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

Pressure relief valves series RDM are direct operated piston type valves with low hysteresis. They can be used as P-T relief or as T-T controlled counter balance valve. The valve body is equipped with a pressure gauge port.

Function

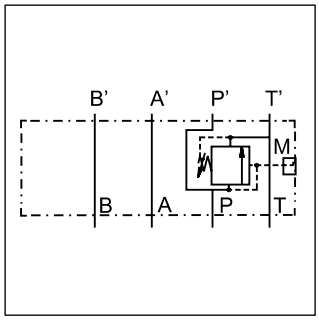
PT... pressure is relieved from P to T at the adjusted value.

TT... pressure is relieved from T' to T at the adjusted pressure.

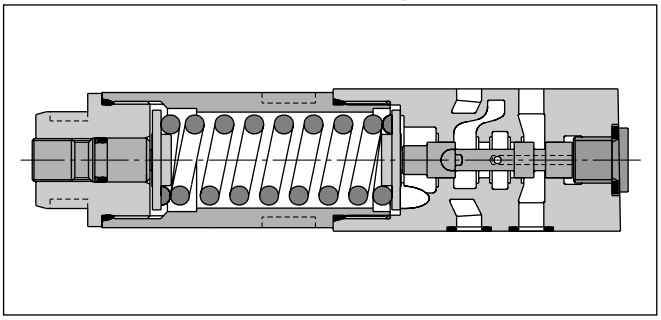
Features

- The direct operated, cushioned piston design results in fast response, low leakage and minimal hysteresis.
- Up to 5 pressure adjustment ranges are available with max. pressure settings of:
  bar 25, 64, 160, 210, 350 for RDM2,
  bar 19, 50, 100, 150, 210 for RDM3.
- Adjustment modes:
  - Slotted head with lock nut
  - Cylinder lock
  - Turning knob
- RDM2 - NG06 (CETOP 03)
  RDM3 - NG10 (CETOP 05)

RDM2



Example PT



RDM2

7

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

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

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

RDM UK.INDD CM 30.08.13

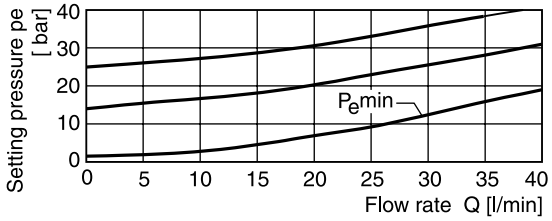
Technical data

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...+50	
Hydraulic				
Max. operating pressure	P, A, B	[bar]	350	315
	T	[bar]	50	10
Fluid			Hydraulic oil according to DIN 51524...51525	
Fluid temperature		[°C]	-20...+80	
Viscosity		[cSt] / [mm²/s]	12...230	
Filtration			ISO 4406 (1999); 18/16/13	
Max. flow		[l/min]	40	80

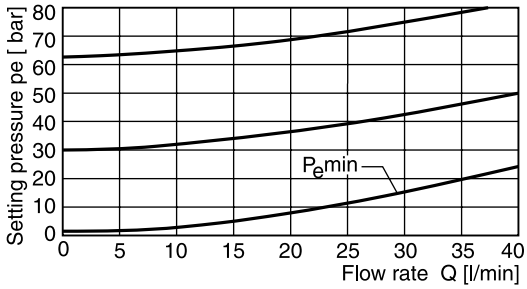
Max. leakage P - A: 5 ml/min.

Performance curves

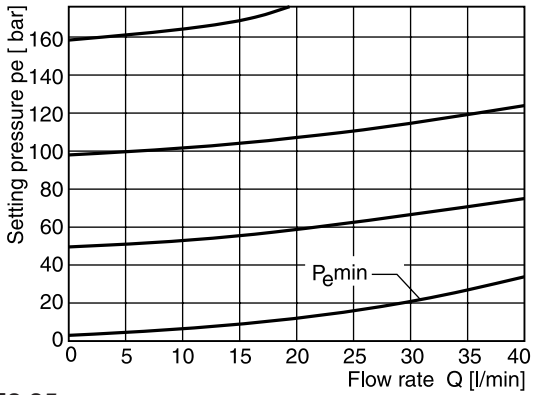
RDM2 02



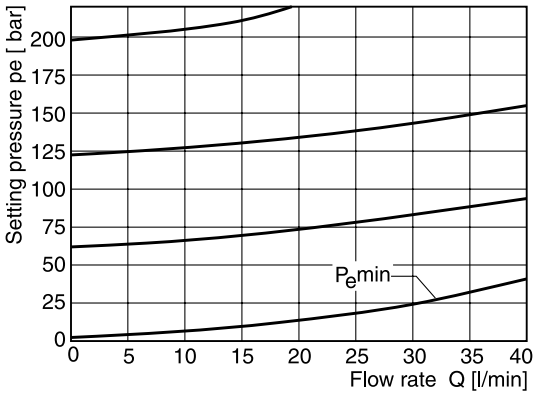
RDM2 06



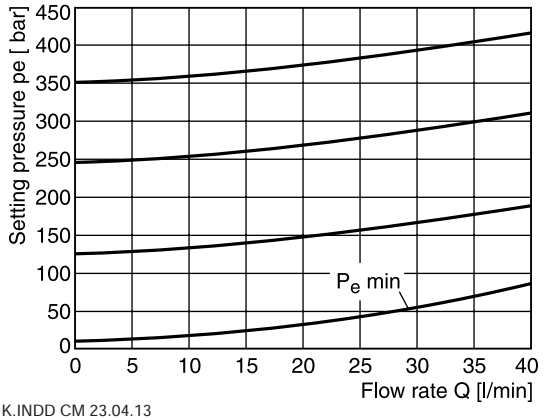
RDM2 16



RDM2 21



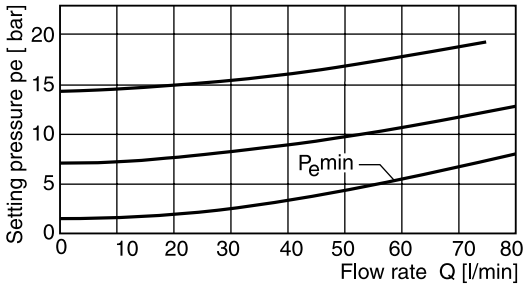
RDM2 35



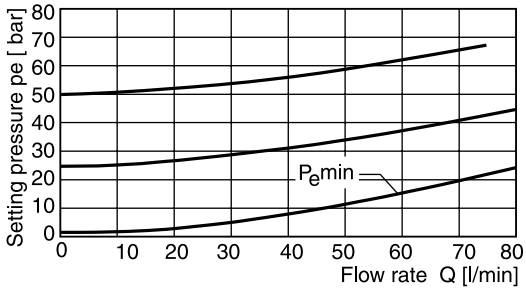
All characteristic curves measured with HLP46 at 50 °C.

RDM UK.INDD CM 23.04.13

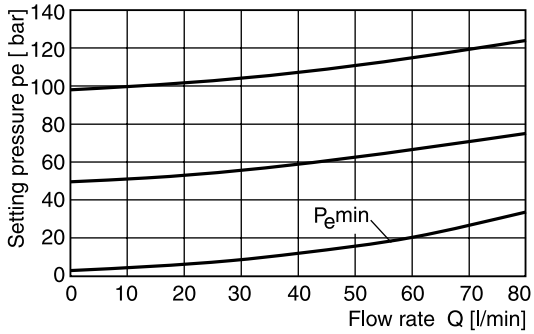
RDM3 01



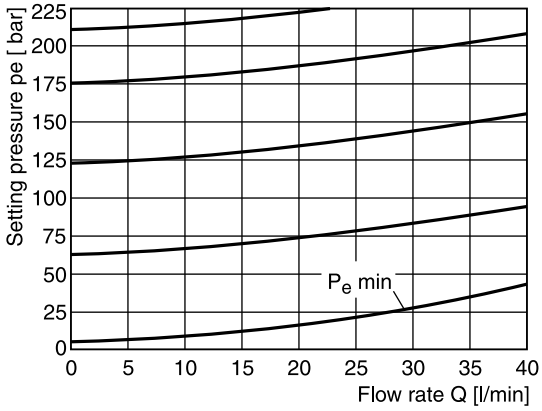
RDM3 05



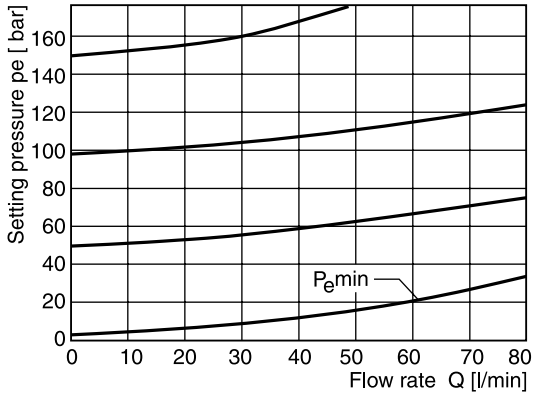
RDM3 10



RDM3 21



RDM3 15

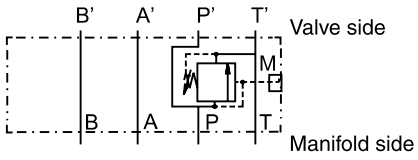


All characteristic curves measured with HLP46 at 50 °C.

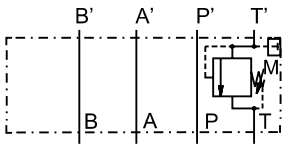
7

Schematics

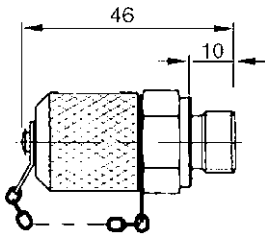
RDM*PT



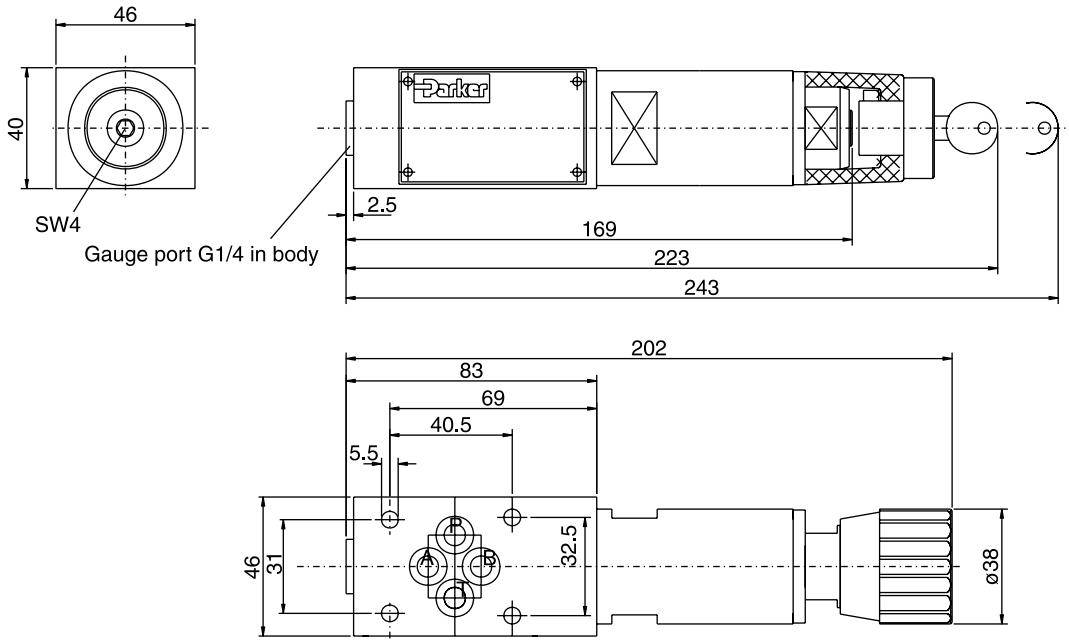
RDM*TT



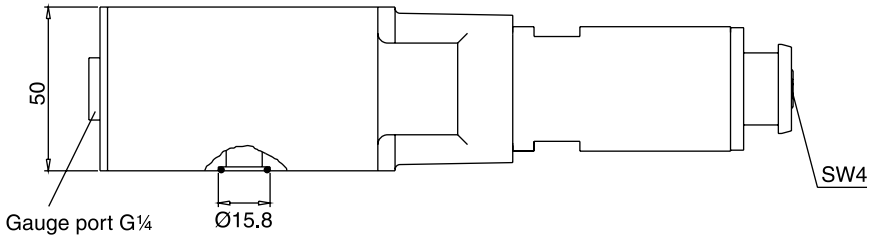
Gauge port option C

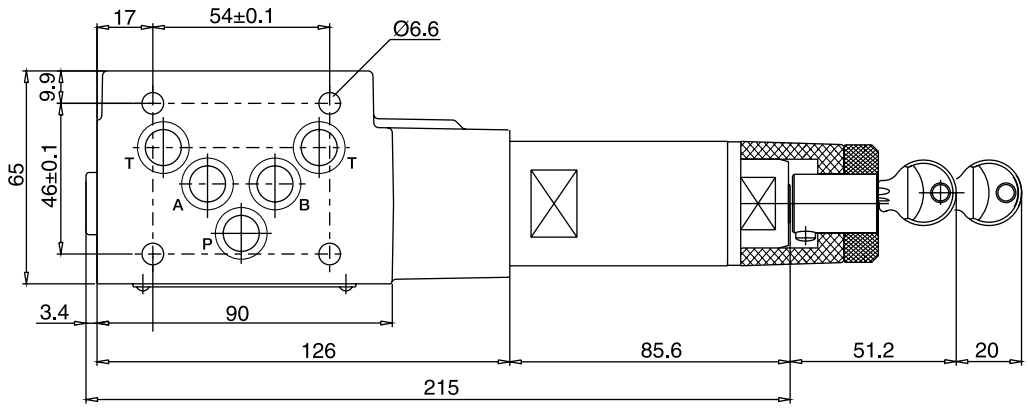


RDM2



RDM3





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

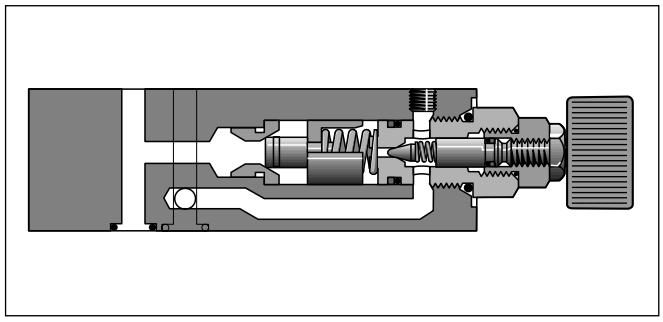
The pilot operated pressure relief valves from the Parker Manapak series RM are in sandwich design for easy configuration of stack systems. Depending on type, pressure limiting can be achieved in ports P, A or B with unloading to port T.

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

Features

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

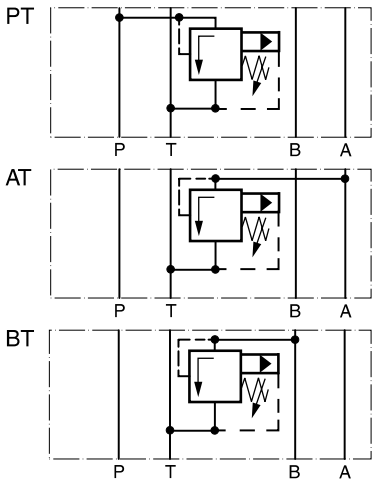
RM6



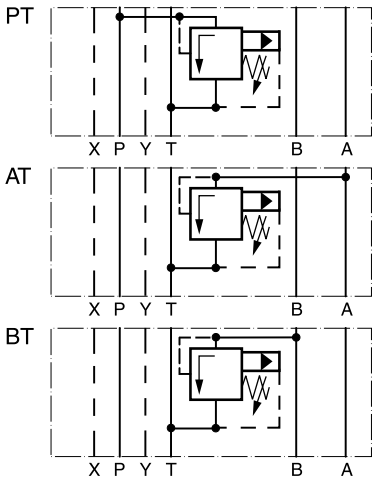
RM3

Schematics

RM3-NG10

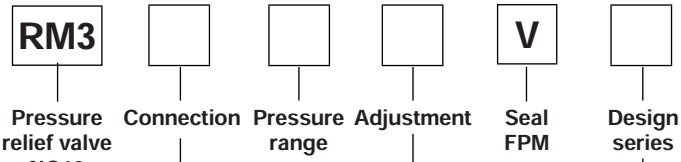


RM4-NG16
RM6-NG25
(only PT)



Technical data

General				
Design		Pilot operated pressure relief valve		
Actuation		hydraulic		
Size		NG10	NG16	NG25
Mounting interface		ISO 4401		
Mounting position		unrestricted		
Ambient temperature	[°C]	-40...+50		
$MTTF_D$ value	[years]	150		
Weight	[kg]	3.7	4.9	5.9
Hydraulic				
Max. operating pressure	[bar]	350		
Fluid		Hydraulic oil according to DIN 51524...51525		
Fluid temperature	[°C]	-20...+80		
Viscosity recommended	[cSt]/[mm^2/s]	30...80		
permitted	[cSt]/[mm^2/s]	20...380		
Filtration		ISO 4406 (1999); 18/16/13		

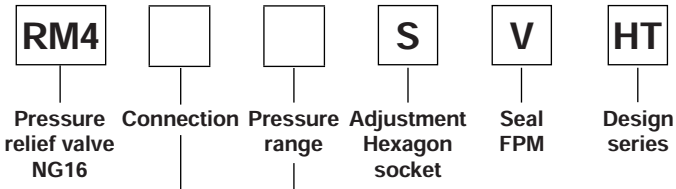


Code	Connection
PT	**P to T**
AT	A to T
BT	B to T

Code	Connection
omit	P to T
HT	A to T
omit	B to T

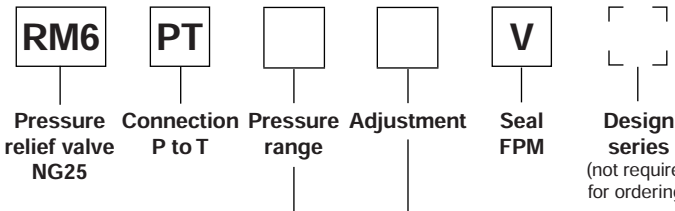
Code	Pressure range	Type		
		P-T	A-T	B-T
07 [1]	4 to 70 bar	•	•	•
17	**10 to 175 bar**	•		•
21	**10 to 210 bar**		•	
25	**10 to 250 bar**	•		•
35	10 to 350 bar	•	•	•

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



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

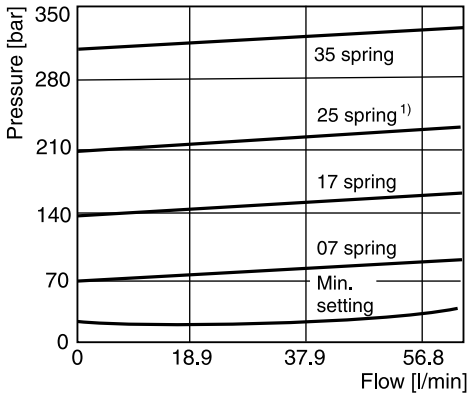
Code	Adjustment
S	**Hexagon socket**
L	Cylinder lock

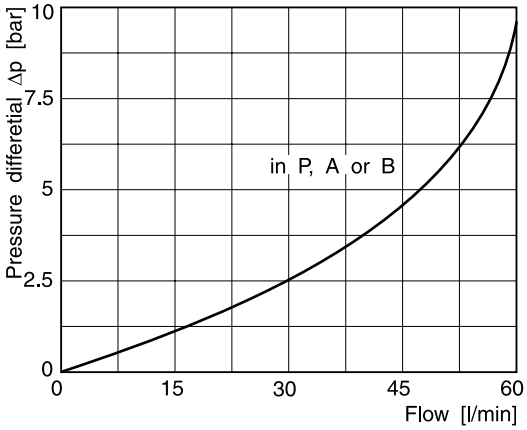
Bold letters =
Short-term availability

[1] Type AT = 5-65 bar.

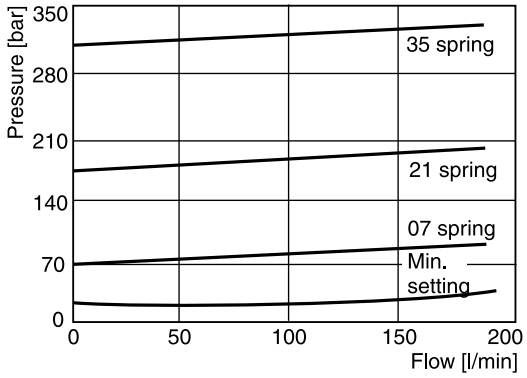
p/Q performance curves

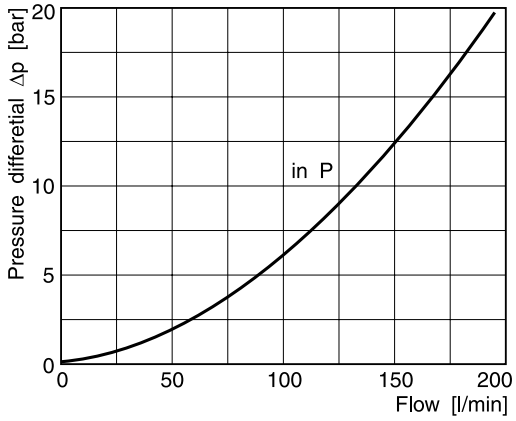
RM3



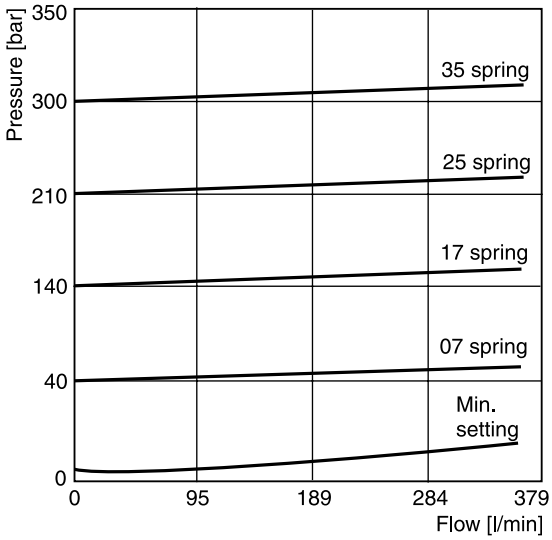


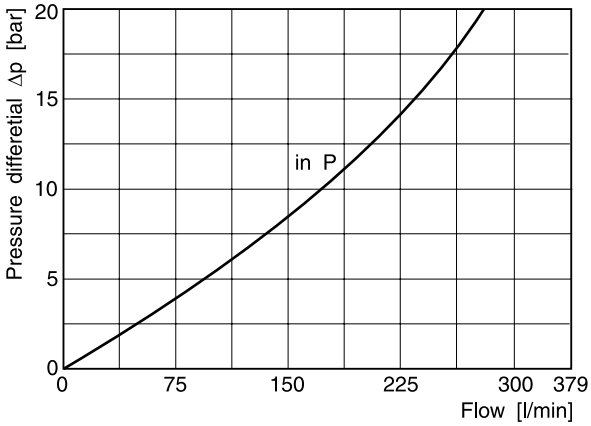
RM4





RM6





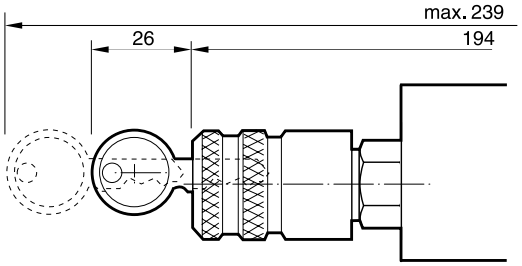
All characteristic curves measured with HLP46 at 50 °C.

1) 21 spring for AT.

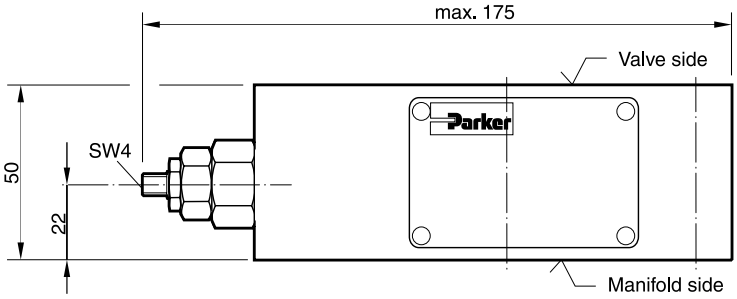
RM UK.INDD CM 03.06.13

RM3 PT/BT

Adjustment code L

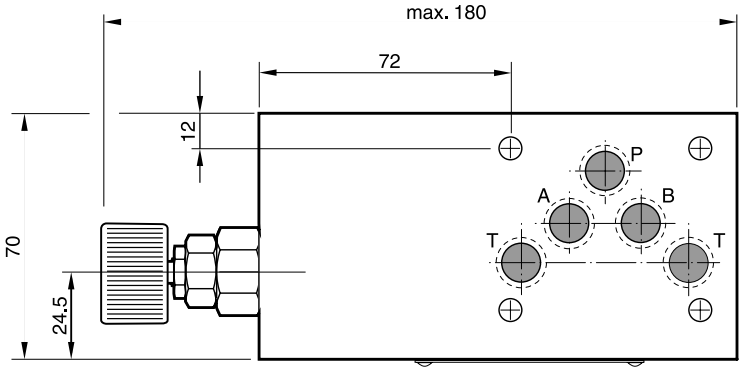


Adjustment code S



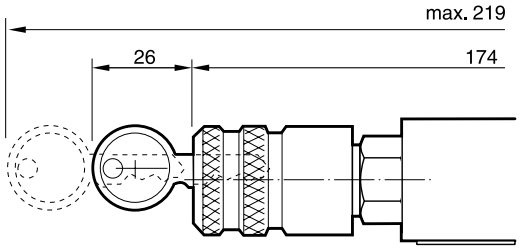
Seal kit RM3	
Seal	**Order code**
V	SK-RM3-V-11

Adjustment code K

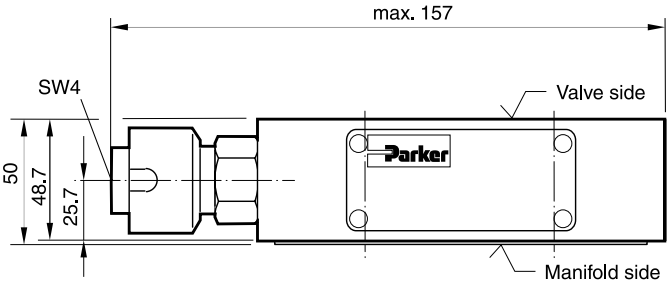


RM3 AT*HT

Adjustment code L



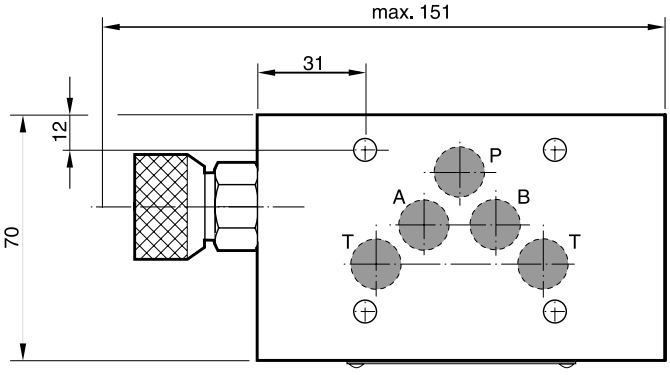
Adjustment code S



Note:

The seal plate and the O-rings for sealing the connecting surface of the manifold side are included with the HT model.

