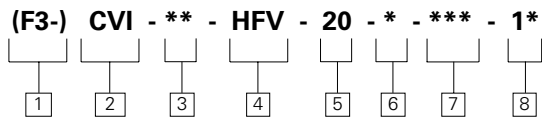


Model Codes Valvistor® Proportional Throttle Valves



1 Seal Material

F3 - Seals for phosphate esters or chlorinated hydrocarbons. Omit for all other fluid types.

2 Model

CVI - Cartridge valve insert

3 Nominal size to ISO 7368 (DIN 24342)

- 16 - 06 (NG16)
- 25 - 08 (NG25)
- 32 - 09 (NG32)
- 40 - 10 (NG40)
- 50 - 11 (NG50)
- 63 - 12 (NG63)

4 Flow direction

HFV - Hydraulic feedback, Valvistor

5 Area ratio

20 - 1:2 area ratio

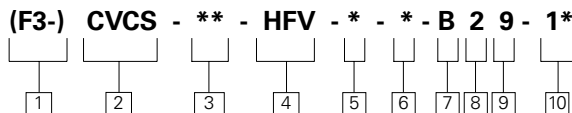
6 Flow direction

A - For flow A to B
B - For flow B to A

7 Flow capacity at p = 10 bar (145 psi)

Size/Flow Direction	Code	L/min	USgpm
16A	21	210	55
16B	21	210	55
25A	40	405	107
25B	32	320	107
32A	63	630	166
32B	63	630	166
40A	90	900	238
40B	81	900	238
50A	130	1305	345
50B	130	1305	345
63A	216	2160	571
63B	216	2160	571

Valvistor Throttle Covers (Suitable for flows A to B and B to A)



1 Fluid compatibility

F3 - Seals for phosphate esters or chlorinated hydrocarbons. Omit for all other fluid types.

2 Model

CVCS - Cartridge valve cover to ISO 7368

3 Nominal size to ISO 7368 (DIN 24342)

- 16 - 06 (NG16)
- 25 - 08 (NG25)
- 32 - 09 (NG32)
- 40 - 10 (NG40)
- 50 - 11 (NG50)
- 63 - 12 (NG63)

4 Type

HFV - Hydraulic feedback, Valvistor

5 Size 3 pilot valve mounting bolts

1 - Imperial threads
3 - Metric threads

6 Control option

W - Mainstage Valvistor without free reverse flow. Omit for standard mainstage Valvistor with free reverse flow capability

7 Thread/seal combination

B - G (BSPF) threads for gage ports; metric threads for orifices (only available when "3" specified at position 5)

8 Seals

2 - Inch O-ring seals to ISO 3601

9 Mounting bolts

Sizes 16-40 only
9 - Metric mounting bolts supplied as standard when "B" (BSPF threads) specified at position 7 Omit for sizes 50 and 63

10 Design number, 1* series

Subject to change. Installation dimensions unaltered for design numbers 10 to 19.

Pilot Valve

For operation with 12V control system:
K(B)(F)TG4V-3S2B 08N-(V)M-*** **
*(1)**G5-60-EN427**

For operation with 24V control system:
K(B)(F)TG4V-3S2B 08N-(V)M-*** **
*(1)**H5-60-EN427**

For full technical details of this valve including types of electrical connections, see Eaton's Vickers Slip-in Cartridge Valve Catalog.

Operating Data

Data is typical with fluid at 36 cSt (168 SUS) and 50C (122F).

Maximum pressure	350 bar (5000 psi)					
Flow ratings	See model code (CVI)					
Controlled flow characteristics	See graphs on pages 83 and 84					
Pressure drop, free return flow	See graphs on page 85					
Dynamic performance:	06	08	09	10	11	12
Step input ▲ response at p = 10 bar (145 psi)	(NG16)	(NG25)	(NG32)	(NG40)	(NG50)	(NG63)
Opening time (ms)	50	85	130	240	280	340
Closing time (ms)	40	60	85	130	200	300
Hysteresis ▲	<8%	<8%	<8%	<8%	<8%	<8%
Repeatability ▲	<3%	<3%	<3%	<3%	<3%	<3%
Area ratio (all sizes)	2:1					
Hydraulic fluids	See page 17					
Temperature limits	See page 17					
Filtration and viscosity requirements	See page 19					
Mounting bolts and assembly torques	See page 120					
Seal kits	See page 122					
Mass	See page 126					

▲ Data quoted with KTG4V-3S---60-EN427 as pilot valve, driven by EEA-PAM-523-A-32 (Economic Performance)

▲ For standard & high performance and On-Board-Electronics (OBE) options, see "Valvistor line extension" on page 87.

