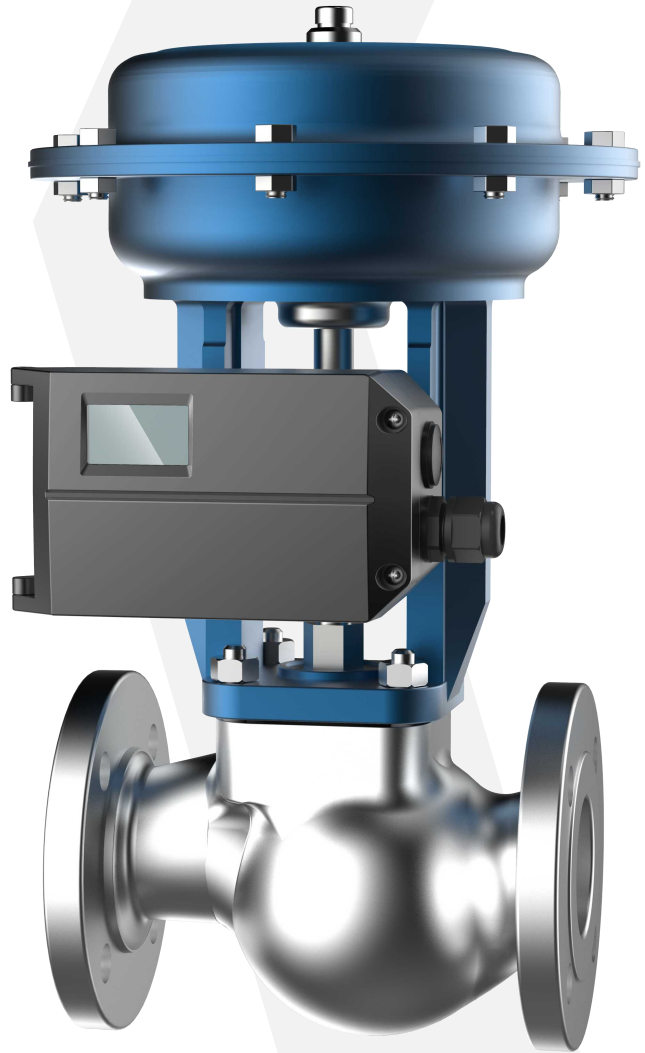




IP6500 Series Intelligent Valve Positioner

Brief Introduction

Times New Roman

01

Technical Description



IP6500 Series Intelligent Valve Positioner

IP6500 series intelligent valve positioner is used in conjunction with pneumatic control valves. The positioner receives the set-point value from the control system via the PROFIBUS PA bus and collects the position sensor signal to obtain the actual valve value. Through the calculation and processing of the control software, the inlet and exhaust air of the pneumatic actuator are controlled, so as to drive the valve position to the set point.

> Enclosure Material

- Aluminum

> Pressure Gauge Block Material

- Aluminum, anodized

> Power Supply and Signal Transmission

- DP/PA coupler

> Intrinsically Safe Power Supply

- 17.5V DC

> Operating Voltage Range

- 9~32V DC

> Digital Communication Protocol

- PROFIBUS PA

> Steady State Air Consumption

- ≤ 0.4 L/min

> Stroke Range

- Default linear type: 10~100mm
- Default rotary type: 30~100°
- Separate type: 5~25mm
- Optional mounting bracket: Hard connection or soft connection
- Note: The stroke range of remote type is the same as that of default type

> Pneumatic Data

- Air quality meets ISO 8573-1 standard
- Pressure range: 0.14~0.7MPa
- Solid Particle Size and Density: Class 3
- Pressure Dew Point: Class 3
- Oil Content: Class 3

> Flow Rate

- Intake :

2 bar	4.8 Nm ³ /h
4 bar	8.0 Nm ³ /h
6 bar	11.2 Nm ³ /h
- Exhaust (fail-safe) :

2 bar	5.9 Nm ³ /h
4 bar	9.8 Nm ³ /h
6 bar	13.7 Nm ³ /h
- Exhaust (fail-freeze) :

2 bar	6.6 Nm ³ /h
4 bar	11.1 Nm ³ /h
6 bar	15.6 Nm ³ /h

> Electrical Connection

- NPT 1/2 (default)
- M20 × 1.5

> Pneumatical Connection

- G 1/4

> Protection Class

- IP69K

> Vibration Resistance

- 0.15 mm, 10 Hz-60 Hz, 20 cycle/axis
- 20 m/s², 60 Hz-500 Hz, 20 cycle/axis
- Recommended range for control valve ≤ 20 m/s², no resonance peak

