

# Microelectronics Product Selection Guide

Catalog 4204-Micro

aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



ENGINEERING YOUR SUCCESS.

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**Process Control**

Parker Hannifin is dedicated to being the global leader in the design, manufacture and distribution of high quality, critical flow and ultra high purity components for the Petrochemical, Chemical Processing, Oil and Gas, Power Generation, Water Analysis, Biopharmaceutical, Semiconductor Manufacturing and Analytical Equipment industries.

With 11 manufacturing plants and worldwide we can provide inventory and technical support to our customers anywhere in the world.

**Parker Hannifin Corp.**

Parker Hannifin is the world's leading diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of commercial, mobile, industrial and aerospace markets.

- More than \$10 billion in sales
- 292 manufacturing sites around the world
- 3,200 product lines
- Listed as PH on the NYSE



## Premier Customer Service

Parker is driven to provide our customers with premier customer service through on time delivery of quality products and value added services such as the Veriflo Division Express Service Program, custom assemblies and tube fabrication classes.

## Engineering Excellence

By remaining focused on our customers we have been able to introduce products that not only solve our customer's problems but address specific industry needs and issues.

Using the latest in virtual engineering tools, Parker engineers have reduced the time to develop, test and manufacture our latest product innovations.

To assist our customers with their designs, our 2D and 3D CAD drawings are available online.

## Heat Code Traceability

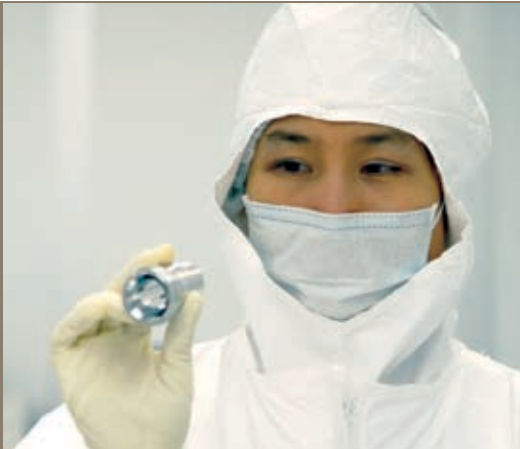
Parker offers Heat Code Traceability (HCT) to meet or exceed all applicable specifications to assure our customers that they are working with a high quality product. It acts as an assurance for today and for tomorrow. These specifications ensure high quality instrumentation components for use in fossil fuel power plants, chemical refineries, general instrumentation and processing plants. Requirements are now emerging in the semiconductor and pharmaceutical industries.

## Industry Leader

Parker has proven to be a leader in the semiconductor market over the past three decades. Beginning in 1977 when Veriflo introduced the first diaphragm packless valve for use on regulators and gas panels and continuing into the 21st century as we develop products like a self-calibrating flow controller.

### Other industry firsts:

- Tied diaphragm regulator for hazardous gas use
- Internally springless point-of-use high purity regulators
- Incorporated VAR and VIM/ VAR materials as standard for all high purity fittings
- PTFE valve for CMP applications that eliminates cross contamination
- Smallest bulk facility regulator in its class for bulk gas distribution



Parker UHP products are designed as leak-free connections where ultra-high pure connections are required.

Ultra-High Purity "OMEGA" cleaning and packing in a class 100 clean room environment validated per Federal Standard 209E, is standard for all electropolished UltraSeal™ and VacuSeal™ components.



#### VacuSeal™ Fittings (Catalog 4245 - VacuSeal)

- Electropolishing available
- Cleaned to UHP OMEGA standards
- Zero clearance couplings in 316 stainless steel
- Available with nickel and silver plated gaskets
- Rated to a leak rate of  $1 \times 10^{-9}$  cc/sec
- Use in vacuum and positive pressure systems



#### UltraSeal™ Fittings (Catalog 4245 - UltraSeal)

- Zero clearance couplings in 316 stainless steel
- Available with metal and elastomer o-rings
- Rated to a leak rate of  $1 \times 10^{-9}$  cc/sec
- Use in vacuum and positive pressure systems



