

HANSUNG AUTOMATIC LUBRICATION SYSTEM

# Coolant PUMP HALS

LUBE PUMP

COOLANT PUMP

ROTOR PUMP

GREASE PUMP

# Coolant pump series



**HCP-S series**

소형 경량의 자흡식 절삭유펌프  
TANK 공간의 제약이 있는 경우  
활용이 가능

연삭기  
선 반  
세척기  
방전기  
기타 선삭 및  
절삭 가공 전용기

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**

침수식 절삭유펌프로 별도의  
기름마중이 없이 초기구동이 용이  
TANK내 PUMP부가 침수되는 형식

MCT  
CNC  
기타 선삭 및  
절삭 가공 전용기

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

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**HCP-(E)MF(S) & HCP-BMF series**

침수식 절삭유펌프로  
많은 유량이 필요할 경우 사용됨  
다단펌프로 다양한 범위의  
성능구현이 가능

MCT  
CNC  
연삭기  
세척기  
방전기  
기타 선삭 및  
절삭 가공 전용기

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

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### HCP-(E)HMF(S) series

고압 다단 펌프로  
높은 압력이 필요한 경우 적용  
장착방법에 따라  
VERTICAL과 HORIZONTAL형으로  
구분됨

MCT  
CNC

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

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### HCP-MSF/HMSF series

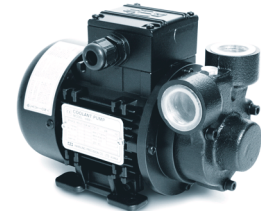
주요구동부가 STAINLESS로 제작된  
소형 다단 펌프  
장착방법에 따라 VERTICAL과  
HORIZONTAL형으로 구분  
소형, 경량으로 사용이 용이함

MCT  
CNC  
세척기  
방전기  
기타 선삭 및  
절삭 가공 전용기

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

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

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### HRP PUMP series

기계 냉각 순환용 펌프  
공작기계 및 산업기계에 광범위하게  
사용이 가능  
고압이며, 소형 · 경량으로  
사용이 용이함

MCT  
CNC  
세척기

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

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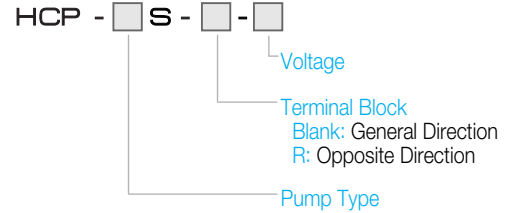
# HCP S series



## Structure

- 펌프와 모터가 일체형으로 된 소형의 자흡식 펌프
- 흡입부로 파이프를 연결하여 사용유를 흡입하는 형식의 펌프
- A single-unit small self-priming pump
- A pipe is connected to the suction part to suck in oil.

## Model



## Feature

1. 펌프와 모터가 일체형으로 소형, 경량의 펌프
  2. 소형으로 설치공간의 제약이 적음
  3. MECHANICAL SEAL이 장착되어 장시간의 공회전은 금지함 (공회전 30초 이상 금지)
  4. 반드시 펌프구동전 펌프 자흡실내 사용유 넣은 후 구동
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.

## Pump Spec.

Specification Type	MOTOR						PUMP		
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)
HCP-60S	60	50	200 380	0.42 0.24	3	2	2	20	3/8"
		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"
		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"
		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"
		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"
		60	200/220 380	1.5 0.86				130	
HCP-400S	400	50	200 380	2.4 1.4	3	2	5	140	1"
		60	200/220 380	2.5 1.5				200	

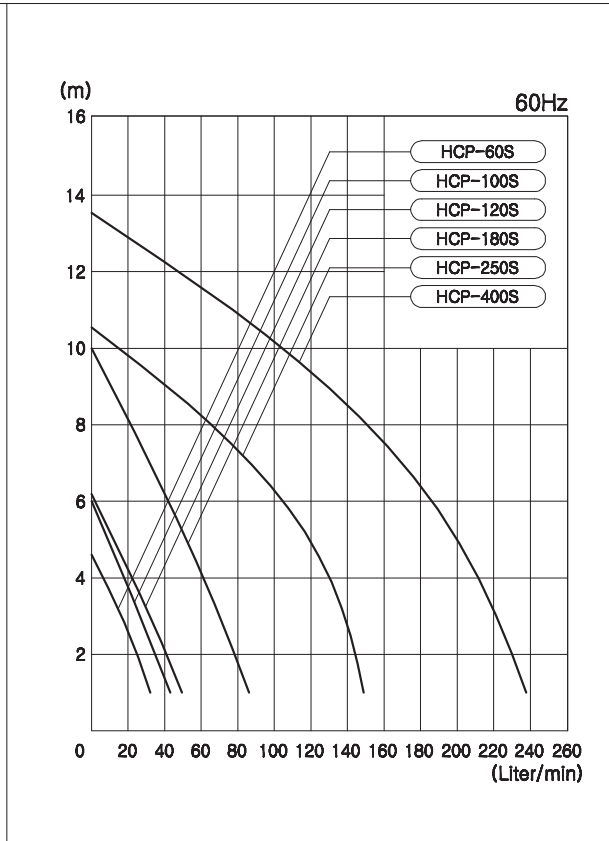
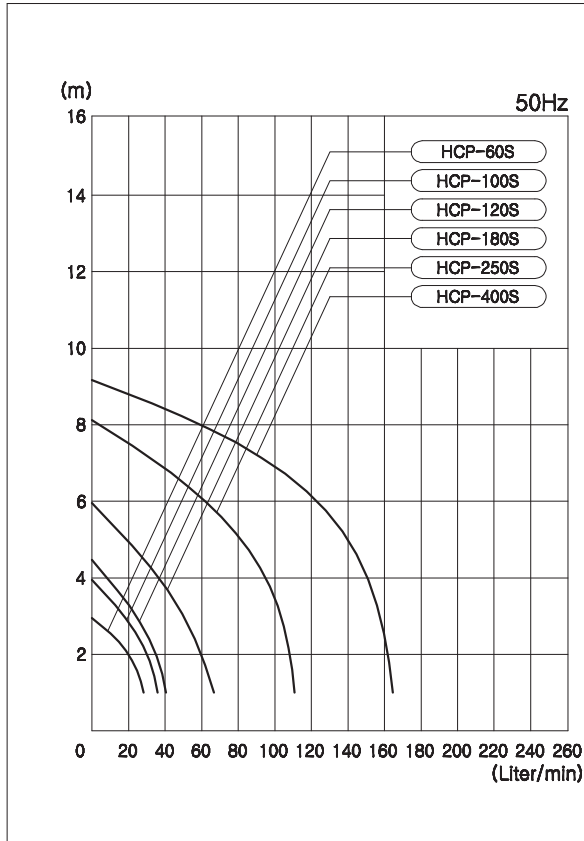
## Packing Spec.

MODEL NAME	PACKING SIZE(cm)	WEIGHT(kg)	
		PUMP	PACKING
HCP-60S	18(W) x 16(L) x 26(D)	8	9
HCP-100S			
HCP-120S			
HCP-180S	26(W) x 21(L) x 21(D)	11	12
HCP-250S	26(W) x 22(L) x 23(D)	12	13
HCP-400S	34(W) x 22(L) x 23(D)	16	17

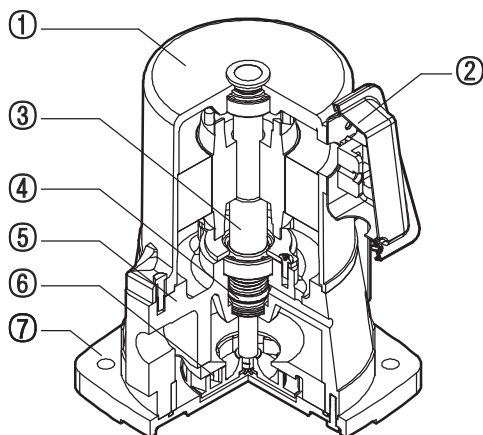


# Performance Curve

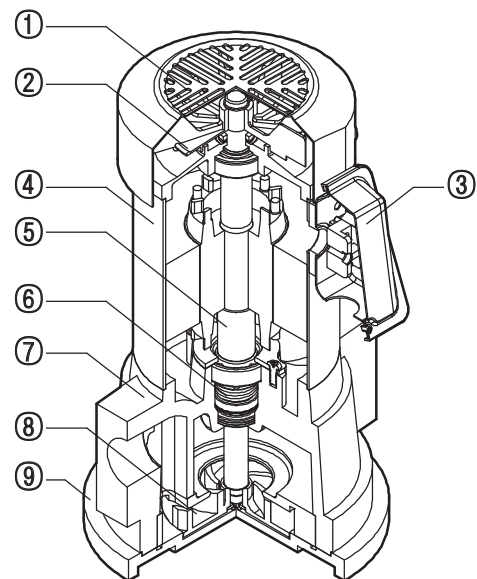
Oil for testing: ISO-VG2, Temperature 20°C



- 비수용성 절삭유 사용시 32cSt 이하의 점도를 사용하여야 하며, 수용성 절삭유에 비하여 펌프성능(압력·유량)이 저하됨.
- When using non water-soluble cutting fluid, Viscosity must be under 32cSt, Pump performance (pressure and quantity) will decrease compared to water-soluble cutting fluid.



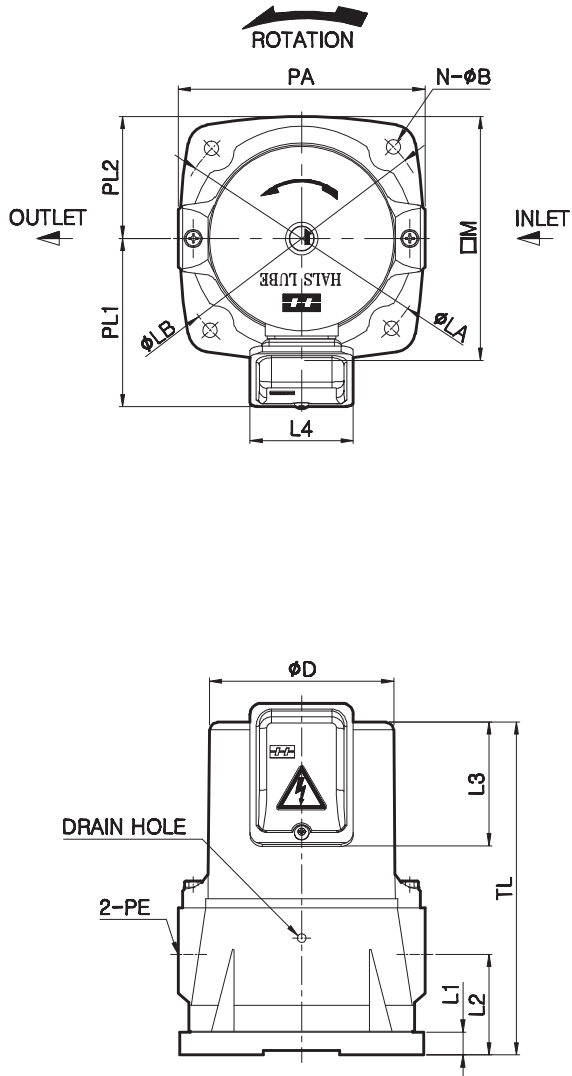
No	PART NAME	No	PART NAME
1	MOTOR	5	PUMP BODY
2	TERMINAL BLOCK	6	IMPELLER
3	SHAFT	7	BASE
4	MECHANICAL SEAL	-	-



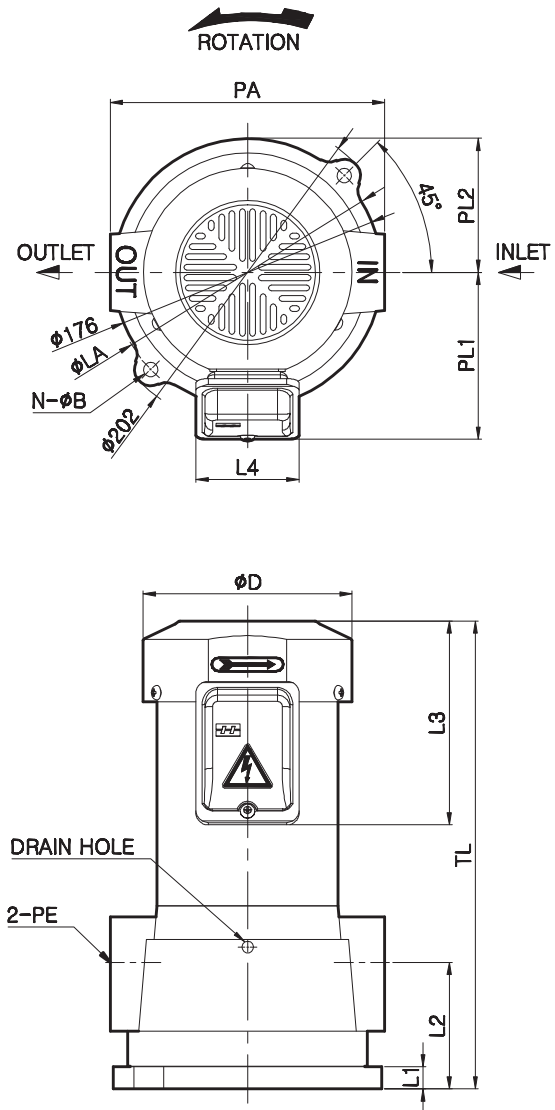
No	PART NAME	No	PART NAME
1	FAN COVER	6	MECHANICAL SEAL
2	FAN	7	BODY
3	TERMINAL BLOCK	8	IMPELLER
4	MOTOR	9	BASE
5	SHAFT	-	-

## External Figure

HCP-60S~250S



HCP-400S



## Dimension

※ LA, LB형 ( )안의 치수는 수출용임 [LA, LB ( ) are products for export]

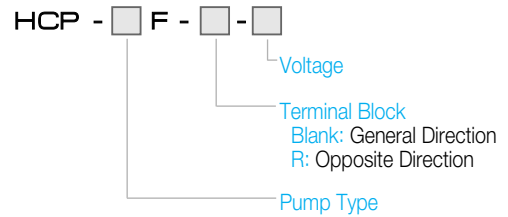
Type	Item	$\phi D$	L1	L2	L3	L4	PE(PT)	TL	LA	LB	N- $\phi B$	PA	M	PL1	PL2
HCP-60S		95	15	55.5	88	67.6	3/8"	200.5	132(132)	150(130)	4-7	130	130	95	65
HCP-100S		95	15	55.5	88	67.6	3/8"	200.5	132(132)	150(150)	4-7	130	130	95	65
HCP-120S		95	15	55.5	88	67.6	3/8"	200.5	132(132)	150(150)	4-7	130	130	95	65
HCP-180S		121	15	66	81	67.6	1/2"	218.5	167(160)	170(164)	4-10	162	160	110	80
HCP-250S		121	20	71	81	67.6	3/4"	224.5	167(160)	170(170)	4-10	162	160	110	80
HCP-400S		137	14.5	83	133	67.6	1"	307	180(180)	-	2-10	180	-	110	88



## Structure

- 펌프부가 탱크내 침수되어 구동하는 펌프
- 탱크 깊이와 성능에 따라 펌프 선택이 다양하고 별도의 기름마중 없이 사용이 가능함
- 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.

## Model



## Feature

1. 펌프와 모터가 동축이나, 분리된 형태
  2. 소형의 단각형 탱크의 깊이에 따라 다양한 선택가능
  3. MECHANICAL SEAL 등 별도의 SEAL이 없는 구조
  4. 연마입자가 혼합된 연삭기를 포함한 광범위한 부분의 적용이 가능
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.

