

## 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 arranged in ports A and B.

By altering the mounting position (FM2 and FM3) or internal components (FM4), meter-in or meter-out flow control functions can be selected.

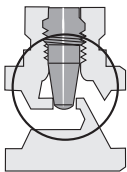
The throttle check valve can also be used to influence the switching time of pilot operated directional valves. In this case, the valve is positioned between the pilot stage (CETOP03, NG6) and the main stage (CETOP05, NG10 up to CETOP10, NG32).

The FM6 valve is only available as meter-out.

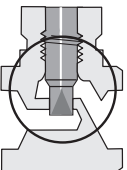
### Features

- 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.

Metering needle types for FM2 and FM3  
"Standard" type



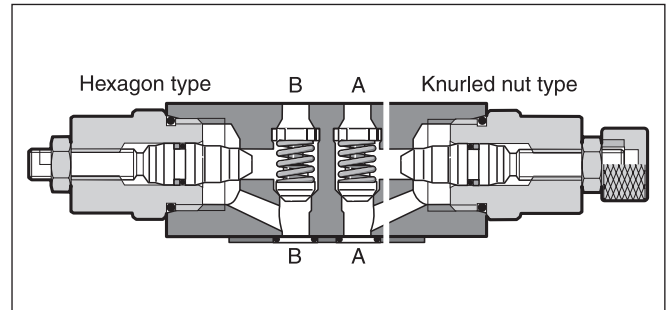
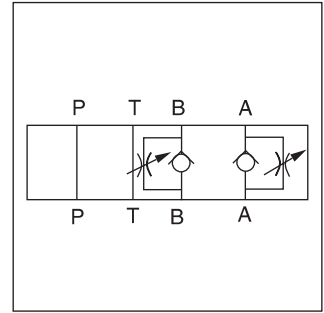
A two-stage needle provides fine adjustment in the lower flow range with 3 adjustment rotations. After 3 more rotations, the valve is completely open.



Design "D"

