

Series		Description	Size				Page
Parker	Denison		DIN / ISO	06	10	16	
		<b>Pressure relief valves, manual operation</b>					
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—	ZDV	Pilot operated, high precision	•	•	•		7-13
		<b>Pressure reducing valves, manual operation</b>					
PRDM	—	Direct operated, 3-way	•	•			7-19
PRM	—	Pilot operated, 2-way		•	•	•	7-25
—	ZDR	Pilot operated, 2-way, high precision	•	•	•		7-33
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PRPM	—	Pilot operated, 3-way	•	•			7-39
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LCM	—	2-way pressure compensator	•	•			7-43
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<sup>1)</sup> on request



## Characteristics

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
  - DIN lock
  - Turning knob
- RDM2 - NG06 (CETOP3)
- RDM3 - NG10 (CETOP5)

### Technical data

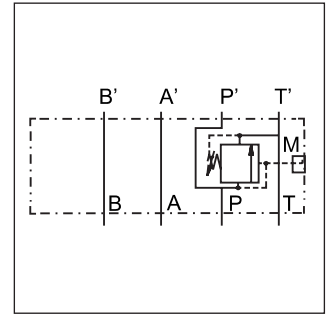
Series		RDM2	RDM3
Port size		NG06	NG10
Mounting pattern		ISO 4401	
Max. operating pressure			
P, A, B	[bar]	350	315
T	[bar]	50	10
Max. flow	[l/min]	40	80
Weight	[kg]	1.3	2.6
Viscosity range	[cSt][mm <sup>2</sup> /s]	12...230	
Filtration		ISO 4406: 1999; 18/16/13	

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

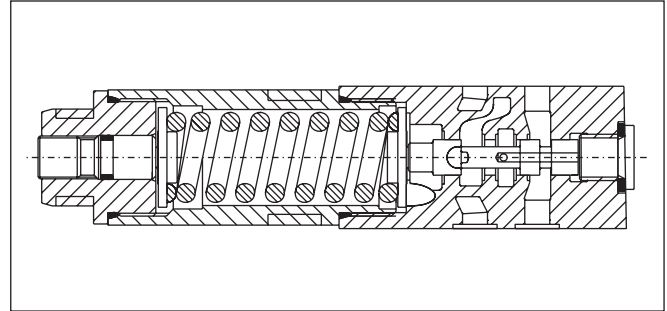
## Direct Operated Pressure Relief Valve Series RDM



RDM2



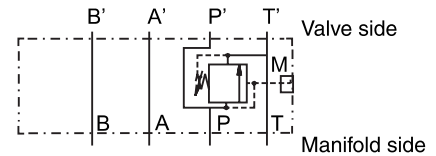
Example PT



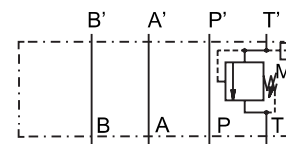
RDM2

### Schematics

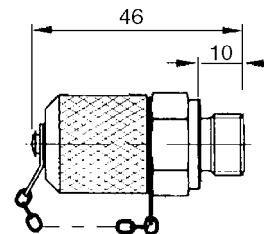
#### RDM\*PT



#### RDM\*TT

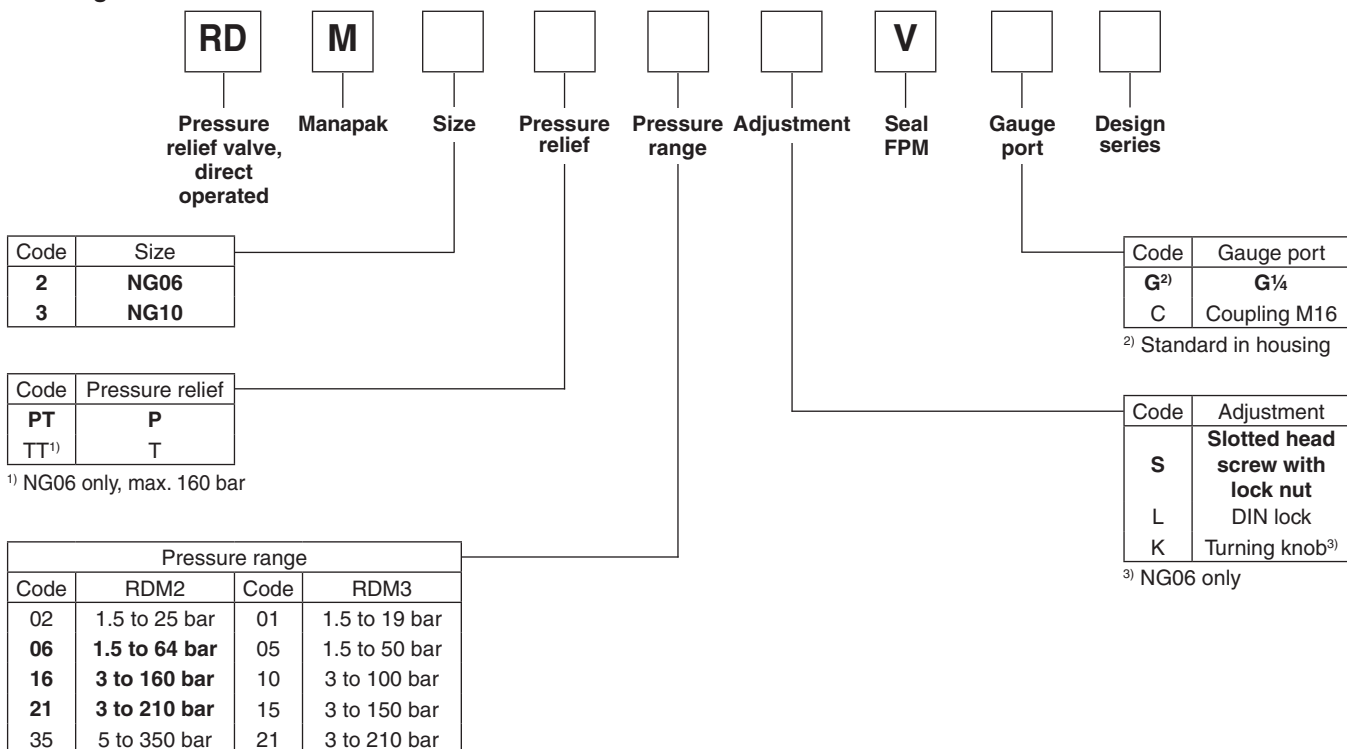


### Gauge port option C (EMA3R1/4EDA3C)



Ordering Code / Performance Curves

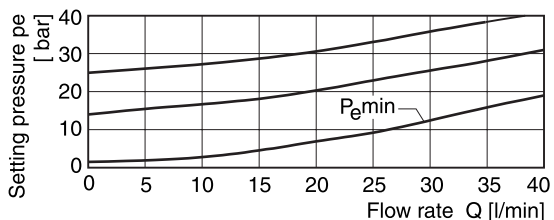
Ordering code



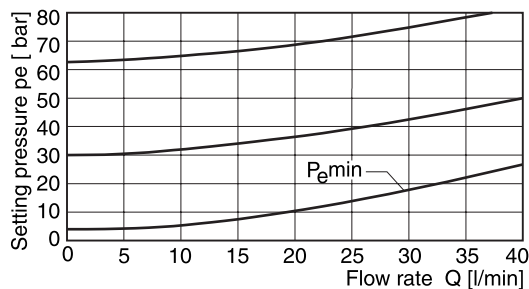
**Bold letters =**  
Short-term availability

Performance curves

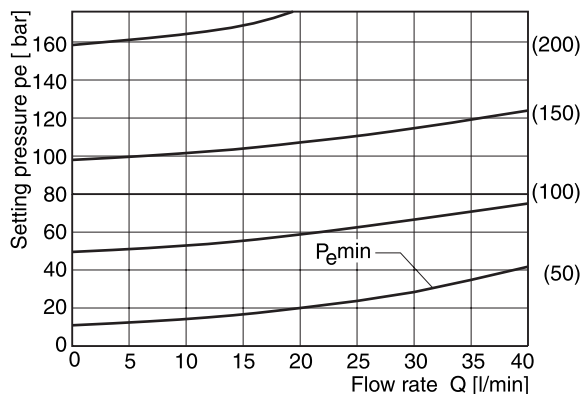
RDM2 02



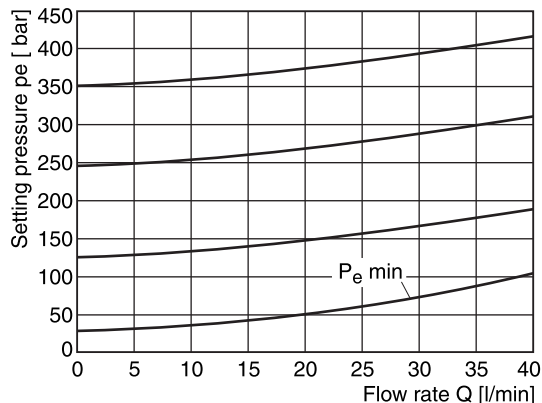
RDM2 06



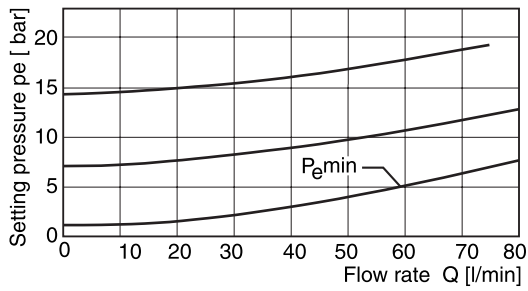
RDM2 16/21



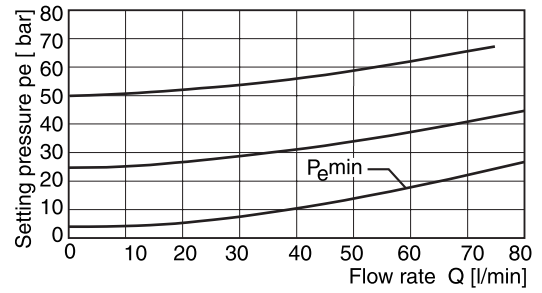
RDM2 35



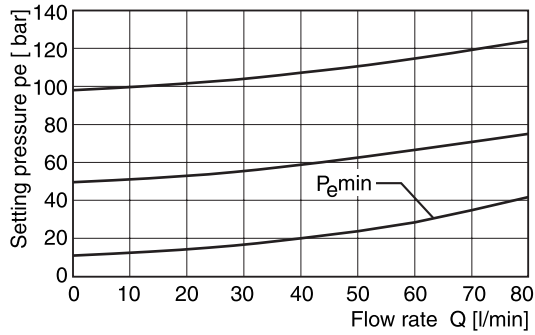
**RDM3 01**



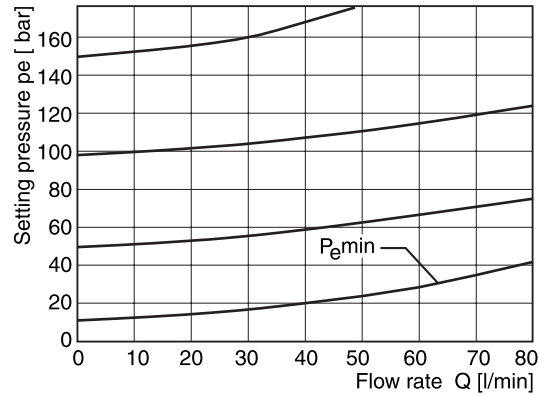
**RDM3 05**



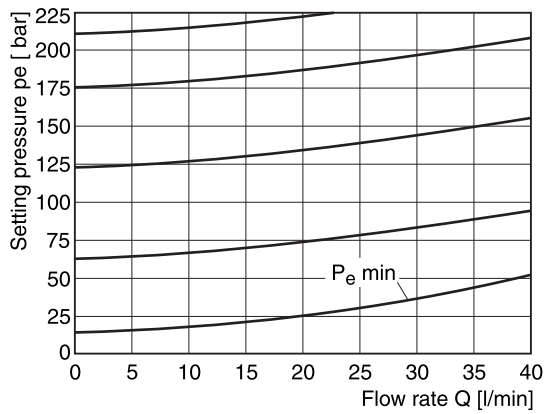
**RDM3 10**



**RDM3 15**



**RDM3 21**



7



**Characteristics**

The pilot operated pressure relief valves from the Parker Manapak series RM are sandwich plate valves designed for stacking beneath a directional valve with a standardised mounting pattern. Depending on type, pressure limiting can be achieved in ports P, A or B with unloading to port T.

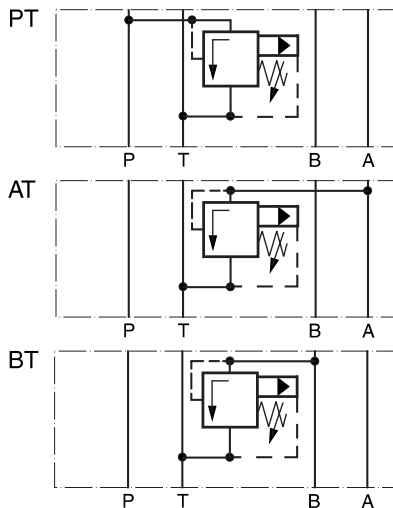
RM valves may only be mounted in the defined mounting position.

**Features**

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

**Schematics**

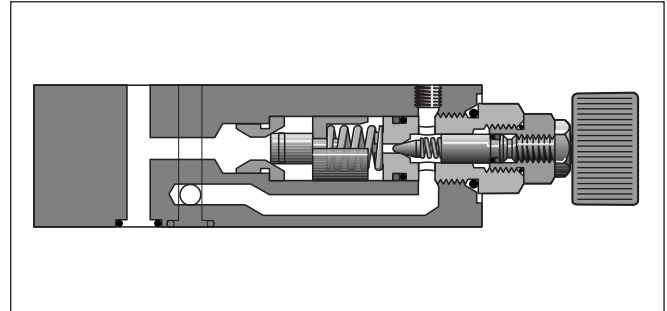
**RM3-NG10**



**Pilot Operated Pressure Relief Valve Series RM**

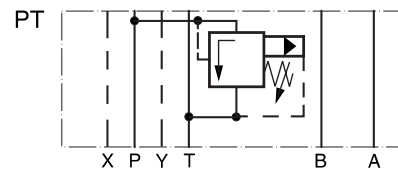


RM3

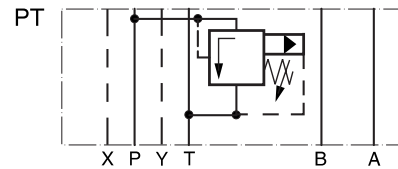


RM3

**RM4-NG16**



**RM6-NG25**



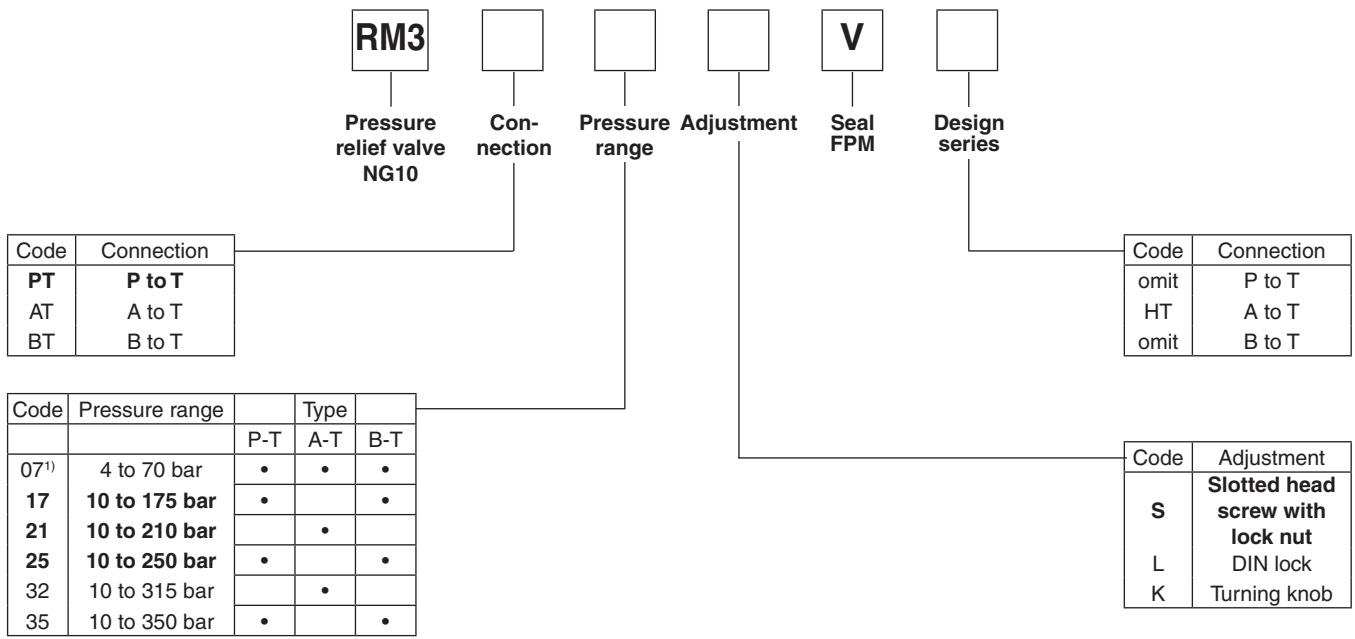
**Technical data**

<b>General</b>				
Design		pressure relief sandwich valve		
Actuation		hydraulic		
Size		<b>NG10</b>	<b>NG16</b>	<b>NG25</b>
Mounting interface		ISO 4401		
Mounting position		unrestricted		
Ambient temperature	[°C]	-40...+60		
Weight	[kg]	3.7	4.9	5.9
<b>Hydraulic</b>				
Max. operating pressure	[bar]	350		
Fluid		hydraulic oil to ISO		
Fluid temperature	[°C]	-20...+80		
Viscosity recommended	[cSt]/[mm²/s]	30...80		
permitted	[cSt]/[mm²/s]	20...380		
Filtration		ISO 4406 : 1999; 18/16/13		

RM\_UK.INDD RH

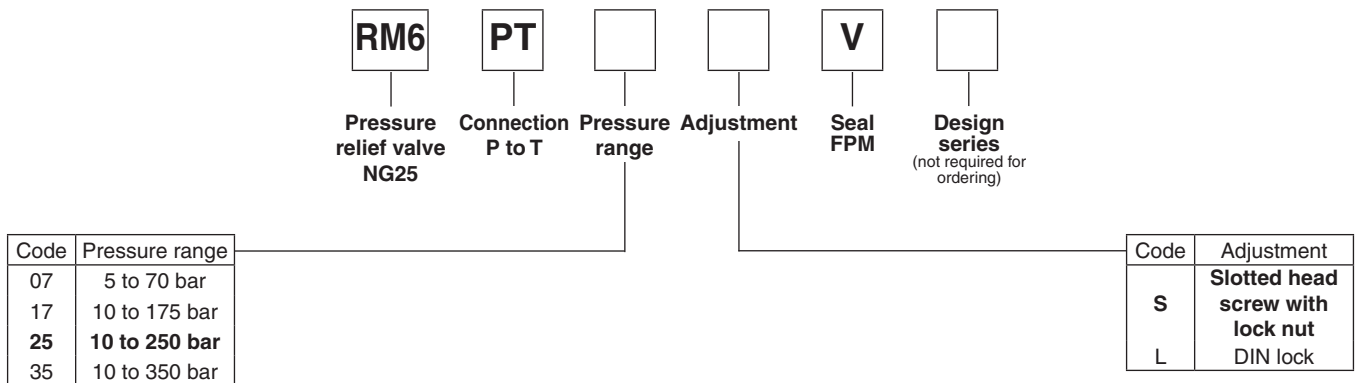
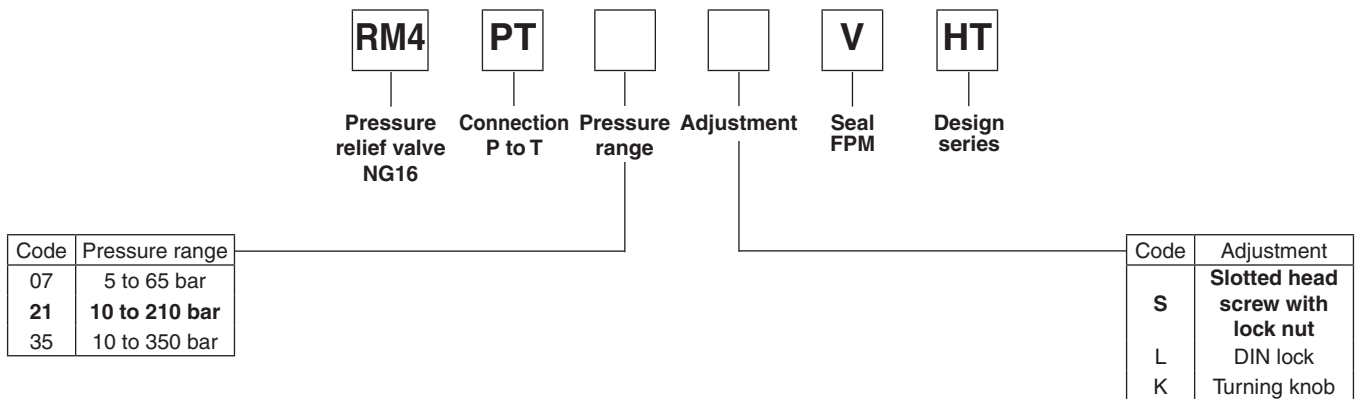
## Pilot Operated Pressure Relief Valve Series RM

### Ordering Code



<sup>1)</sup> Type AT = 5-65 bar

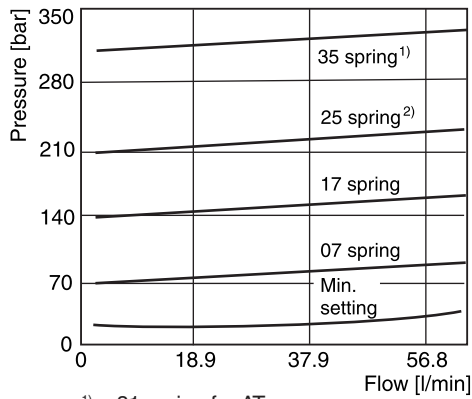
7



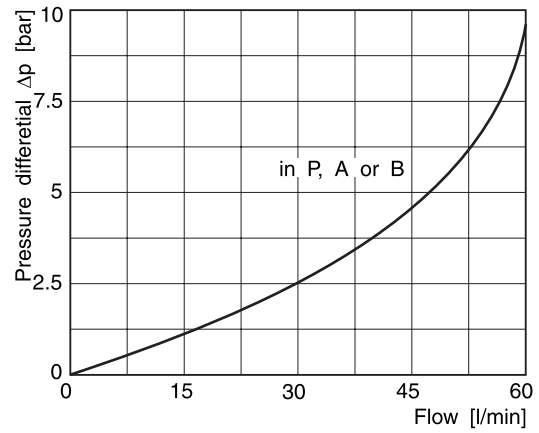
**Bold letters =  
Short-term availability**

**p/Q performance curves**

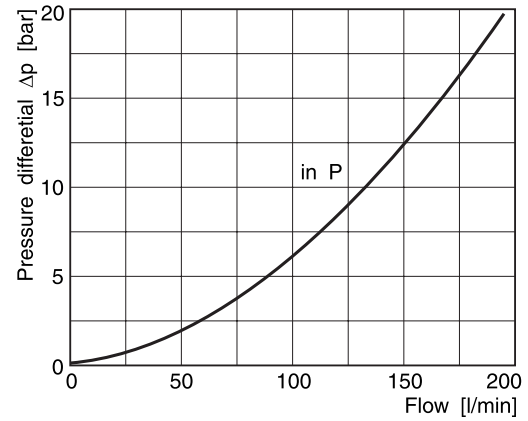
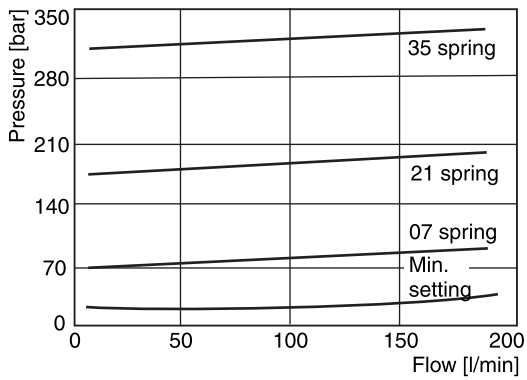
**RM3**



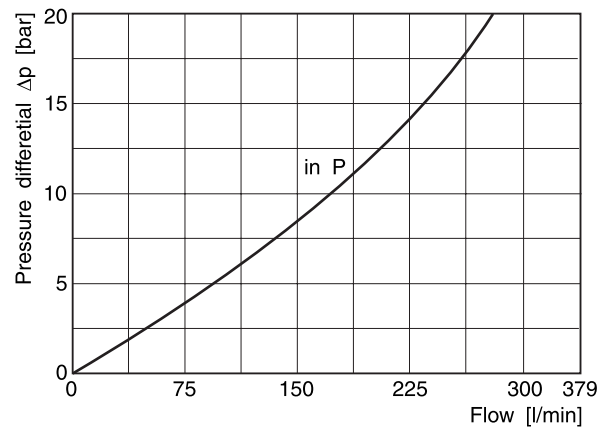
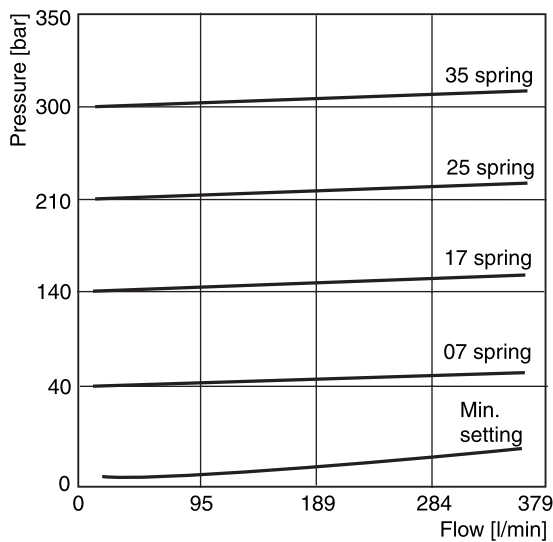
<sup>1)</sup> + 31 spring for AT  
<sup>2)</sup> + 21 spring for AT



**RM4**

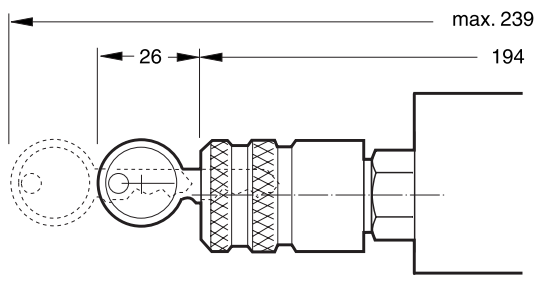


**RM6**

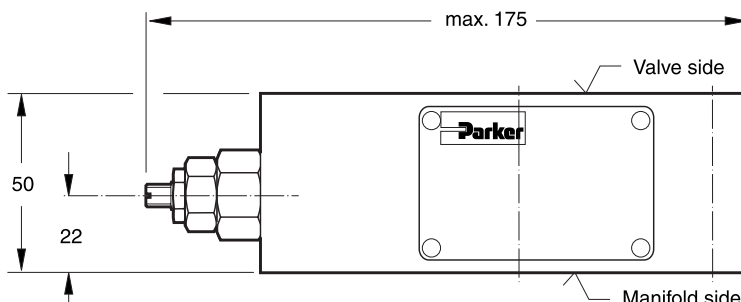


**Dimensions**

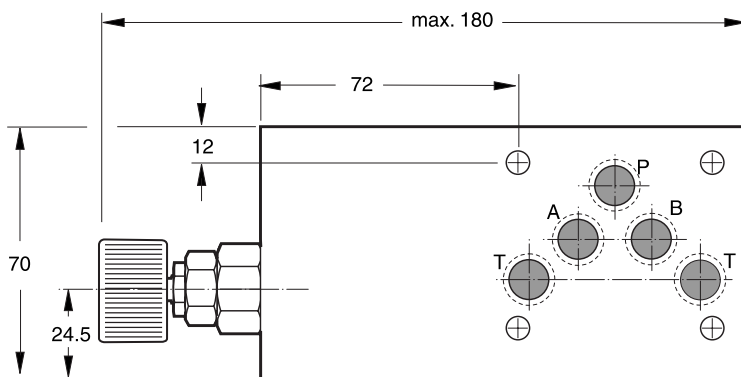
**RM3 PT/BT**  
**Adjustment code L**



**Adjustment code S**



**Adjustment code K**

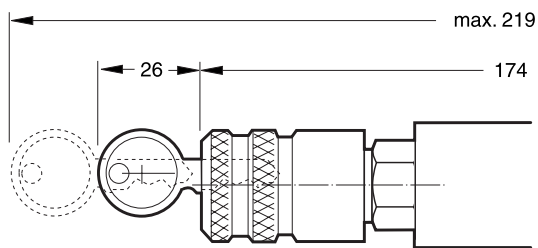


Seal kit RM3	
Seal	Order code
V	SK-RM3-V-11

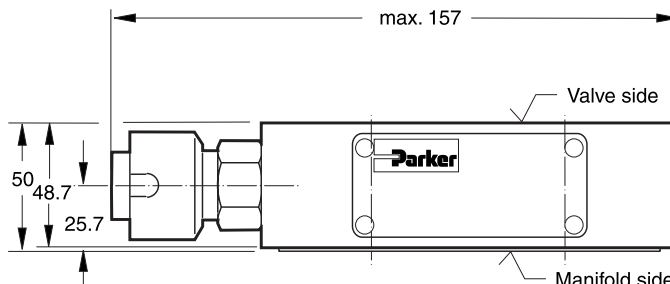
**Note:**  
The O-rings for sealing the connecting surface of the manifold side are included. The O-rings and the positioning pin are always mounted on the manifold side.

7

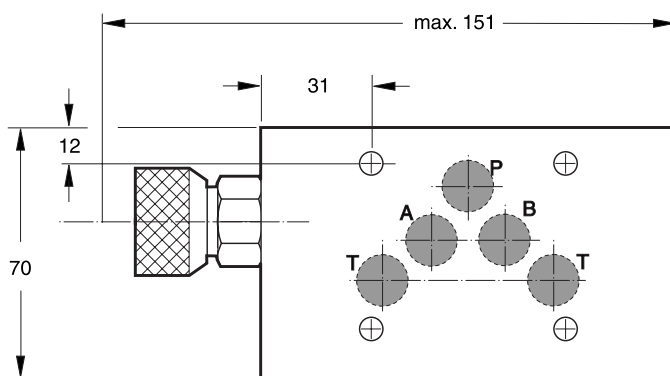
**RM3 AT\*HT**  
**Adjustment code L**



**Adjustment code S**



**Adjustment code K**



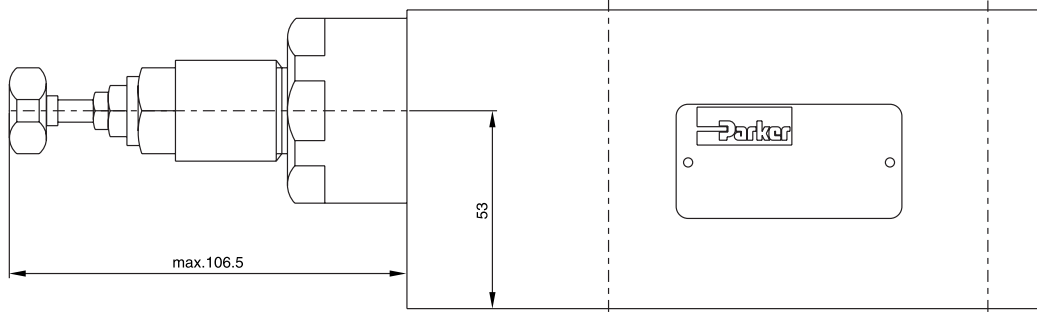
**Note:**  
The seal plate and the O-rings for sealing the connecting surface of the manifold side are included with the HT model.



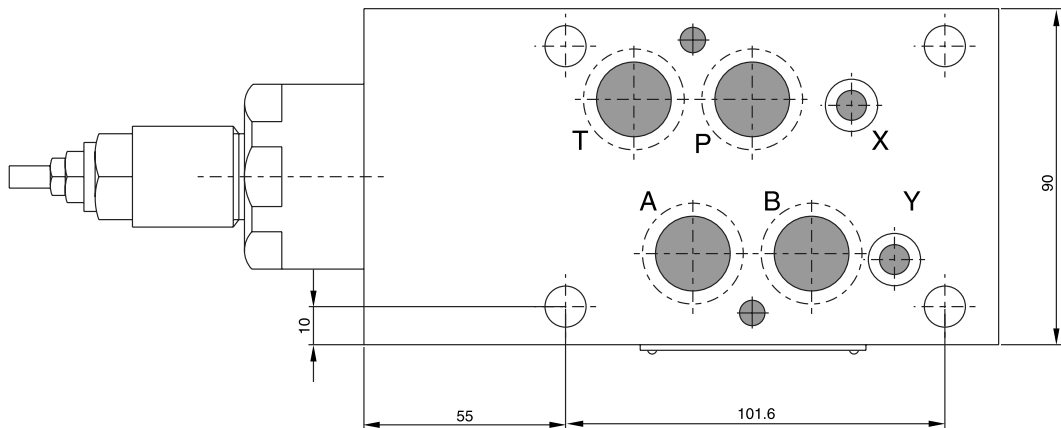
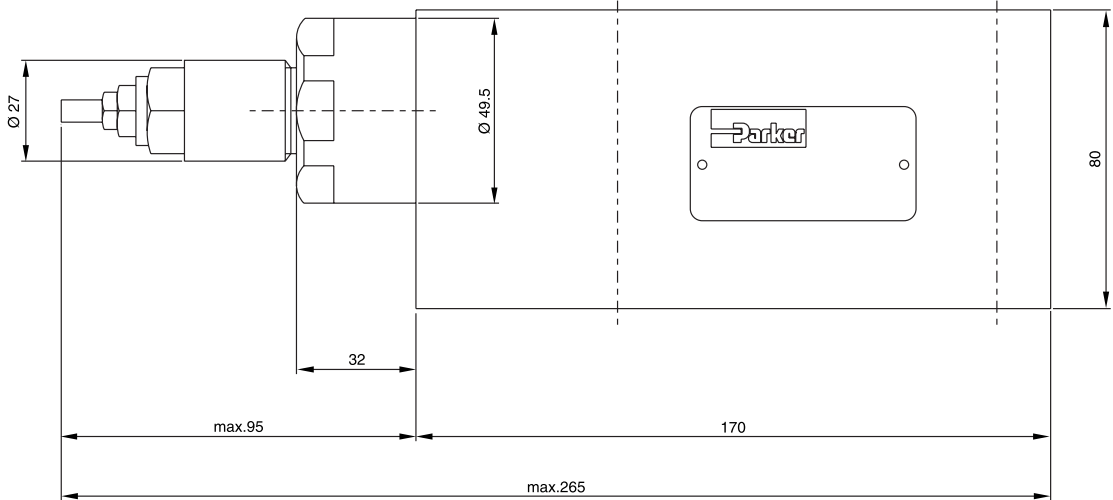
**Dimensions**

**RM4**

**Adjustment code K**



**Adjustment code S**



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

**Note:**

The O-rings for sealing the connecting surface of the manifold side are included. The O-rings and the positioning pins are always mounted on the manifold side.

