



D17 Flow Control Vacuum Pump and Compressor Series

User Guide

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About This Document

Purpose

This document is a description of the D17 flow control vacuum pump and compressor series in the test period, which is used to guide the relevant technical personnel to understand the product characteristics.

Intended Audience

This document is intended for technical personnel. You should have a good understanding of your product and have a clear concept of the relevant parameters, specifications, and other information of the applications of the micro pump.

Keyword

Brushed motor, related parameters, cautions

Change History

The change history accumulates each update of this document. The latest version of the document contains all the previous updates.

Issue	Date	Product Version	Issuer	Modification
01	2019-11	1.0	XYL;	First official release
02	2019-12	1.0	FB	Update notes in section 2.1
03	2020-02	1.0	FB	Add model description; update outline drawing
04	2020-04	1.0	FB	Update some descriptive terms
05	2020-06	1.0	FB	Update medium description
06	2020-06	1.0	FB	Delete section 2.5
07	2021-04	1.0	FB	Update parameter test instructions
08	2021-05	1.0	FB	Update the life parameters and adjust the content format
09	2021-09	2.0	FB	1) Upgrade the product to vacuum pump and compressor series; 2) Launch 5V version;

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1 Product Characteristics



1.1 Compact Size

Pollution-free transmission, maintenance-free, allowing the medium to contain water vapor, and can operate continuously for 24 hours; small size, low energy consumption. the product weighs about 75g and the overall size is about 68x29x36mm.

1.2 Brushed Motor

This model is driven by high-quality brushed motor which has the advantages of long lifetime, low interference, low energy consumption, high reliability, etc

2 Technical Parameters

2.1 Key Parameters

Model	Rated Voltage (VDC)	Current (Vacuum pump)	Current (Compressor)	Flow (L/min)		Relative Vacuum (-kPa)	Maximum Output Pressure (kPa)
				Peak Flow(L/min)	Average Flow(L/min)		
D17L	12	≤50	≤100	≥1.0	≥0.6	≥36	≥45
D17L	5	≤120	≤240	≥0.6	≥0.4	≥36	≥45
D17S	12	≤35	≤60	≥0.5	≥0.3	≥17	≥20
D17S	5	≤100	≤190	≥0.3	≥0.25	≥17	≥20

Note:

1. Rated working voltage 12V/5V($\pm 10\%$), input voltage change will affect the load current; The vacuum pump current was measured by blocking the inlet of the pump, and the compressor current was measured by blocking the outlet of the pump;
2. Unless otherwise specified, the technical parameters are measured under the conditions of temperature 20°C and standard atmospheric pressure of 101kPa. For products with other parameters and specifications, you can contact us to customize.
3. The parameters in the table are measured at the maximum speed of the motor under rated voltage. When the motor speed changes, the pressure/vacuum level is basically unchanged.
4. The peak flow rate in the table refers to the flow value measured with a rotameter, and the average flow rate is measured with a soap film flow-meter.

2.2 Configuration options

Material option					
pump head	Reinforced nylon				
diaphragm	EPDM				
one-way valve	EPDM				
motor	BDC				
Connector Option					
Connector type	Round nozzle				
Function option					
Function type	Basic Type				

2.3 Reliability Parameters

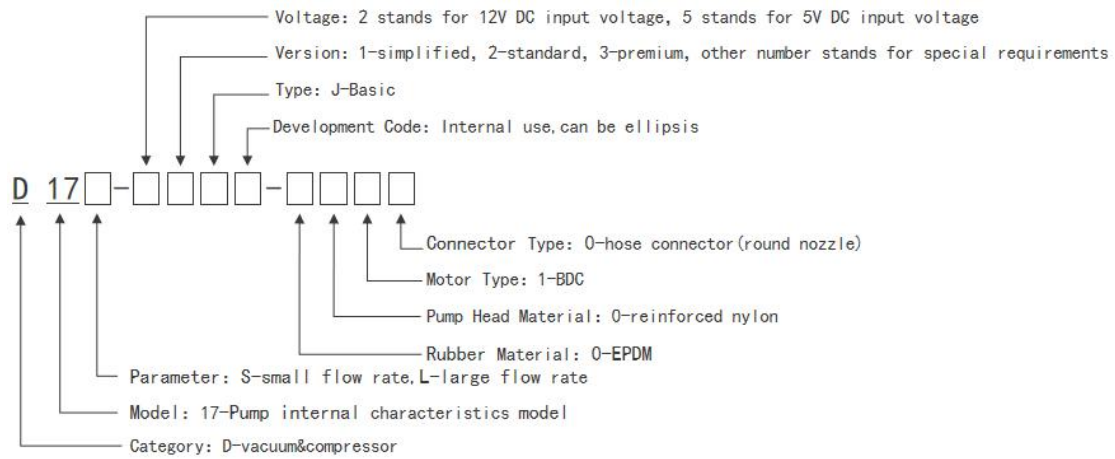
Model	D17L/D17S
Version	Simplified Version
Full-Load(hrs)	3500
No-Load(hrs)	5000
Motor(hrs)	8000
Lifetime test instructions:	Full-load life test conditions: block the pump suction port, and the exhaust port is directly connected to the atmosphere, so that the pump can operate continuously without stopping for 24 hours under the maximum vacuum condition;

