Proportional solenoid valve for pneumatic application

3
Product group

V PR M

Function

- 2/2 NC
- Proportional direct-acting
- Armature space pressure tight up to 16 bar static pressure
- High linearity
- Quick response times
- Low hysteresis
- High switching life time

Fig. 1: Type V PR M 016

Authorized media

- Neutral media
- Suitable for oxygen

Construction

- Compact design
- 2 construction sizes ø (mm) 16, 20
- For installation on customer AL block
- Insulation materials of the excitation winding correspond to thermal class H
- Electrical connection via free flexible lead ends
- Protection class according to DIN VDE / EN 60529 depending on the electrical connection IP 00 - IP 40 provided by the customer

Application examples

- Flow control in pneumatic devices

Options

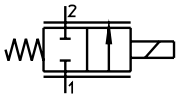
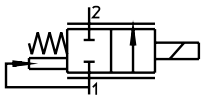
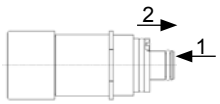
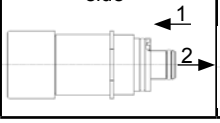
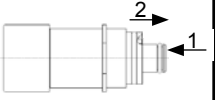
- Further electrical connections
- Other fastening modes and cavities in the valve area
- Please contact us for application related solutions

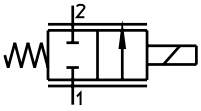
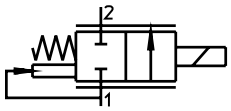
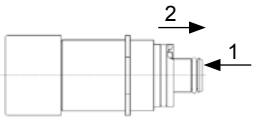
Standards

- Design and testing according to DIN VDE 0580
- Production according to ISO 9001
- FDA compliant variants

QUALITY
SINCE 1912

Technical data

V PR M 016 K00	A02	A03	A04	A05	A10
Function	2/2 NC opening pressure-supported			2/2 NC pressure supported closed	2/2 NC pressure balanced
Control	Proportional direct-acting				
Circuit diagram					
Electrical data					
Rated voltage	12 VDC				
Rated power	2,0 W				
Resistance R_{20}	47.7 Ohm				
Rated current	0.205 A				
Limit current	0.205 A				
Limit power	3.0 W				
Insulation class	F				
Relative duty cycle	100 %				
Reference temperature	+10°C bis +50°C				
Protection class					
Electrical connection	Free lead ends AWG 24				
Switching service life (full strokes)	50 Mio.				
Pneumatic data					
Nominal width p seat	1.0 mm	1.5 mm	2 mm	2 mm	4.4 mm
Rated flow at I_N and p_{max} (Kv)	60 l/min (1.0 l/min)	80 l/min (1.0 l/min)	90 l/min (1.0 l/min)	30 l/min (0.9 l/min)	
Rated flow at I_N and 2 bar (Kv)					120 l/min (3.0 l/min)
Pressure range	0 – 8 bar	0 – 5 bar	0 – 3 bar	0 – 1.6 bar	0 - 7 bar
Overload pressure	16 bar				10 bar
Rated stroke	0.5 mm				
Flow direction	1 - 2				
Circuit diagram	„Pressure from below“ 			„Pressure from the side“ 	„Pressure from below“ 
Permitted media	Neutral gases, suitable for oxygen				
Materials					
Sealing material	FKM FDA-conform, BAM-oxygen suitability				FKM NBR
Materialien mit Medienkontakt	Brass, stainless steel, PPS				

