

A collection of industrial hydraulic components, including solenoid valves and actuators, arranged on a white surface. A technical drawing is visible in the top left corner.

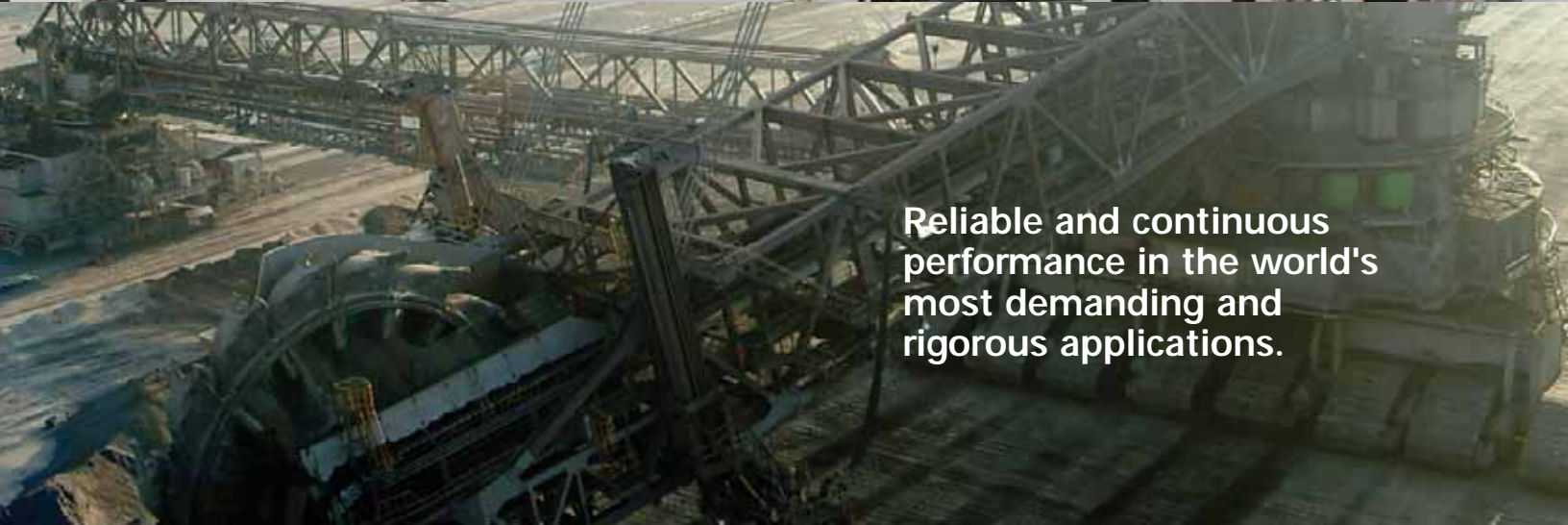
EATON

Vickers

A wide-angle photograph of a wind farm with numerous white wind turbines stretching across a flat landscape under a clear blue sky.

Industrial Valves

Marketing Catalog

A photograph of a construction site showing a large, complex steel framework for a building or industrial structure. The ground is uneven and there are some construction materials visible.

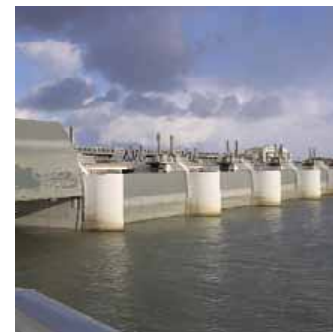
**Reliable and continuous
performance in the world's
most demanding and
rigorous applications.**

Demanding Applications Call for Eaton®

Valves to control machine functions, Cut, Groove, Bore, Clamp, Inject, Press, Form, or Lift, Dig, Haul... day in and day out, in both Industrial and Mobile applications. This is the work of Eaton Hydraulics products and systems, engineered for reliable and continuous performance in the world's most demanding and rigorous applications. Eaton industrial valve products provide our customers the competitive advantages required to win in the global market.

- Increased machine productivity
- Improved machine performance
- Extended machine durability & reliability
- Higher machine efficiency

Eaton control valves are preferred for many systems on both Industrial and Mobile equipment. Eaton industrial valve products provide excellent control, can handle harsh environments, and perform in tough applications with rigorous duty cycles.



