Mighty
Spraying Technology Co., Ltd.

High pressure Diaphragm Pump

Patent No. : M-607878 / U.S. Patent No. : 11542934

Advantages of MPD diaphragm pump

1. Built-in patented circulation pump, it makes a low working temperature, and extending the service life of pump.
2. Special design, it can prevent the pump from the damage of opertion without liquid.
3. High pressure, high efficiency diaphragm pump, which can be used for high viscosity liquids (160 cSt).
4. Minimum 300 rpm , 1500rpm.
   This character make MPD pump can be combined with electric servo motor as energy saving system.
5. Maximum working pressure: 100 bar.
6. MPD pump can be use in pure water systems. It can reduce the using of coolant in cutting system, which will be friendly of environment.
7. Tolerate higher particles, as a non-contact pump, MPD pump can take maximum particles is 500 micron.

HOW TO ORDER

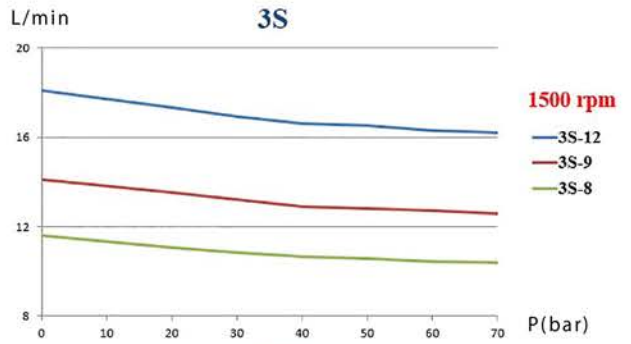
ORDERING CODE : MPD-5M2-C-28-G-F-A-10

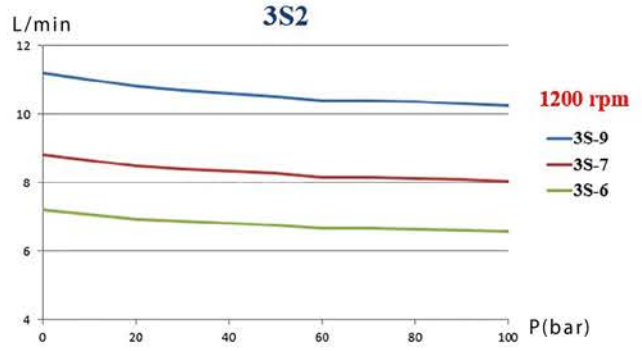
1 2 3 4 5 6 7 8

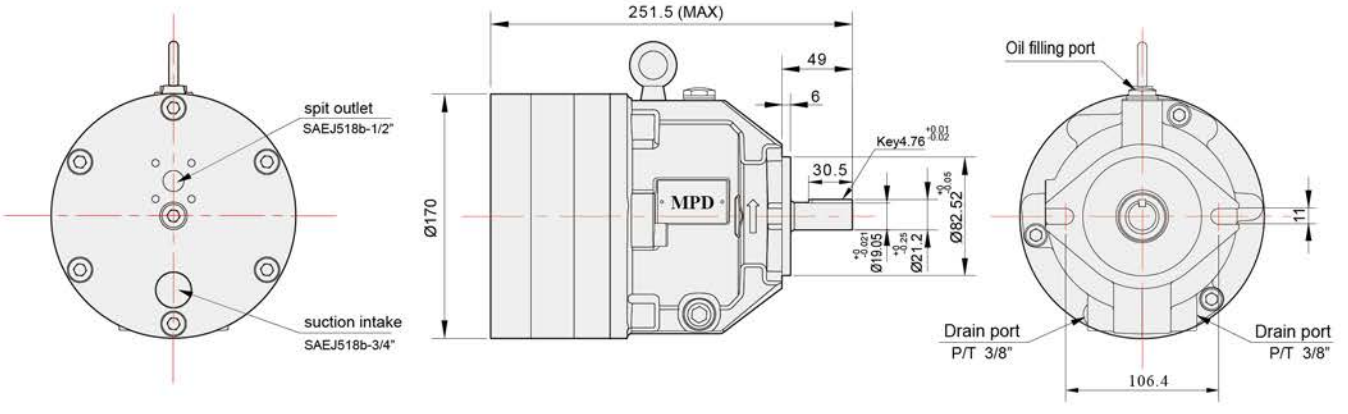
1	MPD diaphragm pump
2	Series: 3S , 3M , 5M / 3S2 , 3M2 , 5M2
3	Pressure Code : A: 40, B:70, C:100 bar
4	Displacement (c.c. /rev.) : 3S : 08、09、12 / 3S2 : 06、07、09 3M : 15、19、24 / 3M2 : 13、16、20 5M : 32、39 / 5M2 : 26、31
5	Circulation pump : G: With None: Without *Remark: Built-in circulation pump is standard for the 3M & 5M series when the operating pressure exceeds 70 bar.
6	Mounting type : F : SAE flange, L : Foot type (Option)
7	Material of Main pump : A : Aluminum(Standard) S : Stainless(option), B : Brass(option)
8	Series code