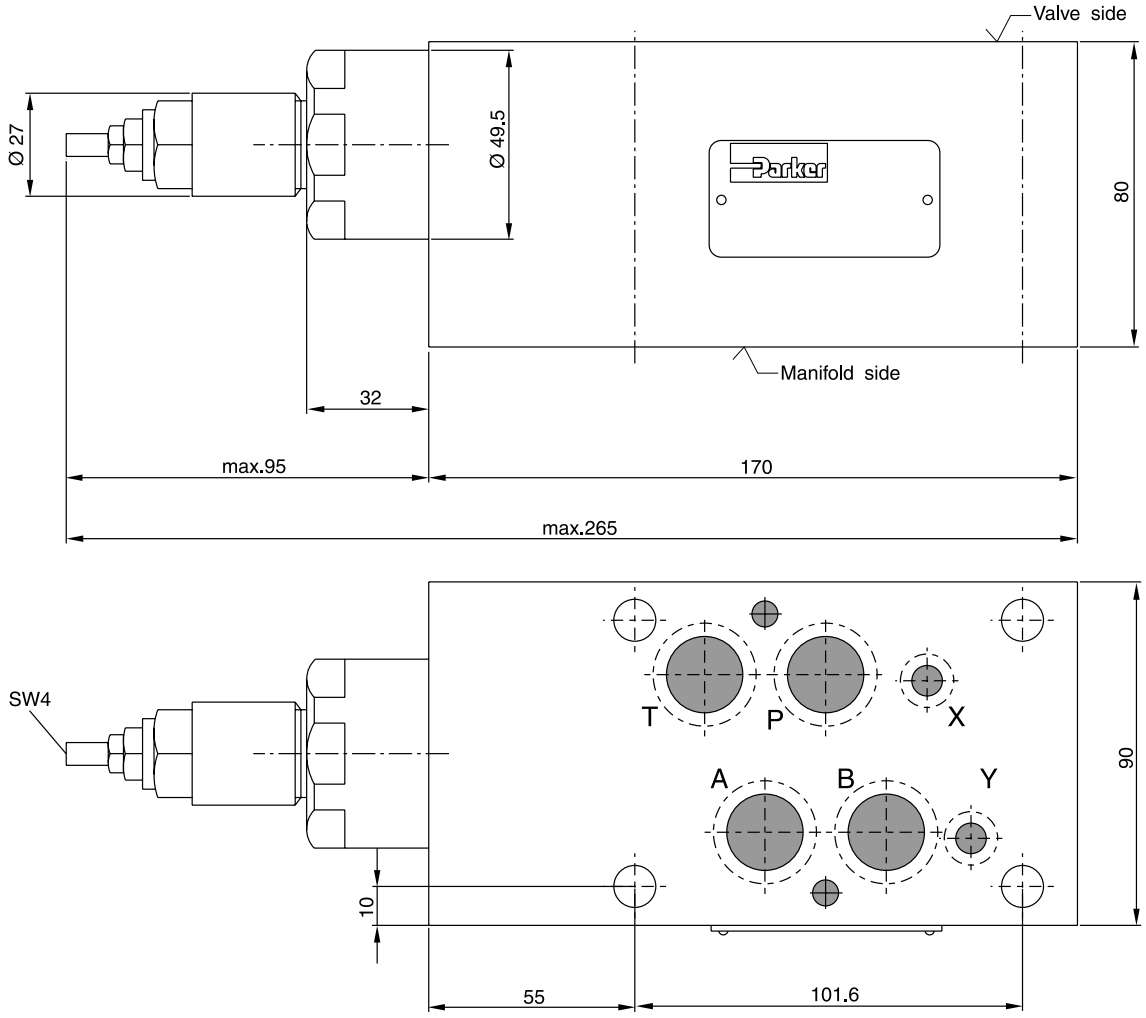
Adjustment code K



7

RM4

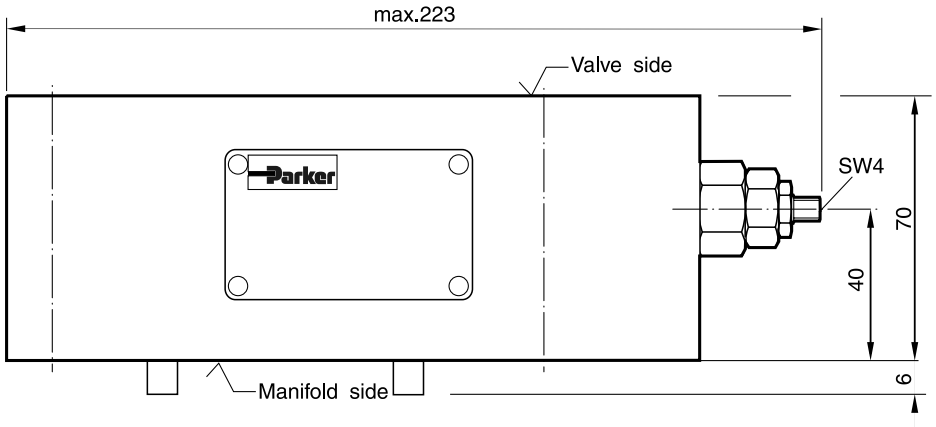
Adjustment code S



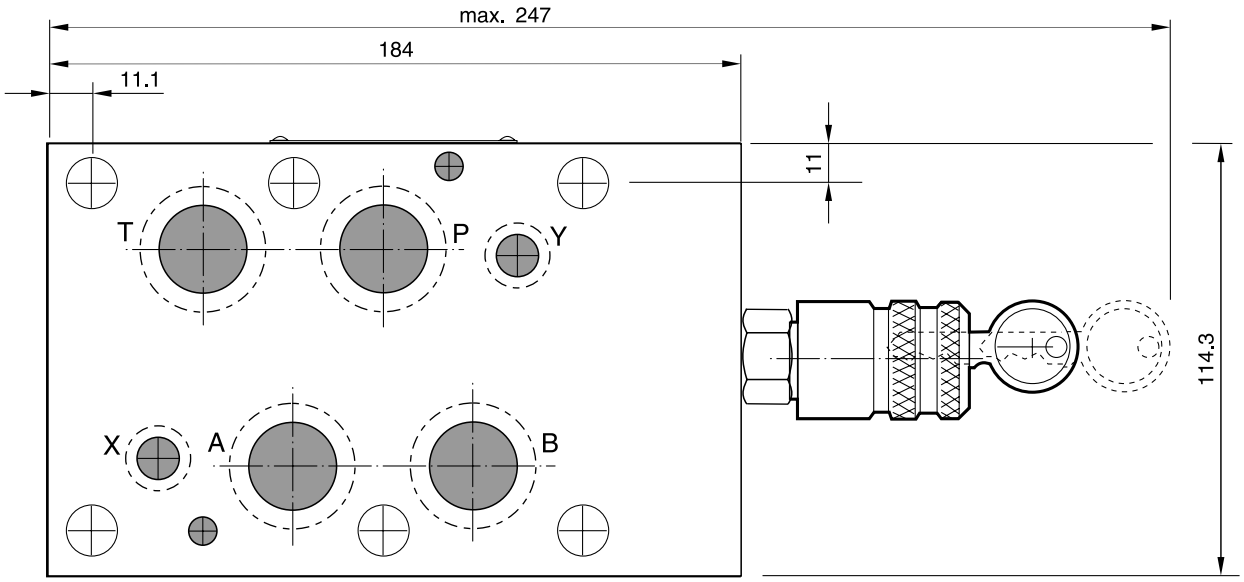
Seal kit RM4	
Seal	**Order code**
V	SK-RM4-V-10

RM6

Adjustment Code S



Adjustment Code L



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

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

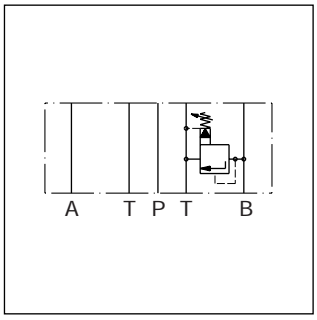
The relief function can be located between P and T, A and T, B and T or A and T + B and T for typical pressure relief functions.

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

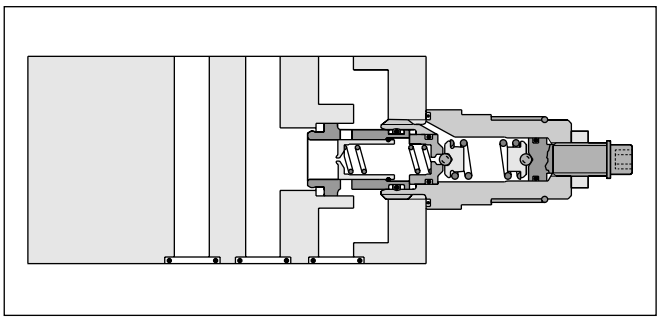
Features

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

ZDV-P01



ZDV-B02



ZDV-B02

7

Ordering code

ZDV	–	☐	☐	–	☐	S0	–	D	☐
Pressure relief valve		Pressure control	Nominal size		Pressure stages	Hexagon screw with lock nut		Design series	Seal

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.

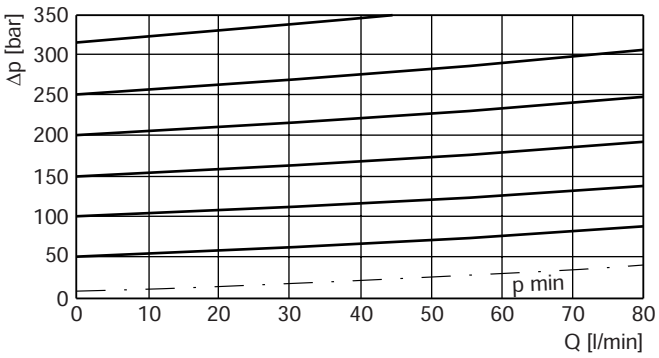
[1)] Code ABS and size 10 up to 315 bar.

Technical data

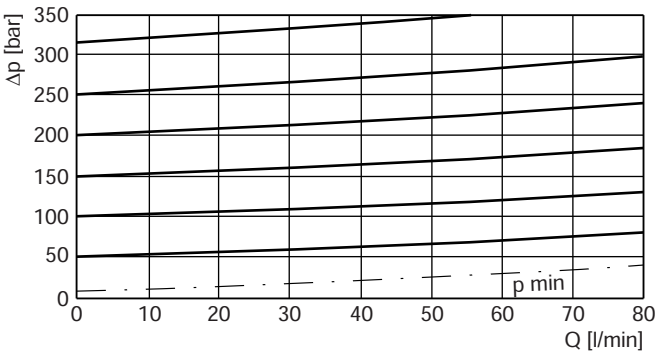
General				
Size			NG06	NG10
Mounting interface			DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05
			CETOP RP 121	
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+50	
$MTTF_D$ value		[years]	150	
Weight	1 cartridge	[kg]	1.6	3.0
	2 cartridges	[kg]	2.5	3.7
Hydraulic				
Max. operating pressure		[bar]	350 (ZDV-ABS 315)	315
Nominal flow		[l/min]	80	140
Fluid			Hydraulic oil as per DIN 51524...51525	
Fluid temperature		[°C]	-20...+80	
Viscosity	permitted	[cSt] / [mm²/s]	10...650	
	recommended	[cSt] / [mm²/s]	30	
Filtration			ISO 4406 (1999); 18/16/13	

p/Q performance curves

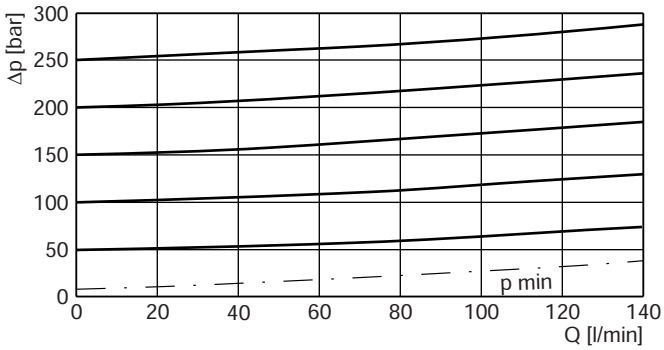
ZDV-P/A/B/ABS01



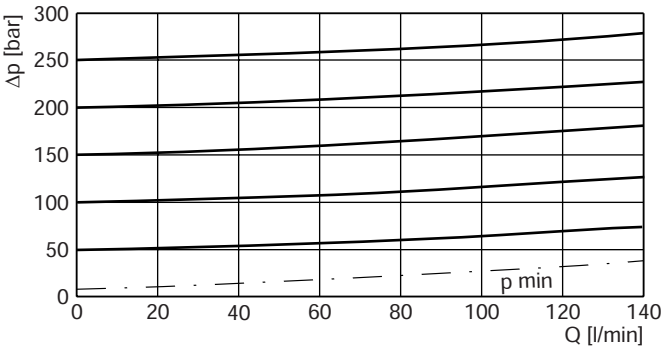
ZDV-AB01



ZDV-P/A/B/AB02

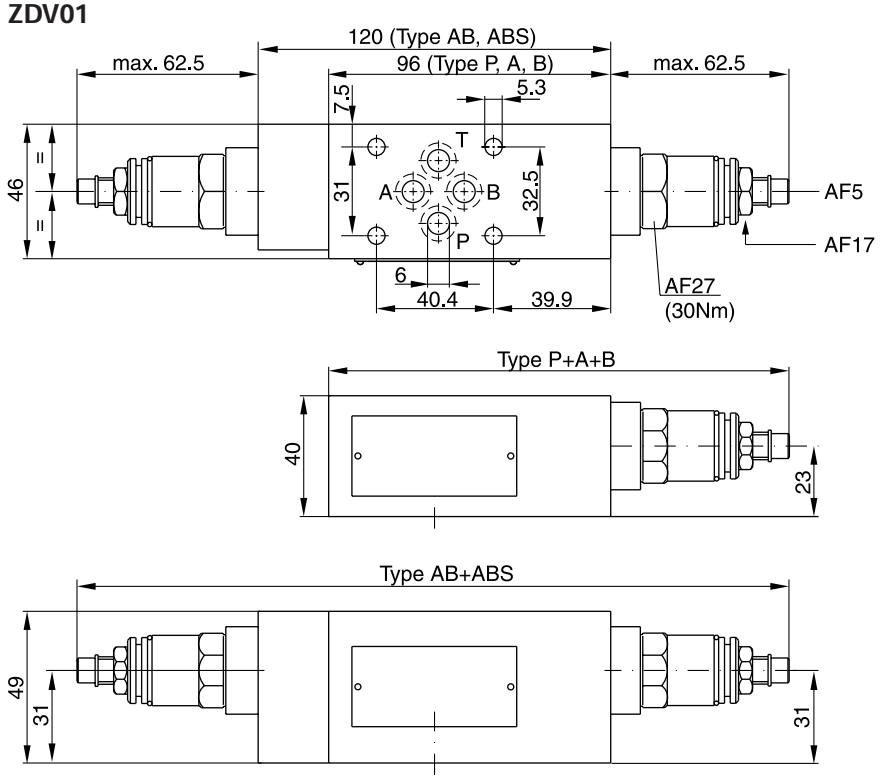


ZDV-ABS02



All characteristic curves measured with HLP46 at 50 °C.

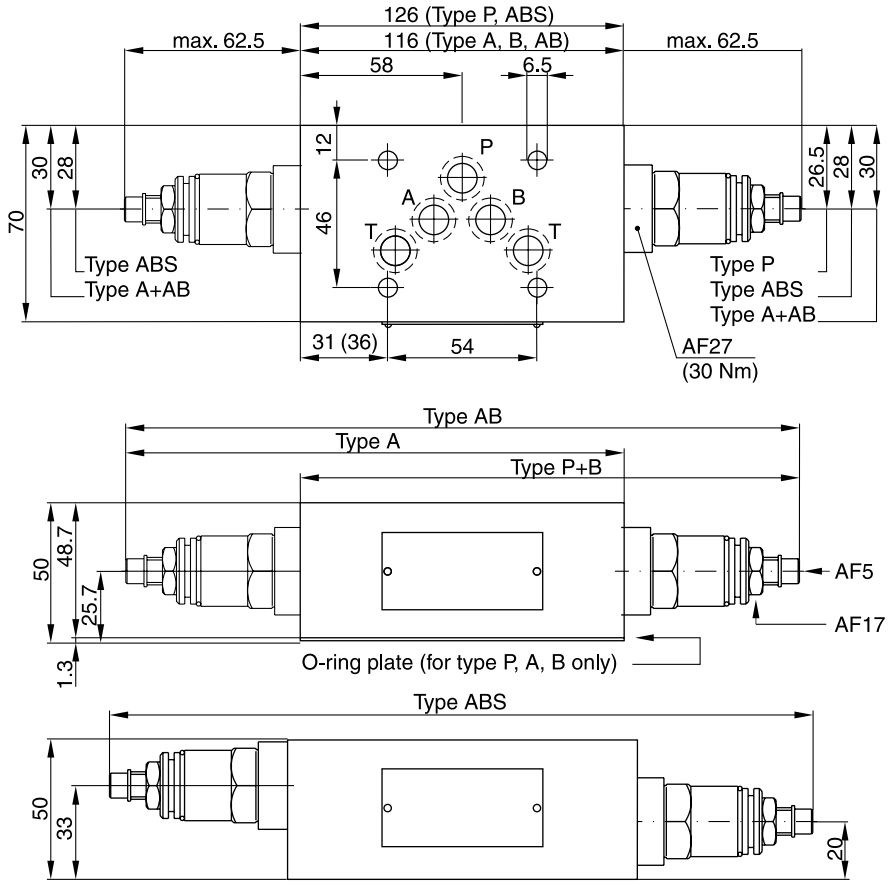
ZDV01



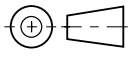
Seal kit	
Seal	**Order code**
1	098-91182-0
5	098-91183-0
Complete cartridge	
Pressure stage	**Order code**
1	098-91116-0
5	098-91117-0

7

ZDV02



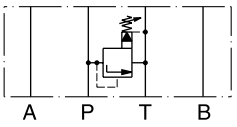
Seal kit	
Seal	**Order code**
1	098-91076-0
5	098-91077-0
Complete cartridge	
Pressure stage	**Order code**
1	098-91116-0
5	098-91117-0



ZDV UK.INDD CM 03.06.13

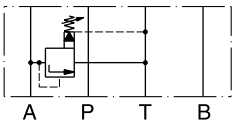
ZDV01

Pressure control P-T



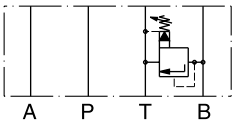
Series	Order No.
ZDV-P01-1-S0-D1	098-91201-0
ZDV-P01-5-S0-D1	098-91202-0

Pressure control A-T



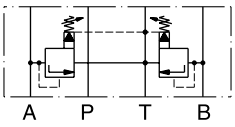
Series	Order No.
ZDV-A01-1-S0-D1	098-91203-0
ZDV-A01-5-S0-D1	098-91204-0

Pressure control B-T



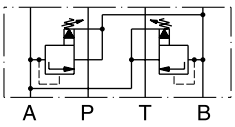
Series	Order No.
ZDV-B01-1-S0-D1	098-91205-0
ZDV-B01-5-S0-D1	098-91206-0

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

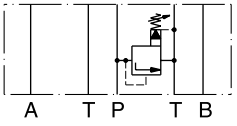
Pressure control A-B & B-A



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

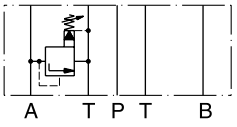
ZDV02

Pressure control P-T



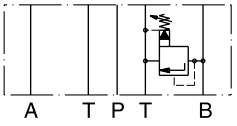
Series	Order No.
ZDV-P02-1-S0-D1	098-91034-0
ZDV-P02-5-S0-D1	098-91035-0

Pressure control A-T



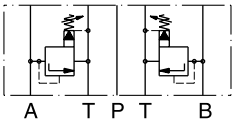
Series	Order No.
ZDV-A02-1-S0-D1	098-91036-0
ZDV-A02-5-S0-D1	098-91037-0

Pressure control B-T



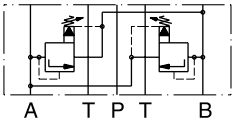
Series	Order No.
ZDV-B02-1-S0-D1	098-91038-0
ZDV-B02-5-S0-D1	098-91039-0

Pressure control A-T & B-T



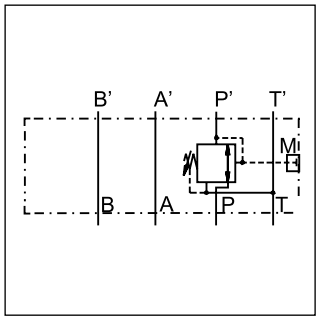
Series	Order No.
ZDV-AB02-1-S0-D1	098-91040-0
ZDV-AB02-5-S0-D1	098-91041-0

Pressure control A-B & B-A

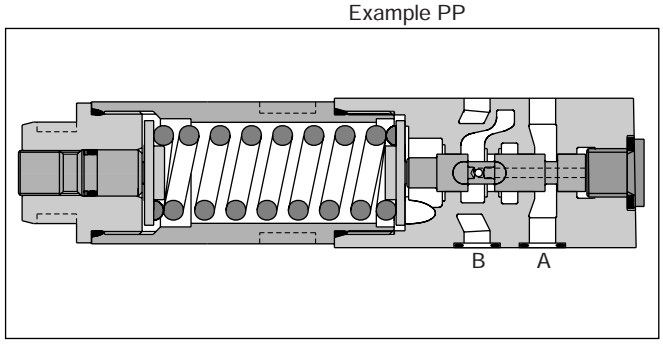


Series	Order No.
ZDV-ABS02-1-S0-D1	098-91042-0
ZDV-ABS02-5-S0-D1	098-91043-0

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, 70, 160, 210, 350 bar for PRDM2,
  19, 50, 100, 150, 210 bar for PRDM3.
- Gauge port
- PRDM2 - NG06 (CETOP 03)
  PRDM3 - NG10 (CETOP 05)

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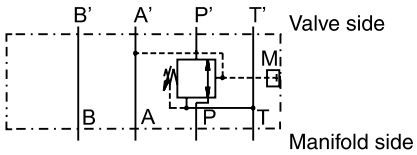
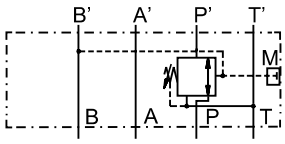
Schematics

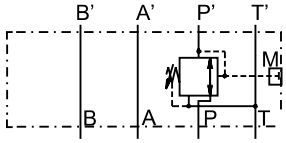
PRDM*AA



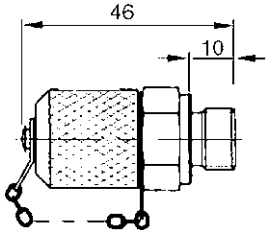
PRDM*BB



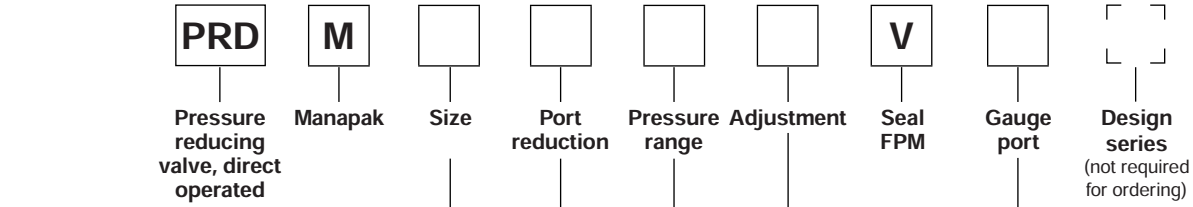
PRDM*PP



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

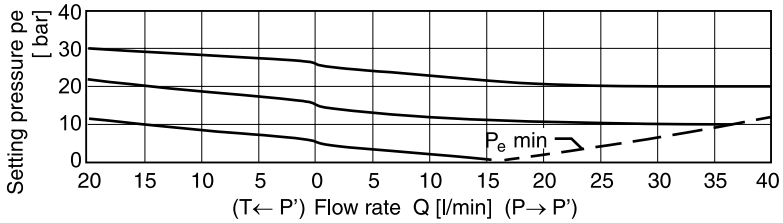
[1] NG06 only.

Technical data

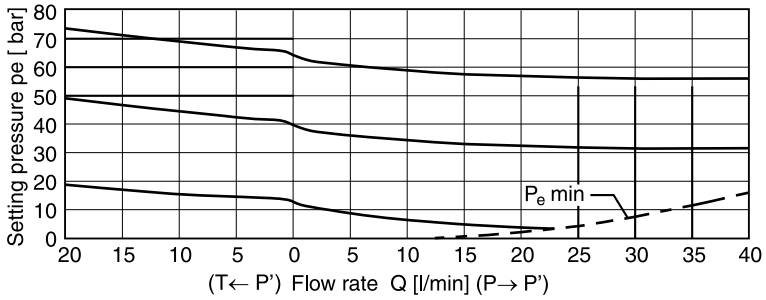
General			
Series		PRDM2	PRDM3
Size		NG06	NG10
Mounting interface		ISO 4401	
Ambient temperature	[°C]	-20...+50	
Weight	[kg]	1.3	2.6
$MTTF_D$ value	[years]	150	
Hydraulic			
Max. operating pressure	P, A, B	350	315
	T [bar]	50	50
Fluid		Hydraulic oil according to DIN 51524...51525	
Fluid temperature	[°C]	-20...+80	
Viscosity range	[cSt] [mm²/s]	12...230	
Filtration		ISO 4406 (1999); 18/16/13	

Max. leakage P - A: max. 15 ml/min.

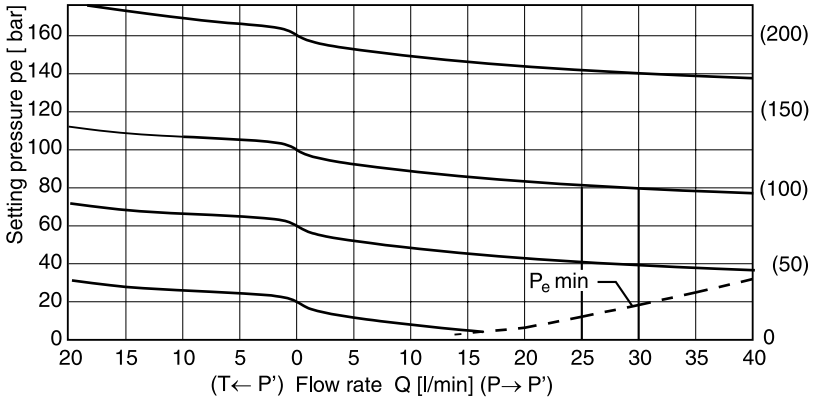
PRDM2 02



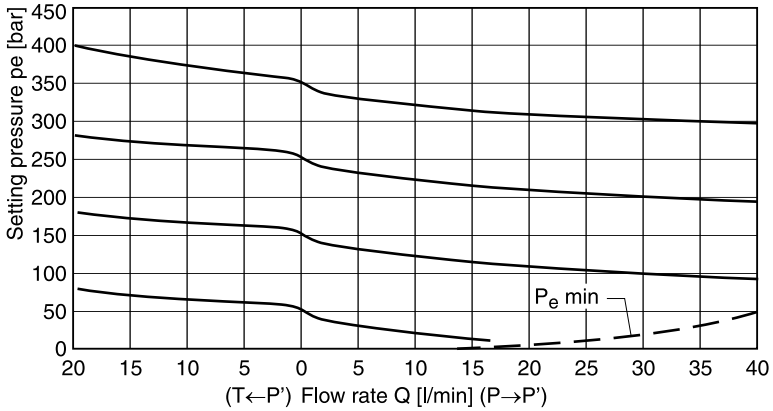
PRDM2 06



PRDM2 16/21

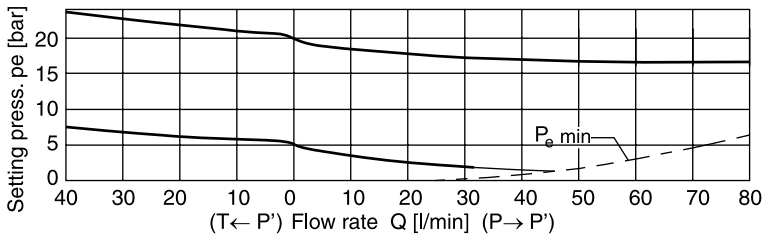


PRDM2 35

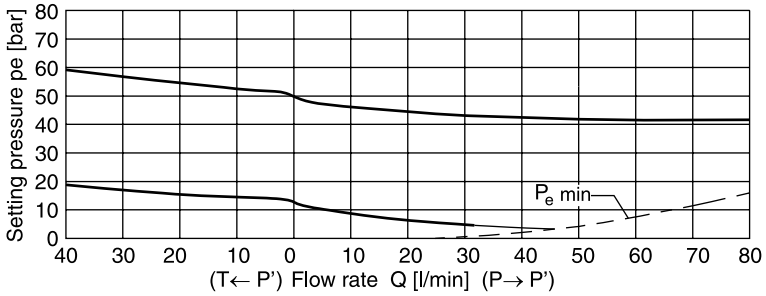


All characteristic curves measured with HLP46 at 50 °C.

