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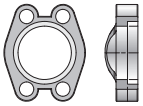
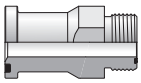
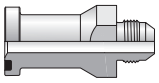
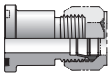
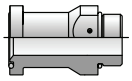
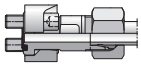
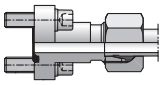
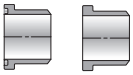
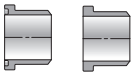
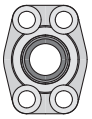
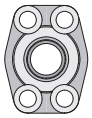
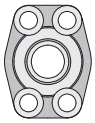
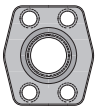
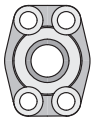
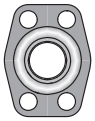
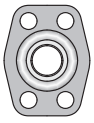
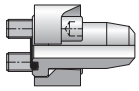
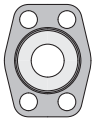
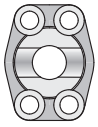
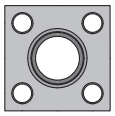
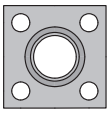
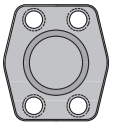
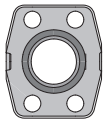
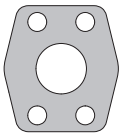
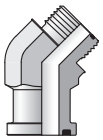
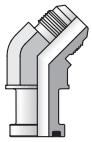
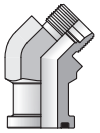
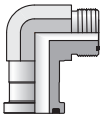
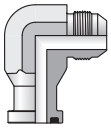
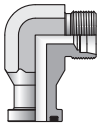
Flange Clamps	**FCS** Flange Clamps – Split  K9	**FCC** Flange Clamp – Captive  K9	**FHS3** Code 61 Flange Clamps – Metric  K10	**FHS6** Code 62 Flange Clamps – Metric  K11	
Straight Flange Adapters / Flanges	**LOHQ** Code 61, 62 / ORFS  K12	**XHQ** Code 61, 62 / 37° Flare  K12	**BUHQ1** Code 61 / Flareless  K12	**F5OHQ** Code 61, 62 / SAE-ORB  K13	**GFS** Code 61, 62 / Metric Flareless  K14
BFG DIN Flange / Metric Flareless  K15	**B3HQ** Code 61, 62 / Flareless  K13	**P** Flange Head Plug  K15	**W7HQ** Flange Head / Pipe Socket  K16	**G5HQ** Flange Head / SAE-ORB  K16	**GHQ** Flange Head / NPT  K16
WB1/3/5HQ1 Code 61 / Weld Butt – Pipe  K17	**WB3/5/7HQ2** Code 62 / Weld Butt – Pipe  K18	**G5Q** Code 61, 62 / SAE-ORB  K19	**GQ** Code 61, 62 / NPT  K20	**G4Q** Code 61, 62 / BSPP  K21	**W5Q** Code 61, 62 / Socket – Pipe  K22
W4Q Code 61, 62 / Socket – Tube  K23	**W7Q** Code 61, 62 / Ext Socket – Pipe  K24	**W6Q** Code 61, 62 / Ext Socket – Tube  K25	**WB1/3/5Q1** Code 61 / Weld Butt – Pipe  K26	**WB3/5/7Q2** Code 62 / Weld Butt – Pipe  K27	**AS** Code 61, 62 / Weld Butt – Tube Metric  K28
WBT Code 61 / Weld Tank Adapter  K28	**WSD** Code 61, 62 / Weld Saddle  K29	**GQS** Square Flange / NPT  K29	**W5SQS** Square Flange / Weld Socket – Pipe  K30	**PQ** Code 61, 62 / Blank  K30	**SPGG5** Flange Spacer w/Gage Ports  K31
CP Flange Connector Plate  K31	**45° Flange Adapters**	**LOVQ** Code 61, 62 / ORFS  K32	**XVQ** Code 61, 62 / 37° Flare  K32	**BUVQ1** Code 61 / Flareless  K32	
90° Flange Adapters	**LOEQ** Code 61, 62 / ORFS  K33	**XEQ** Code 61, 62 / 37° Flare  K33	**BUEQ1** Code 61 / Flareless  K33	**W7EQ** Code 61, 62 / Weld Socket – Pipe K34	**WFS** Code 61, 62 / Metric Flareless K35

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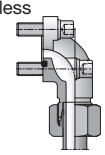
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90° Elbows

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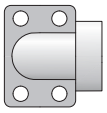
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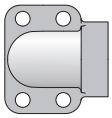
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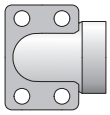
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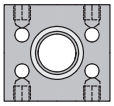
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Stainless Steel Flanges

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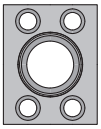
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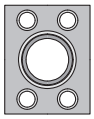
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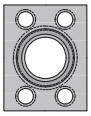
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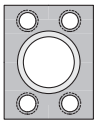
PQ
Code 61, 62 / Blank

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O-rings and Seals (Shown in Section M)

O-rings and Seals

ORFS O-ring

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K

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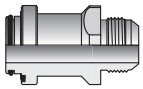
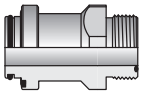
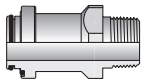
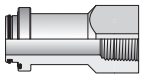
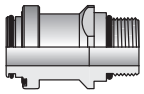
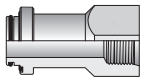
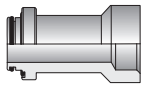
Dual Seal Flanges

37° Flare	**XHQ4O** 37° Flare  K43	**ORFS**	**LOHQ4O** ORFS  K43	**NPTF**	**FHQ4O** Male NPTF  K43
GHQ4O Female NPTF  K44	**SAE-ORB**	**F5OHQ4O** Male SAE-ORB  K44	**G5HQ4O** Female SAE-ORB  K44	**Socket Weld Pipe**	**W7HQ4O** Socket Weld Pipe  K45
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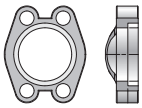
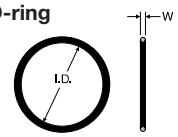
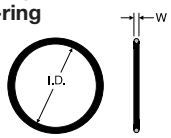
Flange Clamps	**FCS** Flange Clamps – Split  K9	**FCC** Flange Clamp – Captive  K9			

O-rings and Seals (Shown in Section M)

O-rings and Seals	**Radial Seal O-ring**  M10	**Flange Seal O-ring**  M10

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Hydraulic Flanges and Components

The 4-bolt flange connections conforming to SAE J518 and ISO 6162-1 and -2 are proven, leak-free connections, especially suited for larger sizes, higher pressures and assembly in tight quarters. Threaded port connections such as SAE straight thread and ISO 6149 are reasonably easy to assemble and provide 6000 psi and higher pressure capability up to size 12 (M27). Beyond this size, the pressure rating starts to decrease and assembly torques increase rapidly.

The 4-bolt flange port connections provide the ability to connect larger sizes and achieve higher-pressures at reasonable assembly torque. Because of the lower assembly torque required compared to equivalent size threaded port, these connections are well suited for tight quarters where wrench clearance is limited.

Design and Construction

Parker's 4-bolt flange products are designed to provide different methods of connecting a tube, hose, pipe or another fitting to the SAE standard 4-bolt flange port.

Flange Fittings — All Parker flange fittings, except for those with square mounting hole patterns (nomenclature code QS), are designed to conform to O-ring groove, bolt holes and bolt pattern dimensions of either Code 61 or Code 62 of SAE J518 and ISO 6162-1 (Code 61) or -2 (Code 62).

The flange adapters (Code Q1 and Q2), and flange block fittings (Codes Q1B, Q2B and QSB) have O-ring grooves conforming to SAE J518 dimensions. The flange block fittings (Codes Q1B and Q2B) have through holes for the mounting bolts, again conforming to SAE J518. There is no industry standard for the bolt pattern of the square pattern block flanges with codes QSP and QSB.

The flange pad fittings (Codes Q1P, Q2P, and QSP) have a flat face (no O-ring groove) and the mounting holes are tapped. Where these fittings are used, the seal is in the mating part (flange adapter, flange hose fitting, flange block fitting, etc.) as shown in Fig. K1.

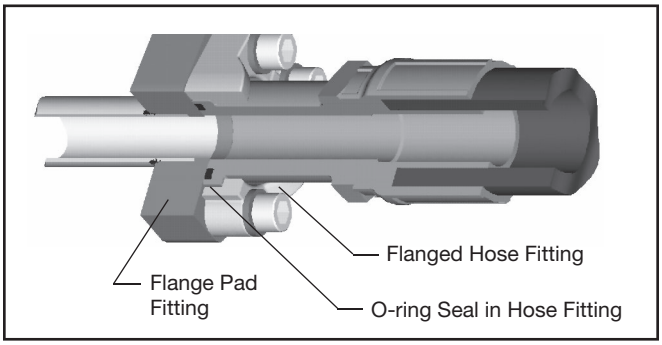

Fig. K1 – Flange Pad Fitting

Dimensions other than the O-ring groove, bolt holes, bolt pattern, and the flange foot print (for codes Q1B and Q2B only) are not governed by any industry standard. However, Parker's product design follows common industry practice and sound engineering.

Flange Clamps — Clamps are used for providing the holding power to the 4-bolt flange connection. They are offered in split and captive (one-piece) versions. The captive version is also offered with either drilled or tapped bolt holes which is used for connecting a tube to another tube or hose.

Parker flange clamps are forged for higher strength and durability and meet all requirements of SAE J518. The split clamps make it easy to assemble the connection in close quarters. They also make removal of the flange head component, such as a hose assembly, easy by loosening all four bolts and removing one clamp half, as shown in Fig. K2.

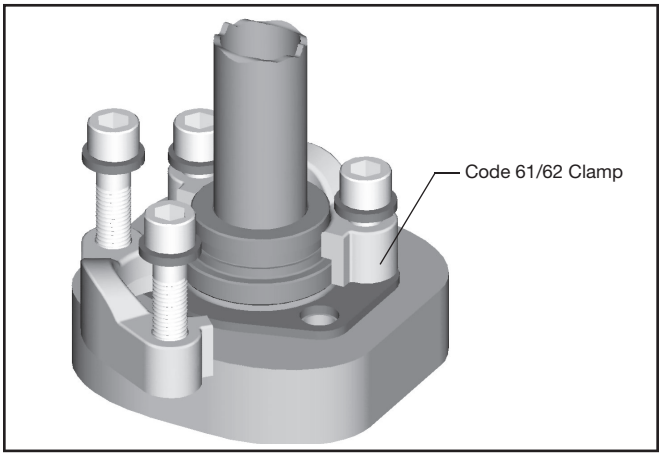

Fig. K2 – Assembly / Removal SAE J518 Connection

How Flange Connections Work

The connection's success is in its simplicity. It is a static face seal using a high durometer O-ring for the seal and clamps and bolts for holding power as shown in Fig. K3.

The (O-ring) seal is compressed between the bottom of the groove in the flange head and the flat surface of the port or flange pad, providing a reliable soft seal. The alternate seal plate has a high durometer bonded rubber seal on the inside edge, which compresses between the two flat surfaces, providing a soft seal with the same reliability. A metal-to-metal contact at the outer face of the flange with the port face keeps the seal from extruding under pressure. This metal-to-metal contact is maintained by the clamping force provided by tightening the bolts via the clamps.

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This simple design provides several advantages over threaded port connections, such as NPTF, SAE, BSPP, ISO 6149, etc., in larger sizes:

- Ability to connect up to 5 inch O.D tube (Code 61 only)
- Much lower tightening torque required for the four bolts compared to that required for equivalent size threaded port
- Less tightening torque means smaller wrenches and wrench swing clearances — providing ease of assembly in tight quarters
- Up to 6000 psi capability through 2” size (Code 62 only)
- Single seal point between tube/pipe/hose assembly and the port
- Ease of disassembly through the use of split clamps

This connection requires a larger area (foot print) on the component than an equivalent threaded port.

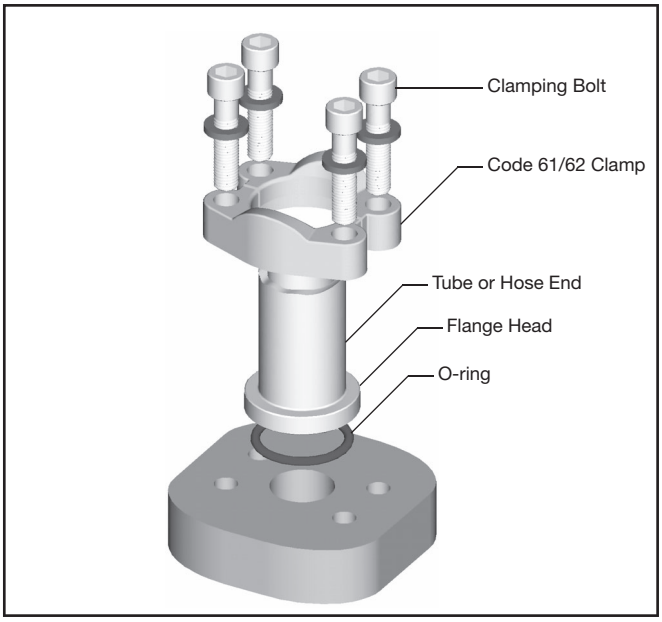

Fig. K3 – Four-Bolt Flange Connection (SAE J518)

Reference Locations:

Standard Material Specifications: Please refer to Table S34 located in the General Technical section.

Assembly and Installation: Please refer to Hydraulic Flanges Assembly located within the Assembly/Installation section of this catalog

Dynamic Pressure Ratings: Please refer to the last column of the part number tables located on the following pages of this section for the appropriate dynamic pressure ratings.

Feature	Advantage	Benefit
Conforms to SAE J518 and ISO 6162	Controls dimensions and tolerances of code 61 and 62 port connections	Insures interchangeability and consistency
Forged Construction	Reliable, long life performance	No downtime, reduced costs
	Compact envelope size, no sharp edges	Reduced weight
Over 60 Configurations	Flexibility in plumbing, match system needs	Best solution and best value
Parflange Technology	Designed to be used with Code 61/62 fittings	Eliminates messy and time consuming brazing process
Mounting Hardware	Grade 8 bolts standard	Performs in rigorous applications for the life of the flange
Flange Kits	Flange with hardware for mounting (O-ring, bolts and lockwashers)	Reduces order and assembly error

Dimensions and pressures for reference only, subject to change.

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Dual Seal Flange Adapters

Parker's Dual Seal Flange Adapter product line provides a solution for high vibration, high shock hydraulic four bolt connection styles used in various applications. This Parker innovation is offered as an alternative to traditional ISO 6162-2 (SAE J518) Code 62 Flange connections providing improved port retention, increased sealing capability and elimination of costly field replacement due to failure. Dual Seal Flange Adapters incorporate both radial and face seal technologies, reducing the potential for system leakage and ingression of air or water caused by side loading of traditional flange face seal connections.

Dual Seal Flange Adapters have a system working pressure rating of 7500 PSI with a 4:1 design factor. The face seal system incorporates Parker's Captive O-ring Groove technology to prevent O-ring fall out during installation, minimizing connection failures seen with traditional flange connections.

Design and Construction

The Dual Seal Flange adapter consists of three components: a body, a face sealing O-ring and a radial sealing O-ring. The body is manufactured from Heat Code Traceable 316 stainless steel and the O-rings are manufactured from 90 durometer Nitrile. Additional components used for assembly of the Dual Seal Flange adapters include four bolts, flange clamps and lock washers. Flange clamps are available from Parker Tube Fittings Division, with standard sizes listed on Page K9 of this catalog section.

The Dual Seal Flange Adapter Body

Dual Seal Flange Adapters bodies are manufactured in ½", 1" and 1 ½" sizes with ten different cold drawn tube, pipe or hose end configurations available as standard. Straight bodies are machined from 316/316L bar stock.

Dual Seal Flange Clamps

Flange clamps are offered in both split and captive (one-piece) versions depending on the adapter configuration being used. Flange clamps are machined from 316/316L materials. For all straight Dual Seal Flange Adapter bodies split flange clamp are required. The 90° and 45° cast shaped versions can be installed with either split or captive flange clamps.

Industry Acceptance

Dual Seal Flange Adapters are designed to conform to bolt thread and bolt pattern dimensions of ISO 6162-2 or SAE J518 Code 62.

Materials used to manufacture Parker Dual Seal Flange Adapters are compliant to NACE MR0175. All products are Heat Code Traceable and have been tested to SAE requirements.

How Dual Seal Flange Adapters Work

As shown below, Dual Seal Flange connections use both a radial seal and face seal to achieve a superior leak free port connection. The primary radial seal (A) improves the pressure capabilities of this adapter to 7500 PSI while offering additional system integrity. The face seal (B) provides resistance of external pressures introduced by the application environment. The flange clamps (C) and bolts (D) are used to compress the O-rings into the port and provide the clamping force necessary. Reference Fig. K4 below.

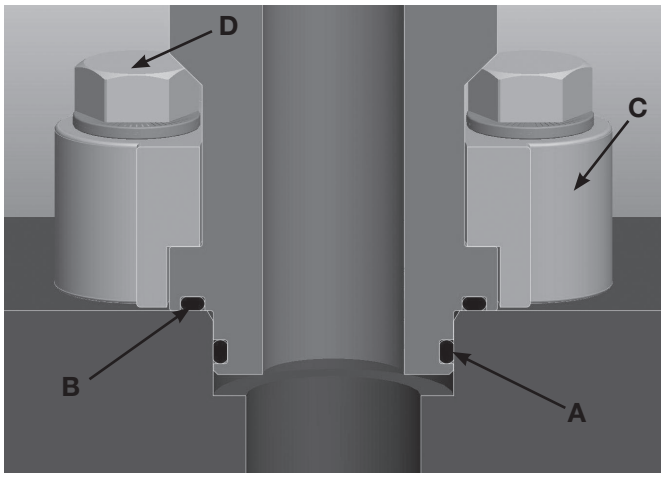

Fig. K4

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The Parker Advantage

Improved Pressure Rating: Parker's new Dual Seal design is rated for up to 7500 PSI to meet current and future hydraulic design needs. This design has also been tested to meet standard SAE J1644 parameters.

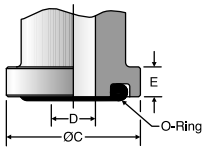
Captive O-ring Groove: The design of Parker's Dual Seal Flange Adapters incorporates a captive O-ring groove (CORG) which prevents O-ring fall out during installation further preventing the possibility of leaks.

Radial Seal: The primary radial seal (A) improves the pressure capabilities of the Dual Seal system to 7500 PSI while offering additional system integrity.

Ingression Seal: Reduces the potential for side loading and ultimately connection failure in high impulse and high vibration applications.

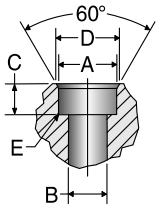
Multiple Standard Configurations: Parker's Dual Seal Flange Adapter product line includes a variety of tube, pipe, and hose connection styles to meet hydraulic system design needs. Included are Parker's Seal-Lok (SAE J1453), Triple-Lok (SAE J514), SAE ORB (SAE J1926) and NPTF for traditional hydraulic connections. In addition, to offer a solution for schedule pipe assemblies, Parker offers socket weld configurations.

Code 61 and Code 62 Port Ends



SIZE	Flange O.D. C (inch)	Drill D Max (inch)	Flange Height E (inch)
CODE 61			
8	1.19	0.50	0.265
12	1.50	0.75	0.265
16	1.75	1.00	0.315
20	2.00	1.25	0.315
24	2.38	1.50	0.315
32	2.81	2.00	0.375
CODE 62			
8	1.25	0.50	0.305
12	1.63	0.75	0.345
16	1.88	1.00	0.375
20	2.13	1.25	0.405
24	2.50	1.50	0.495
32	3.13	2.00	0.495

Port Ends for Dual Seal Flange Port



SIZE	A (in.)	B (in.)	C (in.)	D (CSK)	E (R)
8	0.750 - 0.752	0.500	0.400	.82 X 60°	0.02
16	1.375 - 1.377	0.938	0.400	1.445 X 60°	0.02
24	1.750 - 1.752	1.312	0.530	1.82 X 60°	0.02

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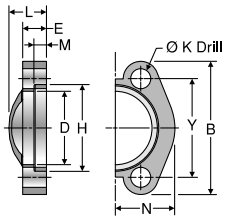
Code 61/62 Flange Clamps, Split

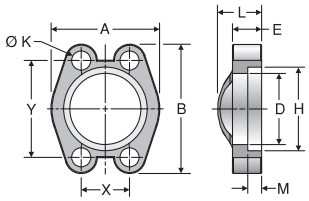


TUBE FITTING PART # FLANGE HALF	HOSE PRODUCTS PART # FLANGE HALF	HOSE PRODUCTS PART # KIT	FLANGE SIZE (in.)	B (in.)	D (in.)	E (in.)	H (in.)	K DRILL DIA. (in.)	L (in.)	M (in.)	N (in.)	Y (in.)	MOUNTING HARDWARE HHCS	Dynamic Pressure (x 1,000 PSI) -S	-SS
CODE 61 FLANGE CLAMPS, SPLIT															
8FCS1	51H-8	5151HK-8	0.50	2.12	0.955	0.50	1.22	0.344	0.75	0.245	0.86	1.50	5/16-18 x 1.25	5.0	5.0
12FCS1	51H-12	5151HK-12	0.75	2.56	1.265	0.56	1.53	0.406	0.88	0.245	0.98	1.88	3/8-16 x 1.25	5.0	5.0
16FCS1	51H-16	5151HK-16	1.00	2.75	1.515	0.62	1.78	0.406	0.94	0.295	1.11	2.06	3/8-16 x 1.25	5.0	5.0
20FCS1	51H-20	5151HK-20	1.25	3.12	1.720	0.56	2.03	0.469	0.88	0.295	1.39	2.31	7/16-14 x 1.50	4.0	4.0
24FCS1	51H-24	5151HK-24	1.50	3.69	2.000	0.62	2.41	0.531	1.00	0.295	1.58	2.75	1/2-13 x 1.50	3.0	3.0
32FCS1	51H-32	5151HK-32	2.00	4.00	2.470	0.62	2.84	0.531	1.03	0.355	1.86	3.06	1/2-13 x 1.50	3.0	3.0
40FCS1	51H-40	5151HK-40	2.50	4.50	2.950	0.75	3.34	0.531	1.50	0.355	2.09	3.50	1/2-13 x 1.75	2.5	2.5
48FCS1	51H-48	5151HK-48	3.00	5.31	3.580	0.88	4.03	0.656	1.62	0.355	2.53	4.19	5/8-11 x 1.75	2.0	2.0
56FCS1	51H-56	5151HK-56	3.50	6.00	4.030	0.88	4.53	0.656	1.12	0.422	2.70	4.75	5/8-11 x 1.75	0.5	0.5
64FCS1	51H-64	5151HK-64	4.00	6.38	4.530	1.00	5.03	0.656	1.38	0.422	2.95	5.13	5/8-11 x 2.00	0.5	0.5
CODE 62 FLANGE CLAMPS, SPLIT															
12FCS2	HFH-12	HFHFHK-12	0.75	2.81	1.280	0.75	1.66	0.406	1.12	0.325	1.14	2.00	3/8-16 x 1.50	6.0	6.0
16FCS2	HFH-16	HFHFHK-16	1.00	3.19	1.530	0.94	1.91	0.469	1.31	0.355	1.33	2.25	7/16-14 x 1.75	6.0	6.0
20FCS2	HFH-20	HFHFHK-20	1.25	3.75	1.750	1.06	2.16	0.531	1.50	0.385	1.48	2.63	1/2-13 x 1.75	6.0	6.0
24FCS2	HFH-24	HFHFHK-24	1.50	4.44	2.030	1.19	2.53	0.656	1.69	0.475	1.83	3.13	5/8-11 x 2.25	6.0	6.0
32FCS2	HFH-32	HFHFHK-32	2.00	5.25	2.660	1.44	3.16	0.781	2.06	0.475	2.20	3.81	3/4-10 x 2.75	6.0	6.0

To order a flange clamp split kit, insert a “K” after the material designator in the Tube Fitting part number. The Kit includes two flange clamp halves, 4 HHCS bolts, 4 lock washers and an O-ring.

FCC

Code 61/62 Flange Clamp, Captive



TUBE FITTING PART # DRILLED HOLES	TUBE FITTING PART # TAPPED HOLES	FLANGE SIZE (in.)	A (in.)	B (in.)	D (in.)	E (in.)	H (in.)	K DRILL DIA. (in.)	L (in.)	M (in.)	T TAP UN-2B	X (in.)	Y (in.)	MOUNTING HARDWARE HHCS	Dynamic Pressure (x 1,000 PSI) -SX	-SS
CODE 61 FLANGE CLAMP, CAPTIVE																
8FCC1	8FCCT1	0.50	1.81	2.125	0.955	0.50	1.219	0.344	0.75	0.245	5/16-18	0.688	1.500	5/16-18 x 1.25	5.0	
12FCC1	12FCCT1	0.75	2.06	2.560	1.265	0.56	1.531	0.406	0.88	0.245	3/8-16	0.875	1.875	3/8-16 x 1.25	5.0	
16FCC1	16FCCT1	1.00	2.31	2.750	1.515	0.62	1.781	0.406	0.94	0.295	3/8-16	1.031	2.062	3/8-16 x 1.25	5.0	
20FCC1	20FCCT1	1.25	2.88	3.125	1.720	0.56	2.031	0.469	0.88	0.295	7/16-14	1.188	2.312	7/16-14 x 1.50	4.0	
24FCC1	24FCCT1	1.50	3.25	3.690	2.000	0.62	2.406	0.531	1.00	0.295	1/2-13	1.406	2.750	1/2-13 x 1.50	3.0	
32FCC1	32FCCT1	2.00	3.81	4.000	2.470	0.62	2.844	0.531	1.03	0.355	1/2-13	1.688	3.062	1/2-13 x 1.50	3.0	
40FCC1	40FCCT1	2.50	4.28	4.500	2.950	0.75	3.344	0.531	1.50	0.355	1/2-13	2.000	3.500	1/2-13 x 1.75	2.5	
48FCC1	48FCCT1	3.00	5.16	5.315	3.580	0.88	4.031	0.656	1.62	0.355	5/8-11	2.438	4.188	5/8-11 x 1.75	2.0	
56FCC1	56FCCT1	3.50	5.50	6.000	4.030	0.88	4.531	0.656	1.12	0.422	5/8-11	2.750	4.750	5/8-11 x 1.75	0.5	
64FCC1	64FCCT1	4.00	6.00	6.375	4.530	1.00	5.031	0.656	1.38	0.422	5/8-11	3.062	5.125	5/8-11 x 2.00	0.5	
CODE 62 FLANGE CLAMP, CAPTIVE																
12FCC2	12FCCT2	0.75	2.38	2.810	1.280	0.75	1.656	0.406	1.12	0.325	3/8-16	0.938	2.000	3/8-16 x 1.50	6.0	
16FCC2	16FCCT2	1.00	2.75	3.190	1.530	0.94	1.906	0.469	1.31	0.355	7/16-14	1.093	2.250	7/16-14 x 1.75	6.0	
20FCC2	20FCCT2	1.25	3.06	3.750	1.750	1.06	2.156	0.531	1.50	0.385	1/2-13	1.250	2.625	1/2-13 x 1.75	6.0	
24FCC2	24FCCT2	1.50	3.75	4.440	2.030	1.19	2.531	0.656	1.69	0.475	5/8-11	1.437	3.125	5/8-11 x 2.25	6.0	
32FCC2	32FCCT2	2.00	4.50	5.250	2.660	1.44	3.156	0.781	2.06	0.475	3/4-10	1.750	3.812	3/4-10 x 2.75	6.0	

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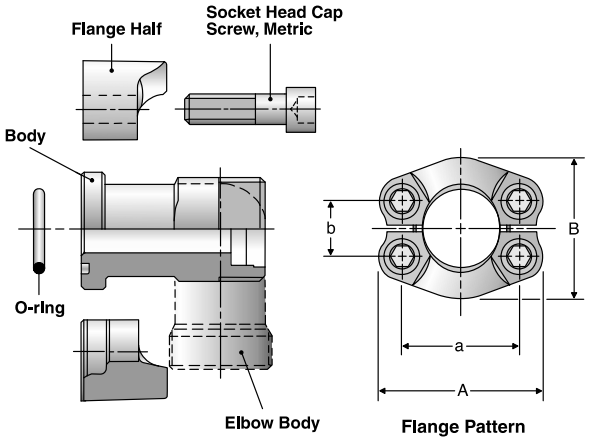
Flange Components



Code 61

For Straights and Elbows
(ISO 6162-1, Type 1)

Size	For Tube O.D. Series	Working Pressure (bar)	SAE Flange Halves	4 Socket Head Cap Screws DIN 912-8.8	O-ring
1/2	15L	315	**FHS 32CFX**	M8X30	OR18.64 x 3.53X
1/2	16S	350			
3/4	18L	315	**FHS 33CFX**	M10X35	OR25.00 x 3.53X
3/4	22L	160			
3/4	20S	350			
3/4	25S	350			
1	28L	160	**FHS 34CFX**	M10X35	OR32.92 x 3.53X
1	30S	350			
1 1/4	35L	160	**FHS 35CFX**	M12X40*	OR37.70 x 3.53X
1 1/4	25S	280			
1 1/4	30S	280			
1 1/4	38S	280			
1 1/2	42L	160	**FHS 36CFX**	M12X40	OR47.22 x 3.53X
1 1/2	38S	210			

Size	For Tube O.D. Series	A ≈	B ≈	a	b
1/2	15L	54	46	38.1	17.5
1/2	16S	54	46	38.1	17.5
3/4	18L	65	52	47.6	22.2
3/4	22L	65	52	47.6	22.2
3/4	20S	65	52	47.6	22.2
3/4	25S	65	52	47.6	22.2
1	28L	70	59	52.4	26.2
1	30S	70	59	52.4	26.2
1 1/4	35L	79	73	58.7	30.2
1 1/4	25S	79	73	58.7	30.2
1 1/4	30S	79	73	58.7	30.2
1 1/4	38S	79	73	58.7	30.2
1 1/2	42L	94	83	69.9	35.7
1 1/2	38S	94	83	69.9	35.7

Tightening torques for socket head cap screws see Table R6.

* Does not meet ISO 6162 specification.

Note: Clamp halves are sold separately, not as a set.

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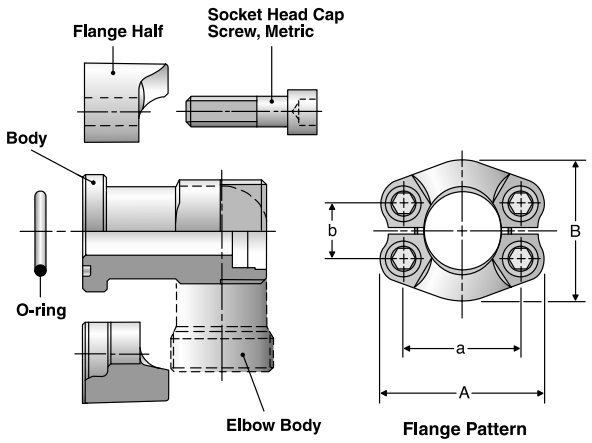
FHS6

Flange Components



Code 62

For Straights and Elbows
(ISO 6162-2, Type 1)

Size	For Tube O.D. Series	Working Pressure (bar)	SAE Flange Halves	4 Socket Head Cap Screws DIN 912-8.8	O-ring
1/2	16S	400	**FHS 62CFX**	M8X35	OR18.64 x 3.53X
3/4	16S	400	**FHS 63CFX**	M10X35	OR25.00 x 3.53X
3/4	20S	400	**FHS 63CFX**	M10X35	OR25.00 x 3.53X
3/4	25S	400	**FHS 63CFX**	M10X35	OR25.00 x 3.53X
1	25S	400	**FHS 64CFX**	M12X45	OR32.92 x 3.53X
1	30S	400	**FHS 64CFX**	M12X45	OR32.92 x 3.53X
1 1/4	30S	400	**FHS 65CFX**	M14X50*	OR37.70 x 3.53X
1 1/4	38S	315	**FHS 65CFX**	M14X50*	OR37.70 x 3.53X
1 1/2	38S	315	**FHS 66CFX**	M16X55	OR47.22 x 3.53X

Size	For Tube O.D. Series	A ≈	a	B ≈	b
1/2	16S	56	40.5	47	18.2
3/4	16S	71	50.8	60	23.8
3/4	20S	71	50.8	60	23.8
3/4	25S	71	50.8	60	23.8
1	25S	81	57.2	70	27.8
1	30S	81	57.2	70	27.8
1 1/4	30S	95	66.7	77	31.8
1 1/4	38S	95	66.7	77	31.8
1 1/2	38S	113	79.4	95	36.5

Tightening torques for socket head cap screws see Table R7.

* Does not meet ISO 6162 specification.

Note: Clamp halves are sold separately, not as a set.

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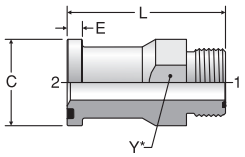
Code 61 Flange Connector
Code 61 / ORFS



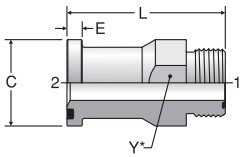
* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 Code 61	C (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 LOHQ1	3/4	3/4	1.500	0.265	2.79	1 3/8	5.0
16 LOHQ1	1	1	1.750	0.315	2.81	1 5/8	5.0
20 LOHQ1	1 1/4	1 1/4	2.000	0.315	3.21	1 7/8	4.0
24 LOHQ1	1 1/2	1 1/2	2.375	0.315	3.29	2 1/8	3.0

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

LOHQ2

Code 62 Flange Connector
Code 62 / ORFS



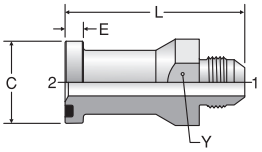
* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 Code 62	C (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 LOHQ2	3/4	3/4	1.625	0.345	3.02	1 3/8	6.0
12-16 LOHQ2	3/4	1	1.875	0.375	3.34	1 5/8	6.0
16 LOHQ2	1	1	1.875	0.375	3.36	1 5/8	6.0
20 LOHQ2	1 1/4	1 1/4	2.125	0.405	3.48	1 7/8	6.0
24 LOHQ2	1 1/2	1 1/2	2.500	0.495	4.14	2 1/8	5.0

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

XHQ1

Code 61 Flange Connector
Code 61 / 37° Flare



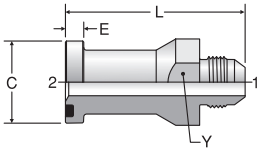
* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 Code 61	C (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 XHQ1	3/4	3/4	1.500	0.265	2.77	1 3/8	5.0
16 XHQ1	1	1	1.750	0.315	2.91	1 5/8	5.0
20 XHQ1	1 1/4	1 1/4	2.000	0.315	3.36	1 7/8	4.0
24 XHQ1	1 1/2	1 1/2	2.375	0.315	3.57	2 1/8	3.0
32 XHQ1	2	2	2.812	0.375	4.04	2 5/8	2.0

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

XHQ2

Code 62 Flange Connector
Code 62 / 37° Flare



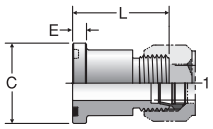
* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 Code 62	C (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 XHQ2	3/4	3/4	1.625	0.345	3.08	1 3/8	5.0
16 XHQ2	1	1	1.875	0.375	3.43	1 5/8	5.0
20 XHQ2	1 1/4	1 1/4	2.125	0.405	3.60	1 7/8	4.0
24 XHQ2	1 1/2	1 1/2	2.500	0.495	4.34	2 1/8	3.0

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

BUHQ1

Code 61 Connector
Code 61 / Flareless



TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 Code 61	C (in.)	E (in.)	L (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 BUHQ1	3/4	3/4	1.500	0.265	1.82	
16 BUHQ1	1	1	1.750	0.315	1.88	
20 BUHQ1	1 1/4	1 1/4	2.000	0.315	1.82	
24 BUHQ1	1 1/2	1 1/2	2.375	0.315	1.94	
32 BUHQ1	2	2	2.812	0.375	1.97	

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

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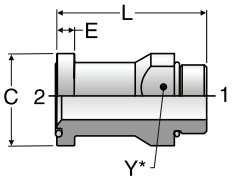
F5OHQ1

Code 61 Connector
Code 61 / SAE-ORB



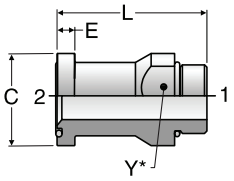
Y* - Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 Code 61	C (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 F5OHQ1	3/4	3/4	1.500	0.265	2.63	1 3/8	5.0
16 F5OHQ1	1	1	1.750	0.315	2.73	1 5/8	4.5
20 F5OHQ1	1 1/4	1 1/4	2.000	0.315	3.13	1 7/8	4.0
24 F5OHQ1	1 1/2	1 1/2	2.375	0.315	3.22	2 1/8	3.0
32 F5OHQ1	2	2	2.812	0.375	3.49	2 3/4	3.0

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

F5OHQ2

Code 62 Connector
Code 62 / SAE-ORB



Y* - Across Wrench Flats

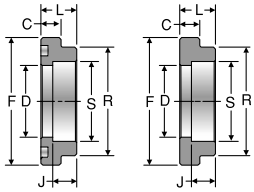
TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 Code 62	C (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 F5OHQ2	3/4	3/4	1.625	0.345	3.08	1 3/8	6.0
16 F5OHQ2	1	1	1.875	0.375	3.25	1 5/8	6.0
20 F5OHQ2	1 1/4	1 1/4	2.125	0.405	3.37	1 7/8	6.0
24 F5OHQ2	1 1/2	1 1/2	2.500	0.495	3.99	2 1/8	5.0
32 F5OHQ2	2	2	3.125	0.495	4.86	2 3/4	3.0

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

B3HQ

Braze Flange Head Connector, Tube
Tube Braze Socket* / Code 61/62 Flange Head

*** For clearance brazing**



O-ring Face Flat Face

TUBE FITTING PART # O-ring FACE	TUBE FITTING PART # FLAT FACE	FLANGE SIZE (in.)	TUBE O.D. (in.)	C (in.)	D (in.)	F (in.)	J (in.)	L (in.)	R (in.)	S (in.)	Dynamic Pressure (x 1,000 PSI) -SX	-SS
TUBE BRAZE SOCKET / CODE 61 FLANGE HEAD												
8B3HQ1	8B3HQ1N	0.50	1/2	0.265	0.406	1.188	0.312	0.50	0.940	0.502	5.0	
10-8B3HQ1	10-8B3HQ1N	0.50	5/8	0.265	0.500	1.188	0.312	0.50	0.940	0.625	5.0	
12B3HQ1	12B3HQ1N	0.75	3/4	0.265	0.656	1.500	0.375	0.56	1.250	0.752	4.5	
16-12B3HQ1	16-12B3HQ1N	0.75	1	0.315	0.750	1.500	0.375	0.56	1.250	1.002	4.5	
16B3HQ1	16B3HQ1N	1.00	1	0.315	0.906	1.750	0.375	0.56	1.500	1.002	4.5	
20-16B3HQ1	20-16B3HQ1N	1.00	1 1/4	0.315	1.000	1.750	0.375	0.56	1.500	1.252	4.0	
20B3HQ1	20B3HQ1N	1.25	1 1/4	0.315	1.125	2.000	0.375	0.56	1.700	1.252	3.5	
24-20B3HQ1	24-20B3HQ1N	1.25	1 1/2	0.315	1.250	2.000	0.375	0.56	1.700	1.502	3.5	
24B3HQ1	24B3HQ1N	1.50	1 1/2	0.315	1.375	2.380	0.438	0.62	1.980	1.502	3.0	
28-24B3HQ1	28-24B3HQ1N	1.50	1 3/4	0.315	1.500	2.380	0.438	0.62	1.980	1.752	2.7	
32B3HQ1	32B3HQ1N	2.00	2	0.375	1.875	2.810	0.500	0.62	2.450	2.002	3.0	
36-32B3HQ1	36-32B3HQ1N	2.00	2 1/4	0.375	2.000	2.810	0.500	0.62	2.450	2.252	3.0	
40B3HQ1	40B3HQ1N	2.50	2 1/2	0.375	2.375	3.312	0.562	0.68	2.921	2.502	2.2	
44-40B3HQ1	44-40B3HQ1N	2.50	2 3/4	0.375	2.500	3.312	0.500	0.68	2.921	2.752	2.2	
48B3HQ1	48B3HQ1N	3.00	3	0.375	2.875	4.000	0.562	0.75	3.546	3.002	1.7	
TUBE BRAZE SOCKET / CODE 62 FLANGE HEAD												
12B3HQ2	12B3HQ2N	0.75	3/4	0.345	0.656	1.625	0.500	0.69	1.250	0.752	6.0	
16-12B3HQ2	16-12B3HQ2N	0.75	1	0.345	0.750	1.625	0.500	0.69	1.250	1.002	6.0	
16B3HQ2	16B3HQ2N	1.00	1	0.375	0.810	1.875	0.625	0.81	1.500	1.002	6.0	
20-16B3HQ2	20-16B3HQ2N	1.00	1 1/4	0.375	1.000	1.875	0.625	0.81	1.500	1.252	6.0	
20B3HQ2	20B3HQ2N	1.25	1 1/4	0.405	1.010	2.125	0.812	1.00	1.718	1.252	6.0	
24-20B3HQ2	24-20B3HQ2N	1.25	1 1/2	0.405	1.250	2.125	0.812	1.00	1.718	1.502	5.5	
24B3HQ2	24B3HQ2N	1.50	1 1/2	0.495	1.250	2.500	1.000	1.19	2.000	1.502	6.0	
28-24B3HQ2	28-24B3HQ2N	1.50	1 3/4	0.495	1.500	2.500	1.000	1.19	2.000	1.752	4.5	
32B3HQ2	32B3HQ2N	2.00	2	0.495	1.750	3.125	1.375	1.50	2.620	2.002	5.5	
36-32B3HQ2	36-32B3HQ2N	2.00	2 1/4	0.495	2.000	3.125	1.312	1.50	2.620	2.252	4.0	

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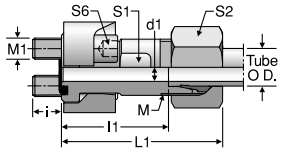
GFS

SAE Flange Connector – Standard Series
Code 61 & 62 / Metric Flareless



TUBE FITTING PART #	SIZE (in.)	TUBE O.D. (mm)	WORKING PRESSURE (bar)	M THREAD	d1 (mm)	i (mm)	l 1 (mm)	L1 ≈ (mm)	S1 (mm)	S2 (mm)	S6 (mm)	MATERIAL FROM STOCK CF	MATERIAL FROM STOCK 71	EO-2 FROM STOCK CF	EO-2 FROM STOCK 71
SAE FLANGE CONNECTIONS – CODE 61 – STANDARD SERIES															
GFS32/15LCF	1/2	15L	200	M22 x 1.5	12	11.5	41	56	24	27	6	•		•	
GFS32/16SCF	1/2	16S	220	M24 x 1.5	12	11.5	41.5	60	24	30	6	•		•	
GFS33/18LCF	3/4	18L	200	M26 x 1.5	15	15.5	45.5	62	30	32	8	•		•	
GFS33/22LCF	3/4	22L	100	M30 x 2	19	15.5	45.5	62	30	36	8	•		•	
GFS33/20SCF	3/4	20S	220	M30 x 2	16	15.5	46.5	68	30	36	8	•		•	
GFS33/25SCF	3/4	25S	220	M36 x 2	17	15.5	45	69	30	46	8	•		•	
GFS34/28LCF	1	28L	100	M36 x 2	24	13.5	46.5	63	36	41	8	•		•	
GFS34/30SCF	1	30S	220	M42 x 2	24	13.5	49.5	76	36	50	8	•		•	
GFS35/35LCF	1 1/4	35L	100	M45 x 2	30	18.5	47.5	69	41	50	8	•		•	
GFS35/25SCF	1 1/4	25S	175	M36 x 2	20	18.5	48	72	41	46	8	•		•	
GFS35/30SCF	1 1/4	30S	175	M42 x 2	25	18.5	48.5	75	41	50	8	•		•	
GFS35/38SCF	1 1/4	38S	175	M52 x 2	28	18.5	50	81	46	60	8	•		•	
GFS36/42LCF	1 1/2	42L	100	M52 x 2	36	18.5	53	76	46	60	10	•		•	
GFS36/38SCF	1 1/2	38S	130	M52 x 2	32	18.5	54	85	46	60	10	•		•	
SAE FLANGE CONNECTIONS – CODE 62 – HIGH PRESSURE SERIES															
GFS62/16SCF	1/2	16S	250	M24 x 1.5	12	13.5	44.5	63	24	30	6	•		•	
GFS63/16SCF	3/4	16S	250	M24 x 1.5	12	15.5	50.5	69	30	30	8	•		•	
GFS63/20SCF	3/4	20S	250	M30 x 2	16	15.5	50.5	72	30	36	8	•		•	
GFS63/25SCF	3/4	25S	250	M36 x 2	17	15.5	51	75	30	46	8	•		•	
GFS64/25SCF	1	25S	250	M36 x 2	20	20.5	60	84	36	46	10	•		•	
GFS64/30SCF	1	30S	250	M42 x 2	24	20.5	60.5	87	36	50	10	•		•	
GFS65/30SCF	1 1/4	30S	250	M42 x 2	25	22.5	65.5	92	41	50	10	•		•	
GFS65/38SCF	1 1/4	38S	200	M52 x 2	30	22.5	67	98	46	60	10	•		•	
GFS66/38SCF	1 1/2	38S	200	M52 x 2	30	24.5	73	104	46	60	14	•		•	

EO-2 Part Number example: GFS33/18ZLCF

Tightening torques for socket head cap screws see Tables R6 and R7.

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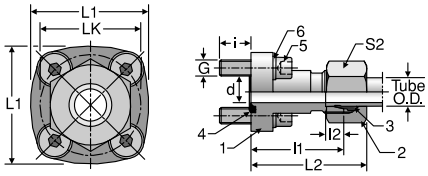
BFG

DIN Flange / Metric Flareless

Tube connection according to DIN 2353



TUBE FITTING PART #	WORKING PRESSURE (bar)	TUBE O.D. (mm)	d (mm)	G	i (mm)	l 1 (mm)	l 2 (mm)	L1 (mm)	L2 (mm)	LK (mm)	S2 (mm)	MATERIAL FROM STOCK		EO-2 FROM STOCK	
												CF	71	CF	71
BFG15L/LK40CF	65	15	12	M 6	12.5	35	7	42	43	40	27	•		•	
BFG18L/LK40CF	65	18	15	M 6	12.5	35	7.5	42	44	40	32	•		•	
BFG22L/LK40CF	65	22	19	M 6	12.5	35	7.5	42	44.5	40	36	•		•	
BFG15L/LK35CF	155	15	12	M 6	12.5	30	7	39	38	35	27	•		•	
BFG10L/LK35CF	200	10	8	M 6	12.5	30	7	39	39	35	19	•		•	
BFG12L/LK35CF	200	12	10	M 6	12.5	30	7	39	39	35	22	•		•	

Unassembled BFG Fitting Components

1 Straight Body	2 Nut	3 Progressive Ring	4 O-ring	5 Cap Screws DIN 912-8.8 (4 pcs.)	6 Spring Washer DIN 127 (4 pcs.)
BFG15L/LK40CFX	M15LCFX	DPR15LCFX	OR26X2.5X	M6X22	A6
BFG15L/LK40CFX	M18LCFX	DPR18LCFX	OR26X2.5X	M6X22	A6
BFG22L/LK40CFX	M22LCFX	DPR22LCFX	OR26X2.5X	M6X22	A6
BFG15L/LK35CFX	M15LCFX	DPR15LCFX	OR20X2.5X	M6X22	A6
BFG10L/LK35CFX	M10LCFX	DPR10LCFX	OR20X2.5X	M6X22	A6
BFG12L/LK35CFX	M12LCFX	DPR12LCFX	OR20X2.5X	M6X22	A6

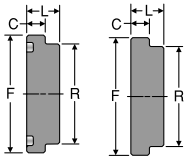
EO-2 Part Number example: BFG15ZL/LK40CF

Tightening torques for socket head cap screws see Table R6.

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

P

Flange Head Plug
Code 61/62 Flange Head Plug



O-ring Face Flat Face

TUBE FITTING PART #		FLANGE SIZE	C	F	L	R	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	-SX	-SS
CODE 61 FLANGE HEAD PLUG								
8PQ1	**8PQ1N**	0.50	0.265	1.188	0.500	0.940	5.0	
12PQ1	**12PQ1N**	0.75	0.265	1.500	0.560	1.250	5.0	
16PQ1	**16PQ1N**	1.00	0.315	1.750	0.560	1.500	5.0	
20PQ1	**20PQ1N**	1.25	0.315	2.000	0.560	1.700	4.0	
24PQ1	**24PQ1N**	1.50	0.315	2.380	0.620	1.980	3.0	
32PQ1	**32PQ1N**	2.00	0.375	2.810	0.620	2.450	3.0	
40PQ1	**40PQ1N**	2.50	0.375	3.312	0.680	2.921	2.5	
48PQ1	**48PQ1N**	3.00	0.375	4.000	0.750	3.546	2.0	
CODE 62 FLANGE HEAD PLUG								
12PQ2	**12PQ2N**	0.75	0.345	1.625	0.687	1.250	6.0	
16PQ2	**16PQ2N**	1.00	0.375	1.875	0.812	1.500	6.0	
20PQ2	**20PQ2N**	1.25	0.405	2.125	1.000	1.718	6.0	
24PQ2	**24PQ2N**	1.50	0.495	2.500	1.187	2.000	6.0	
32PQ2	**32PQ2N**	2.00	0.495	3.125	1.500	2.625	6.0	

Dimensions and pressures for reference only, subject to change.