MPD 3S、3S2 series High pressure Diaphragm pump

PERFORMANCE CURVE







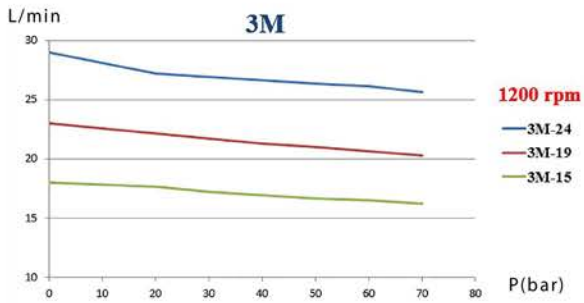
Model	Code(※)	Volume (c.c./rev)	Volume (L/min)	Max pressure	Pressure Code	Weight
			1500 rpm	bar		kgs
MPD-3S-※-F-A	8	7.8	9.6	70	A. B	14
	9	9.4	11.7	70	A. B	14
	12	12.0	15.0	70	A. B	14

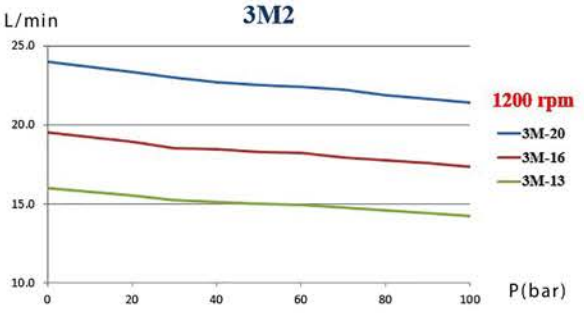
Model	Code(※)	Volume (c.c./rev)	Volume (L/min)	Max pressure	Pressure Code	Weight
			1200 rpm	bar		kgs
MPD-3S2-※-F-A	6	6.0	7.2	100	A. B. C	14
	7	7.3	8.8	100	A. B. C	14
	9	9.3	11.2	100	A. B. C	14

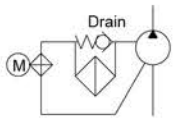
**Test Conditions:
1. Test Temperature: Oil temperature: 40°C , Water temperature: 22°C
2. Test Liquid: Pure water.
3. Suction Inlet Pressure: Positive Pressure, 30 cm Vertical Head.
Remark: Flow rate may decrease when operating under negative suction pressure.