> Linearity & Hysteresis

- Linearity: $\leq 0.5\%$
- Hysteresis: $\leq 0.5\%$

> Ambient Temperature

- Normal Version for Non-explosion-proof:
- 20°C ~ + 80°C
- Optional Version for Non-explosion-proof:
- 40°C ~ + 80°C

02

Advantages & Applications

> Advantages

- Simple mounting and one-key automatic commissioning
- Mature and reliable piezo module, imported from Germany
- Simple operation and configuration of the device using 4 buttons and LCD local display
- Numerous functions can be activated(e.g. characteristic curves and limits)
- Negligible air consumption in stationary operation
- Tight closing function
- Fail-freeze function (Optional according to product selection chart)
- One device variant for linear and rotary actuators
- Excellent shock resistance
- External remote sensor as option for extreme ambient conditions

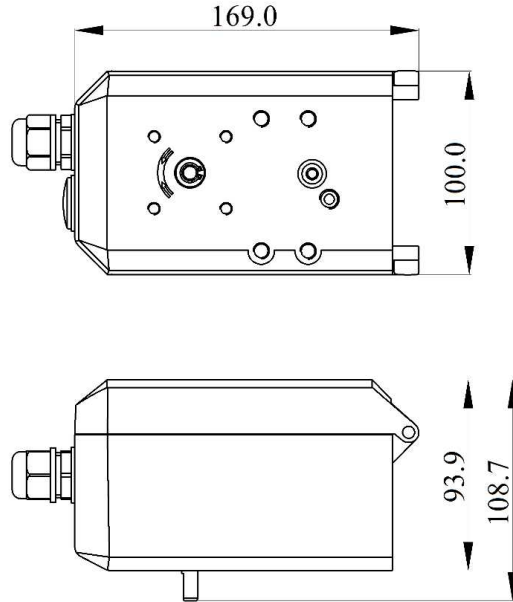
> Applications

- Refining / Petrochemical / Nuclear Power / Power Plant
- Paper and glass / water and wastewater industry
- Food & beverage, pharmaceutical industry
- Marine Industry

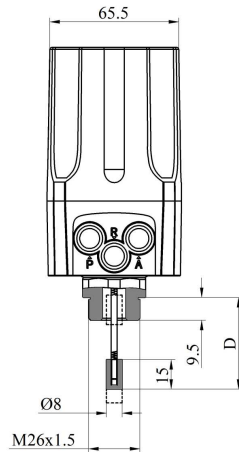
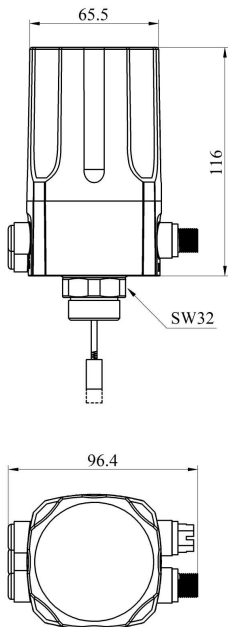
03

Mechanical Dimensions

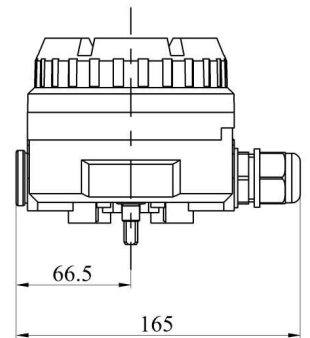
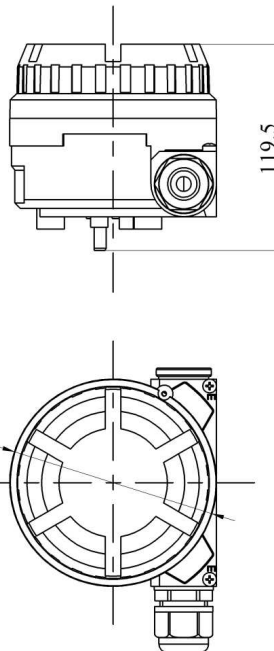
> IP6500 Series Intelligent Valve Positioner Mechanical Dimensions



