

# T-ROTOR PUMPS

Continuous to feeding  
Supplying Fuel and lubrication oil  
Hydraulic composition





# Quality Policy

Thoroughness  
of Customer  
Contentment



**Korean Standards Association**

**CERTIFICATE OF APPROVAL**

**ARYUNG MACHINERY IND. Co., Ltd.**  
 881-1, Daejeon-dong, Daejeon, Korea

Korean Standards Association hereby certifies that the Quality Management System of the above organization has been assessed and found to be in accordance with the requirements of the quality standard and scope of certification detailed below:

KOREAN STANDARD: QMS-ISO9001  
 K.S.A. 9001:2001/ISO 9001:2000

SCOPE OF CERTIFICATION:  
 DESIGN, DEVELOPMENT, PRODUCTION, SALES AND SERVICE OF COOLANT PUMP AND LUBRICATED PUMP

VALIDITY PERIOD:  
 14 November 2004 to 14 November 2007

**KOREAN STANDARDS ASSOCIATION**  
 No. 2, Gwanak-ro, Gwanak-gu, Seoul, Korea

Certificate No. : 2004-4

**Certificate of Approval**

Product : *Threefold Pump*  
 Category Purpose : *Metallic*  
 Class : *Product ISO 9001*  
 Company : *ARYUNG M.I.*  
 Representative : *Chun Seung-yeon*  
 Assessment Standard : *ISO 9001*

This is to certify that the above registered as reliable product in accordance with the requirements of Article 25 of the Act on Special Specialized Enterprise for Company class 3 under 17 of the enforcement

January 5, 2004

Agency for Technology and Standards  
 Ministry of Commerce, Industry & Energy  
 Republic of Korea

**Certificate of Approval**

Certificate No. : 110200  
 Project No. : 110200

Issued to : *A-Ryung Machinery Ind. Co., Ltd.*  
 881-1, Daejeon-dong, Daejeon, Korea  
 ATYS, No. Park, Song Korea / Technical Office

The products listed below are eligible with adjacent indicia

**PRODUCTS**

CLASS 3411 01 - LIQUID PUMPS  
 CLASS 3411 02 - LIQUID PUMPS - CERTIFIED TO U.S. STANDARDS

Lubrication Pumps - component type for use in fuel certified and distributed by CSA International.

Model Name	Size	HP
AMQP-010A	220	60
AMQP-010B	220	60
AMQP-010C	220	60
AMQP-010D	220	60
AMQP-010E	220	60
AMQP-010F	220	60
AMQP-010G	220	60
AMQP-010H	220	60
AMQP-010I	220	60
AMQP-010J	220	60

**CERTIFICATE of Conformity**  
 EC Council Directive Machinery

Registration No. : *AM 50*  
 Report No. : *12004*

Holder : *A-Ryung Machinery Ind. Co. 881-1, Daejeon-dong, Daejeon, Korea*

Product : *3000 Coldair Pump*

Identification : *Type Developmental - 3000, 3000 Serial No. : 1, 2, 3, 4, 5, 6*

This certificate of conformity is based on an evaluation of a technical file and a declaration of CE marking. This does not guarantee the conformity of the product and does not guarantee the absence of liability. The holder of the certificate is authorized to use the CE marking of conformity according to Annex 2 of the Machinery Directive.

Valid Thru : *June 18, 2005*

Agency for Technology and Standards  
 Ministry of Commerce, Industry & Energy  
 Republic of Korea

**Certificate of Approval**

Product : *Lubricate Pump*  
 Company : *A-Ryung Machinery Ind. Co., Ltd.*  
 Valid Thru : *June 18, 2005*

This Certificate of Quality is based on an evaluation of the quality system of the company. This quality standard prepared by the ATYS in accordance with the Development Act and Article 26 of its related laws.

June 18, 2005

Agency for Technology and Standards  
 Ministry of Commerce, Industry & Energy  
 Republic of Korea

**CE** This CE marking may be used if all relevant and effective EC Directives are complied with.

Agency for Technology and Standards  
 Ministry of Commerce, Industry & Energy  
 Republic of Korea

# T-ROTOR pumps

- ❖ Continuous to feeding
- ❖ Supplying Fuel and lubrication oil
- ❖ Hydraulic composition

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# T-ROTOR pumps

## Technical data

### T-ROTOR Pump의 개요

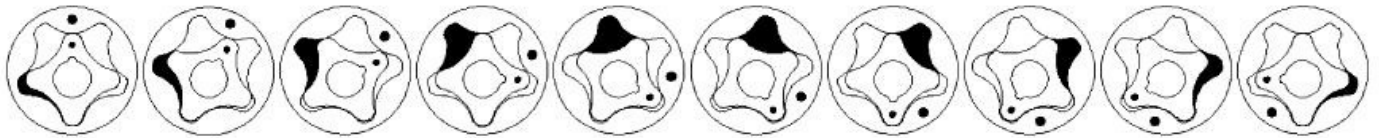
T-ROTOR 란 고정된 원주위를 미끄럼 없이 구름 접촉운동 하는 하나의 원형판 내부의 일점의 궤적을 말하며 원판이 원 주 밖에서 외접 구름운동을 하여 형성된 궤적을 Epi-trocho 라고하며, 원주내에서 내접 구름운동을 하여 생긴 궤적을 Hypo-trocho 라 한다.

T-Rotor Pump는 이러한 Trocho Curve에 의하여 제작된 한 쌍의 내, 외접치차로 구성되어 있는 일종의 내접 Gear Pump이다.

### Summary of T-ROTOR pump

Trocho means a plane locus of point made by rolling contracting movement on an extension of the radius of a circle, while the circle is rolled along the fixed straight line. The plane locus comes out in two different trails, one is called Epi-trocho moving the gear outside trail, the other is Hypo-trocho moving the gear inside trail.

### T-ROTOR Pump의 작동원리



T-ROTOR펌프는 Trocho Curve의 원리에 의하여 제작된 한쌍의 치차가 내접 구름운동을 하면서 일정한 공간을 형성 하여 흡입, 토출하는 Pump이다.

외접치차(Out Rotor)보다 기어 잇수가 하나 적은 내접치차 (In-Rotor)는 외접치차와 서로 일정한 거리만큼 편심되어 회전하여 내, 외치차간에 항상 일정한 공간이 형성되고 연속적으로 공간이 크고 작아짐의 반복 운동에 따라 유체를 강제적으로 흡입, 토출하도록 설계된 Pump로서 Rotor의 운동 형태는 위 그림과 같다.

### Operating principle of pump

T-Rotor pump is as internal gear pump in which a couple of rotors inner rolling movement along the trocho curves forming a space from where a charging and discharging forces are produced.

outer rotor makes rotating movement with inner rotor that has less gear than itself by one tooth and they are pivoted together so that rotate about the same axis. Above picture shows rotor movement.

### Pump의 특징

흡입압력이 높고 기계적 효율 및 용적효율이 높다.  
내,외접치차가 Trocho Curve에 의한 구름접촉 운동을 하므로 Gear Pump보다 상대속도가 작아 치의 마모 및 토출 맥동이 적다.  
구조가 간단하여 분해, 조립 등 수리가 용이하다. 또한 같은 용량의 Gear Pump보다 소형이며 수명길고 1회전당 토출량이 많다.  
Gear Pump와 같이 Crescent-Shaped Spacer가 필요치 않으며 윤활, 유압용, 이송용 등 용도가 다양하다.  
항상 1점 접촉운동을 하므로 저속 및 고속회전(300~3000rpm)까지 회전 범위가 넓다.

### Characteristics of pump

This pump has high suction pressure and excellent mechanical efficiency.

The pump has simple structure, though small size, easy dismantle and assembly for overhaul and has greater discharge volume per one stroke than gear pump of the same size, also has long life.

This needs not crescent shaped spacer like pump and it is applied lubrication, oil transfer, and hydraulic system.

### 사용시 유의사항

#### Pump의 설치장소

- Pump의 설치장소는 통풍이 잘되고 온도, 습도가 적은 장소를 택하고 Pump의 위치는 Tank보다 약간 높은 곳에 설치하는 것이 좋다.

#### 토출량, 점도, 회전수

- Pump의 토출량은 회전수에 비례하고 적정회전수는 1000-1800rpm, 점도는 40℃에서 20~150cSt 범위 적정하다. 또한 같은 규격의 에일지라도 온도에 따라 점도가 달라지므로 오일의 선정에 각별히 유의해야 한다.

#### 흡입측 배관

- 흡입측 배관을 Air흡입이 되지 않도록 완전하게 Sealing을 하여 주시고 Elbow, Valve, Cock등의 사용은 가급적이면 줄이십시오. 또한 흡입측 관은 굵고 짧게 하고 흡입시의 유속은 1.5m/sec이하가 되도록 하십시오

#### 흡입측 Filter

- 흡입측에는 반드시 60Mesh 이상의 Filter를 사용하고 흡입압력은 0~0.15kg/cm<sup>2</sup> 이하가 되도록 하며 여과 면적을 Pump 토출량의 2배 이상으로 하여 주십시오.

#### 토출측 배관

- 토출측 배관은 유속이 3m/sec 이하가 되도록 하며 배관경이 작아 유속이 빠르면 Pump에 필요이상의 부하가 걸리고 유량이 감소하며 유온상승의 원인이 됩니다.

#### Oil Tank

- 오일탱크의 용량은 펌프의 분당 토출량의 3배 이상으로 하고 반드시 유면계를 부착하십시오.

Tank용량이 너무 적으면 유온이 상승하고 열화가 빠르며 흡입불량의 원인이 됩니다.

- 또한 흡입 Filter와 Drain Pipe와의 거리는 최대한 멀리 설치해 주시고 기포 및 이물질 혼입을 방지하기 위하여 Tank내에 2개 이상의 격판을 설치하여 주십시오.

#### 유속 계산

◎ 흡입속도 1.5m/sec이하

◎ 토출속도 3m/sec이하

$$\text{◎ } V = 4Q / \pi d^2$$

V : 유속(m/sec)

Q : 유량 (m<sup>3</sup>/sec)

d : 관의 내경(m)

### Check point of usage

#### Pump location

The pump should be installed at good air flowing, low temperature and the least moist, and located higher than the using tank,

#### Discharge volume, viscosity rotation frequency

The discharge volume follows rotation frequency, standard frequency:1000-1800rpm, The proper viscosity is 20-150cSt(40°C).

Be careful to select oil grade because the viscosity can be changed by temperature, even the same oil grade.

#### Inlet pipe

The inlet pipe should be completely sealed not to contain the air when installing. Avoid to use the elbow, valve and cock as possible. The inlet pipe should be used larger and shorter pipe flowing the fluid speed under 1.5m/sec when sucking.

#### Inlet filter

The filter should be fitted over 60mesh and sucking pressure below 0-0.15kg/cm<sup>2</sup>. The filtering area becomes over two times than the pump discharge volume.

#### Outlet pipe

The flowing speed of outlet pipe should be below 3m/sec. If the pipe diameter is small and flowing speed is fast, the pump have overload and not only decreases volume but also causes higher oil temperature.

#### Oil tank

The oil tank capacity must install over 3 times about minute's discharge volume, and attach level switch.

If the tank size is too small, it causes high oil temperature and faulty suction. The distance of suction filter and drain pipe should be far as possible, and fit over 2 units of filtering plate to protect chips in the tank.

#### Measure of flowing speed

suction speed; below 1.5m/sec.

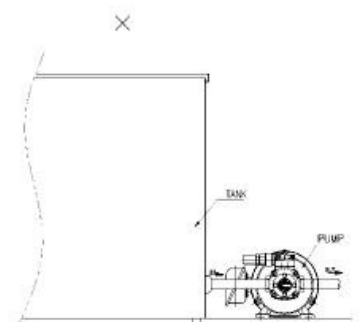
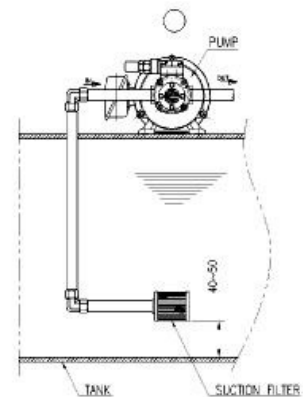
discharging speed; below 3m/sec.

$$V = 4Q / \pi d^2$$

V; Flowing speed(m/sec.)

Q; Discharge volume(m<sup>3</sup>/sec)

d; Inner diameter of pipe(m)



# T-ROTOR pumps

## Motor 선정시 주의사항

펌프의 토출량이 많아지거나 압력이 높아질수록 Motor의 소비동력은 증가합니다.

- 같은 종류의 오일 온도도 낮아지면 점도가 높아져 Motor의 소비동력은 증가합니다.(25°~40° 기준)

### 소요동력의 계산

- Pump의 소요동력은 Pump의 축동력 외에도 오일의 점도와 온도에 의해 변화됨으로(계절적 영향도 고려) 소요 동력을 산출할 때는 최악의 경우를 기준으로 하여 계산하십시오.

### 소요동력 계산식(축동력)

$$Lm = (P \cdot Q) / (612 \cdot \eta) \text{ (KW)}$$

$$Lm = (P \cdot Q) / (450 \cdot \eta) \text{ (HP)}$$

P : 토출압력(kg/cm<sup>2</sup>)

Q : 토출량 (ℓ/min)

η : 계수(펌프최대효율)

## 운전시 유의사항

■ Pump 기동시에는 필히 회전방향을 확인할것. 만약 역방향으로 장시간 회전하게 되면 Oil-seal이 파손되어 펌프를 사용할 수 없게 된다.

펌프에 표시되어있는 회전방향 표시 스티커 또는 양각표시를 참고할것.

■ 운전하기 전에 토출측에 약간의 오일을 주입하여 유막이 형성되도록한후 작동시킬것. 운전중 또는 장기간 작동시키지 않고 방치하여 펌프 내에 오일이 건조된 상태에서 운전을 하게 되면 흡입불량과 소음발생하고 펌프가 파손될 위험이 있다.

■ 오일이 흡입되지 않는 상태에서 공회전을 하게되면 축봉장치(Oil-seal)가 파손 될 수 있다

■ 펌프에서 진동이나, 이상음이 발생하면 즉시 운전을 정시하고 다음 점검사항을 실시하여 문제점을 조치한 후 운전을 해야 한다.

- 운전중 파손, 조임 상태의 헐거움 등
- Tank 유면의 적정성
- 흡입배관 Sealing상태
- 사용유체의 점도

■ 무리하게 높은 압력을 설정하게 되면 Motor의 과부하와 진동, 소음이 발생하게 되므로 적절한 압력설정을 해야 한다.

## Check point of motor selection

The motor power increases when the discharge volume becomes larger and the pressure increases higher.

the motor power increases as the viscosity increases when the temperature becomes lower in the same oil grade.

### Calculation of electric power

The demanding electric power of pump depends on its working power itself as well as the oil viscosity and temperature by season.

When you measure the demanding electric power, it should be measured assuming the worst conditions.

### Demanding power measurement.

$$Lm = (P \cdot Q) / (612 \cdot \eta) \text{ (KW)}$$

$$Lm = (P \cdot Q) / (450 \cdot \eta) \text{ (HP)}$$

P ; discharge pressure(kg/cm<sup>2</sup>)

Q ; discharge volume(ℓ/min)

n ; factor( max. efficiency of pump)

Factor (효율 η)

Discharge Pressure 토출압력 kg/cm <sup>2</sup>	Coefficient 효율 η
0~3	0.2~0.25
3~5	0.25~0.3
5~8	0.3~0.35
8~10	0.35~0.45
10~20	0.45~0.55
20~	0.55~0.65

## Operating Check point

■ Check the rotating direction. If the pump is operated with wrong direction for long time, the oil seal is easily broken. Refer the direction sticker or mark on the pump.

■ Operate the pump after filling sufficient oil at outlet hole. If not, it makes noise or bad suction or broken to pump when the pump inside dries after long idling.

■ The idle operation without filling oil causes the oil seal broken.

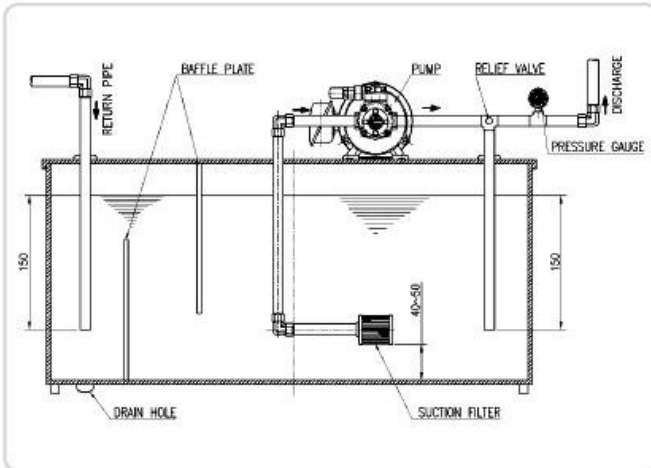
■ When the vibration and strange noise occurs in the pump, stop immediately the operation of pump and check the below check point.