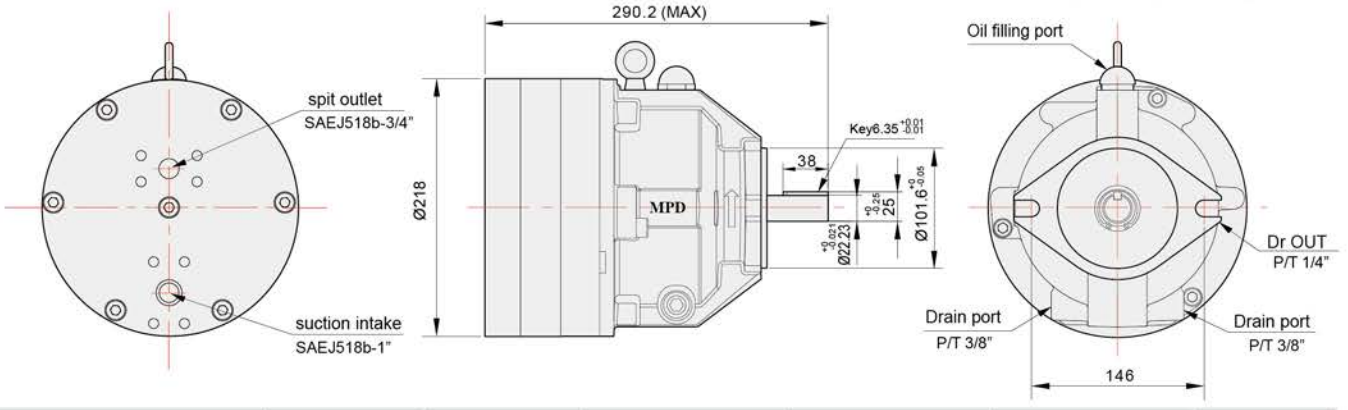
MPD 3M、3M2 series High pressure Diaphragm pump

PERFORMANCE CURVE







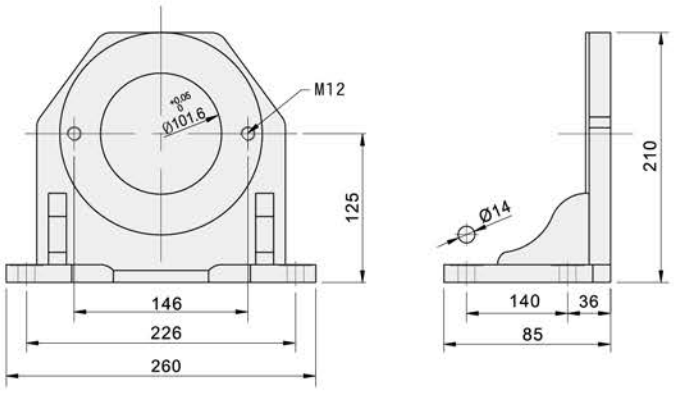


Model	Code(※)	Volume (c.c./rev)	Volume (L/min) 1200 rpm	Max pressure bar	Pressure Code	Weight kgs
MPD-3M-※-F-A	15	15.0	18.0	70	A. B	25
	19	19.1	23.0	70	A. B	25
	24	24.1	29.0	70	A. B	25

Model	Code(※)	Volume (c.c./rev)	Volume (L/min) 1200 rpm	Max pressure bar	Pressure Code	Weight kgs
MPD-3M2-※-F-A	13	13.3	16.0	100	B. C	25
	16	16.3	19.5	100	B. C	25
	20	20.0	24.0	100	B. C	25

**Test Conditions:
1. Test Temperature: Oil temperature: 40°C , Water temperature: 22°C. 2. Test Liquid: Pure water.
3. Suction Inlet Pressure: Positive Pressure, 30 cm Vertical Head.
Remark: Flow rate may decrease when operating under negative suction pressure.

