Further sandwich valves are presented in chapter 8 „slip-in cartridge valves“, see „accessories, pilot valves“

Direct operated, spool-type sandwich DC valves series Z1DW size NG06 are used for shutting off the flow in stack systems.

For shut off secondary ports A and B, body version A is applied. P and T are drilled through.

For applications with port B drained in a switching position to tank, body version B is used. P and A are drilled through.

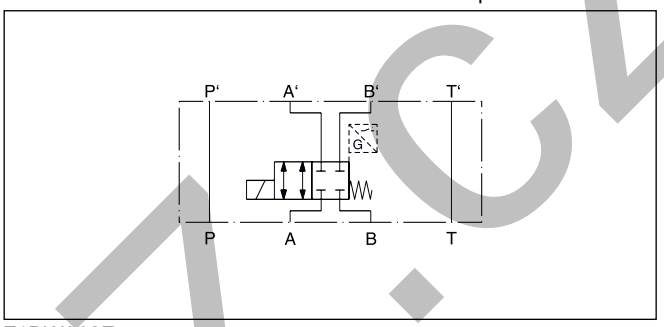
Valves are sealed to the manifold side.

The valves can be ordered with inductive position control optionally.

Attention:
The adjustment of the position control is factory set and sealed. Replacement and repairs can only be undertaken by the manufacturer.


Z1DW*E standard


Z1DW*E ind. position control

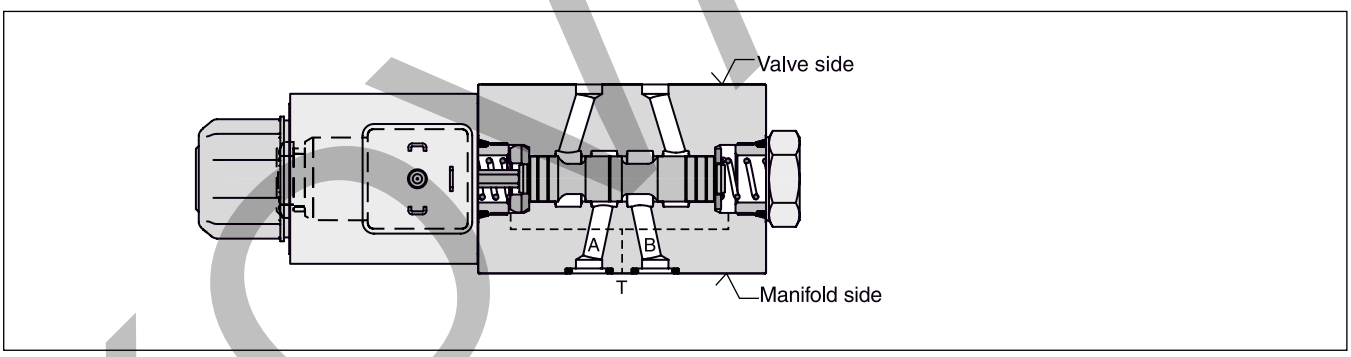


Z1DWA02E

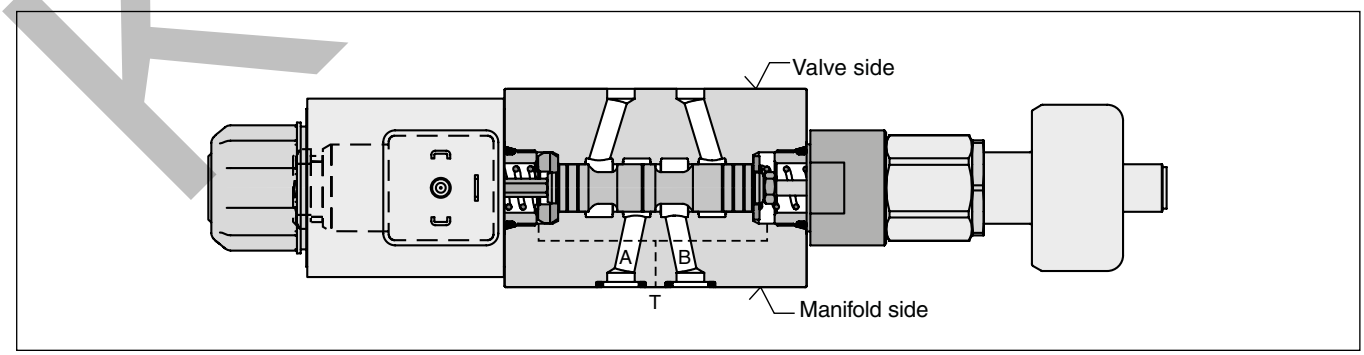
Technical Features
- Shut-off sandwich valve NG06
- Inductive position control optional

7

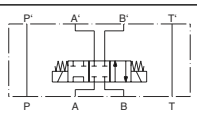
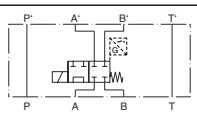
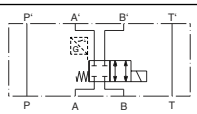
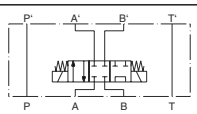
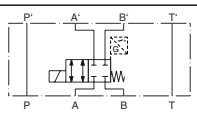
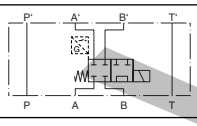
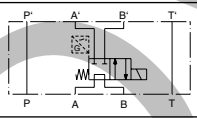
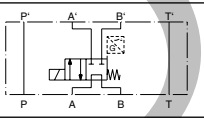
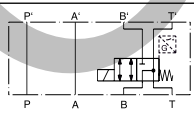
Z1DW*E without inductive position control



Z1DW*E with inductive position control



Z	1	D	W						W			
Sandwich plate, Shut-off valve	**Size DIN NG06 CETOP 03 NFPA D03**		**Wet pin solenoid**	**Body**	**Spool type**	**Spool position**	**Seals**	**Solenoid voltage**	**Connector as per EN 175301-803, without plug** (please order plug separately)	**Manual override option**	**Position control**	**Design series** (not required for ordering)

Code	Code	Code	
A	01	C [1]	
A	01	E	
A	01	K	
A	02	C [1]	
A	02	E	
A	02	K	
A	03	K	
A	04	E	
B	37	B	

Code	Position control	Spool position
omit	Standard	C, E, B, K
I2N [4]	End position monitored side B	E, B (Solenoid on a-side)
I5N [3][4]	Start position monitored side B	
I1N [4]	End position monitored side A	K (Solenoid on b-side)
I4N [3][4]	Start position monitored side A	

Code	Manual override
omit	Standard valve with manual override
T [3]	without manual override

Code	Voltage
K	12 V =
J	24 V =
U [2]	98 V =
G [2]	205 V =

Code	Seals
N	NBR
V	FPM

Further spool types and voltages on request.

[1] Without position control.
[2] To be used in combination with rectifier plugs at 120 VAC / 230 VAC power supply.
[3] For hydraulic presses according to the safety regulations DIN EN ISO 16092-3, manual override code “T” (without manual override) and position control “I4N” or “I5N” (start position monitored) are required.
[4] Please order female connector M12x1 separately (see accessories in chapter 2, female connector M12x1 (order no.: 5004109).

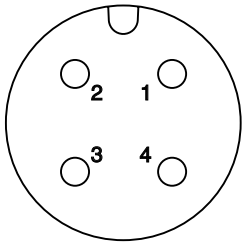
General						
Design			Directional spool valve, sandwich type			
Actuation			Solenoid			
Size			DIN NG06 / CETOP 03 / NFPA D03			
Mounting interface			DIN 24340 A6 / ISO 4401 / CETOP RP 121-H / NFPA D03			
Mounting position			unrestricted, preferably horizontal			
Ambient temperature		[°C]	-20...+60			
$MTTF_D$ value		[years]	150			
Weight		[kg] [kg]	1.8 (1 solenoid), 2.3 (2 solenoids) w/o position control 2 with position control			
Hydraulic						
Max. operating pressure		[bar]	P, A B: 350 ; T: 210			
Fluid			Hydraulic oil in accordance with DIN 51524			
Fluid temperature		[°C]	-20…+70 (NBR: -25…+70)			
Viscosity,	permitted	[cSt] / [mm²/s]	20...400			
	recommended	[cSt] / [mm²/s]	30...80			
Filtration			ISO 4406 (1999); 18/16/13			
Flow max.		[l/min]	50			
Leakage at 50 bar		[ml/min]	Up to 10 per flow path, depending on spool			
Static / Dynamic						
Step response at 95 %		[ms]	Energized: 32 ; De-energized: 40			
Electrical characteristics						
Duty ratio			100 % ED; CAUTION: coil temperature up to 150 °C possible			
Max. switching frequency		[1/h]	15000			
Protection class			IP 65 in accordance with EN 60529 (with correctly mounted plug-in connector)			
		Code	K	J	U	G
Supply voltage		[V]	12 V =	24 V =	98 V =	205 V =
Tolerance supply voltage		[%]	±10	±10	±10	±10
Current consumption		[A]	2.72	1.29	0.33	0.13
Power consumption		[W]	32.7	31	31.9	28.2
Solenoid connection			Connector as per EN 175301-803, solenoid identification as per ISO 9461.			
Wiring min.		[mm²]	3 x 1.5 recommended			
Wiring length max.		[m]	50 recommended			

With electrical connections the protective conductor (PE W) must be connected according to the relevant regulations.

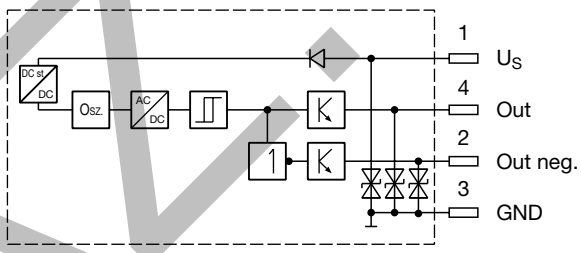
Electrical characteristics of position control as per IEC 61076-2-101 (M12x1)

Supply voltage	[VDC]	24
Tolernace supply voltage	[%]	±20
Ripple supply voltage	[%]	≤10
Polarity protection	[V]	300
Current consumption without load	[mA]	≤20
Switching hysteresis	[mm]	<0.06
Max. output current per channel, ohmic	[mA]	250
Ambient temperature	[°C]	-20 … +60
Protection		IP65 acc. EN 60529 (with correctly mounted plug-in connector)
Min. distance to next AC solenoid	[m]	0.1
Interface		M12x1 to IEC 61076-2-101
CE conform		EN 61000-4-2 / EN 61000-4-4 / EN 61000-4-6 [1] / ENV 50140 / ENV 50204

M12 pin assignment



1 + U_S 19.2...28.8 V
2 Out B: normally open
3 0V
4 Out A: normally closed



Outputs: Open collector

Definitions

Start position monitored:

The valve is de-energized. The inductive switch gives a signal at the moment when the spool leaves the spring offset position (below 25 % spool stroke).
At the switching point the spool is located within the closed position. It is secured that only the flow paths of the offset position are granted.

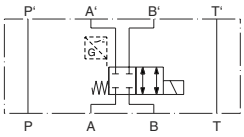
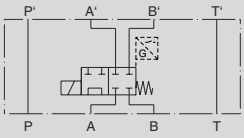
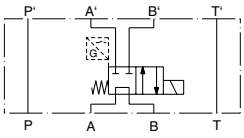
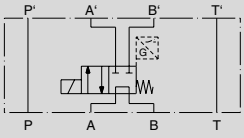
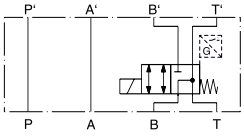
End position monitored:

The inductive switch gives a signal before the end position is reached (above 75 % spool stroke).

The switch can only be located on the opposite side of the solenoid for direct operated valves.
Please order plug M12 x 1 separately (see accessories, plug M12x1; order no.: 5004109).

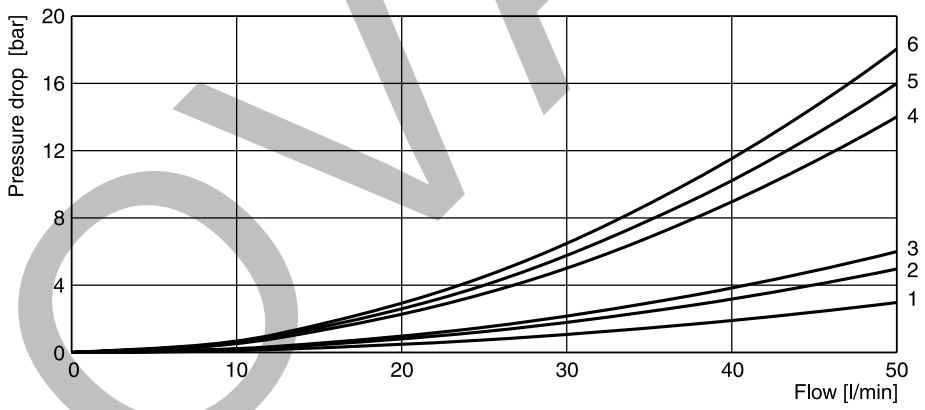
[1] Only guaranted with screened cable and female connector

The flow curve diagram shows the flow versus pressure drop curves for all spool types. The relevant curve number for each spool type, operating position and flow direction is given in the table below.

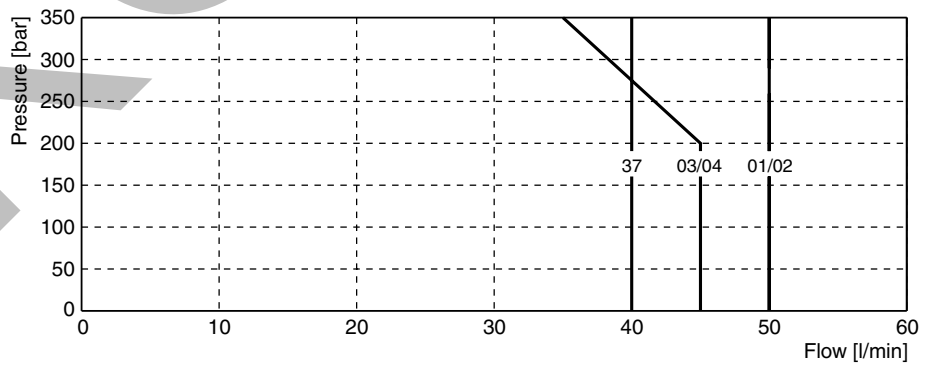
Spool	Symbol	A-A'	A'-A	B-B'	B'-B	T-T'	T-T' Start position	T-T' End position	P-P'	B-T	A-B	B-A
A01C A01K		5	5	5	5	1	—	—	1	—	5	5
A02C A02E		5	5	5	5	1	—	—	1	—	5	5
A03K		4	4	6	6	1	—	—	1	—	6	6
A04E		6	6	4	4	1	—	—	1	—	6	6
B37B		2	2	4	4	—	3	1	1	6	—	—

7

Flow curves

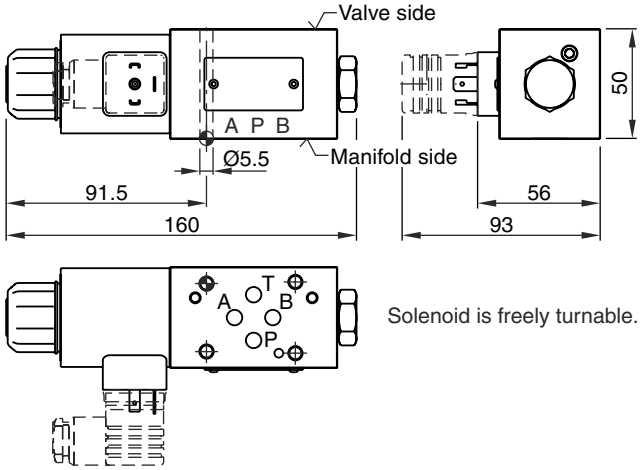


Shift limits

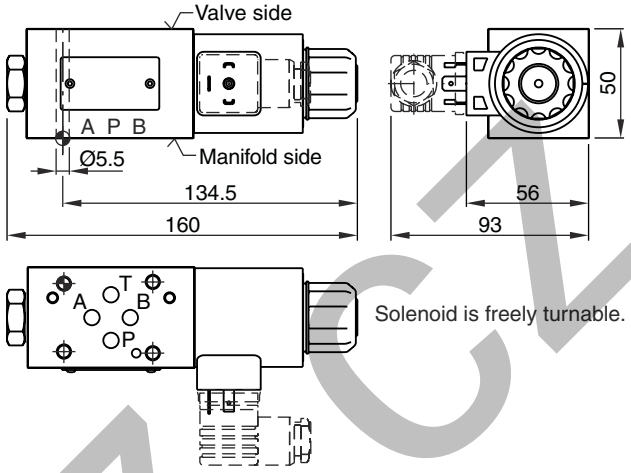


Measured with HLP46 at 50 °C, 90 % U_{nom} and warm solenoids.

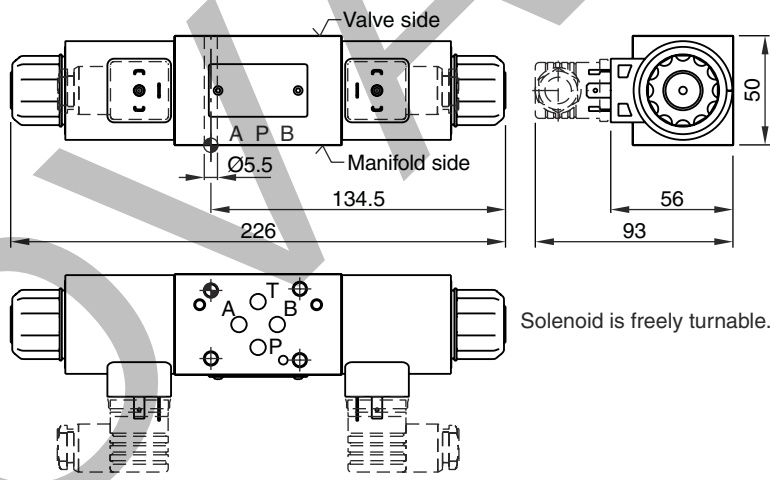
Z1DW Standard
B, E -style



K -style



C -style



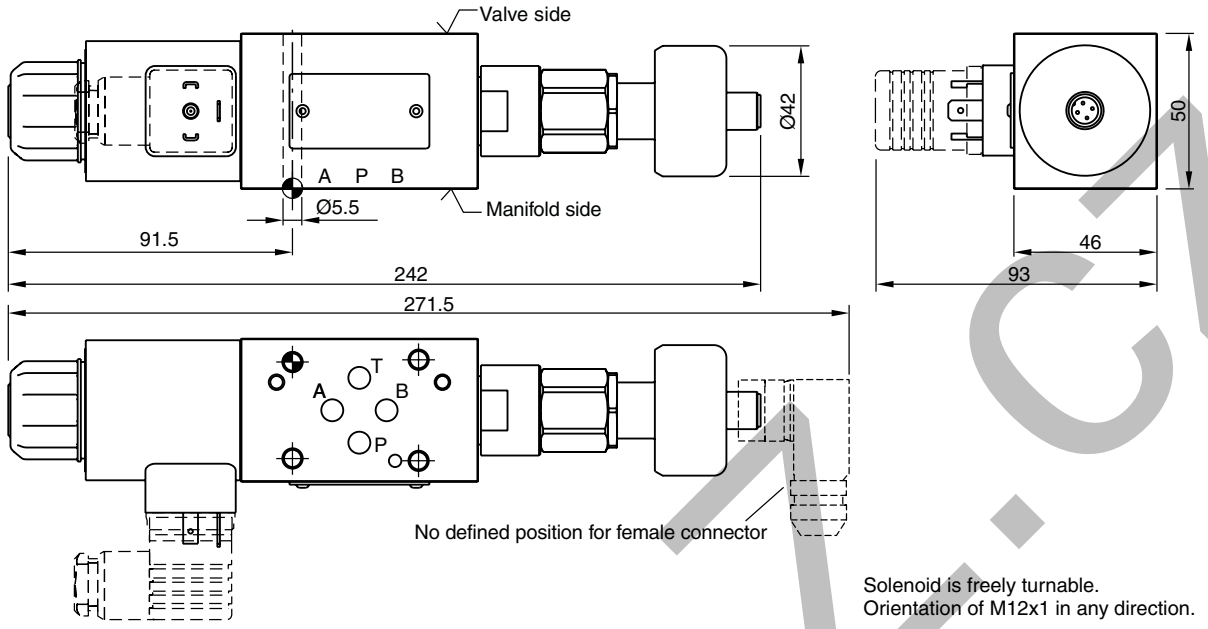
Surface finish		Kit
R_{max}6.3 ⏥ 0.01/100	7.6 Nm ±15 %	**NBR: SK-D1VW-N91** FPM: SK-D1VW-V91

The space necessary to remove the plug per EN 175301-803, design type AF is at least 15 mm.
The torque for the screw M3 of the plug has to be 0.5 to 0.6 Nm.

Z1DW UK.indd 06.10.22

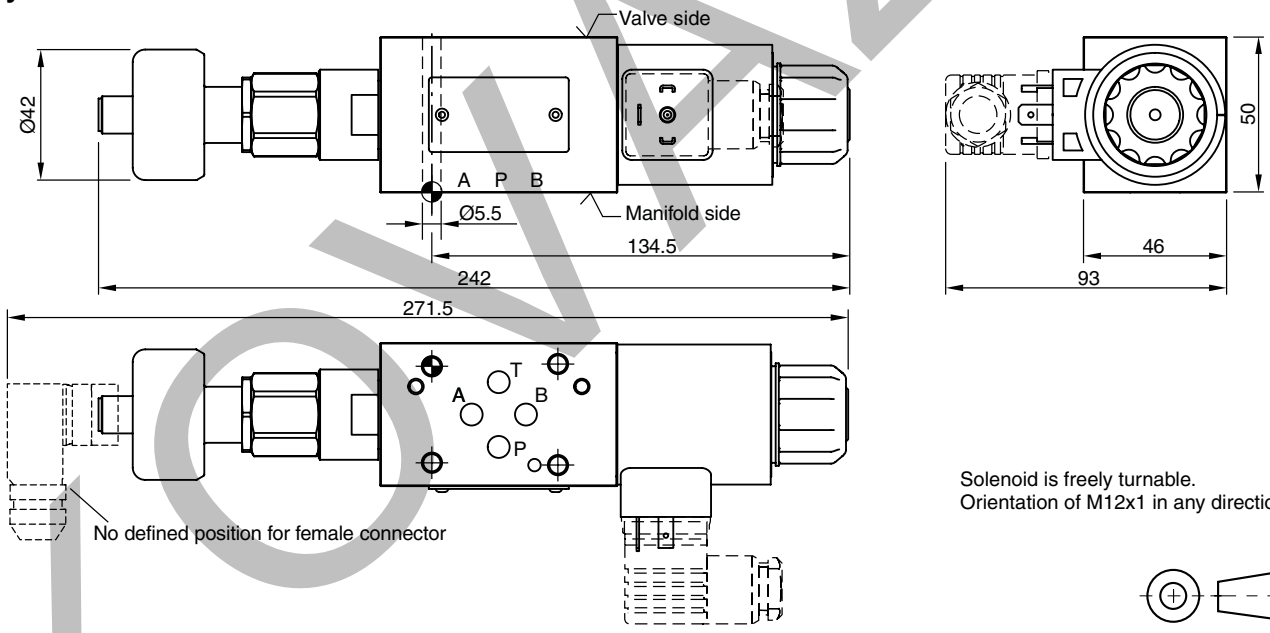
Z1DW with inductive position control
Interface EN 175301-803, DC solenoid, without plug M12x1 [1)]

B, E -style



Solenoid is freely turnable.
Orientation of M12x1 in any direction.

K -style



Solenoid is freely turnable.
Orientation of M12x1 in any direction.

Surface finish		Kit
R_{max} 6.3 ⏥ 0.01/100	7.6 Nm ±15 %	**NBR: SK-D1VW-N91** FPM: SK-D1VW-V91

The space necessary to remove the plug per EN 175301-803, design type AF is at least 15 mm.

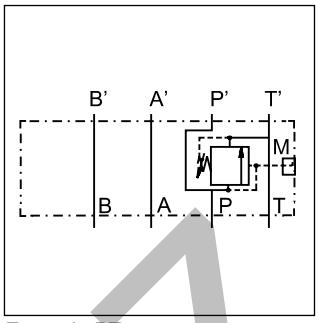
The torque for the screw M3 of the plug has to be 0.5 to 0.6 Nm.

Attention: The adjustment of the position control is factory set and sealed. Replacement and repairs can only be undertaken by the manufacturer.

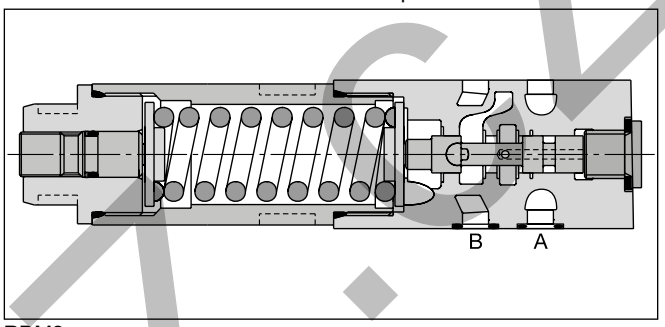
[1)] Please order plug M12 x 1 separately (see accessories, plug M12x1; order no.: 5004109).

The direct operated pressure relief valves series RDM are in sandwich design for easy configuration of stock systems.
They relief the pressure of the hydraulic system to the adjusted value.


RDM2



Example PT



RDM2

Function

PT... pressure is relieved from P to T.
TT... pressure pre-loading in T.

Features

- The direct operated, cushioned piston design results in fast response, low leakage and minimal hysteresis.
- Pressure settings:
  bar 25, 64, 160, 210, 350 for RDM2,
  bar 19, 50, 100, 150, 210 for RDM3.
- Adjustment modes:
  - Hexagon socket
  - Cylinder lock
  - Turning knob
- Gauge port
- RDM2 - NG06 (CETOP 03)
  RDM3 - NG10 (CETOP 05)

Ordering code

RD	M					V		
Pressure relief valve, direct operated	Manapak	Size	Pressure relief	Pressure range	Adjustment	Seal FPM	Gauge port	Design series (not required for ordering)

Code	Size
2	**NG06**
3	**NG10**

Code	Pressure relief
PT	**P**
TT [1]	T

Code	Adjustment
S	**Hexagon socket**
L	Cylinder lock
K	Turning knob [3]

Code	Gauge port
G [2]	**G¼**
C	Coupling M16

Pressure range	
Code	RDM2
02	1.5 to 25 bar
06	**1.5 to 64 bar**
16	**3 to 160 bar**
21	**3 to 210 bar**
35	5 to 350 bar
Code	RDM3
01	1.5 to 19 bar
05	1.5 to 50 bar
10	3 to 100 bar
15	3 to 150 bar
21	3 to 210 bar

Bold letters =
Short-term availability

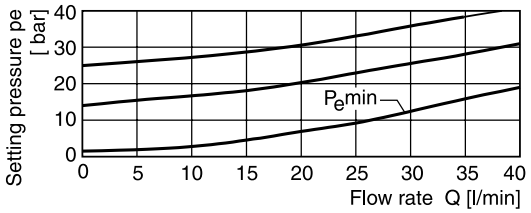
[1] NG06 only, max. 160 bar.
[2] Standard in housing.
[3] NG06 only.

Technical data

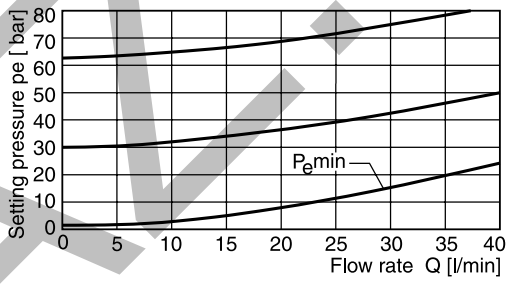
General				
Series			**RDM2**	**RDM3**
Size			**NG06**	**NG10**
Mounting interface			ISO 4401	
Weight		[kg]	1.3	2.6
$MTTF_D$ value		[years]	150	
Ambient temperature		[°C]	-20...+60	
Hydraulic				
Max. operating pressure	P, A, B	[bar]	350	315
	T	[bar]	50	10
Fluid			Hydraulic oil according to DIN 51524	
Fluid temperature		[°C]	-20...+70	
Viscosity,	permitted	[cSt] / [mm²/s]	20 ... 400	
	recommended	[cSt] / [mm²/s]	30 ... 80	
Filtration			ISO 4406 (1999); 18/16/13	
Max. flow		[l/min]	40	80

Performance curves

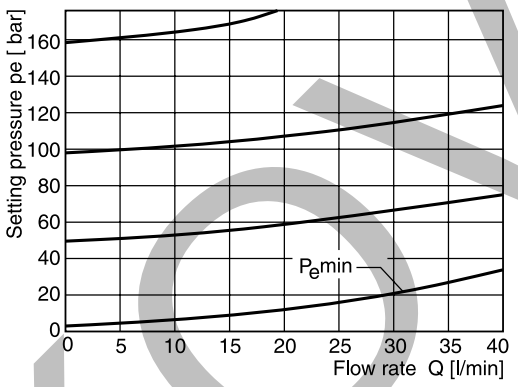
RDM2 02



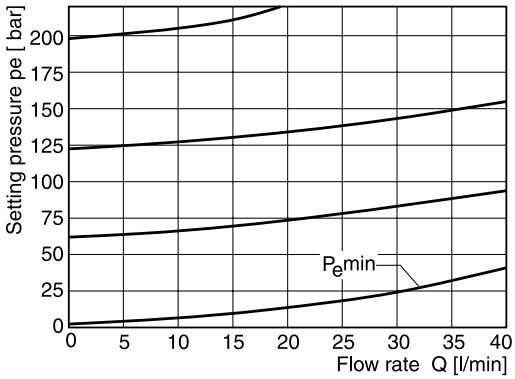
RDM2 06



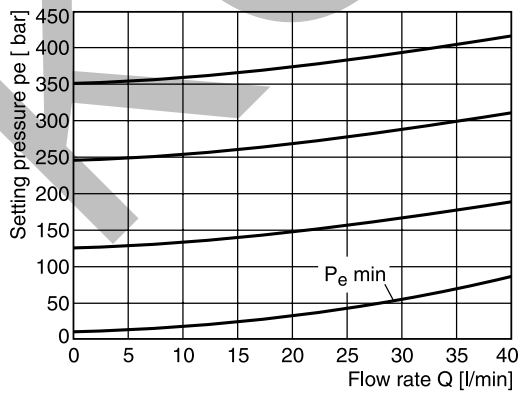
RDM2 16



RDM2 21

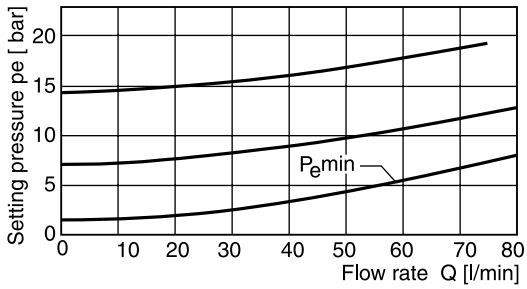


RDM2 35

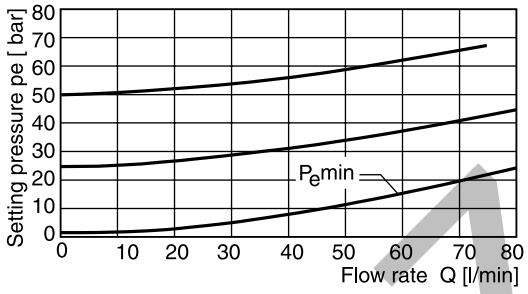


All characteristic curves measured with HLP46 at 50 °C.

