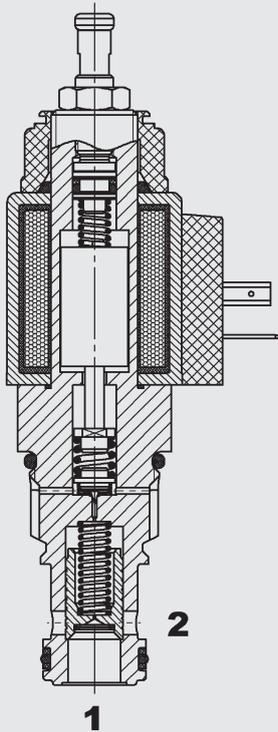


FUNCTION



The PDBM12120APZ is a pilot-operated, spool-type, proportional pressure relief valve with inverse function.

If the pressure at port 1 rises and exceeds the setting defined by the electrical signal, the pilot stage opens and oil flows from behind the main spool to port 2. The resulting pressure differential causes the main spool to open and allows oil to flow from port 1 to port 2. As a function of the electrical signal, the relief pressure at port 1 can be changed steplessly.

The valve is inversely controlled: with decreasing control current the pilot poppet of the valve closes, the main stage follows the pilot stage and a counter-pressure is created at port 1. When de-energized, the pressure is the highest pressure that has been pre-set (fail-safe function).

The maximum pressure can be pre-set mechanically.

Proportional Pressure Relief Valve Inversely Controlled Spool Type, Pilot-Operated ISO Cartridge – 350 bar

PDBM12120APZ

FEATURES

- Excellent stability throughout the entire flow range
- All external surfaces zinc-nickel plated and corrosion-proof
- Hardened and ground internal valve components to ensure minimal wear and extended service life
- Low pressure loss due to CFD-optimized flow path
- Adjustable throughout the entire pressure range
- Various pressure ranges up to 350 bar
- Optional control by means of solenoid coils possible

SPECIFICATIONS

Operating pressure:	max. 350 bar (max. 50 bar at port 2)	
Flow rate:	max. 200 l/min	
Internal leakage:	0.5 l/min at 80 % of p_{max}	
Setting pressure ranges:	60, 230, 350 bar	
Media-operating temperature range:	min. -20 °C to max. +100 °C	
Ambient temperature range:	min. -20 °C to max. +60 °C	
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 and 2	
Viscosity range:	min. 7.4 mm ² /s to max. 420 mm ² /s	
Filtration:	Class 18/16/13 according to ISO 4406 or cleaner	
MTTF _d :	150 years*	
Installation:	No orientation restrictions, preferably horizontal	
Materials:	Valve body:	free-cutting steel
	Piston:	hardened and ground steel
	Seals:	NBR (standard) FKM (optional, media-operating temperature range up to +120 °C)
	Back-up rings:	PTFE
	Solenoid coil:	steel / polyamide
Cavity:	12120A	
Weight:	Valve complete	0.31 kg
	Coil only	0.23 kg

Electronics

Control currents:	2100 mA, 8.8 Ω (24 Volt) 1050 mA, 2.2 Ω (12 Volt)	
Dither frequency:	200 Hz	
Hysteresis with dither:	2 - 4 % of I_{nom}	
Repeatability:	≤ 2% of p_{nom}	
Reversal error:	≤ 2 % of I_{nom}	
Response sensitivity:	≤ 1 % of I_{nom}	
Coil type:	Coil (12 or 24) P...-40-1836	

Note:

In order to achieve optimal function, any trapped air should be vented using the screw on the face of the pole tube.

* see "Conditions and instructions for valves" in brochure 5.300

MODEL CODE

PDBM12120APZ - 01 - C - N - 350 V 350 - 24 PG 8.8

Basic model

Proportional pressure relief valve

Cavity to ISO

12120A = 2-way cavity

Type

01 = standard

Body and ports*

C = cartridge only

Seals

N = NBR (standard)

V = FKM

Setting pressure range

60 = up to 60 bar

230 = up to 230 bar

350 = up to 350 bar

Type of adjustment

V = adjustable using tool

Setpoint

350 = factory pre-set pressure, on request

Coil voltage

12 = 12 VDC (2.2 Ω)

