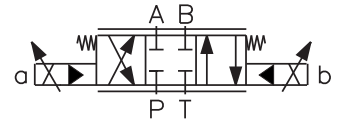


- High parameters of controlled flow rates
- Continuous control of both flow rate directions
- High reliability
- Indirect control concept with a floating spool
- Installation dimensions to DIN 24 340 / ISO 4401 / CETOP RP121-H



## Functional Description

The proportional directional control valve consists of a cast-iron body (1), main spool (2), control spool (3), two auxiliary centring springs (4), two main return springs (5) and two proportional solenoids (6).

The pilot controlled main spool valve copies the control spool position, which is given the control current of the solenoid.

The central position of the main spool is defined by the auxiliary centring springs.

The solenoids are supplied from an external source, which should be provided with a current feedback.

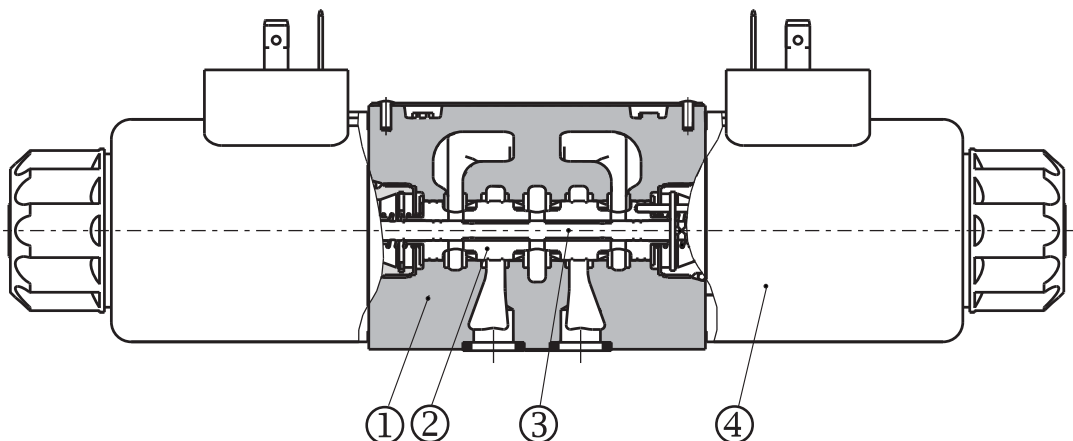
In order to achieve optimum operating parameters the external electronics should be able to generate an additional dither - signal. The proportional valve can be used within the whole range of input pressure, where

within the required continuity of the flow-rate characteristics and minimum hysteresis is achieved.

The selected concept increases the achieved output parameters of the proportional valve in comparison to direct controlled proportional valve. Further on the valve shows a monotone increasing relation between pressure gradient and flow rate by constant control current.

Proper functions of the valve are guaranteed only, if the supply pressure in the "P" channel is present; this pressure must be always higher than the pressure in the "T" channel.

The basic surface treatment of the valve housing is phosphate coated and the operating solenoids are zinc coated.

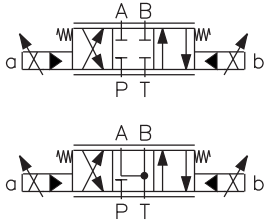


# Ordering Code

**PRM8-06**  /  -

**Proportional Directional Control Valve**

**Nominal size**



**3Z11**

**3Y11**

**Nominal flow rate at  $\Delta p = 10$  bar**

25 L/min

**25**

**Nominal supply voltage**

12 V DC

**12**

24 V DC

**24**

**no designation**  
V

**Seals**  
NBR  
FPM (Viton)

**Type of solenoid coil and Electronics**

**- Type of solenoid coil**

**E1**  
**E2**

Connector EN 175301-803-A  
Connector EN 175301-803-A  
with quenching diode

**E3A**  
**E4A**

Axial connector AMP Junior Timer (2 pins; male)  
Axial connector AMP Junior Timer  
with quenching diode

**E12**  
**E13**

Connector Deutsch DT04-2P (2 pins; male)  
Connector Deutsch DT04-2P  
with quenching diode

Other coils on demand see catalog HA 8007.

