



Instrumentation Process Control

Product Selection Guide

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



ENGINEERING YOUR SUCCESS.

Table of Contents

Introduction	2
Valves	
Needle Valves	4
Manifold Valves	6
Ball/Plug Valves	8
Check Valves	10
Filters	12
Relief Valves	13
Bleed and Purge Valves	14
Metering Valves	15
Diaphragm Valves	16
Analytical Systems	18
Regulators	
Pressure Regulators	20
Back Pressure Regulators	22
Vaporizing Regulators	23
Fittings	24
Hose/Tubing/Quick Couplings	26
Flow Controllers	27
PFA/PTFE Products	28
Sanitary and BioPharmaceutical	29
Tools and Accessories	30



Instrumentation Group of Parker Hannifin

The Instrumentation Group of 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 over 300 authorized distributors worldwide we can provide local 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.

- 263 manufacturing sites around the world
- 8,200 distributors
- 400,000 customers
- 3,200 product lines
- Listed as PH on the NYSE

Premier Customer Service

The Instrumentation Group 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 selection safety and installation training.

Engineering Excellence

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

Using the latest in virtual engineering tools, Parker Instrumentation 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.

New Innovations

The result of innovative processes and techniques that run throughout the Instrumentation Group has been the manufacture of truly innovative product solutions. Recently, we have launched a series of breakthrough products that deliver a huge increase in safety, whilst also dramatically reducing installation and maintenance time. Other developments have included the production of a wide range of products aimed at eliminating fugitive emissions into the environment.

Some recent innovations include:

- CCIMS
- PHASTITE
- Pro-Bloc® (Fe)
- Monoflange (Fe)

Heat Code Traceability

Parker Hannifin's Instrumentation Group 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.

Not only are the materials continuously monitored, but Parker adheres to a formal, documented Quality Assurance Program that controls manufacturing, marking, testing and examination procedures, cleaning and packaging.

HCT is offered on the following quality stainless steel components:

- CPI™ and A-LOK® Tube Fittings
- UltraSeal™ and VacuSeal™ Fittings
- Ball, Needle and Check Valves
- Instrumentation Pipe Fittings
- Orbital Tube Weld Fittings
- MiniButtweld™ Fittings
- Filters

Together, We Are Innovators

With such a strong global team, including a diverse customer base, we are proud to nurture an innovative environment. Together, we are producing solutions that make us **Faster, Smarter, Safer and Cleaner**. If you would like to find out more about how we can work together to this end, please contact us today.

Valves

Needle Valves



V Series (Catalog 4110-V)

- For positive leak tight shut-off and regulation of fluids
- Choice of three stem types
- Wide variety of size and end connections



SN6 Series (Catalog 4110-SN)

- Provides shut-off and coarse regulation of liquids and gases
- Choice of two stem types
- In-line and angle patterns
- Ideal cylinder valve



VQ Series (Catalog 4110-VQ)

- In-line and angle patterns
- Panel mountable
- Color-coded handles
- Quick actuation for low pressure applications



NP6 Series (Catalog 4110-NP)

- Choice of two non-rotating stem types
- Packing below power threads
- Panel mountable
- Fracture resistant nylon handle



PV Series (Catalog 4110-PV)

- Roddable, straight through flow path
- Gauge port option
- Bonnet lock plate resists accidental bonnet disengagement
- PEEK™, Acetal, PFA seat materials available



U Series (Catalog 4110-U)

- Stem packing below the threads isolates the thread lubricant from the flow
- Severe service applications
- Panel mountable
- Ideal for steam blowdown



HNV Series (Catalog 4190-HV)

- Compact needle valves
- For applications up to 10,000 psi (690 bar)
- Available with integral A-LOK® or CPI™ connections, reducing leak paths and reducing installation costs
- Soft tipped optional seating available for gaseous applications



RPV Series (Catalog 4190-HV)

- For fluids containing high levels of contamination frequently found in oil and gas processing facilities
- Straight through flow pattern, roddable design
- 100% repeatable bubble tight shut off



HGV Series (Catalog 4190-HV)

- Up to 10,000 psig (690 barg)
- Compact single and multi port gauge valves
- Soft tipped optional seating available for gaseous applications

Valve Groups	Model Series	Maximum Operating Pressure	Temperature		Cv	Body Material		Actuation		Seat/Seal Material						End Connections		Catalog	
			Min	Max		Stainless Steel	Alloy	Manual	Pneumatic	PTFE	Buna-N Rubber	Ethylene Propylene Rubber	Highly Fluorinated Fluorocarbon Rubber	Silicon Rubber	GRAFOIL®	Min	Max		
Needle Valves	V	6000 psi 414 bar	-65 F -54 C	450 F 232 C	1.30	x	x	x		x	x	x					1/8 in 3mm	3/4 in 12	4110-V
	SN6	6000 psi 414 bar	-65 F -54 C	450 F 232 C	0.30	x		x		x						x	1/4 in	1/4 in	4110-SN
	VQ	300 psi 21 bar	-20 F -29 C	200 F 93 C	0.80	x		x	x		x	x	x	x			1/8 in 3mm	1/2 in 10mm	4110-VQ
	NP6	6000 psi 414 bar	-70 F -57 C	700 F 371 C	0.60	x		x			x	x	x	x		x	1/4 in 6mm	3/8 in 8mm	4110-NP
	PV	6000 psi 414 bar	-20 F -29 C	400 F 204 C	2.00	x		x			x	x	x	x	x		1/4 in	3/4 in	4110-PV
	U	6000 psi 414 bar	-65 F -54 C	1200 F 649 C	2.70	x		x		x						x	1/8 in 6mm	1 in 25mm	4110-U
	MPN	20000 psi 1379 bar	-65 F -54 C	800 F 427 C			x		x	x	x					x	1/4 in	1 in	4234
	MPGV	30000 psi 2068 bar	-10 F -23C	400 F 204 C			x		x			x	x	x	x		9/16 in	9/16 in	4234
	HNV	10000 psi 690 bar	-65 F -54 C	1000 F 538 C	0.35	x	x	x			x					x	1/4 in 6mm	1/2 in 12mm	4190-HV
	HRPV	10000 psi 690 bar	-65 F -54 C	1000 F 538 C	1.80	x	x	x			x					x	1/4 in 6mm	1/2 in 12mm	4190-HV
	HGV	10000 psi 690 bar	-65 F -54 C	1000 F 538 C	0.35	x	x	x			x					x	1/4 in 6mm	1/2 in 12mm	4190-HV
	HVG	6000 psi 414 bar	-65 F -54 C	1000 F 538 C	0.35	x	x	x			x					x	1/4 in 6mm	1/2 in 12mm	4190-HV
	HYNV	10000 psi 690 bar	-65 F -54 C	1000 F 538 C	0.35	x					x					x	1/4 in 6mm	1/2 in 12mm	4190-HV

Valves

Manifold Valves



CCIMS® (Catalog 4190-CCIMS)

- Close coupled solution for flow measurement applications
- Reductions in installation time of up to 75%
- Reductions in connections and leak paths of up to 85%
- Features phastfit® for rapid transmitter removal and connection



Monoflange (Catalog 4190-FP)

- Compact double block and bleed valves, featuring needle valves
- Reducing installations cost while improving safety through a reduction in leak paths
- Configurable options include single block, double block and double block and bleed
- Available in a range of materials including carbon steel, stainless steel, duplex, alloy 625



Pro-Bloc® (Catalog 4190-FP)

- Compact double block and bleed valves, featuring needle or ball valve options
- Reducing installations cost while improving safety through a reduction in leak paths
- Configurable options include single block, double block and double block and bleed
- Available in a range of materials including carbon steel, stainless steel, duplex, alloy 625
- Manufactured from forgings to give high tensile strength through improved grain structure.



Monoflange^(Fe) & Pro-Bloc^(Fe) (Catalog 4190-FP)

- ISO 15848 approved
- Highest possible 'A' class leakage rates achieved
- All threads sealed from the media
- All ball valves are bi-directional
- Firesafe design available



H-Series (Catalog 4190-PM/4190-FM)

- A comprehensive range of 2, 3 and 5 valve manifolds for flow applications
- Available with integral PTFree® connections, reducing leakpaths and installation cost
- Available in stainless steel and many exotic alloys, including Hastalloy, 6Mo, MONEL®, and alloy 625



Hi-Pro Series (Catalog 4190-HBM)

- A complete range of ball valves 10mm ball and needle valve manifolds
- Including block and bleed, and double block and bleed manifold options
- Working pressures up to 10,000 psi (690 bar)
- Available with integral A-LOK® or CPI™ connections, reducing leak paths and installation costs

Valve Groups	Model Series	Product Description	Maximum Operating Pressure	Temperature		Cv	Body Material			Packing		Seat/Tip			End Connection Size Range		Catalog	
				Min	Max		Carbon Steel	Stainless Steel	Alloy	GRAFOIL®	PTFE	316SS	PEEK™	PCTFE	PTFE	Min		Max
Manifolds	MF	double block and bleed	ANSI 2500 API 10,000	-65 F -54 C	1000 F 538 C		x	x	x	x	x	x	x			1/4 in 6mm	1/2 in 12mm	4190-FP
	PB	double block and bleed	ANSI 2500 API 10,000	-65 F -54 C	450 F 232 C		x	x	x	x		x		x		1/4 in 6mm	1 in 25mm	4190-FP
	H2	2 valve manifolds - needle style	10,000 psi 689 bar	-65 F -54 C	1000 F 538 C	0.35		x	x	x	x	x	x			1/4 in 6mm	1/2 in 12mm	4190-PM
	H3	3 valve manifolds - needle style	10,000 psi 689 bar	-65 F -54 C	1000 F 538 C	1.80		x	x	x	x	x	x			1/4 in 6mm	1/2 in 12mm	4190-FM
	H5	5 valve manifolds - needle style	10,000 psi 689 bar	-65 F -54 C	1000 F 538 C	0.35		x	x	x	x	x	x			1/4 in 6mm	1/2 in 12mm	4190-FM
	HBM	2 & 3 valve manifolds ball style	6000 psi 414 bar	-65 F -54 C	450 F 232 C			x	x	x				x		1/4 in 6mm	1/2 in 12mm	4190-HBM

Valves



Ball/Plug Valves

Parker ball and plug valves, with excellent temperature and pressure characteristics, are well established for power, process and instrumentation applications as on/off/diverter or selector valves. Options include lockout devices and round, stainless steel or T-bar handles. Cleaning options include O₂, high purity and grade A. Available with CPI™, A-LOK®, male and female NPT, UltraSeal™ and VacuSeal™ end connections.