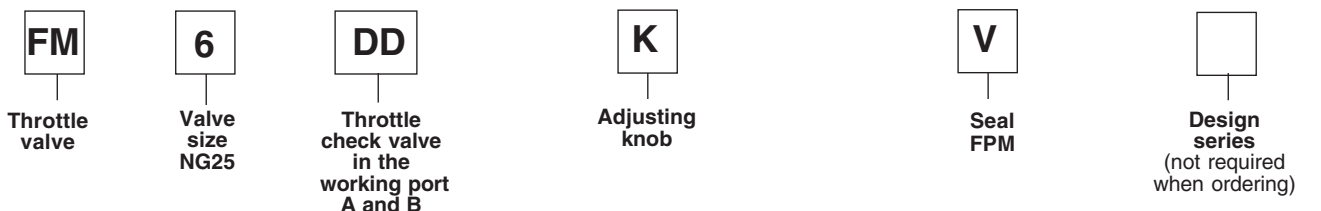
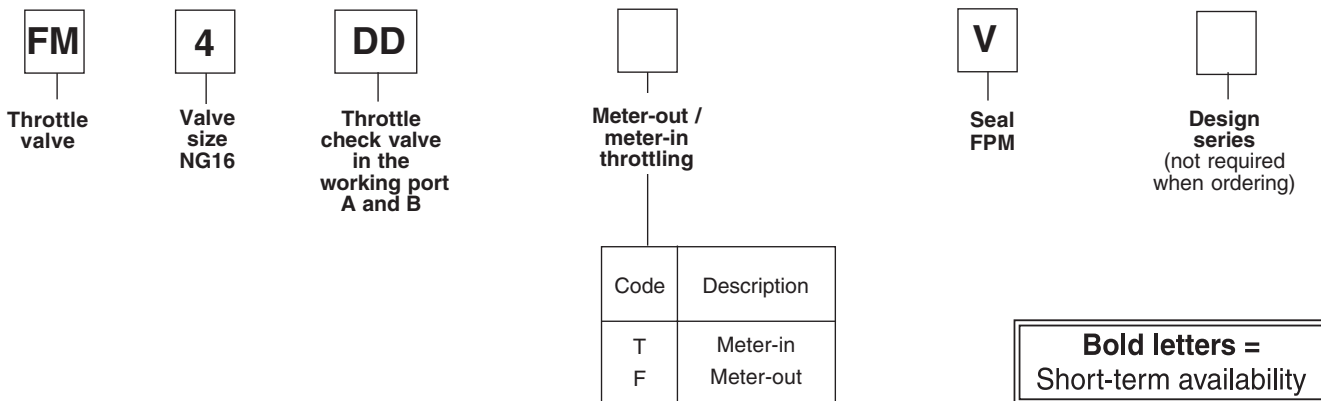
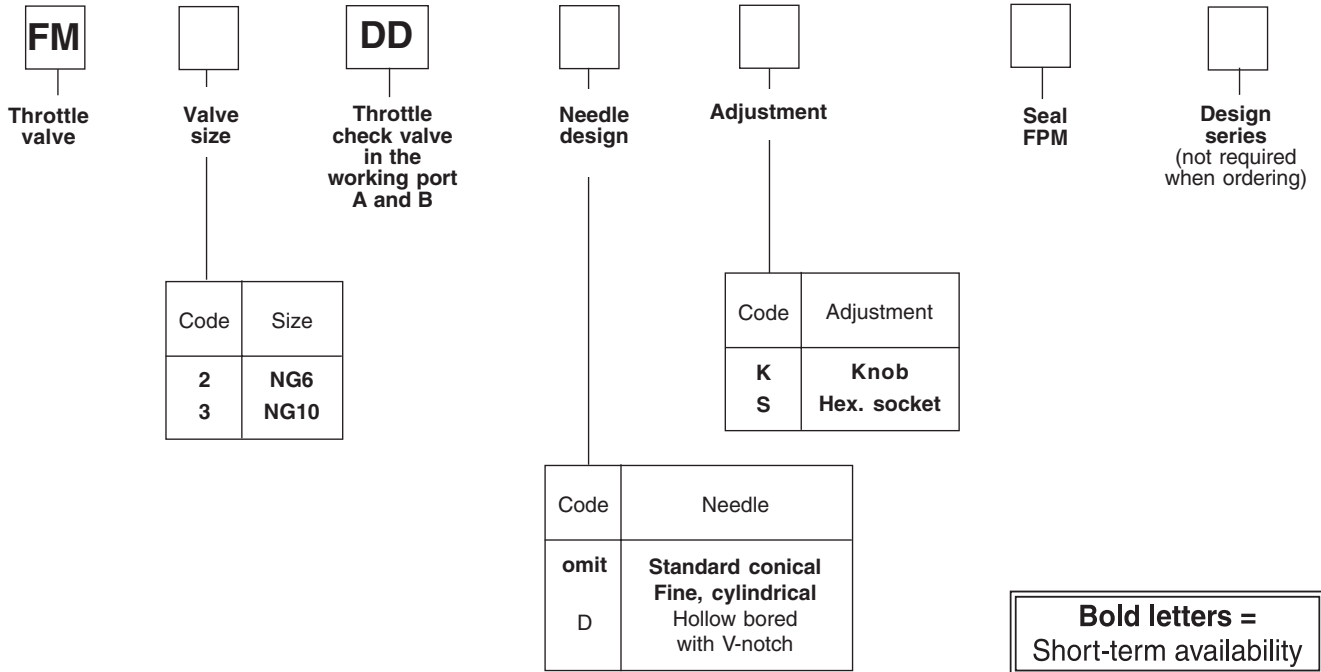
A cylindrical needle with a V-notch allows the fine adjustment in the entire setting range.

## Throttle check valves Series FM



### Characteristics

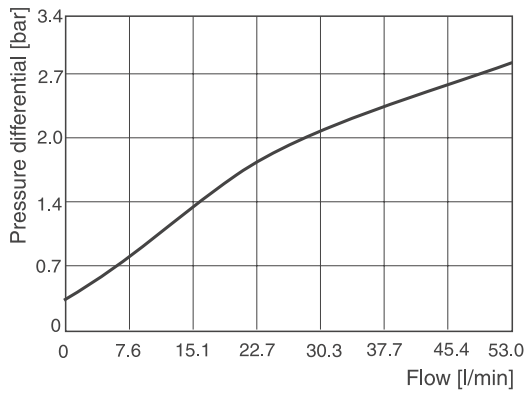
Series	FM2	FM3	FM4	FM6
Mounting pattern	NG6 NFFPA D03	NG10 NFFPA D05	NG16 NFFPA D07	NG25 NFFPA D08
	CETOP 03	CETOP 05	CETOP07	CETOP 08
Max. pressure	350 bar	350 bar	350 bar	210 bar
Max. flow	53 LPM	76 LPM	200 LPM	341 LPM
Opening press.	0.3 bar	0.3 bar	0.3 bar	0.3 bar
Supply throttle	X	X	X	—
Meter-out throttle	X	X	X	X
Mounting pos.	as desired	as desired	as desired	as desired
Ambient temperature	max. +50°C	max. 50°C	max. 50°C	max. 50°C
Pressure fluid temperature	max. +70°C	max. +70°C	max. +70°C	max. +70°C
Weight [kg]	1.3	2.4	5.4	7.9