Pilot Valve Electrical Data

Full performance data and model code breakdown can be found in Eaton's Vickers Slip-in Cartridge Valve Catalog.

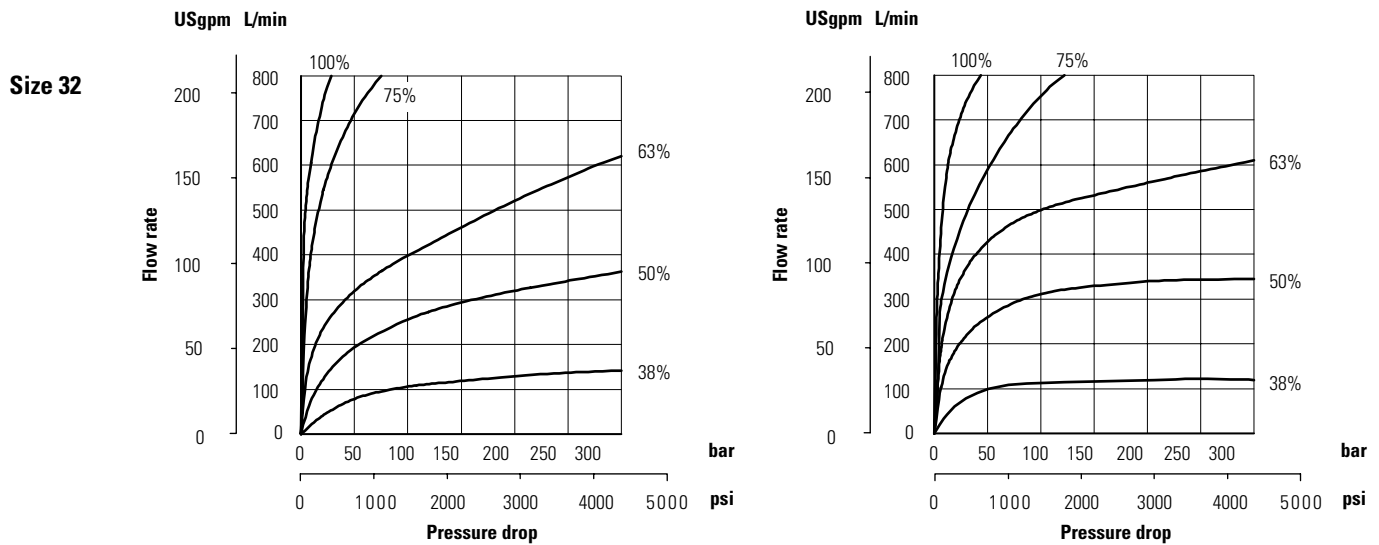
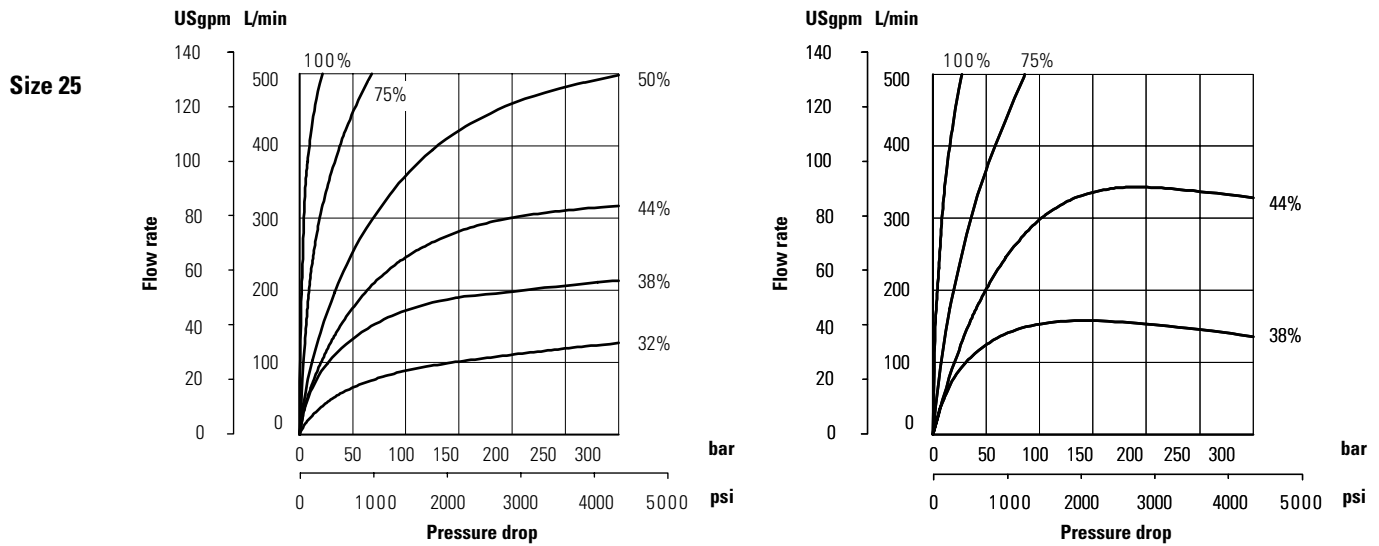
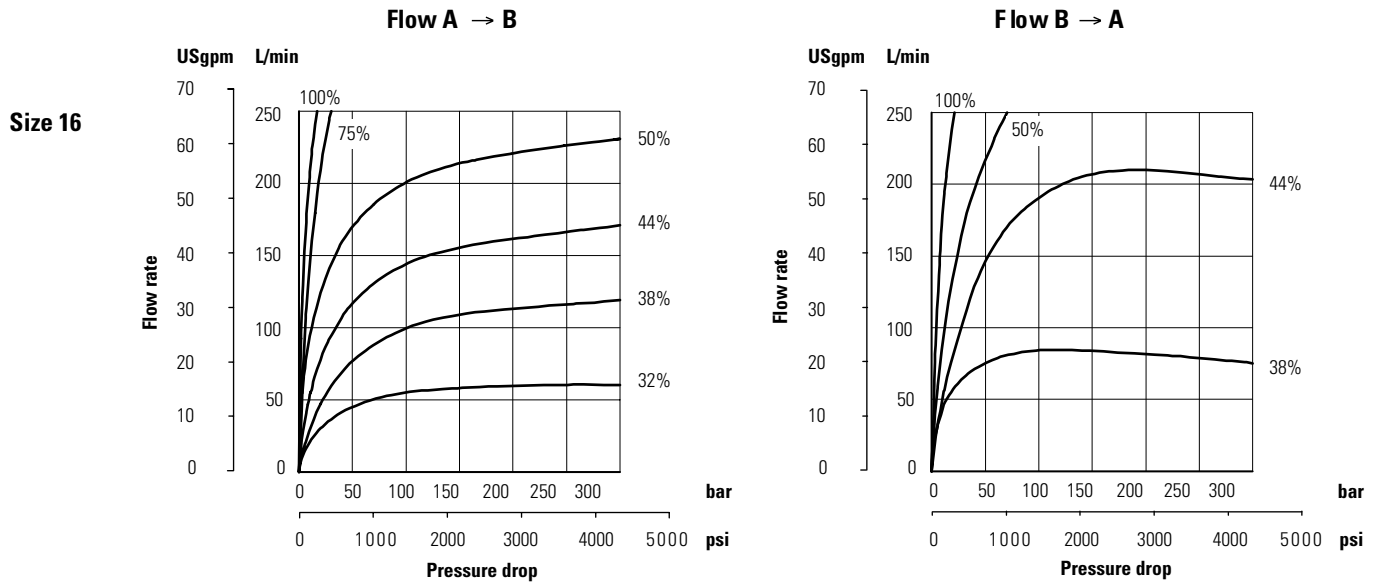
Type	KTG4V-3S---60-EN427 (denotes special spool)	
Max. current at 50°C (122F)	Coil type	
	G	H
	3.2A	1.6A
Coil resistance at 20°C (68F)	1.8 ohms	7.3 ohms
Coil inductance at 1000 Hz	7.5 mH	29 mH
Relative duty factor	Continuous rating (ED = 100%)	
Electrical protection with plugs fitted correctly	IEC 947 class IP65	
Recommended amplifier	EEA-PAM-523-A-32	