MB Series (Catalog 4121-MB)

- One piece compact barstock design
- Center off position for 3-way
- 2-way, inline, angle; 3-way, 4-way and 5-way
- Patented seat design
- Standard drop-in replacement



B Series (Catalog 4121-B)

- 2-way, 3-way diverting or spring loaded 3-way selector designs
- Wide temperature application range -65°F (18°C) to +450°F (232°C)
- Rated for up to 6000 psi (413.7 bar)
- Widest variety of seats, seals and port connections
- Connections include CPI™, A-LOK®, male and female NPT, UltraSeal™ and VacuSeal™



SWB Series (Catalog 4125-SWB)

- Zero clearance body allows repairs in field
- Spring loaded seats and stem seals
- Fully enclosed body bolts
- ISO-type actuator mounting design
- Available up to 1" full flow design



HB Series (Catalog 4121-HB)

- Compact FNPT version for tight work areas
- Full operating pressure in any port
- PEEK trunnion bearings provide high cycle life
- 10,000 psi (689 bar) rating with PEEK™ seats
- Excellent for CNG



MPB Series Ball Valve (Catalog 4234)

- 2-way and 3-way ball valve for severe service applications
- Designed for 1/4 and 1/2 turn media shutoff or switching applications



PR Series (Catalog 4126-PR)

- Low operating torque
- Optional locking device, downstream vent and metal tee handles
- Typically used in laboratories
- Most compact 90° actuated valve



Pneumatic/Electric Actuators (Catalog 4123)

- 60 Series pneumatic actuators provide 90° and 180° rotation in both double acting and spring return models
- 70 and 80 Series electric actuators provide 90° and 180° actuation for our B, MB, HB, SWB series ball valves.



HBV Series (Catalog 4190-HV)

- Suitable for the most demanding applications in the oil, gas and process control industries
- Integral compression ends available, eliminating taper threads and thread sealants
- True two piece design reduces body leakage paths
- Complies with ANSI/ASME B16.34 requirements where applicable

Valve Groups	Model Series	Product Description	Maximum Operating Pressure	Temperature		Cv	Body Material			Actuation			Seat/Seal Material							End Connection Size Range				
				Min	Max		Brass	Stainless Steel	Alloy	Manual	Pneumatic	Electric	PCTFE	Buna-N Rubber	Ethylene Propylene Rubber	Highly Fluorinated Fluorocarbon	Fluorocarbon Rubber	PFA	GRAFOIL®	PEEK	PTFE	Min	Max	Catalog
Ball/Plug Valves	MB	Mini Barstock Ball Valve	3000 psi 207 bar	-65 F -54 C	300 F 149 C	11.00	x	x		x	x	x										1/16 in 3mm	3/4 in 12mm	4121-MB
	B	Ball Valve	6000 psi 414 bar	-65 F -54 C	400 F 204 C	6.40	x	x	x	x	x	x	x	x	x							1/16 in 3mm	3/4 in 12mm	4121-B
	SWB	Swing Out Ball Valve	2500 psi 172 bar	-65 F -54 C	600 F 316 C	35.00		x		x	x	x		x	x							1/4 in n/a mm	1 in n/a mm	4125-SWB
	HB	Ball Valve	10000 psi 690 bar	-65 F -54 C	400 F 204 C	1.00		x		x	x	x	x	x	x							1/4 in 6mm	1/2 in 12mm	4121-HB
	MPB	Med. Pressure Ball Valve	20000 psi 1379 bar	-10 F -23 C	400 F 204 C	8.80		x		x	x	x		x	x	x						1/8 in n/a mm	1 in n/a mm	4234
	PR	Plug Valve	3000 psi 207 bar	-10 F -23 C	400 F 204 C	3.20	x	x						x	x	x						1/8 in 3mm	1/2 in 12mm	4126-PR
	HBV	Ball Valve	6000 psi 414 bar	-65 F -54 C	450 F 232 C			x	x	x		x										1/8 in 6mm	1 in 25mm	4190-HBV

Valves

Check Valves

Parker check valves are designed for uni-directional flow control of fluids and gases in industries such as chemical processing, oil and gas production and transmission, pharmaceutical, pulp and paper, power and utilities.



C Series (Catalog 4130-C)

- Resilient, custom molded, seat design
- Back stopped poppet to minimize spring stress
- Cracking Pressures: 1/3, 1, 5, 10, 25, 50, 75 and 100 psi (.023, .069, .345, .69, 1.72, 3.45, 5.17, 6.9 bar)
- Port connections include male and female NPT, CPI™, A-LOK®, UltraSeal™, VacuSeal™, BSP, SAE and Seal-Lok®



CO Series (Catalog 4130-CO)

- Suitable for applications requiring high integrity leak rates and re-sealing capabilities
- Seal integrity to 4 x 10⁻⁹ std. atm-cc/sec
- Back stopped poppet to minimize spring stress
- Cracking Pressures: 1/3, 1, 5, 10, 25, 50, 75 and 100 psi (.023, .069, .345, .69, 1.72, 3.45, 5.17, 6.9 bar)
- Available with highly fluorinated fluorocarbon rubber
- Only check valve with published helium leak rate



CB Series (Catalog 4130-CB)

- Reduces maintenance while improving performance requirements on dual fuel turbines
- Cracking Pressures: 1, 5, 10, 25, 50, 75, 100 and 120 psi (.023, .069, .345, .69, 1.72, 3.45, 5.17, 6.9, 8.27 bar)
- Rugged ball design for demanding applications
- For high temperatures with highly viscous media



MPC Series (Catalog 4234)

- Variety of elastomeric poppet seals
- 5 psi (.345 bar) cracking pressure
- MPI™, cone & thread and female NPT connections available
- For pressures up to 20,000 psi (1379 bar)



MPCB Series (Catalog 4234)

- Metal to metal seat for use in applications that cannot accept fluorocarbon rubber
- 5 psi (.345 bar) cracking pressure
- MPI™, cone & thread and female NPT connections available
- For pressures up to 20,000 psi (1379 bar)



LC Series (Bulletin 4130-LC)

- For extreme temperature applications
- The gravity assisted poppet uses reverse flow to achieve a seal to within 99.9% of forward flow

Valve Groups	Model Series	Maximum Operating Pressure	Temperature		Cv	Cracking Pressure	Body Material		Seal Material							End Connections		Catalog	
			Min	Max			Brass	Stainless Steel	Parkerfill/Parkercarbon	Buna-N Rubber	Ethylene Propylene Rubber	Highly Fluorinated Fluorocarbon	Fluorocarbon Rubber	Neoprene Rubber	Metal	PTFE	Min		Max
Check Valves	C	6000 psi 414 bar	-65 F -54 C	400 F 204 C	6.70	100 psi 6.9 bar	x	x		x	x	x	x	x			1/8 in 3 mm	1 in 25 mm	4130-C
	CO	6000 psi 414 bar	-15 F -26 C	400 F 204 C	2.70	100 psi 6.9 bar		x		x	x	x					1/4 in 6mm	1/2 in 12mm	4130-CO
	CB	3000 psi 207 bar	-65 F -54 C	450 F 232 C	6.00	120 psi 8.27 bar		x	x								3/8 in	3/4 in	4130-CB
	MPC	20000 psi 1379 bar	-10 F -23C	400 F 204 C		5 psi .345 bar		x		x	x	x	x				1/4 in	1 in	4234
	MPCB	20000 psi 1379 bar	-100 F -73 C	600 F 316 C		5 psi .345 bar		x							x		1/4 in	1 in	4234
	LC	6000 psi 414 bar	-100 F -73 C	900 F 482 C	2.30			x							x		1/8 in	1/2 in	4130-LC

Valves

Filters

For protection of instrumentation systems from undesirable materials such as dirt, chips, scale and other foreign particles. Options include Oxygen and special cleaning, bypass and integral compression ported bypass.



F Series (Catalog 4130-F)

- Replaceable sintered 316 stainless steel filter element
- Optional 250 and 450 micron wire cloth filter elements



FT Series (Catalog 4130-FT)

- Filter elements are easily replaced without disconnecting the tube lines
- Fast Loop bypass option enables a continuous self cleaning flow
- Replaceable sintered 316 stainless steel filter element
- Optional 250 and 450 micron wire cloth filter elements



MPF Series (Catalog 4234)

- High pressure applications up to 20,000 psi (1379 bar)
- Sintered 316 stainless steel filter disc
- In-line filters help protect valuable equipment in the process system
- MPI™, cone & thread and female NPT connections available

Valve Groups	Model Series	Product Description	Maximum Operating Pressure	Temperature		Cv	Micron Range	Body Material		Seal Material						End Connections		Catalog
				Min	Max			Brass	Stainless Steel	Fluorocarbon Rubber	Buna-N Rubber	Ethylene Propylene Rubber	Highly Fluorinated Fluorocarbon	Neoprene Rubber	PTFE	Silver Plated Nickel Alloy	Min	
Filters	F	Inline Filter	6000 psi 414 bar	-65 F -54 C	400 F 204 C	3.40	.5 to 500	x	x	x	x	x	x	x	x	1/8 in 3mm	1 in 25mm	4130-F
	FT	Tee Filter	6000 psi 414 bar	-100 F -73 C	900 F 482 C	2.50	.5 to 500	x	x	x	x	x	x	x	x	1/8 in 6mm	1/2 in 12mm	4130-FT
	MPF	Medium Pressure Filter	20000 psi 1379 bar	-10 F -23C	400 F 204 C	0.59	.5 to 100		x						x	1/4 in	9/16 in	4234

Relief Valves



RL4 Series (Catalog 4131-RL)

- Handle for field maintenance
- Externally adjustable pressure settings while valve is in operation
- Seven different springs
- Manual override option with positive stem retraction is available for the full working pressure range
- Color coded springs and labels indicate spring cracking range



RH4 Series (Catalog 4131-RH)

- Eight springs
- Manual override option with positive stem retraction is available for pressures up to 1500 psi (103 bar)
- Preset from factory and comes with standard springs

Valve Groups	Model Series	Maximum Operating Pressure	Temperature		Cv	Body Material	Seal Material					End Connections		Catalog
			Min	Max			Stainless Steel	Buna-N Rubber	Ethylene Propylene Rubber	Highly Fluorinated Fluorocarbon	Fluorocarbon Rubber	Neoprene Rubber	Min	
Relief Valves	RL	400 psi 28 bar	-70 F -57C	400 F 204 C	0.8	x	x	x	x	x	x	1/4 in 6mm	1/4 in 8mm	4131-RL
	RH	6000 psi 414 bar	-70 F -57C	400 F 204 C	0.4	x	x	x	x	x	x	1/4 in 6mm	1/4 in 8mm	4131-RH
	MPRA	20999 psi 1448 bar	-10 F -23C	400 F 204 C	0.7	x	x	x	x	x		1/2 in n/a	9/16 in n/a	4234

