

# 3DREP6(E)...type 3-Way Direct Proportional Operated Reducing Valve



## 3DREP6 and 3DREP6E...type

Size 6  
Max. Working Pressure: 100 bar  
Max. Flow: 15 L/min

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### Features

- Directly controlled proportional valves for the control of the pressure and direction of a flow
- 3-Way design and standard ISO 4401-03 mounting
- Operated via proportional solenoids with central thread and removable coil
- Spring centred control spool
- Hand override, optional

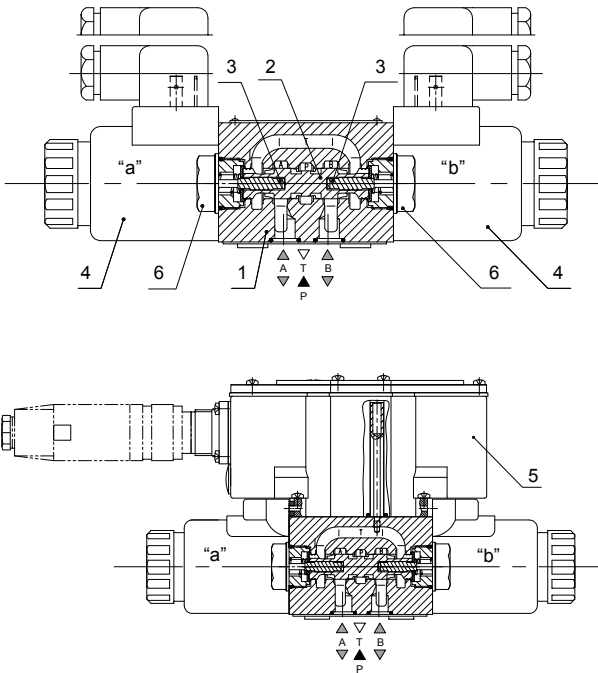
## Function and configuration

3DREP/3DREPE type 3-way direct reducing valve is directly actuated by proportional solenoids. They convert an electrical input signal into a proportional pressure output signal.

The valve comprises of valve Housing (1) with mounting surface, Control spool (2) with pressure measuring spools (3), Solenoids (4) with control thread and Optional integrated valve electronics (5).

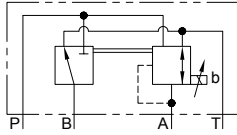
With the solenoids (4) de-energized the control spool (2) is held in its center position by compression springs. The control spool (2) is directly actuated when one of the solenoids is energized. The pressure measuring spool (3) and control spool (2) move to the right in proportion to the electrical input signal. The connection from P to B and A to T is via orifice form cross-sections with progressive flow Characteristics – De-energization of the solenoid (4). The control spool (2) is returned to its centre position by the compression springs. In the middle position the connections A and B to T are open, thus the pressure fluid can freely flow to tank.

### Type 3DREP6...-2XJ/...

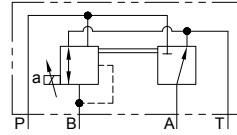


# Symbols

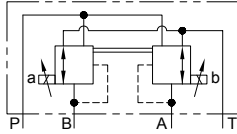
Type 3DREP6... A -2XJ/...



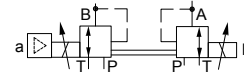
Type 3DREP6... B -2XJ/...



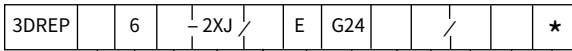
Type 3DREP6... C -2XJ/...



Type 3DREPE6...C 2XJ/...



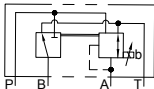
# Ordering code



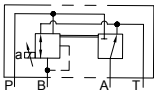
Without integrated = No code  
 With integrate = E

Nominal size 6 = 6

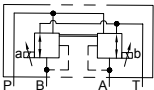
Spool symbols



=A



=B



=C

Series 20J~29J = 2XJ  
 (20J to 29J, unchanged installation and connection dimensions)

Further information  
 in plain text

V = FKM seals  
 No code = NBR seals

3DREP: No code  
 Interface A1 or F1 for 3DREPE:  
 A1= Command value input  $\pm 10V$   
 F1= Command value input 4 to 20mA

3DREP: Z4= With plug-in connector  
 K4= Without plug-in connector  
 3DREPE: K31= Without plug-in connector  
 Z31= With plug-in connector