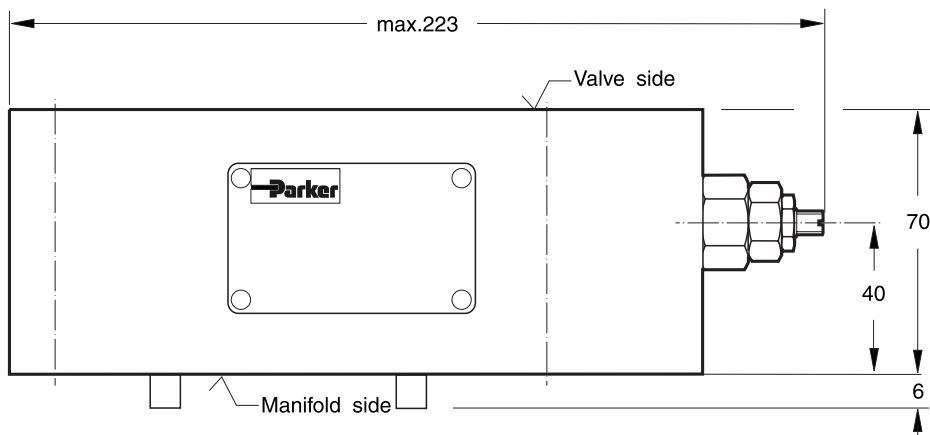


RM\_UK.INDD RH

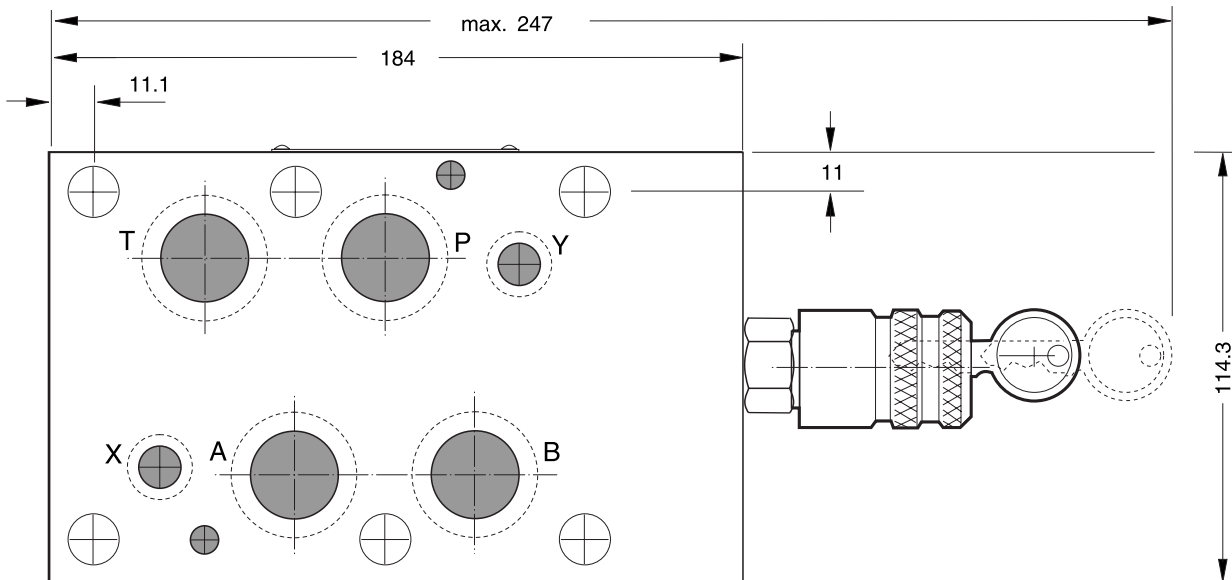
7

**Dimensions**

**RM6  
Adjustment Code S**



**Adjustment Code L**



7

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

**Note:**  
The O-rings for sealing the connecting surface of the manifold side are included. The O-rings and the positioning pins are always mounted on the manifold side.



### Characteristics

### Pressure Relief Valve Series ZDV (Denison)

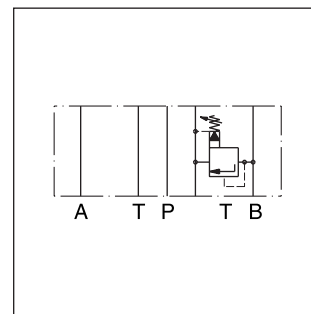
Pilot operated pressure relief valves series ZDV are designed for maximum flow rates.

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

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



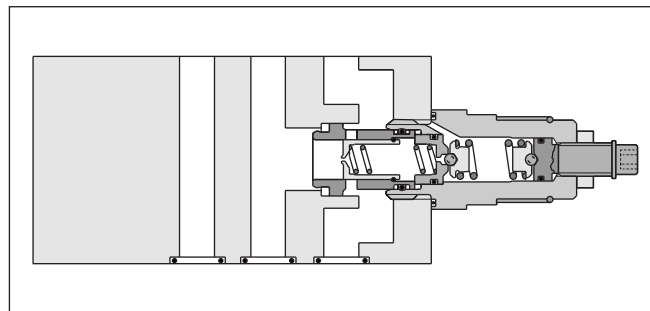
ZDV-P01



ZDV-B02

#### Features

- High flow capacity
- Pressure function in P, A, B or A + B
- Sizes
  - ZDV01 - NG06 / CETOP3
  - ZDV02 - NG10 / CETOP5
  - ZDV03 - NG16 / CETOP7



ZDV-B02

#### Technical data

General		06	10	16
Size		DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05	DIN 24340 A16 ISO 4401 NFPA D08
Mounting interface		CETOP RP 121 unrestricted		
Mounting position		unrestricted		
Ambient temperature	[°C]	-20...+50		
Weight	1 cartridge [kg]	1.6	3.0	8.45
	2 cartridges [kg]	2.5	3.7	5.7
Hydraulic				
Max. operating pressure	[bar]	up to 350 (ZDV*ABS up to 315)		
Nominal flow	[l/min]	80	140	300
Fluid		Hydraulic oil as per DIN 51524...525		
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 (acc. NAS 1638: 7)		

#### Ordering code

ZDV -   -   -   - S0 -   -  

Pressure relief valve    Pressure control    Nominal size    Pressure stages    Hexagon screw with lock nut    Design series    Seal

Code	Size	Press. control					Code	Seal
P	06/10/16	P - T					1	NBR
A	06/10/16	A - T					5	FPM
B	06/10/16	B - T						
AB	06/10	A - T & B - T						
ABS	06/10	A - B & B - A						

Code	Nominal size
01	NG06
02	NG10
03	NG16

Code	Press. stages
1	up to 70 bar
5	up to 350 bar

Code	Design series
C	01
D	02, 03

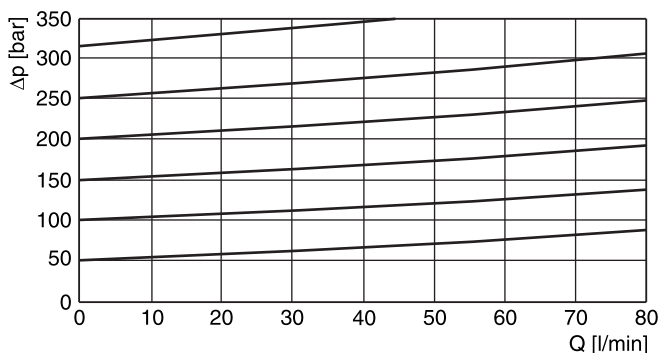
Ordering code details see end of chapter.

ZDV\_UK.INDD RH

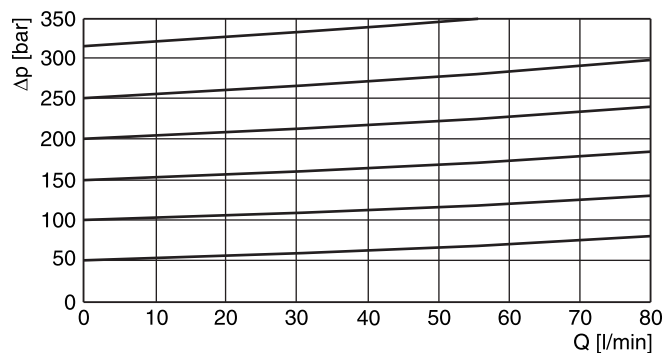


**p/Q performance curves**

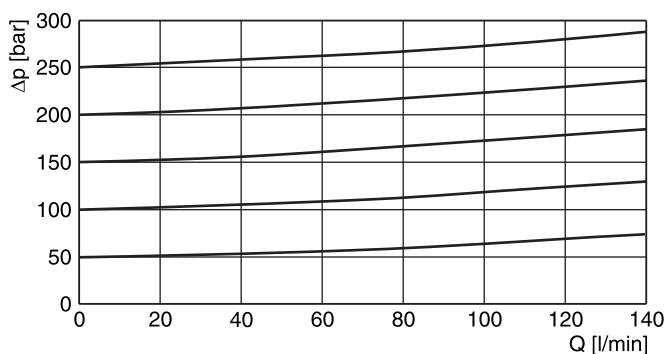
**ZDV-P/A/B/ABS01**



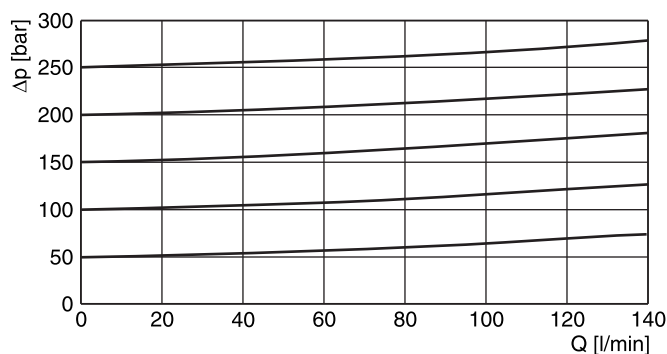
**ZDV-AB01**



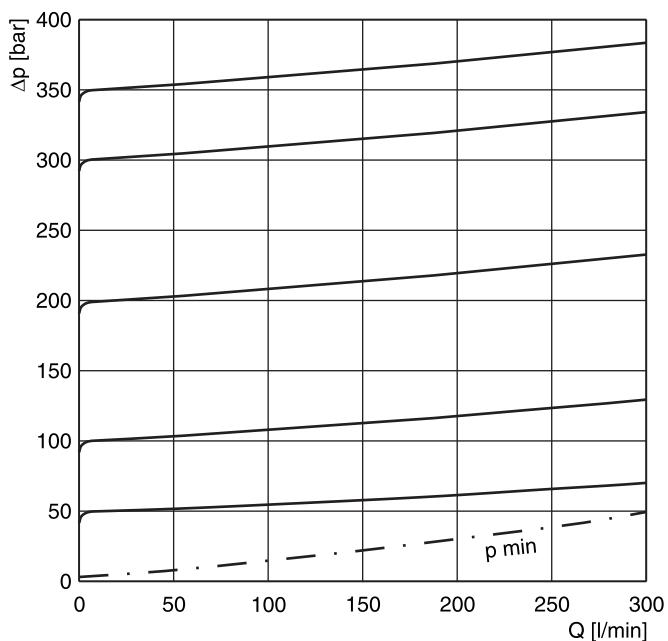
**ZDV-P/A/B/AB02**



**ZDV-ASB02**



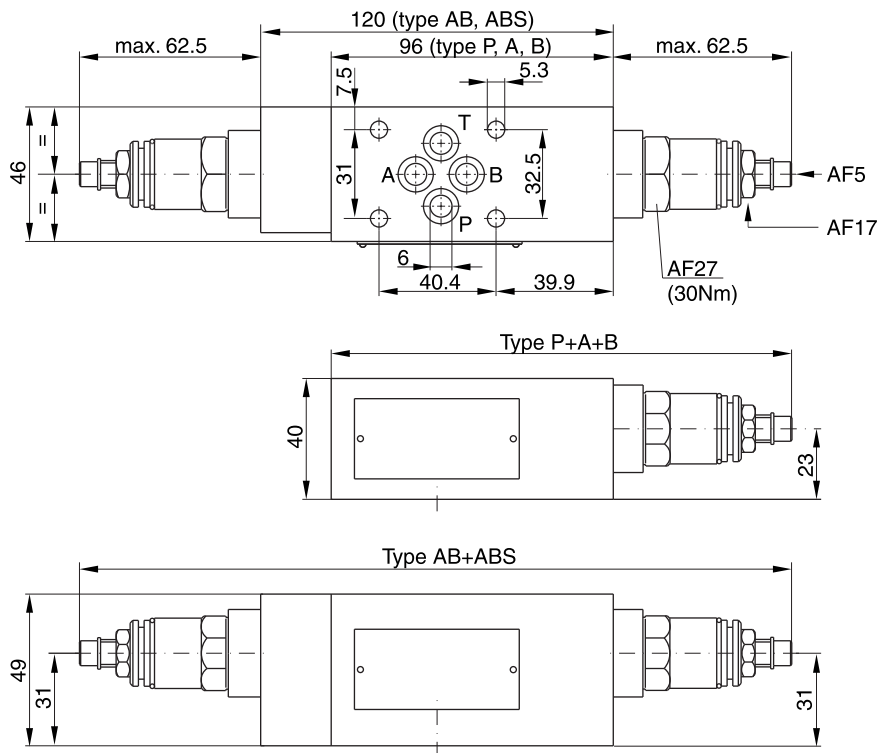
**ZDV-P03-5**



Fluid viscosity 30 cSt at 50°C

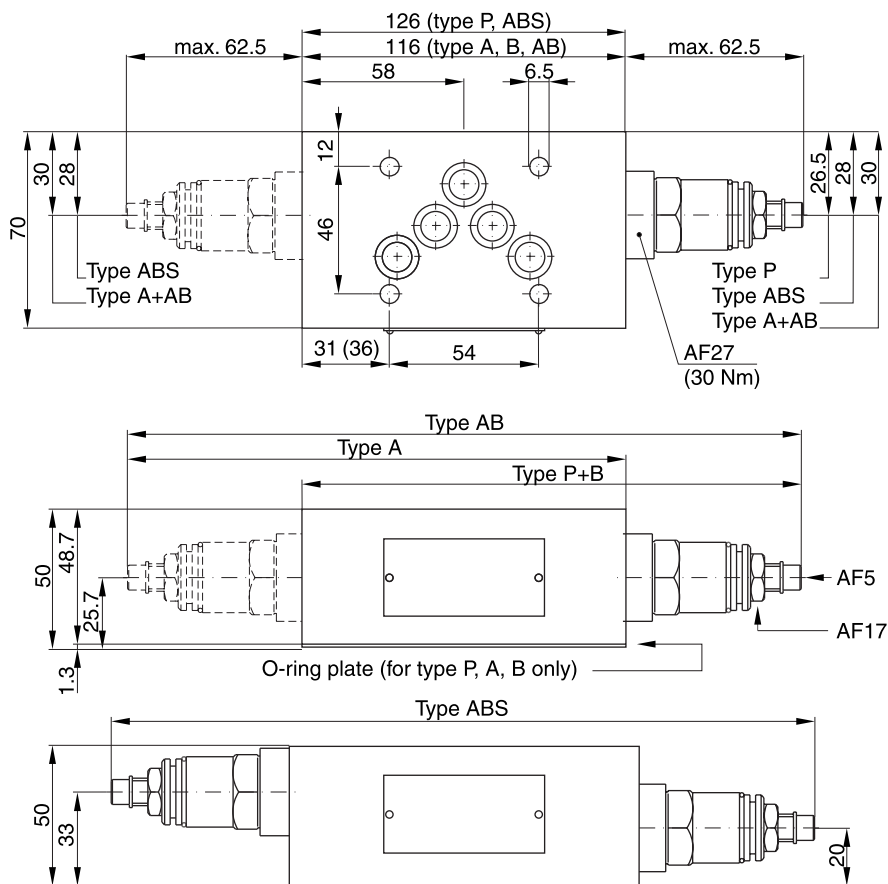
7

**ZDV01**



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

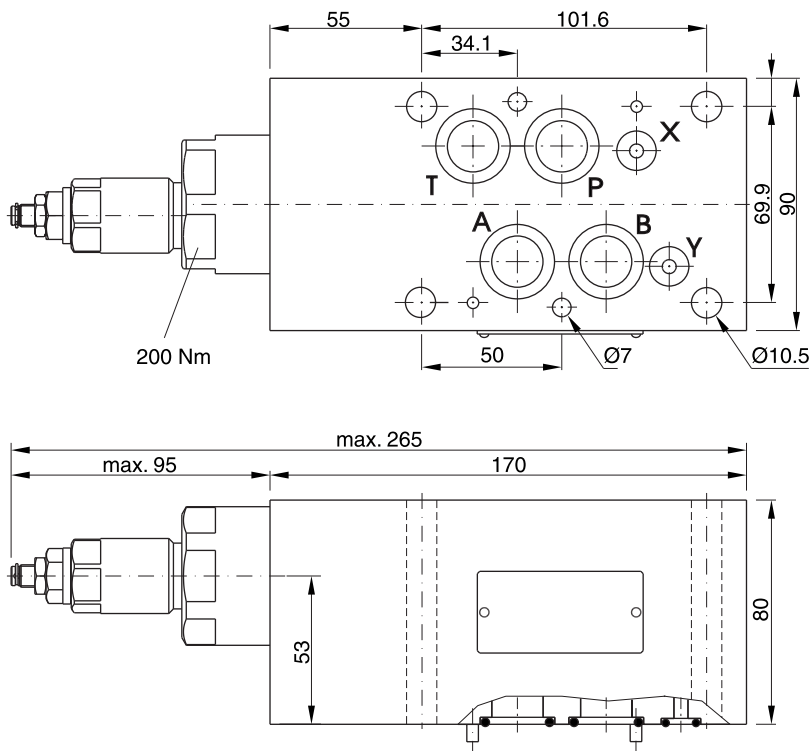
**ZDV02**



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

**Dimensions**

**ZDV03**

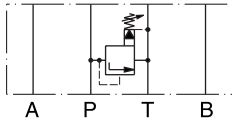


Seal kit	
Seal	Order code
1	098-91435-0
5	098-91436-0
Complete cartridge	
Seal	Order code
1	098-91433-0
5	098-91434-0

7

**ZDV01**

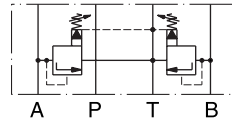
Pressure control P-T



Series  
 ZDV-P01-1-S0-D1  
 ZDV-P01-5-S0-D1

Order No.  
 098-91201-0  
 098-91202-0

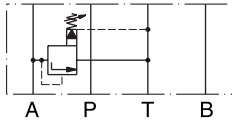
Pressure control A-T & B-T



Series  
 ZDV-AB01-1-S0-D1  
 ZDV-AB01-5-S0-D1

Order No.  
 098-91207-0  
 098-91208-0

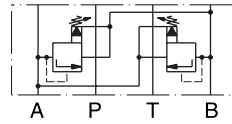
Pressure control A-T



Series  
 ZDV-A01-1-S0-D1  
 ZDV-A01-5-S0-D1

Order No.  
 098-91203-0  
 098-91204-0

Pressure control A-B & B-A

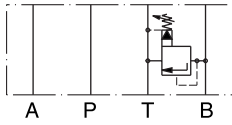


Series  
 ZDV-ABS01-1-S0-D1  
 ZDV-ABS01-5-S0-D1

Order No.  
 098-91209-0  
 098-91210-0

1 = 7 ... 70 bar  
 5 = 7 ... 350 bar

Pressure control B-T



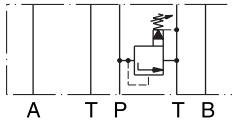
Series  
 ZDV-B01-1-S0-D1  
 ZDV-B01-5-S0-D1

Order No.  
 098-91205-0  
 098-91206-0

1 = 7 ... 70 bar  
 5 = 7 ... 350 bar

**ZDV02**

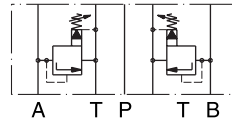
Pressure control P-T



Series  
 ZDV-P02-1-S0-D1  
 ZDV-P02-5-S0-D1

Order No.  
 098-91034-0  
 098-91035-0

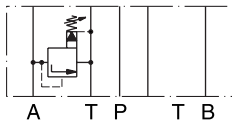
Pressure control A-T & B-T



Series  
 ZDV-AB02-1-S0-D1  
 ZDV-AB02-5-S0-D1

Order No.  
 098-91040-0  
 098-91041-0

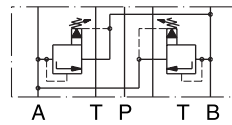
Pressure control A-T



Series  
 ZDV-A02-1-S0-D1  
 ZDV-A02-5-S0-D1

Order No.  
 098-91036-0  
 098-91037-0

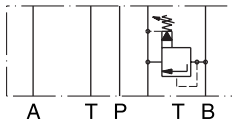
Pressure control A-B & B-A



Series  
 ZDV-ABS02-1-S0-D1  
 ZDV-ABS02-5-S0-D1

Order No.  
 098-91042-0  
 098-91043-0

Pressure control B-T

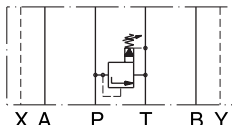


Series  
 ZDV-B02-1-S0-D1  
 ZDV-B02-5-S0-D1

Order No.  
 098-91038-0  
 098-91039-0

**ZDV03**

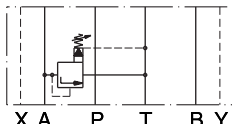
Pressure control P-T



Series  
 ZDV-P03-1-S0-C1  
 ZDV-P03-5-S0-C1

Order No.  
 098-91432-0  
 098-91418-0

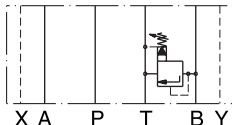
Pressure control A-T



Series  
 ZDV-A03-1-S0-C1  
 ZDV-A03-5-S0-C1

Order No.  
 098-91415-0  
 098-91416-0

Pressure control B-T



Series  
 ZDV-B03-1-S0-C1  
 ZDV-B03-5-S0-C1

Order No.  
 098-91431-0  
 098-91417-0



## Characteristics

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.

### Function

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

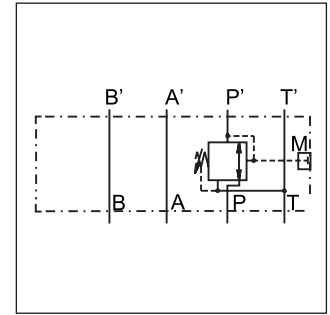
- PRDM Manapak sandwich valves may be selected to reduce pressure in the 'P', 'A' or 'B' port.
- The direct operated, cushioned piston design results in fast response, low leakage and minimal hysteresis.
- Up to 5 pressure adjustment ranges are available with max. pressure settings of:  
bar 25, 70, 160, 210, 350 for PRDM2,  
bar 19, 50, 100, 150, 210 for PRDM3.
- Adjustment modes:
  - Slotted head with lock nut
  - DIN lock
  - Turning knob
- PRDM2 - NG06 (CETOP 3)  
PRDM3 - NG10 (CETOP 5)

### Technical data

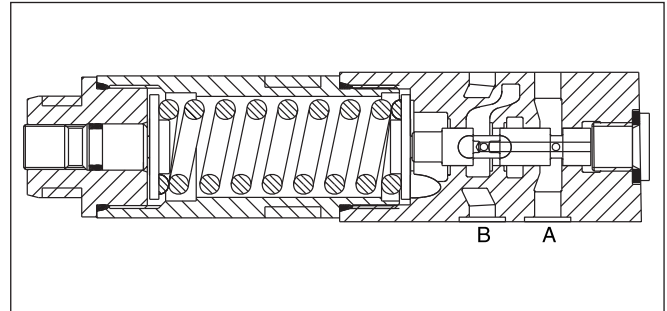
Series		PRDM2	PRDM3
Port size		NG06	NG10
Mounting pattern		ISO 4401	
Max. operating pressure			
P, A, B	[bar]	350	315
T	[bar]	50	50
Weight	[kg]	1.3	2.6
Viscosity range	[cSt][mm <sup>2</sup> /s]	12...230	
Filtration		ISO 4406 (1999) 18/16/13	