Valves

Bleed and Purge Valves



BV Series (Catalog 4133-BP)

- Recommended for use in bleeding hydraulic systems
- Valve vents line pressure to atmosphere or to containment
- Multi-valve manifolds or gauge/root valves



PG Series (Catalog 4133-BP)

- Vent hole in the cap bleeds, drains or purges system pressure
- Optional PTFE ball requires only finger-tight torque to achieve a leak-tight seal
- Crimped cap ensures safe relief of system pressures

Valve Groups	Model Series	Maximum Operating Pressure	Temperature		Cv 0.1	Body Material			End Connections		Catalog
			Min	Max		Brass	Stainless Steel	Alloy	Min	Max	
Bleed and Purge Valves	BV	10000 psi 690 bar	-65 F -54 C	850 F 454 C	x		x	x	1/4"	1/2"	4131-BP
	PG	4000 psi 276 bar	-65 F -54 C	400 F 204 C		x	x	x	1/8"	1/2"	4131-BP
	MPBV	30000 psi 2068 bar	-10 F -23C	400 F 204 C			x		9/16"	9/16"	4234

Metering Valves



N Series (Catalog 4170-N)

- Panel or in-line mounting
- Angle or in-line patterns
- Valve stem threads not in contact with process fluid



HR Series (Catalog 4170-HR)

- Bubble tight shut-off capability
- High resolution metering valve with limited hysteresis
- Seven optional valve stem tapers

Valve Groups	Model Series	Maximum Operating Pressure	Temperature		Cv Max	Body Material		Seat Material					End Connections		Catalog
			Min	Max		Brass	Stainless Steel	Buna-N Rubber	Ethylene Propylene Rubber	Highly Fluorinated Fluorocarbon	Fluorocarbon Rubber	Neoprene Rubber	Min	Max	
Metering Valves	NS	2000 psi 138 bar	-50 F -46 C	400 F 204 C	0.040	x	x	x	x	x	x	x	1/16 in 3mm	1/4 in 6mm	4170-N
	NM	1000 psi 69 bar	-50 F -46 C	400 F 204 C	0.100	x	x	x	x	x	x	x	1/8 in 3mm	1/4 in 6mm	4170-N
	NL	1000 psi 69 bar	-50 F -46 C	400 F 204 C	0.200	x	x	x	x	x	x	x	1/8 in 6mm	3/8 in	4170-N
	HR	250 psi 17 bar	-50 F -46 C	400 F 204 C	0.100	x	x	x	x	x	x	x	1/16 in 3mm	1/4 in 6mm	4170-HR

Diaphragm Valves



NOVA Series (Catalog 4515)

- General purpose, high cycle, compact valve
- For regulator outlet valve, gas control panels and analyzer sampling system applications
- Handwheel, lever, and indicating handwheel options



NOVA AOP (Catalog 4515)

- General purpose, high cycle, compact valve
- For gas control panels and analyzer sampling system applications
- Normally open and normally closed
- Various actuation pressures available



NV55 (Catalog 4515)

- General purpose, high flow compact valve
- For flowing large volumes of corrosive and non-corrosive fluids



944AOPHPNCSP (Catalog 4515)

- High pressure air operated valve
- Reliable, accurate performance
- Opening function incorporates hydraulics



16 Series (Catalog 4515)

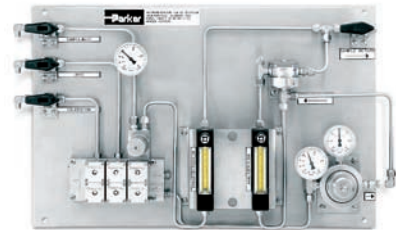
- High pressure valve for gas manifold/box systems
- 316L SST machined body design
- Metal-to-metal diaphragm seal
- Packless valve design

Valve Groups	Model Series	Product Description	Maximum Operating Pressure	Temperature		Cv			Body Material			Actuation		Catalog
				Min	Max	0.1	0.3	0.6	Brass	Stainless Steel	Alloy	Manual	Pneumatic	
Diaphragm Valves	NOVA Series	Diaphragm Springless	250 psig 17 barg	-15 F -26 C	150 F 66 C	x			x	x	x	x		4515
	NOVA AOP	Diaphragm Springless	125 psig 9 barg	-15 F -26 C	150 F 66 C	x			x	x	x		x	4515
	NV55	Diaphragm Springless	250 psig 17 barg	-15 F -26 C	150 F 66 C			x		x		x	x	4515
	944AOPHPNCSP	Diaphragm Springless	3500 psig 241 barg	-40 F -40 C	150 F 66 C		x			x			x	4515
	16 Series	Diaphragm Spring	3000 psig 207 barg				x			x		x	x	4515

Analytical Systems



Our chemical/petrochemical process analytical systems provide a sound model for both North American and European markets, adapting with minor modifications to environmental segments, as well as laboratory and pilot plant markets. They also serve as a basis for power and pharmaceutical analytical segments. No other single supplier can offer a more complete, advanced, or adaptable sample analysis system.



Vent Recovery Panel (Bulletin 4141-VR)

- Pre-engineered compact instrument panel that includes fittings, valves, stream switching valve, regulators, and gauges
- System adjusts for variations in gas supply pressures and flows



Vent Master™ (Catalog 4142-VM)

- Pre-engineered compact instrument panel that includes regulators, gauges, rotometer, an eductor and a separate pressure controller
- Creates a stable pressure within the analyzer shelter vent header system
- Provide analysis accuracy with .06% over a vent header flow of 0-18SLPM



IntraFlow™ (Catalog 4250)

- Modular instrument system
- ISA/ANSI SP 76.00.02 compliant
- Every component is upgradeable to Gen 2 & 3 NeSSI Technologies
- Vacuum to 500 psig (34 barg)
- System design software available



R-max™ (Catalog 4140-R)

- Surface mount technology for stream switching valves
- Low internal volume to reduce system purge time
- Low pressure actuation of valves-40 psig (-2.76)
- Rated from vacuum to 500 psig (34 barg)



ChangeOver System (Catalog 4511)

- Compact turnkey module designed for continuous gas management
- Optional outlet regulator to control application specific outlet pressure
- Aluminum panel is standard
- Audio/visual alarm annunciator available
- Available in 316L stainless steel and brass
- Suitable for oxygen service

Regulators

Pressure Regulators



NPR4100 (Catalog 4511)

- Negative pressure regulation
- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- For delivery of low pressure gases from liquid sources
- White knob indicates negative pressure



IR4000 Series (Catalog 4511)

- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- Integral diaphragm stops prevent oil canning
- Seals available for nitrous oxide and hydrocarbon applications
- Low dead volume
- General purpose for instrument/ analyzer and semiconductor applications



IR5000 Series (Catalog 4511)

- Internally threadless design
- Large convoluted Hastelloy C-22® diaphragm
- Greater sensitivity for precise pressure control
- For analyzer system gas management and instrument calibration



HFR900 (Catalog 4511)

- High flow regulator
- Self-contained replaceable valve seat
- For corrosive and noncorrosive fluid applications



IR6000 Series (Catalog 4511)

- Dual stage regulator
- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- Virtually eliminates supply pressure effect
- Provides cylinder gas pressure reduction in refineries, process analytical systems and specialty gases



APR66 (Catalog 4511)

- High pressure piston sensing regulator
- Low actuating torque
- Pressures up to 6000 psig (413.7 barg)



Quantum 959 (Catalog 4511)

- Tied diaphragm design to minimize regulator creep
- Internally threadless design
- Metal to metal diaphragm seal



DM3000 (Catalog 4518)

- Miniature pressure regulator for gas instrumentation applications
- ANSI/ISA SP76.00.02 modular surface mount interface
- No threads in wetted area
- Critically damped to improve flow stability
- Faster purge times

Regulator Groups	Model Series	Type	Pressure		Cv		Body Material				Connections			Catalog	
			Maximum Inlet Pressure	Maximum Outlet Pressure	Min	Max	316L SS	Brass	Hastelloy C-22®	MONEL®	Min FNPT	Max FNPT	Compression		Face Seal or Tube
Single Stage	NPR4100	Absolute Pressure	250 psig 17 barg	-26 in Hg to 10 psig -1.8 in Hg to .7 barg	0.02	0.15	x	x	x	x	1/8"	3/8"	x		4511
	IR4000	General Purpose	4000 psig 276 barg	500 psig 34 barg	0.02	0.15	x	x	x	x	1/8"	3/8"	x		4511
	IR5000	Sensitive	3500 psig 241 barg	250 psig 17 barg	0.02	0.15	x		x		1/8"	1/2"	x		4511
	HFR900	High Flow	500 psig 34 barg	150 psig 10 barg	0.85	0.85	x	x			1/4"	1/2"	x		4511
	APR66	High Pressure	6000 psig 414 barg	6000 psig 414 barg	0.04	0.04	x	x			1/8"	1/4"			4511
	Quantum 959	Tied Diaphragm	3500 psig 241 barg	150 psig 10 barg	0.04	0.20	x		x		1/4"	1/4"		x	4511
	DM3000	Surface Mount					x								4518

Regulators

Back Pressure Regulators



ABP1 (Catalog 4510)

- Reduce contamination and accurately control back pressure
- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- Integral diaphragm stop



ABP3 (Catalog 4510)

- Internally threadless design
- Provides sensitive pressure adjustments
- Large convoluted Hastelloy C-22® diaphragm
- Integral diaphragm stop



BPR50 (Catalog 4510)

- For use with corrosive and non-corrosive fluids
- Adjustable from 100 psi (6.7 bar) to 2000 psi (138 bar)
- Piston sensed high pressure back pressure regulator

Regulator Groups	Model Series	Type	Pressure		Cv		Body Material			Connections		Catalog
			Maximum Inlet Pressure	Maximum Outlet Pressure	Min	Max	316L SS	Hastelloy C-22®	Monel®	Min FNPT	Max FNPT	
Back Pressure	ABP1	General Purpose	Up to 500 psig 34 barg		0.06	0.30	X	X	X	1/8"	1/4"	4510
	ABP3	Sensitive	Up to 60 psig 4 barg		0.06	0.30	X	X		1/8"	1/4"	4510
	BPR50	High Pressure	Up to 2500 psig 172 barg		0.45	0.45	X			1/4"	1/4"	4510

Vaporizing Regulators



AVR3 (Catalog 4512)

- Steam heat design
- Field serviceable heat transfer element
- Internally threadless design
- Internal liquid volume only .5cc
- Convoluted Hastelloy C-22® diaphragm



AVR4 (Catalog 4512)

- Electrical heat design
- Field serviceable heat transfer element
- CSA, Cenelec, and ATEX certified
- Internally threadless design
- 120v or 240v, 50/60 Hz
- Convoluted Hastelloy C-22® diaphragm

Regulator Groups	Model Series	Type	Pressure		Cv		Body Material		Connections		Catalog
			Maximum Inlet Pressure	Maximum Outlet Pressure	Min	Max	316L SS	MONEL®	Min FNPT	Max FNPT	
Vaporizing Regulators	AVR3	Steam Heated	4000 psig 276 barg	500 psig 34 barg	0.06	0.06	X	X	1/8"	1/8"	4512
	AVR4	Electrically Heated	4000 psig 276 barg	500 psig 34 barg	0.06	0.06	X	X	1/8"	1/8"	4512

Fittings



Parker Instrumentation Tube Fittings are designed as leak-free connections for process, power, and oil and gas instrumentation applications handling liquids, gases and chemicals.

