



4/2-way valve 4W../iEA09

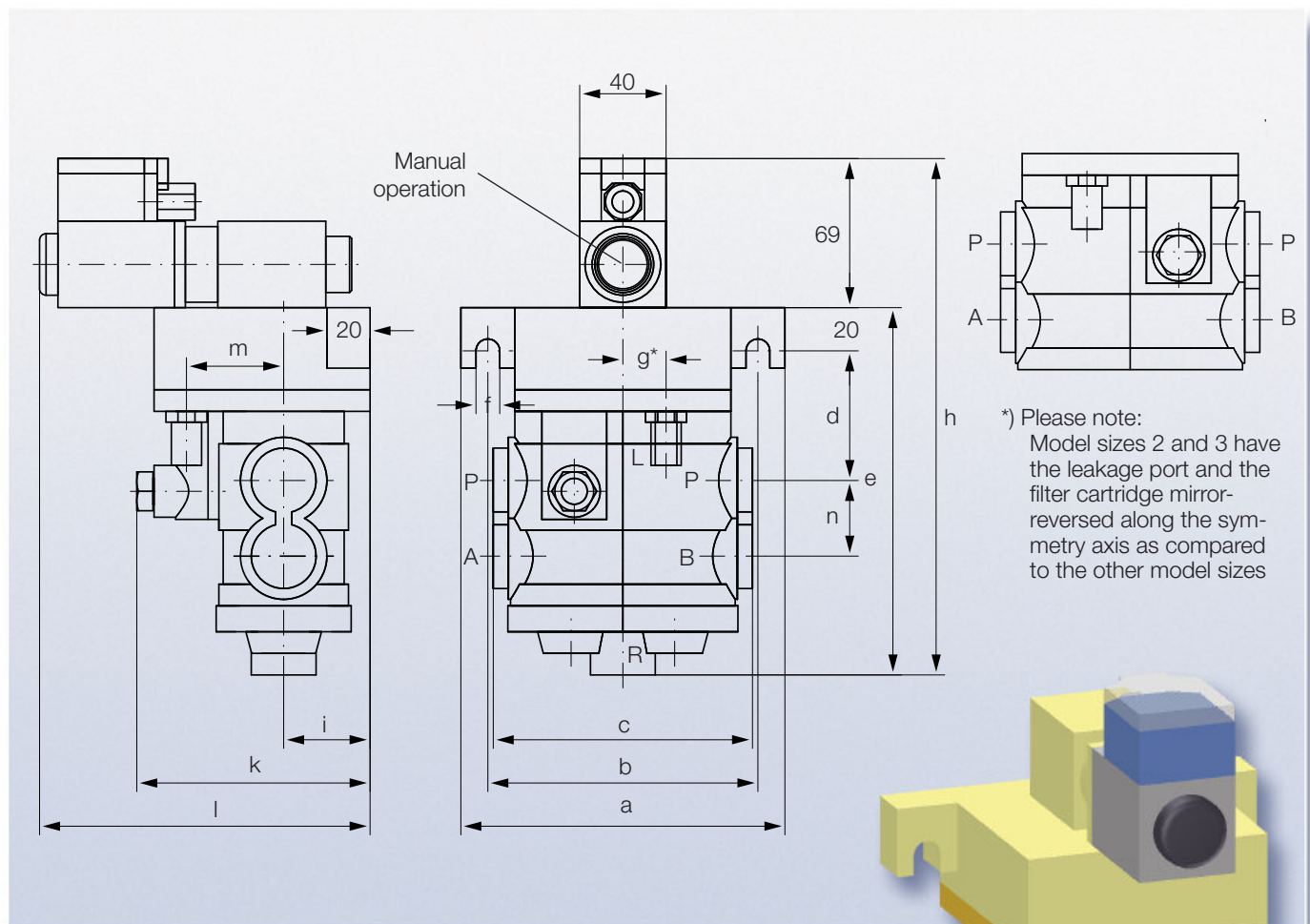
DN 10 to DN 50,
self-controlled,
for compressed air,
with electropneumatic pilot valve

positive - normally closed (NC)
negative - normally open (NO)

