OIL PUMP *Series*

Fixed Quantity Oil Supply

HMGP-205S

HMGP-303 type series

Various MCT, CNC, Injection machine, etc.
Central Concentrated Lubricating System

Proportional Oil Supply

HMGP-6N

HMGP-105 series

HMGP-205C

HALS-33/HMGP-6A

NC Lathe, Injection machine, Printers, Milling machines, Grinders, Presses, Textiles machines, Escalators, various industrial machines

	Fixed Quantity Oil Supply
Pump	HMGP-303 Type, 205S(Fixed Quantity Oil Supply Pump)
Pressure	15kg/cm² ~ 20kg/cm² (If pressure is higher than the fixed point, it is irrelevant to discharge volume.)
Pressure S/W	Option
Main pipe	ø6
Valve	Fixed Quantiry V/V(0.01cc ~ 0.6cc)
Volume per discharge	When the capacity of the pump is 110cc (in the case of using each of 0.03cc, 0.1cc, 0.6cc) Size of V/V: 0.03cc / 0.1cc / 0.6cc / TOTAL Volume of a discharge: 0.03cc / 0.1cc / 0.6cc / 0.73cc
Number of operation	Operation of inner and outer control
Deviation	Within±10%
Others	The volume of the pump is irrelevant to that of the point of oil supply and Valve measures the precise quantity of the volume and send it to the point of oil supply.

	Proportional Oil Supply
Pump	HMGP-5N, 105 Type(Proportional Oil Supply Pump)
Pressure	8kg/cm²(Wide deviation depending on the pressure)
Pressure S/W	None
Main pipe	ø4, ø6
Valve	Proportional V/V(V/V No. 0,1,2,3,4)
Volume per discharge	when the capacity of the pump is 110cc (in the case of using each of V/V No. 0,1,3) V/V No.: 0 / 1 / 2 / 3 / 4 Volume of a discharge: 1 / 2 / 4 / 8 / 16 Size of V/V: 0 / 1 / 3 / TOTAL Volume of a discharge: 1 / 2 / 8 / 11 Quantity of passing oil: 10cc / 20cc / 80cc / 110cc
Number of operation	Operation of volume controller in the pump
Deviation	±30%(based on point of oil supply for arrived oil)
Others	The discharge volume of the pump and that of the point of oil supply widely varies.

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Concentrated Lubricating System

Design of Concentrated Lubricating Oil Supply Device

The concentrated lubricating oil supply device drives and maintains all the oil supply sites from one device, increases system life expectancy and reduces running and maintenance costs.
Applied to various machine tools, textiles machines, injection machine, presses, packaging machines and other general industrial machines, and is classified into a fixed quantity oil supply type and a proportional oil supply type according to the methods of use. In order to fully make use of the concentrated oil supply type, a suitable oil supply system for the machine fueling part needs to be selected and designed.
Prior to system design, precise oil supply sites, oil supply methods and oil supply quantities for each machine need to be selected, and pipe size and discharge quantities need to be calculated. Then, the quantity of oil supplied calculated with pump capacity, efficiency and pipe loss in consideration, is multiplied by 1.25~1.5 to calculate the final quantity of oil supplied.
Also, control methods such as examination and protection devices are set, and then the pipe layout and components are selected.

Design Method for Required Oil Supply Quantity

The quantity of oil supplied for each oil supply site is calculated based on experience and actual values as follows
· Oil quantity(Q) : required quantity of oil supplied for each hour (mℓ/h)
· Diameter, Length, Width : Unit-cm
· Application examination : Normal use oil viscosity (120rpm as standard)
◎ If the rate of viscosity increase is X10, the oil quantity increases twofold
※ But, the quantity of oil supplied is influenced by friction surface material, surface viscosity, drive conditions(viscosity, revolution load, drive and surrounding temperature, surrounding toxic materials, etc) and lubricating oil type. Therefore, the calculated values need to be used as standards, and the actual fueling quantity needs to be controlled with the conditions of each fueling site taken into consideration.

Calculation Method for Oil Supply Quantity

Bearing(BallBearing,RollerBearing,NeedleBearing)
Q=0.04 x diameter x number of rows

Sliding Bearing
Q=0.023 x rotating shaft diameter x shaft region length

Plane Sliding
Q=0.0017 x length x width (horizontal direction)
Q=0.006 x length x width (vertical direction)

Cylinder Sliding
Q=0.023 x diameter x length

Ball Bearing Way
Q=0.012 x length x number of rows

CAM
Q=0.013 x contact circumference x width

Gear
Q=0.046 x pitch circle diameter x gear width

Chain
Q=0.008 x length x width

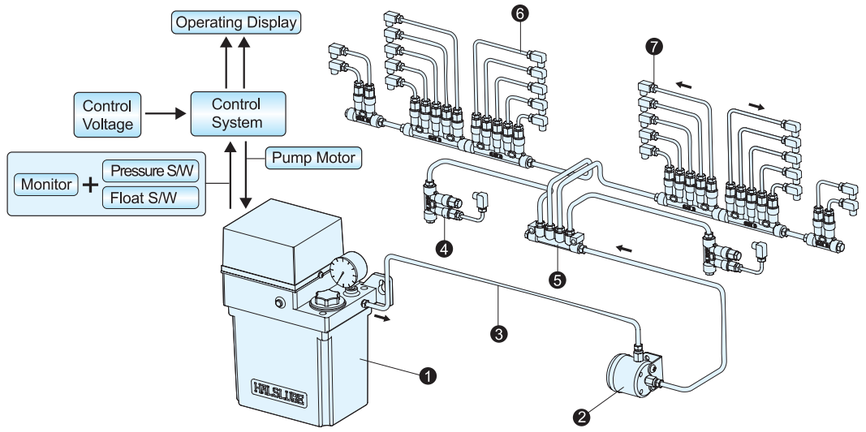
Fixed Quantity Oil Supply System

System Summary

The concentrated lubricating system uses the lubricating oil from the pump to operate the piston and the piston inside the valve, and delivers the precise quantity of oil supplied(0.01~0.6cc/st) to each valve. The valve is automatically operated by the pump discharge pressure, and can be used for long distances of up to 20m and for 50 separate oil supply sites. A system used widely from small machines to large machines.

	Component
1	Pump
2	Line Filter
3	Main Pipe
4	Fixed Quantity Valve
5	Distributor
6	Oil Supply Pipes
7	Oil Supply Spot

Lubrication Type	Piston fixed quantity oil supply method
Piping	Short tube type (Main pipe Ø 6mm) (Oil supply pipe Ø 4mm)
Lubricant	32~1300cSt
Pump	HMGP-303 series
	HMGP-205S
	HMGP-6MA
Capacity of Tank	Resin tank 2,4,5Liter
	Metal Tank more than 6Liter (Can be custom built to order)
Method of Control	Internal control HMGP-303
	External control HMGP-303S, 303M, 205S, 6MA
Application Valve	HMV series Fixed Quantiry Valve



Feature

1) Fixed quantities of lubricating oil can be delivered precisely using the fixed quantity valve.
2) Discharge amounts and number of discharge outlets can be chosen freely to suit oil supply sites, and allows reasonable combinations.
3) The pump control is divided into an internal and an external one, and the operating time can be adjusted depending on operational environments.
4) Safety devices such as the valve pressure switch and the float switch can be installed to detect errors in advance.

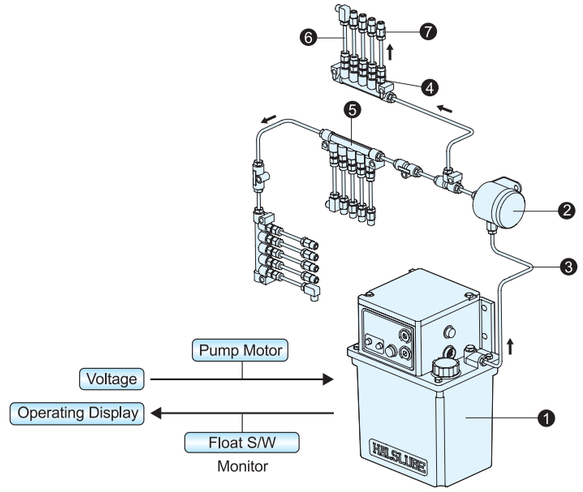
Proportional Oil Supply System

System Summary

The concentrated lubricating system makes the pipes connected to the lubricating oil supply sites to have resistance against the flow of lubricating oil delivered from the pump, this suppressing the quantity of oil discharge, and distributes the lubricating oil to each oil supply site.
The used proportional oil supply valve discharges little under small pressure, and is classified into a continuous oil supply type and an intermittent oil supply type.
Also, it uses a single pipe with an external diameter of ø4mm from the pump to every oil supply site, and can be used across a wide range of viscosities.
It is the most suitable concentrated lubricating system for precision machine tools that require high-viscosity processing even in small sizes, and for die casting machines.

Lubrication Type	Intermittent/continuous oil supply lubrication method	
Piping	Single pipe (Main pipe Ø 4mm) (oil supply pipe Ø 4mm)	
Lubricant	32~800cSt	
Pump	Manual	HALS-33
	Automatic	HMGP-105 series HMGP-6N series HMFP-205C series
	Pneumatic type	HMGP-6A
Capacity of Tank	Resin tank 2,4,5Liter	
	Metal Tank more than 6Liter (Can be custom built to order)	
Method of Control	Internal control HMGP-105N, 105, 105MB	
	External control HALS-33, HMGP-105C, HMGP-105W, HMGP-205C	
Application Valve	Intermittent type HAS HJB HJS	
	Continuous type HSC HJC HHC	

	Component
1	Pump
2	Line Filter
3	Main Pipe
4	Resistance valve
5	Distributor
6	Oil Supply Pipes
7	Oil Supply Spot



Feature

1) A single pipe system that allows simple spraying and easy connections.
2) The pump is produced in various types(manual, automatic, pneumatic type), allowing the selection of suitable pumps for the machines in use.
3) Every pump is equipped with a Suction filter to prevent the entry of foreign substances and to allow safe oil supply.
4) The valve's discharge size and assembly method (for machine , for line, for distributor) can be chosen to allow suitable oil supply for different oil supply sites.

HMGP 303

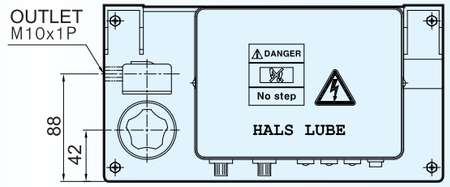
Feature

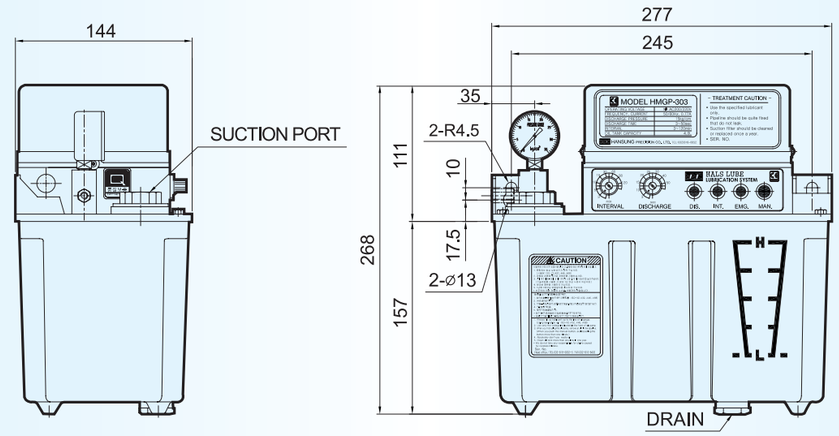
1. A Gear type volme pump that allows precise delivery across a wide range of viscosities.
2. It can be applied to long distances of more than 20m, and can also be used in small, large machine tools and high-precision machines.
3. To make full use of the fixed quantity oil supply system, the HMV Series needs to be used for the Valve.
4. It has an internal control, and therefore does not require separate control devices.
5. It has a built-in ullage decrease detector (float switch)

HMGP-303-01-T□- F -□

- Voltage : 110:110V, 220:220V
- F : Float S/W
- T□ : Tank Capacity
- 01(Oil Supply Type) : Fixed Quantity Oil Supply
- Internal Control
- HANSUNG **Oil Pump**

External Figure



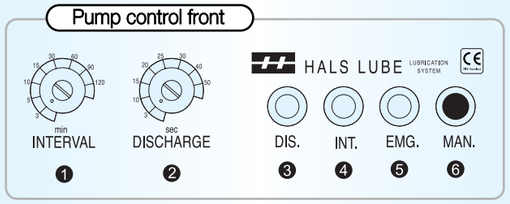


Pump Spec.

PUMP SPEC.		
PUMP TYPE	GEAR PUMP	
DISCHARGE PRESSURE	17kg/cm²	
PRESSURE GAUGE	0~35kg/cm²	
USING OIL	32~1300(cSt)	
FILTER	80 Mesh	
TANK CAPACITY	4Liter(10, 12, 20, 30, 55Liter)	
WEIGHT	4kg	
DISCHARGE AMOUNT	150cc/min	
FLOAT S/W	Contact type : A contact (NO)	
	ON at low level	
PRESSURE S/W	None	
OIL SUPPLY CONTROL DEVICE	Built-in	
MOTOR SPEC.		
OUTPUT	57W	
PHASE	1ø	
VOLTAGE	110V	200 / 220V
CURRENT	1.54A	0.77A
FREQUENCY	50/60Hz	

Operating Guide

Pump control front



1) The pump operates once power is connected and electricity is supplied. You can set the pause time using the Interval ① on the front of the pump, and Discharge ② to set the operating time (seconds). Afterwards, the pump will repeatedly operate and pause.

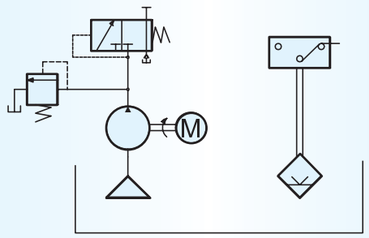
2) Minimum pause time of the pump is 3 minutes, and the minimum discharge time can be set to 3 seconds.

3) When operating the pump, the DIS. lamp ③ switches on, and during the pause, the INT lamp④ switches on. When ullage inside the tank decreases, the ENG. lamp⑤ switches on. When ullage inside the tank decreases, the ENG. lamp⑤ switches on.

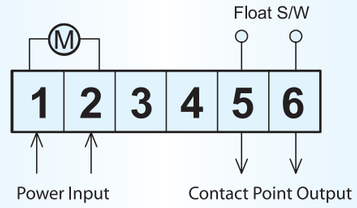
4) The MAN. button⑥ can be used for test operations and to let air out from the pipes. (But, do not operate this fir more than 5 minutes, as it can cause Motor damage.)

5) The pump is set at 17kg/cm² when released from the factory, but this may differ depending on the changes in the viscosities of the oils used (oil viscosity, surrounding viscosity).

Hydraulic circuit drawing



Wiring Diagram



HMGP 303S/303M

Feature

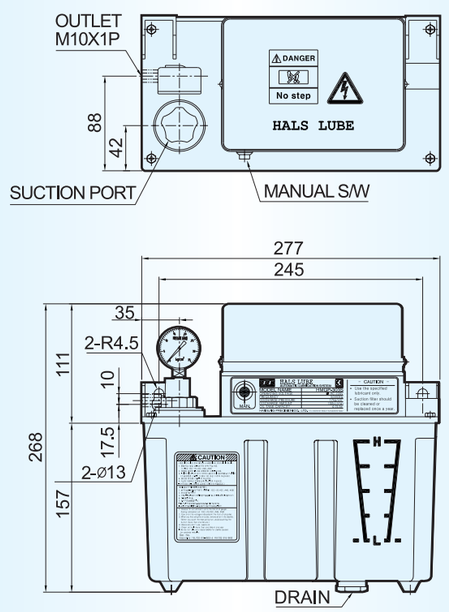
1. A highly reliable externally controlled fixed quantity oil supply pump.
2. It is used across a wide range of fields, and is especially suitable as a fixed quantity oil supply pump for high-precision, large machine tools.
3. The pump's main drive connection parts are made of single die casting pieces to ensure excellent durability.
4. An external control type that allows free pump control.
5. It has a built-in ullage decrease detector and a pressure decrease detector.

HMGP-303-01-T□- F/P- □

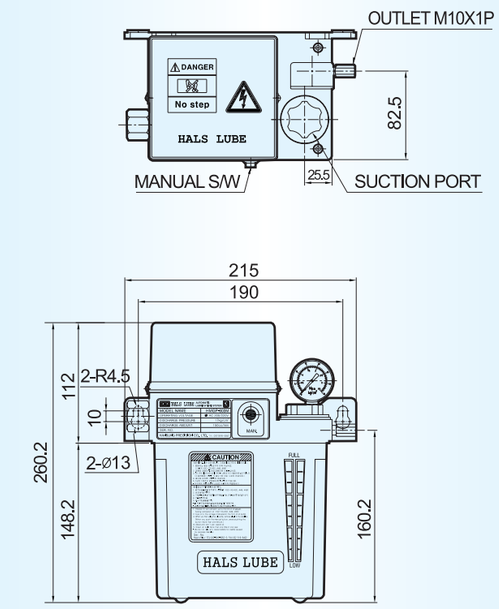
- Voltage : 110:110V, 220:220V
- F : Float S/W
- P : Pressure S/W
- T□ : Tank Capacity
- 01(Oil Supply Type) : Fixed Quantity Oil Supply
- External Control : 303S, 303M
- HANSUNG **Oil Pump**

External Figure

HMGP-303S



HMGP-303M



Pump Spec.

PUMP SPEC.		
	HMGP-303S	HMGP-303M
PUMP TYPE	GEAR PUMP	
DISCHARGE PRESSURE	17kg/cm²	
PRESSURE GAUGE	0~35kg/cm²	
USING OIL	32~1300(cSt)	
FILTER	80 Mesh	
TANK CAPACITY	4Liter (10, 12, 20, 30, 55Liter)	2Liter (6, 7Liter)
WEIGHT	4kg	2kg
DISCHARGE AMOUNT	150cc/min	
FLOAT S/W	Contact type : A contact (NO)	
	ON at low level	
PRESSURE S/W	Contact type : A contact (NO)	
	Operation pressure : 12±1 bar ON	
OIL SUPPLY CONTROL DEVICE	External control	
MOTOR SPEC.		
OUTPUT	57W	
PHASE	1 ø	
VOLTAGE	110V	200 / 220V
CURRENT	1.54A	0.77A
FREQUENCY	50/60Hz	

Operating Guide

1) It does not have a separate control device, and the pump operates automatically once power is connected and electricity is supplied. The pause and operation times can be set in the same way as for HMGP-303

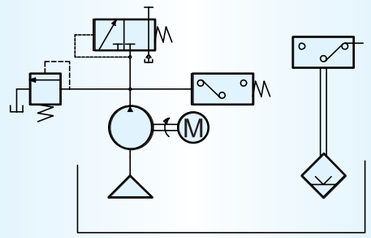
2) Maximum operation time of the pump is 4 minutes, and the pause time needs to be set at 4 times the operation time.
※ Time needs to be followed for precise fixed quantity valve operation.

3) The manual button can be used for test operations and to tale out air from the pipes.

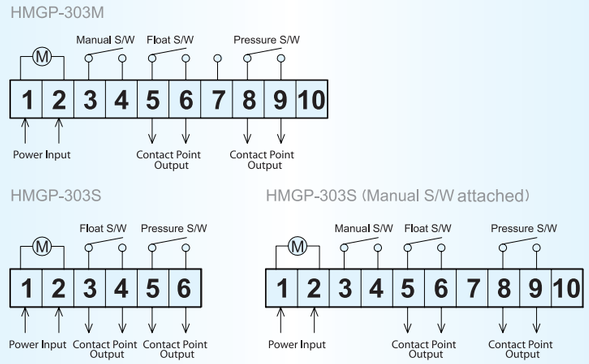
4) The pump is set at 17kg/cm² when released from the factory, but this may differ depending on the changes in the viscosities of the oils used (oil viscosity, surrounding viscosity).

5) The pressure switch can operate the pump and detect whether or not the set pressure has been reached within a given time, and send contact signals to the machine control device during normal operation to check for errors.

Hydraulic circuit drawing



Wiring Diagram



HMGP 205S

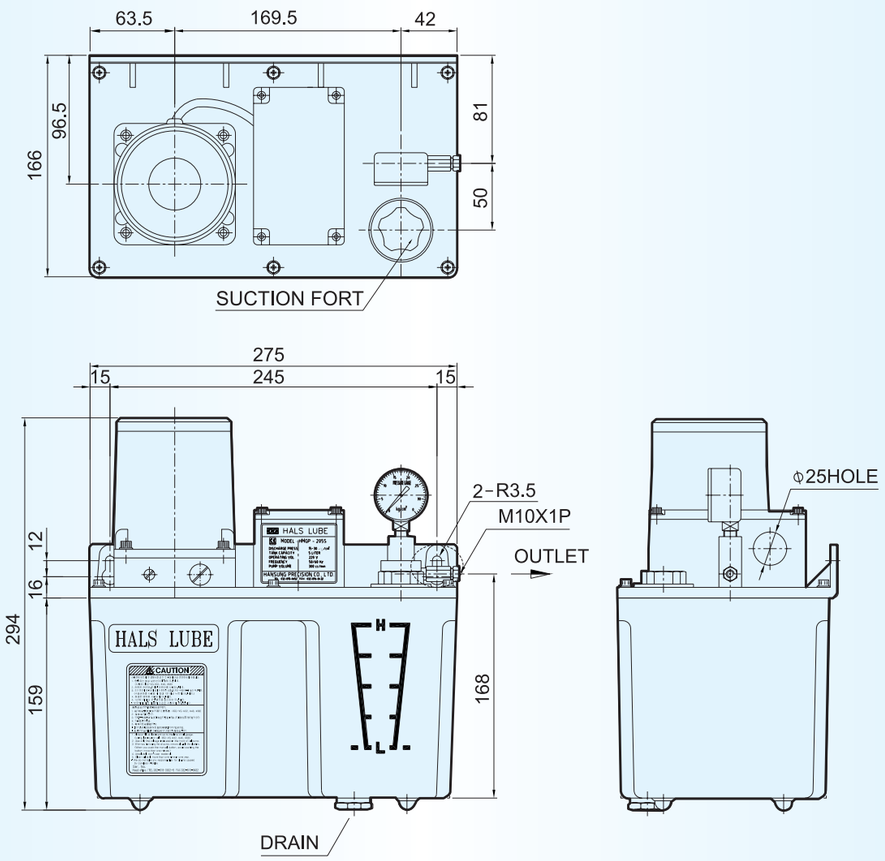
Feature

1. A large capacity fixed quantity oil supply pump suitable for multiple oil supply sites and large machines.
2. An external control type that allows various pump controls according to operational environments.
3. Main drive parts of the pump are inside the AL body to ensure superior durability.
4. The pump part can be used separately, and can be attached to other tanks for use.

HMGP-205S-01-T□-F/P-□

- Voltage : 110:110V, 220:220V
- F : Float S/W
- P : Pressure S/W
- T□ : Tank Capacity
- 01(Oil Supply Type) : Fixed Quantity Oil Supply
- External Control
- HANSUNG **Oil Pump**

External Figure



Pump Spec.

PUMP SPEC.		
PUMP TYPE	GEAR PUMP	
DISCHARGE PRESSURE	15~30kg/cm²	
PRESSURE GAUGE	0~35kg/cm²	
USING OIL	32~1300(cSt)	
FILTER	80 Mesh	
TANK CAPACITY	5Liter(12, 20, 30, 55Liter)	
WEIGHT	5kg	
DISCHARGE AMOUNT	300cc/min	
FLOAT S/W	Contact type : A contact (NO)	
	ON at low level	
PRESSURE S/W	Contact type : A contact (NO)	
	Operation pressure : 12±1 bar ON	
OILSUPPLY CONTROL DEVICE	External control	
MOTOR SPEC.		
OUTPUT	60W	
PHASE	1ø	
VOLTAGE	110V	200 / 220V
CURRENT	1.20A	0.6A
FREQUENCY	50/60Hz	

Operating Guide

1) It does not have a separate control device, and the pump operates automatically once power is connected and electricity is supplied. The pause and operation times can be set in the same way as for HMGP-303

2 Minimum pause time of the pump is 4 minutes, and the pause time needs to be set at 4 times the operation time.
※ Time needs to be followed for precise fixed quantity valve operation.

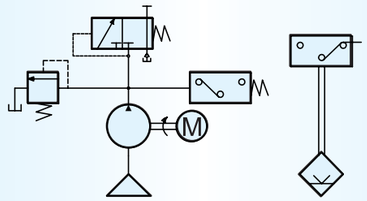
3) This motor is not a continuous operation pump, so please refrain from operating for more than 5 minutes.

4) The pump is set at 17kg/cm² when released from the factory, but this may differ depending on the changes in the viscosities of the oils used (oil viscosity, surrounding viscosity).

