

Explosion-proof pilot perated pressure relief valve

Type G...DBW

Sizes 10 to 32 Up to 350 bar Up to 650L/min

Contents

Function and configuration	02
Symbols	03
Technical data	03
Ordering code	04
Characteristic curves	05
Unit dimensions	06-08

3.22



Features

- For sub-plate mounting
- Porting pattern conforms to DIN 24 340 form E and ISO 6264
- For threaded connection and installation in manifolds
- 5 pressure ratings
- Unloading operation via a built-on solenoid directional valve
- 2 adjustment versions
- Knob
- ·Adjusting bolt with protective cap
- Optional switching shock damping

Function and configuration

G...DBW type Explosion-proof operated relief valve is used for restricting and discharging system pressure. It mainly consists of main valve (1) with plug-in (3), pilot valve (2) with pressure regulating element and magnetic exchange valve (16).

The pressure of channel A acts on the main spool (3), meanwhile, pressure is applied via control line (6) and (7) with orifice (4) and (5) on the spring loaded side of the main spool (3) and on the ball (8) in the pilot operated valve(2). If the pressure in channel A rises excess the setting value at the spring (9), the ball (8) opens against the spring (9). As for the internal control forms, signal is given by control oil (10) and (6) supplied by channel A. The oil from the spring loaded side of the main spool (3), via control line (7), orifice(11), and ball (8), then flows into spring chamber (12). About internal drain - type DBW..L5X..Y-, oil flows via control line(14) into the tank. In virtue of the orifice (4) and (5), the pressure drop arises at the main spool (3), and the connection from port A to port B is open while the setting operation pressure maintain invariable. The pressure relief valve may unload or shift the different pressure (second rated pressure value) in virtue of external control port X (15).

The basis function of pressure relief valve type DBW is the same with pressure relief valve type DB, the difference is that valve type DBW operates unloading via a built-on directional valve(16).



Pressure relief valves with switching shock damping (sandwich) Type DBW../..S..R12

Due to switching shock damping (17), the connection from B2 to B1 opens delayed to avoid the impact of the peak pressure and decompression in the return line. It is fitted between pilot valve (2) and the directional valve (16).

The relief degree (decompression impact) is determined by the size of the orifice (18). OrificeØ1.2mm is recommended. (ordering detail: ..R12 ..).



) (①, W P ② B T

Indication: the directional valve is open

Symbols



Technical data

Fixing position	ng position Optional											
			GDBW10	GDBW10 GDBW15 GDBW20 GDBW25 G								
Weight	Sub-plate mounting GDBW	kg	Approx.5.6	-	Approx.6.5	-	Approx.7.9					
	Threaded connection GDBWG	kg	Approx.7.9	Approx.7.8	Approx.7.7	Approx.8.5	Approx.8.4					
	Switching shock damping	kg			Approx.0.6	pprox.0.6						
			See GWE	6 type Explo	sion-proof	magnetic ex	kchange					
Techinical paran												
of directional va	lve	G3WE6A9 is used as the normally closed type,										
			G3WE6B9 is used as the normally opened type.									
Fluid	Mineral oil - suitable for NRB and FRMseal											
Fluiu		phosphate ester-suitable for FKM seal										
		°C	-30 to + 80 (NRB seal)									
Fluid temperatu	re range	C	-20 to + 80 (FKM seal)									
Viscosity range		mm ² /s	s 10 to 800									
Denne (and a		Maximum permissible degree of fluid contamination:										
Degree of contar	mination		Class9. NAS 1638 or 20/18/15, ISO4406.									
Max.operating	PortA, B, X, P	bar	350									
pressure	PortY or T DBW	bar	210									
Max. back pressu	ure	bar	50; 100; 200; 315; 350									
Min.		d with Q (re	fer to the cu	urve)								
Sizes		10	15	20	25	30						
Max. flowrate	sub-plate mounting	L/min	250	-	500	-	650					
	threaded connection	L/min	250	500	500	500	650					