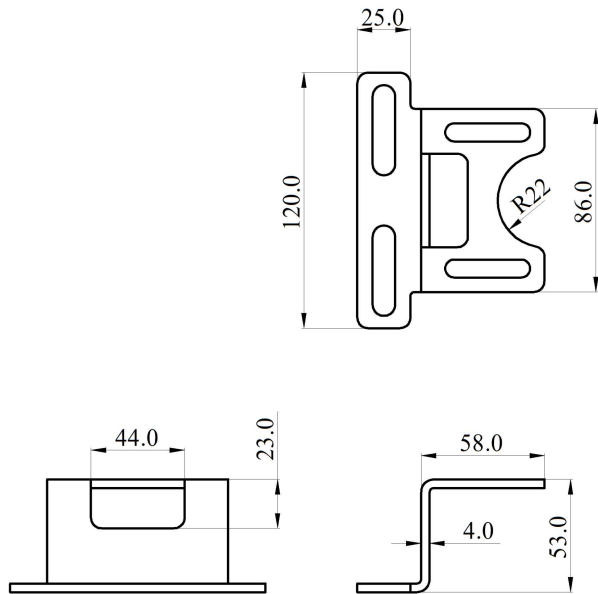
> Sensor Dimension for Separate Type



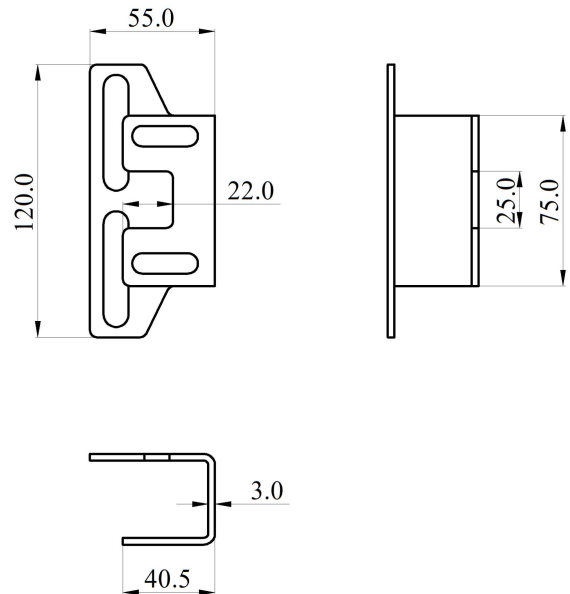
> Sensor Dimension for Remote Type



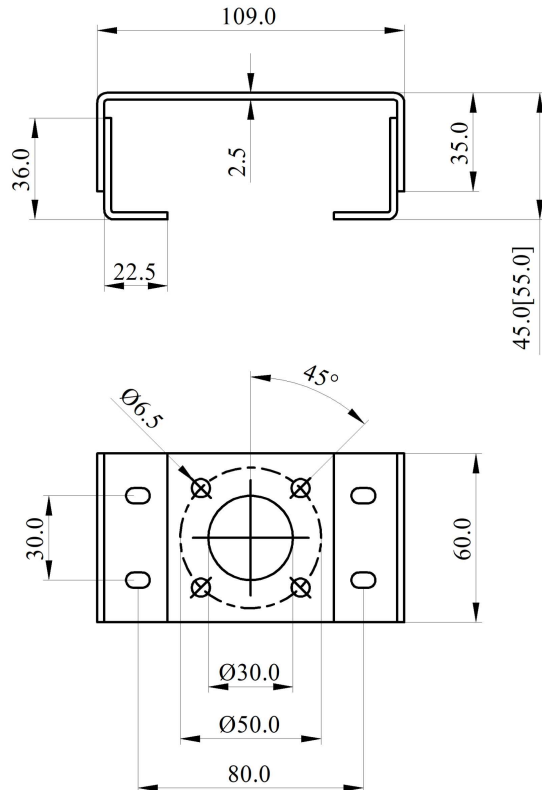
› Normal Linear Mounting Bracket



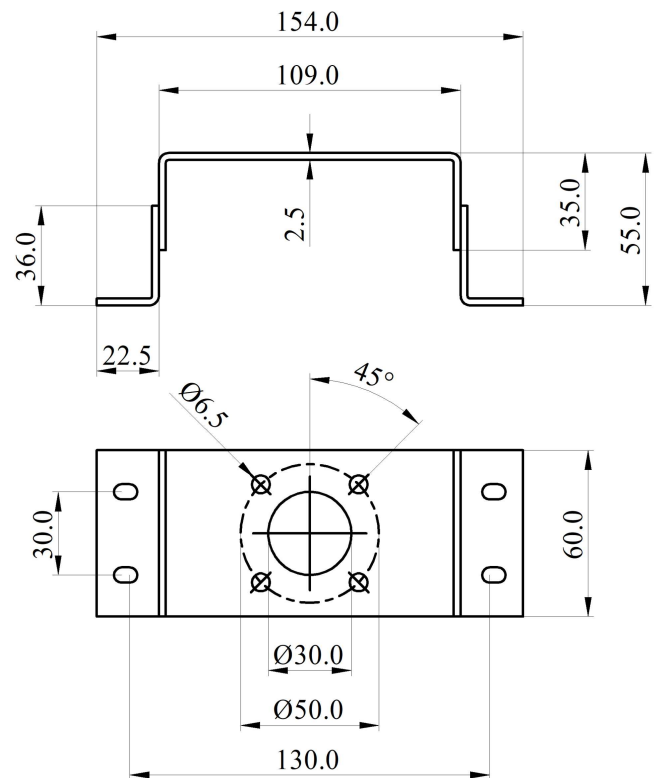
› Remote Linear Mounting Bracket



