

Up to 300 l/min
Up to 350 bar

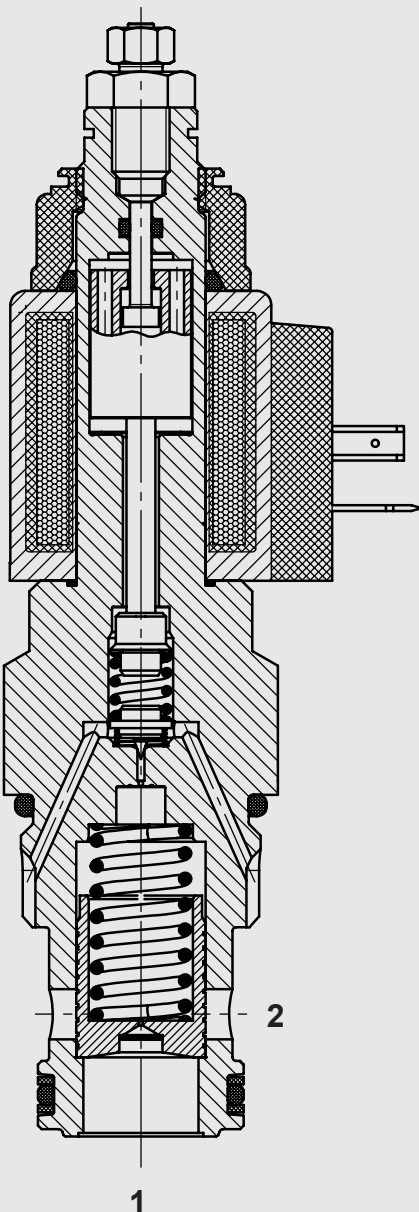
Pressure relief valve

DB16PY-01

Spool type, pilot-operated

Screw-In Cartridge Valve, UNF – 350 bar

FUNCTION



PRODUCT ADVANTAGES

- With mechanical adjustment of the relief pressure
- Excellent stability over the entire flow range
- Electrical control of the relief function – Simple activation via switching output of the control unit is sufficient
- Various pressure ranges up to 350 bar
- External surfaces with advanced corrosion protection thanks to ZnNi coating (1,000 h salt spray test)

DESCRIPTION OF FUNCTION

The DB16PY-01 is a pilot operated spool valve, solenoid activated, de-energised the system pressure is relieved to tank side.

When the solenoid is energised, it is responsible for limiting the pressure in the system. When the inlet pressure at port 1 exceeds the pressure that has been preset via the adjustment, the pilot valve opens and the oil will flow from the rear of the main spool to tank port 2. The pressure difference created as a result of this action will cause the main spool to press against its return spring and allow the oil to flow from port 1 to port 2.

This will continue until the system pressure at port 1 corresponds to the preset pressure value, at which point the pilot valve will close again. The main spool will be moved back into the closing position by the return spring.

When the solenoid is de-energised, the valve's pressure relief function is not active and there is an open connection between port 1 and 2. The pressure differential Δp is a minimum of 5 bar.

Notice:

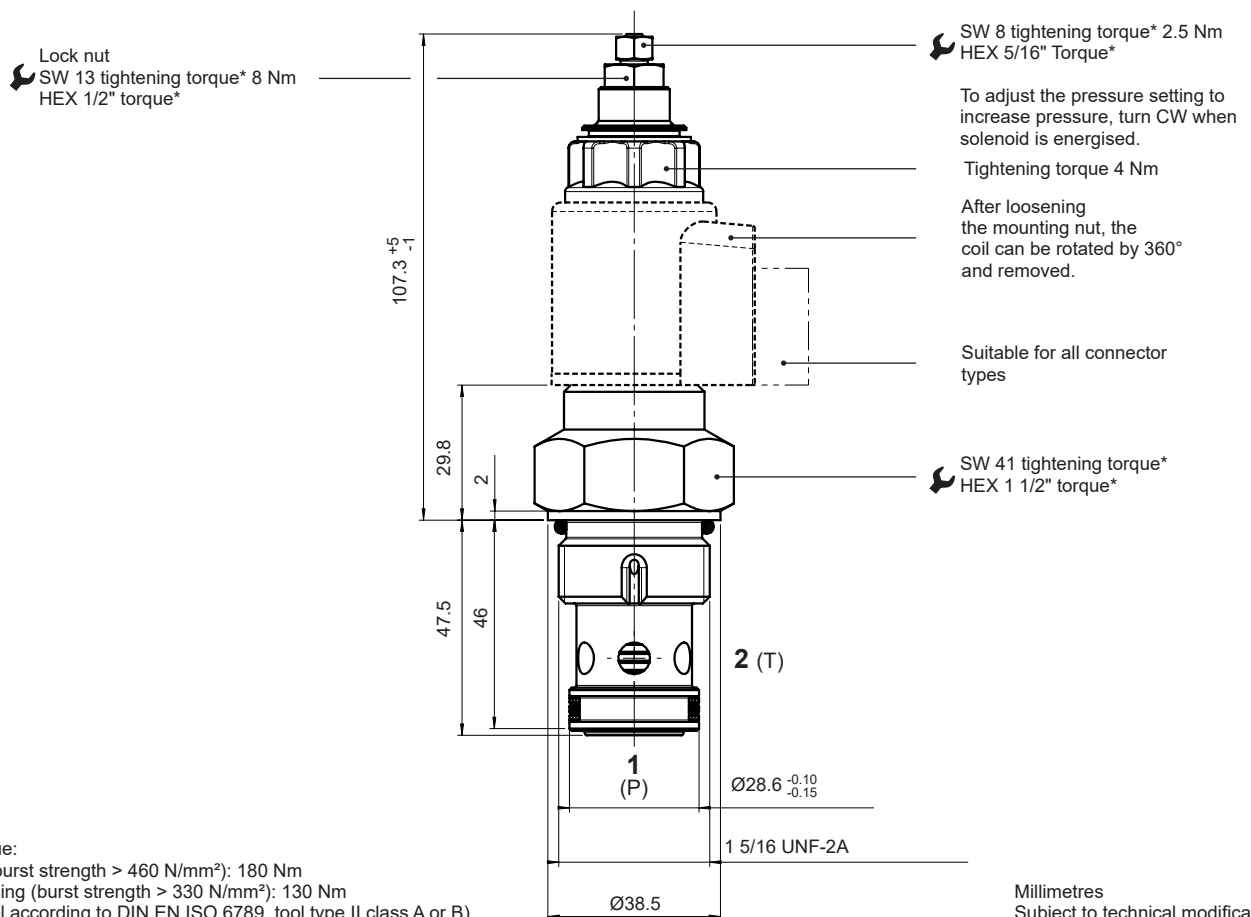
Pressure at port 2 increases the opening pressure.

TECHNICAL CHARACTERISTICS¹⁾

Operating pressure	Max. 350 bar	
Flow rate	Max. 300 l/min	
Pressure ranges	5 up to 60 bar 5 up to 100 bar 5 up to 230 bar 5 up to 350 bar	
Internal leakage	1.3 l/min at 80 % of p_{nom} , $v = 34 \text{ mm}^2/\text{s}$	
Pressure fluid	Hydraulic oil to DIN 51524 Part 1, 2 and 3	
Ambient temperature range	NBR: min. -30 °C up to max. +60 °C FKM: min. -20 °C up to max. +60 °C	
Temperature range of operating fluid	NBR: min. -30 °C up to max. +100 °C FKM: min. -20 °C up to max. +120 °C	
Viscosity range	Min. 7.4 mm^2/s to max. 420 mm^2/s	
Filtration	Permitted contamination level of the operating fluid as defined by ISO 4406 $\leq 210 \text{ bar}$: Class 20/18/15 $> 210 \text{ bar}$: Class 19/17/14	
MTTF _D	150 - 1200 years, assessment according to DIN EN ISO 13849-1:2016, Table C.1, Confirmation of ISO 13849-2:2013; Tables C.1 and C.2	
Installation position	Any, preferably horizontal	
Material	Valve body: Steel Spool: Steel, hardened and ground Seals: NBR (standard) FKM (optional) Support rings: PTFE Coil: Steel / Polyamide	
Cavity	FC16-2	
Weight	0.67 kg with coil	0.48 kg without coil
Electric system		
Type of voltage	DC: DC solenoid AC: AC solenoid with rectifier integrated in the coil	
Nominal current at 20 °C	1.5 A 8 Ω (12 V DC) 0.8 A 30 Ω (24 V DC)	
Voltage tolerance	$\pm 15 \%$ at nominal voltage	
Duty cycle	100 % duty cycle (continuous operation) up to max. 115 % of the nominal voltage at 60 °C ambient temperature	
Coil design	40-1836	

