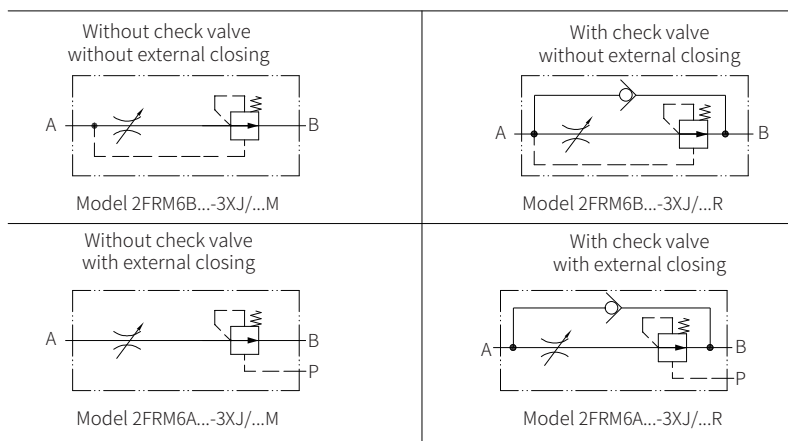
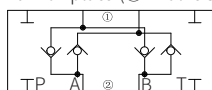


## Functional symbols

Two-way flow control valve (detailed)



Rectifier sandwich plate (①= Valve side, ②= Subplate side)



Model Z4S6-1XJ...

## Models and specifications

Two ways flow control valve

two ways flow control valve

size 6 =6

with external closing of the pressure compensator (suppression of jump at start) without external closing of the pressure compensator =A =B

adjusting element lockable rotary knob with scale rotary knob with scale =3 =7

zero position of marking at oil port P =6

30 to 39 series (30 to 39 series installation and connection size unchanged) =3X

more information in text

No code = /60= no locating pin holes with locating pin holes

No code = V= sealing material NBR seals FKM seals (consult for other seals)

R= with check valve M= without check valve

flow (A→B)

0.2Q= to 0.2L/ min

0.6Q= to 0.6L/ min

1.5Q= to 1.5L/ min

3Q= to 3.0L/ min

6Q= to 6.0L/ min

10Q= to 10.0L/ min

16Q= to 16.0L/ min

25Q= to 25.0L/ min

32Q= to 32.0L/ min

## Models and specifications

Rectifier sandwich plate

Z4S6 1X / / \*

rectifier sandwich plate size 6

1X series (10 to 19 series installation and connection size unchanged) =1X

No code = V= more information in text

sealing material NBR seals FKM seals (consult for other seals)

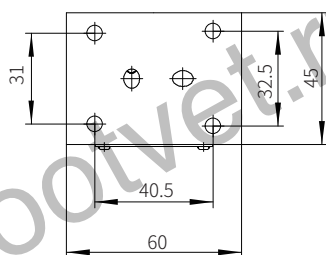
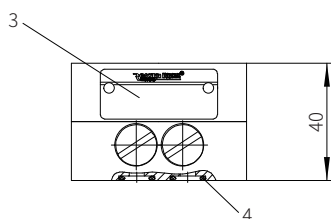
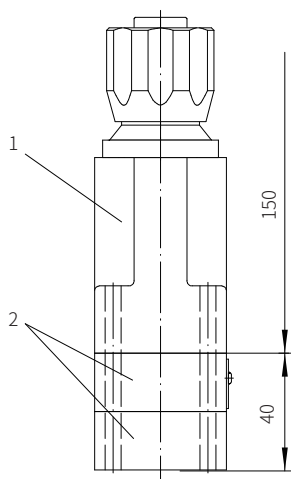
## Technical parameters

