麓胜流体
Lucksun Flowtech

BIOTECH PUMPS

麓胜流体多元隔膜泵

服务客户 Serving Customers | 持续创新 Continuous Innovation | 质量第一 Quality First

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COMPANY INTRODUCTION

企业简介

上海麓胜流体科技有限公司创立于2018年，是一家位于上海市松江区的流体科技公司，专注于泵，阀及流体附件的研发，制造和流体输送整体方案配套。采用国际先进技术和先进的企业管理理念，聚焦于产品创新、技术研发及市场拓展，致力于提升产品质量和市场影响力，为客户提供高品质的流体输送解决方案和服务。

Shanghai Lucksun Fluid Technology Co., Ltd. was founded in 2018 and is a fluid technology company located in Songjiang District, Shanghai. It focuses on the research and development, manufacturing, and overall fluid transportation solutions for pumps, valves, and fluid accessories. Adopting international advanced technology and advanced enterprise management concepts, focusing on product innovation, technological research and development, and market expansion, we are committed to improving product quality and market influence, and providing customers with high-quality fluid conveying solutions and services.

核心价值观 /CORE VALUES

服务客户
Serving Customers

以客户需求为核心导向
Customer needs as the core orientation

持续创新
Continuous Innovation

以不断创新为核心追求
Continuous innovation as the core pursuit

质量第一
Quality First

以保证质量为核心目标
Ensuring quality as the core objective

PRODUCT INTRODUCTION

产品介绍

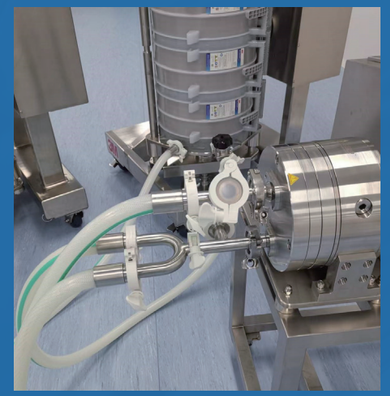
四元隔膜泵工作原理 /QUATERNARY DIAPHRAGM PUMP WORKING PRINCIPLE

四元隔膜泵是一种电机驱动隔膜泵，隔膜在偏心轴转动的驱动下，依次沿轴向往复摆动，隔膜的往复摆动导致隔膜腔室内容积变化，当隔膜向后摆动时，隔膜腔室内容积变大，形成负压，输送介质在压差的作用下，打开入口单向阀，进入泵腔，当隔膜向前摆动时，隔膜推动介质，隔膜腔室内形成正压，关闭入口单向阀，介质经过出口单向阀阀片排出。四个隔膜依次循环往复工作，每个隔膜输送介质相互补偿，保证泵出口流量及压力稳定。

The Lucksun quaternary diaphragm pump is a type of motor-driven diaphragm pump.The diaphragm is driven by an eccentric shaft and swings back and forth along the axial direction.The reciprocating swing of the diaphragm causes a change in the volume inside the diaphragm chamber.When the diaphragm swings back, the volume inside the diaphragm chamber increases, forming a negative pressure.Under the pressure difference, the medium is transported. The inlet one-way valve is opened and enters the pump chamber.When the diaphragm swings forward, the diaphragm expels the medium, forming a positive pressure inside the diaphragm chamber.The inlet check valve is closed, and the medium is discharged through the outlet check valve. The four diaphragms work in a cyclic manner, with each diaphragm compensating for each other to ensure a continuous and stable flow and pressure.

适用料液/Applicable Fluid

- 细胞悬浮液/Cell suspension
- 上清液/Supernatant
- 细菌性疫苗和病毒性疫苗/Bacterial and viral vaccines
- 血液制品/Blood products
- 大分子蛋白溶液：抗体及重组蛋白等/Large molecule protein solution: antibodies and recombinant proteins, etc
- 缓冲液及各种含盐溶液/Buffers and various saline solutions
- 层析溶液/Chromatographic solution
- 层析介质/Chromatography medium



应用工艺流程/Applicable technological process

- 层析/Chromatography
- 切向流/Cross-flow filtration system, TFF
- 配液/Buffer Mixing System
- 深层过滤、纳滤、除病毒过滤/Depth filtration, nanofiltration, and virus removal filtration
- 上游培养、灌流/Upstream cultivation and irrigation
- 离心分离、均质机/Centrifuge separation and homogenizer
- 膜包清洗/Membrane bag cleaning
- 发酵罐补液/Fermentation tank replenishment