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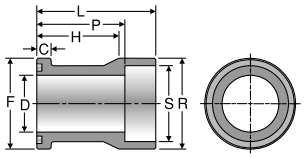
W7HQ

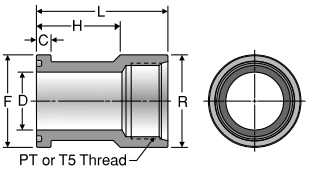
Weld Socket Flange Connector, Pipe
Extended Weld Socket, Pipe / Code 61 or 62 Flange Head



TUBE FITTING PART #	PIPE SIZE (in.)	FLANGE SIZE (in.)	C (in.)	D (in.)	F (in.)	H (in.)	L (in.)	P (in.)	R (in.)	S (in.)	Dynamic Pressure (x 1,000 PSI) SX	SS
EXTENDED WELD SOCKET, PIPE / CODE 61 FLANGE HEAD												
12W7HQ1	3/4	0.75	0.265	0.750	1.500	1.62	2.34	1.78	1.500	1.062	3.5	
16W7HQ1	1	1.00	0.315	1.000	1.750	1.62	2.38	1.75	1.750	1.328	3.5	
20W7HQ1	1 1/4	1.25	0.315	1.250	2.000	1.81	2.62	1.94	2.000	1.672	3.5	
24W7HQ1	1 1/2	1.50	0.315	1.500	2.375	2.00	2.88	2.12	2.375	1.922	2.7	
32W7HQ1	2	2.00	0.375	2.000	2.812	2.00	3.00	2.12	2.812	2.406	2.5	
EXTENDED WELD SOCKET, PIPE / CODE 62 FLANGE HEAD												
16W7HQ2	1	1.00	0.375	1.000	1.875	2.34	3.06	2.43	2.000	1.328	5.5	
20W7HQ2	1 1/4	1.25	0.405	1.125	2.125	2.50	3.31	2.62	2.312	1.672	5.5	
24W7HQ2	1 1/2	1.50	0.495	1.375	2.500	3.06	3.93	3.18	2.750	1.922	5.5	
32W7HQ2	2	2.00	0.495	1.875	3.125	3.18	4.06	3.18	3.250	2.406	5.0	

GHQ / G5HQ

Threaded Port Flange Adapter
NPTF or SAE Port / Code 61 Flange Head



GHQ

TUBE FITTING PART #	PT PORT THREAD NPTF	FLANGE SIZE (in.)	C (in.)	D (in.)	F (in.)	H (in.)	L (in.)	R (in.)	Dynamic Pressure (x 1,000 PSI) -SX	-SS
NPTF PORT / CODE 61 FLANGE HEAD										
12GHQ1	3/4-14	0.75	0.265	0.75	1.500	1.62	2.47	1.50	4.0	
16GHQ1	1-11 1/2	1.00	0.315	1.00	1.750	1.62	2.66	1.75	4.0	
20GHQ1	1 1/4-11 1/2	1.25	0.315	1.25	2.000	1.81	2.84	2.00	3.0	
24GHQ1	1 1/2-11 1/2	1.50	0.315	1.50	2.375	2.00	3.00	2.38	2.0	
32GHQ1	2-11 1/2	2.00	0.375	2.00	2.812	2.00	3.00	2.81	2.0	

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

G5HQ

TUBE FITTING PART #	T5 PORT THREAD UN-2B	SAE PORT DASH SIZE	FLANGE SIZE (in.)	C (in.)	D (in.)	F (in.)	H (in.)	L (in.)	R (in.)	Dynamic Pressure (x 1,000 PSI) -SX	-SS
SAE PORT / CODE 61 FLANGE HEAD											
12G5HQ1	1 1/6-12	12	0.75	0.265	0.75	1.500	1.62	2.47	1.50	4.0	
16G5HQ1	1 5/16-12	15	1.00	0.315	1.00	1.750	1.62	2.66	1.75	3.0	
20G5HQ1	1 5/8-12	20	1.25	0.315	1.25	2.000	1.81	2.84	2.00	2.2	
24G5HQ1	1 7/8-12	24	1.50	0.315	1.50	2.375	2.00	3.00	2.38	2.5	
32G5HQ1	2 1/2-12	32	2.00	0.375	2.00	2.812	2.00	3.00	2.81	1.2	

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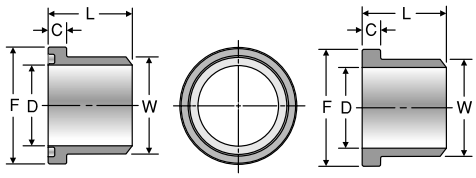
WB1HQ1 / WB3HQ1 / WB5HQ1

Code 61 Weld Butt Flange
Connector, Pipe
Schedule 40, 80 or 160 Weld Butt /
Code 61 Flange Head



O-ring Face Flat Face

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WELD BUTT FLANGE CONNECTION TYPE	TUBE FITTING PART #		PIPE SIZE	FLANGE SIZE	C	D	F	L	W	Dynamic Pressure (x 1,000 PSI)	
	O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	-SX	-SS
SCHEDULE 40 WELD BUTT / CODE 61 FLANGE HEAD											
WB1HQ1 For Schedule 40 pipe	8WB1HQ1	8WB1HQ1N	1/2	0.50	0.265	0.622	1.188	1.06	0.840	5.3	
	12WB1HQ1	12WB1HQ1N	3/4	0.75	0.265	0.824	1.500	1.06	1.050	4.6	
	16WB1HQ1	16WB1HQ1N	1	1.00	0.315	1.049	1.750	1.25	1.315	4.0	
	20WB1HQ1	20WB1HQ1N	1 1/4	1.25	0.315	1.380	2.000	1.44	1.660	3.6	
	24WB1HQ1	24WB1HQ1N	1 1/2	1.50	0.315	1.610	2.375	1.75	1.900	3.0	
	32WB1HQ1	32WB1HQ1N	2	2.00	0.375	2.067	2.812	2.00	2.375	2.6	
	40WB1HQ1	40WB1HQ1N	2 1/2	2.50	0.375	2.469	3.312	2.31	2.875	2.6	
	48WB1HQ1	48WB1HQ1N	3	3.00	0.375	3.068	4.000	2.32	3.500	2.3	
SCHEDULE 80 WELD BUTT / CODE 61 FLANGE HEAD											
WB3HQ1 For Schedule 80 pipe	8WB3HQ1	8WB3HQ1N	1/2	0.50	0.265	0.548	1.188	1.06	0.840	5.0	
	12WB3HQ1	12WB3HQ1N	3/4	0.75	0.265	0.744	1.500	1.06	1.050	3.5	
	16WB3HQ1	16WB3HQ1N	1	1.00	0.315	0.959	1.750	1.25	1.315	4.0	
	20WB3HQ1	20WB3HQ1N	1 1/4	1.25	0.315	1.280	2.000	1.44	1.660	3.5	
	24WB3HQ1	24WB3HQ1N	1 1/2	1.50	0.315	1.502	2.375	1.75	1.900	3.0	
	32WB3HQ1	32WB3HQ1N	2	2.00	0.375	1.941	2.812	2.00	2.375	3.0	
	40WB3HQ1	40WB3HQ1N	2 1/2	2.50	0.375	2.325	3.312	2.31	2.875	2.7	
	48WB3HQ1	48WB3HQ1N	3	3.00	0.375	2.902	4.000	2.32	3.500	2.2	
SCHEDULE 160 WELD BUTT / CODE 61 FLANGE HEAD											
WB5HQ1 For Schedule 160 pipe	8WB5HQ1	8WB5HQ1N	1/2	0.50	0.265	0.464	1.188	1.06	0.840	5.0	
	12WB5HQ1	12WB5HQ1N	3/4	0.75	0.265	0.612	1.500	1.06	1.050	4.0	
	16WB5HQ1	16WB5HQ1N	1	1.00	0.315	0.815	1.750	1.25	1.315	4.5	
	20WB5HQ1	20WB5HQ1N	1 1/4	1.25	0.315	1.160	2.000	1.44	1.660	4.0	
	24WB5HQ1	24WB5HQ1N	1 1/2	1.50	0.315	1.338	2.375	1.75	1.900	3.0	
	32WB5HQ1	32WB5HQ1N	2	2.00	0.375	1.687	2.812	2.00	2.375	3.0	
	40WB5HQ1	40WB5HQ1N	2 1/2	2.50	0.375	2.125	3.312	2.31	2.875	2.5	
	48WB5HQ1	48WB5HQ1N	3	3.00	0.375	2.624	4.000	2.32	3.500	2.0	

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WB3HQ2 / WB5HQ2 / WB7HQ2

Code 62 Weld Butt Flange
Connector, Pipe
Schedule 80, 160 or
XXS Weld Butt / Code 62
Flange Head

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WELD BUTT FLANGE CONNECTION TYPE	TUBE FITTING PART #		PIPE SIZE	FLANGE SIZE	C	D	F	L	W	Dynamic Pressure (x 1,000 PSI)	
	O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	-SX	-SS
SCHEDULE 80 WELD BUTT / CODE 62 FLANGE HEAD											
WB3HQ2 For Schedule 80 pipe	**12WB3HQ2**	**12WB3HQ2N**	**3/4**	0.75	0.345	0.742	1.625	1.42	1.050	5.0	
	16WB3HQ2	**16WB3HQ2N**	**1**	1.00	0.375	0.957	1.875	1.61	1.315	4.5	
	20WB3HQ2	**20WB3HQ2N**	**1 1/4**	1.25	0.405	1.278	2.125	1.73	1.660	3.5	
	24WB3HQ2	**24WB3HQ2N**	**1 1/2**	1.50	0.495	1.500	2.500	2.17	1.900	3.0	
	32WB3HQ2	**32WB3HQ2N**	**2**	2.00	0.495	1.939	3.125	2.48	2.375	3.0	
SCHEDULE 160 WELD BUTT / CODE 62 FLANGE HEAD											
WB5HQ2 For Schedule 160 pipe	**12WB5HQ2**	**12WB5HQ2N**	**3/4**	0.75	0.345	0.614	1.625	1.42	1.050	6.0	
	16WB5HQ2	**16WB5HQ2N**	**1**	1.00	0.375	0.815	1.875	1.61	1.315	5.5	
	20WB5HQ2	**20WB5HQ2N**	**1 1/4**	1.25	0.405	1.160	2.125	1.73	1.660	5.0	
	24WB5HQ2	**24WB5HQ2N**	**1 1/2**	1.50	0.495	1.337	2.500	2.17	1.900	5.0	
	32WB5HQ2	**32WB5HQ2N**	**2**	2.00	0.495	1.689	3.125	2.48	2.375	4.5	
SCHEDULE XXS WELD BUTT / CODE 62 FLANGE HEAD											
WB7HQ2 For Schedule XXS pipe	**12WB7HQ2**	**12WB7HQ2N**	**3/4**	0.75	0.345	0.434	1.625	1.42	1.050	6.0	
	16WB7HQ2	**16WB7HQ2N**	**1**	1.00	0.375	0.599	1.875	1.61	1.315	6.0	
	20WB7HQ2	**20WB7HQ2N**	**1 1/4**	1.25	0.405	0.896	2.125	1.73	1.660	6.0	
	24WB7HQ2	**24WB7HQ2N**	**1 1/2**	1.50	0.495	1.100	2.500	2.17	1.900	6.0	
	32WB7HQ2	**32WB7HQ2N**	**2**	2.00	0.495	1.503	3.125	2.48	2.375	6.0	

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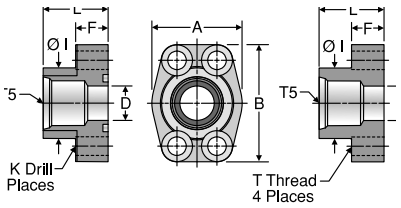
G5Q

SAE Port Block Adapter
SAE Port / Code 61 or 62 Block Flange or Pad



O-ring Face Flat Face

TUBE FITTING PART #		SAE PORT DASH	T5 STRAIGHT THREAD	FLANGE SIZE	A	B	D	F	I	K DRILL DIA.	L	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)
O-ring FACE	FLAT FACE	SIZE	UN-2B	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	-SHCS	-SX
SAE PORT / CODE 61 BLOCK FLANGE OR PAD														
8G5Q1B	**8G5Q1P**	8	3/4-16	0.50	1.81	2.13	0.50	0.63	1.25	0.344	1.42	5/16-18	5/16-18 x 1.25	5.0
12G5Q1B	**12G5Q1P**	12	1 1/16-12	0.75	1.97	2.56	0.75	0.71	1.54	0.406	1.42	3/8-16	3/8-16 x 1.50	4.0
16G5Q1B	**16G5Q1P**	16	1 5/16-12	1.00	2.17	2.75	1.00	0.71	1.81	0.406	1.50	3/8-16	3/8-16 x 1.50	3.5
20G5Q1B	**20G5Q1P**	20	1 5/8-12	1.25	2.68	3.12	1.25	0.83	2.22	0.469	1.61	7/16-14	7/16-14 x 1.75	3.0
24G5Q1B	**24G5Q1P**	24	1 7/8-12	1.50	3.07	3.66	1.50	0.98	2.50	0.531	1.77	1/2-13	1/2-13 x 1.75	2.5
SAE PORT / CODE 62 BLOCK FLANGE OR PAD														
8G5Q2B	**8G5Q2P**	8	3/4-16	0.50	1.81	2.21	0.50	0.63	1.33	0.344	1.42	5/16-18	5/16-18 x 1.25	6.0
12G5Q2B	**12G5Q2P**	12	1 1/16-12	0.75	2.17	2.80	0.75	0.83	1.65	0.406	1.38	3/8-16	3/8-16 x 1.50	5.5
16G5Q2B	**16G5Q2P**	16	1 5/16-12	1.00	2.56	3.19	1.00	0.98	1.98	0.409	1.65	7/16-14	7/16-14 x 1.75	4.5
20G5Q2B	**20G5Q2P**	20	1 5/8-12	1.25	3.07	3.75	1.25	1.06	2.36	0.531	1.77	1/2-13	1/2-13 x 1.75	3.0
24G5Q2B	**24G5Q2P**	24	1 7/8-12	1.50	3.70	4.41	1.50	1.18	2.68	0.656	1.97	5/8-11	5/8-11 x 2.25	2.7
32G5Q2B	**32G5Q2P**	32	2 1/2-12	2.00	4.50	5.28	2.00	1.46	3.38	0.781	2.56	3/4-10	3/4-10 x 2.75	2.0

FOR STAINLESS STEEL PARTS - SEE PAGE K40

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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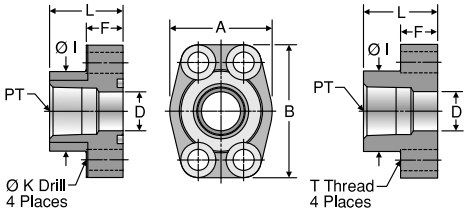
NPTF Port Block Adapter
NPTF Port / Code 61 or 62 Block Flange or Pad



O-ring Face Flat Face

TUBE FITTING PART #		PT PORT THREAD	FLANGE SIZE	A	B	D	F	I	K DRILL DIA.	L	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)
O-ring FACE	FLAT FACE	NPTF	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX
NPTF PORT / CODE 61 BLOCK FLANGE OR PAD													
8GQ1B	**8GQ1P**	1/2 - 14	0.50	1.81	2.13	0.50	0.63	1.25	0.344	1.42	5/16-18	5/16-18 x 1.25	5.0
12GQ1B	**12GQ1P**	3/4 -14	0.75	1.97	2.56	0.75	0.71	1.54	0.406	1.42	3/8-16	3/8-16 x 1.50	4.5
16GQ1B	**16GQ1P**	1 - 11 1/2	1.00	2.17	2.75	1.00	0.71	1.81	0.406	1.50	3/8-16	3/8-16 x 1.50	4.0
20GQ1B	**20GQ1P**	1 1/4 - 11 1/2	1.25	2.68	3.12	1.25	0.83	2.22	0.469	1.61	7/16-14	7/16-14 x 1.75	3.5
24GQ1B	**24GQ1P**	1 1/2 - 11 1/2	1.50	3.07	3.66	1.50	0.98	2.50	0.531	1.77	1/2-13	1/2-13 x 1.75	2.7
32GQ1B	**32GQ1P**	2 - 11 1/2	2.00	3.54	4.00	2.00	0.98	3.12	0.531	1.77	1/2-13	1/2-13 x 1.75	2.2
40GQ1B	**40GQ1P**	2 1/2 - 8	2.50	4.09	4.49	2.50	0.98	3.62	0.531	1.97	1/2-13	1/2-13 x 1.75	2.0
48GQ1B	**48GQ1P**	3 - 8	3.00	4.88	5.28	3.00	1.06	4.47	0.656	1.97	5/8-11	5/8-11 x 2.00	1.1
NPTF PORT / CODE 62 BLOCK FLANGE OR PAD													
8GQ2B	**8GQ2P**	1/2 - 14	0.50	1.81	2.21	0.50	0.63	1.33	0.344	1.42	5/16-18	5/16-18 x 1.25	6.0
12GQ2B	**12GQ2P**	3/4 - 14	0.75	2.17	2.80	0.75	0.83	1.65	0.406	1.38	3/8-16	3/8-16 x 1.50	5.0
16GQ2B	**16GQ2P**	1 - 11 1/2	1.00	2.56	3.19	1.00	0.98	1.98	0.469	1.65	7/16-14	7/16-14 x 1.75	4.0
20GQ2B	**20Q2P**	1 1/4 - 11 1/2	1.25	3.07	3.75	1.25	1.06	2.36	0.531	1.77	1/2-13	1/2-13 x 1.75	3.5
24GQ2B	**24GQ2P**	1 1/2 - 11 1/2	1.50	3.70	4.41	1.50	1.18	2.68	0.656	1.97	5/8-11	5/8-11 x 2.25	3.0
32GQ2B	**32GQ2P**	2 - 11 1/2	2.00	4.50	5.28	2.00	1.46	3.38	0.781	2.56	3/4-10	3/4-10 x 2.75	2.5

FOR STAINLESS STEEL PARTS - SEE PAGE K40

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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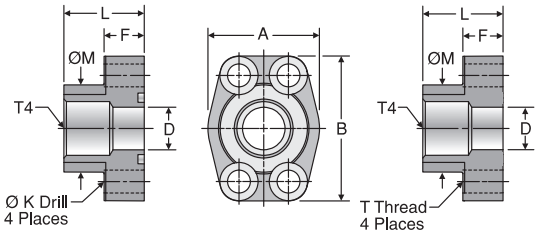
G4Q

BSPP Port Block Adapter
BSPP Port / Code 61 or 62
Block Flange or Pad



O-ring Face Flat Face

TUBE FITTING PART #		T4 THREAD	FLANGE SIZE	A	B	D	F	K DRILL DIA.	L	M	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	BSPP	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	SX	SS
BSPP PORT / CODE 61 BLOCK FLANGE OR PAD														
8G4Q1B	**8G4Q1P**	1/2-14	0.50	1.81	2.13	0.502	0.63	0.344	1.42	1.25	5/16-18	5/16-18 x 1.25	5.0	
12G4Q1B	**12G4Q1P**	3/4-14	0.75	1.97	2.56	0.752	0.71	0.406	1.42	1.54	3/8-16	3/8-16 x 1.50	4.0	
16G4Q1B	**16G4Q1P**	1-11	1.00	2.17	2.75	1.002	0.71	0.406	1.50	1.81	3/8-16	3/8-16 x 1.50	3.0	
20G4Q1B	**20G4Q1P**	1 1/4-11	1.25	2.68	3.12	1.252	0.83	0.469	1.61	2.22	7/16-14	7/16-14 x 1.75	2.5	
24G4Q1B	**24G4Q1P**	1 1/2-11	1.50	3.07	3.66	1.502	0.98	0.531	1.77	2.50	1/2-13	1/2-13 x 1.75	2.2	
32G4Q1B	**32G4Q1P**	2-11	2.00	3.54	4.00	2.002	0.98	0.531	1.77	3.12	1/2-13	1/2-13 x 1.75	1.7	
BSPP PORT / CODE 62 BLOCK FLANGE OR PAD														
8G4Q2B	**8G4Q2P**	1/2-14	0.50	1.81	2.21	0.502	0.63	0.344	1.42	1.33	5/16-18	5/16-18 x 1.25	6.0	
12G4Q2B	**12G4Q2P**	3/4-14	0.75	2.17	2.80	0.752	0.83	0.406	1.38	1.65	3/8-16	3/8-16 x 1.50	5.0	
16G4Q2B	**16G4Q2P**	1-11	1.00	2.56	3.19	1.002	0.98	0.492	1.65	1.98	7/16-14	7/16-14 x 1.75	4.0	
20G4Q2B	**20G4Q2P**	1 1/4-11	1.25	3.07	3.75	1.252	1.06	0.531	1.77	2.36	1/2-13	1/2-13 x 1.75	3.0	
24G4Q2B	**24G4Q2P**	1 1/2-11	1.50	3.70	4.41	1.502	1.18	0.656	1.97	2.68	5/8-11	5/8-11 x 2.25	2.5	
32G4Q2B	**32G4Q2P**	2-11	2.00	4.50	5.28	2.002	1.46	0.781	2.56	3.35	3/4-10	3/4-10 x 2.75	2.0	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

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Columbus, Ohio
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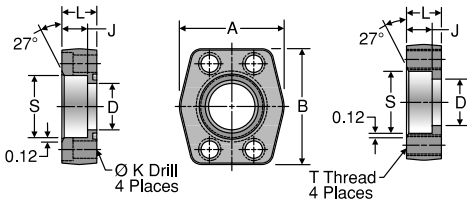
W5Q

Flat Weld Socket Block Connector, Pipe
Flat Weld Socket, Pipe / Code 61 or 62
Block Flange or Pad



O-ring Face Flat Face

TUBE FITTING PART #		PIPE SIZE	FLANGE SIZE	A	B	D	J	K DRILL DIA.	L	S	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX
FLAT WELD SOCKET, PIPE / CODE 61 BLOCK FLANGE OR PAD													
8W5Q1B	**8W5Q1P**	1/2	0.50	1.813	2.125	0.502	0.560	0.344	0.750	0.855	5/16-18	5/16-18 x 1.50	5.0
12W5Q1B	**12W5Q1P**	3/4	0.75	2.063	2.563	0.752	0.560	0.406	0.750	1.062	3/8-16	3/8-16 x 1.50	5.0
16W5Q1B	**16W5Q1P**	1	1.00	2.313	2.750	1.002	0.630	0.406	0.880	1.328	3/8-16	3/8-16 x 1.75	5.0
20W5Q1B	**20W5Q1P**	1 1/4	1.25	2.875	3.125	1.252	0.690	0.469	0.940	1.672	7/16-14	7/16-14 x 1.75	4.0
24W5Q1B	**24W5Q1P**	1 1/2	1.50	3.250	3.688	1.502	0.750	0.531	1.190	1.922	1/2-13	1/2-13 x 2.25	3.0
32W5Q1B	**32W5Q1P**	2	2.00	3.813	4.000	2.002	0.875	0.531	1.380	2.406	1/2-13	1/2-13 x 2.50	3.0
40W5Q1B	**40W5Q1P**	2 1/2	2.50	4.281	4.500	2.502	1.000	0.531	1.750	2.906	1/2-13	1/2-13 x 2.75	2.5
48W5Q1B	**48W5Q1P**	3	3.00	5.156	5.313	3.000	1.250	0.656	2.120	3.547	5/8-11	5/8-11 x 3.50	2.0
56W5Q1B	**56W5Q1P**	3 1/2	3.50	5.500	6.000	3.500	1.190	0.656	1.440	4.047	5/8-11	5/8-11 x 2.75	0.5
64W5Q1B	**64W5Q1P**	4	4.00	6.000	6.380	4.000	1.250	0.656	1.500	4.578	5/8-11	5/8-11 x 2.75	0.5
80W5Q1B	**80W5Q1P**	5	5.00	7.120	7.250	4.500	1.380	0.656	1.750	5.641	5/8-11	5/8-11 x 3.00	0.5
FLAT WELD SOCKET, PIPE / CODE 62 BLOCK FLANGE OR PAD													
8W5Q2B	**8W5Q2P**	1/2	0.50	1.940	2.300	0.502	0.560	0.344	1.250	0.855	5/16-18	5/16-18 x 2.00	6.0
12W5Q2B	**12W5Q2P**	3/4	0.75	2.500	2.950	0.752	0.560	0.406	1.250	1.062	3/8-16	3/8-16 x 2.00	6.0
16W5Q2B	**16W5Q2P**	1	1.00	2.750	3.190	1.002	0.630	0.469	1.500	1.328	7/16-14	7/16-14 x 2.50	6.0
20W5Q2B	**20W5Q2P**	1 1/4	1.25	3.060	3.750	1.252	0.690	0.531	1.500	1.672	1/2-13	1/2-13 x 2.50	6.0
24W5Q2B	**24W5Q2P**	1 1/2	1.50	3.750	4.440	1.502	0.750	0.656	1.750	1.922	5/8-11	5/8-11 x 3.00	6.0
32W5Q2B	**32W5Q2P**	2	2.00	4.500	5.250	2.002	0.875	0.781	1.750	2.406	3/4-10	3/4-10 x 3.00	6.0
40W5Q2B[2]	**40W5Q2P[2]**	2 1/2	2.50	5.870	6.870	2.502	1.000	0.906	2.060	2.906	7/8-9	7/8-9 x 3.50	3.0
48W5Q2B[2]	**48W5Q2P[2]**	3	3.00	7.000	8.500	3.002	1.250	1.156	2.620	3.547	1 1/8-7	1 1/8-7 x 4.50	3.0

FOR STAINLESS STEEL PARTS - SEE PAGE K41

2) Not covered in SAE J518. Bolt hole centerline dimensions are: 2.312” x 4.875” for 40W5Q2 and 2.812” x 6.000” for 48W5Q2.

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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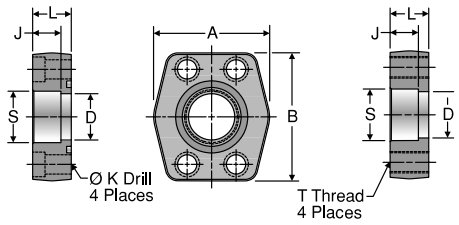
W4Q

Flat Weld Socket Block Connector, Tube
Flat Weld Socket, Tube / Code 61 or 62
Block Flange or Pad



TUBE FITTING PART #		TUBE O.D.	FLANGE SIZE	A	B	D	J	K DRILL DIA.	L	S	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX	-SS
FLAT WELD SOCKET, TUBE / CODE 61 BLOCK FLANGE OR PAD														
12W4Q1B	**12W4Q1P**	3/4	0.75	2.06	2.56	0.625	0.560	0.406	0.750	0.752	3/8-16	3/8-16 x 1.50	5.0	
16-12W4Q1B	**16-12W4Q1P**	1	0.75	2.06	2.56	0.750	0.560	0.406	0.750	1.002	3/8-16	3/8-16 x 1.50	5.0	
16W4Q1B	**16W4Q1P**	1	1.00	2.31	2.75	0.875	0.630	0.406	0.880	1.002	3/8-16	3/8-16 x 1.75	5.0	
20-16W4Q1B	**20-16W4Q1P**	1 1/4	1.00	2.31	2.75	1.000	0.630	0.406	0.880	1.252	3/8-16	3/8-16 x 1.75	5.0	
20W4Q1B	**20W4Q1P**	1 1/4	1.25	2.88	3.12	1.125	0.690	0.469	0.940	1.252	7/16-14	7/16-14 x 1.75	4.0	
24-20W4Q1B	**24-20W4Q1P**	1 1/2	1.25	2.88	3.12	1.250	0.690	0.469	0.940	1.502	7/16-14	7/16-14 x 1.75	4.0	
24W4Q1B	**24W4Q1P**	1 1/2	1.50	3.25	3.69	1.375	0.750	0.531	1.190	1.502	1/2-13	1/2-13 x 2.25	3.0	
28-24W4Q1B	**28-24W4Q1P**	1 3/4	1.50	3.25	3.69	1.500	0.750	0.531	1.190	1.752	1/2-13	1/2-13 x 2.25	3.0	
32W4Q1B	**32W4Q1P**	2	2.00	3.81	4.00	1.875	0.875	0.531	1.375	2.002	1/2-13	1/2-13 x 2.50	3.0	
36-32W4Q1B	**36-32W4Q1P**	2 1/4	2.00	3.81	4.00	2.000	0.875	0.531	1.375	2.252	1/2-13	1/2-13 x 2.50	3.0	
FLAT WELD SOCKET, TUBE / CODE 62 BLOCK FLANGE OR PAD														
12W4Q2B	**12W4Q2P**	3/4	0.75	2.38	2.81	0.625	0.560	0.406	1.250	0.752	3/8-16	3/8-16 x 2.00	6.0	
16-12W4Q2B	**16-12W4Q2P**	1	0.75	2.38	2.81	0.750	0.560	0.406	1.250	1.002	3/8-16	3/8-16 x 2.00	6.0	
16W4Q2B	**16W4Q2P**	1	1.00	2.75	3.19	0.875	0.630	0.469	1.500	1.002	7/16-14	7/16-14 x 2.25	6.0	
20-16W4Q2B	**20-16W4Q2P**	1 1/4	1.00	2.75	3.19	1.000	0.630	0.469	1.500	1.252	7/16-14	7/16-14 x 2.25	6.0	
20W4Q2B	**20W4Q2P**	1 1/4	1.25	3.06	3.75	1.125	0.690	0.531	1.500	1.252	1/2-13	1/2-13 x 2.50	6.0	
24-20W4Q2B	**24-20W4Q2P**	1 1/5	1.25	3.06	3.75	1.250	0.690	0.531	1.500	1.502	1/2-13	1/2-13 x 2.50	6.0	
24W4Q2B	**24W4Q2P**	1 1/2	1.50	3.75	4.44	1.375	0.750	0.656	1.750	1.502	5/8-11	5/8-11 x 2.75	6.0	
28-24W4Q2B	**28-24W4Q2P**	1 3/4	1.50	3.75	4.44	1.500	0.750	0.656	1.750	1.752	5/8-11	5/8-11 x 2.75	6.0	
32W4Q2B1[1]	**32W4Q2P1**[1]	2	2.00	4.50	5.25	1.875	0.875	0.781	1.750	2.002	3/4-10	3/4-10 x 3.00	6.0	
36-32W4Q2B1[1]	**36-32W4Q2P1**[1]	2 1/4	2.00	4.50	5.25	2.000	0.875	0.781	1.750	2.252	3/4-10	3/4-10 x 3.00	6.0	

1) Not covered in SAE J518.

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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Parker Hannifin Corporation
Tube Fittings Division
Columbus, Ohio
http://www.parker.com/tfd

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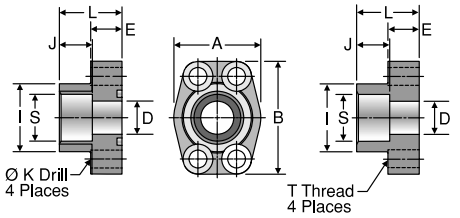
W7Q

Extended Weld Socket Block Connector, Pipe
Deep Weld Socket, Pipe / Code 61 or 62
Block Flange or Pad



O-ring Face Flat Face

TUBE FITTING PART #		PIPE SIZE	FLANGE SIZE	A	B	D	E	I	J	K DRILL DIA.	L	S	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX	-SS
EXTENDED WELD SOCKET, PIPE / CODE 61 BLOCK FLANGE OR PAD																
12W7Q1B	**12W7Q1P**	3/4	0.75	1.97	2.56	0.75	0.710	1.54	0.750	0.406	1.420	1.062	3/8-16	3/8-16 x 1.50	5.0	
16W7Q1B	**16W7Q1P**	1	1.00	2.17	2.75	1.00	0.710	1.81	0.750	0.406	1.500	1.328	3/8-16	3/8-16 x 1.50	4.5	
20W7Q1B	**20W7Q1P**	1 1/4	1.25	2.68	3.12	1.25	0.830	2.22	0.870	0.469	1.610	1.672	7/16-14	7/16-14 x 1.75	2.7	
24W7Q1B	**24W7Q1P**	1 1/2	1.50	3.07	3.66	1.50	0.980	2.50	0.940	0.531	1.770	1.922	1/2-13	1/2-13 x 1.75	3.0	
32W7Q1B	**32W7Q1P**	2	2.00	3.54	4.00	2.00	0.980	3.12	1.020	0.531	1.770	2.406	1/2-13	1/2-13 x 1.75	2.5	
40W7Q1B	**40W7Q1P**	2 1/2	2.50	4.09	4.49	2.50	0.980	3.62	1.180	0.531	1.970	2.908	1/2-13	1/2-13 x 1.75	2.2	
EXTENDED WELD SOCKET, PIPE / C ODE 62 BLOCK FLANGE OR PAD																
12W7Q2B	**12W7Q2P**	3/4	0.75	2.17	2.80	0.75	0.830	1.65	0.870	0.406	1.380	1.062	3/8-16	3/8-16 x 1.50	6.0	
16W7Q2B	**16W7Q2P**	1	1.00	2.56	3.19	1.00	0.980	1.98	0.870	0.469	1.650	1.328	7/16-14	7/16-14 x 1.75	6.0	
20W7Q2B	**20W7Q2P**	1 1/4	1.25	3.07	3.75	1.25	1.060	2.36	0.980	0.531	1.770	1.672	1/2-13	1/2-13 x 1.75	5.5	
24W7Q2B	**24W7Q2P**	1 1/2	1.50	3.7	4.41	1.50	1.180	2.68	1.100	0.656	1.970	1.922	5/8-11	5/8-11 x 2.25	5.5	
32W7Q2B	**32W7Q2P**	2	2.00	4.5	5.28	2.00	1.460	3.35	0.940	0.781	2.560	2.406	3/4-10	3/4-10 x 2.75	5.0	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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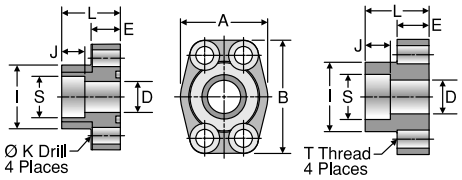
W6Q

Extended Weld Socket Block Connector, Tube
Deep Weld Socket, Tube / Code 61 or 62
Block Flange or Pad



O-ring Face Flat Face

TUBE FITTING PART #		TUBE O.D.	FLANGE SIZE	A	B	D	E	I	J	K DRILL DIA.	L	S	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX	-SS
EXTENDED WELD SOCKET, TUBE / CODE 61 BLOCK FLANGE OR PAD																
12W6Q1B	**12W6Q1P**	3/4	0.75	1.97	2.56	0.625	0.71	1.54	0.560	0.406	1.420	0.752	3/8-16	3/8-16 x 1.50	5.0	
16-12W6Q1B	**16-12W6Q1P**	1	0.75	1.97	2.56	0.750	0.71	1.54	0.560	0.406	1.420	1.002	3/8-16	3/8-16 x 1.50	5.0	
16W6Q1B	**16W6Q1P**	1	1.00	2.17	2.75	0.875	0.71	1.81	0.630	0.406	1.500	1.002	3/8-16	3/8-16 x 1.50	5.0	
20-16W6Q1B	**20-16W6Q1P**	1 1/4	1.00	2.17	2.75	1.000	0.71	1.81	0.630	0.406	1.500	1.252	3/8-16	3/8-16 x 1.50	5.0	
20W6Q1B	**20W6Q1P**	1 1/4	1.25	2.68	3.12	1.125	0.83	2.22	0.690	0.469	1.610	1.252	7/16-14	7/16-14 x 1.75	4.0	
24-20W6Q1B	**24-20W6Q1P**	1 1/2	1.25	2.68	3.12	1.250	0.83	2.22	0.690	0.469	1.610	1.502	7/16-14	7/16-14 x 1.75	4.0	
24W6Q1B	**24W6Q1P**	1 1/2	1.50	3.07	3.66	1.375	0.98	2.50	0.750	0.531	1.770	1.502	1/2-13	1/2-13 x 1.75	3.0	
28-24W6Q1B	**28-24W6Q1P**	1 3/4	1.50	3.07	3.66	1.500	0.98	2.50	0.750	0.531	1.770	1.752	1/2-13	1/2-13 x 1.75	3.0	
32W6Q1B	**32W6Q1P**	2	2.00	3.54	4.00	1.875	0.98	3.12	0.870	0.531	1.770	2.002	1/2-13	1/2-13 x 1.75	3.0	
36-32W6Q1B	**36-32W6Q1P**	2 1/4	2.00	3.54	4.00	2.000	0.98	3.12	0.870	0.531	1.770	2.252	1/2-13	1/2-13 x 1.75	3.0	
40W6Q1B	**40W6Q1P**	2 1/2	2.50	4.09	4.49	2.375	0.98	3.62	1.000	0.531	1.970	2.502	1/2-13	1/2-13 x 1.75	2.5	
44-40W6Q1B	**44-40W6Q1P**	2 3/4	2.50	4.09	4.49	2.500	0.98	3.62	1.000	0.531	1.970	2.752	1/2-13	1/2-13 x 1.75	2.2	
EXTENDED WELD SOCKET, TUBE / CODE 62 BLOCK FLANGE OR PAD																
12W6Q2B	**12W6Q2P**	3/4	0.75	2.17	2.80	0.625	0.83	1.65	0.560	0.406	1.380	0.752	3/8-16	3/8-16 x 1.50	6.0	
16-12W6Q2B	**16-12W6Q2P**	1	0.75	2.17	2.80	0.750	0.83	1.65	0.560	0.406	1.380	1.002	3/8-16	3/8-16 x 1.50	6.0	
16W6Q2B	**16W6Q2P**	1	1.00	2.56	3.19	0.875	0.98	1.98	0.630	0.469	1.650	1.002	7/16-14	7/16-14 x 1.75	6.0	
20-16W6Q2B	**20-16W6Q2P**	1 1/4	1.00	2.56	3.19	1.000	0.98	1.98	0.630	0.469	1.650	1.252	7/16-14	7/16-14 x 1.75	6.0	
20W6Q2B	**20W6Q2P**	1 1/4	1.25	3.07	3.75	1.125	1.06	2.36	0.690	0.531	1.770	1.252	1/2-13	1/2-13 x 1.75	6.0	
24-20W6Q2B	**24-20W6Q2P**	1 1/2	1.25	3.07	3.75	1.250	1.06	2.36	0.690	0.531	1.770	1.502	1/2-13	1/2-13 x 1.75	6.0	
24W6Q2B	**24W6Q2P**	1 1/2	1.50	3.70	4.41	1.375	1.18	2.68	0.750	0.656	1.970	1.502	5/8-11	5/8-11 x 2.25	6.0	
28-24W6Q2B	**28-24W6Q2P**	1 3/4	1.50	3.70	4.41	1.500	1.18	2.68	0.750	0.656	1.970	1.752	5/8-11	5/8-11 x 2.25	6.0	
32W6Q2B	**32W6Q2P**	2	2.00	4.50	5.28	1.875	1.46	3.35	0.870	0.781	2.560	2.002	3/4-10	3/4-10 x 2.75	6.0	
36-32W6Q2B	**36-32W6Q2P**	2 1/4	2.00	4.50	5.28	2.000	1.46	3.35	0.870	0.781	2.560	2.252	3/4-10	3/4-10 x 2.75	5.5	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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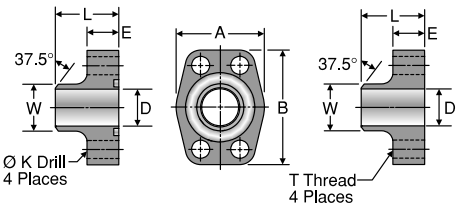
WB1Q1 / WB3Q1 / WB5Q1

Code 61 Weld Butt Block Connector, Pipe
Schedule 40, 80 or 160 Weld Butt /
Code 61 Block Flange or Pad



O-ring Face Flat Face

WELD BUTT BLOCK CONNECTION TYPE	TUBE FITTING PART #		PIPE SIZE	FLANGE SIZE	A	B	D PIPE I.D.	E	K DRILL DIA.	L	T THREAD	W PIPE O.D.	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
	O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	(in.)	SHCS	-SX	-SS
SCHEDULE 40 WELD BUTT / CODE 61 BLOCK FLANGE OR PAD															
WB1Q1 For Schedule 40 pipe	**12WB1Q1B**	**12WB1Q1P**	3/4	0.75	1.97	2.56	0.846	0.710	0.406	1.420	3/8-16	1.050	3/8-16 x 1.50	3.5	
	16WB1Q1B	**16WB1Q1P**	1	1.00	2.17	2.75	1.051	0.710	0.406	1.500	3/8-16	1.315	3/8-16 x 1.50	3.0	
	20WB1Q1B	**20WB1Q1P**	1 1/4	1.25	2.68	3.12	1.382	0.830	0.469	1.610	7/16-14	1.660	7/16-14 x 1.75	2.7	
	24WB1Q1B	**24WB1Q1P**	1 1/2	1.50	3.07	3.66	1.612	0.980	0.531	1.730	1/2-13	1.900	1/2-13 x 1.75	2.2	
	32WB1Q1B	**32WB1Q1P**	2	2.00	3.54	4.00	2.069	0.980	0.531	1.770	1/2-13	2.375	1/2-13 x 1.75	2.0	
	40WB1Q1B	**40WB1Q1P**	2 1/2	2.50	4.09	4.49	2.471	0.980	0.531	1.970	1/2-13	2.875	1/2-13 x 1.75	2.0	
	48WB1Q1B	**48WB1Q1P**	3	3.00	4.88	5.28	3.070	1.060	0.656	1.970	5/8-11	3.500	5/8-11 x 2.00	1.7	
SCHEDULE 80 WELD BUTT / CODE 61 BLOCK FLANGE OR PAD															
WB3Q1 For Schedule 80 pipe	**12WB3Q1B**	**12WB3Q1P**	3/4	0.75	1.97	2.56	0.744	0.710	0.406	1.420	3/8-16	1.050	3/8-16 x 1.50	5.0	
	16WB3Q1B	**16WB3Q1P**	1	1.00	2.17	2.75	0.959	0.710	0.406	1.500	3/8-16	1.315	3/8-16 x 1.50	4.5	
	20WB3Q1B	**20WB3Q1P**	1 1/4	1.25	2.68	3.12	1.280	0.830	0.469	1.610	7/16-14	1.660	7/16-14 x 1.75	4.0	
	24WB3Q1B	**24WB3Q1P**	1 1/2	1.50	3.07	3.66	1.502	0.980	0.531	1.730	1/2-13	1.900	1/2-13 x 1.75	3.0	
	32WB3Q1B	**32WB3Q1P**	2	2.00	3.54	4.00	1.941	0.980	0.531	1.770	1/2-13	2.375	1/2-13 x 1.75	3.0	
	40WB3Q1B	**40WB3Q1P**	2 1/2	2.50	4.09	4.49	2.325	0.980	0.531	1.970	1/2-13	2.875	1/2-13 x 1.75	2.5	
	48WB3Q1B	**48WB3Q1P**	3	3.00	4.88	5.28	2.902	1.060	0.656	1.970	5/8-11	3.500	5/8-11 x 2.00	2.0	
SCHEDULE 160 WELD BUTT / CODE 61 BLOCK FLANGE OR PAD															
WB5Q1 For Schedule 160 pipe	**12WB5Q1B**	**12WB5Q1P**	3/4	0.75	1.97	2.56	0.614	0.710	0.406	1.420	3/8-16	1.050	3/8-16 x 1.50	5.0	
	16WB5Q1B	**16WB5Q1P**	1	1.00	2.17	2.75	0.817	0.710	0.406	1.500	3/8-16	1.315	3/8-16 x 1.50	5.0	
	20WB5Q1B	**20WB5Q1P**	1 1/4	1.25	2.68	3.12	1.162	0.830	0.469	1.610	7/16-14	1.660	7/16-14 x 1.75	4.0	
	24WB5Q1B	**24WB5Q1P**	1 1/2	1.50	3.07	3.66	1.340	0.980	0.531	1.730	1/2-13	1.900	1/2-13 x 1.75	3.0	
	32WB5Q1B	**32WB5Q1P**	2	2.00	3.54	4.00	1.689	0.980	0.531	1.770	1/2-13	2.375	1/2-13 x 1.75	3.0	
	40WB5Q1B	**40WB5Q1P**	2 1/2	2.50	4.09	4.49	2.127	0.980	0.531	1.970	1/2-13	2.875	1/2-13 x 1.75	2.5	
	48WB5Q1B	**48WB5Q1P**	3	3.00	4.88	5.28	2.626	1.060	0.656	1.970	5/8-11	3.500	5/8-11 x 2.00	2.0	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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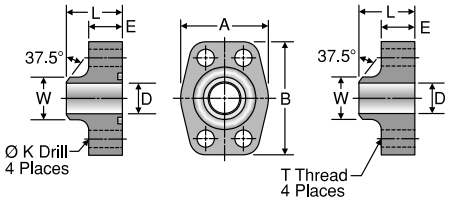
WB3Q2 / WB5Q2 / WB7Q2

Code 62 Weld Butt Block Connector, Pipe Schedule 80, 160 or XXS Weld Butt / Code 62 Block Flange or Pad



O-ring Face Flat Face

WELD BUTT BLOCK CONNECTION TYPE	TUBE FITTING PART #		PIPE SIZE	FLANGE SIZE	A	B	D PIPE I.D.	E	K DRILL DIA.	L	T THREAD	W PIPE O.D.	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
	O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	(in.)	SHCS	-SX	-SS
SCHEDULE 80 WELD BUTT / CODE 62 BLOCK FLANGE OR PAD															
WB3Q2 For Schedule 80 pipe	**12WB3Q2B**	**12WB3Q2P**	3/4	0.75	2.17	2.80	0.744	0.83	0.406	1.38	3/8-16	1.050	3/8-16 x 1.50	5.0	
	16WB3Q2B	**16WB3Q2P**	1	1.00	2.56	3.19	0.959	0.83	0.469	1.61	7/16-14	1.315	7/16-14 x 1.75	4.5	
	20WB3Q2B	**20WB3Q2P**	1 1/4	1.25	3.07	3.75	1.280	0.98	0.531	1.73	1/2-13	1.660	1/2-13 x 1.75	3.5	
	24WB3Q2B	**24WB3Q2P**	1 1/2	1.50	3.70	4.41	1.502	1.18	0.656	2.17	5/8-11	1.900	5/8-11 x 2.25	3.0	
	32WB3Q2B	**32WB3Q2P**	2	2.00	4.50	5.28	1.941	1.46	0.781	2.56	3/4-10	2.375	3/4-10 x 2.75	3.0	
SCHEDULE 160 WELD BUTT / CODE 62 BLOCK FLANGE OR PAD															
WB5Q2 For Schedule 160 pipe	**12WB5Q2B**	**12WB5Q2P**	3/4	0.75	2.17	2.80	0.614	0.83	0.406	1.38	3/8-16	1.050	3/8-16 x 1.50	6.0	
	16WB5Q2B	**16WB5Q2P**	1	1.00	2.56	3.19	0.817	0.83	0.469	1.61	7/16-14	1.315	7/16-14 x 1.75	6.0	
	20WB5Q2B	**20WB5Q2P**	1 1/4	1.25	3.07	3.75	1.162	0.98	0.531	1.73	1/2-13	1.660	1/2-13 x 1.75	5.0	
	24WB5Q2B	**24WB5Q2P**	1 1/2	1.50	3.70	4.41	1.340	1.18	0.656	2.17	5/8-11	1.900	5/8-11 x 2.25	5.0	
	32WB5Q2B	**32WB5Q2P**	2	2.00	4.50	5.28	1.689	1.46	0.781	2.56	3/4-10	2.375	3/4-10 x 2.75	6.0	
SCHEDULE XXS WELD BUTT / CODE 62 BLOCK FLANGE OR PAD															
WB7Q2 For Schedule XXS pipe	**12WB7Q2B**	**12WB7Q2P**	3/4	0.75	2.17	2.80	0.436	0.83	0.406	1.38	3/8-16	1.050	3/8-16 x 1.50	6.0	
	16WB7Q2B	**16WB7Q2P**	1	1.00	2.56	3.19	0.601	0.83	0.469	1.61	7/16-14	1.315	7/16-14 x 1.75	6.0	
	20WB7Q2B	**20WB7Q2P**	1 1/4	1.25	3.07	3.75	0.898	0.98	0.531	1.73	1/2-13	1.660	1/2-13 x 1.75	6.0	
	24WB7Q2B	**24WB7Q2P**	1 1/2	1.50	3.70	4.41	1.102	1.18	0.656	2.17	5/8-11	1.900	5/8-11 x 2.25	6.0	
	32WB7Q2B	**32WB7Q2P**	2	2.00	4.50	5.28	1.505	1.46	0.781	2.56	3/4-10	2.375	3/4-10 x 2.75	6.0	

1) SAE J518 does not cover these sizes in Code 62.

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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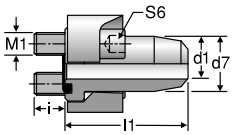
AS3 / AS6

SAE-Flange / Weld Butt



For metric tube welded connection

TUBE FITTING PART #	SIZE (in.)	TUBE O.D. x WALL THICKNESS (mm)	WORKING PRESSURE (bar)	d1 (mm)	d7 (mm)	l (mm)	l 1 (mm)	S6 (mm)	WELD NIPPLE BODY	FROM STOCK CF	71
SAE FLANGE CONNECTION – CODE 61 – STANDARD SERIES											
AS32/15X2	1/2	15 x 2	200	11	23.9	11.5	38	6	AS32/15X2X		
AS32/16X3	1/2	16 x 3	220	10	23.9	11.5	38	6	AS32/16X3X		
AS33/18X1.5	3/4	18 x 1.5	130	15	31.8	15.5	50	8	AS33/18X1.5X		
AS33/22X2	3/4	22 x 2	140	18	31.8	15.5	50	8	AS33/22X2X		
AS33/20X3	3/4	20 x 3	220	14	31.8	15.5	50	8	AS33/20X3X		
AS33/25X4	3/4	25 x 4	220	17	31.8	15.5	50	8	AS33/25X4X		
AS34/28X2	1	28 x 2	115	24	38	13.5	50	8	AS34/28X2X		
AS34/30X4.5	1	30 x 4.5	220	21	38	13.5	50	8	AS34/30X4.5X		
AS35/35X2	1 1/4	35 x 2	90	31	43	18.5	55	8	AS35/35X2X		
AS35/25X3	1 1/4	25 x 3	175	19	43	18.5	55	8	AS35/25X3X		
AS35/30X4	1 1/4	30 x 4	175	22	43	18.5	55	8	AS35/30X4X		
AS35/38X5	1 1/4	38 x 5	175	28	43	18.5	55	8	AS35/38X5X		
AS36/42X3	1 1/2	42 x 3	115	36	50	18.5	57	10	AS36/42X3X		
AS36/38X4	1 1/2	38 x 4	130	30	50	18.5	57	10	AS36/38X4X		
AS38/50X6	2	50 x 6	130	38	62	24	62	12	AS38/50X6X		
AS38/65X8	2	65 x 8	130	49	65	24	62	12	AS38/65X8X		
SAE FLANGE CONNECTION – CODE 62 – HIGH PRESSURE SERIES											
AS62/16X3	1/2	16 x 3	260	10	23.9	13.5	41	6	AS62/16X3X		
AS63/25X5	3/4	25 x 5	260	15	31.8	15.5	55	8	AS63/25X5X		
AS64/25X5	1	25 x 5	260	15	38	20.5	67	10	AS64/25X5X		
AS64/30X4	1	30 x 4	200	22	38	20.5	67	10	AS64/30X4X		
AS65/30X4*	1 1/4	30 x 4	200	22	43.7	17.5	78	10	AS65/30X4X		
AS65/38X5	1 1/4	38 x 5	200	28	43.7	17.5	78	10	AS65/38X5X		
AS65/38X8*	1 1/4	38 x 8	260	22	43.7	17.5	78	10	AS65/38X8X		
AS66/38X5	1 1/2	38 x 5	200	28	50.8	24.5	85	14	AS66/38X5X		
AS66/38X8	1 1/2	38 x 8	260	22	50.8	24.5	85	14	AS66/38X8X		
AS68/50X9	2	50 x 9	260	32	66.6	32.5	116	17	AS68/50X9X		
AS68/65X9	2	65 x 8	190	49	66.6	32.5	116	17	AS68/65X8X		

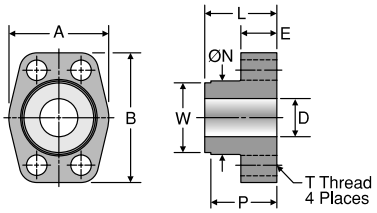
* Identical types.

Tightening torques for socket head cap screws see Tables R6 and R7.

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

WBT

Code 61 Weld Butt Tank Adapter
Weld Butt with Pilot / Code 61 Block Flange Pad



TUBE FITTING PART #	FLANGE SIZE (in.)	A (in.)	B (in.)	D (in.)	E (in.)	L (in.)	P (in.)	ØN (in.)	T THREAD UNC-2B	W (in.)	Dynamic Pressure (x 1,000 PSI) -S	-SS
12WBTQ1P	0.75	1.97	2.56	0.75	0.71	1.42	1.30	1.45	3/8-16	1.375	0.5	
16WBTQ1P	1.00	2.17	2.75	1.00	0.71	1.50	1.37	1.81	3/8-16	1.500	0.5	
20WBTQ1P	1.25	2.68	3.12	1.25	0.83	1.61	1.49	2.22	7/16-14	1.750	0.5	
24WBTQ1P	1.50	3.07	3.66	1.50	0.98	1.77	1.64	2.50	1/2-13	2.125	0.5	
32WBTQ1P	2.00	3.54	4.00	2.00	0.98	1.77	1.65	3.12	1/2-13	2.500	0.5	
40WBTQ1P	2.50	4.09	4.50	2.50	0.98	1.97	1.85	3.62	1/2-13	3.250	0.5	

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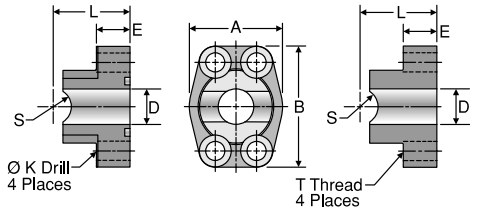
WSD

Code 61 Weld Saddle Block Connector
Pipe or Tube Weld Saddle /
Code 61 Block Flange or Pad

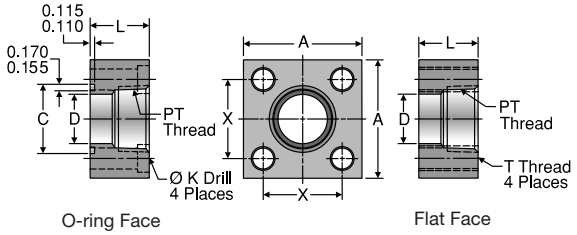


TUBE FITTING PART #		PIPE OR TUBE SIZE	FLANGE SIZE	A	B	D	E	K DRILL DIA.	L	S	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX	-SS
PIPE WELD SADDLE / CODE 61 BLOCK FLANGE OR PAD														
12WSD1Q1B	**12WSD1Q1P**	3/4	0.75	1.97	2.56	0.75	0.710	0.406	1.775	0.532	3/8-16	3/8-16 x 1.50	5.0	
16WSD1Q1B	**16WSD1Q1P**	1	1.00	2.17	2.75	1.00	0.710	0.406	1.912	0.665	3/8-16	3/8-16 x 1.50	5.0	
20WSD1Q1B	**20WSD1Q1P**	1 1/4	1.25	2.68	3.12	1.25	0.830	0.469	2.146	0.837	7/16-14	7/16-14 x 1.75	4.0	
24WSD1Q1B	**24WSD1Q1P**	1 1/2	1.50	3.07	3.66	1.50	0.980	0.531	2.290	0.957	1/2-13	1/2-13 x 1.75	3.0	
32WSD1Q1B	**32WSD1Q1P**	2	2.00	3.54	4.00	2.00	0.980	0.531	2.340	1.200	1/2-13	1/2-13 x 1.75	3.0	
TUBE WELD SADDLE / CODE 61 BLOCK FLANGE OR PAD														
12WSD2Q1B	**12WSD2Q1P**	3/4	0.75	1.97	2.56	0.75	0.710	0.406	1.420	0.382	3/8-16	3/8-16 x 1.50	5.0	
16-12WSD2Q1B	**16-12WSD2Q1P**	1	0.75	1.97	2.56	0.75	0.710	0.406	1.420	0.507	3/8-16	3/8-16 x 1.50	5.0	
16WSD2Q1B	**16WSD2Q1P**	1	1.00	2.17	2.75	1.00	0.710	0.406	1.737	0.507	3/8-16	3/8-16 x 1.50	5.0	
20-16WSD2Q1B	**20-16WSD2Q1P**	1 1/4	1.00	2.17	2.75	1.00	0.710	0.406	1.500	0.632	3/8-16	3/8-16 x 1.50	5.0	
20WSD2Q1B	**20WSD2Q1P**	1 1/4	1.25	2.68	3.12	1.25	0.830	0.469	1.858	0.632	7/16-14	7/16-14 x 1.75	4.0	
24-20WSD2Q1B	**24-20WSD2Q1P**	1 1/2	1.25	2.68	3.12	1.25	0.830	0.469	1.665	0.757	7/16-14	7/16-14 x 1.75	4.0	
24WSD2Q1B	**24WSD2Q1P**	1 1/2	1.50	3.07	3.66	1.50	0.980	0.531	2.022	0.757	1/2-13	1/2-13 x 1.75	3.0	
28-24WSD2Q1B	**28-24WSD2Q1P**	1 3/4	1.50	3.07	3.66	1.50	0.980	0.531	2.198	0.882	1/2-13	1/2-13 x 1.75	3.0	
32WSD2Q1B	**32WSD2Q1P**	2	2.00	3.54	4.00	2.00	0.980	0.531	2.262	1.007	1/2-13	1/2-13 x 1.75	3.0	
36-32WSD2Q1B	**36-32WSD2Q1P**	2 1/4	2.00	3.54	4.00	2.00	0.980	0.531	2.247	1.132	1/2-13	1/2-13 x 1.75	3.0	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

GQS

NPTF Port Square Block Flange Adapter
NPTF Port / Square Block Flange or Pad



TUBE FITTING PART #		PT THREAD	FLANGE SIZE	A	B	C MIN.	D	K DRILL DIA.	L	T THREAD	X	O-ring	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	NPTF	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	(in.)		SHCS	SX	SS
12GQSB	**12GQSP**	3/4-14	0.75	2.25	1.12	1.250	0.75	0.406	1.25	3/8-16	1.438	2-214	3/8-16 x 2.00	5.0	
16GQSB	**16GQSP**	1-11 1/2	1.00	3.00	1.50	1.560	1.00	0.531	1.50	1/2-13	2.000	2-219	1/2-13 x 2.25	5.0	
20GQSB	**20GQSP**	1 1/4-11 1/2	1.25	3.00	1.50	1.750	1.25	0.531	1.50	1/2-13	2.000	2-222	1/2-13 x 2.25	4.0	
24GQSB	**24GQSP**	1 1/2-11 1/2	1.50	4.00	2.00	2.115	1.50	0.656	1.75	5/8-11	2.750	2-225	5/8-11 x 2.75	3.0	
32GQSB	**32GQSP**	2-11 1/2	2.00	4.00	2.00	2.490	2.00	0.656	1.75	5/8-11	2.750	2-228	5/8-11 x 2.75	2.7	
40GQSB	**40GQSP**	2 1/2-8	2.50	5.50	2.75	2.995	2.50	0.906	2.25	7/8-9	3.750	2-232	7/8-9 x 3.50	2.5	
48GQSB	**48GQSP**	3-8	3.00	5.50	2.75	3.615	3.00	0.906	2.25	7/8-9	3.750	2-237	7/8-9 x 3.50	1.2	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

Dimensions and pressures for reference only, subject to change.

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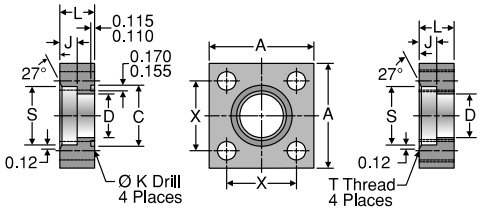
W5SQS

Weld Socket Square Block Connector, Pipe
Pipe Weld Socket / Square Block Flange or Pad



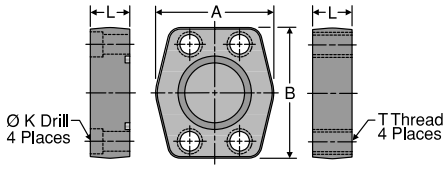
O-ring Face Flat Face

TUBE FITTING PART #		PIPE SIZE	FLANGE SIZE	A	B	C MIN.	D	J	K DRILL DIA.	L	S	T THREAD	X		MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	(in.)	O-ring	SHCS	-SX	-SS
12W5SQSB	12W5SQSP	3/4	0.75	2.25	1.12	1.250	0.75	0.50	0.406	1.00	1.062	3/8-16	1.438	2-214	3/8-16 x 1.75	5.0	
16W5SQSB	16W5SQSP	1	1.00	3.00	1.50	1.560	1.00	0.50	0.531	1.00	1.328	1/2-13	2.000	2-219	1/2-13 x 1.75	5.0	
20W5SQSB	20W5SQSP	1 1/4	1.25	3.00	1.50	1.750	1.25	0.50	0.531	1.00	1.672	1/2-13	2.000	2-222	1/2-13 x 1.75	4.0	
24W5SQSB	24W5SQSP	1 1/2	1.50	4.00	2.00	2.115	1.50	0.62	0.656	1.25	1.922	5/8-11	2.750	2-225	5/8-11 x 2.25	3.0	
32W5SQSB	32W5SQSP	2	2.00	4.00	2.00	2.490	2.00	0.62	0.656	1.25	2.406	5/8-11	2.750	2-228	5/8-11 x 2.25	3.0	
40W5SQSB	40W5SQSP	2 1/2	2.50	5.50	2.75	2.995	2.50	0.75	0.906	1.50	2.906	7/8-9	3.750	2-232	7/8-9 x 2.75	2.5	
48W5SQSB	48W5SQSP	3	3.00	5.50	2.75	3.615	3.00	0.75	0.906	1.50	3.547	7/8-9	3.750	2-237	7/8-9 x 2.75	2.0	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

PQ

Block Plug
Code 61/62 Block Flange or Pad Plug



O-ring Face Flat Face

TUBE FITTING PART #		FLANGE SIZE	A	B	K DRILL DIA.	L	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX
CODE 61 BLOCK FLANGE OR PAD PLUG									
8PQ1B	8PQ1P	0.50	1.813	2.125	0.344	0.750	5/16-18	5/16-18 x 1.50	5.0
12PQ1B	12PQ1P	0.75	2.063	2.563	0.406	0.750	3/8-16	3/8-16 x 1.50	5.0
16PQ1B	16PQ1P	1.00	2.313	2.750	0.406	0.880	3/8-16	3/8-16 x 1.75	5.0
20PQ1B	20PQ1P	1.25	2.875	3.125	0.469	0.940	7/15-14	7/16-14 x 1.75	4.0
24PQ1B	24PQ1P	1.50	3.250	3.688	0.531	1.190	1/2-13	1/2-13 x 2.25	3.0
32PQ1B	32PQ1P	2.00	3.813	4.000	0.531	1.440	1/2-13	1/2-13 x 2.50	3.0
40PQ1B	40PQ1P	2.50	4.281	4.500	0.531	1.815	1/2-13	1/2-13 x 2.75	2.5
48PQ1B	48PQ1P	3.00	5.156	5.313	0.656	2.190	5/8-11	5/8-11 x 3.50	2.0
56PQIB	56PQ1P	3.50	5.500	6.000	0.656	1.440	5/8-11	5/8-11 x 2.75	0.5
64PQIB	64PQIP	4.00	6.000	6.380	0.656	1.440	5/8-11	5/8-11 x 2.75	0.5
CODE 62 BLOCK FLANGE OR PAD PLUG									
8PQ2B	8PQ2P	0.50	1.940	2.300	0.344	1.250	5/16-18	5/16-18 x 2.00	6.0
12PQ2B	12PQ2P	0.75	2.500	2.950	0.406	1.250	3/8-16	3/8-16 x 2.00	6.0
16PQ2B	16PQ2P	1.00	2.750	3.190	0.469	1.500	7/16-14	7/16-14 x 2.50	6.0
20PQ2B	20PQ2P	1.25	3.060	3.750	0.531	1.430	1/2-13	1/2-13 x 2.50	6.0
24PQ2B	24PQ2P	1.50	3.750	4.440	0.656	1.815	5/8-11	5/8-11 x 3.00	6.0
32PQ2B	32PQ2P	2.00	4.500	5.250	0.781	1.815	3/4-10	3/4-10 x 3.00	6.0
40PQ2B[2]	40PQ2P[2]	2.50	5.870	6.870	0.940	1.930	7/8-9	7/8-9 x 3.50	6.0
48PQ2B[2]	48PQ2P[2]	3.00	7.000	8.500	1.190	2.690	1 1/8-7	1 1/8-7 x 4.50	6.0

FOR STAINLESS STEEL PARTS - SEE PAGE K42

2) SAE J518 does not cover these sizes in Code 62. Bolt hole centerline dimensions are: 2.312” x 4.875” for 4OPQ2 and 2.812” x 6.000” for 48PQ2.

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

Dimensions and pressures for reference only, subject to change.