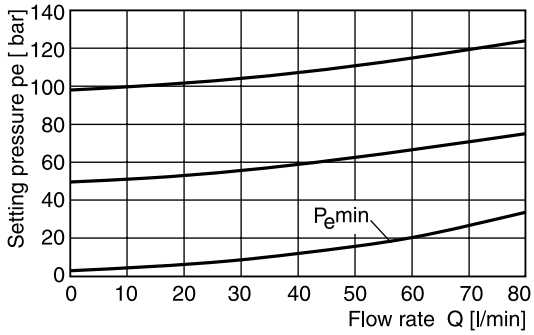
RDM3 01



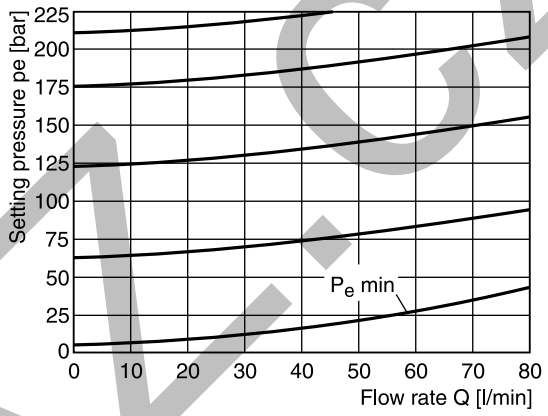
RDM3 05



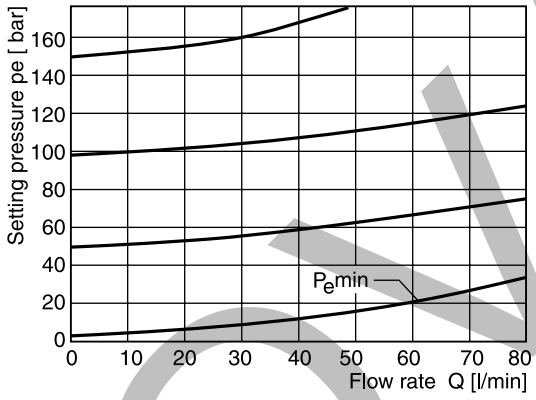
RDM3 10



RDM3 21



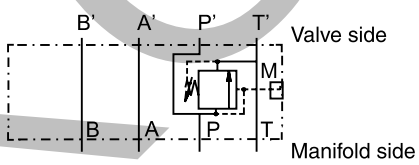
RDM3 15



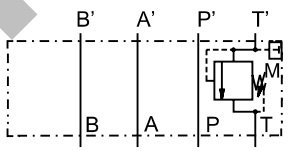
All characteristic curves measured with HLP46 at 50 °C.

Schematics

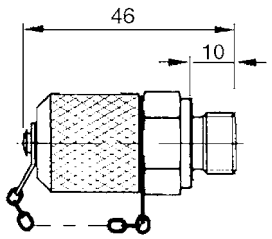
RDM*PT



RDM*TT

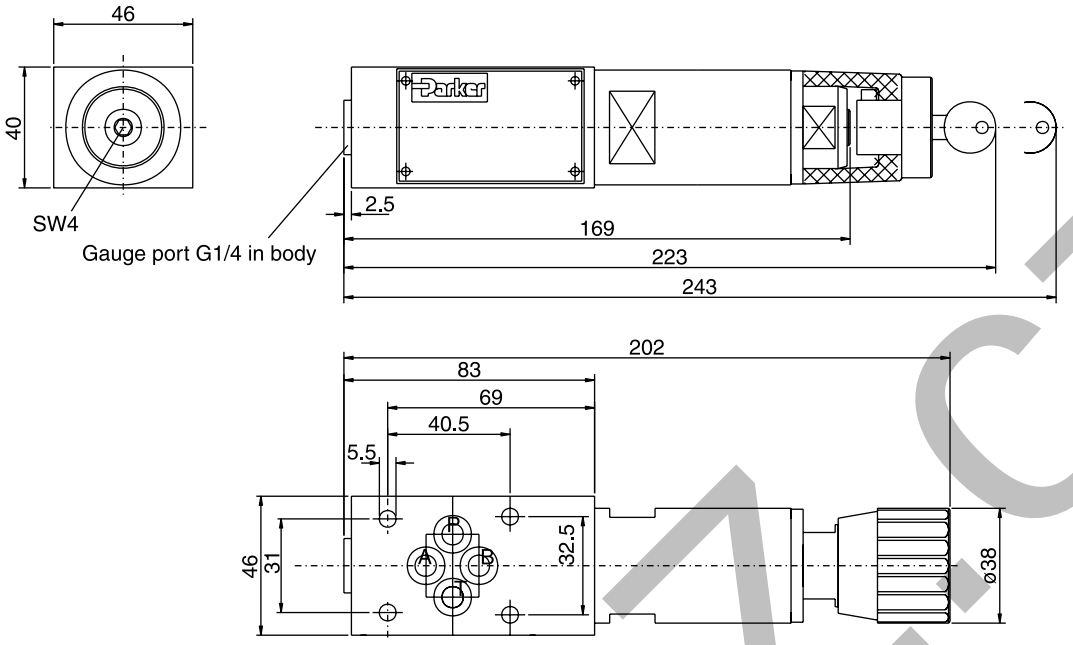


Gauge port option C



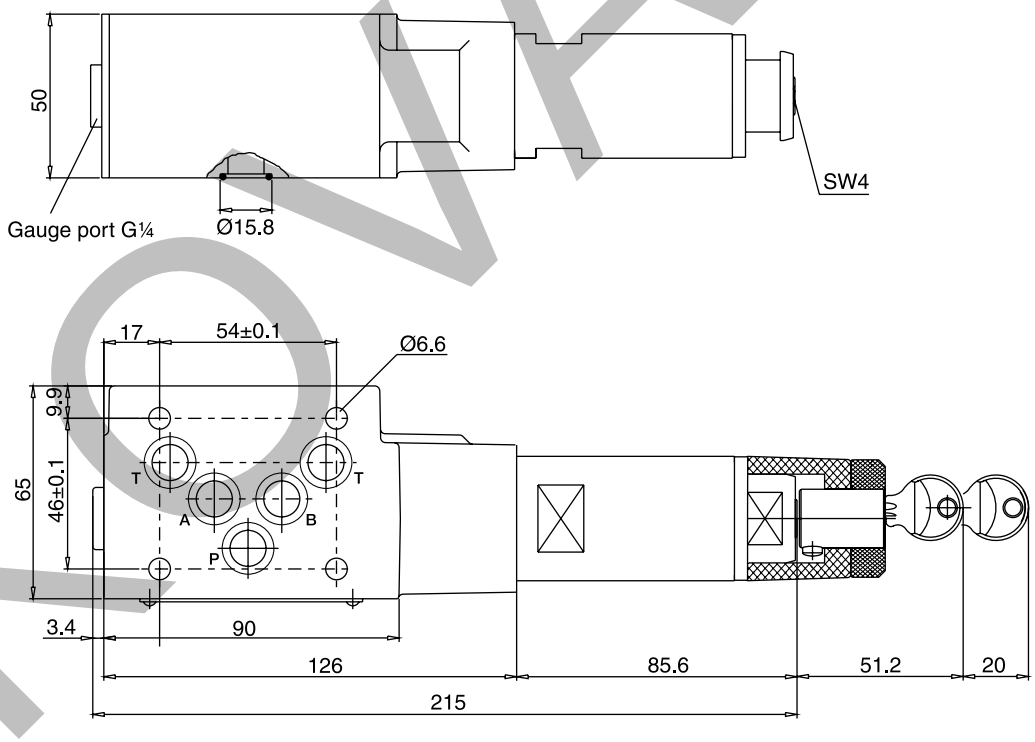
7

RDM2



7

RDM3

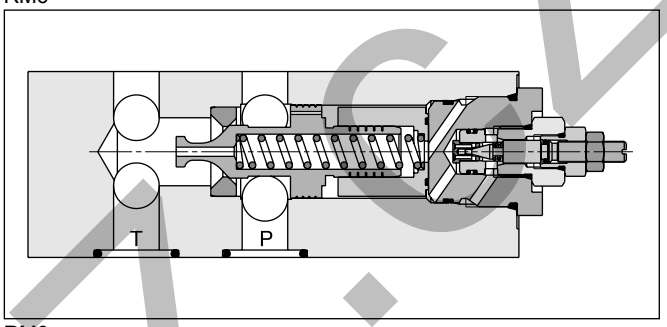


Seal kit order code		
Seal	**RDM2**	**RDM3**
V	SK-RDM2-V	SK-RDM3-V

The pilot operated pressure relief valves from the Parker Manapak series RM are in sandwich design for easy configuration of stack systems. Depending on type, pressure limiting can be achieved in ports P, A or B with unloading to port T.

RM valves may only be mounted in the defined mounting position.

RM6

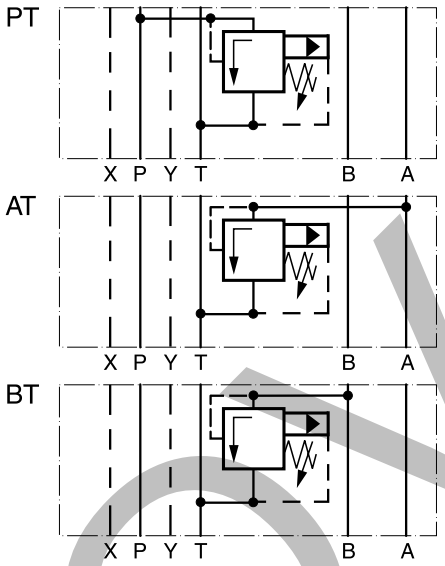


RM6

Features

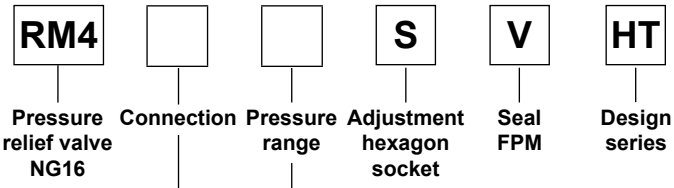
- The valve bodies of the Parker Manapak valve series RM are made of steel.
- The pressure can be set by hexagon socket screw (RM4), hexagon socket screw or knob with cylinder lock (RM6).Piloting results in a flat p/Q performance curve.
- Piloting results in a flat p/Q performance curve.
- The orifices located in the main spool limit the pilot oil flow.

Schematics RM4-NG16, RM6-NG25 (only PT)



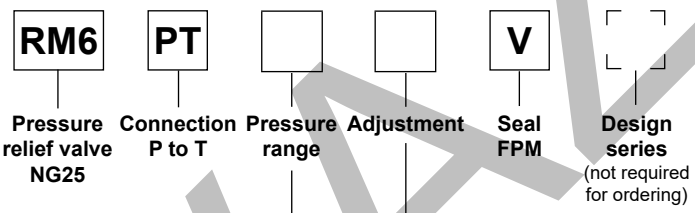
Technical data

General				
Design			Pilot operated pressure relief valve	
Actuation			hydraulic	
Size			**NG16**	**NG25**
Mounting interface			ISO 4401	
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+60	
$MTTF_D$ value		[years]	150	
Weight		[kg]	4.9	5.9
Hydraulic				
Max. operating pressure		[bar]	350	
Fluid			Hydraulic oil according to DIN 51524	
Fluid temperature		[°C]	-20...+70	
Viscosity,	permitted	[cSt] / [mm^2/s]	20 ... 400	
	recommended	[cSt] / [mm^2/s]	30 ... 80	
Filtration			ISO 4406 (1999); 18/16/13	



Code	Connection
PT	P to T
AT	A to T
BT	B to T

Code	Pressure range
07	5 to 65 bar
25	**10 to 250 bar**
35	10 to 350 bar



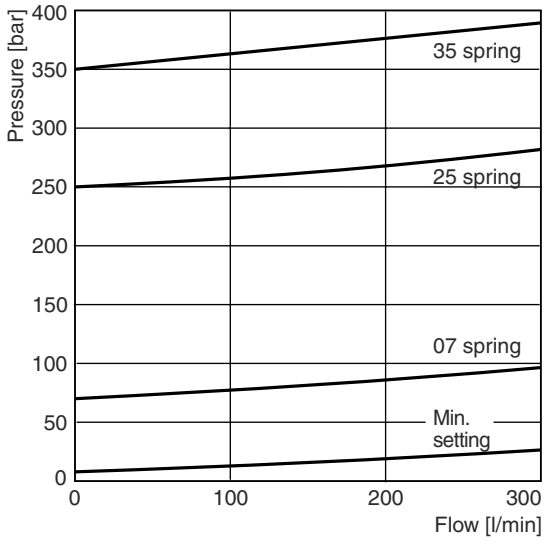
Code	Pressure range
07	5 to 70 bar
17	10 to 175 bar
25	**10 to 250 bar**
35	10 to 350 bar

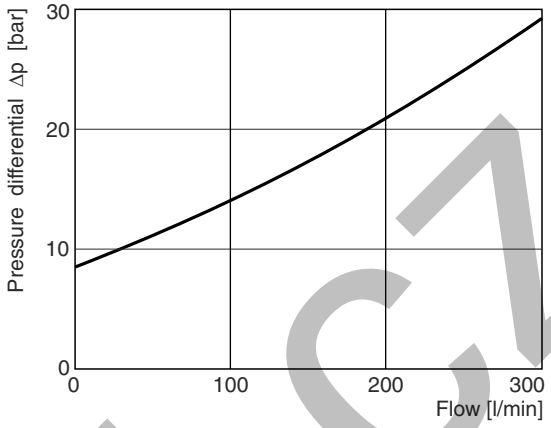
Code	Adjustment
S	**Hexagon socket**
L	Cylinder lock

Bold letters =
Short-term availability

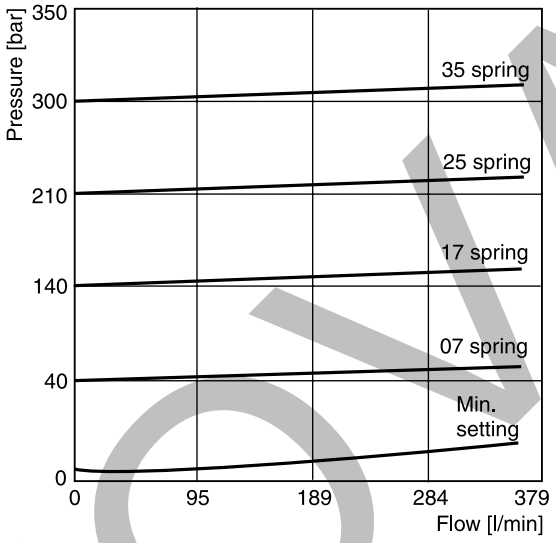
p/Q performance curves

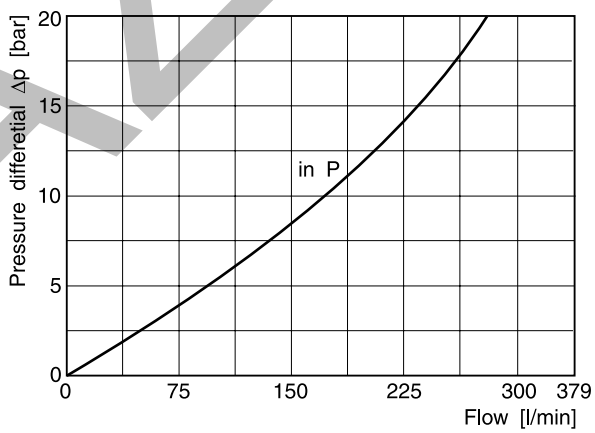
RM4





RM6





All characteristic curves measured with HLP46 at 50 °C.

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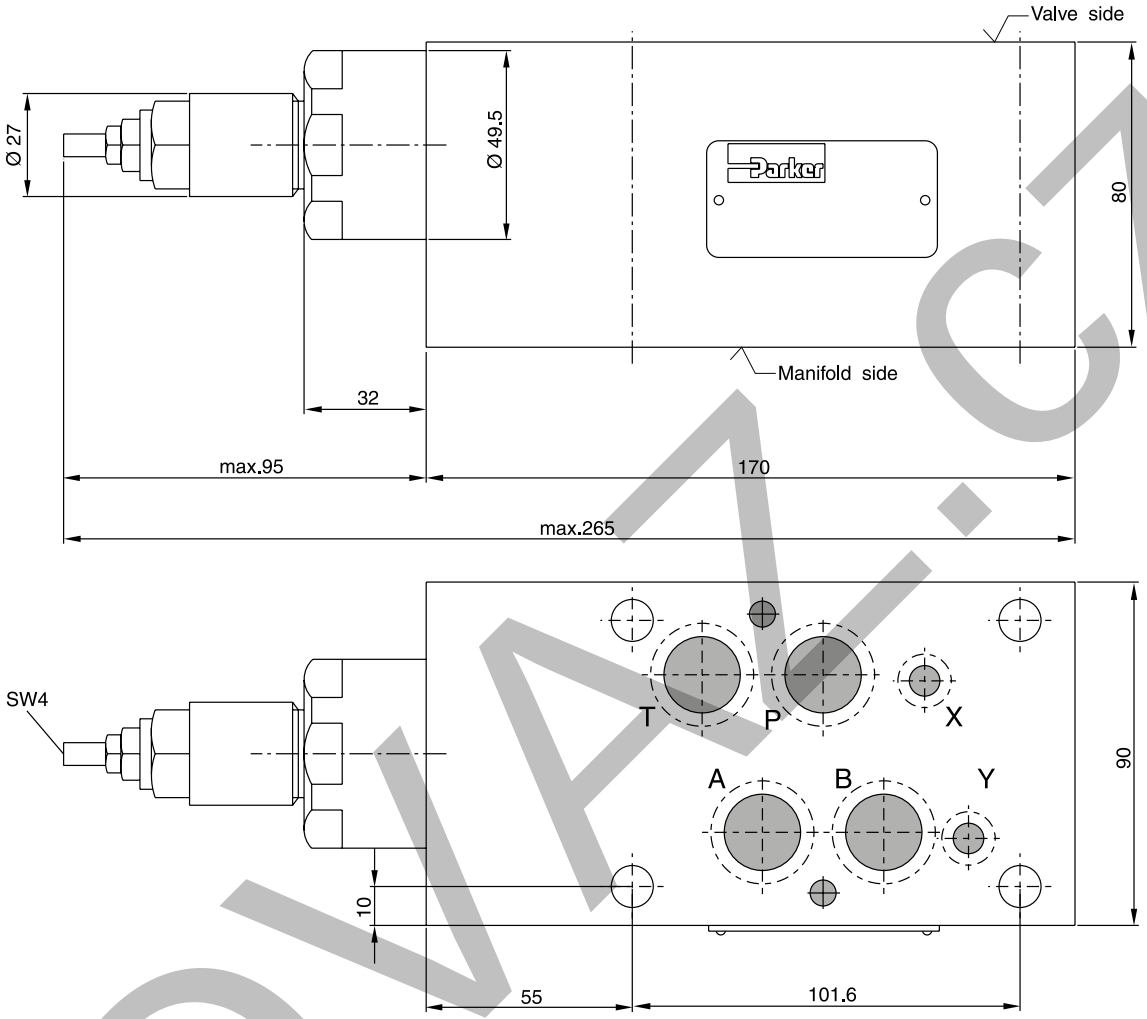
RM4

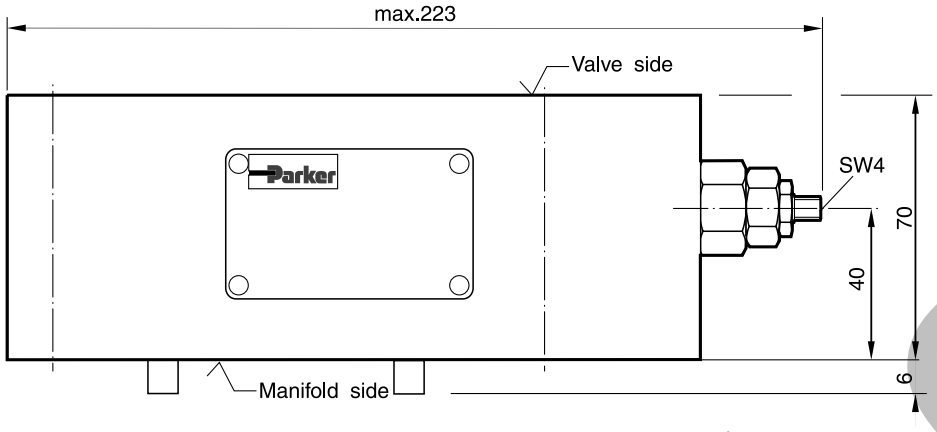
Adjustment code S



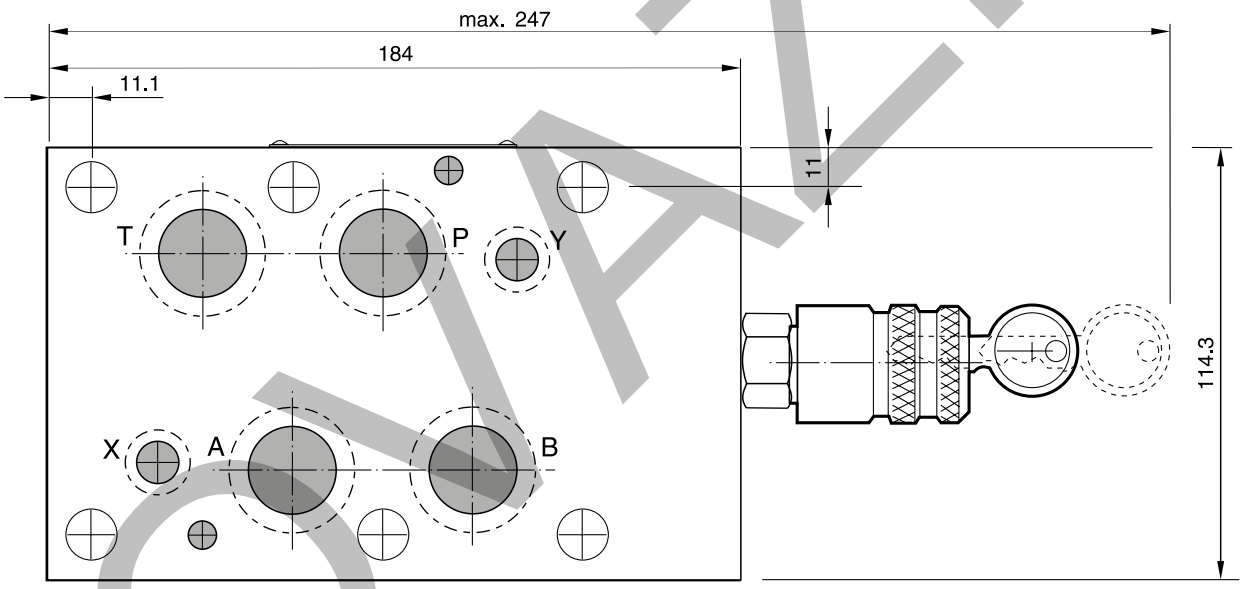
Seal kit RM4	
Seal	**Order code**
V	SK-RM4-V-HT

RM6

Adjustment Code S



Adjustment Code L



Seal kit RM6	
Seal	**Order code**
V	SK-RM6-V-11

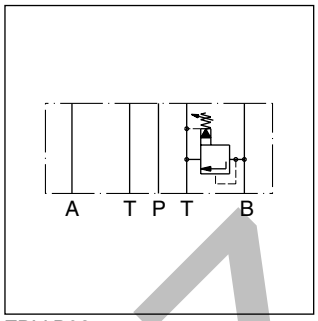
7

Pilot operated pressure relief valves series ZDV are designed for maximum flow rates.

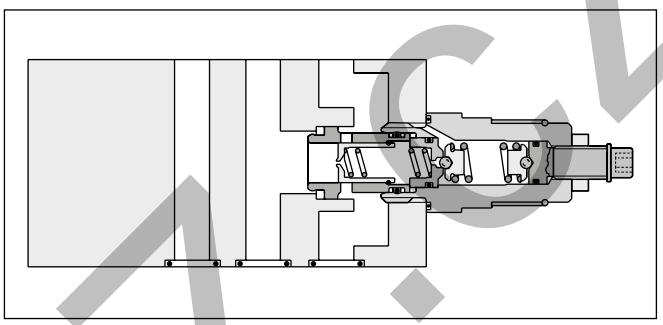
The relief function can be located between P and T, A and T, B and T or A and T + B and T for typical pressure relief functions.

For a pre-charge function the ZDV can be ordered with pressure function between A and B + B and A.

ZDV-P01



ZDV-B02

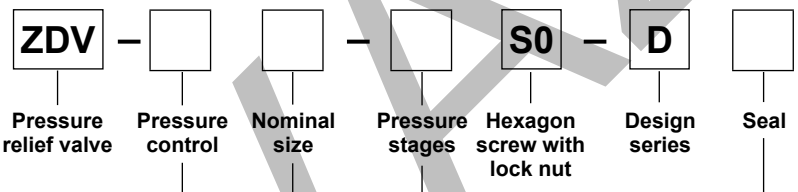


ZDV-B02

Features

- High flow capacity
- Pressure function in P, A, B or A + B
- Sizes
  ZDV01 - NG06 (CETOP 03)
  ZDV02 - NG10 (CETOP 05)

Ordering code



Code	Size	Pressure control
P	NG06/10	P - T
A	NG06/10	A - T
B	NG06/10	B - T
AB	NG06/10	A - T & B - T
ABS	NG06/10	A - B & B - A

Code	Nominal size
01	NG06
02	NG10

Code	Seal
1	NBR
5	FPM

Code	Pressure stages
1	up to 70 bar
5 [1)]	up to 350 bar

Ordering code details see end of chapter.

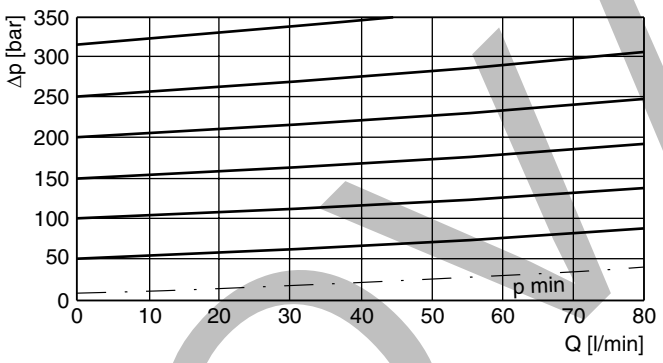
[1)] Code ABS and size 10 up to 315 bar.