Max. leakage P - A: 5ml/min

## Direct Operated Pressure Reducing Valve Series PRDM

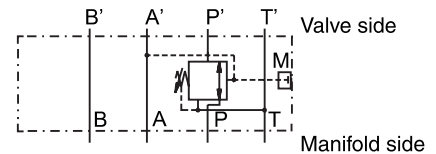


Example PP

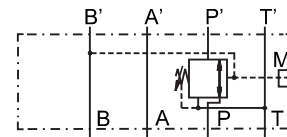


### Schematics

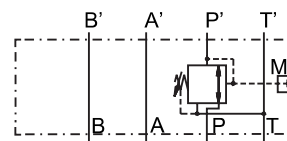
#### PRDM\*AA



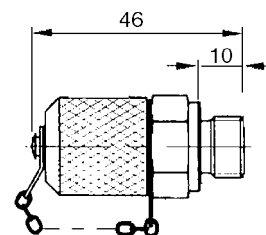
#### PRDM\*BB



#### PRDM\*PP

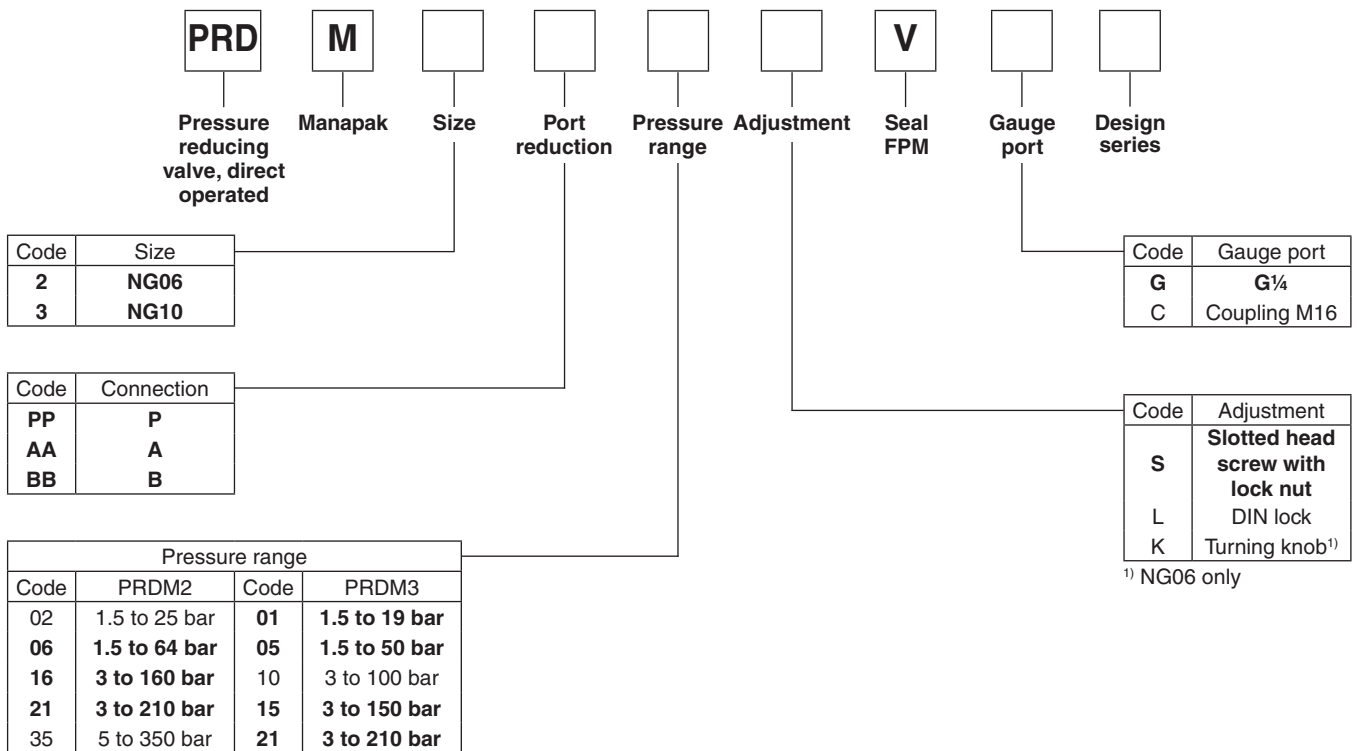


### Gauge port option C (EMA3R1/4EDA3C)



## Direct Operated Pressure Reducing Valve Series PRDM

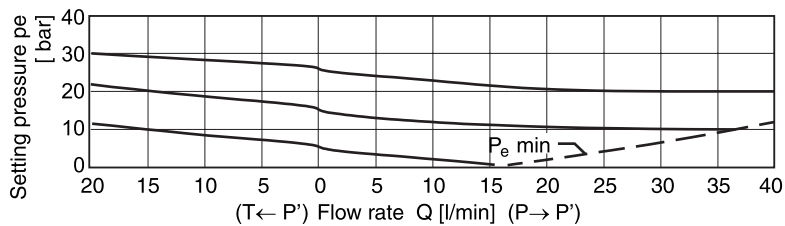
### Ordering Code



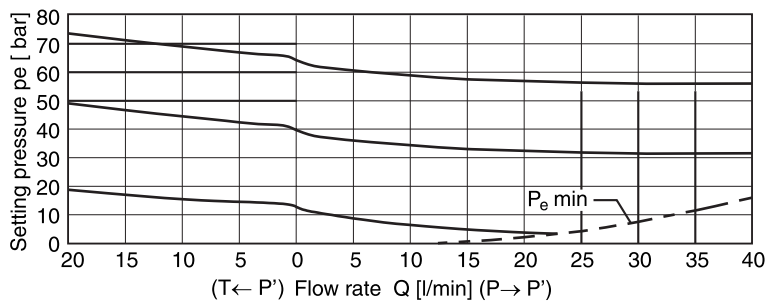
7

**Bold letters =  
Short-term availability**

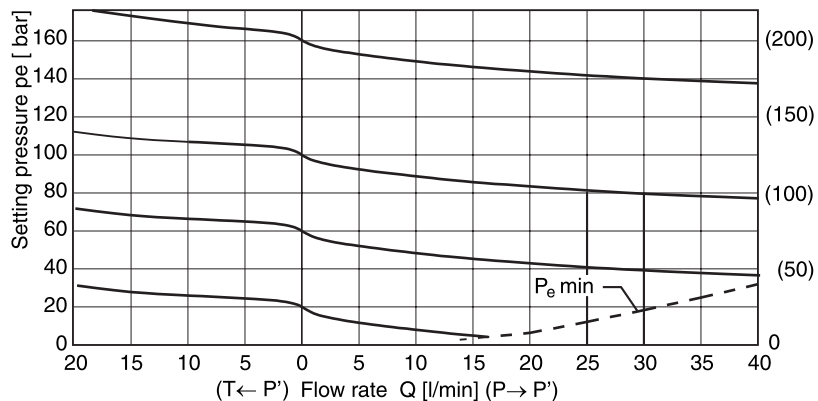
**PRDM2 02**



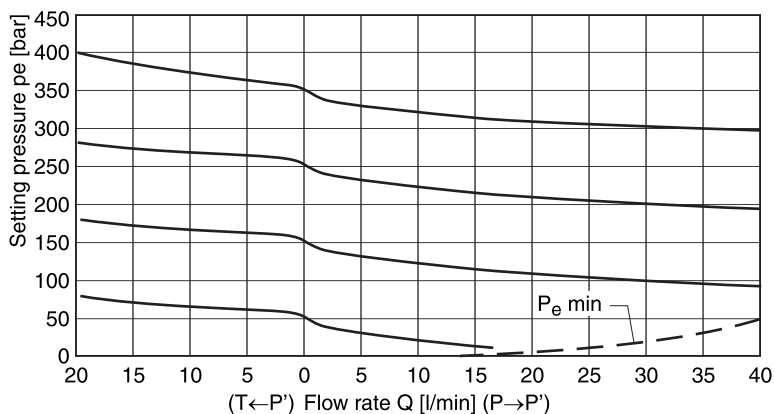
**PRDM2 06**



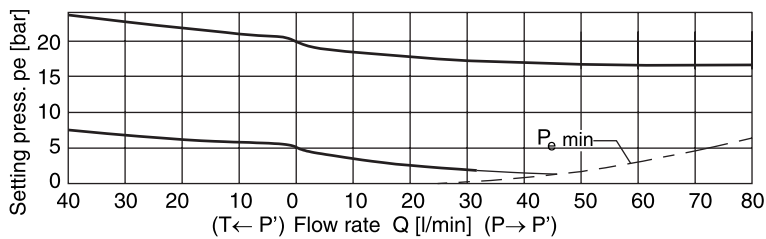
**PRDM2 16/21**



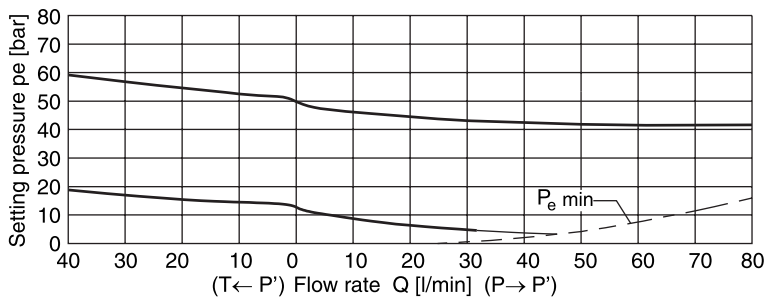
**PRDM2 35**



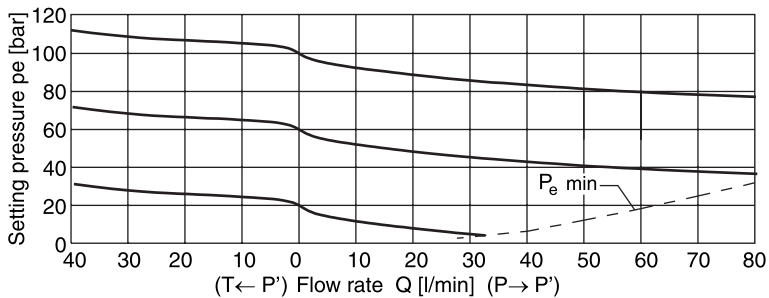
**PRDM3 01**



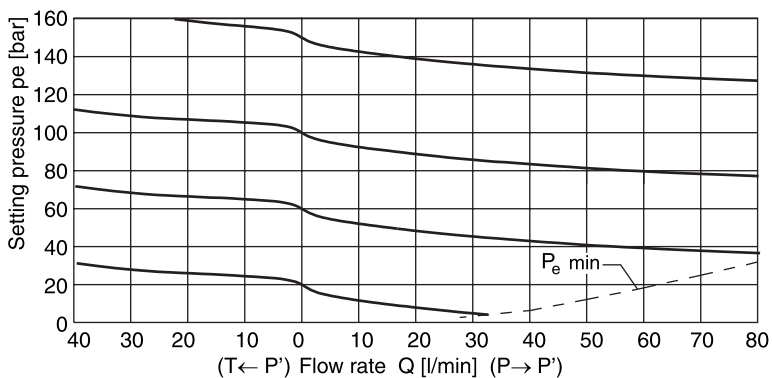
**PRDM3 05**



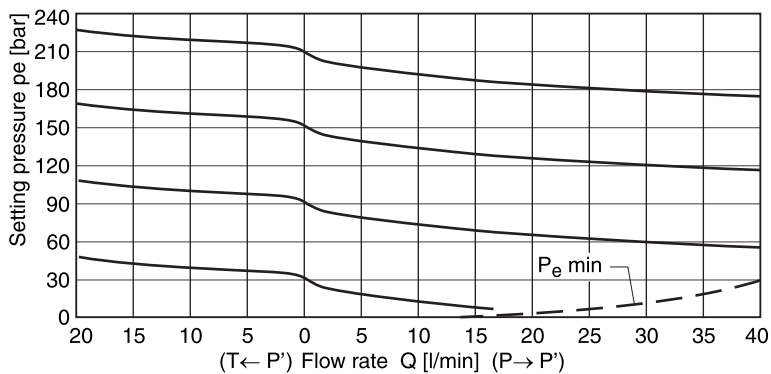
**PRDM3 10**



**PRDM3 15**

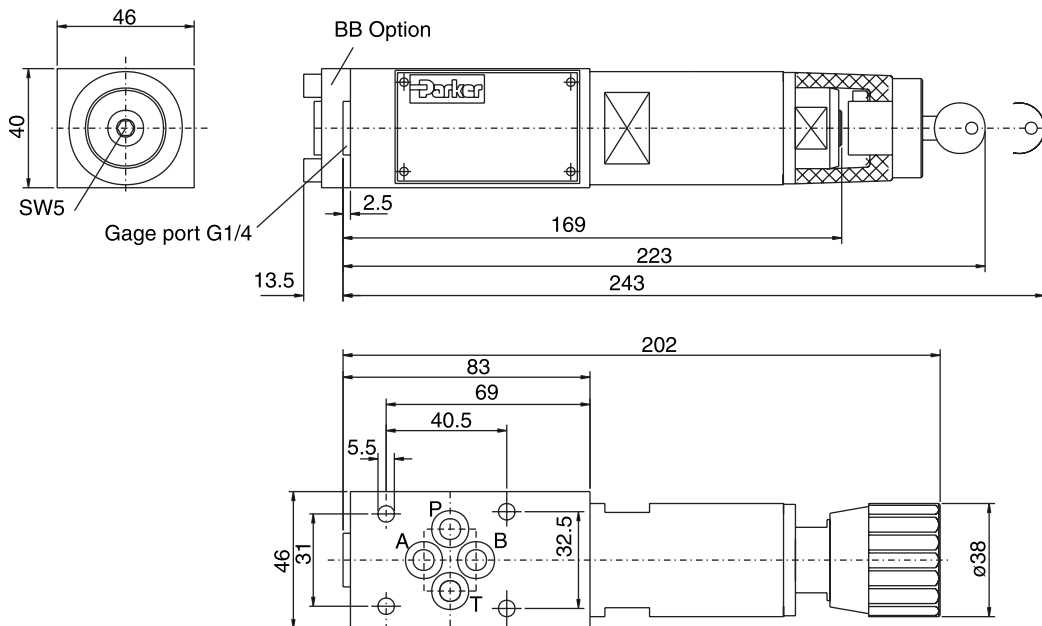


**PRDM3 21**

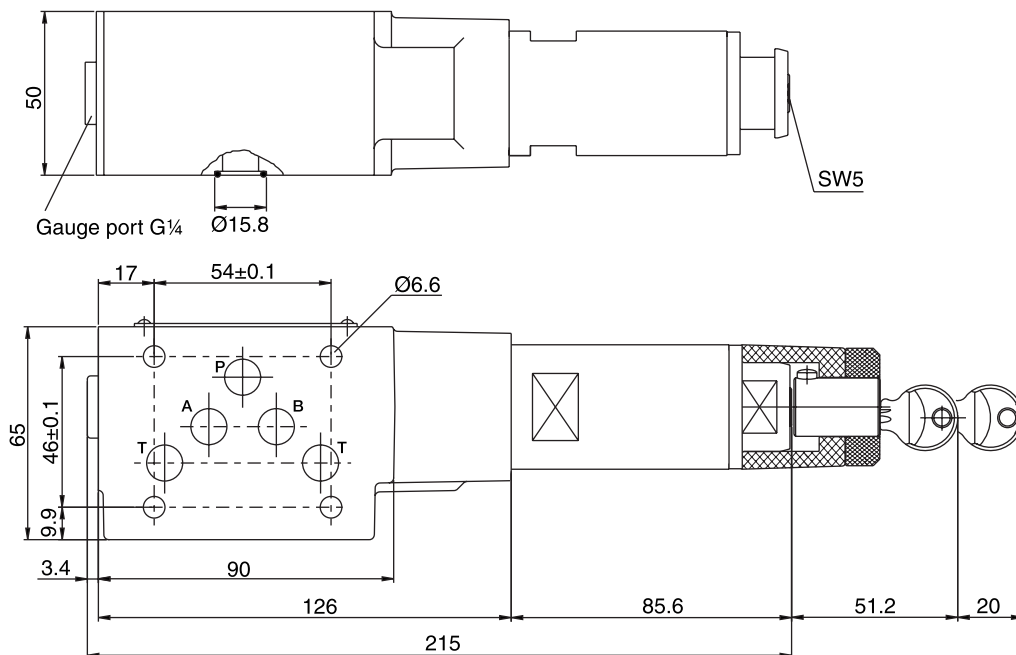


7

**PRDM2**



**PRDM3**



7

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





**Characteristics**

**Pilot Operated Pressure Reducing Valve  
Series PRM**

The pilot operated pressure reducing valves from the Parker Manapak series PRM are sandwich plate valves designed for stacking beneath a directional valve with a standardised mounting pattern. The reducing function can be located in ports P, A or B (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 slotted head screw, knob, or knob with DIN lock.
- Pressure gauge/measuring connections are available in the valve body.
- Piloting results in a flat p/Q performance curve.
- PRM3 - NG10 (CETOP 5)
- PRM4 - NG16 (CETOP 7)
- PRM6 - NG25 (CETOP 8)

**Technical data**

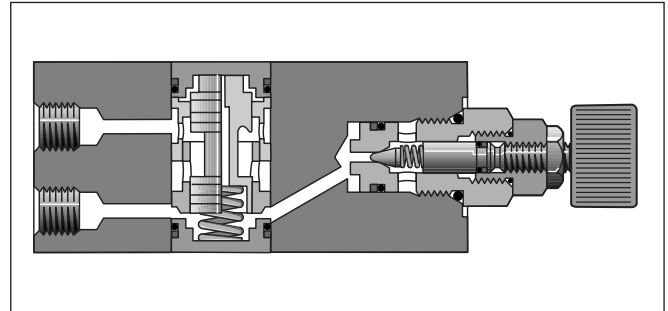
Port size		<b>NG10</b>	<b>NG16</b>	<b>NG25</b>
Mounting pattern		ISO 4401		
Series		PRM3	PRM4	PRM6
Max. operating pressure	[bar]	350	350	250
Pressure reduction in channel		P, A, B	P	P, A
Weight	[kg]	2.7	5.0	5.6



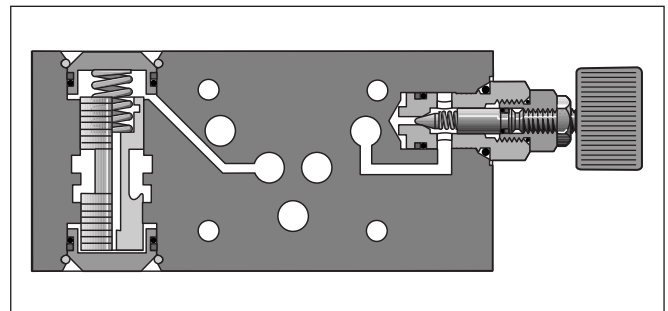
PRM3PP



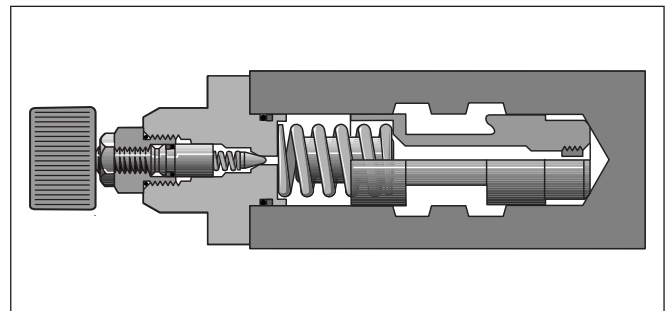
PRM6



PRM3PP



PRM3AA or PRM3BB

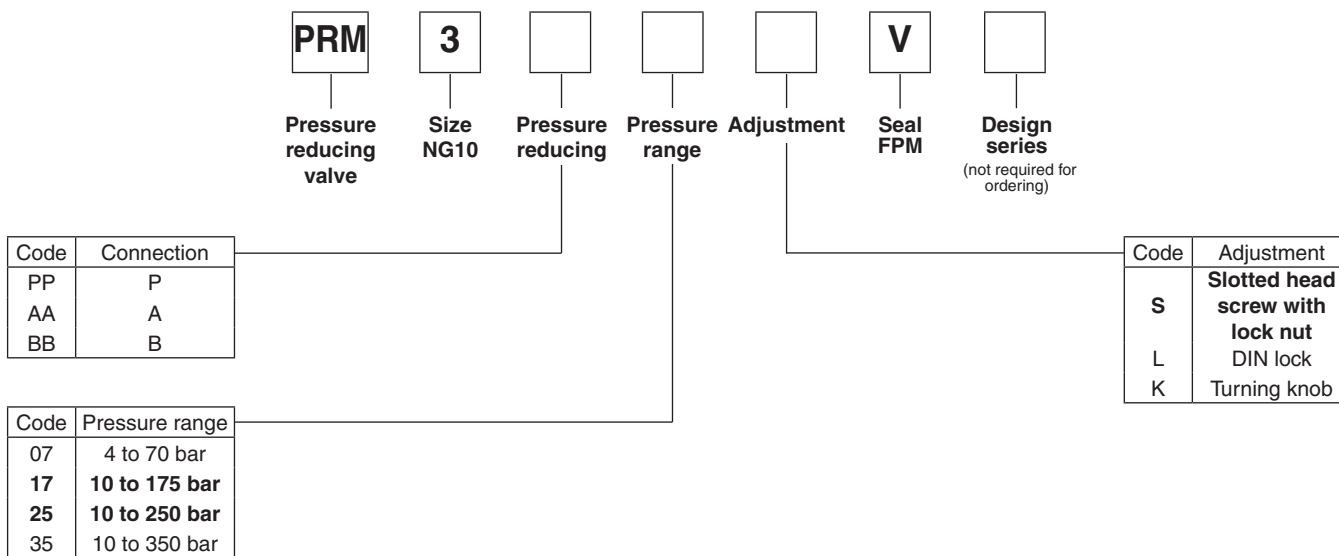


PRM4 and PRM6

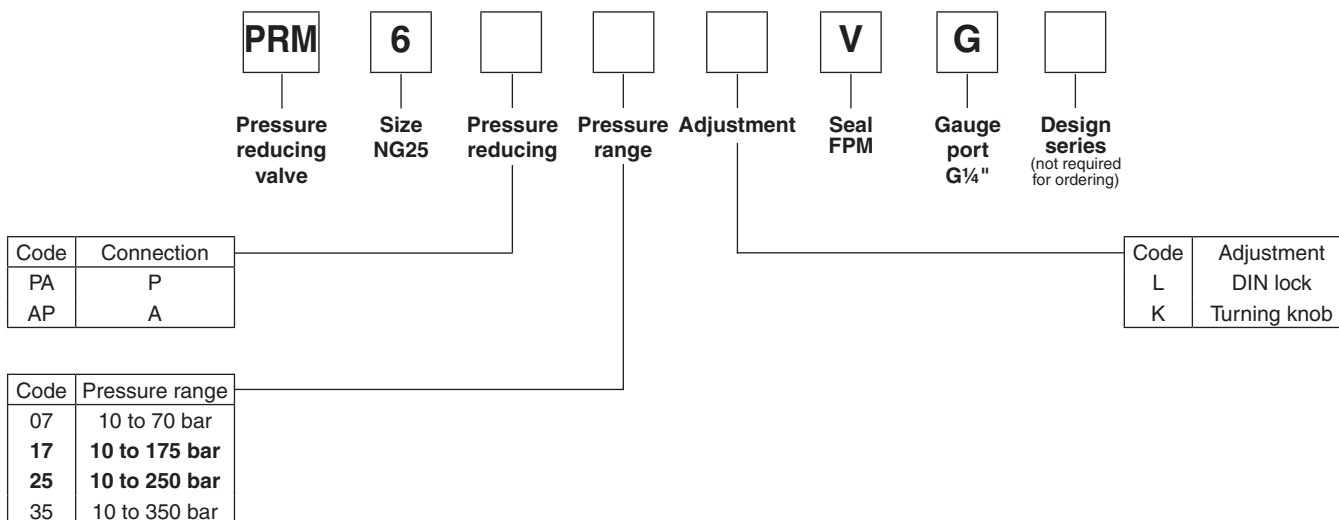
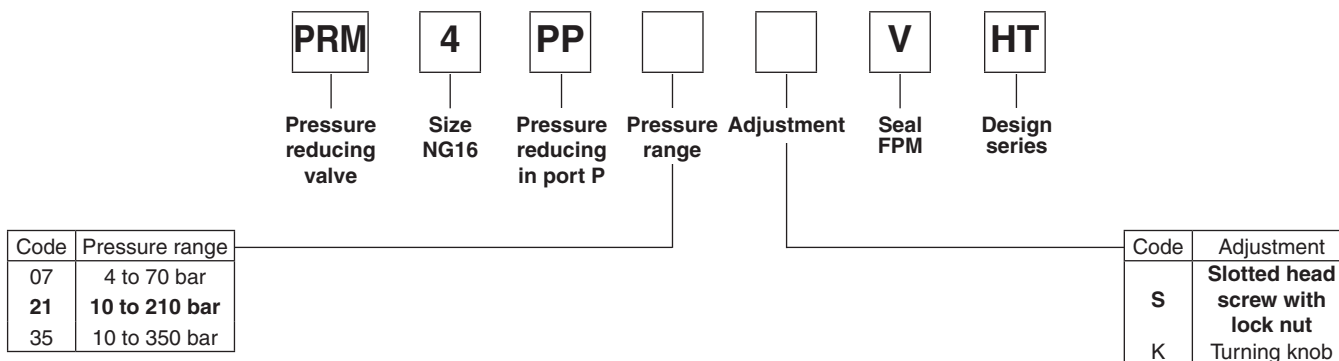
7

# Pilot Operated Pressure Reducing Valve Series PRM

## Ordering Code



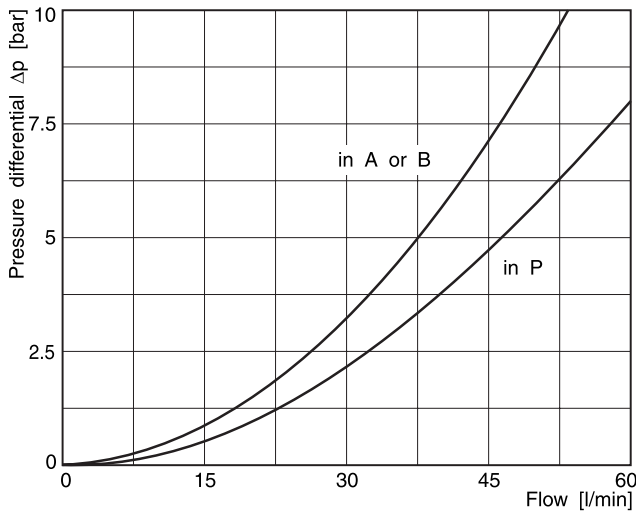
7



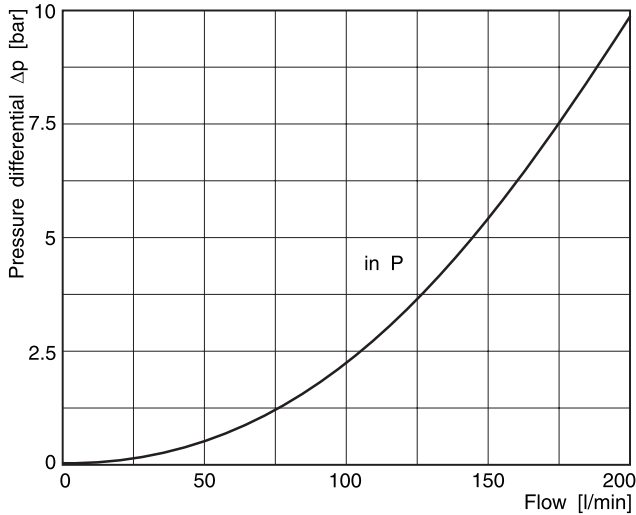
**Bold letters =**  
Short-term availability

**$\Delta p/Q$  performance curves**

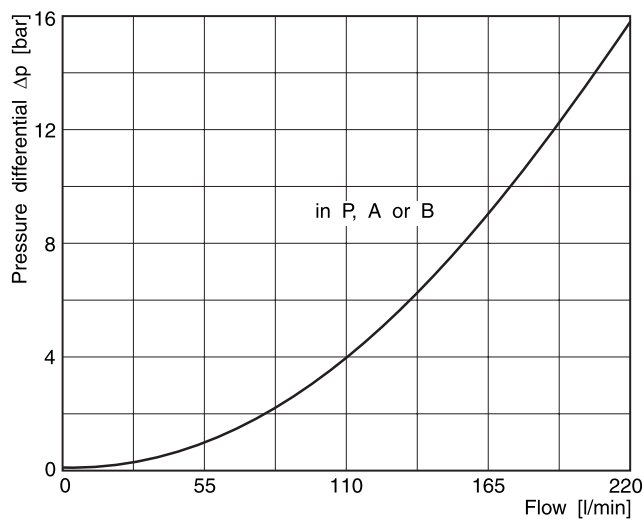
**PRM3**



**PRM4**

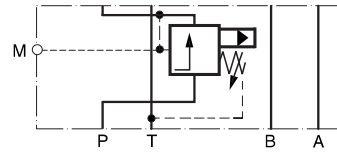


**PRM6**

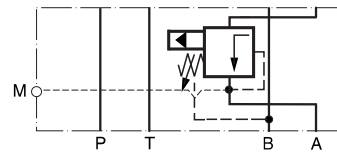


**Schematics**

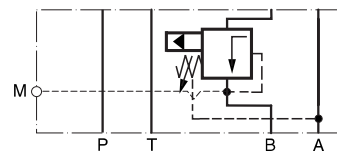
**PRM3PP**



**PRM3AA**

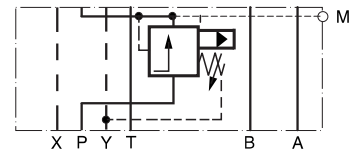


**PRM3BB**

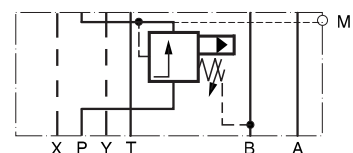


**PRM4PP**

**PRM6PA**



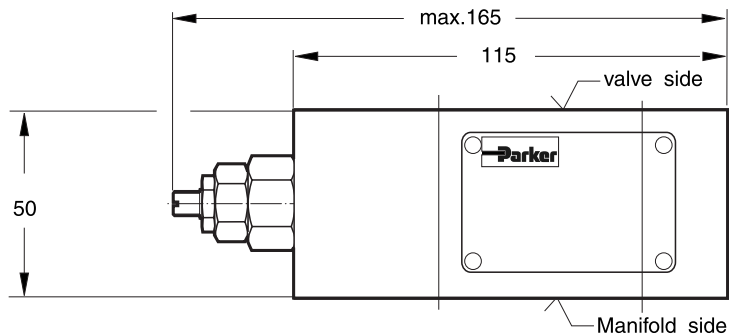
**PRM6AP**



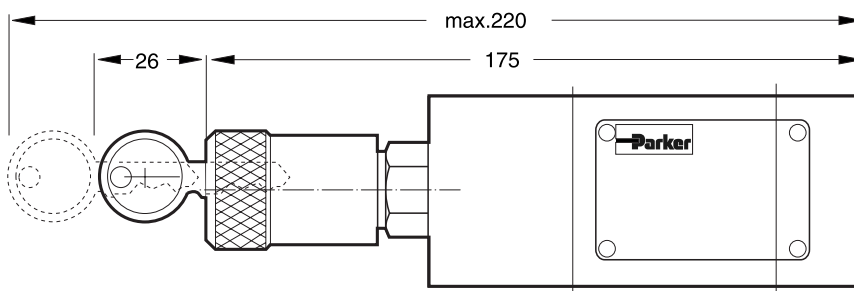
**Dimensions**

**PRM3PP**

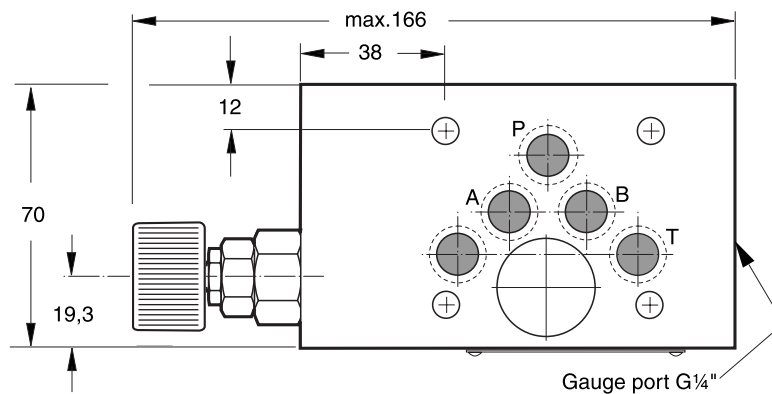
**Adjustment code S**



**Adjustment code L**



**Adjustment code K**



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

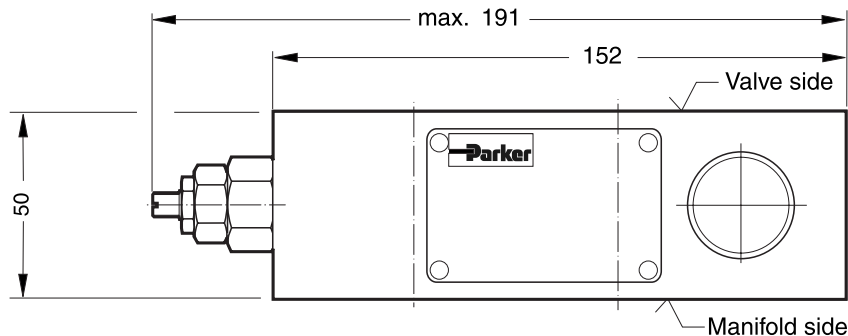
**Note:**  
The O-rings for sealing the connecting surface of the manifold side are included. The O-rings and the positioning pins are always mounted on the manifold side.



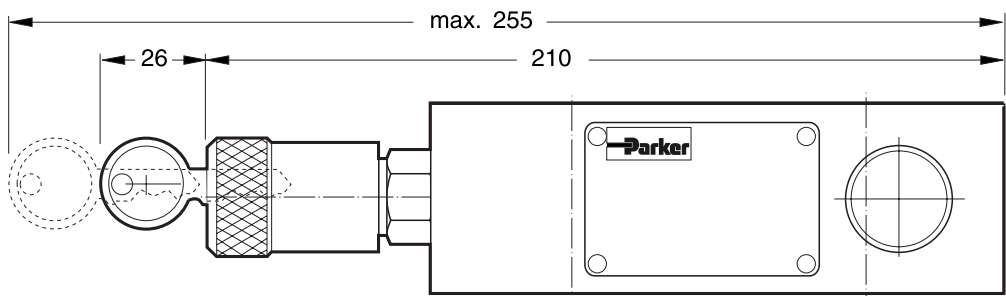
**Dimensions**

**PRM3AA**

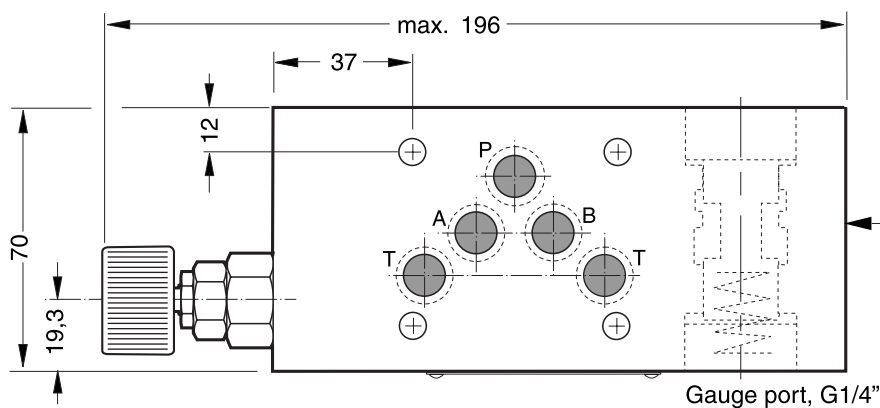
**Adjustment code S**



**Adjustment code L**



**Adjustment code K**



7

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

**Note:**

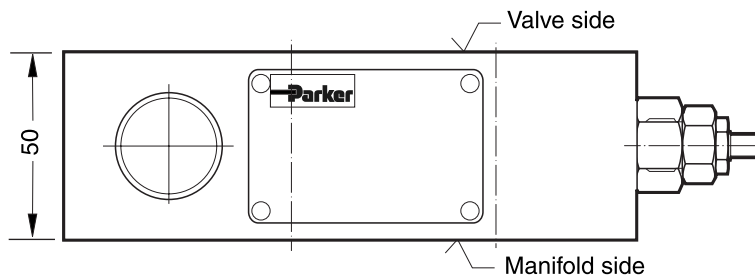
The O-rings for sealing the connecting surface of the manifold side are included. The O-rings and the positioning pins are always mounted on the manifold side.



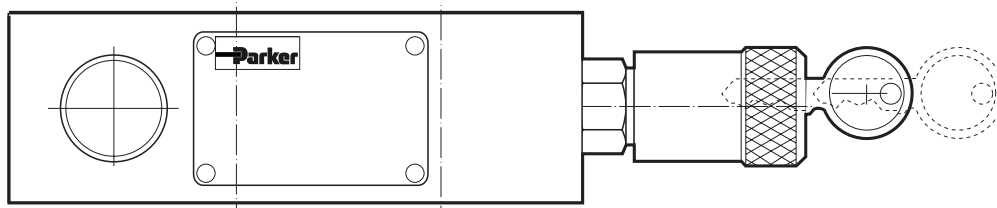
**Dimensions**

**PRM3BB**

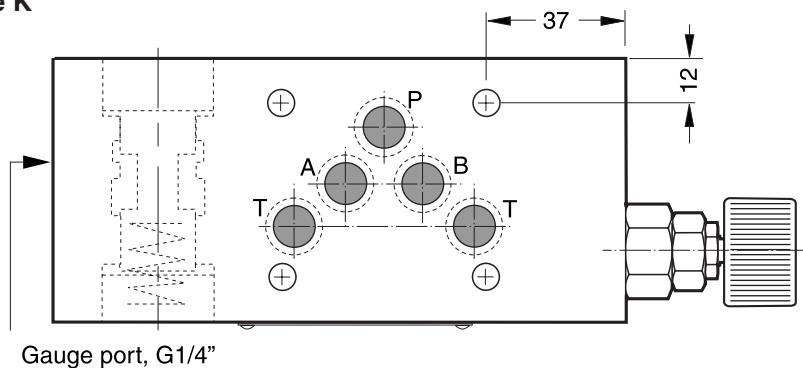
**Adjustment code S**



**Adjustment code L**



**Adjustment code K**



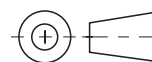
Gauge port, G1/4"

7

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

**Note:**

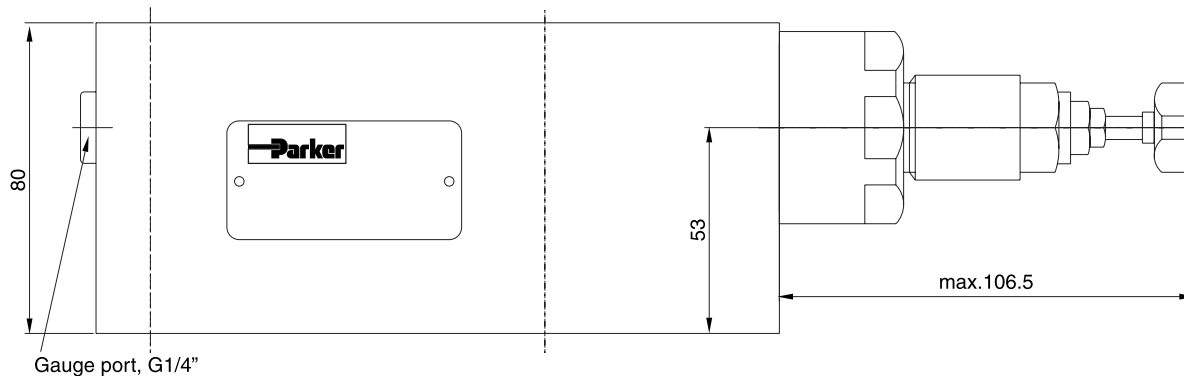
The O-rings for sealing the connecting surface of the manifold side are included. The O-rings and the positioning pins are always mounted on the manifold side.



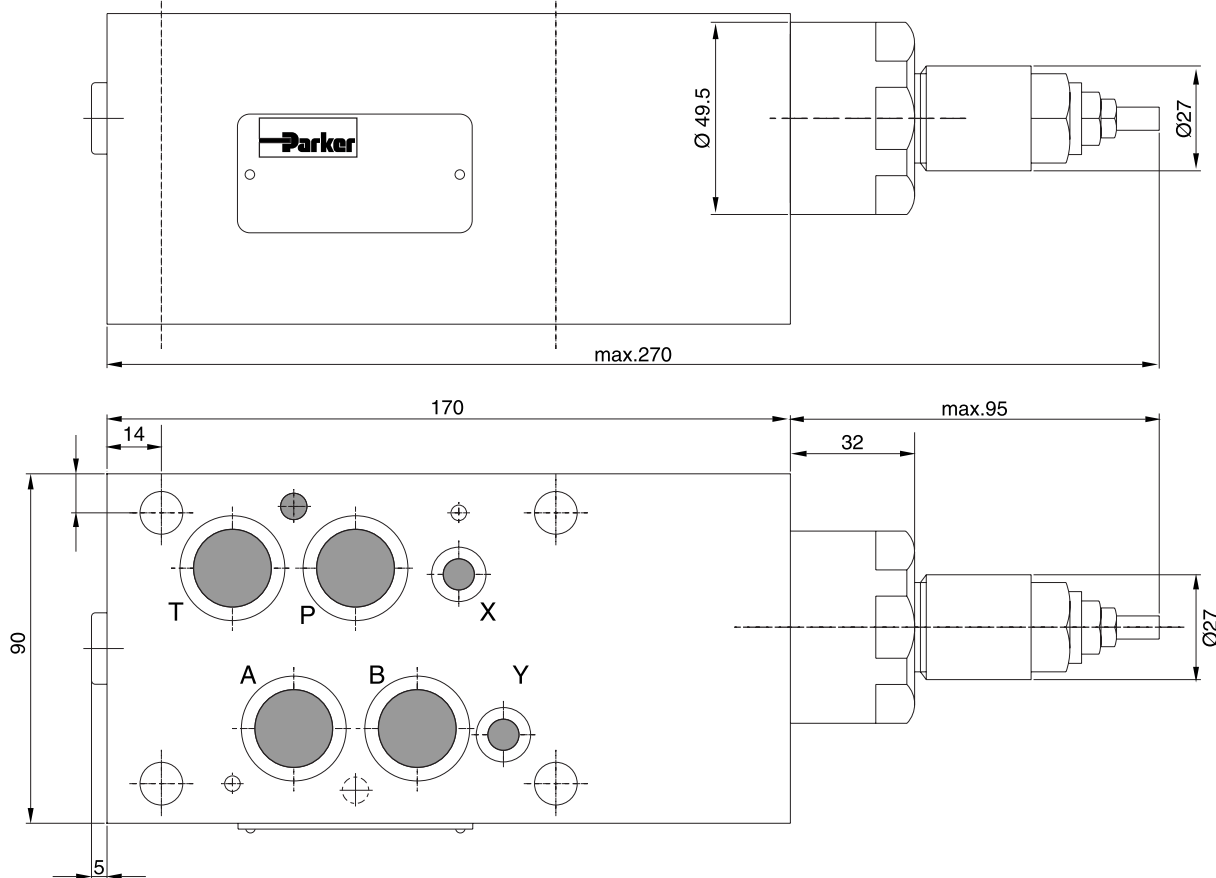
**Dimensions**

**PRM4PP**

**Adjustment code K**



**Adjustment code S**



7

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

**Note:**

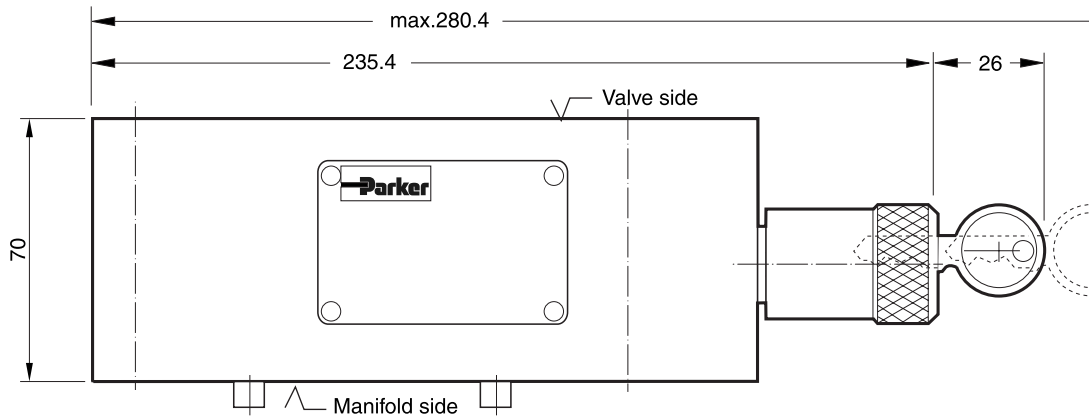
The O-rings for sealing the connecting surface of the manifold side are included. The O-rings and the positioning pins are always mounted on the manifold side.



