Hydraulic Valve Solutions

For Industrial Applications

Parker Hannifin Hydraulic Valves

Parker Hydraulic Valves

Planning a new motion control system comprised of hydraulic valves? Parker Hannifin is the world leader in Motion Control technologies and systems. Parker's breadth of product line, application expertise, global support, and customerservice are second to none.

Parker is a global, Fortune 300 company with nearly $8 billion in sales, more than 400,000 customers, and thousands of distributors worldwide.

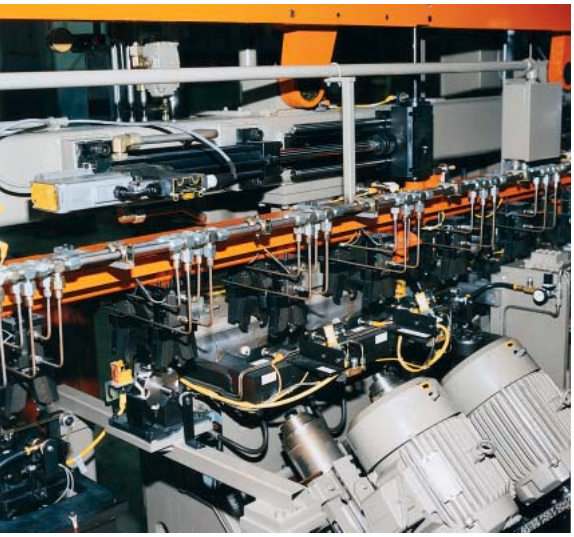
Our products, engineering expertise, and manufacturing excellence make us the logical single source for your hydraulic valves and systems. Customers who work closely with Parker benefit from the value of a one-stop-shop hydraulic valve solutions provider.

Parker is your engineering partner whether you're developing new products or improving existing ones. As industry's foremost source for Motion and Control technologies, Parker excels in pneumatics, fluid connectors, filtration, and electromechanical products and systems in addition to hydraulics.

Fast Delivery of the Best Solutions

We specialize in quick response. We'll have your hydraulic valve solution designed, built, and delivered before our competitors fully understand your needs.

Whether you work directly with us, or with one of our premier distributors, Parker promises to deliver your hydraulic valve or system where and when you need it.



Your Single Source Vendor

You need to look no further than Parker to fulfill any hydraulic valve requirement. We provide the industry's most comprehensive selection of valves including:

- Directional control valves and sandwich valves
- DIN slip-in cartridge valves
- Check, pressure, and flow control valves
- High and low pressure ball valves
- Servo and proportional valves

We Know Your Market

Being a quality supplier of hydraulic systems and components is only half the story. Parker understands industrial markets and applications, so customers are assured the right combination of products and services to improve machine reliability and performance. Some of Parker's key focused markets include:

- Factory Automation
- Machine Tool
- Metal Forming
- Plastic and Rubber Molding
- Die Casting
- Industrial Balers and Compactors
- Material Handling
- Power Generation
- Aircraft Ground Support
- Marine
- Medical
- Amusement and Entertainment

Focus on Innovation

At Parker, we're always looking for ways to make our valves better, or to design new solutions for customers. One of our most recent offerings, the DF*plus* valve, was designed to replace torque motor servovalves in high-performance machine applications. DF*plus* valves are more cost-effective and reliable than servos in applications such as blow molding and material testing.

Tested and Certified

Parker hydraulic valves and manifold systems are fully tested before being released to the customer. Customers can be confident that Parker hydraulic valve products will work the first time, every time.

In addition, Parker is fully committed to complying with international standards. Our valves comply with ISO, CSA, and CE standards, and we offer directional control and servovalves that are ATEX rated.

Engineering and Systems

Manifold Solutions

We offer our customers added value by designing and manufacturing custom manifold systems. By integrating valves into manifolds we provide a compact, reliable, and less costly than applications employing externally mounted valves.

Additionally, manifolds employ fewer connections, resulting in a reduced number of leak points. And because our custom manifolds are more compact than traditional configurations, they have a smaller footprint, facilitating streamlined machine design. Customers can order integral-valve manifold systems using a single part number.

Engineering Support

Parker hydraulic valve customers enjoy in-depth engineering support. Our field sales engineers work directly with customers to evaluate applications and provide the appropriate solution.

Parker customers can also take advantage of our Hydraulic Technology Centers (HTCs) — distributors that design hydraulic valve systems from the ground up. These one-stop-shops offer advanced systems design and technology services such as diagnostics, troubleshooting, computer design, testing, and integrating electronic controls into systems.

Parker's unique and highly trained Hydraulic Systems Engineers specialize in complex, hydraulic circuit design. We support our customers directly or through Parker HTCs to deliver the most efficient hydraulic valve systems on time and within budget.

Distribution Network

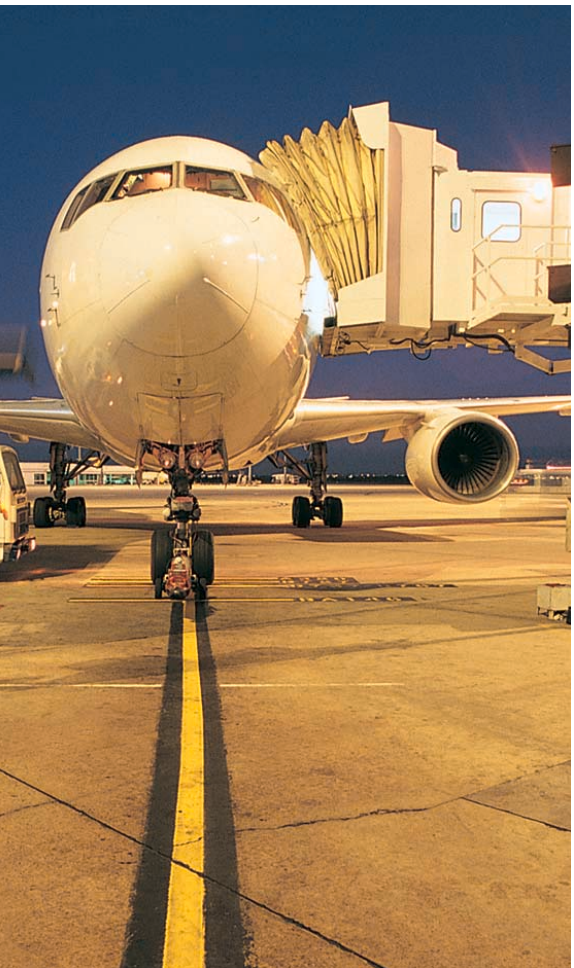
Parker's unrivalled distribution system can meet most customer needs. In addition to our HTCs, we maintain a worldwide network of distributors strategically located in your markets. These distributors carry local inventory and ensure that customers get their products when and where they need them.

Premier Customer Service

Parker is serious about every aspect of your experience—from placing your order to receiving your product on time. Our customer service programs are designed to get the right system or component to you at the right time. Every time.

However, it takes more than great products, competitive prices, and on-time delivery to satisfy our customer needs. It takes a commitment to provide exceptional value. Parker's value-added services include:

- System Design
- Component Selection
- New Product Development
- Custom Component Manufacturing
- Global Support and Service
- ISO Certification



Training Excellence

Parker's training for hydraulic technology is the best in the world. We offer hands-on classes — everything from the basics through advanced motion control. Our HTCs are also partners in the training process, teaching customers how to specify and maintain Parker hydraulic valves and systems.

Moreover, hundreds of North American colleges and universities use Parker textbooks in Motion and Control courses. Parker also provides instructor guides, computer-based training discs, digital overheads on CD, final exams, drafting and simulation software, lab manuals, and trainer stands.

