

HLD6 Syringe Pump with Rotary Valve

Specification Sheet



Table Of Contents

1 Introduction	3
1.1 Features	3
2 Appearance and Dimensions	4
3 Technical Characteristic	5
3.1 Syringe Piston Drive Assembly	5
3.2 Motion Curve	5
3.3 Control Interface	5
3.4 Upgrade	5
3.5 Maintenance	5
4 Component Structure	6
5 Valve Configuration	7
6 Specifications	8
7 Selection Guide	9
8 Ordering Information	9
8.1 HLD6 Syringe Pump	9
8.2 SRV1 Rotary Valve	9
9 Appendices	10
9.1 Appendix : Tables and Figures	10

1 Introduction

In today's competitive market environment, how to shorten product development cycles and accelerate time-to-market is a critical issue for every instrument developer. However, the extended periods required for the development, testing, and validation of core microfluidic components often impact final product delivery. From now on, use the HLD6 series syringe pump to comprehensively accelerate your product release cycle.

1.1 Features

- Designed and manufactured to the highest quality standards, compliant with ISO9001, EU RoHS Directive, and CE safety certification, eliminating regulatory.
- Provides fluid applications in the range of 2 μ L~25mL with different valve configuration options and excellent accuracy.
- For multi-channel parallel processing applications, it has excellent features such as compact size, easy maintenance, long lifespan and extremely stable driver software.
- Offers a rich range of syringe capacity options: 25 μ L, 50 μ L, 100 μ L, 250 μ L, 500 μ L, 1.0mL, 2.5mL, 5.0mL, 10mL, 25mL.
- Integrated valve design, capable of independently completing various complex liquid operations such as pipetting, dispensing, and dilution through a built-in programmable command system.
- Integrated drive control, paired with a powerful command system and automatic operation mode, can even fulfill all your fluid operations without requiring an additional main control board.

Foreach Warranty

Please refer to our General Terms of Sale (GTS)