Technical data

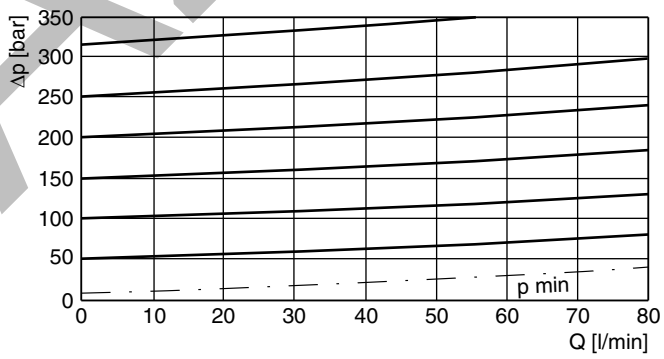
General				
Size			**NG06**	**NG10**
Mounting interface			DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05
			CETOP RP 121	
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+60	
$MTTF_D$ value		[years]	150	
Weight	1 cartridge	[kg]	1.6	3.0
	2 cartridges	[kg]	2.5	3.7
Hydraulic				
Max. operating pressure		[bar]	350 (ZDV-ABS 315)	315
Nominal flow		[l/min]	80	140
Fluid			Hydraulic oil according to DIN 51524	
Fluid temperature		[°C]	-20...+70 (NBR: -25...+70)	
Viscosity	permitted	[cSt] / [mm^2/s]	20 ... 400	
	recommended	[cSt] / [mm^2/s]	30 ... 80	
Filtration			ISO 4406 (1999); 18/16/13	

p/Q performance curves

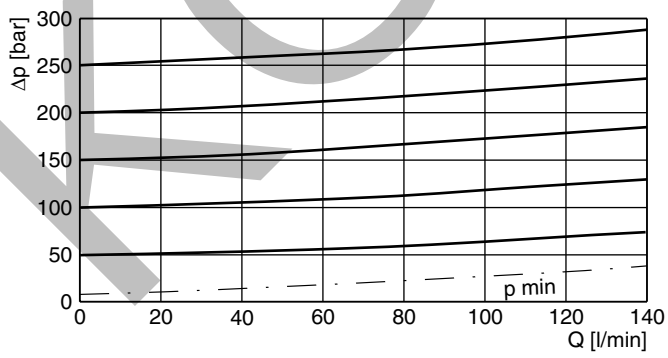
ZDV-P/A/B/ABS01



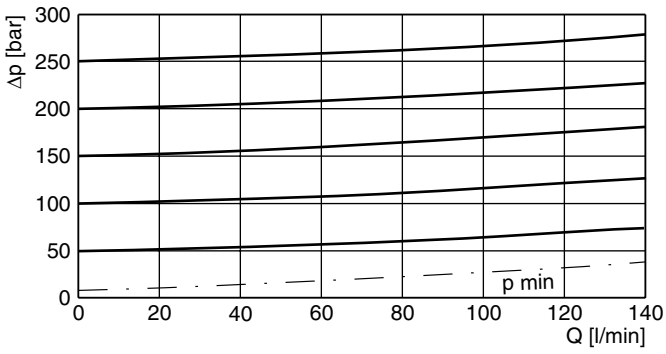
ZDV-AB01



ZDV-P/A/B/AB02

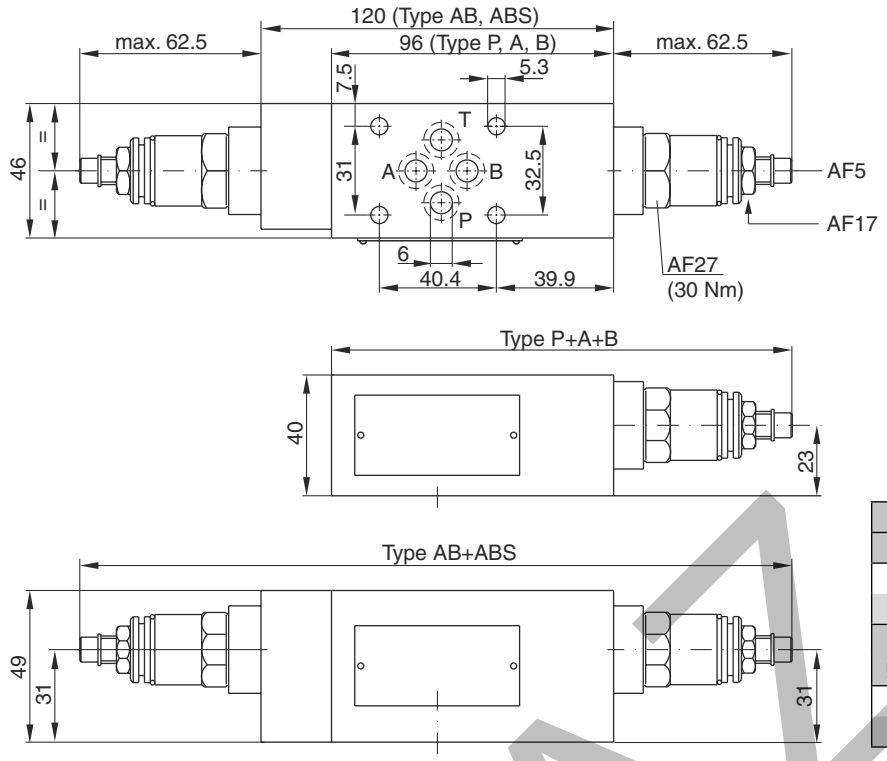


ZDV-ABS02



All characteristic curves measured with HLP46 at 50 °C.

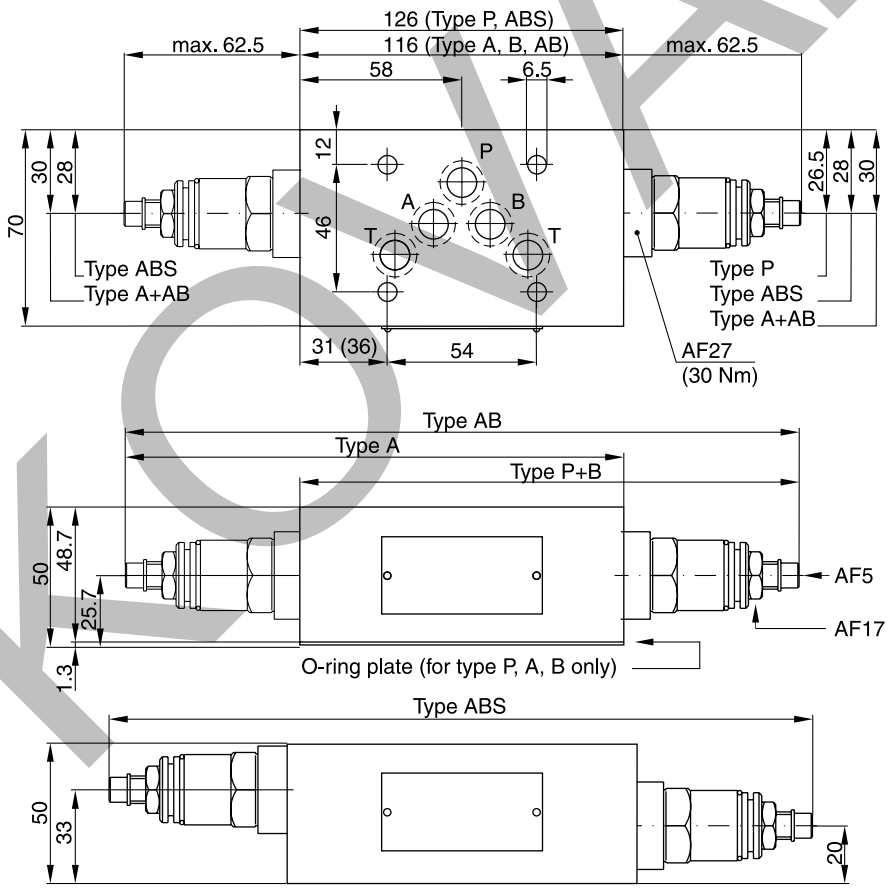
ZDV01



Seal kit	
Seal	**Order code**
1	098-91182-0
5	098-91183-0
Complete cartridge	
Pressure stage	**Order code**
1	098-91116-0
5	098-91117-0

7

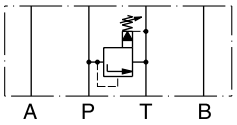
ZDV02



Seal kit	
Seal	**Order code**
1	098-91076-0
5	098-91077-0
Complete cartridge	
Pressure stage	**Order code**
1	098-91116-0
5	098-91117-0

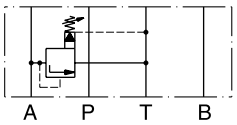
ZDV01

Pressure control P-T



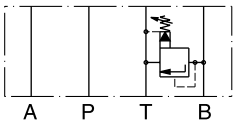
Series	Order No.
ZDV-P01-1-S0-D1	098-91201-0
ZDV-P01-5-S0-D1	098-91202-0

Pressure control A-T



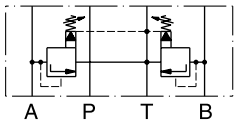
Series	Order No.
ZDV-A01-1-S0-D1	098-91203-0
ZDV-A01-5-S0-D1	098-91204-0

Pressure control B-T



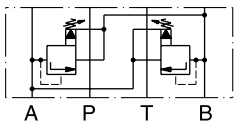
Series	Order No.
ZDV-B01-1-S0-D1	098-91205-0
ZDV-B01-5-S0-D1	098-91206-0

Pressure control A-T & B-T



Series	Order No.
ZDV-AB01-1-S0-D1	098-91207-0
ZDV-AB01-5-S0-D1	098-91208-0

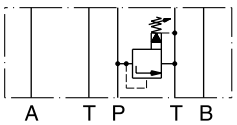
Pressure control A-B & B-A



Series	Order No.
ZDV-ABS01-1-S0-D1	098-91209-0
ZDV-ABS01-5-S0-D1	098-91210-0

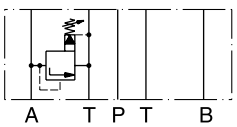
ZDV02

Pressure control P-T



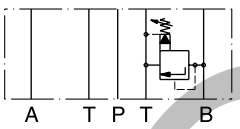
Series	Order No.
ZDV-P02-1-S0-D1	098-91034-0
ZDV-P02-5-S0-D1	098-91035-0

Pressure control A-T



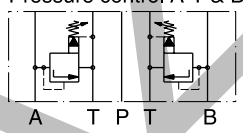
Series	Order No.
ZDV-A02-1-S0-D1	098-91036-0
ZDV-A02-5-S0-D1	098-91037-0

Pressure control B-T



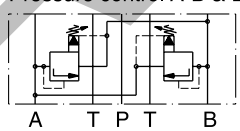
Series	Order No.
ZDV-B02-1-S0-D1	098-91038-0
ZDV-B02-5-S0-D1	098-91039-0

Pressure control A-T & B-T



Series	Order No.
ZDV-AB02-1-S0-D1	098-91040-0
ZDV-AB02-5-S0-D1	098-91041-0

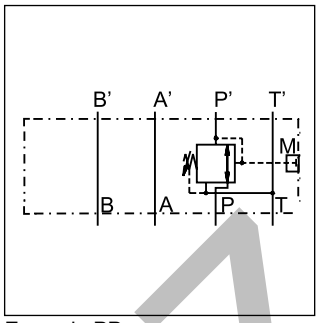
Pressure control A-B & B-A



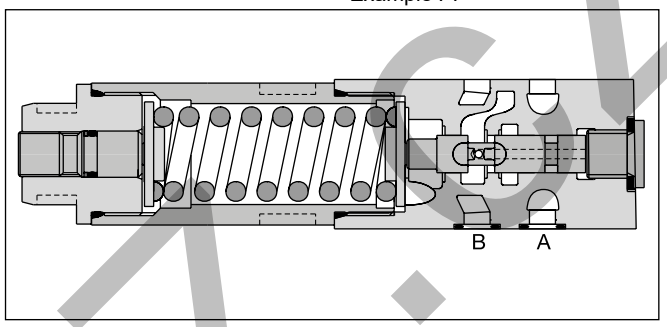
Series	Order No.
ZDV-ABS02-1-S0-D1	098-91042-0
ZDV-ABS02-5-S0-D1	098-91043-0

7

Series PRDM are direct operated pressure reducing valves to regulate pressure in one area of a hydraulic circuit at a predetermined level below normal system pressure. Additionally, an integral pressure relieving function for the secondary reduced pressure circuit is incorporated into the design.



Example PP



Funtion

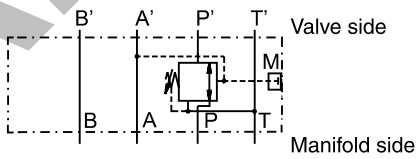
These valves are "normally open" devices that allow fluid to flow through the controlled port during their non-actuated or "at rest" condition. When downstream pressure exceeds the value set by the spring force, the control piston moves off its seat, closing off the flow path and thus reducing the fluid passing through from the main system. The cushioned piston modulates to maintain the preset pressure in this branch of the hydraulic circuit. If, due to external forces, the pressure continues to rise in this branch circuit, the piston will keep moving against the spring force allowing fluid to be drained to the tank, thereby limiting maximum pressure to the valve's setting.

Features

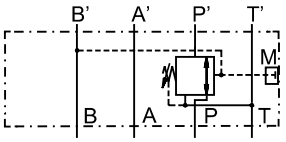
- 3-way design for pressure relieving of the secondary side
- The direct operated, cushioned piston design results in fast response, low leakage and minimal hysteresis.
- Reduced pressure in the 'P', 'A' or 'B' port.
- Pressure settings:
  25, 64, 160, 210, 350 bar for PRDM2,
  19, 50, 100, 150, 210 bar for PRDM3.
- Gauge port
- PRDM2 - NG06 (CETOP 03)
  PRDM3 - NG10 (CETOP 05)

Schematics

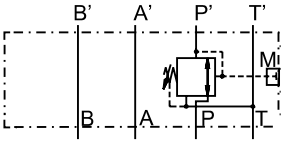
PRDM*AA



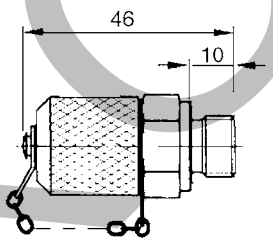
PRDM*BB



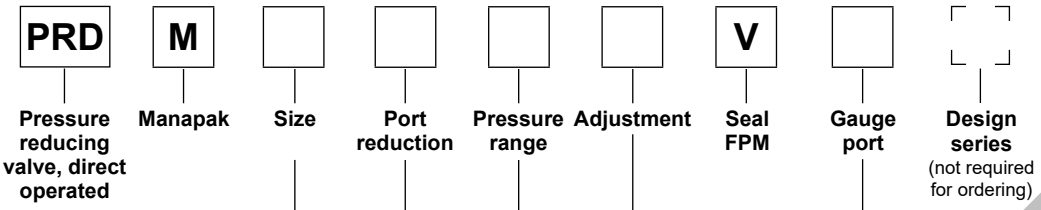
PRDM*PP



Gauge port option C



Ordering code



Code	Size
2	**NG06**
3	**NG10**

Code	Gauge port
G	**G¼**
C	Coupling M16

Code	Connection
PP	**P**
AA	**A**
BB	**B**

Code	Adjustment
S	**Hexagon socket**
L	Cylinder lock
K	Turning knob [1]

Pressure range	
Code	PRDM2
02	up to 25 bar
06	**up to 64 bar**
16	**up to 160 bar**
21	**up to 210 bar**
35	up to 350 bar
Code	PRDM3
01	**up to 19 bar**
05	**up to 50 bar**
10	up to 100 bar
15	**up to 150 bar**
21	**up to 210 bar**

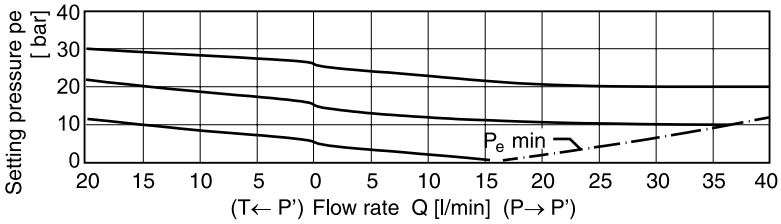
Bold letters =
Short-term availability

Technical data

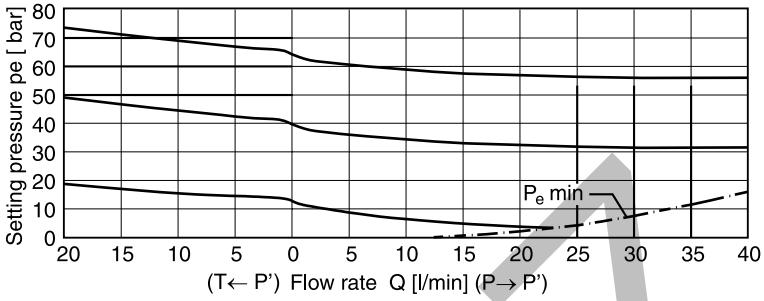
General				
Series			**PRDM2**	**PRDM3**
Size			**NG06**	**NG10**
Mounting interface			ISO 4401	
Ambient temperature		[°C]	-20...+60	
Weight		[kg]	1.3	2.6
$MTTF_D$ value		[years]	150	
Hydraulic				
Max. operating pressure	P, A, B	[bar]	350	315
	T	[bar]	50	50
Fluid			Hydraulic oil according to DIN 51524	
Fluid temperature		[°C]	-20...+70	
Viscosity,	permitted	[cSt] / [mm²/s]	20 ... 400	
	recommended	[cSt] / [mm²/s]	30 ... 80	
Filtration			ISO 4406 (1999); 18/16/13	

[1] NG06 only.

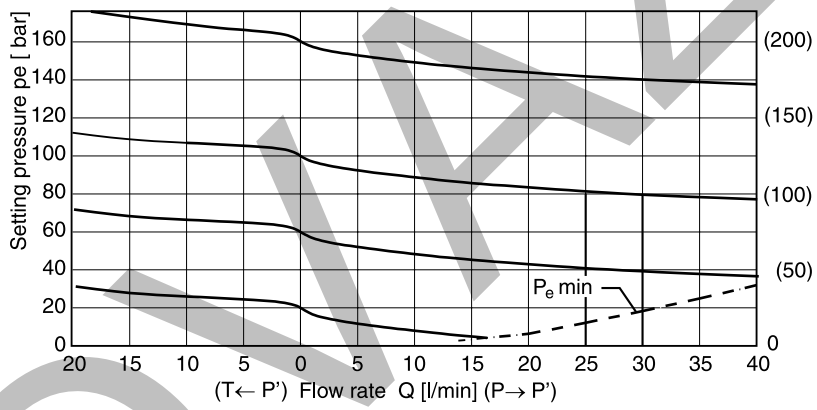
PRDM2 02



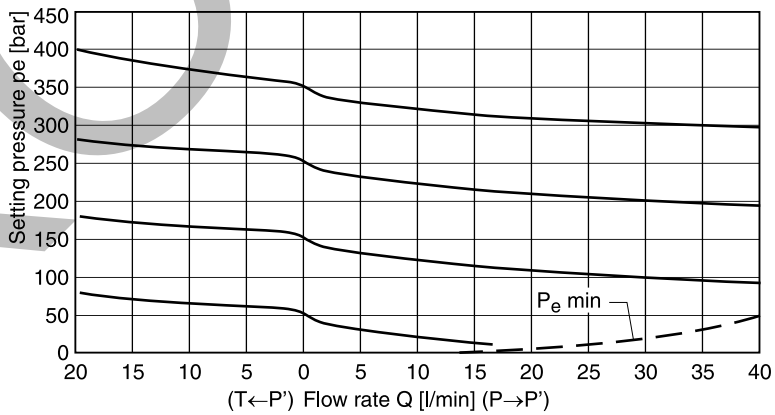
PRDM2 06



PRDM2 16/21

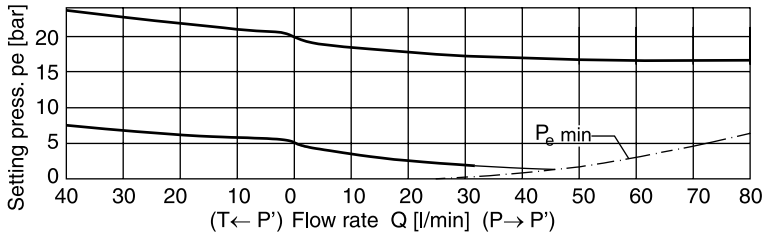


PRDM2 35

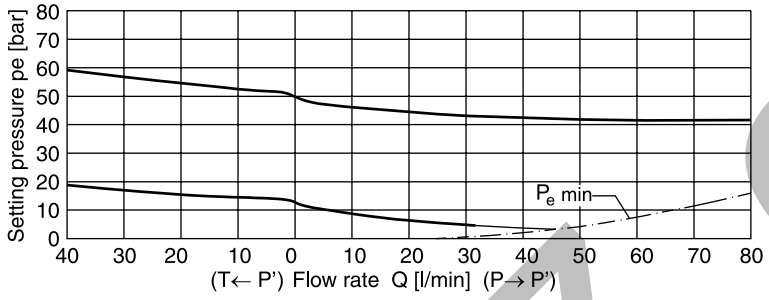


All characteristic curves measured with HLP46 at 50 °C.

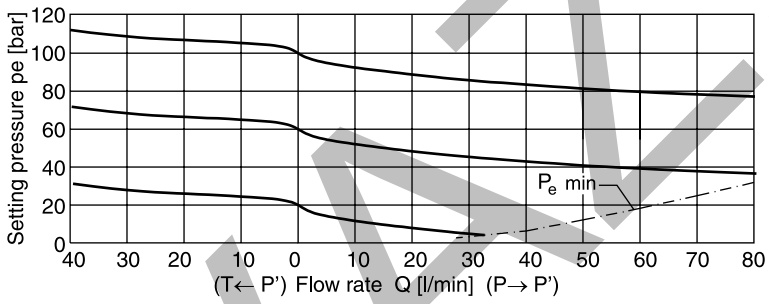
PRDM3 01



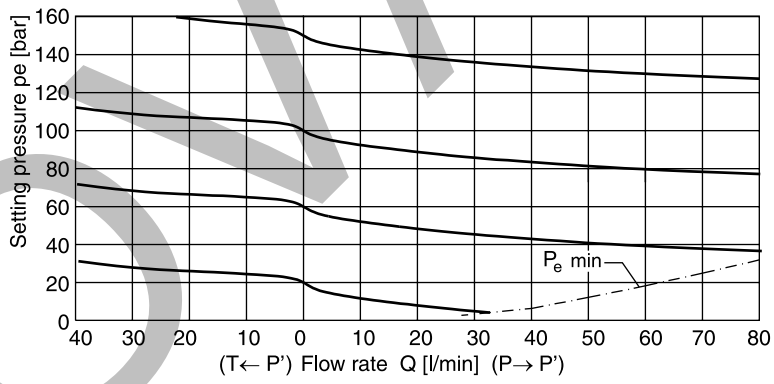
PRDM3 05



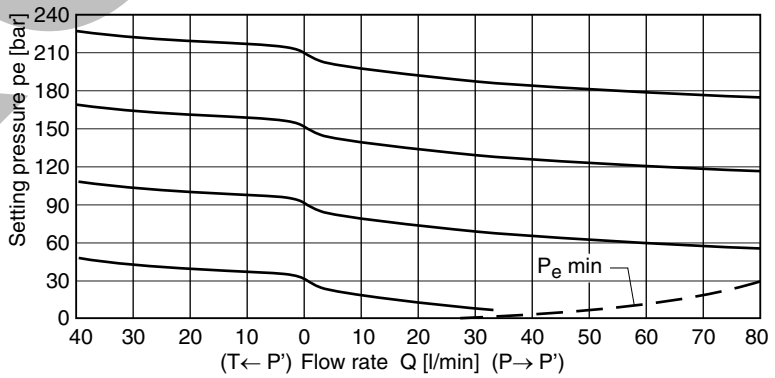
PRDM3 10



PRDM3 15



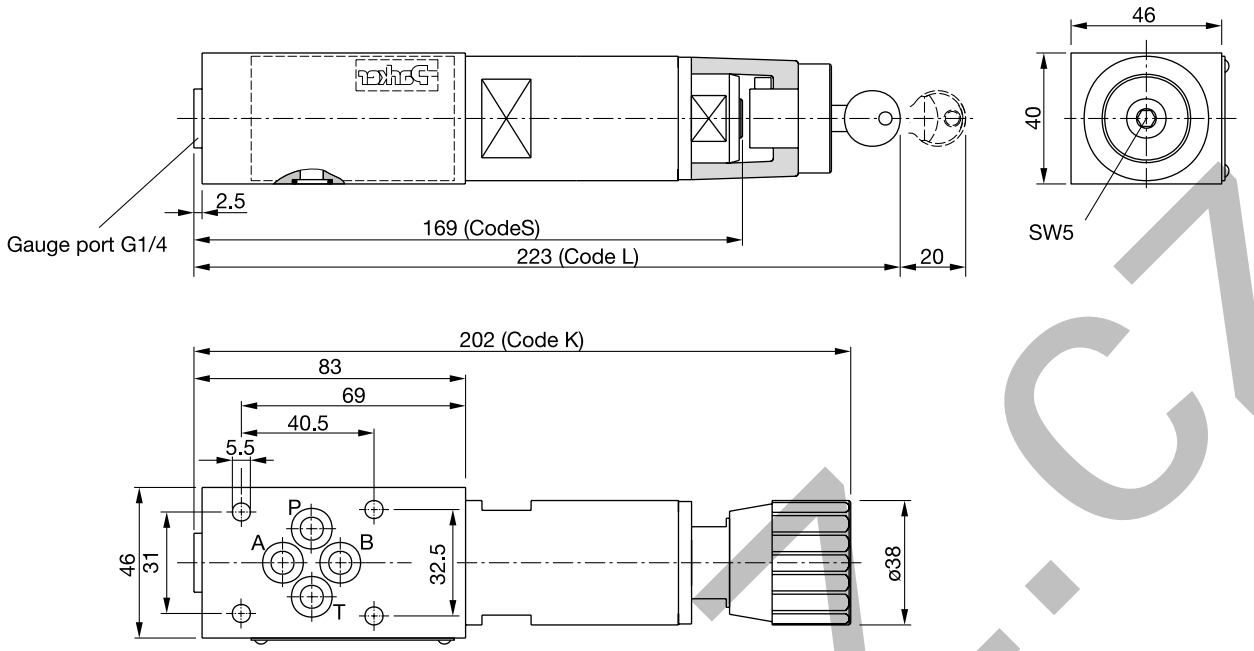
PRDM3 21



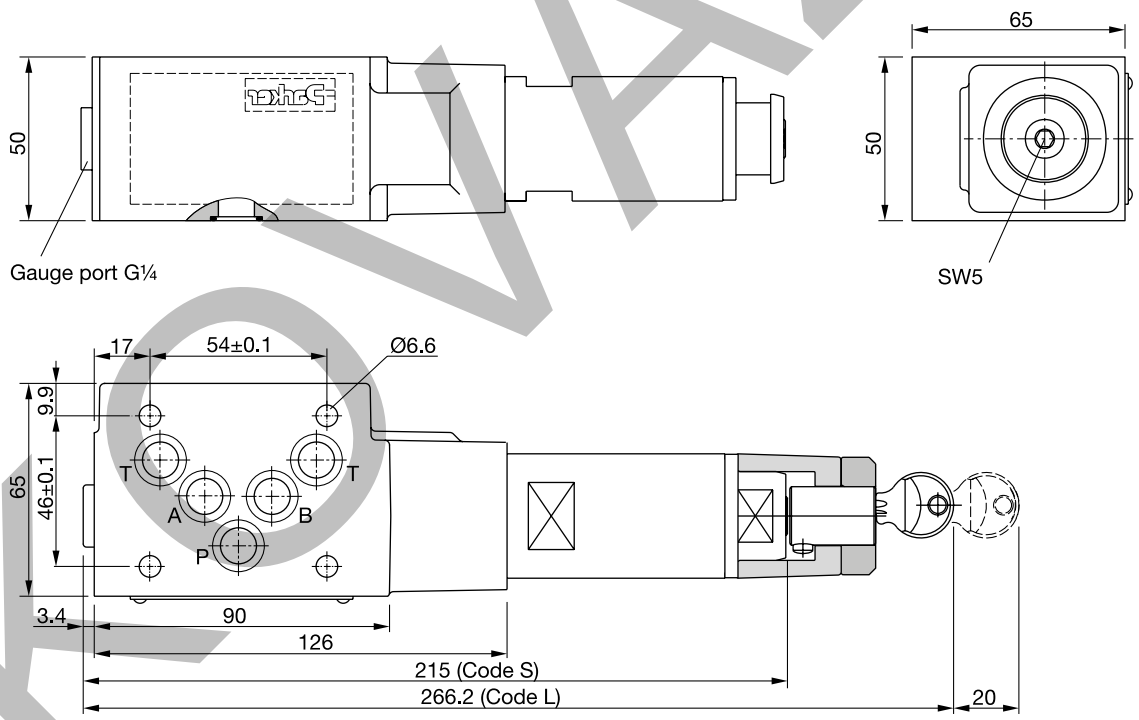
All characteristic curves measured with HLP46 at 50 °C.

7

PRDM2



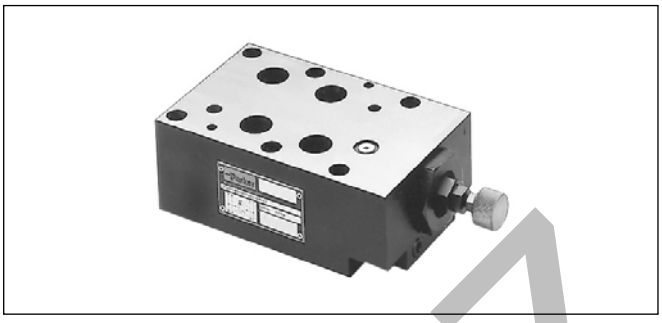
PRDM3



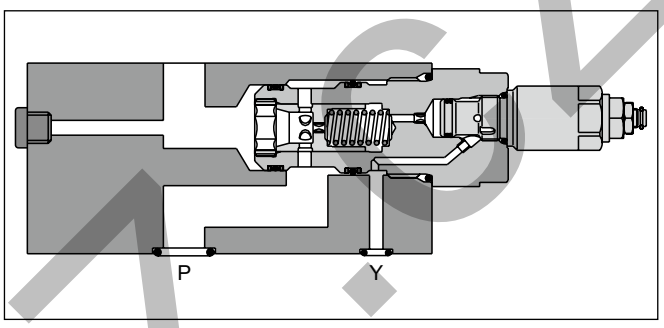
Seal kit order code		
Seal	**PRDM2**	**PRDM3**
V	SK-PRDM2-V	SK-PRDM3-V

The pilot operated pressure reducing valves series PRM are in sandwich design for easy configuration of stack systems. The reducing function is located in port P.