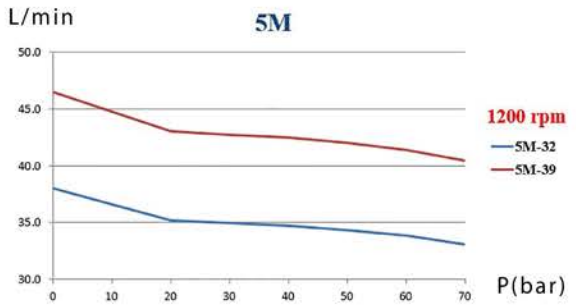
Option :
3M.3M2 Foot

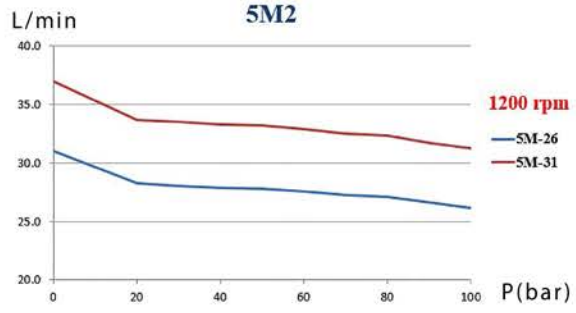


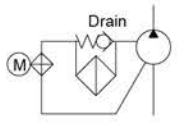
MPD 5M 5M2 series High pressure Diaphragm pump

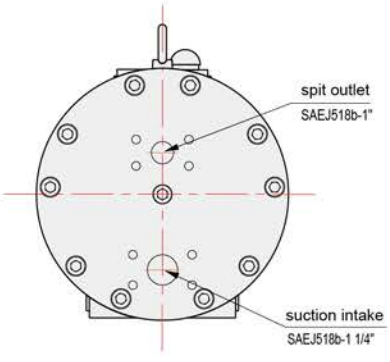
Mighty Spraying Technology Co., Ltd.

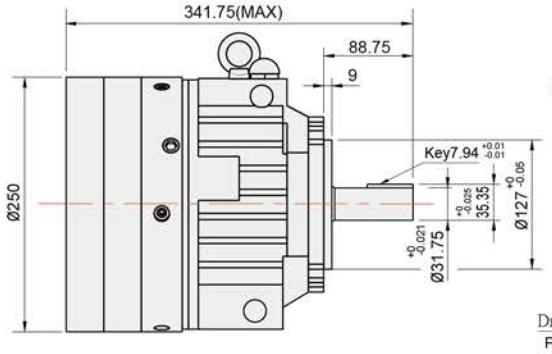
PERFORMANCE CURVE

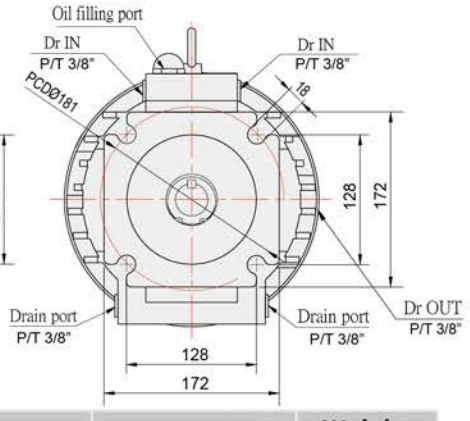










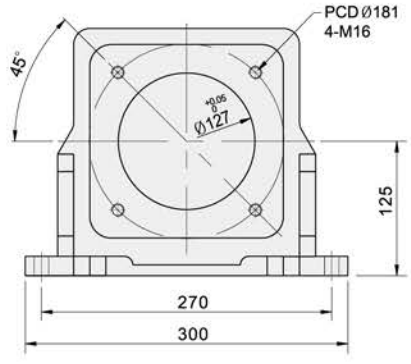


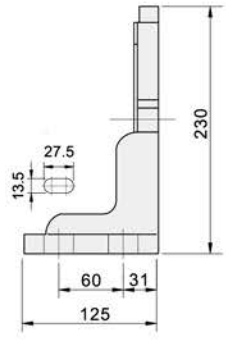
Model	Code(※)	Volume (c.c./rev)	Volume (L/min) 1200 rpm	Max pressure bar	Pressure Code	Weight kgs
MPD-5M-※-F-A	32	31.6	38.0	70	A. B	42
	39	38.8	46.5	70	A. B	42

