

# 压力比例阀 Proportional Pressure Regulator

## QKL-B1H



### 产品特色 Features

- ◆ 大流量 High Flow
- ◆ 精度高 High Precision
- ◆ 灵敏度高 High Sensitivity

### 产业应用 Industrial application

- ◆ 雷射切割 Laser Cutter
- ◆ 泄漏测试 Leak Tester
- ◆ 张力控制 Tension Control
- ◆ 吹瓶机产品成型 PET bottle molding machine
- ◆ 多段压力控制 Multi-Stage Pressure Control

### 产品叙述 Product Description

此系列大流量比例阀为一个闭回路的电子压力调节设计，系由两个电磁阀、压力传感器以及电子回路控制所组成。根据模拟讯号的输入，由一端电磁阀用来控制进气量，与另一端电磁阀来控制排气量，再透过压力传感器测得压力并回馈于电子回路控制，以达到精确的压力控制。

我们的比例阀输入信号及监控讯号皆提供了 0-10VDC(电压) 与 4-20mA(电流) 及 RS485 ModBus 通讯可选择。此款比例阀为业界少有的低压力且流量大，最大流量可达 5600L/min(200 scfm)，广泛应用于各种产业。

This series is a complete closed loop servo system consisting of two solenoid valves, an internal pressure transducer, and electronic controls. Based the input of analog signal, the solenoid valve on one side is used to control the air intake, another side is used to control the air exhaust. Then the pressure is measured by the sensor and fed back to the electronic circuit control to reach precise pressure control.

The input signal and command signal of our proportional flow control valve all provide 0-10VDC, 4-20mA or RS485 ModBus communication to select. This proportional valve is unique in the industry with low pressure and large flow, with a maximum flow of 5600L/min (200 scfm), and is widely used in various industries.

All our products have CE, SGS, RoHS certification with ISO13485 quality system.

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## QKL-B1H

### 产品规格 Specifications

系列 Type	B1H
输入讯号 Input Signal	0-10V / 4-20mA / RS485
输出压力 Output Range	1-120 psi
输入最大压力 Supply Pressure Max	9 bar (131 psi)
监控信号 Monitor Output	0-10V / 4-20mA / RS485
工作电源 Supply	DC24V (≤4W)
响应时间 Response	1S
介质 Medium	洁净压缩空气或搭配 5μm 过滤器 Clean compressed air or with 5 μm filter
重复精度 Repeatability	±0.25% F.S.
迟滞 Hysteresis	±0.25% F.S.
线性度 Linearity	±0.25% F.S.
综合精度 Accuracy	±0.25% F.S.
灵敏度 Sensitive	0.1bar
流量 Flow Rate	5600L/min @ 8bar
使用温度范围 Temp. Range(Operating)	0 ~ 70 °C ( 0 ~ 158 °F)
牙口 Port Size	1/2" PT
底座材质 Manifold Material	铝合金 Aluminum
接液材质 Wetted Materials	铝合金、不锈钢、丁晴橡胶 Aluminum, Stainless steel, NBR
电气连接 Electrical Connection	M12 电气端子(2m) M12 Connector(2m)
防护等级 Ingress Protection	IP 65
重量 Weight	1600 g

### 型号选择 Ordering Code

QKL - □ - □ - □ - □ - □

系列 Type

B1H	内部回授 Internal Feedback	1/2"PT
	外部回授 External feedback	1/2"PT
B2H	外部回授 External feedback	1/2"PT

监控信号  
Monitor Output

C	0 - 10 V
A	4 - 20 mA
R	RS485 Modbus

显示单位  
Display Unit

S	Psi
U	bar

输入信号

Input Signal

*E	0 - 10 V
A	4 - 20 mA
R	RS485 Modbus

固定架

Mounting Bracket

M	M type
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\*若控制讯号选择 0-10V，请留意最小的驱动电流为 3mA。  
For Command Signal type 0-10V, the minimum driving current is 3mA.