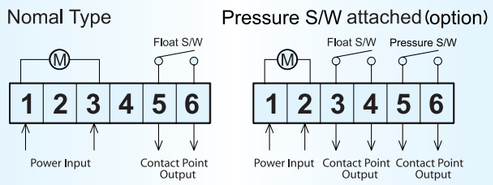
5) The pressure switch can operate the pump and detect whether or not the set pressure has been reached within a given time, and send contact signals to the machine control device during normal operation to check for errors. (option)

6) The pump is used separately. It can be attached freely inside the tank for use.

Hydraulic circuit drawing



Wiring Diagram



HMGP 6N

Feature

1. It is the most suitable pump for proportional oil supply, and can be applied to a wide range of industrial fields
2. It has a simple structure and excellent durability
3. An Internal control type that can be used by simply supplying power.
4. It is equipped with a ullage decrease detector to increase reliability.
5. It is equipped with a dustproof device, and can be used in presses that are subjected to vibrations and impacts.
6. A line filter and a drain filter are used side by side, allowing oil reuse.
7. To fully utilize the proportional oil supply system, you must use the HJB Series Valve.

HMGP-6N-01-T□-F-□

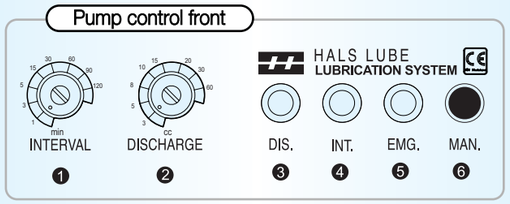
- Voltage : 110:110V, 220:220V
- F : Float S/W
- T□ : Tank Capacity
- 01(Oil Supply Type) : Proportional Oil Supply
- Internal Control
- HANSUNG **Oil Pump**

Pump Spec.

PUMP SPEC.		
PUMP TYPE	GEAR PUMP	
DISCHARGE PRESSURE	8kg/cm²	
PRESSURE GAUGE	0~35kg/cm²	
USING OIL	32~800(cSt)	
FILTER	80 Mesh	
TANK CAPACITY	4Liter(10, 12, 20, 30, 55Liter)	
WEIGHT	3.5kg	
DISCHARGE AMOUNT	4~113cc	
INTERVAL	1~120min/1~60min	
FLOAT S/W	Contact type : A contact (NO)	
	ON at low level	
OIL RECOVERY	Attachable	
OIL WARNING	BUZZER / LAMP	
MOTOR SPEC.		
OUTPUT	36W	
PHASE	1ø	
VOLTAGE	110V	200 / 220V
CURRENT	0.85A	0.44A
FREQUENCY	50/60Hz	

Operating Guide

Pump control front



1) The pump operates once power is connected and electricity is supplied.
   You can set the pause time using the Interval ① on the front of the pump, and Discharge ② to set the operating time (seconds). Afterwards, the pump will repeatedly operate and pause.

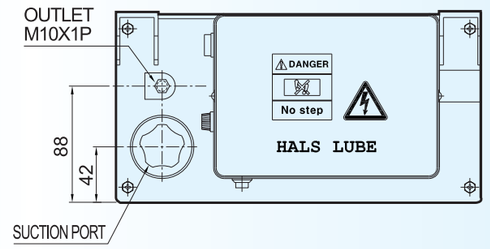
2) Minimum pause time of the pump is 1 minute, and the lowest discharge can be set to 4cc.

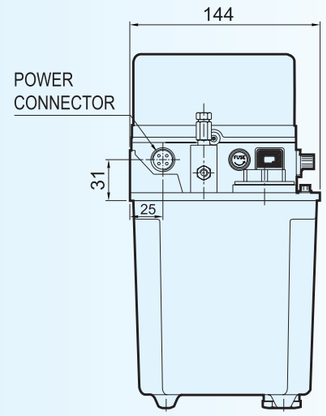
3) When operating the pump, the DIS. lamp ③ switches on, and during the pause, the INT. lamp④ switches on. When ullage inside the tank decreases, the ENG. lamp⑤ switches on.

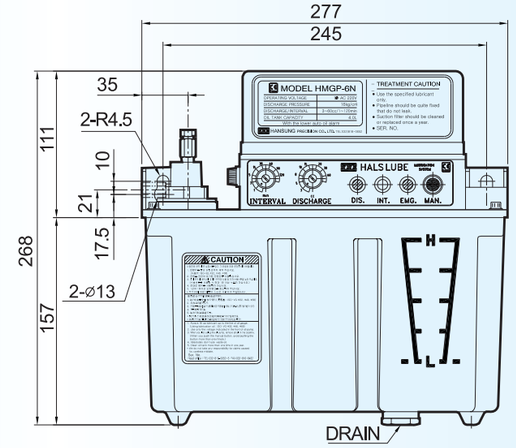
4) The MAN. button⑥ can be used for test operations and to let air out from the pipes. (But, do not operate this fir more than 5 minutes, as it can cause Motor damage.)

5) The pump is set at 8kg/cm² when released from the factory, but this may differ depending on the changes in the viscosities of the oils used (oil viscosity, surrounding viscosity).

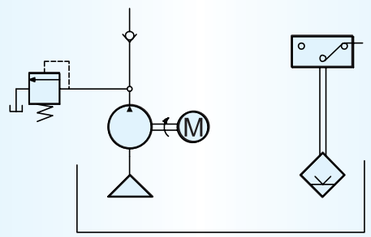
External Figure



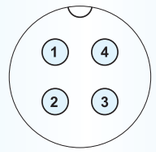




Hydraulic circuit drawing



Wiring Diagram



① ④ : POWER (1:BLACK, 4:WHITE)

② ③ : OIL ALARM (2:RED, 3:GREEN)

HMGP 105N series

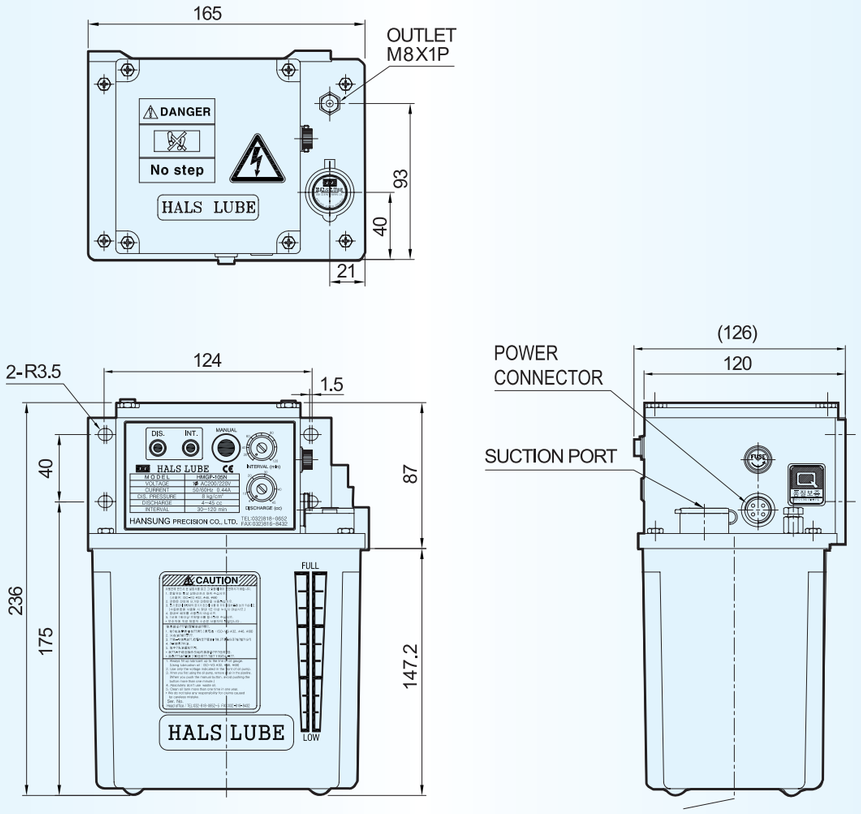
Feature

1. It is the most suitable pump for proportional oil supply. It can be applied to a wide range of industrial machines.
2. The compact design reduces installation space limitations, and the simple use means easy installation and repairs.
3. During reduced ullage, selections can be made to suit user environments using contact output and buzzer.
4. Every model is attached with a suction filter to prevent the entry of alien substances in the pipe.
5. Increased pressure settings are available according to operational environments.

HMGP-□-02-T02 - F-□

- Voltage : 110:110V, 220:220V
- F : Float S/W
- T02 : Tank Capacity
- (Oil Supply Type) : Proportional Oil Supply
- PUMP Type : 105N, 105M, 105C, 103
- HANSUNG **Oil Pump**

External Figure

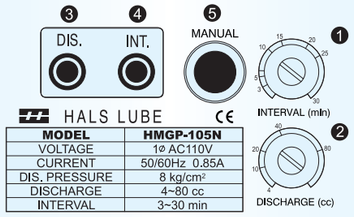


Pump Spec.

PUMP SPEC.				
	HMGP-105N	HMGP-105M	HMGP-103	HMGP-105C
PUMP TYPE	GEAR PUMP			
DISCHARGE PRESSURE	8kg/cm²			
INTERVAL TIME	3~30/ 30~120min	30~120min	3~30/ 30~120min	External Control
USING OIL	32~800(cSt)			
FILTER	80 Mesh			
TANK CAPACITY	2Liter			
WEIGHT	2.5kg			
FLOAT S/W	-		Contact type : A Contact (NO)	
	-		ON at low level	
DISCHARGE AMOUNT	3~30/ 4~80 cc	4~45 cc	3~30/ 4~80 cc	100cc/min
OIL WARNING	Order specification	BUZZER	Output at point of contact	BUZZER
MOTOR SPEC.				
OUTPUT	36W			
PHASE	1 ø			
VOLTAGE	110V		200 / 220V	
CURRENT	0.85A		0.44A	
FREQUENCY	50/60Hz			

Operating Guide

Pump control front



MODEL	HMGP-105N
VOLTAGE	1ø AC110V
CURRENT	50/60Hz 0.85A
DIS. PRESSURE	8 kg/cm²
DISCHARGE	4~80 cc
INTERVAL	3~30 min

1) The pump operates once power is connected and electricity is supplied.
You can set the pause time using the Interval ① on the front of the pump, and Discharge ② to set the operating time (seconds). Afterwards, the pump will repeatedly operate and pause.

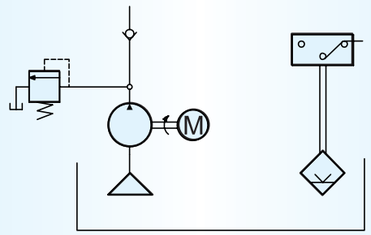
2) Minimum pause time of the pump is 3 minutes, and the minimum discharge time can be set to 3cc.
(The pause time is divided into 3~30 minutes for S type, and 30~120 minutes for the L type.)

3) When operating the pump, the DIS. lamp ③ switches on, and during the pause, the INT. lamp ④ switches on.

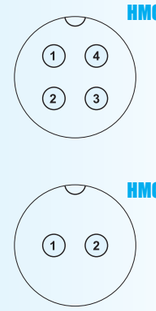
4) The MAN. button⑥ can be used for test operations and to let air out from the pipes. (But, do not operate this fir more than 5 minutes, as it can cause Motor damage.)

5) The pump is set at 8kg/cm² when released from the factory, but this may differ depending on the changes in the viscosities of the oils used (oil viscosity, surrounding viscosity).

Hydraulic circuit drawing



Wiring Diagram



HMGP 105D series

Feature

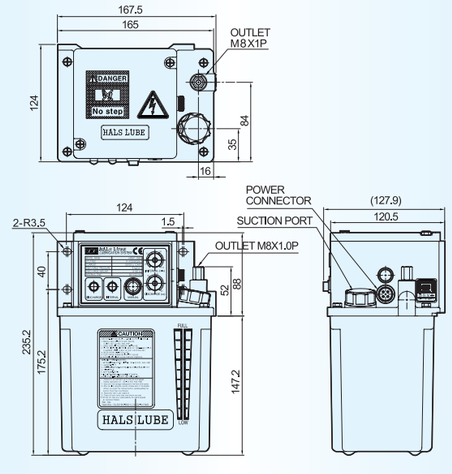
1. A product identical in shape to HMGP-105, but with the control box made out of die casting AL to ensure superior durability and resistance against external impacts.
2. It is separated into HMGP-303D for fixed quantity oil supply or HMGP-105D for proportional oil supply ensuring varied applicability.
3. The main parts of the pump are integrated to ensure easy repairs and maintenance.
4. HMGP-105W can be used as an external control type.

HMGP-□-□-T02-F-□

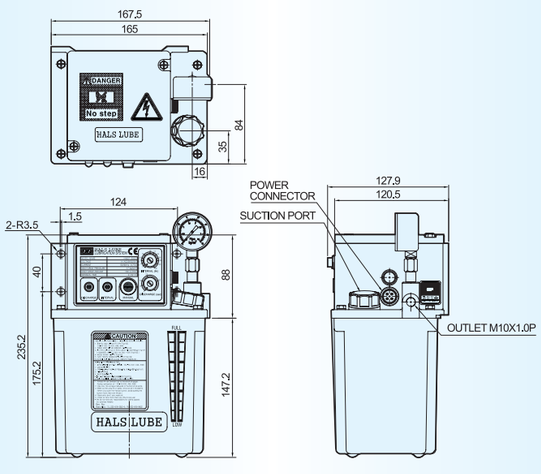
- Voltage : 110:110V, 220:220V
- F : Float S/W
- T02 : Tank Capacity
- Oil Supply Type
  - 01 : Fixed Quantity Oil Supply
  - 02 : Proportional Oil Supply
- PUMP Type : 105D, 105M, 303D
- HANSUNG **Oil Pump**

External Figure

HMGP-105D



HMGP-303D

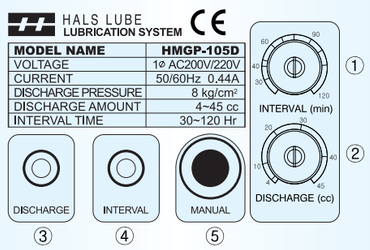


Pump Spec.

PUMP SPEC.				
	HMGP-105D	HMGP-105W	HMGP-303D	
PUMP TYPE	GEAR PUMP			
DISCHARGE PRESSURE	8kg/cm²		17kg/cm²	
INTERVAL TIME	3~30/ 30~120min	OUTSIDE CONTROL	3~35kg/cm²	
USING OIL	32~800(cSt)		32~1300(cSt)	
FILTER	80 Mesh			
TANK CAPACITY	2Liter			
WEIGHT	2.5kg			
FLOAT S/W	Contact type : A contact (NO)			
	ON at low level			
DISCHARGE AMOUNT	3~30/ 4~80 cc	OUTSIDE CONTROL	150cc/min	
MOTOR SPEC.				
OUTPUT	36W		57W	
PHASE	1 ø		1 ø	
VOLTAGE	110V	200V/220V	110V	200V/ 220V
CURRENT	0.85A	0.44A	1.54A	0.77A
FREQUENCY	50/60Hz		50Hz/60Hz	

Operating Guide

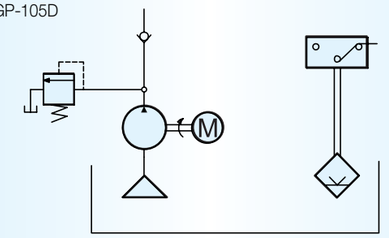
Pump control front



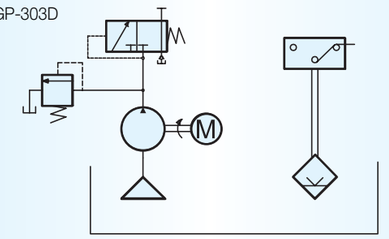
1) The pump operates once power is connected and electricity is supplied.
   You can set the pause time using the Interval ① on the front of the pump, and discharge ② to set the operating time (seconds). Afterwards, the pump will repeatedly operate and pause.
2) Minimum pause time of pump is 3 minutes, and the discharge time can be set to 3cc.(HMGP-105D)
   (HMGP-303D:minimum pause time 3 minutes ,minimum discharge time 3 seconds)
3) When operating the pump, the DIS. lamp ③ switches on, and during the pause, the INT. lamp④ switches on.
4) The MAN. button⑥ can be used for test operations and to let air out from the pipes. (But, do not operate this fir more than 5 minutes, as it can cause motor damage.)
5) The pump is set at 8kg/cm² when released from the factory, but this may differ depending on the changes in the viscosities of the oils used (oil viscosity, surrounding viscosity).

Hydraulic circuit drawing

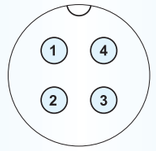
HMGP-105D



HMGP-303D



Wiring Diagram



① ④ : POWER (1:BLACK, 4:WHITE)

② ③ : OIL ALARM (2:RED, 3:GREEN)

HMGP 205C

Feature

1. It can be applied to large capacity proportional oil supply systems.
2. It is suitable for lubricating oil oil supply devices, as well as for a small number of lubricating oil recovery devices.
3. An externally controlled pump, and is capable of various applications according to the users' operational environments.
4. It is equipped with an ullage decrease detector.
5. Applied applied broadly from HJBSeries to HJCSeries.(continuous type)

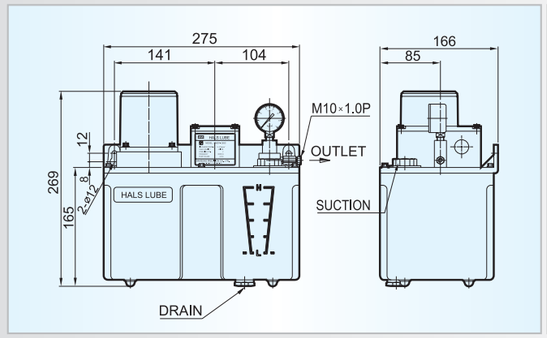
HMGP - 205C - 03 - T□ - F - 110

- 03(Oil Supply Type) : Continuous Oil Supply
- T□ : Tank Capacity
- F : Float Switch
- Voltage : 110:110V, 220:220V

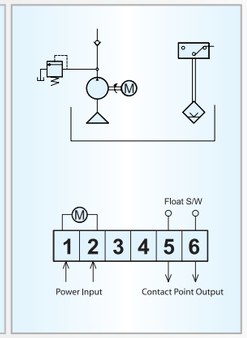
Pump Spec.

PUMP SPEC.		
PUMP TYPE	GEAR PUMP	
DISCHARGE PRESSURE	5~10kg/cm²	
INTERVAL TIME	CONSTANT	
DISCHARGE AMOUNT	100cc/min	
USING OIL	32~220(cSt)	
FILTER	80 Mesh	
TANK CAPACITY	5Liter(12, 20Liter)	
WEIGHT	5kg	
OIL WARNING	Output at point of contact	
MOTOR SPEC.		
OUTPUT	25W	
PHASE	1ø	
VOLTAGE	110V	200 / 220V
CURRENT	0.46A	0.21A
FREQUENCY	50/60Hz	

External Figure



Hydraulic circuit drawing



HALS 33

R-type

Feature

A piston manual pump with a specially processed cylinder interior to raise the pump discharge pressure to 7kg/cm² for a smooth supply of lubricating oil. Also compact and lightweight, requiring little installation space, and is therefore very economical.

HALS - 33 TY - R

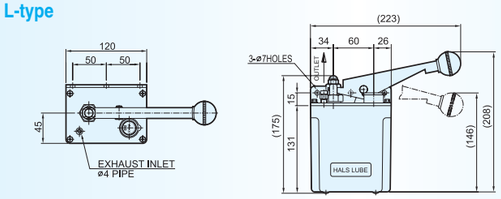
- Type of spray :TY Wall spray
- R : Right
- L : Left

Pump Spec.

PUMP TYPE	PISTON
DISCHARGE PRESSURE	7kg/cm²
DISCHARGE AMOUNT	7cc/st
TANK CAPACITY	1Liter
WEIGHT	1.5kg

External Figure

L-type



HMGP 6A/6MA

Feature

1. HMGP-6A
   - Easy lubricating oil supply through supplying compressed air
   - The pump drive parts are produced with die casting molds for superior durability
   - Easy control bar operation for free control of the quantity of discharge
   - The attached suction filter on every model prevents suction of foreign substances
2. HMGP-6MA
   - A fixed quantity oil supply pump used with the HMV Series fixed quantity valve.
   - It is capable of long distance delivery.

HMGP - 6A(6MA) 04 - T02 - F

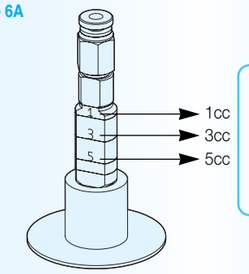
- 04(Oil Supply Type) : Air Drive Oil Supply
- T02(Tank Capacity) : 2Liter
- F : Float Switch
- 6A : Proportional Oil Supply
- 6MA : Fixed Quantity Oil Supply

Pump Spec.

	HMGP-6A	HMGP-6MA
DISCHARGE PRESSURE	10kg/cm²	20kg/cm²
DISCHARGE AMOUNT	0~6cc/st	6cc/st
USING OIL	32~800cSt	
FILTER	80Mesh	
TANK CAPACITY	2Liter	

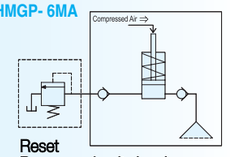
HMGP-6A, 6MA

HMGP- 6A



HMGP-6A oil quantity adjustment
The oil quantity can easily be adjusted by turning the Control Bar

HMGP- 6MA

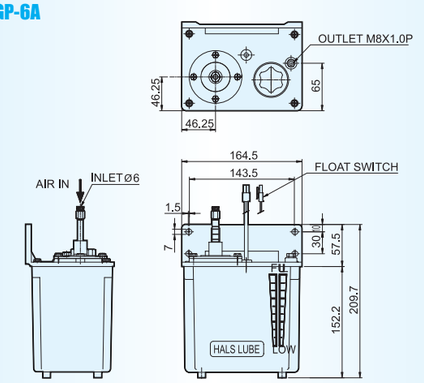


Reset
Pressure circuit drawing

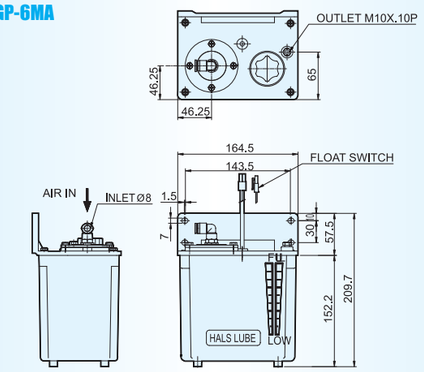
The pump operation time needs to be adjusted by attaching a SolV/V at the Air adulteration section.