▲ For standard & high performance and On-Board-Electronics (OBE) options, see "Valvistor line extension" on page 87.

Performance Characteristics

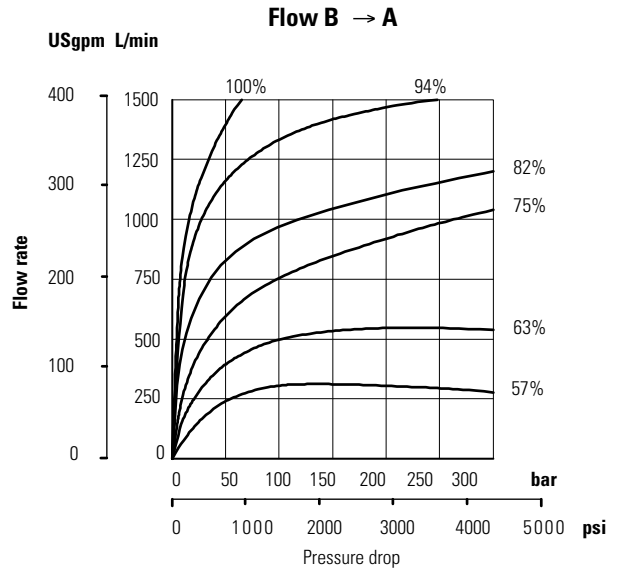
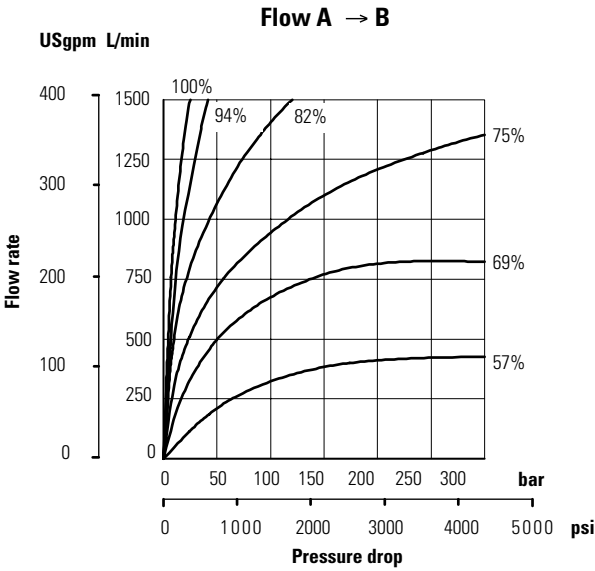
The graphs on the following two pages show typical flow characteristics for different values of input current to pilot valve plotted against flow rate and valve pressure drop. They are based on a standard HFV insert and cover with a KTG4V-3S---EN427 pilot valve. A minimum pressure drop of 5 bar (72 psi) is recommended. Higher pressure drops result in improved control.

Flow/Pressure Drop vs Solenoid Current (% of max.)

