Direct operated, spool-type sandwich DC valves series Z1DW size NG06 are used for shutting off the flow in stack systems.

For shut off secondary ports A and B, body version A is applied. P and T are drilled through.

For applications with port B drained in a switching position to tank, body version B is used. P and A are drilled through.

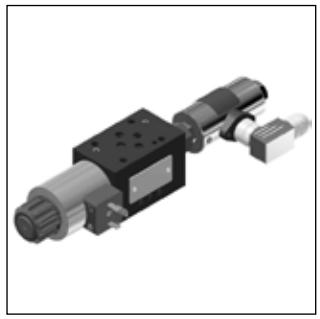
Valves are sealed to the manifold side.

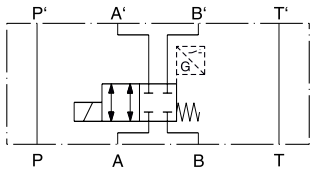
The valves can be ordered with inductive position control optionally.

Attention:
The adjustment of the position control is factory set and sealed. Replacement and repairs can only be undertaken by the manufacturer.

Technical Features
- Shut-off sandwich valve NG06
- Inductive position control optional


Z1DW*E standard


Z1DW*E ind. position control



Z1DWA02E

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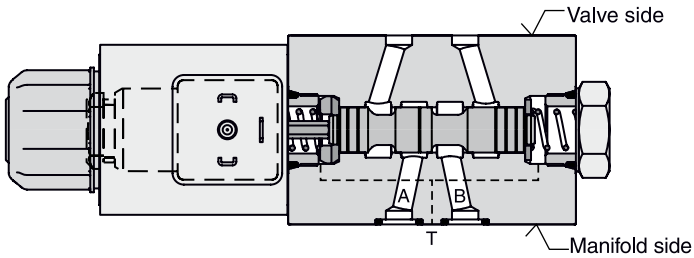
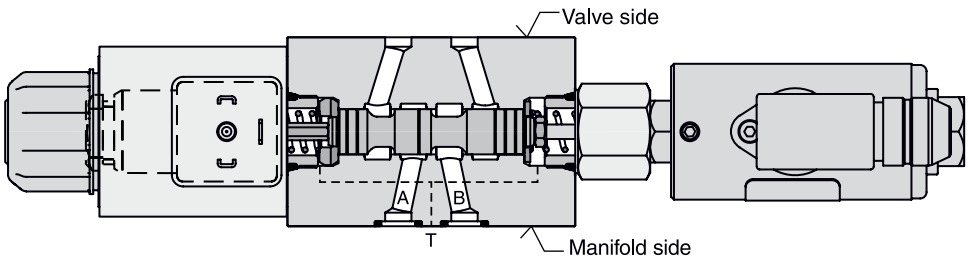
Z1DW*E without inductive position control



Z1DW*E with inductive position control



General					
Design		Directional spool valve, sandwich type			
Actuation		Solenoid			
Size		DIN NG06 / CETOP 03 / NFPA D03			
Mounting interface		DIN 24340 A6 / ISO 4401 / CETOP RP 121-H / NFPA D03			
Mounting position		unrestricted, preferably horizontal			
Ambient temperature	[°C]	0...+60			
$MTTF_D$ value	[years]	150			
Weight	[kg]	1.8 w/o position control / 2 with position control			
Hydraulic					
Max. operating pressure	[bar]	P, A B: 350 ; T: 210			
Fluid		Hydraulic oil in accordance with DIN 51524			
Fluid temperature	[°C]	-20…+70 (NBR: -25…+70)			
Viscosity, permitted	[cSt] / [mm²/s]	20...400			
recommended	[cSt] / [mm²/s]	30...80			
Filtration		ISO 4406 (1999); 18/16/13			
Flow max.	[l/min]	50			
Leakage at 50 bar	[ml/min]	Up to 10 per flow path, depending on spool			
Static / Dynamic					
Step response at 95 %	[ms]	Energized: 32 ; De-energized: 40			
Electrical characteristics					
Duty ratio		100 % ED; CAUTION: coil temperature up to 150 °C possible			
Max. switching frequency	[1/h]	15000			
Protection class		IP 65 in accordance with EN 60529 (with correctly mounted plug-in connector)			
	Code	K	J	U	G
Supply voltage	[V]	12 V =	24 V =	98 V =	205 V =
Tolerance supply voltage	[%]	±10	±10	±10	±10
Current consumption	[A]	2.72	1.29	0.33	0.13
Power consumption	[W]	32.7	31	31.9	28.2
Solenoid connection		Connector as per EN 175301-803, solenoid identification as per ISO 9461.			
Wiring min.	[mm²]	3 x 1.5 recommended			
Wiring length max.	[m]	50 recommended			

With electrical connections the protective conductor (PE ⏚) must be connected according to the relevant regulations.