Find out more about Parker training by calling 216-896-2495 or visting us at www.parker.com/training.

Three-Year Extended Warranty

Parker extends its standard limited warranty to 36 months on all hydraulic valves used in properly installed and maintained systems supplied by Parker and/or its authorized HTCs. Contact your local Parker representative for details.

Count on Parker. As the world leader in Motion Control, we provide the best value in the design and manufacture of innovative hydraulic system solutions. When it comes to our customers, we truly believe that anything's possible.

Manifold Mounted Directional Control Valves

Directional Control Valves

Parker offers industry's largest selection of directional control valves. Our markets include machine tools, power generation, metal forming, compacting and baling, materials testing, ground support, and primary metals processing.

Parker provides solenoid controlled as well as manually operated valves controlled by levers, cams, air or oil pilot. Our valves are some of industry's most adaptable, with a large number of coil termination options available.

Valve options include 21 standard spool configurations that meet a range of application specifications. For example, the soft shift and decompression features of our V-Notch spool reduces shock by slowing the spool shift time. We offer UL/CSA-recognized and ATEX-certified valves, as well as IP67-rated coils.

DCV Overview

Series D1V, D3W

- High performance, direct operated
- 4-chamber, 3 or 4-way, 2 or 3-position (cam controlled 2-position only)
- Solenoid, cam, lever, air or oil pilot controlled

Series D31V, D61V, D81V, D101V

- High performance, solenoid controlled, pilot operated
- 5-chamber, 2-stage, 4-way valves, 2 or 3-position
- Rugged four land spools
- Solenoid, lever, air or oil pilot controlled

Series	D1V	D3W	D31V	D61V	D81V	D101V
Maximum flow* (LPM) (GPM)	83 22	150 40	175 45	390 100	622 180	946 250
Max operating pressure (Bar) (PSI)	345 5000	345 5000	345 5000	207 3000	345 5000	207 3000
Mounting style (NFPA) (CETOP) (NG)	D03 3 6	D05 5 10	D05H 5H	D08 8 25	D08 8 25	D10 10 32

*Depending on spool

Solenoid Operated

Series D1VW

- Direct operated, wet armature solenoid controlled
- DC surge suppression
- Nine electrical connection options
- AC & DC lights available
- Waterproof (NEMA 4 rated)
- Explosion proof coils available
- CSA approved and UL recognized available

Series D3W

- High performance, direct operated
- 4-chamber, 3 or 4 way
- 2 or 3 position
- 22 standard spool styles, including porportional
- AC & DC lights
- CSA & NEMA 4 rated
- Explosion proof coils available

Series D31VW

- Global design is available worldwide
- Manifold or subplate mounting
- Mounting bolts below center line of spool to minimize spool binding
- 5-chamber style eliminates pressure spikes in tubes
- High pressure and low flow ratings give increased performance in compact valve

Series D61VW, D81VW, D101VW

- Low pressure drop design
- Manifold or subplate mounted
- Hardened spools provide long life
- Fast response option available
- Explosion proof available
- Wide variety of voltages and electrical connections

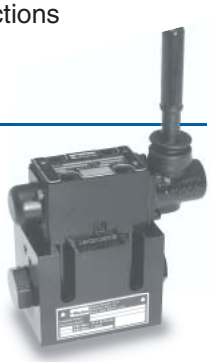
Lever Operated

Series D1VL

- Direct operated, lever controlled
- Spring return or detent styles
- Heavy duty handle design

Series D61VL, S81VL, D101VL

- Lever operated
- Manifold or subplate mounted
- Low force required to shift spool
- Hardened spools provide long life
- Low pressure drop design



Series D31VL

- Global design is available worldwide
- Pilot operated, lever controlled
- Manifold or subplate mounting
- Mounting bolts below center line of spool to minimize spool binding
- 5-chamber style eliminates pressure spikes in tubes
- High pressure and low flow ratings give increased performance in compact valve

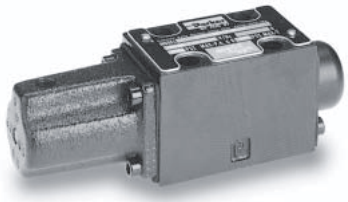
Series D3L

- High performance, 4-chamber
- Direct operated, lever controlled
- 3 or 4-way, 2 or 3-position
- Spring return or detent styles
- High flow, low pressure drop
- Heavy duty handle

www.parker.com/hyd/dcv

Manifold Mounted Directional Control Valves

Air and Oil Pilot Operated



Series D1VA, D1VP

- 2- or 3-position
- Low pilot pressure required 3.4 Bar (50 PSI) minimum
- Manual override standard

Series D3P

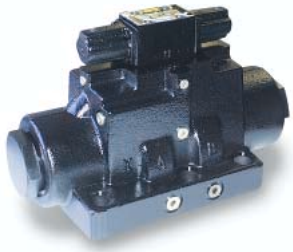
- Design available worldwide
- Minimized spool binding
- High pressure and flow ratings in a compact valve

Series D6P, D8P, D10P

- 2- or 3-position
- Low pressure drop
- Hardened spools provide long life
- Fast response and stroke adjust options available

Series D3A

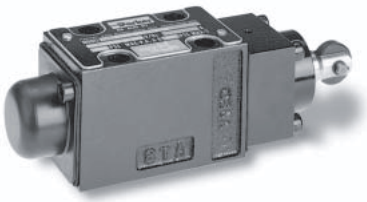
- 2- or 3-position
- Low pilot pressure required
- Manual overrides standard
- High flow, low pressure drop design



Series D61VA, D81VA, D101VA

- 2- or 3-position
- Low pressure drop
- Fast response and stroke adjust options available
- Hardened spools provide long life

CAM Operated



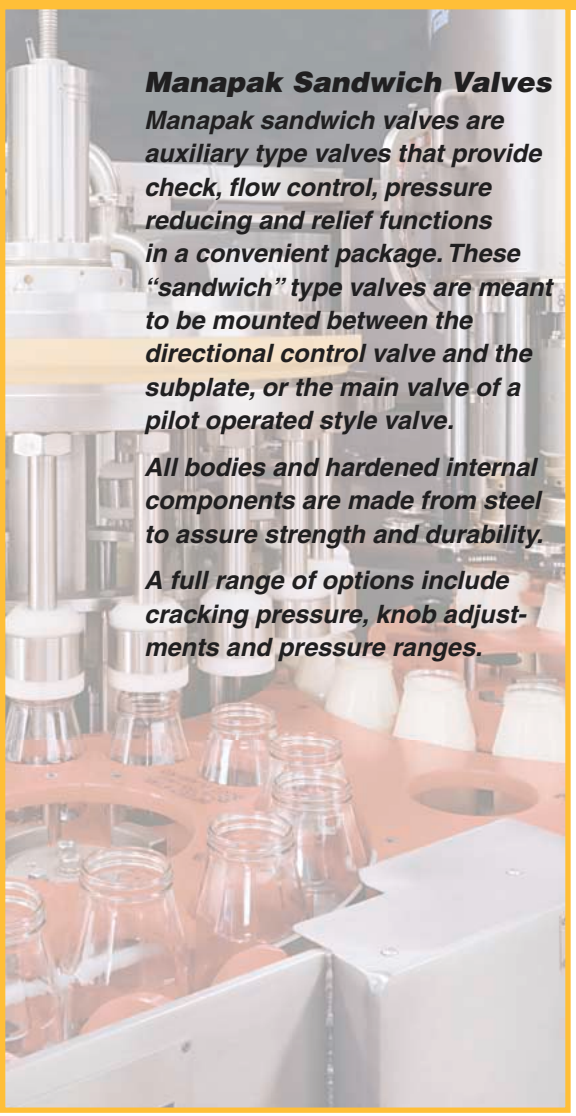
Series D1VC, D1VD, D1VG

- 2-position
- Choice of 2 cam roller positions (parallel & perpendicular)
- Two styles available (cam and cam lever)
- Short stroke option

Series D3C, D3D

- Choice of 2 cam roller positions
- Short stroke option
- High flow, low pressure drop design

www.parker.com/hyd/dcv



Manapak Sandwich Valves

Manapak sandwich valves are auxiliary type valves that provide check, flow control, pressure reducing and relief functions in a convenient package. These "sandwich" type valves are meant to be mounted between the directional control valve and the subplate, or the main valve of a pilot operated style valve.