V PR M 020 K00	A03	A04	A10
Function	2/2 NC opening pressure-supported		2/2 NC pressure balanced
Control	Proportional direct-acting		
Circuit diagram			
Electrical data			
Rated voltage	12 VDC		12 VDC
Rated power	3,6 W		3,1 W
Resistance R20	21,6 Ohm		25,1 Ohm
Rated current	0,41 A		0,35 A
Limit current	0,41 A		0,35 A
Limit power	5,0 W		4,2 W
Insulation class	H		
Relative duty cycle	100 %		
Reference temperature	+10°C bis +50°C		
Protection class			
Electrical connection	Free lead ends AWG 24 (2 x 300 mm)		
Switching service life (full strokes)	50 Mio.		
Pneumatic data			
Nominal width p seat [1]	3,5 mm	3,0 mm	4,4 mm
Rated flow at I_N and p_{max} (Kv)	180 l/min (4,5 l/min)	180 l/min (3,6 l/min)	200 l/min @ 2,8 bar (4,0 l/min)
Pressure range [1]	0 – 2 bar	0 – 2,8 bar	0 – 7 bar
Overload pressure	16 bar		10 bar
Rated stroke	0,5 mm		
Flow direction	1 - 2		
Circuit diagram	„Pressure from below“ 		
Permitted media	Neutral gases, suitable for oxygen		
Materials			
Sealing material	FKM FDA-konform, BAM-oxygen suitability		FKM, NBR
Materialien mit Medienkontakt	Brass, stainless steel, PPS		

[1] further pressure ranges up to 8 bar on request

Construction size 16

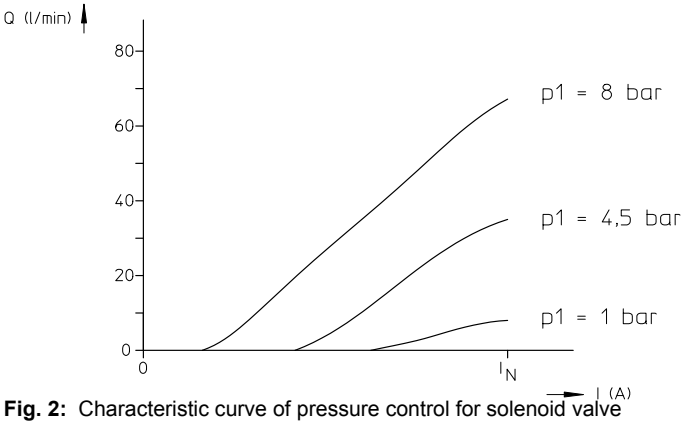


Fig. 2: Characteristic curve of pressure control for solenoid valve Typ V PR M 016 K00 A02 (NW 1,0 mm)

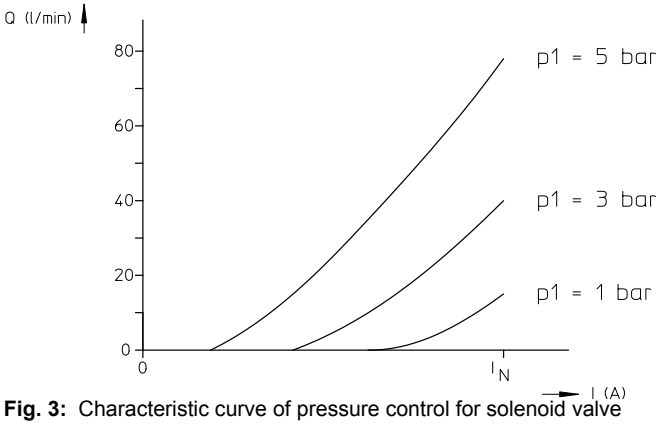


Fig. 3: Characteristic curve of pressure control for solenoid valve Typ V PR M 016 K00 A03 (NW 1,5 mm)

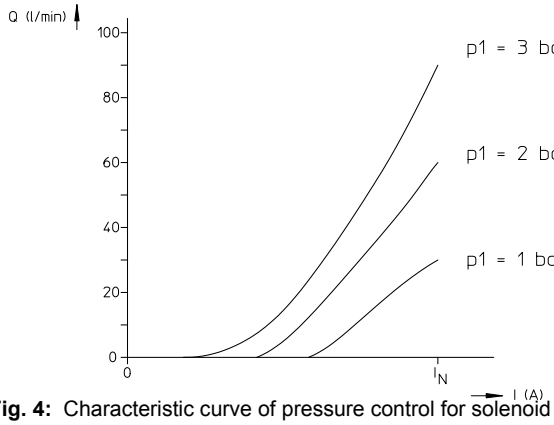


Fig. 4: Characteristic curve of pressure control for solenoid valve Typ V PR M 016 K00 A04 (NW 2,0 mm)

