

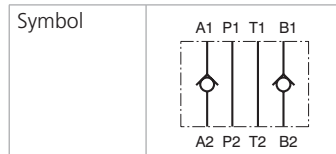


**Technical Features**

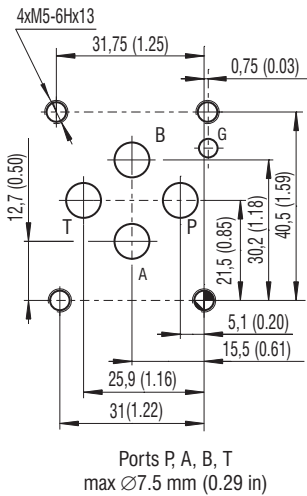
- › Poppet-type check valve with subplate mounting interface acc. to ISO 4401, DIN 24340 (CETOP 03)
- › Sandwich plate design for use in vertical stacking assemblies
- › Leak-free closing in one or two service ports, suitable for fast cycling with long life
- › Sharp-edged steel seats for dirt-tolerant performance
- › High flow capacity
- › Optional bias spring ranges for back-pressure control
- › In the standard version, the valve housing is phosphated and steel parts are zinc-coated for 240 h protection acc. to ISO 9227

**Functional Description**

These check valves in sandwich plate design allow flow in one and prevent flow in the other direction. The sandwich design enables vertical stacking with other components of the same size. The check valves can be built into one or two channels, the other passages are unobstructed. The cracking pressure depends on the selected bias spring.



**ISO 4401-03-02-0-05**



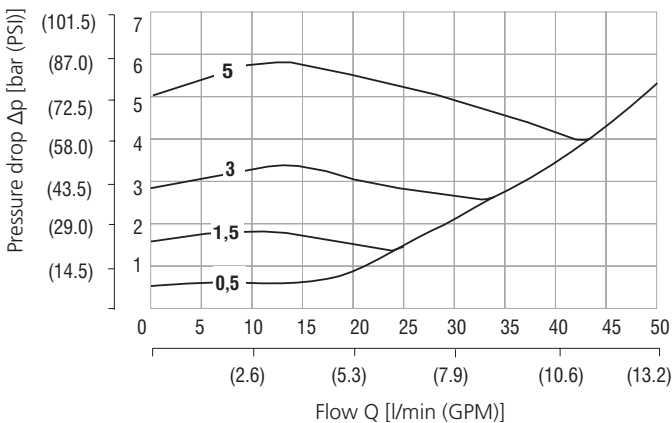
**Technical Data**

Valve size	06 (D03)				
Max. flow	l/min (GPM)	50 (13.2)			
Max. operating pressure	bar (PSI)	350 (5080)			
Cracking pressure	bar	0.5	1.5	3	5
	(PSI)	(7.3)	(21.8)	(43.5)	(72.5)
Fluid temperature range (NBR)	°C (°F)	-30 .... +100 (-22 ... +212)			
Fluid temperature range (FPM)	°C (°F)	-20 .... +120 (-4 ... +248)			
Mass	kg (lbs)	0.8 (1.76)			

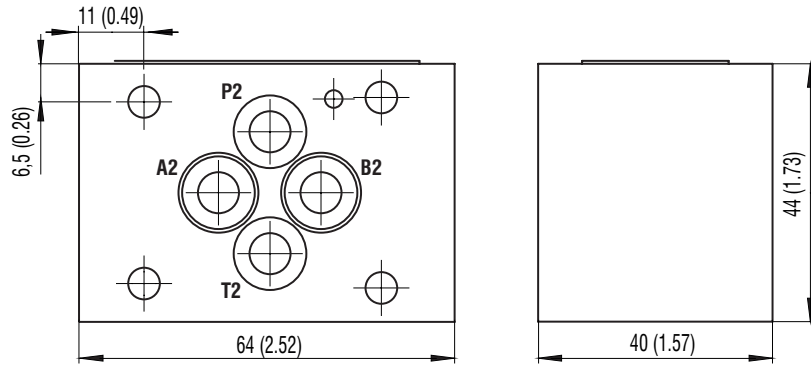
	Datasheet	Type
General information	GI_0060	Products and operating conditions
Mounting interface / Tolerances	SMT_0019	Size 06
Spare parts	SP_8010	

**Characteristics** measured at  $v = 32 \text{ mm}^2/\text{s}$  (156 SUS)

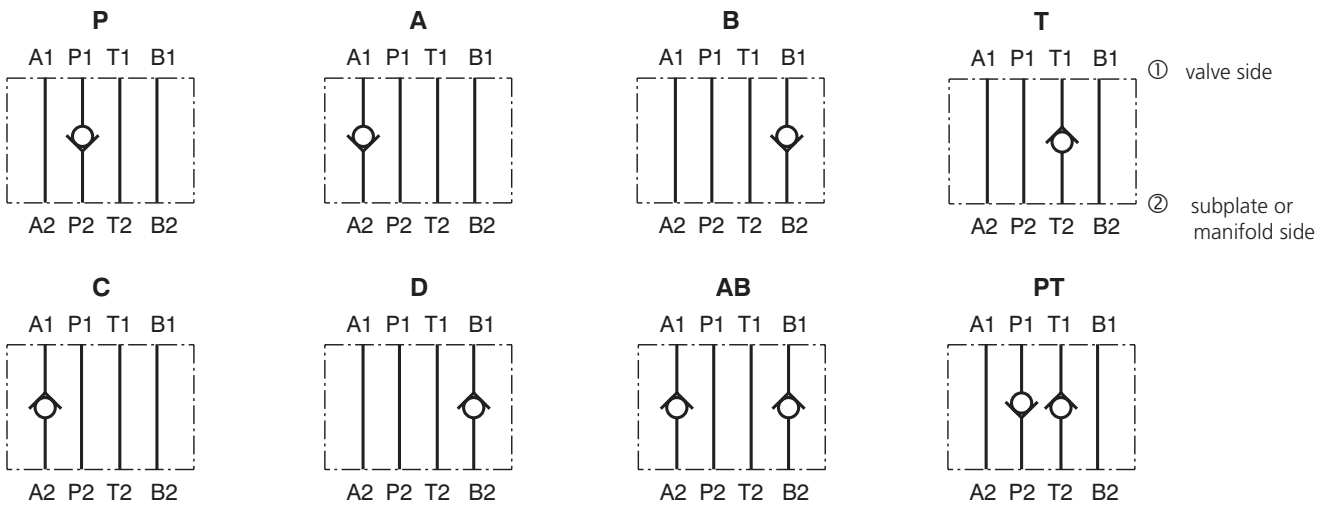
**Pressure drop related to flow rate**



**Dimensions** in millimeters (inches)

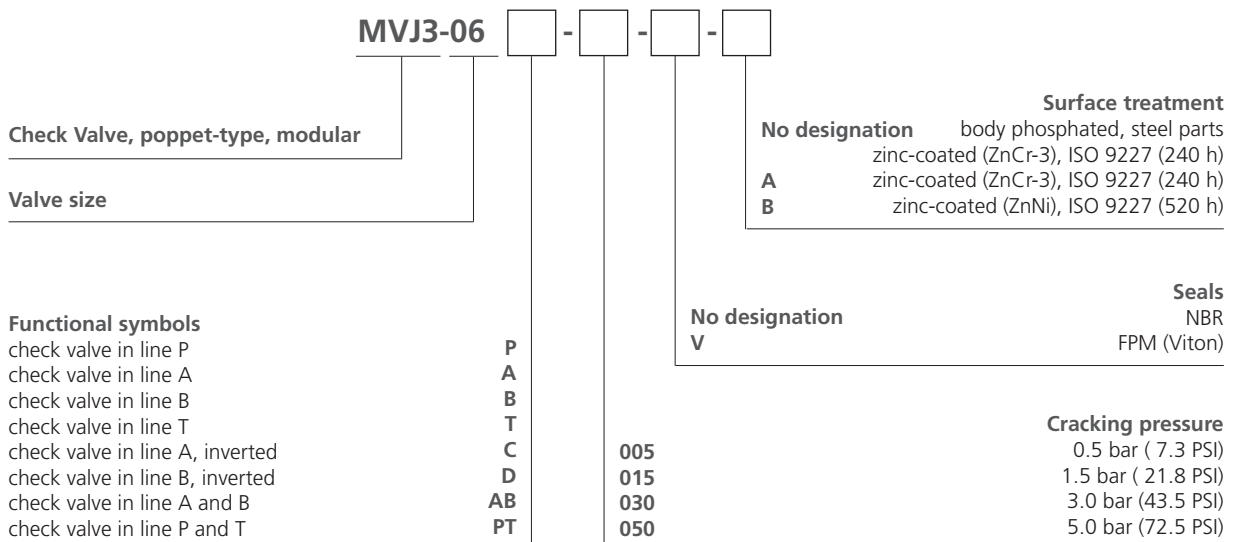


**Functional Symbols**



**Note:** The orientation of the symbol on the name plate corresponds with the valve function.

**Ordering Code**



# MVJ3-10

Size 10 (D 05) •  $Q_{max}$  100 l/min (26 GPM) •  $p_{max}$  350 bar (5100 PSI)

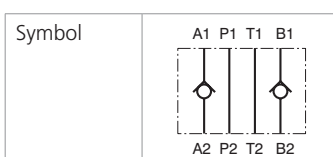


## Technical Features

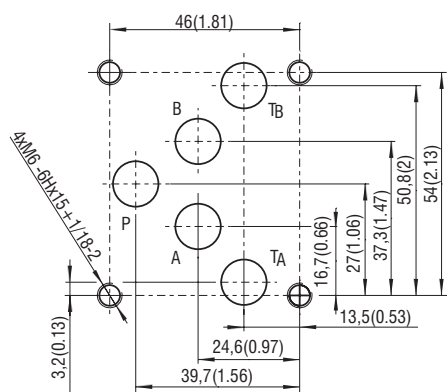
- › Poppet-type check valve with subplate mounting interface acc. to ISO 4401, DIN 24340 (CETOP 05)
- › Sandwich plate design for use in vertical stacking assemblies
- › Leak-free closing in one or two channels, suitable for fast cycling with long life
- › Sharp-edged steel seats for dirt-tolerant performance
- › High flow capacity
- › Optional bias spring ranges for back-pressure control
- › In the standard version, the valve housing is phosphated and steel parts are zinc-coated for 240 h protection acc. to ISO 9227

## Functional Description

These check valves in sandwich plate design allow flow in one and prevent flow in the other direction. The sandwich design enables vertical stacking with other components of the same size. The check valves can be built into one or two channels, the other passages are unobstructed. The cracking pressure depends on the selected bias spring.



ISO 4401-05-04-0-05



Ports P, A, B, T  
max  $\varnothing$ 11.2 mm (0.44 in)

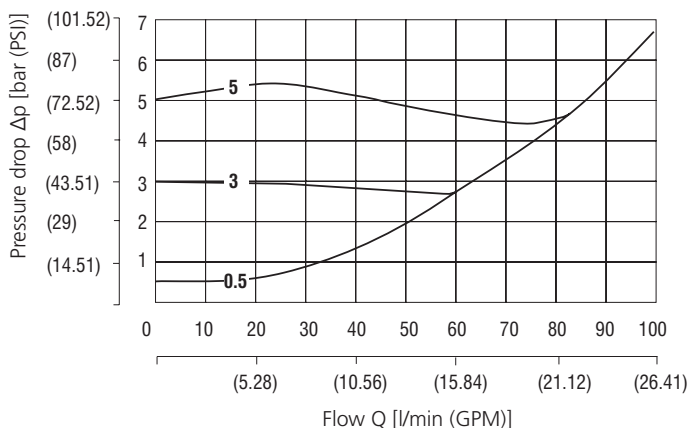
## Technical Data

Valve size	10 (D05)		
Max. flow	l/min (GPM)	100 (26.4)	
Max. operating pressure	bar (PSI)	350 (5080)	
Cracking pressure	bar (PSI)	0.5 (7.3)	3 (43.5) 5 (72.5)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... +212)	
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... +248)	
Mass	kg (lbs)	2.25 (4.96)	

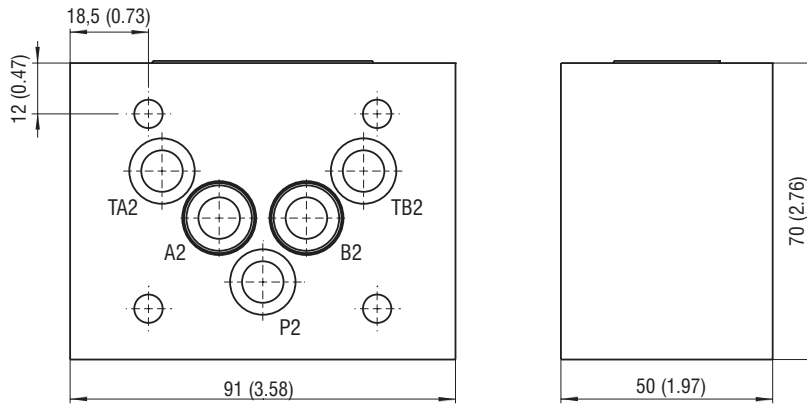
	Datasheet	Type
General information	GI_0060	Products and operating conditions
Mounting interface / Tolerances	SMT_0019	Size 10
Spare parts	SP_8010	

## Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

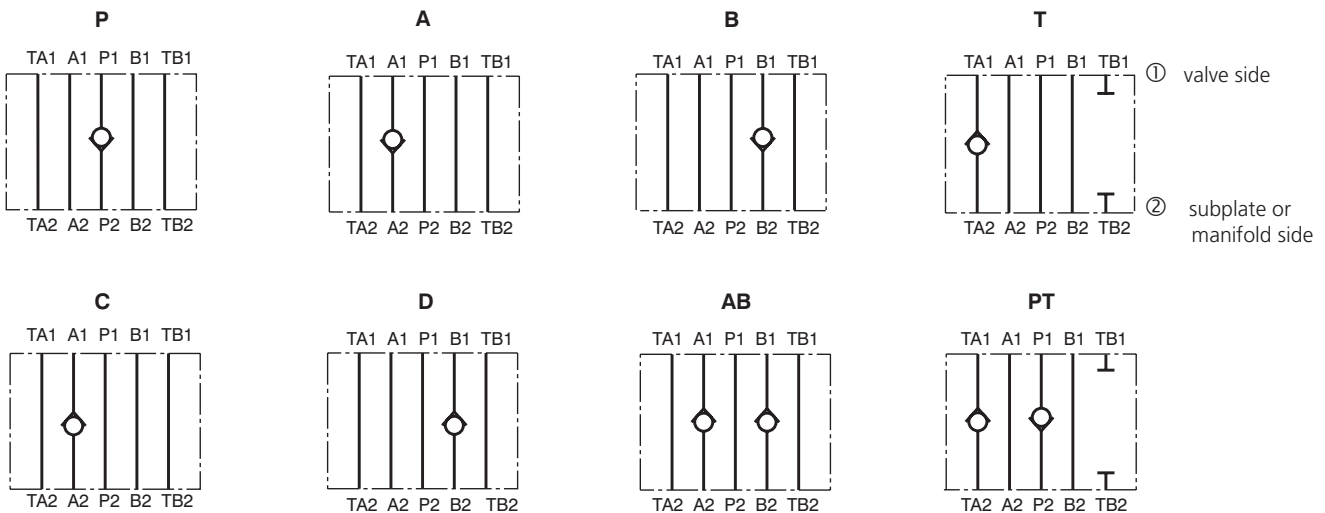
### Pressure drop related to flow rate



**Dimensions** in millimeters (inches)

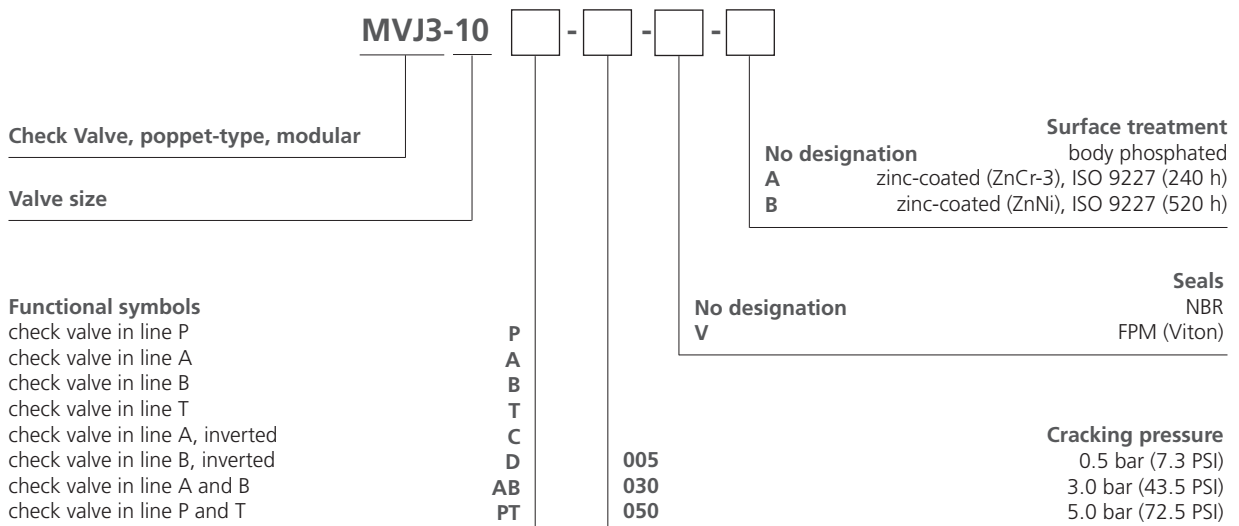


**Functional Symbols**



**Note:** The orientation of the symbol on the name plate corresponds with the valve function.

**Ordering Code**



# VJO1-04/M

Size 04 (D02) •  $Q_{max}$  30 l/min (8 GPM) •  $p_{max}$  320 bar (4600 PSI)

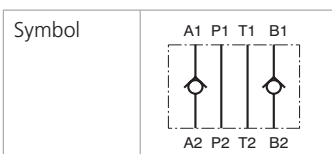


## Technical Features

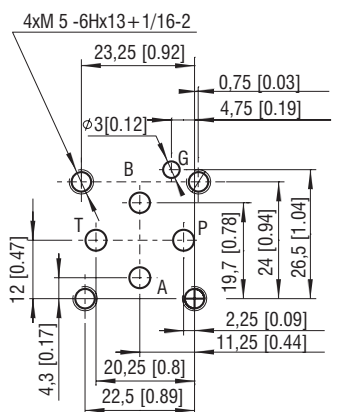
- › Poppet type check valve with subplate mounting interface acc. to ISO 4401, DIN 24340 (CETOP 02)
- › Sandwich plate design for use in vertical stacking assemblies
- › Leak-free closing in one or two channels, suitable for fast cycling with long life
- › Sharp-edged steel seats for dirt-tolerant performance
- › High flow capacity
- › Optional bias spring ranges for back-pressure control
- › In the standard version, the valve housing is phosphated and steel parts are zinc-coated for 240 h protection acc. to ISO 9227

## Functional Description

These check valves in sandwich plate design allow flow in one and prevent flow in the other direction. The sandwich design enables vertical stacking with other components of the same size. The check valves can be built into one or two channels, the other passages are unobstructed. The cracking pressure depends on the selected bias spring.



## ISO 4401-02-01-0-05



Ports P, A, B, T max  $\varnothing$ 4.5 mm (0.18 in)

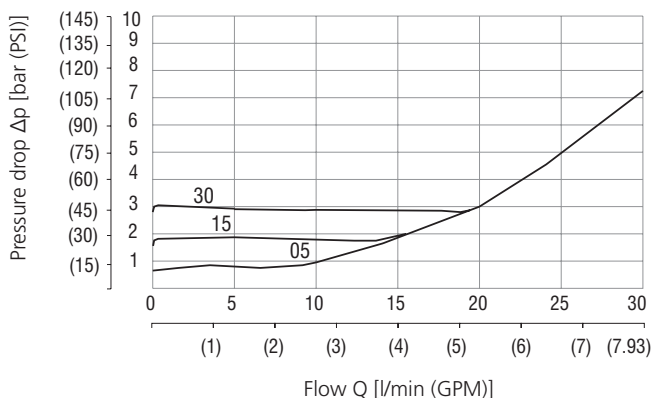
## Technical Data

Valve size	04 (D02)		
Max. flow	l/min (GPM)	30 (7.9)	
Max. operating pressure	bar (PSI)	320 (4640)	
Cracking pressure	bar (PSI)	0.5 (7.3)	1.5 (21.8)   3 (43.5)
Fluid temperature range (NBR)	°C (°F)	-30 .... +100 (-22 ... +212)	
Fluid temperature range (FPM)	°C (°F)	-20 .... +120 (-4 ... +248)	
Mass	kg (lbs)	0.4 (0.88)	

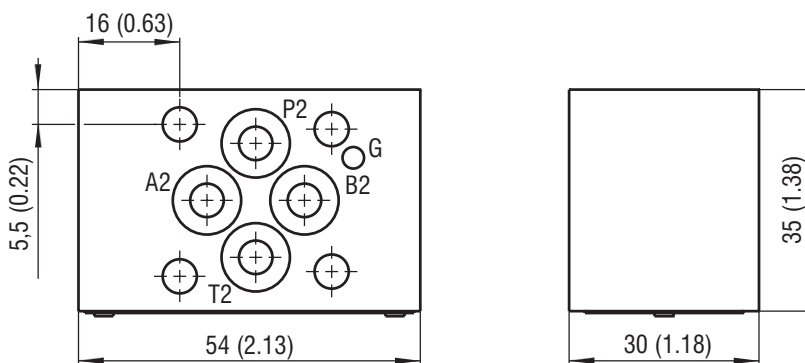
	Datasheet	Type
General information	GI_0060	Products and operating conditions
Mounting interface / Tolerances	SMT_0019	Size 04
Spare parts	SP_8010	

## Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

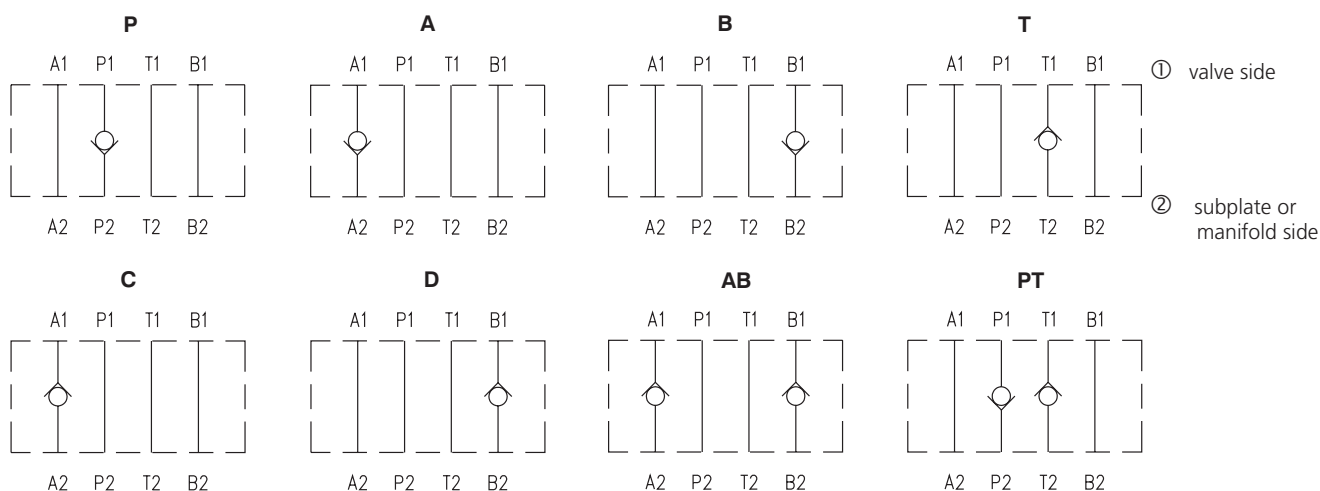
### Pressure drop related to flow rate



**Dimensions** in millimeters (inches)

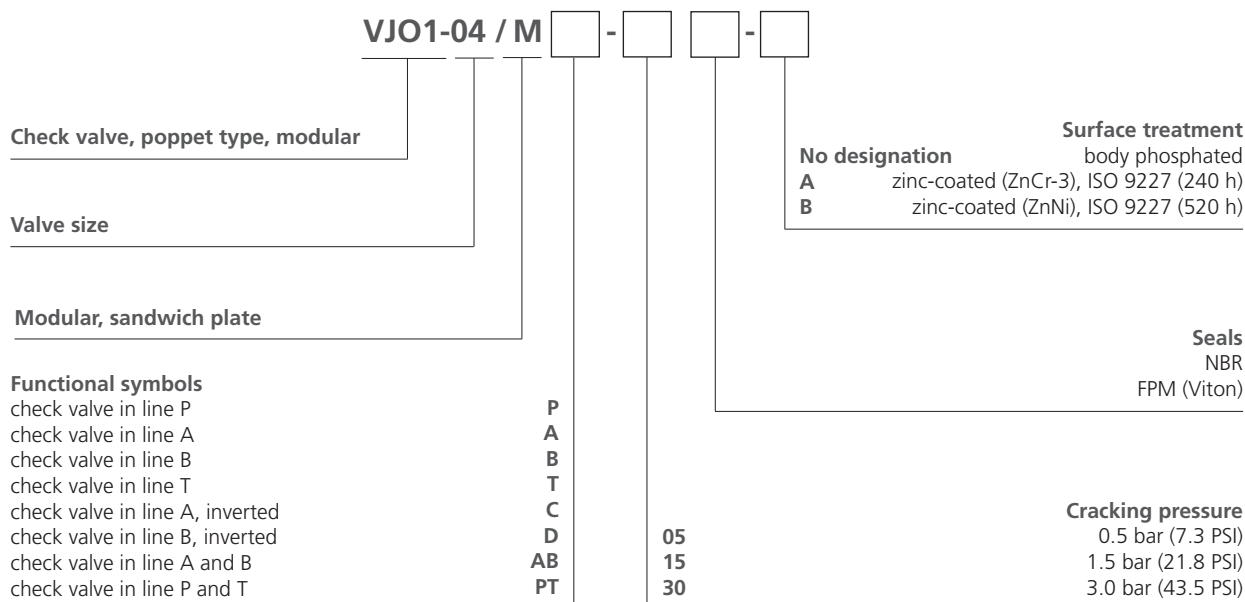


**Functional symbols**



**Notes:** The orientation of the symbol on the name plate corresponds with the valve function.

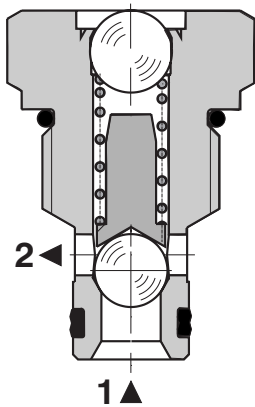
**Ordering Code**



## Check Valve, Ball Type

### SC1F-A2

3/4-16 UNF •  $Q_{max}$  40 l/min (11 GPM) •  $p_{max}$  420 bar (6100 PSI)



#### Technical Features

- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for fast cycling with long life
- › High flow capacity
- › Optional bias spring ranges for back-pressure control
- › In the standard version, the valve is zinc-coated for 520 h protection acc. to ISO 9227

#### Functional Description

A hydraulic check valve in the form of a screw-in cartridge-style for use as a blocking or load-holding device. The cartridge has a ball check which is closed by spring until sufficient pressure is applied at port 1 to open flow to port 2.



