



- Electrically or pneumatically actuated valves
- With internal or external pilot air
- Sturdy and reliable

Specified types in accordance with ATEX directive for potentially explosive atmospheres

➔ [www.festo.com/en/ex](http://www.festo.com/en/ex)

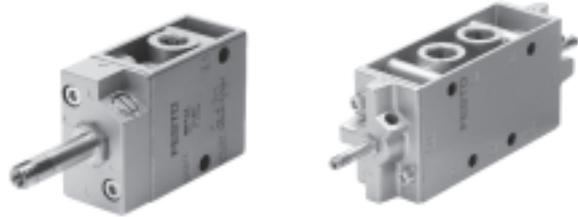
# Solenoid/pneumatic valves, Tiger Classic

Key features



## General information

- Highly durable poppet valve concept for all 3/2 and 5/2-way valves
- Pneumatic or electrical actuation with F solenoid coil
- With flow rates of up to 7,500 l/min
- Pipe thread in sizes G1/8, G1/4, G1/2 and G3/4
- Tried and tested assembly on PAL or PRS manifold strips with hollow bolts
- Optimised response times with patented U-ring and servo control



## Solenoid coils

### F solenoid coils

Voltage:

- 12 to 230 V DC
- 12 to 240 V AC (50 to 60 Hz)

Power consumption:

- 4.5 W

- Selected types acc. to ATEX directive for explosive atmospheres

- Easily interchangeable solenoid coils
- Solenoid coil not included in scope of delivery

## Variants

### VL/O-3-...

Depending upon selected connections:  
Normally closed or normally open

### MFH-3-..., MOFH-3-...

- MFH-3-...  
Normally closed
- MOFH-3-...  
Normally open

These valves can be converted from one function to the other by rotating the seal under the cover.

### MFH-3-...-S

This valve type can be used within a range of 0 to 8 bar and also as MOFH (through flow when not actuated) with a separate pilot line.

### MFH-5-...-S

The external pilot air connection means that these valves can also be used with low operating pressures.

# Solenoid/pneumatic valves, Tiger Classic

Key features

## Manifold mounting

With PAL manifold strip



With PRS manifold block

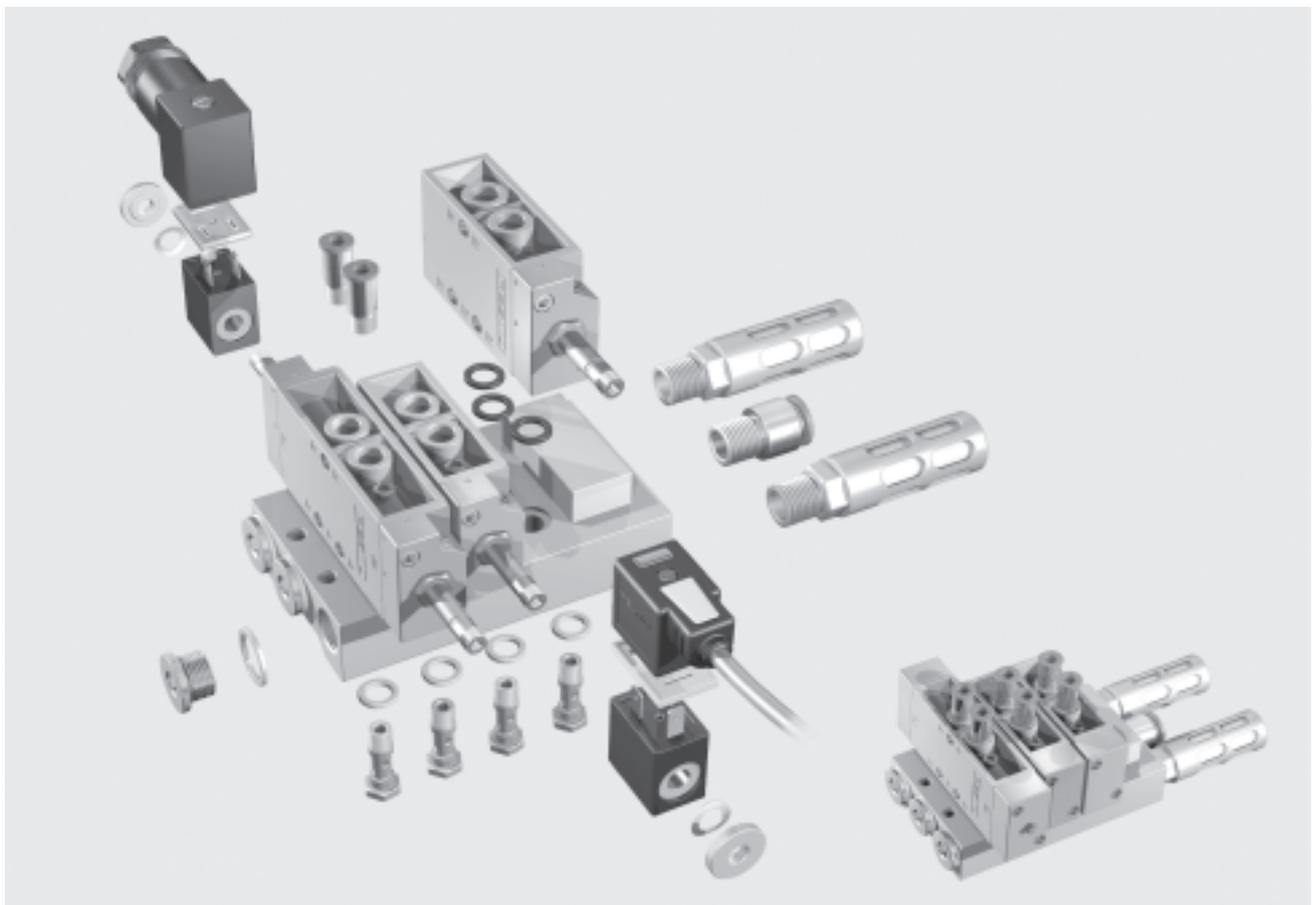


The Tiger Classic valves can be mounted on PAL manifold strips with common supply port or on PRS manifold blocks with common supply port and common exhausts. The valves are mounted on the strips and blocks with hollow bolts.

The manifold strip and manifold block have 2 to 6 valve positions.

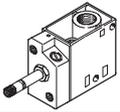
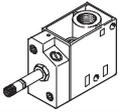
Vacant positions can be sealed on PAL manifold strips with blanking caps, or with blanking plates on PRS manifold blocks.

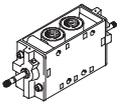
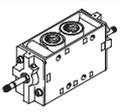
Separate pressure levels can be provided to individual valves by means of hollow bolts with threaded connection.



# Solenoid valves, Tiger Classic

Product range overview

Function	Design	Type	Pneumatic connection	Operating voltage	
				[V DC]	[V AC]
3/2-way valves	Solenoid valve				
		MFH	G1/8	12, 24, 42, 48	24, 42, 48, 110, 230, 240
			G1/4		
			G1/2		
			G3/4		
		MOFH	G1/8	12, 24, 42, 48	24, 42, 48, 110, 230, 240
			G1/4		
			G1/2		
G3/4					

Function	Design	Type	Pneumatic connection	Operating voltage	
				[V DC]	[V AC]
5/2-way valves	Solenoid valve				
		MFH	G1/8	12, 24, 42, 48	24, 42, 48, 110, 230, 240
			G1/4		
			G1/2		
	Double solenoid valve				
		JMFH	G1/8	12, 24, 42, 48	24, 42, 48, 110, 230, 240
			G1/4		
			G1/2		
	Double solenoid valve with dominant signal				
		JMFH	G1/8	12, 24, 42, 48	24, 42, 48, 110, 230, 240
G1/4					

# Solenoid valves, Tiger Classic

Product range overview

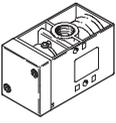
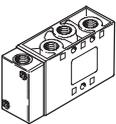
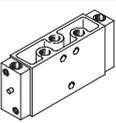
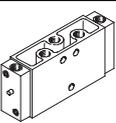
Type	Normal position		Pilot air supply		Type of reset		→ Page/Internet
	Closed	Open	Internal	External	Air spring	Mechanical spring	
<b>Solenoid valve</b>							
MFH	■	-	■	■	-	■	12
	■	-	■	■	-	■	
	■	-	■	■	-	■	
	■	-	■	■	-	■	
MOFH	-	■	■	-	-	■	12
	-	■	■	-	-	■	
	-	■	■	-	-	■	
	-	■	■	-	-	■	

Type	Pilot air supply		Type of reset		→ Page/Internet
	Internal	External	Air spring	Mechanical spring	
<b>Solenoid valve</b>					
MFH	■	■	-	■	17
	■	■	-	■	
	■	■	-	■	
<b>Double solenoid valve</b>					
JMFH	■	■	-	-	22
	■	■	-	-	
	■	■	-	-	
<b>Double solenoid valve with dominant signal</b>					
JMFHDH	-	■	-	-	22
	-	■	-	-	

# Pneumatic valves, Tiger Classic

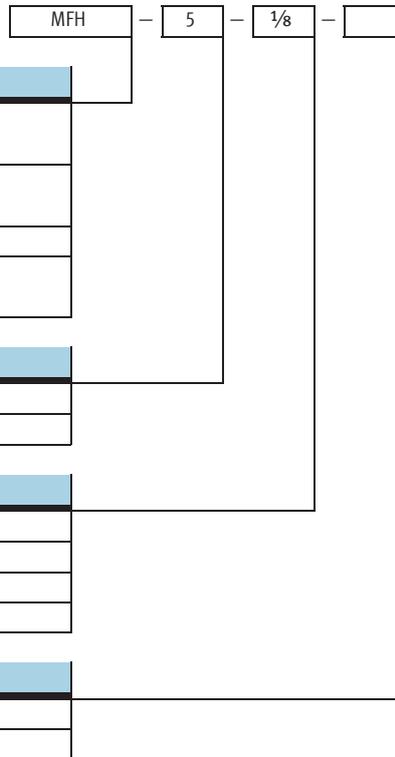
Product range overview



Function	Design	Type	Pneumatic connection	Type of reset		→ Page/Internet	
				Air spring	Mechanical spring		
3/2-way valves		VL/O	G1/8	-	■	29	
			G1/4	-	■		
			G1/2	-	■		
			G3/4	-	■		
5/2-way valves		VL	G1/8	-	■	33	
			G1/4	-	■		
			G1/2	-	■		
	<b>Double pilot valve</b>						
		JH	G1/8	-	-	36	
			G1/4	-	-		
			G1/2	-	-		
	<b>Double pilot valve with dominant signal</b>						
		JDH	G1/8	-	-	36	
			G1/4	-	-		