### MiniButtweld™ Fittings (Catalog 4280 -MiniButtweld™)

- Manufactured with 316L VIM/VAR material
- Sizes from 1/8" to 1/2" and 6mm
- Electropolishing available
- Cleaned to UHP OMEGA standards



### Cylinder Connections (Catalog 4517/USA)

- Non-rotating design
- Stainless steel plated
- Electropolished, 9 Ra internal surfaces



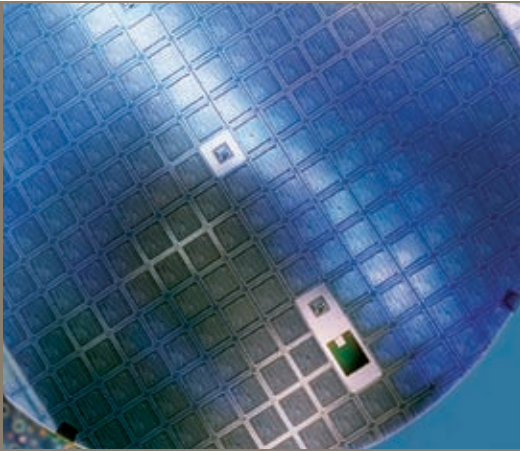
### Welded Fittings (Catalog 4280)

- All welded configurations are 100% Heat Code Traceable
- Available in Socketweld, Buttweld and Automatic Buttweld connections
- Manufactured to meet ASME Section III, and ANSI B31.1 and B31.7 codes
- High purity cleaning available



### A-LOK® Fittings (Catalog 4230/4233)

- Silver coated nuts to reduce galling
- Back ferrule is treated with Supar-case® technology to provide a strong mechanical grip on the tube
- Industry double ferrule design for system specifications
- High purity cleaning available



Veriflo Division of Parker Hannifin Corporation is a leading manufacturer of precision valves, regulators and surface mount components for the control and application of liquids and gases used in the fabrication of semiconductors, as well as in the chemical and petrochemical industries.



## Diaphragm Valves



### Surface Mount (Catalog 4505)

- SEMI modular interface design
- Internally threadless and springless
- Standard 5 Ra surface finish

Valve Groups	Model Series	Product Description	Operating Pressure		Cv	Body Material	Actuation		SEMI Base Size	Port Connections C-Seal	Catalog
			Pneumatic	Manual			Manual	Pneumatic			
Surface Mount	SM917	Diaphragm Springless	125 psig 8.6 barg	250 psig 17 barg	0.17	316L SS	x	x	1-1/8"	x	4505
	SM930				0.3		x	x	1-1/8", 1-1/2"	x	
	SM955				0.55		x	x	1-1/2"	x	

## Diaphragm Valves Continued



### Quantum Series (Catalog 4505)

- Standard 5 Ra surface finish
- Internally threadless and springless

Valve Groups	Model Series	Product Description	Application	Operating Pressure		Cv	Body Material	Actuation		Port Size	Port Connections		Catalog
				Pneumatic	Manual			Manual	Pneumatic		Face Seal	Tube Stub	
Quantum Series	930 Series	Diaphragm Springless	Ideal for valve manifold boxes	125 psig (8.6 barg)	250 psig (17 barg)	0.3	316L SS	X	X	1/4"	X	X	4505
	930 Y							X	X		X	X	
	945 Series	Diaphragm Springless	High Pressure Applications	125 psig (8.6 barg) 3500 psig (241 barg)	3500 psig (241 barg)	0.25	316L SS	X	X	1/4"	X	X	
	945 Y							X	X		X	X	
	955 Series	Diaphragm Springless	High flow Applications	125 psig (8.6 barg)	250 psig (17 barg)	0.55	316L SS	X	X	3/8", 1/2" 1/4"	X	X	
	955Y							X	X		X	X	



### LockOut-TagOut (Catalog 4505)

- Hold pressures to 3500 psig (241 barg)
- Durable metal design
- Field upgradeable to standard lever valve
- Adaptable for panel mount use