|                                                 |                              |                      |                                                                                                                                                                                                                                                |     |     |     |     |      |      |      |      |  |
|-------------------------------------------------|------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|------|------|------|------|--|
| Installation position                           |                              | optional             |                                                                                                                                                                                                                                                |     |     |     |     |      |      |      |      |  |
| Environment temperature range                   |                              | °C                   | -20 to +50                                                                                                                                                                                                                                     |     |     |     |     |      |      |      |      |  |
| Weight                                          | 2FRM 6 A...; 2FRM 6 B...     | Kg                   | about 1.3                                                                                                                                                                                                                                      |     |     |     |     |      |      |      |      |  |
|                                                 | 2FRM 6 SB                    | Kg                   | about 1.5                                                                                                                                                                                                                                      |     |     |     |     |      |      |      |      |  |
| Hydraulic                                       |                              |                      |                                                                                                                                                                                                                                                |     |     |     |     |      |      |      |      |  |
| Maximum working pressure oil port A             |                              | bar                  | 315                                                                                                                                                                                                                                            |     |     |     |     |      |      |      |      |  |
| Differential pressure for free flow from B to A |                              |                      | See characteristic curve                                                                                                                                                                                                                       |     |     |     |     |      |      |      |      |  |
| Minimum pressure drop                           |                              | bar                  | 6 to 14                                                                                                                                                                                                                                        |     |     |     |     |      |      |      |      |  |
| Pressure stability at 315bar                    |                              | %                    | ±2(q <sub>Vmax</sub> )                                                                                                                                                                                                                         |     |     |     |     |      |      |      |      |  |
| Flow                                            | q <sub>Vmax</sub>            | L/min                | 0.2                                                                                                                                                                                                                                            | 0.6 | 1.5 | 3.0 | 6.0 | 10.0 | 16.0 | 25.0 | 32.0 |  |
|                                                 | q <sub>Vmin</sub> to 100 bar | cm <sup>3</sup> /min | 15                                                                                                                                                                                                                                             | 15  | 15  | 15  | 25  | 50   | 70   | 100  | 250  |  |
|                                                 | q <sub>Vmin</sub> to 315 bar | cm <sup>3</sup> /min | 25                                                                                                                                                                                                                                             | 25  | 25  | 25  | 25  | 50   | 70   | 100  | 250  |  |
| Oil fluid                                       |                              |                      | Mineral oil (HL, HLP) <sup>1)</sup> in accordance with DIN 51524;<br>Fast living organisms degraded oil according to VDM 24568; HETG (Rapeseed oil) <sup>1)</sup> HEPG(Polyethylene glycol) <sup>2)</sup> HEES (synthetic ester) <sup>2)</sup> |     |     |     |     |      |      |      |      |  |
| Oil fluid temperature range                     |                              | °C                   | -20 to +80                                                                                                                                                                                                                                     |     |     |     |     |      |      |      |      |  |
| Viscosity range                                 |                              | mm <sup>2</sup> /s   | 10 to +800                                                                                                                                                                                                                                     |     |     |     |     |      |      |      |      |  |
| Cleanliness of oil                              |                              |                      | The maximum allowable pollution level of oil is ISO4406 Class 20/18/15                                                                                                                                                                         |     |     |     |     |      |      |      |      |  |

1) The oil must meet the cleanliness degree requested by the components in the hydraulic system. Effective oil filtration can prevent failure and increase the service life of the components.

Attention! There is a significant loss of pressure from port P of the valve to port A of the flow control valve.

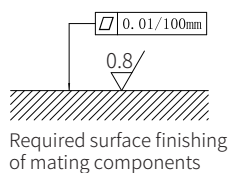
Rectifier sandwich plate Z4S6-1XJ/...



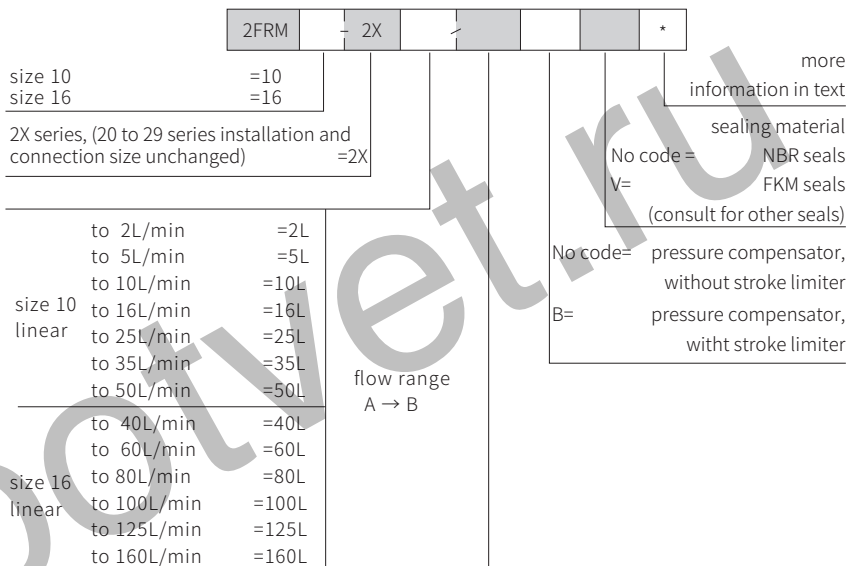
- 1 2-way flow control valve
- 2 Rectifier sandwich plate
- 3 Name plate
- 4 O-ring 9.25x1.78( for oil port A、 B)