## Pump Spec.

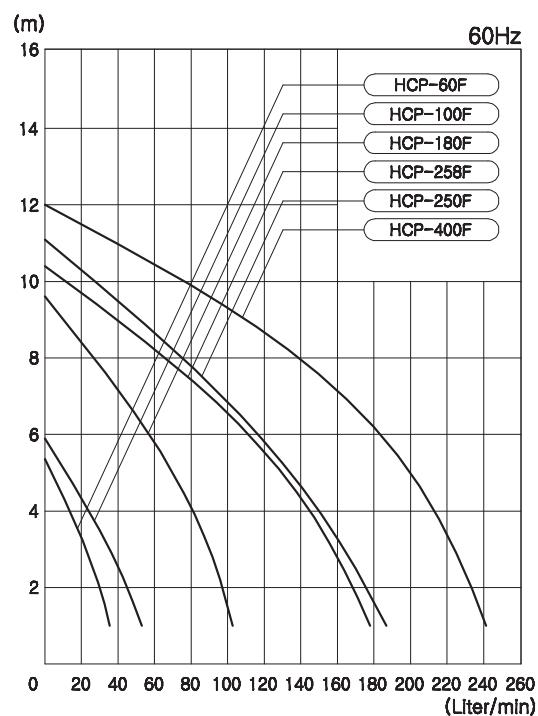
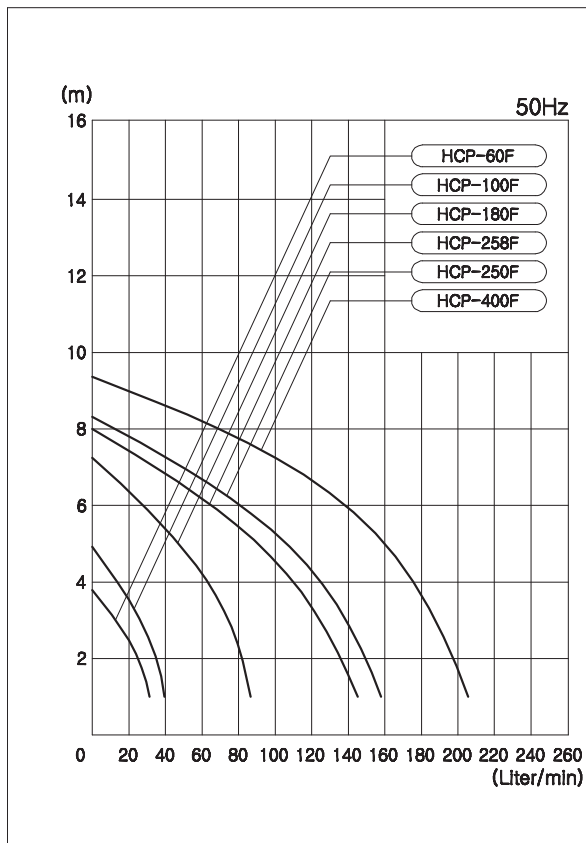
Specification Type	MOTOR						PUMP		
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)
HCP-60F	60	50	200 380	0.42 0.24	3	2	2	25	3/8"
		60	200/220 380	0.45 0.26				32	
HCP-100F	100	50	200 380	0.51 0.3	3	2	2	37	3/8"
		60	200/220 380	0.55 0.32				47	
HCP-180F	180	50	200 380	0.93 0.53	3	2	3	75	1/2"
		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"
		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"
		60	200/220 380	1.5 0.86				145	
HCP-400F	400	50	200 380	2.4 1.4	3	2	5	160	1"
		60	200/220 380	2.5 1.5				200	

## Packing Spec.

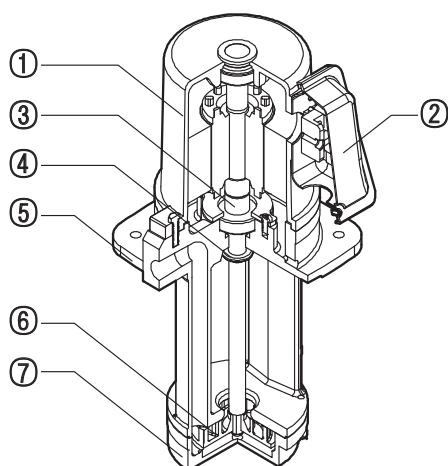
MODEL NAME	PACKING SIZE(cm)	WEIGHT(kg)	
		PUMP	PACKING
HCP-60F	34(W) x 20(L) x 17(D)	7	8
HCP-100F			
HCP-180F	40(W) x 22(L) x 21(D)	11	12
HCP-250F	48(W) x 22(L) x 22(D)	15	16
HCP-258F	41(W) x 22(L) x 22(D)	14	15
HCP-400F	58(W) x 22(L) x 22(D)	17	18

## Performance Curve

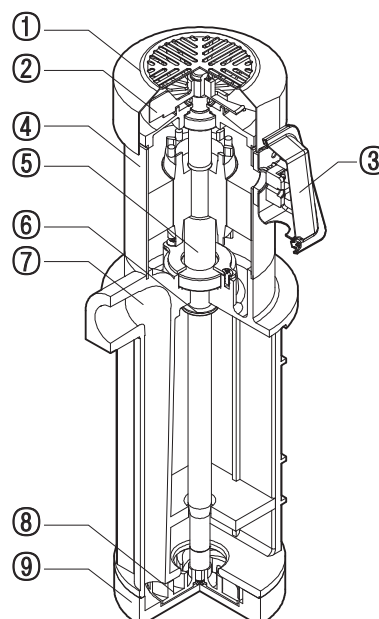
Oil for testing: ISO-VG2, Temperature 20°C



- 비수용성 절삭유 사용시 32cSt 이하의 점도를 사용하여야 하며, 수용성 절삭유에 비하여 펌프성능(압력·유량)이 저하됨.
- When using non water-soluble cutting fluid, Viscosity must be under 32cSt. Pump performance (pressure and quantity) will decrease compared to water-soluble cutting fluid.



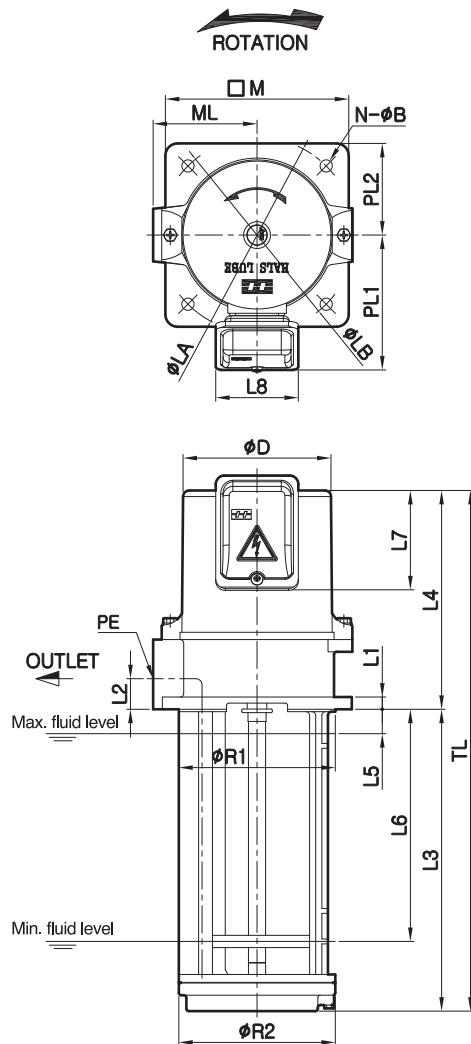
No	PART NAME	No	PART NAME
1	MOTOR	5	PUMP BODY
2	TERMINAL BLOCK	6	IMPELLER
3	SHAFT	7	IMPELLER HOUSING
4	STOPPER	-	-



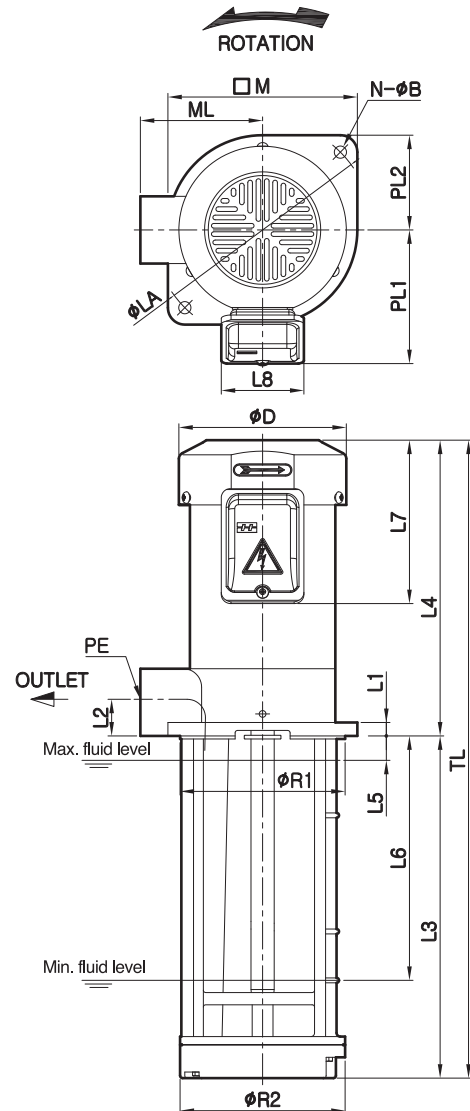
No	PART NAME	No	PART NAME
1	FAN COVER	6	STOPPER
2	FAN	7	BODY
3	TERMINAL BLOCK	8	IMPELLER
4	MOTOR	9	IMPELLER HOUSING
5	SHAFT	-	-

## External Figure

HCP-60F~258F



HCP-400F



## Dimension

※ LA, LB형 ( )안의 치수는 수출용임 [LA, LB ( ) are products for export]

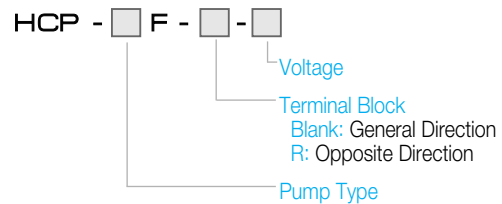
Type	Item	ø D	L1	L2	L3	L4	L5	L6	L7	L8	PE(PT)	TL	R1	R2	LA	LB	N-øB	PL1	PL2	M	ML
HCP-60F		94	8	15	155	150	20	90	92.5	67.6	3/8"	305	90	90	130 (132)	130 (130)	4-7	94	64	128	71
HCP-100F		94	8	15	155	150	20	90	92.5	67.6	3/8"	305	90	90	130 (132)	130 (134)	4-7	94	64	128	71
HCP-180F		121	10	20	175	171	20	105	93	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	232	20	200	143	67.6	1"	512	135	135	180 (180)	-	2-10	110	77.5	155	100



### Structure

- HCP-F TYPE과 동일한 구조의 침수식 펌프
- 탱크깊이에 따라 다양한 종류의 펌프 형태
- A submerged-type pump with the same structure as the HCP-F type.
- There are various pump forms according to the different tank depths.

### Model



### Feature

1. 펌프와 모터가 분리형으로 HCP-F와 동일형태
  2. HCP-F 보다 높은 압력을 요하는 경우 적용
  3. 펌프 상단부에 와류 방지부가 있어 원활한 흡입이 가능
  4. TANK 형태에 따라 다양한 침수깊이와 상단과 하단 흡입 형태로 구분
  5. HCP-419F, 420F는 하단 흡입형 제품으로 흡입 수위 폭이 넓음
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-419F, 420F are bottom section suction products that have a wide range of suction oil levels.

### Pump Spec.

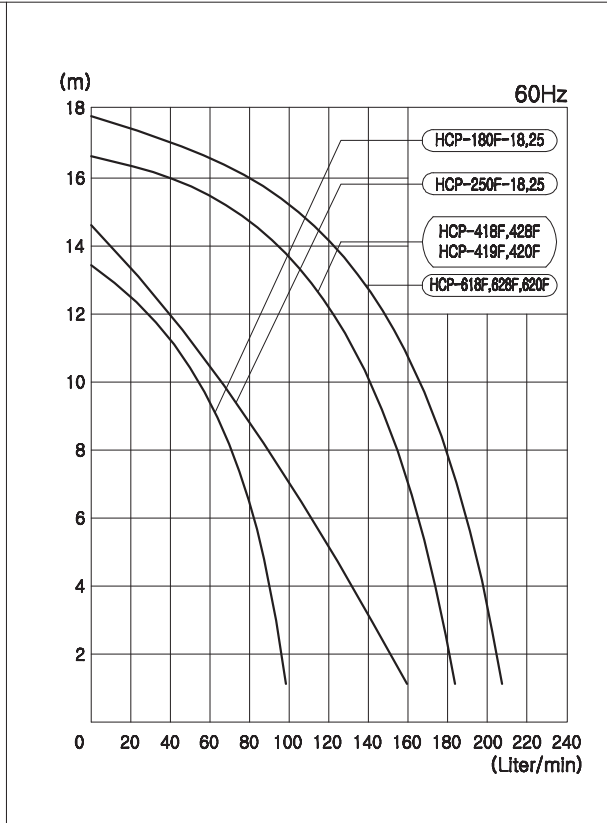
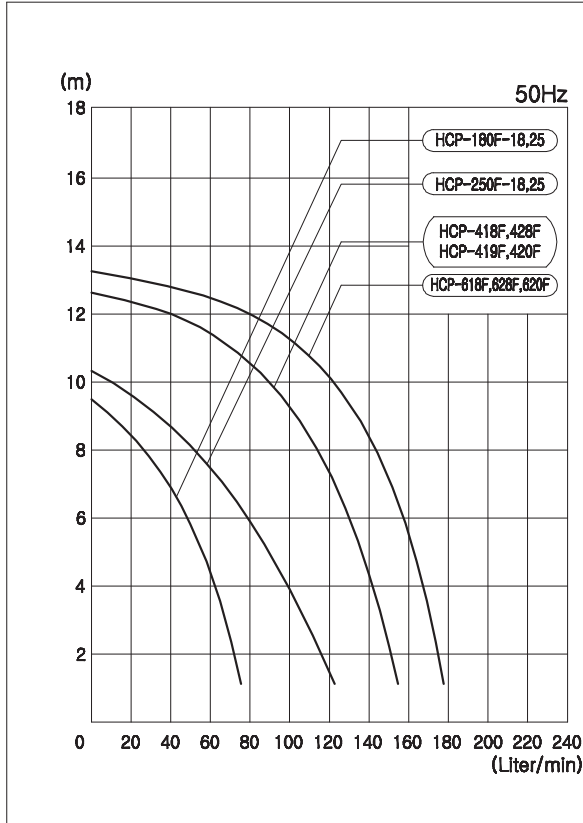
Specification Type	MOTOR						PUMP		
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)
HCP-180F-18, 25	180	50	200 380	0.93 0.53	3	2	9	10	1/2"
		60	200/220 380	1.0 0.57			13		
HCP-250F-18, 25	250	50	200 380	1.4 0.8	3	2	10	10	3/4"
		60	200/220 380	1.5 0.86			14		
HCP-418F, 428F, 419F, 420F	400	50	200 380	2.4 1.4	3	2	12	40	1"
		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"
		60	200/220 380	3.0 1.73			16		

### Packing Spec.

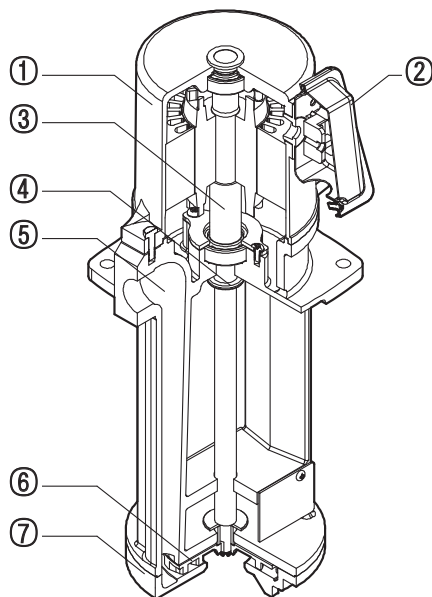
MODEL NAME	PACKING SIZE(cm)	WEIGHT(kg)	
		PUMP	PACKING
HCP-180F-18	48(W) x 22(L) x 22(D)	14	15
HCP-180F-25			
HCP-250F-18		15	16
HCP-250F-25			
HCP-418F	46(W) x 23(L) x 24(D)	17	18
HCP-419F	50(W) x 24(L) x 24(D)	18	19
HCP-420F	46(W) x 23(L) x 24(D)	16	17
HCP-428F	58(W) x 22(L) x 23(D)	18	19
HCP-618F	46(W) x 23(L) x 24(D)	17	18
HCP-620F	46(W) x 23(L) x 24(D)	16	17
HCP-628F	58(W) x 22(L) x 23(D)	18	19

# Performance Curve

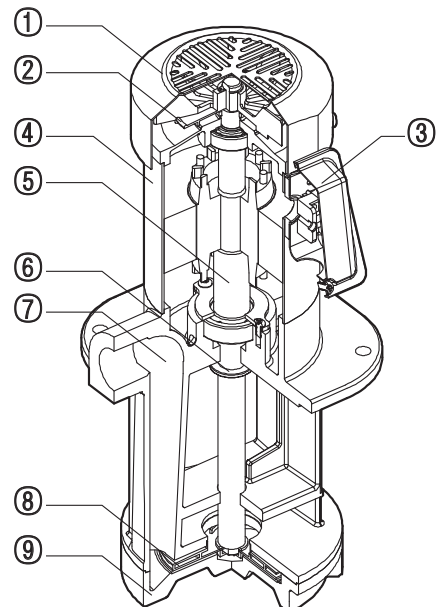
Oil for testing: ISO-VG2, Temperature 20°C



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



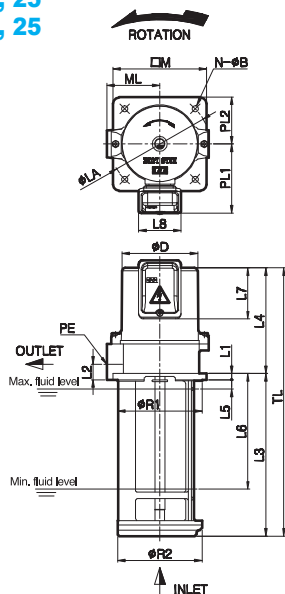
No	PART NAME	No	PART NAME
1	MOTOR	5	PUMP BODY
2	TERMINAL BLOCK	6	IMPELLER
3	SHAFT	7	IMPELLER HOUSING
4	STOPPER	-	-



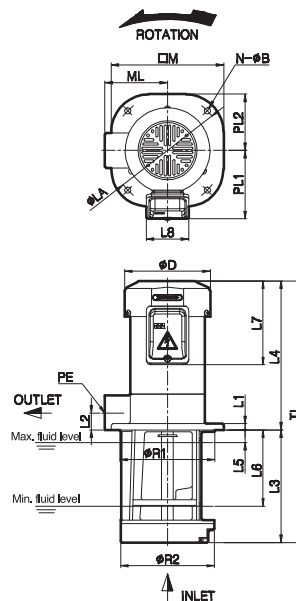
No	PART NAME	No	PART NAME
1	FAN COVER	6	STOPPER
2	FAN	7	BODY
3	TERMINAL BLOCK	8	IMPELLER
4	MOTOR	9	IMPELLER HOUSING
5	SHAFT	-	-

## External Figure

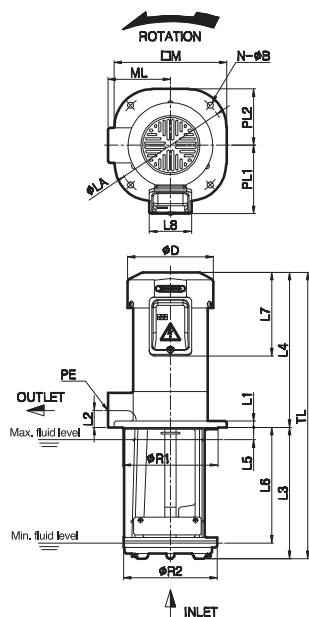
**HCP-180F-18, 25**  
**HCP-250F-18, 25**



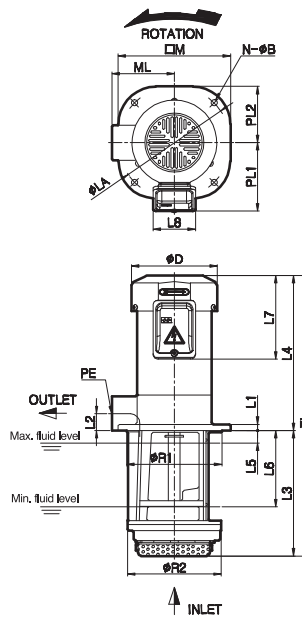
**HCP-418F~628F**



**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	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	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	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	3/4"	430	135	135	160	4-10	108.5	75	150	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/620F		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 (E)MF(S) series