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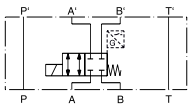
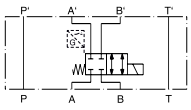
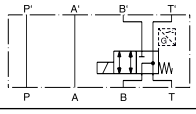
Z	1	D	W						W			
Sandwich plate, Shut-off valve	**Size DIN NG06 CETOP 03 NFPA D03**		**Wet pin solenoid**	**Body**	**Spool type**	**Spool position**	**Seals**	**Solenoid voltage**	**Connector as per EN 175301-803, without plug** (please order plug separately)	**Manual override option**	**Position control**	**Design series** (not required for ordering)

Code	Code	Code	
A	02	E	
A	01	K	
B	37	B	

Code	Position control	Spool position
omit	Standard	E, B, K
I2N	End position monitored side B	E, B (Solenoid on a-side)
I5N [2]	Start position monitored side B	
I1N	End position monitored side A	K (Solenoid on b-side)
I4N [2]	Start position monitored side A	

Code	Manual override
omit	Standard valve with manual override
T [2]	without manual override

Code	Voltage
K	12 V =
J	24 V =
U [1]	98 V =
G [1]	205 V =

Code	Seals
N	NBR
V	FPM

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Further spool types and voltages on request.

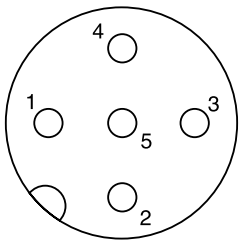
[1] To be used in combination with rectifier plugs at 120 VAC / 230 VAC power supply.

[2] For hydraulic presses according to the safety regulations EN 693, manual override code “T” (without manual override) and position control “I4N” or “I5N” (start position monitored) are required.

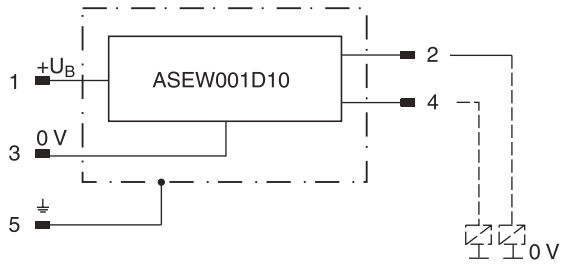
Electrical characteristics of position control as per IEC 61076-2-101 (M12x1)

Protection class		IP 65 in accordance with EN 60529 (with correctly mounted plug-in connector)
Ambient temperature	[°C]	0...+50
Supply voltage Us / ripple	[V]	18...42 / 10 %
Current consumption without load	[mA]	≤ 30
Max. output current per channel, ohmic	[mA]	400
Min. output load per channel, ohmic	[kOhm]	100
Max. output drop at 0.2 A	[V]	≤ 1.1
Max. output drop at 0.4 A	[V]	≤ 1.6
EMC		EN50081-1 / EN50082-2
Max. tolerance ambient field strength	[A/m]	<1200
Min. distance to next AC solenoid	[m]	>0.1
Interface		M12x1 acc. to IEC 61076-2-101
Wiring min.	[mm²]	5 x 0.25 brad shield recommended
Wiring length max.	[m]	50 recommended

M12 pin assignment



1 Us 18...42 V
2 Out B: normally open
3 0 V
4 Out A: normally closed
5 Earth ground



Definitions

Start position monitored:

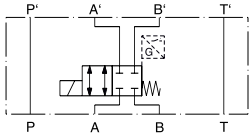
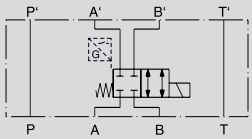
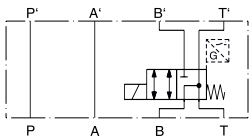
The valve is de-energized. The inductive switch gives a signal at the moment when the spool leaves the spring offset position (below 25 % spool stroke).
At the switching point the spool is located within the closed position. It is secured that only the flow paths of the offset position are granted.

