Trochoid® Pump

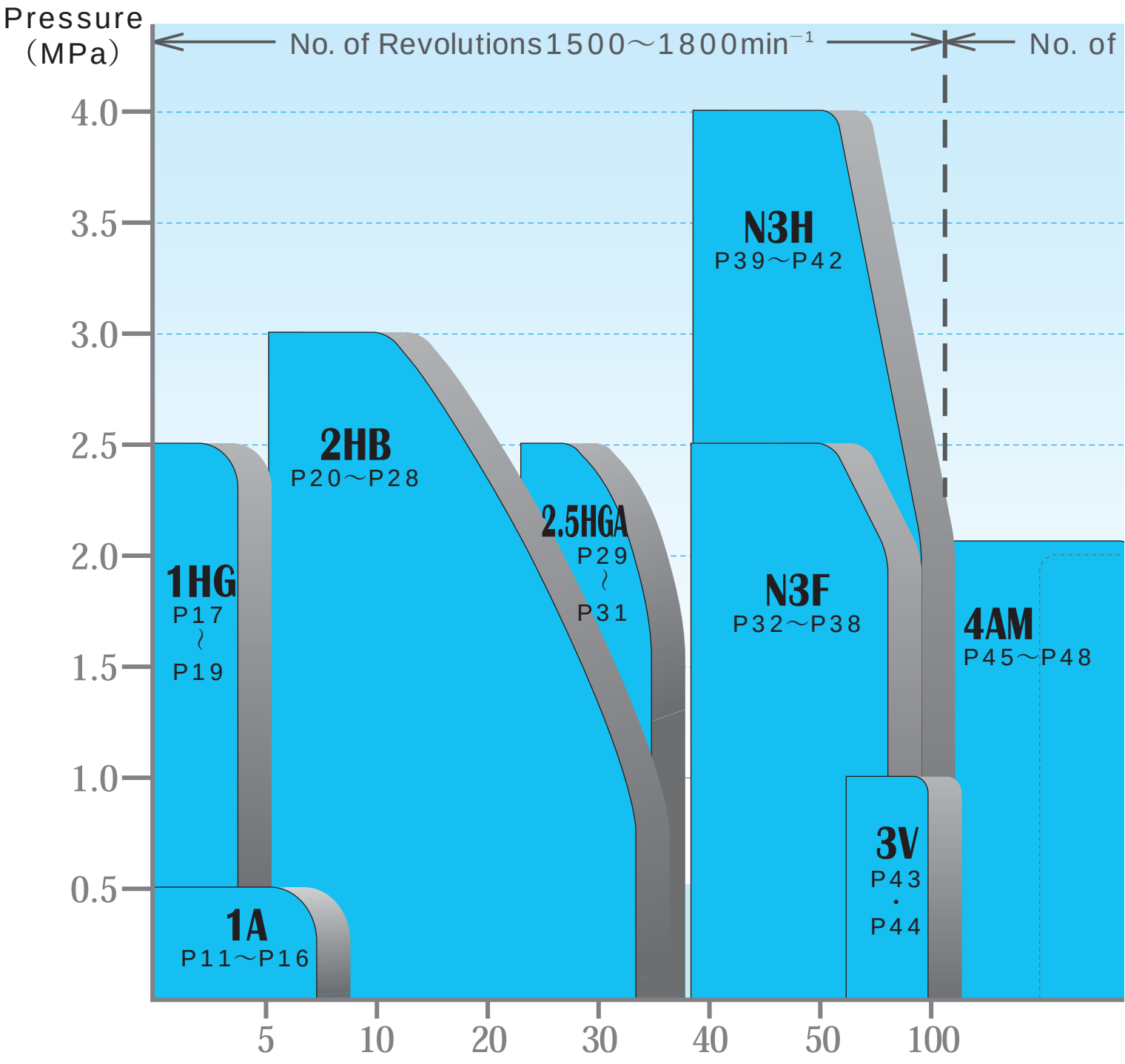
Oil-Hydraulic & Lubrication

Trochoid Pump Catalog

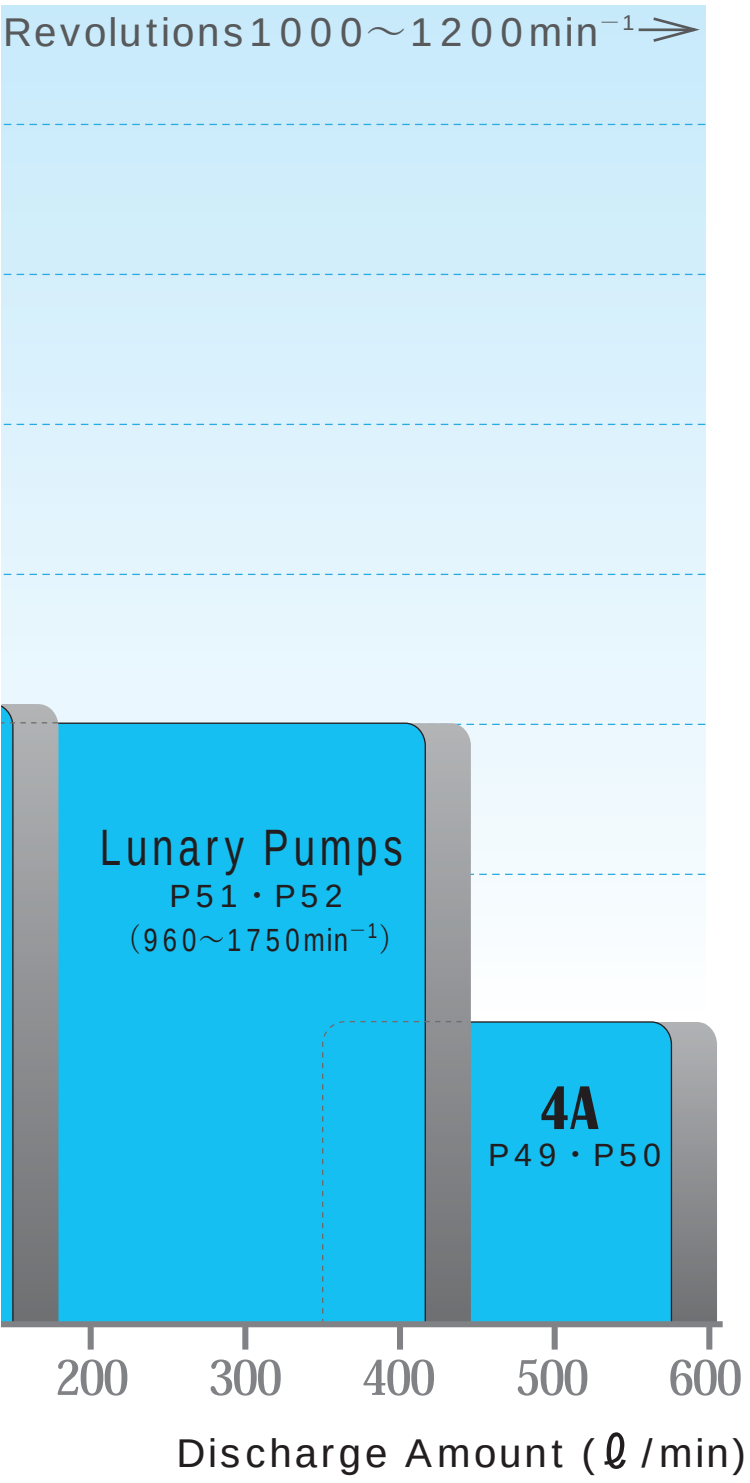
Sole Agent.
Nippon Oil Pump Co.,Ltd.
Manufacturer.
Nippon Gerotor Co.,Ltd.

Trochoid Pump Performance Distribution Map

Please select the Trochoid pump best suited for your needs from the table below.
The pumps are classified based on the discharge amount and discharge pressure.
Please refer to the page numbers provided in the table for further information.



(Oil : ISO-VG46 at 40℃)



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Trochoid Pump and *Lunary Pump* Instruction Manual

Be sure to obtain a thorough understanding of all safety measures.
Always conduct the indicated precautionary steps and safety measures.

Special attention should be given to items highlighted by the following symbols and headings as these deal with matters that could result in personal injury or material damage.

⚠	DANGER	: Failure to observe the precautions indicated by this symbol would likely result in serious injury or even death.
⚠	WARNING	: Failure to observe the precautions indicated by this symbol could result in serious injury or even death.
⚠	CAUTION	: Failure to observe the precautions indicated by this symbol could result in injury or damage to the pump and other equipment.

Pump Installation

●Installation

- The pump should be installed at a position that is within 1m above or below the fluid level.

⚠	CAUTION	: Installing the pump at a height of more than 1m above the fluid line could result in poor suction, depending on the operating conditions.

⚠	CAUTION	: Installing the pump at a height of more than 1m below the fluid line could result in oil leaks, depending on the operating conditions.

●Installation Positions for the Trochoid Pump, Trochoid Pump with Motor, Trochoid Pump with Motor and Base Coupling and Lunary Pump with Motor and Base Coupling

- There are no particular restrictions when installing only the pump.
- When installing a Trochoid pump with a motor, the pump cannot be installed at a position higher than the motor (as seen from the horizontal position).
- When installing a Trochoid pump with a motor and a base coupling, the foundation section where the base is attached must be level.
- Align the attachment anchor so that it can be smoothly affixed to the base and the motor attachment holes.

⚠	CAUTION	: The motor may become damaged if it and the Trochoid pump are installed incorrectly.

⚠	CAUTION	: If the installation site is not level, or if there is forcible installation in which the installation holes are not in exact alignment, the angle plate and base may become damaged or the pump may become damaged due to gnawing of its internal workings caused by slippage.

●Installation Site

- The equipment should not be installed in locations with lots of dust, very high or very low temperatures (refer to "Ambient Temperature"). Please ask your Nippon Oil Pump representative about what measures can be taken when the equipment must be used in special environments other than the typical indoor installation sites.

Pipe Arrangement

●Tightening Torque for Pump Connecting Screws

- The maximum torque allowances when tightening the screws used for the Trochoid pump's pipes are as shown in the table below.

Diameter Rc	1/8	1/4	3/8	1/2	3/4	1	$1\text{-}1/4$	$1\text{-}1/2$
Torque N・m	10	20	20	25	30	70	80	90

⚠ CAUTION : The pump bore may become damaged if these values are exceeded.

⚠ CAUTION : The use of seal tape or liquid sealants may result in reduced resistance friction and over tightening, which in turn could damage the pump bore.

●Pipe Connections

- Carefully arrange the pipes so that the connections are completely sealed to prevent any leaks or the intake of air.
- Always be sure to use pipe supports so that the pipes are not placing any weight on the pump.
- When making connections, always first confirm that the pipe lengths and angles are correct so that no unnecessary pressure is placed on the pump.
- A pressure gauge should be installed so that pump conditions can be easily ascertained.
- Stop valves, union jacks and other couplings should be used to make pump maintenance easier.
- When handling liquids with very high viscosities, the pipes should have diameters bigger than the pump in order to minimize pressure loss.
- Some of the high-pressure hoses and other parts have narrow internal diameters. Therefore, be sure to confirm the inner diameter of not only the screw-in sections, but of the various pipes as well.

●Types of Pipes and Couplings

- Always be sure to clean the inside of the pipes before attaching to the pump. This is because the pipes may contain dust from when they were stored or metallic dust from when they were threaded.
- Always flush water through the pipes and confirm that they are completely clean before assembling.

⚠ CAUTION : The pump and connected equipment may become damaged if the pipes are not adequately cleaned.

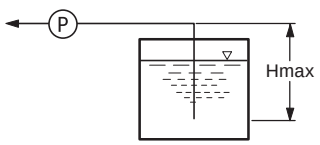
●Pipe Arrangement for Suction Side

- For the suction side select pipes with a thickness that will keep the fluid velocity in the pipe at 1.5m/sec or less.

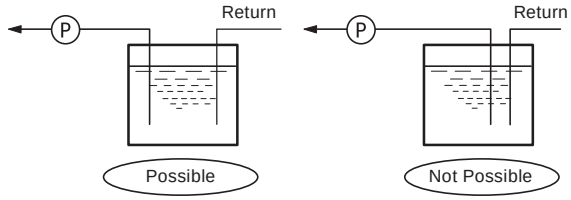
〈Calculation〉

$$\text{Fluid Velocity (m/sec)} = \frac{\text{Pump Flow Rate } (m^3/sec)}{\text{Pipe Cross-section Area } (m^2)}$$

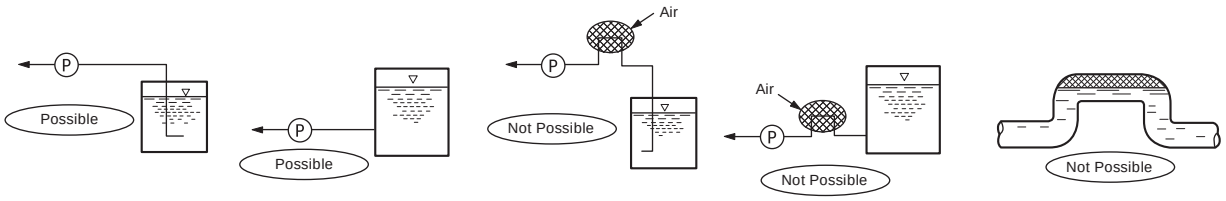
- Calculate the suction head based on the minimum oil level.



- Keep the suction-side piping as far away as possible from the return port of the relief valve or actuator so that there will be no negative influence from the returning oil.



- Piping on the suction side should be as short as possible and with the smallest number of curves possible.
- Thoroughly inspect all of the valves, cocks and couplings before assembling the pipes. Do not use any items with cavities or narrow ports.
- When bending or soldering the pipes, make sure that these areas do not become too small.
- Avoid any sudden changes to pipe cross sectional areas.
- Cleanly cut away the opening section of the packing.
- Be careful to not let any air into the pipes.



- Use gate-type models when installing valves.
- Set the suction side resistance to a pressure range of 0.03MPA～0MPa.

> CAUTION : Air in the pipes or the generation of air bubbles could result in pump noise, vibrations and the generation of heat, which in turn could damage the pump.

- If pressure will remain in the discharge-side pipes when operations are stopped, the check valve will need to be installed not on the suction side, but rather on the discharge side.

●Discharge Side Piping

- Select pipes wide enough that the speed of the fluids flowing through the discharge pipes will be 3m/sec.

●Filters

- Usually a 150 mesh filter is used for the suction filter. Try to use filters with the largest capacity possible.
- Confirm the manufacturer specifications and select filters with a passage resistance of 0.01MPa or less.
- The main purpose of the suction filter is to remove any large objects that could hamper pump operations. Even very minute matter passing through this filter can dramatically reduce the life of the pump. Therefore, the liquid used with the pump will need to be changed on a regular basis. Furthermore, maintenance will need to be performed on a regular basis when using 11-micron or smaller filters.

> CAUTION : Foreign matter inside the oil may dramatically reduce the life of the pump. In extreme cases this matter can even damage the pump. Therefore, the filters will need to be washed on a regular basis. The use of clogged filters may result in unusual noise, vibrations and poor discharge.

Safety

●Safety Equipment

- Be sure to equip the motor with an earth-leakage circuit breaker and overload protection equipment. Use this equipment only after first confirming that the ratings are within the prescribe ratings written on the motor's nameplate.
- Be sure to follow any other applicable electrical standards.

> ⚠ CAUTION : Failure to use earth-leakage circuit breakers and overload protection equipment could result in the equipment becoming damaged and/or the motor becoming burned.

- Install a galvanometer, pressure sensors and other devices at the pump discharge port so that inspections can be made through test runs without any fluids inside the pump. These inspections are conducted to prevent burning of the oil supply section.
- The pump oil seals and packing cannot be used indefinitely. Installation should be in a safe location and protection equipment should be used to ensure that people are not injured and the equipment is not damaged in the event that there is an oil leak.

●Safety Measures

- Children and others that cannot readily recognize dangerous conditions should not be allowed to approach or touch the equipment.
- Protective equipment should be installed to prevent fingers, hands or other objects from becoming caught in the drive section.

> ⚠ WARNING : Serious injury may result if a finger, hand or other object becomes caught in the equipment.

- Do not touch the pump or motor during or immediately after operations.

> ⚠ WARNING : Touching the pump or motor may result in burns.

- There may be sparks from the centrifugal force switch section when starting up certain single-phase motors (IME200S, 2ME200S, 2ME400S, 2MY750S).

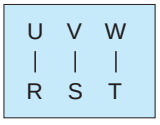
> ⚠ DANGER : Do not place any flammable liquids or materials in the area surrounding the motor. Such items could catch fire.

Preparations

●Before Operating

- Confirm the direction of the pump rotation, suction port and discharge port.
- The rotation direction for Nippon Oil Pump motors is shown in the wiring plates on the motor frame and terminal box section. Make the necessary connections after first checking these plates.

1) When using a Nippon Oil Pump motor (3-phase power source) set each of the pumps so that their respective rotations are in accordance with the standard rotation directions shown in the wiring diagram below.



2) For an all-purpose motor (3-phase) equipped with a base coupling, make the wiring connections after first confirming the rotation direction displayed on the pump.

⚠ CAUTION : Mistakes in the rotation direction and positioning of the suction and discharge ports could result in oil leaks or damage to the pump.

- Check whether the tank pipes on the suction side are clean or contain any oil.
- Confirm that there are no loose sections in the piping.
- Confirm that the valves around the pump are all fully opened.
- The initial operation of the pump should be inching to confirm the direction of the pump rotation.

●Test Run

1) Dry Run

Do not operate the pump for more than 10 seconds when there is no liquid in the system.

2) When Suction not Possible

Confirm the following points whenever suction is not possible.

①Has resistance at the discharge side become so large that the removal of air is difficult?
②Is resistance at the suction side too large? Is the pipe length too long?
③Is air being captured?
④Has the system run out of oil? Is the pipe reaching the liquid level?
⑤Is the number of pump rotations insufficient?

Inspections

●Initial Operations Inspection

- Be sure to make the necessary inspections before initial operations. In particular, be sure to check for any oil leaks, abnormal noise and heat generation.

⚠ CAUTION : If any abnormalities are discovered, immediately stop pump operations and remedy the problem area.

●Regular Inspections

- Any important safety parts that are used should be inspected at least once a year to confirm that they are operating correctly.
- These inspections should be performed by a service technician working for or approved by Nippon Oil Pump.

Maintenance

- Seal kits and spare parts should be kept on hand to deal with sudden faults and poor operations due to the gradual drop in performance over many years.
- The most common reason for poor performance is the use of fluids that have become dirty or degraded. Therefore, the oil will need to be replaced and other maintenance will need to be performed on a regular basis.
- Be sure to cease all operations if there are any strange sounds, heat generation or other abnormalities when using a motor that had been kept in storage for a very long time.
- The coupling used with the Trochoid pump equipped with a motor is a consumable part and so will need to be replaced on a regular basis (every year or 8,000 hours of use).

Warranty

- Faults caused by conditions outside the stated specifications or attributed to foreign matter or other external causes are not covered by the warranty.

Pump Selection

●Confirm the necessary flow rate.

- Refer to the specifications on pages 1 and 2.
- The discharge amount will vary depending on the type of liquid used, temperature and pressure.
- Pumps that provide plenty of leeway should be selected.

●Confirm the necessary pressure.

- Refer to the specifications on pages 1 and 2.
  ※The setting must not exceed the pump's maximum applicable pressure and the motor's output.

●Confirm the relief valve set pressure.

- The relief valve pressure is adjusted to the cracking pressure (refer to page 57).
  ※The setting must not exceed the pump's maximum applicable pressure and the motor's output.
  ※Cracking pressure is the pressure at which the valve opens to allow a certain amount of the oil to flow through when the pressure within the circuit rises.
- The relief valve can be used as both a safety valve and as an adjustment valve. Two types of relief valves are available depending on the intended purpose. Specifically, these are an external-return type and an internal-return type (refer to page 58).

⚠ CAUTION	: When using the internal-return type as the safety valve, do not allow operations to continue for more than 30 seconds with the pump running and the pump discharge side completely closed. Doing so could result in the pump or motor becoming burned.

⚠ CAUTION	: When using the internal-return type as an adjustment valve, do not make any settings that would allow for the relief amount to exceed 50% of the pump discharge amount. This could result in abnormal pump heat generation or damage to the pump.

⚠ CAUTION	: An external-return type relief valve can be used under these conditions without any problems. However, in this case the relief oil should be completely returned to below the liquid level of the tank.

- Set the relief valve set pressure at a level higher than the amount of pressure actually needed. The necessary discharge amount will not be obtained if oil leaks from the relief valve.

●Confirm the Applicable Liquids

- Applicable Liquids
  Trochoid pumps and lunary pumps can handle a very wide range of applications, but be aware that these pumps were intend for use with oils.
- The settings and performance indications for all of the pumps shown in this catalog are based on the use of ISO VG46 oil at a temperature of 40 ℃, except for specifically stated special applications.
  There will be differences in terms of performance and durability when using different oils. Please feel free to ask your Nippon Oil Pump representative for more information.
- Trochoid pumps and lunary pumps adopt a self-lubricating method so that the rubbing surfaces and bearings can be lubricated by the liquid used in the pumps.

⚠ CAUTION	: The pump may become damaged if it is used with water, liquids without lubricating properties or liquids with corrosive properties.

- The form may change and there may be limits on the maximum applicable pressure when using liquids with low viscosities. Please feel free to ask your Nippon Oil Pump representative for more information.

⚠ CAUTION	: The pump may become damaged when using liquids with low viscosity.

- Some fuel oils contain properties that will cause the standard oil seals to swell. Be sure to confirm the specifications before using these oils.

> ⚠ WARNING : Do not use gasoline or any other volatile liquids. Doing so could result in explosions or fires.

●Ambient Temperature

- Trochoid and lunary pumps can be used in a temperature range of －20～40 ℃.
- The temperature range under which a motor can be used is －10～40 ℃.

> ⚠ CAUTION : Operations outside of the above temperature ranges could damage the Trochoid pump, lunary pump or motor, resulting in a serious accident.

●Confirm the ambient temperature range.

- The temperature range for the applicable liquids is －5 ℃～80 ℃.
- The difference in temperature between the pump and the liquid must be within 40 ℃.

> ⚠ CAUTION : Operations outside of the above temperature ranges could dramatically shorten the life of the Trochoid and lunary pumps, lower performance and result in leaks.
> Operations outside of the above temperature ranges require special specifications. Please feel free to ask your Nippon Oil Pump representative for further details.

> ⚠ WARNING : The use of very hot oil could cause burns to the pump from leaking oil.

●Confirm the applicable viscosity ranges.

- The viscosity range for liquids used in the Trochoid pump is 10～500mm²/sec.
- The viscosity range for liquids used in the high-viscosity pumps (3V・Lunary pump) is 46～2,000mm²/sec.

> ⚠ CAUTION : Operations outside of the above viscosity ranges could dramatically shorten the life of the Trochoid and Lunary pumps, lower performance and result in leaks.

- The volume efficiency (discharge amount) drops as the viscosity becomes lower.
- The required power (motor output) increases as the viscosity becomes higher.
  ※Settings should be made after taking into account the assumed low winter temperatures.
- The maximum applicable output is strictly limited when using low viscosities. Please feel free to ask your Nippon Oil Pump representative for further details.
- Operations outside of the above viscosity ranges require special specifications. Please feel free to ask your Nippon Oil Pump representative for further details.

●Confirm the rotation direction.

- The rotation, suction and discharge directions for the Trochoid and lunary pumps are fixed, except for those models that offer forward and reverse rotation.
  Make the settings from the drive side in accordance with the rotation direction displayed on the pump nameplate.
- The Trochoid and lunary pumps have holes on the pump suction side (negative pressure) to release pressure from the oil seal section in order to protect these seals. If a mistake is made in setting the rotation direction, the suction and discharge positions will be switched. As a result, discharge pressure will flow through the holes intended for the release of pressure. This pressure will build up against the oil seal, causing the seal to break and oil to be sprayed out of the pump.

> ⚠ WARNING : Be sure to correctly set the pump rotation direction. A mistaken rotation setting could break the oil seal, resulting in the spray of oil outside the pump and unexpected accidents.

Motor Selection

●Confirm the amount of power needed for the pump.

- The amount of power required by the pump will vary depending on voltage, flow rate and viscosity of the liquid to be used.
- Much more power is required as the viscosity of the liquid increases.
  ※Settings should be made after taking into account the assumed low winter temperatures.

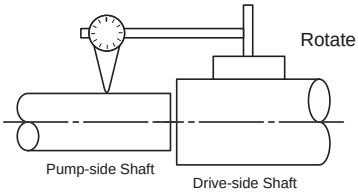
●Confirm the applicable voltage and frequency.

> ⚠ CAUTION : Using an incorrect voltage or frequency could damage the motor or result in abnormal pressure or flow rate.

Pump Drive Method

●Confirm the attachment method.

- Pump driven by special-purpose motor: Trochoid pump with motor
- Pump driven by general-purpose motor: Trochoid pump with motor and base coupling or lunary pump with motor and base coupling
- Power source other than electric motor: Trochoid pump, lunary pump
- Trochoid and lunary pumps are designed on the premise that the motor and shaft center are arranged in a straight line. Centering of the drive shaft and pump should be within TIR0.05.



Rotate the dial gauge 360 ° and set so that the dial gauge run-out is within 0.05mm.

- Please feel free to ask your Nippon Oil Pump representative for information about drive methods in which the load is applied to the radial and thrust directions.

> ⚠ CAUTION : Poor alignment between the motor and the Trochoid or lunary pump may result in vibrations, loud noises and damage to the pump.

> ⚠ CAUTION : When attaching the coupling to the pump shaft, do not forcibly hammer the coupling into place. Doing so could result in poor pump operations.

Suction Capabilities

- Set the suction head for the Trochoid and lunary pumps to within 1m when the number of rotations is 1,000～2,500min^{-1}. Set the suction side resistance to a pressure range of 0.03MPA ～0MPa.
- Suction side pressure greater than －0.03MPa could result in cavitation, abnormal noise, heat generation, poor discharge and damage to the pump.

> ⚠ CAUTION : Suction capabilities will drop when there is large resistance on the discharge side.

> ⚠ CAUTION : Suction capabilities will drop dramatically when air enters from the suction side.

TOP-1A

Specifications

Item / Model	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min^{-1}	Approx. Weight kg
		1500min^{-1}	1800min^{-1}			
TOP-10A	0.8	1.2	1.4	0.5	3000	0.5（0.8）
TOP-11A	1.5	2.2	2.7	0.5	2000	0.5（0.8）
TOP-12A	2.5	3.7	4.5	0.5	1800	0.6（0.9）
TOP-13A	4.5	6.7	8.1	0.5	1800	0.8（1.1）

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.
○The approximate weight values shown in the brackets ( ) are for when a relief valve is attached.

Model

TOP - 10A / 11A / 12A / 13A

Rotation Direction [ ] Relief Valve [ ] - Special Symbol [ ]

Special Symbol: US、VF (Refer to page 63.)

Relief Valve: No mark: Without relief valve; VB: With relief valve ○The relief valve set pressure is cracking 0.3MPa.

Rotation Direction: No mark: Counter-clockwise rotation as seen from the end of the shaft (standard rotation direction); R: Clockwise rotation as seen from the end of the shaft

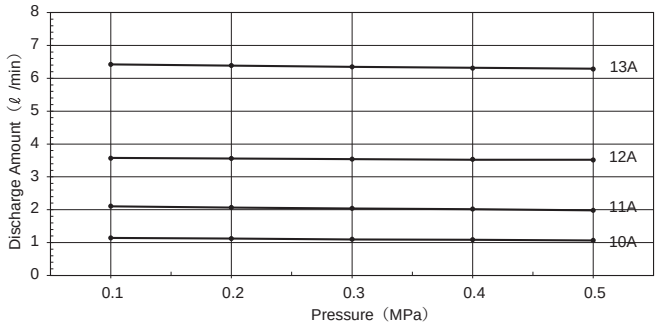
Model Examples:
TOP-10AVB (with relief valve)
TOP-11AR (clockwise rotation as seen from the end of the shaft)

Performance Table

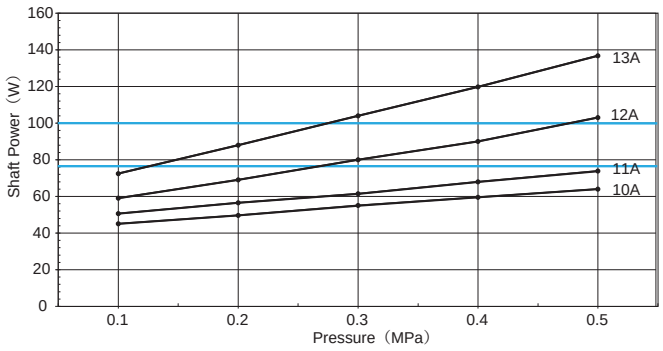
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 1,450 Rotations

●Flow Rate Characteristics

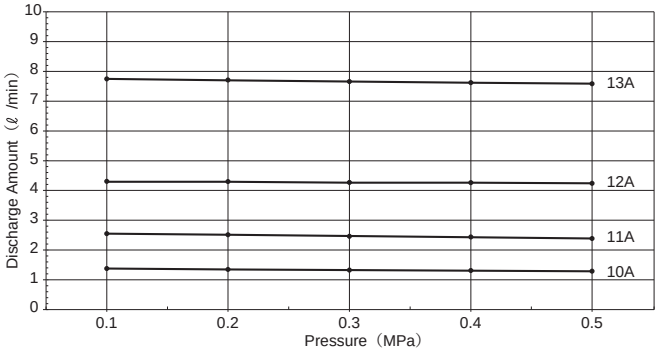


●Required Power

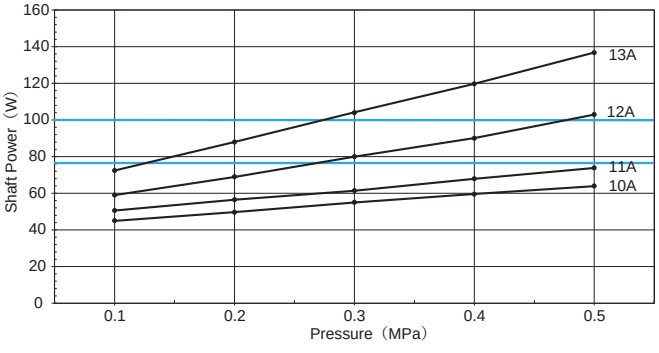


At 1,750 Rotations

●Flow Rate Characteristics



●Required Power

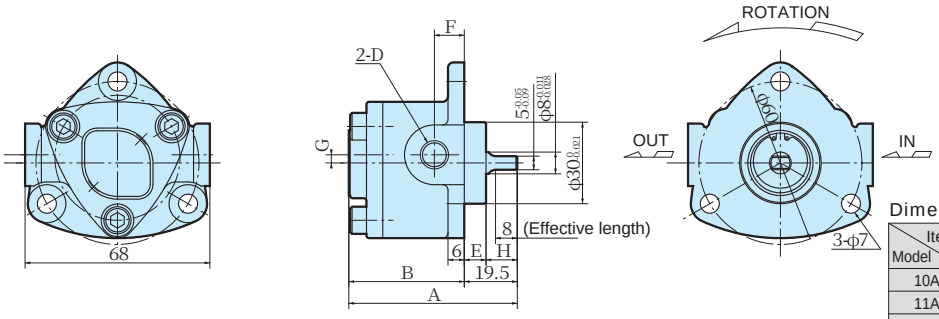


○Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

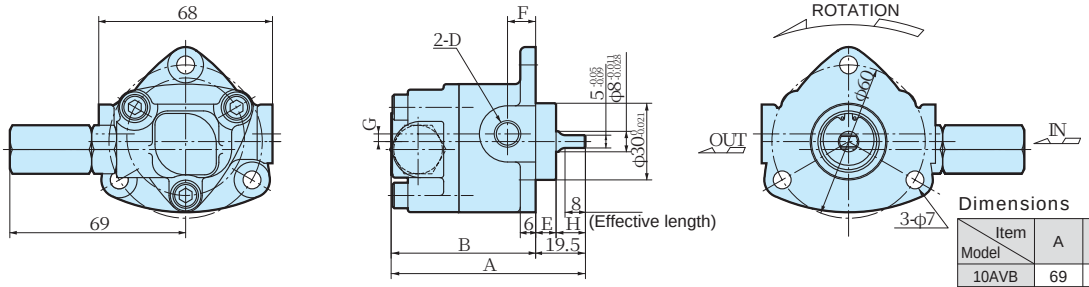
Model : TOP - 1A



Dimensions

Item / Model	A	B	D	E	F	G	H
10A	57	37.5	Rc1/8	8	11	3	11.5
11A	57	37.5	Rc1/8	8	11	3	11.5
12A	63	43.5	Rc1/4	8	11	3	11.5
13A	78	58.5	Rc3/8	5	14	5.5	14.5

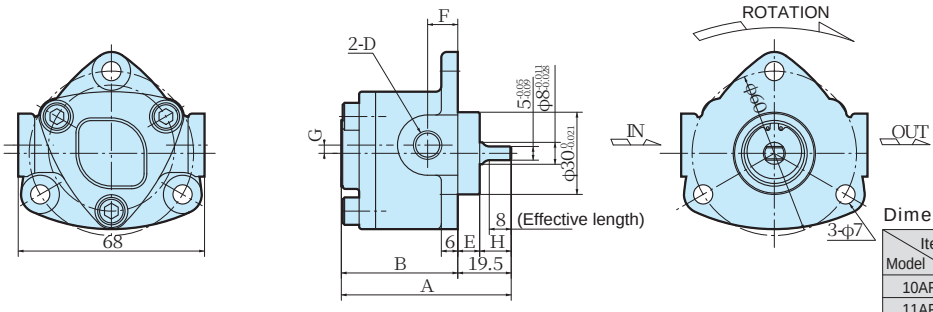
Model : TOP - 1AVB



Dimensions

Item / Model	A	B	D	E	F	G	H
10AVB	69	49.5	Rc1/8	8	11	3	11.5
11AVB	69	49.5	Rc1/8	8	11	3	11.5
12AVB	75	55.5	Rc1/4	8	11	3	11.5
13AVB	90	70.5	Rc3/8	5	14	5.5	14.5

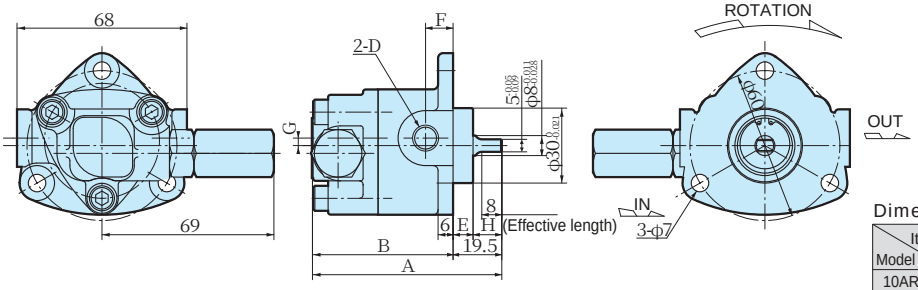
Model : TOP - 1AR



Dimensions

Item / Model	A	B	D	E	F	G	H
10AR	57	37.5	Rc1/8	8	11	3	11.5
11AR	57	37.5	Rc1/8	8	11	3	11.5
12AR	63	43.5	Rc1/4	8	11	3	11.5
13AR	78	58.5	Rc3/8	5	14	5.5	14.5

Model : TOP - 1ARVB



Dimensions

Item / Model	A	B	D	E	F	G	H
10ARVB	69	49.5	Rc1/8	8	11	3	11.5
11ARVB	69	49.5	Rc1/8	8	11	3	11.5
12ARVB	75	55.5	Rc1/4	8	11	3	11.5
13ARVB	90	70.5	Rc3/8	5	14	5.5	14.5

TOP-1ME

Specifications

Item / Model	No. of Motor Revolutions 50Hz 1500min⁻¹				No. of Motor Revolutions 60Hz 1800min⁻¹			
	Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)			Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)		
		75W	100W	200W		75W	100W	200W
TOP-10MA	1.2	0.5	0.5	0.5	1.4	0.4	0.5	0.5
TOP-11MA	2.2	0.5	0.5	0.5	2.7	0.3	0.5	0.5
TOP-12MA	3.7	0.2	0.5	0.5	4.5	0.1	0.3	0.5
TOP-13MA	6.7	——	0.2	0.5	8.1	——	0.1	0.5

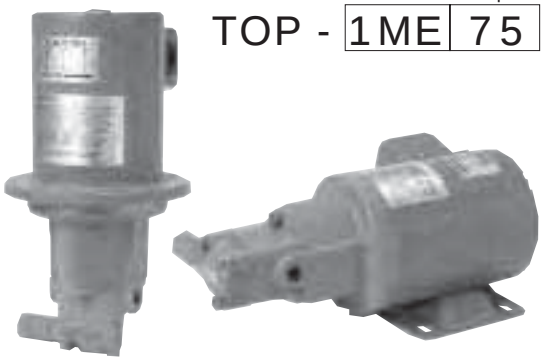
○The above maximum pressure for motor output values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Motor Specifications

○Three-Phase Squirrel-Cage Induction Motor ○Totally enclosed ○Class E insulation

Output (W)	No. of Poles (P)	Rating	Voltage (V)	Frequency (Hz)	No. of Revolutions (min⁻¹)	Current (A)	Approx. Weight (kg)
75	4	Continuous	200 200 220	50 60 60	1390 1660 1690	0.60 0.55 0.57	Type-1 7.5 Type-2 8.0
100	4	Continuous	200 200 220	50 60 60	1430 1720 1730	0.65 0.60 0.60	8.0
200	4	Continuous	200 200 220	50 60 60	1410 1690 1710	1.15 1.10 1.05	9.0

Model



TOP - 1ME | 75 - [ ] - 10MA / 11MA / 12MA

(Motor Output: 75 | Attachment: [ ] | Rotation Direction: [ ] | Relief Valve: [ ])

Attachment:
1: Horizontal
2: Flange

Rotation Direction:
No mark: Clockwise rotation as seen from the pump side (standard rotation direction)
R: Counter-clockwise rotation as seen from the pump side

Relief Valve:
No mark: Without relief valve
VB: With relief valve
○The relief valve set pressure is cracking 0.3MPa.