External Figure

HMGP-6A



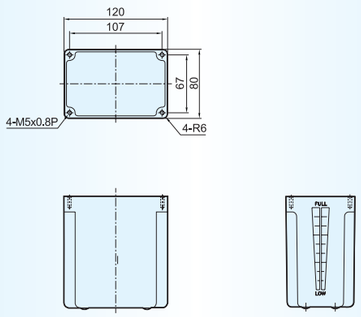
HMGP-6MA



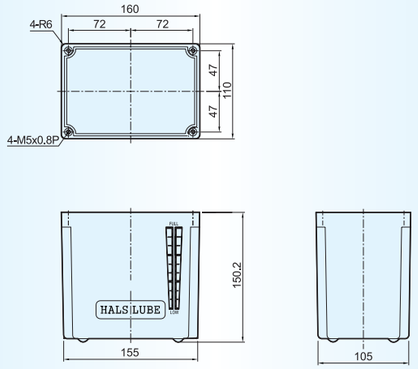
TANK series

RESIN TANK

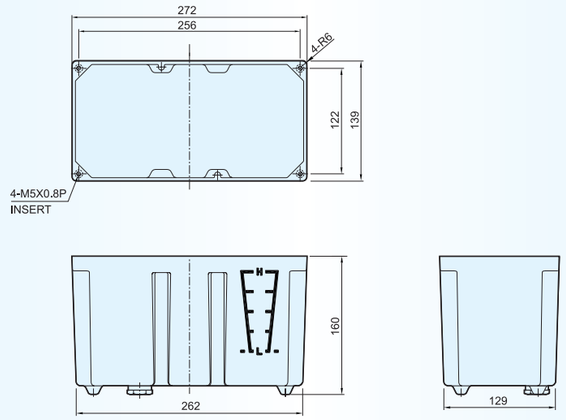
1 Liter



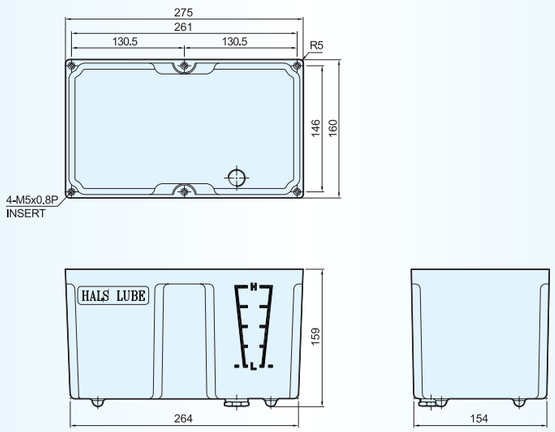
2 Liter



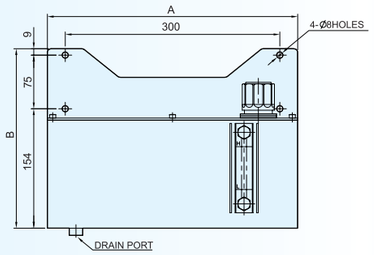
4 Liter



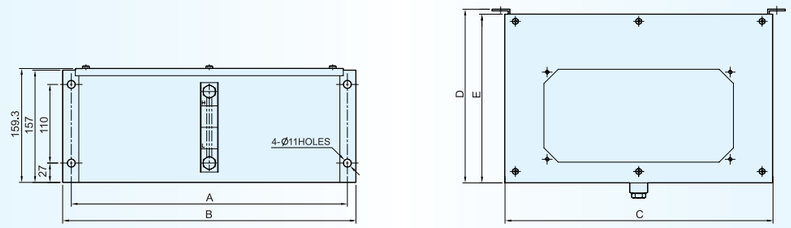
5 Liter



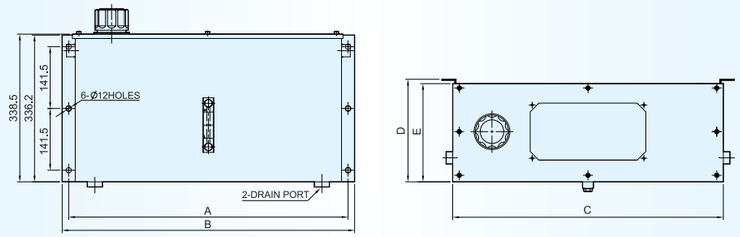
STEEL TANK



Type	Total Capacity	Effective Capacity	A	B	C	Applicate Pump
T6	7.7 ℓ	6 ℓ	320	251	199	HMGP-303M
T7	9.1 ℓ	7 ℓ	350	253	206	



Type	Total Capacity	Effective Capacity	A	B	C	D	E	Applicate Pump
T12	12.6 ℓ	9.8 ℓ	386	410	374.6	243	236	HMGP-303M HMGP-303(S) HMGP-6N Type HMGP-205S
T20	20.5 ℓ	16 ℓ	460	484	448.6	327	320	



Type	Total Capacity	Effective Capacity	A	B	C	D	E	Applicate Pump
T10	12 ℓ	8.8 ℓ	323	353	-	166	-	HMGP-6N Type HMGP-303 HMGP-303S
T20	26 ℓ	16 ℓ	586	616	562.6	188	181	
T30	35 ℓ	18 ℓ	640	670	620	235	225	
T55	54 ℓ	30 ℓ	640	670	620	286	276	

HMV series

Feature

1. A piston-operated bulk distributor used as a distributor in fixed quantity oil supply systems.
2. Simple Nipple changes allows oil supply from 0.01~0.6cc.
3. It is divided into a single, separate, control and an Indicator type, secondary pressure type(HMLV type) and can be applied to various environments.

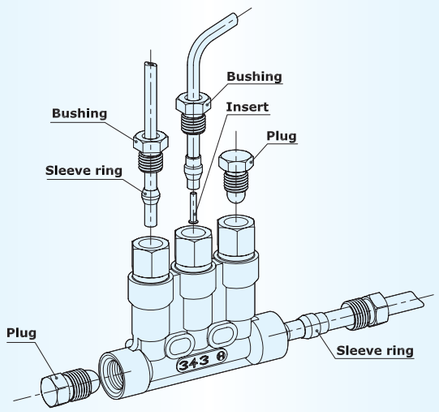
HMV - □ - □

- Quantiry of fixed quantity oil supply
- Number of outlet
- Valve type : HMV, 340, 350

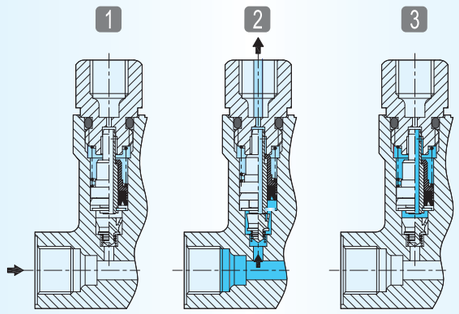
Pump Spec.

VALVE TYPE	METERED QUANTITY
HMV	0.03 0.05 0.1 0.16 0.2 0.3 0.4
340	0.03 0.06 0.1 0.16
350	0.1 0.2 0.4 0.6
HMS	0.01 0.03 0.05 0.1
HMVS	0.16 0.2 0.3 0.4 0.6
HMLV	0.1 0.2 0.4 0.6 1.0
Operating Pressure	10kg/cm²
Reset Pressure	3kg/cm²

Assembly method



Operating Guide



1) The front of the piston inside the distributor is filled with lubricating oil.

2) When the central lubricating oil begins to operate, the oil is delivered, and the pressure from the main pipe (10~20kg/cm²) moves the piston, which in turn pushes the oil from the front of the piston to the lubricating spot.

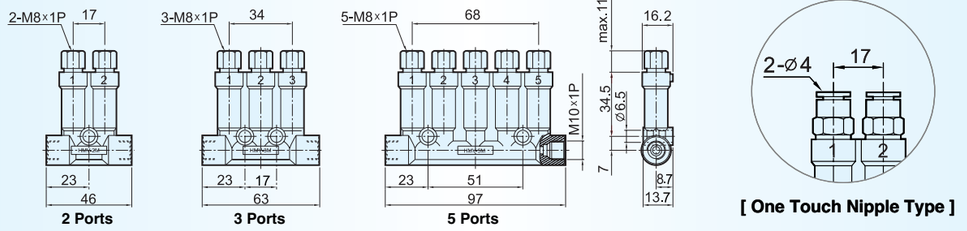
3) When the pressure from the main pipe is eliminated, the piston moves back to its original position, and the oil is refilled into the front of the piston.

4) The above process is repeated to provide lubricating oil.

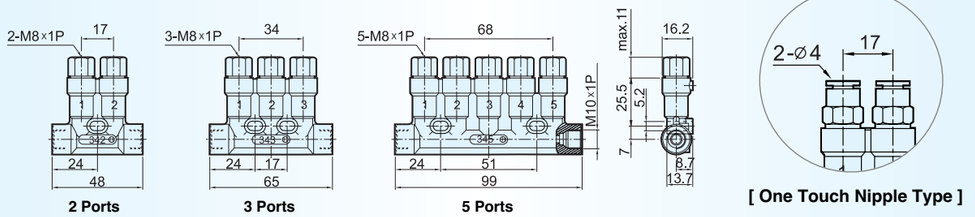
※ HMLV Operating
The change over valve opens the outlet as soon as the pressure drops in the main line, i.e. when the pressure relief valve of the pump opens.

External Figure

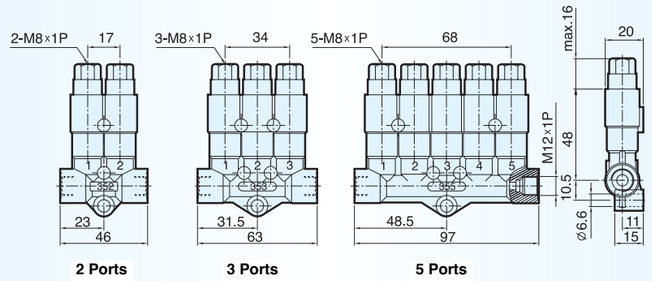
HMV-Type



340-Type



350-Type

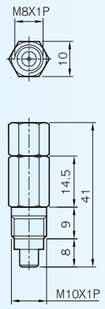


HMLV-Type

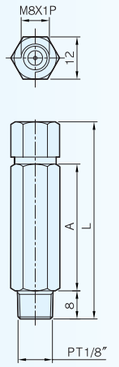
HMV series

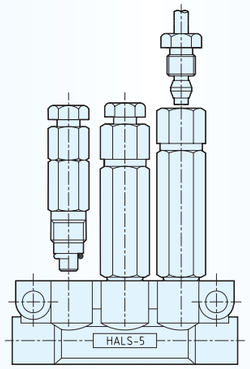
HMS / HMVS type

HMS



HMVS



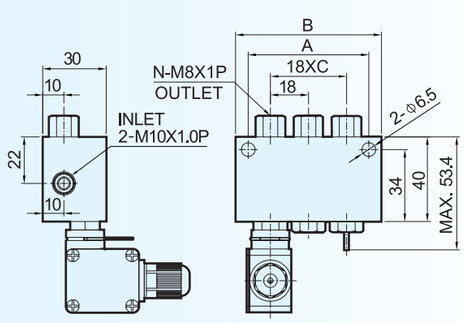


A fixed quantity valve structurally identical to HMV, but has a separable structure for use in installation spaces where the use of a single-unit valve is difficult.
It is separated into a small HMS(0.01~0.1) or a large HMVS(0.16~0.6) valve, depending on the range of the fixed quantity discharge quantity.

Code No.	Metered Quantity in cc
HMS	001:0.01cc 003:0.03cc 005:0.05cc 01:0.1cc

Code No.	Metered Quantity in cc	A mm	L mm
HMVS	016:0.16cc 02:0.2cc 03:0.3cc 04:0.4cc	31.5	51.5
	06:0.6c	36	56

HMIV

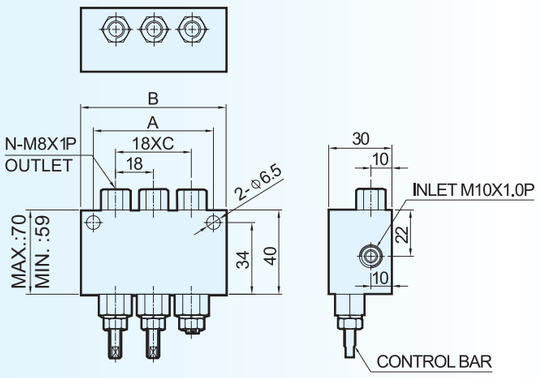


A piston-driven fixed quantity valve, attached with an indicator that allows easy visual discrimination, and the valve's operation can be checked simply by the indicator's movements, and the attachment of limit S/W allows electricity control checks.

TYPE	N	A	B	C
HMIV-2	2	39	51	1
HMIV-3	3	57	69	2
HMIV-4	4	75	87	3
HMIV-5	5	93	105	4

Code No.	Metered Quantity in cc
HMIV	003:0.03cc, 005:0.05cc, 01:0.1cc, 02:0.2cc, 03:0.3cc, 05:0.5cc

HMCV

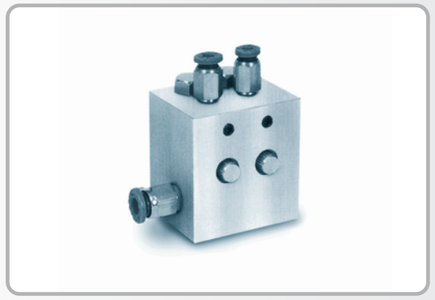


A piston-driven fixed quantity valve used when oil supply quantities need to be controlled and the quantity can be easily set from 0.03 to 0.5cc with the control bar.

TYPE	N	A	B	C
HMCV-2	2	39	51	1
HMCV-3	3	57	69	2
HMCV-4	4	75	87	3
HMCV-5	5	93	105	4

Code No.	Metered Quantity in cc
HMCV	0.03~0.5cc

MIXING VALVE series



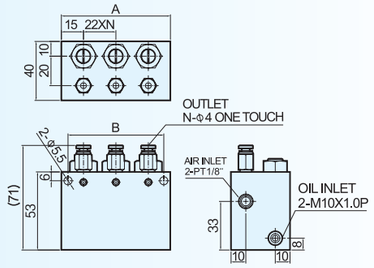
Feature

1. A lubricating system that mixes oil discharges and external compressed air to create fine oil particles.
2. An ideal lubricating method that creates a thin oil membrane on the machine's lubricating surface
3. It is economical and environmentally-friendly, and ensures optimal lubricating performance.

HMV - □ - □
- Discharge Quantiry
- number of Outlets
- Air + Oil Mixing Valve

External Figure

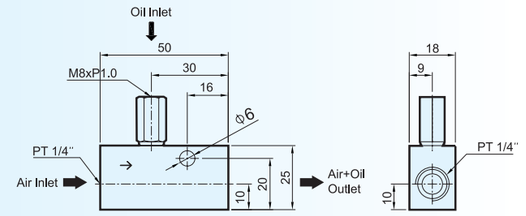
MIX VALVE



MIXING VALVE	
OPERATING TYPE	Metering Piston
DISCHARGE AMOUNT	0.03~0.16cc/st.
USING OIL	MIST Oil
AIR PRESSURE	0.35~0.5Mpa

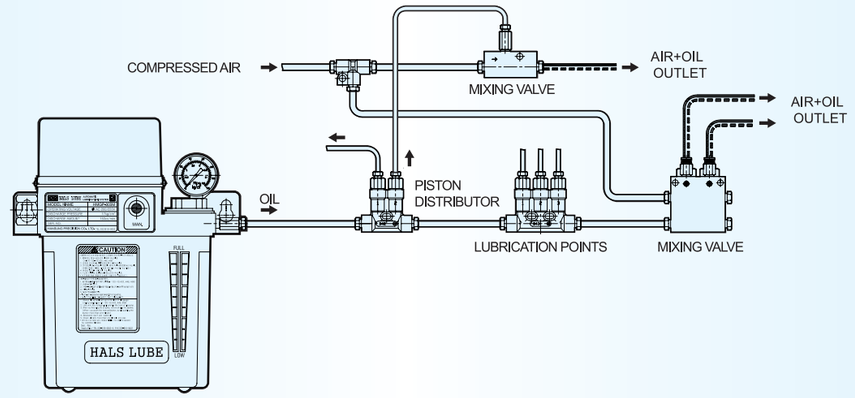
DIMENSION		
Number of outlets(N)	A	B
2	52	43
3	74	65
4	96	87
5	118	109
6	140	131
7	162	153
8	184	175

MIXW VALVE

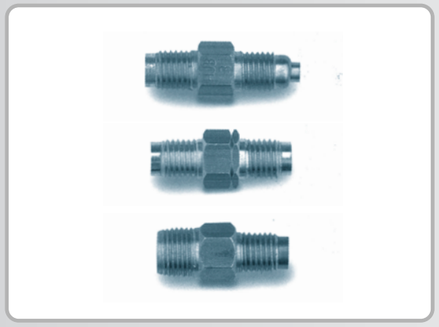


▶ A device that mixes the oil, which is delivered evenly from the fixed quantity valve, with compressed air. It is easy to install, and easy to use.

AIR + OIL MIXING SYSTEM



Proportional Oil Supply series



Feature

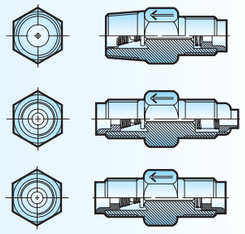
1. The flow unit component of the proportional oil supply system
2. It is separated into an intermittent oil supply valve or a continuous oil supply valve, and is separated into a distributor spray, line spray or a machine spray, depending on the assembly method.
3. Always use the filter to prevent the entry of foreign substances.

□ - □

Oil Quantity : 0, 1, 2, 3, 4

Valve Type : HSA, HJB, HJS

SPEC.



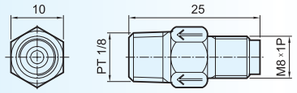
HSA (for Machine Spraying)

HJB (for Distributor Spraying)

HJS (for Line Spraying)

Valve No.	#0	#1	#2	#3	#4
Oil Quantity	5	10	20	40	80

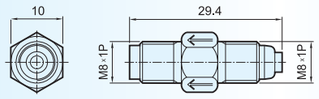
Assembly method



HSA / HSC

for Machine Spraying

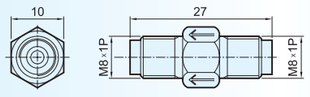
HSA (Intermittent Oil Supply)		HSC (Continuous Oil Supply)	
Code NO.	Valve NO.	Code NO.	Valve NO.
36010	#0	36110	#0
36011	#1	36111	#1
36012	#2	36112	#2
36013	#3	36113	#3
36014	#4	36114	#4



HJB / HJC

for Distributor Spraying

HJB (Intermittent Oil Supply)		HJC (Continuous Oil Supply)	
Code NO.	Valve NO.	Code NO.	Valve NO.
46010	#0	46110	#0
46011	#1	46111	#1
46012	#2	46112	#2
46013	#3	46113	#3
46014	#4	46114	#4

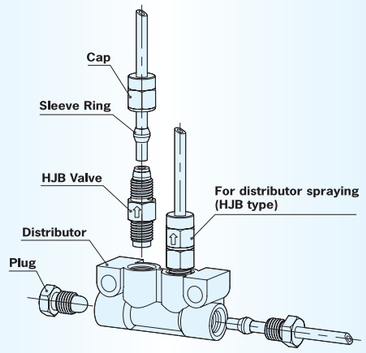


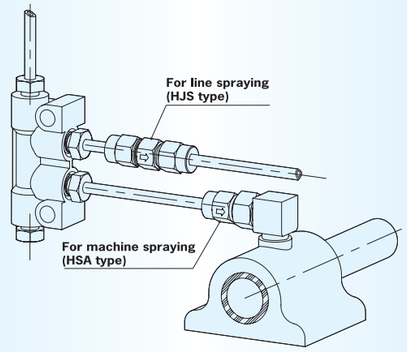
HJS / HHC

for Line Spraying

HJS (Intermittent Oil Supply)		HHC (Continuous Oil Supply)	
Code NO.	Valve NO.	Code NO.	Valve NO.
56010	#0	56110	#0
56011	#1	56111	#1
56012	#2	56112	#2
56013	#3	56113	#3
56014	#4	56114	#4

Operating Guide

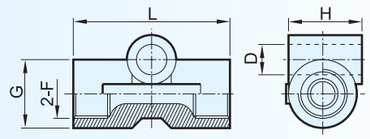




The flow unit decides the fixed oil quantity using the internal rod's thickness, and has a check valve to control the direction of one side, and therefore does not have an effect even in different altitudes or distance from the pump. The check valve opens when the oil pressure reaches 0.35kg/cm^2.
The type No. and the oil flow direction is clearly inscribed on the side of each unit.

Distributor series

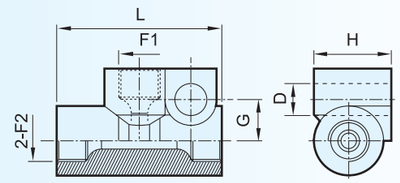
External Figure



2-WAY DISTRIBUTOR

Code NO.	2-F	L	D	G	H
10248	M8×1P	32	6.2	14	15
10268	M10×1P	32	6.2	14	15
* 10288	PT 1/8	32	6.2	14	15

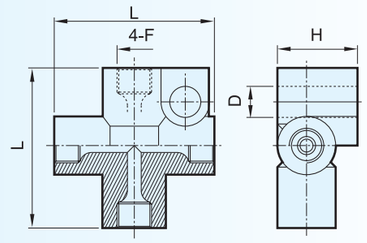
* parts are order specifications



3-WAY DISTRIBUTOR

Code NO.	F1	2-F2	L	D	G	H
10088	M8×1P	M8×1P	32	6.2	11	17
* 10081	M8×1P	M10×1P	32	6.2	11	17
10011	M10×1P	M10×1P	32	6.2	11	17
* 10181	PT 1/8	M10×1P	32	6.2	11	17
* 10118	M10×1P	PT 1/8	32	6.2	11	17

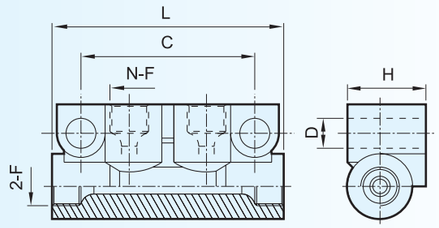
* parts are order specifications



4-WAY DISTRIBUTOR

Code NO.	4-F	L	H	D
44081	M8×1P	32	16	ø6.2
44011	M10×1P	32	16	ø6.2
* 44018	PT 1/8	32	16	ø6.2

* parts are order specifications

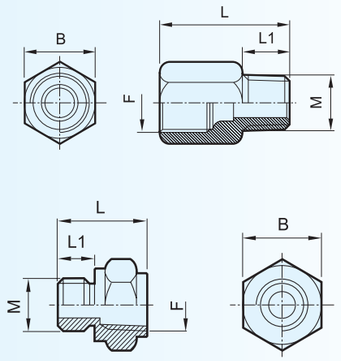


DISTRIBUTOR

Code NO.	Number of Port	N-F	2-F	L	C	H	D
20088	4(2P)	M8×1P	M8×1P	48	36	17	ø6.2
* 20081		M8×1P	M10×1P	48	36	17	ø6.2
* 20011		M10×1P	M10×1P	48	36	17	ø6.2
20181		PT 1/8	M10×1P	48	36	17	ø6.2
* 20118		M10×1P	PT 1/8	48	36	17	ø6.2
30088	5(3P)	M8×1P	M8×1P	64	52	17	ø6.2
* 30081		M8×1P	M10×1P	64	52	17	ø6.2
* 30011		M10×1P	M10×1P	64	52	17	ø6.2
30181		PT 1/8	M10×1P	64	52	17	ø6.2
* 30118		M10×1P	PT 1/8	64	52	17	ø6.2
40088	6(4P)	M8×1P	M8×1P	80	68	17	ø6.2
* 40081		M8×1P	M10×1P	80	68	17	ø6.2
* 40011		M10×1P	M10×1P	80	68	17	ø6.2
40181		PT 1/8	M10×1P	80	68	17	ø6.2
* 40118		M10×1P	PT 1/8	80	68	17	ø6.2
50088	7(5P)	M8×1P	M8×1P	96	84	17	ø6.2
* 50081		M8×1P	M10×1P	96	84	17	ø6.2
* 50011		M10×1P	M10×1P	96	84	17	ø6.2
50181		PT 1/8	M10×1P	96	84	17	ø6.2
* 50118		M10×1P	PT 1/8	96	84	17	ø6.2
60088	8(6P)	M8×1P	M8×1P	112	100	17	ø6.2
* 60081		M8×1P	M10×1P	112	100	17	ø6.2
* 60011		M10×1P	M10×1P	112	100	17	ø6.2
60181		PT 1/8	M10×1P	112	100	17	ø6.2
* 60118		M10×1P	PT 1/8	112	100	17	ø6.2
80088	10(8P)	M8×1P	M8×1P	144	132	17	ø6.2
* 80081		M8×1P	M10×1P	144	132	17	ø6.2
* 80011		M10×1P	M10×1P	144	132	17	ø6.2
80181		PT 1/8	M10×1P	144	132	17	ø6.2
* 80118		M10×1P	PT 1/8	144	132	17	ø6.2

* parts are order specifications

Adaptor



Code NO.	TUBE DIA. (out side)	B	L	L1	M	F
51114	ø4	10	18	8	PT 1/8	M8×1P
51115	ø6	12	22	8	PT 1/8	PF 1/8
51116	ø6	12	22	8	PT 1/8	M10×1P

Code NO.	TUBE DIA. (out side)	B	L	L1	M	F
51117	ø6	14	17	7	M10×1P	PT 1/8
51118	ø6	17	18	8	M12×1P	M10×1P

※ Material : Steel

Elbow

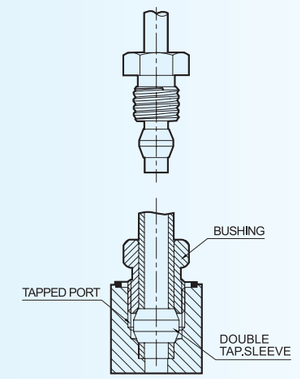
Code NO.	TUBE DIA. (out side)	M	F	L	B	H
51154	ø4	PT 1/8	M8×1P	18	10	10
51156	ø6	PT 1/8	M10×1P	20	12	12

Code NO.	B	L	L1	M	F
51155	12	21	8	PT 1/8	PT 1/8

Code NO.	B	H	L	L1	M	F
51157	13	13	22	8	PT 1/8	PT 1/8

Code NO.	B	L	H	M	F
51141	12	18,5	19	PT 1/8	M8×1P
51142	12	18,5	19	PT 1/8	PT 1/8

Connectors for steel and copper tubing



Sleeve Ring

Code NO.	TUBE DIA. (out side)	L	D1	D2
51094	ø4	5	ø6.0	ø4.2
51096	ø6	6	ø8.0	ø6.2

Bushing

Code NO.	TUBE DIA. (out side)	B	L	D	F
51074	ø4	10	12	ø4.2	M8×1P
51076	ø6	10	13	ø6.2	M10×1P
51077	ø6	12	13	ø6.2	PF 1/8

Connectors for steel, copper and plastic tubing

Insert

Code NO.	TUBE DIA	D1	D2	L
51102	ø4×ø2	ø2	ø3	10,5
51103	ø4×ø2,5	ø2,5	ø3,5	12,5
51104	ø6×ø4	ø4	ø5,4	10,5

Sleeve Ring

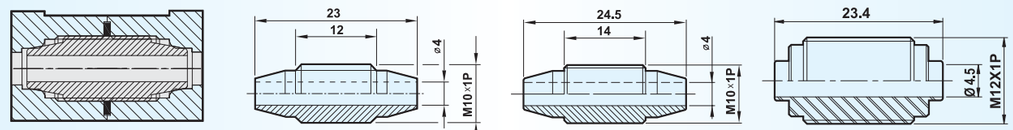
Code NO.	TUBE DIA. (out side)	L1	L2	L3	D1	D2	D3
61194	ø4	4,8	3,2	8	ø4,2	ø5	ø6
61196	ø6	5,9	3,5	9,4	ø6,2	ø7	ø8

Bushing

Code NO.	TUBE DIA. (out side)	B	L	D1	D2	F
51174	ø4	8	12	ø4,2	ø5	M8×1P
51176	ø6	10	13	ø6,2	ø7	M10×1P

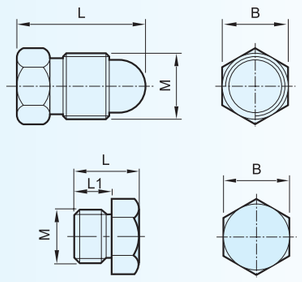
※ Material : Steel

Connectors for steel and copper tubing



DISTRIBUTOR CONNECTION | HMV CONNECTOR | 340 CONNECTOR | 350 CONNECTOR

Plug

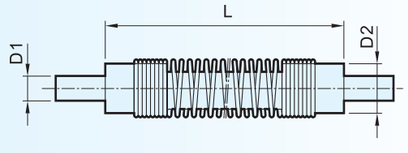


Code NO.	B	L	M
*51162	8	15	M10×1P
51164	10	17	M8×1P
51168	10	19,5	M10×1P

* The above bullet items are made in order.

