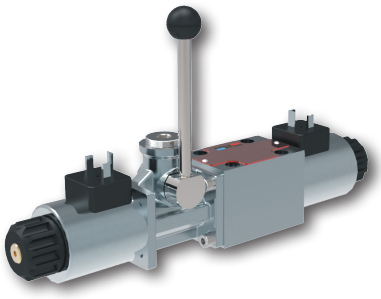
PRMR2-06

Size 06 (D03) • Q_{max} 40 l/min (11 GPM) • p_{max} 350 bar (5100 PSI)



Technical Features

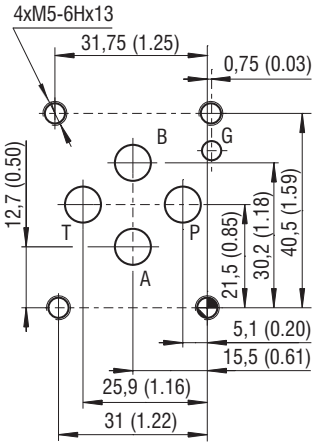
- Direct acting proportional directional control valve with subplate mounting interface acc. to standards ISO 4401, DIN 24340 (CETOP 03)
- The valve is used for directional and speed control of hydraulic appliances
- Auxiliary lever actuator allows emergency spool control by hand when the solenoids are deenergised, e.g. in the case of electrical failures or maintenance activities
- The flow rate can be controlled continuously and proportionally to command signal
- The valve can be controlled directly by a current control signal or by means of the electronic control unit to fully exploit the valve performance. The electronic control unit must be ordered separately
- Wide range of solenoid electrical terminal versions available
- The five chambers body design reduces the dependence of hydraulic power on fluid viscosity
- The coil is fastened to the actuating system with a plastic nut and can be rotated by 360° to position suitable for the space available
- In the standard version, the valve housing is phosphated for basic surface corrosion protection and as preparation for painting. Steel parts are zinc-coated for 240 h salt spray protection acc. to ISO 9227
- Enhanced surface protection for mobile sector available for the valve housing and steel parts (ISO 9227, 520 h salt spray)

Functional Description

The valve is used for speed control and the valve with two solenoids also for control of movement direction of hydraulic appliances. The built-in lever actuator is intended for manual operating up to maximum pressure 100 bar in channel -T. The manual operating of the valve is usually used in an emergency situation or for service purposes. The manual actuator can be used only when the solenoids are switched off.
For effective valve control it is recommended to use one of the offered electronic control units:
External analogue control unit EL3E in a plastic box (Data sheet 9145)
External digital control unit EL4 in Eurocard format allows an operation in closed control loop with a feedback signal (Data sheet 9140)
Digital control unit EL6 in plug-in version is basically intended for one-solenoid valve. Two are needed and a coordination of their mutual functions are necessary for two-solenoid valves. (Data sheet 9150)

Technical Data

ISO 4401-03-02-0-05



Ports P, A, B, T - max. ∅7.5 mm (0.29 in)

Nominal Size		06 (D03)			
Max. operating pressure at port P, A, B	bar (PSI)	350 (5080)			
Max. operating pressure at port T	bar (PSI)	100 (1450)			
Fluid temperature range (NBR)	°C (°F)	-30 ... +80 (-22 ... +176)			
Fluid temperature range (FPM)	°C (°F)	-20 ... +80 (-4 ... +176)			
Ambient temperature range	°C (°F)	-30 ... +50 (-22 ... +122)			
Hysteresis	%	≤ 6			
Nominal flow rate Q_n at Δp=10 bar (145 PSI)	l/min (GPM)	5 (1.13)	8 (2.1)	15 (4.0)	30 (7.9)
Weight - valve with 1 solenoid - valve with 2 solenoids	kg (lbs)	2.8 (6.2) 3.3 (7.3)			
Technical Data of the Proportional Solenoid					
Nominal supply voltage	V DC	12		24	
Limit current	A	2.5		1.0	
Mean resistance value at 20 °C (68 °F)	Ω	2.3		13.4	
	Datasheet	Type			
General information	GI_0060	Products and operating conditions			
Coil types / Connectors	C_8007 / K_8008	C22B* / K*			
Mounting interface	SMT_0019	Size 06			
Spare parts	SP_8010				
Subplates	DP_0002	DP*-06			

Ordering Code

PRMR2-06 [ ] / [ ] - [ ] [ ] [ ] [ ] / [ ] - [ ] - [ ]

Proportional Directional Control Valve, with Auxiliary Lever Override

Valve size

Spool symbols
see table „Spool Symbols“

Nominal flow rate at Δp = 10 bar (145 PSI)

5 l/min (1.3 GPM)	**05**
8 l/min (2.1 GPM)	**08**
15 l/min (4.0 GPM)	**15**
30 l/min (7.9 GPM)	**30**