### VAC100 (Catalog 4505)

- Vacuum generator
- Improve effectiveness of cycle purging
- Increase efficiency in purge systems

## Bellows Valves



### P Series Bellows Valve (Catalog 4506)

- Externally pressurized
- For gas and liquid systems
- Electropolish surface finishes available at 10 Ra
- GP finishes of 20 Ra

Valve Groups	Model Series	Product Description	Max Operating Pressure	Cv	Body Material	Actuation		Port Size	Port Connections			Catalog
						Manual	Pneumatic		C-Seal	Face Seal	Tube Stub	
Bellows Valves	P Series Manual	Multipurpose	1250 psig 86 barg	.37 to .93	316L SS	x	x	1/4", 3/8", 1/2"		x	x	4506
	P Series Toggle	Quick Open/Close Operation w/Positive Stem Retraction	150 psig 10 barg	.38 to .93		x	x	1/4", 3/8", 1/2"		x	x	
	P Series Pneumatic	360° Rotation of Actuator	600 psig 41 barg	.38 to .93		x	x	1/4", 3/8", 1/2"		x	x	
	P Series HP	Full System Pressure in Either Flow Direction	3500 psig 241 barg	0.33		x	x	1/4"		x	x	



## Bulk Gas Valves



### Quantum 935 (Catalog 4507)

- Vacuum to 300 psig (20.68 barg)
- Internally threadless and springless
- Tied diaphragm
- Open/close indicator
- 2.8 Cv



### 18 Series (Catalog 4507)

- Vacuum to 1500 psig (103.4 barg)
- Manual and air actuation available
- Spring type design
- Purge ports available
- 1.3 Cv

Valve Groups	Model Series	Product Description	Operating Pressure	Cv	Body Material	Actuation		Port Size						Port Connections		Catalog
						Manual	Pneumatic	3/8"	1/2"	3/4"	1"	1.5"	2.0"	Face Seal	Tube Stub	
Bulk Gas Valves	CvMax Series	Bellows	375 psig (25.86 barg)	28 to 178	316L SS	x	x				x	x	x	x	x	4507
	18 Series	Diaphragm Spring	1500 psig (103.4 barg)	1.3		x	x	x	x					x	x	
	935 Series	Diaphragm Springless	300 psig (20.68 barg)	2.8		x		x	x	x				x	x	

## Check Valves



### F9 Series Check Valve (Catalog 4516)

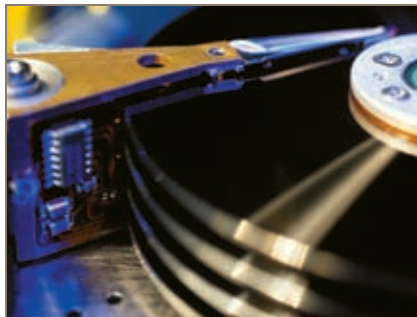
- Fully welded design
- Noise free operation
- New bonded poppet design
- EP Grade is 7 Ra Surface Finish, 10 Ra standard

Valve Groups	Model Series	Maximum Operating Pressure	Temperature		Cv Max	Cracking Pressure Max	Body Material Stainless Steel	Seat/Seal Material				End Connection Size Range		Catalog
			Min	Max				Buna-N Rubber	Ethylene Propylene Rubber	Highly Fluorinated Fluorocarbon	Fluorocarbon Rubber	Min	Max	
Check Valve	F9	3000 psi 206 bar	- 10 F - 23 C	150 F 66 C	0.55	2 psi .14 bar	x				x	1/4 in	1/2 in	4516



### Veriflo Quantum Flow System (Catalog 4516)

- Multi-functioned flow control system
- Total inlet pressure immunity
- Integral flow verification system
- Full flow in <500 msec
- Accuracy of 1% set point @ 10%-100% flow
- Repeatability of +/- 0.1% of full scale



## Porter Instrument

Porter Instrument Division specializes in the design and manufacturer of precision instruments for the measurement and control of low flow gasses and liquids.

