

# 高壓壓力比例閥 High Pressure Proportional Regulator

## QKL-B4H



### 產品特色 Features

- ◆ 體積小 Small Size
- ◆ 精度高 High Precision
- ◆ 靈敏度高 High Sensitivity
- ◆ 廣泛的壓力範圍 Wide Pressure Range

### 產業應用 Industrial application

- ◆ 雷射切割 Laser Cutter
- ◆ 洩漏測試 Leak Tester
- ◆ 張力控制 Tension Control
- ◆ 吹瓶機產品成型 PET bottle molding machine
- ◆ 多段壓力控制 Multi-Stage Pressure Control

### 介紹

此為一個閉迴路設計，由兩個電磁閥、壓力傳感器以及電子迴路控制所組成。根據接收到的類比訊號輸入，由一端電磁閥用來控制進氣量，與另一端電磁閥來控制排氣量，透過壓力傳感器測量得到並回饋於電子迴路控制，以達到精確的壓力比例控制，該比例閥適合針對隨時需要精準調控壓力變化，與監控壓力值的產業。

比例閥輸入信號提供了 0-10VDC(電壓) 與 4-20mA(電流) 及 RS485 ModBus 通訊選擇。監控輸出則有 0-10V 及 4-20mA 的選擇。此款比例閥為業界少有的高壓力範圍 (最大耐壓可達 65 bar)，適合運用在特殊醫療設備及工業設備上。

本產品皆符合 、、、 等認證。

### Operating Principles

This series is a complete closed loop servo system consisting of two solenoid valves, an internal pressure transducer, and electronic controls. Based on analog signal, the pressure is controlled by two solenoid valves to maintain precise pressure; one valve functions as inlet control, the other as exhaust. The pressure output is measured by an internal or an external feedback pressure transducer that provides a feedback signal to the electronic controls. The regulator is suitable for industries that require precise pressure changes at any time and monitor pressure values.

Available with 3 selections of input signal: 0-10VDC, 4-20mA, or RS485 Modbus. Monitor signal can be chosen from 0-10V, or 4-20mA. Our special design offers high pressure and high flow capability electronic pressure regulator in uni-body design.

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

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### 產品規格 Specifications

系列 Type	B4H-P18(261psi)	B4H-P60(870psi)	B4H-P70(1015psi)
輸入訊號 Input Signal	0-10V / 4-20mA / RS485		
輸出壓力 Output Range	0-18bar (260 psi)	0-60bar (870 psi)	0-70(1015 psi)
輸入最大壓力 Supply Pressure Max	20bar (290 psi)	65bar (942 psi)	74bar(1073 psi)
監控信號 Monitor Output	0-10V / 4-20mA		
工作電源 Supply	DC24V (≤4W)		
響應時間 Response	4S		
介質 Medium	潔淨壓縮空氣或搭配 5μm 過濾器 Clean compressed air or with 5 μm filter		
重複精度 Repeatability	±0.3% F.S.		
遲滯 Hysteresis	±0.3% F.S.		
線性度 Linearity	±0.3% F.S.		
綜合精度 Accuracy	±0.3% F.S.		
靈敏度 Sensitive	0.1bar	0.5bar	0.5bar
流量 Flow Rate	80L/min @ full open	160L/min @ full open	200L/min @ full open
使用溫度範圍 Temp. Range(Operating)	0-70 °C ( 32-158 °F)		
牙口 Port Size	1/8"PT		
電氣連接 Electrical Connection	M12 電氣端子(2m) M12 Connector(2m)		

