

Pressure relief valve, pilot operated

RA 25802/03.03
Replaces: 08.99

1/16

Models DB; DBW

Nominal sizes 10 to 32
Series 5X
Maximum operating pressure 350 bar (5000 PSI)
Maximum flow 650 L/min (172 GPM)

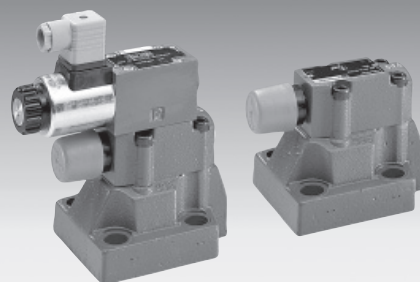


Table of contents

Contents	Page
Features	1
Ordering details	2, 3
Standard types	3
Plug-in connectors	4
Ordering details for design tested pressure relief valves	4 to 7
Functional description, cross-section	7, 8
Symbols	7
Technical data	9, 10
General guidelines	10
Characteristic curves	11, 12
Unit dimensions	12 to 16

Note:

Design tested pressure relief valves to pressure component directive 97/23/EG (abbreviated to "DGRL" in any further text) Type DB(W).../..E, series 5X, for ordering details see page 4.

Features

- Mounts on standard ISO 6264-06, 08, or 10, NFPA/ANSI R 06, R 08, R 10 interface, Porting pattern to DIN 24 340 form E, ISO 6264 and CETOP-RP 121 H, subplates to catalog sheet RE 45 064 (separate order)
- For threaded connections
- For installation into manifolds
- 4 adjustment elements:
 - Rotary knob
 - Sleeve with hexagon and protective cap
 - Lockable rotary knob with scale
 - Rotary knob with scale
- 5 pressure stages
- Solenoid operated unloading via a built-on directional spool valve or directional poppet valve
- High performance solenoid
- Explosion-proof solenoid (on request)
- Switching shock damping, optional (only type DBW)
- Further information:
 - Pilot operated valves
 - High performance directional valves RE 23 178 and RE 22 058
 - Subplates RE 45 064

Ordering details

		DB								5X
Without directional valve		= No code								
With built-on directional		= W								
Pilot operated valve (complete)		= No code								
Pilot operated valve without main spool assembly (do not enter nom. size)		= C								
Pilot operated valve with main spool assembly (enter valve sizes 10 or 30)		= C								
Pilot operated valve without main spool assembly for subplate mounting (do not enter nominal size)		= T ¹⁾								
Nom. size	Ordering Details									
	Subplates "No code"	Threaded connections "G"								
10	= 10	= 10 (G 1/2)								
16		= 15 (G 3/4)								
25	= 20	= 20 (G 1)								
25		= 25 (G 1 1/4)								
32	= 30	= 30 (G1 1/2)								
Normally closed		= A ²⁾								
Normally open		= B ²⁾								
For subplate mounting		= No code								
For threaded connections		= G								
Adjustment element										
Rotary knob		= 1								
Sleeve with hexagon and protective cap		= 2								
Lockable rotary knob with scale		= 3 ³⁾								
Rotary knob with scale		= 7								
With main spool Ø 24 mm (0.94 in) (all nominal sizes)		= -								
With main spool Ø 28 mm (1.1 in) (only for NS 32)		= N								
Series 50 to 59 (50 to 59: unchanged installation and connection dimensions)		= 5X								
Settable pressure up to 50 bar (725 PSI)		= 50								
Settable pressure up to 100 bar (1450 PSI)		= 100								
Settable pressure up to 200 bar (2901 PSI)		= 200								
Settable pressure up to 315 bar (4569 PSI)		= 315								
Settable pressure up to 350 bar (5076 PSI)		= 350								

¹⁾ DBT/DBWT are the same as DBC/DBWC, except that the central drilling is closed

²⁾ Ordering details **only** required for the version with built-on directional valve (DBW).

³⁾ H-key with Material No. **R900008158** is included within the scope of supply.

⁴⁾ Catalogue sheets RE 23 178 (directional spool valve) or RE 22 058 (directional poppet valve)

⁵⁾ Plug-in connectors must be ordered separately (see page 4).

⁶⁾ Ordering details **only** required for the version with built-on directional valve and switching shock damping (DBW.../... S...).

⁷⁾ **Only** possible up to pressure stage 315 bar (4600 PSI)

⁸⁾ Hyphen „-“ **only** required for the versions with built-on directional valve (DBW), without for “U” or “S”.

Ordering details (cont.)

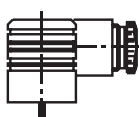
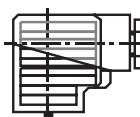
											*
											Further details in clear text
											Thread for "X" and "Y" port
										No code =	BSP threaded port
										12 =	SAE threaded port
											Design tested
										No code =	Without design testing
										E =	Safety valve with design testing to DGRL 97/23/EG
										No code =	NBR seals
										V =	FKM seals
											(other seals on request)
											 Attention!
											The compatibility of the seals and pressure fluid has to be taken into account!
										R12 ⁶⁾ =	Orifice Ø 1.2 mm in port B of the directional valve
										K4 ^{2; 5)} =	Electrical connection*
											Without plug-in connector, individual connection with component plug
											DIN EN 175 301-803
											*For other connection options, please see WE6.6X (RE 23173)
										No code =	Without hand override
										N ²⁾ =	With hand override
										N9 ²⁾ =	With protected hand override (standard)
										G24 ²⁾ =	24 V DC
										W230 ²⁾ =	230 V AC 50/60 Hz
										No code =	Without directional valve
										6E ²⁾ =	With directional spool valve (high performance valve ⁴⁾) – settable pressure up to 350 bar (5000 PSI)
										6SM ²⁾ =	With directional poppet valve (high performance valve ⁴⁾) – settable pressure up to 350 bar (5000 PSI)
										No code =	Without switching shock damping
										S =	With switching shock damping (only with version DBW)
										No code =	Standard version
										U ⁷⁾ =	Valve for minimum opening pressure
											(not for version without main spool assembly and not suitable for cross-line relief!)
											Pilot oil supply and pilot oil drain
										- ⁸⁾ =	Internal pilot oil supply and pilot oil drain
										X =	External pilot oil supply, internal pilot oil drain
										Y =	Internal pilot oil supply, external pilot oil drain
										XY =	External pilot oil supply and pilot oil drain

Also see symbols
on page 7

Standard types

Type	Material No.	Type	Material No.
DB 10-2-5X/50	R900590645	DB 20 G2-5X/350	R900599232
DB 10-2-5X/100	R900590646	DB 20 G2-4X/100 W65	R900407106
DB 10-2-5X/200	R900587772	DB 30-2-5X/50	R900593564
DB 10-2-5X/315	R900590334	DB 30-2-5X/100	R900594677
DB 10-2-5X/350	R900597992	DB 30-2-5X/200	R900588131
DB 20 -2-5X/50	R900597212	DB 30-2-5X/315	R900591128
DB 20 -2-5X/100	R900589433	DB 30-2-5X/350	R900504902
DB 20 -2-5X/200	R900590768	DB 30 G2-5X/50	R900598338
DB 20 -2-5X/315	R900593530	DB 30 G2-5X/100	R900502598
DB 20 -2-5X/350	R900590618	DB 30 G2-5X/200	R900500719
DB 20 G2-5X/50	R900590328	DB 30 G2-5X/315	R900594426
DB 20 G2-5X/200	R900597307	DB 30 G2-5X/350	R900535222
DB 20 G2-5X/315	R900597747		

Plug-in connectors to DIN EN 175 301-803 and ISO 4400 for component plug "K4"

For further plug-in connectors, see RE 08 006					
		Material No.			
Valve side	Color	Without circuitry	With indicator light 12 ... 240 V	With rectifier 12 ... 240 V	With indicator light and Z-diode protective circuit 24 V
a	Grey	R900074683	–	–	–
a/b	Black	–	R900057292	R900313933	R900310995

Ordering details for design tested pressure relief valves type DB(W)..E, series 5X