# Solenoid valves, Tiger Classic

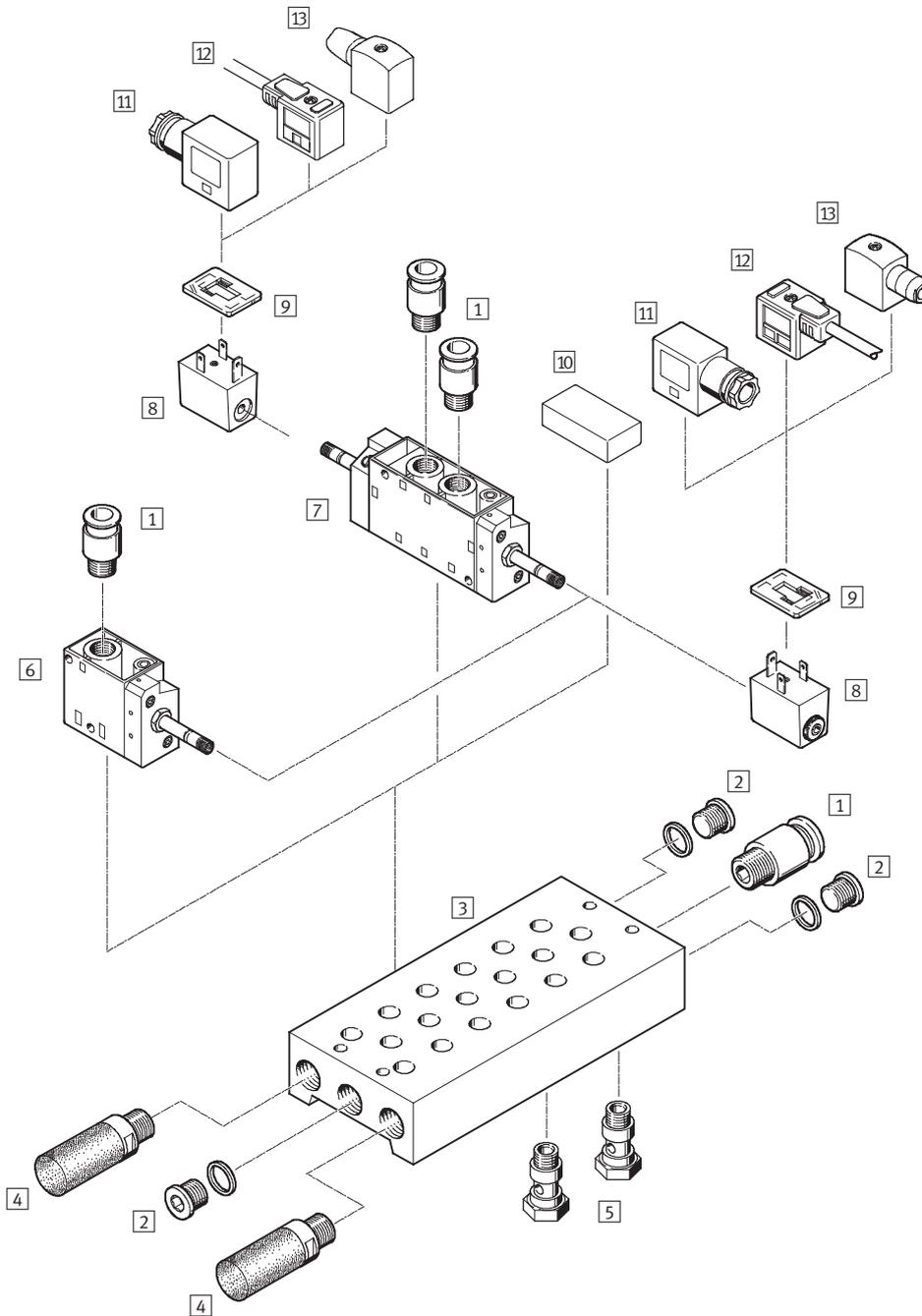
Type codes



# Solenoid valves, Tiger Classic

Peripherals overview

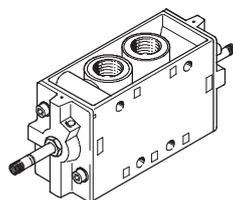
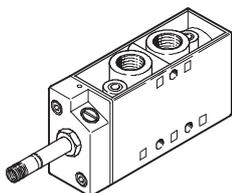
## Mounting on manifold block



### Variants

MFH-5-...

JMFH-5-...



# Solenoid valves, Tiger Classic

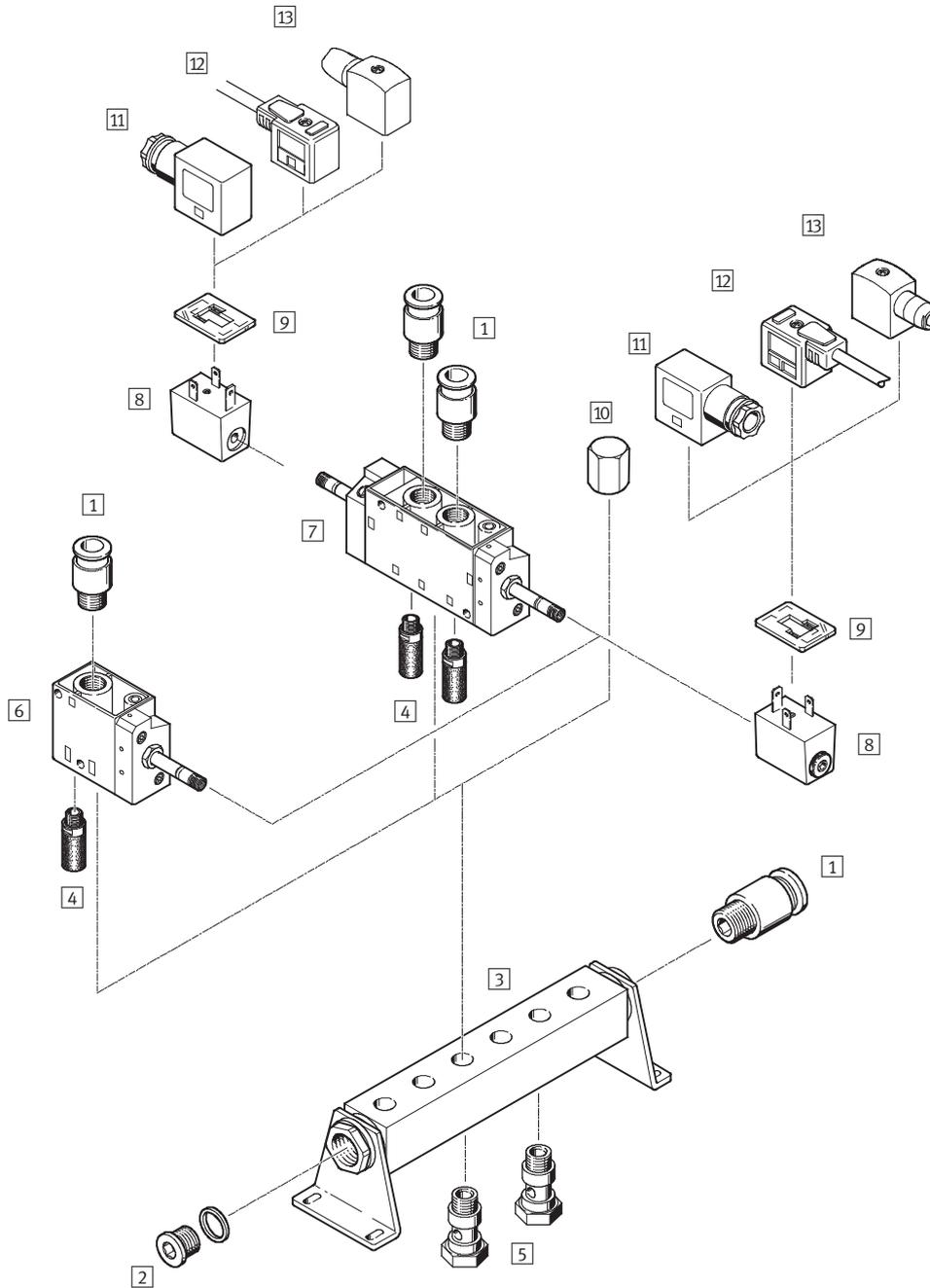
Peripherals overview

Accessories		
	Brief description	→ Page/Internet
1	Push-in fitting QS	quick star
2	Blanking plug G	g
3	Manifold block PRS	42
4	Silencer	For fitting in exhaust ports u
5	Hollow bolt VT	For distribution of compressed air or for separate compressed air supply 41
6	Solenoid valve MFH	For F solenoid coil 4
7	Double solenoid valve JMFH	For F solenoid coil 4
8	F solenoid coil MSFG, MSFW	msfg, msfw
9	Luminescent seal M...-LD	For displaying the switching status 44
10	Blanking plate PRSB	For covering an unused valve position 43
11	Plug socket MSSD-F	For valves MFH, JMFH 44
12	Plug socket with cable KMF	For valves MFH, JMFH 44
13	Plug socket MSSD-F-S	For valves MFH, JMFH 44

# Solenoid valves, Tiger Classic

Peripherals overview

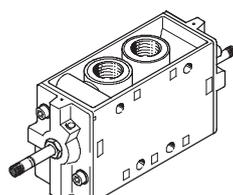
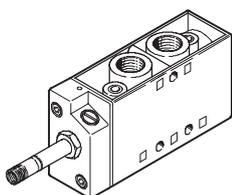
## Mounting on manifold strip



### Variants

MFH-5...

JMFH-5...



# Solenoid valves, Tiger Classic

Peripherals overview

Accessories		
	Brief description	→ Page/Internet
1	Push-in fitting QS	quick star
2	Blanking plug G	g
3	Manifold strip PAL	40
4	Silencer	For fitting in exhaust ports u
5	Hollow bolt VT	For distribution of compressed air or for separate compressed air supply 41
6	Solenoid valve MFH	For F solenoid coil 4
7	Double solenoid valve JMFH	For F solenoid coil 4
8	F solenoid coil MSFG, MSFW	msfg, msfw
9	Luminescent seal M...-LD	For displaying the switching status 44
10	Blanking cap VTM	For blanking an unused valve position 41
11	Plug socket MSSD-F	For valves MFH, JMFH 44
12	Plug socket with cable KMF	For valves MFH, JMFH 44
13	Plug socket MSSD-F-S	For valves MFH, JMFH 44

# Solenoid valves MFH, Tiger Classic

FESTO

Technical data – 3/2-way valves

Flow rate

500 ... 7,500 l/min

Voltage

12, 24, 42, 48 V DC  
24, 42, 48, 110, 230,  
240 V AC

Wearing parts kits

→ 16



General technical data					
Pneumatic connection		G1/8	G1/4	G1/2	G3/4
Valve function		3/2-way, single solenoid			
Constructional design		Poppet valve			
Sealing principle		Soft			
Actuation type		Electrical			
Type of reset		Mechanical spring			
Type of control		Piloted			
Pilot air supply		Internal or external			
Direction of flow		Non reversible			
Exhaust function		With flow control			
Manual override		Detenting			
Type of mounting		Via through holes			
Mounting position		Any			
Nominal size	[mm]	5	7	14	19
Standard nominal flow rate	[l/min]	500	800	3,700	7,500
Product weight	[g]	240	320	1,100	1,260

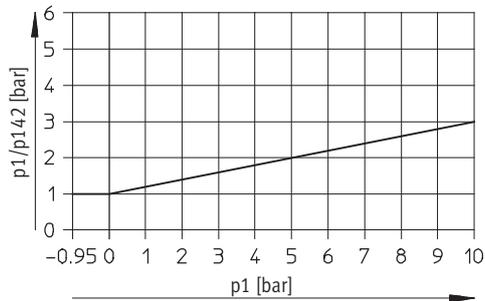
Operating and environmental conditions						
Pneumatic connection		G1/8	G1/4	G1/2	G3/4	
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]				
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)				
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	1.5 ... 8	1.5 ... 8	2 ... 8
	External pilot air supply	[bar]	-0.95 ... +10	-0.95 ... +10	-0.95 ... +10	-0.95 ... +10
Pilot pressure		[bar]	1 ... 8	1 ... 8	1 ... 8	1 ... 8
Ambient temperature		[°C]	-5 ... +40			
Temperature of medium		[°C]	-10 ... +60			
Note on materials			RoHS-compliant			

# Solenoid valves MFH, Tiger Classic

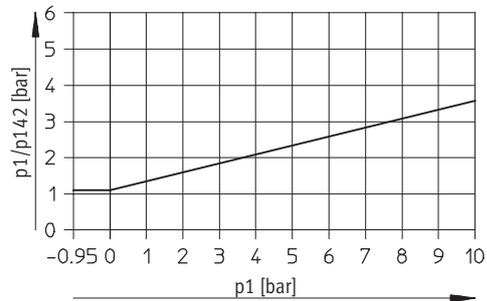
Technical data – 3/2-way valves

## Minimal pilot pressure $p_{12}/p_{14}$ as a function of operating pressure $p_1$ (external pilot air supply)

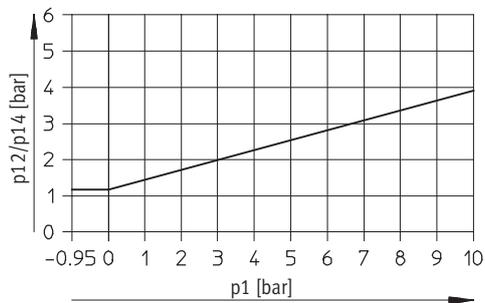
MFH-3-1/8-S



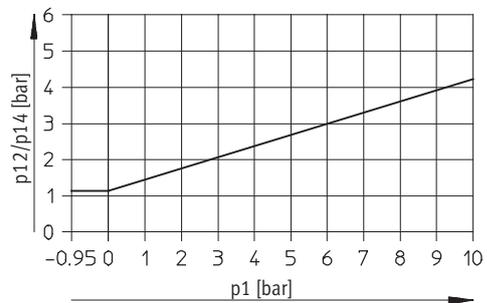
MFH-3-1/4-S



MFH-3-1/2-S



MFH-3-3/4-S



## Valve response times [ms]

Pneumatic connection	G1/8		G1/4		G1/2		G3/4	
Normal position	Closed	Open	Closed	Open	Closed	Open	Closed	Open
Internal pilot air supply								
On	9	9	10	15	18	18	40	40
Off	29	29	29	45	90	90	29	29
External pilot air supply								
On	9	–	10	–	18	–	40	–
Off	29	–	29	–	90	–	29	–