TOP - 1ME | 100 / 1ME | 200 - 10MA / 11MA / 12MA / 13MA

(Motor Output: 100 / 200 | Rotation Direction: [ ] | Relief Valve: [ ])

Rotation Direction:
No mark: Clockwise rotation as seen from the pump side (standard rotation direction)
R: Counter-clockwise rotation as seen from the pump side

Relief Valve:
No mark: Without relief valve
VB: With relief valve
○The relief valve set pressure is cracking 0.3MPa.

Model Examples

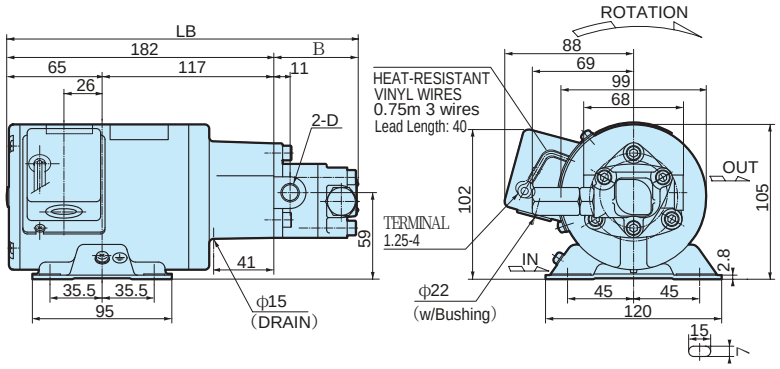
TOP-1ME 75 - 1 - 10MA VB (75W, three-phase, horizontal, with relief valve)

TOP-1ME 100 - 11MAR (100W, three-phase, counter-clockwise rotation as seen from the pump side)

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

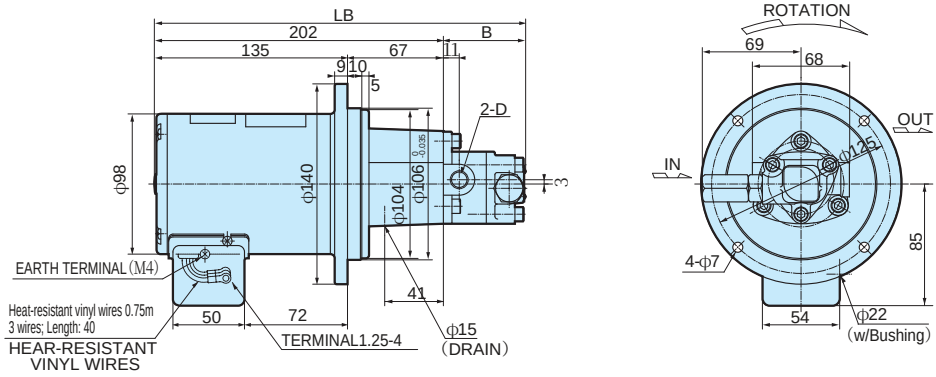
Model : TOP - 1ME75 -1-1 MAVB



Dimensions

Model \ Item	LB	B	D
1ME75-1-10MAVB	231.5	49.5	Rc1/8
1ME75-1-11MAVB	231.5	49.5	Rc1/8
1ME75-1-12MAVB	237.5	55.5	Rc1/4

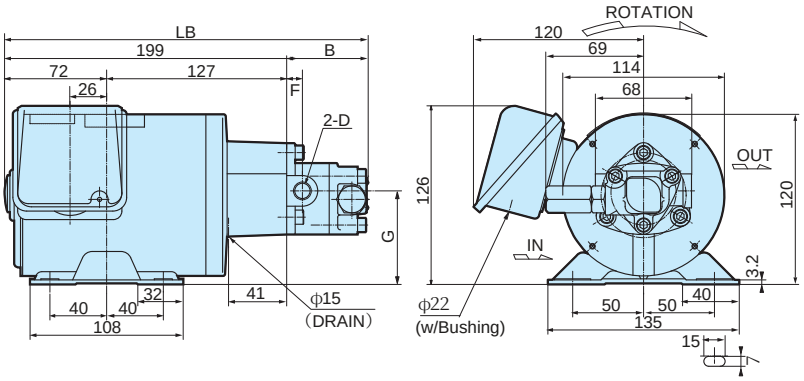
Model : TOP - 1ME75 -2-1 MAVB



Dimensions

Model \ Item	LB	B	D
1ME75-2-10MAVB	251.5	49.5	Rc1/8
1ME75-2-11MAVB	251.5	49.5	Rc1/8
1ME75-2-12MAVB	257.5	55.5	Rc1/4

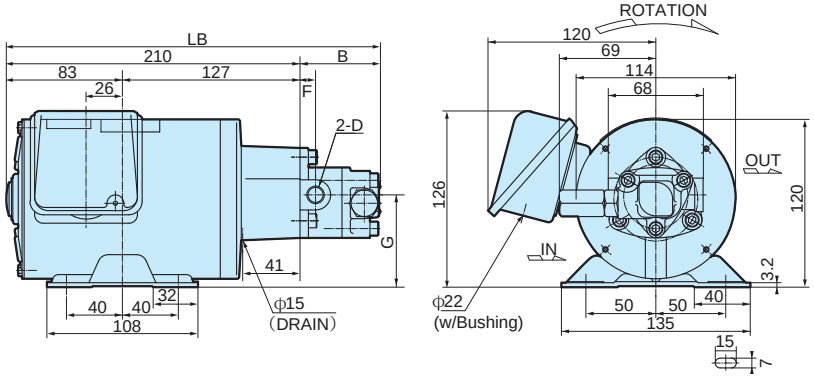
Model : TOP - 1ME100 -1 MAVB



Dimensions

Model \ Item	LB	B	D	F	G
1ME100-10MAVB	248.5	49.5	Rc1/8	11	66
1ME100-11MAVB	248.5	49.5	Rc1/8	11	66
1ME100-12MAVB	254.5	55.5	Rc1/4	11	66
1ME100-13MAVB	269.5	70.5	Rc3/8	14	68.5

Model : TOP - 1ME200 -1 MAVB



Dimensions

Model \ Item	LB	B	D	F	G
1ME200-10MAVB	259.5	49.5	Rc1/8	11	66
1ME200-11MAVB	259.5	49.5	Rc1/8	11	66
1ME200-12MAVB	265.5	55.5	Rc1/4	11	66
1ME200-13MAVB	280.5	70.5	Rc3/8	14	68.5

TOP-1ME S (single-phase motor)

Specifications

Item / Model	No. of Motor Revolutions 50Hz 1500min⁻¹			No. of Motor Revolutions 60Hz 1800min⁻¹		
	Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)		Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)	
		75W	200W		75W	200W
TOP-10MA	1.2	0.5	0.5	1.4	0.4	0.5
TOP-11MA	2.2	0.5	0.5	2.7	0.3	0.5
TOP-12MA	3.7	0.2	0.5	4.5	0.1	0.5
TOP-13MA	6.7	——	0.5	8.1	——	0.5

○The above maximum pressure for motor output values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Motor Specifications

Output (W)	No. of Poles (P)	Rating	Voltage (V)	Frequency (Hz)	No. of Revolutions (min⁻¹)	Current (A)	Approx. Weight (kg)
75	4	Continuous	100	50 60	1430 1730	2.0 1.6	5.9
200	4	Continuous	100	50 60	1430 1720	5.8 5.0	10

○IME75S is a condenser-operating type.
○IME200S is a condenser-starting type.

Model

		Motor Output	Single-phase		Pump	Relief Valve
TOP -	1ME	75	S	-	10MA	
		200	S		11MA	
					12MA	
					13MA	

No mark: Without relief valve
VB: With relief valve
○The relief valve set pressure is cracking 0.3MPa.

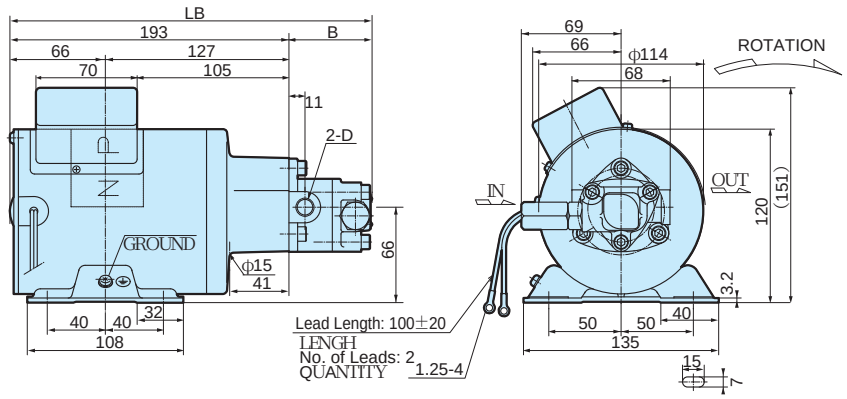
Model Examples
TOP-1ME 75 S-11MA (75W, single-phase)
TOP-1ME 200 S-12MA VB (200W, single-phase, with relief valve)

■Can only be used for clockwise rotation as seen from the pump side.

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

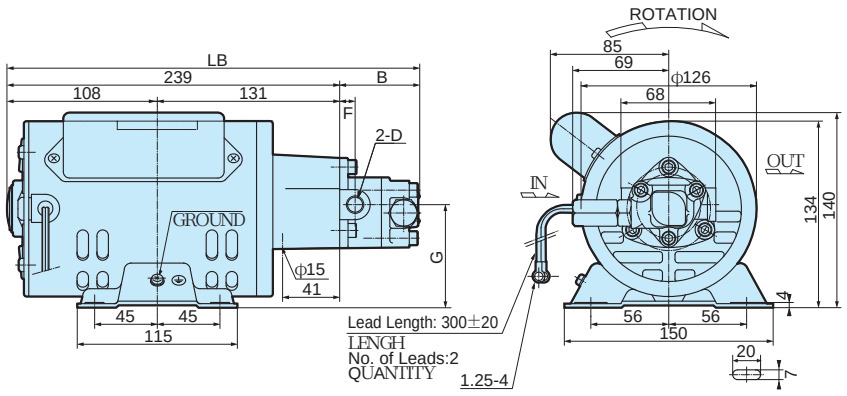
Model : TOP - 1ME75 S - 1MAVB



Dimensions

Item / Model	LB	B	D
1ME75S-10MAVB	242.5	49.5	Rc1/8
1ME75S-11MAVB	242.5	49.5	Rc1/8
1ME75S-12MAVB	248.5	55.5	Rc1/4

Model : TOP - 1ME200 S - 1MAVB



Dimensions

Item / Model	LB	B	D	F	G
1M200S-10MAVB	288.5	49.5	Rc1/8	11	74
1M200S-11MAVB	388.5	49.5	Rc1/8	11	74
1M200S-12MAVB	294.5	55.5	Rc1/4	11	74
1M200S-13MAVB	309.5	70.5	Rc3/8	14	76.5

TOP-1HG

Specifications

Item / Model	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min^{-1}	Approx. Weigh kg
		1500min^{-1}	1800min^{-1}			
TOP-11HG	1.5	2.2	2.7	2.5	3000	1.4
TOP-12HG	2.5	3.7	4.5	2.5	2500	1.5

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Model

TOP - 11HG / 12HG

Attachment | Rotation Direction | - | Special Symbol

Special Symbol: VF (Refer to page 63.)

Rotation Direction: No mark: Counter-clockwise rotation as seen from the end of the shaft (standard rotation direction)
R: Clockwise rotation as seen from the end of the shaft

Attachment: No mark: Without angle plate
I: With angle plate

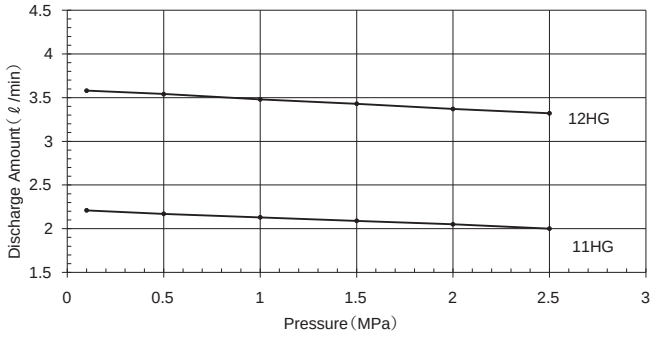
Model Examples:
TOP-11HGI (with angle plate)
TOP-12HGR (clockwise rotation as seen from the end of the shaft)

Performance Table

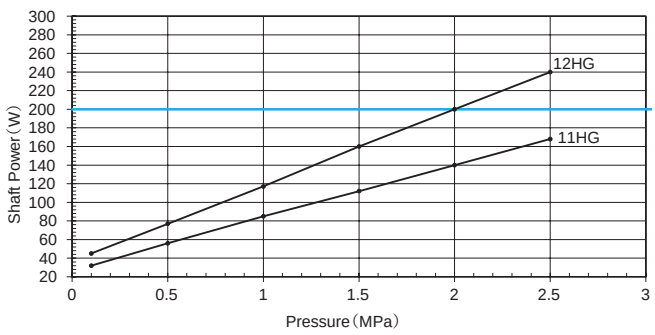
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 1,450 Rotations

●Flow Rate Characteristics

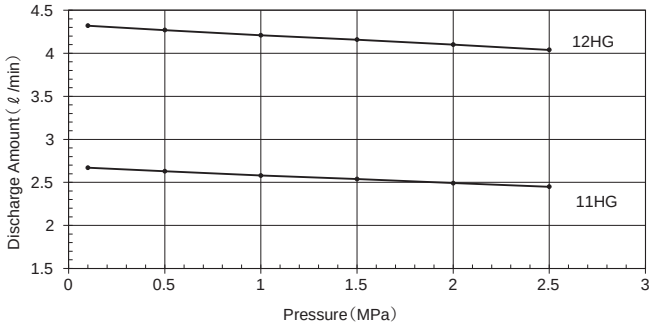


●Required Power

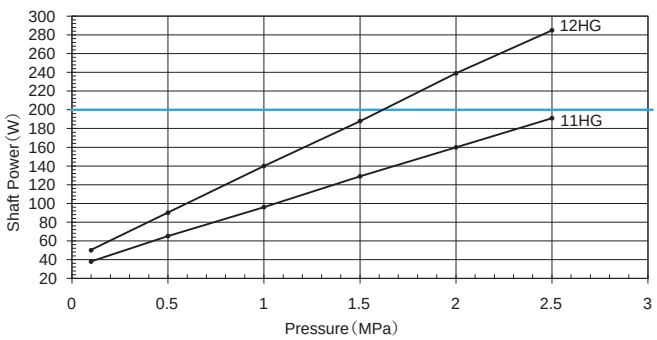


At 1,750 Rotations

●Flow Rate Characteristics



●Required Power

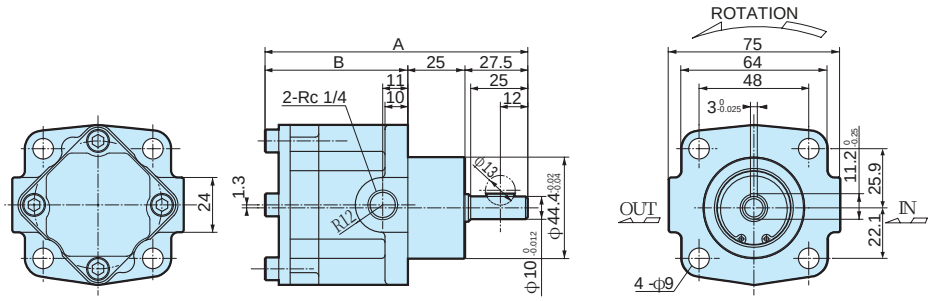


○Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

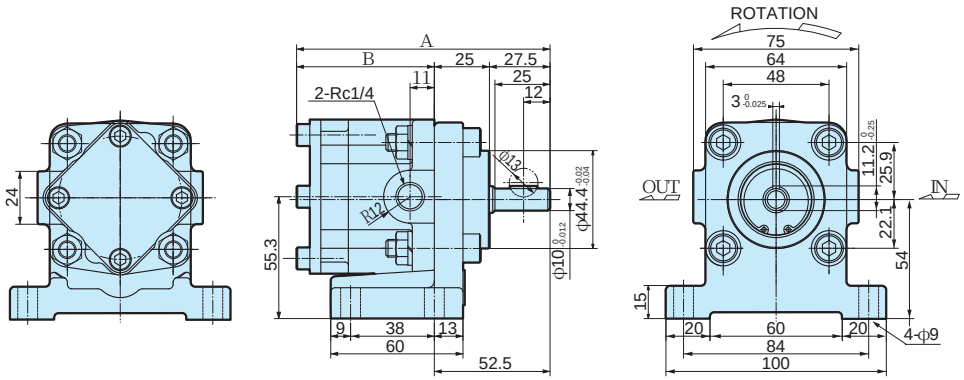
Model : TOP - 1HG



Dimensions

Model \ Item	A	B
11HG	110	57.5
12HG	115	62.5

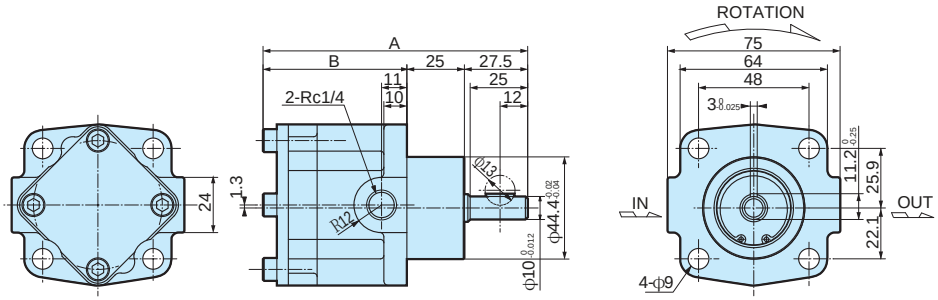
Model : TOP - 1HGI



Dimensions

Model \ Item	A	B
11HGI	110	57.5
12HGI	115	62.5

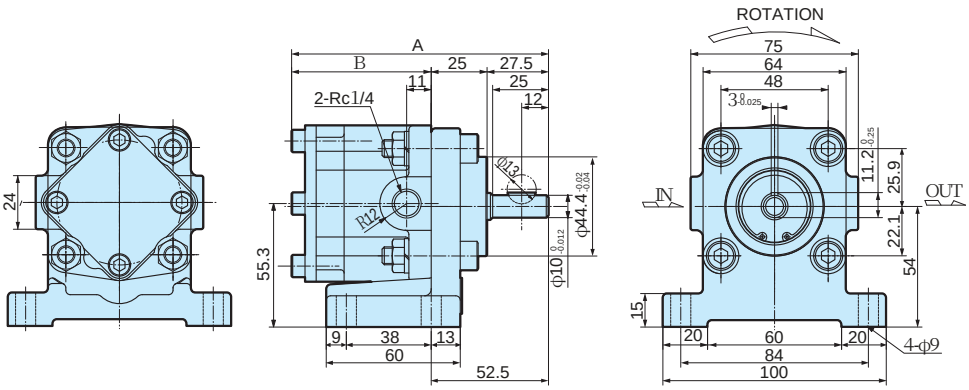
Model : TOP - 1HGR



Dimensions

Model \ Item	A	B
11HGR	110	57.5
12HGR	115	62.5

Model : TOP - 1HGIR



Dimensions

Model \ Item	A	B
11HGIR	110	57.5
12HGIR	115	62.5

Specifications

Item / Model	No. of Motor Revolutions 50Hz 1500min⁻¹			No. of Motor Revolutions 60Hz 1800min⁻¹		
	Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)		Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)	
		200W	400W		200W	400W
TOP-11HG	2.2	2.5	2.5	2.7	2.5	2.5
TOP-12HG	3.7	2.0	2.5	4.5	1.6	2.5

○The above maximum pressure for motor output values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

1HG

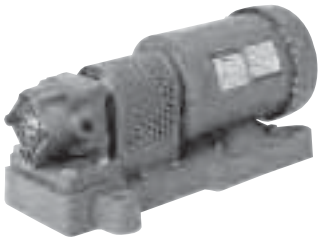
Model

TOP - 1MBY [200 / 400] - [11HG / 12HG] I [Rotation Direction] - [Special Symbol]

Motor Output

Special Symbol: VF (Refer to page 63.)

Rotation Direction: No mark: Clockwise rotation as seen from the pump side (standard rotation direction)
R: Counter-clockwise rotation as seen from the pump side

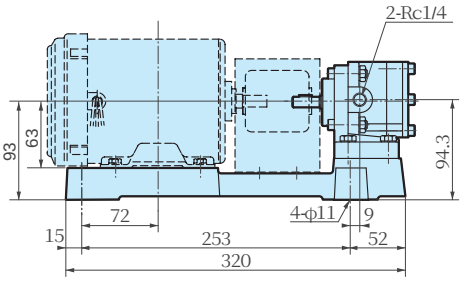


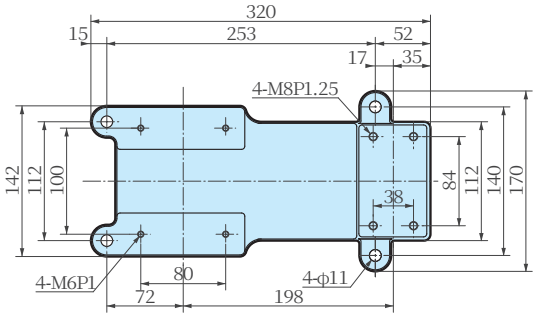
Model Examples:
TOP-1MBY200-11HGIR (200W, counter-clockwise rotation as seen from the pump side)

Dimensional Diagrams

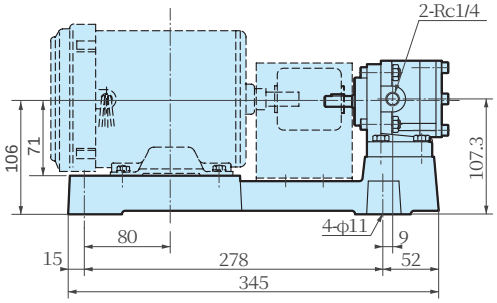
○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

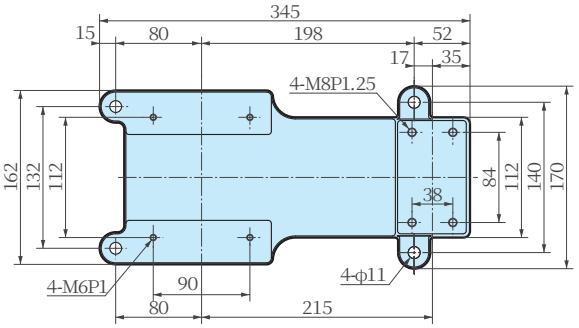
Model : TOP - 1MBY200-1HGI





Model : TOP - 1MBY400-1HGI





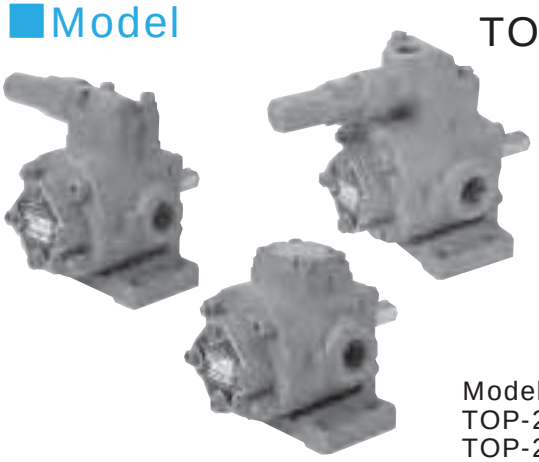
TOP-2HB

Specifications

Item / Model	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min^{-1}	Approx. Weight kg
		1500min^{-1}	1800min^{-1}			
TOP-203HB	2.8	4.2	5.0	3.0	3000	3.5 (3.9)
TOP-204HB	4	6.0	7.2	3.0	3000	3.6 (4)
TOP-206HB	6	9.0	10.8	2.5	2500	3.8 (4.2)
TOP-208HB	8	12.0	14.4	2.5	2500	4 (4.4)
TOP-210HB	10	15.0	18.0	2.5	2500	4.1 (4.6)
TOP-212HB	12	18.0	21.6	2.0	2000	4.3 (4.7)
TOP-216HB	16	24.0	28.8	1.5	1800	4.6 (5.1)
TOP-220HB	20	30.0	36.0	1.2	1800	5 (5.5)

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.
○The approximate weight values shown in the brackets ( ) are for when a relief valve is attached.

Model



TOP - 203HB / 204HB / 206HB / 208HB / 210HB / 212HB / 216HB / 220HB

Attachment: No mark: With angle plate; F: With angle flange

Rotation Direction: No mark: Counter-clockwise rotation as seen from the end of the shaft (standard rotation direction); R: Clockwise rotation as seen from the end of the shaft

Relief Valve: No mark: Without relief valve; VB: With relief valve; VD: With relief valve (external return-type) (Refer to page 55.)
○Refer to page 57 for the relief valve set pressure, and indicate the desired type when placing your order. Indicate the set pressure (to the first decimal point) at the end of the model number (Ex.: 0.1MPa).

Special Symbol: US, UT, VF, VH (Refer to page 63.)

Relief Valve Set Pressure

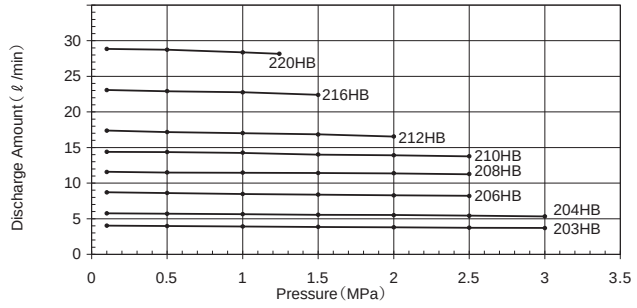
Model Examples:
TOP-203HBVB (with relief valve)
TOP-204HBFR (with angle flange, clockwise rotation as seen from the end of the shaft)

Performance Table

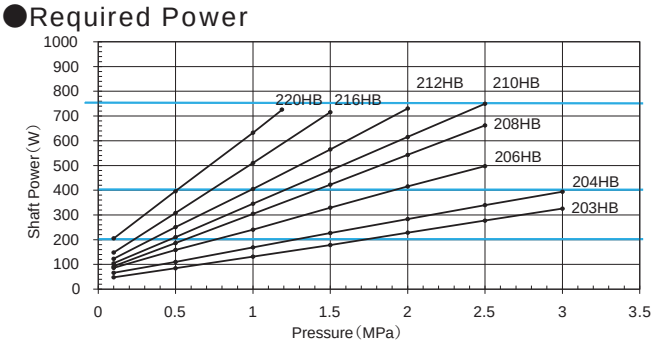
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 1,450 Rotations

●Flow Rate Characteristics

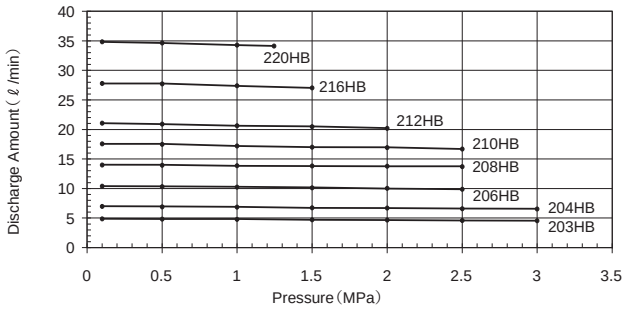


●Required Power

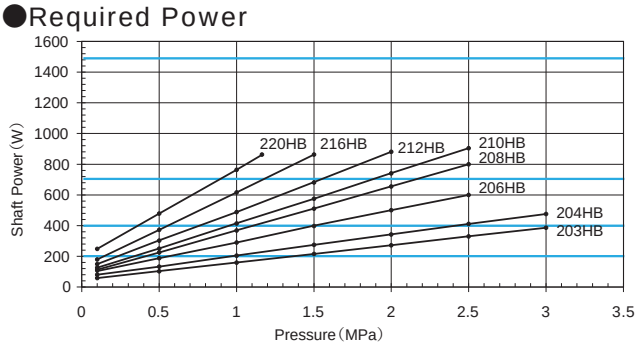


At 1,750 Rotations

●Flow Rate Characteristics



●Required Power



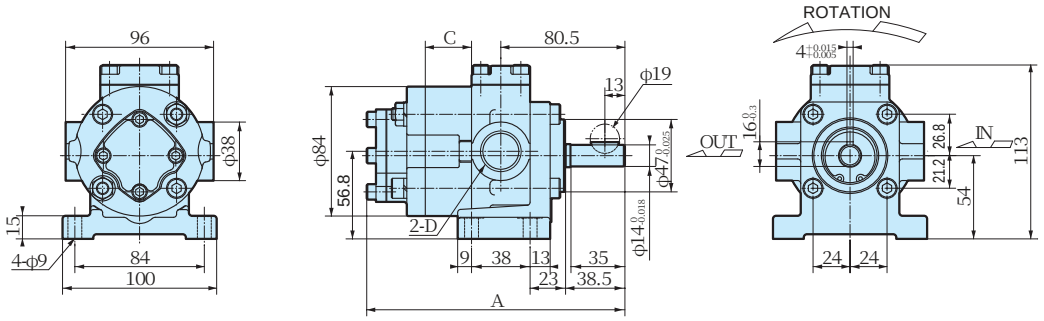
○Select the best motor using the lines in the "Required Power" table as the applicable standards.