### 型號選擇 Ordering code

QKL - □ - □ - □ - □ - □ - □

#### Type

B4H	內部迴授	1/8"PT
	Internal Feedback	

#### Monitor Output

C	0 - 10 V
A	4 - 20 mA

#### Pressure and Flow

P18	0 - 18 bar 80 LPM
P60	0 - 60 bar 160 LPM
P70	0 - 70 bar 200 LPM

#### Input Signal

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

#### Mounting Bracket

M	M type
L	L type

#### Display Unit

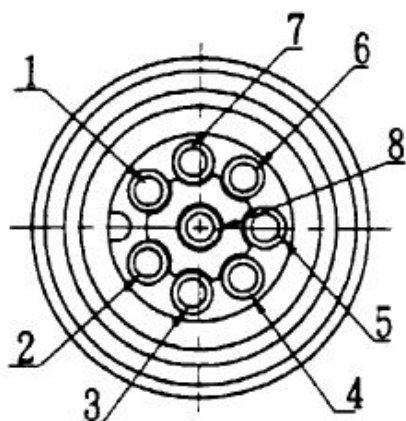
S	psi
U	bar

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### 接線方式 Wiring Description



※此接線圖為線材公座俯視圖

編號 No.	顏色 Color	功能 Function	
1	藍色 Blue	電源(-)	24V DC Power (-)
		類比訊號(-)	Command (-)
		監控輸出(-)	Output monitor (-)
		迴授訊號(-)	2 <sup>nd</sup> loop transducer 0 -10 V (-)
2	棕色 Brown	電源(+)	24V DC Power (+)
		迴授訊號(+)	2 <sup>nd</sup> loop transducer 4 - 20 mA (+)
3	黑色 Black	監控輸出(+)	Monitor output (+)
4	白色 White	類比訊號(+)	0-10 V Command (+)
			4-20 mA Command (+)
5	灰色 Gray		RS485(D-)
6	綠色 Green	迴授訊號(+)	2 <sup>nd</sup> loop transducer 0 -10 V (+)
		迴授訊號(-)	2 <sup>nd</sup> loop transducer 4 - 20 mA (-)
7	-		-
8	紅色 Red		RS485(D+)



警告：當安置完成信號線後，切勿旋轉拉扯插頭，以避免內部傳感器受到損害，造成產品功能異常或故障。



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

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### 產品注意事項



#### 配管前的處置

配管前請進行空氣吹拭(氣流沖洗)或清洗，以去除管內的切屑粉、切屑油、雜物等。

密封袋的卷法:

配管及接頭鎖緊時，不要讓配管螺牙的切屑粉、密封帶進入閥內部。

使用密封帶時，留下螺牙1.5-2牙距的位置進行纏繞。



#### 使用環境注意事項

1. 請勿在腐蝕性氣體、化學藥品、海水環境或附著上述物質的場所使用
2. 水、水蒸氣、灰塵等會附著本體的場所，容易從排氣孔、電磁閥排氣孔、內藏調壓閥的排氣孔進入本體內部，水分與灰塵等進入，是造成故障的原因之一。
3. 日光照射的場合，請用保護罩等遮蔽。
4. 周圍有熱源的場合，請遮斷輻射熱。
5. 會附著水滴、油及焊渣的場所，請採取適當的保護對策。



#### 使用流體供給源注意事項

1. 使用流體，請使用壓縮空氣、氮氣、氧氣、氬氣。
2. 壓縮空氣中內含化學藥品、有機溶劑的合成油、鹽分、腐蝕性氣體等時，是造成作動不良的原因，請避免使用。
3. 當流體為氧氣時，就伴隨著重大、通常情況下難以考慮到的危險性。但是，可以對故障災害和經濟損失進行風險管理和控制。因此，請接收具有安全資格的專家的支持，請由具備充足知識和經驗的人員進行操作。
4. 氧氣是可以助燃的氣體。摩擦生熱、靜電釋放等都可能造成起火，並使金屬盒密封材料發生燃燒。因此，請安裝合適的過濾器，以防止金屬屑和塵埃的侵入。
5. 在靠近本產品的供給側，請安裝空氣過濾器。過濾精度應選5 μm以下。
6. 含大量冷凝水的壓縮空氣是造成本產品或其他氣動元件動作不良的原因。請設置後冷卻器、空氣乾燥器、冷凝水收集器等進行對策。
7. 由空壓機產生的碳粉多的話，會附著在本產品內部，成為動作不良的原因。
8. 對於可能會發生意外的場合，請考慮火災、爆炸，設計終止氧氣供應的迴路，實施安全措施。
9. 本產品有 3 個排氣通口，請結合氧氣排放場所的具體情況，適當配管。
10. 本產品不能用作緊急關閉裝置。應在系統中安裝冗余安全系統，以防止嚴重傷害或生命損失。



#### 保固

自出廠起6個月以內為保固期限,請務必遵守使用注意事項,因人為因素造成的產品不良,則本公司對本保修不承擔任何責任。

### Product Precautions



#### **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 three exhaust ports on the product, connect the piping in order to exhaust oxygen. Do not block the exhaust port.