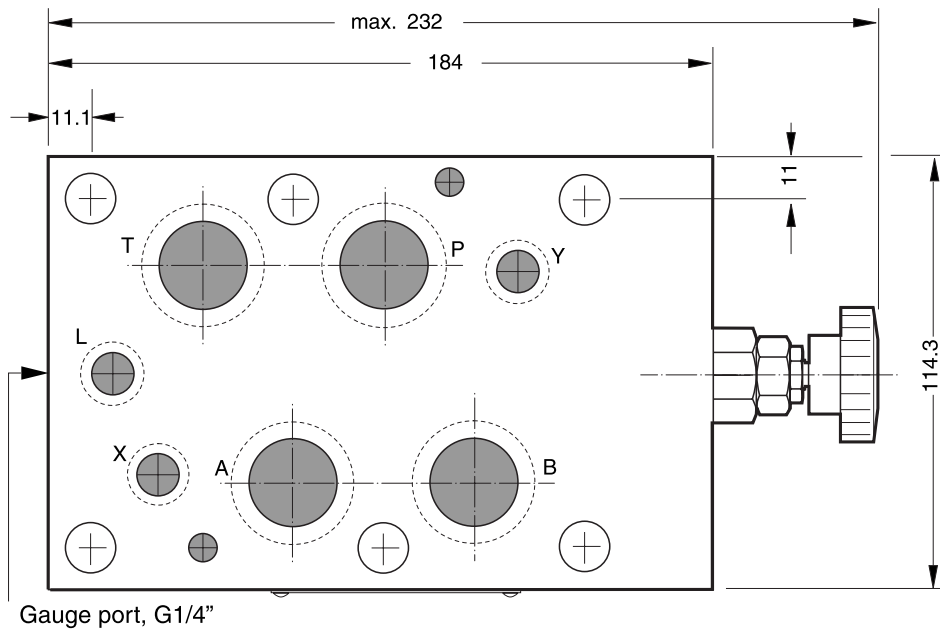
**Dimensions**

**PRM6**

**Adjustment code L**



**Adjustment code K**



7

Seal kit PRM6	
Seal	Order code
V	SK-FM6-V-25

**Note:**  
The O-rings for sealing the connecting surface of the manifold side are included. The O-rings and the positioning pins are always mounted on the manifold side.



## Pressure Reducing Valve Series ZDR (Denison)

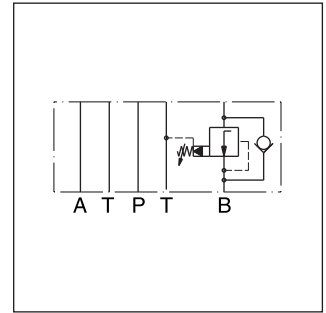
### Characteristics

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).



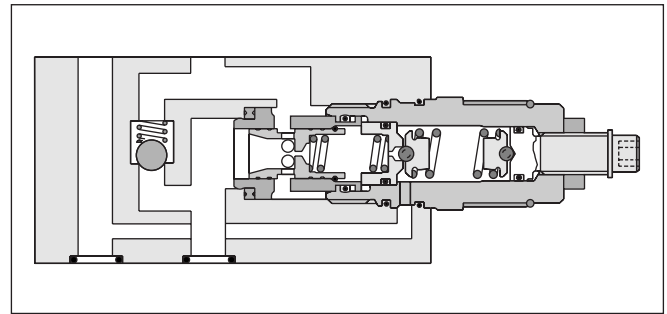
ZDR-P01



ZDR-B02

### Features

- High flow capacity
- Sizes
  - ZDR01 - NG06 / CETOP3
  - ZDR02 - NG10 / CETOP5
  - ZDR03 - NG16 / CETOP7
- With integral return flow check valve



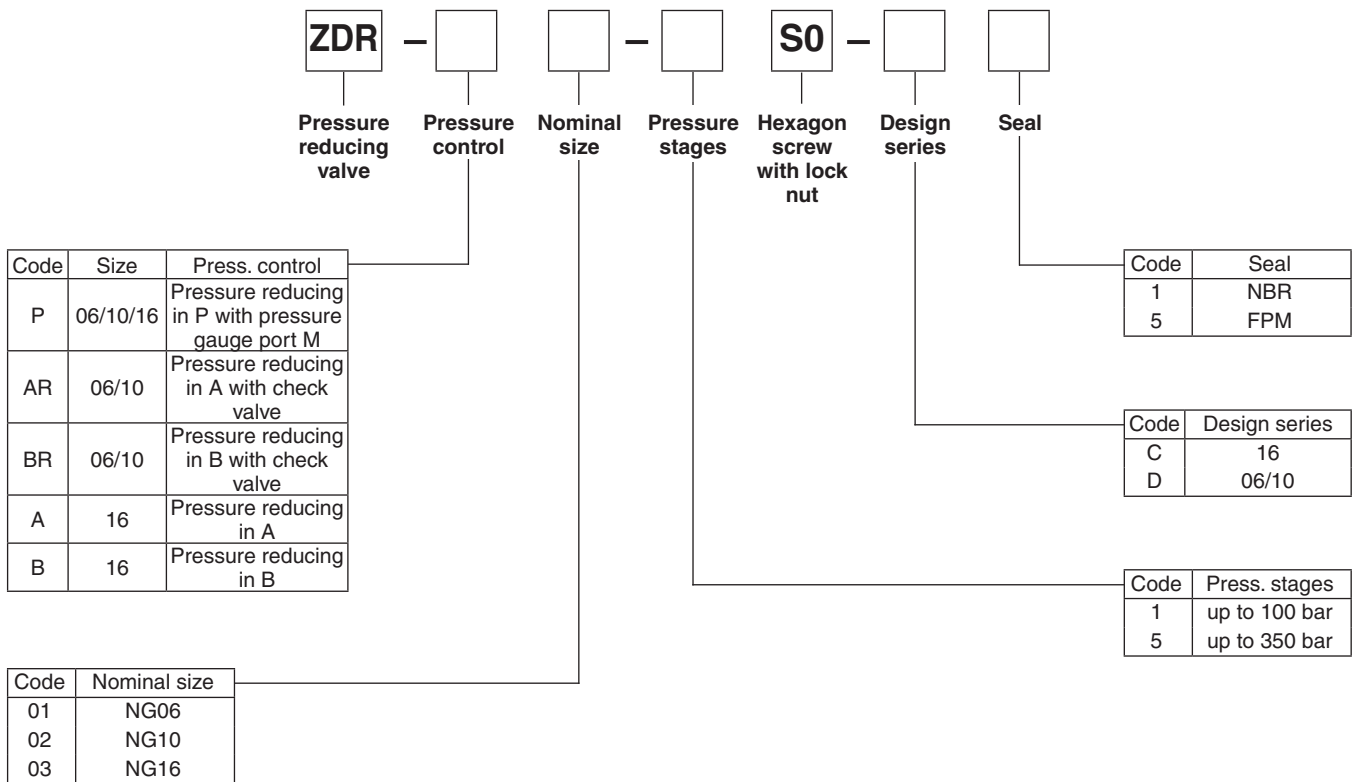
ZDR-B02

### Technical data

General		06	10	16
Size		DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05	DIN 24340 A16 ISO 4401 NFPA D08
Mounting interface		CETOP RP 121 unrestricted		
Mounting position		unrestricted		
Ambient temperature	[°C]	-20...+50		
Weight	ZDR-P [kg]	1.6	2.9	8.65
	ZDR-AR / BR [kg]	1.8	3.0	8.65
<b>Hydraulic</b>				
Max. operating pressure	[bar]	up to 350 (ZDR-AR / BR up to 315)		
Nominal flow	[l/min]	80	120	250
Pilot oil	[l/min]	0.3	0.3	0.7
Fluid		Hydraulic oil as per DIN 51524...525		
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 (acc. NAS 1638: 7)		

## Pressure Reducing Valve Series ZDR (Denison)

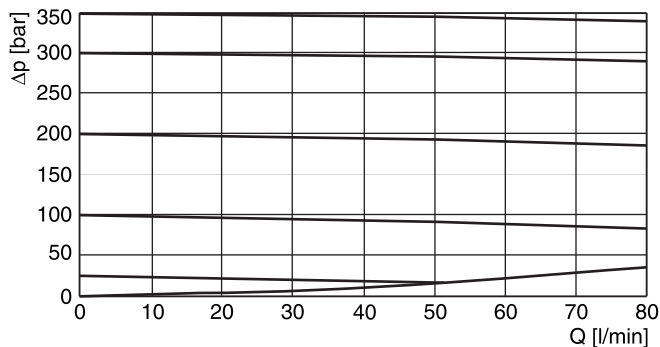
### Ordering Code



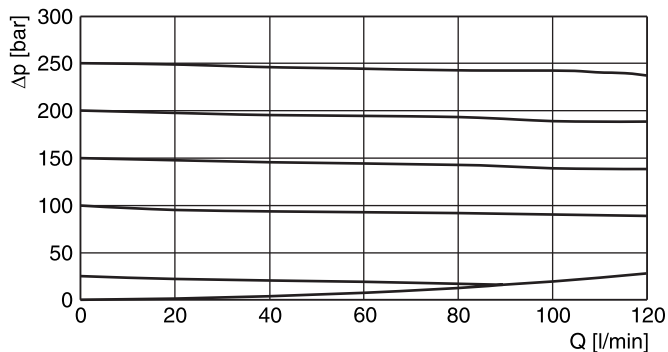
7

Ordering code details see end of chapter.

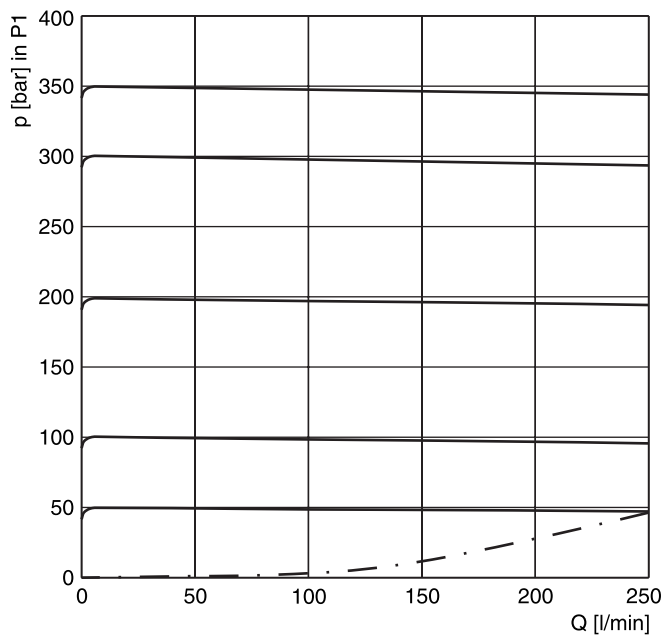
**p/Q performance curves  
 ZDR-P/AR/BR01**



**ZDR-P/AR/BR02**



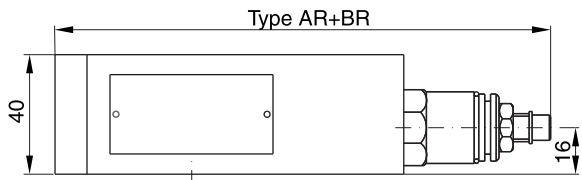
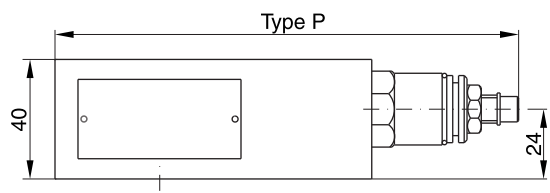
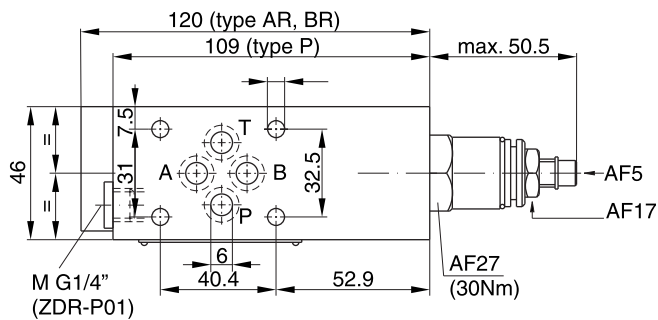
**ZDR-P03-5 (at p = 0 bar in Y)**



Fluid viscosity 30 cSt at 50°C

Dimensions

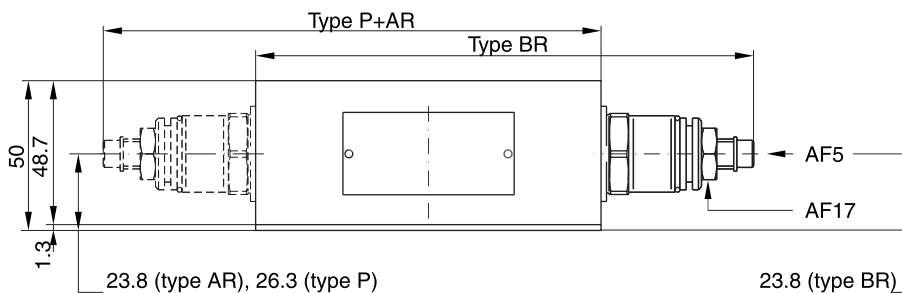
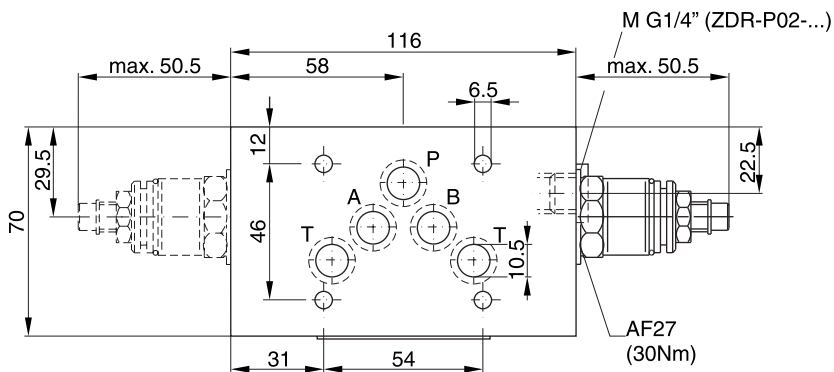
ZDR01



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

7

ZDR02

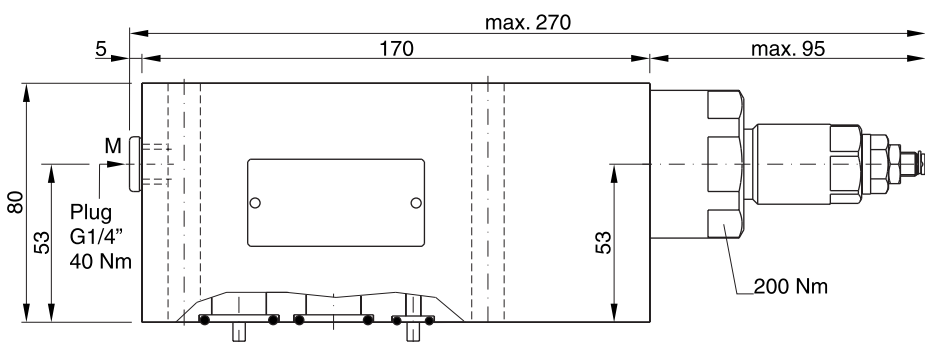
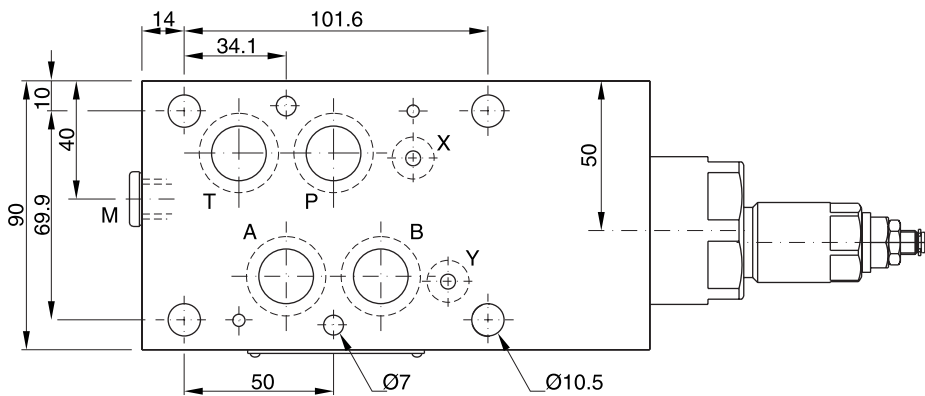


Seal kit	
Seal	Order code
1	098-91082-0
5	098-91083-0
Complete cartridge	
Seal	Order code
1	098-91102-0
5	098-91103-0

**Dimensions**

**Pressure Reducing Valve  
Series ZDR (Denison)**

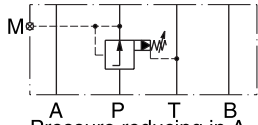
**ZDR03**



Seal kit	
Seal	Order code
1	098-91439-0
5	098-91440-0
Complete cartridge	
Seal	Order code
1	098-91437-0
5	098-91438-0

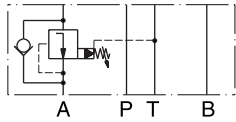
**ZDR01**

Pressure reducing in P  
 with pressure gauge port M



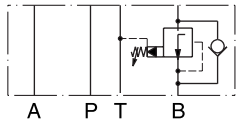
Series  
 ZDR-P01-1-S0-D1      Order No. 098-91179-0  
 ZDR-P01-5-S0-D1      Order No. 098-91211-0

Pressure reducing in A  
 with check valve



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

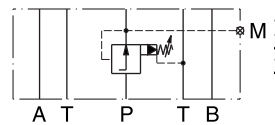
Pressure reducing in B  
 with check valve



Series  
 ZDR-BR01-1-S0-D1      Order No. 098-91214-0  
 ZDR-BR01-5-S0-D1      Order No. 098-91215-0  
 1 = 7 ... 70 bar  
 5 = 7 ... 350 bar

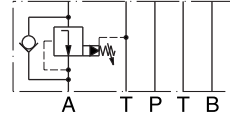
**ZDR02**

Pressure reducing at P  
 (with pressure gauge port M)



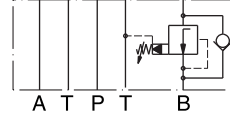
Series  
 ZDR-P02-1-S0-D1      Order No. 098-91050-0  
 ZDR-P02-5-S0-D1      Order No. 098-91051-0

Pressure reducing at A  
 (with check valve)



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

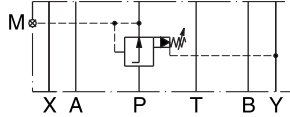
Pressure reducing at B  
 (with check valve)



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

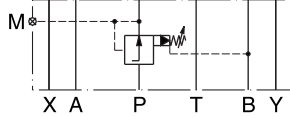
**ZDR03**

Pressure reducing in P



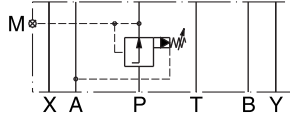
Series  
 ZDR-P03-1-S0-C1      Order No. 098-91409-0  
 ZDR-P03-5-S0-C1      Order No. 098-91410-0

Pressure reducing in A



Series  
 ZDR-A03-1-S0-C1      Order No. 098-91412-0  
 ZDR-A03-5-S0-C1      Order No. 098-91429-0

Pressure reducing in B



Series  
 ZDR-B03-1-S0-C1      Order No. 098-91430-0  
 ZDR-B03-5-S0-C1      Order No. 098-91414-0

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Proportional pressure reducing valves 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  $p_{red}$  rises above the setting pressure.

The proportional pressure reducing valve reduces the pressure in output port  $p_{red}$  in proportion to the solenoid

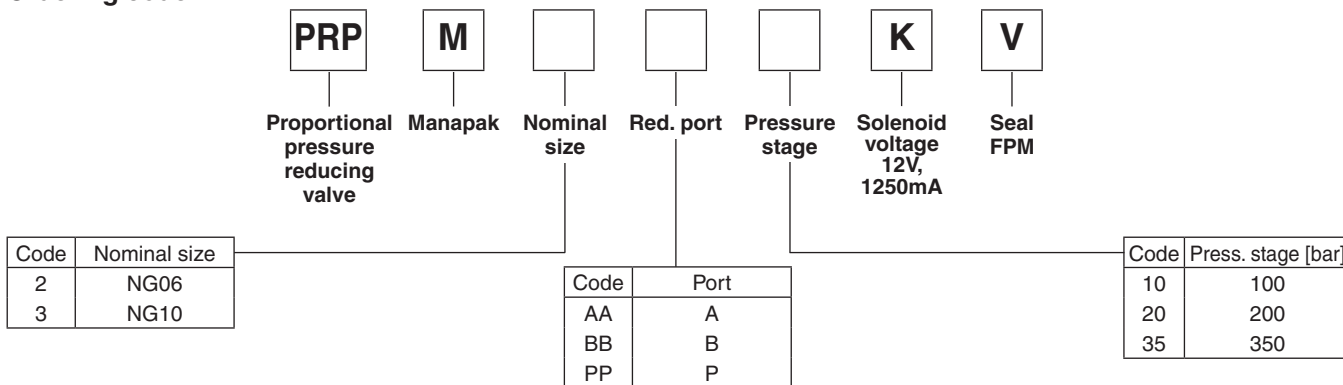
current. The PRPM works practically independent of the inlet pressure  $p_E$ . In non-activated mode, the connection to the tank is fully open with a min. pressure corresponding to the spring force.

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.

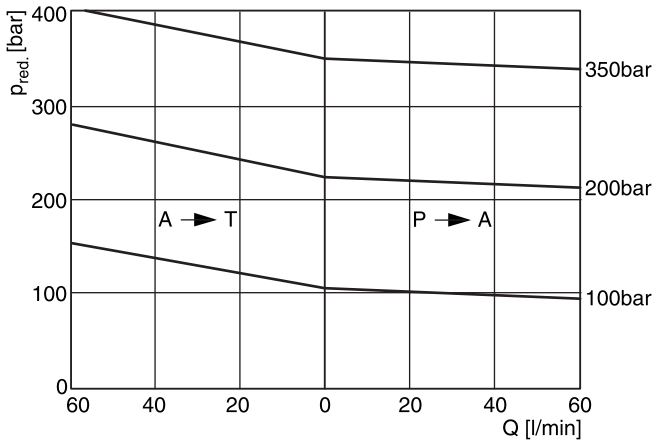
**Technical data**

<b>General</b>		pilot operated proportional pressure reducing valve	
Design		sandwich type	
Construction		proportional solenoid	
Operation		acc. to ISO 4401	
Size		nom. size NG06	nom. size NG10
Mounting		4 holes for socket cap screws M5 (NG10: M6) or studs M5 (NG10: M6)	
Port		sandwich valve	
Mounting position		unrestricted	
Ambient temperature		[°C] -20 ... +50	
Fastening torque		[Nm] $M_D = 5.5$ (qual. 8.8) for socket cap screws $M_D = 50$ for cartridges	$M_D = 9.5$ (qual. 8.8) for socket cap screws $M_D = 50$ for cartridges
Weight		[kg] 2	3.2
<b>Hydraulic</b>		mineral oil (other fluid on request)	
Fluid		[°C] -20 ... +80	
Fluid temperature		[cSt]/[mm²/s] 12 to 320	
Viscosity range $\nu$		[bar] 400	
Max. operating pressure		[bar] 100; 200; 350	
Reduced nom. pressure		[l/min] 0...60	
Max. flow		see performance curves	
Pilot flow		ISO 1406, class 16/13, to be achieved with $\beta_{6...10} > 75$	
Max. contamination level		[mA] 1 mA	
Resolution		[%] $\leq 1$ (with optimal dither signal)	
Repeatability		[%] $\leq 3$ (with optimal dither signal)	
Hysteresis		proportional solenoid, wet-pin push type, pressure tight	
<b>Electrical</b>		[°C] 100 ED	
Solenoid		IP 65 in accordance with EN 60529	
Duty ratio		[V] 12 (1250mA) / 24 (680mA)	
Protection class		Connector as per EN 175301-803	
Supply voltage		PCD00A-400	
Solenoid connection			
Amplifier			

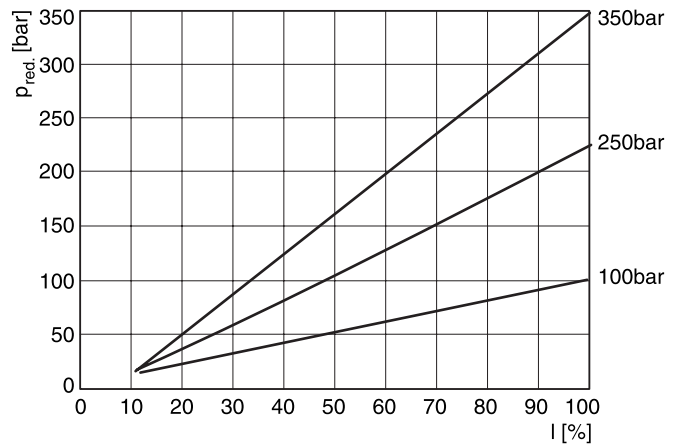
**Ordering code**



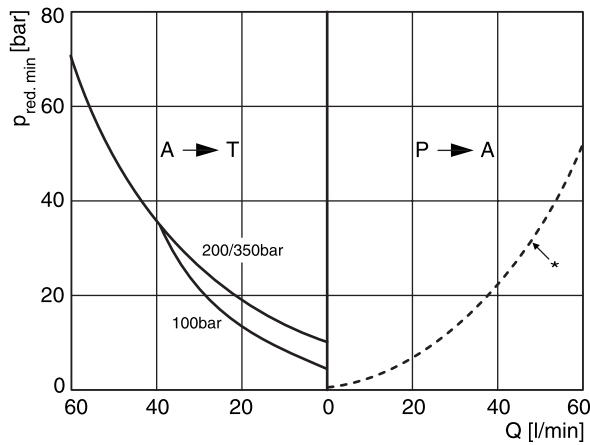
**Pressure/flow NG06/NG10**  $p_{red} = f(Q)$



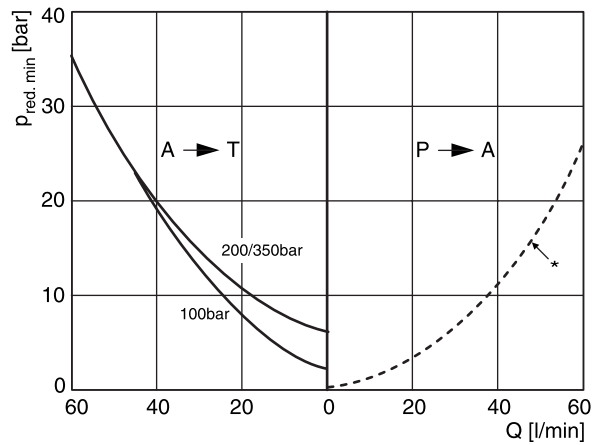
**Pressure/adjustment**  $p_{red} = f(l)$ , at  $Q=0$ /min (static)



**Pressure/flow NG06 (min. adjustable)**  $p_{red} = f(Q)$

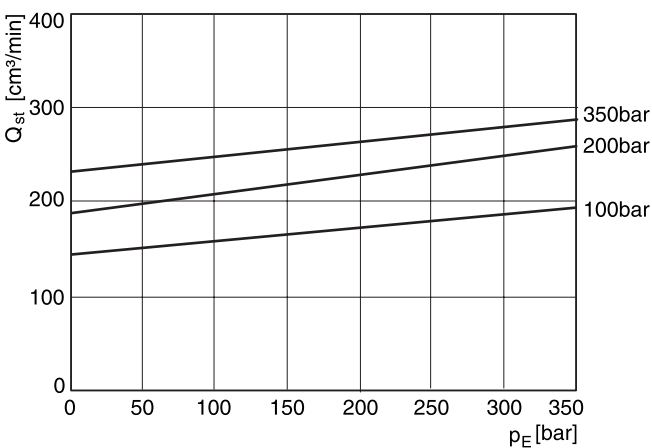


\* Consumption resistance depends on system

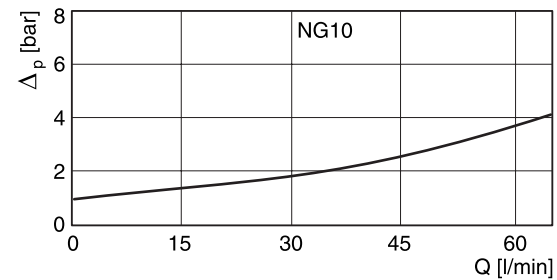
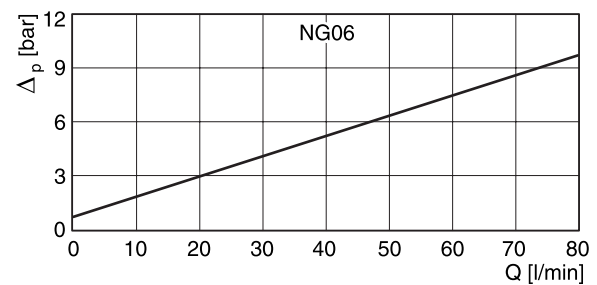


\* Consumption resistance depends on system

**Pilot flow NG06/NG10**  $p_{red} = f(Q)$



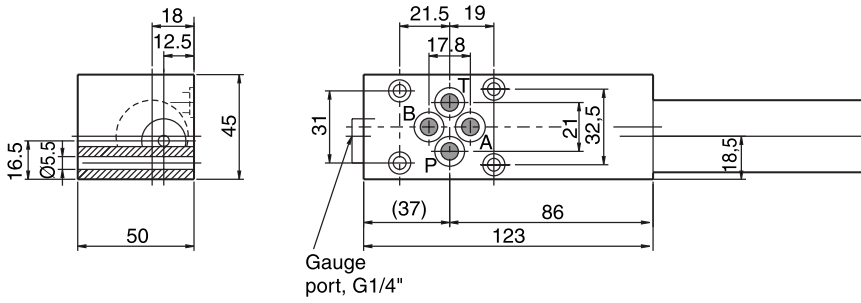
**Pressure drop/flow over check valve**



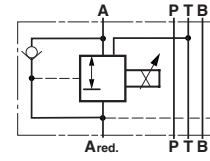
All measures taken at viscosity  $\nu = 30\text{mm}^2/\text{s}$ .

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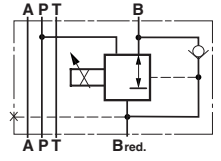
**PRPM2A\* ,B\***



Symbol PRPM2A\*

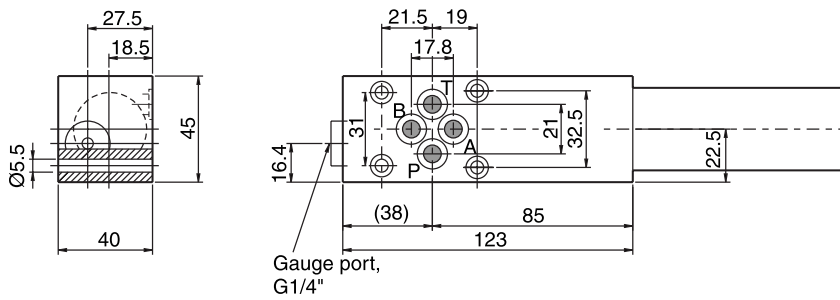


Symbol PRPM2B\*

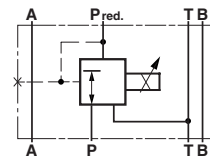


Sandwich type: Presse reduction code B is located on cartridge side B.