TOP-2HB

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

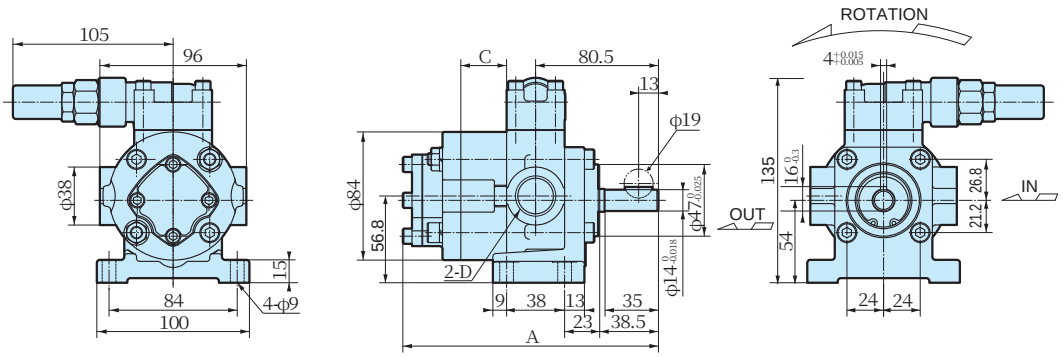
Model : TOP - 2HB



Dimensions

Item / Model	A	C	D
203HB	144.5	7	Rc1/2
204HB	147.5	10	
206HB	152.5	15	
208HB	157.5	20	
210HB	162.5	25	Rc3/4
212HB	167.5	30	
216HB	177.5	40	
220HB	187.5	50	

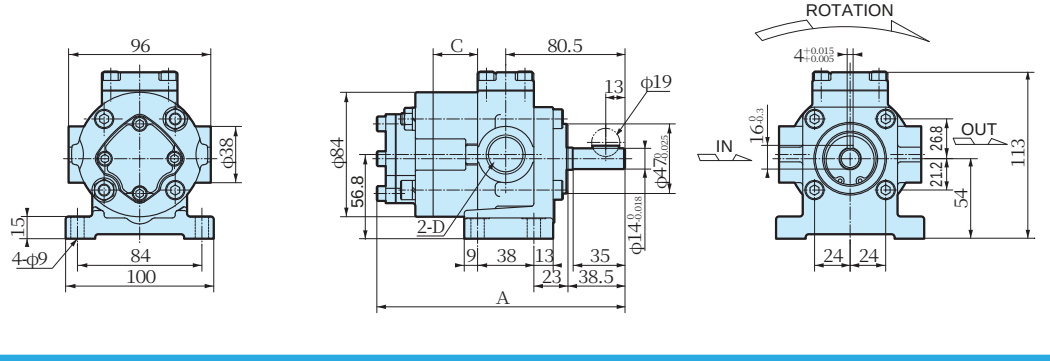
Model : TOP - 2HBVB



Dimensions

Item / Model	A	C	D
203HBVB	144.5	7	Rc1/2
204HBVB	147.5	10	
206HBVB	152.5	15	
208HBVB	157.5	20	
210HBVB	162.5	25	Rc3/4
212HBVB	167.5	30	
216HBVB	177.5	40	
220HBVB	187.5	50	

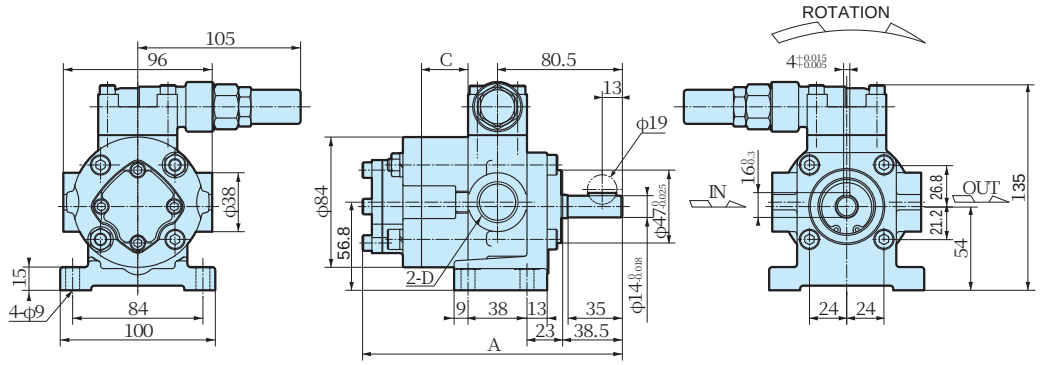
Model : TOP - 2HBR



Dimensions

Item / Model	A	C	D
203HBR	144.5	7	Rc1/2
204HBR	147.5	10	
206HBR	152.5	15	
208HBR	157.5	20	
210HBR	162.5	25	Rc3/4
212HBR	167.5	30	
216HBR	177.5	40	
220HBR	187.5	50	

Model : TOP - 2HBRVB



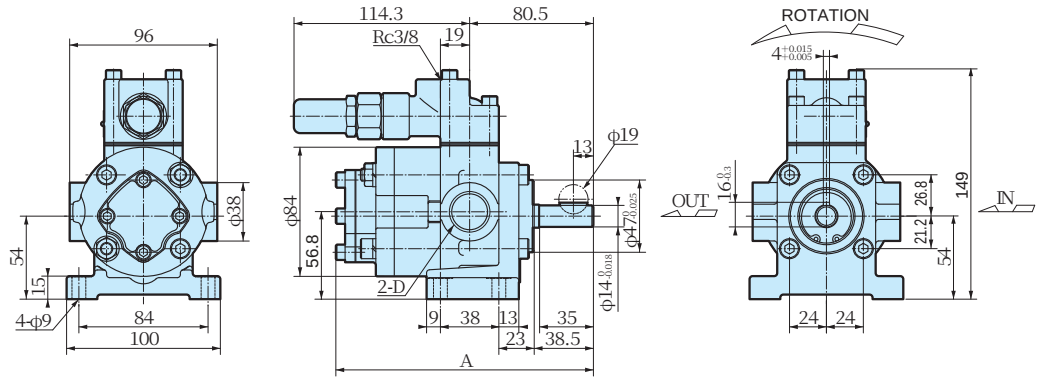
Dimensions

Item / Model	A	C	D
203HBRVB	144.5	7	Rc1/2
204HBRVB	147.5	10	
206HBRVB	152.5	15	
208HBRVB	157.5	20	
210HBRVB	162.5	25	Rc3/4
212HBRVB	167.5	30	
216HBRVB	177.5	40	
220HBRVB	187.5	50	

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

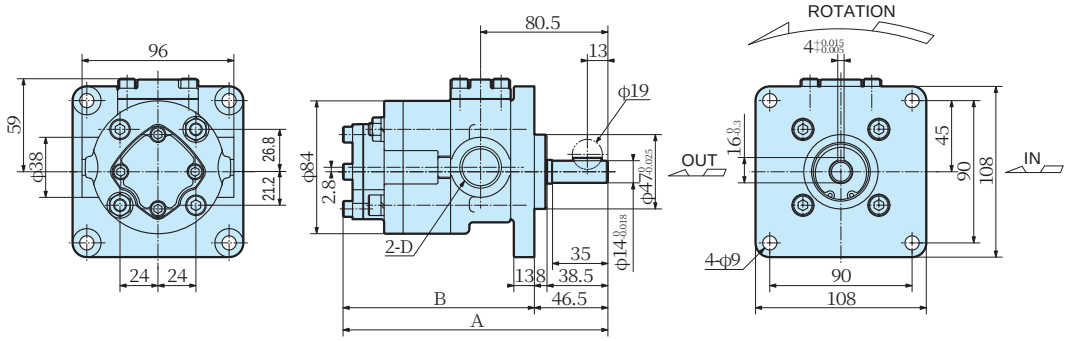
Model : TOP - 2HBVD



Dimensions

Model \ Item	A	C	D
203HBVD	144.5	7	Rc1/2
204HBVD	147.5	10	
206HBVD	152.5	15	
208HBVD	157.5	20	
210HBVD	162.5	25	Rc3/4
212HBVD	167.5	30	
216HBVD	177.5	40	
220HBVD	187.5	50	

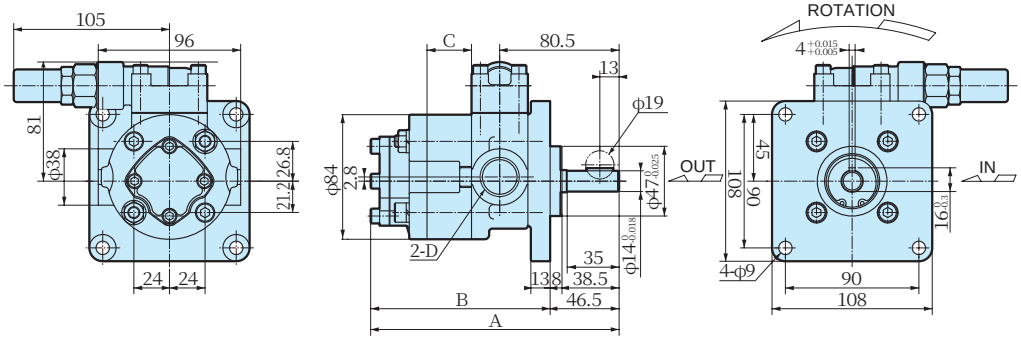
Model : TOP - 2HBF



Dimensions

Model \ Item	A	B	C	D
203HBF	144.5	98	7	Rc1/2
204HBF	147.5	101	10	
206HBF	152.5	106	15	
208HBF	157.5	111	20	
210HBF	162.5	116	25	Rc3/4
212HBF	167.5	121	30	
216HBF	177.5	131	40	
220HBF	187.5	141	50	

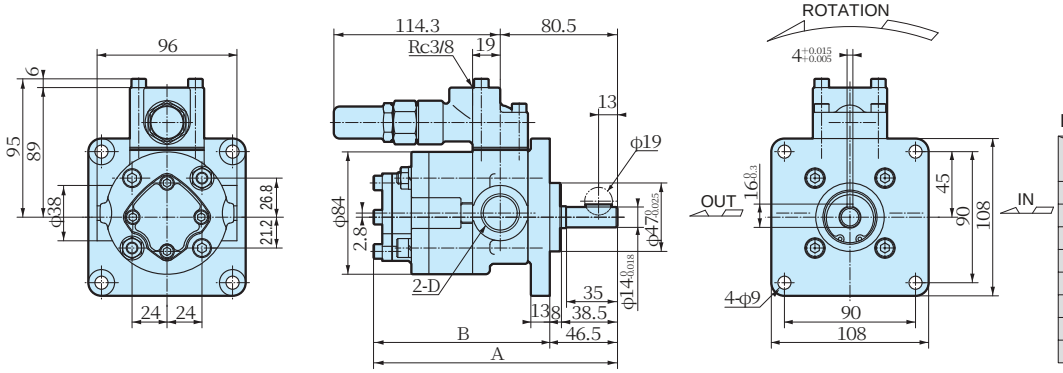
Model : TOP - 2HBFVB



Dimensions

Model \ Item	A	B	C	D
203HBFVB	144.5	98	7	Rc1/2
204HBFVB	147.5	101	10	
206HBFVB	152.5	106	15	
208HBFVB	157.5	111	20	
210HBFVB	162.5	116	25	Rc3/4
212HBFVB	167.5	121	30	
216HBFVB	177.5	131	40	
220HBFVB	187.5	141	50	

Model : TOP - 2HBFVD



Dimensions

Model \ Item	A	B	C	D
203HBFVD	144.5	98	7	Rc1/2
204HBFVD	147.5	101	10	
206HBFVD	152.5	106	15	
208HBFVD	157.5	111	20	
210HBFVD	162.5	116	25	Rc3/4
212HBFVD	167.5	121	30	
216HBFVD	177.5	131	40	
220HBFVD	187.5	141	50	

TOP-2MY

Specifications

Item / Model	No. of Motor Revolutions 50Hz 1500min⁻¹					No. of Motor Revolutions 60Hz 1800min⁻¹				
	Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)				Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)			
		200W	400W	750W	1500W		200W	400W	750W	1500W
TOP-203HBM	4.2	1.7	3.0	3.0	3.0	5.0	1.3	3.0	3.0	3.0
TOP-204HBM	6.0	1.2	3.0	3.0	3.0	7.2	0.9	2.3	3.0	3.0
TOP-206HBM	9.0	0.7	1.8	2.5	2.5	10.8	0.5	1.4	2.5	2.5
TOP-208HBM	12.0	0.5	1.3	2.5	2.5	14.4	0.3	1.0	2.3	2.5
TOP-210HBM	15.0	0.4	1.1	2.5	2.5	18.0	0.3	0.9	2.0	2.5
TOP-212HBM	18.0	0.3	0.9	2.0	2.0	21.6	——	0.7	1.6	2.0
TOP-216HBM	24.0	0.2	0.7	1.5	1.5	28.8	——	0.5	1.2	1.5
TOP-220HBM	30.0	——	0.4	1.2	1.2	36.0	——	0.3	0.9	1.2

○The above maximum pressure for motor output values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Motor Specifications

○Three-Phase Squirrel-Cage Induction Motor ○Totally enclosed ○Class E insulation

Output (W)	No. of Poles (P)	Rating	Voltage (V)	Frequency (Hz)	No. of Revolutions (min⁻¹)	Current (A)	Approx. Weight (kg)
200	4	Continuous	200 200 220	50 60 60	1440 1720 1730	1.34 1.12 1.17	7.0
400	4	Continuous	200 200 220	50 60 60	1420 1710 1730	2.2 1.93 1.95	10.0
750	4	Continuous	200 200 220	50 60 60	1440 1720 1740	3.6 3.3 3.2	14.0
1500	4	Continuous	200 200 220	50 60 60	1430 1720 1730	6.9 6.2 6.1	22.0

*Please fee l free to ask your Nippon Oil Pump representative for more information about special motor specifications such as for outdoor use, explosion-proof, special voltages and reverse box position.

Model

TOP - 2MY | Motor Output: 200 / 400 / 750 / 1500 | - | 203HBM / 204HBM / 206HBM / 208HBM / 210HBM / 212HBM / 216HBM / 220HBM | Rotation Direction | Relief Valve | Relief Valve Set Pressure

Relief Valve:
No mark: Without relief valve
VB: With relief valve
VD: With relief valve (external return-type)
○Refer to page 57 for the relief valve set pressure, and indicate the desired type when placing your order. Indicate the set pressure (to the first decimal point) at the end of the model number (Ex.: 0.1MPa).

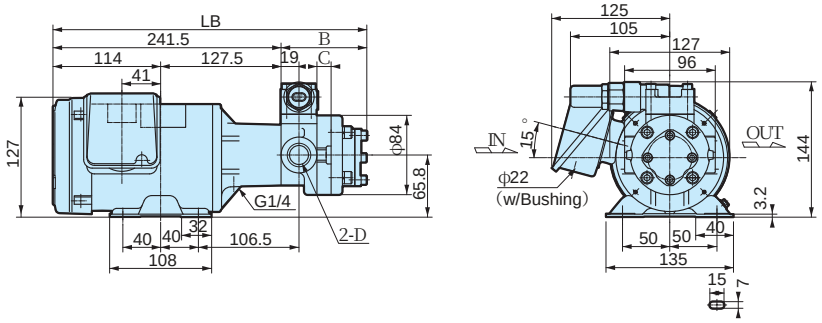
Rotation Direction:
No mark: Clockwise rotation as seen from the pump side (standard rotation direction)
R: Counter-clockwise rotation as seen from the pump side

Model Examples
TOP-2MY200-203HBMVB (200W, three-phase, with relief valve)
TOP-2MY400-206HBMR (400W, three-phase, counterclockwise rotation as seen from the pump side)
TOP-2MY750-210HBMVD (750W, three-phase, with relief valve <external return type>)

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

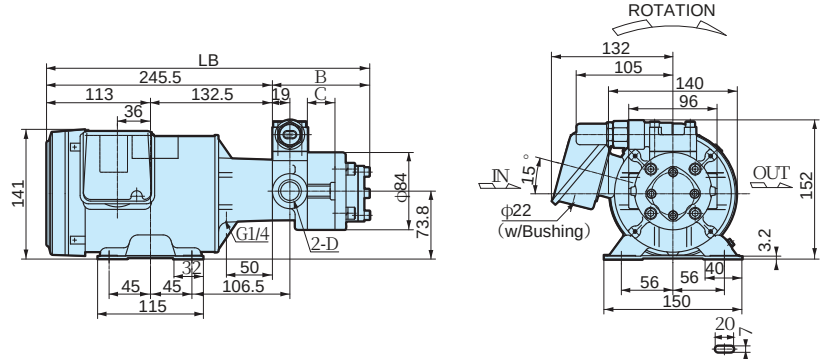
Model : TOP - 2MY200 - 2HBMVB



Dimensions

Model \ Item	LB	B	C	D
2MY200-203HBMVB	324.5	83	7	Rc1/2
2MY200-204HBMVB	327.5	86	10	
2MY200-206HBMVB	332.5	91	15	
2MY200-208HBMVB	337.5	96	20	
2MY200-210HBMVB	342.5	101	25	Rc3/4
2MY200-212HBMVB	347.5	106	30	
2MY200-216HBMVB	357.5	116	40	

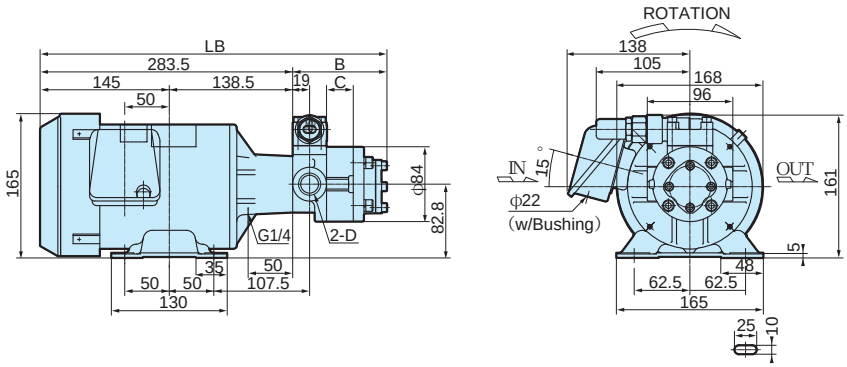
Model : TOP - 2MY400 - 2HBMVB



Dimensions

Model \ Item	LB	B	C	D
2MY400-203HBMVB	328.5	83	7	Rc1/2
2MY400-204HBMVB	331.5	86	10	
2MY400-206HBMVB	336.5	91	15	
2MY400-208HBMVB	341.5	96	20	
2MY400-210HBMVB	346.5	101	25	Rc3/4
2MY400-212HBMVB	351.5	106	30	
2MY400-216HBMVB	361.5	116	40	
2MY400-220HBMVB	371.5	126	50	

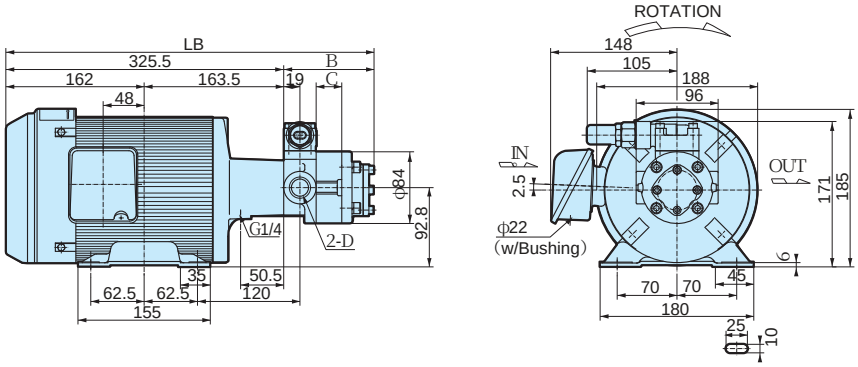
Model : TOP - 2MY750 - 2HBMVB



Dimensions

Model \ Item	LB	B	C	D
2MY750-203HBMVB	366.5	83	7	Rc1/2
2MY750-204HBMVB	369.5	86	10	
2MY750-206HBMVB	374.5	91	15	
2MY750-208HBMVB	379.5	96	20	
2MY750-210HBMVB	384.5	101	25	Rc3/4
2MY750-212HBMVB	389.5	106	30	
2MY750-216HBMVB	399.5	116	40	
2MY750-220HBMVB	409.5	126	50	

Model : TOP - 2MY1500 - 2HBMVB



Dimensions

Model \ Item	LB	B	C	D
2MY1500-203HBMVB	408.5	83	7	Rc1/2
2MY1500-204HBMVB	411.5	86	10	
2MY1500-206HBMVB	416.5	91	15	
2MY1500-208HBMVB	421.5	96	20	
2MY1500-210HBMVB	426.5	101	25	Rc3/4
2MY1500-212HBMVB	431.5	106	30	
2MY1500-216HBMVB	441.5	116	40	
2MY1500-220HBMVB	451.5	126	50	

TOP-2ME S (Single-Phase Motor)

Specifications

Item / Model	No. of Motor Revolutions 50Hz 1500min⁻¹				No. of Motor Revolutions 60Hz 1800min⁻¹			
	Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)			Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)		
		200W	400W	750W		200W	400W	750W
TOP-203HBM	4.2	1.7	3.0	3.0	5.0	1.3	3.0	3.0
TOP-204HBM	6.0	1.2	3.0	3.0	7.2	0.9	2.3	3.0
TOP-206HBM	9.0	0.7	1.8	2.5	10.8	0.5	1.4	2.5
TOP-208HBM	12.0	0.5	1.3	2.5	14.4	0.3	1.0	2.3
TOP-210HBM	15.0	0.4	1.1	2.5	18.0	0.3	0.9	2.0
TOP-212HBM	18.0	0.3	0.9	2.0	21.6	——	0.7	1.6
TOP-216HBM	24.0	0.2	0.7	1.5	28.8	——	0.5	1.2
TOP-220HBM	30.0	——	0.4	1.2	36.0	——	0.3	0.9

○The above maximum pressure for motor output values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Motor Specifications

○Open, drip-proof ○Condenser-start type

Output (W)	No. of Poles (P)	Rating	Voltage (V)	Frequency (Hz)	No. of Revolutions (min⁻¹)	Current (A)	Approx. Weight (kg)
200	4	Continuous	100	50	1430	5.6	10
				60	1720	4.9	
			200	50	1430	2.8	
				60	1720	2.5	
400	4	Continuous	100	50	1420	8.4	15
				60	1710	7.6	
			200	50	1420	4.2	
				60	1710	3.8	
750	4	Continuous	100	50	1450	11.2	21
				60	1740	9.6	
			200	50	1450	5.7	
				60	1740	4.9	

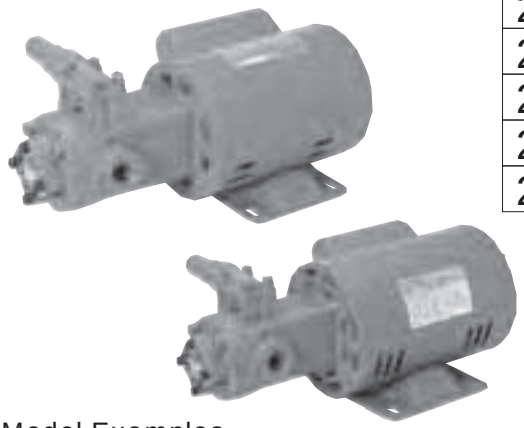
Model

	Motor Output	Phase		
TOP - 2ME	200	S	-	203HBM
	400	S		204HBM
	750	S		206HBM
				208HBM
				210HBM
				212HBM
				216HBM
				220HBM

Rotation Direction: [ ]
Relief Valve: [ ]
Relief Valve Set Pressure

No mark: Without relief valve
VB: With relief valve
VD: With relief valve (external return-type)
○Refer to page 57 for the relief valve set pressure, and indicate the desired type when placing your order. Indicate the set pressure (to the first decimal point) at the end of the model number (Ex.: 0.1MPa).

No mark: Clockwise rotation as seen from the pump side (standard rotation direction)
R: Counter-clockwise rotation as seen from the pump side

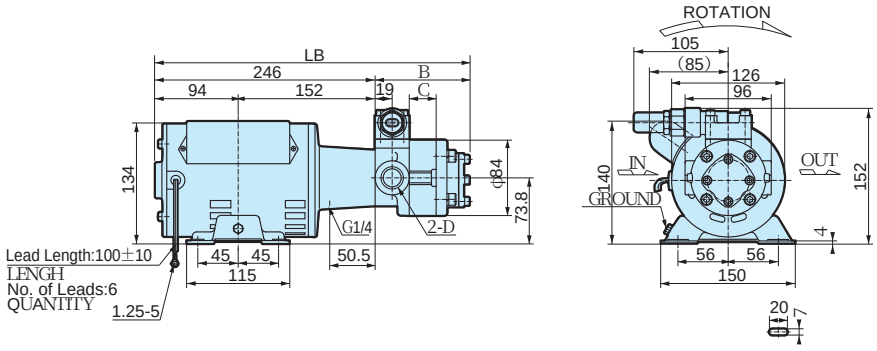


Model Examples
TOP-2ME200S-203HBMVB (200W, single-phase, with relief valve)
TOP-2ME400S-206HBMR (400W, single-phase, counterclockwise rotation as seen from the pump side)
TOP-2ME750S-210HBMVD (750W, single-phase, with relief valve <external return type>)

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

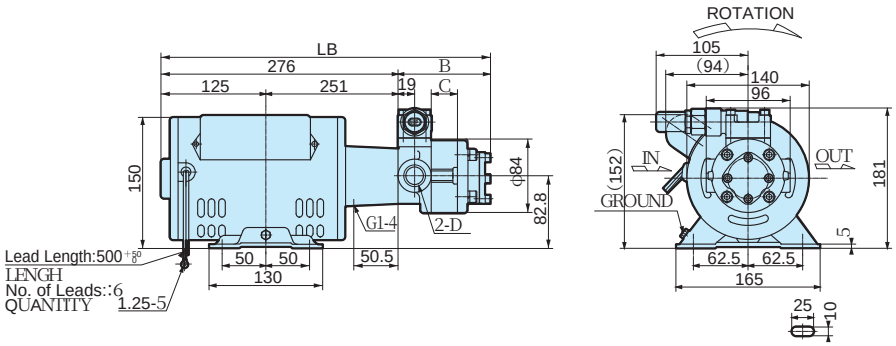
Model : TOP - 2ME200 S - 2HBMVB



Dimensions

Model \ Item	LB	B	C	D
2ME200S-203HBMVB	329	83	7	Rc1/2
2ME200S-204HBMVB	332	86	10	
2ME200S-206HBMVB	337	91	15	
2ME200S-208HBMVB	342	96	20	
2ME200S-210HBMVB	347	101	25	Rc3/4
2ME200S-212HBMVB	352	106	30	
2ME200S-216HBMVB	362	116	40	

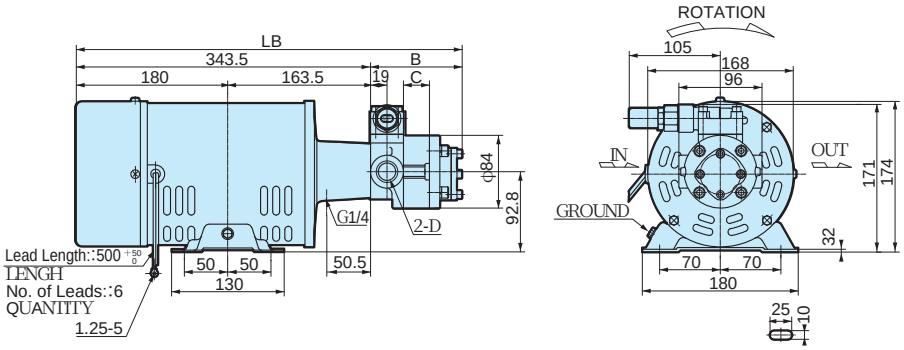
Model : TOP - 2ME400 S - 2HBMVB



Dimensions

Model \ Item	LB	B	C	D
2ME400S-203HBMVB	359	83	7	Rc1/2
2ME400S-204HBMVB	362	86	10	
2ME400S-206HBMVB	367	91	15	
2ME400S-208HBMVB	372	96	20	
2ME400S-210HBMVB	377	101	25	Rc3/4
2ME400S-212HBMVB	382	106	30	
2ME400S-216HBMVB	392	116	40	
2ME400S-220HBMVB	402	126	50	

Model : TOP - 2ME750 S - 2HBMVB



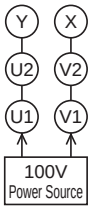
Dimensions

Model \ Item	LB	B	C	D
2ME750S-203HBMVB	426.5	83	7	Rc1/2
2ME750S-204HBMVB	429.5	86	10	
2ME750S-206HBMVB	434.5	91	15	
2ME750S-208HBMVB	439.5	96	20	
2ME750S-210HBMVB	444.5	101	25	Rc3/4
2ME750S-212HBMVB	449.5	106	30	
2ME750S-216HBMVB	459.5	116	40	
2ME750S-220HBMVB	469.5	126	50	

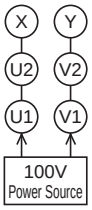
Wiring Diagram

100V

Clockwise seen from pump side

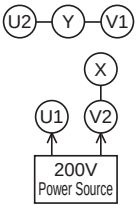


Counter-clockwise seen from the pump side

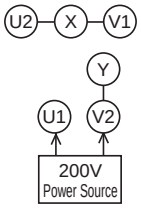


200V

Clockwise seen from pump side



Counter-clockwise seen from the pump side



U2-Y-V1 in the clockwise direction as seen from the pump side
When going in the counter-clockwise direction as seen from the pump side, there will be no need to connect directly to the power source if the three lines of U2, X and V1 are bundled together.

TOP-2MBY

Specifications

Item / Model	No. of Motor Revolutions 50Hz 1500min⁻¹						No. of Motor Revolutions 60Hz 1800min⁻¹					
	Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)					Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)				
		200W	400W	750W	1500W	2200W		200W	400W	750W	1500W	2200W
TOP-203HB	4.2	1.7	3.0	3.0	3.0	3.0	5.0	1.3	3.0	3.0	3.0	3.0
TOP-204HB	6.0	1.2	3.0	3.0	3.0	3.0	7.2	0.9	2.3	3.0	3.0	3.0
TOP-206HB	9.0	0.7	1.8	2.5	2.5	2.5	10.8	0.5	1.4	2.5	2.5	2.5
TOP-208HB	12.0	0.5	1.3	2.5	2.5	2.5	14.4	0.3	1.0	2.3	2.5	2.5
TOP-210HB	15.0	0.4	1.1	2.5	2.5	2.5	18.0	0.3	0.9	2.0	2.5	2.5
TOP-212HB	18.0	0.3	0.9	2.0	2.0	2.0	21.6	——	0.7	1.6	2.0	2.0
TOP-216HB	24.0	0.2	0.7	1.5	1.5	1.5	28.8	——	0.5	1.2	1.5	1.5
TOP-220HB	30.0	——	0.4	1.2	1.2	1.2	36.0	——	0.3	0.9	1.2	1.2

○The above maximum pressure for motor output values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Model

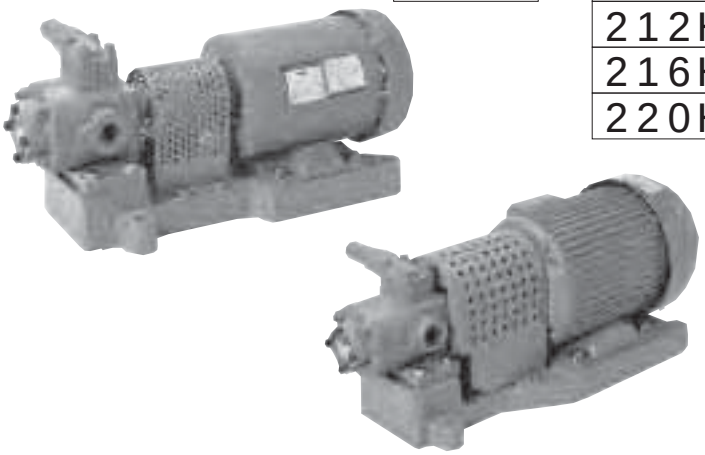
TOP - 2MBY [Motor Output: 200 / 400 / 750 / 1500 / 2200] - [203HB / 204HB / 206HB / 208HB / 210HB / 212HB / 216HB / 220HB]

Rotation Direction: No mark: Clockwise rotation as seen from the pump side (standard rotation direction); R: Counter-clockwise rotation as seen from the pump side

Relief Valve: No mark: Without relief valve; VB: With relief valve; VD: With relief valve (external return-type)
○Refer to page 57 for the relief valve set pressure, and indicate the desired type when placing your order. Indicate the set pressure (to the first decimal point) at the end of the model number (Ex.: 0.1MPa).