Parker's instrument tube fittings have been engineered and manufactured to consistently provide the highest level of reliability. However, no system's integrity is complete without considering the critical link, tubing.

Proper tube selection and installation are key ingredients in building leak-free reliable tubing systems. Parker instrument fittings are designed to work on like materials therefore, stainless steel fittings should be used only with stainless steel tubing. The practice of mixing materials is strongly discouraged. The only exception is brass fittings with copper tubing.

All working pressures have been calculated using the maximum allowable stress levels in accordance with ANSI B31.3.



CPI™ Fittings (Catalog 4230/4233)

- Three piece simple design to work on all instrumentation grade tubing
- Molybdenum Disulfide coated nuts to prevent galling and provide lubrication
- Single ferrule system treated with Suparcase™ technology to insure sealing
- Superior body seat surface finish to seal gases and liquids
- Single ferrule technology to provide excellent anti-vibration performance
- Excellent in high thermo cycling applications



A-LOK® Fittings (Catalog 4230/4233)

- Industry standard design for all instrumentation grade tubing
- Silver coated threads to reduce galling
- Back ferrule is treated with Suparcase™ technology to provide a strong mechanical grip on the tube
- Industry double ferrule design for system specifications



MPI™ Fittings (Catalog 4234)

- Compression fitting for medium pressure applications up to 15,000 psi (1034 bar)
- Inverted body and nut design for added strength with thick-wall tubing
- Longer thread area for improved performance and resistance to vibration
- Molybdenum Disulfide coated nuts to prevent galling and for higher temperature applications
- Installation and rework time reduced by 50%



Phastite® (Catalog 4235-PH)

- Option for welded systems
- Simple assembly process provides high integrity connections, first time every time
- Installation time reduced to seconds
- No loose parts, supplied factory pre assembled
- Permanent push fit tube connector with working pressures up to 20,000 psi (1,380 bar)



Instrumentation Pipe Fittings (Catalog 4260)

- Manufactured from 316 stainless steel for superior corrosion resistance
- Available with NPT and ISO thread configurations
- All exposed threads protected to prevent damage
- All pipe threads meet ANSI B1.20.1 requirements



Welded Fittings (Catalog 4280)

- Available in socketweld, buttweld and automatic buttweld connections
- Manufactured to meet ASME Section III, and ANSI B31.1 and B31.7 codes
- Permanent, leak free connection
- For critical applications and high temperatures such as steam

Fitting	Working Pressure	Connection Type	Size Range
CPI™	Instrumentation Tubing*	Single ferrule compression	1/16" - 2" Tube Diameter
A-LOK®	Instrumentation Tubing*	Double ferrule compression	1/16" - 2" Tube Diameter
MPI™	Up to 15,000 psi (1034 bar)	Inverted compression	1/4" - 1" Tube Diameter
Phastite®	Up to 20,000 psi (1,380 bar)	Permanent crimp*	1/4" - 1/2" (6 - 12mm)
Weld-lok™	Instrument Tubing*	Tube Socket Weld	1/8" - 2" Tube Diameter
Pipe	Up to 6000 psi (414 bar)	NPT Pipe Thread	1/16" - 2" Pipe Size
Pipe Adapters	Up to 6000 psi (414 bar)	NPT, BSPT, and BSPP Pipe Threads	1/8" - 1"

*Maximum suggested working pressure as indicated in Instrument Tubing Selection Guide Bulletin 4200-TS.

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)

- Spill-free designs virtually eliminate fluid loss upon disconnection and minimize air inclusion during connection
- Minimize air inclusion during connection
- Double shut-off flush mating valves suitable for seal off media in corrosive applications
- Working pressures from 300 psi (21 bar) to 5,000 psi (3445 bar)



Stainless Steel Metal Hose (Catalog 4690-MH)

- For extreme conditions where other hoses fail
- For temperatures up to 1,500°F (816°C)
- Frequently used for the conveyance of liquid nitrogen
- Provides the lowest permeation rate of any hose available



Multitube® Instrument and Heat Trace Tubing (Catalog 4200-M-1)

- Available in a variety of configurations
- For containment, transmission and control of pneumatic signals, gases and liquids
- Materials include copper, stainless steel, metal alloys and PFA/PTFE

Flow Controllers

PORTER

www.parker.com/porterinstrument

Porter Instrument specializes in the design and manufacture of precision instruments for the measurement and control of low flow gases and liquids.



Gas Mass Flow Controllers (Catalog FM-441)

- Responds to a step change in setpoint in less than one second
- Actual flow is stabilized within 2 seconds, virtually without overshoot
- Models available with flow ranges of 0-5 sccm to 0-1000 slpm N₂
- High pressure models have operating pressures to 3000 psig (207 barg)



Digital Liquid Mass Flow Controllers (Bulletin FM-998)

- Thermal measurement system yields accurate measurement with less than a 5°C increase in fluid temperature
- Exclusive control circuitry, combined with a piezoelectric-actuated control valve, provides fast, stable control at low flow rates



Flowmeters (Catalog FM-1058)

- Variable area flowmeters include 65mm and 150mm scale length tube assemblies
- Available in either forged body or side-plate construction
- Interchangeable flow tube assemblies and valves allow configuration changes without removal from process system



Instrument Pressure Regulators (Catalog FM-1057)

- All models are direct acting, non-relieving and are cleaned for analytical instrument service
- Designed specifically to provide high resolution control at the low flow rates typical in instrumentation applications
- Available with special port locations, manifold mount configurations, or with the regulator integrated into a larger, multi-functional package

PFA/PTFE Products

Fluoropolymer Components

www.parker.com/partek (Catalog PSM Partek)

Durable, leak free Partek products are used in a variety of industries, including semiconductor manufacturing, chemical/food/pharmaceutical/ biomedical processing, as well as analytical instrumentation.

Partek fluoropolymer products are recommended for applications that encounter pressures below 120 psig (8.27 barg), and corrosive media at temperatures up to 400°F (204°C). Fluoropolymer valves and fittings offer corrosion protection and are used to ensure media/system purity. The wetted surfaces of all products are of chemically inert corrosion resistant PFA or PTFE. Partek products are available from 1/8" up to 1" in size.

Parflare PFA Tube Fittings: Parflare fittings provide low dead volume, which decreases the possibility of particle entrapment and bacterial growth.

Pargrip PFA Tube Fittings: Perfect for applications where ease of assembly is a requirement. Grooved tubing is not required.

Parbond PFA Fusible Pipe Fittings: Parbond fittings welded design eliminates threaded connections and entrapment areas and creates a leak free connection.

PFA Pipe Fittings: Available in a variety of configurations, all with standard NPT threads.

PFA Valves, Gauge Protectors, Thermocouple Fittings and Spray Guns: High cycle life, all fluoropolymer construction, with application tested and proven designs.

PTFE Valves, Regulators, and Flowmeters: Wetted areas are manufactured from fluoropolymer material which offers unmatched corrosion protection and high cycle life.



Sanitary and BioPharmaceutical



Parker Performance Stainless is a complete line of sanitary fittings, valves and related flow components for use in a variety of hygienic processing applications. These products meet the stringent standards required by processors in the food, beverage, dairy, biopharm and health & beauty industries.



Sanitary Fittings (Catalog 4270)

- Butt weld, clamp, bevel seat, I-line, and other fitting styles available
- Unpolished I.D. and unpolished O.D. Both I.D. and O.D. are mill or tumble finished
- A full line of adapters for threaded, flanged and socket weld connections also available
- Sanitary tubing and tubing hangers available to complete any project



Valves and Flow Components (Catalog 4270-VFC)

- Sanitary versions of sample, ball, butterfly and check valves available
- A complete line of pneumatic and electric actuators and control accessories. Choose from traditional rack-and-pinion style or stainless steel wash down versions
- Valves are precision manufactured from heat traceable materials and designed to perform under the most exacting conditions
- Available with a variety of elastomers and other customer-specified configurations to ensure a perfect fit within any processing system

Tools and Accessories



Tube Fabrication Equipment (Catalog 4290)

- High quality hand benders, tube cutters, deburr tools and preset tools
- Tube benders from 1/8" to 1" size
- Tube cutter rated for 316 stainless steel tubing
- Par-Lok® wrenches with 360° snap-action for flexibility
- Preset installation kits for assembling tube fittings in close spaces



Sample Cylinders (Catalog 4160-SC)

- 1800 psig (124 barg) DOT rated sample cylinders
- Stainless steel construction
- ANSI/ASME B1.20.1 internal pipe threads



Brass Push-to-Connect Fittings (Bulletin 3531-QRG/USA)

- Prestolok® brass and Prestolok II® composite push-to-connect fittings are designed for use with nylon, polyethylene, polyurethane and soft metal tubing
- Ideal for pneumatic applications
- Equipped with stainless steel grab rings eliminating need for tube supports
- No tools required for installation
- Designed for side-loading

Product Selection Guide CD Operating Instructions

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

To use the CD

Simply place the disc in your CD drive.

An autorun program on the CD will search your computer for the Adobe® Acrobat® Reader® program, version 5.0 or higher.

If Acrobat Reader is found, the opening screen of the CD will appear. From the opening screen, you can view this Product Selection Guide, go to specific product categories or choose a specific catalog.

If Acrobat Reader is not found, it will be installed on your hard drive and then the opening screen of the CD will appear. From the opening screen, you can view this Product Selection Guide, go to specific product categories or choose a specific catalog.

ATTENTION PRINTER:
Magenta Outline Box
Indicates Placement of CD Sleeve.
Box and type DO NOT PRINT

Hastelloy C-22® is a registered trademark of Haynes International, Inc.
Hastalloy® is a registered trademark of Haynes Industries, Inc.
PEEK™ is a registered trademark of Victrex plc.
MONEL is a trademark of the Special Metals Corporation.
GRAFOIL is a registered trademark of GrafTech International.

