CATÁLOGO CONDENSADO
Documento interactivo · 2026

Válvulas y conexiones de alta presión



Parker Autoclave Engineers, de la mano de Sucoval

INTRODUCCIÓN

Válvulas, conexiones y tubería para media y alta presión, reunidas en un solo documento.

Este catálogo condensado de **Parker Autoclave Engineers**, referente mundial en equipos de alta presión desde 1945, reúne su línea de conexiones tipo cono y rosca para servicio de 20.000 psi (1.380 bar) y 60.000 psi (4.140 bar): válvulas de aguja y de bola, actuadores, conexiones, tubería, adaptadores, manómetros, herramientas y productos para servicio ácido. **Sucoval** lo pone al alcance de sus clientes para que encuentren rápido la información técnica que necesitan.

En la página siguiente encontrará el índice en español. Cada sección lo lleva directo a sus tablas de especificaciones y números de parte (en inglés).

CONSULTAS Y COTIZACIONES

¿Tiene una consulta técnica o necesita una cotización?

Este documento es una guía de referencia. En alta presión, la selección correcta depende de la presión, la temperatura, el fluido y las condiciones de operación: nuestro equipo lo asesora y le envía la cotización.

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HORARIO
Lunes a viernes,
8:00 AM – 5:00 PM

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Nota: este índice es una guía de referencia. Para una recomendación según su aplicación, presión, temperatura y fluido, contacte al equipo técnico de Sucoval. En cada página, el botón «TOC» lo regresa a este índice.

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Parker y Autoclave Engineers son marcas de Parker Hannifin Corporation.

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The world leader in high pressure valves, fittings and tubing

Since its inception in 1945, Parker Autoclave Engineers (PAE) has been dedicated to manufacturing high pressure and extreme temperature valve, fitting, and instrument tubing systems which are coordinated together to operate safely and reliably. Today, Parker Autoclave Engineers is a world leader combining our high pressure knowledge, manufacturing expertise, and technological innovation to offer a broad range of products and services to our customers, across a wide range of industries.

Low Pressure (0-15,000 psi) Valves, Fittings and Tubing

While Parker Autoclave Engineers products are known industry wide for their ability to operate at pressures in excess of 150,000 psi (10,340 bar), a Low Pressure line nicknamed “Speedbite”, rated for applications to 15,000 psi (1034 bar) is available, but not discussed in this brochure. Speedbite valves and fittings utilize a single ferrule compression sleeve connection which provides easy, leak free performance, matched to PAE specified instrument tubing sizes from 1/16” to ½”.

Quick Set System (QSS) (0-15,000 psi)

To enhance the Speedbite product line, Parker Autoclave Engineers has engineered (not shown in this catalog) an advanced single ferrule fitting system called the QSS-Quick Set System. Designed to work with our Medium Pressure 316 cold worked S.S. , 2507 Super Duplex™, and Inconel 625 instrument tubing, this 1/4” through 1” O.D. connection is utilized in our valves and fittings to provide a simple to install connection in all sizes up to 15,000 psi (1034 bar). For more information, or to order a complete catalog, contact your nearest Parker Autoclave Engineers representative.

Flared Cone Connection (FCC) (0-22,500 psi)

Our latest innovation is the Flared Cone Connection that merges a single ferrule, bite-type compression design with flared tubing that prevents any tube extraction while offering two redundant sealing surfaces. This two-step hydraulically set system saves installation time over typical Cone & Thread Connections. Available in both 316 SS and 2507 Super Duplex tubing, fittings, and valves.

Needle Valves

All Parker Autoclave Engineers Needle Valves incorporate a rising stem/block design while the non-rotating feature of the stem prevents galling. In addition, the valves are designed with metal to metal seating for bubble tight shut-off, long stem/seat life even in abrasive flow conditions, and excellent overall corrosion resistance.

Parker Autoclave Engineers components are offered in 316SS as standard, but can be ordered in a variety of optional materials such as: Super Duplex, 6Mo, Hastelloy* B & C, Inconel, Monel or any one of our 40 other supported materials.

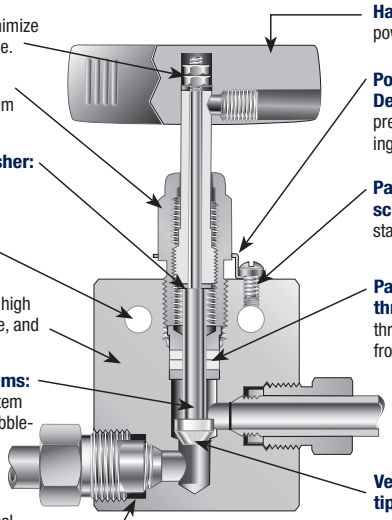
For more information see our website at www.Autoclave.com. To order a complete VFT Catalog, contact your nearest Parker Autoclave Engineers representative or the company direct at 814-860-5700.

* Hastelloy is a trademark of Haynes International Inc.

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Manual Needle Valves

Parker Autoclave Engineers valves are designed to operate safely and reliably at pressures to 150,000 psi (10342 bar). Several important features make this dependable service possible under widely varying conditions.



Stem: can be readjusted to minimize backlash while valve is in service.

Packing gland: nickel-plated aluminum-bronze minimizes stem operating torque.

Stainless steel bearing washer: silver-plated to minimize stem friction.

Bracket mounting holes: standard on every valve.

Cold Worked Bodies: permit high pressures in a smaller block size, and also extend valve service life.

Non-Rotating one piece stems: prevent galling and scoring of stem and seat; provide repeatable bubble-tight shut-off.

End Connections: coned-and-threaded with optional anti-vibration collet gland assemblies.

Handles: powder coated stainless steel.

Postive Locking Device: prevents inadvertent unthreading of bonnet.

Panel mounting screw holes: standard on every valve.

Packing below stem threads: adjustable; separates threads and thread lubricants from process fluid.

Vee and Regulating Stem tips available.

Model 20SM9071 shown.

Non-rotating stem

Prevents stem/seat galling when valve is opened and closed.

Metal-to-Metal seating

Provides bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.

PTFE packing

Ensures dependable stem and body sealing. The stem sleeve and packing gland materials extend thread life and reduce the handle torque required to operate the valve.

Manual valve options

Five different body patterns, a variety of materials and stem types, extreme temperature models, abrasive service options, panel mounting and several handle styles are among the available options.