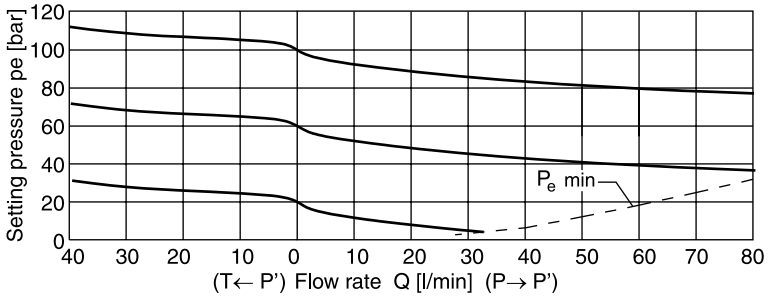
PRDM3 01



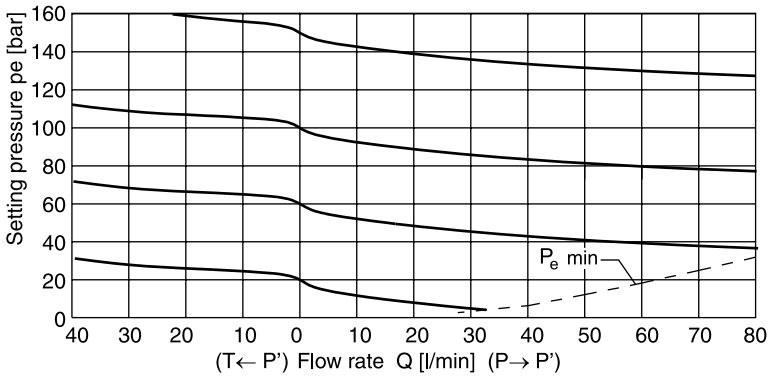
PRDM3 05



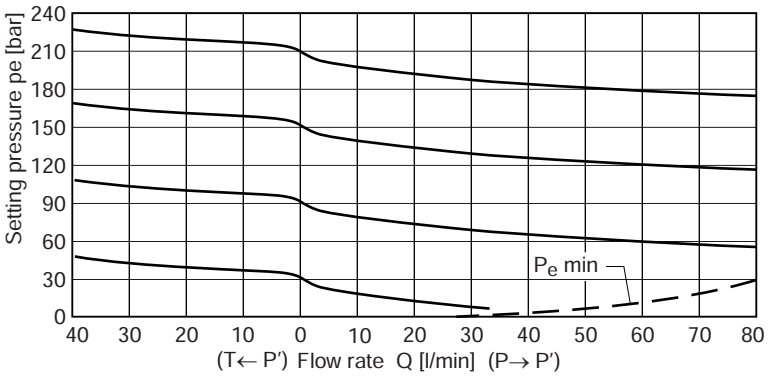
PRDM3 10



PRDM3 15



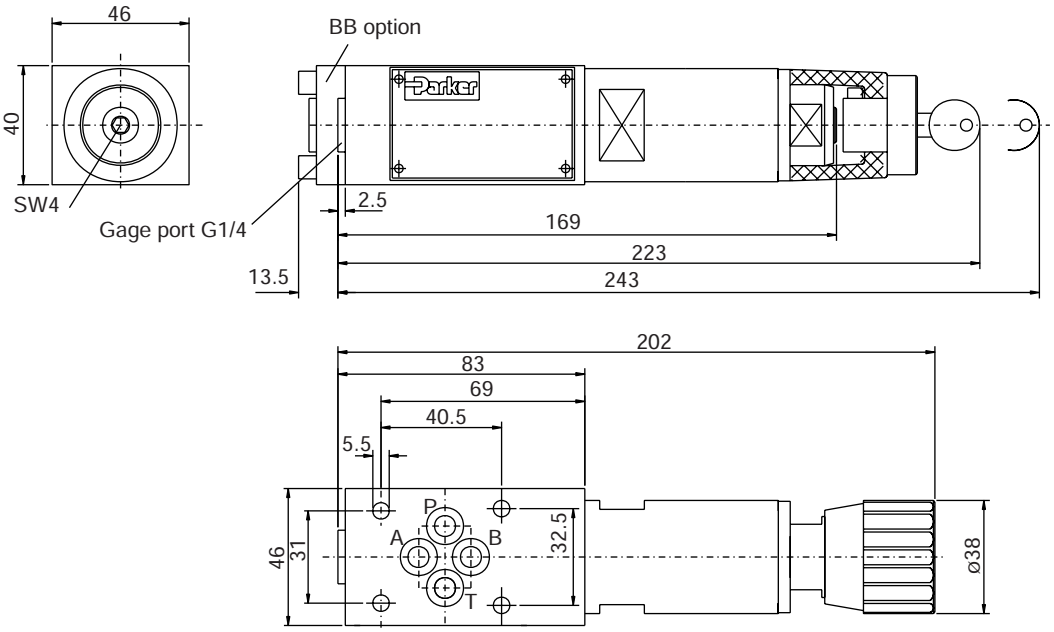
PRDM3 21



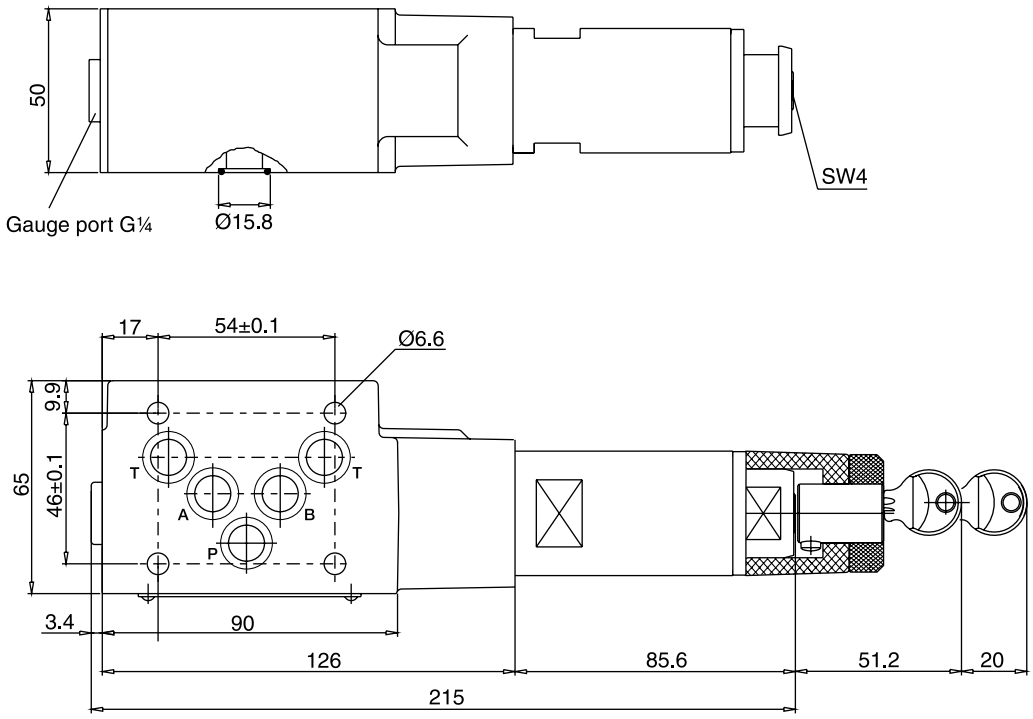
All characteristic curves measured with HLP46 at 50 °C.

PRDM UK.INDD CM 18.07.13

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 except for size NG10 (PRM3 AA and BB, see ordering code).

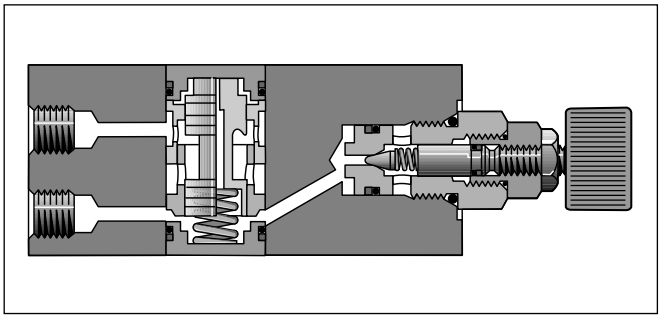
The pressure reduction for the desired connecting port is achieved by internal connections of the pilot and drain lines with the corresponding channels.

Features

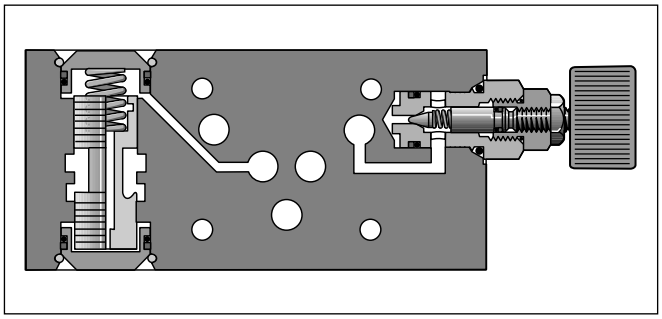
- The valve bodies of the Parker Manapak valve series PRM are made of steel.
- The control pressure range can be set by hexagon socket screw, knob, or knob with cylinder lock.
- Pressure gauge/measuring connections are available in the valve body.
- Piloting results in a flat p/Q performance curve.
- PRM3 - NG10 (CETOP 05)
  PRM4 - NG16 (CETOP 07)
  PRM6 - NG25 (CETOP 08)

PRM3PP

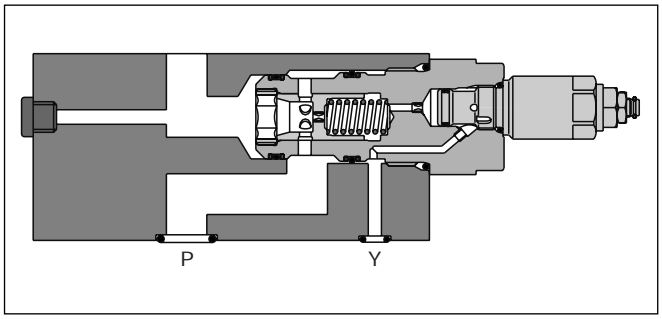
PRM6



PRM3PP



PRM3AA or PRM3BB

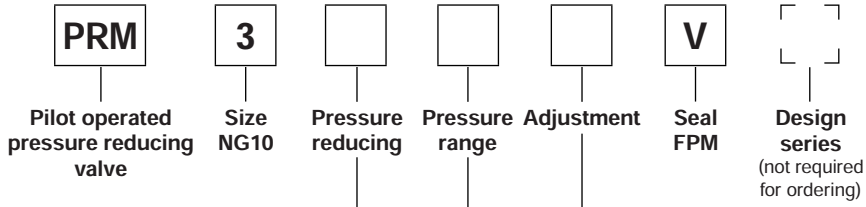


PRM4

7

Technical data

General				
Series		PRM3	PRM4	PRM6
Size		NG10	NG16	NG25
Mounting interface		ISO 4401		
Ambient temperature	[°C]	-20...+50		
Weight	[kg]	2.7	5.0	5.6
$MTTF_D$ value	[years]	75		
Hydraulic				
Max. operating pressure	[bar]	350	350	250
Pressure reduction in channel		P, A, B	P, A, B	P, A
Fluid		Hydraulic oil according to DIN 51524...51525		
Fluid temperature	[°C]	-20...+80		
Viscosity range	[cSt] / [mm²/s]	20...380		
Filtration		ISO 4406 (1999); 18/16/13		

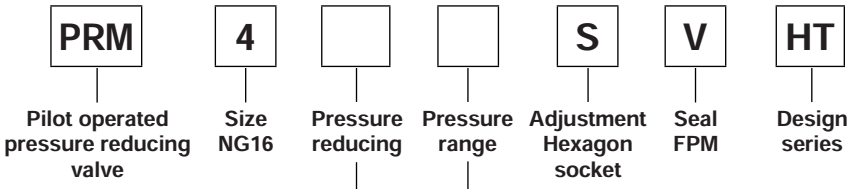


Code	Connection
PP	**P**
AA	**A**
BB	**B**

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

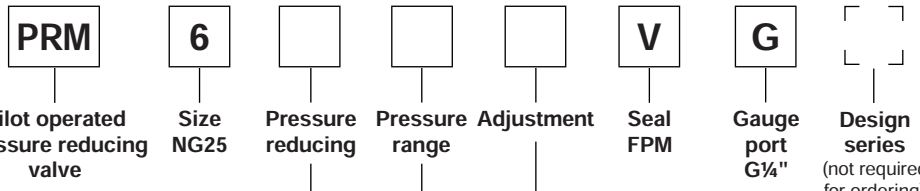
Code	Pressure range
07	4 to 70 bar
17	**10 to 175 bar**
25	**10 to 250 bar**
35	10 to 350 bar

Bold letters =
Short-term availability



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



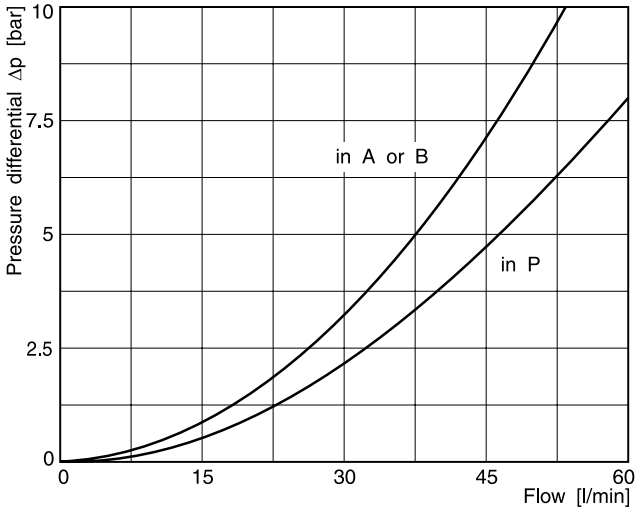
Code	Connection
PA	P
AP	A

Code	Adjustment
L	Cylinder lock
K	Turning knob

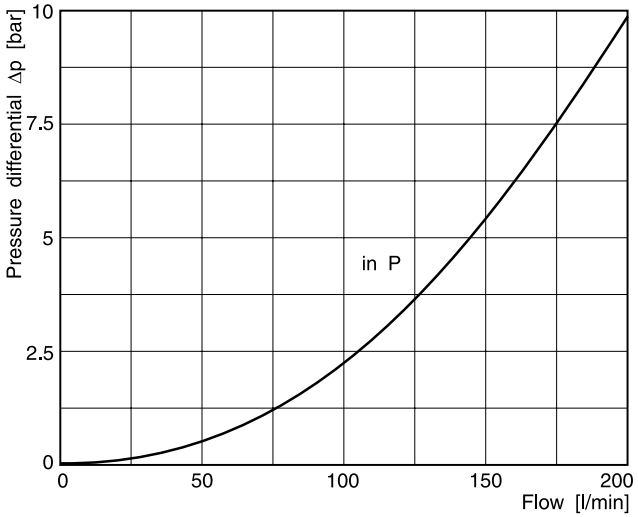
Code	Pressure range
07	10 to 70 bar
17	10 to 175 bar
25	10 to 250 bar

Δp/Q performance curves

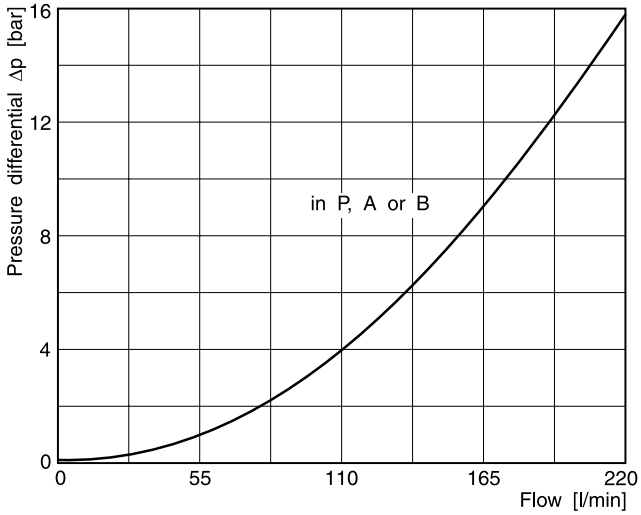
PRM3



PRM4



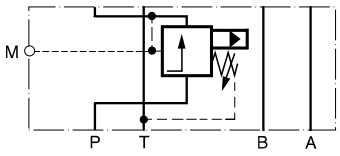
PRM6



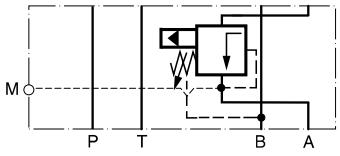
All characteristic curves measured with HLP46 at 50 °C.

Schematics

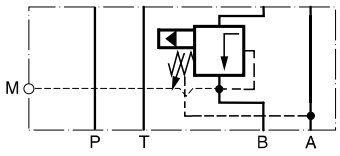
PRM3PP



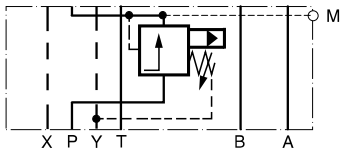
PRM3AA



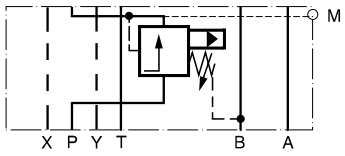
PRM3BB



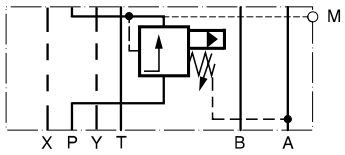
PRM4PP
PRM6PA



PRM4PA
PRM6AP



PRM4PB



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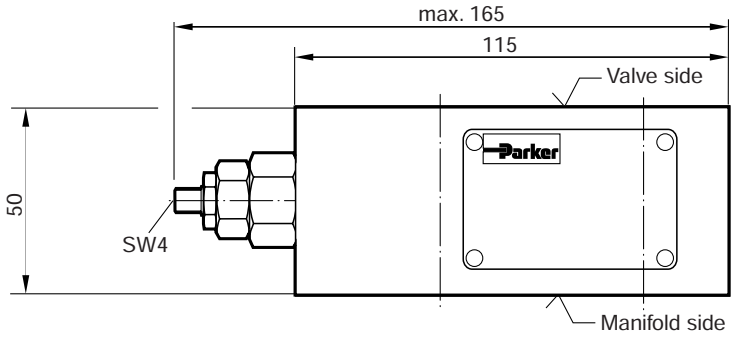
PRM UK.INDD CM 03.06.13

PRM3PP

Adjustment code S



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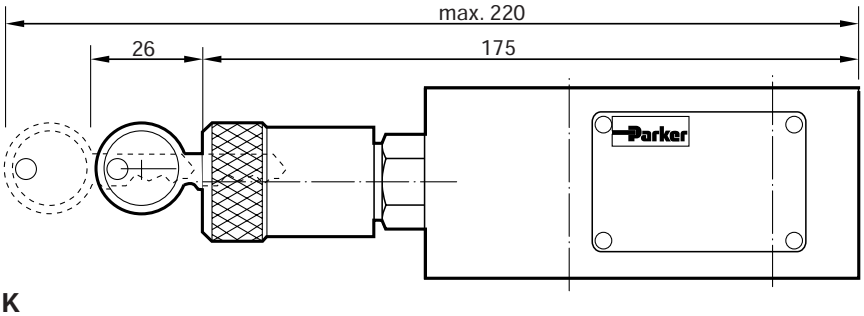

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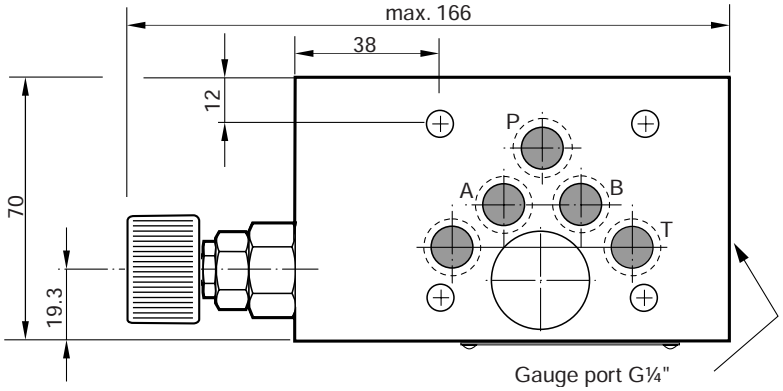
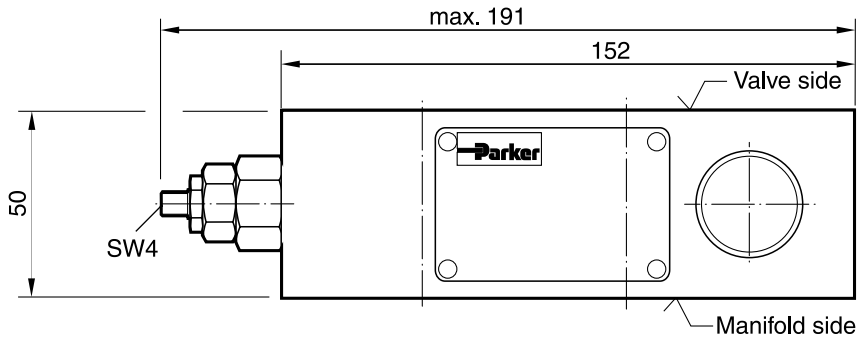


Seal kit PRM3PP	
Seal	**Order code**
V	SK-PRM3-V-30

PRM3AA

Adjustment code S



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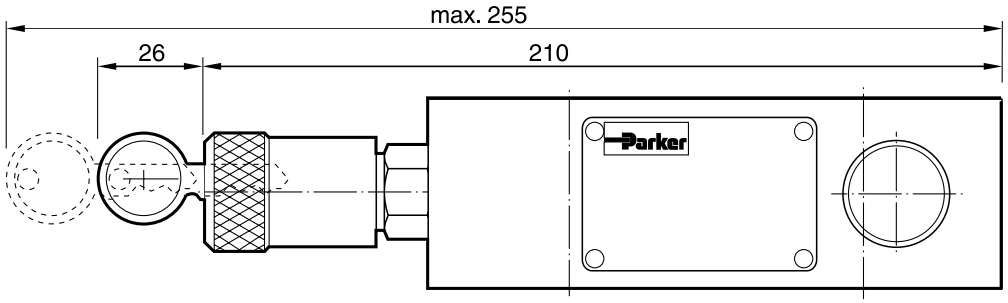

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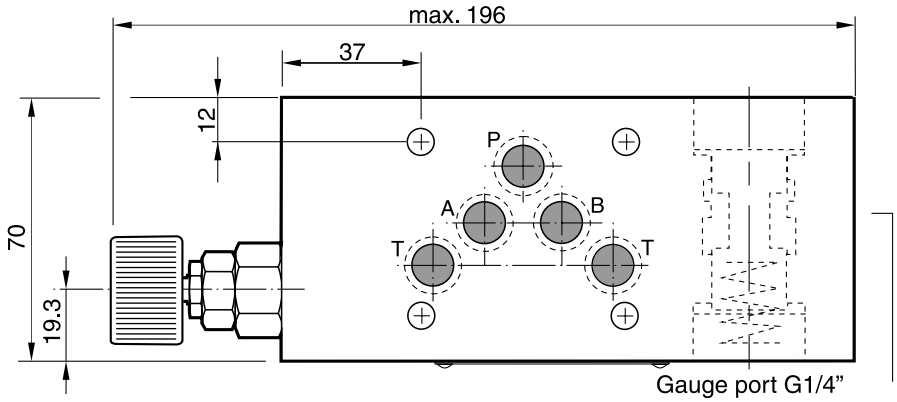
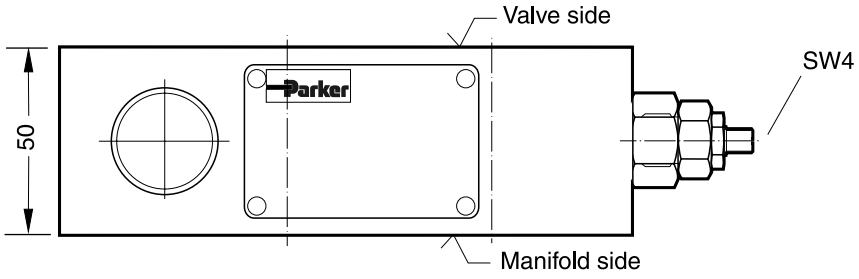


Seal kit PRM3AA	
Seal	**Order code**
V	SK-PRM3-V-11

PRM3BB

Adjustment code S



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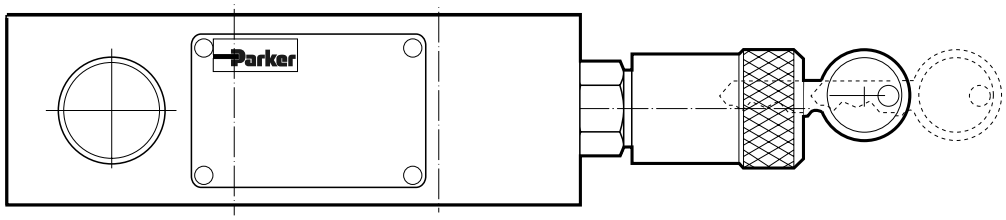

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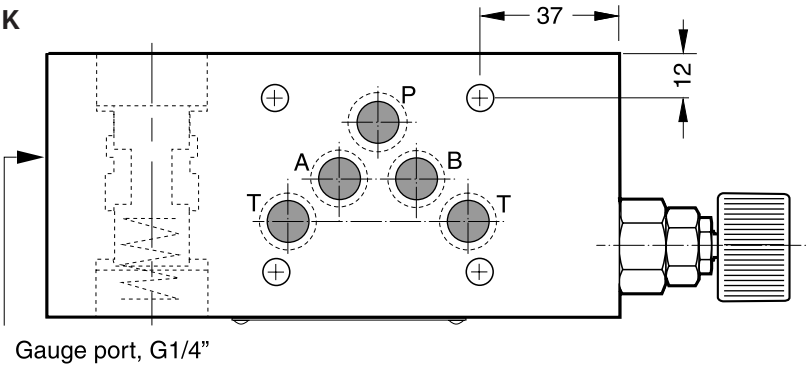
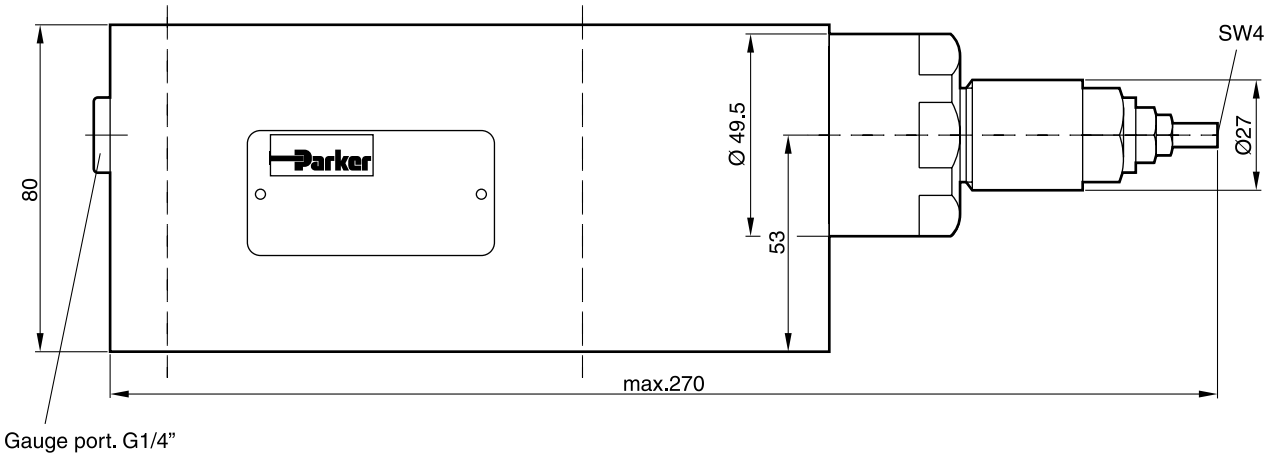
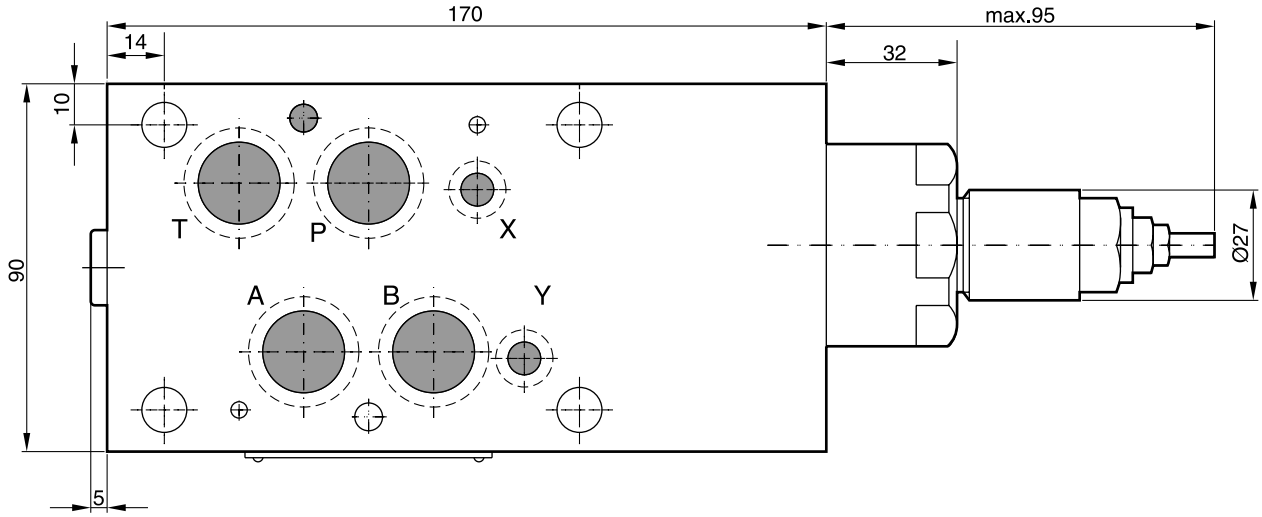


Seal kit PRM3BB	
Seal	**Order code**
V	SK-PRM3-V-11

PRM4

Adjustment code S

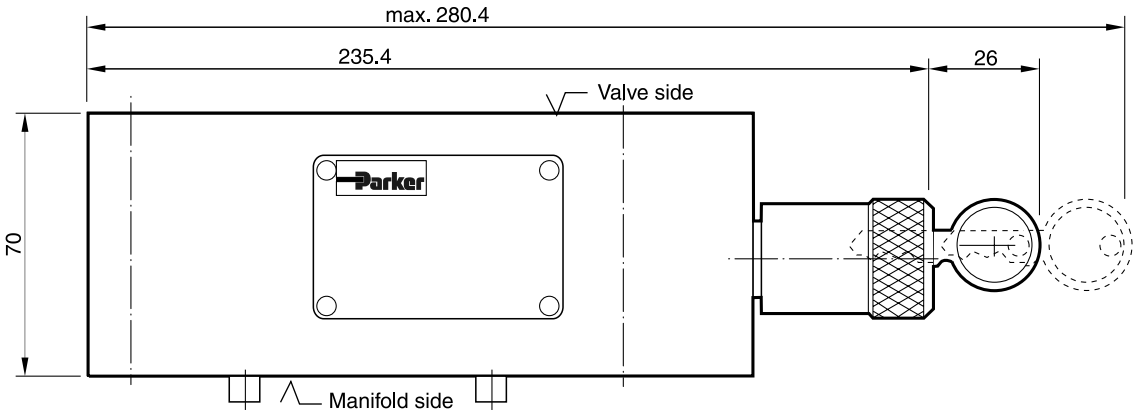




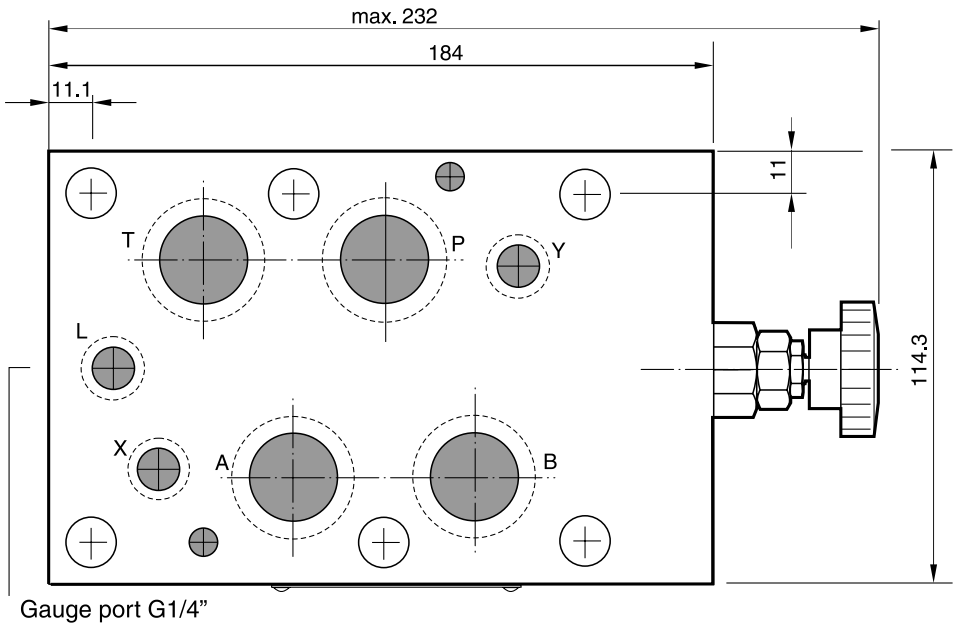
Seal kit PRM4	
Seal	**Order code**
V	SK-PRM4-V-10

PRM6

Adjustment code L



Adjustment code K



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

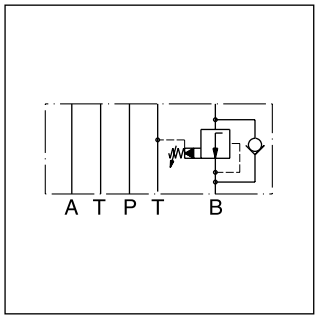
Pilot operated pressure reducing valves series ZDR are designed for maximum flow rates.