› Rotary Mounting Bracket - Form 1



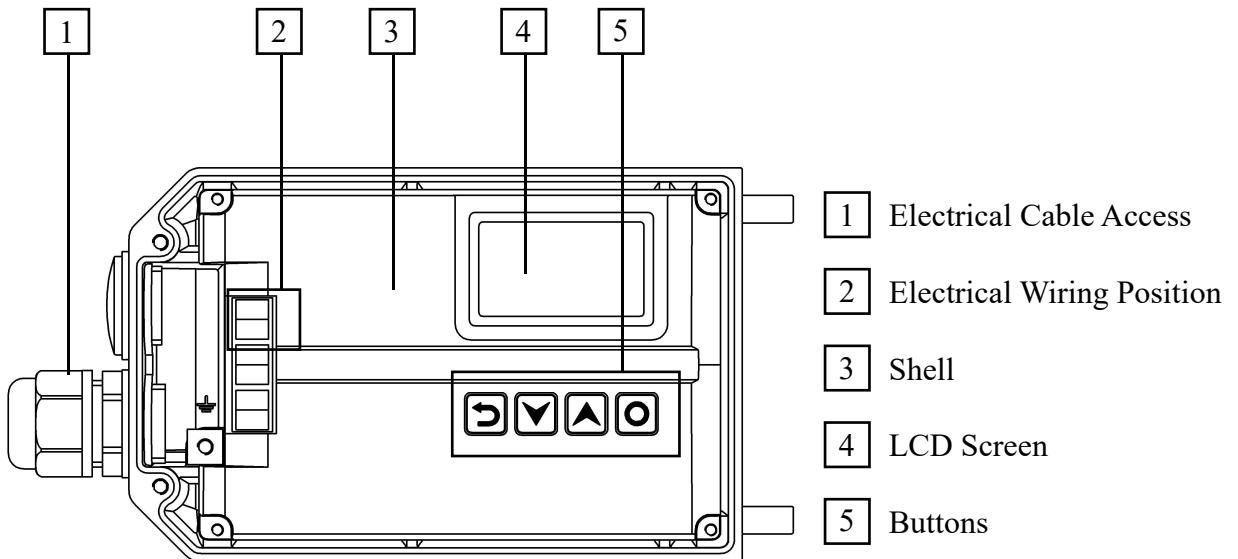
› Rotary Mounting Bracket - Form 2



04

Product Structure

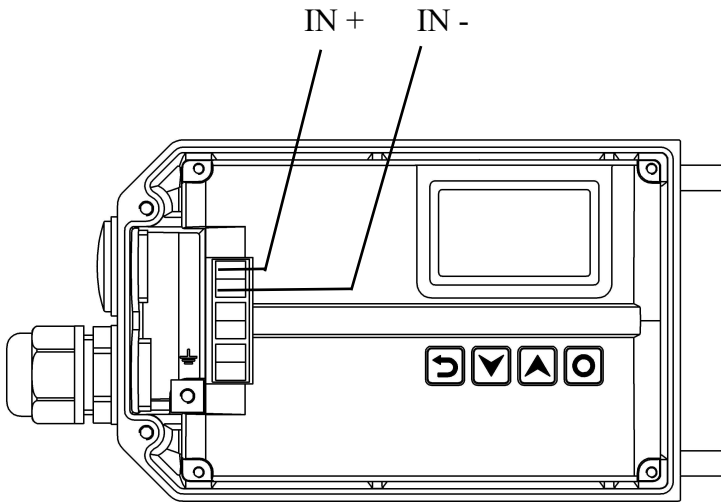
> IP7000 Series Intelligent Valve Positioner Product Structure



05

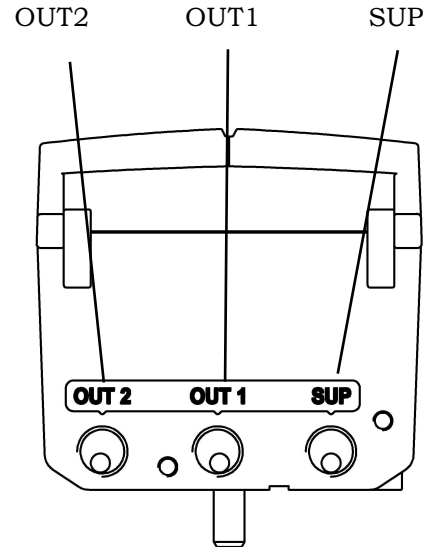
Electrical & Pneumatic Connections