Applications

PRIMARY MARKETS	SUBMARKETS	FORCE CONTROL	SPEED CONTROL	POSITION CONTROL
Machine Tools	Metal Cutting	X	X	X
	Material handling		X	X
Automotive	Assembly Parts	X	X	X
	Metal Cutting	X	X	X
	Foundry	X		X
	Plastics	X	X	X
Molding	Plastics	X	X	X
	Die Casting	X	X	X
	Rubber	X	X	X
	Foundry	X		X
	Ceramic	X	X	X
Metal Working	Press	X	X	X
	Baler	X	X	X
	Shear & Cutting	X	X	X
	Metal Forming	X	X	X
	Welding & Joining	X	X	X
Primary Metal	Ferrous	X	X	X
	Non-Ferrous	X	X	X
Processing	Wood Product	X	X	X
	Pulp & Paper	X	X	X
	Textile	X	X	X
	Chemical		X	X
	Glass & Ceramics	X	X	X
	Concrete and Aggregate	X	X	X
	Food	X	X	X
Natural Resources	Forest Product	X	X	X
	Petroleum			X
	Minerals	X	X	X
Power Generation	Hydro			X
	Fossil		X	X
	Nuclear			X
	Wind	X		X
	Geothermal			X
	Solar Radiation			X
Other Industrial	Entertainment		X	X
	Test & Simulation	X	X	X
	Medical Equipment	X	X	
	Non-Metal Working Machinery			
	Power Unit Builders	X	X	X
	Educational Institute			
Mobile	Off Shore/Marine		X	
	Conveyors	X	X	
	Construction Vehicle		X	X
	Crawler Vehicle		X	
	Cranes & Hoist	X	X	
	Agriculture		X	



Industrial Valve Families

- Directional Control Valve
- Proportional Valve
- Stackable Module Valve
- Slip-in Cartridge Valve
- Gasket Mounted Flow and Pressure Control Valves
- Flanged Mounted Valve
- Servo Valve

Industrial Valve Families



Directional Control Valves



DG valves mount on industry standard surfaces and provide 3 or 4-way control in a broad range of applications, industrial and mobile. Their primary function is to direct fluid flow to a cylinder or to control the direction of rotation of a hydraulic motor. These valves can be actuated by solenoid, hydraulic or pneumatic pilot, lever, or mechanically.

Benefits & Customer Values

- Complete function (type of actuation)
- Complete size range
- Wide variety of voltage & wattage
- Various electrical connection (for both Industrial & Mobile applications)

Specs

- Size - NG4-32 (D02-10)
- Rated pressure up to - 350 bar/5000 psi
- Rated flow up to - 1100 LPM/290 GPM

Proportional Valves



Technology continues to improve, so does the engineering Eaton builds into its proportional valves, that have both product breadth and width consisting of on board electronics (OBE) & non-OBE, full functionalities, complete sizes, different performance levels to meet various customers demands in Industrial and Mobile markets. With a wide range of markets serviced, our proportional valves are enabling truly creative solutions.

The KB family of proportional valves have integrated OBE with superior reliability and durability featuring digital electronics, IP67 environmental protection, reduced power consumption, valve enable, and ramp adjustment.

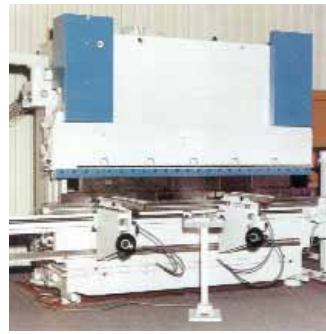
Benefits & Customer Values

- Less commission time (plug & play)
- Labor saving (less wiring)
- Improved machine up time
- Improved productivity and quality
- Higher automation level
- Easier serviceability

Specs

- Rated pressure up to - 350 bar/5000 psi
- Rated flow up to - 700 LPM/185 GPM
- Function - direction, pressure, flow
- Size - NG6-32 (D03-10)

Industrial Valve Families



SystemStak™ Modular Valves



These compact hydraulic systems feature modular valves that are “sandwich” mounted between a directional control valve and a standard mounting surface. All circuit flow paths are contained within the control valve and modules. These valves provide a compact hydraulic circuit at a reduced cost, eliminating interconnecting piping. Each valve “stack” can be configured to provide the specific system functions.