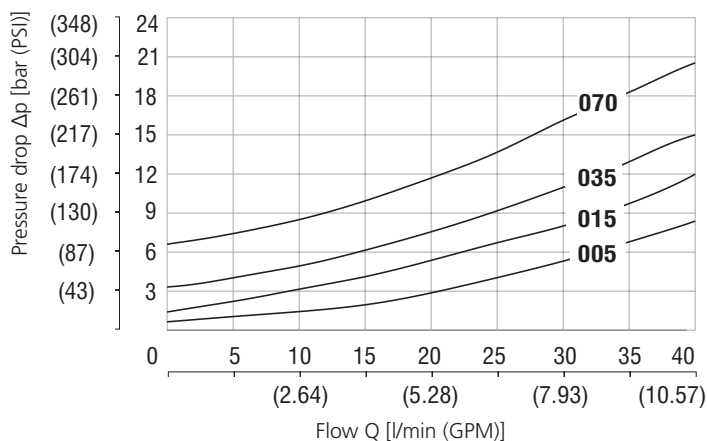
#### Technical Data

Valve size / Cartridge cavity		3/4-16 UNF-2A / A2 (C-8-2)			
Max. flow	l/min (GPM)	40 (10.6)			
Max. operating pressure	bar (PSI)	420 (6090)			
Cracking pressure	bar	0.5	1.5	3.5	7.0
	(PSI)	(7.3)	(21.8)	(50.8)	(101.5)
Fluid temperature range (NBR)	°C (°F)	-30 .... +100 (-22 ... +212)			
Fluid temperature range (FPM)	°C (°F)	-20 .... +120 (-4 ... +248)			
Weight	kg (lbs)	0.06 (0.13)			

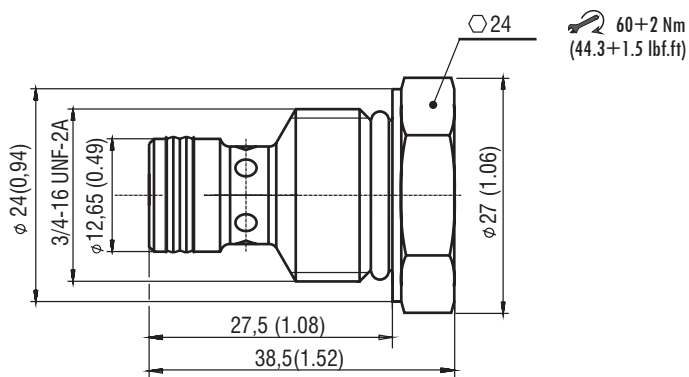
		Datasheet	Type
General information		GI_0060	Products and operating conditions
Valve bodies	In-line mounted	SB_0018	SB-A2*
	Sandwich mounted	SB-04(06)_0028	SB-*A2*
Cavity details / Form tools		SMT_0019	SMT-A2*
Spare parts		SP_8010	

#### Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

##### Pressure drop related to flow rate



**Dimensions** in millimeters (inches)

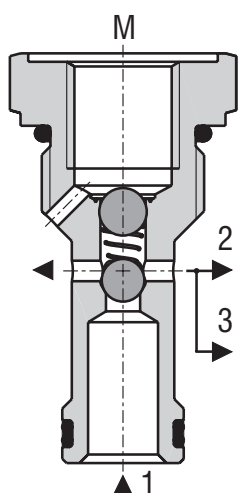


**Ordering Code**

	<b>SC1F - A2 / H</b>	<input type="checkbox"/>	<input type="checkbox"/>	<b>- B</b>	
<b>Check valve, ball type</b>					
<b>Valve cavity</b> 3/4-16 UNF (C-8-2)					
<b>Model</b> High performance					
		<b>000</b>			
		<b>002</b>			
		<b>005</b>			
		<b>015</b>			
		<b>035</b>			
		<b>070</b>			
				<b>No designation</b> V	
					<b>Surface treatment</b> zinc-coated (ZnNi), ISO 9227 (520 h)
					<b>Seals</b> NBR FPM (Viton)
					<b>Cracking pressure</b> without spring 0.2 bar (2.9 PSI) 0.5 bar (7.3 PSI) 1.5 bar (21.8 PSI) 3.5 bar (50.8 PSI) 7.0 bar (101.5 PSI)



**Check Valve With Pressure Gauge Port**
**SC1F-A3**

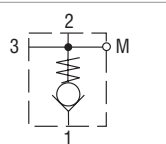
 3/4-16 UNF •  $Q_{max}$  20 l/min (5 GPM) •  $p_{max}$  350 bar (5100 PSI)

**Technical Features**

- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for fast cycling with long life
- › Integrated pressure gauge port G 1/4" or SAE
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

**Functional Description**

A hydraulic check valve in the form of a screw-in cartridge for use in 3-way cavity. The cartridge has a ball check which is closed by spring until sufficient pressure is applied at port 1 to open flow to port 2.

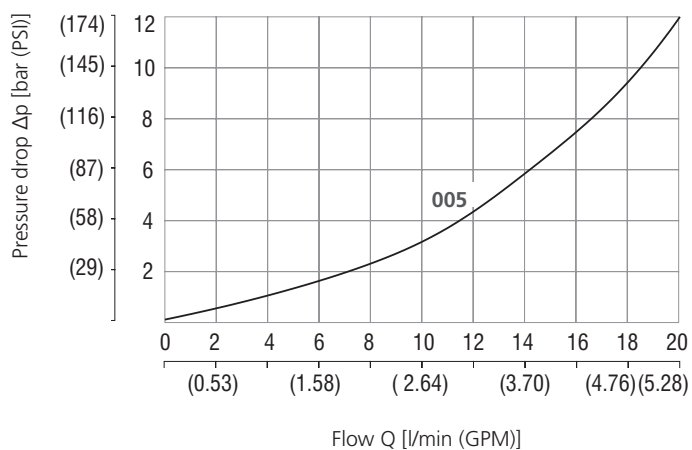
Symbol


**Technical Data**

Valve size / Cartridge cavity		3/4-16 UNF-2A / A3 (C-8-3)
Max. flow	l/min (GPM)	20 (5.3)
Max. operating pressure	bar (PSI)	350 (5080)
Cracking pressure	bar (PSI)	0.5 (7.3)
Fluid temperature range (NBR)	°C (°F)	-30 .... +100 (-22 ... +212)
Fluid temperature range (FPM)	°C (°F)	-20 .... +120 (-4 ... +248)
Mass	kg (lbs)	0.05 ( 0.11)

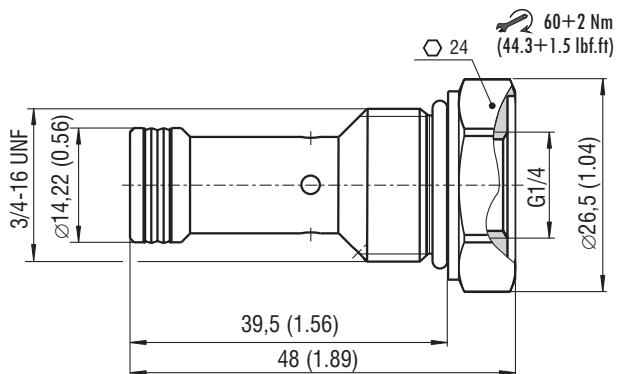
		Datasheet	Type
General information		GI_0060	Products and operating conditions
Valve bodies	In-line mounted	SB_0018	SB-A3*
	Sandwich mounted	SB-04(06)_0028	SB-*A3*
Cavity details / Form tools		SMT_0019	SMT-A3*
Spare parts		SP_8010	

**Characteristics** measured at  $v = 32 \text{ mm}^2/\text{s}$  (156 SUS)

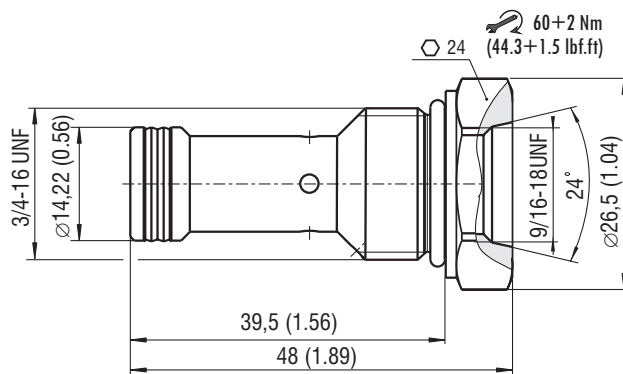
**Pressure drop related to flow rate**


**Dimensions** in millimeters (inches)

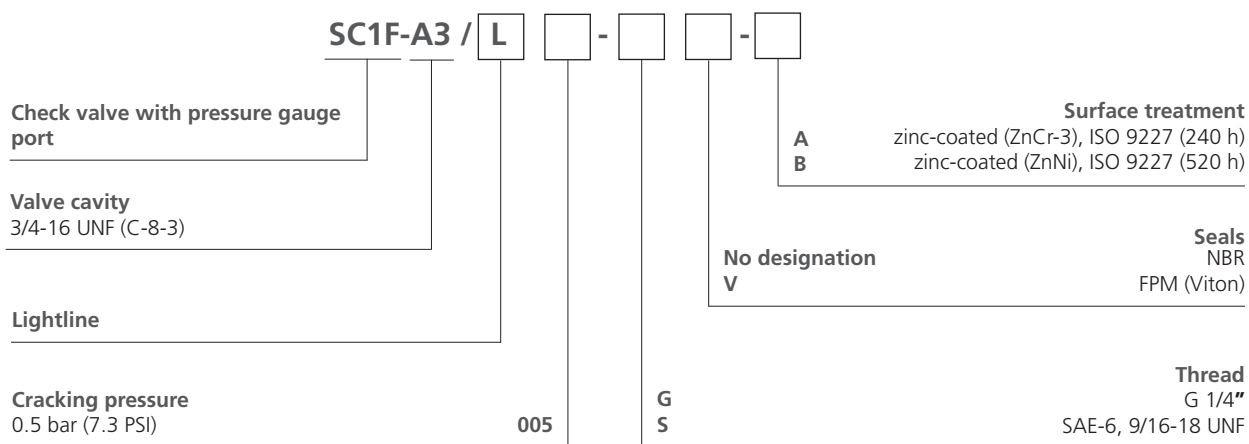
**Model G**



**Model S**



**Ordering Code**

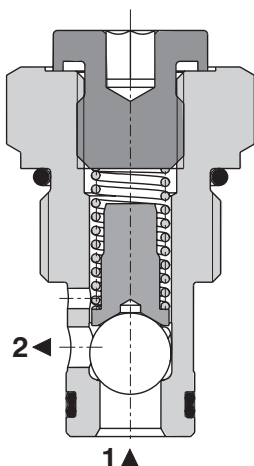


**Technical Features**

- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for fast cycling with long life
- › High flow capacity
- › Optional bias spring ranges for back-pressure control
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

**Functional Description**

A hydraulic check valve in the form of a screw-in cartridge for use as a blocking or load-holding device. The cartridge has a ball check which is closed by spring until sufficient pressure is applied at port 1 to open flow to port 2.