All bodies and hardened internal components are made from steel to assure strength and durability.

A full range of options include cracking pressure, knob adjustments and pressure ranges.

Manapak Sandwich Valves

Series CPOM

- Block leakage from the actuator ports to tank when the directional valve is in the center position

NOTE: For maximum response and shut off, a directional valve with both cylinder ports drained to tank in the center position is recommended for use with CPOM valves.

Series PRM

- Used to regulate pressure in one area of a circuit below normal system pressure. The Manapak style valve is well suited for this function as it mounts directly below the directional control valve.

Series FM

- Permit free flow from the directional valve to the actuator
- Adjustable independent flow regulation in each return line from the actuator (meter-out)
- FM2 and FM3 can be inverted for meter-in applications

Series RM

- Limit system pressure by opening to tank when system pressure reaches the valve setting
- RM2 valves can be configured to limit the A or B work port pressures independently

Series CM

- Provide an integral, full flow check valve in the P, A, B or T port of the directional control valve
- Reverse flow is blocked
- CM2 and CM3 offer a combined P and T version

Series PRDM

- Used to regulate pressure in one area of a hydraulic circuit at a predetermined level below normal system pressure
- An integral pressure relieving function for the secondary reduced pressure circuit is incorporated into the design

www.parker.com/hyd/manapak

Series	CM	CPOM	FM	PRDM	PRM	RM
Type	Check	P.O. Check	Flow control	Direct operating pressure reducing	Pressure reducing	Pressure relief
Maximum flow LPM (GPM) D03 Mounting, Size 2 D05 Mounting, Size 3 D08 Mounting, Size 6	 76 (20) 113 (30) 340 (90)	 53 (14) 76 (20) 227 (60)	 76 (20) 113 (30) 340 (90)	 151 (40) 303 (80)	 64 (17) 189 (50)	 53 (14) 76 (20) 340 (90)
Max optional pressure: (Bar) (PSI)	345 5000	345 5000	345 5000	315 4560	345 5000	345 5000

Manifold Mounted Directional Control Valves

Lo-Torq Valves

In high pressure applications where manually operated directional control valves are used, such as backup systems in oil and gas, marine, ground support, and testing-equipment applications, there is no better choice than Parker lo-torq valves. Parker's lo-torq valves provide industry leading performance with less than one drop per minute internal leakage. Plus, balanced disk-and-seal valve design ensures that handle effort stays constant even when pressures increase.

Lo-torq valves employ numerous media including oil, water, air, lube oil, solvents, inert gases, and Skydrol. They handle flows to 200 GPM, and operating pressures to 600 PSI.

Lo-Torq Valves

Series 8000E, 8100E

- Shear-type positive seat
- Zero leakage
- High contamination tolerance
- Standard valves are interflow
- Low turning torque
- Side, bottom or subplate mounted
- Panel mounting standard
- Lubricated air, hydraulic oil and water
- Operating temperature -40° to +250°F

Series 8400E

- Shear-type positive seat
- Zero leakage
- High contamination tolerance
- Low turning torque
- Panel mounting standard
- Lubricated air and hydraulic oil

Series 8000C, 8100C

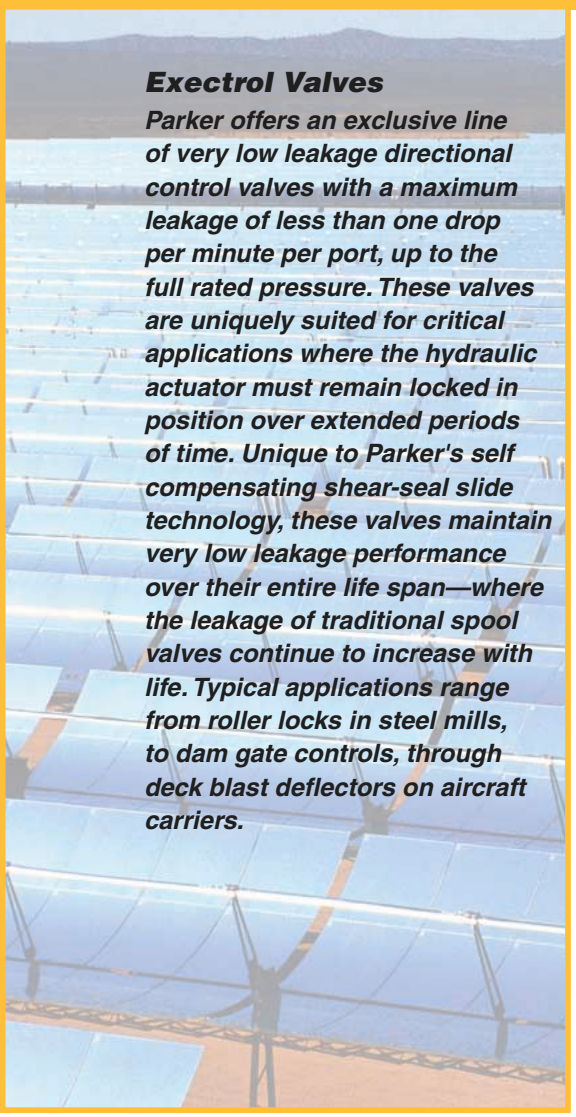
- Shear-type positive seat
- Zero leakage
- High contamination tolerance
- Low turning torque
- Panel mounting standard
- Lubricated air, hydraulic oil and water

Series 8500

- Shear-type positive seat
- Zero leakage
- High contamination tolerance
- Low turning torque
- Panel mounting standard
- Lubricated air, hydraulic oil and water

www.parker.com/hyd/lo-torq

Series	8000E	8100E	8000C	8100C	8400E	8500
Size, NPT	⅛" - ¾"	⅛" - 1"	1¼" - 1½"	1¼" - 1½"	⅛" - ¼"	⅛" - 1"
Working Pressure (Bar) (PSI)	207 3000	414 6000	207 3000	414 6000	207 3000	207 3000
Body Material Steel	X	X	X	X		
Aluminum Alloy					X	X



Exectrol Valves

Parker offers an exclusive line of very low leakage directional control valves with a maximum leakage of less than one drop per minute per port, up to the full rated pressure. These valves are uniquely suited for critical applications where the hydraulic actuator must remain locked in position over extended periods of time. Unique to Parker's self compensating shear-seal slide technology, these valves maintain very low leakage performance over their entire life span—where the leakage of traditional spool valves continue to increase with life. Typical applications range from roller locks in steel mills, to dam gate controls, through deck blast deflectors on aircraft carriers.