No code = Without hand override  
 N9 = With protected hand override

Supply voltage for the control electronics  
 G24= Power supply voltage 24VDC

E = Proportional solenoid with removable coil

16= Pressure stage 16 bar  
 25= Pressure stage 25 bar  
 45= Pressure stage 45 bar

## Technical data

<b>Hydraulic</b>			
Valve type		3DREP6...2XJ	3DREPE6...2XJ
Installation		optional, preferably horizontal	
Weight	KG	2.0	2.2
Ambient temperature range		°C	-20 to +70
Max. flow		L/min	15 ( $\Delta p = 50$ bar)
Hysteresis		%	≤ 5
Repeatability accuracy		%	≤ 1
Response sensitivity		%	≤ 0.5
Operating pressure range	Port P	bar	20 to 100 for pressure stage 16
	Port T		30 to 100 for pressure stage 25 50 to 100 for pressure stage 45 0 to 3
Pressure fluid		Mineral oil (HL, HLP) to DIN 51524 other pressure fluids on request	
Pressure fluid temperature range		°C	-20 to +80
Viscosity range		mm <sup>2</sup> /s	20 to 380 (preferably 30 to 46)
Degree of contamination		Maximum permissible degree of contamination of the pressure fluid is to NAS 1638 class 9 or 20/18/15, ISO4406	

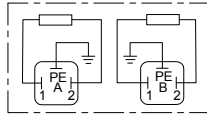
<b>Electrical</b>			
solenoid			
Valve type		3DREP6...2XJ	3DREPE6...2XJ
Voltage type		DC	
Command value signal		Voltage input "A1"	-
Max. current per solenoid		A	1.5
Solenoid coil resistance	Cold value at 20 °C	Ω	4.8
	Max. warm value		2
Duty		%	ED100%
Coil temperature		°C	up to 150
Valve protection to EN 60529		IP 65 with mounted and fixed plug-in connector	
Amplifier		VT-VSPA2-...-2XJ	integrated
Supply voltage	Nominal voltage	VDC	24
	Lower limiting value	V	19
	Upper limiting value	V	35
Amplifier current consumption	I <sub>max</sub>	A	1.8
	Impulse current	A	4

# Electrical connections, plug-in connectors

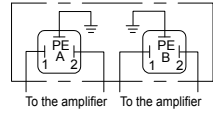
• For type 3DREP6...2XJ (without integrated electronics)

### Connections on the component plug

Plug-in connector to DIN EN 175301-803 or ISO 4400



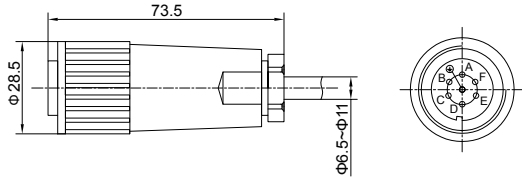
### Connections on the plug-in connector



• For type 3DREPE6...2XJ (with integrated electronics (OBE))

For pin allocation also see block circuit diagram.

Plug-in connector to DIN EN 175201-804



• Integrated control electronics for type 3DREPE6

### Component plug allocation

	Contact	Interface A1 signal	Interface F1 signal
Supply voltage	A	24 VDC (U(t)=19V to 35V)	
	B	GND	
	C	n.c. <sup>1)</sup>	
Differential amplifier input	D	$\pm 10V$ , $R_e > 50K\Omega$	4 to 20mA, $R_e > 100\Omega$
	E	reference potential command value	
	F	n.c. <sup>1)</sup>	

<sup>1)</sup>Contacts C and F must not be connected!

### Connection cable:

Recommended:

- up to 25 m cable length type LiCY 7 × 0.75 mm<sup>2</sup>;
- up to 50 m cable length type LiCY 7 × 1.0 mm<sup>2</sup>.

For outside diameter see plug-in connector sketch. Only connect screen to PE on the supply line.