- pump broken or loosen of bolt when delivering.
- Proper filling of oil in tank.
- Sealing condition of inlet pipe.
- Viscosity of using oil.

■ Avoid the high pressure on pump.

The standard pressure should be set up, if not, it causes overload, vibration and noise of pump.

## Example System Assembly 시스템 구성 예)



### Relief valve 조절방법 (Control of relief valve)

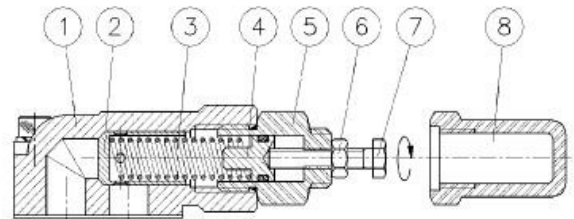
1) Increasing; the pressure increases when you open the cap nut in relief valve and turn the adjusting bolt to right direction.

Relief valve의 ⑧Cap nut를 열고 ⑦육각 Adjust bolt를 우측으로 돌리면 압력 증가

2) Decreasing; The pressure decreases when the adjusting bolt turns to left direction.

⑦육각 Adjust bolt를 좌측으로 돌리면 압력 감소

3) The lock nut fixing and then cap nut closing after adjusting pressure, 압력조절이 끝나면 ⑥Lock nut를 조이고 ⑧Cap nut를 닫는다.



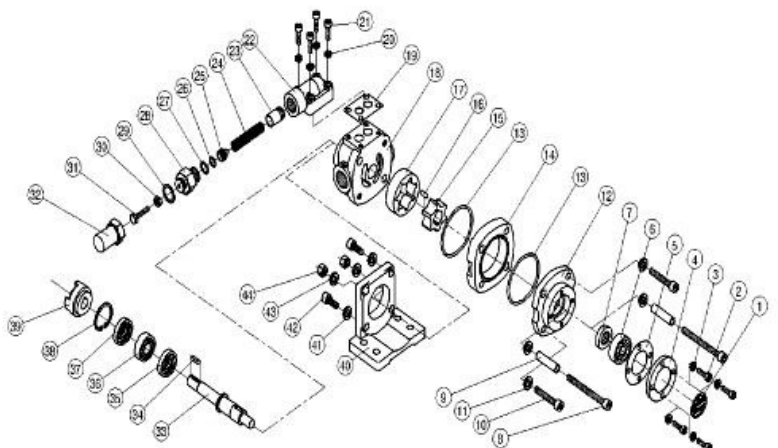
- ① Relief valve
- ② Piston
- ③ Spring
- ④ Spring seat

- ⑤ Plug bolt
- ⑥ Lock nut
- ⑦ Adjust bolt
- ⑧ Cap nut

### Part list

No.	PART NAME	No.	PART NAME
1	Name plate	23	Piston
2	Hexa bolt	24	Spring
3	Spring washer	25	Spring seat
4	Bearing cover	26	O-ring
5	Packing	27	O-ring
6	Ball bearing	28	Plug bolt
7	Oil seal	29	Packing
8	H.S.H bolt	30	Lock nut
9	Spring washer	31	Adjust bolt
10	H.S.H bolt	32	Cap nut
11	Spring washer	33	Shaft
12	Pump cover	34	Key
13	O-ring	35	Oil seal
14	Pump body	36	Ball bearing
15	In rotor	37	Oil seal
16	Round key	38	Snap ring
17	Out rotor	39	Pump coupling
18	Port housing	40	Bracket
19	Gasket	41	Spring washer
20	Spring washer	42	H.S.H bolt
21	H.S.H bolt	43	Spring washer
22	Relief v/v body	44	Nut

### Analysis drawing 분해도 (ATP-HAVB)



# T-ROTOR pumps

## AR1-F Series

AR1 - **3F**

Pump division



■ AR1-F형은 펌프의 회전방향의 정, 역에 관계없이 흡입, 토출의 방향이 항상 일정하게 이루어지는 가역식 펌프이다.

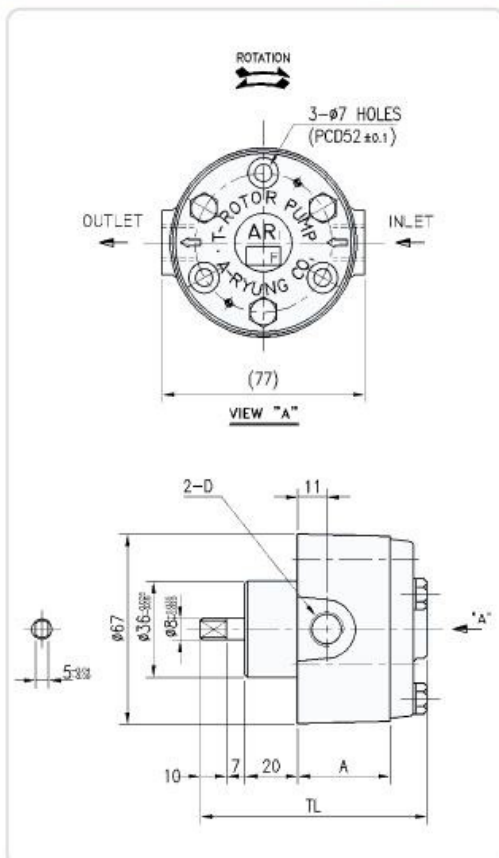
■ 주 용도는 공작기계, 산업기계, 기타 범용기계의 윤활공급용으로 적합하다.

■ The AR1-F type delivers constantly the oil suction and discharge to one direction whether the pump rotating direction is right or left.

■ This type is mainly applied machine tools, industrial machine for transferring the oil.

Type	1회전당 cm <sup>3</sup> /rev	Discharge volume 유량 ℓ /min		Maximum Pressure 최고압력 kg/cm <sup>2</sup>	Per- missive Rotation 허용회전수 rpm	Net weight 중량 kg
		1000rpm	1800rpm			
AR1-2F	2.0	2.0	3.6	5	500-2000	1.2
AR1-3F	2.5	2.5	4.5	5	500-2000	1.3

### External dimensions 외형도



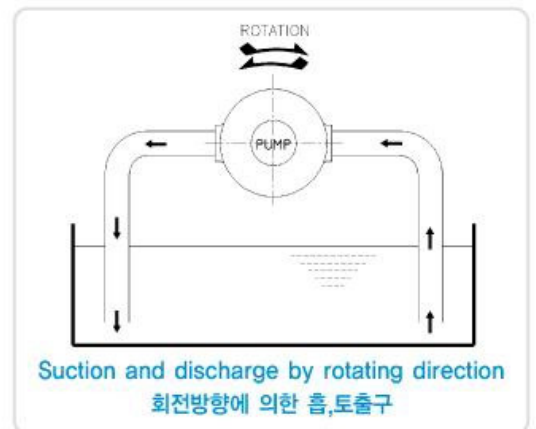
Type	A	TL	D (Port dia)	
			INLET	OUTLET
AR1-2F	32	83	PT 1/4"	PT 1/4"
AR1-3F	35	86	PT 1/4"	PT 1/4"

### Applications 적용

Type of fluid : oils  
 사용유체  
 Viscosity : 20~1000cSt  
 점도  
 Temperature : 80℃이하  
 사용온도

### Material 재질

Pump body: Cast iron  
 Cover: Cast iron  
 Shaft: steel  
 Rotor: Powder steel  
 Oil-seal: NBR  
 ø8×ø18×7t





# AR2-FC Series

## AR2 - 4FC

Pump division



■ AR2-FC형은 펌프의 회전방향의 정, 역에 관계없이 흡입, 토출의 방향이 항상 일정하게 이루어지는 가역식 펌프이다.

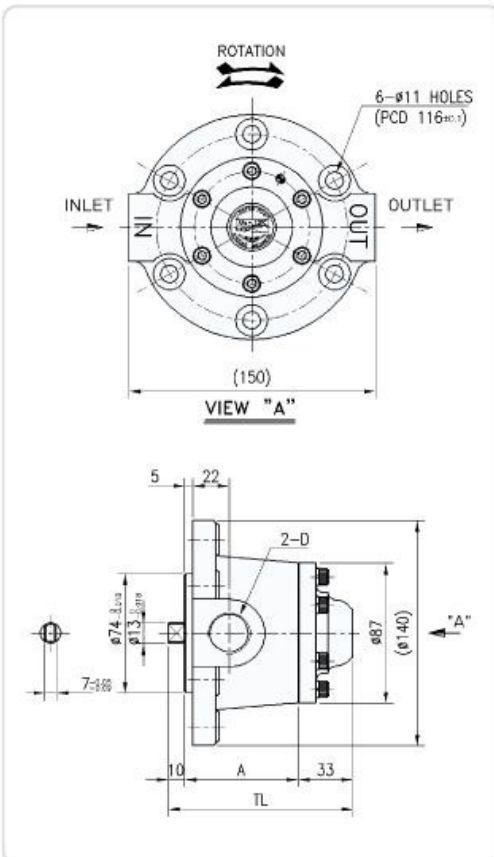
■ 주 용도는 감속기, 냉동기, 콤푸레서, 철도차량, 선박 엔진, 공작기계 등의 윤활공급용으로 적합하다.

■ The AR2-FC type delivers constantly the oil suction and discharge to one direction whether the pump rotating direction is right or left.

■ This type is mainly applied reducer, cooler, compressor, rail, ship engine, machine tools for transferring the oil.

Type	1회전당 cm <sup>3</sup> /rev	Discharge volume 유량 Q /min		Maximum Pressure 최고압력 kg/cm <sup>2</sup>	Per- missible Rotation 허용회전수 rpm	Net weight 중량 kg
		1000rpm	1800rpm			
AR2-4FC	4	4	7.2	5	500-2000	3.9
AR2-8FC	8	8	14.4	5	500-2000	4.3
AR2-12FC	12	12	21.6	5	500-2000	4.7

### External dimensions 외형도



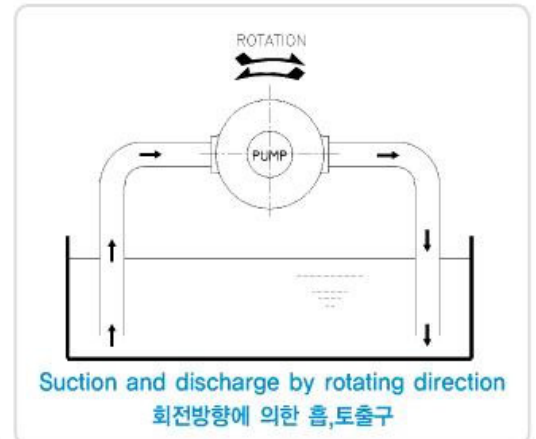
Type	A	TL	D (Port dia)	
			INLET	OUTLET
AR2-4FC	49	92	PT 1/2"	PT 3/8"
AR2-8FC	59	102	PT 3/4"	PT 1/2"
AR2-12FC	69	112	PT 3/4"	PT 3/4"

### Applications 적용

Type of fluid : oils  
 사용유체  
 Viscosity : 20 ~ 1000cSt  
 점도  
 Temperature : 80°C  
 사용온도

### Material 재질

Pump body: Cast iron  
 Cover: Cast iron  
 Shaft: steel  
 Rotor: Powder steel  
 Oil-seal: NBR  
 ø13×ø30×8t



# T-ROTOR pumps

**DST**  
Double Seal Type

## ATP-S Series



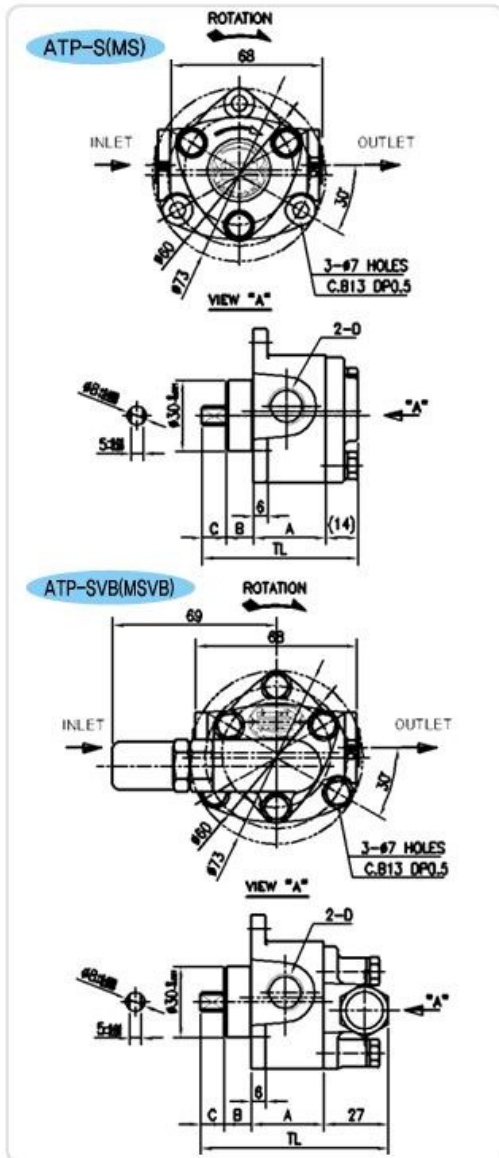
**ATP - 11 S VB**

Pump division  
펌프구분

Shaft shape  
축 형상  
S : 단면커팅(one side)  
MS: 양면커팅(either side)

Relief valve  
압력조정 밸브  
VB: Equipped 장착  
No mark : None 없음

### External dimensions 외형도



■ ATP-S 형은 소형 기어 펌프로서, 각종의 공작기계, 산업용 기계, 농업용 기계 등의 윤활 공급용으로 주로 사용된다.

■ 이 펌프는 지정된 한쪽 방향으로만 일정하게 회전하며, 기계의 동력이나 또는 모터와 조합되어 운전이 가능하다. 자체 Relief 가 내장되어 압력조정이 용이하다.(선택)

■ ATP-S series is compact gear pump. It is widely used for supply of lubrication oil for various working tools, industrial machine and farming implements, etc.

■ It should be rotated only in the constant direction. According to the driving system, it is possible to drive by power of machine and by motor.

Type	1회전당 cm <sup>3</sup> /rev	Discharge volume 유량 ℓ /min		Maximum Pressure 최고압력 kg/cm <sup>2</sup>	Per- missible Rotation 허용회전수 rpm	Net weight 중량 kg
		1000rpm	1800rpm			
ATP-11S(MS)	1.6	1.6	3.0	5	300-2000	0.3
ATP-12S(MS)	2.5	2.5	4.5	5	300-2000	0.3
ATP-13S(MS)	4.5	4.5	8.1	5	300-2000	0.8
ATP-11SVB(MSVB)	1.6	1.6	3.0	5	300-2000	0.5
ATP-12SVB(MSVB)	2.5	2.5	4.5	5	300-2000	0.6
ATP-13SVB(MSVB)	4.5	4.5	8.1	5	300-2000	1.0

Type	A	B	C	TL	D (Port dia)	
					INLET	OUTLET
ATP-11S(MS)	25,5	11,5	10	61	PT 1/8"	PT 1/8"
ATP-12S(MS)	30,5	11,5	10	66	PT 1/4"	PT 1/4"
ATP-13S(MS)	45	5	14,5	79	PT 3/8"	PT 3/8"
ATP-11SVB(MSVB)	25,5	11,5	10	74	PT 1/8"	PT 1/8"
ATP-12SVB(MSVB)	30,5	11,5	10	79	PT 1/4"	PT 1/4"
ATP-13SVB(MSVB)	45	5	14,5	92	PT 3/8"	PT 3/8"

#### Applications 적용

Type of fluid : oil  
사용유체  
Viscosity : 20 ~1000cSt  
점도  
Temperature : 80℃  
사용온도

#### Material 재질

Pump body: Cast iron  
Cover: Cast iron  
Shaft: steel  
Rotor: Powder steel  
Oil-seal: NBR  
Ø8 × Ø22 × 7t

# ATP-HA Series



**ATP - 204 HA VB 15**

Pump division  
펌프구분

Attached type  
체결방식  
HA : Bracket  
HAF : Flange

Relief valve  
압력조정밸브  
VB: Equipped  
VD: Drain block  
No mark : None

Setting pressure  
설정압력(kg/cm<sup>2</sup>)

- ATP-HA형 펌프는 축봉장치용 Oil-seal을 이중으로 적용하여 내구성이 우수하다.
- 열매체용으로 사용할 시는 불소소재질의 Oil-seal을 적용하여 180℃이하의 고온에서도 사용이 가능하다.(선택사양)
- 압력조절이 가능한 Relief valve가 부착되어 있어 Motor 및 Pump의 부하를 줄여 안전하게 사용할 수가 있다.(선택사양)
- 오일 및 연료이송, 공작기계 및 각종 산업기계의 윤활급유, 유압장치 등에 적합하다.