	O.D. Tube Size In (mm)	Pressure Rating psi (bar)	*Rated C_V (full open)	Valve Stem Type	2 Way Straight	2 Way Angle	3 Way 2 on Pressure	3 Way 1 on Pressure	2 Way Angle Replaceable Seat	3 Way 2 Stem Manifold
Medium Pressure	1/4 (6.35)	20,000 (1380)	.31	Vee Reg	20SM4071 20SM4081	20SM4072 20SM4082	20SM4073 20SM4083	20SM4074 20SM4084	20SM4872 20SM4882	20SM4075 20SM4085
	3/8 (9.53)	20,000 (1380)	.75	Vee Reg	20SM6071 20SM6081	20SM6072 20SM6082	20SM6073 20SM6083	20SM6074 20SM6084	20SM6872 20SM6882	20SV6075 20SM6085
	9/16 (14.30)	20,000 (1380)	1.30	Vee Reg	20SM9071 20SM9081	20SM9072 20SM9082	20SM9073 20SM9083	20SM9074 20SM9084	20SM9872 20SM9882	20SM9075 20SM9085
	3/4 (19.10)	20,000 (1380)	2.50	Vee Reg	20SM12071 20SM12081	20SM12072 20SM12082	20SM12073 20SM12083	20SM12074 20SM12084	20SM12872 20SM12882	20SM12075 20SM12085
	1 (25.40)	20,000 (1380)	4.40	Vee Reg	20SM16071 20SM16081	20SM16072 20SM16082	20SM16073 20SM16083	20SM16074 20SM16084	20SM16872 20SM16882	20SM16075 20SM16085
	9/16 (14.30)	10,000 (690)	1.75	Vee Reg	15SM9071 15SM9081	15SM9072 15SM9082	15SM9073 15SM9083	15SM9074 15SM9084	15SM9872 15SM9882	15SM9075 15SM9085
	3/4 (19.10)	10,000 (690)	2.80	Vee Reg	15SM12071 15SM12081	15SM12072 15SM12082	15SM12073 15SM12083	15SM12074 15SM12084	15SM12872 15SM12882	15SM12075 15SM12085
	1 (25.40)	10,000 (690)	5.20	Vee Reg	15SM16071 15SM16081	15SM16072 15SM16082	15SM16073 15SM16083	15SM16074 15SM16084	15SM16872 15SM16882	15SM16075 15SM16085
High Pressure	1 (25.40)	30,000 (2070)	2.60	Vee Reg	30SC16071 30SC16081	30SC16072 30SC16082	30SC16073 30SC16083	30SC16074 30SC16084	30SC16872 30SC16882	30SC16075 30SC16085
	1/4 (6.35)	30,000 (2070)	.12	Vee Reg	30VM4071 30VM4081	30VM4072 30VM4082	30VM4073 30VM4083	30VM4074 30VM4084	30VM4872 30VM4882	30VM4075 30VM4085
	3/8 (9.53)	30,000 (2070)	.23	Vee Reg	30VM6071 30VM6081	30VM6072 30VM6082	30VM6073 30VM6083	30VM6074 30VM6084	30VM6872 30VM6882	30VM6075 30VM6085
	9/16 (14.30)	30,000 (2070)	.33	Vee Reg	30VM9071 30VM9081	30VM9072 30VM9082	30VM9073 30VM9083	30VM9074 30VM9084	30VM9872 30VM9882	30VM9075 30VM9085
	9/16 (14.30)	40,000 (2760)	.28	Vee Reg	40VM9071 40VM9081	40VM9072 40VM9082	40VM9073 40VM9083	40VM9074 40VM9084	40VM9872 40VM9882	40VM9075 40VM9085
	1/4 (6.35)	60,000 (4140)	.08	Vee Reg	60VM4071 60VM4081	60VM4072 60VM4082	60VM4073 60VM4083	60VM4074 60VM4084	60VM4872 60VM4882	60VM4075 60VM4085
	3/8 (9.53)	60,000 (4140)	.09	Vee Reg	60VM6071 60VM6081	60VM6072 60VM6082	60VM6073 60VM6083	60VM6074 60VM6084	60VM6872 60VM6882	60VM6075 60VM6085
	9/16 (14.30)	60,000 (4140)	.14	Vee Reg	60VM9071 60VM9081	60VM9072 60VM9082	60VM9073 60VM9083	60VM9074 60VM9084	60VM9872 60VM9882	60VM9075 60VM9085

* C_v Valves shown are for 2-way straight pattern. For 2-way angle, increase C_v Valve 50%. Note: SM Series replaces 20SC Series

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Air Actuators (for PAE Needle Valves)

Three sizes of air operators (medium, heavy duty or extra heavy) are offered for remote on-off operation or automatic operation of Parker Autoclave Engineers medium or high pressure valves. The actuators are available in air-to-open (normally closed) and air-to-close (normally open) designs.

Ordering Procedure (Consult factory to insure proper selection)

To order a valve with an air operator, select the duty rating and type of the air operator from the chart on page 5 & 6. Add the air operator identifying suffix to the catalog number of the Parker Autoclave Engineers valve. To order a 2-way straight, 30VM vee stem, 9/16" (14.3 mm) valve with a medium duty air-to-close piston air operator, specify: ex: 30VM9071-C1S.

Duty Rating	Operator	Type	Order Suffix
Medium	Piston	Air to Open	O1S
		Air to Close	C1S
Heavy	Piston	Air to Open	O2S
		Air to Close	C2S
Extra Heavy Single Stage	Piston	Air to Open	HO1S
		Air to Close	HC1S
Extra Heavy Two Stage	Piston	Air to Open	HO2S
		Air to Close	HC2S



60VM9071-O2S
Air To Open
Piston Activated

Note: For outdoor service actuators, please see main catalog.



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Air Actuators (for PAE Needle Valves)



10V6071-C1S
Air To Close
Piston Activated

This table is designed to allow quick selection of an appropriate piston air actuator based on valve style and size, maximum system operating pressure and maximum available air pressure.

For example, a 9/16" 20SM valve can operate to 10,700 psi with 100 psi air pressure using the Medium Piston (-C1S) or 20,000 psi MAWP with the Heavy (-C2S) actuator. or can operate to 20,000 psi using only 65 psi air pressure with the Extra Heavy Duty Single Stage Piston (-HC1S).

Note: See main catalog for complete sizing information.

Air to Close: Actuator Selection Guide

Valve Series	O.D. Tube in. (mm)	Medium (-C1S)		Heavy (-C2S)		Extra Heavy Single Stage (-HC1S)		Extra Heavy Two Stage (-HC2S)	
		System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)
15SM	9/16 (14.30)	8,600 (593)	100 (6.9)	15,000 (1035)	75 (5.2)	15,000 (1035)	60 (4.2)	15,000 (1035)	35 (2.4)
	3/4 (19.10)	-	-	15,000 (1035)	100 (6.9)	15,000 (1035)	100 (69)	15,000 (1035)	50 (3.5)
	1 (25.40)	-	-	6,300 (434)	100 (6.9)	8,500 (586)	95 (6.55)	10,000 (690)	55 (3.79)
	1.5 (38)	-	-	-	-	-	-	10,000 (690)	90 (8)
20SM	1/4 (6.35)	20,000 (1380)	95 (6.5)	20,000 (1380)	50 (3.5)	-	-	-	-
	3/8 (9.53)	19,000 (1310)	100 (6.9)	20,000 (1380)	55 (3.8)	-	-	-	-
	9/16 (14.30)	10,700 (734)	100 (6.9)	20,000 (1380)	85 (5.9)	20,000 (1380)	65 (4.48)	-	-
	3/4 (19.10)	6,100 (421)	100 (6.9)	13,600 (938)	100 (6.9)	19,000 (1310)	100 (6.90)	20,000 (1380)	50 (3.4)
	1 (25.40)	-	-	8,800 (607)	100 (6.9)	12,500 (862)	100 (6.90)	20,000 (1380)	75 (5.1)
30SC	1 (25.40)	-	-	-	-	-	-	30,000 (2068)	80 (5.5)
30VM	1/4 (6.35)	30,000 (2068)	55 (3.8)	30,000 (2068)	30 (2.0)	-	-	-	-
	3/8 (9.53)	30,000 (2068)	75 (5.2)	30,000 (2068)	40 (2.8)	-	-	-	-
	9/16 (14.30)	30,000 (2068)	75 (5.2)	30,000 (2068)	40 (2.8)	-	-	-	-
40VM	9/16 (14.30)	40,000 (2758)	90 (6.2)	40,000 (2758)	45 (3.1)	-	-	-	-
60VM	1/4 (6.35)	60,000 (4137)	75 (5.2)	60,000 (4137)	40 (2.8)	-	-	-	-
	3/8 (9.53)	60,000 (4137)	75 (5.2)	60,000 (4137)	40 (2.8)	-	-	-	-
	9/16 (14.30)	60,000 (4137)	90 (6.2)	60,000 (4137)	45 (3.1)	-	-	-	-

Notes: Actuator Selection Guide (choose actuator based on available air pressure).
15SM Valves replace 10SM Valves and are rated to 15,000 psi (1035 bar).

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Air Actuators (for PAE Needle Valves)

This table is designed to allow quick selection of an appropriate piston air actuator based on valve style and size, maximum system operating pressure and maximum available air pressure.

For example, a 9/16" 20SM valve can operate to 9,800 psi with 100 psi air pressure using the Medium Piston (-01S) or 15,700 psi MAWP with the Heavy (-02S) actuator. or can operate to 20,000 psi using only 85 psi air pressure with the Extra Heavy Duty Single Stage Piston (-H01S).

Note: See main catalog for complete sizing information.



