

MODEL CODE

4WEW 6 E S01 - 24 D G /V

Type

Solenoid-operated directional valve with 4 main ports, soft-shift

Nominal size

6

Spool symbol

See page 3

Series

S01 = specified by the manufacturer

Rated voltage of the solenoid coil¹⁾

12 = 12 VDC

24 = 24 VDC

220 = 220 VDC

Type of voltage

D = DC voltage

Electrical connection (for details, see page 7)¹⁾

G = male connector, DIN EN 175301-803 A

Sealing material

/N = NBR

/V = FKM

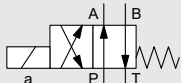
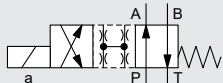
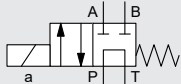
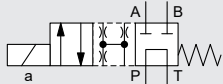
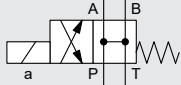
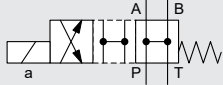
Manual override (for details, see page 7)

Not specified = with concealed manual override (standard)

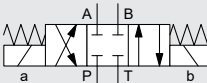
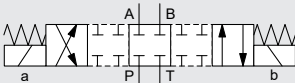
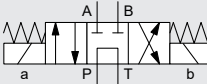
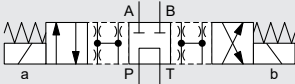
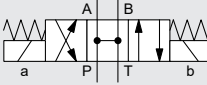
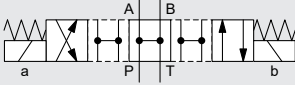
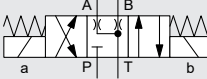
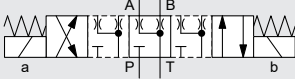
¹⁾ Other versions on request

SPOOL TYPES / SYMBOLS

4/2-DIRECTIONAL SPOOL VALVES

Type	Basic symbol	With intermediate position
D		
GA		
HA		

4/3-DIRECTIONAL SPOOL VALVES

Type	Basic symbol	With intermediate position
E		
G		
H		
Q		

FUNCTION

The solenoid-operated directional spool valves of the 4WEW 10 type are used to control nominal flow and consist of one valve casing (1) with an associated valve spool (2). Depending on the type, each valve is equipped with at least two return springs (3) and one or two pole tubes (4) and solenoid coils (5)

The valve is hydraulically controlled by solenoids (5) which operate the valve spool. A solenoid is a converter which converts electrical energy into mechanical energy. In this process, the energised solenoid causes the oilimmersed magnetic spool to make a linear stroke movement. The solenoid uses the guide rod (6) to move the valve spool into the desired position. This causes the nominal flow directions between the respective ports to be released or closed.

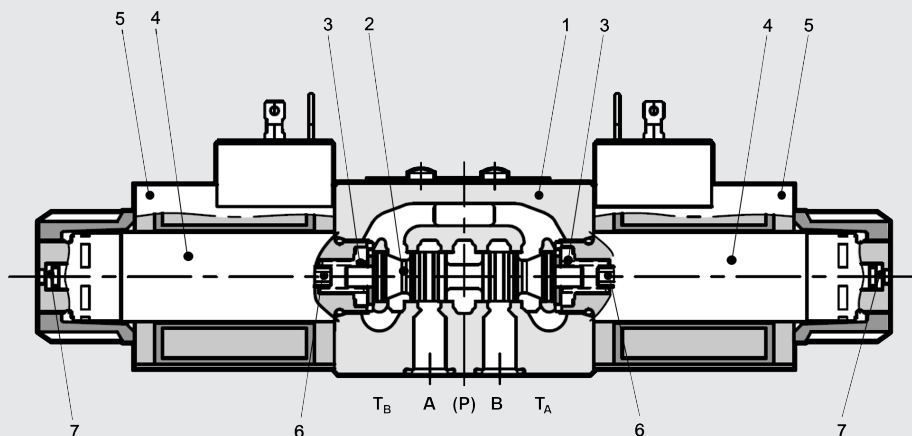
An orifice in the magnetic spool and fine control grooves in the valve spool work together to slow down the switching process and lessen pressure drops. This significantly reduces shocks in the hydraulic system.