Parker Hannifin Corp. Instrumentation Group Divisions

Instrumentation Products Divisions

Connectors Operation
1005 A Cleaner Way
Huntsville, AL 35805
Phone: (256) 885-3800
Fax: (256) 881-5072
www.parker.com/ipdus

Valve Operation
2651 Alabama Highway 21 North
Jacksonville, AL 36265
Phone: (256) 435-2130
Fax: (256) 435-7718
www.parker.com/ipdus

Europe
Riverside Road
Pottington Business Park
Barnstaple, Devon EX31 1NP
Phone: (44) 1271-313131
Fax: (44) 1271-373636
www.parker.com/ipd

Porter Instrument Division

245 Township Line Road
Hatfield, PA 19440
Phone: (215) 723-4000
Fax: (215) 723-2199
www.parker.com/porterinstrument

Veriflo Division

250 Canal Boulevard
Richmond, CA 94804
Phone: (510) 574-9590
Fax: (510) 232-7396
www.parker.com/veriflo

Veriflo Division Partek Operation

7075 East Southpoint Road
Tucson, AZ 85706
Phone: (520) 574-2600
Fax: (520) 574-2700
www.parker.com/partek

Latin America

Pan American Division

Miami, FL
305 470 8800
www.parker.com/panam

Parker Worldwide Product Information

U.S.: 1-800-C-Parker (1-800-272-7537)

Europe: 00-800-C-Parker-H (00800-27-27-5374)

To find your local distributor: www.parker.com

Your local Parker Instrumentation Group authorized distributor:





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



Oil & Gas Filtration and Separation Solutions

Engineered Systems for Upstream, Midstream & Downstream Applications



ENGINEERING YOUR SUCCESS.

> Oil & Gas Filtration and Separation Solutions

When the energy production environment presents complex challenges, filtration and separation systems from Parker present the solution.

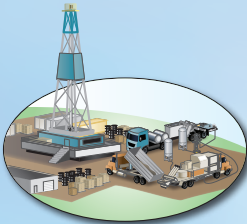
In today's demanding energy market, keeping the pipelines full is not just an objective - it's an absolute necessity. Parker offers innovative and site-specific filtration and separation solutions that help ensure integrity and purity all along the entire production continuum: upstream, midstream and downstream.

Filtration Technologies

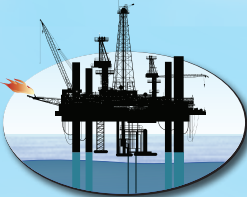
- Hydraulic and Lube Oil Filtration
- Fuel, Oil, Air and CCV Filtration
- Compressed Air and Gas Treatment
- Nitrogen Generation
- Process/Liquid Filtration
- Watermakers

Table of Contents

Upstream



Land Based Drilling
Pages 4-5

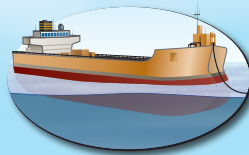


Offshore Drilling
Pages 6-7

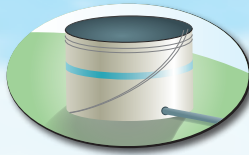
Midstream



Land Based Transport
Page 5

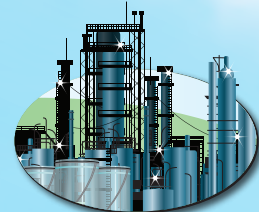


Offshore Transport
Page 7



Storage
Page 8-9

Downstream



Oil Refining/Chemical
& Petrochemical Plants
Pages 8-9



Natural Gas
Pages 10-11

Partner with Parker Together, We Can Fuel Progress

In the constantly evolving oil and gas industry, you need a partner with acute technical insight, proven experience, a customer-first approach and worldwide accessibility. That's the formula for success – and the portfolio of advantages you receive when you team with Parker.



Collaborative Engineering

Parker engineers work together with your engineers from project inception to project completion. At each step along the way, Parker provides thousands of online product configurators and 3D CAD drawings along with supporting technical expertise. Our deep understanding of your system helps ensure that it will be safer, smarter and more reliable, bolstering productivity – and championing profits.



Global Availability and Support

Parker understands that the systems you create don't always stay local. Work with us and you'll have access to more than 13,000 sales companies and distributors throughout 65-plus countries as well as the ParkerStore™ network of over 17,000 retail outlets. So, whether you need a filter replacement, product service or require one-on-one discussion with a knowledgeable representative, you'll find Parker locally, no matter where you are globally.



Project-Site Service

Not only is Parker ready to respond when and where you need us, but Parker is always prepared to diagnose problems and help resolve your system's technical challenges to keep you at peak production. In addition to critical on-site services, Parker also offers lab services and training at our manufacturing locations worldwide.

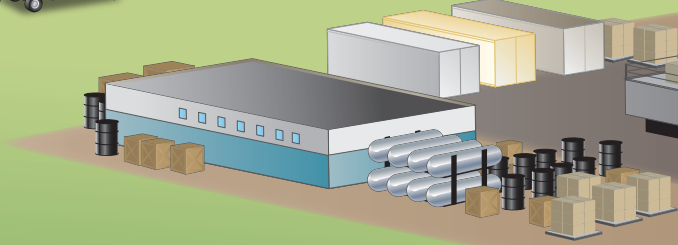
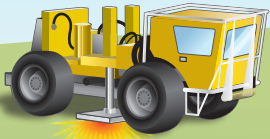
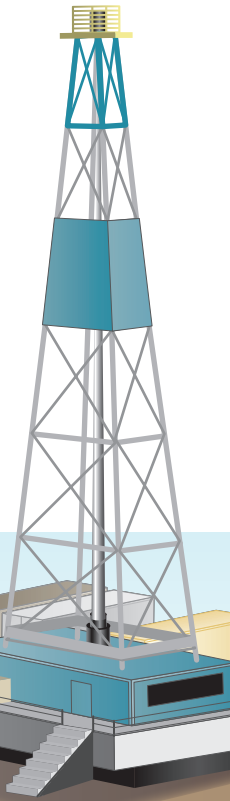


> Land-Based

Filters for the Life of the Field

From exploration, drilling and formation assessments to well construction and completion, Parker filters enhance productivity throughout the life of the field. Parker solutions are engineered to keep your equipment running optimally, safely and in an environmentally considerate manner.

Parker brings filtration innovation to equipment used in planning, drilling, completion, production and abandonment of an oil well.

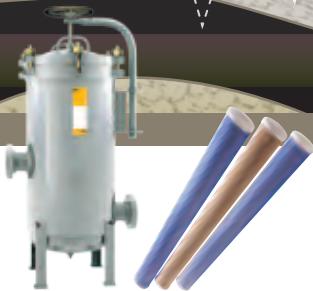


Exploration

- Sample/Analyzer Equipment
- Seismic Exploration Vehicles

Drilling Services

- Blenders
- Chemical Vans
- Flair Off Trucks
- Frac Pumps
- Picker Cranes
- Pumper Trucks
- Sand Kings
- Service Rigs
- Shakers
- Top Drive Systems
- Vacuum Trucks
- Water Haulers
- Wireline Trucks
- Workover Rigs



Process Filters & Filter Vessels

Process filters are used in completion fluid and produced water. The single most important aspect of completion fluid maintenance is filtration.



Cross Flow Hydraulic Reservoir System

The Cross Flow is an all-aluminum, reservoir system that provides a high exchange rate with reduced fluid volume. It features an electric or hydraulic motor with temperature control and an integrated bar plate cooler.



Racor Filtration Systems

Keep your service vehicles running with Racor's fuel, oil, air, and CCV filtration products.



Fuel Filter/Water Separators

Fuel Filter/Water Separators provide clean dry fuel to gen-sets and mobile power generators, increasing up-time to all areas of production.

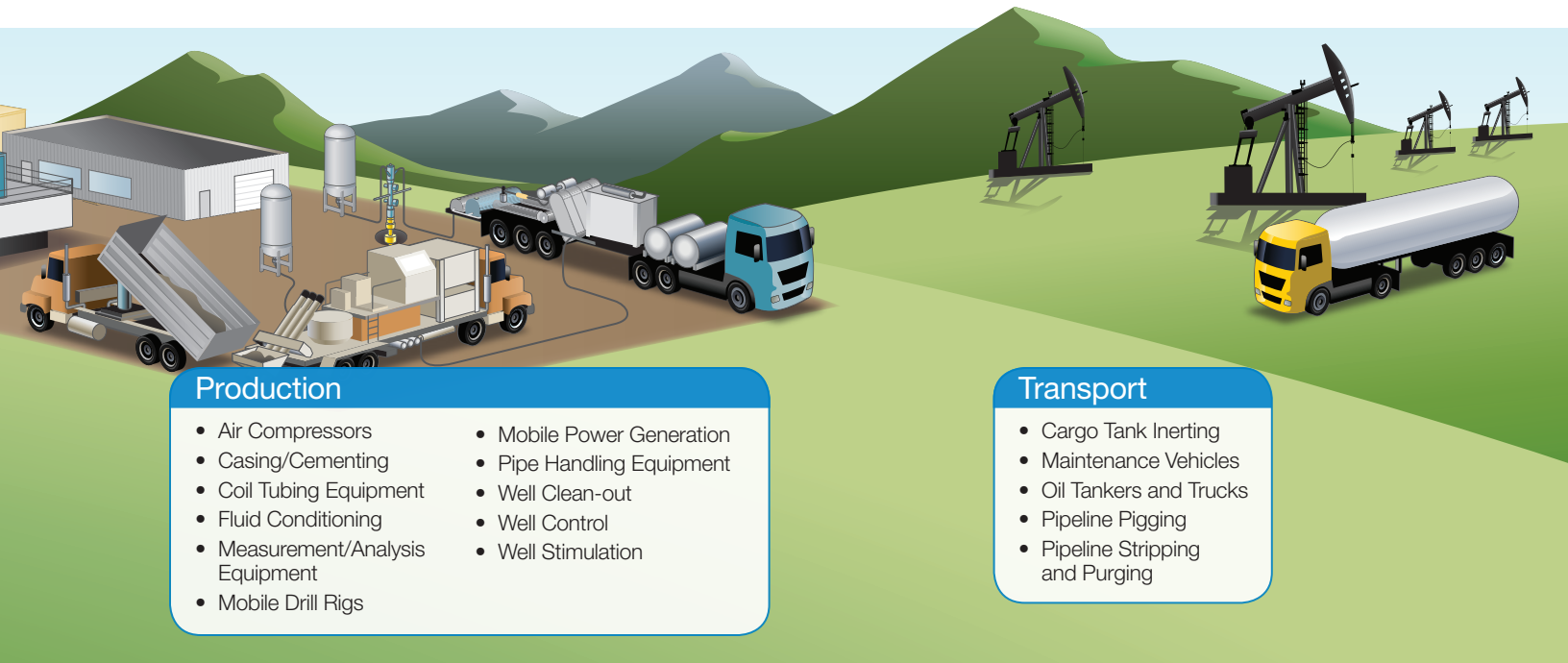
Feature Applications

Hydraulic Fracturing

Effective hydraulic fracturing relies on a combination of frac trucks, pumper trucks and water haulers. Before recovered water can be used or returned to the ground, it must be treated. Parker water filters and water purification equipment assist in that treatment, while hydraulic and fuel filters play a key role in the performance of the trucks, themselves.