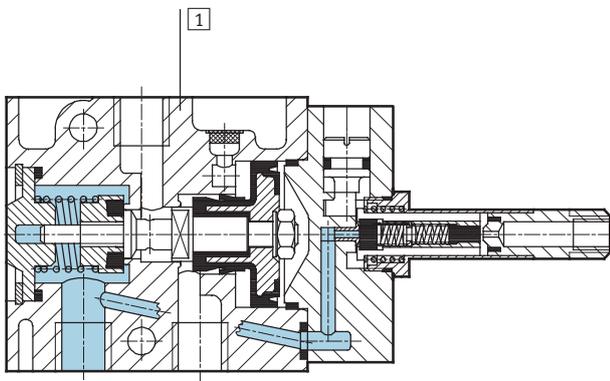
# Solenoid valves MFH, Tiger Classic

Technical data – 3/2-way valves

Electrical data			
F solenoid coil			
Electrical connection	Plug vanes for plug sockets MSSD-F, KMF		
Operating voltage	D.C. voltage	[V DC]	12, 24, 42, 48
	A.C. voltage	[V AC]	24, 42, 48, 110, 230, 240 (50 ... 60 Hz)
Coil characteristics	D.C. voltage	[W]	4.5
	A.C. voltage	[VA]	Pull: 7.5 Hold: 6
Protection class to EN 60 529			IP65 (in combination with plug socket)

## Materials

Sectional view



1	Housing	Aluminium die-cast, anodised
-	Seals	Nitrile rubber

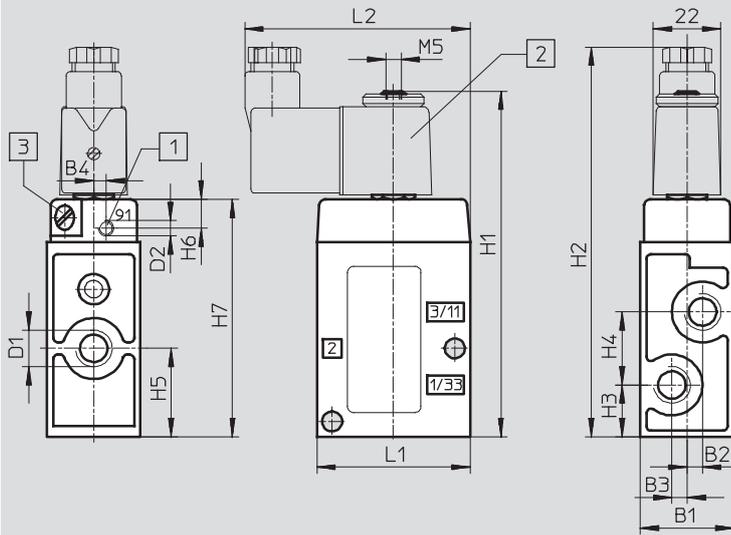
# Solenoid valves MFH, Tiger Classic

Technical data – 3/2-way valves

## Dimensions

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

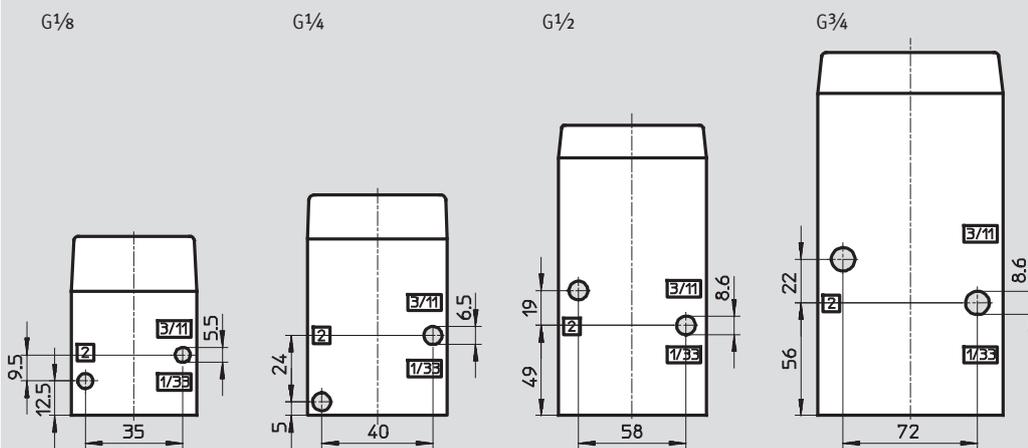
MFH, MOFH



- 1 Additional connection for external pilot air with MFH-3-...-S
- 2 Solenoid coil is 360° rotatable
- 3 Manual override can be repositioned by 180°

Pneumatic connection	B1	B2	B3	B4	D1	D2	H1	H2	H3	H4	H5	H6	H7	L1	L2
G $\frac{1}{8}$	26	3.5	3.5	2.7	G $\frac{1}{8}$	M5	97	111	12.5	19	22	9.5	63	45	71
G $\frac{1}{4}$	30.4	5	5	4	G $\frac{1}{4}$	M5	112	126	17	24	29	9.5	78	50	74
G $\frac{1}{2}$	52	8	8	-	G $\frac{1}{2}$	G $\frac{1}{8}$	151	165	30	38	49	10.5	117	80	89
G $\frac{3}{4}$	68	8	8	-	G $\frac{3}{4}$	G $\frac{1}{8}$	171	185	34	44	56	11	137	92	95

## Attachment diagram



# Solenoid valves MFH, Tiger Classic

Technical data – 3/2-way valves

Ordering data				
Circuit symbol	Description	Pneumatic connection	Part No.	Type
	Without F solenoid coil <sup>1)</sup> , internal pilot air supply	G $\frac{1}{8}$	7802	MFH-3-1/8
		G $\frac{1}{4}$	9964	MFH-3-1/4
		G $\frac{1}{2}$	9857	MFH-3-1/2
		G $\frac{3}{4}$	11967	MFH-3-3/4
	Without F solenoid coil <sup>1)</sup> , internal pilot air supply	G $\frac{1}{8}$	7877	MOFH-3-1/8
		G $\frac{1}{4}$	7876	MOFH-3-1/4
		G $\frac{1}{2}$	7884	MOFH-3-1/2
		G $\frac{3}{4}$	11969	MOFH-3-3/4
	Without F solenoid coil <sup>1)</sup> , external pilot air supply	G $\frac{1}{8}$	7958	MFH-3-1/8-S
		G $\frac{1}{4}$	7959	MFH-3-1/4-S
		G $\frac{1}{2}$	7960	MFH-3-1/2-S
		G $\frac{3}{4}$	11968	MFH-3-3/4-S

1) F solenoid coils → 44

Ordering data – Wearing parts kits		
Pneumatic connection	Part No.	Type
G $\frac{1}{8}$	104206	MFH-3-1/8
G $\frac{1}{4}$	104207	MFH-3-1/4
G $\frac{1}{2}$	104208	MFH-3-1/2

# Solenoid valves MFH, Tiger Classic

Technical data – 5/2-way valves

Flow rate

500 ... 3,700 l/min

Voltage

12, 24, 42, 48 V DC  
24, 42, 48, 110, 230,  
240 V AC

Wearing parts kits

→ 21



General technical data				
Pneumatic connection		G1/8	G1/4	G1/2
Valve function		5/2-way, single solenoid		
Constructional design		Poppet valve		
Sealing principle		Soft		
Actuation type		Electrical		
Type of reset		Mechanical spring		
Type of control		Piloted		
Direction of flow		Non reversible		
Pilot air supply		Internal or external		
Exhaust function		With flow control		
Manual override		Detenting		
Type of mounting		Via through holes		
Mounting position		Any		
Nominal size	[mm]	5	7	14
Standard nominal flow rate	[l/min]	500	1,000	3,700
Product weight	[g]	270	290	1,135

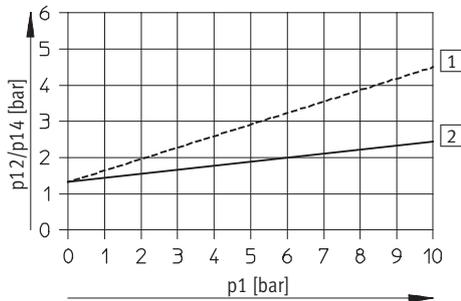
Operating and environmental conditions					
Pneumatic connection		G1/8	G1/4	G1/2	
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]			
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)			
Operating pressure	Internal pilot air supply	[bar]	1.8 ... 8	2.2 ... 8	2 ... 8
	External pilot air supply	[bar]	0 ... 10	0 ... 8	0 ... 8
Pilot pressure		[bar]	1 ... 8	1.5 ... 8	1.5 ... 8
Ambient temperature		[°C]	-5 ... +40		
Temperature of medium		[°C]	-10 ... +60		
Note on materials		RoHS-compliant			

# Solenoid valves MFH, Tiger Classic

Technical data – 5/2-way valves

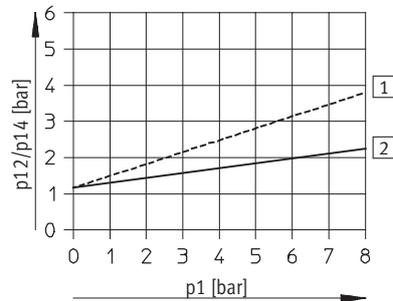
## Minimal pilot pressure $p_{12}$ , $p_{14}$ as a function of operating pressure $p_1$ (external pilot air supply)

MFH-5-1/8-S



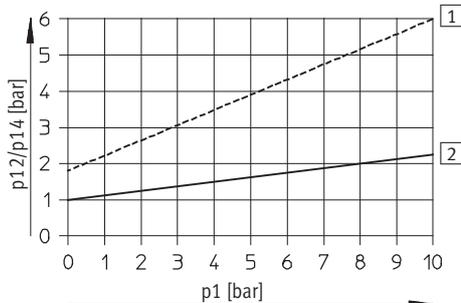
----- Exhaust throttled  
 ———— Exhaust unthrottled

MFH-5-1/4-S



----- Exhaust throttled  
 ———— Exhaust unthrottled

MFH-5-1/2-S



----- Exhaust throttled  
 ———— Exhaust unthrottled

## Valve response times [ms]

Pneumatic connection	G $\frac{1}{8}$		G $\frac{1}{4}$		G $\frac{1}{2}$	
Pilot air supply	Internal	External	Internal	External	Internal	External
On	8	8	9	9	15	21
Off	36	36	29	29	154	150

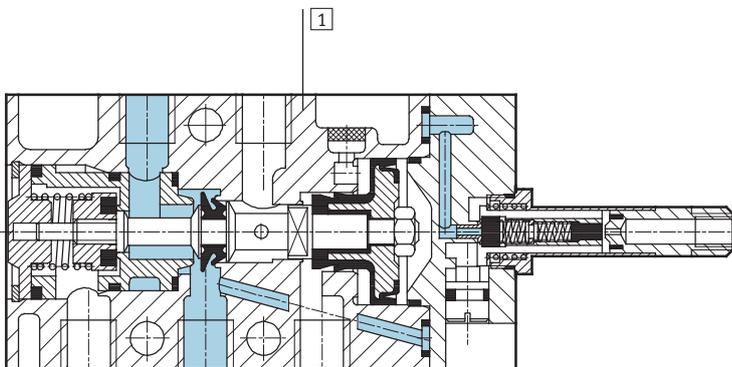
# Solenoid valves MFH, Tiger Classic

Technical data – 5/2-way valves

Electrical data			
F solenoid coil			
Electrical connection		Plug vanes for plug sockets MSSD-F, KMF	
Operating voltage	D.C. voltage	[V DC]	12, 24, 42, 48
	A.C. voltage	[V AC]	24, 42, 48, 110, 230, 240 (50 ... 60 Hz)
Coil characteristics	D.C. voltage	[W]	4.5
	A.C. voltage	[VA]	Pull: 7.5 Hold: 6
Protection class to EN 60 529		IP65 (in combination with plug socket)	

## Materials

Sectional view



1	Housing	Aluminium die-cast, anodised
-	Seals	Nitrile rubber

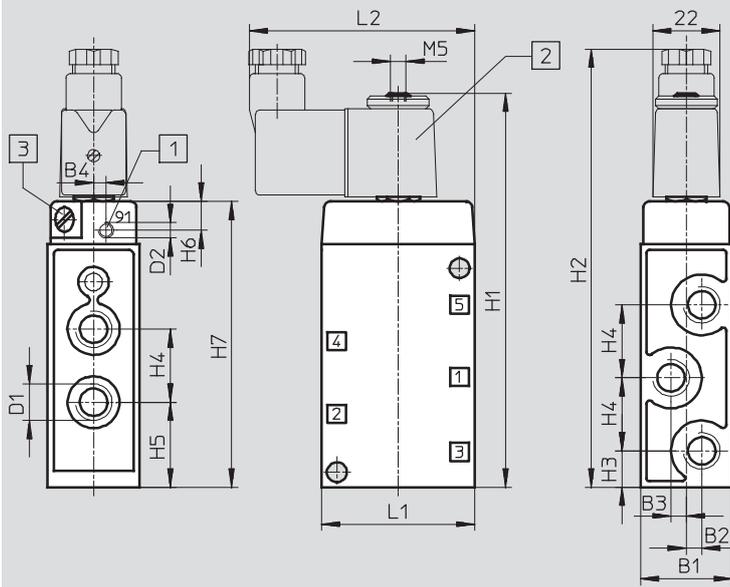
# Solenoid valves MFH, Tiger Classic

Technical data – 5/2-way valves

## Dimensions

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

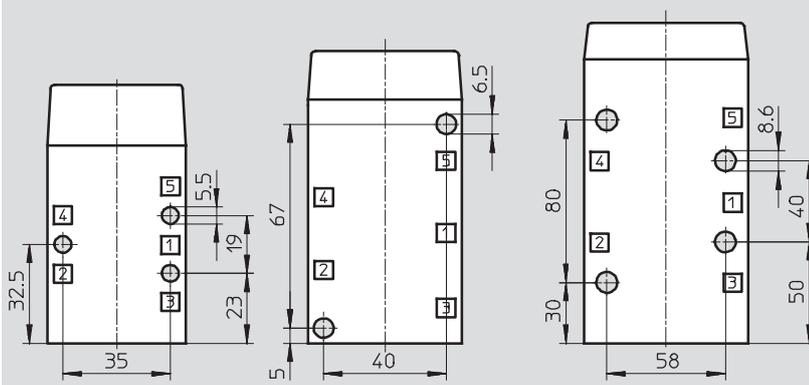
MFH



- 1 Additional connection for external pilot air with MFH-5-...-S
- 2 Solenoid coil is 360° rotatable
- 3 Manual override can be repositioned by 180°