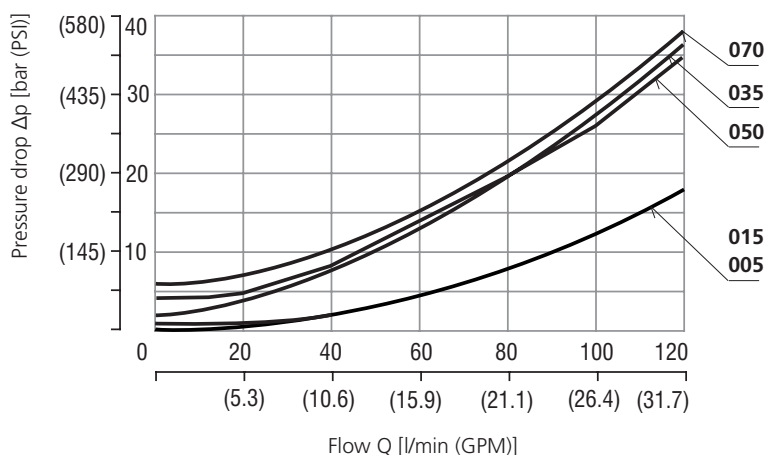
**Technical Data**

Valve size / Cartridge cavity		7/8-14 UNF-2A / B2				
Max. flow	l/min (GPM)	120 (31.7)				
Max. operating pressure	bar (PSI)	420 (6090)				
Cracking pressure	bar	0.5	1.5	3.5	5.0	7.0
	(PSI)	(7.3)	(21.8)	(50.8)	(72.5)	(101.5)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... +212)				
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... +248)				
Mass	kg (lbs)	0.12 (0.27)				

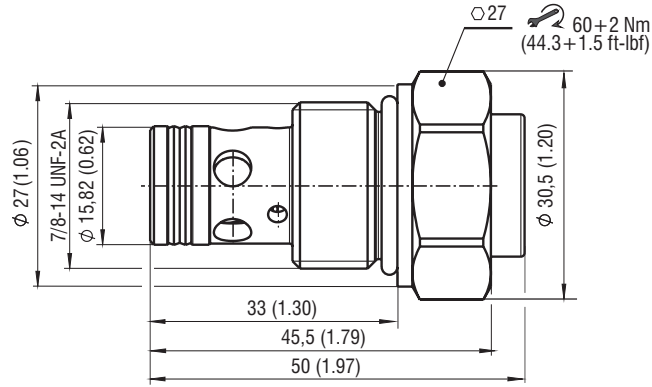
		Datasheet	Type
General information		GI_0060	Products and operating conditions
Valve bodies	In-line mounted	SB_0018	SB-B2*
	Sandwich mounted	SB-04(06)_0028	SB-*B2*
Cavity details / Form tools		SMT_0019	SMT-B2*
Spare parts		SP_8010	

**Characteristics** measured at  $v = 32 \text{ mm}^2/\text{s}$  (156 SUS)

**Pressure drop related to flow rate**



**Dimensions** in millimeters (inches)



**Ordering Code**

SC1F-B2 /    -

Check Valve, ball-type  
7/8-14 UNF

No designation  
V

**Surface treatment**  
A zinc-coated (ZnCr-3), ISO 9227 (240 h)  
B zinc-coated (ZnNi), ISO 9227 (520 h)

**Seals**  
NBR  
FPM (Viton)

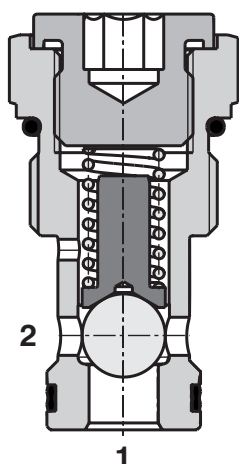
High performance

H

**Cracking pressure**  
without spring  
002 0.2 bar (2.92 PSI)  
005 0.5 bar (7.3 PSI)  
010 1.0 bar (14.6 PSI)  
015 1.5 bar (21.8 PSI)  
020 2.0 bar (29.2 PSI)  
035 3.5 bar (50.8 PSI)  
050 5.0 bar (73 PSI)  
070 7.0 bar (101.5 PSI)

# SC1F-C2

1-1/16-12 UN •  $Q_{max}$  150 l/min (40 GPM) •  $p_{max}$  350 bar (5100 PSI)



## Technical Features

- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for fast cycling with long life
- › High flow capacity
- › Optional bias spring ranges for back-pressure control
- › In the standard version, the valve is zinc-coated for 520 h protection acc. to ISO 9227

## Functional Description

A hydraulic check valve in the form of a screw-in cartridge for use as a blocking or load-holding device. The cartridge has a ball check which is closed by spring until sufficient pressure is applied at port 1 to open flow to port 2.



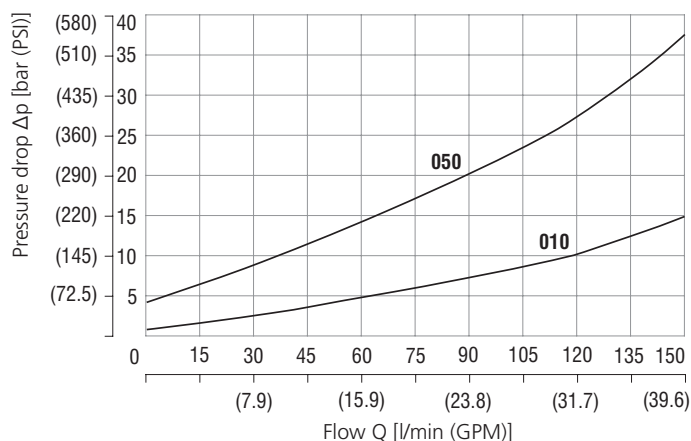
## Technical Data

Valve size / Cartridge cavity		1-1/16-12 UN / C2 (C-12-2)	
Max. flow	l/min (GPM)	150 (39.6)	
Max. operating pressure	bar (PSI)	350 (5080)	
Cracking pressure	bar (PSI)	1 (14.5)	5 (72.5)
Fluid temperature range (NBR)	°C (°F)	-30 .... +100 (-22 ... +212)	
Fluid temperature range (FPM)	°C (°F)	-20 .... +120 (-4 ... +248)	
Weight	kg (lbs)	0.182 (0.40)	

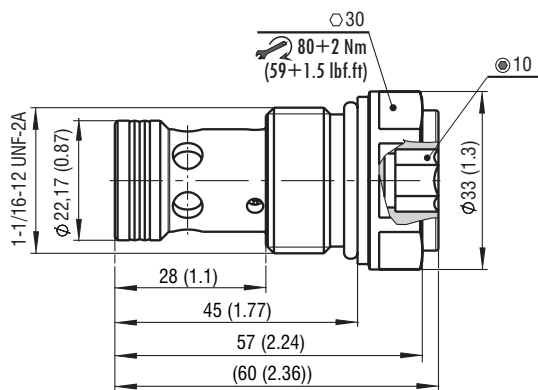
	Datasheet	Type
General information	GI_0060	Products and operating conditions
Valve bodies   In-line mounted	SB_0018	SB-C2*
Cavity details / Form tools	SMT_0019	SMT-C2*
Spare parts	SP_8010	

## Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

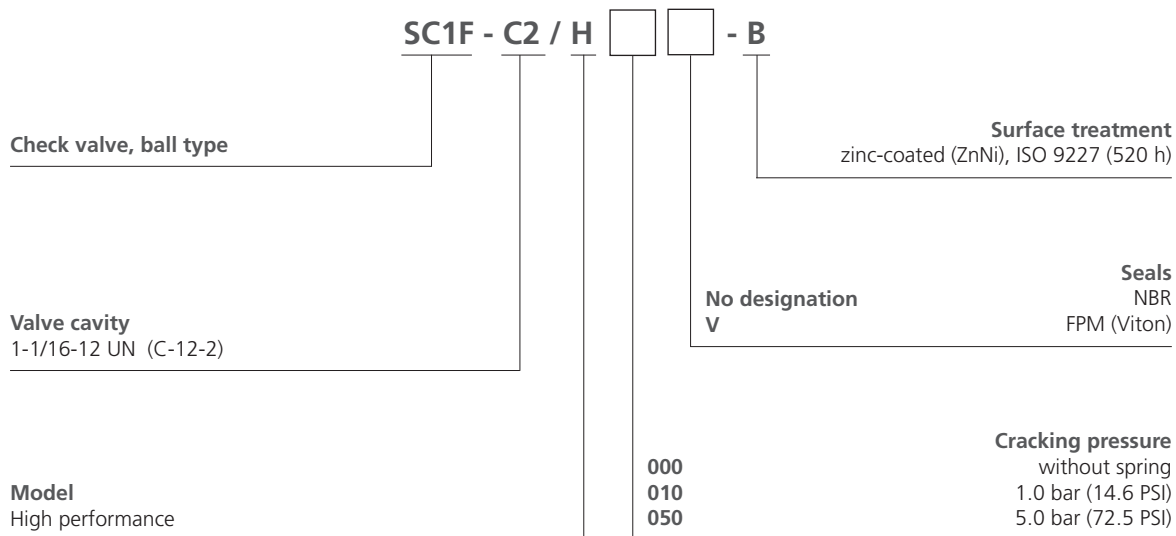
### Pressure drop related to flow rate



**Dimensions** in millimeters (inches)

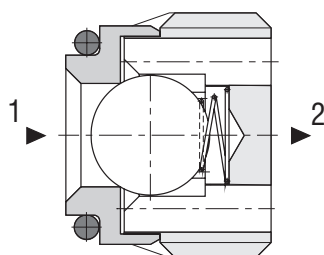


**Ordering Code**



**Check Valve, Ball Type**
**VJO1-06/S**

 Size 06 •  $Q_{max}$  20 l/min (5 GPM) •  $p_{max}$  320 bar (4600 PSI)

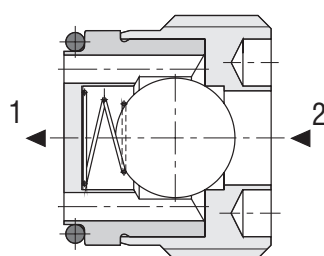
**Model 01**

**Technical Features**

- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for fast cycling with long life
- › Compact design for limited installation space availability
- › High flow capacity
- › In the standard version, the valve is without surface coating

**Functional Description**

A hydraulic check valve in the form of a screw-in cartridge-style for use as a blocking or load-holding device. The cartridge has a ball check which is closed by spring until sufficient pressure is applied at port 1(2) to open flow to port 2(1).

During the assembly, the valve has to be secured against loosening by means of a suitable glue or cement (Loctite, etc.).

**Model 02**


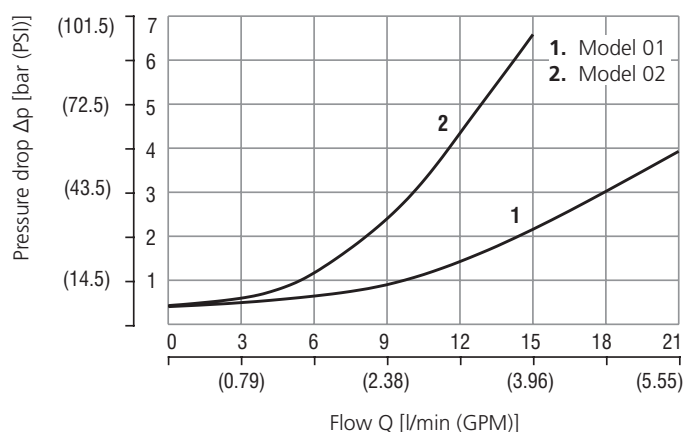
Symbol	Model 01	Model 02

**Technical Data**

Valve size		06
Max. flow	l/min (GPM)	20 (5.3)
Max. operating pressure	bar (PSI)	320 (4640)
Cracking pressure	bar (PSI)	0.25 (3.62)
Fluid temperature range (NBR)	°C (°F)	-30 .... +100 (-22 ... +212)
Fluid temperature range (FPM)	°C (°F)	-20 .... +120 (-4 ... +248)
Mass	kg (lbs)	0.007 (0.015)

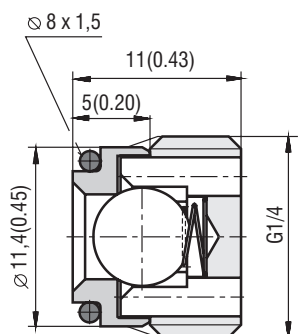
	Datasheet	Type
General information	GI_0060	Products and operating conditions
Spare parts	SP_8010	

**Characteristics** measured at  $v = 32 \text{ mm}^2/\text{s}$  (156 SUS)

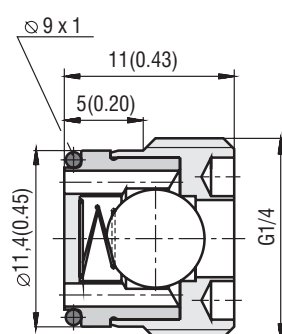
**Pressure drop related to flow rate**


**Dimensions** in millimeters (inches)

**Model 01**

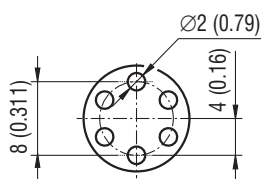


**Model 02**

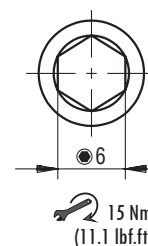
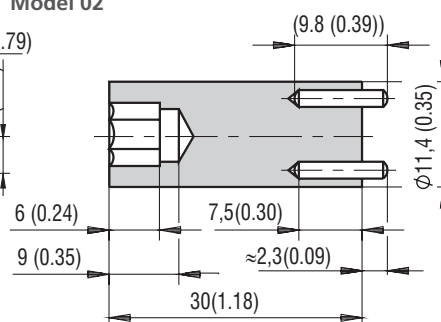
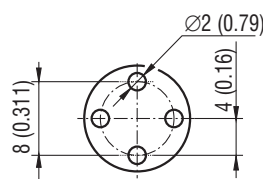


