

Trochoid[®] Pump

Oil-Hydraulic & Lubrication

Trochoid Pump Catalog

Sole Agent.

Nippon Oil Pump Co.,Ltd.

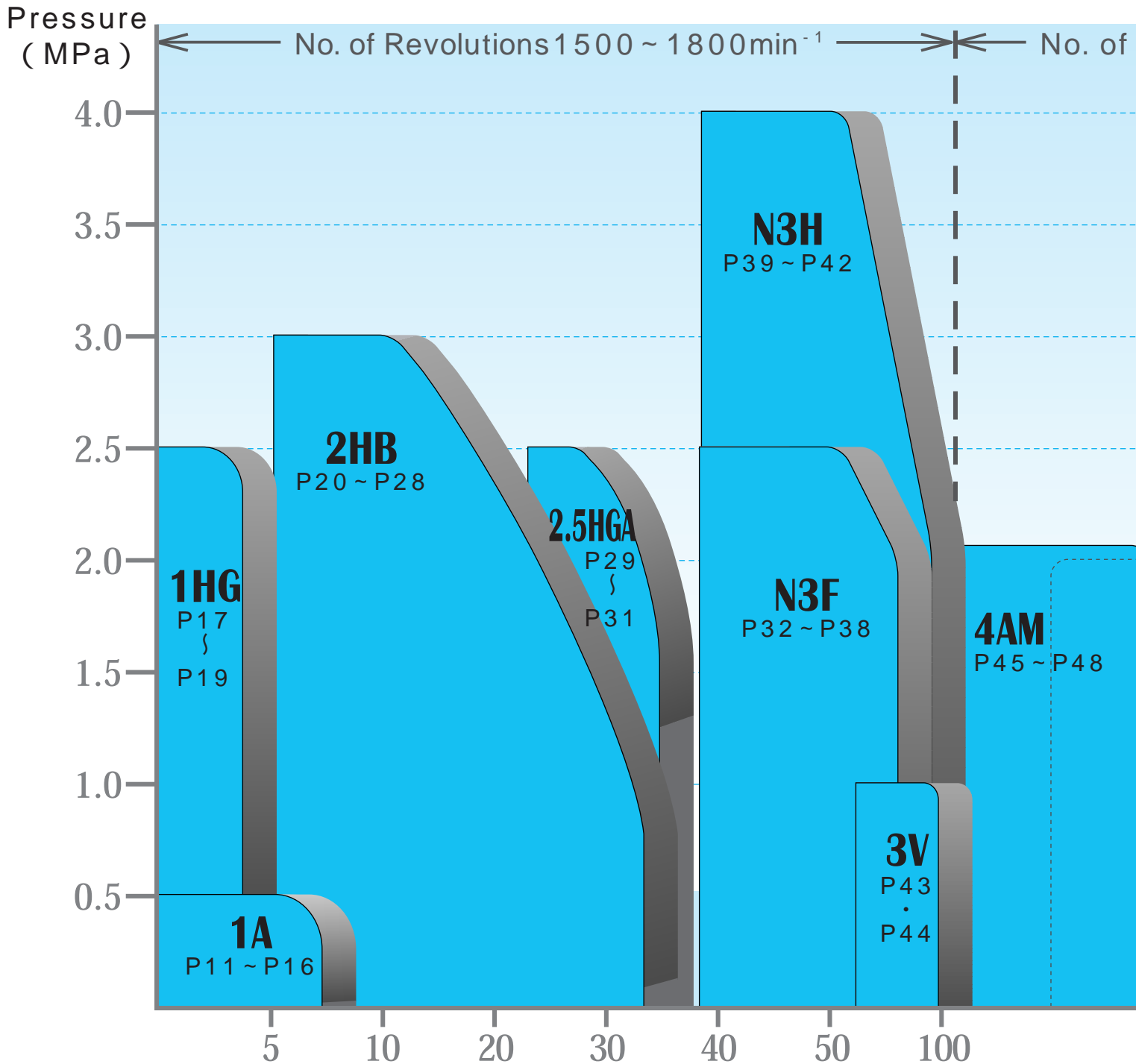
Manufacturer.

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.



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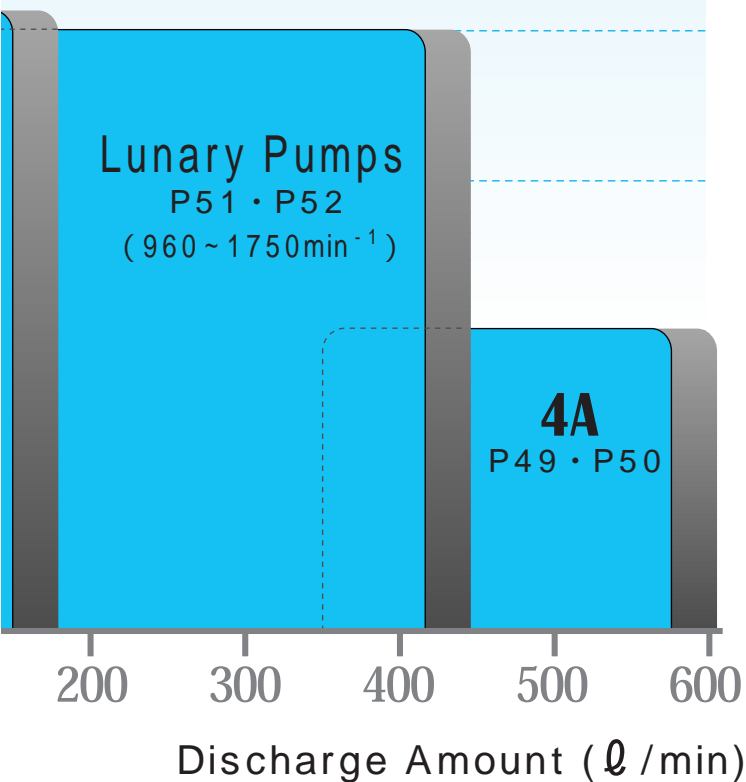
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Nippon Oil Pump Co., Ltd.

(Oil : ISO-VG46 at 40)

Revolutions 1000 ~ 1200min⁻¹ →




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 1 m above or below the fluid level.

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

 **CAUTION** : Installing the pump at a height of more than 1 m 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	1-1/4	1-1/2
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.

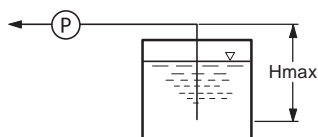
Pipe Arrangement for Suction Side

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

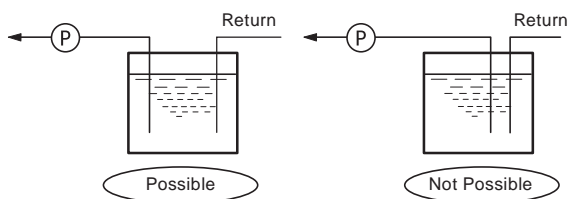
Calculation

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

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.

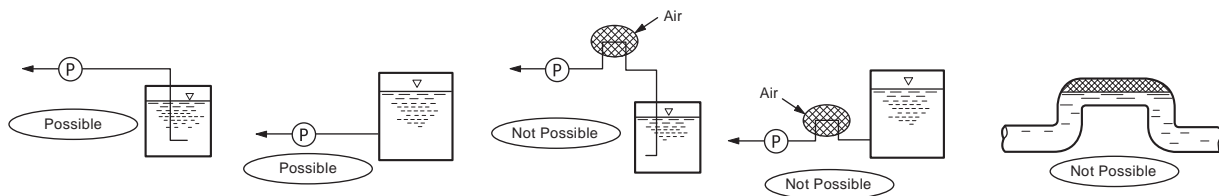
Thoroughly inspect all of the valves, cocks and couplings before assembling the pipes. Do not use any items with cavities or narrow ports.

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.

U	V	W
R	S	T

- 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.

Has resistance at the discharge side become so large that the removal of air is difficult?

Is resistance at the suction side too large? Is the pipe length too long?

Is air being captured?

Has the system run out of oil? Is the pipe reaching the liquid level?

Is 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 lunny 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 °C, 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 lunny 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 lunny pumps can be used in a temperature range of $-20 \sim 40 \text{ }^{\circ}\text{C}$.
The temperature range under which a motor can be used is $-10 \sim 40 \text{ }^{\circ}\text{C}$.



CAUTION

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

Confirm the ambient temperature range.

The temperature range for the applicable liquids is $-5 \text{ }^{\circ}\text{C} \sim 80 \text{ }^{\circ}\text{C}$.
The difference in temperature between the pump and the liquid must be within $40 \text{ }^{\circ}\text{C}$.



CAUTION

: Operations outside of the above temperature ranges could dramatically shorten the life of the Trochoid and lunny 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 $10 \sim 500 \text{ mm}^2/\text{sec}$.
The viscosity range for liquids used in the high-viscosity pumps (3V · Lunny pump) is $46 \sim 2,000 \text{ mm}^2/\text{sec}$.



CAUTION

: Operations outside of the above viscosity ranges could dramatically shorten the life of the Trochoid and Lunny 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 lunny 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 lunny 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

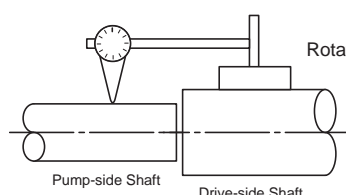
Confirm the attachment method.

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.

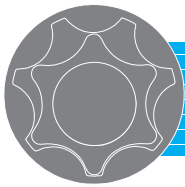
Suction side pressure greater than - 0.03MPa could result in cavitation, abnormal noise, heat generation, poor discharge and damage to the pump.



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

Model	Item	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 °C.
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



US, VF
(Refer to page 63.)

No mark: Without relief valve
VB: With relief valve

The relief valve set pressure is cracking 0.3MPa.

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)

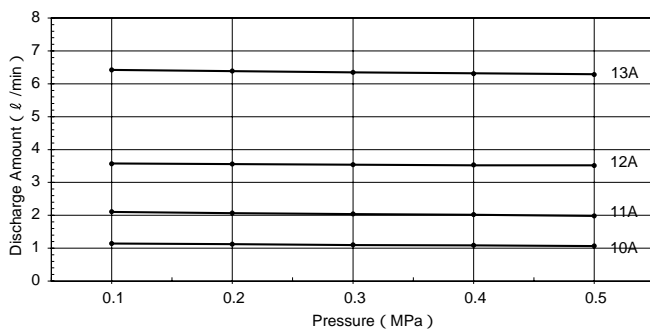
Performance Table

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

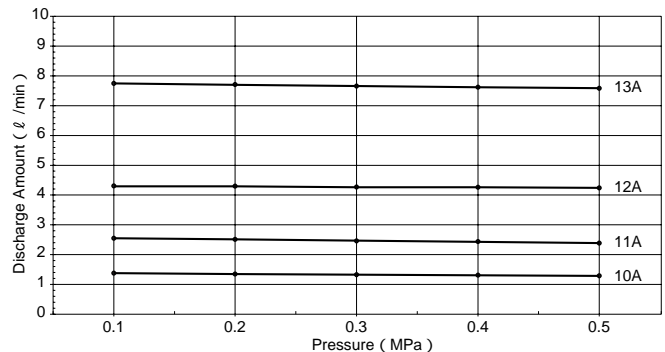
At 1,450 Rotations

At 1,750 Rotations

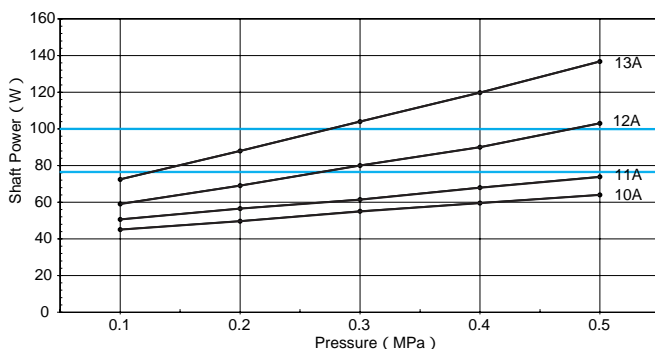
Flow Rate Characteristics



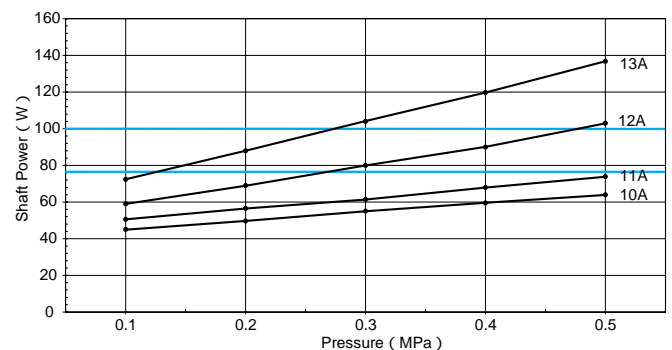
Flow Rate Characteristics



Required Power



Required Power

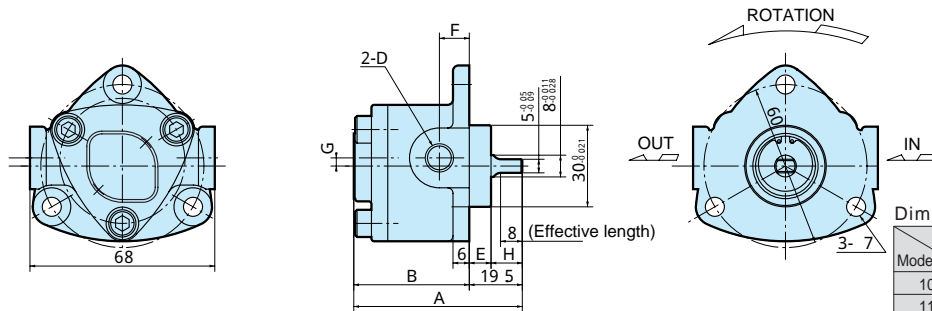


Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

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

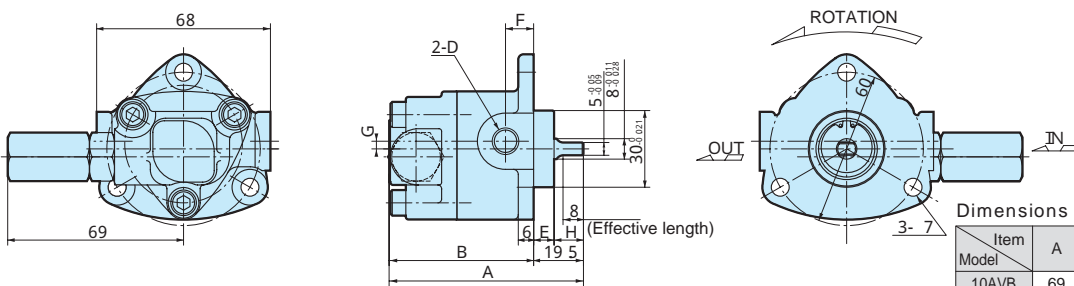
Model : TOP - 1 A



Dimensions

Item Model	A	B	D	E	F	G	H
10A	57	37.5	Rc ¹ / ₈	8	11	3	11.5
11A	57	37.5	Rc ¹ / ₈	8	11	3	11.5
12A	63	43.5	Rc ¹ / ₄	8	11	3	11.5
13A	78	58.5	Rc ³ / ₈	5	14	5.5	14.5

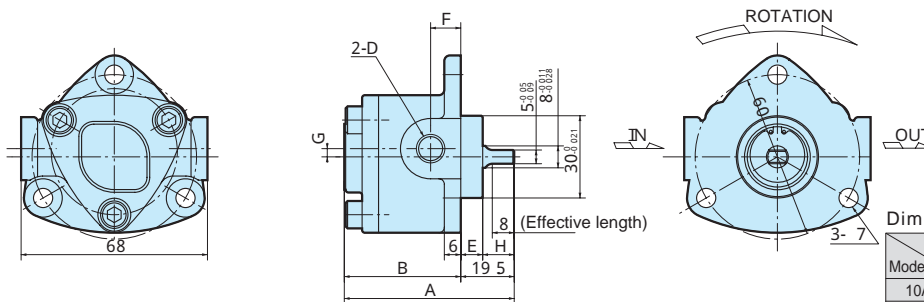
Model : TOP - 1 AVB



Dimensions

Item Model	A	B	D	E	F	G	H
10AVB	69	49.5	Rc ¹ / ₈	8	11	3	11.5
11AVB	69	49.5	Rc ¹ / ₈	8	11	3	11.5
12AVB	75	55.5	Rc ¹ / ₄	8	11	3	11.5
13AVB	90	70.5	Rc ³ / ₈	5	14	5.5	14.5

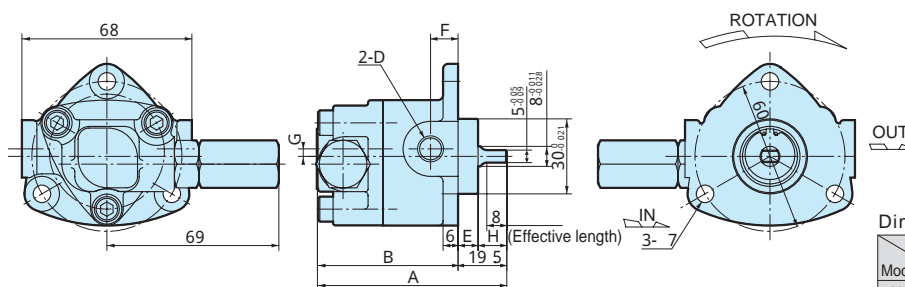
Model : TOP - 1 AR



Dimensions

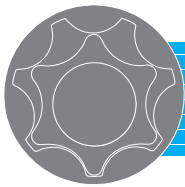
Item Model	A	B	D	E	F	G	H
10AR	57	37.5	Rc ¹ / ₈	8	11	3	11.5
11AR	57	37.5	Rc ¹ / ₈	8	11	3	11.5
12AR	63	43.5	Rc ¹ / ₄	8	11	3	11.5
13AR	78	58.5	Rc ³ / ₈	5	14	5.5	14.5

Model : TOP - 1 ARVB



Dimensions

Item Model	A	B	D	E	F	G	H
10ARVB	69	49.5	Rc ¹ / ₈	8	11	3	11.5
11ARVB	69	49.5	Rc ¹ / ₈	8	11	3	11.5
12ARVB	75	55.5	Rc ¹ / ₄	8	11	3	11.5
13ARVB	90	70.5	Rc ³ / ₈	5	14	5.5	14.5



TOP-1 ME

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)		
			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 C.

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	50	1390	0.60	Type-1 7.5 Type-2 8.0
			200	60	1660	0.55	
			220	60	1690	0.57	
100	4	Continuous	200	50	1430	0.65	8.0
			200	60	1720	0.60	
			220	60	1730	0.60	
200	4	Continuous	200	50	1410	1.15	9.0
			200	60	1690	1.10	
			220	60	1710	1.05	

Model

Motor Output Attachment Rotation Direction Relief Valve

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

1: Horizontal
2: Flange

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

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

Motor Output Attachment Rotation Direction Relief Valve

TOP - 1 ME 100 - 10MA
11MA
12MA
13MA

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

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

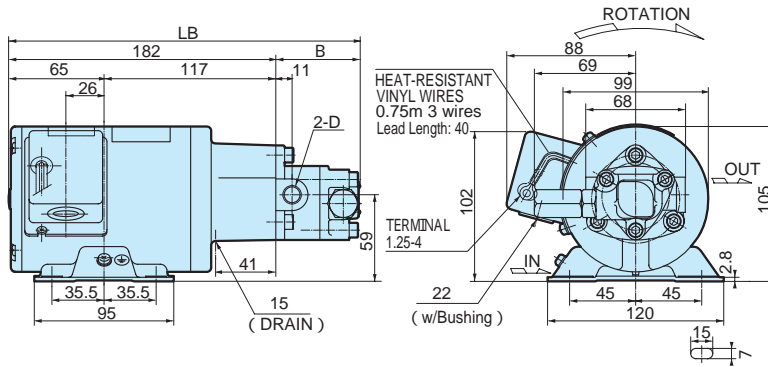
TOP-1ME 75 - 1 - 10MA VB (75W, three-phase, horizontal, with relief valve)

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.