## Model

HCP - [ ] [ ] MF [ ] - [ ] - [ ]

Voltage

Terminal Block

L: 90° Direction / R: 180° Direction

Blank: General Type / S: Short Type

Blank: General Motor

E: High Efficiency Motor

Pump Type

## Feature

### 1. HCP-□MF(S)

- 많은 유량을 요할 경우 적용이 가능
- Motor부가 분리되어 온도의 전달이 적음
- 침수 하단흡입식 펌프로 탱크 밀면과 30mm이상 유지하여야 함
- 펌프부가 분리되어 Motor부로 사용유의 침입이 적음

### 2. HCP-□EMF(S)

- HCP-MF(S) Type에 고효율 모터를 장착
- 효율의 극대화로 우수한 절전 및 투자비 회수가 가능한 높은 경제성
- 낮은 온도상승, 고 절연재료 사용으로 권선수명연장
- 고효율 에너지 기자재 마크 획득 (IE3)

### 1. HCP-□MF(S)

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

### 2. HCP-□EMF(S)

- High efficiency motor is installed in HCP-MF(S) Type
- Excellent electricity savings and high economic return on investment through optimized efficiency
- Increase in life-time use through slow temperature increase and use of highly energy-efficient energy materials
- Acquired high efficiency energy equipment mark (IE3)

## Pump Spec.

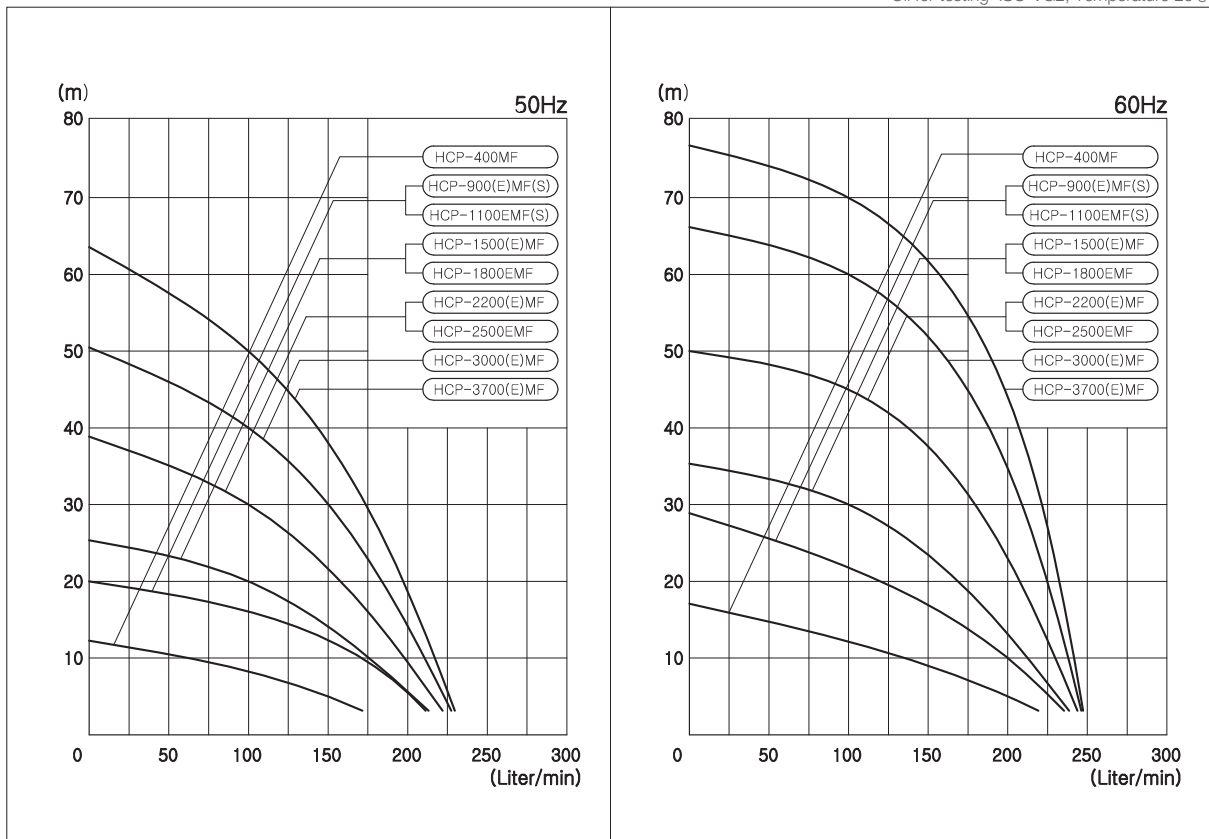
Type	Specification	MOTOR					PUMP		
		OUTPUT(W)	FREQUENCY(Hz)	VOLTAGE(V)	CURRENT(A)	PHASE	POLES	TOTAL HEAD(m)	DIS. VOL(ℓ/min)
HCP-400MF	400	400	50	200 380	2.4 1.4	3	2	5	150
			60	200/220 380	2.5 1.5			200	1 ¼" (1 ½")
HCP-900(E)MF(S)	900	900	50	200 380	5.2 3.1	3	2	6.5	200
			60	200/220 380	6.0/5.8 3.4			10	1 ¼" (1 ½")
HCP-1100EMF(S)	1100	1100	50	220	4.2	3	2	6.5	200
			60		4.8			10	
HCP-1500(E)MF	1500	1500	50	200 380	7.5 4.1	3	2	20	100
			60	200/220 380	8.5/8.0 4.6			30	
HCP-1800EMF	1800	1800	50	220	6.6	3	2	20	100
			60		7			30	
HCP-2200(E)MF	2200	2200	50	200 380	9.0 5.5	3	2	30	100
			60	200/220 380	12.0/11.0 6.4			45	
HCP-2500EMF	2500	2500	50	220	8.8	3	2	30	100
			60		10			45	
HCP-3000(E)MF	3000	3000	50	200 380	13.0 7.1	3	2	40	100
			60	200/220 380	15.0/14.0 8.0			60	
HCP-3700(E)MF	3700	3700	50	200 380	16.0 8.5	3	2	50	100
			60	200/220 380	18.0/17.0 10.7			70	

## Packing Spec.

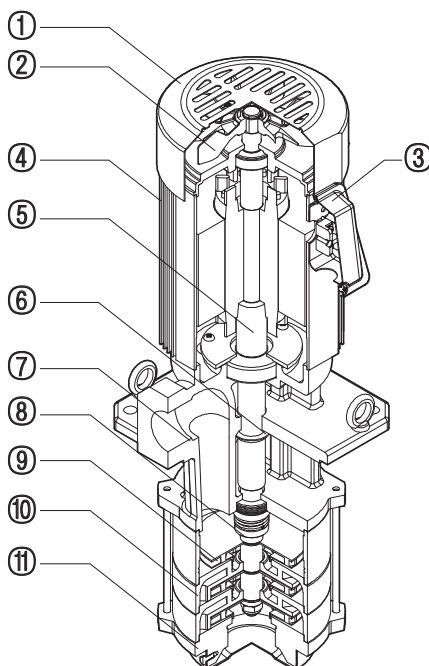
MODEL NAME	PACKING SIZE(cm)	WEIGHT(kg)	
		PUMP	PACKING
HCP-400MF	59(W) x 25(L) x 29(D)	26	27
HCP-900MF		27	28
HCP-900MFS		26	27
HCP-1100EMF		28	29
HCP-1100EMFS		27	28
HCP-1500MF	63(W) x 29(L) x 30(D)	30	31
HCP-1800EMF		31	32
HCP-2200MF		34	35
HCP-2500EMF		35	36
HCP-3000MF		42	43
HCP-3700MF	80(W) x 27(L) x 31(D)	45	46

## Performance Curve

Oil for testing: ISO-VG2, Temperature 20°C



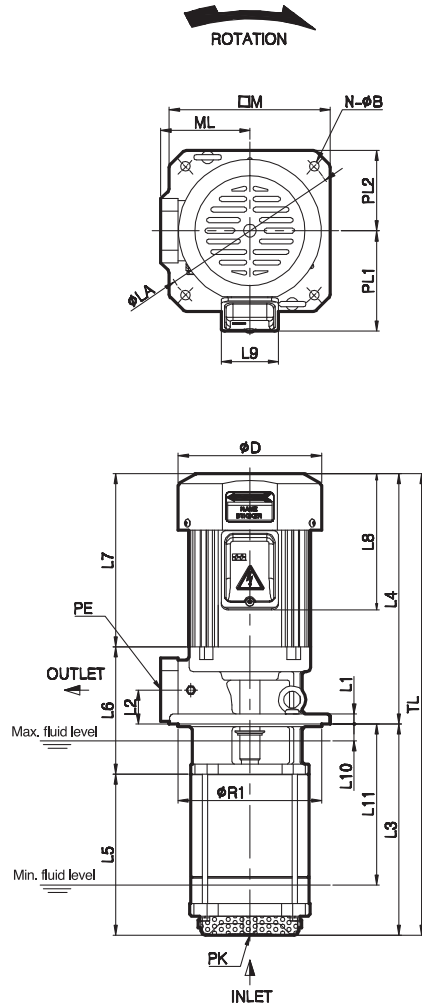
- 비수용성 절삭유 사용시 32cSt 이하의 점도를 사용하여야 하며, 수용성 절삭유에 비하여 펌프성능(압력·유량)이 저하됨.
- When using non water-soluble cutting fluid, Viscosity must be under 32cSt. Pump performance (pressure and quantity) will decrease compared to water-soluble cutting fluid.



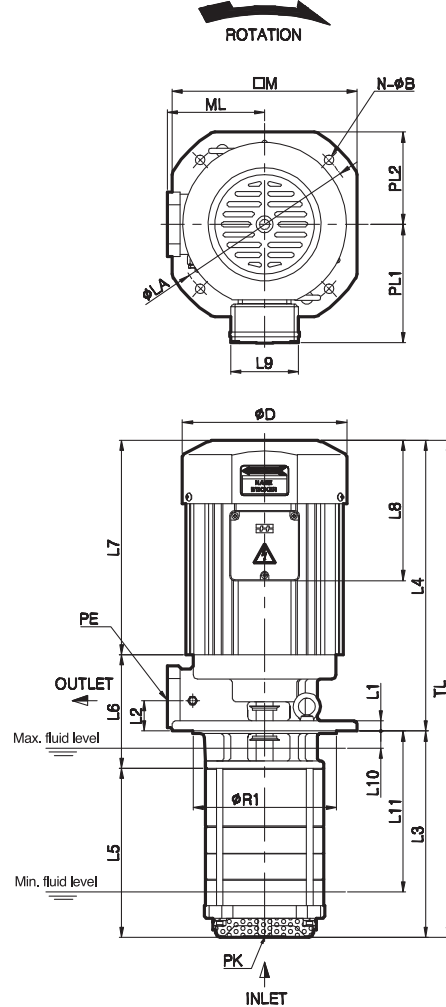
No	PART NAME	No	PART NAME	No	PART NAME
1	FAN COVER	5	SHAFT	9	IMPELLER
2	FAN	6	STOPPER	10	IMPELLER CASING
3	TERMINAL BLOCK	7	BODY	11	INLET COVER
4	MOTOR	8	IMPELLER SEAL	-	-

# External Figure

## HCP-400MF~2200MF



## HCP-3000MF~3700MF

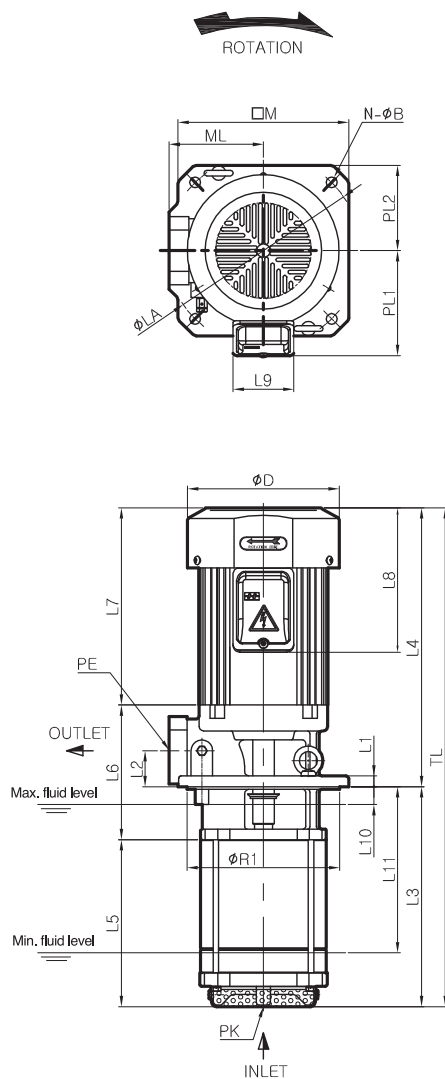


# Dimension

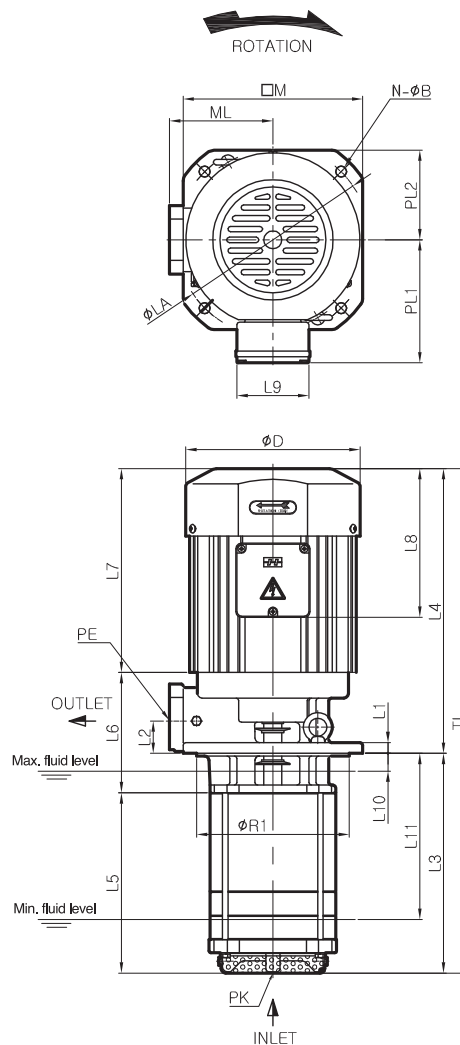
Type	Item	Ø D	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	PE (PT)	TL	R1	LA	N-ØB	PL1	PL2	M	ML	PK (PF)
HCP-400MF		169	12	40	249.2	295.5	190.2	150	204.5	161	67.6	20	190	1 1/2"	544.7	170	215	4-12	119	95	190	105	2"
HCP-900MF		169	12	40	249.2	295.5	190.2	150	204.5	161	67.6	20	190	1 1/2"	544.7	170	215	4-12	119	95	190	105	2"
HCP-900MFS		169	12	40	208.4	295.5	149.4	150	204.2	161	67.6	20	160	1 1/4"	503.9	170	215	4-12	119	95	190	105	2"
HCP-1500MF		169	12	40	243.4	315.5	184.4	150	224.5	161	67.6	20	190	1 1/2"	558.9	170	215	4-12	119	95	190	105	2"
HCP-2200MF		169	12	40	243.4	345.5	184.4	150	254.4	161	67.6	20	190	1 1/2"	588.9	170	215	4-12	119	95	190	105	2"
HCP-3000MF		194	12	36	243.4	343	199.4	134	253	166	80	20	190	1 1/2"	586.4	170	215	4-12	142	109	218	115	2"
HCP-3700MF		194	12	36	353.4	343	309.4	134	253	166	80	20	303	1 1/2"	696.4	170	215	4-12	142	109	218	115	2"

## External Figure

### HCP-900EMF(S)~1100EMF(S)



### HCP-1500EMF~3700EMF

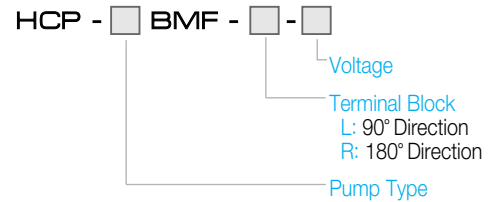


## Dimension

Type	Item	φ D	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	PE (PT)	TL	R1	LA	N-φ B	PL1	PL2	M	ML	PK (PF)
HCP-900EMF		169	12	40	250	296	191	150	205	158	67.6	20	190	1 1/4"	546	170	215	4-12	119	95	190	105	2"
HCP-900EMFS		169	12	40	209	296	150	150	205	158	67.6	20	160	1 1/4"	505	170	215	4-12	119	95	190	105	2"
HCP-1100EMF		169	12	40	245	310.5	186	150	219.5	166	67.6	20	185	1 1/2"	555	170	215	4-12	119	95	190	105	2"
HCP-1100EMFS		169	12	40	210	310.5	151	150	219.5	166	67.6	20	150	1 1/4"	520	170	215	4-12	119	95	190	105	2"
HCP-1500EMF		194	12	36	244	314	200	134	224	166	80	20	190	1 1/2"	558	170	215	4-12	142	109	218	115	2"
HCP-1800EMF		194	12	36	245	317	201	134	227	166	80	20	185	1 1/2"	562	170	215	4-12	137	100	200	115	2"
HCP-2200EMF		194	12	36	244	344	200	134	254	166	80	20	190	1 1/2"	588	170	215	4-12	142	109	218	115	2"
HCP-2500EMF		194	12	36	245	343	201	134	253	166	80	20	185	1 1/2"	588	170	215	4-12	137	100	200	115	2"
HCP-3000EMF		194	12	36	244	344	200	134	254	166	80	20	190	1 1/2"	588	170	215	4-12	142	109	218	115	2"
HCP-3700EMF		232	12	36	354	377	310	144	277	176	80	20	303	1 1/2"	731	170	215	4-12	162	109	218	115	2"



## Model



## Structure

- HCP-BMF 전 기종 취부 자리는 동일하여 변경이 자유로움
- 펌프 하단부에서 탱크 밑면과 30mm이상 유지하여야 함
- Attachment area is same for all HCP-BMF equipment and therefore flexible in terms of moving.
- Must maintain 30mm distance from the tank's bottom in the lower part of the pump.