**Mounting Tool** in millimeters (inches)

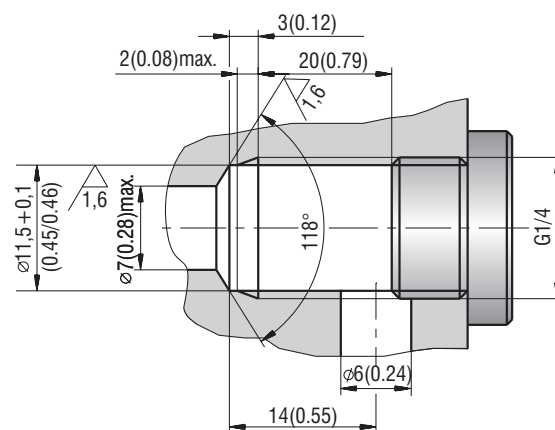
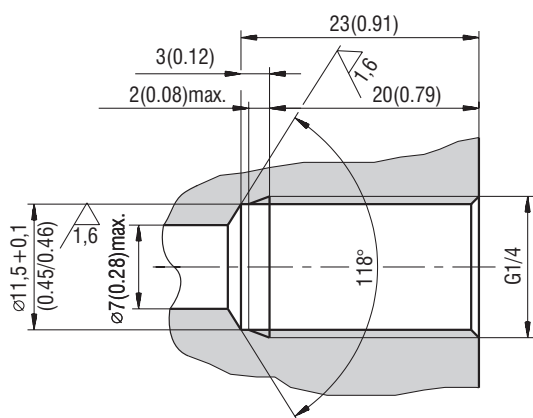
**Model 01**



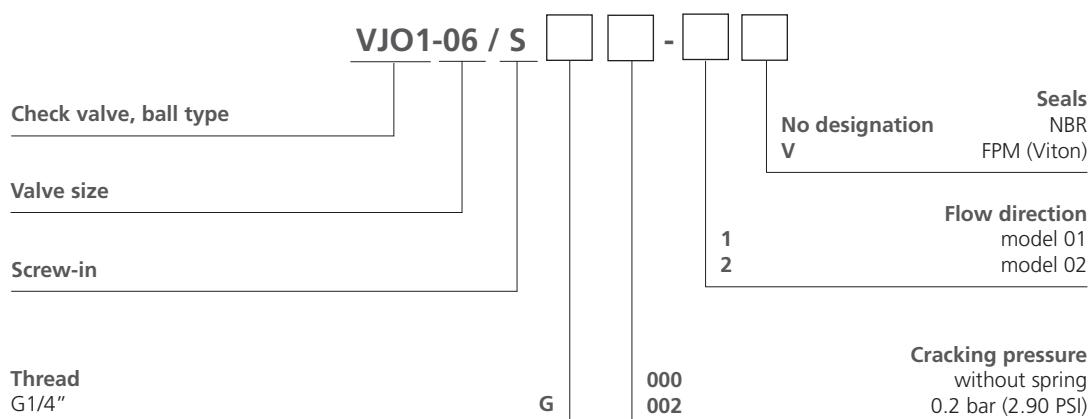
**Model 02**



**Cavity** in millimeters (inches)



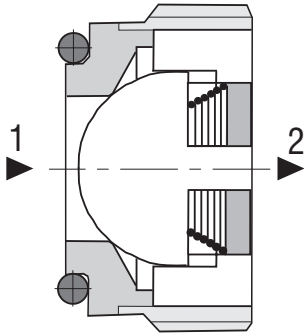
**Ordering Code**





**Technical Features**

- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for fast cycling with long life
- › Compact design for limited installation space availability
- › High flow capacity
- › In the standard version, the valve is without surface coating


**Functional Description**

A hydraulic check valve in the form of a screw-in cartridge-style for use as a blocking or load-holding device. The cartridge has a ball check which is closed by spring until sufficient pressure is applied at port 1 to open flow to port 2.

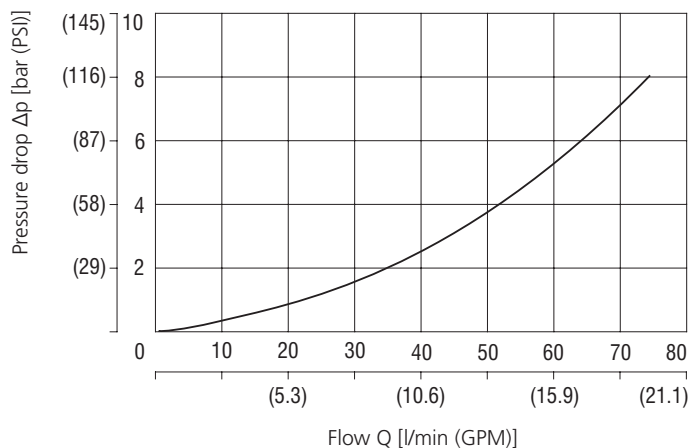
Symbol	
--------	--

**Technical Data**

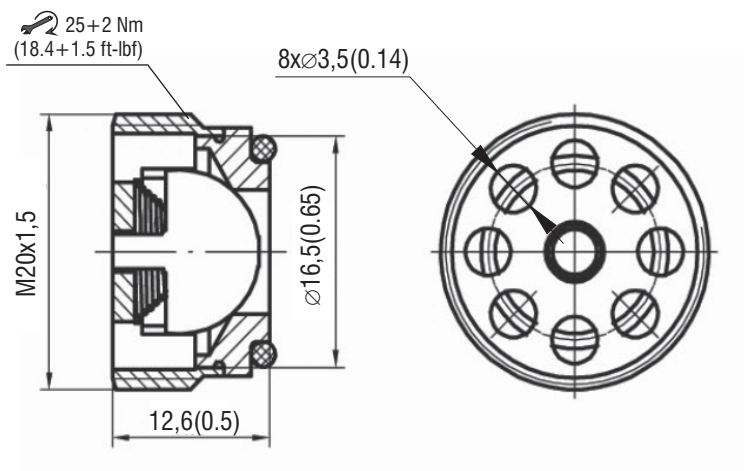
Valve size		10 / M20x1.5
Max. flow	l/min (GPM)	80 (21.1)
Max. operating pressure	bar (PSI)	350 (5076)
Cracking pressure	bar (PSI)	0.5 (7.25)
Fluid temperature range (NBR)	°C (°F)	-30 .... +100 (-22 ... +212)
Fluid temperature range (FPM)	°C (°F)	-20 .... +120 (-4 ... +248)
Mass	kg (lbs)	0.017 (0.038)

	Datasheet	Type
General information	GI_0060	Products and operating conditions
Spare parts	SP_8010	

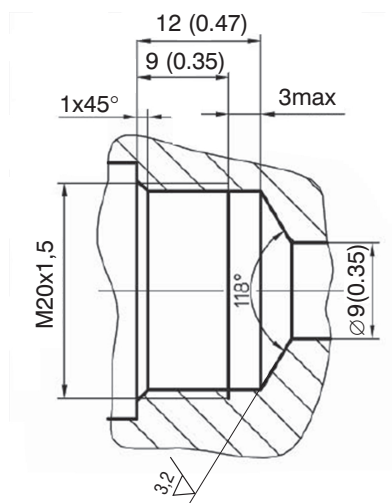
**Characteristics** measured at  $v = 32 \text{ mm}^2/\text{s}$  (156 SUS)

**Pressure drop related to flow rate**


**Dimensions** in millimeters (inches)



**Cavity** in millimeters (inches)



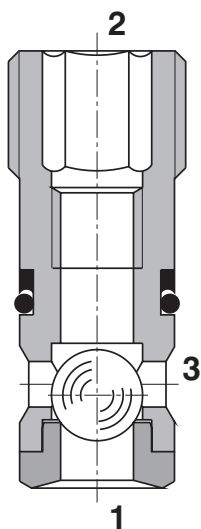
**Ordering Code**

	<b>VJO1-10 / S</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Check Valve, ball-type					
Valve size				No designation V	Seals NBR FPM (Viton)
Screw-in					
Thread M20x1.5		M		005	Cracking pressure 0.5 bar (7.30 PSI)

## Load Shuttle Valve, Ball Type

# LV1-043

G1/8 •  $Q_{max}$  8 l/min (2 GPM) •  $p_{max}$  500 bar (7300 PSI)

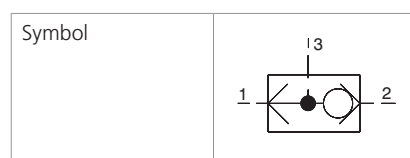


### Technical Features

- › Rapid response to changes in load direction
- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for durable fast-cycling
- › Compact design for a restricted installation space
- › In the standard version, the valve is without surface coating

### Functional Description

A high pressure shuttle valve in the form of a screw-in cartridge. This valve prioritizes the respective higher pressure signal from either port 1 or 2. Tightness between ports 1 and 3 is ensured by a sharp-edge steel valve seat.



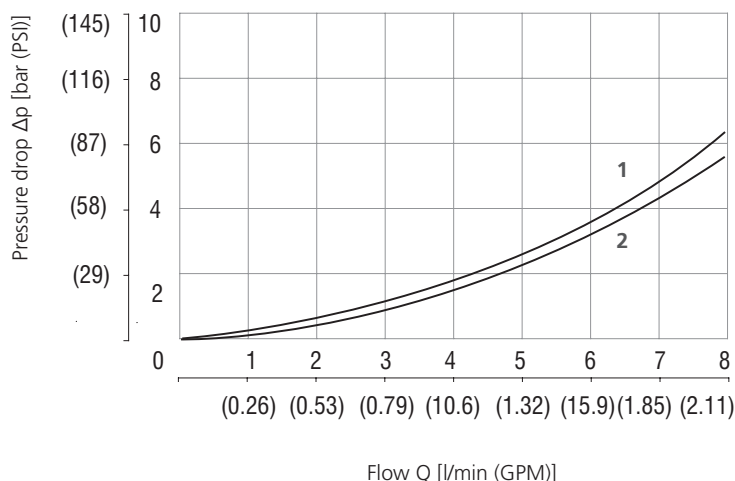
### Technical Data

Valve size / Cartridge cavity		G1/8 / QY3
Max. flow	l/min (GPM)	8 (2.1)
Max. operating pressure	bar (PSI)	500 (7250)
Fluid temperature range (NBR)	°C (°F)	-30 .... +100 (-22 ... +212)
Fluid temperature range (FPM)	°C (°F)	-20 .... +120 (-4 ... +248)
Weight	kg (lbs)	0.01 (0.022)

		Datasheet	Type
General information		GI_0060	Products and operating conditions
Valve bodies	In-line mounted	SB_0018	On request
Cavity details		SMT_0019	SMT-QY3*
Spare parts		SP_8010	

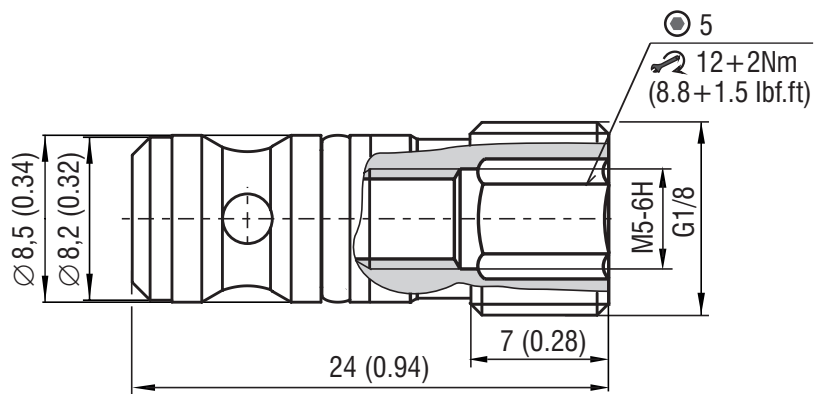
### Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

#### Pressure drop related to flow rate

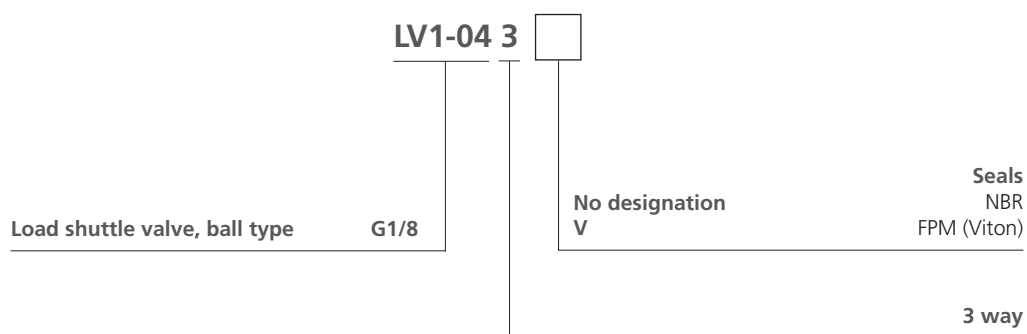


	Flow direction
1	2→3
2	1→3

Dimensions in millimeters (inches)