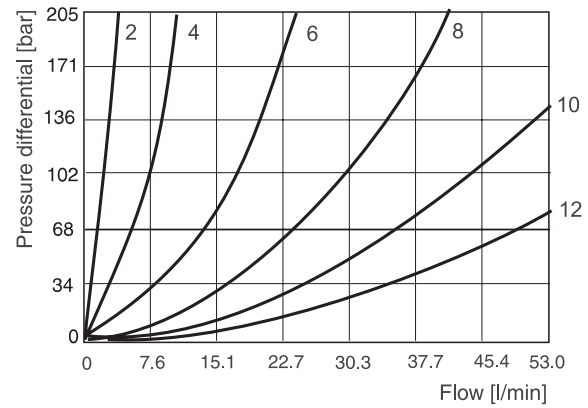
FM6 valves are only supplied for meter-out throttling, with conical standard needle, and with knob adjustment as well as FPM seal.

**Bold letters = Short-term availability**

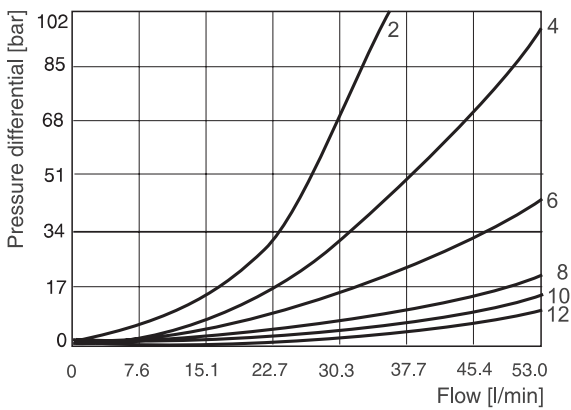
**FM2 flow, check valve**



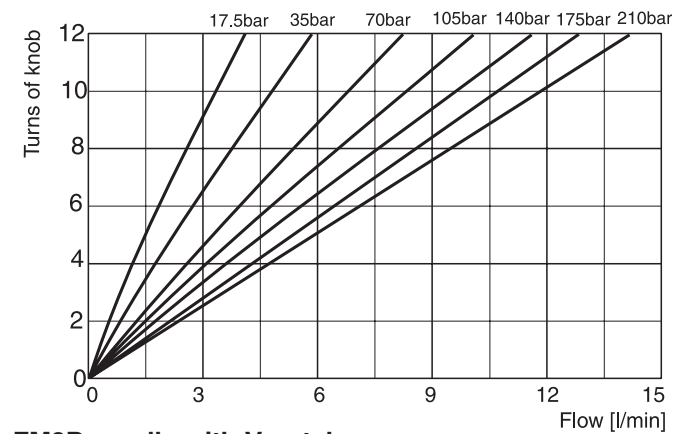
**FM2D needle with V notch**



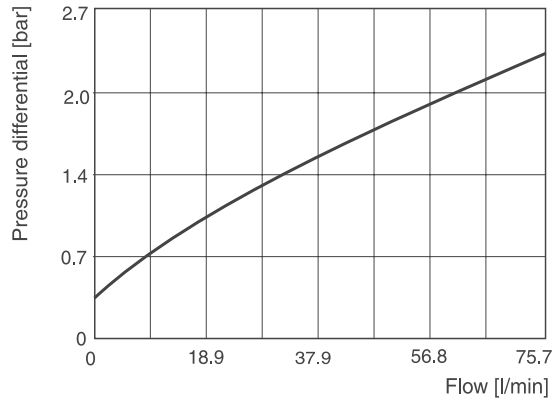
**FM2 conical**



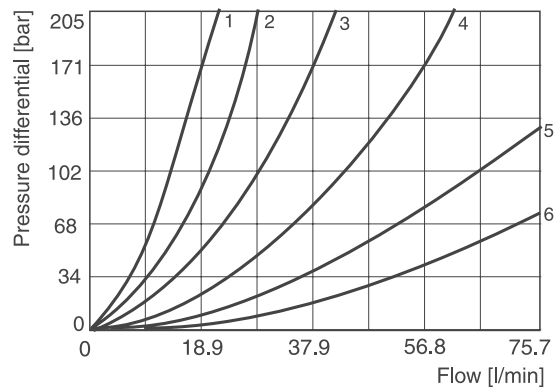