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).

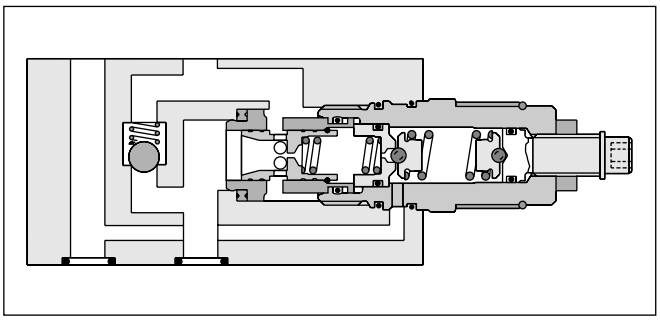
Features

- 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

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

Ordering code details see end of chapter.

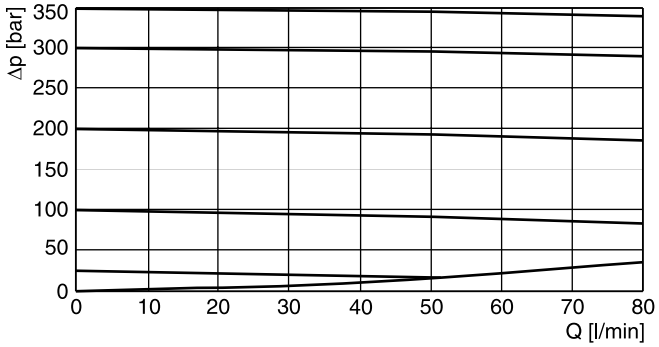
[1)] Code AR, BR and size 10 up to 315 bar.

Technical data

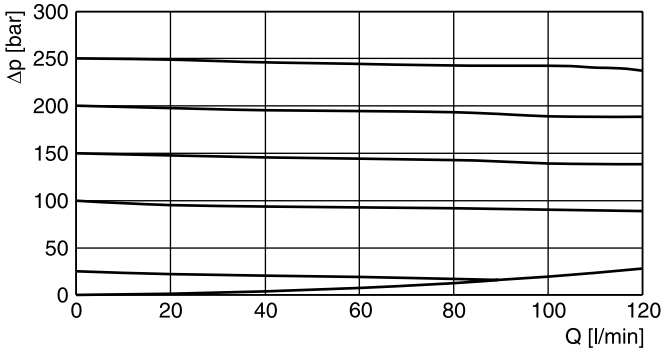
General				
Size			NG06	NG10
Mounting interface			DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05
			CETOP RP 121	
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+50	
$MTTF_D$ value		[years]	150	
Weight	ZDR-P	[kg]	1.6	2.9
	ZDR-AR / BR	[kg]	1.8	3.0
Hydraulic				
Max. 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...51525	
Fluid temperature		[°C]	-20...+80	
Viscosity	permitted	[cSt] / [mm²/s]	10...650	
	recommended	[cSt] / [mm²/s]	30	
Filtration			ISO 4406 (1999); 18/16/13	

p/Q performance curves

ZDR-P/AR/BR01

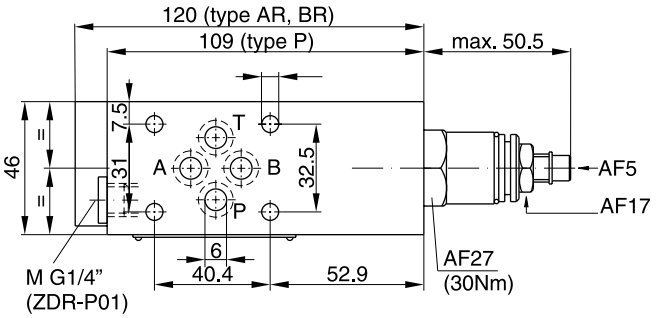


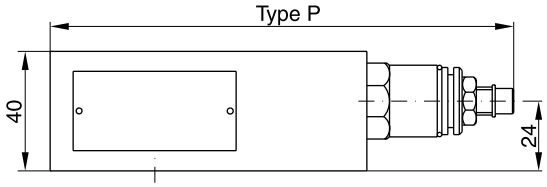
ZDR-P/AR/BR02

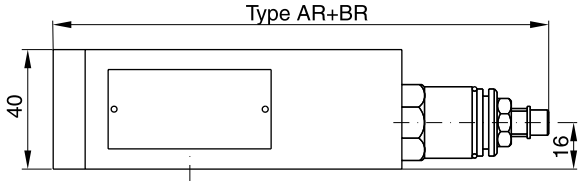


All characteristic curves measured with HLP46 at 50°C.

ZDR01

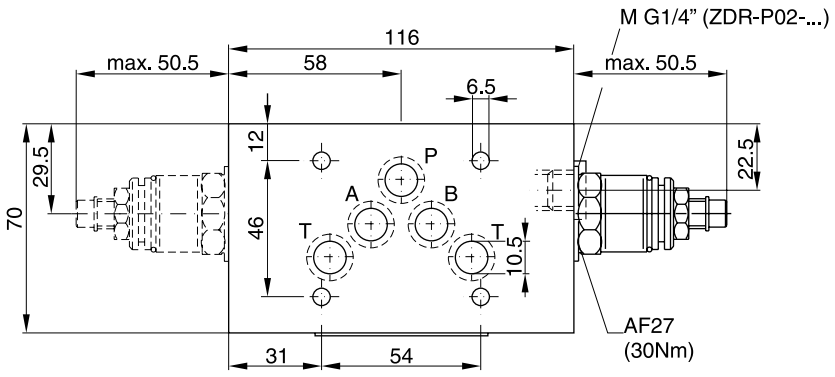


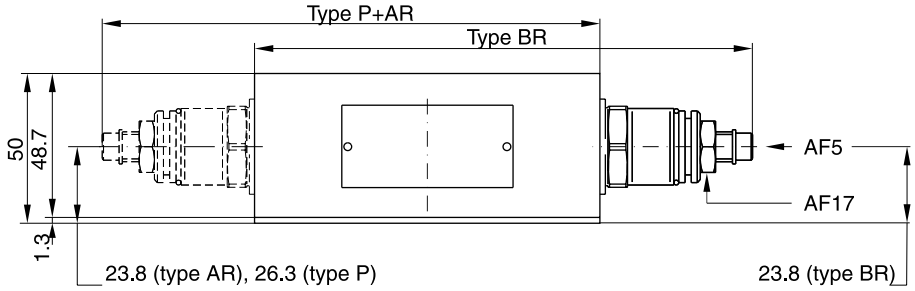




Seal kit	
Seal	**Order code**
1	098-91184-0
5	098-91185-0
Complete cartridge	
Pressure stage	**Order code**
1	098-91102-0
5	098-91103-0

ZDR02

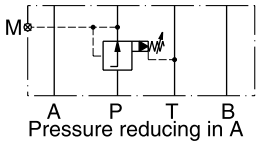




Seal kit	
Seal	**Order code**
1	098-91082-0
5	098-91083-0
Complete cartridge	
Pressure stage	**Order code**
1	098-91102-0
5	098-91103-0

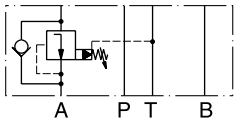
ZDR01

Pressure reducing in P
with pressure gauge port M



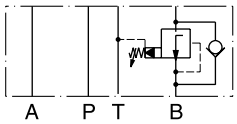
Series	Order No.
ZDR-P01-1-S0-D1	098-91179-0
ZDR-P01-5-S0-D1	098-91211-0

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

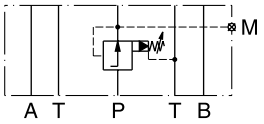
Pressure reducing in B
with check valve



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

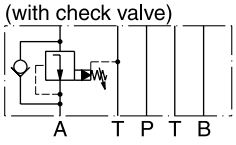
ZDR02

Pressure reducing at P
(with pressure gauge port M)



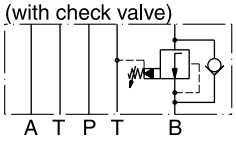
Series	Order No.
ZDR-P02-1-S0-D1	098-91050-0
ZDR-P02-5-S0-D1	098-91051-0

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

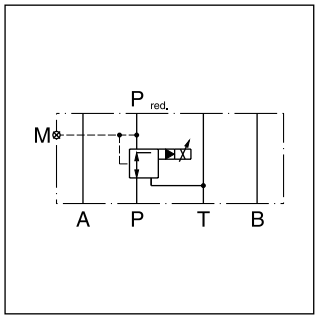
7

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.

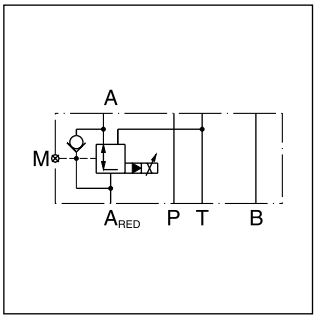
The proportional pressure reducing valve reduces the pressure in output port p_{red} in proportion to the solenoid current. The PRPM works practically independent of the inlet pressure. In non-activated mode, the connection to the tank is fully open with a min. pressure corresponding to the spring force.

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.

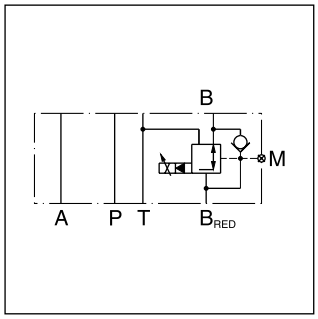
PRPM2PP



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

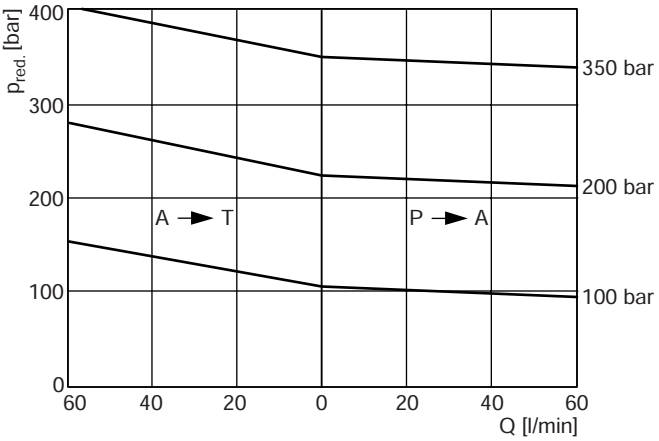
Code	Nominal size
2	NG06
3	NG10

Code	Port
AA	A
BB	B
PP	P

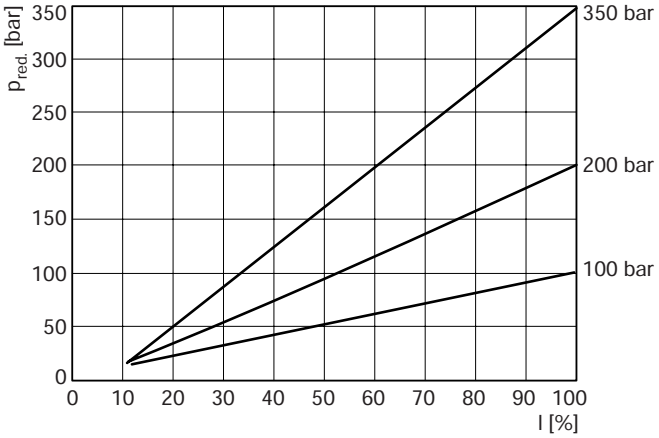
Code	Pressure stage [bar]
10	100
20	200
35	350

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 ... +50	
$MTTF_D$ value	[years]	75	
Weight	[kg]	2.0	3.2
Hydraulic			
Fluid		Hydraulic oil according to DIN 51524...51525	
Fluid temperature	[°C]	-20 ... +80	
Viscosity range	[cSt] / [mm²/s]	12 to 320	
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	

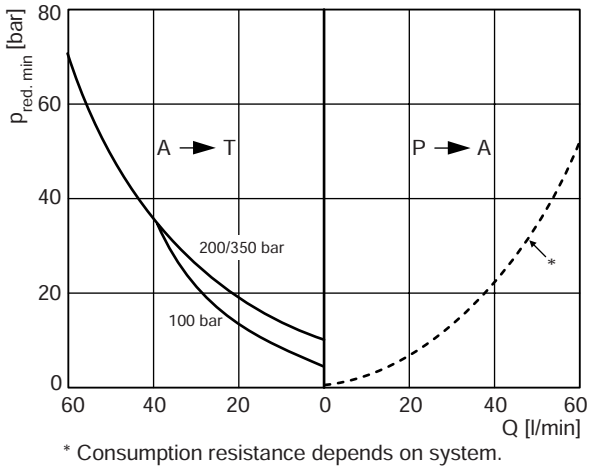
Pressure/flow NG06/NG10



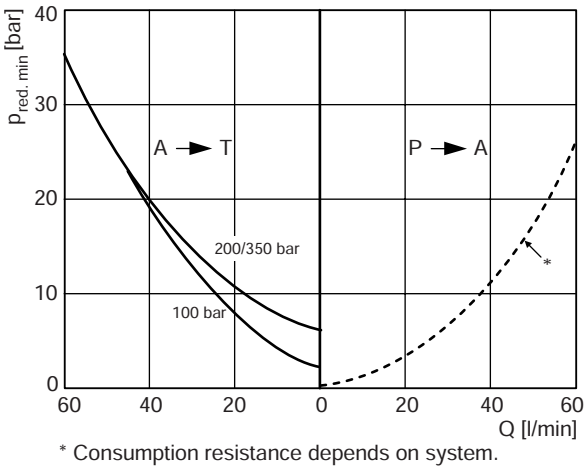
Pressure/adjustment at Q=0l/min (static)



Pressure/flow NG06 (min. adjustable)

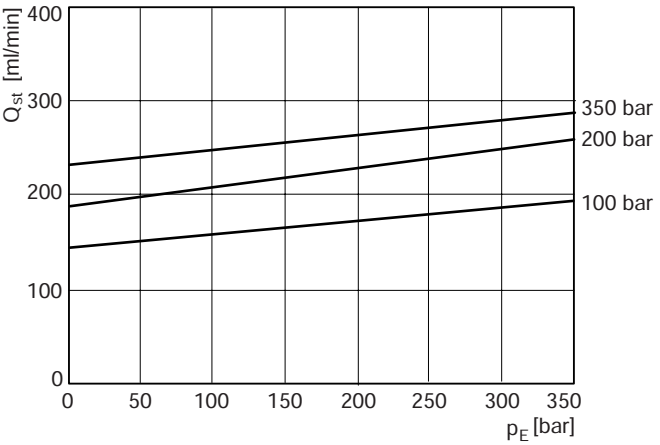


* Consumption resistance depends on system.

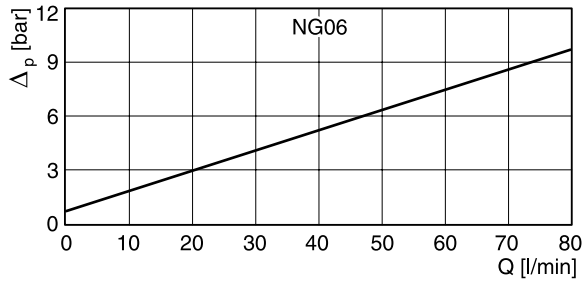


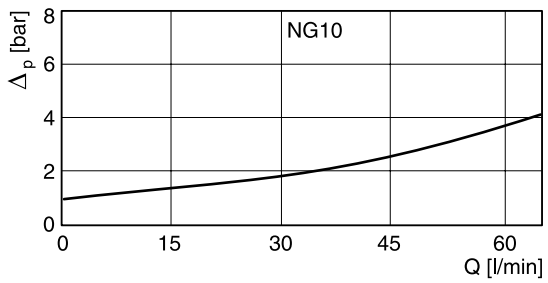
* Consumption resistance depends on system.

Pilot flow NG06/NG10



Pressure drop/flow over check valve





All characteristic curves measured with HLP46 at 50 °C.

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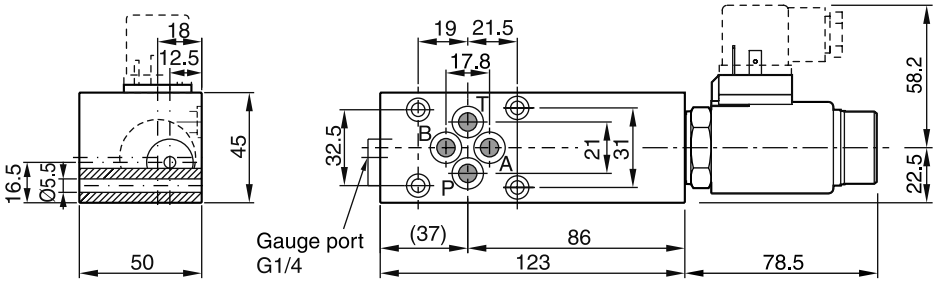
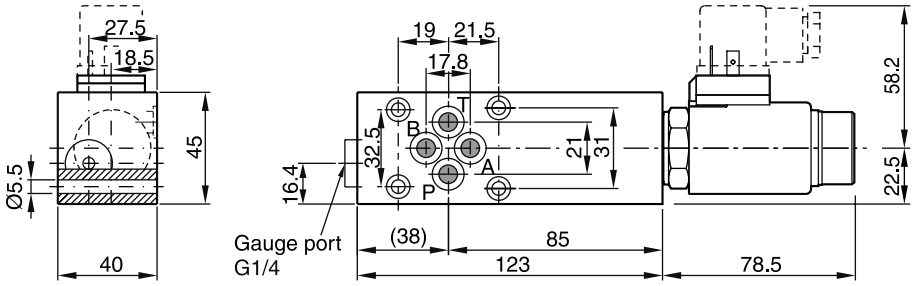
PRPM2AA*, BB**



PRPM2PP*



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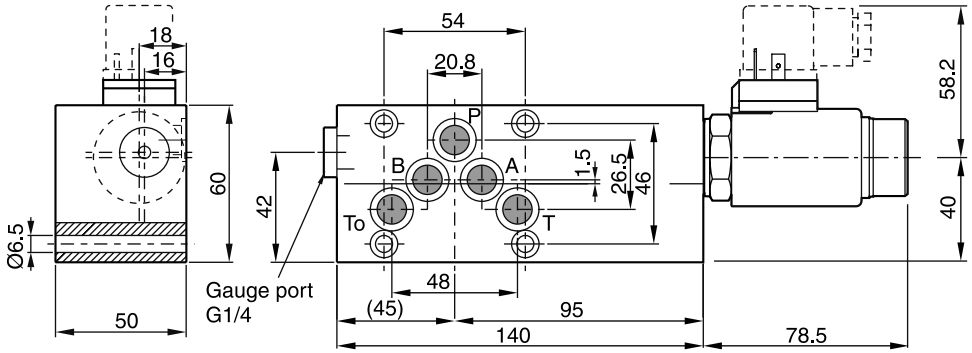
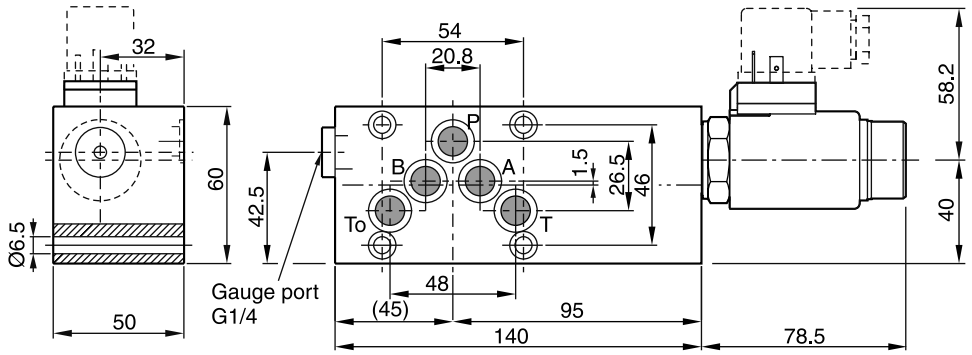
PRPM3AA*, BB**



PRPM3PP*

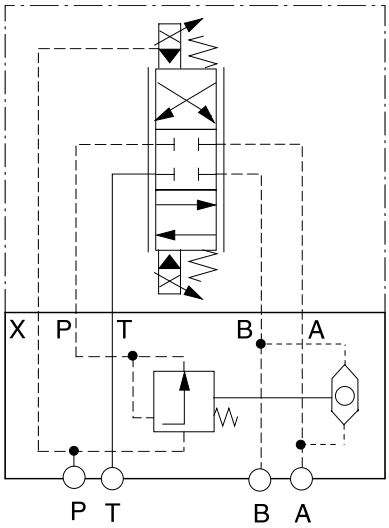


2-way pressure compensators series LCM are sandwich plate valves designed for stacking beneath a proportional directional control valve with a standardized mounting pattern.

The valve maintains a constant pressure differential between ports P and A or P and B across the directional valve. When the cross sectional opening of the directional valves is held steady, a constant flow rate is achieved, regardless of consumer load fluctuations.

The control pressure applied to the spring side of the compensator spool is supplied from port A or B via a shuttle valve. Flow rate regulation is automatically effective in the port with the highest pressure.

Application example



Proportional DC valve model D31FB with 2 way pressure compensator LCM3 maintains a constant flow rate.

The diagram shows the design according to code X.

7

Ordering Code

LCM		PP		02	V	
Pressure compensator	**Size**	**Control connection**	**Pilot oil**	**Differential pressure 10 bar**	**Seal FPM**	**Design series** (not required for ordering)

Code	Size
2	NG06
3	NG10

Code	Pilot oil
omit	internal
X [1)]	external

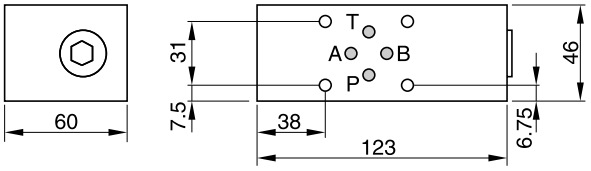
[1)] NG10 only

Technical data

General			
Series		LCM2	LCM3
Size		NG06	NG10
Mounting interface		NFPA D03 CETOP 03	NFPA D05 CETOP 05
Ambient temperature	[°C]	-20...+50	
$MTTF_D$ value	[years]	150	
Hydraulic			
Max. operating pressure	[bar]	350	350
Pressure differential	[bar]	10	10
Fluid		Hydraulic oil according to DIN 51524...51525	
Fluid temperature	[°C]	-20...+80	
Viscosity range	[cSt] / [mm²/s]	12...230	
Filtration		ISO 4406 (1999); 18/16/13	

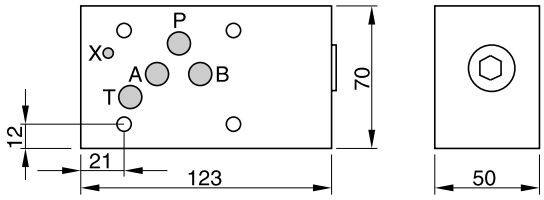
Dimensions

LCM2



Mounting screws: BK 403 (4 x M5 x 90)
For mounting screws connected with the directional valves D1 or D31.

LCM3



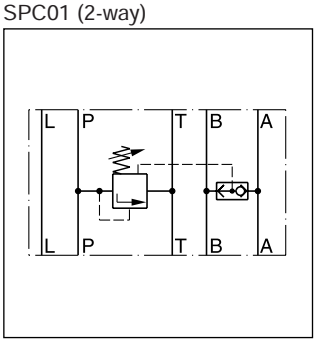
Mounting screws: BK 412 (4 x M6x 90)
The views show the mounting surface for the directional valve.

The sandwich type pressure compensators series SPC are typically used in combination with proportional directional control valves. The compensator keeps the pressure drop over the directional valve constant and thus provides load-independent flow to the actuator.

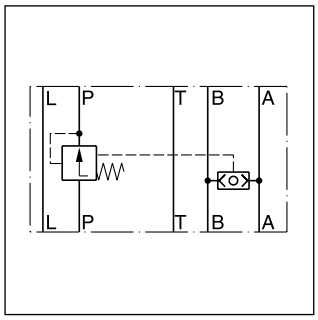
Features

- 2-way or 3-way pressure compensators
- Standard pressure differential 5 bar
- Adjustable differential (2...5 bar) and 10 bar - optional
- SPC01 - NG06 (CETOP 03)
  SPC02 - NG10 (CETOP 05)
  SPC03 - NG16 (CETOP 07)
  SPC06 - NG25 (CETOP 08)

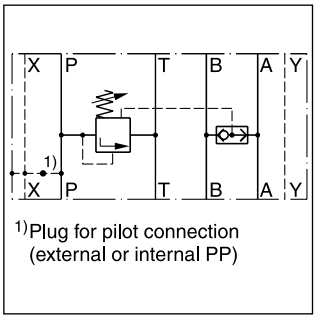
SPC01 (2-way)



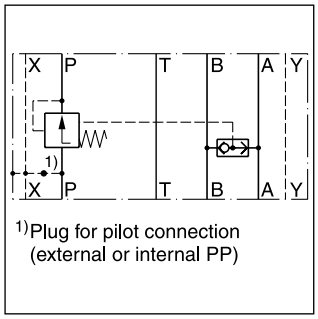
SPC01/02 (3-way)



SPC01/02 (2-way)



SPC03/06 (3-way)



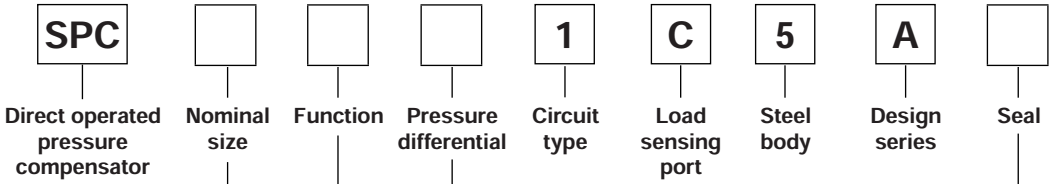
SPC03/06 (2-way)

7

Technical data

General						
Design			Direct operated pressure compensator			
Size			NG06	NG10	NG16	NG25
Mounting interface			DIN 24340 A6 ISO 4401 NFPA D03 CETOP 03	DIN 24340 A10 ISO 4401 NFPA D05 CETOP 05	DIN 24340 A16 ISO 4401 NFPA D07 CETOP 07	DIN 24340 A25 ISO 4401 NFPA D08 CETOP 08
Mounting position			unrestricted			
Ambient temperature		[°C]	-20...+50			
$MTTF_D$ value		[years]	150			
Weight	2-way pressure compensator	[kg]	1.5	3.1	8.3	11.9
	3-way pressure compensator	[kg]	1.6	3.5	8.3	11.9
Hydraulic						
Max. operating pressure	drain port L connected	[bar]	P, A, B: 350; T: 210; L: 10	P, A, B: 315; T: 210; L: 10	–	–
	without drain port	[bar]	P, A, B: 350; T: 160; L: 160	P, A, B: 315; T: 210; L: 210	P, A, B, X: 350; T, Y: 105	P, A, B, X: 350; T, Y: 105
Nominal flow		[l/min]	30	80	200	400
Fluid			Hydraulic oil according to DIN 51524...51525			
Fluid temperature		[°C]	-20...+80			
Viscosity	permitted	[cSt] / [mm^2/s]	10...650			
	recommended	[cSt] / [mm^2/s]	30			
Filtration			ISO 4406 (1999); 18/16/13			

SPC01/02



Code	Nominal size
01	NG06
02	NG10

Code	Seal
1	NBR
5	FPM

Code	Function
01	3-way pressure compensation
11	2-way pressure compensation

Code	Pressure differential
04 [1]	2...5 bar adjustable
05	5 bar
10 [1]	10 bar

SPC01

Type	Model no.	Order no.
3-way compensators with shuttle valve P-A/B	SPC 01 01 041C5A	026-42583-0
	SPC 01 01 051C5A	026-42584-0
	SPC 01 01 101C5A	026-42585-0
2-way compensators with shuttle valve P-A/B	SPC 01 11 051C5A	026-42560-0

SPC02

Type	Model no.	Order no.
3-way compensators with shuttle valve P-A/B	SPC 02 01 041C5A	026-42589-0
	SPC 02 01 051C5A	026-42590-0
	SPC 02 01 101C5A	026-42591-0
2-way compensators with shuttle valve P-A/B	SPC 02 11 051C5A	026-42566-0

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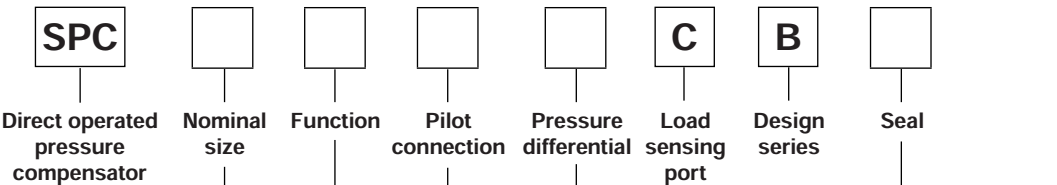
[1] For 3-way compensator only.