Rated supply voltage of solenoids
(at the coil terminal)

12 V DC	**12**
24 V DC	**24**

Solenoid electrical terminals for connector

EN 175301-803-A	**E1**
E1 with quenching diode	**E2**
with AMP-Junior-Timer-connector - Axial direction	**E3A**
E3A with quenching diode	**E4A**
loose conductors (two insulated wires)	**E8**
E8 with quenching diode	**E9**
with Deutsch DT04-2P	**E12A**
E12A with quenching diode	**E13A**

Connector according to EN 175301-803-A

No designation	for all of solenoid electrical terminals except types E1 or E2
K1	only for solenoid terminals of types E1 or E2

Seals

No designation	NBR
V	FPM (Viton)

Manual lever and position of override actuating section

A19	standard, lever on side A, upward
B19	standard, lever on side B, upward

Lever override length

No designation	standard 102 mm

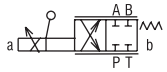
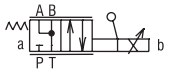
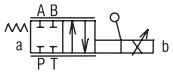
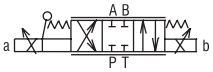
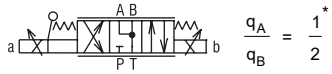
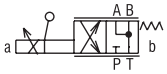
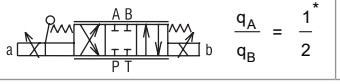
Surface treatment

No designation	standard
B	zinc-coated (ZnNi), ISO 9227 (520 h)

- The lever actuator must not be used until all solenoids are switched off.
- For proportional valves with two solenoids, one solenoid must be de-energized before the other solenoid can be charged.

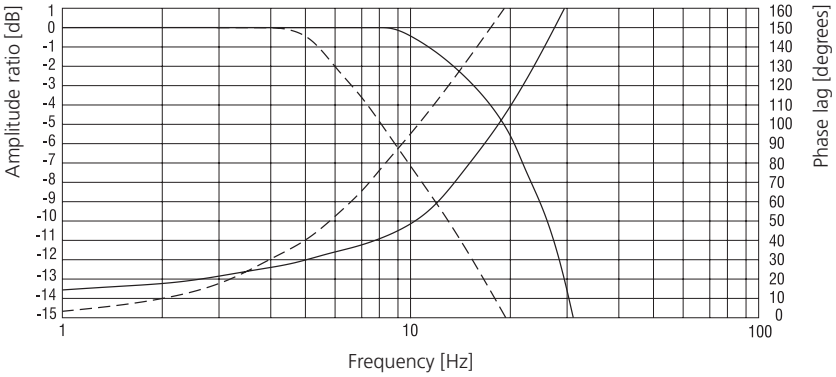
- Mounting bolts M5 x 45 DIN 912-10.9 or studs must be ordered separately. Tightening torque is 8.9+1 Nm (6.56+0.7 lbf.ft)
- As well as the commonly used valve versions, other special models are available.
- Contact our technical support for their identification, feasibility and operating limits.

Spool Symbols

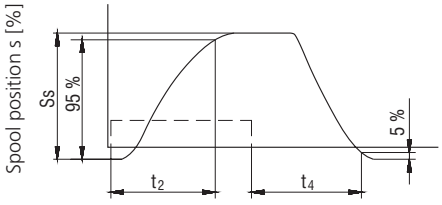
Type	Symbol	Type	Symbol	Type	Symbol
2Z51		**2Y11**		**3Y11**	
2Z11		**3Z11**		**3Y12**	
2Y51		**3Z12**		The valve with two solenoids can be optionally ordered with the lever actuator on the left or right side acc. to ordering code	

*Model for cylinders with asymetric piston area ratio 1:2

Frequency Response



Transient Characteristic measured at ν = 32 mm²/s (156 SUS), Δp=10 bar (145 PSI)



Time t [ms]

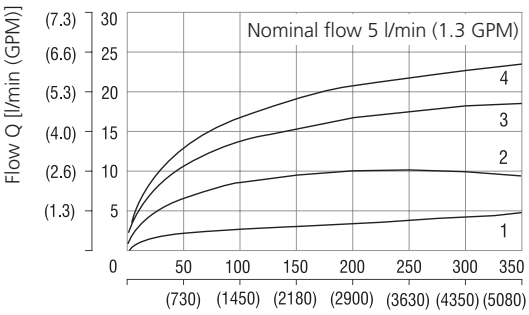
Steady Spool Position S_s [%]	t_2 [ms]	t_4 [ms]
100	85	100
75	70	85
50	55	75
25	45	55

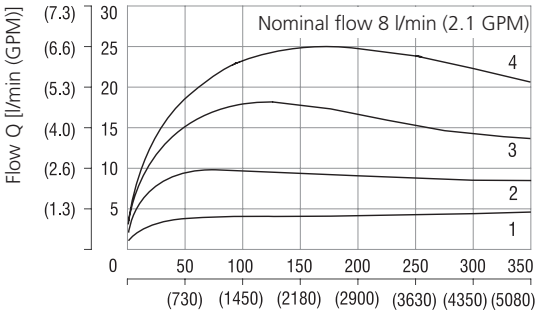
The values shown in the table have only an informative character.
The times of the transient characteristics at pressure or flow control in a particular hydraulic circuit will always be longer.

