	50-60	68-78
–10	7/8-14	72-80	98-110
–12	1 1/16-12	125-135	170-183
–14	1 3/16-12	160-180	215-245
–16	1 5/16-12	200-220	270-300
–20	1 5/8-12	210-280	285-380
–24	1 7/8-12	270-360	370-490

ORS

Dash Size	Thread Size (inches)	Swivel Nut Torque lb.-ft.	Swivel Nut Torque Newton Meters
–04	9/16-18	10-12	14-16
–06	11/16-16	18-20	24-27
–08	13/16-16	32-35	43-47
–10	1-14	46-50	62-68
–12	1 3/16-12	65-70	88-95
–16	1 7/16-12	92-100	125-136
–20	1 11/16-12	125-140	170-190
–24	2-12	150-165	204-224

SAE 37° (JIC)

Dash Size	Thread Size (inches)	Swivel Nut Torque lb.-ft.	Swivel Nut Torque Newton Meters
–04	7/16-20	11-12	15-16
–05	1/2-20	15-16	20-22
–06	9/16-18	18-20	24-28
–08	3/4-16	38-42	52-58
–10	7/8-14	57-62	77-85
–12	1 1/16-12	79-87	108-119
–16	1 5/16-12	108-113	148-154
–20	1 5/8-12	127-133	173-182
–24	1 7/8-12	158-167	216-227
–32	2 1/2-12	245-258	334-352

Metric

Thread Size	Straight Adapter or Locknut Torque	
mm	lb.-ft.	Newton Meters
M10 x 1	13-15	18-20
M12 x 1.5	15-19	20-25
M14 x 1.5	19-23	25-30
M16 x 1.5	33-40	45-55
M18 x 1.5	37-44	50-60
M20 x 1.5	52-66	70-90
M22 x 1.5	55-70	75-95
M26 x 1.5	81-96	110-130
M27 x 2	96-111	130-150
M33 x 2	162-184	220-250
M42 x 2	170-192	230-260
M48 x 2	258-347	350-470

BSPP

Nominal Thread Size	Straight Adapter or Locknut Torque	
inches**	lb.-ft.	Newton Meters
G 1/8-28	13-15	18-20
G 1/4-19	19-23	25-30
G 3/8-19	33-40	45-55
G 1/2-14	55-70	75-95
G 3/4-14	103-118	140-160
G 1-11	162-184	220-250
G 1 1/4-11	170-192	230-260
G 1 1/2-11	258-347	350-470

***"G" denotes parallel threads, other than ISO 6149. (Port connection only)*

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Proper Tube Installation

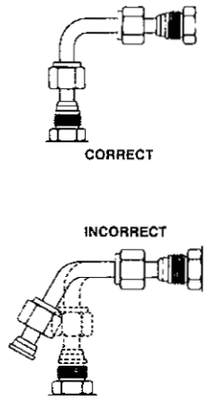

Figure 1

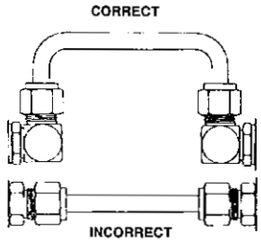

Figure 2

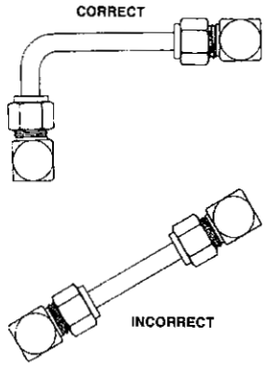

Figure 3

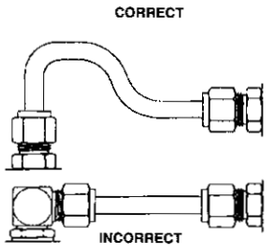

Figure 4

When compared to rigid pipe, hydraulic tubing offers the following advantages:

1. Size for size, tubing is lighter in weight, easier to handle and can be bent more easily than iron pipe.
2. Bent tubing reduces pressure drop and turbulence in the system because it eliminates sudden change in the direction of the fluid flow.
3. Hydraulic tubing reduces the number of connections required, thus reducing material and labor costs.
4. Fewer joints means lower costs and fewer points of potential leakage.
5. The use of tube fittings makes every joint a union which permits easier, faster maintenance and repair work.
6. The ORS-TF Tube Fitting eliminates the need for threading, brazing or welding.

Tube bending

To reduce the number of fittings in a tube assembly, bend the tubing whenever possible.

Steel tubing can be bent in many sizes by using a hand bender designed for steel tubing. For production quantities, or for larger sizes, a power bending tool is generally used. Contact Eaton for additional tube bending information.

Tube routing and installation

Tubing manufacturers will advise the correct radii for various types and wall thicknesses of tubing. Kinks, flattened bends, wrinkles and tube breakage can be avoided by the use of proper tube bending equipment.

Avoid straight line connections whenever possible, especially in short runs.

Fluid conveying systems (see figures 2, 3 and 4) should be designed to follow the contour of the equipment. They are easier to install and present a neater appearance. Long runs should be supported by brackets or clamps. All heavy systems components should be bolted or clamped to eliminate tubing fatigue.

Inspect the tubing to see that it conforms to the required specifications before installation.

Tubes should align with the center line of the fittings, without distortion or tension. Tubing should not be sprung into position (see figure 1) to be assembled to the fitting. If this occurs the tubing has not been properly fabricated, and when installed and connected, places the tubing under stress.

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Conversions

Inch/Millimeter Conversion Table

Multiply inches x 25.4 = Millimeters

Inches		Millimeters
fractions	decimals	decimals
1/64	.016	.397
1/32	.031	.794
3/64	.047	1.191
1/16	.063	1.588
5/64	.078	1.984
3/32	.094	2.381
7/64	.109	2.778
1/8	.125	3.175
9/64	.141	3.572
5/32	.156	3.969
11/64	.172	4.366
3/16	.188	4.763
13/64	.203	5.159
7/32	.219	5.556
15/64	.234	5.953
1/4	.250	6.350

Inches		Millimeters
fractions	decimals	decimals
17/64	.266	6.747
9/32	.281	7.144
19/64	.297	7.541
5/16	.313	7.938
21/64	.328	8.334
11/32	.344	8.731
23/64	.359	9.128
3/8	.375	9.525
25/64	.391	9.922
13/32	.406	10.319
27/64	.422	10.716
7/16	.438	11.113
29/64	.453	11.509
15/32	.469	11.906
31/64	.484	12.303
1/2	.500	12.700

Inches		Millimeters
fractions	decimals	decimals
33/64	.516	13.097
17/32	.531	13.494
35/64	.547	13.891
9/16	.563	14.288
37/64	.578	14.684
19/32	.594	15.081
39/64	.609	15.478
5/8	.625	15.875
41/64	.641	16.272
21/32	.656	16.669
43/64	.672	17.066
11/16	.688	17.463
45/64	.703	17.859
23/32	.719	18.256
47/64	.734	18.653
3/4	.750	19.050

Inches		Millimeters
fractions	decimals	decimals
49/64	.766	19.447
25/32	.781	19.844
51/64	.797	20.241
13/16	.813	20.638
53/64	.828	21.034
27/32	.844	21.431
55/64	.859	21.828
7/8	.875	22.225
57/64	.891	22.622
29/32	.906	23.019
59/64	.922	23.416
15/16	.938	23.813
61/64	.953	24.209
31/32	.969	24.606
63/64	.984	25.003
1	1.000	25.400

Pressure Conversion Table

(Per SAE J517 Appendix A)

Mpa	Bar	PSI
0.25	2.5	35
0.3	3	45
0.35	3.5	50
0.4	4	56
0.4	4	62
0.5	5	70
0.6	6	90
0.7	7	100
0.8	8	112
0.85	8.5	125
1	10	140
1.05	10.5	150
1.25	12.5	180
1.4	14	200
1.6	16	225
1.7	17	250
2.1	21	300
2.4	24	350
2.6	26	375
2.8	28	400
3.5	35	500
3.9	39	565

Mpa	Bar	PSI
4.2	42	600
4.3	43	625
4.9	49	700
5	50	725
5.2	52	750
5.6	56	800
6.1	61	875
7	70	1000
7.8	78	1125
8.4	84	1200
8.7	87	1250
9.8	98	1400
10	100	1450
10.5	105	1500
11.2	112	1600
11.3	113	1625
12.2	122	1750
14	140	2000
15.7	157	2250
16.8	168	2400
17.5	175	2500
19.2	192	2750

Mpa	Bar	PSI
20	200	2900
21	210	3000
22.4	224	3200
22.7	227	3250
24.5	245	3500
28	280	4000
29.7	297	4250
31.5	315	4500
33.5	335	4800
35	350	5000
38.5	385	5500
40	400	5800
42	420	6000
43.5	435	6250
45.5	455	6500
49	490	7000
52.5	525	7500
56	560	8000
59.5	595	8500
61	610	8750
63	630	9000
70	700	10000

Mpa	Bar	PSI
77	770	11000
78	780	11250
80	800	11600
84	840	12000
87	870	12500
98	980	14000
112	1120	16000
119	1190	17000
122	1220	17500
140	1400	20000
157	1570	22500
160	1600	23200
168	1680	24000
175	1750	25000
210	2100	30000
245	2450	35000
280	2800	40000
315	3150	45000
350	3500	50000

A new method for calculating the equivalent metric conversion to Mpa from psi was utilized. This method provides an extremely easy and consistent method of conversion to arrive at a rounded metric units using 7 Mpa for each 1000 psi. The resulting Mpa pressure in never more than 1.7% higher that the mathematically correct Mpa unit when the pressure in higher than 250 psi. All operating pressures of SAE J517 hoses are above 250 psi except for most of 100R4 and the 76mm (-48) and larger sizes of 100R5. Therefore all files of previous test results should not be compromised.

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Technical Data

Flow Capacities
Pressure Drop

* Pressure drop in psi (pounds per square inch)/gpm (gallons per minute) **for 10 feet of hose** (smooth bore) without fittings. Fluid specification: Specific gravity = .85; Viscosity = v = 20 centistokes (C.S.), (20 C.S. = 97 S.S.U.).

Hose pressure drop

Hose Dash Size Æ	-04	-05		-06		-08		-10		-12		-16		-20		-24		-32		-40	-48
Hose I.D. (inches) ¨ .19	.25	.25	.31	.31	.38	.41	.50	.50	.63	.63	.75		.88	1.00	1.13	1.25	1.38	1.50	1.81	2.00	2.38	3.00
.25	10	3.1	3.1																			
.50	19	6	6	2.7	2.7																	
1	40	12	12	5.5	5.5	2.4																
2	95	24	24	10	10	4.8	3.5															
3	185	46	46	17	17	7	5	2.2	2.2													
4		78	78	29	29	12	8	3	3	1.2	1.2											
5		120	120	44	44	18	12	4.5	4.5	1.6	1.6	.72										
8				95	95	39	26	10	10	3.6	3.6	1.4	.60									
10						59	40	15	15	5.7	5.7	2	1	.55								
12						80	52	20	20	7.2	7.2	2.6	1.5	.75	.43							
15							75	30	30	10	10	4.2	2.2	1.2	.67	.38						
18							107	40	40	15	15	6.3	3	1.5	.70	.55	.35					
20								49	49	19	19	8	3.4	2	1.1	.65	.43	.27				
25								72	72	26	26	11	5.5	3	1.6	1	.64	.40	.17			
30										34	34	14	7	3.6	2.2	1.3	.80	.52	.22	.14		
35										47	47	19	9.5	5	2.8	1.7	1.1	.70	.27	.18		
40												25	12	6.5	3.4	2.2	1.4	.90	.38	.24		
50												36	17	9	5.3	3.3	2	1.3	.54	.35	.15	
60												50	23	12	7.5	4.4	2.8	1.8	.75	.45	.20	
70													31	17	9.3	6	3.8	2.4	1	.65	.30	
80													38	21	12	7.1	4.6	3	1.2	.76	.34	.11
90													49	27	15	9	5.9	3.8	1.5	1	.45	.13
100														33	19	12	7	4.7	1.9	1.3	.55	.18
150														60	36	22	13	8.5	3.4	2.2	1	.33
200																36	23	15	6	3.9	1.7	.55
250																54	33	22	8.5	5.3	2.5	.75
300																	45	29	12	7.5	4	1.1
400																		51	21	14	6.5	2.2
500																			32	20	10	3
800																					18	5
1000																						10

U.S. Gallons per minute

*Pressure drop values listed are typical of many petroleum based hydraulic oils at approximately +100°F (+38°C). Differences in fluids, fluid temperature and viscosity can increase or decrease actual pressure drop compared to the values listed.

To convert

U.S. gallons into Imperial gallons multiply U.S. gallons by 0.83267. Imperial gallons into U.S. gallons multiply Imperial gallons by 1.20095. U.S. gallons to litres multiply by 3.785. Litres to U.S. gallons, multiply by 0.2642.

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Crimp Specifications

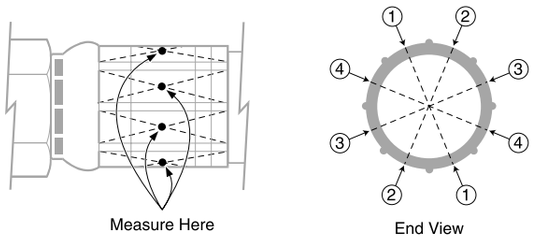
How to Measure Crimp Diameters

Crimp Diameter Measurement Locations

Diameter measurements are to be taken at the center (top to bottom, side to side) of the specified fitting section.

Use of the Aeroquip Calidapter (part no. FT1297) is recommended for measurement of barrel field crimp diameters. See accessories on page 37.

NOTE: The example and drawing on this page show an Aeroquip MatchMate Plus fitting. Refer to the figures within this document for the correct measurement locations for other types of fittings.



Crimp Diameter Measurement Location
(MatchMate Plus fitting shown)

Crimp Diameter

The crimp diameter is the average of the four diameter measurements around the fitting. These measurements are to be taken at the same relative locations indicated in the illustration above.

NOTE: Aeroquip defines the crimp diameter as the average of four measurements, not just one measurement (see the "End View" illustration above).

$$\frac{\text{Measurement 1} + \text{Measurement 2} + \text{Measurement 3} + \text{Measurement 4}}{4} = \text{Crimp Diameter}$$

Crimp Ovality

Crimp ovality is the largest diameter measurement minus the smallest diameter measurement.

Example

GH781-12 hose with a 1AA12FJ12 fitting measures:

Measurement 1 = **31,57mm (1.243 in.)**
Measurement 2 = **31,60mm (1.244 in.)**
Measurement 3 = **31,65mm (1.246 in.)**
Measurement 4 = **31,65mm (1.246 in.)**

Crimp Diameter = $\frac{31{,}51\text{mm (1.243in)} + 31{,}60\text{mm (1.244in)} + 31.65\text{mm (1.246in)} + 31.65\text{mm (1.246in)}}{4}$ = **31,62mm (1.245in)**

Crimp Ovality = 31.65mm (1.246in) – 31.57mm (1.243in) = **0,08mm (0.003in)**

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Hose Preparation Instructions

Global Skive Crimp Style

Select a matching hose and fitting combination from the current Aeroquip catalog.

Step 1: Cut the Hose

Cut the hose squarely and to the proper length using a suitable cut off saw. The cut angle must not exceed 5°. Aeroquip recommends using saws similar to the S1104 or FT1500 for large bore and spiral hose, and the FT1258 for FC372 and FC373 hose. Read the saw operation manual for cutting instructions and blade applications.

Step 2: Skive the Hose

Using a suitable skive tool remove the outer hose cover (Do not skive FC372 and FC373). It is crucial that the hose is skived to the proper length and depth and the reinforcement is visible and undamaged around the entire skived area. Improper skiving may lead to fitting/hose separation and lack of weather seal. Refer to the Hose Style Index for proper skive tool and skive length and to Bulletin JA253 for skive tool instructions.

Step 3: Clean the Hose Bore

Using the FT1355-01 Jetcleaner or hose compatible solvent, bottle brush, and/or compressed air, flush contaminants from the hose bore. See operating instructions for the FT1355-01. Follow shop safety rules.

Step 4: Insert the Fitting into the Hose

Place the socket over the hose end until the socket retaining shoulder contacts the hose end. Insert the nipple into the socketed hose until the nipple shoulder bottoms against the hose tube. Slide the socket up against the nipple shoulder or hex and mark the hose cover next to the skirt of the socket.

Step 5: Crimp the Fitting

Crimp the fitting then measure the crimp diameter, ovality dimension (see page 2) and inspect the nipple/socket position. Refer to the Crimp Specification bulletin for this information. If the hose mark is not within 3mm (1/8") of the socket skirt, reject the assembly. Refer to your hose in the Hose Style Index for die selection, finished crimp diameter, ovality measurements and operating and crimping instructions.

Step 6: Plug or Cap Fitting Ends

Use 23055 dust plugs and caps to protect the fitting threads and seal out contamination until hose assembly is installed

Powering Business Worldwide

Hose Preparation Instructions

Global Nipple with Low Pressure Hose

Select a matching hose and fitting combination from the current Aeroquip catalog.

Step 1: Cut the Hose

Cut the hose squarely and to the proper length using a suitable cut off saw. The cut angle must not exceed 5°. Aeroquip recommends using saws similar to the S1104 or FT1500 for large bore hoses. Read the saw operation manual for cutting instructions and blade applications.

Step 2: Buffing the Hose

Note: Some hoses require the cover to be buffed. Refer to the approprate section of the crimp specifications bulletin prior to proceeding. Buff the hose to the proper length and diameter. Remove just enough of the cover to slide the socket on the hose. Do not expose the wire reinforcement. Refer to your hose in the Hose Style Index for more information.

Step 3: Clean the Hose Bore

Using the FT1355-01 Jetcleaner or hose compatible solvent, bottle brush, and/or compressed air, flush contaminants from the hose bore. See operating instructions for the FT1355-01. Follow shop safety rules.

Step 4: Insert the Fitting into the Hose

Place socket over buffed hose end until the socket retaining shoulder contacts the hose end. Insert the nipple into the socketed hose until the nipple shoulder bottoms against the hose tube. Slide the socket up against the nipple shoulder or hex and mark the hose cover next to the skirt of the socket.

Step 5: Crimp the Fitting

Crimp the fitting then measure the crimp diameter, ovality dimension and inspect the nipple/socket position. Refer to the Crimp Specification bulletin for this information. If the hose mark is not within 3mm (1/8") of the socket skirt, reject the assembly. Refer to your hose in the Hose Style Index for die selection, finished crimp diameter, ovality measurements and operating and crimping instructions.

Step 6: Plug or Cap the Fitting Ends

Use 23055 dust plugs and caps to protect the fitting threads and seal out contamination until hose assembly is installed.

Hose Preparation Instructions

Global Spiral TTC, TTC, TTC12 and OTC Crimp Style Fittings

Select a matching hose and fitting combination from the current Aeroquip catalog.

Step 1: Cut the Hose

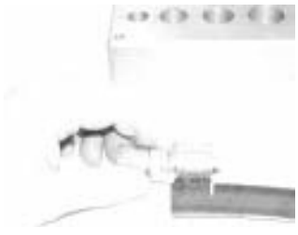
Cut the hose squarely and to the proper length using a suitable cut off saw. The cut angle must not exceed 5°. Aeroquip recommends using saws similar to the S1104 or FT1500 for large bore and spiral hose. Read the saw operation manual for cutting instructions and blade applications.

Step 2: Clean the Hose Bore

Using the FT1355-01 Jetcleaner or hose compatible solvent, bottle brush, and compressed air, flush contaminants from the hose bore. See operating instructions for the FT1355-01. Follow shop safety rules.

Step 3a: For TTC, TTC12, OTC: Insert the Fitting into the Hose

To determine the fitting insertion depth, use the appropriate FF90308 hose insertion gage or align the end of the hose with the scribe line (located on socket taper) and mark the hose where the gage or socket ends. Insert the fitting into the hose until the bottom of the socket is aligned with the mark on the hose or it bottoms out.



Step 3b: For Spiral TTC: Insert the Fitting into the Hose

To determine the fitting insertion depth, use the appropriate FF90308 hose insertion gage or align the end of the hose with the top of the stenciled part number (located on socket taper) and mark the hose where the gage or socket ends. Insert the fitting into the hose until the bottom of the socket is aligned with the mark on the hose or it bottoms out.

Step 4: Crimp the Fitting

Crimp the fitting then measure the crimp diameter, ovality dimension (see page 2) and inspect the nipple/socket position. Refer to the Crimp Specification bulletin for this information. If the hose mark is not within 3mm (1/8") of the socket skirt reject the assembly. Refer to your hose in the Hose Style Index for die selection, finished crimp diameter, ovality measurements and operating and crimping instructions.

Step 5: Plug or Cap the Fittings Ends

Use 23055 dust plugs and caps to protect the fitting threads and seal out contamination until hose assembly is installed.

Powering Business Worldwide

Hose Preparation Instructions

Barrel and Flat Field Crimp Style Fittings

Select a matching hose and fitting combination from the current Aeroquip catalog.

Step 1: Cut the Hose

Cut the hose squarely and to the proper length using a suitable cut off saw. The cut angle must not exceed 5°. Aeroquip recommends using saws similar to the S1104. Read the saw operation manual for cutting instructions and blade applications.

Step 2: Clean the Hose Bore

Using the FT1355-01 Jetcleaner or hose compatible solvent, bottle brush, and compressed air, flush contaminants from the hose bore. See operating instructions for the FT1355-01. Follow shop safety rules.

Step 3: Insert the Fitting into the Hose

Insert the fitting into hose until the nipple shoulder bottoms against the hose. Mark the hose where the socket ends with a grease pencil.