20SM6872-01S
Air To Open
Piston Activated

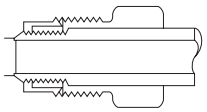
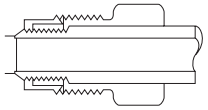
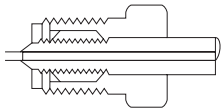
Air to Open: Actuator Selection Guide

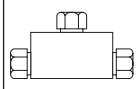
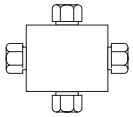
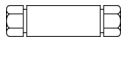
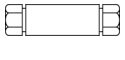
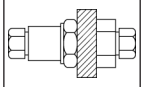
Valve Series	O.D. Tube in. (mm)	Medium (-01S)		Heavy (-02S)		Extra Heavy Single Stage (-H01S)		Extra Heavy Two Stage (-H02S)	
		System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)
15SM	9/16 (14)	-	-	12,000 (830)	80 (5.5)	15,000 (1035)	80 (5.5)	15,000 (1035)	55 (4)
	3/4 (19)	-	-	-	-	12,000 (830)	100 (7)	15,000 (1035)	75 (5)
	1 (25)	-	-	-	-	6,500 (448)	100 (7)	10,000 (690)	85 (5.9)
	1.5 (38)	-	-	-	-	-	-	9,000 (621)	100 (7)
20SM	1/4 (6.35)	20,000 (1380)	95 (6.6)	20,000 (1380)	50 (3.4)	-	-	-	-
	3/8 (9.53)	18,250 (1258)	95 (6.6)	18,250 (1258)	50 (3.4)	-	-	-	-
	9/16 (14.30)	9,800 (676)	95 (6.6)	15,700 (1082)	75 (5.1)	20,000 (1380)	85 (5.86)	20,000 (1380)	55 (3.8)
	3/4 (19.10)	-	-	6,000 (414)	75 (5.1)	15,000 (1034)	100 (7)	20,000 (1380)	80 (5.5)
	1 (25.40)	-	-	-	-	10,000 (690)	100 (7)	20,000 (1380)	100 (7)
30SC	1 (25.40)	-	-	-	-	-	-	30,000 (2068)	100 (7)
30VM	1/4 (6.35)	30,000 (2068)	75 (5.2)	30,000 (2068)	40 (2.8)	-	-	-	-
	3/8 (9.53)	30,000 (2068)	95 (6.6)	30,000 (2068)	50 (3.5)	-	-	-	-
	9/16 (14.30)	30,000 (2068)	95 (6.6)	30,000 (2068)	50 (3.5)	-	-	-	-
40VM	9/16 (14.30)	40,000 (2758)	100 (6.9)	40,000 (2758)	55 (3.8)	-	-	-	-
60VM	1/4 (6.35)	60,000 (4137)	95 (6.6)	60,000 (4137)	50 (3.5)	-	-	-	-
	3/8 (9.53)	60,000 (4137)	95 (6.6)	60,000 (4137)	50 (3.5)	-	-	-	-
	9/16 (14.30)	60,000 (4137)	95 (6.6)	60,000 (4137)	50 (3.5)	-	-	-	-

Notes: Actuator Selection Guide (choose actuator based on available air pressure).
15SM Valves replace 10SM Valves and are rated to 15,000 psi (1035 bar).

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Fittings, Components & Accessories

	Connection Sizes in. (mm)	Pressure Rating psi (bar)	Connection Type	
Medium Pressure	1/4 to 1-1/2 (6.4 to 38)	to 20,000 (1380)	Coned-and-threaded type for high strength and repeated make-up. Anti-Vibration collet gland available in line collar and gland to minimize block thickness	
High Pressure	1 (25)	to 43,000 (2964)	Coned-and-threaded type for high strength and repeated make-up. Anti-vibration collet gland available.	
	1/4 to 9/16 (6.35 to 14.3)	to 60,000 (4140)	Coned-and-threaded type for high strength and repeated make-up. Anti-vibration collet gland available. Nested collar and gland to minimize block width.	

								
	O.D. Tube Size in. (mm)	Pressure Rating psi (bar)	**Elbow**	**Tee**	**Cross**	**Straight Coupling**	**Union Coupling**	**Bulkhead Coupling**
Medium Pressure	1/4 (6.35)	20,000 (1380)	CLX4400	CTX4440	CXX4444	20FX4466	20UFX4466	20BFX4466
	3/8 (9.53)	20,000 (1380)	CLX6600	CTX6660	CXX6666	20FX6666	20UFX6666	20BFX6666
	9/16 (14.3)	20,000 (1380)	CLX9900	CTX9990	CXX9999	20FX9966	20UFX9966	20BFX9966
	3/4 (19.1)	20,000 (1380)	CLX12	CTX12	CXX12	20FX12	20UFX12	20BFX12
	1 (25.4)	20,000 (1380)	CLX16	CTX16	CXX16	20FX16	20UFX16	20BFX16
	1-1/2 (38.1)	15,000 (1035)	CLX24	CTX24	CXX24	15FX24	15UFX24	15BFX24
High Pressure	1 (25.4)	43,000 (2964)	43CL16	43CT16	43CX16	43F16	43UF16	43BF16
	9/16 (14.3)	40,000 (2760)	40CL9900	40CT9990	40CX9999	40F9933	40UF9933	40BF9933
	1/4 (6.35)	60,000 (4140)	CL4400	CT4440	CX4444	60F4433	60UF4433	60BF4433
	3/8 (9.53)	60,000 (4140)	CL6600	CT6660	CX6666	60F6633	60UF6633	60BF6633
	9/16 (14.3)	60,000 (4140)	CL9900	CT9990	CX9999	60F9933	60UF9933	60BF9933

			Connection Components			Check Valves			Line Filters		Safety Heads
											
	O.D. Tube Size in. (mm)	Pressure Rating psi (bar)	**Gland**	**Collar**	**Plug**	**O-Ring**	**Ball**	**Excess Flow**	**Dual Disc**	**Cup Type**	**Safety Heads**
Medium Pressure	1/4 (6.35)	20,000 (1380)	CGLX40	CCLX40	CPX40	CXO4400	CXB4400	CXK4402	-	CXF4	CSX4600*
	3/8 (9.53)	20,000 (1380)	CGLX60	CCLX60	CPX60	CXO6600	CXB6600	CXK6602	-	CXF6	CSX6600*
	9/16 (14.3)	20,000 (1380)	CGLX90	CCLX90	CPX90	CXO9900	CXB9900	CXK9902	CLFX9900	CXF9	CSX9600*
	3/4 (19.1)	20,000 (1380)	CGLX120	CCLX120	CPX120	CXO12	CXB12	CXK1202	-	CXF12	-
	1 (25.4)	20,000 (1380)	CGLX160	CCLX160	CPX160	CXO16	CXB16	CXK1602	-	CXF16	-
	1-1/2 (38.1)	15,000 (1035)	CGLX240	CCLX240	CPX240	CXO240	CXB240	-			
High Pressure	1 (25.4)	43,000 (2964)	CGLX160	CCLX160	43CP160	43CKO16	43CB16	-	-	-	-
	9/16 (14.3)	40,000 (2760)	AGL90	ACL90	AP90	-	-	-	-	-	-
	1/4 (6.35)	60,000 (4140)	AGL40	ACL40	AP40	CKO4400	CB4401	CK4402	CLF4400	CF4	CS4600*
	3/8 (9.53)	60,000 (4140)	AGL60	ACL60	AP60	CKO6600	CB6601	CK6602	CLF6600	CF6	CS6600*
	9/16 (14.3)	60,000 (4140)	AGL90	ACL90	AP90	CKO9900	CB9901	CK9902	CLF9900	CF9	CS9600*

* **Note:** See main catalog for complete model number.

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Tubing

Parker Autoclave Engineers offer a complete selection of Austenetic, cold drawn stainless steel tubing designed to match the performance standards of Parker Autoclave Engineers valves and fittings. PAE tubing is manufactured specifically for medium and high pressure applications requiring both strength and corrosion resistance. The tubing is furnished in random lengths between 20 and 26.5 feet (6.1 and 8.0 meter).