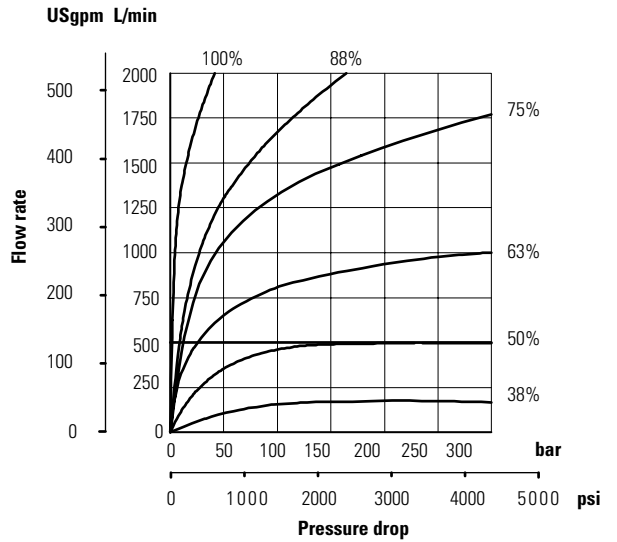
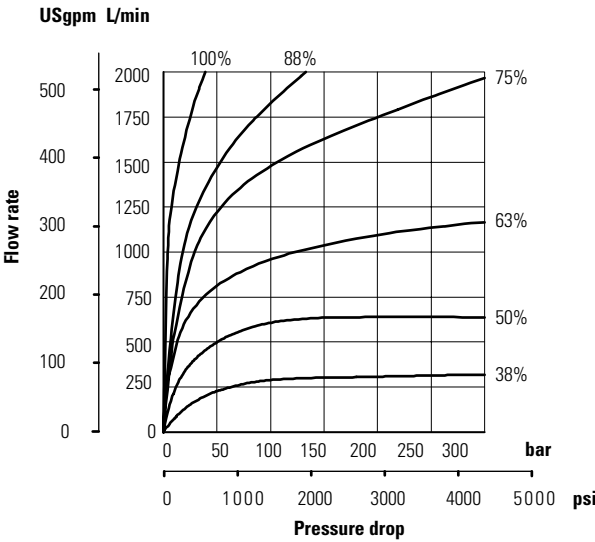


Flow/Pressure Drop vs Solenoid Current (% of max.)

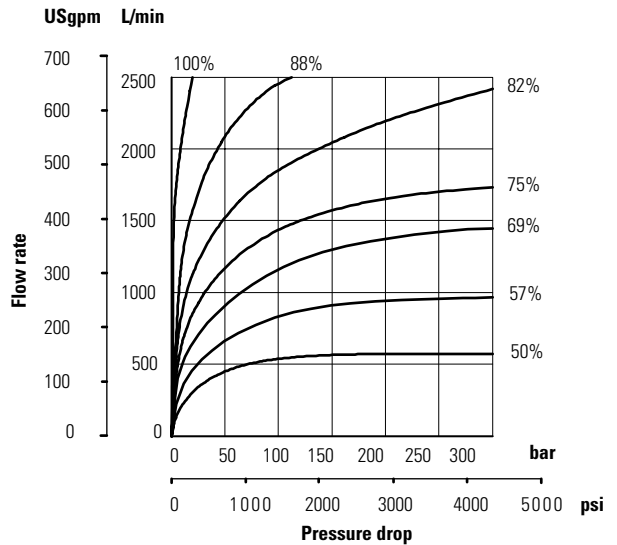
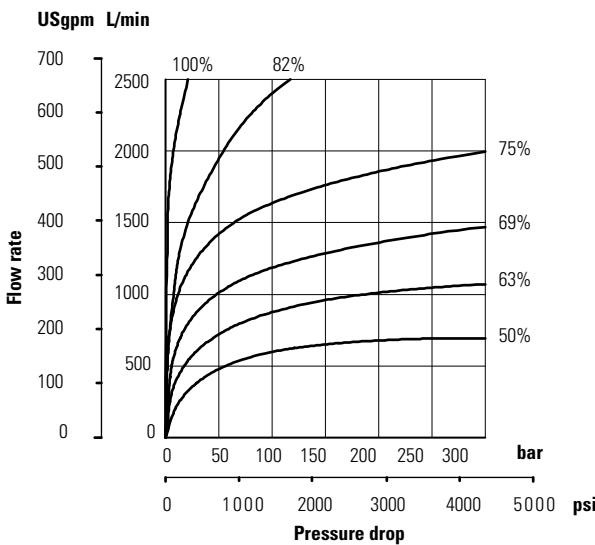
Size 40