Step 4: Crimp the Fitting

Crimp the fitting then measure the crimp diameter, ovality dimension (see page 2) and inspect the nipple/socket position. Refer to the Crimp Specification bulletin for this information. If the hose mark is not within 3mm (1/8") of the socket skirt reject the assembly.

Refer to your hose in the Hose Style Index for die selection, finished crimp diameter, ovality measurements and operating and crimping instructions. Measure Barrell crimp with Aeroquip calidapter (FT1297) and dial calipers or use a thread micrometer. Flat Field measurement does not require calidapters.

Step 5: Plug or Cap the Fitting Ends

Use 23055 dust plugs and caps to protect the fitting threads and seal out contamination until hose assembly is installed.

Hose Preparation Instructions

Swage or Flat Crimp Style Fittings (Polyon)

Select a matching hose and fitting combination from the current Aeroquip catalog.

Step 1: Cut the Hose

Cut the hose squarely and to the proper length using the FT1258 cut off tool. The angle of cut must not exceed 5°. Read your cut-off tool operator's manual for cutting instructions.

Step 2: Clean the Hose Bore

Using the FT1355-01 Jetcleaner or hose compatible solvent, bottle brush, and compressed air, flush contaminants from the hose bore. See operating instructions for the FT1355-01. Follow shop safety rules.

Step 3: Insert the Fitting into the Hose

Using the bottom edge of the fitting part number as a reference point, determine the length of the hose to be inserted into the socket. Mark the hose for insertion length with a grease pencil. Lightly lubricate the fitting nipple and push the fitting onto the hose leaving the socket edge even with the mark placed on the hose. Do not bottom the hose in the fitting.

Step 4: Swage the Fitting

Refer to the FT1242 or FT1282 Swage Machine owner's manual and the Hose Style Index for tooling specifications for your swage machine.

Step 5: Crimp the Fitting

Crimp the fitting then measure the crimp diameter, ovality dimensions (see page 2) and inspect the nipple/socket position. Refer to the Crimp Specification bulletin for this information. If the hose mark is not within 3mm (1/8") of the socket skirt, reject the assembly. Refer to your hose in the Hose Style Index for die selection, finished crimp diameter, ovality measurement and operating and crimp instructions.

Step 6: Plug or Cap the Fitting Ends

Use 23055 dust plugs and caps to protect the fitting threads and seal out contamination until hose assembly is installed.

Select a matching hose and fitting combination from the current Aeroquip catalog.

Step 1: Cut the Hose

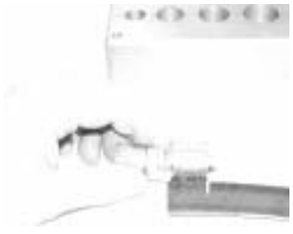
Cut the hose squarely and to the proper length using a suitable cut off saw. The cut angle must not exceed 5°. Aeroquip recommends using saws similar to the S1104 or FT1500 for large bore and spiral hose. Read the saw operation manual for cutting instructions and blade applications.

Step 2: Clean the Hose Bore

Using the FT1355-01 Jetcleaner or hose compatible solvent, bottle brush, and compressed air, flush contaminants from the hose bore. See operating instructions for the FT1355-01. Follow shop safety rules.

Step 3a: For TTC, TTC12, OTC: Insert the Fitting into the Hose

To determine the fitting insertion depth, use the appropriate FF90308 hose insertion gage or align the end of the hose with the scribe line (located on soc et taper) and mark the ho where the gage or socket ends. Insert the fitting int the hose until the bottom the socket is aligned with the mark on the hose or i bottoms out.



Step 3b: For Spiral TTC: Insert the Fitting into the Hose

To determine the fitting insertion depth, use the appropriate FF90308 hose insertion gage or align the end of the hose with the top of the stenciled part number (located on socket taper) and mark the hose where the gage or socket ends. Insert the fitting into the hose until the bottom of the socket is aligned with the mark on the hose or it bottoms out.

Step 4: Crimp the Fitting

Crimp the fitting then measure the crimp diameter, ovality dimension (see page 2) and inspect the nipple/socket position. Refer to the Crimp Specification bulletin for this information. If the hose mark is not within 3mm (1/8") of the socket skirt reject the assembly. Refer to your hose in the Hose Style Index for die selection, finished crimp diameter, ovality measurements and operating and crimping instructions.

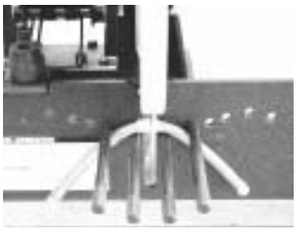
Step 5: Plug or Cap the Fittings Ends

Use 23055 dust plugs and caps to protect the fitting threads and seal out contamination until hose assembly is installed.

Hose Preparation Instructions

Flat Crimp Style Fittings (PTFE)

Select a matching hose and fitting combination from the current Aeroquip catalog.



Step 1: Cut the Hose

Place 1-1/2 wraps of filament tape around area to be cut. In the center of the taped area, cut the hose squarely and to the proper length using a suitable cut-off saw. Aeroquip recommends using a saw similar to the S1104. When complete, the angle of cut must not exceed 5° and a thin band of tape must be left on the hose to keep the wires in place. Read the saw operation manual for cutting instructions and blade applications.

Step 2: Clean the Hose Bore

Using a hose compatible solvent, bottlebrush, or compressed air, flush contaminants from the hose bore. Follow shop safety rules.

Step 3a: Insert the Fitting into the Hose - Convoluted PTFE

Slide the socket over the hose until the socket bottoms out, or you can see the hose at the top of the socket. Insert the nipple into the hose, turning it inward, until the shoulder comes in contact with the hose. Slide the socket up over the shoulder and flush with the hex. To ensure the fitting does not move during crimping, mark the hose at the bottom of the socket. Swivel Type Fittings: Screw a plug or adapter into the swivel threads and secure the fitting in a vise. Thread the hose onto the nipple until it is snug against the nipple assembly shoulder. Male pipe and flange fittings may be secured in vise without an adapter.

Step 3b: Insert the Fitting into the Hose - Smooth Bore PTFE

Place socket over taped hose end until the socket retaining shoulder contacts the hose end. Insert the nipple into the socketed hose until the nipple bottoms against the hose tube. Slide the socket up against the nipple shoulder and hex and mark the hose cover next to the skirt of the socket.

Step 4: Crimp the Fitting

Crimp the fitting and check the crimp diameter, ovality dimension (see page 2) and inspect the nipple/socket position. Refer to the Crimp Specification bulletin for this information. If hose mark is not within 3mm (1/8") of the socket skirt, reject the assembly. PTFE hose requires a crimp machine with a positive backstop. Refer to your hose in the Hose Style Index for die selection, finished crimp diameter, ovality measurements and operating and crimping instructions.

Step 5: Plug or Cap the Fitting Ends

Use 23055 dust plugs and caps to protect the fitting threads and seal out contamination until hose assembly is installed.

Hose Preparation Instructions

Skive Type - 1 and 2 Piece Crimp Style Fittings

Select a matching hose and fitting combination from the current Aeroquip catalog.

Step 1: Cut the Hose

Cut the hose squarely and to the proper length using a suitable cut off saw. The cut angle must not exceed 5°. Aeroquip recommends using saws similar to the S1104 or FT1500 for large bore and spiral hose. Read the saw operation manual for cutting instructions and blade applications.

Step 2: Skive the Hose

Using a suitable skive tool, remove the outer hose cover. It is crucial that the hose is skived to the proper length and depth and the reinforcement is visible all around the circumference of the hose and undamaged around the entire skived area. Improper skiving may lead to fitting/hose separation and lack of weather seal. Refer to your hose in the Hose Style Index for proper skive tool and skive length. Refer to Bulletin JA253 for skive tool instructions.

Step 3: Clean the Hose Bore

Using the FT1355-01 Jetcleaner or hose compatible solvent, bottle brush, and/or compressed air, flush contaminants from the hose bore. See operating instructions for the FT1355-01. Follow shop safety rules.

Step 4a: One Piece Fitting: Insert the Fitting into the Hose

To determine the fitting insertion depth, align the end of the hose with the top of the stenciled part number (located on socket taper) and mark the hose where the socket ends. Insert the fitting into the hose until the bottom of the socket is aligned with the mark on the hose or it bottoms out.

Step 4b: Two Piece Fitting: Insert the Fitting into the Hose

Place the socket over the skived hose end until the socket retaining shoulder contacts the hose end. Insert the nipple into the socketed hose until the nipple shoulder bottoms against the hose tube. Slide the socket up against the nipple shoulder or hex and mark the hose cover next to the skirt of the socket.

Step 5: Crimp the Fitting

Crimp the fitting then measure the crimp diameter, ovality dimension (see page 2) and inspect the nipple/socket position. Refer to the Crimp Specification bulletin for this information. If the hose mark is not within 3mm (1/8") of the socket skirt, reject the assembly. Refer to your hose in the Hose Style Index for die selection, finished crimp diameter, ovality measurements and operating and crimping instructions.

Step 6: Plug or Cap the Fitting Ends

Use 23055 dust plugs and caps to protect the fitting threads and seal out contamination until hose assembly is installed.

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ET1000
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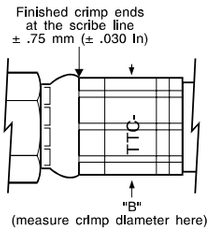
* Max. crimp ovality .20 mm/.008 in.

** Die ring adapter part number = ET1000AR-001.

Figure 5



HOSE STYLE	SOCKET PART #	COLLET PART #	SPACER RING	SPACER RING PART #	FLAT SIDE (UP/DOWN)	CRIMP DIA. B*	SEE FIG. #	DIE RING ADAPTER REQ'D**
						± .0.15 mm ± .006 in		
GH781-								
GH781-04	TTC	ET400DC-M150S	Yellow	ET1000SR-M115D	Up	16.89 mm 0.665 in	5	Yes
GH781-06	TTC	ET400DC-M195S	Black	ET1000SR-M265D	Down	20.70 mm 0.815 in	5	Yes
GH781-08	TTC	ET400DC-M230S	Lt. Green	ET1000SR-M190D	Up	24.77 mm 0.975 in	5	Yes
GH781-10	TTC	ET1000DC-M250S	Black	ET1000SR-M265D	Up	28.32 mm 1.115 in	5	No
GH781-12	TTC	ET1000DC-M295S	Black	ET1000SR-M265D	Down	31.62 mm 1.245 in	5	No
GH781-16	TTC	ET1000DC-M390S	Orange	ET1000SR-M315A	Up	39.75 mm 1.565 in	5	No
GH781-20	TTC	ET1000DC-M475S	Orange	ET1000SR-M315A	Up	48.26 mm 1.900 in	5	No
GH793-								
GH793-04	TTC	ET400DC-M150S	Lt. Green	ET1000SR-M190D	Up	17.27 mm 0.680 in	5	Yes
GH793-06	TTC	ET400DC-M195S	Yellow	ET1000SR-M115D	Up	21.21 mm 0.835 in	5	Yes
GH793-08	TTC	ET400DC-M230S	Black	ET1000SR-M265D	Up	25.15 mm 0.990 in	5	Yes
GH793-10	TTC	ET1000DC-M250S	Silver	ET1000SR-M395D	Up	28.70 mm 1.130 in	5	No
GH793-12	TTC	ET1000DC-M295S	Black	ET1000SR-M265D	Up	32.51 mm 1.280 in	5	No
GH793-16	TTC	ET1000DC-M390S	Lt. Green	ET1000SR-M190D	Up	41.40 mm 1.630 in	5	No
GH793-20	TTC	ET1000DC-M475S	Yellow	ET1000SR-M115D	Up	49.78 mm 1.960 in	5	No
GH120-								
GH120-04	TTC	ET400DC-M150S	Black	ET1000SR-M265D	Down	16.26 mm 0.640 in	5	Yes
GH120-06	TTC	ET400DC-M195S	Tan	T-400-112	Up	20.32 mm 0.800 in	5	Yes
GH120-08	TTC	ET400DC-M230S	Lt. Green	ET1000SR-M190D	Up	24.77 mm 0.975 in	5	Yes
GH120-10	TTC	ET1000DC-M250S	Black	ET1000SR-M265D	Up	28.32 mm 1.115 in	5	No
GH120-12	TTC	ET1000DC-M295S	Black	ET1000SR-M265D	Down	31.62 mm 1.245 in	5	No
GH120-16	TTC	ET1000DC-M390S	Orange	ET1000SR-M315A	Up	39.75 mm 1.565 in	5	No
GH120-20	TTC	ET1000DC-M475S	Orange	ET1000SR-M315A	Up	48.26 mm 1.900 in	5	No

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* Max. crimp ovality .20 mm/.008 in.

** Die ring adapter part number = ET1000AR-001.

Figure 5

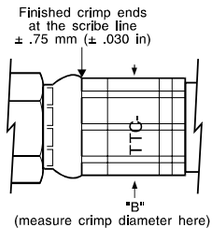
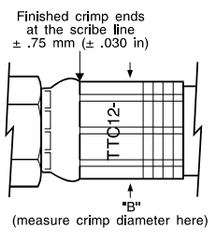


Figure 6



HOSE STYLE	SOCKET PART #	COLLET PART #	SPACER RING	SPACER RING PART #	FLAT SIDE (UP/DOWN)	CRIMP DIA. B*	SEE FIG. #	DIE RING ADAPTER REQ'D**
						± .0.15 mm ± .006 in		
GH663-								
GH663-04	TTC	ET400DC-M150S	Purple	ET1000SR-M100A	Up	15.75 mm 0.620 in	5	Yes
GH663-06	TTC	ET400DC-M195S	Purple	ET1000SR-M100A	Up	19.94 mm 0.785 in	5	Yes
GH663-08	TTC	ET400DC-M230S	Black	ET1000SR-M265D	Down	23.88 mm 0.940 in	5	Yes
GH663-10	TTC	ET1000DC-M250S	Purple	ET1000SR-M100A	Up	26.80 mm 1.055 in	5	No
GH663-12	TTC	ET1000DC-M295S	Yellow	ET1000SR-M115D	Up	31.75 mm 1.250 in	5	No
GH663-16	TTC	ET1000DC-M390S	Purple	ET1000SR-M100A	Up	40.39 mm 1.590 in	5	No
GH663-20	TTC	ET1000DC-M430S	Black	ET1000SR-M265D	Up	46.00 mm 1.811 in	5	No
GH195-								
GH195-04	TTC	ET400DC-M150S	Yellow	ET1000SR-M115D	Up	16.89 mm 0.665 in	5	Yes
GH195-06	TTC	ET400DC-M195S	Yellow	ET1000SR-M115D	Up	21.21 mm 0.835 in	5	Yes
GH195-08	TTC	ET400DC-M230S	Black	ET1000SR-M265D	Up	25.15 mm 0.990 in	5	Yes
GH195-10	TTC	ET1000DC-M250S	Silver	ET1000SR-M395D	Up	28.70 mm 1.130 in	5	No
GH195-12	TTC	ET1000DC-M295S	Black	ET1000SR-M265D	Up	32.51 mm 1.280 in	5	No
GH195-16	TTC	ET1000DC-M390S	Black	ET1000SR-M265D	Up	41.66 mm 1.640 in	5	No
GH195-20	TTC	ET1000DC-M475S	Silver	ET1000SR-M395D	Up	50.80 mm 2.000 in	5	No
GH194-								
GH194-04	TTC	ET400DC-M150S	Purple	ET1000SR-M100A	Up	15.75 mm 0.620 in	5	Yes
GH194-06	TTC	ET400DC-M195S	Green	T-400-37	Up	19.56 mm 0.770 in	5	Yes
GH194-08	TTC	ET400DC-M230S	Black	ET1000SR-M265D	Down	23.88 mm 0.940 in	5	Yes
GH194-10	TTC	ET1000DC-M250S	Purple	ET1000SR-M100A	Up	26.80 mm 1.055 in	5	No
GH194-12	TTC	ET1000DC-M295S	Yellow	ET1000SR-M115D	Up	31.75 mm 1.250 in	5	No
GH194-16	TTC	ET1000DC-M390S	Purple	ET1000SR-M100A	Up	40.39 mm 1.590 in	5	No
GH194-20	TTC	ET1000DC-M430S	Black	ET1000SR-M265D	Up	45.72 mm 1.800 in	5	No
GH493-								
GH493-06	TTC12	ET400DC-M230S	Red	T-400-38	Up	22.76 mm 0.896 in	6	Yes
GH493-08	TTC12	ET1000DC-M250S	Lt. Green	ET1000SR-M190D	Up	27.81 mm 1.095 in	6	No
GH493-10	TTC12	ET1000DC-M295S	Orange	ET1000SR-M315A	Up	30.48 mm 1.200 in	6	No
GH493-12	TTC12	ET1000DC-M320S	Black	ET1000SR-M265D	Down	34.42 mm 1.355 in	6	No
GH493-16	TTC12	ET1000DC-M430S	Orange	ET1000SR-M315A	Up	43.82 mm 1.725 in	6	No

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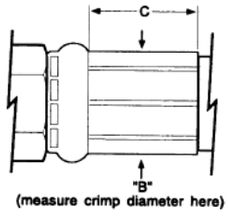
* Max. crimp ovality .20 mm/.008 in.

** Die ring adapter part number = ET1000AR-001.

Figure 9



HOSE STYLE	SOCKET PART #	COLLET PART #	SPACER RING	SPACER RING PART #	FLAT SIDE (UP/DOWN)	CRIMP DIA. B	CRIMP LENGTH C	SEE FIG. #	DIE RING ADAPTER REQ'D
						± .12 mm ± .005 in	± .38 mm ± .015 in		
FC372-									
FC372-02	FC1006	ET1000DC-M095S	Red	T-400-38	Up	9.52 mm 0.375 in	11.94 mm .470 in	9	Yes
FC372-03	FC1006	T-400-2C	Red	T-400-38	Up	12.75 mm 0.502 in	19.94 mm .785 in	9	Yes
FC372-04	FC1006	T-400-109C	Green	T-400-37	Up	14.47 mm 0.570 in	22.48 mm .885 in	9	Yes
FC372-05	FC1006	T-400-109C	Black/Red	T-400-47R	Up	16.26 mm 0.640 in	27.94 mm 1.100 in	9	Yes
FC372-06	FC1006	T-400-122C	Tan	T-400-112	Up	17.90 mm 0.705 in	32.39 mm 1.275 in	9	Yes
FC372-08	FC1006	ET1000DC-M215S	Magenta	ET1000SR-M215A	Up	21.71 mm 0.855 in	37.47 mm 1.475 in	9	Yes
FC372-12	FC1006	T-420-30C	Purple	ET1000SR-M100A	Up	28.19 mm 1.110 in	38.10 mm 1.500 in	9	No
FC372-16	FC1006	ET1000DC-M320S	Magenta	ET1000SR-M215A	Up	33.78 mm 1.330 in	51.44 mm 2.025 in	9	No
FC373-									
FC373-02	FC1006	ET1000DC-M095S	Red	T-400-38	Up	9.52 mm 0.375 in	11.94 mm .470 in	9	Yes
FC373-03	FC1006	T-400-2C	Red	T-400-38	Up	12.75 mm 0.502 in	19.94 mm .785 in	9	Yes
FC373-04	FC1006	T-400-109C	Green	T-400-37	Up	14.47 mm 0.570 in	22.48 mm .885 in	9	Yes
FC373-05	FC1006	T-400-109C	Black/Red	T-400-47R	Up	16.26 mm 0.640 in	27.94 mm 1.100 in	9	Yes
FC373-06	FC1006	T-400-122C	Tan	T-400-112	Up	17.90 mm 0.705 in	32.39 mm 1.275 in	9	Yes
FC373-08	FC1006	ET1000DC-M215S	Magenta	ET1000SR-M215A	Up	21.71 mm 0.855 in	37.47 mm 1.475 in	9	Yes
FC373-12	FC1006	T-420-30C	Purple	ET1000SR-M100A	Up	28.19 mm 1.110 in	38.10 mm 1.500 in	9	No
FC373-16	FC1006	ET1000DC-M320S	Magenta	ET1000SR-M215A	Up	33.78 mm 1.330 in	51.44 mm 2.025 in	9	No

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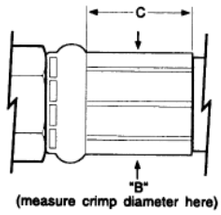
ET1000
Polyon Tooling

* Max. crimp ovality .20 mm/.008 in.