Inspection and Testing

Parker Autoclave Engineers tubing is inspected to assure it will be free of seams, laps, fissures or other flaws, as well as carburization or intergranular carbide precipitation. The outside and inside diameters of the tubing are subject to special inspection and are controlled within close tolerances to assure proper fit. Sample pieces of tube for each lot are tested to confirm mechanical properties. Hydrostatic testing is also performed on a statistical basis and is conducted at the working pressure of the tube. Parker Autoclave Engineers will perform 100% hydrostatic testing or autofrettage for high cyclic applications at an additional cost if desired.

Catalog Number	Tube Material	Fits Connection Type	Tube Size in (mm)		Wall Thickness Nom. in (mm)	Flow Area in ^{2} (mm ^{2})	Working Pressure psi (bar)				
			O.D. in (mm)	I.D. in (mm)			-325 to 100ºF (-198 to 38ºC)	200ºF (93ºC)	400ºF (204ºC)	600ºF (316ºC)	800ºF (427ºC)
MS15-092	316SS	SF250CX	1/4 (6.35)	.109 (2.77)	.070 (1.78)	.009 (5.81)	20,000 (1380)	20,000 (1380)	19,250 (1330)	18,050 (1250)	16,800 (1160)
MS15-093	316SS	SF375CX	3/8 (9.53)	.203 (5.16)	.086 (2.18)	.032 (20.6)	20,000 (1380)	20,000 (1380)	19,250 (1330)	18,050 (1250)	16,800 (1160)
MS15-085	316SS	SF562CX	9/16 (14.3)	.312 (7.92)	.125 (3.17)	.076 (49)	20,000 (1380)	20,000 (1380)	19,250 (1330)	18,050 (1250)	16,800 (1160)
MS15-097	316SS	SF562CX	9/16 (14.3)	.359 (9.12)	.101 (2.56)	.101 (65.2)	15,000 (1034)	15,000 (1034)	14,400 (992)	13,650 (941)	12,670 (874)
MS15-095	316SS	SF750CX	3/4 (19.1)	.438 (11.1)	.156 (3.96)	.151 (97.4)	20,000 (1380)	20,000 (1380)	19,250 (1330)	18,050 (1250)	16,800 (1160)
MS15-098	316SS			.516 (13.1)	.117 (2.97)	.209 (135)	15,000 (1034)	15,000 (1034)	14,400 (993)	13,650 (941)	12,670 (874)
MS15-096	316SS	SF1000CX	1 (25.4)	.562 (14.3)	.219 (5.56)	.248 (160)	20,000 (1380)	20,000 (1380)	19,250 (1330)	18,050 (1250)	12,670 (874)
MS15-099	316SS			.688 (17.5)	.156 (4.02)	.371 (239)	15,000 (1034)	15,000 (1034)	14,400 (993)	13,650 (941)	12,670 (874)
13041	316SS	SF1500CX	1-1/2 (38.1)	.937 (23.8)	.281 (7.14)	.589 (444.8)	15,000 (1034)	15,000 (1034)	14,430 (995)	13,530 (932)	12,600 (868)
MS15-081	316SS	F250C	1/4 (6.35)	.083 (2.11)	.083 (2.11)	.005 (3.22)	60,000 (4140)	60,000 (4140)	57,750 (3980)	54,250 (3740)	50,700 (3490)
MS15-182	304SS						60,000 (4140)	56,800 (3910)	51,650 (3560)	50,700 (3500)	48,450 (3340)
MS15-087	316SS	F375C	3/8 (9.53)	.125 (3.18)	.125 (3.18)	.012 (7.74)	60,000 (4140)	60,000 (4140)	57,750 (3980)	54,250 (3740)	50,700 (3490)
MS15-183	304SS						60,000 (4140)	56,800 (3910)	51,650 (3560)	50,700 (3500)	48,450 (3340)
MS15-090	316SS	F562C40	9/16 (14.3)	.25 (6.35)	.156 (4.02)	.048 (31)	40,000 (2760)	40,000 (2760)	38,500 (2655)	36,100 (2489)	33,800 (2330)
MS15-083	316SS	F562C	9/16 (14.3)	.187 (4.78)	.187 (4.78)	.028 (18)	60,000 (4140)	60,000 (4140)	57,750 (3980)	54,250 (3740)	50,700 (3490)
MS15-185	304SS						60,000 (4140)	56,800 (3910)	51,650 (3560)	50,700 (3500)	48,450 (3340)
MS15-211	316SS	-	1 (25.4)	.438 (11.1)	.281 (7.14)	.151 (97.4)	43,000 (2964)	43,000 (2964)	43,000 (2964)	41,380 (2853)	36,330 (2504)

Note: For autofrettage tubing, add suffix "ESR42" to the tubing part number.

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Coned and Threaded Nipples

For rapid system make-up, Parker Autoclave Engineers supplies pre-cut, coned-and-threaded nipples in various sizes and lengths for Parker Autoclave Engineers valves and fittings.

Special lengths

In addition to the standard lengths listed in the table below, nipples are available in any custom length. Consult factory.

Materials

Catalog numbers in table refer to Type 316 stainless steel, unless specified.

Working Fits Connection Type	Tube Size in (mm)		Pressure at 100ºF (38ºC) psi (bar)	Catalog Number						
	O.D.	I.D.		2.75" Length	3" Length	4" Length	6" Length	8" Length	10" Length	12" Length
SF250CX	1/4 (6.35)	.109 (2.77)	20,000 (1380)	CNX4402	CNX4403	CNX4404	CNX4406	CNX4408	CNX44010	CNX44012
SF375CX	3/8 (9.53)	.203 (5.16)	20,000 (1380)		CNX6603	CNX6604	CNX6606	CNX6608	CNX66010	CNX66012
SF562CX	9/16 (14.3)	.312 (7.92)	20,000 (1380)			CNX9904	CNX9906	CNX9908	CNX99010	CNX99012
SF562CX	9/16 (14.3)	.359 (9.12)	15,000 (1034)			CNLX9904	CNLX9906	CNLX9908	CNLX99010	CNLX99012
SF750CX	3/4 (19.1)	.438 (11.1)	20,000 (1380)			CNX1204	CNX1206	CNX1208	CNX12010	CNX12012
SF750CX	3/4 (19.1)	.515 (13.1)	15,000 (1034)			CNLX1204	CNLX1206	CNLX1208	CNLX12010	CNLX12012
SF1000CX	1 (25.4)	.562 (14.3)	20,000 (1380)				CNX1606	CNX1608	CNX16010	CNX16012
SF1000CX	1 (25.4)	.688 (17.5)	15,000 (1034)				CNLX1606	CNLX1608	CNLX16010	CNLX16012
SF1500CX	1-1/2 (38.1)	.937 (23.79)	15,000 (1034)				CNLX2406 *	CNLX2408 *	CNLX24010 *	CNLX24012 *
F250C	1/4 (6.35)	.083 (2.11)	60,000 (4140)	CN4402	CN4403	CN4404	CN4406	CN4408	CN44010	CN44012
F375C	3/8 (9.53)	.125 (3.18)	60,000 (4140)		CN6603	CN6604	CN6606	CN6608	CN66010	CN66012
F562C	9/16 (14.3)	.187 (4.78)	60,000 (4140)			CN9904	CN9906	CN9908	CN99010	CN99012
F562C40	9/16 (14.3)	.250 (6.35)	40,000 (2760)			40CN9904 *	40CN9906 *	40CN9908 *	40CN99010 *	40CN99012 *
F1000C43	1 (25.4)	.438 (11.1)	43,000 (2964)				43CN1606	43CN1608	43CN16010	43CN16012

Note: * only available in 316 material



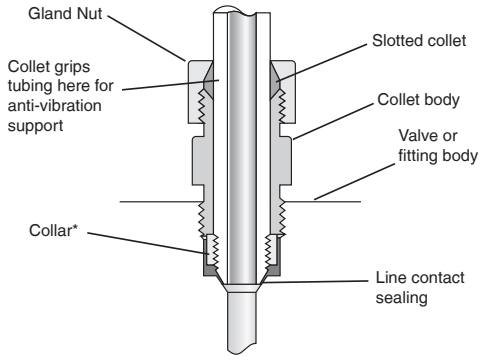
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Anti-Vibration Collet Gland Assemblies

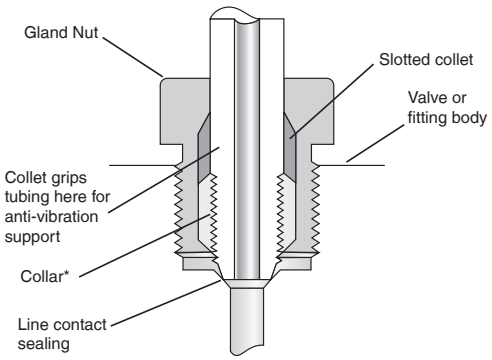
Vibration and/or shock can be present in tubing systems, especially if the valve or fitting happens to be located on an unsupported line near a compressor or pump. For this reason, Parker Autoclave Engineers coned-and-threaded connections are offered with the Parker Autoclave Engineers Anti-Vibration Collet Gland Assemblies. Completely interchangeable with standard Parker Autoclave Engineers high pressure connections, the Collet Gland Assemblies provide equally effective pressure handling capability.