Size 50



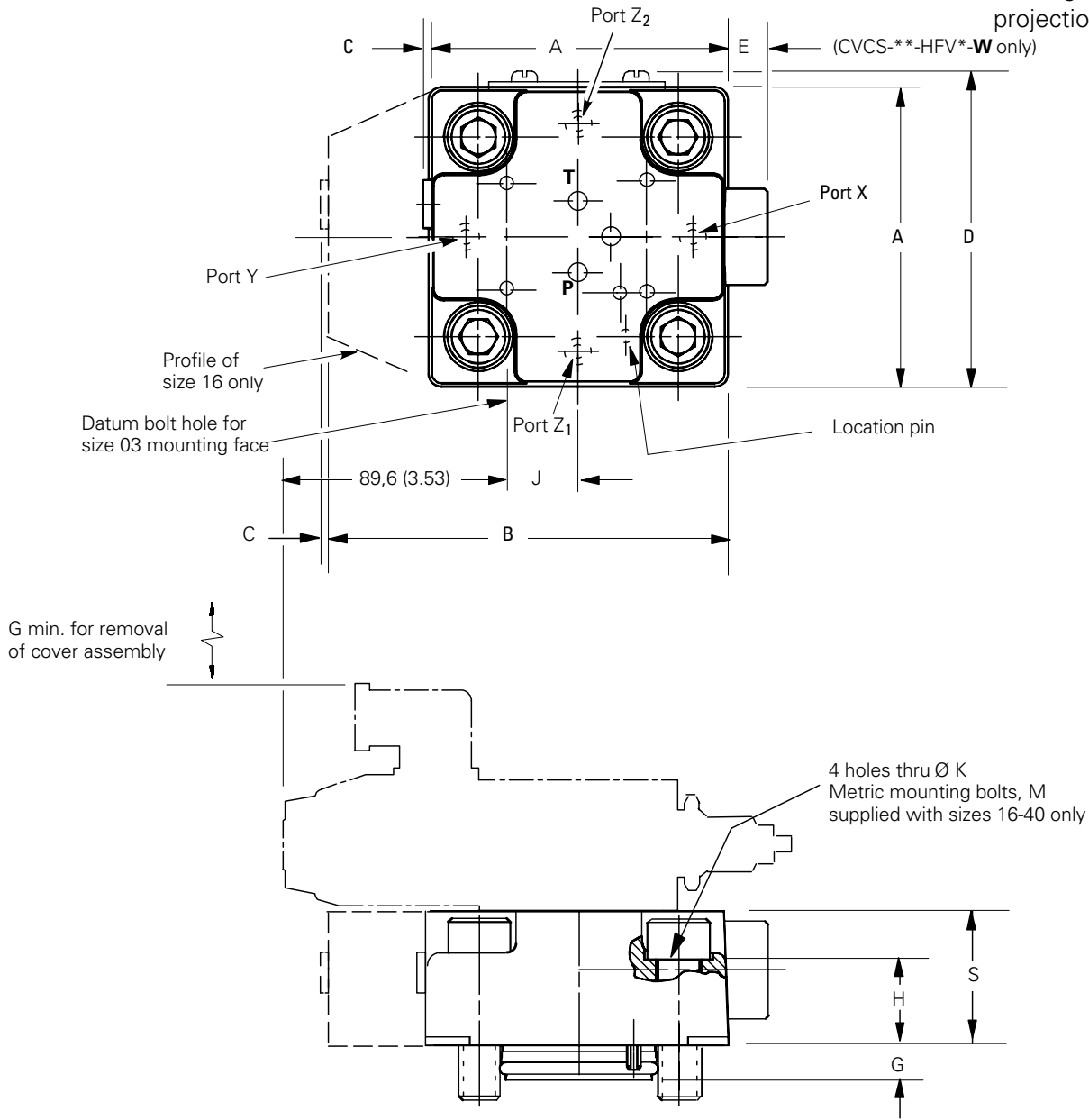
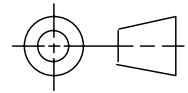
Size 63