Exectrol Valves

Series 21100, 21200, 25100, 25200

- Shear-type positive seal
- Very low leakage (one drop/minute per port)
- Ideal for both hydraulic oil and water soluble fluids
- Standard valves are interflow
- High tolerance to contamination and silting
- Manual overrides standard
- Operating temperature range -40° to +225° with nitrile o-rings
- Available in one and two stage verisons

Series 213**

- Designed to handle grease and oil in centralized lubricating system
- Self-cleaning and dirt resistant
- Shear-type positive seal
- Operating temperature range -40° to +225° with nitrile o-rings

www.parker.com/hyd/exectrol

Series	21100	21200	25100	25200	21353	21356
Port Size		Subplate	Subplate	Subplate	⅜"	¾"
Maximum flow (LPM) (GPM)	11.3 3	38 10	94 25	169 45		
Working pressure (Bar) (PSI)	414 6000	414 6000	414 6000	414 6000	310 4500	310 4500
Operation Solenoid Air/Oil	X	X	X	X	X X	X X
Body material Steel Aluminum	X	X	X	X	X	X

Manifold Mounted Proportional Directional Control Valves

Proportional Valves

Parker proportional valves employ powerful voice-coil valve technology, which allows higher flows from smaller valves. Our valves offer extremely high response up to 300 Hz, and are offered with or without on-board control electronics.

Three performance levels are provided:

- ***Economical standard performance valves are suitable for automotive, marine equipment, and metal fabrication applications, offering open-loop controlling velocity.***
- ***Medium performance valves employ spool feedback and use both open and closed-loop control in applications such as material feeding and edge grinding.***
- ***Applications requiring pressure and force control, as well as closed-loop control for tight positioning, are perfect for Parker's high-performance proportional valves.***

Series D*FP

- Servovalve dynamics
- Full flow capacity up to 315 Bar (4500 PSI) pressure drop through the valve
- Maximum tank pressure 315 Bar (4500 PSI) with external drain Y-port
- Spool moves to defined position on loss of power
- High flow

Series D*FW, D*FT

- Optional integrated control electronics with ramp adjustment
- Low leakage
- Progressive flow characteristics for improved low flow resolution
- Spring-centered main stage spool
- Wide selection of spool options and flow capacity

Series D*1FW, D*1FT

- Two-stage pilot operated
- Optional integrated control electronics with ramp adjustment
- Low leakage
- Progressive flow characteristics for improved low flow resolution
- Spring-centered main stage spool
- Wide selection of spool options and flow capacity
- 2:1 ratio spool options

Series D**FL

- Integrated microprocessor based valve electronics
- On-board open-loop motion control profiler
- Optically isolated 'on-off' inputs trigger motion profiles
- User selectable operation modes: slow shift or profiler
- Test points indicating speed and ramp settings
- On-board microprocessor self-diagnostics on start-up
- LED functional diagnostic indicators
- Spring-centered spool
- Manual overrides

Series D*FX

- Versatile electronic control options
- Spool position feedback
- Spring-centered spool
- Manual override
- Progressive flow characteristics for high resolution flow rate adjustment for small commands
- LED functional diagnostics

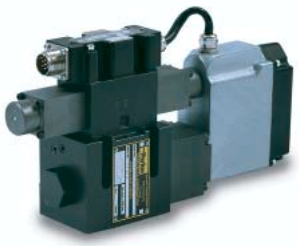
Proportional Directional Control Valves — Manifold Mounted

Series D*1FS

- High performance, two-stage pilot operated solenoid valves
- Electronic spool position feedback
- High frequency response
- Spring-centered main stage spool
- LED functional diagnostic indicator
- Wide selection of spool options and flow capacity
- 2:1 ratio and regeneration spool options

Series D*FH, D*FM

- High performance, two-stage pilot operated solenoid valves
- Electronic spool position feedback
- High frequency response
- Spring-centered main stage spool
- LED functional diagnostic indicator
- Wide selection of spool options and flow capacity
- 2:1 ratio and regeneration spool options



Series D*1FH

- High performance, two-stage pilot operated solenoid valves
- Integrated valve electronics
- Spool position feedback
- High frequency response
- Spring-centered main stage spool
- LED functional diagnostic indicator
- Wide selection of spool options and flow capacity
- 2:1 ratio spool options

Series TDA

- High performance, three-stage seated proportional throttle valves
- Poppet metering “V” notches provide very precise flow control in nominal flow ranges up to 500 LPM (132 GPM)
- Conform to DIN 24340 design D (CETOP RP 121) standard for subplate mounted valves
- Driven by ET Series proportional driver cards

www.parker.com/hyd/pdcv

Pilot Operated Series	D*1FW	D*1FT	D*FL	D*1FS	D*1FH	TDA
Performance	Std.	Std.	Std.	High	Servo	Throttle
Mounting: NG10, ISO/CETOP 5	X	X		X	X	
NG16, ISO/CETOP 7	X	X	X	X	X	
NG25, ISO/CETOP 8	X	X	X	X	X	X
NG32, ISO/CETOP 10	X	X		X	X	
Spool feedback				X	X	
Integrated electronics		X	X		X	
Max operating pressure (Bar) (PSI)	345 5000	345 5000	345 5000	345 5000	345 5000	350 5075

Series	D*FW	D*FT	D**FL	D*FX	D*FP	D*FH	D1FM	D3FM
Performance	Std.	Std.	Std.	High	Servo	Servo	Servo	Servo
Mounting: NG06, ISO/CETOP 3	X	X	X	X	X	X	X	
NG10, ISO/CETOP 5	X	X	X	X		X		X
Spool feedback				X	X	X	X	X
Integrated electronics		X	X	X	X	X	X	X
Max operating pressure (Bar) (PSI)	315 4500	315 4500	315 4500	315 4500	315 4500	315 4500	315 4500	315 4500

Manifold Mounted Proportional Pressure Control Valves

Series RE06*T

- Standard DIN/ISO interface
- Integrated valve electronics
- MIN and MAX potentiometers for setting minimum and maximum pressure values
- Adjustable electronic ramp control with two potentiometers

Series PE, PC

- Standard DIN/ISO interface
- Sliding spool main stage
- Optional reverse flow check valve on the PE
- MIN and MAX potentiometers for setting minimum and maximum pressure values
- Adjustable electronic ramp control with two potentiometers

Series RE*W

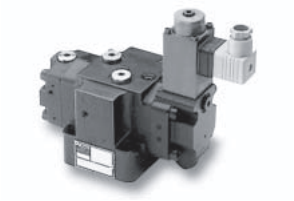
- Standard DIN/ISO interface
- Mechanical maximum pressure adjustment
- Off-board electronic driver modules

Series RE*T

- Standard DIN/ISO interface
- Mechanical maximum pressure
- MIN and MAX potentiometers for setting minimum and maximum pressure values adjustment
- Adjustable electronic ramp control with two potentiometers

Series RE06M*W2

- Standard DIN/ISO/CETOP/NFPA interface
- Very low hysteresis
- Excellent repeatability
- Very low minimum pressure
- Flows up to 5 LPM (1.3 GPM) capability
- Four pressure ranges available



Series DWE, DWU

- Proportional solenoid operated pilot stage
- Sliding spool main stage
- Optional reverse flow check valve (DWU)
- Off-board electronic driver modules

www.parker.com/hyd/ppcv

Series	RE06*T	RE06M*W2	RE*T	RE*W	PC	PE	DWE	DWU
Type	Direct Op. Relief	Direct Op. Relief	Pilot Op. Relief	Pilot Op. Relief	Pilot Op. Relief	Pilot Op. Relief	Pilot Op. Relief	Pilot Op. Relief
Mounting: NG06, ISO/CETOP 3	X	X						
NG10, ISO/CETOP 5			X	X	X	X	X	X
NG25, ISO/CETOP 8			X	X	X	X	X	X
NG32, ISO/CETOP 10					X	X	X	X
Check valve						X		X
Integrated electronics	X		X		X	X		
Max operating pressure (Bar) (PSI)	350 5075	350 5075	350 5075	350 5075	350 5075	350 5075	350 5075	350 5075

Servovalves

Servovalves are used in high precision applications that also require operating power of 200mW or less. These conditions are often found in process plant power generation, mining, oil and gas, and simulation applications.