Pneumatic connection	B1	B2	B3	B4	D1	D2	H1	H2	H3	H4	H5	H6	H7	L1	L2
G $\frac{1}{8}$	26	3.5	3.5	2.7	G $\frac{1}{8}$	M5	117	131	13.5	19	23	9.5	83	45	71
G $\frac{1}{4}$	30.4	–	5	4	G $\frac{1}{4}$	M5	128	143	12	24	28	9.5	128	50	74
G $\frac{1}{2}$	52	–	8	–	G $\frac{1}{2}$	G $\frac{1}{8}$	192	209	32	38	51	10.5	158	80	89

## Attachment diagram



# Solenoid valves MFH, Tiger Classic

Technical data – 5/2-way valves

Ordering data				
Circuit symbol	Description	Pneumatic connection	Part No.	Type
	Without F solenoid coil <sup>1)</sup> , internal pilot air supply	G <sup>1</sup> / <sub>8</sub>	<b>9982</b>	<b>MFH-5-1/8</b>
		G <sup>1</sup> / <sub>4</sub>	<b>6211</b>	<b>MFH-5-1/4</b>
		G <sup>1</sup> / <sub>2</sub>	<b>6420</b>	<b>MFH-5-1/2</b>
	Without F solenoid coil <sup>1)</sup> , external pilot air supply	G <sup>1</sup> / <sub>8</sub>	<b>10348</b>	<b>MFH-5-1/8-S</b>
		G <sup>1</sup> / <sub>4</sub>	<b>10349</b>	<b>MFH-5-1/4-S</b>
		G <sup>1</sup> / <sub>2</sub>	<b>35547</b>	<b>MFH-5-1/2-S</b>

1) F solenoid coils → 44

Ordering data – Wearing parts kits		
Pneumatic connection	Part No.	Type
G <sup>1</sup> / <sub>8</sub>	<b>104209</b>	<b>MFH-5-1/8<sup>1)2)</sup></b>
G <sup>1</sup> / <sub>4</sub>	<b>104211</b>	<b>MFH-5-1/4<sup>3)4)</sup></b>

- 1) Order mounting sleeves 228 389 separately
- 2) Use up to E602 series
- 3) Order mounting sleeves 229 363 separately
- 4) Use from 1/81 series

# Double solenoid valves JMFH, Tiger Classic

FESTO

Technical data – 5/2-way double solenoid valves

Flow rate

600 ... 4,500 l/min

Voltage

12, 24, 42, 48 V DC  
24, 42, 48, 110, 230,  
240 V AC

Wearing parts kits

→ 26



General technical data					
Pneumatic connection		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{2}$	
Valve function		5/2-way, double solenoid			
Constructional design		Poppet valve			
Sealing principle		Soft			
Actuation type		Electrical			
Type of control		Piloted			
Pilot air supply		Internal or external			
Direction of flow		Non reversible			
Exhaust function		With flow control			
Manual override		Detenting			
Type of mounting		Via through holes			
Mounting position		Any			
Nominal size		[mm]	5	7	14
Standard nominal flow rate	Internal pilot air supply	[l/min]	600	1,100	4,500
	External pilot air supply	[l/min]	600	1,100	4,000
Product weight			425	530	1,210

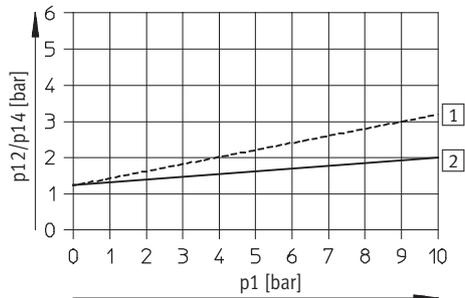
Operating and environmental conditions					
Pneumatic connection		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{2}$	
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]			
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)			
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	1.5 ... 8	2 ... 8
	External pilot air supply	[bar]	0 ... 8	0 ... 8	0 ... 8
	With dominant signal	[bar]	2.5 ... 8	2.5 ... 8	–
Pilot pressure		[bar]	1.2 ... 8	1.2 ... 8	0.5 ... 8
Ambient temperature		[°C]	–5 ... +40		
Temperature of medium		[°C]	–10 ... +60		
Note on materials			RoHS-compliant		

# Double solenoid valves JMFH, Tiger Classic

Technical data – 5/2-way double solenoid valves

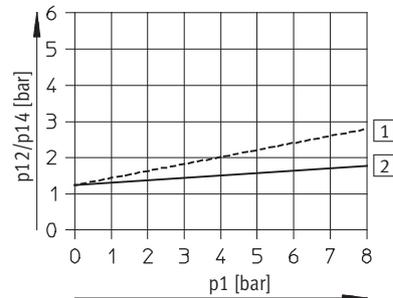
## Minimal pilot pressure p12, p14 as a function of operating pressure p1 (external pilot air supply)

JMFH-5-1/8-S



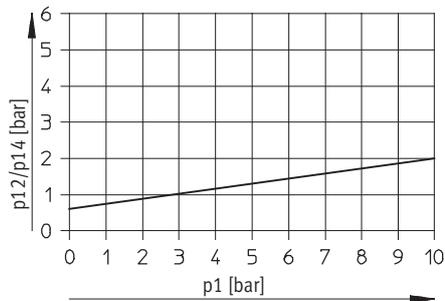
----- Exhaust throttled  
 ————— Exhaust unthrottled

JMFH-5-1/4-S



----- Exhaust throttled  
 ————— Exhaust unthrottled

JMFH-5-1/2-S



## Valve response times [ms]

Pneumatic connection	G <sup>1</sup> / <sub>8</sub>	Dominating signal at 14		G <sup>1</sup> / <sub>4</sub>	Dominating signal at 14		G <sup>1</sup> / <sub>2</sub>
Internal pilot air supply							
On/changeover	–	16	–	24	–	–	–
Off/changeover	18	24	11	32	20	–	–
External pilot air supply							
On/changeover	–	–	–	–	–	–	–
Off/changeover	18	–	11	–	20	–	–

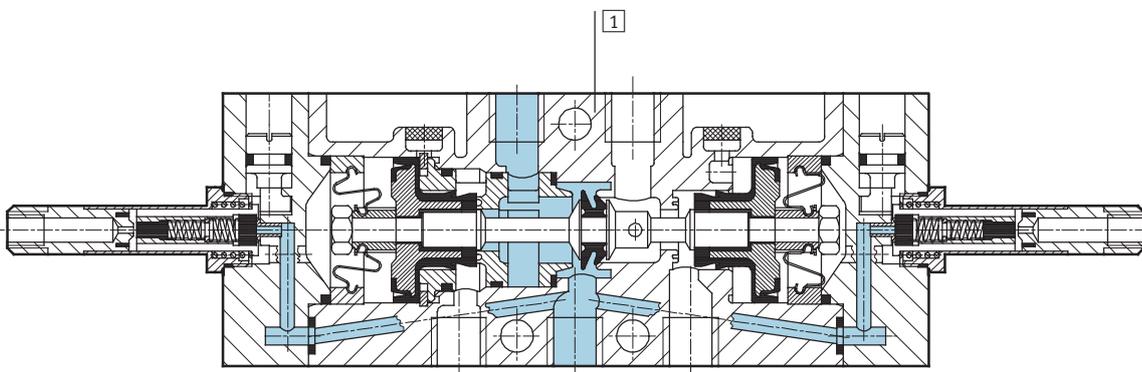
# Double solenoid valves JMFH, Tiger Classic

Technical data – 5/2-way double solenoid valves

Electrical data			
F solenoid coil			
Electrical connection		Plug vanes for plug sockets MSSD-F, KMF	
Operating voltage	D.C. voltage	[V DC]	12, 24, 42, 48
	A.C. voltage	[V AC]	24, 42, 48, 110, 230, 240 (50 ... 60 Hz)
Coil characteristics	D.C. voltage	[W]	4.5
	A.C. voltage	[VA]	Pull: 7.5 Hold: 6
Protection class to EN 60 529		IP65 (in combination with plug socket)	

## Materials

Sectional view



1	Housing	Aluminium die-cast, anodised
-	Seals	Nitrile rubber

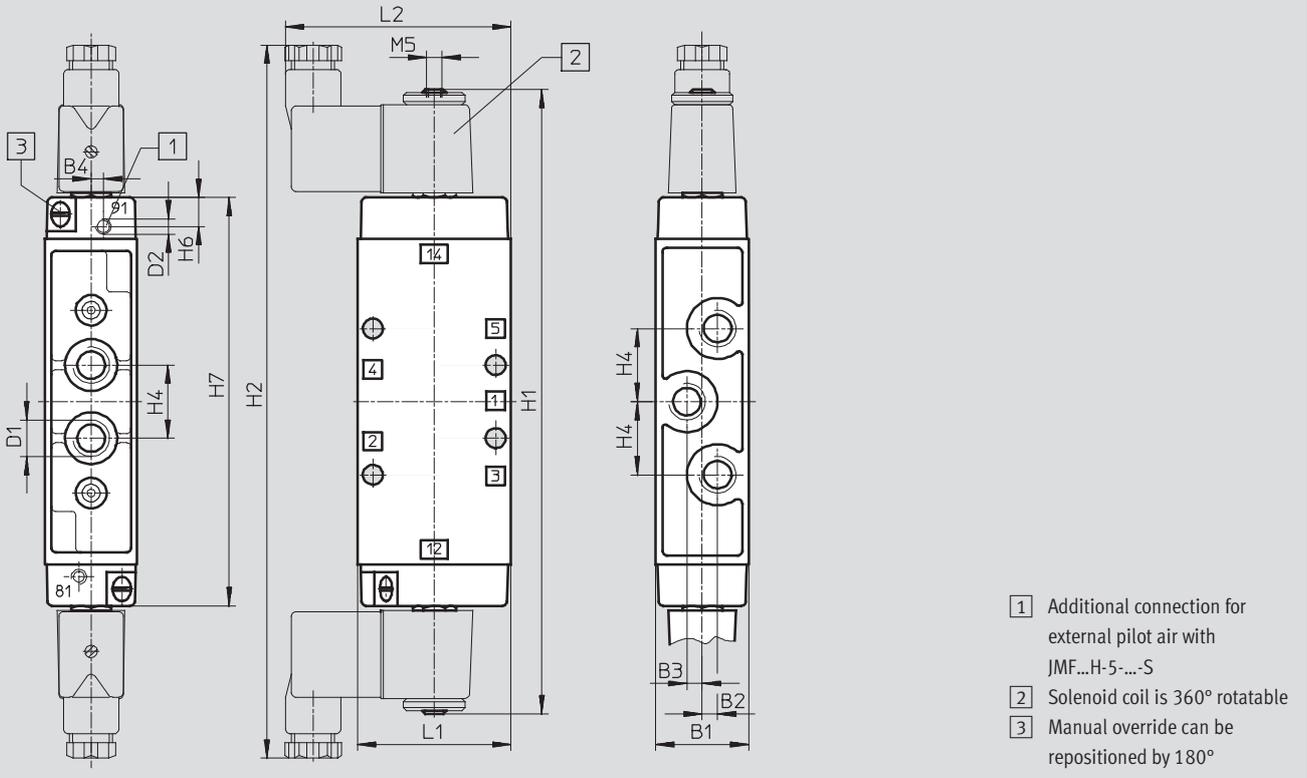
# Double solenoid valves JMFH, Tiger Classic