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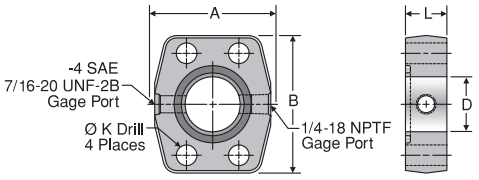
SPGG5

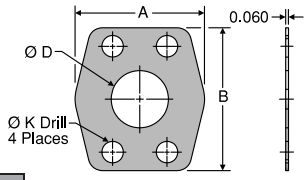
Flange Spacer with Gage Ports
Code 61/62 Spacer with Side Gage Ports



TUBE FITTING PART #	FLANGE SIZE (in.)	A (in.)	B (in.)	D (in.)	K DRILL DIA. (in.)	L (in.)	Dynamic Pressure (x 1,000 PSI) -SX	-SS
CODE 61 O-ring SPACER								
8SPGG5Q1B	0.50	1.813	2.125	0.500	0.344	1.25	5.0	
12SPGG5Q1B	0.75	2.063	2.563	0.750	0.406	1.25	5.0	
16SPGG5Q1B	1.00	2.313	2.750	1.000	0.406	0.88	5.0	
20SPGG5Q1B	1.25	2.875	3.125	1.250	0.469	0.94	4.0	
24SPGG5Q1B	1.50	3.250	3.688	1.500	0.531	1.19	3.0	
32SPGG5Q1B	2.00	3.813	4.000	2.000	0.531	1.38	3.0	
40SPGG5Q1B	2.50	4.281	4.500	2.500	0.531	1.75	2.5	
48SPGG5Q1B	3.00	5.156	5.313	3.000	0.656	2.12	2.0	
CODE 62 O-ring SPACER								
8SPGG5Q2B	0.50	1.940	2.300	0.500	0.344	1.25	6.0	
12SPGG5Q2B	0.75	2.500	2.950	0.750	0.406	1.25	6.0	
16SPGG5Q2B	1.00	2.750	3.190	1.000	0.469	1.50	6.0	
20SPGG5Q2B	1.25	3.060	3.750	1.250	0.531	1.50	6.0	
24SPGG5Q2B	1.50	3.750	4.440	1.500	0.656	1.75	6.0	
32SPGG5Q2B	2.00	4.500	5.250	2.000	0.781	1.75	6.0	

CP

Flange Connector Plate
Code 61/62 Flange Connector Plate



TUBE FITTING PART #	FLANGE SIZE (in.)	A (in.)	B (in.)	D (in.)	K DRILL DIA. (in.)	Dynamic Pressure (x 1,000 PSI) -SX	-SS
CODE 61 FLANGE CONNECTOR PLATE							
8CP1	0.50	1.81	2.12	0.50	0.344	5.0	
12CP1	0.75	2.06	2.56	0.75	0.406	5.0	
16CP1	1.00	2.31	2.75	1.00	0.406	5.0	
20CP1	1.25	2.88	3.12	1.25	0.469	4.0	
24CP1	1.50	3.25	3.69	1.50	0.531	3.0	
32CP1	2.00	3.81	4.00	2.00	0.531	3.0	
40CP1	2.50	4.12	4.44	2.50	0.531	2.5	
48CP1	3.00	5.16	5.31	3.00	0.656	2.5	
CODE 62 FLANGE CONNECTOR PLATE							
12CP2	0.75	2.38	2.81	0.75	0.406	6.0	
16CP2	1.00	2.75	3.19	1.00	0.469	6.0	
20CP2	1.25	3.06	3.75	1.25	0.531	6.0	
24CP2	1.50	3.75	4.44	1.50	0.656	6.0	
32CP2	2.00	4.50	5.25	2.00	0.781	6.0	

Dimensions and pressures for reference only, subject to change.

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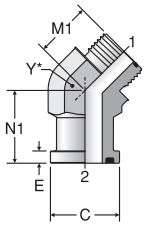
LOVQ1

Code 61 Flange 45° Elbow
Code 61 / ORFS



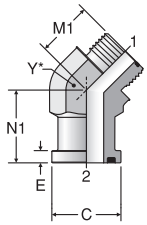
* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 (in.)	C (in.)	E (in.)	M1 (in.)	N1 (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 LOVQ1	3/4	3/4	1.500	0.265	1.28	1.58	1 7/16	5.0
16 LOVQ1	1	1	1.750	0.315	1.47	1.85	1 5/8	5.0
20 LOVQ1	1 1/4	1 1/4	2.000	0.315	1.59	2.04	1 7/8	4.0
24 LOVQ1	1 1/2	1 1/2	2.375	0.315	1.78	2.38	2 1/2	3.0

WARNING: This product can expose you to chemicals including Diisononyl Phthalate which is known to the State of California to cause cancer. For more information go to www.p65warnings.ca.gov.

LOVQ2

Code 62 Flange 45° Elbow
Code 62 / ORFS

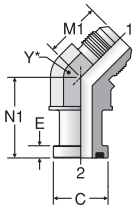


* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 (in.)	C (in.)	E (in.)	M1 (in.)	N1 (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 LOVQ2	3/4	3/4	1.625	0.345	1.28	1.58	1 7/16	6.0
16 LOVQ2	1	1	1.875	0.375	1.47	1.85	1 5/8	6.0
20 LOVQ2	1 1/4	1 1/4	2.125	0.405	1.59	2.04	1 7/8	5.0
24 LOVQ2	1 1/2	1 1/2	2.500	0.495	1.78	2.38	2 1/2	4.5

XVQ1

Code 61 Flange 45° Elbow
Code 61 / 37° Flare



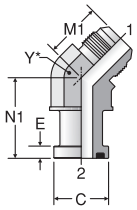
* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 (in.)	C (in.)	E (in.)	M1 (in.)	N1 (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 XVQ1	3/4	3/4	1.500	0.265	1.28	1.58	1 7/16	5.0
16 XVQ1	1	1	1.750	0.315	1.47	1.85	1 5/8	5.0
20 XVQ1	1 1/4	1 1/4	2.000	0.315	1.59	2.04	1 7/8	4.0
24 XVQ1	1 1/2	1 1/2	2.375	0.315	1.78	2.38	2 1/2	3.0
32 XVQ1	2	2	2.812	0.375	2.22	3.00	2 1/2	2.0

WARNING: This product can expose you to chemicals including Diisononyl Phthalate which is known to the State of California to cause cancer. For more information go to www.p65warnings.ca.gov.

XVQ2

Code 62 Flange 45° Elbow
Code 62 / 37° Flare

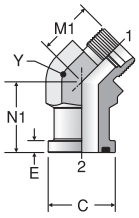


* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 (in.)	C (in.)	E (in.)	M1 (in.)	N1 (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 XVQ2	3/4	3/4	1.625	0.345	1.28	1.58	1 7/16	5.0
16 XVQ2	1	1	1.875	0.375	1.47	1.85	1 5/8	5.0
20 XVQ2	1 1/4	1 1/4	2.125	0.405	1.59	2.04	1 7/8	4.0
24 XVQ2	1 1/2	1 1/2	2.500	0.495	1.78	2.38	2 1/2	3.0

BUVQ1

Code 61 45° Elbow
Code 61 / Flareless



* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 (in.)	C (in.)	E (in.)	M1 (in.)	N1 (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 BUVQ1	3/4	3/4	1.500	0.265	1.27	1.58	1 7/16	
16 BUVQ1	1	1	1.750	0.315	1.36	1.85	1 5/8	
20 BUVQ1	1 1/4	1 1/4	2.000	0.315	1.45	2.40	1 7/8	
24 BUVQ1	1 1/2	1 1/2	2.375	0.315	1.52	2.90	2 1/2	
32 BUVQ1	2	2	2.812	0.375	1.83	3.00	2 1/2	

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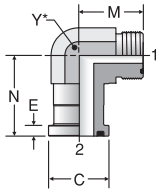
LOEQ1

Code 61 Flange 90° Elbow
Code 61 / ORFS

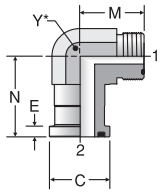


* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 (in.)	C (in.)	E (in.)	M (in.)	N (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 LOEQ1	3/4	3/4	1.500	0.265	1.66	2.13	1 3/16	5.0
16 LOEQ1	1	1	1.750	0.315	1.81	2.37	1 7/16	5.0
20 LOEQ1	1 1/4	1 1/4	2.000	0.315	2.06	2.62	1 5/8	4.0
24 LOEQ1	1 1/2	1 1/2	2.375	0.315	2.54	2.64	2	3.0

LOEQ2

Code 62 Flange 90° Elbow
Code 62 / ORFS

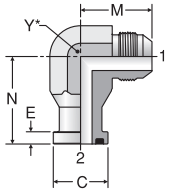


* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 (in.)	C (in.)	E (in.)	M (in.)	N (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S
12 LOEQ2	3/4	3/4	1.625	0.345	1.66	2.13	1 3/16	6.0
16 LOEQ2	1	1	1.875	0.375	1.81	2.37	1 7/16	6.0
20 LOEQ2	1 1/4	1 1/4	2.125	0.405	2.06	2.76	1 5/8	5.0
24 LOEQ2	1 1/2	1 1/2	2.500	0.495	2.33	3.15	2	4.5

XEQ1

Code 61 Flange 90° Elbow
Code 61 / 37° Flare

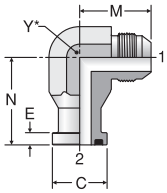


* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 (in.)	C (in.)	E (in.)	M (in.)	N (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S	-SS	-B
12 XEQ1	3/4	3/4	1.500	0.265	1.66	2.13	1 3/16	5.0		
16 XEQ1	1	1	1.750	0.315	1.81	2.37	1 7/16	5.0		
20 XEQ1	1 1/4	1 1/4	2.000	0.315	2.06	2.62	1 5/8	4.0		
24 XEQ1	1 1/2	1 1/2	2.375	0.315	2.33	3.15	2	3.0		
32 XEQ1	2	2	2.812	0.375	3.06	4.25	2 1/2	2.0		

XEQ2

Code 62 Flange 90° Elbow
Code 62 / 37° Flare

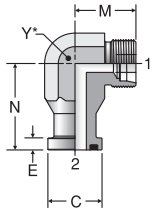


* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 (in.)	C (in.)	E (in.)	M (in.)	N (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S	-SS	-B
12 XEQ2	3/4	3/4	1.625	0.345	1.66	2.13	1 3/16	5.0		
16 XEQ2	1	1	1.875	0.375	1.81	2.57	1 7/16	5.0		
20 XEQ2	1 1/4	1 1/4	2.125	0.405	2.06	2.76	1 5/8	4.0		
24 XEQ2	1 1/2	1 1/2	2.500	0.495	2.33	3.15	2	3.0		

BUEQ1

Code 61 90° Elbow
Code 61 / Flareless



* Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 (in.)	C (in.)	E (in.)	M (in.)	N (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -S	-SS	-B
12 BUEQ1	3/4	3/4	1.500	0.265	1.73	1.81	1 3/16			
16 BUEQ1	1	1	1.750	0.315	1.99	2.13	1 7/16			
20 BUEQ1	1 1/4	1 1/4	2.000	0.315	1.99	2.26	1 5/8			
24 BUEQ1	1 1/2	1 1/2	2.375	0.315	2.33	2.64	2			
32 BUEQ1	2	2	2.812	0.375	2.45	4.25	2 1/2			

WARNING: This product can expose you to chemicals including Diisononyl Phthalate which is known to the State of California to cause cancer. For more information go to www.p65warnings.ca.gov.

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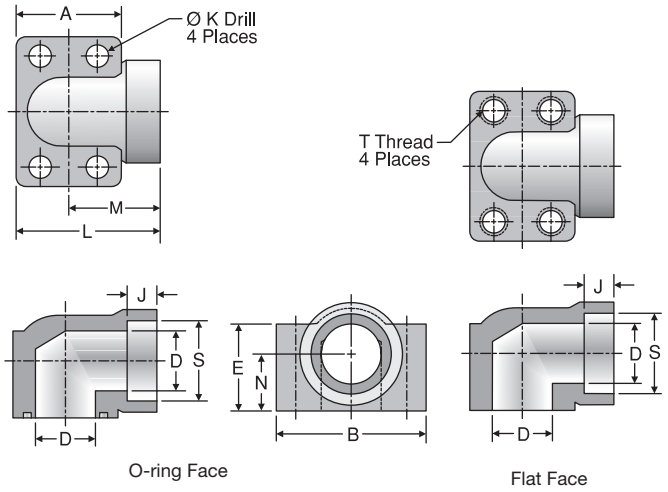
W7EQ

Weld Socket Block Elbow Connector, Pipe
Weld Socket, Pipe / Code 61 or 62
Block Flange or Pad



TUBE FITTING PART #		PIPE SIZE	FLANGE SIZE	A	B	D	E	J	K DRILL DIA.	L	M	N	S	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX	-SS
WELD SOCKET, PIPE / CODE 61 BLOCK FLANGE OR PAD																	
12W7EQ1B	**12W7EQ1P**	3/4	0.75	1.69	2.56	0.75	1.25	0.56	0.406	2.28	1.44	0.875	1.062	3/8-16	3/8-16 x 2.00	5.0	
16W7EQ1B	**16W7EQ1P**	1	1.00	1.94	2.75	1.00	1.50	0.56	0.406	2.62	1.66	1.062	1.328	3/8-16	3/8-16 x 2.25	4.5	
20W7EQ1B	**20W7EQ1P**	1 1/4	1.25	2.19	3.12	1.25	1.81	0.62	0.469	3.00	1.91	1.188	1.672	7/16-14	7/16-14 x 2.75	3.5	
24W7EQ1B	**24W7EQ1P**	1 1/2	1.50	2.56	3.69	1.50	2.00	0.69	0.531	3.33	2.05	1.312	1.922	1/2-13	1/2-13 x 3.00	3.0	
32W7EQ1B	**32W7EQ1P**	2	2.00	3.06	4.33	2.00	2.50	0.75	0.531	3.81	2.28	1.656	2.406	1/2-13	1/2-13 x 3.50	3.0	
WELD SOCKET, PIPE / CODE 62 BLOCK FLANGE OR PAD																	
12W7EQ2B	**12W7EQ2P**	3/4	0.75	1.94	2.75	0.75	1.50	0.56	0.406	2.62	1.66	1.062	1.062	3/8-16	3/8-16 x 2.25	6.0	
16W7EQ2B	**16W7EQ2P**	1	1.00	2.19	3.12	1.00	1.81	0.62	0.469	3.00	1.91	1.188	1.328	7/16-14	7/16-14 x 2.50	6.0	
20W7EQ2B	**20W7EQ2P**	1 1/4	1.25	2.56	3.69	1.25	2.00	0.69	0.531	3.32	2.05	1.312	1.672	1/2-13	1/2-13 x 3.00	5.0	
24W7EQ2B	**24W7EQ2P**	1 1/2	1.50	3.06	4.33	1.50	2.50	0.75	0.656	3.81	2.28	1.656	1.922	5/8-11	5/8-11 x 3.50	5.0	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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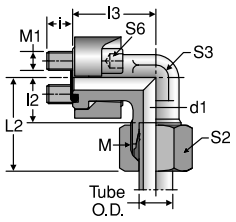
WFS

SAE Flange Connection
Code 61 & 62 / Metric Flareless



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TUBE FITTING PART #	SIZE (in.)	END SIZE (mm)	WORKING PRESSURE (bar)	M THREAD	d1 (mm)	l (mm)	l 1 (mm)	l 2 (mm)	l 3 (mm)	L1 ≈ (mm)	L2 ≈ (mm)	S1 (mm)	S2 (mm)	S3 (mm)	S6 (mm)	FROM STOCK CF	FROM STOCK 71	FROM STOCK CF	FROM STOCK 71
SAE FLANGE CONNECTIONS – CODE 61 – STANDARD SERIES																			
WFS32/15LCF	1/2	15L	200	M22 x 1.5	12	11.5	41	29	36	56	44	24	27	24	6	•		•	
WFS32/16SCF	1/2	16S	220	M24 x 1.5	12	11.5	41.5	29.5	36	60	48	24	30	24	6	•		•	
WFS33/18LCF	3/4	18L	200	M26 x 1.5	15	15.5	45.5	31.5	42	62	48	30	32	30	8	•		•	
WFS33/22LCF	3/4	22L	100	M30 x 2	19	15.5	45.5	33.5	42	62	50	30	36	30	8	•		•	
WFS33/20SCF	3/4	20S	220	M30 x 2	16	15.5	46.5	32.5	42	68	54	30	36	30	8	•		•	
WFS33/25SCF	3/4	25S	220	M36 x 2	17	15.5	45	33	42	69	57	30	46	30	8	•		•	
WFS34/28LCF	1	28L	100	M36 x 2	24	13.5	46.5	36.5	45	63	53	36	41	36	8	•		•	
WFS34/30SCF	1	30S	220	M42 x 2	24	13.5	49.5	36.5	45	76	63	36	50	36	8	•		•	
WFS35/35LCF	1 1/4	35L	100	M45 x 2	30	18.5	47.5	46.5	50	69	68	41	50	41	8	•		•	
WFS35/25SCF	1 1/4	25S	175	M36 x 2	20	18.5	48	43	50	72	67	41	46	41	8	•		•	
WFS35/30SCF	1 1/4	30S	175	M42 x 2	25	18.5	48.5	43.5	50	75	70	41	50	41	8	•		•	
WFS35/38SCF	1 1/4	38S	175	M52 x 2	28	18.5	50	43	50	81	74	46	60	41	8	•		•	
WFS36/42LCF	1 1/2	42L	100	M52 x 2	36	18.5	53	47	55	76	70	46	60	50	10	•		•	
WFS36/38SCF	1 1/2	38S	130	M52 x 2	32	18.5	54	48	55	85	79	46	60	50	10	•		•	
SAE FLANGE CONNECTIONS – CODE 62 – HIGH PRESSURE SERIES																			
WFS62/16SCF	1/2	16S	250	M24 x 1.5	12	13.5	44.5	29.5	39	63	48	24	30	24	6	•		•	
WFS63/16SCF	3/4	16S	250	M24 x 1.5	12	15.5	50.5	36.5	48	69	55	30	30	32	8	•		•	
WFS63/20SCF	3/4	20S	250	M30 x 2	16	15.5	50.5	35.5	48	72	57	30	36	32	8	•		•	
WFS63/25SCF	3/4	25S	250	M36 x 2	17	15.5	51	36	48	75	60	30	46	32	8	•		•	
WFS64/25SCF	1	25S	250	M36 x 2	20	20.5	60	44	60	84	65	36	46	41	10	•		•	
WFS64/30SCF	1	30S	250	M42 x 2	24	20.5	60.5	41.5	60	87	68	36	50	41	10	•		•	
WFS65/30SCF	1 1/4	30S	250	M42 x 2	25	22.5	65.5	44.5	68	92	71	41	50	46	10	•		•	
WFS65/38SCF	1 1/4	38S	200	M52 x 2	30	22.5	67	45	68	98	76	46	60	46	10	•		•	
WFS66/38SCF	1 1/2	38S	200	M52 x 2	30	24.5	73	56	76	104	87	46	60	50	14	•		•	

EO-2 Part Number example: WFS33/18ZLCF

Tightening torques for socket head cap screws see Tables R6 and R7.

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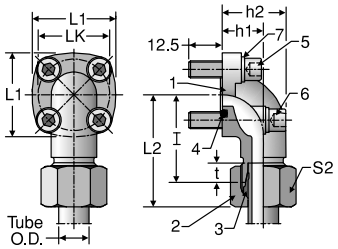
BFW

Hydraulic Flange Elbow
DIN Flange / Metric Flareless



TUBE FITTING PART #	WORKING PRESSURE (bar)	END SIZE (mm)	h1 (mm)	h1 (mm)	I (mm)	L1 (mm)	L2 (mm)	LK (mm)	S2 (mm)	t (mm)	MATERIAL FROM STOCK CF	MATERIAL FROM STOCK 71	EO-2 FROM STOCK CF	EO-2 FROM STOCK 71
BFW15L/LK40CF	65	15	22.5	36.5	38	42	46	40	27	7	•		•	
BFW18L/LK40CF	65	18	22.5	36.5	38	42	47	40	32	7.5	•		•	
BFW22L/LK40CF	65	22	22.5	36.5	38	42	47.5	40	36	7.5	•		•	
BFW28L/LK40CF	65	28	28	43	40	42	49	40	41	7.5	•		•	
BFW35L/LK40CF	65	35	32	55	41	42	52	40	50	10.5	•		•	
BFW35L/LK55CF	65	35	32	51.5	49	58	62	55	50	10.5	•		•	
BFW42L/LK55CF	65	42	40	64.5	49	58	61	55	60	11	•		•	
BFW15L/LK35CF	155	15	16.5	26.5	38	39	46	35	27	7	•		•	
BFW20S/LK55CF	155	20	24	38	45	58	56	55	36	10.5	•		•	
BFW20S/LK40CF	155	20	22.5	35.5	40	42	50	40	36	10.5	•		•	
BFW25S/LK55CF	155	25	30	46	49	58	61	55	46	12	•		•	
BFW30S/LK55CF	155	30	32	50	49	58	62	55	50	13.5	•		•	
BFW10L/LK35CF	200	10	16.5	26.5	38	39	47	35	19	7	•		•	
BFW12L/LK35CF	200	12	16.5	26.5	38	39	47	35	22	7	•		•	
BFW16S/LK35CF	200	16	20	31	38	39	48	35	30	8.5	•		•	

Unassembled BFW Fitting Components

1 Elbow Body	2 Nut	3 Progressive Ring	4 O-ring	5 2 Cap Screws DIN 912-8.8	6 2 Cap Screws DIN 912-8.8	7 4 Spr. Washers DIN 127
BFW15L/LK40CFX	M15LCFX	DPR15LCFX	OR26X2.5X	M6X22	M6X22	A6
BFW18L/LK40CFX	M18LCFX	DPR18LCFX	OR26X2.5X	M6X22	M6X22	A6
BFW22L/LK40CFX	M22LCFX	DPR22LCFX	OR26X2.5X	M6X22	M6X22	A6
BFW28L/LK40CFX	M28LCFX	DPR28LCFX	OR26X2.5X	M6X20	M6X50	A6
BFW35L/LK40CFX	M35LCFX	DPR35LCFX	OR26X2.5X	M6X22	M6X60	A6
BFW35L/LK55CFX	M35LCFX	DPR35LCFX	OR33X2.5X	M8X25	M8X60	A8
BFW42L/LK55CFX	M42LCFX	DPR42LCFX	OR33X2.5X	M8X25	M8X70	A8
BFW15L/LK35CFX	M15LCFX	DPR15LCFX	OR20X2.5X	M6X22	M6X35	A6
BFW20S/LK55CFX	M20SCFX	DPR20SCFX	OR33X2.5X	M8X25	M8X50	A8
BFW20S/LK40CFX	M20SCFX	DPR20SCFX	OR26X2.5X	M6X22	M6X45	A6
BFW25S/LK55CFX	M25SCFX	DPR25SCFX	OR33X2.5X	M8X25	M8X55	A8
BFW30S/LK55CFX	M30SCFX	DPR20SCFX	OR33X2.5X	M8X25	M8X55	A8
BFW10L/LK35CFX	M10LCFX	DRP10LCFX	OR20X2.5X	M6X22	M6X35	A6
BFW12L/LK35CFX	M12LCFX	DPR12LCFX	OR20X2.5X	M6X22	M6X35	A6
BFW16S/LK35CFX	M16SCFX	DPR16SCFX	OR20X2.5X	M6X22	M6X40	A6
BFW20S/LK35CFX	M20SCFX	DPR20SCFX	OR20X2.5X	M6X22	M6X45	A6

EO-2 Part Number example: BFW15ZL/LK40CF

Tightening torques for socket head cap screws see Table R6.

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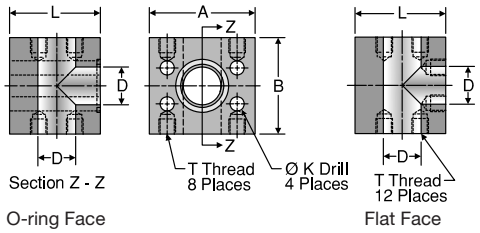
QPQPJQ

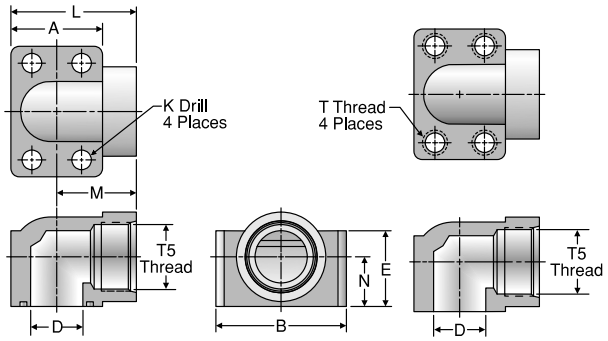
Block Junction Tee
Code 61 or 62 Block Pads / Block Flange or Pad



TUBE FITTING PART #		FLANGE SIZE	A	B	D	K DRILL DIA.	L	T THREAD	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	-SX	-SS
CODE 61 BLOCK PADS / BLOCK FLANGE OR PAD										
12Q1PQ1PJQ1B	12Q1PQ1PJQ1P	0.75	2.62	2.75	0.75	0.406	2.25	3/8-16	5.0	
16Q1PQ1PJQ1B	16Q1PQ1PJQ1P	1.00	2.82	2.97	1.00	0.406	2.50	3/8-16	5.0	
20Q1PQ1PJQ1B	20Q1PQ1PJQ1P	1.25	3.19	3.47	1.25	0.469	3.00	7/16-14	4.0	
24Q1PQ1PJQ1B	24Q1PQ1PJQ1P	1.50	3.75	3.97	1.50	0.531	3.50	1/2-13	3.0	
32Q1PQ1PJQ1B	32Q1PQ1PJQ1P	2.00	4.00	4.25	2.00	0.531	3.97	1/2-13	3.0	
CODE 62 BLOCK PADS / BLOCK FLANGE OR PAD										
12Q2PQ2PJQ2B	12Q2PQ2PJQ2P	0.75	2.81	2.97	0.75	0.406	2.50	3/8-16	6.0	
16Q2PQ2PJQ2B	16Q2PQ2PJQ2P	1.00	3.19	3.47	1.00	0.469	3.00	7/16-14	6.0	
20Q2PQ2PJQ2B	20Q2PQ2PJQ2P	1.25	3.75	3.97	1.25	0.531	3.50	1/2-13	6.0	
24Q2PQ2PJQ2B	24Q2PQ2PJQ2P	1.50	4.50	4.47	1.50	0.656	4.00	5/8-11	6.0	
32Q2PQ2PJQ2B	32Q2PQ2PJQ2P	2.00	5.25	4.97	1.94	0.781	5.00	3/4-10	6.0	

G5EQ

SAE Port Block Elbow
SAE Port / Code 61 or 62 Block Flange or Pad



TUBE FITTING PART #		T5 STRAIGHT THREAD	SAE PORT DASH	FLANGE SIZE	A	B	D	E	K DRILL DIA.	L	M	N	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	UN-2B	SIZE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX	-SS
SAE PORT / CODE 61 BLOCK FLANGE OR PAD																
12G5EQ1B	12G5EQ1P	1-1/16-12	12	0.75	1.69	2.56	0.75	1.25	0.406	2.28	1.440	0.875	3/8-16	3/8-16 x 2.00	4.0	
16G5EQ1B	16G5EQ1P	1-5/16-12	16	1.00	1.94	2.75	1.00	1.50	0.406	2.62	1.660	1.062	3/8-16	3/8-16 x 2.25	3.0	
20G5EQ1B	20G5EQ1P	1-5/8-12	20	1.25	2.19	3.12	1.25	1.81	0.469	3.00	1.910	1.188	7/16-14	7/16-14 x 2.75	2.5	
24G5EQ1B	24G5EQ1P	1-7/8-12	24	1.50	2.56	3.69	1.50	2.00	0.531	3.33	2.050	1.312	1/2-13	1/2-13 x 3.00	2.0	
32G5EQ1B	32G5EQ1P	2-1/2-12	32	2.00	3.06	4.33	2.00	2.50	0.531	3.81	2.280	1.656	1/2-13	1/2-13 x 3.50	1.5	
SAE PORT / CODE 62 BLOCK FLANGE OR PAD																
12G5EQ2B	12G5EQ2P	1-1/16-12	12	0.75	1.94	2.75	0.75	1.50	0.406	2.62	1.660	1.062	3/8-16	3/8-16 x 2.25	5.0	
16G5EQ2B	16G5EQ2P	1-5/16-12	16	1.00	2.19	3.12	1.00	1.81	0.469	3.00	1.910	1.188	7/16-14	7/16-14 x 2.50	4.0	
20G5EQ2B	20G5EQ2P	1-5/8-12	20	1.25	2.56	3.69	1.25	2.00	0.531	3.32	2.050	1.312	1/2-13	1/2-13 x 3.00	3.5	
24G5EQ2B	24G5EQ2P	1-7/8-12	24	1.50	3.06	4.33	1.50	2.50	0.656	3.81	2.280	1.656	5/8-11	5/8-11 x 3.50	3.5	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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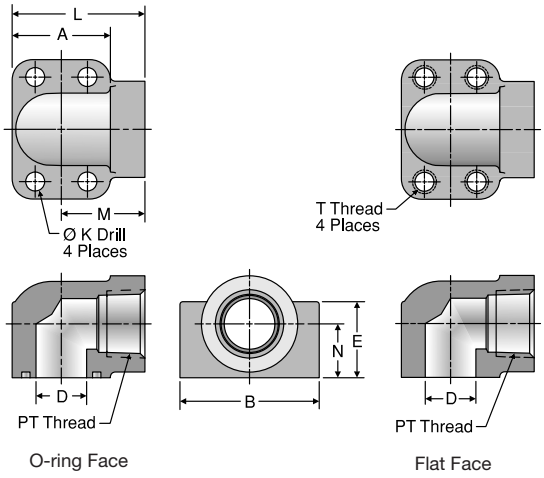
NPTF Port Block Elbow Adapter
NPTF / Code 61 or 62 Block Flange or Pad



TUBE FITTING PART #		PT THREAD	FLANGE SIZE	A	B	D	E	K DRILL DIA.	L	M	N	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	NPTF	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX	-SS
NPTF PORT / CODE 61 BLOCK FLANGE OR PAD															
12GEQ1B	**12GEQ1P**	3/4 - 14	0.75	1.69	2.56	0.75	1.25	0.406	2.28	1.440	0.875	3/8-16	3/8-16 x 2.00	4.0	
16GEQ1B	**16GEQ1P**	1 - 11 1/2	1.00	1.94	2.75	1.00	1.50	0.406	2.62	1.660	1.062	3/8-16	3/8-16 x 2.25	4.0	
20GEQ1B	**20GEQ1P**	1 1/4 - 11 1/2	1.25	2.19	3.12	1.25	1.81	0.469	3.00	1.910	1.188	7/16-14	7/16-14 x 2.75	2.7	
24GEQ1B	**24GEQ1P**	1 1/2 - 11 1/2	1.50	2.56	3.69	1.50	2.00	0.531	3.33	2.050	1.312	1/2-13	1/2-13 x 3.00	2.5	
32GEQ1B	**32GEQ1P**	2 - 11 1/2	2.00	3.06	4.33	2.00	2.50	0.531	3.81	2.280	1.656	1/2-13	1/2-13 x 3.50	1.7	
NPTF PORT / CODE 62 BLOCK FLANGE OR PAD															
12GEQ2B	**12GEQ2P**	3/4 - 14	0.75	1.94	2.75	0.75	1.50	0.406	2.62	1.660	1.062	3/8-16	3/8-16 x 2.25	5.5	
16GEQ2B	**16GEQ2P**	1 - 11 1/2	1.00	2.19	3.12	1.00	1.81	0.469	3.00	1.910	1.188	7/16-14	7/16-14 x 2.50	5.0	
20GEQ2B	**20GEQ2P**	1 1/4 - 11 1/2	1.25	2.56	3.69	1.25	2.00	0.531	3.32	2.050	1.312	1/2-13	1/2-13 x 3.00	3.5	
24GEQ2B	**24GEQ2P**	1 1/2 - 11 1/2	1.50	3.06	4.33	1.50	2.50	0.656	3.81	2.280	1.656	5/8-11	5/8-11 x 3.50	3.0	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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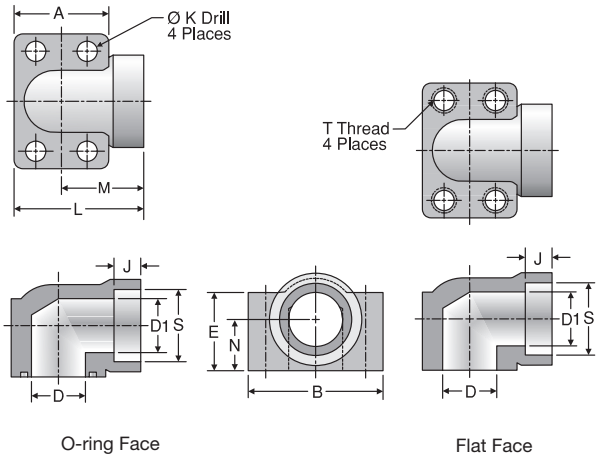
W6EQ

Weld Socket Block Elbow Connector, Tube
Weld Socket, Tube / Code 61 or 62 Block Flange or Pad



O-ring Face

Flat Face

TUBE FITTING PART #		TUBE O.D.	FLANGE SIZE	A	B	D	D1	E	J	K DRILL DIA.	L	M	N	S	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)	
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SX	-SS
WELD SOCKET, TUBE / CODE 61 BLOCK FLANGE OR PAD																		
12W6EQ1B	**12W6EQ1P**	3/4	0.75	1.69	2.56	0.75	0.63	1.25	0.312	0.406	2.280	1.44	0.875	0.752	3/8-16	3/8-16 x 2.00	5.0	
16-12W6EQ1B	**16-12W6EQ1P**	1	0.75	1.69	2.56	0.75	0.75	1.25	0.438	0.406	2.280	1.44	0.875	1.002	3/8-16	3/8-16 x 2.00	5.0	
16W6EQ1B	**16W6EQ1P**	1	1.00	1.94	2.75	1.00	0.88	1.50	0.438	0.406	2.620	1.66	1.062	1.002	3/8-16	3/8-16 x 2.25	5.0	
20-16W6EQ1B	**20-16W6EQ1P**	1 1/4	1.00	1.94	2.75	1.00	1.00	1.50	0.500	0.406	2.620	1.66	1.062	1.252	3/8-16	3/8-16 x 2.25	5.0	
20W6EQ1B	**20W6EQ1P**	1 1/4	1.25	2.19	3.12	1.25	1.13	1.81	0.500	0.469	3.000	1.91	1.188	1.252	7/16-14	7/16-14 x 2.75	4.0	
24-20W6EQ1B	**24-20W6EQ1P**	1 1/2	1.25	2.19	3.12	1.25	1.25	1.81	0.562	0.469	3.000	1.91	1.188	1.502	7/16-14	7/16-14 x 2.75	4.0	
24W6EQ1B	**24W6EQ1P**	1 1/2	1.50	2.56	3.69	1.50	1.38	2.00	0.562	0.531	3.328	2.05	1.312	1.502	1/2-13	1/2-13 x 3.00	3.0	
28-24W6EQ1B	**28-24W6EQ1P**	1 3/4	1.50	2.56	3.69	1.50	1.50	2.00	0.562	0.531	3.328	2.05	1.312	1.752	1/2-13	1/2-13 x 3.00	3.0	
32W6EQ1B	**32W6EQ1P**	2	2.00	3.06	4.33	2.00	1.88	2.50	0.625	0.531	3.812	2.28	1.656	2.002	1/2-13	1/2-13 x 3.50	3.0	
36-32W6EQ1B	**36-32W6EQ1P**	2 1/4	2.00	3.06	4.33	2.00	2.00	2.50	0.625	0.531	3.812	2.28	1.656	2.252	1/2-13	1/2-13 x 3.50	3.0	
WELD SOCKET, TUBE / CODE 62 BLOCK FLANGE OR PAD																		
12W6EQ2B	**12W6EQ2P**	3/4	0.75	1.94	2.75	0.75	0.63	1.50	0.560	0.406	2.620	1.66	1.062	0.752	3/8-16	3/8-16 x 2.25	6.0	
16-12W6EQ2B	**16-12W6EQ2P**	1	0.75	1.94	2.75	0.75	0.75	1.50	0.620	0.406	2.620	1.66	1.062	1.002	3/8-16	3/8-16 x 2.25	6.0	
16W6EQ2B	**16W6EQ2P**	1	1.00	2.19	3.12	1.00	0.88	1.81	0.620	0.469	3.000	1.91	1.188	1.002	7/16-14	7/16-14 x 2.50	6.0	
20-16W6EQ2B	**20-16W6EQ2P**	1 1/4	1.00	2.19	3.12	1.00	1.00	1.81	0.690	0.469	3.000	1.91	1.188	1.252	7/16-14	7/16-14 x 2.50	6.0	
20W6EQ2B	**20W6EQ2P**	1 1/4	1.25	2.56	3.69	1.25	1.13	2.00	0.690	0.531	3.320	2.05	1.312	1.252	1/2-13	1/2-13 x 3.00	6.0	
24-20W6EQ2B	**24-20W6EQ2P**	1 1/2	1.25	2.56	3.69	1.25	1.25	2.00	0.750	0.531	3.320	2.05	1.312	1.502	1/2-13	1/2-13 x 3.00	6.0	
24W6EQ2B	**24W6EQ2P**	1 1/2	1.50	3.06	4.33	1.50	1.38	2.50	0.750	0.656	3.810	2.28	1.656	1.502	5/8-11	5/8-11 x 3.50	6.0	
28-24W6EQ2B	**28-24W6EQ2P**	1 3/4	1.50	3.06	4.33	1.50	1.50	2.50	0.750	0.656	3.810	2.28	1.656	1.752	5/8-11	5/8-11 x 3.50	6.0	

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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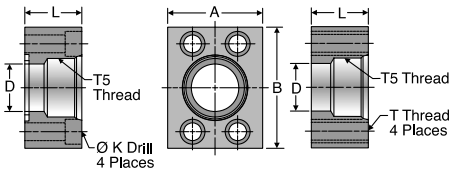
G5Q – Stainless Steel

SAE Port Block Flange Adapter
SAE Port / Code 61 or 62 Block Flange



O-ring Face Flat Face

TUBE FITTING PART #		SAE PORT DASH SIZE	FLANGE SIZE (in.)	A (in.)	B (in.)	D (in.)	K DRILL DIA. (in.)	L (in.)	T5 STRAIGHT THREAD UN-2B	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)
O-ring FACE	FLAT FACE									SHCS	-SS
SAE PORT / CODE 61 FLANGE BLOCK											
8G5Q1B	*	8	0.50	1.50	2.12	0.50	0.344	1.20	3/4-16	5/16-18 x 1.25	5.0
12G5Q1B	*	12	0.75	1.75	2.62	0.75	0.406	1.20	1 1/16-12	3/8-16 x 1.50	5.0
16G5Q1B	*	16	1.00	2.00	2.82	1.00	0.406	1.45	1 5/16-12	3/8-16 x 1.50	5.0
20G5Q1B	*	20	1.25	2.50	3.19	1.25	0.469	1.45	1 5/8-12	7/16-14 x 1.75	4.0
24G5Q1B	*	24	1.50	2.75	3.75	1.50	0.531	1.70	1 7/8-12	1/2-13 x 2.00	3.0
32G5Q1B	*	32	2.00	3.25	4.00	2.00	0.531	1.70	2 1/2-12	1/2-13 x 2.00	
SAE PORT / CODE 62 FLANGE BLOCK											
8G5Q2B	*	8	0.50	1.75	2.22	0.50	0.344	0.95	3/4-16	5/16-18 x 1.25	6.0
12G5Q2B	*	12	0.75	2.00	2.81	0.75	0.406	1.20	1 1/16-12	3/8-16 x 1.50	6.0
16G5Q2B	*	16	1.00	2.25	3.19	1.00	0.469	1.45	1 5/16-12	7/16-14 x 1.75	6.0
20G5Q2B	*	20	1.25	2.75	3.75	1.25	0.531	1.45	1 5/8-12	1/2-13 x 1.75	6.0
24G5Q2B	*	24	1.50	3.25	4.50	1.50	0.656	1.70	1 7/8-12	5/8-11 x 2.00	5.0
32G5Q2B	*	32	2.00	4.00	5.25	2.00	0.781	1.70	2 1/2-12	3/4-10 x 2.25	3.0

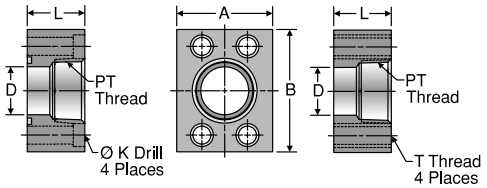
* Consult factory.

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

GQ – Stainless Steel

NPTF Port Block Flange Adapter
NPTF Port / Code 61 or 62 Block Flange



O-ring Face Flat Face

TUBE FITTING PART #		PT THREAD	FLANGE SIZE	A	B	D	K DRILL DIA.	L	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)
O-ring FACE	FLAT FACE	NPTF	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	SHCS	-SS
NPTF PORT / CODE 61 BLOCK FLANGE										
8GQ1B	*	1/2-14	0.50	1.50	2.12	0.50	0.344	1.20	5/16-18 x 1.75	5.0
12GQ1B	*	3/4-14	0.75	1.75	2.62	0.75	0.406	1.20	3/8-16 x 2.00	5.0
16GQ1B	*	1-11 1/2	1.00	2.00	2.82	1.00	0.406	1.45	3/8-16 x 2.25	5.0
20GQ1B	*	1 1/4-11 1/2	1.25	2.50	3.19	1.25	0.469	1.45	7/16-14 x 2.25	4.0
24GQ1B	*	1 1/2-11 1/2	1.50	2.75	3.75	1.50	0.531	1.70	1/2-13 x 2.50	3.0
32GQ1B	*	2-11 1/2	2.00	3.25	4.00	2.00	0.531	1.70	1/2-13 x 2.50	2.7
40GQ1B	*	2 1/2-8	2.50	4.00	4.50	2.50	0.531	1.95	1/2-13 x 2.75	2.5
48GQ1B	*	3-8	3.00	4.50	5.31	3.00	0.656	2.20	5/8-11 x 3.00	1.2
NPTF PORT / CODE 62 BLOCK FLANGE										
12GQ2B	*	3/4-14	0.75	2.00	2.81	0.75	0.406	1.20	3/8-16 x 2.00	6.0
16GQ2B	*	1-11 1/2	1.00	2.25	3.19	1.00	0.469	1.45	7/16-14 x 2.50	5.0
20GQ2B	*	1 1/4-11 1/2	1.25	2.75	3.75	1.25	0.531	1.45	1/2-13 x 2.50	4.0
24GQ2B	*	1 1/2-11 1/2	1.50	3.25	4.50	1.50	0.656	1.70	5/8-11 x 2.75	3.5
32GQ2B	*	2-11 1/2	2.00	4.00	5.25	2.00	0.781	1.70	3/4-10 x 3.00	3.0

* Consult factory.

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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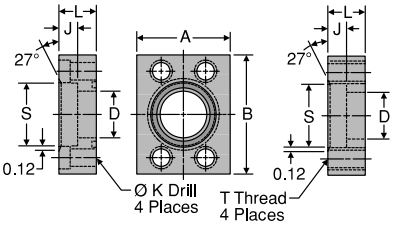
W5Q – Stainless Steel

Flat Weld Socket Block Flange Connector, Pipe
Flat Weld Socket, Pipe / Code 61 or 62
Block Flange or Pad



O-ring Face Flat Face

TUBE FITTING PART #		PIPE SIZE	FLANGE SIZE	A	B	D	J	K DRILL DIA.	L	S	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SS
FLAT WELD SOCKET, PIPE / CODE 61 BLOCK FLANGE OR PAD													
8W5Q1B	**8W5Q1P**	1/2	0.50	1.50	2.12	0.500	0.380	0.344	0.69	0.860	5/16-18	5/16-18 x 1.25	5.0
12W5Q1B	**12W5Q1P**	3/4	0.75	1.75	2.62	0.750	0.500	0.406	0.94	1.070	3/8-16	3/8-16 x 1.75	5.0
16W5Q1B	**16W5Q1P**	1	1.00	2.00	2.82	1.000	0.500	0.406	0.94	1.335	3/8-16	3/8-16 x 1.75	5.0
20W5Q1B	**20W5Q1P**	1 1/4	1.25	2.50	3.19	1.250	0.500	0.469	0.94	1.680	7/16-14	7/16-14 x 1.75	4.0
24W5Q1B	**24W5Q1P**	1 1/2	1.50	2.75	3.75	1.500	0.500	0.531	1.19	1.920	1/2-13	1/2-13 x 2.25	3.0
32W5Q1B	**32W5Q1P**	2	2.00	3.25	4.00	2.000	0.620	0.531	1.44	2.411	1/2-13	1/2-13 x 2.50	3.0
40W5Q1B	**40W5Q1P**	2 1/2	2.50	4.00	4.50	2.500	0.750	0.531	1.69	2.911	1/2-13	1/2-13 x 2.75	2.5
48W5Q1B	**48W5Q1P**	3	3.00	4.50	5.31	3.000	1.240	0.656	2.12	3.540	5/8-11	5/8-11 x 3.50	2.0
FLAT WELD SOCKET, PIPE / CODE 62 BLOCK FLANGE OR PAD													
8W5Q2B	**8W5Q2P**	1/2	0.50	1.75	2.22	0.500	0.500	0.344	0.94	0.860	5/16-18	5/16-18 x 1.50	6.0
12W5Q2B	**12W5Q2P**	3/4	0.75	2.00	2.81	0.750	0.500	0.406	0.94	1.070	3/8-16	3/8-16 x 1.75	6.0
16W5Q2B	**16W5Q2P**	1	1.00	2.25	3.19	1.000	0.500	0.469	0.94	1.335	7/16-14	7/16-14 x 1.75	6.0
20W5Q2B	**20W5Q2P**	1 1/4	1.25	2.75	3.75	1.250	0.500	0.531	1.19	1.672	1/2-13	1/2-13 x 2.25	6.0
24W5Q2B	**24W5Q2P**	1 1/2	1.50	3.25	4.50	1.500	0.500	0.656	1.44	1.920	5/8-11	5/8-11 x 2.75	6.0
32W5Q2B	**32W5Q2P**	2	2.00	4.00	5.25	2.000	0.620	0.781	1.69	2.411	3/4-10	3/4-10 x 3.00	6.0
40W5Q2B	**40W5Q2P**	2 1/2	2.50	5.00	6.88	2.500	0.620	0.906	1.94	2.911	7/8-9	7/8-9 x 3.50	6.0
48W5Q2B	**48W5Q2P**	3	3.00	6.00	8.50	3.000	0.620	1.156	2.44	3.540	1 1/8-7	1 1/8-7 x 4.50	6.0

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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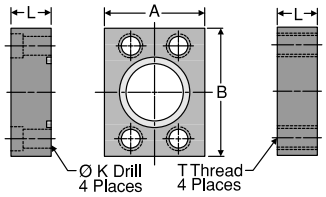
PQ – Stainless Steel

Block Plug
Code 61/62 Block Flange or Pad Plug



O-ring Face Flat Face

TUBE FITTING PART #		FLANGE SIZE	A	B	K DRILL DIA.	L	T THREAD	MOUNTING HARDWARE	Dynamic Pressure (x 1,000 PSI)
O-ring FACE	FLAT FACE	(in.)	(in.)	(in.)	(in.)	(in.)	UNC-2B	SHCS	-SS
CODE 61 BLOCK FLANGE OR PAD PLUG									
8PQ1B	**8PQ1P**	0.50	1.500	2.120	0.344	1.20	5/16-18	5/16-18 x 2.00	5.0
12PQ1B	**12PQ1P**	0.75	1.750	2.620	0.406	1.20	3/8-16	3/8-16 x 2.00	5.0
16PQ1B	**16PQ1P**	1.00	2.000	2.820	0.406	1.45	3/8-16	3/8-16 x 2.25	5.0
20PQ1B	**20PQ1P**	1.25	2.500	3.190	0.469	1.45	7/16-14	7/16-14 x 2.25	4.0
24PQ1B	**24PQ1P**	1.50	2.750	3.750	0.531	1.70	1/2-13	1/2-13 x 2.50	3.0
32PQ1B	**32PQ1P**	2.00	3.250	4.000	0.531	1.70	1/2-13	1/2-13 x 2.50	3.0
40PQ1B	**40PQ1P**	2.50	4.000	4.500	0.531	1.95	1/2-13	1/2-13 x 2.75	2.5
48PQ1B	**48PQ1P**	3.00	4.500	5.310	0.656	2.20	5/8-11	5/8-11 x 3.00	2.0
CODE 62 BLOCK FLANGE OR PAD PLUG									
8PQ2B	**8PQ2P**	0.50	1.750	2.220	0.344	0.94	5/16-18	5/16-18 x 1.50	6.0
12PQ2B	**12PQ2P**	0.75	2.000	2.810	0.406	1.19	3/8-16	3/8-16 x 2.00	6.0
16PQ2B	**16PQ2P**	1.00	2.250	3.190	0.492	1.44	7/16-14	7/16-14 x 2.25	6.0
20PQ2B	**20PQ2P**	1.25	2.750	3.750	0.531	1.44	1/2-13	1/2-13 x 2.50	6.0
24PQ2B	**24PQ2P**	1.50	3.250	4.500	0.656	1.69	5/8-11	5/8-11 x 2.75	6.0
32PQ2B	**32PQ2P**	2.00	4.000	5.250	0.781	1.69	3/4-10	3/4-10 x 3.00	6.0
40PQ2B	**40PQ2P**	2.50	5.000	6.880	0.906	1.94	7/8-9	7/8-9 x 3.50	6.0
48PQ2B	**48PQ2P**	3.00	6.000	8.500	1.190	2.44	1 1/8-7	1 1/8-7 x 3.75	6.0

To receive mounting hardware with flange, insert a “K” after the material designator. Mounting hardware kits are available for O-ring Face part numbers and include 4 bolts, 4 lock washers and an O-ring.

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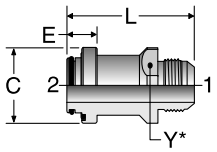
XHQ4O

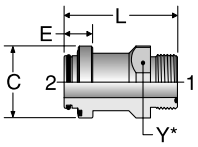
Dual Seal Flange Connector
Dual Seal / 37° Flare



TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 DUAL SEAL	C (in.)	D1 DRILL (in.)	D2 DRILL (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -SS
8 XHQ4O	1/2	1/2	1.25	0.391	0.391	0.69	2.98	1.00	7.2
16 XHQ4O	1	1	1.88	0.844	0.844	0.75	3.18	1.63	4.8
24 XHQ4O	1 1/2	1 1/2	2.50	1.310	1.310	1.00	4.00	2.13	3.6

LOHQ4O

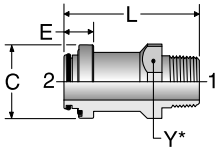
Dual Seal Flange Connector
Dual Seal / ORFS



TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 DUAL SEAL	C (in.)	D1 DRILL (in.)	D2 DRILL (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -SS
8 LOHQ4O	1/2	1/2	1.25	0.374	0.374	0.69	2.83	1.00	7.5
16 LOHQ4O	1	1	1.88	0.807	0.807	0.75	2.96	1.63	6.0
24 LOXHQ4O	1 1/2	1 1/2	2.50	1.260	1.260	1.00	3.61	2.13	5.0

FHQ4O

Dual Seal Flange Connector
Dual Seal / Male NPTF



TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 DUAL SEAL	C (in.)	D1 DRILL (in.)	D2 DRILL (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -SS
8 FHQ4O	1/2	1/2	1.25	0.500	0.500	0.69	3.18	1.00	7.2
16 FHQ4O	1	1	1.88	0.938	0.938	0.75	3.45	1.63	5.4
24 FHQ4O	1 1/2	1 1/2	2.50	1.312	1.312	1.00	4.10	2.13	3.6

Dimensions and pressures for reference only, subject to change.

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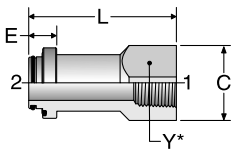
GHQ4O

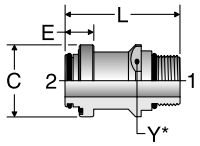
Dual Seal Flange Connector
Dual Seal / Female NPTF



TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 DUAL SEAL	C (in.)	D1 DRILL (in.)	D2 DRILL (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -SS
8 GHQ4O	1/2	1/2	1.25	0.500	0.500	0.69	2.96	1.00	6.0
16 GHQ4O	1	1	1.88	0.938	0.938	0.75	3.94	1.63	3.6
24 GHQ4O	1 1/2	1 1/2	2.50	1.312	1.312	1.00	4.81	2.25	3.0

F5OHQ4O

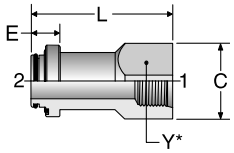
Dual Seal Flange Connector
Dual Seal / Male SAE-ORB



TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 DUAL SEAL	C (in.)	D1 DRILL (in.)	D2 DRILL (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -SS
8 F5OHQ4O	1/2	1/2	1.25	0.394	0.394	0.69	2.87	1.00	6.0
16 F5OHQ4O	1	1	1.88	0.844	0.844	0.75	3.00	1.63	6.0
24 F5OHQ4O	1 1/2	1 1/2	2.50	1.312	1.312	1.00	3.65	2.17	5.0

G5HQ4O

Dual Seal Flange Connector
Dual Seal / Female SAE-ORB



TUBE FITTING PART #	END SIZE 1 (in.)	END SIZE 2 DUAL SEAL	C (in.)	D1 DRILL (in.)	D2 DRILL (in.)	E (in.)	L (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -SS
8 G5HQ4O	1/2	1/2	1.25	0.406	0.406	0.69	2.77	1.00	5.0
16 G5HQ4O	1	1	1.88	0.938	0.938	0.75	3.72	1.63	3.5
24 G5HQ4O	1 1/2	1 1/2	2.50	1.312	1.312	1.00	4.59	2.25	2.5

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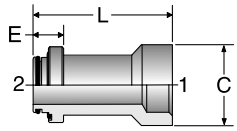
W7HQ4O

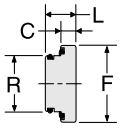
Dual Seal Flange Connector
Dual Seal / Socket Weld Pipe



TUBE FITTING PART #	END SIZE 1 PIPE	END SIZE 2 DUAL SEAL	C (in.)	D1 DRILL (in.)	D2 DRILL (in.)	E (in.)	L (in.)	Dynamic Pressure (x 1,000 PSI) -SS
8 W7HQ4O	1/2	1/2	1.25	0.406	0.406	0.69	2.64	7.5
16 W7HQ4O	1	1	1.88	0.938	0.938	0.75	3.44	7.5
24 W7HQ4O	1 1/2	1 1/2	2.50	1.312	1.312	1.00	4.43	7.5

PQ4O

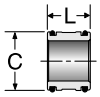
Dual Seal Flange Connector
Dual Seal Plug



TUBE FITTING PART #	END SIZE 2 DUAL SEAL	F (in.)	C (in.)	L (in.)	R (in.)	Dynamic Pressure (x 1,000 PSI) -SS
8 PQ4O	1/2	1.25	0.31	0.69	0.75	7.5
16 PQ4O	1	1.88	0.38	0.75	1.37	7.5
24 PQ4O	1 1/2	2.50	0.50	1.00	1.75	7.5

Q4 Insert

Dual Seal Flange Insert



TUBE FITTING PART #	END SIZE 2 DUAL SEAL	L (in.)	C (in.)	Dynamic Pressure (x 1,000 PSI) -SS
8 Q4 INSERT	1/2	1.00	0.75	7.5
16 Q4 INSERT	1	1.00	1.37	7.5
24 Q4 INSERT	1 1/2	1.00	1.74	7.5

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DIAGNOSTIC, ORIFICE, BLEED ADAPTERS & SPECIALTY FITTINGS

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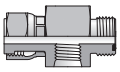
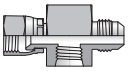
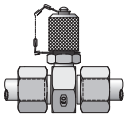
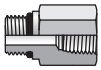
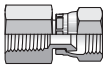
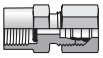
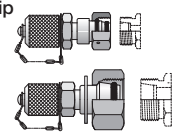
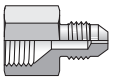
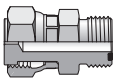
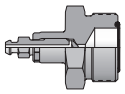
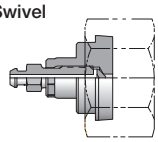
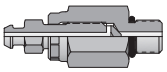
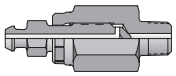
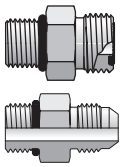
Diagnostic Tees	**LOHL6G5TP** ORFS Swivel / ORFS / SAE-ORB  L5	**XHX6G5TP** 37° Swivel / 37° Flare / SAE-ORB  L5	**GMA3** EO Tube / EO Tube / EMA-3 Diagnostic Tip  L5	**Diagnostic Tee Port Adapters and Plugs**	**F5OG** SAE-ORB / NPTF  E15
P5ON Hex Head Plug  E28	**HP5ON** Hollow Hex Plug  E28	**NPT / SAE-ORB Pressure Gauge Adapters**	**G5L** SAE-ORB Gauge / ORFS  L7	**G65L** SAE-ORB Gauge / ORFS Swivel  L7	**GLO** NPT Gauge / ORFS  L7
G6L NPT Gauge / ORFS Swivel  L7	**GTX** NPT Gauge / 37° Flare  L7	**G6X** NPT Gauge / 37° Swivel  L7	**BSP Pressure Gauge Adapters**	**MAVE** BSPP Gauge / EO Swivel  L6	**MAV** BSPP Gauge / EO  L6
G4MXSMO BSPP Gauge / 37° Flare  L6	**G4MLOSMO** BSPP Gauge / ORFS  L6	**Swivel Tube Adapters**	**VKA3** EO Swivel / Diagnostic Tip  L8	**Orifice Fittings**	**XHX7** 37° Seat / 37° Flare with Orifice  L9
LOHL6 ORFS Swivel with Orifice / ORFS  L9	**ORFS / Port Bleed Adapters**	**PNLOBA** Bleed Screw / ORFS  L10	**FNLBA** Bleed Screw / ORFS Swivel  L10	**P5ONBA** Bleed Screw / SAE-ORB  L10	**HPBA** Bleed Screw / NPT  L10
Screen Fittings	Screen Fittings  L11				

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Introduction

Parker offers a line of specialty-type adapters specifically designed for diagnostic, fixed flow control and bleeding applications.