## Feature

1. 대형 공작기계의 대용량 원심 다단 펌프로 세척 및 샤워용 절삭유 펌프로 적합
2. 펌프부와 모터부가 분리되어 모터의 사용유 침입이 거의 없음
1. A large capacity multi-level pump of large machine tools suitable for cutting oil pump used for washing and shower.
2. The motor and the pump have the same shaft but are separated to decrease the flow of oil into the motor.

## Pump Spec.

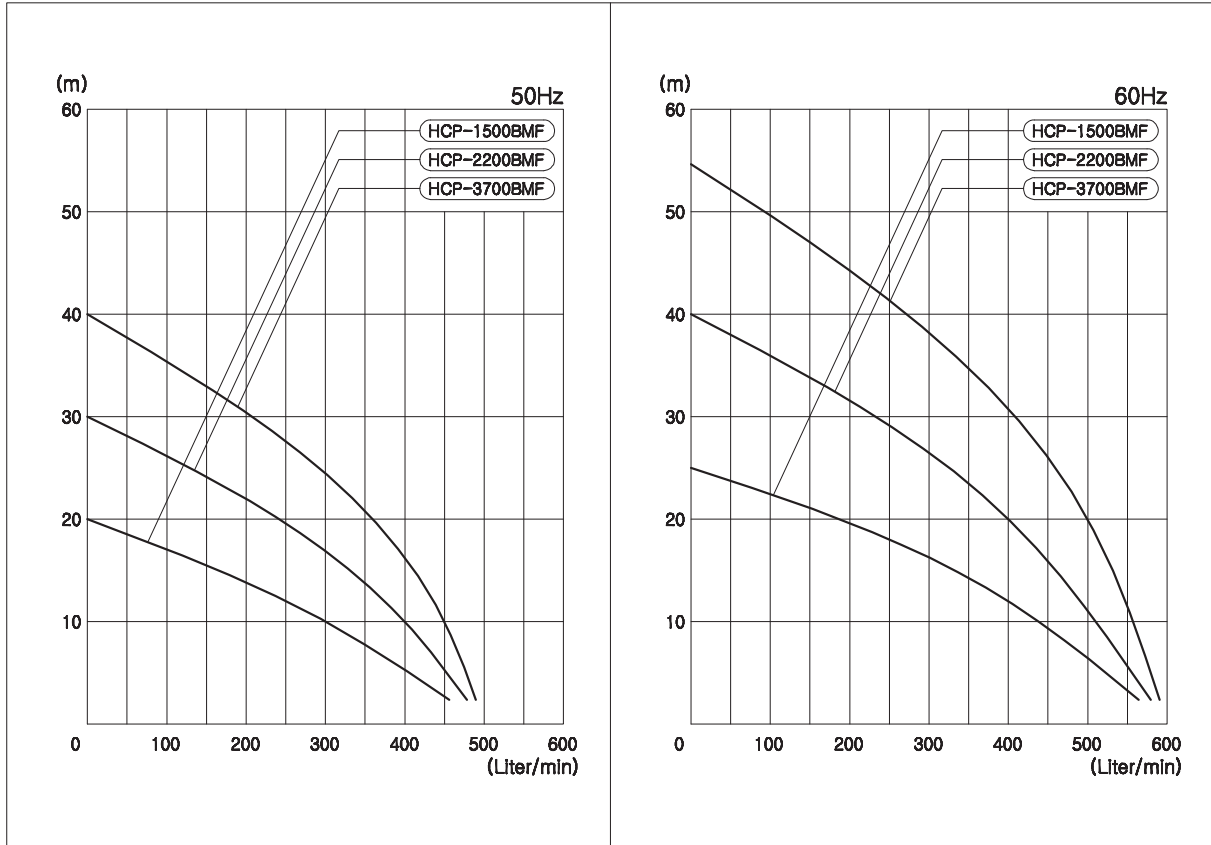
Specification Type	MOTOR						PUMP		
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)
HCP-1500BMF	1500	50	200 380	7.5 4.1	3	2	10	300	2"
		60	200/220 380	8.5 / 8.0 4.6			12	400	
HCP-2200BMF	2200	50	200 380	9.0 5.5	3	2	10	400	2"
		60	200/220 380	12.0 / 11.0 6.4			20		
HCP-3700BMF	3700	50	200 380	16.0 8.5	3	2	10	450	2"
		60	200/220 380	18.0 / 17.0 10.7			20	500	

## Packing Spec.

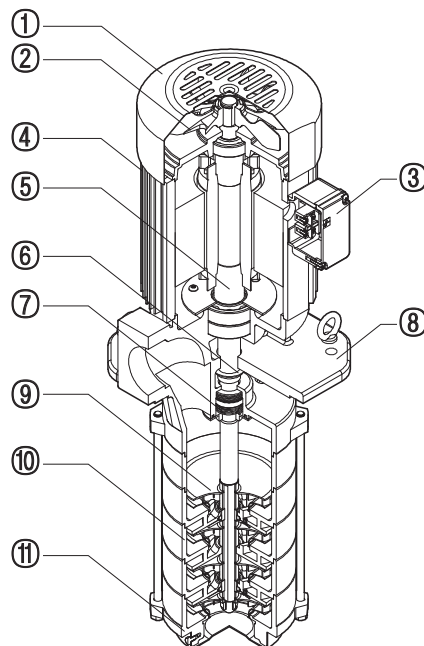
MODEL NAME	PACKING SIZE(cm)	WEIGHT(kg)	
		PUMP	PACKING
HCP-1500BMF	63(W) x 29(L) x 30(D)	35	36
HCP-2200BMF		40	41
HCP-3700BMF	80(W) x 27(L) x 31(D)	45	46

## Performance Curve

Oil for testing: ISO-VG2, Temperature 20℃



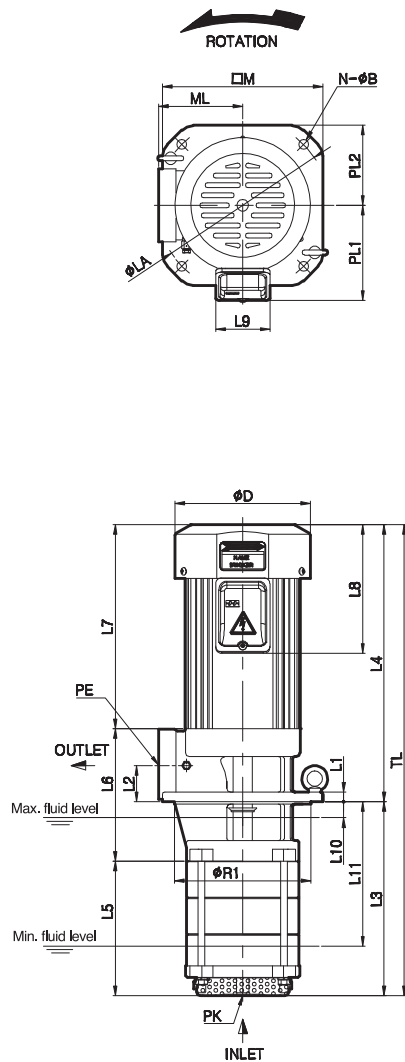
- 비수용성 절삭유 사용시 32cSt 이하의 점도를 사용하여야 하며, 수용성 절삭유에 비하여 펌프성능(압력·유량)이 저하됨.
- When using non water-soluble cutting fluid, Viscosity must be under 32cSt. Pump performance (pressure and quantity) will decrease compared to water-soluble cutting fluid.



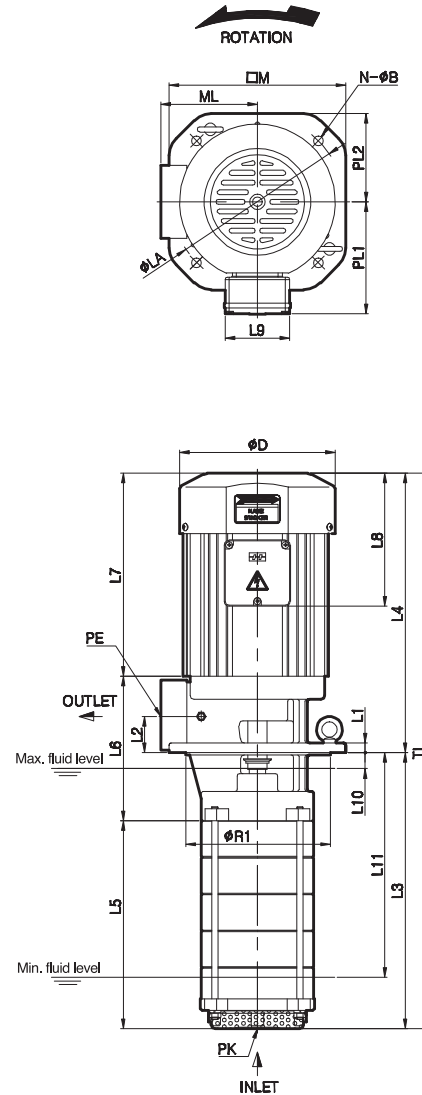
No	PART NAME	No	PART NAME	No	PART NAME
1	FAN COVER	5	SHAFT	9	IMPELLER
2	FAN	6	STOPPER	10	IMPELLER CASING
3	TERMINAL BLOCK	7	IMPELLER SEAL	11	INLET COVER
4	MOTOR	8	BODY	-	-

# External Figure

## HCP-1500~2200BMF



## HCP-3700BMF



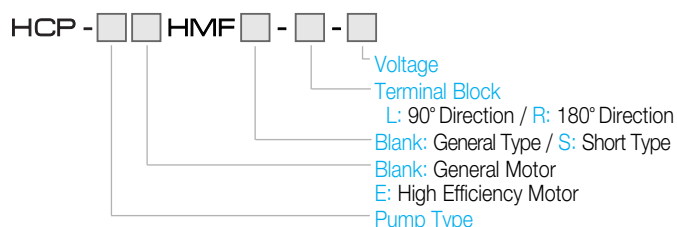
# Dimension

Type	Item	$\phi D$	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	PE (PT)	TL	R1	LA	N- $\phi B$	PL1	PL2	M	ML	PK (PF)
HCP-1500BMF		169	12	45	241.7	315.5	167.7	165	224.5	161	67.6	20	180	2"	557.4	170	215	4-12	119	100	200	105	1 1/4"
HCP-2200BMF		169	12	45	241.7	345.5	167.7	165	254.5	161	67.6	20	180	2"	587.7	170	215	4-12	119	100	200	105	1 1/4"
HCP-3700BMF		194	12	45	344.2	348	259.5	179.7	253	166	80	20	280	2"	692.2	180	215	4-12	140	110	220	120	1 1/4"

# HCP (E)HMF(S) series



## Model



## Feature

- HCP-□HMF(S)**
  - 동일한 펌프 취부자리로 교체가 용이함
  - Mechanical Seal이 장착되어 장시간의 공회전은 금지함 (공회전 30초 이상 금지)
  - 일체형 축으로 제작되어 내구성과 관리가 용이함
- HCP-□EHMF(S)**
  - HCP-HMF(S) Type에 고효율 모터를 장착
  - 효율의 극대화로 우수한 절전 및 투자비 회수가 가능한 높은 경제성
  - 낮은 온도상승, 고 절연재료 사용으로 권선수명연장
  - 고효율 에너지 기자재 마크 획득
- HCP-□HMF(S)**
  - Identical pump spray areas make exchanges easy.
  - Prolonged idling is prohibited due to the installed mechanical seal. (Idling for more than 30 seconds is prohibited)
  - It is produced with a single-unit shaft, which increases durability and makes management easy.
- HCP-□EHMF(S)**
  - High efficiency motor is installed in HCP-HMF(S) Type.
  - Excellent electricity savings and high economic return on investment through optimized efficiency.
  - Increase in life-time use through slow temperature increase and use of highly energy-efficient energy materials.
  - Acquired high efficiency energy equipment mark.

## Pump Spec.

Specification Type	MOTOR						PUMP		
	OUTPUT(W)	FREQUENCY(Hz)	VOLTAGE(V)	CURRENT(A)	PHASE	POLES	TOTAL HEAD(m)	DIS. VOL( ℓ/min)	PIPE SIZE(PT)
HCP-900(E)HMF(S)	900	50	200 380	5.2 3.1	3	2	30	20	3/4″
		60	200/220 380	6.0/5.8 3.4			45		
HCP-1100EHMF(S)	1100	50	220	4.3	3	2	30	30	3/4″
		60		5.1			45		
HCP-1500(E)HMF(S)	1500	50	200 380	7.5 4.1	3	2	50	20	3/4″
		60	200/220 380	8.5/8.0 4.6			70		
HCP-1800EHMF(S)	1800	50	220	6.5	3	2	50	30	3/4″
		60		7.0			70		
HCP-2200(E)HMF(S)	2200	50	200 380	9.0 5.5	3	2	70	20	3/4″
		60	200/220 380	12.0/11.0 6.4			100		
HCP-2500EHMF(S)	2500	50	220	8.7	3	2	70	30	3/4″
		60		9.7			100		
HCP-3700(E)HMF(S)	3700	50	200 380	16.0 8.5	3	2	90	20	3/4″
		60	200/220 380	18.0/17.0 10.7			130		

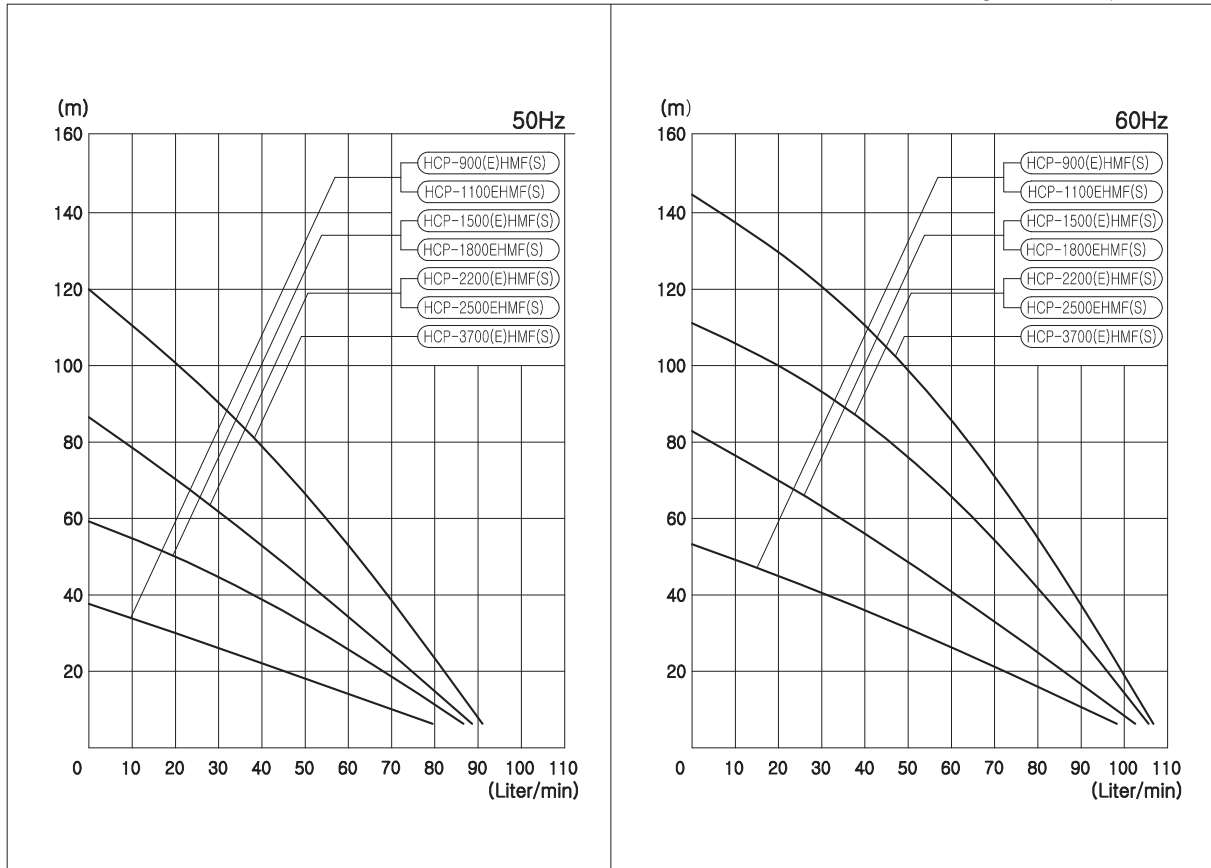
## Packing Spec.

MODEL NAME	PACKING SIZE(cm)	WEIGHT(kg)	
		PUMP	PACKING
HCP-900HMF	50(W) x 30(L) x 27(D)	25	26
HCP-900HMFS		24	25
HCP-1100HMF		26	27
HCP-1100HMFS		25	27
HCP-1500HMFS		27	28
HCP-1800EHMFS		28	29
HCP-1500HMF	63(W) x 29(L) x 30(D)	28	29
HCP-1800EHMF		29	30
HCP-2200HMF		38	39
HCP-2200HMFS		37	38
HCP-2500EHMF		39	40
HCP-2500EHMFS		38	39
HCP-3700HMF		45	46
HCP-3700HMFS		44	45

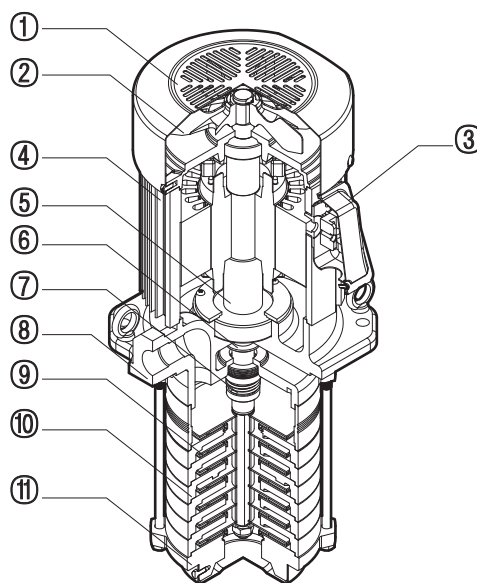


# Performance Curve

Oil for testing: ISO-VG2, Temperature 20°C



- 비수용성 절삭유 사용시 32cSt 이하의 점도를 사용하여야 하며, 수용성 절삭유에 비하여 펌프성능(압력·유량)이 저하됨.
- When using non water-soluble cutting fluid, Viscosity must be under 32cSt, Pump performance (pressure and quantity) will decrease compared to water-soluble cutting fluid.

