Helix 微型高压泵-涡旋泵

高大 100 PSI (6.9 bar)

Helix是一款紧凑型高压涡旋泵，旨在实现满足最小的床旁诊断仪器的需求。Helix涡旋泵可在挑战性的高海拔环境，和无法使用外部压缩空气的应用中实现高压操作。 Helix涡旋泵可提供超过5.5 LPM的流量和高达100 PSI（6.9 bar）的压力，为性能至关重要且空间有限的台式诊断设备提供了最佳解决方案。

典型市场需求和应用

1. POCT床旁检测设备
2. 分子诊断
3. 临床诊断
4. 基因设备
5. 空气推动液体
6. 气动应用
8. 高压气动源

- 集成的卸荷X阀可实现高压重启
- 内部飞轮可在高压下低速运行
- 无油活塞
- 简单的安装功能
- 带有快速插入式接头的快速流体连接
- 符合RoHS和REACH

规格书

物理特性

运行环境[1]:
41 to 113°F (5 to 45°C)
储存环境t:
-22 to 158°F (-30 to 70°C)
湿度:
Up to 80% Relative Humidity
Non-condensing
与介质接触材料:
PPS, FKM, EPDM, PTFE
Aluminum, 316 Stainless Steel
The Helix pump is not sealed and not designed to pump gases that cannot escape to the environment
重量:
Helix pump with Unloading Valve:
6.39 oz (181.43 g)

气动特性

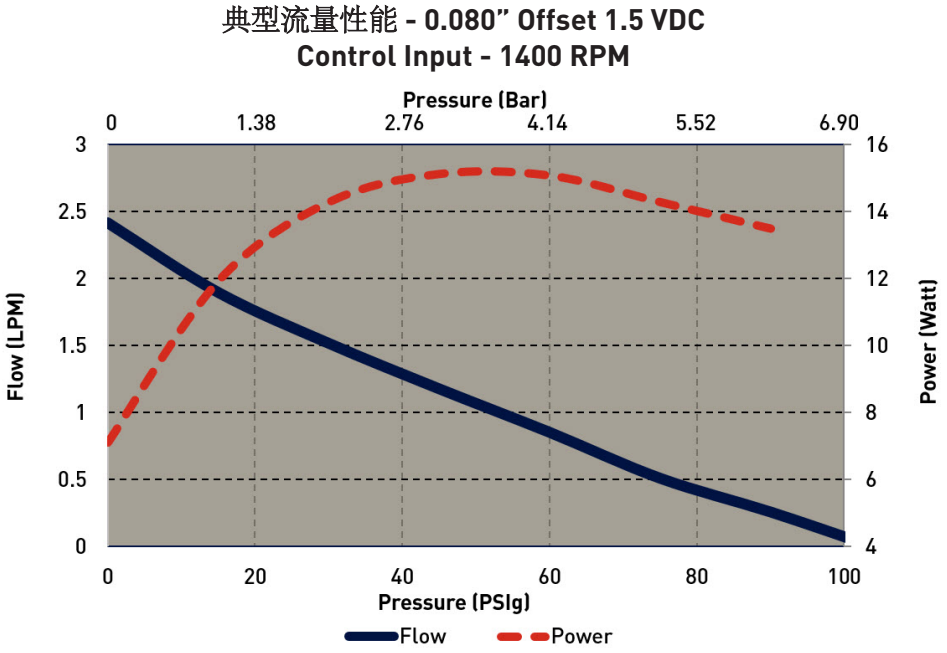
最大自由流量（空载）:
Up to 5.5 LPM @ 3000 RPM
压力范围:
Pressure Only Operation
连续负载: 60 PSIG (4.1 Barg)
Operating @1400 RPM
(1.5 Vdc Control)
间歇工作: Up to 100 PSIG (6.9 Barg)
气动接口:
6mm Male Ports for Push-in Fittings
卸载阀性能:
Valve Type: 2-Way NO X-Valve
连续工作: 100 PSIg
(6.9 Barg)
电压: 24 VDC
功率: 1 Watt