Design tested to directive 97/23/EG (pressure component directive)

NS	Designation	Component Identification	Max. permissible flow q_{Vmax} in L/min (GPM)		Set response over pressure p in bar (PSI)
			ext. "Y"	int. "-"	
10	DB 10 -5X/ E	TÜV.SV. -851.12.F.G.p	170 (44.9)	130 (34.3)	30 to 60 (435 to 870)
	DBW 10 -5X/ 6 * E	TÜV.SV. -851.12.F.G.p	230 (60.7)	200 (52.8)	61 to 110 (884 to 1595)
25	DB 20 -5X/ E	TÜV.SV. -852.22.F.G.p	230 (60.7)	200 (52.8)	111 to 210 (1609 to 3045)
	DBW 20 -5X/ 6 * E	TÜV.SV. -852.22.F.G.p	230 (60.7)	200 (52.8)	211 to 350 (3060 to 5076)
32	DB 30 N5X/ E	TÜV.SV. -853.22.F.G.p	250 (66)	180 (47.5)	30 to 60 (435 to 870)
	DBW 30 N5X/ 6 * E	TÜV.SV. -853.22.F.G.p	270 (71.3)	210 (55.4)	61 to 110 (884 to 1595)
			420 (110)	320 (84.5)	111 to 210 (1609 to 3045)
			450 (118.8)	400 (105.6)	211 to 350 (3060 to 5076)
			600 (159)	225 (59.4)	30 to 60 (435 to 870)
			600 (159)	340 (89.8)	61 to 110 (884 to 1595)
			650 (171.7)	540 (142.6)	111 to 210 (1609 to 3045)
			700 (184.9)	580 (153.2)	211 to 350 (3060 to 5076)

- 1 ☐ Directional valve, normally closed = A
Directional valve, normally open = B
- 2 ☐ For subplate mounting for threaded connections = No code
= G
- 3 ☐ Adjustment element hand wheel (sealed pressure adjuster, unloading or adjustments in the lower settable range is possible) = 1
Adjustment element with sealed protective cap (no adjustment or unloading is possible) = 2
- 4 ☐ The pressure details contained within the type code are to be entered by the customer, pressure adjustments $\geq$ 30 bar (435 PSI) and in 5 bar (72 PSI) steps are possible e.g.= 150
- 5 ☐ Internal pilot oil supply and pilot oil drain = – ¹⁾²⁾
Recommended: Internal pilot oil supply, external pilot oil drain = Y ²⁾
- * ☐ Electrical data ordering details = EG24N9K4
(see page 3) e.g.

- 6 ☐ NBR seals = No code
FKM seals = V
- ☐ Details are completed by the factory
- 1) Hyphen "-" only required for the version with built-on directional valve (DBW)
- 2) External pilot oil supply "X" is not possible !

Important notes:

- Before ordering a design tested pressure relief valve, checks have to be carried out to ensure that at the required **response pressure p** the maximum permissible **flow q_{Vmax}** of the safety valve is greater than the maximum possible flow from the system! The appropriate regulations must be taken into account.
- The return lines (ports T and Y) from safety valves must vent in a safe manner. Fluid must **not** be able to gather in a venting system.
- The removal of the seal from a safety valve invalidates the DGRL approval!
- The requirements of the pressure component directive 97/23/EG and the AD2000 information sheet A2 must be taken into account !

Safety guidelines for design tested safety valves DB.(W) 10/20/30-5X/...(Y) E
in accordance to the pressure components directive DGRL 97/23/EG

In accordance to DGRL 97/23/EG the system pressure must not increase, due to the flow, by more than 10% of the set response pressure (see component identification).

Application notes must be taken into account!

The response value stated within the component identification is set in the manufacturing plant with a flow of 2 L/min (0.52 GPM).

The maximum permissible flow stated within the component identification (= numerical value in the place of "G" within the component identification, see page 4) must not be exceeded.

Is valid for:

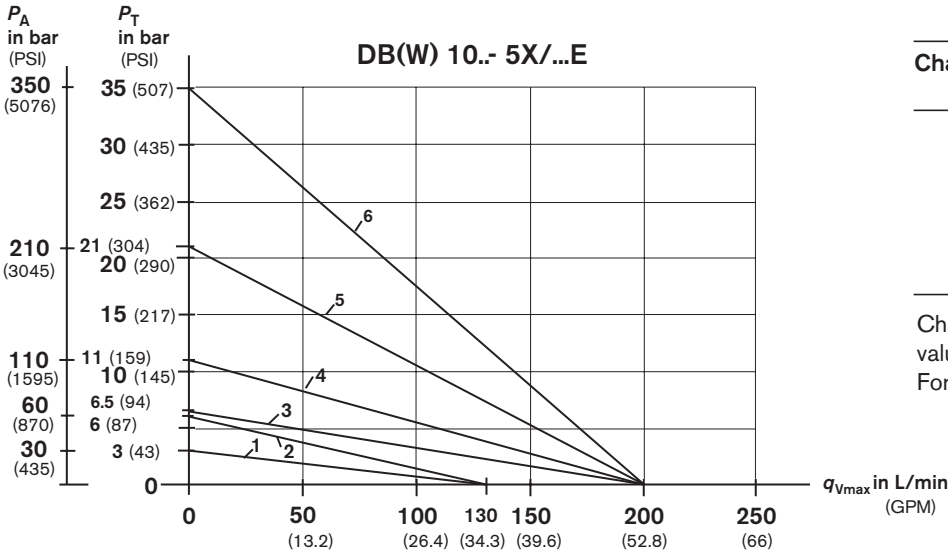
- Pilot oil return "external" (= Y in the order code) **without back pressure** in the **pilot oil return line Y**, the permissible back pressure in the return line (port T) < 15 bar (217 PSI)

- Pilot oil return "internal" (= **no code** in the order code). The maximum permissible flow is only permissible **without back pressure** in the **return line** (port T).

With internal pilot oil return, the system pressure increases with an increase in flow by the value of the back pressure in the return line (port T) (Take the AD2000 - A2 information sheet, point 6.3 into account!)

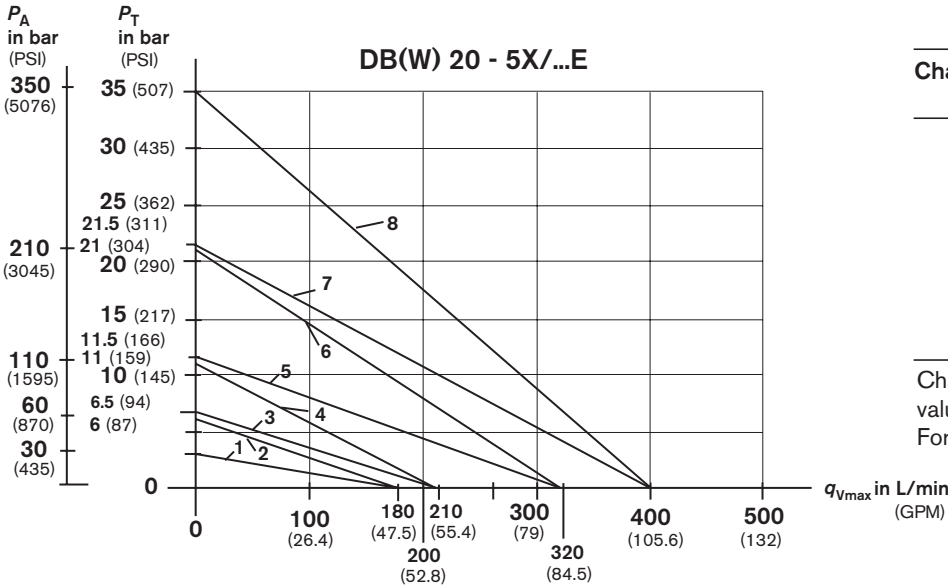
To ensure that the system pressure does not increase, due to the flow, by more than 10% of the set response pressure, the permissible flow must be reduced in relation to the back pressure in the return line (port T) (see the following diagram).