O.D. Tubing Size in (mm)	Catalog Number	
	Medium Pressure to 20,000	High Pressure to 60,000
1/4 (6.35)	KCBGLX40-316MC	KCGL40-316
3/8 (9.53)	KCBGLX60-316MC	KCGL60-316
9/16 (14.3)	KCBGLX90-316MC	KCGL90-316
3/4 (19.1)	KCBGLX120-316MC	-
1 (25.4)	KCBGLX160-316MC	+KCBGLX160-316MC
1-1/2 (38.1)	KCBGLX240-316MC	-

+ 1" High Pressure to 43,000 psi (2964 bar)



Series KCBGLX
Pressures to 20,000 psi (1380 bar)



Series KCGL
Pressures to 60,000 psi (1440 bar)

* Collar not included in complete assembly.



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Male/Female Adapters

Male/female adapters are designed to adapt a female connection direct to another size and/or type of connection. In selecting an adapter involving two different sized connections, the larger connection should be on the male end where it is possible to maximize the mechanical strength of the adapter. See valve fitting and tubing catalog for complete selection.

How to use the Ordering Chart:

1. Locate MALE end in the vertical column.
2. Locate desired FEMALE end of adapter across top of chart.
3. The catalog number of the required adapter is located at the intersection of the two columns.



				PAE Medium Pressure						PAE High Pressure				
FEMALE END ▶				1/4 (6.35) SF250CX	3/8 (9.53) SF375CX	9/16 (14.3) SF562CX	3/4 (19.1) SF750CX	1 (25.4) SF1000CX	1-1/2 (38.1) SF1500CX	1/4 (6.35) F250C	3/8 (9.53) F375C	9/16 (14.3) F562C	9/16 (14.3) F562C40	1 (25.4) F1000C43
MALE END ▼		Fits this FEMALE Connection	Press. psi* (bar)	20,000 (1380)	20,000 (1380)	20,000 (1380)	20,000 (1380)	20,000 (1380)	15,000 (1034)	60,000 (4140)	60,000 (4140)	60,000 (4140)	40,000 (2758	43,000 (2964)
PAE Medium Pressure	1/4 (6.35)	SF250CX	20,000 (1380)	20M44K6	20M46K6	20M49K6	N/A	N/A	N/A	20M44K3	20M46K3	20M49K3	C/F	N/A
	3/8 (9.53)	SF375CX	20,000 (1380)	20M64K6	20M66K6	20M69K6	20M612K6	N/A	N/A	20M64K3	20M66K3	20M69K3	C/F	N/A
	9/16 (14.3)	SF562CX	20,000 (1380)	20M94K6	20M96K6	20M99K6	20M912K6	20M916K6	15M924K6	20M94K3	20M96K3	20M99K3	C/F	20M916K3
	3/4 (19.1)	SF750CX	20,000 (1380)	N/A	N/A	20M129K6	20M1212K6	20M1212K6	15M1224K6	N/A	20M126K3	20M129K3	20M129K40	20M1216K3
	1 (25.4)	SF1000CX	20,000 (1380)	N/A	N/A	20M169K6	20M1612K6	20M1616K6	15M1624K6	N/A	20M166K3	20M169K3	C/F	20M1616K3
	1-1/2 (38.1)	SF15000CX	15,000 (1034)	N/A	N/A	15M249K6	15M2412K6	15M2416K6	15M2424K6	N/A	N/A	C/F	C/F	C/F
PAE High Pressure	1/4 (6.35)	F250C	60,000 (4140)	20M44B6	20M46B6	20M49B6	N/A	N/A	N/A	60M44B3	60M46B3	60M49B3	C/F	N/A
	3/8 (9.53)	F375C	60,000 (4140)	20M64B6	20M66B6	20M69B6	20M612B6	N/A	N/A	60M64B3	60M96B3	60M69B3	C/F	N/A
	9/16 (14.3)	F562C	60,000 (4140)	20M94B6	20M96B6	20M99B6	20M912B6	20M916B6	N/A	60M94B3	60M96B3	60M99B3	40M99G40	43M916B3
	9/16 (14.3)	F562C40	40,000 (2758)	C/F	C/F	C/F	20M912G6	C/F	N/A	C/F	C/F	40M99G40	40M99G40	C/F
	1 (25.4)	F1000C43	43,000 (2964)	N/A	N/A	20M169B6	C/F	C/F	15M1624B6	N/A	N/A	43M169B3	43M169B40	C/F

* Pressure Rating - The pressure rating of Parker Autoclave Engineers couplings is based on the lower rated connection used.

N/A = Not Available

C/F = Consult Factory

Other Adapters

Parker Autoclave Engineers supplies many other types of adapters on special orders.
These include NPT, Buttweld, Header Coupling, QSS, EZ-Union, Male SAE-Oring, JIC connections and others.

Materials

All Parker Autoclave Engineers adapters are precision machined from cold-worked Type 316 stainless steel.
Other materials available on special order.

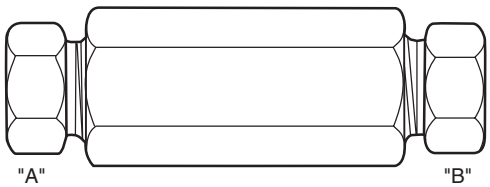
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Adapter Couplings

The couplings shown here permit the joining of any combination of standard size Parker Autoclave Engineers tubing with female-to-female couplings. Other couplings available on special order. See valve fitting and tubing catalog for complete selection.

How to use the Ordering Chart:

1. Locate “A” connection in the vertical column.
2. Locate the desired “B” connection across the top of the chart.
3. The catalog number of the required coupling is located at the intersection of the two columns.



“A” Connection				“B” Connection										
				PAE Medium Pressure						PAE High Pressure				
	Tube Size in (mm)	Connection Type	Press. psi* (bar)	1/4 (6.35) SF250CX	3/8 (9.53) SF375CX	9/16 (14.3) SF562CX	3/4 (19.1) SF750CX	1 (25.4) SF1000CX	1-1/2 (38.1) SF15000CX	1/4 (6.35) F250C	3/8 (9.53) F375C	9/16 (14.3) F562C	9/16 (14.3) F562C40	1 (25.4) F1000C43
PAE Medium Pressure	1/4 (6.35)	SF250CX	20,000 (1380)	20FX4466	20F4666	20F4966	N/A	N/A	N/A	20F4463	20F4663	20F4963	C/F	N/A
	3/8 (9.53)	SF375CX	20,000 (1380)		20FX6666	20F6966	20F61266	N/A	N/A	20F6463	20F6663	20F6963	C/F	N/A
	9/16 (14.3)	SF562CX	20,000 (1380)			20FX9966	20F91266	20F91666	15FX92466	20F9463	20F9663	20F9963	C/F	C/F
	3/4 (19.1)	SF750CX	20,000 (1380)				20FX12	20F121666	C/F	N/A	20F12663	20F12963	C/F	C/F
	1 (25.4)	SF1000CX	20,000 (1380)					20FX16	15FX162466	N/A	20F16663	20F16963	C/F	C/F
	1-1/2 (38.1)	SF1500CX	15,000 (1034)						15FX24	N/A	N/A	C/F	C/F	C/F
PAE High Pressure	1/4 (6.35)	F250C	60,000 (4140)							60F4433	60F4633	60F4933	C/F	N/A
	3/8 (9.53)	F375C	60,000 (4140)								60F6633	60F6933	C/F	N/A
	9/16 (14.3)	F562C	60,000 (4140)									60F9933	40F9933	43F91633
	9/16 (14.3)	F562C40	40,000 (2758)										40F9933	C/F
	1 (25.4)	F1000C43	43,000 (2964)											43F16





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Ball Valves



High Pressure

Parker Autoclave Engineers Ball Valves are designed for on-off, high flow, high pressure applications and provide superior quality with maximum performance. Our unique one-piece trunnion mounted stem/ball eliminates the shear failure common in two-piece designs. Our re-torqueable seat glands result in longer seat life and our low friction stem seal reduces actuation torque and enhances cycle life.