> Electrical Connections



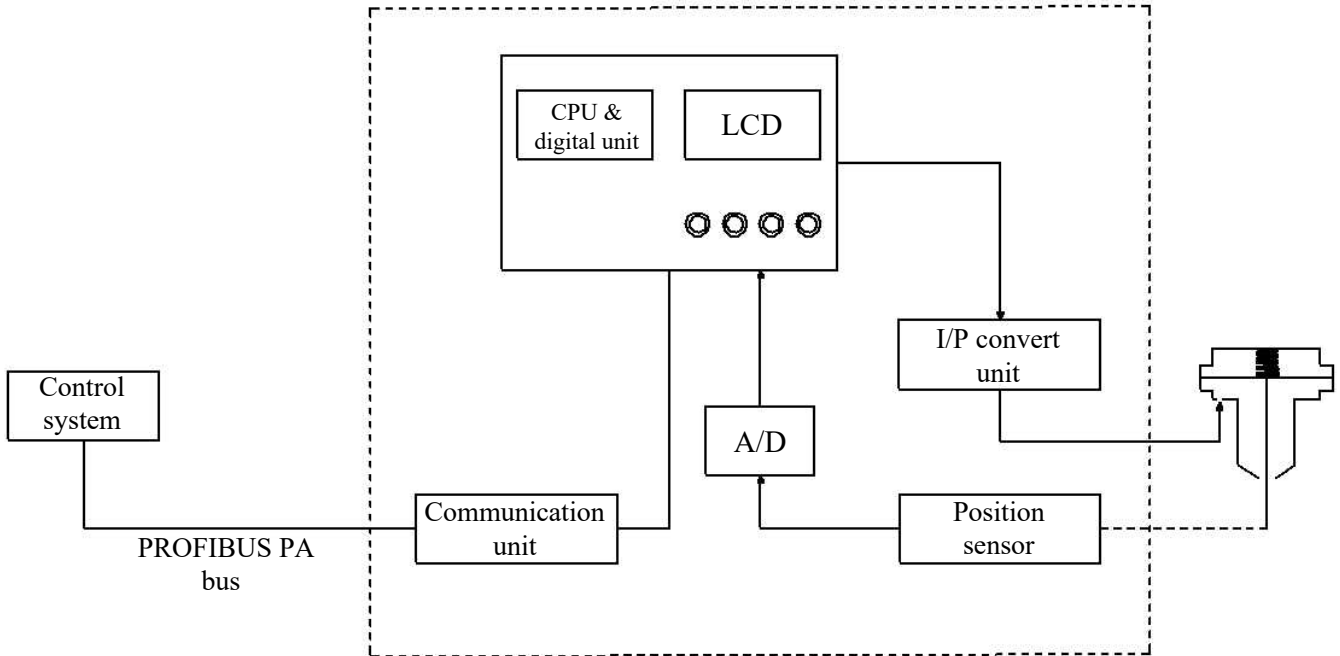
- IN+: Bus signal +
- IN-: Bus signal -

> Pneumatic Connections



- SUP: Air supply enter
- OUT1: Pilot air outlet 1
- OUT2: Pilot air outlet 2, used for double acting type
- Remarks: For the separate type of the positioner, OUT1 and OUT2 are blocked and not used.