The relationship of the maximum permissible flow q_{Vmax} and the back pressure p_T in the return line with internal pilot oil return



Characteristic curves	Response pressure p_A in bar (PSI)
1	30 (435)
2	60 (870)
3	65 (942)
4	110 (1595)
5	210 (3045)
6	350 (5076)

Characteristic curves for intermediate values can be obtained by interpolation. For further explanations, see page 6.

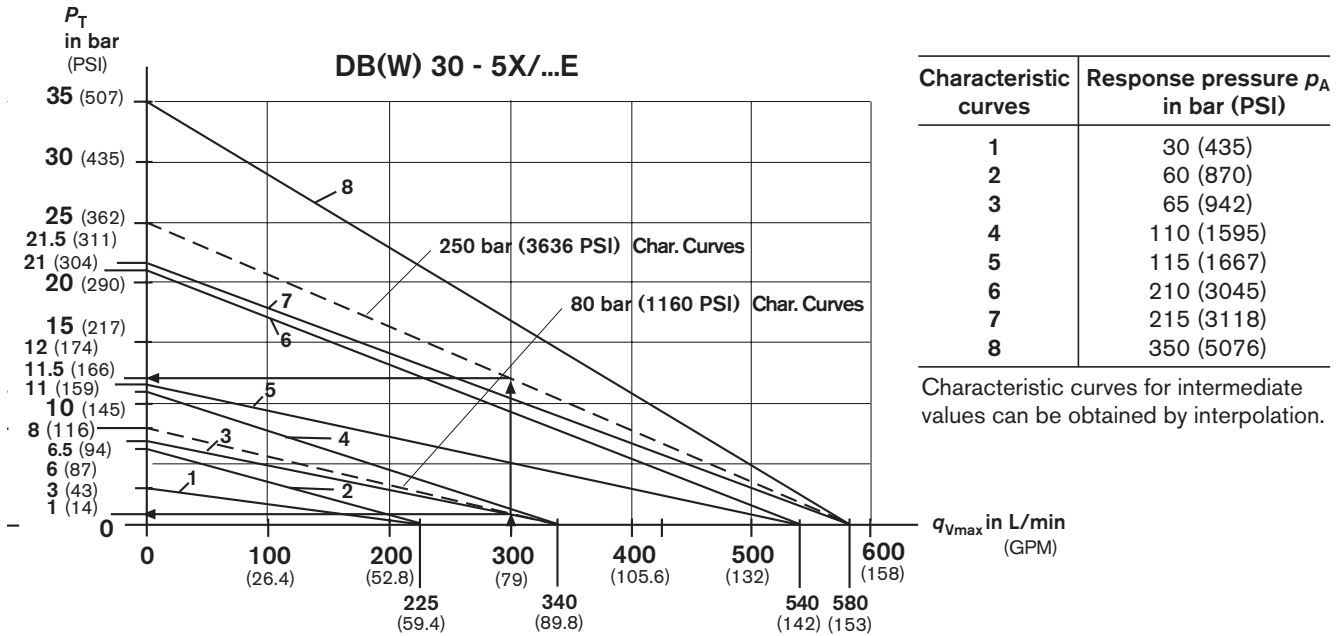


Characteristic curves	Response pressure p_A in bar (PSI)
1	30 (435)
2	60 (870)
3	65 (942)
4	110 (1595)
5	115 (1667)
6	210 (3045)
7	215 (3118)
8	350 (5076)

Characteristic curves for intermediate values can be obtained by interpolation. For further explanations, see page 6.

Safety valves in accordance to the pressure component directive DGRL 97/23/EG

The relationship of the maximum permissible flow q_{Vmax} and the back pressure p_T in the return line with internal pilot oil return



p_A = Response pressure in bar

p_T = Maximum permissible back pressure in the return line (port T)

(The sum of all of the possible back pressures; also see the AD2000 - A2 information sheet)

$p_{Tmax} = 10\% \times p_A$ (at $q_V = 0$) to DGRL 97/23/EG

q_{Vmax} = Maximum permissible flow in L/min

An explanation of the diagram using a type DB(W) 30...5X/...E as an example

Example 1

Given: The flow for which safety has to be provided from the system/accumulator $q_{Vmax} = 300$ L/min (79 GPM)
Safety valve set response pressure $p_A = 250$ bar (3626 PSI)

Required: p_T

Solution: See the arrows within the diagram above (300L/min, 250bar) (79 GPM, 3626 PSI) $p_T \approx 12$ bar (174 PSI)

Example 2

Given: The flow for which safety has to be provided from the system/accumulator $q_{Vmax} = 300$ L/min (79 GPM)
Safety valve set response pressure $p_A = 80$ bar (1160 PSI)

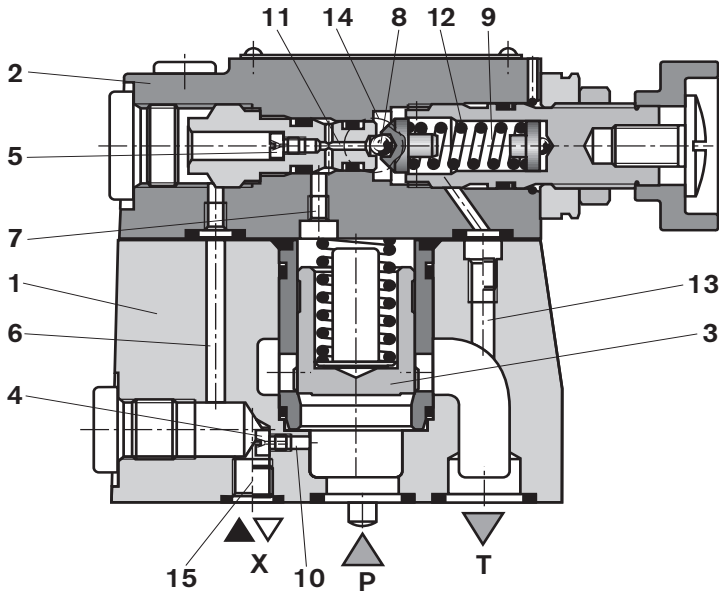
Required: p_T

Solution: See the arrows within the diagram above (300L/min, 80bar) (79 GPM, 1160PSI) $p_T \approx 1$ bar (14.5 PSI)

Functional description, cross-section: type DB...

General
Types DB and DBW pressure valves are pilot operated pressure relief valves.
They are used for the limitation (DB) or limitation and solenoid operated unloading (DBW) of the operating pressure.
The pressure relief valves (DB) mainly consists of the main valve (1) with main spool assembly (3) and pilot control valve (2) with pressure adjustment element.
Pressure relief valve type DB
The pressure present in port P acts on the main spool (3). At the same time pressure is applied via the control lines (6) und (7), which are fitted with orifices (4) and (5), ontp the spring loaded side of the main spool (3) and at the ball (8) in the pilot control valve (2). If the pressure in port P exceeds the value set at the

spring (9), then the ball (8) opens against the spring (9).
The signal for this comes internally via the control lines (10) and (6) from port P. The pressure fluid on the spring loaded side of the main spool (3) now flows via the control line (7), orifice bore (11) and ball (8) into the spring chamber (12). In type DB..-5X/..-.. it flows internally via the control line (13), or in type DB..5X/..Y.. externally via the control line (14) to tank. Due to the orifices (4) and (5) a pressure drop occurs at the main spool (3), and the connection from port P to port T is opened. Now the pressure fluid flows from port P to port T whilst maintaining the set operating pressure.
The pressure relief valve may be unloaded or switched over to a different pressure (second pressure stage) via port "X" (15).