**FM2G needle with parallel slots**



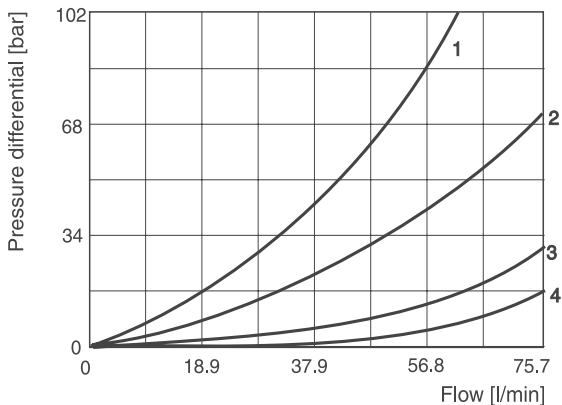
**FM3 flow, check valve**



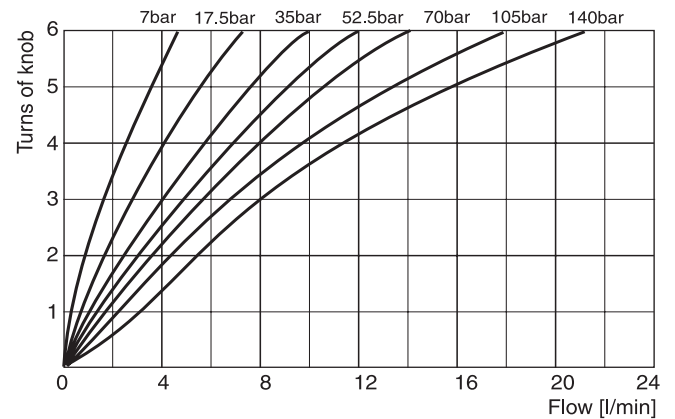
**FM3D needle with V notch**



**FM3 standard needle**

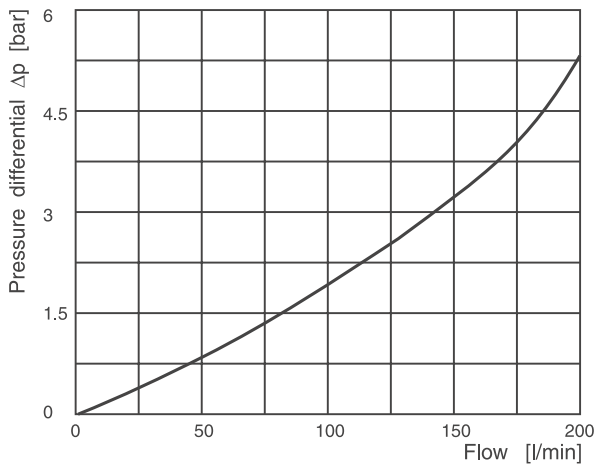


**FM3G needle with parallel slots**

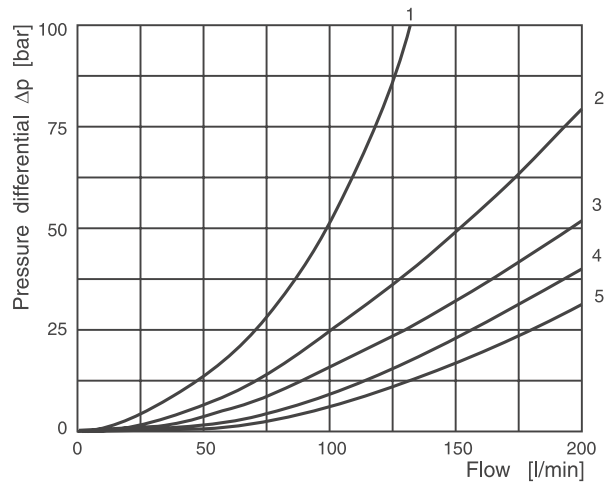


FM\_gb.PM6.5MM

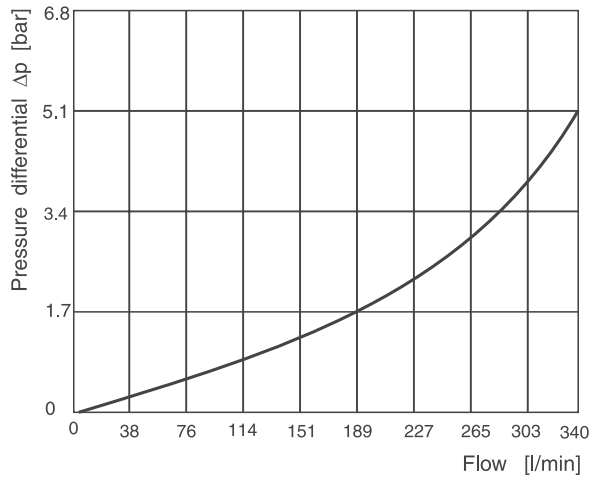
**FM4 flow, check valve**



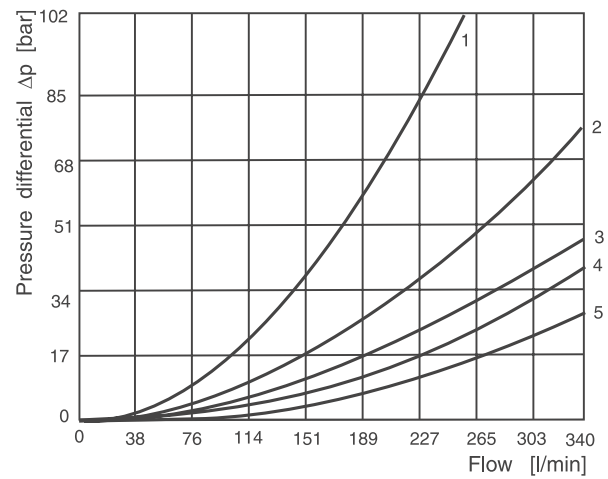