Oil Well Completion

Fluids used in oil-well completion, typically heavy bromides and chlorides, contain dirt particles that can affect the permeability of the reservoir and decrease productivity. Parker's range of absolute-rated, pleated-filter cartridges provides the protection needed to ensure that all down-well fluids are free of particulate, ultimately protecting the well permeability and maintaining the continuous flow of oil.



Production

- Air Compressors
- Casing/Cementing
- Coil Tubing Equipment
- Fluid Conditioning
- Measurement/Analysis Equipment
- Mobile Drill Rigs
- Mobile Power Generation
- Pipe Handling Equipment
- Well Clean-out
- Well Control
- Well Stimulation

Transport

- Cargo Tank Inerting
- Maintenance Vehicles
- Oil Tankers and Trucks
- Pipeline Pigging
- Pipeline Stripping and Purging



Nitrogen Generators

Nitrogen Generators produce dry, inert nitrogen from standard compressed air which is a safer alternative to natural gas used for pressurizing mechanical gas seals.



Analytical Gas Generators

Analytical gas generators such as hydrogen and zero air support analytical instruments used to measure quantitative and qualitative properties during oil and gas exploration, production and refining.



Compressed Air Filters

Compressed air filters provide clean air, which ensures trouble-free operation of your equipment. Also available in carbon steel housings, ASME VIII, Div. 1 design.



Parker VMT Brackish Watermakers

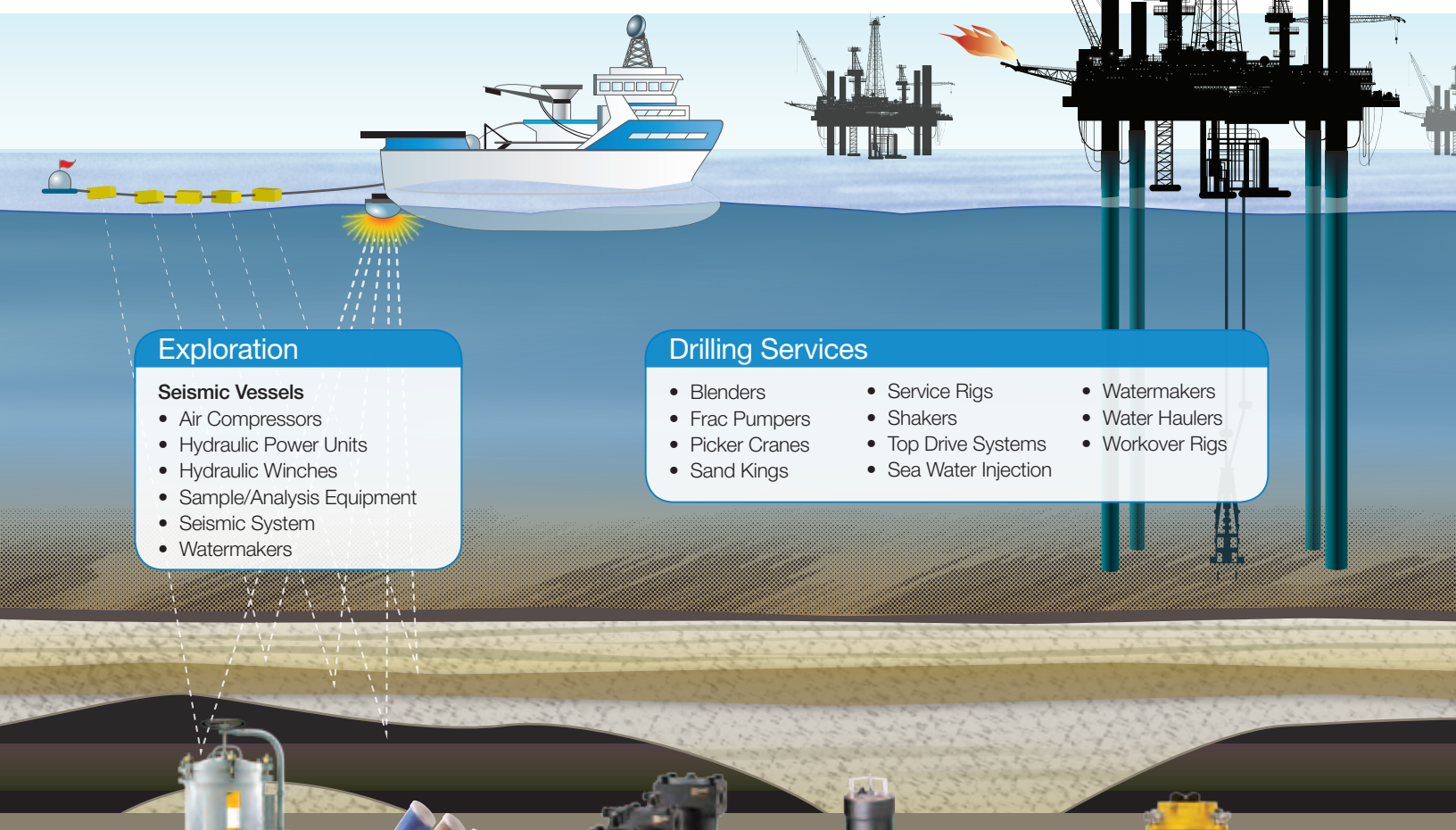
Brackish watermakers produce potable fresh water from well-water sources. Fresh water is needed for drilling and fracturing in land-based oil and gas exploration.

> Offshore

Offshore Drilling

With offshore drilling, key functions include drilling, preparing water or gas for injection into the reservoir, processing the oil and gas before sending it ashore and cleaning the produced water for disposal at sea. Parker filtration products ensure that these important functions are ongoing, even under harsh conditions. Parker also protects the most important asset – your crew members – by providing a constant supply of clean drinking water when they are working on offshore platforms for weeks at a time.

From jack-up barges to deepwater mobile offshore drilling units – semi-submersibles and drillships – Parker filters protect your equipment, your processes, and your crew.



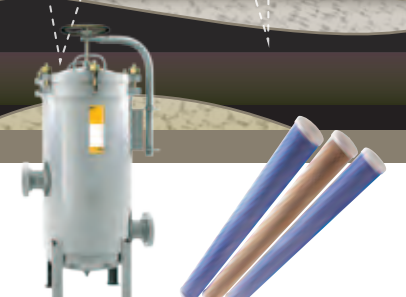
Exploration

Seismic Vessels

- Air Compressors
- Hydraulic Power Units
- Hydraulic Winches
- Sample/Analysis Equipment
- Seismic System
- Watermakers

Drilling Services

- Blenders
- Frac Pumps
- Picker Cranes
- Sand Kings
- Service Rigs
- Shakers
- Top Drive Systems
- Sea Water Injection
- Watermakers
- Water Haulers
- Workover Rigs



Process Filters & Filter Vessels

Filtration products are used in completion fluids to prevent premature blockage of the formation, in water injection for removal of damaging particulate contaminants, in produced water to promote environmentally safe removal of trace oil prior to disposal, and in the removal of particulate from glycols used for dehydration of natural gas.



High-Pressure Hydraulic Filters

High-pressure hydraulic filters block pump-generated debris before it can jam a valve or score a cylinder.



Hydraulic Filters

These hydraulic filters can be configured for in-line or manifold filtration. The element has an increased dirt-holding capacity, reducing the need between service intervals.



Fuel Handling Products

Designed to meet the toughest refueling conditions the FBO unit filters fuel upstream, protecting engines and components downstream from damaging contaminants.

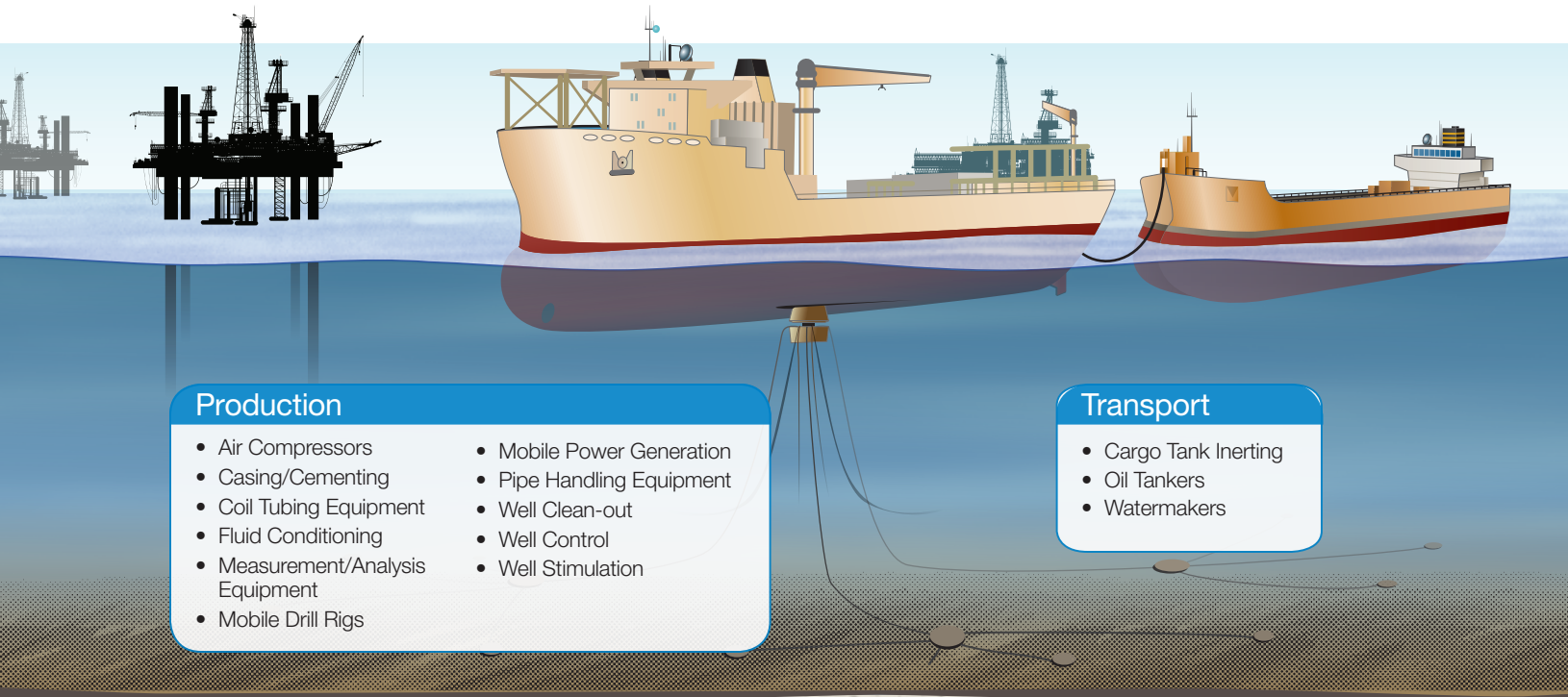
Feature Applications

Fresh Water – in Challenging Environments

From offshore MODU, FSO, FPSO and drillships to offshore drilling rigs, reverse-osmosis watermakers from Parker are always ready to produce fresh water, even when they're situated in the middle of the ocean, hundreds of feet away from shore, on an offshore rig. Parker's PW series watermakers are engineered for 24/7, continuous-duty use and function via remote control.