- ATP-HA pump is applied double oil seal and have excellent endurance.
- For using in high temperature, This type can be endure high temperature (below 180℃) applying the oil seal used the FKM Material. (option)
- This pump is used transferring of oil and fuel, lubrication of machine and tools, hydraulic applications.

Type	1회전당 cm <sup>3</sup> /rev	Discharge volume 유량 ℓ /min		Maximum Pressure 최고압력 kg/cm <sup>2</sup>	Per- missive Rotation 허용회전수 rpm	Net weight 중량 kg	
		1500rpm	1800rpm			HA HAF	HAVB HAVD
ATP-204HA	4,2	6,3	7,5	30	300-2500	3,2	3,6
ATP-206HA	6,0	9,0	10,8	30	300-2500	3,2	3,6
ATP-208HA	8,4	12,6	15,1	30	300-2500	3,3	3,7
ATP-210HA	10,2	15,3	18,3	30	300-2500	3,4	3,8
ATP-212HA	12,0	18,0	21,6	30	300-2000	3,6	4,0
ATP-216HA	16,2	24,3	29,1	30	300-1800	3,8	4,2
ATP-220HA	19,8	29,7	35,6	30	300-1800	4,1	4,5

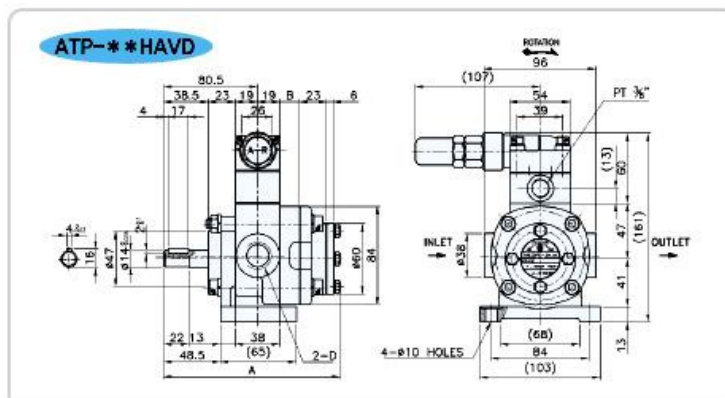
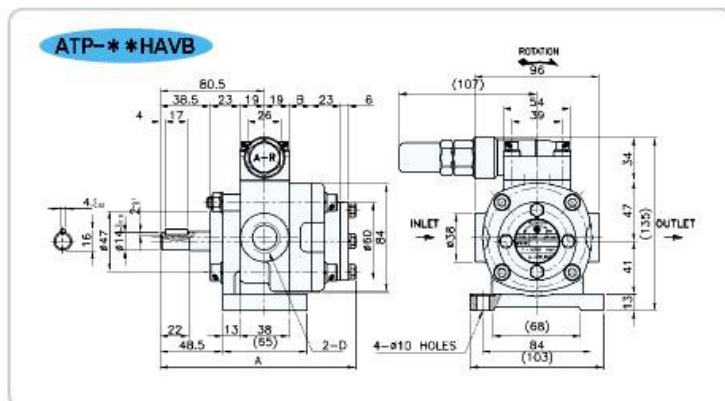
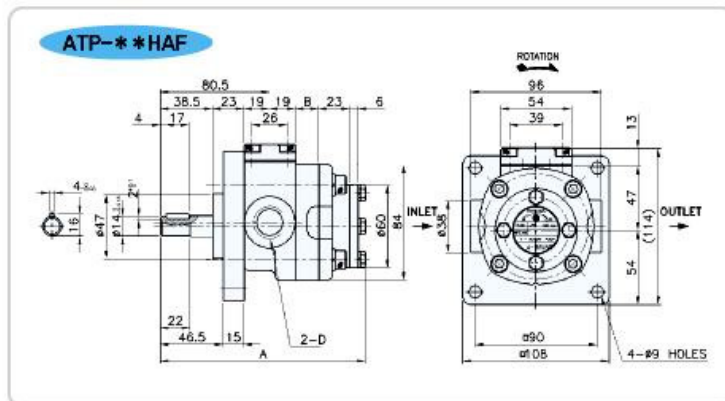
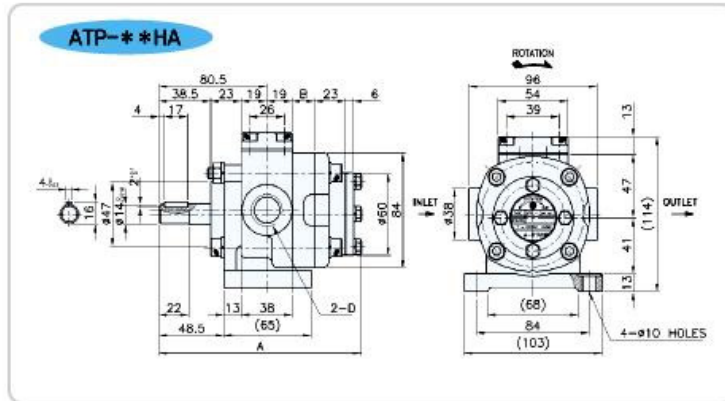
## Relief valve

Division 구분	Domain 압력범위 kg/cm <sup>2</sup>
1S	0-4
2S	4-8
3S	6-15
4S	12-30

# T-ROTOR pumps

**DST**  
Double Seal Type

## External dimensions 외형도



Type	A	B	D (Port dia)	
			INLET	OUTLET
ATP-204 HA HAF HAVB HAVD	145	7	PT 1/2"	PT 1/2"
ATP-206 HA HAF HAVB HAVD				
ATP-208 HA HAF HAVB HAVD				
ATP-210 HA HAF HAVB HAVD				
ATP-212 HA HAF HAVB HAVD	158	20	PT 3/4"	PT 3/4"
ATP-216 HA HAF HAVB HAVD				
ATP-220 HA HAF HAVB HAVD	172	33	PT 3/4"	PT 3/4"

### Applications 적용

Type of fluid : oils

사용유체

Viscosity : 20 ~1000cSt

점도

Temperature : NBR 80℃

사용온도 FKM 180 ℃

### Material 재질

Pump body: Cast iron

Port housing: Cast iron

Cover: Cast iron

Bearing: #6200zz, #6301zz

Shaft: steel

Rotor: Powder steel

Oil-seal: NBR, FKM(Optional)

Ø15 × Ø35 × 8t

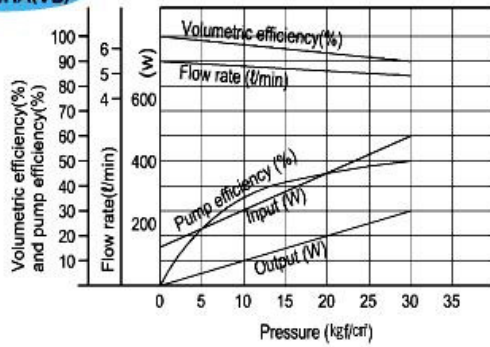
Ø17 × Ø30 × 8t

Relief valve: Cast iron etc.

# ATP-HA Series

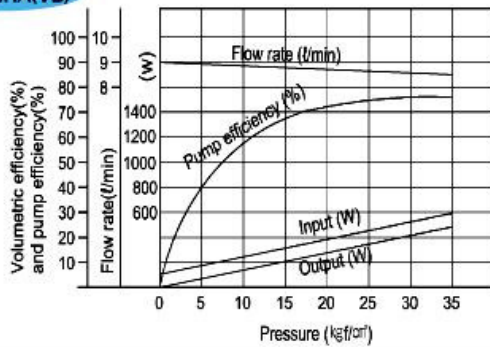
## Performance range 성능곡선

ATP-204HA(VB)

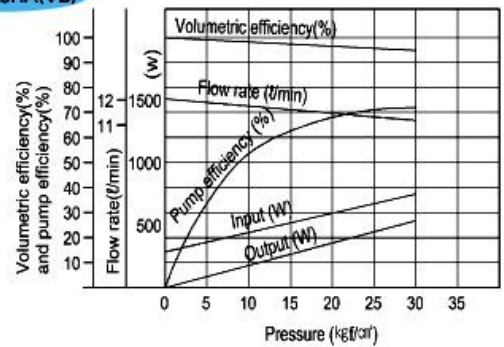


Oil used #46 turbine oil  
사용유체  
Oil temperature 40°C  
유온  
Speed 1500rpm  
회전수

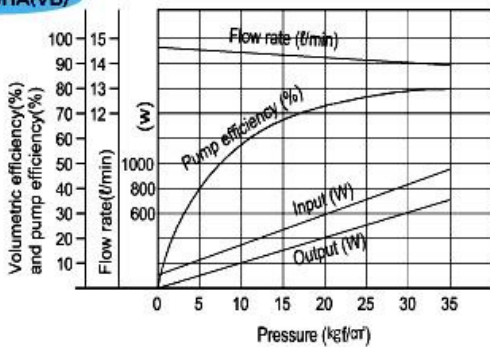
ATP-206HA(VB)



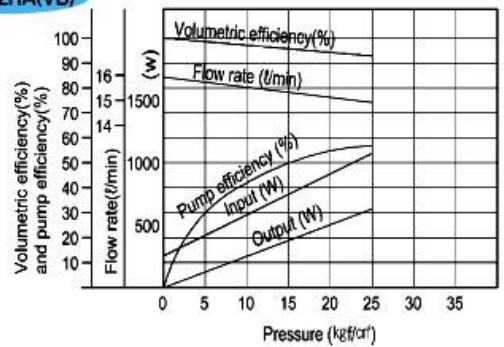
ATP-208HA(VB)



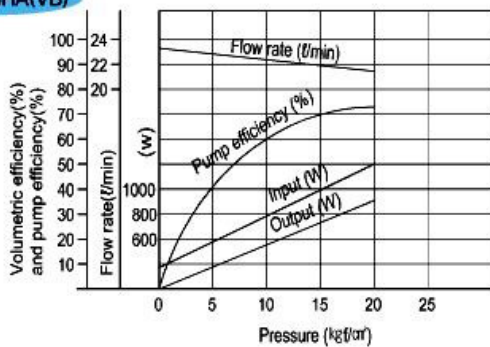
ATP-210HA(VB)



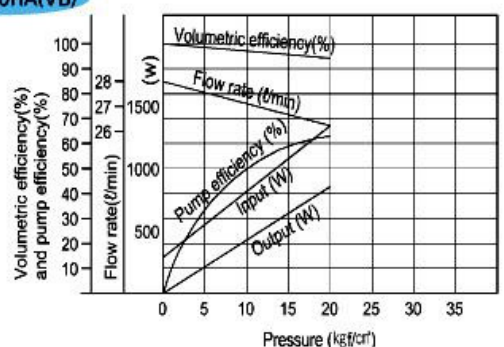
ATP-212HA(VB)



ATP-216HA(VB)

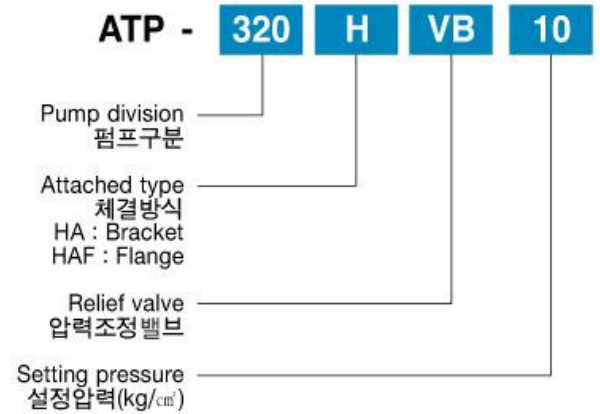
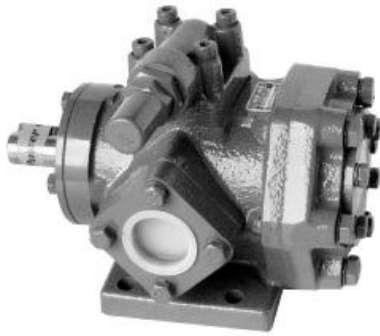


ATP-220HA(VB)



# T-ROTOR pumps

## ATP-3※※ HVB Series



- ATP-320HVB형 펌프는 내열용 Oil-seal을 적용하여 내구성이 우수하며 열매체용으로 사용할 시는 180℃이하의 고온에서도 사용이 가능하다.
- 압력조절이 가능한 Relief valve가 부착되어 있어 Motor 및 Pump의 부하를 줄여 안전하게 사용할 수가 있다.
- 공작기계 및 각종 산업기계의 오일 및 연료 이송, 윤활급유, 유압장치 등에 적합하다.

- ATP-320HVB pump is applied the oil seal enduring high temperature and have excellent endurance. This type can be endure high temperature(below 180℃).
- This pump has a relief valve to control the pressure so that can avoid the load in motor and pump operation.
- This type is used transferring of oil and fuel, lubrication of machine and tools, hydraulic applications.

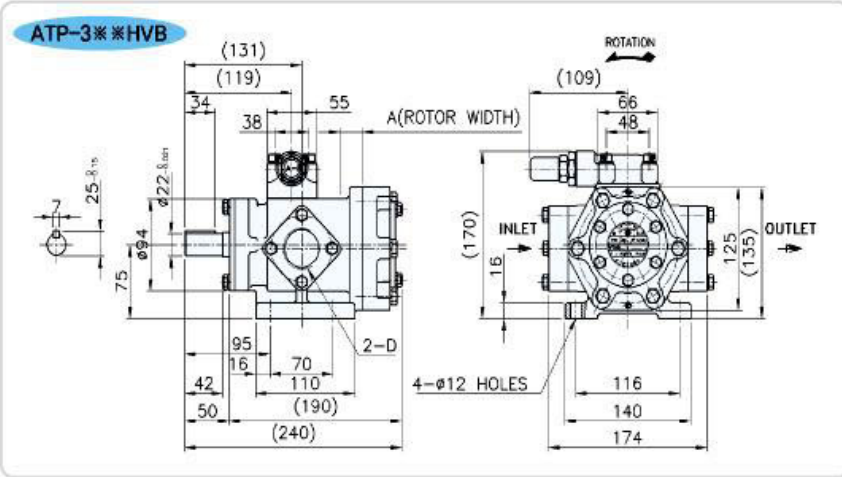
Type	1회전당 cm <sup>3</sup> /rev	Discharge volume 유량 ℓ /min		Maximum Pressure 최고압력 kg/cm <sup>2</sup>	Per- missive Rotation 허용회전수 rpm	Net weight 중량 kg
		1500rpm	1800rpm			
ATP-320HVB 320HFVB	26,0	39,0	46,8	30	1800	16,4
ATP-340HVB 340HFVB	52,0	78,0	93,6	30	1500	17,0

### Relief valve

Division 구분	Domain 압력범위 kg/cm <sup>2</sup>
1S	0 - 4
2S	4 - 8
3S	6 - 15
4S	12 - 30

# ATP-3※※ HVB Series

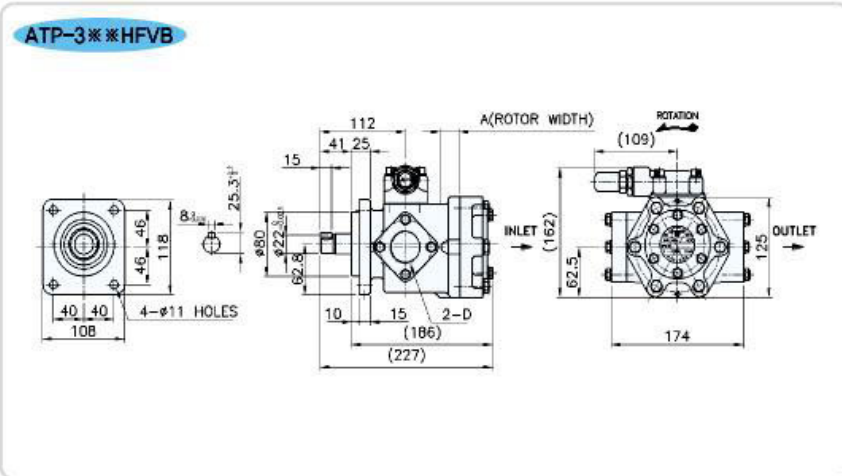
## External dimensions 외형도



Type	A	D (Port dia)	
		Inlet	Outlet
ATP-320 HVB HFVB	25	PT 1"	PT 1"
ATP-340 HVB HFVB	50	PT 1 1/4"	PT 1"