The torque-motor pilot design of our servovalves incorporates mechanical feedback for high response. In addition, servovalves that meet ATEX, CSA, and Factory Mutual requirements are available for applications in hazardous conditions. Parker servovalves can directly replace competitive models in existing applications.

Series SE

- 2-stage, 4-way flapper and nozzle design
- Lapped spool and sleeve
- Aluminum body (steel on SEMT)
- Jewel feedback ball for durability
- Medium/high performance
- On-board electronics on SE2E

Series PH76

- Built to survive tank port pressure spikes
- No ball glitch
- Tool steel spool and body
- Optional 5th port for external pilot
- ISO 10372 standard 22.23 mm (0.875") port circle

Series BD

- Rugged, reliable trouble-free operation
- Reduced contaminant sensitivity
- Linear flow gain characteristics
- Intrinsically safe model available
- Explosion-proof available

Series DY

- Nozzle and flapper style valves
- Precision lapped spool and sleeve
- Tool steel or stainless steel body and spool
- No ball glitch
- Versatile port circle on most sizes
- Larger valves survive high tank port pressures

www.parker.com/hyd/servo

Series	SEMT	SE05, 10, 15	SE2N	SE20	SE2E	SE31	SE60	BD15	BD30	PH76
Max flow rating @70 Bar (1000 PSI), (LPM) (GPM)	7 1.8	57 15	125 33	75 20	75 20	57 15	225 60	75 20	151 40	57 15
Max pressure rating (Bar) (PSI)	210 3000	315 4500	210 3000	315 4500	315 4500	210 3000	210 4000	210 3000	210 3000	210 4500

Series	DY1S	DY3H, DY6H	DY01	DY05	DY10	DY12	DY15	DY25	DY45
Max flow rating @70 Bar (1000 PSI), (LPM) (GPM)	.4* .1*	11, 22 3, 6	11 3	19 5	38 10	57 15	95 25	75 30	225 60
Max pressure rating (Bar) (PSI)	90 1300	105 1500	210 3000	210 3000	210 3000	210 3000	210 3000	210 3000	210 3000

*@90 bar (1300 PSI)

In-Line Mounted Check Valves

Check Valves

Industry's widest selection of check valves come from Parker. Our valves are used in a virtually limitless range of applications – from air and fuel systems to load holding. Our check valves utilize a variety of media including oil, air, water, and Skydrol, and are made from materials such as aluminum, stainless steel, brass, and carbon steel. They employ economical metal seating or zero-leak seating with elastomer seals.

Series C, VCL

- Poppet style check
- Free flow in one direction; dependable shut-off in reverse

www.parker.com/hyd/c-vcl

Series VLS

- Protect system in event of line rupture
- Return to open position when pressure is equalized

www.parker.com/hyd/vls

Series CP

- Pilot operated
- Free flow in one direction; pilot operated flow in reverse

www.parker.com/hyd/cp

Series 440, 450

- For high-shock service
- Qualified to military specifications

www.parker.com/hyd/440-450

Series LT, LTF

- Operate in any position
- Restrictors available for throttle function
- Accurate control of double-acting cylinders

www.parker.com/hyd/lt-ltf

Series 480, 490

- High velocity applications
- Resilient molded seal permanently locked to poppet for zero leakage

www.parker.com/hyd/480-490

Series 580, 590

- Mount in any position
- Full flow with low opening pressure
- Military equivalent valves

www.parker.com/hyd/580-590

Series J416A, J417A

- Double cylinder locking valves
- Prevent movement in any direction
- Military equivalent valves

www.parker.com/hyd/j416-417

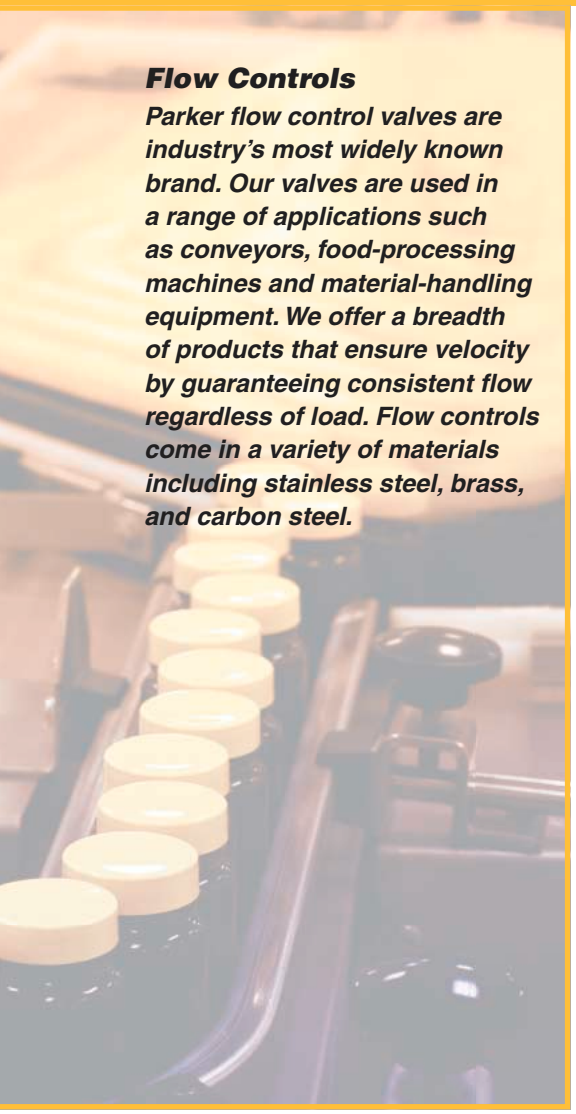
Series AVF

- Provides automatic air line rupture shut-off
- Eliminates hose whip (pneumatic service)
- Hydraulic and pneumatic service
- Limits oil spillage and potential component damage
- Adjustable closing flow

www.parker.com/hyd/avf

Series	C	VCL	CP	LT, LTF	VLS	440, 450	480, 490	580, 590	J416A, J417A	AVF Pneu	AVF Hyd
Type	Check	Check	P.O. Check	Line Throttle	Velocity Fuse	High Press.	Soft Seat	Swing	Mini	Velocity Fuse	
Max flow range (LPM)	11 - 569	23 - 189	30 - 95		2 - 341				4 - 110	5 - 60	2 - 227
(GPM)	3 - 150	5 - 50	8 - 25		.5 - 90				1.20 - 29	SCFM	1.5 - 60
Body material											
Brass	X						X			X	
Aluminum						X	X	X			
Steel	X	X	X	X	X	X					X
Stainless steel	X					X	X		X		
Port types/sizes:											
NPT	⅛" - 2"	¼" - 1¼"	⅜", ¾"	½", ¾"	⅜" - 1"	⅛" - 2"	⅛" - 2"	⅛" - 2"		¼" - ¾"	¼" - 1"
SAE	-4 thru -32			-8 thru -12	-6 thru -24	-4 thru -32	-4 thru -32	-4 thru -32	-4 thru -16		
BSPP	⅛"- 2"										
BSPT	⅛" - ¾"										
JIC		⅜" - 1¼"			⅜" - 1"	¼" - 2"	¼" - 2"	¼" - 2"	¼" - 1"		
Max operating press (Bar)	345	210	210	210	210	345	210	24	345	136	340
(PSI)	5000	3000	3000	3000	3000	5000	3000	350	5000	2000	5000

In-Line Mounted Flow Control Valves



Flow Controls

Parker flow control valves are industry's most widely known brand. Our valves are used in a range of applications such as conveyors, food-processing machines and material-handling equipment. We offer a breadth of products that ensure velocity by guaranteeing consistent flow regardless of load. Flow controls come in a variety of materials including stainless steel, brass, and carbon steel.