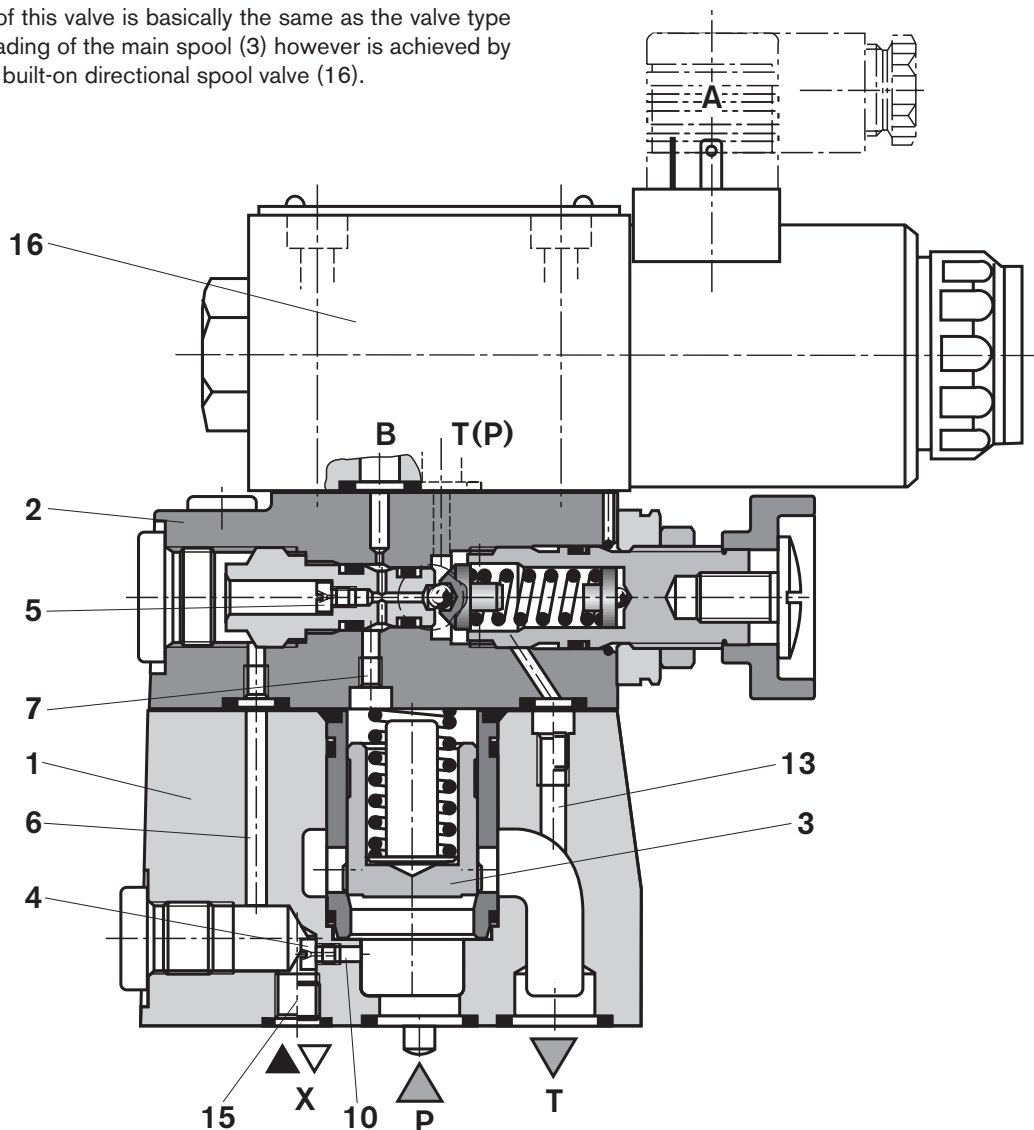
Symbols

Type DB...-...	Type DB...X...	Type DB...Y...	Type DB...XY...
Type DBW...-... Normally closed Normally open	Type DBW...X... Normally closed Normally open	Type DBW...Y... Normally closed Normally open	Type DBW...XY... Normally closed Normally open

Functional description, cross-section: type DBW...

Pressure relief valve type DBW

The function of this valve is basically the same as the valve type DB. The unloading of the main spool (3) however is achieved by operating the built-on directional spool valve (16).

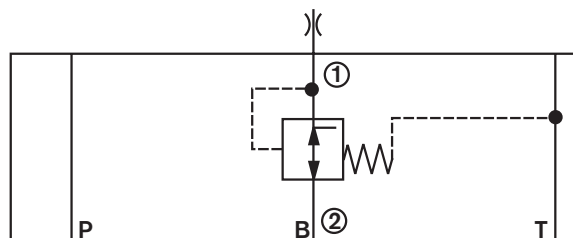
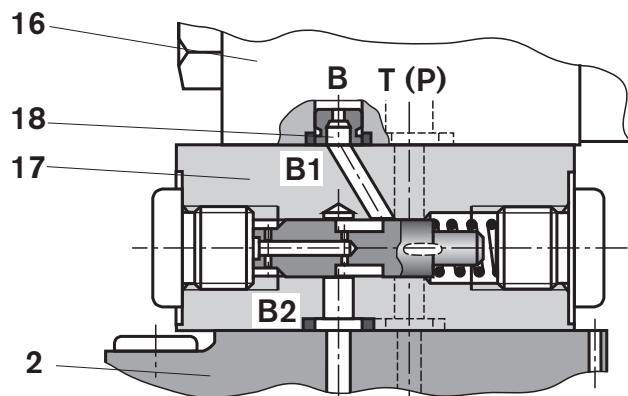


Pressure relief valve with switching shock damping (sandwich plate), type DBW.../S6...R12

With a switching shock damping valve (17) the opening of the connection from B2 to B1 is delayed. Pressure peaks and acoustic unloading shocks in the return line are thereby avoided.

It is fitted between the pilot control valve (2) and the directional valve (16).

The degree of damping (unloading shock) is determined by the size of the orifice (18). The $\varnothing 1.2 \text{ mm}$ (0.0472 in) orifice is recommended (ordering detail..R12..).



Shown: Directional valve open

Technical data (for applications outside these parameters, please consult us!)**General**

Installation			Optional
Ambient temperature range	DB..	°C (F°)	–30 to +80 (–22 to 176)(NBR seals)
			–15 to +80 (5 to 176)(FKM seals)
	DBW...	°C (F°)	–30 to +50 (–22 to 122) (NBR seals)
			–15 to +50 (5 to 122)(FKM seals)

The minimum housing material strength (for subplate mounting and DBC../DBWC.. valves):

Housing materials are to be so selected that adequate safety is ensured for all conceivable operating pressures, e.g.: with reference to the compressive strength, thread strength and tightening torques

Weight				DB. 10	DB. 15	DB. 20	DB. 25	DB. 30
Subplate mounting	DB...	kg (lbs)		2.6 (5.7)	–	3.5 (7.7)	–	4.4 (9.7)
	DBW...	kg (lbs)		4.05 (8.9)	–	4.95 (10.9)	–	5.85 (12.9)
	DBC...	kg (lbs)		1.2 (2.65)				
	DBWC...	kg (lbs)		2.65 (1.2)				
	DBC10 or 30...	kg (lbs)		1.5 (3.31)				
	DBWC10 or 30...	kg (lbs)		2.95 (6.5)				
Threaded connections	DB..G...	kg (lbs)		5.3 (11.6)	5.2 (11.4)	5.1 (11.2)	5.0 (11)	4.8 (10.5)
	DBW..G...	kg (lbs)		6.75 (14.9)	6.65 (14.7)	6.55 (14.4)	6.45 (14.2)	6.25 (13.8)
Technical data				Directional spool valve				
				See catalogue sheet RE 23 178				
				Directional poppet valve				
				See catalogue sheet RE 22 058				

Hydraulic

Maximum operating pressure	P	bar (PSI)	350 (5076)				
at ports	T	bar (PSI)	315 (4569)				
Max. back pressure: Port Y	DB..	bar (PSI)	315 (4569)				
Port Y (DBW../..Y..) or port T (DBW../..)		bar (PSI)	210 (3046) For DC solenoids				
		bar (PSI)	160 (2321) for AC solenoids				
Settable pressure	Minimum	bar (PSI)	Flow dependent (see characteristic curves on page 11)				
	Maximum	bar (PSI)	50; 100; 200; 315; 350 (725; 1450; 2901; 4569; 5076)				
Maximum flow			DB. 10	DB. 15	DB. 20	DB. 25	DB. 30
Subplate mounting			250 (66)	–	500 (132)	–	650 (171)
Threaded connections			250 (66)	500 (132)	500 (132)	500 (132)	650 (171)
Pressure fluid			Mineral oil (HL, HLP) to DIN 51 524 ¹⁾ ; Fast bio-degradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil) ¹⁾ ; HEPG (polyglycole) ²⁾ ; HEES (synthetic ester) ²⁾ ; other pressure fluids on request				
Pressure fluid temperture range		°C (F°)	–30 to +80 (–22 to 176) for NBR seals				
		°C (F°)	–15 to +80 (5 to 176) for FKM seals				
Viscosity range		mm²/s (SUS)	10 to 800 (45 to 3720)				
ISO code cleanliness class			Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 ³⁾				

¹⁾ Suitable for NBR and FKM seals

²⁾ **Only** suitable for FKM seals

³⁾ The cleanliness class stated for the components must be adhered too in hydraulic systems.