06 Principle Block Diagram



> Additional Software Functions

- Safe position setting
- Dead band setting
- Tight closing function
- Stroke limit function
- Characteristic curve selection and settings
- Set-point value direction setting
- Movement direction setting of displayed set value and position value
- Reset function

> Advantages

- The IP6500 series intelligent valve positioner uses a microprocessor and a new type of piezo valve to replace the nozzle and baffle pressure regulating system in the traditional positioner to realize the regulation and control of the output pressure. The positioner communicates with the control system via the PROFIBUS PA bus instead of the traditional 4-20mA signal to set the valve opening. Suitable for use in Eex applications in intrinsically safe areas. The piezo valve can release a short control pulse due to its small mass, thereby achieving high precision, and the piezo valve consumes air only when the valve is deviated and performing adjustment actions, so there is a low consumption.

07

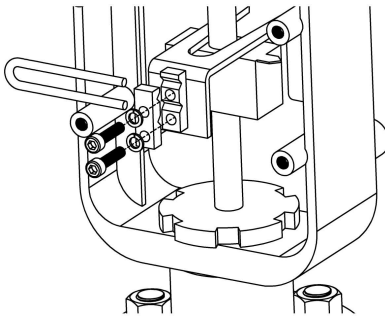
Mounting Components

> Linear Actuator Mounting Components

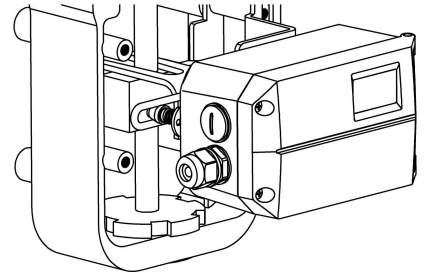
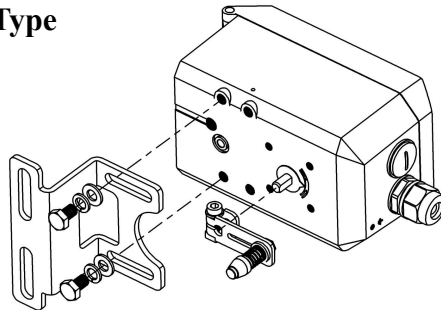
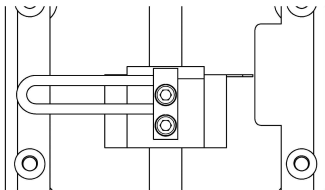
- | | | | |
|---------------------------|----|------------------------------------|----|
| • U-shaped Rod | *1 | • M6 Hexagon Socket Bolt | *1 |
| • Clamping Assembly | *1 | • Linear Mounting Bracket | *1 |
| • M6 Hexagon Socket Screw | *2 | • M8 Hexagon Head Bolt | *2 |
| • M6 Spring Washer | *2 | • M8 Spring Washer | *2 |
| • Feedback Lever | *1 | • M8 Flat Washer | *2 |
| | | • Driving Pin for Feedback Lever B | |

> U-shaped Rod Installation

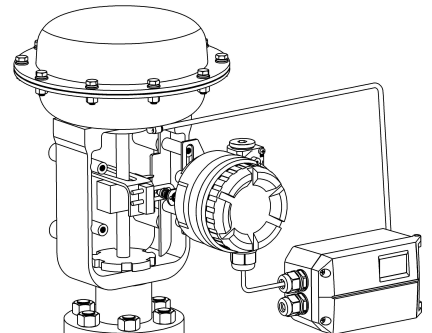
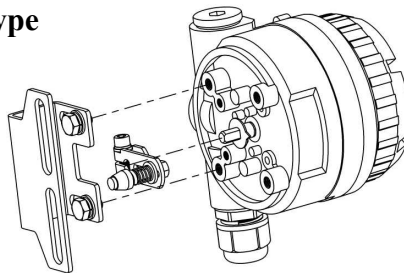
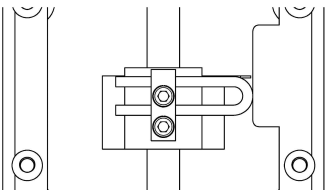
*1