**Electronics for controlling proportional valves is possible to order separately, see catalog HA 9150.**

## Technical Data

Nominal size	mm (US)	06
Maximum operating pressure at ports P, A, B	bar (PSI)	350 (5076)
Maximum flow at pressure 320 bar (4641PSI)	l/min (GPM)	140 (37)
Maximum operating pressure at port T	bar (PSI)	210 (3046)
Hydraulic fluid	Hydraulic oils of power classes (HL, HLP) to DIN 51524	
Fluid temperature range (NBR / Viton)	°C (°F)	-30 ... +80 (-22 ... +176) / -20 ... +80 (-4 ... +176)
Ambient temperature, max.	°C (°F)	+50 (+122)
Viscosity range	mm <sup>2</sup> /s (SUS)	20 ... 400 (98 ... 1840)
Maximum degree of fluid contamination	Class 21/18/15 according to ISO 4406	
Nominal flow rate $Q_n$ at $\Delta p = 10$ bar (145PSI) ( $v = 32 \text{ m}^2 \cdot \text{s}^{-1}$ (156 SUS))	l/min (GPM)	25 (6.60)
Hysteresis	%	≤ 6
Weight PRM8-063	kg (lbs)	2,4 (5.29)
Mounting position	unrestricted, preferably horizontal	
Enclosure type EN 60 529	IP 65	

## Technical Data of the Proportional Solenoid

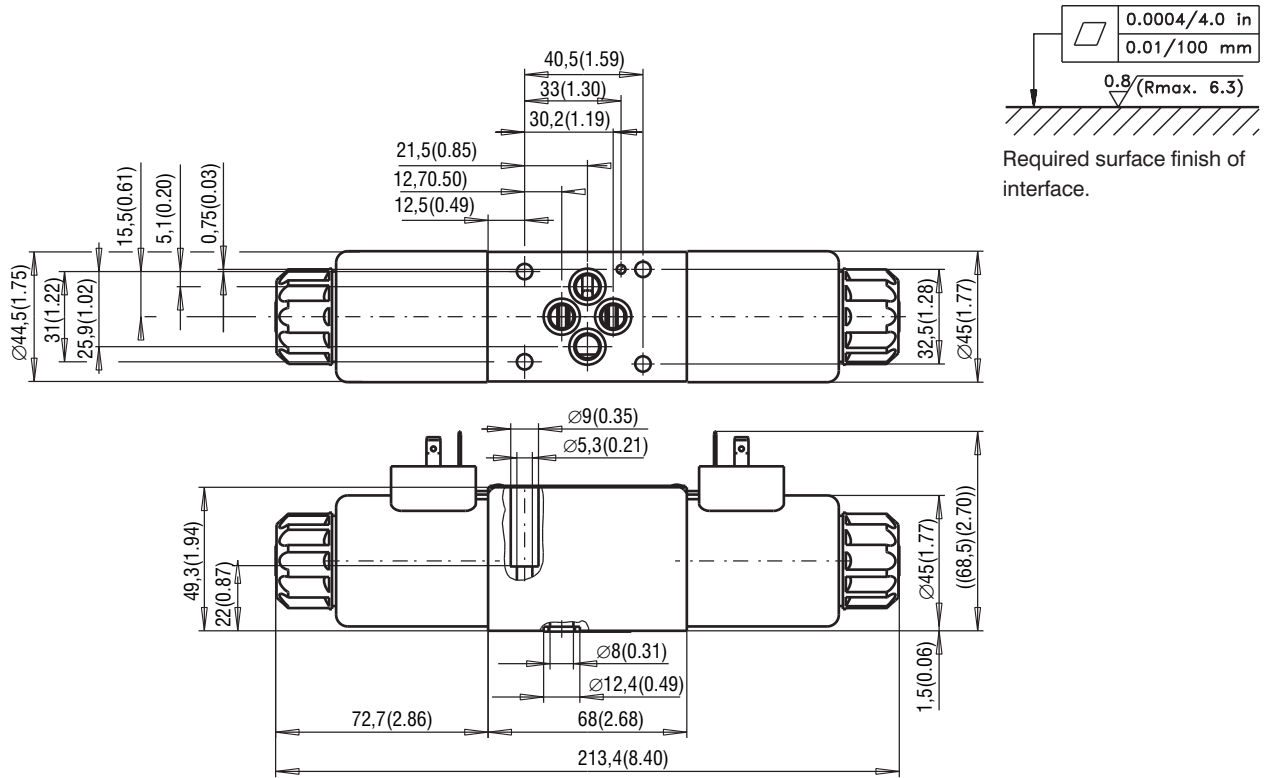
Type of coil	V	12 DC	24 DC
Limit current	A	2,5	1,0
Resistance at 20 °C (68 °F)	Ω	2,3	13,4