24 = 24 VDC (8.8 Ω)

other voltages on request

Coil connectors (type 40-1836)

DC: DG = DIN connector to EN175301-803

DK = Kostal threaded connection

DL = connector with 2 flying leads; 0.75 mm², 457 mm long

DN = Deutsch connector, 2-pole, axial

DT = AMP Junior Timer, 2-pole, radial

AC: AG = DIN connector to EN175301-803

Coil resistance

2.2 = 2.2 Ω (12 V)

8.8 = 8.8 Ω (24 V)

Standard models

Code	Part No.
PDBM12120APZ-01-C-N-060V060-12PG-2.2	3888481
PDBM12120APZ-01-C-N-230V230-12PG-2.2	3888480
PDBM12120APZ-01-C-N-350V350-12PG-2.2	3888479

Other versions on request

*Inline bodies

Code	Part No.	Material	Ports	Pressure
R12120A-01X-01	396489	Steel, zinc-plated	G3/4	420 bar

Other bodies on request

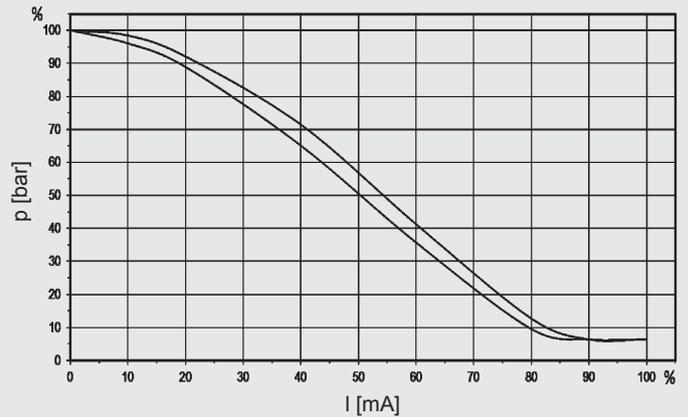
Seal kits

Code	Material	Part No.
DB12120A-01X-... SEAL KIT	NBR	557399

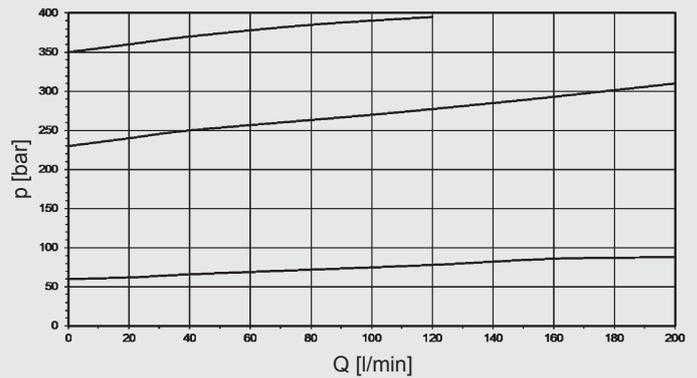
PERFORMANCE

Measured at $v = 34 \text{ mm}^2/\text{l}$, $T_{\text{oil}} = 46 \text{ }^\circ\text{C}$