Nitrogen Generation

Nitrogen is used on offshore platforms, FPSOs and FLNGs for purging, blanketing, flaring and drilling. Introducing nitrogen into these processes reduces the maximum oxygen content, reducing the risk that hydrocarbon vapors will ignite, burn or explode. Parker has the right technologies to serve your needs: nitrogen generators based on PSA and membrane technology, membrane modules, compressed air filters and compressed air dryers that are suited specifically for integration into your system.

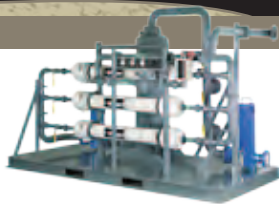


Production

- Air Compressors
- Casing/Cementing
- Coil Tubing Equipment
- Fluid Conditioning
- Measurement/Analysis Equipment
- Mobile Drill Rigs
- Mobile Power Generation
- Pipe Handling Equipment
- Well Clean-out
- Well Control
- Well Stimulation

Transport

- Cargo Tank Inerting
- Oil Tankers
- Watermakers



Nitrogen Generators

Nitrogen generators produce dry, inert nitrogen from standard compressed air, which is a safer alternative to natural gas used for pressurizing mechanical gas seals.



Nitrogen Membrane Modules

Nitrogen membrane modules produce dry nitrogen with a purity of 95 – 99.5 percent. Available in 316L stainless steel and aluminum housings.



Compressed Air Dryers

Compressed air dryers produce clean, dry air and require no electricity, making them ideal for use in all Class 1, Div. 2 installations.



Watermakers

Watermakers are used to produce fresh water from seawater for offshore applications. Fresh water is required for crew use, drilling muds, fracturing water and turbine washing.

> Downstream

Downstream Processing

After upstream drilling and transport, crude oil must be processed for use in an oil or petroleum refinery. Efficient processing of several hundred thousand barrels of crude oil a day – essentially a non-stop operation – demands filtration solutions that perform reliably, even under extreme conditions. Parker meets the need with filtering systems that get the job done, and get finished product to customers on time.

Whether crude oil is being prepared for gasoline and diesel fuel or for olefins and aromatics, Parker filters are engineered to control, improve and stabilize your processes.

Oil Refinery

Distillation

- Cooling Water/Treatment
- Cracking Unit
- Gasoline Blending
- Process Controls
- Sour Water Stripper
- Sulfur Recovery

Process Analysis

- Analytical Systems
- Sample Conditioning

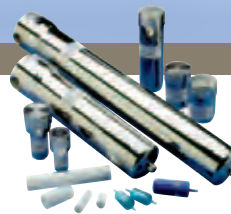
Oil Refineries Storage

- Bulk Tanks
- Fluid Analysis
- Pipeline Pigging
- Pipeline Stripping and Purging
- Tank/Reservoir Inertization
- Terminal



Process Filters & Filter Vessels

Filtration products play a vital role in critical downstream applications ranging from refining, gas processing and utilities, with total filtration solutions designed to protect processing equipment, maximize production efficiency and reduce maintenance costs.



Analyzer Filters

Analyzer Filters protect sensitive process analyzers from sample impurities by removing solids and liquids from gases with 99.999% efficiency at 0.01 micron.



Compressed Air Desiccant Dryers

Parker dryers provide dry air with dew points of -40° to -70° C to your process, instruments and equipment. They can be supplied with fully pneumatic controls in compliant with directive 94/9/EC Group II, Category 2GD, T6

Feature Applications

Filtration in the Hydrotreating Process

Downstream of the refinery distillation process, gas/oil and hydrogen are combined and fed to the fixed bed catalyst hydrotreater at high temperatures and pressures. Hydrogen sulfide contaminants are generated in the process. The gas/oil stream entering the hydrotreater contains high contaminant levels which, if allowed to enter the hydrotreater, would significantly reduce production and operation efficiency. Filter cartridges at the gas/oil stream, ahead of the hydrogen feed, protect the hydrotreater while increasing productivity, and reducing downtime. Filters also need to be applied in the recirculated hydrogen stream and the cycle oil stream for protection.

Hydrocarbon Storage

After processing and refining, fuels and fluids are transferred through pipelines and storage systems for delivery to application. Through this network of fluid storage and transfer, water, dirt and other forms of contamination get into the system and need to be removed. High quality microfiltration and filter water separators systems help ensure fluids are clean, dry and ready for application. Whether fuels are destined for aviation, industrial or other applications, these filtration solutions will help keep fluids in specification.

Chemical & Petrochemical Plants

Processing

- Cooling Water/Treatment
- Reactors
- Scrubbers
- Solvent Recovery

Process Analysis

- Analytical Systems
- Sample Conditioning

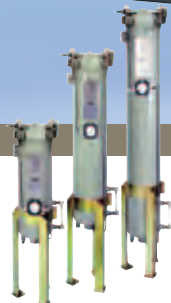
Chem/Petro Chem Storage

- Bulk Tanks
- Fluid Analysis
- Pipeline Pigging
- Pipeline Stripping and Purging
- Tank/Reservoir Inertization
- Terminal



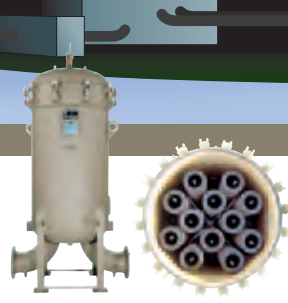
Portable Purification System (PVS)

PVS can remove 100% of free water, air and gases, and 90% of dissolved water, air and gases from contaminated hydraulic fluid.



Fuel Handling

Fuel Handling Filtration Vessels remove water, dirt and other forms of contamination that get introduced during fluid storage and transfer. They are a low maintenance solution to fuel delivery and filtration applications.



High-flow Filtration

These highly efficient filtration systems remove dirt, contaminants, and water to provide clean dry fuel. These filter housings are built to the latest standards, are suited for industrial fluids.



High Quality Filter Elements

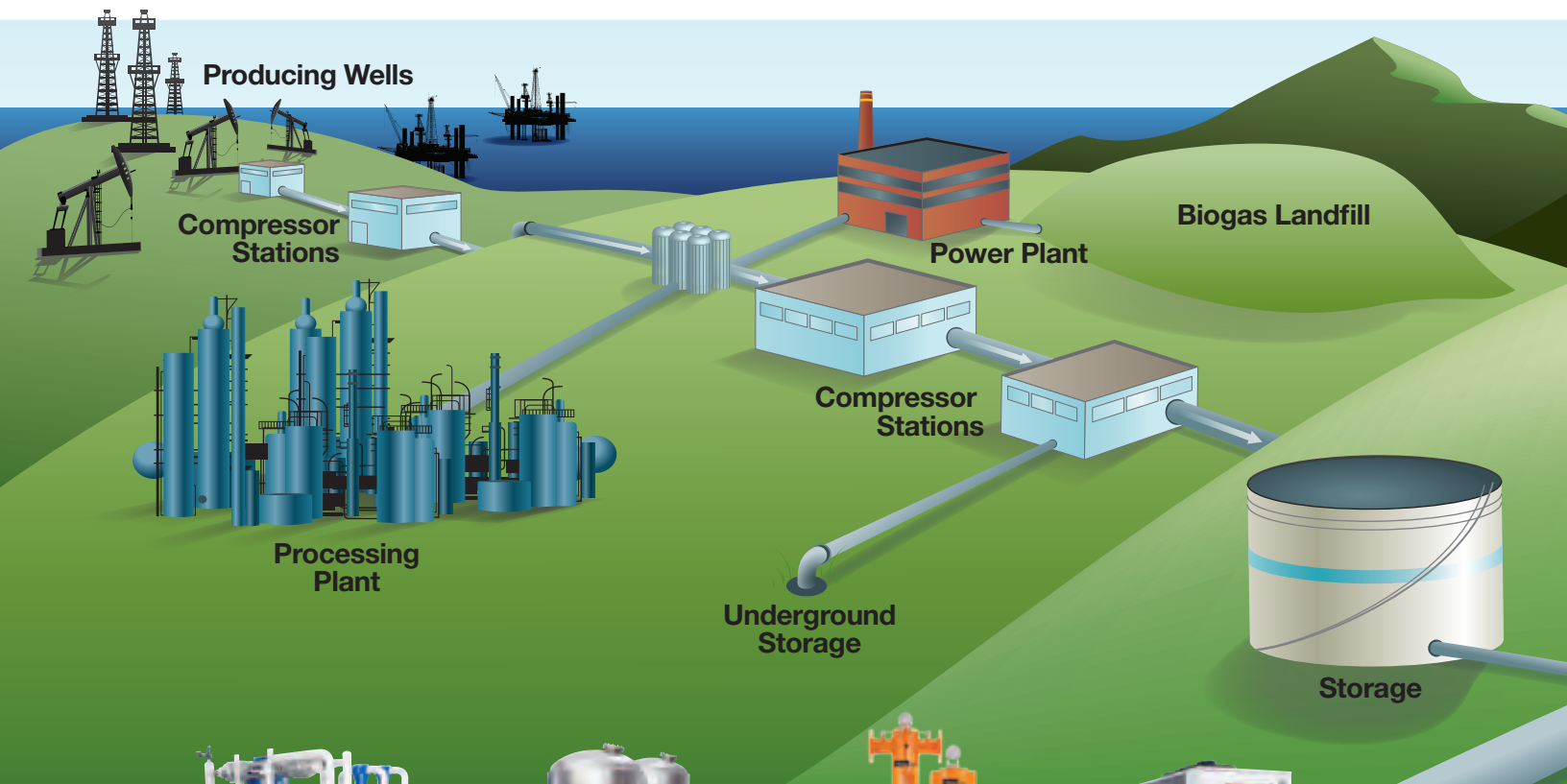
High quality filtration elements prevent contamination from getting downstream and fouling up equipment. Racor microfilters, coalescers, separators and water-absorbing elements are made with the latest technology to meet your needs.