产品型号和性能

麓胜流体DDP系列多元隔膜泵，流量范围可以覆盖小试、中试及放大全工艺流程，避免工艺变更风险。

卫生级设计
Hygienic design

自吸能力强
Strong self-priming ability

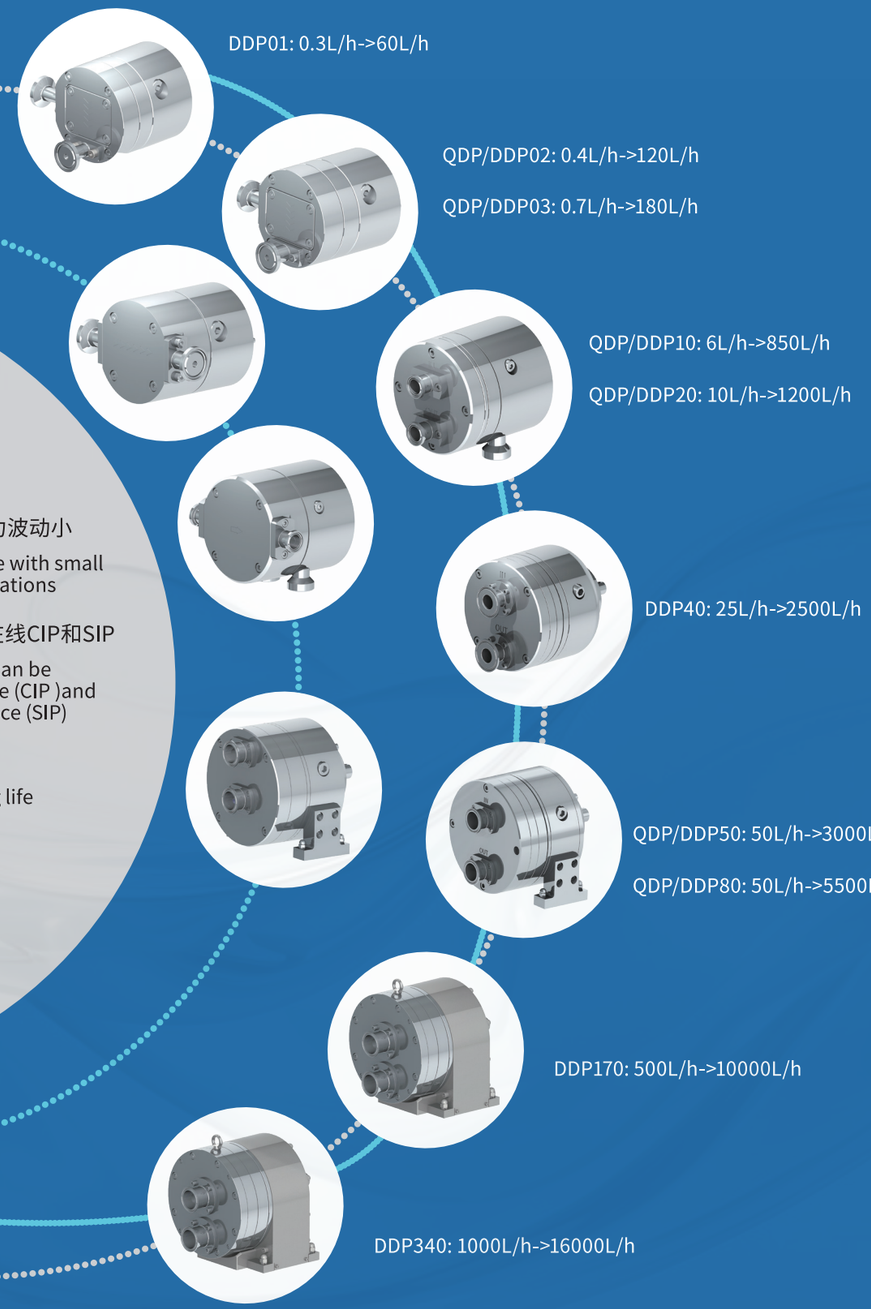
低剪切，无回流
Low shear, no backflow

可干转，无摩擦发热
Can run dry, no friction, no temperature rise

流量稳定，压力波动小
Stable flow rate with small pressure fluctuations

易于清洗，可在线CIP和SIP
Easy to clean, can be cleaned in place (CIP)and sterilized in place (SIP)

运行寿命长
Long operating life



Product model and performance specifications

The Lucksun DDP series multiple diaphragm pump has a flow range that can cover the entire process of lab test, pilot, and scale production, avoiding the risk of process changes.

