

## 智能阀门定位器(1400 1500系列)

Intelligent Valve Positioner(1400 1500 series)



### 产品介绍

智能阀门定位器1400及1500系列是博流科技专门针对各类气动调节阀开发的创新性产品, 这类产品具有操作简便, 可靠性好, 调节精度高, 不易受干扰等特点, 并可广泛应用于角座阀, 隔膜阀, 球阀, 蝶阀, 截止阀, 单座阀等几乎所有款式和规格的气动调节阀。

该产品功能丰富, 可轻松通过液晶屏和按键面板进行操作, 产品可支持比例调节或者过程控制功能, 可应用于单作用或者双作用的各类执行器。

### Product Introduction

Intelligent Valve positioner 1400&1500 series is a innovative product developed by Powerflow for pneumatic control valves. These products have high reliability, high control precision and easy operation mode. They are suitable for angle seat valves, diaphragm valves, ball valves, butterfly valves, globe valves, single seated valves and etc. They can cover almost all kinds of pneumatic drive valves.

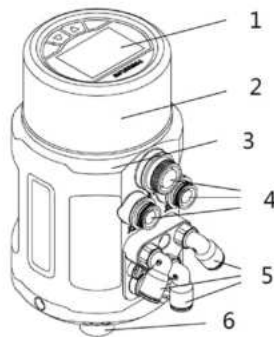
Our products have rich functions, it can be easily operated via the LCD and keypad, it can support proportional control and process control functions and can also be used on Single-acting or double-acting actuators.

### 技术参数

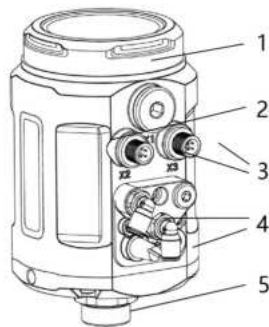
材料	聚碳酸酯(PC) 硅橡胶(SI) 聚酰胺(PA6-GF30)
电源	直流 24V ±10%
信号输入	4-20mA
压缩空气要求	中性气体, 符合 DIN ISO 8573-1 要求
环境温度	0-55℃
气动接头	1/4英寸插入式软管接头(内径Φ6mm)
电气快速接头	M12 三针 B标准(电缆直径ø4-6mm) M12 四针 D标准(电缆直径ø4-6mm)
气源压力	3-7 bar, 具体值视执行机构而定
阀门行程控制范围	直行程5-50 mm 角行程90°
安装方式	建议安装在执行器顶端,
防护等级	IP65
功耗	<5W
防爆等级	Ex ic II C T4

### Technical Parameters

Material	PC, PA6-GF30, SI
Power supply	24V DC ±10%
Set-point signal	4 - 20 mA
Control medium	neutral gases, air DIN ISO 8573-1
Ambient temperature	0-55℃
Pneumatic connection	Plug-in hose connector G1/4(internal Ø6mm)
Electrical connection	M12 3-pins B-coded (cable ø 4-6mm) M12 4-pins D-coded (cable ø 4-6mm)
Supply pressure	3-7 bar, specific values depending on the actuator
Stroke control range	Line 5-50mm Angle 90°
Installation	Preferably with actuator in upright position, Screw M26×1.5
Protection class	IP65
Power consumption	<5W
Explosion proof	Ex ic II C T4

**产品结构(1400系列)**
**Product structure(1400 series)**


1. 液晶屏和按键面板(LCD and Key panel)
2. 不锈钢外壳(Stainless Steel body casing)
3. 主外壳(Main body casing)
4. 电气接口(Electrical connections)
5. 气动接口(Pneumatic connections)
6. 执行器连接件(Actuator connection)