### Applications 적용

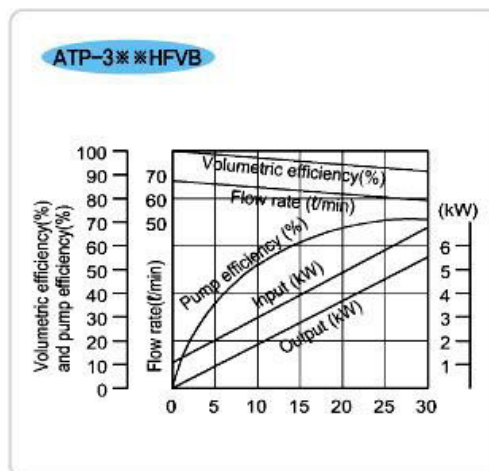
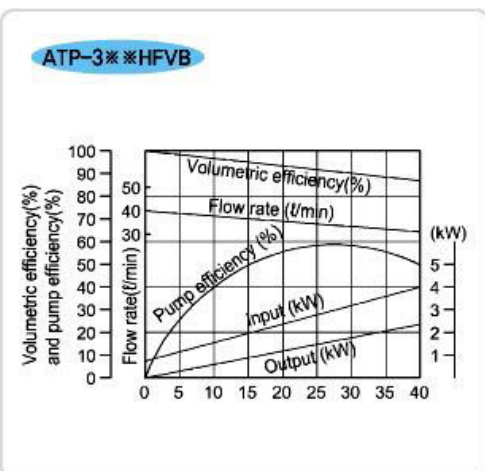
Type of fluid : oils  
 사용유체  
 Viscosity : 20 ~1000cSt  
 점도  
 Temperature : FKM 180℃  
 사용온도



### Material 재질

Pump body: Cast iron  
 Port housing: Cast iron  
 Cover: Cast iron  
 Bearing: #6305zz, #63/22zz  
 Shaft: steel  
 Rotor: Powder steel  
 Oil-seal: FKM  
 Ø25 × Ø40 × 8t  
 Relief valve: Cast iron etc.

## Performance range 성능곡선



Using oil #46 turbine oil  
 사용유체  
 Oil temperature 40℃  
 유온  
 Speed 1500rpm  
 회전수

# T-ROTOR pumps

## ATP-4 ※ ※ HVB Series



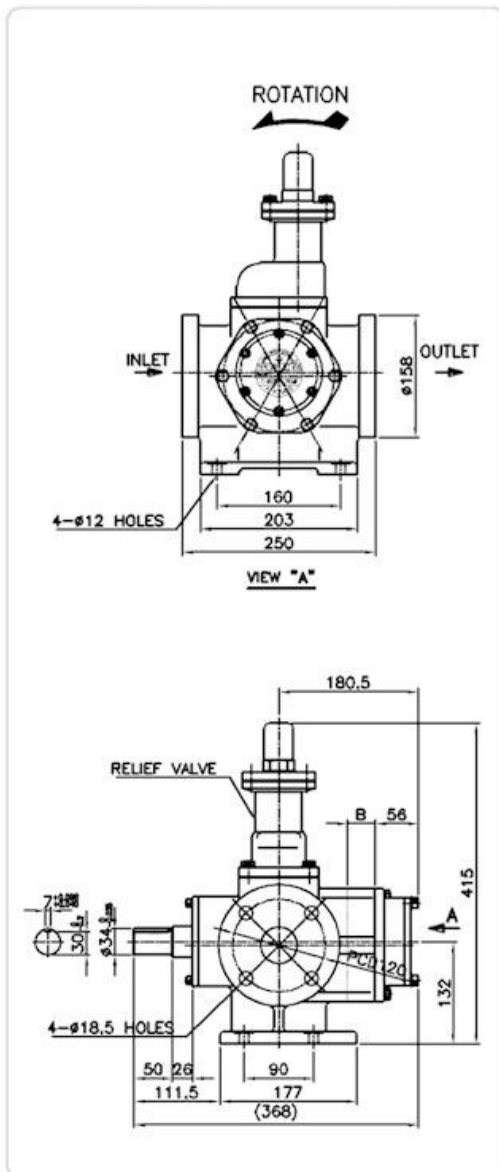
ATP - **420H** **VB** **5**

Pump division  
펌프구분

Relief valve  
압력조정밸브

Setting pressure  
설정압력(kg/cm<sup>2</sup>)

### External dimensions 외형도



■ 대유량 펌프로서 선박, 산업기계 등의 각종 오일, 버커 C연료 및 윤활성이 있는 액체이송용으로 적합하다.

■ 압력조절이 가능한 Relief valve가 부착되어 있어 Motor 및 Pump의 부하를 줄여 안전하게 사용할 수가 있다.

■ This type is large discharge volume pump, and used ship industry, machine tools, general oil, bucker C oil transferring of fluid.

■ This pump has a relief valve to control the pump pressure so that can avoid the load in motor and pump operation.

Type	1회전당 cm/rev	Discharge volume 유량 ℓ /min			Maximum Pressure 최고압력 kg/cm <sup>2</sup>	Per- missive Rotation 허용회전수 rpm	Net weight 중량 kg
		1000rpm	1500rpm	1800rpm			
ATP-420HVB	90	90	108	162	5	1800	44.0
ATP-440HVB	180	180	216	-	3	1200	45.0

**Note)** \*표\*의 Data 작성은 유체 VG46을 기준으로 한 것이며 이보다 더 점도가 높은 유체를 사용할 시는 동력을 적절히 증가 시켜야 한다.

**Note)** Above data is for VG46 usage. The electric power has to be increased according to using for high liquid viscosity.

Type	B	D (Port dia)	
		INLET	OUTLET
ATP-420HVB	38	2" (50A)	2" (50A)
ATP-440HVB	76	2" (50A)	2" (50A)

### Applications 적용

Type of fluid : oils  
사용유체  
Viscosity : 400cSt - 1800rpm  
점도 500cSt - 1500rpm  
1000cSt - 1200rpm이하  
Temperature : 0℃ ~ 180℃  
사용온도

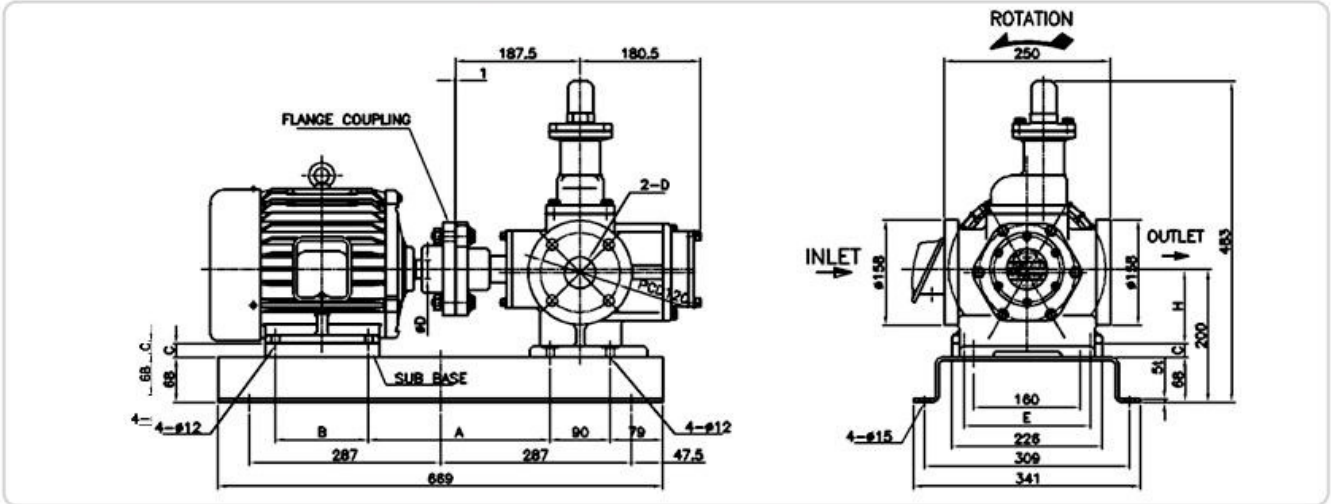
### Material 재질

Pump body: Cast iron  
Port housing: Cast iron  
Cover: Cast iron  
Bearing: #6208zz, #6207zz  
Shaft: steel  
Rotor: Powder steel  
Oil-seal: FKM  
Ø40×Ø62×11t  
O-ring: NBR  
Relief valve: Cast iron etc.



# ATP-4 ※ ※ HVB Series

## Example System Assembly 시스템 구성 예)

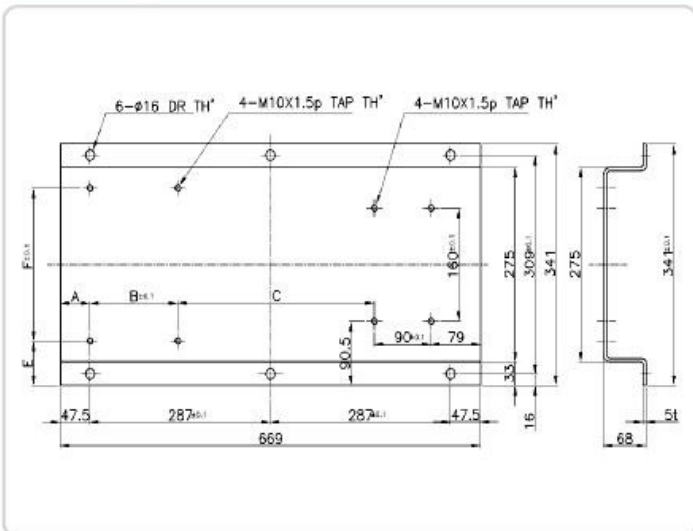


Type	A	B	C	ØD	E	H	D (Port dia)	
							INLET	OUTLET
2.2kW(3Hp 6p)	273.5	140	20	28	190	112	2"(50A)	2"(50A)
3.7kW(5Hp 4p)	273.5	140	20	28	190	112	2"(50A)	2"(50A)
3.7kW(5Hp 6p)	312.5	140	-	38	216	132	2"(50A)	2"(50A)

**Note** 적용Motor의 치수는 국내에서 제조되는 표준 Motor를 기준으로 작성되었으나 제조사에 따라 규격이 상이할 수 있으므로 필히 확인 후 적용해야한다.

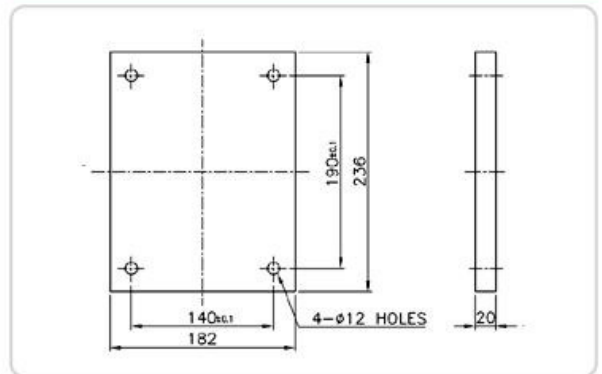
**Note** A-RYUNG generally uses Korean standard motor. Check the motor specification when you fit the motor because the motor is different every producer.

### Assembly Base

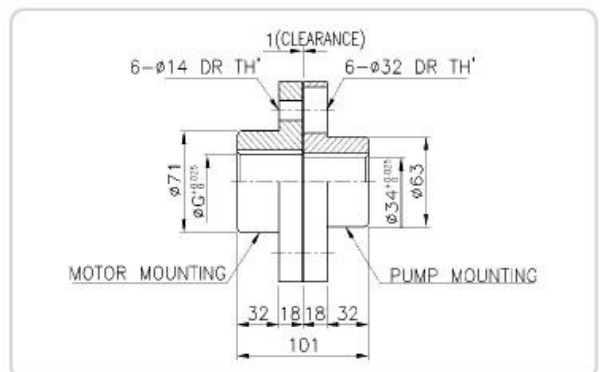


Type	A	B	C	E	F	G	Sub Base
2.2kW(3Hp 6p)	86.5	140	273.5	75.5	190	28	○
3.7kW(5Hp 4p)	86.5	140	273.5	75.5	190	28	○
3.7kW(5Hp 6p)	47.5	140	312.5	62.5	216	38	×

### Sub Base



### Coupling

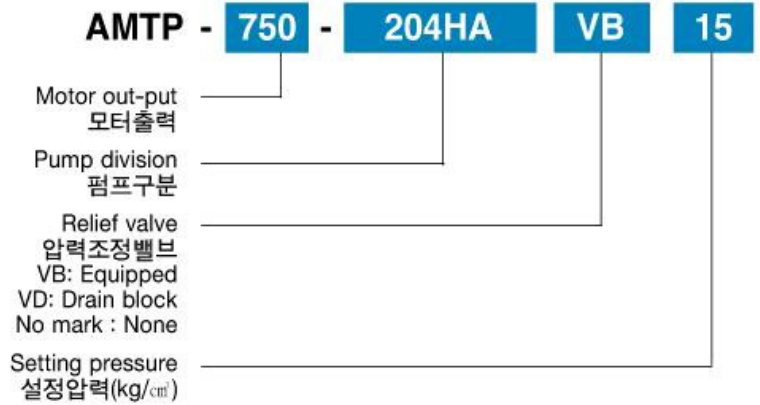


# T-ROTOR pumps

Motor T-ROTOR Pump

**DST**  
Double Seal Type

## AMTP-HA Series



- AMTP-HA형 펌프는 Motor와 Pump를 조합하여 Compact하게 제작되어 설치위치의 제약을 적게 받으며 Motor와 Pump의 결합 및 분리가 간편하여 유지보수가 매우 용이하다.
- 축봉장치용 Oil-seal을 이중으로 적용하여 내구성이 우수하다.
- 열매체용으로 사용할 시는 불소재질의 Oil-seal을 적용하여 180℃이하의 고온에서도 사용이 가능하다.(선택사양)
- 압력조절이 가능한 Relief valve가 부착되어 있어 Motor 및 Pump의 부하를 줄여 안전하게 사용할 수가 있다.(선택사양)
- 공작기계 및 각종 산업기계의 오일 및 연료이송, 윤활급유, 유압장치 등에 적합하다.

- AMTP-HA type is combined motor with pump, so compact that it is easy to fit and to separate motor and pump part.
- The double oil seal improves endurance, For using in high temperature.
- This type can endure hightemperature(below 180℃ ) applying the oil seal used the FKM material.(option)
- This pump has a relief valve to control the pump pressure so that can avoid the load in motor and pump operation.(option)
- This pump is used transferring of oil and fuel, lubrication of machine and tools, hydraulic applications.