** Die ring adapter part number = ET1000AR-001.

Figure 9



HOSE STYLE	SOCKET PART #	COLLET PART #	SPACER RING	SPACER RING PART #	FLAT SIDE (UP/DOWN)	CRIMP DIA. B	CRIMP LENGTH C	SEE FIG. #	DIE RING ADAPTER REQ'D
						± .12 mm ± .005 in	± .38 mm ± .015 in		
FC374-									
FC374-03	FC1006	T-400-2C	Red	T-400-38	Up	12.75 mm 0.502 in	19.94 mm .785 in	9	Yes
FC374-04	FC1006	T-400-109C	Red	T-400-38	Up	14.22 mm 0.560 in	22.48 mm .885 in	9	Yes
FC374-06	FC1006	T-400-122C	Purple	ET1000SR-M100A	Up	17.65 mm 0.695 in	32.39 mm 1.275 in	9	Yes
FC374-08	FC1006	ET1000DC-M215S	Red	T-400-38	Up	21.46 mm 0.845 in	37.47 mm 1.475 in	9	Yes
FC374-12	FC1006	T-420-30C	Red	T-400-38	Up	27.68 mm 1.090 in	38.10 mm 1.500 in	9	No
FC374-16	FC1006	ET1000DC-M320S	Magenta	ET1000SR-M215A	Up	33.78 mm 1.330 in	51.44 mm 2.025 in	9	No
FC375-									
FC375-03	FC1006	T-400-2C	Red	T-400-38	Up	12.75 mm 0.502 in	19.94 mm .785 in	9	Yes
FC375-04	FC1006	T-400-109C	Red	T-400-38	Up	14.22 mm 0.560 in	22.48 mm .885 in	9	Yes
FC375-06	FC1006	T-400-122C	Purple	ET1000SR-M100A	Up	17.65 mm 0.695 in	32.39 mm 1.275 in	9	Yes
FC375-08	FC1006	ET1000DC-M215S	Red	T-400-38	Up	21.46 mm 0.845 in	37.47 mm 1.475 in	9	Yes
FC375-12	FC1006	T-420-30C	Red	T-400-38	Up	27.68 mm 1.090 in	38.10 mm 1.500 in	9	No
FC375-16	FC1006	ET1000DC-M320S	Magenta	ET1000SR-M215A	Up	33.78 mm 1.330 in	51.44 mm 2.025 in	9	No

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100R5

Crimp Die Part Numbers

FT1307-200-R5-** (-04 through -32)

FT1330-275-R5-** (-04 through -20)

FT1380-275-R5-** (-04 through -20)

* Max. crimp ovality .20 mm/.008 in.

**Must be replaced by appropriate dash size when ordering.

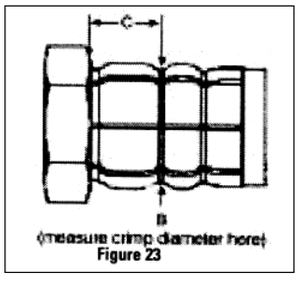

Figure 23

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .15 mm ± .006 in	± .38 mm ± .015 in			
1503						
-04	FW1186	12.55 mm 0.494 in	13.10 mm 0.516 in	-R5-04	23	
-05	FLH186	13.35 mm 0.525 in	13.10 mm 0.516 in	-R5-05	23	
-06	FLH186	16.35 mm 0.644 in	13.10 mm 0.516 in	-R5-06	23	
-08	FLH186	18.35 mm 0.722 in	13.10 mm 0.516 in	-R5-08	23	
-10	FLH186	22.05 mm 0.868 in	13.10 mm 0.516 in	-R5-10	23	
-12	FLH186	25.95 mm 1.022 in	13.40 mm 0.528 in	-R5-12	23	
-16	FLH186	30.55 mm 1.203 in	16.80 mm 0.661 in	-R5-16	23	
-20	FLH186	36.35 mm 1.431 in	18.40 mm 0.724 in	-R5-20	23	
-24	FLH186	41.65 mm 1.640 in	19.30 mm 0.760 in	-R5-24	23	
-32	FLH186	55.55 mm 2.187 in	25.90 mm 1.020 in	-R5-32	23	
FC234						
-05	FLH186	14.05 mm 0.553 in	13.10 mm 0.516 in	-R5-05	23	
-06	FLH186	17.05 mm 0.671 in	13.10 mm 0.516 in	-R5-06	23	
-08	FLH186	19.05 mm 0.750 in	13.10 mm 0.516 in	-R5-08	23	
-10	FLH186	23.35 mm 0.919 in	13.10 mm 0.516 in	-R5-10	23	
-12	FLH186	26.25 mm 1.034 in	13.40 mm 0.528 in	-R5-12	23	
-16	FLH186	30.55 mm 1.203 in	16.80 mm 0.661 in	-R5-16	23	
FC300						
-04	FLH186	12.55 mm 0.494 in	13.10 mm 0.516 in	-R5-04	23	
-05	FLH186	13.55 mm 0.533 in	13.10 mm 0.516 in	-R5-05	23	
-06	FLH186	16.65 mm 0.656 in	13.10 mm 0.516 in	-R5-06	23	
-08	FLH186	18.75 mm 0.738 in	13.10 mm 0.516 in	-R5-08	23	
-10	FLH186	22.35 mm 0.880 in	13.10 mm 0.516 in	-R5-10	23	
-12	FLH186	26.15 mm 1.030 in	13.40 mm 0.528 in	-R5-12	23	
-16	FLH186	30.55 mm 1.203 in	16.80 mm 0.661 in	-R5-16	23	
-20	FLH186	36.25 mm 1.427 in	18.40 mm 0.724 in	-R5-20	23	
-24	FLH186	41.85 mm 1.648 in	19.30 mm 0.760 in	-R5-24	23	
-32	FLH186	55.05 mm 2.167 in	25.90 mm 1.020 in	-R5-32	23	

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100R5

Crimp Die Part Numbers

FT1307-200-R5-** (-04 through -32)

FT1330-275-R5-** (-04 through -20)

FT1380-275-R5-** (-04 through -20)

* Max. crimp ovality .20 mm/.008 in.

**Must be replaced by appropriate dash size when ordering.

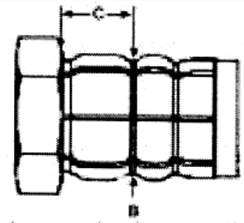
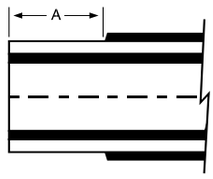


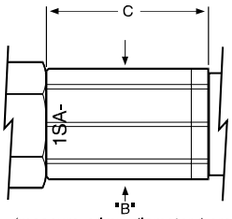
Figure 23

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .15 mm ± .006 in	± .38 mm ± .015 in			
FC350						
-04	FW1186	12.55 mm 0.494 in	13.10 mm 0.516 in	-R5-04	23	
-05	FLH186	13.65 mm 0.537 in	13.10 mm 0.516 in	-R5-05	23	
-06	FLH186	16.35 mm 0.644 in	13.10 mm 0.516 in	-R5-06	23	
-08	FLH186	0.734 mm 18.65 in	13.10 mm 0.516 in	-R5-08	23	
-10	FLH186	22.35 mm 0.880 in	13.10 mm 0.516 in	-R5-10	23	
-12	FLH186	26.15 mm 1.030 in	13.40 mm 0.528 in	-R5-12	23	
-16	FLH186	30.55 mm 1.203 in	16.80 mm 0.661 in	-R5-16	23	
-20	FLH186	36.35 mm 1.431 in	18.40 mm 0.724 in	-R5-20	23	
-24	FLH186	42.35 mm 1.667 in	19.30 mm 0.760 in	-R5-24	23	
FC355						
-04	FLH186	12.55 mm 0.494 in	13.10 mm 0.516 in	-R5-04	23	
-05	FLH186	13.55 mm 0.533 in	13.10 mm 0.516 in	-R5-05	23	
-06	FLH186	16.55 mm 0.652 in	13.10 mm 0.516 in	-R5-06	23	
-08	FLH186	18.65 mm 0.734 in	13.10 mm 0.516 in	-R5-08	23	
-10	FLH186	22.35 mm 0.880 in	13.10 mm 0.516 in	-R5-10	23	
-12	FLH186	26.15 mm 1.030 in	13.40 mm 0.528 in	-R5-12	23	
-16	FLH186	30.55 mm 1.203 in	16.80 mm 0.661 in	-R5-16	23	
-20	FLH186	36.75 mm 1.447 in	18.40 mm 0.724 in	-R5-20	23	
-24	FLH186	42.25 mm 1.663 in	19.30 mm 0.760 in	-R5-24	23	
-32	FLH186	55.55 mm 2.187 in	25.90 mm 1.020 in	-R5-32	23	

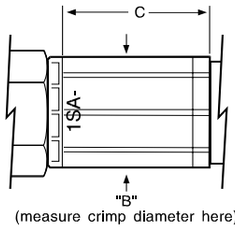
Global Skive Crimp Style



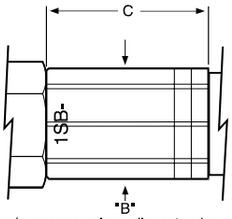
Skive Length
(hose cross section after skiving)



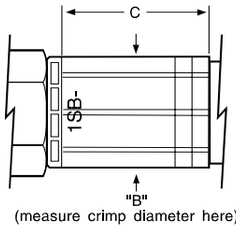
(measure crimp diameter here)
Figure 1



(measure crimp diameter here)
Figure 2



(measure crimp diameter here)
Figure 3



(measure crimp diameter here)
Figure 4

HOSE DASH SIZE	SOCKET PART #	SKIVE LENGTH A	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .50 mm ± .020 in	± .15 mm ± .006 in	± .76 mm ± .030 in			
GH194, GH663, 2681, FC194, FC211, FC613							
-03	1SA3	14.00 mm .550 in	12.83 mm .505 in	**	-M120 -90	1	
-04	1SA4	16.30 mm .640 in	15.75 mm .620 in	**	-M150 -2	1	
-05	1SA5	18.30 mm .720 in	17.78 mm .700 in	**	-M180 -93	1	
-06	1SA6	16.50 mm .650 in	20.83 mm .820 in	**	-M210 -3	1	
-08	1SA8	20.00 mm .790 in	23.24 mm .915 in	**	-M210 -4	1	
-10	1SA10	21.00 mm .830 in	26.80 mm 1.055 in	**	-M240 -5	1	
-12	1SA12	21.60 mm .850 in	30.73 mm 1.210 in	**	-M280 -6	1	
-16	1SA16	25.90 mm 1.020 in	38.10 mm 1.500 in	**	-M370 -8	1	
-20	1SA20	30.70 mm 1.210 in	47.75 mm 1.880 in	**	-M465 -9	1	
-20[1]	1SA20 Pre-Crimped	30.70 mm 1.210 in	47.75 mm 1.880 in	38.10 mm 1.500 in	-M465 -9	2	
-24	1SA24	32.80 mm 1.290 in	55.37 mm 2.180 in	**	-M550 -11	1	
-32	1SA32	33.00 mm 1.300 in	70.87 mm 2.790 in	**	-M690 -17 -23[2]	1	
GH195, GH793, 1529, 2766[3], 2781, FC195, FC212							
-04	1SB4	16.30 mm .640 in	15.88 mm .625 in 16.38 mm[3] .645 in[3]	**	-M150 -2	3	
-05	1SB5	19.30 mm .760 in	17.78 mm .700 in	**	-M180 -93	3	
-06	1SB6	16.50 mm .650 in	20.57 mm .810 in	**	-M210 -3	3	
-08	1SB8	20.00 mm .790 in	23.24 mm .915 in	**	-M210 -4	3	
-10	1SB10	21.00 mm .830 in	26.80 mm 1.055 in	**	-M240 -5	3	
-12	1SB12	21.60 mm .850 in	30.73 mm 1.210 in	**	-M280 -6	3	
-16	1SB16	25.90 mm 1.020 in	38.10 mm 1.500 in	**	-M370 -8	3	
-20	1SB20	30.70 mm 1.210 in	47.75 mm 1.880 in	**	-M465 -9	3	
-20[1]	1SB20 Pre-Crimped	30.70 mm 1.210 in	47.75 mm 1.880 in	38.10 mm 1.500 in	-M465 -9	4	
-24	1SB24	32.80 mm 1.290 in	55.37 mm 2.180 in	**	-M550 -11	3	
-32	1SB32	33.00 mm 1.300 in	70.87 mm 2.790 in	**	-M690 -17 -23[2]	3	
GH681							
-4	1SA4	16.30 mm .640 in	15.37 mm .605 in	**	-M150 -2	1	
-6	1SA6	16.50 mm .650 in	20.83 mm .820 in	**	-M210 -3	1	
-8	1SA8	20.10 mm .790 in	23.24 mm .915 in	**	-M210 -4	1	

* Max. crimp ovality .20 mm/.008 in.

** Crimp full length of socket.

1 -20 Global sockets must be pre-crimped to nipple to achieve complete crimp on FT1330 and FT1380 machines.

2 FT1209-200-23 not approved.

3 Crimp diameter for 2766-4 only

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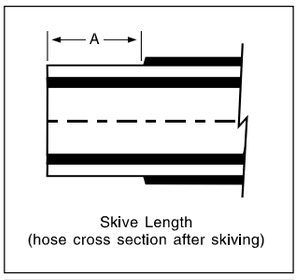
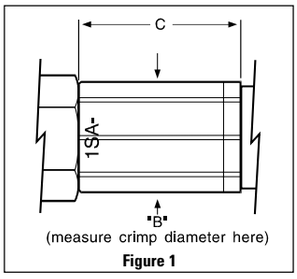
Global Skive Crimp Style

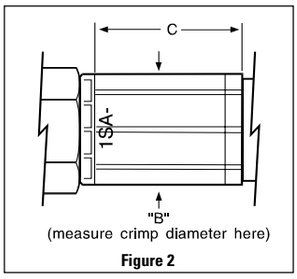


Skive Length
(hose cross section after skiving)



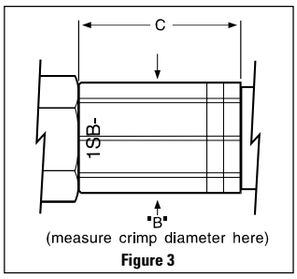
(measure crimp diameter here)

Figure 1



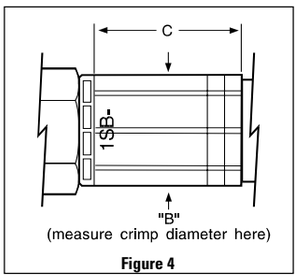
(measure crimp diameter here)

Figure 2



(measure crimp diameter here)

Figure 3



(measure crimp diameter here)

Figure 4

HOSE DASH SIZE	SOCKET PART #	SKIVE LENGTH A	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .50 mm ± .020 in	± .15 mm ± .006 in	± .76 mm ± .030 in			
GH120[2], GH781, FC735							
-04	1SB4	16.30 mm .640 in	15.37 mm .605 in 15.10 mm² .595 in²	**	-M150 -2	3	
-06	1SB6	16.50 mm .650 in	19.69 mm .775 in	**	-M180 -3	3	
-08	1SB8	20.00 mm .790 in	22.99 mm .905 in	**	-M210 -4	3	
-10	1SB10	21.00 mm .830 in	25.78 mm 1.015 in	**	-M240 -4	3	
-12	1SB12	21.60 mm .850 in	30.10 mm 1.185 in	**	-M280 -6	3	
-16	1SB16	25.90 mm 1.020 in	37.47 mm 1.475 in	**	-M370 -8	3	
-20	1SB20	30.70 mm 1.210 in	45.34 mm 1.785 in	**	-M420	3	
-20[1]	1SB20 Pre-Crimped	30.70 mm 1.210 in	45.34 mm 1.785 in	38.10 mm 1.500 in	-M420	4	
FC310, FC510							
-03	1SA3	14.00 mm .550 in	12.83 mm .505 in	**	-M120 -90	1	
-04	1SA4	16.30 mm .640 in	15.75 mm .620 in	**	-M150 -2	1	
-05	1SA5	19.30 mm .760 in	17.78 mm .700 in	**	-M180 -93	1	
-06	1SA6	16.50 mm .650 in	20.96 mm .825 in	**	-M210 -3	1	
-08	1SA8	20.00 mm .790 in	23.11 mm .910 in	**	-M210 -4	1	
-10	1SA10	21.00 mm .830 in	26.80 mm 1.055 in	**	-M240 -5	1	
-12	1SA12	21.60 mm .850 in	31.75 mm 1.250 in	**	-M320 -6	1	
-16	1SA16	25.90 mm 1.020 in	37.59 mm 1.480 in	**	-M370 -8	1	
-20	1SA20	30.70 mm 1.210 in	46.74 mm 1.840 in	**	-M465	1	
-20[1]	1SA20 Pre-Crimped	30.70 mm 1.210 in	46.74 mm 1.840 in	38.10 mm 1.500 in	-M465	2	
FC849, FC849B							
-06	1SB6	16.50 mm .650 in	20.55 mm .810 in	**	M180 -3	3	
-08	1SB8	20.10 mm .790 in	23.25 mm .915 in	**	M210 -4	3	
-10	1SB10	21.10 mm .830 in	26.65 mm 1.049 in	**	M240 -5	3	
-12	1SB12	21.60 mm .850 in	30.75 mm 1.210 in	**	M280 -6	3	

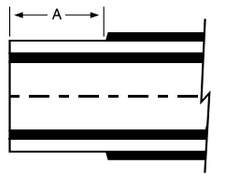
* Max. crimp ovality .20 mm/.008 in.

** Crimp full length of socket.

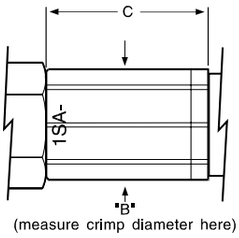
1 -20 Global sockets must be pre-crimped to nipple to achieve complete crimp on FT1330 and FT1380 machines.

2 Crimp diameter for GH120-04 only.

Global Skive Crimp Style

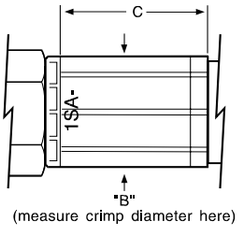


Skive Length
(hose cross section after skiving)



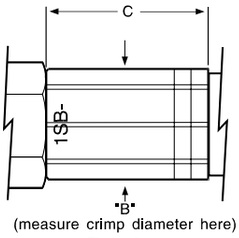
(measure crimp diameter here)

Figure 1



(measure crimp diameter here)

Figure 2



(measure crimp diameter here)

Figure 3

HOSE DASH SIZE	SOCKET PART #	SKIVE LENGTH A	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .50 mm ± .020 in	± .15 mm ± .006 in	± .76 mm ± .030 in			
FC639, FC839B							
-04	1SA4	16.30 mm .640 in	15.45 mm .610 in	**	M150 -2	1	
-06	1SA6	16.50mm .650 in	20.85 mm .820 in	**	M210 -3	1	
-08	1SA8	20.10 mm .790 in	23.15 mm .910 in 23.24 mm† .915 in†	**	M210 -4	1	
-10	1SB10	21.10 mm .830 in	25.75 mm 1.056 in	**	M240 -5	3	
-12	1SB12	21.60 mm .850 in	30.10 mm 1.185 in	**	M280 -6	3	
-16	1SB16	25.90 mm 1.020 in	37.25 mm 1.465 in	**	M370 -8	3	
FC579							
-04	1SB4	16.30 mm .640 in	15.37 mm .605 in	**	M150 -2	3	
-06	1SB6	16.50 mm .650 in	20.55 mm .810 in	**	M210 -3	3	
FC640							
-04	1SB4	16.30 mm .640 in	15.85 mm .625 in	**	M150 -2	3	
-06	1SA6	16.50mm .650 in	21.35 mm .840 in	**	M210	1	
-08	1SA8	20.00 mm .790 in	23.25 mm .915 in	**	M210	1	
-10	1SA10	21.00 mm .830 in	27.55 mm 1.085 in	**	M280	1	
-12	1SA12	21.60 mm .850 in	31.75 mm 1.250 in	**	M320	1	
-16	1SA16	25.90 mm 1.020 in	37.25 mm 1.465 in	**	M370	1	
GH683							
-4	1SB4	No skive required.	15.85 mm .625 in	**	M150 -2	3	
-6	1SB6	No skive required.	20.55 mm .810 in	**	M210 -3	3	
FC372, FC373, FC727							
-03	1SA3	No skive required.	13.25 mm .520 in	**	M120	1	
-04	1SB4	No skive required.	15.65 mm .618 in	**	M150	3	
-05	1SB5	No skive required.	17.25 mm .680 in	**	M150	3	
-06	1SB6	No skive required.	20.15 mm .795 in	**	M180	3	
-08	1SB8	No skive required.	23.75 mm .935 in	**	M210	3	
-12	1SB12	No skive required.	30.45 mm 1.200 in	**	M280	3	
-16	1SB16	No skive required.	36.05 mm 1.420 in	**	M320[1]	3	

* Max. crimp ovality .20 mm/.008 in.

** Crimp full length of socket.

† Crimp diameter for FC839B-8 only.

1 FT1380-200-M320 not approved

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Global Nipple with Low Pressure Hose

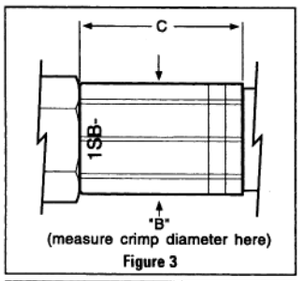

Figure 3

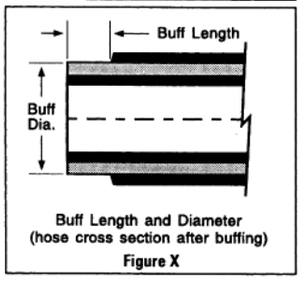

Figure X

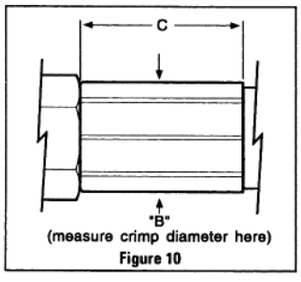

Figure 10

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .15 mm ± .006 in	minimum			
FC466						
-04	1SB4	15.62 mm .615 in	**	-M150 -2	3	
-06	1SB6	20.20 mm .795 in	**	-M180 -3	3	
-08	1SB8	23.12 mm .910 in	**	-M210 -4	3	
-10	1SB10	25.78 mm 1.015 in	**	-M240 -4	3	
-12	1SB12	30.36 mm 1.195 in	**	-M280 -6	3	
FC498, FC598						
-04	1SB4	15.62 mm .615 in	**	-M150 -2	3	
-06	1SB6	20.45 mm .805 in	**	-M180 -3	3	
-08	1SB8	23.12 mm .910 in	**	-M210 -4	3	
-10	1SB10	26.77 mm 1.054 in	**	-M240 -4	3	
-12	1SB12	30.36 mm 1.195 in	**	-M280 -6	3	

HOSE DASH SIZE	SOCKET PART #	MIN. BUFF DIA.[1]	BUFF LENGTH	CRIMP DIA. B	CRIMP LENGTH C	DIE SUFFIX #	FIG. #	CRIMP MACHINE SETTING
			± .76 mm ± .030 in	± .15 mm ± .006 in	± .76 mm ± .030 in			
2661, FC318								
-40	FC3023	78.2 mm	64.8 mm	78.26 mm	**	-18[2]	10	
		3.08 in	2.55 in	3.081 in				

* Max. crimp ovality .20 mm / .008 in.

