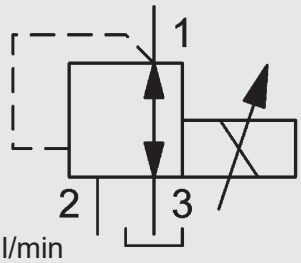
HYDAC INTERNATIONAL

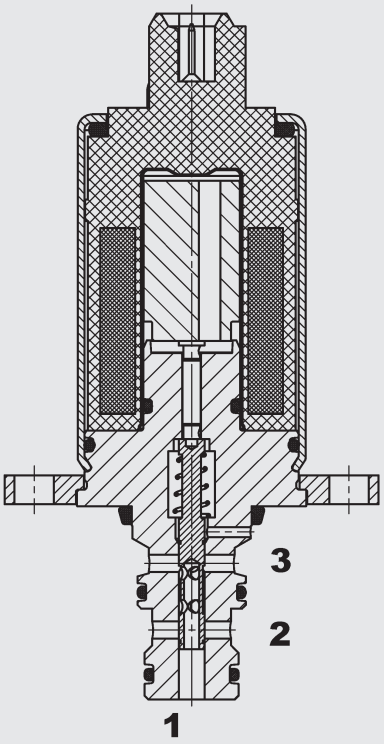


up to 4 l/min
up to 60 bar

3-Way Proportional Pressure Reducing Valve spool type, direct-acting Slip-In Valve – 60 bar

PDMC04S30D

FUNCTION



The proportional pressure reducing valve PDMC04S30D is a direct-acting 3-way spool-type valve. When de-energized, port 2 is closed and port 1 (consumer) is connected to port 3 (tank). When the inlet pressure fluctuates it provides an almost constant outlet pressure - depending on the energization of the coil. When the control current increases, the solenoid coil exerts a force on the control spool which is proportional to the control current and thereby defines the regulated pressure at port 1. This setting is proportional to the control current. Any pressure at tank port 3 is additive to the pre-set control pressure. If, as a result of external factors, the pressure at port 1 rises above the pre-set pressure, the valve opens from port 1 to tank port 3. The valve has been specially developed for pilot applications. For these applications, the requirement is primarily for high dynamic performance and low pressure drop, in order to ensure rapid oil filling and fast draining of the consumer.

FEATURES

- Main applications: pilot valve for directional spool valves and other main-stage valves, accumulator charging circuits, slewing angle adjustment on pumps, clutches
- Excellent small signal characteristics
- Excellent curve characteristics, also when there is inadequate primary pressure
- Coil seals protect the solenoid system
- Excellent dynamic performance
- Compact design
- External surfaces with extended corrosion protection

SPECIFICATIONS*

Primary pressure at port 2:	max. 60 bar
Control pressure at port 1:	max. 32 bar
Tank pressure at port 3: (Should be piped separately to tank)	max. 10 bar
Nominal flow:	max. 4 l/min
Pressure ranges:	0 - 25 bar, 0 - 32 bar
Pressure drop:	7 bar from 2 → 1 at 4 l/min 8.5 bar from 2 → 1 with screen (values given are based on clean screen) 7 bar from 1 → 3 at 4 l/min (Dither-f = 130 Hz)
Leakage:	Energized: < 0.03 l/min De-energized: < 0.01 l/min (at 60 bar pump pressure, Dither 130 Hz
Media operating temperature range:	min. -30 °C to max. +100 °C (for NBR only)
Ambient temperature range:	min. -30 °C to max. +80 °C *(see note on thermal load capacity of the coil)
Operating fluid:	Hydraulic oil to DIN 51524 Part 1, 2 and 3
Viscosity range:	min. 7.4 mm²/s to max. 420 mm²/s
Filtration:	Class 19/17/14 according to ISO 4406 or cleaner
$MTTF_d$:	150 - 1200 years, according to DIN EN ISO 13849-1
Installation:	No orientation restrictions
Materials:	Valve body: steel Spool: hardened and ground steel Seals: NBR, others on request U-Polyurethane (for Type 03 only)
Cavity:	04S30
Weight:	0.28 kg
Electronic data:	
Duty cycle:	100 % duty rating * (see note on thermal load capacity of the coil)
Control currents:	0 – 750 mA, 21.2 Ω (24 V) 0 – 1,500 mA, 5.2 Ω (12 V)
Response time:	On: < 50 ms, Off: < 30 ms
Dither frequency:	130 Hz recommended (110 – 160 Hz)
Hysteresis with dither:	2 % of the max. control current
Repeatability:	≤ 1 % of the max. pressure range
Reversal error:	≤ 1 % of the max. control current
Response sensitivity:	≤ 1 % of the max. control current
Insulation material class:	H to VDE0580, 180 °C