SPC03/06



Code	Nominal size
03	NG16
06	NG25

Code	Seal
1	NBR
5	FPM

Code	Function
01	3-way pressure compensation
11	2-way pressure compensation

Code	Pressure differential
05	5 bar (Standard)
10	10 bar

Code	Pilot connection
P	internal pilot pressure
X	external pilot pressure

SPC03

Type	Model no.	Order no.
3-way compensator with shuttle valve P-A/B	SPC 03 01 P05CB1	S26-59683-0
	SPC 03 01 X05CB1	S26-59709-0
2-way compensator with shuttle valve P-A/B	SPC 03 11 P05CB1	S26-59682-0
	SPC 03 11 P10CB1	S26-59677-0
	SPC 03 11 X05CB1	S26-59710-0
	SPC 03 11X10CB1	S26-59882-0

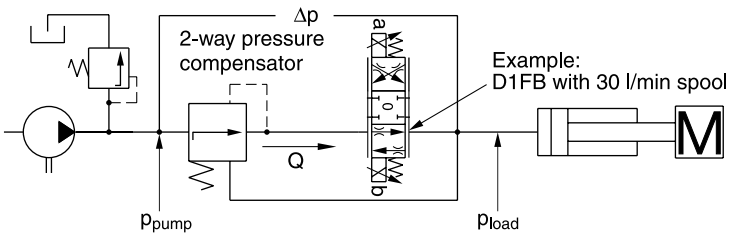
SPC06

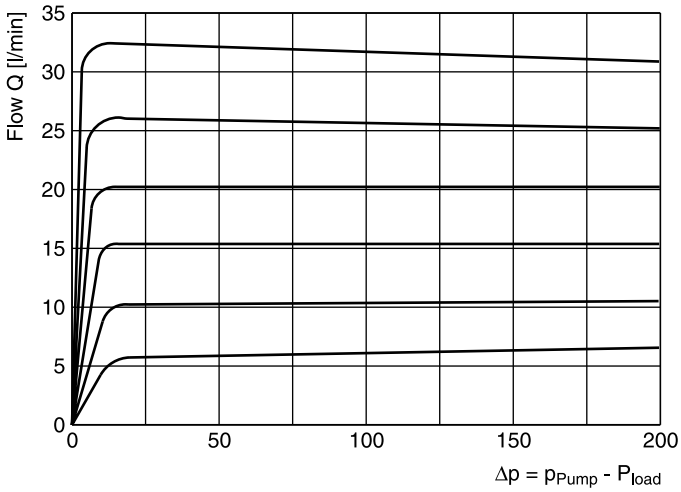
Type	Model no.	Order no.
3-way compensator with shuttle valve P-A/B	SPC 06 01 P05CB1	S26-59685-0
	SPC 06 01 X05CB1	S26-59808-0
2-way compensator with shuttle valve P-A/B	SPC 06 11 P05CB1	S26-59684-0
	SPC 06 11 P10CB1	S26-59678-0
	SPC 06 11 X05CB1	S26-59711-0
	SPC 06 11 X10CB1	S26-59884-0

SPC UK.INDD CM 03.06.13

SPC01

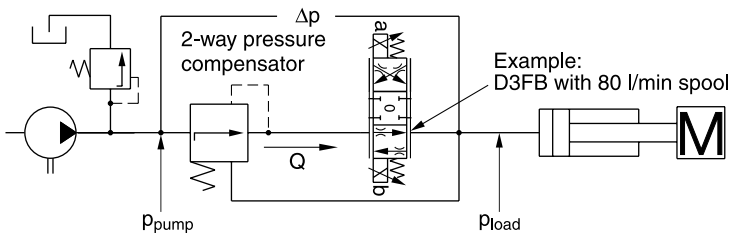
Flow regulation example: 2-way pressure compensator at Δp = 5 bar

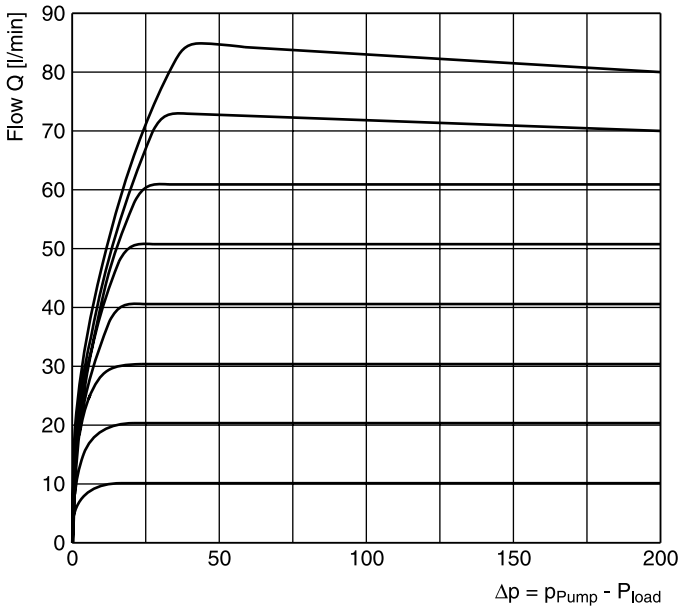




SPC02

Flow regulation example: 2-way pressure compensator at Δp = 5 bar

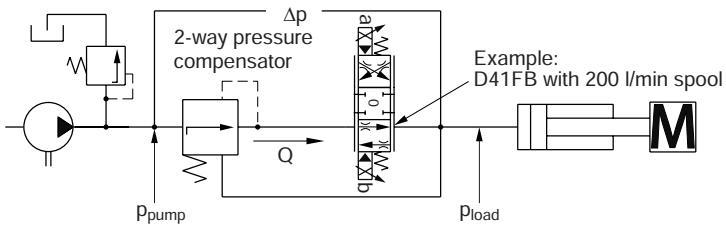


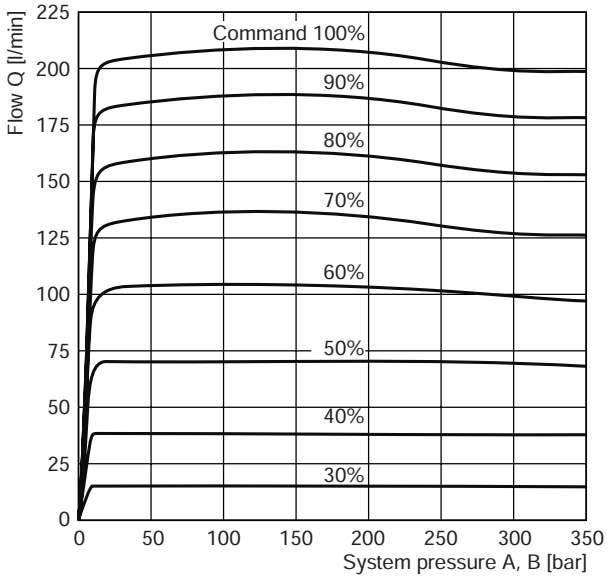


All characteristic curves measured with HLP46 at 50 °C.

SPC03

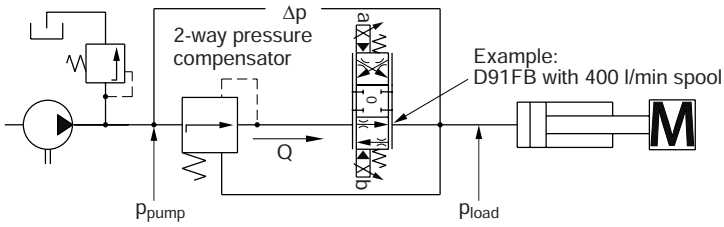
Flow regulation example: 2-way pressure compensator at Δp = 5 bar

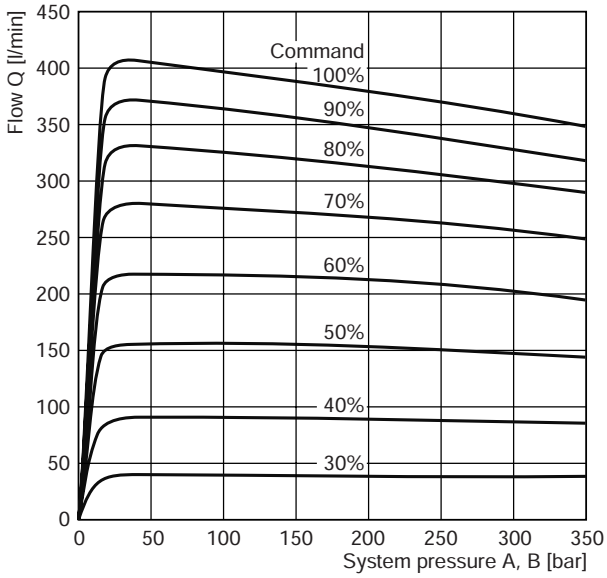




SPC06

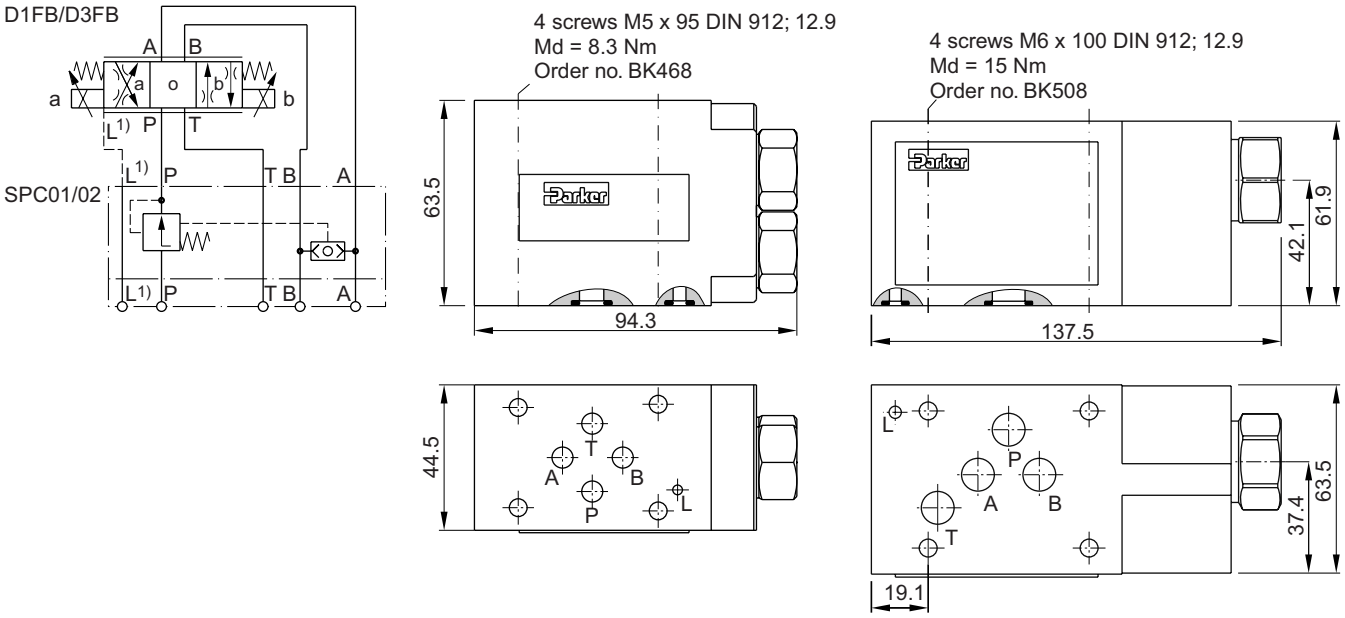
Flow regulation example: 2-way pressure compensator at Δp = 5 bar



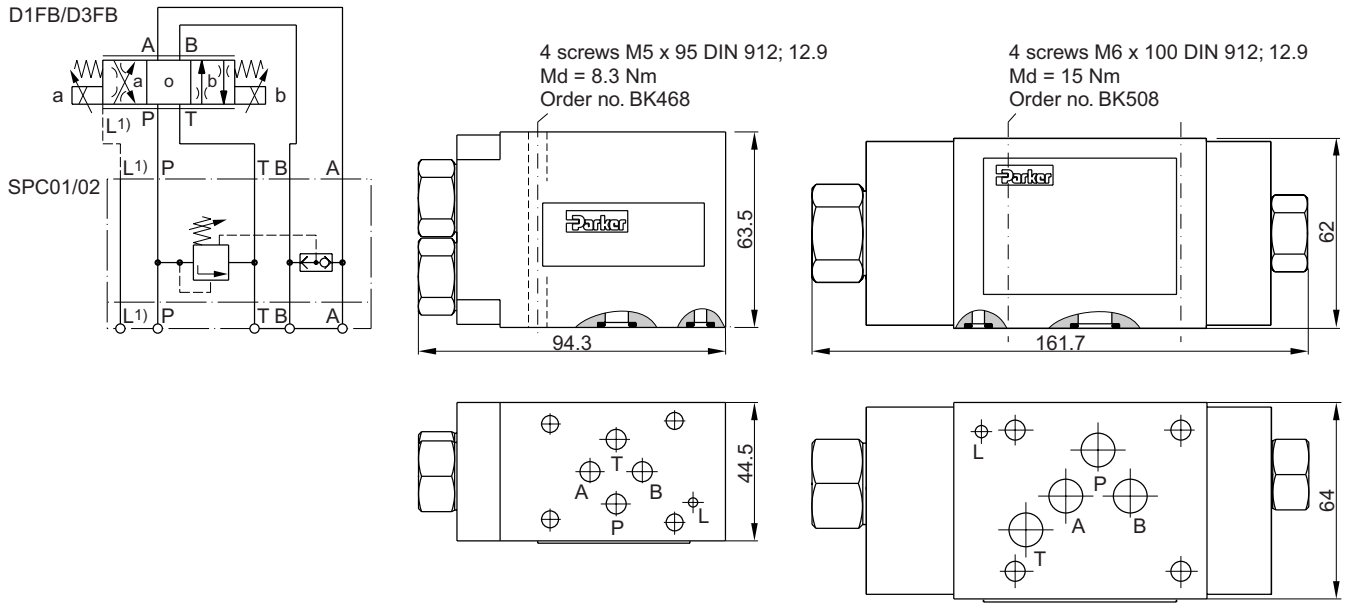


All characteristic curves measured with HLP46 at 50 °C.

2-way pressure compensator



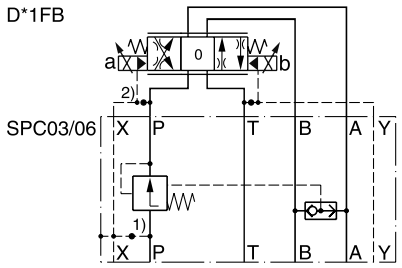
3-way pressure compensator



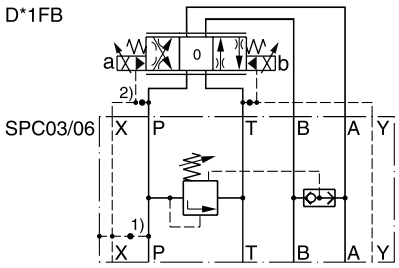
[1] Always connect L to tank when
SPC01 T > 160 bar
SPC02 T > 210 bar

SPC UK.INDD CM 03.06.13

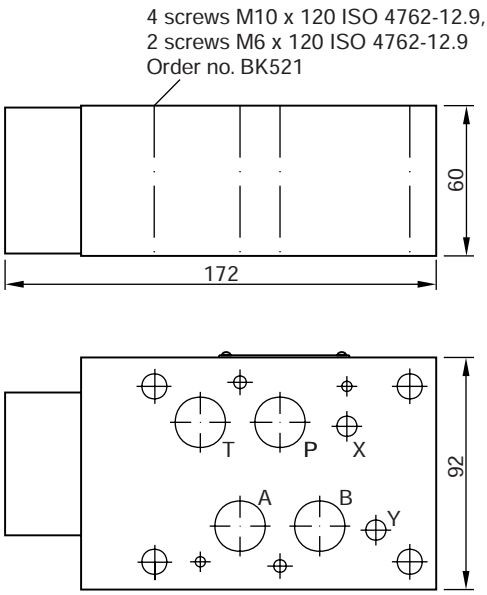
2-way pressure compensator



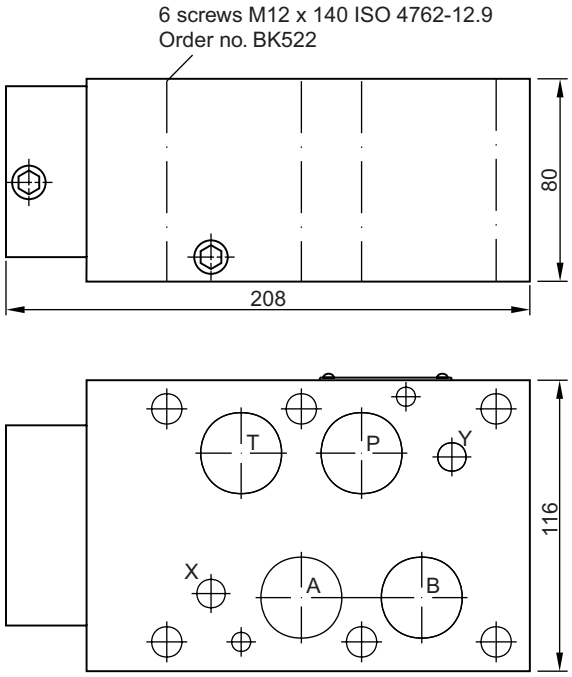
3-way pressure compensator



SPC03



SPC06



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[1] Plug for pilot connection (external or internal PP).

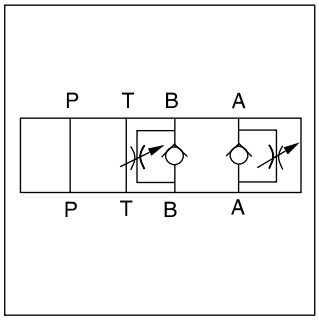
[2] Plug in PX (obligatory for the use with pressure compensator).

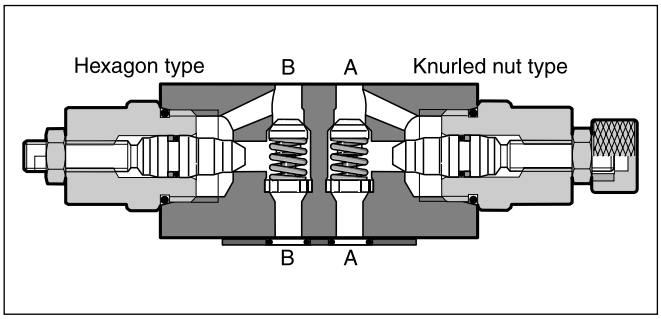
Double-throttle check valves from the Parker Manapak series FM are in sandwich design for easy configuration of stack systems. Throttle and check valves are located in ports A and B.

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).





Features

- Two types of metering needle design can be selected when ordering FM2 and FM3 valves to achieve the throttle characteristics required to suit the application.
- 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)

7

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...+50			
$MTTF_D$ value	[years]	150			
Weight	[kg]	1.3	2.4	5.4	7.9
Hydraulic					
Max. operating pressure	[bar]	350	350	350	210
Max. Flow	[l/min]	53	76	200	341
Opening pressure	[bar]	0.3	0.3	0.3	0.3
Meter-in throttle		•	•	•	—
Meter-out throttle		•	•	•	•
Fluid		Hydraulic oil according to DIN 51524...51525			
Fluid temperature	[°C]	-20...+80			
Viscosity permitted	[cSt] / [mm²/s]	10...650			
Viscosity recommended	[cSt] / [mm²/s]	30			
Filtration		ISO 4406 (1999); 18/16/13			

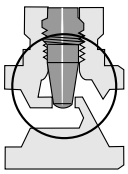
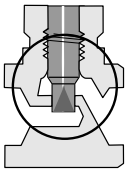
FM		DD			V	
Throttle valve	**Valve size**	**Throttle check valve in the working port A and B**	**Needle design**	**Adjustment**	**Seal FPM**	**Design series** (not required for ordering)

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

Code	Adjustment
K	**Knob**
S	**Hexagon socket**

Code	Needle
omit	**Standard conical**
D	Fine, cylindrical Hollow bored with V notch

Bold letters =
Short-term availability

	A two-stage needle provides fine adjustment in the lower flow range with 3 adjustment rotations. After 3 more rotations, the valve is completely open.
	Design "D" A cylindrical needle with a V notch allows the fine adjustment over the entire setting range.

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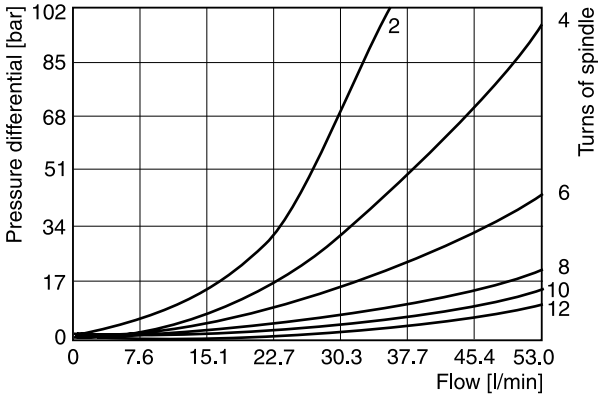
FM	4	DD		V	HT
Throttle valve	**Valve size NG16**	**Throttle check valve in the working port A and B**	**Meter-out / meter-in throttling**	**Seal FPM**	**Design series**

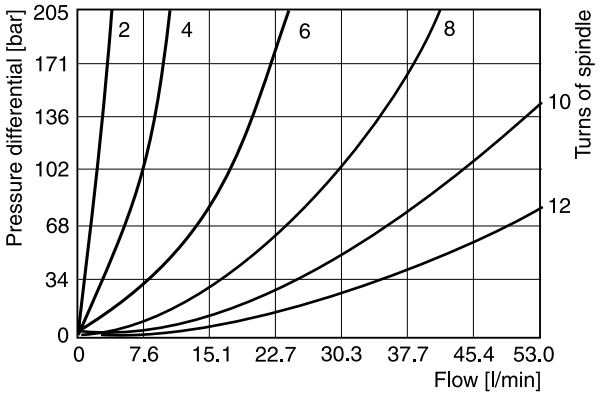
Code	Description
T	Meter-in
F	Meter-out

FM	6	DD	K	V	
Throttle valve	**Valve size NG25**	**Throttle check valve in the working port A and B**	**Adjusting knob**	**Seal FPM**	**Design series** (not required for ordering)

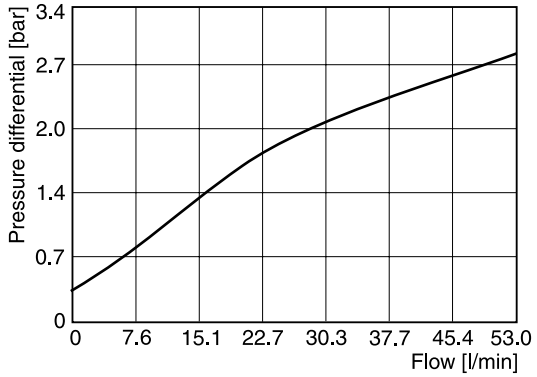
FM2 standard needle



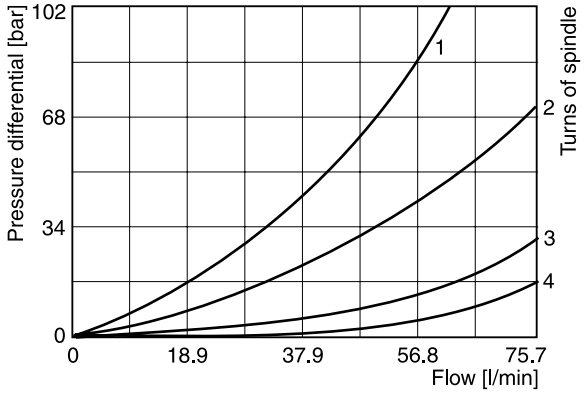
FM2D needle with V notch



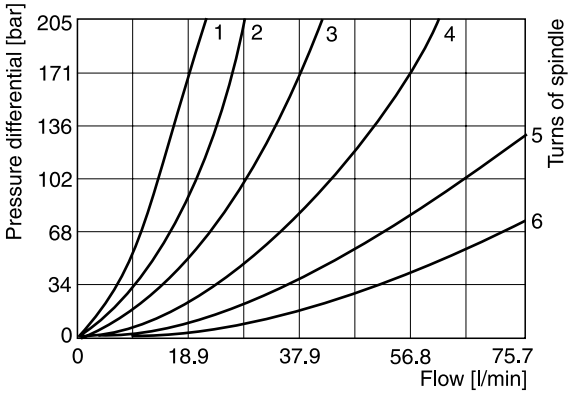
FM2 flow, check valve



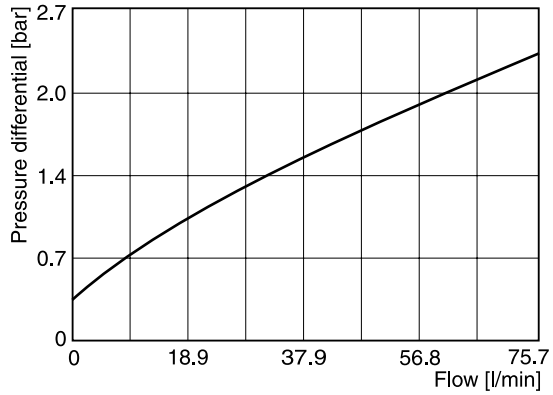
FM3 standard needle



FM3D needle with V notch



FM3 flow, check valve

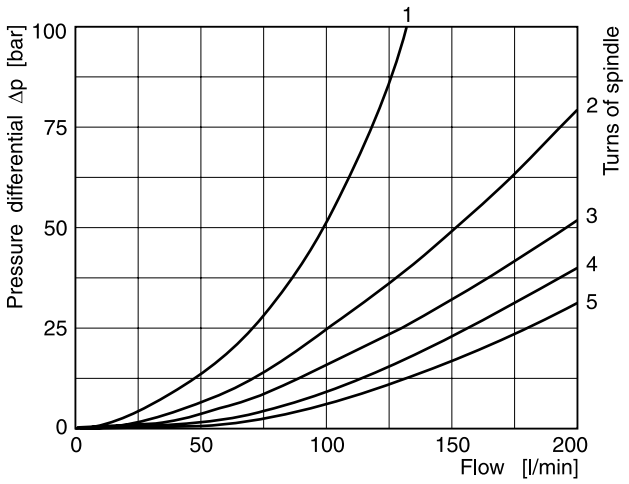


All characteristic curves measured with HLP46 at 50 °C.

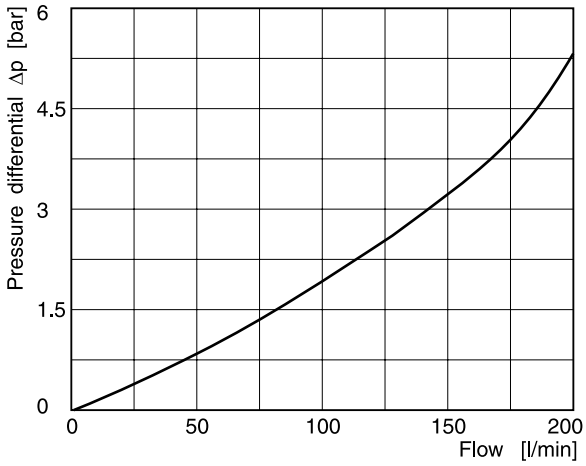
FM UK.INDD CM 03.06.13

FM4 with standard needle

1 to 5 number of needle rotations



FM4 flow, check valve



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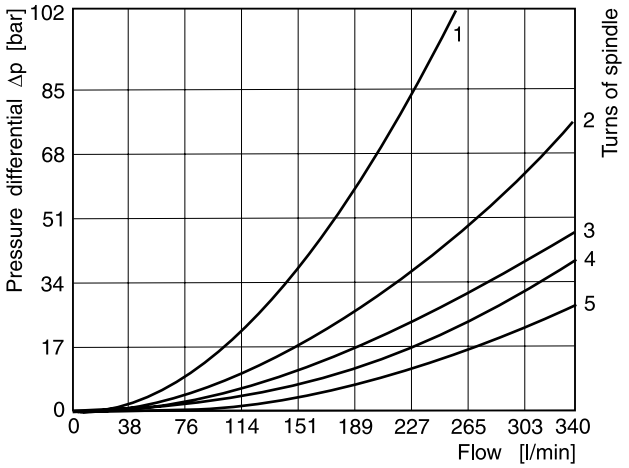
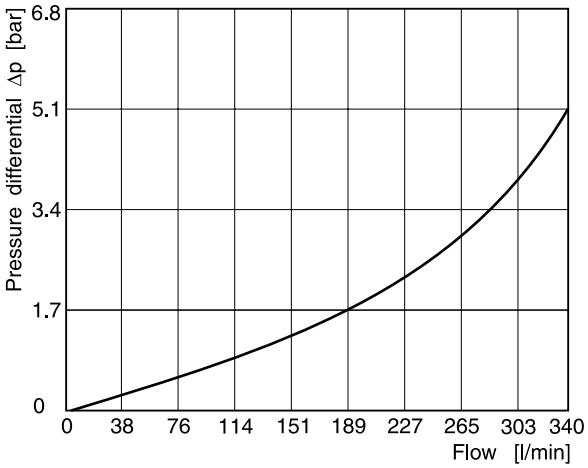
FM6 with standard needle

1 to 5 number of needle rotations



FM6 flow, check valve

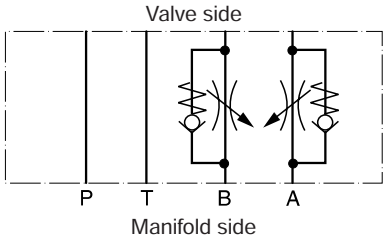


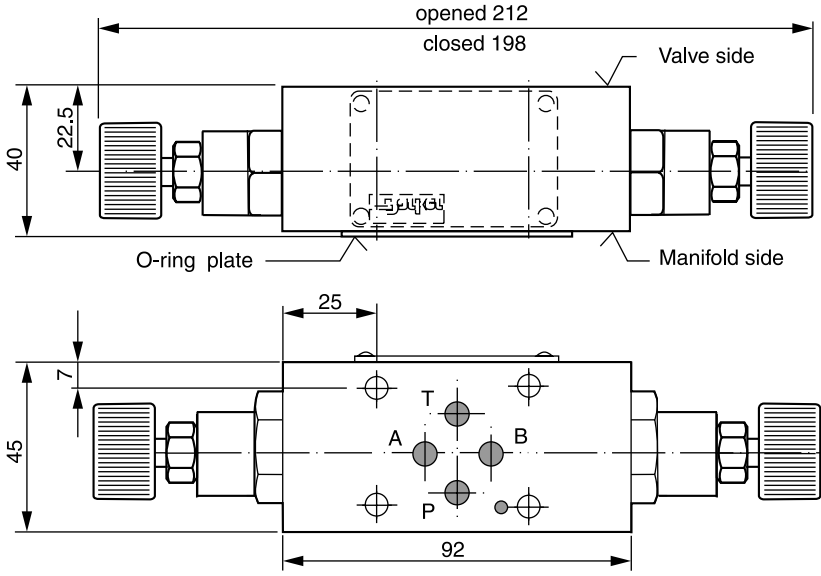
All characteristic curves measured with HLP46 at 50 °C.