Diagnostic products consist of a line of in-line diagnostic tees, pressure gauge connectors and diagnostic tips. These products have been developed to work in conjunction with electronic diagnostic products available from Parker's Quick Coupling Division and other mechanical pressure and temperature sensing equipment. Some products can be used for fluid sampling and bleeding purposes as well.

Parker offers a standard and custom line of fixed flow control orifice fittings. These products are available as standard in two Parker product series — ORFS and 37° flare, and as a custom option in virtually any orifice size, fitting series, size, material and configuration.

Parker's bleed adapters provide a quick, clean, and simple method of bleeding entrapped air from hydraulic systems. A common problem in hydraulic systems is trapped air and the subsequent spillage of hydraulic oil while removing components to bleed air from lines under pressure.

Parker offers a limited line of PTT (Parker Triple Thread) 30° flare adapters for transportation markets. Lastly, Parker offers a line of screen fittings as a final measure of protection.

Fig. L1 — Parker offers a full line of diagnostic, orifice, bleed adapters and specialty fittings

Diagnostic Fittings and Adapters

In-Line Diagnostic Tees

Features

- Designed around the two most common hydraulic tube/hose interfaces: O-ring face seal (Parker Seal-Lok) and 37° flare (JIC / Parker Triple-Lok) (see A)
- ORFS and 37° flare swivel feature offers unlimited positioning without displacing port adapter (see B)
- Uses elastomeric sealing: SAE –4 (7/16-20 UNF) port as universal diagnostic port per SAE J1926-1 / ISO 11926 (see C)
- Enlarged and lengthened body hex ensures that diagnostic port offers full thread engagement and pressure capability (see D)
- Adaptable to Parker's line of diagnostic and fluid sampling tips including: EMA3, PD and PDFS, as well as various direct connecting electronic/mechanical pressure gauges*
- Designed to complement Parker's line of Senso-Control® and Senso-Node diagnostic equipment

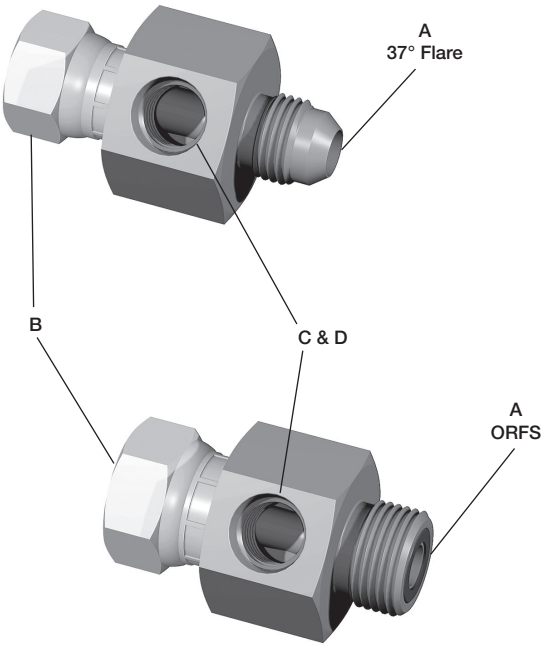

Fig. L2 — Parker's XHX6G5TP (top) and LOHL6G5TP (bottom) in-line diagnostic tees

***Diagnostic and sampling tips EMA3, PD and PDFS series are available from Parker's Quick Coupling Division (tel. 763-544-7781 and/or www.parker.com/quickcouplings)**

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Applications

- In-line pressure and temperature measurements
- In-line oil sampling to evaluate hydraulic contamination, caused by problems with filtration or internal components
- In-field diagnostics without removal of port adapters. Simply remove hose swivel and insert in-line tee.
- Permanent or temporary OEM and MRO diagnostic applications:
  - Where traditional in-port diagnostic tips cannot be located or easily accessed
  - Where OEM diagnostic tips have not been installed
  - Non-traditional diagnostic locations (portable)
  - Where port threads are not compatible with standard diagnostic tips
- To eliminate reducer bushings and couplings typically required to neck down from larger size connections to smaller connections; e.g. reductions required for a gauge, diagnostic tip, bleed adapter, or tube/hose connection.

Assembly Instructions

The body of the diagnostic tee can be used repeatedly for 10-20 remakes at full rated pressure and assembly torque. See Tables L1 and L2 for recommended swivel nut assembly torques.

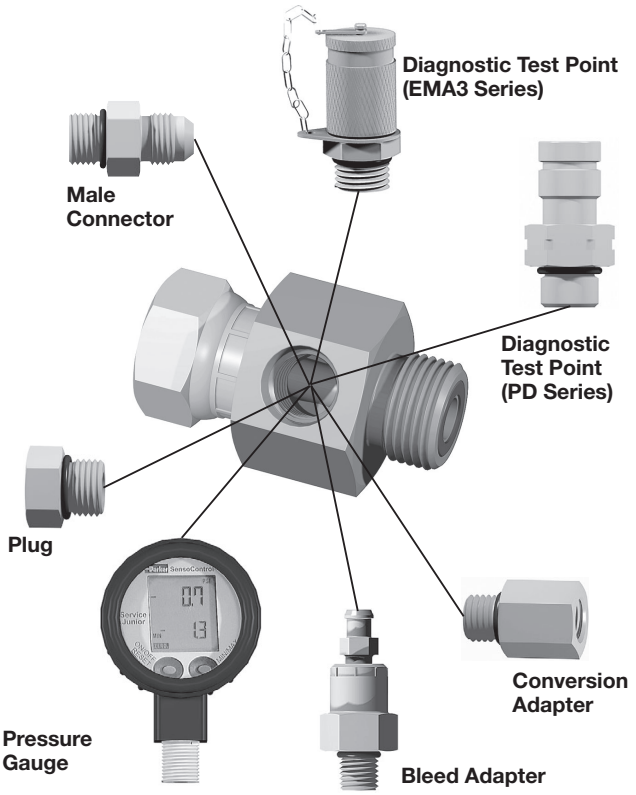

Fig. L3 — Illustration showing the versatility of Parker's diagnostic tee product line

Part Number	Assembly Torque (+10%-0)	
	in.-lb.	ft.-lb.
4-4 XHX6G5TP	130	11
6-4 XHX6G5TP	235	20
8-4 XHX6G5TP	525	43
10-4 XHX6G5TP	—	55
12-4 XHX6G5TP	—	80
16-4 XHX6G5TP	—	115
20-4 XHX6G5TP	—	160
24-4 XHX6G5TP	—	185

Note: Assembly values are for dry, unlubricated swivel nut connections

Table L1 — Assembly Torques (Swivel nut) for Diagnostic Tees

Part Number	Assembly Torque (+10%-0)	
	in.-lb.	ft.-lb.
4-4 LHL6G5TP	220	18
6-4 LHL6G5TP	360	30
8-4 LHL6G5TP	480	40
10-4 LHL6G5TP	—	60
12-4 LHL6G5TP	—	85
14-4 LHL6G5TP	—	100
16-4 LHL6G5TP	—	110
20-4 LHL6G5TP	—	150
24-4 LHL6G5TP	—	230
32-4 LHL6G5TP	—	360

Table L2 — Assembly Torques (Swivel nut) for Diagnostic Tees

Dimensions and pressures for reference only, subject to change.

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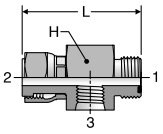
LOHL6G5TP

Gauge Port Tee
ORFS / ORFS Swivel /
SAE-ORB

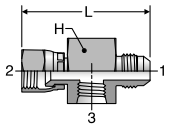


TUBE FITTING PART #	END SIZE 1 (in.)	2 (in.)	3 UN/UNF	H (in.)	L (in.)	Pressure (x 1,000 PSI) Dynamic -S
4-4 LOHL6G5TP	1/4	1/4	7/16-20	1-1/16	1.83	6.0
6-4 LOHL6G5TP	3/8	3/8	7/16-20	1-1/16	1.95	6.0
8-4 LOHL6G5TP	1/2	1/2	7/16-20	1-1/16	2.18	6.0
10-4 LOHL6G5TP	5/8	5/8	7/16-20	1-1/8	2.40	6.0
12-4 LOHL6G5TP	3/4	3/4	7/16-20	1-1/4	2.59	6.0
16-4 LOHL6G5TP	1	1	7/16-20	1-1/2	2.85	6.0
20-4 LOHL6G5TP	1 1/4	1 1/4	7/16-20	1-3/4	3.07	5.0
24-4 LOHL6G5TP	1 1/2	1 1/2	7/16-20	2-1/8	3.22	4.0

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

XHX6G5TP

Gauge Port Tee
37° Flare / 37° Swivel /
SAE-ORB

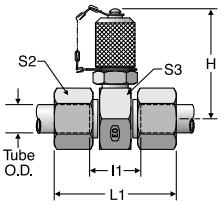


TUBE FITTING PART #	END SIZE 1 (in.)	2 (in.)	3 UN/UNF	H (in.)	L (in.)	Pressure (x 1,000 PSI) Dynamic -S
4-4 XHX6G5TP	1/4	1/4	7/16-20	1-1/16	1.99	6.0
6-4 XHX6G5TP	3/8	3/8	7/16-20	1-1/16	2.08	5.0
8-4 XHX6G5TP	1/2	1/2	7/16-20	1-1/16	2.30	5.0
10-4 XHX6G5TP	5/8	5/8	7/16-20	1-1/8	2.49	5.0
12-4 XHX6G5TP	3/4	3/4	7/16-20	1-1/4	2.66	5.0
16-4 XHX6G5TP	1	1	7/16-20	1-1/2	2.99	4.0
20-4 XHX6G5TP	1 1/4	1 1/4	7/16-20	1-3/4	3.33	4.0
24-4 XHX6G5TP	1 1/2	1 1/2	7/16-20	2	3.71	2.5

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

GMA3

Diagnostic Tip
EO Tube / EO Tube /
M16 x 2.0 Integrated Tip



TUBE FITTING PART #	END SIZE (mm)	H (mm)	l 1 (mm)	L1 (mm)	S2 (mm)	S3 (mm)	Pressure (x 1,000 PSI) Dynamic CF
GMA3/06L	6	49	21	51	14	24	4.5
GMA3/08L	8	49	21	51	17	24	4.5
GMA3/10L	10	49	23	53	19	24	4.5
GMA3/12L	12	50	23	53	22	27	4.5
GMA3/15L	15	52	25	55	27	30	4.5
GMA3/18L	18	53	24	57	32	32	4.5
GMA3/22L	22	55	28	61	36	36	2.3
GMA3/28L	28	57	28	61	41	41	2.3
GMA3/35L	35	60	26	69	50	46	2.3
GMA3/42L	42	64	25	71	60	55	2.3
GMA3/06S	6	49	25	55	17	24	9.1
GMA3/08S	8	49	25	55	19	24	9.1
GMA3/10S	10	49	24	57	22	24	9.1
GMA3/12S	12	49	24	57	24	24	9.1
GMA3/14S	14	50	27	63	27	27	9.1
GMA3/16S	16	52	26	63	30	30	5.8
GMA3/20S	20	55	26	69	36	36	5.8
GMA3/25S	25	57	27	75	46	41	5.8
GMA3/30S	30	60	28	81	50	46	5.8
GMA3/38S	38	64	29	91	60	55	4.5

To specify EO-2, add "Z" between tube size and series.
Example: GMA3/28ZCF

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BSPP Diagnostic Pressure Gauge Adapters

Parker's BSPP direct-connect pressure gauge adapters are available in the most common tube/hose connections — O-ring face seal, 37° Flare (JIC) and 24° Metric Flareless (DIN 2353). European pressure gauges often utilize BSPP threads on the pressure gauges (manometers). Sealing is achieved at the bottom of the port with a sealing washer as shown in Fig. L4.

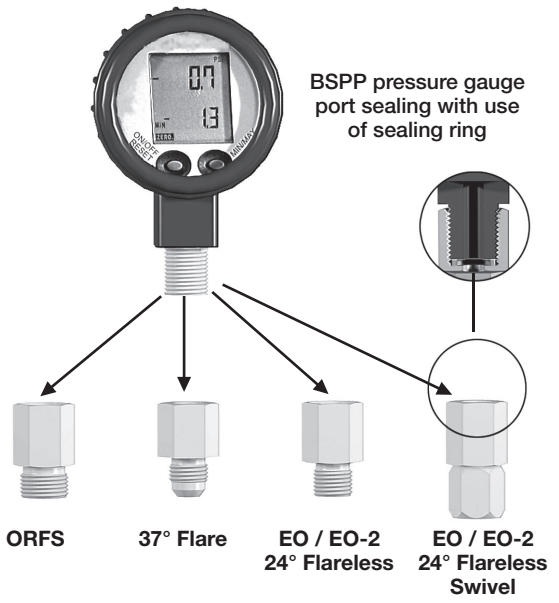
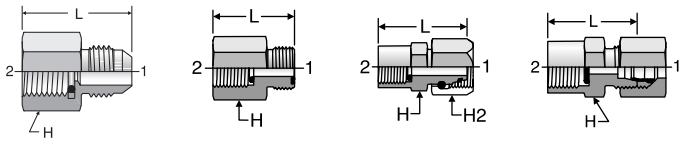


Fig. L4 — BSPP pressure gauge connections

BSPP Pressure Gauge Adapters



G4MXSMO (Type A) | **G4MLOSMO** (Type B) | **MAVE*** (Type C) | **MAV**** (Type D)

TUBE FITTING PART #	TYPE	END SIZE 1 (in.)	END SIZE 2 BSPP	L (mm)	H BODY HEX (mm)	H2 NUT HEX (mm)	Pressure (x 1,000 PSI) Dynamic S
4-4G4MXSMO	A	1/4	1/4-19	31.0	17	—	5.0
6G4MXSMO	A	3/8	1/4-19	28.0	17	—	5.0
8-4G4MXSMO	A	1/2	1/4-19	31.0	19	—	5.0
4-4G4MLOSMO	B	1/4	1/4-19	26.8	17	—	5.0
6G4MLOSMO	B	3/8	1/4-19	28.2	19	—	5.0
8-4G4MLOSMO	B	1/2	1/4-19	29.8	22	—	5.0
		1 (mm)	2 BSPP				Dynamic CF
MAVE06LR	C	6	1/4-19	35.5	19	14	4.6
MAVE08LR	C	8	1/4-19	35.5	19	17	4.6
MAVE10LR	C	10	1/4-19	36.0	19	19	4.6
MAVE06SR	C	6	1/2-14	42.5	27	17	9.1
MAVE08SR	C	8	1/2-14	43.0	27	19	9.1
MAVE10SR	C	10	1/2-14	43.5	27	22	9.1
MAVE12SR	C	12	1/2-14	45.0	27	24	9.1
MAVE06SR1/4	C	6	1/4-19	35.5	19	17	9.1
MAVE08SR1/4	C	8	1/4-19	35.5	19	19	9.1
MAVE10SR1/4	C	10	1/4-19	39.0	19	22	9.1
MAVE12SR1/4	C	12	1/4-19	39.0	19	24	9.1
MAV04LLR	D	4	1/4-19	33.0	19	10	1.4
MAV06LR	D	6	1/4-19	37.0	19	14	4.5
MAV08LR	D	8	1/4-19	37.0	19	17	4.5
MAV10LR	D	10	1/4-19	38.0	19	19	4.5
MAV12LR	D	12	1/4-19	38.0	19	22	4.5
MAV06SR	D	6	1/2-14	46.0	27	17	9.1
MAV08SR	D	8	1/2-14	46.0	27	19	9.1
MAV10SR	D	10	1/2-14	47.0	27	22	9.1
MAV12SR	D	12	1/2-14	47.0	27	24	9.1

Note: MAV supplied as standard with PSR +M nut (EO assembled)

* MAVE has two seals. Find the replacement seals, DKI and OR, in the O-rings and Seals section

** MAV has a seal. Find the replacement seal, DKI, in the O-rings and Seals section

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NPT and SAE-ORB Diagnostic Pressure Gauge Adapters

Parker's NPT and SAE-ORB direct-connect pressure gauge adapters are available in the most common North American tube/hose connections — O-ring face seal and 37° Flare (JIC). North American pressure gauge manufacturers offer gauges primarily with NPT and some with SAE-ORB port stud options. These 37° flare and ORFS connectors are designed to attach pressure gauges to hose swivel ends or directly to run / branch tees for in-line diagnostic applications as shown on the right.

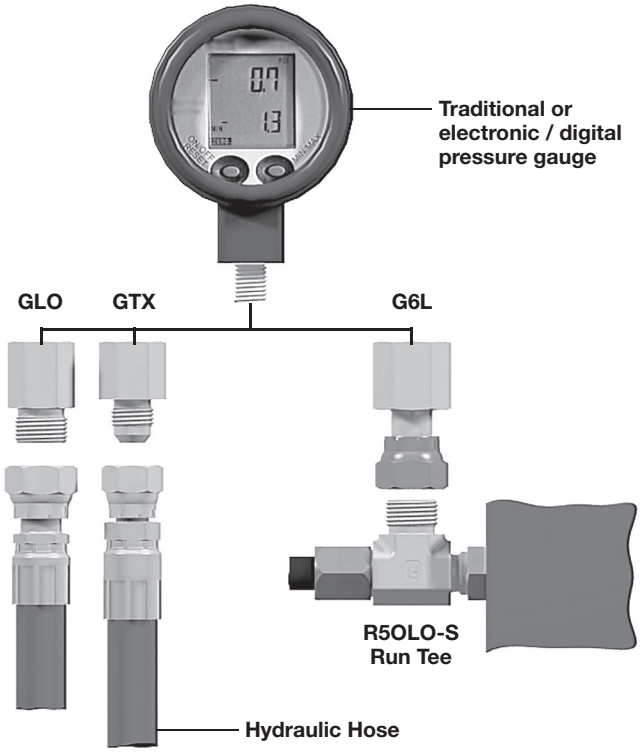
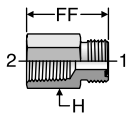
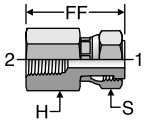


Fig. L5 — Typical applications for NPT pressure gauge adapters. Illustrations show direct hose connections and Run Tee connection.

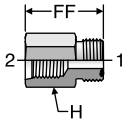
NPT / SAE Pressure Gauge Adapters



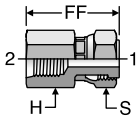
GLO
(Type A)



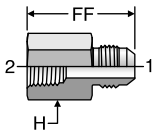
G6L
(Type B)



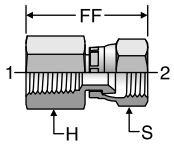
G5L
(Type C)



G65L
(Type D)



GTX
(Type E)



G6X
(Type F)

TUBE FITTING PART #	TYPE	END SIZE 1 (in.)	END SIZE 2 NPT	FF (in.)	H BODY HEX (in.)	S SWIVEL NUT HEX (in.)	Pressure (x 1,000 PSI) Dynamic -S
4-4 GLO	A	1/4	1/4-18	1.25	3/4	—	6.0
6 GLO	A	3/8	1/4-18	1.30	3/4	—	6.0
8-4 GLO	A	1/2	1/4-18	1.20	7/8	—	6.0
4-4 G6L	B	1/4	1/4-18	1.48	3/4	11/16	6.0
6 G6L	B	3/8	1/4-18	1.60	7/8	13/16	6.0
8-4 G6L	B	1/2	1/4-18	1.75	7/8	15/16	6.0
			UN/UNF				
4 G5LO	C	1/4	7/16-20	1.10	3/4	—	6.0
6-4 G5LO	C	3/8	7/16-20	1.08	3/4	—	6.0
8-4 G5LO	C	1/2	7/16-20	0.78	7/8	—	6.0
4 G65L	D	1/4	7/16-20	1.38	11/16	11/16	6.0
6-4 G65L	D	3/8	7/16-20	1.51	3/4	13/16	6.0
8-4 G65L	D	1/2	7/16-20	1.57	7/8	15/16	6.0
			NPT				
2 GTX	E	1/8	1/8-27	1.13	9/16	—	6.0
3 GTX	E	3/16	1/8-27	1.13	9/16	—	6.0
4-4 GTX	E	1/4	1/4-18	1.39	3/4	—	6.0
4 GTX	E	1/4	1/8-27	1.19	9/16	—	6.0
6-2 GTX	E	3/8	1/8-27	1.13	5/8	—	6.0
6 GTX	E	3/8	1/4-18	1.41	3/4	—	6.0
8-4 GTX	E	1/2	1/4-18	1.41	13/16	—	6.0
4-4 G6X	F	1/4	1/4-18	9/16	3/4	9/16	6.0
4 G6X	F	1/4	1/8-27	9/16	9/16	9/16	6.0
6 G6X	F	3/8	1/4-18	11/16	3/4	11/16	5.0

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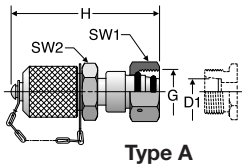
EO Diagnostic Swivels

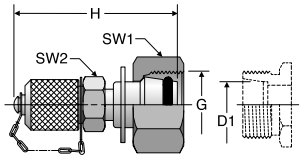
EO Diagnostic Swivels are commonly used on EO tees (24° flareless - DIN 2353) where periodic pressure and temperature checks are required. The M16 x 2 diagnostic tip mates with the SMA3 diagnostic nose offered by Parker's Quick Coupling Division.

VKA3

M16 x 2.0 Diagnostic Tip / EO Swivel



Type A



Type B

TUBE FITTING PART # STEEL	TYPE	D1 TUBE O.D. (mm)	G Metric	H REF. (mm)	SW1 (mm)	SW2 (mm)	Pressure (x 1,000 PSI) Dynamic CF
VKA3/06L	A	6	M12 x 1.5	55	17	17	4.5
VKA3/08L	A	8	M14 x 1.5	51	17	17	4.5
VKA3/10L	A	10	M16 x 1.5	53	17	19	4.5
VKA3/12L	A	12	M18 x 1.5	53	17	22	4.5
VKA3/15L	B	15	M22 x 1.5	59	17	27	4.5
VKA3/18L	B	18	M26 x 1.5	59	17	32	4.5
VKA3/22L	B	22	M30 x 2	60	17	39	2.3
VKA3/28L	B	28	M36 x 2	64	17	41	2.3
VKA3/35L	B	35	M45 x 2	71	17	50	2.3
VKA3/42L	B	42	M52 x 2	72	17	60	2.3
VKA3/06S	A	6	M14 x 1.5	50	17	17	9.1
VKA3/08S	A	8	M16 x 1.5	52	17	19	9.1
VKA3/10S	A	10	M18 x 1.5	53	17	22	9.1
VKA3/12S	A	12	M20 x 1.5	54	19	24	9.1
VKA3/14S	B	14	M22 x 1.5	59	17	27	9.1
VKA3/16S	B	16	M24 x 1.5	58	17	30	5.8
VKA3/20S	B	20	M30 x 2	65	17	36	5.8
VKA3/25S	B	25	M36 x 2	68	17	46	5.8
VKA3/30S	B	30	M42 x 2	74	17	50	5.8
VKA3/38S	B	38	M52 x 2	81	17	60	4.5

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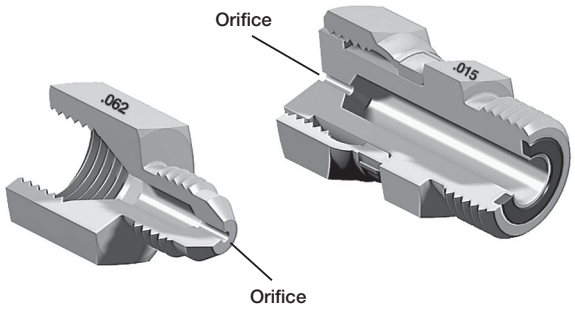
Orifice Fittings

These compact and cost effective orifice adapters allow OEMs to pre-set, at the factory, a specified orifice in specific hydraulic tube or hose lines. Costly flow control valves can be eliminated or minimized in a system by selecting the proper orifice sizes at the factory. OEMs can also be assured that end users are not adjusting the factory established flow and speed characteristics of the hydraulic system.



The Parker Advantage

- 37° flare and O-ring face seal configurations as standard
- Three standard body sizes available: 1/4" 3/8", and 1/2"
- Available in commonly accepted pre-set orifice sizes as shown on accompanying tables
- Designed for permanent or temporary installation
- Can be installed in-line into hydraulic system by simply connecting between hose swivel and adapter
- Orifice size is permanently stamped on body
- Can eliminate costly flow control valves

Applications:

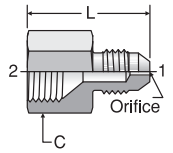
- Fixed rotation speed for hydraulic motors
- Fixed speed on cylinder extend or retract

Direct Port Orifice Fittings:

Available as a custom product, Parker also offers a line of orifice adapters that will replace a traditional port adapter.

XHX7 Orifice

In-Line Orifice Connector
37° Flare / Female 37° Seat



TUBE FITTING PART #	END SIZE 1 & 2 (in.)	C HEX (in.)	ORIFICE (in.)	L (in.)	Pressure (x 1,000 PSI) Dynamic -S
4 XHX7-S .015 Orifice	1/4	9/16	.015	1.10	5.0
4 XHX7-S .031 Orifice	1/4	9/16	.031	1.10	5.0
4 XHX7-S .047 Orifice	1/4	9/16	.047	1.10	5.0
4 XHX7-S .062 Orifice	1/4	9/16	.062	1.10	5.0
4 XHX7-S .078 Orifice	1/4	9/16	.078	1.10	5.0
4 XHX7-S .094 Orifice	1/4	9/16	.094	1.10	5.0
6 XHX7-S .015 Orifice	3/8	11/16	.015	1.18	5.0
6 XHX7-S .031 Orifice	3/8	11/16	.031	1.18	5.0
6 XHX7-S .047 Orifice	3/8	11/16	.047	1.18	5.0
6 XHX7-S .062 Orifice	3/8	11/16	.062	1.18	5.0
6 XHX7-S .078 Orifice	3/8	11/16	.078	1.18	5.0
6 XHX7-S .094 Orifice	3/8	11/16	.094	1.18	5.0
8 XHX7-S .015 Orifice	1/2	7/8	.015	1.32	5.0
8 XHX7-S .031 Orifice	1/2	7/8	.031	1.32	5.0
8 XHX7-S .047 Orifice	1/2	7/8	.047	1.32	5.0
8 XHX7-S .062 Orifice	1/2	7/8	.062	1.32	5.0
8 XHX7-S .078 Orifice	1/2	7/8	.078	1.32	5.0
8 XHX7-S .094 Orifice	1/2	7/8	.094	1.32	5.0

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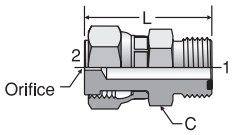
LOHL6 Orifice

In-Line Orifice Connector
ORFS Swivel / ORFS



TUBE FITTING PART #	END SIZE 1 & 2 (in.)	C HEX (in.)	ORIFICE (in.)	L (in.)	Pressure (x 1,000 PSI) Dynamic -S
4 LOHL6-S .015 Orifice	1/4	5/8	.015	1.33	9.2
4 LOHL6-S .031 Orifice	1/4	5/8	.031	1.33	9.2
4 LOHL6-S .047 Orifice	1/4	5/8	.047	1.33	9.2
4 LOHL6-S .062 Orifice	1/4	5/8	.062	1.33	9.2
4 LOHL6-S .078 Orifice	1/4	5/8	.078	1.33	9.2
4 LOHL6-S .094 Orifice	1/4	5/8	.094	1.33	9.2
6 LOHL6-S .015 Orifice	3/8	3/4	.015	1.44	9.2
6 LOHL6-S .031 Orifice	3/8	3/4	.031	1.44	9.2
6 LOHL6-S .047 Orifice	3/8	3/4	.047	1.44	9.2
6 LOHL6-S .062 Orifice	3/8	3/4	.062	1.44	9.2
6 LOHL6-S .078 Orifice	3/8	3/4	.078	1.44	9.2
6 LOHL6-S .094 Orifice	3/8	3/4	.094	1.44	9.2
8 LOHL6-S .015 Orifice	1/2	7/8	.015	1.67	9.2
8 LOHL6-S .031 Orifice	1/2	7/8	.031	1.67	9.2
8 LOHL6-S .047 Orifice	1/2	7/8	.047	1.67	9.2
8 LOHL6-S .062 Orifice	1/2	7/8	.062	1.67	9.2
8 LOHL6-S .078 Orifice	1/2	7/8	.078	1.67	9.2
8 LOHL6-S .094 Orifice	1/2	7/8	.094	1.67	9.2

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Bleed Adapters

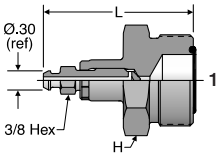
Entrapped air is a major contributor to inefficient operation. Typically, bleeding hydraulic systems is done by cracking a connection to "bleed off" the entrapped air. This practice is not recommended, especially in larger size fittings where high forces can exist. Parker's bleed adapters are especially beneficial in applications where elastomeric seals (O-rings) can be extruded and/or damaged during bleeding such as with O-ring face seal fittings.

Parker's bleed adapters are designed specifically for installation directly to ORFS (O-ring Face Seal) type fittings or into SAE/NPT manifolds and valves where bleeding is often required.

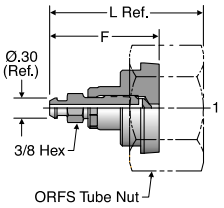
Product Characteristics

- Bleed hydraulic systems without "cracking" hydraulic connections
- Uses standard automotive bleed screw design
- Bleed screw is permanently crimped into body housing for blowout prevention
- In-port options with SAE and NPT male studs
- Tube/hose connection options to male and female ORFS

ORFS Bleed Adapters



PNLOBA



FNLBA
ORFS Tube Nut sold separately

TUBE FITTING PART #	END SIZE 1 (in.)	F (in.)	H (in.)	L (in.)	Pressure (x 1,000 PSI) Dynamic -S
4 PNLOBA	1/4	-	11/16	1.90	9.2
6 PNLOBA	3/8	-	3/4	1.97	9.2
8 PNLOBA	1/2	-	7/8	2.07	9.2
10 PNLOBA	5/8	-	1 1/16	2.19	6.0
12 PNLOBA	3/4	-	1 1/4	2.27	6.0
16 PNLOBA	1	-	1 1/2	2.35	6.0
20 PNLOBA	1 1/4	-	1 3/4	2.41	6.0
24 PNLOBA	1 1/2	-	2 1/8	2.48	5.0
8 FNLBA	1/2	1.63	15/16	2.07	9.2
10 FNLBA	5/8	1.63	1 1/8	2.17	6.0
12 FNLBA	3/4	1.63	1 3/8	2.21	6.0
16 FNLBA	1	1.63	1 5/8	2.21	6.0
20 FNLBA	1 1/4	1.63	1 7/8	2.21	6.0
24 FNLBA	1 1/2	1.63	2 1/4	2.21	5.0

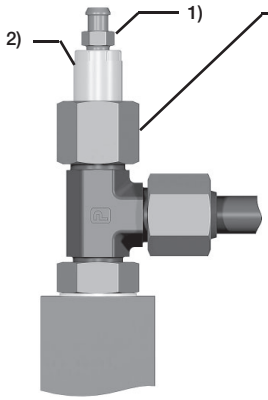
WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Bleeding Hydraulic Systems with Parker Bleed Adapters

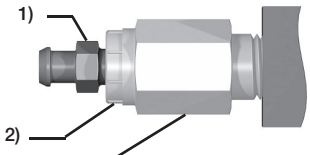
Whenever possible, the bleed adapter should be mounted at the highest point within the hydraulic system. The trapped air can be relieved while the system is running at low pressure. To bleed, loosen the bleed screw 1/2 turn counterclockwise. After the hydraulic fluid begins to run freely from the bleed screw, the bleed screw should be re-tightened.

Bleed Screw Tightening Torque: 35-40 in.-lbs.

Warning: When bleeding hydraulic fluid, operate the system below 500 psi. To avoid injury, ensure that all persons are clear of the path of discharge. Another recommended practice is to attach a section of hose over the bleed screw/adapter to direct oil away from the area and to reduce oil spillage.

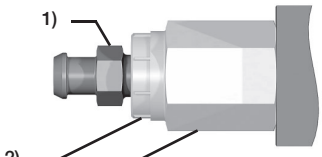


Seal-Lok Bleed Adapter
(Sizes -8 thru -24)
For use with
Seal-Lok Fittings



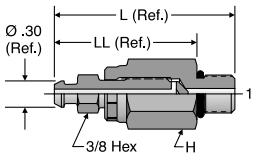
Pipe Thread Bleed Adapter
1/4 NPT
For use with Pipe Thread
Ports

Notes:
1) Standard automotive bleedscrew.
2) Locking crimp prevents screw from being completely unthreaded.

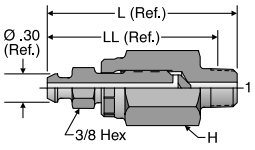


Straight Thread Bleed Adapter
Size 4 (7/16-20 UNF)
For use with SAE Straight
Thread Ports

Port Bleed Adapters



4 P5ONBA



1/4 HPBA

TUBE FITTING PART #	END SIZE 1	BODY HEX (in.)	H (in.)	L REF. (in.)	LL REF. (in.)	Pressure (x 1,000 PSI) Static -S	Pressure (x 1,000 PSI) Dynamic -S
4 P5ONBA	7/16-20 UN/UNF-2A	11/16	11/16	2.05	1.62	10.0	6.0
1/4 HPBA	1/4-18 NPTF	11/16	11/16	2.20	1.86	10.0	6.0

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

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Screen Fittings

Introduction

Parker screen fittings ensure the final measure of protection against particles that find their way into a system (even a properly filtrated one) during installation, maintenance, failure of components, or by other means. Screen fittings provide a vital safeguard for critical components against damage due to contamination. They are intended to work in conjunction with a good filtration system and are available with screens that retain particle sizes from 480 to 65 micron.

Parker screen fittings are ideal for protecting:

- Gauges and instrumentation
- Critical hydraulic components such as pump compensator load sensing controls, proportional valves, relief valves, etc.
- Precision orifices from clogging
- Expensive components in test bench circuits (against particle contamination created by failed components)

Fig. L6 — Screen Fittings.

Design and Construction

Fitting Body. Parker screen fittings utilize standard Seal-Lok O-ring face seal and Triple-Lok 37° flare fitting bodies located in Section A and B respectively in this catalog. All screen fittings are manufactured with the micron rating stamped on the fitting body.

Screen. Screen fittings are constructed with stainless-steel screen elements. Sizes -6 through -12 fittings are manufactured with a dome-style screen, while size -4 fittings are made with a basket-style screen (see Fig. L7 and L8). Table L3 displays the various micron ratings for available screens. Additionally, Parker screen fittings have bi-directional flow capacity and can be installed in either the tube or port end of the fitting. Screens are not sold separately.

Screen fittings are for last measurement of protection, not for filtration. A filter is recommended for hydraulic systems. To prevent build up of debris, screens must be replaced or cleaned when filters are replaced or during flushing of hydraulic system.

Fig. L7 — Six dome-style screens and one basket-style screen.

Square Mesh Number	Nominal Micron Rating
40	480*
60	320*
80	230
100	165*
150	125
200	100
325	65

These micron ratings are not available as standard from stock

Table L3 — Micron Ratings for available screens

Fig. L8 — Fitting cutaway with dome-style screen.

Pressure Ratings

Parker screen fittings have the same dynamic pressure ratings as the equivalent fitting body (without the screen). Refer to sections A and B for the pressure ratings for Seal-Lok O-ring face seal and Triple-Lok 37° flare fittings.

How to Order:

Please call the Tube Fittings Division for part number and ordering - 614-279-7070

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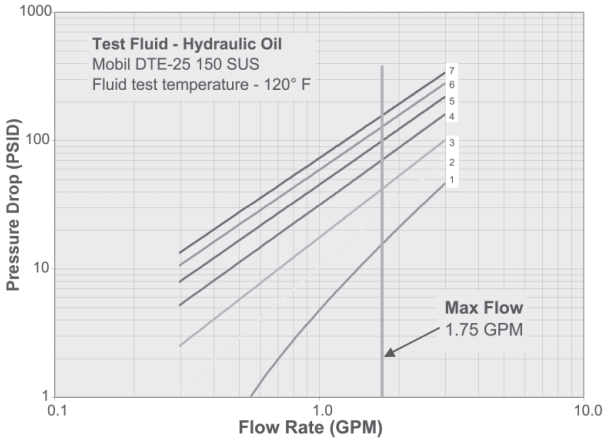
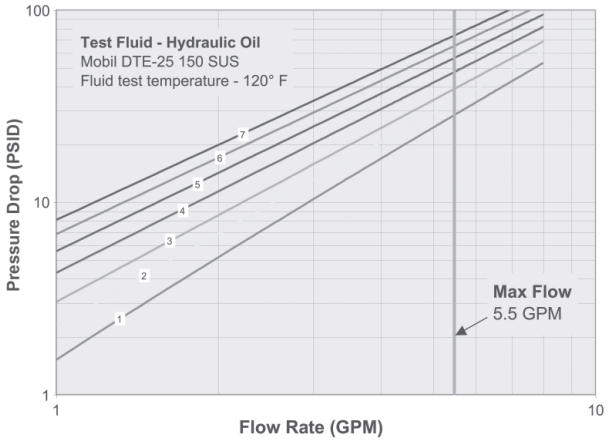
Pressure Drop

All screen fittings have been tested to determine the maximum pressure drop and screen retention. The following "Pressure Drop vs. Flow" charts were derived from actual test data and may be used as a guide in determining pressure drop at various flow rates through screen fittings for the fluid indicated.

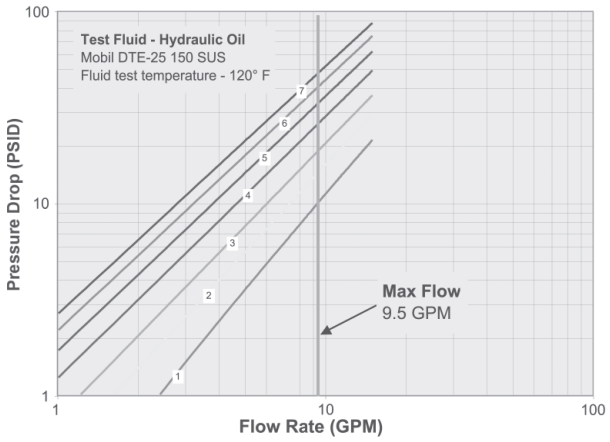
4 F5OX Screen Adapter Pressure Drop vs. Flow



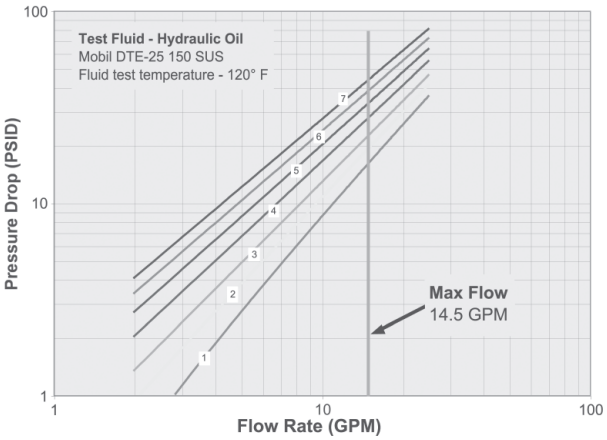
6 F5OX Screen Adapter Pressure Drop vs. Flow



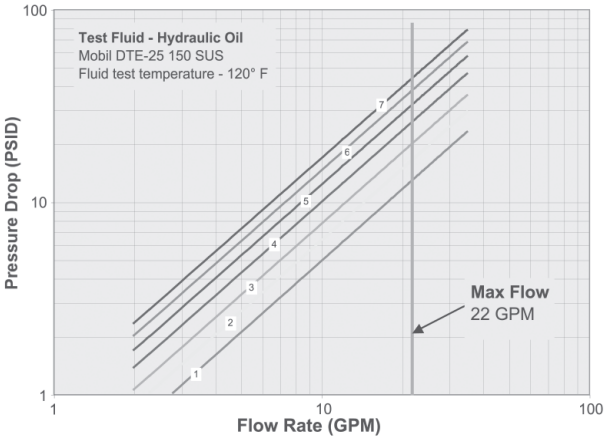
8 F5OX Screen Adapter Pressure Drop vs. Flow

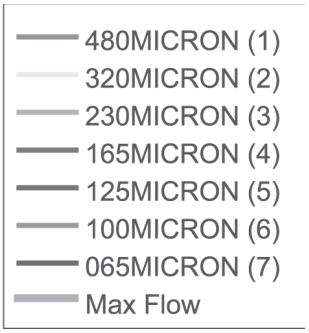


10 F5OX Screen Adapter Pressure Drop vs. Flow



12 F5OX Screen Adapter Pressure Drop vs. Flow





Refer to the General Technical Section for pressure drop data through standard fitting without screen.

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M O-RINGS & SEALS

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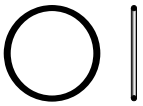
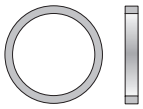
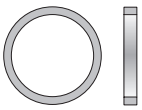
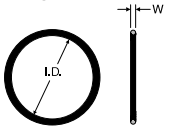
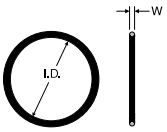
O-Ring Face Seal	**ORFS O-Ring**  M4	**XO O-Ring**  M4	**Port Ends – SAE, Metric, BSPP, JIS, K4**	**SAE O-Ring**  M4	**ISO 6149 O-Ring**  M5
Metric O-Ring  M5	**Metric Retaining Ring**  M5	**BSPP O-Ring**  M6	**BSPP Retaining Ring**  M6	**EOlastic Seal Ring**  M6	**JIS B2351 O-Ring**  M7
BSPP Bonded Seal  M7	**EO/EO-2**	**EO-2 Sealing Ring**  M7	**Pressure Gauge Sealing Ring**  M8	**EO Swivel O-Ring**  M8	**EO O-Ring**  M9
4-Bolt Flanges	**SAE 4-Bolt Flange O-Ring**  M9	**Dual Seal Flanges**	**Radial Seal O-Ring**  M9	**Flange Seal O-Ring**  M9	

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O-Ring Material Selection

Standard O-rings supplied with Parker tube fittings and adapters are 90 durometer hard nitrile (Buna-N). These O-rings are well suited for most industrial hydraulic and pneumatic systems. They have high extrusion resistance making them suitable for very high pressure static applications. Optional high temperature fluorocarbon, Parker compound #V0894, is also available for higher temperature specifications.

O-rings for other media or higher temperature applications can be selected from the following chart. The chart should be used only as a general guide. Before making final selection for a given application, it is recommended that appropriate tests be conducted to assure compatibility with the fluid, temperature, pressure and other environmental conditions.

For fluids not shown in the chart, please contact the Tube Fittings Division.

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Polymer (Abbreviation)	Recommended for	Not Recommended for	Parker Compound No.	Color	SAE J515 Type	Hardness Shore "A"	Temperature Range (°F)	Comments
Nitrile-Butadiene (NBR)	Petroleum base oils and fluids, mineral oils, ethylene glycol base fluids, silicone and di-ester base lubricants, air, water under 150°F, and natural gas.	Phosphate ester base hydraulic fluids, automotive brake fluids, strong acids, ozone, freons, ketones, halogenated hydrocarbons, and methanol.	NBR	Black	CH[2]	90	-30° to 250° F	Standard from stock
			N0674	Black	–	70	-30° to 250° F	
			N0103	Black	–	70	-65° to 225° F	
			N1059	Black	CH[2]	90	-30° to 275° F	Low compression set
			N0507	Black	–	90	-65° to 180° F	Orange identification dot
			N0304	Black	–	75	-65° to 225° F	
			N0508	Black	–	75	-35° to 250° F	Meets FDA requirements for food products
HNBR			KA183	Black	–	85	-58° to 300° F	CNG applications. Standard from stock
Fluorocarbon (FKM[5] or FPM)	Petroleum base oils and fluids, some phosphate ester base fluids, silicone and silicate ester base lubricants, di-ester base lubricants, acids and halogenated hydrocarbons.	Ketones, skydrol fluids, amines (VDMH), anhydrous ammonia, low molecular weight esters and ethers, and hot hydrofluoric or chlorosulfonic acids.	V0747	Black	–	75	-15° to 400° F	
			V0884	Brown[1]	–	75	-15° to 400° F	
			V0894	Brown[1]	HK[4]	90	-15° to 400° F	
			FKM	Brown	–	90	-15° to 400° F	Standard from stock
Ethylene-Propylene (EPDM)	Phosphate ester base hydraulic fluids, hot water, steam to 400°F, silicone oils and greases, dilute acids and alkalis, ketones, alcohols and automotive brake fluids.	Petroleum base oils and di-ester base lubricants.	E0540	Black	CA[3]	80	-65° to 275° F	
			E0893	Purple[1]	CA[3]	80	-65° to 275° F	
			E0962	Black	–	90	-65° to 275° F	CO2 climate control systems. H2 fuel cells.
Neoprene (CR)	Refrigerants (freons, ammonia), high aniline point petroleum oils, mild acids, and silicate ester lubricants.	Phosphate ester fluids and ketones.	C0873	Black	–	70	-45° to 250° F	
			C0944	Red[1]	–	70	-45° to 250° F	
Silicone (Si)	Dry heat (air to 400°F) and high aniline point oils.	Most petroleum fluids, ketones, water and steam.	S0604	Rust[1]	–	70	-65° to 450° F	

Table M1 — O-Ring Selection

1) These Parker "Chromassure" color assurance O-rings are available from the Parker Hannifin O-Ring Division. They help eliminate assembly errors, reduce warranty costs and liability risks, and assure safety in aftermarket business.
2) Formerly SAE Type I.
3) Formerly SAE Type II.
4) Formerly SAE Type III.
5) "FKM" is the ASTM designation for fluorocarbon. Its ISO designation is "FPM".

Note: Use 90 durometer hard O-rings for applications with 1500 psi or higher pressures.

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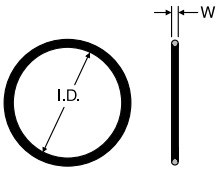
ORFS O-Ring

ORFS Tube End O-Ring

Specify size and compound
Example: 2-018 NBR (standard NBR)



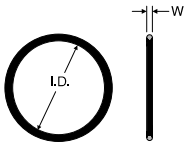
TUBE FITTING PART #	FITTING DASH SIZE	END SIZE (in.)	END SIZE (mm)	I.D. (in.)	I.D. (mm)	W (in.)	W (mm)	Material NBR*	Material FKM**	Material CNG***
2-011	4	1/4	6	0.30	7.7	0.07	1.78	•	•	•
2-012	6	3/8	8, 10	0.36	9.3	0.07	1.78	•	•	•
2-014	8	1/2	12	0.49	12.4	0.07	1.78	•	•	•
2-016	10	5/8	14, 15, 16	0.61	15.6	0.07	1.78	•	•	
2-018	12	3/4	18, 20	0.74	18.8	0.07	1.78	•	•	
2-020	14	7/8	22	0.86	21.8	0.07	1.78	•		
2-021	16	1	25	0.93	23.5	0.07	1.78	•	•	
2-025	20	1 1/4	28, 30, 32	1.18	29.9	0.07	1.78	•	•	
2-029	24	1 1/2	35, 38	1.49	37.8	0.07	1.78	•	•	
2-135	32	2	50	1.93	49.0	0.10	2.54	•	•	

* NBR is the standard compound — 90-durometer Nitrile.
** FKM is an optional 90-durometer fluorocarbon compound.
*** CNG is an optional 85 durometer HNBR compound for CNG applications
See page M3 for O-ring Material Selection and data.

XO O-Ring

Triple-Lok 2 O-Ring

Specify size and compound
Example: 2-019 NBR (standard NBR)

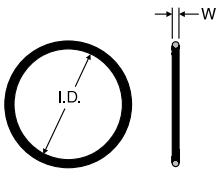


TUBE FITTING PART #	TUBE O.D. (in.)	I.D. (in.)	W (in.)	Material NBR
5-193	1/4	0.18	0.04	•
5-179	5/16	0.24	0.04	•
5-056	3/8	0.30	0.04	•
5-058	1/2	0.43	0.05	•
2-013	5/8	0.43	0.07	•
2-016	3/4	0.61	0.07	•
2-017	7/8	0.68	0.07	•
2-019	1	0.80	0.07	•
2-023	1 1/4	1.05	0.07	•
2-026	1 1/2	1.24	0.07	•
2-133	2	1.80	0.10	•

SAE O-Ring

SAE Straight Thread Port O-Ring

Specify size and compound
Example: 3-906 NBR (standard NBR)



TUBE FITTING PART #	FITTING DASH SIZE	I.D. (in.)	W (in.)	Material NBR*	Material FKM**	Material CNG***
3-902	2	0.24	0.06	•	•	
3-903	3	0.30	0.06	•	•	
3-904	4	0.35	0.07	•	•	•
3-905	5	0.41	0.07	•	•	
3-906	6	0.47	0.08	•	•	•
3-908	8	0.64	0.09	•	•	•
3-910	10	0.76	0.10	•	•	
3-912	12	0.92	0.12	•	•	
3-914	14	1.05	0.12	•	•	
3-916	16	1.17	0.12	•	•	
3-920	20	1.48	0.12	•	•	
3-924	24	1.72	0.12	•	•	
3-932	32	2.34	0.12	•	•	

* NBR is the standard compound — 90-durometer Nitrile.
** FKM is an optional 90-durometer fluorocarbon compound.
*** CNG is an optional 85 durometer HNBR compound for CNG applications
See page M3 for O-ring Material Selection and data.

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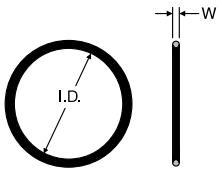
ISO 6149 O-Ring

Metric Straight Thread
Port O-Ring



Specify size and compound (for option compound only)
Example: M-12 ISO O-RING (standard NBR)
M-12 ISO FKM (optional FKM o-ring)

TUBE FITTING PART #	PORT THREAD	I.D. (mm)	W (mm)	Material NBR**	Material FKM***
M-8 ISO O-Ring	M8 x 1	6.1	1.6	•	
M-10 ISO O-Ring	M10 x 1	8.1	1.6	•	
M-12 ISO O-Ring	M12 x 1.5	9.3	2.2	•	•
M-14 ISO O-Ring	M14 x 1.5	11.3	2.2	•	•
M-16 ISO O-Ring	M16 x 1.5	13.3	2.2	•	•
M-18 ISO O-Ring	M18 x 1.5	15.3	2.2	•	•
M-22 ISO O-Ring	M22 x 1.5	19.3	2.2	•	•
M-27 ISO O-Ring	M27 x 2	23.6	2.9	•	•
***M-30 ISO O-Ring**	M30 x 2	26.6	2.9	•	
M-33 ISO O-Ring	M33 x 2	29.6	2.9	•	•
M-38 ISO O-Ring	M38 x 2	34.6	2.9	•	
M-42 ISO O-Ring	M42 x 2	38.6	2.9	•	•
M-48 ISO O-Ring	M48 x 2	44.6	2.9	•	•
M-60 ISO O-Ring	M60 x 2	56.6	2.9	•	

* M30X2 is not a standard ISO 6149 size.

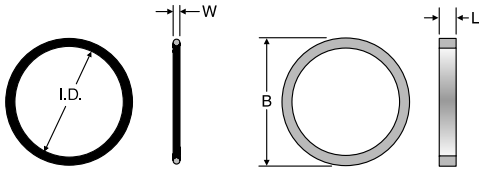
** NBR is the standard compound — 90-durometer peroxide-cured Nitrile.

*** FKM is an optional 90-durometer fluorocarbon compound.

See page M3 for O-ring Material Selection and data.

Metric O-Ring & Retaining Ring

For ISO 9974-1 / DIN 3852-1Port



Specify size, compound and material
Example: 2-012 NBR (standard NBR O-ring)
M12RRCF (standard steel retaining ring)

TUBE FITTING PART #	METRIC THREAD SIZE	I.D. (mm)	W (mm)	From Stock NBR*	From Stock FKM**	TUBE FITTING PART #	B (mm)	L (mm)	Material CF (S)	Material 71 (SS)
3-902	M8 x 1	6.07	1.63	•	•	**M8RR**	13.15	1.00	•	
6-074	M10 x 1	8.00	1.50	•	•	**M10RR**	14.75	1.00	•	
2-012	M12 x 1.5	9.25	1.78	•	•	**M12RR**	17.75	1.30	•	
2-013	M14 x 1.5	10.82	1.78	•	•	**M14RR**	19.75	1.30	•	
3-907	M16 x 1.5	13.46	2.08	•	•	**M16RR**	21.75	1.50	•	
2-114	M18 x 1.5	15.54	2.62	•	•	**M18RR**	23.75	2.00	•	
2-017	M20 x 1.5	17.17	1.78	•		**M20RR**	25.75	1.30	•	
2-018	M22 x 1.5	18.77	1.78	•	•	**M22RR**	27.75	1.30	•	
2-019	M24 x 1.5	20.35	1.78	•		**M24RR**	29.75	1.30	•	
2-118	M26 x 1.5	21.89	2.62	•		**M26RR**	31.75	2.00	•	
2-119	M27 x 2	23.47	2.62	•	•	**M27RR**	32.75	2.00	•	
2-121	M30 x 2	26.64	2.62	•		**M30RR**	36.32	2.00	•	
2-122	M33 x 2	28.24	2.62	•		**M33RR**	39.75	2.00	•	
2-124	M36 x 2	31.42	2.62	•		**M36RR**	42.75	2.00	•	
2-128	M42 x 2	37.77	2.62	•		**M42RR**	49.75	2.00	•	
2-130	M45 x 2	40.94	2.62	•		**M45RR**	52.75	2.00	•	
2-132	M48 x 2	44.12	2.62	•		**M48RR**	54.95	2.00	•	
2-133	M50 x 2	45.69	2.62	•		**M50RR**	56.31	2.00	•	

* NBR is the standard compound — 90-durometer Nitrile.

** FKM is an optional 90-durometer fluorocarbon compound.

See page M3 for O-ring Material Selection and data.

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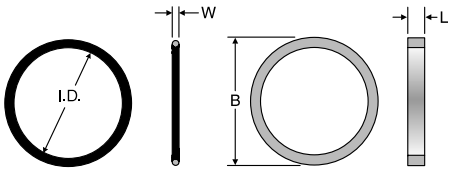
BSPP O-Ring & Retaining Ring

For ISO 1179-1 / DIN 3852-2 Port



Specify size and compound (for O-ring only)
Example: 2-113 NBR (standard NBR O-ring)
8207-3/8 RETAINING RING (standard steel retaining ring)

TUBE FITTING PART #	BSPP THREAD SIZE	I.D. (mm)	W (mm)	Material NBR*	Material FKM**	STEEL TUBE FITTING PART #	STAINLESS STEEL TUBE FITTING PART #	B (mm)	L (mm)
5-585	1/8-28	8	2	•	•	**8207-1/8**	**1/8 Retaining Ring**	15.0	1.4
2-111	1/4-19	10.77	2.62	•	•	**8207-1/4**	**1/4 Retaining Ring**	19.5	1.9
2-113	3/8-19	13.94	2.62	•	•	**8207-3/8**	**3/8 Retaining Ring**	23.5	1.9
5-256	1/2-14	17.96	2.62	•	•	**8207-1/2**	**1/2 Retaining Ring**	28.5	1.9
2-119	3/4-14	23.47	2.62	•	•	**8207-3/4**	**3/4 Retaining Ring**	34.5	2.6
2-217	1-11	29.74	3.53	•	•	**8207-1**	**1 Retaining Ring**	43.5	2.6
2-222	1 1/4-11	37.69	3.53	•		**8207-1-1/4**	**1 1/4 Retaining Ring**	52.5	2.6
2-224	1 1/2-11	44.04	3.53	•		**8207-1-1/2**	**1 1/2 Retaining Ring**	60.0	2.6

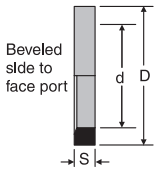
* NBR is the standard compound — 90-durometer Nitrile.

** FKM is an optional 90-durometer fluorocarbon compound.

See page M3 for O-ring Material Selection and data.