* see "Conditions and instructions for valves" in brochure 53.000

MODEL CODE

PDMC 04S30 D – 01 – C – N – 25 – 12 PU01 – 5.2

Basic model
Proportional pressure reducing valve, compact

Cavity
04S30

Design
D = direct-acting

Type
01 = standard
02 = increased primary pressure, polyurethane O-rings
03 = with screen in port 2 (mesh size = 150 µm)

Body and ports
C = slip-in only

Seals
N = NBR (standard)
U = polyurethane (only in type 03)

Pressure range
25 = 0 to 25 bar
32 = 0 to 32 bar

Coil voltage
12 = 12 Volt (5.2 Ω)
24 = 24 Volt (21.2 Ω)

Coil connectors
PN = Deutsch connector DT04, 2-pole, axial
PU = AMP Junior Timer, 2-pole, axial

Coil resistance
5.2 = 5.2 Ω (12 V)
21.2 = 21.2 Ω (24 V)

Standard models

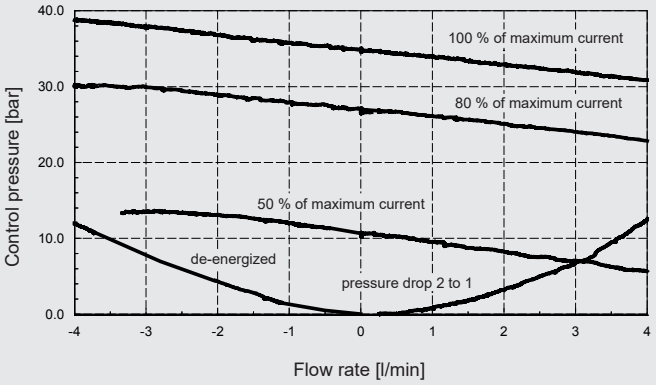
Model code	Part No.
PDMC04S30D-01-C-N-25-12PU-5.2	3451383
PDMC04S30D-01-C-N-25-24PU-21.2	3371734
PDMC04S30D-01-C-N-32-12PU-5.2	3456387
PDMC04S30D-01-C-N-32-24PU-21.2	3396178
PDMC04S30D-03-C-N-25-12PU-5.2	3486396
PDMC04S30D-03-C-N-25-24PU-21.2	3486397
PDMC04S30D-03-C-N-25-12PN-5.2	3491096
PDMC04S30D-03-C-N-25-24PN-21.2	3567187

Other models on request

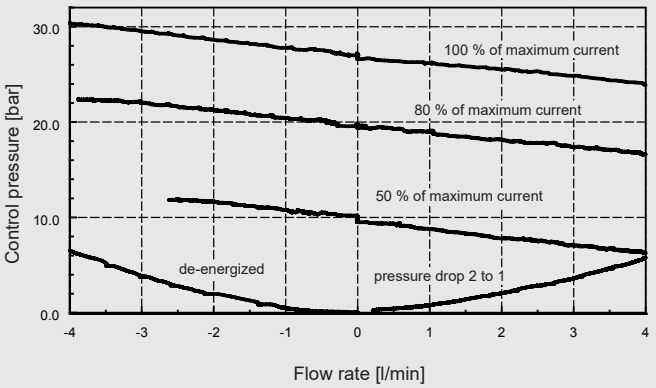
TYPICAL PERFORMANCE

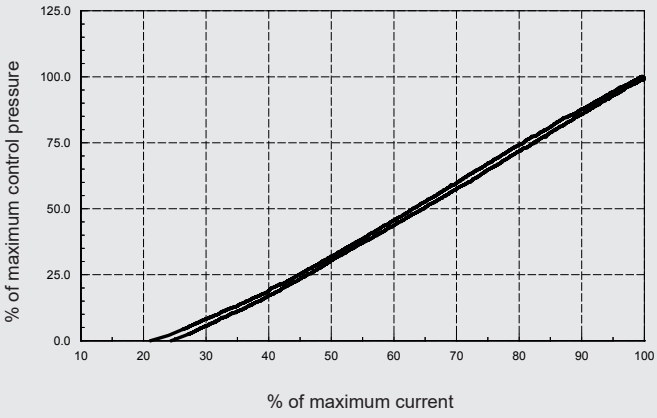
measured at ν = 34 mm²/s, T_{oil} = 46 °C