FM2

Adjustment code K

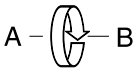
Meter-in



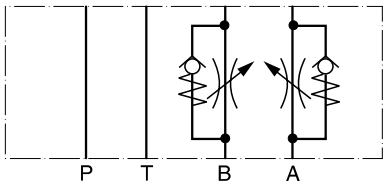


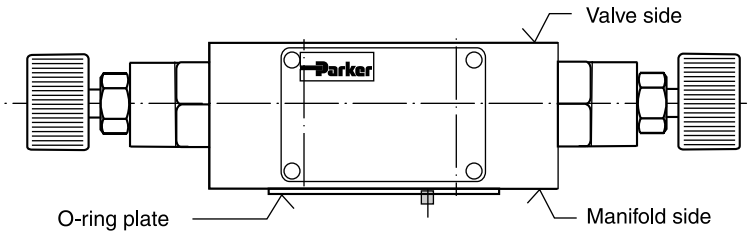
Meter-in or meter-out

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



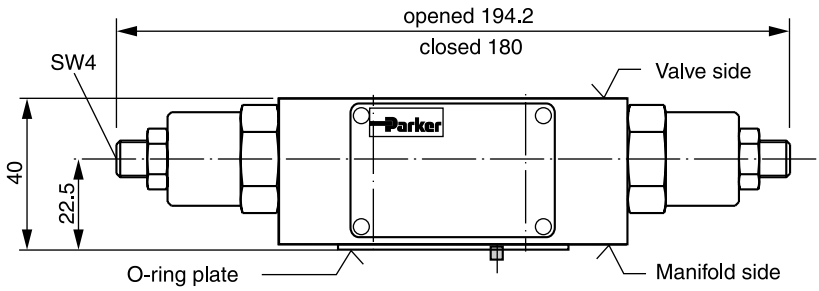
Meter-out





Adjustment code S

(Meter-out shown)



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

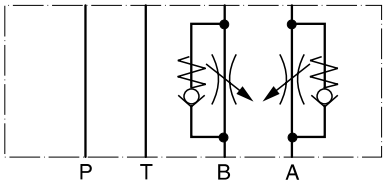
Note:

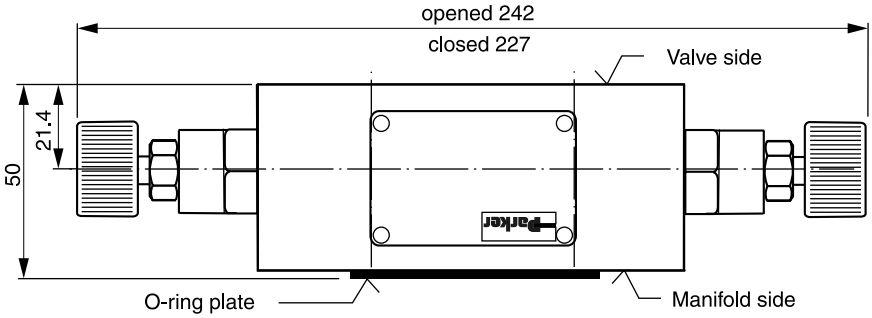
The O-ring plate (with O-rings) for sealing the connecting surface of the manifold side is included. The O-ring and positioning pin are always mounted on the manifold side.

FM3

Adjustment code K

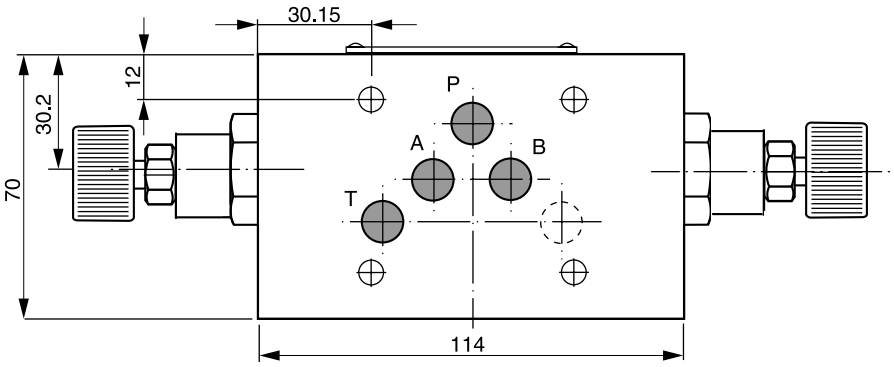
Meter-in



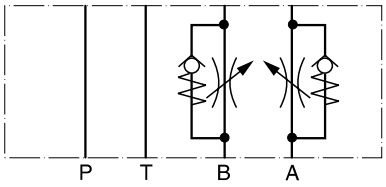


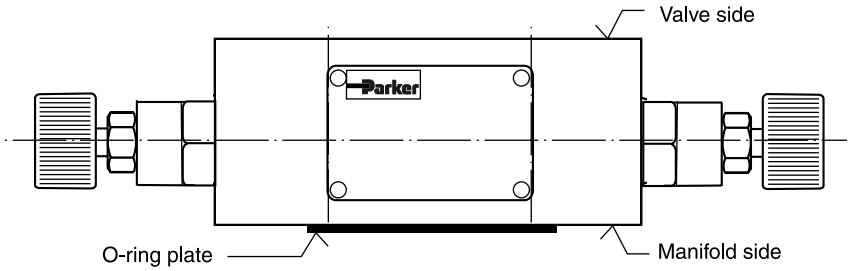
Meter-in or meter-out

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



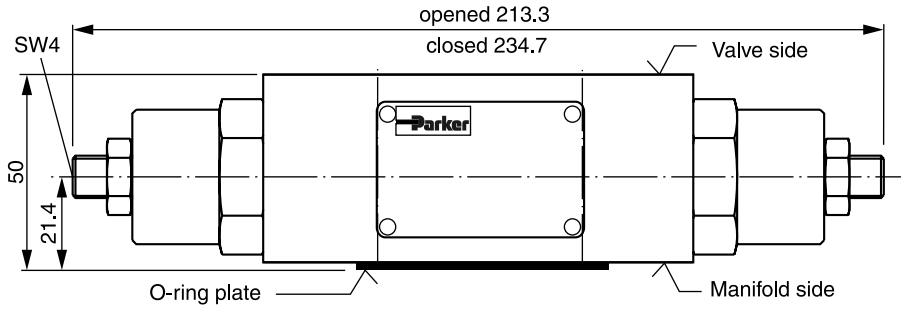
Meter-out





Adjustment code S

(Meter-out shown)



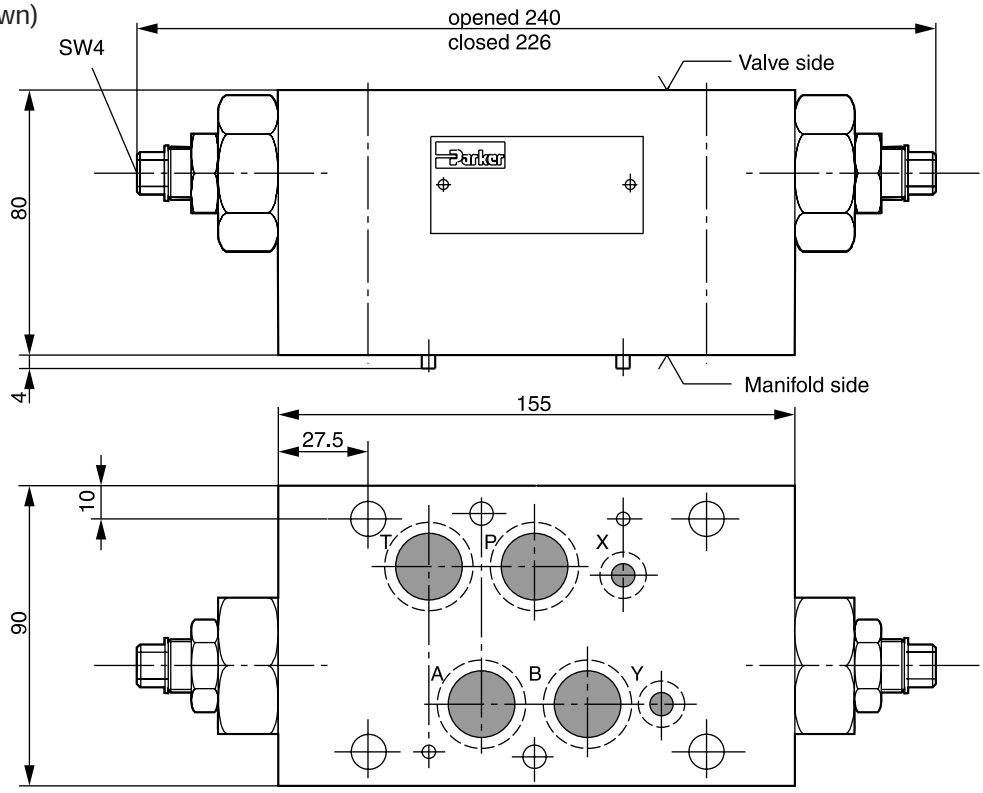
Seal kit FM3	
Seal	**Order code**
V	SK-FM3-V-20

Note:

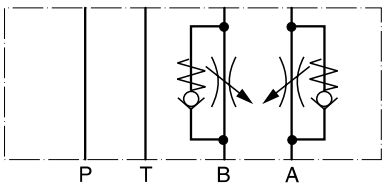
The O-ring plate (with O-rings) for sealing the connecting surface of the manifold side is included. The O-ring and positioning pin are always mounted on the manifold side.

FM4

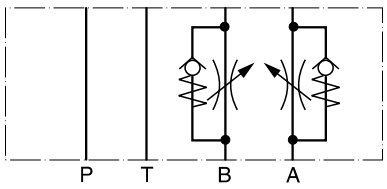
(Meter-out shown)



Meter-in

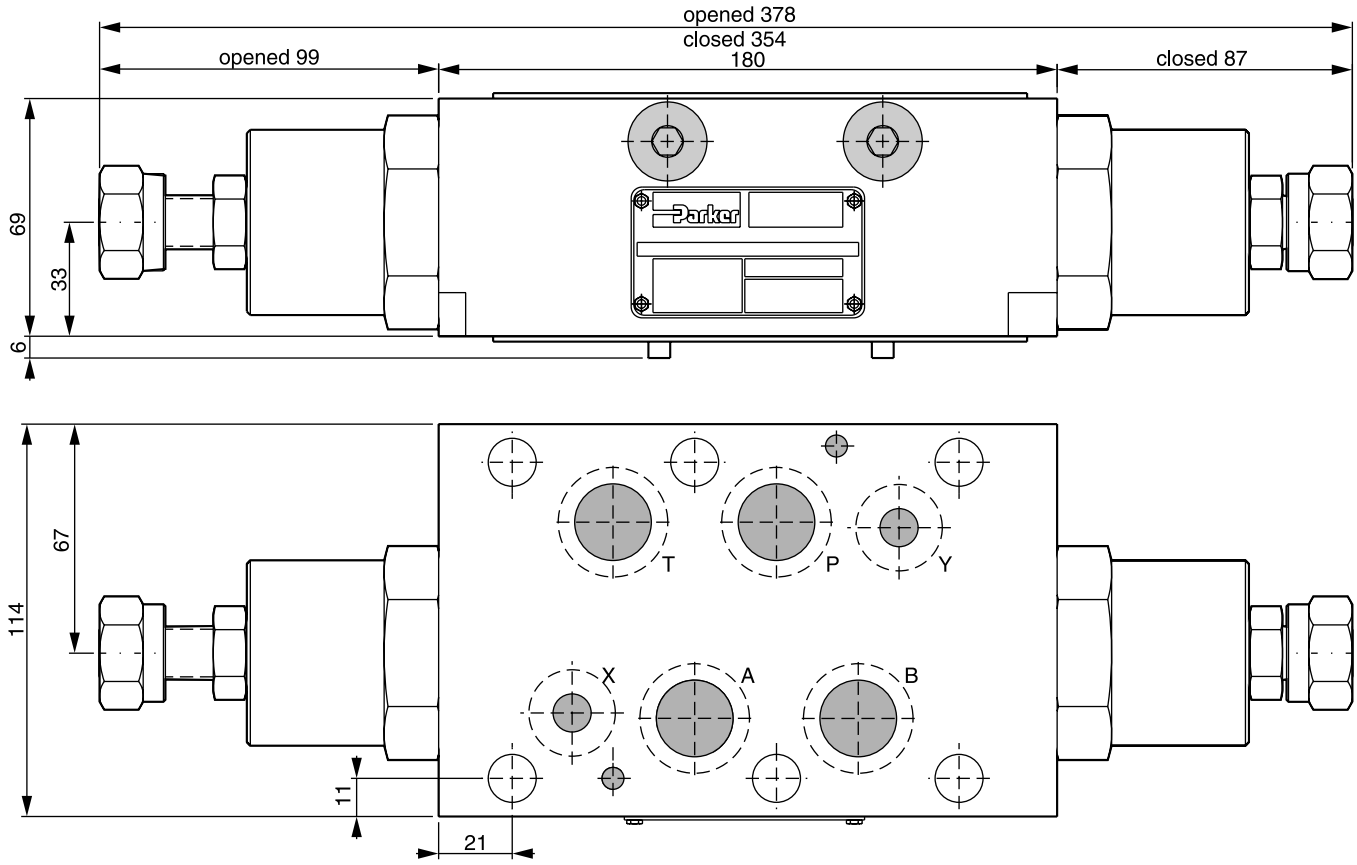


Meter-out



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

FM6

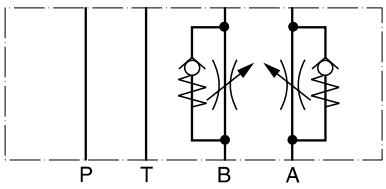


7

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.

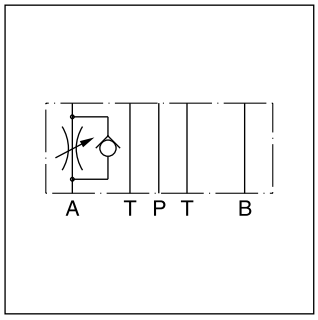
The throttle check function can be located in port A or B as well as in A + B. Meter-in or meter-out functionality can be selected by model code.

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

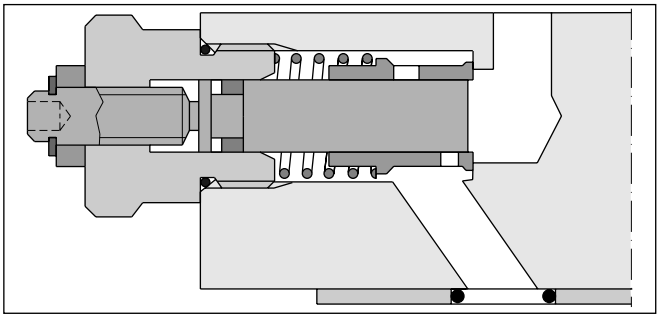
Features

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

ZRD-ABZ01



ZRD-AA02



ZRD-AA02

Ordering code

ZRD – ☐ ☐ – **S0** – **D** ☐

Throttle valve with check	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

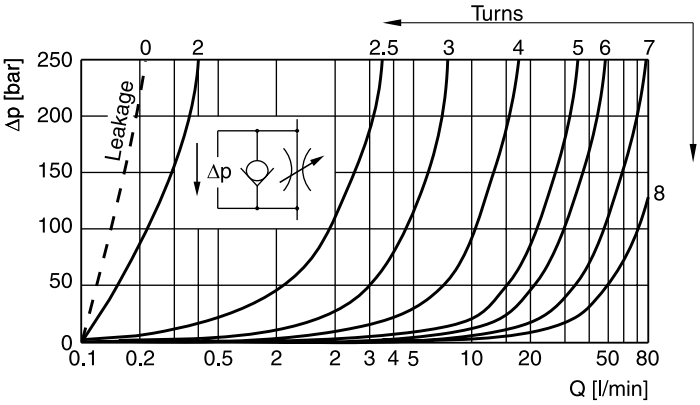
Ordering code details see end of chapter.

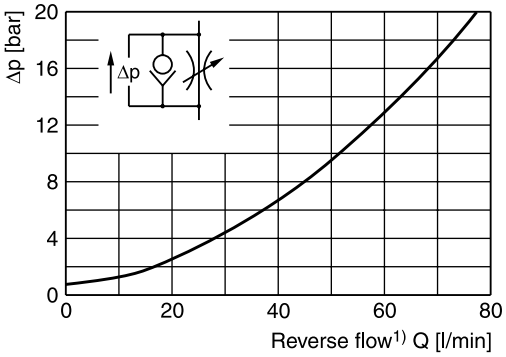
Technical data

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...+50	
$MTTF_D$ 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...51525	
Fluid temperature		[°C]	-20...+80	
Viscosity	permitted	[cSt] / [mm^2/s]	10...650	
	recommended	[cSt] / [mm^2/s]	30	
Filtration			ISO 4406 (1999); 18/16/13	

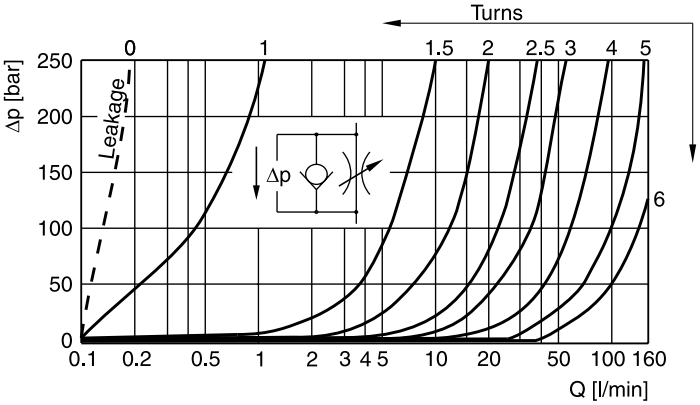
p/Q performance curves

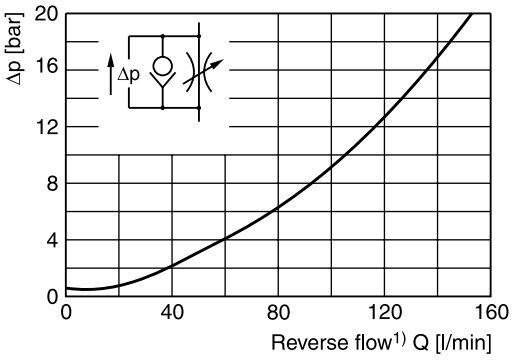
ZRD*01





ZRD*02



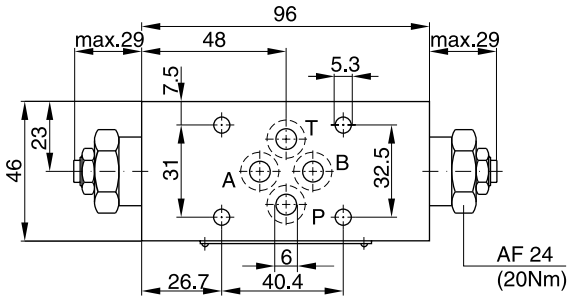


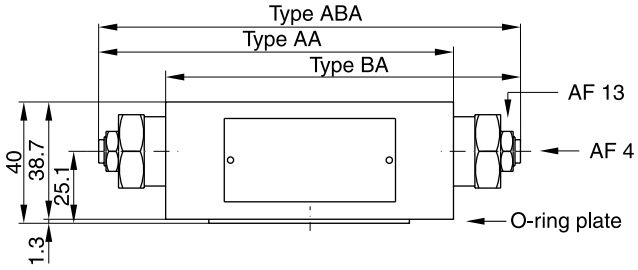
1) Throttle closed.

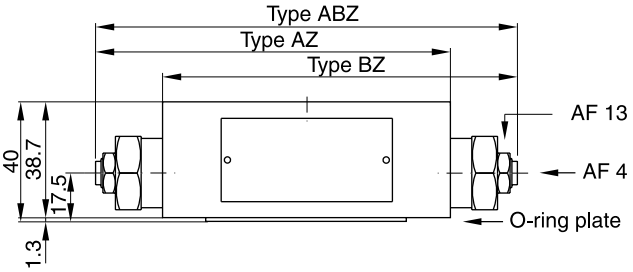
All characteristic curves measured with HLP46 at 50 °C.

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 S26-27553-0	

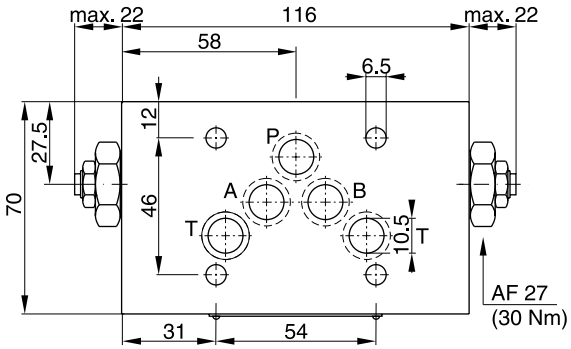


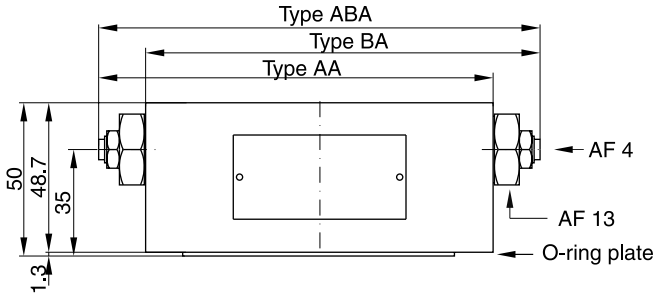


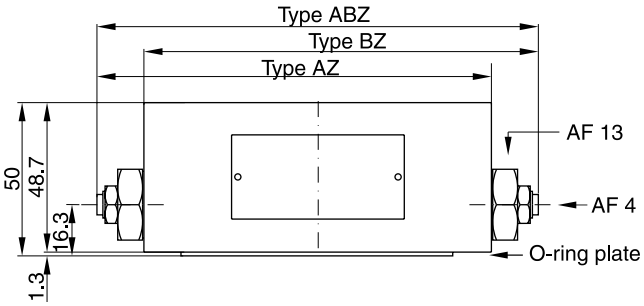


ZRD*02

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 S16-85742-0	

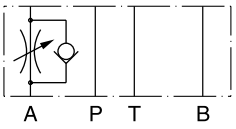






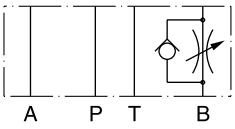
ZRD*01

Meter-in control in A



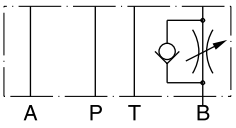
Series ZRD-AZ01-S0-D1 — Order No. 098-91056-0

Meter-out control in B



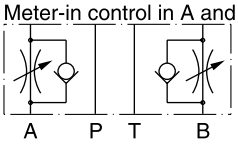
Series ZRD-BA01-S0-D1 — Order No. 098-91013-0

Meter-in control in B



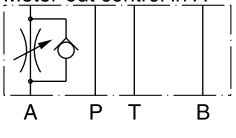
Series ZRD-BZ01-S0-D1 — Order No. 098-91057-0

Meter-in control in A and B



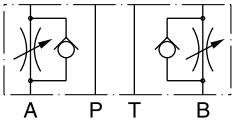
Series ZRD-ABZ01-S0-D1 — Order No. 098-91058-0

Meter-out control in A



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

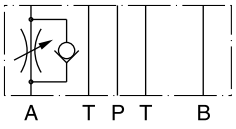
Meter-out control in A and B



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

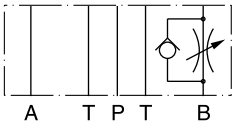
ZRD*02

Meter-in control in A



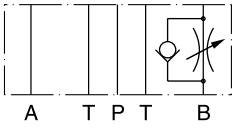
Series ZRD-AZ02-S0-D1 — Order No. 098-91059-0

Meter-out control in B



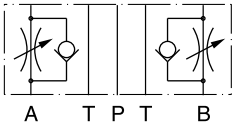
Series ZRD-BA02-S0-D1 — Order no. 098-91016-0

Meter-in control in B



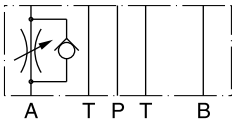
Series ZRD-BZ02-S0-D1 — Order No. 098-91060-0

Meter-in control in A and B



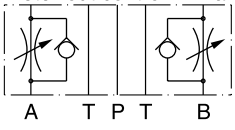
Series ZRD-ABZ02-S0-D1 — Order no. 098-91061-0

Meter-out control in A



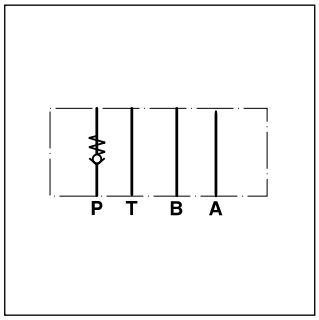
Series ZRD-AA02-S0-D1 — Order no. 098-91015-0

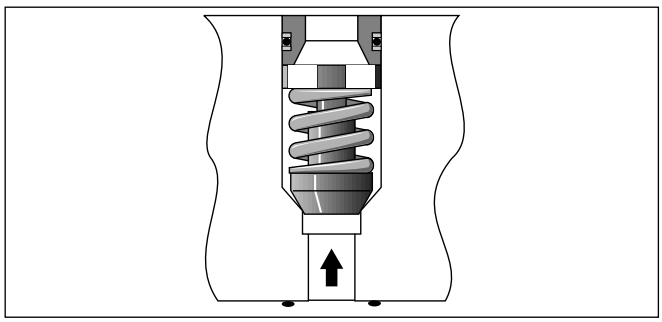
Meter-out control in A and B



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

Check valves from the Parker Manapak 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.





Features

- The valve bodies of the Parker Manapak 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 switching.
- The function can be changed by turning the valve.
- CM2 - NG06 (CETOP 03)
  CM3 - NG10 (CETOP 05)

Ordering code

CM	□	□	V	□
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**
TT	**From directional valve to manifold**	**T**
AAF	From manifold to directional valve	A
BBF	From manifold to directional valve	B
DDF	From manifold to directional valve	A and B

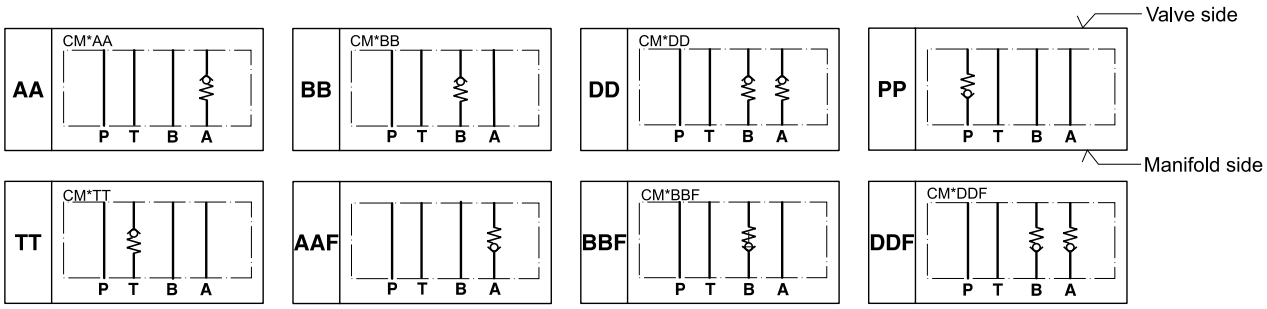
Bold letters =
Short-term availability

Technical data

General				
Series			CM2	CM3
Mounting interface			ISO 4401-03-02-0-94	ISO 4401-05-04-0-94
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+50	
$MTTF_D$ value		[years]	150	
Weight		[kg]	0.9	1.7
Hydraulic				
Max. operating pressure		[bar]	350	350
Max. flow		[l/min]	53	76
Opening pressure		[bar]	0.3	0.3
Fluid			Hydraulic oil according to DIN 51524...51525	
Fluid temperature		[°C]	-20...+80	
Viscosity	permitted	[cSt] / [mm²/s]	10...650	
	recommended	[cSt] / [mm²/s]	30	
Filtration			ISO 4406 (1999); 18/16/13	

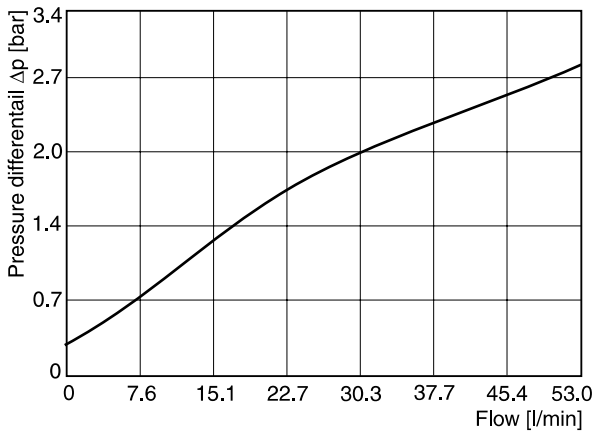
Schematics

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

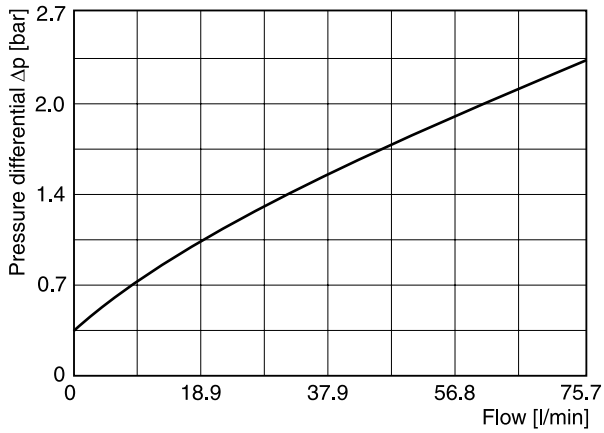


Δp/Q performance curves

CM2



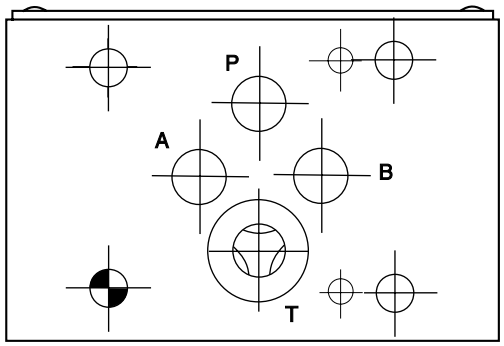
CM3



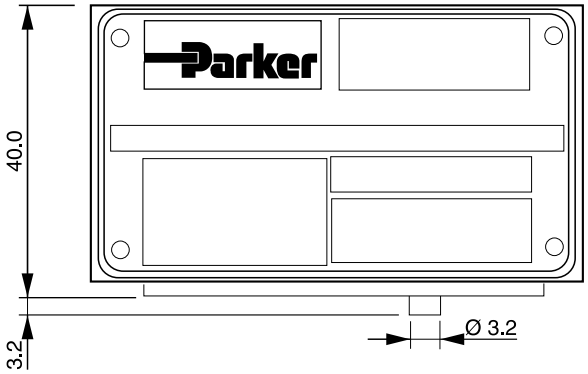
All characteristic curves measured with HLP46 at 50 °C.