Benefits & Customer Values

- Design flexibility
- Reduced system space
- Cost-effective
- Versatile and easy to install
- Rugged and reliable
- Easy to service

Specs

- Size - NG4 - 8 (D02 - 08)
- Rated pressure up to - 315 bar/4500 psi
- Rated flow up to - 90 GPM/340 LPM)
- Function - relief, reducing, sequence, check, PO check, throttle, counterbalance

Slip-in Cartridge Valves



Typically associated with relatively high flows, i.e. 40 gpm or higher, slip-in cartridge valves are targeted at more efficient, faster and more compact hydraulic systems. Eaton cartridge valve system technology meets the changing needs of new generations of hydraulically operated machinery and equipment. Today's machines need controls that are exceptionally cost effective and energy efficient. Vickers cartridge valves fulfill these needs.

Benefits & Customer Values

- Space saving (smaller package size)
- Lowered installation costs
- More efficient operation
- Elimination of external leakage
- Greater contamination resistance
- System design flexibility
- Improved reliability

Specs

- Size - NG16-100
- Rated pressure up to - 350 bar/5000 psi
- Rated flow up to - 1300 GPM (5000 LPM)
- Function - pressure, direction, flow, and proportional

Flow Controls – Adjustable



Temperature and pressure compensated flow controls allow precise volumetric control.

Suitable for pressures up to 3600 psi, flow controls are available with (bypass type) or without (restrictor type) integral relief valves. Adjustable flow control valves are suited for applications requiring flow regulation without pressure compensation.

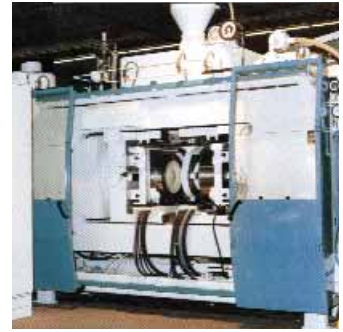
Benefits & Customer Values

- Consistent speed control
- Precise speed control
- Extremely low flow regulation capability

Specs

- Rated pressure up to - 315 bar/4500 psi
- Rated flow up to - 106 LPM/28 GPM

Industrial Valve Families



Pressure Control Valves



Pressure control valves perform pressure relieving, reducing, sequencing, and unloading control. Both subplate and in-line mounting types are available with various control types including remote, multiple pressure, and venting.

Benefits & Customer Values

- Choice of four adjustment control ranges
- Solenoid venting function
- Pressure override optimized
- Low off-load power wastage.
- Low installed cost and space

Specs

- Rated pressure up to - 350 bar/5000 psi
- Rated flow up to - 400 LPM/106 GPM

Servo Valves



These two-stage, four-way, flapper nozzle valves provide system closed loop control with exact positional accuracy, repeatable velocity, and predictable force (torque regulation).

Compared to Vickers SM4 servo valves, the SX4 offers extended frequency response for more demanding close loop applications.

Eaton also offers a **servo trade up program** with incentives for replacing competitors valves. The details of this program are published in Eaton brochure V-VLPO-MR003-E November 2005.

Benefits & Customer Values

- The wide range of sizes allows best suitability for application.
- Jeweled feedback ball receiver virtually eliminates the wear
- Jeweled orifices greatly extend the life
- Highly accurate control profiles
- Integral filter provides extra contamination protection

Specs

- Rated pressure up to - 350 bar/5000 psi
- Rated flow up to - 151 LPM/40 GPM
- Function - positioning, speed, and pressure
- Size - SM4/10 - 40; SX4/20

Flange Valve



Flange mounted valves are ruggedly designed for direct mounting to pump flange, which reduces potential leak points for superior leak resistance, shock resistance, reliability and long life.