> Linear Stroke Normal Type



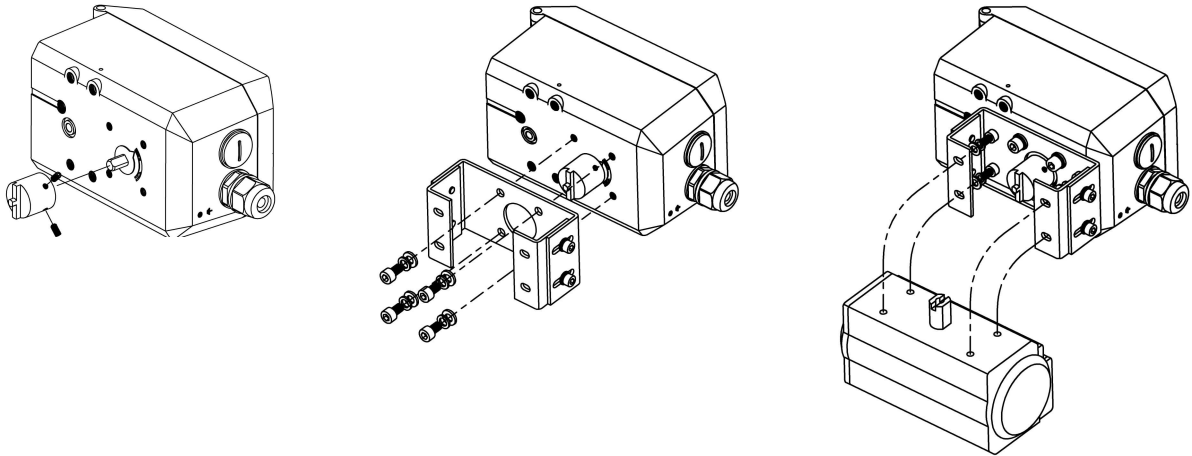
> Linear Stroke Remote Type



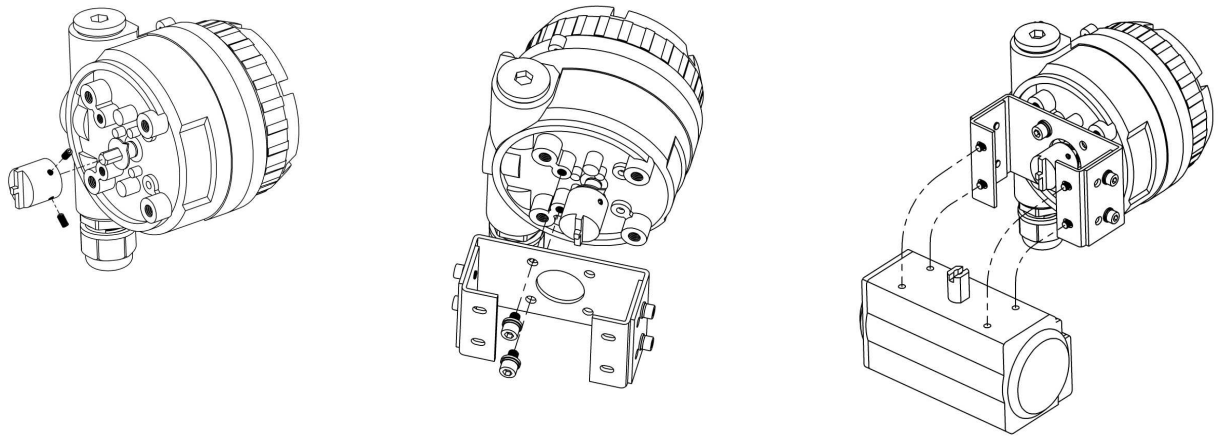
› Rotary Actuator Mounting Components

- | | | | |
|----------------------------|----|---------------------------|----|
| • Adapter | *1 | • M6 Hexagon Socket Screw | *4 |
| • Hexagon Socket Set Screw | *2 | • M5 Hexagon Socket Screw | *4 |
| • Rotary Mounting Bracket | *1 | • M5 Spring Washer | *4 |
| • M6 Flat Washer | *4 | • M5 Flat Washer | *4 |
| • M6 Spring Washer | *4 | | |

