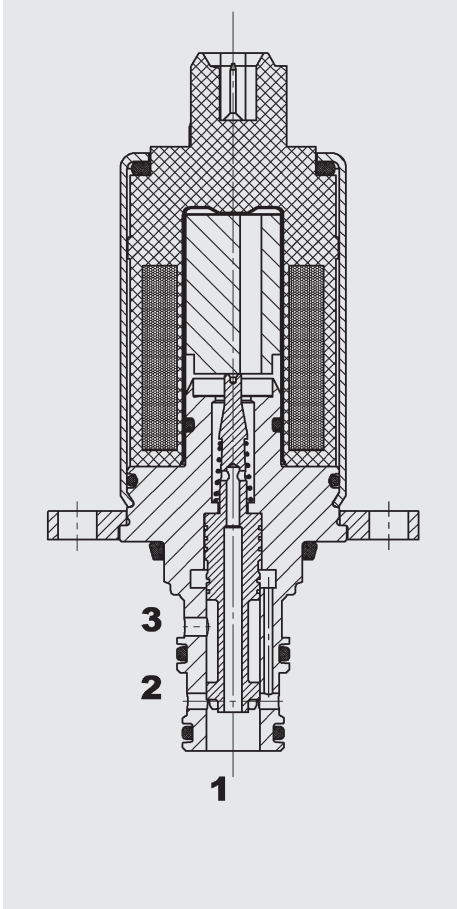


## FUNCTION



The proportional pressure reducing valve PDMC05S30A-50 is a direct-acting spool-type valve. When de-energized, the spring pushes the control spool towards the solenoid system. There is flow through the valve from port 2 (actuator) to the tank port 1. 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 coil exerts a force on the control spool and connects port 2 (actuator) with pump port 3. This compresses the reset spring of the control spool. The pressure at port 2 acts against the coil force over a circular ring area and when the pre-set value is reached, the pressure plus spring force and solenoid force are in balance. The connection between pump and consumer ports is thus restricted. Any pressure at tank port 1 is additive to the pre-set control pressure. The valves have been developed specifically for high dynamic performance and low pressure drops.

## 3-Way Proportional Pressure Reducing Valve Spool Type, With Area-Ratio Advantage Slip-In Valve – 60 bar PDMC05S30A-50

### FEATURES

- Compact design
- Excellent dynamic performance
- Low pressure drop due to CFD optimized flow path
- Excellent stability throughout the entire flow range
- External surfaces corrosion-proof
- Coil seals protect the solenoid system
- Hardened and ground internal valve components to ensure minimal wear and extended service life
- Adjustable throughout flow range
- Excellent small signal characteristics

### SPECIFICATIONS

Primary pressure at port 3:	max. 60 bar
Control pressure at port 2:	max. 20 bar
Tank pressure at port 1: (Should be piped separately to tank)	max. 10 bar dynamic, 30 bar static
Nominal flow:	max. 20 l/min
Pressure ranges:	0 - 20 bar
Pressure drop:	2.5 bar from 2 to 1 at 19 l/min 7 bar from 3 to 2 at 19 l/min
Leakage:	Energized: <0.05 l/min De-energized: <0.03 l/min (at 60 bar pump pressure, PWM 130 Hz)
Media operating temperature range:	min. -20 °C to max. +100 °C
Ambient temperature range:	min. -20 °C to max. +80 °C *(see note on thermal load capacity of the coil)
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 to 3
Viscosity range:	min. 7.4 mm <sup>2</sup> /s to max. 2,000 mm <sup>2</sup> /s
Filtration:	Class 19/17/14 according to ISO 4406 or cleaner
MTTF <sub>d</sub> :	150 years (see "Conditions and instructions for valves" in brochure 5.300)
Installation:	No orientation restrictions
Materials:	Valve body: tempered free-cutting steel Spool: hardened and ground steel Seals: NBR (standard) FKM (optional, media temperature range -20 °C to +120 °C)
Cavity:	05S30 compact
Weight:	0.27 kg
<b>Electronic data:</b>	
Duty cycle:	100 % duty rating * (see note on thermal load capacity of the coil)
Control currents:	0 – 950 mA, 10.5 Ω (24 V) 0 – 2,000 mA, 2.65 Ω (12 V)
Dither frequency:	130 Hz recommended (100 – 150 Hz)
Hysteresis with dither:	2 % of the max. control current
Repeatability:	≤ 1 % of the max. pressure range
Hysteresis:	≤ 1 % of the max. control current
Response sensitivity:	≤ 1 % of the max. control current
Insulation material class:	H to VDE0580, 180 °C