Type	50Hz 4p (1500rpm)				60Hz 4p (1800rpm)				Net weight 중량 kg
	Dis-charge Volume 유량 ℓ /min	Maximum pressure per Motor output 모터출력에 대한 최고압력 kg/cm <sup>2</sup>			Dis-charge Volume 유량 ℓ /min	Maximum pressure per Motor output 모터출력에 대한 최고압력 kg/cm <sup>2</sup>			
		400W	750W	1500W		400W	750W	1500W	
AMTP-204HA	6.3	21.5	30.0	30.0	7.5	16.0	30.0	30.0	3.6
AMTP-206HA	6.3	7.0	25.0	25.0	10.8	7.0	23.5	25.0	3.6
AMTP-208HA	12.6	4.5	23.0	25.0	15.1	4.0	17.5	25.0	3.7
AMTP-210HA	15.3	3.5	15.5	25.0	18.3	2.5	11.5	25.0	3.8
AMTP-212HA	18.0	2.0	13.5	20.0	21.6	-	8.5	20.0	4.0
AMTP-216HA	24.3	-	8.5	20.0	29.1	-	5.5	19.5	4.2
AMTP-220HA	29.7	-	5.5	15.5	35.6	-	3.5	14.0	4.5

Relief valve	
Division 구분	Domain 압력범위 kg/cm <sup>2</sup>
1S	0-4
2S	4-8
3S	6-15
4S	12-30

### Applications 적용

Type of fluid : oils  
사용유체

Viscosity : 20 ~1000cSt  
점도

Temperature : NBR 80℃  
사용온도 FKM 180 ℃

### Material 재질

Motor flame : Aluminum

Pump body: Cast iron

Port housing: Cast iron

Cover: Cast iron

Bearing: #6200zz, #6301zz

Shaft: steel

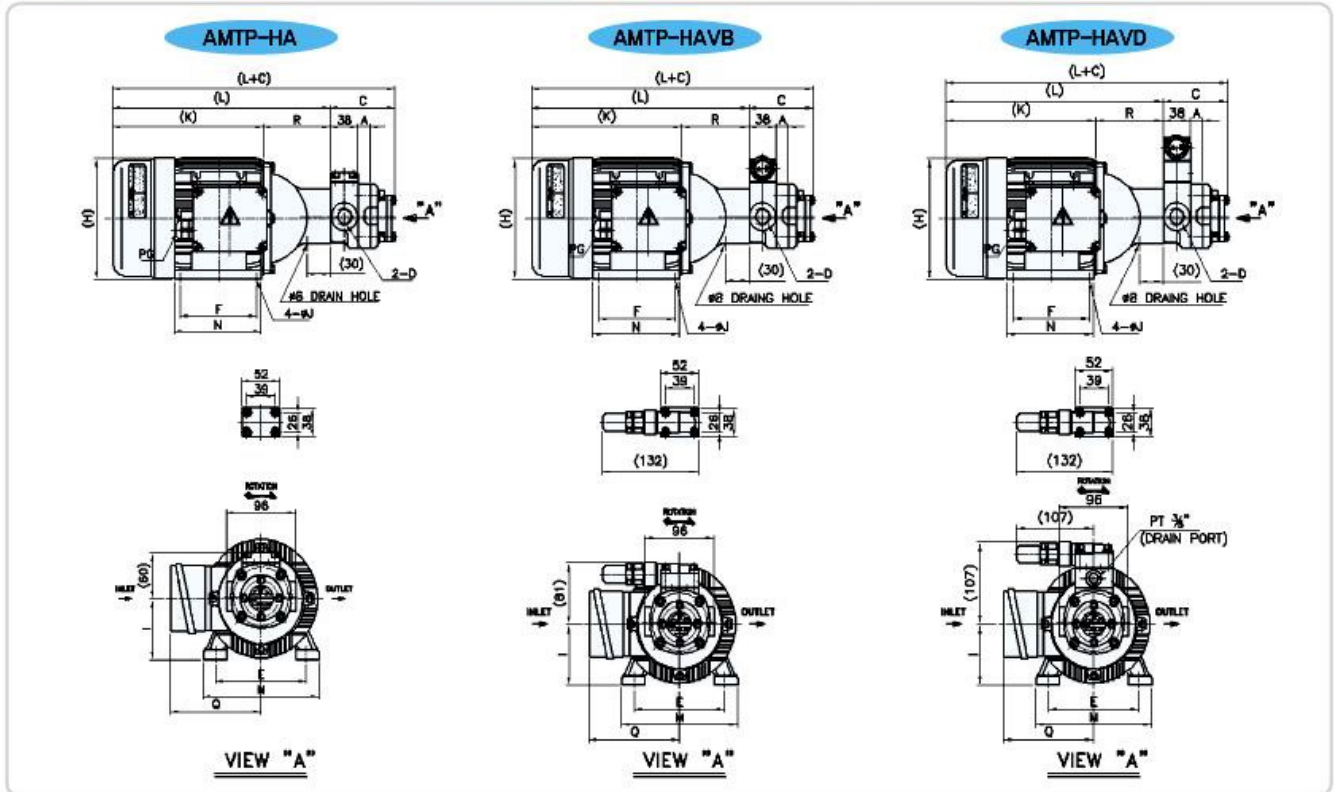
Rotor: Powder steel

Oil-seal: NBR, FKM(Option)  
Ø15×Ø35×8t  
Ø17×Ø30×8t

Relief valve: Cast iron etc.

# AMTP-HA Series

## External dimensions 외형도



Type	E	F	H	I	J	K	L	M	N	Q	R	PG
400W	112	90	142	71	7	189	281,5	145	114	108	92,5	PG 11
750W	125	100	160	80	10	209	301,5	160	122	132	92,5	PG 13,5
1500W	140	125	178	90	10	271	360	178	158	140	89	PG 13,5

Type	A	B	D (Port dia) In/Outlet	Phase 3Ø, Poles 4P Free voltage					Net weight 중량 kg	
				Type	Motor Out-put 출력 kW	Motor speed 회전수 rpm	Fre - quency 주파수 Hz	Rated voltage 전압 V		Current 전류 A
AMTP-204 HA HAVB HAVD	7	83,5	PT 1/2"	400W	0,37	1420	50	200	2,2	13,2
								380	1,3	
								415	1,1	
AMTP-206 HA HAVB HAVD	10	86,5	PT 1/2"	750W	0,37	1710	60	220	2,0	13,2
								380	1,2	
								440	1,0	
AMTP-208 HA HAVB HAVD	14	90,5	PT 1/2"	750W	0,75	1440	50	200	3,5	17,6
								380	2,0	
								415	1,8	
AMTP-210 HA HAVB HAVD	17	93,5	PT 3/4"	750W	0,75	1720	60	220	3,2	17,6
								380	1,9	
								440	1,7	
AMTP-212 HA HAVB HAVD	20	96,5	PT 3/4"	1500W	1,5	1430	50	200	6,0	23,6
								380	3,5	
								415	3,3	
AMTP-216 HA HAVB HAVD	27	103,5	PT 3/4"	1500W	1,5	1730	60	220	5,5	23,6
								380	3,2	
								440	3,0	
AMTP-220 HA HAVB HAVD	33	109,5	PT 3/4"	1500W	1,5	1730	60	220	5,5	23,6
								380	3,2	
								440	3,0	

# T-ROTOR pumps

**DST**  
Double Seal Type

## AMTP-HA/HAVB Series



**AMTP - 750 - 204HA / 208HAVB 5/8**

Motor out-put  
모터출력

Pump P1  
1차측 펌프  
HA : Relief 없음  
HAVB : Relief 내장

Pump P2  
2차측 펌프  
HA : No Relief valve 없음  
HAVB : with Relief valve내장

Setting pressure P1/P2  
1차측압력/2차측 압력  
설정압력(kg/cm<sup>2</sup>)

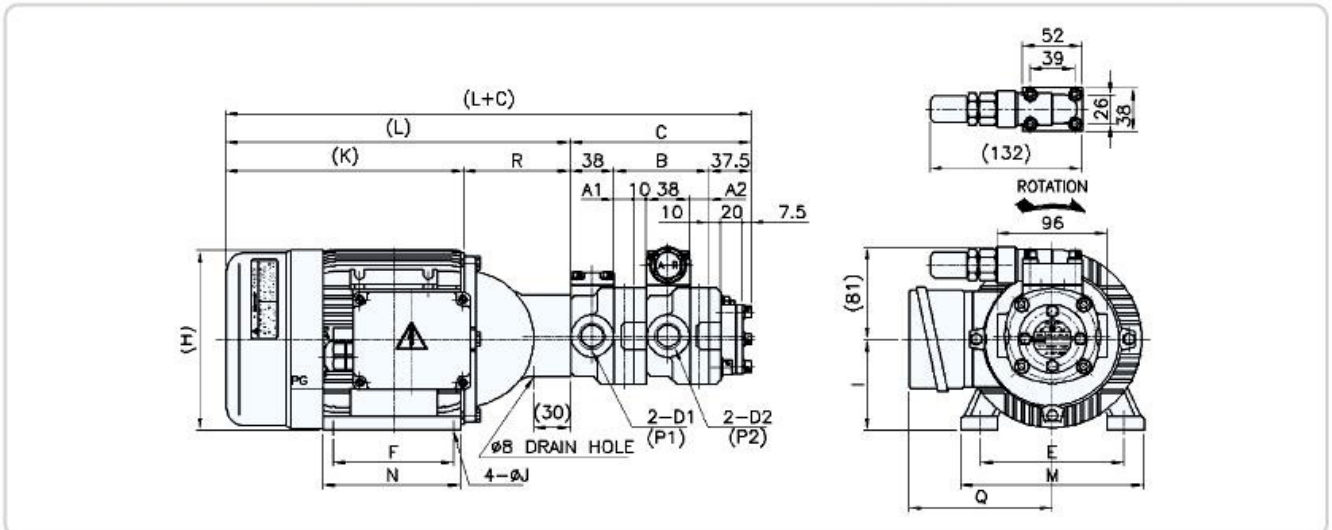
- AMTP-HAM-HAVB형 펌프는 2개의 펌프를 1축 병렬식 일체형으로 Motor와 조합하여 경제적이고 또한 Compact하게 제작되었으며, Pump의 결합 및 분리가 간편하여 유지보수가 매우 용이하다.
- 축봉장치용 Oil-seal을 이중으로 적용하여 내구성이 우수하다.
- 열매체용으로 사용할 시는 불소재질의 Oil-seal을 적용하여 180℃이하의 고온에서도 사용이 가능하다.(선택 사양)
- 압력조절이 가능한 Relief valve가 부착되어 있어 Motor 및 Pump의 부하를 줄여 안전하게 사용할 수가 있다.(선택사양)
- 공작기계 및 각종 산업기계의 오일 및 연료이송, 윤활 급유, 유압장치 등에 적합하다.

- AMTP-HAM-HAVB type have two pumps in a row and is combined motor, it is so compact and easy to assemble and dismantle between pump and motor. The double oil seal improves the endurance.
- For using in high temperature, This type can endure high temperature(below 180℃) applying the oil seal used the FKM material.(option)
- This pump has a relief valve to control the pump pressure so that can avoid the load in motor and pump operation.(option)
- This pump is used transferring of oil and fuel, lubrication of machine and tools, hydraulic applications.
- This pump is used transferring of oil and fuel, lubrication of machine and tools, hydraulic applications.

type	50Hz 4p (1500rpm)					60Hz 4p (1800rpm)					Net weight 중량 kg
	Discharge Volume 유량 ℓ /min		Maximum pressure per Motor output 모터출력에 대한 최고압력 kg/cm <sup>2</sup>			Discharge Volume 유량 ℓ /min		Maximum pressure per Motor output 모터출력에 대한 최고압력 kg/cm <sup>2</sup>			
	P1	P2	400W	750W	1500W	P1	P2	400W	750W	1500W	
AMTP-206HA/206HAVB	9.0	9.0	4	16	33	10.8	10.8	3	13	27	5.9
AMTP-208HA/206HAVB	12.6	9.0	3	12	27	15.1	10.8	3	10	23	6.0
AMTP-208HA/208HAVB	12.6	12.6	2	10	23	15.1	15.1	2	9	19	6.1
AMTP-210HA/208HAVB	15.3	12.6	2	8	20	18.3	15.1	-	6	17	6.2
AMTP-210HA/210HAVB	15.3	15.3	2	7	18	18.3	18.3	-	6	15	6.3
AMTP-212HA/208HAVB	18.0	12.6	-	7	16	21.6	15.1	-	6	13	6.4
AMTP-212HA/210HAVB	18.0	15.3	-	6	15	21.6	18.3	-	5	12	6.5
AMTP-212HA/212HAVB	18.0	18.0	-	5	11	21.6	21.6	-	5	11	6.7
AMTP-216HA/208HAVB	24.3	12.6	-	4	12	29.1	15.1	-	3	11	6.6
AMTP-216HA/210HAVB	24.3	15.3	-	4	12	29.1	18.3	-	3	10	6.7
AMTP-216HA/212HAVB	24.3	18.0	-	4	11	29.1	21.6	-	3	9	6.9
AMTP-216HA/216HAVB	24.3	24.3	-	3	9	29.1	29.1	-	2	8	7.1
AMTP-220HA/208HAVB	29.7	12.6	-	2.4	7.2	35.6	15.1	-	2	6	6.7
AMTP-220HA/210HAVB	29.7	15.3	-	2.4	6	35.6	18.3	-	2	5	6.8
AMTP-220HA/212HAVB	29.7	18.0	-	1.9	5.4	35.6	21.6	-	1.6	1.5	7.0
AMTP-220HA/216HAVB	29.7	24.3	-	1.7	4.8	35.6	29.1	-	1.4	4.0	7.2
AMTP-220HA/220HAVB	29.7	29.7	-	1.5	4.5	35.6	35.6	-	1.2	3.7	7.3

# AMTP-HA/HAVB Series

## External dimensions 적용범위



Type	E	F	H	I	J	K	L	M	N	Q	R	PG
400W	112	90	142	71	7	189	281.5	145	114	108	92.5	PG 11
750W	125	100	160	80	10	209	301.5	160	122	132	92.5	PG 13.5
1500W	140	125	178	90	10	271	360	178	158	140	89	PG 13.5

Type	Phase 3Ø, Poles 4P Free voltage						Net weight 중량 kg
	Motor Out-put 출력 kW	Motor speed 회전수 rpm	Fre - quency 주파수 Hz	Rated voltage 전압 V	Current 전류 A		
400W	0.37	1420	50	200	2.2	13.2	
				380	1.3		
				415	1.1		
750W	0.37	1710	60	220	2.0	13.2	
				380	1.2		
				440	1.0		
750W	0.75	1440	50	200	3.5	17.6	
				380	2.0		
				415	1.8		
1500W	0.75	1720	60	220	3.2	17.6	
				380	1.9		
				440	1.7		
1500W	1.5	1430	50	200	6.0	23.6	
				380	3.5		
				415	3.3		
1500W	1.5	1730	60	220	5.5	23.6	
				380	3.2		
				440	3.0		

Type	B	C	A1	A2	In/Outlet	
					D1	D2
AMTP-206HA/206HAVB	68	143.5	10	10	PT 1/2"	PT 1/2"
AMTP-208HA/206HAVB	72	147.5	14	10	PT 1/2"	PT 1/2"
AMTP-208HA/208HAVB	76	151.5	14	14	PT 1/2"	PT 1/2"
AMTP-210HA/208HAVB	79	154.5	17	14	PT 3/4"	PT 1/2"
AMTP-210HA/210HAVB	82	157.5	17	17	PT 3/4"	PT 3/4"
AMTP-212HA/208HAVB	82	157.5	20	14	PT 3/4"	PT 3/4"
AMTP-212HA/210HAVB	85	160.5	20	17	PT 3/4"	PT 3/4"
AMTP-212HA/212HAVB	88	163.5	20	20	PT 3/4"	PT 3/4"
AMTP-216HA/208HAVB	89	164.5	27	14	PT 3/4"	PT 3/4"
AMTP-216HA/210HAVB	92	167.5	27	17	PT 3/4"	PT 3/4"
AMTP-216HA/212HAVB	95	170.5	27	20	PT 3/4"	PT 3/4"
AMTP-216HA/216HAVB	102	177.5	27	27	PT 3/4"	PT 3/4"
AMTP-220HA/208HAVB	95	170.5	33	14	PT 3/4"	PT 3/4"
AMTP-220HA/210HAVB	98	173.5	33	17	PT 3/4"	PT 3/4"
AMTP-220HA/212HAVB	101	176.5	33	20	PT 3/4"	PT 3/4"
AMTP-220HA/216HAVB	108	183.5	33	27	PT 3/4"	PT 3/4"
AMTP-220HA/220HAVB	114	189.5	33	33	PT 3/4"	PT 3/4"

### Applications 적용

Type of fluid : oils  
사용유체  
Viscosity : 20 ~1000cSt  
점도  
Temperature : NBR 80℃  
사용온도 FKM 180 ℃

### Material 재질

Motor flame : Aluminum  
Pump body : Cast iron  
Port housing : Cast iron  
Cover : Cast iron  
Bearing : #6200zz, #6301zz  
Shaft : steel  
Rotor : Powder steel  
Oil-seal : NBR, FKM(Option)  
Ø15×Ø35×8t  
Ø17×Ø30×8t  
Relief valve: Cast iron etc.