Pressure range 32 bar



Pressure range 25 bar

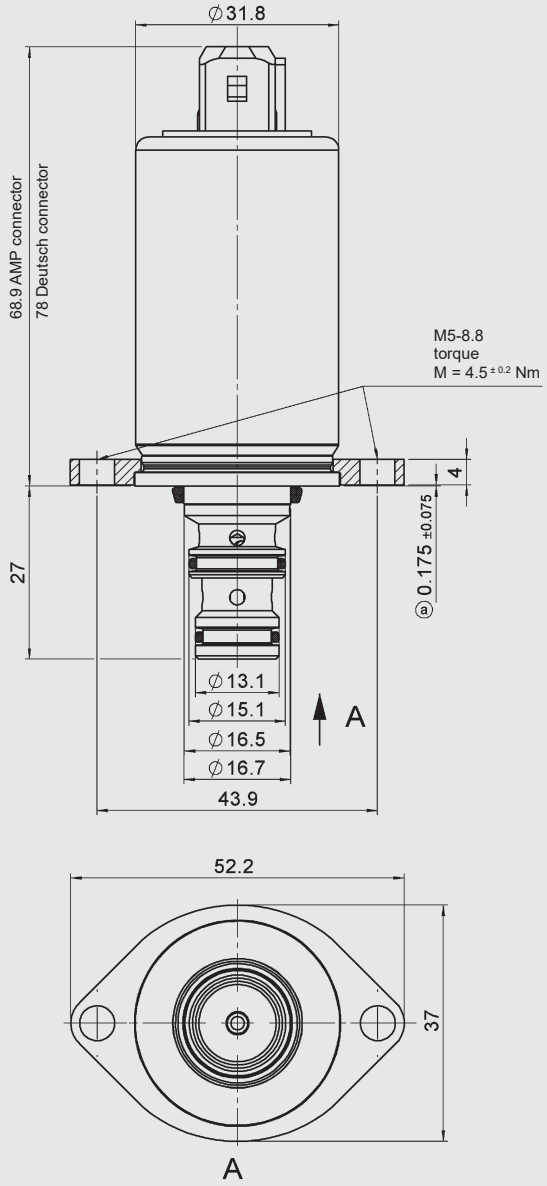




*Thermal load capacity of the coil:
100% duty cycle at $T_{A, max}$ = 80 °C

Please note: The data is based on the complete valve, mounted in a line body (block temperature: 105 °C, aluminium or steel; dimensions 40 x 60 x 56 mm), flanged to a base block (block temperature 105 °C, steel, dimensions 200 x 150 x 100 mm). The air in the climatic test cabinet is circulated by the cabinet ventilator.

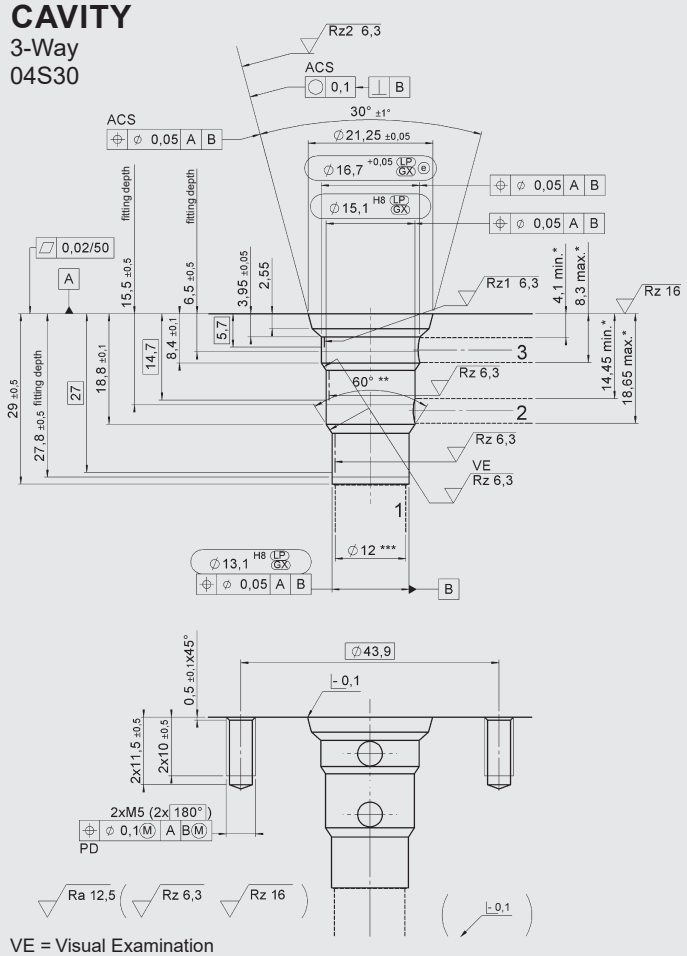
DIMENSIONS



Millimeter
subject to technical modifications

CAVITY

3-Way
04S30



VE = Visual Examination
* Allowed drilling zone (for manifold design)
** Sharp edges should be avoided by rounding to a radius of 0.1 mm to 0.2 mm
*** largest pre-drilling diameter (nominal tool diameter)

Form tools

Tool	Part No.
Countersink	179506
Reamer	179200

Millimeter
subject to technical modifications

NOTE

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

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