



**SFZ141 Direct drive servo valve**



**Features**

- Small leakage (no pilot stage flow), low power consumption (low power consumption of linear force motor), suitable for multi-valve control systems
- Low hysteresis and high resolution make the system have good control accuracy
- Large spool driving force
- It has a median fail-safe function.
- The position of the spool can be monitored, which is beneficial to the operation and maintenance of the system
- With electrical zero adjustment function

**Main Parameter**

General parameters		
Operating medium		Mineral oil or other fluids according to DIN 51524
Viscosity range	mm <sup>2</sup> /s	15 to 380 (30 to 45 recommended)
Oil temperature range	°C	-20 to +80 (recommended +40 to +50)
Storage temperature	°C	-20 to +80
Operating ambient temperature	°C	-40 to +70
Oil cleanliness		Maximum permissible degree of contamination of the oil, Class 6 per NAS 1638
Filtration accuracy		Recommended filter minimum filtration ratio β <sub>5</sub> ≥75
Seal material		Nitrile rubber, fluorine rubber, or other sealing materials according to user needs
Installation Requirements		Install at any position, and ensure that the pilot stage has sufficient pressure (≥2MPa) when the system starts
Weight	k g	2.75

Technical Parameters					
Work Pressure					
Oil mouth P, A, B (X port external control)	MPa	≤35			
Oil mouth T (When the Y port is not used)	MPa	≤5			
Oil mouth T (When using the Y port)	MPa	≤21			
Rated flow (differential pressure ΔP=7MPa)	L/min	5	10	20	40
Zero bias	%	≤±2			
Hysteresis loop	%	≤0.2			
Resolution	%	≤0.1			
Non-linearity	%	≤10			
Asymmetry	%	≤10			
Endleak	L/min	≤0.2	≤0.4	≤0.6	≤1.2

Amplitude bandwidth (-3dB)	Hz	≥30
Phase bandwidth(-90°)	Hz	≥40
Spool drive mode	Permanent Magnet Linear Force Motor Direct Drive	
Valve body structure	Single stage valve, 3-way, 4-way or 2×2-way, drain port Y optional	
Installation form	ISO 10372-06-05-0-92	

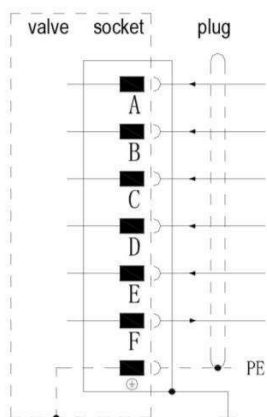
### Electrical Parameters

Valve protection class	Conforms to standards EN60 529, IP65		
Instruction signal	0~±10V	0~±10mA	4~20mA
Supply power	24VDC (22~28VDC)		
Socket	6+PE		
Command signal and spool displacement	The stroke of the spool is proportional to (UD - UE) When UD - UE=+10V, the spool is in the fully open position of P→A, B→T, and the spool is in the neutral position when the command signal is 0	The stroke of the spool is proportional to (ID - IE), when ID=+10mA, the spool is in the fully open position of P→A, B→T, and the spool is in the neutral position when the command signal is 0	Spool stroke is proportional to (ID - 12mA) When ID=+20mA, the spool is at the full open position of P→A, B→T When ID=+4mA, the spool is at the full open position of P→B, A→T open position
Main spool actual displacement output	Main spool displacement output IF - B=4~20mA, when the spool is in the neutral position, IF - B=12mA, when the valve port is fully open and P→B, A→T, IF - B=+4mA, when the valve port Fully open and P→A, B→T IF - B=+20mA		