Code NO.	B	L1	L	M
51169	14	7	11	M10×1P
51170	17	7	12	M12×1P
※ Material : Steel				

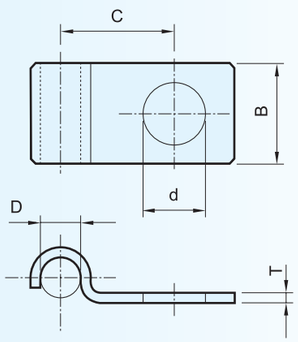
Flexible Hose



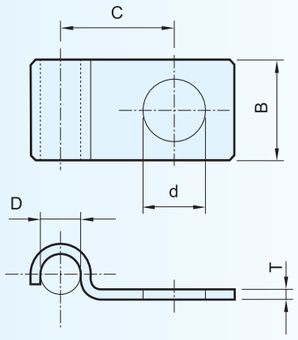
TUBE DIA. (out side)	D1	D2	USING PRESSURE
ø4	ø4	ø10	MAX. 13kg/cm²
ø6	ø6	ø10	MAX. 25kg/cm²

PIPE LAYING STANDARD	Code NO.	REMARK
ø4	EX) 4F-050	L=50cm
ø6	EX) 6F-350	L=350cm

Tube clamp

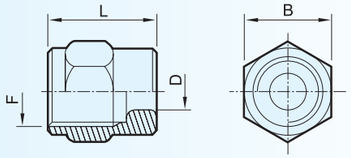


Code NO.	TUBE DIA. (out side)	D	B	d	C	T
51054	ø4	ø4	10	ø6,2	9	1,0
51056	ø6	ø6	10	ø6,2	11,5	1,0



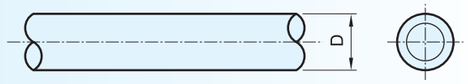
Code NO.	TUBE DIA. (out side)	D	B	d	C	T
51064	2-ø4	ø4	10	ø6,2	13	1,0
51066	2-ø6	ø6	10	ø6,2	17,5	1,0

CAP



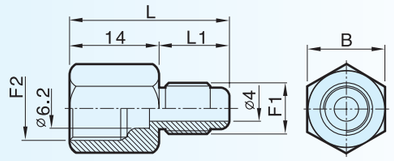
Code NO.	TUBE DIA. (out side)	B	L	D	F
51084	ø4	10	12,5	ø4,2	M8×1P

Tube



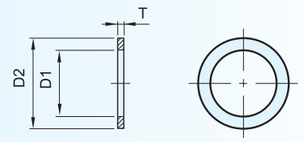
Code NO.	D	MATERIAL
70014N	ø4	Nylon
70016N	ø6	Nylon
70014C	ø4	Bs
70016C	ø6	Bs

Reducer



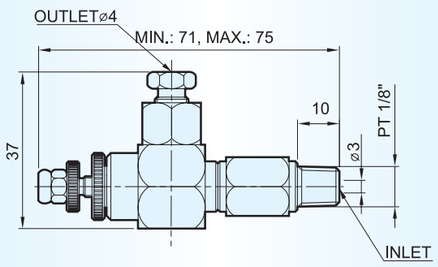
Code NO.	TUBE DIA. (out side)	B	L	L1	F1	F2
51029	ø4-ø6	12	25	11	M8×1P	M10×1P
51030	ø4-ø6	12	25	11	M8×1P	PT 1/8

Cu-Washer

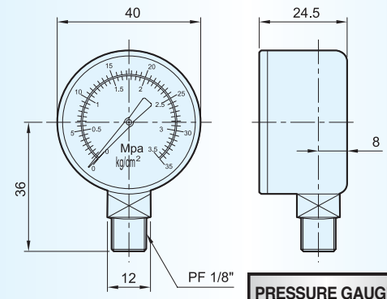


Code NO.	D1	D2	T	Remark
51171	ø10,2	ø13,9	1	M10 type
51172	ø12,2	ø15,9	1,4	M12 type

Oil Control Valve

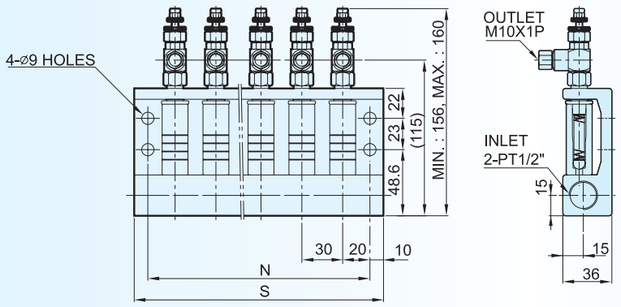


Pressure Gauge



PRESSURE GAUGE	0~35kg/cm²

Flow Indicator

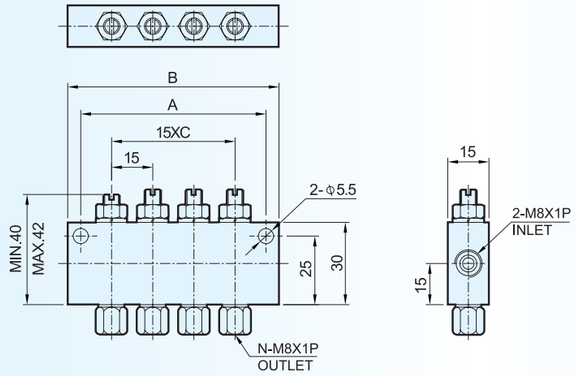


The FLOW INDICATOR has been designed to enable easy visual checking of oil flow, distribution to different branch pipes and control of oil quantity.
It is mainly used in continuous lubricating systems, and the branch pipes can be produced with 4 to 14 outlets. Each branch pipe's discharge quantity can be controlled from 50cc/min to 2ℓ/min.

But, for use outside the control range, you must consult our technical department.

Number of outlets(N)	4	6	8	10	12	14
N	130	190	250	310	370	430
S	150	210	270	330	390	450

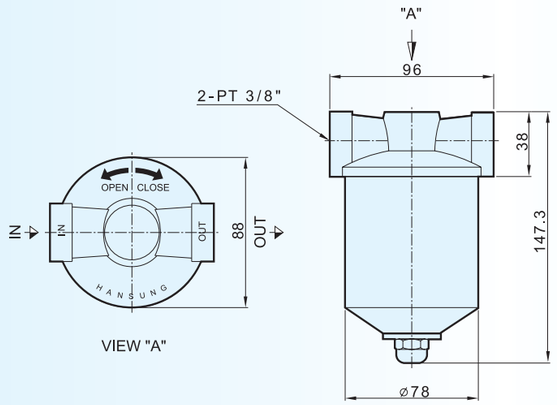
HFIS



A small control valve, and by adjusting the CONTROL BAR at the top, it easy possible to supply desired quantities of lubricating oil. It is mainly used in oil circulation systems that need continuous fueling.

TYPE	N	A	B	C
HFIS-2	2	37.5	47	1
HFIS-3	3	52.5	62	2
HFIS-4	4	67.5	77	3
HFIS-5	5	82.5	92	4

Drain Filter

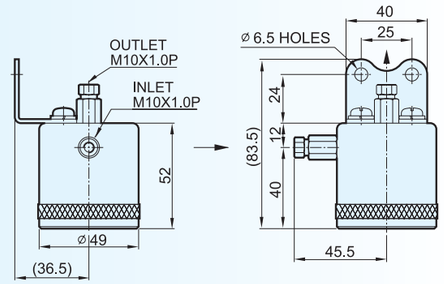


The Drain Filter, designed for use in small capacity lubricating Systems, eliminates foreign substances in recovered oil to expand machine lifespans.
Also, by recycling the Oil, Oil consumption can be greatly reduced.

- Drain filter is a semi-permanent product that is reusable after cleaning.

MODEL	HLF-1030
USING PRESSURE	under 30kg/cm²
OIL AMOUNT	1 Liter / min
FILTER	150μ Sus Filter
CODE NO.	51194

Line Filter

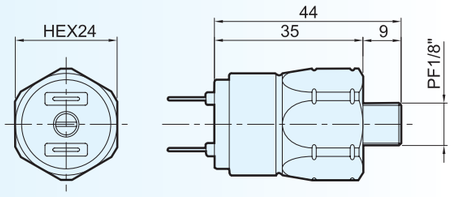


The line filter, designed for use in small capacity lubricating systems, eliminates foreign substances in the oil to expand machines' lifespans.

1. It has been designed to detach and attach with just the cover when element cleaning or exchanging.
2. It can be reused after cleansing with sintering elements.
3. AL materials have been used to make it lightweight and corrosion proof.

MODEL	HLF-40
MAX. PRESSURE	30kg/cm²
MIN. PRESSURE	15kg/cm²
OIL AMOUNT	0.5Liter/min
FILTER	40μ
CODE NO.	51193

Pressure Switch

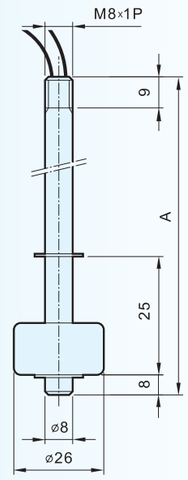


A core component of a pressure-controlled fixed quantity lubricating oil oil supply method, and has been designed to detect abnormalities such as lubricating impotence caused by pressure loss.

TYPE	HP-02
OPERATING PRESSURE	12±1kg/cm²
ELECTRICAL RATINGS	AC 110V, 10A / 220V, 5A
	DC 12V, 5A / 24V, 2.5A
ENDURANCE	Above 100,000 Cycle
OPERATING TEMP.	-40~120℃

※ Can be custom built to order to 28kg/cm²

Float Switch



An oil level switch used to detect oil quantity inside the tank, and has a built-in lead S/W on the float system shaft. There is also a small magnet inside the rotor that detects oil quantity upper and lower limits. Maintenance opening and closing of lead S/W is very small, and therefore a supplementary relay needs to be used.

VOLTAGE	AC 110V/220V
USING TEMP.	-10~80℃
USING OIL	32~1300cst
DIM 'A'	consider tank size

Operating Instructions & Breakdown Countermeasures

Operating Instructions

■ Operation preparation

1. Preparation
   - ▶ Check the pipes and electrical wirings, and fill the Tank with a recommended clean lubricating oil.
   - ▶ For electric pumps, check that the motor is operational.
2. Removal of air from main pipe
   - ▶ For optimal operation of concentrated lubricating systems, the entry of air is to be avoided. Therefore, you must carry out sufficient air removal.
   - ▶ To eliminate air, operate the pump continuously until the oil is discharged.
   - ▶ When filling the main pipe with oil by operating the pump, let the air our until the oil is discharged at the highest point of the main pipe, or at the furthest point from the pump.
3. Removal of air from fueling pipe
   - ▶ Let air out until oil is discharged at the end of the longest oil supply pipe.
4. Checking for oil leaks in the pipes
   - ▶ Once air has been removed, check for oil leaks in the pipes, and make the necessary repairs.

■ Test operations

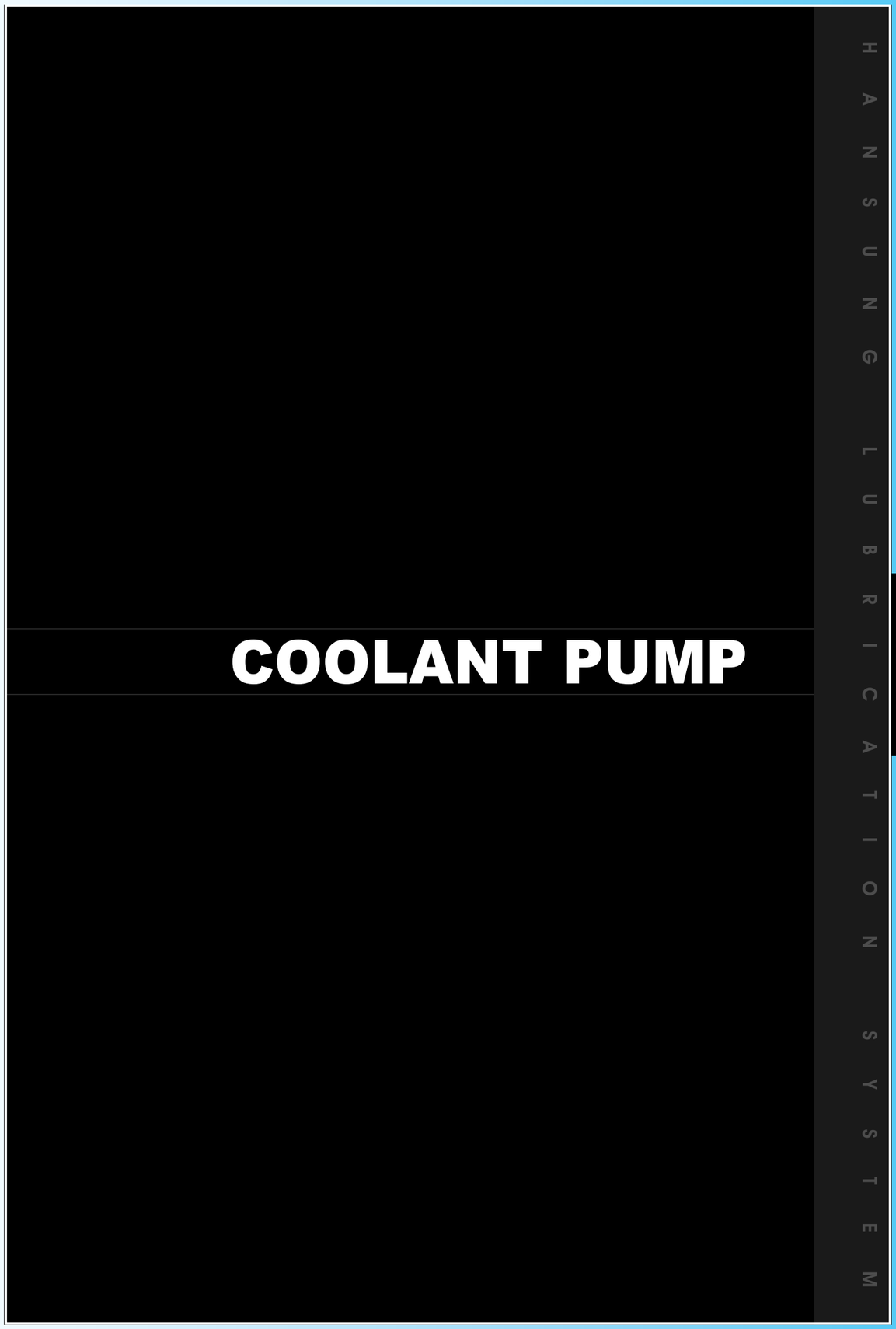
- ▶ When operating the pump, check that oil is discharged before connecting the pipes.
- ▶ Connect the pipes once it has been verified that the pump is discharging oil.
- ▶ Check that the pump operation time has been set according to the specification of the device, and operate normally.
- ▶ Check that the pump is operating properly during the operation and pause cycles.

■ Maintenance

- ▶ All system devices require maintenance. Make sure to check that the system is operating normally every operational cycle.
- ▶ If ullage levels inside the tank decrease, immediately replenish with the recommended, clean lubricating oil.
- ▶ If and when the Suction Filter becomes clogged, clean the Suction Filter, and clean or exchange the Line Filter in use.
- ▶ In the event of malfunctions, refer to the breakdowns and countermeasures section.
- ▶ Do not use volatile oil, water soluble oil or grease as lubricating oil.

Cause & Remedy of Trouble

Status	Cause	Countermeasures
There is no oil discharge from pump.	Ullage levels inside the tank are low.	Replenish with oil of the same type and class as the one in use.
	The suction filter holes have been clogged.	Cleanse or exchange of the filter
	Exchange damaged pipes of the pump	Exchange
	The oil viscosity is not within the 32~800cSt range.	Change to suitable oil.
Pressure decrease.	Oil is not coming up from the pump due to one of the above reasons.	Follow the above instructions.
	The flow unit and control unit election for the lubricating spots are inadequate.	Check the data sheet again.
	The relief valve selection is inadequate.	Adjust the setting to the right values.
	Foreign substances have been mixed to the relief valve ball seat.	Disassemble and cleanse the relief valve.
	Oil is leaking from the pipe connection parts.	Tighten again with the optimum torque (60kg/cm^2), or reinstall the pipes.
	Pipes have been damages.	Replace the damaged pipes.
Oil is leaking from the flow unit.	Oil is not discharged from the flow unit due to one of the above reasons.	Follow the above instructions.
Oil is leaking from outside the pump.	The seal packing of the pump and the oil tank has been worn down or damaged.	Exchange
	Tightening bolts at the pump connections are loose.	Re-tighten the bolts.



COOLANT PUMP *Series*

HCP-S series

A compact and lightweight self-priming cutting fluid pump.

It can be used when there are limitations on TANK space.

Grinder
Lathe
Washer
Electrical discharging machine
other turning and cutting processing machines

Page 3.

HCP-F series

A submerged type cutting fluid pump that can be driven initially without oil priming.

The pump part is submerged inside the tank.

MCT
CNC
other turning and cutting processing machines

Page 5.

HCP-MF series

A submerged type cutting fluid pump that is used when large quantities of oil are required.

A multi-stage pump capable of a wide range of performances.

MCT
CNC
Grinder
Washer
Electrical discharging machine
other turning and cutting processing machines

Page 9.

HCP-HMF series

A multi-stage high-pressure pump, applied when high pressure is required.

It is separated into a vertical type or a horizontal type depending on the installation method used.

MCT
CNC

Page 11.

HCP-SMF/SHMF series

A multi-stage pump with its main drive parts produced from stainless materials to ensure excellent durability and anti-corrosiveness.

MCT
CNC
other turning and cutting processing machines

Page 15.

HCP-S(H)HM/(H)MSF series

A compact multi-stage pump with the main drive parts produced from stainless. It is separated into a vertical or a horizontal type, depending on the installation method used.

Its compact and lightweight design makes it easy to use.

MCT
CNC
Washer
Electrical discharging machine
other turning and cutting processing machines

Page 17.

HCP S series

Feature

1. A compact, lightweight single-unit pump.
2. The small, design means less installation limitations
3. Prolonged idling is prohibited due to the installed mechanical seal. (Idling for more than 30 seconds is prohibited)
4. Sufficient quantities of oil need to be supplied to the self-priming compartment before use

Structure

- A single-unit small self-priming pump
- A pipe is connected to the suction part to suck in oil.

HCP - □ S

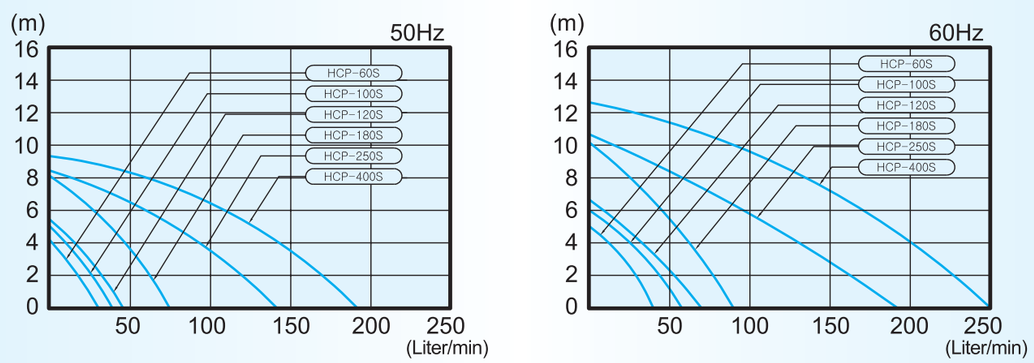
- S : Pump Type : Self-priming Type
- □ : Motor Output
- HCP : HANSUNG **Coolant Pump**

Pump Spec.

Type \ Specification	MOTOR						PUMP			
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)	WEIGHT (kg)
HCP-60S	60	50	200 380	0.42 0.24	3	2	2	20	3/8	6.9
		60	200/220 380	0.45 0.26				25		
HCP-100S	100	50	200 380	0.51 0.3	3	2	2	30	3/8	7.1
		60	200/220 380	0.55 0.32				36		
HCP-120S	120	50	200 380	0.56 0.33	3	2	2	35	3/8	9.1
		60	200/220 380	0.6 0.35				42		
HCP-180S	180	50	200 380	0.93 0.53	3	2	3	58	1/2	11.1
		60	200/220 380	1.0 0.57				70		
HCP-250S	250	50	200 380	1.4 0.8	3	2	4	95	3/4	11.3
		60	200/220 380	1.5 0.86				130		
HCP-400S	400	50	200 380	2.4 1.4	3	2	5	140	1	15
		60	200/220 380	2.5 1.5				200		

Performance Curve

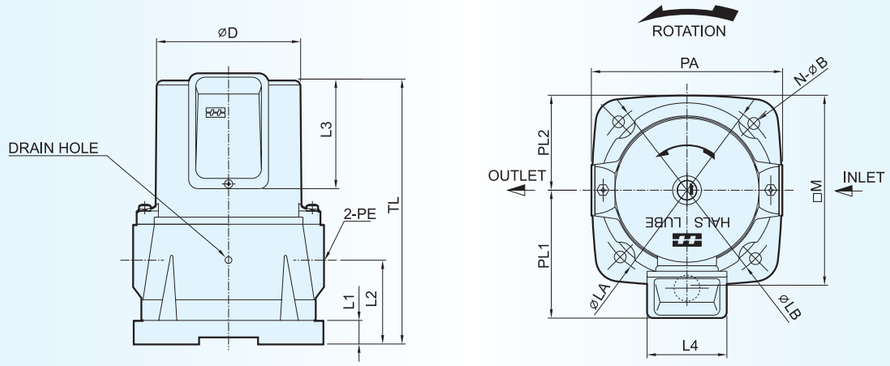
Oil for Testing : ISO-VG2, temperature 20℃



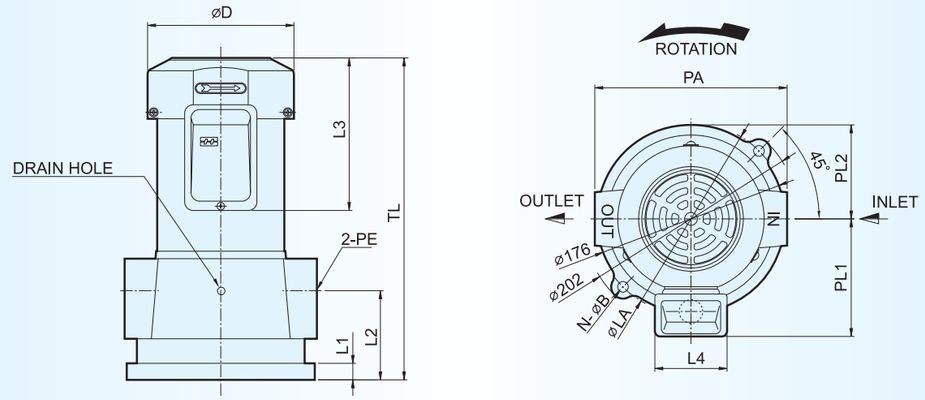
※ When using non water-soluble cutting fluid, viscosity must be under 32cSt. Pump performance (pressure and oil quantity) will decrease compared to water-soluble cutting fluid.