**产品结构(1500系列)**
**Product structure(1500 series)**


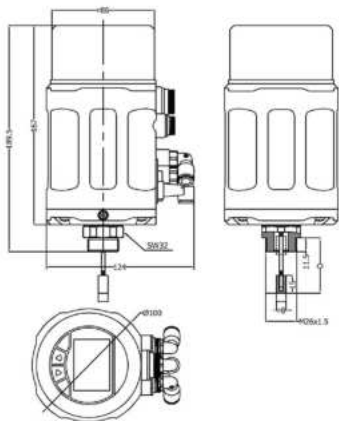
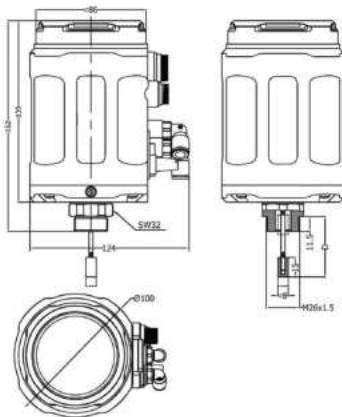
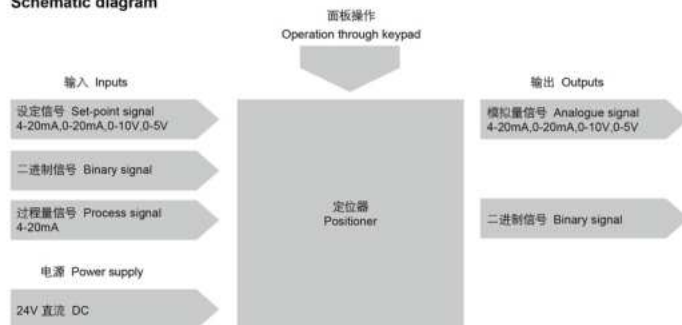
1. 防护盖(Protective cover)
2. 主壳体(Main body casing)
3. 电气接口(Electrical connection)
4. 气动接口(Pneumatic connection)
5. 执行器连接件(Actuator connection)

**产品选型(1400系列)**
**Type Selection(1400 series)**

1400 不带过程控制功能 (1400 WithOut process control)	产品系列 (Product Series)
1401 带过程控制功能 (1401 With process control)	
S. 单作用(Single-Acting) D. 双作用(Double-Acting)	执行机构类型 (Actuator type)
1. 5-12 mm 2. 12-32 mm 3. 32-50 mm 4. 角行程90° (Angle 90° )	阀门行程 (Valve Stroke)
Q1. 18L/min Q2. 55L/min	输出气体流量 (Export flow rate)
n. 不防爆 i. Ex Ic II C T4	防爆等级 (Explosion proof)
1400 S t Q1 n	

**产品选型(1500系列)**
**Type Selection(1500 series)**

N 无反馈信号(No feedback signal) Y 4-20mA反馈信号(4-20mA feedback signal)	反馈信号 (feedback signal)
S1 5-12 mm S2 12-30 mm S3 30-50 mm S4 角行程 90° (Angle 90° )	阀门行程 (Valve stroke)
1500 N S1	

**产品尺寸(1400系列)**  
**Product Size(1400 series)**

**产品尺寸(1500系列)**  
**Product Size(1500 series)**

**原理图**
**Schematic diagram**

**各型号功能对比**
**Function comparison for all types**

√	有该功能/YES
×	无该功能/YES
○	可选/optional

功能/Function	1400	1401	1500
防爆/Explosion-proof	○	○	×
4-20mA信号输入/4-20mA signal input	√	√	√
4-20mA信号输出/4-20mA signal output	√	√	○
自整定/Autotune	√	√	√
手动调节阀位/Valve position manual adjustment	√	√	√
紧闭功能/Sealing function	√	√	√
死区设置/Dead band setting	√	√	√
4-20mA输入信号错误检测/4-20mA input signal error detection	√	√	√
恢复出厂设置/Factory setting	√	√	√
特性曲线设置/Characteristic curve setting	√	√	×
信号方向设置/Direction of set-point value	√	×	×
行程限制/Valve stroke range limiting	√	√	×
安全位置设置/Safety position setting	√	√	×
开关量信号输入/输出/Binary signal input/output	√	√	×
输入信号校正/Input signal calibration	√	√	×
手动调节速度设置/Speed setting of manual adjustment	√	√	×
密码保护/Code protection	√	√	×