The pressure reduction for the desired connecting port is achieved by internal connections of the pilot and drain lines with the corresponding channels.



PRM6



PRM4

Features

- The valve bodies of the Parker Manapak valve series PRM are made of steel.
- The control pressure range can be set by hexagon socket screw (PRM4), by knob (PRM6).
- Pressure gauge/measuring connections are available in the valve body.
- Piloting results in a flat p/Q performance curve.
- PRM4 - NG16 (CETOP 07)
  PRM6 - NG25 (CETOP 08)

Ordering code

PRM	4			S	V	HT
Pilot operated pressure reducing valve	Size NG16	Pressure reducing	Pressure range	Adjustment hexagon socket	Seal FPM	Design series

Code	Pressure reducing
PP	Function in P, reduced pressure in P
PA	Function in P, reduced pressure in A
PB	Function in P, reduced pressure in B

Code	Pressure range
07	4 to 70 bar
25	10 to 250 bar
35	10 to 350 bar

PRM	6			K	V	G	
Pilot operated pressure reducing valve	Size NG25	Pressure reducing	Pressure range	Adjustment Turning knob	Seal FPM	Gauge port G¼"	Design series (not required for ordering)

Code	Connection
PA	P
AP	A

Code	Pressure range
07	10 to 70 bar
17	10 to 175 bar
25	10 to 250 bar

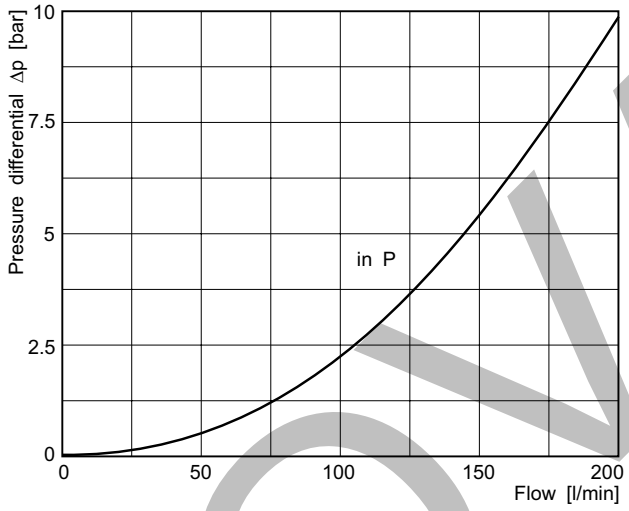
7

Technical data

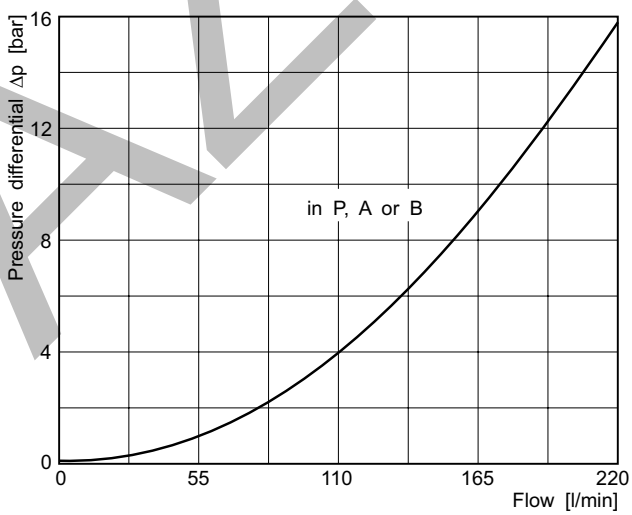
General			
Series		**PRM4**	**PRM6**
Size		**NG16**	**NG25**
Mounting interface		ISO 4401	
Ambient temperature	[°C]	-20...+60	
Weight	[kg]	5.0	5.6
$MTTF_D$ value	[years]	75	
Hydraulic			
Max. operating pressure	[bar]	350	250
Pressure reduction in channel		P, A, B	P, A
Fluid		Hydraulic oil according to DIN 51524	
Fluid temperature	[°C]	-20...+70	
Viscosity, permitted	[cSt] / [mm²/s]	20 ... 400	
Viscosity, recommended	[cSt] / [mm²/s]	30 ... 80	
Filtration		ISO 4406; 18/16/13	

Δp/Q performance curves

PRM4



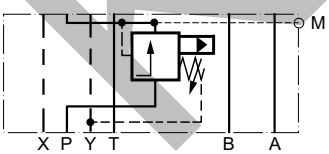
PRM6



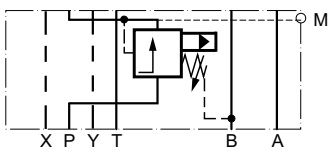
All characteristic curves measured with HLP46 at 50 °C.

Schematics

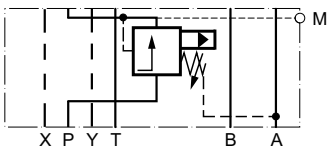
PRM4PP
PRM6PA



PRM4PA
PRM6AP

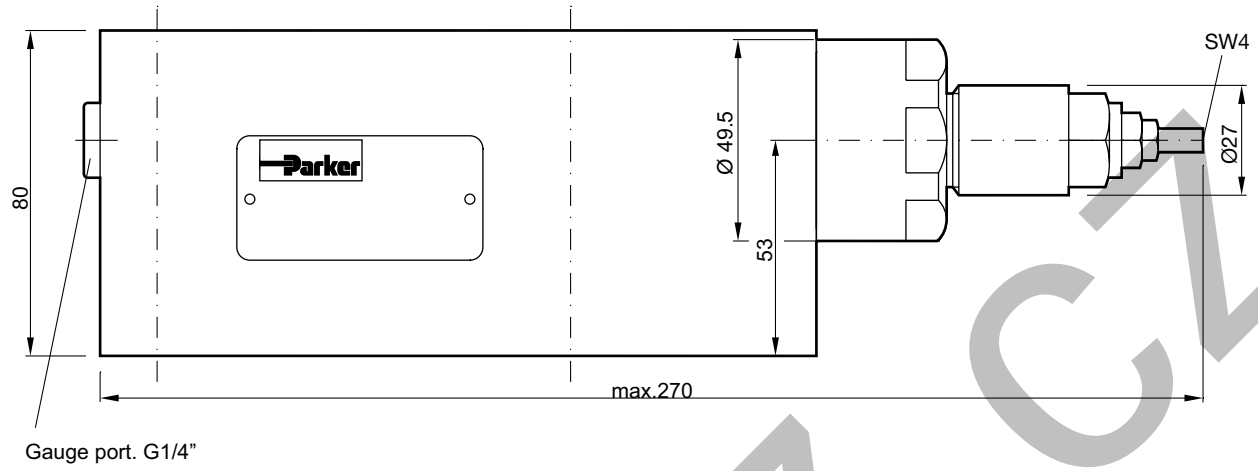


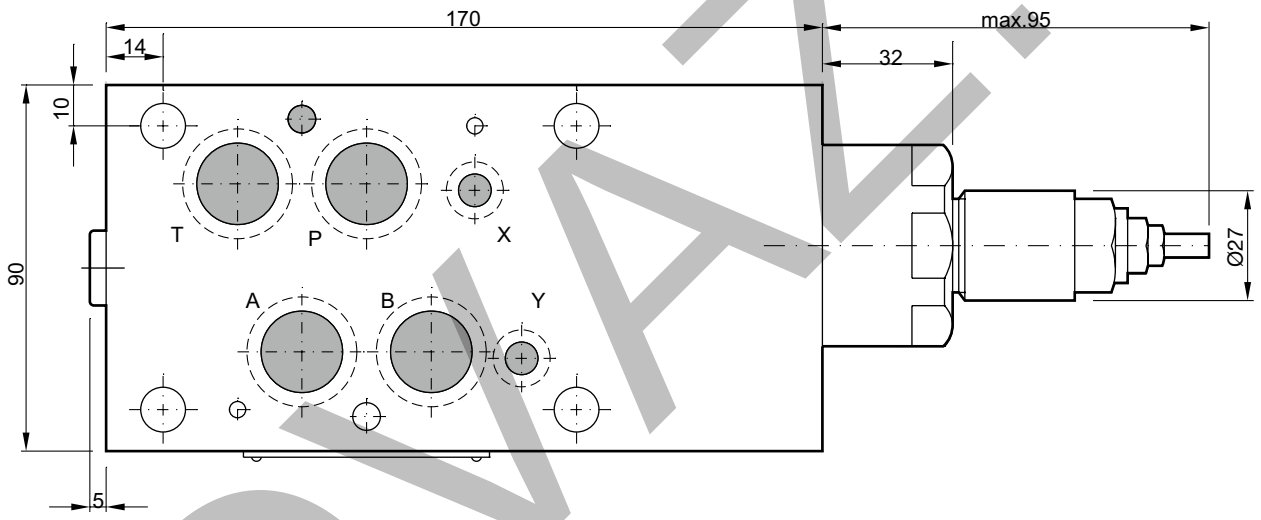
PRM4PB



PRM4

Adjustment code S



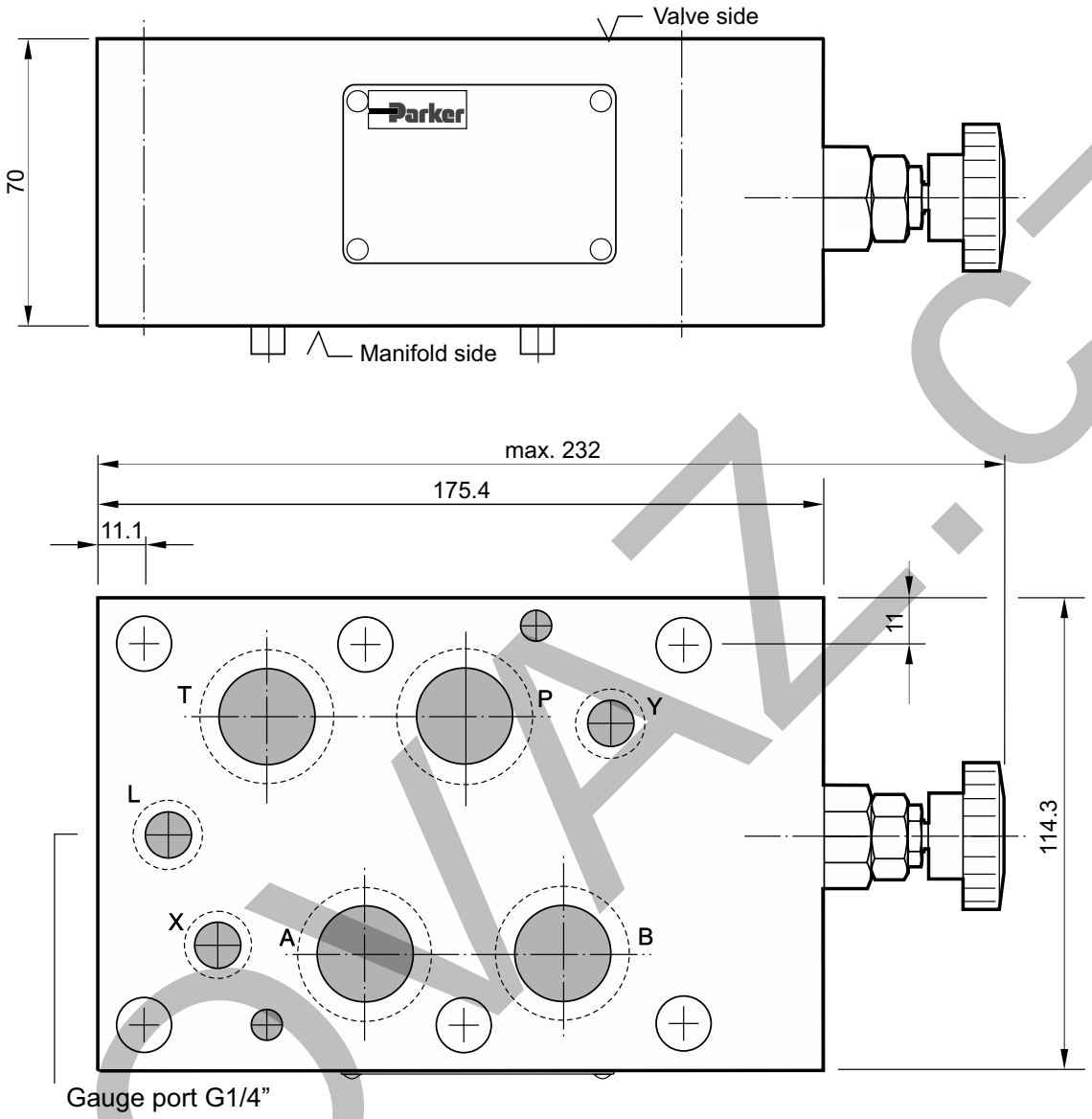


Seal kit PRM4	
Seal	**Order code**
V	SK-PRM4-V-10

7

PRM6

Adjustment code K



Seal kit PRM6	
Seal	**Order code**
V	SK-PRM6-V-25

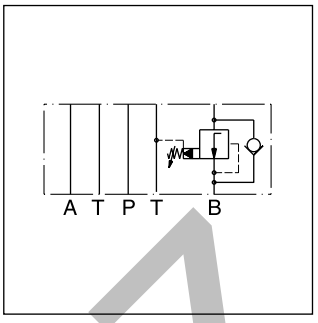
Pilot operated pressure reducing valves series ZDR are designed for maximum flow rates.

The reducing function can be located in the ports P, A or B. The sizes NG06 and NG10 are equipped with an integral return flow check valve (reducing function in A or B).

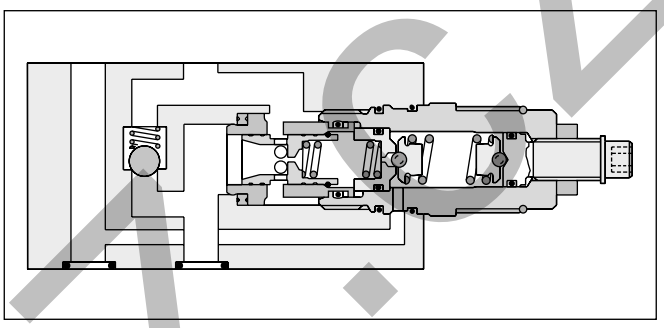
Features

- High flow capacity
- Pressure function in P, A or B
- With integral return flow check valve
- Sizes:
  ZDR01 - NG06 (CETOP 03)
  ZDR02 - NG10 (CETOP 05)

ZDR-P01



ZDR-B02



ZDR-B02

Technical data

General				
Size			**NG06**	**NG10**
Mounting interface			DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05
			CETOP RP 121	
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+60	
$MTTF_D$ value		[years]	150	
Weight	ZDR-P	[kg]	1.6	2.9
	ZDR-AR / BR	[kg]	1.8	3.0
Hydraulic				
Max. operating pressure		[bar]	350 (ZDR-AR / BR 315)	315
Nominal flow		[l/min]	80	120
Pilot oil		[l/min]	0.3	0.3
Fluid			Hydraulic oil according to DIN 51524	
Fluid temperature		[°C]	-20...+70 (NBR: -25...+70)	
Viscosity	permitted	[cSt] / [mm²/s]	20 ... 400	
	recommended	[cSt] / [mm²/s]	30 ... 80	
Filtration			ISO 4406 (1999); 18/16/13	

Ordering code

ZDR	–	☐	☐	–	☐	S0	–	D	☐
Pilot operated pressure reducing valve		Pressure control	Nominal size		Pressure stages	Hexagon screw with lock nut		Design series	Seal

Code	Size	Pressure control
P	NG06/10	Pressure reducing in P with pressure gauge port M
AR	NG06/10	Pressure reducing in A with check valve
BR	NG06/10	Pressure reducing in B with check valve

Code	Nominal size
01	NG06
02	NG10

Code	Seal
1	NBR
5	FPM

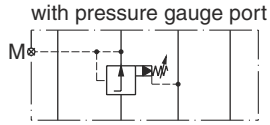
Code	Pressure stages
1	up to 70 bar
5 [1)]	up to 350 bar

7

Ordering Code Details

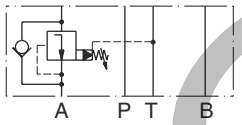
ZDR01

Pressure reducing in P
with pressure gauge port M



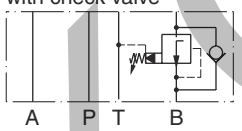
Series	Order No.
ZDR-P01-1-S0-D1	098-91179-0
ZDR-P01-5-S0-D1	098-91211-0

Pressure reducing in A
with check valve



Series	Order No.
ZDR-AR01-1-S0-D1	098-91212-0
ZDR-AR01-5-S0-D1	098-91213-0

Pressure reducing in B
with check valve

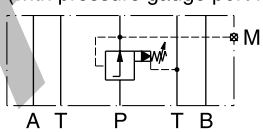


Series	Order No.
ZDR-BR01-1-S0-D1	098-91214-0
ZDR-BR01-5-S0-D1	098-91215-0

1 = 7 … 70 bar
5 = 7 … 315 bar

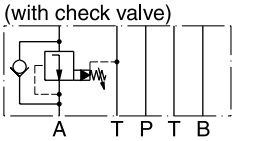
ZDR02

Pressure reducing at P
(with pressure gauge port M)



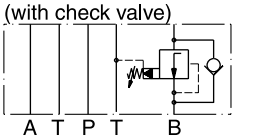
Series	Order No.
ZDR-P02-1-S0-D1	098-91050-0
ZDR-P02-5-S0-D1	098-91051-0

Pressure reducing at A
(with check valve)



Series	Order No.
ZDR-AR02-1-S0-D1	098-91052-0
ZDR-AR02-5-S0-D1	098-91053-0

Pressure reducing at B
(with check valve)

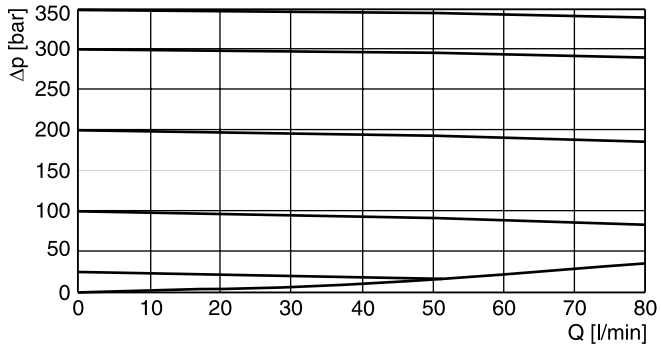


Series	Order No.
ZDR-BR02-1-S0-D1	098-91054-0
ZDR-BR02-5-S0-D1	098-91055-0

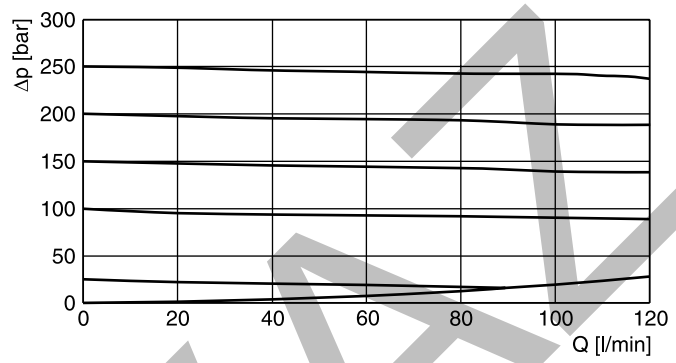
[1)] Code AR, BR and size 10 up to 315 bar.

p/Q performance curves

ZDR-P/AR/BR01



ZDR-P/AR/BR02



All characteristic curves measured with HLP46 at 50°C.

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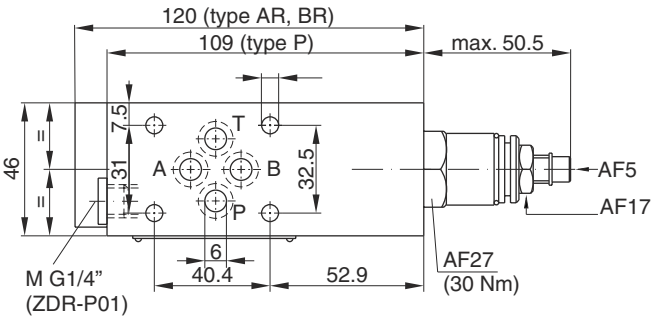
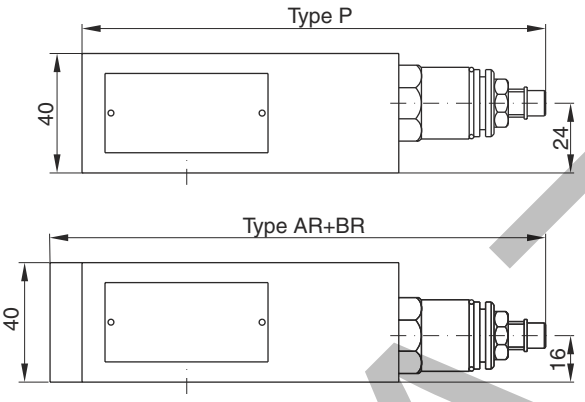
ZDR01

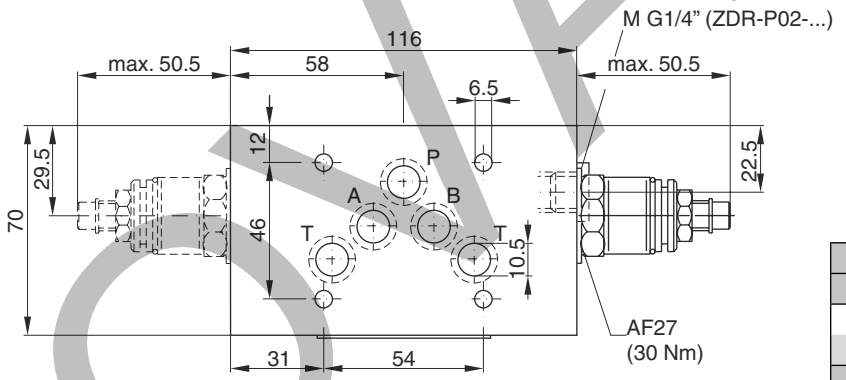


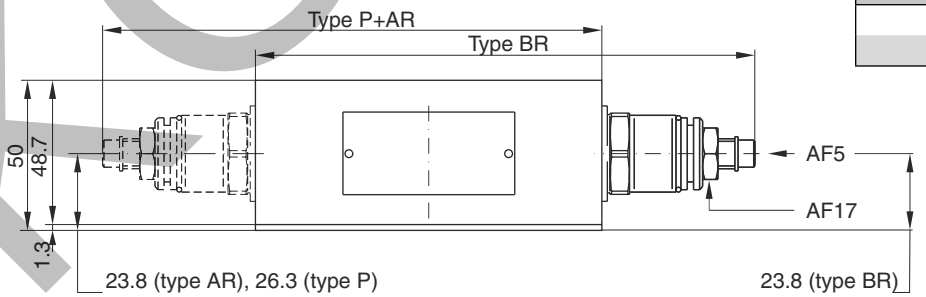


Seal kit	
Seal	**Order code**
1	098-91184-0
5	098-91185-0
Complete cartridge	
Pressure stage	**Order code**
1	098-91102-0
5	098-91103-0

7

ZDR02





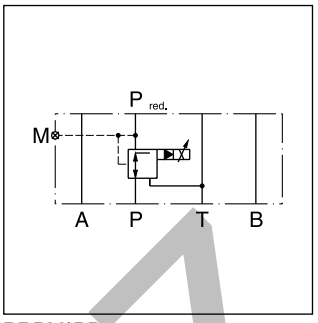
Seal kit	
Seal	**Order code**
1	098-91082-0
5	098-91083-0
Complete cartridge	
Pressure stage	**Order code**
1	098-91102-0
5	098-91103-0

Proportional pressure reducing valves series PRPM keep a constant pressure p_{red} on the secondary side – independent of pressure fluctuations on the primary side. The integrated pressure relief function obviates the need for an additional pressure relief valve on the secondary side and reliefs to tank, if the reduced pressure rises above the setting pressure.

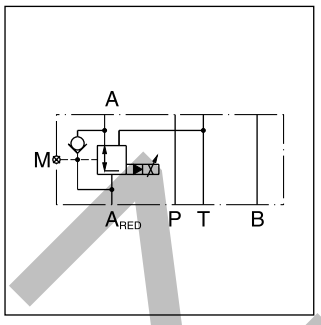
The proportional pressure reducing valve reduces the pressure in output port p_{red} in proportion to the solenoid current. The PRPM works practically independent of the inlet pressure. In non-activated mode, the connection to the tank is fully open with a min. pressure corresponding to the spring force.

The gauge port is connected to the secondary side. Types A and B have an integrated bypass check valve. The PRPM provides optimum performance in combination with a digital amplifier module PCD00A-400.

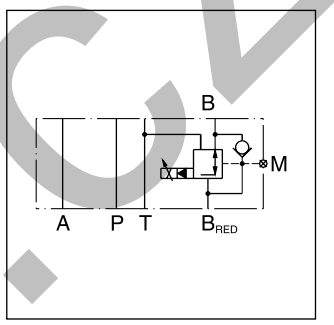
PRPM2PP



PRPM*PP



PRPM*AA



PRPM*BB

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Ordering code

PRP	M				K	V
Proportional pressure reducing valve	Manapak	Nominal size	Reducing port	Pressure stage	Solenoid voltage 12 V, 1320 mA	Seal FPM

Code	Nominal size
2	NG06
3	NG10

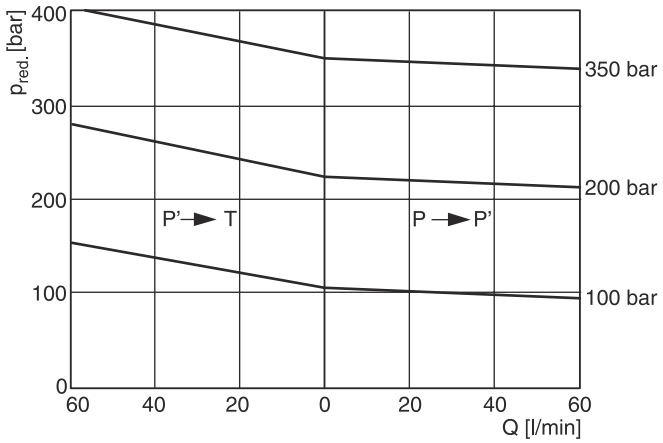
Code	Port
AA	A
BB	B
PP	P

Code	Pressure stage [bar]
10	100
20	200
35	350

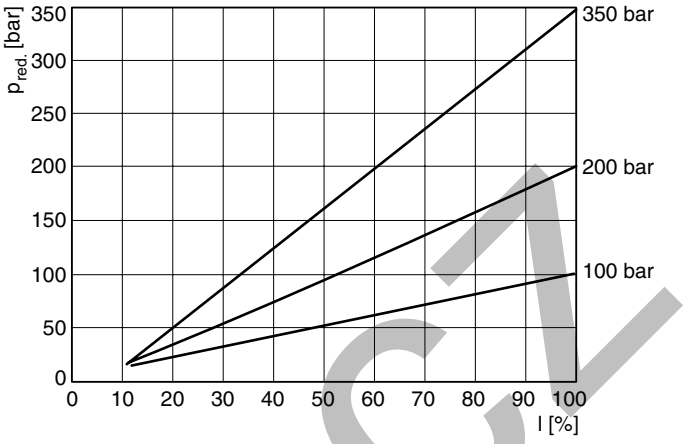
General				
Design			Pilot operated proportional pressure reducing valve	
Construction			Sandwich type	
Operation			Proportional solenoid	
Size			**NG06**	**NG10**
Mounting interface			ISO 4401	
Mounting position			unrestricted	
Ambient temperature		[°C]	-20 ... +60	
$MTTF_D$ value		[years]	75	
Weight		[kg]	2.0	3.2
Hydraulic				
Fluid			Hydraulic oil according to DIN 51524	
Fluid temperature		[°C]	-20 ... +70	
Viscosity,	permitted	[cSt] / [mm²/s]	20 ... 400	
	recommended	[cSt] / [mm²/s]	30 ... 80	
Max. operating pressure		[bar]	350	
Reduced nom. pressure		[bar]	100; 200; 350	
Max. flow		[l/min]	60	60
Pilot flow			see performance curves	
Filtration			ISO 4406 (1999); 18/16/13	
Resolution		[mA]	1 mA	
Repeatability		[%]	≤1 (with optimal dither signal)	
Hysteresis		[%]	≤4 (with optimal dither signal)	
Electrical				
Solenoid			Proportional solenoid, wet-pin push type, pressure tight	
Duty ratio		[%]	100 ED	
Protection class			IP65 in accordance with EN 60529 (with correctly mounted plug-in connector)	
Supply voltage		[V]	12 (1320 mA)	
Solenoid connection			Connector as per EN 175301-803	
Amplifier			PCD00A-400	

7

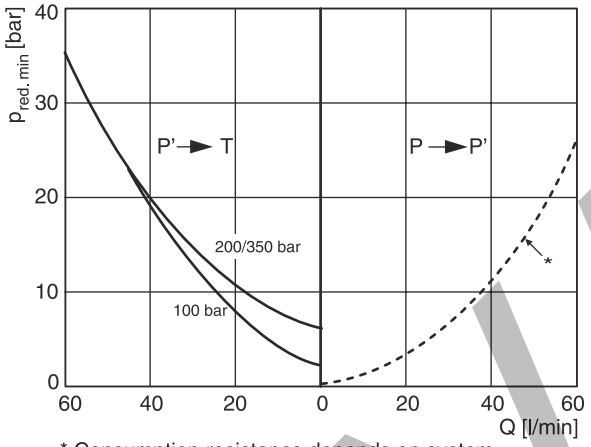
Pressure/flow NG06/NG10



Pressure/adjustment at Q=0l/min (static)

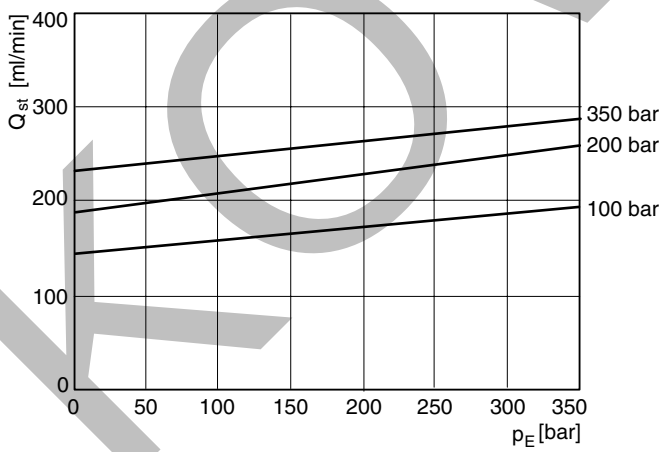


Pressure/flow (min. adjustable)

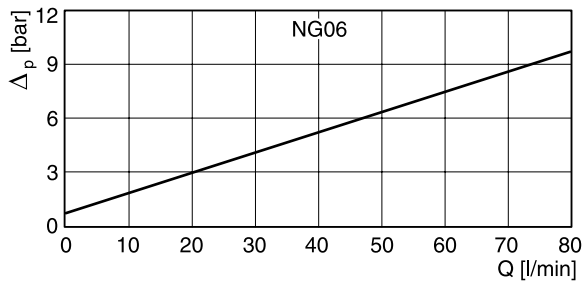


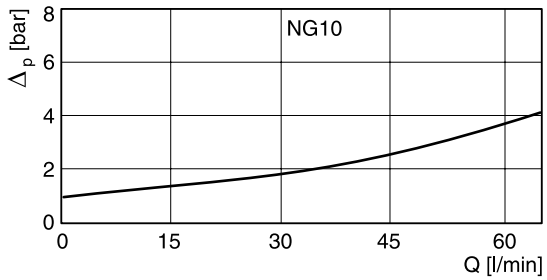
* Consumption resistance depends on system.