**FM4 with standard needle**  
 1 to 5 Number of needle rotations



**FM6 flow, check valve**



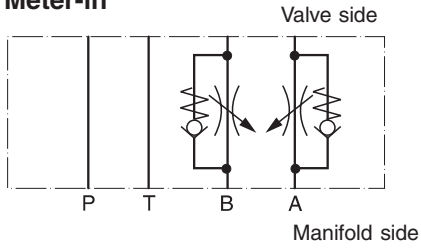
**FM6 with standard needle**  
 1 to 5 Number of needle rotations



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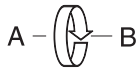
**FM2**

**Meter-in**

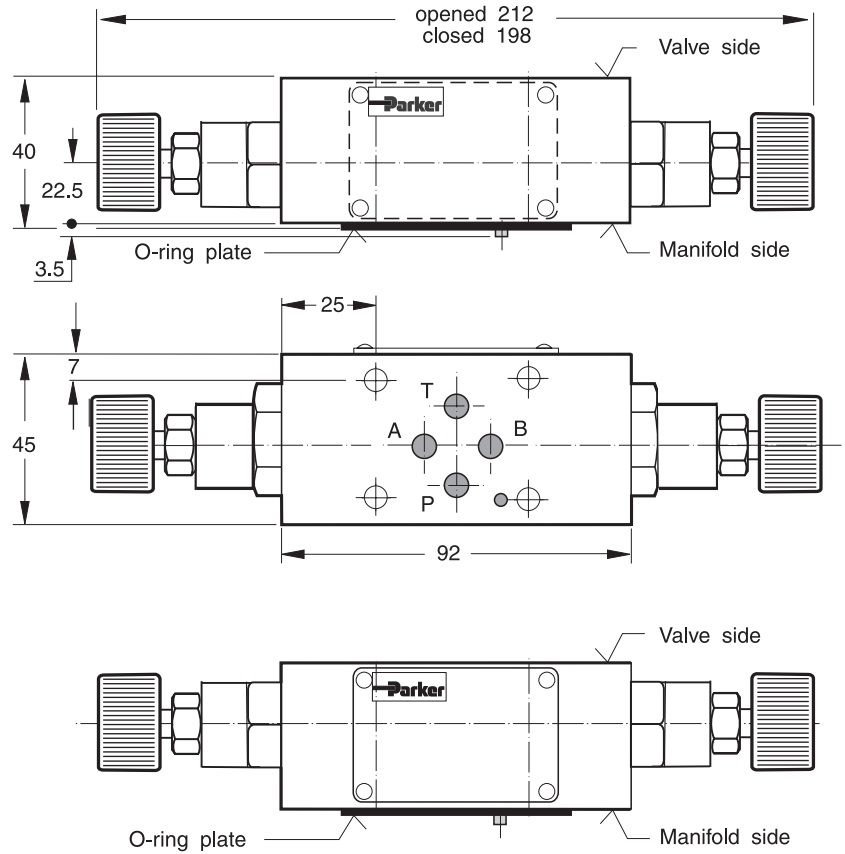
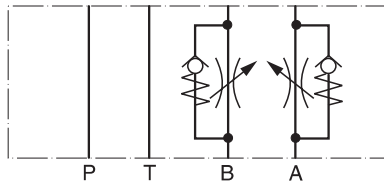


