

**Solenoid Valves, 10 mm
for Explosion-Hazard Areas
Two-Stage Design, Series EExd-WEV ...**



- 315 bar, 90 l/min
- High switching reliability thanks to two-stage follower spool design
- Protection class EEx d IIC T4 ... T6 in accordance with EN 50014 and 50018
- Slip-on coil design, coils can be changed without opening hydraulic envelope
- With manual override
- Certificate of Conformity No. PTB 98 ATEX 1008
- With ISO 4401 / CETOP R35H size 5, NFPA D05, DIN 24 340 A10 interface

1. Description

Series EExd-WEV...-10 high performance spool valves are two-stage units which use the follower spool principle. The main valve components are a steel body, a spring-centered follower spool assembly and wet armature solenoids with pressure-tight core tube and a slip-on coil which is certified for use in explosion-hazard areas. The coil slips over the core tube and is retained by a knurled nut. The solenoid housing is made of cast iron with spray painted finish. The solenoid armature is of the oil-immersed type. The solenoid housing is threaded M20 x 1,5 for a cable entry

gland. The cable entry gland (which also must be certified to EN 50018) is not supplied with the valve and, if required, must be ordered as a separate item: Cable entry gland type AGRO 1820. 16.26 M20 x 1,5 (for cable ø11...13). The valves provide reliable service even under the severest operating conditions such as high flow rates, high operating pressures, long periods without switching and large temperature fluctuations. The highly effective spool actuation method combines the advantages of both direct acting and two-stage solenoid valves,

without incurring the well known disadvantages of either type. The main spool is offset by both the solenoid force and the P - T *) pressure difference inside the valve. The greater the P - T pressure difference, the greater the offsetting force. It is brought back to its deenergised position in the same way, using the P - T pressure difference and without the need for heavy centering springs.

*) The pressure in P must exceed that in T and the valve must be connected in the conventional manner i.e. pressure to P, T to tank.

2. Symbols

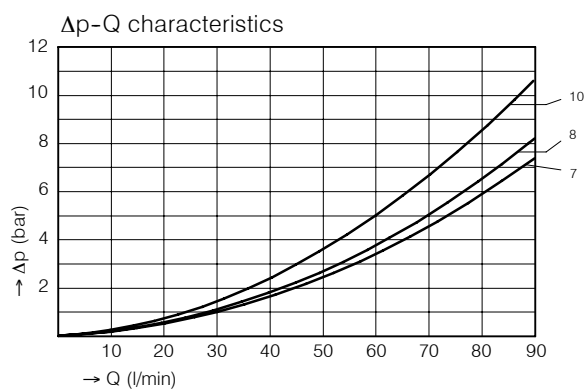
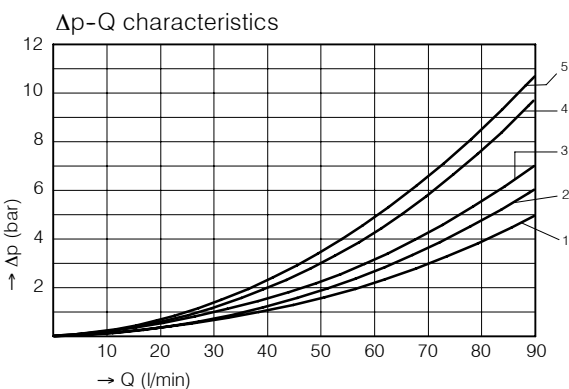
4/2 FUNCTIONS	4/2 FUNCTIONS WITH 4/3 SPOOLS	4/2 FUNCTIONS WITH 4/3 SPOOLS	4/3 FUNCTIONS
EExd-WEV-42-A-10 1	EExd-WEV-42-AD-10 7	EExd-WEV-42-BD-10 13	EExd-WEV-43-D-10 19
EExd-WEV-42-B-10 2	EExd-WEV-42-AG-10 8	EExd-WEV-42-BG-10 14	EExd-WEV-43-G-10 20
 3	EExd-WEV-42-AH-10 9	EExd-WEV-42-BH-10 15	EExd-WEV-43-H-10 21
Crossover transients 4	 10	 16	For other spools please consult BUCHER 22