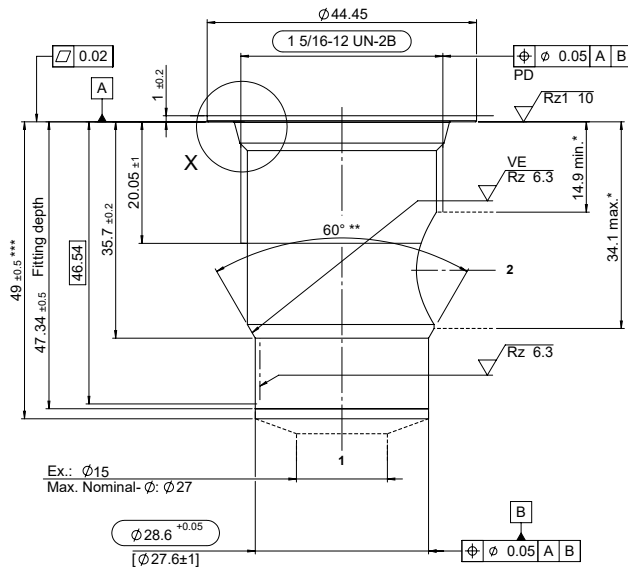
¹⁾ See "Conditions and Instructions for Valves" in brochure 53.000

UNIT DIMENSIONS

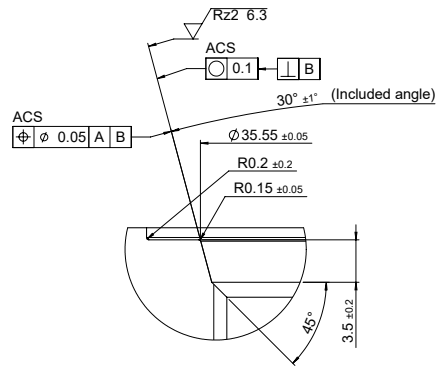


CAVITY

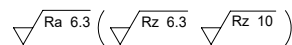
FC16-2



X 4 : 1



VE = Visual Examination



- * Permitted boring zone (for block design).
- ** Sharp edges should be avoided by using a radius of 0.1 mm to 0.2 mm.
- *** Largest pilot hole diameter (nominal tool diameter).

Millimetres
Subject to technical modifications.

MODEL CODE

DB16PY - 01 - C - N - 330 V 270 - 24 DG

Designation

Pressure relief valve, UNF

Design

01 = standard

Body and ports

C = screw-in cartridge valve

Sealing material

N = NBR (standard)

V = FKM

Adjustable pressure range (in PSI/10)

87 = 870 psi | 60 bar

140 = 1400 psi | 100 bar

330 = 3300 psi | 230 bar

500 = 5000 psi | 350 bar

Adjustment type

V = adjustable using tool

Opening pressure

o. A. = Not set, spring unloaded

270 = customer-specific relief pressure (in PSI/10)

Nominal voltage*

DC voltage:

12 = 12 V DC

24 = 24 V DC

AC voltage (rectifier integrated into the coil):