Model	Code(※)	Volume (c.c./rev)	Volume (L/min) 1200 rpm	Max pressure bar	Pressure Code	Weight kgs
MPD-5M2-※-F-A	26	25.8	31.0	100	B. C	42
	31	30.8	37.0	100	B. C	42

**Test Conditions:
1. Test Temperature: Oil temperature: 40°C , Water temperature: 22°C. 2. Test Liquid: Pure water.
3. Suction Inlet Pressure: Positive Pressure, 30 cm Vertical Head.
Remark: Flow rate may decrease when operating under negative suction pressure.

Option :
5M. 5M2 Foot

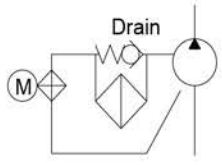


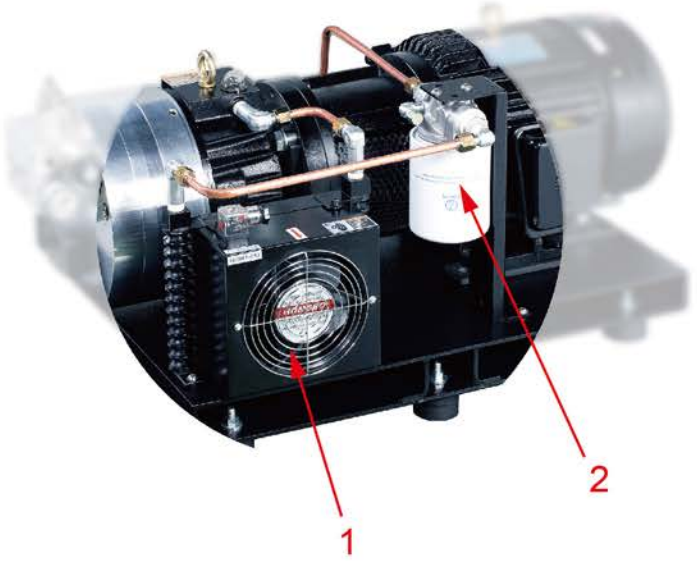


MPD Pump Oil Circulation Cooling System

Most MPD pumps have a built-in oil circulation pump. This design , it circulating the lubrication oil and allowing the pump to operate at a low oil temperature. It extending the service life time of pump and prevent to generating heat to the fluid of the main system. It is particularly important for central coolant systems on metalworking machines and other systems that require maintaining low temperatures and high pressures.

Oil Cooling Circuit Diagram





Related Accessories

1 Air Cooler

AL-608

2 Return line Filter

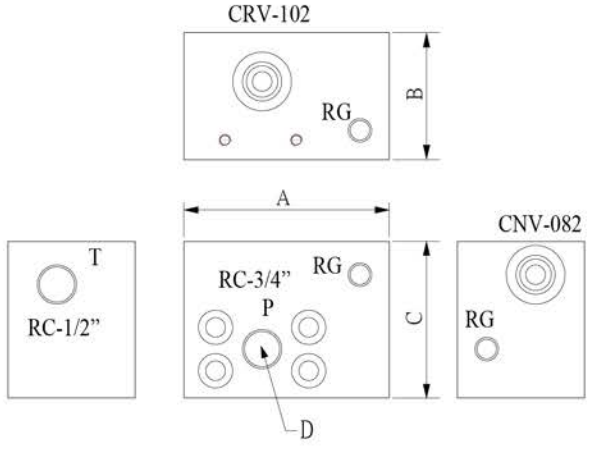
RF-06

XK08-03

Outlet Port Control Assembly

Directly mounted on the MPD pump outlet,
it incorporates a relief valve, throttle valve,
pressure switch, pressure transducer and pressure gauge.
Saves space, reduces installation time, and piping costs.
Made of rust-resistant aluminum alloy!