**PORTER**  
www.parker.com/porterinstrument



### Liquid Mass Flow Controller D2000i Series (Catalog FM-998)

- <1 second response time
- Piezoelectric control valve
- +/-1% of reading accuracy
- Metal seal construction
- 1/8" face seal or compression fitting



### Vaporizer Module (Spec Sheet FM-1075)

- Fast response
- Stable vapor flow
- Baffled and channeled grid
- High surface area geometry



Parker's regulators were developed in response to the need for precise control and high performance in semiconductor processing. Designed and engineered for high purity gases, Parker regulators control pressure flows accurately and predictably.



## High Purity Regulators



### Surface Mount (Catalog 4508)

- 1½ & 1⅞ SEMI modular Interface design
- Standard 5 Ra surface finish
- Springless and threadless design
- Hastelloy C-22® diaphragm and poppet
- Tied diaphragm

Regulator Groups	Model Series	Type	Body Material 316L SS	Cv		Maximum Inlet Pressure	Maximum Outlet Pressure	Connections C Seal	Catalog
				0.06	0.15				
Surface Mount	SMSQ2MICRO	Surface Mount	X	X		250 psig (17 barg)	-10 in Hg to 60 psig	X	4508
	SMSQ2MICRO130E		X		X	250 psig (17 barg)	-10 in Hg to 60 psig	X	



### Miniature Regulators (Catalog 4508)

- Minimized footprint, internal volume, and surface area
- Standard 5 Ra surface finish
- Springless and threadless design
- Hastelloy C-22® diaphragm and poppet
- Tied diaphragm

Regulator Groups	Model Series	Type	Body Material		Cv		Maximum Inlet Pressure	Maximum Outlet Pressure	Connections 1/4" Face Seal or Tube	Catalog
			316L SS	Hastelloy C-22®	0.06	0.15				
Miniature	SQ2MICRO	Miniature	X	X	X		250 psig – 17 barg	-10 in Hg to 60 psig	X	4508
	SQ2MICRO130E		X	X		X	250 psig – 17 barg	-10 in Hg to 60 psig	X	

## High Purity Regulators Continued



### SQ Series (Catalog 4508)

- Point-of-use regulator
- Springless and threadless design
- Hastelloy C-22® diaphragm and poppet
- Tied diaphragm

Regulator Groups	Model Series	Type	Body Material		Cv							Maximum Inlet Pressure	Maximum Outlet Pressure	Connections				Catalog	
			316L SS	Hastelloy C-22®	0.06	0.15	0.2	0.25	0.5	0.65	1.0			1.5	1/4" Face Seal or Tube	3/8" Tube	1/2" Face Seal or Tube		3/4" Face Seal or Tube
Point-of-Use	SQ130E	Point of Use	X	X			X						1000 psig 69 barg	100 psig 7 barg	X	X	X		4508
	SQ140E	Point of Use	X	X				X					250 psig 17 barg	100 psig 7 barg	X	X	X		
	SQ420E	High Flow	X	X							X		250 psig 17 barg	100 psig 7 barg		X	X		
	SQB	High Flow	X	X						X	X		1250 psig 86 barg	300 psig 21 barg		X	X	X	
	SQ60	Point of Use	X	X				X					250 psig 17 barg	100 psig 7 barg	X	X	X		
	SQHP	High Pressure	X	X	X								3500 psig 241 barg	100 psig 7 barg	X	X			
	SQ60SA	Absolute Pressure	X	X		X							250 psig 17 barg	-25 in Hg to 15 psig	X	X	X		



### Quantum Series (Catalog 4508)

- Tied diaphragm
- Internally threadless design
- Metal-to-metal diaphragm seal
- 0.04 Cv; optional 0.2 Cv
- Two stage available

Regulator Groups	Model Series	Type	Body Material		Cv		Maximum Inlet Pressure	Maximum Outlet Pressure	Connections 1/4" Face Seal or Tube	Catalog
			316L SS	Hastelloy C-22®	0.04	0.2				
Tied Diaphragm	NPR959	Absolute Pressure	X	X	X	X	3500 psig 241 barg	-25 in Hg to 30 psig	X	4508
	959 TDR	Tied Diaphragm	X	X	X	X		150 psig 10 barg	X	
	735 TDR	Tied Diaphragm, Two Stage	X	X	X	X		150 psig 10 barg	X	
	NPR735	Absolute Pressure, Two Stage	X	X	X	X		-25 in Hg to 30 psig	X	