External Figure

HCP-60S~250S



HCP-400S



Dimension

※ LA, LB ( ) are products for export

Type \ Item	ø D	L1	L2	L3	L4	PE(PT)	TL	LA	LB	N-ø B	PA	M	PL1	PL2
HCP-60S	94	15	55.5	92.5	67.6	2-3/8	200.5	132(132)	150(130)	4-7	130	130	93.5	65
HCP-100S	94	15	55.5	92.5	67.6	2-3/8	200.5	132(132)	150(150)	4-7	130	130	93.5	65
HCP-120S	94	15	55.5	92.5	67.6	2-3/8	200.5	132(132)	150(150)	4-7	130	130	93.5	65
HCP-180S	121	15	66	93	67.6	2-1/2	218.5	167(160)	170(164)	4-10	162	160	108.5	80
HCP-250S	121	20	71	93	67.6	2-3/4	224.5	167(160)	170(170)	4-10	162	160	108.5	80
HCP-400S	137	14.5	83	143	67.6	2-1	301	180(180)	-	2-10	180	-	110	88

HCP F series

Feature

1. The motor and the pump have the same shaft but are separated
2. Various selections can be made according to the depths of the compact low-set tanks.
3. A structure with no additional seals such as a mechanical seal
4. Can be applied to a wide range of parts including grinding machine with mixed abrasive grain.

Structure

- A pump that operates with the pump part submerged in the tank.
- Different pumps can be selected according to tank depths, and can be used without separate oil priming.

HCP - □ F

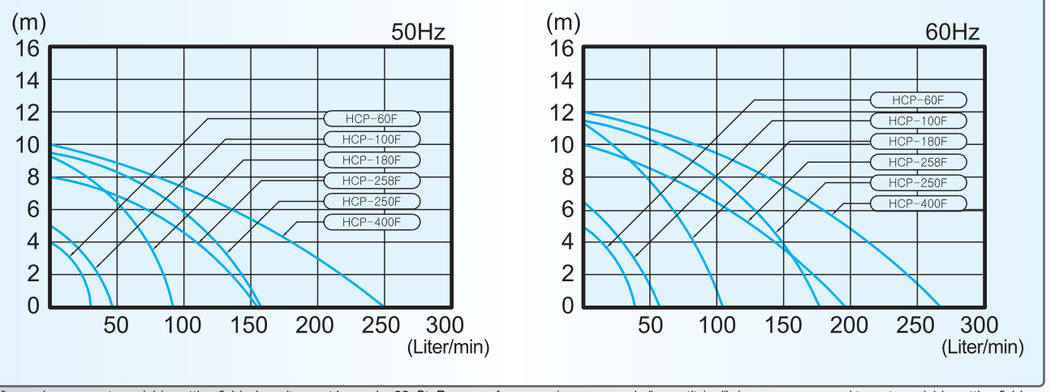
- F — Pump Type : Submerged Type
- □ — Motor Output
- HCP — HANSUNG **Coolant Pump**

Pump Spec.

Type \ Specification	MOTOR						PUMP			
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)	WEIGHT (kg)
HCP-60F	60	50	200 380	0.42 0.24	3	2	2	25	3/8	7
		60	200/220 380	0.45 0.26				32		
HCP-100F	100	50	200 380	0.51 0.3	3	2	2	37	3/8	7.6
		60	200/220 380	0.55 0.32				47		
HCP-180F	180	50	200 380	0.93 0.53	3	2	3	75	1/2	11.2
		60	200/220 380	1.0 0.57				90		
HCP-250F	250	50	200 380	1.4 0.8	3	2	4	125	3/4	14.2
		60	200/220 380	1.5 0.86				150		
HCP-258F	250	50	200 380	1.4 0.8	3	2	4	110	3/4	12
		60	200/220 380	1.5 0.86				145		
HCP-400F	400	50	200 380	2.4 1.4	3	2	5	160	1	17.5
		60	200/220 380	2.5 1.5				200		

Performance Curve

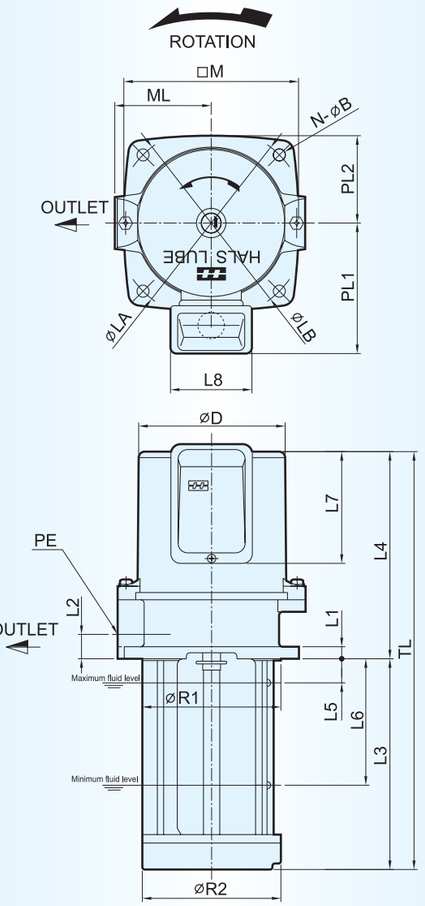
Oil for Testing : ISO-VG2, temperature 20℃



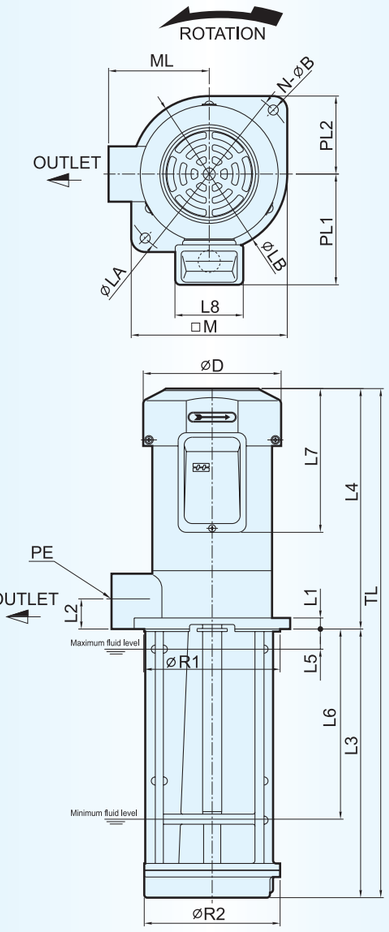
※ When using non water-soluble cutting fluid, viscosity must be under 32cSt. Pump performance (pressure and oil quantity) will decrease compared to water-soluble cutting fluid.

External Figure

HCP-60F~258F



HCP-400F



Dimension

※ LA, LB ( ) are products for export

Type \ Item	ø D	L1	L2	L3	L4	L5	L6	L7	L8	PE(PT)	TL	R1	R2	LA	LB	N-ø B	PL1	PL2	M	ML
HCP-60F	94	8	15	155	150	20	90	92.5	67.6	3/8	305	90	90	130 (132)	130 (130)	4-7	94	64	128	71
HCP-100F	94	8	15	155	150	20	90	92.5	67.6	3/8	305	90	90	130 (132)	130 (134)	4-7	94	64	128	71
HCP-180F	121	10	20	175	171	20	105	93	67.6	1/2	346	115	115	160 (160)	160 (134)	4-10	108.5	72.5	145	80
HCP-250F	121	10	25	247	180	20	190	93	67.6	3/4	427	128	128	160 (160)	160 (170)	4-10	108.5	75	150	85
HCP-258F	121	11	27	180	185	20	120	93	67.6	3/4	365	128	128	160 (160)	170 (170)	4-10	108.5	79	158	90
HCP-400F	137	11	30	280	236	20	200	143	67.6	1	516	135	135	180 (180)	-	2-10	110	77.5	155	100

HCP F High Pressure series

Feature

1. It has the same separate motor & pump structure as the HCP-F
2. It is used when more pressure than HCP-F is required.
3. There is an anti-vortex part at the top of the pump, which allows smooth suction
4. The pump is divided into top section suction or bottom section suction according to the type of the applied tank.
5. HCP-250FL-25,419F,420F are bottom section suction products that have a wide range of suction oil levels.

Structure

- A submerged-type pump with the same structure as the HCP-F TYPE.
- There are various pump forms according to the different tank depths.

HCP- ☐ F

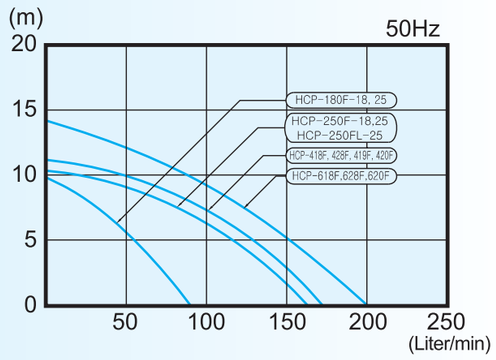
- Pump Type : Submerged Type (High Pressure)
- Motor Output
- HANSUNG **Coolant Pump**

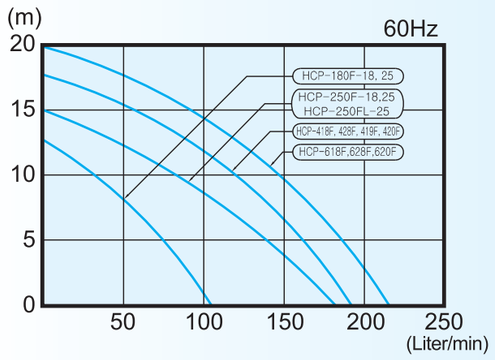
Pump Spec.

Type \ Specification	MOTOR						PUMP			
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ /min)	PIPE SIZE (PT)	WEIGHT (kg)
HCP-180F-18, 25	180	50	200 380	0.93 0.53	3	2	9	10	PF 1/2	11/12
		60	200/220 380	1.0 0.57			13			
HCP-250F-18, 25 HCP-250FL-25	250	50	200 380	1.4 0.8	3	2	10	10	PF 3/4	12/13/14
		60	200/220 380	1.5 0.86			14			
HCP-418F, 428F, 419F, 420F	400	50	200 380	2.4 1.4	3	2	12	40	1	15.6/17.5
		60	200/220 380	2.5 1.5			16			
HCP-618F, 628F, 620F	600	50	200 380	2.79 1.61	3	2	12	80	1	19.5
		60	200/220 380	3.0 1.73			16			

Performance Curve

Oil for Testing : ISO-VG2, temperature 20℃

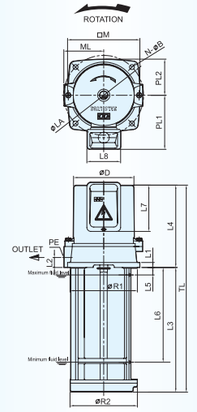




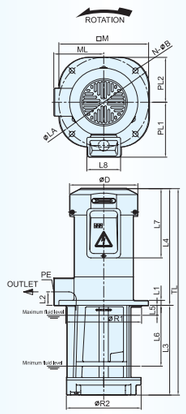
※ When using non water-soluble cutting fluid, viscosity must be under 32cSt. Pump performance (pressure and oil quantity) will decrease compared to water-soluble cutting fluid.

External Figure

HCP-180F-18, 25
HCP-250F-18, 25

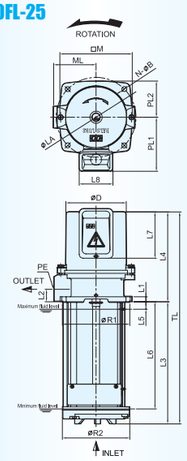


HCP-418F~628F

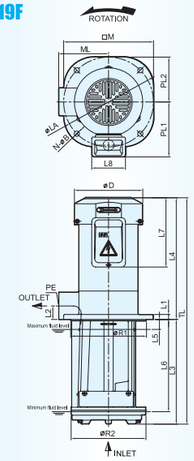


Bottom Inlet type

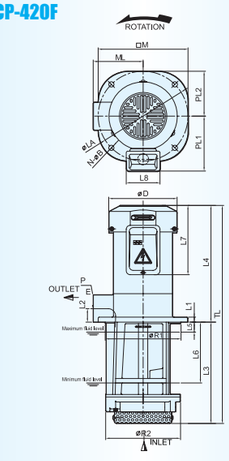
HCP-250FL-25



HCP-419F



HCP-420F



Dimension

Type \ Item	ø D	L1	L2	L3	L4	L5	L6	L7	L8	PE (PT)	TL	R1	R2	LA	N-ø B	PL1	PL2	M	ML
HCP-180F-18	121	10	20	180	173	22	116	93	67.6	PF 1/2	353	135	135	160	4-10	108.5	72.5	145	80
HCP-180F-25	121	10	25	250	180	15	190	93	67.6	PF 1/2	430	135	135	160	4-10	108.5	75	150	85
HCP-250F-15	121	10	20	180	173	22	116	93	67.6	PF 3/4	353	135	135	160	4-10	108.5	72.5	145	80
HCP-250F-25	121	10	25	250	180	15	190	93	67.6	PF 3/4	430	135	135	160	4-10	108.5	75	150	85
HCP-250FL-25	121	10	25	245	180	15	215	93	67.6	PF 3/4	425	135	135	160	4-10	108.4	72.5	145	85
HCP-418F/618F	137	10	27	180	234	20	122	143	67.6	1	414	152	150	180	4-10.5	110	90	180	100
HCP-419F	137	10	27	210	244	20	185	139	67.6	1	454	152	150	180	4-10.5	110	90	180	100
HCP-420F	137	10	27	200	234	20	122	143	67.6	1	434	152	150	180	4-10.5	110	90	180	100
HCP-428F//628F	137	10	27	280	234	20	220	143	67.6	1	514	152	150	180	4-10.5	110	90	180	100

HCP MF series

Feature

1. It can be applied when large quantities of oil are required
2. The motor part is detached to reduce the transfer of heat.
3. A submerged bottom section suction pump that must be kept at least 30mm above the tank floor.
4. The pump part is detached to reduce the entry of oil into the motor.

Structure

- A submerged multi-stage pump, and the spray area for every model has been identically produced
- For use in deep tank, additional pipes can be connected to the suction part to allow use.

HCP - □ MF

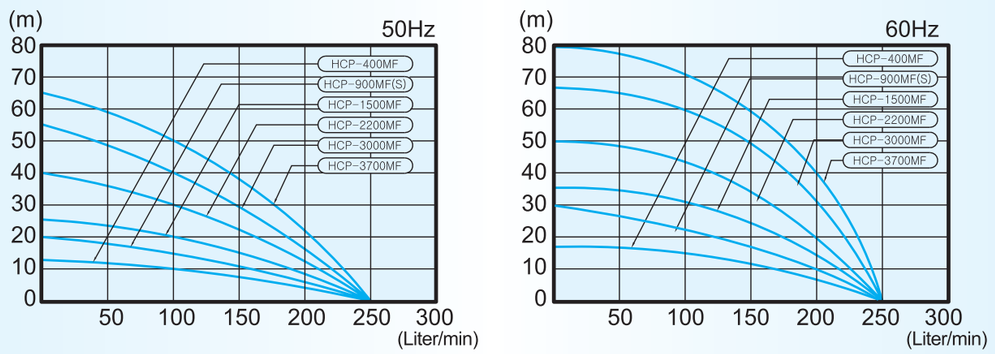
- Pump Type : (Multi-Submerged Type)
- Motor Output
- HANSUNG **Coolant Pump**

Pump Spec.

Type \ Specification	MOTOR						PUMP			
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	Pipe Size (PT)	Pipe Size (PT)
HCP-400MF	400	50	200 380	2.4 1.4	3	2	5	150	1 1/4 (1 1/2)	25
		60	200/220 380	2.5 1.5				200		
HCP-900MF(S)	900	50	200 380	5.2 3.1	3	2	6.5	200	1 1/4 (1 1/2)	26.5
		60	200/220 380	6.0/5.8 3.4			10			
HCP-1500MF	1500	50	200 380	7.5 4.1	3	2	20	100	1 1/2	37
		60	200/220 380	8.5/8.0 4.6			30			
HCP-2200MF	2200	50	200 380	9.0 5.5	3	2	30	100	1 1/2	41
		60	200/220 380	12.0/11.0 6.4			45			
HCP-3000MF	3000	50	200 380	13.0 7.1	3	2	40	100	1 1/2	43
		60	200/220 380	15.0/14.0 8.0			60			
HCP-3700MF	3700	50	200 380	16.0 8.5	3	2	50	100	1 1/2	45
		60	200/220 380	18.0/17.0 10.7			70			
HCP-1500BMF	1500	50	200 380	7.5 4.1	3	2	10	300	2	45.5
		60	200/220 380	8.5/8.0 4.6			12	400		
HCP-2200BMF	2200	50	200 380	9.0 5.5	3	2	10	400	2	46.5
		60	200/220 380	12.0/11.0 6.4			20			

Performance Curve

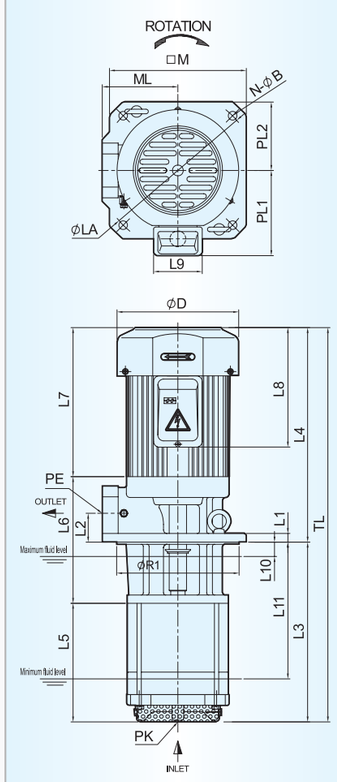
Oil for Testing : ISO-VG2, temperature 20℃



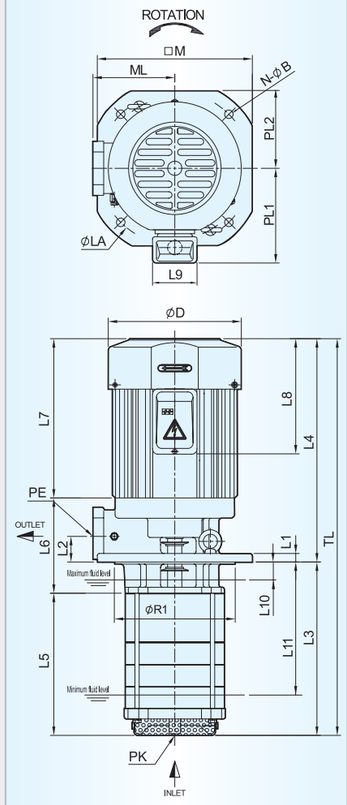
※ When using non water-soluble cutting fluid, viscosity must be under 32cSt. Pump performance (pressure and oil quantity) will decrease compared to water-soluble cutting fluid.

External Figure

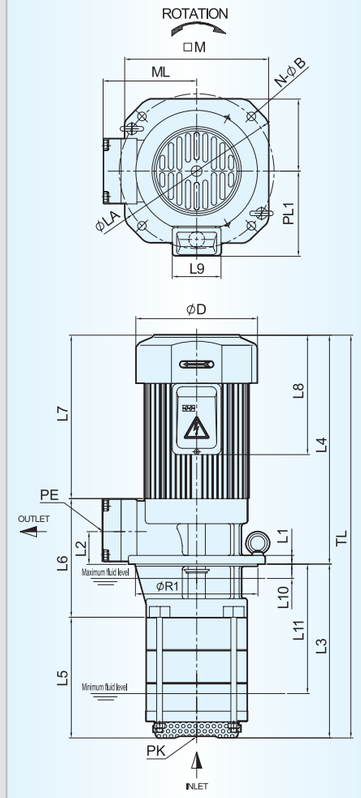
HCP-400MF~2200MF



HCP-3000MF~3700MF



HCP-1500BMF/2200BMF



Dimension

Type \ Item	ØD	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	PE (PT)	TL	R1	LA	N-ØB	PL1	PL2	M	ML	PK (PF)
HCP-400MF	169	12	40	250	298	165	176	207	166	67.6	20	190	1 1/2 1 1/4	548	170	215	4-12	119.0	95	190	105	2″
HCP-900MF	169	12	40	250	298	165	176	207	166	67.6	20	190	1 1/2 1 1/4	548	170	215	4-12	119.0	95	190	105	2″
HCP-900MFS	169	12	40	209	298	124	176	207	166	67.6	20	160	1 1/4	507	170	215	4-12	119.0	95	190	105	2″
HCP-1500MF	169	12	40	244	321	159	176	230	166	67.6	20	190	1 1/2	565	170	215	4-12	119.0	95	190	105	2″
HCP-2200MF	169	12	40	244	348	159	176	257	166	67.6	20	190	1 1/2	592	170	215	4-12	119.0	95	190	105	2″
HCP-3000MF	187	12	36	244	326	200	134	236	171	67.6	20	190	1 1/2	570	170	215	4-12	125.5	109	218	115	2″
HCP-3700MF	187	12	36	354	338	310	134	248	171	67.6	20	303	1 1/2	692	170	215	4-12	125.5	109	218	115	2″
HCP-1500BMF	169	12	45	241.7	318	167.7	165	227	171	67.6	20	180	2	559.7	170	215	4-12	119.0	100	200	130	2 1/2″
HCP-2200BMF	169	12	45	241.7	318	167.7	165	227	171	67.6	20	180	2	559.7	170	215	4-12	119.0	100	200	130	2 1/2″

HCP HMF(S) High Pressure series

Feature

1. A high-pressure pump capable of more than 25bar of discharge pressure.
2. Identical pump spray areas make exchanges easy.
3. Prolonged idling is prohibited due to the installed mechnical seal. (Idling for more than 30 seconds is prohibited)
4. It is produced with a single-unit shaft, which increases durability and makes management easy.

Structure

- A submerged multi-stage pump structurally identical to the HCP-MF.
- The submerged type product is the normal product, but for high pressure, it can be produced in a horizontal shape.

HCP - [ ] HMF [S]

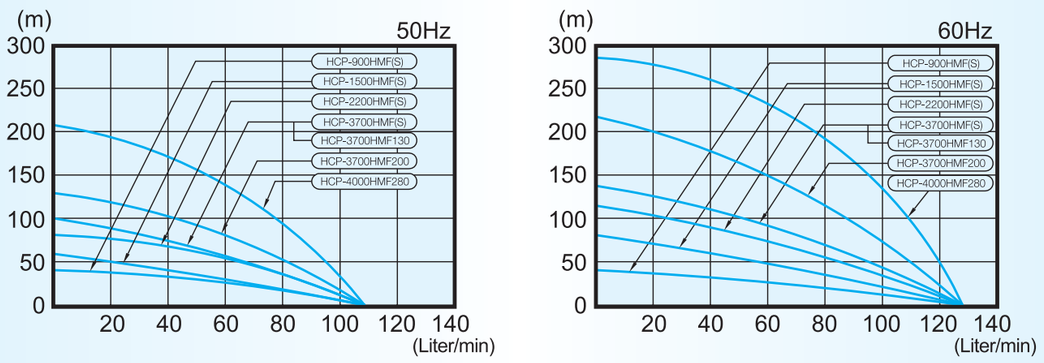
- [S] Pump Type : Short Body
- HMF Pump Type : High Pressure Multi-Submerged Type
- [ ] Motor Output
- HCP HANSUNG **Coolant Pump**

Pump Spec.

Type \ Specification	MOTOR						PUMP			
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)	WEIGHT (kg)
HCP-900HMF(S)	900	50	200 380	5.2 3.1	3	2	30	20	3/4	28
		60	200/220 380	6.0/5.8 3.4			45			
HCP-1500HMF(S)	1500	50	200 380	7.5 4.1	3	2	50	20	3/4	30
		60	200/220 380	8.5/8.0 4.6			70			
HCP-2200HMF(S)	2200	50	200 380	9.0 5.5	3	2	70	20	3/4	35
		60	200/220 380	12.0/11.0 6.4			100			
HCP-3700HMF(S)	3700	50	200 380	16.0 8.5	3	2	90	20	3/4	45
		60	200/220 380	18.0/17.0 10.7			130			
HCP-3700HMF130	3700	50	200 380	16.0 8.5	3	2	90	20	3/4	50
		60	200/220 380	18.0/17.0 10.7			130			
HCP-3700HMF200	3700	50	200 380	16.0 8.5	3	2	125	20	3/4	55
		60	200/220 380	18.0/17.0 10.7			200			
HCP-4000HMF280S	4000	50	200 380	15.0 9.0	3	2	195	20	3/4	70
		60	200/220 380	18.0 10.7			280			

Performance Curve

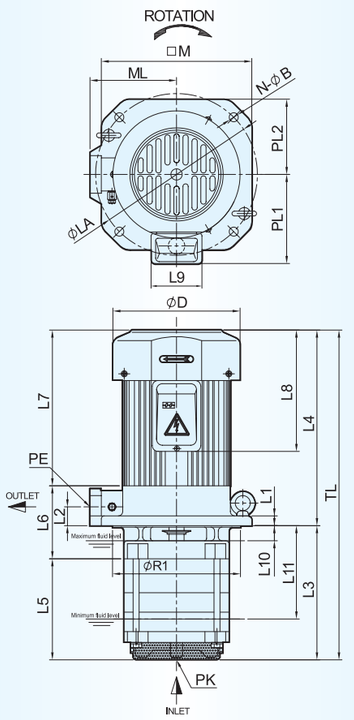
Oil for Testing : ISO-VG2, temperature 20℃



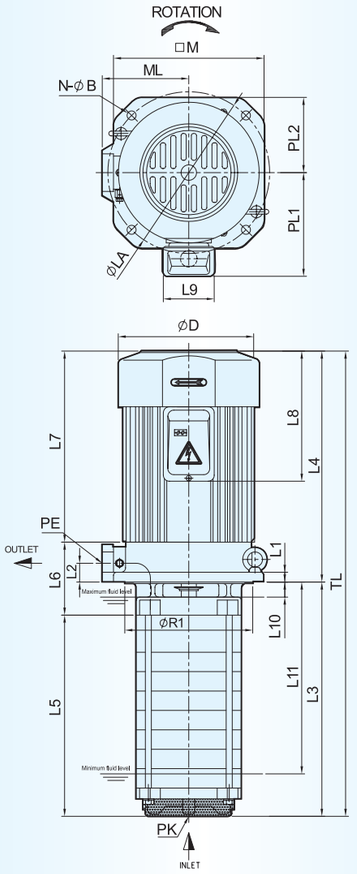
※ When using non water-soluble cutting fluid, viscosity must be under 32cSt. Pump performance (pressure and oil quantity) will decrease compared to water-soluble cutting fluid.