To obtain the valves' optimum switching capacity, the pole tube's pressure-tight chamber should always be vented and filled with oil.

If the solenoid has been de-energised, the valve spool is pushed back into the starting position by the appropriate return spring.

The manual override (7) enables valve operation without energising the solenoid.

SECTION VIEW



TECHNICAL DATA ¹

General specifications				
MTTF _d :		According to EN ISO 13849-1:2015 chart C1 & C2		
Ambient temperature range:	[°C]	-20 to +50		
Installation position:		No restrictions		
Weight:	[kg]	1.5 with one solenoid; 2.0 with two solenoids		
Material:	Valve casing:	Cast iron		
	Pole tube:	Steel		
	Coil housing:	Steel		
	Name plate:	Aluminium		
Surface coating:	Valve casing:	Phosphate plated		
Hydraulic specifications				
Operating pressure:	[bar]	Port A, B, P:	$p_{max} = 350$	
		Port T:	$p_{max} = 210$	
Nominal flow:	[l/min]	See performance limits on page 5		
Operating fluid:		Hydraulic oil to DIN 51524 Part 1, 2 and 3		
Temperature range of operating fluid:	[°C]	-20 to +80		
Viscosity range:	[mm ² /s]	10 to 400 (25 is recommended)		
Permitted contamination level of operating fluid:		Class 20/18/15 according to ISO 4406		
Max. switching frequency:	[1/h]	7,000		
Manual override:		up to approx. 50 bar tank pressure possible		
Sealing material:		FKM, NBR		
Electrical specifications				
Response time:	[ms]	See page 5		
Type of voltage:		DC		
Rated voltage:	[V]	12	24	220
Nominal power:	[W]	32.7	31	28.2
Voltage tolerance:	[%]	±10		
Duty cycle:	[%]	100		
Protection class according to DIN EN 60529:		With electrical connection "G"	IP65 ²	

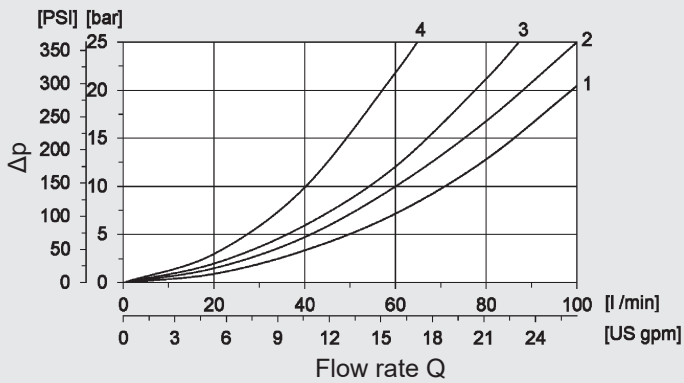
¹ See "Conditions and Instructions for Valves" in brochure 53.000

² If installed correctly

PERFORMANCE

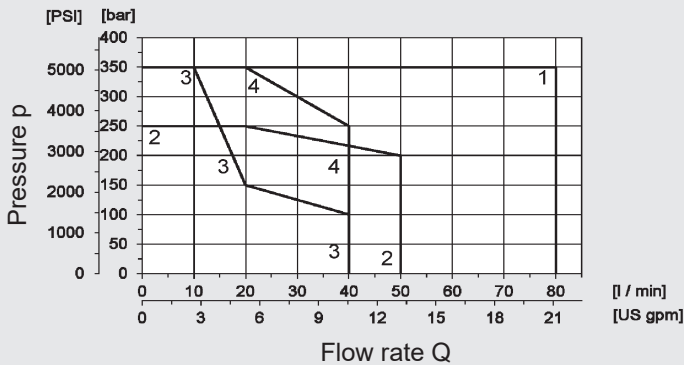
Pressure drop

measured at $v = 36 \text{ mm}^2/\text{s}$, $T = 50 \text{ }^\circ\text{C}$



Switching capacity

measured at $v = 36 \text{ mm}^2/\text{s}$, $T = 50 \text{ }^\circ\text{C}$



Performance assignment to the associated spools:

Spool	Pressure drop				Power limits
	P→A	B→T	P→B	A→T	
D	3	3	3	3	3
E	2	3	2	3	1
G, GA	4	4	4	4	4
H, HA	1	3	1	3	2
Q	2	3	2	3	1

The performance limits were calculated with solenoids at operating temperature and 10% low voltage.

The specified performance limits are applicable for operation with two nominal flow directions.

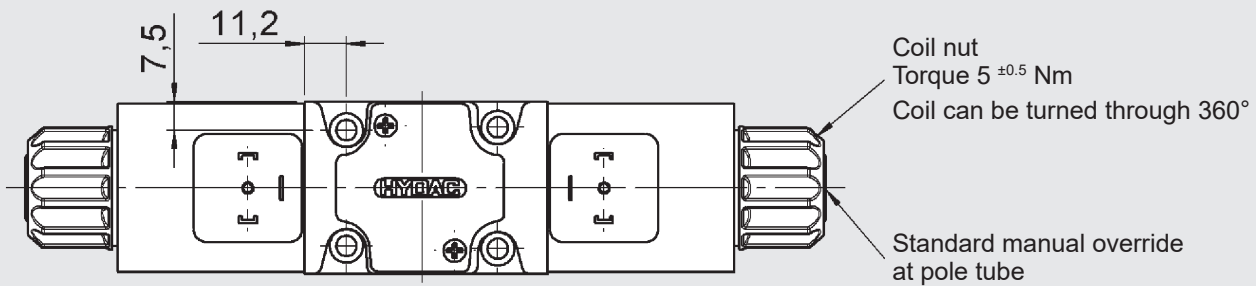
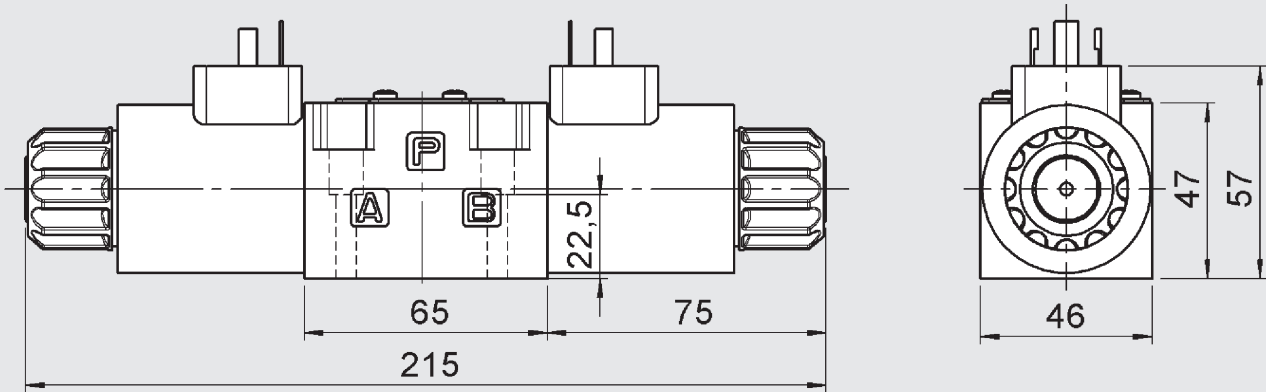
If there is only one nominal flow direction, the power limits may be lower.