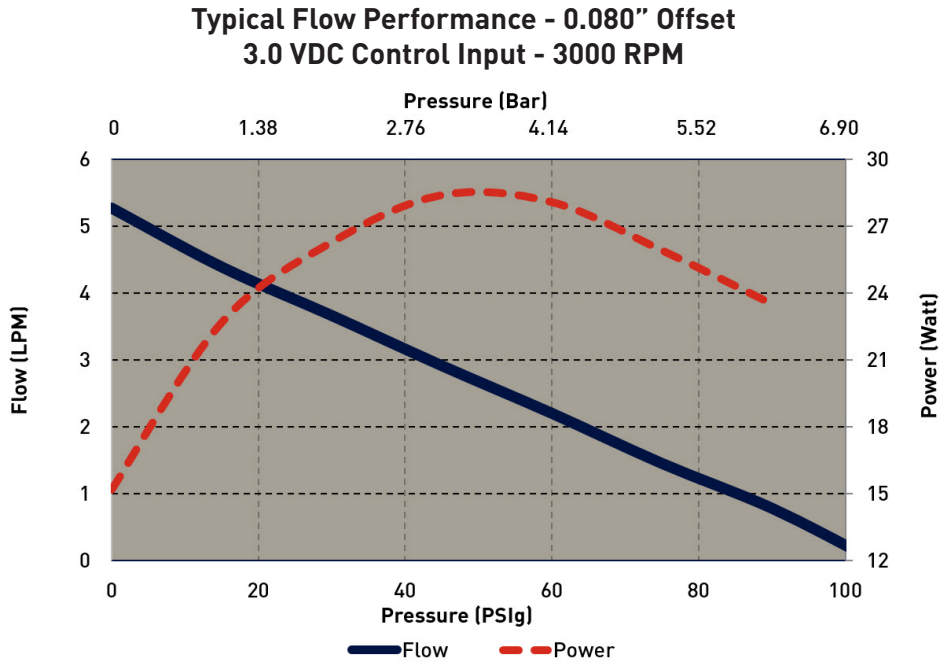
电气特性

电机类型 (DC):
无刷直流电机
电机电压:
24 VDC
Other voltages available upon request
电气端子:
4.4 inch (110mm) Wire Length
Connector: Molex 43645-0400
Pin 1: Tachometer Speed (Green)
Pin 2: 0-5VDC Input (White)
Pin 3: + VDC Power (Red)
Pin 4: -Ground (Black)
Electrical Termination:
12 inch (305mm) Wire Length

Helix 微型高压隔膜泵

Typical Flow Curve





- **Curves show flow capability with 0.080" pump offset.**
- **With a 5.0 Vdc control input the pump will operate at approximately 4400 RPM and up to 8.5 LPM, but not recommended for continuous operation.**