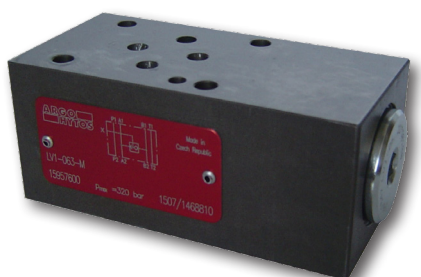
Ordering Code



## Load Shuttle Valve, Ball Type, Modular

# LV1-063/M

Size 06 (D03) •  $Q_{max}$  40 l/min (11 GPM) •  $p_{max}$  320 bar (4600 PSI)

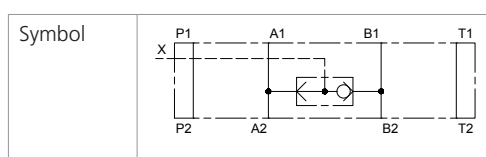


### Technical Features

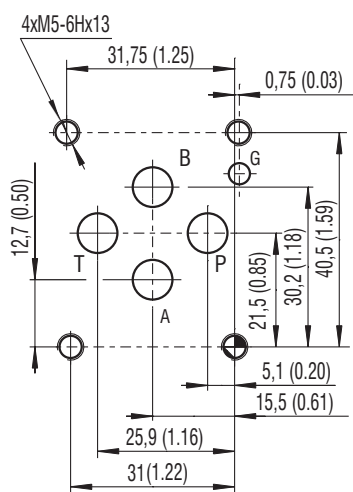
- › Load shuttle valve, ball type with subplate mounting interface acc. to ISO 4401, DIN 24340 (CETOP 03)
- › Sandwich plate design for use in vertical stacking assemblies
- › Rapid response to changes in load direction
- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for durable fast-cycling
- › High flow capacity
- › In the standard version, the valve housing is phosphated and steel parts are zinc-coated for 240 h protection acc. to ISO 9227

### Functional Description

This high pressure shuttle valve in sandwich design is used in vertical stack assemblies to prioritize flows of higher pressure over those with lower pressure. Tightness between ports 1 and 3 is ensured by a sharp-edge steel valve seat.



ISO 4401-03-02-0-05



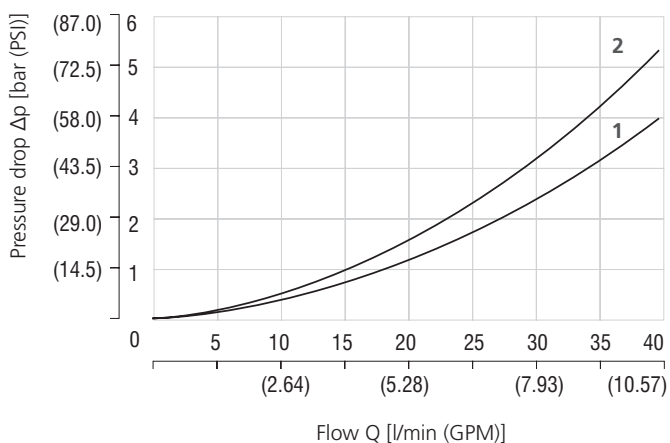
Ports P, A, B, T max.  $\varnothing$ 7.5 mm (0.29)

### Technical Data

Valve size	06 (D03)	
Max. flow	l/min (GPM)	40 (10.6)
Max. operating pressure	bar (PSI)	320 (4640)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... +212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... +248)
Weight	kg (lbs)	1.17 (2.58)
	Datasheet	Type
General information	GI_0060	Products and operating conditions
Mounting interface	SMT_0019	Size 06
Spare parts	SP_8010	

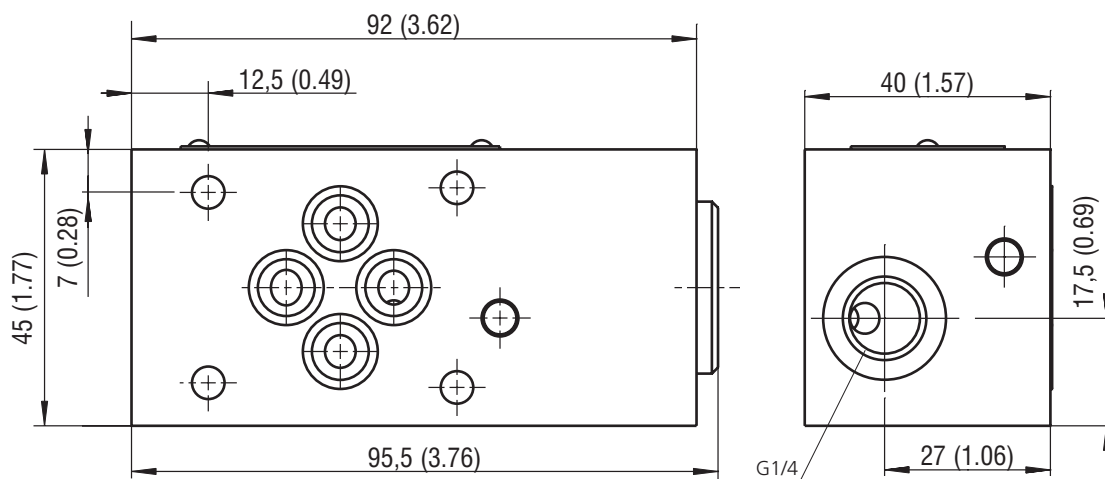
### Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

#### Pressure drop related to flow rate



	Flow direction
1	A → X
2	B → X

**Dimensions** in millimeters (inches)



**Ordering Code**

LV1-063 / M  -

**Load shuttle valve, ball type, modular**

**Model**  
sandwich plate design

**No designation**

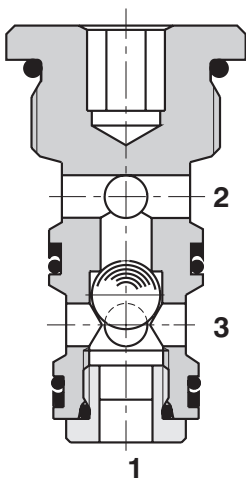
**A** zinc-coated (ZnCr-3), ISO 9227 (240 h)  
**B** zinc-coated (ZnNi), ISO 9227 (520 h)

**Surface treatment**  
standard

**No designation**  
**V**

**Seals**  
NBR  
FPM (Viton)

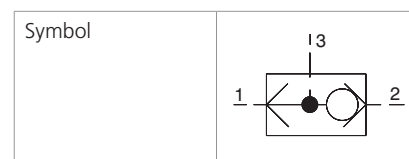
**Load Shuttle Valve, Ball Type**
**LV1-063/S**

M22x1.5 •  $Q_{max}$  40 l/min (11 GPM) •  $p_{max}$  320 bar (4600 PSI)

**Technical Features**

- › Rapid response to changes in load direction
- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for durable fast cycling
- › High flow capacity
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

**Functional Description**

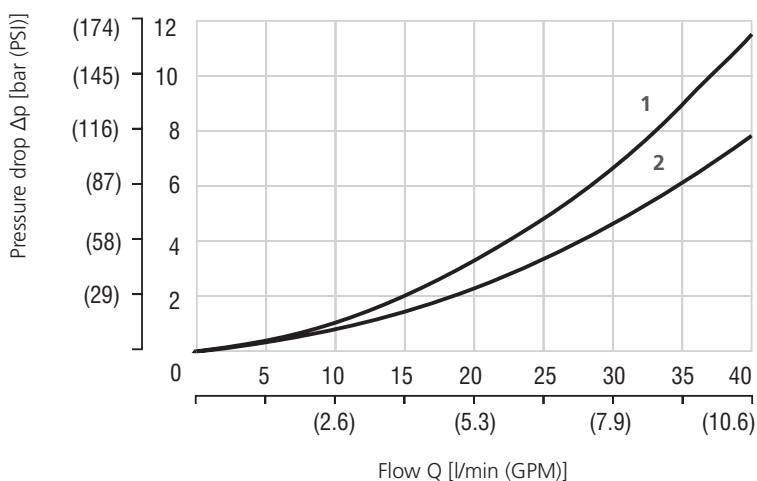
A high pressure shuttle valve in the form of a screw-in cartridge. This valve prioritizes the respective higher pressure signal from either port 1 or 2. Tightness between ports 1 and 3 is ensured by a sharp-edge steel valve seat.


**Technical Data**

Valve size / Cartridge cavity		M22x1,5 / QF3
Max. flow	l/min (GPM)	40 (10.6)
Max. operating pressure	bar (PSI)	320 (4640)
Fluid temperature range (NBR)	°C (°F)	-30 .... +100 (-22 ... +212)
Fluid temperature range (FPM)	°C (°F)	-20 .... +120 (-4 ... +248)
Weight	kg (lbs)	0.078 (0.172)

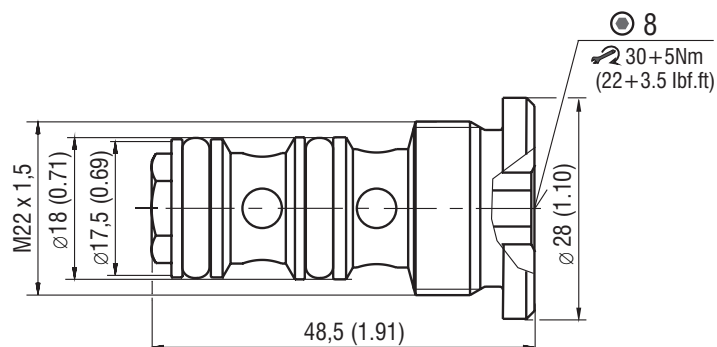
	Datasheet	Type
General information	GI_0060	Products and operating conditions
Valve bodies	In-line mounted	SB-QF3*
	Sandwich mounted	LV1-063/M_HA 5030
Cavity details	SMT_0019	SMT-QF3*
Spare parts	SP_8010	

**Characteristics** measured at  $v = 32 \text{ mm}^2/\text{s}$  (156 SUS)

**Pressure drops  $\Delta p$ -Q**


	Flow direction
1	1 → 3
2	2 → 3

**Dimensions** in millimeters (inches)



**Ordering Code**

LV1-063 / S  -

**Load shuttle valve, ball type**  
M22x1.5

**Model**  
screw in cartridge

**Surface treatment**  
**A** zinc-coated (ZnCr-3), ISO 9227 (240 h)  
**B** zinc-coated (ZnNi), ISO 9227 (520 h)

**No designation**  
V

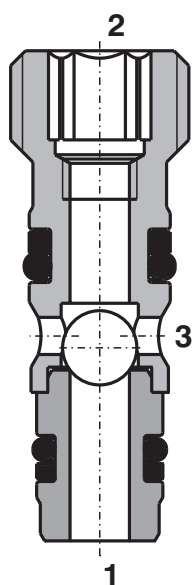
**Seals**  
NBR  
FPM (Viton)



## Load Shuttle Valve Rubber Sealed Ports

# LV2-043

M12x1,5 •  $Q_{max}$  8 l/min (2 GPM) •  $p_{max}$  500 bar (7300 PSI)

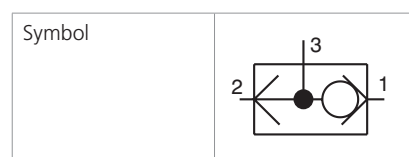


### Technical Features

- › Hardened and precision working parts
- › Leak-free in closed position
- › Rapid response to changes in load direction
- › Compact size for a restricted installation space

### Functional Description

A high pressure shuttle, screw-in, cartridge valve. Used for closing or opening hydraulic circuits to define priority of flow/direction given by a higher pressure circuit over a lower one. Tightness between all ports is ensured by a rubber seal.