Ordering code

	-DBW	-L5X		- 6B2	/	*
Explosion-proof type I = G1 Explosion-proof type II = G2 Relief valve, pilot operated withbuilt-o directional valve = DBW Pressure relief valve, pilot operated = NG Pilot operated valve (without main spool cartr no mark for nom. size) Pilot operated valve with r spool cartridge (marked with size 10 or 30	N o code = C ridge, main = C				R12=	Further details in clear text No code = NBR seals V = FKM seals Used for threaded junction valve or Y1 on the pilot valve of plate-type junction valve only No code = Inch thread 2 = Metric thread DBW/S: Orifice Ø1.2 mm in port B of directional valve
	Threaded onnection				ode = Witho	DC12V DC24V DC36V DC110V readed Explosion proofvalve nut switching shock damping th switching shock damping Standard version
Normally closed (load breakaway. unload Normally open (contrary to the above)	=B			U =	(not fo cartridge	ve for lower opening pressure or version without main spool e and not suitable for 350bar) bil supply and drain internal
Sub-plate mounting Threaded connection Rotary Knob Adjusting bolt with prote	=No code = G	=1 =2	X Y XY	= 6	Pilot oil suppl Pilot oil suppl	y external and drain internal y internal and drain external oil supply and drain external
Series L50 to L59 (L50 to L59: unchanged in and connection dimensio	ons)	=L5X	5 = 10 = 20 = 31.5 = 35 =		Pres Pres Pres	ssure adjustable up to 50bar sure adjustable up to 100bar sure adjustable up to 200bar sure adjustable up to 315bar sure adjustable up to 350bar



Characteristic curves (Measured at ϑ_{oil} =

(Measured at ϑ_{oil} =40°C \pm 5°C , using HLP 46)

The characteristic curves are measured with external pilot oil drain at zero pressure. With internal pilot oil drain, the inlet pressure at port B should be added to the value presented as curves.



10

Unit dimensions

Sub-plate mounting

1

168 212 Valve fixing screws: 116 G...DBW10: M22×1.5 GB/T 70.1-M12×50-10.9 6 5 Internal hexagon screw Tighten torque M_A =130Nm G...DBW20: GB/T 70.1-M16×50-10.9 2 Internal hexagon screw T Tighten torque M_A=310Nm G...DBW30: GB/T 70.1-M18×50-10.9 Internal hexagon screw 7 <u>____</u>21/4 _ ∞ .M14×1.5 ℃ Tighten torque M_A=430Nm 20 7 0.01/100 Φ6 # B 0.8 8 13 M14×1.5 1111111111 Requirement for





mounting surface

Туре	L1	L2	L3	L4	L5	L6	L7	L8	L9	B1	B2	D1	D2	D3	D4	O-ring(A, B)	O-ring(X)
GDBW 10	91	53.8	22.1	27.5	22.1	47.5	0	25.5	2	78	53.8	14	M12	6	12	17.12×2.62	9.25×1.78
GDBW 20	116	66.7	33.4	33.3	11.1	55.6	23.8	22.8	10.5	100	70	18	M16	6	22	28.17×3.53	9.25×1.78
GDBW 30	147.5	88.9	44.5	41	12.7	76.2	31.8	20	21	115	82.6	20	M18	7	30	34.52×3.53	9.25×1.78

~201

147

86

2

(Dimensions in mm)

Unit dimensions

(Dimensions in mm)

Threaded connection

Туре	D1	D2	T1
GDBW 10 G	G1/2; M22×1.5	34	14
GDBW 15 G	G3/4; M27×2	42	16
GDBW 20 G	G1; M33×2	47	18
GDBW 25 G	G1 1/4; M42×2	58	20
GDBW 30 G	G1 1/2; M48×2	65	22



- 1 Nameplate
- 2 Port X for external pilot oil supply
- 3 Port Y for external pilot oil drain
- 4 Adjustment element "1"
- 5 Adjustment element "2"
- 6 Lockable nut S=24
- 7 Internal hexagon screw S=10
- 8 Locating pin
- 9 Valve fixing hole
- 10 Directional valve, size6
- 11 Solenoid "a"

Sub-plate(must be ordered separately):

- **G...DBW10:** G 545/01(G 3/8), G 545/02 (M18×1.5) **G...DBW20:** G 408/01(G 3/4), G 408/02 (M27×2)
- **G...DBW30:** G 410/01(G1 1/4), G 410/02 (M42×2)



G 546/01(G 1/2), G 546/02 (M22×1.5) G 409/01(G1), G 409/02 (M33×2) G 411/01(G1 1/2), G 411/02 (M48×2)

Unit dimensions

(Dimensions in mm)

With main spool valve(G...DBWC10or30) or without main spool valve(G...DBWC)



- 12 Hand override "N" button, optional
- 13 Used for internal control of oil drainage
- 14 O-ring 9.25×1.78
- 15 Main spool cartridge
- 16 The Ø32 bore may connect the Ø45bore at any position.Please take care that the connection hole X and the fixing holes are not damaged.

Valve fixing screws: G...DBWCand G...DBWC30,

GB/T 70.1-M8 \times 40-10.9 Internal hexagon screw Tighten torque M =37Nm

- 17 In the installation of the main spool, and the O-ring should be put into the hole.
- 18 O-ring 28×1.8
- 19 O-ring 27.3×2.4
- 20 O-ring 28×2.65
- 21 Back-up ring 28.4×32×0.8
- 22 Flow controller must be ordered separately