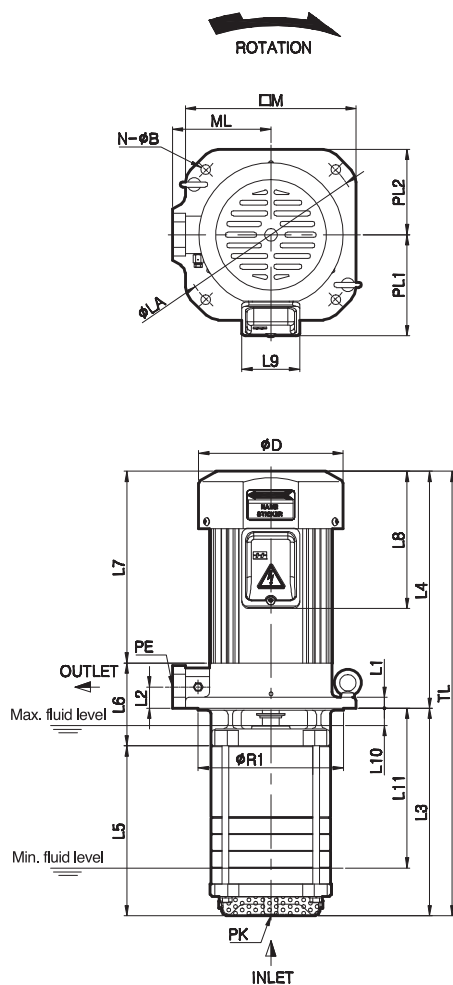


No	PART NAME	No	PART NAME	No	PART NAME
1	FAN COVER	5	SHAFT	9	IMPELLER
2	FAN	6	STOPPER	10	IMPELLER CASING
3	TERMINAL BLOCK	7	IMPELLER SEAL	11	INLET COVER
4	MOTOR	8	BODY	-	-

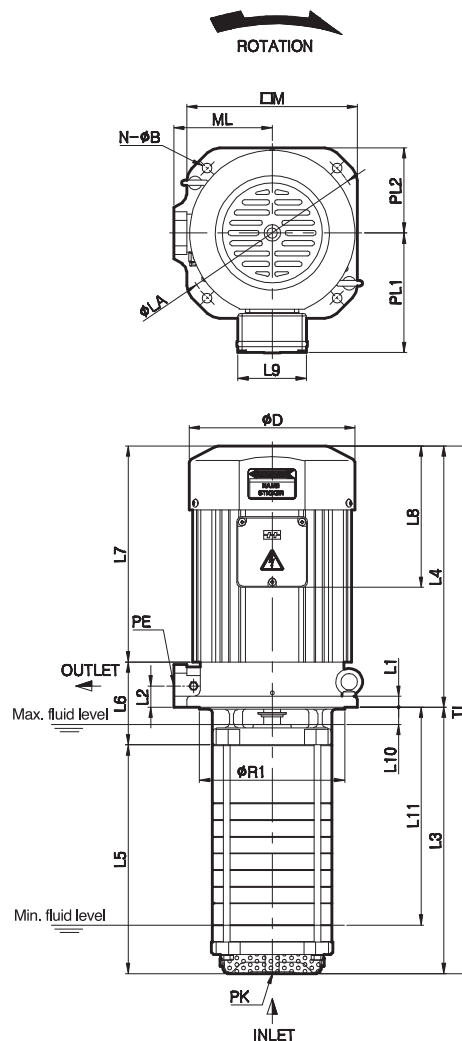
## HCP HMF

### External Figure

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

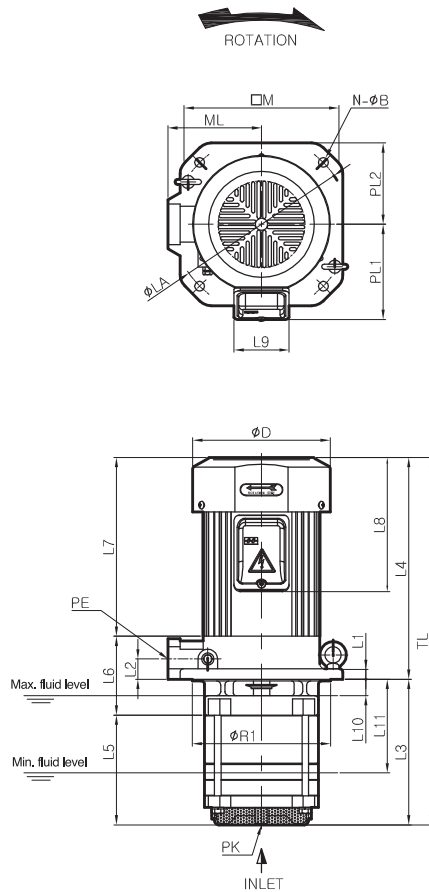
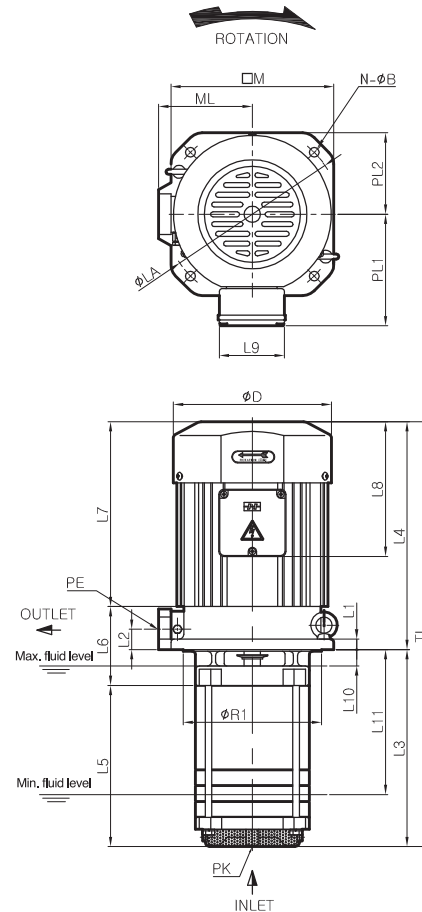


#### HCP-2200~3700HMF(S)



### Dimension

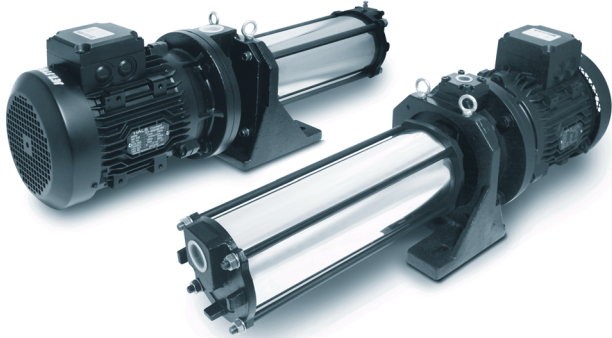
Type	Item	$\phi D$	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	PE (PT)	TL	R1	LA	N- $\phi B$	PL1	PL2	M	ML	PK (PF)
HCP-900HMF		169	13	25	153.7	257.5	136.9	97	204.5	161	67.6	20	124	3/4"	438.4	170	215	4-12	119	100	200	115	1 1/2"
HCP-900HMF(S)		169	13	25	108.9	257.5	109.7	97	204.5	161	67.6	20	89	3/4"	411.2	170	215	4-12	119	100	200	115	1 1/2"
HCP-1500HMF		169	13	25	242.9	277.5	198.9	97	224.5	161	67.6	20	187	3/4"	520.4	170	215	4-12	119	100	200	115	1 1/2"
HCP-1500HMF(S)		169	13	25	197.9	277.5	153.9	97	224.5	161	67.6	20	142	3/4"	475.4	170	215	4-12	119	100	200	115	1 1/2"
HCP-2200HMF		194	13	25	288.9	266	244.9	97	213	166	80	20	238	3/4"	554.9	170	215	4-12	140	100	200	115	1 1/2"
HCP-2200HMF(S)		194	13	25	248.9	266	204.9	97	213	166	80	20	190	3/4"	514.9	170	215	4-12	140	100	200	115	1 1/2"
HCP-3700HMF		194	13	25	359.7	306	315.7	97	253	166	80	20	302	3/4"	665.7	170	215	4-12	140	100	200	115	1 1/2"
HCP-3700HMF(S)		194	13	25	311.8	306	267.8	97	253	166	80	20	255	3/4"	617.8	170	215	4-12	140	100	200	115	1 1/2"

**HCP EHMf****External Figure****HCP-900EHMF(S)~1100EHMF(S)****HCP-1500EHMF(S)~3700EHMF(S)****Dimension**

Type	Item	$\phi D$	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	PE (PT)	TL	R1	LA	N- $\phi B$	PL1	PL2	M	ML	PK (PF)
HCP-900EHMF		169	13	25	180	260	136	97	207	158	67.6	20	124	3/4"	440	170	215	4-12	119	100	200	115	1 1/2"
HCP-900EHMFs		169	13	25	144	260	100	97	207	158	67.6	20	89	3/4"	404	170	215	4-12	119	100	200	115	1 1/2"
HCP-1100EHMF		169	13	25	179	272.5	136	97	219.5	166	67.6	20	115	3/4"	451	170	215	4-12	119	100	200	115	1 1/2"
HCP-1100EHMFs		169	13	25	154	272.5	110	97	219.5	166	67.6	20	90	3/4"	426	170	215	4-12	119	100	200	115	1 1/2"
HCP-1500EHMF		194	13	25	242	277	198	97	224	166	80	20	187	3/4"	519	170	215	4-12	142	100	200	115	1 1/2"
HCP-1500EHMFs		194	13	25	197	277	153	97	224	166	80	20	142	3/4"	474	170	215	4-12	142	100	200	115	1 1/2"
HCP-1800EHMF		194	13	25	243	280	199	97	227	166	80	20	178	3/4"	475	170	215	4-12	137	100	200	115	1 1/2"
HCP-1800EHMFs		194	13	25	195	280	151	97	227	166	80	20	130	3/4"	475	170	215	4-12	137	100	200	115	1 1/2"
HCP-2200EHMF		194	13	25	290	307	246	97	254	166	80	20	238	3/4"	597	170	215	4-12	142	100	200	115	1 1/2"
HCP-2200EHMFs		194	13	25	248	307	204	97	254	166	80	20	190	3/4"	555	170	215	4-12	142	100	200	115	1 1/2"
HCP-2500EHMF		194	13	25	290	306	246	97	253	166	80	20	224	3/4"	596	170	215	4-12	137	100	200	115	1 1/2"
HCP-2500EHMFs		194	13	25	250	306	206	97	253	166	80	20	184	3/4"	556	170	215	4-12	137	100	200	115	1 1/2"
HCP-3700EHMF		232	13	25	361	340	317	107	277	176	80	20	302	3/4"	701	170	215	4-12	162	162	200	115	1 1/2"
HCP-3700EHMFs		232	13	25	313	340	269	107	277	176	80	20	255	3/4"	653	170	215	4-12	162	162	200	115	1 1/2"

HCP

HMF series



### Structure

- 사용환경에 따라 Vertical과 Horizontal형태로 제작
- 동일한 펌프 취부자리로 교체가 용이함.
- HCP-4000HMF280S는 기존 펌프와 달리 IN, OUT이 반대로 되어 있어 Mechanical Seal부에 진공압이 발생되어 누유 발생 문제를 줄임.
- Either vertical or horizontal type possible depending on manufacturing environment.
- Easily replaced to the area in the same pump.
- Unlike existing pump, HCP-4000HMF280S has IN and OUT the other way round and therefore minimizes oil leakage as pressure is formed inside mechanical seal.

### Pump Spec.

Specification Type	MOTOR						PUMP		
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)
HCP-3700(E)HMF130	3700	50	200 380	16.0 8.5	3	2	90	20	3/4"
		60	200/220 380	18.0/17.0 10.7			130		
HCP-3700(E)HMF200	3700	50	200 380	16.0 8.5	3	2	125	20	3/4"
		60	200/220 380	18.0/17.0 10.7			200		
HCP-4000(E)HMF280S	4000	50	200 380	15.0 9.0	3	2	195	20	3/4"
		60	200/220 380	18.0 10.7			280		
HCP-5500HMF200	5500	50	200 380	17 10.5	3	2	145	20	3/4"
		60	220 380	25 14.5			200		
HCP-5500HMF220	5500	50	200 380	17 10.5	3	2	155	20	3/4"
		60	220 380	25 14.5			220		
HCP-5500HMF240	5500	50	200 380	17 10.5	3	2	165	20	3/4"
		60	220 380	25 14.5			240		
HCP-5500HMF260	5500	50	200 380	17 10.5	3	2	175	20	3/4"
		60	220 380	25 14.5			260		
HCP-5500HMF280	5500	50	200 380	17 10.5	3	2	185	20	3/4"
		60	220 380	25 14.5			280		

### Packing Spec.

MODEL NAME	PACKING SIZE(cm)	WEIGHT(kg)	
		PUMP	PACKING
HCP-3700HMF130	80(W) x 27(L) x 31(D)	44(A, C), 54(B, D)	45(A, C), 55(B,D)
HCP-3700HMF200		49(A, C), 59(B, D)	50(A, C), 60(B,D)
HCP-4000HMF280S		59(A, C), 69(B, D)	60(A, C), 70(B, D)
HCP-5500HMF200	100(W) x 28(L) x 33(D)	59(A, C), 69(B, D)	60(A, C), 70(B, D)
HCP-5500HMF220		62(A, C), 72(B, D)	63(A, C), 73(B, D)
HCP-5500HMF240		64(A, C), 74(B, D)	65(A, C), 75(B, D)
HCP-5500HMF260		67(A, C), 77(B, D)	68(A, C), 78(B, D)
HCP-5500HMF280		69(A, C), 79(B, D)	70(A, C), 80(B, D)

### Model

HCP- HMF - -

Voltage

Terminal Block

L: 90° Direction / R: 180° Direction

A: Vertical+Elbow / B: Horizontal+Elbow

C: Vertical / D: Horizontal

Pump Head

Blank: General Motor

E: High Efficiency Motor

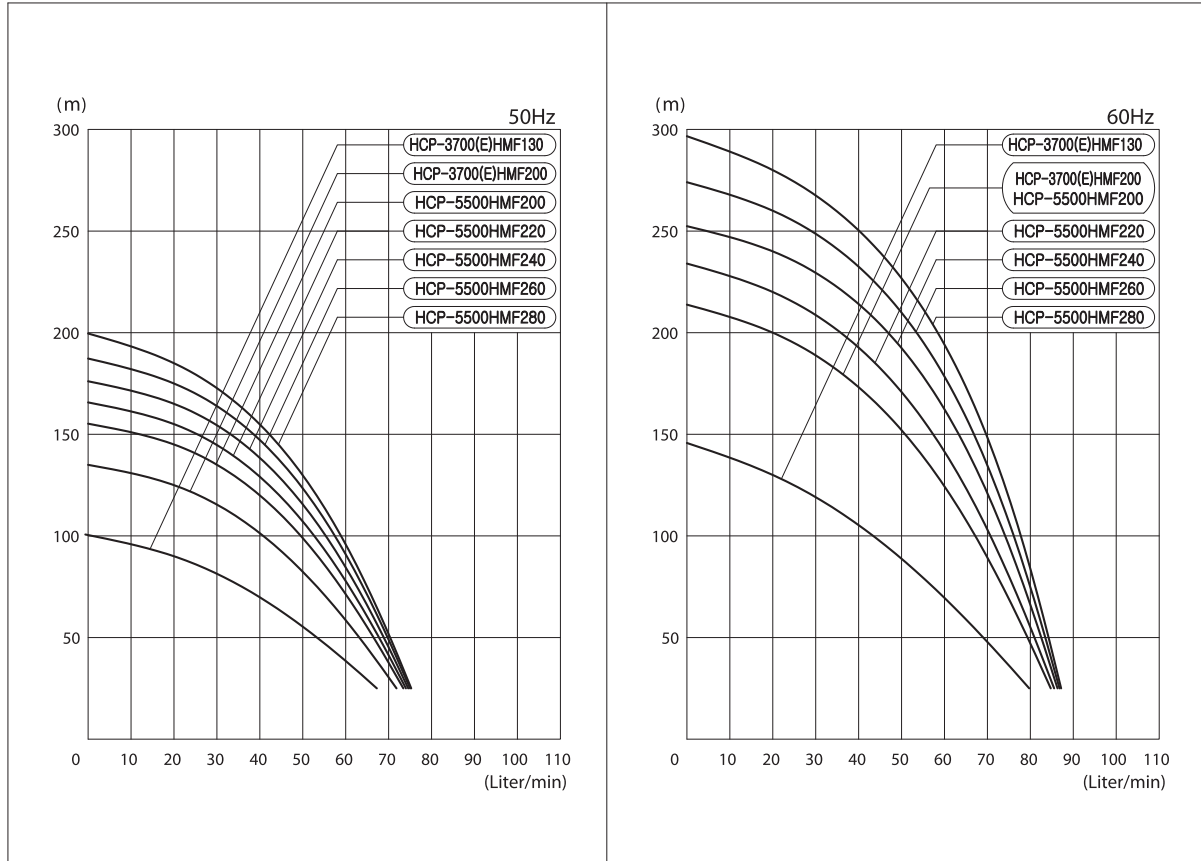
Pump Type

### Feature

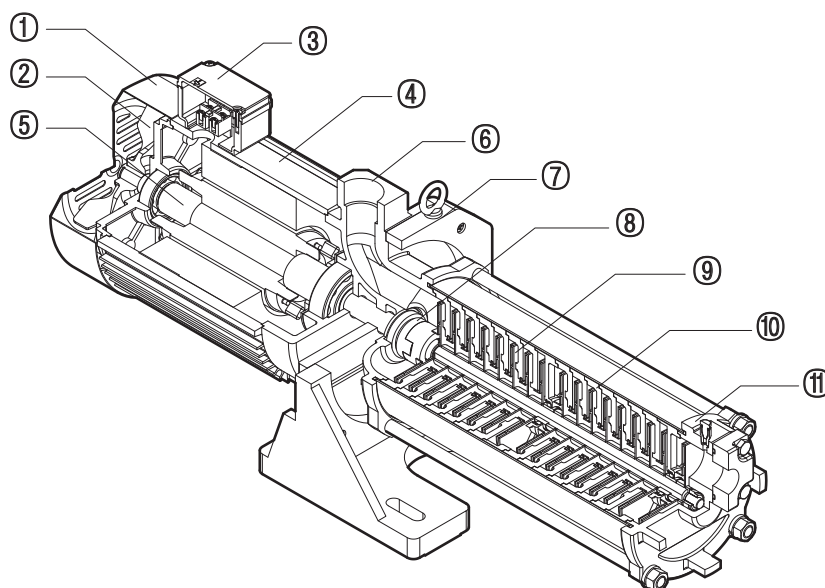
1. HCP-HMF(S) Type과 동일한 압력형 다단 원심펌프
  2. 고압의 절삭유 토출로 대형 · 정밀 공작기계의 가공물 냉각 및 세척용 펌프로 사용
  3. Mechanical Seal이 장착되어 장시간의 공회전은 금지함 (공회전 30초 이상 금지)
  4. 일체형 축으로 제작되어 내구성과 관리가 용이함
1. Multi-step centrifugal pump that is identical with HCP-HMF(S) Type.
  2. Used as cooling and cleaning pump for large scale / high precision manufacturing machine via discharge of high pressure cutting oil.
  3. Prolonged idling is prohibited due to the installed mechanical 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.