** Crimp full length of socket.

1 Buffing may be required to obtain socket assembly. Do not exceed the minimum buff diameter.

2 For FT1049 machine only.

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Global TTC and TTC12 Crimp Style

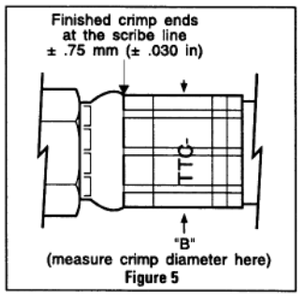

Figure 5

* Max. crimp ovality .20 mm/.008 in.

1 FT1209-200-23 not approved.

2 FT1330-200-9 not approved.

3 FT1049-100-M465 only.

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .15 mm ± .006 in			
GH194					
-04	TTC-4	15.75 mm .620 in	-M150 -2	5	
-06	TTC-6	19.56 mm .770 in	-M180 -3	5	
-08	TTC-8	23.88 mm .940 in	-M240 -4	5	
-10	TTC-10	26.80 mm 1.055 in	-M240 -5	5	
-12	TTC-12	31.75 mm 1.250 in	-M320 -6	5	
-16	TTC-16	40.39 mm 1.590 in	-M370 -8	5	
-20	TTC-20 (1-Ring)	45.72 mm 1.800 in	-M420	5	
GH195					
-04	TTC-4	16.89 mm .665 in	-M150 -2	5	
-06	TTC-6	21.21 mm .835 in	-M210 -3	5	
-08	TTC-8	25.15 mm .990 in	-M240 -4	5	
-10	TTC-10	28.70 mm 1.130 in	-M280 -5	5	
-12	TTC-12	32.51 mm 1.280 in	-M320 -6	5	
-16	TTC-16	41.66 mm 1.640 in	-M370 -8	5	
-20	TTC-20 (2 Rings)	50.80 mm 2.000 in	-M465 -9[2]	5	
-24	TTC-24	57.66 mm 2.270 in	-M550 -11	5	
-32	TTC-32	70.36 mm 2.770 in	-M690 -23[1] -17	5	
FC613, GH663, FC211					
-04	TTC-4	15.75 mm .620 in	-M150 -2	5	
-06	TTC-6	19.94 mm .785 in	-M180 -3	5	
-08	TTC-8	23.88 mm .940 in	-M240 -4	5	
-10	TTC-10	26.80 mm 1.055 in	-M240 -5	5	
-12	TTC-12	31.75 mm 1.250 in	-M320 -6	5	
-16	TTC-16	40.39 mm 1.590 in	-M370 -8	5	
-20	TTC-20 (1 Ring)	46.00 mm 1.811 in	-M420 -M465[3]	5	
-24	TTC-24	55.40 mm 2.181 in	-M550	5	
-32	TTC-32	68.61 mm 2.701 in	-M690	5	

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Global TTC and TTC12 Crimp Style

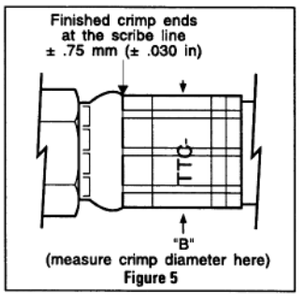

Figure 5

* Max. crimp ovality .20 mm/.008 in.

1 FT1209-200-23 not approved.

2 FT1330-200-9 not approved.

3 FT1049-100-M465 only.

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .15 mm ± .006 in			
FC611					
-04	TTC-4	16.00 mm .630 in	-M150 -2	5	
-06	TTC-6	19.69 mm .775 in	-M180 -3	5	
-08	TTC-8	23.62 mm .930 in	-M240 -4	5	
-12	TTC-12	31.62 mm 1.245 in	-M320 -6	5	
-16	TTC-16	40.26 mm 1.585 in	-M370 -8	5	
-20	TTC-20 (1 Ring)	47.50 mm 1.870 in	-M465 -9[2]	5	
-24	TTC-24	54.74 mm 2.155 in	-M550	5	
-32	TTC-32	68.58 mm 2.700 in	-M690	5	
GH793, FC212					
-04	TTC-4	17.27 mm .680 in	-M150 -2	5	
-06	TTC-6	21.21 mm .835 in	-M210 -3	5	
-08	TTC-8	25.15 mm .990 in	-M240 -4	5	
-10	TTC-10	28.70 mm 1.130 in	-M280 -5	5	
-12	TTC-12	32.51 mm 1.280 in	-M320 -6	5	
-16	TTC-16	41.40 mm 1.630 in	-M370 -8	5	
-20	TTC-20 (2 Rings)	49.78 mm 1.960 in	-M465 -9[2]	5	
-24	TTC-24	57.66 mm 2.270 in	-M550 -11	5	
-32	TTC-32	70.87 mm 2.790 in	-M690 -17 -23[1]	5	
GH120					
-04	TTC-4	16.26 mm .640 in	-M150 -2	5	
-06	TTC-6	20.32 mm .800 in	-M210 -3	5	
-08	TTC-8	24.77 mm .975 in	-M240 -4	5	
-10	TTC-10	28.32 mm 1.115 in	-M280 -5	5	
-12	TTC-12	31.62 mm 1.245 in	-M320 -6	5	
-16	TTC-16	39.75 mm 1.565 in	-M370 -8	5	
-20	TTC-20 (2 Rings)	48.26 mm 1.900 in	-M465 -9[2]	5	
-24	TTC-24	54.75 mm 2.155 in	-M550	5	
-32	TTC-32	68.55 mm 2.700 in	-M690	5	

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Global TTC and TTC12 Crimp Style

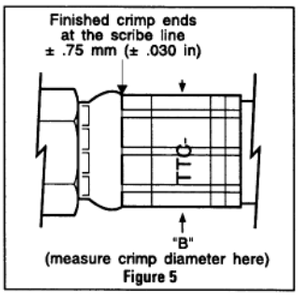

Figure 5

* Max. crimp ovality .20 mm/.008 in.

1 FT1330-200-9 not approved.

2 For FT1049 and FT1330 crimp machines only.

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .15 mm ± .006 in			
GH683					
-04	TTC-4	15.37 mm .605 in	-M150 -2	5	
-06	TTC-6	19.94 mm .785 in	-M180 -3	5	
-08	TTC-8	23.88 mm .940 in	-M240 -4	5	
GH781, FC735					
-04	TTC-4	16.89 mm .665 in	-M150 -2	5	
-06	TTC-6	20.70 mm .815 in	-M210 -3	5	
-08	TTC-8	24.77 mm .975 in	-M240 -4	5	
-10	TTC-10	28.32 mm 1.115 in	-M280 -5	5	
-12	TTC-12	31.62 mm 1.245 in	-M320 -6	5	
-16	TTC-16	39.75 mm 1.565 in	-M370 -8	5	
-20	TTC-20 (2 Rings)	48.26 mm 1.900 in	-M465 -9[1]	5	
-24	TTC-24	54.75 mm 2.155 in	-M550	5	
-32	TTC-32	68.55 mm 2.700 in	-M690	5	
FC310					
-04	TTC-4	16.26 mm .640 in	-M150 -2	5	
-06	TTC-6	20.19 mm .795 in	-M180 -3	5	
-08	TTC-8	23.62 mm .930 in	-M240 -4	5	
-10	TTC-10	26.80 mm 1.055 in	-M240 -5	5	
-12	TTC-12	31.75 mm 1.250 in	-M320 -6	5	
-16	TTC-16	40.13 mm 1.580 in	-M370 -8	5	
-20	TTC-20 (1 Ring)	45.21 mm 1.780 in	-M420 -8[2]	5	
FC510					
-04	TTC-4	16.51 mm .650 in	-M150 -2	5	
-06	TTC-6	20.70 mm .815 in	-M210 -3	5	
-08	TTC-8	23.24 mm .915 in	-M210 -4	5	
-10	TTC-10	26.80 mm 1.055 in	-M240 -5	5	
-12	TTC-12	31.75 mm 1.250 in	-M320 -6	5	
-16	TTC-16	40.13 mm 1.580 in	-M370 -8	5	
-20	TTC-20 (1 Ring)	45.21 mm 1.780 in	-M420 -8[2]	5	

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Global TTC and TTC12 Crimp Style

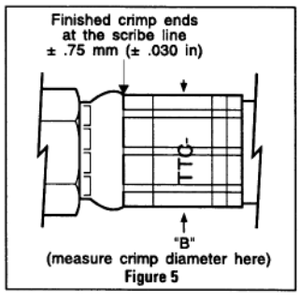


Figure 5

* Max. crimp ovality .20 mm/.008 in.

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .15 mm ± .006 in			
GH681					
-06	TTC-6	19.68 mm .775 in	-M180 -3	5	
FC849, FC849B					
-04	TTC-4	17.25 mm .680 in	M150 -2	5	
-06	TTC-6	21.25 mm .835 in	M210 -3	5	
-08	TTC-8	25.15 mm .990 in	M240 -4	5	
-10	TTC-10	28.65 mm 1.129 in	M280 -5	5	
-12	TTC-12	32.65 mm 1.286 in	M320	5	
FC579					
-04	TTC-4	16.89 mm .665 in	M150 -2	5	
-06	TTC-6	21.25 mm .835 in	M210 -3	5	
FC640					
-04	TTC-4	17.25 mm .680 in	M150	5	
-06	TTC-6	20.05 mm .790 in	M180	5	
-08	TTC-8	23.45 mm .925 in	M240	5	
-10	TTC-10	27.45 mm 1.080 in	M240	5	
-12	TTC-12	31.65 mm 1.245 in	M320	5	
-16	TTC-16	38.95 mm 1.535 in	M370	5	
FC639, FC839B					
-04	TTC-4	15.85 mm .625 in	M150	5	
-06	TTC-6	19.65 mm .775 in	M180	5	
-08	TTC-8	23.45 mm .925 in	M210	5	
-10	TTC-10	28.35 mm 1.115 in	M280	5	
-12	TTC-12	32.35 mm 1.275 in	M320	5	
-16	TTC-16	39.58 mm 1.575 in	M370	5	
FC616					
-06	TTC-6	22.75 mm .896 in	M210 -4	5	

Powering Business Worldwide

Global TTC and TTC12 Crimp Style

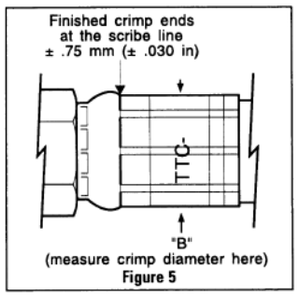


Figure 5

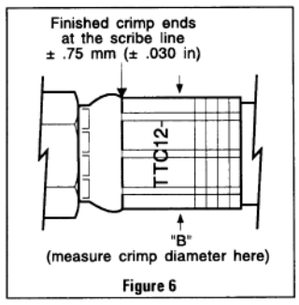
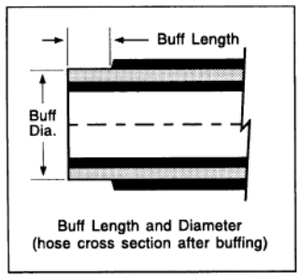


Figure 6



Buff Length and Diameter
(hose cross section after buffing)

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .15 mm ± .006 in			
GH493, FC136[1], FC659, FC736, FC805					
-06	TTC12-6	22.76 mm .896 in	-M210 -4	6	
-08	TTC12-8	27.81 mm 1.095 in	-M280 -5	6	
-10	TTC12-10	30.48 mm 1.200 in	-M280 -6	6	
-12	TTC12-12	34.42 mm 1.355 in	-M320 -6	6	
-16	TTC12-16	43.82 mm** 1.725 in	-M420[2]	6	
-20	TTC12-20	52.20 mm** 2.055 in	-M520[3]	6	
-24	TTC12-24	55.88 mm** 2.200 in	-M550 -11	6	
-32	TTC12-32	69.16 mm** 2.723 in	-M690 -23[4]	6	
FC636					
-12	TTC12-12	34.29 mm 1.350 in	-M320 -6	6	
-16	TTC12-16	43.69 mm 1.720 in	-M420[2]	6	
-20	TTC12-20	52.58 mm 2.070 in	-M520[3]	6	
-24	TTC12-24	56.13 mm 2.210 in	-M550 -11	6	
FC693					
-04	TTC-04	17.40 mm .685 in	-M150 -2	5	
-06	TTC-06	21.21 mm .835 in	-M210 -3	5	
-08	TTC-08	25.40 mm 1.000 in	-M240 -4	5	

HOSE DASH SIZE	SOCKET PART #	MIN. BUFF DIA.[5]	BUFF LENGTH	CRIMP DIA. B	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
			± .76 mm ± .030 in	± .15 mm ± .006 in			
2661, FC318							
-12	TTC-12	30 mm 1.18 in	19 mm .75 in	35.59 mm 1.401 in	-M320 -6	5	
-12	TTC12-12	N/A	N/A	35.99 mm 1.417 in	-M320 -6	6	
-16	TTC-16	N/A	N/A	43.38 mm 1.708 in	-M420 -8	5	
-20	TTC-20 (2 Rings)	N/A	N/A	51.79 mm 2.039 in	-M520[6] -9[7]	5	
-24	TTC-24	N/A	N/A	58.19 mm 2.291 in	-M570 -11	5	
-32	TTC-32	N/A	N/A	70.31 mm 2.768 in	-M690 -17[8] -23[4]	5	
FC619							
-12	TTC-12	30mm 1.18 in	19mm .75 in	33.55 mm 1.320 in	-M320 -6	5	
-16	TTC-16	N/A	N/A	41.40 mm 1.630 in	-M370[9]	5	
-20	TTC-20 (2 Rings)	N/A	N/A	49.95 mm 1.970 in	-M465 -9[7]	5	
-24	TTC-24	N/A	N/A	56.35 mm 2.220 in	-M550 -11	5	
-32	TTC-32	N/A	N/A	70.15 mm 2.760 in	-M690 -17[8] -23[4]	5	

* Max. crimp ovality .20 mm/.008 in.

** Max. crimp ovality .30 mm/.012 in.

1 Approved at SAE 100R12 pressures only.

2 FT1330-275-M370, FT1330-200-8 and FT1049-100-8 also approved.

3 FT1380-200-M465, FT1330-275-M465 and FT1049-100-9 also approved.

4 FT1209-200-23 not approved.

5 Buffing may be required to obtain socket assembly only. Do not exceed the minimum buff diameter.

6 FT1380-200-M465, FT1330-275-M465 also approved.

7 FT1330-200-9 not approved.

8 Use FT1209-200-17 or FT1049-100-17.

9 FT1330-200-6, FT1049-100-8, and FT1307-200-8 also approved.

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Global OTC Crimp Style

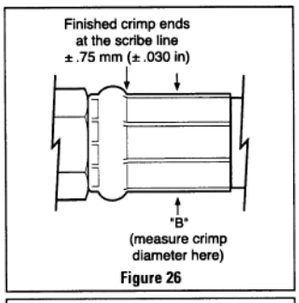

Figure 26

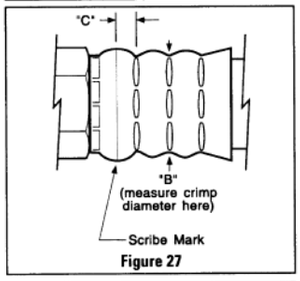

Figure 27

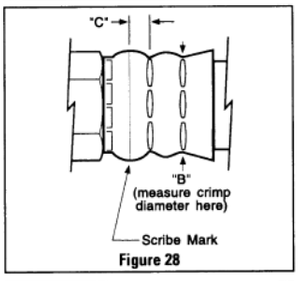

Figure 28

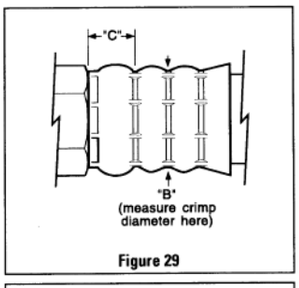

Figure 29

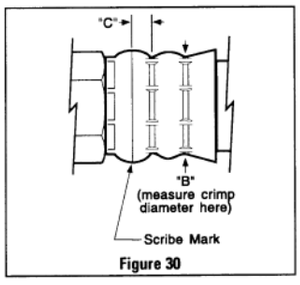

Figure 30

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .15 mm ± .006 in	± .76 mm ± .030 in			
2583						
-4	1G4	14.00 mm .551 in	**	-M120 -1	26	
-6	1G6	20.00 mm .787 in	**	-M180 -3	26	
-8	1G8	23.30 mm .917 in	**	-M210 -4	26	
-12	1G12	31.60 mm 1.244 in	**	-M320 -6	26	
-16	1G16	37.40 mm 1.472 in	**	-M370 -8	26	
-20	1G20	42.50 mm 1.673 in	**	-M420	26	
2661, FC318						
-12	1G12	29.65 mm 1.167 in	5.0 mm .197 in	-51[2] -54[1]	28	
		29.72 mm 1.170 in	5.8 mm .228 in	-184	30	
-16	1G16	35.35 mm 1.392 in	8.0 mm .315 in	-51	28	
		36.45 mm 1.435 in	7.6 mm .299 in	-185	30	
-20	1G20	43.85 mm 1.726 in	5.0 mm .197 in	-86	27	
		43.31 mm 1.705 in	9.6 mm .378 in	-186	30	
-24	1G24	51.70 mm 2.035 in	19.1 mm .752 in	-31	29	
-32	1G32	62.30 mm 2.453 in	17.0 mm .669 in	-32	29	
FC619						
-12	1G12	31.45 mm 1.240 in	**	-M320 -6	26	
-16	1G16	36.85 mm 1.450 in	**	-M370 -8	26	
-20	1G20	44.45 mm 1.750 in	**	-M420	26	
-24	1G24	51.05 mm 2.010 in	**	-M520	26	
-32	1G32	64.52 mm 2.540 in 2.540 in	**	-M630 23[4] 17[3]	26	
FC466						
-4	1G4	12.70 mm .500 in	**	-M120 -1 -90	26	
-6	1G6	17.80 mm .701 in	**	-M180 -2	26	
-8	1G8	20.60 mm .811 in	**	-M210 -3	26	
-12	1G12	27.70 mm 1.091 in	**	-M280 -5	26	

* Max. crimp ovality .20 mm/.008 in.

** Finished crimp ends at the scribe mark ±.75 mm (±.030 in.)

1 FT1307 die cage only.

2 FT1204-100-51 and FT1307-200-51 not approved.

3 Use FT1209-200-17 or FT1049-100-17.

4 FT1209-200-23 not approved.

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Global OTC Crimp Style

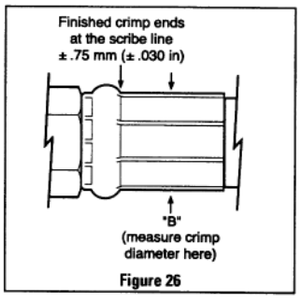

Figure 26

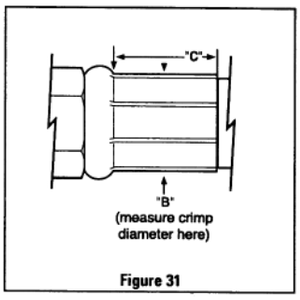

Figure 31

* Max. crimp ovality .20 mm/.008 in.

** Finished crimp ends at the scribe mark ±.75 mm (±.030 in.)

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .15 mm ± .006 in	± .76 mm ± .030 in			
FC498, FC598						
-4	1G4	13.00 mm .512 in	**	-M120 -1	26	
-6	1G6	17.80 mm .701 in	**	-M180 -2	26	
-8	1G8	21.40 mm .843 in	**	-M210 -3	26	
-10	1G10	24.51 mm .965 in	**	-M240	26	
-12	1G12	28.50 mm 1.122 in	**	-M280 -5	26	
FC363, FC364						
-10	1G10	21.75 mm .857 in	**	M210	26	
-12	1G12	26.55 mm 1.045 in	**	M240	26	
-16	1G16	32.75 mm 1.291 in	**	M320	26	
-20	1G20	39.15 mm 1.543 in	**	M370	26	
-24	1G24	44.95 mm 1.771 in	**	M420	26	
FC699						
-04	1G4	12.85 mm .507 in	**	M120	26	
-06	1G6	17.85 mm .701 in	**	M180	26	
-08	1G8	20.60 mm .811 in	**	M210	26	
-10	1G10	24.35 mm .957 in	**	M240	26	
-12	1G12	28.55 mm 1.124 in	**	M280	26	
-16	1G16	34.75 mm 1.367 in	**	M320	26	
FC699 w/ FW1097						
-04	FW1097	13.15 mm .517 in	13.5 ±.4 (.575±.015)	M120	31	
-06	FW1097	15.55 mm .613 in	14.6±.4 (.575±.015)	M150	31	
-08	FW1097	18.65 mm .733 in	14.6±.4 (.575±.015)	M180	31	
-10	FW1097	22.55 mm .889 in	17.4±.4 (.685±.015)	M210	31	
-12	FW1097	25.75 mm 1.015 in	17.4±.4 (.685±.015)	M240	31	

Barrel Field Crimp Style

Use of the Aeroquip Calidapter (part no. FT1297) is recommended for measurement of barrel field crimp diameters. See accessories on page 37.