End position monitored:

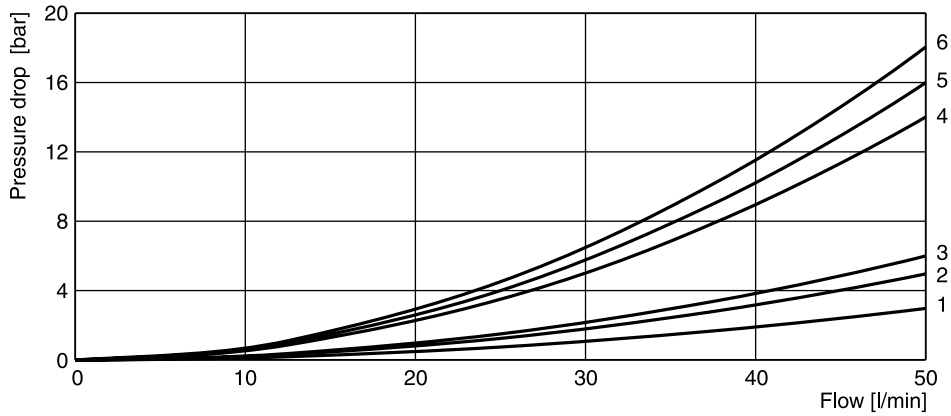
The inductive switch gives a signal before the end position is reached (above 75 % spool stroke).

The switch can only be located on the opposite side of the solenoid for direct operated valves.
Please order plug M12 x 1 separately (see accessories, plug M12x1; order no.: 5004109).

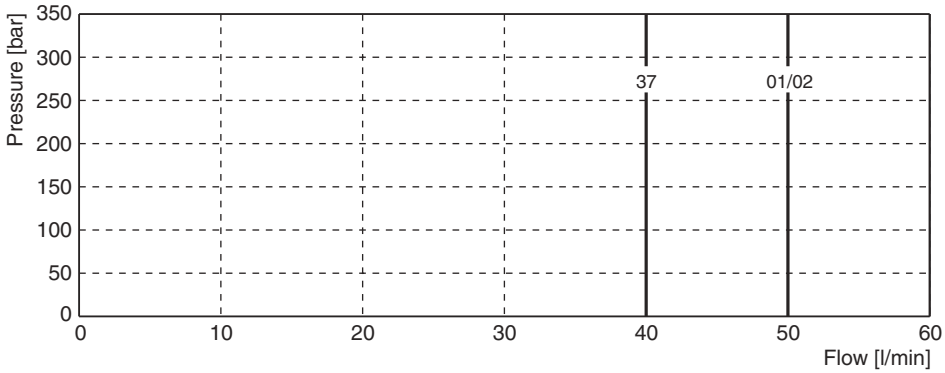
The flow curve diagram shows the flow versus pressure drop curves for all spool types. The relevant curve number for each spool type, operating position and flow direction is given in the table below.

Spool	Symbol	A-A'	A'-A	B-B'	B'-B	T-T'	T-T' Start position	T'-T End position	P-P'	B-T
A02E		5	5	5	5	1	—	—	1	—
A01K		5	5	5	5	1	—	—	1	—
B37B		2	2	4	4	—	3	1	1	6