**Attention:**

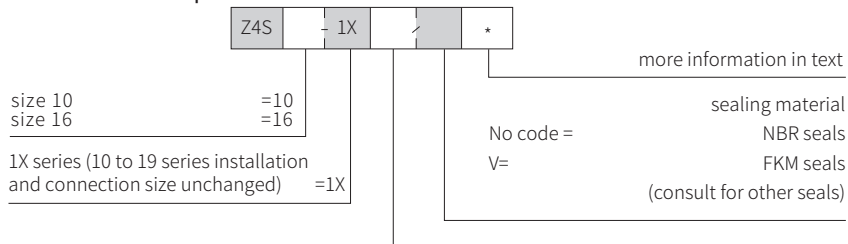
The rectifier sandwich plate type Z4S6-1XJ/... can not be connected with the flow control valve 2FRM6A...-3XJ/... with external connection of the pressure compensator.



## Two ways flow control valve

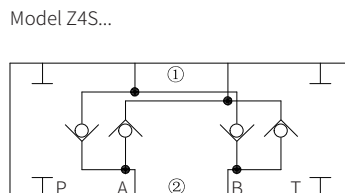
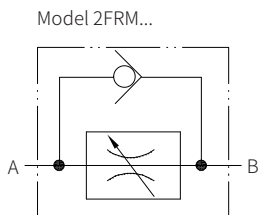


## Rectifier sandwich plate



## Functional symbols

(①=Valve side ②=Subplate side)



## Technical parameters

### Overview

|                                    |                                                        |
|------------------------------------|--------------------------------------------------------|
| Oil fluid                          | Mineral hydraulic oil or phosphate ester hydraulic oil |
| Oil temperature range °C           | -30 to +80 (NBR seals) -20 to +80 (FKM seals)          |
| Viscosity range mm <sup>2</sup> /s | 10 to 800                                              |

### Rectifier sandwich plate

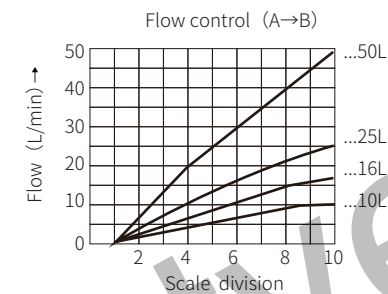
|                      |         |         |
|----------------------|---------|---------|
| Rated flow L/min     | Size 10 | Size 16 |
|                      | 50      | 160     |
| Working pressure Mpa | to 31.5 |         |
| Weight kg            | Size 10 | Size 16 |
|                      | 3.2     | 9.3     |

| Maximum flow L/min                     |                                             | Size 10       |     |     |     | Size 16         |     |     |
|----------------------------------------|---------------------------------------------|---------------|-----|-----|-----|-----------------|-----|-----|
|                                        |                                             | 10            | 16  | 25  | 50  | 60              | 100 | 160 |
| $\Delta P$ with free return flow B → A |                                             | Size 10       |     |     |     | Size 16         |     |     |
| q <sub>v</sub> -dependent              |                                             | 2.0           | 2.5 | 3.5 | 6.0 | 2.8             | 4.3 | 7.3 |
| Flow control                           | Temperature stability -20~70 °C             | ±2% (Qmax)    |     |     |     |                 |     |     |
|                                        | Pressure stability (to $\Delta P=315$ ) bar | ±2% (Qmax)    |     |     |     |                 |     |     |
| Working pressure at port A             |                                             | to 315        |     |     |     |                 |     |     |
| Minimum pressure drop                  |                                             | Size 10       |     |     |     | Size 16         |     |     |
|                                        |                                             | 3...12        |     |     |     | 5...12          |     |     |
| Degree of contamination                |                                             | 25 (Q<5L/min) |     |     |     | 10 (Q<0.5L/min) |     |     |
| Weight                                 |                                             | Size 10       |     |     |     | Size 16         |     |     |
|                                        |                                             | 5.6           |     |     |     | 11.3            |     |     |