CM2

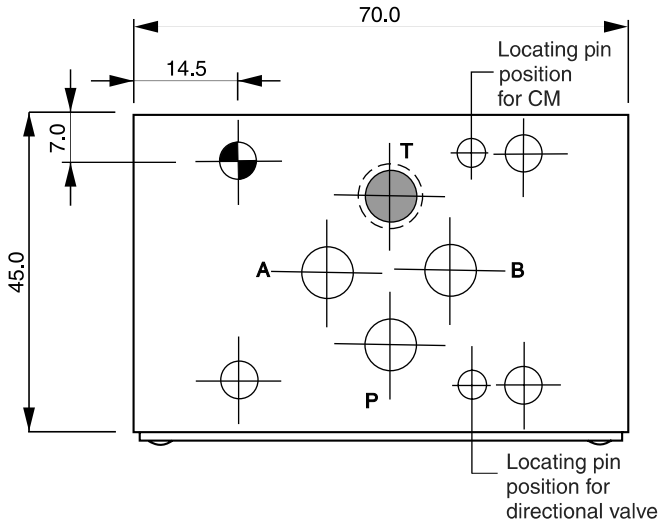
Bottom view*



Front side



Top view



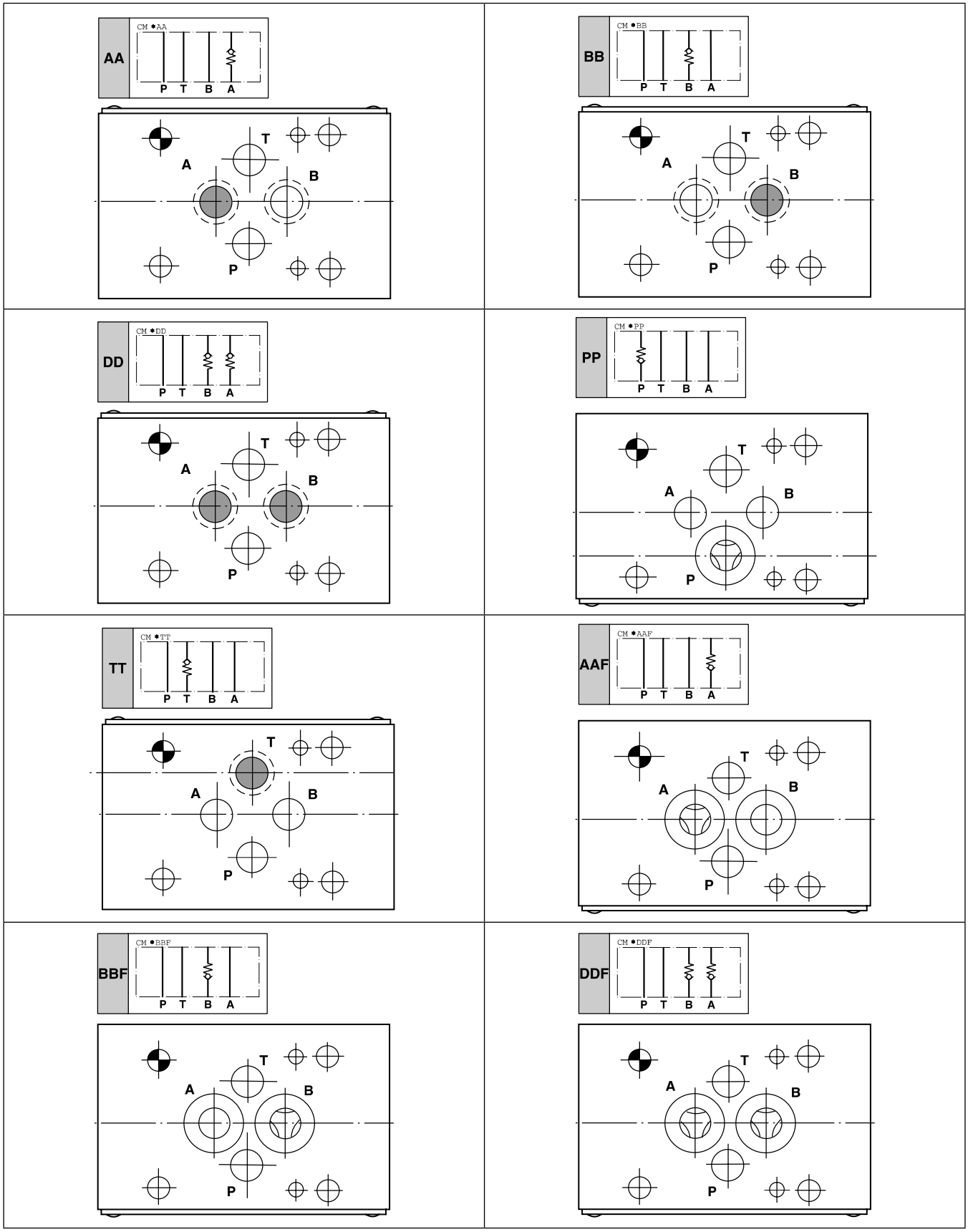
Seal kit CM2	
Seal	**Order code**
V	SK-CM2-V

Note:

The O-ring plate for sealing the connecting surface of the manifold side is included. The O-ring plate and the positioning pin are always mounted on the manifold side.

* O-Ring plate is not shown! This view shows the TT model.

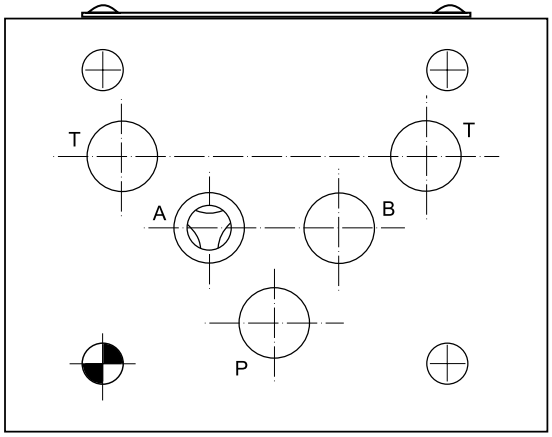
CM2 top views (from directional valve side)



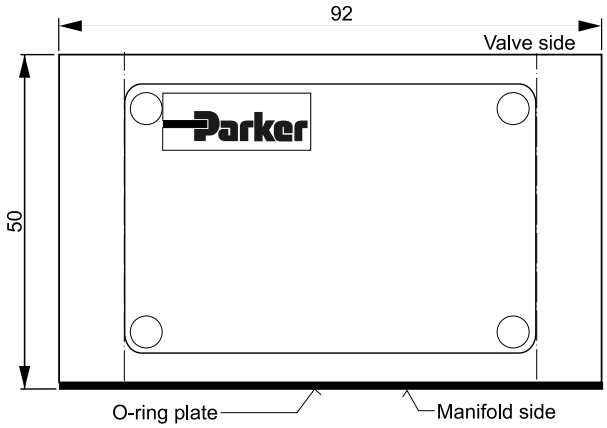
7

CM3

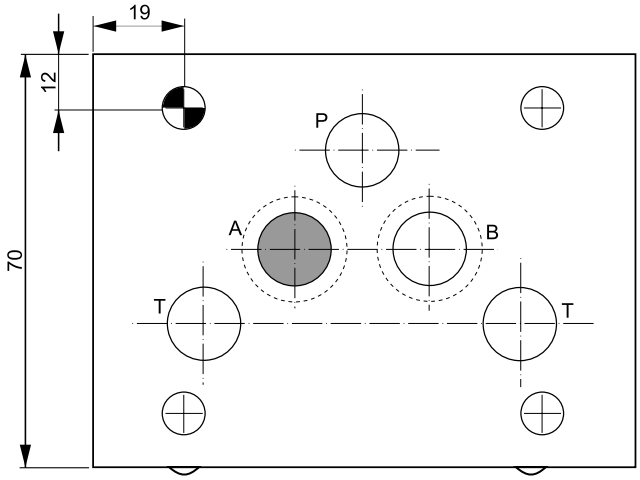
Bottom view*



Front side



Top view



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

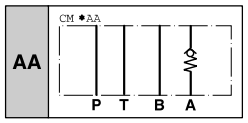
Note:

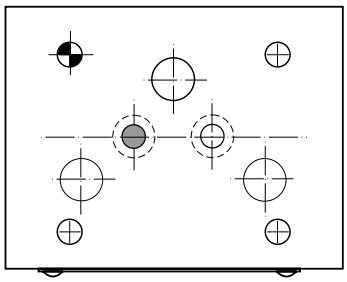
The O-ring plate for sealing the connecting surface of the manifold side is included. The O-ring plate and the positioning pin are always mounted on the manifold side.

* O-ring plate is not shown! This view shows the AA model.

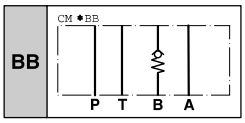
CM3 top views (from directional valve side)

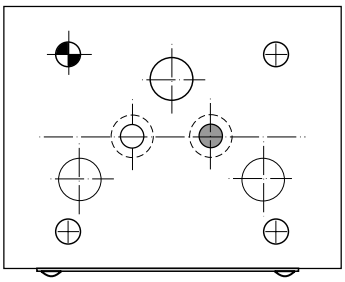
AA



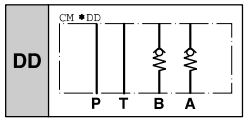


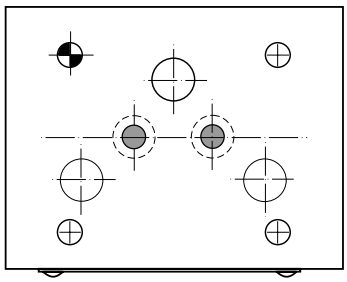
BB



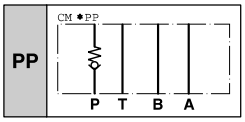


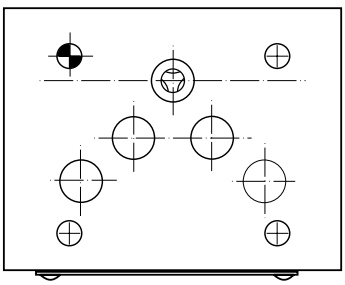
DD



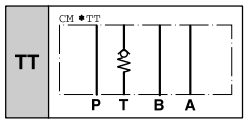


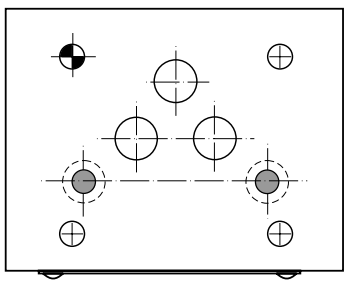
PP



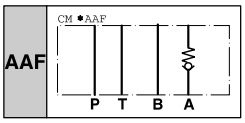


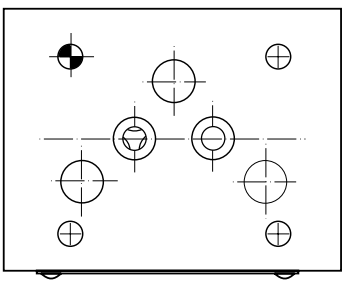
TT



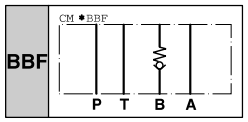


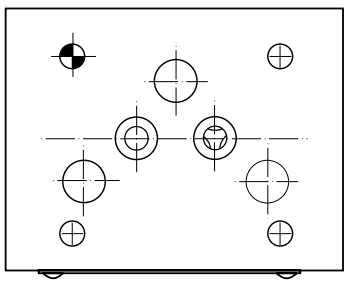
AAF



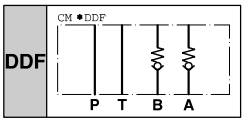


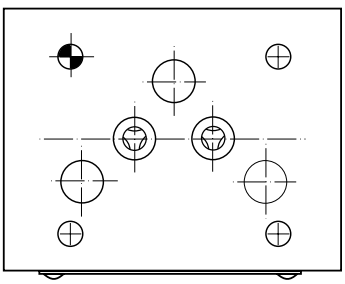
BBF





DDF





7

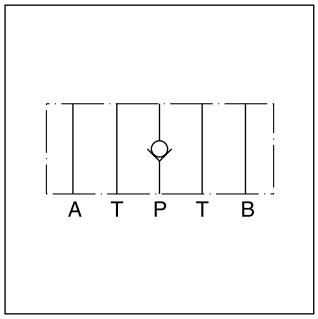
Direct operated check valves series ZRV have a cartridge type insert to provide zero leakage and high life time.

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

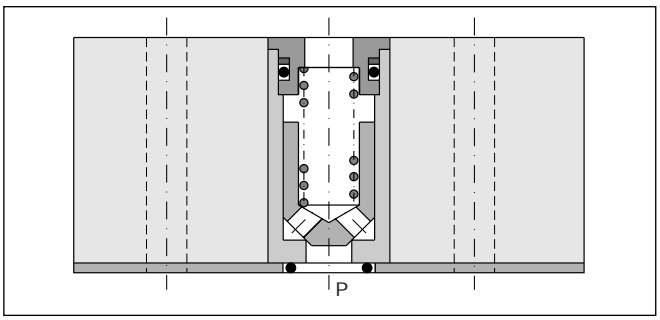
Features

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

ZRV-P02

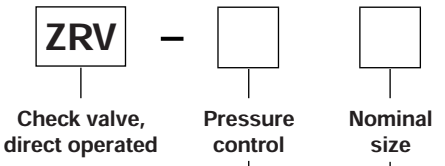


ZRV-P02



ZRV-P02

Ordering code



Code	Pressure control
P	Blocked in P
T	Blocked in T

Code	Nominal size
01	NG06
02	NG10

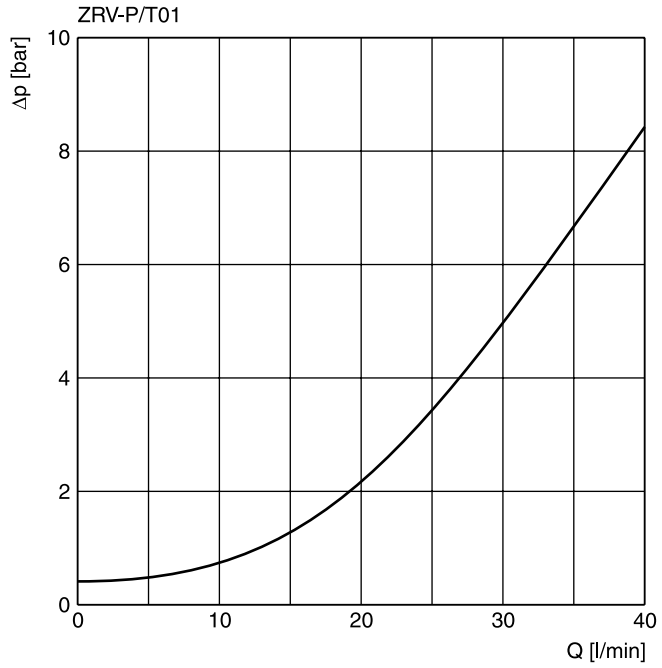
Ordering code details see end of chapter.

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...+50	
$MTTF_D$ 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...51525	
Fluid temperature		[°C]	-20...+80	
Viscosity	permitted	[cSt] / [mm^2/s]	10...650	
	recommended	[cSt] / [mm^2/s]	30	
Filtration			ISO 4406 (1999); 18/16/13	

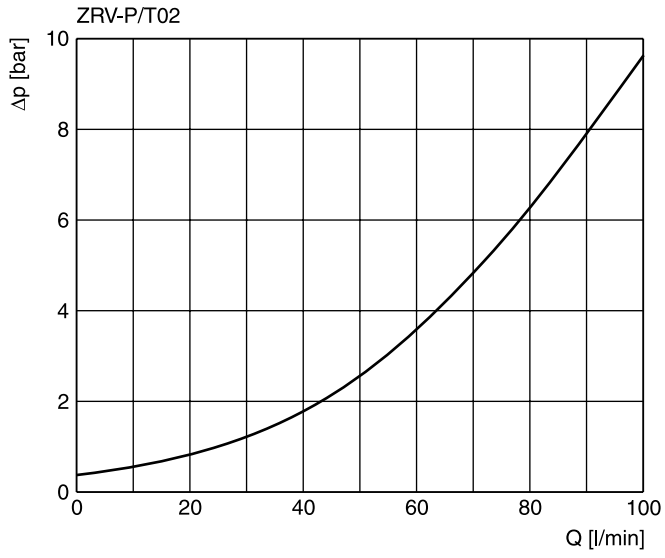
p/Q performance curves

ZRV*01



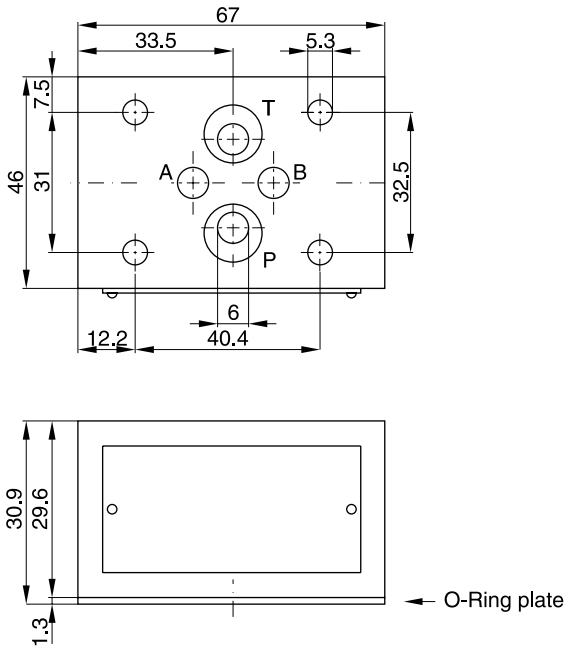
7

ZRV*02



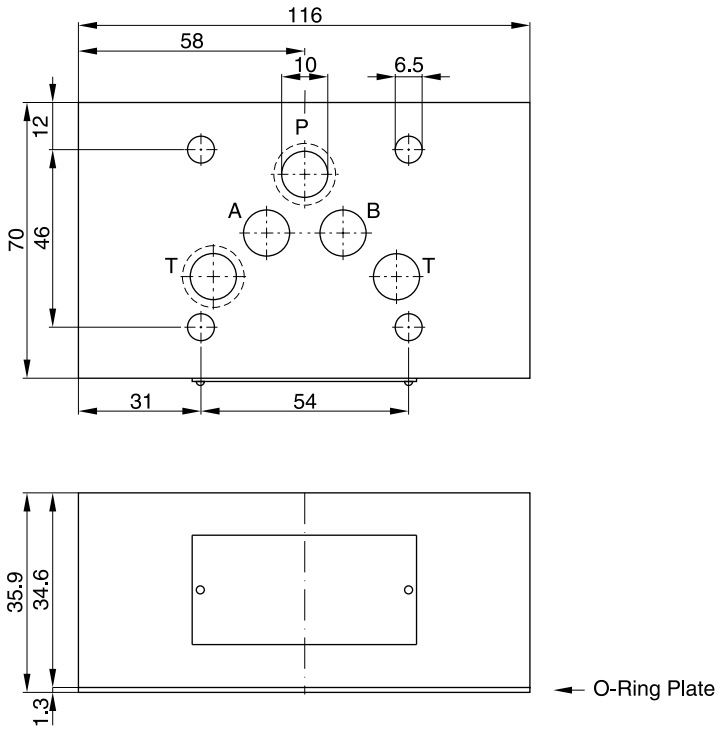
All characteristic curves measured with HLP46 at 50 °C.

ZRV01



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

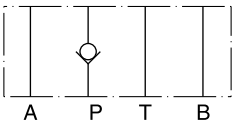
ZRV02



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

ZRV01

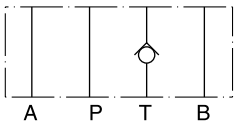
blocked in P



Series ZRV-P01

Order No. 098-90025-0

blocked in T

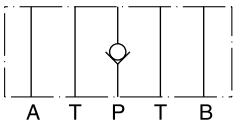


Series ZRV-T01

Order No. 098-90026-0

ZRV02

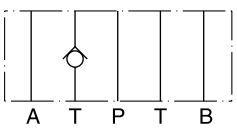
blocked in P



Series ZRV-P02

Order No. 098-90043-0

blocked in T

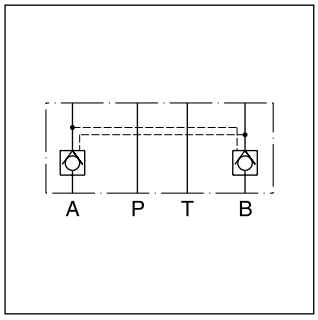


Series ZRV-T02

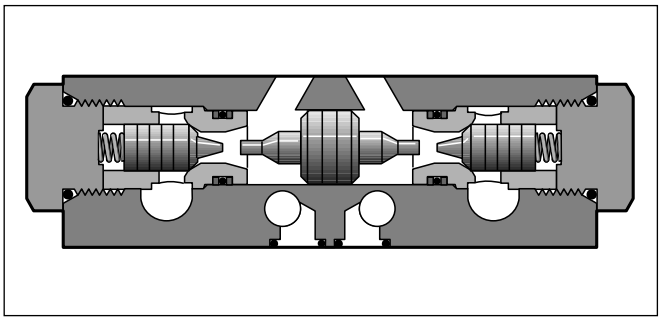
Order No. 098-90044-0

7

Pilot operated check valves from the Parker Manapak 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 Manapak 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.
- Different control ratios can be chosen with the NG6 and NG10 valves.
- Pre-opening for CPOM*HT to achieve smooth opening.

Ordering code

Without pre-opening

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

Code	Size
2	**NG06**
3	**NG10**
6	NG25

Code	Pressure	Size
omit	**1.0 bar**	**NG06/10/25**
25	2.5 bar	NG06
50	5.0 bar	NG06
70	7.0 bar	NG06

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

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**

Bold letters =
Short-term availability

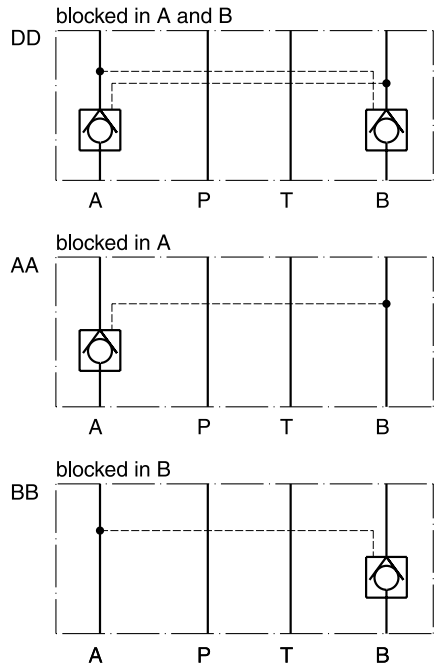
CPOM UK.INDD CM 03.06.13

Technical data

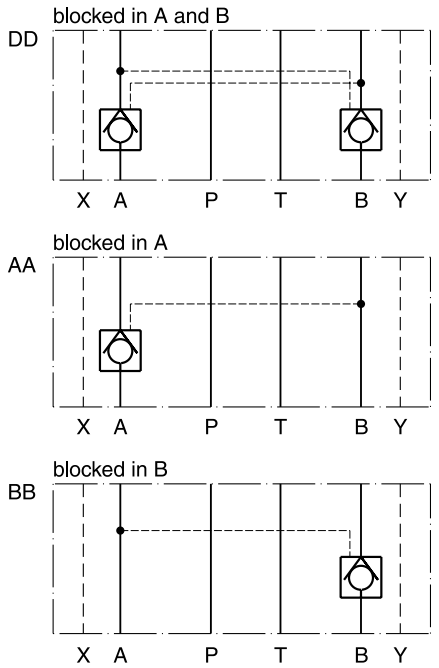
General					
Series		CPOM2	CPOM3	CPOM4	CPOM6
Nominal size		NG06	NG10	NG16	NG25
Mounting interface		ISO 4401			
Ambient temperature	[°C]	-20...+50			
$MTTF_D$ value	[years]	150			
Weight	[kg]	1.8	4.0	7.65	9.5
Hydraulic					
Max. operating pressure	[bar]	350	350	350	210
Opening pressure	[bar]	1.0	0.8	2.0	0.4
Opening ratio		1 : 3	1 : 3	1 : 13	1 : 3
Leakage		on request			
Fluid		Hydraulic oil according to DIN 51524...51525			
Fluid temperature	[°C]	-20...+80			
Viscosity permitted	[cSt] / [mm²/s]	10...650			
recommended	[cSt] / [mm²/s]	30			
Filtration		ISO 4406 (1999); 18/16/13			

Schematics

CPOM2 / CPOM3

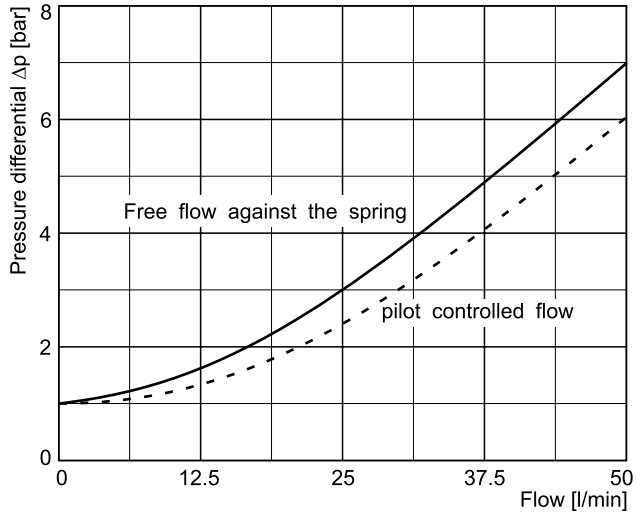


CPOM4 / CPOM6

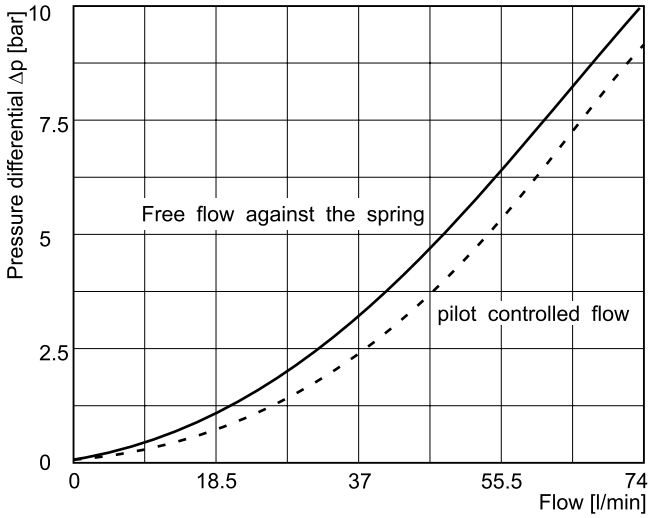


Δp/Q performance curves

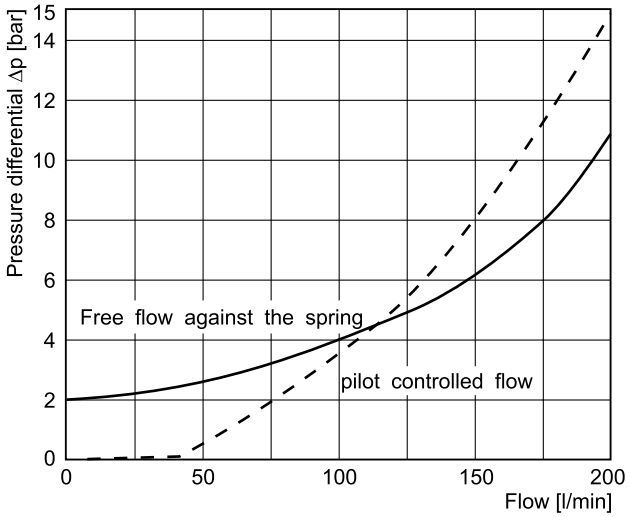
CPOM2



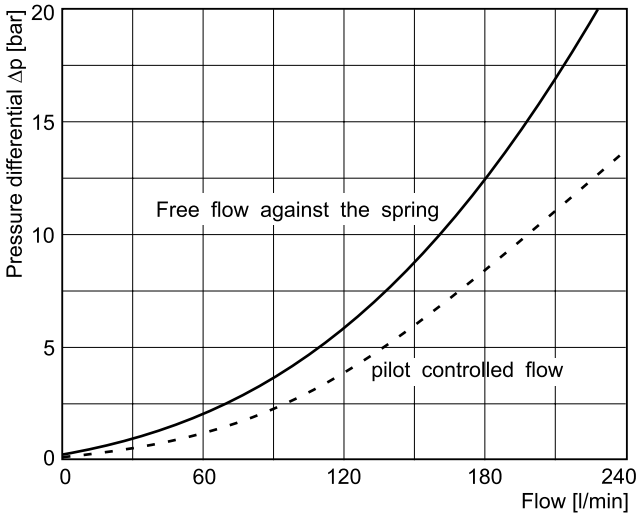
CPOM3



CPOM4 (type HT)



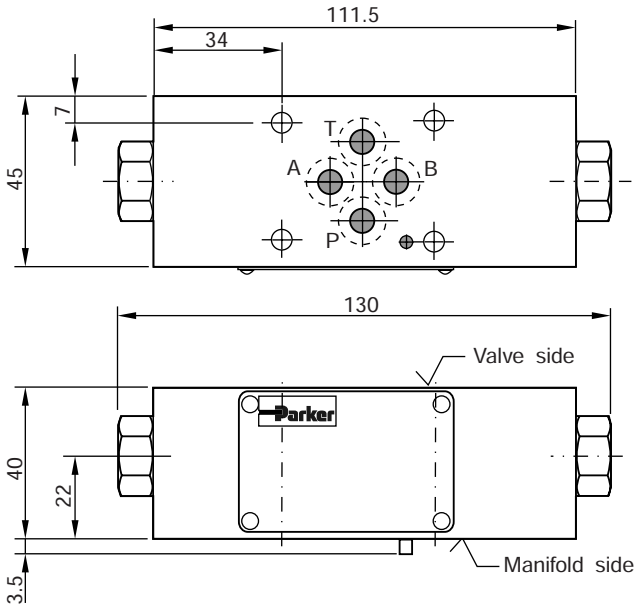
CPOM6



All characteristic curves measured with HLP46 at 50 °C.