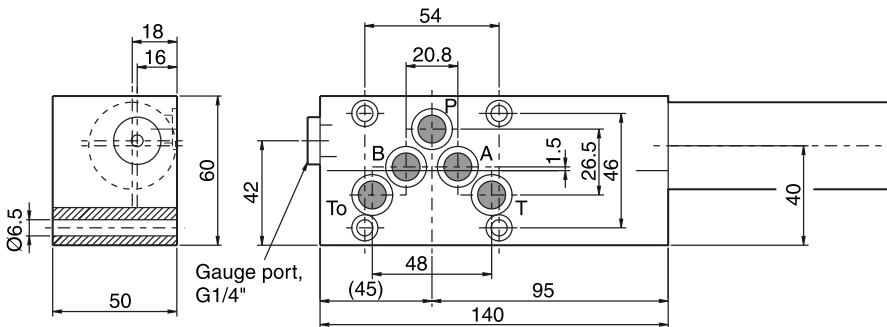
**PRPM2P\***



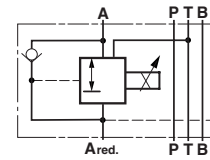
Symbol PRPM2P\*



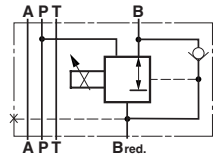
**PRPM3A\* ,B\***



Symbol PRPM3A\*

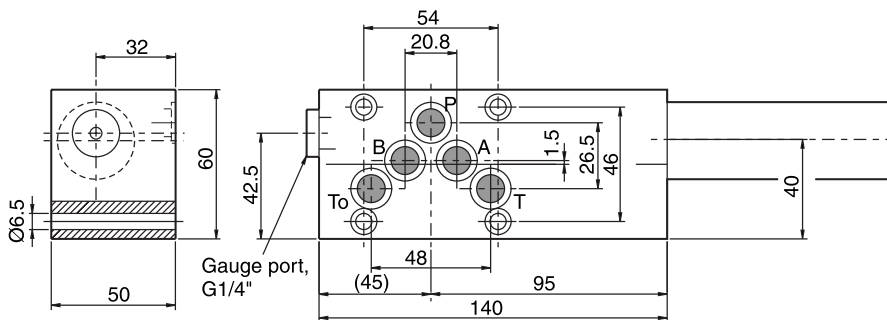


Symbol PRPM3B\*

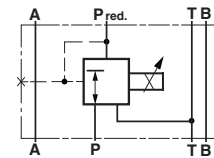


Sandwich type: Presse reduction code B is located on cartridge side B.

**PRPM3P\***



Symbol PRPM3P\*





## Characteristics

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

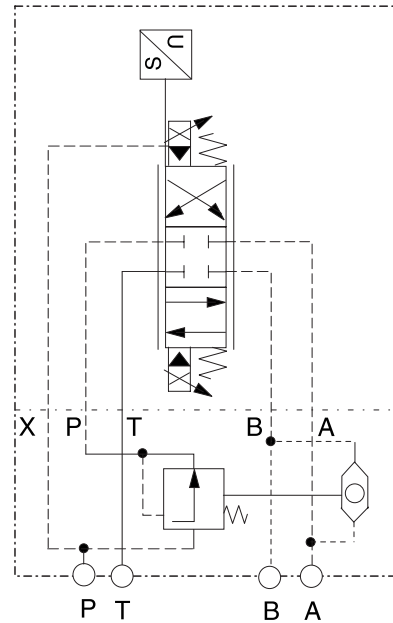
The control pressure applied to the spring side of the compensator spool is supplied from port A or B via a shuttle valve. Flow rate regulation is automatically effective in the port with the highest pressure.

### Technical data

Series		LCM2	LCM3
Port size		NG06	NG10
Mounting pattern		NFPA D03 CETOP 3	NFPA D05 CETOP 5
Max. operating pressure	[bar]	350	350
Pressure differential	[bar]	10	10

## Pressure Compensator Series LCM

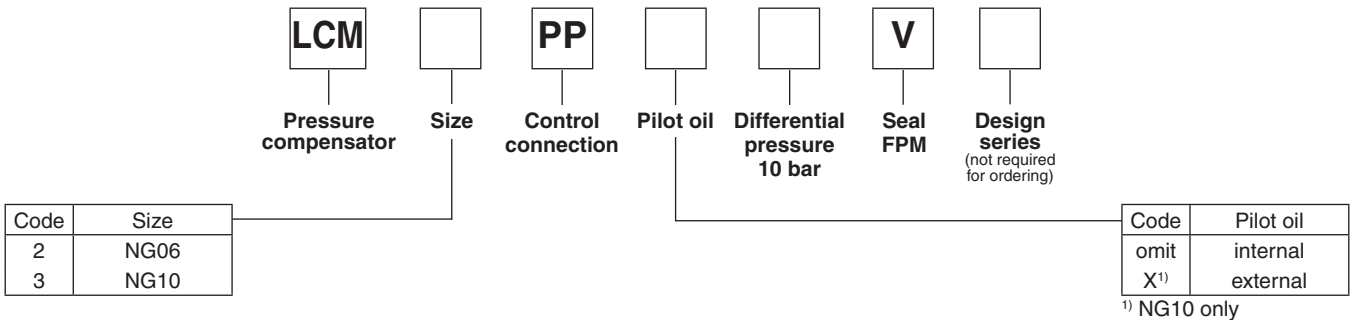
### Application example



Proportional DC valve model D31FS with 2 way pressure compensator LCM3 maintains a constant flow rate.

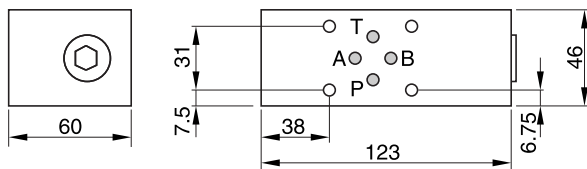
The diagram shows the design according to code X.

### Ordering Code



### Dimensions

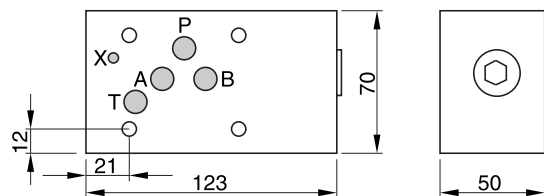
#### LCM2



Mounting screws: BK 403 (4 x M5 x 90)

For mounting screws connected with the directional valves D1 or D31.

#### LCM3



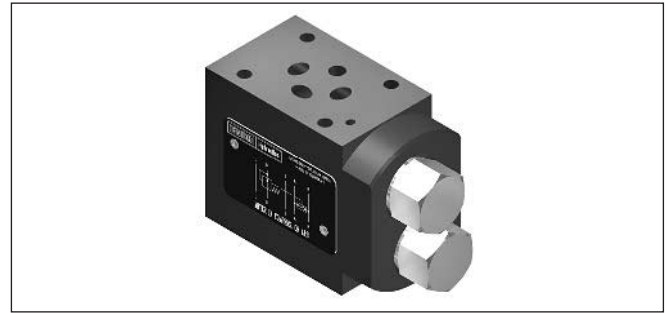
Mounting screws: BK 412 (4 x M6x 90)

The views show the mounting surface for the directional valve.



**Characteristics**

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.

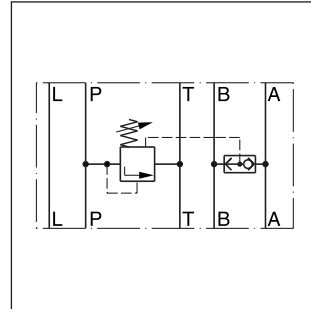


**Features**

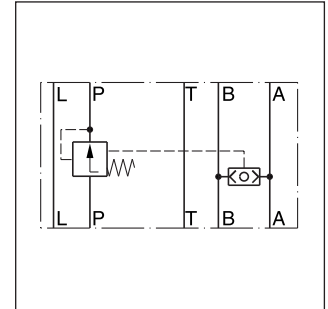
- 2-way or 3-way pressure compensators
- Standard pressure differential 5 bar
- Adjustable differential (2...5 bar) and 10 bar selectable by model code
- Sizes:
 

NG06 / CETOP 3	SPC01
NG10 / CETOP 5	SPC02
NG16 / CETOP 7	upon request
NG25 / CETOP 8	upon request

SPC\*11 (2-way)



SPC\*01 (3-way)

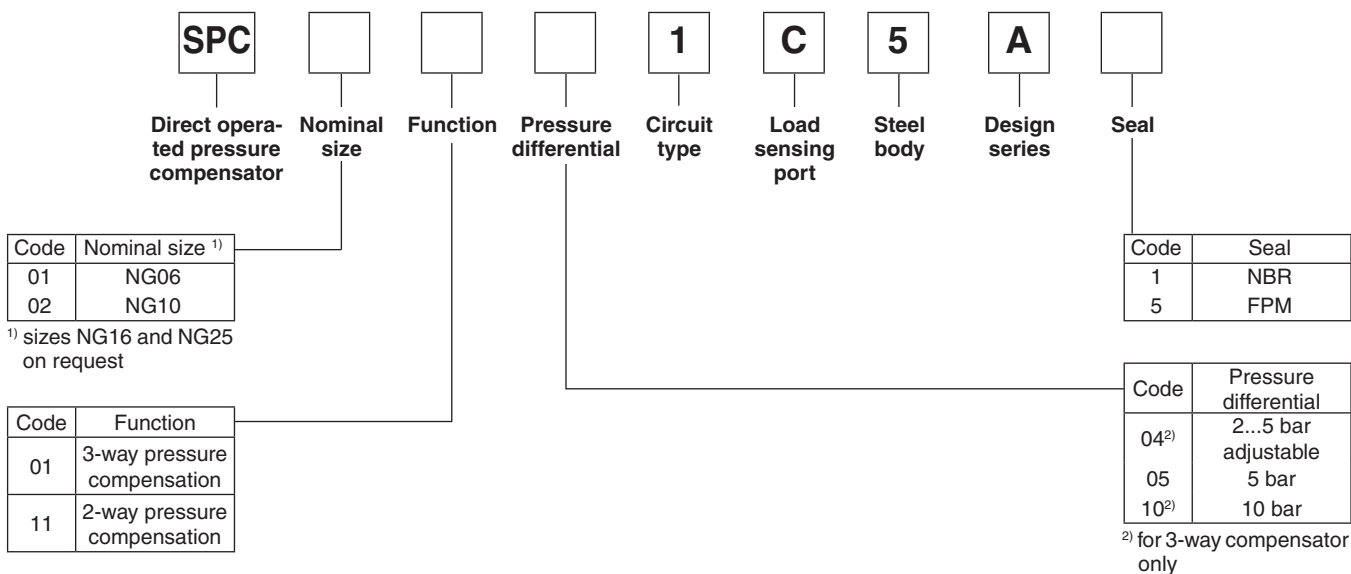


SPC\*11 (2-way)

**Technical data**

<b>General</b>			
Design		Direct operated pressure compensator	
Size		<b>06</b>	<b>10</b>
Mounting interface		DIN 24340 A10 ISO 4401 NFPA D05 CETOP 03	DIN 24340 A16 ISO 4401 NFPA D07 CETOP 05
Mounting position		unrestricted	
Ambient temperature	[°C]	-20...+50	
Weight	2-way pressure compensator	1.5	3.1
	3-way pressure compensator	1.6	3.5
<b>Hydraulic</b>			
Max. operating pressure	drain port L connected	P, A, B: 350; T: 210; L: 10	P, A, B: 315; T: 210; L: 10
	without drain port	P, A, B: 350; T: 160; L: 160	P, A, B: 315; T: 210; L: 210
Nominal flow	[l/min]	30	80
Fluid		Hydraulic oil as per DIN 51524...525	
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 (acc. NAS 1638: 7)	

## Pressure Compensator Series SPC (Denison)



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### SPC01

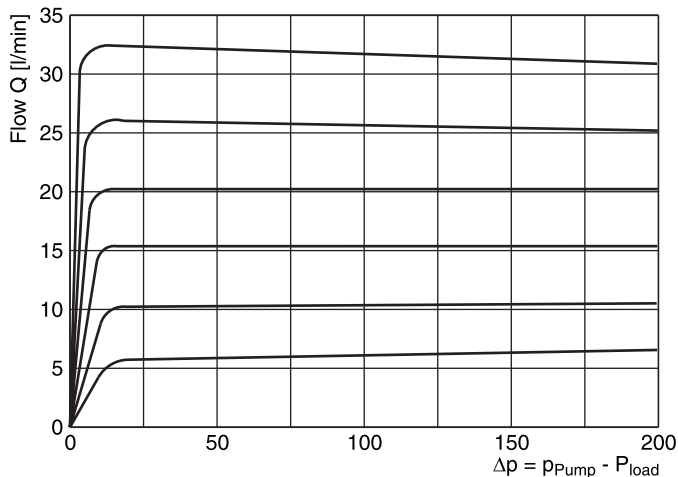
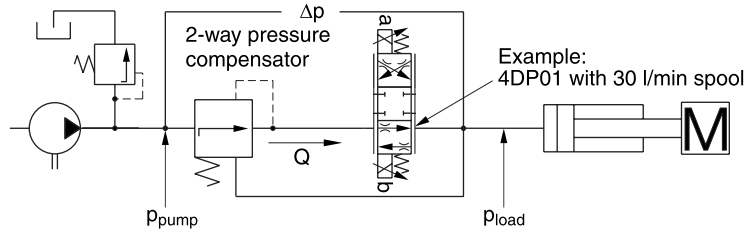
Type	Model no.	Order no.
3-way compensators with shuttle valve P-A/B	SPC 01 01 041C5A	026-42583-0
	SPC 01 01 051C5A	026-42584-0
	SPC 01 01 101C5A	026-42585-0
2-way compensators with shuttle valve P-A/B	SPC 01 11 051C5A	026-42560-0

### 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

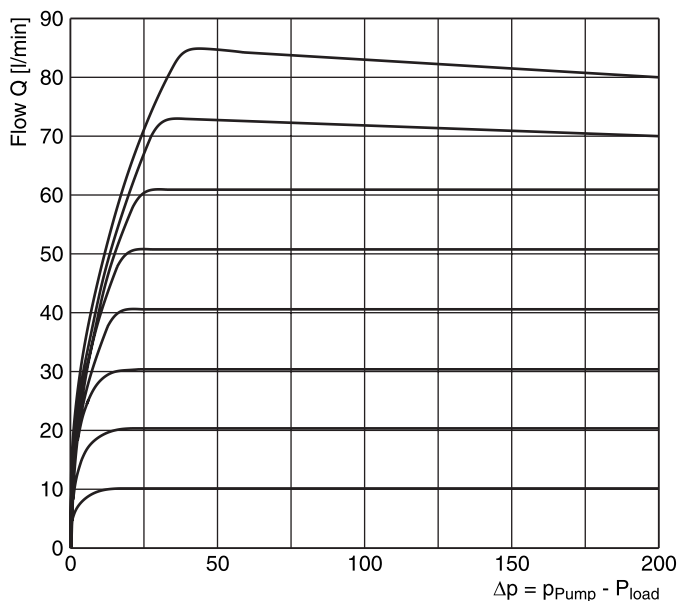
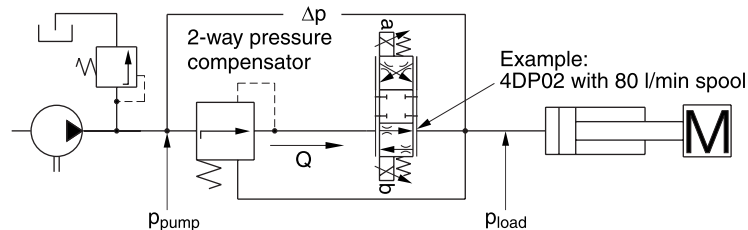
**SPC01**

**Flow regulation example: 2-way pressure compensator**



**SPC02**

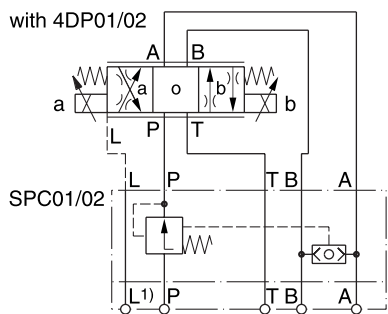
**Flow regulation example: 2-way pressure compensator**



SPC\_UK.INDD RH

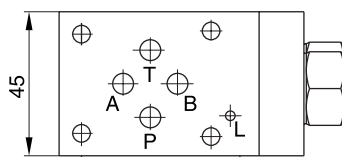
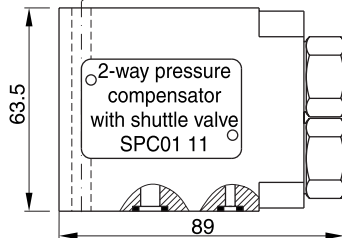
**Dimensions**

**2-way pressure compensator**



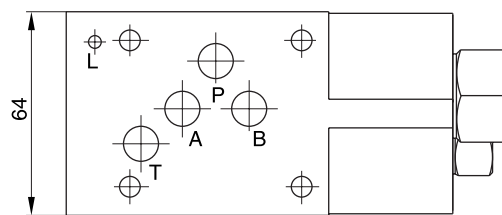
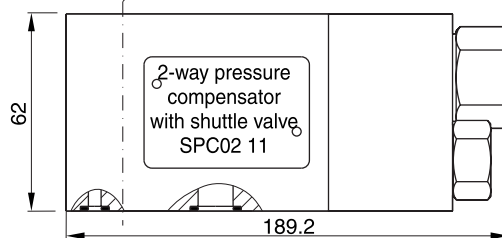
**SPC01**

4 screws M5 x 95 DIN 912; 10.9  
Md = 8.3 Nm  
Order no. 361-07353-8



**SPC02**

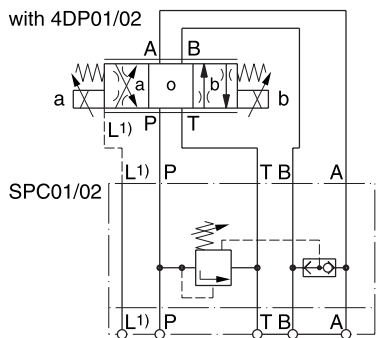
4 screws M6 x 100 DIN 912; 10.9  
Md = 15 Nm  
Order no. 700-70824-8



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

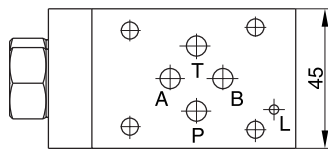
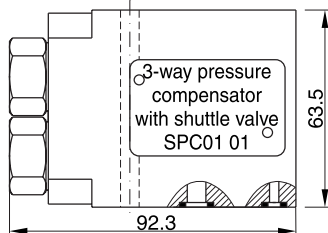
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**3-way pressure compensator**



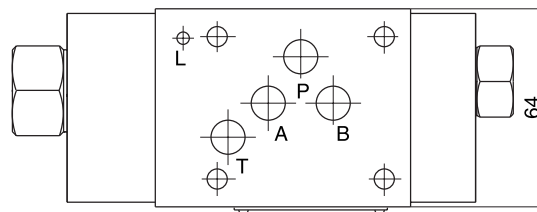
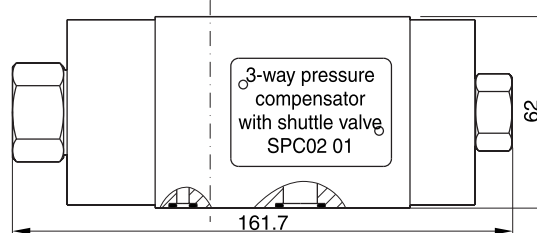
**SPC01**

4 screws M5 x 95 DIN 912; 10.9  
Md = 8.3 Nm  
Order no. 361-07353-8



**SPC02**

4 screws M6 x 100 DIN 912; 10.9  
Md = 15 Nm  
Order no. 700-70824-8



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

### Characteristics

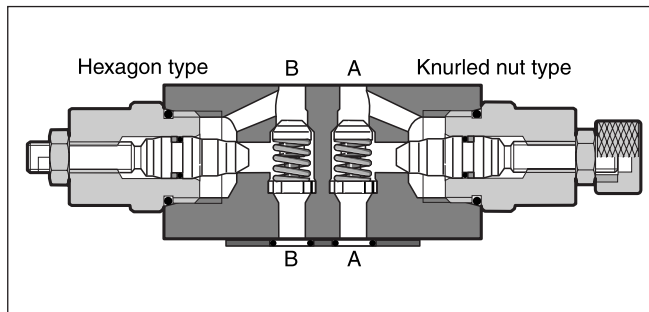
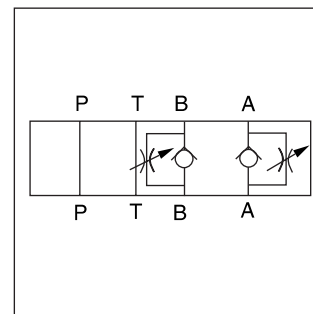
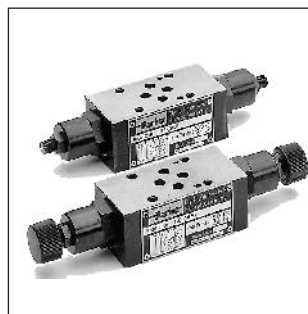
Double-throttle check valves from the Parker Manapak series FM are sandwich plate valves designed for stacking beneath a directional valve with a standard mounting pattern. Throttle and check valves are located in ports A and B.

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 (CETOP03, NG06) and the main stage (CETOP05, NG10 up to CETOP10, NG32).

### Throttle Check Valve Series FM



### Features

- Three 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.
- Sizes:
 

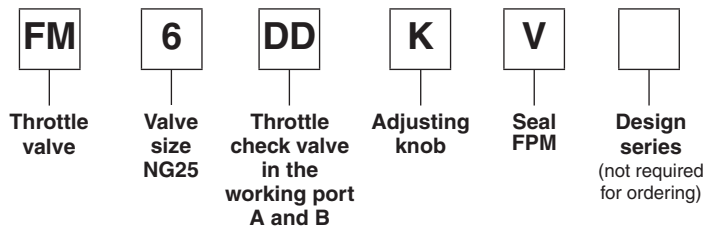
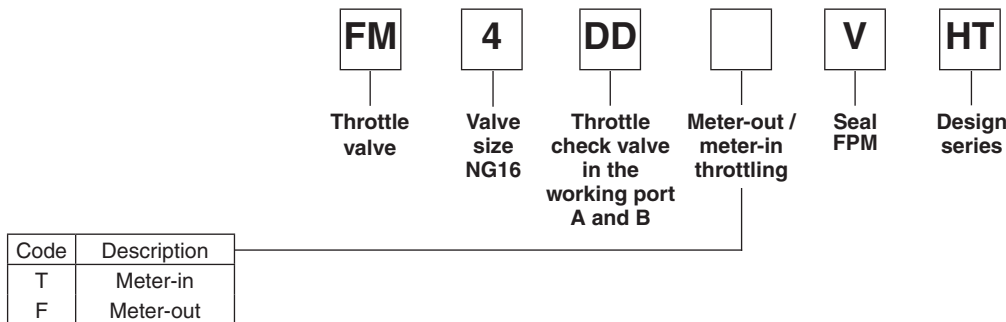
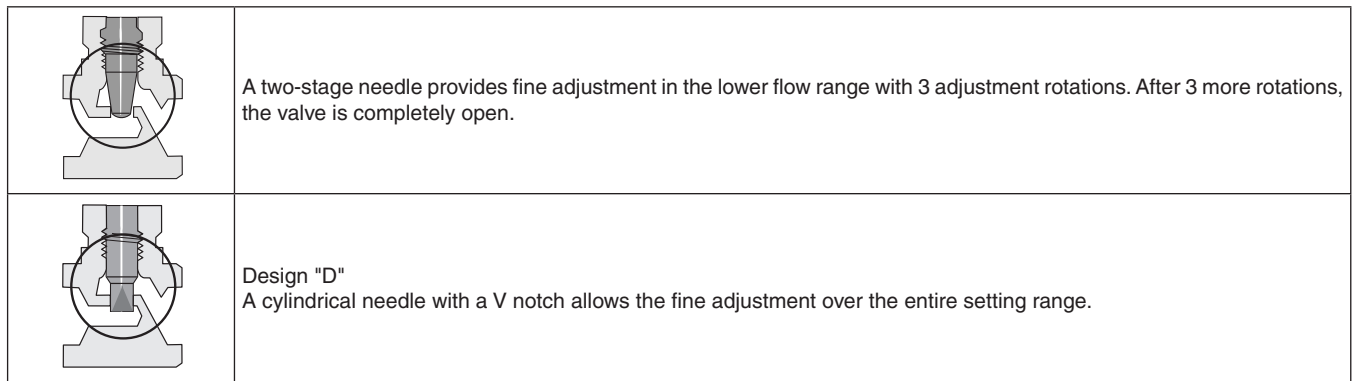
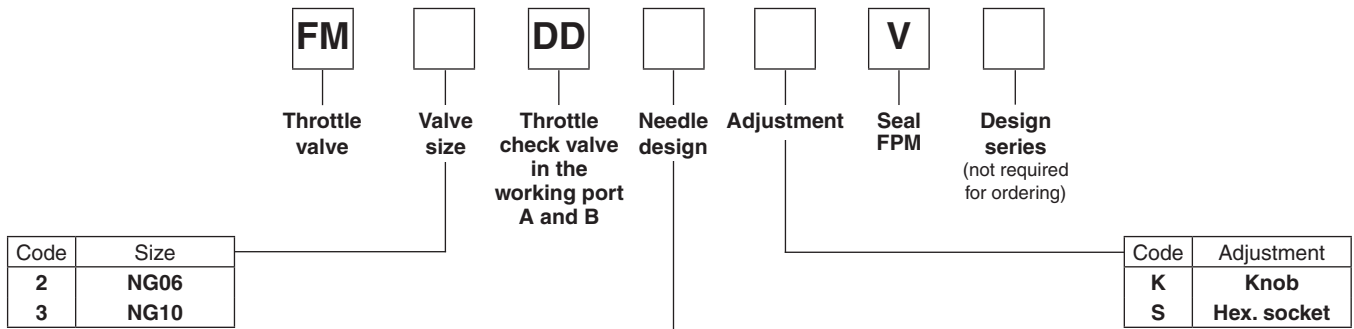
NG06 / CETOP 3	FM2
NG10 / CETOP 5	FM3
NG16 / CETOP 7	FM4
NG25 / CETOP 8	FM6

### Technical data

Series	FM2	FM3	FM4	FM6
Size	NG06	NG10	NG16	NG25
Mounting pattern	NFPA D03 CETOP 03	NFPA D05 CETOP 05	NFPA D07 CETOP07	NFPA D08 CETOP 08
Max. operating pressure [bar]	350	350	350	210
Max. flow	53 LPM	76 LPM	200 LPM	341 LPM
Opening pressure [bar]	0.3	0.3	0.3	0.3
Meter-in throttle	•	•	•	—
Meter-out throttle	•	•	•	•
Mounting position	unrestricted	unrestricted	unrestricted	unrestricted
Ambient temperature [°C]	max. +50	max. +50	max. +50	max. +50
Fluid temperature [°C]	max. +70	max. +70	max. +70	max. +70
Weight [kg]	1.3	2.4	5.4	7.9

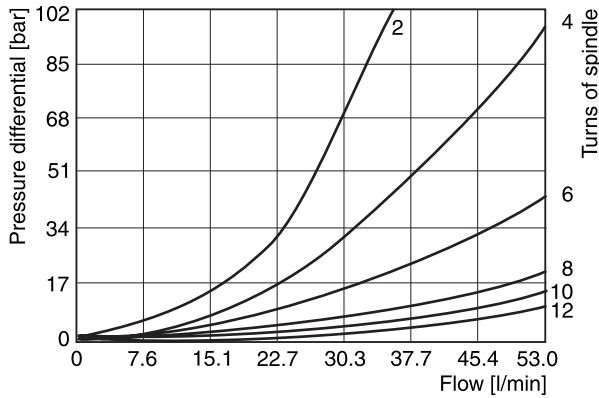
# Throttle Check Valve Series FM

## Ordering Code

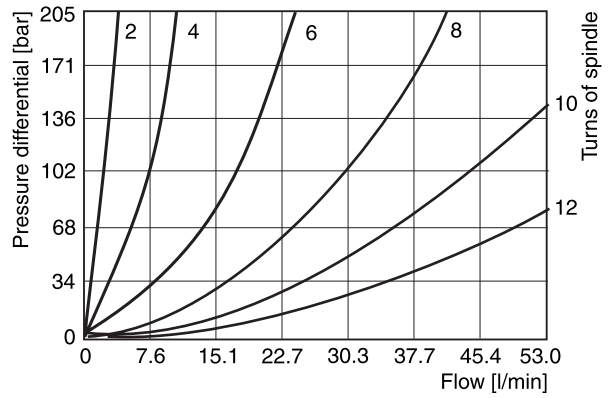


**Bold letters =  
Short-term availability**

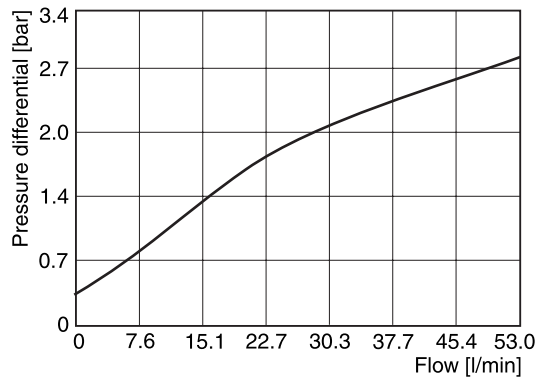
**FM2 standard needle**



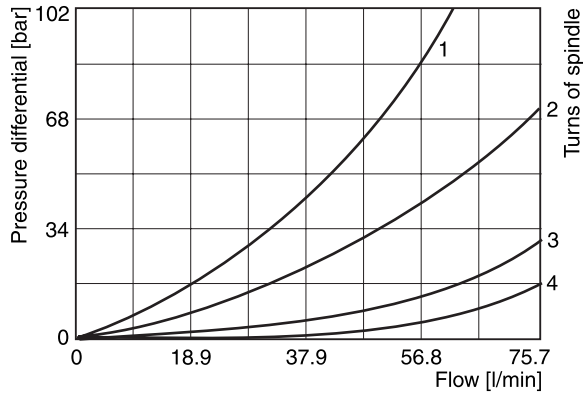
**FM2D needle with V notch**



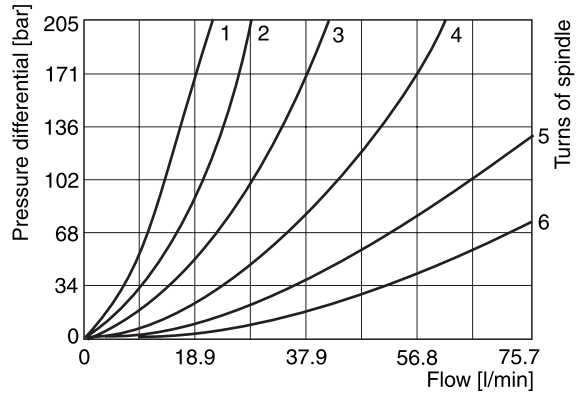
**FM2 flow, check valve**



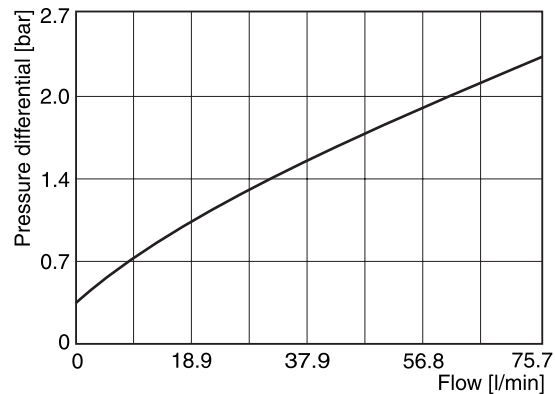
**FM3 standard needle**



**FM3D needle with V notch**

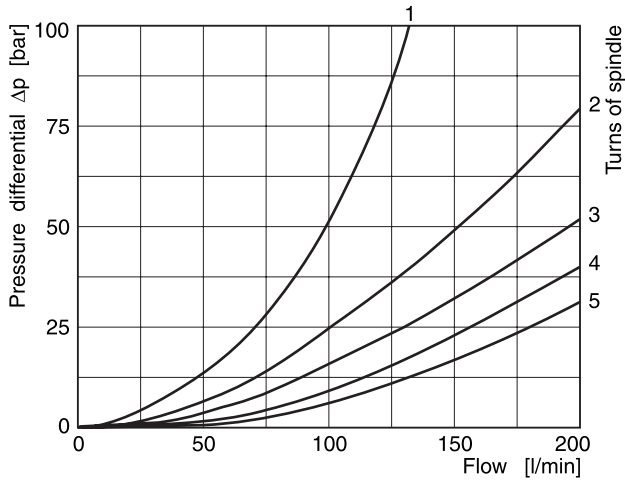


**FM3 flow, check valve**

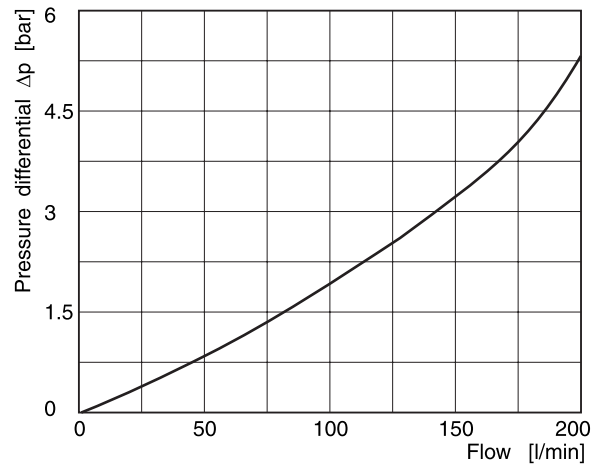


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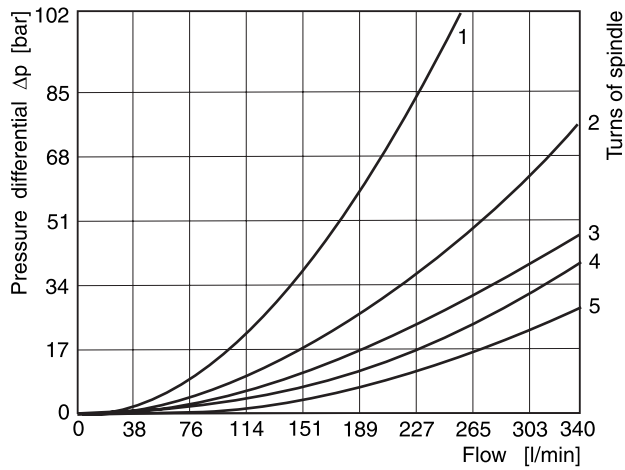
**FM4 with standard needle**  
 1 to 5 number of needle rotations



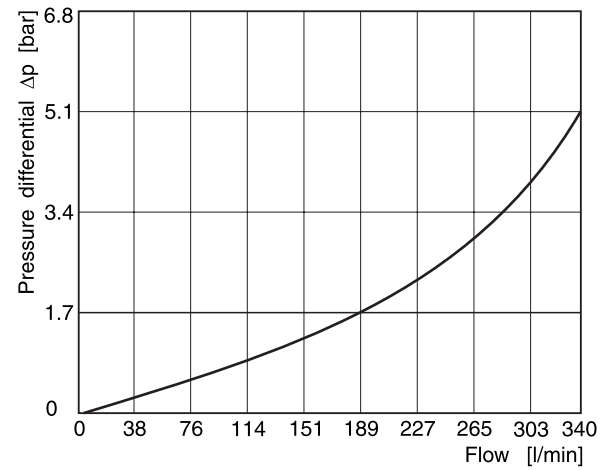
**FM4 flow, check valve**



**FM6 with standard needle**  
 1 to 5 number of needle rotations



**FM6 flow, check valve**

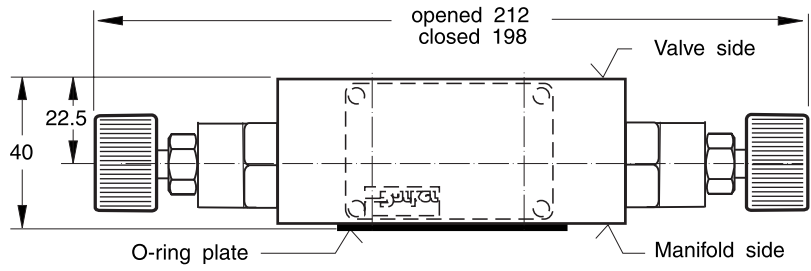
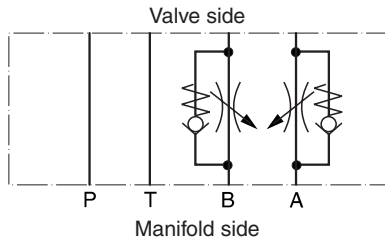


7

**Dimensions**

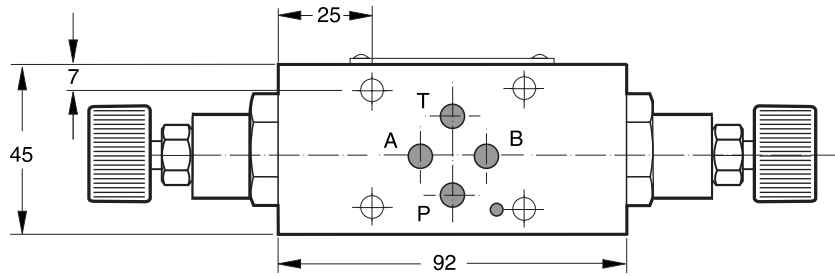
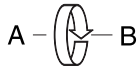
**FM2**

**Meter-in**

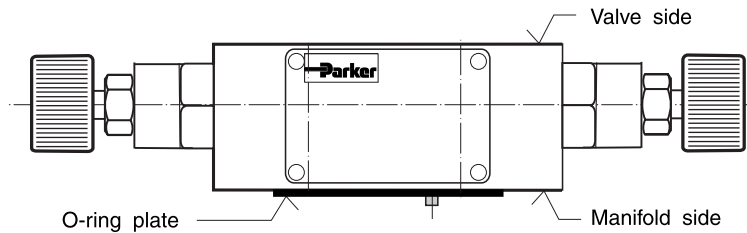
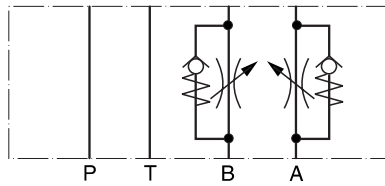


**Meter-in or meter-out**

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



**Meter-out**



7

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

**Note:**

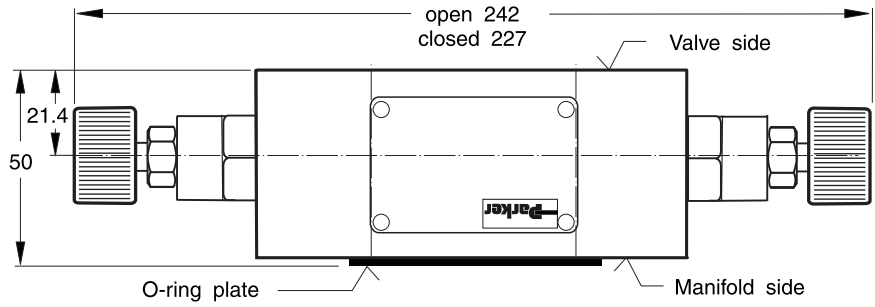
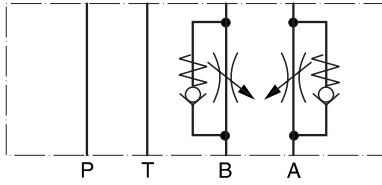
The O-ring plate (with O-rings) for sealing the connecting surface of the manifold side is included. The O-ring and positioning pin are always mounted on the manifold side.