Series PC*MS

- Pressure compensated
- Adjustable flow setting
- Optional reverse flow check
- Subplate mounting

www.parker.com/hyd/pcms

Series F

- Parker exclusive Colorflow® scale on stem
- Controlled flow in one direction, free flow in reverse
- Simple set screw for locking
- Tamperproof option

www.parker.com/hyd/f

Series TPC

- Pressure compensated
- Insensitive to oil temperature changes
- Optional reverse flow checks
- Optional lunge control (⅜ only)

www.parker.com/hyd/tpc

Series PC*K

- Pressure compensated
- Factory set for specified flow
- Flow precision within ±5% of regulated flow
- Available with reverse flow check

www.parker.com/hyd/pck

Series FG3PKC

- Pressure and temperature compensated
- Adjustable flow setting
- Reverse flow check standard
- Optional lunge control, lock and trim adjustment
- Subplate mounting

www.parker.com/hyd/fg3pkc

Series PC*M

- Pressure compensated
- Flow precision within ±5% of regulated flow
- Parker exclusive Colorflow scale on stem
- Set screw securely locks valve setting
- Available with reverse flow check
- Tamperproof option

www.parker.com/hyd/pcm

Series N

- Exclusive Colorflow scale on stem
- Provides controlled flow in both directions
- Set screw securely locks setting
- Standard or fine metering needles
- Tamperproof option

www.parker.com/hyd/n

Series MVI

- Installed in machined cavity of manifold
- Choice of three needles
- Precise metering control and full shut-off

www.parker.com/hyd/mvi

Series MV

- Exclusive Colorflow scale on stem
- Provides controlled flow in both directions
- Fine and micro-fine needles
- Straight and right angle body styles
- Panel mounting kit available

www.parker.com/hyd/mv

Series D

- Cam-operated, 2-way valve
- Normally open, normally closed available
- Tapered spool for gradual decrease in flow
- Inline and subplate mounted

www.parker.com/hyd/d

Series	F	PC*K	PC*M	PC*MS	TPC	FG3PKC	N	MVI	MV	D
Type	Flow	PC flow	PC flow	PC flow	T & PC flow	T & PC flow	Needle	Cartridge Needle	Metering	Deceleration
Max flow (LPM) (GPM)	11 - 569 3 - 150	11 - 95 3 - 25	11 - 189 3 - 50	11 - 189 3 - 50	3.8 - 95 .1 - 25	41.3 11	11 - 265 3 - 70	2 - 95 .5 - 25	4 - 110 .5 - 40	72 - 227 19 - 60
Body material Brass Steel Stainless Steel	 X X X	 X 	 X X	 X 	 X 	 X 	 X X X	 X 	 X X 	 X
Port types/sizes NPT SAE BSPP BSPT	 ⅛" - 2" -4 thru -32 ⅛" - 2" ⅛" - ¾"	 ¼" - ¾" -6 thru -12 	 ¼" - 1¼" -6 thru -16 	 	 ⅜", ¾" 	 	 ⅛" - 1¼" -4 thru -20 ¼" - ½"	 ¼" - ¾" 	 ⅛" - 1" -4 thru -16 ⅛" - 1" ¼" - ½"	 ⅜" - ¾"
Subplate				¼" - 1"		⅜"				⅜" - ¾"
Max operating press (Bar) (PSI)	 345 5000	 210 3000	 210 3000	 210 3000	 210 3000	 210 3000	 345 5000	 345 5000	 345 5000	 210 3000

In-Line Mounted Ball Valves

Ball Valves

Ball valves complete the Parker valves line-up. As with other valves, we offer a wide product line that is fully ported to provide low pressure drops. Our port configurations support a wide range of system requirements. A unique, rotating, four-bolt SAE flange design provides for easy alignment, fewer potential leaks, and lower installation costs. Our valves also employ polyamide thrust-bearing and ball-seal compounds that allow low actuation torque and high-cycle expectancy.

Series BVHP, BVAH, BVHH

- Threaded and flange connections
- Low pressure drop
- Design minimizes torque needed to open and close the valve
- Options include locking handles, panel mounting, limit switches and high temperature seals

Series BVAM, V500CS, V502SS

- Cost effective solution when high pressure is not required
- Port sizes up to 4 inches
- Design minimizes torque needed to open and close the valve

Series BV3D, BV3H, BV4H

- A variety of ball patterns allow different flow paths
- Options include locking handles, panel mounting, limit switches and high temperature seals

Series BVAL, V500P, V590P

- PTFE seals are compatible with a wide range of media
- Can be used in pneumatic applications
- Locking handles, panel mounting and limit switches are available

Series BVMM

- Manifold mounting eliminates external fluid connection
- A variety of ball patterns allow different flow paths
- Design minimizes torque needed to open and close the valve

www.parker.com/hyd/ball-low
www.parker.com/hyd/ball-high

Series	Function	Pressure Bar (PSI)	Port Sizes	Material
High Pressure				
BVHP	2-Way	414 (6000)	¼" - 1"	Steel or Stainless Steel
BVAH	2-Way	414 (6000)	1¼" - 2"	Steel or Stainless Steel
BVHH	2-Way	689 (10,000)	½" - 2"	Steel or Stainless Steel
BV3H/BV4H	3 & 4-Way	414 (6000)	¼" - 2"	Steel or Stainless Steel
BVMM	2 & 3-Way	414 (6000)	¼" - 2"	Steel or Stainless Steel
Medium Pressure				
BV3D	3-Way (Diverter)	207 (3000)	¼" - 2"	Steel or Stainless Steel
BVAM	2-Way	138 (2000)	2½" - 4"	Steel
V500CS	2-Way	138 (2000)	¼" - 1"	Steel
V502SS	2-Way	138 (2000)	¼" - 2"	Stainless Steel
Low Pressure				
BVAL	2-Way (Suction)	28 (400)	¼" - 4"	Aluminum
V500P	2-Way	41 (600)	¼" - 2"	Brass
V590P	2-Way (Right Angle)	17 (250)	¼" - ½"	Brass

Accessories

Series GF

- Pressure snubber
- Isolate gage from damage and pressure surge
- One piece construction
- Requires no adjustment or maintenance

www.parker.com/hyd/gf

Series GT

- Gage isolator valves
- Push-to-read knob delivers instant pressure to the gage
- Spring-loaded spool drains fluid back to reservoir when knob is released
- Partial snubbing action protects the gage