产品特性/Product Features

可排净设计/Fully drainable design

采用独特的流道结构，保证工作结束后，进出液腔室和隔膜腔室内液体可以排出，避免积液风险。

Adopting a unique flow pass structure, ensures that after running, the liquid in the liquid chamber and the diaphragm chamber can be discharged to avoid the risk of liquid accumulation.

迅速排气/Quickly exhaust air bubbles

特殊的隔膜腔室进出液结构设计，确保隔膜腔室内气泡快速排出，消除了由于隔膜腔室内气泡不易排出造成的压力和流量波动。

The special diaphragm chamber design ensures the rapid discharge of bubbles inside the diaphragm chamber, eliminates pressure and flow fluctuations caused by the difficulty of bubble discharging.

易于清洗的细节设计/Easy to clean detail design

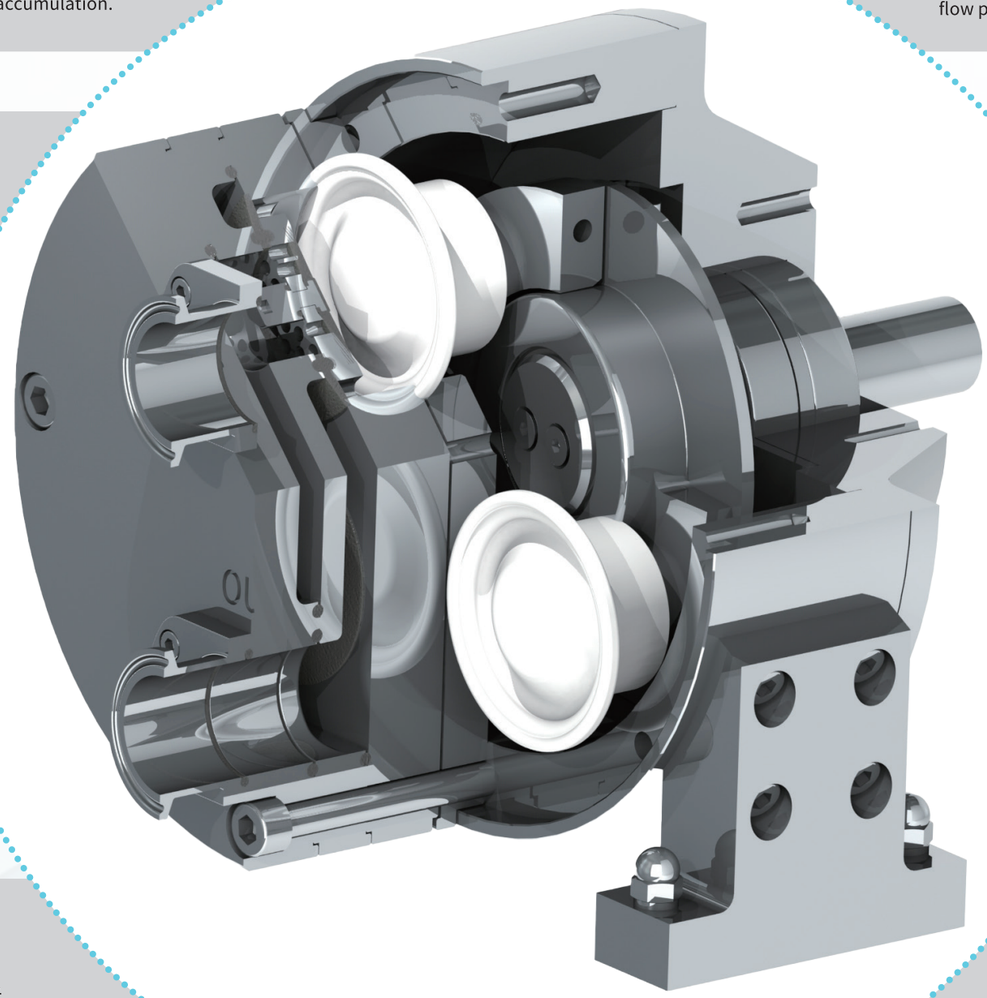
对清洗死点位置进行合理细节处理，通过圆角及密封圈沟槽的合理设计，消除清洗死点。

The cleaning dead point position is treated with reasonable details, and the cleaning dead point is eliminated through the reasonable design of rounded corners and sealing grooves.

