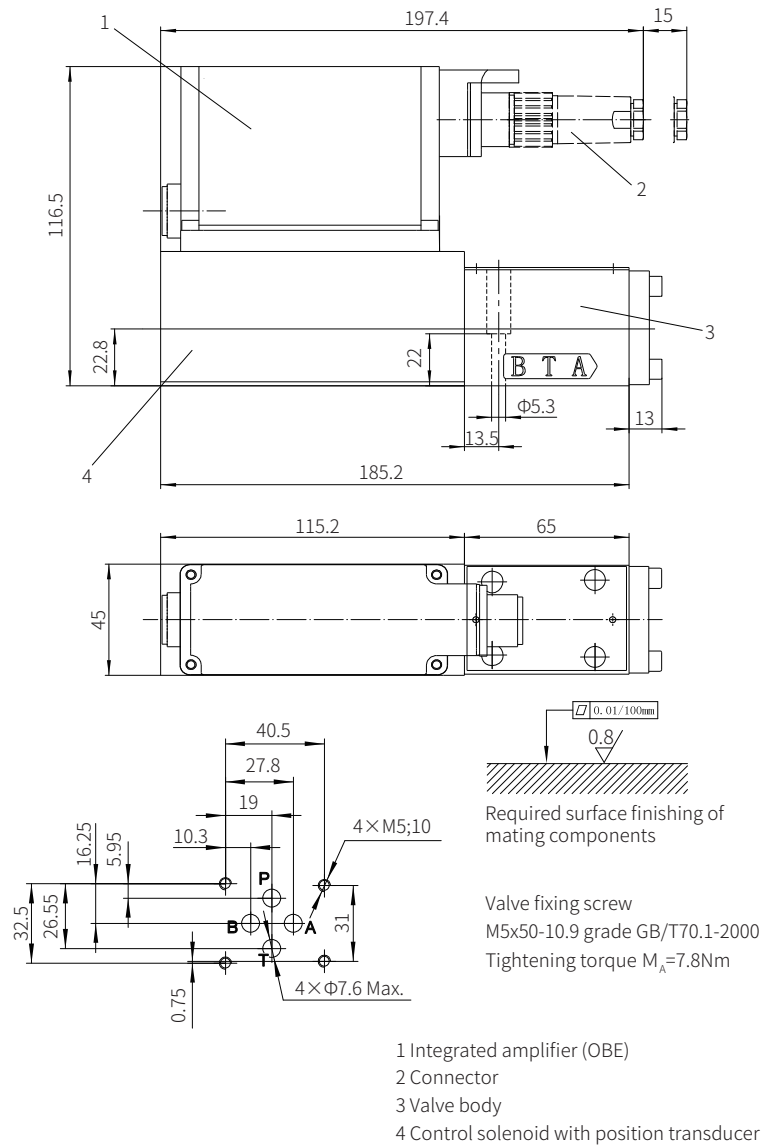


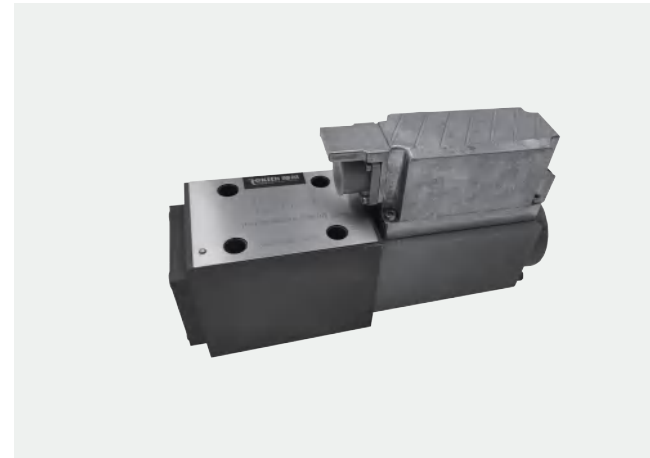
## Component size

Size unit: mm



## Proportional Directional Valve

Model: 4WRPEH10...2XJ



- ◆ Size 10
- ◆ Maximum working pressure 315 bar
- ◆ Maximum working flow 100 L/min