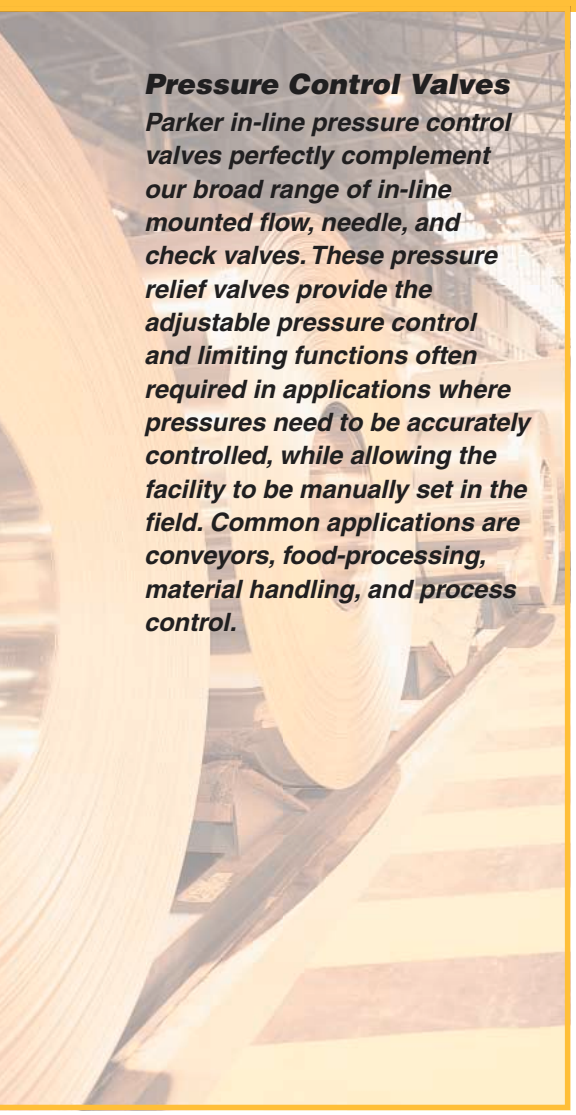
www.parker.com/hyd/gt

Series 910

- Double-acting hand operated pumps
- Flange mount in any position
- Use anywhere since no power source is required
- Provide 2 cubic inches per cycle (2 strokes)
- Standard #6 or #8 IST ports
- Available with built-in needle valve (910N) or built-in relief valve (910R)

www.parker.com/hyd/910

In-Line Mounted Pressure Control Valves



Pressure Control Valves

Parker in-line pressure control valves perfectly complement our broad range of in-line mounted flow, needle, and check valves. These pressure relief valves provide the adjustable pressure control and limiting functions often required in applications where pressures need to be accurately controlled, while allowing the facility to be manually set in the field. Common applications are conveyors, food-processing, material handling, and process control.

Series 62**, 63**, 64**

- Right angle body
- 13 pressure ranges between 4 PSI and 3600 PSI (0.25 and 250 Bar)
- Soft seat poppets provide a near zero leak performance (brass and stainless steel only)
- Non-standard sizes and port styles available on request

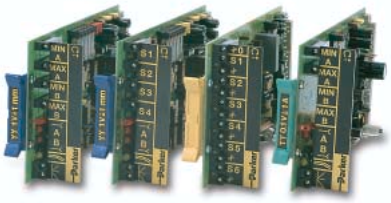
Series *665

- In-line style
- Pressure ranges between 4 and 3600 PSI (0.25 and 250 Bar)
- Soft seat poppets available in brass and stainless steel
- Special sizes and port styles available on request

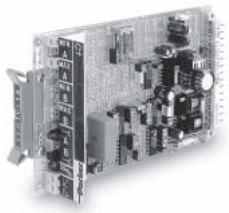
www.parker.com/hyd/inlinepcv

Series	620	63x	64x	665
Size NPT SAE	¼" - ¾" -4 thru -12	¼" - ¾" -4 thru -12	¼" - ¾" -4 thru -12	¼" - 1" -4 thru -16
Direct acting Pilot operated				X
Working pressure (Bar) (PSI)	0.3 - 248 4 - 3600	0.3 - 248 4 - 3600	0.3 - 248 4 - 3600	0.3 - 248 4 - 3600
Body material Aluminum Brass Stainless steel Soft seat	 X X	 X X	 X X	 X X X

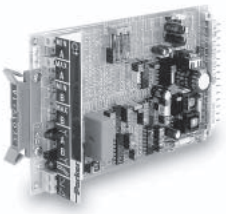
www.parker.com/hyd/electronics



Drivers – Proportional Directional Valves		
Series	**Description**	**Use with**
EW01104	Adjustable; Min, Max, 2 ramps, 1 external ramp	D1FW
PW**404	Adjustable; Min, Max, 2 ramps	D*FW, D*1FW
EW101	Adjustable; 4 commands, 2 ramps	D**FS
EW102	Basic driver	D**FS
EW104	Adjustable; Min, Max, 2 ramps	D**FS



Drivers – Proportional Pressure Control Valves		
ED101	Adjustable; 4 commands, 2 ramps	DSA/DWE/DWU
ED102	Basic driver	DSA/DWE/DWU
ED104	Adjustable; Min, Max, 2 ramps	DSA/DWE/DWU



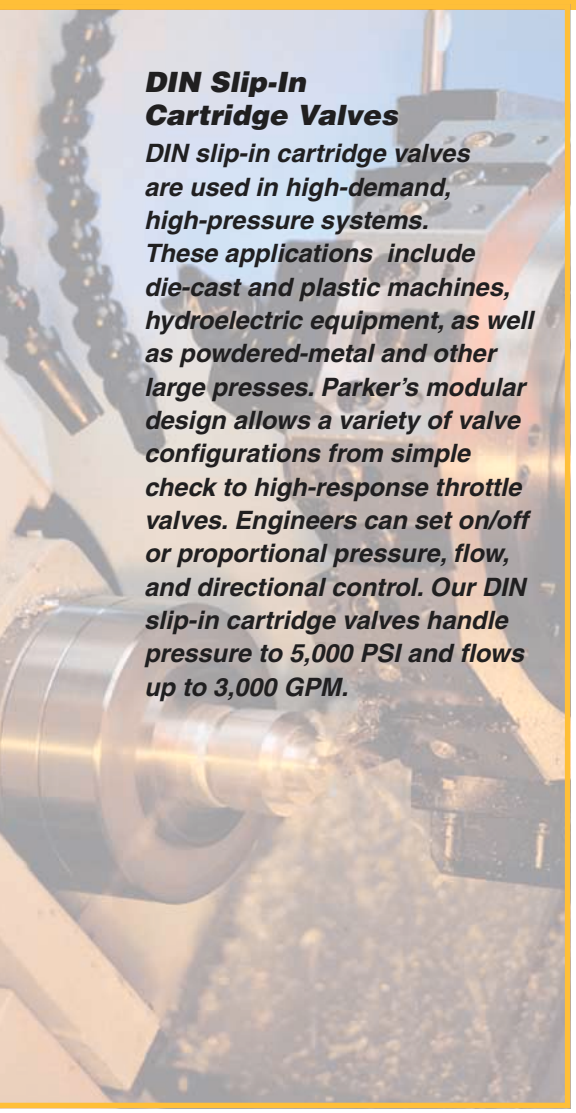
Drivers – Proportional Throttle Valves		
ET101	Adjustable; 4 commands, 2 ramps (“L” Solenoid)	TDA
ET102	Basic driver (“L” Solenoid)	TDA
ET104	Adjustable; Min, Max, 2 ramps (“L” Solenoid)	TDA
ET105	Adjustable; Min, Max (“L” Solenoid)	TDA
ET154	Adjustable, Min, Max (“M” Solenoid)	TDA

Drivers – Servovalves		
BD90/95	Closed loop, dual PID, snap track	BD
BD101	Closed loop, single PID, snap track	BD, D*FX, D*FH, D*FP

Auxiliary Function Cards		
EZ150	Adjustable; 6 commands, 7 ramps	Standard proportional control cards or valves with integrated electronics
EZ154	Adjustable; Min, Max, 2 ramps, 1 external ramp	
EZ155	Adjustable; 4 commands, 2 ramps, 1 external ramp	
EZ595	Closed loop PID, DIN card	

Power Supplies		
PS24	24 volt power supply	*FH, RE* valves; EW, ED, ET and EZ driver cards
PS15	±15 volt power supply	BD95, BD101-15

DIN Slip-In Cartridges



DIN Slip-In Cartridge Valves

DIN slip-in cartridge valves are used in high-demand, high-pressure systems. These applications include die-cast and plastic machines, hydroelectric equipment, as well as powdered-metal and other large presses. Parker's modular design allows a variety of valve configurations from simple check to high-response throttle valves. Engineers can set on/off or proportional pressure, flow, and directional control. Our DIN slip-in cartridge valves handle pressure to 5,000 PSI and flows up to 3,000 GPM.