115 = 115 V AC

230 = 230 V AC

Solenoid coil design (40-1836)*

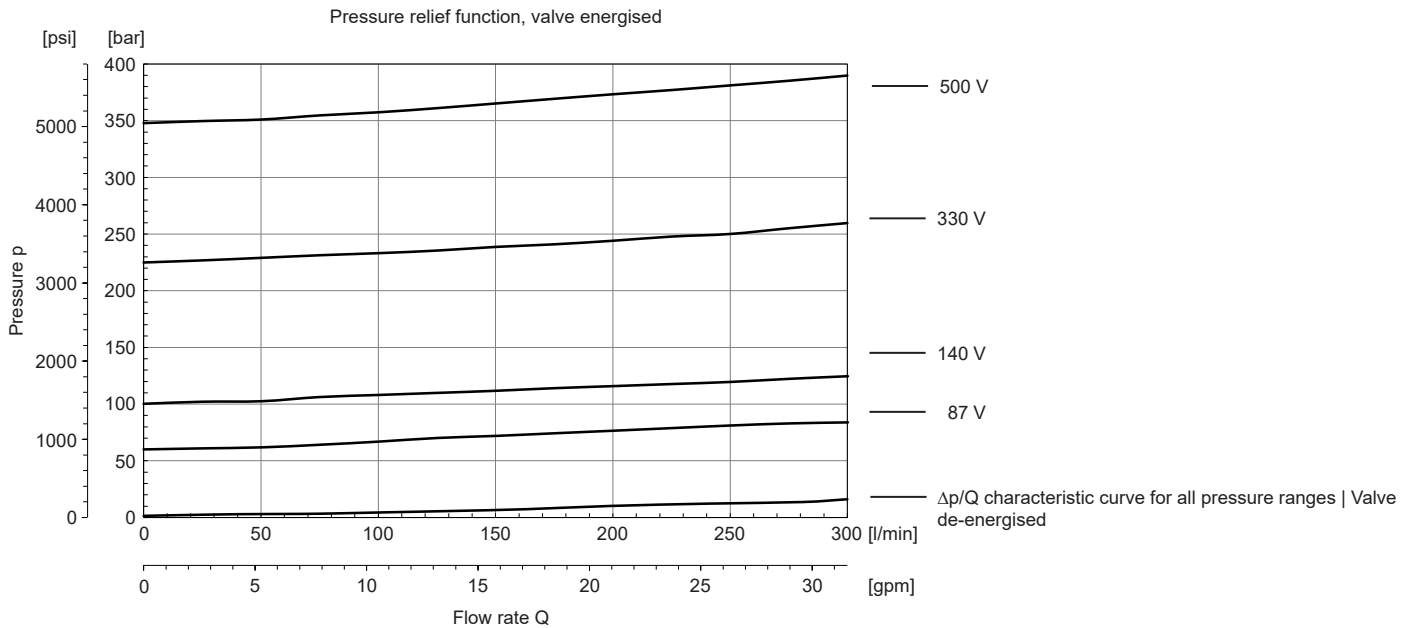
DC:	Number of pins	Connection	Protection class
DG = design A acc. to DIN EN 175301-803	3-pole	radial	IP65
DK = KOSTAL plug connector M27x1	2-pole	radial	IP65/IP67
DL = two flying leads 0.75 mm ² x 457 mm (18")	2-pole	radial	IP65/IP67
DN = DEUTSCH plug connector DT04-2P	2-pole	axial	IP67/IP69
DO = M12 plug connector	4-pole	radial	IP65
DT = AMP Junior Timer	2-pole	radial	IP65/IP67
DU = AMP Junior Timer	2-pole	axial	IP65/IP67
AC:			
AG = design A acc. to DIN EN 175301-803	3-pole	radial	IP65

For detailed information, please refer to brochure 5.207.6 – Solenoid coils for switching valves.

* Other versions on request. * Other versions on request.

TYPICAL PERFORMANCE CURVES

$\Delta p/Q$ characteristics measured at $v = 34 \text{ mm}^2/\text{s}$, $T_{\text{oil}} = 46 \text{ }^\circ\text{C}$



MATERIAL OVERVIEW

Standard models

Designation	Part no.
DB16PY-01-C-N-087V-0	3983121
DB16PY-01-C-N-140V-0	3983165
DB16PY-01-C-N-330V-0	3983166
DB16PY-01-C-N-500V-0	3983167

Other versions on request.

Spare parts

Designation	Material	Code	Part no.
Seal kit	NBR	FS UNF 16/N	3651395
Seal kit	FKM	FS UNF 16/V	3651396

Housing

Designation	Material	Code	Pressure	Connections	Weight	Part no.
Inline connection housing	Steel, zinc-plated	H-R162-SB8	350 bar	G1"	1.65 kg	3032496
Inline connection housing	Aluminium, anodised	H-R162-AB8	210 bar	G1"	0.61 kg	3037193

Cavity tools

Designation	Part no.
Countersink	176218
Reamer	176219

NOTE

The information in this brochure relates to the operating conditions and fields of application described. For applications and operating conditions not described, please contact the relevant technical departments.

Subject to technical modifications.

Documents are only valid if they have been obtained via the website and are up-to-date.

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