低剪切、柔和输送/Low shear, gentle conveying

采用弹性体隔膜和止回阀，输送柔和，同时泵腔流道消除尖锐形状的光滑圆角设计，降低磨损发热，对输送介质剪切率低。

Adapting elastomer diaphragm and check valve, gentle conveying, while the smooth rounded corner design of the pump chamber eliminates sharp shapes, reduces wear and heat, and has low shear rate to the conveying fluid.



低脉动，压力稳定/ Low pulsation, stable pressure

多元隔膜排出介质，相互补偿，保证泵出口流量脉动小及压力稳定。

Multiple diaphragm discharge fluid in turn, mutual compensation, to ensure that the pump's flow pulsation is low and the pressure is stable

多种金属/非金属接液材质可选/A variety of metal/non-metal wetted parts materials are available

可选材质：
金属材质：SS316L, 904L, 双相钢，哈氏合金…
非金属材质：PP, PE, PVDF, PEEK….

Metal material: SS316L, 904L, duplex steel, Hastelloy...
No-metal material : PP, PE, PVDF, PEEK….

极佳的流量稳定和线性性能/Excellent flow stability and linear performance

由于精准的计量精度和流量稳定精度，可实现定量间隔添加和定量连续添加，优异的线性性能有益于信号反馈流量调节响应的精度

Due to accurate measurement accuracy and flow stabilization accuracy, quantitative interval addition and quantitative continuous addition can be achieved, and excellent linear performance is beneficial to the accuracy of signal feedback flow regulation response.

多种接口方式及接口方向可选/Multiple connection modes and directions are optional

可依据客户需求提供多种接口形式和接口方向，便于客户系统集成和现场操作。

It can provide a variety of connection type and connection directions according to customer requirements, which is convenient for customer system integration and on-site operation.

智能控制定制化解决方案 /INTELLIGENT CONTROL CUSTOMIZED SOLUTIONS

产品特点/Product Features

彩色智能控制屏
color smart control screen

人机交互更友好，直观
Human-computer interaction is more friendly and intuitive

可提供审计追踪功能，符合21 CFR PART11 要求
Can provide audit trail function, comply with 21 CFR PART11 requirements

权限可多级管理
Permissions can be managed at multiple levels

可远程控制及多界面显示和操作
Can be remote control and multi-interface display and operation

多种运行模式可选
Multiple operation modes are available

多端口预留，可安装各类功能组件
Multiple ports are reserved and various functional components can be installed

可依据客户需求定制功能
Functions can be customized according to customer needs

功能介绍/Function Features

可实现恒速、恒压、恒压差、恒TMP、恒流等功能（恒压、恒压差、恒TMP需要配置压力传感器，恒流需要配置流量计）

Can achieve constant speed, constant pressure, constant pressure difference, constant TMP, constant flow and other functions (Constant pressure, constant differential pressure, constant TMP need to configure pressure sensor, constant flow need to configure flowmeter)

运行状态实时显示，可显示运行转速、实时压力、压差、TMP，参考流量等参数，同时可以查看运行趋势图谱

The running status is displayed in real time, including the running speed, real-time pressure, pressure differential, TMP, reference flow, and the running trend graph

配备压力保护设定及超压报警停机功能，报警信息实时记录

Equipped with pressure protection setting and overpressure alarm shutdown function, alarm information real-time record

可提供逻辑定流功能，满足客户现场没有流量计的定量运行需求。

provides logical constant flow function to meet the quantitative operation needs of customers without flowmeters on site.

参考流量一键标定功能，可实现参考流量准确

Reference flow one-click calibration function, can achieve accurate reference flow

可实现运行数据记录和导出功能

Provides the function of recording and exporting running data

系统可内设三级权限，优化权限分配方式，方便试验数据管理，可提供审计追踪功能

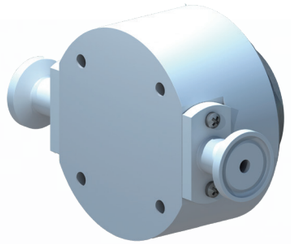
The system can have three levels of authority, optimize the mode of authority allocation, facilitate the management of test data, and provide audit tracking function