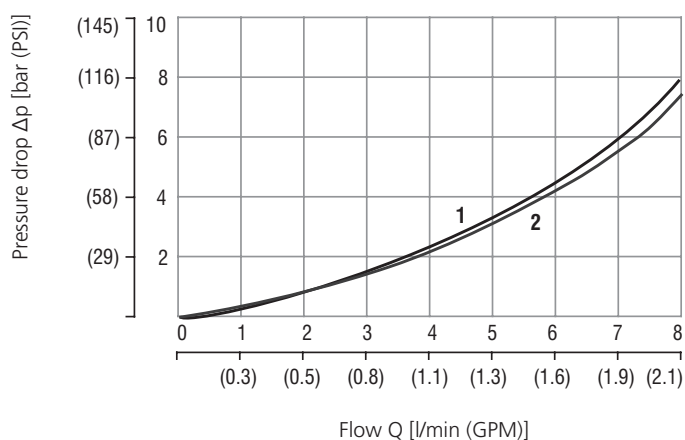
### Technical Data

Valve size / Cartridge cavity		M12x1,5 / QD3
Max. flow rate	l/min (GPM)	8 (2.1)
Max. operating pressure	bar (PSI)	500 (7250)
Fluid temperature range (NBR)	°C (°F)	-30 .... +100 (-22 ... +212)
Fluid temperature range (FPM)	°C (°F)	-20 .... +120 (-4 ... +248)
Weight	kg (lbs)	0.01 (0.022)

	Data Sheet	Type
General information	GI_0060	Products and operating conditions
Bodies for valves	In-line mounted	On request
Cavity details	SMT_0019	SMT-QD3*
Spare parts	SP_8010	

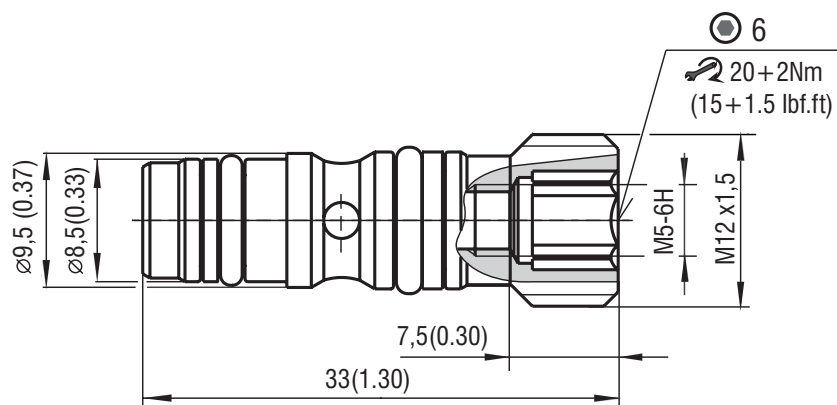
### Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

#### Pressure drops $p-\Delta Q$

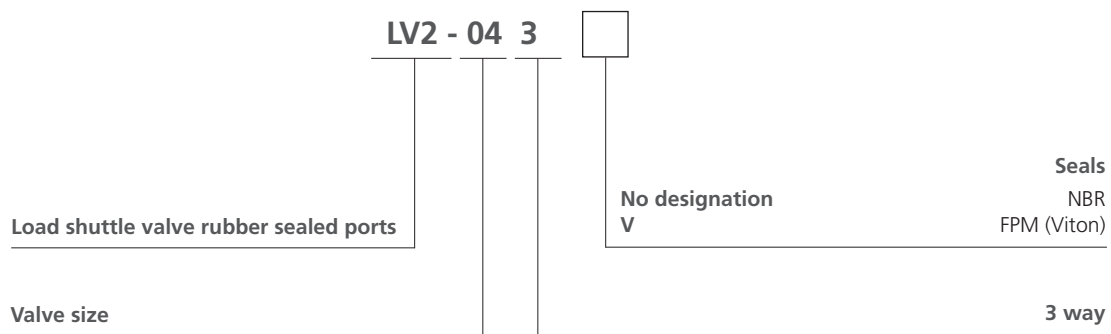


	Flow in direction
1	2 → 3
2	1 → 3

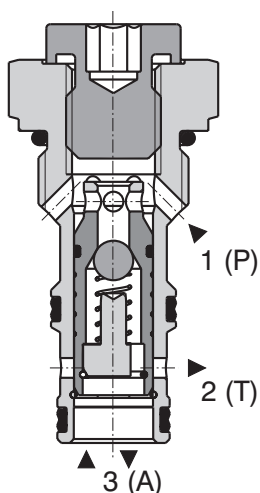
Dimensions in millimeters (inches)



Ordering Code



# SH1F-A3

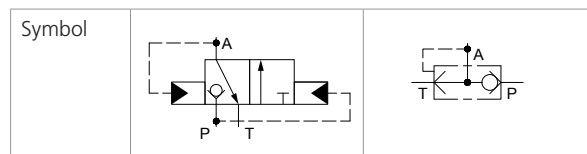
 3/4-16 UNF •  $Q_{max}$  20 l/min (5 GPM) •  $p_{max}$  250 bar (3600 PSI)


### Technical Features

- › Rapid response to changes in load direction
- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for durable fast-cycling
- › High flow capacity
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

### Functional Description

A poppet type hydraulic directional shuttle valve in the form of a screw-in cartridge for use in single acting cylinder applications. Pressure at port 1(P) opens the ball check valve, allowing fluid to pass to port 3(A). The poppet tightly closes the connection between ports 3(A) and 2(T). If there is no pressure at port 1(P), pressure at port 3(A) –via the cylinder return spring - causes the poppet to shift so that fluid can pass from 3(A) to 2(T) but not from 3(A) and 1(P).



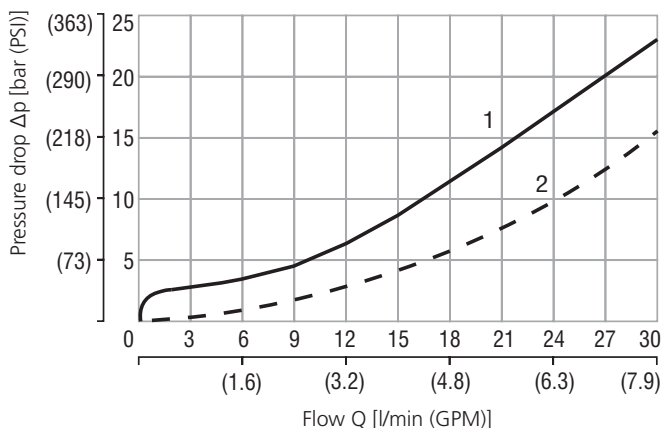
### Technical Data

Valve size / Cartridge cavity		3/4-16 UNF-2A / A3 (C-8-3)
Max. flow	l/min (GPM)	20 (5.3)
Max. operating pressure	bar (PSI)	250 (3630)
Cracking pressure	bar (PSI)	2 ± 0.5 (29 ± 7 PSI)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... +212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... +248)
Weight	kg (lbs)	0.08 (0.18)

	Datasheet	Type
General information	GI_0060	Products and operating conditions
Cartridge cavity / Form tools	SMT_0019	SMT-A3
Spare parts	SP_8010	

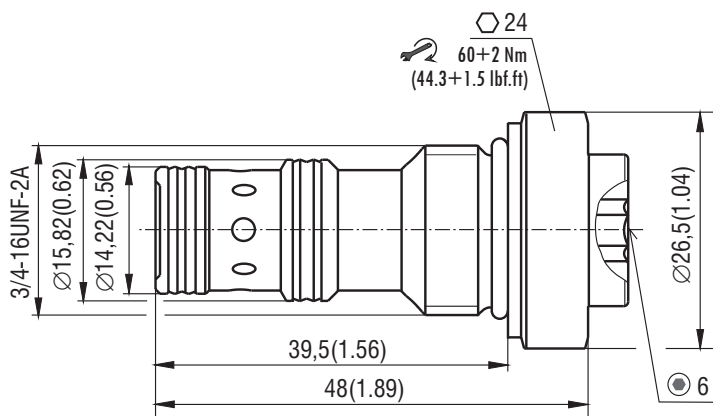
### Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

#### Pressure drop related to flow rate

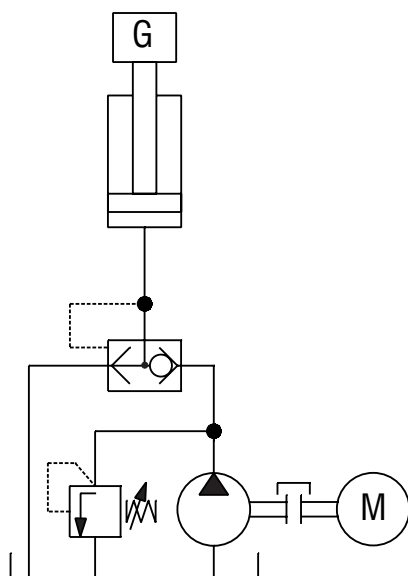


	Flow direction
1	P (1) → A (3)
2	A (3) → T (2)

### Dimensions in millimeters (inches)



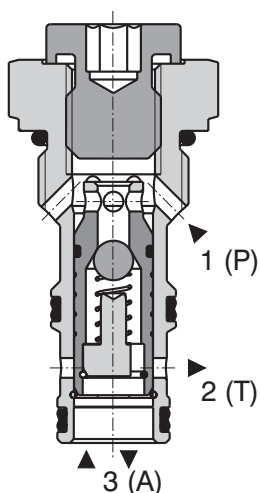
### Application example



### Ordering Code

	<b>SH1F-A3 / L</b>				
<b>Load shuttle valve, kick down</b>					
<b>Valve cavity</b> 3/4-16 UNF (C-8-3)					
<b>Version</b> Lightline					
<b>Cracking pressure</b> 2 ± 0.5 bar (29 ± 7 PSI)			<b>020</b>		
				<b>No designation</b> V	
					<b>Surface treatment</b> A zinc-coated (ZnCr-3), ISO 9227 (240 h) B zinc-coated (ZnNi), ISO 9227 (520 h)
					<b>Seals</b> NBR FPM (Viton)

# SH1F-A3

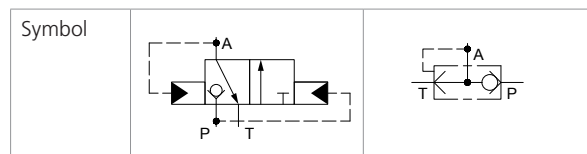
 3/4-16 UNF •  $Q_{max}$  20 l/min (5 GPM) •  $p_{max}$  250 bar (3600 PSI)


## Technical Features

- › Rapid response to changes in load direction
- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for durable fast-cycling
- › High flow capacity
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

## Functional Description

A poppet type hydraulic directional shuttle valve in the form of a screw-in cartridge for use in single acting cylinder applications. Pressure at port 1(P) opens the ball check valve, allowing fluid to pass to port 3(A). The poppet tightly closes the connection between ports 3(A) and 2(T). If there is no pressure at port 1(P), pressure at port 3(A) –via the cylinder return spring - causes the poppet to shift so that fluid can pass from 3(A) to 2(T) but not from 3(A) and 1(P).



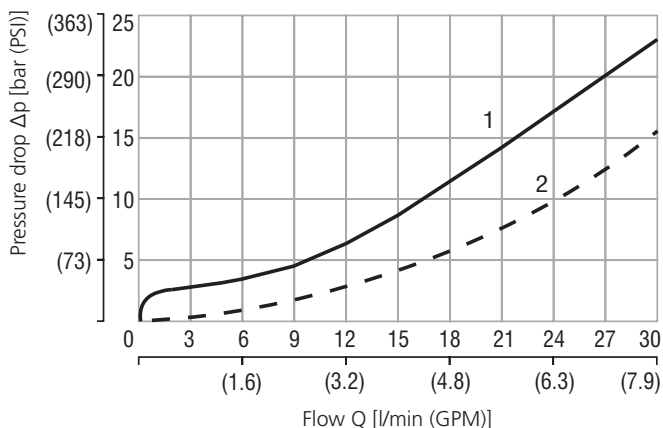
## Technical Data

Valve size / Cartridge cavity		3/4-16 UNF-2A / A3 (C-8-3)
Max. flow	l/min (GPM)	20 (5.3)
Max. operating pressure	bar (PSI)	250 (3630)
Cracking pressure	bar (PSI)	2 ± 0.5 (29 ± 7 PSI)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... +212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... +248)
Weight	kg (lbs)	0.08 (0.18)

	Datasheet	Type
General information	GI_0060	Products and operating conditions
Cartridge cavity / Form tools	SMT_0019	SMT-A3
Spare parts	SP_8010	

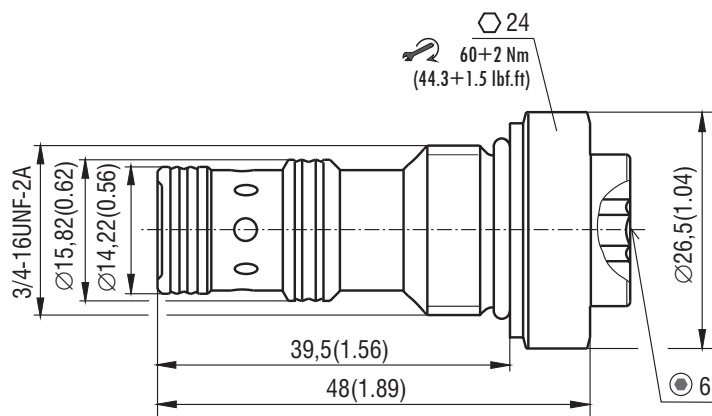
## Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

### Pressure drop related to flow rate

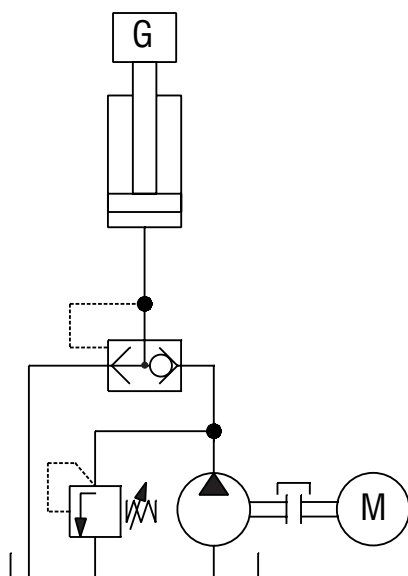


	Flow direction
1	P (1) → A (3)
2	A (3) → T (2)