**Meter-in or meter-out:**

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



**Meter-out**



**Note:**

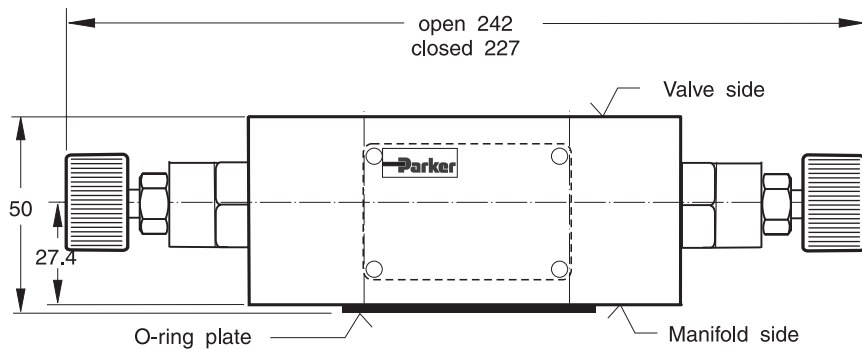
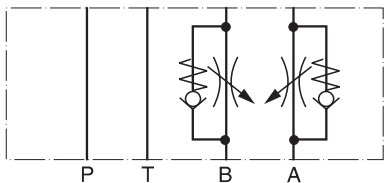
The O-ring plate (with O-rings) for sealing the connecting surface of the manifold side is included. The O-ring and positioning pin are always mounted on the manifold side.

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

**Dimensions**

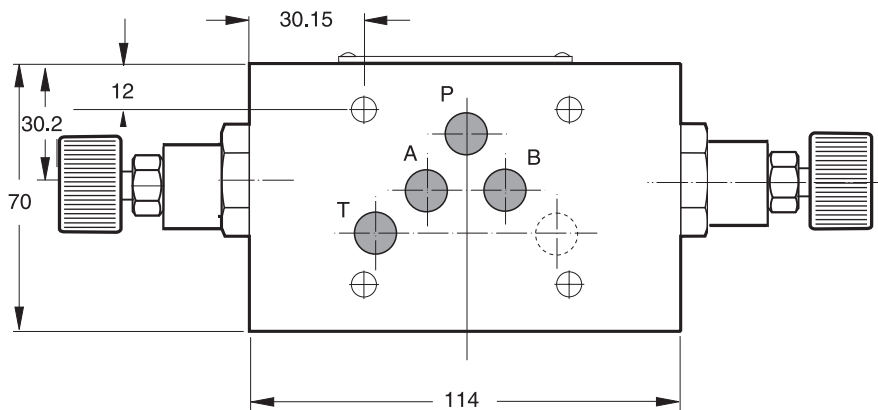
**FM3**

**Meter-in**

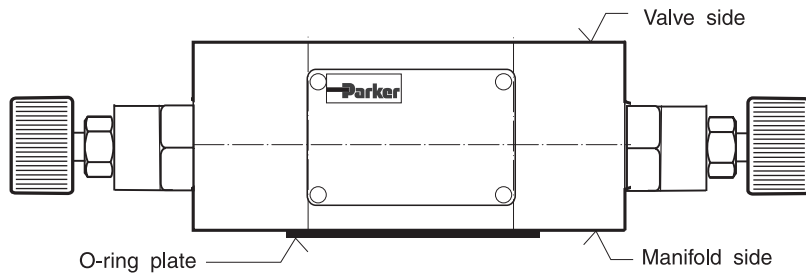
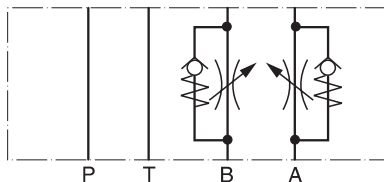