## 智能阀门定位器 (IP4000系列)

### Intelligent Valve Positioner(IP4000 series)



#### 技术参数

外壳材质	铝合金喷涂工艺
信号输入	4~20mA DC
最低动作电流	3.8mA DC
阀门行程范围	10~100 mm 50°~90°
防爆等级	Ex d II CT6, Ex ia II C T6
环境温度	-20~60°C
基本误差	±1%
回差	±0.5%
气源压力	1.4~7bar
耗气量	5L/M (Sup=0.14MPa) (单作用) 11L/M (Sup=0.14MPa) (双作用)
气源接口	ZG1/4, NPT1/4
防护等级	IP66
重量	3.3kg (隔爆型), 2.3kg (普通型)

#### Technical Parameters

Material	Aluminum Alloy
Set-point Signal	4~20mA DC
Min Operating Current	3.8mA DC
Stroke Range	10~100 mm 50°~90°
Explosion Proof	Ex d II CT6, Ex ia II C T6
Ambient Temperature	-20~60°C
Linearity	±1%
Hysteresis	±0.5%
Supply Pressure	1.4~7bar
Flow Capacity	5L/M (Sup=0.14MPa)(single-acting) 11L/M (Sup=0.14MPa)(double-acting)
Air Connecting Port	ZG1/4, NPT1/4
Protection Class	IP66
Weight	3.3kg(Exd)/2.3kg(none Ex)

## 产品介绍

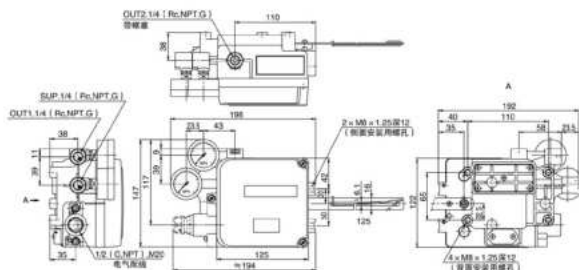
### Product Introduction

IP4000系列智能电气阀门定位器和气动执行器配套使用, 通过接收来自控制系统的4~20mA DC电流信号得到两位控制设定值, 同时采集位置传感器信号得到实际的两位值, 两者通过控制软件的计算处理, 从而控制气动执行机构的进气和排气, 驱动两位到达设定点。

The IP4000 Intelligent Electro-pneumatic Valve Positioner can actuate a valve to reach the set point by controlling intake and outlet of the pneumatic actuator. This positioner can get the actual valve position by sensor. In the same time, the positioner can also get the set position from an input signal of 4~20mA of the controller.

## 产品尺寸(IP4000系列)

### Product Size(IP4000 series)



## 产品选型(IP4000系列)

### Type Selection(IP4000 series)

L 直行程(Linear) R 角行程(Rotary)	行程类型 (Stroke type)
S 单作用(Single acting) D 双作用(Double acting)	作用形式 (Acting mode)
n None Ex i Ex ia II C T6 d Ex d II C T6	防爆等级 (Explosion proof)
1 10~40mm (Linear) 2 30~70mm (Linear) 3 M6*34L(Rotary) 4 M8*34L(Rotary)	反馈杆规格 (Feedback lever)
0 No 1 Yes	反馈信号 (Feedback signal)

IP4000 L S n 1 0

## 应用于回转式气动执行机构

Applied on rotary pneumatic actuators



和IP4000系列组合  
With IP4000 series

和1400系列组合  
With 1400 series

### 产品介绍

我们的智能阀门定位器产品(1400/1500/IP4000系列)作为调节阀附件可以应用于各类回转式气动执行机构上,典型的阀体类型有球阀、蝶阀等。

以球阀为例,球阀是一种非常常用的角行程阀门,其密封性能好,耐磨损,开关迅速,平稳可靠,对于介质的流向没有要求,可以应用于几乎所有的流体控制场合,V型球阀是球阀中调节性能最佳的一种,可实现等百分比的流量特性曲线,具有极好的流量调节能力,且相比座阀等调节阀产品,其通过性能更好。