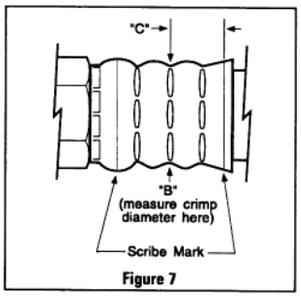

Figure 7

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .18 mm ± .007 in	± .76 mm ± .030 in			
2583, 2661, FC318						
-04	FC1130	13.21 mm .520 in	19.05 mm .750 in	-5[1] -52	7	
-06	FC1130	18.54 mm .730 in	19.05 mm .750 in	-5[1] -52	7	
-08	FC1130	22.00 mm .865 in	19.05 mm .750 in	-5[1] -52[4] -53[2]	7	
-12	FC1130	31.12 mm 1.225 in	19.05 mm .750 in	-4[1] -51[3] -54[2]	7	
-16	FC1130	37.21 mm 1.465 in	19.05 mm .750 in	-4[1] -51	7	
-20	FC1130	43.81 mm 1.725 in	19.05 mm .750 in	-86 -88	7	
GH663[5], FC211						
-04	FC1130	12.45 mm .490 in	19.05 mm .750 in	-5[1] -52	7	
-06	FC1130	16.90 mm .665 in	19.05 mm .750 in	-5[1] -52	7	
-08	FC1130	19.56 mm .770 in	19.05 mm .750 in	-5[1] -52[4] -53[2]	7	
-12	FC1130	27.80 mm 1.090 in	19.05 mm .750 in	-4[1] -51[3] -54[2]	7	
-16	FC1130	35.94 mm 1.415 in	19.05 mm .750 in	-4[1] -51	7	
GH793[6], FC212						
-04	FC1130	13.84 mm .545 in	19.05 mm .750 in	-5[1] -52	7	
-06	FC1130	17.02 mm .700 in	19.05 mm .750 in	-5[1] -52	7	
-08	FC1130	20.57 mm .810 in	19.05 mm .750 in	-5[1] -52[4] -53[2]	7	
-10	FC1130	22.99 mm .905 in	19.05 mm .750 in	-52 -53[2]	7	
-12	FC1130	28.70 mm 1.130 in	19.05 mm .750 in	-4[1] -51[3] -54[2]	7	
-16	FC1130	36.45 mm 1.435 in	19.05 mm .750 in	-4[1] -51	7	
-20	FC1130	46.10 mm 1.815 in	19.05 mm .750 in	-86 -88	7	

* Max. crimp ovality .30 mm/.012 in.

1 FT1008 dies only.

2 FT1049-100-SIZE, FT1204-100-SIZE and FT1307-200-SIZE only.

3 FT1204-100-51 and FT1307-200-51 not approved.

4 FT1204-100-52 and FT1307-200-52 not approved.

5 Approved at SAE 100R1 pressures only.

6 Approved at SAE 100R2 pressures only.

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Barrel Field Crimp Style

Use of the Aeroquip Calidapter (part no. FT1297) is recommended for measurement of barrel field crimp diameters. See accessories on page 37.

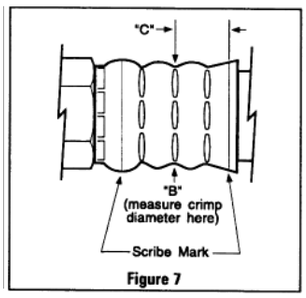

Figure 7

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .18 mm ± .007 in	± .76 mm ± .030 in			
FC310						
-04	FC1130	12.32 mm .485 in	19.05 mm .750 in	-51 -52	7	
-06	FC1130	16.13 mm .635 in	19.05 mm .750 in	-51 -52	7	
-08	FC1130	19.18 mm .755 in	19.05 mm .750 in	-51 -52 -53[2]	7	
-10	FC1130	21.13 mm .832 in	19.05 mm .750 in	-51 -52 -53[2]	7	
-12	FC1130	27.31 mm 1.075 in	19.05 mm .750 in	-4[1] -51 -54[2]	7	
-16	FC1130	33.40 mm 1.315 in	19.05 mm .750 in	-41 -51	7	
-20	FC1130	40.08 mm 1.578 in	19.05 mm .750 in	-86	7	
FC510[3] (Note: Qualified only for maximum +200°F hydraulic service)						
-04	FC1130	12.07 mm .475 in	19.05 mm .750 in	-5[1] -52	7	
-06	FC1130	16.21 mm .638 in	19.05 mm .750 in	-5[1] -52	7	
-08	FC1130	19.10 mm .752 in	19.05 mm .750 in	-5[1] -52 -53[2]	7	
-10	FC1130	21.01 mm .827 in	19.05 mm .750 in	-5[1] -52 -53[2]	7	
-12	FC1130	26.64 mm 1.049 in	19.05 mm .750 in	-4[1] -54[2]	7	
-16	FC1130	32.13 mm 1.265 in	19.05 mm .750 in	-4[1] -51 -54[2]	7	

* Max. crimp ovality .30 mm/.012 in.

1 FT1008 dies only.

2 FT1049-100-SIZE, FT1204-100-SIZE and FT1307-200-SIZE only.

3 Qualified only for maximum +200°F hydraulic service with barrel field crimp fittings.

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Flat Field Crimp Style

Use of the Aeroquip Calidapter (part no. FT1297) is recommended for measurement of barrel field crimp diameters. See accessories on page 37.

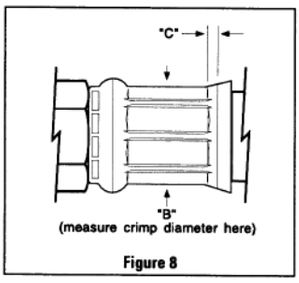

Figure 8

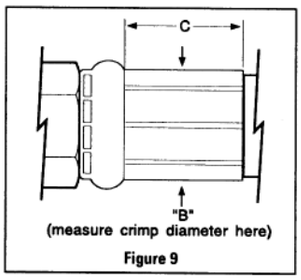

Figure 9

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .18 mm ± .007 in	± .51 mm ± .020 in			
GH663[6], FC211						
-04	FC1130	14.55 mm .573 in	5.08 mm .200 in	-0004	8	
-06	FC1130	19.23 mm .757 in	5.08 mm .200 in	-0608	8	
-08	FC1130	22.10 mm .870 in	5.08 mm .200 in	-0608	8	
-12	FC1130	28.50 mm 1.122 in	5.08 mm .200 in	-1012	8	
-16	FC1130	36.98 mm 1.456 in	5.08 mm .200 in	-0016[1] -1620[2]	8	
GH793[7], FC212						
-04	FC1130	16.00 mm .630 in	5.08 mm .200 in	-0004	8	
-06	FC1130	20.07 mm .790 in	5.08 mm .200 in	-0608	8	
-08	FC1130	24.00 mm .945 in	5.08 mm .200 in	-0608	8	
-12	FC1130	31.06 mm 1.223 in	5.08 mm .200 in	-1012	8	
-16	FC1130	38.48 mm 1.515 in	5.08 mm .200 in	-0016[1] -1620[2]	8	
-24	FC1130	60.27 mm 2.373 in	46.23 mm 1.820 in	-11[3] -16[4] -M550	9	
-32	FC1130	73.96 mm 2.912 in	58.67 mm 2.310 in	-17[5] -M690	9	
FC310						
-04	FC1130	15.29 mm .602 in	5.08 mm .200 in	-0004	8	
-06	FC1130	18.54 mm .730 in	5.08 mm .200 in	-0608	8	
-08	FC1130	22.17 mm .873 in	5.08 mm .200 in	-0608	8	
-10	FC1130	25.50 mm 1.004 in	5.08 mm .200 in	-1012	8	
-12	FC1130	28.70 mm 1.130 in	5.08 mm .200 in	-1012	8	
-16	FC1130	36.32 mm 1.430 in	5.08 mm .200 in	-0016[1] -1620[2]	8	
2661, FC318						
-12	FC1130	32.26 mm 1.270 in	5.08 mm .200 in	-1012	8	
-16	FC1130	38.20 mm 1.504 in	5.08* mm .200 in	-0016[1] -1620[2]	8	

* Max. crimp ovality .30 mm/.012 in.

1 Use FT1204-100-0016 or FT1307-200-0016.

2 Use FT1208-100-1620 or FT1330-200-1620.

3 Use with FT1204-100-11 or FT1307-200-11.

4 Use FT1209-200-16 or FT1049-100-16.

5 Use FT1209-200-17 or FT1049-100-17.

6 Approved at SAE 100R1 pressures only.

7 Approved at SAE 100R2 pressures only.

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Flat Crimp Style

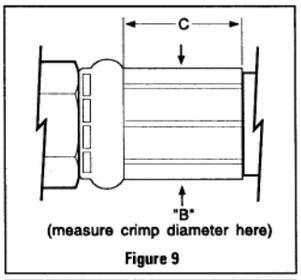

Figure 9

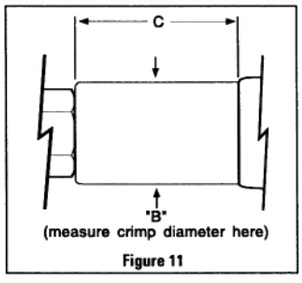

Figure 11

* Max. crimp ovality .20 mm/.008 in.

** Crimp full length of collar.

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .12 mm ± .005 in	± .38 mm ± .015 in			
FC372, FC373, FC390, FC690, FC727						
-02	FC1006	9.52 mm .375 in	11.94 mm .470 in	-M090	9	
-03	FC1006	12.75 mm .502 in	19.94 mm .785 in	-M120 -90	9	
-04	FC1006	14.47 mm .570 in	22.48 mm .885 in	-M120 -91	9	
-05	FC1006	16.26 mm .640 in	27.94 mm 1.100 in	-M150 -92	9	
-06	FC1006	17.90 mm .705 in	32.39 mm 1.275 in	-M180 -93	9	
-08	FC1006	21.71 mm .855 in	37.47 mm 1.475 in	-M210 -94	9	
-10	FC1006	24.58 mm .968 in	38.10 mm 1.500 in	-M240 -94	9	
-12	FC1006	28.19 mm 1.110 in	38.10 mm 1.500 in	-M280 -95	9	
-16	FC1006	33.78 mm 1.330 in	51.44 mm 2.025 in	-M320 -100	9	
FC374, FC375						
-03	FC1006	12.75 mm .502 in	19.94 mm .785 in	-M120 -90	9	
-04	FC1006	14.22 mm .560 in	22.48 mm .885 in	-M120 -91	9	
-06	FC1006	17.65 mm .695 in	32.39 mm 1.275 in	-M180 -93	9	
-08	FC1006	21.46 mm .845 in	37.47 mm 1.475 in	-M210 -94	9	
-12	FC1006	27.68 mm 1.090 in	38.10 mm 1.500 in	-M280 -95	9	
-16	FC1006	33.78 mm 1.330 in	51.44 mm 2.025 in	-M320 -100	9	
FC376, FC377						
-03	FC1579	13.97 mm .550 in	21.59 mm .850 in	-M120 -91	9	
-04	FC1579	15.75 mm .620 in	27.94 mm 1.100 in	-M150 -92	9	
-06	FC1579	19.73 mm .777 in	30.48 mm 1.200 in	-M180 -147	9	

HOSE DASH SIZE	COLLAR PART #	COLLAR LENGTH	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIG. #	CRIMP MACHINE SETTING
			± .12 mm ± .005 in				
FC376, FC377 (protective guard collars)							
-03	FF9843	21.84 mm .860 in	24.13 mm .950 in	**	-M240 -4	11	
-04	FF9843	23.62 mm .930 in	26.67 mm 1.050 in	**	-M240 -5	11	
-06	FF9843	25.40 mm 1.000 in	30.35 mm 1.195 in	**	-M280 -6	11	

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Flat Crimp Style

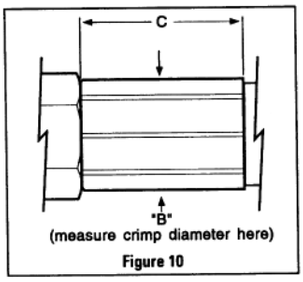

Figure 10

NOTE: A positive backstop for fitting location is required for all hose sizes.

* Max. crimp ovality .08 mm/.006 in.

** Crimp full length of socket.

1 FC563 requires the removal of the polyester overbraid w/a thermal stripping tool (Aeroquip part number S1364) prior to crimping . Contact your customer service representative for more details.

2 The -M570 die cage spring plate cut-outs must be lengthened an additional 0.80mm (1/32") to allow the dies to retract sufficiently to accommodate -32 size fittings.

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .08 mm ± .003 in				
2807, FC186, FC465						
-03	FC3596	6.99 mm .275 in	**	-M070 -39	10	
-04	FC3596	8.56 mm .337 in	**	-M090 -39	10	
-05	FC3443-04	10.34 mm .407 in	**	-M090 -40	10	
-06	FC3443-05	11.86 mm .467 in	**	-M120 -41	10	
-08	FC3596	14.40 mm .567 in	**	-M150 -36	10	
-10	FC3443-08	16.94 mm .667 in	**	-M150 -37	10	
-12	FC3596	19.99 mm .787 in	**	-M180 -37	10	
-16	FC3596	27.25 mm 1.073 in	**	-M240 -5	10	

HOSE DASH SIZE	SOCKET PART #	SKIVE LENGTH A	CRIMP DIA. B*	CRIMP LENGTH C	DIA. SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .51 mm ± .020 in	± .08 mm ± .003 in				
FC363, FC364, FC563[1]							
-06	FC1347	29.97 mm 1.180 in	16.64 mm .655 in	**	-M150 -92	10	
-08	FC1347	29.97 mm 1.180 in	21.46 mm .845 in	**	-M210 -94	10	
-12	FC1347	29.97 mm 1.180 in	27.91 mm 1.099 in	**	-M280 -109	10	
-16	FC1347	29.97 mm 1.180 in	33.96 mm 1.337 in	**	-M320 -110	10	
-20	FC1347	29.97 mm 1.180 in	40.56 mm 1.597 in	**	-M370 -101	10	
-24	FC1347	35.56 mm 1.400 in	46.23 mm 1.820 in	**	-M465 -102	10	
-32	FC1347	35.56 mm 1.400 in	58.34 mm 2.297 in	**	-M570[2] -103	10	

HOSE DASH SIZE	SOCKET PART #	SKIVE LENGTH A	CRIMP DIA. B*	CRIMP LENGTH C	DIA. SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .51 mm ± .020 in	± .12 mm ± .005 in				
FC807							
-03	FC3596	7.00 mm .278 in	15.20 mm .600 in	**	M070 -39	10	
-04	FC3596	8.56 mm .337 in	16.50 mm .650 in	**	M090 -39	10	
-05	FC3443	10.34 mm .407 in	16.50mm .650 in	**	M090 -40	10	
-06	FC3443	11.86 mm .467 in	16.50 mm .650 in	**	M120 -41	10	
-08	FC3596	14.40 mm .567 in	23.90 mm .940 in	**	M150 -36	10	
-10	FC3443	16.94 mm .667 in	23.90 mm .940 in	**	M150 -37	10	
-12	FC3596	19.99 mm .787 in	23.90 mm .940 in	**	M180 -37	10	
-16	FC3596	27.25 mm 1.073 in	24.60 mm .970 in	**	M240 -5	10	
FC807 Brass Only							
-12	FW1386	20.80 mm .819 in	20.78 mm .818 in	**	M180 -37	10	

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Global Spiral TTC Crimp Style

Note: To achieve full flat crimp, locate back edge of socket approximately 3 mm (1/8") from back edge of crimp jaws.

On 1EA12FJ12 and 1EA12FR12 fittings, a 19.05 mm (3/4") to 31.75 mm (1-1/4") crimp locating rule should be used. Use the standard 3 mm (1/8") guideline for all other Spiral TTC fittings.

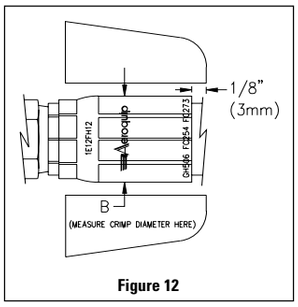

Figure 12

To achieve full flat crimp back edge of socket approximately 3mm (1/8") from the back edge of the crimp jaws as shown in Figure 12.

* Max. crimp ovality .30 mm/.012 in.

HOSE DASH SIZE	SOCKET PART #	CRIMP DIA. B*	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .0.15 mm ± .006 in			
FC254					
-12	1E12	36.50 mm 1.437 in	-82	12	
-16	1E16	45.40 mm 1.787 in	-46	12	
-20	1E20	53.20 mm 2.094 in	-14	12	
-24	1E24	61.15 mm 2.409 in	-20	12	
-32	1E32	73.65 mm 2.898 in	-23	12	
FC273, FC273B					
-12	1E12	36.70 mm 1.445 in	-82	12	
-16	1E16	45.40 mm 1.787 in	-46	12	
-20	1Z20	57.10 mm 2.248 in	-15	12	
-24	1Z24	64.15 mm 2.524 in	-16	12	
-32	1Z32	79.05 mm 3.114 in	-21	12	
FC606, FC606B					
-16	1Z16	49.10 mm 1.933 in	-46	12	
-20	1Z20	56.20 mm 2.213 in	-15	12	
-24	1Z24	64.15 mm 2.525 in	-16	12	
GH466					
-20	1Z20	56.90 mm 2.240 in	-15	12	
-24	1Z24	64.25 mm 2.531 in	-16	12	
GH506					
-12	1E12	36.20 mm 1.425 in	-82	12	
-16	1E16	44.90 mm 1.768 in	-46	12	
-20	1E20	53.50 mm 2.106 in	-14	12	
-24	1E24	60.40 mm 2.378 in	-20	12	
-32	1E32	73.65 mm 2.898 in	-23	12	
FC806					
-16	1E16	44.90 mm 1.768 in	-46	12	

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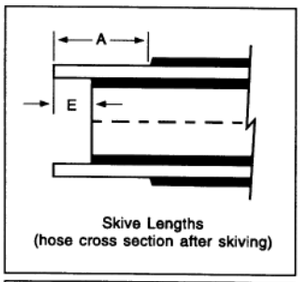
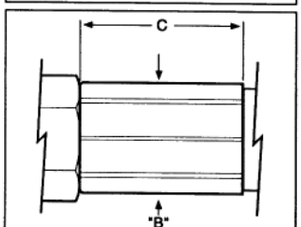
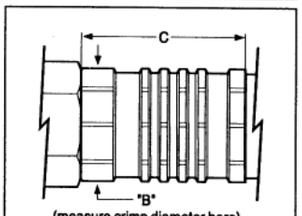
Internal Skive Crimp Style



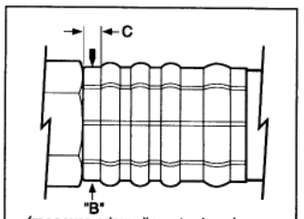
Skive Lengths
(hose cross section after skiving)



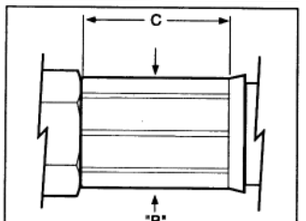
(measure crimp diameter here)
Figure 10



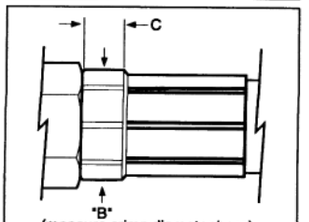
(measure crimp diameter here)
Figure 15



(measure crimp diameter here)
Figure 16



(measure crimp diameter here)
Figure 18



(measure crimp diameter here)
Figure 19

HOSE DASH SIZE	SOCKET PART #	SKIVE EXTERNAL LENGTH A	EXTERNAL TOOL	SKIVE INTERNAL LENGTH E	INTERNAL TOOL	CRIMP DIA. B*	CRIMP POS. C	DIE SUFFIX #	FIG. #	CRIMP MACHINE SETTING
		± .51mm ± .020 in		± .51mm ± .020 in		± .15mm ± .007 in	± .51mm ± .020 in			
FC254										
-08	FC2540	34.04 mm 1.340 in	FT1231-8	7.62 mm .300 in	FT1240-150-8	27.94 mm 1.100 in	**	-83[1] -M280[1]	15	
-12	FC2717	35.56 mm 1.400 in	FT1231-12	11.18 mm .440 in	FT1240-150-12	35.56 mm 1.400 in	**	-82[2]	15	
-16	FC2540	46.99 mm 1.850 in	FT1231-16	11.94 mm .470 in	FT1240-150-16	41.53 mm 1.635 in	12.83 mm .505 in	-96[2]	16	
-20	FC2540	52.07 mm 2.050 in	FT1231-20	11.94 mm .470 in	FT1240-150-20	50.80 mm 2.000 in	**	-14[2]	15	
-24	FC2540	52.07 mm 2.050 in	FT1231-24	14.48 mm .570 in	FT1240-150-24	57.15 mm 2.250 in	**	-15[2]	15	
-32	FC2540	58.42 mm 2.300 in	FT1231-32	18.80 mm .740 in	FT1240-150-32	72.26 mm 2.845 in	**	-23[2]	15	
FC136										
-16	FC2540	46.99 mm 1.850 in	FT1231-16	11.94 mm .470 in	FT1240-150-16	41.53 mm 1.635 in	12.83 mm .505 in	-96[2]	16	
-20	FC2540	52.07 mm 2.050 in	FT1231-20	11.94 mm .470 in	FT1240-100-20	50.80 mm 2.000 in	**	-14[2]	15	
-24	FC2540	52.07 mm 2.050 in	FT1231-24	14.48 mm .570 in	FT1240-100-24	57.15 mm 2.250 in	**	-15[2]	15	
-32	FC2540	58.42 mm 2.300 in	FT1231-32	18.80 mm .740 in	FT1240-100-32	72.26 mm 2.845 in	**	-23[2]	15	
FC273										
-12	FC2717	35.56 mm 1.400 in	FT1231-12	11.18 mm .440 in	FT1240-100-12	36.07 mm 1.420 in	**	-82[2]	15	
-16	FC2540	46.99 mm 1.850 in	FT1231-16	11.94 mm .470 in	FT1240-150-16	42.29 mm 1.665 in	12.83 mm .505 in	-96[2]	16	
-20	FC2717	52.07 mm 2.050 in	FT1231-20	11.94 mm .470 in	FT1240-100-20	55.37 mm 2.180 in	**	-15[2]	15	
-24	FC2717	52.07 mm 2.050 in	FT1231-24	14.48 mm .570 in	FT1240-100-24	62.23 mm 2.450 in	**	-16[2]	15	
-32	FC2717	29.21 mm 1.150 in***	FT1231-32A	18.80 mm .740 in	FT1240-100-32	78.61 mm 3.095 in	**	-18[2]	15	
FC323, FC324										
-12	FC2717	35.56 mm 1.400 in	FT1231-12	11.18 mm .440 in	FT1240-100-12	35.56 mm 1.400 in	**	-82[2]	15	
-16	FC2540	46.99 mm 1.850 in	FT1231-16	11.94 mm .470 in	FT1240-150-16	42.04 mm 1.655 in	12.83 mm .505 in	-96[2]	16	
-20	FC2540	52.07 mm 2.050 in	FT1231-20	11.94 mm .470 in	FT1240-100-20	51.18 mm 2.015 in	**	-14[2]	15	
-24	FC2540	52.07 mm 2.050 in	FT1231-24	14.48 mm .570 in	FT1240-100-24	57.79 mm 2.275 in	**	-15[2]	15	
-32	FC2540	58.42 mm 2.300 in	FT1231-32	18.80 mm .740 in	FT1240-100-32	72.77 mm 2.865 in	**	-23[2]	15	
FC325										
-12	FC2717	35.56 mm 1.400 in	FT1231-12	11.18 mm .440 in	FT1240-100-12	35.94 mm 1.415 in	**	-82[2]	15	
-16	FC2540	46.99 mm 1.850 in	FT1231-16	11.94 mm .470 in	FT1240-150-16	42.72 mm 1.682 in	12.83 mm .505 in	-96[2]	16	
FC606										
-16	FC1601	57.15 mm 2.250 in	FT1229-16B	11.94 mm .470 in	FT1240-150-16	45.21 mm 1.780 in	**	-46[2]	10	
-20	FC1601 2.750 in	69.85 mm	FT1229-20B .470 in	11.94 mm	FT1240-150-20 2.112 in	53.64 mm .650 in	16.51 mm	-151[2]	19	

* Max. crimp ovality .30 mm/.012 in.