Response times

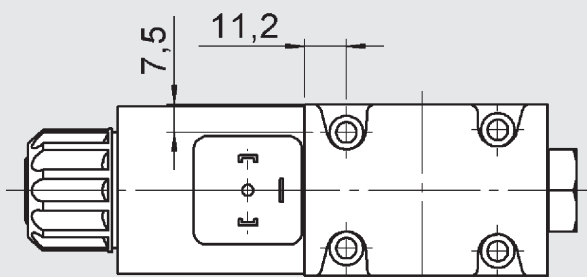
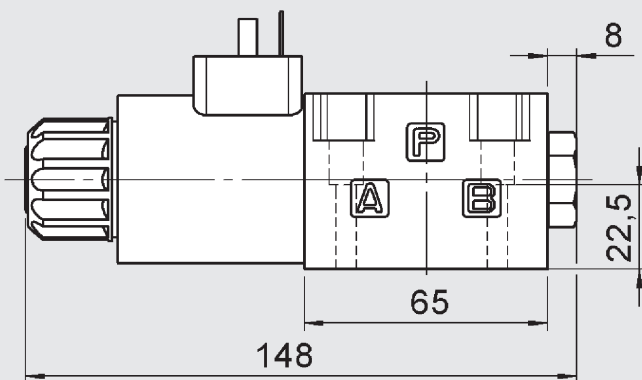
Symbol	Times [ms]	
	ON	OFF
D	180	200 to 300
E	350	200 to 300
G, GA	350	150 to 300
H, HA	400	100 to 250
Q	400	200 to 300

DIMENSIONS

Valve version with two coils

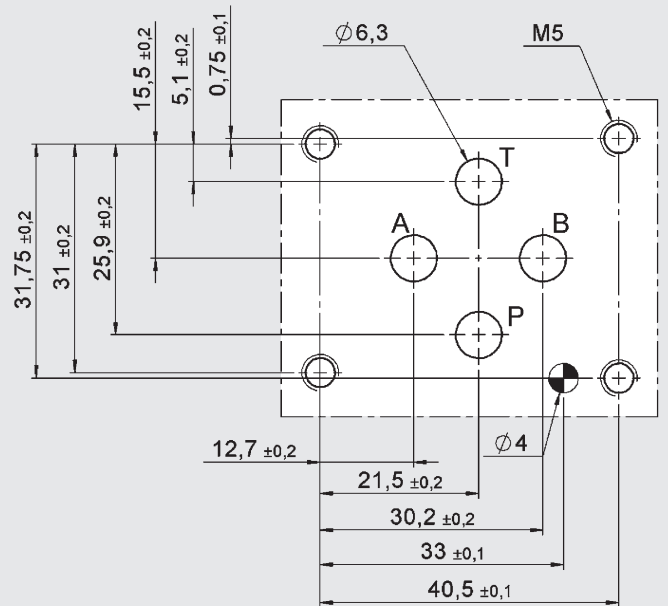


Valve version with one coil



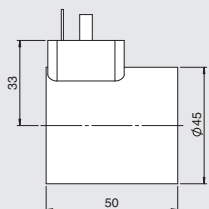
Interface

ISO 4401-03-02-0-05 (CETOP 4.2-4-03-350)



ELECTRICAL CONNECTIONS

G
Device
connector
DIN EN
175301-803 A

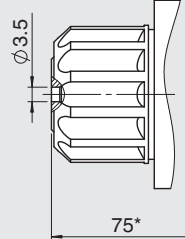


● IP65

Other models on request

MANUAL OVERRIDES

Standard
with
concealed
manual
override



Operation
with tool

* Dimensions up to valve housing

The tank pressure should not exceed 50 bar. If the tank pressure is higher, the force required to operate the manual override increases accordingly.

For valves with two solenoids, simultaneous operation of both manual overrides is prohibited.

EQUIPMENT

	Designation	Part no.
Seal kits (4-part set)	9.25 x 1.78 80 Sh NBR	3492432
	9.25 x 1.78 80 Sh FKM	3120269
Mounting screws (4 pcs)	DIN EN ISO 4762 - M5 x 30 - 10.9	603227

Note

The information in this brochure relates to the operating conditions and applications described. For applications not described, please contact the relevant technical department. Technical modifications are reserved.