Pilot flow NG06/NG10



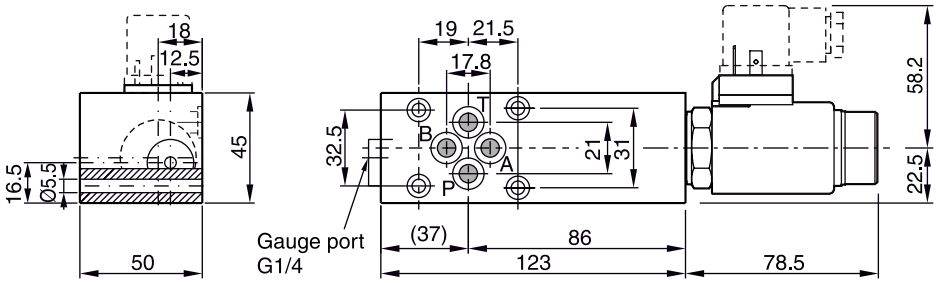
Pressure drop/flow over check valve



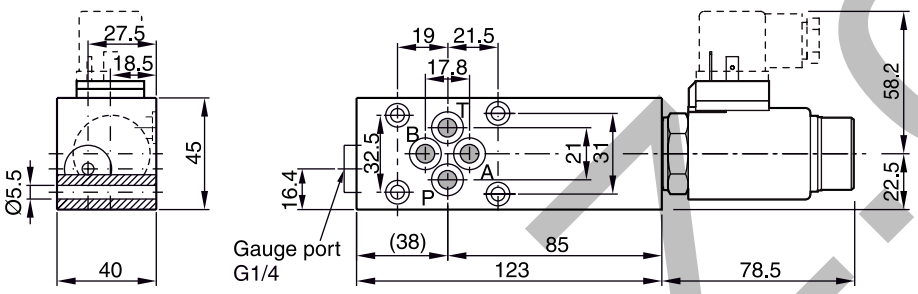


All characteristic curves measured with HLP46 at 50 °C.

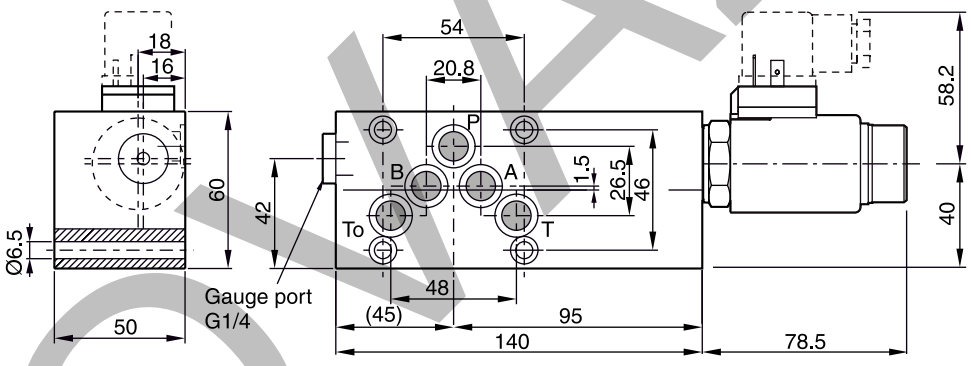
PRPM2AA*, BB**



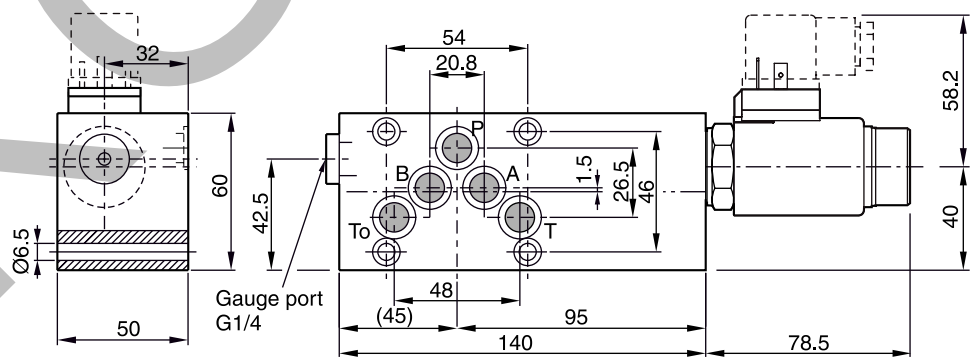
PRPM2PP*



PRPM3AA*, BB**



PRPM3PP*

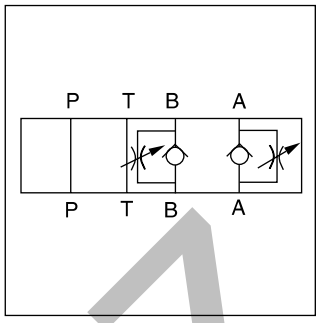


Double-throttle check valves from the Parker series FM are in sandwich design for easy configuration of stack systems. Throttle and check valves are located in ports A and B.

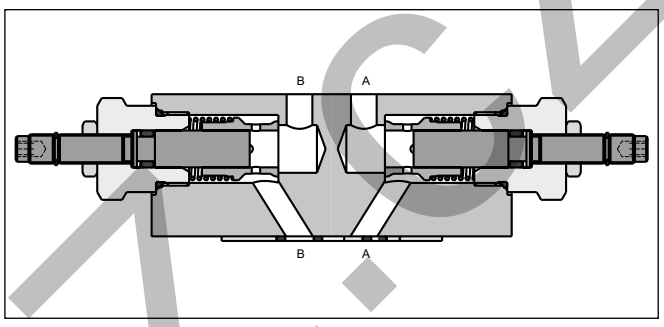
FM2 and FM3 can be used as meter-in or meter-out throttle by changing the mounting position.

FM4 can be selected by ordering code as meter-in or meter-out throttle. FM6 is only available as meter-out control.

The throttle check valve can also be used to influence the switching time of pilot operated directional valves. In this case, the valve is positioned between the pilot stage (CETOP 03, NG06) and the main stage (CETOP 05, NG10 up to CETOP 10, NG32).



FM3



Features

- The metering needle design allows a very wide range of flows to be suitable for all applications, from very sensitive adjustments of low flow up to maximum flow.
- Large bypass check valves allow high flow at low pressure drop.
- NG06 - FM2 (CETOP 03)
  NG10 - FM3 (CETOP 05)
  NG16 - FM4 (CETOP 07)
  NG25 - FM6 (CETOP 08)

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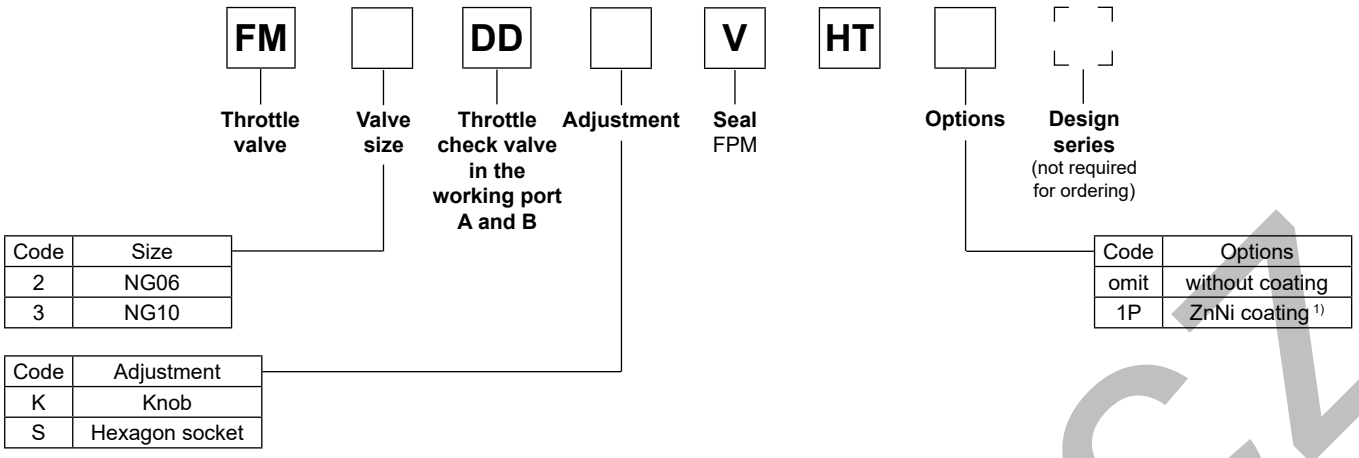
Technical data

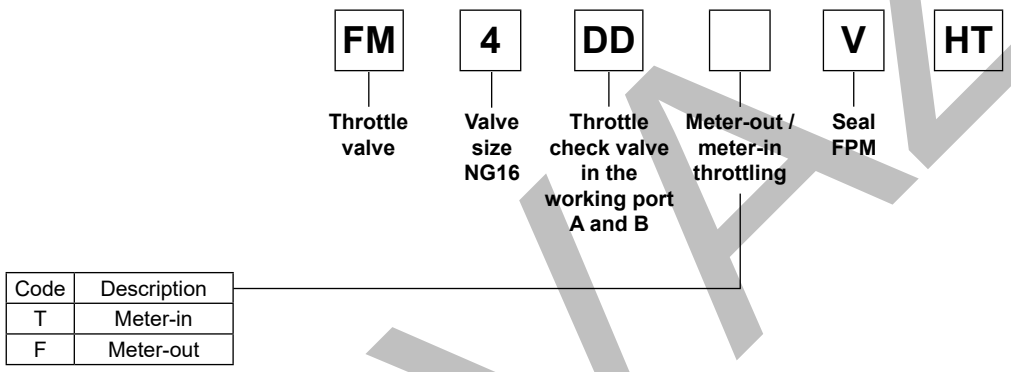
General					
Series		**FM2**	**FM3**	**FM4**	**FM6**
Size		**NG06**	**NG10**	**NG16**	**NG25**
Mounting interface		NFPA D03 CETOP 03	NFPA D05 CETOP 05	NFPA D07 CETOP07	NFPA D08 CETOP 08
Mounting position		unrestricted			
Ambient temperature	[°C]	-20...+70			
$MTTF_D$ value	[years]	150			
Weight	[kg]	1.3	2.9	5.4	7.9
Hydraulic					
Max. operating pressure	[bar]	350	350	350	210
Max. Flow	[l/min]	80	160	200	341
Opening pressure	[bar]	0.5	0.5	0.3	0.3
Meter-in throttle		•	•	•	—
Meter-out throttle		•	•	•	•
Fluid		Hydraulic oil according to DIN 51524			
Fluid temperature	[°C]	-20...+70			
Viscosity permitted	[cSt] / [mm²/s]	20...400			
recommended	[cSt] / [mm²/s]	30...80			
Filtration		ISO 4406; 18/16/13			



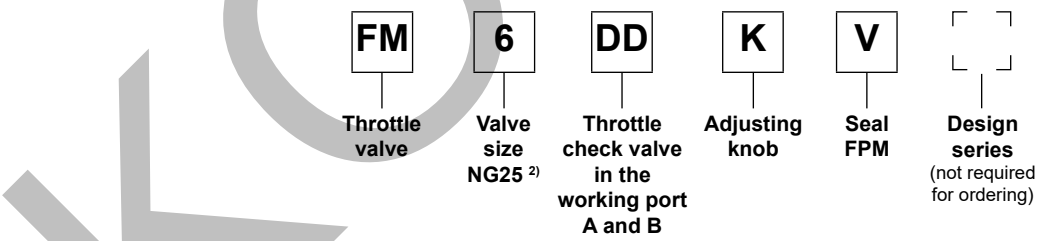
Code	Size
2	NG06
3	NG10

Code	Adjustment
K	Knob
S	Hexagon socket

Code	Options
omit	without coating
1P	ZnNi coating [1]



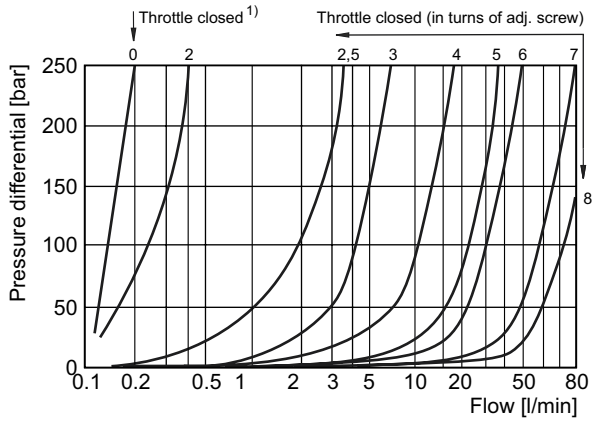
Code	Description
T	Meter-in
F	Meter-out



[1] On request.

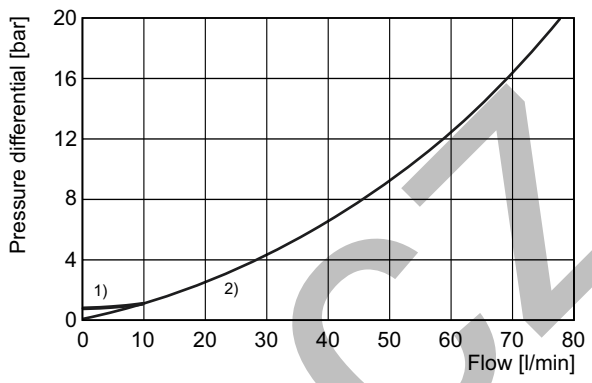
[2] Only meter-out available.

FM2 standard needle



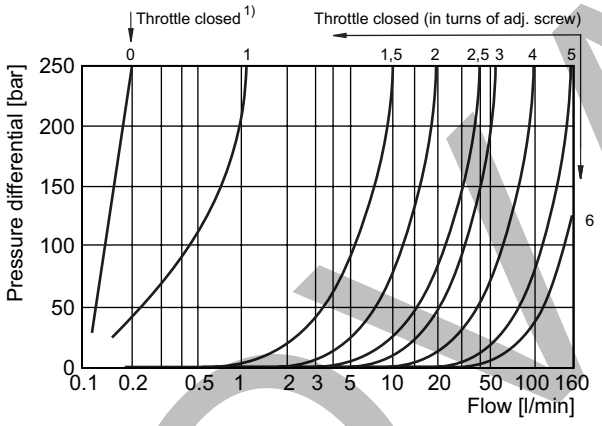
1) Leakage 0.1 ... 0.2 l/min

FM2 flow, check valve



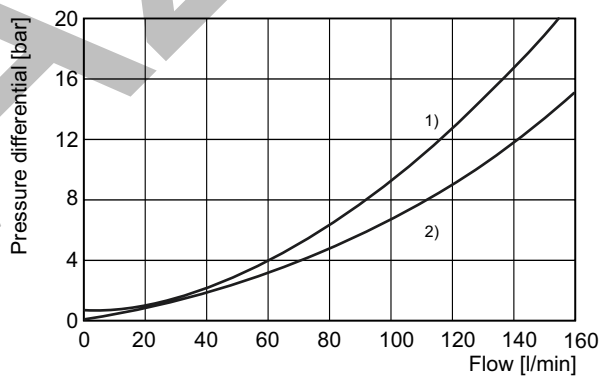
1) through check valve: throttle cosed
2) through check valve: throttle open

FM3 standard needle



1) Leakage 0.1 ... 0.2 l/min

FM3 flow, check valve

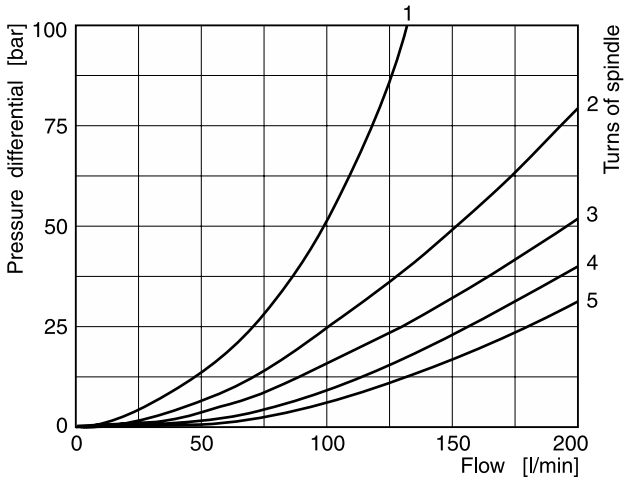


1) through check valve: throttle cosed
2) through check valve: throttle open

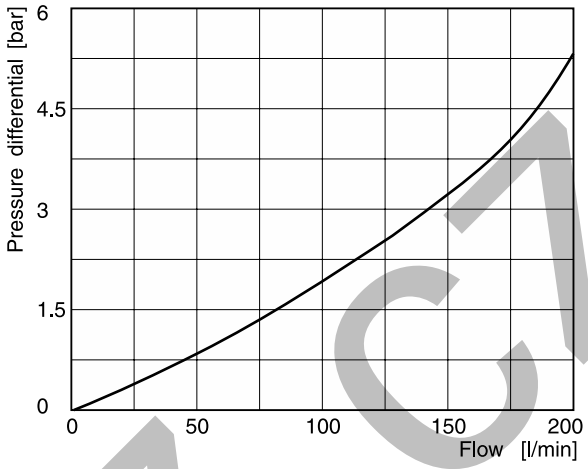
All characteristic curves measured with HLP46 at 50 °C.

FM4 with standard needle

1 to 5 number of needle rotations

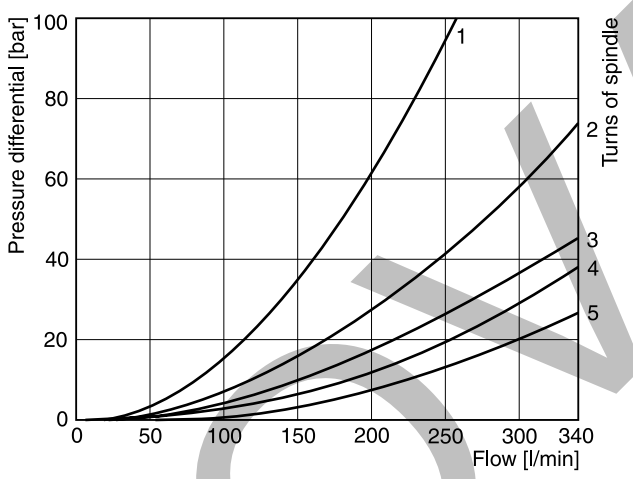


FM4 flow, check valve

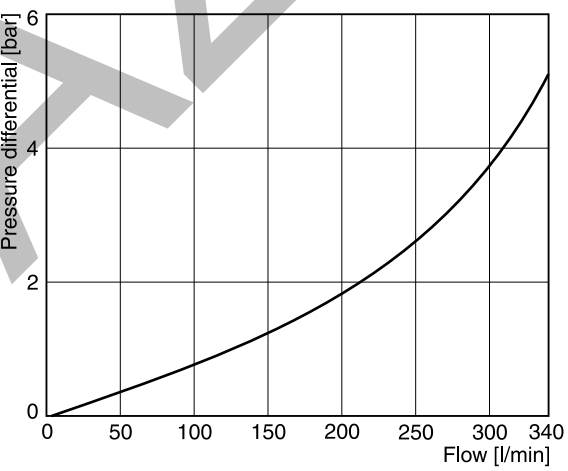


FM6 with standard needle

1 to 5 number of needle rotations



FM6 flow, check valve

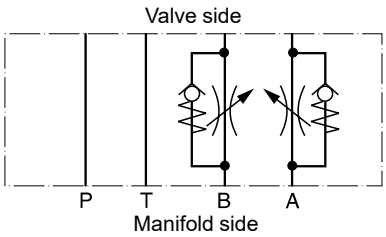


7

All characteristic curves measured with HLP46 at 50 °C.

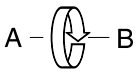
FM2

Meter-out

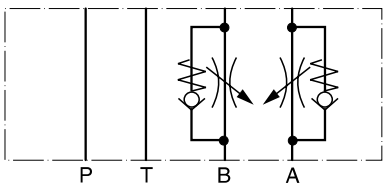


Meter-in or meter-out

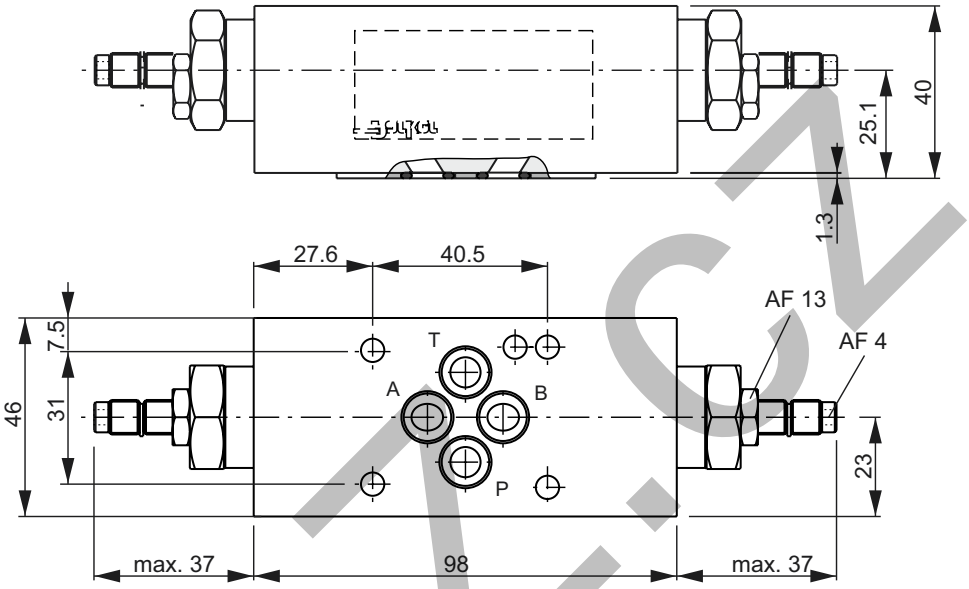
A functional change is achieved by rotating the mounting position of the valve 180° about the longitudinal axis (A-B).

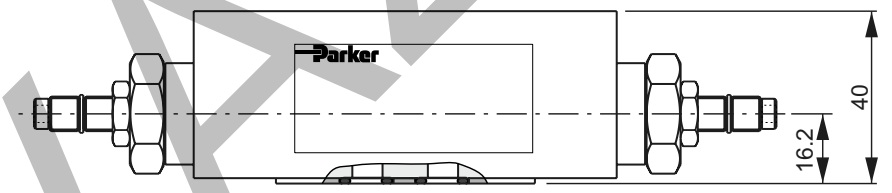


Meter-in

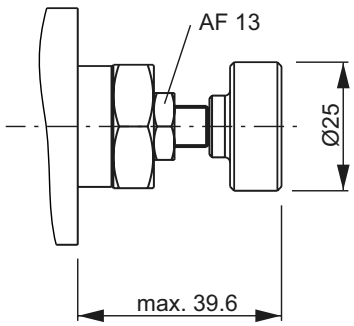


Adjustment code S





Adjustment code K



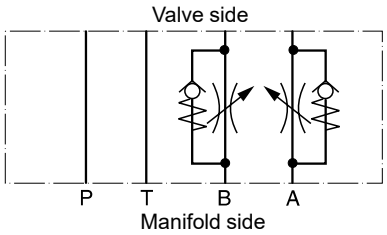
Seal kit FM2	
Seal	**Order code**
V	SK-FM2-V-20

Note:

The O-ring plate (with O-rings) for sealing the connecting surface of the manifold side is included. The O-ring plate is always mounted on the manifold side.

FM3

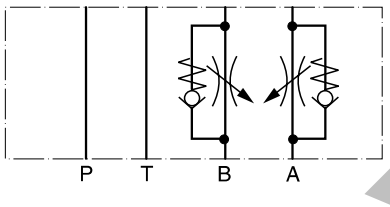
Meter-out



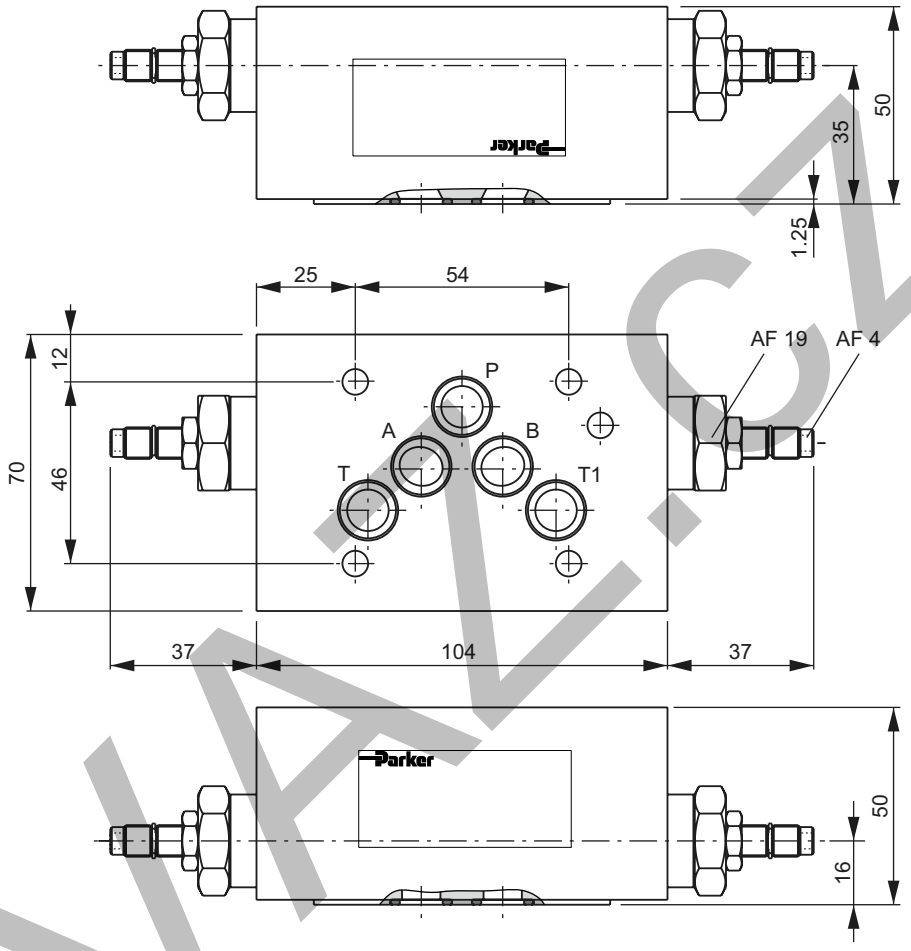
Meter-in or meter-out

A functional change is achieved by rotating the mounting position of the valve 180° about the transverse axis (P).