Special Symbol: US、UT、VF、VH (Refer to page 63.)

Relief Valve Set Pressure

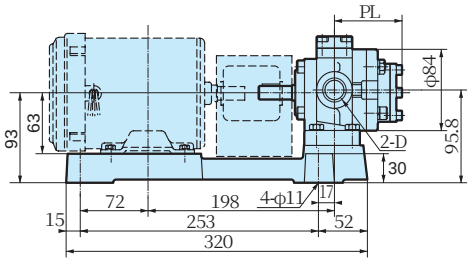


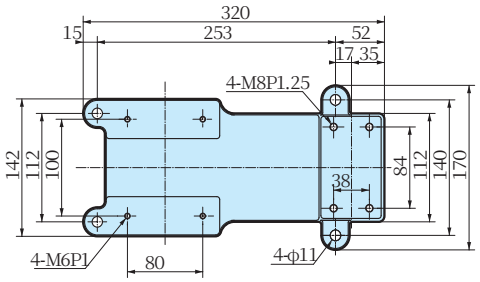
Model Examples
TOP-2MBY200-203HBVB (200W, with relief valve)
TOP-2MBY400-206HBR (400W, counterclockwise rotation as seen from the pump side)

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

Model : TOP - 2MBY200 - 2HB

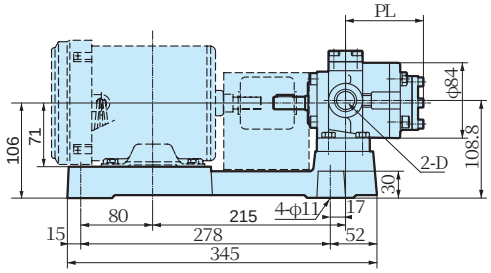


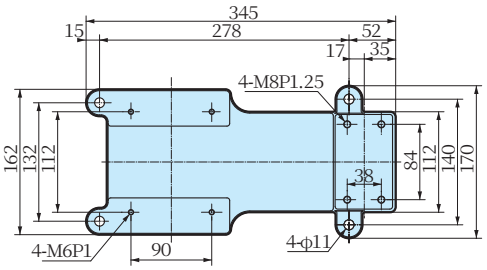


Dimensions

Item / Model	PL	D
203HB	64	Rc1/2
204HB	67	
206HB	72	
208HB	77	
210HB	82	Rc3/4
212HB	87	
216HB	97	

Model : TOP - 2MBY400 - 2HB

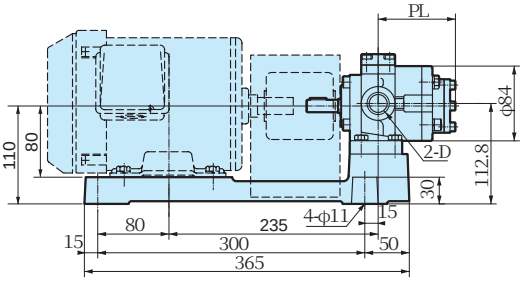


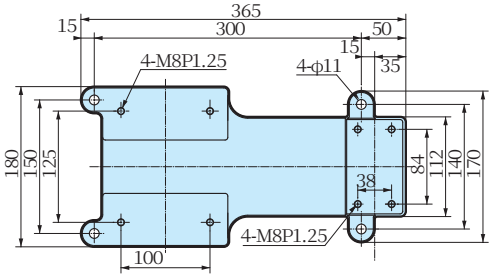


Dimensions

Item / Model	PL	D
203HB	64	Rc1/2
204HB	67	
206HB	72	
208HB	77	
210HB	82	Rc3/4
212HB	87	
216HB	97	
220HB	107	

Model : TOP - 2MBY750 - 2HB

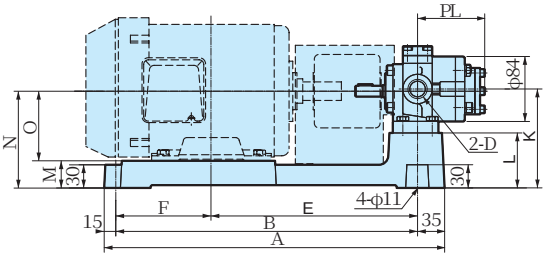


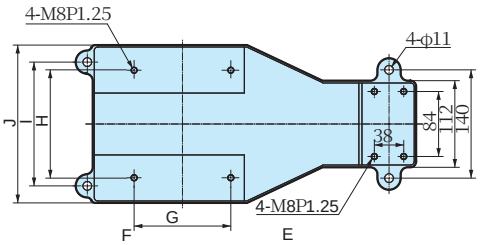


Dimensions

Item / Model	PL	D
203HB	64	Rc1/2
204HB	67	
206HB	72	
208HB	77	
210HB	82	Rc3/4
212HB	87	
216HB	97	
220HB	107	

Model : TOP - 2MBY1500-2HB/ TOP - 2MBY2200-2HB





Output	A	B	E	F	G	H	I	J	K	L	M	N	O
1500W	440	390	267	123	125	140	160	204	127.8	71	35	125	90
2200W	479	429	295	134	140	160	160	230	152.8	96	50	150	100

Dimensions

Item / Model	PL	D
203HB	64	Rc1/2
204HB	67	
206HB	72	
208HB	77	
210HB	82	Rc3/4
212HB	87	
216HB	97	
220HB	107	

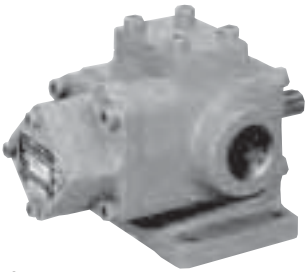
TOP-2.5HGA

Specifications

Item / Model	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min^{-1}	Approx. Weight kg
		1500min^{-1}	1800min^{-1}			
TOP-2516HGA	16	24	28.8	2.5	2500	7.0（7.5）
TOP-2520HGA	20	30	36.0	2.0	2000	7.0（7.5）

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.
○The approximate weight values shown in the brackets ( ) are for when a relief valve is attached.

Model



TOP - 2516HGA / 2520HGA

Attachment | Rotation Direction | Relief Valve | Relief Valve Set Pressure

Relief Valve Set Pressure:
No mark: Without relief valve
VB: With relief valve
VD: With relief valve (external return-type) (Refer to page 55.)
○Refer to page 57 for the relief valve set pressure, and indicate the desired type when placing your order. Indicate the set pressure (to the first decimal point) at the end of the model number (Ex.: 0.1MPa).

Rotation Direction:
No mark: Counter-clockwise rotation as seen from the end of the shaft (standard rotation direction)
R: Clockwise rotation as seen from the end of the shaft

Attachment:
No mark: With angle plate
F: With angle flange

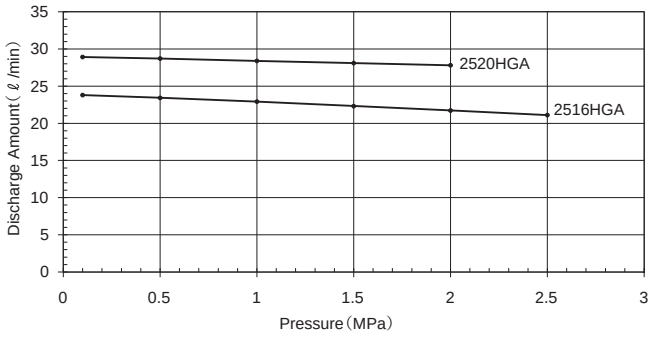
Model Examples:
TOP-2516HGAVB (with angle plate and relief valve)
TOP-2516HGAF (with angle flange)
TOP-2520HGARVB (clockwise rotation seen from the end of the shaft, with relief valve)

Performance Table

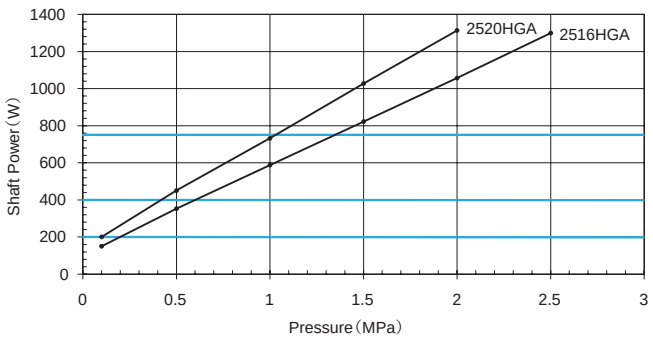
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 1,450 Rotations

●Flow Rate Characteristics

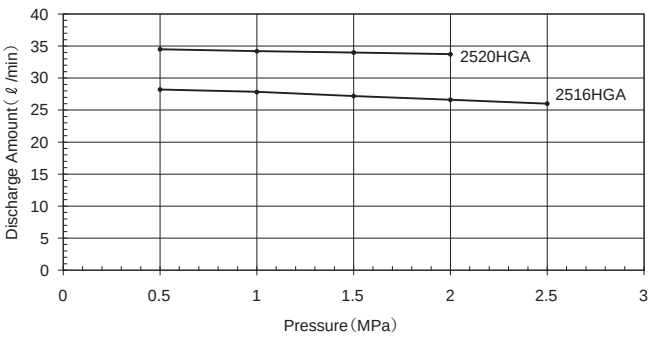


●Required Power

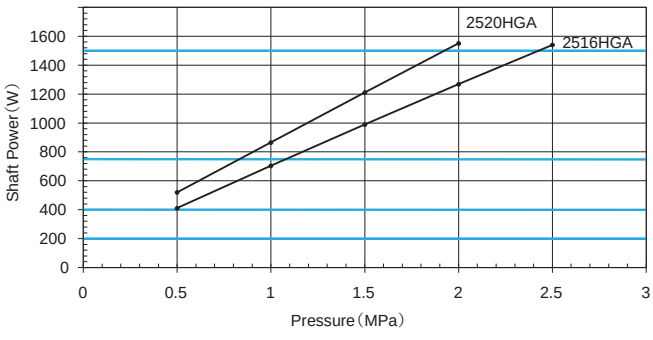


At 1,750 Rotations

●Flow Rate Characteristics



●Required Power

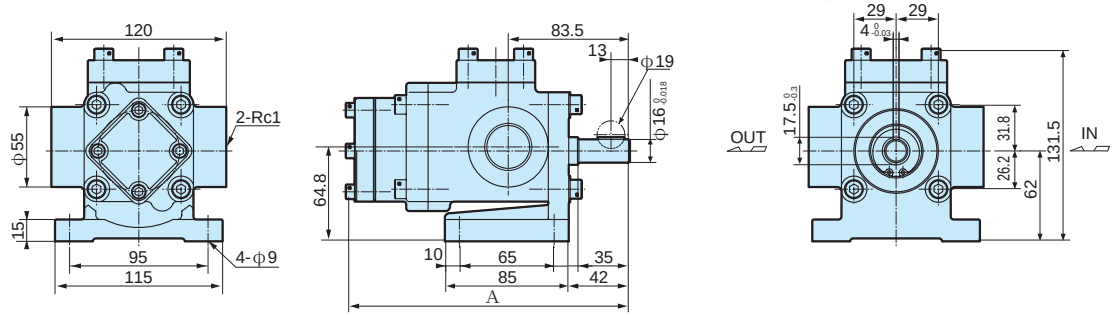


○Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

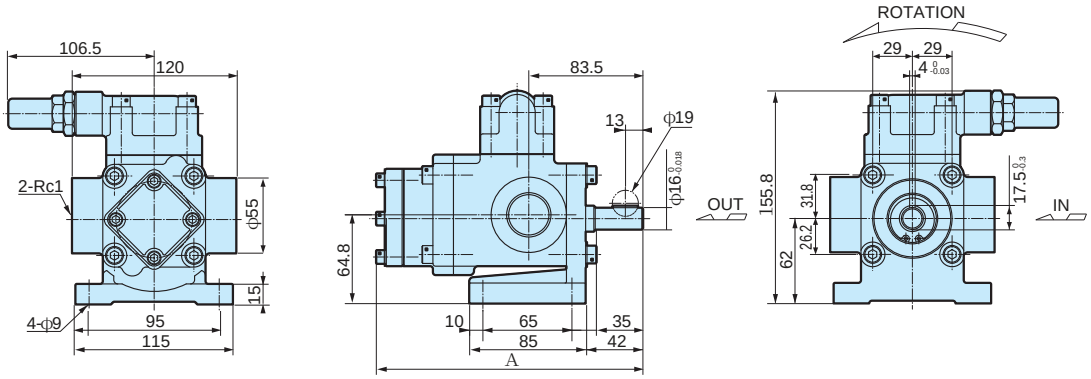
Model : TOP - 2.5HGA



Dimensions

Item / Model	A
2516HGA	194.5
2520HGA	200.5

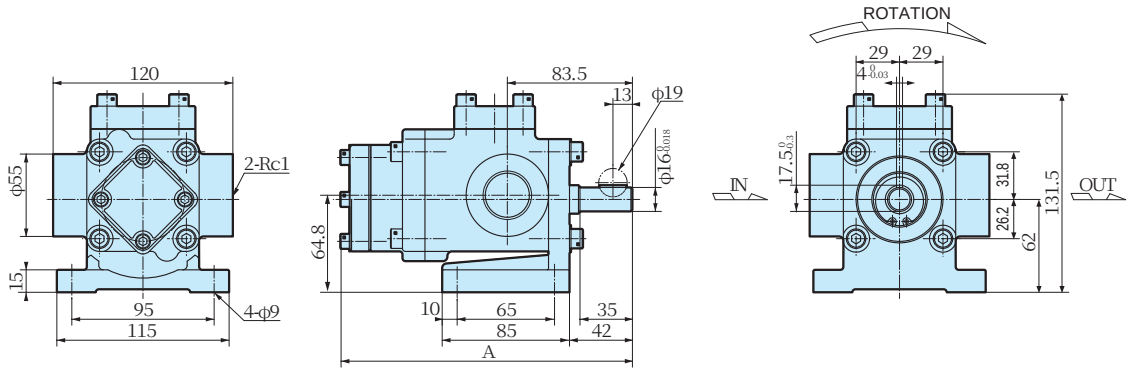
Model : TOP - 2.5HGAVB



Dimensions

Item / Model	A
2516HGAVB	194.5
2520HGAVB	200.5

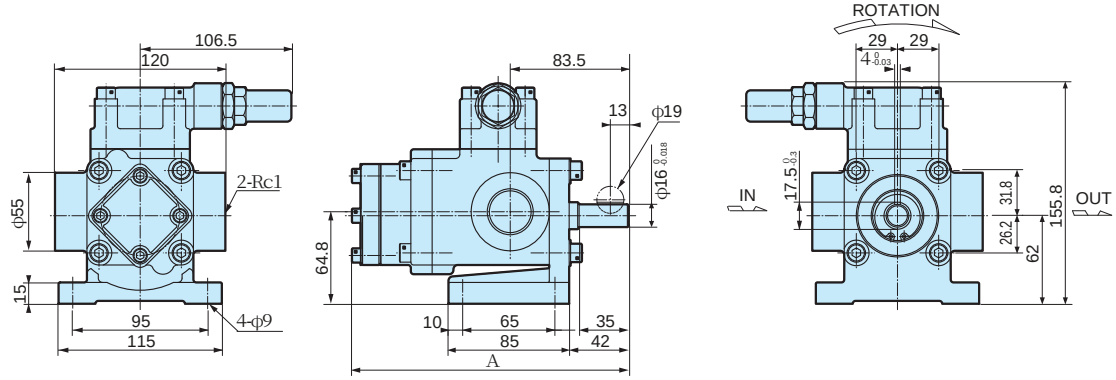
Model : TOP - 2.5HGAR



Dimensions

Item / Model	A
2516HGAR	194.5
2520HGAR	200.5

Model : TOP - 2.5HGARVB



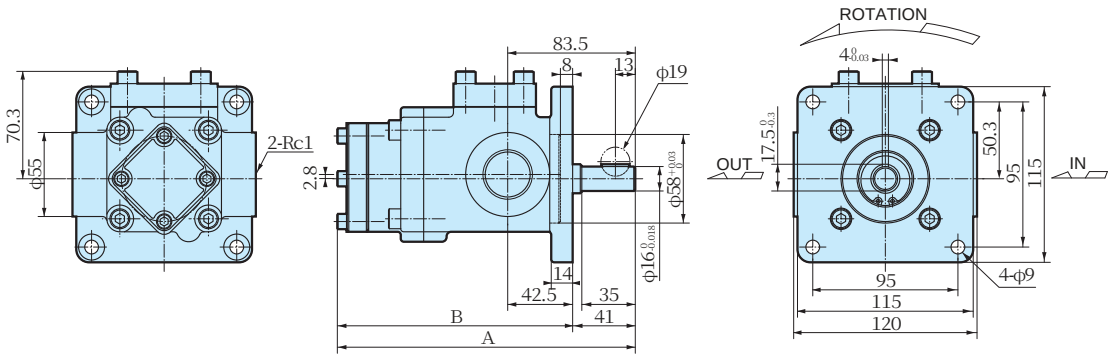
Dimensions

Item / Model	A
2516HGARVB	194.5
2520HGARVB	200.5

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

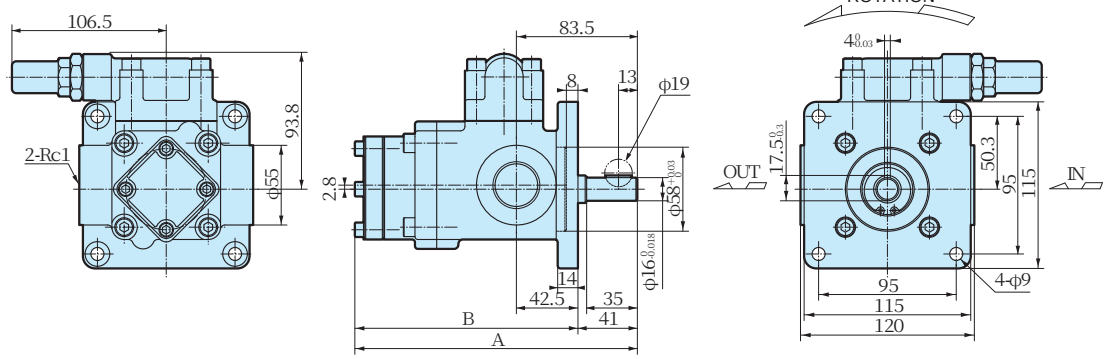
Model : TOP - 2.5HGAF



Dimensions

Model \ Item	A	B
2516HGAF	195	154
2520HGAF	201	160

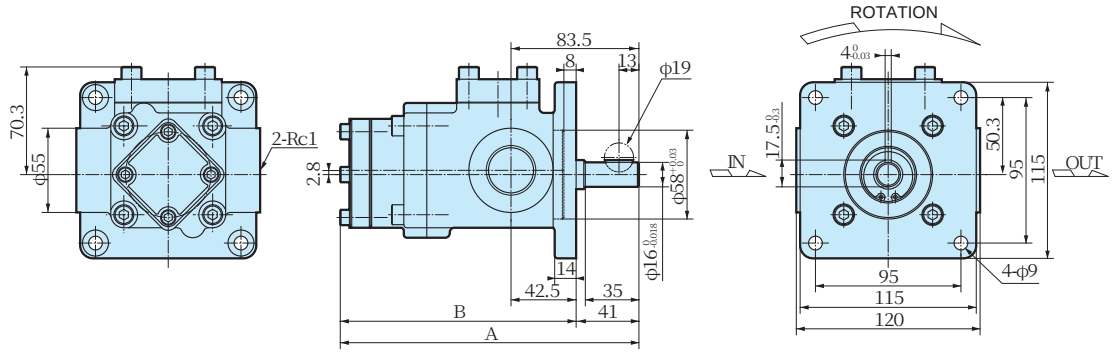
Model : TOP - 2.5HGAFVB



Dimensions

Model \ Item	A	B
2516HGAFVB	194.5	153.5
2520HGAFVB	200.5	159.5

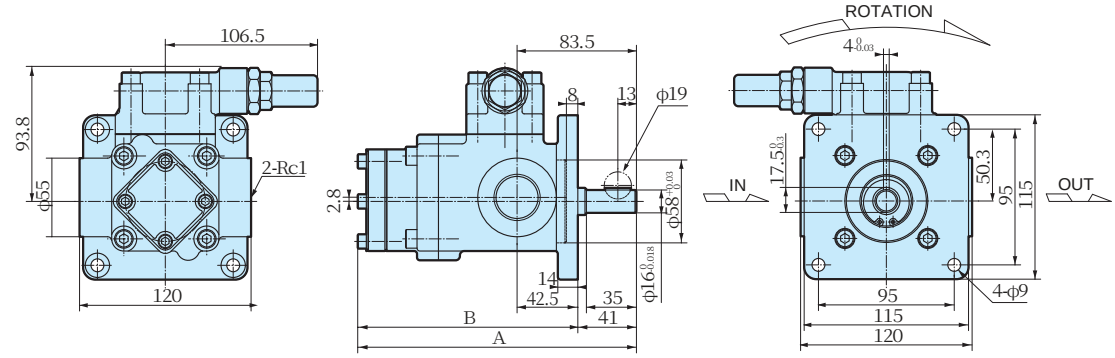
Model : TOP - 2.5HGAFR



Dimensions

Model \ Item	A	B
2516HGAFR	195	154
2520HGAFR	201	160

Model : TOP - 2.5HGAFRVB



Dimensions

Model \ Item	A	B
2516HGAFRVB	195	154
2520HGAFRVB	201	160

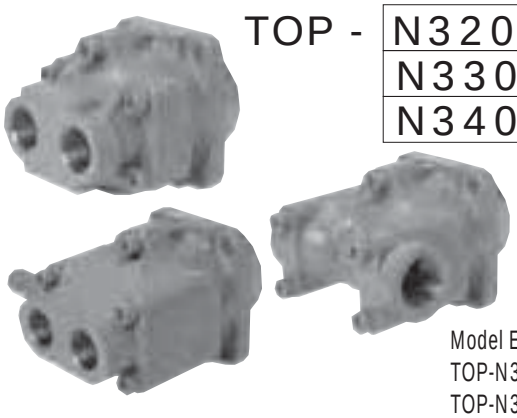
TOP-N3F

Specifications

Model \ Item	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min 1500min⁻¹	Theoretical Discharge ℓ/min 1800min⁻¹	Max. Discharge Pressure MPa	Max. Revolution min⁻¹	Approx. Weight kg
TOP-N320 FAM	26	39.0	46.8	2.5	1800	8.0
TOP-N320 FAMVB						10.5
TOP-N320 FBM						9.0
TOP-N330 FAM	39	58.5	70.2	※2.5	1800	8.0
TOP-N330 FAMVB						10.5
TOP-N330 FBM						9.0
TOP-N340 FAM	52	78.0	93.6	※2.0	1800	8.0
TOP-N340 FAMVB						10.5
TOP-N340 FBM						9.0

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Model



TOP - N320 / N330 / N340 | Pump Cover | M | Rotation Direction | Relief Valve | - | Special Symbol | Relief Valve Set Pressure

- Special Symbol: VF, (Refer to page 63.)
- Relief Valve: No mark: Without relief valve; VB: With relief valve
  - ○ In this case on the FA pump cover can be used.
  - ○Refer to page 57 for the relief valve set pressure, and indicate the desired type when placing your order. Indicate the set pressure (to the first decimal point) at the end of the model number (Ex.: 0.1MPa).
- Rotation Direction: No mark: Clockwise rotation as seen from the end of the shaft (standard rotation direction); L: Counter-clockwise rotation as seen from the end of the shaft
- Pump Cover: FA: Port parallel to pump shaft; FB: Port perpendicular to pump shaft

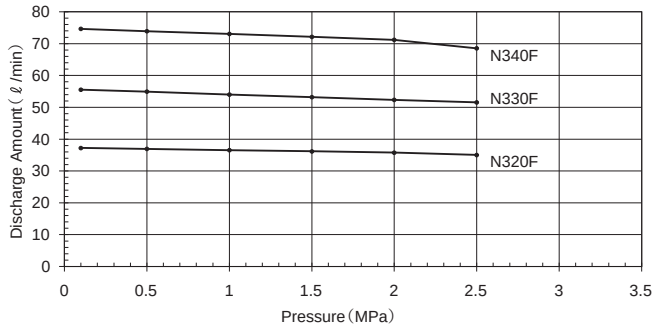
Model Examples:
TOP-N320FAMLVB (port parallel to pump shaft, with relief valve)
TOP-N330FBML (port perpendicular to pump shaft, counter-clockwise rotation as seen from end of shaft)

Performance Table

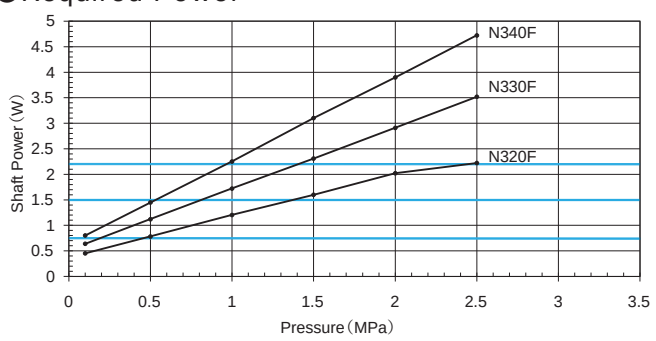
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 1,450 Rotations

●Flow Rate Characteristics

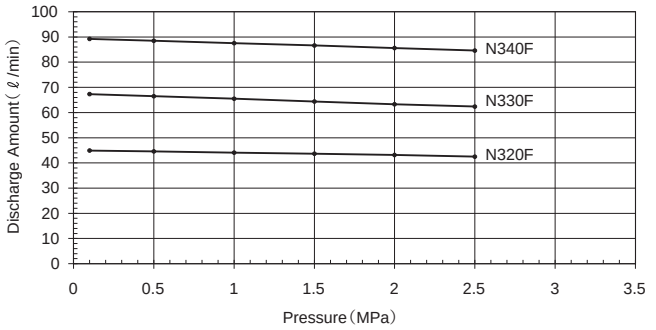


●Required Power

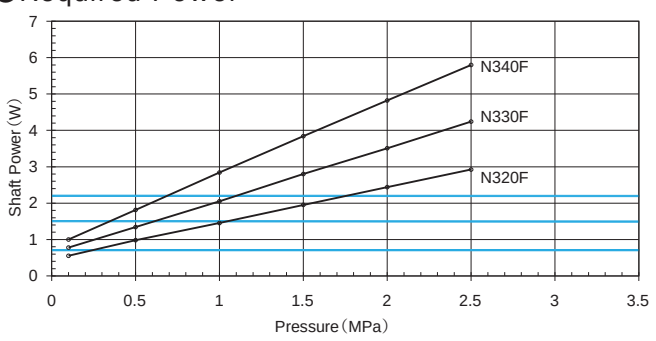


At 1,750 Rotations

●Flow Rate Characteristics



●Required Power

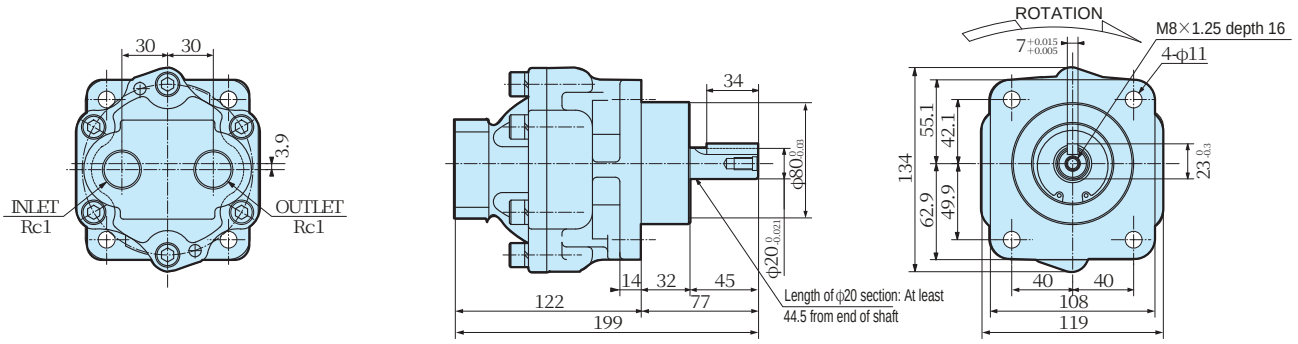


○Select the best motor using the lines in the "Required Power" table as the applicable standards.