# T-ROTOR pumps

**DST**  
Double Seal Type

## AMTP-HAVBF Series



**AMTP - 400 - 206HAVBF / 10**

Motor out-put  
모터출력

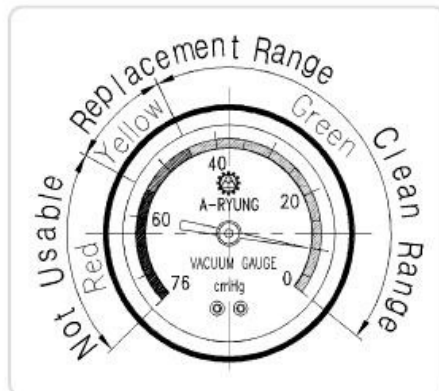
Pump division  
펌프구분

Setting pressure  
설정압력(kg/cm<sup>2</sup>)

- AMTP-HAVBF형 펌프는 자체에 Suction filter가 장착되어있어 별도의 Filter장치가 필요하지 않으며 항상 청정한 유체를 흡입하여 토출하게 되므로 Rotor의 마모 및 손상을 방지할 수 있어 펌프의 수명을 연장할 수 있다.
- 자체에 장착된 Filter에는 교환 시기를 쉽게 식별할 수 있도록 게이지가 부착되어 있으며, Filter종류는 Element식으로 세척하여 재사용 가능하다.
- 축봉장치용 Oil-seal을 이중으로 적용하여 내구성이 우수하다.
- 압력조절이 가능한 Relief valve가 부착되어 있어 Motor 및 Pump의 부하를 줄여 안전하게 사용할 수가 있다.
- 공작기계 및 각종 산업기계의 오일 및 연료이송, 윤활급유 등에 적합하다.

- AMTP-HAVBF pump itself has suction filter and always suck and discharge clear fluid, So it can improve the pump life by protecting abrasion and damage.
- The gauge is attached at pump to inform easily the exchange intervals of filter, (Element type)can use after.
- The double oil mechanical seal improves the pump endurance.
- This pump has a relief valve to control the pump pressure so that can avoid the load in motor and pump operation.
- This pump is used transferring of oil and fuel in industrial machine and lubrication of machine and tools.

Type	50Hz 4p (1500rpm)				60Hz 4p (1800rpm)				Net weight 중량 kg
	Dis-charge Volume 유량 ℓ /min	Maximum pressure per Motor output 모터출력에 대한 최고압력 kg/cm <sup>2</sup>			Dis-charge Volume 유량 ℓ /min	Maximum pressure per Motor output 모터출력에 대한 최고압력 kg/cm <sup>2</sup>			
		400W	750W	1500W		400W	750W	1500W	
AMTP-204HAVBF	6.3	10.0	10.0	10.0	7.5	10.0	10.0	10.0	7.2
AMTP-206HAVBF	9.0	7.0	10.0	10.0	10.8	7.0	10.0	10.0	7.2
AMTP-208HAVBF	12.6	4.5	10.0	10.0	15.1	4.0	10.0	10.0	7.3
AMTP-210HAVBF	15.3	3.5	10.0	10.0	18.3	2.5	10.0	10.0	7.4
AMTP-212HAVBF	18.0	2.0	10.0	10.0	21.6	-	8.5	10.0	7.6
AMTP-216HAVBF	24.3	-	8.5	10.0	29.1	-	5.5	10.0	7.8
AMTP-220HAVBF	29.7	-	5.5	10.0	35.6	-	3.5	10.0	8.1



Filter의 교환 시는 진공계이지의 눈금으로 식별하여 적기에 교환 또는 세척 할것.

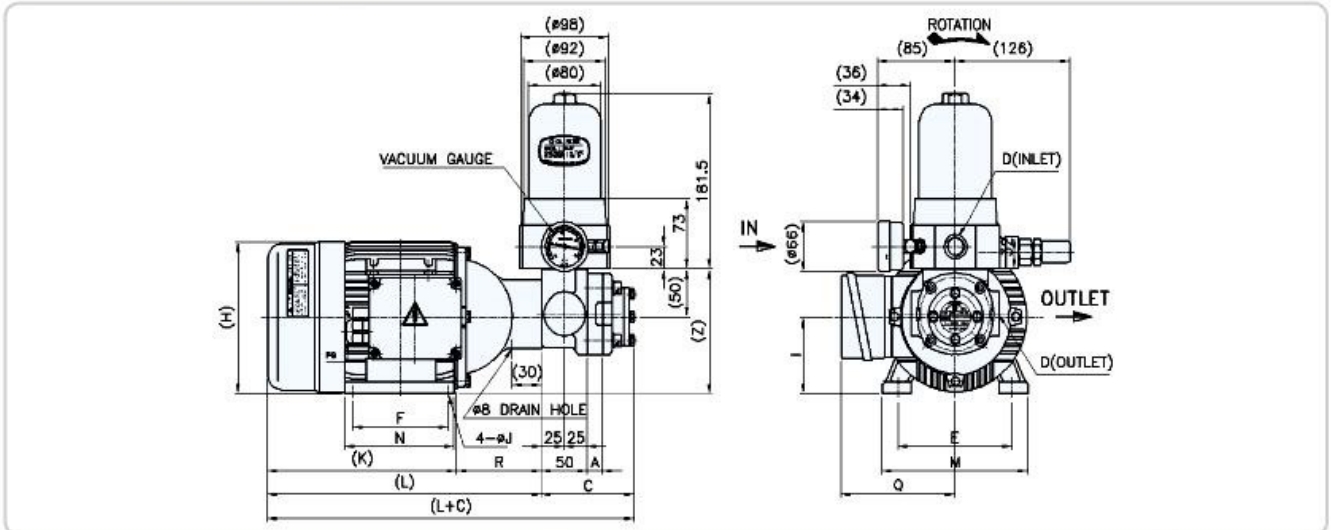
적색 : 교환/세척  
황색 : 주의  
녹색 : 정상

The filter should be exchanged or cleaned on time by the vacuum gauge indication mark.

Red : change or clean  
Yellow : Caution  
Green : Normal

# AMTP-HAVBF Series

## External dimensions 외형도



Type	E	F	H	I	J	K	L	M	N	Q	R	Z	PG
400W	112	90	142	71	7	189	281.5	145	114	108	92.5	121	PG 11
750W	125	100	160	80	10	209	301.5	160	122	132	92.5	130	PG 13.5
1500W	140	125	178	90	10	271	360	178	158	140	89	140	PG 13.5

Type	Phase 3Ø, Poles 4P Free voltage					Net weight 중량 kg
	Motor Out-put 출력 kW	Motor speed 회전수 rpm	Fre - quency 주파수 Hz	Rated voltage 전압 V	Current 전류 A	
400W	0.37	1420	50	200	2.2	14.5
				380	1.3	
				415	1.1	
750W	0.75	1710	60	220	2.0	14.5
				380	1.2	
				440	1.0	
750W	0.75	1720	60	220	3.2	17.6
				380	1.9	
				440	1.7	
1500W	1.5	1430	50	200	6.0	24.0
				380	3.5	
				415	3.3	
1500W	1.5	1730	60	220	5.5	24.0
				380	3.2	
				440	3.0	

Enclosure class : IP55 ※ AMTP-HAVBF type은 AMTP-HAVBF type can  
보호등급 일본과의 특허관련 분쟁의 arise the patent problem  
Insulation class : F 소지가 있으므로 일본 내에 with Japan producer, so  
절연계급 서 사용하거나 일본으로 수 avoid to export this pump  
출되는 기계장치에는 적용 only or attaching on  
하지 마십시오. machine to Japan.

Type	A	C	D (Port dia) In/Outlet
AMTP-204HAVBF	7	95.5	PT 1/2"
AMTP-206HAVBF	10	98.5	PT 1/2"
AMTP-208HAVBF	14	102.5	PT 1/2"
AMTP-210HAVBF	17	105.5	PT 3/4"
AMTP-212HAVBF	20	108.5	PT 3/4"
AMTP-216HAVBF	27	115.5	PT 1"
AMTP-220HAVBF	33	121.5	PT 1"

### Applications 적용

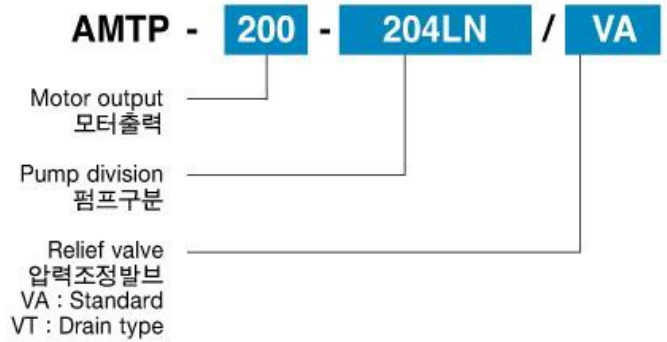
Type of fluid : oils  
사용유체  
Viscosity : 20 ~1000cSt  
점도  
Temperature : NBR 80℃  
사용온도

### Material 재질

Motor frame Aluminum  
Pump body: Cast iron  
Port housing: Cast iron  
Cover: Cast iron  
Filter body & cover : Aluminum(ALDC)  
Filter 60Mesh  
Bearing: #6200zz, #6301zz  
Shaft: steel  
Rotor: Powder steel  
Oil-seal: NBR, FKM(Optional)  
Ø15 × Ø35 × 8t  
Ø17 × Ø30 × 8t

# T-ROTOR pumps

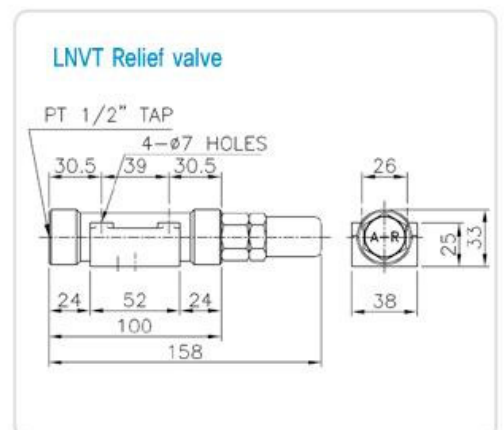
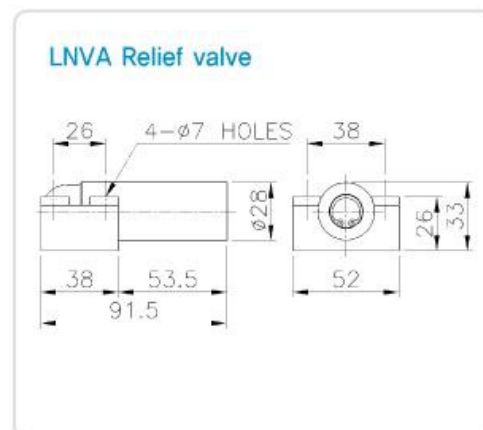
## AMTP-LN Series



- AMTP-LN형 펌프는 저소음구조로 Motor와 Pump를 조합하여 Compact하게 설계되었으며, Motor와 Pump의 결합 및 분리가 간편하여 유지보수가 매우 용이하다.
- 압력조절이 가능한 Relief valve가 부착되어 있어 Motor 및 Pump의 부하를 줄여 안전하게 사용할 수가 있다.
- 공작기계 스피들유 순환장치, 오일콘, 에 이송 운활장치 등에 적합하다.

- AMTP-LN type is low noisy structure pump, it is very compact, and it is easy to assemble and dismantle between pump and motor.
- This pump has a relief valve to control the pump pressure so that can avoid the load in motor and pump operation.
- The pump is used the circulating system of spindle oil in machine, transferring lubrication system,

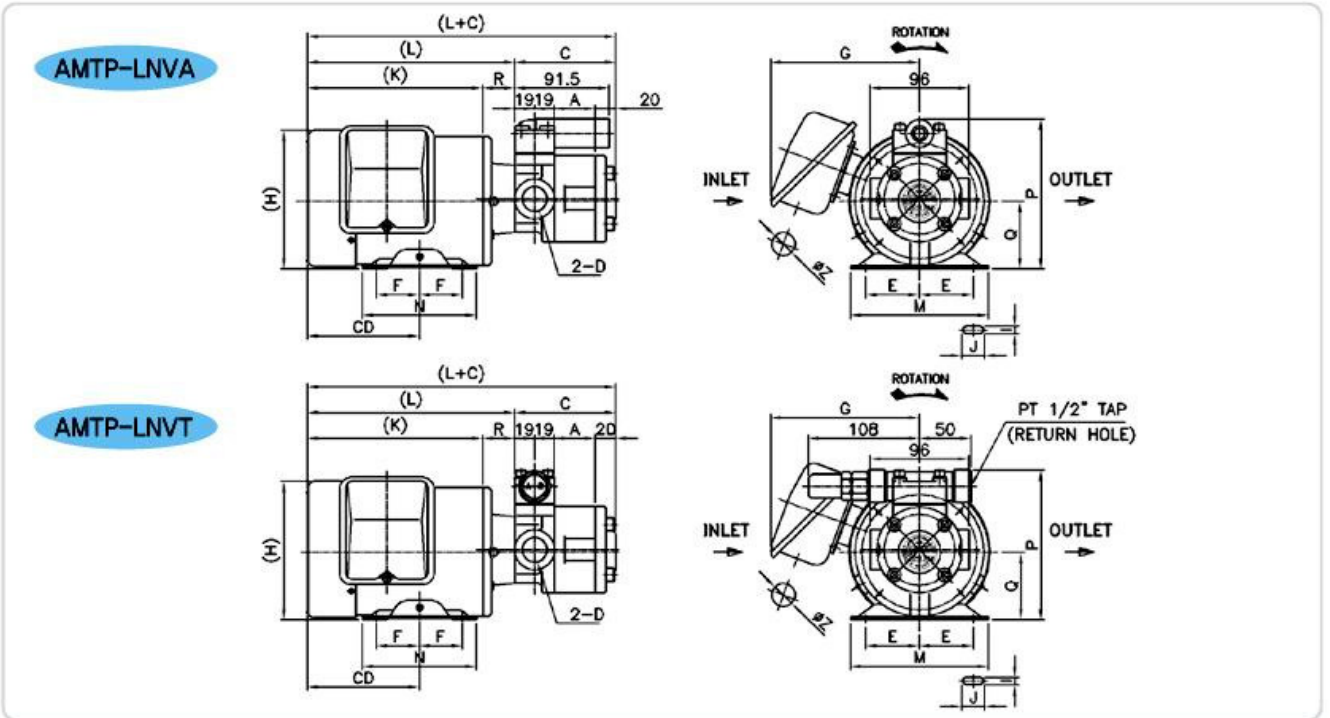
Type	50Hz 4p (1500rpm)				60Hz 4p (1800rpm)			
	Dis-charge Volume 유량 ℓ /min	Maximum pressure per Motor output 모터출력에 대한 최고압력 kg/cm <sup>2</sup>			Dis-charge Volume 유량 ℓ /min	Maximum pressure per Motor output 모터출력에 대한 최고압력 kg/cm <sup>2</sup>		
		200W	400W	750W		200W	400W	750W
AMTP-204LN	6.0	5	5	5	7.2	5	5	5
AMTP-206LN	9.0	5	5	5	10.8	5	5	5
AMTP-208LN	12.0	5	5	5	14.4	5	5	5
AMTP-210LN	15.0	-	5	5	18.0	-	5	5
AMTP-212LN	18.0	-	5	5	21.6	-	5	5
AMTP-216LN	24.0	-	5	5	28.8	-	5	5
AMTP-220LN	30.0	-	-	5	36.0	-	5	5





# AMTP-LN Series

## External dimensions 외형도



Type	E	F	G	H	I	J	K	L	M	N	P	Q	R	CD	Z
200W	50	40	135	135	7	15	168	199	136	110	144	65	31	118	22
400W	57	45	125	148	7	27	178	209	150	110	149	71	31	134	22
750W	62.5	50	144	161	10	30	221	252	169	124	159	80	31	151	22

Type	Phase 3Ø, Poles 4P				
	Motor Out-put 출력 kW	Motor speed 회전수 rpm	Fre - quency 주파수 Hz	Rated voltage 전압 V	Current 전류 A
200W	0.2	1420	50	200	1.40
	0.2	1720	60	220	1.30
400W	0.4	1420	50	200	2.4
	0.4	1720	60	220	2.1
750W	0.75	1420	50	200	3.5
	0.75	1720	60	220	3.4

Enclosure class 보호등급 : IP44  
Insulation class 절연계급 : E

Type	A	C	D (Port dia) In/Outlet
AMTP-204 LNVA LNVT	10	68	PT 1/2"
AMTP-206 LNVA LNVT	15	73	PT 1/2"
AMTP-208 LNVA LNVT	20	78	PT 1/2"
AMTP-210 LNVA LNVT	25	83	PT 3/4"
AMTP-212 LNVA LNVT	30	88	PT 3/4"
AMTP-216 LNVA LNVT	40	98	PT 3/4"
AMTP-220 LNVA LNVT	50	108	PT 3/4"

### Applications 적용

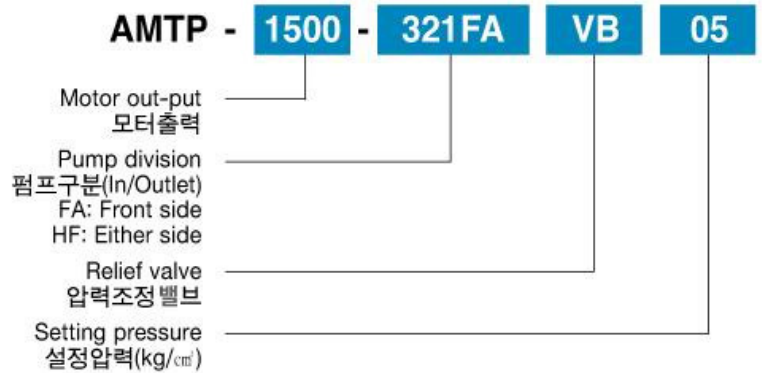
Type of fluid : oils  
사용유체  
Viscosity : 2~ 32cSt  
점도  
Temperature : NBR 80℃  
사용온도 FKM 180 ℃

### Material 재질

Motor flame  
Pump body  
Port housing  
Cover  
Shaft  
Rotor  
Oil-seal  
Relief valve  
Aluminum  
Cast iron  
Cast iron  
Cast iron  
steel  
Powder steel  
NBR  
Ø17a×Ø35×8t  
Cast iron etc.