3. Main characteristics

Designation		4/2 and 4/3 solenoid controlled spool valves
Design		two-stage
Mounting method		manifold mounting
Size		nominal 10 mm, ISO 4401 size 5 interface
Weight	kg	with 1 solenoid: 5,1 / with 2 solenoids: 7,1
Mounting attitude		horizontal recommended (vertical mounting makes air bleeding difficult)
Flow direction		see symbols
Operating pressure range	bar	max. 315 in P, A and B / max. 15 in T
Flow rate, Q _{max}	l/min	90
Fluids		HL and HLP hydraulic oils to DIN 51 524; for other fluids, please consult BUCHER
Fluid temperature range	°C	-25 ... +80
Ambient temperature	°C	-25 ... +50
Viscosity range	mm ² /s (cSt)	10 ... 500, recommended 15 ... 250
Minimum fluid cleanliness level		18/14 to ISO 4406 / CETOP RP70H; 8 ... 9 to NAS 1638
Solenoid type		pressure-tight wet armature design
Nominal voltages	VAC VDC	115 / 230 50 ... 60 Hz 24
Nominal voltage tolerance	%	+ 10 / - 5
Nominal power consumption	W VA	Solenoid type 2 A 52: 24 VDC = 12 Solenoid type 2 C 52: 115 / 230 VAC = 15
Relative duty cycle	%	100
Max. core tube pressure (static)	bar	15
Enclosure protection		EEx d IIC T4...T6
Protection type and design		IP 65 to EN 50014 and 50018
Electrical connection		Valves (and solenoids) have M20 x 1.5 cable gland thread but are shipped without gland or cable. If required, gland must be ordered separately. Cable entry gland type AGRO 1820.16.26 M20 x 1.5 Coils must be protected by a fuse whose maximum permissible rating is three times the nominal coil current.

4. Performance graphs

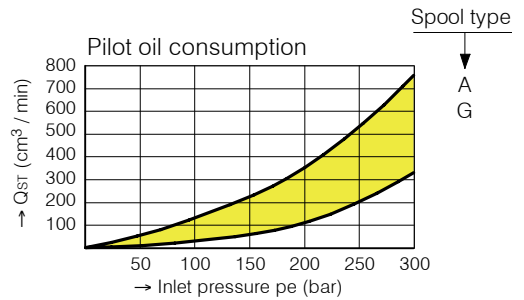
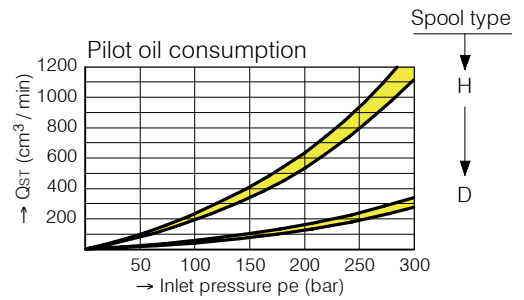
Measured with oil viscosity 33 mm²/s (cSt) coil at steady-state temperature, 5% under-voltage



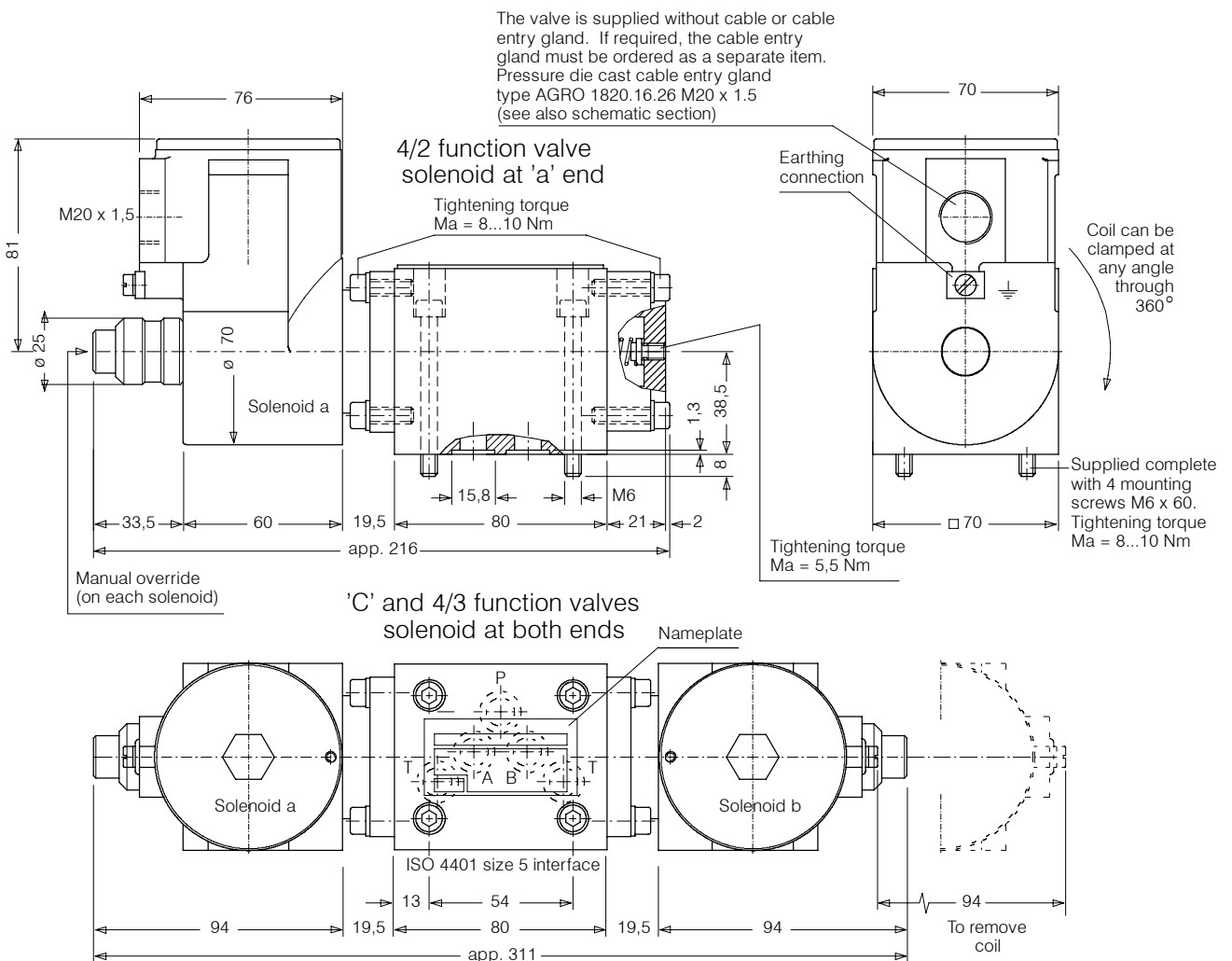
	energised				deenergised
	P ⇒ A	B ⇒ T	P ⇒ B	A ⇒ T	P + A+B ⇒ T
A spool	2	5	2	5	--
D spool	7	10	7	8	--
G spool	3	4	3	2	--
H spool	2	4	2	2	1