阀位(%)	Kv(%)	阀位(%)	Kv(%)
0	0	55	23.6
5	0	60	27.2
10	0	65	38.4
15	0	70	54.7
20	0	75	68.8
25	0	80	100
30	0	85	100
35	6.2	90	100
40	9.1	95	100
45	12.6	100	100
50	17.8		

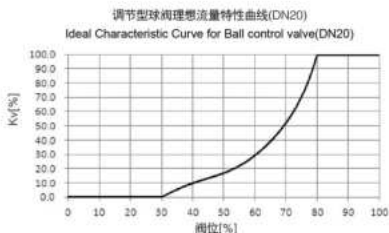
### 技术参数(Technical Parameters)

阀门材料(Body material)	按需求(As needed)
密封材料(Sealing material)	按需求
工作温度(Working temperature)	Max 150°C
工作压力(Working Pressure)	Max 6.4Mpa
阀门口径(Valve Diameter)	DN10-DN1000
连接方式(Connections)	螺纹, 卡箍, 焊接, 法兰 (Thread, Clamp, Weld, Flange)
气源提供(Pressure input)	1.4-7bar

### Product Introduction

Our intelligent valve positioner(1400/1500/IP4000 series) can be applied on rotary pneumatic actuators. The most typical valves are ball valves and butterfly valves.

Take ball valve as an example. Ball valve has features such as good sealing property, Wear Resistance, fast and stable operation, high reliability, it has no requirement for the flow rate, can almost applied for all the flow control situation. V-type ball valve is most suitable for flow control in all type of ball valves, it has equal percentage flow rate curve which provides excellent flow control capability. Compared with other control valve such as seat valves, it has less resistance for the flow.



## 应用于薄膜式气动执行机构

Applied on diaphragm pneumatic actuators



和IP4000系列组合  
With IP4000 series

和1400系列组合  
With 1400 series

### 产品介绍

我们的智能阀门定位器产品(1400/1500/IP4000系列)可应用于各类薄膜式气动执行机构上,典型的阀门有单座阀等。

以单座阀为例,单座阀是最常用的气动调节阀,具有结构紧凑,重量轻,动作灵敏,流量特性精确,拆装方便等特点。该类阀门通过不同的阀芯和阀座结构设计,可以提供包括线性,等百分比在内的不同形式的流量特性曲线,满足不同调节控制的需求。

阀位(%)	Kv(%)	阀位(%)	Kv(%)
0	0	55	17.2
5	2.4	60	20.9
10	3	65	25.4
15	3.6	70	30.9
20	4.4	75	37.6
25	5.3	80	45.7
30	6.5	85	55.6
35	7.9	90	67.6
40	9.6	95	82.2
45	11.6	100	100
50	14.1		

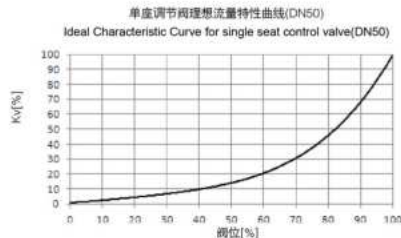
### 技术参数(Technical Parameters)

阀门材料(Body material)	按需求(As needed)
密封材料(Sealing material)	按需求(As needed)
工作温度(Working temperature)	-20~200°C(常温型)
工作压力(Working Pressure)	Max 6.4Mpa
阀门口径(Valve Diameter)	DN20-DN200
连接方式(Connections)	螺纹, 卡箍, 焊接, 法兰 (Thread, Clamp, Weld, Flange)
气源提供(Pressure input)	1.4-7bar

### Product Introduction

Our intelligent valve positioner(1400/1500/IP4000 series) can be applied on diaphragm pneumatic actuators. The most typical valvetype is single seat control valve.