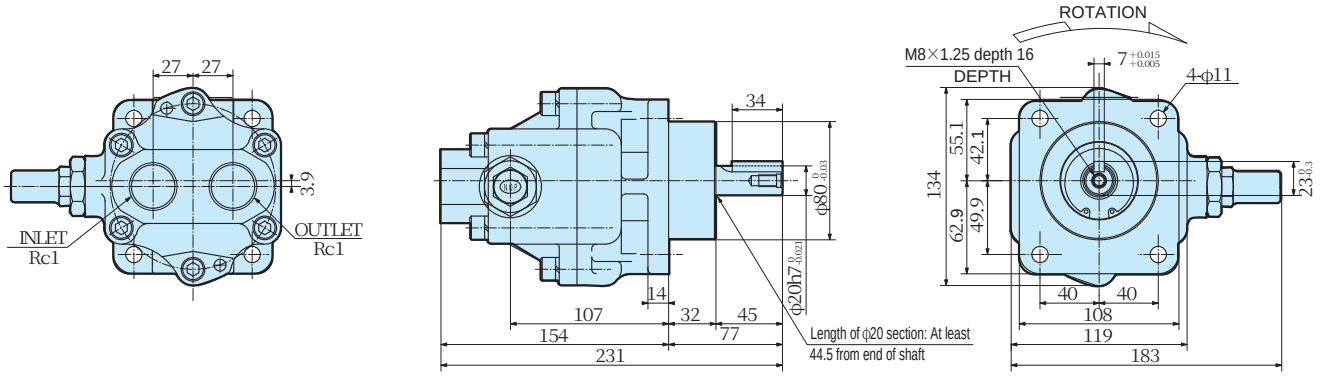
Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

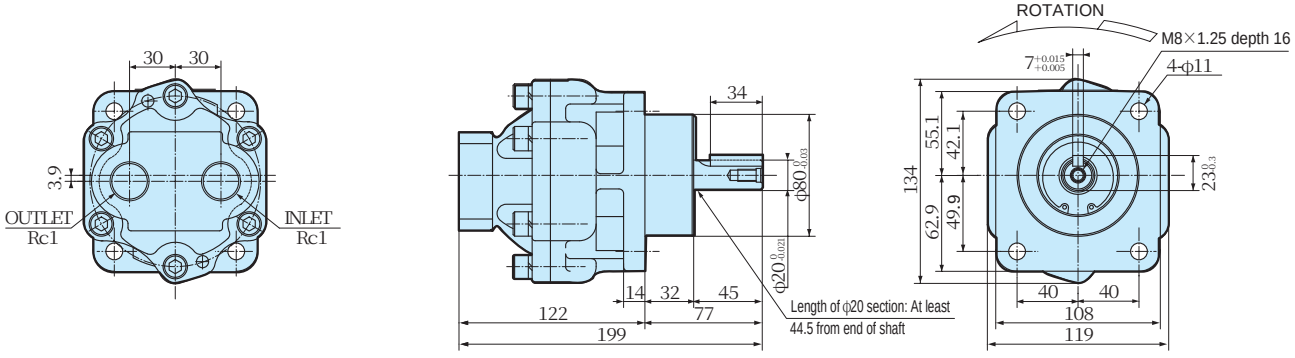
Model : TOP - N3FAM



Model : TOP - N3FAMVB



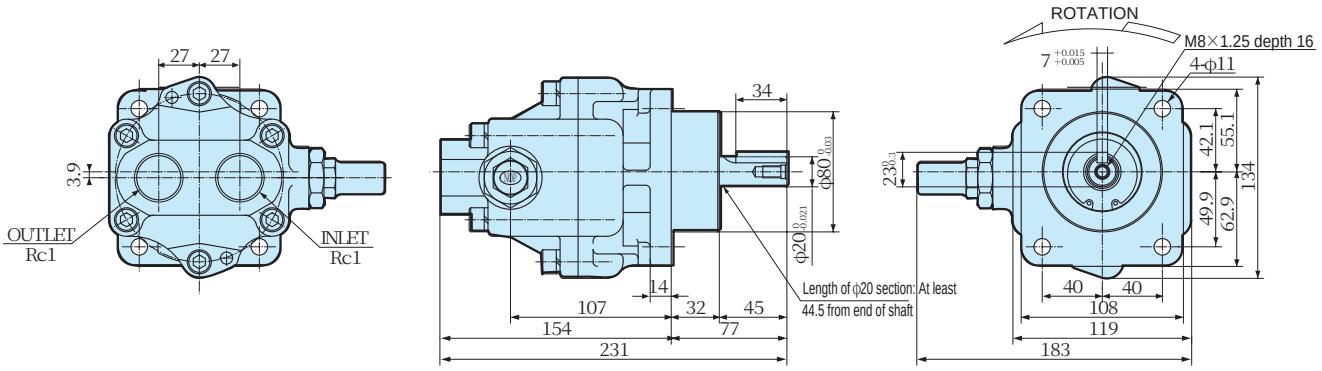
Model : TOP - N3FAML



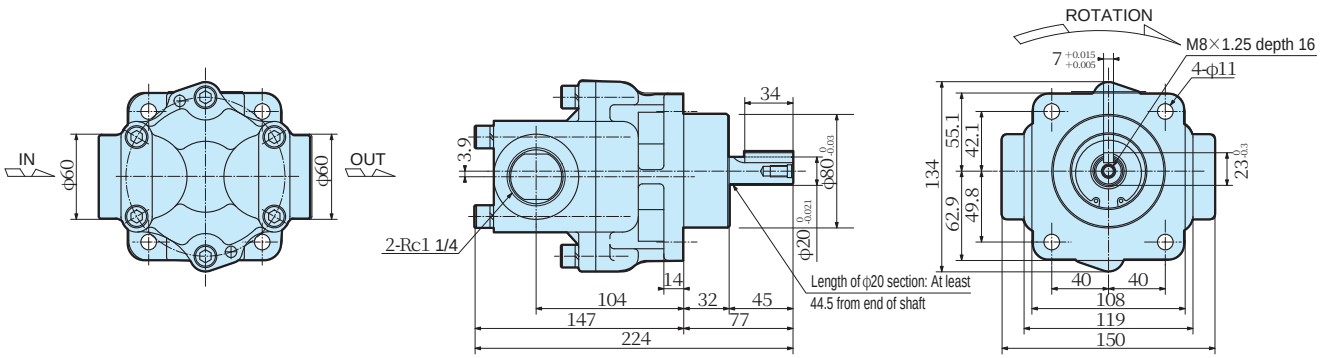
Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

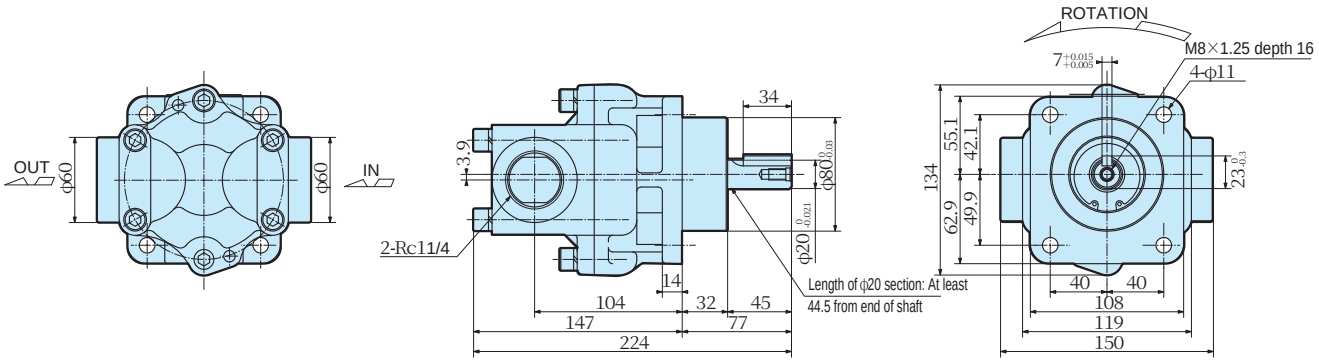
Model : TOP - N3FAMLVB



Model : TOP - N3FBM



Model : TOP - N3FBML



N3F

TOP-3MF

Specifications

Model \ Item	No. of Motor Revolutions 50Hz 1500min⁻¹				No. of Motor Revolutions 60Hz 1800min⁻¹			
	Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)			Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)		
		750W	1500W	2200W		750W	1500W	2200W
TOP-N320 FA FA VB FB	39	0.4	1.3	2.1	46.8	0.2	1.0	1.7
TOP-N330 FA FA VB FB	58.5	0.1	0.8	1.3	70.2	——	0.6	1.0
TOP-N340 FA FA VB FB	78	——	0.5	0.9	93.6	——	0.3	0.6

○The above maximum pressure for motor output values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Motor Specifications

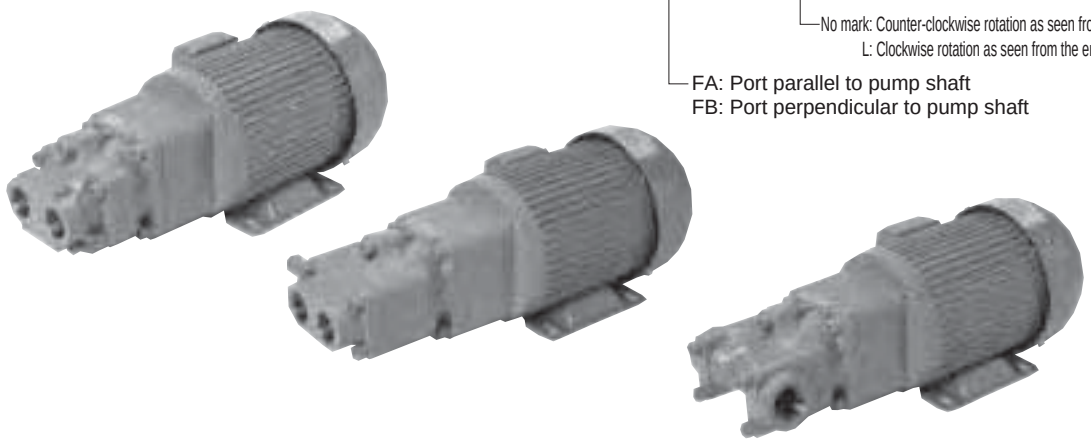
○Three-Phase Squirrel-Cage Induction Motor ○Totally enclosed ○Class E insulation

Output (W)	No. of Poles (P)	Rating	Voltage (V)	Frequency (Hz)	No. of Revolutions (min⁻¹)	Current (A)	Approx. Weight (kg)
750	4	Continuous	200 200 220	50 60 60	1440 1720 1740	3.6 3.3 3.2	14
1500	4	Continuous	200 200 220	50 60 60	1440 1720 1730	6.8 6.2 6.0	24
2200	4	Continuous	200 200 220	50 60 60	1420 1710 1730	9.0 8.5 7.9	30

Model

TOP - 3MF (Motor Output: 750 / 1500 / 2200) - (N320 / N330 / N340) [Pump Cover] [Rotation Direction] [Relief Valve] - [Special Symbol] Relief Valve Set Pressure

- Pump Cover: FA: Port parallel to pump shaft; FB: Port perpendicular to pump shaft
- Rotation Direction: No mark: Counter-clockwise rotation as seen from the end of the shaft (standard rotation direction); L: Clockwise rotation as seen from the end of the shaft
- Relief Valve: No mark: Without relief valve; VB: With relief valve
  - ○In this case only the FA pump cover can be used.
  - ○Refer to page 57 for the relief valve set pressure, and indicate the desired type when placing your order. Indicate the set pressure (to the first decimal point) at the end of the model number (Ex.: 0.1MPa).
- Special Symbol: VF (Refer to page 63.)



Model Examples:

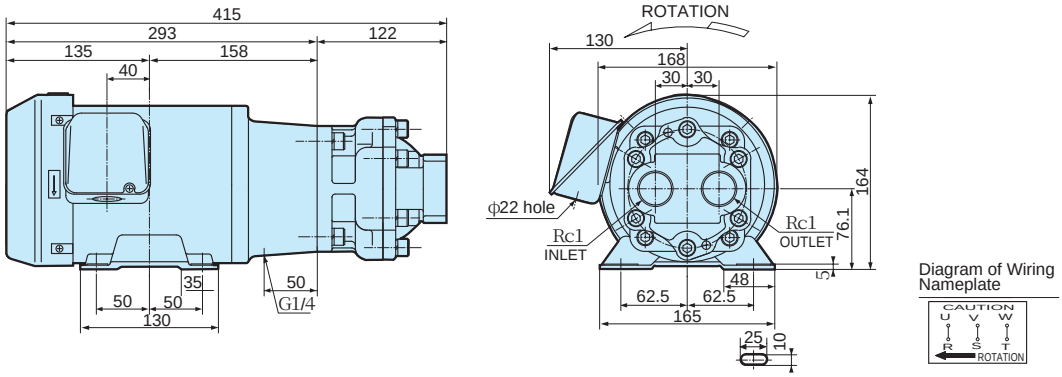
TOP-3MF1500-N320FAVB (1,500W, port parallel to pump shaft, with relief valve)

TOP-3MF2200-N330FBL (2,200W, port perpendicular to pump shaft, clockwise rotation as seen from end of shaft)

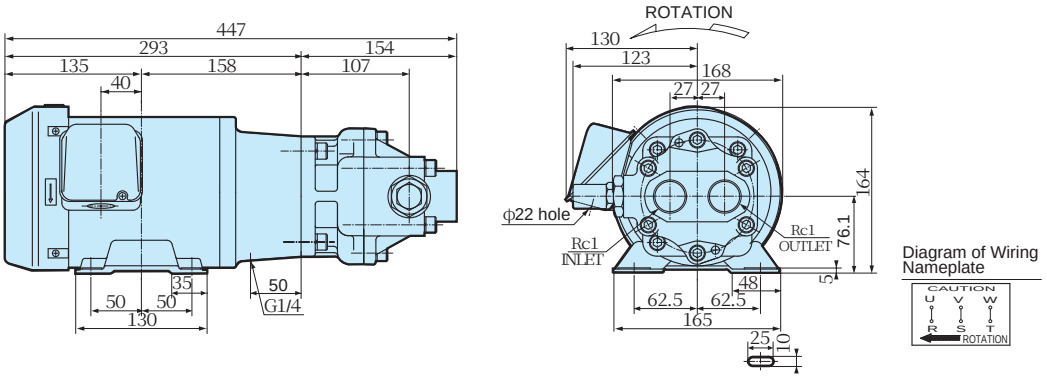
Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

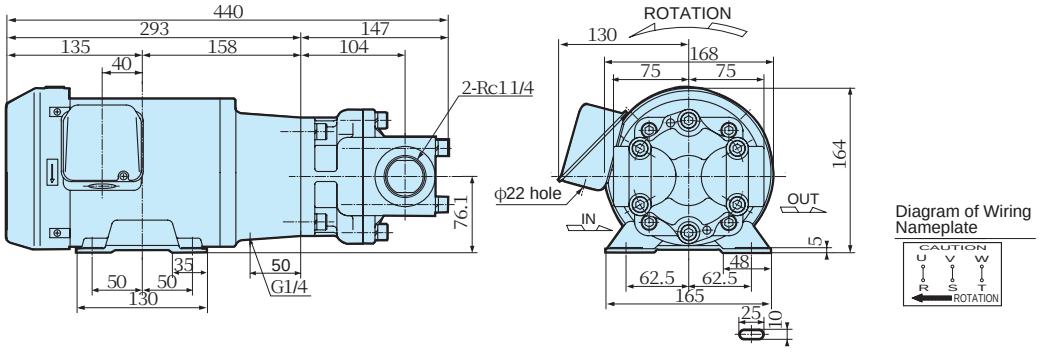
Model : TOP - 3MF750-N3FA



Model : TOP - 3MF750-N3FAVB



Model : TOP - 3MF750-N3FB



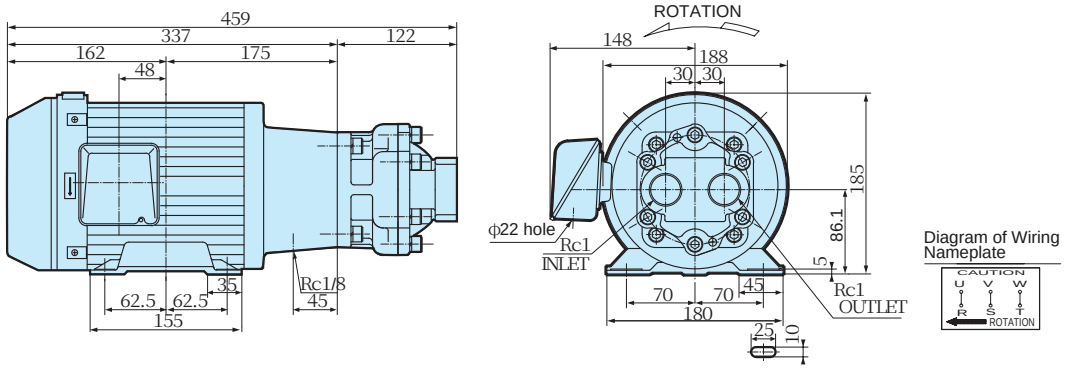
N3F

TOP-3MF

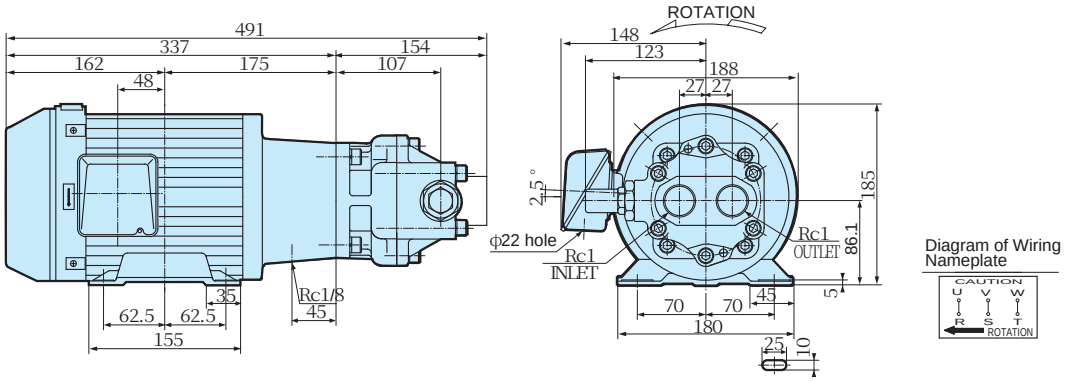
Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

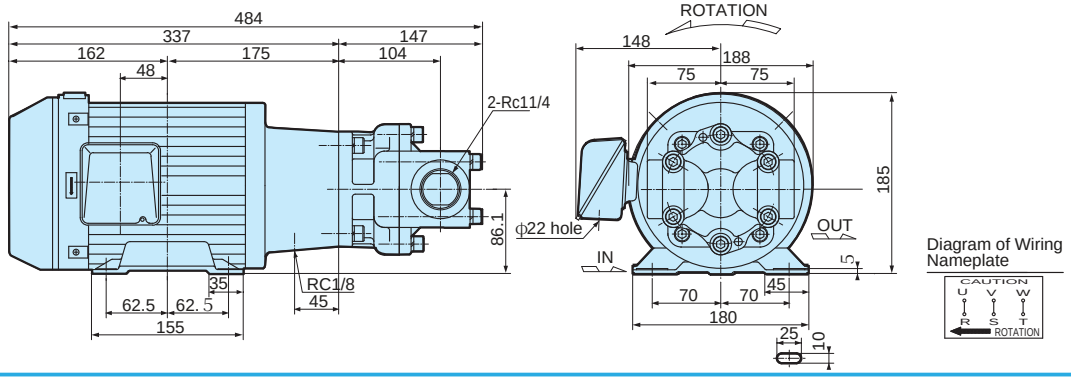
Model : TOP - 3MF1500-N3FA



Model : TOP - 3MF1500-N3FAVB



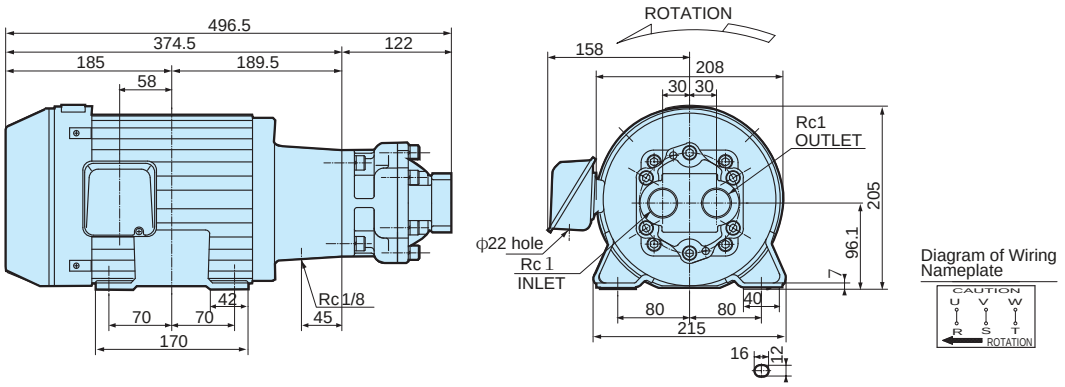
Model : TOP - 3MF1500-N3FB



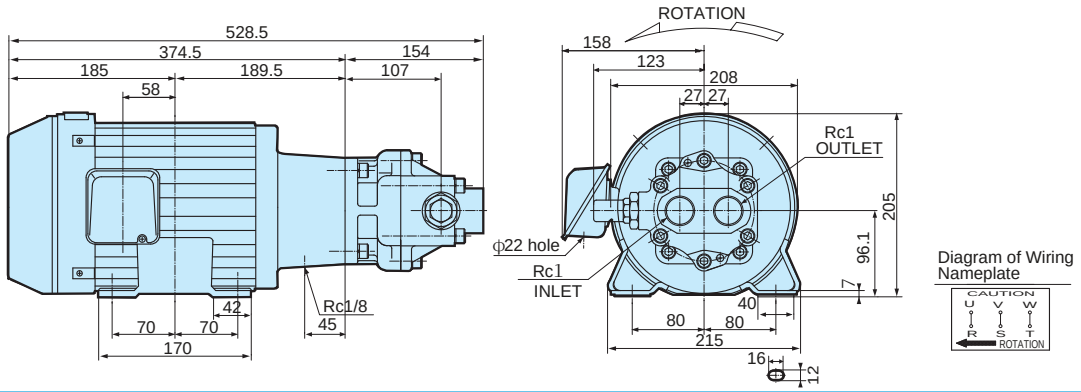
Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

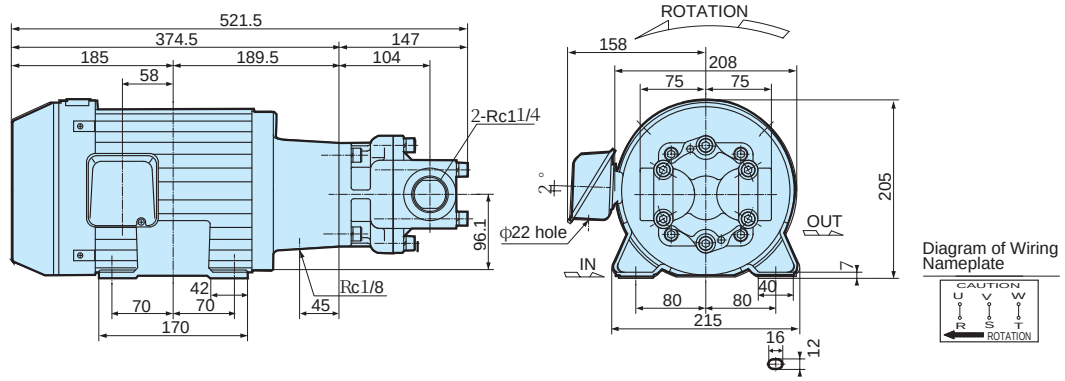
Model : TOP - 3MF2200-N3FA



Model : TOP - 3MF2200-N3FAVB



Model : TOP - 3MF2200-N3FB



N3F

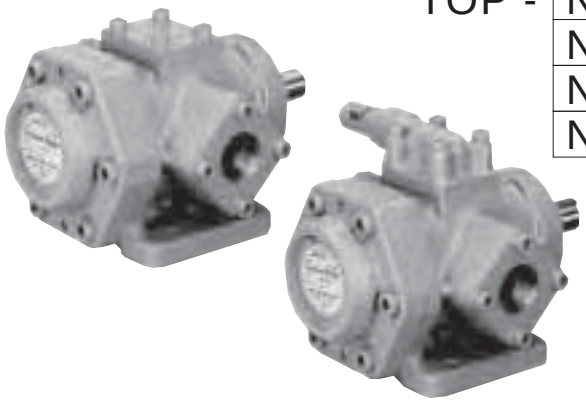
TOP-N3H

Specifications

Item / Model	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min 1500min⁻¹	Theoretical Discharge ℓ/min 1800min⁻¹	Max. Discharge Pressure MPa	Max. Revolution min^{-1}	Approx. Weight kg
TOP-N320H	26	39.0	46.8	4.0	1800	14.8（15.4）
TOP-N330H	39	58.5	70.2	※4.0	1800	14.9（15.5）
TOP-N340H	52	78.0	93.6	※3.0	1800	14.9（15.5）
TOP-N350H	65	97.5	117.0	※2.0	1800	15.6（16.2）

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.
○The approximate weight values shown in the brackets ( ) are for when a relief valve is attached.
*Please consult with your Nippon Oil Pump representative before using the specifications marked with "※".

Model



TOP - N320H / N330H / N340H / N350H

Rotation Direction [ ] Relief Valve [ ] - Special Symbol [ ] Relief Valve Set Pressure

Special Symbol: UT, VF, VH (Refer to page 63.)

Relief Valve:
No mark: Without relief valve
VB: With relief valve
○Refer to page 57 for the relief valve set pressure, and indicate the desired type when placing your order. Indicate the set pressure (to the first decimal point) at the end of the model number (Ex.: 0.1MPa).

Rotation Direction:
No mark: Clockwise rotation as seen from the end of the shaft (standard rotation direction)
L: Counter-clockwise rotation as seen from the end of the shaft

*When using the UT seal materials the configuration of the pumps will be different than those shown on page 40. The appropriate diagrams can be obtained from the Nippon Oil Pump homepage.

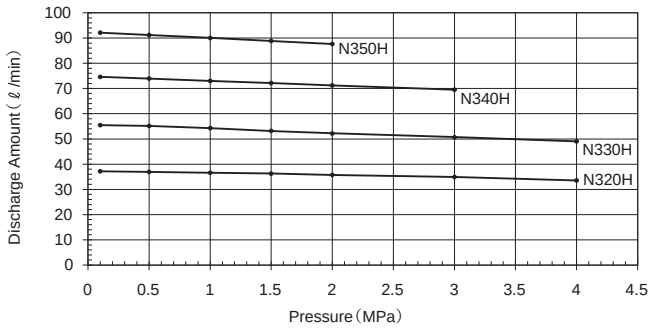
Model Examples:
TOP-N320HVB (with relief valve)
TOP-N330HL (counter-clockwise rotation as seen from end of shaft)

Performance Table

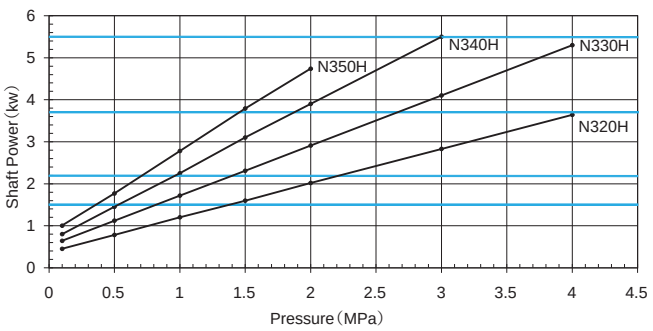
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 1,450 Rotations

●Flow Rate Characteristics

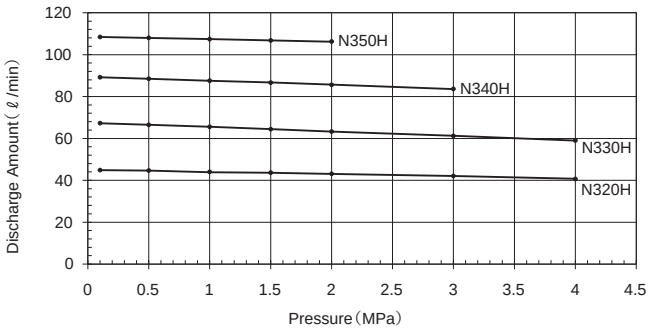


●Required Power

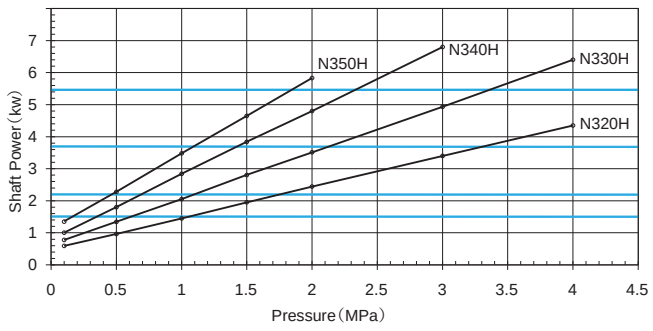


At 1,750 Rotations

●Flow Rate Characteristics



●Required Power

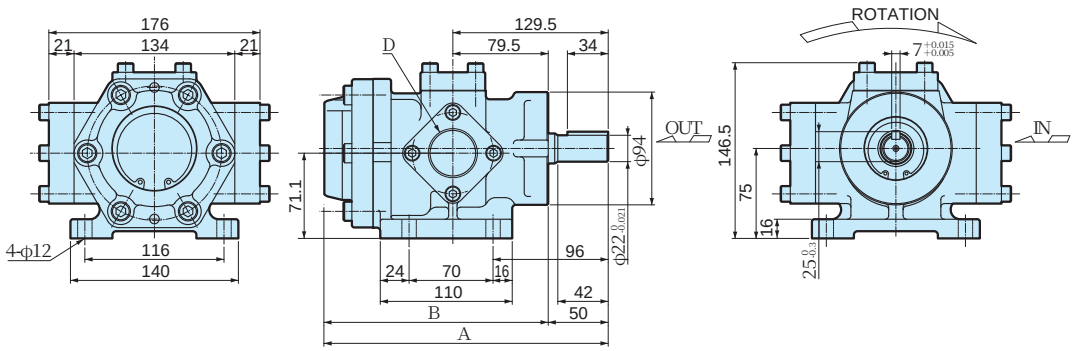


○Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

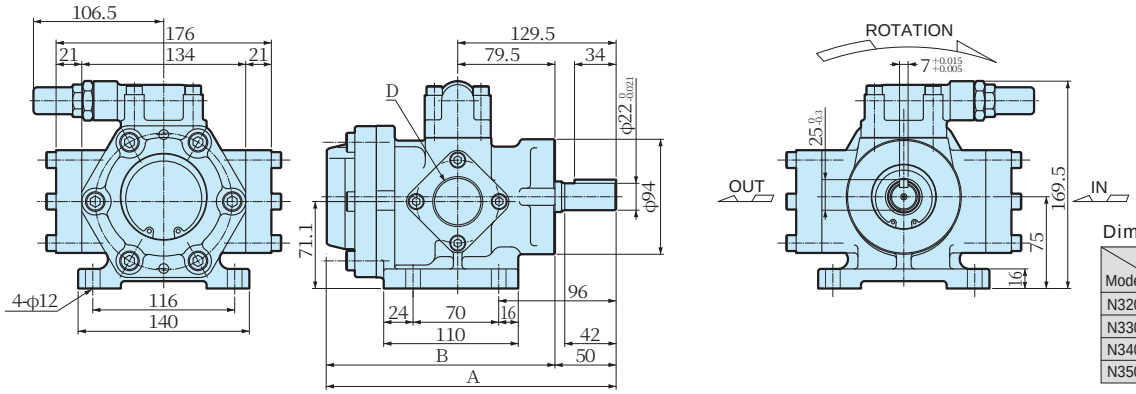
Model : TOP - N3H



Dimensions

Item / Model	A	B	D(port diameter) In	D(port diameter) Out
N320H	237	187	Rc1	Rc1
N330H	237	187	Rc1 1/4	
N340H	237	187		
N350H	247	197		

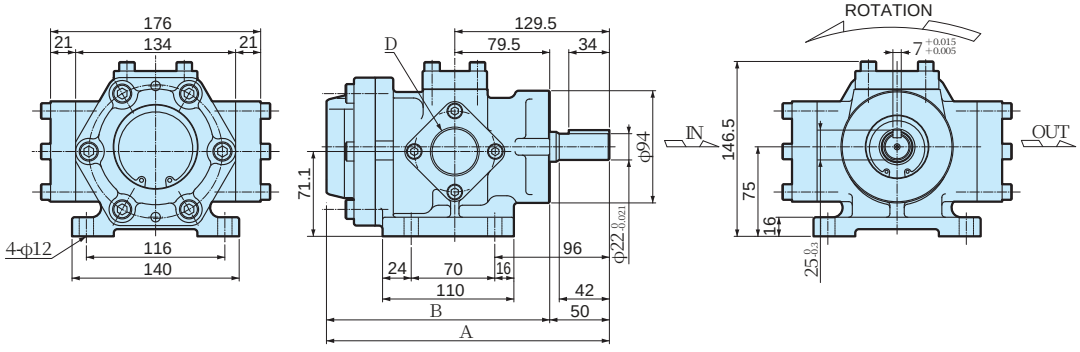
Model : TOP - N3HVB



Dimensions

Item / Model	A	B	D(port diameter) In	D(port diameter) Out
N320HVB	237	187	Rc1	Rc1
N330HVB	237	187	Rc1 1/4	
N340HVB	237	187		
N350HVB	247	197		

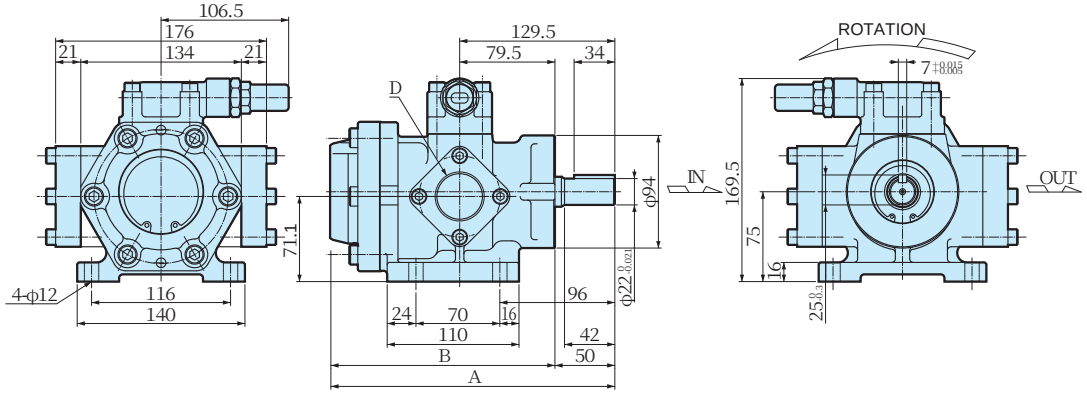
Model : TOP - N3HL



Dimensions

Item / Model	A	B	D(port diameter) In	D(port diameter) Out
N320HL	237	187	Rc1	Rc1
N330HL	237	187	Rc1 1/4	
N340HL	237	187		
N350HL	247	197		

Model : TOP - N3HLVB



Dimensions

Item / Model	A	B	D(port diameter) In	D(port diameter) Out
N320HLVB	237	187	Rc1	Rc1
N330HLVB	237	187	Rc1 1/4	
N340HLVB	237	187		
N350HLVB	247	197		

TOP-3MBY

Specifications

Item / Model	No. of Motor Revolutions 50Hz 1500min⁻¹					No. of Motor Revolutions 60Hz 1800min⁻¹				
	Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)				Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)			
		1500W	2200W	3700W	5500W		1500W	2200W	3700W	5500W
TOP-N320H	39.0	1.3	2.2	3.0	4.0	46.8	1.0	1.7	3.2	4.0
TOP-N330H	58.5	0.8	1.4	2.6	※4.0	70.2	0.5	1.0	2.1	3.3
TOP-N340H	78.0	0.5	0.9	1.8	※3.0	93.6	0.3	0.6	1.4	2.3
TOP-N350H	97.5	0.3	0.7	1.4	※2.0	117.0	0.1	0.4	1.0	1.8

○The above maximum pressure for motor output values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.
*Please consult with your Nippon Oil Pump representative before using the specifications marked with "※".

Model

TOP - 3MBY [Motor Output: 1500 / 2200 / 3700 / 5500] - [N320H / N330H / N340H / N350H]

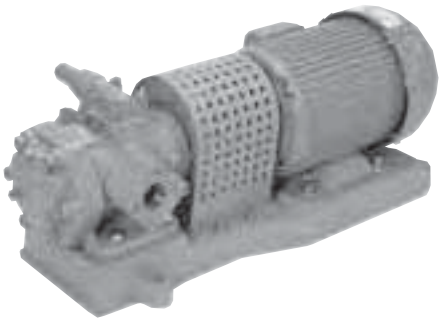
Rotation [ ] Relief Valve [ ] - Special Symbol [ ] Relief Valve Set Pressure

Special Symbol: UT, VF, VH (Refer to page 63.)

Relief Valve:
No mark: Without relief valve
VB: With relief valve
○Refer to page 57 for the relief valve set pressure, and indicate the desired type when placing your order. Indicate the set pressure (to the first decimal point) at the end of the model number (Ex.: 0.1MPa).