Parker Autoclave Engineers ball valves can be operated safely up to 20,000 psi and up to 500°F with the high temperature option. 2-way, 3-way & 4-Way Switching & Cross-over styles are available.

Order Matrix: (See main catalog for all options including o-ring materials)

2B	4	S	20	M	4	-	
Valve Series	Ball Orifice	Material	Maximum Rated Pressure x1000[1]	End Connection Type[2]	End Connection Size		Options
2B = 2 Way 3B = 3 Way 3BD = 3 Way Diverter 4B[5] = 4 way Crossover 4BS[5] = 4 Way Switching	3[3] = 3/16" **4** = 1/4" 6 = 3/8" 8 = 1/2" 12[4] = 3/4" 16[4] = 1"	**S** = 316 SS for other options contact factory	5 10 15 **20**	L = Low Pressure **M** = Medium Pressure H = High Pressure P = NPT	**4** = 1/4" 6 = 3/8" 8 = 1/2" 9 = 9/16" 12 = 3/4" 16 = 1" 24 = 1-1/2"		HT = High Temp. AO = Air to Open AC = Air to Close AOC = Air to Open/Close EO1 = Electric 120VAC EO2 = Electric 220VAC EO3 = Electric 240VDC

Note: Matrix can build valves not yet available, refer to main catalog for exact size/valve series selection
1 = Pressure chosen after considering orifice size, connection and temperature requirements - see main catalog for all available operations.
2 = Low Pressure connection sizes 1/8" through 1/2", Medium and High Pressure connections not available in 1/8" or 1/2", NPT connections rated to 15,000 psi up to 1/2" and 10,000 psi for 3/4" and 1".
3 = Only available in 3-Way valve models
4 = Only available in 2-Way valve models
5 = 4B & 4BS only available in 3/8" orifice size



Double Block and Bleed Ball Valves

Parker Autoclave Engineers series 6DB 3/8" bore and 10DB 5/8" bore Double Block and Bleed Valve is a 2-stem ball valve combined with a separate needle valve that provides a convenient method of blocking and bleeding an instrument injection port, gauge, or provides drain line isolation, decreasing leak points and reducing overall weight. These full port quarter turn double block and bleed ball valves are designed for operation up to 15,000 psi (1035 bar).



Subsea Series Ball Valves

Parker Autoclave Engineers subsea ball valves have been designed to fulfill the ever growing demand by the Petroleum Industry for externally pressurized components. Utilizing the proven technologies that make our ball valve "best in class" we've incorporated the necessary design features to provide a reliable externally pressurized valve for the subsea industry and simplified the mounting for ROV, diver, or remote actuation capabilities. Our 2-way and 3-way Subsea Series valves are able to withstand up to 20,000 psi (1380 bar) internal pressures at up to 12,500' (3810 meters) water depth.

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Instrument Quality Gauges

Materials and Features

- Accuracy within ±0.5% of full scale range
- Glass dial cover/solid front aluminum alloy case
- Blow-out back panel for pressure relief in the event of Bourdon tube failure
- 316 Stainless steel Bourdon tubes**
- Precision stainless steel movement for accuracy and resistance to atmospheric corrosion
- Pointer zero adjustment located on front of gauge behind dial cover for convenience

Instrument quality gauges

- Flush panel mounting - Panel mounting kits are stocked to permit flush panel mounting of any instrument quality gauge. These will be furnished at an additional charge when specified on order -- add “PM” to order number.

**Bourdon Tube material for 0-80,000 psi (0-5116 bar) and 0-50,000 psi (0-3447 bar) gauge is Inconel 718.
Bourdon Tube material for 0-30,000 psi (0-2068 bar) gauge is K Monel.

P-Style Bottom Connection Gauge			
Catalog Number	Pressure Range psi (bar)	Minor Interval Value psi (bar)	Dial Diameter inches (mm)
P-0481-CG	0-5000 (0-350)	50 (2)	4-1/2 (114)
P-0482-CG	0-10,000 (0-700)	100 (5)	4-1/2 (114)
P-0483-CG	0-15,000 (0-1000)	100 (10)	4-1/2 (114)
P-0487-CG	0-20,000 (0-1400)	200 (20)	4-1/2 (114)
P-0488-CG**	0-30,000 (0-2000)	250 (20)	6 (152)
P-0489-CG**	0-50,000 (0-3500)	500 (20)	6 (152)
P-0490-CG**	0-80,000 (0-5500)	1,000 (50)	6 (152)

Note: Gauges available with back connections. Add B to the base catalog number. Ex: P-047B-CG
1/4” (F250C) Coned-and-Threaded Connection Furnished with Collar and Gland



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Manifolds and Relief Valves

Manifold Blocks



Specialty pressure manifolds minimize space requirements and reduce installation time necessary to plumb a pressure system. In addition, by reducing the number of components used in a system, manifolds reduce the number of potential leak joints.

Parker Autoclave Engineers will design and build pressure manifolds to meet specific installation, layout and pressure requirements. These manifolds are capable of withstanding pressures from vacuum to 60,000 psi (4137 bar), and are available in a variety of materials and sizes. These manifolds are appropriate wherever pressure tubing systems are utilized.

Relief Valves: RVP-Metal Seat and RVS-Soft Seat Series

Series RVP & RVS relief valves provide reliable venting of gases or liquids for set pressures from 1,500 psi (103 bar) to 60,000 psi (4140 bar). Standard temperature range on RVP models is -423° F to 400° F (-253° C to 204° C). High temperature option to 750° F (400° C) also available. Temperature range on RVS model is 32° F to 400° F (0° C to 204° C).

These precision valves are designed for pressure gas systems, cryogenic systems, petrochemical applications and other special systems. They are capable of handling air, gases, steam, vapor and liquids. They are not recommended for steam boiler applications and are not ASME code stampable.

Relief valves are designed to open proportionally to increasing back pressure and, therefore, are not recommended for applications requiring immediate full valve flow at set pressure. Full flow of relief valve is defined at 10% over set pressure.