Technical data – 5/2-way double solenoid valves

## Dimensions

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

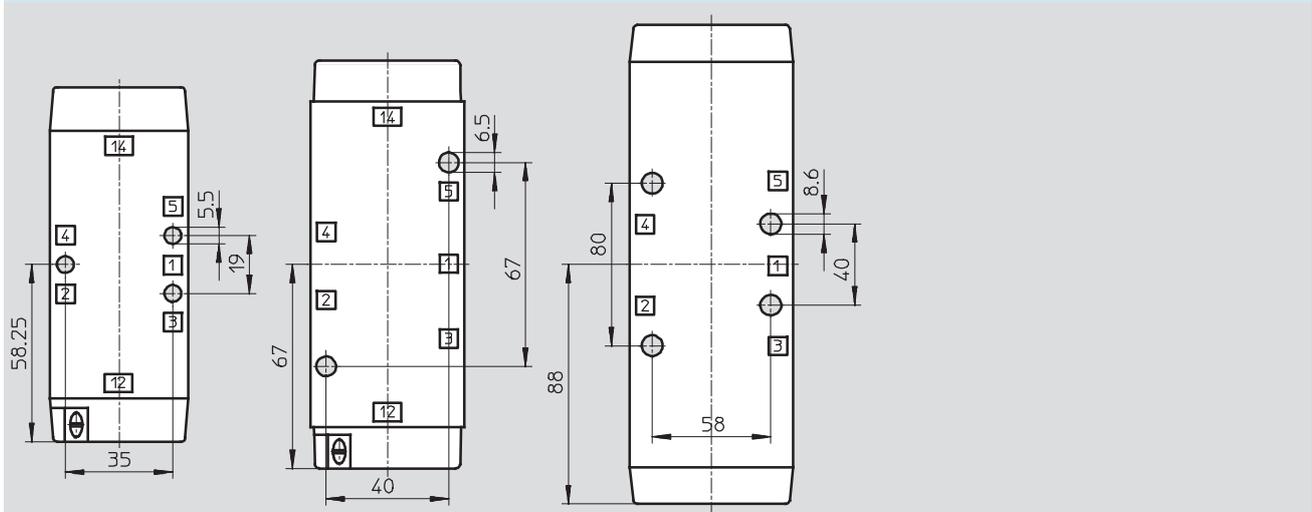
JMFH, JMFH



- 1 Additional connection for external pilot air with JMF...H-5-...-S
- 2 Solenoid coil is 360° rotatable
- 3 Manual override can be repositioned by 180°

Pneumatic connection	B1	B2	B3	B4	D1	D2	H1	H2	H4	H6	H7	L1	L2
G $\frac{1}{8}$	26	3.5	3.5	2.7	G $\frac{1}{8}$	M5	184	217	19	9.5	116.5	45	71
G $\frac{1}{4}$	30.4	-	5	4	G $\frac{1}{4}$	M5	202	235	24	9.5	134	50	74
G $\frac{1}{2}$	52	-	8	-	G $\frac{1}{2}$	G $\frac{1}{8}$	244	272	38	10.5	176	80	89

## Attachment diagram



# Double solenoid valves JMFH, Tiger Classic

Technical data – 5/2-way double solenoid valves

Ordering data				
Circuit symbol	Description	Pneumatic connection	Part No.	Type
	Without F solenoid coil <sup>1)</sup> , internal pilot air supply	G <sup>1</sup> / <sub>8</sub>	<b>8820</b>	<b>JMFH-5-1/8</b>
		G <sup>1</sup> / <sub>4</sub>	<b>10410</b>	<b>JMFH-5-1/4</b>
		G <sup>1</sup> / <sub>2</sub>	<b>10166</b>	<b>JMFH-5-1/2</b>
	Without F solenoid coil <sup>1)</sup> , external pilot air supply	G <sup>1</sup> / <sub>8</sub>	<b>14008</b>	<b>JMFH-5-1/8-S</b>
		G <sup>1</sup> / <sub>4</sub>	<b>14009</b>	<b>JMFH-5-1/4-S</b>
		G <sup>1</sup> / <sub>2</sub>	<b>35548</b>	<b>JMFH-5-1/2-S</b>
	Without F solenoid coil <sup>1)</sup> , internal pilot air supply, with dominating signal at 14	G <sup>1</sup> / <sub>8</sub>	<b>8821</b>	<b>JMFDH-5-1/8</b>
		G <sup>1</sup> / <sub>4</sub>	<b>10411</b>	<b>JMFDH-5-1/4</b>

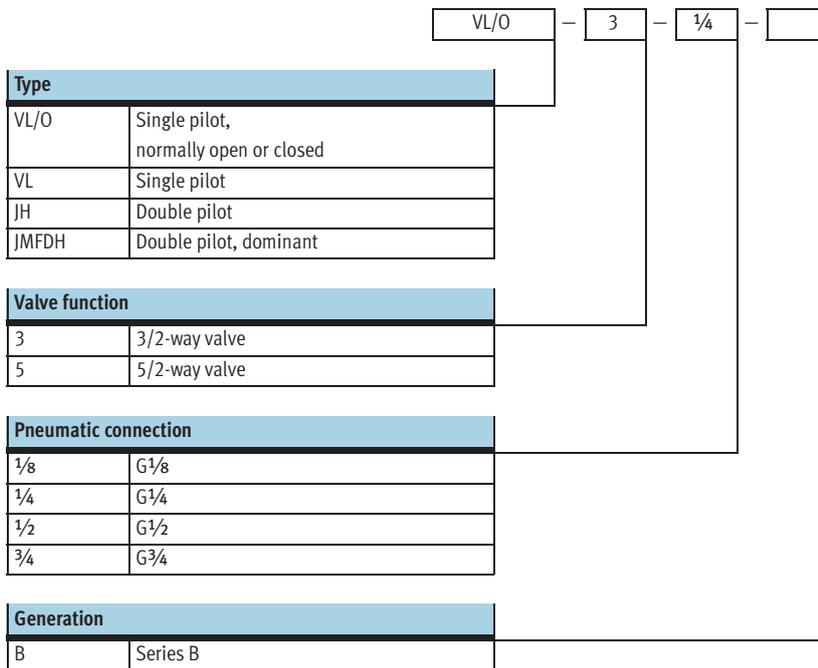
1) F solenoid coils → 44

Ordering data – Wearing parts kits		
Pneumatic connection	Part No.	Type
G <sup>1</sup> / <sub>8</sub>	<b>104891</b>	<b>JMFH-5-1/8<sup>1)</sup></b>
G <sup>1</sup> / <sub>4</sub>	<b>104892</b>	<b>JMFH-5-1/4<sup>2)</sup></b>

- 1) Order mounting sleeves 228 389 separately
- 2) Order mounting sleeves 229 363 separately

# Pneumatic valves, Tiger Classic

Type codes

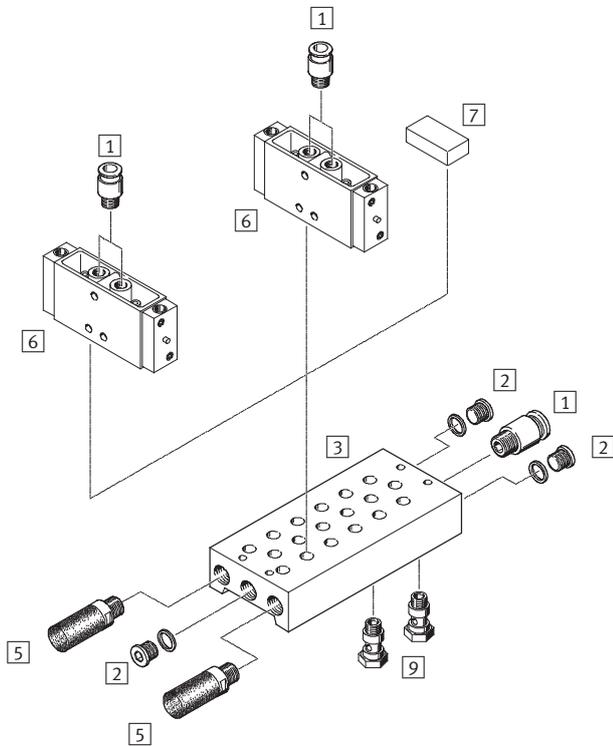


# Pneumatic valves, Tiger Classic

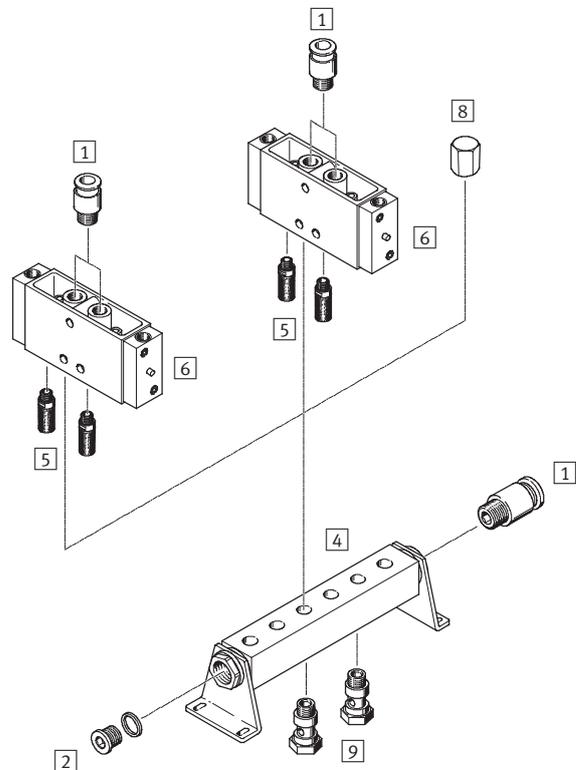
Peripherals overview

FESTO

## Mounting on manifold block



## Mounting on manifold strip



Accessories		Brief description	→ Page/Internet
1	Push-in fitting QS	For connecting standard O.D. tubing	quick star
2	Blanking plug G	3 included in the scope of delivery for PRS manifold block 1 included in the scope of delivery for PAL manifold strip	g
3	Manifold block PRS		42
4	Manifold strip PAL		40
5	Silencer	For fitting in exhaust ports	u
6	Pneumatic valve VL, JH		vl, jh
7	Blanking plate PRSB	For covering an unused valve position	43
8	Blanking cap VTM	For blanking an unused valve position	41
9	Hollow bolt VT	For distribution of compressed air or for separate compressed air supply	41

# Pneumatic valves VL/O, Tiger Classic

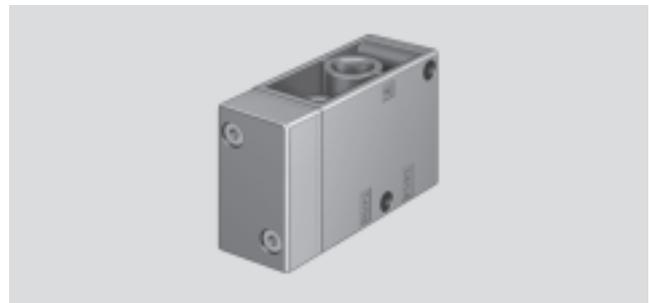
Technical data – 3/2-way valves

Flow rate

500 ... 7,500 l/min

Wearing parts kits

→ 32



General technical data				
Pneumatic connection	G1/8	G1/4	G1/2	G3/4
Valve function	3/2-way, single pilot			
Constructional design	Poppet valve			
Sealing principle	Soft			
Actuation type	Pneumatic			
Type of reset	Mechanical spring			
Type of pilot control	Direct			
Direction of flow	Reversible			
Exhaust function	With flow control			
Manual override	None			
Type of mounting	Via through holes			
Mounting position	Any			
Nominal size [mm]	5	7	14	19
Standard nominal flow rate	500	800	3,700	7,500
Product weight [g]	150	230	860	1,200

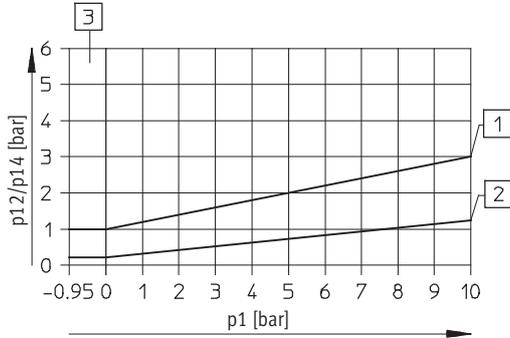
Operating and environmental conditions				
Pneumatic connection	G1/8	G1/4	G1/2	G3/4
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]			
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)			
Operating pressure	Normally closed [bar]	-0.95 ... +10	-0.95 ... +10	-0.95 ... +10
	Normally open [bar]	0 ... 10	0 ... 10	0 ... 10
Pilot pressure	See diagram (max. 10 bar)			
Ambient temperature [°C]	-10 ... +60			
Note on materials	RoHS-compliant			

# Pneumatic valves VL/O, Tiger Classic

Technical data – 3/2-way valves

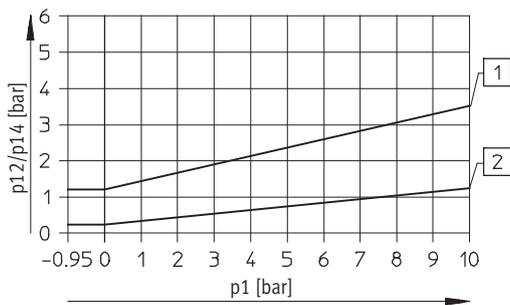
## Minimal pilot pressure $p_{12}/p_{14}$ as a function of operating pressure $p_1$