Switching times	Spool A, D, G	Spool H
Solenoid ON	100 ms	200 ms
Solenoid OFF	40 ms	40 ms

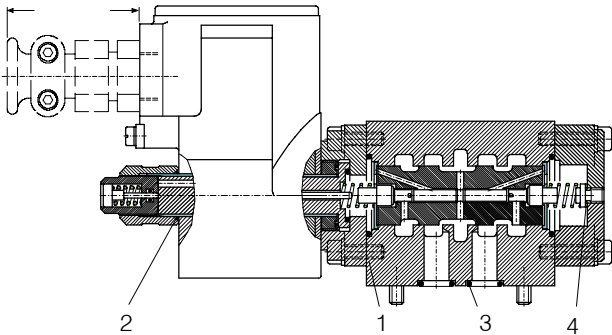
These are guideline values only, and can be significantly affected by flow rate, pressure and oil viscosity.



5. Dimensions



6. Schematic section



Seal kit no. DS-092, comprising *):

Itm.	Qty.	Qty.	Description	Size
1	2*)	2	O-ring no. 123	Ø 29,82 x 2,62 N90
2	2*)	1	O-ring no. 017	Ø 17,17 x 1,78 N90
3	5*)	5	O-ring no. 014	Ø 12,42 x 1,78 N90
4	-	1*)	Copper ring	Ø 6/10 x 1 DIN 7603 A

4/2 Valves (1 solenoid)
4/3 Valves (2 solenoids)

7. Installation and servicing

All installation and servicing must be carried out with care, and by qualified personnel only. When changing seals, the new seals must be thoroughly oiled or greased before fitting them to the valve. Use the correct tightening torques when fitting screws.

8. Ordering code

Ex.

EExd	-	W	E	V	-	43	-	G	-	10	-	-	-	24 VDC
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EExd = protection class EEx d IIC T4 ... T6
 W = directional valve
 E = electrically actuated
 V = two-stage
 42 = 4 way, 2 positions
 43 = 4 way, 3 positions
 A = 4/2 function, solenoid at 'a' end
 B = 4/2 function, solenoid at 'b' end
 AD, AG, or AH = 4/2 function with 4/3 spool, coil at 'a' end
 BD, BG, or BH = 4/2 function with 4/3 spool, coil at 'b' end
 D, G, or H = 4/3 function
 10 = ISO size 5 interface
 10 = Nitrile seals (Standard)
 V = Viton seals
 Special seals - please consult BUCHER
 1 ... 9 = design number (omit when ordering new units)
 Voltage and current plainly specified

9. Related data sheets

Old no.	New no.	
i - 00	400-P-010101-E	Table of interface equivalents
i - 41	400-P-050101-E	DIN 24 340 size A6 interface
		Certificate of Conformity No. PTB 98 ATEX 1008 for coil
i-00	400-P-102100-E	High Performance Spool Valve

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