## MODEL CODE

**PDMC 05S30 A - 50 - C - N - 25 - 24 PU - 10.5**

### Basic model

Proportional pressure reducing valve, compact

### Cavity

05S30 = slip-in valve

### Design

A = with area-ratio advantage

### Type

50 = standard

### Body and ports\*

C = slip-in only

### Seals

N = NBR

V = FKM (optional)

### Pressure range

20 = 0 to 20 bar

### Coil voltage

12 = 12 Volt (2.65 Ω)

24 = 24 Volt (10.5 Ω)

### Coil connectors

PN = Deutsch connector DT04, 2-pole, axial

PU = AMP Junior Timer, 2-pole, axial

### Coil resistance

2.65 = 2.65 Ω (12 V)

10.5 = 10.5 Ω (24 V)

## Standard models

Model code	Part No.
PDMC05S30A-50-C-N-20-12PU-2.65	3587264
PDMC05S30A-50-C-N-20-24PN-10.5	3587285

Other models on request

## \*Standard in-line bodies

Code	Part No.	Material	Ports	Pressure
R05S30-010-01	3364559	Aluminium	G 3/8	60 bar

## PERFORMANCE

Measured at:

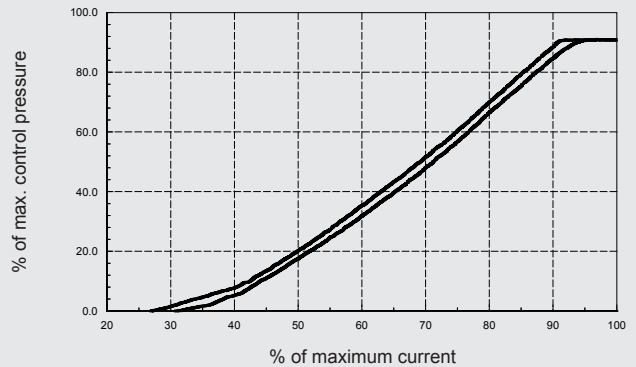
= 34 mm<sup>2</sup>/s

T<sub>oil</sub> = 46 °C

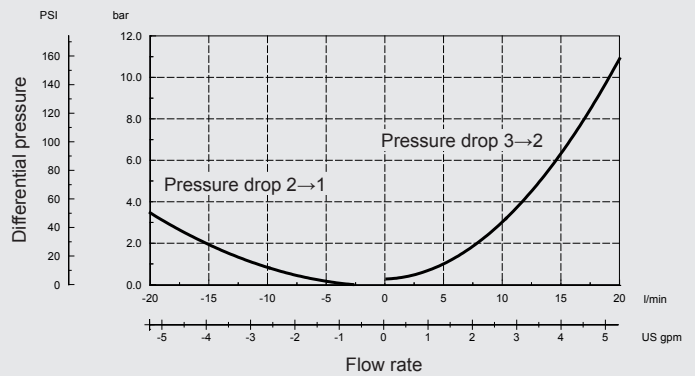