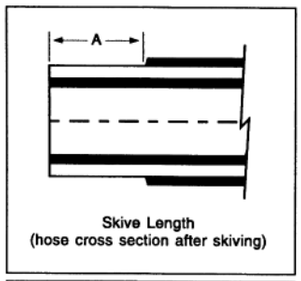
** Crimp full length of socket.

*** This is the correct measurement.

1 FT1320, FT1330 and FT1380 not approved.

2 FT1049-100-SIZE or FT1209-200-SIZE only.

Spiral Single Skive Crimp Style



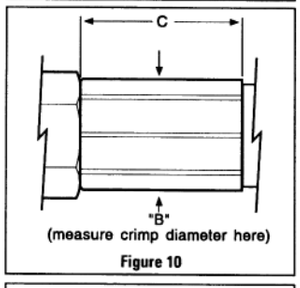


Figure 10

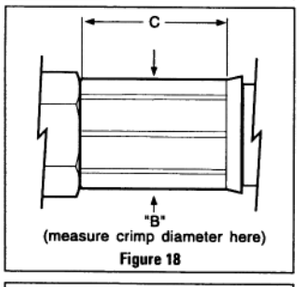


Figure 18

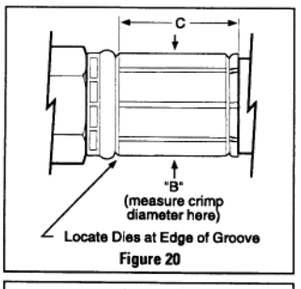


Figure 20

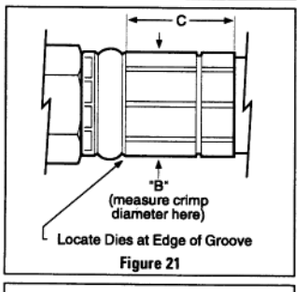


Figure 21

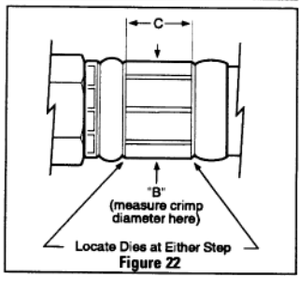


Figure 22

HOSE DASH SIZE	SOCKET PART #	SKIVE LENGTH A	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .50 mm ± .020 in	± .18 mm ± .007 in	± .38 mm ± .015 in			
FC254							
-12	FC1414 Pre-Crimped	35.60 mm 1.400 in	34.42 mm 1.355 in	37.47 mm 1.475 in	-M320[1] -6[1]	21 22	
-16	FC1414 Pre-Crimped	47.00 mm 1.850 in	41.28 mm 1.625 in	39.50 mm 1.555 in	-M370[1] -8[1]	21 22	
-20	FC1410 Pre-Crimped	47.80 mm 1.880 in	47.88 mm 1.885 in	46.99 mm 1.850 in	-M465[1] -9[1]	20	
-24	FC1410 Pre-Crimped	55.40 mm 2.180 in	56.01 mm 2.205 in	52.32 mm 2.060 in	-M550 -11	20	
FC273							
-12	FC1414 Pre-Crimped	35.60 mm 1.400 in	34.42 mm 1.355 in	37.47 mm 1.475 in	-M320[1] -6[1]	21 22	
-16	FC1414 Pre-Crimped	47.00 mm 1.850 in	41.28 mm 1.625 in	39.50 mm 1.555 in	-M370[1] -8[1]	21 22	
FC323							
-12	FC1410	30.70 mm 1.210 in	32.64 mm 1.285 in	37.47 mm 1.475 in	-M320 -6	10 18	
-16	FC1410	33.00 mm 1.300 in	38.86 mm 1.530 in	39.50 mm 1.555 in	-M370 -8	10 18	
-20	FC1410 Pre-Crimped	47.80 mm 1.880 in	48.64 mm 1.915 in	46.99 mm 1.850 in	-M465[1] -9[1]	20	
-24	FC1410 Pre-Crimped	55.40 mm 2.180 in	56.64 mm 2.230 in	52.32 mm 2.060 in	-M550 -11	20	
FC324							
-08	FC1410	31.80 mm 1.250 in	24.13 mm .950 in	33.65 mm 1.325 in	-M240 -4	10 18	
-12	FC1410	30.70 mm 1.210 in	32.64 mm 1.285 in	37.47 mm 1.475 in	-M320 -6	10 18	
-16	FC1410	33.00 mm 1.300 in	38.74 mm 1.525 in	39.50 mm 1.555 in	-M370[1] -8[1]	10 18	

* Max. crimp ovality .30 mm/.012 in.

1 FT1320, FT1330 and FT1380 not approved.

HOSE DASH SIZE	SOCKET PART #	SKIVE LENGTH A	CRIMP DIA. B*	CRIMP LENGTH C	DIE SUFFIX #	SEE FIGURE #	CRIMP MACHINE SETTING
		± .50 mm ± .020 in	± .12 mm ± .005 in	± .38 mm ± .015 in			
FC736, GH493, FC136							
-06	FC3471	22.90 mm .900 in	20.74 mm .817 in	29.97 mm 1.180 in	-M210 -3	10 18	
-08	FC3471	26.40 m 1.040 in	24.45 mm .963 in	33.65 mm 1.325 in	-M240 -4	10 18	
-10	FC3471	30.00 mm 1.180 in	28.50 mm 1.122 in	36.32 mm 1.430 in	-M280 -5	10 18	
-12	FC1410	30.70 mm 1.210 in	32.64 mm 1.285 in	37.47 mm 1.475 in	-M320 -6	10 18	
-16	FC1410	33.00 mm 1.300 in	39.12 mm 1.540 in	39.50 mm 1.555 in	-M370 -8	10 18	
-20	FC1410 Pre-Crimped	47.80 mm 1.880 in	48.64 mm 1.915 in	46.99 mm 1.850 in	-M465[1] -9[1]	20	
-24	FC1410 Pre-Crimped	55.40 mm 2.180 in	56.64 mm 2.230 in	52.32 mm 2.060 in	-M550 -11	22	
-32	FC1345 Pre-Crimped	52.10 mm 2.050 in	71.37 mm 2.810 in	50.80 mm 2.000 in	-M690 -23[2]	22	

* Max. crimp ovality .20 mm/.008 in.

1 FT1320, FT1330 and FT1380 not approved.

2 FT1209-200-23 not approved.

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MatchMate Plus Crimp Machine Taget Settings

The FT1320 target settings are for use with the FT1320-550 crimp control sleeve. The FT1330 and FT1340 target settings are for use with the digital encoders on those machines. The FT1307 target settings are for use with the micrometer on the machine.

HOSE DASH SIZE	DIE CAGE	FT1320 -550 SLEEVE	FT1330	FT1360 AND FT1340	ET1280 AND FT1380	FT1390	TARGET DIA.
							± .15 mm ± .006 in
GH194 with TTC Fittings							
-4	-M150	51	760	855	067	233	15.75mm
	-2	72	555	836	-	-	.620 in
-6	-M180	59	680	810	095	261	19.56mm
	-3	60	675	950	-	-	.770 in
-8	-M240	43	838	922	036	199	23.88mm
	-4	70	574	842	-	-	.940 in
-10	-M240	70	576	720	147	311	26.80mm
	-5	60	674	918	-	-	1.055 in
-12	-M320	42	850	936	024	193	31.75mm
	-6	75	518	810	-	-	1.250 in
-16	-M370	74	531	688	166	332	40.39mm
	-8	85	419	730	-	-	1.590 in
-20	-M420	-	518	670	176	340	45.72mm 1.800 in
GH195 with TTC Fittings							
-4	-M150	61	665	770	112	277	16.89mm
	-2	81	460	765	-	-	.665 in
-6	-M210	45	815	880	047	211	21.21mm
	-3	73	535	810	-	-	.835 in
-8	-M240	53	735	824	087	247	25.15mm
	-4	80	470	736	-	-	.990 in
-10	-M280	48	791	859	063	230	28.71mm 1.130 in
-12	-M320	48	790	895	049	223	32.51mm
	-6	81	460	770	-	-	1.280 in
-16	-M370	83	325	598	216	381	41.66mm
	-8	95	450	640	-	-	1.640 in
-20	-M465	-	466	636	194	361	50.80mm
	-9	-	-	744	-	-	2.000 in
-24	-M550	-	-	760	-	297	57.66mm
	-11	-	-	805	-	-	2.270 in
-32	-M690	-	-	855	-	244	70.36mm
	-23	-	-	710	-	-	2.770 in

HOSE DASH SIZE	DIE CAGE	FT1320 -550 SLEEVE	FT1330	FT1360 AND FT1340	ET1280 AND FT1380	FT1390	TARGET DIA.
							± .15 mm ± .006 in
GH663 with TTC Fittings							
-4	-M150	50	770	854	068	237	15.75mm
	-2	71	560	855	-	-	.620 in
-6	-M180	62	650	766	104	275	19.94mm
	-3	62	645	902	-	-	.785 in
-8	-M240	42	850	920	034	199	23.88mm
	-4	68	585	828	-	-	.940 in
-10	-M240	57	700	712	-	-	26.80mm
	-5	62	650	724	-	-	1.055 in
-12	-M320	41	855	950	018	191	31.75mm
	-6	73	535	830	-	-	1.250 in
-16	-M370	72	545	688	161	331	40.39mm
	-8	83	435	730	-	-	1.590 in
-20	-M420	-	490	650	187	351	46.00mm
					-	-	1.811 in
GH781 with TTC Fittings							
-4	-M150	60	665	775	111	286	16.89mm
	-2	80	470	760	-	-	.665 in
-6	-M210	41	855	915	026	200	20.70mm
	-3	68	585	844	-	-	.815 in
	-M180	69	580	704	-	-	
-8	-M240	50	765	846	071	234	24.77mm
	-4	77	500	760	-	-	.975 in
-10	-M280	46	810	890	045	214	28.32mm
	-5	72	545	810	-	-	1.115 in
-12	-M320	39	875	960	013	184	31.62mm
	-6	73	540	835	-	-	1.245 in
-16	-M370	66	605	728	137	306	39.75mm
	-8	78	490	780	-	-	1.565 in
-20	-M465	-	680	806	091	262	48.26mm
	-9	-	-	915	-	-	1.900 in
-24	-M550	-	-	-	-	182	54.74mm 2.155 in
-32	-M690	-	-	-	-	175	68.58mm 2.700 in

To determine the target setting, refer to the equipment operator's manual.

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MatchMate Plus Crimp Machine Taget Settings

HOSE DASH SIZE	DIE CAGE	FT1320 -550 SLEEVE	FT1330	FT1360 AND FT1340	ET1280 AND FT1380	FT1390	TARGET DIA.
							± .15 mm ± .006 in
GH793 with TTC Fittings							
-4	-M150	63	635	740	125	302	17.27mm
	-2	84	430	735	-	-	.680 in
-6	-M210	45	815	880	046	211	21.21mm
	-3	73	535	810	-	-	.835 in
-8	-M240	53	735	824	086	247	25.15mm
	-4	80	470	736	-	-	.990 in
-10	-M280	50	770	865	061	230	28.70mm
	-5	76	505	785	-	-	1.130 in
-12	-M320	48	790	895	048	222	32.51mm
	-6	81	460	770	-	-	1.280 in
-16	-M370	81	460	618	204	371	41.40mm
	-8	92	345	660	-	-	1.630 in
-20	-M465	-	560	706	149	320	49.78mm
	-9	-	-	814	-	-	1.960 in
-24	-M550	-	-	760	-	297	57.66mm
	-11	-	-	805	-	-	2.270 in
	-M570	-	-	868	-	-	
-32	-M690	-	-	815	-	266	70.87mm
	-23	-	-	670	-	-	2.790 in
	-17	-	-	745	-	-	

HOSE DASH SIZE	DIE CAGE	FT1320 -550 SLEEVE	FT1330	FT1360 AND FT1340	ET1280 AND FT1380	FT1390	TARGET DIA.
							± .15 mm ± .006 in
GH493 with TTC12 Fittings							
-6	-M210	59	680	784	105	271	22.76mm
	-4	56	708	915	-	-	.896 in
-8	-M280	41	855	936	025	191	27.81mm
	-5	68	590	855	-	-	1.095 in
-10	-M280	64	633	721	130	298	30.48mm 1.200 in
-12	-M320	64	625	758	120	296	34.42mm
	-6	97	300	630	-	-	1.355 in
-16	-M420	-	690	802	100	264	43.82mm
	-8	-	145	-	-	-	1.725 in
	-M370	-	250	-	290	-	
-20	-M520	-	-	920	-	197	52.20mm
	-M465	-	360	-	239	-	2.055 in
-24	-M550	-	-	885	-	226	55.88mm
	-11	-	-	945	-	-	2.200 in
-32	-M690	-	-	945	-	188	69.16mm 2.723 in

To determine the target setting, refer to the equipment operator's manual.

NOTE: These target settings for Aeroquip crimp machines are provided to aid in establishing actual settings. While the settings on this chart will give crimp diameters close to, or at, the specified value, the machine operator must check to verify the actual diameter. Before using these target settings, the crimp machine must be properly calibrated. Consult your Aeroquip equipment manual for calibration procedures.

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Aeroquip Crimp Machine Capabilities with MatchMate Plus Fittings

CURRENT MODELS	TTC	TTC12
ET1000	Thru -20	Thru -16
FT1380, ET1280	Thru -20	Thru -20
FT1390	All sizes	All sizes

PREVIOUS MODELS	TTC	TTC12
FT1049*, FT1204, FT1209, FT1244, FT1307, FT1340 and FT1360	All sizes	All sizes
FT1208	Thru -12	Thru -12
FT1310	Thru -16	N/A
FT1320	Thru -16	Thru -12
FT1330 Model "A"**	Thru -16	Thru -12
FT1330 Model "B", FT1380P	Thru -20	Thru -20
FT1370	Thru -20	Thru -16

* Requires the addition of an FT1049-130-5 backstop spring for crimping TTC and TTC12 fittings.

** Model "A" discontinued in September 1991.

Tooling Compatibility Chart

	CRIMP MACHINES																	
TOOLING	FT1008	FT1049	FT1204	FT1208	FT1209	FT1244	FT1307	FT1310	FT1320	FT1330	FT1340	FT1360	FT1370	FT1380	FT1380P	FT1390	ET1000	ET1280
FT1008-100-SIZE	X																	
FT1049-100-SIZE		X																
FT1204-100-SIZE			X		X[1]	X	X[1]				X[1]	X[1]				X[1]		
FT1208-100-SIZE				X														
FT1209-200-SIZE					X		X				X	X				X		
FT1307-200-SIZE					X		X				X	X				X		
FT1310-200-SIZE								X										
FT1330-200-SIZE									X	X								
FT1330-275-SIZE									X	X								
FT1380-200-SIZE													X	X	X			X
FT1380-201-SIZE													X	X	X			X
FT1380-275-SIZE													X	X	X			X
FT1390-200-SIZE					X		X				X	X				X		
ET400-SIZE																	X	
ET420-SIZE																	X	
ET1000-SIZE																	X	
T-400-SIZE																	X	
T-420-SIZE																	X	

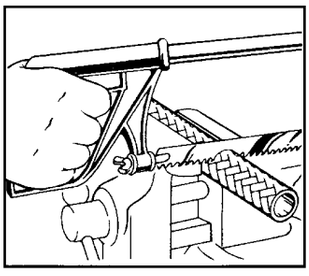
1 Individual dies. Requires the use of die cage kit FT1307-2-9 or removable die cage FT1307-2-13.

Powering Business Worldwide

Hose and Reusable Fittings

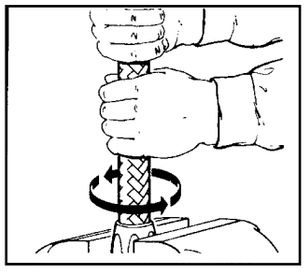
Standard (mandrelless) reusable fittings with single wire braid, multiple textile braid, hydraulic and LPG hose.

FC234, FC300, FC321, FC350, FC355, 302A, 303, 1503, 2580, 2651
(for fittings requiring mandrel, see page 324).



Step 1

Cut hose square with fine-tooth hacksaw or cut-off wheel.



Step 2

Put socket in vise.

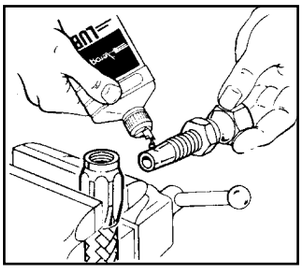
Screw hose counterclockwise into socket until it bottoms.

Back off 1/4 turn.

When assembling long lengths of hose, it may be preferred to put hose in vise just tight enough to prevent from turning, and screw socket into the hose counterclockwise until it bottoms.

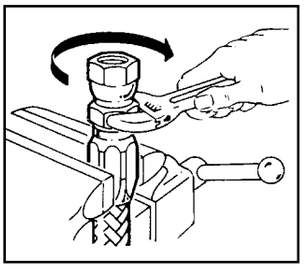
Back off 1/4 turn.

Back off FC300, FC350 and FC355 1/4 to 1/2 turn.



Step 3

Lubricate nipple and threads LIBERALLY. Use heavy oil or Aeroquip 222070 hose assembly lube.



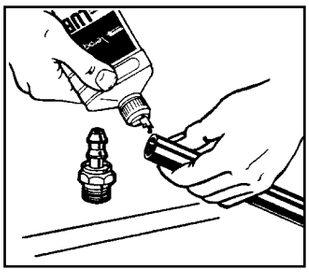
Step 4

Screw nipple clockwise into socket and hose. Leave 1/32" to 1/16" clearance between nipple hex and socket.

Recommendations for cleaning, inspection and testing are summarized on page 318. Disassemble in reverse order.

SOCKETLESS Fittings with textile braid low pressure hose

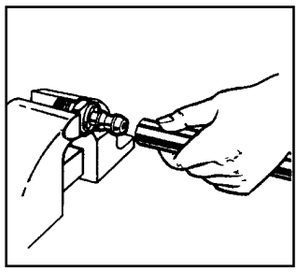
FC332, FC647, 2556, 2565, 2575



To Assemble

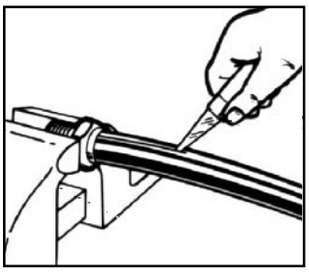
Step 1

Cut hose to required length with a sharp knife. Oil inside of hose and outside of nipple LIBERALLY.