2 Appearance and Dimensions

Unit: mm

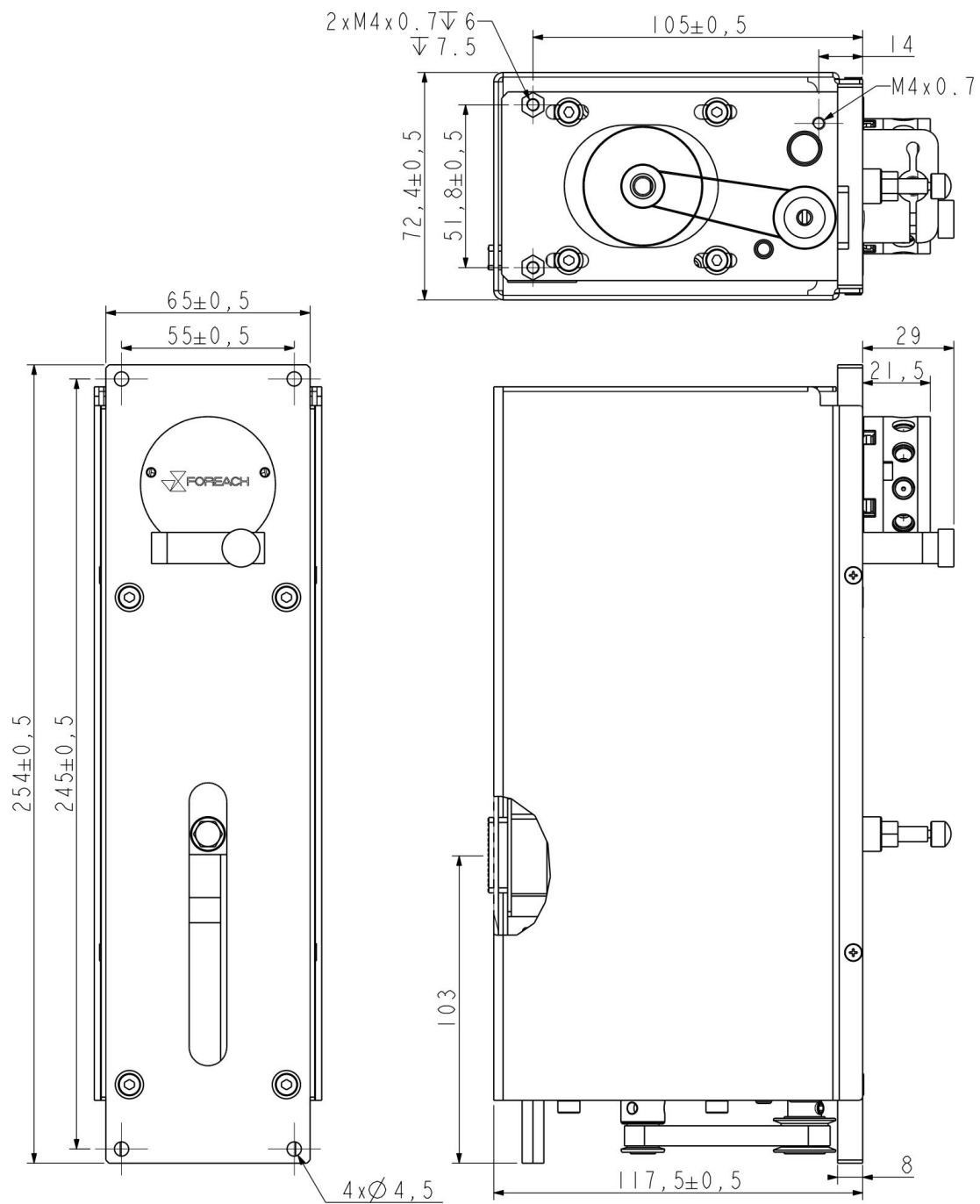


Figure 1 Outline Dimensions

3 Technical Characteristic

3.1 Syringe Piston Drive Assembly

HLD6 series adopts self-lubricating and ultra-wear-resistant special nut manufacturing materials, specially designed mechanical transmission structure, with extremely stable linear motion performance. The total stroke length is 60mm, driven by a stepper motor, which is paired with a precision out-of-step detection device to realize gapless syringe reset and piston motion out-of-step detection.

3.2 Motion Curve

The full stroke operation can be completed in as fast as 1.2 seconds and as slow as 160 minutes, and customizable settings including start speed, acceleration, top speed, deceleration, and stopping speed are available to meet the needs of different applications.

3.3 Control Interface

Users can freely choose RS-232/RS-485 or CAN to control the HLD3. Via RS-485 networking, users can control up to 15 HLD3 units with a single communication interface. It is equipped with 2 input and 3 output pins to achieve timing synchronization between the HLD3 and other HLD3 units or other devices. Combined with automatic operation mode, fully automated operation without any main controller is achievable.

3.4 Upgrade

Client firmware is upgradeable.

3.5 Maintenance

The software includes built-in run counters for the syringe and valve, providing reliable data for instrument maintenance scheduling.