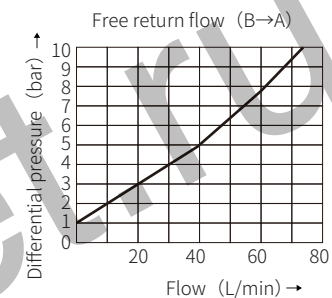
## Characteristic curve

(Measured when using HLP 46,  $\vartheta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$ )

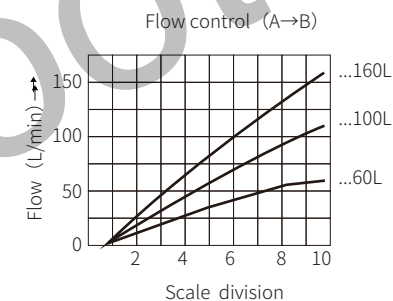
Size 10



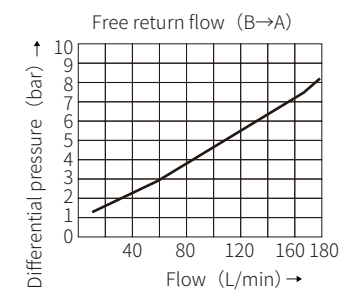
Size 10



Size 16



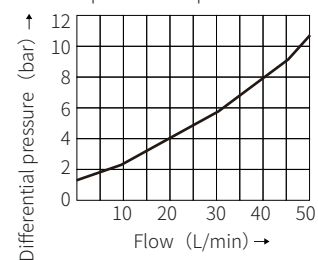
Size 16



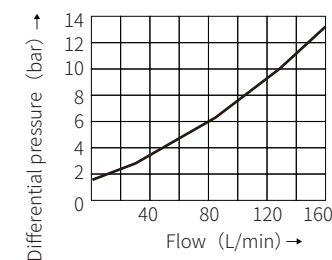
### Rectifier sandwich plate

Size 10

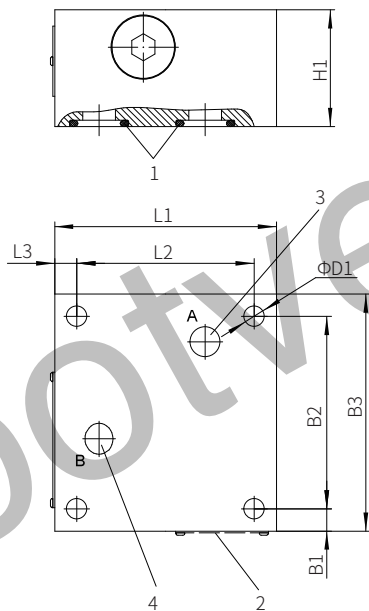
Flow from A → B (B → A)  
The pressure drop is same in both directions of flow



Size 16



Model Z4S10-1XJ.../Z4S16-1XJ/...



1 O ring

NG10: 18.66x3.53

NG16: 26.58x3.53

2 Name plate position at Z4S16

3 Inlet "A"

4 Outlet "B"

Valve fixing screw

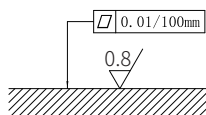
Size 10

M8x100-10.9 grade GB/T70.1-2000

Tightening torque  $M_A=34.3\text{Nm}$ 

Size 16

M10x160-10.9 grade GB/T70.1-2000

Tightening torque  $M_A=60\text{Nm}$ 

Required surface finishing of mating components

| Size | B1  | B2    | B3    | D1 | H1 | L1    | L2    | L3  |
|------|-----|-------|-------|----|----|-------|-------|-----|
| 10   | 9.5 | 82.5  | 101.5 | 9  | 50 | 95    | 76    | 9.5 |
| 16   | 11  | 101.5 | 123.5 | 11 | 85 | 123.5 | 101.5 | 11  |