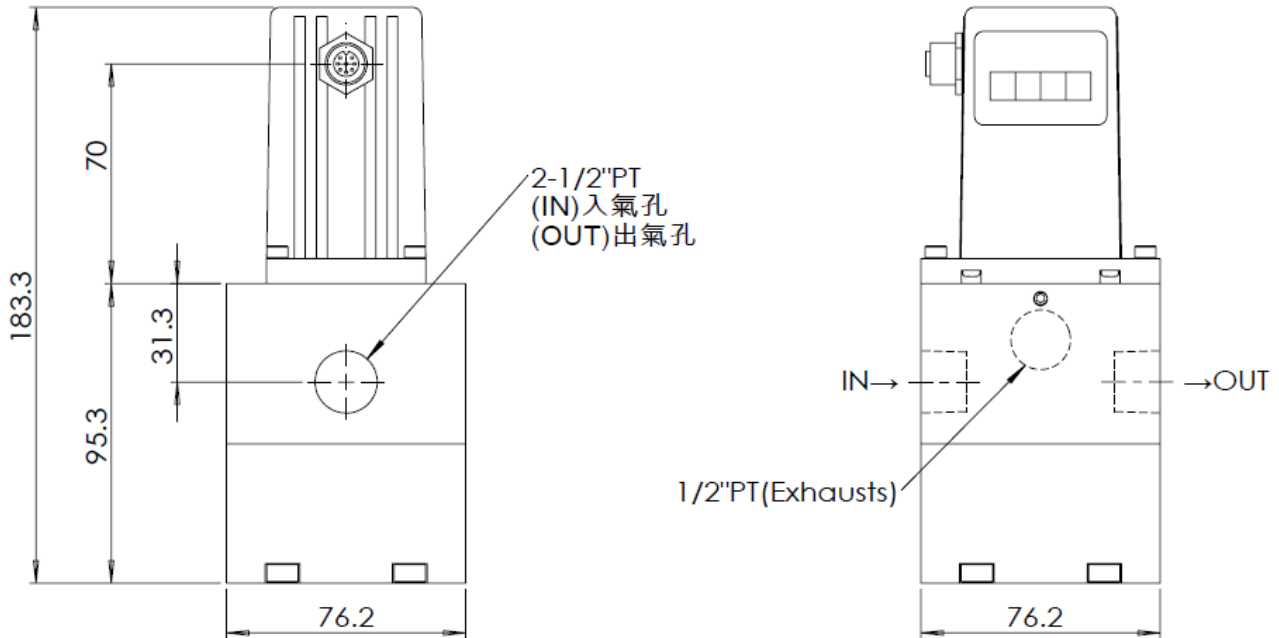
# 压力比例阀 Proportional Pressure Regulator



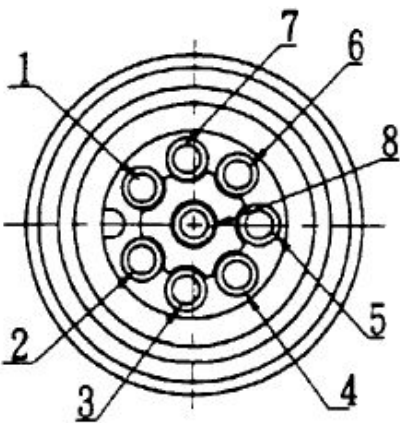
## QKL-B1H

### 外观尺寸 Overall Dimension

◆QKL-B1H



### 接线方式 Wiring Description



※此接线图为线材公座俯视图

The wiring diagram shows from top view

编号 No.	颜色 Color	功能 Function
1	蓝色 Blue	电源(-) 24V DC Power (-) 模拟讯号(-) Command (-) 监控输出(-) Output monitor (-) 回授讯号(-) 2 <sup>nd</sup> loop transducer 0 -10 V (-)
2	棕色 Brown	电源(+) 24V DC Power (+) 回授讯号(+) 2 <sup>nd</sup> loop transducer 4 - 20 mA (+)
3	黑色 Black	监控输出(+) Monitor output (+)
4	白色 White	0-5 V Command (+) 模拟讯号(+) 0-10 V Command (+) 4-20 mA Command (+)
5	灰色 Gray	RS485(D-)
6	绿色 Green	回授讯号(+) 2 <sup>nd</sup> loop transducer 0 -10 V (+) 回授讯号(-) 2 <sup>nd</sup> loop transducer 4 - 20 mA (-)
7	-	-
8	红色 Red	RS485(D+)



警告: 当安置完成信号线后,切勿旋转拉扯插头,以避免内部传感器受到损害,造成产品功能异常或故障。

Warning: Do not rotate the connection socket when connected, to avoid damage to the internal sensor.