DIN Slip-In Cartridges

- Available in sizes 16 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm
- Flows up to 17,000 LPM (4500 GPM)
- Maximum operating pressures up to 350 Bar (5000 PSI)
- Proportional throttle, relief and pressure controls
- Complete selection of pressure controls
- Variety of direct and pilot operated checks
- Directional controls to 7500 LPM (2000 GPM)

www.parker.com/hyd/din

	Proportional Throttle			Proportional Relief		Pressure Control		
Series	**TDA**	**TEA**	**TEH**	**DSA**	**RE**	**DSD**	**DSM**	**DSF**
Normal sizes (NG)	16 -100	25 - 100	25 - 100	16 - 63	16 - 63	16 - 63	16 - 63	16 - 40
Max operating pressure (PSI)	350 5075	350 5075	350 5075	350* 5075*	350* 5075*	350* 5075*	350* 5075*	350* 5075*

*Y port = 100 bar (1450 psi); any pressure at Y is additive to valve setting

Series	**C101**	**C10**	**C111**	**C121**	**C13DCC**	**C18DCC**	**C18**
Function	2-pos, 2-way	With poppet monitor switch	With poppet stroke limiter	With pilot valve interface	Active cartridge with poppet monitor switch	Active cartridge with dampening poppet & monitor switch	Active cartridge with dampening poppet
Normal sizes (NG)	16 -100	16 - 63	16 -100	16 -100	25 - 63	25 - 63	25 - 63
Max operating pressure (LPM) (GPM)	7000 1852	4000 1058	7000 1852	7000 1852	4000 1058	4000 1058	
Max operating pressure (Bar) (PSI)	350 5075		350 5075	350 5075	350 5075	350 5075	

Parker Hydraulic Valve wants to keep you informed. Listed below are connection opportunities for you to resource additional information or speak directly with the industry's most knowledgeable hydraulic valve professionals.

To order literature or locate a distributor by phone
1-800-C-Parker

For the latest hydraulic valve information
www.parker.com/hydraulicvalve

To locate your nearest hydraulic valve distributor
www.parker.com/hyd/distloc

For North America, Europe and rest of the world regional offices, ***see page 26***

For detailed product information Right Now!
Use the enclosed CD-ROM or the one-click Zip URLs

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Hydraulic Valve Division
520 Ternes Avenue
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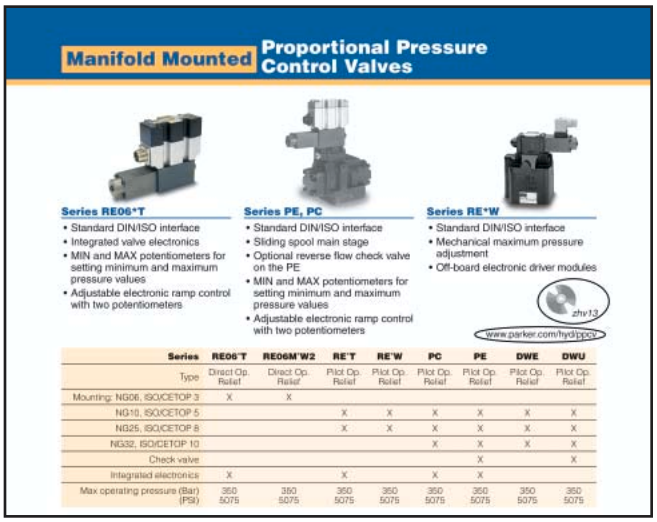

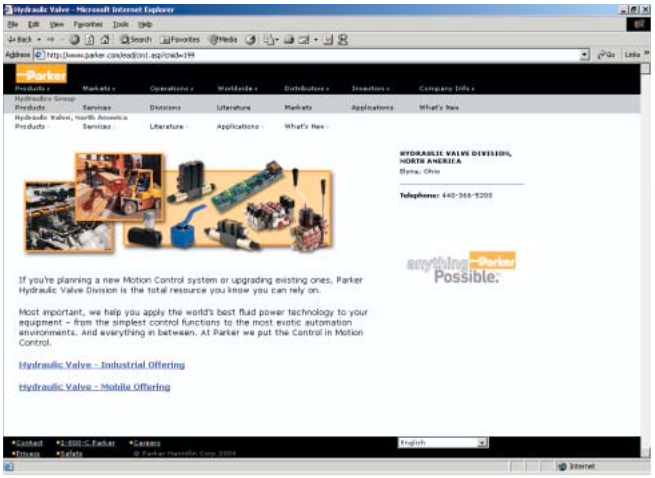

⚠ WARNING

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

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure, and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the full "Offer of Sale".

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Buena Park, CA 90621 USA
Tel: 714-228-2510

Eastern Region
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Parker Hannifin Africa Pty Ltd.
Kempton Park 1620,
Republic of South Africa
Tel: 27 11 9610700

System Requirements

To view the CD, the following are required:

- Pentium®-class processor
- Win® 95 OSR 2.0, Win 98 Sec. Ed., Win ME, Win NT 4.0 (with Service Pack 5 or 6), Win 2000 or Win XP
- 16 MB of RAM (32 recommended)
- 20 MB of available hard-disk space

Acrobat Reader

Catalog files are viewed using Adobe Acrobat Reader. If you do not have Acrobat Reader installed on your PC, it will install from the CD. If you have Acrobat Reader but do not have the search plug-in, you will be given the option to install Acrobat Reader 5.0 with search.

You must have the search plug-in to take advantage of the search feature described in the next section.

To View the CD

The CD is self-loading. Just place it in your CD drive. Acrobat Reader will open (or install), and the opening page will appear on your monitor. From this page you can navigate to the following sections.

- **Search** takes you to the search feature. When the search window opens, type a word(s) or code* and press enter. A list of pages where that word appears is shown. Select one and click the View button. Repeat as needed.
- **Contents** takes you to the selection of catalogs and products on the CD.
- **Product Overview** takes you to a .pdf file of this Industrial Hydraulic Valve Product Range.
- **Warning/Offer of Sale** takes you to these legal documents.
- **Getting Started** provides a summary of how to navigate using Acrobat Reader.
- **Contact Us** provides you with phone, fax and online information.

Text links are easily identified by blue type. The catalog files are fully bookmarked to make navigation quick and easy. Each catalog also has a bookmark which will take you to the Parker web home page for that division *if you are online while you are viewing the CD.* You must first enter your web browser information into the Acrobat preferences.

Use the CD search codes provided in this catalog to go directly to the section for that product.

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