p-I graph

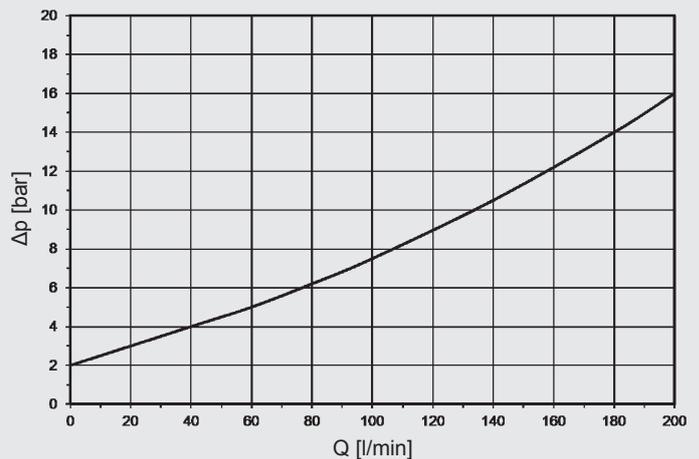


p-Q graph

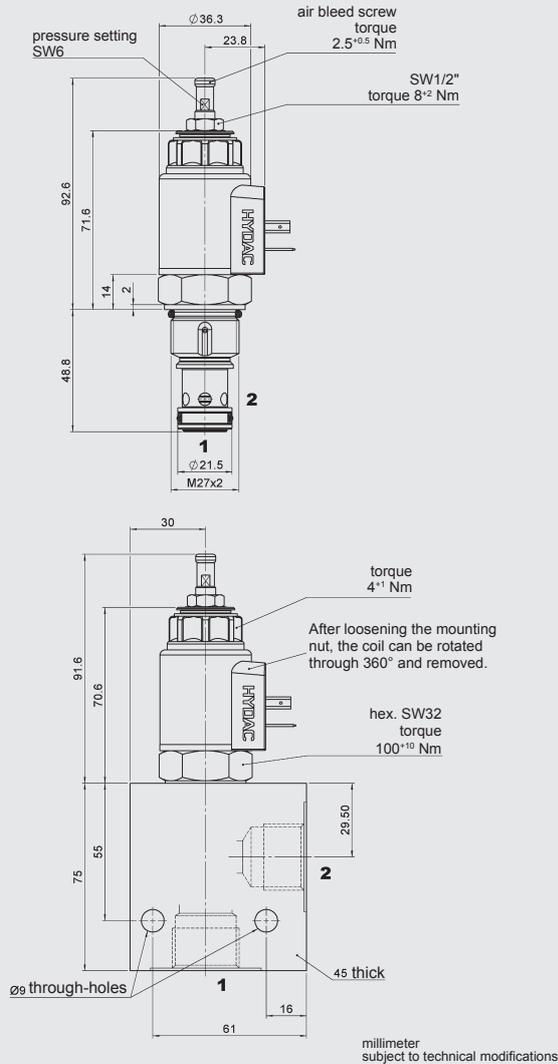


Δp -Q graph

energized to max.

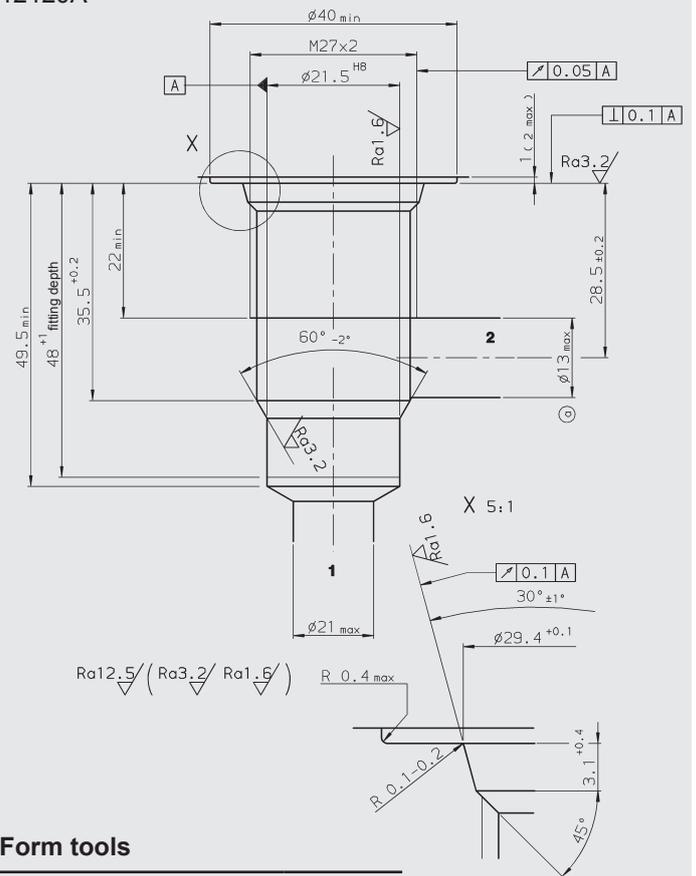


DIMENSIONS



CAVITY

12120A



Form tools

Tool	Part no.
Pre-forming tool	175002
Countersink	162128
Reamer (shank MK2)	174874
Tap	1002625

millimeter subject to technical modifications

Note

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

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