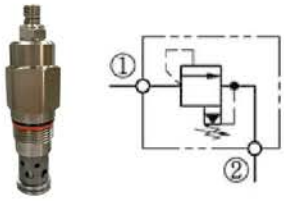
manifold J3-3477



Model code	Pump Model	A	B	C	D
J3-3477-2	3S. 3S2	100	65	70	1/2"
J3-3477	3M. 3M2	105	65	80	3/4"
J3-3251	5M. 5M2	110	70	95	3/4"

1 Relief Valves

VRDA-03-10
VRDA-03-21



2 Needle Valves

CNV082-K30N
CNV102-K60N

3 Pressure Transmitter

100bar, 210bar
0-10VDC 1/4PT

4 Pressure Switch

DNP-08K-21B

5 Pressure Gauge

1/4"PT

Direct mounting motor/high-pressure diaphragm pump combination

Advantages:

1. Cost savings, no foot or couplings required.
2. Space-saving and easier for installation.
3. Various motor sizes to meet pressure and flow requirements.
4. Available in vertical or horizontal installation configurations. Please contact us for detailed specifications.

Example:

Vertical mounting / 3S. 3S2 Series

Horizontal mounting / 3S.3S2 Series

Vertical mounting / 3M. 3M2 Series

Horizontal mounting / 3M.3M2 Series

MPD High-Pressure Diaphragm Pump @ Central Coolant System

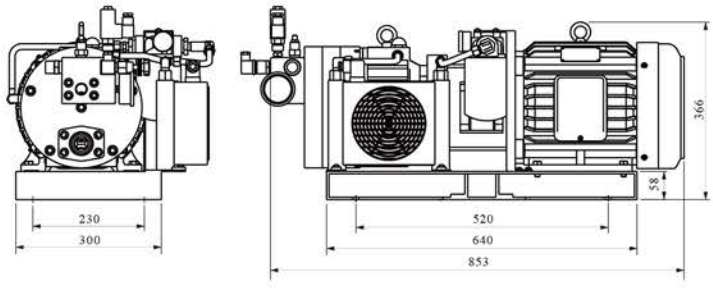
Built-in Central Coolant System

Integrating a high-pressure diaphragm pump into the water tank of a metalworking machine is the trend for central coolant systems!
The MPD pump's unique contamination resistance, high pressure, high efficiency, compact and energy-saving features make it becomes the best choice for central coolant systems!

Advantages:

1. Space-saving, eliminating the need for an additional water tank.
2. Reduces installation and piping costs.
3. Energy-saving: The MPD pump is a high efficiency pump andit can be combined with a inverter or servo motor to create an energy-saving central coolant system.
4. High efficiency and lower noise levels.

Specification	
Model number	MPD-5M-34
Working Pressure	70 bar (1000 psi)
Theortical discharge capacity	41 L/min @1200 rpm
Motor form	7.5HPX6P
Number of ports	1 port
Voltage	220V 3phase 60Hz



Add-On Central Coolant System

For various needs, Add-on central coolant systems are still needed!
The MPD pump's unique contamination resistance, high pressure, high efficiency, and energy-saving features remain the only choice for Add-on central coolant systems!

Advantages:

1. High efficiency, contamination resistance, and compatibility with a variety of cutting fluids even pure water.
2. Energy savings: The MPD pump can be combined with an inverter or servo motor to create an energy-saving central coolant system.
3. The new generation of MPD pumps it has compact, higher efficiency, lower noise and more suitable for market demands!