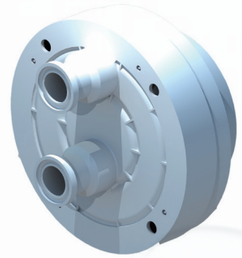
提供特定工艺流程功能，可进行水通量测定，DF及TFF流程功能可选择

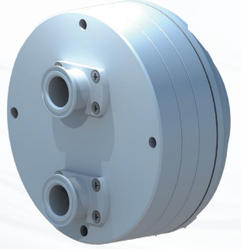
Provides process-specific functions for water flux measurement, DF and TFF process functions are selectable

一次性使用泵腔 /Single Use Pump Chamber

产品特点/Product Features







10种规格型号供客户选择，流量范围覆盖0.3L/h到16000L/h
10 types of specifications for customers to choose, the flow range covers 0.3L/h to 16000L/h

可提供排尽结构
Drainable structure is available

泵头运行中无磨损颗粒产生
No wear particles are produced during pump operation

主体部件采用进口原料生产
The main parts are produced with imported raw materials

机加工塑料或注塑成型塑料可选
Machined plastic or injection molded plastic is optional

洁净室内生产，两层无菌袋包装
Clean room production, two layers of aseptic bag packaging

可提供完整性测试
Integrity testing is available

允许伽马辐照灭菌
Sterilization by gamma irradiation is permitted

可提供用于集成系统的OEM泵，或桌面型智能泵
OEM pumps for integrated systems, or desktop smart pumps are available

可提供的文件及验证/Docum entation and verification

- 生物相容性报告 USP87/USP88 Biocompatibility report USP87/USP88
- 基于BPOG的可提取物验证报告 Extractable validation report based on BPOG
- 完整性测试及报告 Integrity testing and report
- 生物负载测试及报告 Bioburden test and report
- 辐照灭菌验证及报告 Irradiation sterilization verification and report

产品选型表/PRODUCT SELECTION TABLE

Pump Code

DDP	0 1	S	W	W / T	A	1 / R / N	N	N - U
Product Type	Flow Type	Wetted Part Material	Diaphragm Material	Check Valve Material / Connection Type	Connection Size	Connection Direction / Clamp Position / Drive Type	Control Type	Other Option

Type

Code	Description
DDP	Drainable diaphragm pump (sanitary design, metal surface polishing, elastomer compliant with FDA & USP)
DDG	Diaphragm pumps for general industrial processes (non-sanitary design)
QDP	Conventional, non-drainable diaphragm pump. (sanitary or non-sanitary, elastomer FDA & USP compliant)

Flow& Pressure

Code	01	02	03	10	20	40	50	80	110	170	240	340
Maximum Flow (L/h)(1)	60	120	180	850	1200	2500	3000	5500	6500	10000	14000	16000
Minimum Flow (L/h)	0.3	0.5	0.7	6	10	25	50	50	250	500	500	1000
Maxi Pressure(Bar)	Medium temperature<=40°C: 6Bar											
Maxi Temperature(Bar)	Medium temperature >40°C: 4Bar											

Wetted Parts

Code	Description	Temperature limitation			
		Working Temp.	CIP Temp.	SIP Temp.	Autoclave
S	SS 316L	<=80°C	90°C	130°C	130°C
N	SS 904L	<=80°C	90°C	130°C	130°C
H	Hastelloy C	<=80°C	90°C	130°C	130°C
D	Duplex stainless steel 2507	<=80°C	90°C	130°C	130°C
T	Titanium Alloy	<=80°C	90°C	130°C	130°C
P	Pharmaceutical grade PP	<=60°C	-	-	-
Q	Industrial grade PP	<=60°C	-	-	-
F	PVDF	<=60°C	-	-	-
K	PEEK	<=60°C	90°C	130°C	130°C
U	Single use Pump Chamber, PP wetted parts	<=60°C	-	-	-
J	Single use Pump Chamber, PE wetted parts	<=60°C	-	-	-
X	For special requests, please contact the manufacturer				

Diaphragm

Code	Description
W	**TPE Diaphragm (Thermal Plastic Elastomer)**
X	For special requests, please contact the manufacturer

Check Valve& O-Rings

Code	Description
E	**EPDM**
V	FKM
X	For special requests, please contact the manufacturer