VL/O-3-1/8-B



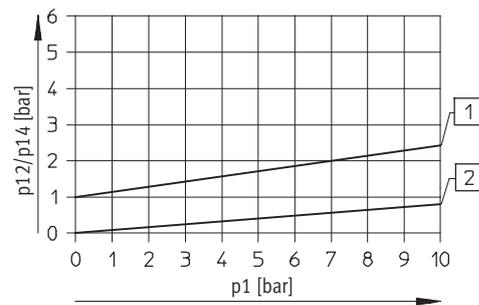
- 1 Switch-on pressure
- 2 Switch-off pressure
- 3 Only for normally closed

## VL/O-3-1/4 – Normally closed



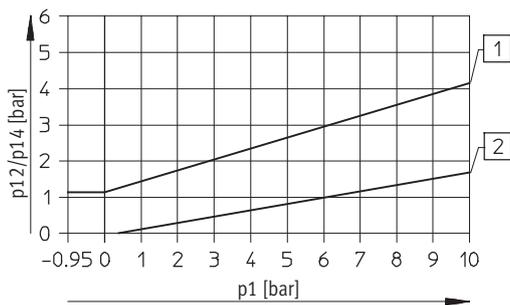
- 1 Switch-on pressure
- 2 Switch-off pressure

## VL/O-3-1/4 – Normally open



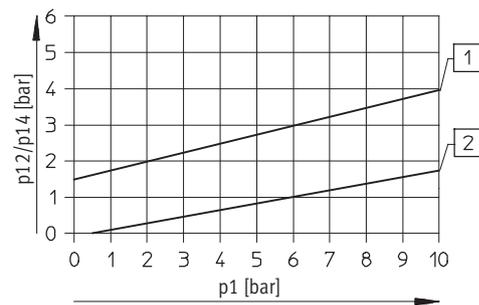
- 1 Switch-on pressure
- 2 Switch-off pressure

## VL/O-3-1/2 – Normally closed



- 1 Switch-on pressure
- 2 Switch-off pressure

## VL/O-3-1/2 – Normally open

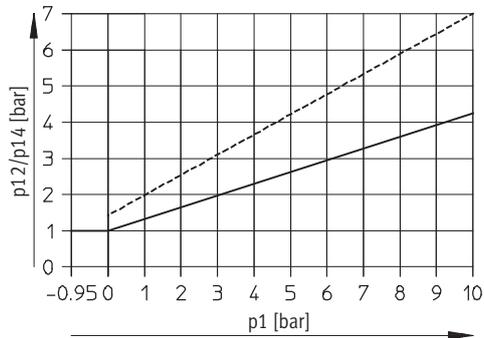


- 1 Switch-on pressure
- 2 Switch-off pressure

# Pneumatic valves VL/O, Tiger Classic

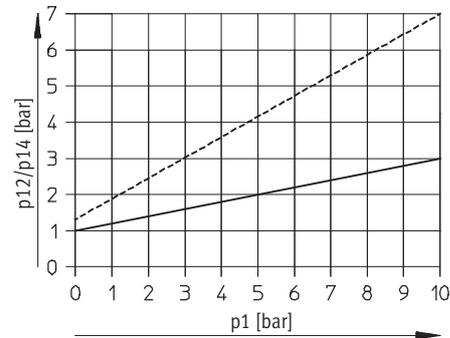
Technical data – 3/2-way valves

VL/O-3-3/4 – Normally closed



----- Exhaust throttled  
 ——— Exhaust unthrottled

VL/O-3-3/4 – Normally open

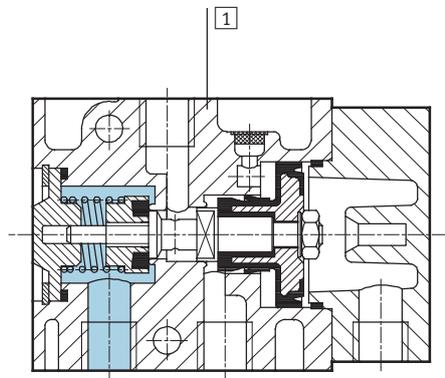


----- Exhaust throttled  
 ——— Exhaust unthrottled

Valve response times [ms]				
Pneumatic connection	G1/8	G1/4	G1/2	G3/4
On	4	8	17	23
Off	10	30	30	23

## Materials

Sectional view

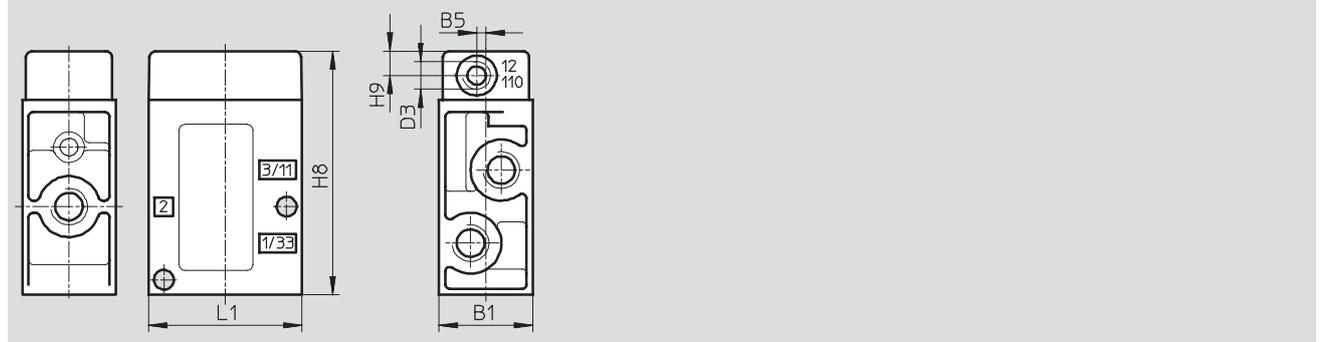


1	Housing	Aluminium die-cast, anodised
-	Seals	Nitrile rubber

# Pneumatic valves VL/O, Tiger Classic

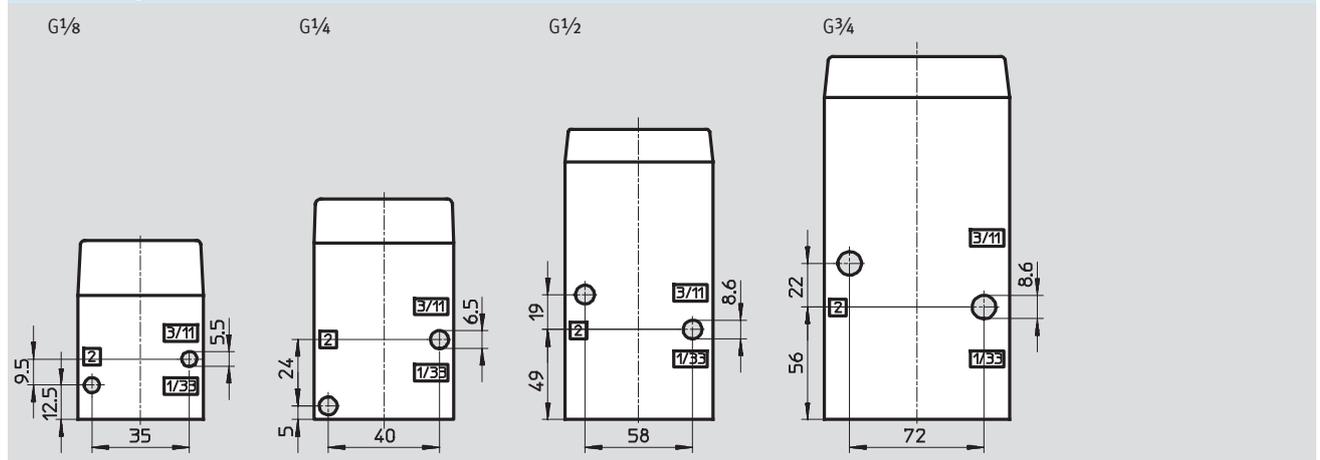
Technical data – 3/2-way valves

**Dimensions** Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)



Pneumatic connection	B1	B5	D3	H8	H9	L1
G <sup>1</sup> / <sub>8</sub>	26	3	G <sup>1</sup> / <sub>8</sub>	65	8	45
G <sup>1</sup> / <sub>4</sub>	30.4	-	G <sup>1</sup> / <sub>8</sub>	80	8	50
G <sup>1</sup> / <sub>2</sub>	52	-	G <sup>1</sup> / <sub>4</sub>	118	10	80
G <sup>3</sup> / <sub>4</sub>	68	-	G <sup>1</sup> / <sub>4</sub>	138	10	92

**Attachment diagram**



**Ordering data**

Circuit symbol	Description	Pneumatic connection	Part No.	Type
	Mechanical reset, optionally normally open or closed	G <sup>1</sup> / <sub>8</sub>	7803	VL/O-3- <sup>1</sup> / <sub>8</sub> -B
		G <sup>1</sup> / <sub>4</sub>	9984	VL/O-3- <sup>1</sup> / <sub>4</sub>
		G <sup>1</sup> / <sub>2</sub>	9983	VL/O-3- <sup>1</sup> / <sub>2</sub>
		G <sup>3</sup> / <sub>4</sub>	10049	VL/O-3- <sup>3</sup> / <sub>4</sub>

**Ordering data – Wearing parts kits**

Pneumatic connection	Part No.	Type
G <sup>1</sup> / <sub>8</sub>	104222	VL/O-3- <sup>1</sup> / <sub>8</sub> -B
G <sup>1</sup> / <sub>4</sub>	104207	VL/O-3- <sup>1</sup> / <sub>4</sub>
G <sup>1</sup> / <sub>2</sub>	104208	VL/O-3- <sup>1</sup> / <sub>2</sub>

# Pneumatic valves VL, Tiger Classic

Technical data – 5/2-way valves

Flow rate

500 ... 3,700 l/min

Wearing parts kits

→ 35



General technical data					
Pneumatic connection		G1/8	G1/4	G1/2	
Valve function		5/2-way, single pilot			
Constructional design		Poppet valve			
Sealing principle		Soft			
Actuation type		Pneumatic			
Type of reset		Mechanical spring			
Type of pilot control		Direct			
Direction of flow		Non reversible			
Manual override		None			
Exhaust function		With flow control			
Type of mounting		Via through holes			
Mounting position		Any			
Nominal size		[mm]	5	7	14
Standard nominal flow rate		[l/min]	500	800	3,700
Product weight			180	220	1,070

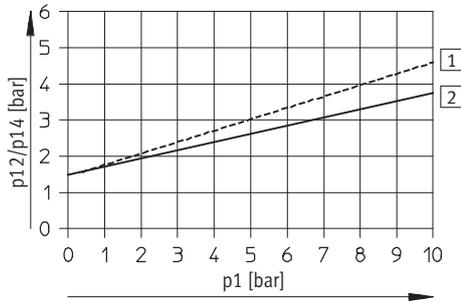
Operating and environmental conditions					
Pneumatic connection		G1/8	G1/4	G1/2	
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]			
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)			
Operating pressure		[bar]	0 ... 10	0 ... 8	0 ... 10
Pilot pressure		[bar]	See diagram (max. 10 bar)		
Ambient temperature		[°C]	-10 ... +60		
Note on materials		RoHS-compliant			

# Pneumatic valves VL, Tiger Classic

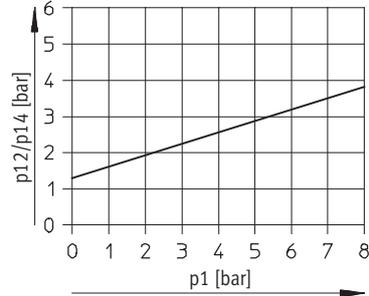
Technical data – 5/2-way valves

## Minimal pilot pressure $p_{12}/p_{14}$ as a function of operating pressure $p_1$

VL-5-1/8

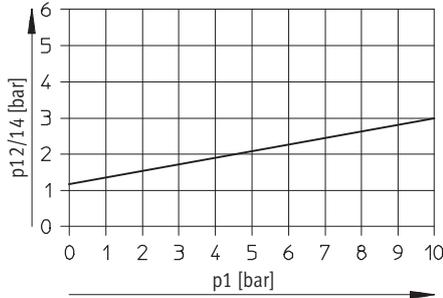


VL-5-1/4



----- Exhaust throttled  
 ————— Exhaust unthrottled

VL-5-1/2

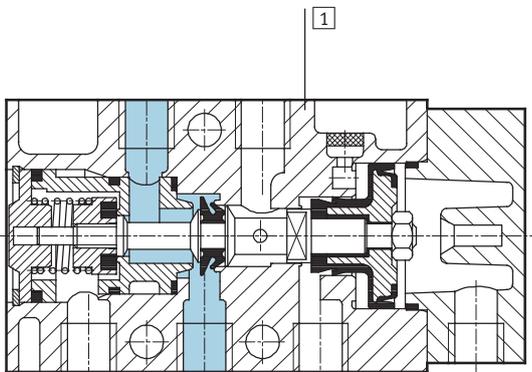


## Valve response times [ms]

Pneumatic connection	G1/8	G1/4	G1/2
On	5	8	6
Off	16	12	27

## Materials

Sectional view

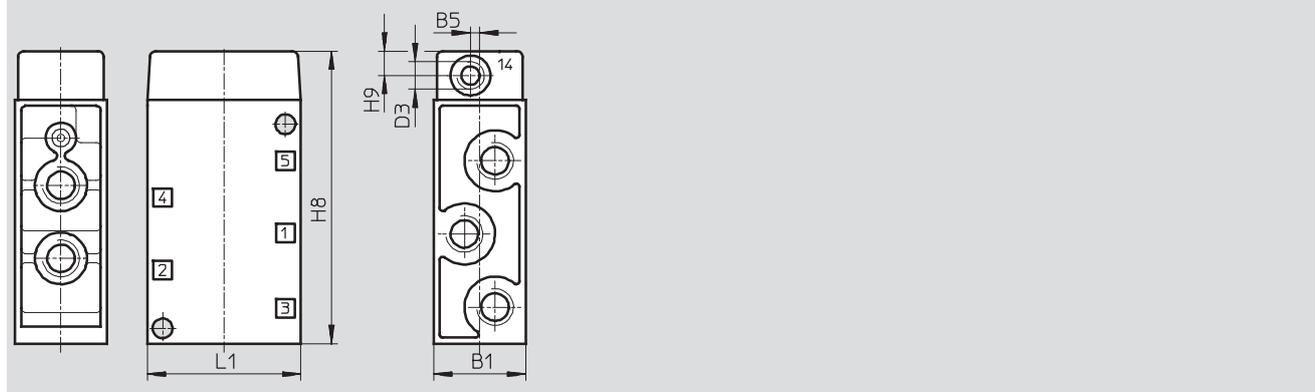


1	Housing	Aluminium die-cast, anodised
-	Seals	Nitrile rubber

# Pneumatic valves VL, Tiger Classic

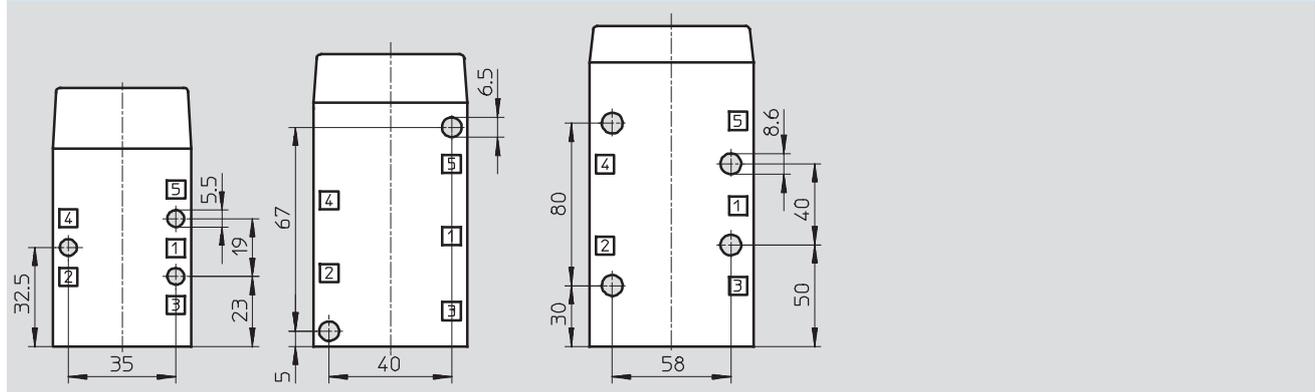
Technical data – 5/2-way valves

**Dimensions** Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)



Pneumatic connection	B1	B5	D3	H8	H9	L1
G <sup>1</sup> / <sub>8</sub>	26	3	G <sup>1</sup> / <sub>8</sub>	85	8	45
G <sup>1</sup> / <sub>4</sub>	30.4	-	G <sup>1</sup> / <sub>8</sub>	96	8	50
G <sup>1</sup> / <sub>2</sub>	52	-	G <sup>1</sup> / <sub>4</sub>	159	10	80

**Attachment diagram**



Ordering data				
Circuit symbol	Description	Pneumatic connection	Part No.	Type
	Mechanical reset	G <sup>1</sup> / <sub>8</sub>	9764	VL-5- <sup>1</sup> / <sub>8</sub>
		G <sup>1</sup> / <sub>4</sub>	9199	VL-5- <sup>1</sup> / <sub>4</sub>
		G <sup>1</sup> / <sub>2</sub>	9445	VL-5- <sup>1</sup> / <sub>2</sub>

Ordering data – Wearing parts kits		
Pneumatic connection	Part No.	Type
G <sup>1</sup> / <sub>8</sub>	104209	VL-5- <sup>1</sup> / <sub>8</sub> <sup>1)</sup>
G <sup>1</sup> / <sub>4</sub>	104211	VL-5- <sup>1</sup> / <sub>4</sub> <sup>2)3)</sup>
G <sup>1</sup> / <sub>2</sub>	104212	VL-5- <sup>1</sup> / <sub>2</sub>

- 1) Order mounting sleeves 228 389 separately
- 2) Order mounting sleeves 229 363 separately
- 3) Use from 1/81 series

# Pneumatic valves JH, Tiger Classic

FESTO

Technical data – 5/2-way valves, double pilot valves

Flow rate

600 ... 4,500 l/min

Wearing parts kits

→ 39



General technical data			
Pneumatic connection	G1/8	G1/4	G1/2
Valve function	5/2-way, double pilot		
Constructional design	Poppet valve		
Sealing principle	Soft		
Actuation type	Pneumatic		
Type of pilot control	Direct		
Direction of flow	Non reversible		
Exhaust function	With flow control		
Manual override	Resetting		
Type of mounting	Via through holes		
Mounting position	Any		
Nominal size [mm]	5	7	14
Standard nominal flow rate	600	1,100	4,500
Product weight [g]	245	330	1,130

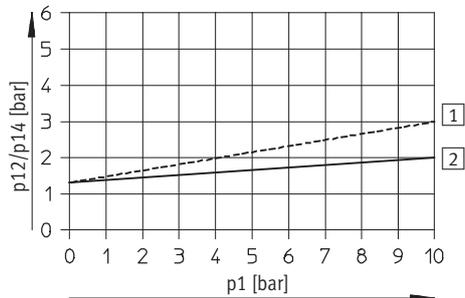
Operating and environmental conditions			
Pneumatic connection	G1/8	G1/4	G1/2
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]		
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)		
Operating pressure [bar]	0 ... 10	0 ... 8	0 ... 10
Pilot pressure [bar]	See diagram (max. 10 bar)		
Ambient temperature [°C]	-10 ... +60		
Note on materials	RoHS-compliant		

# Pneumatic valves JH, Tiger Classic

Technical data – 5/2-way valves, double pilot valves

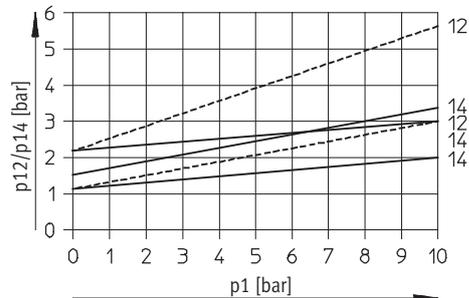
## Minimal pilot pressure $p_{12}/p_{14}$ as a function of operating pressure $p_1$

JH-5-1/8



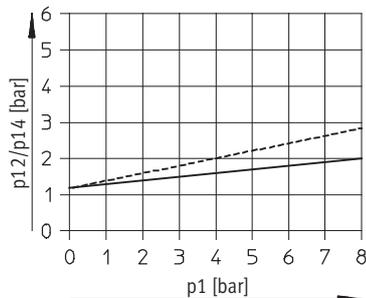
----- Exhaust throttled  
 ——— Exhaust unthrottled

JDH-5-1/8



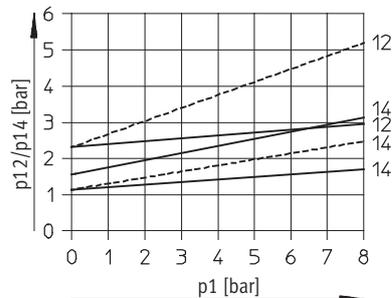
----- Exhaust throttled  
 ——— Exhaust unthrottled

JH-5-1/4



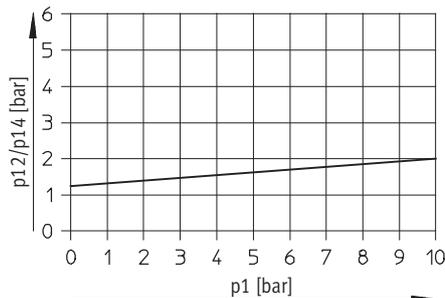
----- Exhaust throttled  
 ——— Exhaust unthrottled

JDH-5-1/4



----- Exhaust throttled  
 ——— Exhaust unthrottled

JH-5-1/2



## Valve response times [ms]

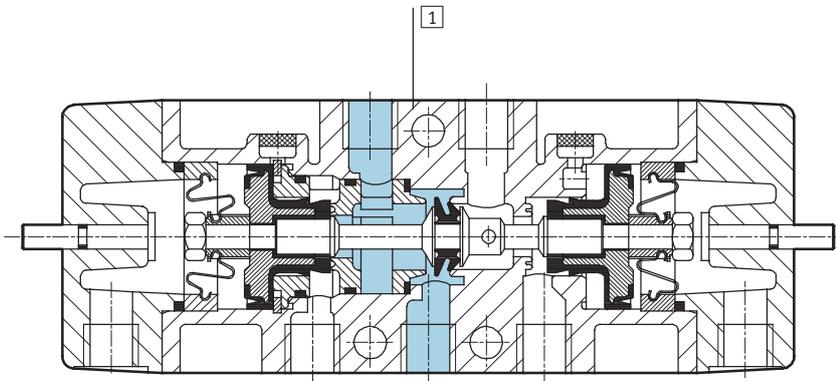
Pneumatic connection	G1/8		G1/4		G1/2
		Dominating signal at 14		Dominating signal at 14	
On/changeover	–	9	–	7	–
Off/changeover	2	16	7	16	3

# Pneumatic valves JH, Tiger Classic

Technical data – 5/2-way valves, double pilot valves

## Materials

Sectional view

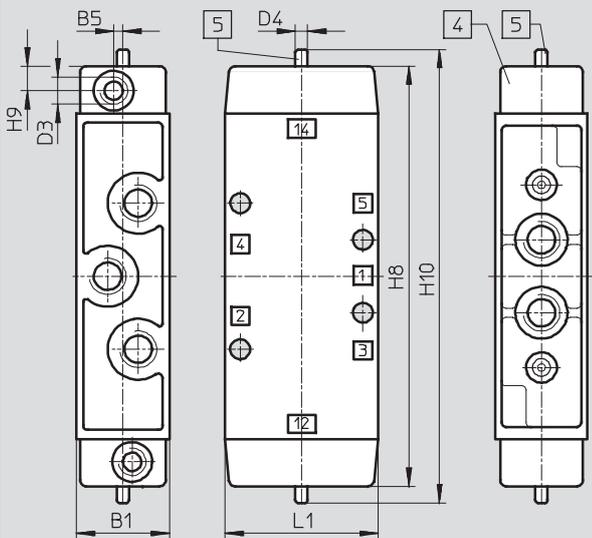


1	Housing	Aluminium die-cast, anodised
-	Seals	Nitrile rubber

## Dimensions

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

JH, JDH



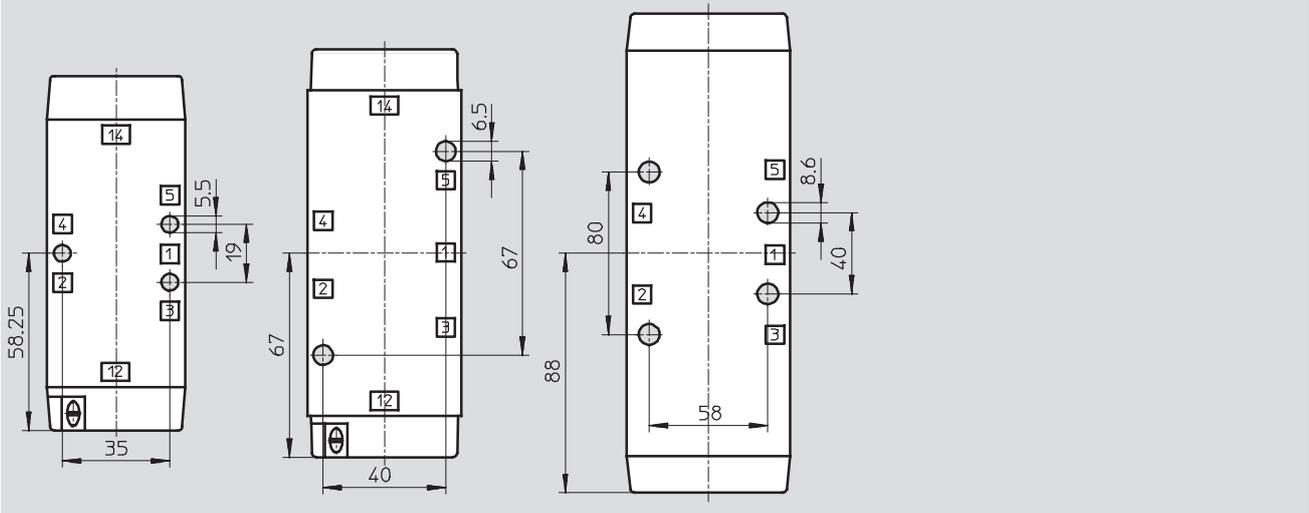
- 4 Cover can be repositioned by 180°
- 5 Manual override