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### 产品注意事项



#### 安装

比例阀可安装任意方向，低压控制建议垂直安装。该阀后端需有至少40cc以上之容积，避免比例阀压力控制不稳定。



#### 配管前的处置

配管前请进行空气吹拭(气流冲洗)或清洗，以去除管内的切削粉、切削油、杂物等。

止泄带的缠法：配管及接头锁紧时，不要让配管螺牙的切削粉、止泄带进入阀内部。使用止泄带时，留下螺牙1.5-2 牙距的位置进行缠绕。



#### 使用环境注意事项

1. 请勿在腐蚀性气体、化学药品、海水环境或附着上述物质的场所使用
2. 水、水蒸气、灰尘等会附着本体的场所，容易从排气孔、电磁阀排气孔、内藏调压阀的排气孔进入本体内部，水分与灰尘等进入，是造成故障的原因之一。
3. 日光照射的场合，请用保护罩等遮蔽。
4. 周围有热源的场合，请遮断辐射热。
5. 会附着水滴、油及焊渣的场所，请采取适当的保护对策。



#### 使用流体供给源注意事项

1. 适用于压缩空气、氧气、氢气、氮气、氦气...等惰性气体。
2. 压缩空气中内含化学药品、有机溶剂的合成油、盐分、腐蚀性气体等时，是造成作动不良的原因，请避免使用。
3. 当流体为氧气时，就伴随着重大、通常情况下难以考虑到的危险性。但是，可以对故障灾害和经济损失进行风险管理和控制。因此，请接收具有安全资格的专家的支持，请由具备充足知识和经验的人员进行操作。
4. 氧气是可以助燃的气体。摩擦生热、静电释放等都可能造成起火，并使金属盒密封材料发生燃烧。因此，请安装合适的过滤器，以防止金属屑和尘埃的侵入。
5. 在靠近本产品的供给侧，请安装空气过滤器。过滤精度应选 5 μm 以下。
6. 含大量冷凝水的压缩空气是造成本产品或其他气动组件动作不良的原因。请设置后冷却器、空气干燥器、冷凝水收集器等进行对策。
7. 由空压机产生的碳粉多的话，会附着在本产品内部，成为动作不良的原因。
8. 对于可能会发生意外的场合，请考虑火灾、爆炸，设计终止氧气供应的回路，实施安全措施。
9. 本产品的排气通口，请根据氧气排放场所的具体情况做适当的排气配置。
10. 本产品不能用作紧急关闭装置。应在系统中安装冗余安全系统，以防止严重伤害或生命损失。



#### 保固

自出厂起 12 个月以内为保固期限,请务必遵守使用注意事项,因人为因素造成的产品不良,则本公司对本保修不承担任何责任。

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### Product Precautions



#### **Installation**

The valve can be mounted in any position. For very low pressure control, works best when mounted upright. And Ensure a minimum closed end volume of 40c.c. to allow proper functioning.



#### **Preparation Before Piping**

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

#### **Wrapping of Sealant Tape**

When screwing together pipes and fittings, etc., be certain that chips from the pipe threads and sealing material do not get inside the piping. When sealant tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.



#### **Operating Environment**

1. Do not operate in locations having an atmosphere of corrosive gases, chemicals, sea water, or where there will be contact with the same.
2. In locations where the body is exposed to water, steam, dust, etc., there is a possibility that moisture or dust could enter the body through the EXH port, solenoid valve EXH port and/or built-in regulator EXH port, thereby causing problems.
3. In locations which receive direct sunlight, provide a protective cover etc.
4. In locations near heat sources, block off any radiated heat.
5. Employ suitable protective measures in locations where there is contact with water droplets, oil or welding spatter, etc.



#### **Air Supply**

1. Compressed air, nitrogen, oxygen or argon can be used as a fluid.
2. Do not use compressed air which includes chemicals, synthetic oils containing organic solvents, salt, or corrosive gases, etc., as this can cause damage or malfunction.
3. If oxygen is used as the fluid, it can lead to serious and unforeseen risks. However, it is possible to manage and control the risk of hazards and economic loss. In order to use the product safely, it should only be handled by personnel with appropriate knowledge, with support from a suitably qualified specialist.
4. Oxygen gas increases the susceptibility of substances to burning; Oxygen gas can be ignited by frictional heat and static electricity. If oxygen is ignited, the metal and seal materials burn. Therefore, flush the piping thoroughly and mount a suitable filter to prevent foreign matter such as metal powder and dust from entering the product.
5. Take safety measures by installing safety devices (e.g. a circuit that stops the supply of oxygen gas) to prevent fire and explosion in the event of failure, taking flameproof safety standards into consideration.
6. Since there are some exhaust ports on the product, connect the piping in order to exhaust oxygen. Do not block the exhaust port.



#### **Warranty**

KaoLu Enterprise Co., Ltd. products are warranted to the original purchaser only against defects in material or workmanship for 6 months from the date of manufacture. The extent of KaoLu's liability under this warranty is limited to repair or replacement of the defective unit at KaoLu's option. KaoLu shall have no liability under this warranty where improper installation or filtration occurred.