RVP & PRVP Metal Seat, RVS & PRVS Soft Seat Series Relief Valve

Catalog Number*	Connection Size and Type		Orifice Diameter Inches (mm)	Pressure Rating psi (bar) @ 100ºF (38ºC)		
	Inlet Connection	Outlet Connection		Minimum Setting	Maximum Setting	Maximum Back Pressure
5PRVP8072	1/2" FNPT	3/4 FNPT	0.312 (7.92)	3,000 (210)	5,000 (345)	500 (35)
10PRVP8072	1/2" FNPT	3/4 FNPT	0.250 (6.35)	5,000 (345)	10,000 (690)	500 (35)
15PRVP8072	1/2" FNPT	3/4 FNPT	0.188 (4.78)	10,000 (690)	15,000 (1035)	500 (35)
5RVP9072	SF562CX (9/16" MP)	3/4 FNPT	0.312 (7.92)	3,000 (210)	5,000 (345)	500 (35)
10RVP9072	SF562CX (9/16" MP)	3/4 FNPT	0.250 (6.35)	5,000 (345)	10,000 (690)	500 (35)
15RVP9072	SF562CX (9/16" MP)	3/4 FNPT	0.188 (4.78)	10,000 (690)	15,000 (1035)	500 (35)
20RVP9072	SF562CX (9/16" MP)	3/4 FNPT	0.156 (3.96)	15,000 (1035)	20,000 (1380)	500 (35)
30RVP6072	F375C (3/8" HP)	3/4 FNPT	0.125 (3.18)	15,000 (1035)	30,000 (2070)	500 (35)
45RVP9072	F562C (9/16" HP)	3/4 FNPT	0.093 (2.36)	25,000 (1725)	45,000 (3100)	500 (35)
60RVP6072	F375C (3/8" HP)	3/4 FNPT	0.078 (1.98)	30,000 (2070)	60,000 (4140)	500 (35)
75RVP5072	F312C150 (5/16" UHP)	3/4 FNPT	0.062 (1.57)	37,000 (2550)	75,000 (5170)	500 (35)
5PRVS8072	1/2" FNPT	3/4 FNPT	0.312 (7.92)	1,500 (103)	5,000 (345)	500 (35)
10PRVS8072	1/2" FNPT	3/4 FNPT	0.250 (6.35)	5,000 (345)	10,000 (690)	500 (35)
15PRVS8072	1/2" FNPT	3/4 FNPT	0.188 (4.78)	10,000 (690)	15,000 (1035)	500 (35)
5RVS9072	SF562CX (9/16" MP)	3/4 FNPT	0.312 (7.92)	1,500 (105)	5,000 (345)	500 (35)
10RVS9072	SF562CX (9/16" MP)	3/4 FNPT	0.250 (6.35)	5,000 (345)	10,000 (690)	500 (35)
20RVS9072	SF562CX (9/16" MP)	3/4 FNPT	0.156 (3.96)	10,000 (690)	20,000 (1378)	500 (35)

* Maximum pressure rating based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower.
Note: For pressure rating see selection chart. [1] Include suffix from original valve for correct options

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Tools

Manual Coning and Threading Tools

Parker Autoclave Engineers manufactures a manual coning tool for optimum coning performance with tubing sizes up to 9/16” (14.3 mm) O.D. This is a precision quality manual tool to permit on-site end preparation for AE medium and high pressure tubing installations. Interchangeable collets for each size tubing provide proper centering of tubing. The cutting feed arrangement permits the operator to control the depth of cut to assure against work hardening effects. Interchangeable tool steel cutting blades are used in pairs to assure more accurate and faster coning and are designed to square-off and finish the tube as the cone is completed. There is a provision for applying metal cutting lubricants to the cutting zone.

The threading die holder is designed to hold the appropriate die for any of the standard Parker Autoclave Engineers tubing sizes through 9/16” (14.3 mm) O.D. Interchangeable guide bushings properly guide the tool for accurate thread cutting.

Note: Complete tool kits are available. Consult factory



Complete Coning & Threading Kits
Medium Pressure, 1/4" to 9/16" = KMCT-MT
High Pressure, 1/4" to 9/16" = KMCT-HT



Coning Tool



Threading Tool

* For coning tool with optional Vice Arm and Oil/Chip Reservoir, add RS suffix to model number. Ex: MCTM4-RS

	Tube Size		Coning Tools and Components Catalog Number			Threading Tools and Components Catalog Number				
	O.D. in (mm)	I.D. in (mm)	Tool with Collet & Blades	Collet	Coning Blades (Set of 2)	Tool with Die & Bushing	Tool Only	Threading Die		Guide Bushing
								Order No.	Size-type*	
PAE Medium Pressure	1/4 (6.35)	.109 (2.77)	MCTM4	90248	CT4BX	402A	402	P-0214	1/4-28	1010-0343
	3/8 (9.53)	.203 (5.16)	MCTM6	90250	CT6BX	402C	402	P-0215	3/8-24	1010-0344
	9/16 (14.3)	.312 (7.92)	MCTM920	90251	CT9BX	402E	402	P-0216	9/16-18	1010-0345
	9/16 (14.3)	.359 (9.12)	MCTM910	90251	CT9BXX	402E	402	P-0216	9/16-18	1010-0345
PAE High Pressure	1/4 (6.35)	.083 (2.11)	MCTH4	90248	CT4B	402A	402	P-0214	1/4-28	1010-0343
	3/8 (9.53)	.125 (3.18)	MCTH6	90250	CT6B	402C	402	P-0215	3/8-24	1010-0344
	9/16 (14.3)	.188 (4.78)	MCTH960	90251	CT9B	402E	402	P-0216	9/16-18	1010-0345
	9/16 (14.3)	.250 (6.35)	MCTh940	90251	CT9B40	402E	402	P-0216	9/16-18	1010-0345

Cutting Oil: P-8784

• All threads for PAE medium pressure and high pressure tubing are LH national fine (class 2).

Note: Manual coning and threading tools for 3/4” (19.1 mm) and 1” (25.4 mm) O.D. medium pressure tubing are not available. Model AEGCTM-2 Power Coning-and-Threading Machine is recommended for this tubing. A minimum of 3” (76 mm) straight length is required to perform coning and threading operation for manual coning tool.

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Tools

PAE Micrometer Adjustable Torque Wrench

P-1680 20 to 150 ft. lbs. (27 to 203 Nm)

91020 75 to 250 ft. lbs. (102 to 339 Nm)



Accurate tightening for all Parker Autoclave Engineers valve packing glands and tube nuts is essential. The wrench can be adjusted to the ranges shown and is used with interchangeable wrench adapters for hex sizes from 1/2" through 1-7/8". Part numbers for wrench adapters are listed on chart.

Packing Gland or Gland Nut Hex Size in (mm)	1/2 (12.7)	9/16 (14.3)	5/8 (15.9)	3/4 (19.05)	13/16 (20.6)	7/8 (22.2)	15/16 (23.8)	1 (25.4)	1-1/16 (27)	1-3/16 (30.2)	1-3/8 (34.9)	1-1/2 (38.1)	1-7/8 (47.6)
Wrench Adapter Number	P-1681	P-1682	P-1683	P-9813	P-1685	P-1686	P-1687	P-9901	P-1688	P-1689	P-1690	P-6040	P-10076

* For Gland Nut size for each connection, see Gland Torque chart in Tools & Installation catalog. For Packing Gland sizes, see Packing Gland Torque chart in same.

Hydraulic Tube Bender

For single pass bending of high pressure tubing. The Parker Autoclave Engineers hydraulic tube bender is designed to bend heavy wall tubing quickly, accurately and reliably with only one setup. The tube bender is complete with pump, cylinder, frame and bending shoes which are self-contained in a portable, lockable case.
(Order number: HTB)



Air operated hydraulic pump option available in place of hand pump.
(Order Number: HTB-A)

Coning and Threading Machine

Ordering Numbers: 115VAC Version, Model # AEGCTM-2G (CE Version/220VAC: Model #AEGCTM-2E-CEG)

Separate heads for coning and threading are powered by a single motor and drive system. Available models cone and thread Parker Autoclave Engineers medium and high pressure tubing.

Approximate dimensions: 56" high, 28" wide and 20" deep (1.4 m x .7 m x .5 m). Shipping weight is 350 pounds (159 kg). Tooling ordered separately. Consult factory.