# Performance Curve

Oil for testing: ISO-VG2, Temperature 20℃



- 비수용성 절삭유 사용시 32cSt 이하의 점도를 사용하여야 하며, 수용성 절삭유에 비하여 펌프성능(압력·유량)이 저하됨.
- When using non water-soluble cutting fluid, Viscosity must be under 32cSt. Pump performance (pressure and quantity) will decrease compared to water-soluble cutting fluid.



No	PART NAME	No	PART NAME	No	PART NAME
1	FAN COVER	5	SHAFT	9	IMPELLER
2	FAN	6	BODY	10	IMPELLER CASING
3	TERMINAL BLOCK	7	FLANGE	11	INLET COVER
4	MOTOR	8	IMPELLER SEAL	-	-

HCP

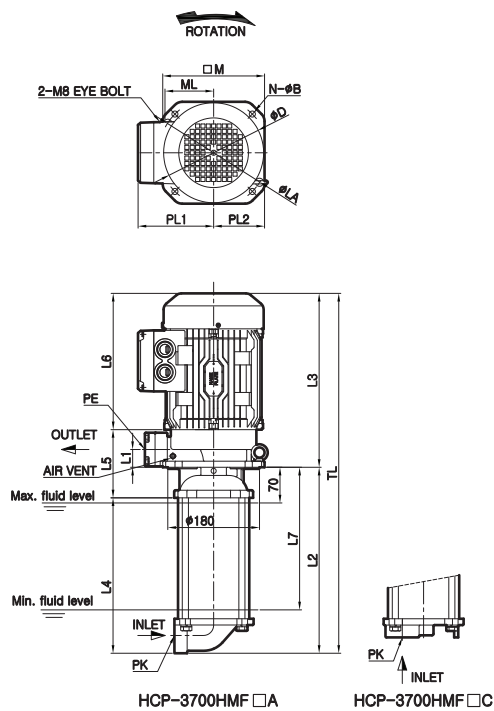
HMF

SERIES

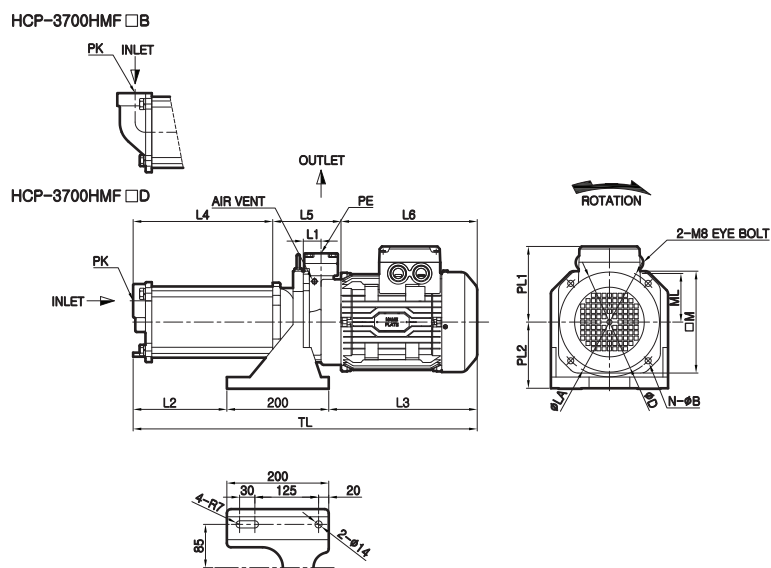
HCP HMF

## External Figure

HCP-3700HMF □A / □C



HCP-3700HMF □B / □D



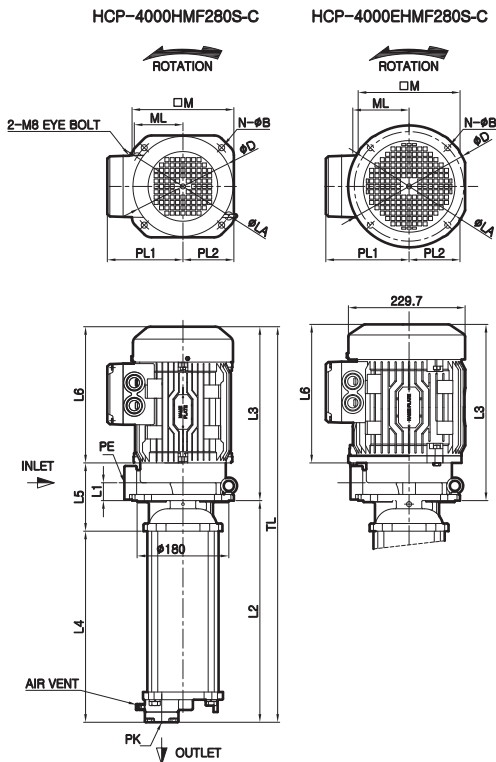
## Dimension

Type	Item	Ø D	L1	L2	L3	L4	L5	L6	L7	PE (PT)	TL	LA	N-ØB	PL1	PL2	M	ML	PK (PF)
HCP-3700HMF130A		196.4	35	291.1	341.5	231.2	134	267.5	200	3/4"	632.7	215	4-12	148.5	100	200	95.5	1 1/2"
HCP-3700HMF130B		196.4	35	141.2	291.5	231.2	134	267.5	-	3/4"	632.7	215	4-12	148.5	130	200	95.5	1 1/2"
HCP-3700HMF130C		196.4	35	260.1	341.5	200.1	134	267.5	200	3/4"	601.6	215	4-12	148.5	100	200	95.5	1 1/4"
HCP-3700HMF130D		196.4	35	110.1	291.5	200.1	134	267.5	-	3/4"	601.6	215	4-12	148.5	130	200	95.5	1 1/4"
HCP-3700HMF200A		196.4	35	365.2	341.5	305.2	134	267.5	280	3/4"	706.7	215	4-12	148.5	100	200	95.5	1 1/2"
HCP-3700HMF200B		196.4	35	215.2	291.5	305.2	134	267.5	-	3/4"	706.7	215	4-12	148.5	130	200	95.5	1 1/2"
HCP-3700HMF200C		196.4	35	334.1	341.5	274.1	134	267.5	280	3/4"	675.6	215	4-12	148.5	100	200	95.5	1 1/4"
HCP-3700HMF200D		196.4	35	184.1	291.5	274.1	134	267.5	-	3/4"	675.6	215	4-12	148.5	130	200	95.5	1 1/4"

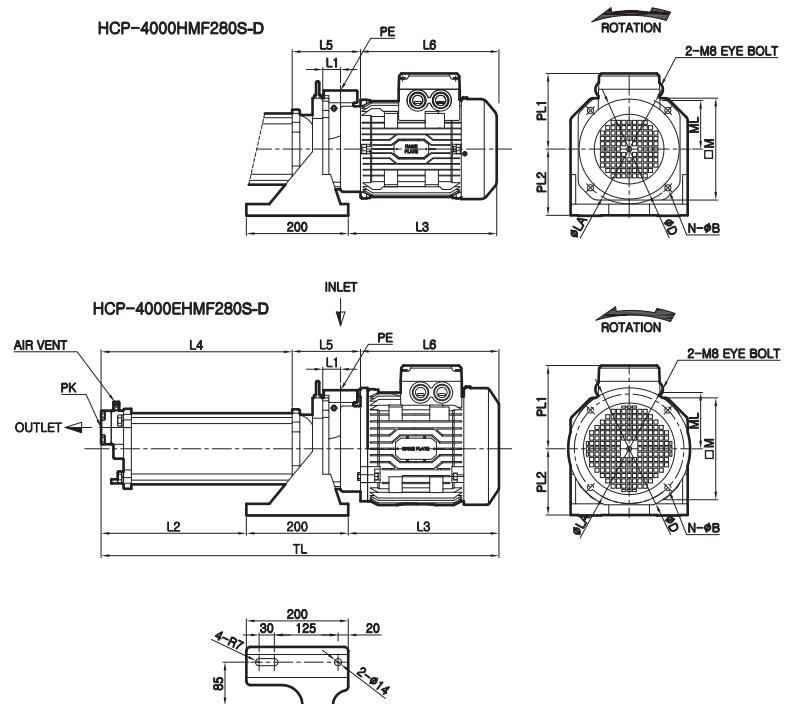
# HCP HMF/EHMF

## External Figure

### HCP-4000(E)HMF280S-C



### HCP-4000(E)HMF280S-D



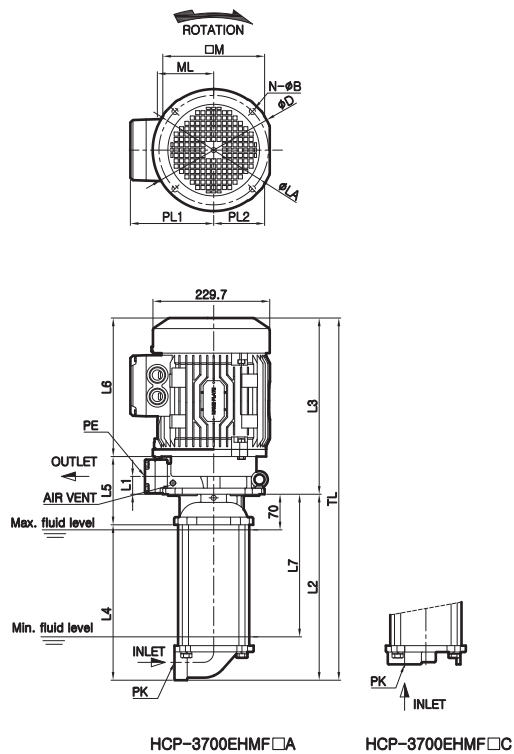
## Dimension

Type	Item	ø D	L1	L2	L3	L4	L5	L6	PE (PT)	TL	LA	N-ø B	PL1	PL2	M	ML	PK (PF)
HCP-4000HMF280S-C		196.4	35	435.3	341.5	375.3	134	267.5	1 1/4"	776.8	215	4-12	148.5	100	200	95.5	3/4"
HCP-4000HMF280S-D		196.4	35	285.3	291.5	375.3	134	267.5	1 1/4"	776.8	215	4-12	148.5	130	200	95.5	3/4"
HCP-4000EHMF280S-C		239.4	35	435.3	346	375.3	144	272	1 1/4"	781.3	215	4-12	163.5	100	200	110.5	3/4"
HCP-4000EHMF280S-D		239.4	35	285.3	296	375.3	144	272	1 1/4"	781.3	215	4-12	163.5	130	200	110.5	3/4"

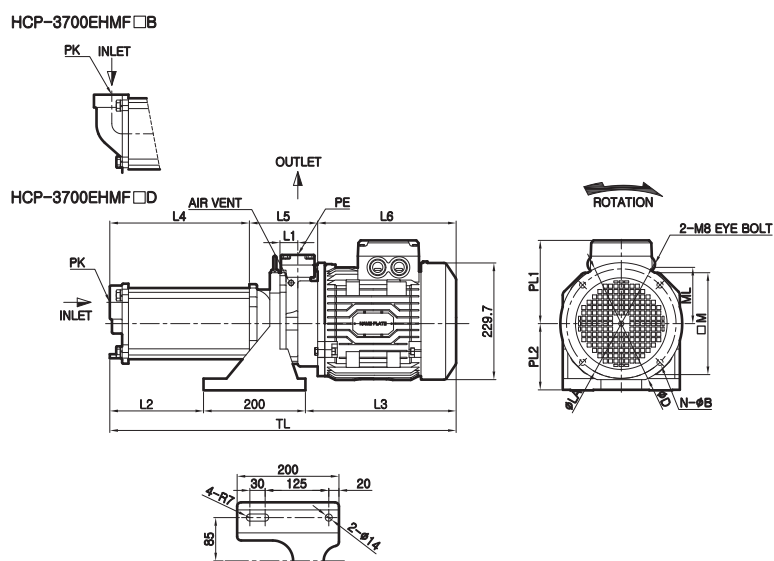
## HCP E HMF

## External Figure

HCP-3700EHMF □A / □C



HCP-3700EHMF □B / □D



## Dimension

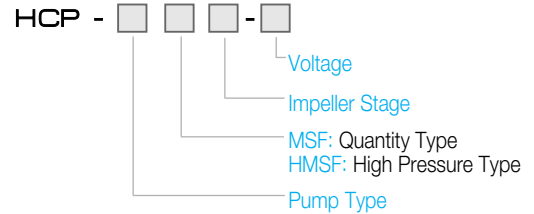
Type \ Item	Ø D	L1	L2	L3	L4	L5	L6	L7	PE (PT)	TL	LA	N-ØB	PL1	PL2	M	ML	PK (PF)
HCP-3700EHMF130A	239.4	35	292.1	346	232.1	144	272	200	3/4"	638.1	215	4-12	163.5	100	200	110.5	1 1/2"
HCP-3700EHMF130B	239.4	35	142.1	296	232.1	144	272	-	3/4"	638.1	215	4-12	163.5	130	200	110.5	1 1/2"
HCP-3700EHMF130C	239.4	35	263.7	346	203.7	144	272	200	3/4"	609.3	215	4-12	163.5	100	200	110.5	1 1/4"
HCP-3700EHMF130D	239.4	35	113.7	296	203.7	144	272	-	3/4"	609.3	215	4-12	163.5	130	200	110.5	1 1/4"
HCP-3700EHMF200A	239.4	35	365.2	346	305.2	144	272	280	3/4"	711.2	215	4-12	163.5	100	200	110.5	1 1/2"
HCP-3700EHMF200B	239.4	35	215.2	296	305.2	144	272	-	3/4"	711.2	215	4-12	163.5	130	200	110.5	1 1/2"
HCP-3700EHMF200C	239.4	35	334.1	346	274.1	144	272	280	3/4"	680.1	215	4-12	163.5	100	200	110.5	1 1/4"
HCP-3700EHMF200D	239.4	35	184.1	296	274.1	144	272	-	3/4"	680.1	215	4-12	163.5	130	200	110.5	1 1/4"



Type \ Item	ø D	L1	L2	L3	L4	L5	L6	L7	PE (PT)	TL	LA	N-ø B	PL1	PL2	M	ML	PK (PF)
HCP-5500HMF200A	239.4	35	383.7	346	323.7	144	272	298.5	3/4"	729.7	215	4-12	163.5	100	200	110.5	1 ½"
HCP-5500HMF200B	239.4	35	233.7	296	323.7	144	272	-	3/4"	729.7	215	4-12	163.5	130	200	110.5	1 ½"
HCP-5500HMF200C	239.4	35	352.6	346	292.6	144	272	298.5	3/4"	698.6	215	4-12	163.5	100	200	110.5	1 ¼"
HCP-5500HMF200D	239.4	35	202.6	296	292.6	144	272	-	3/4"	698.6	215	4-12	163.5	130	200	110.5	1 ¼"
HCP-5500HMF220A	239.4	35	409.5	346	349.5	144	272	324.3	3/4"	755.5	215	4-12	163.5	100	200	110.5	1 ½"
HCP-5500HMF220B	239.4	35	259.5	296	349.5	144	272	-	3/4"	755.5	215	4-12	163.5	130	200	110.5	1 ½"
HCP-5500HMF220C	239.4	35	378.4	346	318.4	144	272	324.3	3/4"	724.4	215	4-12	163.5	100	200	110.5	1 ¼"
HCP-5500HMF220D	239.4	35	228.4	296	318.4	144	272	-	3/4"	724.4	215	4-12	163.5	130	200	110.5	1 ¼"
HCP-5500HMF240A	239.4	35	428	346	368	144	272	342.8	3/4"	774	215	4-12	163.5	100	200	110.5	1 ½"
HCP-5500HMF240B	239.4	35	278	296	368	144	272	-	3/4"	774	215	4-12	163.5	130	200	110.5	1 ½"
HCP-5500HMF240C	239.4	35	396.9	346	336.9	144	272	342.8	3/4"	742.9	215	4-12	163.5	100	200	110.5	1 ¼"
HCP-5500HMF240D	239.4	35	246.9	296	336.9	144	272	-	3/4"	742.9	215	4-12	163.5	130	200	110.5	1 ¼"
HCP-5500HMF260A	239.4	35	465	346	405	144	272	379.8	3/4"	811	215	4-12	163.5	100	200	110.5	1 ½"
HCP-5500HMF260B	239.4	35	315	296	405	144	272	-	3/4"	811	215	4-12	163.5	130	200	110.5	1 ½"
HCP-5500HMF260C	239.4	35	433.9	346	373.9	144	272	379.8	3/4"	779.9	215	4-12	163.5	100	200	110.5	1 ¼"
HCP-5500HMF260D	239.4	35	283.9	296	373.9	144	272	-	3/4"	779.9	215	4-12	163.5	100	200	110.5	1 ¼"
HCP-5500HMF280A	239.4	35	483.5	346	423.5	144	272	398.3	3/4"	829.5	215	4-12	163.5	100	200	110.5	1 ½"
HCP-5500HMF280B	239.4	35	333.5	296	423.5	144	272	-	3/4"	829.5	215	4-12	163.5	130	200	110.5	1 ½"
HCP-5500HMF280C	239.4	35	452.4	346	392.4	144	272	398.3	3/4"	798.4	215	4-12	163.5	100	200	110.5	1 ¼"
HCP-5500HMF280D	239.4	35	302.4	296	392.4	144	272	-	3/4"	798.4	215	4-12	163.5	130	200	110.5	1 ¼"



## Model



## Structure

- 동일한 펌프 취부자리로 교체가 용이함
- 사용 TANK 깊이에 따라 다양한 침수 깊이로 제작이 가능함
- 다단펌프로 광범위한 성능 구현이 가능
- Easy to replace it with identical pump attachment area.
- Depending on tank depth, it can be manufactured with various immersion depth.
- A multi-stage pump capable of a wide range of performances.