Step 2

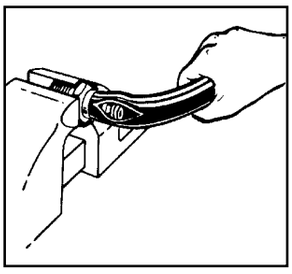
Push hose on fitting until hose end bottoms underneath protective cap as shown. For quantity production use a SOCKETLESS Fitting assembly machine. Recommendations for cleaning, inspection and testing are summarized on page 318.



To Disassemble

Step 1

Slit hose lengthwise from protective cap to end of nipple.



Step 2

Bend hose, then snap hose off with a quick tug.

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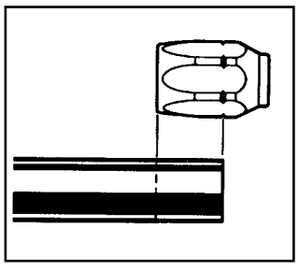
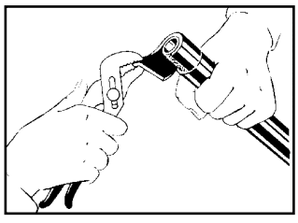
Standard reusable fittings with Hi-Pac and two wire braid hose FC195, FC310, FC510, 2766, 2781



Step 1

Cut hose to length required using a fine-tooth hacksaw or cut-off wheel.
Clean hose bore.

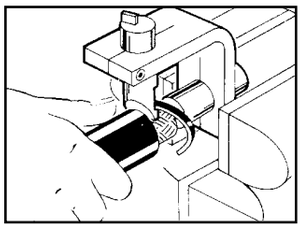
Hose must be stripped of its rubber cover before inserting in socket. Locate skiving point by putting hose end next to socket as shown. Measure from hose end of socket to notch on socket.



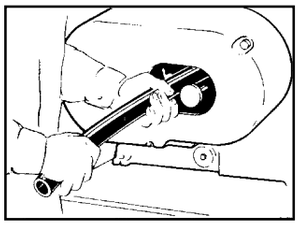
Step 1A

Skive Hose:

By Hand: Cut rubber cover around down to wire reinforcement. Slit lengthwise. Raise flap and pull off with pliers. Clean excess rubber off wire reinforcement with wire brush or soft wire wheel. Do not fray or flare wire reinforcement when brushing.

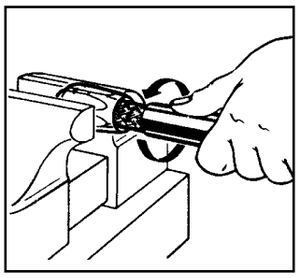


Skive Tool: Use the correct size FT1229 hose cover skiving tool. Mount the tool in a vise. Push the hose over the mandrel. Rotate the hose clockwise until it bottoms or secure hose in a vise and attach FT1279 auger to the skive tool. Insert mandrel into the hose and rotate clockwise until it bottoms.



Machine: Use the S1102 cut-off and skiving machine. Consult the owners manual. Select the correct mandrel. Turn on the machine. Put the hose over the mandrel and rotate.

Note: when skiving, remove the rubber cover until the wire reinforcement is exposed around the circumference of the hose.



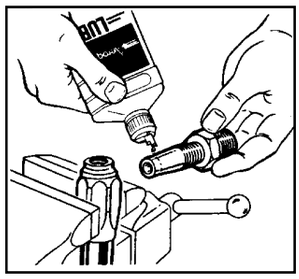
Step 2

Put socket in vise.

Screw hose into socket counterclockwise until it bottoms.

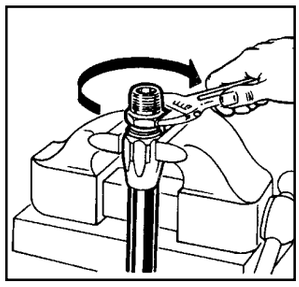
When assembling long lengths of hose, it may be preferred to put hose in vise just tight enough to prevent from turning, and screw socket onto the hose counterclockwise until it bottoms.

NOTE: Sockets for hose fittings in the –16, –24 and –32 sizes are furnished with internal annular grooves in place of helical grooves (all FC310 and FC510 hose sockets are annular grooved). Install socket by pushing hose into socket with a back and forth rocking and twisting motion until hose bottoms on shoulder of socket.



Step 3

Lubricate nipple threads and inside of hose liberally. Use heavy oil or Aeroquip 222070 hose assembly lube.



Step 4

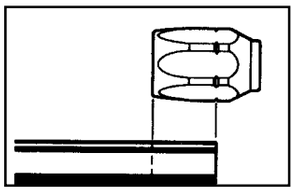
Screw nipple clockwise into socket and hose.

Leave $^{1}/_{32}$" to $^{1}/_{16}$" clearance between nipple hex and socket.

Recommendations for cleaning, inspection and testing are summarized on page 318. Disassemble in reverse order.

Standard reusable fittings with four spiral wire hose

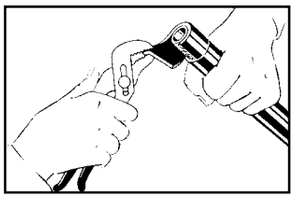
FC136, FC324, GH493, FC736



Step 1

Cut hose to length required using a fine-tooth hacksaw or cut-off wheel. Clean hose bore.

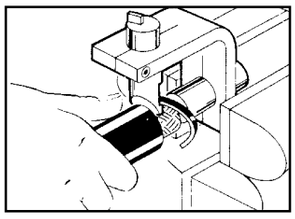
Hose must be stripped of its rubber cover before inserting into socket. Locate skiving point by putting hose end next to socket as shown. Measure from hose end of socket to notch on socket.



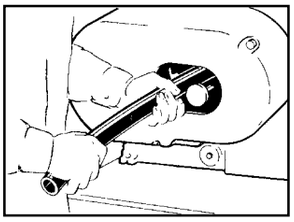
Step 1A

Skive Hose

By Hand: Cut rubber cover around down to wire reinforcement with a knife. Slit lengthwise. Raise flap and pull off with pliers. Clean excess rubber off wire reinforcement with wire brush or soft wire wheel. Do not fray or flare wire reinforcement when brushing.



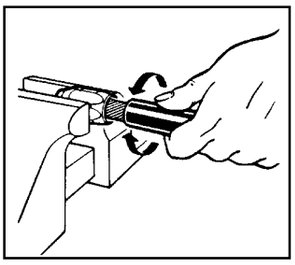
Skive Tool: Use the correct size Eaton FT1229 hose cover skiving tool. Mount the tool in a vise. Push the hose over the mandrel. Rotate the hose clockwise until it bottoms or secure hose in a vise and attach FT1279 auger to the skive tool. Insert mandrel into the hose and rotate clockwise



until it bottoms.

Machine: Use the Eaton S1102 cut-off and skiving machine. Consult the owners manual. Select the correct mandrel. Turn on the machine. Put the hose over the mandrel and rotate counterclockwise.

Note: when skiving, remove the rubber cover until the wire reinforcement is exposed around the circumference of the hose.

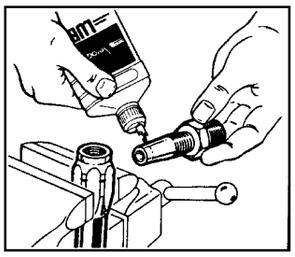


Step 2

Sockets for hose fittings are furnished with internal annular grooved design. Install socket by pushing hose into socket with a back and forth rocking and clockwise twisting motion until hose bottoms on shoulder of socket.

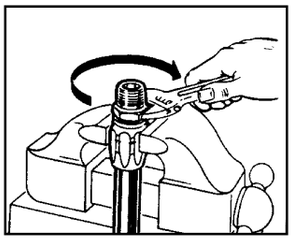
An alternate method is to insert the hose in a vise. Install socket by pushing onto the hose with a back and forth rocking and clockwise twisting motion until the hose bottoms on the shoulder of socket.

A rawhide hammer or similar tool may be used to tap the socket onto the hose but avoid damage to internal socket threads. Be sure not to damage hose cover or wire reinforcement.



Step 3

Liberally lubricate nipple threads and inside of hose. Use heavy weight oil or Aeroquip 222070 hose assembly lube.



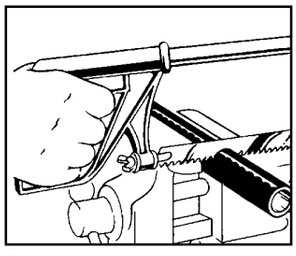
Step 4

Screw nipple clockwise into socket and hose. Leave $^{1}/_{32}$" to $^{1}/_{16}$" clearance between nipple hex and socket.

Recommendations for cleaning, inspection and testing are summarized on page 318. Disassemble in reverse order.

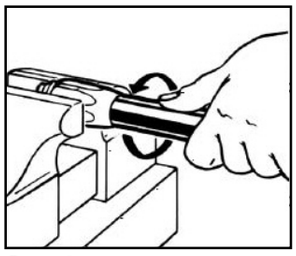
Thru-the-cover style reusable fittings with hose

FC211, FC212, GH663, GH793



Step 1

Cut hose to length required using a fine tooth hacksaw or cut-off machine. Clean hose bore.



Step 2

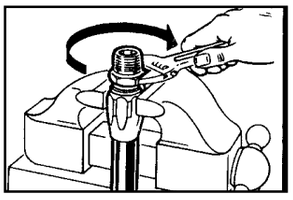
Liberally lubricate hose cover with Aeroquip 222070 hose assembly lube.

Place socket in vise and turn hose into socket counterclockwise until it bottoms.

When assembling long lengths of hose, it may be preferred to put hose in vise just tight enough to prevent from turning, and screw socket onto the hose counterclockwise until it bottoms.

Step 3

Liberally lubricate nipple threads and inside of hose. Use heavy weight oil or Aeroquip 222070 hose assembly lube.



Step 4

Screw nipple clockwise into socket and hose. Leave $^{1}/_{32}$" to $^{1}/_{16}$" clearance between nipple hex and socket.

Recommendations for cleaning, inspection and testing are summarized on page 318. Disassemble in reverse order.

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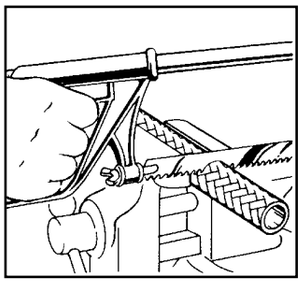
Powering Business Worldwide

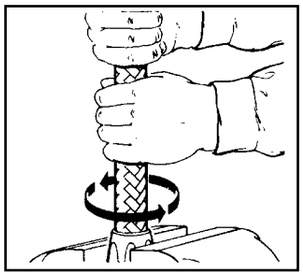
Standard (mandrelless) reusable fittings with engine, air brake and railroad air brake hose 1531, 1531A, 2550, 2554, 2570

(for fittings requiring mandrel, see page 324)



Step 1

Cut hose square to length required with fine-tooth hacksaw or cut-off wheel. Clean hose bore.

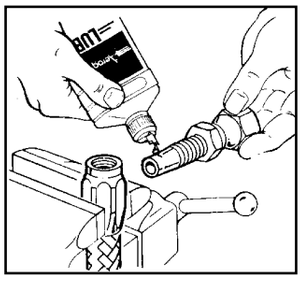


Step 2

Put socket in vise. Screw hose counterclockwise into socket until hose bottoms. Back off 1/4 turn.

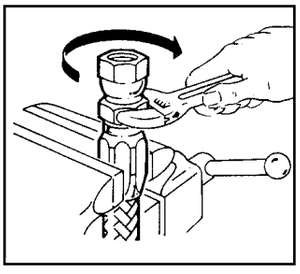
When assembling long lengths of hose, it may be preferred to put hose in vise just tight enough to prevent from turning, and screw socket into the hose counterclockwise until it bottoms. Back off 1/4 turn.

NOTE: For 2550, 2554 and 2570 hose: Sockets for these hose fittings are furnished with internal annular grooved design. Install socket by pushing hose into socket with a back and forth rocking and twisting motion until hose bottoms on shoulder of socket. Back off 1/4 turn.



Step 3

Lubricate nipple threads and inside of hose LIBERALLY with Aeroquip 222070 hose assembly lube or heavy weight oil.



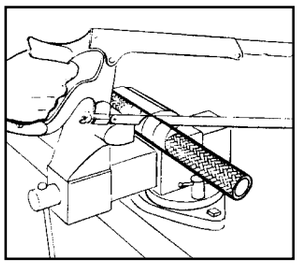
Step 4

Screw nipple clockwise into socket and hose. Leave a 1/32" to 1/16" clearance between nipple hex and socket.

Recommendations for cleaning, inspection and testing are summarized on page 318. Disassemble in reverse order.

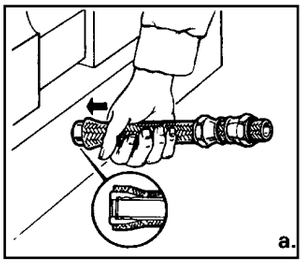
Powering Business Worldwide

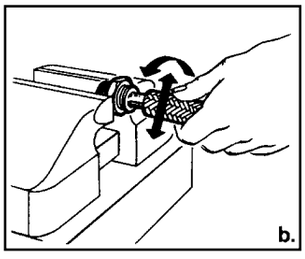
"super gem"® Fittings with PTFE hose
FC465, 2807, 2808, FC807



Step 1

Wrap hose with masking tape at cut-off point and cut square to length through taped area using a cut-off machine or fine-tooth hacksaw. Remove tape and trim any loose wires flush with tube stock. Any burrs on the bore of the tube stock should be removed with a knife. Clean the hose bore. Sometimes wire braid will tend to "neck down" on one end and flare out, on the opposite end. This is a characteristic of wire braid hose and can be used to an advantage in the assembly of the "super gem" sockets. Slip two sockets back to back over the "necked down" end of the hose.

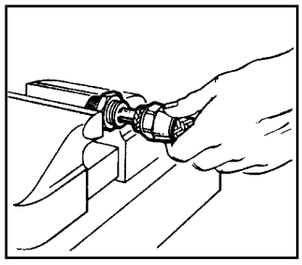




Step 2

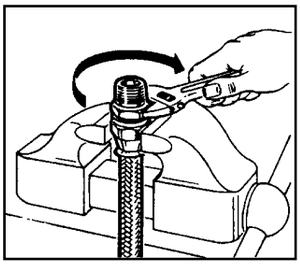
a. Push the sleeve over the end of the tube and under the wire braid by hand. Complete positioning of the sleeve by pushing the hose end against a flat surface. Visually inspect to see that tube stock butts against the inside shoulder of the sleeve.

b. Set the sleeve barbs into the PTFE tube by using assembly tool FT1038A or working the hose bore over the nipple into the end of the sleeve and tube. Assembly kit FT1081 is also available.



Step 3

Lubricate nipple and socket threads. For stainless steel fittings, use a molydisulfide base lubricant (e.g., Molykote* Type G), lubricants containing chloride are not recommended. Other material combinations use standard petroleum lubricants. Hold the nipple with hex in vise. Push hose over nipple with twisting motion until seated against nipple chamfer. Push socket forward and hand start threading of socket to nipple.



Step 4

Wrench tighten nipple hex until clearance with socket hex is $^{1}/_{32}$" or less. Tighten further to align corners of nipple and socket hexes. Recommendations for cleaning, inspection and testing are summarized on page 318.

To disassemble: Unscrew and remove nipple; slide socket back on hose by tapping against flat surface; remove sleeve with pliers. New sleeves are recommended upon reuse of the fitting.

**Molykote Type G is a registered trademark of the Dow Corning Corporation.*

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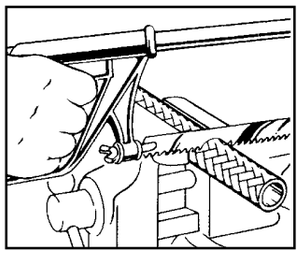
Hose and Reusable Fittings

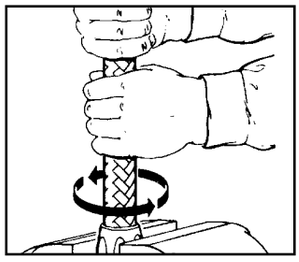
Mandrel Type Fittings—

Standard reusable fittings with single wire braid, multiple textile braid, hydraulic, LPG hose, engine and air brake hose
FC234, FC300, FC321, FC350, FC355, 302A, 303, 1503, 2580, 2651



Step 1

Cut hose square with fine-tooth hacksaw or cut-off wheel. Clean hose bore.



Step 2

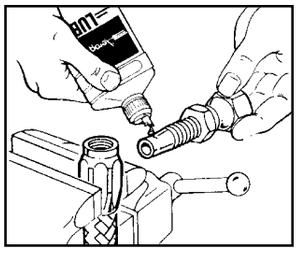
Put socket in vise.

Screw hose counterclockwise into socket until it bottoms.

When assembling long lengths of hose, it may be preferred to put hose in vise just tight enough to prevent from turning, and screw socket onto the hose counterclockwise until it bottoms.

Back off 1/4 turn.

Back off FC300, FC350 and FC355 hose 1/4 to 1/2 turn.

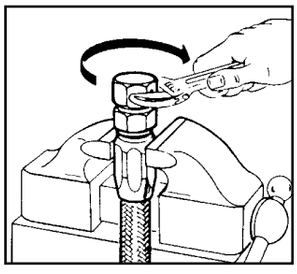


Step 3

MALE ENDS: Push assembly tool into nipple.

SWIVEL ENDS: Tighten nipple and nut on assembly tool.

Lubricate nipple, mandrel and inside of hose liberally. Use heavy oil or Aeroquip 222070 hose assembly lube.



Step 4

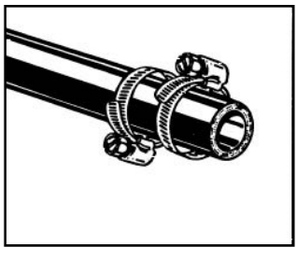
MALE ENDS: Screw nipple clockwise into socket and hose. Leave a 1/32" to 1/16" clearance between nipple hex and socket.

SWIVEL ENDS: Screw nipple clockwise into socket and hose. Leave 1/32" to 1/16" clearance between nut and socket.

Recommendations for cleaning, inspection and testing are summarized on page 318. Disassemble in reverse order.

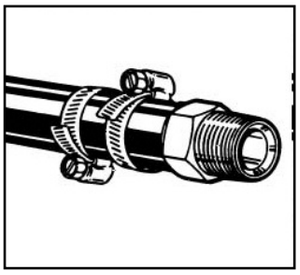
Nipple and clamp with suction hose

2661, FC619



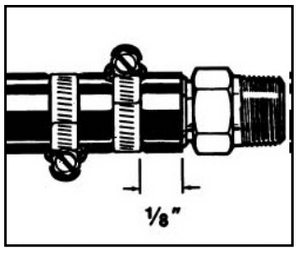
Step 1

Cut hose square to length required using a fine-tooth hacksaw or cut-off wheel. Clean hose bore. Slide band clamp over hose cover.



Step 2

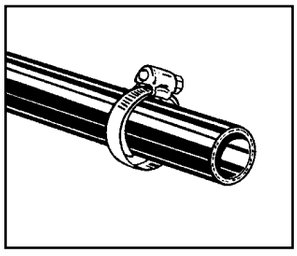
Insert nipple into hose until hose end bottoms on nipple shoulder.



Step 3

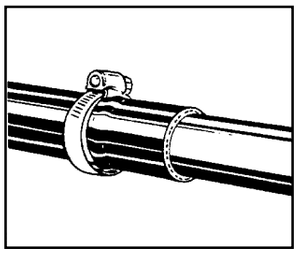
Evenly space two band clamps from end of hose to end of nipple (see above). The band clamps should be tightened 180° from each other. Tighten clamps to 100 in-lbs. Recommendations for cleaning, inspection and testing are summarized on page 318.

Silicone hose FC252/FC352



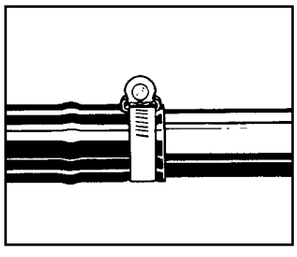
Step 1

Cut hose square to length required with a sharp knife. Slide extended hose clamp (FF9148) over hose cover.



Step 2

Push hose over beaded tube.



Step 3

Locate extended hose clamp (FF9148) near the end of hose and tighten the clamp.

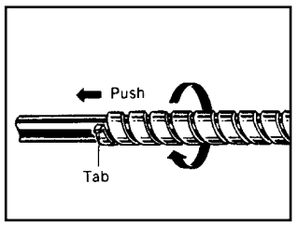
Clamps: Extended hose clamps or clamps with a shoe are recommended for securing to formed and beaded male tube ends.

CAUTION: Do not use wire type clamps for securing silicone hose.

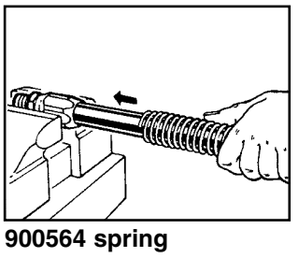
Note: Use of the FF9148 hose clamp will help prevent extrusion of the rubber cover through the clamp.

900705 Steel protective coil sleeve

900564 Steel protective coil spring



900705 sleeve



900564 spring

Step 1

Follow the appropriate assembly instructions through the assembly of one end fitting. Insert one end fitting in vise.

Step 2

Cut coil length. Coil should be cut to overall assembly length "OA" minus the sum of the overall length of each end fitting. ("A" dimension).