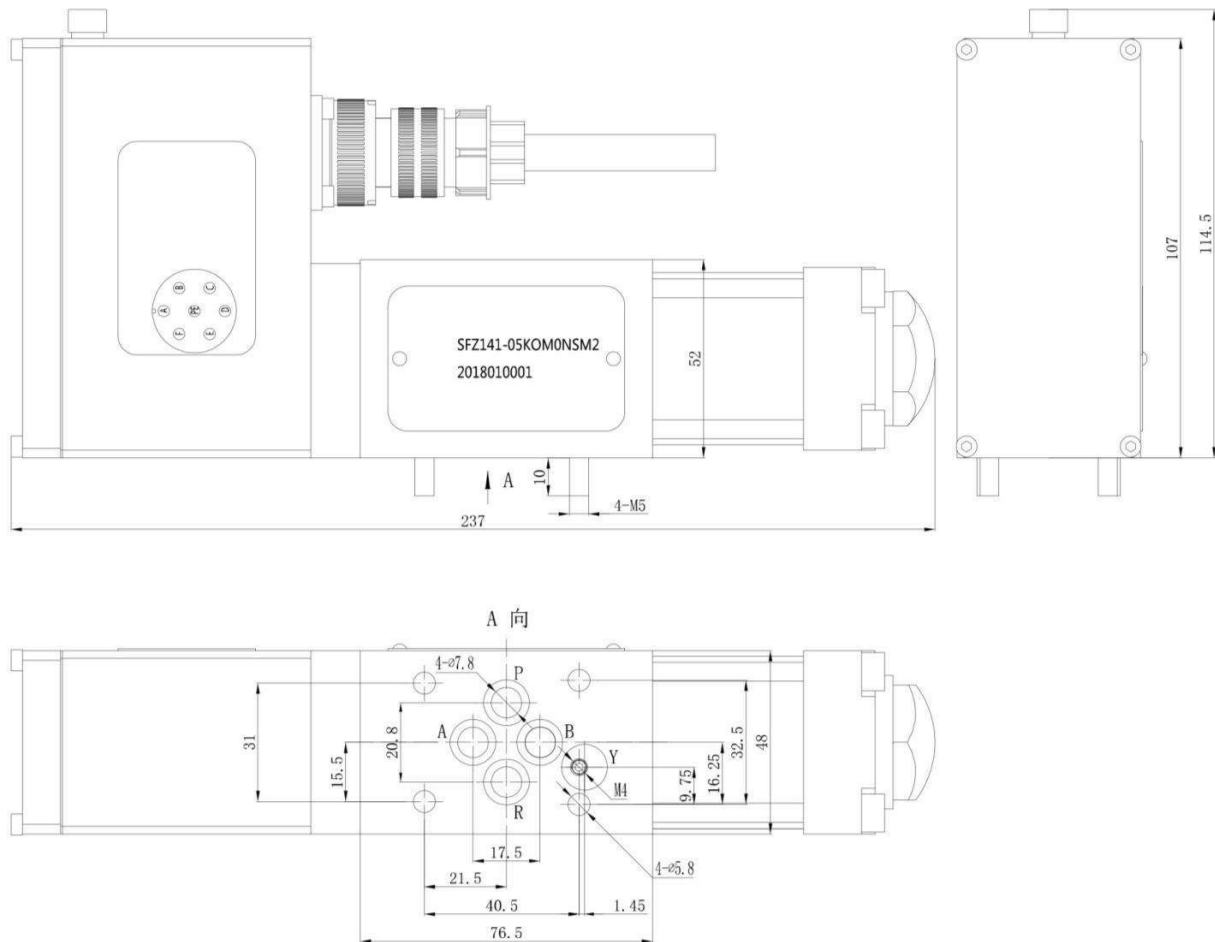
Note: All signal lines must use shielded cables.

### Electrical Wiring

Function	Voltage command(0~±10VDC)	Current instruction(0~±10mA)	Current instruction(4-20mA)
Power supply	24VDC (22~28VDC)		
Power/signal ground	(0V)		
Instruction signal	$U_{D-E}=0\sim\pm 10V$	$I_D=-I_E: 0\sim\pm 10mA, R_e=200\Omega$	$I_{P-B}: 4\sim 20mA, R_e=200\Omega$
Anti-command signal	$R_e: 50k\Omega$	$I_E=-I_D: 0\sim\pm 10mA, R_e=200\Omega$	
Spool actual displacement output signal	$I_{F-B}=4\sim 20mA$ 。When the spool is in the neutral position, $I_{F-B}=12mA$ 。The ground load impedance is 300-500Ω		
Protective grounding	PE		



**□ Dimensions and Interface**




- The installation surface of the valve complies with ISO4401-03-03-0-94, the roughness of the installation surface of the valve is not less than  $\sqrt[1.6]{}$ , and the flatness is less than 0.01mm.
- In order to ensure that the servo valve can work normally, the system must be flushed before trial operation.

**□ Spare Parts & Accessories**

Parts or accessories	Size or Specifications	Quantity
NBR O-rings		
For P, T, A and B ports	8.5×1.8	4
For Y port	8.5×1.8	1
Configuration plug (degree of protection IP65)	6+PE plug	1
Mounting screws	M5×45	4
Protective base	PP or 2A12	1

**□ Ordering Information**

SFZ141 — 

Rated flow		Power supply	
When Pn=3.5MPa per section Qn[L/min]		2 24VDC (18~32VDC)	
05	5		
10	10		
20	20		
40	40		

Maximum Working Pressure and Body Material		Electrical signal when the valve is fully open	
K	35 MPa	instruction signal	Spool displacement signal output
		M	0~±10 V 4~20 mA
		P	0~±10 mA 4~20 mA
		S	4~20 mA 4~20 mA
		Y	Customized on demand

Valve Spool Type		Valve socket	
O	Four-way, zero opening, linear flow gain	S 6+PE socket	
A	Four-way, 1.5% ~ 3% positive overlap, linear gain		
D	Four-way, 10% positive overlap, linear gain		
Z	2×2-way, P→A, B→T; Y port back to oil tank		
X	Customized on demand		

Seal material	
N	Nitrile Rubber (NBR) Standard Type
V	Viton (FPM)
	Customized on demand

The position of the spool when there is no control electric signal		Y port	
M	centre position	0 blocked by a plug	
A	P→B, A→T (The minimum opening is 10% of full opening)	1 open, and built-in oil filter	
B	P→A, B→T (The minimum opening is 10% of full opening)		
	Customized on demand		