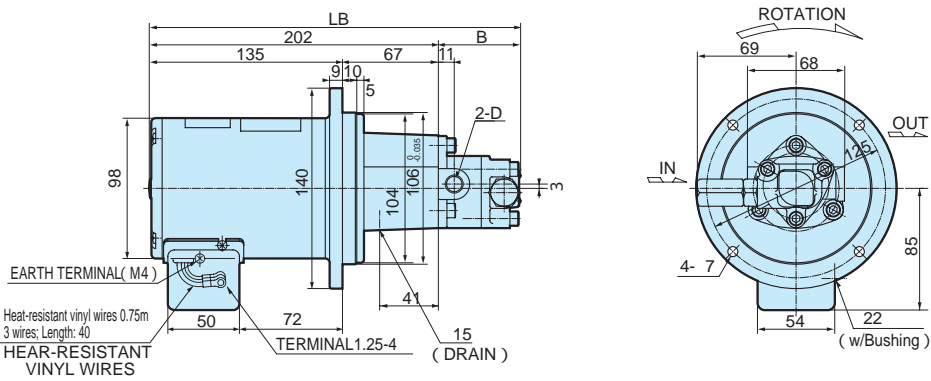
Model : TOP - 1ME75 -1-1 MAVB



Dimensions

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

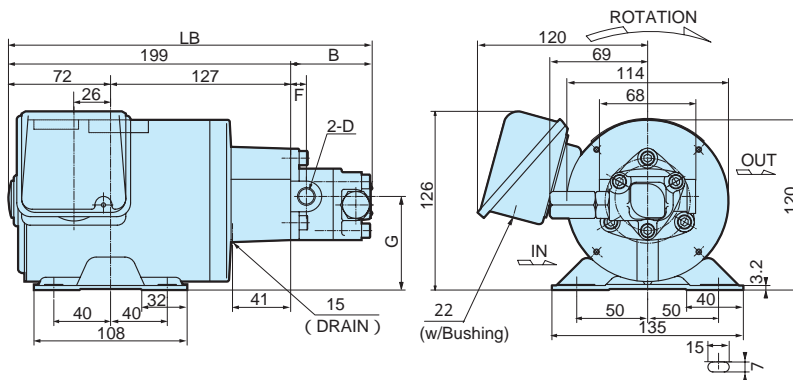
Model : TOP - 1ME75 -2-1 MAVB



Dimensions

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

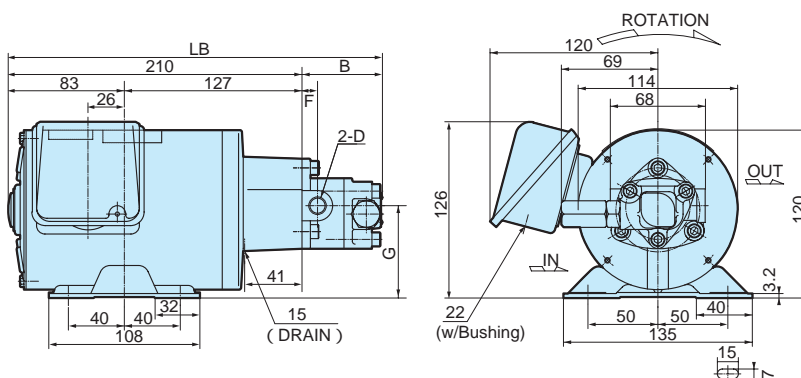
Model : TOP - 1ME100 -1 MAVB



Dimensions

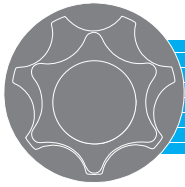
Model	Item	LB	B	D	F	G
1ME100-10MAVB		248.5	49.5	Rc ¹ / ₈	11	66
1ME100-11MAVB		248.5	49.5	Rc ¹ / ₈	11	66
1ME100-12MAVB		254.5	55.5	Rc ¹ / ₄	11	66
1ME100-13MAVB		269.5	70.5	Rc ³ / ₈	14	68.5

Model : TOP - 1ME200 -1 MAVB



Dimensions

Model	Item	LB	B	D	F	G
1ME200-10MAVB		259.5	49.5	Rc ¹ / ₈	11	66
1ME200-11MAVB		259.5	49.5	Rc ¹ / ₈	11	66
1ME200-12MAVB		265.5	55.5	Rc ¹ / ₄	11	66
1ME200-13MAVB		280.5	70.5	Rc ³ / ₈	14	68.5



TOP-1ME S (single-phase motor)

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)	
			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 C.

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	1430	2.0	5.9
				60	1730	1.6	
200	4	Continuous	100	50	1430	5.8	10
				60	1720	5.0	

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

Model

Motor Single-Output phase

TOP - 1ME

75	S
200	S

 - Pump

10MA
11MA
12MA
13MA

 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 S-11MA (75W, single-phase)

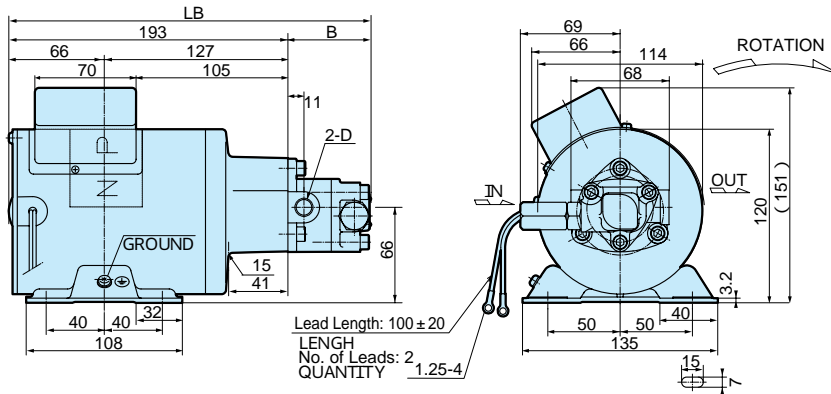
TOP-1ME 200 S-12MA VB (200W, single-phase, with relief valve)

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.

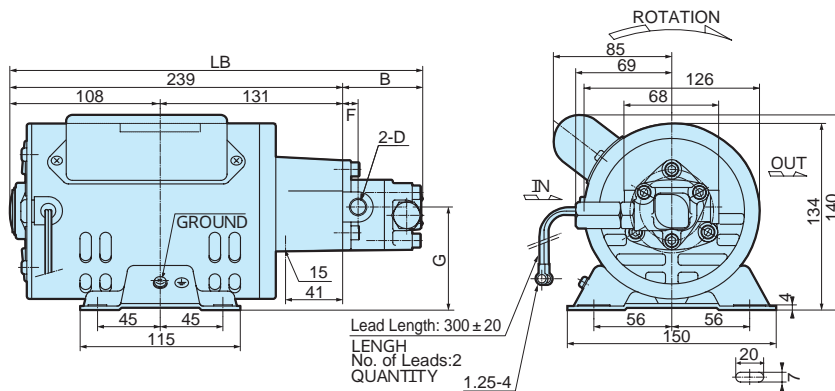
Model : TOP - 1ME75 S - 1MAVB



Dimensions

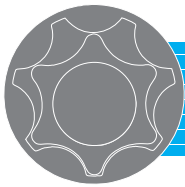
Model	Item	LB	B	D
1ME75S-10MAVB		242.5	49.5	Rc ¹ / ₈
1ME75S-11MAVB		242.5	49.5	Rc ¹ / ₈
1ME75S-12MAVB		248.5	55.5	Rc ¹ / ₄

Model : TOP - 1ME200 S - 1MAVB



Dimensions

Model	Item	LB	B	D	F	G
1M200S-10MAVB		288.5	49.5	Rc ¹ / ₈	11	74
1M200S-11MAVB		388.5	49.5	Rc ¹ / ₈	11	74
1M200S-12MAVB		294.5	55.5	Rc ¹ / ₄	11	74
1M200S-13MAVB		309.5	70.5	Rc ³ / ₈	14	76.5



TOP-1HG

Specifications

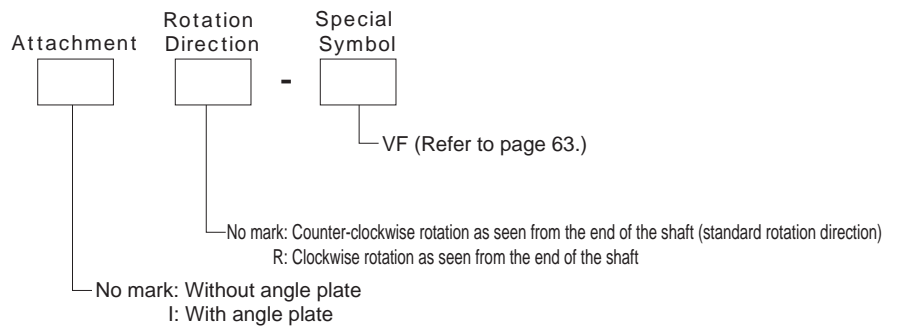
Model	Item	Theoretical Displacement cm ³ /rev	Theoretical Discharge ℓ /min		Max. Discharge Pressure MPa	Max. Revolution min ⁻¹	Approx. Weigh kg
			1500min ⁻¹	1800min ⁻¹			
TOP-11HG		1.5	2.2	2.7	2.5	3000	1.4
TOP-12HG		2.5	3.7	4.5	2.5	2500	1.5

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

Model



TOP - 11HG
12HG



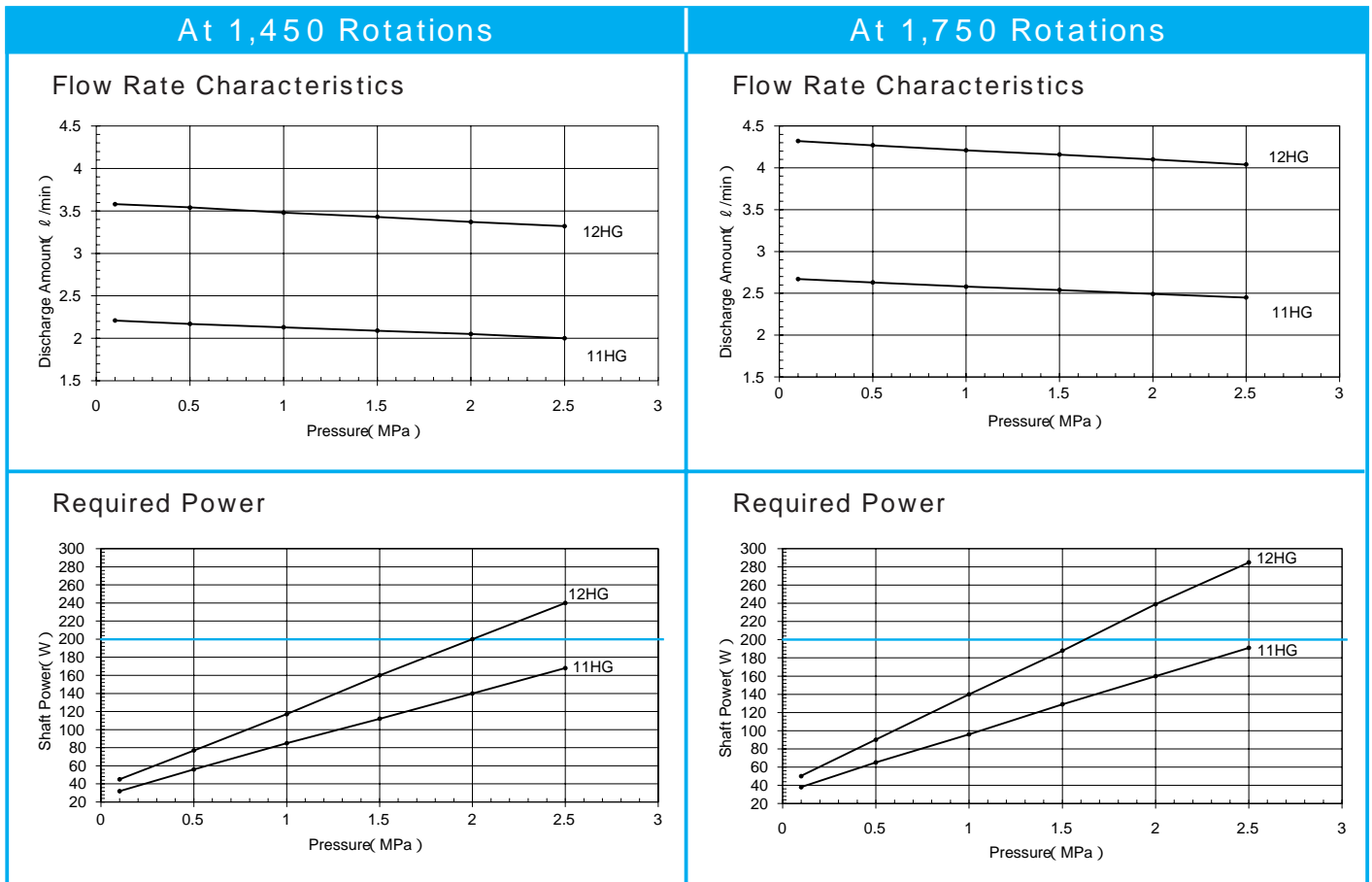
Model Examples:

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 °C

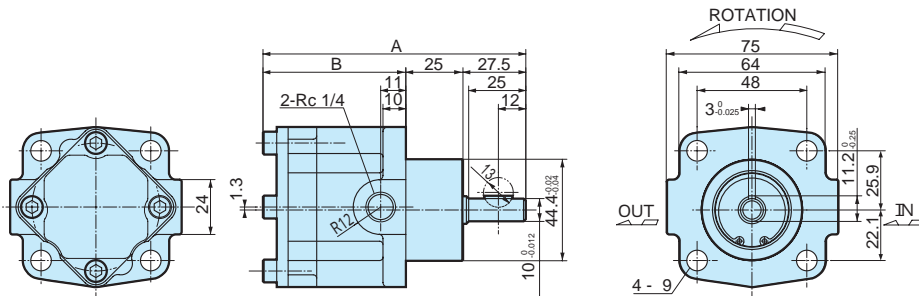


Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

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

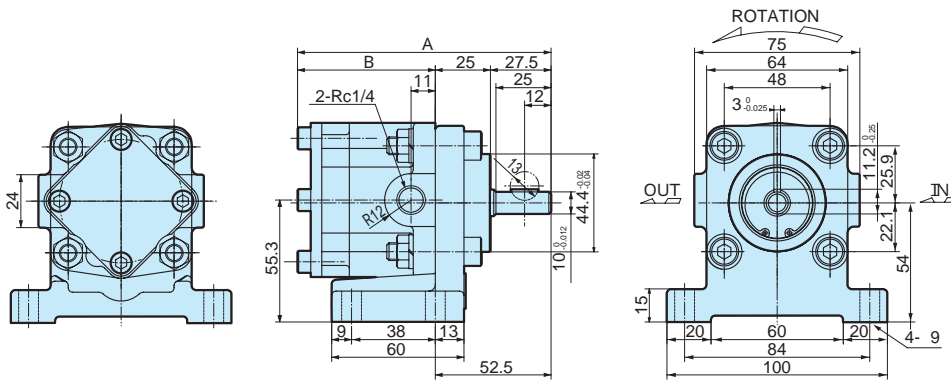
Model : TOP - 1HG



Dimensions

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

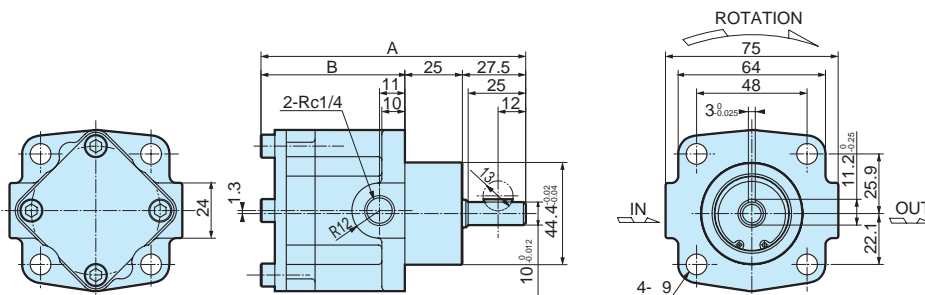
Model : TOP - 1HGI



Dimensions

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

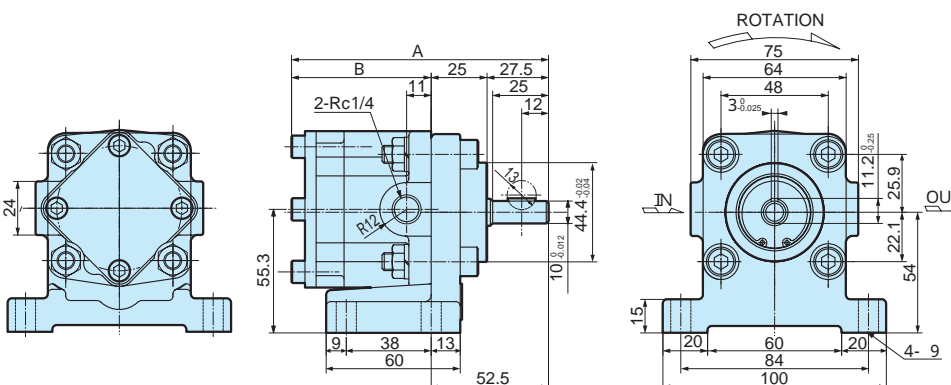
Model : TOP - 1HGR



Dimensions

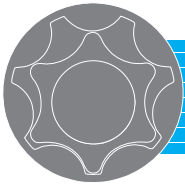
Model	Item	A	B
11HGR		110	57.5
12HGR		115	62.5

Model : TOP - 1HGIR



Dimensions

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



TOP-1MBY

Nippon Oil Pump Co., Ltd.

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)	
			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 °C.

Model

TOP - 1MBY

Motor Output
200
400

 -

11HG
12HG

Rotation Direction | Special Symbol



VF (Refer to page 63.)

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



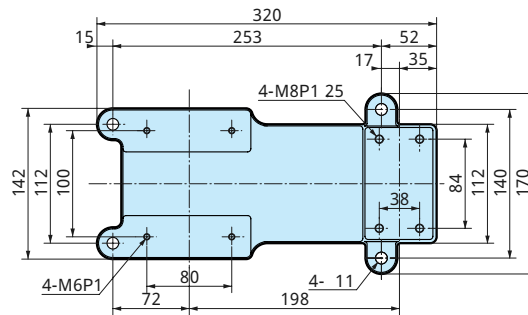
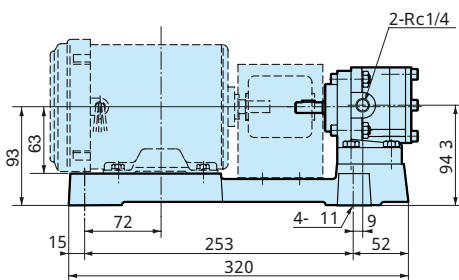
Model Examples:

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

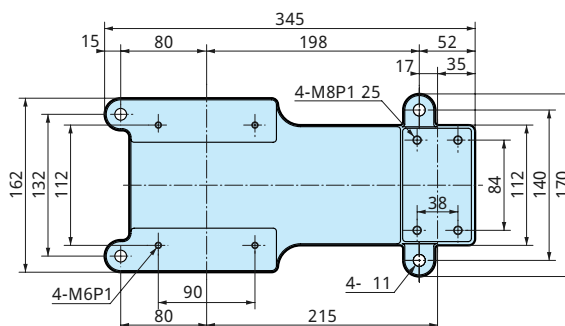
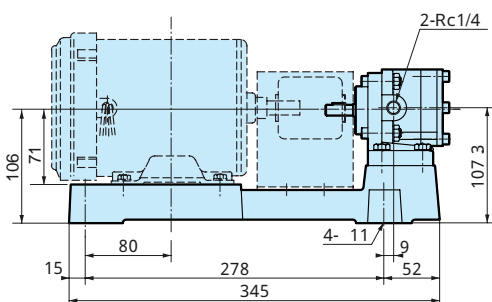
Dimensional Diagrams

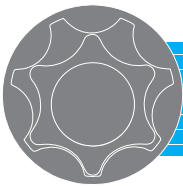
Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

Model : TOP - 1MBY200-1HGI



Model : TOP - 1MBY400-1HGI





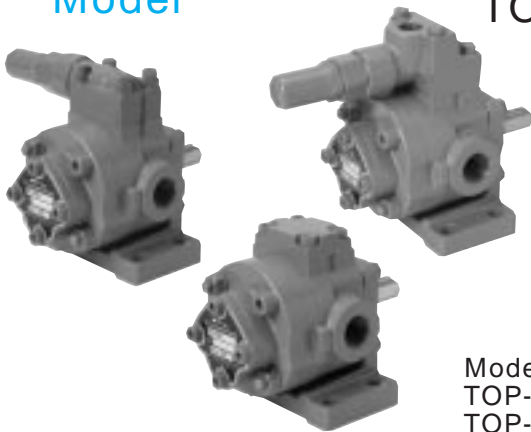
TOP-2HB

Specifications

Model	Item	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 °C.
The approximate weight values shown in the brackets () are for when a relief valve is attached.