## Technical Data of the Electronics

Nominal supply voltage $U_{cc}$	V	12 DC	24 DC
Supply voltage range	V	11,2 ... 14,7	20 ... 30 DC
Stabilized voltage for control	V	5 DC (R > 1 kΩ)	10 DC (R ≥ 1 kΩ)
Maximum output current	A	2.4 for R < 4 Ω	1,5 for R < 10 Ω
Ramp adjustment range	s	0,05...3	
Dither frequency	Hz	90 / 60	
Dither amplitude	%	0...30	

# Valve Dimensions

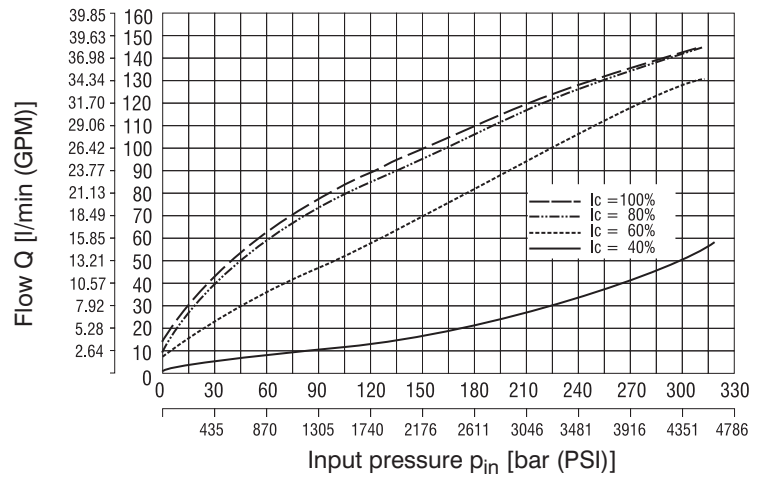
Dimensions in millimeters (inches)



## Limit power

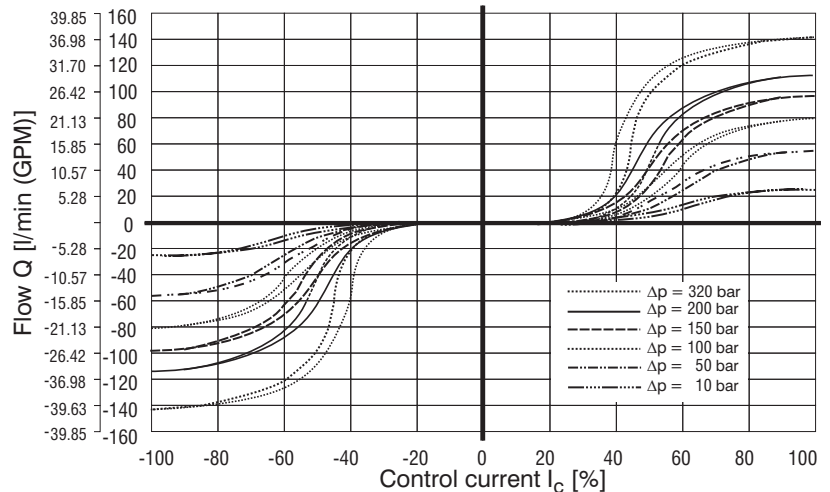
Measured at  $v = 32 \text{ mm}^2/\text{s}$  (156 SUS)