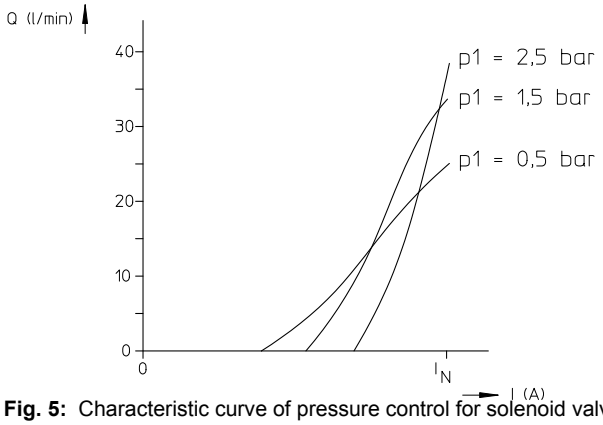


Fig. 5: Characteristic curve of pressure control for solenoid valve Typ V PR M 016 K00 A05 (NW 2,0 mm, pressure from the side)

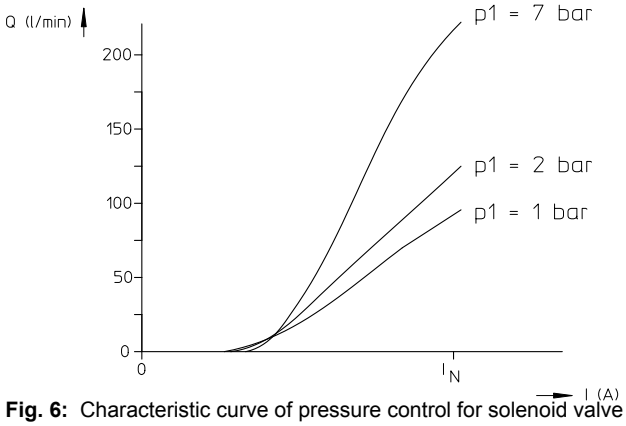


Fig. 6: Characteristic curve of pressure control for solenoid valve Typ V PR M 016 K00 A10 (NW 4,4 mm)

Construction size 20

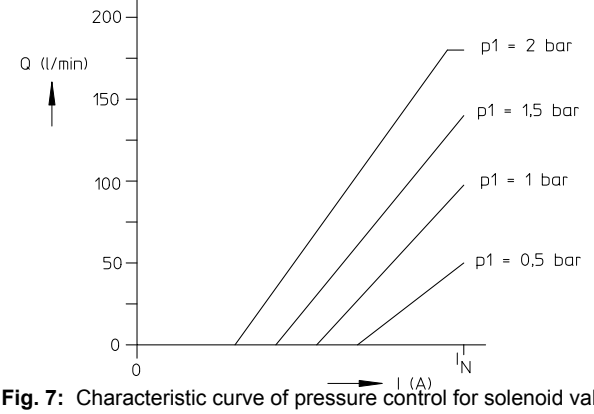


Fig. 7: Characteristic curve of pressure control for solenoid valve Typ V PR M 020 K00 A03 (NW 3,5 mm)