Model



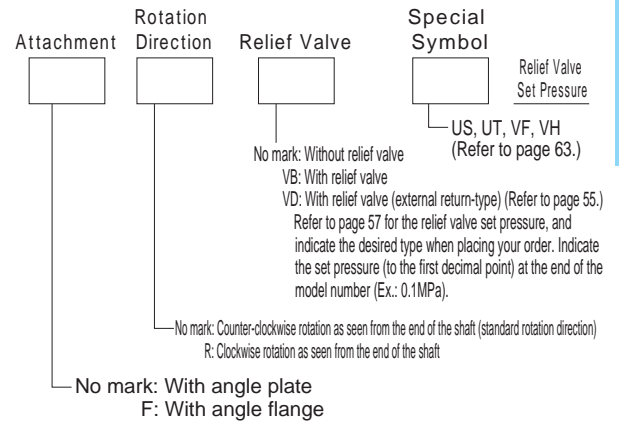
TOP -

203HB
204HB
206HB
208HB
210HB
212HB
216HB
220HB

Model Examples:

TOP-203HBVB (with relief valve)

TOP-204HBFR (with angle flange, clockwise rotation as seen from the end of the shaft)



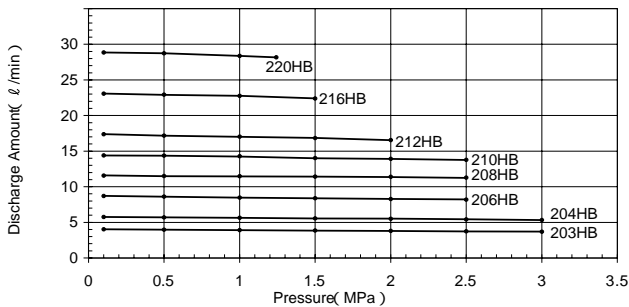
2HB

Performance Table

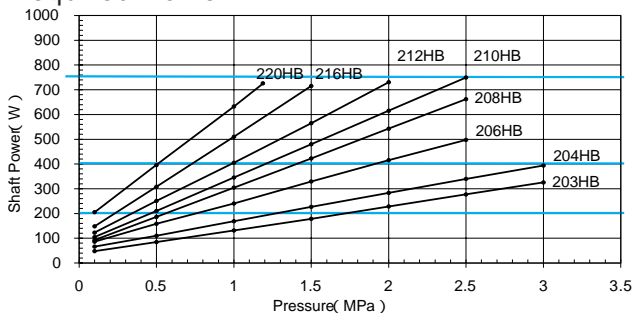
Test Conditions Oil: ISO-VG46 with a temperature of 40 °C

At 1,450 Rotations

Flow Rate Characteristics

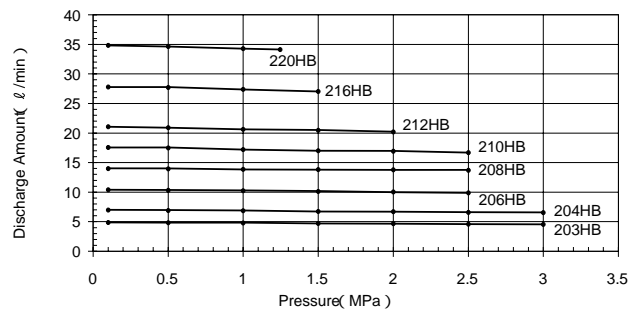


Required Power

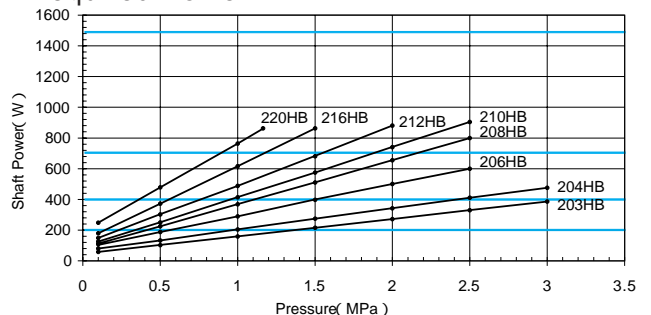


At 1,750 Rotations

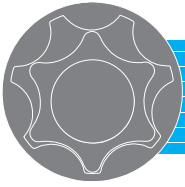
Flow Rate Characteristics



Required Power



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

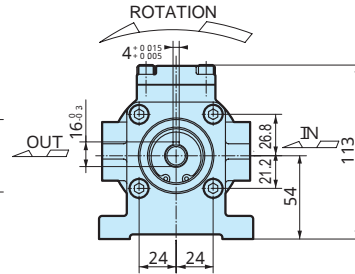
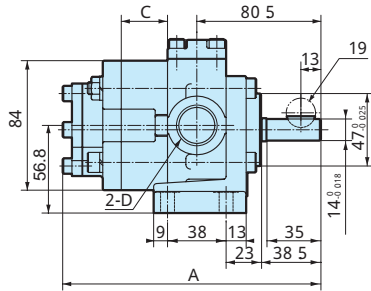
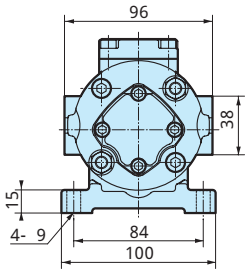


TOP-2HB

Dimensional Diagrams

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

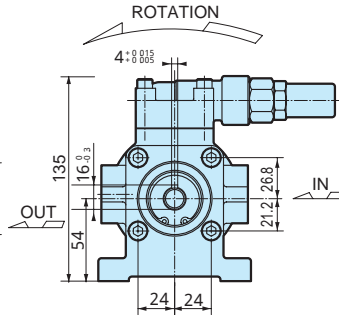
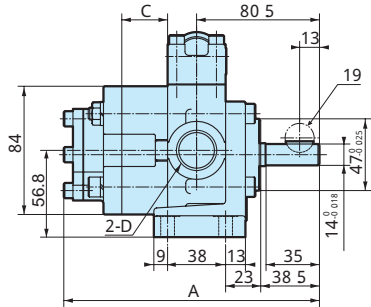
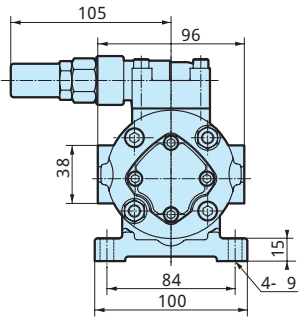
Model : TOP - 2HB



Dimensions

Model	Item	A	C	D
203HB		144.5	7	Rc ^{1/2}
204HB		147.5	10	
206HB		152.5	15	
208HB		157.5	20	
210HB		162.5	25	Rc ^{3/4}
212HB		167.5	30	
216HB		177.5	40	
220HB		187.5	50	

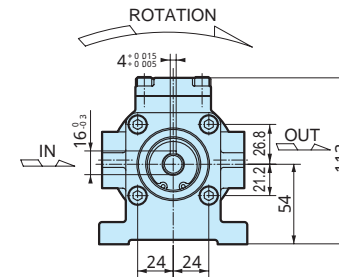
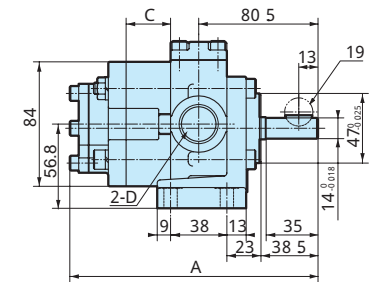
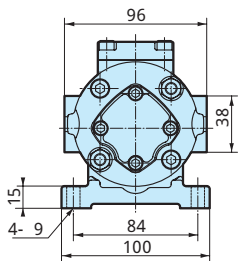
Model : TOP - 2HBVB



Dimensions

Model	Item	A	C	D
203HBVB		144.5	7	Rc ^{1/2}
204HBVB		147.5	10	
206HBVB		152.5	15	
208HBVB		157.5	20	
210HBVB		162.5	25	Rc ^{3/4}
212HBVB		167.5	30	
216HBVB		177.5	40	
220HBVB		187.5	50	

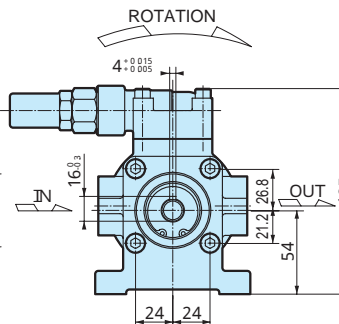
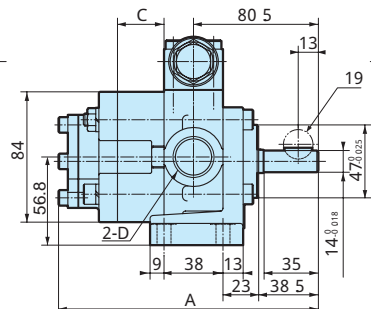
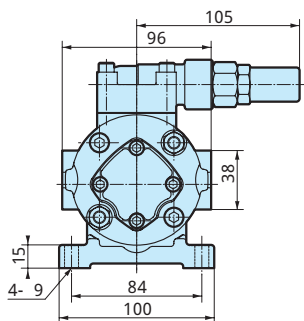
Model : TOP - 2HBR



Dimensions

Model	Item	A	C	D
203HBR		144.5	7	Rc ^{1/2}
204HBR		147.5	10	
206HBR		152.5	15	
208HBR		157.5	20	
210HBR		162.5	25	Rc ^{3/4}
212HBR		167.5	30	
216HBR		177.5	40	
220HBR		187.5	50	

Model : TOP - 2HBRVB



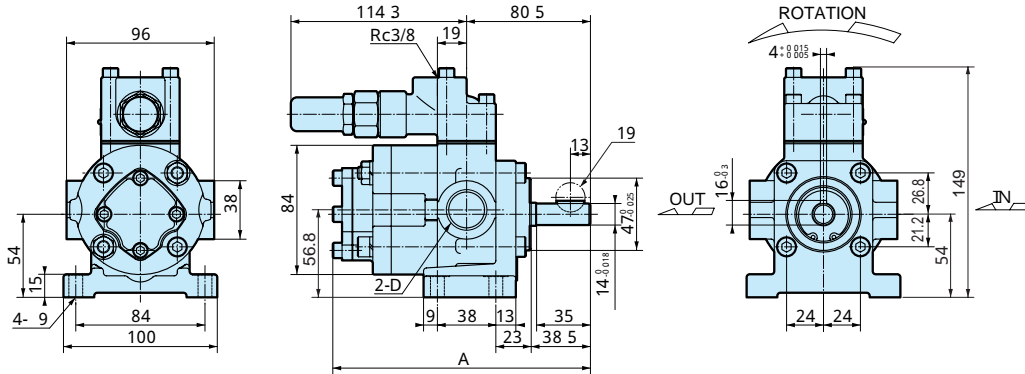
Dimensions

Model	Item	A	C	D
203HBRVB		144.5	7	Rc ^{1/2}
204HBRVB		147.5	10	
206HBRVB		152.5	15	
208HBRVB		157.5	20	
210HBRVB		162.5	25	Rc ^{3/4}
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.

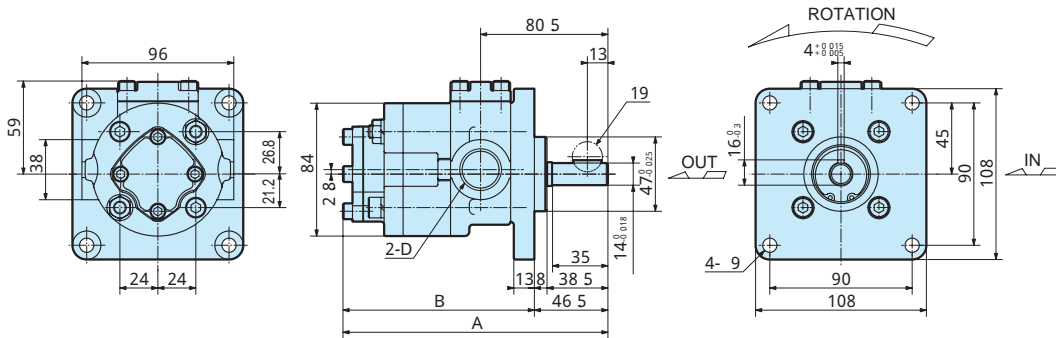
Model : TOP - 2HBVD



Dimensions

Model	Item	A	C	D
203HBVD		144.5	7	Rc ¹ / ₂
204HBVD		147.5	10	
206HBVD		152.5	15	
208HBVD		157.5	20	
210HBVD		162.5	25	Rc ³ / ₄
212HBVD		167.5	30	
216HBVD		177.5	40	
220HBVD		187.5	50	

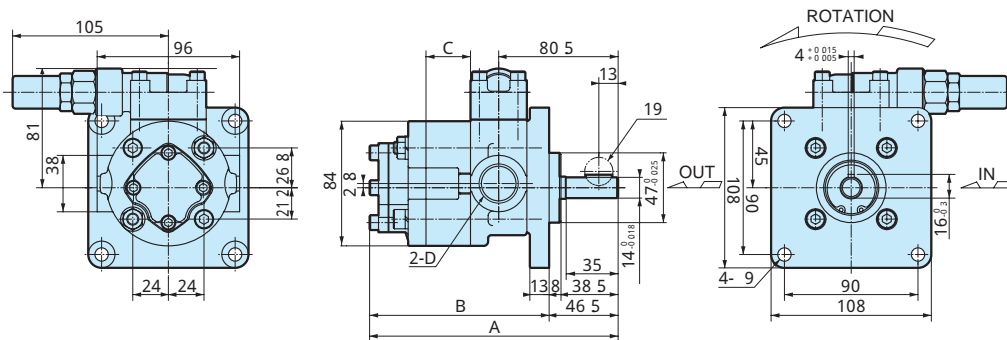
Model : TOP - 2HBF



Dimensions

Model	Item	A	B	C	D
203HBF		144.5	98	7	Rc ¹ / ₂
204HBF		147.5	101	10	
206HBF		152.5	106	15	
208HBF		157.5	111	20	
210HBF		162.5	116	25	Rc ³ / ₄
212HBF		167.5	121	30	
216HBF		177.5	131	40	
220HBF		187.5	141	50	

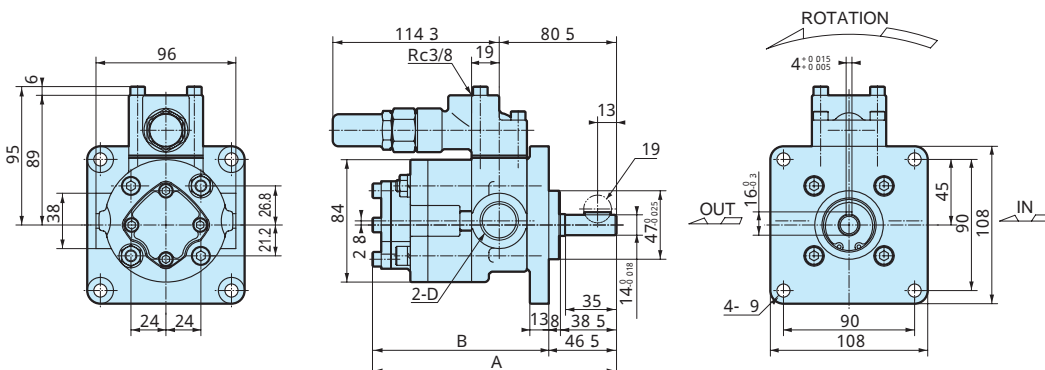
Model : TOP - 2HBFVB



Dimensions

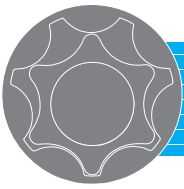
Model	Item	A	B	C	D
203HBFVB		144.5	98	7	Rc ¹ / ₂
204HBFVB		147.5	101	10	
206HBFVB		152.5	106	15	
208HBFVB		157.5	111	20	
210HBFVB		162.5	116	25	Rc ³ / ₄
212HBFVB		167.5	121	30	
216HBFVB		177.5	131	40	
220HBFVB		187.5	141	50	

Model : TOP - 2HBFVD



Dimensions

Model	Item	A	B	C	D
203HBFVB		144.5	98	7	Rc ¹ / ₂
204HBFVB		147.5	101	10	
206HBFVB		152.5	106	15	
208HBFVB		157.5	111	20	
210HBFVB		162.5	116	25	Rc ³ / ₄
212HBFVB		167.5	121	30	
216HBFVB		177.5	131	40	
220HBFVB		187.5	141	50	



TOP-2MY

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)			
			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 °C.

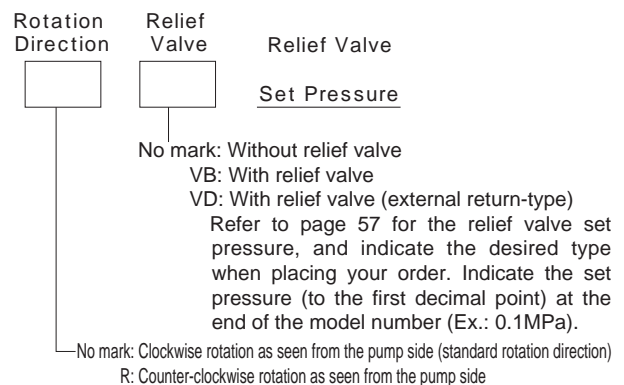
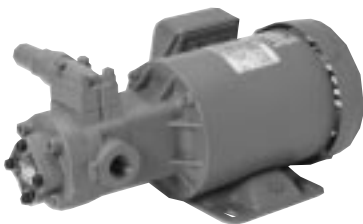
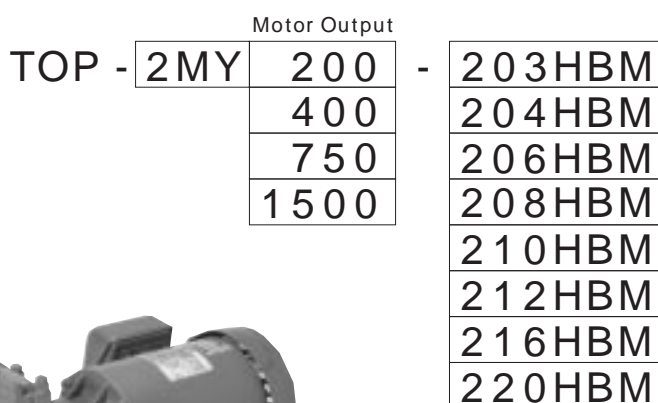
Motor Specifications

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	50	1440	1.34	7.0
			200	60	1720	1.12	
			220	60	1730	1.17	
400	4	Continuous	200	50	1420	2.2	10.0
			200	60	1710	1.93	
			220	60	1730	1.95	
750	4	Continuous	200	50	1440	3.6	14.0
			200	60	1720	3.3	
			220	60	1740	3.2	
1500	4	Continuous	200	50	1430	6.9	22.0
			200	60	1720	6.2	
			220	60	1730	6.1	

*Please feel 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



Model Examples

TOP-2MY200-203HBMVB (200W, three-phase, with relief valve)

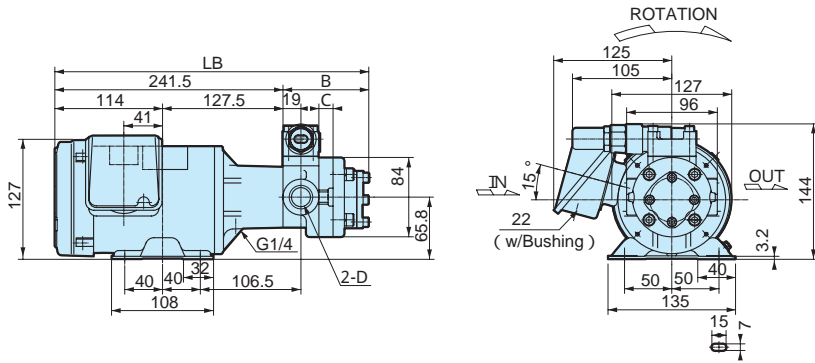
TOP-2MY400-206HBMR (400W, three-phase, counterclockwise rotation as seen from the pump side)

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.