Rotation:
No mark: Counter-clockwise rotation as seen from the pump side (standard rotation direction)
L: Clockwise rotation as seen from the pump side

* When using the UT seal materials the configuration of the pumps will be different than those shown on page 42. The appropriate diagrams can be obtained from the Nippon Oil Pump homepage.

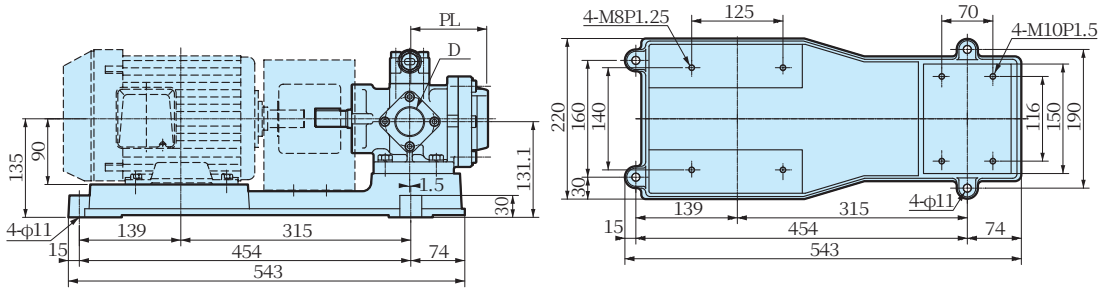


Model Examples:
TOP-3MBY1500-N320HVB (1,500W, with relief valve)
TOP-3MBY2200-N330HL (2,200W, clockwise rotation as seen from the pump side)

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

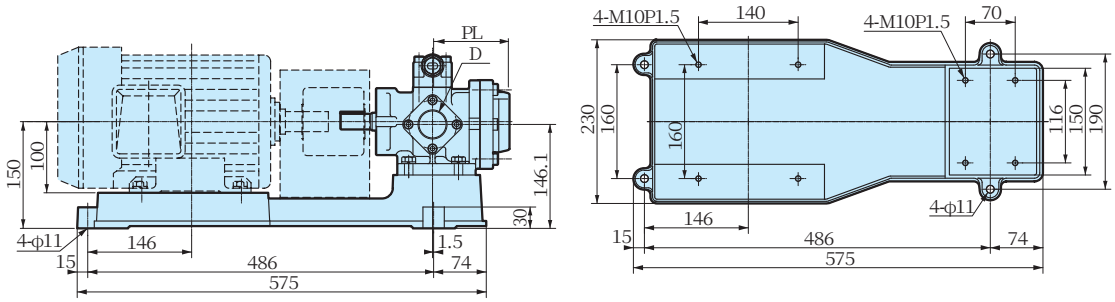
Model : TOP - 3MBY1500-N3HVB



Dimensions

Item / Model	PL	D (port diameter) In	D (port diameter) Out
N320HVB	107.5	Rc1	Rc1
N330HVB	107.5	Rc1¼	
N340HVB	107.5		
N350HVB	117.5		

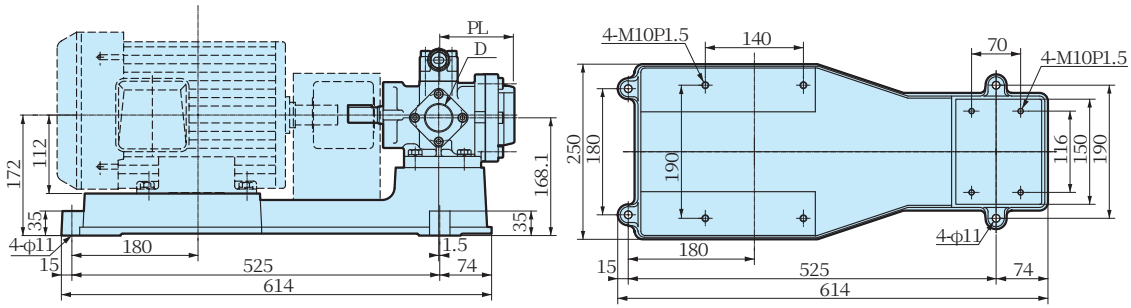
Model : TOP - 3MBY2200-N3HVB



Dimensions

Item / Model	PL	D (port diameter) In	D (port diameter) Out
N320HVB	107.5	Rc1	Rc1
N330HVB	107.5	Rc1¼	
N340HVB	107.5		
N350HVB	117.5		

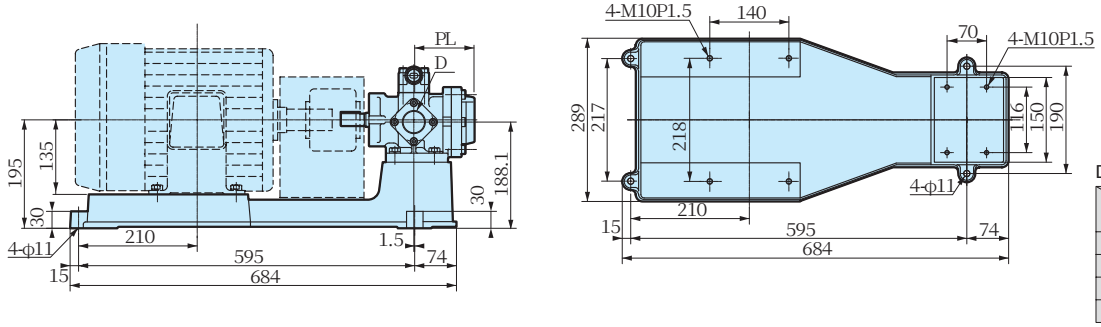
Model : TOP - 3MBY3700-N3HVB



Dimensions

Item / Model	PL	D (port diameter) In	D (port diameter) Out
N320HVB	107.5	Rc1	Rc1
N330HVB	107.5	Rc1¼	
N340HVB	107.5		
N350HVB	117.5		

Model : TOP - 3MBY5500-N3HVB



Dimensions

Item / Model	PL	D (port diameter) In	D (port diameter) Out
N320HVB	107.5	Rc1	Rc1
N330HVB	107.5	Rc1¼	
N340HVB	107.5		
N350HVB	117.5		

TOP-3V

Used for transferring oils with high viscosity (46～2,000mm²/sec) such as high-viscosity lubricating oils and gear oils.

Specifications

Item / Model	Theoretical Displacement cm³/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min⁻¹	Approx. Weight kg
		1500min⁻¹	1800min⁻¹			
TOP-330V	39.0	58.5	70.2	1.0	1800	19.3（20.7）
TOP-340V	52.0	78.0	93.6	1.0	1800	19.5（20.9）
TOP-350V	65.0	97.5	117.0	1.0	1800	19.3（20.7）

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.
○The approximate weight values shown in the brackets ( ) are for when a relief valve is attached.

Model

TOP - 330V / 340V / 350V

Attachment [ ]　Relief Valve [ ]

Relief Valve Set Pressure
No mark: Without relief valve
VB: With relief valve
○Refer to page 57 for the relief valve set pressure, and indicate the desired type when placing your order. Indicate the set pressure (to the first decimal point) at the end of the model number (Ex.: 0.1MPa).

Attachment
No mark: With angle plate
F: With angle flange

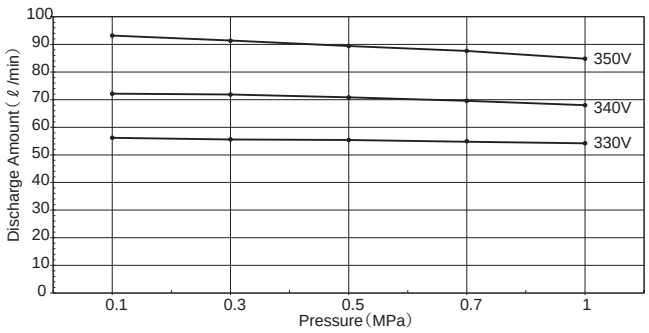
Model Examples:
TOP-N330VVB (with angle plate and relief valve)
TOP-N330VFVB (with angle flange and relief valve)

Performance Table

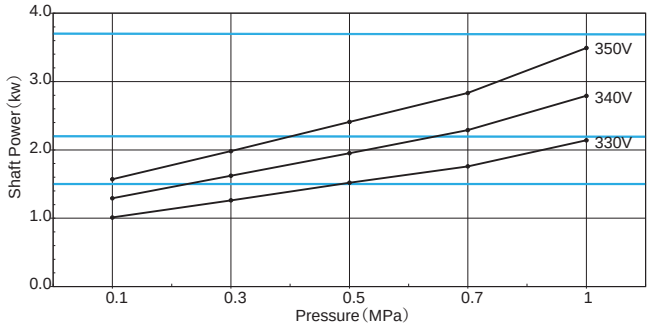
Test Conditions　Oil: ISO-VG46 with a temperature of 40 ℃

At 1,450 Rotations

●Flow Rate Characteristics

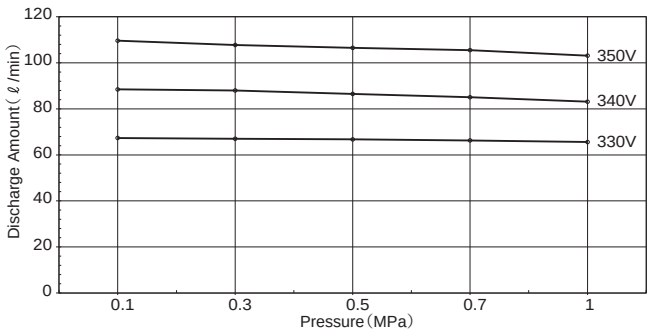


●Required Power

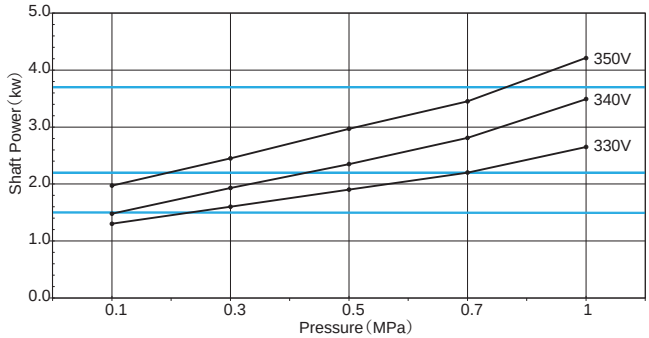


At 1,750 Rotations

●Flow Rate Characteristics



●Required Power

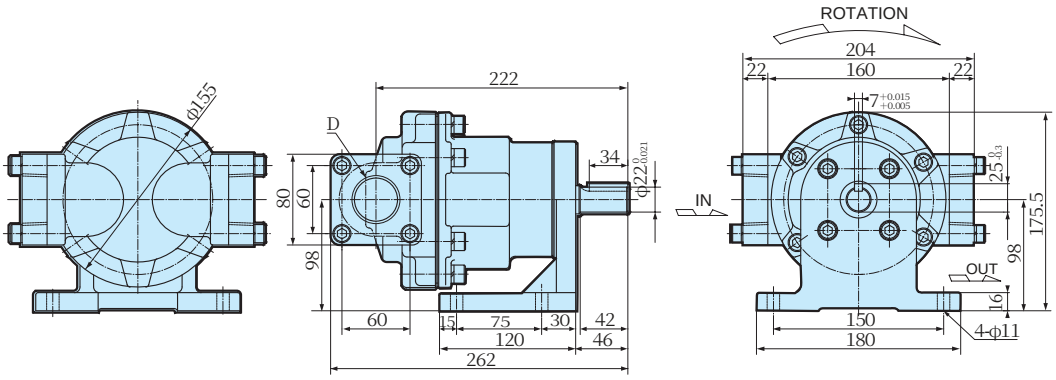


○Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

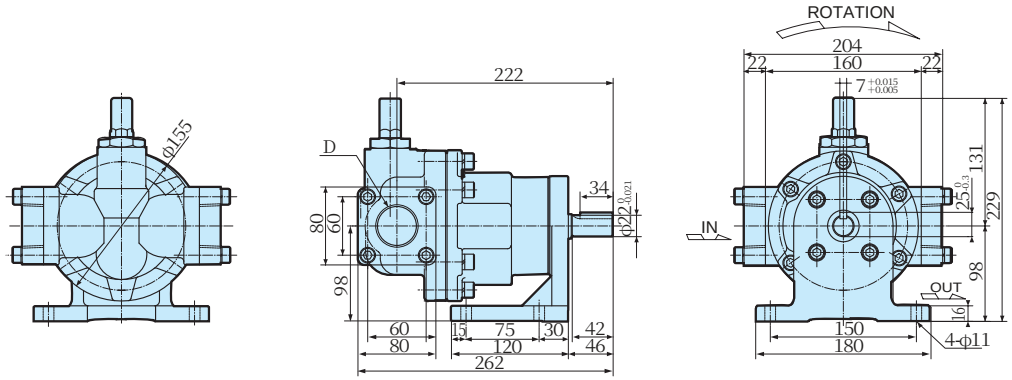
Model : TOP - 3V



Dimensions

Item / Model	D (port diameter) In	D (port diameter) Out
330V	Rc1¼	Rc1¼
340V	Rc1½	
350V		

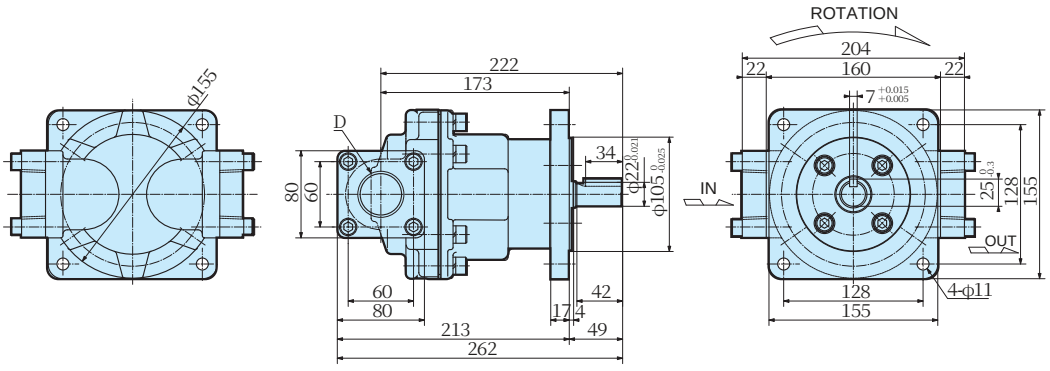
Model : TOP - 3VVB



Dimensions

Item / Model	D (port diameter) In	D (port diameter) Out
330VVB	Rc1¼	Rc1¼
340VVB	Rc1½	
350VVB		

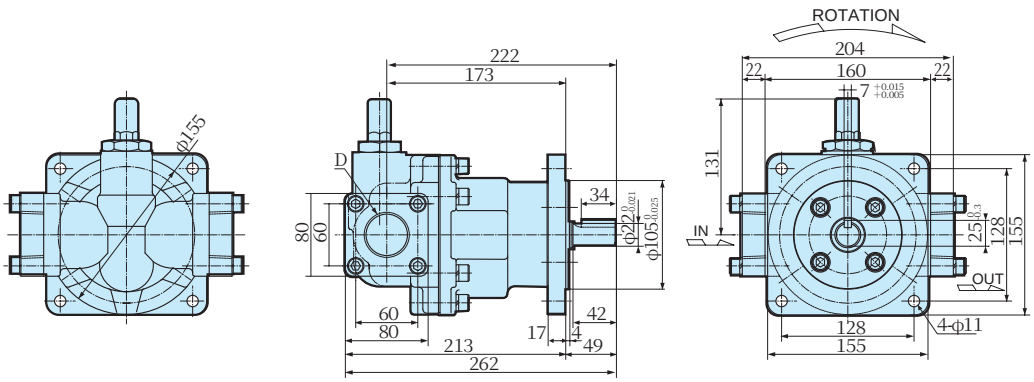
Model : TOP - 3VF



Dimensions

Item / Model	D (port diameter) In	D (port diameter) Out
330VF	Rc1¼	Rc1¼
340VF	Rc1½	
350VF		

Model : TOP - 3VFVB



Dimensions

Item / Model	D (port diameter) In	D (port diameter) Out
330VFVB	Rc1¼	Rc1¼
340VFVB	Rc1½	
350VFVB		

TOP-4AM

Specifications

Item / Model	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min^{-1}	Approx. Weight kg
		1000min^{-1}	1200min^{-1}			
TOP-4100AM	116	116	139.2	2.0	1800	31
TOP-4130AM	148	148	177.6	2.0	1800	33

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Model

TOP - 4100AM / 4130AM

Attachment [ ] Rotation Direction [ ] Relief Valve VB

No mark: Clockwise rotation as seen from the end of the shaft (standard rotation direction)
L: Counter-clockwise rotation as seen from the end of the shaft

No mark: Without angle plate
I: With angle plate

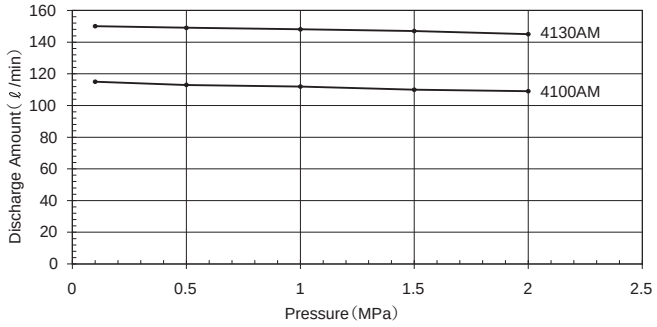
Model Examples:
TOP-4100AMVB (with relief valve)
TOP-4130AMIVB (with angle plate and relief valve, counter-clockwise rotation as seen from the end of the shaft)

Performance Table

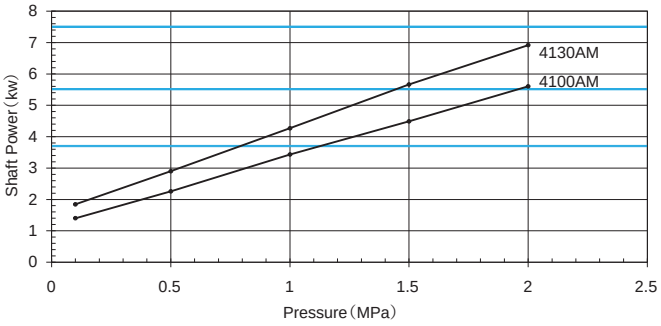
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 1,000 Rotations

●Flow Rate Characteristics

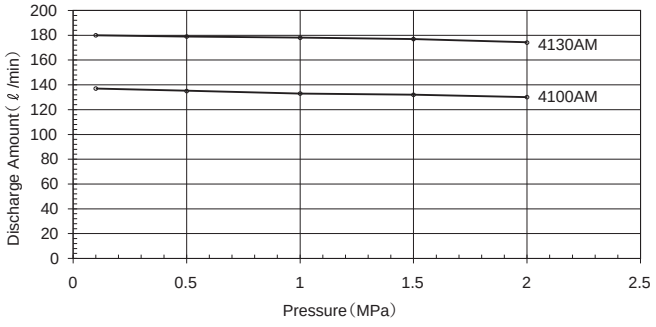


●Required Power

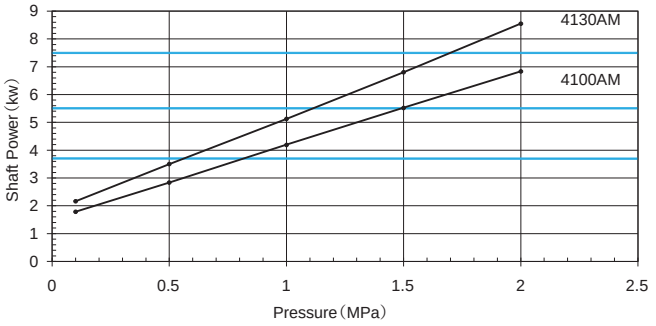


At 1,200 Rotations

●Flow Rate Characteristics



●Required Power

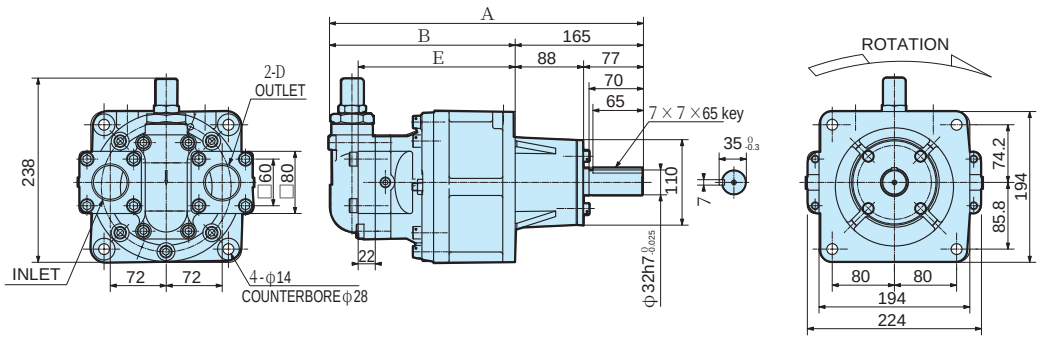


○Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

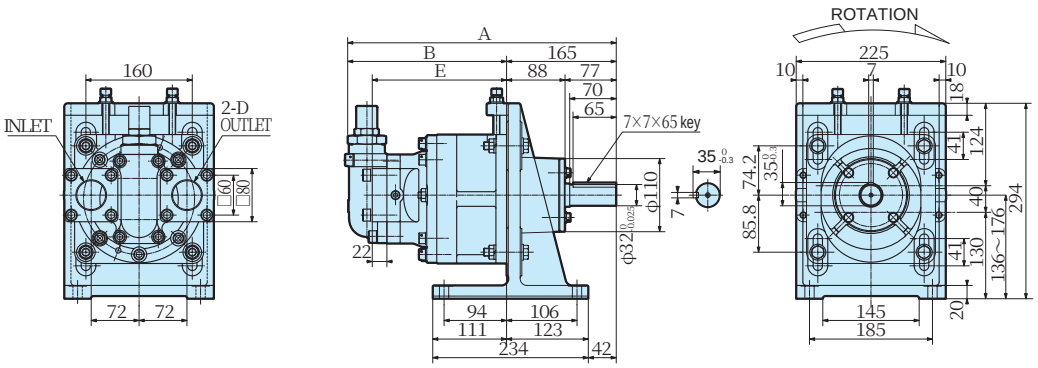
Model : TOP - 4AMVB



Dimensions

Item / Model	A	B	D	E
4100AMVB	354	189	Rc1 1/2	153
4130AMVB	364	199	Rc2	163

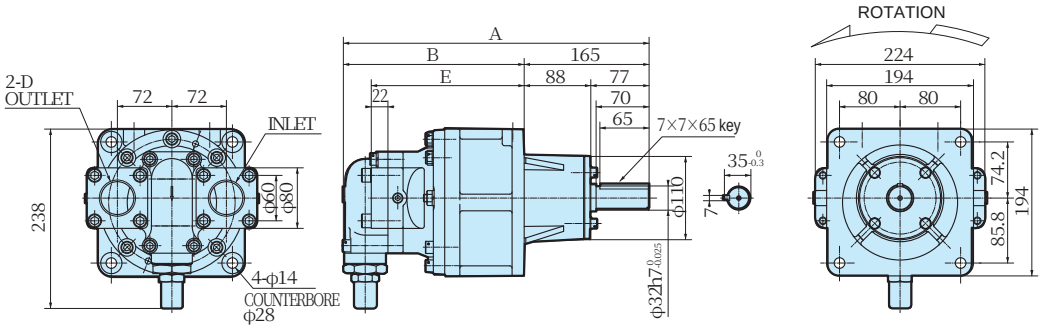
Model : TOP - 4AMIVB



Dimensions

Item / Model	A	B	D	E
4100AMIVB	354	189	Rc1 1/2	153
4130AMIVB	364	199	Rc2	163

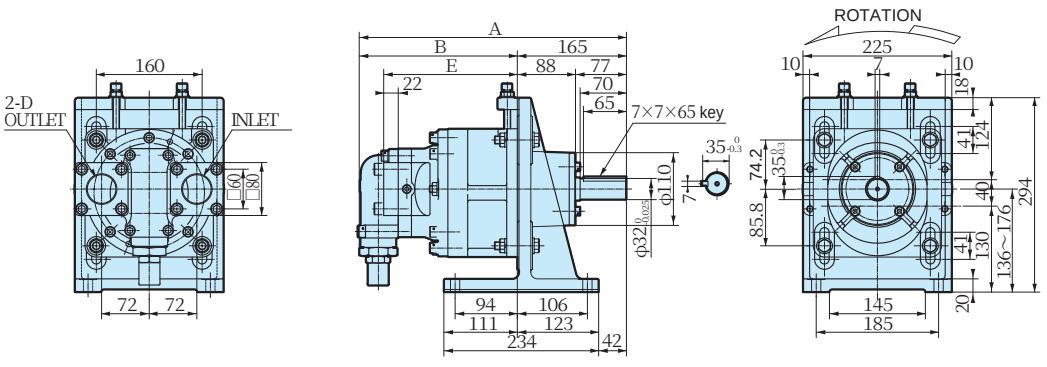
Model : TOP - 4AMLVB



Dimensions

Item / Model	A	B	D	E
4100AMLVB	354	189	Rc1 1/2	153
4130AMLVB	364	199	Rc2	163

Model : TOP - 4AMILVB



Dimensions

Item / Model	A	B	D	E
4100AMILVB	354	189	Rc1 1/2	153
4130AMILVB	364	199	Rc2	163

TOP-4MBY

Specifications

Item / Model	No. of Motor Revolutions 50Hz 1000min⁻¹				No. of Motor Revolutions 60Hz 1200min⁻¹			
	Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)			Theoretical Discharge ℓ/min	Max. Pressure for Motor Output (MPa)		
		3700W	5500W	7500W		3700W	5500W	7500W
TOP-4100AM	116	1.1	1.9	2.0	139.2	0.8	1.4	2.0
TOP-4130AM	148	0.7	1.4	2.0	177.6	0.5	1.1	1.6

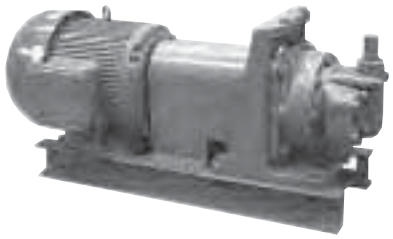
○The above maximum pressure for motor output values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.
○No. of motor poles: 6

Model

TOP - 4MBY [3700 / 5500 / 7500] - 6 - [4100AM / 4130AM] I [ ] VB

Motor Output
No. of Motor Poles
Rotation Direction
Relief Valve

No mark: Counter-clockwise rotation as seen from the pump side (standard rotation direction)
L: Clockwise rotation as seen from the pump side

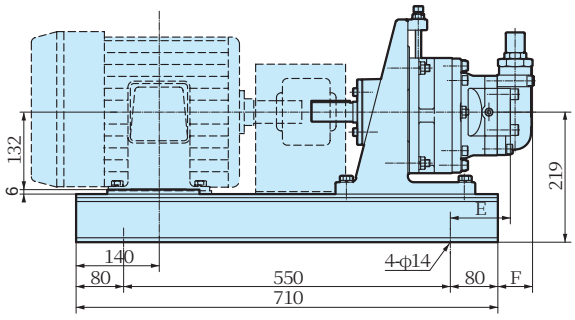


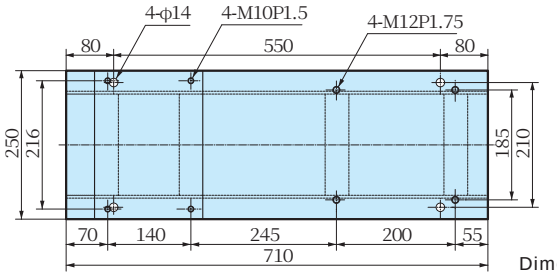
Model Examples:
TOP-4MBY3700-6-4100AMIVB (3,700W, with angle plate and relief valve)
TOP-4MBY5500-6-4130AMILVB (5,500W, with angle plate and relief valve, clockwise rotation as seen from the pump side)

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

Model : TOP - 4MBY3700 - 6 - 4AMVB

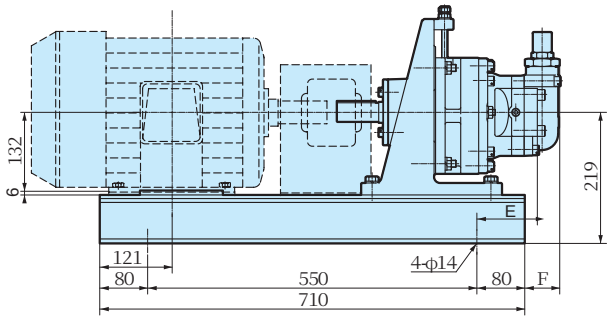


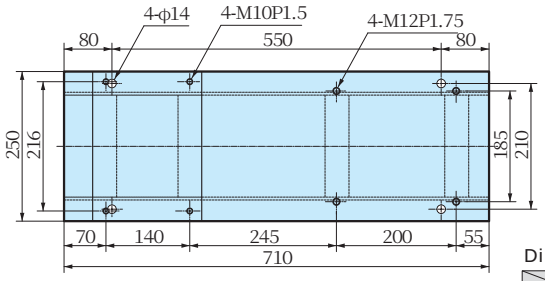


Dimensions

Model \ Item	E	F
4100AMIVB	84	40
4130AMIVB	94	50

Model : TOP - 4MBY5500 - 6 - 4AMVB

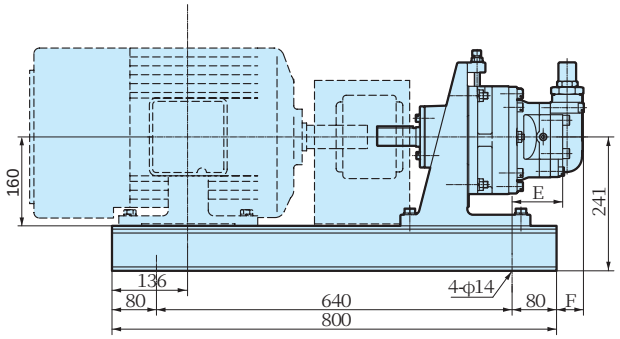


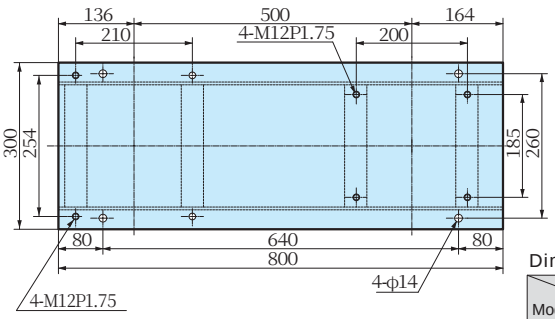


Dimensions

Model \ Item	E	F
4100AMIVB	84	40
4130AMIVB	94	50

Model : TOP - 4MBY7500 - 6 - 4AMVB





Dimensions

Model \ Item	E	F
4100AMIVB	75	60
4130AMIVB	85	70

TOP-4A

Specifications

Item / Model	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min^{-1}	Approx. Weight kg
		1000min^{-1}	1200min^{-1}			
TOP-4300A	352	352	422.4	1.0	1200	120
TOP-4500A	586	586	703.2	1.0	1200	125

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Model

TOP - 4300A / 4500A | Rotation Direction [ ] | Relief Valve VB

No mark: Clockwise rotation as seen from the end of the shaft (standard rotation direction)
L: Counter-clockwise rotation as seen from the end of the shaft

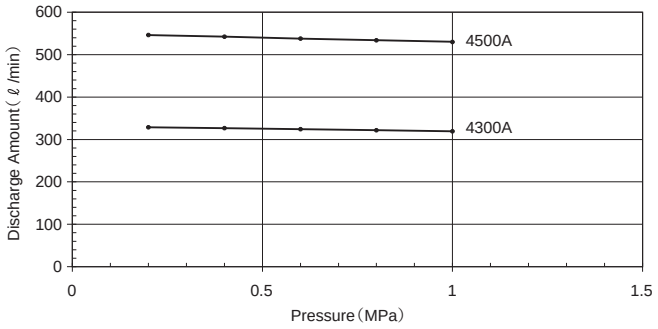
Model Example:
TOP-4500ALVB (counter-clockwise rotation as seen from the end of the shaft)

Performance Table

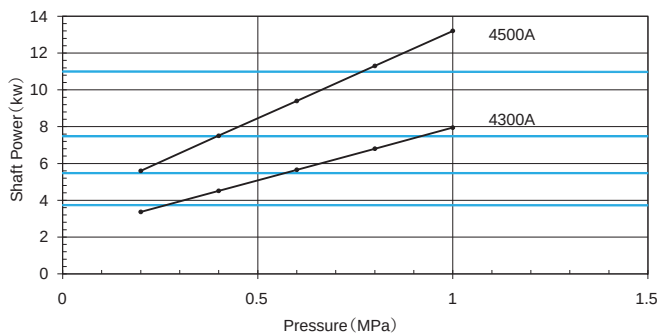
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 960 Rotations

●Flow Rate Characteristics

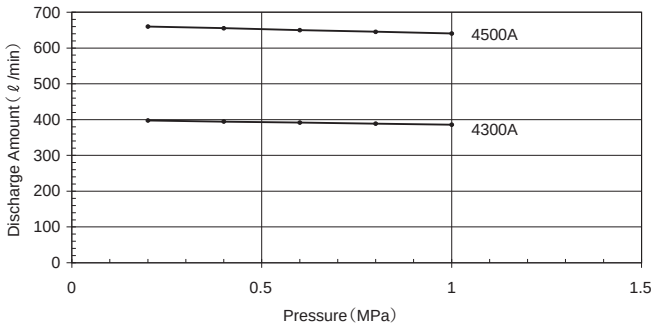


●Required Power

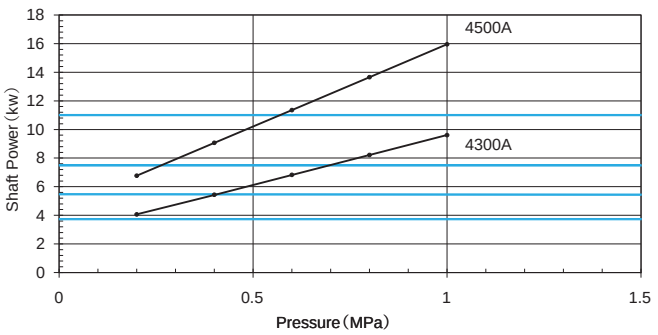


At 1,160 Rotations

●Flow Rate Characteristics



●Required Power

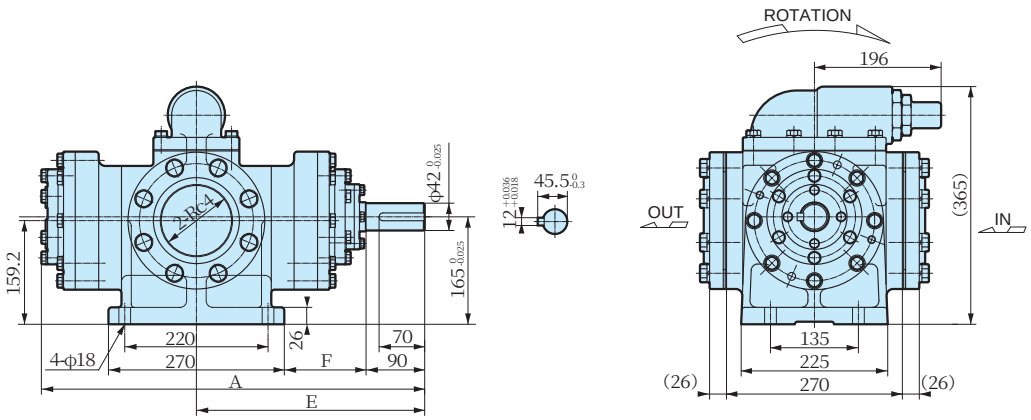


○Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

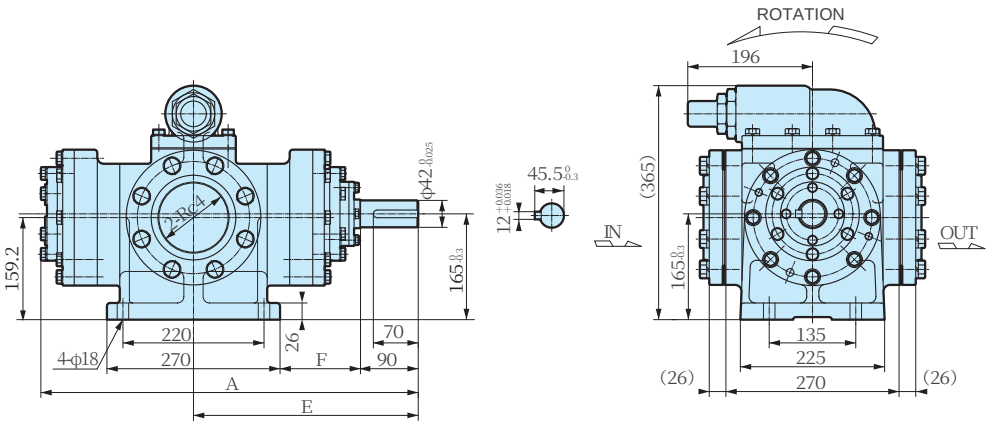
Model : TOP - 4AVB



Dimensions

Model \ Item	A	E	F
4300AVB	518.5	315.5	90.5
4500AVB	588.5	350.5	125.5

Model : TOP - 4ALVB



Dimensions

Model \ Item	A	E	F
4300ALVB	518.5	315.5	90.5
4500ALVB	588.5	350.5	125.5

Lunary Pump (GPL)

Used for transferring oils with high viscosity (46～2,000mm²/sec) such as high-viscosity lubricating oils and gear oils.