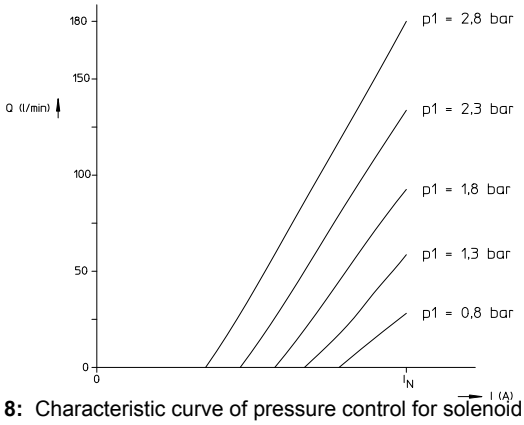


Fig. 8: Characteristic curve of pressure control for solenoid valve Typ V PR M 020 K00 A04 (NW 3,0 mm)

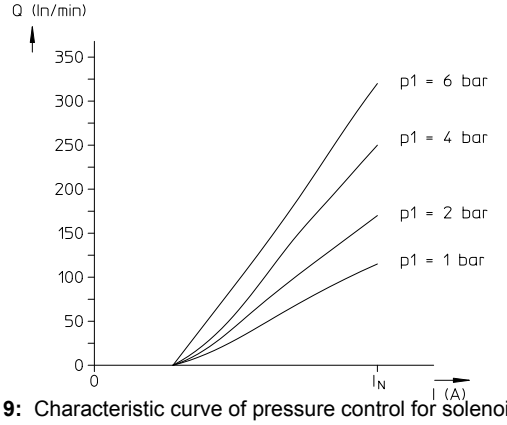


Fig. 9: Characteristic curve of pressure control for solenoid valve Typ V PR M 020 K00 A10 (NW 4,4 mm, pressure compensated)