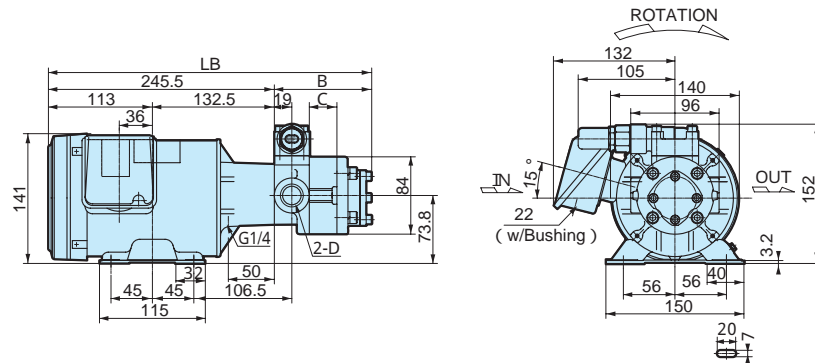
Model : TOP - 2MY200 - 2HBMVB



Dimensions

Model	Item	LB	B	C	D
2MY200-203HBMVB		324.5	83	7	Rc ¹ / ₂
2MY200-204HBMVB		327.5	86	10	
2MY200-206HBMVB		332.5	91	15	
2MY200-208HBMVB		337.5	96	20	Rc ³ / ₄
2MY200-210HBMVB		342.5	101	25	
2MY200-212HBMVB		347.5	106	30	
2MY200-216HBMVB		357.5	116	40	

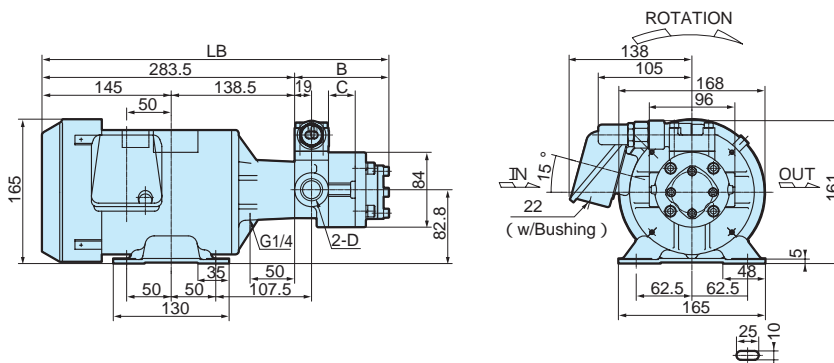
Model : TOP - 2MY400 - 2HBMVB



Dimensions

Model	Item	LB	B	C	D
2MY400-203HBMVB		328.5	83	7	Rc ¹ / ₂
2MY400-204HBMVB		331.5	86	10	
2MY400-206HBMVB		336.5	91	15	
2MY400-208HBMVB		341.5	96	20	Rc ³ / ₄
2MY400-210HBMVB		346.5	101	25	
2MY400-212HBMVB		351.5	106	30	
2MY400-216HBMVB		361.5	116	40	
2MY400-220HBMVB		371.5	126	50	

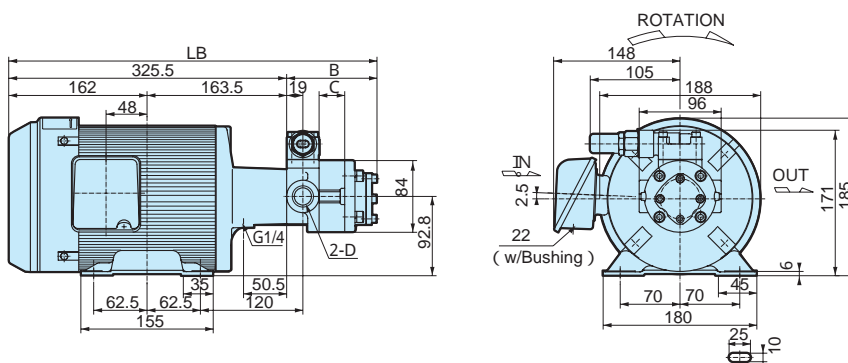
Model : TOP - 2MY750 - 2HBMVB



Dimensions

Model	Item	LB	B	C	D
2MY750-203HBMVB		366.5	83	7	Rc ¹ / ₂
2MY750-204HBMVB		369.5	86	10	
2MY750-206HBMVB		374.5	91	15	
2MY750-208HBMVB		379.5	96	20	Rc ³ / ₄
2MY750-210HBMVB		384.5	101	25	
2MY750-212HBMVB		389.5	106	30	
2MY750-216HBMVB		399.5	116	40	
2MY750-220HBMVB		409.5	126	50	

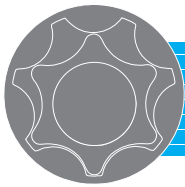
Model : TOP - 2MY1500 - 2HBMVB



Dimensions

Model	Item	LB	B	C	D
2MY1500-203HBMVB		408.5	83	7	Rc ¹ / ₂
2MY1500-204HBMVB		411.5	86	10	
2MY1500-206HBMVB		416.5	91	15	
2MY1500-208HBMVB		421.5	96	20	Rc ³ / ₄
2MY1500-210HBMVB		426.5	101	25	
2MY1500-212HBMVB		431.5	106	30	
2MY1500-216HBMVB		441.5	116	40	
2MY1500-220HBMVB		451.5	126	50	

2HB



TOP-2ME S (Single-Phase Motor)

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)		
			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 °C.

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
			200	60	1720	4.9	
400	4	Continuous	100	50	1420	8.4	15
			200	60	1710	7.6	
750	4	Continuous	100	50	1450	11.2	21
			200	60	1740	9.6	
						5.7	
						4.9	

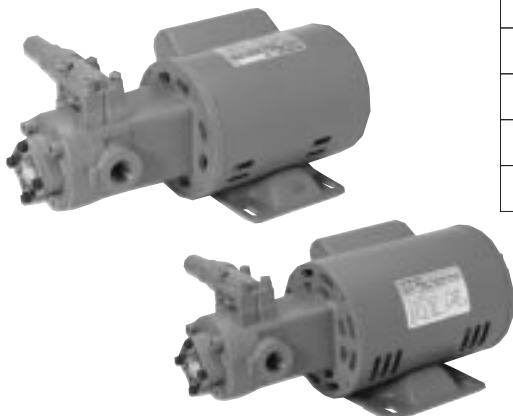
Model

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

Rotation Direction	Relief Valve	Relief Valve
<input type="checkbox"/>	<input type="checkbox"/>	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)

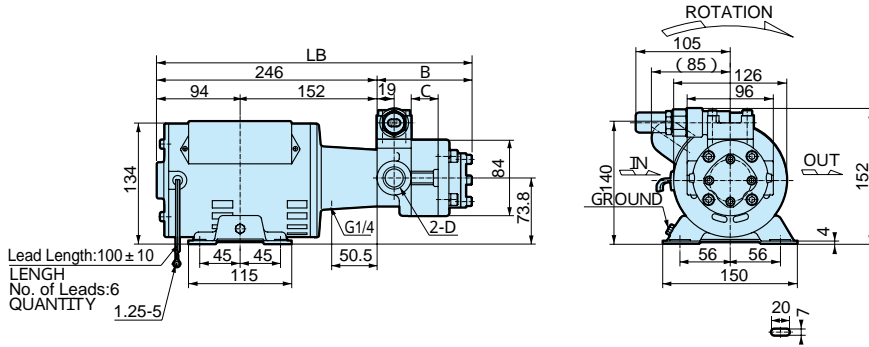
TOP-2ME400S-206HBMR (400W, single-phase, counterclockwise rotation as seen from the pump side)

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.

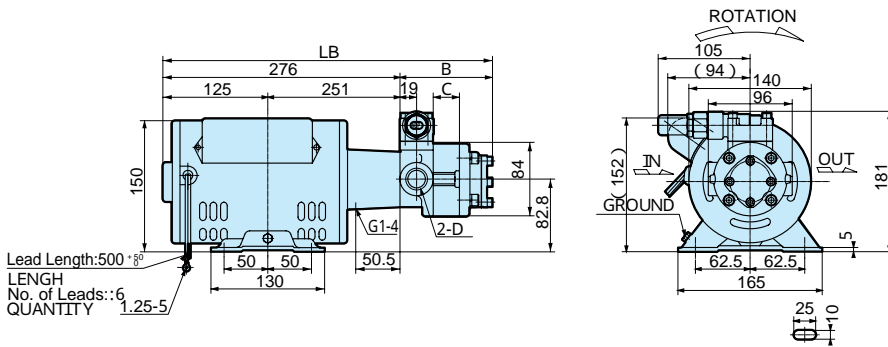
Model : TOP - 2ME200 S - 2HBMVB



Dimensions

Model	Item	LB	B	C	D
2ME200S-203HBMVB		329	83	7	Rc ^{1/2}
2ME200S-204HBMVB		332	86	10	
2ME200S-206HBMVB		337	91	15	
2ME200S-208HBMVB		342	96	20	Rc ^{3/4}
2ME200S-210HBMVB		347	101	25	
2ME200S-212HBMVB		352	106	30	
2ME200S-216HBMVB		362	116	40	

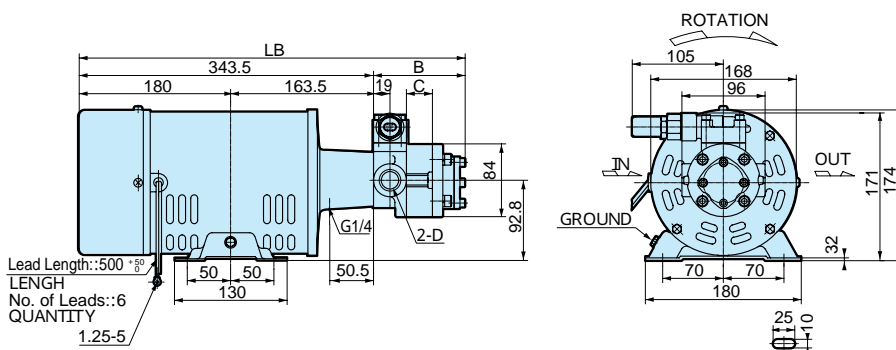
Model : TOP - 2ME400 S - 2HBMVB



Dimensions

Model	Item	LB	B	C	D
2ME400S-203HBMVB		359	83	7	Rc ^{1/2}
2ME400S-204HBMVB		362	86	10	
2ME400S-206HBMVB		367	91	15	
2ME400S-208HBMVB		372	96	20	Rc ^{3/4}
2ME400S-210HBMVB		377	101	25	
2ME400S-212HBMVB		382	106	30	
2ME400S-216HBMVB		392	116	40	
2ME400S-220HBMVB		402	126	50	

Model : TOP - 2ME750 S - 2HBMVB

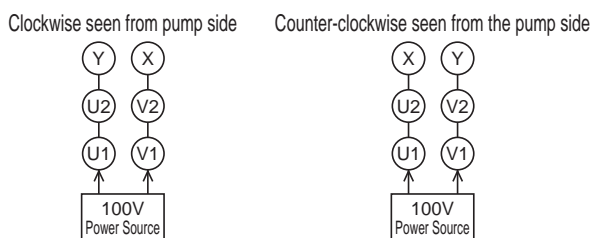


Dimensions

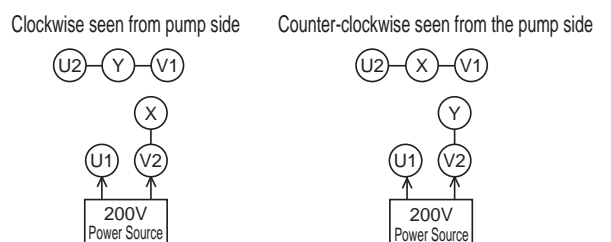
Model	Item	LB	B	C	D
2ME750S-203HBMVB		426.5	83	7	Rc ^{1/2}
2ME750S-204HBMVB		429.5	86	10	
2ME750S-206HBMVB		434.5	91	15	
2ME750S-208HBMVB		439.5	96	20	Rc ^{3/4}
2ME750S-210HBMVB		444.5	101	25	
2ME750S-212HBMVB		449.5	106	30	
2ME750S-216HBMVB		459.5	116	40	
2ME750S-220HBMVB		469.5	126	50	

Wiring Diagram

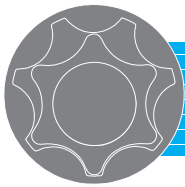
100V



200V



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

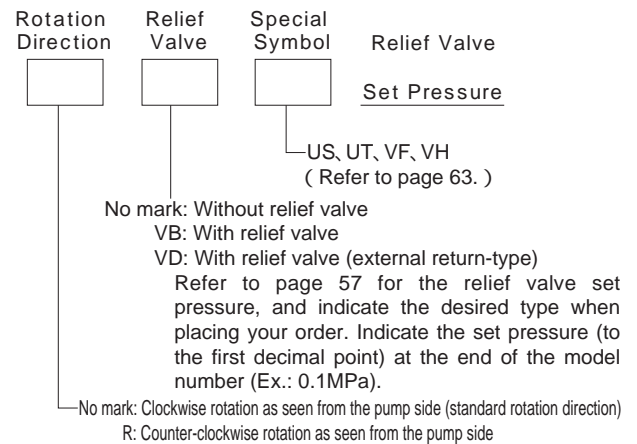
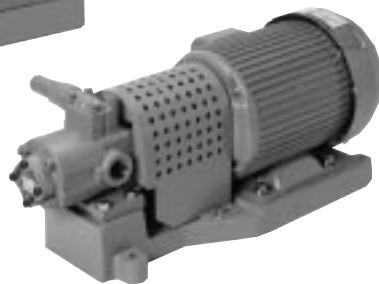
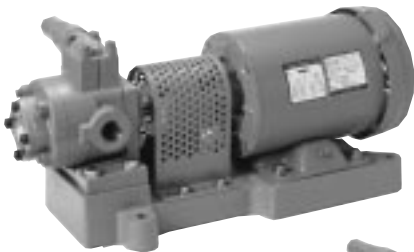
Specifications

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)				
			200W	400W	750W	1500W	2200W		200W	400W	750W	1500W	2200W
TOP-203HB		4.2	1.7	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	7.2	0.9	2.3	3.0	3.0	3.0	
TOP-206HB		9.0	0.7	1.8	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	14.4	0.3	1.0	2.3	2.5	2.5	
TOP-210HB		15.0	0.4	1.1	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	21.6		0.7	1.6	2.0	2.0	
TOP-216HB		24.0	0.2	0.7	1.5	1.5	28.8		0.5	1.2	1.5	1.5	
TOP-220HB		30.0		0.4	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 °C.

Model

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



Model Examples

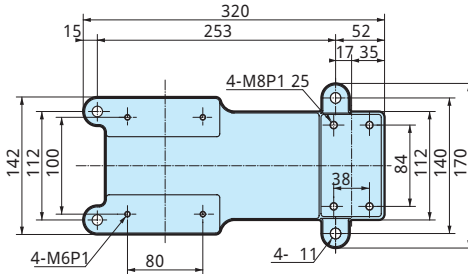
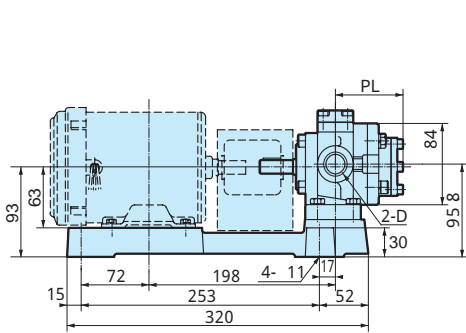
TOP-2MBY200-203HBVB (200W, with relief valve)

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.

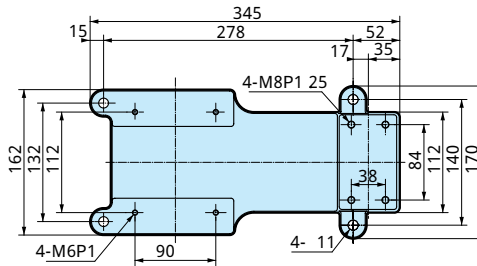
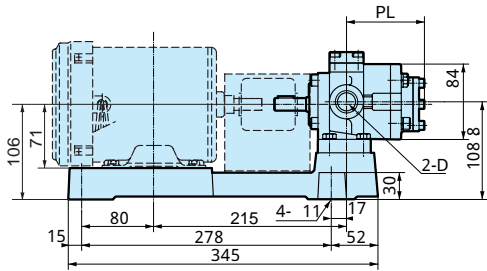
Model : TOP - 2MBY200 - 2HB



Dimensions

Model	Item	PL	D
203HB	64		Rc ^{1/2}
204HB	67		
206HB	72		
208HB	77		
210HB	82		Rc ^{3/4}
212HB	87		
216HB	97		

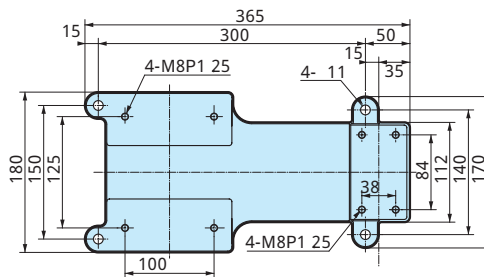
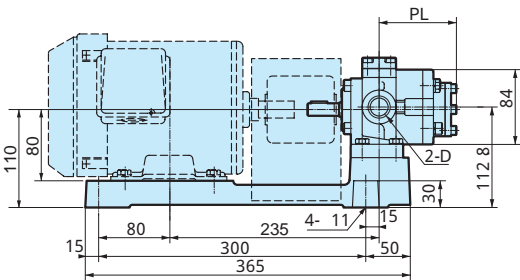
Model : TOP - 2MBY400 - 2HB



Dimensions

Model	Item	PL	D
203HB	64		Rc ^{1/2}
204HB	67		
206HB	72		
208HB	77		
210HB	82		Rc ^{3/4}
212HB	87		
216HB	97		
220HB	107		

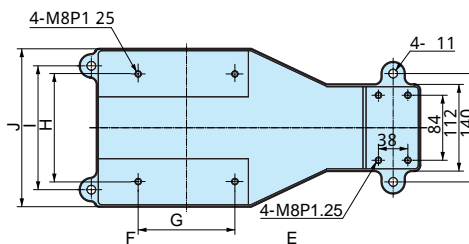
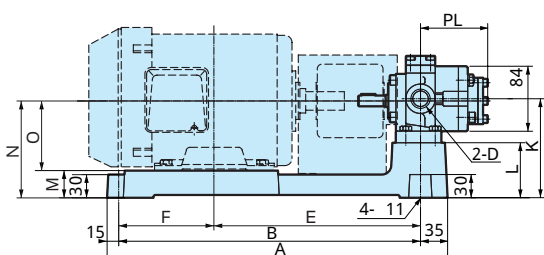
Model : TOP - 2MBY750 - 2HB



Dimensions

Model	Item	PL	D
203HB	64		Rc ^{1/2}
204HB	67		
206HB	72		
208HB	77		
210HB	82		Rc ^{3/4}
212HB	87		
216HB	97		
220HB	107		

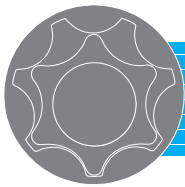
Model : TOP - 2MBY1500-2HB/ TOP - 2MBY2200-2HB



Dimensions

Model	Item	PL	D
203HB	64		Rc ^{1/2}
204HB	67		
206HB	72		
208HB	77		
210HB	82		Rc ^{3/4}
212HB	87		
216HB	97		
220HB	107		

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



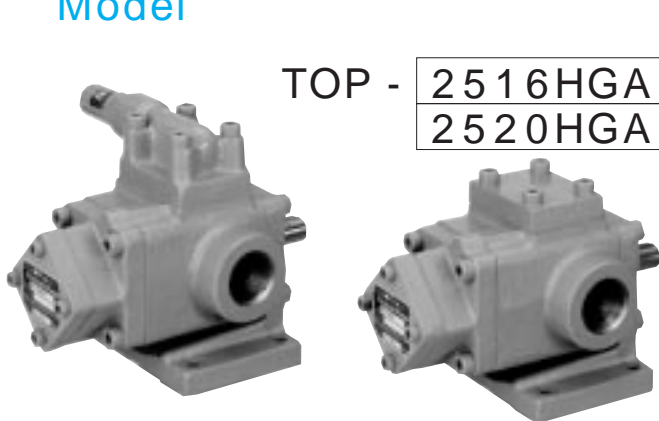
TOP-2.5HGA

Specifications

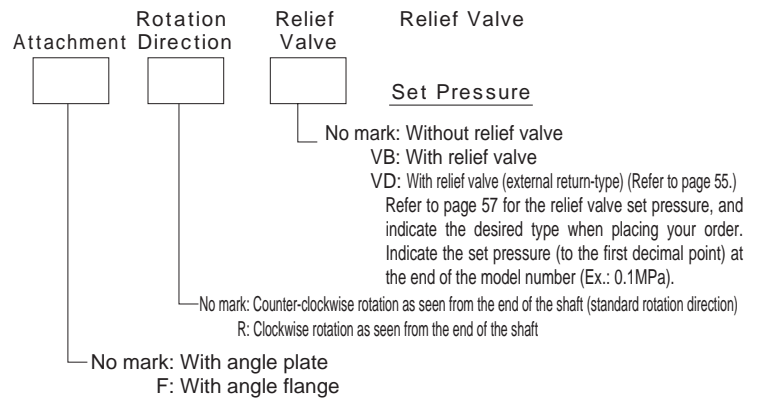
Model	Item	Theoretical Displacement cm ³ /rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min ⁻¹	Approx. Weight kg
			1500min ⁻¹	1800min ⁻¹			
TOP-2516HGA		16	24	28.8	2.5	2500	7.0 (7.5)
TOP-2520HGA		20	30	36.0	2.0	2000	7.0 (7.5)

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

Model



TOP - **2516HGA**
2520HGA



Model Examples:

TOP-2516HGA VB (with angle plate and relief valve)

TOP-2516HGA F (with angle flange)