Specifications

Item / Model	Theoretical Displacement cm³/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure		Max. Revolution min⁻¹	Approx. Weight kg
		1000min⁻¹	1200min⁻¹	Normal MPa	Max. MPa		
GPL-150VB	150	150	180	1.0	2.0	1800	38.9
GPL-200VB	200	200	240	1.0	2.0	1800	40.3
GPL-250VB	250	250	300	1.0	※2.0	1800	42.5

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.
*Please consult with your Nippon Oil Pump representative before using the specifications marked with "※".

Model

GPL - 150 / 200 / 250 [Attachment] [Rotation Direction] Relief Valve: VB

Attachment:
- I : With angle plate
- F: Without angle plate

Rotation Direction:
- No mark: Clockwise rotation as seen from the end of the shaft (standard rotation direction)
- L: Counter-clockwise rotation as seen from the end of the shaft

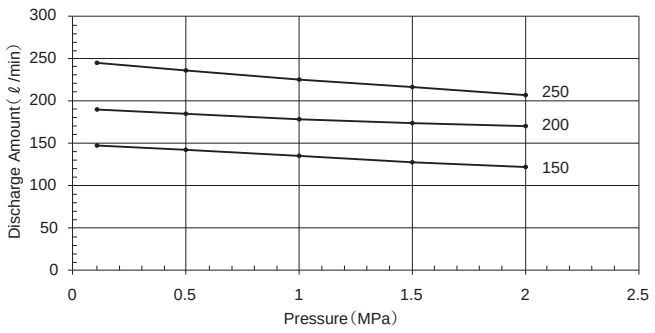
Model Examples:
GPL-150IVB (with angle plate)
GPL-150FLVB (without angle plate, counter-clockwise rotation seen from end of shaft)

Performance Table

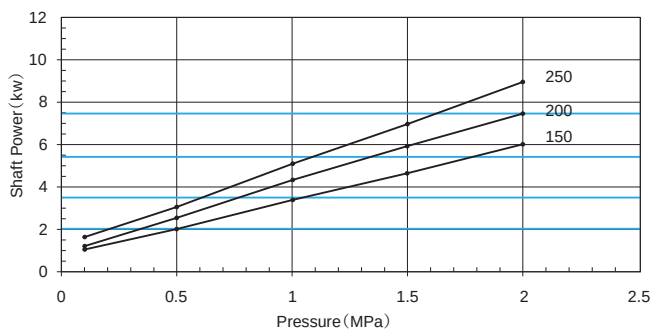
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 960 Rotations

●Flow Rate Characteristics

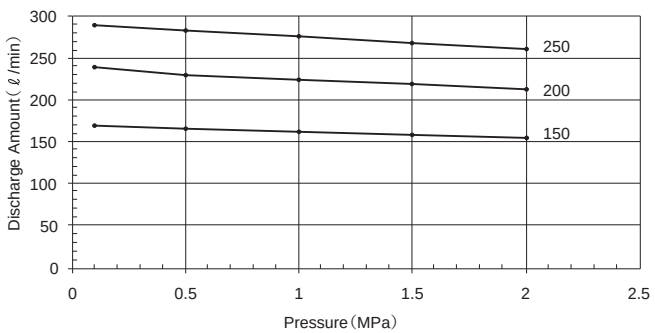


●Required Power

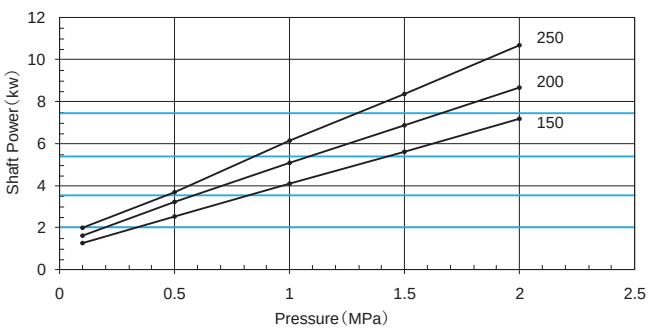


At 1,160 Rotations

●Flow Rate Characteristics



●Required Power

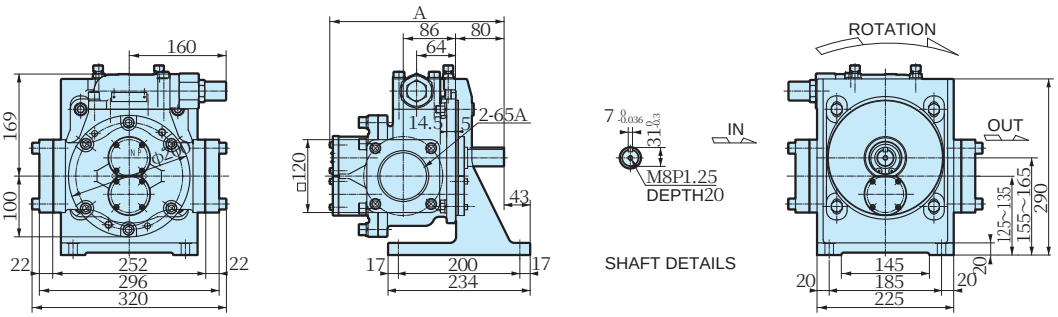


○Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

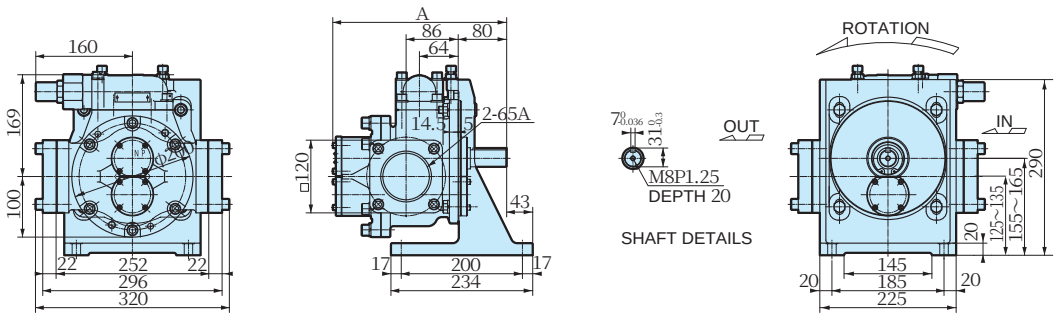
Model : GPL - IVB



Dimensions

Model \ Item	A
GPL-150IVB	268
GPL-200IVB	287
GPL-250IVB	306

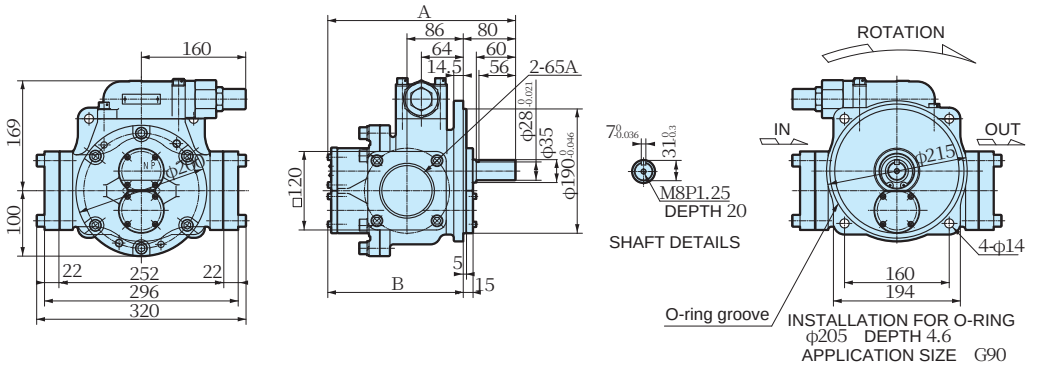
Model : GPL - ILVB



Dimensions

Model \ Item	A
GPL-150ILVB	268
GPL-200ILVB	287
GPL-250ILVB	306

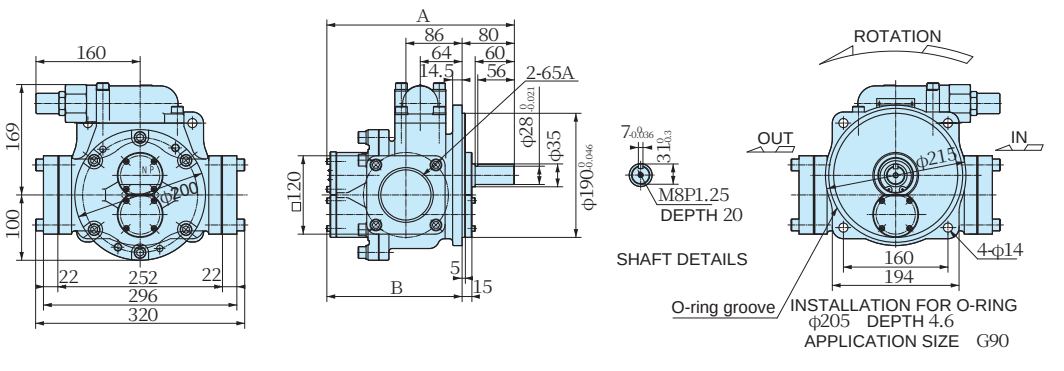
Model : GPL - FVB



Dimensions

Model \ Item	A	B
GPL-150FVB	268	188
GPL-200FVB	287	207
GPL-250FVB	306	226

Model : GPL - FLVB



Dimensions

Model \ Item	A	B
GPL-150FLVB	268	188
GPL-200FLVB	287	207
GPL-250FLVB	306	226

TOP-1RA,2RA,3RD

Forward and reverse rotations are possible! ***Trochoid Pumps*** TOP-1RA, 2RA, 3RD

The positioning of the oil suction and discharge ports does not change regardless of whether the pump is revolving to the right or left. The Trochoid pump uses a special loop ring for the Trochoid rotor and an additional 180°rotation in the rotation direction. This ensures that the oil will flow in only one direction at all times regardless of whether the pump is turned in the forward or reverse direction.

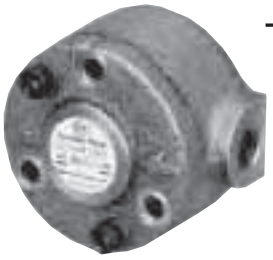
Model：1RA

Specifications

Item / Model	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min^{-1}	Approx. Weight kg
		1500min^{-1}	1800min^{-1}			
TOP-1RA-100	1.16	1.74	2.08	0.5	2000	1.0
TOP-1RA-200	1.80	2.70	3.24	0.5	2000	1.1
TOP-1RA-300	2.50	3.75	4.50	0.5	2000	1.2

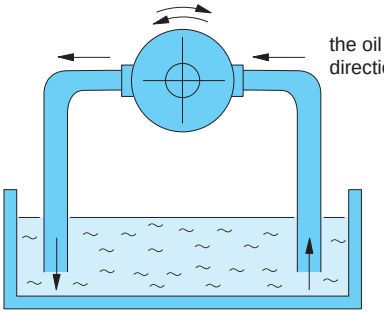
○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Model



TOP - 1RA - 100 / 200 / 300

Regardless of whether the pump is turned to the right or left . . .



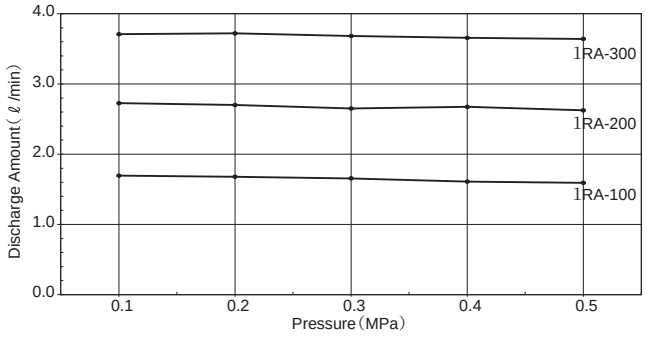
the oil flows in only one direction at all times.

Performance Table

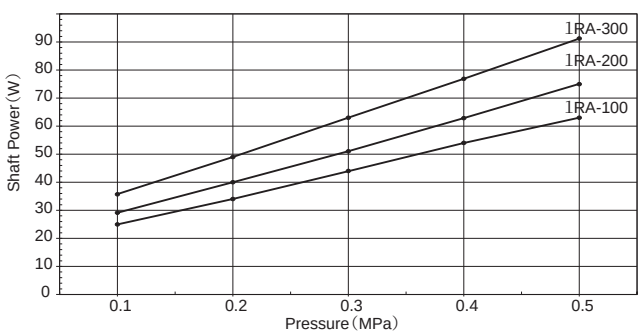
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 1,450 Rotations

●Flow Rate Characteristics

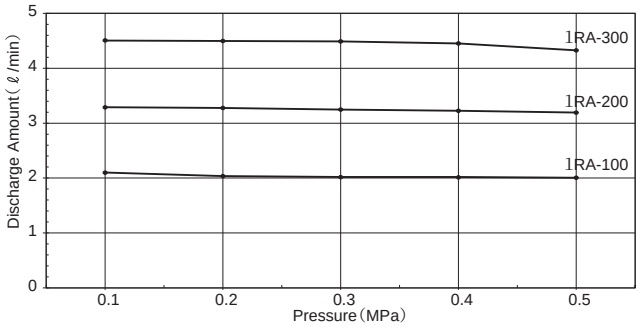


●Required Power

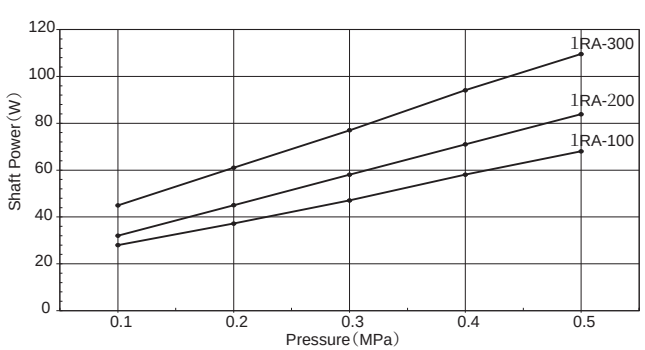


At 1,750 Rotations

●Flow Rate Characteristics



●Required Power



Model：2RA

Specifications

Item / Model	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min^{-1}	Approx. Weight kg
		1500min^{-1}	1800min^{-1}			
TOP-2RA-4C	4.0	6.0	7.2	0.5	2000	3.5
TOP-2RA-8C	8.0	12.0	14.4	0.5	2000	4.0
TOP-2RA-12C	12.0	18.0	21.6	0.5	1800	4.5

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

Model

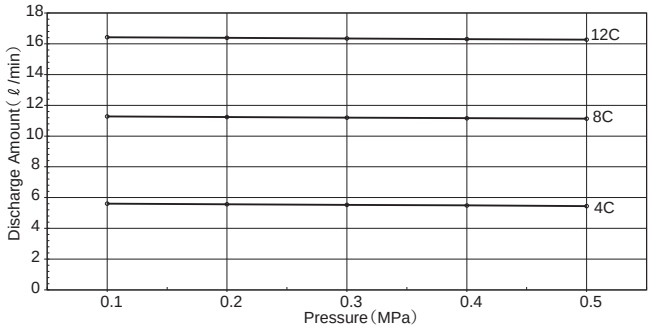
TOP - 2RA - 4C / 8C / 12C

Performance Table

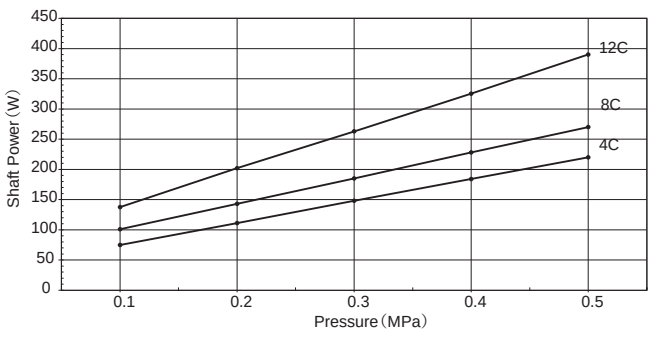
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 1,450 Rotations

●Flow Rate Characteristics

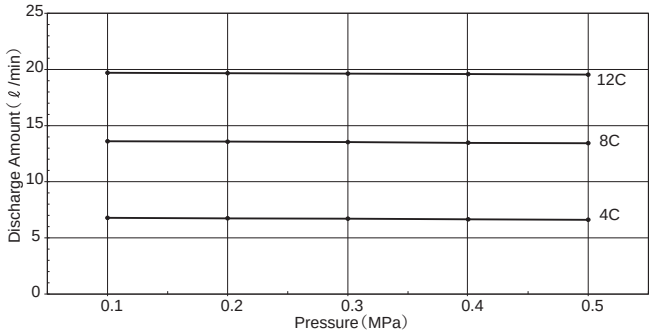


●Required Power

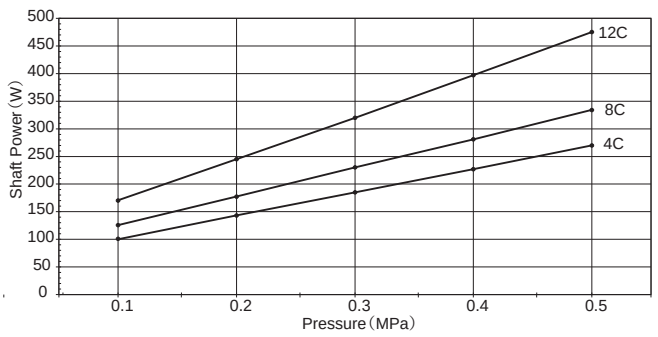


At 1,750 Rotations

●Flow Rate Characteristics



●Required Power



■Model：3RD

■Specifications

Item / Model	Theoretical Displacement cm^3/rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min^{-1}	Approx. Weight kg
		1000min^{-1}	1200min^{-1}			
TOP-3RD-10T	13.0	13.0	15.6	0.5	1800	10.0
TOP-3RD-15T	19.5	19.5	23.4	0.5	1800	10.0
TOP-3RD-20T	26.0	26.0	31.2	0.5	1800	10.5
TOP-3RD-25T	32.5	32.5	39.0	0.5	1800	11.0
TOP-3RD-30T	39.0	39.0	46.8	0.5	1800	11.5

○The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 ℃.

■Model

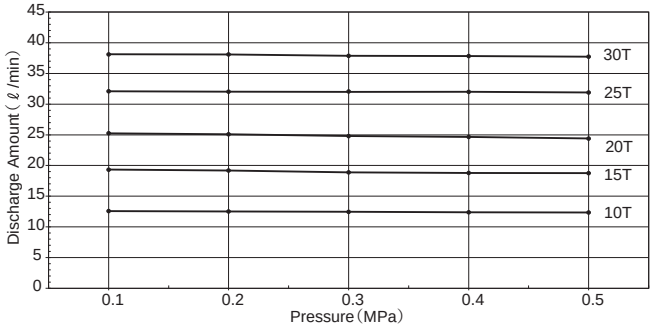
TOP - 3RD - 10T / 15T / 20T / 25T / 30T

■Performance Table

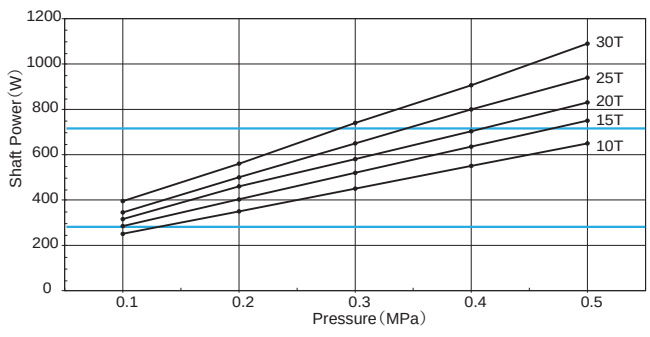
Test Conditions Oil: ISO-VG46 with a temperature of 40 ℃

At 1,000 Rotations

●Flow Rate Characteristics

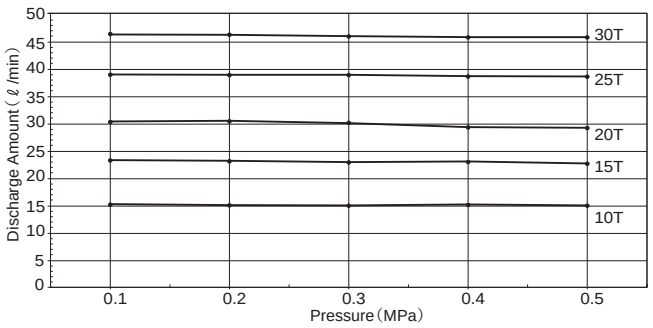


●Required Power

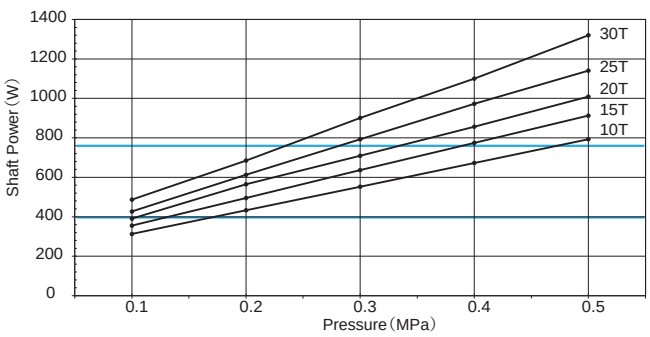


At 1,200 Rotations

●Flow Rate Characteristics



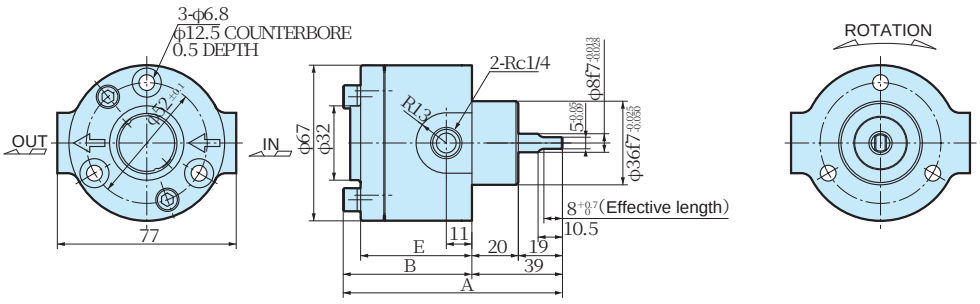
●Required Power



Dimensional Diagrams

○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

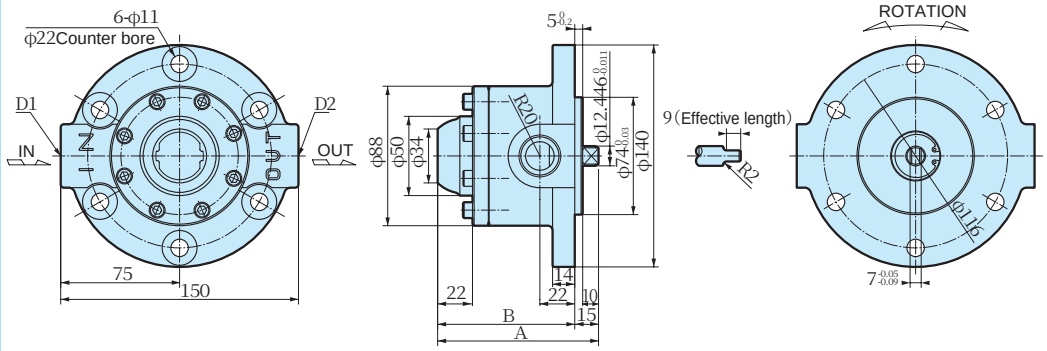
Model : TOP-1RA



Dimensions

Model \ Item	A	B	E
1RA-100	86.5	47.5	40
1RA-200	90.5	51.5	44
1RA-300	94.5	55.5	48

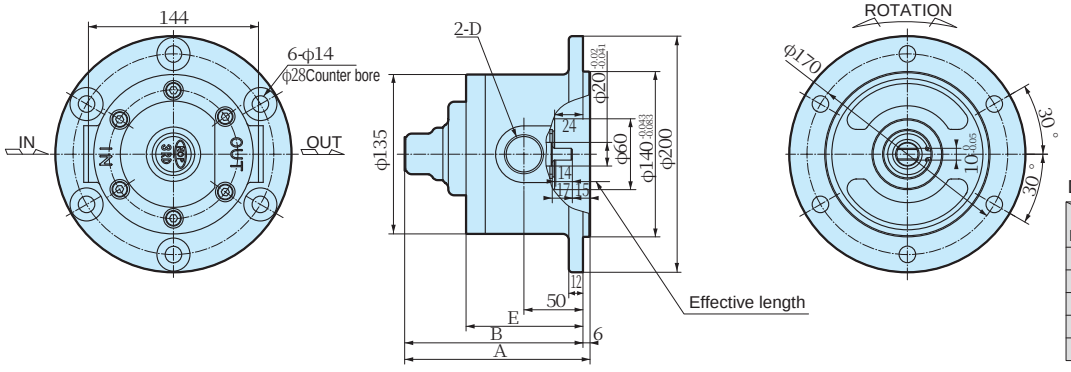
Model : TOP-2RA



Dimensions

Model \ Item	A	E	D1	D2
2RA-4C	92	77	Rc1/2	Rc3/8
2RA-8C	102	87	Rc3/4	Rc1/2
2RA-12C	112	97	Rc3/4	Rc3/4

Model : TOP-3RD



Dimensions

Model \ Item	A	B	D	E
3RD-10T	147	141	Rc1/2	89
3RD-15T	152	146	Rc1/2	94
3RD-20T	157	151	Rc3/4	99
3RD-25T	162	156	Rc3/4	104
3RD-30T	167	161	Rc1	109

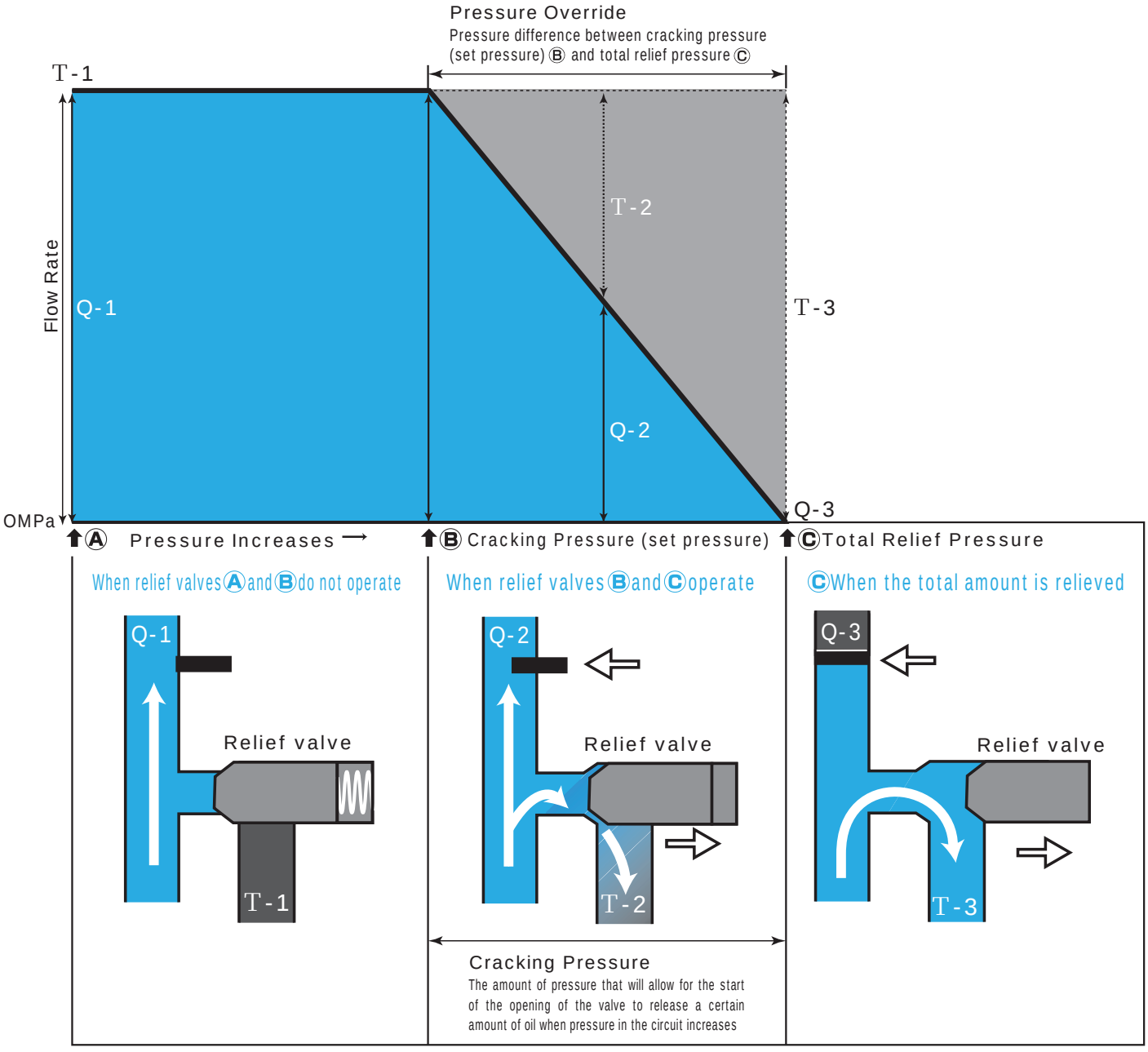
CAUTION

※The use of low-speed rotations and liquids with high viscosity could result in poor pump operations.
※Applying a thrust load or radial load to the pump shaft could result in poor pump operations.
※When using a check valve, be sure to install it on the pump discharge side. If a check valve is installed on the pump suction side, pressure will be applied to the oil seal during reverse rotation, which could result in leaks.