Connection Type&Size

接口代码	尺寸代码	Description	DDP01	DDP02-DDP03	DDP10-DDP20	DDP40	DDP50-DDP80	DDP110-DDP340
T	A	Tri-clamp	1/8"-option	**1/4"-Standard**	1/2"-option	**1"-Standard**	1" -option	1 1/2"-option
	B	Tri-clamp	**1/4"-Standard**	3/8"-option	**3/4"-Standard**	1 1/2"-option	**1 1/2"-Standard**	**2"-Standard**
	C	Tri-clamp	1/2"-option	1/2"-option	-	-	2"-option	2 1/2"-option
	D	Tri-clamp	3/8"-option	-	-	-	-	-
H	A	Hose Barb	**1/8"-standard**	1/4"-Standard	1/2"-option	**1"-Standard**	1" -option	1 1/2"-option
	B	Hose Barb	1/4"-option	3/8"-option	**3/4"-Standard**	1 1/2"-option	**1 1/2"-Standard**	**2"-Standard**
	C	Hose Barb	1/2"-option	1/2"-option	3/8"-option	-	2"-option	2 1/2"-option
L	A	Ruhr joint	2.5mm	3.5mm	-	-	-	-
M	A	Cone & Thread End Connection	M8x1.25	M10x1				
K	A	SMS Male buckle joint	-	-	-	1"	1 1/2"	2"
N	A	DIN Male buckle joint	-	-	-	1"	1 1/2"	2"
F	A	DIN Flange	-	DN10	DN15	DN25	DN40	DN50
S	A	BSPT Internal thread	-	1/4"BSPT	1/2"BSPT	1" BSPT	1 1/4" BSPT	-
X	X	For special requests, please contact the manufacturer						

Connection Direction

Code	Description	DDP01	DDP02-DDP03	DDP10-DDP20	DDP40	DDP50-DDP80	DDP110-DDP340
1	Front In/Front Out	Option	Option	**Recommended**	**Recommended**	**Recommended**	**Recommended**
2	Left In/Front Bottom Out	**Recommended**	**Recommended**	-	-	-	-
3	Right In/ Front Bottom Out	Option	Option	-	-	-	-
4	Top In/ Front Bottom Out	Option	Option	-	-	-	-
5	Left In/ Front Top Out	Option	Option	-	-	-	-
6	Right In/ Front Top Out	Option	Option	-	-	-	-
7	Bottom In/ Front Top Out	Option	Option	Front Bottom In/ Front Top Out	Front Bottom In/ Front Top Out	Front BottomIn/ Front Top Out	Front Bottom In/ Front Top Out
8->16	Only applicable to QDP series and some DDG series 8: Side In/Side Out; 9: Left In/Top Out; 10: Top In/Right Out; 11: Right In/Bottom Out; 12: Bottom In/Left Out; 13: Right In/Top Out; 14: Top In/Left Out; 15: Left In/Bottom Out; 16: Bottom In/Right Out						
X	For special requests, please contact the manufacturer						

Clamp Position

Code	Description
R	**Facing the pump, clamp locked from the right side - standard**
C	Adopt socket type hoop for SUS Pump Head
L	Facing the pump, clamp locked from the left side - standard

Motor Cover

Code	Description
Y	**With stainless steel motor housing**
N	Without stainless steel motor housing

Drive Type

Code	Description	Code	Description
N	Pump head, no drive unit	D	DC brushless motor
A	Variable frequency motor	E	Explosion-proof servo motor
B	Variable frequency explosion-proof motor	H	HCFA servo motor
C	Panasonic servo motor	S	Siemens servo motor
X	For special requests, please contact the manufacturer		

Control Type

Code	Description	Code	Description
N	No control requirement	F	With intelligent control unit and operating system follows 21CFR Part 11
A	with Siemens KTP700 intelligent control panel	M	With 7" MCGS smart control panel
B	Digital display speed control panel	S	With 4.3" speed control panel
C	Digital display speed control cabinet/If the drive mode is C, this configuration is a 7 "control panel		
X	For special requests, please contact the manufacturer		

Other Options

Code	Description
N	No
D	Diaphragm leak alarm sensor
E	Movable trolley
R	The control panel is located on the left side of the pump
X	For special requests, please contact the manufacturer

Special Options

Code	Description
U	Adapts to metal pressure sensors and SUS sensors

The nominal flow rate refer to the performance for aqua liquid, like clean water. if the viscosity and Specific Gravity has changed, the actual flow rate will be changed relevently.