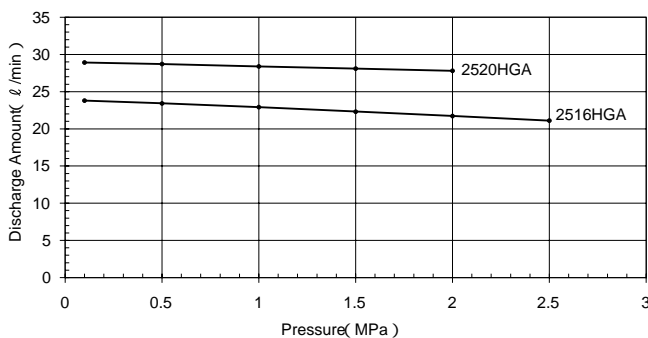
TOP-2520HGA R VB (clockwise rotation seen from the end of the shaft, with relief valve)

Performance Table

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

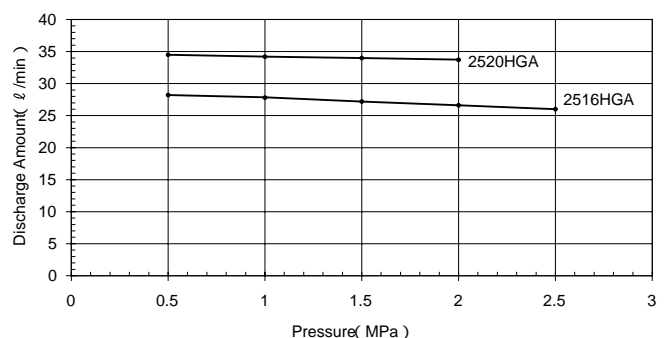
At 1,450 Rotations

Flow Rate Characteristics

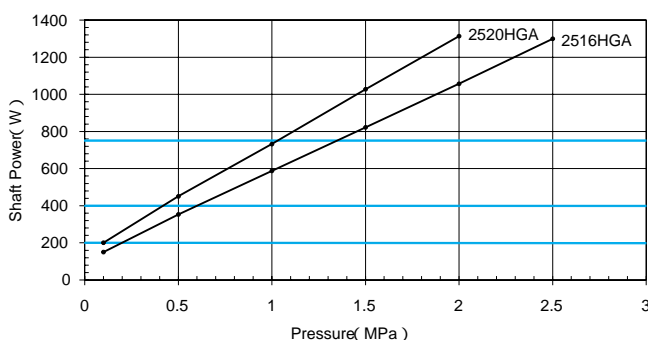


At 1,750 Rotations

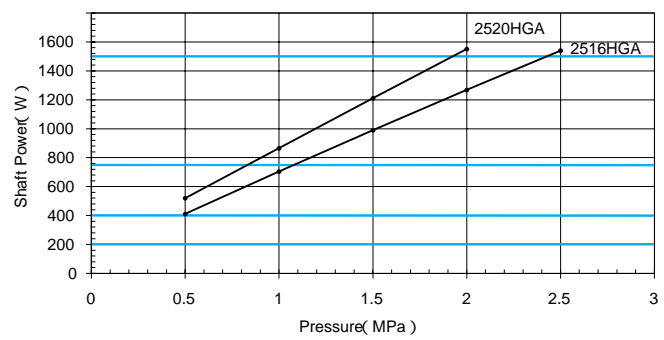
Flow Rate Characteristics



Required Power



Required Power

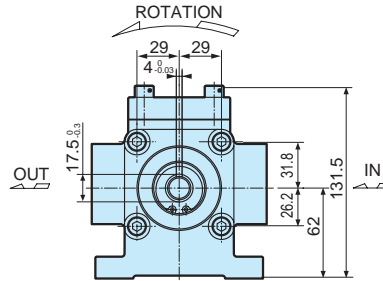
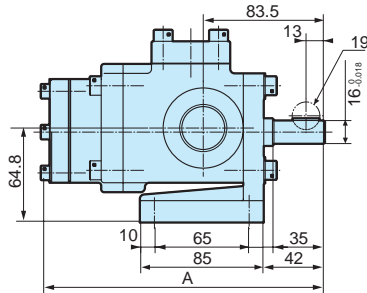
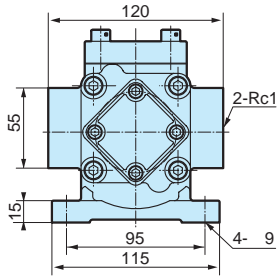


Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

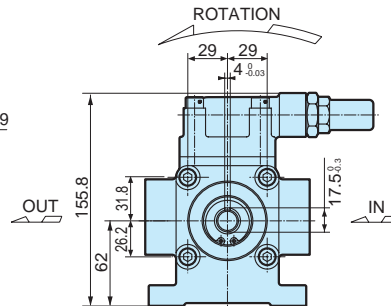
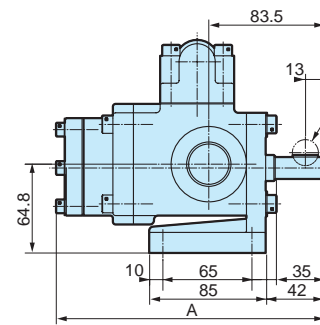
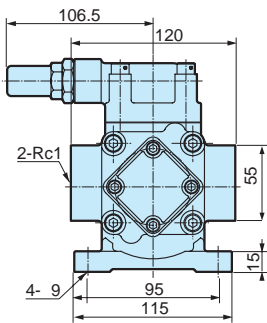
Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

Model : TOP - 2.5HGA



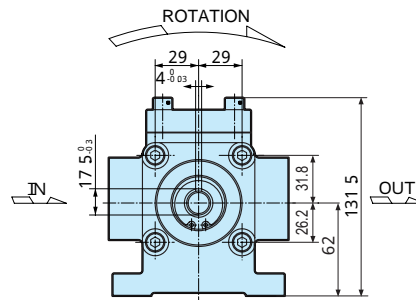
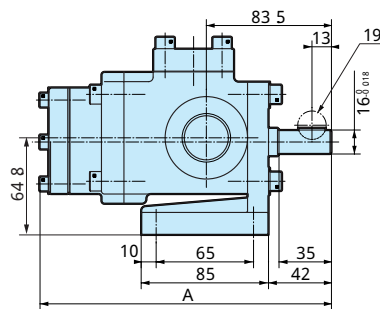
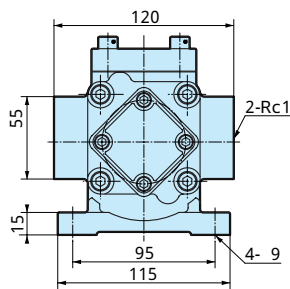
Dimensions		Item	A
Model	2516HGA		194.5
Model	2520HGA		200.5

Model : TOP - 2.5HGAVB



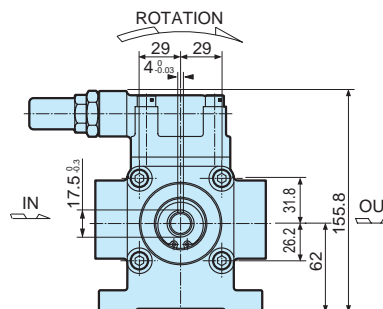
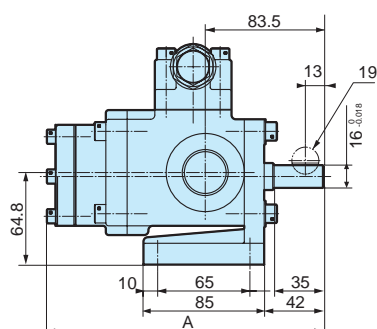
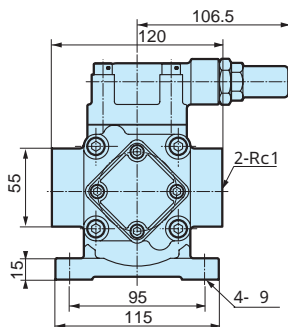
Dimensions		Item	A
Model	2516HGAVB		194.5
Model	2520HGAVB		200.5

Model : TOP - 2.5HGAR



Dimensions		Item	A
Model	2516HGAR		194.5
Model	2520HGAR		200.5

Model : TOP - 2.5HGARVB



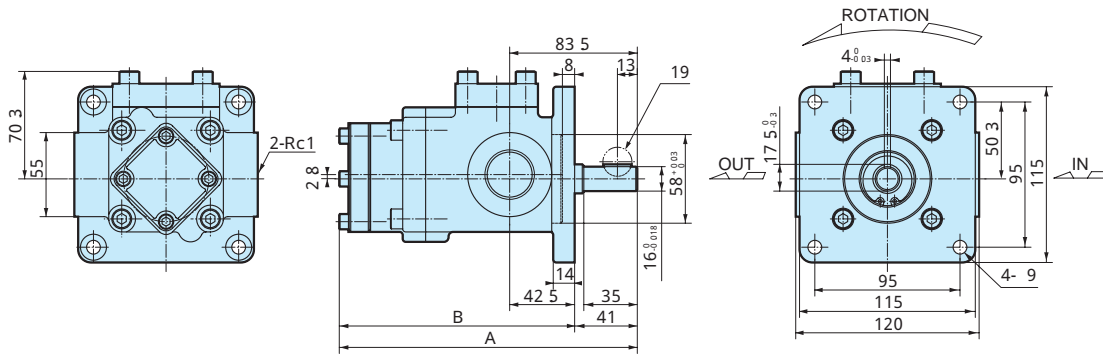
Dimensions		Item	A
Model	2516HGARVB		194.5
Model	2520HGARVB		200.5

2.5
HGA

Dimensional Diagrams

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

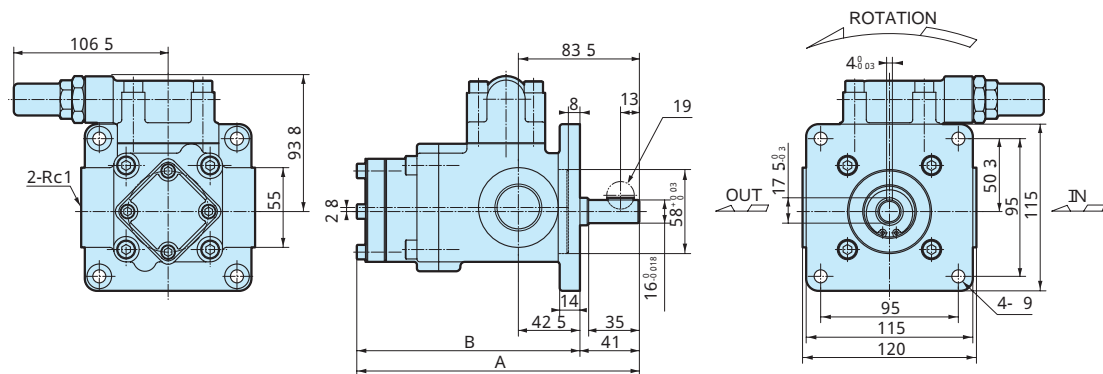
Model : TOP - 2.5HGAF



Dimensions

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

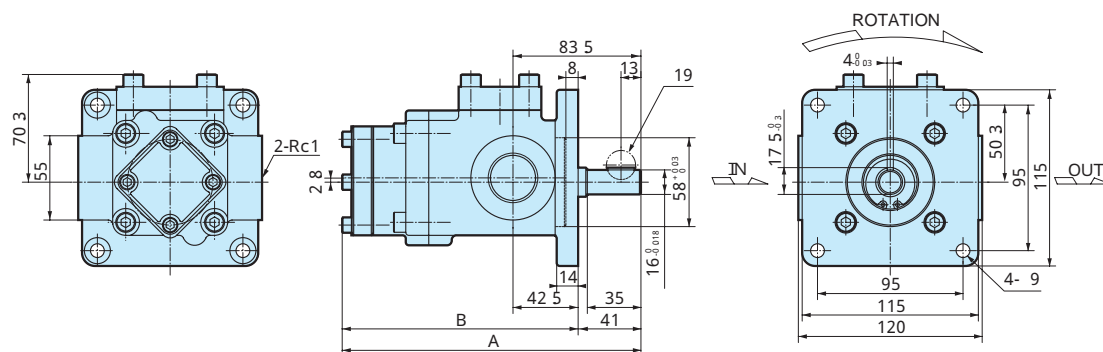
Model : TOP - 2.5HGAFVB



Dimensions

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

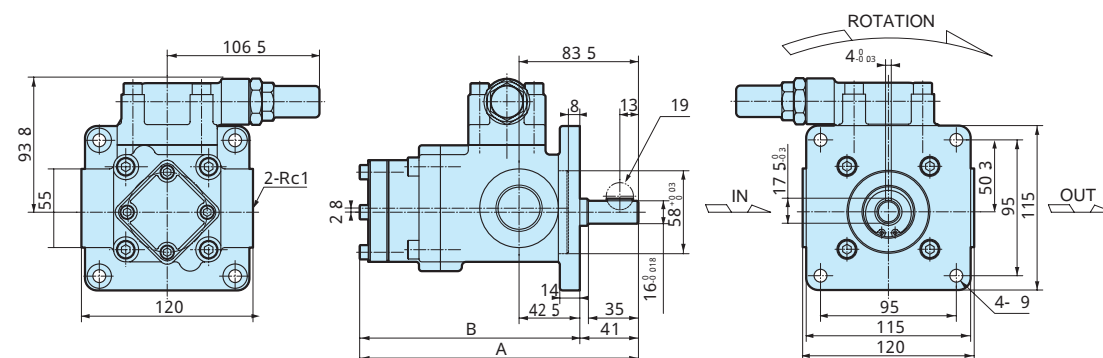
Model : TOP - 2.5HGAFR



Dimensions

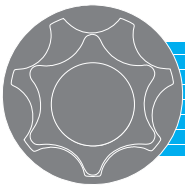
Model	Item	A	B
2516HGAFR		195	154
2520HGAFR		201	160

Model : TOP - 2.5HGAFRVB



Dimensions

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



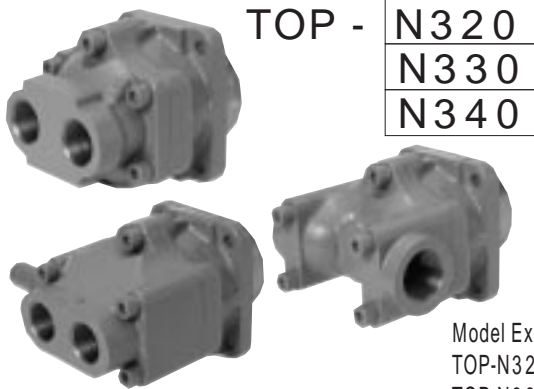
TOP-N3F

Specifications

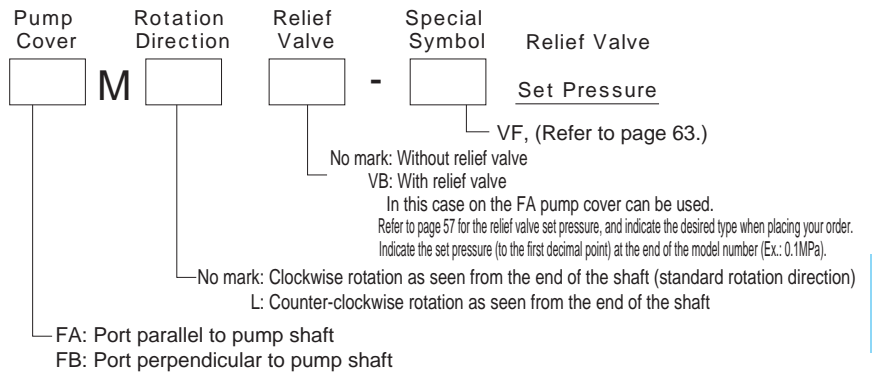
Model	Item	Theoretical Displacement cm ³ /rev	Theoretical Discharge ℓ/min		Max. Discharge Pressure MPa	Max. Revolution min ⁻¹	Approx. Weight kg
			1500min ⁻¹	1800min ⁻¹			
TOP-N320	FAM	26	39.0	46.8	2.5	1800	8.0
	FAMVB						10.5
	FBM						9.0
TOP-N330	FAM	39	58.5	70.2	2.5	1800	8.0
	FAMVB						10.5
	FBM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

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

Model



TOP - **N320**
N330
N340



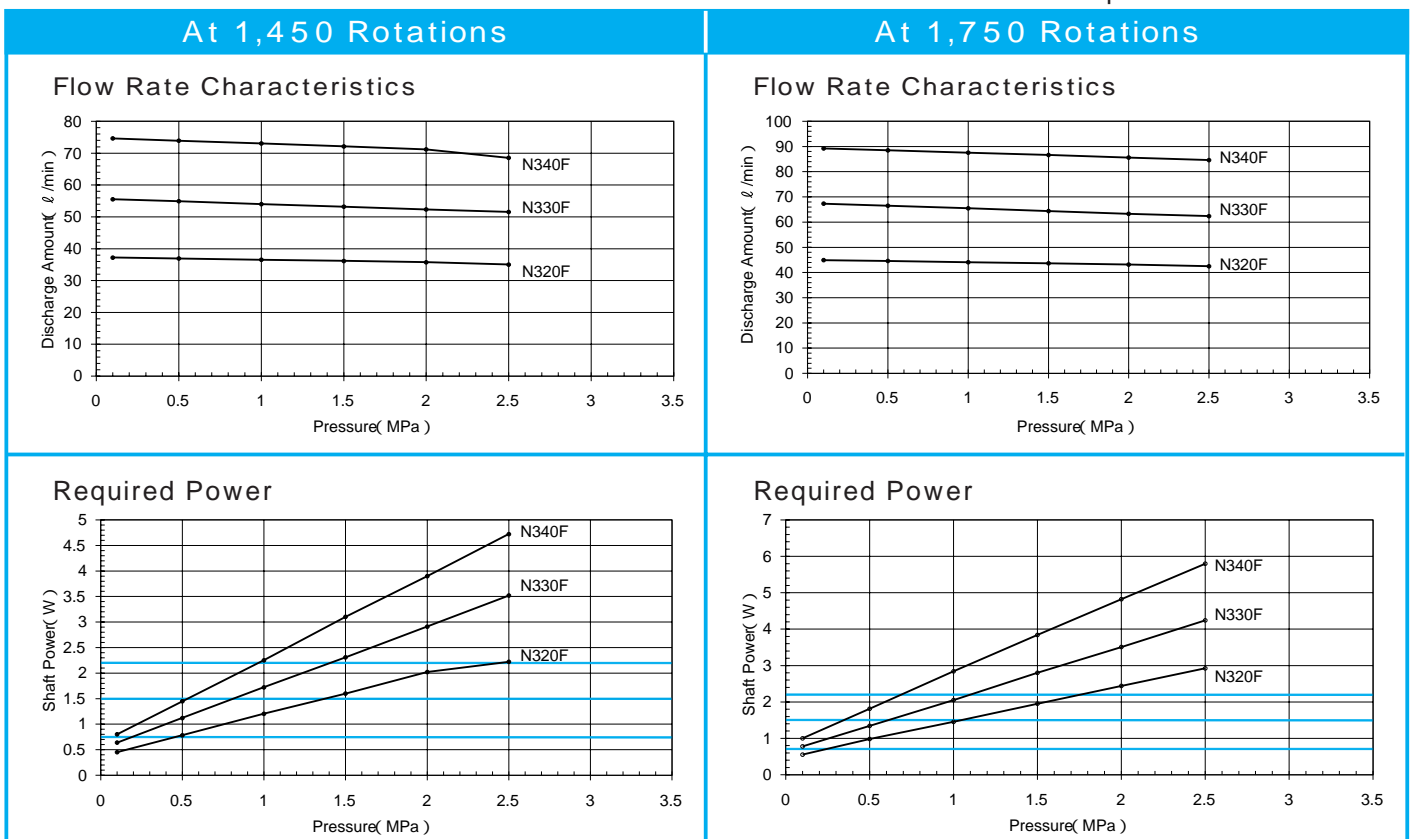
Model Examples:

TOP-N320FAMLVB (port parallel to pump shaft, with relief valve)

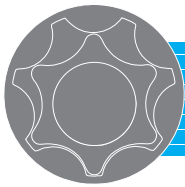
TOP-N330FBML (port perpendicular to pump shaft, counter-clockwise rotation as seen from end of shaft)