Features

- One-half hp motor, 115 VAC 60 Hz (220 VAC 50 Hz) volt capacitor start.
- No reversing necessary on threading operation; pop-open die prevents thread damage.
- Complete tooling is available; specify tooling sizes required.
- Coning head has feed wheel for easy, precision feeding.
- Complete with oil pump and reservoir.
- Unit mounted on stand complete with locking casters for ease of mobility and stability.
- Available with optional reservoir heater
- CE mark standard on 220 VAC 50 Hz models

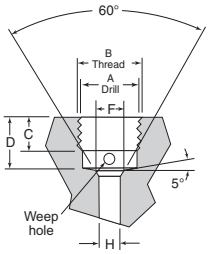
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Connections

Parker Autoclave Medium Pressure SF** (SM Series Valves)

20,000 psi Maximum Pressure

Tube Outside Diameter (Inches)	Connection Type	Dimensions - inches (mm)					
		A	B	C	D	F	H
1/4	SF250CX	25/64 (9.9)	7/16 -20	.28 (7.1)	.50 (12.7)	.19 (4.8)	.109 (2.8)
3/8	SF375CX	33/64 (13.1)	9/16 -18	.38 (9.6)	.63 (16.0)	.31 (7.9)	.203 (5.2)
9/16	SF562CX10* SF562CX20	3/4 (19.1)	13/16 -16	.44 (11.1)	.75 (19.1)	.50 (12.7)	.359 (9.1) .312 (7.9)
3/4	SF750CX10* SF750CX20	61/64 (24.2)	3/4 -14 see Note 1	.50 (12.7)	.94 (23.9)	.63 (16.0)	.516 (13.1) .438 (11.1)
1	SF1000CX10* SF1000CX20	1-19/64 (32.9)	1-3/8 -12	.81 (20.6)	1.31 (33.3)	.88 (22.4)	.688 (17.5) .562 (14.3)
1-1/2	SF1500CX	1.790 (45.47)	1-7/8 -12	1.00 (25.4)	1.59 (40.38)	1.38 (35.05)	.937 (23.80)



Note 1 = NPS Male Tap

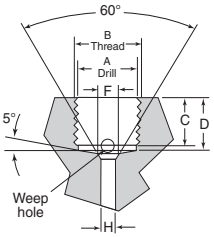
* Connection used in fittings but rated for 20,000 psi (1379 bar). CX10 connection versions are typically rated to 15,000 psi

Note 1: 3/4-14 ia a straight pipe thread.

Parker Autoclave High Pressure F** (30, 43 SC and 30, 40, 60VM Valves)

60,000 psi Maximum Pressure

Tube Outside Diameter (Inches)	Connection Type	Dimensions - inches (mm)					
		A	B	C	D	F	H
1/4	F250C	33/64 (13.1)	9/16 -18	.38 (9.7)	.44 (11.1)	.17 (4.3)	.094 (2.4)
3/8	F375C	11/16 (17.4)	3/4 -16	.53 (13.5)	.62 (15.7)	.26 (6.6)	.125 (3.2)
9/16	F562C	1-3/64 (26.6)	1-1/8 -12	.63 (16.0)	.75 (19.1)	.38 (9.7)	.188 (4.8)
9/16	F562C40	1-3/64 (26.6)	1-1/8 -12	.63 (16.0)	.75 (19.1)	.38 (9.7)	.250 (6.4)
1	F1000C43	1-19/64 (32.9)	1-3/8 -12	.81 (20.6)	1.31 (33.3)	.88 (22.4)	.438 (11.1)



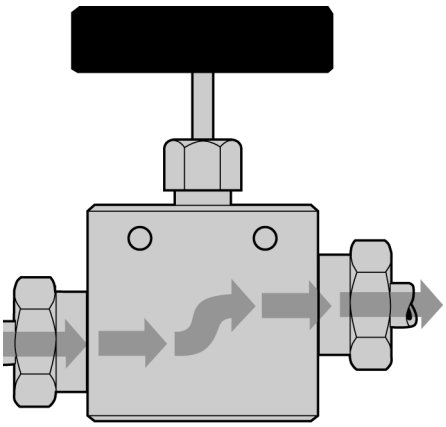
Note: All dimensions are shown for reference only and should not be considered as actual machining dimensions.
For port Diameter please see orifice sizes for specific valves and fittings. All threads are manufactured to a class 2A or 2B fit.



Flow Calculations

Coefficient of flow (C_V) for a valve is the volume of water in U.S. gallons per minute at room temperature...which will flow through the valve with the stem fully open...with a pressure drop of 1 psi across the valve. C_V is the valve sizing factor that permits selection of the appropriate valve to meet the flow requirements of a given fluid system.

The C_V values shown on the valve ordering pages represent the full-open C_V for that valve. In determining estimated capacity, this C_V value should be used in the formulas which follow.



Flow Formulas

Liquids

- Flow, U.S. gal./min.
- Flow, lb./hr.

$$V = \frac{C_V \sqrt{P_1 - P_2}}{\sqrt{S_{GF}}}$$

$$W = 500\, C_V \sqrt{(P_1 - P_2)/S_{GF}}$$

Gases

- Flow, SCFH
- Flow, SCFH (temperature corrected)
- Flow, lb./hr.

$$Q = \frac{42.2\, C_V \sqrt{(P_1 - P_2)(P_1 + P_2)}}{\sqrt{S_{GF}}} \quad **$$

$$Q = \frac{963\, C_V \sqrt{(P_1 - P_2)(P_1 + P_2)}}{\sqrt{S_{GF}\, T_F}} \quad *$$

Saturated Steam

- Flow, lb./hr.

$$W = 3.22\, C_V \sqrt{(P_1 - P_2)(P_1 + P_2)/S_G} \quad *$$

Super Heated Steam

- Flow, lb./hr.

$$W = 2.1\, C_V \sqrt{(P_1 - P_2)(P_1 + P_2)} \quad *$$

$$W = \frac{2.1\, C_V \sqrt{(P_1 - P_2)(P_1 + P_2)}}{(1 + 0.0007\, T_S)} \quad *$$

Specific gravity (S_G) typical Gases

Gases	S_G @ RT Relative to Air
Acetylene	0.897
Air	1.000
Ammonia	0.587
Argon	1.377
Butane	2.070
Carbon Dioxide	1.516
Ethylene	0.967
Helium	0.138
Hydrogen	0.0695
Methane	0.553
Nitrogen	0.966
Oxygen	1.103
Propane	1.562
Sulpher Dioxide	2.208

Specific gravity (S_{GF}) typical Liquids

Liquids	S_G @ RT Relative to Water
Acetone	0.792
Alcohol	0.792
Benzine	0.902
Gasoline	0.751
Gasoline, nat.	0.680
Kerosene	0.815
Pentane	0.624
Water	1.000

Formula Nomenclature

- V = Flow, U.S. gallons per minute (GPM)
- Q = Flow, standard cu. ft. per hr. (SCFH)
- W = Flow, pounds per hour (lb./hr.)
- P_1 = Inlet pressure, psia (14.7 + psig)
- P_2 = Outlet pressure, psia (14.7 + psig)
- S_{GF} = Liquid specific gravity (water = 1.0)
- S_G = Gas specific gravity (air = 1.0)
- T_F = Flowing temp., °R absolute (460 + °F)
- T_S = Superheat in °F
- C_V = Valve coefficient of flow, full open

* Effect of flowing temperatures on gas flow are minimal for temperatures between 30°F and 150°F. Correction should be included if temperatures are higher or lower.

** Where outlet pressure P_2 is less than $^1/_2$ inlet pressure P_1, the term: $\sqrt{(P_1 - P_2)(P_1 + P_2)}$: becomes $0.87 \times P_1$.

Note: Maximum C_V values in this catalog have been determined in accordance with the Fluid Controls Institute report FCI 58-2. "Recommended Voluntary Standards for Measurement Procedure for Determining Control Valve Flow Capacity," including procedure, design of the test stand and evaluation of the data.

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Sour Service Products

Parker Autoclave Engineers designs and builds high pressure valves, fittings, and tubing specifically for use with Sour Oil and Gas (H_2S) and meet or exceed all requirements of NACE MR0175-2002 (NACE to current revisions available). Our SOG line of products are manufactured with materials and procedures specified to meet the NACE requirements. Valves and Fittings for standard service are rated for working pressures up to 60,000 psi (4140 bar) at 100°F (38°C). Type SOG components are rated up to 30,000 psi (2068 bar) at 100°F (38°C). Valves are furnished without collars and glands unless otherwise specified.

Note: Refer to main catalog for full product information.



WARNING

FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met. The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

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02-0115BE April 2022

Caution! Do not mix or interchange parts or tubing with those of other manufacturers. Doing so is unsafe and will void warranty.

Caution! Parker Autoclave Engineers Valves, Fittings and Tools are not designed to work with common commercial instrument tubing and will only work with tubing built to Parker Autoclave Engineers AES Specifications. Failure to do so will void warranty.

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Hablemos de su proyecto.

Nuestro equipo lo asesora en la selección de válvulas, conexiones y tubería Parker Autoclave para media y alta presión según su aplicación, y le envía la cotización.



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HORARIO
Lunes a viernes
8:00 AM – 5:00 PM

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