Dimensional drawing V PR M 016

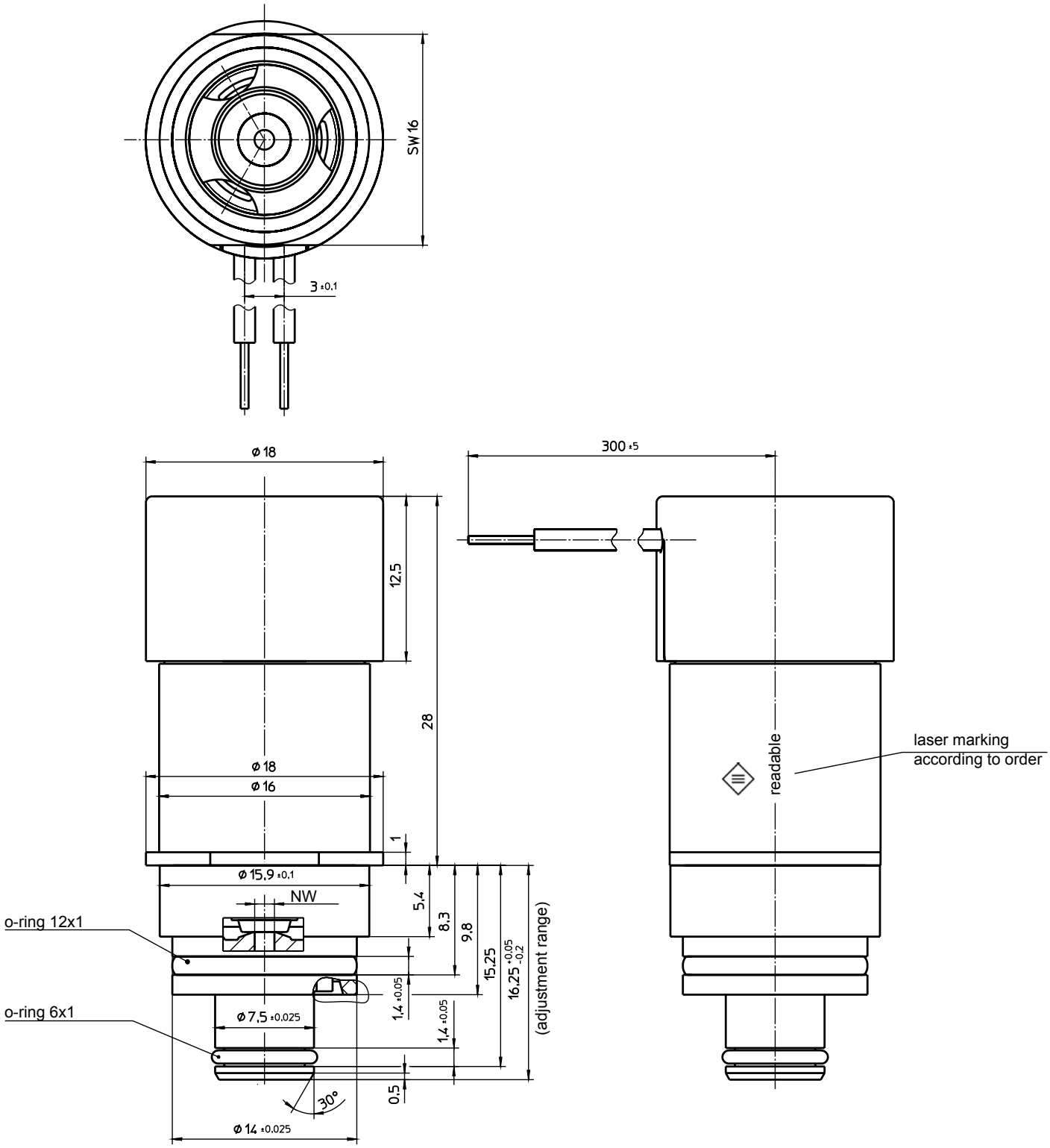


Fig. 10: Type V PR M 016 K00 A02/A03/A04/A05/A10

Dimensional drawing V PR M 020