Performance Table

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



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

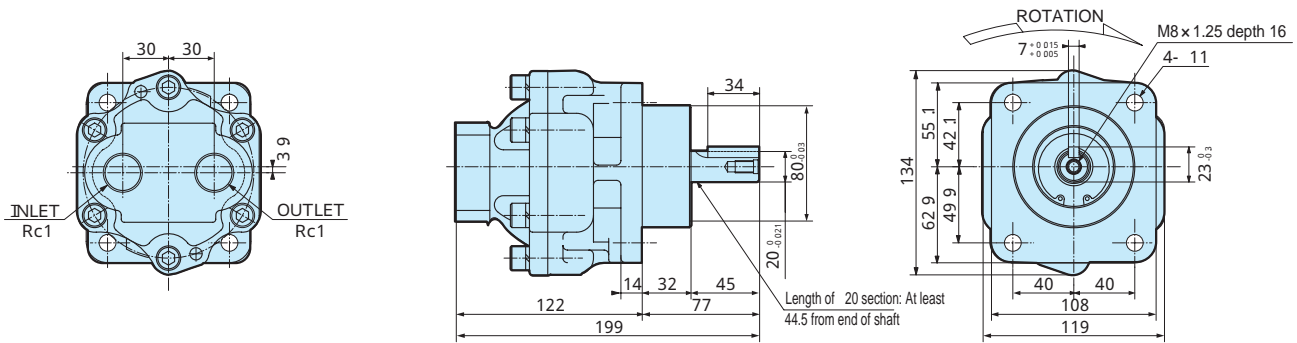


TOP-N3F

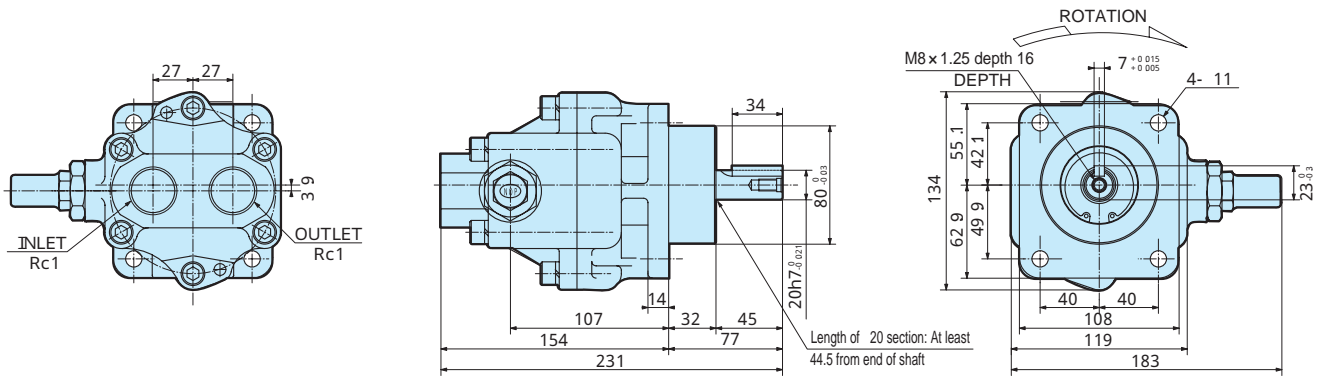
Dimensional Diagrams

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

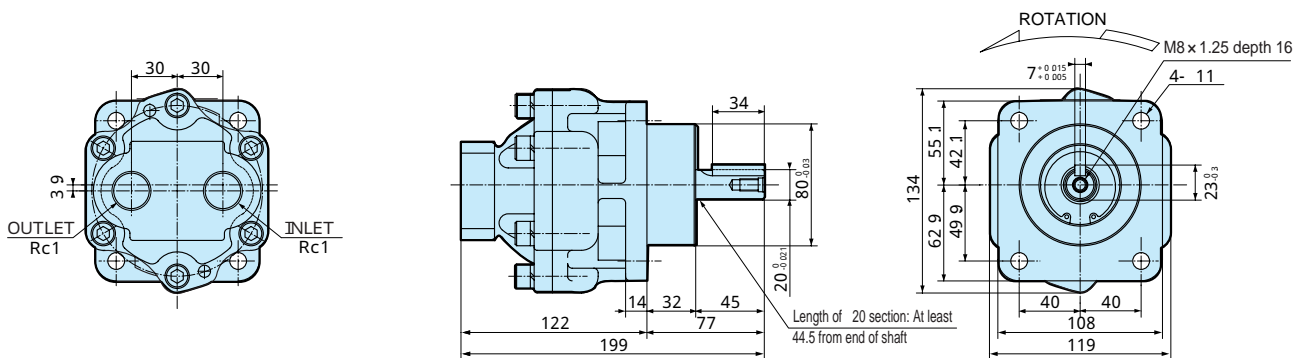
Model : TOP - N3FAM



Model : TOP - N3FAMVB



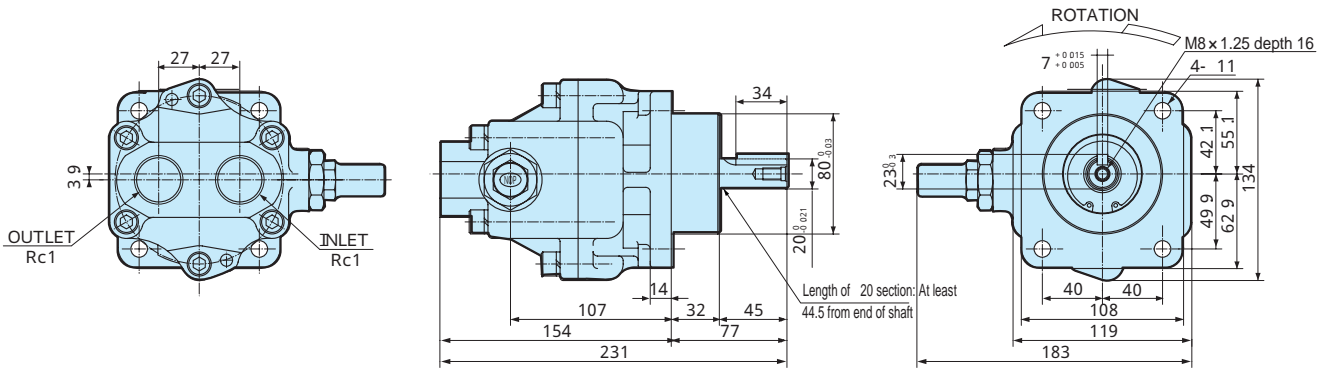
Model : TOP - N3FAML



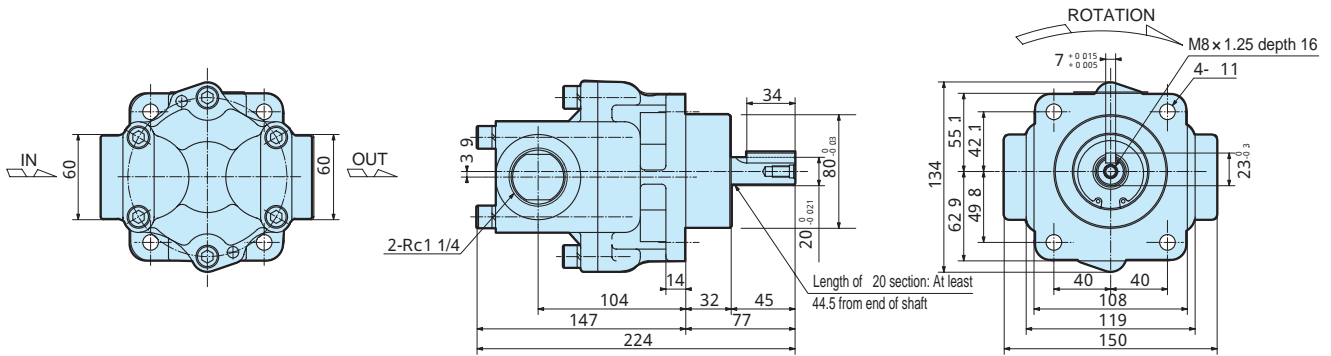
Dimensional Diagrams

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

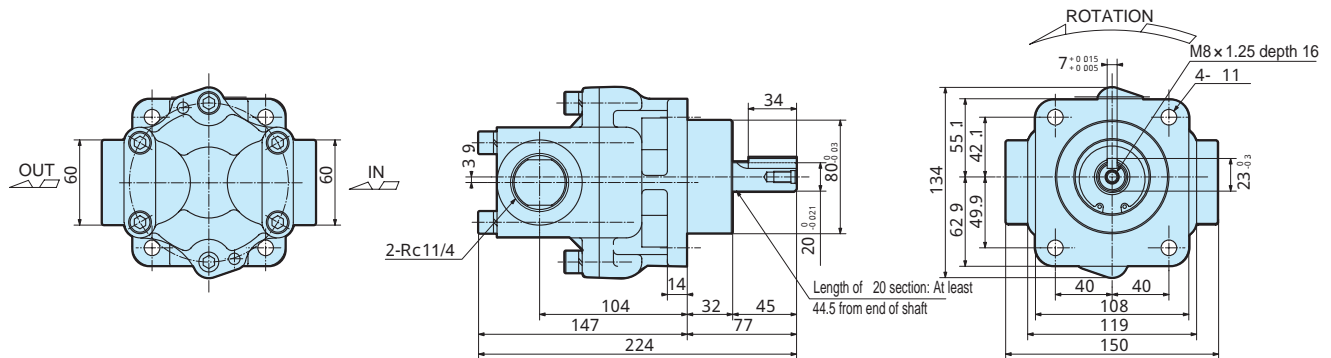
Model : TOP - N3FAMLVB

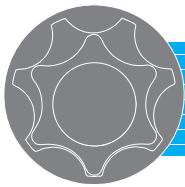


Model : TOP - N3FBM



Model : TOP - N3FBML





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	39	0.4	1.3	2.1	46.8	0.2	1.0	1.7
	FA VB								
	FB								
TOP-N330	FA	58.5	0.1	0.8	1.3	70.2		0.6	1.0
	FA VB								
	FB								
TOP-N340	FA	78		0.5	0.9	93.6		0.3	0.6
	FA VB								
	FB								

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

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	50	1440	3.6	14
			200	60	1720	3.3	
			220	60	1740	3.2	
1500	4	Continuous	200	50	1440	6.8	24
			200	60	1720	6.2	
			220	60	1730	6.0	
2200	4	Continuous	200	50	1420	9.0	30
			200	60	1710	8.5	
			220	60	1730	7.9	

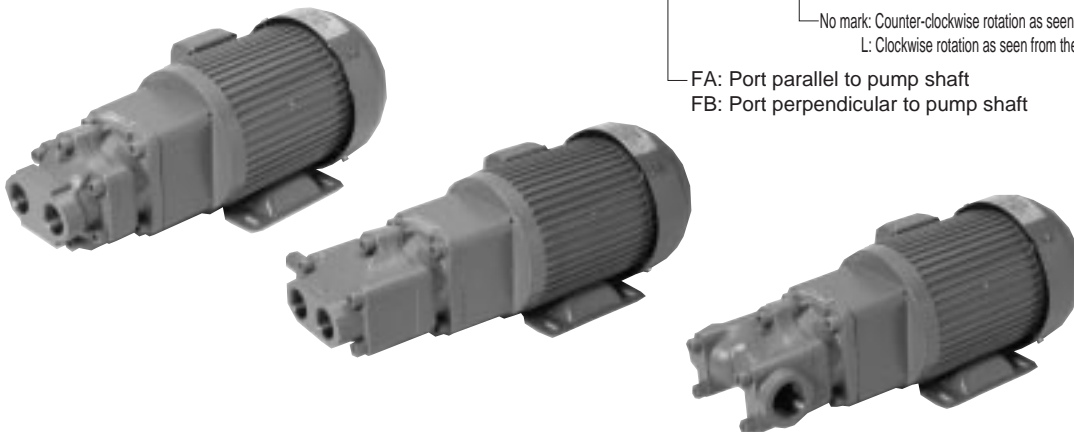
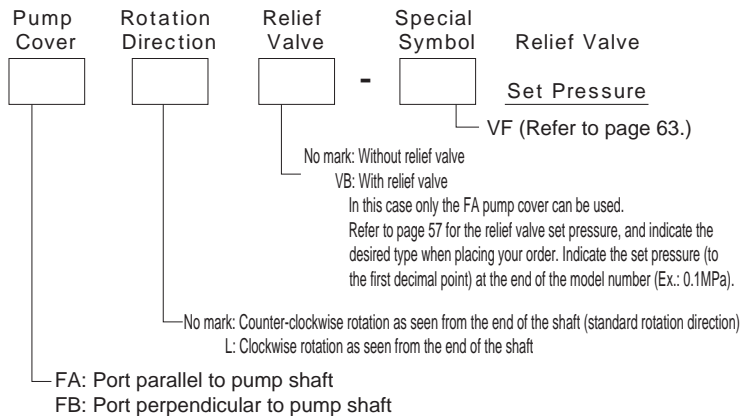
Model

TOP - 3MF

Motor Output
750
1500
2200

 -

N320
N330
N340



Model Examples:

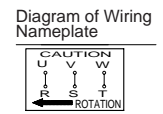
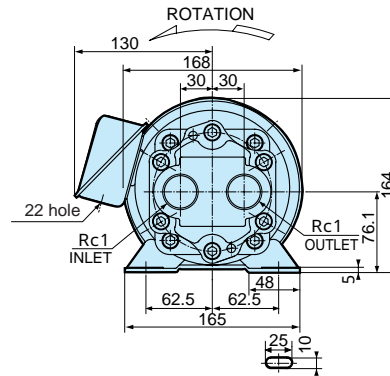
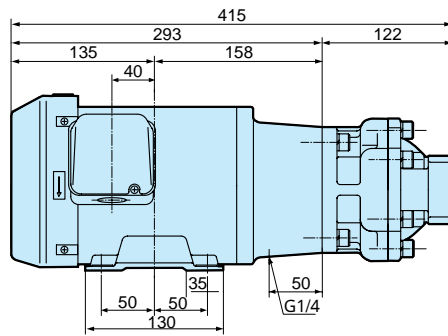
TOP-3MF1500-N320FAVB (1,500W, port parallel to pump shaft, with relief valve)

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

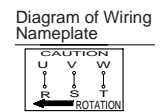
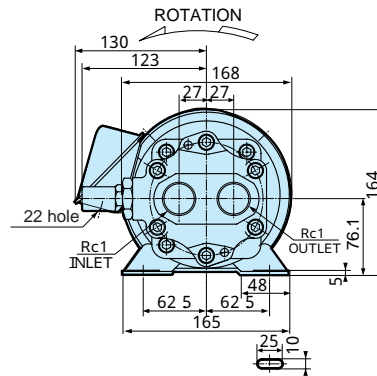
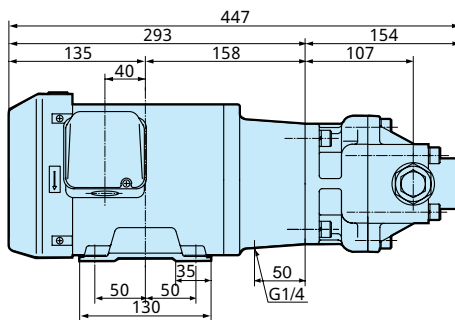
Dimensional Diagrams

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

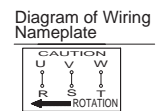
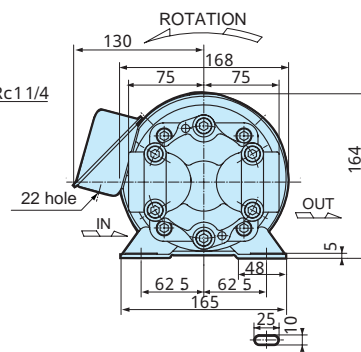
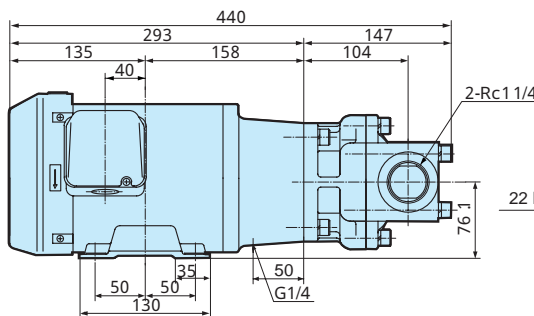
Model : TOP - 3MF750-N3FA

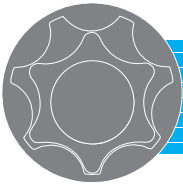


Model : TOP - 3MF750-N3FAVB



Model : TOP - 3MF750-N3FB



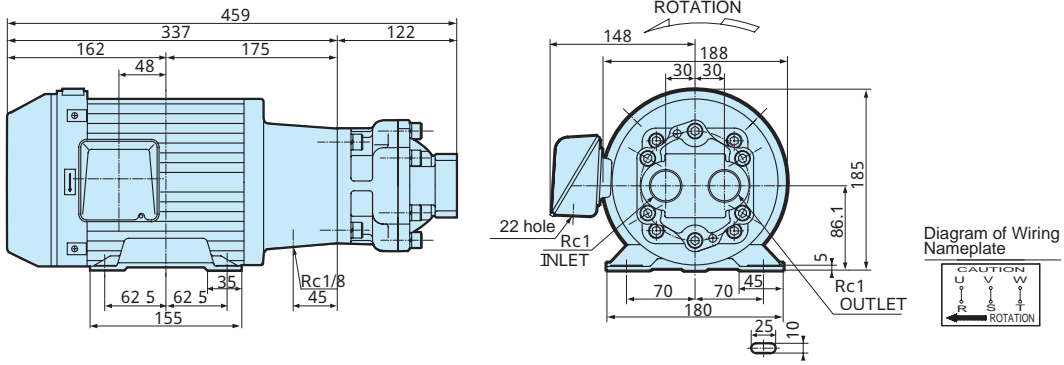


TOP-3MF

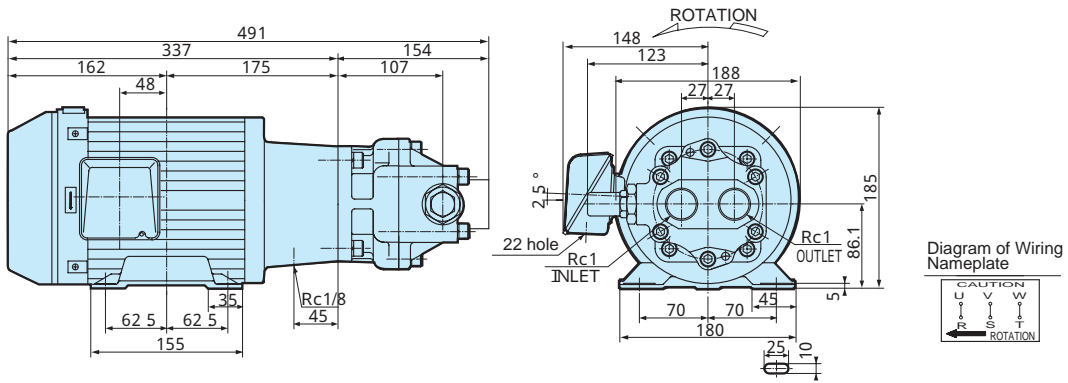
Dimensional Diagrams

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

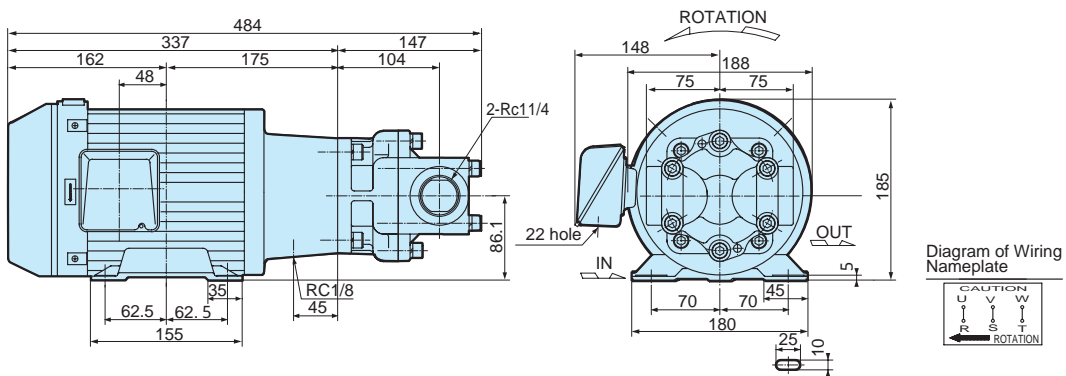
Model : TOP - 3MF1500-N3FA



Model : TOP - 3MF1500-N3FVB



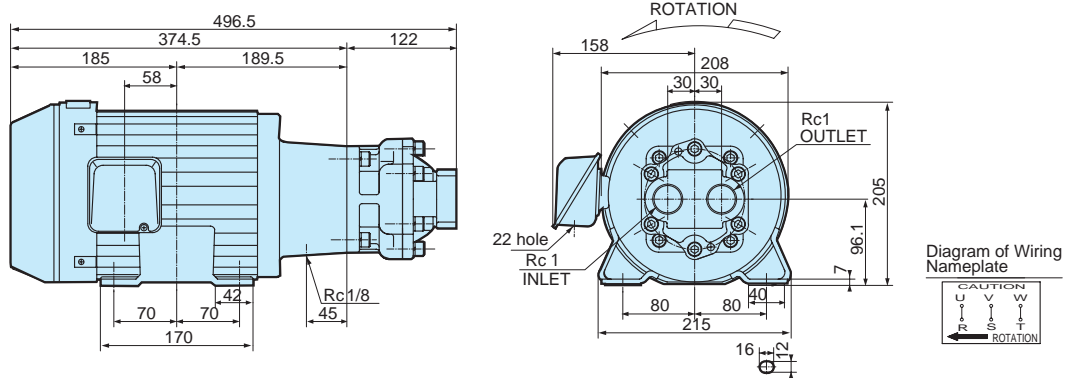
Model : TOP - 3MF1500-N3FB



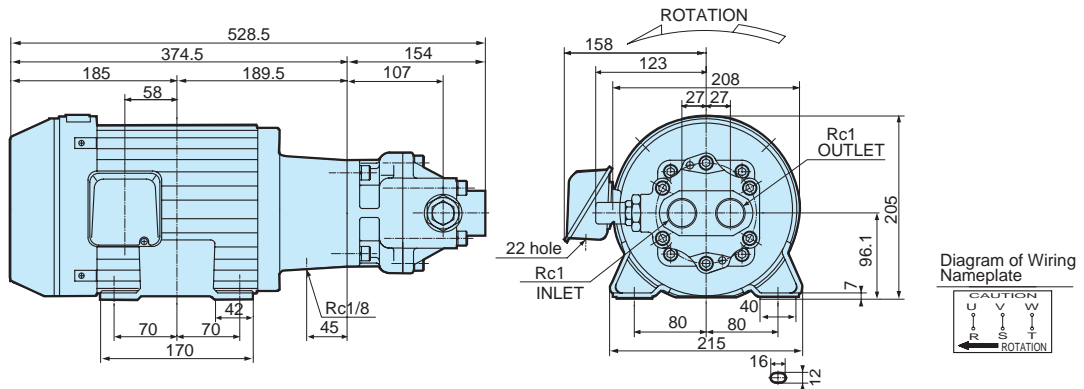
Dimensional Diagrams

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

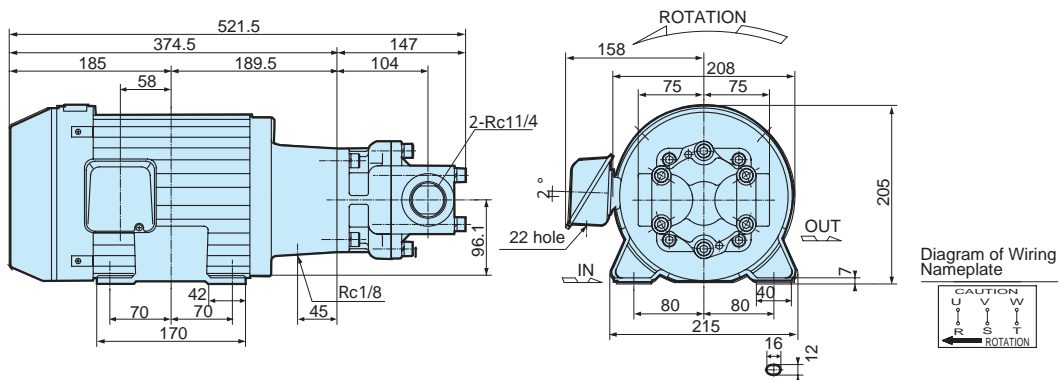
Model : TOP - 3MF2200-N3FA

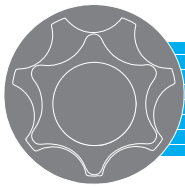


Model : TOP - 3MF2200-N3FAVB



Model : TOP - 3MF2200-N3FB





TOP-N3H

Specifications

Model	Item	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-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 °C.