#### **Warranty**

KaoLuEnt. 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.

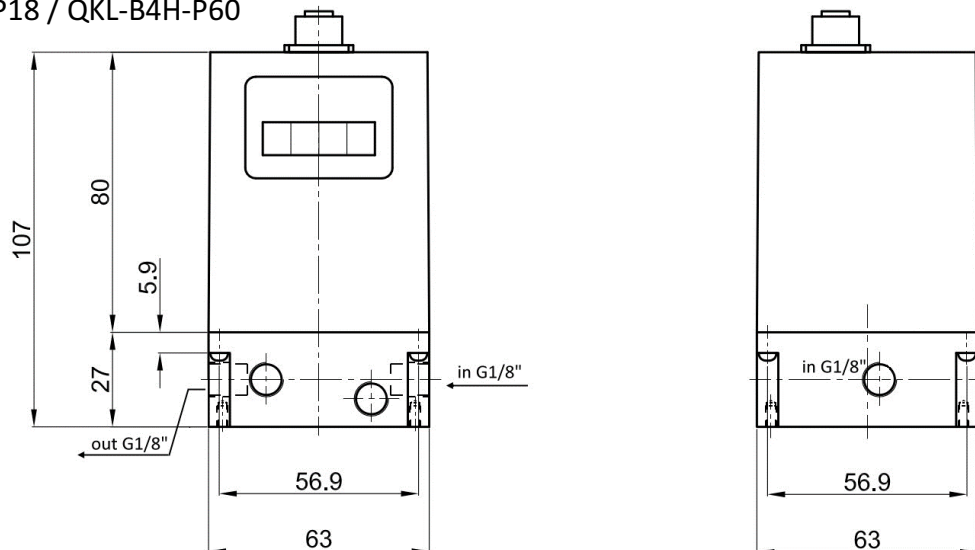
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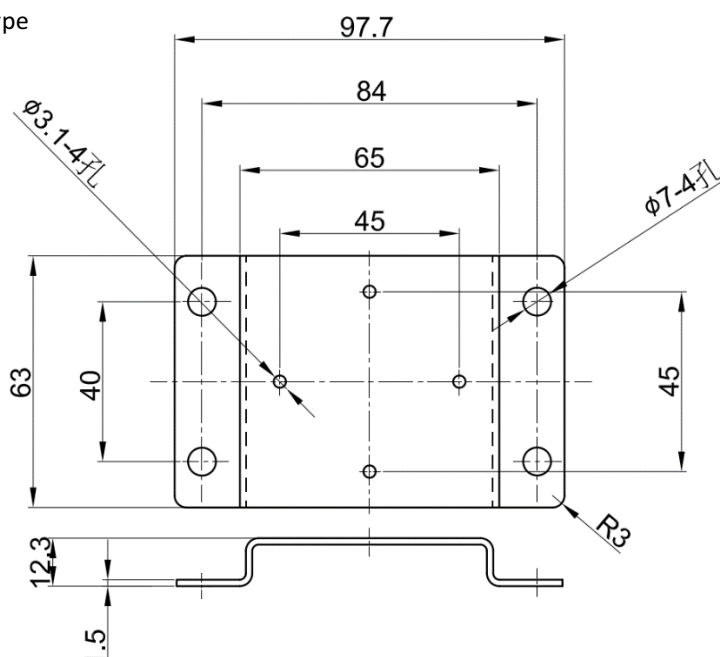
## QKL-B4H

### 外觀尺寸 Overall Dimension

#### ◆ QKL-B4H-P18 / QKL-B4H-P60



#### ◆ 固定架 M 型 Bracket M Type



#### ◆ 固定架 L 型 Bracket L Type