**Meter-in or meter-out:**

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



**Meter-out**



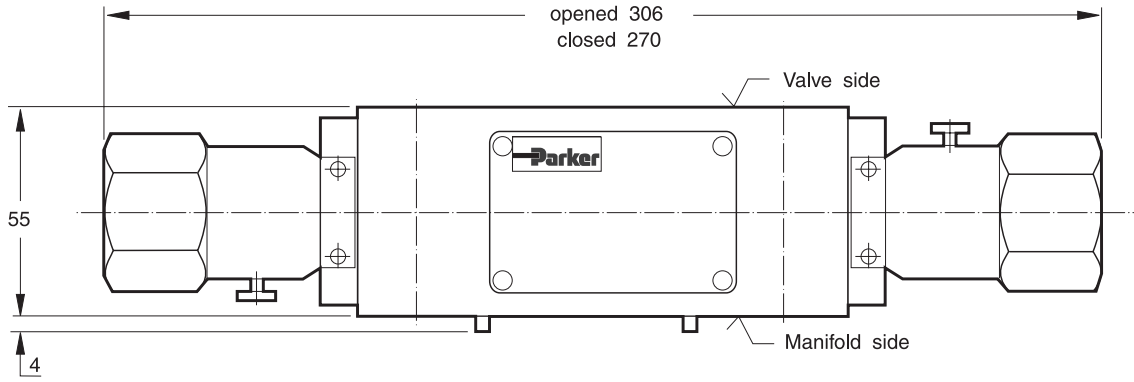
**Note:**

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.

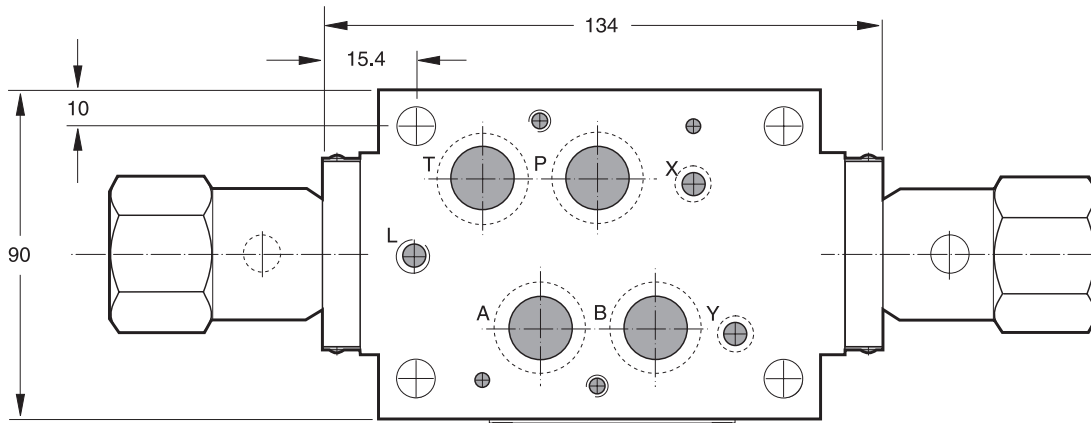
Seal kit FM3	
Seal	Order code
V	SK-FM3-V-20

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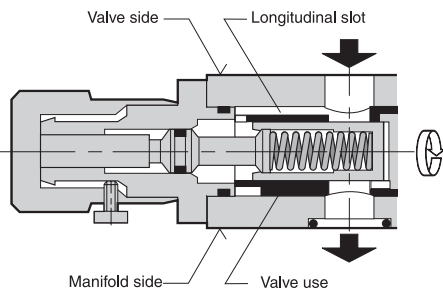
**FM4**