The approximate weight values shown in the brackets () are for when a relief valve is attached.

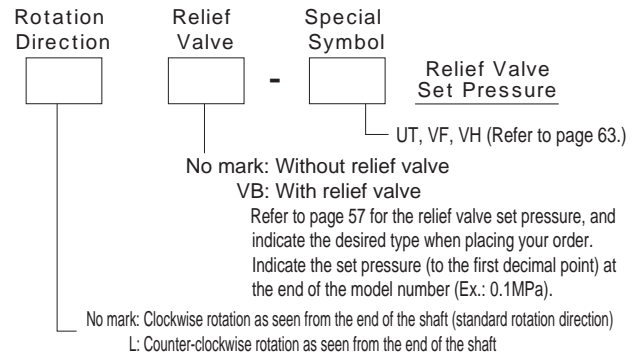
*Please consult with your Nippon Oil Pump representative before using the specifications marked with " ".

Model



TOP -

N320H
N330H
N340H
N350H



Model Examples:

TOP-N320HVB (with relief valve)

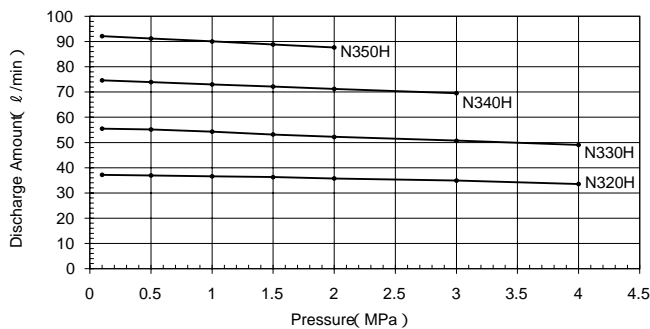
TOP-N330HL (counter-clockwise rotation as seen from end of shaft)

Performance Table

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

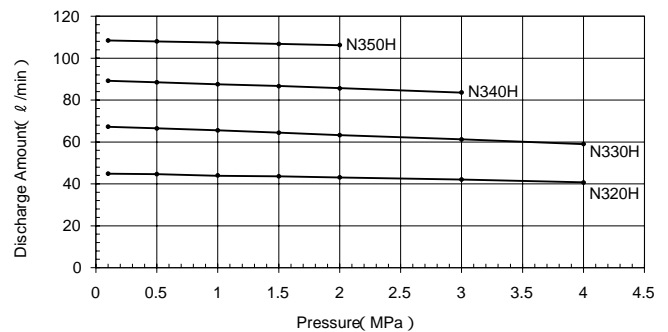
At 1,450 Rotations

Flow Rate Characteristics

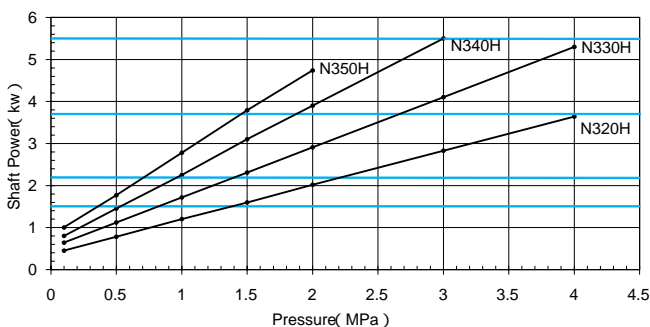


At 1,750 Rotations

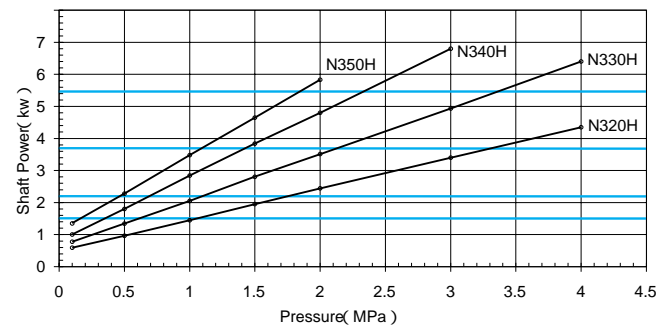
Flow Rate Characteristics



Required Power



Required Power

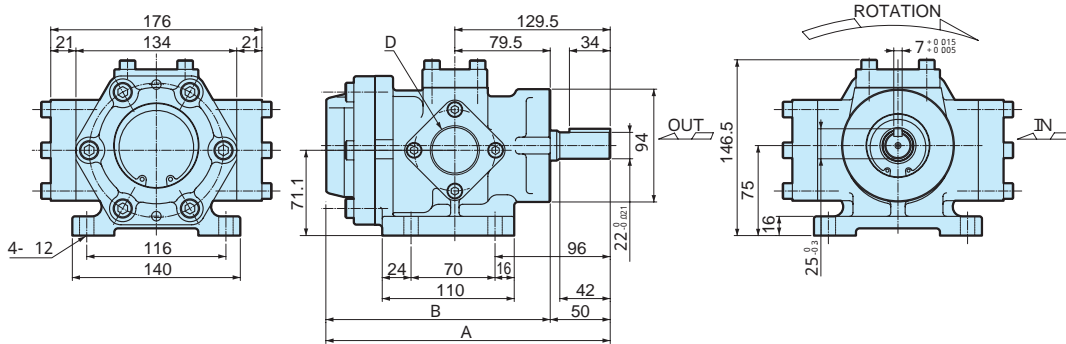


Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

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

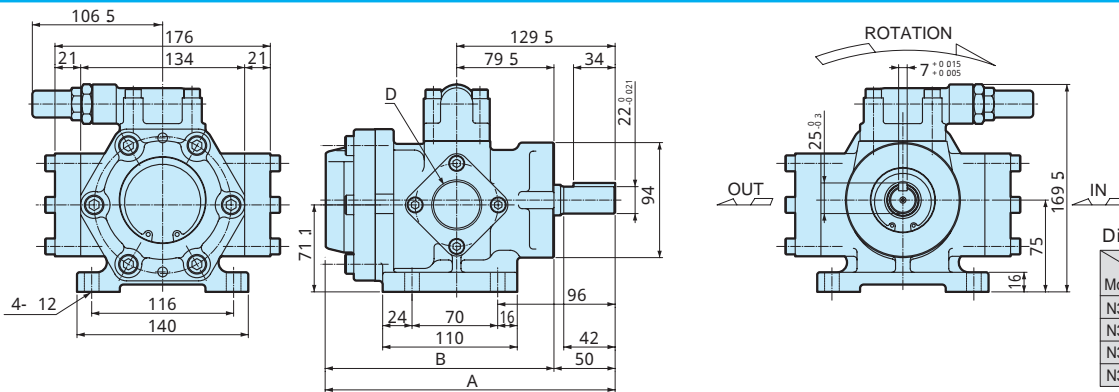
Model : TOP - N3H



Dimensions

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

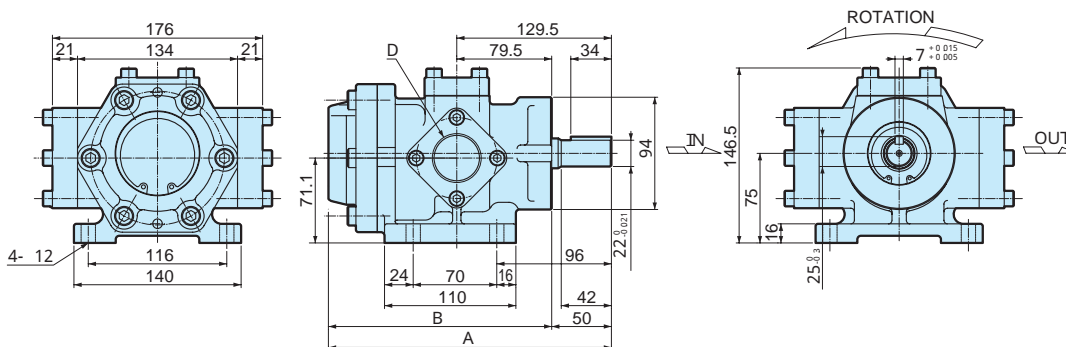
Model : TOP - N3HVB



Dimensions

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

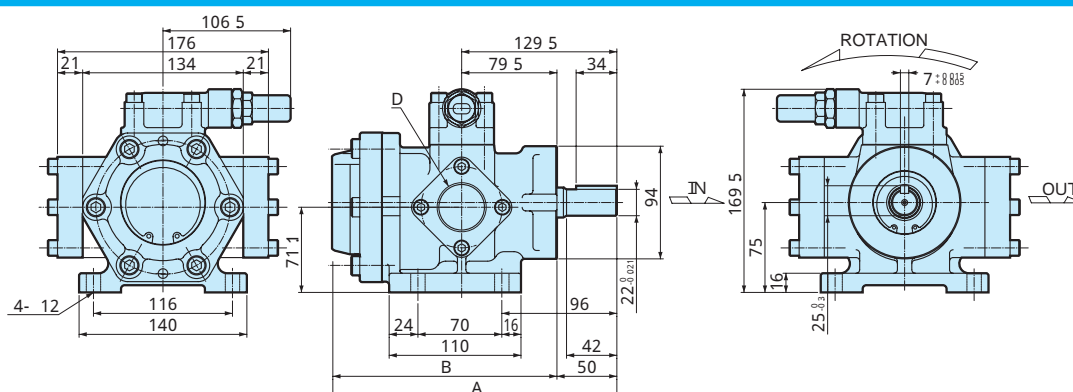
Model : TOP - N3HL



Dimensions

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

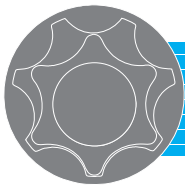
Model : TOP - N3HLVB



Dimensions

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

N3H



TOP-3MBY

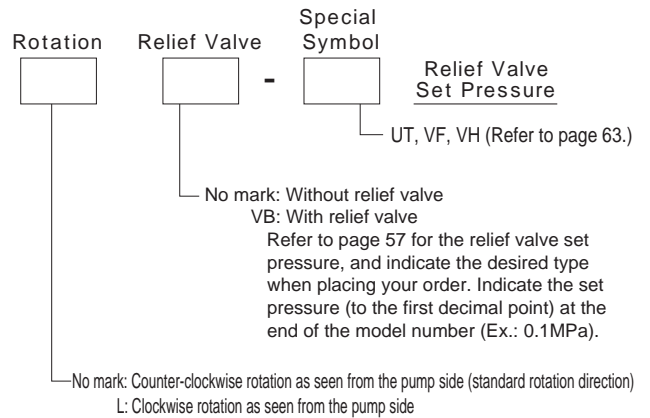
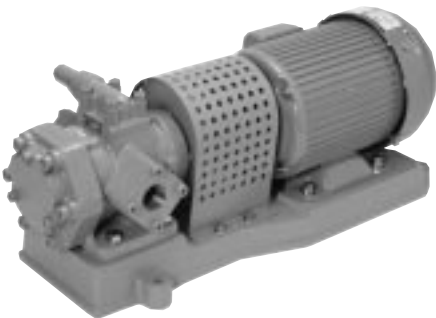
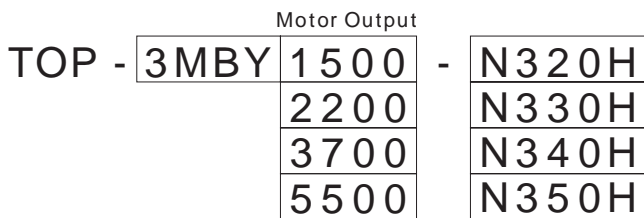
Specifications

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)			
			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 °C.

*Please consult with your Nippon Oil Pump representative before using the specifications marked with " " .

Model



* 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:

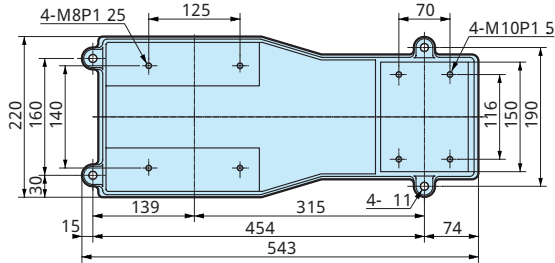
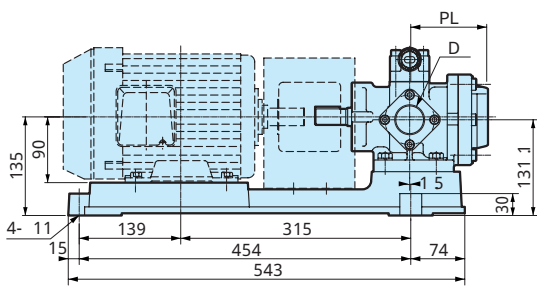
TOP-3MBY1500-N320HVB (1,500W, with relief valve)

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.

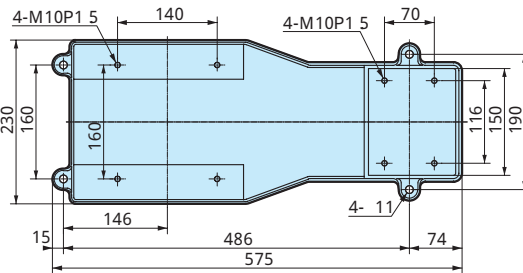
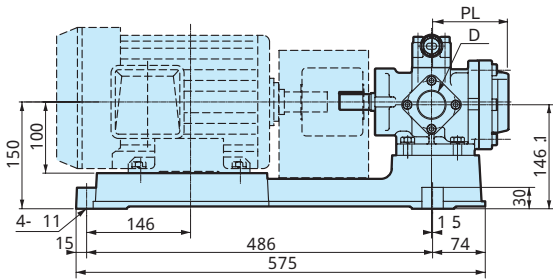
Model : TOP - 3MBY1500-N3HVB



Dimensions

Model	Item	PL	D (port diameter)	
			In	Out
N320HVB		107.5	Rc1	Rc1
N330HVB		107.5	Rc1 ^{1/4}	
N340HVB		107.5		
N350HVB		117.5		

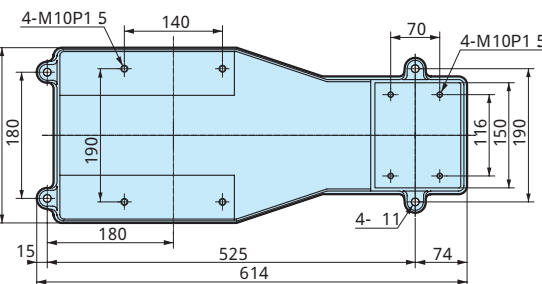
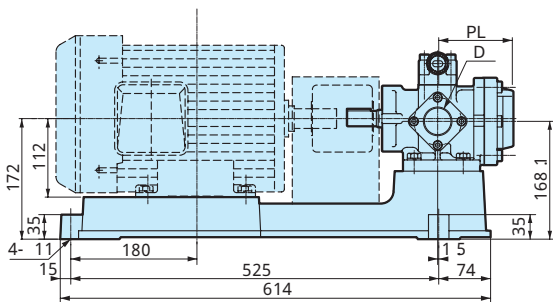
Model : TOP - 3MBY2200-N3HVB



Dimensions

Model	Item	PL	D (port diameter)	
			In	Out
N320HVB		107.5	Rc1	Rc1
N330HVB		107.5	Rc1 ^{1/4}	
N340HVB		107.5		
N350HVB		117.5		

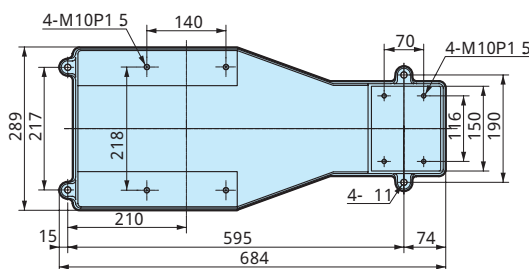
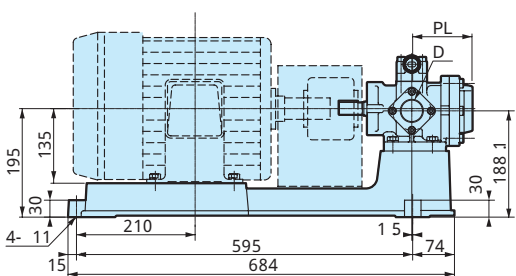
Model : TOP - 3MBY3700-N3HVB



Dimensions

Model	Item	PL	D (port diameter)	
			In	Out
N320HVB		107.5	Rc1	Rc1
N330HVB		107.5	Rc1 ^{1/4}	
N340HVB		107.5		
N350HVB		117.5		

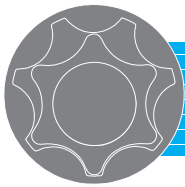
Model : TOP - 3MBY5500-N3HVB



Dimensions

Model	Item	PL	D (port diameter)	
			In	Out
N320HVB		107.5	Rc1	Rc1
N330HVB		107.5	Rc1 ^{1/4}	
N340HVB		107.5		
N350HVB		117.5		

N3H



TOP-3V

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

Specifications

Model	Item	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-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)

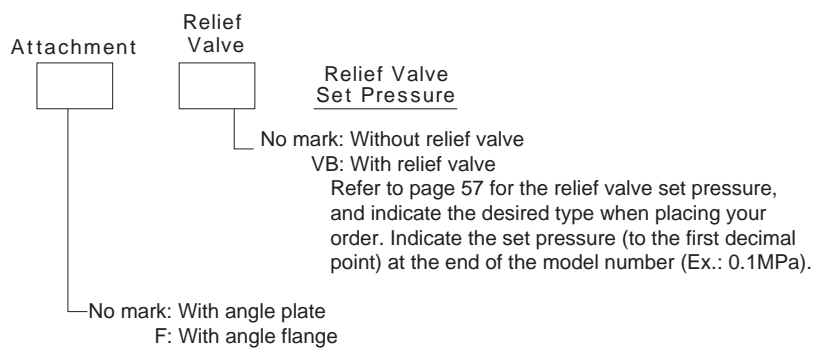
The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 °C.
The approximate weight values shown in the brackets () are for when a relief valve is attached.