## Contents

Function description, sectional drawing	02
Models and specifications	03
Functional symbols	03
Technical parameters	04
Electrical connections	05-07
Characteristic curve	08-09
Component size	10

## Features

- Direct operated servo solenoid valve with control piston and valve sleeve, with servo performance
- Operated on one side, 4/4-fail-safe position in switched-off condition
- Control solenoid with built-in position feedback and integrated amplifier board (OBE), calibrated in the factory
- Electrical connection 6P+PE signal input differential amplifier with interface A1 ( $\pm 10\text{V}$ ) or interface F1 (4... 20mA) (RS200  $\Omega$ )
- Electro-hydraulic controllers for production and testing systems
- Subplate mounting

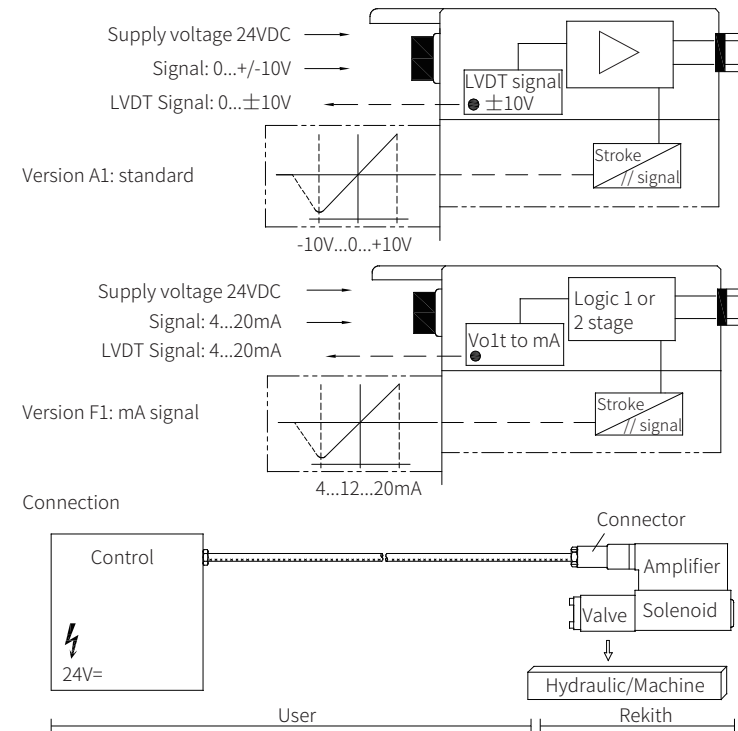


## Technical parameters

Overview			
Structure	Direct operated spool valve with steel sleeve		
Actuation	Proportional solenoid valve with position controller, OBE		
Installation type	subplate mounting, porting pattern to ISO 4401 -03-02-05		
Installation position	Optional		
Environment temperature range	°C -20 ~ +50		
weight	kg	7.1	
Vibration resistance (testing conditions)	Maximum 25g, space vibrating test in all directions (24h)		
Hydraulic (Measured when using HLP46, $\vartheta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$ )			
Fluid	Oil according to DIN 51524. For other oils, please consult our company		
Viscosity range	Recommended value	mm <sup>2</sup> /s	20...100
	Maximum allowable value	mm <sup>2</sup> /s	10...800
Oil temperature range	°C -20 to +70		
The maximum allowable pollution level of oil to ISO 4406 (c)	Class 18/16/13 <sup>1)</sup>		
Nominal flow rate ( $\Delta p=35$ bar/throttle edge)	L/min	50	100
Maximum working pressure	bar	Port A, B, P: 315	
		Port T: 250	
Leakage flow at 100 bar	Linear	cm <sup>3</sup> /min	<1200
	Nonlinear	cm <sup>3</sup> /min	<600
Static/dynamic			
Hysteresis	%	≤0.2	
Response time for signal changes 0-100%	ms	10	
Zero drift	At $\Delta T=40^{\circ}\text{C}$ , zero drift <1%		
Zero position adjustment	Factory setting $\pm 1\%$		