> Natural Gas

Natural Gas Processing

Throughout the world, homes and businesses rely on natural gas for heat, power, food preparation and more. Before natural gas can be used for these purposes, however, it must be extracted from underground wells, moved through pipelines, processed and refined. Parker products filter, dry and prepare the gas, removing impurities that could foul equipment used in the production, treatment, transport and distribution of this very clean-burning, efficient fuel. Parker filtration solutions can be found on the labeled applications in the illustration below.

Natural gas now accounts for 23% of the world's energy consumption and its demand is predicted to grow by 44% through 2035.



Nitrogen Generators for Pigging

Custom nitrogen generators are used for inerting compressed natural gas and other oil and gas pipelines. Nitrogen applications also include pipeline purging and gas compressor dry gas sealing.



Siloxane Removal Systems

Siloxane Removal Systems eliminate siloxane contamination from landfill gas and biogas to ensure reliable protection against turbine and reciprocating engine damage and breakdowns.



Purgas Filters and Adsorbers

Parker's line of Purgas filters and dryers are designed to filter and dry compressed natural gas, biogas, and coal bed methane applications.



Bioenergy Chillers

These products provide chilled water for biogas cooling applications. Special protective treatment on condensers and copper piping ensures reliable operation on aggressive ambients.

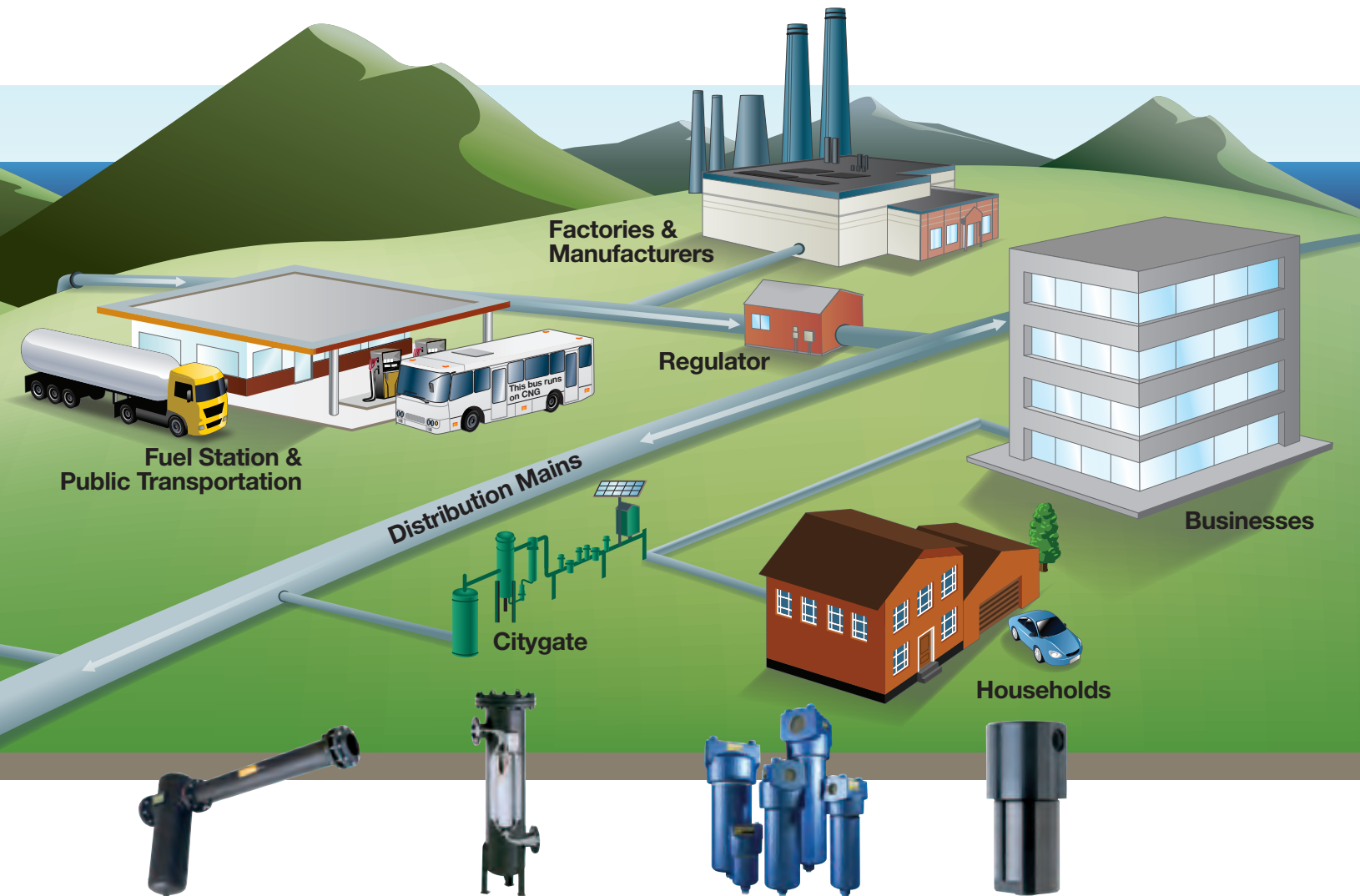
Feature Applications

Efficient Filtering for an Efficient Fuel

Natural gas goes through many stages before it can be used as energy. Typically, the process begins with production – locating and extracting the natural gas from beneath the ground – and then moves to treatment, pipeline transport and distribution. Along the way, Parker filters are used to remove impurities in the gas, protecting the integrity and performance of processing equipment. Specifically, Parker filters are used in processes such as amine sweetening, desiccant dehydration and glycol dehydration.

Biogas

Biogas, made mostly of methane, is produced when bacteria decomposes biological matter in an anaerobic environment typical of landfills, waste treatment plants and coal mines, among other areas. Treatment filters from Parker are designed to help treat captured biogas so it can be used in the natural gas grid. In addition, Parker biogas treatment filters also protect costly equipment used in downstream applications.



Bioenergy Coolers/Separators

Bioenergy Coolers/Separators remove free water from landfill or digester biogas. These stainless steel products have been optimized for low-pressure operation with minimal pressure losses.

ASME Vessel High Capacity Natural Gas Filters

Parker's ASME high flow filter vessels remove contamination from CNG during the production, treatment, and pipeline delivery stages.

High Pressure CNG Filters

Natural gas compressors require several stages of filtration. Parker offers high, medium and low pressure filtration options.

On-Board CNG Filters

Filtration is the key to guarding against damaging contaminants that could ruin fuel system components. Protect your CNG vehicle's fuel injector and regulator by installing coalescing filters.

Worldwide Filtration Manufacturing Locations

North America

Compressed Air Treatment Filtration & Separation/Balston

Haverhill, MA
978 858 0505
www.parker.com/balston

Finite Airtek Filtration Airtek/donnick hunter/Zander

Lancaster, NY
716 686 6400
www.parker.com/faf

Finite Airtek Filtration/Finite

Oxford, MI
248 628 6400
www.parker.com/finitefilter

Engine Filtration & Water Purification

Racor
Modesto, CA
209 521 7860
www.parker.com/racor

Racor

Holly Springs, MS
662 252 2656
www.parker.com/racor

Racor

Beaufort, SC
843 846 3200
www.parker.com/racor

Racor – Village Marine Tec.

Gardena, CA
310 516 9911
desalination.parker.com

Hydraulic Filtration

Hydraulic Filter
Metamora, OH
419 644 4311
www.parker.com/hydraulicfilter

Laval, QC Canada

450 629 9594
www.parkerfarr.com

Process Filtration

domnick hunter Process Filtration

Oxnard, CA
805 604 3400
www.parker.com/processfiltration

Europe

Compressed Air Treatment domnick hunter Filtration & Separation

Gateshead, England
+44 (0) 191 402 9000
www.parker.com/dhfn

Parker Gas Separations

Etten-Leur, Netherlands
+31 76 508 5300
www.parker.com/dhfn

Hiross Zander

Padova Business Unit
Padova, Italy
+39 049 9712 111
www.parker.com/hzd

Hiross Zander

Essen Business Unit
Essen, Germany
+49 2054 9340
www.parker.com/hzd

Engine Filtration & Water Purification

Racor
Dewsbury, England
+44 (0) 1924 487 000
www.parker.com/rfde

Racor Research & Development

Stuttgart, Germany
+49 (0)711 7071 290-10
www.parker.com/rfde

Hydraulic Filtration

Hydraulic Filter
Arnhem, Holland
+31 26 3760376
www.parker.com/hfde

Ujala Operation

Ujala, Finland
+358 20 753 2500
www.parker.com/hfde

Condition Monitoring Center

Norfolk, England
+44 1842 763 299
www.parker.com/hfde

Process Filtration

domnick hunter Process Filtration

Birtley, England
+44 (0) 191 410 5121
www.parker.com/processfiltration

Asia Pacific

Australia

Castle Hill, Australia
+61 2 9634 7777
www.parker.com/australia

China

Shanghai, China
+86 21 5031 2525
www.parker.com/china

India

Navi Mumbai, India
+91 22 651 370 8185
www.parker.com/india

Japan

Tokyo, Japan
+81 45 870 1522
www.parker.com/japan

Korea

Hwaseon-City
+82 31 359 0852
www.parker.com/korea

Singapore

Jurong Town, Singapore
+65 6887 6300
www.parker.com/singapore

Thailand

Bangkok, Thailand
+66 2 186 7000
www.parker.com/thailand

Latin America

Parker Comercio Ltda. Filtration Division

Sao Paulo, Brazil
+55 12 4009 3500
www.parker.com/br

Pan American Division

Miami, FL
305 470 8800
www.parker.com/panam

Africa

Aeroport Kempton Park, South Africa
+27 11 9610700
www.parker.com/africa



Parker Hannifin Corporation
**Filtration Group Global
Headquarters**

6035 Parkland Boulevard
Cleveland, OH 44124-4141
phone 216 896 3000
fax 216 896 4021
www.parker.com