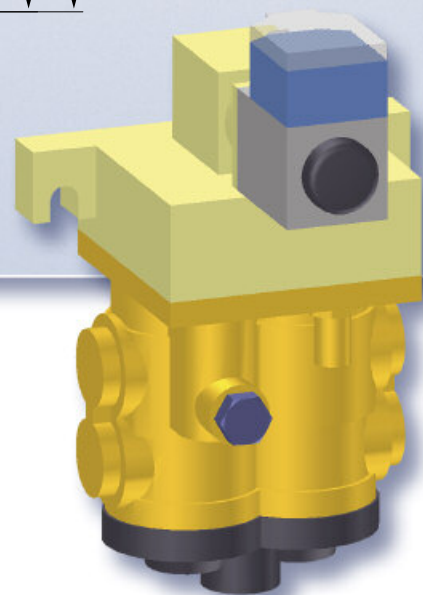
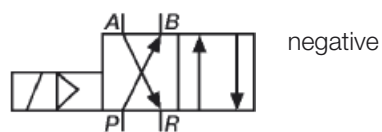
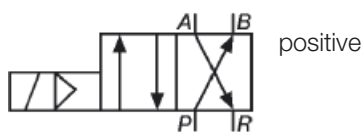
- Rugged construction
- Use of corrosion-resistant materials for all components
- Solenoid completely separated from the flow section
- Optical valve position indication
- Additional facility for manual operation as standard
- Type of protection: IP 54 according to EN 60529/IEC 529
- Ex-approval: I M2 EEx ia I intrinsically safe according to Directive 94/9/EC (ATEX)

Types	Nominal width/mm	Pipe connection
4W10/iEA09	10	R ⅜
4W15/iEA09	15	R ½
4W20/iEA09	20	R ¾
4W25/iEA09	25	R 1
4W32/iEA09	32	R 1¼
4W40/iEA09	40	R 1½
4W50/iEA09	50	R 2

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Symbol



Size	NW	P,A,B,R	L	a	b	c	d	e	f	g*	h	i	k	l	m	n
1	10	R $\frac{3}{8}$	R $\frac{3}{8}$	150	125	100	60	163	11	20	232	40	109	153	45	35
1	15	R $\frac{1}{2}$	R $\frac{3}{8}$	150	125	100	60	163	11	20	232	40	109	153	45	35
2	20	R $\frac{3}{4}$	R $\frac{3}{8}$	205	176	175	66	229	13	41*	298	54	133	168	54	55
2	25	R 1	R $\frac{3}{8}$	205	176	175	66	229	13	41*	298	54	133	168	54	55
2	32	R $1\frac{1}{4}$	R $\frac{3}{8}$	205	176	175	66	229	13	41*	298	54	133	168	54	55
3	40	R $1\frac{1}{2}$	R $\frac{3}{8}$	250	220	225	83	294	14	45*	363	61	151	176	65	75
3	50	R 2	R $\frac{3}{8}$	250	220	225	83	294	14	45*	363	61	151	176	65	75

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FUNCTION AND DESIGN

In fluid technology, directional control valves are designed to allow passage of the operating medium (compressed air or hydraulic fluid), to block passage or to change the direction of flow. The designation of the directional control valve is derived from the number of switching positions as well as the number of ports per switching position.

The 4/2-way valve is a pilot-operated seating-action valve with four ports and two switching positions. It consists of the main control unit with a disk-shaped seating piston and the pilot control unit. The pilot control unit consists of a ball seat valve activated via an intrinsically safe valve solenoid. Seating-action valves have the advantage over spool valves in that no leakage losses occur.