Electrical, amplifier integrated in valve			
Power on rate	%	100ED	
Protection grade	IP65 (plug installed)		
Connection	Plug-in connector 6P+PE, DIN 43563		
Supply voltage	24V DC <sub>nom</sub>		
Terminal A	Min. 21VDC/max. 40VDC		
Terminal B: 0V	0V (ripple max.2)		
External fuse	A <sub>F</sub>	2.5	
Input, version "A1"	Analog differential signal input, Ri=100k Ω		
Terminal D(U <sub>D</sub> )	0...±10V		
Terminal E	0V		
Input, version "F1"	Load, R <sub>sh</sub> =200 Ω		
Terminal D(I <sub>D,E</sub> )	4...12...20mA		
Terminal E(I <sub>D,E</sub> )	Current loop I <sub>D,E</sub> feedback		
Test signal, version "A1"	LVDT		
Terminal F(U <sub>I<sub>test</sub></sub> )	0...±10V		
Terminal C	Reference 0V		
Test signal, version "F1"	LVDT signal 4... (12).. 20 mA		
Terminal F(I <sub>F,E</sub> )	200...500Ω		
Terminal C(I <sub>F,C</sub> )	4... (12)... 20 mA (output current)		
	Current loop I <sub>F,C</sub> feedback		
Adjustment	Calibrate at the factory and see the characteristic curve of the valve		

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.

## Electrical connections



### Technical data for the cable:

- Version: - Multi-core wire  
- Litz wire structure, extra fine wire according to VDE 0295, class 6  
- Protective earthing conductor, green-yellow  
- Cu shielding braid
- Wire number: - determined by the valve model, plug model, and signal arrangement
- Line Ø: - 0.75 mm<sup>2</sup> to 20 m of length  
- 1.0 mm<sup>2</sup> to 40 m of length
- OuterØ: - 9.4...11.8mm  
- 12.7...13.5mm

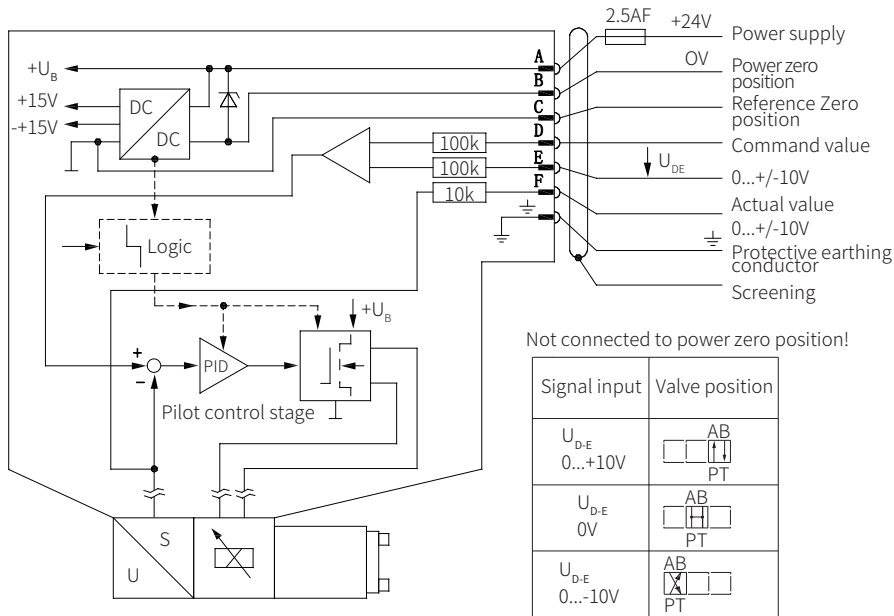
### Note:

Supply voltage 24 V DC<sub>nom</sub>  
if the value falls below 18V, an internal fast switch-off is effected which can be compared with "Release OFF"  
Additionally for version F1:  
I<sub>D,E</sub> ≥ 3mA - valve is active  
I<sub>D,E</sub> ≤ 2mA - valve is deactivated  
Electric signals taken out via control electronics (e.g. actual value) may not be used for the switch-off of safety-relevant machine functions.  
(See the European standard "Safety requirements for fluid power systems and their components - Hydraulics", EN 982.)