## Feature

1. 주요 구동부가 Stainless로 제작되어 내구성 및 내식성이 우수함
2. 소형으로 설치공간의 제약이 있는 경우 사용
3. 압력형과 유량형 펌프로 구분되며 다양한 성능 범위를 갖고 있음
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.

## Pump Spec.

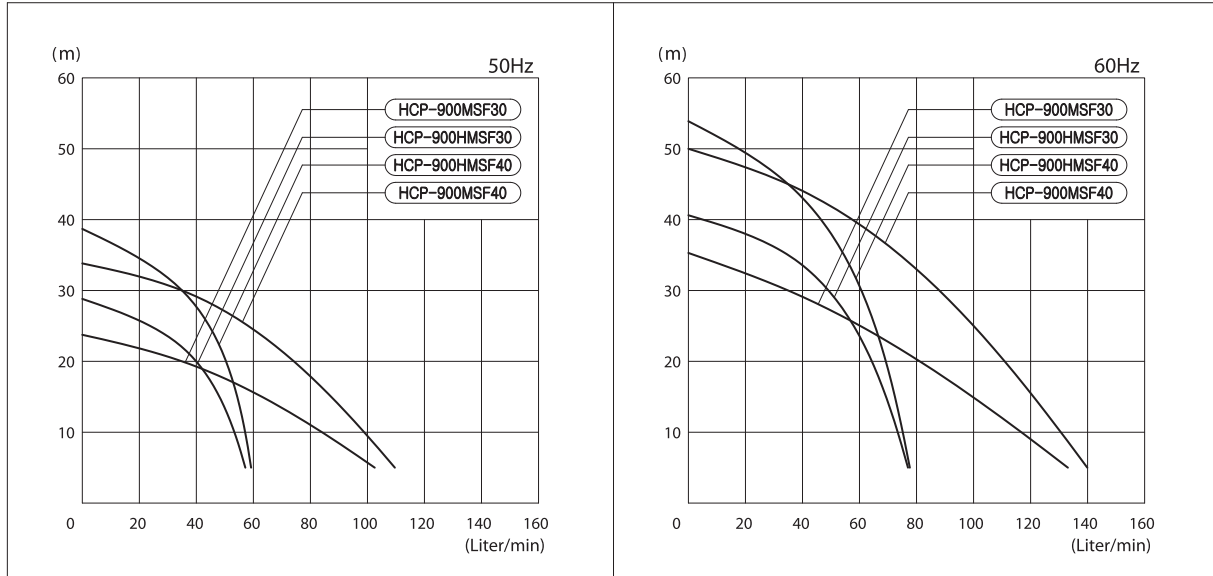
Specification Type	MOTOR						PUMP		
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)
HCP-900MSF30	900	50	200 380	5.2 3.1	3	2	20	35	3/4"
		60	200/220 380	6.0/5.8 3.4			30		
HCP-900MSF40	900	50	200 380	5.2 3.1	3	2	30	35	3/4"
		60	200/220 380	6.0/5.8 3.4			45		
HCP-900HMSF30	900	50	200 380	5.2 3.1	3	2	22	35	3/4"
		60	200/220 380	6.0/5.8 3.4			35		
HCP-900HMSF40	900	50	200 380	5.2 3.1	3	2	30	35	3/4"
		60	200/220 380	6.0/5.8 3.4			45		

## Packing Spec.

MODEL NAME	PACKING SIZE(cm)	WEIGHT(kg)	
		PUMP	PACKING
HCP-900MSF30	47(W) x 24(L) x 26(D)	19	20
HCP-900MSF40		20	21
HCP-900HMSF30		18	19
HCP-900HMSF40		19	20

## Performance Curve

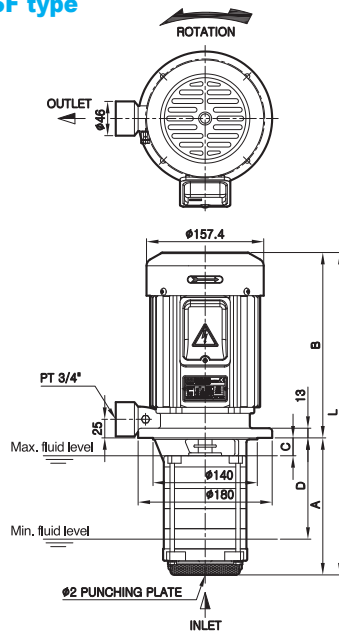
Oil for testing: ISO-VG2, Temperature 20°C



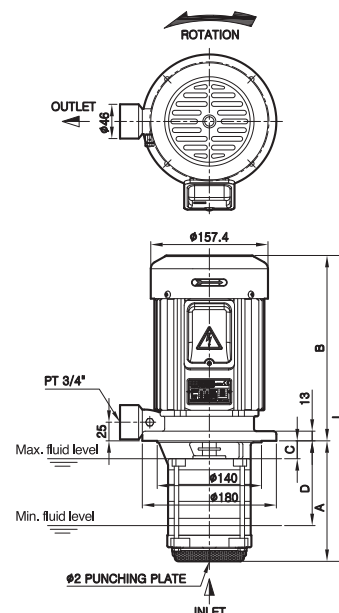
- 비수용성 절삭유 사용시 32cSt 이하의 점도를 사용하여야 하며, 수용성 절삭유에 비하여 펌프성능(압력·유량)이 저하됨.
- When using non water-soluble cutting fluid, Viscosity must be under 32cSt. Pump performance (pressure and quantity) will decrease compared to water-soluble cutting fluid.

## External Figure

### HCP-MSF type



### HCP-HMSF type



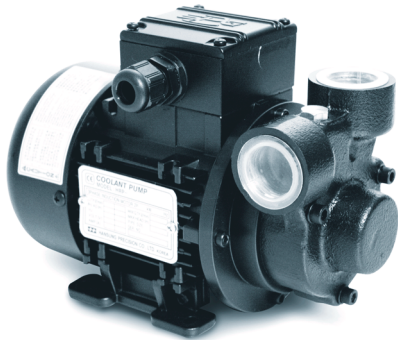
## Dimension

Type	Item	A	B	C	D	L
HCP-900MSF30		157	249	20	109	406
HCP-900MSF40		184	249	20	136	433
HCP-900HMSF30		139.2	249	20	91.2	388.2
HCP-900HMSF40		162	249	20	114	411

# HRP 350

## Regenerative Pump

재생펌프



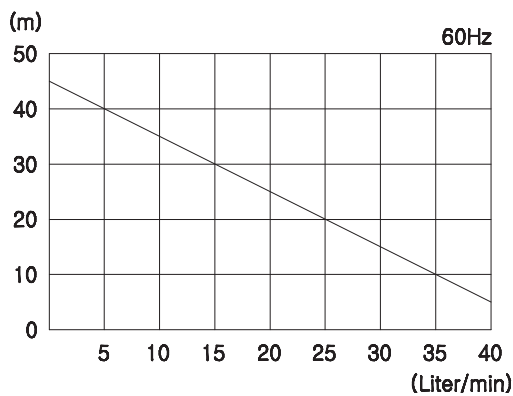
### Model

HRP -  -   
 Voltage  
 Pump Type

### Feature

1. 원심 펌프에 비해 토출량은 적지만, 높은 양정을 얻을 수 있다.
2. 산업용 펌프로 적합하며, 화학용 액체 이송에는 부적합하다.
3. 연마입자가 포함된 액체에는 사용하지 마십시오.
4. Mechanical Seal이 장착되어 장시간의 공회전은 금지함.

### Performance Curve



1. It has less discharge amount compared to the centrifugal pump but can gain high head of fluid.
2. Suitable for industrial pump, not recommended for transferring chemical liquid.
3. Do not use in the liquid that contains grinding particles
4. Prolonged idling is prohibited due to the installed mechanical seal.

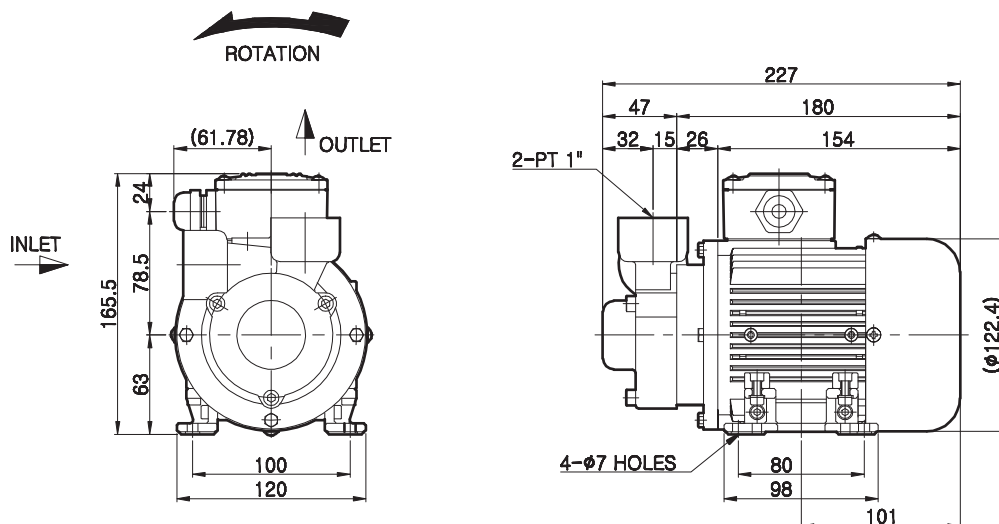
### Packing Spec.

MODEL NAME	PACKING SIZE(cm)	WEIGHT(kg)	
		PUMP	PACKING
HRP-350	26(W) x 21(L) x 21(D)	7	8

### Pump Spec.

Specification Type	MOTOR						PUMP		
	OUTPUT (W)	FREQUENCY (Hz)	VOLTAGE (V)	CURRENT (A)	PHASE	POLES	TOTAL HEAD (m)	DIS. VOL (ℓ/min)	PIPE SIZE (PT)
HRP-350	350	60	200	2.1	3	2	5	40	IN :1" OUT :1"
			380	1.3					
			440	1.2					

### External Figure

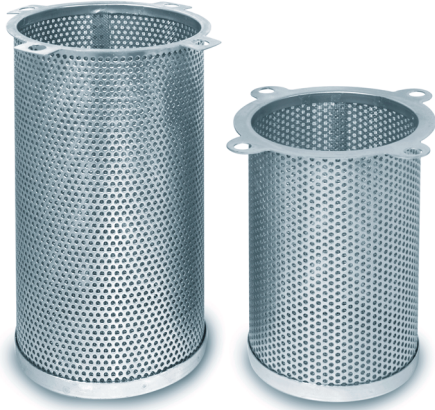


# HCS Suction Filter series

## Model

HCS -

Model Name

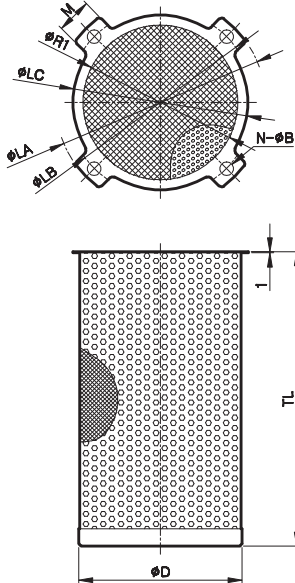


## Feature

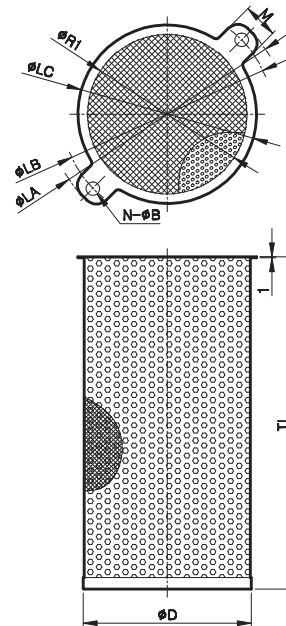
1. 본 HCS-TYPE은 침수형 Coolant Pump인 HCP-F, HCP-MF용 Suction Filter임
  2. 펌프의 이물질 흡입을 방지하므로, 내구성을 보장하며 가공물의 정도를 향상시킴
  3. 원활한 사용을 위해 주기적인 청소가 필요함
  4. 펌프의 형태에 따라 F-TYPE은 20Mesh, MF-TYPE은 14Mesh의 여과망을 사용
1. This HCS-type is a suction filter for the submerged type coolant pumps HCP-F and HCP-MF.
  2. It prevents 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.

## External Figure

HCP-60F~900MFS



HCP-400F



## Dimension

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

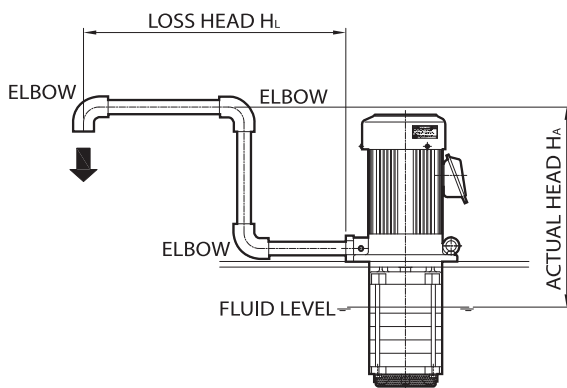
펌프의 선정 방법은 배관의 경로와 연결방식에 의해서 결정된다. 손실양정은 파이프의 길이와 배관부품의 수로 결정되어 진다. 따라서, 배관 경로 설계시 파이프 길이는 되도록 짧게하고 엘보나 기타 피팅 및 밸브는 필요한 수만 사용하는 것이 손실양정을 적게하는 방법이다.

적정한 배관 설계를 바탕으로 얻어진 전양정과 필요한 유량을 기준으로 펌프를 선정할 수 있고, 선정하는 방법은 아래와 같은 과정으로 계산할 수 있다.

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:

### 양정 계산 방법 (Head Calculation Method)



사용자가 원하는 전체양정인 전양정( $H_T$ )은 실제양정( $H_A$ )과 손실양정( $H_L$ )의 합을 뜻하며, 아래와 같이 나타낸다.

The total head ( $H_T$ ) as required by the user is the sum of the actual head ( $H_A$ ) and the loss of head ( $H_L$ ), and is expressed as below.

$$H_T = H_A + H_L$$

상단 도면과 같이 실제양정에 손실양정을 더한 전양정 값과 이때 필요한 유량을 기준으로 펌프를 선정하면 된다.

※ 사용환경과 사용유의 점도에 따라 계산값의 변화가 있다.

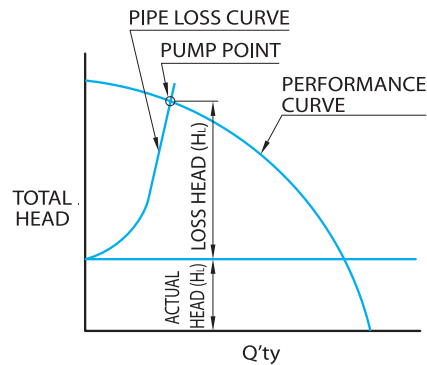
[손실양정 계산은 아래의 방법으로 구할 수 있다.]

As illustrated in the diagram on the top, 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:]

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



여기서,

$f$ =관마찰계수 (레이놀드 수에 의해 결정)

※수용성오일 0.03, 점도가 높을 수록 계수값은 증가함

$L$ =관의 길이 (m)  $d$ =파이프 내경 (m)

$V$ =유체의 속도 (m/s)  $g$ =중력가속도 (9.8m/s<sup>2</sup>)

관의 길이  $L$  값은 전체 배관길이 뿐만 아니라, 각종 배관부품의 손실 길이 값도 포함해야 한다. 각종 부품에 대한 손실 길이 값은 하기 표를 참조하여 값을 더한다.

EX) 전체 파이프길이 + 엘보길이 x 갯수 + 흡입 + 토출 = 전체 관길이 (L)

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/s<sup>2</sup>)

$L$ , 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.