Effective filtration prevents faults from occurring and at the same time increases the component service life.

For the selection of filters see catalogue sheets RE 50 070, RE 50 076 and RE 50 081.

Deviating technical data
for design tested pressure relief valves
¹⁾

Hydraulic							
Maximum flow			See tables on page 4 and characteristic curves on pages 5 and 6				
Pressure fluid			Mineral oil (HL, HLP) to DIN 51 524 and DIN 51 525				
Pressure fluid temperature range		°C (°F)	– 20 to + 60 (-4 to 140) (for NBR seals)				
		°C (°F)	– 15 to + 60 (-22 to 140)(for FKM seals)				
Viscosity range		mm ² /s (SUS)	12 to 230				
Maximum back pressure			DB../..	DB../..Y	DBW../..	DBW../..Y	
			Port Y bar (PSI)	–	0	–	0
			Port T bar (PSI)	²⁾	$p_T < 15$ (217)	²⁾	$p_T < 15$ (217)

¹⁾ For applications outside these parameters, please consult us!
²⁾ See characteristic curves and explanations regarding the permissible back pressures, see pages 5 and 6

General guidelines

- The unloading function (directional valve function with the type DBW) must not be used for safety functions!
- For type DBW..**B**..5X/... the lowest settable pressure is set if the current fails or if there is a cable break (circulation pressure). For type DBW..**A**..5X/... the pressure relief function is activated if the current fails or if there is a cable break.
- Hydraulic back pressures in port T with an internal pilot oil drain or in port Y with an external pilot oil drain are added 1:1 to the response pressure set at the pilot control of the valve.

Example:
Valve pressure setting via the spring loading
(Pos. 12 on page 7) in the pilot control valve/adjustment
unit $p_{spring} = 200 \text{ bar (2900 PSI)}$

Hydraulic back pressure in port T with an
internal pilot oil drain $p_{hydraulic} = 50 \text{ bar (725 PSI)}$

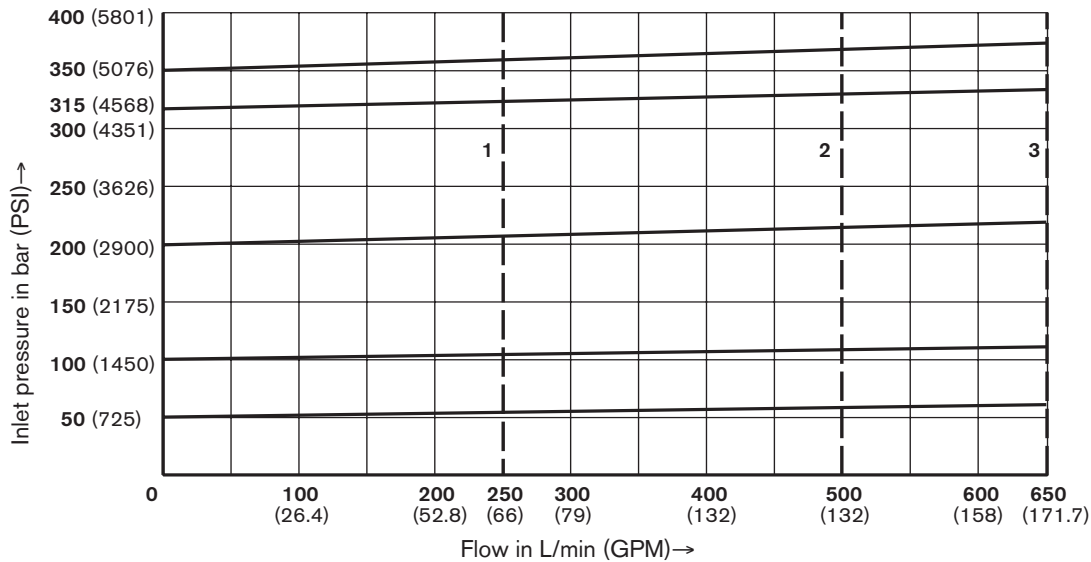
=> Response pressure = $p_{spring} + p_{hydraulic} = 250 \text{ bar (3626 PSI)}$

Characteristic curves – measured with HLP46, $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$ (104 °F $\pm$ 41 °F)

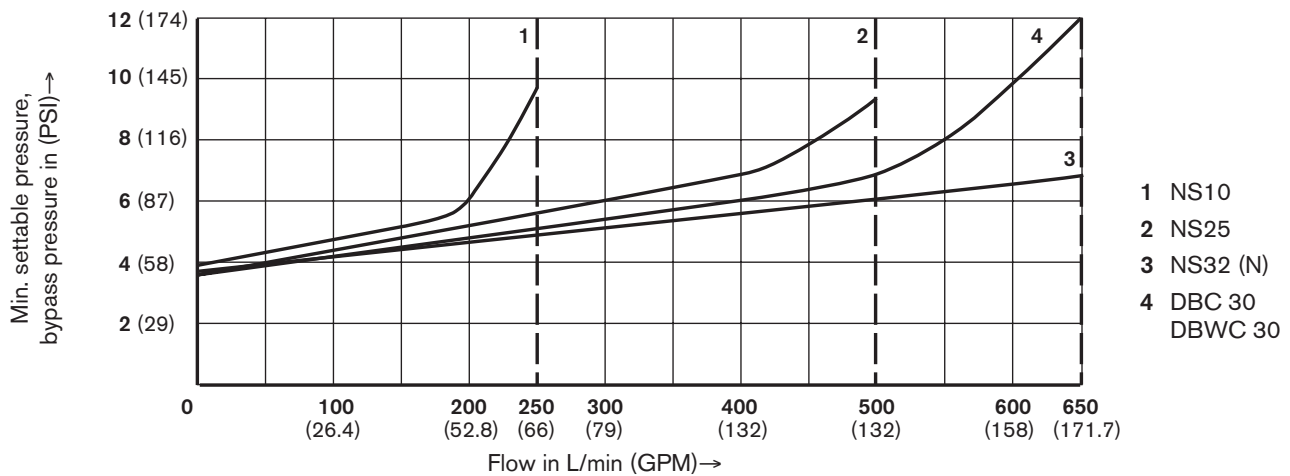
The characteristic curves were measured with **external, pilot oil drain, at zero pressure**.

With an internal pilot oil drain the inlet pressure increases by the outlet pressure present at port T.