Specification	
Model number	MPD-3M-23
Working Pressure	70 bar (1000 psi)
Theortical discharge capacity	28 L/min@1200 rpm
Motor form	Servo motor
Tank capacity	210 L
Filtration	10μ Twin disposable filter bags, Filter the system
Number of ports	3 port
Voltage	220V 3phase 60Hz

Main Structure of MPD Diaphragm pump

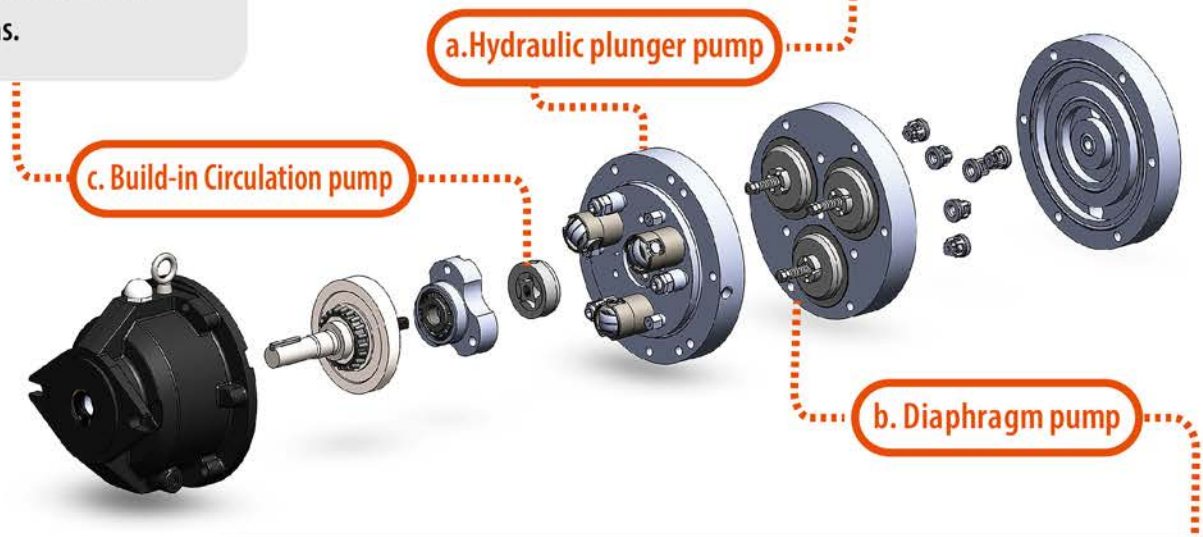
MPD Diaphragm pump applied three different structures of pumps

a.Hydraulic plunger pump

The main function is to transfer the horsepower of the electric motor through plungers to drive diaphragms. And diaphragms are then used to push the fluid (water or cutting fluid) to achieve a power-saving effect.
The working medium of the plungers is hydraulic oil, it lubricate metal parts keep plungers functional. The temperature generated by these processes will be sent out of the body by the built-in circulation pump.
The hydraulic oil will be filtered and cooling and then send back to the plunger pump chamber.
This design allows the pump temperature to be controlled at a slightly higher than room temperature. It is not only protects the pump but also extends its service life.

c. Build-in Circulation pump

Patented build-in circulation pump, which reduce the of oil temperature of the plungers and extends service life of diaphragms.



b. Diaphragm pump

This part is the main structure of the MPD pump, which is using the movement of the diaphragm to push the fluid and transmit it to the circuit of system.
The main mechanism of this part are diaphragms and control valves. During the rapid opening and closing of valves, the liquid is sucked in and push
out of the pump for circulation. The diaphragm structure design has almost no friction during operation, and only very little or no heat is generated. This is the most important for the central coolant system.
The extra radiator system that was originally required can be eliminated or relatively reduced after using the MPD pump.

By combining three different pump structures into a MPD pump, a high-performance, multi-purpose pump with high pressure, energy saving and environmental freindly is created. It is the ultimate choice for high-pressure central coolant system for metal working machines and other equipments too!

Mighty
Spraying Technology Co., Ltd.

No. 15-2, Ln.1266, Wuquan W. Rd., Taichung, 40869, Taiwan
Tel: 04-2252-8036 Fax: 04-2251-8863
E-mail: mightyspraying@gmail.com
http: //www.mighty-spray.com

2026