Pneumatic connection	B1	B5	D3	D4 ∅	H8	H9	H10	L1
G <sup>1</sup> / <sub>8</sub>	26	3	G <sup>1</sup> / <sub>8</sub>	5	120	8	132	45
G <sup>1</sup> / <sub>4</sub>	30.4	-	G <sup>1</sup> / <sub>8</sub>	5	138	8	149	50
G <sup>1</sup> / <sub>2</sub>	52	-	G <sup>1</sup> / <sub>4</sub>	9.9	178	10	193	80

# Pneumatic valves JH, Tiger Classic

Technical data – 5/2-way valves, double pilot valves

Attachment diagram



Ordering data				
Circuit symbol	Description	Pneumatic connection	Part No.	Type
		G1/8	8823	JH-5-1/8
		G1/4	10408	JH-5-1/4
		G1/2	10165	JH-5-1/2
	With dominating signal at 14	G1/8	8824	JDH-5-1/8
		G1/4	10409	JDH-5-1/4

Ordering data – Wearing parts kits		
Pneumatic connection	Part No.	Type
G1/8	104891	JH-5-1/8 <sup>1)</sup>
G1/4	104892	JH-5-1/4 <sup>2)</sup>

- 1) Order mounting sleeves 228 389 separately
- 2) Order mounting sleeves 229 363 separately

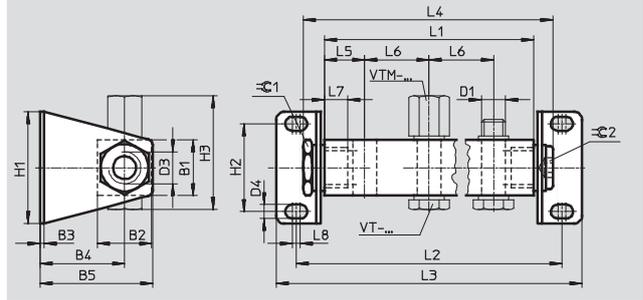
# Solenoid/pneumatic valves, Tiger Classic



Accessories

## Manifold strip PAL

Materials:  
Manifold: anodised aluminium  
Mounting bracket: galvanised steel



Dimensions and ordering data																		
Type	B1	B2	B3	B4	B5	D1	D3	D4	H1	H2	H3	L5	L6	L7	L8	$\varnothing 1$	$\varnothing 2$	
PAL-1/8-...	20	21	2	33.5	44.5	G1/8	G1/4	5.2	44	32	43	18	34	12	4	19	8	
PAL-1/4-...	28	27	2	42	56	G1/4	G3/8	7	56	44	56	20	32	14	4	24	10	
PAL-1/2-...	40	40	3	73	93	G1/2	G3/4	11	80	60	75	35	69	16	5	36	17	

Number of valve ports	L1	L2	L3	L4	Weight [g]	Part No.	Type
Pneumatic connection G1/8							
2	70	96	114	89	145	8601	PAL-1/8-2
3	104	130	148	123	170	8602	PAL-1/8-3
4	138	164	182	157	190	8603	PAL-1/8-4
5	172	198	216	191	215	8604	PAL-1/8-5
6	206	232	250	225	240	9767	PAL-1/8-6
Pneumatic connection G1/4 <sup>1)</sup>							
2	72	100	120	94	330	9188	PAL-5-1/4-2
3	104	132	152	126	405	9189	PAL-5-1/4-3
4	136	164	184	158	480	9190	PAL-5-1/4-4
5	168	196	216	190	555	9191	PAL-5-1/4-5
6	200	228	248	222	630	9192	PAL-5-1/4-6
Pneumatic connection G1/2							
2	139	181	213	164	770	9492	PAL-1/2-2
3	208	250	282	233	915	9493	PAL-1/2-3
4	277	319	351	302	1 060	9494	PAL-1/2-4
5	346	388	420	371	1 220	9495	PAL-1/2-5
6	415	457	489	440	1 370	9496	PAL-1/2-6

1) MOFH-3-1/4 is not suitable for manifold mounting

# Solenoid/pneumatic valves, Tiger Classic

Accessories

## Hollow bolt

### VT

For manifold strip PAL

Material:

anodised aluminium



Ordering data			
Pneumatic connection	Weight [g]	Part No.	Type
G $\frac{1}{8}$	6	8626	VT- $\frac{1}{8}$
G $\frac{1}{4}$	15	5928	VT- $\frac{1}{8}$ -1 <sup>1)2)</sup>
G $\frac{1}{4}$	15	206147	VT- $\frac{1}{4}$ -2
G $\frac{1}{2}$	30	9986	VT- $\frac{1}{2}$

- 1) For valves with G $\frac{1}{8}$  connection
- 2) Sealing rings included in scope of delivery

## Blanking cap

### VTM

For sealing vacant valve positions

Material:

wrought aluminium alloy



Ordering data			
Pneumatic connection	Weight [g]	Part No.	Type
G $\frac{1}{8}$	5	9768	VTM- $\frac{1}{8}$
G $\frac{1}{4}$	5	9768	VTM- $\frac{1}{8}$ -1 <sup>1)</sup>
G $\frac{1}{4}$	7	3099	VTM- $\frac{1}{4}$
G $\frac{1}{2}$	28	9987	VTM- $\frac{1}{2}$

- 1) For valves with G $\frac{1}{8}$  connection

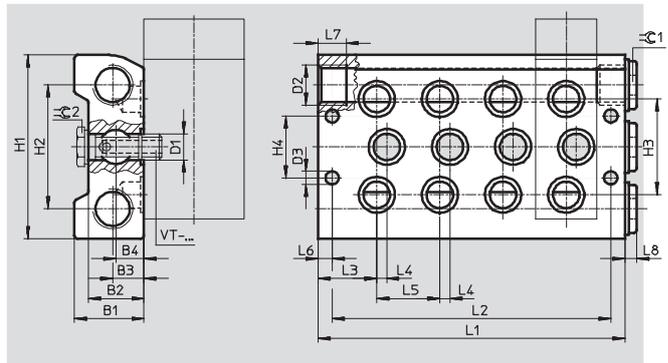
# Solenoid/pneumatic valves, Tiger Classic



Accessories

## Manifold block PRS

Material:  
anodised aluminium



Dimensions and ordering data																			
Type	B1	B2	B3	B4	D1	D2	D3	H1	H2	H3	H4	L3	L4	L5	L6	L7	L8	⊙ 1	⊙ 2
PRS-1/8-...	28.5	22	12.5	10.8	G1/8	G3/8	6.6	80	56	38	28	23.5	7	27	7	12	5	8	14
PRS-1/4-...	34.5	27.5	14	14	G1/4	G1/2	6.6	92	62	48	31	29.2	5	31.4	7	14	6	10	17

Number of valve ports	L1	L2	Weight [g]	Part No.	Type
Pneumatic connection G1/8					
2	81	67	360	11898	PRS-1/8-2
3	108	94	460	11899	PRS-1/8-3
4	135	121	625	11900	PRS-1/8-4
5	162	148	650	11901	PRS-1/8-5
6	189	175	750	11902	PRS-1/8-6
Pneumatic connection G1/4					
2	89.8	75.8	590	10185	PRS-1/4-2
3	121.2	107.2	750	10186	PRS-1/4-3
4	152.6	138.6	900	10187	PRS-1/4-4
5	184	170	1070	10188	PRS-1/4-5
6	215.4	201.4	1 230	1089	PRS-1/4-6

## Hollow bolt

VT  
For manifold block PRS

Material:  
anodised aluminium



Ordering data			
Pneumatic connection	Weight [g]	Part No.	Type
G1/8	17	11539	VT-1/8-PRSK
G1/4	32	9499	VT-1/4-PRS

# Solenoid/pneumatic valves, Tiger Classic

Accessories

## Blanking plate

### PRSB

For sealing vacant valve positions

Material:  
aluminium



Ordering data			
Pneumatic connection	Weight [g]	Part No.	Type
G <sup>1</sup> / <sub>8</sub>	55	11687	PRSB-1/8
G <sup>1</sup> / <sub>4</sub>	80	11688	PRSB-1/4

## Hollow bolt

### VT

For separate compressed air supply on valve

Material:  
anodised aluminium



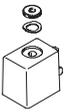
Ordering data			
Pneumatic connection	Weight [g]	Part No.	Type
G <sup>1</sup> / <sub>8</sub>	16	12634	VT-1/8-AJK-P
G <sup>1</sup> / <sub>4</sub>	24	12910	VT-1/8-AJS-P <sup>1)</sup>
G <sup>1</sup> / <sub>4</sub>	45	12635	VT-1/4-AJ-P

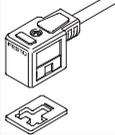
1) For valves with G<sup>1</sup>/<sub>8</sub> connection

# Solenoid/pneumatic valves, Tiger Classic

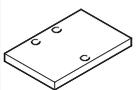
Accessories

**FESTO**

Ordering data – Solenoid coils		Technical data → Internet: msfg, msfw	
	Voltage	Part No.	Type
<b>F solenoid coils</b>			
	12 V DC	34410	MSFG-12-OD
	24 V DC and 42 V AC, 50 ... 60 Hz	34411	MSFG-24/42-50/60-OD
	42 V DC	34413	MSFG-42-OD
	24 V AC	34415	MSFW-24-50/60-OD
	48 V AC, 50 ... 60 Hz	34418	MSFW-48-50/60-OD
	110 V AC, 50 ... 60 Hz and 120 V AC, 60 Hz	34420	MSFW-110-50/60-OD
	230 V AC, 50 ... 60 Hz and 240 V AC, 60 Hz	34422	MSFW-230-50/60-OD
	240 V AC, 50 ... 60 Hz	34424	MSFW-240-50/60-OD

Ordering data – Plug sockets/plug sockets with cable for F solenoid coils				Technical data → Internet: mssd	
	Voltage	Cable length [m]	LED	Part No.	Type
<b>Plug socket without cable</b>					
	–	–	–	34431	MSSD-F
	–	–	–	539710	MSSD-F-M16
<b>Plug socket without cable with insulation displacement technology</b>					
	–	–	–	192746	MSSD-F-S-M16
<b>Plug socket with cable</b>					
Technical data → Internet: kmf					
	24 V DC	2.5	■	30935	KMF-1-24DC-2,5-LED
		5	■	30937	KMF-1-24DC-5-LED
		10	■	193458	KMF-1-24DC-10-LED
	Up to 240 V	2.5	–	30936	KMF-1-230AC-2,5
		5	–	30938	KMF-1-230AC-5

Ordering data – Illuminating seal		Technical data → Internet: mf-ld	
	Voltage	Part No.	Type
<b>For F solenoid coils</b>			
	12 ... 24 V DC	19143	MF-LD-12-24DC
	230 V DC/V AC	19144	MF-LD-230AC

Ordering data – Plate				Technical data → Internet: mf-ld	
	Description	Pneumatic connection	Part No.	Type	
<b>For wide solenoid coils</b>					
	As spacer when using wider solenoid coils from other manufacturers (thickness: 6.35 mm)	For 3/2-way valves	G1/8	541667	MPL-TC-3-18
			G1/4	541669	MPL-TC-3-14
		For 5/2-way valves	G1/8	541668	MPL-TC-5-18
			G1/4	541670	MPL-TC-5-14

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## A Complete Suite of Automation Services

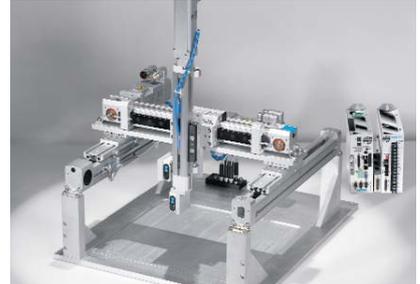
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