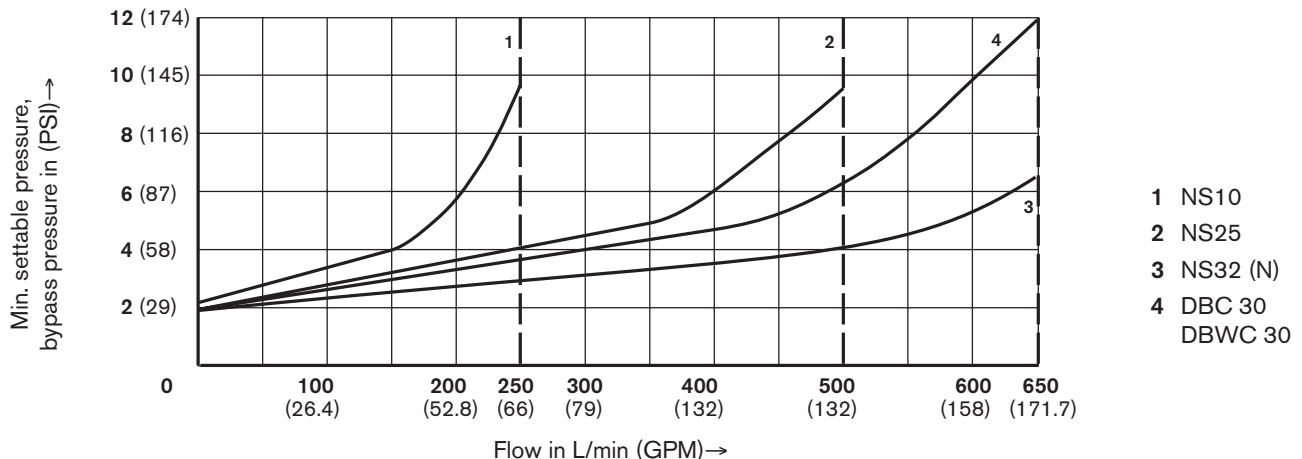
Inlet pressure in relation to the flow



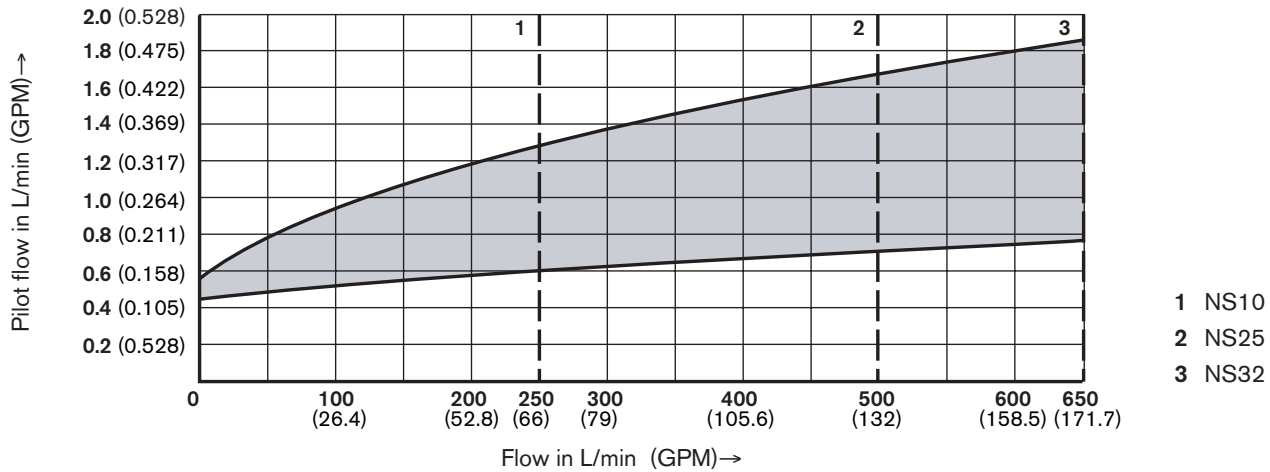
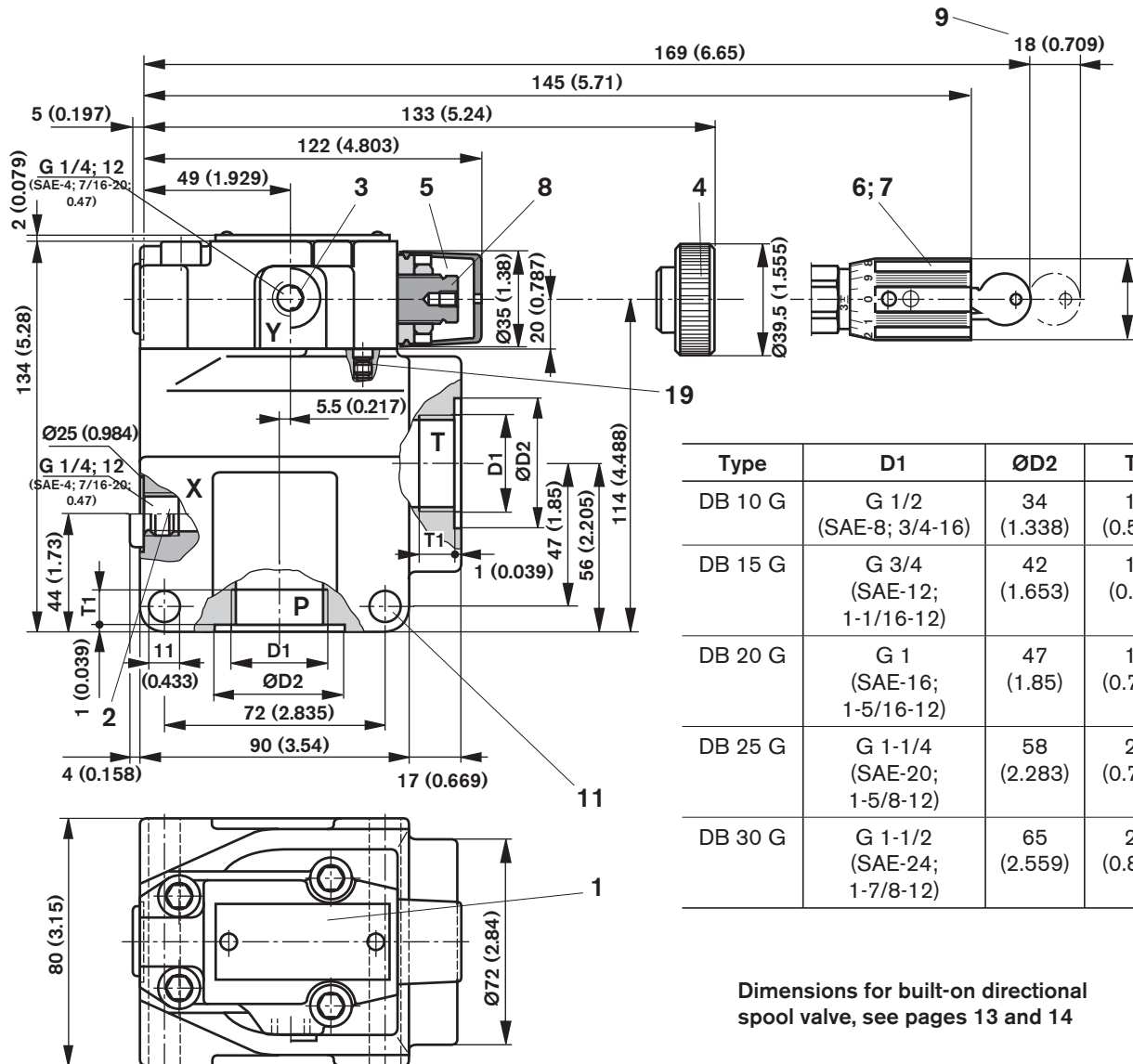
Standard version: Minimum settable pressure and bypass pressure in relation to the flow ¹⁾



Version "U": Minimum settable pressure and bypass pressure in relation to the flow ¹⁾



¹⁾ The characteristic curves are valid for outlet pressure $p_T = 0$ over the entire flow range!