Flow curves

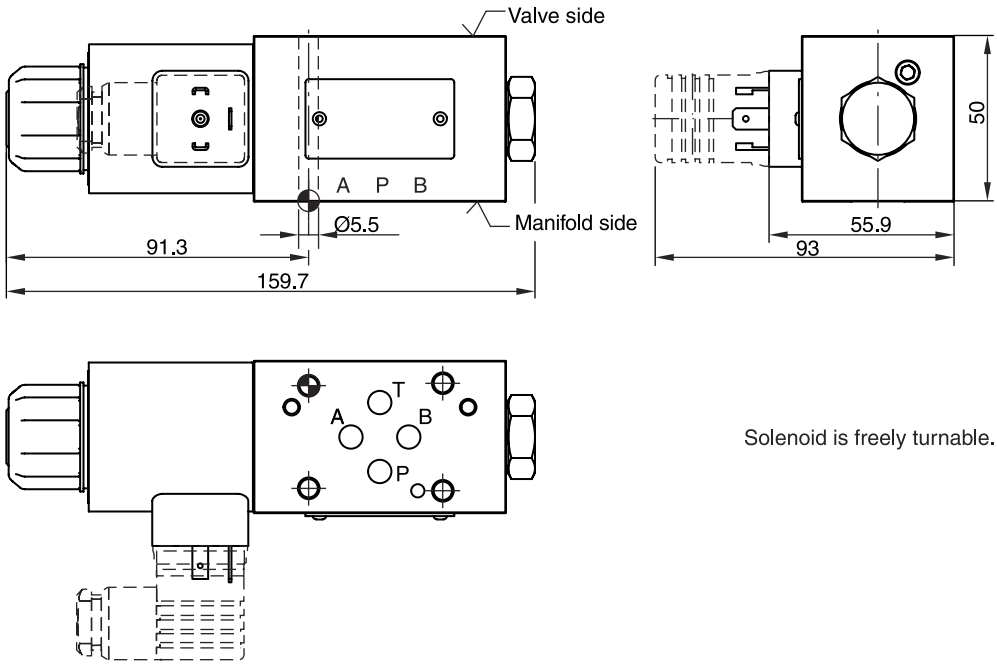


Shift limits



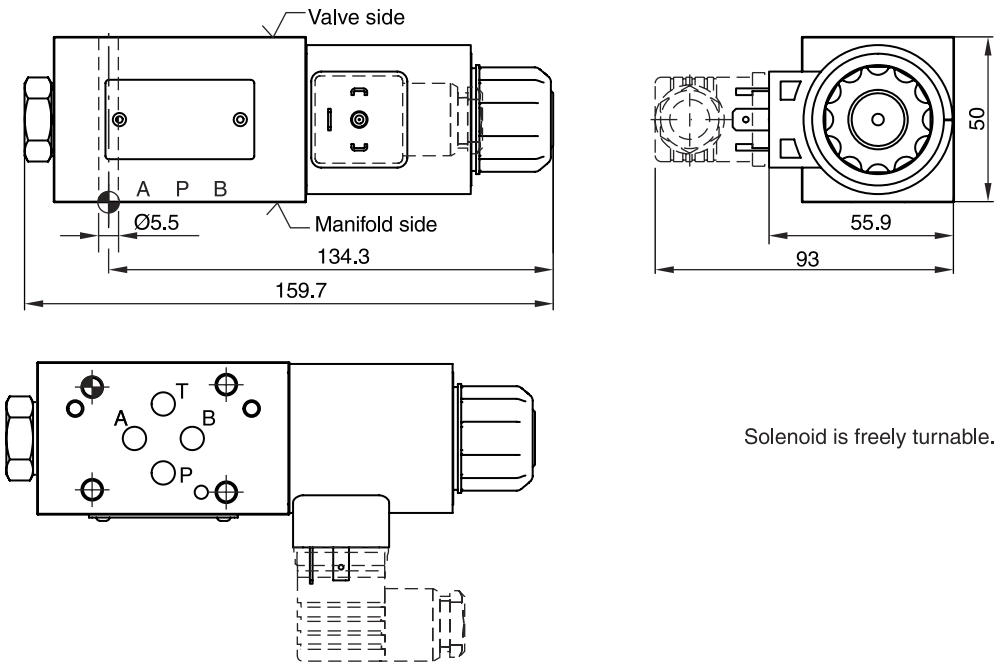
Measured with HLP46 at 50 °C, 90 % U_{nom} and warm solenoids.

Z1DW Standard
B, E -style



Solenoid is freely turnable.

K -style



Solenoid is freely turnable.

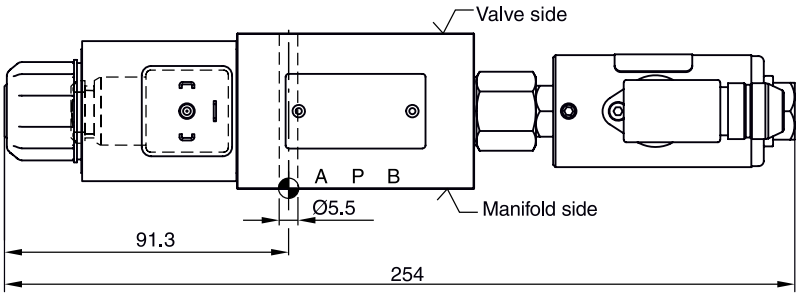
Surface finish		Kit
R_{max}6.3 ⏥ 0.01/100	7.6 Nm ±15 %	**NBR: SK-D1VW-N91** FPM: SK-D1VW-V91