Helix 微型高压泵

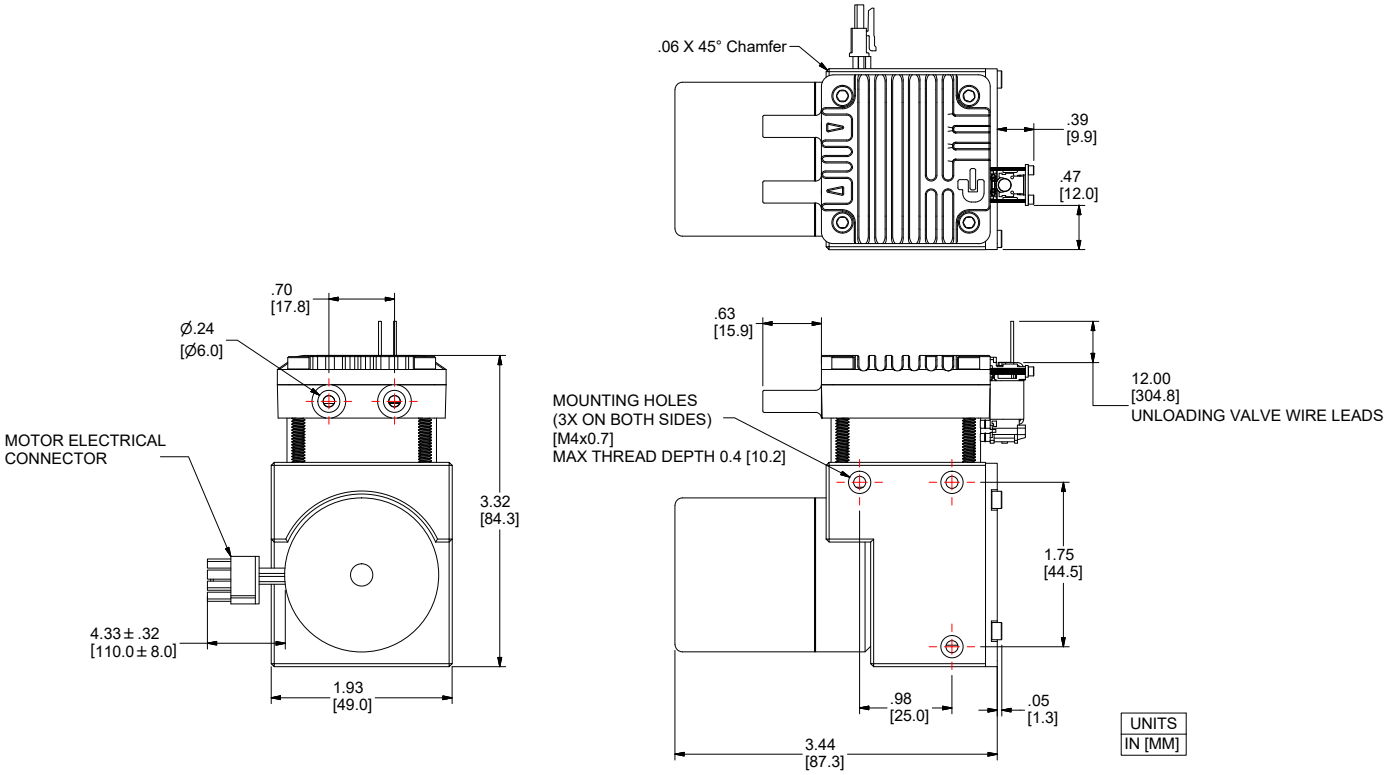
Mounting Guidelines

- Mounting holes are provided on both sides of the pump body. The 6x mounting holes are tapped for M4x0.7 machine screws, with a maximum depth of 0.4 inches [10.2 mm]

Pneumatic Port Connections

- The Helix pump has 2 straight 6mm ports designed to connect with 6mm push-in-fittings
- Parker has a 6mm to 6mm push-in fitting available as an accessory. The port is designed to work with most industry standard push-in adapters.
- Tubing rated for >100 PSIG (6.9 barg) is recommended.

机械途中

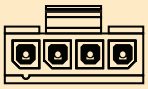


Helix 微型高压泵

Electrical Integration and Motor Control

Motor Electrical Connection

Intregrated Electrical Connector	Manufacturer: Molex Housing Part Number: 43645-0400 Terminal Part Number: 43030-0002
Termination	Pin 1: Tachometer (Green) Pin 2: 0-5VDC Input (White) Pin 3: + VDC Power (Red) Pin 4: -Ground (Black)
Wire Specification	UL AWM Style 1006 +VDC and Ground: 20 AWG 0-5VDC Input and Tachometer: 24 AWG



Pin 1 - Connector - Mate side

Motor Supply Power Electrical Details

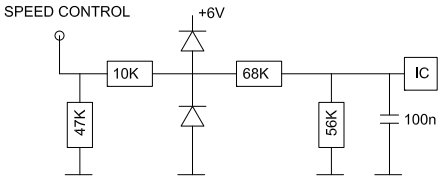
Supply Voltage Range	10-28 VDC
Internal Protection Current Limit	2.3 Amp

0-5VDC Control Electrical Details

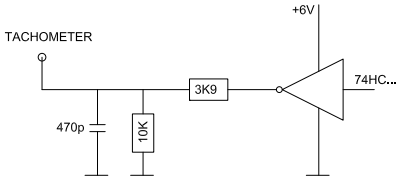
On Board Motor Circuit	0-5VDC input See circuit details below If the input is disconnected (floating input) the pump will not operate.
User Control Circuit	User must supply 0 to 5 VDC analog signal for control

Tachometer Electrical Details

Speed Signal Output	0-5VDC square wave 18 Pulses per rotation of the pump
On Board Motor Circuit	See circuit details below Low signal will be <0.5VDC, High will be >4.0VDC



Speed Control Diagram



Tachometer Diagram

Unloading Valve Electrical Connection

Termination	Stripped and Tinned Non-Polarized
Wire Specification	UL AWM Style 1007 26 AWG, 7 Strand

Unloading Valve Supply Power Electrical Details

Supply Voltage Range	24 VDC ±10%
Coil Resistance	549 Ohms ±5%

Other Motor Control Considerations

The drive electronics for the BLDC motors are integrated into the motor itself, all that is needed is a power supply with the sufficient voltage and current.