	<p>No-load life test conditions : The pump suction port and exhaust hole are directly open to the atmosphere, so that the pump works under normal pressure for 24 hours without stopping and continuous operation;</p>
	<p>Motor life test conditions: under good ventilation and heat dissipation conditions, the motor does not carry a load for 24 hours without stopping Continuous operation;</p>
	<p>Environmental conditions for life test: In a clean, non-corrosive laboratory, the ambient temperature is 5~33℃ fluctuates with the climate, and the relative humidity of the environment is 50%~85%, fluctuates with the climate;</p>
	<p>The source of the experimental data is from Hailin Technology Aging and life laboratory and supplier laboratory</p>
Working Conditions	
Environment	<p>Permissible ambient temperature range of the simplified version products is 0℃~50℃, The permissible relative humidity of all pumps in this series is ≤90%, no condensation. The pump should not be exposed to the sun, and should work in a clean and ventilated environment.</p>
Medium	<p>Permissible gaseous media temperature range is 0℃~50℃. The medium is allowed to contain water vapor, but cannot contain particles or oil mist.</p>
Load	<p>The inlet can be operated at full load (i.e. completely block the inlet), but the applied load cannot exceed the maximum vacuum of the pump; the outlet must keep unobstructed.</p>
Corrosion	<p>The materials of the wetted parts: pump head, diaphragm, one-way valve (See Configuration Options for component materials), In addition, they are also exposed to nitrile rubber and silicone rubber. The above materials have a certain degree of corrosion resistance. Please further judge the resistance to the medium according to the wetted materials</p>

3 Product Model Description

3.1 Brief Description of Model Naming

Only basic type available for this series of pumps.



Example 1: D17L-21J-0010 (D17L pump, simplified version of 12V voltage basic type)

4 Cautions

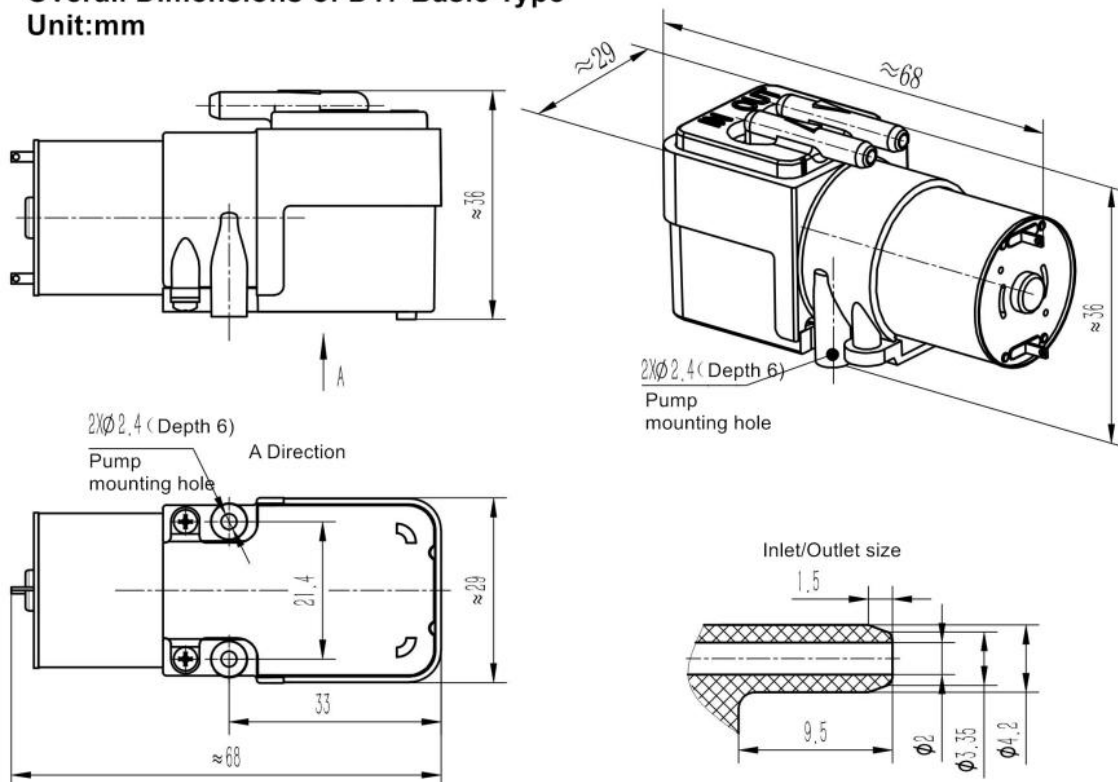


Please read the instructions in this chapter carefully and follow the instructions strictly before use.

- 1. This product has no waterproof, dust-proof, and explosion-proof functions and cannot be used in flammable and explosive environments!**
- 2. Foreign matter must not fall into the gas nozzles, and there should be no solid particles in the medium, otherwise the micro pump will be damaged!**
- 3. The outlet must keep unobstructed, otherwise the micro pump will be damaged!**
- 4. When this product is used to transfer harmful medium, it must be double-sealed to ensure personal safety!**
- 5. The matching piping components and containers must have sufficient strength to ensure personal safety!**
- 6. Please follow the instructions strictly!**

5 Dimensions

Overall Dimensions of D17 Basic Type Unit:mm



Installation instructions:

1. The screws on the pump cannot be removed, otherwise it will damage the pump;
2. The mounting holes are self-tapping screw holes, not suitable for repeated tightening and disassembly, otherwise the installation will be loose and unreliable.

6 Appearance