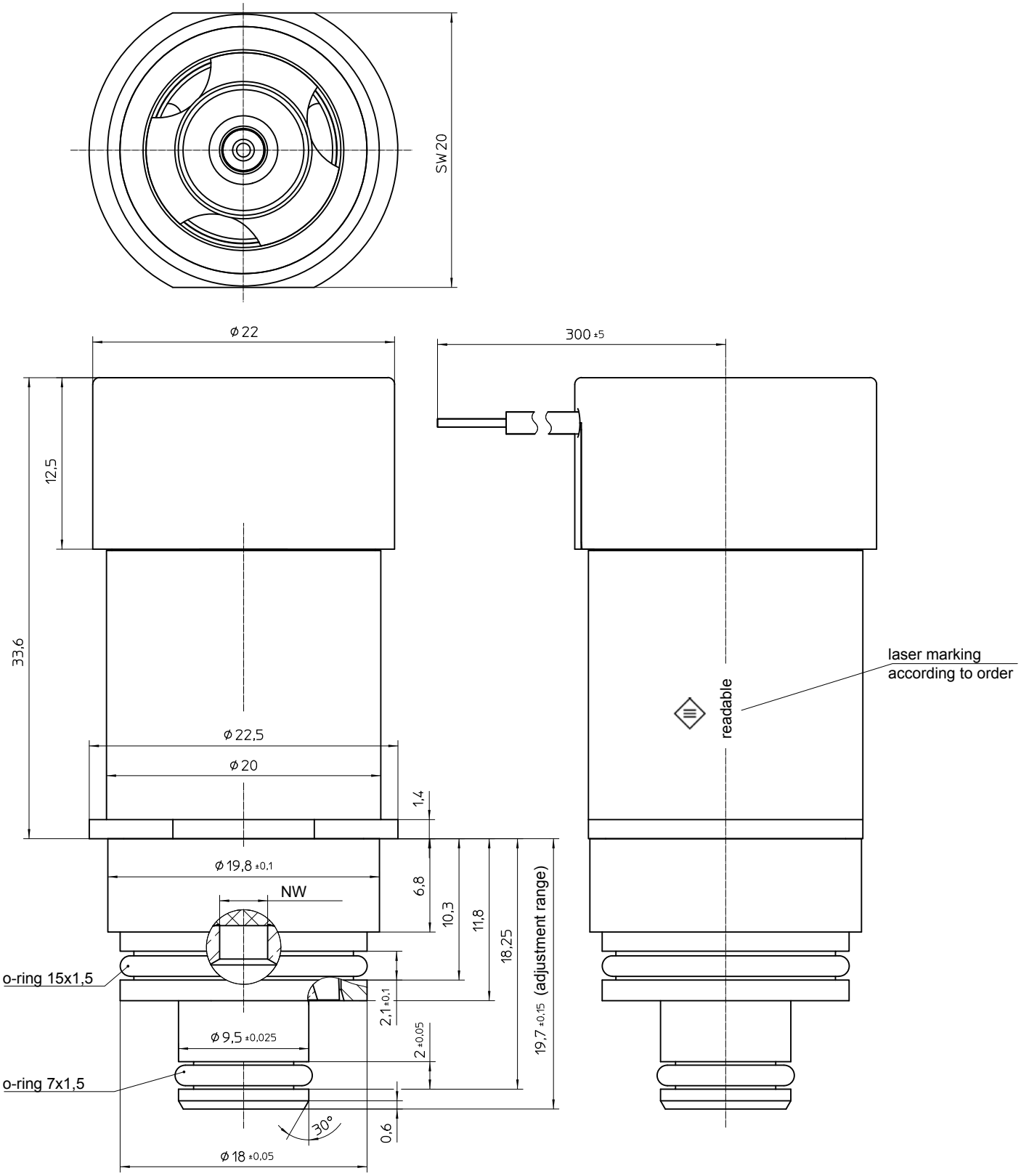


Fig. 111: Type V PR M 020 K00 A03/A04/A10

Circuit diagrams

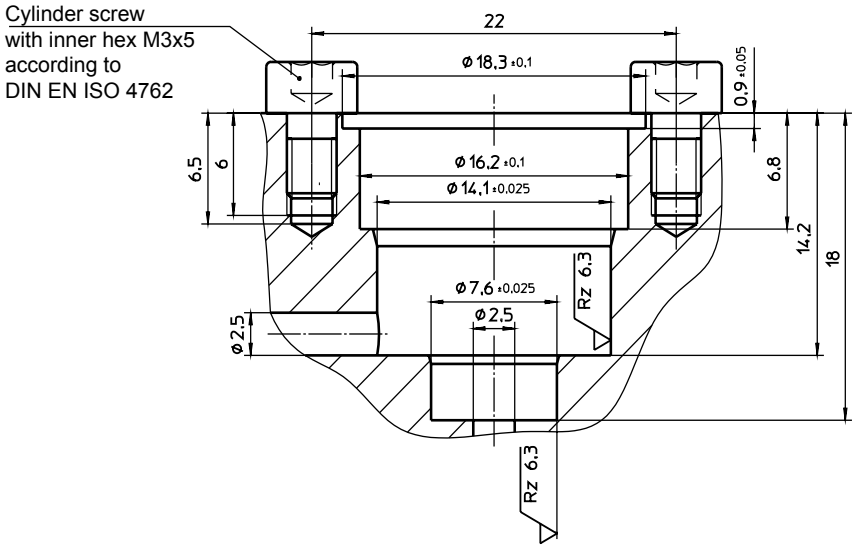
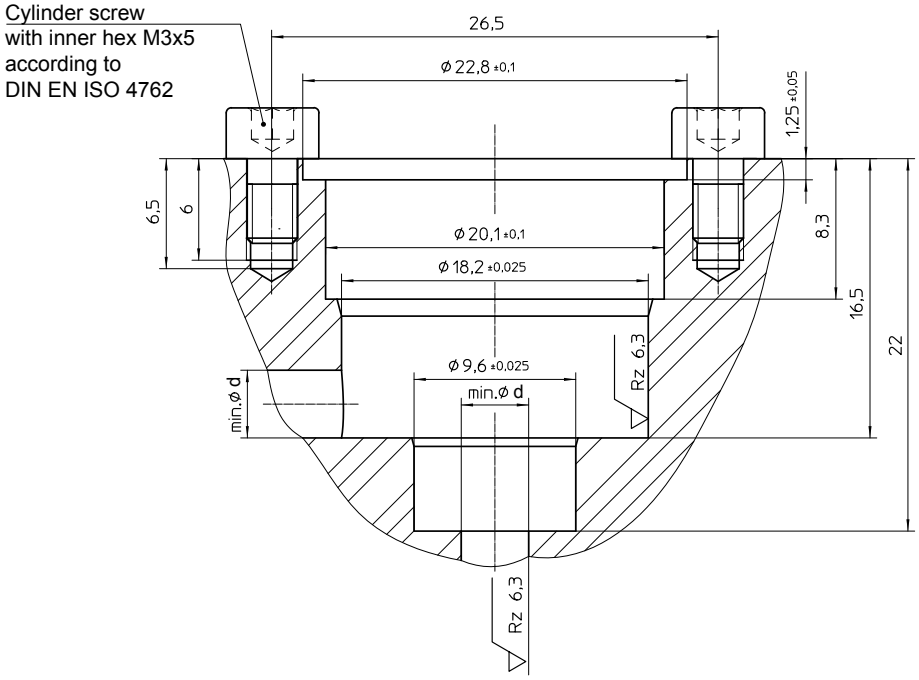