**Dimensions**

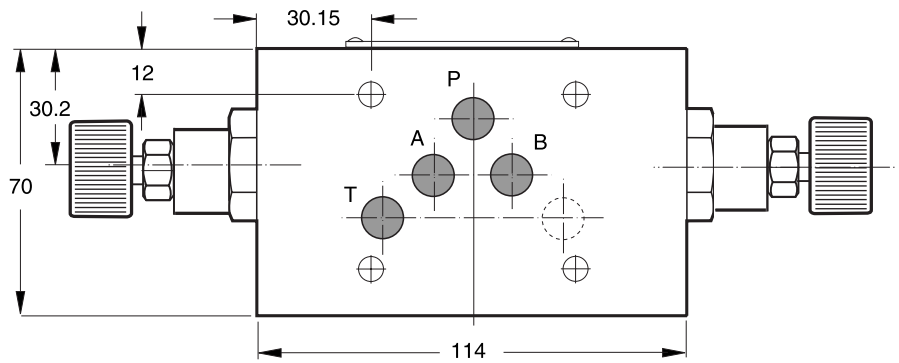
**FM3**

**Meter-in**

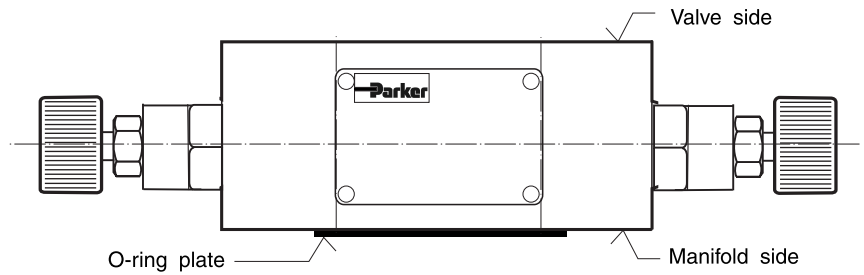
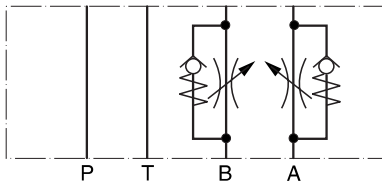


**Meter-in or meter-out**

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



**Meter-out**

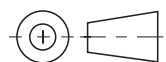


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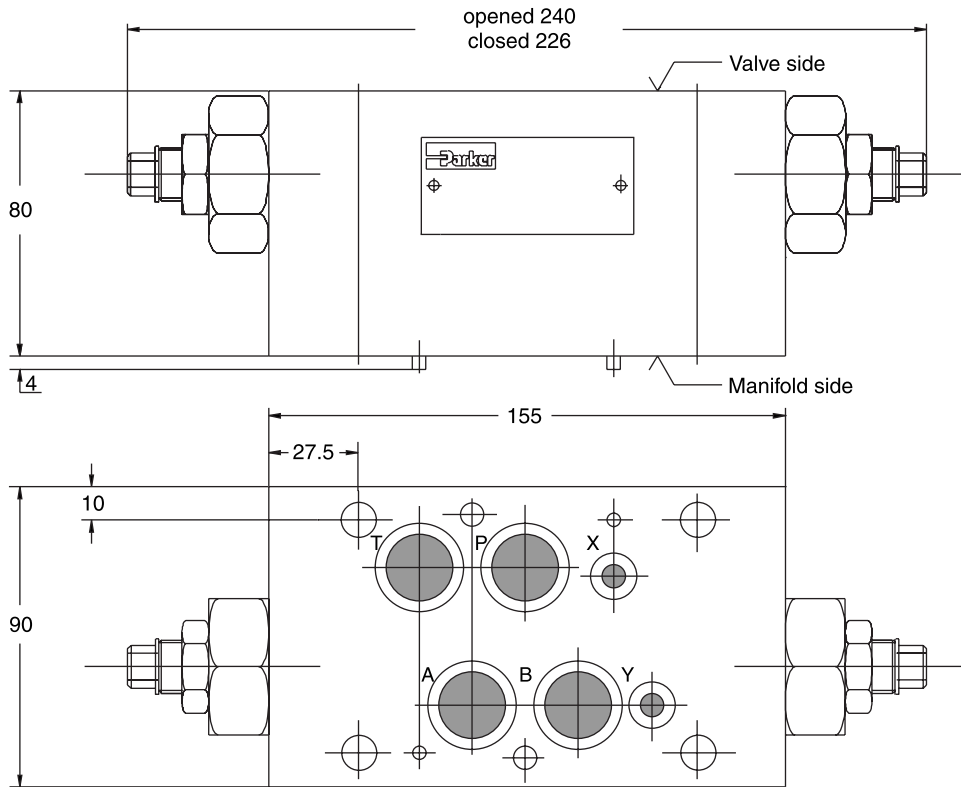
Seal kit FM3	
Seal	Order code
V	SK-FM3-V-20

**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.



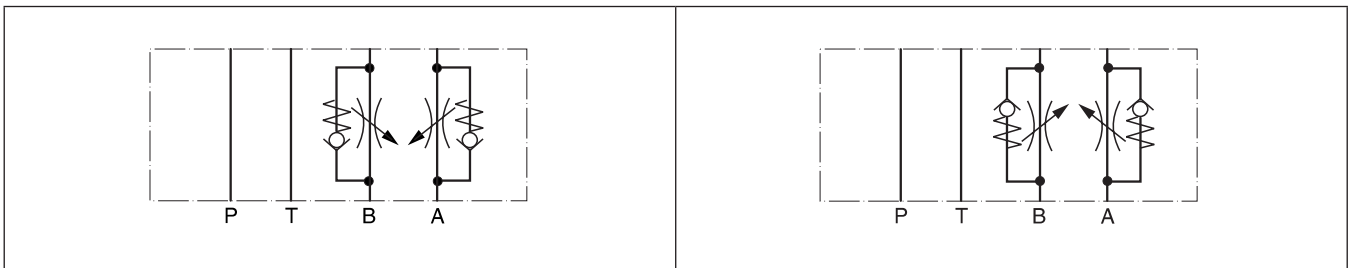
**FM4**



**7**

**Meter-in**

**Meter-out**

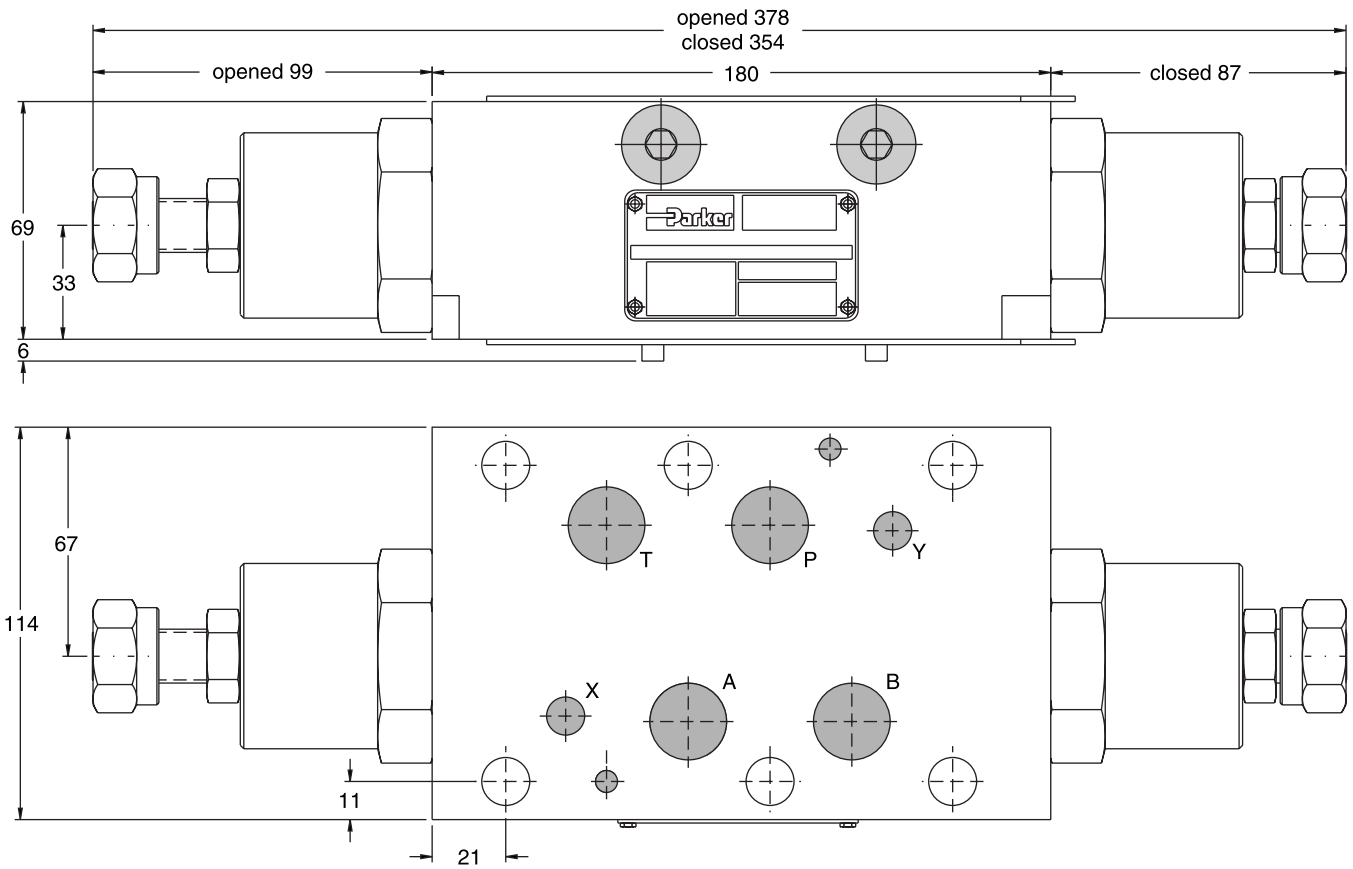


Seal kit FM4	
Seal	Order code
V	SK-FM4VHT



**Dimensions**

**FM6**

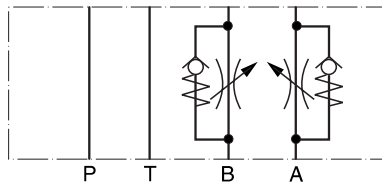


7

**Meter-out**

Adjustment: knob

Meter-in is not available for FM6



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



## Throttle Valve with Check Series ZRD (Denison)

### Characteristics

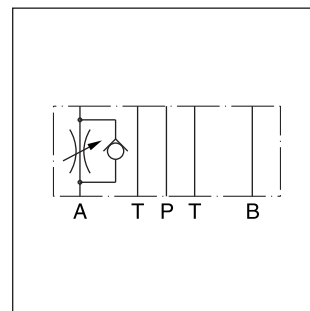
Throttle check valves series ZRD are designed for maximum flow rates.

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

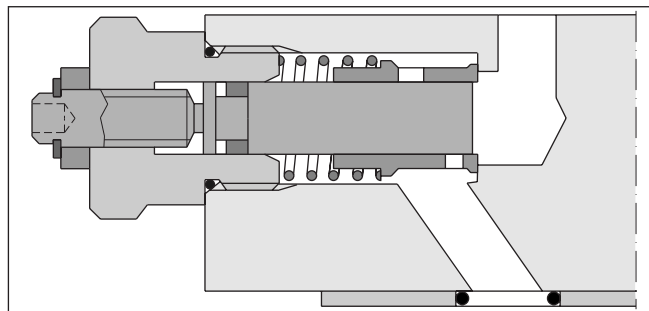
A low flow / high resolution version in NG06 for sensitive shifting time adjustment of pilot operated directional control valves is available on request.



ZRD-ABZ01



ZRD-AA02



ZRD-AA02

### Features

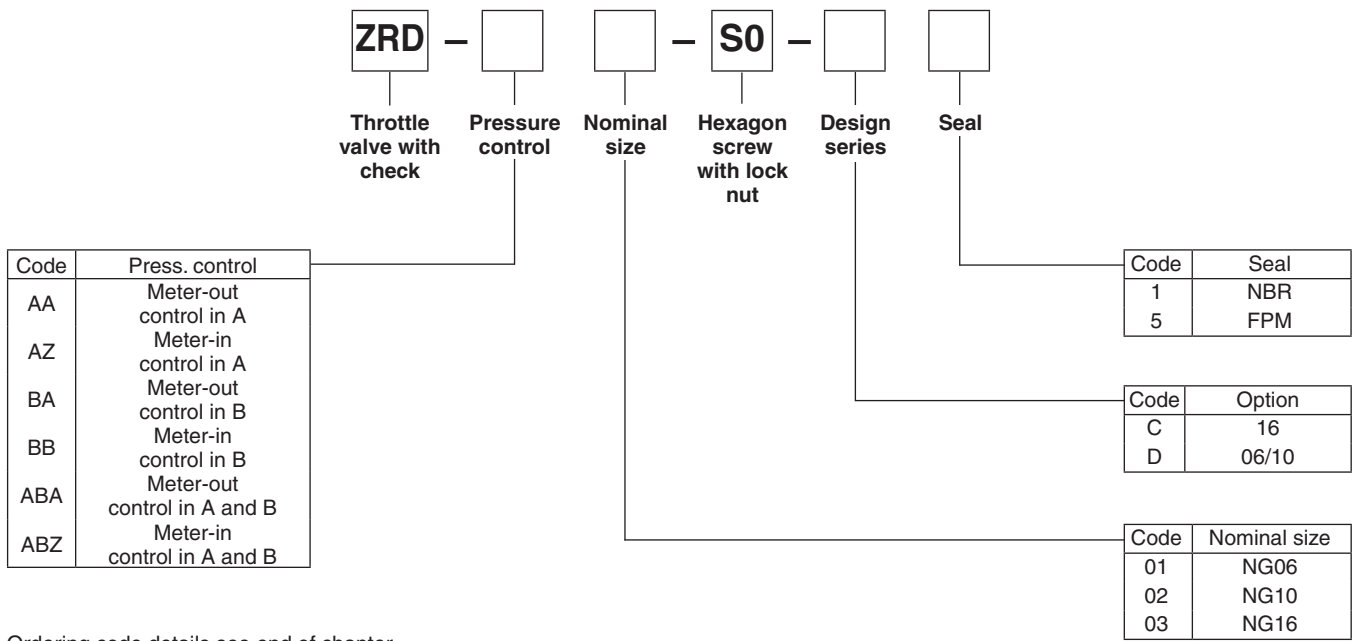
- High flow capacity
- Various functional arrangements
- Sizes
  - ZRD01 - NG06 / CETOP3
  - ZRD02 - NG10 / CETOP5
  - ZRD03 - NG16 / CETOP7

### Technical data

General		06	10	16
Size				
Mounting interface		DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05	DIN 24340 A16 ISO 4401 NFPA D08
Mounting position		CETOP RP 121 unrestricted		
Ambient temperature	[°C]	-20...+50		
Weight	1 cartridge [kg]	1.2	2.8	7.4
	2 cartridges [kg]	1.3	2.9	7.7
<b>Hydraulic</b>				
Max. operating pressure	[bar]	350		
Nominal flow	[cSt]/[l/min]	80	160	260
Leakage	[cSt]/[l/min]	—	—	0.3...0.5 (at closed throttle)
Cracking pressure	[bar]	—	—	0.8
Fluid		Hydraulic oil as per DIN 51524...525		
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 (acc. NAS 1638: 7)		

## Throttle Valve with Check Series ZRD (Denison)

### Ordering Code

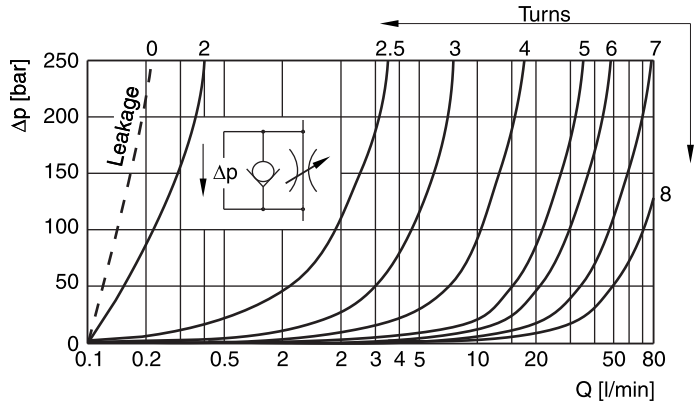
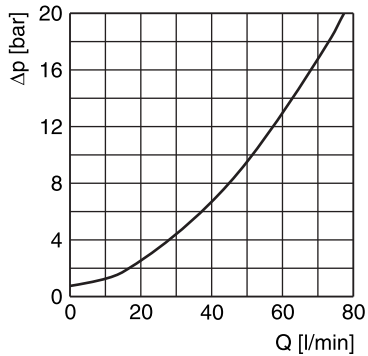


Ordering code details see end of chapter.

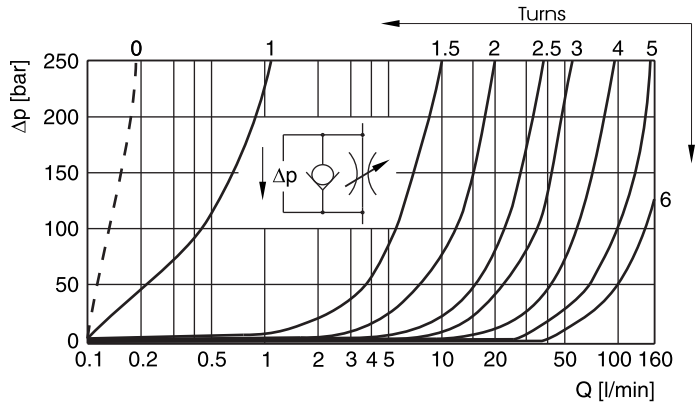
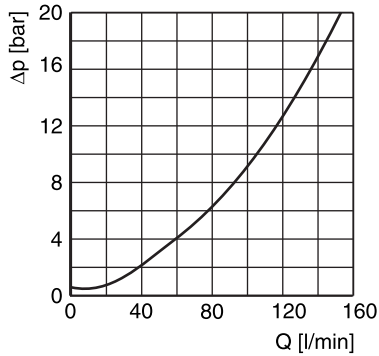
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**p/Q performance curves**

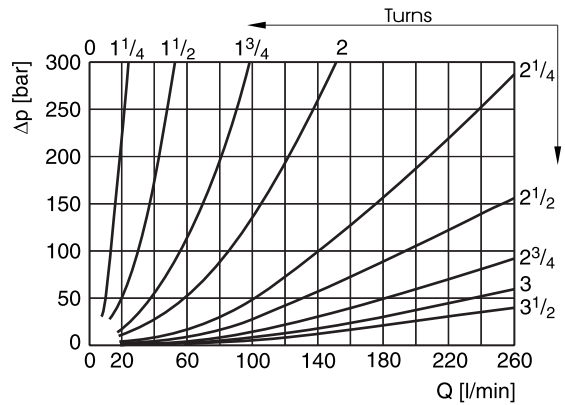
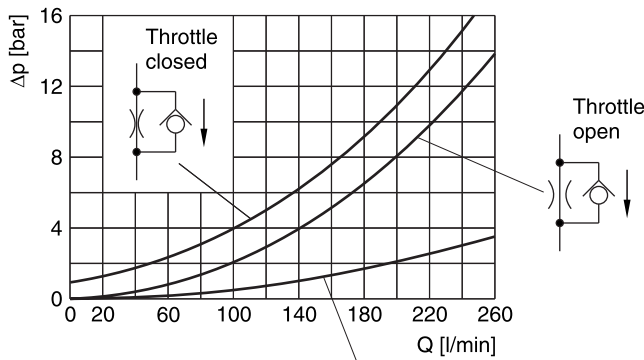
**ZRD\*01**



**ZRD\*02**



**ZRD\*03**



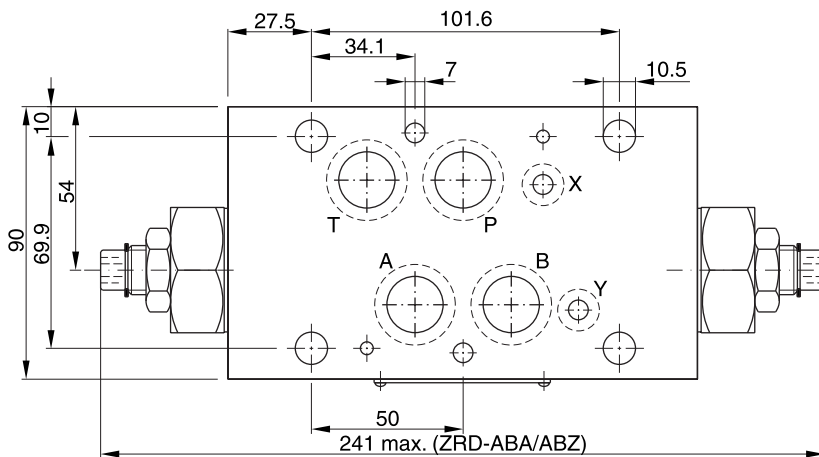
Pressure drop of return flow without throttle function  
 (for ZRD-AZ/BZ/AA/BA)

Fluid viscosity 30 cSt at 50°C

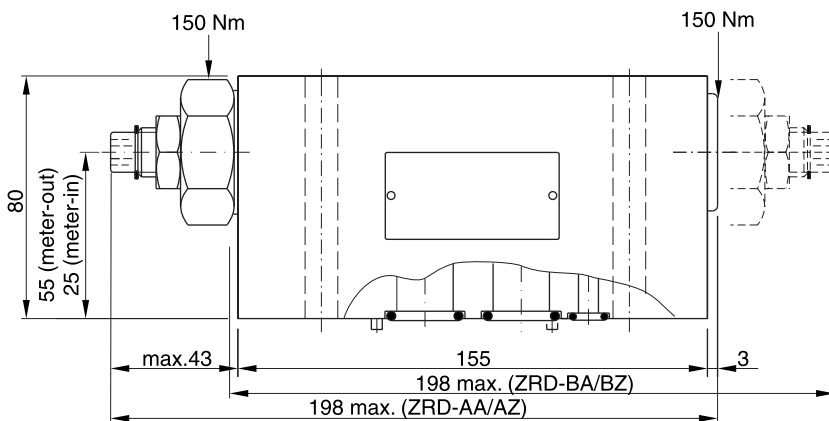
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**ZRD\*03**

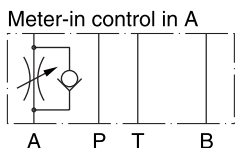


Seal kit	
Seal	Order code
1	098-91442-0
5	098-91443-0
Complete cartridge	
Order code	
098-91441-0	



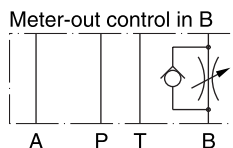
**7**

**ZRD\*01**



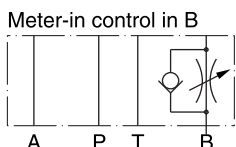
Series  
ZRD-AZ01-S0-D1

Order No.  
098-91056-0



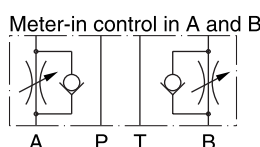
Series  
ZRD-BA01-S0-D1

Order No.  
098-91013-0



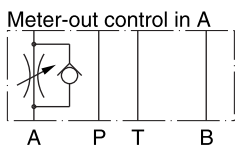
Series  
ZRD-BZ01-S0-D1

Order No.  
098-91057-0



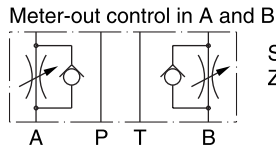
Series  
ZRD-ABZ01-S0-D1

Order No.  
098-91058-0



Series  
ZRD-AA01-S0-D1

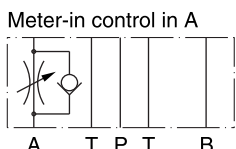
Order No.  
098-91012-0



Series  
ZRD-ABA01-S0-D1

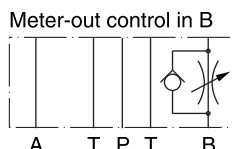
Order No.  
098-91014-0

**ZRD\*02**



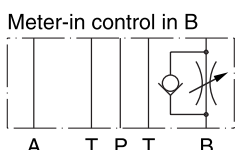
Series  
ZRD-AZ02-S0-D1

Order No.  
098-91059-0



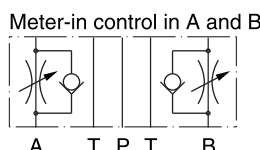
Series  
ZRD-BA02-S0-D1

Order no.  
098-91016-0



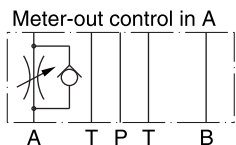
Series  
ZRD-BZ02-S0-D1

Order No.  
098-91060-0



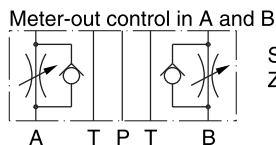
Series  
ZRD-BAZ02-S0-D1

Order no.  
098-91061-0



Series  
ZRD-AA02-S0-D1

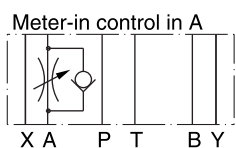
Order no.  
098-91015-0



Series  
ZRD-ABA02-S0-D1

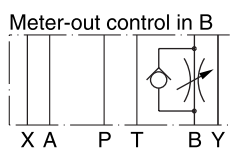
Order no.  
098-91017-0

**ZRD\*03**



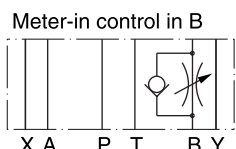
Series  
ZRD-AZ03-S0-C1

Order no.  
098-91422-0



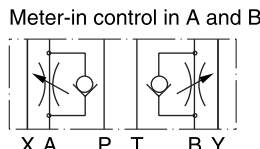
Series  
ZRD-BA03-S0-C1

Order no.  
098-91423-0



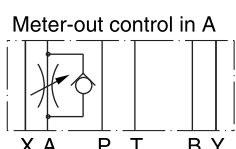
Series  
ZRD-BZ03-S0-C1

Order no.  
098-91424-0



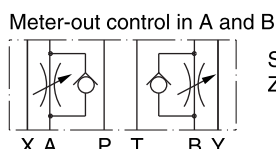
Series  
ZRD-ABZ03-S0-C1

Order no.  
098-91421-0



Series  
ZRD-AA03-S0-C1

Order no.  
098-91419-0



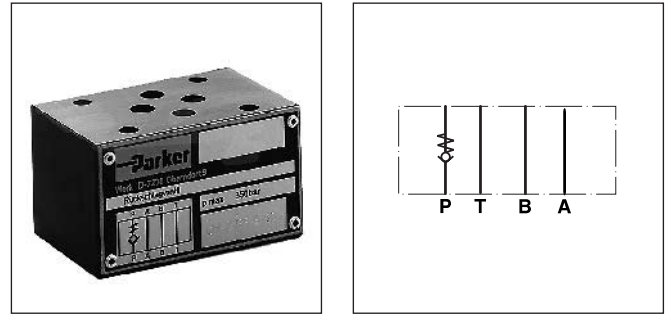
Series  
ZRD-ABA03-S0-C1

Order no.  
098-91420-0

### Characteristics

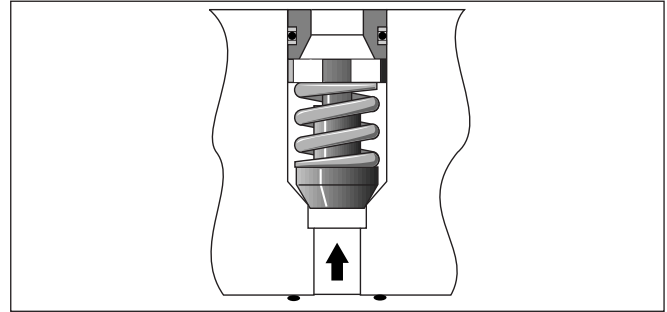
### Direct Operated Check Valve Series CM

Check valves from the Parker Manapak series CM are sandwich plate valves designed for stacking beneath a directional valve with a standardised mounting pattern. 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 (CETOP3)  
CM3 - NG10 (CETOP5)



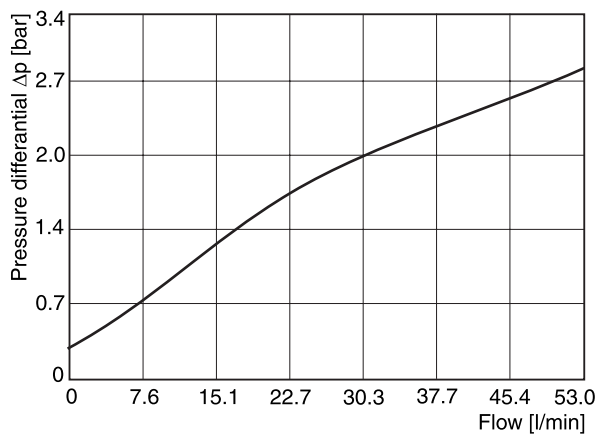
#### Technical data

Series		CM2	CM3
Mounting pattern		ISO 4401-03-02-0-94	ISO 4401-05-04-0-94
Max. operating pressure	[bar]	350	350
Max. flow	[l/min]	53	76
Opening pressure	[bar]	0.3	0.3
Mounting position		unrestricted	unrestricted
Ambient temperature	[°C]	max. +50	max. +50
Fluid temperature	[°C]	max. +70	max. +70
Weight	[kg]	0.9	1.7