Relief Valves

Operations

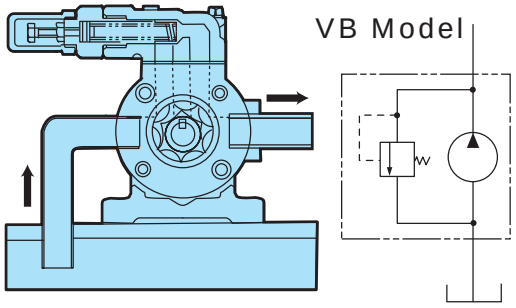
When the pressure in the oil pressure circuit exceeds the set value for the valve, the valve will open to return a portion or all of the oil. In this manner the valve maintains consistent circuit pressure, limits the maximum pressure and in doing so protects the pump and related equipment.



Proper Method for Using a Trochoid Pump Relief Valve

Internal Return (safety valve)

①

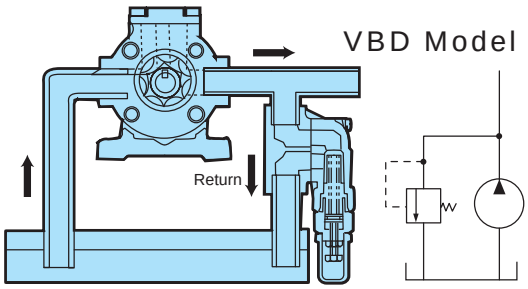


◎With this method the valve is connected directly to the pump to momentarily lower pressure when the oil is being transmitted.

With this circuit configuration, if the system is used for a long period of time with the valve constantly working and the discharge port closed, various problems may occur such as the generation of air bubbles, loud noises and a rise in the temperature of the oil. Method ② or ③ should be adopted in this case.

External Return (safety valve / adjustment valve)

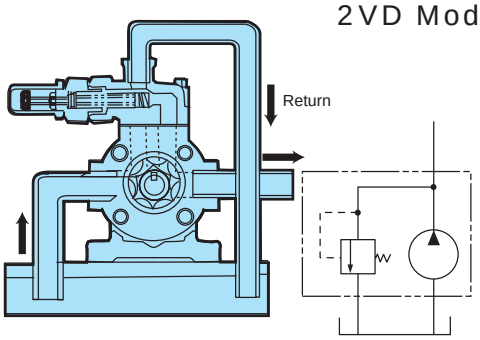
②



◎This method uses adjustment valves (valve and sub-plate) to regulate the oil pressure (or for forced circulation).

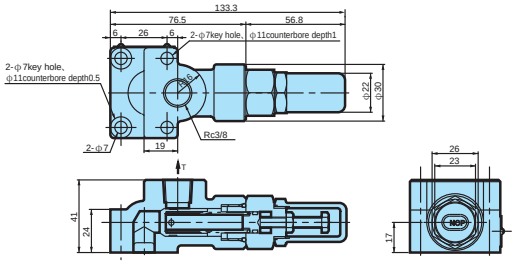
The most desirable method is to attach a sub-plate to the VB model and then use the bypass circuit created from the piping as the relief valve. This should be used for a full-amount bypass conducted over a long period of time, regular use and to adjust the pressure.

③



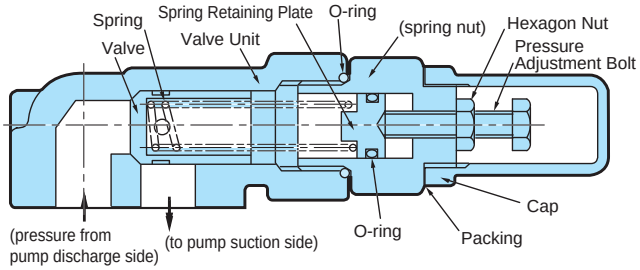
This relief vale is used in the same manner as the above ②, but it can also be directly attached to the Trochoid pump 2HB model.

*When attaching the 2VD model, always be sure to also install a plate to block the suction side.



○Refer to the Nippon Oil Pump homepage for the most up-to-date diagrams.

Internal Structure



Pressure Adjustment Method

① Remove the cap.
② Loosen the hexagonal nut.
③ Turn the adjustment bolt to the right (to raise the pressure setting) or to the left (to lower the pressure setting).
④ Tighten the hexagonal nut to affix the adjustment bolt.
⑤ Tighten the cap. (Be careful not to damage the packing during this process.)

Model

TOP - | 2VB | 3VB | 4VBP | [ ] - [ ] Spring No.

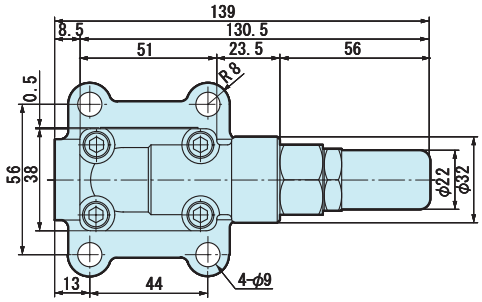
Refer to the specifications shown in the diagrams on pages 59 and 60.

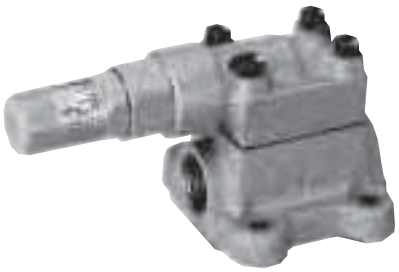
No mark: Attached directly to the Trochoid pump
D: With a valve stand (for pipe attachment)

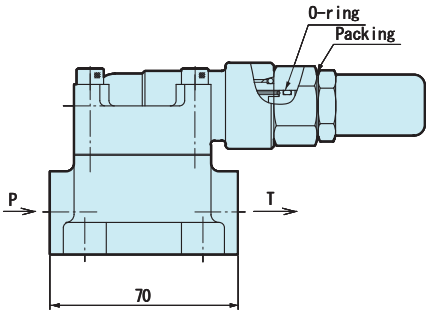
■Dimensional Diagrams

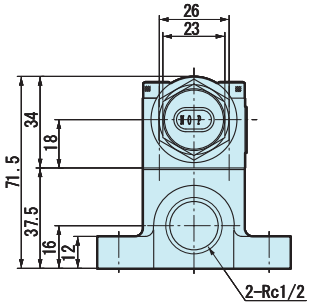
○Be sure to check the Nippon Oil Pump homepage for the most up-date diagrams and dimensions.

Model : 2VBD





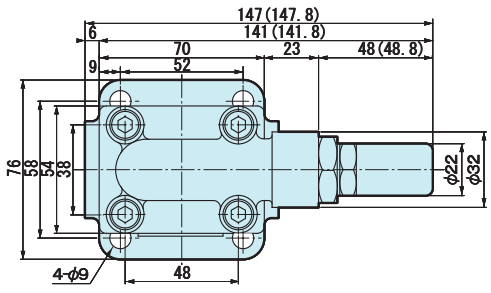


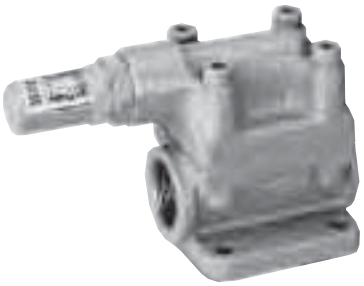


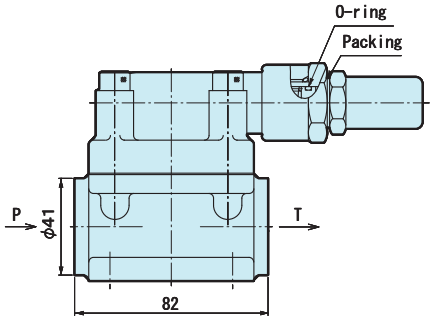
Dimensions

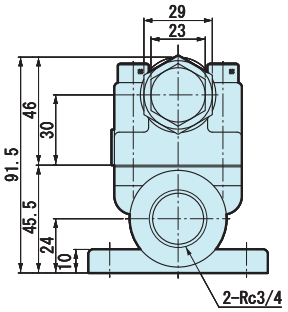
Spring No.	Wire φ Diameter	External φ Diameter	Effective No. of Turns	Free Length	Pressure Adjustment Range Cracking Pressure MPa	Applicable Parts	
						O-ring P10A	Packing
1L	1.7	13	13.0	54.0	0.08～0.25	No	Yes
2L	1.8	13	13.5	60.5	0.26～0.50		
3L	2.2	13	12.0	57.5	0.51～1.19	Yes	No
4L	2.9	13	13.0	54.5	1.20～2.50		

Model : 3VBD









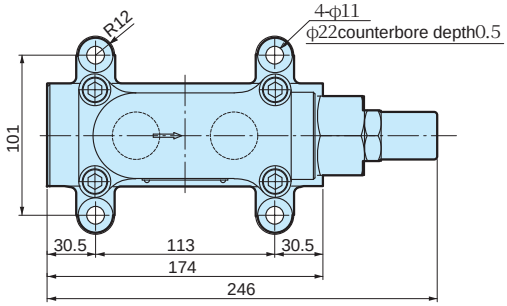
Dimensions

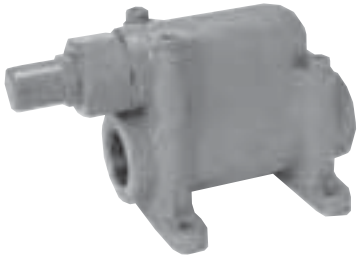
Spring No.	Wire φ Diameter	External φ Diameter	Effective No. of Turns	Free Length	Pressure Adjustment Range Cracking Pressure MPa	Applicable Parts	
						O-ring P10A	Packing
1L	1.8	14	7	52	0.08～0.25	No	Yes
2L	2.0	14	7	52	0.26～0.55		
3L	2.6	14	12	55	0.56～1.30		
4L	2.5	14	10	60	1.31～1.70	Yes	No
5L	3.0	14	9	54	1.71～2.49		
6L	3.2	14	11	51	2.50～3.00		

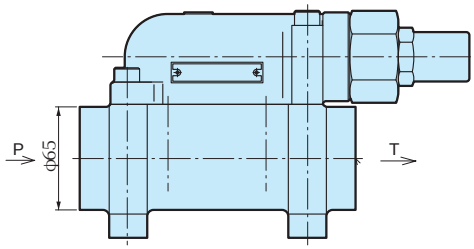
Dimensional Diagrams

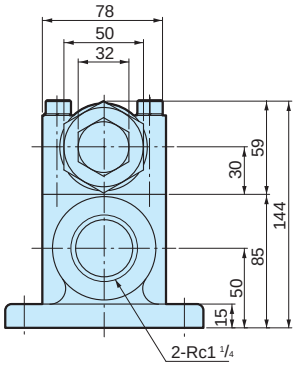
○Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

Model：4VBPD









Dimensions

Spring No.	Wire Φ Diameter	External Φ Diameter	Effective No. of Turns	Free Length	Pressure Adjustment Range Cracking Pressure MPa
1L	3.5	26	10	65	0.15～0.25
2L	4.0	26	8	65	0.26～0.55
3L	4.0	26	7	65	0.50～0.80
4L	5.0	26	5	60	0.81～2.00

Trochoid Pump Performance Table

◎The figures (averages) in the tables below are based on the use of ISO-VG46 oil with a temperature of 40C.
◎The oil temperature will drop during the colder winter months, resulting in increased oil viscosity. Therefore, it may be difficult to use the rated pressure values shown below during colder periods as the amount of power required will increase proportional to the viscosity level.

1A Type Performance Table

Standard Specifications when Discharge Amount is 1,450min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (W) Pressure (MPa)				
	0.1	0.2	0.3	0.4	0.5	0.1	0.2	0.3	0.4	0.5
TOP-10A	1.24	1.23	1.23	1.22	1.21	45	50	55	60	64
11A	2.24	2.22	2.20	2.19	2.17	51	57	62	68	74
12A	3.71	3.70	3.68	3.67	3.63	59	69	80	90	103
13A	6.65	6.58	6.54	6.50	6.45	72	88	104	120	137

1A Type Performance Table

Standard Specifications when Discharge Amount is 1,750min⁻¹ (60Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (W) Pressure (MPa)				
	0.1	0.2	0.3	0.4	0.5	0.1	0.2	0.3	0.4	0.5
TOP-10A	1.51	1.50	1.49	1.48	1.46	54	60	66	73	79
11A	2.71	2.69	2.67	2.65	2.63	61	68	75	83	90
12A	4.50	4.47	4.45	4.42	4.40	71	83	97	109	122
13A	7.99	7.98	7.93	7.85	7.80	88	108	126	146	167

1HG Type Performance Table

Standard Specifications when Discharge Amount is 1,450min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)						Required Power (W) Pressure (MPa)					
	0.1	0.5	1.0	1.5	2.0	2.5	0.1	0.5	1.0	1.5	2.0	2.5
TOP-11HG	2.21	2.17	2.13	2.09	2.05	2.00	32	56	85	112	140	168
12HG	3.58	3.54	3.48	3.43	3.37	3.32	45	77	117	160	200	240

1HG Type Performance Table

Standard Specifications when Discharge Amount is 1,750min⁻¹ (60Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)						Required Power (W) Pressure (MPa)					
	0.1	0.5	1.0	1.5	2.0	2.5	0.1	0.5	1.0	1.5	2.0	2.5
TOP-11HG	2.67	2.63	2.58	2.54	2.49	2.45	38	65	96	129	160	191
12HG	4.32	4.27	4.21	4.16	4.10	4.04	50	90	140	188	239	285

2HB Type Performance Table

Standard Specifications when Discharge Amount is 1,450min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)							Required Power (W) Pressure (MPa)						
	0.1	0.5	1.0	1.5	2.0	2.5	3.0	0.1	0.5	1.0	1.5	2.0	2.5	3.0
TOP-203HB	4.0	4.0	3.9	3.9	3.8	3.8	3.7	48	84	131	178	228	277	325
204HB	5.8	5.7	5.6	5.6	5.5	5.4	5.3	66	110	169	227	283	340	394
206HB	8.7	8.6	8.5	8.4	8.3	8.2		86	158	240	329	415	497	
208HB	11.6	11.5	11.5	11.4	11.4	11.3		91	186	305	423	543	662	
210HB	14.4	14.4	14.3	14.0	13.9	13.8		104	210	345	480	615	749	
212HB	17.4	17.2	17.0	16.8	16.6			123	250	405	565	730		
216HB	23.1	22.9	22.8	22.4				148	308	510	715			
220HB	28.9	28.7	28.4					205	396	633				

2HB Type Performance Table

Standard Specifications when Discharge Amount is 1,750min⁻¹ (60Hz)

Specification / 形式	Discharge Amount (ℓ/min) Pressure (MPa)							Required Power (W) Pressure (MPa)						
	0.1	0.5	1.0	1.5	2.0	2.5	3.0	0.1	0.5	1.0	1.5	2.0	2.5	3.0
TOP-203HB	4.9	4.8	4.8	4.7	4.7	4.6	4.5	58	101	158	215	272	330	386
204HB	7.0	6.9	6.8	6.7	6.7	6.6	6.5	80	133	204	274	342	410	476
206HB	10.4	10.3	10.2	10.1	10	9.9		104	188	290	397	500	599	
208HB	14.0	13.9	13.8	13.8	13.8	13.7		110	225	368	510	655	800	
210HB	17.6	17.5	17.2	17.0	16.9	16.7		125	250	413	575	740	904	
212HB	21.0	20.9	20.6	20.4	20.2			148	302	488	681	881		
216HB	27.8	27.7	27.4	27.0				179	372	616	863			
220HB	34.8	34.6	34.3					248	478	764				

2.5HGA Type Performance Table

Standard Specifications when Discharge Amount is 1,450min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)						Required Power (W) Pressure (MPa)					
	0.1	0.5	1.0	1.5	2.0	2.5	0.1	0.5	1.0	1.5	2.0	2.5
TOP-2516HGA	23.8	23.4	22.9	22.3	21.7	21.1	150	353	587	822	1056	1299
2520HGA	28.9	28.7	28.4	28.1	27.8		200	450	732	1027	1313	

2.5HGA Type Performance Table

Standard Specifications when Discharge Amount is 1,750min⁻¹ (60Hz)

Specification / Model	**Discharge Amount (ℓ/min)** Pressure (MPa)						Required Power (W) Pressure (MPa)					
	0.1	0.5	1.0	1.5	2.0	2.5	0.1	0.5	1.0	1.5	2.0	2.5
TOP-2516HGA	28.7	28.2	27.8	27.2	26.6	26.0	185	410	702	989	1267	1540
2520HGA	34.7	34.5	34.2	34.0	33.7		250	520	864	1211	1551	

N3F Type Performance Table

Standard Specifications when Discharge Amount is 1,450min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)						Required Power (kw) Pressure (MPa)					
	0.1	0.5	1.0	1.5	2.0	2.5	0.1	0.5	1.0	1.5	2.0	2.5
TOP-N320F	37.2	36.9	36.5	36.1	35.7	35	0.45	0.78	1.20	1.60	2.02	2.22
N330F	55.5	54.9	54.0	53.2	52.3	51.5	0.64	1.12	1.72	2.31	2.91	3.52
N340F	74.6	73.9	73.0	72.1	71.2	68.5	0.80	1.45	2.25	3.10	3.90	4.72

N3F Type Performance Table

Standard Specifications when Discharge Amount is 1,750min⁻¹ (60Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)						Required Power (kw) Pressure (MPa)					
	0.1	0.5	1.0	1.5	2.0	2.5	0.1	0.5	1.0	1.5	2.0	2.5
TOP-N320F	44.9	44.6	44.1	43.6	43.1	42.5	0.55	0.98	1.45	1.95	2.44	2.92
N330F	67.3	66.5	65.5	64.4	63.3	62.3	0.78	1.34	2.05	2.80	3.51	4.24
N340F	89.2	88.5	87.5	86.6	85.6	84.6	1.00	1.81	2.84	3.84	4.82	5.80

N3H Type Performance Table

Standard Specifications when Discharge Amount is 1,450min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)							Required Power (kw) Pressure (MPa)						
	0.1	0.5	1.0	1.5	2.0	3.0	4.0	0.1	0.5	1.0	1.5	2.0	3.0	4.0
TOP-N320H	37.2	36.9	36.5	36.2	35.7	34.9	33.5	0.45	0.78	1.20	1.60	2.02	2.83	3.64
N330H	55.5	55.1	54.3	53.2	52.2	50.6	49.0	0.64	1.12	1.72	2.31	2.91	4.10	5.30
N340H	74.6	73.9	73.0	72.1	71.2	69.5		0.80	1.45	2.25	3.10	3.90	5.50	
N350H	92.1	91.2	90.0	88.8	87.6			1.00	1.77	2.78	3.79	4.74		

N3H Type Performance Table

Standard Specifications when Discharge Amount is 1,750min⁻¹ (60Hz)

Specification / Model	**Discharge Amount (ℓ/min)** Pressure (MPa)							Required Power (kw) Pressure (MPa)						
	0.1	0.5	1.0	1.5	2.0	3.0	4.0	0.1	0.5	1.0	1.5	2.0	3.0	4.0
TOP-N320H	44.9	44.6	44.1	43.6	43.1	42.0	40.6	0.59	0.96	1.45	1.95	2.44	3.40	4.35
N330H	67.3	66.5	65.5	64.4	63.3	61.2	59.0	0.78	1.34	2.05	2.80	3.51	4.93	6.40
N340H	89.2	88.5	87.5	86.6	85.6	83.6		1.00	1.80	2.84	3.84	4.80	6.80	
N350H	108.4	108.0	107.4	106.8	106.3			1.35	2.28	3.48	4.65	5.83		

3V Type Performance Table

Standard Specifications when Discharge Amount is 1,450min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (kw) Pressure (MPa)				
	0.1	0.3	0.5	0.7	1.0	0.1	0.3	0.5	0.7	1.0
TOP-330V	56.2	55.6	55.4	54.9	54.2	1.01	1.26	1.52	1.76	2.14
340V	72.1	71.8	70.8	69.5	68	1.29	1.62	1.95	2.29	2.79
350V	93.2	91.3	89.4	87.6	84.8	1.57	1.98	2.41	2.83	3.49

3V Type Performance Table

Standard Specifications when Discharge Amount is 1,750min⁻¹ (60Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (kw) Pressure (MPa)				
	0.1	0.3	0.5	0.7	1.0	0.1	0.3	0.5	0.7	1.0
TOP-330V	67.3	67	66.7	66.3	65.6	1.30	1.60	1.90	2.20	2.65
340V	88.4	88	86.5	85	83.1	1.48	1.93	2.35	2.81	3.49
350V	109.6	107.7	106.5	105.5	103.1	1.97	2.45	2.97	3.45	4.21

4AM Type Performance Table

Standard Specifications when Discharge Amount is 1,000min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (kw) Pressure (MPa)				
	0.1	0.5	1.0	1.5	2.0	0.1	0.5	1.0	1.5	2.0
TOP-4100AM	115	113	112	110	109	1.40	2.26	3.43	4.49	5.60
4130AM	150	149	148	147	145	1.84	2.90	4.27	5.66	6.92

4AM Type Performance Table

Standard Specifications when Discharge Amount is 1,200min⁻¹ (60Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (kw) Pressure (MPa)				
	0.1	0.5	1.0	1.5	2.0	0.1	0.5	1.0	1.5	2.0
TOP-4100AM	137	135	133	132	130	1.78	2.83	4.19	5.52	6.83
4130AM	180	179	178	177	174	2.16	3.50	5.12	6.80	8.55

4A Type Performance Table

Standard Specifications when Discharge Amount is 960min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (kw) Pressure (MPa)				
	0.2	0.4	0.6	0.8	1.0	0.2	0.4	0.6	0.8	1.0
TOP-4300A	328	326	324	321	319	3.37	4.51	5.66	6.80	7.95
4500A	546	542	538	534	530	5.60	7.50	9.40	11.30	13.20

4A Type Performance Table

Standard Specifications when Discharge Amount is 1,160min⁻¹ (60Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (kw) Pressure (MPa)				
	0.2	0.4	0.6	0.8	1.0	0.2	0.4	0.6	0.8	1.0
TOP-4300A	397	394	391	388	385	4.07	5.44	6.83	8.21	9.60
4500A	659	654	650	645	640	6.76	9.06	11.35	13.65	15.95

GPL Type Performance Table

Standard Specifications when Discharge Amount is 960min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (kw) Pressure (MPa)				
	0.1	0.5	1.0	1.5	2.0	0.1	0.5	1.0	1.5	2.0
GPL-150	147	141	135	127	121	1.05	2.03	3.38	4.61	5.98
200	190	184	178	174	170	1.21	2.53	4.27	5.89	7.42
250	245	236	225	217	207	1.62	3.04	5.03	6.93	8.92

GPL Type Performance Table

Standard Specifications when Discharge Amount is 1,160min⁻¹ (60Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (kw) Pressure (MPa)				
	0.1	0.5	1.0	1.5	2.0	0.1	0.5	1.0	1.5	2.0
GPL-150	169	165	161	157	153	1.22	2.49	4.05	5.57	7.13
200	239	229	223	218	212	1.62	3.17	5.03	6.82	8.65
250	289	282	275	267	260	1.96	3.64	6.09	8.29	10.61

1RA Type Performance Table

Standard Specifications when Discharge Amount is 1,450min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (W) Pressure (MPa)				
	0.1	0.2	0.3	0.4	0.5	0.1	0.2	0.3	0.4	0.5
TOP-1RA-100	1.69	1.68	1.66	1.61	1.59	25	34	44	54	63
1RA-200	2.72	2.70	2.65	2.67	2.62	29	40	51	63	75
1RA-300	3.71	3.72	3.68	3.66	3.64	36	49	63	77	91

1RA Type Performance Table

Standard Specifications when Discharge Amount is 1,750min⁻¹ (60Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (W) Pressure (MPa)				
	0.1	0.2	0.3	0.4	0.5	0.1	0.2	0.3	0.4	0.5
TOP-1RA-100	2.10	2.03	2.02	2.01	2.01	28	37	47	58	68
1RA-200	3.29	3.28	3.25	3.23	3.19	32	45	58	71	84
1RA-300	4.51	4.50	4.49	4.45	4.33	45	61	77	94	110

2RA Type Performance Table

Standard Specifications when Discharge Amount is 1,450min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (W) Pressure (MPa)				
	0.1	0.2	0.3	0.4	0.5	0.1	0.2	0.3	0.4	0.5
TOP-2RA-4C	5.6	5.5	5.5	5.4	5.4	75	111	148	184	220
2RA-8C	11.2	11.2	11.2	11.1	11.1	101	143	185	228	270
2RA-12C	16.4	16.3	16.3	16.3	16.2	138	202	263	325	390

2RA Type Performance Table

Standard Specifications when Discharge Amount is 1,750min⁻¹ (60Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (W) Pressure (MPa)				
	0.1	0.2	0.3	0.4	0.5	0.1	0.2	0.3	0.4	0.5
TOP-2RA-4C	6.7	6.7	6.7	6.6	6.6	101	143	185	227	270
2RA-8C	13.6	13.5	13.5	13.4	13.4	126	177	230	281	334
2RA-12C	19.7	19.6	19.6	19.5	19.5	170	245	320	397	475

3RD Type Performance Table

Standard Specifications when Discharge Amount is 1,000min⁻¹ (50Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (W) Pressure (MPa)				
	0.1	0.2	0.3	0.4	0.5	0.1	0.2	0.3	0.4	0.5
TOP-3RD-10T	12.5	12.5	12.4	12.3	12.3	250	350	450	550	650
3RD-15T	19.3	19.2	18.8	18.7	18.7	285	402	520	635	750
3RD-20T	25.2	25.0	24.7	24.6	24.3	315	460	580	703	830
3RD-25T	32.1	32.0	32.0	31.9	31.8	345	500	650	800	940
3RD-30T	38.1	38.0	37.8	37.8	37.7	395	560	740	906	1090

3RD Type Performance Table

Standard Specifications when Discharge Amount is 1,200min⁻¹ (60Hz)

Specification / Model	Discharge Amount (ℓ/min) Pressure (MPa)					Required Power (W) Pressure (MPa)				
	0.1	0.2	0.3	0.4	0.5	0.1	0.2	0.3	0.4	0.5
TOP-3RD-10T	27.6	27.5	27.4	27.4	27.3	313	433	553	673	793
3RD-15T	35.7	35.6	35.2	35.1	35.0	355	495	637	775	913
3RD-20T	42.8	42.6	42.3	42.1	41.8	391	565	709	856	1009
3RD-25T	51.0	51.0	51.0	50.9	50.8	427	613	793	973	1141
3RD-30T	58.2	58.2	58.0	57.9	57.8	487	685	901	1100	1321

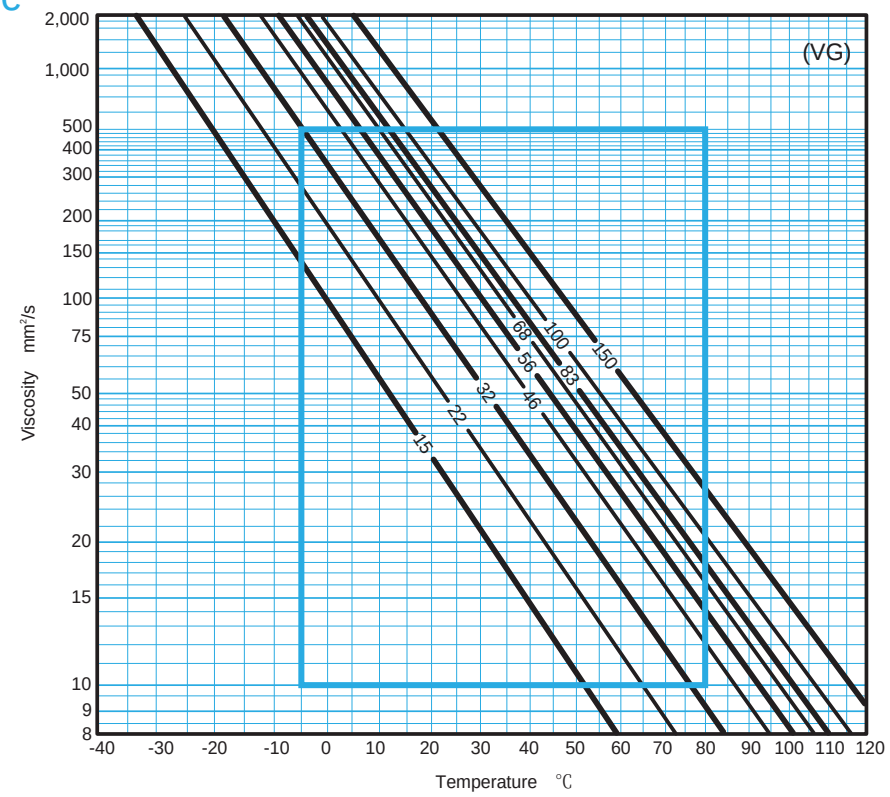
List of Special Materials

Type \ Item	Special Code	Oil Seal	O-ring	Bearing	Packing	Rotor
		Materials & Model Number				
TOP-1A	-US	Silicon	Silicon			Standard
	-VF	Viton	Viton			Standard
TOP-1HG	-VF	Viton	Viton	Standard		Standard
TOP-2HB	-US	Silicon	Silicon	Standard	Standard	Standard
	-UT	Teflon	Teflon angle ring	Standard	Teflon sheet	Standard
	-VF	Viton	Viton	Standard	Teflon sheet	Standard
	-VH	Internal: Teflon External: Viton	Teflon angle ring	C3	Teflon sheet	208～220 Special rotor
TOP-N3H	-UT	Teflon	Teflon angle ring	Standard	Teflon sheet	Standard
	-VF	Viton	Viton	Standard	Teflon sheet	Standard
	-VH	Teflon	Viton	C3	Teflon sheet	Special rotor
TOP-4AM	-UT	Teflon	Viton G75x1 (Teflon angle ring for others)	Standard		Standard
	-VH	Teflon	Viton G75x1 (Teflon angle ring for others)	6307C3×2 NA6908×1		Standard

○VF and VH specifications are not possible for Trochoid pumps with a motor, such as the 2MY and 2ME.
○Refer to page 64 for the numbers for each product.
○Viton is a registered trademark of Du Pont de Nemour.
○Teflon is a registered trademark of Du Pont de Nemour.

Viscosity Table

The applicable range for the Trochoid pumps is shown in the grey box.



Seal Kit Specifications and List of Applicable Bearings

■Seal Kit Specifications

○Nippon Oil Pump cannot be responsible for any products independently assembled or dissembled by the customer.
○Clearly write the model and manufacturing numbers when placing orders.
○Bearings are not included in the seal kits and so must be ordered separately.

Item / Type	Oil Seal		Oil Ring		Packing	
	Model No.	Qty	Model No.	Qty	Model No.	Qty
TOP-1A	SC08227	1	JAS01033	1	—	—
TOP-1HG	TC12327	1	S38 S42	1 1	—	—
TOP-2HB	SC15357	2	S53	2	Packing Top Cover Packing	1 1
TOP-2.5HGA	SC19358	1	S65	1	Packing Top Cover Packing	1
N3FA N3FB	TC25528	1	G90	1	—	—
N3H	TC25528	1	G90 S60 G45 S67	1 1 2 1	Packing	1
3V	TC254511	1	G60 G115	2 1	—	—
4AM	TC355511	1	142.47×3.53 G75 S65 P38	1 1 2 2	—	
4A	SC456812	2	142.47×3.53 G100	2 2	Flange Packing Packing	2 1
GPL	TC355212	1	G145 P38 G45	1 2 3	Flange Packing	2
1RA	SC8227	1	38×1.5	1	—	—
2RA	TCV12. 45×30×9	1	—		Teflon Packing	1
3RD	TCV204011	1	—		Teflon Packing	1

■List of Applicable Bearings

Item / Type	Bearing	
	Model No.	Qty
TOP-1HG	6201	2
TOP-2HB	6202 6301	1 1
TOP-2.5HGA	6201 TAF192720	1 2
N3FA N3FB	6205 TA2225Z	2 1
N3H	6205 6305	2 1

Item / Type	Bearing	
	Model No.	Qty
4AM	6307 NA309	2 1
4A	6309 N309	2 2
GPL	TR354830 6205	4 1
3RD	51104	1

Memo: