

2/2-way screw-in seated valves type EM, EMP

These 2/2-way ball seated directional valves are either directly or pilot actuated by a solenoid. With the directly actuated version the valve passage is opened or closed by a cone whereas with the piloted a piloting duct of a stepped piston is opened or closed generating a pressure difference at the opposing facial areas of the piston forcing it in the open or closed position.

Type EMP is a proportional valve, acting like a throttle but with zero leakage in blocked position. The dampened version will increase the switching time for on/off controls (hydraulic ramp). The wet armature solenoids for the valve actuation are pressure resistant, where all moving internal parts are flushed by oil.

There is a wide range of connection blocks either for pipe connection or for banjo bolt mounting, which may feature optional elements such as drain valve, by-pass throttle, pressure switch, 2-way flow control valve etc.



Nomenclature:	Directional seated valve, zero leakage
Design:	Screw-in valve Combination with connection blocks • For pipe connection • For banjo bolt mounting
Actuation:	Solenoid
p_{max}:	450 bar
Q_{max}:	1 ... 160 lpm

Basic types and general parameters

Operation mode	Basic type / size and symbol		Oper. pressure p_{max} (bar) ¹⁾	Flow Q_{max} (lpm)	Tapped ports (BSPP) A and B ²⁾
	Flow in arrowed direction	Arbitrary flow direction			
directly actuated	EM11D/EM21D		450/400	1/3	G 1/4
	EM11D0,8		150	2.5	G 1/4
Energized open	EM11V		450	20	G 1/4, G 3/8
	EM21V, EMP21V(G) ⁴⁾		400	40	G 3/8, G 1/2
	EMP21VG10(20) ⁴⁾		400	40	G 3/8, G 1/2
	EMP21V10(20) ³⁾		400	40	G 3/8, G 1/2
	EM31V, EMP31V(G) ⁴⁾		400	80	G 1/2, G 3/4
	EM41V		400	160	G 3/4, G 1
directly actuated	EM11DS/EM21DS		450/400	1/3	G 1/4
	EM11DS0,8		150	2.5	G 1/4
Energized closed	EM11S		450	20	G 1/4, G 3/8
	EM21S, EMP21S(G) ⁴⁾		400	40	G 3/8, G 1/2
	EMP21SG10(20) ⁴⁾		400	40	G 3/8, G 1/2
	EMP21S10(20) ³⁾		400	40	G 3/8, G 1/2
	EM31S, EMP31S(G) ⁴⁾		400	80	G 1/2, G 3/4
	EM41S		400	160	G 3/4, G 1

¹⁾ Pressure above 300 bar only with manifolds made of steel, pay attention to the possibly reduced rigidity of the thread with other materials (e.g. iron, light alloy)

²⁾ When combined with connection blocks for pipe connection

³⁾ Free flow B → A in idle position

⁴⁾ "G" dampened version

Solenoid voltage

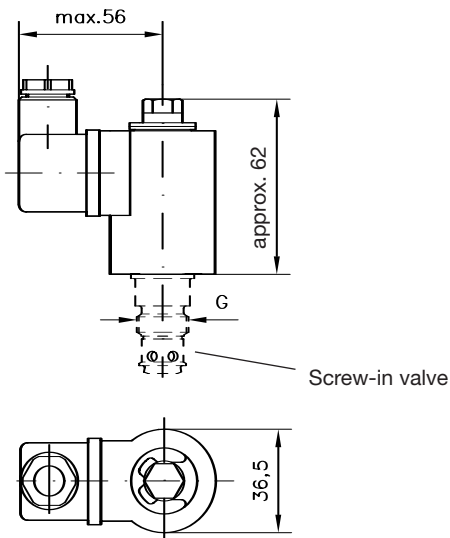
- 12V DC, 24V DC, 230V AC 50/60 Hz
- Other voltage on request

Additional versions

Connection blocks for pipe connection

- Without additional functions
- With drain valve
- With drain valve and restrictor check valve
- With drain valve and drop rate braking valve type SB ⁵⁾
- With pressure switch type DG 3.. ⁵⁾
- With 2-way flow control valve type SJ ⁵⁾

⁵⁾ See also "Additional information"

Dimensions

- Plug with LED, improving EMC, or with economy circuit (see also section "Additional information")
- Design with Kostal-plug (special plug)

Order examples**EM11 S - G12**

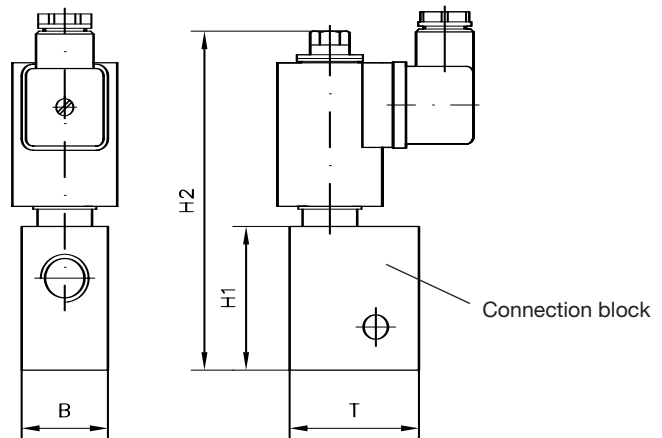
Directional seated valve type EM, size 1, flow pattern 1S (energized closed) and solenoid voltage 12V DC

EM21 V - 3/8 D - G24

Directional seated valve type EM, size 2, flow pattern 1V (energized open), connection block with by-pass valve and throttle (coding D), tapped ports G 3/8 (BSPP), solenoid voltage 24V DC

Valve with connection block for pipe connection

(acc. to the order example)



Basic type	G	m (kg)
EM1..	M 14 x 1.5	0.3
EM2.., EMP2..	M 18 x 1.5	0.35
EM3.., EMP3..	M 26 x 1.5	0.4
EM4..	M 32 x 2	0.6

All dimensions in mm, subject to change without notice !

Basic type	H1	H2	B	T	m (kg)
EM1..-1/4	40	approx. 120	20	35	0.6
EM1..-3/8	40	approx. 120	25	40	0.6
EM(P)2..-3/8	50	approx. 120	30	45	0.7
EM(P)2..-1/2	50	approx. 120	30	50	0.7
EM(P)3..-1/2	60	approx. 133	40	55	1.0
EM(P)3..-3/4	60	approx. 133	40	60	1.0
EM4..-3/4	70	approx. 150	40	65	1.2
EM4..-1	70	approx. 150	50	70	1.2

Additional information

- | | | | |
|--|---------------------|---|--------------------|
| • Directional seated valves type EM, EMP | D 7490/1, D 7490/1E | • Drop rate braking valve type SB, SQ, SJ | D 6920, D 7395 |
| • Plug with LED etc. | D 7163 | • Pressure switches type DG3.., DG5E | D 5440, D 5440 E/1 |
| • Plug with economy circuit | D 7813, D 7833 | • See also section "Devices for special applications" | |
| • Prop.-amplifier type EV1M2 (module) | D 7831/1 | (Screw-in valves and installation kits) | |
| type EV1G1 (module) | D 7837 | | |
| • Intermediate plate NG 6 type NZP | D 7788 Z | | |

For page and section of the devices additionally listed, see type index