EOlastic Seal Ring

EOlastic Soft Seal for
BSPP & Metric Threads ("ED Seal")
DIN 3869



Specify size and compound
(for optional compound only)
Example: ED8X1X (standard NBR)
ED8X1VITX (optional FKM)

TUBE FITTING PART #	For Male Metric Thread	For Male Thread BSPP	D (mm)	d (mm)	S (mm)	Material NBR*	Material FKM**
ED8X1X	M8 x 1		9.9	6.5	1.0	•	•
ED10X1X	M10 x 1	G 1/8 A	11.9	8.4	1.0	•	•
ED12X1.5X	M12 x 1.5		14.4	9.8	1.5	•	•
ED14X1.5X	M14 x 1.5	G 1/4 A	16.5	11.6	1.5	•	•
ED16X1.5X	M16 x 1.5		18.9	13.8	1.5	•	•
ED3/8X		G 3/8 A	18.9	14.7	1.5	•	•
ED18X1.5X	M18 x 1.5		20.9	15.7	1.5	•	•
ED20X1.5X	M20 x 1.5		22.9	17.8	1.5	•	•
ED1/2X		G 1/2 A	23.9	18.5	1.5	•	•
ED22X1.5X	M22 x 1.5		24.3	19.6	1.5	•	•
ED26X1.5X	M26 x 1.5	G 3/4 A	29.2	23.9	1.5	•	•
ED26X1.5X	M27 x 2	G 3/4 A	29.2	23.9	1.5	•	•
ED33X2X	M33 x 2	G 1 A	35.7	29.7	2.0	•	•
ED42X2X	M42 x 2	G 1 1/4 A	45.8	38.8	2.0	•	•
ED48X2X	M48 x 2	G 1 1/2 A	50.7	44.7	2.0	•	•

* NBR is the standard compound — 90-durometer Nitrile.

** FKM is an optional 85-durometer fluorocarbon compound (for part number VIT is used as suffix). Example: ED8X1VITX

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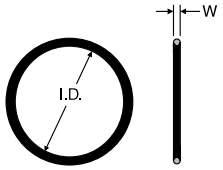
JIS B2351 O-Ring

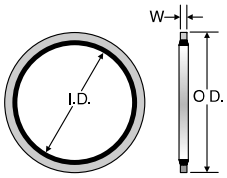


TUBE FITTING PART #	JIS DASH SIZE	T4 THREAD BSPP	I.D. (mm)	W (mm)	JIS B 2401 Description
P8 O-RING	2	1/8-28	7.8	1.9	O-RING CLASS 1 B P 8
P11 O-RING	4	1/4-19	10.8	2.4	O-RING CLASS 1 B P 11
P14 O-RING	6	3/8-19	13.8	2.4	O-RING CLASS 1 B P 14
P18 O-RING	8	1/2-14	17.8	2.4	O-RING CLASS 1 B P 18
P24 O-RING	12	3/4-14	23.7	3.5	O-RING CLASS 1 B P 24
P29 O-RING	16	1-11	28.7	3.5	O-RING CLASS 1 B P 29

* NBR is the standard compound — 90-durometer Nitrile.

BSPP Bonded Seal

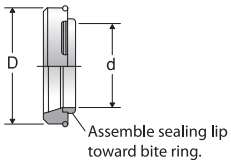
Used on K4 Style Straight Fittings
as a Port Seal
For use with ISO 1179 / DIN 3852-2 port



TUBE FITTING PART #	BSPP THREAD SIZE	O.D. (mm)	I.D. (mm)	W (mm)	Material S*	Material SS	Material B
D9DT-2	1/8-28	15.9	10.4	2.0	•		
D9DT-4	1/4-19	20.6	13.7	2.0	•		
D9DT-6	3/8-19	23.8	17.3	2.0	•		
D9DT-8	1/2-14	28.6	21.5	2.3	•		
D9DT-10	5/8-14	31.8	23.5	2.3	•		
D9DT-12	3/4-14	34.9	27.1	2.3	•		
D9DT-16	1-11	42.8	33.9	2.3	•		
D9DT-20	1 1/4-11	52.4	42.9	3.3	•		
D9DT-24	1 1/2-11	58.6	48.4	3.3	•		

* NBR is the standard elastomer compound — 90-durometer Nitrile
Zinc plated steel ring

EO-2 Sealing Ring



Specify size and material
Examples:
DOZ10S (standard steel with NBR)
DOZ10SVIT (standard steel with FKM)
DOZ10S71 (standard stainless steel with FKM)

TUBE FITTING PART #	SERIES	TUBE O.D. (mm)	D (mm)	d (mm)	Material S NBR*	Material S FKM**	Material SS FKM***
DOZ04LL	LL	4	6.8	4	•		
DOZ06LL	very light	6	8.8	6	•		
DOZ06L	L	6	10.3	6	•	•	•
DOZ08L	light	8	12.3	8	•	•	•
DOZ10L		10	14.3	10	•	•	•
DOZ12L		12	16.3	12	•	•	•
DOZ15L		15	20.3	15	•	•	•
DOZ18L		18	24.3	18	•	•	•
DOZ22L		22	27.7	22	•	•	•
DOZ28L		28	33.7	38	•	•	•
DOZ35L		35	42.7	35	•	•	•
DOZ42L		42	49.7	42	•	•	•
DOZ06S	S	6	12.3	6	•	•	•
DOZ08S	heavy	8	14.3	8	•	•	•
DOZ10S		10	16.3	10	•	•	•
DOZ12S		12	18.3	12	•	•	•
DOZ14S		14	20.3	14	•	•	•
DOZ16S		16	22.3	16	•	•	•
DOZ20S		20	27.7	20	•	•	•
DOZ25S		25	33.7	25	•	•	•
DOZ30S		30	39.7	30	•	•	•
DOZ38S		38	49.7	38	•	•	•

* Steel black zinc plated with NBR 90-durometer Nitrile compound.
** Steel black zinc plated with FKM 90-durometer fluorocarbon compound.
*** Stainless steel with FKM 90-durometer fluorocarbon compound.

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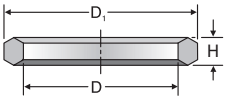
Pressure Gauge Sealing Ring

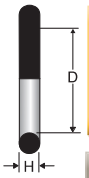


Specify size and material
Examples: DKI1/2CFX (steel)
DKI1/271X (stainless steel)

TUBE FITTING PART #	FOR INTERNAL BSPP THREAD	D (mm)	D1 (mm)	H (mm)	Material		
					CFX (S)	71 (SS)	COPPER
DKI1/4	G 1/4 - 19	6.0	11.3	4.5	•		
DKI1/2	G 1/2 - 19	12.0	18.5	5.0	•	•	
M25180	G 1/4	6.4	11.0	1.6			•

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

EO Swivel O-Ring



O-ring for EO Swivel Nuts, Weld Nipples, and Caps
Part Numbers: RED, DA, GZ, GZR, EGE, EGEO, SKA, EW, ET, EL, VKA, MAVE

EO SIZE/SERIES	O-RING NBR*	D	H	O-RING FKM[2]	D	H
6L	**OR4.5X1.5X**	4.5	1.5	**OR4.5X1.5VITX**	4.5	1.5
8L	**OR6.5X1.5X**	6.5	1.5	**OR6.5X1.5VITX**	6.5	1.5
10L	**OR8.5X1.5X**	8.5	1.5	**OR8X1.5VITX**	8.0	1.5
12L	**OR10.5X1.5X**	10.5	1.5	**OR10X1.5VITX**	10.0	1.5
15L	**OR12.5X2X**	12.5	2.0	**OR12X2VITX**	12.0	2.0
18L	**OR16X2X**	16.0	2.0	**OR15X2VITX**	15.0	2.0
22L	**OR20X2X**	20.0	2.0	**OR20X2VITX**	20.0	2.0
28L	**OR26X2X**	26.0	2.0	**OR26X2VITX**	26.0	2.0
35L	**OR32X2.5X**	32.0	2.5	**OR32X2.5VITX**	32.0	2.5
42L	**OR39X2.5X**	39.0	2.5	**OR38X2.5VITX**	38.0	2.5
6S	**OR4.5X1.5X**	4.5	1.5	**OR4.5X1.5VITX**	4.5	1.5
8S	**OR6.5X1.5X**	6.5	1.5	**OR6.5X1.5VITX**	6.5	1.5
10S	**OR8.5X1.5X**	8.5	1.5	**OR8X1.5VITX**	8.0	1.5
12S	**OR10.5X1.5X**	10.5	1.5	**OR10X1.5VITX**	10.0	1.5
14S	**OR12X2X**	12.0	2.0	**OR12X2VITX**	12.0	2.0
16S	**OR14X2X**	14.0	2.0	**OR13X2VITX**	13.0	2.0
20S	**OR17X2.5X**	17.0	2.5	**OR16.3X2.4VITX**	16.3	2.4
25S	**OR22X2.5X**	22.0	2.5	**OR20.3X2.4VITX**	20.3	2.4
30S	**OR27X2.5X**	27.0	2.5	**OR25.3X2.4VITX**	25.3	2.4
38S	**OR35X2.5X**	35.0	2.5	**OR33.3X2.4VITX**	33.3	2.4

[1]NBR is standard compound — 90-durometer Nitrile.
[2]FKM is optional 85-durometer Fluorocarbon compound.

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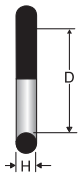
EO O-Ring

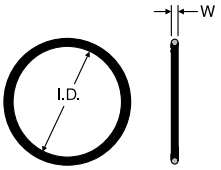


O-ring for EO Banjo Fitting Bolts
Part Numbers: WH/TH

BANJO BOLT METRIC THREAD	BANJO BOLT BSPP THREAD	D	H	O-RING NBR*	O-RING FKM**
M10	G 1/8	9.3	1.5	**OR9.3X1.5X**	**OR9.3X1.5VITX**
M12, M14	G 1/4	12.5	1.5	**OR12.5X1.5X**	**OR12.5X1.5VITX**
M16	G 3/8	16.0	1.5	**OR16X1.5X**	**OR16X1.5VITX**
M18		18.0	1.5	**OR18X1.5X**	**OR18X1.5VITX**
M20, M22	G 1/2	20.0	1.5	**OR20X1.5X**	**OR20X1.5VITX**
M26, M27	G 3/4	25.0	2.0	**OR25X2X**	**OR25X2VITX**
M33	G 1	33.0	2.5	**OR33X2.5X**	**OR33X2.5VITX**
M42	G 1 1/4	41.0	2.5	**OR41X2.5X**	**OR41X2.5VITX**
M48	G 1 1/2	46.0	3.0	**OR46X3X**	**OR46X3VITX**

*NBR is standard compound — 90-durometer Nitrile.
**FKM is optional 85-durometer Fluorocarbon compound.

SAE 4-Bolt Flange O-Ring



Code 61 and Code 62 Flanges

Specify size and compound
Example: 2-210 NBR

TUBE FITTING PART #	HOSE PRODUCTS DIVISION PART # 1)	FITTING DASH SIZE	W (in.)	I.D. (in.)	Material NBR*
2-210	711510-6	8	0.139	0.734	•
2-214	711510-5	12	0.139	0.984	•
2-219	711510-4	16	0.139	1.296	•
2-222	711510-3	20	0.139	1.484	•
2-225	711510-2	24	0.139	1.859	•
2-228	711510-1	32	0.139	2.234	•
2-232	711510-7	40	0.139	2.734	•
2-237	711510-8	48	0.139	3.359	•
2-241		56	0.139	3.859	•
2-245		64	0.139	4.359	•
2-253		80	0.139	5.359	•

* NBR is the standard compound — 90-durometer Nitrile.

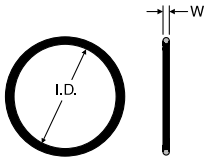
O-ring for DIN 2353 EO Gear Pump Flange Adapters
Part Numbers: BFG/BFW

FLANGE SERIES "LK"	D	H	O-RING NBR*
LK35	20.0	2.5	**OR20X2.5X**
LK40	26.0	2.5	**OR26X2.5X**
LK55	33.0	2.5	**OR33X2.5X**

*NBR is standard compound — 90-durometer Nitrile.

M

Radial Seal O-Ring

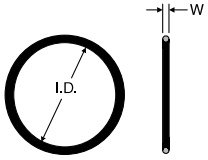


Dual Seal Port O-Ring

TUBE FITTING PART #	END SIZE 2 DUAL SEAL	W (in.)	I.D. (in.)
2-113	1/2	0.103	0.549
2-123	1	0.103	1.174
2-129	1 1/2	0.103	1.549

Standard O-ring compound - 90 durometer NBR. Ordering example with material: 2-113 NBR.

Flange Seal O-Ring



Dual Seal Flange Head O-Ring

TUBE FITTING PART #	END SIZE 2 DUAL SEAL	W (in.)	I.D. (in.)
2-022	1/2	0.070	0.989
2-129	1	0.103	1.549
2-136	1 1/2	0.103	1.987

Standard O-ring compound - 90 durometer NBR.

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Inch Tube Clamps

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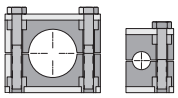
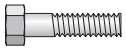
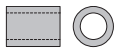
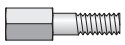
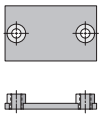
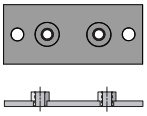
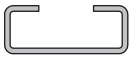
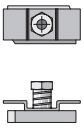
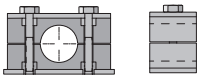
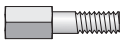
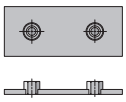
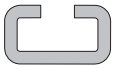
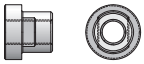
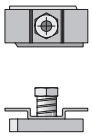
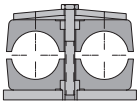
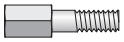
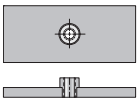
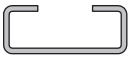
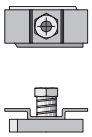
Standard Series	**Clamp Halves**  N7	**CP** Cover Plate  N8	**BCP** Hexagon Head Bolt for Cover Plate  N8	**IPS** Insert  N8	**BIP** Hexagon Head Bolt for Insert  N8
LP Locking Plate  N8	**SB** Stacking Bolt  N8	**WP** Weld Plate  N9	**WPE** Weld Plate Elongated  N9	**R** Mounting Rail  N9	**HRN** Hexagon Rail Nut  N9
CRA Channel Rail Adapter  N9	**Heavy Series**	**Clamp Halves** Heavy  N10	**CPH** Cover Plate Heavy  N11	**BCPH** Hexagon Head Bolt for Cover Plate  N11	**LPH** Locking Plate Heavy  N11
SBH Stacking Bolt Heavy  N11	**WPH** Weld Plate Heavy  N11	**RH** Mounting Rail Heavy  N12	**RNH** Mounting Rail Nut Heavy  N12	**CRA** Channel Rail Adatper  N12	
Twin Series	**Clamp Halves**  N13	**CPT** Cover Plate  N14	**BCPT** Hexagon Head Bolt for Cover Plate  N14	**LPT** Locking Plate  N14	**SBT** Stacking Bolt  N14
WPT Weld Plate Twin  N15	**R** Mounting Rail  N15	**RNT** Mounting Rail Nut Twin  N15	**CRA** Channel Rail Adapter  N15		

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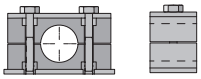
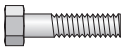
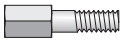
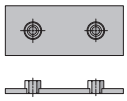
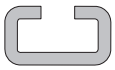
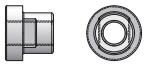
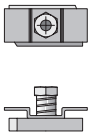
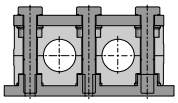
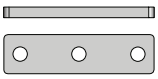
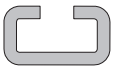
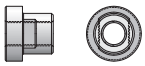
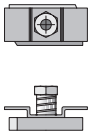
Compact Spiral Hose Heavy Series	**Clamp Halves** Heavy  N16	**CPH** Cover Plate Heavy  N17	**BCPH** Hexagon Head Bolt for Cover Plate  N17	**LPH** Locking Plate Heavy  N17	**SBH** Stacking Bolt Heavy  N17
WPH Weld Plate Heavy  N17	**RH** Mounting Rail Heavy  N18	**RNH** Mounting Rail Nut Heavy  N18	**CRA** Channel Rail Adatper  N18	**Compact Spiral Hose Heavy Twin Series**	**Clamp Halves** Heavy Twin  N19
CPHT Cover Plate  N20	**BCPH** Hexagon Head Bolt for Cover Plate  N20	**WPHT** Weld Plate  N20	**RH** Mounting Rail Heavy  N20	**RNH** Mounting Rail Nut Heavy  N20	**CRA** Channel Rail Adatper  N20

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Introduction

The ParKlamp system is designed for restraining tube, pipe and hose assemblies against unwanted and potentially harmful effects of mechanical shock and vibration forces that are common in fluid power systems.

The clamping system is the most commonly overlooked aspect of fluid power system design. Failure to properly restrain the fluid conductors can result in leakage, downtime and system malfunction, as well as significantly reduce the life of tube, pipe and hose assemblies. With the ParKlamp system, the risk of problems resulting from mechanical shock and vibration can be significantly reduced.

Design and Construction

Designed to meet the basic envelope dimensions of DIN 3015, Part 1, the ParKlamp plastic clamp halves are interchangeable with the Parker metric clamp system. The primary difference between these two clamping systems is the utilization of inch, as opposed to metric, thread hardware in the ParKlamp system. All plastic clamp halves in the ParKlamp system are manufactured from Polypropylene material. The hardware portion of the ParKlamp system is available in plated steel and stainless steel.

For convenience, the ParKlamp system is divided into three different series: Standard, Heavy and Twin. Each series has corresponding components, physical dimensions and mechanical properties. Within each series, there are a number of groups, each with specific envelope dimensions. Reference the "Group#" column in each table to match clamps with appropriate components. Components from different series and/or groups can not be intermixed. However, the standard and twin series can be mounted on the same mounting rail.

How It Works

The ParKlamp system has two primary methods for mounting: weld plates and mounting rails.

Clamps should be mounted to a rigid structure for optimum performance. Clamping tube, pipe or hose assemblies together without mounting them to a rigid structure, often called "floating clamps," does not provide adequate support.

Proper design of a clamping system requires that the clamps be positioned appropriately on the tube, pipe or hose assemblies. See the Assembly and Installation section of this catalog for more information on clamp location and spacing.

Weld Plate Mounting (Fig. N1)

The weld plate mounting system allows the user to attach a single clamp assembly to a structure of similar material (steel to steel, etc) by welding the components together. Once the weld plate is attached to a structure, one clamp halve can be placed onto the weld plate, followed by the tube, pipe or hose assembly. Next, the second plastic clamp halve can be placed on the tube, pipe or hose assembly, followed by the cover plate (or Insert). To complete the assembly, the Hex Head attachment bolts are inserted into the assembly and tightened to the torque shown in the Assembly section of this catalog.

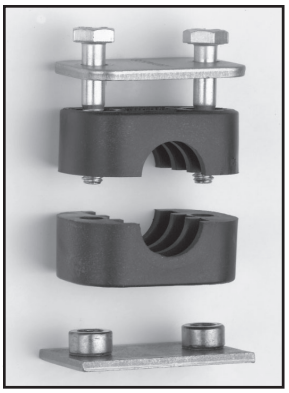

Fig. N1 – Weld Plate Assembly

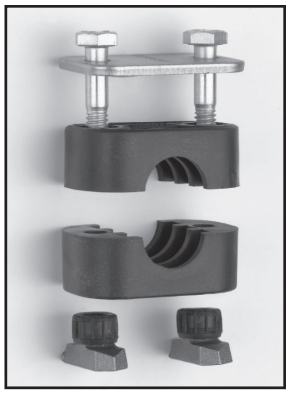

Fig. N2 – Mounting Rail Assembly

Assembly and Installation

Please refer to Section R for the assembly and installation instructions for ParKlamp Inch Tube Clamps.

Mounting Rail Mounting (Fig. N2)

Use of a mounting rail is another way to assemble the clamping system components onto a support structure. Using a mounting rail allows multiple clamps to be mounted side-by-side for restraining a group of tube, pipe, or hose assemblies. The mounting rail also provides the ability to move the location of the clamps in one direction for easier alignment. The rail can be attached to a support structure by welding or bolting. Once the mounting rail is in place, rail nuts can be slid into the rail. The first clamp half, followed by the tube, pipe or hose assembly, can then be installed over the corresponding rail nuts. After this, the second clamp half, the cover plate (or Insert) and the hex head attachment bolts can be installed to complete the assembly.

Stacking (Fig. N3)

A primary feature of the ParKlamp system is its ability to accommodate stacking of a series of clamps to various heights, thus requiring a smaller footprint for mounting. To do this, simply use the stacking bolts to mount the first clamp assembly, then install a stacking plate over the first clamp and stacking bolts. The second clamp assembly can then be placed over the first clamp assembly. Complete the mounting by assembling a cover plate and using the hex head bolts to tighten the upper clamp assembly. **Note: When stacking, the clamps must be from the same series and group.**

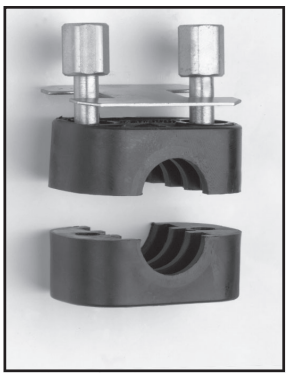

Fig. N3 – Stacked Assembly

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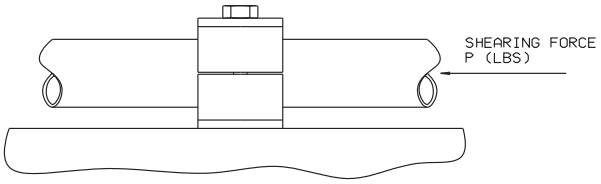
Shearing Force Diagram

The forces shown in these diagrams represent the resistance to sliding provided by the clamps in the axial direction.

The sliding starts when the shown values are reached.



STANDARD SERIES					
		Polypropylene			
Clamp Group	Hexagon Head Bolt	Tightening torque [Nm] Ft/lb		Max. load in pipe direction F [kN] lbf	
1		8	6	0,6	135
1A		8	6	1,1	247
2	M6 / 1/4"-20	8	6	1,3	292
3	UNC	8	6	1,4	315
4		8	6	1,5	337
5		8	6	1,9	427
6		8	6	2,0	450

HEAVY SERIES					
		Polypropylene			
Clamp Group	Hexagon Head Bolt	Tightening torque [Nm] Ft/lb		Max. load in pipe direction F [kN] lbf	
3S	M10 / 3/8"-	12	9	1,6	360
4S	16 UNC	12	9	2,9	652
5S	M12 / 7/16" -	15	11	3,3	742
6S	14 UNC	30	12	8,2	1.843

Clamp Body Material Properties

	Polypropylene PP
MECHANICAL PROPERTIES	
Density	.901g/cc
Tensile Strength	25 MPa
	(4,000 psi)
Flexural Modulus	1073 MPa
Compressive	
Strength	90MPa
(Resistance)	(23,050 psi)
Notched	
IZOD Impact Strength	3.1 KJ/mm^2

	Polypropylene PP
THERMAL PROPERTIES	
Max. Temperature	-30° to +90° C
Resistance	-22° to +194°F
ELECTRICAL PROPERTIES	
Specific Volume	
Resistivity Ohm x Inch	3.9 x 10^{17}
CHEMICAL PROPERTIES	
Light Acids, Solvents	Stable
Fuels, Mineral Oils	Stable
Alcohol, Paints, Saltwater	Stable

Clamp Hardware Material Options

PARKER PARKLAMP METALLIC HARDWARE			
METALLIC COMPONENTS	BASE PART CODE	CARBON STEEL COATING	STAINLESS STEEL
Hex Head Bolt	BCPH	Zinc-Nickel	316
Stacking Bolt	SBH	Zinc-Nickel	316
Weld Plates	WPH	Zinc-Phosphated	316
Channel Rail Adapter	CRA	Zinc-Nickel	316
Cover Plates	CPH	Zinc-Nickel	316
Stacking/Locking Plate	LPH	Zinc-Nickel	316
Rail Nut	RNH	Zinc-Nickel	316
Mounting Rail	RH/TSC	Plain & Oiled	316

Metallic components material & plating condition

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How to Order ParKlamp Kits

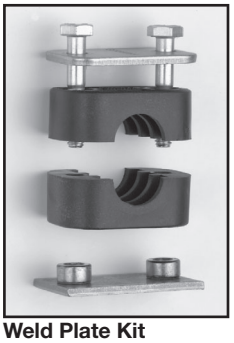
Select a symbol from Box 1 and pair it with a symbol from Box 2 to create a part number for the kit.

Example: Weld Plate Kit – Twin Series for 3/4" tube.

Box 1	Box 2
WPT	3190

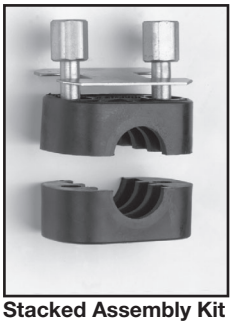
Box 1 : Mounting – Assembly Type	
Symbol	**Description**
WP	Weld Plate Kit – Standard Series
WPH	Weld Plate Kit – Heavy Series
WPE	Elongated Weld Plate Kit – Standard Series
WPT	Weld Plate Kit – Twin Series
RN	Rail Nut Kit – Standard Series
RNH	Rail Nut Kit – Heavy Series
RNT	Rail Nut Kit – Twin Series
SA	Stacked Assembly Kit – Standard Series
SAH	Stacked Assembly Kit – Heavy Series
SAT	Stacked Assembly Kit – Twin Series

Box 2: Clamp Half – Size/Type Designation			
Symbol	**Size**	**Type**	**Series**
1064	1/4"	Tube	Standard – Twin
1064A	1/4"	Tube	Standard
3134H	1/4"	100R1 Hose	Standard
4150H	1/4"	100R2 Hose	Heavy
1095	3/8"	Tube	Standard – Twin
3095	3/8"	Tube	Heavy
1095A	3/8"	Tube	Standard
3174H	3/8"	100R1 Hose	Standard
4198H	3/8"	100R2 Hose	Heavy
2127	1/2"	Tube	Standard – Twin
3127	1/2"	Tube	Heavy
3205H	1/2"	100R1 Hose	Standard
4221H	1/2"	100R2 Hose	Heavy
3213	1/2"	Pipe	Standard
4213	1/2"	Pipe	Heavy
2160	5/8"	Tube	Standard – Twin
3160	5/8"	Tube	Heavy
3239H	5/8"	100R1 Hose	Standard
4251H	5/8"	100R2 Hose	Heavy
3190	3/4"	Tube	Standard – Twin
4190	3/4"	Tube	Heavy
5278H	3/4"	100R1 Hose	Standard
4292H	3/4"	100R2 Hose	Heavy
4266	3/4"	Pipe	Standard – Twin
4267	3/4"	Pipe	Heavy
3254	1"	Tube	Standard – Twin
4254	1"	Tube	Heavy
5357H	1"	100R1 Hose	Standard
6378H	1"	100R2 Hose	Heavy
5334	1"	Pipe	Standard – Heavy – Twin
5320	1 1/4"	Tube	Standard – Heavy – Twin
5438H	1 1/4"	100R1 Hose	Standard
6484H	1 1/4"	100R2 Hose	Heavy
5422	1 1/4"	Pipe	Heavy
5381	1 1/2"	Tube	Standard – Heavy – Twin
6498H	1 1/2"	100R1 Hose	Standard
6544H	1 1/2"	100R2 Hose	Heavy
6483	1 1/2"	Pipe	Standard – Heavy
6508	2"	Tube	Standard – Heavy
6603	2"	Pipe	Heavy
6635	2 1/2"	Tube	Heavy
7762	3"	Tube	Heavy



Weld Plate Kit

Rail Nut Kit



Stacked Assembly Kit

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http://www.parker.com/tfd

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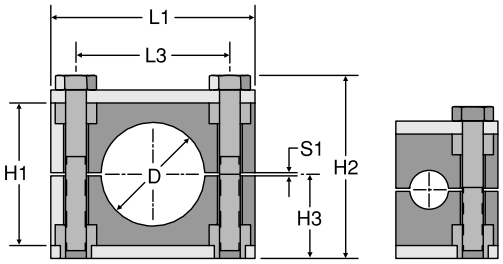
Clamp Halves

Standard Series



Groups 1A, 2, 3, 4, 5 and 6 Group 1

See note below

TUBE CLAMP HALVES

PART #	TUBE SIZE	GROUP #	D		H1	H2	H3	L1	L3	S1	STANDARD FROM STOCK
			in.	mm	in.	in.	in.	in.	in.	in.	
1064-PP	1/4	1	0.25	6.4	1.06	1.45	0.65	1.02	NA	0.01	•
1095-PP	3/8	1	0.38	9.5	1.06	1.45	0.65	1.02	NA	0.01	•
1064A-PP	1/4	1A	0.25	6.4	1.06	1.45	0.65	1.45	0.78	0.01	•
1095A-PP	3/8	1A	0.38	9.5	1.06	1.45	0.65	1.45	0.78	0.01	•
2127-PP	1/2	2	0.50	12.7	1.29	1.69	0.77	1.65	1.02	0.01	•
2160-PP	5/8	2	0.63	16.0	1.29	1.69	0.77	1.65	1.02	0.01	•
3190-PP	3/4	3	0.75	19.0	1.41	1.77	0.80	1.96	1.29	0.01	•
3254-PP	1	3	1.00	25.4	1.41	1.77	0.80	1.96	1.29	0.01	•
5320-PP	1 1/4	5	1.25	32.0	2.28	2.72	1.28	2.79	2.04	0.03	•
5381-PP	1 1/2	5	1.50	38.1	2.28	2.72	1.28	2.79	2.04	0.03	•
6508-PP	2	6	2.00	50.8	2.59	3.00	1.42	3.38	2.59	0.03	•

PIPE CLAMP HALVES

PART #	PIPE SIZE	GROUP #	D		H1	H2	H3	L1	L3	S1	STANDARD FROM STOCK
			in.	mm	in.	in.	in.	in.	in.	in.	
3213-PP	1/2	3	0.84	21.3	1.41	1.77	0.80	1.96	1.29	0.01	•
4266-PP	3/4	4	1.05	26.6	1.65	2.09	0.96	2.32	1.57	0.01	•
5334-PP	1	5	1.31	33.4	2.28	2.72	1.28	2.79	2.04	0.03	•
6483-PP	1 1/2	6	1.90	48.3	2.59	3.00	1.42	3.38	2.59	0.03	•

100R1 HOSE CLAMP HALVES

PART #	HOSE SIZE	GROUP #	D		H1	H2	H3	L1	L3	S1	STANDARD FROM STOCK
			in.	mm	in.	in.	in.	in.	in.	in.	
H3134PP	1/4	3	0.53	13.4	1.41	1.77	0.80	1.96	1.29	0.01	•
H3174PP	3/8	3	0.69	17.4	1.41	1.77	0.80	1.96	1.29	0.01	•
H3205PP	1/2	3	0.81	20.5	1.41	1.77	0.80	1.96	1.29	0.01	•
H3239PP	5/8	3	0.94	23.9	1.41	1.77	0.80	1.96	1.29	0.01	•
H5278PP	3/4	5	1.09	27.8	2.28	2.72	1.28	2.79	2.04	0.03	•
H5357PP	1	5	1.41	35.7	2.28	2.72	1.28	2.79	2.04	0.03	•
H5438PP	1 1/4	5	1.72	43.8	2.28	2.72	1.28	2.79	2.04	0.03	•
H6498PP	1 1/2	6	1.96	49.8	2.59	3.00	1.42	3.38	2.59	0.03	•

Note: One clamp set includes two identical halves of polypropylene. Tube and pipe clamp halves are black in color. Hose clamp halves are green in color. Hardware shown in the illustrations above is **not** included.

Other sizes available. Please contact TFD for a quote.

WARNING: This product can expose you to chemicals including 1,4-Dioxane which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

When selecting components, please reference and match the "Group#" column in each part table with the associated clamps.

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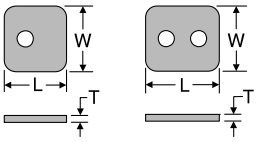
CP
Cover Plate

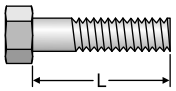


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	W WIDTH (in.)	T THICKNESS (in.)	STANDARD FROM STOCK -S	-SS
CP-1	1	1.10	1.18	0.11	•	•
CP-1A	1A	1.33	1.18	0.11	•	•
CP-2	2	1.59	1.18	0.11	•	•
CP-3	3	1.88	1.18	0.11	•	•
CP-4	4	2.24	1.18	0.11	•	•
CP-5	5	2.75	1.18	0.11	•	•
CP-6	6	3.38	1.18	0.11	•	•

Material: Steel: Zinc-Nickel Plated
SS: 316 Stainless Steel

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

BCP
Hexagon Head Bolt for Cover Plate
(2 required for Groups 1A-6)

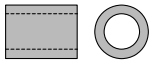


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	STANDARD FROM STOCK -S	-SS
BCP-1	1	1.25	•	•
BCP-1A	1A	1.25	•	•
BCP-2	2	1.38	•	•
BCP-3	3	1.50	•	•
BCP-4	4	1.88	•	•
BCP-5	5	2.38	•	•
BCP-6	6	2.75	•	•

Note: Bolt threads are 1/4 - 20 UNC, Grade 5
Material: Steel: Zinc-Nickel Plated
SS: 316 Stainless Steel

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

IPS
Insert

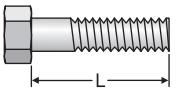


TUBE FITTING PART #	STANDARD FROM STOCK
IPS	•

Material: Plastic
One size fits all groups (2 required for Groups 1A - 6)
(Use when not using a cover plate)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

BIP
Hexagon Head Bolt for Insert

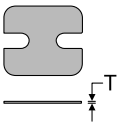


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	STANDARD FROM STOCK
BIP-1	1	1.13	•
BIP-1A	1A	1.13	•
BIP-2	2	1.38	•
BIP-3	3	1.38	•
BIP-4	4	1.63	•
BIP-5	5	2.38	•
BIP-6	6	2.75	•

Note: Bolt threads are 1/4 - 20 UNC, Grade 5,
Material: Steel: Zinc-Nickel Plated

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

LP
Locking Plate

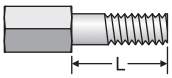


TUBE FITTING PART #	GROUP #	T THICKNESS (in.)	STANDARD FROM STOCK
LP-1	1	0.03	•
LP-1A	1A	0.03	•
LP-2	2	0.03	•
LP-3	3	0.03	•
LP-4	4	0.03	•
LP-5	5	0.03	•
LP-6	6	0.03	•

Material: Steel: Zinc-Nickel Plated

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

SB
Stacking Bolt
(2 required for Groups 1A-6)



TUBE FITTING PART #	GROUP #	L LENGTH (in.)	STANDARD FROM STOCK
SB-1	1	0.78	•
SB-1A	1A	0.78	•
SB-2	2	1.00	•
SB-3	3	1.18	•
SB-4	4	1.38	•
SB-5	5	1.96	•
SB-6	6	2.36	•

Note: Bolt threads are 1/4 - 20 UNC
Material: Steel: Zinc-Nickel Plated

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Dimensions and pressures for reference only, subject to change.

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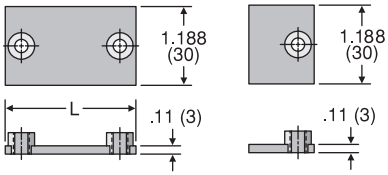
WP
Weld Plate

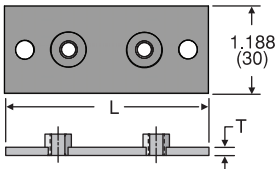


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	L LENGTH (mm)	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
WP-1	1	1.25	31.5	•	•
WP-1A	1A	1.41	36	•	•
WP-2	2	1.65	42	•	•
WP-3	3	1.96	50	•	•
WP-4	4	2.36	60	•	•
WP-5	5	2.79	71	•	•
WP-6	6	3.46	88	•	•

Material: Carbon Steel: Phosphates
SS: 316 stainless steel

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

WPE
Weld Plate Elongated

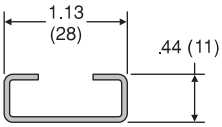


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	L LENGTH (mm)	T THICKNESS (in.)	STANDARD FROM STOCK
WPE-1	1	2.28	58	0.11	•
WPE-1A	1A	2.51	64	0.11	•
WPE-2	2	2.75	70	0.11	•
WPE-3	3	3.07	78	0.11	•
WPE-4	4	3.42	87	0.11	•
WPE-5	5	3.93	100	0.11	•
WPE-6	6	4.52	115	0.11	•

Material: Carbon Steel: Phosphates

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

R
Mounting Rail

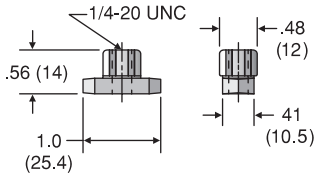


TUBE FITTING PART #	LENGTH	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
R-1	3.28 ft. (1 meter)	•	•
R-2	6.56 ft. (2 meters)	•	•

Material: Steel: Unplated & Oiled
SS: 316 Stainless Steel

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

HRN
Hexagon Rail Nut

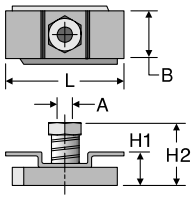


TUBE FITTING PART #	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
HRN	•	•

Material: Carbon Steel: Zinc-Nickel Plated
SS: 316 Stainless Steel
Note: To be used with mounting rail (R)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

CRA
Channel Rail Adapter



TUBE FITTING PART #	THREAD "A" UNC	L in. (mm)	B in. (mm)	H1 in. (mm)	H2 in. (mm)	STANDARD FROM STOCK
CRA 1-8	1/4-20	1.37 (35)	0.74 (19)	0.51 (13)	0.77 (19.5)	•

Material: Carbon Steel: Zinc-Nickel Plated

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

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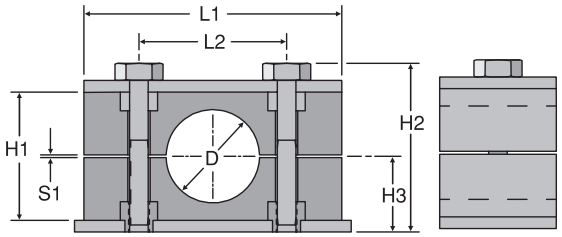
Clamp Halves

Heavy Series



See note below

TUBE CLAMP HALVES											
PART #	TUBE SIZE	GROUP #	D (in.)	D (mm)	H1 (in.)	H2 (in.)	H3 (in.)	L1 (in.)	L2 (in.)	S1 (in.)	STANDARD FROM STOCK
3095-HPP	3/8	H3	0.37	9.5	1.25	2.17	0.94	2.16	1.29	0.02	•
3127-HPP	1/2	H3	0.50	12.7	1.25	2.17	0.94	2.16	1.29	0.02	•
3160-HPP	5/8	H3	0.63	16.0	1.25	2.17	0.94	2.16	1.29	0.02	•
4190-HPP	3/4	H4	0.75	19.0	1.88	2.80	1.26	2.75	1.77	0.02	•
4254-HPP	1	H4	1.00	25.4	1.88	2.80	1.26	2.75	1.77	0.02	•
5320-HPP	1 1/4	H5	1.25	32.0	2.36	3.27	1.50	3.34	2.36	0.02	•
5381-HPP	1 1/2	H5	1.50	38.1	2.36	3.27	1.50	3.34	2.36	0.02	•
6508-HPP	2	H6	2.00	50.8	3.50	4.61	2.17	4.52	3.54	0.07	•
6635-HPP	2 1/2	H6	2.50	63.5	3.50	4.61	2.17	4.52	3.54	0.07	•
7762-HPP	3	H7	3.00	76.2	4.72	5.74	2.75	5.98	4.80	0.07	•

PIPE CLAMP HALVES											
PART #	PIPE SIZE	GROUP #	D (in.)	D (mm)	H1 (in.)	H2 (in.)	H3 (in.)	L1 (in.)	L2 (in.)	S1 (in.)	STANDARD FROM STOCK
4213-HPP	1/2	H4	0.84	21.3	1.88	2.80	1.26	2.75	1.77	0.02	•
4267-HPP	3/4	H4	1.05	26.7	1.88	2.80	1.26	2.75	1.77	0.02	•
5334-HPP	1	H5	1.31	33.4	2.36	3.27	1.50	3.34	2.36	0.02	•
5422-HPP	1 1/4	H5	1.66	42.2	2.36	3.27	1.50	3.34	2.36	0.02	•
6483-HPP	1 1/2	H6	1.90	48.3	3.50	4.61	2.17	4.52	3.54	0.07	•
6603-HPP	2	H6	2.37	60.3	3.50	4.61	2.17	4.52	3.54	0.07	•

100R2 HOSE CLAMP HALVES											
PART #	HOSE SIZE	GROUP #	D (in.)	D (mm)	H1 (in.)	H2 (in.)	H3 (in.)	L1 (in.)	L2 (in.)	S1 (in.)	STANDARD FROM STOCK
H4150HPP	1/4	H4	0.59	15.0	1.83	2.80	1.26	2.75	1.77	0.02	•
H4198HPP	3/8	H4	0.78	19.8	1.83	2.80	1.26	2.75	1.77	0.02	•
H4221HPP	1/2	H4	0.87	22.1	1.83	2.80	1.26	2.75	1.77	0.02	•
H4251HPP	5/8	H4	0.99	25.1	1.83	2.80	1.26	2.75	1.77	0.02	•
H4292HPP	3/4	H4	1.15	29.2	1.83	2.80	1.26	2.75	1.77	0.02	•
H6378HPP	1	H6	1.49	37.8	3.42	4.61	2.17	4.52	3.54	0.07	•
H6484HPP	1 1/4	H6	1.91	48.4	3.42	4.61	2.17	4.52	3.54	0.07	•
H6544HPP	1 1/2	H6	2.14	54.4	3.42	4.61	2.17	4.52	3.54	0.07	•

Note: One clamp set includes two identical halves of polypropylene. Tube and pipe clamps are black in color. Hose clamp halves are green in color. Hardware shown in the illustration above is **not** included.

WARNING: This product can expose you to chemicals including 1,4-Dioxane which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

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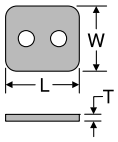
Cover Plate Heavy

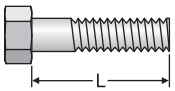


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	L LENGTH (mm)	W WIDTH (in.)	W WIDTH (mm)	T THICKNESS (in.)	T THICKNESS (mm)	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
CPH-3	H3	2.16	55	1.18	30	0.31	8	•	•
CPH-4	H4	2.75	70	1.18	30	0.31	8	•	•
CPH-5	H5	3.34	85	1.18	30	0.31	8	•	•
CPH-6	H6	4.52	115	1.77	45	0.39	10	•	•
CPH-7	H7	5.98	152	2.36	60	0.39	10	•	•

Material: Steel: Zinc-Nickel Plated
Stainless Steel: 316

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

BCPH
Hexagon Head Bolt for Cover Plate
(2 required per clamp set)

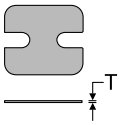


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	UNC THREAD	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
BCPH-3	H3	1.75	3/8 - 16	•	•
BCPH-4	H4	2.25	3/8 - 16	•	•
BCPH-5	H5	2.75	3/8 - 16	•	•
BCPH-6	H6	4.00	7/16 - 14	•	•
BCPH-7	H7	5.25	5/8 - 11	•	•

Material: Steel: Zinc-Nickel Plated. Grade 5
Stainless Steel: 316

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

LPH
Locking Plate Heavy

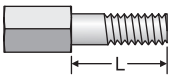


TUBE FITTING PART #	GROUP #	T THICKNESS (in.)	T THICKNESS (mm)	STANDARD FROM STOCK -S
LPH-3	H3	0.31	8	•
LPH-4	H4	0.31	8	•
LPH-5	H5	0.31	8	•
LPH-6	H6	0.39	10	•
LPH-7	H7	0.39	10	•

Material: Steel: Zinc-Nickel Plated
Stainless Steel: 316 upon request

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

SBH
Stacking Bolt Heavy
(2 required per clamp set)

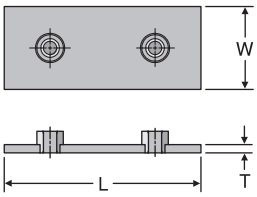


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	UNC THREAD	STANDARD FROM STOCK -S
SBH-3	H3	1.02	3/8-16	•
SBH-4	H4	1.61	3/8-16	•
SBH-5	H5	2.01	3/8-16	•
SBH-6	H6	3.27	7/16-14	•
SBH-7	H7	4.33	5/8-11	•

Material: Steel: Zinc-Nickel Plated
Stainless Steel: 316 upon request

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

WPH
Weld Plate Heavy



TUBE FITTING PART #	GROUP #	UNC THREAD	L LENGTH (in.)	L LENGTH (mm)	W WIDTH (in.)	W WIDTH (mm)	T THICKNESS (in.)	T THICKNESS (mm)	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
WPH-3	H3	3/8-16	2.88	73	1.18	30	0.31	8	•	•
WPH-4	H4	3/8-16	3.34	85	1.18	30	0.31	8	•	•
WPH-5	H5	3/8-16	3.94	100	1.18	30	0.31	8	•	•
WPH-6	H6	7/16-14	5.51	140	1.79	45	0.39	10	•	•
WPH-7	H7	5/8-11	7.09	180	2.36	60	0.39	10	•	•

Material: Steel: 1020, Zinc Phosphate Plated.
Stainless Steel: 316

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Dimensions and pressures for reference only, subject to change.

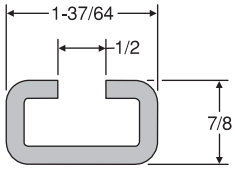
Parker Hannifin Corporation
Tube Fittings Division
Columbus, Ohio
http://www.parker.com/tfd

Click here for CADs, Support Resources or to Configure Parts Online

RH/TCS

Mounting Rail Heavy

For use with RNH rail nuts



TUBE FITTING PART #	ALT TUBE FITTING PART #	CLAMP GROUP #	LENGTH	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
R1H	**TSC1X**	**ALL**	3.28 ft. (1 meter)	•	•
R2H	**TSC2X**	**ALL**	6.56 ft. (2 meters)	•	•

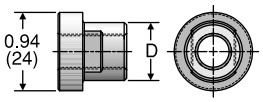
Material: Steel: Unplated & Oiled
Stainless Steel: 316

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

RNH

Mounting Rail Nut Heavy

For use with RH/TSC mounting rail



TUBE FITTING PART #	GROUP #	D DIAMETER (in.)	D DIAMETER (mm)	THREAD	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
RNH-10	H3, H4, H5	0.70	18	3/8 - 16	•	•
RNH-12	H6	0.78	20	7/16 - 14	•	•

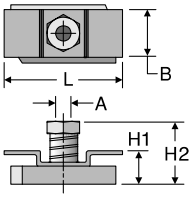
Material: Steel: Zinc-Nickel Plated
Stainless Steel: 316

Note: To be used with mounting rail heavy (RH)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

CRA

Channel Rail Adapter



TUBE FITTING PART #	CLAMP GROUP #	THREAD "A" UNC	L in. (mm)	B in. (mm)	H1 in. (mm)	H2 in. (mm)	STANDARD FROM STOCK -S
CRA 3-5	H3, H4, H5	3/8-16	1.37 (35)	0.86 (22)	0.73 (18.5)	1.08 (27.5)	•
CRA 6	H6	7/16-14	1.77 (45)	0.98 (25)	0.67 (17)	1.08 (27.5)	•

Material: Steel: Zinc-Nickel Plated
Stainlesss Steel upon request

For use with industrial channel rails/struts. (Parker does not supply)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

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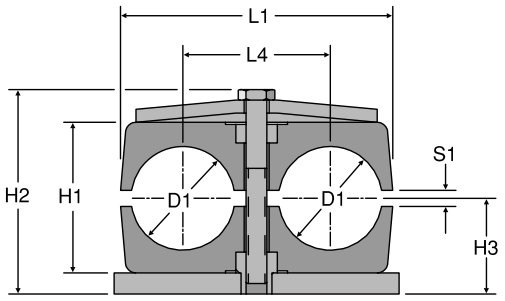
Clamp Halves

Twin Series



See note below

TUBE CLAMP HALVES											
PART #	TUBE SIZE	GROUP #	D1		H1	H2	H3	L1	L4	S1	STANDARD FROM STOCK
			in.	mm	in.	in.	in.	in.	in.	in.	
1064/64-PP	1/4	T1	0.25	6.4	0.79	1.18	0.59	1.41	0.78	0.02	•
1095/95-PP	3/8	T1	0.38	9.5	0.79	1.18	0.59	1.41	0.78	0.02	•
2127/127-PP	1/2	T2	0.50	12.7	1.06	1.73	0.71	2.08	1.14	0.03	•
2160/160-PP	5/8	T2	0.63	16.0	1.06	1.73	0.71	2.08	1.14	0.03	•
3190/190-PP	3/4	T3	0.75	19.0	1.45	2.17	0.93	2.63	1.41	0.03	•
3254/254-PP	1	T3	1.00	25.4	1.45	2.17	0.93	2.63	1.41	0.03	•
5320/320-PP	1 1/4	T5	1.25	32.0	2.09	2.83	1.26	4.17	2.20	0.03	•
5381/381-PP	1 1/2	T5	1.50	38.1	2.09	2.83	1.26	4.17	2.20	0.03	•

PIPE CLAMP HALVES											
PART #	PIPE SIZE	GROUP #	D1		H1	H2	H3	L1	L4	S1	STANDARD FROM STOCK
			in.	mm	in.	in.	in.	in.	in.	in.	
4266/266-PP	3/4	T4	1.05	26.6	1.77	2.36	1.02	3.14	1.77	0.03	•
5334/334-PP	1	T5	1.31	33.4	2.08	2.83	1.26	4.17	2.20	0.03	•

FOR USE WITH 100R1 HOSE											
PART #	HOSE SIZE	GROUP #	D1		H1	H2	H3	L1	L4	S1	STANDARD FROM STOCK
			in.	mm	in.	in.	in.	in.	in.	in.	
H3206/206-PP	1/2	T3	0.81	20.6	1.45	2.17	0.93	2.63	1.41	0.03	•
H5205/205-PP	1/2	T5	0.81	20.5	2.09	2.83	1.26	4.17	2.20	0.03	•
H5230/230-PP	5/8	T5	0.91	23.0	2.09	2.83	1.26	4.17	2.20	0.03	•
H5280/280-PP	3/4	T5	1.10	28.0	2.09	2.83	1.26	4.17	2.20	0.03	•

FOR USE WITH 100R2 HOSE											
PART #	HOSE SIZE	GROUP #	D 1		H1	H2	H3	L1	L4	S1	STANDARD FROM STOCK
			in.	mm	in.	in.	in.	in.	in.	in.	
H3190/190-PP	3/8	T3	0.75	19.0	1.45	2.17	0.93	2.63	1.41	0.03	•
H3222/222-PP	1/2	T3	0.87	22.2	1.45	2.17	0.93	2.63	1.41	0.03	•
H3250/250-PP	5/8	T3	0.98	25.0	1.45	2.17	0.93	2.63	1.41	0.03	•
H5295/295-PP	3/4	T5	1.16	29.5	2.09	2.83	1.26	4.17	2.20	0.03	•
H5372/372-PP	1	T5	1.46	37.2	2.09	2.83	1.26	4.17	2.20	0.03	•

Note: One clamp set includes two identical halves of polypropylene. Tube and pipe clamp halves are black in color. Hose clamp halves are green. Hardware shown in the illustration above is **not** included.

WARNING: This product can expose you to chemicals including 1,4-Dioxane which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

When selecting components, please reference and match the "Group#" column in each part table with the associated clamps.

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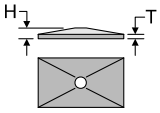
CPT
Cover Plate

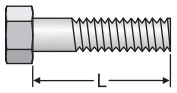


TUBE FITTING PART #	GROUP #	T THICKNESS (in.)	T THICKNESS (mm)	H HEIGHT (in.)	H HEIGHT (mm)	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
CPT-1	T1	0.12	3.0	0.28	7.0	•	•
CPT-2	T2	0.12	3.0	0.28	7.0	•	•
CPT-3	T3	0.12	3.0	0.28	7.0	•	•
CPT-4	T4	0.12	3.0	0.28	7.0	•	•
CPT-5	T5	0.12	3.0	0.28	7.0	•	•

Material: Steel: Zinc-Nickel Plated
SS 316 Stainless steel

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

BCPT
Hexagon Head Bolt for Cover Plate

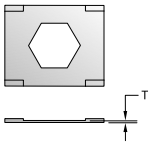


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	UNC THREAD	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
BCPT-1	T1	1.38	1/4 - 20	•	•
BCPT-2	T2	1.38	5/16 - 18	•	•
BCPT-3	T3	1.75	5/16 - 18	•	•
BCPT-4	T4	2.00	5/16 - 18	•	•
BCPT-5	T5	2.50	5/16 - 18	•	•

Material: Steel: Zinc-Nickel Plated
SS 316 Stainless steel

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

LPT
Locking Plate

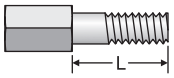


TUBE FITTING PART #	GROUP #	T THICKNESS (in.)	STANDARD FROM STOCK
LPT-1	T1	0.02	•
LPT-2	T2	0.02	•
LPT-3	T3	0.02	•
LPT-4	T4	0.02	•
LPT-5	T5	0.02	•

Material: Steel: Zinc-Nickel Plated

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

SBT
Stacking Bolt



TUBE FITTING PART #	GROUP #	L LENGTH (in.)	UNC THREAD	STANDARD FROM STOCK
SBT-1	T1	0.59	1/4 - 20	•
SBT-2	T2	0.78	5/16 - 18	•
SBT-3	T3	1.13	5/16 - 18	•
SBT-4	T4	1.69	5/16 - 18	•
SBT-5	T5	1.78	5/16 - 18	•

Material: Steel: Zinc-Nickel Plated

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

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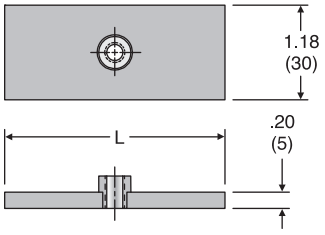
WPT
Weld Plate Twin

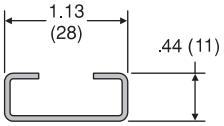


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	L LENGTH (mm)	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
WPT-1	T1	1.47	37	•	•
WPT-2	T2	2.31	55	•	•
WPT-3	T3	2.75	70	•	•
WPT-4	T4	3.34	85	•	•
WPT-5	T5	4.34	110	•	•

Material: Carbon Steel: Phosphates
SS: 316 stainless steel

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

R
Mounting Rail

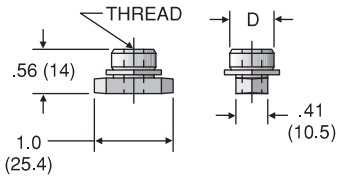


TUBE FITTING PART #	LENGTH	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
R-1	3.28 ft. (1 meter)	•	•
R-2	6.56 ft. (2 meters)	•	•

Material: Steel: Unplated & Oiled
SS: 316 stainless steel

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

RNT
Mounting Rail Nut Twin



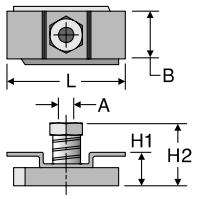
TUBE FITTING PART #	GROUP #	D DIAMETER (in.)	D DIAMETER (mm)	THREAD	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
RNT-1	T1	0.39	10	1/4 - 20 UNC	•	•
RNT-2-5	T2-T5	0.56	14	5/16 - 18 UNC	•	•

Material: Steel: Zinc-Nickel Plated
SS: 316 stainless steel

Note: to be used with mounting rail (R)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

CRA
Channel Rail Adapter



TUBE FITTING PART #	THREAD "A" UNC	L in. (mm)	B in. (mm)	H1 in. (mm)	H2 in. (mm)	STANDARD FROM STOCK
CRA 2-3D	5/16-18	1.49 (38)	2.55 (65)	0.73 (18.5)	1.08 (27.5)	•

Material: Steel: Zinc-Nickel Plated

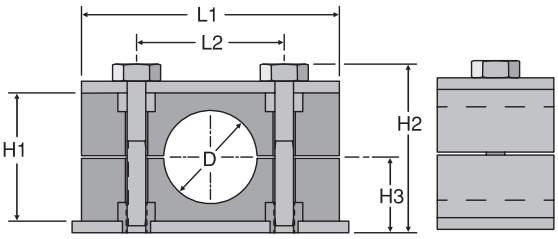
WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Dimensions and pressures for reference only, subject to change.

Parker Hannifin Corporation
Tube Fittings Division
Columbus, Ohio
http://www.parker.com/tfd

Clamp Halves

Compact Spiral Hose Heavy Series



See note below

COMPACT SPIRAL HOSE CLAMP HALVES										
PART #	HOSE SIZE	GROUP #	D (in.)	D (mm)	H1 (in.)	H2 (in.)	H3 (in.)	L1 (in.)	L2 (in.)	STANDARD FROM STOCK
H4213-HPP	-8	H4	0.84	21.3	1.83	2.80	1.26	2.75	1.77	•
H4250-HPP	-10	H4	0.98	25.0	1.83	2.80	1.26	2.75	1.77	•
H4280-HPP	-12	H4	1.10	28.0	1.83	2.80	1.26	2.75	1.77	•
H6354-HPP	-16	H6	1.39	35.4	3.42	4.61	2.17	4.52	3.54	•
H6445-HPP	-20	H6	1.75	44.5	3.42	4.61	2.17	4.52	3.54	•
H6530-HPP	-24	H6	2.09	53.0	3.42	4.61	2.17	4.52	3.54	•
H6680-HPP	-32	H6	2.68	68.0	3.42	4.61	2.17	4.52	3.54	•

Note: One clamp set includes two identical halves of polypropylene. Hardware shown in the illustration above is **not** included.

WARNING: This product can expose you to chemicals including 1,4-Dioxane which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

When selecting components, please reference and match the "Group#" column in each part table with the associated clamps.