› Rotary Stroke Normal Type

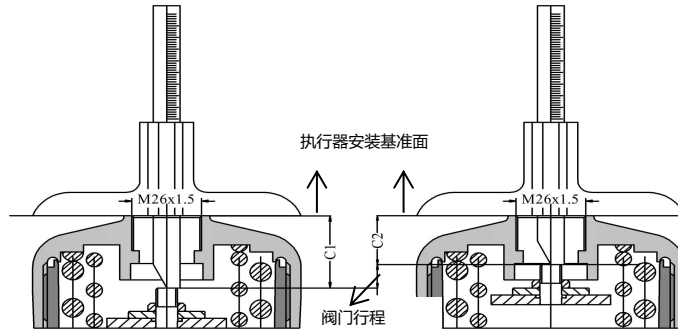


› Rotary Stroke Remote Type



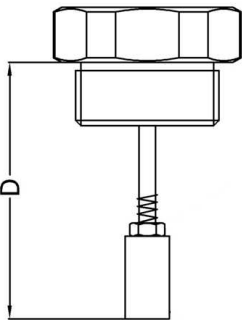
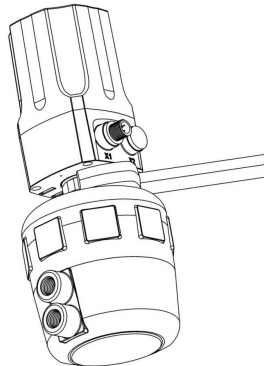
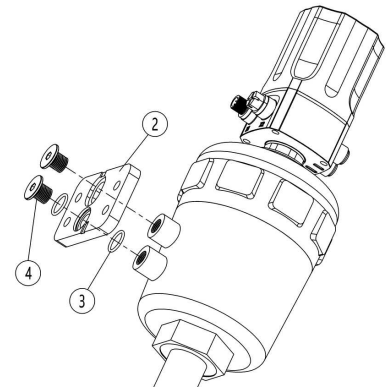
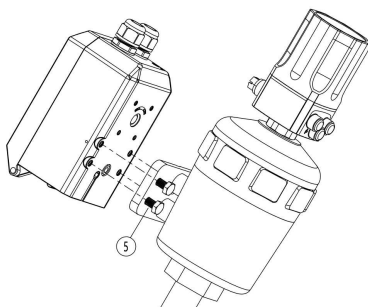
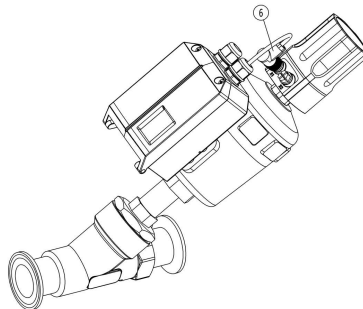
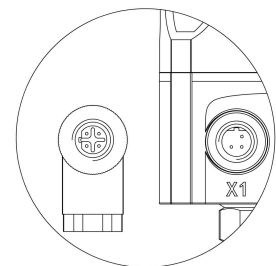
> Separate Type Mounting Components

- | | | | |
|------------------|----|-------------------------|----|
| • Sensor | *1 | • Fastener | *2 |
| • Mounting Plate | *1 | • M8 Hexagon Head Bolts | *4 |
| • O-ring | *2 | • Sensor Connector | *1 |



Valve is Fully Closed

Valve is Fully Open

D Value
AdjustmentSensor
InstallationFix the
Mounting PlateFix the
PositionerConnect the
SensorSensor
Connector

08

Selection and Ordering Data

L	Normal Linear	Stroke Type					
FL	Remote Linear						
R	Normal Rotary						
FR	Remote Rotary						
S	Separate *						
S	Single Acting	Acting Mode					
D	Double Acting						
n	No Explosion	Explosion Signs					
0	No	Mounting Bracket					
1	Linear Bracket						
2	Rotary Bracket						
0	No	Pressure Gauge					
1	Yes						
S	Safe	Power Off State					
F	Freeze						
N	-20℃	Lowest Ambient Temperature					
L	-40℃						
IP6500	L	S	n	0	0	S	N

- Remarks: In Stroke type options, the option S(Separate) marked with * does not support Lowest ambient temperature option L(-40°C)