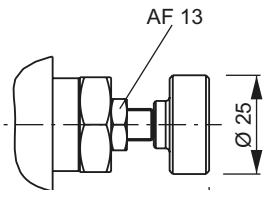
Meter-in



Adjustment code S



Adjustment code K

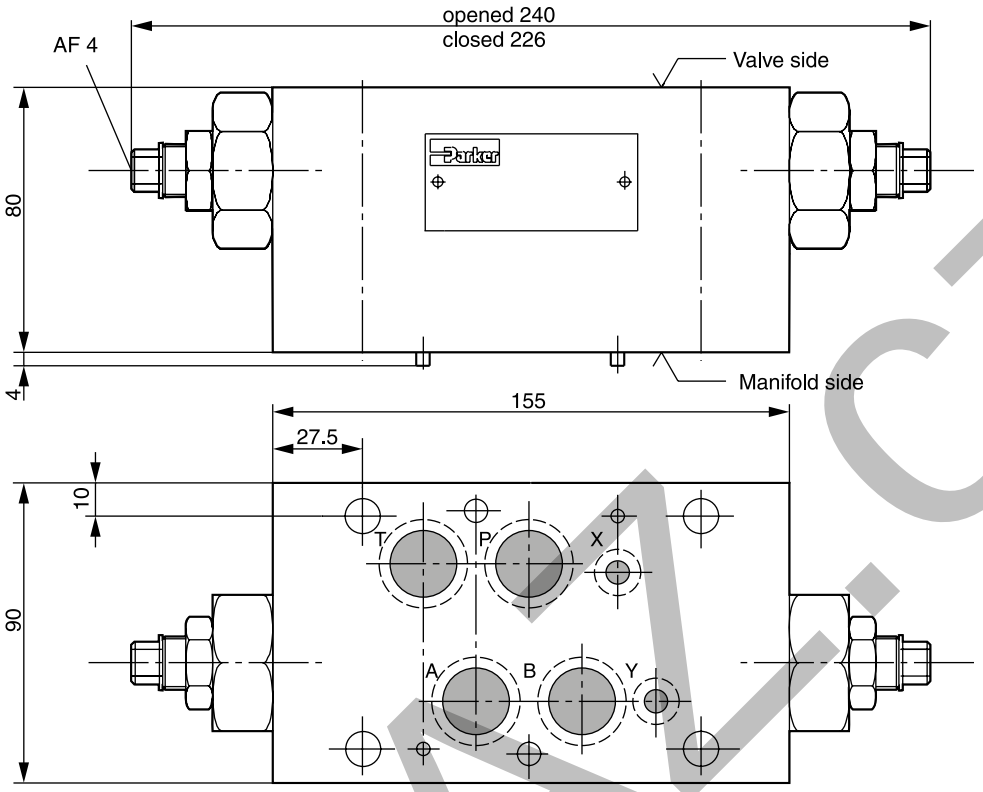


Seal kit FM3	
Seal	**Order code**
V	SK-FM3-V-20

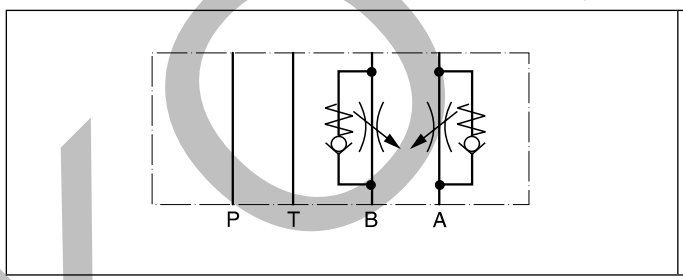
Note:

The O-ring plate (with O-rings) for sealing the connecting surface of the manifold side is included. The O-ring plate is always mounted on the manifold side.

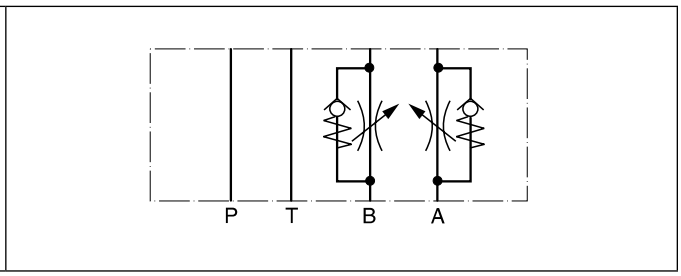
FM4



Meter-in

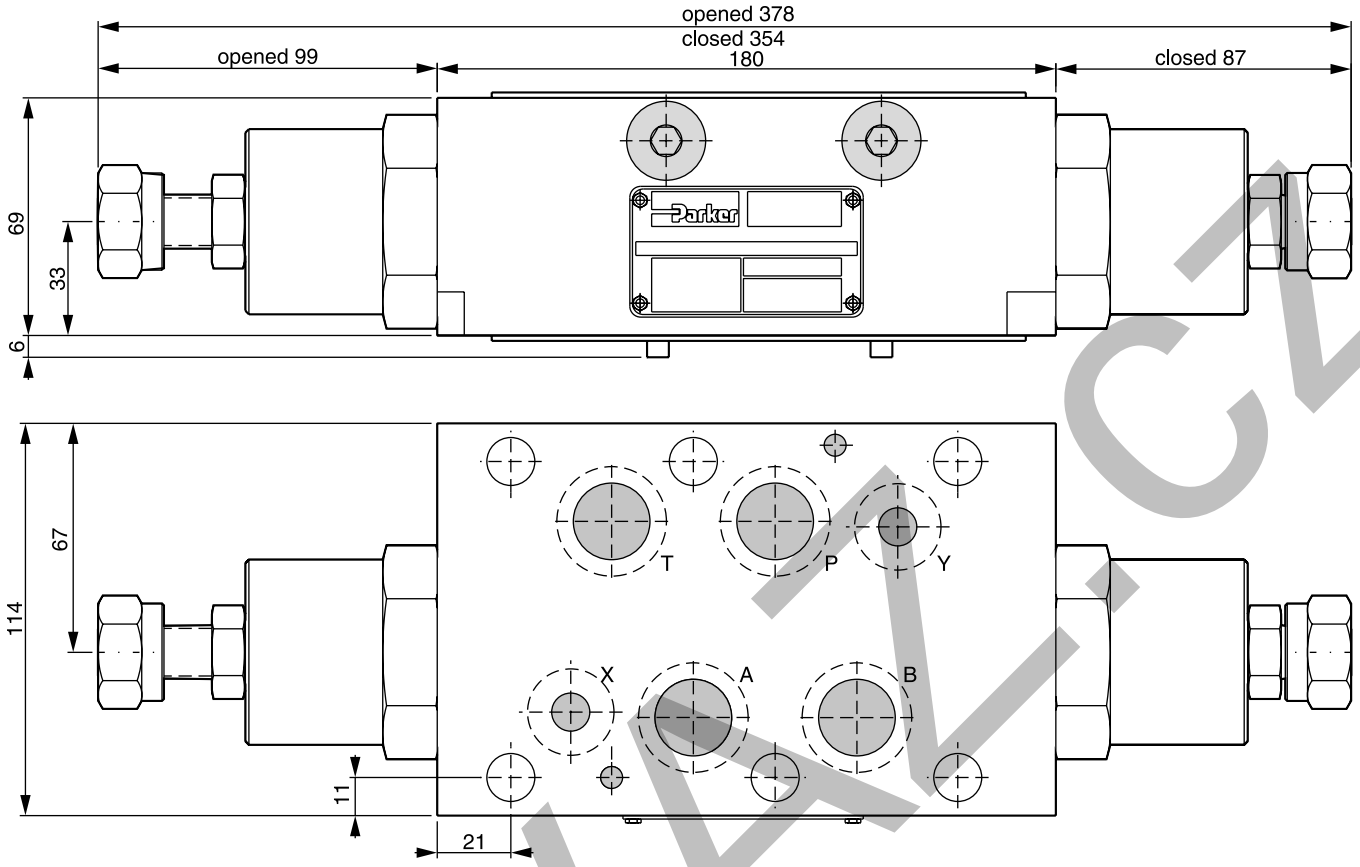


Meter-out



Seal kit FM4	
Seal	**Order code**
V	SK-FM4VHT

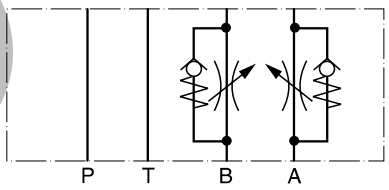
FM6



Meter-out

Adjustment: knob

Meter-in is not available for FM6



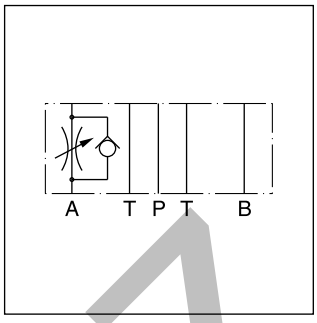
Seal kit FM6	
Seal	**Order code**
V	SK-FM6-V-12

Throttle check valves series ZRD are designed for maximum flow rates.

The throttle check function can be located in port A or B as well as in A + B. Meter-in or meter-out functionality can be selected by model code.

A low flow / high resolution version in NG06 for sensitive shifting time adjustment of pilot operated directional control valves is available on request.

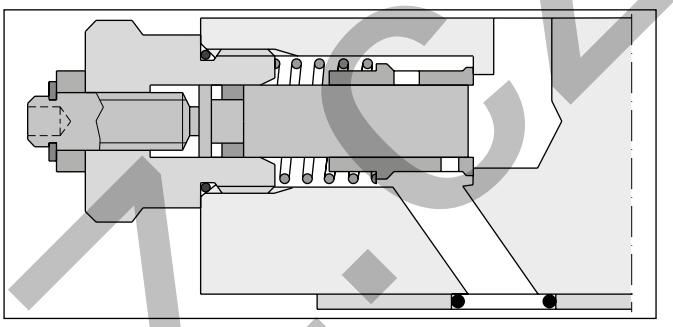
ZRD-ABZ01



ZRD-AA02

Features

- High flow capacity
- Various functional arrangements
- ZRD01 - NG06 (CETOP 03)
  ZRD02 - NG10 (CETOP 05)



ZRD-AA02

Technical data

General				
Size			**NG06**	**NG10**
Mounting interface			DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05
			CETOP RP 121	
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+60	
$MTTF_D$ value		[years]	150	
Weight	1 cartridge	[kg]	1.2	2.8
	2 cartridges	[kg]	1.3	2.9
Hydraulic				
Max. operating pressure		[bar]	350	315
Nominal flow		[cSt] / [l/min]	80	160
Leakage		[cSt] / [l/min]	0.1...0.2 (at closed throttle)	0.1...0.2 (at closed throttle)
Opening pressure		[bar]	0.7	0.7
Fluid			Hydraulic oil according to DIN 51524	
Fluid temperature		[°C]	-20...+70 (NBR: -25...+70)	
Viscosity,	permitted	[cSt] / [mm^2/s]	20 ... 400	
	recommended	[cSt] / [mm^2/s]	30 ... 80	
Filtration			ISO 4406 (1999); 18/16/13	

ZRD – ☐ ☐ – **S0** – **D** ☐

Throttle check valve	Pressure control	Nominal size	Hexagon screw with lock nut	Design series	Seal

Code	Pressure control
AA	Meter-out control in A
AZ	Meter-in control in A
BA	Meter-out control in B
BZ	Meter-in control in B
ABA	Meter-out control in A and B
ABZ	Meter-in control in A and B

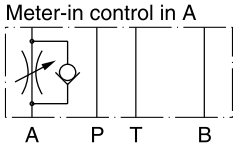
Code	Seal
1	NBR
5	FPM

Code	Nominal size
01	NG06
02	NG10

Ordering code details

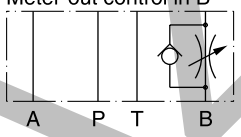
ZRD*01

Meter-in control in A



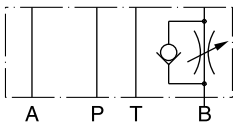
Series ZRD-AZ01-S0-D1 — Order No. 098-91056-0

Meter-out control in B



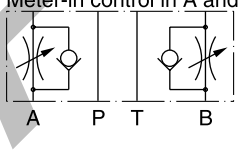
Series ZRD-BA01-S0-D1 — Order No. 098-91013-0

Meter-in control in B



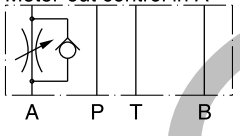
Series ZRD-BZ01-S0-D1 — Order No. 098-91057-0

Meter-in control in A and B



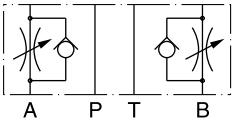
Series ZRD-ABZ01-S0-D1 — Order No. 098-91058-0

Meter-out control in A



Series ZRD-AA01-S0-D1 — Order No. 098-91012-0

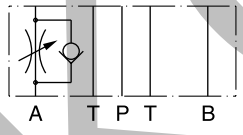
Meter-out control in A and B



Series ZRD-ABA01-S0-D1 — Order No. 098-91014-0

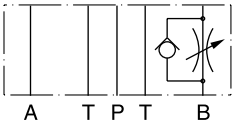
ZRD*02

Meter-in control in A



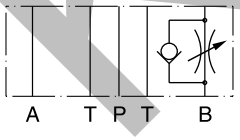
Series ZRD-AZ02-S0-D1 — Order No. 098-91059-0

Meter-out control in B



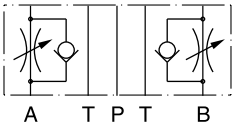
Series ZRD-BA02-S0-D1 — Order no. 098-91016-0

Meter-in control in B



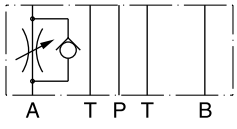
Series ZRD-BZ02-S0-D1 — Order No. 098-91060-0

Meter-in control in A and B



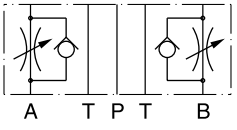
Series ZRD-ABZ02-S0-D1 — Order no. 098-91061-0

Meter-out control in A



Series ZRD-AA02-S0-D1 — Order no. 098-91015-0

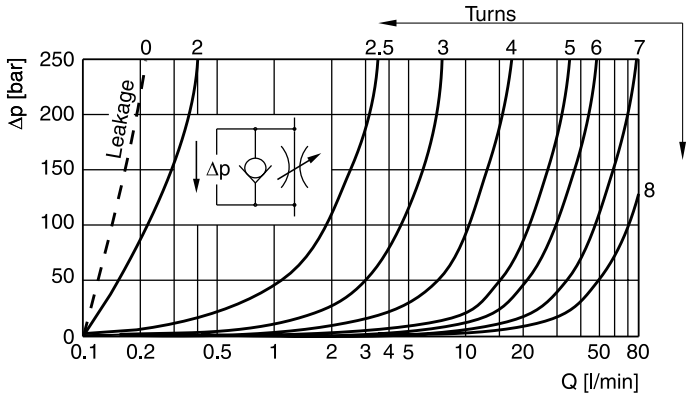
Meter-out control in A and B

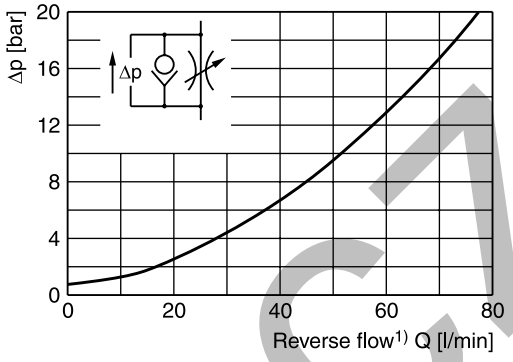


Series ZRD-ABA02-S0-D1 — Order no. 098-91017-0

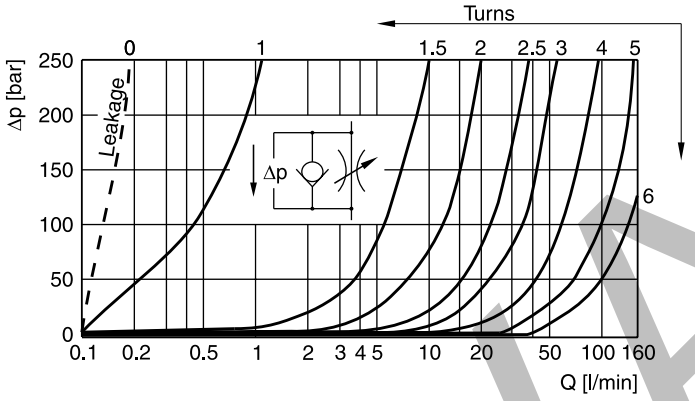
p/Q performance curves

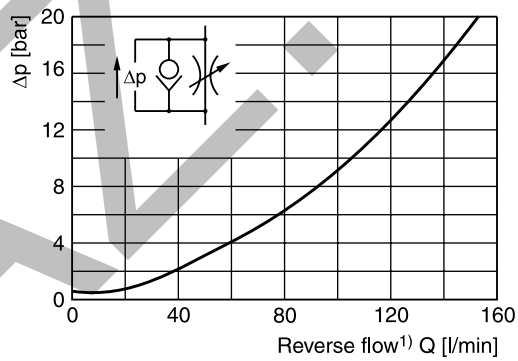
ZRD*01





ZRD*02



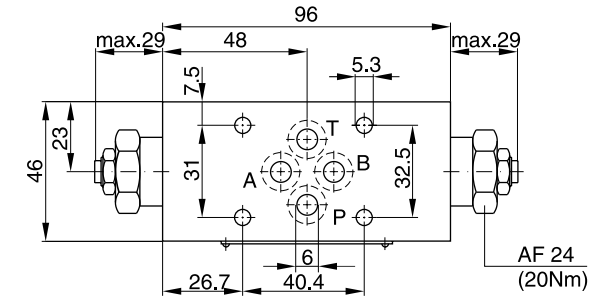


1) Throttle closed.

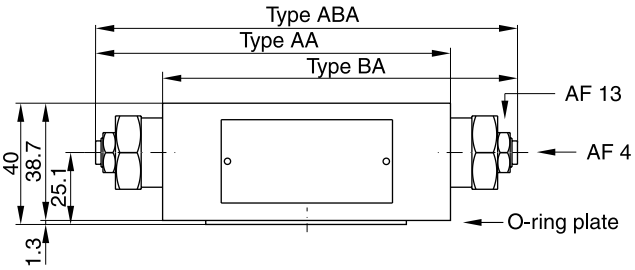
All characteristic curves measured with HLP46 at 50 °C.

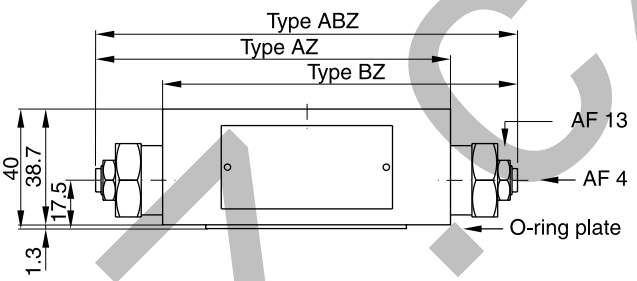
7

ZRD*01



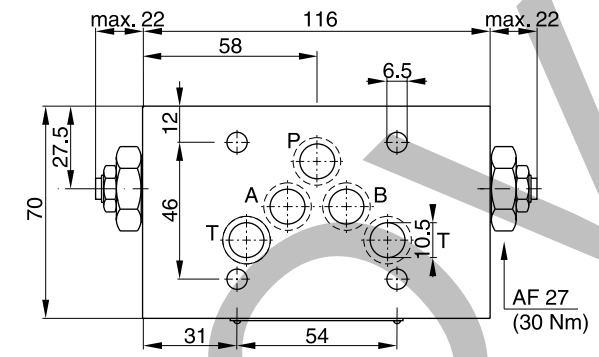
Seal kit	
Seal	**Order code**
1	098-91096-0
5	098-91097-0
Complete cartridge	
Order code 098-91119-0	
O-ring plate	**Order code**
1	SK-CM2-10
5	SK-CM2-V-10



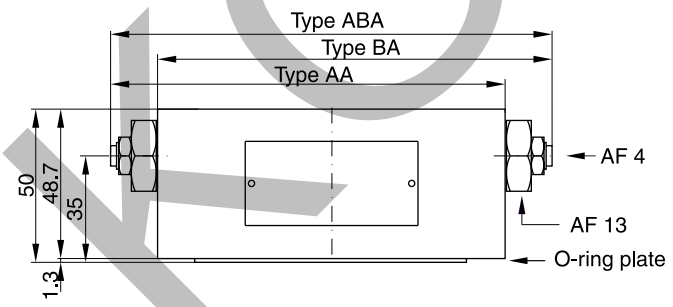


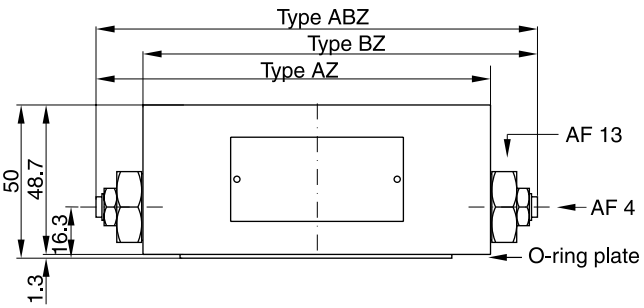
7

ZRD*02

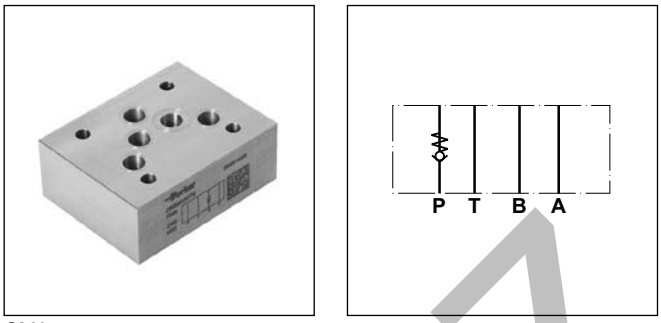


Seal kit	
Seal	**Order code**
1	098-91098-0
5	098-91099-0
Complete cartridge	
Order code 098-91120-0	
O-ring plate	**Order code**
1	SK-CM3-10
5	SK-CM3-V-10

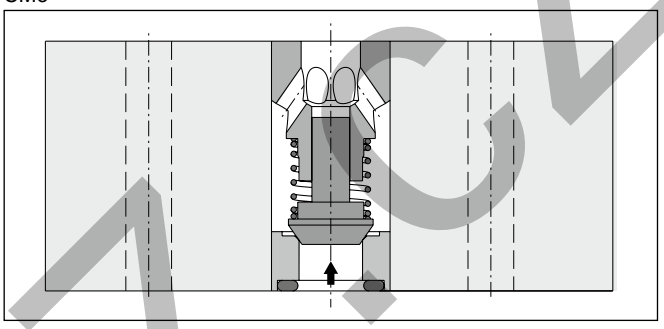




Check valves from the Parker series CM are in sandwich design for easy configuration of stack systems. Depending on the function required, one or two check valves are arranged in ports P, T, A, and B. Number and flow direction can be selected from the ordering code.



CM3



Features

- The valve bodies of the Parker valve series CM are made of steel.
- Eight options for the arrangement of the check valve in the body offer a multitude of uses for hydraulic circuits.
- CM2 - NG06 (CETOP 03)
  CM3 - NG10 (CETOP 05)

Ordering code

CM			V	HT	
Check valve	**Nominal size**	**Port**	**Seal** FPM		**Design series** (not required for ordering)

Code	Nominal size
2	Intermediate plate DIN NG06
3	Intermediate plate DIN NG10

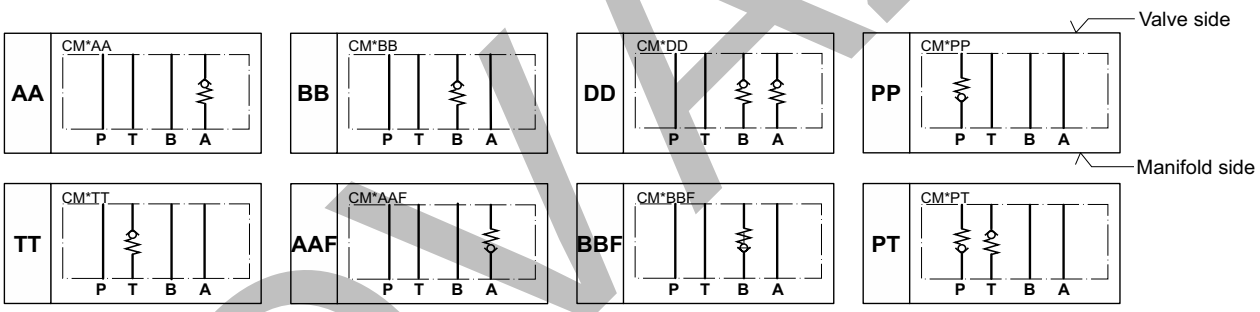
Code	Free flow polarity	Check valve in channel
AA	From directional valve to manifold	A
BB	From directional valve to manifold	B
DD	From directional valve to manifold	A and B
PP	From manifold to directional valve	P
PT	From manifold to directional valve	P and T
TT	From directional valve to manifold	T
AAF	From manifold to directional valve	A
BBF	From manifold to directional valve	B

Technical data

General			
Series		**CM2**	**CM3**
Size		**NG06**	**NG10**
Mounting interface		DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05
Mounting position		unrestricted	
Ambient temperature	[°C]	-20...+70	
$MTTF_D$ value	[years]	150	
Weight	[kg]	0.7	2.0
Hydraulic			
Max. operating pressure	[bar]	350	350
Max. flow	[l/min]	60	120
Opening pressure	[bar]	0.5	0.5
Fluid		Hydraulic oil according to DIN 51524	
Fluid temperature	[°C]	-20...+70	
Viscosity , permitted	[cSt] / [mm²/s]	20...400	
recommended	[cSt] / [mm²/s]	30...80	
Filtration		ISO 4406; 18/16/13	

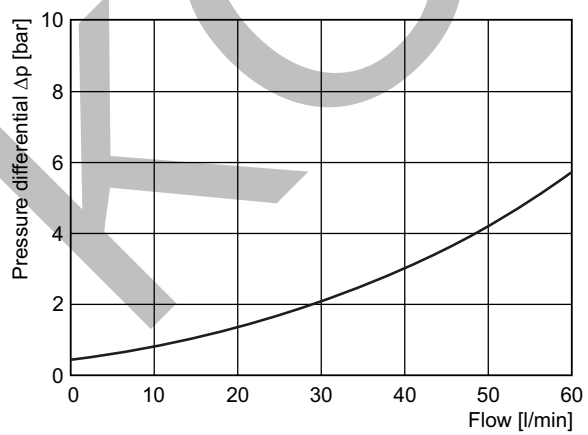
Schematics

The valve side is shown at the top of the symbols, the manifold side with channel designation is shown at the bottom.