Characteristic curves – measured with HLP46, $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$ (104 °F $\pm$ 41 °F)**Pilot flow, measured at $v = 40.5\text{ mm}^2/\text{s}$** **Unit dimensions:** for threaded connections – dimensions in mm (inches)

Dimensions for built-on directional
spool valve, see pages 13 and 14

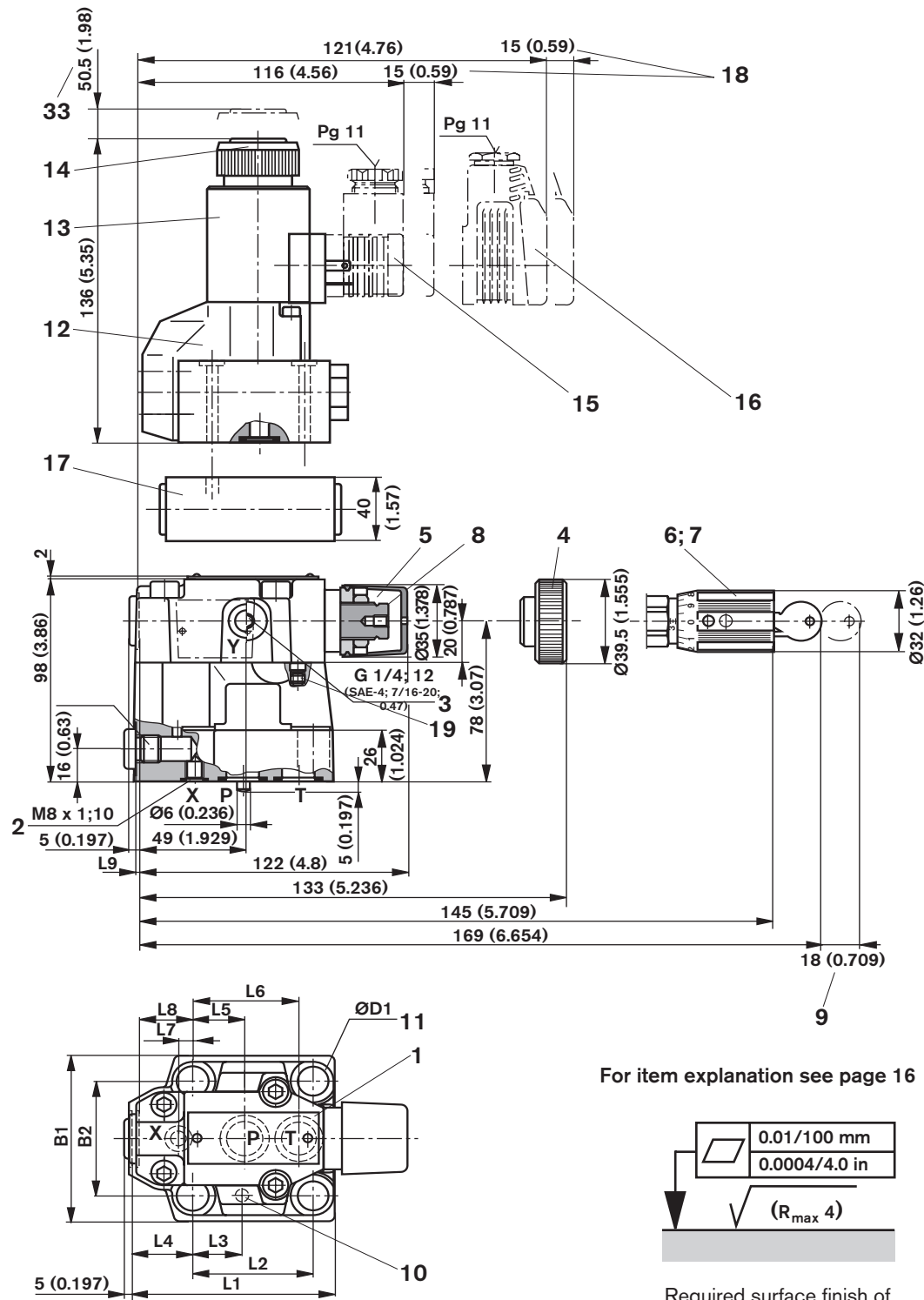
For item explanations see page 16

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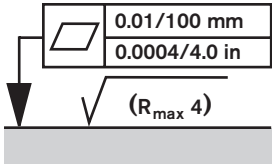


Type	L1	L2	L3	L4	L5	L6	L7	L8	L9	B1	B2	ØD1
DB. 10	91 (3.58)	53.8 (2.12)	22.1 (0.87)	27.5 (1.08)	22.1 (0.87)	47.5 (1.87)	0 (0)	25.5 (1)	2 (0.79)	78 (3.07)	53.8 (2.12)	14 (0.551)
DB. 20	116 (4.57)	66.7 (2.63)	33.4 (1.32)	33.3 1.31	11.1 (0.44)	55.6 (2.19)	23.8 (0.94)	22.8 (0.89)	10.5 (0.41)	100 (3.94)	70 (2.76)	18 (0.709)
DB. 30	147.5 (5.81)	88.9 (3.5)	44.5 (1.75)	41 (1.61)	12.7 (0.5)	76.2 (3)	31.8 (1.25)	20 (0.78)	21 (0.83)	115 (4.53)	82.6 (3.25)	20 (0.787)

Unit dimensions: for subplate mounting with directional poppet valve – dimensions in mm (inches)