Benefits & Customer Values




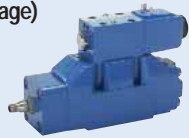



- Space saving
- Reduced installation costs (no piping)
- Reduced potential leak points (no piping)
- Easier installation and servicing
- High response due to small trapped volume

Specs

- Size SAE 3/4" - 1-1/2"
- Rated pressure up to - 350 bar/5000 psi
- Rated flow up to - 750 LPM/200 GPM
- Function - relief, unloading, check

Directional Control Valve Families



Size	Family Model Code	Description	Rated Pressure (Bar)	Rated Flow (LPM)	ACTUATION TYPE						COIL POWER				
					Solenoid operated	Hydraulic Operated	Air Operated	Lever/knob Operated	Roller/Cam Operated	Plunger Operated	Standard Power (W)	Low Power (W)	Super Low Power (W)		
D02	 D02	DG4V-02-10 Design	Solenoid operated	250	30	X						25	12		
		DG2V-2; DG17V-2, DG21V-2	Mechanical actuated	250	30				X	X	X				
D03	 D03	DG4V3S -60 Design	Solenoid operated	350	40	X						30			
		DG4V3 - 60 Design	Solenoid operated	350	80	X						30	18	8	
		DG4V3 - 70 Design	Solenoid operated	350	80	X						30	18	8	
		DG3/4VP-3	Solenoid operated	315	20	X						30			
		DG4V-3S, EN490	Solenoid operated	350	40	X						30			
		DG2V-3; DG3V-3; DG17V-3; DG18V-3; DG20V-3; DG21V-3	Mechanical actuated	350	80		X	X	X	X	X				
D05	 D05	DG4S4- 60 Design	Solenoid operated	250	95	X			X	X		45			
		DG4V4- 60 Design	Solenoid operated	315	115	X			X			45	30		
		DG4V5 -20 Design	Solenoid operated	315	120	X						42	32		
		DG1V4 & DG17V4	Mechanical actuated	315	115				X						
		DG2S2; DG16S2;	Mechanical actuated	210	76				X	X	X				
D05 (two-stage)	 D05 (two-stage)	DG3V5; DG5V-5	Solenoid/pilot operated	315	160	X	X					30	18	8	
		DG5S4-02	Solenoid operated	210	115	X						30	18		
		DG3S4-02	Pilot operated	210	115		X								
D07 (two-stage)	 D07 (two-stage)	DG3V7; DG5V-7	Solenoid/pilot operated	350	300	X	X					30	18	8	
		DG5S4-04	Solenoid operated	210	230	X						30	18		
		DG3S4-04	Pilot operated	210	230		X								
D08 (two-stage)	 D08 (two-stage)	DG3V-8; DG5V-8	Solenoid/pilot operated	350	700	X	X					30	18	8	
		DG3S-8; DG5S-8	Solenoid/pilot operated	210	380	X	X					30	18		
		DG17S-8	Mechanical actuated	210	380				X						
		DG17V-8	Mechanical actuated	350	700				X						
D10 (two-stage)	 D10 (two-stage)	DG3V10; DG5V-10	Solenoid/pilot operated	350	1100	X	X					30	18	8	
		DG17V-10	Mechanical actuated	350	1100				X						



COIL VOLTAGE										ELECTRICAL CONNECTION										FEATURES									
110V AC 50Hz	120V AC 60 Hz	220V AC 50 Hz	240V AC 60 Hz	12 VDC	18 VDC	24VDC	48VDC	98/110/220V DC	DIN Plug	Conduit Box	Receptacle Plug	M12 (4/5 pin)	Flying Leads	Spade	AMP	Packard Weatherpak	Deutsch	Integrated Deutsch	Explosion Proof	Surge Suppressor	Spool Position Switch	Light (wiring box option)	Soft Shift	Stroke Limiter	Others				
				X	X	X		X	X		X		X																
				X	X	X		X	X		X		X																
X	X	X	X	X	X	X		X	X	X	X	X	X							X		X							
X	X	X	X	X	X	X		X	X	X	X	X	X					X	X	X	X	X	X						
						X						X								X		X				OBE & IP 67			
X	X	X	X	X	X	X														X		X				Poppet spool			
				X		X			X				X	X	X	X	X			X		X				Mobile Spec.			
X	X	X	X	X	X	X		X	X	X	X	X										X	X						
X	X	X	X	X	X	X		X	X	X	X	X				X			X		X	X							
X	X	X	X	X	X	X		X	X			X		X							X	X							
X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X				
X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X				
																										Stainless Steel handle			
X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X				

Eaton
14615 Lone Oak Road
Eden Prairie, MN 55344
USA
Tel: 952 937-9800
Fax: 952 974-7722
www.hydraulics.eaton.com



Vickers

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