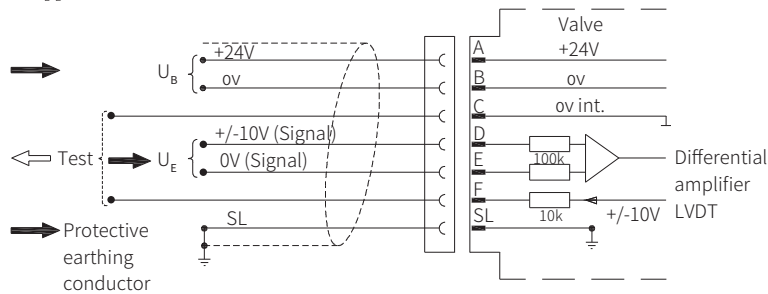
Electrical connections

Built in amplifier

Circuit block diagram/wiring diagram  
Model A1:  $U_{D,E}$  0...±10V



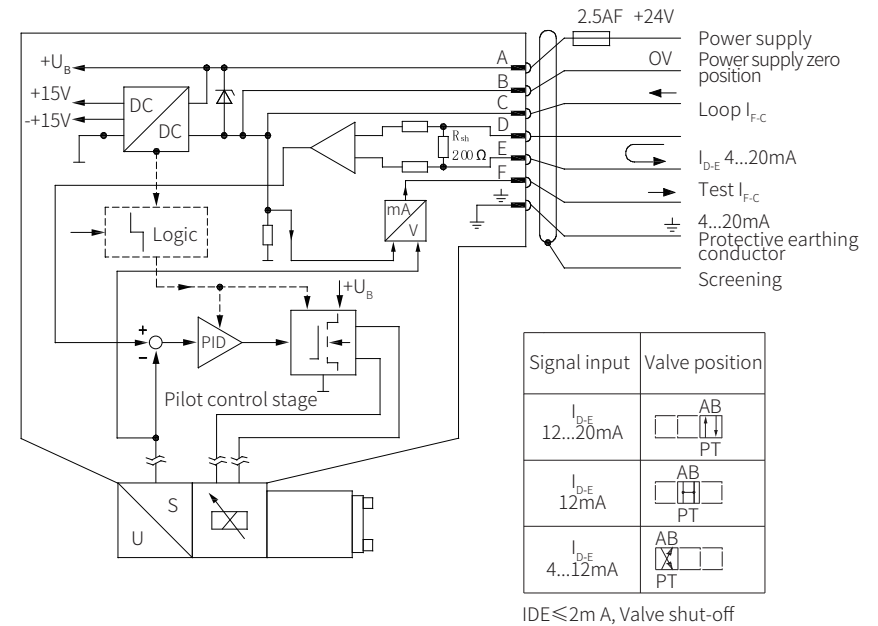
Terminal identification 6P+PE  
Model A1:  $U_{D,E}$  0...±10V