### Command value:

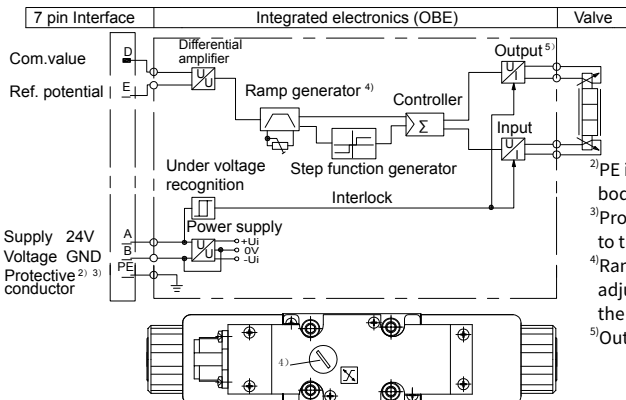
Reference potential at E and positive command value (0 to +10V or 12 to 20mA) at D result in pressure in A.

Reference potential at E and positive command value (0 to -10V or 12 to 4mA) at D result in pressure in B.

With valves with 1 solenoid on side b (design A): Reference potential at E and positive command value at D result in pressure in A.

With valves with 1 solenoid on side b (design B): Reference potential at E and positive command value at D result in pressure in B.

• Integrated electronics (OBE) for type 3DREPE6



<sup>2)</sup>PE is connected to the cooling body and the valve housing!

<sup>3)</sup>Protective conductor screwed to the valve housing and cover.

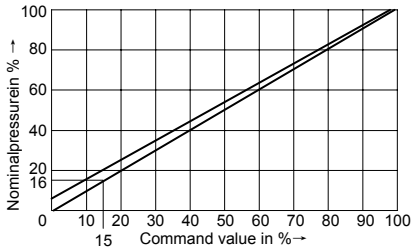
<sup>4)</sup>Ramp can be externally adjusted from 0 to 5s, the same applies for  $T_{up}$  and  $T_{down}$ .

<sup>5)</sup>Output stages current regulated.

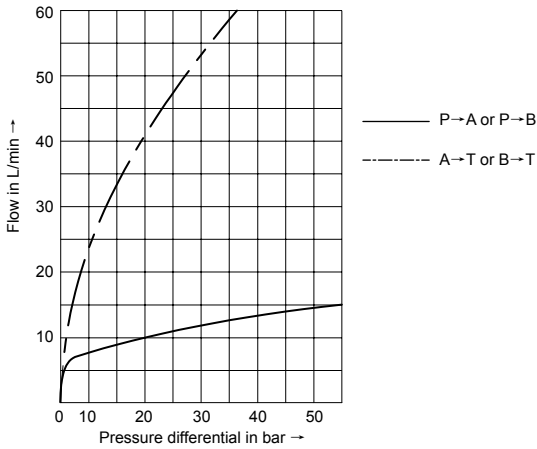
# Characteristic curves

(measured with HLP46,  $\vartheta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$ )