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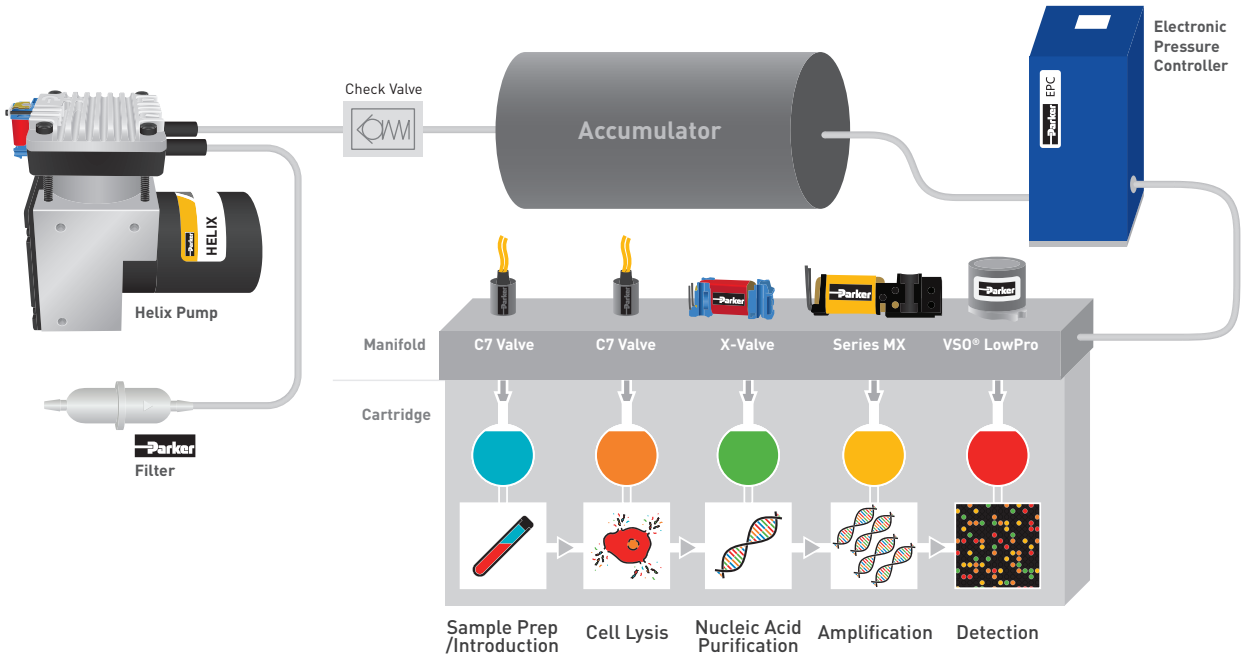
Typical Flow Diagram

Point of Care Test System (POCT)



Application Notes

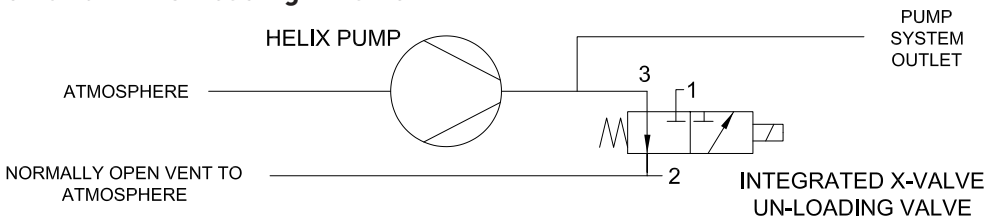
Unloading Valve:

A common application for the Helix is intermittently recharging a pressure accumulator in a compact system. The integrated unloading X-Valve removes pressure from the pump head, allowing the pump to restart against system pressures as high as 100 PSIG (6.9 Barg).