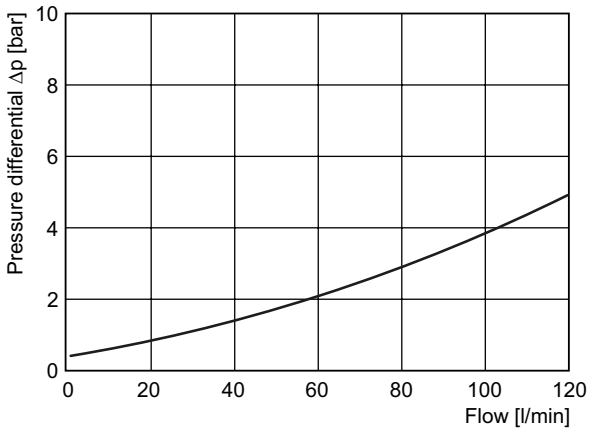


Δp/Q performance curves

CM2

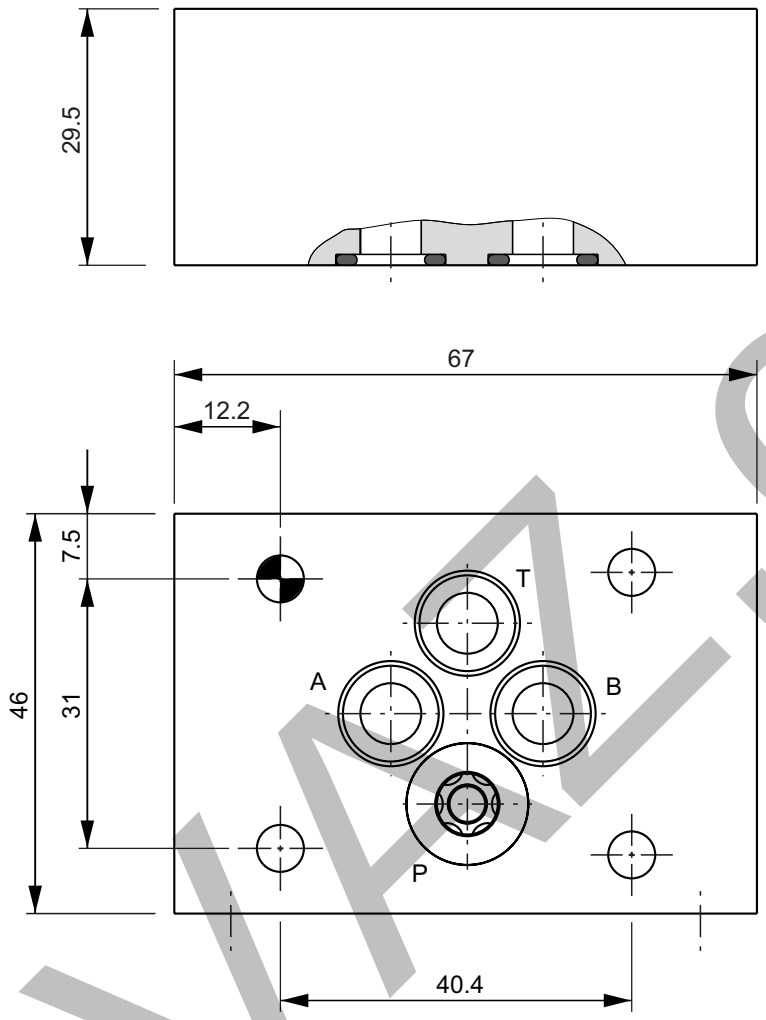


CM3



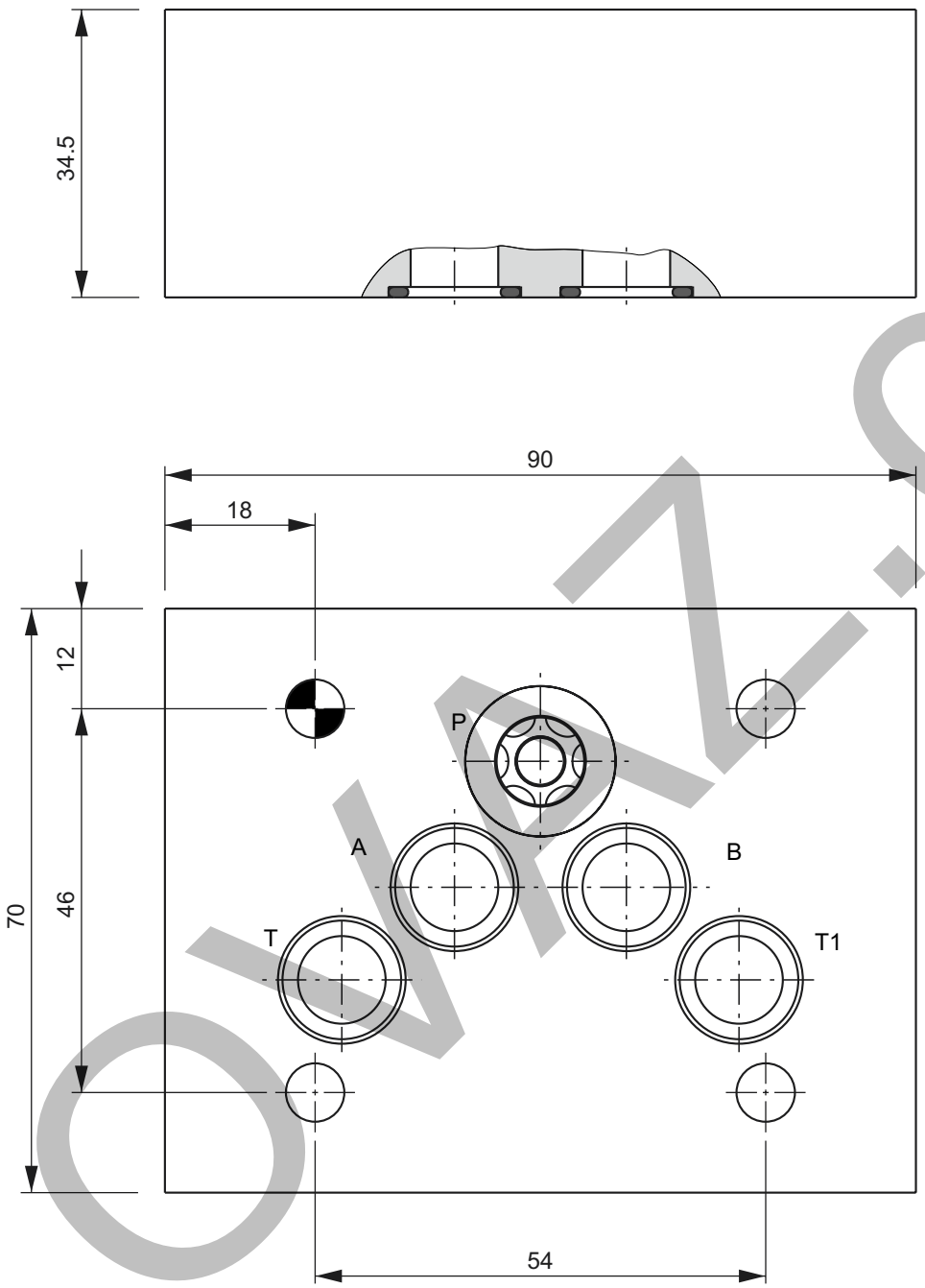
Measured with oil viscosity 33.0 mm²/s (cSt)

CM2



Seal kit CM2	
Seal	**Order code**
V	SK-CM2-V

CM3

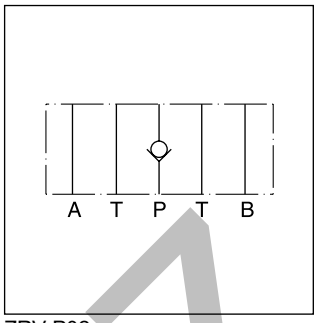


Seal kit CM3	
Seal	**Order code**
V	SK-CM3-V

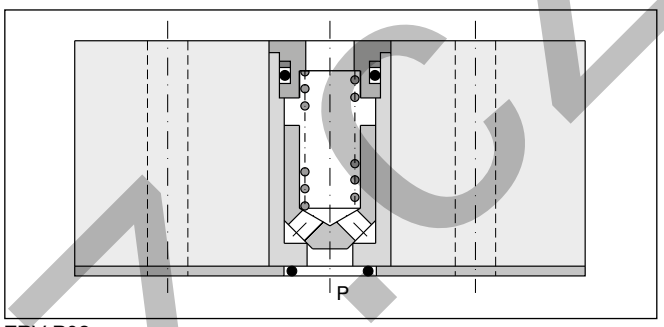
Direct operated check valves series ZRV have a cartridge type insert to provide zero leakage and high life time.

The check function can be located in the P- or in the T-port.

ZRV-P02



ZRV-P02



ZRV-P02

Features

- Leakage-free seat
- High life time
- Opening pressure 0.5 bar
- ZRV01 - NG06 (CETOP 03)
  ZRV02 - NG10 (CETOP 05)

Ordering code

ZRV – ☐ ☐

Check valve, direct operated | **Pressure control** | **Nominal size**

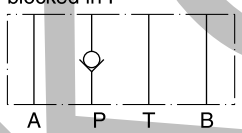
Code	Pressure control
P	Blocked in P
T	Blocked in T

Code	Nominal size
01	NG06
02	NG10

Ordering code details

ZRV01

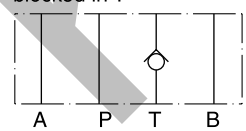
blocked in P



Series ZRV-P01

Order No. 098-90025-0

blocked in T

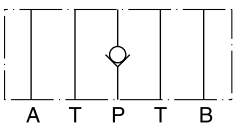


Series ZRV-T01

Order No. 098-90026-0

ZRV02

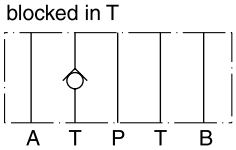
blocked in P



Series ZRV-P02

Order No. 098-90043-0

blocked in T



Series ZRV-T02

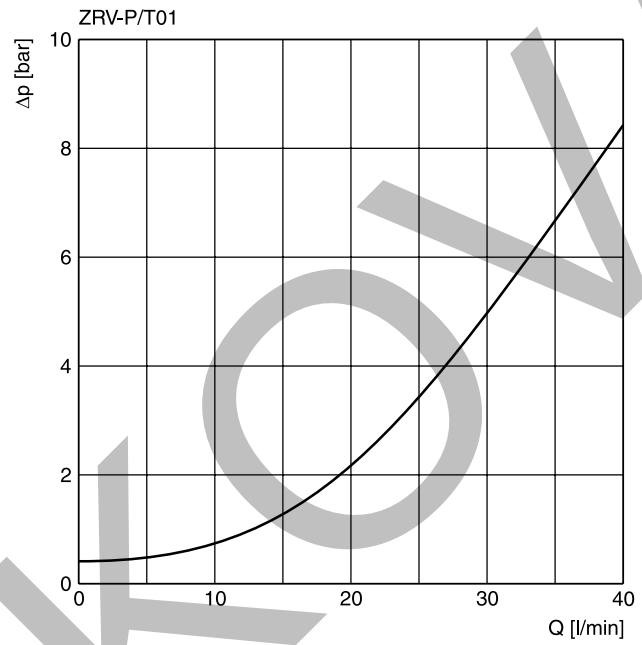
Order No. 098-90044-0

Technical data

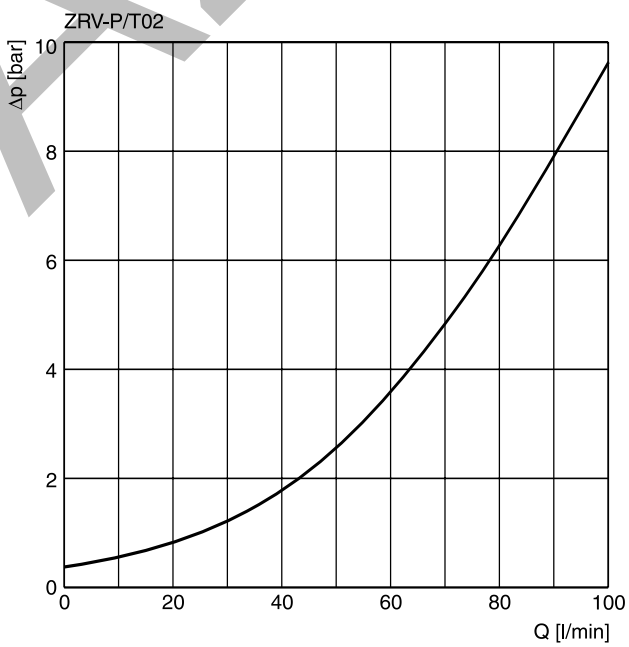
General				
Size			**NG06**	**NG10**
Mounting interface			DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05
			CETOP RP 121	
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+60	
$MTTF_D$ value		[years]	150	
Weight		[kg]	0.7	2.0
Hydraulic				
Max. operating pressure		[bar]	350	315
Nominal flow		[l/min]	40	100
Opening pressure		[bar]	0.5	0.5
Fluid			Hydraulic oil according to DIN 51524	
Fluid temperature		[°C]	-20...+70 (NBR: -25...+70)	
Viscosity	permitted	[cSt] / [mm^2/s]	20 ... 400	
	recommended	[cSt] / [mm^2/s]	30 ... 80	
Filtration			ISO 4406 (1999); 18/16/13	

p/Q performance curves

ZRV*01

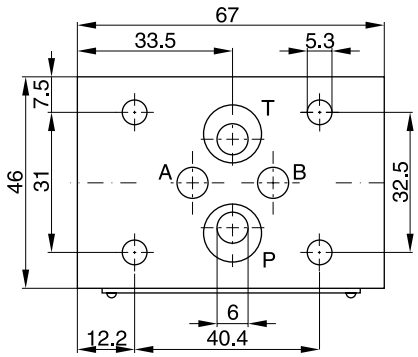


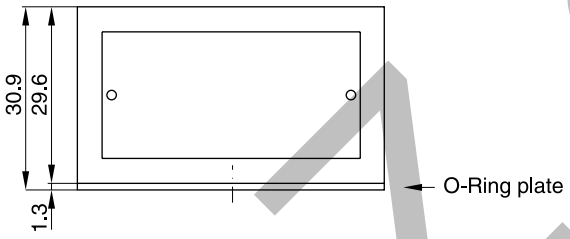
ZRV*02



All characteristic curves measured with HLP46 at 50 °C.

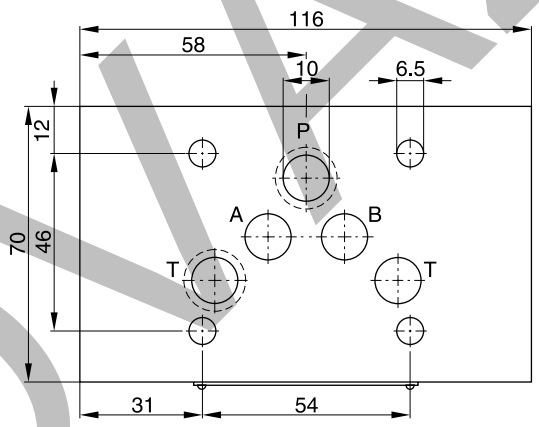
ZRV01

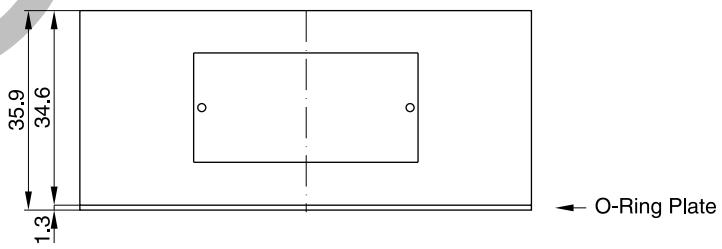




Seal kit	
Seal	**Order code**
NBR	SK-CM2-10
FPM	SK-CM2-V-10

ZRV02

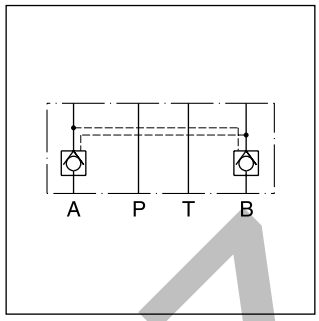




Seal kit	
Seal	**Order code**
NBR	SK-CM3-10
FPM	SK-CM3-V-50

7

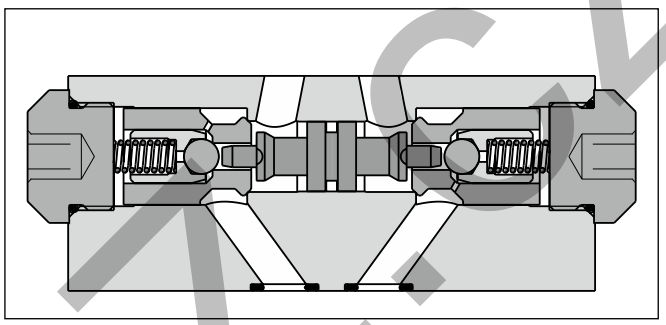
Pilot operated check valves from the Parker series CPOM are in sandwich design for easy configuration of stack systems. Depending on the function required, one or two pilot operated check valves are arranged in the ports A and/or B. The free flow direction is always from the valve side to the manifold side.



CPOM3

Function

The check valves open when flowing to the consumer side, where the opposing check valve is hydraulically-mechanically pilot operated simultaneously by a control spool, and thus the return flow is enabled from other consumer sides.



Features

- The valve bodies of the Parker valve series CPOM are made of steel.
- The valve poppet is precisely guided into the steel sleeve and ensures a good seal on the seat.
- When the valve poppet is open, the large cross-section allows high flow rates at low differential pressure.
- Pre-opening for CPOM*HT to achieve smooth opening.

Ordering code

7

With pre-opening

CPOM				HT	V		
Hydraulically operated check valve	Size	Poppet style	Opening pressure	Pilot ratio 1:6	Seal FPM	Options	Design series (not required for ordering)

Code	Size
2	NG06
3	NG10

Code	Connection
AA	only A
BB	only B
DD	A and B

Code	Options
omit	without coating
1P	ZnNi coating[1)]

Code	Pressure
omit	Standard
25	2.5 bar
70	7.0 bar

With pre-opening

CPOM	4		HT	V	
Hydraulically operated check valve	Size NG16	Poppet style	Pilot ratio 13:1	Seal FPM	Design series (not required for ordering)

Code	Connection
AA	only A
BB	only B
DD	A and B

[1)] On request.

Without pre-opening

CPOM	6		V	
Hydraulically operated check valve pilot ratio 3 : 1	**Size** NG25	**Poppet style**	**Seal** FPM	**Design series** (not required for ordering)

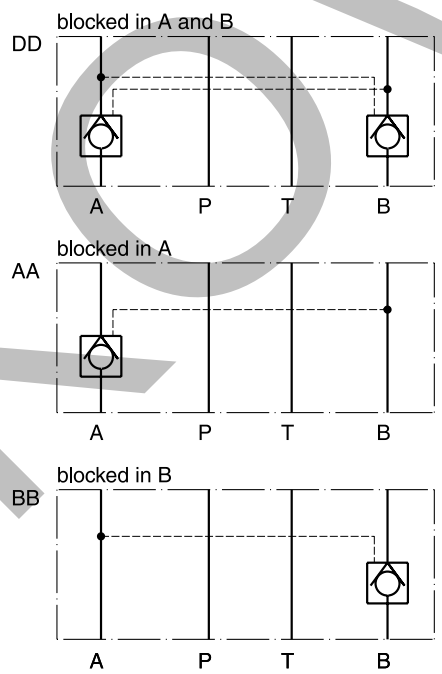
Code	Connection
AA	only A
BB	only B
DD	A and B

Technical data

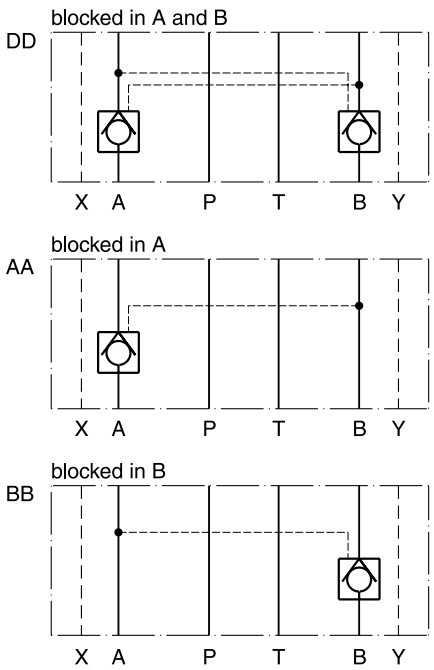
General					
Series		**CPOM2**	**CPOM3**	**CPOM4**	**CPOM6**
Nominal size		**NG06**	**NG10**	**NG16**	**NG25**
Mounting interface		ISO 4401			
Ambient temperature	[°C]	-20...+70			
$MTTF_D$ value	[years]	150			
Weight	[kg]	1.2	3.1	7.65	9.5
Hydraulic					
Max. operating pressure	[bar]	350	350	350	210
Standard opening pressure	[bar]	1.5	1.5	2.0	0.4
Opening ratio		1 : 6	1 : 6	1 : 13	1 : 3
Fluid		Hydraulic oil according to DIN 51524			
Fluid temperature	[°C]	-20...+70			
Viscosity, permitted	[cSt] / [mm²/s]	20...400			
recommended	[cSt] / [mm²/s]	30...80			
Filtration		ISO 4406; 18/16/13			

Schematics

CPOM2 / CPOM3



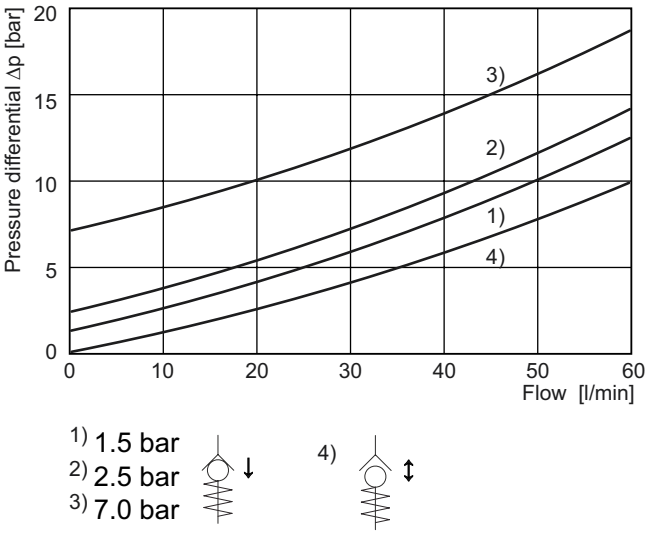
CPOM4 / CPOM6



7

Δp/Q performance curves

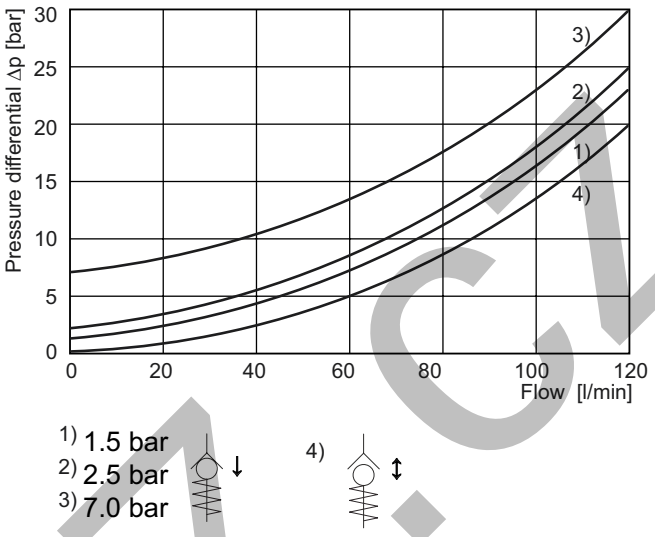
CPOM2



1) 1.5 bar
2) 2.5 bar
3) 7.0 bar

4)

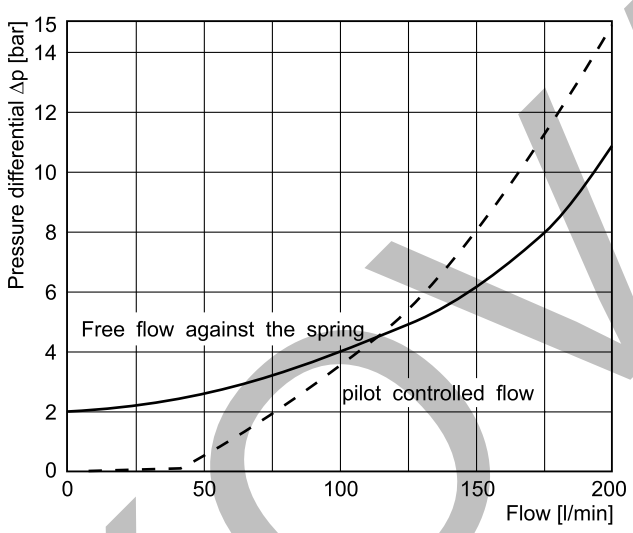
CPOM3



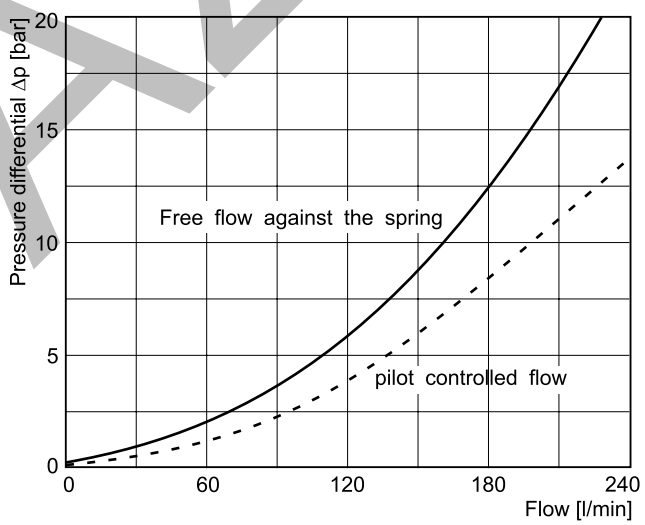
1) 1.5 bar
2) 2.5 bar
3) 7.0 bar

4)

CPOM4 (type HT)



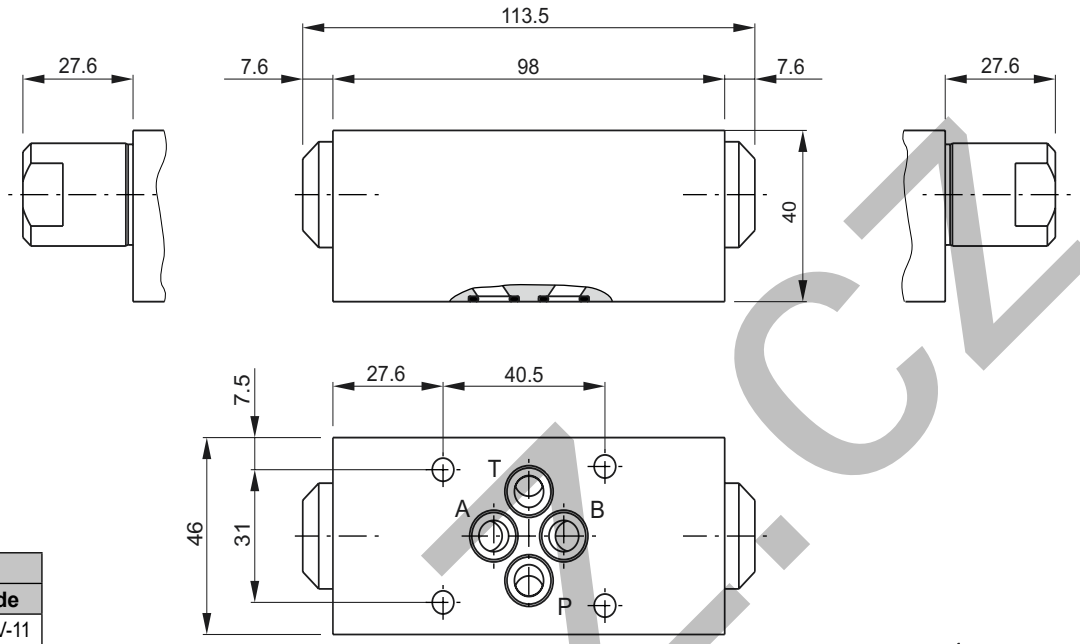
CPOM6



All characteristic curves measured with oil viscosity 33.0 mm²/s (cSt)

CPOM2

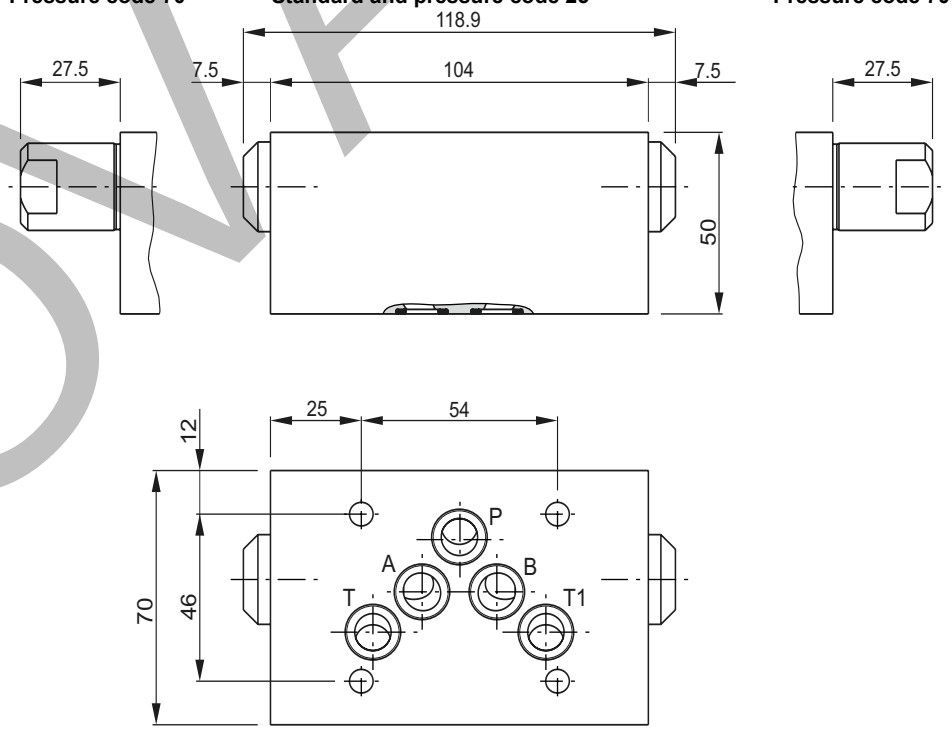
Pressure code 70 **Standard and pressure code 25** **Pressure code 70**



Seal kit CPOM2	
Seal	**Order code**
V	SK-CPOM2-V-11

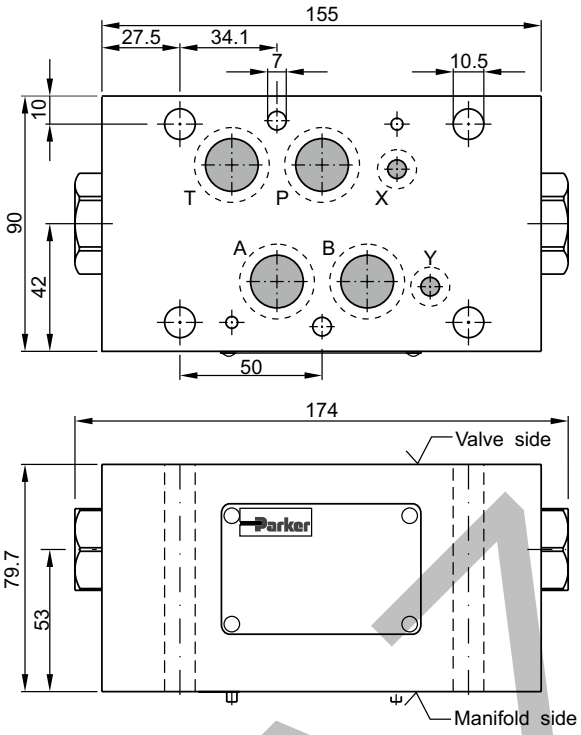
CPOM3

Pressure code 70 **Standard and pressure code 25** **Pressure code 70**



Seal kit CPOM3	
Seal	**Order code**
V	SK-CPOM3-V-11

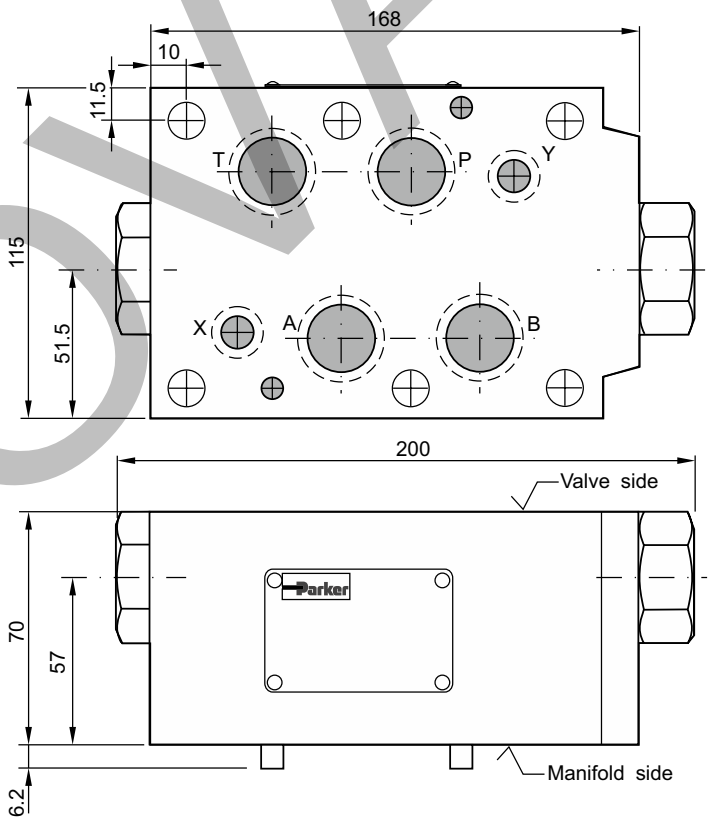
CPOM4



Seal kit CPOM4	
Seal	**Order code**
V	SK-CPOM4HTV

7

CPOM6



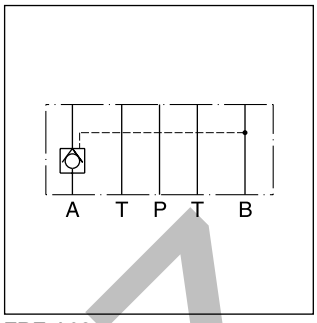
Seal kit CPOM6	
Seal	**Order code**
V	SK-CPOM6-V-20

Pilot operated check valves series ZRE are designed for maximum flow rates and long life time.