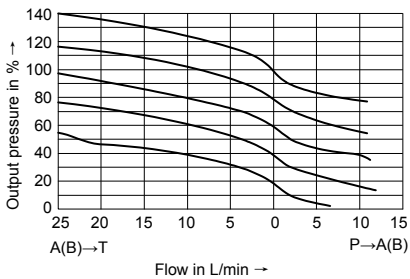
## Pressure stages 16, 25 and 45 bar



## Pressure stages 16, 25 and 45 bar



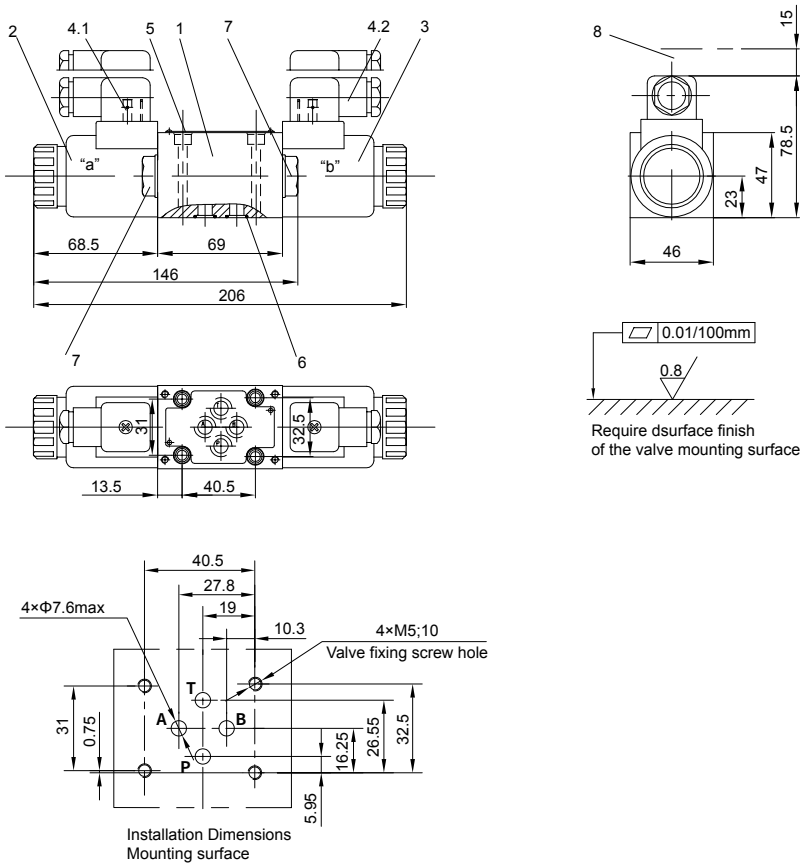
## Pressure-flow relationship



# Unit dimensions

(nominal dimensions in mm)

## Type 3DREP6...2XJ

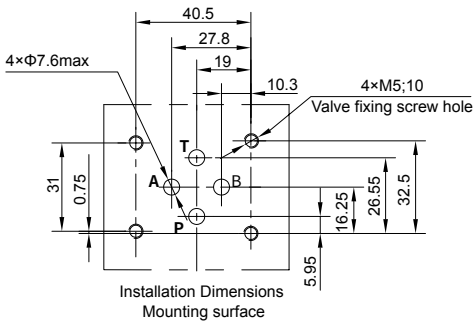
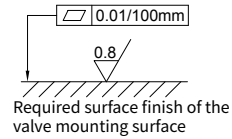
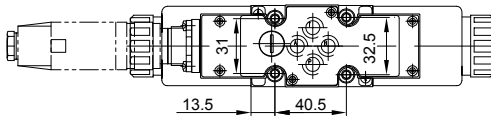
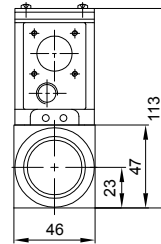
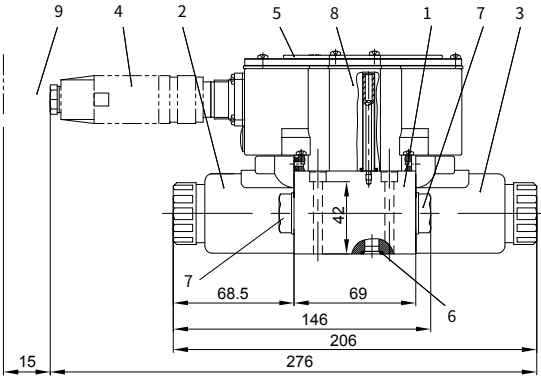


- |     |                           |   |   |
|-----|---------------------------|---|---|
| 1   | Valve housing             | 6 | Identical seal rings for ports A, B, P and T (R-ring 9.81×1.5×1.78 or O-ring 9.25×1.78) |
| 2   | Proportional solenoid "a" | 7 | Plug for valves with one solenoid (2 switching positions, versions A or B)              |
| 3   | Proportional solenoid "b" | 8 | Space required to remove the plug-in connector  |
| 4.1 | Plug-in connector "A"     |   |   |
| 4.2 | Plug-in connector "B"     |   |   |
| 5   | Name plate                |   |   |

# Unit dimensions

(Nominal dimensions in mm)

## Type 3DREPE6...2XJ



- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1 Valve housing</li> <li>2 Proportional solenoid "a"</li> <li>3 Proportional solenoid "b"</li> <li>4 Plug-in connector</li> <li>5 Name plate</li> </ul> | <ul style="list-style-type: none"> <li>6 Identical seal rings for ports A, B, P and T<br/>(R-ring 9.81×1.5×1.78 or O-ring 9.25×1.78)</li> <li>7 Plug for valves with one solenoid<br/>(2 switching positions, versions A or B)</li> <li>8 Integrated electronics (OBE)</li> <li>9 Space required to remove the plug-in connector</li> </ul> |
|--|---|