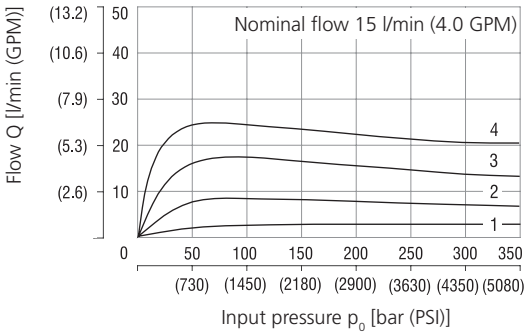
---- the control signal course of the integrated electronics

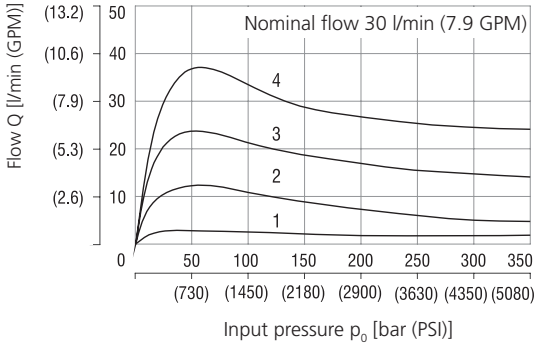
Characteristics measured at ν = 32 mm²/s (156 SUS)

Operating limits: Flow direction P → A / B → T or P → B / A → T



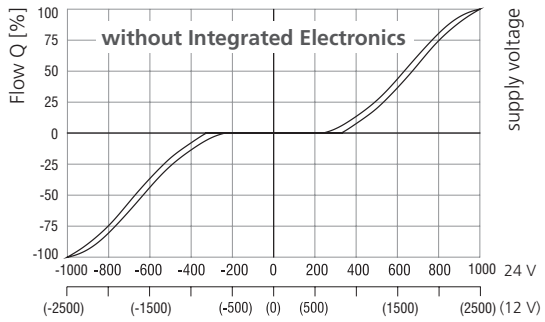






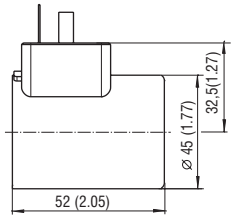
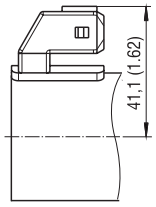
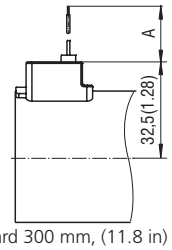
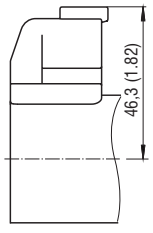
Solenoid current:
1 = 40 %
2 = 60 %
3 = 80 %
4 = 100 %

Regulated flow related to control signal Δp=10 bar (145 PSI)



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

Solenoid Coil in millimeters (inches)

E1, E2 Protection Degree IP65	E3A, E4A Protection Degree IP67	E8, E9 Protection Degree IP65	E12A, E13A Protection Degree IP67 / 69K
		 Note: A = Standard 300 mm, (11.8 in) other lengths on demand	

The specified IP rating applies only in the case of correctly connected connectors (male + female) with the corresponding IP rating.