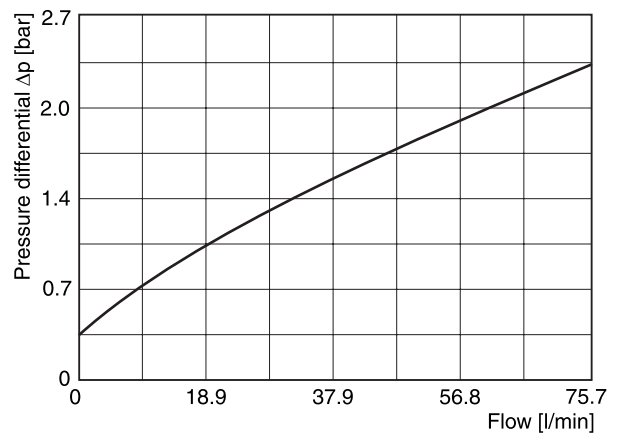
7

#### Δp/Q performance curves

##### CM2

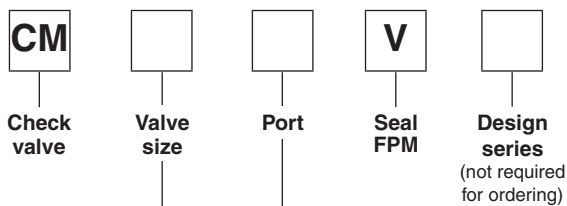


##### CM3



## Direct Operated Check Valve Series CM

### Ordering Code



Code	Description
2	<b>Intermediate plate DIN NG06</b>
3	<b>Intermediate plate DIN NG10</b>

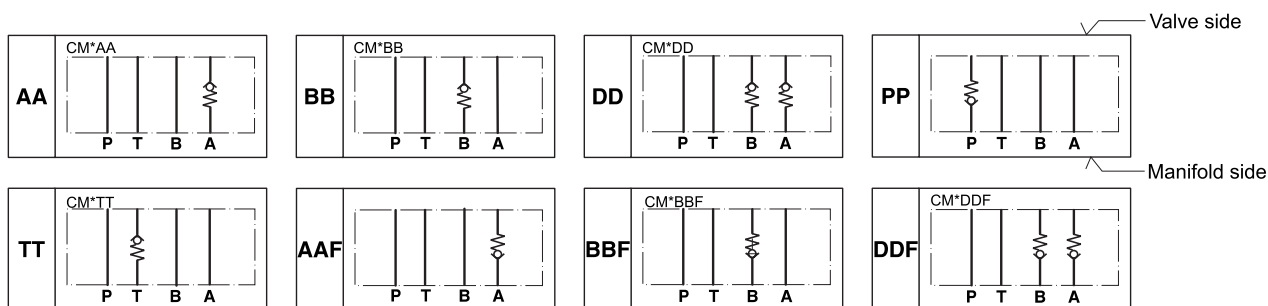
Code	Free flow polarity	Check valve in channel:
<b>AA</b>	<b>From directional valve to manifold</b>	<b>A</b>
<b>BB</b>	<b>From directional valve to manifold</b>	<b>B</b>
<b>DD</b>	<b>From directional valve to manifold</b>	<b>A a. B</b>
<b>PP</b>	<b>From manifold to directional valve</b>	<b>P</b>
<b>TT</b>	<b>From directional valve to manifold</b>	<b>T</b>
AAF	From manifold to directional valve	A
BBF	From manifold to directional valve	B
DDF	From manifold to directional valve	A a. B

**Bold letters =  
Short-term availability**

7

### Schematics

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

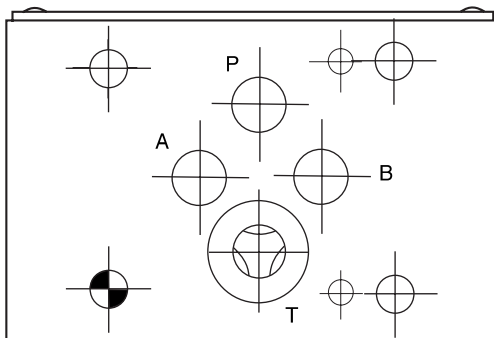


**Dimensions**

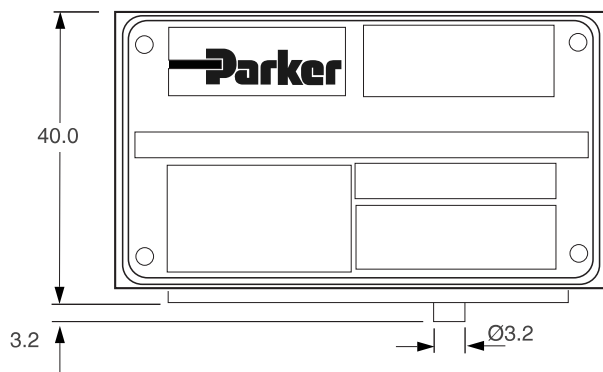
**CM2**

**Bottom view\***

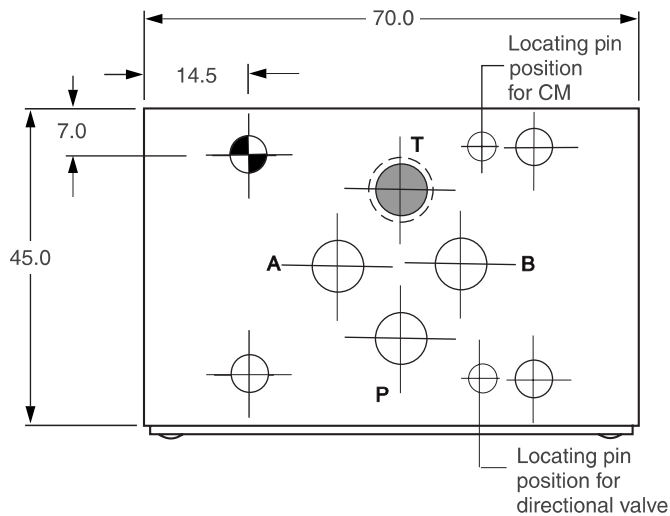
(manifold side)  
\*O-Ring plate is not shown!  
This view shows the TT model.



**Front side**



**Top view**

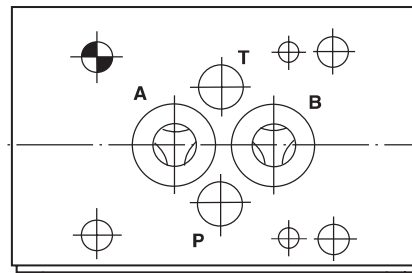
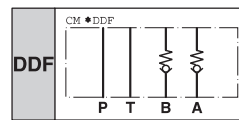
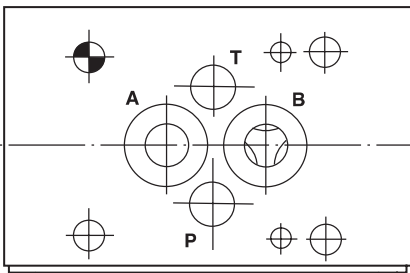
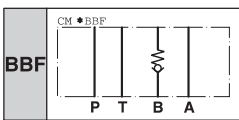
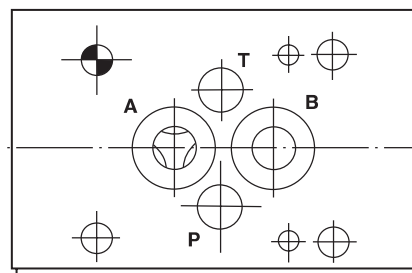
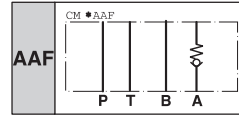
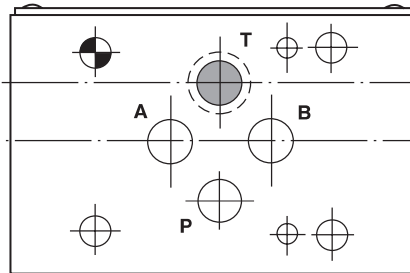
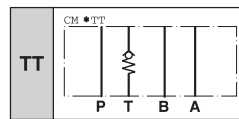
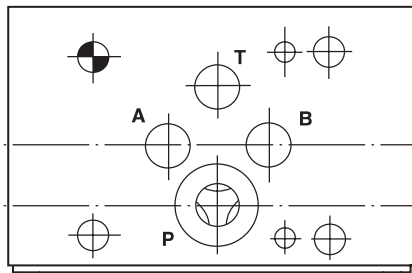
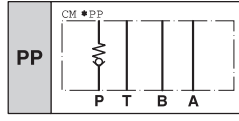
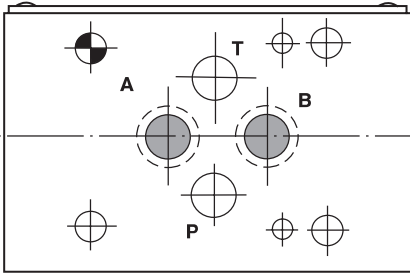
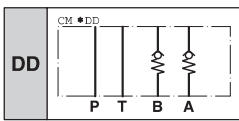
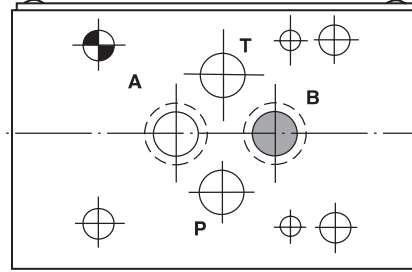
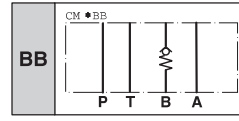
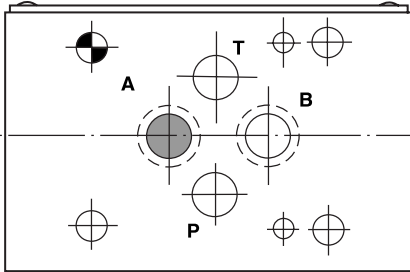
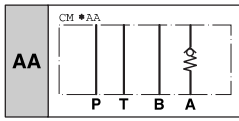


Seal kit CM2	
Seal	Order code
V	SK-CM2-V

**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.

**CM2 top views (from directional valve side)**



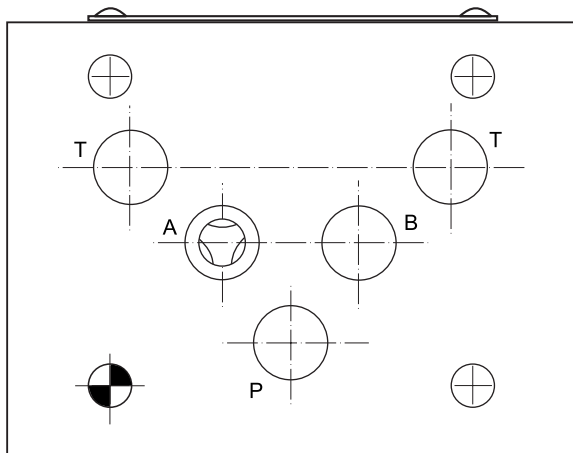
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**Dimensions**

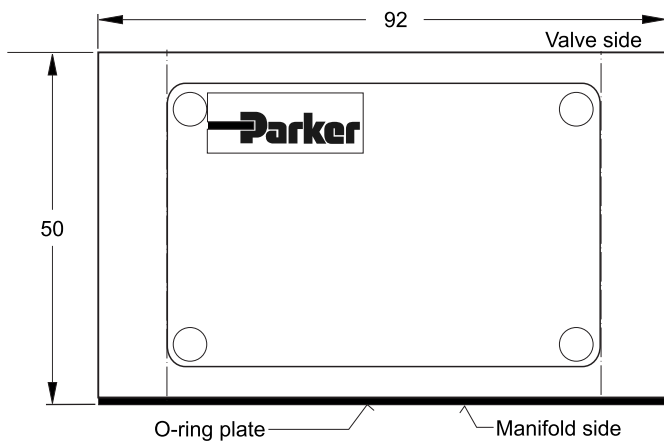
**CM3**

**Bottom view\***

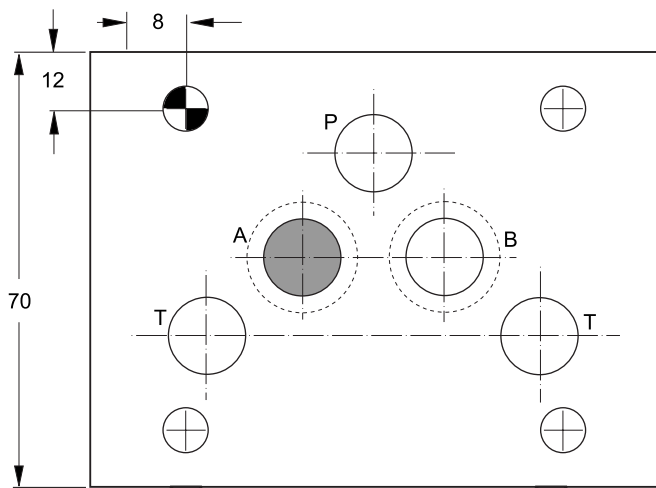
(manifold side)  
\*O-Ring plate is not shown!  
This view shows the AA model.



**Front side**



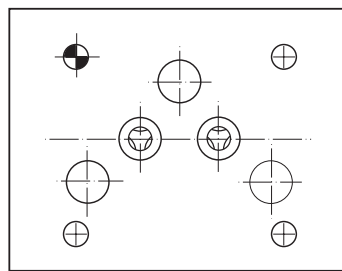
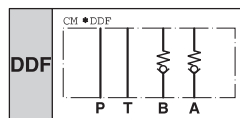
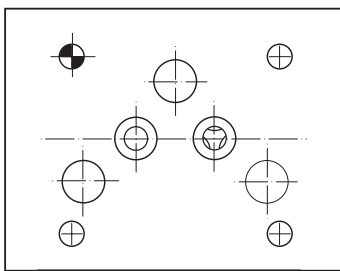
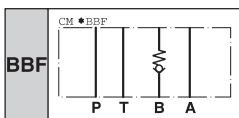
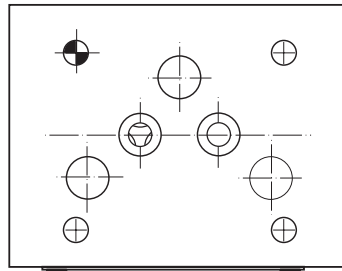
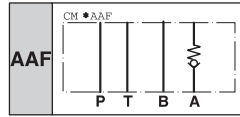
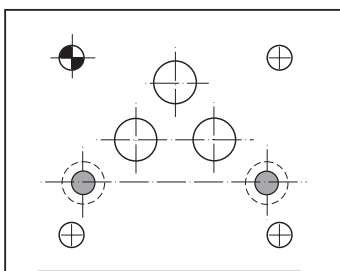
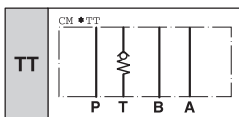
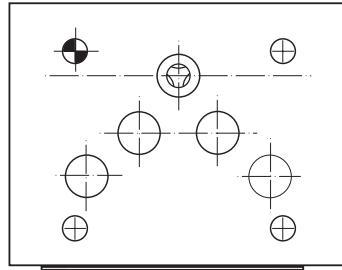
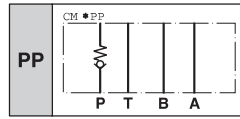
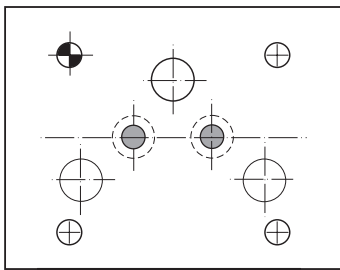
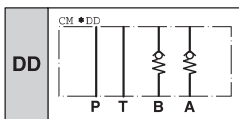
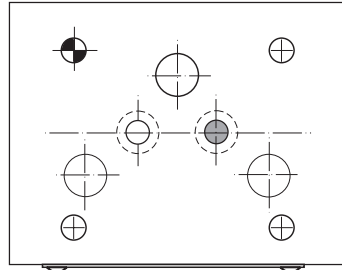
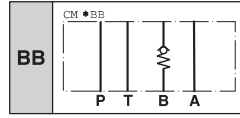
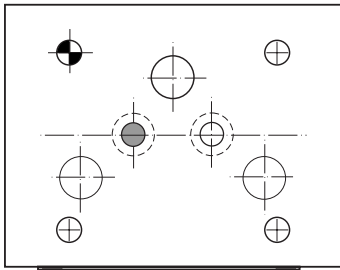
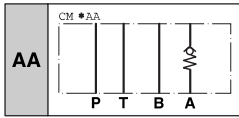
**Top view**



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

7

**CM3 top views (from directional valve side)**



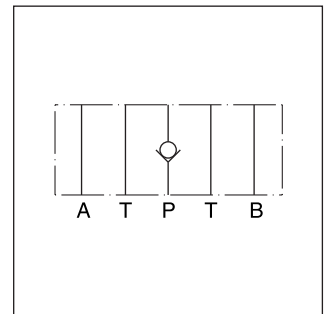
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Direct operated check valves series ZRV have a cartridge type insert to provide zero leakage and high life time.

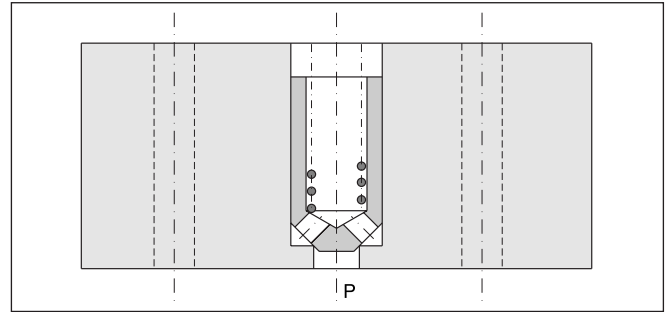
The check function can be located in the P- or in the T-port.



ZRV-P02



ZRV-P02



ZRV-P02

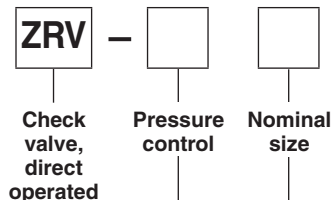
**Features**

- Leakage-free seat
- High life time
- Cracking pressure 0.5 bar
- Sizes
  - ZRV01 - NG06 / CETOP3
  - ZRV02 - NG10 / CETOP5

**Technical data**

<b>General</b>		
Size		<b>06</b> <b>10</b>
Mounting interface		DIN 24340 A6                      DIN 24340 A10 ISO 4401                              ISO 4401 NFPA D03                            NFPA D05
Mounting position		CETOP RP 121 unrestricted
Ambient temperature	[°C]	-20...+50
Weight	[kg]	0.7                                  2.0
<b>Hydraulic</b>		
Max. operating pressure	[bar]	350
Nominal flow	[l/min]	40                                  100
Cracking pressure	[bar]	0.5                                  0.5
Fluid		Hydraulic oil as per DIN 51524...525
Fluid temperature	[°C]	-20...+80
Viscosity permitted	[mm²/s]	10...650
Viscosity recommended	[mm²/s]	30
Filtration		ISO 4406 (1999) 18/16/13 (acc. NAS 1638: 7)

**Ordering code**

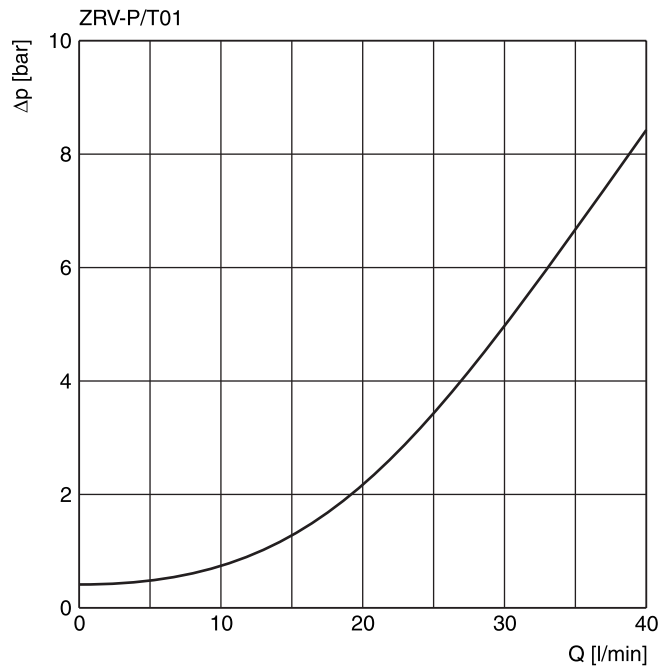


Code	Press. control
P	Blocked in P
T	Blocked in T

Code	Nominal size
01	NG06
02	NG10

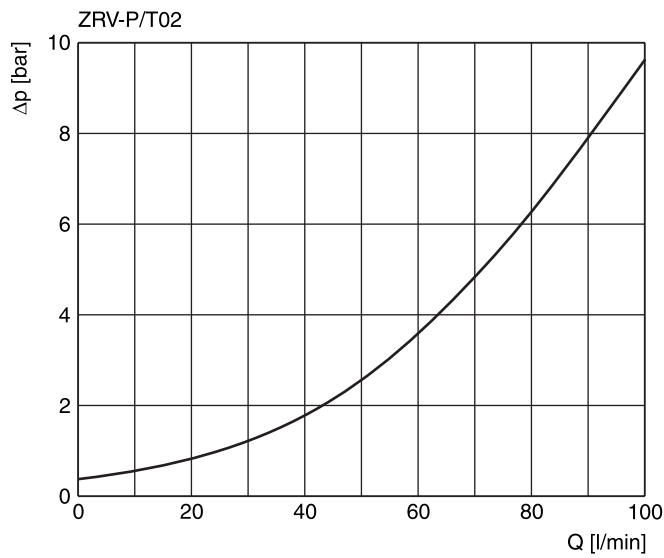
Ordering code details see end of chapter.

**p/Q performance curves  
ZRV\*01**



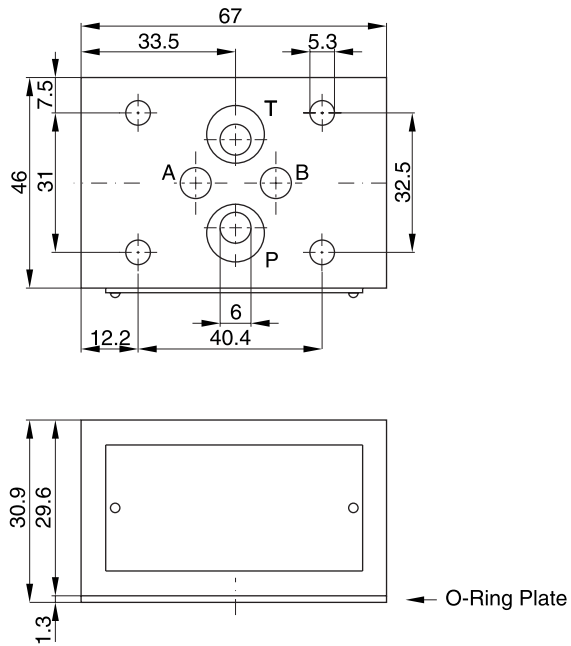
**7**

**ZRV\*02**

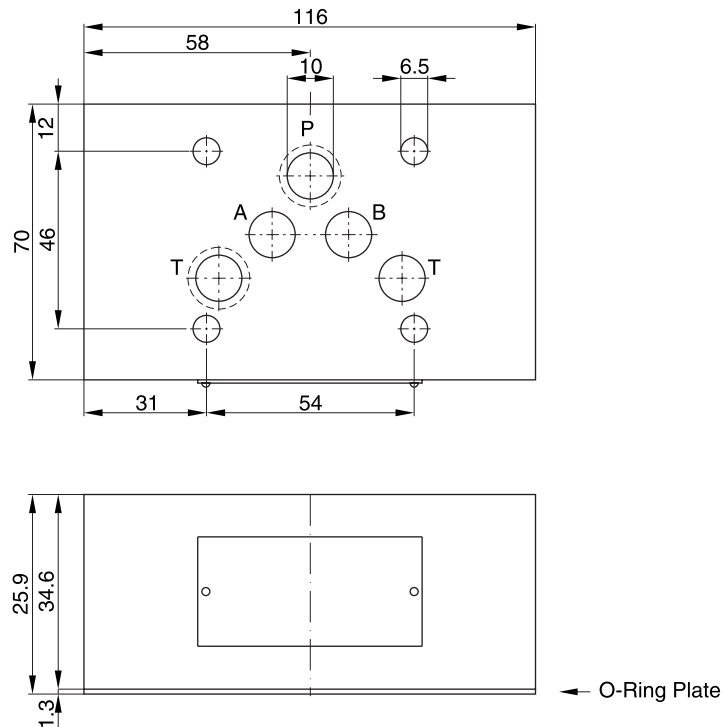


Fluid viscosity 30 cSt at 50°C

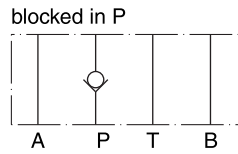
**ZRV01**



**ZRV02**

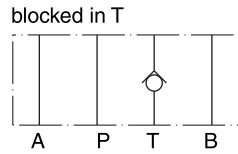


ZRV01



Series  
ZRV-P01

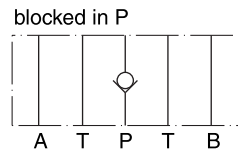
Order No.  
098-90025-0



Series  
ZRV-T01

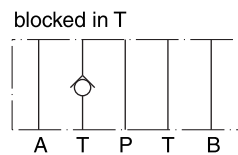
Order No.  
098-90026-0

ZRV02



Series  
ZRV-P02

Order No.  
098-90043-0



Series  
ZRV-T02

Order No.  
098-90044-0

**Characteristics**

Pilot operated check valves from the Parker Manapak series CPOM are sandwich plate valves designed for stacking beneath a directional valve with a standardised mounting pattern. 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.

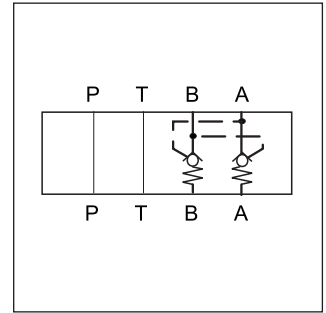
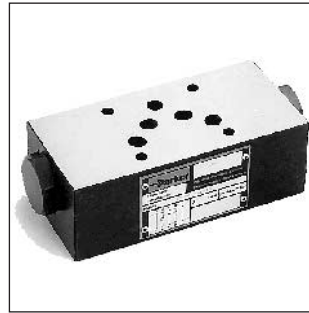
**Function**

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.

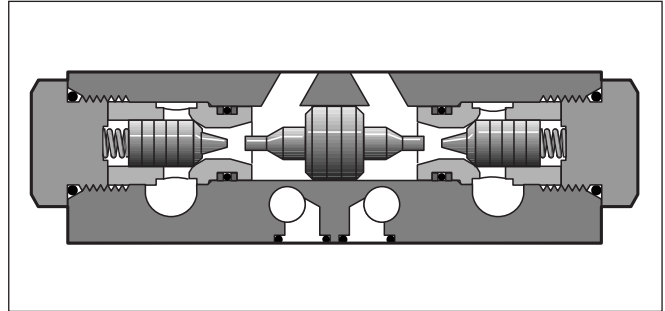
**Features**

- 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.

**Pilot Operated Check Valve  
Series CPOM**



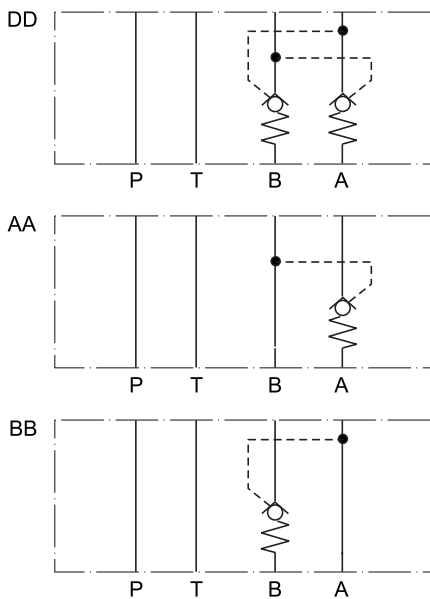
CPOM3



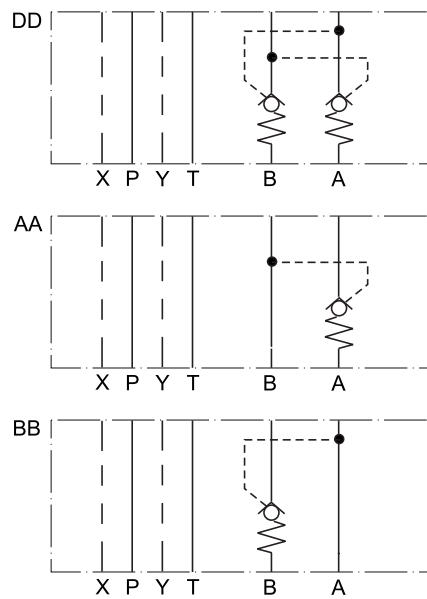
**Technical data**

Port size	DIN	NG06	NG10	NG16	NG25
Mounting pattern		ISO 4401			
Series		CPOM2	CPOM3	CPOM4	CPOM6
Working pressure [bar]		350	350	350	210
Opening pressure [bar]		1.0	0.8	2.0	0.4
Control ratio		1 : 3 or 1 : 7	1 : 3 or 1 : 6.5	1 : 2.4	1 : 3
Weight [kg]		1.8	4.0	7.4	9.5

**CPOM2 / CPOM3**

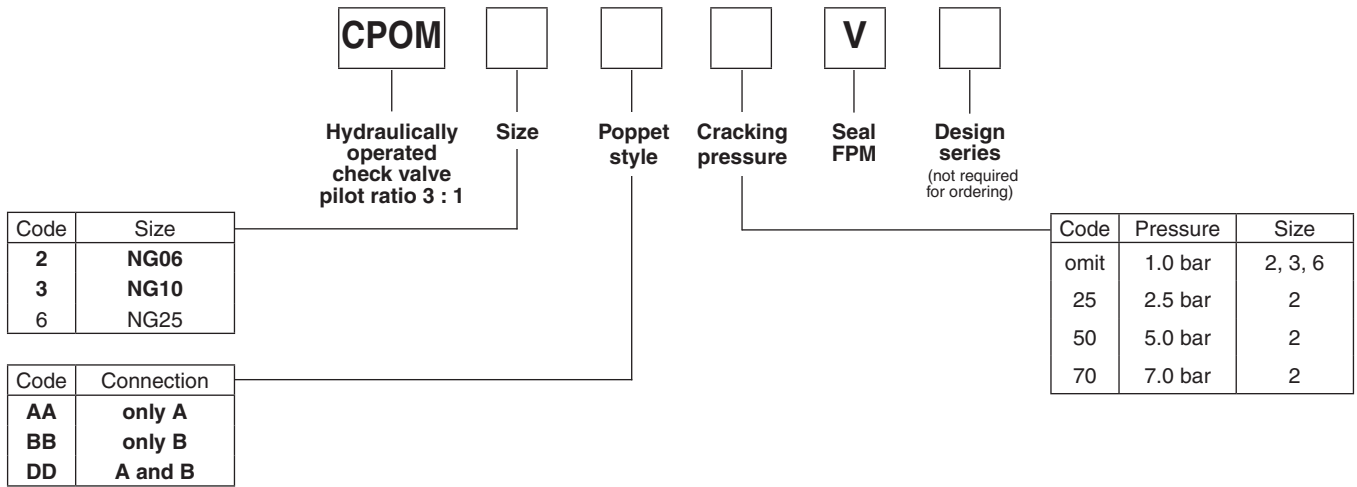


**CPOM4 / CPOM6**

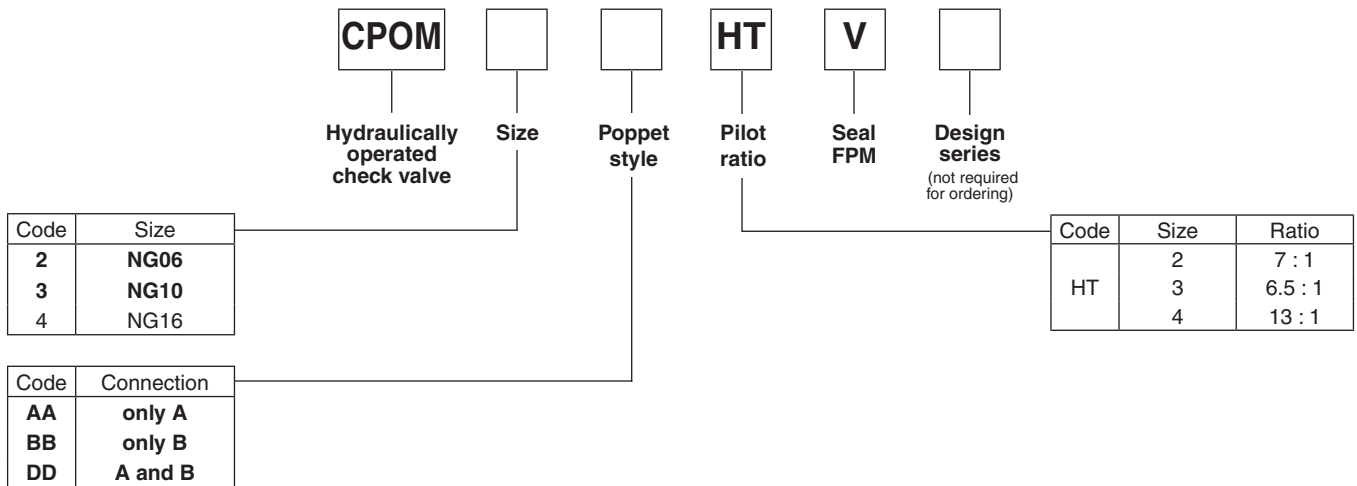


**Ordering Code**

**Without pre-opening**



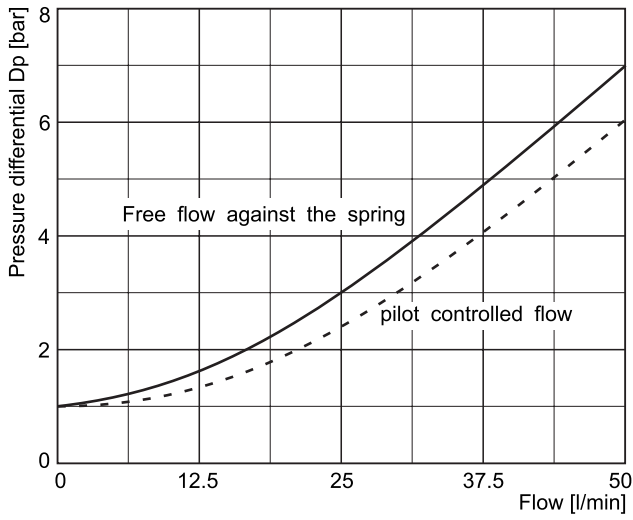
**With pre-opening**



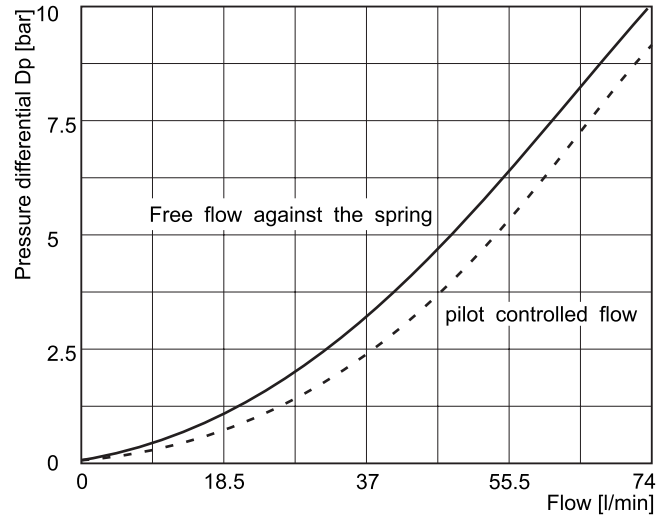
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**Bold letters =**  
Short-term availability