Installation Dimensions in mm (inches)

CVCS-**-HFV*

3rd angle projection



Valve Size	A sq.	B	C max.	D	E max.	G	H	J	Ø K (K dia.)	M Mounting Bolts (supplied)	S
16	66,0 (2.6)	85,5 (3.36)	4,5 (0.18)	68,5 (2.7)	14,5 (0.57)	8,0 (0.32)	36,0 (1.42)	32,50 (1.28)	8,75/9,25 (0.344/0.364)	M8 x 50 cap hd. screw	48,0 (1.89)
25	86,0 (3.38)	– (0.14)	3,5 (3.5)	88,5 (0.53)	13,5 (0.42)	10,5 (0.98)	25,0 (0.82)	20,75	13,75/14,25 (0.541/0.561)	M12 x 40 cap hd. screw	39,0 (1.54)
32	102,5 (4.0)	–	3,5 (0.14)	104,5 (4.2)	13,5 (0.53)	13,0 (0.52)	30,0 (1.18)	21,50 (0.85)	17,75/18,25 (0.699/0.718)	M16 x 55 cap hd. screw	48,0 (1.89)
40	126,0 (5.0)	–	2,0 (0.08)	128,5 (5.1)	11,0 (0.43)	15,0 (0.59)	35,0 (1.38)	21,50 (0.85)	21,75/22,25 (0.856/0.875)	M20 x 60 cap hd. screw	58,0 (2.28)
50	142,5 (5.6)	–	4,5 (0.18)	145,0 (5.7)	0 (0)	18,0 (0.71)	42,0 (1.66)	21,50 (0.85)	21,75/22,25 (0.856/0.875)	–	68,0 (2.68)
63	183,0 (7.2)	–	4,5 (0.18)	185,5 (7.3)	0 (0)	20,0 (0.79)	48,0 (1.89)	21,50 (0.85)	32,75/33,25 (1.289/1.309)	–	83,0 (3.27)

Valvistor® Line Extension

Proportional Slip-in Cartridge Valve, Flow Control
 K(B)TG4V-3 Pilot Stage K(B)FTG4V-3 Pilot Stage

Eaton's Vickers® line is now extended with the addition of K(B)TG4V-3 and K(B)FTG4V-3 pilot stage proportional valves. The new features and benefits of the higher performance and on-board electronics (OBE) open up new applications and markets. The valves piloted with K(B)FTG4V-3 offer performance that is close to conventional feedback valves. As its name implies, the Valvistor design has a main poppet valve that amplifies a low flow rate through the pilot circuit, similar to a transistor. This innovative design achieves servo-type control of the main poppet, without using an electrical main poppet position feedback transducer on the Slip-in cartridge valve.

Features and benefits of the new valves include:

- Integral hydraulic feedback on main stage — Closed loop, main-stage performance is achieved without using a main-stage LVDT.
- Pilot stage selected to meet specific requirements — Cost-effective design results in design flexibility.
- Pilot flow is directed to the load — Higher flow efficiency is achieved since the flow is not wasted to the tank.
- IP65 and IP67 environmental protection rated best in class — More reliable performance in harsh environments.
- On board ramp adjustment on KBTG pilot.

Applications include injection and blow molding, rubber molding, press, die-casting, offshore, civil engineering, marine, primary metal, and mobile applications. The tables below show existing Valvistor configurations and the new extended configurations with K(B)TG4V-3 and K(B)FTG4V-3 as pilot valves.