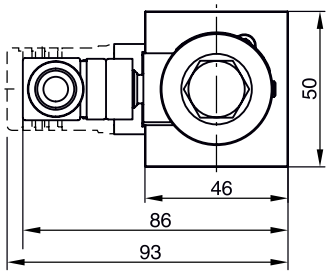
The space necessary to remove the plug per EN 175301-803, design type AF is at least 15 mm.
The torque for the screw M3 of the plug has to be 0.5 to 0.6 Nm.

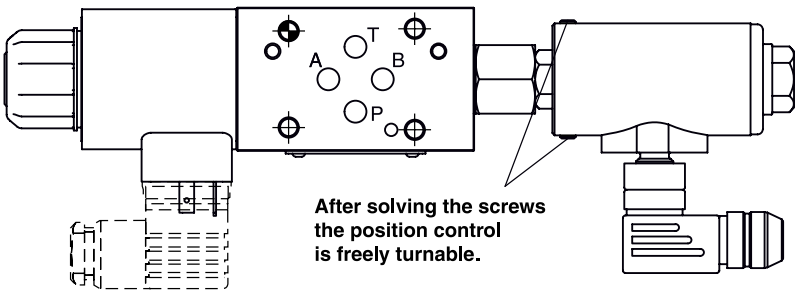
Z1DW UK.indd CM 16.01.2015

Z1DW with inductive position control
Interface EN 175301-803, DC solenoid, without plug M12x1 [1)]

B, E -style

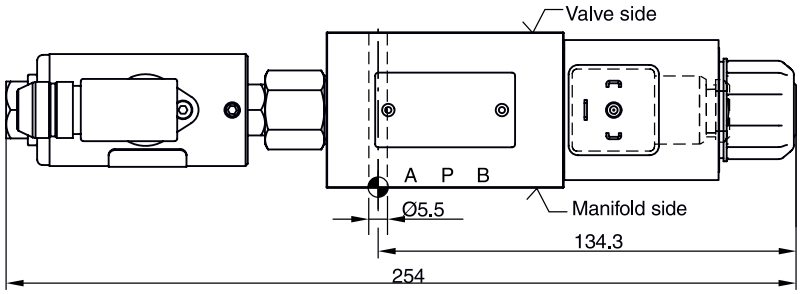


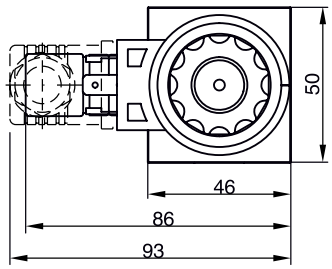


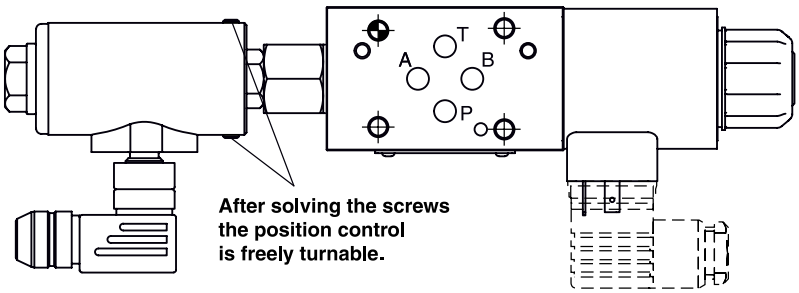


Solenoid and position control are freely turnable.

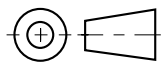
K -style







Solenoid and position control are freely turnable.



Surface finish		Kit
R_{max}6.3 ▱ 0.01/100	7.6 Nm ±15 %	**NBR: SK-D1VW-N91** FPM: SK-D1VW-V91

The space necessary to remove the plug per EN 175301-803, design type AF is at least 15 mm.

The torque for the screw M3 of the plug has to be 0.5 to 0.6 Nm.

Attention: The adjustment of the position control is factory set and sealed. Replacement and repairs can only be undertaken by the manufacturer.

[1)] Please order plug M12 x 1 separately (see accessories, plug M12x1; order no.: 5004109).