# T-ROTOR pumps

## AMTP-FAVB, HFVB Series



- AMTP-HFVB형 펌프는 Motor와 Pump를 조합하여 Compact하게 제작되었으며, Motor와 Pump의 결합 및 분리가 간편하여 유지보수가 매우 용이하다.
- 열매체용으로 사용할 시는 불소재료의 Oil-seal을 적용하여 180℃ 이하의 고온에서도 사용이 가능하다.
- 압력조절이 가능한 Relief valve가 부착되어 있어 Motor 및 Pump의 부하를 줄여 안전하게 사용할 수가 있다.
- 공작기계 및 각종 산업기계의 오일 및 연료이송, 윤활급유 등에 적합하다.

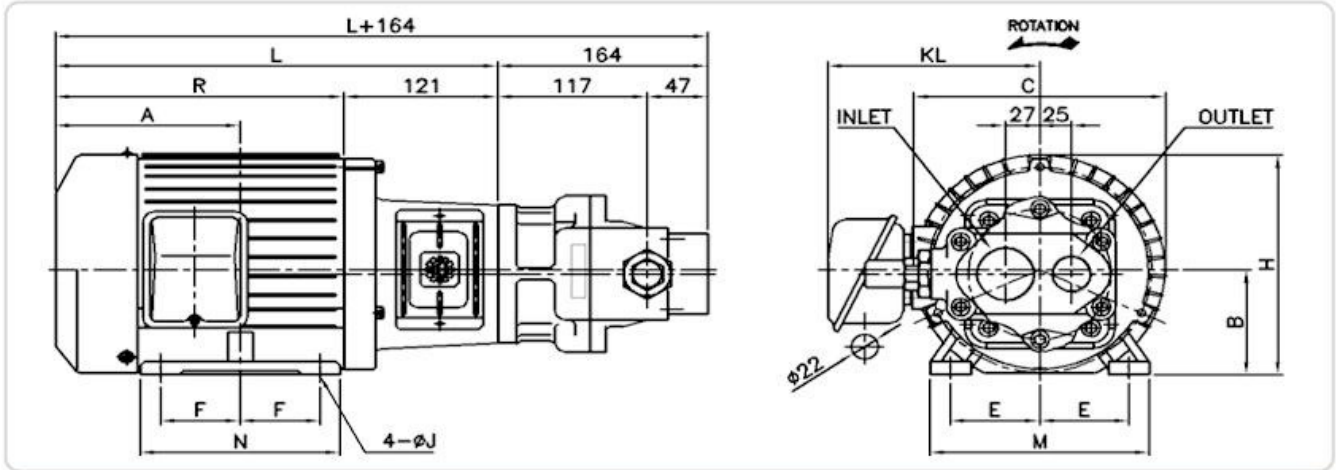
- AMTP-HFVB type is used combining motor with pump, it is very compact, and it is easy to fit and to separate the motor and pump part.
- This type can endure high temperature (below 180℃) applying the oil seal used the FKM material.
- This pump has a relief valve to control the pump pressure so that can avoid the load in motor and pump operation.
- This pump is used transferring of oil and fuel in machine and lubrication.

Type	50Hz 4p (1500rpm)			60Hz 4p (1800rpm)			50Hz 6p (1000rpm)			60Hz 6p (1200rpm)			Net weight 중량 kg
	Dis-charge Volume 유량 ℓ /min	Maximum pressure 최고압력 kg/cm <sup>2</sup>		Dis-charge Volume 유량 ℓ /min	Maximum pressure 최고압력 kg/cm <sup>2</sup>		Dis-charge Volume 유량 ℓ /min	Maximum pressure 최고압력 kg/cm <sup>2</sup>		Dis-charge Volume 유량 ℓ /min	Maximum pressure 최고압력 kg/cm <sup>2</sup>		
		1.5kW	2.2kW		1.5kW	2.2kW		1.5kW	2.2kW		1.5kW	2.2kW	
AMTP-321FAVB	39	5	8	46.8	5	8	26	8	12	31.2	8	12	12.0
AMTP-341FAVB	78	3	4	93.6	3	4	52	4	6	62.4	4	6	12.5
AMTP-320HFVB	39	5	8	46.8	5	8	26	8	12	31.2	8	12	14.7
AMTP-340HFVB	78	3	4	93.6	3	4	52	4	6	62.4	4	6	15.5

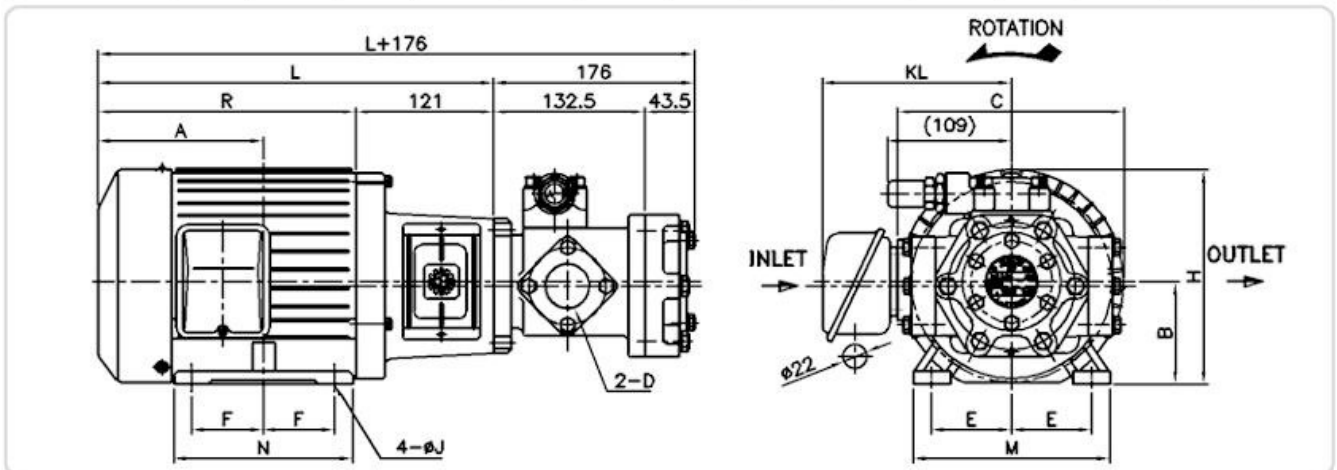
Type	Motor Output 출력 kW	Frequency 주파수 Hz	Rated voltage 전압 V	Current 전류 A		Net weight 중량 kg 4P/6P
				Poles 극수 4p	Poles 극수 6p	
1500W	1.5	50/60	220/380	6.9/3.98	6.9/4.0	22.4/30.5
				6.9/3.45	6.9/3.5	
2200W	2.2	50/60	220/380	8.4/4.8	9.7/5.6	30.7/35.5
				8.4/4.2	9.7/4.8	

# AMTP-FAVB, HFVB Series

## External dimensions 외형도



Type	A	B	C	E	F	H	J	L	M	N	R	KL	D (Port dia)	
													Inlet	Outlet
1500-FAVB	145	90	197	70	62.5	189	10	347	172	156.5	226	166	PT 1"	PT 1"
2200-FAVB	177	114	220	93	70.5	224	12	392	240	180	271	177.5	PT 1 1/4"	PT 1"



Type	A	B	C	E	F	G	H	J	L	M	N	R	KL	D (Port dia)	
														Inlet	Outlet
1500-HFVB	145	90	197	70	62.5	11	1890		347	172	156.5	226	166	PT 1"	PT 1"
2200-HFVB	177	114	220	93	70.5	14	2242		392	240	180	271	177.5	PT 1 1/4"	PT 1"

In, Outlet - FAVB : Front side  
흡입, 토출구 : 전면에 위치  
HFVB : Either side  
작우측에 위치  
압력조절범위 : 2 ~ 10kg/cm<sup>2</sup>

**Applications 적용**  
Type of fluid : oils  
사용유체  
Viscosity : 20 ~ 1000cSt  
점도  
Temperature : NBR 80℃  
사용온도 FKM 180℃

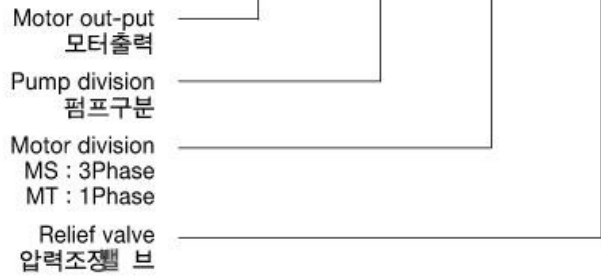
**Material 재질**  
Motor frame : Aluminum  
Pump body : Cast iron  
Port housing : Cast iron  
Cover : Cast iron  
Bearing : #6205  
steel  
Shaft : Powder steel  
Rotor : NBR, FKM(Optional)  
Oil-seal : Ø25 × Ø52 × 7t  
Cast iron etc.  
Relief valve

# T-ROTOR pumps

## AMTP-MS, MT Series



AMTP - 200 - 12 MS VB



- AMTP-MS, MT형 펌프는 소형 T-ROTOR 펌프로서 Motor와 Pump를 일체형으로 조합하여 Compact하게 설계되었으며, Motor와 Pump의 결합 및 분리가 간편하여 유지보수가 매우 용이하다.
- 압력조절이 가능한 Relief valve가 부착되어 있어 Motor 및 Pump의 부하를 줄여 안전하게 사용할 수가 있다.(선택사항)
- 공작기계 및 각종산업기계의 윤활급유, 유체이송 등에 적합하다.

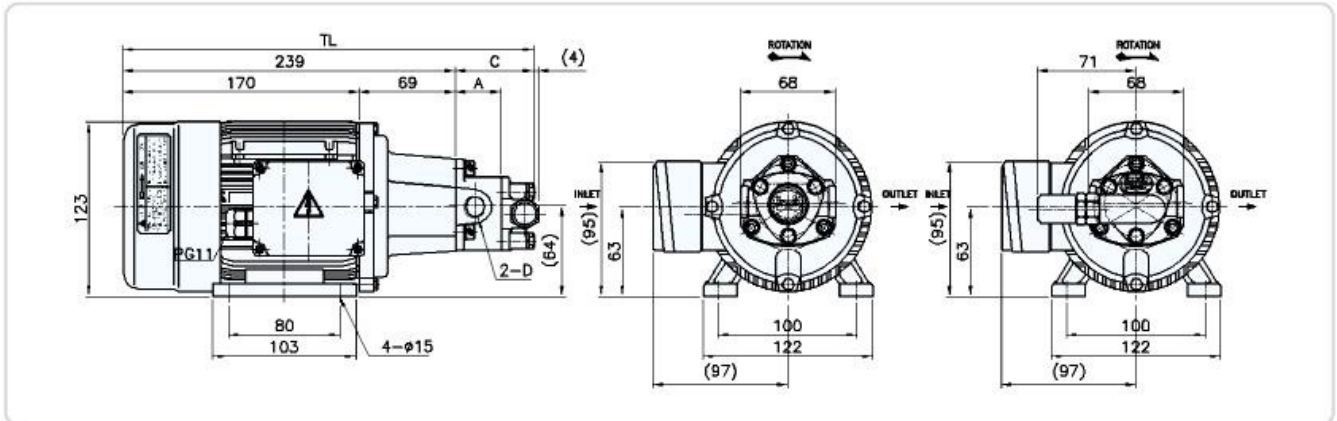
- AMTP-MS& MT is a small T-R pump, and combined motor and pump, it is very compact and it is easy to assemble and dismantle between pump and motor.
- This pump has a relief valve to control the pump pressure so that can avoid the load in motor and pump operation.(option)
- This type is used lubrication in machine& tools and transferring of oil& fluid.

Type	50Hz 4p (1500rpm)			60Hz 4p (1800rpm)			Net weight 중량 kg
	Dis-charge Volume 유량 ℓ /min	Maximum pressure per Motor output 모터출력에 대한 최고압력 kg/cm <sup>2</sup>		Dis-charge Volume 유량 ℓ /min	Maximum pressure per Motor output 모터출력에 대한 최고압력 kg/cm <sup>2</sup>		
		100W	200W		100W	200W	
AMTP-11**	2.5	5	-	3.0	5	-	7.2
AMTP-12**	3.7	5	5	4.5	5	5	7.2
AMTP-13**	6.7	-	5	8.1	-	5	7.7
AMTP-11**VB	2.5	5	-	3.0	5	-	7.5
AMTP-12**VB	3.7	5	5	4.5	5	5	7.5
AMTP-13**VB	6.7	-	5	8.1	-	5	8.0

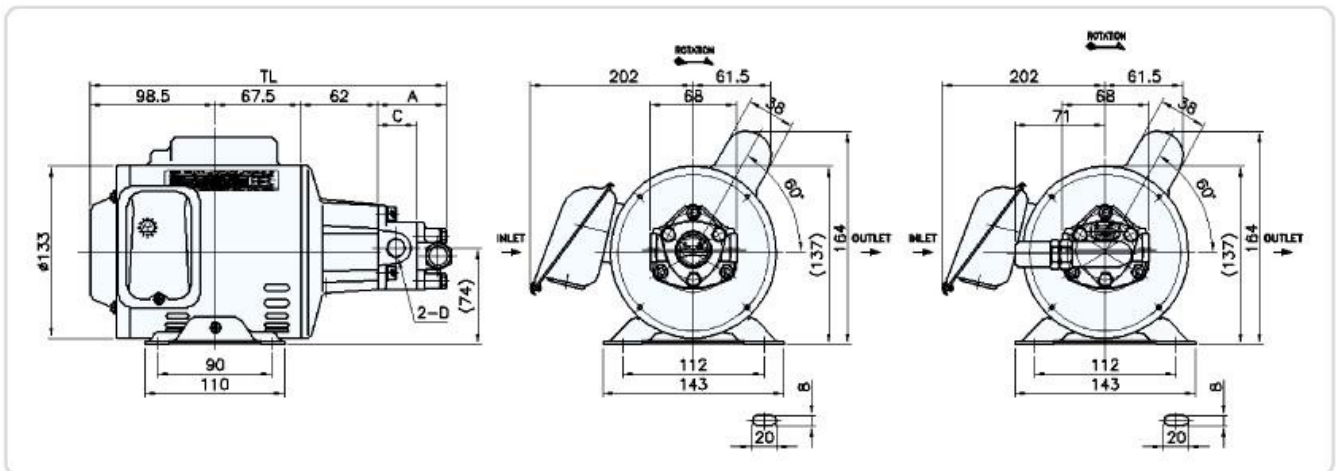
Type	Motor Output 출력 kW	Motor speed 회전수 rpm	Phase 상수 Ø	Poles 극수 P	Fre- quency 주파수 Hz	Rated voltage 전압 V	Current 전류 A
200W 100W	0.2 0.1	1745 1430	1 3	4 4	60 50	220	3.0
						200	0.80
						380	0.45
200W	0.1 0.1 0.2	1720 1430 1710	3 3 3	4 4 4	60 50 60	220	0.70
						380	0.41
						440	0.37
						200	1.50
						380	0.85
						415	0.75
200W	0.2	1710	3	4	60	220	1.30
						380	0.75
						440	0.65