7

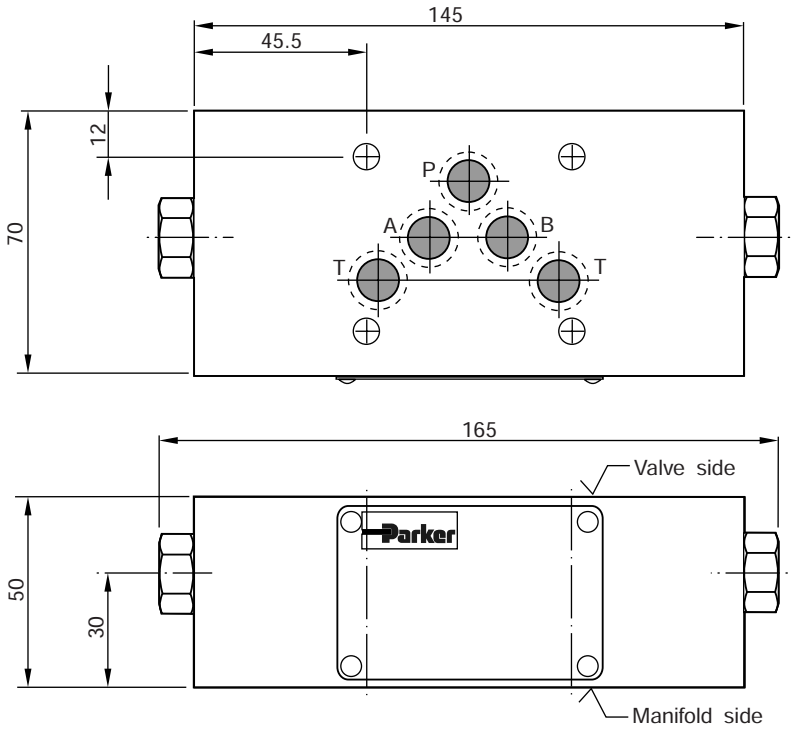
CPOM2



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

7

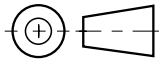
CPOM3



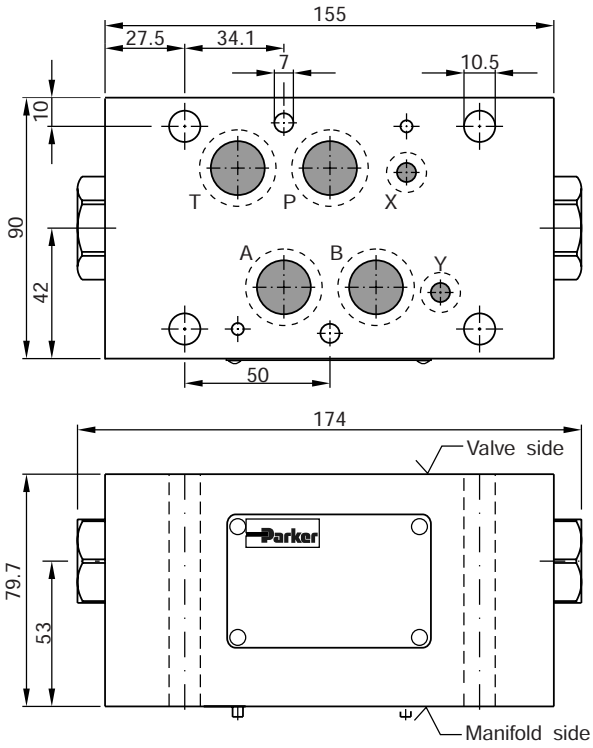
Seal kit CPOM3	
Seal	**Order code**
V	SK-CPOM3-V-11

Note:

The O-ring plate for sealing the connecting surface of the manifold side is included. The O-ring plate and the positioning pin are always mounted on the manifold side.

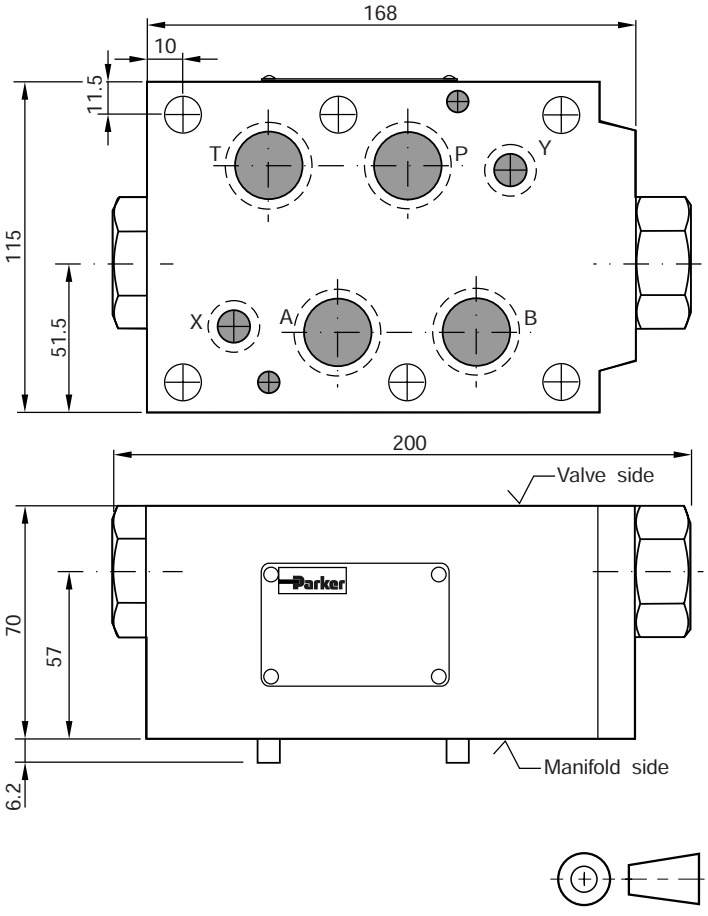


CPOM4



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

CPOM6



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

Note:

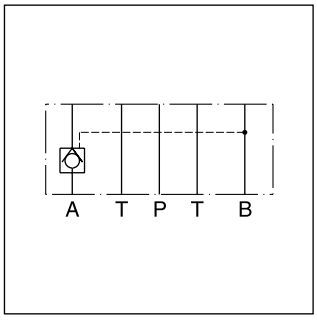
The O-ring plate for sealing the connecting surface of the manifold side is included. The O-ring plate and the positioning pin are always mounted on the manifold side.

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.

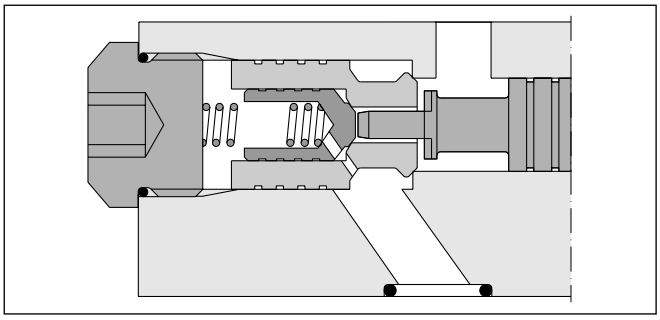
ZRE-B01



ZRE-A02

Features

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



ZRE-A02

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 see end of chapter.

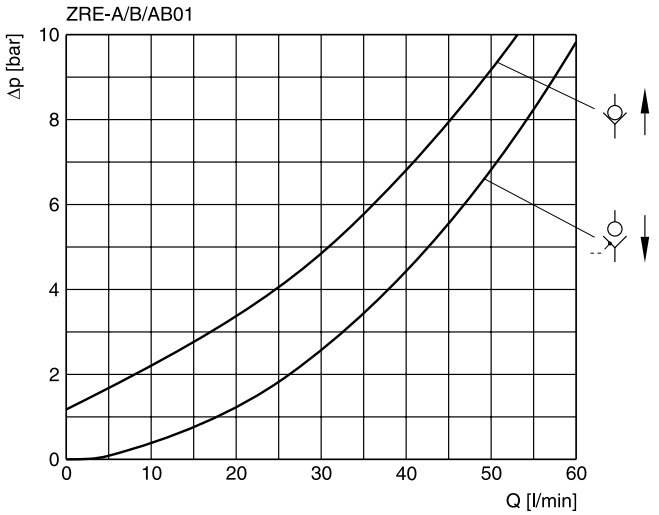
Technical data

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...+50	
$MTTF_D$ 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...51525	
Fluid temperature	[°C]	-20...+80	
Viscosity permitted	[cSt]/[mm²/s]	10...650	
Viscosity recommended	[cSt]/[mm²/s]	30	
Filtration		ISO 4406 (1999); 18/16/13	

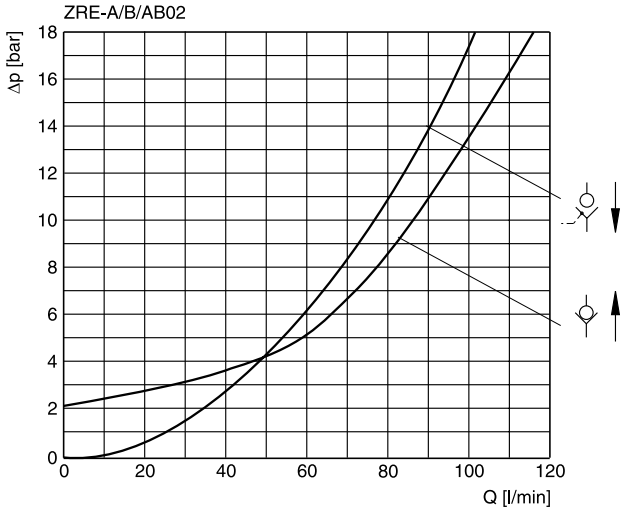
ZRE UK.INDD CM 21.01.13

p/Q performance curves

ZRE*01



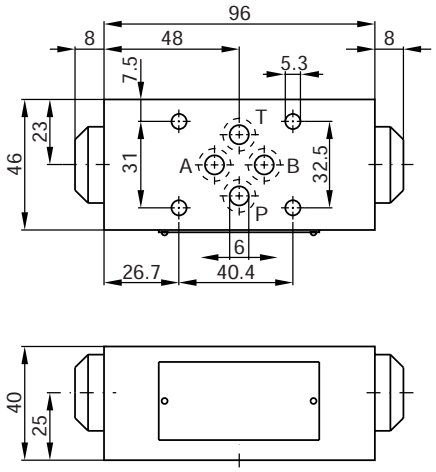
ZRE*02



All characteristic curves measured with HLP46 at 50 °C.

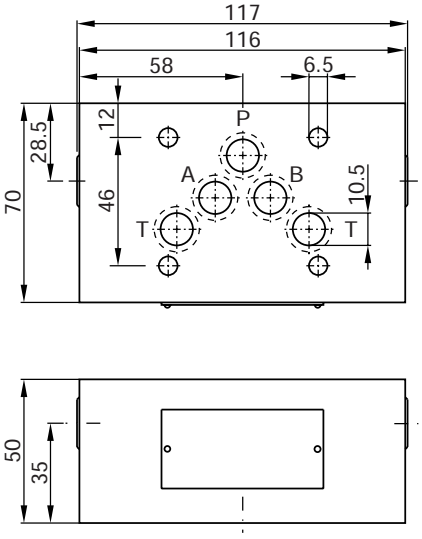
Dimensions

ZRE*01



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

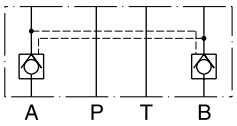
ZRE*02



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

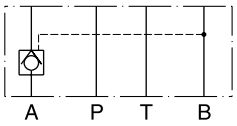
ZRE*01

blocked in A and B



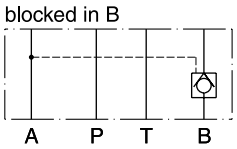
Series ZRE-AB01-D1 — Order No. 098-91020-0

blocked in A



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

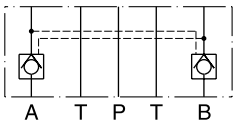
blocked in B



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

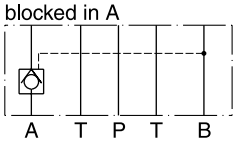
ZRE*02

blocked in A and B



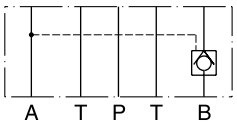
Series ZRE-AB02-E1 — Order No. 098-91300-0

blocked in A



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

blocked in B



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

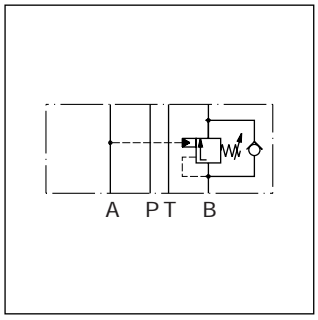
7

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.

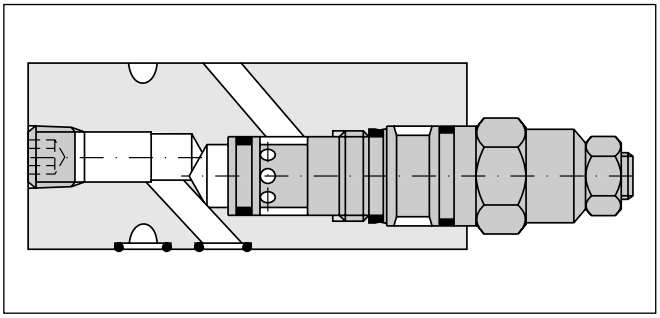
ZNS-AB01



ZNS-B01

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)



ZNS-B01

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

Ordering code details see end of chapter.

[1)] NG10 to 315 bar.

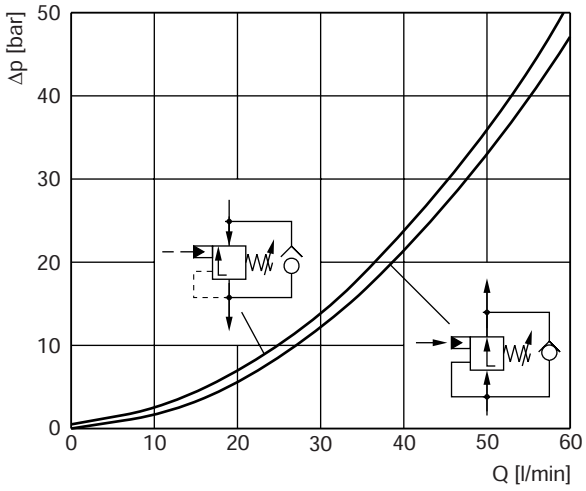
Technical data

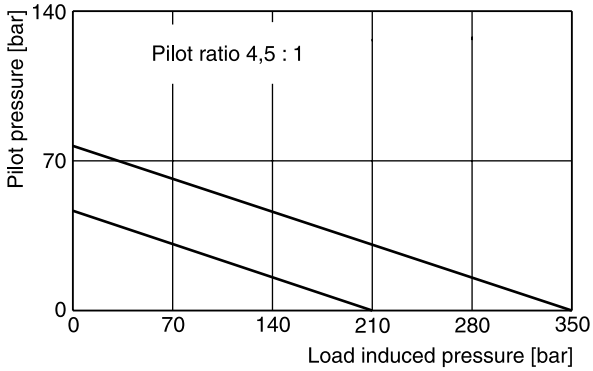
General				
Size			NG06	NG10
Mounting interface			DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05
Mounting position			unrestricted	
Ambient temperature		[°C]	-20...+50	
Weight	1 cartridge	[kg]	1.3	1.6
	2 cartridges	[kg]	3.0	3.9
Hydraulic				
Max. operating pressure		[bar]	350	315
Pressure 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 DIN 51524...51525	
Fluid temperature		[°C]	-20...+80	
Viscosity	permitted	[cSt] / [mm²/s]	10...650	
	recommended	[cSt] / [mm²/s]	30	
Filtration			ISO 4406 (1999); 18/16/13	

ZNS UK.INDD CM 03.06.13

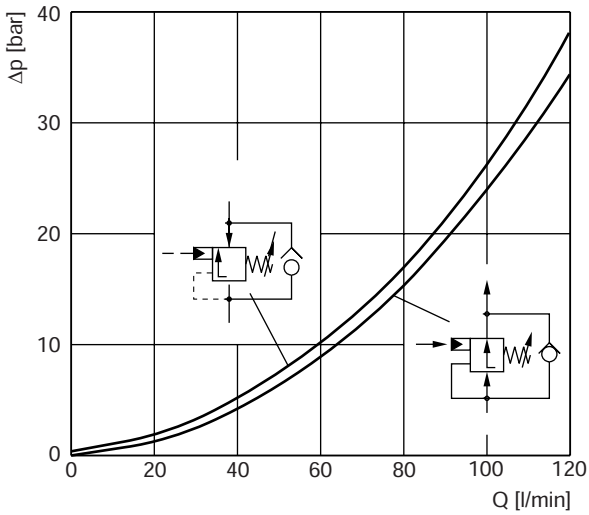
p/Q performance curves

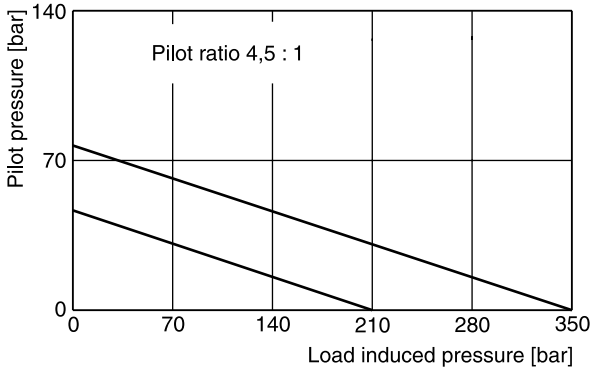
ZNS*01





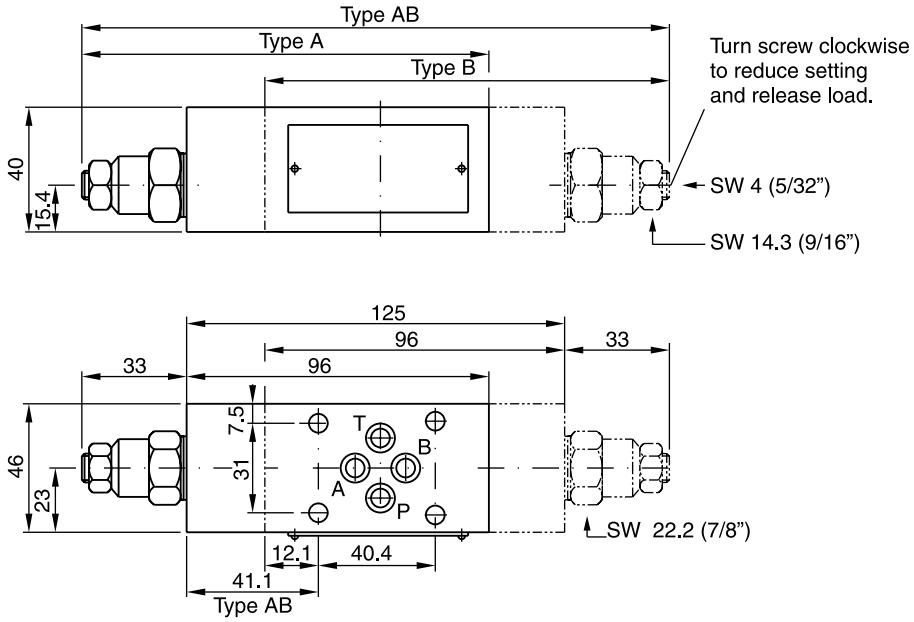
ZNS*02





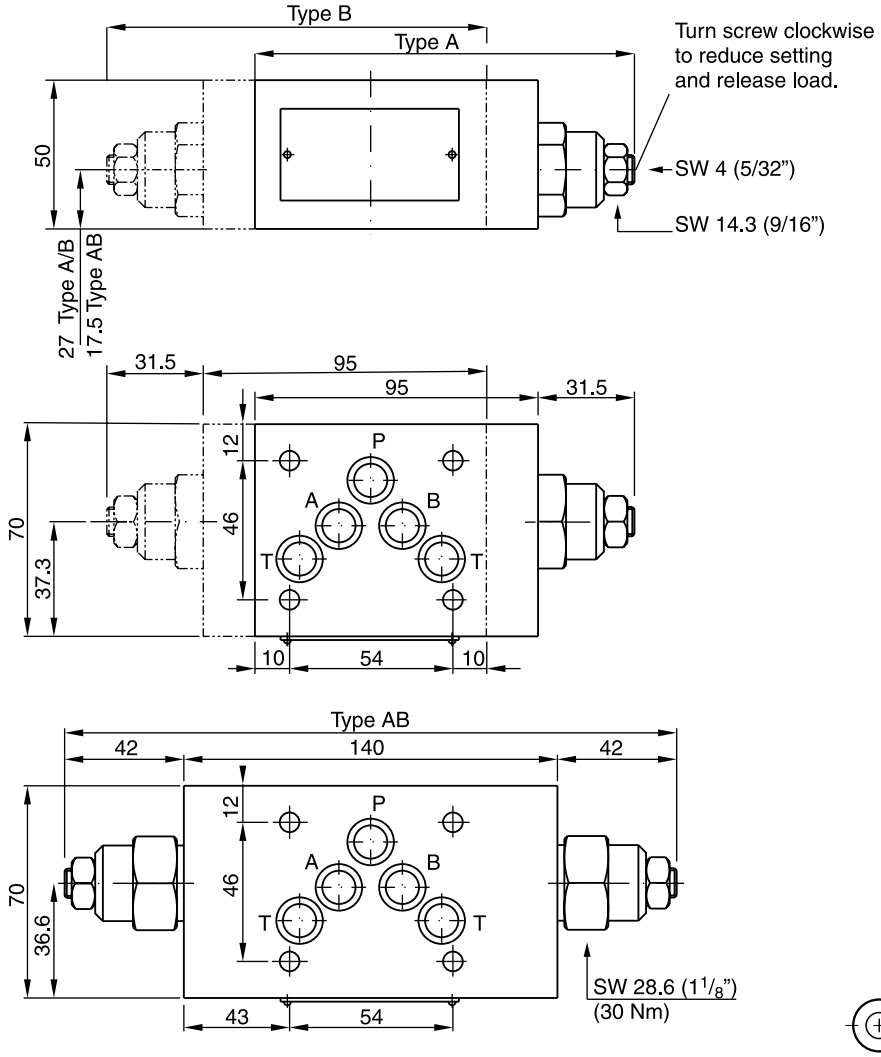
All characteristic curves measured with HLP46 at 50 °C.

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

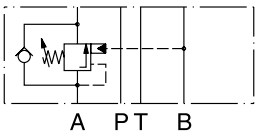
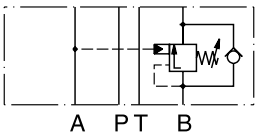
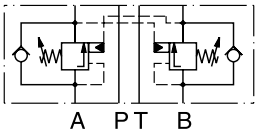
ZNS*02



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

7

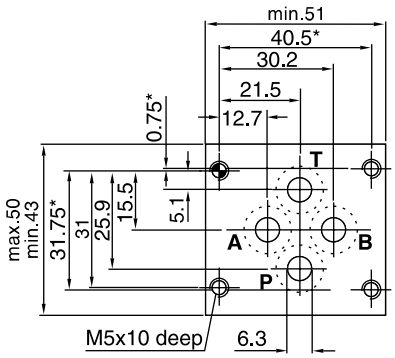
ZNS UK.INDD CM 03.06.13

	ZNS*01		ZNS*02	
Counterbalance in A 	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 5 = 140… 350 bar		2 = 70 ... 175 bar 5 = 140 …315 bar	

7

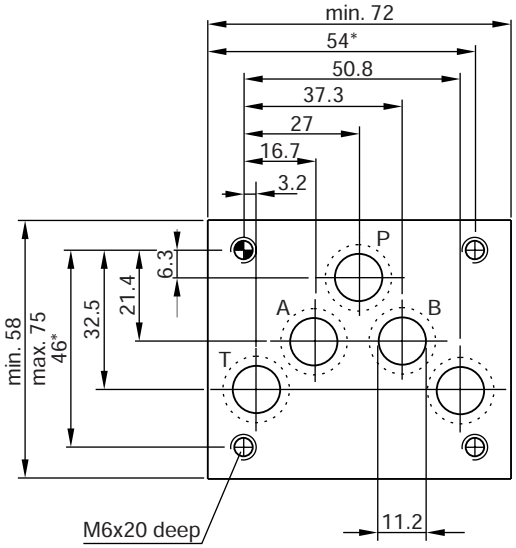
NG06

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



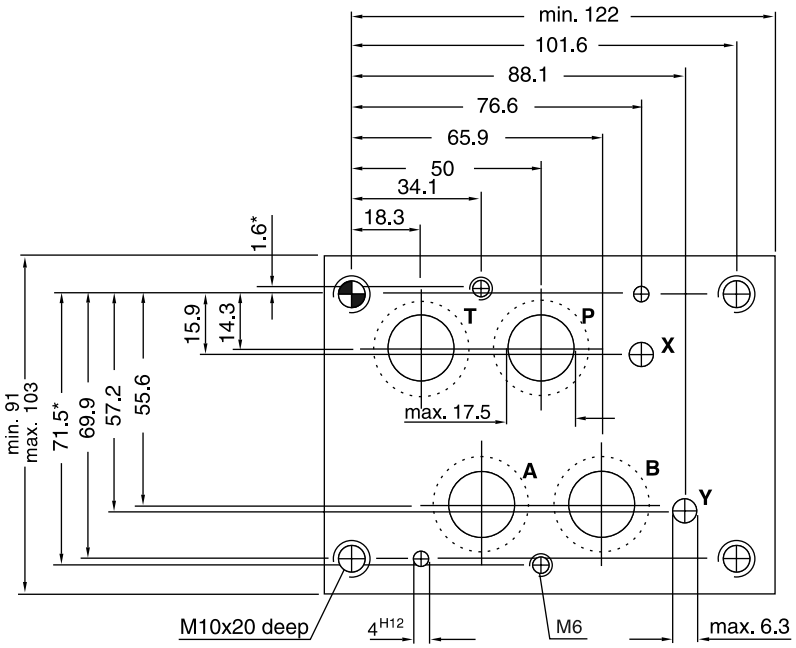
NG10

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



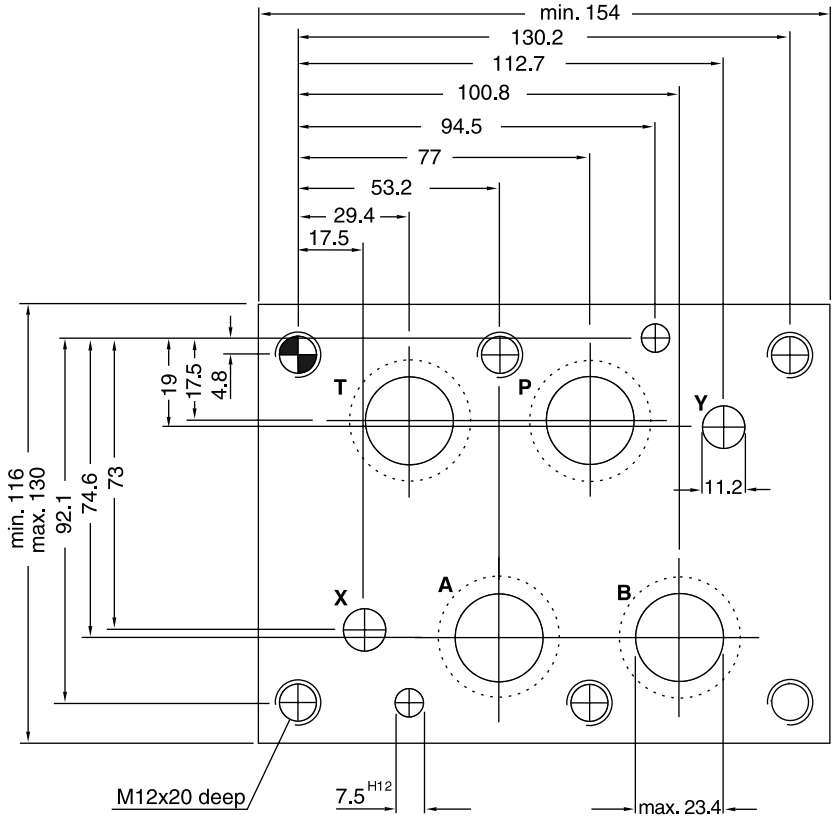
NG16

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.

Information07.INDD CM 02.04.13

Mounting

Parker and Denison 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			