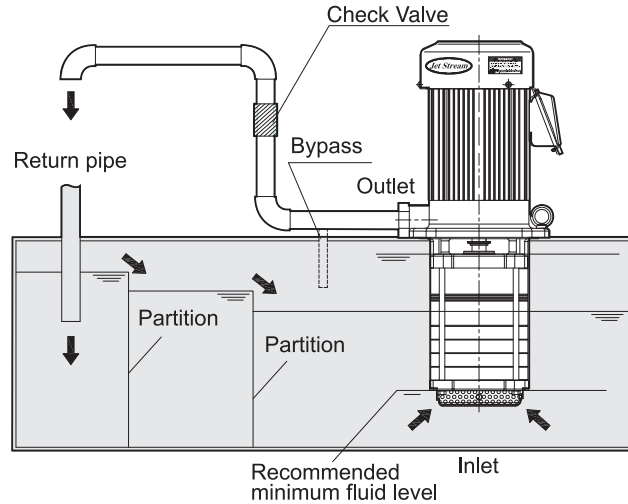
EX) Total pipe length + elbow length x quantity + suction + discharge = total piping length (L)

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

SIZE	INFLOW	OUTFLOW	90° ELBOW	BALLVALVE
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



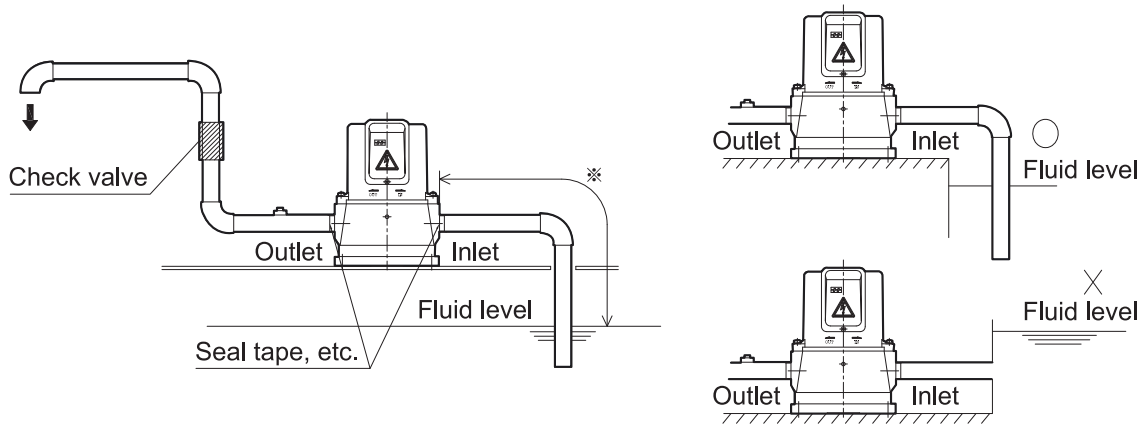
### 전기종 (All Type)



- ① 파이프 길이는 되도록 짧게 하고, 엘보, 피팅 그리고 각종 밸브들의 수도 적게하여 주십시오. 또한, 파이프는 정식 규격품을 사용하여 주십시오. 만약 파이프가 가늘거나, 많은 굴곡이 있는 경우 토출량이 줄어듭니다.
- ② 연결한 파이프의 무게가 바로 펌프에 영향이 없도록 배관해 주십시오.
- ③ 펌프 나사부 연결시 과도한 힘으로 조립하지 마십시오.
- ④ 사용유나 에어혼입을 방지하기 위하여 배관 연결시 실 테이프와 같은 누유방지 후 배관하여 주십시오.
- ⑤ 탱크는 폭이 넓게 제작하여 주십시오. 사용펌프의 토출량의 적어도 3배 이상의 크기의 탱크 용량으로 제작하십시오. 탱크의 용량이 충분하지 못할 경우 토출량의 저하나, 사용유의 온도상승, 흡입 스트레이너로의 이물질이나 기포 등에 따라 막히는 현상등의 문제점이 발생합니다. 탱크내 사용유 보충시 에어 혼입을 방지하기 위하여 천천히 공급해 주십시오.
- ⑥ 칩, 먼지 또는 다른 이물질의 펌프 유입을 막아주십시오. 탱크내 3단계의 오일 턱을 제작하거나, 적어도 1단계의 오일턱과 필터를 사용해 주십시오.
- ⑦ 만약, 수격현상이 발생할 경우 펌프 토출부 바로 앞에 바이패스 할 수 있도록 배관을 설치하여 주십시오.
- ⑧ 만약 수위면이 낮을 경우 공기가 혼입되거나, 사용유 토출이 되지 못합니다. 탱크내 최저 수위는 추천하는 수위까지 채워주십시오. 사용유의 점도에 따라 수위 높이는 다르지만, 안전을 고려하여 실제 수위는 충분히 높게 책정하여 주십시오. 반면 수위면이 너무 높은 경우 모터부 틈으로 사용유가 유입되어 모터 소손이 발생합니다. 따라서, 최고 수위면은 추천하는 최대 수위면이 넘지 않도록 하여 주십시오.

- 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

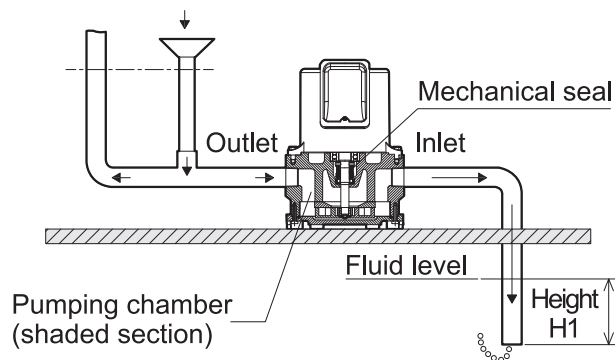


- ▶ HCP-S TYPE은 탱크에 가까이 설치하고, 흡입 파이프의 길이도 최대한 짧게 하여 주십시오.
- ▶ 최대 흡입 배관길이는 (※) 0.7m 이하로 하십시오.
- ▶ 다른 이유로 흡입배관을 연장할 경우 토출부 파이프에 체크밸브를 연결해 주십시오.
- ▶ 흡입배관 연결부도 실 테이프와 같이 확실한 누유방지 후 배관하여 주십시오. 만약 흡입부로 에어 혼입시 토출량 저하 및 펌핑의 이상이 발생합니다
- ▶ 펌프의 흡입부 수위는 반드시 펌프 흡입부 보다 낮아야 합니다. 수위가 높을 경우 MECHANICAL SEAL로부터 오일 누유가 발생 할 수 있습니다.

- ▶ 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.

### 기름마중

#### Priming

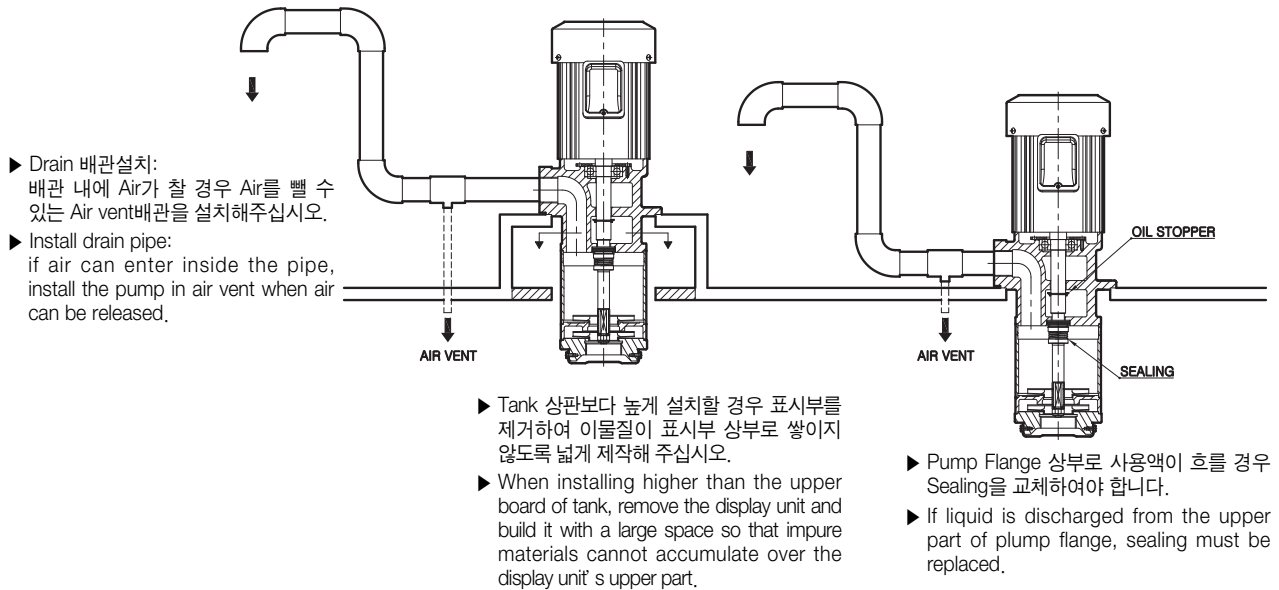


- ▶ HCP-S TYPE의 경우 처음 구동할 경우나, 오랜 휴식후 구동할 경우 펌프내 에어가 차 있게 됩니다. 따라서 펌핑을 하기 위해서는 에어를 빼주어야 합니다. 만약 에어가 있는 상태에서 구동할 경우 사용유 토출이 안되거나, 압력 저하나 유량 저하의 원인이 됩니다. 또한 이에 따른 과도한 공회전을 하게 되면 MECHANICAL SEAL의 파손의 원인이 됩니다.
- ▶ HCP-S TYPE의 기름마중 방법은 도면과 같이 토출부 앞부분에 사용유를 넣어주십시오.

- ▶ As with the HCP-S type, 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.

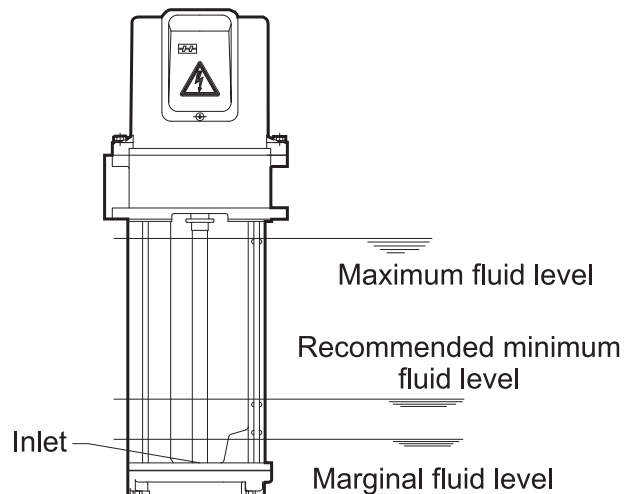


## HCP-MF &amp; HMF type



## 펌프사용

## Use the Pump



- ▶ 펌프 사용은 CATALOG 및 명판상 에 기재되어 있는 규격의 범위 내에 사용하시기 바랍니다. 또한, 펌프의 성능이 저하된 경우에는 흡입부로 이물질 혼입의 원인이 크므로 탱크 청소는 정기적으로 1년에 2~3회씩 시행한 후 청정 사용유로 교체하여 재구동을 하여 주십시오.
- ▶ HCP-S TYPE 일체형 축으로 제작되었으며, 축봉장치로 MECHANICAL SEAL을 채택하였습니다. 따라서 지나친 공회전은 SEAL 파손의 원인이 되므로 30초 이상의 공회전은 삼가해 주십시오.
- ▶ 침수식 펌프의 경우 왼쪽 그림과 같이 사용유 수위면이 최대와 최소 사이에 위치하여야 합니다. 추천 최저 수위 이하로 떨어질 경우 구동중 에어 혼입이 일어 날수 있습니다. 또한, 펌프 바닥부터 탱크 까지 간격은 20~30mm 이상이 되도록 하여 주십시오. 최고수위는 펌프 플랜지부에서 적어도 20mm 정도 떨어지도록 하십시오.
- ▶ 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 type 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 than the flange section.

## 취급상 주의사항

## Caution for Usage

- 장치를 취급하기 전에 사용설명서에 제공된 모든 지시(설치, 교통, 유지보수, 검사 등)를 철저히 읽고 올바르게 장치를 사용합니다. 장치를 사용하기 전에 장치의 메커니즘과 안전 및 취급절차를 숙지하십시오.
- 전원이 공급되는 중에는 작업을 하지 마십시오. 주전원을 완전히 차단 후 작업하십시오.
- 정전의 경우 주전원스위치를 끄십시오.
- 이상이 발견된 경우 즉시 장치를 중지하고 주전원스위치를 끄십시오.
- 안전하게 지면에 접지단자를 연결합니다.
- 기기 · 배관 및 배선은 전기설비 및 내부배선표준에 대한 기술표준에 따라 수행되어야 한다.
- 보호 장치는 기기에 포함되지 않습니다. 전기 시설에 대한 기술표준에 지정된 대로 과전류 보호 장치의 설치 는 필수입니다.
- 절삭칩, 절삭유 슬러지 또는 기타 이물질 을 외부배선포트를 통해 단자함에 들어오지 않도록 충분한 방진 및 커넥터, 마개 등을 사용하여 방적조치를 하십시오.
- 폭발물 근처에서 사용하지 마십시오.
- 기기 근처에 인화성물질을 두지 마십시오.
- 이 제품은 등유, 가솔린이나 기타 휘발성 액체를 사용할 수 없습니다.
- MOTOR FAN, IMPELLER 등 회전체를 만지거나 접근하지 마십시오.
- 기기의 구멍(팬 커버, 펌프입구와 출구, 배수구 등)에 손가락이나 물체를 삽입하지 마십시오.
- 기기를 절대로 밟지 마십시오.
- 반드시 통풍이 자유롭고 장치주변을 깨끗이 합시다.
- 기기가 유지보수가 쉽고 (좁은 지역을 피해서) 검사를 할 수 있는 장소에 기기를 설치하십시오.
- 수평인 장소에 기기를 설치하십시오. 기기가 문제없는지 확인합니다.
- 사용되는 액체의 점도가 너무 높은 경우 모터의 수명이 단축되고 단선의 위험이 존재합니다.
- 기기가 연삭 및 유체절삭 등의 절삭유와 함께 사용하도록 설계되어 있습니다. 분말, 연마재, 세라믹 등의 미세한 슬러지가 혼합된 경우 메카니컬 씰의 수명이 상당히 줄어들 것입니다. 적절한 필터(자석이나 종이필터 등)를 설치합니다.
- 기기를 연결하기 전에 회전방향을 확인하십시오.
- 에어 벤트 밸브를 기기가 시작할 때 펌프의 밸브를 약간 열어 액체가 밸브에서 배출되어 있는지 확인합니다. 확인 후 확실하게 밸브를 닫습니다.
- 수리, 분해, 장치의 수정은 전문가에 의해 수행되어야 합니다.
- 고객의 임의로 기기수정에 따라 발생된 문제는 책임지지 않습니다.
- 이 카탈로그에 언급된 사양 이외에 다른 전압의 제품을 생산하고 있습니다. 더 자세한 사항을 위해서 저희에게 연락하십시오.

## 주문 전 검토사항

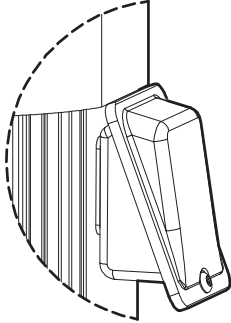
- (1) 용 도 : 공작기계 이외에 특별한 용도를 위해 기기를 쓸 수 있는지 주의 깊게 여부를 고려해서 실제로 사용 또는 저희에게 연락하십시오.
- (2) 사용 액체 : 이물질 종류, 점도, 온도, 산도, 오염
- (3) 펌프 사양 : 전체 헤드 토출량, 흡입 헤드 (자흡식 높이)
- (4) 모터 사양 : 출력 전압, 주파수, PHASE
- (5) 사용 조건 : 환기, 온도
- (6) 배관 방식 : 배관도
- (7) 설치 방법 : 자흡식 타입과 비자흡식 타입 간의 차이

- Before handling device, make sure to read thoroughly all the instructions (installation, transportation, repair & maintenance and inspection) provided in the instruction manual to use the device properly.
- Make sure to understand the mechanism of device and safety and treatment procedure before using.
- Do not operate the device while the electricity is being supplied. Start using after main electricity has been blocked.
- Turn off the main electricity during black-out.
- If you find flaws, immediately stop the device and turn off the main power switch.
- Safely connect the earth terminal to the ground.
- Installation, pipe and wiring system must be performed according to the technical standard of electricity installation and interior wiring standard.
- Protective equipment is not part of the machine. As specified in the technical standard pertaining to electricity installation, installation of over-current protection device is required.
- There should be sufficient dust preventives, connectors, marks and other measures to stop cutting chips, cutting oil, sludge or other impure materials to enter the terminal box through external wiring port.
- Do not use it near explosives.
- Do not place inflammable materials around the machine.
- Lamp oil, gasoline or other inflammable liquid cannot be used for this product.
- Do not touch or go near motor fan, impeller or other spinning object.
- Do not insert fingers or objects to the holes of the machine (fan cover, pump door and exit, drainage)
- Do not step on the machine.
- Make sure there is good ventilation and clean the place near the device.
- Install the equipment in a place where repair and maintenance (avoid narrow place) where inspection can be done.
- Place the device on a flat surface. Make sure there is no defect with the machine.
- If the viscosity of liquid being used is too high, the life of motor declines and there is a risk of disconnection.
- The device was designed to use cutting oil such as grinding and fluid cutting. If fine sludge such as powder, grinding chips and ceramic powder are mixed, the life of mechanical seal will significantly decline. Appropriate filter (magnet or paper filter) must be installed.
- Verify the spinning direction before connecting to the device.
- When the machine starts air vent valve, open the valve to verify if liquid has been discharged from the valve. After verification, make sure to close the valve tight.
- Repair, disassembling and revision of device should be carried out by experts.
- We are not responsible for problems caused customer's arbitrary modification of machine.
- We are producing products with different voltages with specification not mentioned in this catalogue. For more detailed information, please contact us.

## Check items before Odering

- (1) Use: Consider carefully if the machine can be used for purpose other than manufacturing tool and contact us.
- (2) Liquid used: type, viscosity, temperature, acidity and pollution of impure materials
- (3) Pump specification: total discharge of head, suction head (suction height)
- (4) Motor specification: output voltage, frequency, phase
- (5) Use condition: ventilation, temperature
- (6) Piping method: piping diagram
- (7) Installation method: difference between suction type and non-suction type

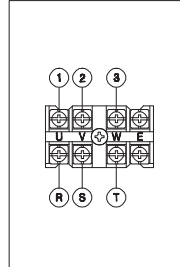
### TERMINAL BOX CONNECTION



#### Model

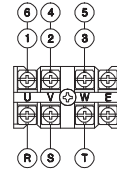
- HCP-S TYPE
- HCP-F TYPE
- HCP-F(고압형) TYPE
- HCP-(E)MF(S)TYPE
  - HCP-400MF
  - HCP-1100EMFS
  - HCP-2200BMF
  - HCP-900(E)MF
  - HCP-1500MF
  - HCP-900(E)MFS
  - HCP-2200MF
  - HCP-1100EMF
  - HCP-1500BMF
- HCP-HMF(S)TYPE
  - HCP-900HMF
  - HCP-1500HMF
  - HCP-900HMF S
  - HCP-1500HMF S
  - HCP-1100EHMF
  - HCP-1100EHMF S
- HCP-S(H)HM/(H)MSF TYPE

#### Sole Connection



#### 220V/380V Connection

##### 200,220V Connection



##### 380V Connection