## High Purity Regulators Continued



**QR4000** (Catalog 4508)

- Internally threadless design
- Low dead volume
- Convoluted Hastelloy C-22® diaphragm
- Metal-to-metal diaphragm seal
- 0.02 Cv, 0.06 Cv, & 0.15 Cv



**NPR4000** (Catalog 4508)

- Negative pressure regulation
- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- 0.02 Cv, 0.06 Cv, and 0.15 Cv



**HFR900W** (Catalog 4508)

- High flow capacity
- Internally electropolished 316L stainless
- O<sub>2</sub> cleaned
- 0.85 Cv



**SPR860** (Catalog 4508)

- High flow servo regulator
- Minimal pressure drop
- Servo system does not require an external source
- 0.85 Cv

## High Purity Regulators Continued



### BFR5K (Catalog 4508)

- Compact, high flow, high performance regulator
- Minimal pressure drop
- Balanced poppet
- Tied diaphragm
- Internally springless & threadless
- 4.5 Cv



### HF1200 (Catalog 4508)

- High flow regulator
- Large convoluted diaphragm provides pressure control
- High inlet pressure with 1.2 Cv to meet a variety of applications
- Seat material selection for media compatibility

Regulator Groups	Model Series	Type	Pressure		Cv	Body Material		Port Size & Type					Catalog	
			Maximum Inlet Pressure	Outlet Pressure Range		316L SS	Hastelloy C-22®	1/4" Face Seal or Tube	3/8" Tube	1/2" Face Seal or Tube	3/4" Face Seal or Tube	1" Face Seal or Tube		1.5" Tube
High Purity Regulators	QR4000	General Purpose	4000 psig (275.8 barg)	10 to 500 psig (.69 to 34.47 barg)	0.02, 0.06, 0.15	X	X	X	X	X				4508
	NPR4000	Negative Pressure	250 psig (17.24 barg)	-26 in Hg to 10 psig	0.02, 0.06, 0.15	X	X	X	X					
	HFR900	High Flow	500 psig (34.47 barg)	30 to 150 psig (2.07 to 10.34 barg)	0.85	X		X	X	X				
	SPR860	Servo Operated	500 psig (34.47 barg)	30 to 150 psig (2.07 to 10.34 barg)	0.85	X				X	X			
	HF1200	High Flow	1200 psig (82.7 barg)	50 to 200 psig (3.4 to 13.8 to 6.9 barg)	1.2	X	X		X	X				
	BFR5K	High Flow Balanced Poppet	500 psig (34.47 barg)	60 to 200 psig (4.14 to 13.79 barg)	4.5	X					X	X	X	



Partek Operation specializes in the design and manufacture of high purity flow control components specifically for the semiconductor, aggressive and ultrapure chemical industries.



#### Custom Assemblies – CASY (Catalog 4183)

Parker manufactures customer specified assemblies which incorporate various products into one design, eliminating connections and reducing space requirements.

- CASY Design Sheet available from factory - P&ID's required from customer



#### PTFE Regulators – PR/BR Series (Catalog 4183)

- For high purity semiconductor, ultra-pure water and aggressive chemical applications
- Stabilizes system pressure
- Minimal droop characteristics
- Seal provides protection of springs and adjusting screw
- Back pressure regulators, as well as dome loaded pressure and back pressure regulators, available
- Regulators for maximum system pressure of 120 psig (8.27 bar)





### Flowmeters – FM Series (Catalog 4183)

- For all high purity applications where precise measurement and control of fluids is required
- From 0 to 5 gallons per minute
- 0 psig to 120 psig (0 bar to 8.3 bar)
- Ambient temperature range: 0°F to 212°F (-17°C to 100°C)
- Fluid temperature range: 0°F to 266°F (-17°C to 130°C)
- PFA Barrel