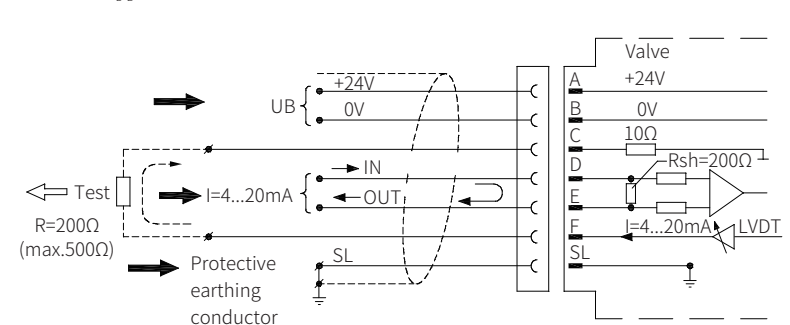
Electrical connections

Built in amplifier

Circuit block diagram/wiring diagram  
Model F1:  $I_{D,E}$  4...20mA



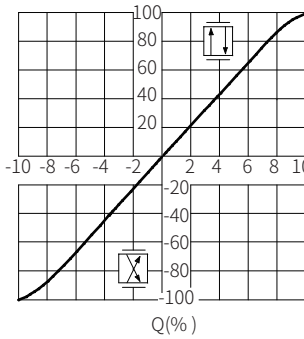
Terminal identification 6P+PE  
Model F1:  $I_{D,E}$  4...20mA



Characteristic curve

Flow-signal function  $q_v=f(U_{D,E}), q_v=f(I_{D,E})$

L: Linear 1:1

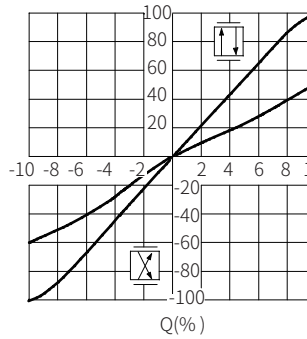


Version A1:  
 $U_{D,E}(V)$

Version F1:  
 $I_{D,E}(mA)$

Off  $\leq 2mA$

L: Linear 2:1

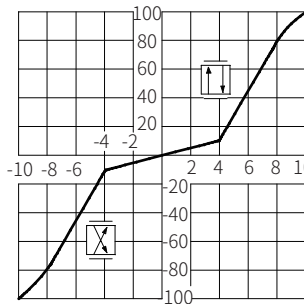


Version A1:  
 $U_{D,E}(V)$

Version F1:  
 $I_{D,E}(mA)$

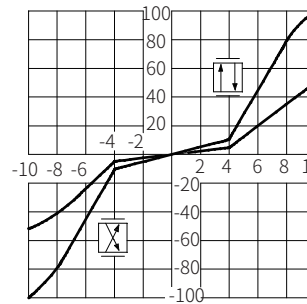
Off  $\leq 2mA$

P: Inflection at 40%, 1: 1



Version A1:  
 $U_{D,E}(V)$

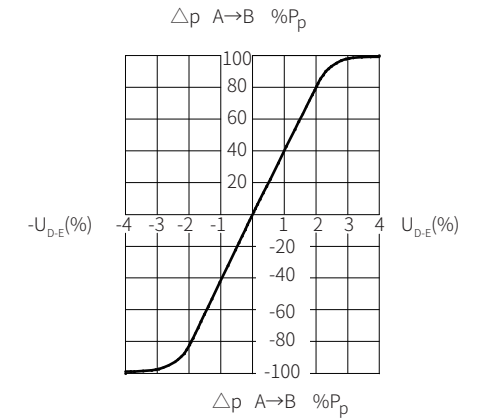
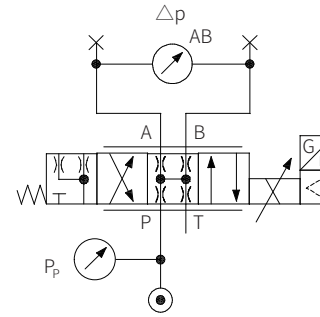
P: Inflection at 40%, 2: 1