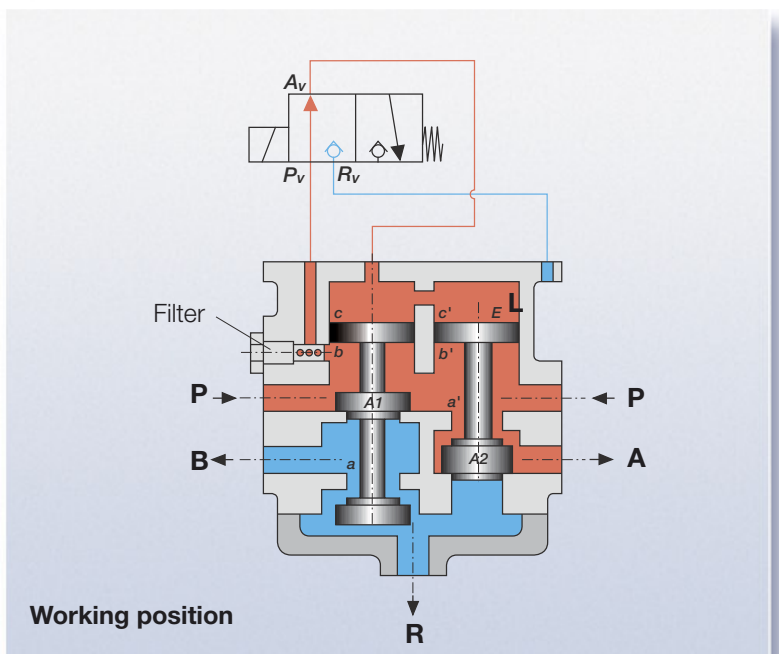
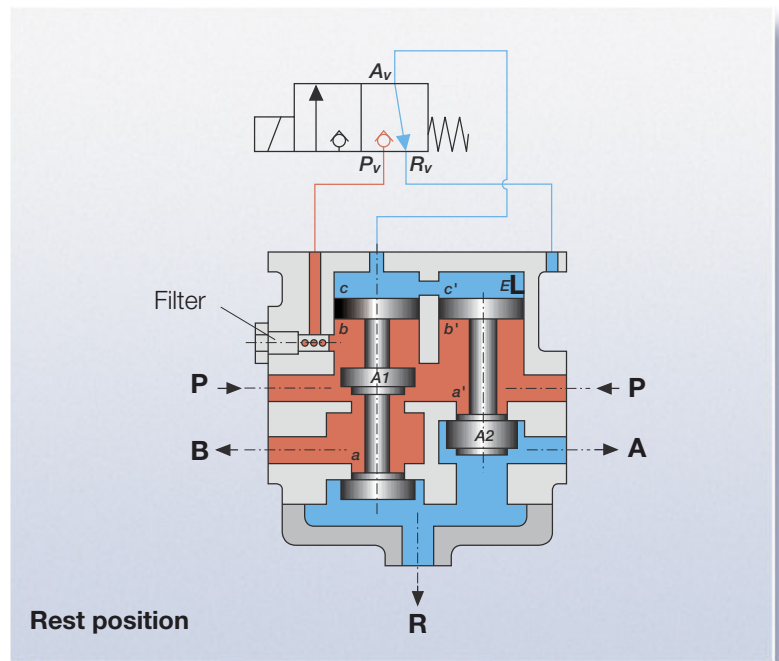
The 4/2-way valve is self-controlled. That means, for operating the pilot control unit the working medium from the main control unit is utilized. Bore ducts are provided allowing the compressed air to pass between the two units. In order to protect the pilot control unit from impurities the duct for the pressure supply has a filter installed which can be replaced easily and quickly. In rest position, the main control unit is open from the pressure side P to the working side B. When the pilot control unit is actuated via the valve solenoid the main control unit is operated pneumatically allowing flow from the pressure side P to the working side A.

The 4/2-way valve is provided with a self-locking feature. That means, upon activation of the pilot control valve Y the main control unit will remain in working position even if the pilot control valve Y is deactivated again. The main control unit will only return into rest or locking position after being activated by the pilot control unit. Leakage port L is designed to ventilate space E when changing switching positions.

The valve housing is made of red brass and all further mounting parts of the valve are also made of corrosion-resistant materials. The components of the solenoid are largely embedded in cast resin. The overall design of the valve ensures safety with respect to explosion protection and mechanical damage.

The 4/2-way valve is noted for a long service life. It has proved its worth for decades even in the adverse conditions of underground mining.

Sequence of functions for the "positive" design



- For the „negative“ design the pilot valve in rest position is opened and closed in working position.



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TECHNICAL DATA

Type	pilot-operated 4-way valve
Housing/flow part	red brass
Valve seat sealing	flexible seal on metal
Ports	pipe threads R $\frac{1}{2}$ – R2
Medium	compressed air
Temperature of medium	max. 85 °C
Operating pressure	3 bar – 40 bar
Fitting position	any
Electr. connection	intrinsically safe d.c. voltage
Electr. connection values	V _{nom} = 12 V DC; V _{max} = 13.5 V DC; I _{nom} = 50 mA
Temperature range	-20 °C to 60 °C
Type of protection	IP 54 according to EN 60529/IEC 529
Ex-approval	I M2 EEx ia I acc. to Directive 94/9/EC (ATEX)
Certificate number	DMT 99 ATEX E 102

TYPE CODE AND ORDERING INFORMATION

4W ** / iEA09	Valve solenoid, intrinsically safe
	Nominal width in mm
	p = positiv; n = negativ
	4/2-way valve for compressed air

TYPICAL EXAMPLE

4Wn50/iEA09	<div> <div>■ 4/2-way valve</div> <div>■ Design negative</div> </div>	<div> <div>■ Nominal width 50 mm</div> <div>■ With intrinsically safe solenoid for compressed air</div> </div>
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Subject to technical alterations · Version 09/12