### PFA Gauge Protectors – GP/GPIL Series (Catalog 4183)

- For high purity semiconductor, ultra-pure water and aggressive chemical applications
- Reduces number of device installations for varying pressure ranges
- In-line gauge protector available
- Offered with / without gauges, factory calibrated and pre-filled
- 27" Hg vacuum to 160 psig (913 mbar to 11 bar)
- Ambient temperature range: 0°F to 212°F (-17°C to 100°C)
- Fluid temperature range: 0°F to 400°F (-17°C to 204°C)



### Spray Guns – SG Series (Catalog 4183)

- For use in high purity semiconductor applications
- Optional coiled hoses with or without recirculation feature
- Reversible/removable hanger allows hanging in either direction
- Nitrogen or DI Water spray guns available
- Maximum operating pressure: 0 psig to 80 psig (0 bar to 5.5 bar)
- Ambient temperature range: 0°F to 150°F (-17°C to 66°C)
- Fluid temperature range: 0°F to 200°F (-17°C to 93°C)



### Fluoropolymer Tubing & Coils (Catalog 4150)

- All tubing and pipe made from 100% virgin resins
- Available in PTFE, FEP, PFA, high purity PFA and PVDF
- Resistant to corrosive agents
- Low dielectric constant
- Flexible at low temperatures; stable at high temperatures

## PFA/PTFE Fittings



### Parflare Fittings (Catalog 4181)

- Ideally suited for any ultra-pure or corrosive chemical application
- Acceptable for side load and vibration applications
- Parflare PFA fittings are supplied with PVDF nuts: PFA (-T) nuts are optional
- Low internal dead volume
- High temperature nuts available (>266°F (130°C))
- 1/4" through 1 1/4" sizes
- Flared tubing required for connections
- Rediflare (female flare) available in many configurations



### Pargrip Fittings (Catalog 4181)

- Ideally suited for corrosive environments and chemical applications
- Compression style fittings
- No special tools required for assembly
- Pargrip PFA fittings are supplied with PFA nuts
- 1/8" through 3/4" sizes



### Parbond Fittings (Catalog 4181)

- Ideal for ultra-pure and corrosive chemical applications
- Permanent welded connection
- For high flow, minimal pressure drop applications
- Ends are fusion welded together
- Tongue and Groove connections also available
- 1/4" through 2" sizes



### PFA Pipe Fittings (Catalog 4181)

- For ultra-pure or corrosive chemical applications
- Maximum corrosion resistance
- 1/8" through 1" sizes
- Assembled with PTFE pipe tape



### PFA Thermocouple Fittings (Catalog 4183)

- Easy, leak free thermocouple sensor installation & replacement
- Available with J or K type thermocouple
- Configurations available for branch or run leg sensor mounting
- Fluoropolymer coated probe
- 1/4", 3/8", 1/2", 3/4" and 1" Parflare connections
- 1/4", 3/8", 1/2" and 3/4" Parbond connections

Product	Product Description	Size	Body Material	Product Attributes			Catalog
				Seal Technology	Assembly Requirements	Connection Rating	
PFA Fittings	Parflare*	1/4" - 1-1/4"	PFA	Flare	Special Flare Equipment	Better	CATALOG 4181
	Pargrip	1/8" - 3/4"		Compression	None	Good	
	Parbond	1/4" - 2"		Fuse	Welder	Best	
	Pipe	1/8" - 1"		Pipe Threads	None	Good	

\* Rediflare (female flare) available

## PFA/PTFE Valves



### PTFE Manual Stop Cock Valves – MV-1 Series (Catalog 4182)

- For high purity semiconductor fluid applications, ultra-pure water and aggressive chemicals
- Tight shut off and 1/4 turn operation
- Full flow orifice
- Panel mountable
- Inline and 3-way versions available



### PTFE 1/4 Turn Ball Valves – MV-6 Series (Catalog 4182)

- For high purity semiconductor fluid applications, ultra-pure water and aggressive chemicals
- Designed full port for minimal flow restrictions
- 1/4 turn operation with minimal turning torque
- Panel mount option available
- Wetted parts made entirely of PTFE