High Performance

Pilot Valve Model Code & Part Number	Extended Configuration		Extended Configurations	
	Non-OBE Valve KFTG4V-3-2B13N-Z-M-U-H7-10, 506834		OBE Valve KBFTG4V-3-2B13N-Z-M1-PE7-H7-11, 5996165-001 KBFTG4V-3-2B13N-Z-M2-PE7-H7-11, 5996350-001	
Step Response (ms) Delta P Tested	Open 10 bar	Close 10bar	Open 10bar	Close 10bar
NG16	51	33	35	25
NG25	88	50	50	30
NG32	135	71	70	45
NG40	249	108	130	65
NG50	290	167	170	100
NG63	352	250	200	150
Hysteresis	1%	1%	1%	1%

Notes Valvistor full flow reached at around 70% command input of K(B)F with 13N spool. For M2 version, the command input range is 4-12ma, valve is fully open at 4ma, and fully closed at 12ma.

Standard Performance

	Extended Configuration		Extended Configurations	
Pilot Valve	Non-OBE Valve		OBE Valve	
Model Code & Part Number	KTG4V-3-2B08N-M-U-H7-60-EN427, 02-398752 Other configurations available. Contact Eaton		KBTG4V-3-2B08N-M1-PE7-H7-10-EN427, 02-398750 KBTG4V-3-2B08N-M2-PE7-H7-10-EN427, 02-398751	
Step Response (ms)	Open	Close	Open	Close
Delta P Tested	10 bar	10 bar	10 bar	10 bar
NG16	50	40	38	24
NG25	85	60	66	36
NG32	130	85	101	51
NG40	240	130	186	78
NG50	280	200	217	120
NG63	340	300	264	180
Hysteresis	<5	<5	<5	<5

Notes: For M2 version, the command input range is 4-12ma, valve is fully open at 4ma, and fully closed at 12ma.

Economical Solution

	Extended Configuration		Extended Configurations	
Pilot Valve	Non-OBE Valve		OBE Valve	
Model Code & Part Number	KTG4V-3S-2B08N-M-U-H5-60-EN427, 02-154581 Other configurations available. Contact Eaton		KBTG4V-3S-2B08N-M1-PE7-H5-10-EN427, 02-397168 KBTG4V-3S-2B08N-M2-PE7-H5-10-EN427, 02-398753	
Step Response (ms)	Open	Close	Open	Close
Delta P Tested	10 bar	10 bar	10 bar	10 bar
NG16	50	40	38	24
NG25	85	60	66	36
NG32	130	85	101	51
NG40	240	130	186	78
NG50	280	200	217	120
NG63	340	300	264	180
Hysteresis	<8%	<8%	<8%	<8%

Notes: For M2 version, the command input range is 4-12ma, valve is fully open at 4ma, and fully closed at 12ma.

Released Part Numbers

Model Code	Assembly Number	Model Code	Assembly Number
CVCS-16-HFV3-B29-10	02-310565	CVI-16-HFV-20-A-21-10	02-310564
CVCS-16-HFV3-W-B29-10	02-312336	CVI-16-HFV-20-B-21-10	02-310563
CVCS-25-HFV3-B29-10	02-157809	CVI-25-HFV-20-A-43-10	02-157670
CVCS-25-HFV3-W-B29-10	02-157811	CVI-25-HFV-20-B-32-10	02-157741
CVCS-32-HFV3-B29-10	02-310641	CVI-32-HFV-20-A-63-10	02-310643
CVCS-32-HFV3-W-B29-10	02-312335	CVI-32-HFV-20-B-63-10	02-310642
CVCS-40-HFV3-B29-10	02-157212	CVI-40-HFV-20-A-90-10	02-157234
CVCS-40-HFV3-W-B29-10	02-312121	CVI-40-HFV-20-B-81-10	02-157233
CVCS-50-HFV3-B2-10	02-311957	CVI-50-HFV-20-A-130-10	02-312101
CVCS-50-HFV3-W-B2-10	02-311959	CVI-50-HFV-20-B-130-10	02-312102
CVCS-63-HFV3-B2-10	02-311958	CVI-63-HFV-20-A-216-10	02-311063
CVCS-63-HFV3-W-B2-10	02-311960	CVI-63-HFV-20-B-216-10	02-311062
F3-CVCS-16-HFV3-W-B29-10	02-358045		
F3-CVCS-25-HFV3-W-B29-10	02-319363		