# AMTP-MS, MT Series

## External dimensions 외형도



Type	A	C	TL	D (Port dia)	
				Inlet	Outlet
AMTP-11MS	25.5	39.5	279	PT 1/8'	PT 1/8'
AMTP-12MS	30.5	44.5	284	PT 1/4'	PT 1/4'
AMTP-13MS	45	59	298	PT 3/8'	PT 3/8'
AMTP-11MSVB	25.5	52.5	292	PT 1/8'	PT 1/8'
AMTP-12MSVB	30.5	57.5	297	PT 1/4'	PT 1/4'
AMTP-13MSVB	45	72	311	PT 3/8'	PT 3/8'



Type	A	C	TL	D (Port dia)	
				Inlet	Outlet
AMTP-11MT	39.5	25.5	267	PT 1/8'	PT 1/8'
AMTP-12MT	44.5	30.5	272	PT 1/4'	PT 1/4'
AMTP-13MT	59	45	286	PT 3/8'	PT 3/8'
AMTP-11MTVB	52.5	25.5	280	PT 1/8'	PT 1/8'
AMTP-12MTVB	57.5	30.5	285	PT 1/4'	PT 1/4'
AMTP-13MTVB	72	45	300	PT 3/8'	PT 3/8'

### Applications 적용

Type of fluid : oils

사용유체

Viscosity : 20 ~1000cSt

점도

Temperature : NBR 80℃

사용온도 FKM 180 ℃

### Material 재질

Motor frame : 3∅ Aluminum

1∅ Steel

Pump body : Cast iron

Port housing : Cast iron

Cover : Cast iron

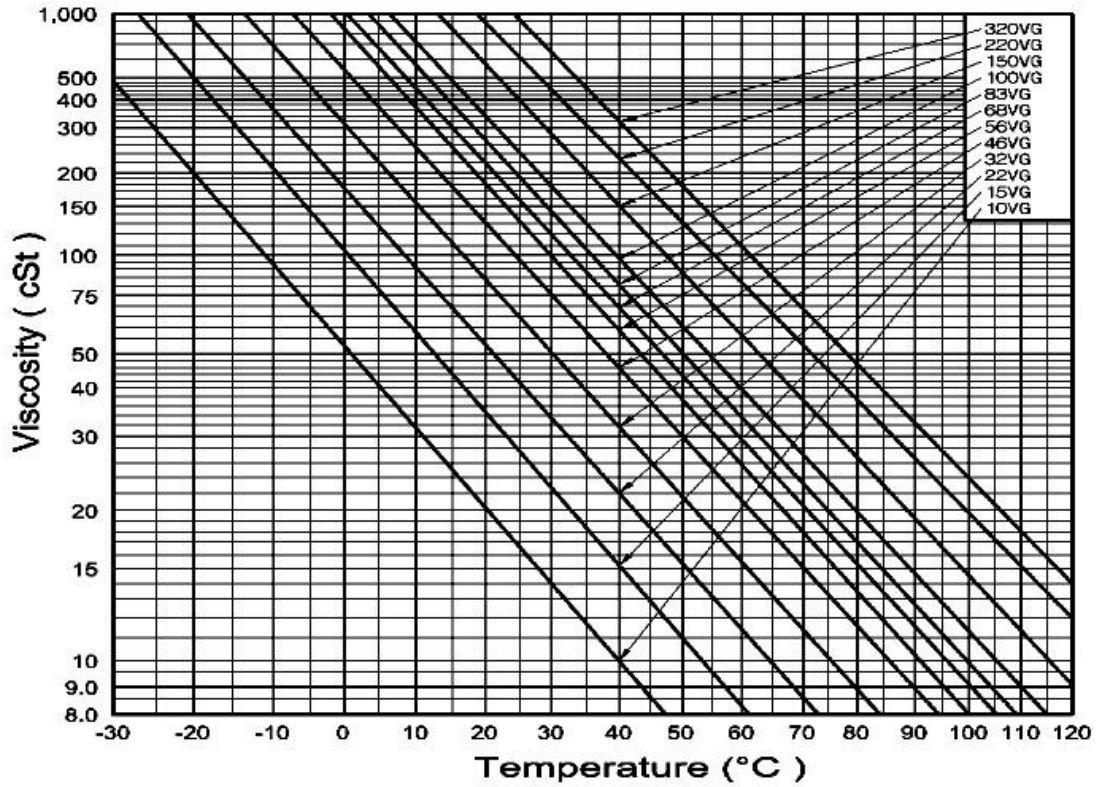
Shaft : steel

Rotor : Powder steel

Oil-seal : NBR

Relief valve : Cast iron etc.

# T-ROTOR pumps



Change of viscosity by temperature 온도 따른 동점도(cSt)변화

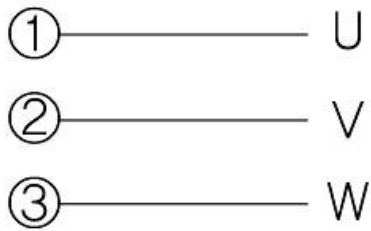
Temp-erature (°C)	VG2	VG3	VG5	VG7	VG10	VG15	VG22	VG32	VG46	VG68	VG100	VG150	VG220	VG320	VG460
-30	-	-	-	-	-	-	-	3250.0	-	-	-	-	-	-	-
-20	-	-	-	-	-	-	-	1170.0	3600.0	8000.0	-	-	-	-	-
-10	-	-	-	-	-	-	-	440.0	1270.0	2500.0	4500.0	-	-	-	-
0	-	-	-	-	52.2 (1°C)	109.5 (1°C)	169.0 (1°C)	240.0	520.0	950.0	1600.0	3570.0	-	-	-
10	-	-	-	-	32.3	62.1	93.2	135.4	261.3	433.0	772.3	1236.6	-	-	-
20	3.3	5.3	8.5	14.1	20.4	36.2	53.2	76.1	134.0	212.0	356.3	553.2	-	-	-
30	-	-	-	-	13.8	22.9	32.9	46.4	75.7	115.0	183.8	277.0	-	-	-
40	2.2	3.2	4.6	6.8	9.8	15.4	21.8	30.2	46.3	67.9	103.8	152.3	222.3	319.8	453.1
50	1.9	2.6	3.6	5.1	7.3	11.0	15.2	20.8	30.2	43.0	63.2	90.5	-	-	-
60	-	-	-	-	-	-	-	15.0	20.8	28.8	41.0	57.4	-	-	-
70	-	-	-	-	4.5	6.2	8.4	11.2	15.0	20.3	28.1	38.5	-	-	-
80	-	-	-	-	-	-	-	8.6	11.2	14.7	20.1	27.0	-	-	-
90	-	-	-	-	3.0	4.0	5.3	6.9	8.7	11.3	14.9	19.7	-	-	-
100	-	-	1.5	2.0	2.6	3.3	4.3	5.6	6.9	8.8	11.4	14.9	19.1	24.1	30.2
110	-	-	-	-	2.2	2.8	3.6	4.6	5.6	7.1	9.0	11.6	-	-	-
120	-	-	-	-	-	-	-	3.9	4.6	5.8	7.2	9.2	-	-	-
130	-	-	-	-	-	-	-	3.3	3.9	4.8	6.0	7.5	-	-	-
140	-	-	-	-	-	-	-	2.9	3.3	4.1	5.0	6.2	-	-	-
150	-	-	-	-	-	-	-	2.5	2.9	3.5	4.2	5.2	-	-	-
160	-	-	-	-	-	-	-	2.2	2.5	3.0	3.6	4.5	-	-	-
170	-	-	-	-	-	-	-	2.0	2.2	2.7	3.2	3.9	-	-	-

※본 자료는 사용자의 이해를 돕기위한 참고자료이며 각 에 제조사에 따라 특성이 다를 수 있다. ※As the above data are for user's reference, the figures can be different by oil producers.

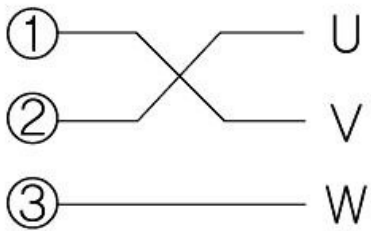
## Terminal connection 결선도

### Single voltage

Right Direction

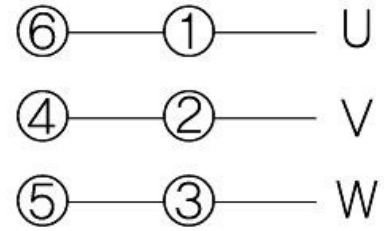


Reverse Direction

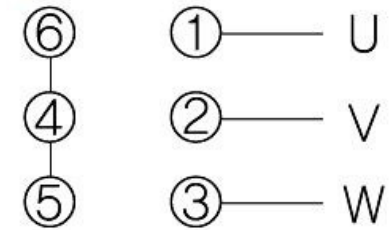


### Dual voltage

Low Voltage (200V, 220V)

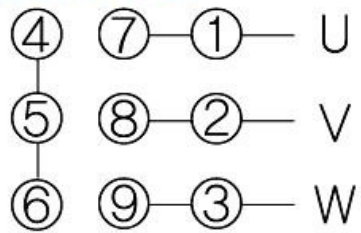


High Voltage (380V)

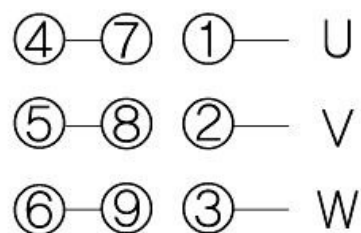


### Double voltage

Low Voltage (200V, 220V)

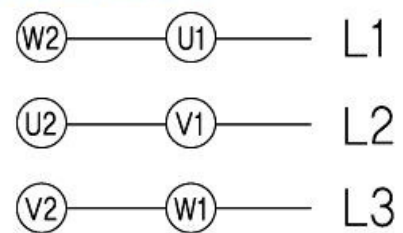


High voltage (440V)

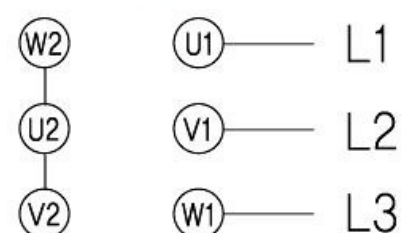


### Free voltage

Low Voltage (200V~240V)

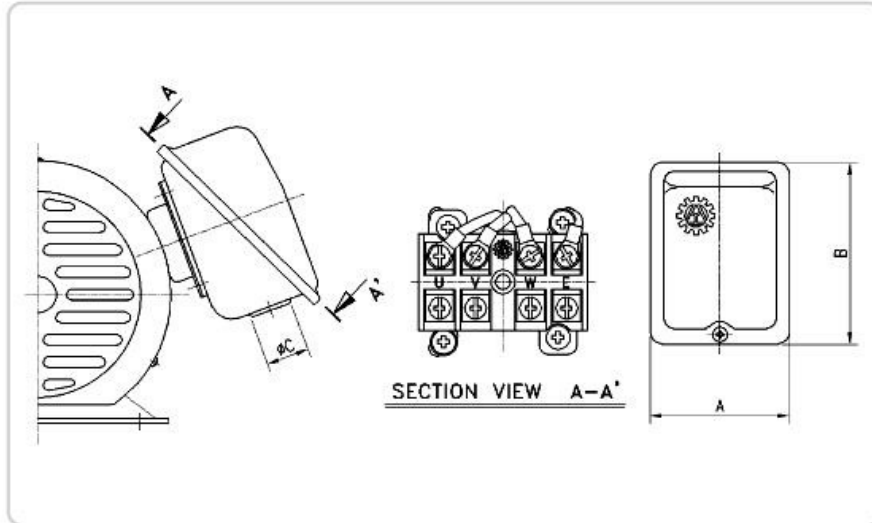


High Voltage (380V~440V)

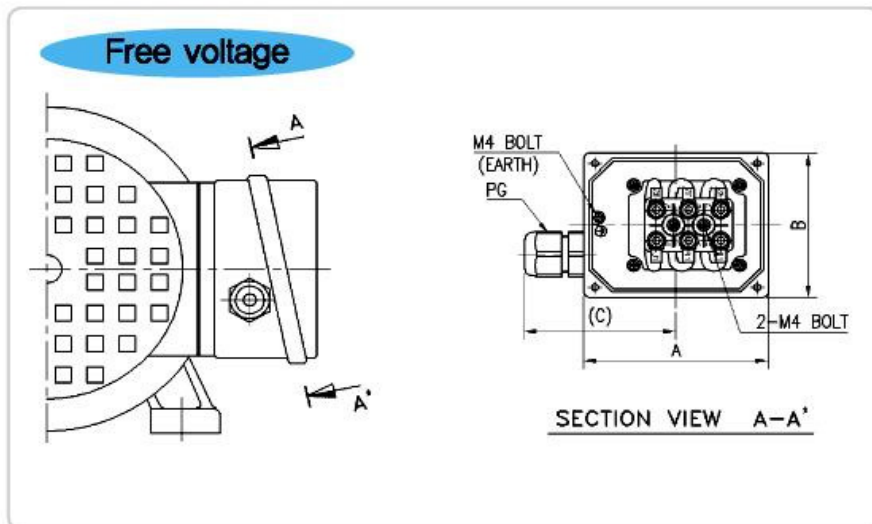


# T-ROTOR pumps

## External figure of terminal box 단자박스



Type	A	B	C
200W	65	(90)	Ø22
400W	73	(103)	Ø22
750W	73	(103)	Ø22



Type	A	B	C	PG
400W	86	71	70	11
750W	110	88	85	13,5
1500W	110	88	85	13,5



# Company History

(View of factory)



1976.	5	아름기공(주) 설립	Established as A-RYUNG Machinery Industry Co. Ltd.
1980.	4	상공부지정 Oil pump 전문화 업체 지정 (No.79-118)	Designated technical manufacturer of oil pump by the Ministry of Trade and Industry.
1982.	2	근대화 실현계획 승인업체지정 (중소기업진흥공단 No.81-208)	Designated as an 'Approved Company of Systematization of Small & Medium Industry' by the Ministry of Trade and Industry.
1982.	5	우수중소기업 대통령표창 수상 (No. 54709)	Awarded the Korea Presidential Citation for an 'Excellent Small & Medium Enterprise.
1987.	9	국산기계개발 우수업체선정 무총리상 수상 (No.87-104호)	Awarded 'Excellent company for domestic machine development' by the Deputy Prime Minister.
1992.	12	자율세정 공로패 수상 (국세청)	Awarded 'Self-Control company for National Tax' by National Tax Office.
1993.	5	해외시장 수출 산업상 수상 (대한무역진흥공사)	Awarded an 'Export Industry Prize for Overseas Market' by the Korea Trade Center. (KOTRA)
1996.	11	'CE' 유럽안전규격 인증 ( TÜV Rheinland)	Authorized Conformity 'EC' declaration by TÜV Rheinland.
1999.	6	'EM' 기계류, 부품소재 우수품질규격 인증 (한국기술표준원 No.1999-039호)	Obtaining Certification for EM Machinery, Spare parts by Korea Technique Standard Association.
1999.	11	ISO 9001 품질경영시스템 인증 (KSA)	Obtaining the ISO 9001 Certification by the KSA-QA supported by IQ-NET.
2000.	10	'CSA-c-us' 미국 및 캐나다 안전규격 인증 (CSA INTERNATIONAL)	Obtained the CSA-c-us mark, American-Canadian Safety Standard' by CSA INTERNATIONAL.
2000.	11	수출공로 산업자원부장관상 표창 (No.47955)	Awarded 'The prize of Export-developing Company' by Ministry of Trade and Industry.
2003.	11	무역진흥 경제발전 공로 산자부장관 표창 수상 (No.54163).	Awarded 'Prize of Trade Promotion and Industrial Development' from Ministry of Trade and Industry
2003.	12	수출공로 전라남도지사 표창 (No.1421)	Awarded 'Prize of excellent Exporter' by Jeonnam Province.
2004.	1	부품,소재 신뢰성 인증(기술표준원 No.2004-6호)	Obtained 'Certificate of quality reliance of parts and components' by Technology Standard Office in Ministry of Trade and Industry.
2004.	11	중국현지 법인 설립 '아름기공(대련)유한공사'	Opened China office in Dalian named 'A-Ryung Dalian Co. Ltd.'
2005.	6	공장증축 및 개축, 구조 개선사업 완료	Added building of factory and developing factory structure.
2005.	12	'공작기계발전' 공로 국무총리상 표창 (No.133740호)	Awarded 'Honor of machine development' by The Prime Minister.



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