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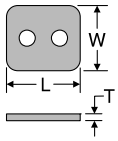
CPH
Cover Plate Heavy

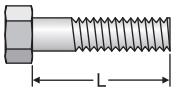


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	W WIDTH (in.)	T THICKNESS (in.)	T THICKNESS (mm)	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
CPH-4	H4	2.75	1.18	0.31	8	•	•
CPH-6	H6	4.52	1.77	0.39	10	•	•

Material: Steel: Zinc-Nickel Plated
Stainless Steel: 316

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

BCPH
Hexagon Head Bolt for Cover Plate
(2 required per clamp set)

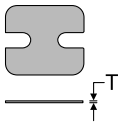


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	UNC THREAD	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
BCPH-4	H4	2.25	3/8 - 16	•	•
BCPH-6	H6	4.00	7/16 - 14	•	•

Material: Steel: Zinc-Nickel Plated
Stainless Steel: 316

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

LPH
Locking Plate Heavy

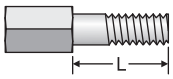


TUBE FITTING PART #	GROUP #	T THICKNESS (in.)	STANDARD FROM STOCK
LPH-4	H4	0.31	•
LPH-6	H6	0.39	•

Material: Steel: Zinc-Nickel Plated
Stainless Steel: 316 upon request

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

SBH
Stacking Bolt Heavy
(2 required per clamp set)

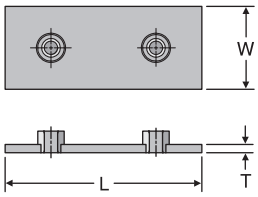


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	STANDARD FROM STOCK
SBH-4	H4	1.61	•
SBH-6	H6	3.27	•

Material: Steel: Zinc-Nickel Plated
Stainless Steel: 316 upon request

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

WPH
Weld Plate Heavy



TUBE FITTING PART #	GROUP #	L LENGTH (in.)	L LENGTH (mm)	W WIDTH (in.)	W WIDTH (mm)	T THICKNESS (in.)	T THICKNESS (mm)	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
WPH-4	H4	3.34	85	1.18	30	0.31	8	•	•
WPH-6	H6	5.51	140	1.79	45	0.39	10	•	•

Material: Steel: 1020, zinc phosphate plated
Stainless Steel: 316

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Dimensions and pressures for reference only, subject to change.

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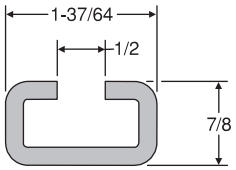
Mounting Rail Heavy



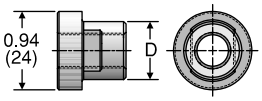
TUBE FITTING PART #	LENGTH	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
R1H	3.28 ft. (1 meter)	•	•
R2H	6.56 ft. (2 meters)	•	•

Material: Steel: Unplated & Oilded
Stainless Steel: 316

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

RNH

Mounting Rail Nut Heavy



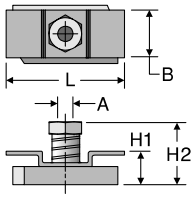
TUBE FITTING PART #	GROUP #	D DIAMETER (in.)	D DIAMETER (mm)	THREAD	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
RNH-10	H4	0.70	18	3/8 - 16 UNC	•	•
RNH-12	H6	0.78	20	7/16 - 14 UNC	•	•

Material: Steel: Zinc-Nickel Plated
Stainless Steel: 316
Note: To be used with mounting rail heavy (RH)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

CRA

Channel Rail Adapter



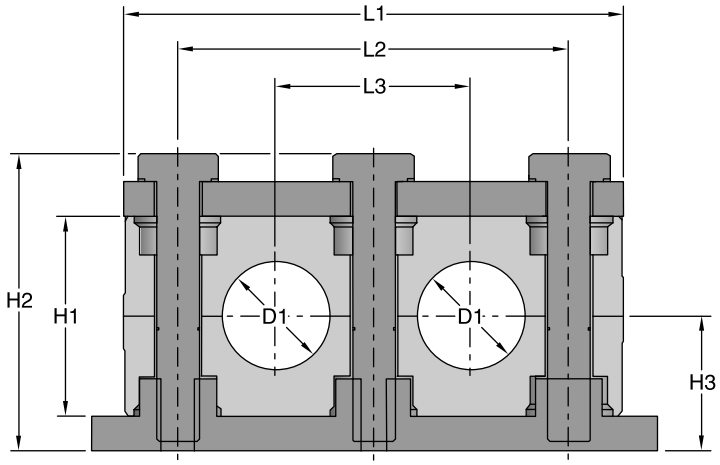
TUBE FITTING PART #	GROUP #	THREAD "A" UNC	L in. (mm)	B in. (mm)	H1 in. (mm)	H2 in. (mm)	STANDARD FROM STOCK
CRA 3-5	H4	3/8-16	1.37 (35)	0.86 (22)	0.73 (18.5)	1.08 (27.5)	•
CRA 6	H6	7/16-14	1.77 (45)	0.98 (25)	0.67 (17)	1.08 (27.5)	•

Material: Steel: Zinc-Nickel Plated
Stainlesss Steel upon request
For use with industrial channel rails/struts. (Parker does not supply)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Clamp Halves

Compact Spiral Hose Heavy Twin Series



See note below

COMPACT SPIRAL HOSE CLAMP HALVES											
PART #	HOSE SIZE	GROUP #	D1 (in.)	D1 (mm)	H1 (in.)	H2 (in.)	H3 (in.)	L1 (in.)	L2 (in.)	L3 (in.)	STANDARD FROM STOCK
H4213/213-HPP	-8	HT4	0.84	21.3	1.89	2.77	1.26	4.53	3.54	1.77	•
H4250/250-HPP	-10	HT4	0.98	25.0	1.89	2.77	1.26	4.53	3.54	1.77	•
H4280/280-HPP	-12	HT4	1.10	28.0	1.89	2.77	1.26	4.53	3.54	1.77	•
H5354/354-HPP	-16	HT5	1.39	35.4	2.36	3.24	1.50	5.71	4.72	2.36	•

Note: One clamp set includes two identical halves of polypropylene. Hardware shown in the illustration above is **not** included.

WARNING: This product can expose you to chemicals including 1,4-Dioxane which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

When selecting components, please reference and match the "Group#" column in each part table with the associated clamps.

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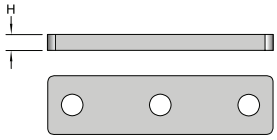
Cover Plate

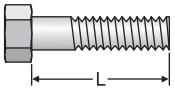


TUBE FITTING PART #	GROUP #	H HEIGHT (in.)	H HEIGHT (mm)	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
CPHT-4	HT4	0.31	8.0	•	•
CPHT-5	HT5	0.31	8.0	•	•

Material: Steel: Zinc-Nickel plated

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

BCPH
Hexagon Head Bolt for Cover Plate
(2 required per clamp set)

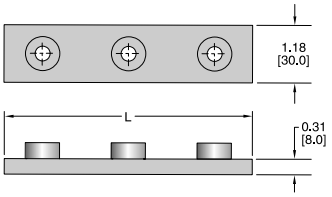


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	UNC THREAD	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
BCPH-4	HT4	2.25	3/8 - 16	•	•
BCPH-5	HT5	2.75	3/8 - 16	•	•

Material: Steel: Zinc-Nickel Plated
Grade 5. Stainless Steel: 316

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

WPHT
Weld Plate

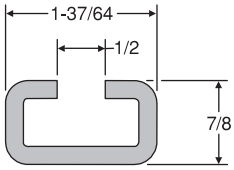


TUBE FITTING PART #	GROUP #	L LENGTH (in.)	L LENGTH (mm)	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
WPHT-4	HT4	5.12	130.0	•	•
WPHT-5	HT5	6.30	160.0	•	•

Material: Steel: Zinc-phosphate plated

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

RH
Mounting Rail Heavy

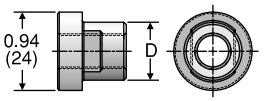


TUBE FITTING PART #	LENGTH	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
R1H	3.28 ft. (1 meter)	•	•
R2H	6.56 ft. (2 meters)	•	•

Material: Steel: Unplated & Oilded
Stainless Steel: 316

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

RNH
Mounting Rail Nut Heavy

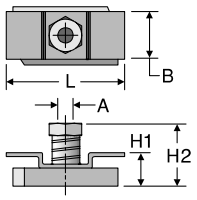


TUBE FITTING PART #	GROUP #	D DIAMETER (in.)	D DIAMETER (mm)	THREAD	STANDARD FROM STOCK -S	STANDARD FROM STOCK -SS
RNH-10	HT4, HT5	0.70	18	3/8 - 16 UNC	•	•

Material: Steel: Zinc Nickel Plated
Stainless Steel: 316
Note: To be used with mounting rail heavy (RH)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

CRA
Channel Rail Adapter



TUBE FITTING PART #	GROUP #	THREAD "A" UNC	L in. (mm)	B in. (mm)	H1 in. (mm)	H2 in. (mm)	STANDARD FROM STOCK
CRA 3-5	HT4	3/8-16	1.37 (35)	0.86 (22)	0.73 (18.5)	1.08 (27.5)	•

Material: Steel: Zinc-Nickel Plated
Stainlesss Steel upon request.
For use with industrial channel rails/struts. (Parker does not supply)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Dimensions and pressures for reference only, subject to change.

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0 METRIC CLAMPS

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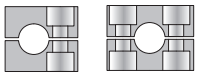
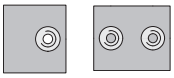
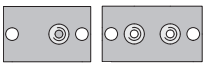
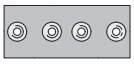
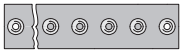
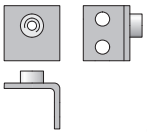
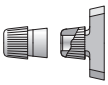
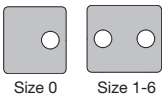
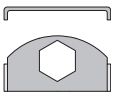
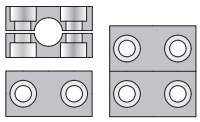
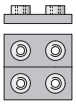
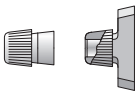
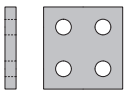
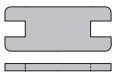
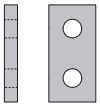
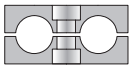
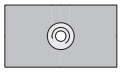
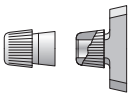
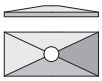
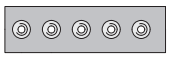
Standard Series Normal Mechanical Stress	**RAP/RAN/RAA** Clamp Halves  Size 0 Size 1-6 O4	**SLA** Slotted Screws  O5	**SSLA** Hex Head Bolt  O5	**ISA** Cap Screws  O5	**ASA** Stacking Bolts  O6
APKA Weld Plate-Short  Size 0 Size 1-6 O5	**APLA** Weld Plate-Long  Size 0 Size 1-6 O5	**APDA** Double Weld Plate  O5	**APRA** Weld Plate-Strip  O6	**APWA** Weld Plate Angled  O6	**TS** Mounting Rail  O6
TMA Lock Nut  O6	**DPA** Top Plate  Size 0 Size 1-6 O6	**SBA** Locking Plate  O6	**USA** Locking Washer  O6	**Heavy Series High Mechanical Stress**	**RCP/RCN/RCA/RCPD** Clamp Halves  O7
SSC Hex Head Bolts  O8	**ASC** Stacking Bolts  O8	**APC** Weld Plate  O8	**APDC** Double Weld Plate  O8	**ISC** Cap Screws  O9	**APLC** Weld/Screw Plate  O8
TSC Mounting Rail  O9	**TMC** Lock Nut  O9	**DPDC** Double Top Plate  O9	**SPC** Locking Plate  O9	**DPC** Top Plate  O10	**USC** Locking Washer  O10
Twin Series Normal Mechanical Stress	**RBP/RBN** Clamp Halves  O10	**SSB** Hex Head Bolt  O11	**ISB** Cap Screws  O11	**ASB** Stacking Bolts  O11	**APB** Weld Plate  O11
TMB Lock Nut  O11	**DPB** Top Plate  O11	**APRB** Strip Weld Plate  O12	**TS** Mounting Rail  O12	**SBB** Locking Plate  O12	**US** Locking Washer  O12

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Metric Clamps

The Parker Metric Clamp system is designed for restraining tube, pipe and hose assemblies against unwanted, and potentially harmful effects of mechanical shock and vibration forces that are common in fluid power systems.

The clamping system is the most commonly overlooked aspect of fluid power system design. Failure to properly restrain the fluid conducting system can result in leakage, downtime and system malfunction, as well as significantly reduced life of tube, pipe and hose assemblies. With the Parker Metric Clamp system, the risk of problems resulting from mechanical shock and vibration can be significantly reduced.

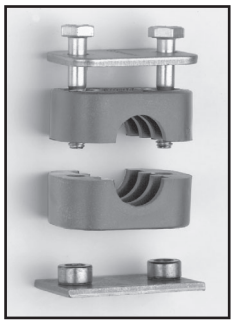

Fig. O1 – Weld Plate Assembly

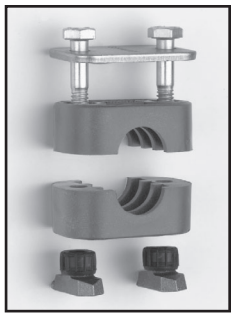

Fig. O2 – Mounting Rail Assembly

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How Metric Clamps Work

The Metric Clamp system has two primary methods for mounting: weld plates and mounting rails. Clamps may be mounted to secure a single layer of tube or stacked for securing multiple layers.

Clamps should be mounted to a rigid structure for optimum performance. Clamping tube, pipe or hose assemblies together without mounting them to a rigid structure, often called “floating clamps,” does not provide adequate support.

Proper design of a clamping system requires that the clamps be positioned appropriately on the tube, pipe or hose assemblies. See the Assembly and Installation section of the catalog for more information on clamp location and spacing.

Weld Plate Mounting (Fig. O1)

The weld plate mounting system allows the user to attach a single clamp assembly to a structure of similar material (steel to steel, etc) by welding the components together. Once the weld plate is attached to a structure, one clamp half can be placed onto the weld plate, followed by the tube, pipe or hose assembly. Next, the second plastic clamp half can be placed on the tube, pipe or hose assembly, followed by the cover plate. To complete the assembly, the Hex Head attachment bolts are inserted into the assembly and tightened.

Mounting Rail Mounting (Fig. O2)

Use of a mounting rail is another way to assemble the clamping system components onto a support structure. Using a mounting rail allows multiple clamps to be mounted side-by-side for restraining a group of tube, pipe, or hose assemblies. The mounting rail also provides the ability to move the location of the clamps in one direction for easier alignment. The rail can be attached to a support structure by welding or bolting. Once the mounting rail is in place, rail nuts can be slid into the rail. The first clamp half, followed by the tube, pipe or hose assembly, can then be installed over the corresponding rail nuts. After this, the second clamp half, the cover plate and the hex head attachment bolts can be installed to complete the assembly.

Stacking (Fig. O3)

A primary feature of the Metric Clamp system is its ability to accommodate stacking of a series of clamps to various heights, thus requiring a smaller footprint for mounting. To do this, simply use the stacking bolts to mount the first clamp assembly, then install a stacking plate over the first clamp and stacking bolts. The second clamp assembly can then be placed over the first clamp assembly. Complete the mounting by assembling a cover plate and using the hex head bolts to tighten the upper clamp assembly. **Note: When stacking, the clamps must be from the same series and group.**

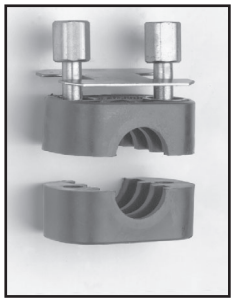


Fig. O3 – Stacked Assembly

Reference Locations

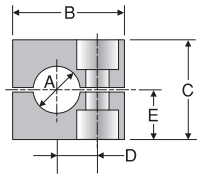
Assembly and Installation: Please refer to Section R for the assembly and installation instructions for Metric Clamps.

Parker Hannifin Corporation
Tube Fittings Division
Columbus, Ohio
http://www.parker.com/tfd

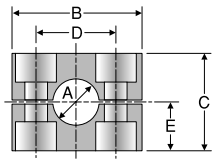
RAP / RAN / RAA

Clamp Halves

TUBE FITTING PART #	GROUP #	A Metric Tube Size	A Inch Pipe Size	A Inch Tube Size	B (mm)	C (mm)	D (mm)	E (mm)
RAP006X		6						
RAP006.4X		6.4		1/4				
RAP008X		8		5/16				
RAP009.5X		9.5		3/8				
RAP010X		10	1/8					
RAP012X	0	12			28	27	12.5	13.5
RAP106X		6						
RAP106.4X		6.4		1/4				
RAP108X		8		5/16				
RAP109.5X		9.5		3/8				
RAP110X		10	1/8					
RAP112X	1	12			34	27	20	13.5
RAP212.7X		12.7		1/2				
RAP213.5X		13.5	1/4					
RAP214X		14						
RAP215X		15						
RAP216X		16		5/8				
RAP217.2X		17.2	3/8					
RAP218X	2	18			40	33	26	16.5
RAP319X		19		3/4				
RAP320X		20						
RAP321.3X		21.3	1/2					
RAP322X		22						
RAP323X		23						
RAP325X	3	25		1	48	35	33	17.5
RAP426.9X		26.9	3/4					
RAP428X		28						
RAP430X	4	30			57	42	40	21
RAP532X		32		1 1/4				
RAP533.7X		33.7	1					
RAP535X		35						
RAP538X		38		1 1/2				
RAP540X		40						
RAP542X	5	42	1 1/4		70	58	52	29
RAP644.5X		44.5		1 3/4				
RAP645X		45						
RAP648X		48	1 1/2					
RAP650X		50						
RAP650.8X		50.8		2				
RAP652X		52						
RAP655X	6	55			86	66	66	33
RAP657X		57		2 1/4				



Group 0



Groups 1-6

Material codes for clamp halves:

Polypropylene - **RAP**
inside plain - **RAPG (for hose)**
Polyamide 6 - **RAN (Nylon)**
inside plain - **RANG (Nylon) (for hose)**
Aluminum - **RAA (Group 1 to 6 only)**

Note: One clamp set includes two identical halves.

When selecting components, please reference and match the "Group#" column in each part table with the associated clamps.

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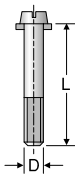
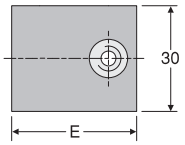
SLA
Slotted Screws



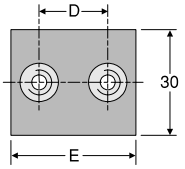
TUBE FITTING PART #	GROUP #	D (mm)	L (mm)
SLA0X	0,1	M6 x 1	20
SLA2X	2	M6 x 1	25
SLA3X	3	M6 x 1	30
SLA4X	4	M6 x 1	35
SLA5X	5	M6 x 1	50
SLA6X	6	M6 x 1	60

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

APKA
Weld Plate – Short



Group 0

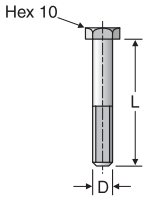


Groups 1-6

TUBE FIT-TING PART #	GROUP #	D (mm)	E (mm)
APKA0X	0	—	30
APKA1X	1	20	36
APKA2X	2	26	42
APKA3X	3	33	50
APKA4X	4	40	59
APKA5X	5	52	72
APKA6X	6	66	88

Thickness 3 mm

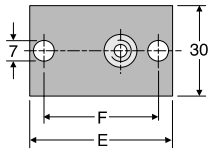
SSLA
Hex Head Bolt



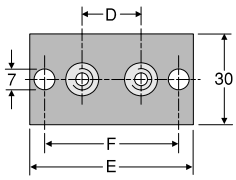
TUBE FITTING PART #	GROUP #	D (mm)	L (mm)
SSLA0X	0,1	M6 x 1	30
SSLA2/SSB1X	2	M6 x 1	35
SSLA3X	3	M6 x 1	40
SSLA4X	4	M6 x 1	45
SSLA5X	5	M6 x 1	60
SSLA6X	6	M6 x 1	70

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

APLA
Weld Plate – Long



Group 0

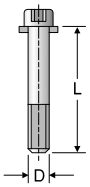


Groups 1-6

TUBE FITTING PART #	GROUP #	D (mm)	E (mm)	F (mm)
APLA0X	0	—	58	44
APLA1X	1	20	64	50
APLA2X	2	26	70	56
APLA3X	3	33	78	64
APLA4X	4	40	87	73
APLA5X	5	52	100	86
APLA6X	6	66	116	100

Thickness 3 mm

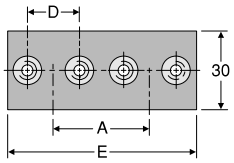
ISA
Cap Screws



TUBE FITTING PART #	GROUP #	D (mm)	L (mm)
ISA0X	0,1	M6 x 1	20
ISA2X	2	M6 x 1	25
ISA3X	3	M6 x 1	30
ISA4X	4	M6 x 1	35
ISA5X	5	M6 x 1	50
ISA6X	6	M6 x 1	60

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

APDA
Double Weld Plate



TUBE FITTING PART #	GROUP #	A (mm)	D (mm)	E (mm)
APDA0X	0	30	—	61
APDA1X	1	35	20	69
APDA2X	2	43	26	86
APDA3X	3	52	33	104
APDA4X	4	60	40	117
APDA5X	5	75	52	145
APDA6X	6	90	66	176

Thickness 3 mm

Dimensions and pressures for reference only, subject to change.

Parker Hannifin Corporation
Tube Fittings Division
Columbus, Ohio
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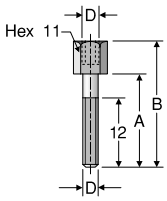
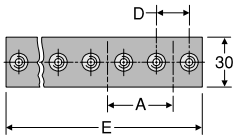
ASA
Stacking Bolts



TUBE FITTING PART #	GROUP #	A (mm)	B (mm)	D (mm)
ASA0X	0,1	20	34	M6 x 1
ASA2X	2	25	39	M6 x 1
ASA3X	3	30	44	M6 x 1
ASA4X	4	35	49	M6 x 1
ASA5X	5	50	64	M6 x 1
ASA6X	6	60	74	M6 x 1

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

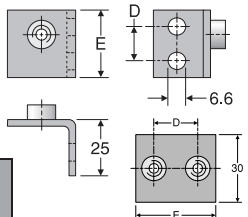
APRA
Weld Plate – Strip



TUBE FITTING PART #	GROUP #	D (mm)	A (mm)	E (mm)	NUMBER OF CLAMPS
APRA0X	0	—	30	298	10
APRA1X	1	20	35	349	10
APRA2X	2	26	43	427	10
APRA3X	3	33	52	516	10
APRA4X	4	40	60	297	5
APRA5X	5	52	75	370	5
APRA6X	6	66	90	446	5

Thickness 3 mm

APWA
Weld Plate – Angled

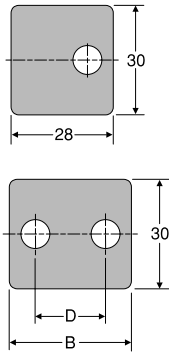


Groups 1-6

TUBE FITTING PART #	GROUP #	D (mm)	E (mm)
APWA0X	0	14	30
APWA1X	1	20	36
APWA2X	2	26	42
APWA3X	3	33	50
APWA4X	4	40	59
APWA5X	5	52	72
APWA6X	6	66	88

Thickness 3 mm

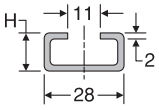
DPA
Top Plate



TUBE FITTING PART #	GROUP #	B (mm)	D (mm)
DPA0X	0	0	—
DPA1X	1	34	20
DPA2X	2	40	26
DPA3X	3	48	33
DPA4X	4	57	40
DPA5X	5	70	52
DPA6X	6	86	66

Thickness 3 mm

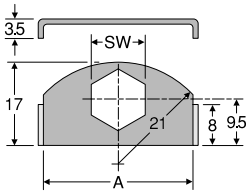
TS
Mounting Rail



TUBE FITTING PART #	GROUP #	H (mm)	LENGTH (meter)
TS11A/B1X	ALL	11	1
TS14A/B1X	ALL	14	1
TS30A/B1X	ALL	30	1
TS11A/B2X	ALL	11	2
TS14A/B2X	ALL	14	2
TS30A/B2X	ALL	30	2

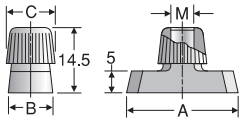
WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

SBA
Locking Plate



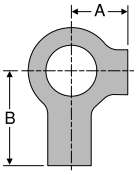
TUBE FITTING PART #	GROUP #	A (mm)	SW (mm)
SBAX	ALL	30	11

TMA
Lock Nut



TUBE FITTING PART #	GROUP #	A (mm)	B (mm)	C (mm)	M (mm)
TMA/TMB1VERZX	ALL	25.4	10.4	12	M6 X 1

USA
Locking Washer



TUBE FITTING PART #	GROUP #	A (mm)	B (mm)
USA/USB1X	ALL	9	18

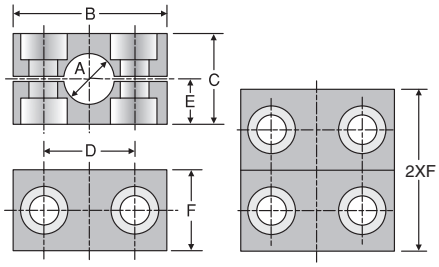
Dimensions and pressures for reference only, subject to change.

Parker Hannifin Corporation
Tube Fittings Division
Columbus, Ohio
http://www.parker.com/tfd

RCP / RCN / RCA / RCPG

Clamp Halves

TUBE FITTING PART #	GROUP #	A Metric Tube Size	A Inch Pipe Size	A Inch Tube Size	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
RCP108X		8		5/16					
RCP110X		10	1/8						
RCP112X		12							
RCP113.5X		13.5	1/4						
RCP114X	1	14			55	32	33	16	30
RCP115X		15							
RCP116X		16		5/8					
RCP117.2X		17.2	3/8						
RCP118X		18							
~~**RCP220X**~~		~~20~~							
RCP221.3X		21.3	1/2						
RCP222X		22							
RCP223X	2	23			70	48	45	24	30
RCP225X		25		1					
RCP226.9X		26.9	3/4						
RCP228X		28							
RCP330X		30							
RCP332X		32		1 1/4					
RCP333.7X		33.7	1						
RCP335X	3	35			85	60	60	30	30
RCP338X		38		1 1/2					
RCP340X		40							
RCP342X		42	1 1/4						
RCP438X		38		1 1/2					
~~**RCP440X**~~		~~40~~							
RCP442X		42	1 1/4						
RCP445X		45							
RCP448.3X		48.3	1 1/2						
RCP450X	4	50			115	90	90	45	45
RCP451X		51		2					
RCP452X		52							
RCP455X		55							
RCP457X		57		2 1/4					
RCP460.3X		60.3	2						
RCP463X		63		2 1/2					
RCP465X		65							
RCP470X		70							
RCP570X		70							
RCP576.1X		76.1	2 1/2	3					
RCP580X	5	80			152	120	122	60	60
RCP582.5X		82.5		3 1/4					
RCP588.9X		88.9	3	3 1/2					
RCP690X		90							
RCP6101.6X		101.6	3 1/2	4					
~~**RCP6108X**~~	~~6~~	~~108~~		~~4 1/4~~	~~205~~	~~170~~	~~168~~	~~85~~	~~80~~
RCP6114.3X		114.3	4	4 1/2					
RCP6127X		127		5					
RCP7127X		127		5					
RCP7133X		133		5 1/4					
~~**RCP7140X**~~		~~140~~	~~5~~	~~5 1/2~~					
RCP7152.4X	7	152.4	5 1/2	6	250	200	205	100	90
RCP7159X		159		6 1/4					
RCP7165.1X		165.1	6	6 1/2					
RCP7168.3X		168.3		6 5/8					
RCP8168.3X		168.3		6 5/8					
RCP8177.8X	8	177.8		7	320	270	265	135	120
~~**RCP8193.7X**~~		~~193.7~~		~~7 5/8~~					
RCP8219.1X		219.1	8	8 5/8					



RCP

RCPD
(2 pairs of RCP)

Material codes for clamp halves:

Polypropylene - **RCP**
inside plain - **RCPG (for hose)**
Polyamide 6 - **RCN**
Aluminum - **RCA**

Note: One clamp set includes two identical halves.

When selecting components, please reference and match the "Group#" column in each part table with the associated clamps.

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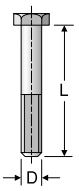
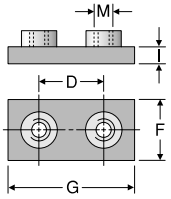
SSC
Hex Head Bolts



TUBE FITTING PART #	GROUP #	D (mm)	L (mm)
SSC1X	1	M10 x 1.5	45
SSC2X	2	M10 x 1.5	60
SSC3X	3	M10 x 1.5	70
SSC4X	4	M12 x 1.5	100
SSC5X	5	M16 x 2	130
SSC6X	6	M20 x 2	190
SSC7X	7	M24 x 2	220
SSC8X	8	M30 x 2	300

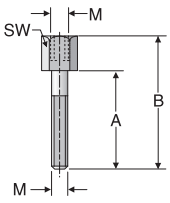
WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

APC
Weld Plate



TUBE FITTING PART #	GROUP #	D (mm)	F (mm)	G (mm)	I (mm)	M (mm)
APC1X	1	33	30	73	8	M10 x 1.5
APC2X	2	45	30	85	8	M10 x 1.5
APC3X	3	60	30	100	8	M10 x 1.5
APC4X	4	90	45	140	10	M12 x 1.5
APC5X	5	122	60	180	10	M16 x 2
APC6X	6	168	80	225	15	M20 x 2
APC7X	7	205	90	270	15	M24 x 2
APC8X	8	265	120	340	25	M30 x 2

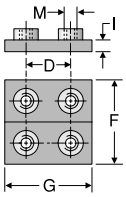
ASC
Stacking Bolts



TUBE FITTING PART #	GROUP #	M (mm)	SW (mm)	A (mm)	B (mm)
ASC1X	1	M10 x 1.5	15	25	51
ASC2X	2	M10 x 1.5	15	40	66
ASC3X	3	M10 x 1.5	15	50	76
ASC4X	4	M12 x 1.5	17	85	112
ASC5X	5	M16 x 2	21	110	146
ASC6X	6	M20 x 2	27	155	206
ASC7X	7	M24 x 2	30	185	245
ASC8X	8	M30 x 2	36	250	330

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

APDC
Double Weld Plate



TUBE FITTING PART #	GROUP #	D (mm)	F (mm)	G (mm)	I (mm)	M (mm)
APDC1X	1	33	60	73	8	M10 x 1.5
APDC2X	2	45	60	85	8	M10 x 1.5
APDC3X	3	60	60	100	8	M10 x 1.5
APDC4X	4	90	90	140	10	M12 x 1.5
APDC5X	5	122	120	180	10	M16 x 2
APDC6X	6	168	160	225	15	M20 x 2
APDC7X	7	205	180	270	15	M24 x 2
APDC8X	8	265	240	340	25	M30 x 2

Dimensions and pressures for reference only, subject to change.

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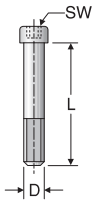
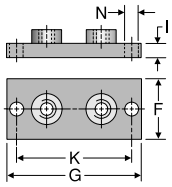
ISC
Cap Screws



TUBE FITTING PART #	GROUP #	D (mm)	L (mm)	SW (mm)
ISC1X	1	M10 x 1.5	45	8
ISC2X	2	M10 x 1.5	60	8
ISC3X	3	M10 x 1.5	70	8
ISC4X	4	M12 x 1.5	100	10
ISC5X	5	M16 x 2	130	14
ISC6X	6	M20 x 2	190	17
ISC7X	7	M24 x 2	220	19
ISC8X	8	M30 x 2	300	22

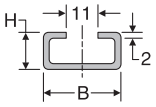
WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

APLC
Weld / Screw Plate



TUBE FITTING PART #	GROUP #	F (mm)	G (mm)	I (mm)	K (mm)	N (mm)
APLC1X	1	30	113	8	85	11
APLC2X	2	30	125	8	97	11
APLC3X	3	30	140	8	112	11
APLC4X	4	45	190	10	160	14
APLC5X	5	60	240	10	205	18
APLC6X	6	80	310	15	270	22
APLC7X	7	90	370	15	320	26
APLC8X	8	120	450	25	390	33

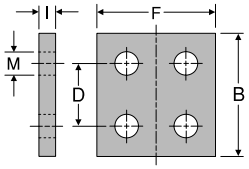
TSC
Mounting Rail



TUBE FITTING PART #	GROUP #	B (mm)	H (mm)	LENGTH (meter)
TSC1X	ALL	40	22	1
TSC2X	ALL	40	22	2

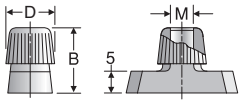
WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

DPDC
Double Top Plate



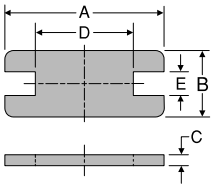
TUBE FITTING PART #	GROUP #	B (mm)	D (mm)	F (mm)	I (mm)	M (mm)
DPDC1X	1	55	33	60	8	11
DPDC2X	2	70	45	60	8	11
DPDC3X	3	85	60	60	8	11
DPDC4X	4	115	90	90	10	14
DPDC5X	5	152	122	120	10	18
DPDC6X	6	205	168	160	15	22
DPDC7X	7	250	205	180	15	26
DPDC8X	8	320	265	240	25	33

TMC
Lock Nut



TUBE FITTING PART #	GROUP #	B (mm)	D (mm)	M (mm)
TMC1X	1-3	20	17.8	M10 x 1.5
TMC4X	4	23	19.8	M12 x 1.5

SPC
Locking Plate



TUBE FITTING PART #	GROUP #	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
SPC1X	1	55	30	8	14	15.5
SPC2X	2	70	30	8	26	15.5
SPC3X	3	85	30	8	41	15.5
SPC4X	4	115	45	10	69	17.5
SPC5X	5	152	60	10	97	21.5
SPC6X	6	205	80	15	137	27.5
SPC7X	7	250	90	15	169	30.5
SPC8X	8	320	120	25	219	36.5

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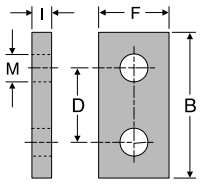
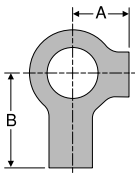
DPC
Top Plate



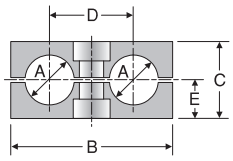
TUBE FITTING PART #	GROUP #	B (mm)	D (mm)	F (mm)	I (mm)	M (mm)
DPC1X	1	55	33	30	8	11
DPC2X	2	70	45	30	8	11
DPC3X	3	85	60	30	8	11
DPC4X	4	115	90	45	10	14
DPC5X	5	152	122	60	10	18
DPC6X	6	205	168	80	15	22
DPC7X	7	250	205	90	15	26
DPC8X	8	320	265	120	25	33

USC
Locking Washer



TUBE FITTING PART #	GROUP #	A (mm)	B (mm)
USC1X	1,2,3	13	22
USC4X	4	15	28
USC5X	5	18	32
USC6X	6	21	36
USC7X	7	25	42
USC8X	8	32	52

RBP / RBN
Clamp Halves



TUBE FITTING PART #	GROUP #	A Metric Tube Size	A Inch Pipe Size	A Inch Tube Size	B (mm)	C (mm)	D (mm)	E (mm)
RBP106X		6						
RBP106.4X		6.4		1/4				
RBP108X	1	8		5/16	36	27	20	13.5
RBP109.5X		9.5		3/8				
RBP110X		10	1/8					
RBP112X		12						
RBP212.7X		12.7		1/2				
RBP213.5X		13.5	1/4					
RBP214X		14						
RBP215X	2	15			53	26	29	13
RBP216X		16		5/8				
RBP217.2X		17.2	3/8					
RBP218X		18						
RBP319X		19		3/4				
RBP320X		20						
RBP321.3X	3	21.3	1/2		67	37	36	18.5
RBP322X		22						
RBP325X		25		1				
RBP426.9X		26.9	3/4					
RBP428X	4	28			82	42	45	21
RBP430X		30						
RBP532X		32		1 1/4				
RBP533.7X		33.7	1					
RBP535X	5	35			106	54	56	27
RBP538X		38		1 1/2				
RBP542X		42	1 1/4					

Material codes for clamp halves:
Polypropylene - **RBP**
inside plain - **RBPG (for hose)**
Polyamide 6 - **RBN**
Width 30 mm

Note: One clamp set includes two identical halves.

WARNING: This product can expose you to chemicals including 1,4-Dioxane which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

When selecting components, please reference and match the "Group#" column in each part table with the associated clamps.

Dimensions and pressures for reference only, subject to change.

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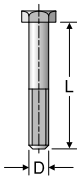
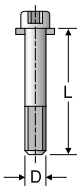
SSB
Hex Head Bolt



TUBE FITTING PART #	GROUP #	D (mm)	L (mm)	MATERIAL
SSLA2/SSB1X	1	M6 x 1	35	•
SSB2X	2	M8 x 1	35	•
SSB3X	3	M8 x 1	45	•
SSB4X	4	M8 x 1	50	•
SSB5X	5	M8 x 1	60	•

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

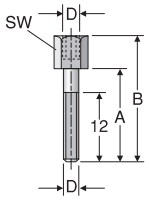
ISB
Cap Screws



TUBE FITTING PART #	GROUP #	D (mm)	L (mm)	MATERIAL
ISB1X	1	M6 x 1	35	•
ISB2X	2	M8 x 1	35	•
ISB3X	3	M8 x 1	45	•
ISB4X	4	M8 x 1	50	•
ISB5X	5	M8 x 1	60	•

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

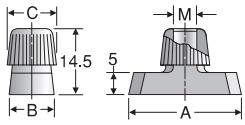
ASB
Stacking Bolts



TUBE FITTING PART #	GROUP #	D (mm)	A (mm)	B (mm)	SW (mm)
ASB1X	1	M6 x 1	20	34	11
ASB2X	2	M8 x 1	20	33	12
ASB3X	3	M8 x 1	29	44	12
ASB4X	4	M8 x 1	34	49	12
ASB5X	5	M8 x 1	47	62	12

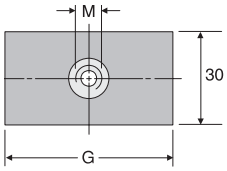
WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

TMB
Lock Nut



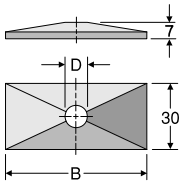
TUBE FITTING PART #	GROUP #	A (mm)	B (mm)	C (mm)	M (mm)
TMA/TMB1VERZX	1	25.4	10.4	12	M6 x 1
TMB2X	2-5	25.4	10.4	12	M8 x 1

APB
Weld Plate



THICKNESS	TUBE FITTING PART #	GROUP #	G (mm)	M (mm)
3	APB1X	1	37	M6 x 1
5	APB2X	2	55	M8 x 1
5	APB3X	3	70	M8 x 1
5	APB4X	4	85	M8 x 1
5	APB5X	5	110	M8 x 1

DPB
Top Plate



TUBE FITTING PART #	GROUP #	B (mm)	D (mm)
DPB1X	1	34	6.6
DPB2X	2	51	8.6
DPB3X	3	64	8.6
DPB4X	4	78	8.6
DPB5X	5	102	8.6

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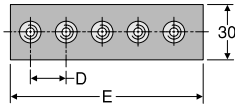
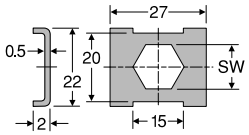
APRB
Weld Plate – Strip



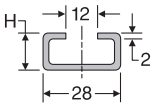
THICKNESS	TUBE FITTING PART #	GROUP #	D (mm)	E (mm)
3	**APRB1X**	1	40	196
5	**APRB2X**	2	58	288
5	**APRB3X**	3	72	358
5	**APRB4X**	4	90	446
5	**APRB5X**	5	112	558

SBB
Locking Plate



TUBE FITTING PART #	GROUP #	SW (mm)
SBB1X	1	11
SBB2X	2-5	12

TS
Mounting Rail



TUBE FITTING PART #	GROUP #	B (mm)	H (mm)	LENGTH (meter)
TS11A/B1X	ALL	28	11	1
TS14A/B1X	ALL	28	14	1
TS30A/B1X	ALL	28	30	1
TS11A/B2X	ALL	28	11	2
TS14A/B2X	ALL	28	14	2
TS30A/B2X	ALL	28	30	2

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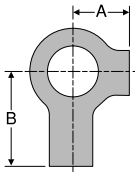
US
Locking Washer



TUBE FITTING PART #	GROUP #	A (mm)	B (mm)
USA/USB1X	1	9	18
USB2X	2-5	11	20

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P METRIC TUBE

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Introduction

Parker offers three types of seamless metric tubes for hydraulic, pneumatic and instrumentation applications:

- Steel seamless cold drawn tube, phosphate and oil dipped for corrosion resistance
- Steel seamless cold drawn tube, zinc Chromium-6 free plating for corrosion resistance
- Stainless steel cold drawn tube

Conformance and Material Specifications

Tests and Certificates

All tubes are subjected to a non-destructive leak test and marked accordingly. This marking is used in lieu of a works certificate DIN EN 10204-2.2. Test Class 1 DIN EN 10216-5 Table 7 applies for tubes made of 1.4571 material.

Materials and Mechanical Properties

Steel Types, mechanical properties and conditions are listed in Table P1.

Welding Suitability and Weldability:

- Steel tubes of St. 37.4, R Series, are weldable according to usual techniques.
- Not recommended to weld St. 37.4, R-CF series, Zinc Chromium-6 Free plated tubes.

Stainless steel tubes of 1.4571 are suitable for arc welding. The welding filler should be selected in accordance with DIN EN1600 and DIN EN12072 Part 1 taking into account the type of application and the welding technique.

Assembly and Installation

Please refer to Section R for the assembly and installation instructions for Metric Tube fittings.

Applications

Recommended Bend Radius

A bend radius of 3 times the tube O.D. or greater is recommended for cold bending of Parker tubes with hand, mechanical and power bending equipment.

*Use of Tube Supports

The use of VH tube supports for EO and EO-2 fittings is required in certain thinner wall tubes to ensure proper assembly. Consult Fig. R45 & Fig. R46 on page R30.

Temperature Range

- Parker steel (St. 37.4) metric seamless tube can be used at the full rated working pressures without pressure rating reductions within the following temperature range: -40°C to +120°C. Maximum allowable operating temperature of +250°C.
- Parker stainless steel (1.4571) metric seamless tube can be used at full rated working pressures with-out pressure reductions within the following temperature ranges: -60°C to +20°C. Maximum allowable operating temperature of +400°C. Elevated temperature pressure reductions are as listed in Table P2.

As Delivered Conditions:

Standard Tube Lengths: 6 meters (approx. 20 ft)

Surface Finish:

- Steel (St. 37.4): Phosphated and oiled
  - I.D. dimensions 1.5 – 5 mm, outside and inside oiled
  - I.D. dimensions 6 mm and higher, outside and inside phosphated and oiled
- Steel (St. 37.4) R-CF Series: Zinc Chromium-6 Free

Parker Series	Material	Tensile Strength	Yield Strength	% Elongation	Condition
R Series	Steel, fine grain E235N acc. to EN10305-4 (St. 37.4 acc. to DIN1630	340 N/mm² min. 49,000 PSI	235 N/mm² min. 34,000 PSI	25% min.	Seamless, cold drawn normal annealed, DIN EN 10305-1 and -4
R-71 Series	Stainless steel, 1.4571 X6CrNiMoTi17122	500 N/mm² min. 72,500 PSI	245 N/mm² min. 35,500 PSI	35% min.	Seamless, cold drawn free of scale, heat treated in accordance with DIN EN 10216-5 tab. 6

Table P1 — Parker Steel tubes mechanical properties and conditions

Temperature	Material	-60° up to +20° C	50° C	100° C	200° C	300° C	400° C
Pressure reductions in %	1.4571	—	5.5	11.5	21.5	29	34

Note: Interpolation is acceptable for intermediate temperature levels.

Table P2 — Parker stainless tube elevated temperature derating factors

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Seamless EO Steel Tubes Material E235N (St. 37.4)

Tolerances DIN EN 10305-4

Order code		Tube O.D. (mm)	Tolerance	Wall thickness (mm)	Tube I.D. (mm)	Design pressure bar		Burst pressure bar	Weight kg/m
Phosphated and oiled	Cr(VI)-free					DIN 2413 I Static	DIN 2413 III Dynamic		
R04X0.5	R04X0.5CF	4		0.50	3.0	313	273	1160	0.047
	R04X0.75CF	4	±0.08	0.75	2.5	470	391	1820	0.063
R04X1	R04X1CF	4		1.00	2.0	627	500	2700	0.074
	R05X1CF	5	±0.08	1.00	3.0	501	416	2120	0.099
	R06X0.75CF	6		0.75	4.5	333	288	1150	0.103
R06X1	R06X1CF	6		1.00	4.0	444	372	1650	0.123
R06X1.5	R06X1.5CF	6	±0.08	1.50	3.0	666	526	2550	0.166
	R06X2CF	6		2.00	2.0	692	662	>3500	0.197
	R06X2.25CF	6		2.25	1.5	757	725	>3500	0.208
R08X1	R08X1CF	8		1.00	6.0	333	288	1175	0.173
R08X1.5	R08X1.5CF	8	±0.08	1.50	5.0	499	412	1925	0.240
R08X2	R08X2CF	8		2.00	4.0	666	526	2500	0.296
	R08X2.5CF	8		2.50	3.0	658	630	2650	0.339
R10X1	R10X1CF	10		1.00	8.0	282	248	900	0.222
R10X1.5	R10X1.5CF	10		1.50	7.0	423	357	1450	0.314
R10X2	R10X2CF	10	±0.08	2.00	6.0	564	458	2025	0.395
	R10X2.5CF	10		2.50	5.0	705	551	2675	0.462
	R10X3CF	10		3.00	4.0	666	638	>3500	0.518
R12X1	R12X1CF	12		1.00	10.0	235	209	750	0.271
R12X1.5	R12X1.5CF	12		1.50	9.0	353	303	1150	0.388
R12X2	R12X2CF	12	±0.08	2.00	8.0	470	391	1600	0.493
	R12X2.5CF	12		2.50	7.0	588	474	2025	0.586
	R12X3CF	12		3.00	6.0	705	551	2600	0.666
	R12X3.5CF	12		3.50	5.0	651	624		0.734
	R14X1.5CF	14		1.50	11.0	302	264	975	0.462
R14X2	R14X2CF	14		2.00	10.0	403	342	1325	0.592
	R14X2.5CF	14	±0.08	2.50	9.0	504	415	1650	0.709
R14X3	R14X3CF	14		3.00	8.0	604	485	2200	0.814
		14		3.50	7.0	705	551	2625	0.906
R15X1	R15X1CF	15		1.00	13.0	188	170	575	0.345
R15X1.5	R15X1.5CF	15		1.50	12.0	282	248	950	0.499
R15X2	R15X2CF	15	±0.08	2.00	11.0	376	321	1275	0.641
		15		3.00	9.0	564	458	2000	0.888
R16X1.5	R16X1.5CF	16		1.50	13.0	264	233	850	0.536
R16X2	R16X2CF	16	±0.08	2.00	12.0	353	303	1175	0.691
R16X2.5	R16X2.5CF	16		2.50	11.0	441	370	1500	0.832
R16X3	R16X3CF	16		3.00	10.0	529	433	1850	0.962
R18X1	R18X1CF	18		1.00	16.0	157	143	450	0.419
R18X1.5	R18X1.5CF	18		1.50	15.0	235	209	700	0.610
R18X2	R18X2CF	18	±0.08	2.00	14.0	313	273	975	0.789
R18X2.5	R18X2.5CF	18		2.50	13.0	392	333	1300	0.956
	R18X3CF	18		3.00	12.0	470	391	1575	1.111

Table P3 — Seamless EO steel tubes

Pressure Calculations:

Calculation pressures given are according to DIN 2413 Part 1 for **static stress**

$$P = \frac{20 \cdot K \cdot s \cdot c}{S \cdot da} \text{ (bar)}$$

Material characteristic value K=235 N/mm²

and

DIN 2413 part III for **dynamic stress**

$$P = \frac{20 \cdot K \cdot s \cdot c}{S \cdot (da + s \cdot c)} \text{ (bar)}$$

Material characteristic value K=226 N/mm² (permanent fatigue strength)

Design correction value S=1.5 for static and dynamic stress.

Factor "c" for consideration of wall thickness **divergence for static and dynamic stress** =0.8 for tube o.d. 4 and 5; 0.85 for tube o.d. 6 and 8; 0.9 for larger tube o.d.

da = Tube O.D. in mm

s = Wall thickness in mm

Standard Tube Length:

- 6 m (19.7 ft.)

Conversion Factors:

- Bar x 14.5 = psig
- kg/m x 0.672 = lbs/ft
- N/mm² x 145 = lb/in²

See Remarks on page P5.

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Seamless EO Steel Tubes Material E235N (St. 37.4) (continued)

Tolerances DIN EN 10305-4

Order code		Tube O.D. (mm)	Tolerance	Wall thickness (mm)	Tube I.D. (mm)	Design pressure bar		Burst pressure bar	Weight kg/m
Phosphated and oiled	Cr(VI)-free					DIN 2413 I Static	DIN 2413 III Dynamic		
	R20X1.5CF	20		1.50	17.0	212	190	675	0.684
R20X2	R20X2CF	20		2.00	16.0	282	248	900	0.888
R20X2.5	R20X2.5CF	20	±0.08	2.50	15.0	353	303	1100	1.079
R20X3	R20X3CF	20		3.00	14.0	423	357	1400	1.258
	R20X3.5CF	20		3.50	13.0	494	408	1650	1.424
	R20X4CF	20		4.00	12.0	564	458	2000	1.578
	R22X1.5CF	22		1.50	19.0	192	173	550	0.758
R22X2	R22X2CF	22	±0.08	2.00	18.0	256	227	775	0.986
R22X2.5	R22X2.5CF	22		2.50	17.0	320	278	1025	1.202
	R22X3CF	22		3.00	16.0	385	328	1175	1.406
R25X2	R25X2CF	25		2.00	21.0	226	201	725	1.134
R25X2.5	R25X2.5CF	25		2.50	20.0	282	248	850	1.387
R25X3	R25X3CF	25	±0.08	3.00	19.0	338	292	1025	1.628
R25X4	R25X4CF	25		4.00	17.0	451	378	1500	2.072
R25X4.5	R25X4.5CF	25		4.50	16.0	508	418	1625	2.275
R28X1.5	R28X1.5CF	28		1.50	25.0	151	138	425	0.980
R28X2	R28X2CF	28		2.00	24.0	201	181	600	1.282
R28X2.5	R28X2.5CF	28	±0.08	2.50	23.0	252	223	750	1.572
R28X3	R28X3CF	28		3.00	22.0	302	264	900	1.850
	R30X2CF	30		2.00	26.0	188	170	575	1.381
R30X2.5	R30X2.5CF	30		2.50	25.0	235	209	725	1.695
R30X3	R30X3CF	30	±0.08	3.00	24.0	282	248	850	1.998
R30X4	R30X4CF	30		4.00	22.0	376	321	1175	2.565
R30X5	R30X5CF	30		5.00	20.0	470	391	1600	3.083
R35X2	R35X2CF	35	±0.15	2.00	31.0	161	147	450	1.628
R35X2.5	R35X2.5CF	35		2.50	30.0	201	181	600	2.004
R35X3	R35X3CF	35		3.00	29.0	242	215	700	2.367
	R35X4CF	35		4.00	27.0	322	280	960	3.058
	R38X2.5CF	38		2.50	33.0	186	168	550	2.189
R38X3	R38X3CF	38		3.00	32.0	223	199	675	2.589
R38X4	R38X4CF	38	±0.15	4.00	30.0	297	260	900	3.354
R38X5	R38X5CF	38		5.00	28.0	371	318	1150	4.069
	R38X6CF	38		6.00	26.0	445	373	1425	4.735
	R38X7CF	38		7.00	24.0	519	427	1700	5.352
R42X2	R42X2CF	42	±0.2	2.00	38.0	134	123	375	1.973
R42X3	R42X3CF	42		3.00	36.0	201	181	575	2.885
R42X4	R42X4CF	42		4.00	34.0	269	237	850	3.749
R50X6		50	±0.2	6.00	38.0	338	292		6.511
R65X8		65	±0.3	8.00	49.0	347	299		11.246

Table P3 — Seamless EO steel tubes (cont'd.)

Remarks:

Corrosion — Additional allowances are not considered for the calculation of pressures

$$\frac{da\ (bar)}{dimax.} > 2$$

are calculated for static stress in accordance with DIN 2413 Part III, but with K = 235 N/mm²

When a specific design factor is required, calculations should be based upon the burst pressures shown in the above tables.

Temperature range: -40°C up to 120°C without pressure reductions.

Surface finish:

Tubes with I.D. 1.5 to 5 mm: outside and inside oiled.

Tubes from 6 mm I.D. and above: outside and inside phosphated and oiled.

For increased temperatures:

control calculation according to DIN 2413 required (static application above 120 °C).

$$P = \frac{20 \cdot K \cdot a \cdot c}{S \cdot (da + a \cdot c)}\ (bar)$$

Material strength K for increased temperatures:

Temperature in °C	K (Nmm²)
up to 200	185
up to 250	165

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Seamless EO Stainless Steel Tubes Material-No.: 1.4571

Tolerances EN 10305-1 / DIN 2391

Order code 1.4571	Tube O.D. (mm)	Tolerance	Wall thickness (mm)	Tube I.D. (mm)	1.4571 Design pressure bar DIN 2413 I Static	1.4571 burst pressure bar	Weight kg/m
R04X171	4	±0.08	1.0	2	735		0.075
R06X171	6	±0.08	1.0	4	490	1850	0.125
R06X1.571	6	±0.08	1.5	3	735	2900	0.169
R08X171	8	±0.08	1.0	6	368	1300	0.175
R08X1.571	8		1.5	5	551	2050	0.244
R10X171	10		1.0	8	294	950	0.225
R10X1.571	10	±0.08	1.5	7	441	1750	0.319
R10X271	10		2.0	6	588	2400	0.401
R12X171	12		1.0	10	245	850	0.275
R12X1.571	12	±0.08	1.5	9	368	1400	0.394
R12X271	12		2.0	8	490	1900	0.501
R14X1.571	14		1.5	11	315	1200	0.469
R14X271	14	±0.08	2.0	10	420	1550	0.601
R14X2.571	14		2.5	9	525	2100	0.720
R15X171	15		1.0	13	196	675	0.351
R15X1.571	15	±0.08	1.5	12	294	1100	0.507
R15X271	15		2.0	11	392	1400	0.651
R16X1.571	16	±0.08	1.5	13	276	950	0.545
R16X271	16		2.0	12	368	1300	0.701
R16X2.571	16	±0.08	2.5	11	459	1850	0.845
R16X371	16		3.0	10	551	2400	0.977
R18X1.571	18	±0.08	1.5	15	245	800	0.620
R18X271	18		2.0	14	327	1150	0.801
R20X271	20		2.0	16	294	1050	0.901
R20X2.571	20	±0.08	2.5	15	368	1400	1.095
R20X371	20		3.0	14	441	1800	1.277
R22X1.571	22	±0.08	1.5	19	200	650	0.770
R22X271	22		2.0	18	267	900	1.002
R25X2.571	25	±0.08	2.5	20	294	1050	1.408
R25X371	25		3.0	19	353	1275	1.653
R28X1.571	28	±0.08	1.5	25	158	550	0.995
R28X271	28		2.0	24	210	700	1.302
R30X2.571	30	±0.08	2.5	25	245	850	1.722
R30X371	30	±0.08	3.0	24	294	1150	2.028
R30X471	30		4.0	22	392	1500	2.605
R35X271	35	±0.15	2.0	31	168	550	1.653
R38X471	38	±0.15	4.0	30	309	1150	3.405
R42X271	42	±0.2	2.0	38	140	475	2.003
R42X371	42		3.0	36	210	750	2.930

Table P4 — Seamless EO stainless steel tubes

Pressure Calculation:

Pressure calculation given are according to DIN 2413 part I for **static stress**

$$P = \frac{20 \cdot K \cdot s \cdot c}{S \cdot da} \text{ (bar)}$$

Material characteristic value K=245 N/mm² (1.4571), K=245 N/mm² (1.4571) (1% proof stress)

Design factor S = 1.5

Factor “c” for consideration of wall thickness divergence: 0.9

da = Tube O.D. in mm

s = Wall thickness in mm

Remarks:

Corrosion — Additional allowances are not considered for the calculation of pressures.

Tubes with a diameter ratio da/di ≥ 1.35 are calculated according to DIN 2413 part III (formula see page P5) with above characteristic K value.

Conversion Factors:

- Bar x 14.5 = psig
- kg/m x 0.672 = lbs/ft
- N/mm² x 145 = lb/in²

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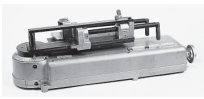
Bender Capacity Guides Q7	**Exactol Benders** 412 & 424  Q8-Q11	**HB632** Hydraulic Bender  Q12-Q16	**Mandrel Bending Components**  Q16-Q18	**CP432 Tube and Pipe Bender Kit**  Q19	
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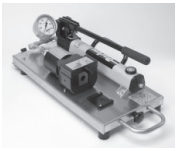
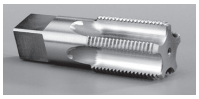
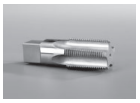
Hydra-Tool Hydraulic Flaring & Pre-Setting Tool  Q33-Q35	**Karryflare**  Q36	**Flaring Tooling for Parflange 1025**  Q37	**Flaring Tooling for Parflange ECO25**  Q38	**Porting Tools**	**Straight Thread Port Tap** (Sizes 2 to 32)  Q39
SAE Straight Thread Port Counterbore (Sizes 2 to 32)  Q39	**BSPP Counterbores**  Q40	**BSPP/BSPT Taps**  Q40	**NPTF Taps**  Q41	**ISO 6149-1** Port Tap  Q41	**ISO 6149-1** Port Counterbore  Q42
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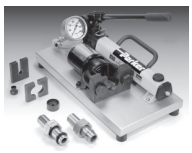
Pre-Setting Tooling for Hydra-Tool  Q48-Q49	**EO-Karrymat**  Q50	**O-Ring Assembly Tools**	**O-Ring Pick**  Q52	**Captive O-Ring Installation Tool**  Q52	**Brazing Flux and Cleaner**
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Hand Tube Benders – Inch

These are sturdy, easy-to-use hand tools for fast and accurate bending without kinks or visible flattening. Twelve individual sizes from -2 (1/8" O.D.) to -14 (7/8" O.D.) are available.