External Figure

HCP-900HMF(S)~1500HMF(S)



HCP-2200HMF(S)~3700HMF(S)

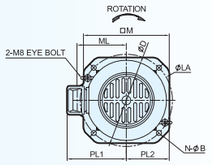


Dimension

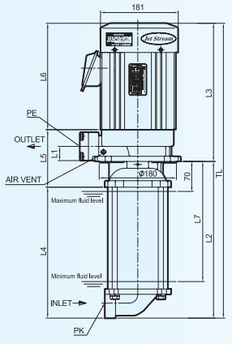
Type \ Item	ØD	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	PE (PT)	TL	R1	LA	N-ØB	PL1	PL2	M	ML	PK (PF)
HCP-900HMF	169	13	25	180	260	136	97	207	166	67.6	20	124	3/4	440	170	215	4-12	119	100	200	115	1 1/2
HCP-900HMFS	169	13	25	144	260	100	97	207	166	67.6	20	89	3/4	404	170	215	4-12	119	100	200	115	1 1/2
HCP-1500HMF	169	13	25	242	283	198	97	230	167	67.6	20	187	3/4	525	170	215	4-12	138	100	200	115	1 1/2
HCP-1500HMFS	169	13	25	197	283	153	97	230	167	67.6	20	142	3/4	480	170	215	4-12	138	100	200	115	1 1/2
HCP-2200HMF	187	13	25	290	267	246	97	214	171	67.6	20	238	3/4	557	170	215	4-12	125.5	100	200	115	1 1/2
HCP-2200HMFS	187	13	25	248	267	204	97	214	171	67.6	20	190	3/4	515	170	215	4-12	125.5	100	200	115	1 1/2
HCP-3700HMF	187	13	25	361	301	317	97	248	171	67.6	20	302	3/4	662	170	215	4-12	125.5	100	200	115	1 1/2
HCP-3700HMFS	187	13	25	313	301	269	97	248	171	67.6	20	255	3/4	614	170	215	4-12	125.5	100	200	115	1 1/2

External Figure

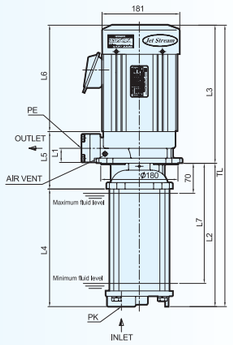
HCP-3700HMF130A/200A
HCP-3700HMF130C/200C



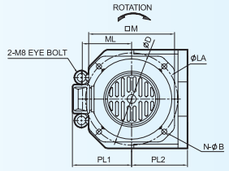
HCP-3700HMF130A/200A



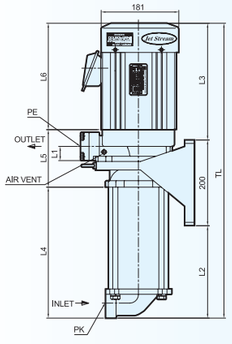
HCP-3700HMF130C/200C



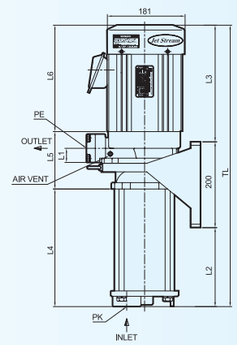
HCP-3700HMF130B/200B
HCP-3700HMF130D/200D



HCP-3700HMF130B/200B



HCP-3700HMF130D/200D

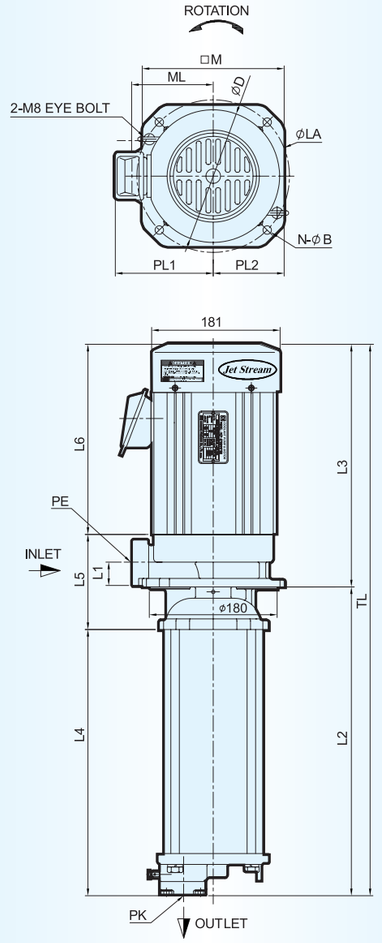


Dimension

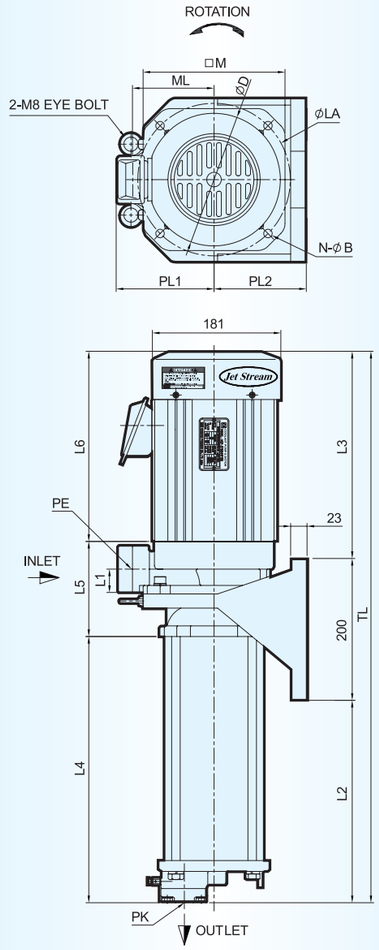
Type \ Item	ø D	L1	L2	L3	L4	L5	L6	L7	PE (PT)	TL	LA	N-ø B	PL1	PL2	M	ML	PK (PF)
3700HMF130A	187	33	292.1	322	232.1	134	248	200	3/4	614.1	215	4-12	138	100	200	115	1 1/2
3700HMF130B	187	33	142.1	272	232.1	134	248	-	3/4	614.1	215	4-12	138	130	200	115	1 1/2
3700HMF130C	187	33	263.7	322	203.7	134	248	200	3/4	585.7	215	4-12	138	100	200	115	1 1/4
3700HMF130D	187	33	113.7	272	203.7	134	248	-	3/4	585.7	215	4-12	138	130	200	115	1 1/4
3700HMF200A	187	33	365.2	322	305.2	134	248	280	3/4	687.2	215	4-12	138	100	200	115	1 1/2
3700HMF200B	187	33	215.2	272	305.2	134	248	-	3/4	687.2	215	4-12	138	130	200	115	1 1/2
3700HMF200C	187	33	334.1	322	274.1	134	248	280	3/4	656.1	215	4-12	138	100	200	115	1 1/4
3700HMF200D	187	33	184.1	272	274.1	134	248	-	3/4	656.1	215	4-12	138	130	200	115	1 1/4

External Figure

HCP-4000HMF280S-C



HCP-4000HMF280S-D



※ HCP-4000HMF280Stype is a product in which the suction and the discharge outlets have exchanged places. It minimizes oil leaks in the Mechanical Seal.

Dimension

Type \ Item	ø D	L1	L2	L3	L4	L5	L6	PE (PT)	TL	LA	N-ø B	PL1	PL2	M	ML	PK (PF)
4000HMF280S-C	187	33	435.3	342	375	134	268	1 1/4	777.3	215	4-12	138	100	200	115	3/4
4000HMF280S-D	187	33	285.3	292	375	134	268	1 1/4	777.3	215	4-12	138	130	200	115	3/4

HCP SMF/SHMF series

Feature

1. The main drive parts are made with stainless materials, which increase durability and corrosion resistance.
2. It is lighter than cast products
3. It has the same structure and performance as HCP-MF/HCP-HMF, which allows exchange of parts.

Structure

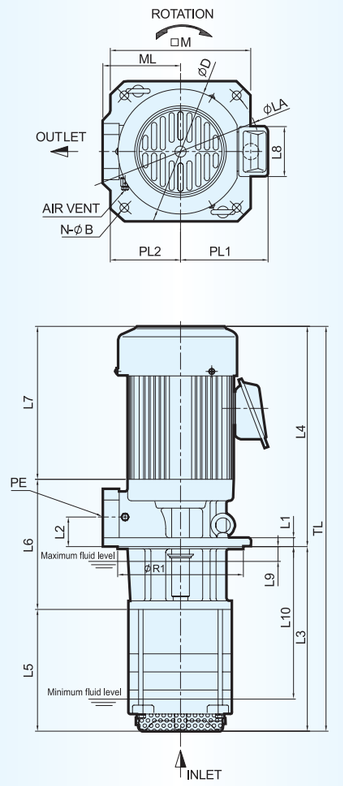
- A multi-level pump structurally identical to HCP-MF and HCP-HMF(S)
- The main drive parts are made with stainless materials.

HCP- □ S MF/HMF

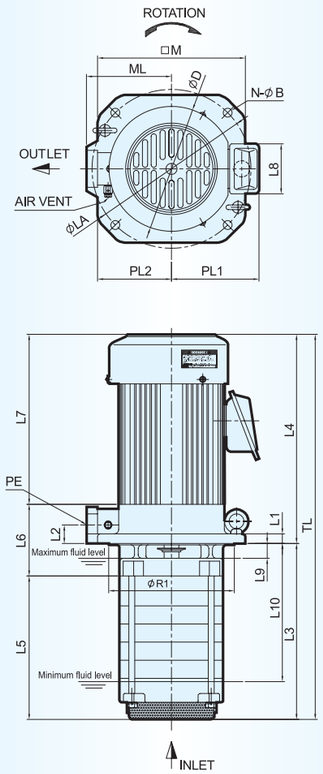
- Pump Type
  - MF : Multi-Submerged Type
  - HMF : Hign Pressure Multi-Submerged Type
- Special Spec. : Stainless Type
- Motor Output
- HANSUNG **Coolant Pump**

External Figure

HCP-400SMF(S)~3700SMF



HCP-900SHMF(S)~3700SHMF(S)



Pump Spec.

Type \ Specification	MOTOR						PUMP			
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)	WEIGHT (kg)
HCP-400SMF	400	50	200 380	2.4 1.4	3	2	5	150	1 1/4 (1 1/2)	24
		60	200/220 380	2.5 1.5				200		
HCP-900SMF(S)	900	50	200 380	5.2 3.1	3	2	6.5	200	1 1/4 (1 1/2)	25
		60	200/220 380	6.0/5.8 3.4			10			
HCP-1500SMF	1500	50	200 380	7.5 4.1	3	2	20	100	1 1/2	35
		60	200/220 380	8.5/8.0 4.6			30			
HCP-2200SMF	2200	50	200 380	9.0 5.5	3	2	30	100	1 1/2	38
		60	200/220 380	12.0/11.0 6.4			45			
HCP-3000SMF	3000	50	200 380	13.0 7.1	3	2	40	100	1 1/2	39
		60	200/220 380	15.0/14.0 8.0			60			
HCP-3700SMF	3700	50	200 380	16.0 8.5	3	2	50	100	1 1/2	40
		60	200/220 380	18.0/17.0 10.7			70			
HCP-900SHMF(S)	900	50	200 380	5.2 3.1	3	2	30	20	3/4	25
		60	200/220 380	6.0/5.8 3.4			45			
HCP-1500SHMF(S)	1500	50	200 380	7.5 4.1	3	2	50	20	3/4	27
		60	200/220 380	8.5/8.0 4.6			70			
HCP-2200SHMF(S)	2200	50	200 380	9.0 5.5	3	2	70	20	3/4	30
		60	200/220 380	12.0/11.0 6.4			100			
HCP-3700SHMF(S)	3700	50	200 380	16.0 8.5	3	2	90	20	3/4	37
		60	200/220 380	18.0/17.0 10.7			130			

Dimension

Type \ Item	ø D	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	PE (PT)	TL	R1	LA	N-ø B	PL1	PL2	M	ML
HCP-400SMF	169	12	40	250	298	165	176	207	67.6	20	190	1 1/2, 1 1/4	548	170	215	4-12	119	95	190	105
HCP-900SMF	169	12	40	250	298	165	176	207	67.6	20	190	1 1/2, 1 1/4	548	170	215	4-12	119	95	190	105
HCP-900SMFS	169	12	40	209	298	124	176	207	67.6	20	190	1 1/4	507	170	215	4-12	119	95	190	105
HCP-1500SMF	169	12	40	244	321	159	176	230	67.6	20	190	1 1/2	565	170	215	4-12	119	95	190	105
HCP-2200SMF	169	12	40	244	348	159	176	257	67.6	20	190	1 1/2	592	170	215	4-12	119	95	190	105
HCP-3000SMF	187	12	36	244	326	200	134	248	67.6	20	190	1 1/2	570	170	215	4-12	125.5	109	218	115
HCP-3700SMF	187	12	36	354	338	310	134	248	67.6	20	303	1 1/2	692	170	215	4-12	125.5	109	218	115
HCP-900SHMF	169	13	25	180	260	136	97	207	67.6	20	124	3/4	440	170	215	4-12	119	100	200	115
HCP-900SHMFS	169	13	25	144	260	100	97	207	67.6	20	89	3/4	404	170	215	4-12	119	100	200	115
HCP-1500SHMF	169	13	25	242	283	198	97	230	67.6	20	187	3/4	525	170	215	4-12	119	100	200	115
HCP-1500SHMFS	169	13	25	197	283	153	97	230	67.6	20	142	3/4	480	170	215	4-12	119	100	200	115
HCP-2200SHMF	187	13	25	290	267	246	97	214	67.6	20	238	3/4	557	170	215	4-12	125.5	100	200	115
HCP-2200SHMFS	187	13	25	248	267	204	97	214	67.6	20	190	3/4	515	170	215	4-12	125.5	100	200	115
HCP-3700SHMF	187	13	25	361	301	317	97	248	67.6	20	302	3/4	662	170	215	4-12	125.5	100	200	115
HCP-3700SHMFS	187	13	25	313	301	269	97	248	67.6	20	255	3/4	614	170	215	4-12	125.5	100	200	115

HCP S(H)HM/(H)MSF series

HCP-S(H)HM

HCP-(H)MSF

Feature

1. The main drive parts are made with stainless materials, which increase durability and corrosion resistance.
2. It is compact, and can be used when there are limitations on instillation space.
3. It is separated into a pressure type and a oil quantity type, and has a wide range of performances.

Structure

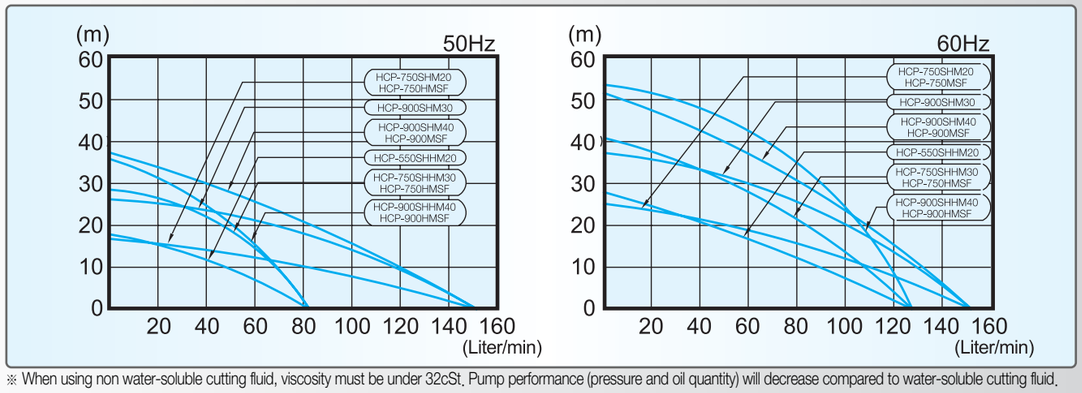
- A horizontal type self -priming multi-stage pump
- Unlike the HCP-S, A horizontal type pump, but the operation methods are the same.
- A multi-stage pump capable of a wide range of performances.

HCP- □ S(H)HM □
- Impeller Stage
- Pump Type : Horizontal Multi-Stage Type
- High Pressure
- STAINLESS TYPE
- Motor Output
- HANSUNG **Coolant Pump**

HCP- □ (H)MSF
- Pump Type : (Multi-Stage Small Size)
- High Pressure
- Motor Output
- HANSUNG **Coolant Pump**

Performance Curve

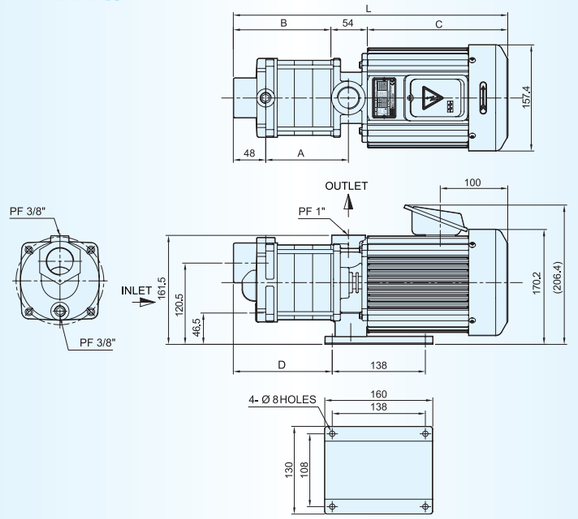
Oil for Testing : ISO-VG2, temperature 20℃



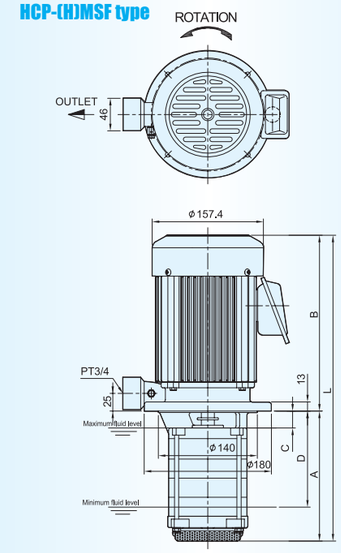
※ When using non water-soluble cutting fluid, viscosity must be under 32cSt. Pump performance (pressure and oil quantity) will decrease compared to water-soluble cutting fluid.

External Figure

HCP-S(H)HM type



HCP-(H)MSF type



Pump Spec.

Type \ Specification	MOTOR						PUMP			
	Output (W)	Frequency (Hz)	Voltage (V)	Current (A)	Phase	Poles	Total Head (m)	Dis. Vol (ℓ/min)	Pipe Size (PT)	Weight (kg)
HCP-750SHM20	750	50	200 380	3.5 2.0	3	2	15	35	1	17
		60	200/220 380	4.0 2.5			20			
HCP-900SHM30	900	50	200 380	5.2 3.1	3	2	20	35	1	18
		60	200/220 380	6.0/5.8 3.4			30			
HCP-900SHM40	900	50	200 380	5.2 3.1	3	2	30	35	1	19
		60	200/220 380	6.0/5.8 3.4			45			
HCP-550SHHM20	550	50	200 380	2.5 1.4	3	2	15	20	1	13
		60	200/220 380	2.7 1.6			25			
HCP-750SHHM30	750	50	200 380	3.5 2.0	3	2	25	20	1	14
		60	200/220 380	4.0 2.5			35			
HCP-900SHHM40	900	50	200 380	5.2 3.1	3	2	30	20	1	15
		60	200/220 380	6.0/5.8 3.4			50			
HCP-750MSF	750	50	200 380	3.5 2.0	3	2	15	35	3/4	23
		60	200/220 380	4.0 2.5			20			
HCP-900MSF	900	50	200 380	5.2 3.1	3	2	30	35	3/4	23
		60	200/220 380	6.0/5.8 3.4			45			
HCP-750HMSF	750	50	200 380	3.5 2.0	3	2	25	20	3/4	20
		60	200/220 380	4.0 2.5			35			
HCP-900HMSF	900	50	200 380	5.2 3.1	3	2	30	20	3/4	20
		60	200/220 380	6.0/5.8 3.4			50			

Dimension

Type \ Item	A	B	C	D	L
HCP-750HM20	68.5	90.5	208	92.5	352.5
HCP-900SHM30	95.5	117.5	208	119.5	379.5
HCP-900SHM40	122.5	144.5	208	146.5	406.5
HCP-550SHHM20	59.5	81.5	208	84.5	343.5
HCP-750SHHM30	77.5	99.5	208	102.5	361.5
HCP-900SHHM40	95.5	117.5	208	120.5	379.5
HCP-750MSF	184	249	20	136	433
HCP-900MSF	184	249	20	136	433
HCP-750HMSF	165	249	20	117	414
HCP-900HMSF	165	249	20	117	414

HCS Suction Filter series

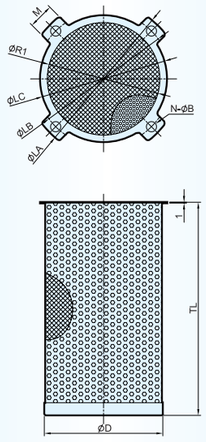
Feature

1. This HCS-TYPE is a suction filter for the submerged type coolant pumps HCP-F and HCP-MF.
2. It prevents the entry of foreign substances to the pump, ensuring durability and increased viscosity.
3. It requires regular cleaning for optimum use.
4. The F-TYPE uses a 20Mesh filter, and the MF-TYPE uses a 14Mesh filter

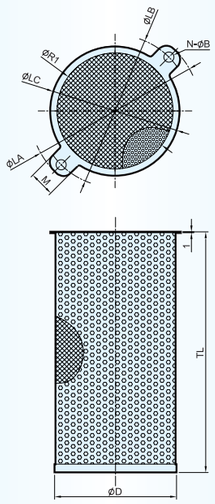
HCS - □
- Product Range
- HANSUNG **Coolant Suction Filter**

External Figure

HCP-60F~900MFS



HCP-400F

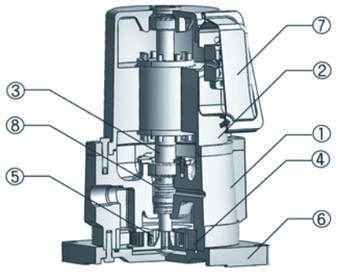


Dimension

Type \ Item	ø D	ø R1	TL	ø LA	ø LB	ø LC	M	N-ø B
HCS- 60F	99	92	160	147	130	118	30	4 - ø 9
HCS- 100F	99	92	160	147	130	118	30	4 - ø 9
HCS- 180F	124	117	180	180	160	143	30	4 - ø 12
HCS- 250F	140	133	252	180	160	150	30	4 - ø 12
HCS- 258F	137	130	185	180	160	156	30	4 - ø 12
HCS- 400F	144	137	284.5	202	180	153	30	2 - ø 12
HCS- 418F	161	154	186	200	180	176	30	4 - ø 12
HCS- 428F	161	154	285	200	180	176	30	4 - ø 12
HCS- 900MF	184	177	260	240	215	190	30	4 - ø 14
HCS- 900MFS	179	172	213.5	235	215	186	30	4 - ø 14

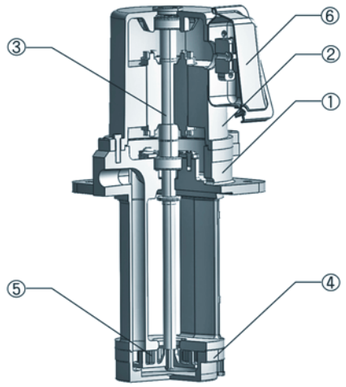
Inner Figure

HCP - S series



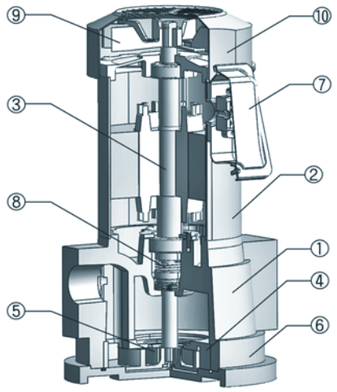
No	PART NAME
1	PUMP BODY
2	MOTOR
3	SHAFT
4	IMPELLER HOUSING
5	IMPELLER
6	BASE
7	TERMINAL BOX
8	MECHANICAL SEAL