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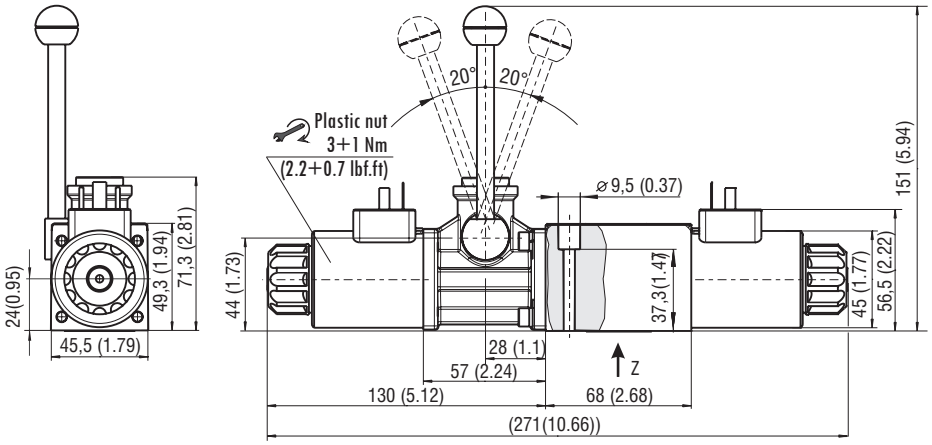
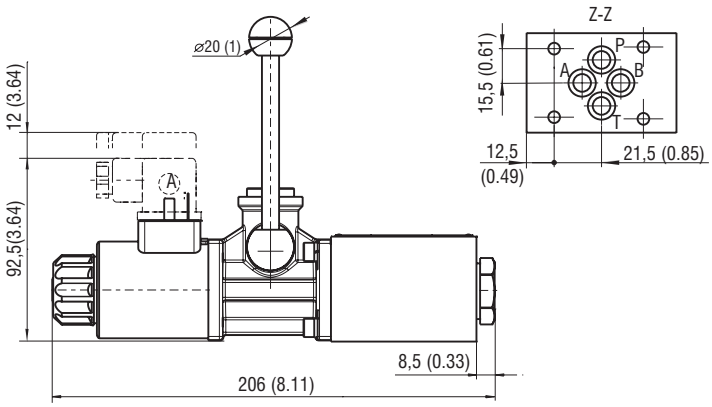
Valve with two solenoids
Example with electrical terminal
EN 175301-803-A (E1, E2)

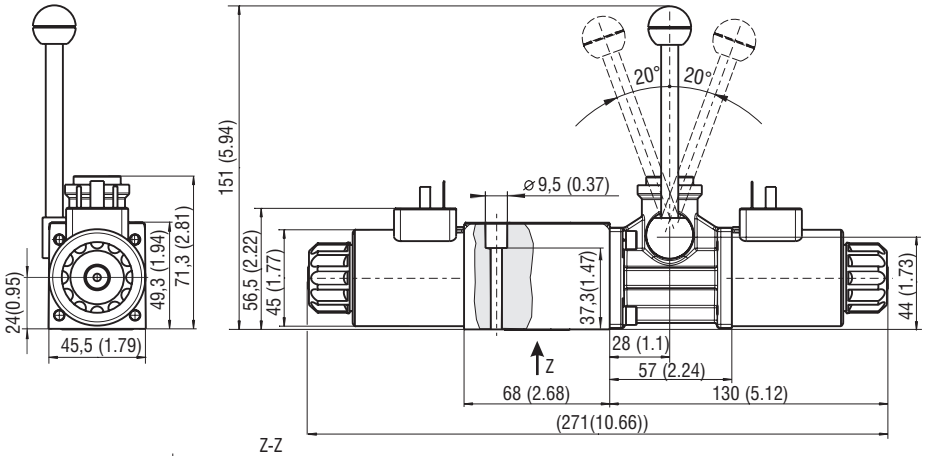


PRMR2-062 */ A19

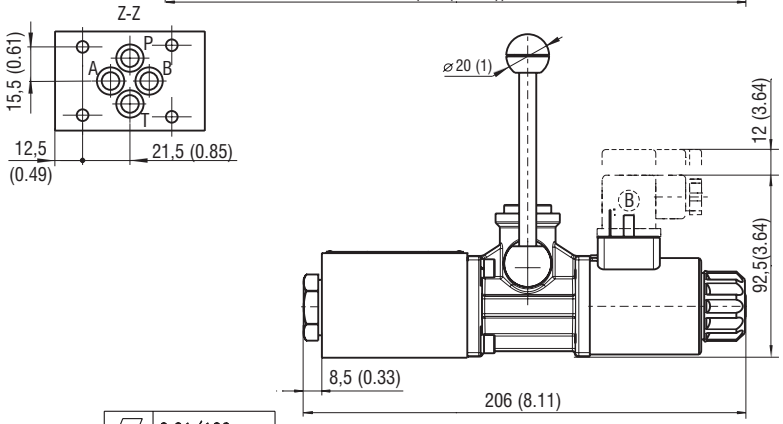


PRMR2-063 */ B19

Valve with two solenoids
Example with electrical terminal
EN 175301-803-A (E1, E2)

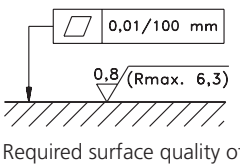


PRMR2-062 */ B19



The lever operator should never be used when any solenoid is energized.

Manual lever and actuating section is shown in the standard supplied position which is the most frequently used.
Both elements can be rotated to various positions 90° apart.
For other positions of lever and actuating section consult our technical department for their identification.



Required surface quality of the counterpart

Mounting screws 8.9+1 Nm (6.56+0.7 lbf.ft)
M5 x 45 DIN 912-10.9