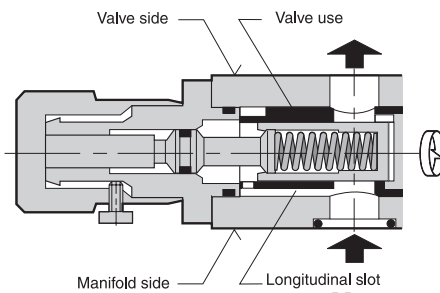
**Adjustment:**  
 Lockable hexagon



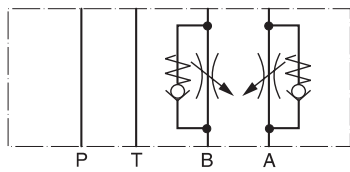
**Valve use for meter-out**



**Valve use for meter-in**



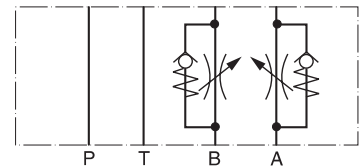
**Meter-in**



**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**



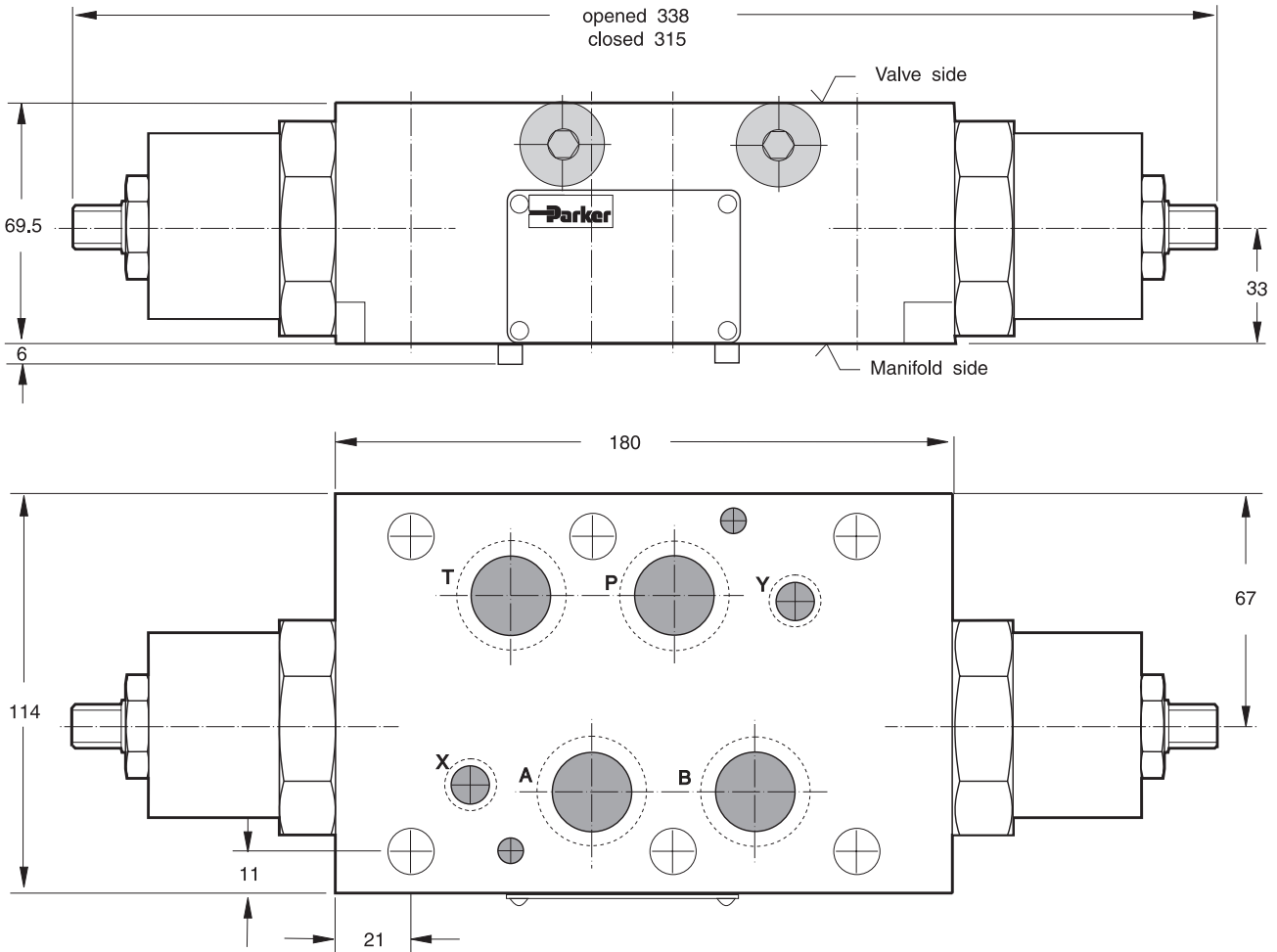
**Note:**

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.

Seal kit FM4	
Seal	Order code
V	SK-FM4-V-10

**Dimensions**

**FM6**



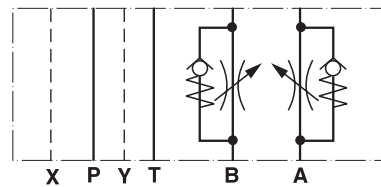
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**Adjustment:** knob

**Meter-in**

is not available for valve FM6

**Meter-out**



**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.

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