Take single seat control valve as an example. Single seat control valve is the most commonly used pneumatic control valve, it has good features such as compact structure, fast respond, accurate control, easy for assembling. By different valve plug and seat design, the single seat control valve can provide different characteristic curve such as linear or equal percentage, which will enable different control needs.



## 角座式调节阀

Angle Seat Control Valve



和1400系列组合  
With 1400 series



和1500系列组合  
With 1500 series

### 产品介绍

角座式调节阀由智能阀门定位器(1400/1500系列)和专门用于调节的气动角座阀(2710)组合而成,气动角座阀广泛应用于于短时间的频繁气动,具有反应灵敏,动作准确的特点,可准确控制气体,液体流量,广泛应用于食品和化学过程,灭磨机、高压消毒器、干洗机、干衣机、啤酒生产线等。

2710系列角座阀是专门为流量调节所设计的角座阀,其阀芯设计不同于传统的开闭式角座阀(2700系列),其流量特性更适合于调节,且相比传统调节阀,其性价比更高。

### 技术参数(Technical Parameters)

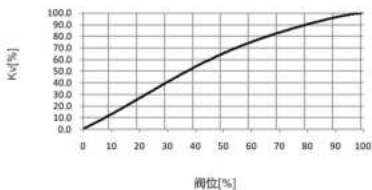
阀门材料(Body material)	304(CF8)/316(CF8M)
密封材料(Sealing material)	PTFE
工作温度(Working temperature)	-20~180℃
工作压力(Working Pressure)	Max 10bar
阀门口径(Valve Diameter)	DN15-DN100
连接方式(Connections)	螺纹,卡箍 (Thread, Clamp)
气源提供(Pressure input)	3-7bar

### Product Introduction

Angle seat control valve is combined by intelligent valve positioner(1400/1500) and angle seat control valve 2710. Pneumatic angle seat valves are widely used for frequent operation. It can response rapidly and accurately. It can accurately control liquid or air. It is widely used for food, chemical process, beer industry and so on.

2710 series angle seat valve is specially designed for flow rate control, compared with on-off-type 2700series, its characteristic curve is more suitable for flow control. It is also more cost effective compared with traditional control valves.

调节型角座阀理想流量特性曲线(DN25)  
Ideal Characteristic Curve for Angle seat control valve(DN25)



## 隔膜式调节阀

Diaphragm Control Valve



和1400系列组合  
With 1400 series



和1500系列组合  
With 1500 series

### 产品介绍

隔膜式调节阀由智能阀门定位器(1400/1500系列)和气动隔膜阀(2800系列)组合而成,气动隔膜阀由于其特殊的隔膜结构,可以实现很好的密封性,同时因为保持了工作截止的纯净型,可以适用于对于介质安全型有高要求的情况,此外,相比传统的截止阀类产品,其结构简单,流阻阻力小。作为一种创新的阀门产品,隔膜阀广泛的应用于医药,食品,化工等各个领域。

### 技术参数(Technical Parameters)

阀门材料(Body material)	316(CF8M)/316L(CF3M)
密封材料(Sealing material)	PTFE/EPDM
工作温度(Working temperature)	-20~180℃(PTFE) -20~150℃(EPDM)
工作压力(Working Pressure)	Max 10bar
阀门口径(Valve Diameter)	DN15-DN80
连接方式(Connections)	螺纹,焊接,卡箍,法兰 (Thread,Weld,Clamp,Flange)
气源提供(Pressure input)	3-7bar

### Product Introduction

Diaphragm control valve is combined by intelligent valve positioner (1400/1500 series) and pneumatic diaphragm valve (2800 series). Due to its special diaphragm structure, it can provide excellent sealing property. Because it can keep the purity of the control medium, it is suitable for the situations which have high requirement for the safety of medium. Besides, compared with traditional block valves, it has simpler structure and lower resistance. As a creative valve type, it is widely used in medicine, food, chemical industries.

调节型隔膜阀理想流量特性曲线(DN20)  
Ideal Characteristic Curve for diaphragm control valve(DN20)