When operating the pump to pressurize the accumulator, the valve should be powered to close the valve. When the charge pressure has been achieved and the pump turned off, the solenoid valve power should be removed, so the normally-open valve will vent the pump internal pressure to atmosphere.

It is recommended to use a check-valve between the outlet and accumulator to hold pressure in the system (the Helix pump is not designed to be leak-tight).

Pump Schematic with Unloading X-Valve:



Operating Conditions

When operating at high pressure (>60 PSIG [4.14 barg]) and high speed (>1500 RPM) the Helix pump may generate significant heat. It is recommended to maintain a head temperature below 105°C. With intermittent operation no cooling should be required; however, if the pump is operated continuously cooling may be necessary.

Helix Miniature High Pressure Pump

Accessories Information

A Filter-Muffler is always recommended in the air inlet or outlet to reduce noise and risk of debris that may affect pump performance. Parker recommends 40 micron or better filtration to be used with this pump series.

6mm Push-In Fittings are recommended to connect the Helix pump pneumatic ports to tubing.

P/N: 00492-15
(10 micron Filter)

P/N: 00085-15-0001
(0.01 micron Filter)

P/N: 20934-15
(6mm to 6mm Legris Connector)

Ordering Information

Configuration	Voltage	Motor Control	Speed at Free Flow 3.0 Vdc Control	Part Number	0 Free Flow	15 PSIg 1.0 Bar	30 PSIg 2.1 Bar	45 PSIg 3.1 Bar	60 PSIg 4.1 Bar	75 PSIg 5.2 Bar	90 PSIg 6.2 Bar
 **H1R** Helix Single Head with Unloading Valve	24	0-5 Vdc	2950	**H1R-080P24HV-02**	5.5	4.3	3.6	2.9	2.2	1.4	0.7

Part Number Description

H	**1**	**R**	-	**160**	**P**	**24**	**H**	**V**	-	**02**
Model	**Pump Heads**	**Motor Type**		**Pump Offset**	**Configuration**	**Voltage**	**Materials**	**Plumbing**		**Special**
H - Helix	1 - Single Head	R - Outer Rotor BLCD		160 - 0.160" Offset	P - Pressure Only	24 - 24 VDC	H - PTFE, FKM, EPDM	N - None		02 - Analog 0-5 Vdc
								V - Unloading Valve		

Accessories Ordering Table

Part No.	Description	Comments
00492-15	Filter-Muffler - 1/8" / 4mm Barbs	Filter to 10 microns
00085-15-0001	Filter-Muffler - Straight 1/4" Port	Filter to 0.01 microns
20934-15	6mm to 6mm Legris Connector	Connects 6mm tubing to Helix pneumatic ports

Helix Miniature High Pressure Pump

Ordering Information

Please refer to sizing and selection chart for identifying which one will fit your application

Serviceable – PPF products are designed for use through the rated life and Parker does not sell replacement parts, nor is it recommended to service these in the field

Note: In addition to Parker's innovative and flexible pump designs, we offer applications engineering expertise to our customers in order to configure and recommend the optimal pump for the application. Contact Parker Applications Engineering to discuss and configure alternate pump configurations to meet your specific application requirements. Providing information on the following requirements will assist us in developing an optimal solution for your application:

- Noise
- Operating Pressure / Vacuum
- Power Consumption
- Life Requirement
- Size
- Motor Control
- Media
- Voltage

Parker Hannifin Precision Fluidics Division reserves the right to make changes. Drawings are for reference only.

Appendix A

All performance data is typical based on standard conditions: 70°F and 14.7 psia (21°C and 1 bar).

1. Noise is dependent on the configuration and operation of the pump in the application. Parker has the ability to tailor the pump configuration when noise is a critical criterion in the effort to meet the performance requirements of the application. Noise level is tested to Parker protocol P-105.

2. Life rating can vary depending on application and operating conditions.

3. Custom motor options available. Custom motors may require a significant application potential. The standard motors can be configured with a special winding to meet a particular operation point at a specified voltage

4. Maximum intermittent pressure/vacuum data is a pump capability guideline for applications that go beyond the maximum continuous levels for short periods of time. Please consult customer specific requirements with the factory or Applications Engineering.