Step 3

3a) 900705 Steel Protective Coil Sleeve

The hose and the coil should be held straight. Taping or capping the hose end can prevent frayed wire ends from snagging on the coil. Bend one end to the coil outward to form a slight tab to assist grasping. (Cut off or bend back when installation is complete.) Hold the tab with the thumb of one hand while twisting the coil clockwise approximately one foot back from the coil tab. When the coil opens up sufficiently, slip the tab end to the coil over the hose. Move the coil onto the hose by pulling at the tab end while pushing with the other hand. Be careful not to exceed the resiliency of the coil by stretching it too far.

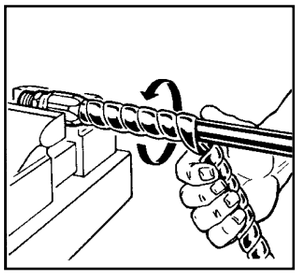
3b) 900564 Steel Protective Coil Spring

Slide coil over hose.

Step 4

Proceed with assembly of second end fitting.

900952 Plastic coil sleeve



Step 1

Follow the appropriate hose assembly instructions through the assembly of both end fittings. Insert end fitting in vise.

Step 2

Cut coil length. Coil should be cut to overall assembly length "OA" minus the sum of the overall length of each end fitting. ("A" dimension).

Step 3

Wrap the coil on the hose.

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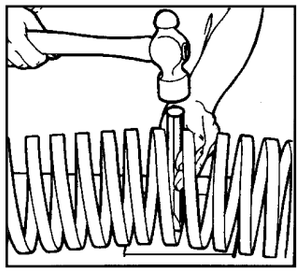
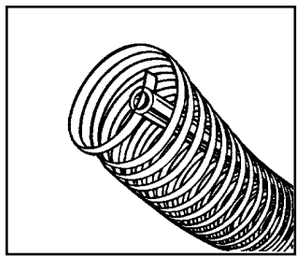
Internal support coils
222005, 222022



Step 1

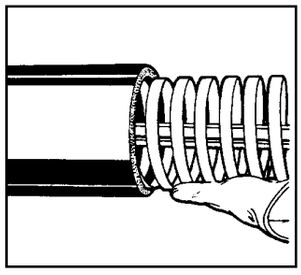
Cut coil length. The coils should be cut to the hose length, minus the nipple intrusion. For any given hose assembly the support coil length equals the overall hose assembly length minus the sum of the overall lengths of each end fitting. ("A" dimensions.)

Small size of the coil can usually be cut with strap cutters or sheet metal shears. The larger sizes are best cut with a heavy sharp chisel or bolt cutter. With small sizes skip directly to Step 3.



Step 2

Compress the coil (large sizes only). It is necessary to reduce the coil diameter slightly in order to insert it into the hose. The easiest approach is to use a length of pipe with a notch cut in one end. Clamp the plain end of the pipe in a vise, slide the coil over the pipe and insert the free end of the coil into the notched end of the pipe. Then clamp the coil and pipe firmly together. Twist the coil to compress it prior to installation into the hose.

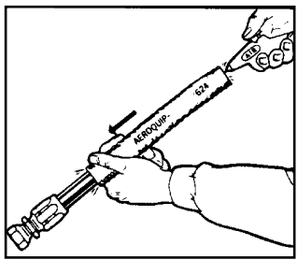


Step 3

Small sizes: The coil can be worked into the hose by hand without difficulty. Remove all burrs from the coil prior to insertion. This will prevent cutting of the hose tube. Position the coil midway between hose ends.

Large sizes: With the pipe still in position, as in Step 2, assemble the hose over the coil. With the coil fully centered in the hose, remove the pipe and clamp.

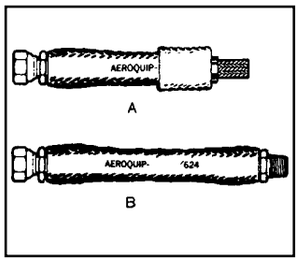
Firesleeve
624



Step 1

Follow the appropriate hose assembly instructions through the assembly of one end fitting. Cut firesleeve to same length as hose; using Firesleeve End Dip (AE13702–003) dip ends of firesleeve to a depth of three quarters of an inch and allow to dry at room temperature.

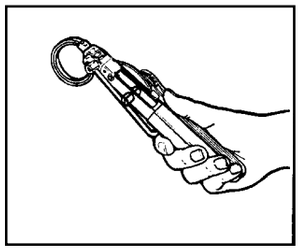
Start firesleeve over cut end of hose. Note: If applying sleeve over PTFE or stripped cover assemblies, wrap exposed wire with tape. Grasp sleeve and slip over the hose assembly as illustrated.



Step 2

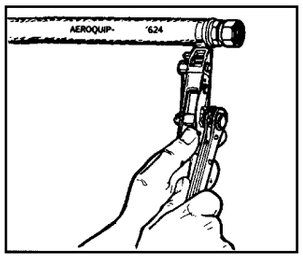
Skin sleeve back from cut end of hose enough to allow assembly of second end fitting. (2A)

Then center sleeve so that it completely covers both sockets. (2B)



Step 3

Insert tail of band clamp into hand clamping tool.



Step 4

Position band clamp over sleeve as shown and then draw tight with hand tool. Remove tool and cut free end of band clamp. Repeat on other end of assembly. To complete, bend protruding tail of clamp over clamp buckle. Also repair any scuffs or minor abrasions of firesleeve by brush application of End Dip AE13702–003.

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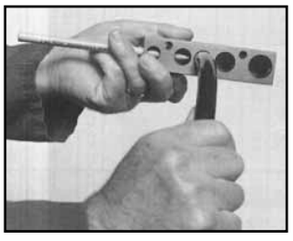
How to Assemble Permanent Hose Fittings

Instructions for using the Synflex Mark IX Swaging Machines

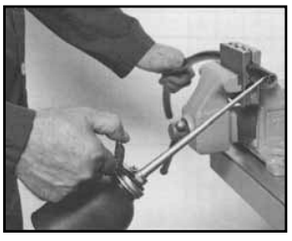
Permanent Fitting Chart Insertion Depth Table

	FITTING SERIES	
	INSERTION DEPTH (in)	
Hose I.D. (in)	903, 90H 90L 905 7903,790H, 90A, 90N	906
1/8	9/16	-
3/16	25/32	-
1/4	1-1/16	7/8
5/16	1-1/8	-
3/8	1-1/4	1-1/4
1/2	1-1/2	1-1/2
5/8	1-9/16	-
3/4	1-11/16	-
1	2-1/16	-

1. Cut hose squarely with Hand-Held Hose Cutter 4523-04006 or Bench-Mounted Hose Cutter 4523-04007.

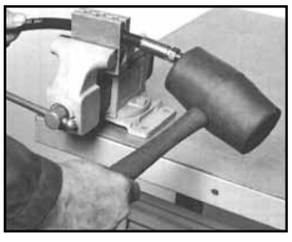


2. Mark hose for proper insertion depth into fitting. Use insertion depth chart or use Insertion Depth marker 45J0-04603.



3. Oil inside hose diameter with SAE 20 oil.

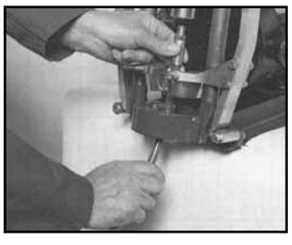
Consult Eaton Performance Plastics for oxygen system special assembly recommendations.



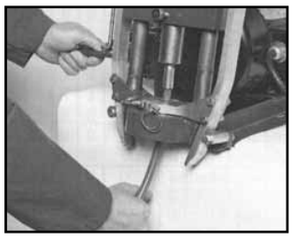
4. Insert hose into fitting to depth mark. (Use Vise Block 4504-00000 or 4504-01000 and rubber mallet to ease assembly.)

5. Insert the specified die and pusher into the swaging machine.

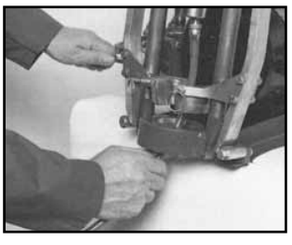
Lubricate die swaging surface with SAE 90 gear oil. For stainless steel fittings use Swage Lubricant 4545-01001.



6. Insert hose end into the pusher.



7. Pull control lever and guide fitting into the die until the pusher bottom is against the top of the die surface.



8. Push control lever to retract pusher and open die halves. Remove swaged hose assembly.

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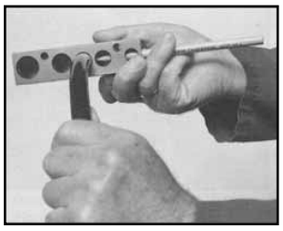
How to Assemble Permanent Hose Fittings

Instructions for using the Synflex SST Swaging Tool

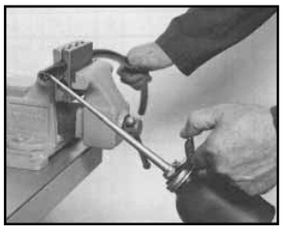
Permanent Fitting Chart Insertion Depth Table

	FITTING SERIES	
	INSERTION DEPTH (in)	
Hose I.D. (in)	3903, 390A, 390P, 390H, 390L, 390S, 7903,790H, 390N	3906
1/8	9/16	-
3/16	25/32	-
1/4	1-1/16	7/8
5/16	1-1/8	-
3/8	1-1/4	1-1/4
1/2	1-1/2	-
5/8	1-9/16	-
3/4	1-11/16	-
1	2-3/16	-

1. Cut hose squarely with Hand-Held Hose Cutter 4523-04006 or Bench-Mounted Hose Cutter 4523-00000.

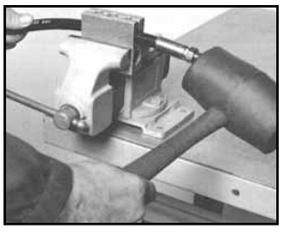


2. Mark hose for proper insertion depth into fitting. See page 14 for insertion depth table or use Insertion Depth marker 45J0-04603.



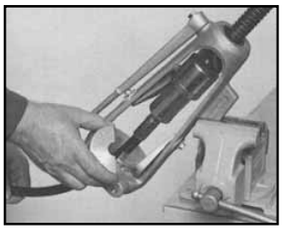
3. Lubricate inside hose diameter with SAE 20 oil or similar lightweight lubricant.

Consult Eaton Performance Plastics for oxygen system special assembly recommendations.



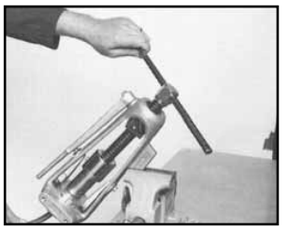
4. Insert hose into fitting to depth mark. (Use Vise Block 4504-00000 or 4504-01000 and rubber mallet to ease assembly.)

5. Insert the specified pusher with the pusher retainer in the raised position. Finger-tighten retaining screw to hold pusher firmly in place. Pusher must be allowed to rotate freely.



6. Place one die half into the base plate. **Lightly oil the inner surface of both die halves with SAE 90 gear oil. For stainless steel fittings use Swage Lubricant 4545-01001.**

7. Insert the assembled hose and fitting through the base plate and firmly into the pusher cavity. Place the other die half in base and lock into place by swinging clamps down firmly against top of dies. Rotate ball screw until fitting reaches the die.



8. With handle provided or 1-1/8 socket and ratchet, rotate screw CW until pusher bottom contacts top of die. Maintain pressure on ball screw and release die clamps. Slowly release pressure and rotate ball screw CCW until it is clear of the die. Remove swaged assembly.

How to Assemble Reusable Hose Fittings

Use Synflex 3000, 3R80, 3E80, 37AL series only.

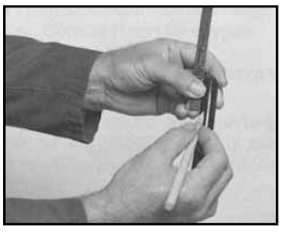
* Consult Eaton Training for oxygen system assembly recommendations.

1. Cut hose squarely with Hand-Held Hose Cutter 4523-04006 or Bench-Mounted hose Cutter 4523-00000.

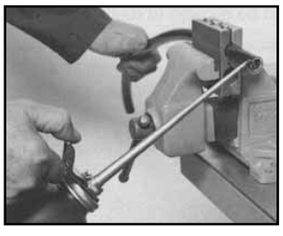
2. Use the table (to the right) to establish the length of hose that is inserted into the fitting socket.

Reusable Fitting Chart Insertion Depth Table

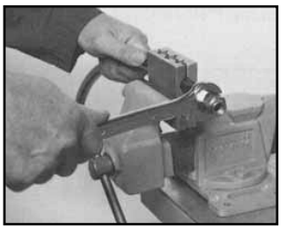
	FITTING SERIES	
	INSERTION DEPTH (in)	
Hose I.D. (in)	3901, 390J, 390K, 3908,	3902
1/8	21/32	-
3/16	27/32	27/32
1/4	1	7/8
5/16	1-3/32	1-1/8
3/8	1-3/16	1-1/4
1/2	1-5/16	1-1/2
3/4	1-1/4	1-11/16
1	1-11/16	-



3. Use a rule for measurement and mark the hose with a colored pencil.
4. Insert hose into Vise Blocks (4504-0000 or 4504-01000) and tighten to hold hose firmly in place.

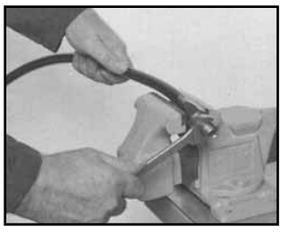


5. Lightly lubricate the outer surface of the hose to make it easier to push the fitting over the hose. For mild steel fittings and standard hose, use SAE 20 motor oil. For stainless steel fittings use Swage Lubricant 4545-01001*.



6. Push fitting socket over the lubricated hose and screw socket on by hand counterclockwise until the socket end is even with the depth mark. The end of the hose should be 3/32 inch to 1/16 inch from the inner shoulder of the fitting socket. It should NOT be bottomed against the shoulder. Do not over-tighten.

7. Remove hose and fitting assembly with Vise Blocks.
8. Place fitting socket in the vise and lubricate the mating fitting threads.



9. Screw the fitting insert clockwise into the socket with a wrench until the bottom of the insert hex contacts the socket shoulder. Do not over-tighten.

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How to Separate Twin Line & Multi-Line Hose

Synflex De-Twinner Die Reference Chart (4574-03000-xxx)

Hose Product	Die* No.
3R30-03	27
3R30-04	3
3R30-06	10
3R30-08	13
3130-02	1
3130-03	2
3130-04	4
3130-05	8
3130-06	11
3130-08	13
3160-03	2
3160-04	4
3160-05	8
3160-06	11
3160-08	13
37AL-03	2
37AL-04	3
37AL-05	7
37AL-06	10
37AL-08	13

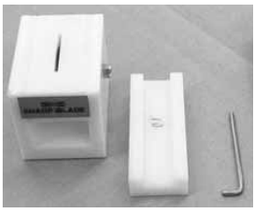
Hose Product	Die* No.
30CT-04	3
30CT-05	22
30CT-06	11
30CT-08	14
3360-03	2
3360-04	4
3360-05	23
3360-06	24
3360-08	25
3R80-04	9
3R80-06	12
3R80-08	15
3E80-04	9
3E80-06	12
3E80-08	15
3V10-03	5
3V10-04	16
3V10-06	17

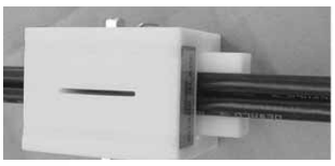
Hose Product	Die* No.
3VEO-03	5
3VEO-04	16
3VEO-06	17
3840-03	18
3840-04	19
3840-06	20
3840-08	21
35NG-03	4
35NG-04	26
35NG-06	12
35NG-08	15
3V20-04	16
3V20-06	17
3251-08	6
31DW-04	5

*Die number stamped on end.

Instructions for using the Twin-Line Hose Separation Tool

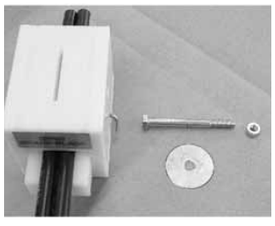
CAUTION: Tool Contains a Sharp Blade. Do Not Put Your Hands or Objects Inside the Tool.





1. The De-Twinner tool 4574-01000 is designed to split twinned hose without any damage to the hose. Selecting the proper die is critical to operating this tool safely. The proper die can be selected from the attached chart. Customer service can assist in proper die selection.The hose should fit snugly in the die without any extra slop.
2. To insert the die into the tool, first remove the retainer pin. This pin should also fit snugly to prevent the die from moving. **DO NOT REACH INTO THE TOOL OR PUSH ANYTHING THROUGH THE TOOL TO REMOVE THE DIE!** The die extends out one side of the tool to allow ease of removal. Set the tool on its side with the long end of the die pointing up. Remove the die. Insert the new die from the same side and reset the pin.
3. Insert the assembled tool with die into a proper holding fixture (vise or other) and set stop at appropriate distance.The tool is cutting 2" before the exit end of the tool.
4. Apply a water soluble lubricant to the end of the first piece of product to be cut and slide it through the tool to the appropriate stop. Apply a few drops of lubricant to the end of each hose to be cut just before cutting. This will ease the cutting force and prolong blade life.

Blade Replacement

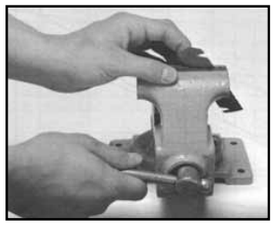


1. Replacement blades are available from Eaton Performance Plastics.
2. Use proper protective gear (cut resistant gloves) when replacing the blade. This blade is very sharp.
3. Remove blade retainer nut and slide out blade retainer bolt. Tip tool over and the blade should fall out from the top. DO NOT TRY TO REMOVE IT FROM THE SLOT, THE MATERIAL SLIDES THROUGH.
4. Insert new blade, bolt and nut. Tighten the locking nut only to the point that the bolt rotates as the product is cut. If it is too tight the blade and bolt will wear out prematurely.
5. The blade will last for thousands of cuts if properly installed and the operating procedures are followed correctly.

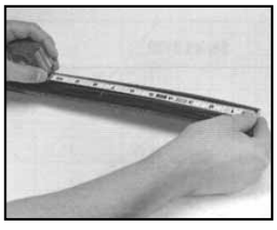
Powering Business Worldwide

How to Separate Twin Line & Multi-Line Hose

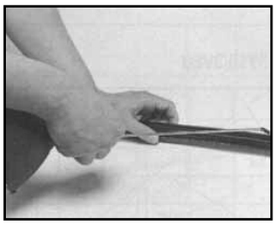
Instructions for using the Twin-Line Hose Separation Tool



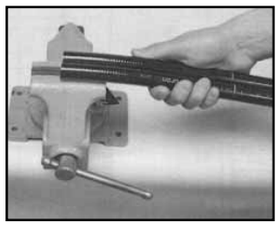
1. Remove the hose separation knife (Part Number 4573-00000) from the handle and place in a vise at a 45° angle to the top of the vise. Fasten securely in the vise jaws.



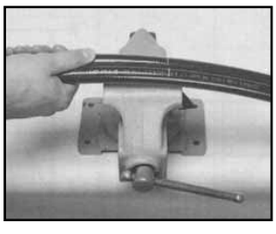
2. Measure and mark the distance to be separated.



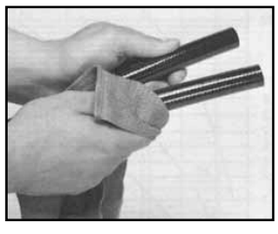
3. Lightly lubricate the hoses on both sides at the connecting web with a soap solution or lubricating oil. This step reduces friction between the knife blade and hose cover surfaces, plus keeps the knife centered during the cutting step.



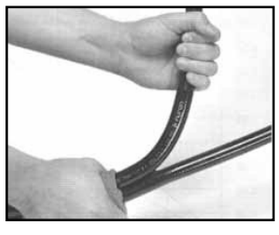
4. Push the hose into the "V" notch on the knife blade using a rocking motion to start the hoses into the blade.



5. Hold the hoses together and aligned with the blade while first pushing then pulling them to the mark, taking care not to cut the hose covers.



6. Remove the lubricant from the hoses and proceed with normal hose assembly.



7. Examine the hose cover material where the hoses were attached to ensure they have not been cut, or the reinforcement fiber exposed. If the hose covers shows signs of damage, the hose assembly should not be placed in service.

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Eaton Hydraulics Group Australia

(Eaton Industries Pty. Ltd.)
ABN 66 103 014 571

MELBOURNE
Unit 1, 101-105 Keilor Park Drive, Tullamarine, VIC 3043
Telephone: (03) 9319 8222 Fax: (03) 9319 8299

BRISBANE
5/13 Murdoch Circuit,
ACACIA RIDGE, QLD. 4110
Telephone: (07) 3712 6712 Fax: (07) 3272 2677

NEWCASTLE
17 Waterloo Avenue,
THORNTON, N.S.W. 2322
Telephone: (02) 4966 8111 Fax: (02) 4966 8088

SYDNEY
47 Holbeche Road
ARNDELL PARK NSW 2148
Telephone: (02) 9671 0600 Fax: (02) 9671 0601

ROCKHAMPTON
Telephone: 0417 516 304

ADELAIDE
Suite 33
283-287 Sir Donald Bradman Drive
Brooklyn Park SA 5032
Phone: (08) 8238-3417 Fax: (08) 8359-8915

PERTH
Unit 2/16-18 Kewdale Road,
WELSHPOOL, W.A. 6106
Telephone: (08) 9356 9711 Fax: 9356 9722

WOLLONGONG
9 Lady Penrhyn Drive,
UNANDERRA, N.S.W. 2526
Telephone (02) 4272 6366 Fax: (02) 4272 6377