For item explanation see page 16

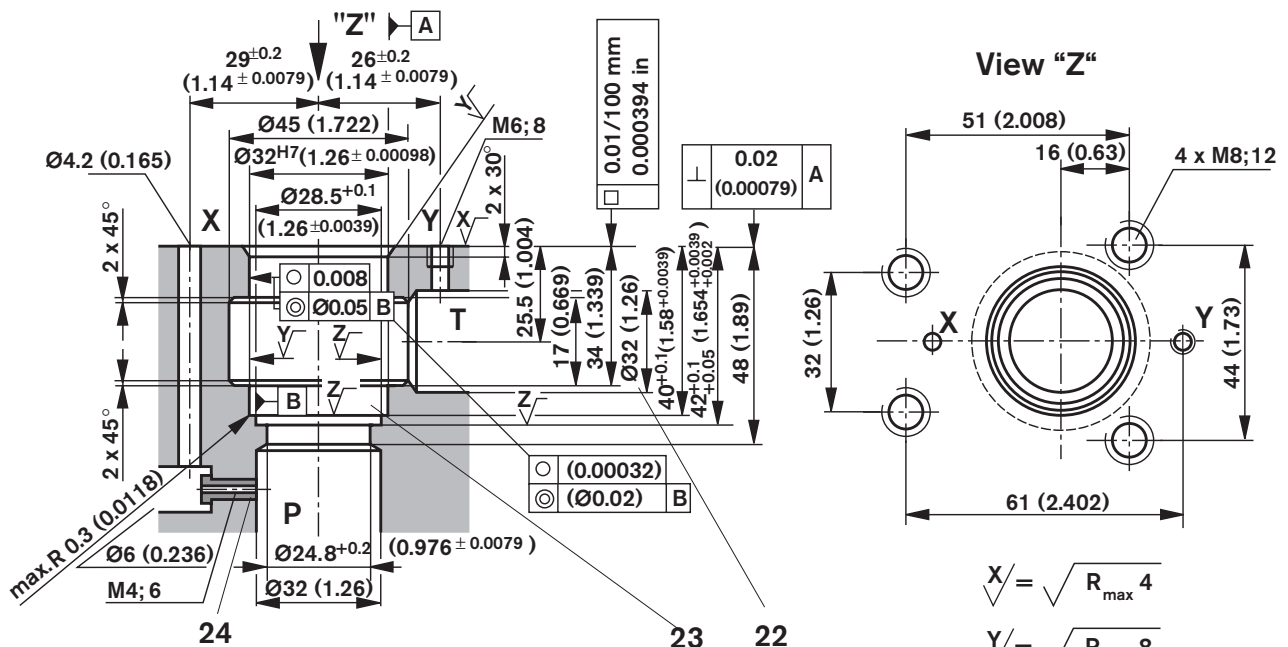
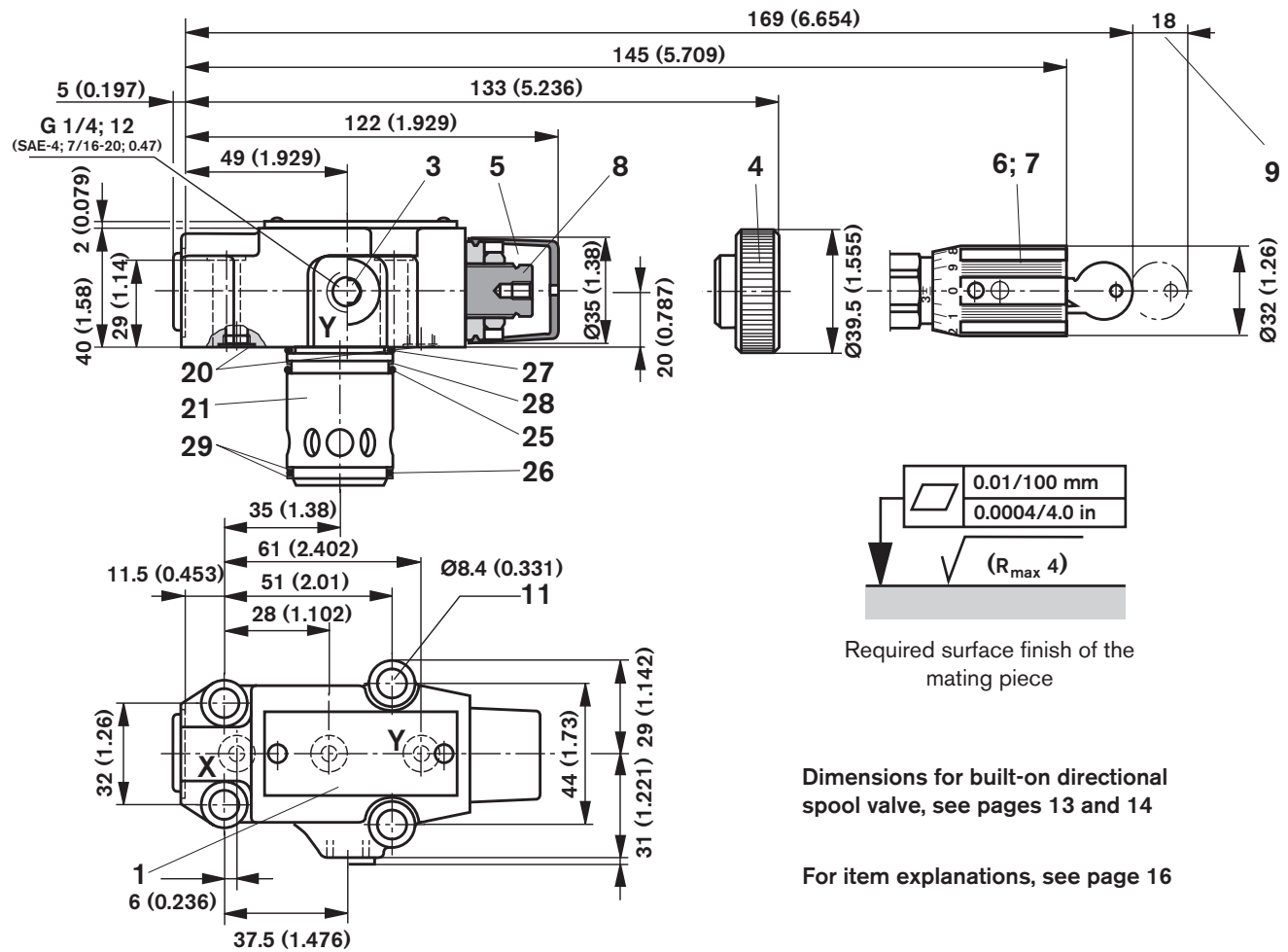


Required surface finish of
mating piece

Type	L1	L2	L3	L4	L5	L6	L7	L8	L9	B1	B2	ØD1
DB. 10	91 (3.58)	53.8 (2.12)	22.1 (0.87)	27.5 (1.08)	22.1 (0.87)	47.5 (1.87)	0 (0)	25.5 (1)	2 (0.79)	78 (3.07)	53.8 (2.12)	14 (0.551)
DB. 20	116 (4.57)	66.7 (2.63)	33.4 (1.32)	33.3 1.31	11.1 (0.44)	55.6 (2.19)	23.8 (0.94)	22.8 (0.89)	10.5 (0.41)	100 (3.94)	70 (2.76)	18 (0.709)
DB. 30	147.5 (5.81)	88.9 (3.5)	44.5 (1.75)	41 (1.61)	12.7 (0.5)	76.2 (3)	31.8 (1.25)	20 (0.78)	21 (0.83)	115 (4.53)	82.6 (3.25)	20 (0.787)

Unit dimensions: pilot control valves with (DBC 10 or 30) or without (DBC, DBT) main spool assembly

dimensions in mm (inches)



Item explanation

- 1 Name plate
- 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 Adjustment element "3"
- 7 Adjustment element "7"
- 8 Hexagon 10A/F
- 9 Space required to remove the key
- 10 Locating pin
- 11 Valve fixing holes
- 12 Page 13: Directional spool valve NS 6
(see catalogue sheet RE 23 178)
Page 14: Directional poppet valve NS 6
(see catalogue sheet RE 22 058)
- 13 Solenoid "a"
- 14 Hand override, optional
- 15 Plug-in connector without circuitry to DIN EN 175 301-803 ¹⁾
- 16 Plug-in connector with circuitry to DIN EN 175 301-803 ¹⁾
- 17 Switching shock damping valve, optional
- 18 Space required to remove the plug-in connector
- 19 Omitted with internal pilot oil drain
- 20 Seal ring
- 21 Main spool assembly
- 22 The Ø 32 bore may connect the Ø 45 bore at any position.
However, care must be taken to ensure that the connection
hole X and the fixing holes are not damaged.
- 23 Back-up ring and seal ring must be inserted into this bore
before assembling the main spool.
- 24 Orifice must be ordered separately
- 25 Seal ring
- 26 Seal ring
- 27 Seal ring
- 28 Seal ring
- 29 Seal ring
- 30 Dim. for valve with hand override „N“
- 31 Dim. () for valve with AC solenoid
- 32 Dim. for valve with DC solenoid
- 33 Space required to remove the solenoid coil

Subplates to catalogue sheet RE 45 064 and valve fixing
screws must be ordered separately.

Subplates for:

Types DB/DBW 10	G 545/01 (/12) G 3/8 ²⁾ (SAE-6; 9/16-18) G 546/01 (/12) G 1/2 ²⁾ (SAE-8; 3/4-16)
Types DB/DBW 20	G 408/01 (/12) G 3/4 ²⁾ (SAE-12; 1-1/16-12) G 409/01 (/12) G 1 ²⁾ (SAE-16; 1-5/16-20)
Types DB/DBW 30	G 410/01 (/12) G 1 1/4 ²⁾ (SAE-20; 1-5/8-12) G 411/01 (/12) G 1 1/2 ²⁾ (SAE-24; 1-7/8-12)
Types DBT/DBWT	G 51/01 (/12) G 1/4 ²⁾ (SAE-4; 7/16-20)

Valve fixing screws for:

Types DB/DBW 10
4 off M12 x 50 DIN 912–10.9 (1/2-13 UNC x 2");
M_A = 130 Nm (96 lb-ft.)

Types DB/DBW 20
4 off M16 x 50 DIN 912–10.9 (5/8-11 UNC x 2");
M_A = 310 Nm (229 lb-ft.)

Types DB/DBW 30
4 off M18 x 50 DIN 912–10.9 (3/4-10 UNC x 2");
M_A = 430 Nm (317 lb-ft.)

**Types DBC/DBWC,
Types DBC 10/DBWC 10 and Types DBC 30/DBWC 30**
4 off M8 x 40 DIN 912–10.9 (5/16-18 UNC x 1-1/2");
M_A = 37 Nm (27 lb-ft.)

Types DBT/DBWT
4 off M8 x 40 DIN 912–10.9 (5/16-18 UNC x 1-1/2");
M_A = 37 Nm (27 lb-ft.)

¹⁾ Must be ordered separately, see page 4

²⁾ **Attention!**
It is **not permissible** to use the stated subplates with
design tested pressure relief valve to the pressure compo-
nent directive 97/23/EG.

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