4 Component Structure

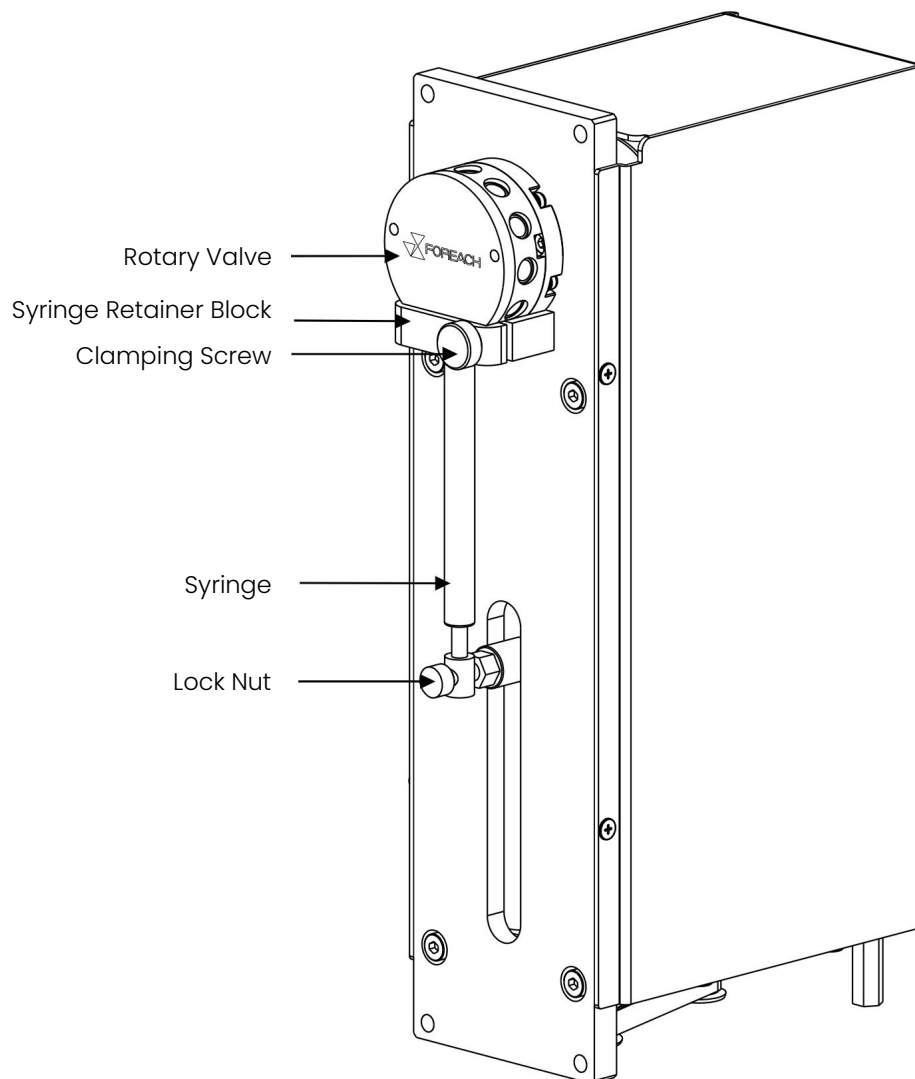


Figure 2 Component Structure

5 Valve Configuration

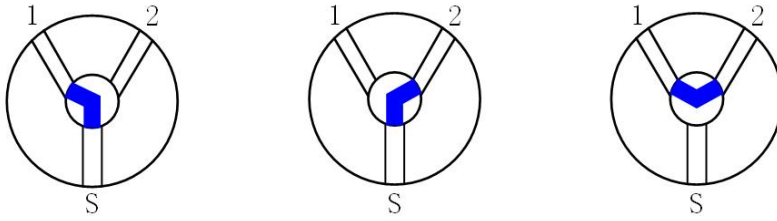


Figure 3 3-port Non-Distributing Valve

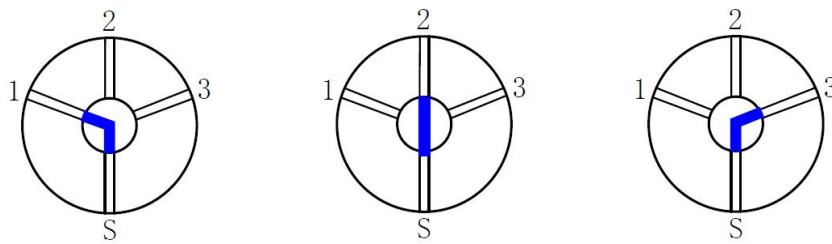


Figure 4 3-port Valve

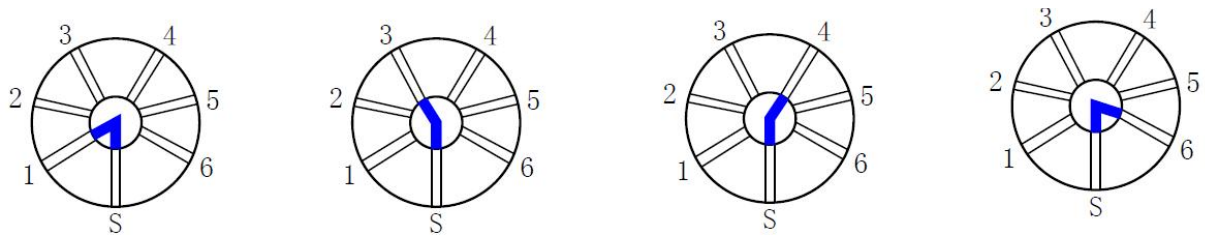


Figure 5 6-port Valve

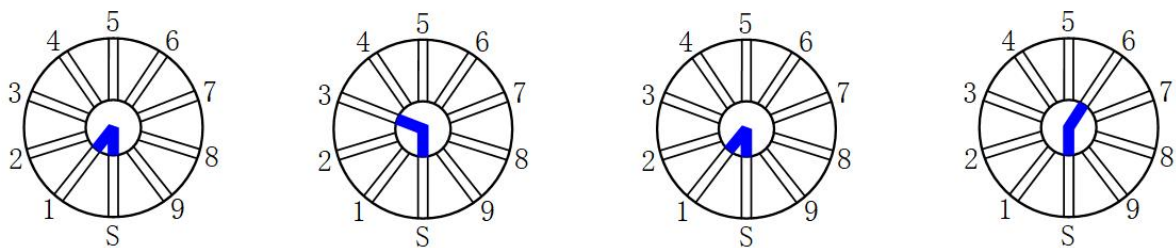


Figure 6 9-port Valve

6 Specifications

Table 1 Specifications

Specifications			
Specification		Parameters	
Piston	Stroke	60mm	
	Full Stroke Operating Time	1.2-9600s	
	Linear Velocity	0.00625-60mm/s	
	Resolution	Standard Mode: 6000 increments; Microstepping Mode: 48000 increments	
Syringe	Capacity	25µL, 50µL, 100µL, 250µL, 500µL, 1.0mL, 2.5mL, 5.0mL, 10mL, 25mL	
	Threaded Connection	1/4-28UNF-2B	
	Pressure Resistance	0.4MPa	
	Accuracy	Accuracy Error ≤1% (rated stroke)	
	Repeatability	Repeatability Error ≤ 0.05% (Rated Stroke, ≥250 µ L) Repeatability Error ≤ 0.1% (Rated Stroke, ≤100 µ L)	
Rotary Valve	Valve Configuration	2-port Solenoid Valve, 3-port Solenoid Valve	2-port Non-dispensing Solenoid Valve, 3-port Dispensing Solenoid Valve
	Threaded Connection	1/4-28UNF-2B	1/4-28UNF-2B
	Response Time	≤50ms	≤50ms
	Operating Pressure Range	-75KPa-0.2MPa	-75KPa-0.2MPa
Installation Dimensions	Height	254mm	
	Width	Depends on number of channels, see Ch.2 Dimensions.	
	Depth	118mm	
Power Supply	Voltage	24V±10%	
	Current	2-Port Configuration: 20A (Peak);3-Port Configuration: 2.5A (Peak)	
Interface	Type	RS-232, RS-485, CAN	
	Baud Rate	9600/38400 (RS-232 & RS-485) 100k, 125k, 250k, 500k & 1M (CAN)	
	Specification	Data bits: 8 Parity: None Stop Bit: 1	
Communications	Address	Up to 15 Individual Addresses	
	Correspond	Data Terminal	
Firmware		Programmable ramps, cutoff speed, backlash compensation, piston speed, delays and loops, termination moves, diagnostics, absolute and relative positions	