### PTFE Sampling Valves – 8 Series (Catalog 4182)

- For high purity semiconductor applications, ultra-pure water and aggressive chemicals
- Purge port option makes this the valve of choice for Valve Manifold Boxes and distribution systems
- Incorporates full flow through port with a low dead volume down leg



### 1/4" PFA Diaphragm Valves – 10 Series (Catalog 4182)

- For high purity semiconductor, ultrapure water, aggressive chemical and gas applications
- Removable handle eliminates need for separate lockout device
- High cycle life
- 2 way and 3 way versions available
- Full 1/4" orifice provides maximum flow in a compact package
- Pneumatic and manual actuation
- Diaphragm material provides over 5 times the flexural life as compared to conventional PTFE
- Available with Parflare, Pargrip and FNPT connections
- Multiple mounting options



### 1/2" PFA Diaphragm Valves – 11 Series (Catalog 4182)

- For high purity semiconductor, ultrapure water, aggressive chemical and gas applications
- 2 way and 3 way versions available
- High cycle life
- Pneumatic and manual actuation, as well as a multi-turn, bypass and submersible options
- Full 1/2" orifice
- Available with Parflare, Parbond and FNPT connections
- Diaphragm material provides over 5 times the flexural life as compared to conventional PTFE

**PFA/PTFE Valves** Continued**3/4" PFA Diaphragm Valves – 16 Series** (Catalog 4182)

- For high purity semiconductor, ultrapure water, aggressive chemical and gas applications
- High cycle life
- Full 3/4" orifice
- Diaphragm material provides over 5 times the flexural life as compared to conventional PTFE
- 2 way and 3 way versions available
- Pneumatic and manual actuation, as well as sampling and reverse port options
- Available with Parflare and Parbond connections

**1" PFA Diaphragm Valves – 12 Series** (Catalog 4182)

- For high purity semiconductor, ultrapure water, aggressive chemical and gas applications
- High cycle life
- Full 1" orifice
- Diaphragm material provides over 5 times the flexural life as compared to conventional PFA
- 2 way version only
- Pneumatic and manual actuation, as well as a submersible option
- Available with Parflare and Parbond connections

**PTFE Slurry Valves – 20 Series** (Catalog 4182)

- 1/4", 1/2" and 1" orifices available
- 2 way and 3 way versions available
- Manual and pneumatic actuation
- High load line seal eliminates entrapment areas and reduces agglomeration of media
- Fully swept bowl and self draining design
- Designed specifically for abrasive slurry, DI Water, and high purity applications
- Valve design results in reduced pressure drop and higher Cv values

**PFA Stop Cock Valves – MV-14 Series** (Catalog 4182)

- For use in high purity semiconductor applications
- Maintains system purity
- Suitable for use in corrosive environments
- Economical 1/4 turn PFA valve for non-critical applications

**PFA Needle Valves – MV-13 Series** (Catalog 4182)

- For high purity or aggressive chemical and gas applications
- Available in straight through and angle configurations
- Panel mountable
- Reduces connections, mounting space and overall cost
- 1/16", 1/8" and 3/16" orifice options



### Miniature PTFE Diaphragm Valves – 1 Series

(Catalog 4182)

- For high purity semiconductor applications, ultra-pure water and aggressive chemicals
- Available in 2 and 3 way configurations
- Tongue and groove seal isolates media from actuator
- Compact actuator works on as little as 20 psi (1.38 bar)
- Low flow, small dosage applications
- Anodized aluminum trim material



### PTFE Check Valves – CV Series (Catalog 4182)

- For high purity semiconductor, ultra-pure water and aggressive chemical applications
- Provides superior chemical resistance and purity without requiring o-rings for sealing
- Reduces connections, mounting space and overall cost
- Machined PTFE spring – no metallic components
- Low cracking pressure



### PFA Relief Valves – RV Series (Catalog 4182)

- For high purity semiconductor, ultra-pure water and aggressive chemical applications
- Valve resets when 25% of original setpoint is reached
- Prevents over pressurization in critical applications