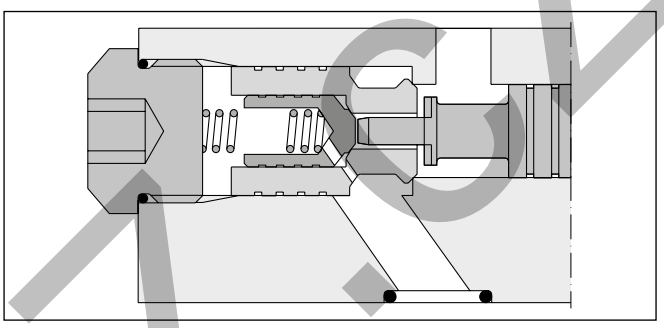
The valves are typically used in combination with spool type directional control valves to ensure nearly leak free positioning of the actuator.

The inlet flow is free while the outlet flow is blocked. Pressure in the inlet line opens the check valve and allows free outlet flow.

ZRE-B01



ZRE-A02



ZRE-A02

Features

- High flow capacity
- High life time
- Check function in A, B or A + B
- ZRE01 - NG06 (CETOP 03)
  ZRE02 - NG10 (CETOP 05)

Ordering code

ZRE – □ □ – □ □

Check valve pilot operated	Pressure control	Nominal size	Design series	Seal

Code	Pressure control
A	Blocked in A
B	Blocked in B
AB	Blocked in A and B

Code	Nominal size
01	NG06
02	NG10

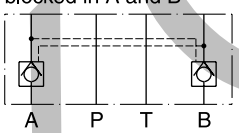
Code	Seal
1	NBR
5	FPM

Code	Design series
D	NG06
E	NG10

Ordering code details

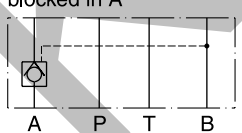
ZRE*01

blocked in A and B



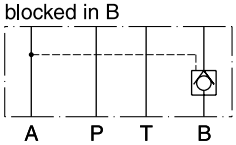
Series ZRE-AB01-D1 — Order No. 098-91020-0

blocked in A



Series ZRE-A01-D1 — Order No. 098-91018-0

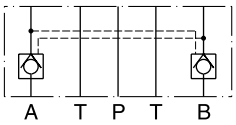
blocked in B



Series ZRE-B01-D1 — Order No. 098-91019-0

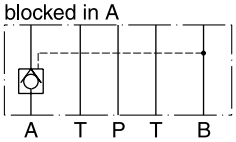
ZRE*02

blocked in A and B



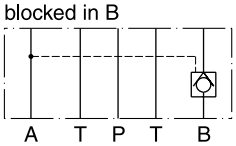
Series ZRE-AB02-E1 — Order No. 098-91300-0

blocked in A



Series ZRE-A02-E1 — Order No. 098-91298-0

blocked in B



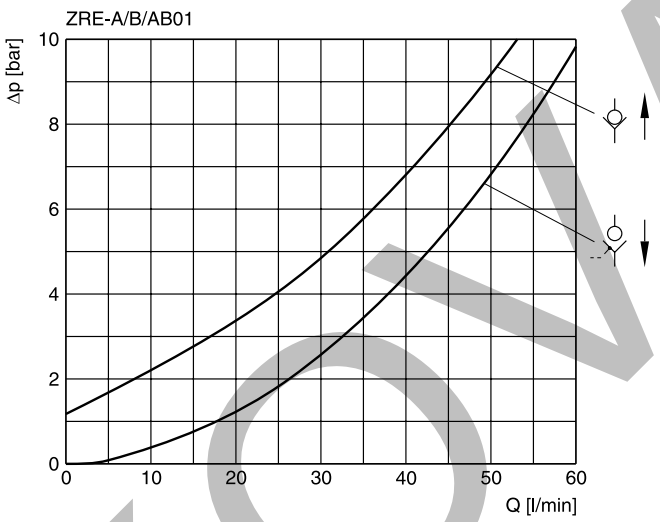
Series ZRE-B02-E1 — Order No. 098-91304-0

Technical data

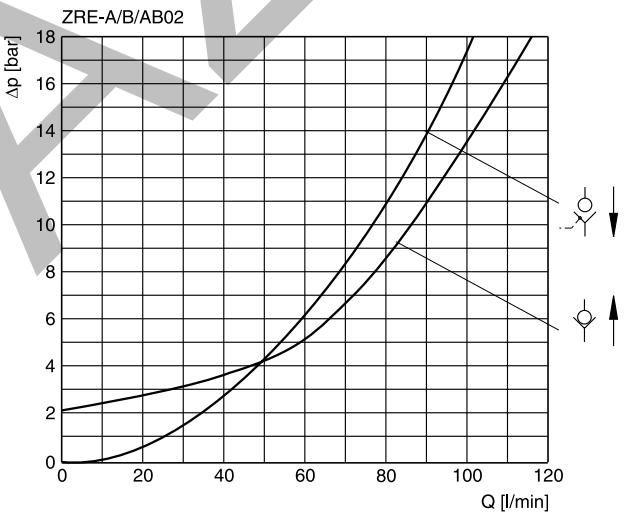
General				
Size			**NG06**	**NG10**
Mounting interface			DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05
			CETOP RP 121	
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+60	
$MTTF_D$ value		[years]	150	
Weight		[kg]	1.2	3.1
Hydraulic				
Max. operating pressure		[bar]	up to 350	315
Nominal flow		[l/min]	60	120
Opening ratio (pilot cone / main cone)			1:6	1:6
Opening pressure		[bar]	1.2	2.0
Leakage			on request	
Fluid			Hydraulic oil according to DIN 51524	
Fluid temperature		[°C]	-20...+70 (NBR: -25...+70)	
Viscosity	permitted	[cSt] / [mm^2/s]	20 ... 400	
	recommended	[cSt] / [mm^2/s]	30 ... 80	
Filtration			ISO 4406 (1999); 18/16/13	

p/Q performance curves

ZRE*01



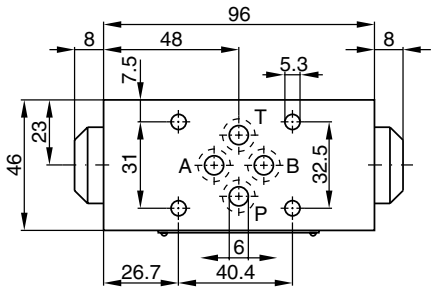
ZRE*02



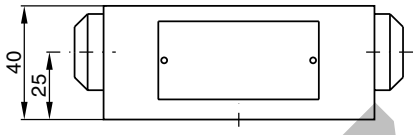
All characteristic curves measured with HLP46 at 50 °C.

Dimensions

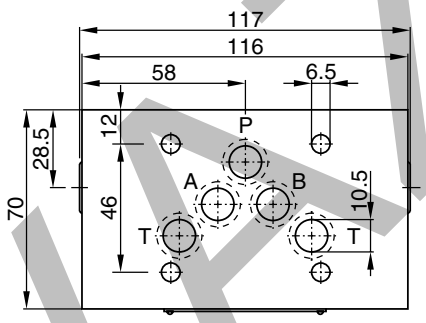
ZRE*01



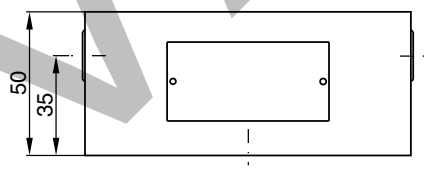
Seal kit	
Seal	**Order code**
1	098-91088-0
5	098-91089-0

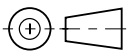


ZRE*02



Seal kit	
Seal	**Order code**
1	098-91090-0
5	098-91091-0



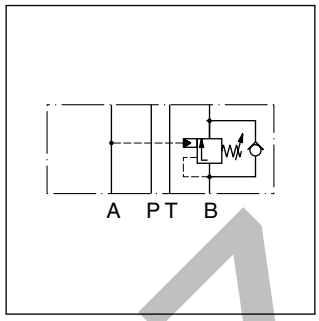


The counterbalance valve series ZNS controls the actuator movement at overrunning loads.

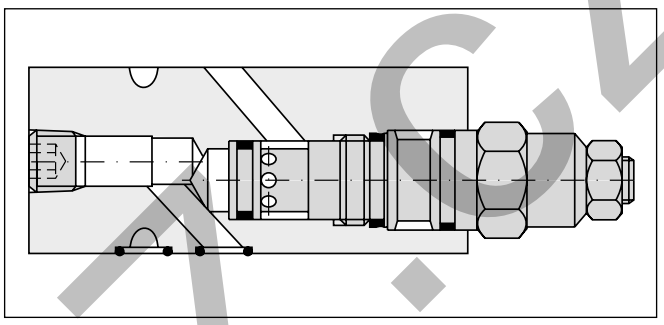
The return flow from the actuator is piloted and controlled by the inlet flow to the actuator, ensuring a cavitation-free lowering of the load.

The counter balance valve operates as a pressure relief valve. The setting pressure is lowered by the pressure in the inlet line. To ensure safe load holding the setting pressure should be approximately 30 % higher than the max. load pressure.

ZNS-AB01



ZNS-B01



ZNS-B01

Features

- Controlled movement loads
- Load holding via leak-free poppet valve
- Secondary relief protection for the actuator
- ZNS*01 – NG06 (CETOP 03)
  ZNS*02 – NG10 (CETOP 05)

Ordering code

ZNS				S0	D	
Counterbalance valve	Pressure control	Nominal size	Pressure stages	Hexagon screw with lock nut	Design series	Seal

Code	Pressure control
A	in A
B	in B
AB	in A and B

Code	Nominal size
01	NG06
02	NG10

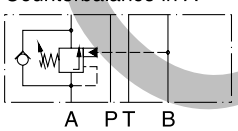
Code	Seal
1	NBR
5	FPM

Code	Pressure stages
2	70 - 175 bar
5 [1)]	140 - 350 bar

[1)] NG10 to 315 bar.

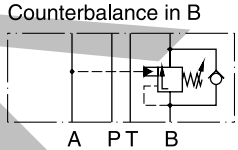
Ordering code details

Counterbalance in A



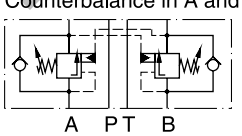
ZNS*01		ZNS*02	
Series	Order no.	Series	Order no.
ZNS-A01-2-S0-D1	098-91126-0	ZNS-A02-2-S0-D1	098-91132-0
ZNS-A01-5-S0-D1	098-91127-0	ZNS-A02-5-S0-D1	098-91133-0

Counterbalance in B



Series	Order no.	Series	Order no.
ZNS-B01-1-S0-D1	098-91128-0	ZNS-B02-1-S0-D1	098-91134-0
ZNS-B01-5-S0-D1	098-91129-0	ZNS-B02-5-S0-D1	098-91135-0

Counterbalance in A and B



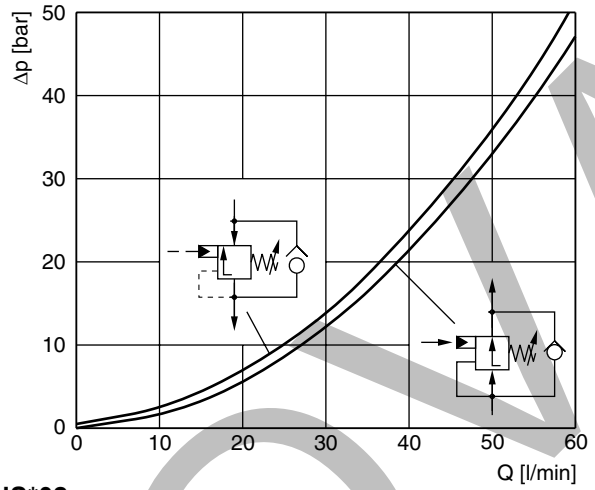
Series	Order no.	Series	Order no.
ZNS-AB01-1-S0-D1	098-91130-0	ZNS-AB02-1-S0-D1	098-91136-0
ZNS-AB01-5-S0-D1	098-91131-0	ZNS-AB02-5-S0-D1	098-91137-0
2 = 70 ... 175 bar		2 = 70 ... 175 bar	
5 = 140… 350 bar		5 = 140 …315 bar	

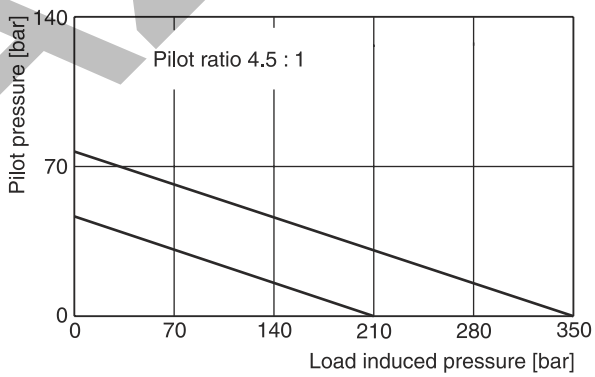
Technical data

General				
Size			**NG06**	**NG10**
Mounting interface			DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+60	
Weight	1 cartridge	[kg]	1.3	1.6
	2 cartridges	[kg]	3.0	3.9
Hydraulic				
Max. operating pressure		[bar]	350	315
Pressure stages		[bar]	175, 350	
Pilot ratio			4.5 : 1	
Leakage			on request	
Nominal flow		[l/min]	60	120
Opening pressure		[bar]	0.3	0.3
Fluid			Hydraulic oil according to DIN 51524	
Fluid temperature		[°C]	-20...+70 (NBR: -25...+70)	
Viscosity,	permitted	[cSt] / [mm²/s]	20 ... 400	
	recommended	[cSt] / [mm²/s]	30 ... 80	
Filtration			ISO 4406 (1999); 18/16/13	

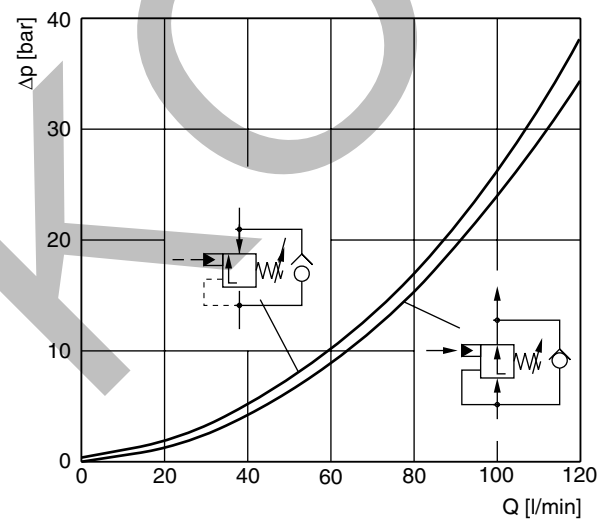
p/Q performance curves

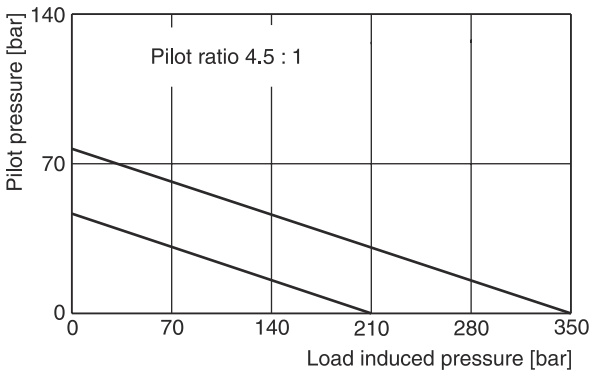
ZNS*01





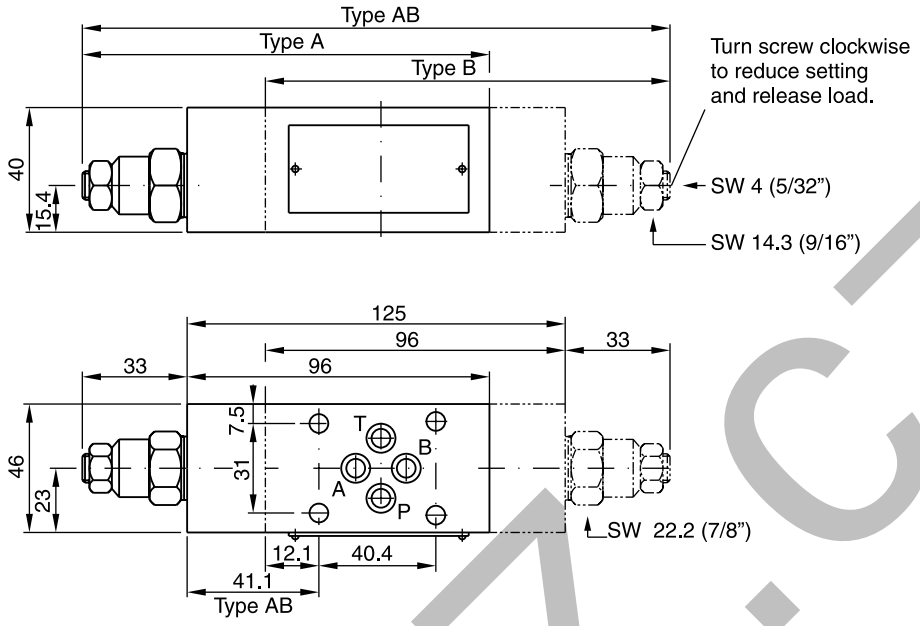
ZNS*02





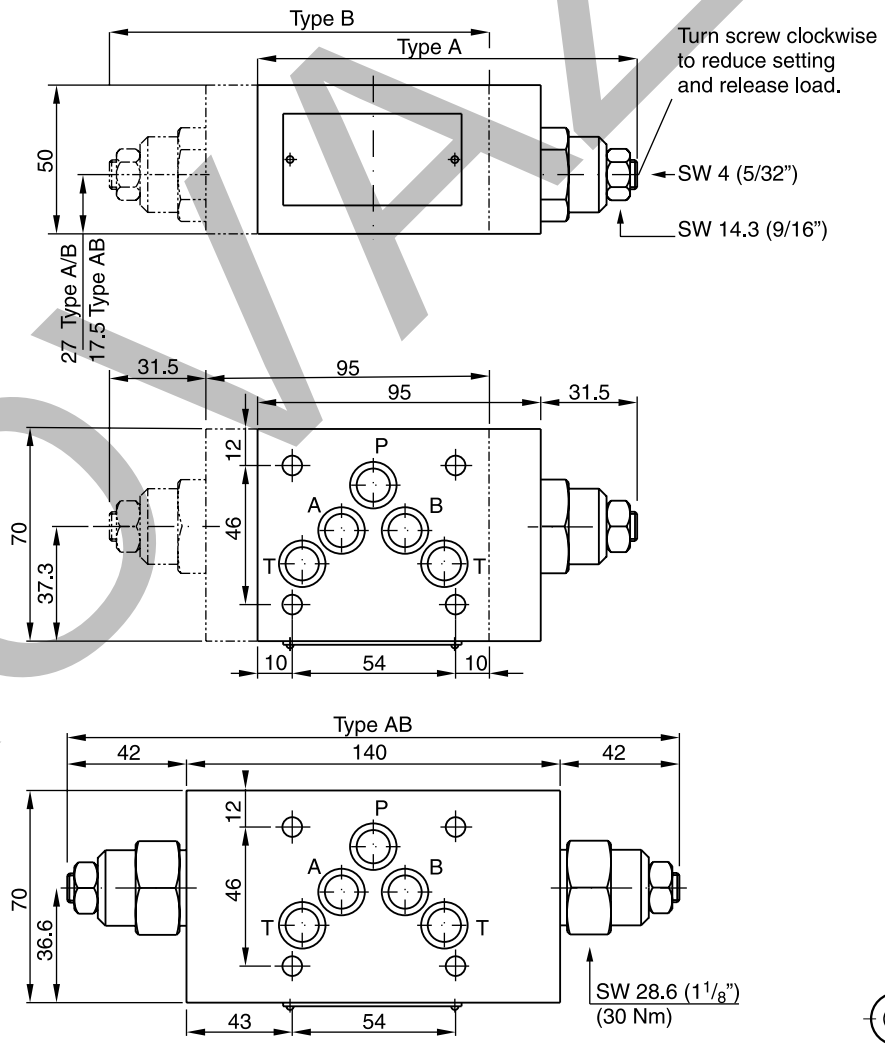
All characteristic curves measured with HLP46 at 50 °C.

ZNS*01



Seal kit ZNS*01	
Seal	**Order code**
NBR	098-91153-0
FPM	098-91154-0
Complete cartridge ZNS*01	
Pressure stage	**Order code**
2	517-01017-2
5	517-00448-8

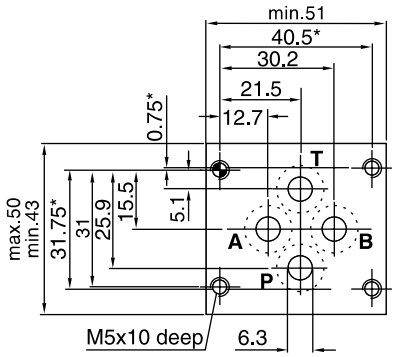
ZNS*02



Seal kit ZNS*02	
Seal	**Order code**
NBR	098-91155-0
FPM	098-91156-0
Complete cartridge ZNS*02	
Pressure stage	**Order code**
2	517-00449-8
5	517-00450-8

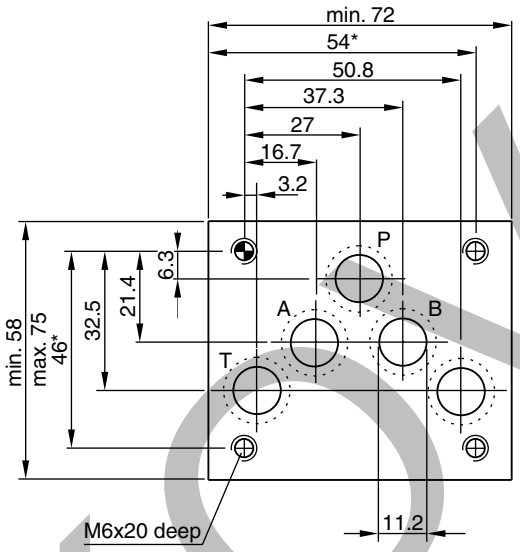
NG06

Code: ISO 4401-03-02-0-94



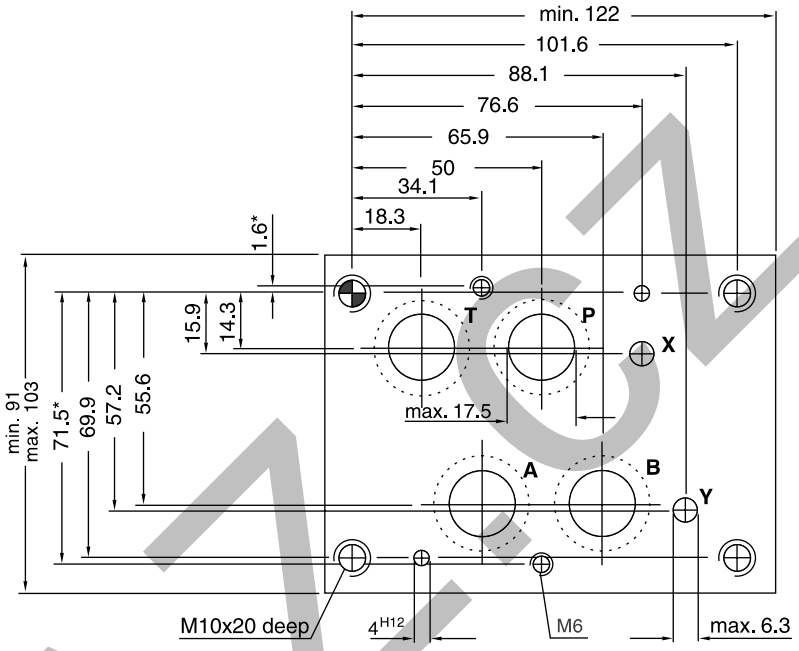
NG10

Code: ISO 4401-05-05-0-94



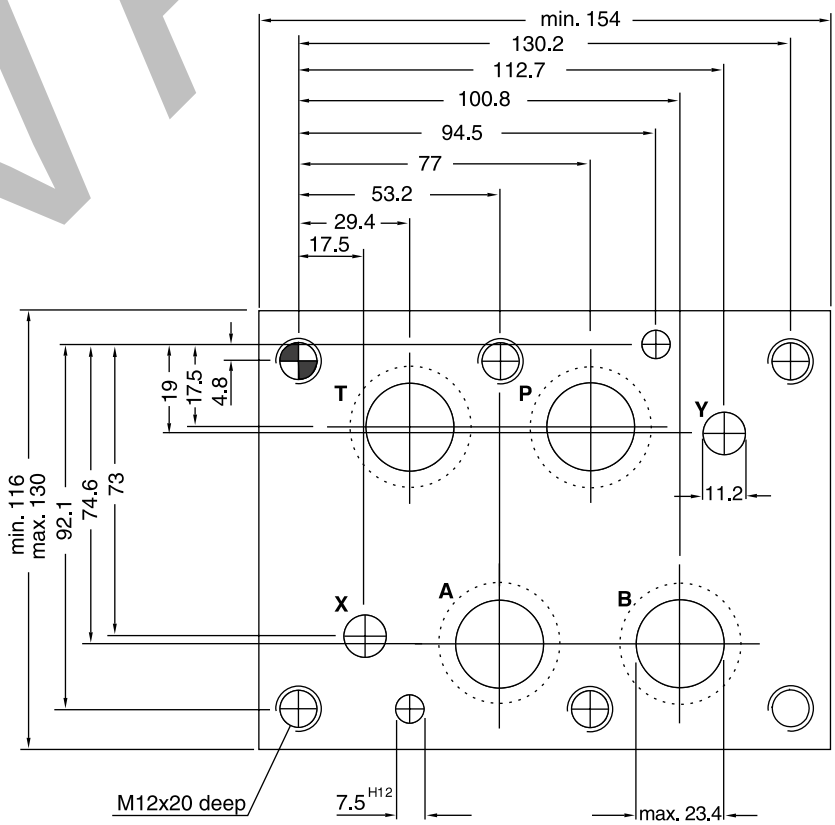
NG16

Code: ISO 4401-07-06-0-94



NG25

Code: ISO 4401-08-07-0-94 (Port diameter acc. to NFPA)



Dimensions marked with*: ± 0.1 mm.
All other dimensions: ± 0.2 mm.

Mounting

Parker sandwich valves can be installed as desired. Each has a mounting pattern, whose dimensions correspond to the following standards.

ISO 4401
DIN 24430
CETOP RP121
NFPA

Mounting screws

Cylinder head bolts as per ISO 4762-12.9, or studs as per DIN 835 10.9 with cylindrical nuts are used to mount the height stacking Manapak sandwich valves.

Bolt kits and tie rods see chapter 12, "Accessories".

Length of the mounting screws

The screw length is the sum of the engagement depth plus the stacking length. The stud length is the sum of the stacking length plus the thread depth of the nut.

Torques

The mounting screws or studs must be tightened with the prescribed tightening torque so that safety and proper seal are ensured.

See chapter 12 “Accessories“ for BK bolt kits and TK tie rod kits.

Threads length

Threads	M5	M6	M10	M12
thread length	1.5 x Ø thread			