HCP - F series



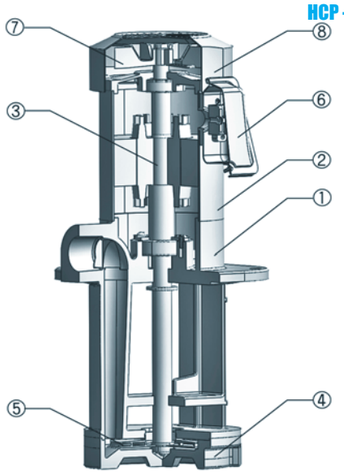
No	PART NAME
1	PUMP BODY
2	MOTOR
3	SHAFT
4	IMPELLER HOUSING
5	IMPELLER
6	TERMINAL BOX

HCP - S series



No	Part Name
1	PUMP BODY
2	MOTOR
3	SHAFT
4	IMPELLER HOUSING
5	IMPELLER
6	BASE
7	TERMINAL BOX
8	MECHANICAL SEAL
9	FAN
10	FAN COVER

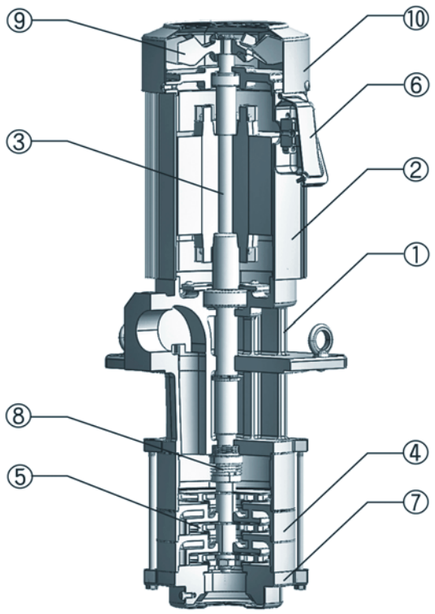
HCP - F series



No	Part Name
1	PUMP BODY
2	MOTOR
3	SHAFT
4	IMPELLER HOUSING
5	IMPELLER
6	TERMINAL BOX
7	FAN
8	FAN COVER

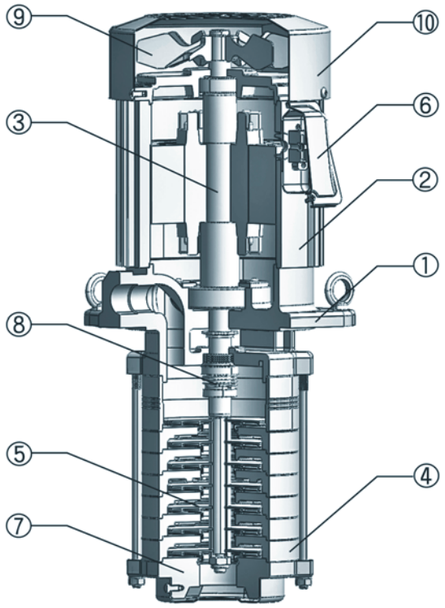
Inner Figure

HCP - MF series



No	Part Name
1	PUMP BODY
2	MOTOR
3	SHAFT
4	IMPELLER HOUSING
5	IMPELLER
6	TERMINAL BOX
7	INLET COVER
8	MECHANICAL SEAL
9	FAN
10	FAN COVER

HCP - HMF series

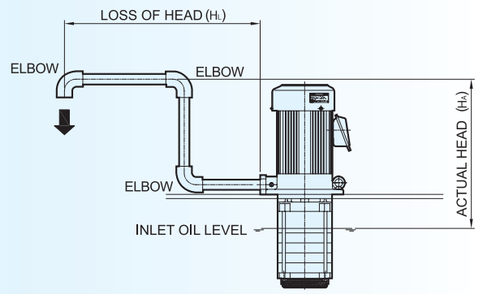


No	Part Name
1	PUMP BODY
2	MOTOR
3	SHAFT
4	IMPELLER HOUSING
5	IMPELLER
6	TERMINAL BOX
7	INLET COVER
8	MECHANICAL SEAL
9	FAN
10	FAN COVER

Method of Pump Selection

The selection of the pump is made according to the pipe path and the connection method.
The loss of head is decided by the pipe length and the number of pipe components.
Hence, when designing the pipe path, the pipe length should be kept as short as possible, and elbows or other fittings and valves should be kept to the minimum necessary number to minimize loss of head.
A pump can be selected based on the total head and required oil quantity acquired through an optimum piping design, and the selection method can be calculated as follows:

Head Calculation Method



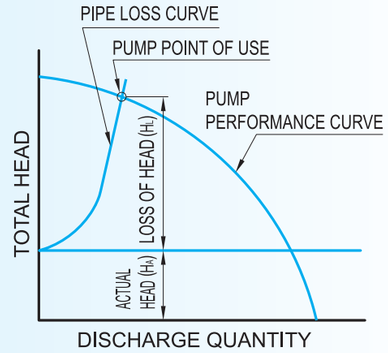
The total head (HT) as required by the user is the sum of the actual head(HA) and the loss of head(HL), and is expressed as below.

$$H_T = H_A + H_L$$

As illustrated in the diagram on the right, the pump can be selected based in the total head calculated by adding the actual head to the loss of head, and the required oil quantity.
※ The calculated values differ according to operational environments and oil viscosity.

The loss of head can be calculated as follows:

$$H_L = f \times \frac{L}{d} \times \frac{v^2}{2g}$$



Here,
f= pipe coefficient of friction (decided by the Reynolds number)
※ Water-soluble oil 0.03, coefficient value increases with viscosity

L=Pipe length (m)
d=pipe internal diameter (m)
V=fluid speed (m/s)
g=gravitational acceleration (9.8m^2/s)

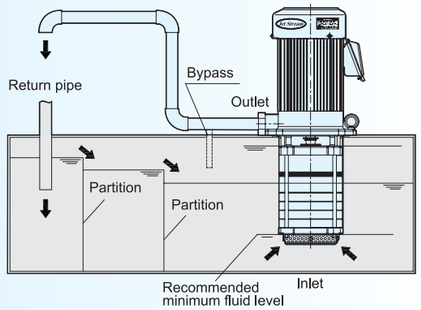
L, the pipe length, is not only the length of the total piping, but also includes piping components' length loss values.
Refer to the below table to calculate the length loss values for the components.

EX)
Total pipe length + elbow length x quantity + suction + discharge = total piping length (L)

SIZE	INFLOW	OUTFLOW	90° ELBOW	BALLVALVE
8A(1/4B)	0.3	0.6	0.7	6.4
10A(3/8B)	0.4	0.8	0.9	6.7
15A(1/2B)	0.6	1.2	1.1	6.7
20A(3/4B)	0.8	1.6	1.3	7.3
25A(1B)	1.1	2.2	1.6	8.8
40A(1 1/2B)	1.9	3.2	2.3	12.8

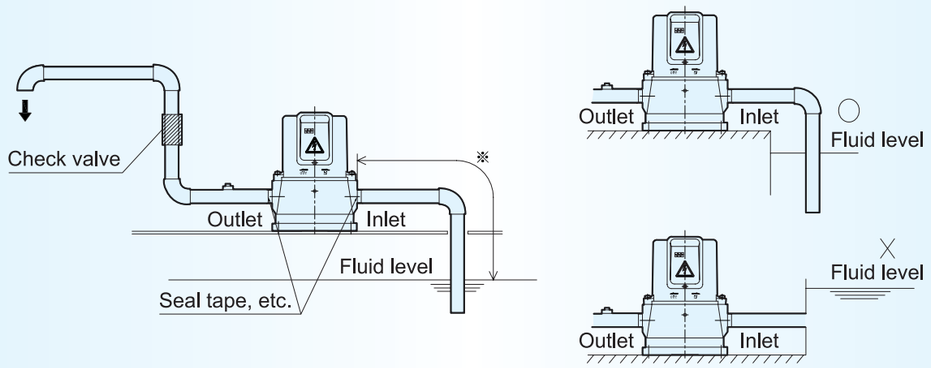
Product Installation Methods

All Type



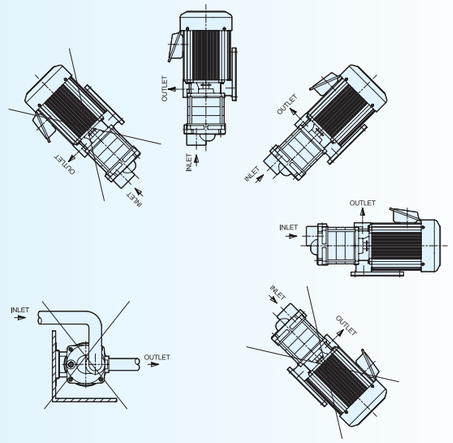
① Keep the pipe length to a minimum, as well as the number of elbows, fittings and various valves. Also, use officially standardized products. If the pipe is thin, or has many curves, the discharge quantity will decrease.
② Make sure that the pipe's weight does not directly affect the pump.
③ When connecting the pump screws, do not use excessive force.
④ To prevent the entry of oil or air, take oil leak prevention measures, for example by using seal tapes, before piping.
⑤ Use tanks with large widths. Even if the discharge quantity is small, produce a tank that is at least 3 times the size. If the tank capacity is insufficient, it may cause reductions in discharge quantity, increase in oil temperature, clogging caused by foreign substances or bubbles in the strainer. When supplying oil inside the tank, supply slowly to prevent the adulteration of air.
⑥ Make sure to prevent the entry of chips, dust, and other foreign substances into the pump. Produce a 3-level oil thresholds inside the tank, or use at least a 1-level oil threshold and a filter.
⑦ In the event of water hammer effects, install a bypass pipe in front of the discharge outlet.
⑧ If the oil level is low, air can mix, or oil will not be discharged. Keep the minimum tank oil level as recommended. Oil levels differ according to oil viscosity, but make sure to keep the actual level sufficiently high. However, if the oil level is too high, oil can enter through the gap in the motor section, and cause motor damage. Hence, make sure that the oil level does not exceed the recommended maximum oil level.

HCP-S type



▶ Install the HCP-STYPE close to the tank, and keep length of the suction pipe to a minimum.
▶ Keep the maximum length of the suction pipe below (※)0.7m.
▶ When extending the suction pipe for other reasons, connect a check valve to the discharge pipe
▶ Make sure to take oil leak prevention measures, for example by using a seal tape, before installing the suction pipe connection. If air enters the suction pipe, it can cause pumping and reduced discharge quantity.
▶ The oil level at the pump suction section needs to be lower than the pump suction section. If the oil level is high, it can cause oil leaks from the mechanical seal.

HCP-S(H)HM type



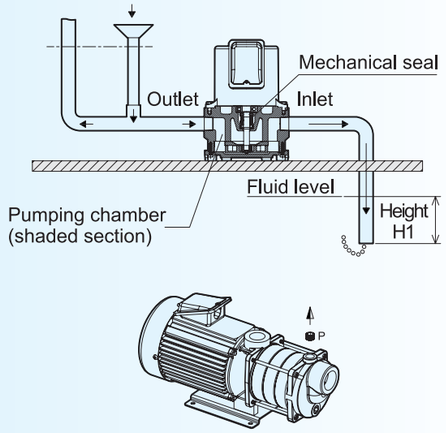
▶ To reduce suction loss, keep the length of the suction pipe to a minimum. The pump needs to be installed in a well-ventilated area, and if installed outdoors, make sure to install a protective device to prevent freezing.

▶ Install the pump in a suitable location as illustrated in the diagram. If the suction oil level is lower that the suction section, connect a check valve to the end of the suction pipe. If the oil level is low, there will be no suction.

▶ If the length of the suction pipe is 10m, of if the suction oil level is further that 4m away, connect a pipe that is larger than the circumference of the pump suction.

▶ Make sure that all the pipes are perfectly connected as to eliminate the adulteration of bubbles. Also, if the pipes are connected by a hose rather than a pipe, make sure to connect to pipes that are not foldable. Make sure to install a filter at the suction section to prevent the adulteration of lumps of foreign substances.

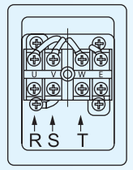
Priming



▶ As with the HCP-STYPE or the HCP-S(H)HMTYPE, there will be air inside the pump when using it after a prolonged rest. Therefore, to operate the pump, air needs to be let out. If it is operated with the presence of air, the oil will not discharge, or it may cause pressure reduction and oil quantity reduction. Moreover, the consequent excessive idling will cause mechanical seal damage.

▶ For HCP-S TYPE oil priming, inject oil into the front of the discharge section as set out in the diagram. For HCP-S(H)HMTYPE, if the pump's suction section is higher than the oil level, mix in oil at the point illustrated in the diagram (P) to fully fill up the oil inside the pump before operation.

Connection of Electric Line



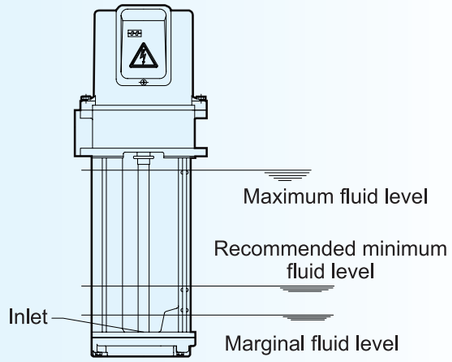
220V	
R -	1+6
S -	2+4
T -	3+5

380V		
R - 1	6	
S - 2	4	+
T - 3	5	

● Check the specifications on the nametag before connecting the power.
● The connections should be made as mentioned above, and check the rotation direction.

Operating Instructions & Breakdown Countermeasures

Use the Pump



- Make sure to use the pump within the standard range as set out in the catalog and the nametag. Also, in the event of lowered pump performance, it is most likely caused by the adulteration of foreign substances at the suction section. Please operate again with clean oil 2 to 3 times a year.
- HCP-S and HCP-S(H)HMTYPE have been produced with a single shaft, and use a mechanical seal as the stuffing box. Therefore, excessive idling can damage the SEAL, and idling for more than 30 seconds should be avoided.
- For submerged type pumps, the oil level needs to be between the maximum and the minimum levels as illustrated in the diagram on the left. If the level drops below the recommended level, air adulteration can occur during operations. Also, make sure that the gap between the floor and the tank is more than 20~30mm. Keep the maximum oil level at least 20mm lower that the flange section.

Cause & Remedy of Trouble

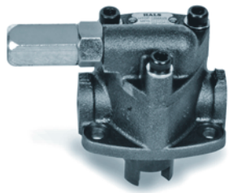
Status		Cause	Countermeasures
Faulty rotation	Noise	Faulty switch connection	Adjust the connection
		Electric wire disconnection	Contact main office or other offices
		Worn bearings causing contact between motor rotators and fixed parts	Exchange bearings
	No noise	Motor coil disconnection	Contact main office or other offices
		Electric wire disconnection	Repair electric wire
		Faulty switch contact	Adjust or exchange switch
During rotation	Noise, Excess current, Excessive heat	Contact between motor rotators and fixed parts	Contact main office or other offices
		Imbalance of motor rotators and fixed parts	
		Fixed coil disconnection	
		Reverse rotation	Change 2 wires from the R.S.T terminals
Discharge quantity reduction	Small discharge quantity	Bubbles inside the tank	Eliminate bubble source
		Worn impellers	Replace impellers
		Low oil viscosity	Maintain optimum viscosity (32cSt at 30°c)
	Sudden reduction in discharge quantity	Clogging of suction outlet	Clean suction outlet
		Insufficient oil inside the tank	Supplement oil

※ The motor can be used at temperatures of up to 120°c (surrounding temperature + motor temperature) with E-type electricity in accordance with KSC4202. Contact us if and when the surrounding temperature

ROTOR PUMP

HANSUNG LUBRICATION SYSTEM

ROTOR PUMP *Series*



HTOP-A(VB) series

A compact internal gear pump, attached with a coupling, and is operated by connecting the drive motor.

Various machine tools

For supplying Industrial lubricating oil

Page 3.

HTOP-F series

A compact internal gear pump that has equal suction and discharge, regardless of rotation direction.

Machine tools

Industrial machines

Page 4.

HMTP-3M-MA(VB) series

A pump produced by connecting a motor to the HTOP-A(VB) product

Various applications are available according to operational environments

MCT

CNC

other turning and cutting processing machines

Industrial machines

Page 5.

OIL COOLER series

An oil cooler unit that uses the HMTP 3M-□-MA(VB) pump

Various machine tools

OIL COOLER UNIT

Page 7.

HTP-HA(VB) series

An internal gear pump that has more various pressures and oil quantity range than the HTOP TYPE

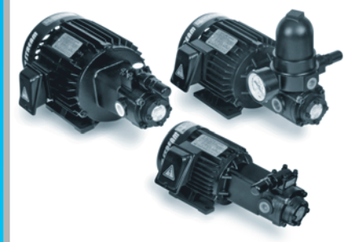
MCT

CNC

other turning and cutting processing machines

Industrial Machines

Page 9.



HMTP-3M-HA(VB) series

A product produced by connecting a motor to the HTP-HA(VB) product

It has various pressures and oil quantity range according to output

MCT

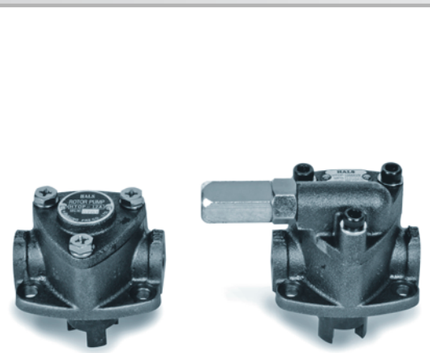
CNC

other turning and cutting processing machines

Industrial Machines

Page 11.

HTOP A(VB) series



Feature

1. A volume pump that allows precise fluid delivery according to the rev counts.
2. It has a wide flow range according to the rev counts.
3. A relief valve can be added to allow easy pressure setting adjustments.

Structure

- An internal gear bulk pump. It is small compared to external gear pumps, and can be connected to motor drive parts to operate the pump.

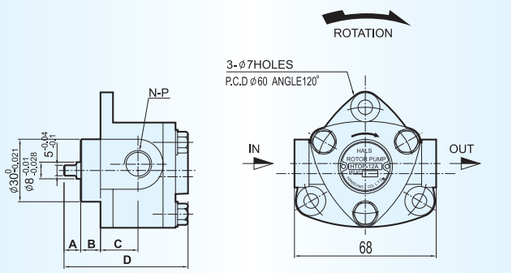
HTOP ☐ A(VB)

- Pump Type : A: Nomal Type, AVB: Relief Valve Attach Type
- Type : 11, 12, 13
- HANSUNG **Rotor Pump**

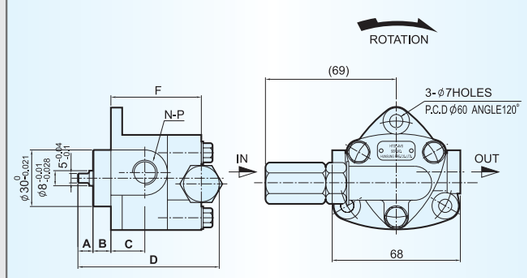
Pump Spec.

Specification / Type	THEORY DISCHARGE AMOUNT(cm^3/rev)	DISCHARGE AMOUNT(ℓ/min) 1500rpm	DISCHARGE AMOUNT(ℓ/min) 1800rpm	MAX. PRESSURE (kg/cm^2)	MAX. R.P.M	WEIGHT (kg)
HTOP-11A	1.5	2.2	2.7	5.0	2000	0.5
HTOP-12A	2.5	3.7	4.5	5.0	1800	0.6
HTOP-13A	4.5	6.7	8.1	5.0	1800	0.8
HTOP-11AVB	1.5	2.2	2.7	5.0	2000	0.55
HTOP-12AVB	2.5	3.7	4.5	5.0	1800	0.65
HTOP-13AVB	4.5	6.7	8.1	5.0	1800	1.0

External Figure



TYPE	A	B	C	D	N-P
HTOP-11A	12	8	12	57	2-PT 1/8
HTOP-12A	12	8	12	62	2-PT 1/4
HTOP-13A	14	5	14	76.5	2-PT 3/8



TYPE	A	B	C	D	F	N-P
HTOP-11AVB	12	8	12	72	43	2-PT 1/8
HTOP-12AVB	12	8	12	77	48	2-PT 1/4
HTOP-13AVB	14	5	14	91.5	63.5	2-PT 3/8

HTOP F series

Feature

1. the simple structure means easy installation and repairs.
2. The compact design reduces installation space limitations.
3. It is used not only in machine tools and industrial machines, but also in agriculture.

Structure

- It is capable of equal suction and discharge regardless of motor rev direction.
- The internal eccentric stator rotates the rotor by 180°

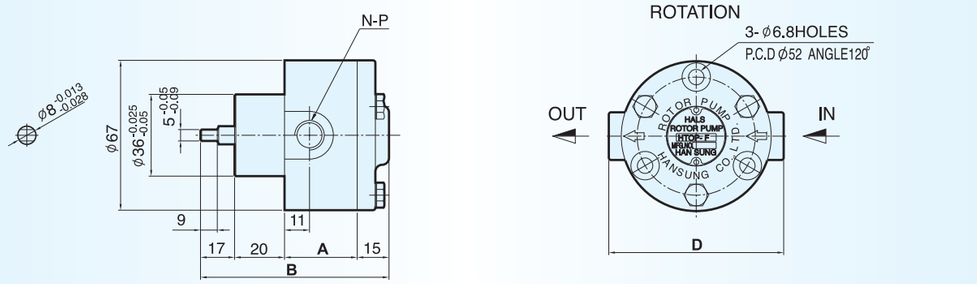
HTOP- ☐ F

- Pump Type
- Type : 2, 3
- HANSUNG **Rotor Pump**

Pump Spec.

Specification / Type	THEORY DISCHARGE AMOUNT(cm^3/rev)	DISCHARGE AMOUNT(ℓ/min) 1500rpm	DISCHARGE AMOUNT(ℓ/min) 1800rpm	MAX. PRESSURE (kg/cm^2)	MAX. R.P.M	WEIGHT (kg)
HTOP-2F	1.80	2.70	3.24	5.0	2000	1.1
HTOP-3F	2.50	3.75	4.50	5.0	2000	1.2

External Figure



TYPE	A	B	N-P	D
HTOP-2F	32	84	2-PT 1/4	77
HTOP-3F	35	87	2-PT 1/4	77

HMTP 3M-MA(VB) series

Feature

1. Identical assembly structure means various performances can be achieved simply by changing the pump.
2. The compact size is useful for use in limited installation spaces.
3. The standard form is the horizontal, but it can also be used in a vertical form if the installation space is limited.

Structure

- A pump produced by connecting a motor to the HTOP-A(VB) product
- It is useable with only a power supply, and is separated into a horizontal type or a vertical type.

HMTP-3M-□-□MA(VB)

- Pump Type : MA: Nomal Type, MAVB: Relief Valve Attach Type
- TYPE 11, 12, 13
- Motor Output
- 3 Phase
- HANSUNG **Rotor Pump**

Pump Spec.

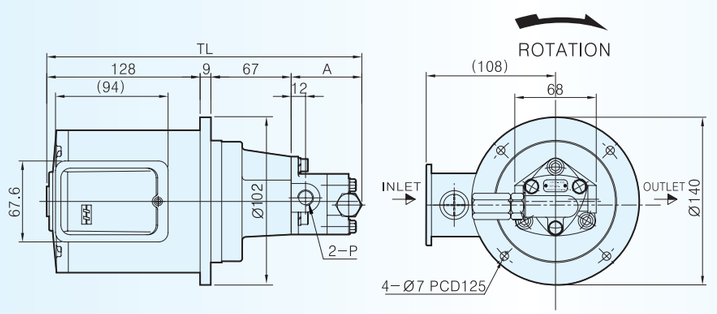
TYPE	1500rpm(50Hz)		1800rpm(60Hz)	
	DISCHARGE AMOUNT(ℓ/min)	PRESSURE (kg/㎠)	DISCHARGE AMOUNT(ℓ/min)	PRESSURE (kg/㎠)
HMTP-11MA(VB)	2.2	5	2.7	5
HMTP-12MA(VB)	3.7	5	4.5	5
HMTP-13MA(VB)	6.7	5	8.1	5

Motor Spec.

OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	R.P.M	PHASE	POLES
75W	50	200	0.56	1390	3	4
		380	0.32	1390		
	60	200	0.51	1660		
		220	0.52	1690		
		380	0.28	1690		
100W	50	200	0.65	1430	3	4
		380	0.4	1430		
	60	200	0.6	1720		
		220	0.6	1730		
		380	0.3	1730		
200W	50	200	1.3	1430	3	4
		380	0.9	1430		
	60	200	1.1	1690		
		220	1.1	1710		
		380	0.6	1710		

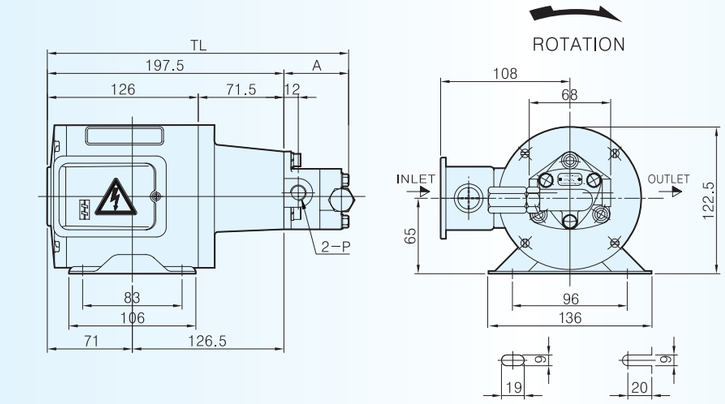
※ Tailored manufacture is available for various voltage (380V,415V,440V,460V)

External Figure



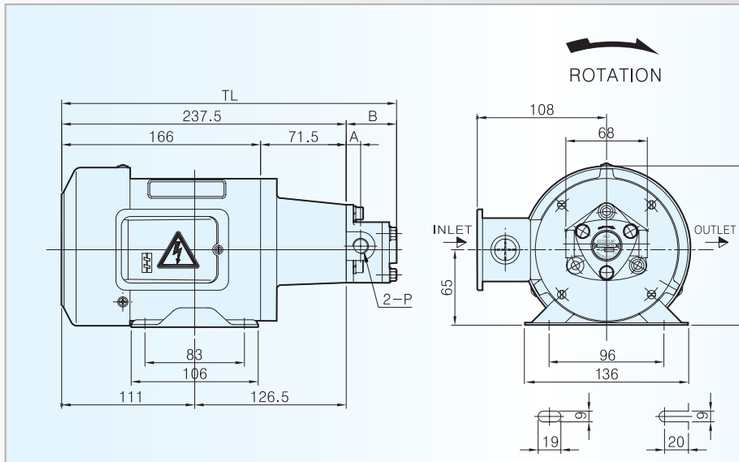
TYPE	A	TL	P
HMTP-11MA(VB)	37(52)	241(256)	PT1/8"
HMTP-12MA(VB)	42(57)	246(261)	PT1/4"

※ Inside the bracket( ) is the figure for VB type



TYPE	A	TL	P
HMTP-11MA(VB)	37(52)	234.5(249.5)	PT1/8"
HMTP-12MA(VB)	42(57)	239.5(254.5)	PT1/4"

※ Inside the bracket( ) is the figure for VB type



TYPE	A	B	TL	P
HMTP-11MA(VB)	12	37(52)	274.5(289.5)	PT1/8"
HMTP-12MA(VB)	12	42(57)	279.5(294.5)	PT1/4"
HMTP-13MA(VB)	14	57.5(72.5)	295(310)	PT3/8"

※ Inside the bracket( ) is the figure for VB type

OIL COOLER series

Feature

1. A compact cooler unit, and uses a vertical type pump
2. Its compact design allows it to be used in limited installation spaces.
3. An oil cooler unit with a simple method of installation, and can be used not only for small machine tools, but also for industrial machines.

Structure

- A cooler unit produced by connecting a fan cooler to the HMTP-3M-□-□MA(VB) pump
- Separated into 7,8,14 liter according to tank capacity

HMTP-3M-□-□MA(VB)-T□

- Tank Capacity : 7, 8, 14
- Pump Type : MA: Nomal Type, MAVB: Relief Valve Attach Type
- TYPE : 11, 12, 13
- Motor Output
- 3 Phase
- HANSUNG **Rotor Pump**

Pump Spec.

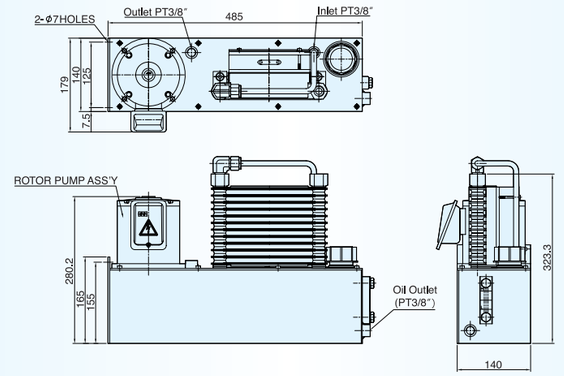
TYPE	1500rpm(50Hz)		1800rpm(60Hz)	
	DISCHARGE AMOUNT(ℓ/min)	PRESSURE (kg/cm²)	DISCHARGE AMOUNT(ℓ/min)	PRESSURE (kg/cm²)
HMTP-11MA(VB)	2.2	5	2.7	5
HMTP-12MA(VB)	3.7	5	4.5	5
HMTP-13MA(VB)	6.7	5	8.1	5

Motor Spec.

OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	R.P.M	PHASE	POLES
75W	50	200	0.56	1390	3	4
		380	0.32	1390		
	60	200	0.51	1660		
		220	0.52	1690		
		380	0.28	1690		
100W	50	200	0.65	1430	3	4
		380	0.4	1430		
	60	200	0.6	1720		
		220	0.6	1730		
		380	0.3	1730		
200W	50	200	1.3	1430	3	4
		380	0.9	1430		
	60	200	1.1	1690		
		220	1.1	1710		
		380	0.6	1710		

External Figure

[T7]



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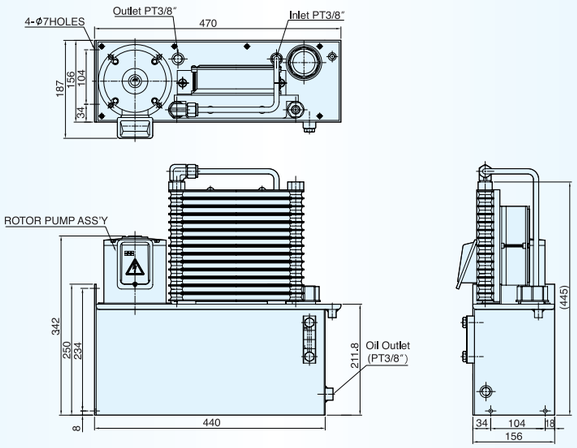

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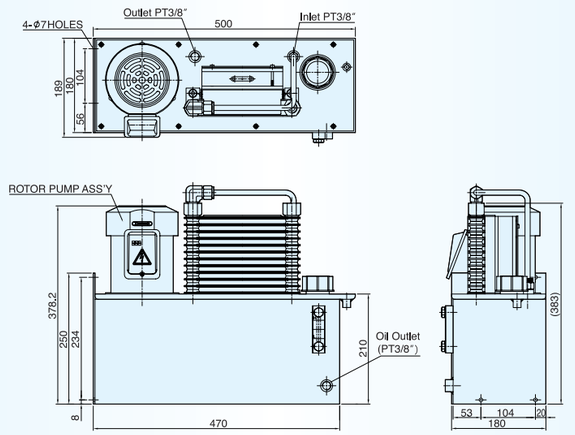


HTP HA(VB/VD) series

Feature

1. It uses a double oil seal to minimize oil leaks.
2. Water-soluble cutting fluids can be used.
3. It uses a fluoride oil seal, and can be used at high temperature.
4. A relief valve can be attached for easy pressure control.
5. VD is an external drain relief valve.

Structure

- An internal gear bulk type pump structure that can operate the pump with a motor power supply. The connection section is identical, but it has a wife range of performances according to the shape of the internal gear.

HTP- ☐ HA(VB/VD)

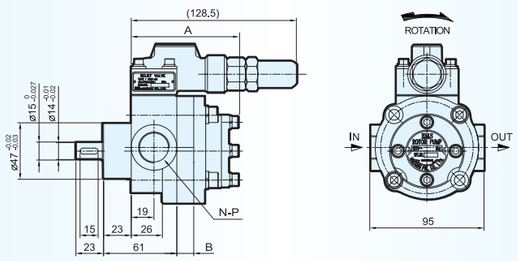
- Pump Type :
  HA: Normal Type
  HAVB: Relief Valve Attach Type
  HAVD: External Relief Valve Attach Type
- TYPE
  HANSUNG **Rotor Pump**

External Figure

HA

HAVB

HAVD



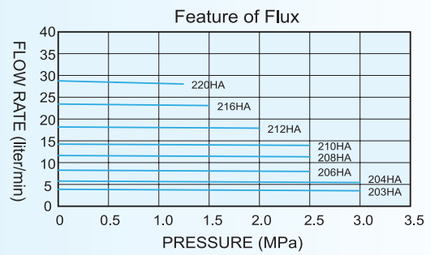
TYPE	A	B	N-P	TYPE	A	B	N-P
HTP-203HA(VB/VD)	81	5	2-1/2	HTP-210HA(VB/VD)	93	17	2-3/4
HTP-204HA(VB/VD)	83	7	2-1/2	HTP-212HA(VB/VD)	96	20	2-3/4
HTP-206HA(VB/VD)	86	10	2-1/2	HTP-216HA(VB/VD)	103	27	2-3/4
HTP-208HA(VB/VD)	90	14	2-1/2	HTP-220HA(VB/VD)	109	33	2-3/4

Pump Spec.

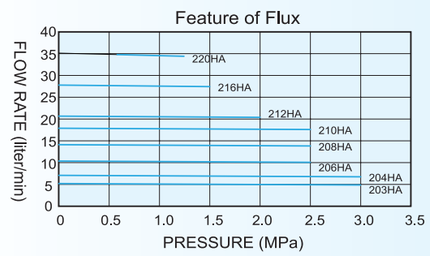
TYPE	50Hz 4P(1500rpm)				60Hz 4P(1800rpm)			
	DISCHARGE (ℓ/min)	MOTOR MAX. PRESSURE (kg/cm²)			DISCHARGE (ℓ/min)	MOTOR MAX. PRESSURE (kg/cm²)		
		400W	750W	1500W		400W	750W	1500W
HTP-203HA(VB/VD)	4.5	30.0	30.0	30.0	5.4	26.0	30.0	30.0
HTP-204HA(VB/VD)	6.3	21.5	30.0	30.0	7.5	16.0	30.0	30.0
HTP-206HA(VB/VD)	9.0	10.5	25.0	25.0	10.8	7.0	23.5	25.0
HTP-208HA(VB/VD)	12.6	7.0	23.0	25.0	15.1	4.0	17.5	25.0
HTP-210HA(VB/VD)	15.3	4.5	15.5	25.0	18.3	2.5	11.5	25.0
HTP-212HA(VB/VD)	18.0	3.5	13.5	20.0	21.6	-	8.5	20.0
HTP-216HA(VB/VD)	24.3	2.0	8.5	20.0	29.1	-	5.5	19.5
HTP-220HA(VB/VD)	29.7	-	5.5	15.5	35.6	-	3.5	14.0

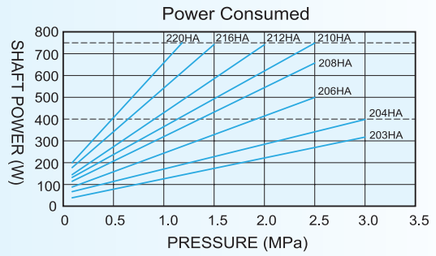
Performance Curve

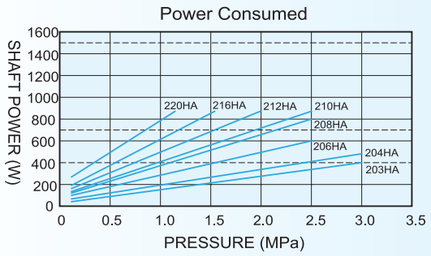
50Hz 4P (1500rpm)



60Hz 4P (1800rpm)







HMTP 3M-HA(VB/VD) series

Feature

1. Various applications are possible according to relief valve shape.
2. A coupling connection type, and is easy to maintain.
3. The F Type has a built in suction filter, and therefore does not require additional filter attachments.

Structure

- A single-unit pump produced by connecting a motor to the HTP-HAVB pump.
- It does not require a separate power source.
- It has a wide range of performances according to motor output.

HMTP-3M-□-□HA(VB/VD) F

- F : Suction Filter Attach Type
- Pump Type : VB: Nomal Type, HAVB: Relief Valve Attach Type, HAVD: External Relief Valve Attach Type
- TYPE
- MOTOR OUTPUT
- 3 Phase
- HANSUNG **Rotor Pump**

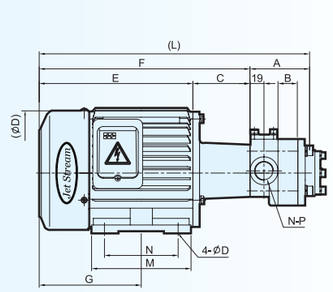
Pump Spec.

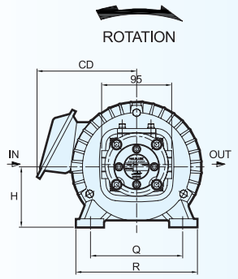
TYPE	50Hz 4P(1500rpm)				60Hz 4P(1800rpm)			
	DISCHARGE (ℓ/min)	MOTOR MAX. PRESSURE (kg/cm²)			DISCHARGE (ℓ/min)	MOTOR MAX. PRESSURE (kg/cm²)		
		400W	750W	1500W		400W	750W	1500W
HMTP-203HA(VB/VD)	4.5	30.0	30.0	30.0	5.4	26.0	30.0	30.0
HMTP-204HA(VB/VD)	6.3	21.5	30.0	30.0	7.5	16.0	30.0	30.0
HMTP-206HA(VB/VD)	9.0	10.5	25.0	25.0	10.8	7.0	23.5	25.0
HMTP-208HA(VB/VD)	12.6	7.0	23.0	25.0	15.1	4.0	17.5	25.0
HMTP-210HA(VB/VD)	15.3	4.5	15.5	25.0	18.3	2.5	11.5	25.0
HMTP-212HA(VB/VD)	18.0	3.5	13.5	20.0	21.6	-	8.5	20.0
HMTP-216HA(VB/VD)	24.3	2.0	8.5	20.0	29.1	-	5.5	19.5
HMTP-220HA(VB/VD)	29.7	-	5.5	15.5	35.6	-	3.5	14.0

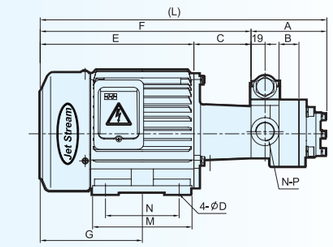
Motor Spec.

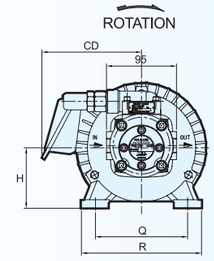
OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	R.P.M	PHASE	POLES
400W	50	200	2.4	1420	3	4
		380	1.3	1420		
	60	200	2.2	1700		
		220	2.2	1720		
		380	1.2	1720		
750W	50	200	3.5	1430	3	4
		380	1.9	1440		
	60	200	3.4	1710		
		220	3.4	1730		
		380	1.8	1730		
1500W	50	200	6.9	1430	3	4
		380	3.4	1430		
	60	200	6.6	1720		
		220	6.6	1730		
		380	3.2	1730		

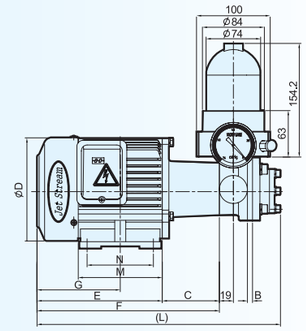
External Figure

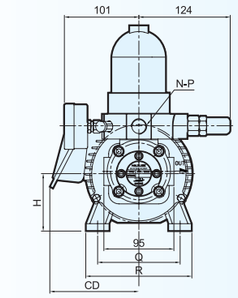










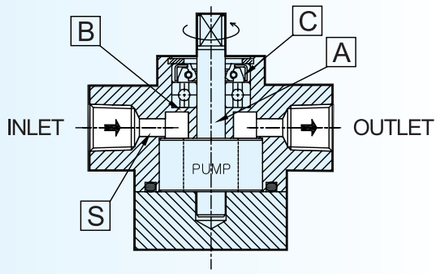


Dimension

	OUTPUT	C	D	E	F	G	L	d	M	N	Q	R	CD	H
MOTOR	**400W**	75.5	146	170	245.5	113	F+A	7	114	90	112	144	125	71
	750W	77.5	169	209	286	139	F+A	10	135	100	123	136	135	80
	1500W	85.5	194	234	319.5	153	F+A	10	156	125	140	172	140	90

TYPE	A	B	N-P	TYPE	A	B	N-P
HMTP-203HA(VB/VD)	81	5	2-1/2	**HMTP-210HA(VB/VD)**	93	17	2-3/4
HMTP-204HA(VB/VD)	83	7	2-1/2	**HMTP-212HA(VB/VD)**	96	20	2-3/4
HMTP-206HA(VB/VD)	86	10	2-1/2	**HMTP-216HA(VB/VD)**	103	27	2-3/4
HMTP-208HA(VB/VD)	90	14	2-1/2	**HMTP-220HA(VB/VD)**	109	33	2-3/4

Product Installation Methods



1. Direction of rotation

It should rotate as the arrow direction. If backlash happens, oil seal could be destroyed. Rotor pump discharges like the drawing in normal condition. It is designed for pressure to send oil to oil seal part through the shaft and then return it into suction part through the drain hole. However, if the pump backlash, suction and delivery go into reverse so that oil stays in oil seal through drain hole resulting in damage in the oil seal and adverse oil flow.

2. Suction pipe

The suction pipe diameter needs to be designed to achieve a peed of 1.5m/sec, and the pump location needs to be set to allow the installation of the shortest suction pipe.
This is because in order to achieve smooth oil suction, the pipe's total length and curves need to be minimized.
Also, when using highly-viscous oil, you have to use a pipe with a large circumference, and take friction increase into consideration according to oil viscosity.

3. Suction pressure

Rotor pump shows high suction pressure at 720mmHg or higher in general if pressured. This figure means this pump has high vacuum rates. For the safety matter, piping design must be aimed at maintaining the suction pressure at lower than-0.5kg/cm^2.

4. Using oil filter during suction

If strange or loud noises come from the filter during pump operation, immediately stop operation and check the pump and filter quantities.
The oil quantity that passes through the filter requires more than twice the amount of discharge.

5. Piping

The most suitable pipe diameter is one that can maintain a speed of at least 3m/sec.
The discharge pipe, as opposed to the suction pie, needs to have a small pipe diameter. Pressure loss caused by pipe friction is added to the downward pressure, and is not applied to the pump.
Hence, you have to choose the right pipe diameter within the oil speed range by taking the loss into consideration, and if the quantity of oil passing through the pipes and the valves is small, oil speed will increase and cause chaotic oil flow.

6. Relation with Pump speed

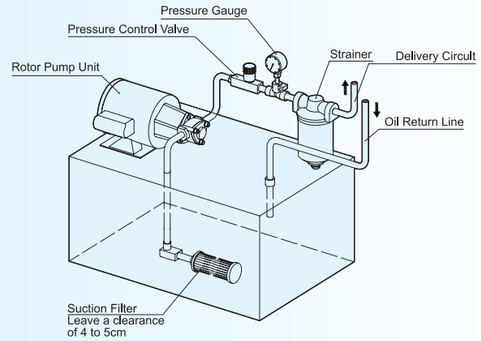
For high-viscosity, small quantities of oil are discharged at high speeds, and veice versa.
Hence, for high-viscosity oil, operation should be slow, taking factors such as noise into consideration.

7. Speed for oil with high viscosity

In the case of oil with high viscosity, the amount of oil flow decreases at high speed and vice versa. Oil with high viscosity is desirable for low speed drive in order for low noise.

8. Installation of Pump

It must be installed in the place with good ventilation and beyond the reach of splash of the liquid and easy access to check and repair. Pump must be installed a little bit higher than the surface of the water.

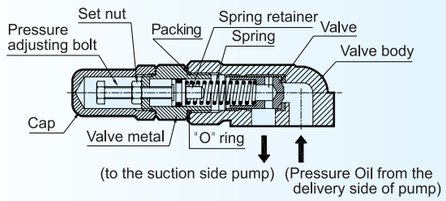


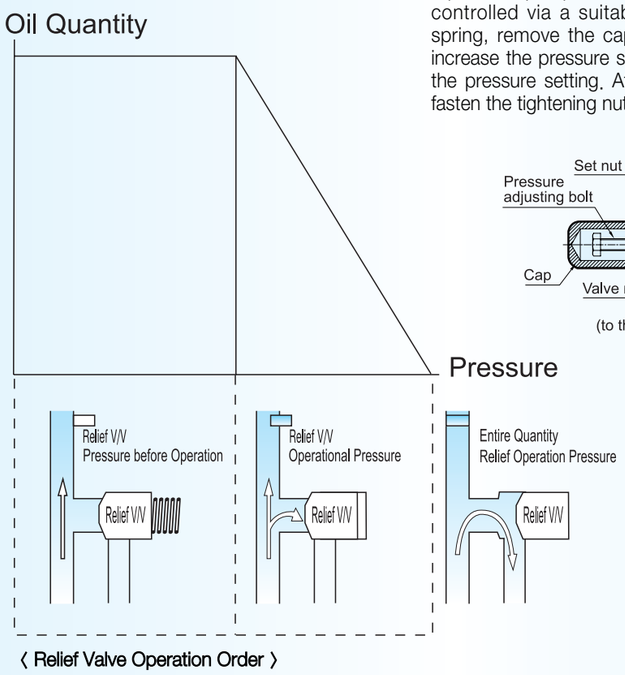
9. Installation of Pump

The adequate amount of oil inside the tank is 3~4 times the pump's per minute oil quantity.
If a small tank is produced to reduce space usage, the oil supply may become insufficient, and cause unstable pump suction. Even with fast oil recovery to the tank, the unstable oil condition will raise oil temperature and cause oil contamination.
The oil temperature at the suction section needs to be maintained at below 55℃

Operating Relief Valve

Relief valve of the rotor pump is connected directly to the top of the pump as illustrated below, and the pressure is controlled via a suitable spring pressure. To adjust the spring, remove the cap, and rotate the bolt clockwise to increase the pressure setting and anticlockwise to decrease the pressure setting. After setting the pressure as needed, fasten the tightening nut and close the cap firmly.

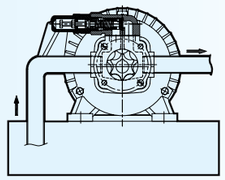




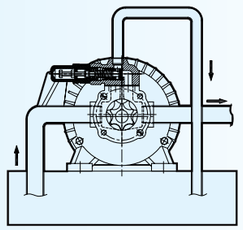
〈 Relief Valve Operation Order 〉

RELIEF VALVE TYPE

VB type



VD type



■ VB type RELIEF VALVE

It is used as a safety valve to send the pump discharge pressure safely.
This valve is connected directly to the top of the pump, and does not operate under normal conditions. When the pump's pressure exceeds the preset pressure, the valve opens, and some oil from the discharge section flows back into the suction section.
This valve is a safety valve that can motor overload as well as pump overloads. If this valve is always moving or is left open for prolonged periods of time, it can cause bubbles, noise, and temperature increases. Therefore, in such cases, a different valve needs to be used.

■ VD type RELIEF VALVE

It has the same structure as the above method of use, but the drained oil is sent inside the tank, and therefore it can prevent overload inside the pump compared to the VBtype.

Cause & Remedy of Trouble

Status	Cause	Countermeasures
Small discharge quantity	Insufficient tank oil	Replenish oil
	Faulty suction	Clean suction filter and prevent air adulteration
	Faulty pump rotation	Check pump rotation direction
	High oil viscosity	Maintain optimum viscosity
	Faulty valve control	Readjust valve
Reduced pressure	Same as abovementioned item	Same as abovementioned item
	Large amounts of internal leakage	Adjust or exchange each packing and seal
	Large amounts of external leakage	Examine pump, valve and each pipe
Oil leakage	Faulty pipe condition	Improve piping method and examine oil leak area
	Packing seal damage	Exchange
PUMP noise	Cavitation	AIR adulteration, FILTER clogging, insufficient OIL inside TANK Check OIL viscosity and take measures
	Pump component damage	Contact head office and other offices
Irregular VALVE operation	Adulteration of foreign substances	Prevent adulteration of foreign substances
	Valve damage	Exchange damaged valve
Oil overheating	High oil Viscosity	Maintain optimum viscosity
	Insufficient oil inside tank	Replenish oil
	High pressure settings	Examine and make adjustments
	High discharge settings	Examine and make adjustments
	Irregular pipe path	Repair pipe path
Irregular operation of Pump	Air adulteration	Prevent air adulteration
	Excessive wear or damage	Replace parts and make readjustments