Valve Groups	Product Line	Product Description	Cv (approx. values)	Product Attributes			Port Connections	Orifice (inches)	Catalog
				Body Material	Actuation	Configuration			
Manual Valves	MV-1	Stop Cock	.36 - 6.5	PTFE	1/4 Turn	2 & 3 way	1/4" - 1/2"	1/8 - 7/16	4182
	MV-6	Ball	1.9 - 28	PTFE	1/4 Turn	2 way	1/4" - 1"	1/4 - 1	
	MV-8	Sampling	3.2 - 37	PTFE	Multi-turn	Sampling	1/4" - 1"	1/4 - 1	
	MV-10	Diaphragm	0.2 - 0.6	PFA	1/4 Turn	2 & 3 way	1/4", 3/8"	1/4	
	MV-11	Diaphragm	2.3 - 3.7	PFA	1/4 Turn	2 & 3 way	1/2", 3/4"	1/2	
	MV-12	Diaphragm	9.6 - 15.7	PFA	Multi-turn	2 way	3/4", 1"	1	
	MV-13	Needle	0.1 - 0.5	PFA	Multi-turn	inline or angle	1/8" - 1/2"	1/16, 1/8, 3/16	
	MV-14	Stop Cock	0.3	PFA	1/4 Turn	2 way	1/8", 1/4"	1/8	
	MV-16	Diaphragm	5.8 - 7.9	PFA	Multi-turn	2 & 3 way or sampling	3/4" - 1"	3/4	
	MV-20	Diaphragm	.2 - 13.5	PTFE	1/4 Turn/Multi-turn	2 & 3 way	1/4" - 1-1/4"	1/4 - 1	
Pneumatic Valves	PV-1	Diaphragm	0.1	PTFE	AOV	2 way, 3 way	1/8	3/32	
	PV-10	Diaphragm	0.2 - 0.6	PFA	AOV	2 way, 3 way	1/4, 3/8	1/4	
	PV-11	Diaphragm	2.3 - 3.7	PFA	AOV	2 way, 3 way	1/2, 3/4	1/2	
	PV-12	Diaphragm	9.6 - 15.7	PFA	AOV	2 way	3/4, 1	1	
	PV-16	Diaphragm	5.8 - 7.9	PFA	AOV	2 way, 3 way, sampling	1/4 - 1	3/4	
	PV-20	Diaphragm	.2 - 13.5	PTFE	AOV	2 way, 3 way	1/4 - 1-1/4	1/4 - 1	

# Hose/Tubing/Quick Couplings



## Push-Lok® Hose (Bulletin 4281-B1-US)

- Unique seal ensures reliability and durability for clean-environment use
- No clamps or special tools required for installation
- Inner liner is an extruded, synthetic rubber, resistant to petroleum-base oil, air and water



## Quick Couplings (Catalog 4220)

- Virtually eliminate fluid loss upon disconnection
- Minimize air inclusion during connection
- Double shut-off flush mating valves suitable for seal off media in corrosive applications
- Working pressures to 2000 psi (137.9 bar)

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Parker's Product Selection Guide CD contains electronic versions of all catalogs referenced in the Product Selection Guide document as well as additional Parker product lines.

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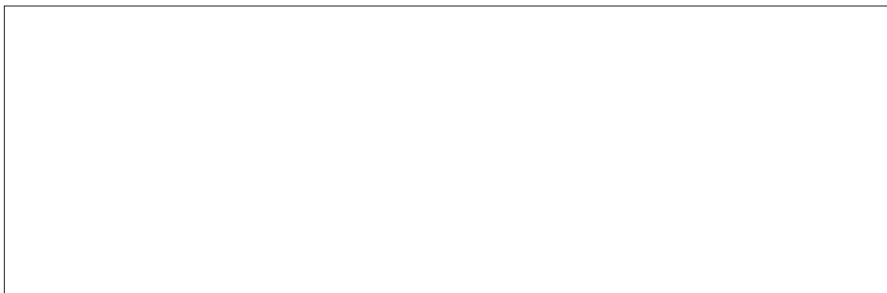
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