Fig. 12: Type V PR M 016 K00 A02/A03/A04/A05/A10



Type V PR M 020 K00	d
A03/A04	4
A10	5

Fig. 13: Type V PR M 020 K00 A03/A04/A10

Rated voltage

Rated voltage is 12 VDC, an winding adaption is possible in the range of 6 to 24 VDC on request.

The devices correspond to protection class III. Electrical equipment of protection class III may be only connected to low voltage systems (PELV, SELV)(IEC 60364-4-4-41).

Information and remarks concerning European directives can be taken from the correspondent information sheet which is available under *Produktinfo.Magnet-Schultz.com*.

Note on the RoHS Directive

According to our current state of knowledge the devices pictured in this document do not contain any substances in concentration values or applications for which putting into circulation with products manufactured from them is prohibited in accordance to RoHS.

Please make sure that the described devices are suitable for your application. Supplementary information concerning its proper installation can be taken also from the –Technical Explanation, the effective DIN VDE0580 as well as the relevant specifications.

This part list is a document for technically qualified personnel.

The present publication is for informational purposes only and shall not be construed as mandatory illustration of the products unless otherwise confirmed expressively.

Type code

Type	Construction size ø (mm)	Nominal width (mm)	Flow (l/min)	Pressure range (bar)	Voltage
V PR M 016 K00 A02	16	1.0	60	0 - 8	12V, 100%ED
V PR M 016 K00 A03		1.5	80	0 - 5	
V PR M 016 K00 A04		2.0	90	0 - 3	
V PR M 016 K00 A05		2.0	30	0 - 1.6	
V PR M 016 K00 A10		4.4	120	0 - 7	
V PR M 020 K00 A03	20	3.5	180	0 - 2	
V PR M 020 K00 A04		3.0	180	0 - 2.8	
V PR M 020 K00 A10		4.4	200	0 - 7	

Order example

Type	V PR M 016 K00 A03
Voltage	⎓ 12 V DC
Operating mode	S1 (100 %)

Specials designs

Please do not hesitate to ask us for application-oriented problem solutions. In order to find rapidly a reliable solution we need complete details about your application conditions. The details should be specified as precisely as possible in accordance with the relevant -Technical Explanations.

If necessary, please request the support of our corresponding technical office.