$P \rightarrow A / B \rightarrow T$  or  $P \rightarrow B / A \rightarrow T$



## Flow Characteristic

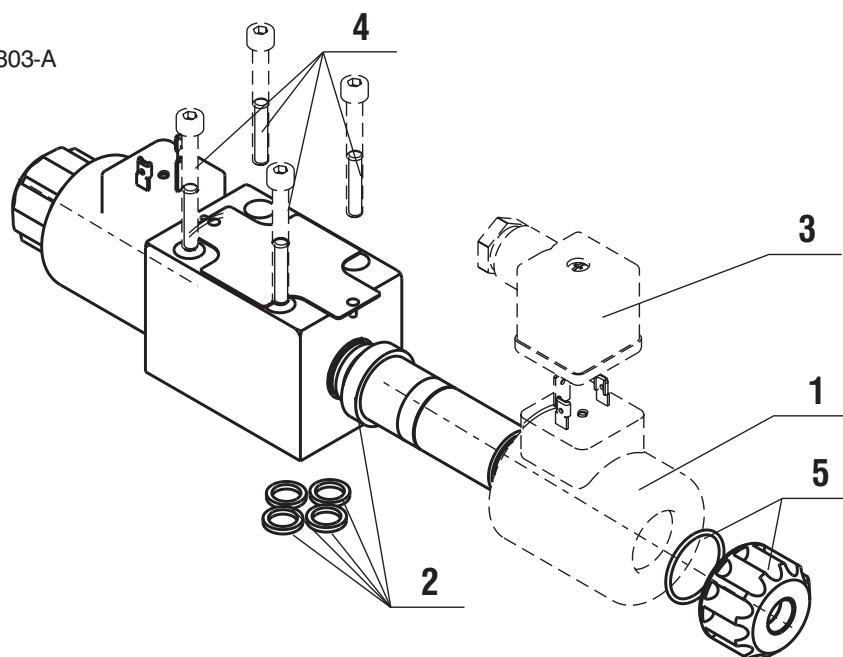
Measured at  $v = 32 \text{ mm}^2/\text{s}$  (156 SUS)



The coil current which initializes the flow through the proportional directional valve can differ due to the production tolerances in a range of  $\pm 6\%$  of the limit current.

## Spare Parts

- 1 Solenoid coil
- 2 Seal kit
- 3 Connector plug EN 175301-803-A
- 4 Bolt kit
- 5 Nut + seal ring



1. Solenoid coil		Ordering number			
		E1	E3A	E12	E13
Nominal supply voltage [V]		Ordering number			
12		18838500	19744700	19696100	19909300
24		18838300	19744300	19696200	28811200
2. Seal kit					
Type		Dimensions, number		Ordering number	
Viton		9,25 x 1,78 (4 pcs)	17,17 x 1,78 (2pcs)	15845400	
3. Connector plug EN 175301-803-A					
Type designation	Type	Model	Max. input voltage	Ordering number	
K1	Connector B (black)	without rectifier - M16x1.5 (bushing bore $\varnothing$ 6-8 mm)	230 V AC/DC	16202100	
	Connector B (grey))			16202200	
4. Bolt kit					
Dimensions, number		Tightening torque		Ordering number	
M5 x 30 DIN 912-10.9 (4 pcs)		8,9 Nm (6.56 lbf.ft)		20235700	
5. Nut + seal ring					
Type of the nut		Seal ring		Ordering number	
Standard nut		22 x 2		15844600	

## Caution !

- The packing foil is recyclable.
- The protective plate can be returned to manufacturer.
- Mounting bolts M5 x 30 DIN 912-10.9 or studs must be ordered separately.  
Tightening torque of the bolts is 8,9 Nm (6.6 ft-lbs).
- The technical information regarding the product presented in this catalogue is for descriptive purposes only. It should not be construed in any case as a guaranteed representation of the product properties in the sense of law.

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