Input		2x TTL Inputs (4.7kΩ Pull-up)	
Output		3x CMOS (HC-level) Outputs	
Environment	Operating Temperature	15°C to 45°C	
	Operating Humidity	20-80%RH at 40°C , Non-condensing	
	Storage Temperature	-20-65°C	

Note:

Parameters subject to change. For details, please consult FOREACH.

7 Selection Guide

Table 2 Selection Guide

Selection Guide						
Series	Valve Configuration	Valve Diameter	Wetted Materials	Thread Specification	Pressure Resistance	Valve Type
HLD6	SRV1-D9A	1.2mm	PEEK, FFKM, FKM, Alumina, Yttria-Stabilized Zirconia, Synthetic Sapphire	1/4-28UNF-2B	0.7MPa	9-Port Valve
HLD6	SRV1-D6A					6-Port Valve
HLD6	SRV1-D3A					3-Port Valve
HLD6	SRV1-NYA					3-Port Non-distributing Valve

Note:

Not all combinations are available. Standard products are listed in "Order Information".

8 Ordering Information

8.1 HLD6 Syringe Pump

Table 3 HLD6 Syringe Pump Order List

HLD6 Syringe Pump Order List		
Product Code	Model	Description
919083	HLD6-SRV1-NYB	Syringe Pump HLD6-SRV1-NYB 919083
919087	HLD6-SRV1-D6A	Syringe Pump HLD6-SRV1-D6A 919087
919085	HLD6-SRV1-D9A	Syringe Pump HLD6-SRV1-D9A 919085

8.2 SRV1 Rotary Valve

Table 4 SRV1 Rotary Valve Order List

SRV1 Rotary Valve Order List		
Product Code	Model	Description
489001	SRV1-N3A	Rotary Valve SRV1-N3A 489001
489002	SRV1-D3A	Rotary Valve SRV1-D3A 489002
489003	SRV1-D6A	Rotary Valve SRV1-D6A 489003
489004	SRV1-D9A	Rotary Valve SRV1-D9A 489004

9 Appendices

9.1 Appendix : Tables and Figures

Table 1	Specifications	8
Table 2	Selection Guide.....	9
Table 3	HLD6 Syringe Pump Order List.....	9
Table 4	SRV1 Rotary Valve Order List.....	9
Figure 1	Outline Dimensions	4
Figure 2	Component Structure.....	6
Figure 3	3-port Non-Distributing Valve.....	7
Figure 4	3-port Valve.....	7
Figure 5	6-port Valve.....	7
Figure 6	9-port Valve.....	7