Dimensions in millimeters (inches)



Application example



Ordering Code

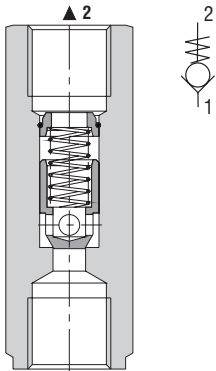
	<b>SH1F-A3 / L</b>				
<b>Load shuttle valve, kick down</b>					
<b>Valve cavity</b> 3/4-16 UNF (C-8-3)					
<b>Version</b> Lightline					
<b>Cracking pressure</b> 2 ± 0.5 bar (29 ± 7 PSI)					
					<b>020</b>
					<b>No designation</b>
					<b>V</b>
					<b>Surface treatment</b>
					<b>A</b> zinc-coated (ZnCr-3), ISO 9227 (240 h)
					<b>B</b> zinc-coated (ZnNi), ISO 9227 (520 h)
					<b>Seals</b>
					NBR
					FPM (Viton)

## Check Valve, Poppet Type, In-Line

### VJ3

Size 06, 08, 10, 16, 20, 25, 30 •  $Q_{max}$  400 l/min (106 GPM) •  $p_{max}$  320 bar (4600 PSI)

#### Model G1, M1, S



#### Technical Features

- › Poppet type check valve, guided in-line mounting or slip-in design
- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for fast cycling with long life
- › Optional bias spring ranges for back-pressure control
- › High flow capacity
- › In the standard version, the surface of the valves for in-line mounting is zinc-coated for 240 h protection acc. to ISO 9227. Slip-in cartridges (types 02 and 03) are without surface treatment

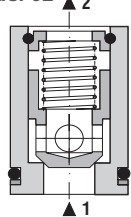
#### Functional Description

A hydraulic check valve in the form of an in-line or slip-in cartridge for use as a blocking or load-holding device. The valve has a poppet check which is closed by spring until sufficient pressure is applied at port 1 to open flow to port 2.

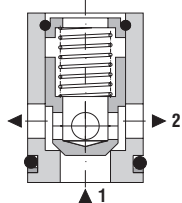
#### Technical Data

Valve size		06	08	10	16	20	25	30	
Maximum flow rate	l/min (GPM)	30 (7.9)	40 (10.6)	60 (15.9)	160 (42.3)	250 (66)	300 (79.3)	400 (105.7)	
Max. operating pressure	bar (PSI)	320 (4640)							
Cracking pressure	bar (PSI)	0.5 (7.25)	1.0 (14.5)	1.5 (21.8)	3.0 (43.5)	5.0 (72.5)			
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... +212)							
Mass - model G1	kg (lbs)	0.11 (0.24)	0.2 (0.04)	0.34 (0.75)	0.52 (1.15)	0.95 (2.09)	1.95 (4.30)	2.35 (5.18)	
- models M1, S		-	-	-	-	-	-	-	
- models 02, 03		0.05 (0.11)	-	0.09 (0.2)	0.22 (0.49)	0.26 (0.57)	-	-	
	Datasheet	Type							
General information	GI_0060	Products and operating conditions							
Cavity details	SMT_0019								
Spare parts	SP_8010								

#### Model 02

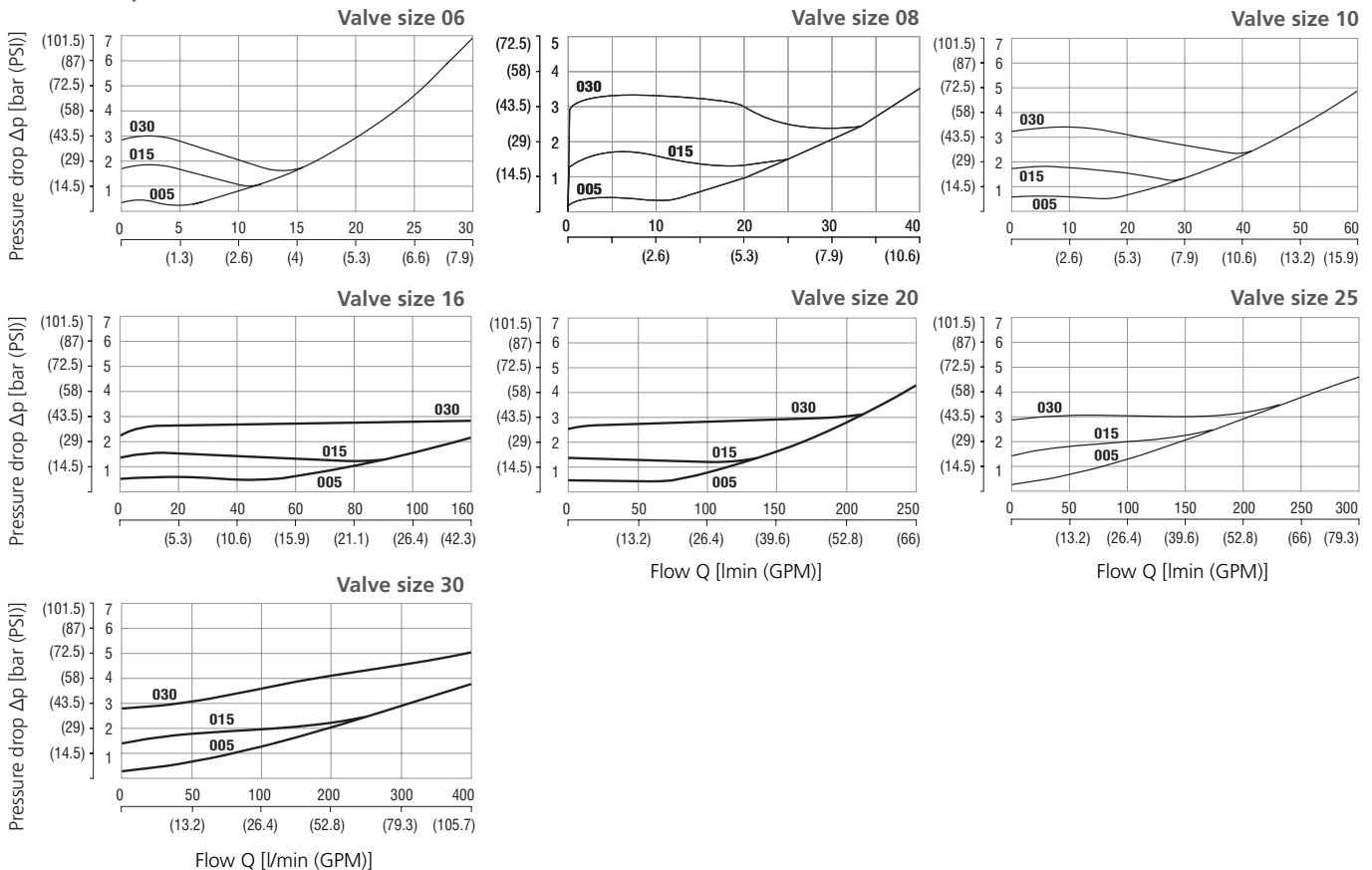


#### Model 03



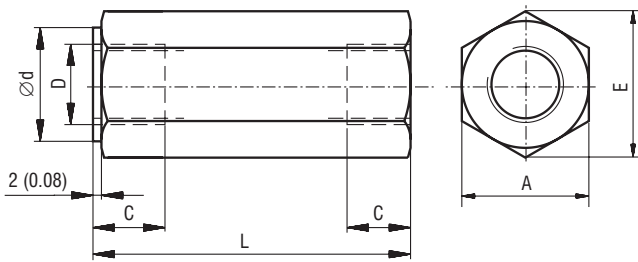
#### Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

#### Pressure drop related to flow rate

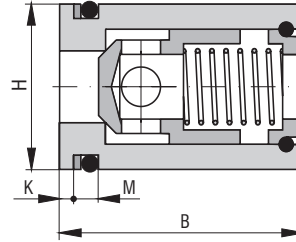


**Dimensions** in millimeters (inches)

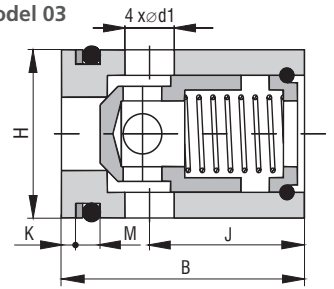
**Models G1, M1, S**



**Model 02**



**Model 03**

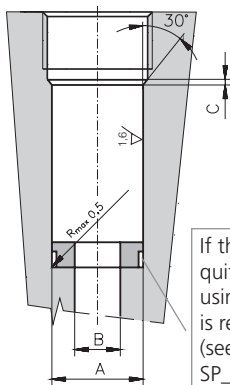


Size	A	B	C	D			Ø d
				G1	M1	S	
06	19 (0.75)	27 - 0.2 (1.06 - 0.008)	12 (0.47)	G 1/4	M14x1.5	SAE-6, 9/16-18	19 (0.75)
08	24 (0.95)	-	12 (0.47)	G 3/8	-	-	24 (0.94)
10	30 (1.18)	32 - 0.2 (1.26 - 0.008)	14 (0.55)	G 1/2	M18x1.5	SAE-8, 3/4-16	30 (1.18)
16	36 (1.42)	45 - 0.2 (1.77 - 0.008)	16 (0.63)	G 3/4	M27x2	SAE-12, 1 1/16-12	36 (1.42)
20	46 (1.81)	45 - 0.2 (1.77 - 0.008)	18 (0.71)	G 1	M33x2	SAE-16, 1 5/16-12	46 (1.81)
25	60 (2.36)	-	20 (0.79)	G1 1/4	-	-	60 (2.36)
30	65 (2.56)	-	22 (0.87)	G1 1/2	-	-	65 (2.56)

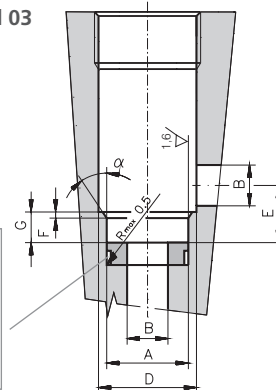
Size	Ø d1	E	H	J	K	L	M
06	3.5 (0.14)	22 (0.87)	Ø 20 (0.79 f8)	18 (0.71)	1.6 (0.06)	58 (2.28)	4.4 + 0.2 (0.17 + 0.008)
08	-	27.7 (1.09)	-	-	-	58 (2.28)	-
10	5.5 (0.22)	34.5 (1.36)	Ø 25 (0.98 f8)	20 (0.79)	1.6 (0.06)	72 (2.83)	4.4 + 0.2 (0.17 + 0.008)
16	8.5 (0.34)	41.5 (1.63)	Ø 35 (1.38 f8)	27 (1.06)	2.2 (0.09)	85 (3.35)	5.3 + 0.2 (0.21 + 0.008)
20	10.5 (0.41)	53.6 (2.09)	Ø 40 (1.58 f8)	25 (0.98)	2.2 (0.09)	98 (3.86)	5.3 + 0.2 (0.21 + 0.008)
25	-	69 (2.72)	-	-	-	120 (4.72)	-
30	-	75 (2.95)	-	-	-	132 (5.20)	-

**Cavity** in millimeters (inches)

**Model 02**



**Model 03**



If the hole cannot be reamed quite to the bottom, using a distance ring is recommended. (see Datasheet Spare parts SP\_8010)

D <sub>n</sub>	06	10	16	20
A	Ø 20 H8	Ø 25 H8	Ø 35 H8	Ø 40 H8
B	Ø 6	Ø 10	Ø 16	Ø 20
C	2	2	2	2
D*	Ø 26	Ø 32	Ø 44	Ø 48
E	10.5	14	22	25
F	1	1.5	2	2
G	7-0.3	8+0.2	13+0.2	14+0.2
α	20°	30°	30°	30°

\*minimum diameter recommended

**Ordering Code**

VJ3 - [ ] - [ ] - [ ] - [ ]

**Check valve, poppet type, in-line**

**Valve size**

06	06
08	08
10	10
16	16
20	20
25	25
30	30

**Cracking pressure**

without spring	000
0.5 bar (7.3 PSI)	005
1.0 bar (14.5 PSI)	010
1.5 bar (21.8 PSI)	015
3.0 bar (43.5 PSI)	030
5.0 bar (72.5 PSI)	050

**No designation**

**Surface treatment**

without surface treatment (type 02 and 03)

**A** zinc-coated (ZnCr-3), ISO 9227 (240 h)

**B** zinc-coated (ZnNi), ISO 9227 (520 h)

**Interface**

in-line mounting - with G threads with metric threads

**G1** in-line mounting - with G threads

**M1** with metric threads

**S\*** with SAE threads

**02\*** slip-in cartridge

**03\*** slip-in cartridge

Besides the shown, commonly used valves other special models are available. Contact our technical support for their identification, feasibility and operating limits.

\*For sizes 06, 10, 16, 20 only