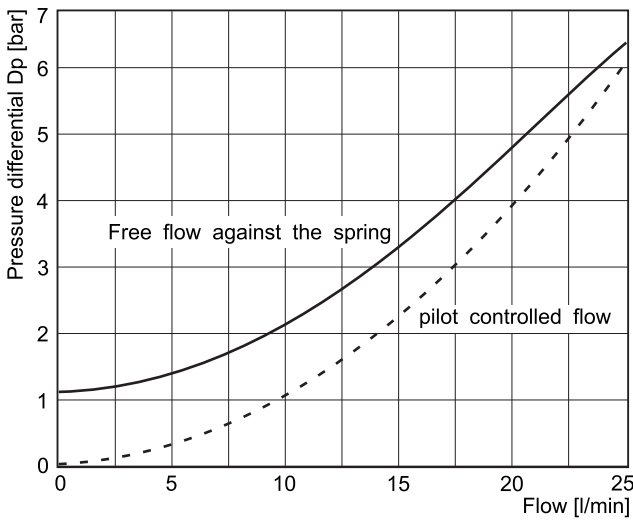
**$\Delta p/Q$  performance curves**  
**CPOM2**



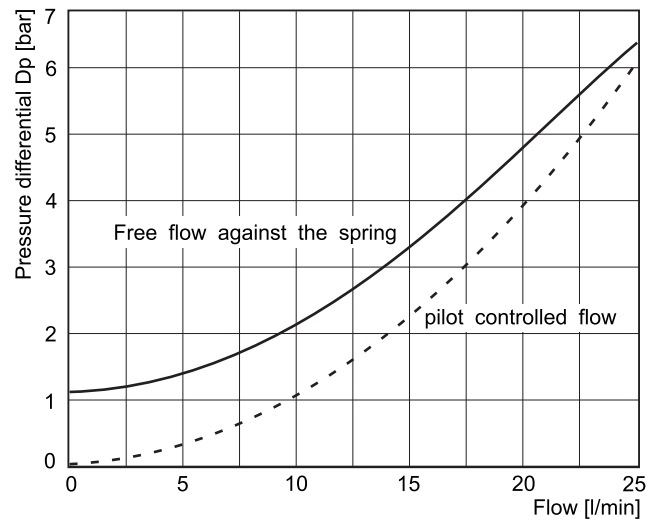
**CPOM3**



**CPOM2 (type HT)**

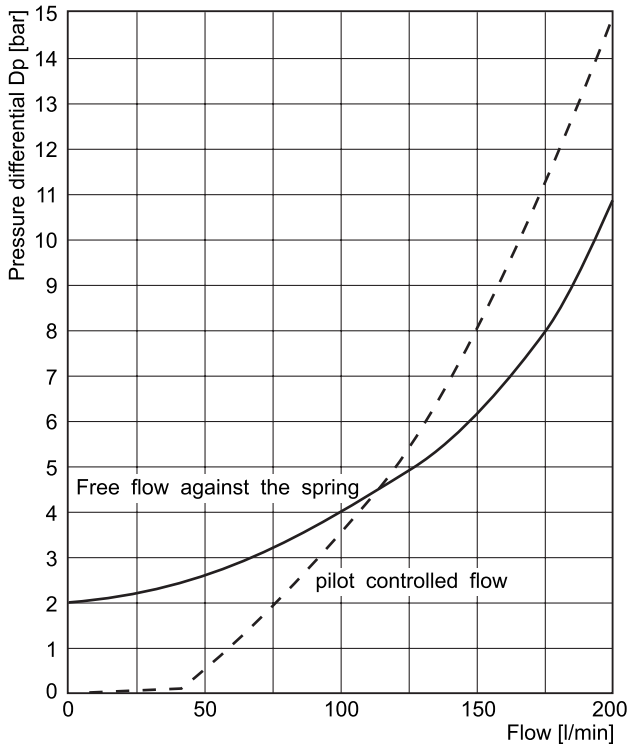


**CPOM3 (type HT)**

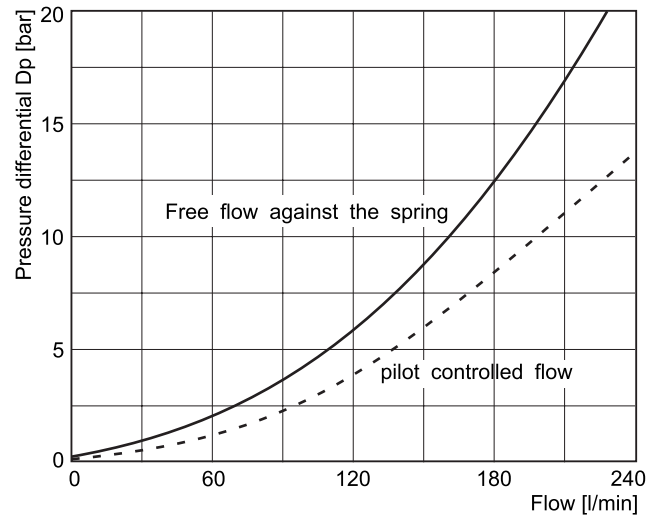


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**$\Delta p/Q$  performance curves  
 CPOM4 (type HT)**



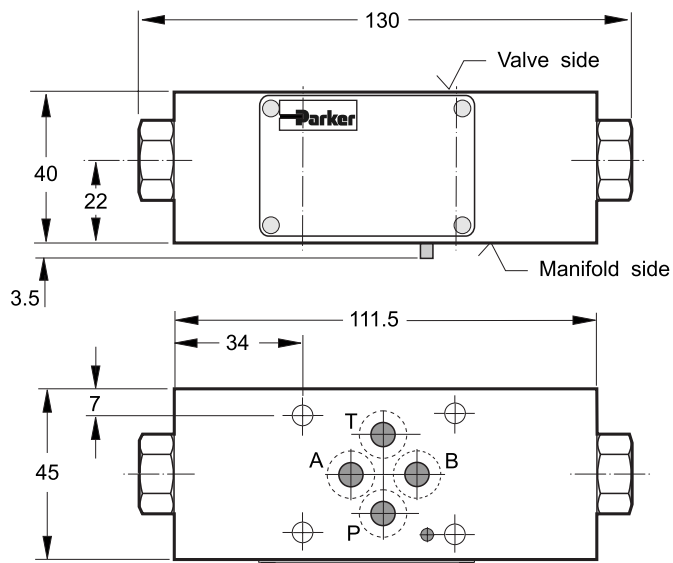
**CPOM6**



7

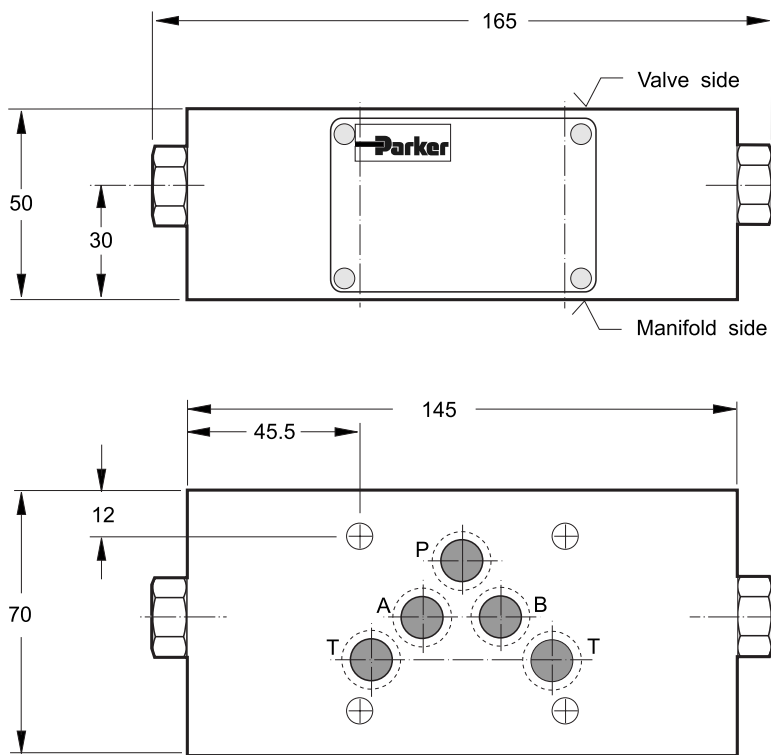
**Dimensions**

**CPOM2**



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

**CPOM3**



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

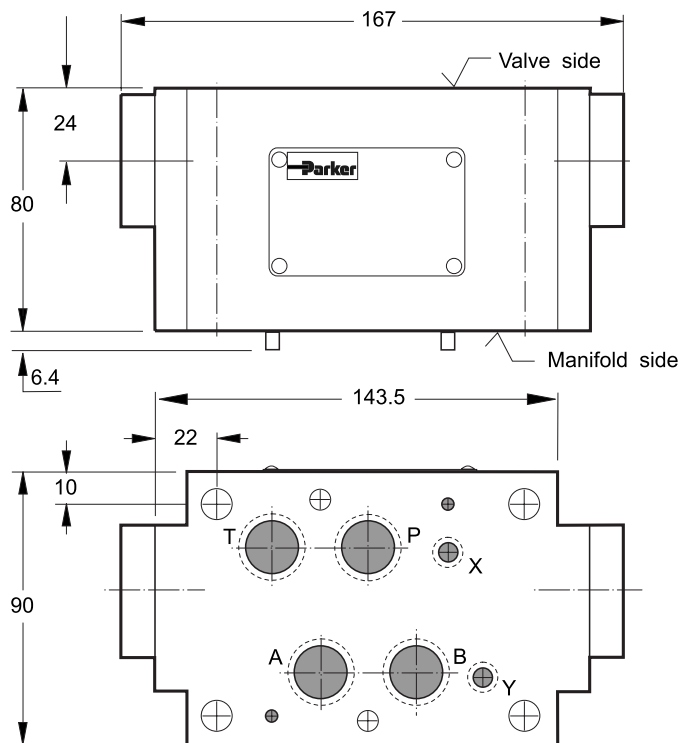
**Note:**

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.



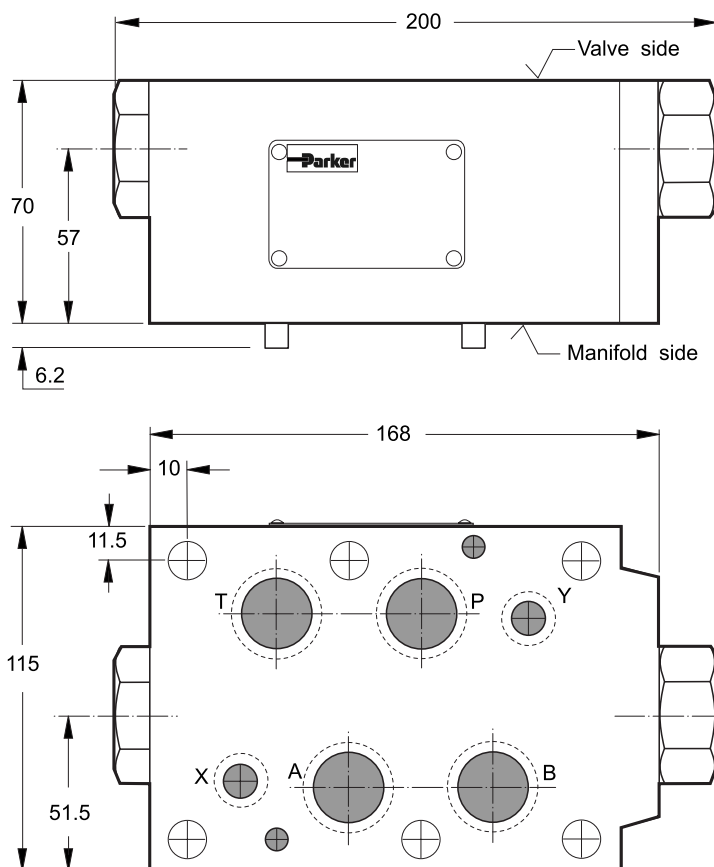
**Dimensions**

**CPOM4**



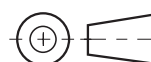
Seal kit CPOM4	
Seal	Order code
V	SK-CPOM4HTV

**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.



7

**Characteristics**

**Pilot Operated Check Valve  
Series ZRE (Denison)**

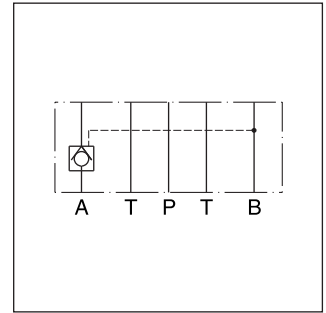
Pilot operated check valves series ZRE are designed for maximum flow rates and long life time.

The valves are typically used in combination with spool type directional control valves to ensure 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.



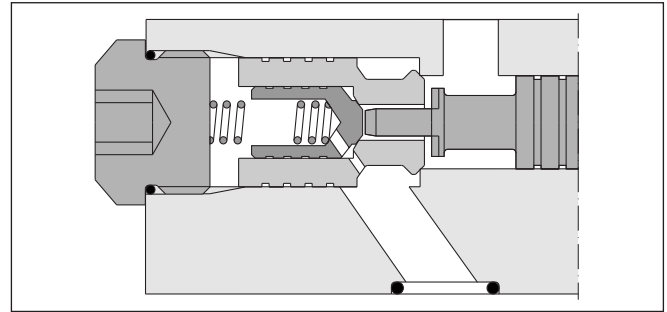
ZRE-B01



ZRE-A02

**Features**

- High flow capacity
- High life time
- Check function in A, B or A + B
- Sizes
  - ZRE01 - NG06 / CETOP3
  - ZRE02 - NG10 / CETOP5
  - ZRE03 - NG16 / CETOP7



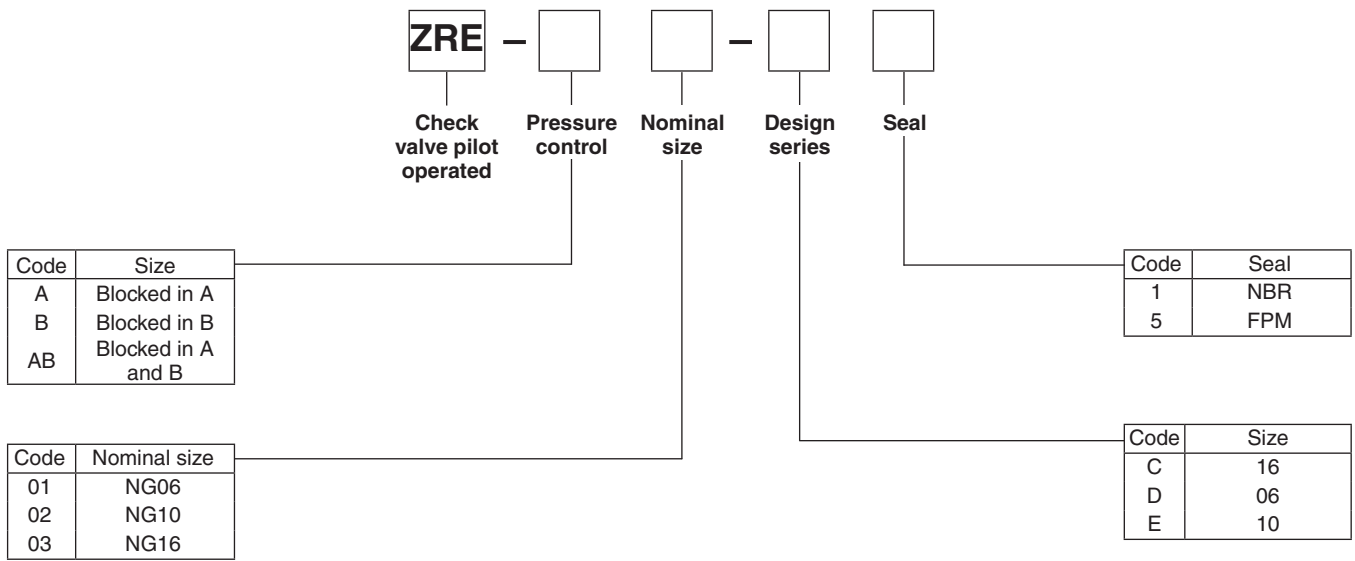
ZRE-A02

**Technical data**

General		06	10	16
Size				
Mounting interface		DIN 24340 A6 ISO 4401 NFPA D03	DIN 24340 A10 ISO 4401 NFPA D05	DIN 24340 A16 ISO 4401 NFPA D08
Mounting position		CETOP RP 121 unrestricted		
Ambient temperature	[°C]	-20...+50		
Weight	[kg]	1.2	3.1	7.2 / 7.3
Hydraulic				
Max. operating pressure	[bar]	350		
Nominal flow	[l/min]	60	120	260
Opening ratio (pilot cone / main cone)		1:6	1:6	1:13
Cracking pressure	[bar]	1.2	2.0	2.0
Fluid		Hydraulic oil as per DIN 51524...525		
Fluid temperature	[°C]	-20...+80		
Viscosity permitted	[mm²/s]	10...650		
Viscosity recommended	[mm²/s]	30		
Filtration		ISO 4406 (1999) 18/16/13 (acc. NAS 1638: 7)		

## Pilot Operated Check Valve Series ZRE (Denison)

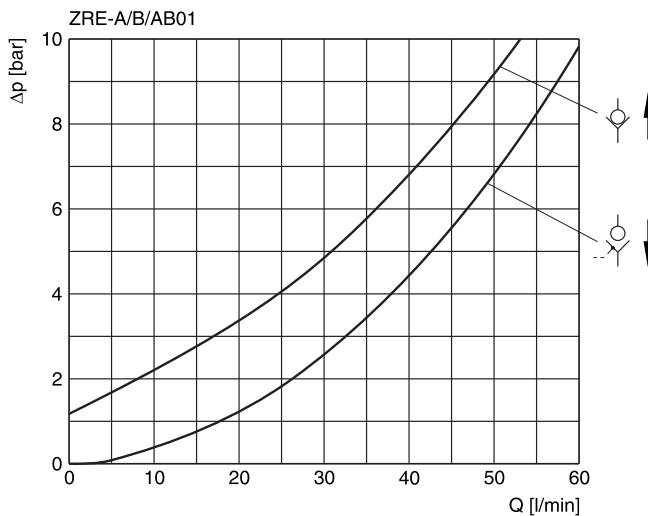
### Ordering Code



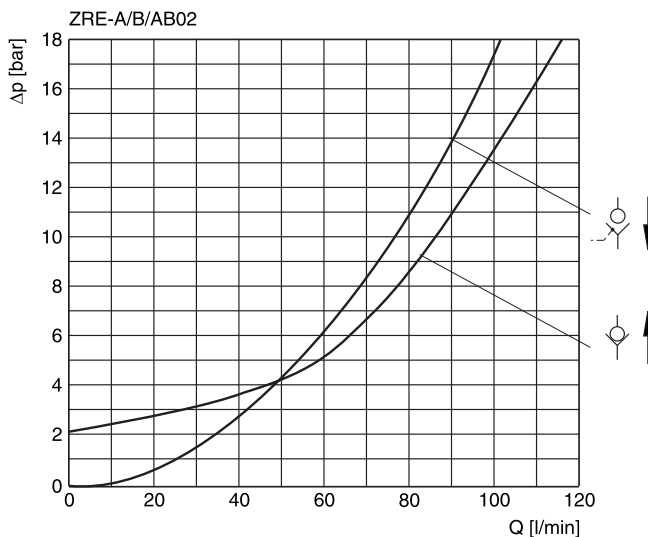
Ordering code details see end of chapter.

**p/Q performance curves**

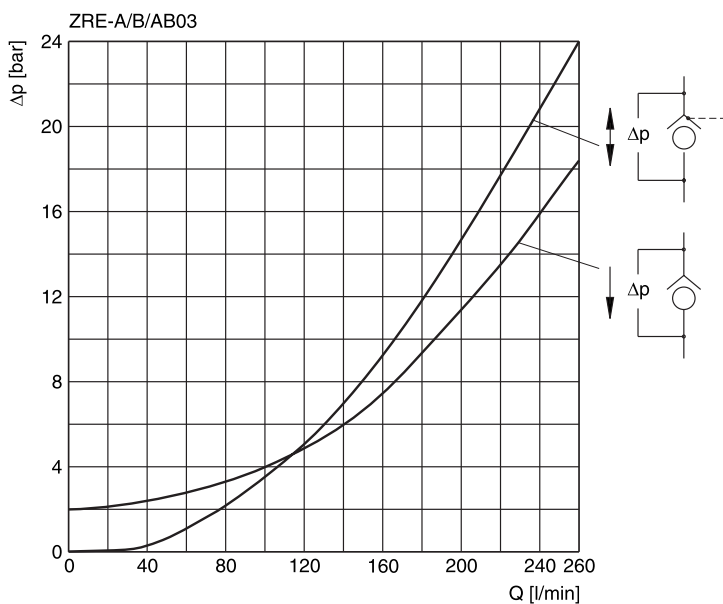
**ZRE\*01**



**ZRE\*02**



**ZRE\*03**

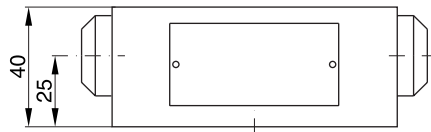
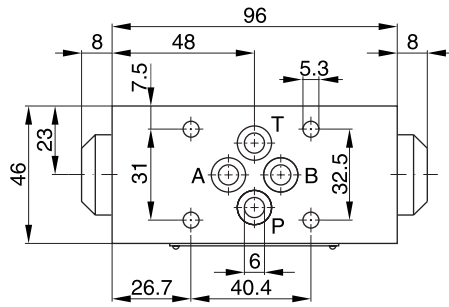


Fluid viscosity 30 cSt at 50°C

ZRE\_UK.INDD RH

**Dimensions**

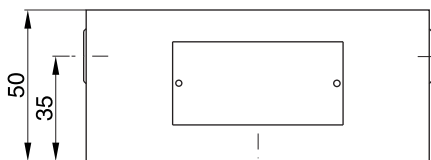
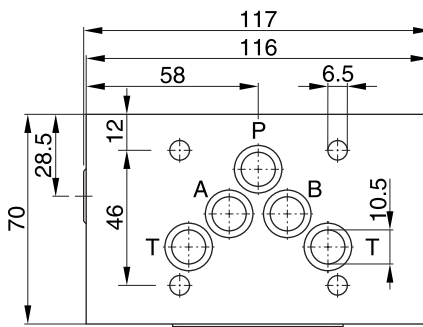
**ZRE\*01**



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

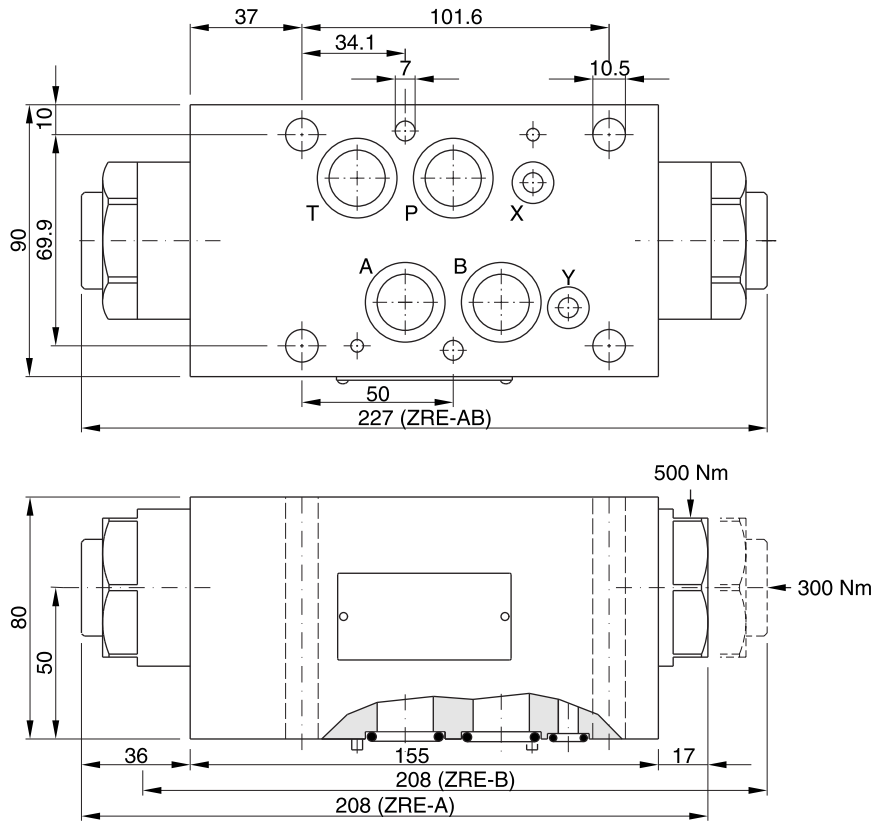
**7**

**ZRE\*02**



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

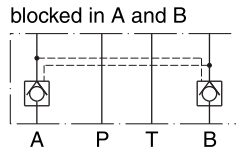
**ZRE\*03**



Seal kit	
Seal	Order code
1	098-91444-0
5	098-91445-0

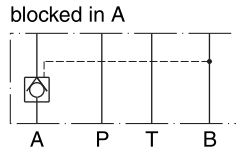
**7**

**ZRE\*01**



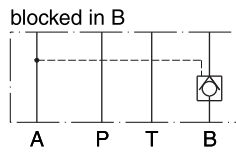
Series  
 ZRE-AB01-D1

Order No.  
 098-91020-0



Series  
 ZRE-A01-D1

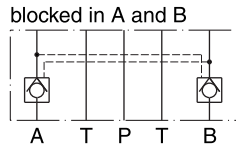
Order No.  
 098-91018-0



Series  
 ZRE-B01-D1

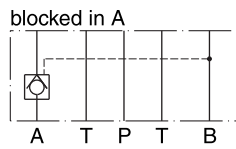
Order No.  
 098-91019-0

**ZRE\*02**



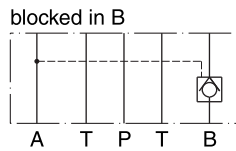
Series  
 ZRE-AB02-E1

Order No.  
 098-91300-0



Series  
 ZRE-A02-E1

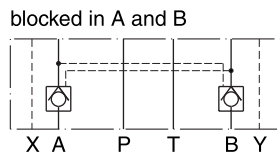
Order No.  
 098-91298-0



Series  
 ZRE-B02-E1

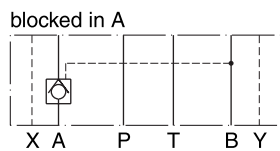
Order No.  
 098-91304-0

**ZRE\*03**



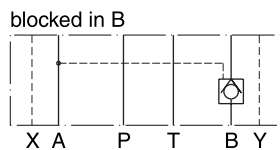
Series  
 ZRE-AB03-C1

Order No.  
 098-91426-0



Series  
 ZRE-A03-C1

Order No.  
 098-91425-0

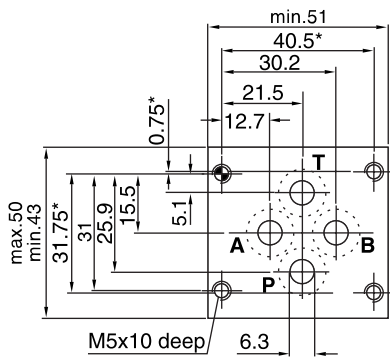


Series  
 ZRE-B03-C1

Order No.  
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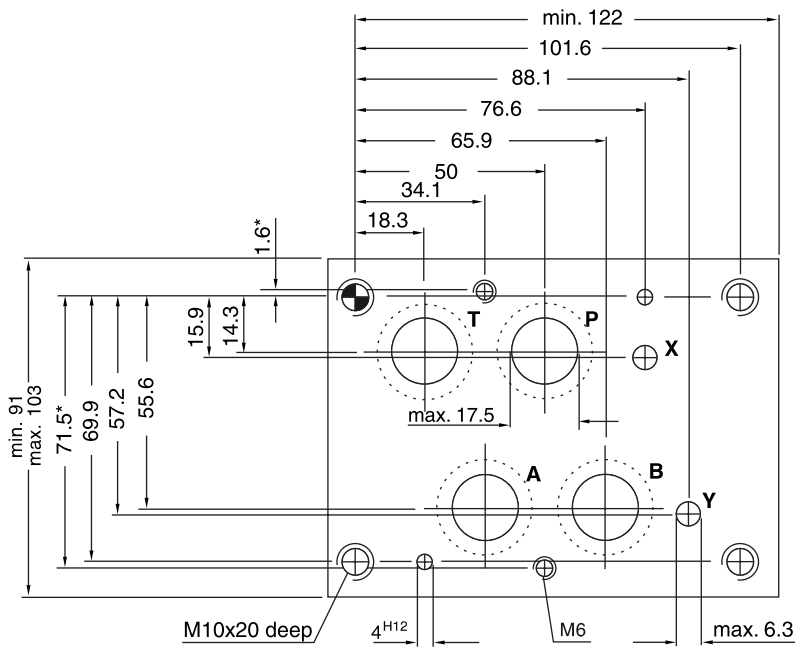
**NG06**

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



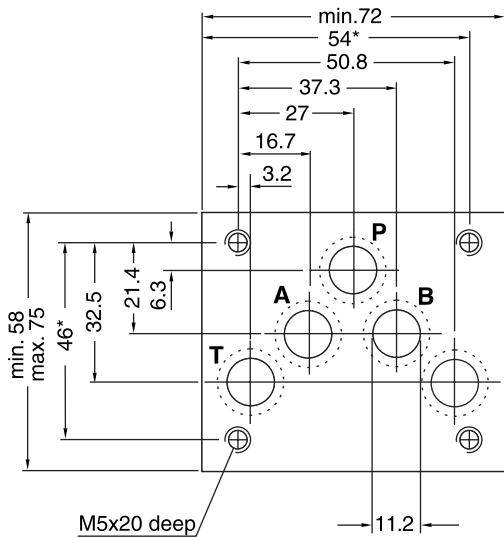
**NG16**

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



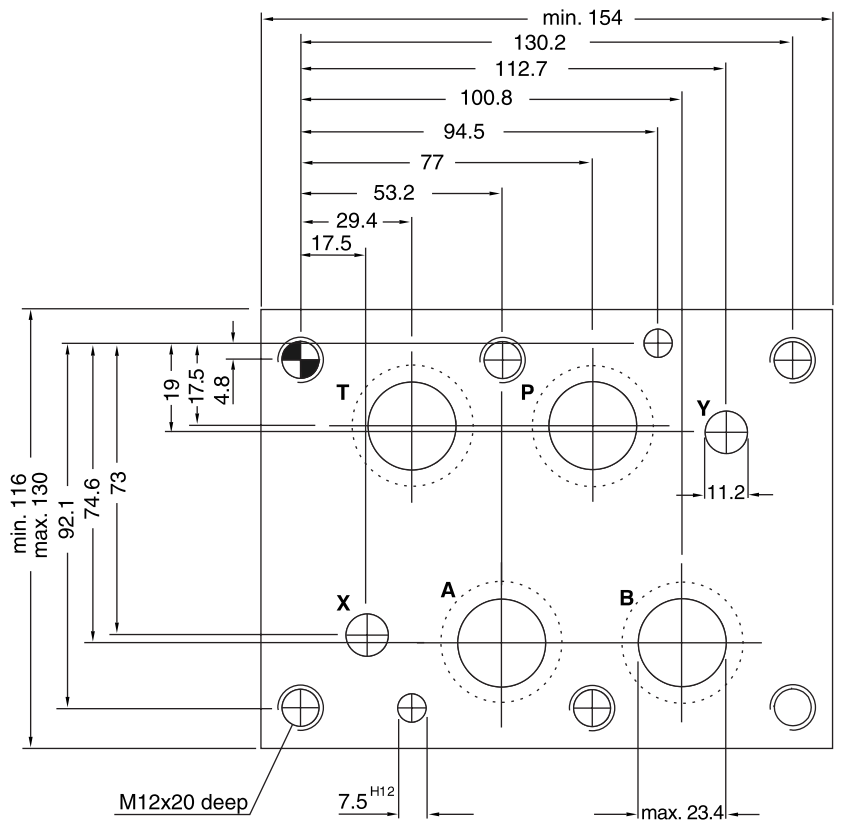
**NG10**

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



**NG25**

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



Dimensions marked with\*:  $\pm 0.1\text{mm}$ .  
 All other dimensions:  $\pm 0.2\text{mm}$ .

access07.INDD RH

### 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 DIN 912/12.9, or studs as per DIN 835 10.9 with cylindrical nuts are used to mount the height stacking Manapak sandwich valves.

### 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			