Medium Duty Inch Hand Tube Benders

Designed and built for fast, accurate bends and long service life.

These are individual benders for eight inch tube sizes (3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4"). All of these benders will bend copper, aluminum, annealed steel and stainless steel. These can be used in hands or mounted in a bench vise.

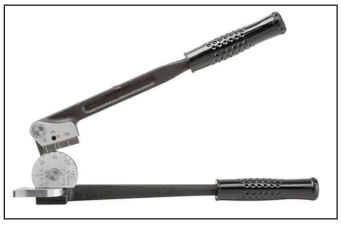

Fig. Q1 — Medium Duty Inch Hand Tube Bender

HOW TO USE: Simply align marks of the pressure arm and radius block, then bend to the desired angle (up to 180°) by pulling steadily on the slide block handle. Bend angles are indicated on the radius block, both front and back. (Detailed instructions are included with each bender.) See the table below for technical data and part numbers.

Size	Tube O.D. (in.)	Radius to Tube Centerline (in.)	Min. Wall Without Flattening (in.)	Recommended Max. Wall Thickness Copper, Aluminum (in.)	Steel, Stainless Steel (in.)	Part No.
3	3/16	5/8	0.020	Any	0.032.....	**3-2829**
4	1/4	5/8	0.028	Any	0.083.....	**4-2829**
5	5/16	15/16	0.032	Any	0.083.....	**5-2829**
6	3/8	15/16	0.032	Any	0.083.....	**6-2829**
8	1/2	1 1/2	0.042	Any	0.083.....	**8-2829**

Ratchet Hand Tube Benders

These are individual benders for three tube sizes, 5/8", 3/4" and 7/8", in copper, aluminum, annealed steel and stainless steel. They can be used in hands or mounted in a bench vise.

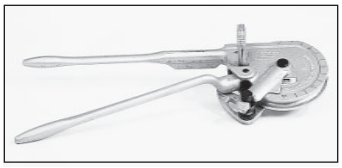

Fig. Q2 — Ratchet Hand Tube Bender

HOW TO USE: Position the tube in the bender, close the latch and pull the ratchet handle away from radius block handle until the desired angle (up to 180°) is formed. Bend angles are indicated on the radius block. (Detailed instructions are included with each bender.) See the table below for technical data and part numbers.

Size	Tube O.D. (in.)	Radius to Tube Centerline (in.)	Min. Wall Without Flattening (in.)	Recommended Max. Wall Thickness Copper, Aluminum (in.)	Steel, Stainless Steel (in.)	Part No.
10	5/8	3	0.042	Any	0.049.....	**10-2829**
12	3/4	3 3/4	0.049	Any	0.065.....	**12-2829**
14	7/8	3 3/4	0.049	Any	0.065.....	**14-2829**

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Hand Tube Benders – Metric

These are sturdy, easy-to-use hand tools for fast and accurate bending without kinks or visible flattening. Individual sizes in ten models from size 5mm to 25mm are available.

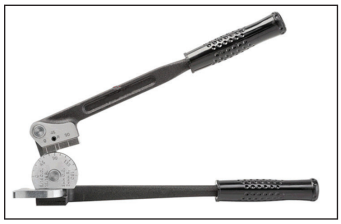

Fig. Q4 — Medium Duty Metric Hand Tube Bender

Medium Duty Metric Hand Tube Benders

Designed and built for fast, accurate bends and long service life.

These are individual benders for six metric tube sizes (5mm, 6mm, 8mm, 10mm, 12mm and 14mm). All of these benders will bend copper, aluminum, annealed steel and stainless steel. These can be used in hands or mounted in a bench vise.

HOW TO USE: Simply align the marks on the slide block and radius block, then bend to the desired angle (up to 180°) by pulling steadily on the slide block handle. Bend angles are indicated on the radius block, both front and back. (Detailed instructions are included with each bender.) See the table below for technical data and part numbers.

Tube O.D. (mm)	Radius to Tube Centerline (mm)	Min. Tube Wall Thickness (mm)	Recommended Max. Wall Thickness Copper, Aluminum (mm)	Steel, Stainless Steel (mm)	Part No.
6	16	1.0	Any	1.5.....	**2829-6mm**
8	24	1.0	Any	1.5.....	**2829-8mm**
10	24	1.0	Any	2.0.....	**2829-10mm**
12	38	1.0	Any	2.0.....	**2829-12mm**

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Bench Mount Metric Hand Bender and Cutting Guide

This bender combines a tube cutting guide with the bender for sizes 6mm, 8mm, 10mm, and 12mm. There are three bender rollers that cover all sizes. The bender mounts easily to a work bench or table.

Part Description	Part No.
Bench Mount Tube Bender (6mm, 8mm, 10mm, 12mm)	**BAV06/12KPLX**

Fig. Q5 — BAV06/12KPLX

Vise Mount Metric Hand Benders

Vise Mount Metric Bender – 6/18mm

This bender has six interchangeable rollers to cover tube sizes 6mm, 8mm, 10mm, 12mm, 14mm, 15mm, 16mm, and 18mm.

Part Description	Part No.
Vise Mount Tube Bender (6mm, 8mm, 10mm, 12mm, 14mm, 15mm, 16mm, 18mm)	**BV06/18KPLX**

Fig. Q6 — BV06/18KPLX

Tube O.D. (mm)	Bend Radius (mm)	Max. Wall Thickness (mm)
6	33	2.5
8	34	2.5
10	36	2.5
12	37	2.5
14	37	2.0
15	44	2.0
16	44	2.0
18	52	2.0

Vise Mount Metric Bender – 20/25mm

This bender has three interchangeable rollers to cover tube sizes 20mm, 22mm, and 25mm. All bend radii are 86.5mm. Pressure arm is not included with the BV20/25KPLX, however it can be manufactured on site with a piece of tube, or it can be ordered separately with part number BV20/2510X. Maximum wall thickness for all sizes is 2.0mm.

Part Description	Part No.
Vise Mount Tube Bender (20mm, 22mm, 25mm)	**BV20/25KPLX**
Pressure Arm	**BV20/2510X**

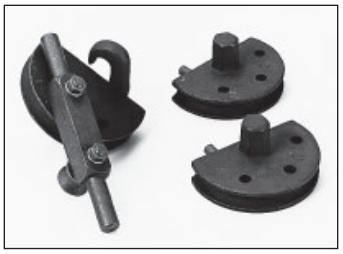

Fig. Q7 — BV20/25KPLX

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Hand Crank & Hydraulic Tube Bender Capacity Guides

All benders listed in Tables Q1 through Q3 are capable of bending 1/2" O.D. and under fully annealed steel and stainless steel tube with no limit on wall thickness. For HARD copper and HIGH STRENGTH aluminum, use the wall thickness shown for stainless steel. Observe that VERY HARD materials may not be ductile enough to bend without fracture.

Inch Tube Sizes

Tube O.D.	Material	Tube Wall Thickness (in.)											
		0.035	0.049	0.058	0.065	0.072	0.083	0.095	0.109	0.120	0.134	0.156	0.188
		Bender Code*											
3/4"	S	ABCD	ABCD	ABCD	ABCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD
	SS	ABCD	ABCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD
1"	S	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD
	SS	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	CD	CD
1 1/4"	S	BCD	BCD	BCD	BCD	BCD	BCD	CD	CD	CD	CD	CD	CD
	SS	BCD	BCD	BCD	BCD	BCD	CD	CD	CD	CD	CD	C	C
1 1/2"	S	BCD	BCD	BCD	BCD	BCD	CD	CD	CD	CD	CD	CD	CD
	SS	BCD	BCD	CD	CD	CD	CD	CD	CD	CD	CD	C	C
2"	S	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD
	SS	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD	—	—

Table Q1 — Hand Crank and Hydraulic Tube Benders Maximum Capacity Guide – Inch Sizes

Inch Pipe Sizes

Pipe Size	Material	Inch Pipe Schedule (IPS)	
		40	80
		Bender Code*	
1/2"	S	CD	CD
	SS	CD	CD
3/4"	S	CD	CD
	SS	CD	CD
1"	S	CD	CD
	SS	CD	CD
1 1/4"	S	CD	CD
	SS	CD	CD
1 1/2"	S	CD	CD
	SS	CD	CD
2"	S	D	D
	SS	D	—

Table Q2 — Hand Crank and Hydraulic Benders Maximum Capacity Guide – Inch Pipe Sizes

Metric Tube Sizes

Tube O.D. (mm)	Material	Tube Wall Thickness (mm)						
		1.5	2	2.5	3	3.5	4	5
		Bender Code*						
18	S	ABCD	ABCD	ABCD	ABCD	BCD	BCD	CD
	SS	BCD	BCD	BCD	BCD	BCD	BCD	CD
20	S	ABCD	ABCD	ABCD	BCD	BCD	BCD	CD
	SS	BCD	BCD	BCD	BCD	BCD	BCD	CD
22	S	BCD	BCD	BCD	BCD	BCD	BCD	CD
	SS	BCD	BCD	BCD	BCD	BCD	CD	CD
25	S	BCD	BCD	BCD	BCD	BCD	CD	CD
	SS	BCD	BCD	BCD	BCD	CD	CD	CD
28	S	BCD	BCD	BCD	BCD	CD	CD	CD
	SS	BCD	BCD	CD	CD	CD	CD	CD
30	S	BCD	BCD	BCD	BCD	CD	CD	CD
	SS	BCD	BCD	CD	CD	CD	CD	CD
32	S	BCD	BCD	CD	CD	CD	CD	CD
	SS	BCD	BCD	CD	CD	CD	CD	CD
35	S	BCD	CD	CD	CD	CD	CD	CD
	SS	BCD	CD	CD	CD	CD	CD	CD
38	S	BCD	CD	CD	CD	CD	CD	CD
	SS	CD	CD	CD	CD	CD	CD	CD
42	S	CD	CD	CD	CD	CD	CD	CD
	SS	CD	CD	CD	CD	CD	CD	—
50	S	CD	CD	CD	CD	CD	CD	—
	SS	CD	CD	CD	CD	CD	—	—

Table Q3 — Hand Crank and Hydraulic Tube Benders Maximum Capacity Guide – Metric Tube Sizes

***Codes:**

(A) Model 412 — Tube (1/4" thru 3/4" and 6mm thru 20mm) — Worm & Gear
(B) Model 424 — Tube (1/4" thru 1 1/2" and 6mm thru 38mm) — Worm & Gear
(C) Model HB632 — Tube (3/8" thru 2" and 10mm thru 50mm) — Hydraulic
(D) Model CP432 — Tube (1/4" thru 2") — Hydraulic

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Exactol® Crank-Operated Benders

Models 412/424

These portable benders are vise or bench mountable for easy action and fast accurate bending to 180°. Two models are available to bend tube sizes 4 (1/4") through 24 (1 1/2"). Exactol benders are designed with a worm-gear drive with a 60 to 1 gear ratio to allow accurate bending with minimum effort. They bend aluminum, copper, annealed steel and annealed stainless steel without kinks or wrinkles. Easy crank operation permits continuous production without excessive operator fatigue; for use in tube fabrication shops, in the field, or in factory maintenance departments.

Instructional video is available at discover.parker.com/TFDTubeFabEquipment.

See the 400 Series Bender manual, 4391-B400S.

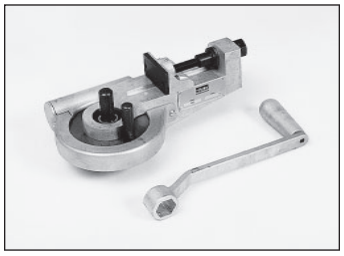

Fig. Q8 — 412 Bender

Exactol® Model 412

The Exactol Model 412 will bend tube from size 4 (1/4") through size 12 (3/4") and 6mm through 20mm inclusive and is completely portable. Accessories include a sturdy metal carrying case, which accommodates the 412 bender, slide block, and selected radius blocks. See page Q7 for wall thickness capabilities. May be held in a vise or bench mounted using the bench mounting adapter. Bulletin 4391-B400S is included with the bender, which describes the operation in detail.

NOTE: The 412 must be bench mounted if mandrels are used.

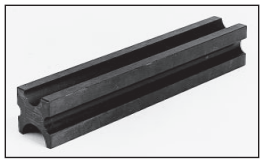

Fig. Q9 — Slide Block

COMPONENTS REQUIRED

The minimum components required are a Model 412 Bender with a slide block and a radius block which match the tube O.D. to be bent.

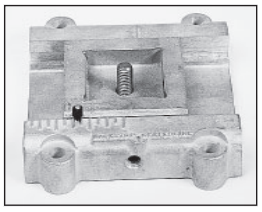

Fig. Q10 — Bench Mount Adapter

Part Name	Part No.
Exactol Model 412 Bender (for 1/4" through 3/4" O.D.)	**560569**
Slide Block (for sizes 4-5-6-8-10-12)	**550585**
Slide Block (for sizes 6mm-8mm-12mm-12mm-14mm)	**820091**
Slide Block (for sizes 15mm-16mm-18mm-20mm)	**820092**
Radius Blocks (for sizes 4-5-6-8-10-12 and 6mm thru 38mm)	See pages Q10 – Q11

OPTIONAL ACCESSORIES

Carrying Case (for bender, slide block and selected radius blocks)	**550572**
Bench Mounting Adapter	**550570**

Mandrel Bending Components

for 412 and 424 Benders ..... See pages Q16 – Q18

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Exactol® Model 412 Kit

This 412 kit contains all the basic tool requirements for bending tube from 1/4” through 3/4”.

	Part No.
	412 KIT

The following part numbers are included in the kit:

Part Name	Part No.
Exactol Model 412 Bender	**560569**
Carrying Case	**550572**
Slide Block for 1/4” through 3/4” tube	**550585**
Radius Block – 1/4” O.D. tube	**550579**
Radius Block – 3/8” O.D. tube	**550581**
Radius Block – 1/2” O.D. tube	**550582**
Radius Block – 5/8” O.D. tube	**550583**
Radius Block – 3/4” O.D. tube	**550584**

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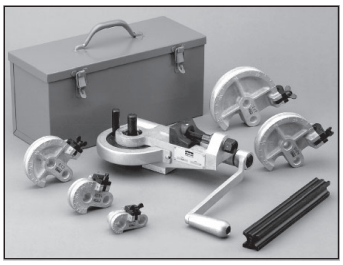

Fig. Q11 — 412 Kit

Exactol® Model 424

The Exactol Model 424 will bend tube from size 4 (1/4” O.D.) through size 24 (1 1/2” O.D.) and 6mm through 38mm inclusive. See page Q7 for wall thickness capabilities. It is completely portable and may be vise or bench mounted. Bulletin 4391-B400S is included with the bender, which describes the operation in detail.

NOTE: The 424 must be bench mounted if mandrels are used.

Instructional video is available at discover.parker.com/TFDTubeFabEquipment.

See the 400 Series Bender manual, 4391-B400S.

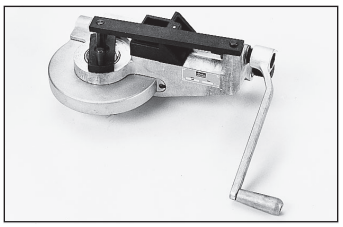

Fig. Q12 — 424 Bender

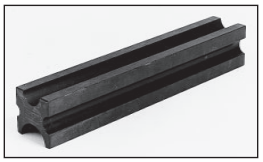

Fig. Q13 — Slide Block

COMPONENTS REQUIRED

The minimum components required are a Model 424 Bender with a slide block and a radius block that match the tube O.D. to be bent.

Part Name	Part No.
Exactol Model 424 bender (for 1/4” through 1 1/2” O.D.)	**621044**
Slide Block (for sizes 4-5-6-8-10-12)	**550585**
Slide Block (for sizes 14-16-18-20)	**621045**
Slide Block (for size 24)	**870150**
Slide Block (for sizes 6mm-8mm-10mm-12mm-14mm)	**820091**
Slide Block (for sizes 15mm-16mm-18mm-20mm)	**820092**
Slide Block (for sizes 22mm-25mm-28mm-30mm)	**820093**
Slide Block (for size 35mm)	**820094**
Slide Block (for size 38mm)	**870150**
Radius Blocks (for sizes -4 thru -24 and 6mm thru 38mm)	See pages Q10 – Q11

OPTIONAL ACCESSORIES

Bench Mounting Adapter	**631156**
Mandrel Bending Components for 412 and 424 Benders	See pages Q16 – Q18

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Exactol® Model 424 Kit

Part No. 424 Kit

This 424 Kit contains all the basic tool requirements for bending tube from 1/4" through 1 1/2". The following part numbers are included in the kit:

Part Name	Part No.
Exactol Model 424 bender (for 1/4" through 1 1/2" O.D.)	621044
Slide Block (for sizes 4-5-6-8-10-12)	550585
Slide Block (for sizes 14-16-18-20)	621045
Slide Block (for size 24)*	870150
Radius Blocks – 1/4" O.D. Tube*	550579
Radius Block – 3/8" O.D. Tube	550581
Radius Block – 1/2" O.D. Tube	550582
Radius Block – 5/8" O.D. Tube	550583
Radius Block – 3/4" O.D. Tube	550584
Radius Block – 1" O.D. Tube	621047
Radius Block – 1 1/4" O.D. Tube	621049
Radius Block – 1 1/2" O.D. Tube*	870149

* Items not shown in the photo, but which are included in the 424 Kit.

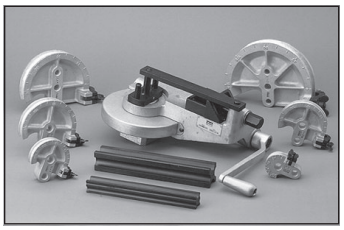

Fig. Q14 — 424 Kit

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Radius Blocks

For use with Exactol Models 412/424 benders.

The 412 and 424 bender radius blocks have built in tube clamps, therefore separate clamp blocks are not required. The radius blocks are interchangeable within bender size ranges. Close bend radius blocks utilize the small bend radii, but also allow the bend to begin closer to the end connection.

412 and 424 Bender – Small Bend Radius Blocks

Size	Tube O.D. (in.)	Bend Radius (in.)	Part No.
4	1/4	9/16	550573
5	5/16	11/16	550574
6	3/8	15/16	550575
8	1/2	1 1/4	550576
10	5/8	1 1/2	550577
12	3/4	1 3/4	550578

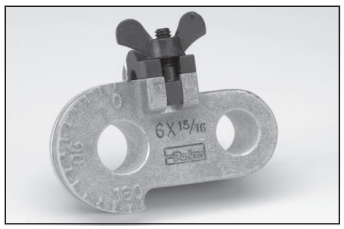

Fig. Q15 — Small Bend Radius Block

412 and 424 Bender – Large Bend Radius Blocks

Size	Tube O.D. (in.)	Bend Radius (in.)	Part No.
4	1/4	3/4	550579
5	5/16	1	550580
6	3/8	1 1/4	550581
8	1/2	2	550582
10	5/8	2 1/2	550583
12	3/4	3	550584
14	7/8	3 1/2	621046
16	1	4	621047
18	1 1/8	4 1/2	621048
20	1 1/4	5	621049
24	1 1/2	5	870149

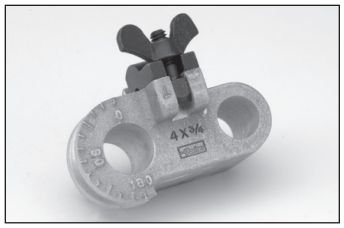

Fig. Q16 — Large Bend Radius Block

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412 and 424 Bender – Close Bend Radius Blocks

These adapters are used when bends are needed close to the end of the tube after the flare has been made, ferrule has been pre-set, or flange has been made. For flared or Ferulok fittings, attach tube end by threading tube nut onto the radius block threaded pin. To use this block with Seal-Lok fittings, Close Bend Adapters for Seal-Lok must be used to attach the tube to the radius block.

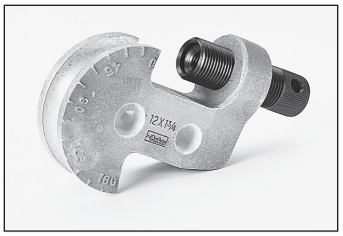

Fig. Q17 — Close Bend Radius Block

Size	Tube O.D. (in.)	Bend Radius (in.)	Part No.
8	1/2	1 1/4	**590533**
10	5/8	1 1/2	**590535**
12	3/4	1 3/4	**590537**

Close Bend Adapters for Seal-Lok

These adapters are used when bends are needed close to the end of the tube after the flange has been made or the sleeve has been brazed onto the end of the tube.

HOW TO USE: Screw the Seal-Lok adapter into the internal thread* of the threaded pin on the radius block. Then attach the flanged or brazed tube by threading the tube nut to the Seal-Lok adapter on the radius block threaded pin.

* If the threaded pin does not have an internal thread, a new threaded pin is required.

Fig. Q18 — Seal-Lok Close Bend Adapter

Tube O.D. (in.)	Description	Part No.
1/2	Seal-Lok Adapter	**930421-8**
5/8	Seal-Lok Adapter	**930421-10**
3/4	Seal-Lok Adapter	**930421-12**
1/2	Threaded Pin (for Close Bend Radius Blocks)	**930420-8**
5/8	Threaded Pin (for Close Bend Radius Blocks)	**930420-10**
3/4	Threaded Pin (for Close Bend Radius Blocks)	**930420-12**

412 and 424 Bender – Metric Radius Blocks

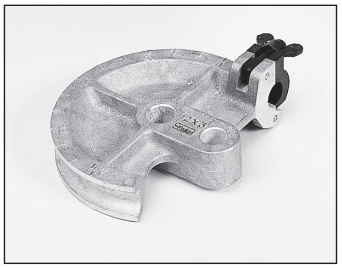

Fig. Q19 — Radius Block

Tube O.D. (mm)	Bend Radius (mm)	Part No.
6	14	**820090-6mm**
8	18	**820090-8mm**
10	24	**820090-10mm**
12	32	**820090-12mm**
14	38	**820090-14mm**
15	38	**820090-15mm**
16	38	**820090-16mm**
18	44	**820090-18mm**
20	44	**820090-20mm**
22	89	**820090-22mm**
25	102	**820090-25mm**
28	102	**820090-28mm**
30	127	**820090-30mm**
32	127	**820090-32mm**
35	127	**820090-35mm**
38	127	**870149 (same as 1-1/2” Radius Block)**

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Hydraulic Tube Bender Model HB632

Hydraulic power does the work in bending tube of all materials in sizes from 6 (3/8" O.D.) through size 32 (2" O.D.), 10mm through 50mm, with wall thicknesses as great as .188 for annealed steel, and pipe sizes from 3/8" through 1-1/2". See page Q7 for wall thickness capabilities. The radius block, around which the tube is bent, is driven by a roller chain and sprocket powered by a cylinder and a separate hydraulic power unit.

Maximum bend angle is 180° with radii from 1 1/4" to 8". Close second bends can be performed in either direction. An adjustable stop controls the degree of bend to a maximum of 180° and is graduated in 1° increments. After the bend is completed and pressure is released, a spring returns the clamp arm to the zero starting position.

The clamp vise arm features a quick release speed screw for positioning the required clamp block. Each size of tube requires the proper sized radius block, clamp block and slide block.

Instructional video is available at discover.parker.com/TFDTubeFabEquipment.

See the HB632 Tube Bender manual, 4391-B26.

HB632 radius blocks, slide blocks and clamp blocks will work with the following benders as well: 624, 824, 832 and 848.

NOTE: For size 28 (1 3/4" O.D. tube) through 32 (2" O.D. tube) radius blocks, an adapter plate is required.

DIMENSIONS: L – 40" W – 11" H – 12"

COMPONENTS REQUIRED
Minimum components required are a Model HB632 Bender, hose assembly, hydraulic pump and a radius, slide and clamp block which match the tube/pipe O.D. to be bent.

Part Name	Part No.
Hydraulic Bender Model HB632 (without pump)	**631050**
Hydraulic Pump (10,000 psi, 110V AC)	**900085**
High Flow Hydraulic Pump (10,000 psi, 110V)	**974691**
Hose Assembly (3' long)	**910004**

One each of the following is required per tube O.D.:
Radius Block, Clamp Block, Slide Block.
Radius Block ..... See pages Q13 – Q15

INCH TUBE SIZES

Clamp Block (for -6)	**864266**
Clamp Block (for -8, -12, -16, -24)	**631092**
Clamp Block (for -10, -14, -18, -20)	**631093**
Clamp Block (for -28)	**027418-28**
Clamp Block (for -32)	**027418-32**
Slide Block (for -6)	**864276**
Slide Block (for -8, -12, -16, -24)	**520516**
Slide Block (for -10, -14, -18, -20)	**520518**
Slide Block (for -28)	**631063**
Slide Block (for -32)	**631066**

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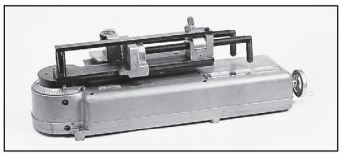
Fig. Q20 — HB632

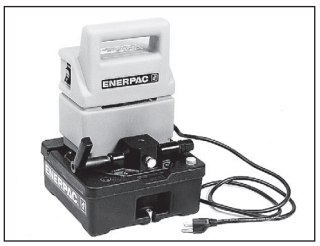

Fig. Q21 — 900085 Pump

Fig. Q22 — High Flow Pump


Fig. Q23 — Clamp Block

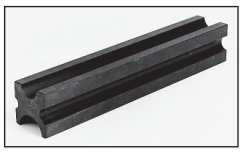
Fig. Q24 — Slide Block

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METRIC TUBE SIZES	Part No.
Clamp Block (for 10mm, 12mm, 14mm, 16mm)	**790017**
Clamp Block (for 15mm, 16mm, 18mm, 20mm)	**780195**
Clamp Block (for 22mm, 25mm, 30mm, 32mm)	**780196**
Clamp Block (for 35mm)	**974346**
Clamp Block (for 38mm)	**631092**
Clamp Block (for 42mm)	**974349**
Clamp Block (for 50mm)	**974352**
Slide Block (for 10mm, 12mm, 14mm, 16mm)	**790016**
Slide Block (for 15mm, 16mm, 18mm, 20mm)	**780192**
Slide Block (for 22mm, 25mm, 30mm, 32mm)	**780193**
Slide Block (for 35mm)	**820094**
Slide Block (for 38mm)	**520516**
Slide Block (for 42mm)	**974348**
Slide Block (for 50mm)	**974351**

INCH PIPE SIZES	
Clamp Block (for 3/8”, 1/2”, 3/4”)	**974332**
Clamp Block (for 1”)	**974338**
Clamp Block (for 1 1/4”)	**974341**
Clamp Block (for 1 1/2”)	**974343**
Slide Block (for 3/8”, 1/2”, 3/4”)	**974331**
Slide Block (for 1”)	**974336**
Slide Block (for 1 1/4”)	**974340**
Slide Block (for 1 1/2”)	**974342**

OPTIONAL ACCESSORIES	
Radius Block Adapter Plate (for sizes 1 3/4”, 42mm, 1 1/2 IPS and larger)	**660221**
Mandrel Bending Components for HB632	See pages Q16 – Q18

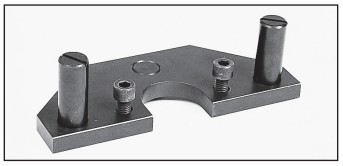

Fig. Q25 — Radius Block Adapter Plate

Radius Blocks

For use with HB632 Bender

Radius blocks for every standard tube size from size 6 (3/8” O.D.) to size 32 (2” O.D.), 10mm through 50mm, and inch pipe sizes 3/8” through 1-1/2” are available.

Standard Radius Blocks – Inch Sizes

Size	Tube O.D. (in.)	Radius (in.)	Part No.
6	3/8	1 1/8	**590512-18**
6	3/8	1 1/4	**540502**
8	1/2	1 1/4	**530763**
8	1/2	1 1/2	**590515-24**
10	5/8	1 1/2	**530764**
10	5/8	1 7/8	**590518-30**
12	3/4	1 3/4	**530765**
12	3/4	2 1/4	**590521-36**
14	7/8	2	**530766**
14	7/8	2 5/8	**590523-42**
16	1	3	**590524-48**
18	1 1/8	3 3/8	**590526-54**
18	1 1/8	3 1/2	**530768**
20	1 1/4	3 3/4	**590527-60**
24	1 1/2	4 1/2	**590530-72**
24	1 1/2	5	**530770**
28	1 3/4	7	**631057-112***
32	2	8	**631060-128***

* Requires the use of Radius Block Adapter Plate, Part No. 660221.

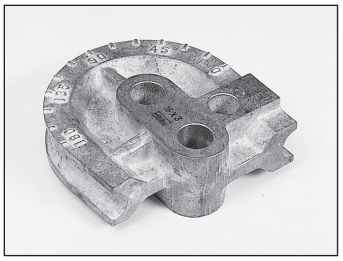

Fig. Q26 — Radius Block for use with HB632 Bender

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

“Need help determining the correct tooling for your bending job? Use TFDtoolspec.com”

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Radius Blocks – Metric Sizes

Tube O.D./ Size (mm)	Radius (mm)	Part No.
10	32	**810023**
12	32	**780175**
14	38	**780176**
15	38	**780177**
16	38	**780178**
18	44	**780179**
20	44	**780180**
22	89	**780181**
25	100	**780182**
30	128	**780183**
32	128	**780184**
35	105	**974344**
38	114	**590530-72**
42	128	**974347***
50	**150**	**974350***

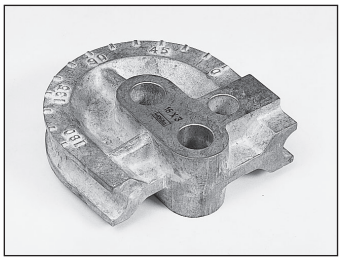

Fig. Q27 — Radius Block for use with HB632 Bender

Radius Blocks – Inch Pipe Sizes

Inch Pipe Size (in.)	Bend Radius (in.)	Part No.
3/8	2 1/4	**974325**
1/2	2 5/8	**974326**
3/4	3 1/4	**974327**
1	4	**974328**
1 1/4	5	**974329**
1 1/2	6	**974330***

* Requires the use of Radius Block Adapter Plate, Part No. 660221.

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Close Bend Radius Blocks for HB632

These adapters are used when bends are needed close to the end of the tube after the flare has been made, ferrule has been pre-set, or flange has been made. For flared or Ferulok fittings, attach tube end by threading tube nut onto the radius block threaded pin. To use this block with Seal-Lok fittings, Close Bend Adapters for Seal-Lok must be used to attach the tube to the radius block.

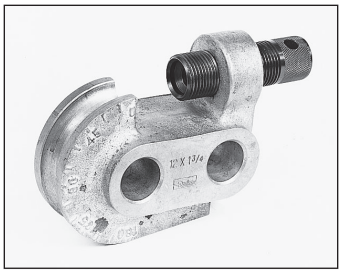

Fig. Q28 — Close Bend Radius Block

Close Bend Radius Blocks – Inch Sizes

Size (in.)	Tube O.D. (in.)	Radius (in.)	Part No.
8	1/2	1 1/4	**530597**
10	5/8	1 1/2	**530601**
12	3/4	1 3/4	**530605**
14	7/8	2	**530609**
16	1	3	**530613**
20	1 1/4	3 3/4	**530621**
24	1 1/2	5	**530625**

Close Bend Adapters for Seal-Lok

These adapters are used when bends are needed close to the end of the tube after the flange has been made or the sleeve has been brazed onto the end of the tube.

HOW TO USE: Screw the Seal-Lok adapter into the internal thread* of the threaded pin on the radius block. Then attach the flanged or brazed tube by threading the tube nut to the Seal-Lok adapter on the radius block threaded pin.

* If the threaded pin does not have an internal thread, a new threaded pin is required.

Tube O.D. (in.)	Description	Part No.
1/2	Seal-Lok Adapter	**930421-8**
5/8	Seal-Lok Adapter	**930421-10**
3/4	Seal-Lok Adapter	**930421-12**
1	Seal-Lok Adapter	**930421-16**
1 1/4	Seal-Lok Adapter	**930421-20**
1 1/2	Seal-Lok Adapter	**930421-24**
1/2	Threaded Pin (for Close Bend Radius Blocks)	**930420-8**
5/8	Threaded Pin (for Close Bend Radius Blocks)	**930420-10**
3/4	Threaded Pin (for Close Bend Radius Blocks)	**930420-12**
1	Threaded Pin (for Close Bend Radius Blocks)	**930420-16**
1 1/4	Threaded Pin (for Close Bend Radius Blocks)	**930420-20**
1 1/2	Threaded Pin (for Close Bend Radius Blocks)	**930420-24**

Fig. Q29 — Seal-Lok Close Bend Adapter

Close Bend Radius Blocks – Metric Sizes

Tube O.D./ Size (mm)	Radius (mm)	Thread Size	Part No.
12	32	3/4-16	**780185**
14	38	7/8-14	**780186**
15	38	7/8-14	**780187**
16	38	7/8-14	**780188**
18	44	1 1/16-12	**780189**
20	44	1 1/16-12	**780190**
38	127	1 7/8-12	**530625**

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Bender Table (With Locking Casters) for HB632

Sturdy, heavy all steel construction, strongly braced to keep bender, mandrel rod, and mandrel rod stop assembly rigidly aligned. All holes are pre-drilled at factory to accommodate the HB632 bender and rod stop assembly.

DIMENSION: H – 36” W – 30” L – 10’

NOTE: Table is supplied with locking casters for ease of mobility.

Part Name	Part No.
Bender Table (with locking casters) for HB632	**520515**

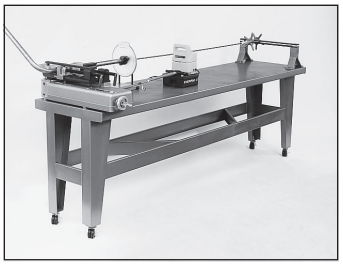

Fig. Q30 — Bender Table (equipment not included)

Mandrel Bending Components

When bending thin wall tube it may be necessary to insert a mandrel into the tube to prevent excessive distortion or flattening. To accomplish such bending, a Mandrel, Mandrel Rod, and a Mandrel Rod Stop Assembly are required. The Rod Stop Assembly holds the end of the Mandrel Rod in proper alignment with the tube while the Mandrel, which is threaded onto the other end of the Mandel Rod, supports the tube on its I.D., thus preventing tube kinking or flattening during bending.

The following parts are required for mandrel bending with the 412 and 424 bender:

Part Name	Part No.
Mandrel Rod Stop Assembly	**550571** (See page Q18)
Stop Assembly Adapter Riser (424 only)	**631154** (See page Q18)
Mandrel Rods	See page Q17
Mandrel	See page Q17

The following parts are required for mandrel bending with the 632 bender:

Part Name	Part No.
Mandrel Rod Stop Assembly	**631141** (See page Q18)
Mandrel Rods	See page Q17
Mandrel	See page Q17

Example:
Tube O.D.: 2”
Wall Thickness: 0.095”
Centerline Radius: 8”

Vertical Axis = $\frac{8”}{2”} = 4$

Horizontal Axis = $\frac{2”}{.095”} \approx 21$

Answer: Plug Mandrel required

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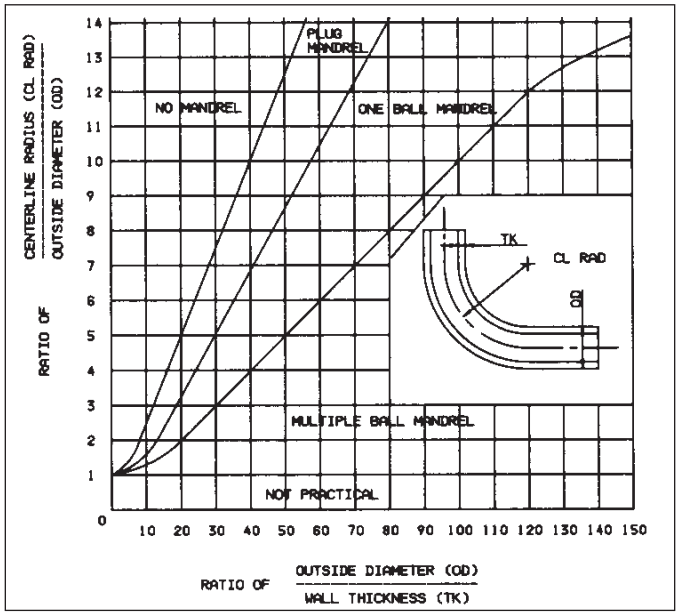

Fig. Q31 — Mandrel Graph Chart

Dimensions and pressures for reference only, subject to change.

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Mandrels (Plug Type)

For use with Exactol Models 412, 424 and the HB632 benders. Mandrels ensure smooth bends without kinking, or wrinkling when bending thin-walled tube, or when making short-radius bends. Mandrels support the tube wall from the inside to keep it fully open for a smooth bend.

A rule that is generally followed to determine whether or not a mandrel is necessary is as follows: When the wall thickness of the tube to be bent is 7 percent or more of the tube O.D., a mandrel is usually not necessary. On wall thicknesses that range between 4-6 percent of the tube O.D., it is necessary to use a mandrel to avoid wrinkling and flattening in the bend area. This rule is based on a bend radii of between three and four times the tube O.D.

Part Number Example: 924417-Size X Wall Thickness = **924417-12X058**

* See Fig. Q31 for mandrel usage.

To order mandrel, specify tube O.D. and wall thickness.

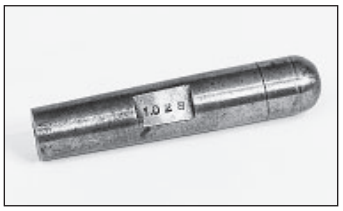

Fig. Q32 — Mandrel

Size	END SIZE (in.)	Wall Thickness (in.)	(in.)	(in.)	(in.)	(in.)
6	3/8	—	—	—	—	—
8	1/2	—	0.035	—	—	—
10	5/8	0.035	—	—	—	—
12	3/4	—	—	—	0.058	—
14	7/8	—	—	—	0.058	0.065
16	1	—	0.042	—	0.058	0.065
18	1 1/8	—	0.042	—	—	0.065
20	1 1/4	—	—	—	0.065	0.095
24	1 1/2	—	0.058	—	0.083	—

Table Q4 — Mandrel Sizes

Mandrel Rods

For use with the HB632 Model Bender and Exactol Models 412/424 benders. Mandrel rods (as well as a mandrel rod stop assembly) are required when using mandrels. Mandrel rod diameters are determined by tube I.D.

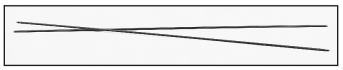

Fig. Q33 — Mandrel Rods

Mandrel Rod Sizes

Mandrel Rod Dia. (in.)	Tube I.D. (in.)	Part No.
5/8	1.49 to 1.87	**520509**

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Mandrel Rod Stop Assembly

For use with Model HB632 bender.

The Mandrel Rod Stop Assembly, when bolted to the end of a table opposite of the bender, keeps the mandrel rod in alignment with the tube when mandrel bending.

Part Name	Part No.
Mandrel Rod Stop Assembly (for bender Model HB632)	**631141**
Mandrel Rod Stop Adapter for 5/16" Mandrel Rod	**522398**
Mandrel Rod Stop Adapter for 1/4" Mandrel Rod	**550501**

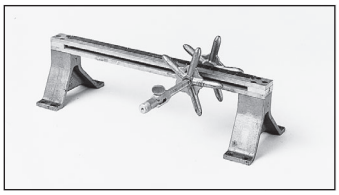

Fig. Q34 — Mandrel Rod Stop Assembly /632

Mandrel Rod Stop Assembly

For use with Exactol 412/424 Model benders.

Part Name	Part No.
Mandrel Rod Stop Assembly	**550571**
Mandrel Rod Stop Adapter for 412/424 benders	**820029**

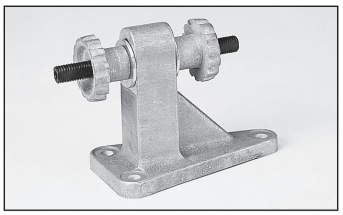

Fig. Q35 — Mandrel Rod Stop Assembly 412/424

Part Name	Part No.
Stop Assembly Adapter/Riser for 424	**631154**

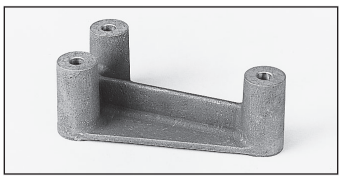

Fig. Q36 — Stop Assembly Adapter/Riser

Universal Side Angle Indicator

For use with Model HB632 bender.

Accurately determines angle between tube bends in different planes. Keeps out of plane angles accurate, when making repeated bends. Large, easy-to-read vernier dial. Maximum 3/4" O.D. tube can be used if the tube must be extended through the indicator. Maximum 1 1/2" O.D. tube can be used if end of tube is held in clamp jaw.

Part Name	Part No.
Universal Side Angle Indicator	**520520**

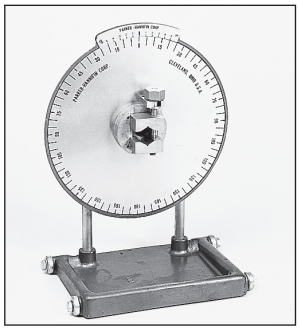

Fig. Q37 — Universal Side Angle Indicator

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CP432 Tube and Pipe Bender

A 90 psi air supply does all the work for bending steel and stainless steel tube and pipe. This bender utilizes a center push bending method which is easy to master. Offered in an all inclusive kit. A separate accessory kit of tooling for bending 10mm through 50mm tube is also available. See page Q20 for part number information.

Part Name	Part No.
CP432 Tube and Pipe Bender Kit	**CP432**

Includes all tooling necessary for bending 1/4" thorugh 2" tube and 1/2 through 2" pipe.

See Bulletin 4391-CP432 for more information.

Fig. Q38 — CP432 Bender Kit

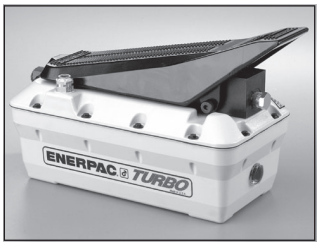

Fig. Q39 — Pump

Fig. Q40 — Multi-Size Tube Radius Block

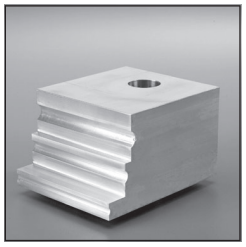

Fig. Q41 — Multi-Size Tube Slide Block

REPLACEMENT COMPONENTS

Part Name	Part No.
Air/Hydraulic Pump	**PAT-1102N**
Hose Assembly	**975222****
Quick Coupler, Receptacle	**3050-3**
Quick Coupler, Nipple	**3010-3**
Hydraulic Cylinder	**RC-1010**
Radius Blocks	See below
Slide Blocks	See below

Radius Blocks for CP432 – Inch Tube Sizes

Tube O.D. (in.)	Bend Radius (in.)	Part No.
1/4	9/16	**975179**
3/8	1 1/4	**975179**
1/2	1 1/2	**975179**
5/8	1 7/8	**975180**
3/4	2 1/4	**975180**
1	3	**975181**
1 1/4	3 3/4	**975182**
1 1/2	4 1/2	**975183**
2	8	**975184**

Slide Blocks for CP432 (2 required) – Inch Tube Sizes

Tube O.D. (in.)	Part No.
1/4	**975185**
3/8	**975185**
1/2	**975185**
5/8	**975186**
3/4	**975186**
1	**975187**
1 1/4	**975187**
1 1/2	**975188**
2	**975188**

*For inch pipe size radius blocks and slide blocks refer to Table Q4 to right.

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Pipe Size	Bend Radius)	Radius Block Part #	Slide Block Part # (2 req.'d.)	Drive Pin
1/2	3-3/16	BZ-12011	BZ-12071	A-12
3/4	5	BZ-12021		
1	5-7/8	BZ-12031		
1-1/4	7-1/4	BZ-12041		
1-1/2	8	BZ-12051		
2	9-1/2	BZ-12061		

Table Q5 - Inch Pipe Sizes

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Radius Blocks for CP432 – Metric Tube Sizes

Tube O.D. (mm)	Bend Radius (mm)	Part No.
10	34	**976503-Block**
12	34	**976503-Block**
14	38	**976503-Block**
15	38	**976505**
16	38	**976505**
18	42	**976508**
20	42	**976508**
22	89	**976510**
25	100	**976510**
30	100	**976512**
32	100	**976515**
35	105	**976516**
38	114	**976517**
42	128	**976518**
50	200	**976519**

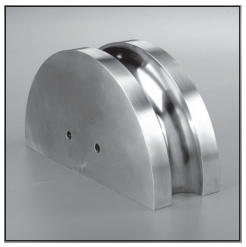

Fig. Q42 — Typical Radius Block

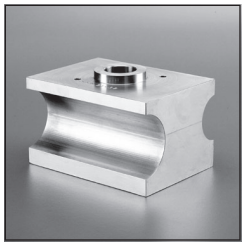

Fig. Q43 — Typical Slide Block

Slide Blocks for CP432 (2 required) – Metric Tube Sizes

Tube O.D. (mm)	Part No.
10	**976504**
12	**976504**
14	**976504**
15	**976506**
16	**976506**
18	**976509**
20	**976509**
22	**976511**
25	**976511**
30	**976513**
32	**976513**
35	**976520**
38	**976520**
42	**976521**
50	**976521**

ACCESSORIES

Part Name	Part No.
Metric Tooling Kit (10-50mm)	***CP432-MM TOOL KIT**

*Bender & pump is not included. CP432 is also needed.

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Kloskut® Tube Cutters

These adjustable tube cutters are designed to produce square cut ends with no external burr and minimum internal burr when used on fully annealed copper, brass, aluminum, and steel tube. Both feature a hardened and burnished tool-steel cutting wheel, flare cut-off grooves in rollers for removal of old flares and a swing-away reamer for removing internal burrs. The handle feeds and adjusts the cutting wheel to uniformly cut tube as the cutter is rotated.

NOTE: Tube cutters are **not recommended** for use with stainless steel tube because of the work hardening effect. The use of a hacksaw with a "Tru-Kut" Sawing Vise or a rotary teeth saw is recommended for stainless steel.

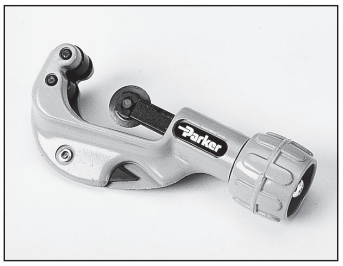

Fig. Q44 — 218B Medium Kloskut Tube Cutter

Medium Kloskut

Part Description	Part No.
Tube cutter for 1/8" to 1 1/8" O.D.	**218B**
Cutter Wheel for 218B	**218B Wheel**
Cutter Shaft	**218B Shaft**

Fig. Q45 — 1232 Large Kloskut Tube Cutter

Large Kloskut

Part Description	Part No.
Tube Cutter for 3/4" to 2" O.D.	**1232**
Cutter Wheel for 1232	**1232 Wheel**

Tru-Kut® Sawing Vise

This hacksaw guide will accommodate tube, pipe and hose from sizes 3 (3/16" O.D.) to 32 (2" O.D.), assuring square cut-offs within ± 1°. For use with a fine tooth hacksaw blade for smooth cuts.

HOW TO USE: Mount in a vise or bolt to a bench. Clamp tube, pipe or hose into the Tru-Kut vise and cut off; guide ensures accurate square cuts.

Part Description	Part No.
Tru-Kut Sawing Vise	**710439**

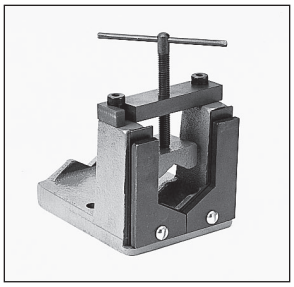

Fig. Q46 — Tru-Kut Sawing Vise

Cut-Off Saw

The 974250 Cut-Off Saw is designed to operate at low speed to prevent work hardening the tube end. The saw will assure a square cut on the tube with minimum burrs. The saw will cut 1/4" through 2 3/4" copper, brass, aluminum, steel and stainless steel tube. An adequate supply of cutting fluid is provided by an internal recirculating pump. The unit is designed for bench or stand mounting and operates on 110V, 15 amp power supply.

Part Description	Part No.
Cut-Off Saw	**974250**
Accessories	
Saw Base	**AF160026**
Replacement Parts	
Cutting Lubricant (Approx. 1 gal. container)	**Saw Lube**
Saw Blade – 250 mm x 2.0 mm thick (all purpose)	**987036**
Saw Blade – 200 mm x 2.0 mm thick (all purpose)	**987037**

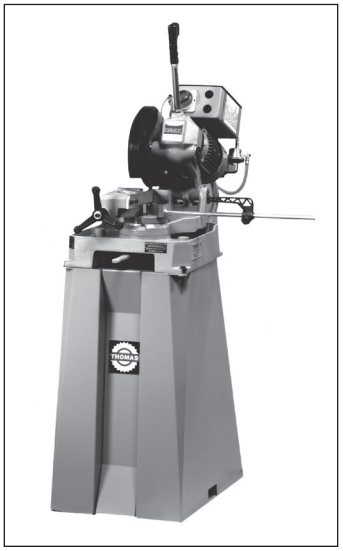

Fig. Q47 — Cut-Off Saw (shown on Saw Base)

⚠ **WARNING:** This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Dimensions and pressures for reference only, subject to change.

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Tube Deburring Tool 226B

A quick twist of the wrist will deburr either the O.D. or the I.D. of the tube end. Parker's In-Ex deburrer can be used on annealed steel, stainless steel, copper and aluminum, for tube sizes 1/8" to 1 5/8" O.D.

Part Description	Part No.
Deburring Tool	**226B**

Fig. Q48 — Deburr Tool 226B

Power Deburr Tool

The Parker Power Deburr Tool is designed for deburring the I.D. and O.D. of 1/4" through 2" steel, stainless steel, copper and aluminum tube. The lightweight unit incorporates a modular design which allows Parker's Cut-Off Saw, part number 974250, to be easily mounted on the top. The Power Deburr Tool requires 110V/10A power supply.

Dimensions: L – 20", W – 18", H – 9".

Part Description	Part No.
Power Deburr Tool	**972125**

Replacement Parts

I.D. Deburr Cone	**971816**
O.D. Deburr Blades (six blade set)	**910485**

Fig. Q49 — Power Deburr Tool

FastSeal Assembly Tools

Patent-pending FastSeal is a revolutionary new way to make O-ring Face Seal tube connections. Assembly and maintenance teams can quickly preset the sleeve onto the tube end for a permanent flat-face connection with no need for brazing or flanging equipment. The two tools that are recommended, but not required, for FastSeal assembly are a mandrel and gauge (marking tool). Part numbers correspond with the FastSeal part number being used and are shown in shown in table below. View FastSeal assembly instructions in the Assembly section of the catalog or on ***the FastSeal Assembly Instructions page (Parker FastSeal™ Assembly Instructions).***

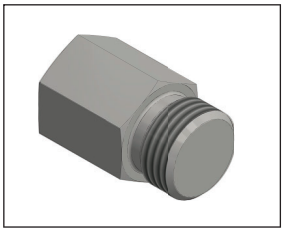

Fig. Q50— FastSeal Mandrel

Tube OD (in.)	Part Numbers		
	FastSeal	Mandrel	Marking Tool
1/4	4 TLFA-S / 4 TLFA-SS	4 TLFA Mandrel	4 TLFA Gauge
3/8	6 TLFA-S / 6 TFLA-SS	6 TLFA Mandrel	6 TLFA Gauge
1/2	8 TLFA-S / 8 TFLA-SS	8 TLFA Mandrel	8 TLFA Gauge
3/4	12 TLFA-S	12 TLFA Mandrel	12 TFLA Gauge

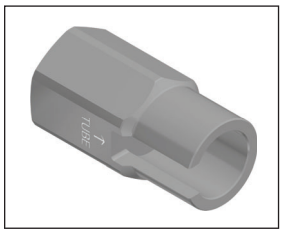

Fig. Q51 — FastSeal Gauge

Parker's patent-pending FastSeal creates quick leak-free permanent ORFS tube end connections with just a wrench. Get more details on this new technology now.

Parflange® 1025

Bench-Top 90° Flanging and 37° Flaring System

Tooling must be ordered separately

- Eliminates braze joint
- Compact, lightweight design
- Bench mountable
- Easy to operate
- Available in 110-volt single-phase or 440-volt 3-phase (please specify by ordering 1025/110 or 1025/440)
- Flanges or flares tube in less than 20 seconds
- For tube sizes 1/4" O.D. thru 1-1/2" O.D. (steel); and 1/4" O.D. thru 1" O.D. (stainless steel) – Flanging/flaring of tube sizes 1" & greater results in heavy machine vibration. Therefore, this machine is only recommended for occasional use for preparing tube ends 1" or larger.

  Tooling is also available for comparable metric tube sizes.

Electrical Power: 110V/20A single-phase, or 440V/3-phase/2.1A

Power Cable Length: 8 feet long (2.5 meters)

Dimensions: Height: 18 1/8 inches (460mm)
Width: 15 3/8 inches (390mm)
Depth: 26 3/8 inches (670mm)

Weight: Basic Unit: 175 lbs. (80 kg.)
Each Die (typical): 4 lbs. (1.8 kg.)

Flanging Pin Lubrication Fluid: **LB2000**

Instructional video is available at discover.parker.com/TFDTubeFabEquipment.

View the Parflange Equipment Overview and Comparison Guide.

Fig. Q52 — Parflange® 1025 Machine

CAUTION: Extension cords are ***not*** recommended and could cause damage to the machine due to a lack of power supply.

Fig. Q53 — Flanging Pin

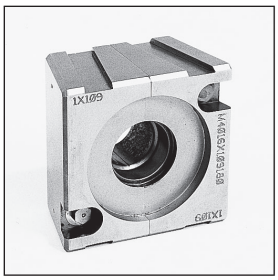

Fig. Q54 — Flanging Die Set

Fig. Q55 — LB 2000

COMPONENTS REQUIRED

Part Name	Part No.
Parflange 1025 (110 volt)	**1025/110**
Parflange 1025 (440 volt)	**1025/440**
Flanging Pin	See page Q23
Flanging Die Set	See page Q23
Flaring Pin	See page Q37
Flaring Die Set	See page Q37
Lubrication Fluid	**LB 2000**
Die Adjustment Shims (Old Style Dies Only)	**Shim Kit**

REPLACEMENT PART

Part Name	Part No.
Tube Stop	**1025/0281014**

Dimensions and pressures for reference only, subject to change.

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Inch and Metric Flanging Tooling for 1025

Tube Size O.D. x Wall Thickness (in.)	Tooling for 90°/180° Tube Flanging		Available Flanging Tooling	
	Pin Part Number	Die Part Number	1025 -S	1025 -SS
1/4 x .028	B4004X028180	M4004X028180	•	
1/4 x .035	B4004X035180	M4004X035180	•	•
1/4 x .049	B4004X049180	M4004X049180	•	
3/8 x .035	B4006X035180	M4006X035180	•	•
3/8 x .049	B4006X049180	M4006X049180	•	•
3/8 x .065	B4006X065180	M4006X065180	•	•
1/2 x .035	B4008X035180	M4008X035180	•	•
1/2 x .049	B4008X049180	M4008X049180	•	•
1/2 x .065	B4008X065180	M4008X065180	•	•
1/2 x .083	B4008X083180	M4008X083180	•	•
5/8 x .049	B4010X049180	M4010X049180	•	•
5/8 x .065	B4010X065180	M4010X065180	•	•
5/8 x .083	B4010X083180	M4010X083180	•	•
5/8 x .095	B4010X095180	M4010X095180	•	•
5/8 x .109	B4010X109180	M4010X109180	•	
5/8 x .120	B4010X120180	M4010X120180	•	
3/4 x .049	B4012X049180	M4012X049180	•	•
3/4 x .065	B4012X065180	M4012X065180	•	•
3/4 x .083	B4012X083180	M4012X083180	•	•
3/4 x .095	B4012X095180	M4012X095180	•	•
3/4 x .109	B4012X109180	M4012X109180	•	•
3/4 x .120	B4012X120180	M4012X120180	•	
1 x .065	B4016X065180	M4016X065180	•	•
1 x .083	B4016X083180	M4016X083180	•	•
1 x .095	B4016X095180	M4016X095180	•	
1 x .109	B4016X109180	M4016X109180	•	
1 x .120	B4016X120180	M4016X120180	•	
1 x .134	B4016X134180	M4016X134180	•	
1 x .148	B4016X148180	M4016X148180		
1 x .156	B4016X156180	M4016X156180		
1 x .188	B4016X188180	M4016X188180		
1 1/4 x .065	B4020X065180	M4020X065180	•	
1 1/4 x .083	B4020X083180	M4020X083180	•	
1 1/4 x .095	B4020X095180	M4020X095180	•	
1 1/4 x .109	B4020X109180	M4020X109180	•	
1 1/4 x .120	B4020X120180	M4020X120180	•	
1 1/4 x .134	B4020X134180	M4020X134180		
1 1/4 x .148	B4020X148180	M4020X148180		
1 1/4 x .156	B4020X156180	M4020X156180		
1 1/4 x .188	B4020X188180	M4020X188180		
1 1/2 x .065	B4024X065180	M4024X065180	•	
1 1/2 x .083	B4024X083180	M4024X083180	•	
1 1/2 x .095	B4024X095180	M4024X095180	•	
1 1/2 x .109	B4024X109180	M4024X109180		
1 1/2 x .120	B4024X120180	M4024X120180		
1 1/2 x .134	B4024X134180	M4024X134180		
1 1/2 x .148	B4024X148180	M4024X148180		
1 1/2 x .156	B4024X156180	M4024X156180		
1 1/2 x .188	B4024X188180	M4024X188180		

Note: Use "-SS" suffix after part number for flanging tools for stainless steel tube. Contact the Tube Fittings Division for sizes and/or materials not listed, or for additional SS sizes released for limited use.