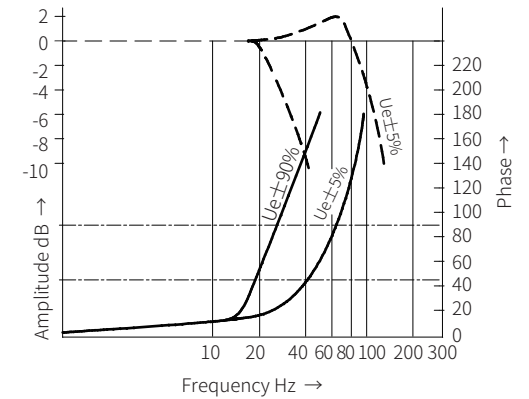
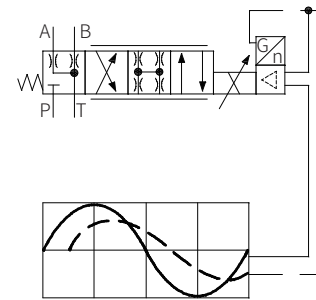
Version A1:  
 $U_{D,E}(V)$

Characteristic curve

Pressure gain curve



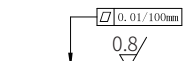
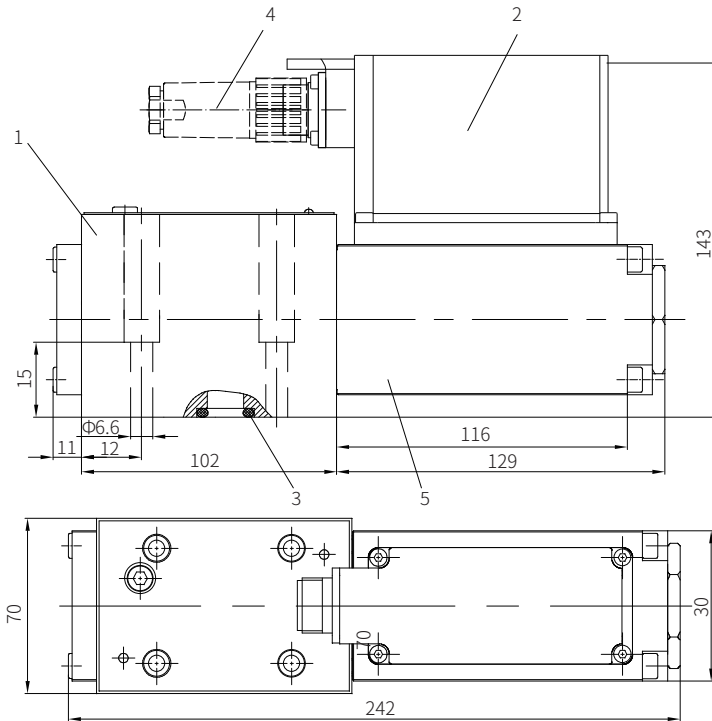
Bode diagram



--- Amplitude  
— Phase

## Component size

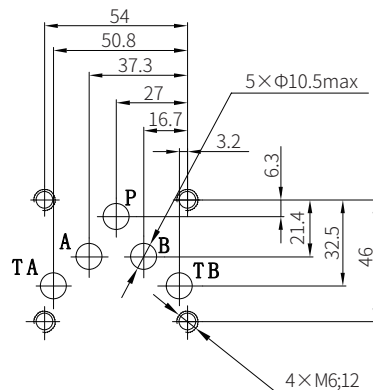
Size unit: mm



Required surface finishing of  
mating components

- 1 Valve body
- 2 Integrated amplifier (OBE)
- 3 O-ring 12x2 ( for ports P, A, B, T)
- 4 Connector
- 5 Control solenoid with position transducer

Valve fixing screw  
M6x40-10.9 grade GB/T70.1-2000  
Tightening torque  $M_a=13.7\text{Nm}$



## 5 - 2-way Logic cartridge valves

### Contents

- 2-way logic cartridge valves-directional function
  - Directional function: model LC...-7XJ, model LFA...-7XJ

Page

0841-0864

- 2-way logic cartridge valves-pressure function
  - Pressure function: model LC...-7XJ, model LFA...-7XJ

0865-0900

- 2-way logic cartridge valves-with spool position monitoring function
  - With spool position monitoring function: model LFA...-7XJ

0901-0908