### p/I

Supply pressure

p = 19 bar / 275 psi



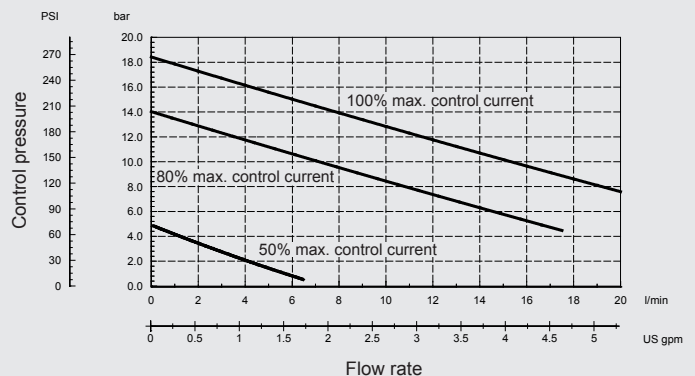
### p/Q



### p/Q

Supply pressure

p = 19 bar / 275 psi

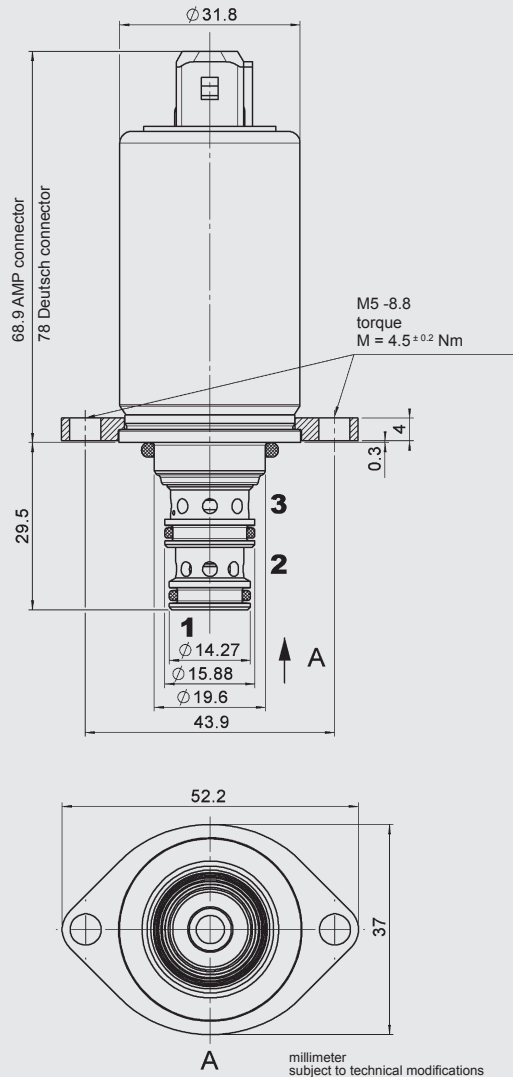


\*Thermal load capacity of the coil:

100% duty cycle at T<sub>A, max</sub> = 80 °C

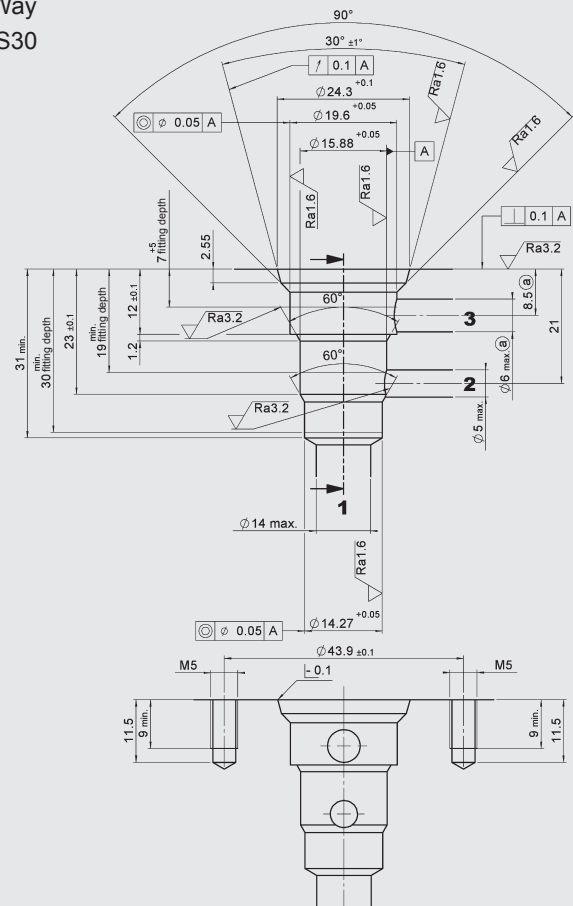
**Please note:** The data is based on the complete valve, mounted in a line body (block temperature: 105 °C, aluminium or steel; dimensions 40 x 60 x 56 mm), flanged to a base block (block temperature 105 °C, steel, dimensions 200 x 150 x 100 mm). The air in the climatic test cabinet is circulated by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

## DIMENSIONS



## CAVITY

3-Way  
05S30



### Form tools

Tool	Part No.
Countersink	178202
Reamer	178203

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.

**HYDAC Fluidtechnik GmbH**  
Justus-von-Liebig-Str.  
**D-66280 Sulzbach/Saar**  
Tel: 0 68 97 / 509-01  
Fax: 0 68 97 / 509-598  
E-Mail: flutec@hydac.com