Table Q6 — Pin & Die Part Numbers for Inch Sizes

Tube Size O.D. x Wall Thickness (mm)	Tooling for 90°/180° Tube Flanging		Available Flanging Tooling	
	Pin Part Number	Die Part Number	1025 S	1025 SS
6 x 1	B3018006X1M	M4018006X1M	•	
6 x 1.5	B3018006X1.5M	M4018006X1.5M	•	
8 x 1	B3018008X1M	M4018008X1M	•	
8 x 1.5	B3018008X1.5M	M4018008X1.5M	•	
10 x 1	B3018010X1M	M4018010X1M	•	
10 x 1.5	B3018010X1.5M	M4018010X1.5M	•	
10 x 2	B3018010X2M	M4018010X2M	•	
12 x 1	B3018012X1M	M4018012X1M	•	
12 x 1.5	B3018012X1.5M	M4018012X1.5M	•	•
12 x 2	B3018012X2M	M4018012X2M	•	
15 x 1.5	B3018015X1.5M	M4018015X1.5M	•	
15 x 2	B3018015X2M	M4018015X2M	•	
16 x 1	B3018016X1M	M4018016X1M	•	
16 x 1.5	B3018016X1.5M	M4018016X1.5M	•	
16 x 2	B3018016X2M	M4018016X2M	•	•
16 x 2.5	B3018016X2.5M	M4018016X2.5M	•	
18 x 1	B3018018X1M	M4018018X1M	•	
18 x 1.5	B3018018X1.5M	M4018018X1.5M	•	
18 x 2	B3018018X2M	M4018018X2M	•	
20 x 2	B3018020X2M	M4018020X2M	•	•
20 x 2.5	B3018020X2.5M	M4018020X2.5M	•	
20 x 3	B3018020X3M	M4018020X3M	•	
22 x 1.5	B3018022X1.5M	M4018022X1.5M	•	
22 x 2	B3018022X2M	M4018022X2M	•	
22 x 2.5	B3018022X2.5M	M4018022X2.5M	•	
22 x 3	B3018022X3M	M4018022X3M	•	
25 x 2	B3018025X2M	M4018025X2M	•	
25 x 2.5	B3018028X2.5M	M4018028X2.5M	•	
25 x 3	B3018030X2M	M4018030X2M	•	
25 x 3.5	B3018025X3.5M	M4018025X3.5M	•	
25 x 4	B3018025X4M	M4018025X4M		
28 x 2	B3018028X2M	M4018028X2M	•	
28 x 2.5	B3018028X2.5M	M4018028X2.5M	•	
30 x 2	B3018030X2M	M4018030X2M	•	
30 x 3	B3018030X3M	M4018030X3M	•	
30 x 3.5	B3018030X3.5M	M4018030X3.5M		
30 x 4	B3018030X4M	M4018030X4M		
32 x 3	B3018032X3M	M4018032X3M	•	
32 x 4	B3018032X4M	M4018032X4M		
35 x 3	B3018035X3M	M4018035X3M	•	
38 x 3	B3018038X3M	M4018038X3M		
38 x 4	B3018038X4M	M4018038X4M		
38 x 5	B3018038X5M	M4018038X5M		

Note: Flanging tools (90°/180°) listed are for carbon steel tube. Contact the Tube Fittings Division for metric flanging tools for tube materials other than carbon steel or for sizes not listed.

Table Q7 — Pin & Die Part Numbers for Metric Sizes

Dimensions and pressures for reference only, subject to change.

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Parflange® ECO 25

Bench-Top 90° Flanging and 37° Flaring System

Tooling and Hydraulic Pump must be ordered separately

- Eliminates braze joints
- More efficient than traditional flaring methods
- Only requires one die per tube size for both flanging and flaring
- For tube sizes 1/4" O.D. through 1-1/2" O.D. in both Steel and Stainless Steel
- Dies not dependent on wall thickness or tube material
- Uses same Parflange pins as 1025 and PRO 50 models
- Utilizes proven Parflange orbital process for consistent flanges and flares
- Burnishes flanges and flares for superior surface finish
- Compact, lightweight design
- Easy to operate
- Used with hand hydraulic pump
- 110-volt single-phase power
- Tooling also available in comparable metric sizes

Fig. Q56 — Parflange ECO 25

Electrical Power: 110V/20A single-phase

Power Cable Length: 8 feet long (2.5 meters)

Dimensions: Height: 20.5 inches (520mm)
Width: 15 inches (381mm)
Depth: 20.5 (520mm)

Weight: 190 lbs. (86.4 kg.)

CAUTION: Extension cords are ***not*** recommended and could cause damage to the machine due to a lack of power supply.

See Bulletin 4391-ECO25 for more information and instructions for use.

Instructional video is available at discover.parker.com/TFDTubeFabEquipment.

View the Parflange Equipment Overview and Comparison Guide.

COMPONENTS REQUIRED

Part Name	Part No.
*ECO 25 Basic Unit	**ECO 25**
*Hand Hydraulic Pump	**900086**
Flanging Pin	See page Q26
Flaring Pin	See page Q31
Flanging/Flaring Dual Function Die Set	See page Q26 & Q38
*Lubrication Fluid	**LB 2000**
*Hose Assembly (for hand pump)	**910133****
*Pressure gauge (0 - 10,000 psi)	**900044*****
*Hydraulic Pump Adapter	**6-6 FLO-S**
*Hydraulic Pump Tee	**6 R6LO-S**
*Pressure Gauge Adapter	**6 G6L-S**
*Hose Conversion Adapter (#1)	**6 G6L-S**
*Hose Conversion Adapter (#2)	**6-6 G6L-S**

Fig. Q57 — Hand Pump

*Included in ECO 25 kit (Part Number ECO 25 KIT)

WARNING: ***This product can expose you to chemicals including Hex Chromium 6 which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

ECO 25 Kit

Part Name	Part No.
ECO 25 Kit (includes hand pump)	**ECO 25 KIT**

(Kit includes basic unit, hand hydraulic pump, hose assembly, pressure gauge, hydraulic pump adapter, hydraulic pump tee, pressure gauge adapter, hose conversion adapters #1 & #2, Lubrication fluid, and operation manual.)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

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Inch Flanging Tooling for ECO25

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Tube O.D. (in.)	Die Set Part Number
1/4	M2504
3/8	M2506
1/2	M2508
5/8	M2510
3/4	M2512
1	M2516
1 1/4	M2520
1 1/2	M2524

Table Q8 — Flanging Die Set, Inch Sizes

Tube O.D. (in.)	Wall Thickness (in.)	Flanging Pin Steel Tube	Flanging Pin Stainless Tube
1/4	0.028	B4004X028180	-
1/4	0.035	B4004X035180	B4004X035180SS
1/4	0.049	B4004X049180	B4004X049180SS
3/8	0.035	B4006X035180	B4006X035180SS
3/8	0.049	B4006X049180	B4006X049180SS
3/8	0.065	B4006X065180	B4006X065180SS
1/2	0.035	B4008X035180	B4008X035180SS
1/2	0.049	B4008X049180	B4008X049180SS
1/2	0.065	B4008X065180	B4008X065180SS
1/2	0.083	B4008X083180	B4008X083180SS
1/2	0.095	B4008X095181	B4008X095180SS
5/8	0.049	B4010X049180	B4010X049180SS
5/8	0.065	B4010X065180	B4010X065180SS
5/8	0.083	B4010X083180	B4010X083180SS
5/8	0.095	B4010X095180	B4010X095180SS
5/8	0.120	B4010X120180	-
3/4	0.049	B4012X049180	B4012X049180SS
3/4	0.065	B4012X065180	B4012X065180SS
3/4	0.083	B4012X083180	B4012X083180SS
3/4	0.095	B4012X095180	B4012X095180SS
3/4	0.104	-	B4012X104180SS
3/4	0.109	B4012X109180	B4012X109180SS
3/4	0.120	B4012X120180	B4012X120180SS
1	0.065	B4016X065180	B4016X065180SS
1	0.083	B4016X083180	B4016X083180SS
1	0.095	B4016X095180	B4016X095180SS
1	0.109	B4016X109180	B4016X109180SS
1	0.120	B4016X120180	B4016X120180SS
1	0.134	B4016X134180	B4016X134180SS
1	0.139	-	B4016X139180SS
1 1/4	0.065	B4020X065180	-
1 1/4	0.083	B4020X083180	B4020X083180SS
1 1/4	0.095	B4020X095180	B4020X095180SS
1 1/4	0.109	B4020X109180	B4020X109180SS
1 1/4	0.120	B4020X120180	B4020X120180SS
1 1/4	0.134	B4020X134180	-
1 1/2	0.065	B4024X065180	-
1 1/2	0.083	B4024X083180	-
1 1/2	0.095	B4024X095180	B4024X095180SS
1 1/2	0.109	B4024X109180	B4024X109180SS
1 1/2	0.120	B4024X120180	B4024X120180SS

Table Q9 — Flanging Pin, Inch Sizes

Fig. Q58 — Flanging Pin

Fig. Q59 — Dual Function Die Set (Flaring and Flanging)

Dimensions and pressures for reference only, subject to change.

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Parflange® Pro 50

The Parflange® Pro 50 is a production WorkCenter for orbital flaring and flanging of high pressure tube connections. The unique feature of the Parflange® process is that the deformation of the tube end is achieved by rolling rather than by just pushing a tool into the tube end.

The Parflange® machine smoothly compresses the tube material and achieves a high strength joint with a polished surface of the tube end. Seal-Lok and SAE flange sleeves are firmly fixed onto the tube end, resulting in a very rigid high-pressure tube connection.

The Pro 50 is the heavy-duty mass production WorkCenter of the Parflange® machine program. It is recommended for industrial production of all sizes Triple-Lok® and required Seal-Lok tube connections. Maximum tube capacity is 2" tube O.D / 50 mm.

The powerful drive and the fast, automatic process allow short cycle times for efficient production. Its advantage is the quick and easy change of tooling and the simple operation without manual adjustments or programming. Tube clamping and tool lubrication are done automatically.

The Pro 50 comes ready to be used. Parflange® tools have to be purchased separately. For each tube dimension, special clamping dies and Parflange® pins are required. The machine can be moved on wheels, by forklift truck and crane. For basic use, just an electric power supply is required.

Fig. Q60 — Parflange Pro 50

Instructional video is available at discover.parker.com/TFDTubeFabEquipment.

View the Parflange Equipment Overview and Comparison Guide.

Part Name	Part No.
Parflange Pro 50	**PRO 50**

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Pro 50 Machine Specification

Purpose:	180° Flanging for Seal-Lok and 37° Flaring for Triple-Lok®
Process:	Orbital flaring and flanging according to Parflange® process
Design:	WorkCenter for industrial production
Tube material:	Steel and stainless steel tube
Tube diameter:	Inch: 1/4" to 2" Metric: 6 to 50 mm
Min. U-bend:	4.72 mm
Maximum capacity:	Steel tube (ST 37, ST52,...) Inch: 2" x 0.120 (tube O.D. x wall thickness) Metric: 38 x 5 / 50 x 3 mm Stainless steel tube (1.4571, 316, ...) Inch: 1-1/2" x 0.156 Metric: 38 x 4 mm
Tube specification:	Fully annealed seamless cold drawn or welded and redrawn precision tube
Operation:	Automatic clamping, automatic flanging/flaring
Speed:	5-8 sec. flanging time / 15-20 sec. total cycle time

Economic production quantity:	max. 500 flarings per day
Tools:	See Tables 9 & 10 on page Q30
Tool compartments:	10 die sets, 10 pins
Tool clamping:	Automatic
Tool lubrication:	Automatic lubrication device
Lubricant:	EO-NIROMONT (filled when delivered)
Hydraulic oil:	HLP 46 (filled when delivered)
Installation:	Electrical power
Dimensions:	27.6 in x 33 in x 40.7 in
Platform for bins:	2 platforms,11.8 x 19.7 in, max. 11 lbs each
Weight:	838 lbs
Electrical power:	400 V, 3 Phase, 50 Hz, 4.5 kW
Transport options:	On wheels, by forklift truck, lifting attachments

Dimensions and pressures for reference only, subject to change.

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Tube Fittings Division
Columbus, Ohio
http://www.parker.com/tfd

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Parflange® Pro 50 with Feeder

For industrial mass production of Seal-Lok tube end connections, the Parflange Pro 50 with sleeve feed is available. This sleeve feeding device increases the productivity, particularly of high volume - single tube dimension jobs.

In “Feeder ON - mode”, Seal-Lok sleeves just need to be inserted into feeder rails. First cycle start is initiated by manually closing the safety cover. Then, all following cycles are started by pushing the tube into the pre-clamped dies. All other machine activities, like tube clamping, flanging, tube release, insertion of Seal-Lok sleeves into dies, pre-clamping of dies and the operation of safety cover run fully automatic. The operator just is handling the tubes and refilling the sleeve-feeder from times to times with Seal-Lok sleeves.

In “Feeder OFF - mode”, the Parflange® PRO 50 operates like the Parflange® PRO 50 without Seal-Lok sleeve feeder. This mode is useful for maximum size flexibility and Triple-Lok® assembly. For quick changeover and safety reasons, the Seal-Lok sleeve feeder is just switched OFF but not be removed from the Parflange® PRO 50 WorkCenter.

For operation of Parflange Pro 50, compressed air supply is required.

Part Name	Part No.
Parflange Pro 50 w/Feeder	**PRO 50 W/FEEDER**

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Fig. Q61 — Parflange Pro 50 w/Feeder

Pro 50 Machine Specification

Specific differences of PRO 50 versus PRO 50 with Feeder	
Design:	Parflange® PRO 50 with additional Seal-Lok sleeve feeder
Normal Operation:	Same as Parflange® 50 when feeder is switched off
Feeder Operation:	Work-cycle initiated by inserting tube end Automatic clamping, automatic flanging/flaring Automatic insertion of Seal-Lok sleeves into dies Automatic operation of safety cover Automatic pre-clamping of dies
Manual operation:	Like Parflange® PRO 50
Cycle time:	5-8 sec. flanging time / approx. 15 to 20 sec. total cycle time
Tools:	Same tools as Parflange® PRO 50 without feeder
Feeder:	Feeder is delivered in separate box and must be firmly attached to machine. Feeder can be switched ON and OFF but must not be removed.
Feeder rails:	Feeder rail kits must be ordered separately for each Seal-Lok sleeve size
Feeder setup:	Installation of matching rail kit by knurled nuts and adjustment of scale wheel according to chart
Installation:	Electrical power, for feeder type machines: compressed air supply (6 bar)
Dimensions:	2.30 ft x 2.76 ft x 6.66 ft
Weight:	904 lbs

Dimensions and pressures for reference only, subject to change.

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Ordering

Type	Order code
Parflange® 50 machine Ready to use, including operation manual, filled with hydraulic oil and lubricant Without Parflange® tools Basic machine Europe version (not prepared for Seal-Lok sleeve feeder)	
Purchase:	PRO 50
Rent (monthly)	e-mail TFDrental@parker.com for availability

Parflange® PRO 50

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Type	**Order code**
Parflange® 50 PRO machine Europe version including Seal-Lok sleeve feeder without feeder rails	
Purchase:	PRO 50 with Feeder
Rent (monthly)	e-mail TFDrental@parker.com for availability

Parflange® PRO 50 with Feeder for mass production of Seal-Lok assemblies

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Sleeve feeder rails for Parflange® 50 PRO	**Tube OD**	**Order code**
Seal-Lok sleeve feeding rail	6mm / 1/4"	1050RAIL04
Seal-Lok sleeve feeding rail	8, 10mm / 3/8"	1050/RAIL06
Seal-Lok sleeve feeding rail	12mm / 1/2"	1050/RAIL08
Seal-Lok sleeve feeding rail	14,15,16mm / 5/8"	1050/RAIL10
Seal-Lok sleeve feeding rail	18,20mm / 3/4"	1050/RAIL12
Seal-Lok sleeve feeding rail	22,25 / 1"	1050/RAIL16
Seal-Lok sleeve feeding rail	28,30,32 / 1-1/4"	1050/RAIL20
Seal-Lok sleeve feeding rail	35,38 / 1-1/2"	1050/RAIL24

Parflange® machines and feeders are shipped in special containers which should be kept for future transports to avoid damage. Please don't dispose of the transport boxes!

Dimensions and pressures for reference only, subject to change.

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Inch and Metric Flanging Tooling for PRO 50

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Tube Size O.D. x Wall Thickness (in.)	Tooling for 90°/180° Tube Flanging		Available Flanging Tooling	
	Pin Part Number	Die Part Number	1025 -S	1025 -SS
1/4 x .028	B4004X028180	M4004X028180	•	
1/4 x .035	B4004X035180	M4004X035180	•	•
1/4 x .049	B4004X049180	M4004X049180	•	
3/8 x .035	B4006X035180	M4006X035180	•	•
3/8 x .049	B4006X049180	M4006X049180	•	•
3/8 x .065	B4006X065180	M4006X065180	•	•
1/2 x .035	B4008X035180	M4008X035180	•	•
1/2 x .049	B4008X049180	M4008X049180	•	•
1/2 x .065	B4008X065180	M4008X065180	•	•
1/2 x .083	B4008X083180	M4008X083180	•	•
5/8 x .049	B4010X049180	M4010X049180	•	•
5/8 x .065	B4010X065180	M4010X065180	•	•
5/8 x .083	B4010X083180	M4010X083180	•	•
5/8 x .095	B4010X095180	M4010X095180	•	•
5/8 x .109	B4010X109180	M4010X109180	•	
5/8 x .120	B4010X120180	M4010X120180	•	
3/4 x .049	B4012X049180	M4012X049180	•	•
3/4 x .065	B4012X065180	M4012X065180	•	•
3/4 x .083	B4012X083180	M4012X083180	•	•
3/4 x .095	B4012X095180	M4012X095180	•	•
3/4 x .109	B4012X109180	M4012X109180	•	•
3/4 x .120	B4012X120180	M4012X120180	•	•
1 x .065	B4016X065180	M4016X065180	•	•
1 x .083	B4016X083180	M4016X083180	•	•
1 x .095	B4016X095180	M4016X095180	•	•
1 x .109	B4016X109180	M4016X109180	•	•
1 x .120	B4016X120180	M4016X120180	•	•
1 x .134	B4016X134180	M4016X134180	•	•
1 x .148	B4016X148180	M4016X148180	•	
1 x .156	B4016X156180	M4016X156180	•	
1 x .188	B4016X188180	M4016X188180	•	
1 1/4 x .065	B4020X065180	M4020X065180	•	
1 1/4 x .083	B4020X083180	M4020X083180	•	•
1 1/4 x .095	B4020X095180	M4020X095180	•	•
1 1/4 x .109	B4020X109180	M4020X109180	•	•
1 1/4 x .120	B4020X120180	M4020X120180	•	•
1 1/4 x .134	B4020X134180	M4020X134180	•	
1 1/4 x .148	B4020X148180	M4020X148180	•	
1 1/4 x .156	B4020X156180	M4020X156180	•	
1 1/4 x .188	B4020X188180	M4020X188180	•	
1 1/2 x .065	B4024X065180	M4024X065180	•	
1 1/2 x .083	B4024X083180	M4024X083180	•	
1 1/2 x .095	B4024X095180	M4024X095180	•	•
1 1/2 x .109	B4024X109180	M4024X109180	•	
1 1/2 x .120	B4024X120180	M4024X120180	•	•
1 1/2 x .134	B4024X134180	M4024X134180	•	
1 1/2 x .148	B4024X148180	M4024X148180	•	
1 1/2 x .156	B4024X156180	M4024X156180	•	
1 1/2 x .188	B4024X188180	M4024X188180	•	

Note: Use "-SS" suffix after part number for flanging tools for stainless steel tube. Contact the Tube Fittings Division for sizes and/or materials not listed, or for additional SS sizes released for limited use.

Table Q10 — Pin & Die Part Numbers for Inch Sizes

Tube Size O.D. x Wall Thickness (mm)	Tooling for 90°/180° Tube Flanging		Available Flanging Tooling	
	Pin Part Number	Die Part Number	1025 S	1025 SS
6 x 1	B3018006X1M	M4018006X1M	•	
6 x 1.5	B3018006X1.5M	M4018006X1.5M	•	
8 x 1	B3018008X1M	M4018008X1M	•	
8 x 1.5	B3018008X1.5M	M4018008X1.5M	•	
10 x 1	B3018010X1M	M4018010X1M	•	
10 x 1.5	B3018010X1.5M	M4018010X1.5M	•	
10 x 2	B3018010X2M	M4018010X2M	•	
12 x 1	B3018012X1M	M4018012X1M	•	
12 x 1.5	B3018012X1.5M	M4018012X1.5M	•	•
12 x 2	B3018012X2M	M4018012X2M	•	
15 x 1.5	B3018015X1.5M	M4018015X1.5M	•	
15 x 2	B3018015X2M	M4018015X2M	•	
16 x 1	B3018016X1M	M4018016X1M	•	
16 x 1.5	B3018016X1.5M	M4018016X1.5M	•	
16 x 2	B3018016X2M	M4018016X2M	•	•
16 x 2.5	B3018016X2.5M	M4018016X2.5M	•	
18 x 1	B3018018X1M	M4018018X1M	•	
18 x 1.5	B3018018X1.5M	M4018018X1.5M	•	
18 x 2	B3018018X2M	M4018018X2M	•	
20 x 2	B3018020X2M	M4018020X2M	•	•
20 x 2.5	B3018020X2.5M	M4018020X2.5M	•	
20 x 3	B3018020X3M	M4018020X3M	•	
22 x 1.5	B3018022X1.5M	M4018022X1.5M	•	
22 x 2	B3018022X2M	M4018022X2M	•	
22 x 2.5	B3018022X2.5M	M4018022X2.5M	•	
22 x 3	B3018022X3M	M4018022X3M	•	
25 x 2	B3018025X2M	M4018025X2M	•	
25 x 2.5	B3018028X2.5M	M4018028X2.5M	•	
25 x 3	B3018030X2M	M4018030X2M	•	
25 x 3.5	B3018025X3.5M	M4018025X3.5M	•	
25 x 4	B3018025X4M	M4018025X4M		
28 x 2	B3018028X2M	M4018028X2M	•	
28 x 2.5	B3018028X2.5M	M4018028X2.5M	•	
30 x 2	B3018030X2M	M4018030X2M	•	
30 x 3	B3018030X3M	M4018030X3M	•	
30 x 3.5	B3018030X3.5M	M4018030X3.5M		
30 x 4	B3018030X4M	M4018030X4M		
32 x 3	B3018032X3M	M4018032X3M	•	
32 x 4	B3018032X4M	M4018032X4M		
35 x 3	B3018035X3M	M4018035X3M	•	
38 x 3	B3018038X3M	M4018038X3M		
38 x 4	B3018038X4M	M4018038X4M		
38 x 5	B3018038X5M	M4018038X5M		

Note: Use "-SS" suffix after part number for flanging tools for stainless steel tube. Contact the Tube Fittings Division for sizes and/or materials not listed, or for additional SS sizes released for limited use.

Table Q11 — Pin & Die Part Numbers for Metric Sizes

All tooling info also available on www.TFDTOOLSPEC.com

Dimensions and pressures for reference only, subject to change.

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Manual Flaring Tool Vise Block and Flaring Pin — Metric Tube

These 37° flaring tools are designed for use in a vise when flaring metric tube from 6mm O.D. to 38mm O.D.

From 20mm size tube and upward it is necessary to use a pre-flaring pin to start the flare.

- **Clamp tube flush in black halves**
- **Flare tube by hammering the flaring pin.**

A separate block and pin set is used for each tube size.

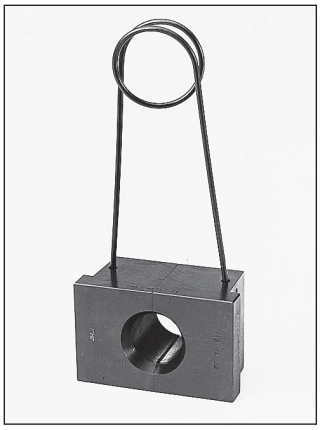

Fig. Q62 — Vise Block

Pre-Flaring Pins

Tube O.D. (mm)	Part No.
20	P1E
25	P1E
30	P1E
32	P1E
38	P1E

Fig. Q63 — Pre-Flaring Pins

Flaring Pins

Tube O.D. (mm)	Part No.
6	P17408
8	P17408
10	P17408
12	P17414
14	P17414
15	P17414
16	P17414
18	P17418
20	P17418
25	P17422
30	P17432
32	P17432
38	P17438

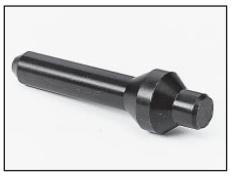

Fig. Q64 — Flaring Pin

Vise Blocks

Tube O.D. (mm)	Part No.
6	M27406
8	M27408
10	M27410
12	M27412
14	M27414
15	M27415
16	M27416
18	M27418
20	M27420
25	M27425
30	M27430
32	M27432
38	M27438

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Rolo-Flair®

Manual Rotary Flaring Tool

(For soft metal tube)

Precision burnished 37° and 45° flares in tube sizes from 2 (1/8” O.D.) to 12 (3/4” O.D.) with an easy turn of the handle. For use with copper and aluminum alloys. A depth gauge allows proper positioning of tube for consistent flaring.

HOW TO USE: Open die, insert tube up to the gauge and clamp the tube in the die. Turn drive handle clockwise to flare, then counterclockwise for retracting flaring cone. Open clamping die by loosening wing nut and remove flared tube.

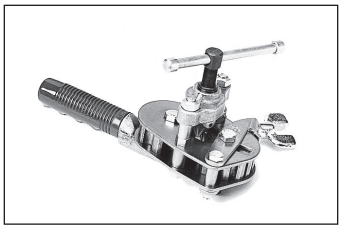

Fig. Q65 — Rolo-Flair

Part Name	Part No.
Rolo-Flair for 37° flares (for 1/8”, 3/16”, 1/4”, 5/16”, 3/8”, 1/2”, 5/8”, 3/4”, O.D.)	**212FB**
Rolo-Flair for 45° flares (for 1/8”, 3/16”, 1/4”, 5/16”, 3/8”, 1/2”,5/8”, 3/4”, O.D.)	**945TH**

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

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Hydra-Tool

Hydraulic Flaring and Pre-Setting Tool

Flaring

An efficient dependable device for 37° and 45° flaring of steel, stainless steel and copper tube. This task is made easy through hydraulic power provided by a hand or electric pump. The equipment is portable and easy to use.

This tool accommodates dies for tubes ranging in inch sizes from 4 through 32 (1/4" through 2" outside diameters) with wall thicknesses as great as .134", and metric sizes from 6mm through 50mm. The hydraulic "push" of the Hydra-Tool flares the tube to a 37° flare angle. A gauge can be provided to enable the operator to determine the pressure required to adequately flare any given material and wall thickness of the tube. Complete instructions are included with the Hydra-Tool.

See bulletin 4390-B10, or view the instructional video online at discover.parker.com/TFDTubeFabEquipment.

See the following for Hydra-Tool basic unit or kit, and choice of power sources and necessary tooling.

NOTE: Flaring die sets and other tooling are available in non-standard sizes upon request from the factory.

See Triple-Lok area of Assembly Section for flaring pressures.

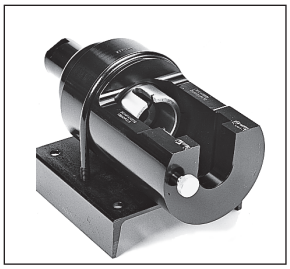

Fig. Q66 — Hydra-Tool

Fig. Q67 — Electric Pump

Fig. Q68 — Hand Pump

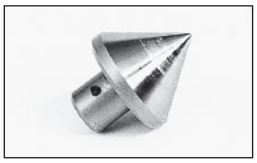

Fig. Q69 — Flaring Cone

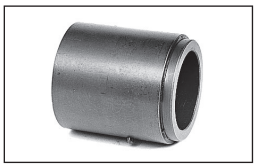

Fig. Q70 — Die Ring

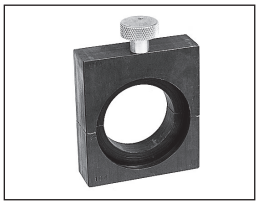

Fig. Q71 — Die Retainer

Fig. Q72 — Hydra-Tool Kit

COMPONENTS REQUIRED

Part Name	Part No.
*Hydra-Tool (basic unit)	**710400B**
*Hydra-Tool Male Adapter	**6-8 F5OLO-S**
*"T" Adapter for Gauge	**6 R6LO-S**
*Hose Assembly (for hand or electric pumps)	**910004**
*Adapter for Gauge	**6 G6L-S**
*Pressure Gauge (0 - 10,000 psi)	**900044****
Electric Hydraulic Pump (10,000 psi; 1/2 hp; 40-125 volt)	**900085**
Hand Hydraulic Pump (10,000 psi; 2 speed)	**900086**
Die Ring (1/4" - 1 1/4") (6mm - 32mm)	**710416A**
Die Ring (1 1/2" - 2") (35mm - 50mm)	**710412**
37° Flaring Cone (1/4" - 1 1/4") (6mm - 32mm)	**710419**
37° Flaring Cone (1 1/2" - 2") (35mm - 50mm)	**710411**
Die Retainer Assembly (1/4" - 1 1/4") (6mm - 32mm)	**710424-1**
Die Retainer Assembly (1 1/2" - 2") (35mm - 50mm)	**710424-2**
Flaring Die Sets	See pages Q34 – Q35
45° Flaring Cone (1/4" - 1")	**910312**

*Included in Hydra-tool kit (Part 720370B-3)

STP Lubricant is the only lubricant recommended for use with Hydra-Tool.

Hydra-Tool Kit

Part Name	Part No.
Hydra-Tool Kit (for use with electric or hand pump) Includes basic unit, gauge adapter, Hydra-Tool connector, lubricant, "T" adapter, carrying case, hose assembly, pressure gauge, p/n 900044, and operation manual.	**720370B-3**

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Dimensions and pressures for reference only, subject to change.

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Hydra-Tool 37° Flaring Die Sets for Steel – Inch

Size	Tube O.D. (in.)	Part No.
4	1/4	710417-4
5	5/16	710417-5
6	3/8	710417-6
8	1/2	710417-8
10	5/8	710417-10
12	3/4	710417-12
14	7/8	710417-14
16	1	710417-16
20	1 1/4	710417-20
24	1 1/2	710415-24
32	2	710415-32

Fig. Q73 — Flaring Die Set

Hydra-Tool 37° Flaring Die Sets for Stainless Steel – Inch

Size	Tube O.D. (in.)	Part No.
4	1/4	710417-4 SS
5	5/16	710417-5 SS*
6	3/8	710417-6 SS
8	1/2	710417-8 SS
10	5/8	710417-10 SS
12	3/4	710417-12 SS
14	7/8	710417-14 SS*
16	1	710417-16 SS
20	1 1/4	710417-20 SS
24	1 1/2	710415-24 SS
32	2	710415-32 SS

* Non-standard.

Hydra-Tool 37° Flaring Die Sets – Metric

Tube O.D./ Size (mm)	Part No.
6	770106-6
8	770106-8
10	770106-10
12	770106-12
14	770106-14
15	770106-15
16	770106-16
18	770106-18
20	770106-20
22	770106-22
25	770106-25
28	770106-28
30	770106-30
32	770106-32
35	770095-35
38	770095-38
42	770095-42
50	770095-50

Dimensions and pressures for reference only, subject to change.

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http://www.parker.com/tfd

Hydra-Tool 45° Flaring Die Sets – Inch

Size	Tube O.D. (in.)	Part No.
4	1/4	**977420-4**
6	3/8	**977420-6**
8	1/2	**977420-8**
10	5/8	**977420-10**
12	3/4	**977420-12**
14	7/8	**977420-14**
16	1	**977420-16**

REPLACEMENT PART

Part Name	Part No.
Tube Stop Assembly	**710420B**

OPTIONAL ACCESSORIES

Part Name	Part No.
Hydra-Tool Carrying Case	**720377**

Sturdy wood case for Hydra-Tool and tooling.
(Hydra-Tool Kit is shipped in this carrying case.)

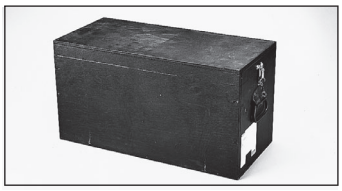

Fig. Q74 — Carrying Case

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

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Karryflare Portable Flaring Machine

The Karryfare is a portable flaring machine that is designed for fabricating 37 degree tube flares. It's lightweight, portable, and is capable of flaring 1/4" through 1-1/2" (6mm-38mm) steel & stainless steel tubing. It's telescopic handle and wheeled carrying case allows it to be easily transported from one work site location to another.

Part Name	Part No.
Karry Flare	**KarryFlare**

Hydraulic power is generated by a hand operated pump. A pressure gauge is provided which enables the operator to review the necessary pressure requirements for proper flaring of their specific tubing requirements (operating pressures are specific to the tubes O.D. and wall thickness). The complete unit is mounted on a wheeled base plate, with telescopic handle, and includes 37° cone and case cover.

Dimensions: H – 10" W – 14" L – 30"

Application range

The Karryflare machine is capable of flaring tube from 1/4" O.D. to 1 1/2" O.D. or from 6mm O.D. to 38mm O.D.

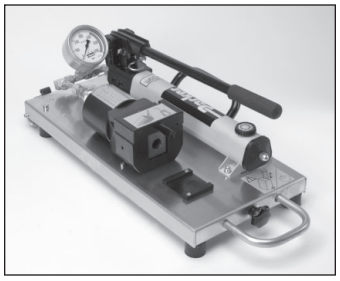

Fig. Q75 — KarryFlare

Fig. Q76— Flaring Die Set

FLARING COMPONENTS

Part Name	Part No.
Replacement 37° Flaring Cone	**Karryflare/FPIN**
37° Flaring Die Sets	See below

Tube Die Sets – Inch

Tube O.D. (in.)	Part No.
1/4	**M047415-1**
5/16	**M157408-1**
3/8	**M067415-1**
1/2	**M087415**
5/8	**M107415**
3/4	**M127415**
1	**M167415**
1 1/4	**M207415**
1 1/2	**M157438**

Tube Die Sets – Metric

Tube O.D. (mm)	Part No.
6	**M157406-1**
8	**M157408-1**
10	**M157410-1**
12	**M157412**
14	**M157414**
15	**M157415**
16	**M157416**
18	**M157418**
20	**M157420**
22	**M157422**
25	**M157425**
30	**M157430**
32	**M157432**
38	**M157438**

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Inch and Metric Flaring Tooling for 1025

Parflange® 1025 37° Flaring and Flanging Systems

Parker's Parflange 1025 machine is designed to create 37° flared tube ends. For more detailed information on the machine and part numbers, refer to page Q23.

Fig. Q77 — Parflange 1025

Tube Size O.D. x Wall Thickness (in.)	Tooling for 37°/74° Tube Flaring		Available Flaring Tooling
	Pin Part Number	Die Part Number	1025
1/4 x .020	B4004X020074	M4004074	•
1/4 x .028	B4004X028074	M4004074	•
1/4 x .035	B4004X035074	M4004074	•
1/4 x .049	B4004X049074	M4004074	•
1/4 x .065	B4004X065074	M4004074	•
3/8 x .020	B4006X020074	M4006074	•
3/8 x .028	B4006X028074	M4006074	•
3/8 x .035	B4006X035074	M4006074	•
3/8 x .049	B4006X049074	M4006074	•
3/8 x .065	B4006X065074	M4006074	•
1/2 x .028	B4008X028074	M4008074	•
1/2 x .035	B4008X035074	M4008074	•
1/2 x .049	B4008X049074	M4008074	•
1/2 x .065	B4008X065074	M4008074	•
1/2 x .083	B4008X083074	M4008074	•
5/8 x .035	B4010X035074	M4010074	•
5/8 x .049	B4010X049074	M4010074	•
5/8 x .065	B4010X065074	M4010074	•
5/8 x .083	B4010X083074	M4010074	•
5/8 x .095	B4010X095074	M4010074	•
3/4 x .035	B4012X035074	M4012074	•
3/4 x .049	B4012X049074	M4012074	•
3/4 x .065	B4012X065074	M4012074	•
3/4 x .083	B4012X083074	M4012074	•
3/4 x .095	B4012X095074	M4012074	•
3/4 x .109	B4012X109074	M4012074	•
1 x .035	B4016X035074	M4016074	•
1 x .049	B4016X049074	M4016074	•
1 x .065	B4016X065074	M4016074	•
1 x .083	B4016X083074	M4016074	•
1 x .095	B4016X095074	M4016074	•
1 x .109	B4016X109074	M4016074	•
1 x .120	B4016X120074	M4016074	•
1 1/4 x .049	B4020X049074	M4020074	•
1 1/4 x .065	B4020X065074	M4020074	•
1 1/4 x .083	B4020X083074	M4020074	•
1 1/4 x .095	B4020X095074	M4020074	•
1 1/4 x .109	B4020X109074	M4020074	•
1 1/4 x .120	B4020X120074	M4020074	•
1 1/2 x .065	B4024X065074	M4024074	•
1 1/2 x .083	B4024X083074	M4024074	•
1 1/2 x .095	B4024X095074	M4024074	•
1 1/2 x .109	B4024X109074	M4024074	•
1 1/2 x .120	B4024X120074	M4024074	•

Table Q12 — Parflange Flaring Tooling for Inch Sizes

Tooling suitable for 37°/74° flaring of steel, stainless steel, aluminum, monel, copper, and cupro-nickel tube materials. For 37°/74° flaring, one die covers each tube O.D.; a different pin is required for each tube wall. Setscrews in flaring dies may require slight adjustment for different tube materials and/or tube walls.

Tube Size O.D. x Wall Thickness (mm)	Tooling for 37°/74° Tube Flaring		Available Flaring Tooling
	Pin Part Number	Die Part Number	1025
6 x 1	B3007406X1M	M4007406M	•
6 x 1.5	B3007406X1.5M	M4007406M	•
8 x 1	B3007408X1M	M4007408M	•
8 x 1.5	B3007408X1.5M	M4007408M	•
10 x 1	B3007410X1M	M4007410M	•
10 x 1.5	B3007410X1.5M	M4007410M	•
12 x 1.5	B3007412X1.5M	M4007412M	•
12 x 2	B3007412X2M	M4007412M	•
15 x 1.5	B3007415X1.5M	M4007415M	•
15 x 2	B3007415X2M	M4007415M	•
16 x 1.5	B3007416X1.5M	M4007416M	•
16 x 2	B3007416X2M	M4007416M	•
18 x 2	B3007418X2M	M4007418M	•
20 x 2	B3007420X2M	M4007420M	•
20 x 2.5	B3007420X2.5M	M4007420M	•
25 x 2	B3007425X2M	M4007425M	•
25 x 2.5	B3007425X2.5M	M4007425M	•
25 x 3	B3007425X3M	M4007425M	•
30 x 2.5	B3007430X2.5M	M4007430M	•
30 x 3	B3007430X3M	M4007430M	•
32 x 3	B3007432X3M	M4007432M	•
38 x 3	B3007438X3M	M4007438M	•
38 x 4	B3007438X4M	M4007438M	

Table Q13 — Parflange Flaring Tooling for Metric Sizes

Tooling suitable for 37°/74° flaring of steel, stainless steel, aluminum, monel, copper, and cupro-nickel tube materials. Apply LB 2000 lube to flaring pin. Setscrews in flaring dies may require slight adjustment for different tube materials and/or tube walls.

Fig. Q78 — Flaring Pin

Fig. Q79 — Flaring Die

Dimensions and pressures for reference only, subject to change.

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Inch Flaring Tooling for ECO25

Parflange® ECO25 37° Flaring and Flanging Systems

Parker's Parflange ECO25 machine is designed to create 37° flared tube ends. For more detailed information on the machine and part numbers, refer to page Q25.

Fitting Dash Size	Tube O.D. (in.)	Die Set Part Number
4	1/4	M2504
6	3/8	M2506
8	1/2	M2508
10	5/8	M2510
12	3/4	M2512
16	1	M2516
20	1 1/4	M2520
24	1 1/2	M2524

Table Q14 — Flaring Die Set, Inch Sizes

Tube O.D. (in.)	Wall Thickness (in.)	Flaring Pin Part Number
1/4	0.028	B4004X028074
1/4	0.035	B4004X035074
1/4	0.049	B4004X049074
1/4	0.065	B4004X065074
3/8	0.020	B4006X020074
3/8	0.028	B4006X028074
3/8	0.035	B4006X035074
3/8	0.049	B4006X049074
3/8	0.065	B4006X065074
1/2	0.028	B4008X028074
1/2	0.035	B4008X035074
1/2	0.049	B4008X049074
1/2	0.065	B4008X065074
1/2	0.083	B4008X083074
5/8	0.035	B4010X035074
5/8	0.049	B4010X049074
5/8	0.065	B4010X065074
5/8	0.083	B4010X083074
5/8	0.095	B4010X095074
3/4	0.035	B4012X035074
3/4	0.049	B4012X049074
3/4	0.065	B4012X065074
3/4	0.083	B4012X083074
3/4	0.095	B4012X095074
3/4	0.109	B4012X109074
1	0.035	B4016X035074
1	0.049	B4016X049074
1	0.065	B4016X065074
1	0.083	B4016X083074
1	0.095	B4016X095074
1	0.109	B4016X109074
1	0.120	B4016X120074
1 1/4	0.049	B4020X049074
1 1/4	0.065	B4020X065074
1 1/4	0.095	B4020X095074
1 1/4	0.109	B4020X109074
1 1/4	0.120	B4020X120074
1 1/2	0.065	B4024X065074
1 1/2	0.083	B4024X083074
1 1/2	0.095	B4024X095074
1 1/2	0.109	B4024X109074
1 1/2	0.120	B4024X120074

Table Q15 — Flaring Pin, Inch Sizes

Fig. Q80 — Parflange ECO25

Fig. Q81 — Flaring Pin

Fig. Q82 — Dual Function Die Set (Flaring and Flanging)

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SAE Straight Thread Port Tapping Tools*

Taps are available for SAE J1926-1 female straight thread ports in sizes 2 through 32. Taps are bottoming type and made from high speed tool steel.

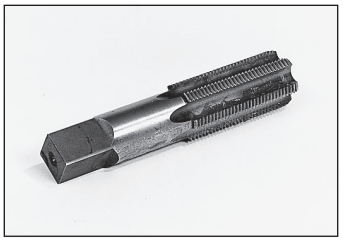

Fig. Q83 — SAE Straight Thread Port Tapping Tool

SAE Dash Size	Overall Length (in.)	Shank Dia. (in.)	Wrench Flat Size (in.)	Part No.
2	2 23/32	0.318	0.238	**5/16X24 UNF-2B**
3	2 15/16	0.381	0.286	**3/8X24 UNF-2B**
4	3 5/16	0.323	0.242	**7/16X20 UNF-2B**
5	3 3/8	0.367	0.275	**1/2X20 UNF-2B**
6	3 19/32	0.429	0.322	**9/16X18 UNF-2B**
8	4 1/4	0.590	0.442	**3/4X16 UNF-2B**
10	4 11/16	0.697	0.523	**7/8X14 UNF-2B**
12	5 1/8	0.896	0.672	**1 1/16X12 UNF-2B**
14	5 7/16	1.021	0.766	**1 3/16X12 UNF-2B**
16	5 3/4	1.108	0.831	**1 5/16X12 UNF-2B**
20	6 11/16	1.305	0.979	**1 5/8X12 UNF-2B**
24	7 5/16	1.519	1.139	**1 7/8X12 UNF-2B**
32	8 3/4	2.100	1.575	**2 1/2X12 UNF-2B**

SAE Straight Thread Port Counterboring Tools*

Parker offers counterboring tools for SAE J1926-1 female straight thread ports in sizes 2 through 32. Counterbores are 4-fluted high speed tool steel.

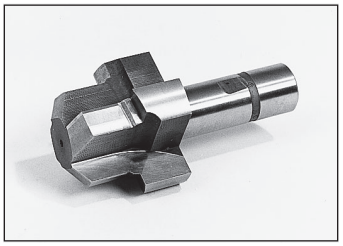

Fig. Q84 — SAE Straight Thread Port Counterboring Tool

SAE Dash Size	Shank Dia. (in.)	Shank Length (in.)	Overall Length (in.)	Recommended Pilot Drill or Bore Size (in.)	Part No.
2	1/2	1 1/2	2 1/2	0.266	**Y-34730**
3	1/2	1 1/2	2 1/2	0.328	**Y-34731**
4	1/2	1 1/2	2 41/64	0.377	**Y-34732**
5	1/2	1 1/2	2 41/64	0.438	**Y-34733**
6	3/4	1 1/2	2 47/64	0.500	**Y-34734**
8	3/4	1 1/2	2 53/64	0.672	**Y-34735**
10	1	2	3 29/64	0.797	**Y-34736**
12	1	2	3 19/32	0.969	**Y-34737**
14	1	2	3 41/64	1.095	**Y-34738**
16	1	2	3 41/64	1.220	**Y-34739**
20	1 1/2	2	3 37/64	1.530	**Y-34740**
24	1 1/2	2	3 37/64	1.780	**Y-34741**
32	1 1/2	2	3 49/64	2.405	**Y-34743**

*** See General Technical for recommended use of port tools.**

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BSPP Straight Thread Port Counterboring Tools*

Parker offers counterboring/spotfacing tools for DIN 3852-2 female straight thread port connections in sizes 1/8" through 1-1/2". Counterbores are carbide tipped.

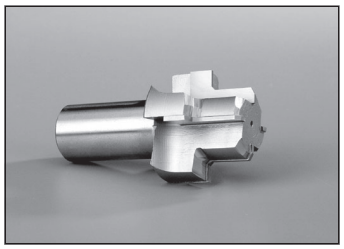

Fig. Q85 — BSPP Straight Thread Port Counterboring Tool

SAE Dash Size	Overall Length (in.)	Shank Dia. (in.)	Wrench Flat Size (in.)	Part No.
2	2 23/32	0.318	0.238	**5/16X24 UNF-2B**
3	2 15/16	0.381	0.286	**3/8X24 UNF-2B**
4	3 5/16	0.323	0.242	**7/16X20 UNF-2B**
5	3 3/8	0.367	0.275	**1/2X20 UNF-2B**
6	3 19/32	0.429	0.322	**9/16X18 UNF-2B**
8	4 1/4	0.590	0.442	**3/4X16 UNF-2B**
10	4 11/16	0.697	0.523	**7/8X14 UNF-2B**
12	5 1/8	0.896	0.672	**1 1/16X12 UNF-2B**
14	5 7/16	1.021	0.766	**1 3/16X12 UNF-2B**
16	5 3/4	1.108	0.831	**1 5/16X12 UNF-2B**
20	6 11/16	1.305	0.979	**1 5/8X12 UNF-2B**
24	7 5/16	1.519	1.139	**1 7/8X12 UNF-2B**
32	8 3/4	2.100	1.575	**2 1/2X12 UNF-2B**

BSPP Straight Thread Tapping Tools*

BSPP taps are available for ISO 228-1 threaded connections in sizes 1/8" through 1 1/2". All taps are bottoming type manufactured from high speed steel.

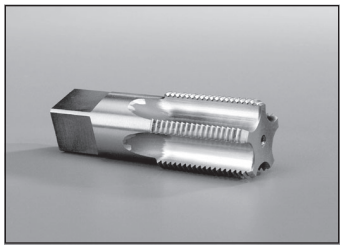

Fig. Q86 — BSPP Straight Thread Tapping Tool

	Shank Dia. (in.)	Shank Length (in.)	Overall Length (in.)	Recommended Pilot Drill or Bore Size (in.)	Part No.
G1/8	1/2	1 1/2	2 1/2	0.332	**974094-G1/8**
G1/4	1/2	1 1/2	2 1/2	0.438	**974094-G1/4**
G3/8	3/4	1 1/2	2 1/2	0.578	**974094-G3/8**
G1/2	3/4	2	3	0.728	**974094-G1/2**
G3/4	1	2	3	0.938	**974094-G3/4**
G1	1	2	3 1/2	1.181	**974094-G1**
G1-1/4	1 1/2	2	3 1/2	1.531	**974094-G1-1/4**
G1-1/2	1 1/2	2	3 1/2	1.750	**974094-G1-1/2**

BSPT Taper Pipe Thread Tapping Tools*

BSPT taps are available for ISO 7-1 taper thread connections in sizes 1/8" through 1 1/2". All taps are bottoming type manufactured from high speed steel.

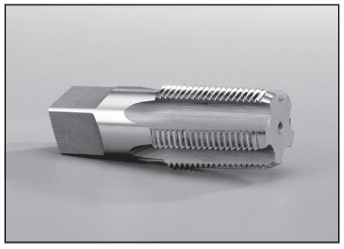

Fig. Q87 — BSPT Taper Pipe Thread Tapping Tool

Size	Shank Dia. (in.)	Overall Length (in.)	Thread Size	Part No.
R1/8	0.438	2 1/8	1/8-28	**974243-R1/8**
R1/4	0.563	2 7/16	1/4-19	**974243-R1/4**
R3/8	0.700	2 9/16	3/8-19	**974243-R3/8**
R1/2	0.688	3 1/8	1/2-14	**974243-R1/2**
R3/4	0.906	3 1/4	3/4-14	**974243-R3/4**
R1	1.125	3 3/4	1-11	**974243-R1**
R1-1/4	1.313	4	1 1/4-11	**974243-R1-1/4**
R1-1/2	1.500	4 1/4	1 1/2-11	**974243-R1-1/2**

*** See General Technical for recommended use of port tools.**

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NPTF Thread Tapping Tools*

NPTF taps are available for taper pipe thread connections in sizes 1/8" through 1 1/2". All taps are bottoming type manufactured from high speed steel.

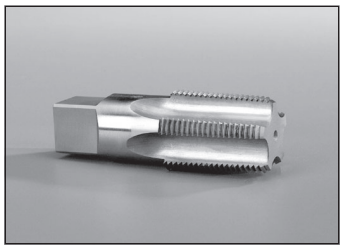

Fig. Q88 — NPTF Port Tap

Shank Dia. (in.)	Overall Length (in.)	Thread Size	Part No.
0.438	2 1/8	1/8-27	**974244-1/8**
0.563	2 7/16	1/4-18	**974244-1/4**
0.700	2 9/16	3/8-18	**974244-3/8**
0.688	3 1/8	1/2-14	**974244-1/2**
0.906	3 1/4	3/4-14	**974244-3/4**
1.125	3 3/4	1-11 1/2	**974244-1**
1.313	4	1 1/4-11 1/2	**974244-1-1/4**
1.500	4 1/4	1 1/2-11 1/2	**974244-1-1/2**

ISO 6149-1 Straight Thread Port Tapping Tools*

ISO 6149-1 female straight thread port taps are available for M8 to M48 port sizes. Taps are bottoming type and made from high speed steel.

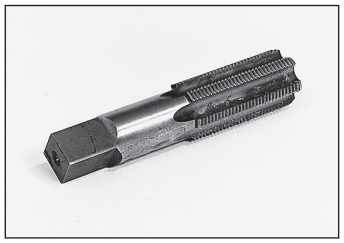

Fig. Q89 — ISO 6149-1 Straight Thread Port Tap

Overall Length (in.)	Shank Dia. (in.)	Wrench Flat Size (in.)	Thread Size	Part No.
2 23/32	0.318	0.238	M8x1	**M8X1 D5 2FL**
2 15/16	0.381	0.286	M10x1	**M10X1-6H**
3 3/8	0.367	0.275	M12x1.5	**M12X1.5-6H TAP**
3 19/32	0.429	0.322	M14x1.5	**M14X1.5-6H-TAP**
3 13/16	0.400	0.360	M16x1.5	**M16X1.5-6H-TAP**
4 1/32	0.542	0.406	M18x1.5	**M18X1.5-6H-TAP**
4 11/16	0.697	0.523	M22x1.5	**M22X1.5-6H-TAP**
5 1/8	0.896	0.672	M27x2	**M27X2-6H-TAP**
5 3/4	1.108	0.831	M33x2	**M33X2-6H-TAP**
7	1.430	1.072	M42x2	**M42X2-6H-TAP**
7 5/8	1.644	1.233	M48x2	**M48X2-6H-TAP**

*** See General Technical for recommended use of port tools.**

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ISO 6149-1 Straight Thread Port Counterboring Tools — Small Spotface*

ISO 6149-1 female straight thread port counterboring tools are available with small spotface for M8 to M48 port sizes. Counterbores are 4-fluted*, carbide-tipped.

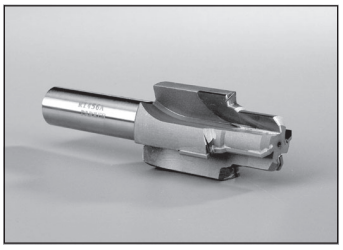

Fig. Q90 — ISO 6149-1 Straight Thread Port Counterboring Tool — Small Spotface

Shank Dia. (in.)	Shank Length (in.)	Overall Length (in.)	Recommended Pilot Drill or Bore Size (in.)	Use with Thread Size	Part No.
1/2		2	4 1/8	0.272	M8x1* **R1449B**
1/2		2	4 1/8	0.348	M10x1* **R1450B**
1/2	2	4 1/8	0.406	M12x1.5	**R 1451B-S**
1/2		2	4 1/8	0.484	M14x1.5 **R 1452B-S**
1/2	2	4 1/8	0.563	M16x1.5	**R 1453B-S**
1/2	2	4 1/8	0.641	M18x1.5	**R 1454B-S**
1/2	2	4 1/8	0.797	M22x1.5	**R 1455B-S**
3/4	2 1/2	5	0.969	M27x2	**R 1456B-S**
3/4	2 1/2	5	1.210	M33x2	**R 1457B-S**
3/4	2 1/2	5	1.565	M42x2	**R 1458B-S**
3/4	2 1/2	5	1.801	M48x2	**R1459B**

* M8 and M10 are 3-fluted

ISO 6149-1 Straight Thread Port Counterboring Tools with ID Groove*

ISO 6149-1 female straight thread port counterboring tools are available with identification groove for M8 to M48 port sizes. Counterbores are 4-fluted*, carbide-tipped.

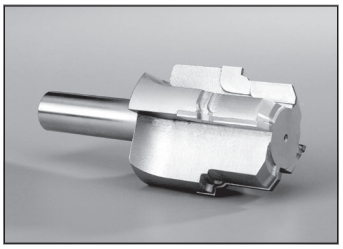

Fig. Q91 — ISO 6149-1 Straight Thread Port Counterboring Tool with ID Groove

Shank Dia. (in.)	Shank Length (in.)	Overall Length (in.)	Recommended Pilot Drill or Bore Size (in.)	Use with Thread Size	Part No.
1/2	2	4 1/8	0.348	M10x1*	**R1450A**
1/2	2	4 1/8	0.406	M12x1.5	**R1451A**
1/2	2	4 1/8	0.484	M14x1.5	**R1452A**
1/2	2	4 1/8	0.563	M16x1.5	**R1453A**
1/2	2	4 1/8	0.641	M18x1.5	**R1454A**
1/2	2	4 1/8	0.797	M22x1.5	**R1455A**
3/4	2 1/2	5	0.969	M27x2	**R1456A**
3/4	2 1/2	5	1.210	M33x2	**R1457A**

* M10 are 3-fluted

WARNING: This product can expose you to chemicals including Lead and Lead Compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

*** See General Technical for recommended use of port tools.**

Parker Hannifin Corporation
Tube Fittings Division
Columbus, Ohio
http://www.parker.com/tfd

Ferulset® Pre-Setting Tool

For Ferulok® flareless tube fittings.

Ferulset provides a fast and easy way to manually pre-set the ferrule onto steel and stainless steel tube with the famous Ferulok "bite." Ferulset bodies are manufactured from hardened steel for withstanding repeated pre-sets. A separate tool is required for each size tube; size 2 (1/8" O.D.) through size 32 (2" O.D.).

HOW TO USE: Lubricate threads on tool, threads on nut, as well as tail and lead ends of ferrule with a suitable lubricant such as STP. Insert tube end with ferrule into tool until it bottoms against shoulder and thread the nut down until finger tight. Light wrenching may be required to get to a consistent starting position, especially with larger sizes. Hold tube steady against internal shoulder and tighten nut 1-3/4 turns. Loosen nut and inspect bite using inspection criteria outlined for Ferulok in the Assembly / Installation section.

Fig. Q92 — Ferulset®

Size	Tube O.D. (in.)	Part No.
2	1/8	**560576**
3	3/16	**560577**
4	1/4	**560578**
5	5/16	**560579**
6	3/8	**560580**
8	1/2	**560581**
10	5/8	**560582**
12	3/4	**560583**
14	7/8	**560584**
16	1	**560585**
20	1 1/4	**560586**
24	1 1/2	**560587**
32	2	**560589**

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Tube Fittings Division
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