Model



TOP -

330V
340V
350V



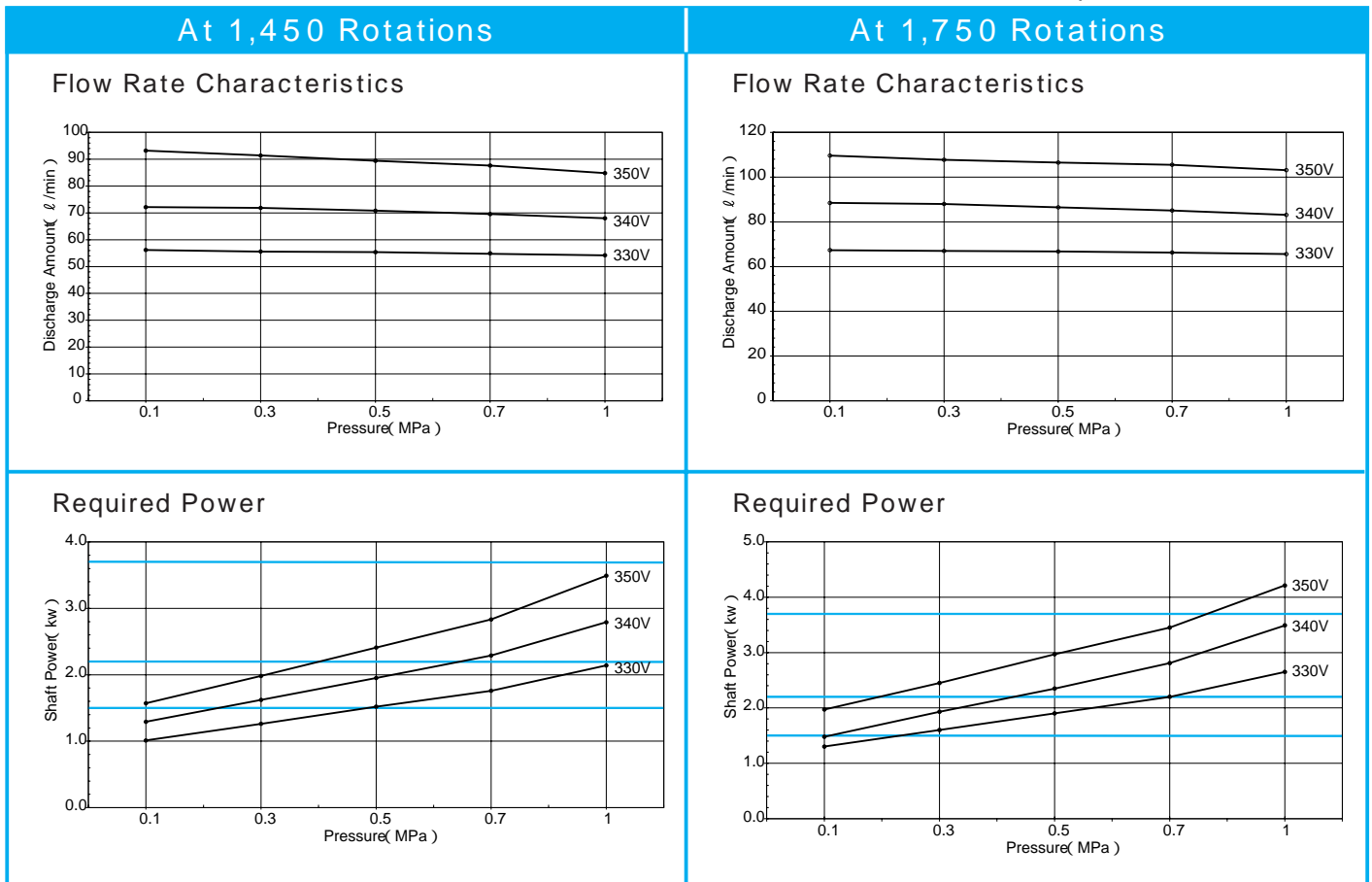
Model Examples:

TOP-N330VVB (with angle plate and relief valve)

TOP-N330VFB (with angle flange and relief valve)

Performance Table

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

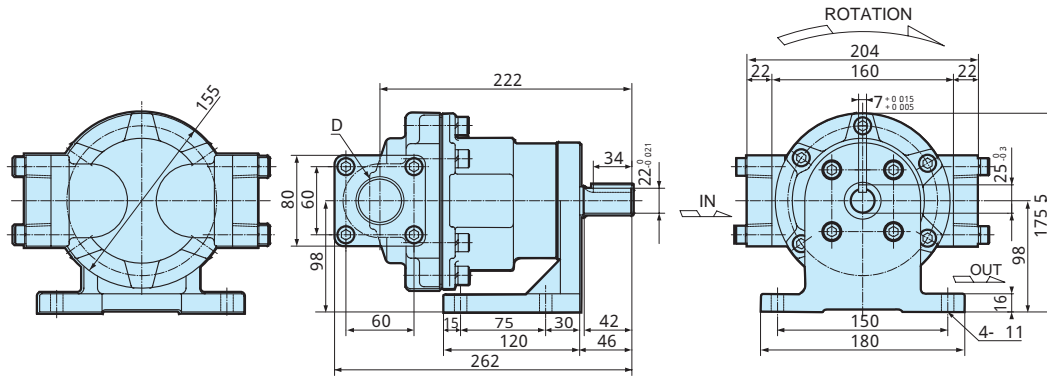


Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

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

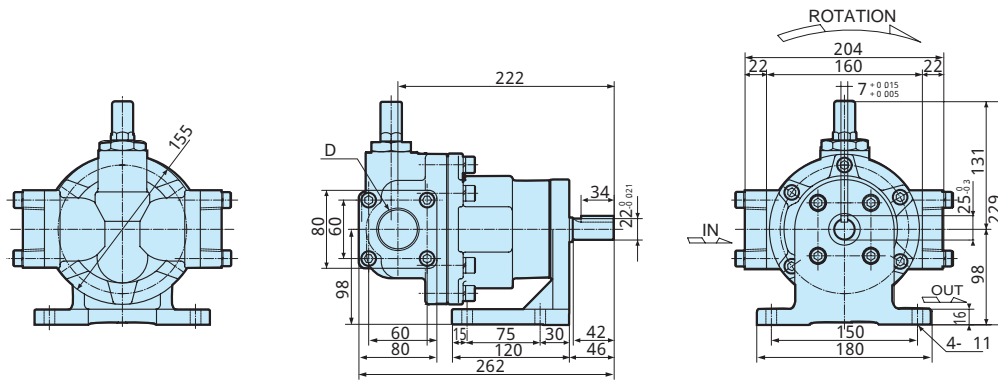
Model : TOP - 3V



Dimensions

Model	D (port diameter)	
	In	Out
330V	Rc1 ¹ / ₄	
340V	Rc1 ¹ / ₂	Rc1 ¹ / ₄
350V	Rc1 ¹ / ₂	

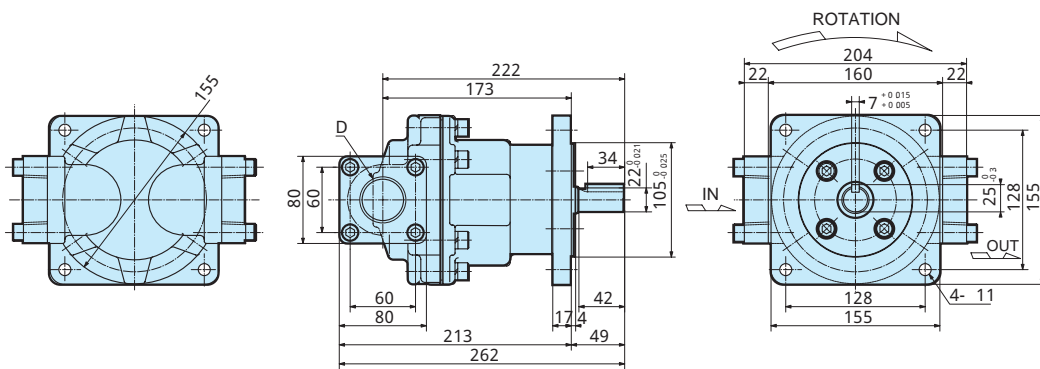
Model : TOP - 3VVB



Dimensions

Model	D (port diameter)	
	In	Out
330VVB	Rc1 ¹ / ₄	
340VVB	Rc1 ¹ / ₂	Rc1 ¹ / ₄
350VVB	Rc1 ¹ / ₂	

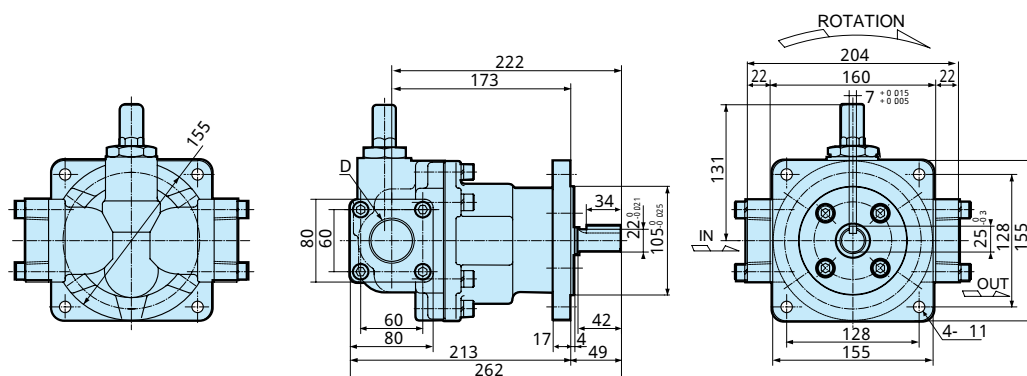
Model : TOP - 3VF



Dimensions

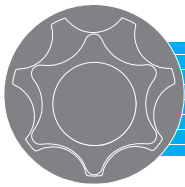
Model	D (port diameter)	
	In	Out
330VF	Rc1 ¹ / ₄	
340VF	Rc1 ¹ / ₂	Rc1 ¹ / ₄
350VF	Rc1 ¹ / ₂	

Model : TOP - 3VFB



Dimensions

Model	D (port diameter)	
	In	Out
330VFB	Rc1 ¹ / ₄	
340VFB	Rc1 ¹ / ₂	Rc1 ¹ / ₄
350VFB	Rc1 ¹ / ₂	



TOP-4AM

Specifications

Model	Item	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

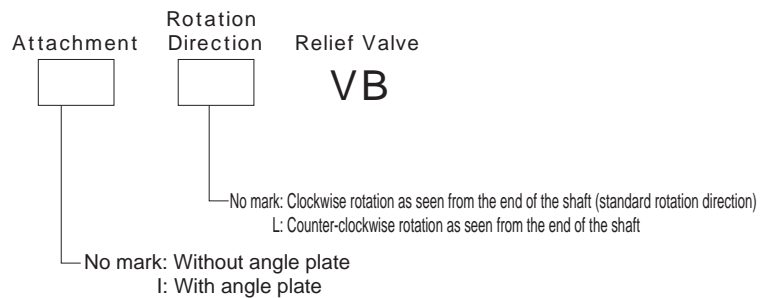
The above maximum discharge and maximum revolution values are for when using ISO-VG46 oil with an oil temperature of 40 °C.

Model



TOP -

4100AM
4130AM



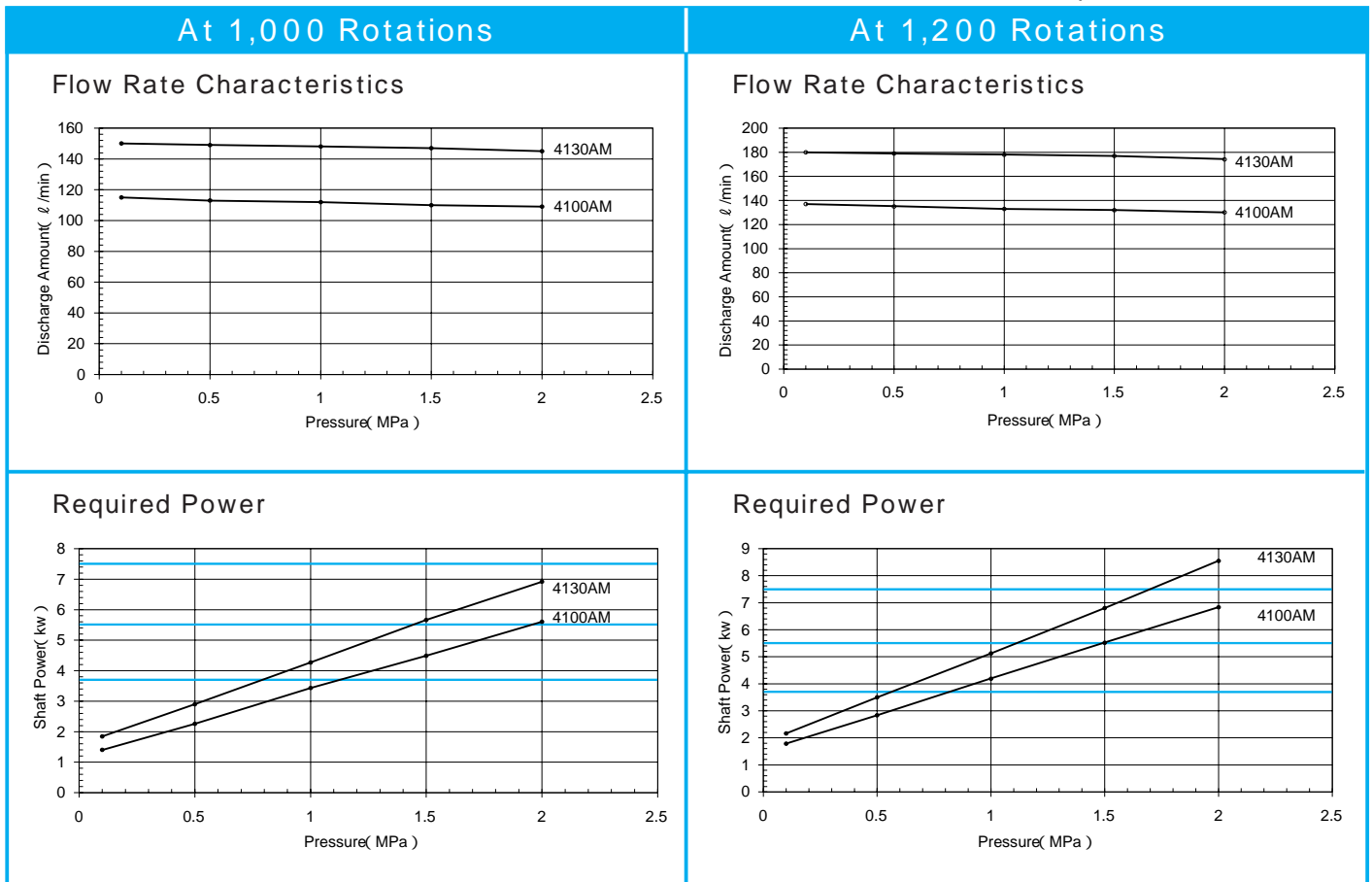
Model Examples:

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 °C

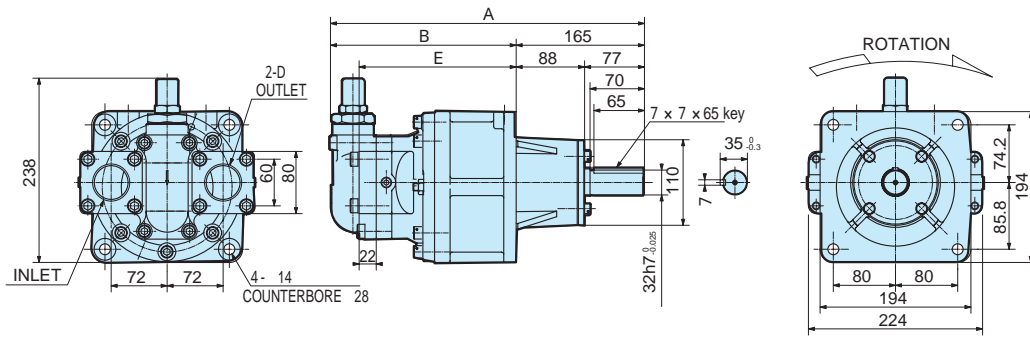


Select the best motor using the lines in the "Required Power" table as the applicable standards.

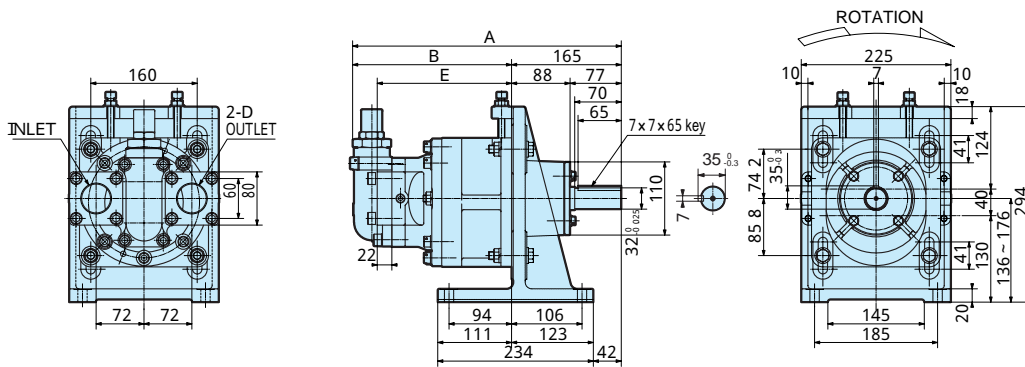
Dimensional Diagrams

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

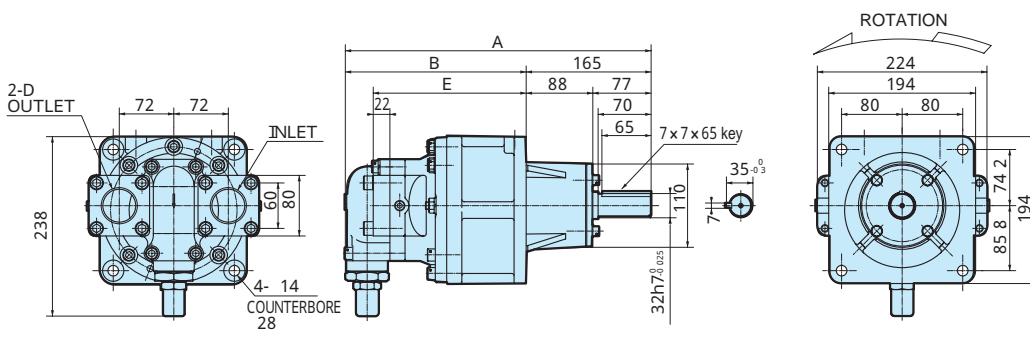
Model : TOP - 4AMVB



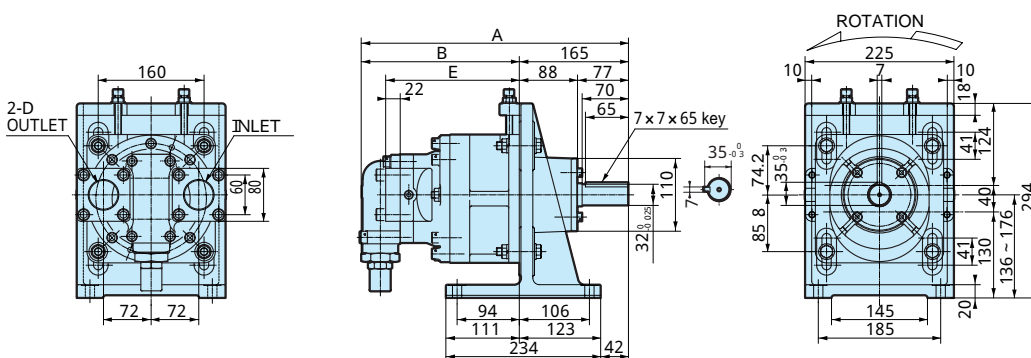
Model : TOP - 4AMIVB

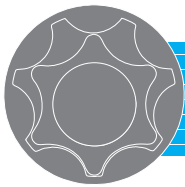


Model : TOP - 4AMLVB



Model : TOP - 4AMILVB





TOP-4MBY

Specifications

Model	Item	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 °C.
No. of motor poles: 6

Model

TOP - 4MBY

3700
5500
7500

 - 6 -

4100AM
4130AM

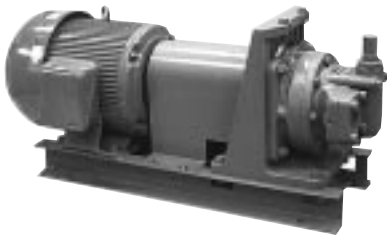
 I

Rotation Direction

--

 Relief Valve VB

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:

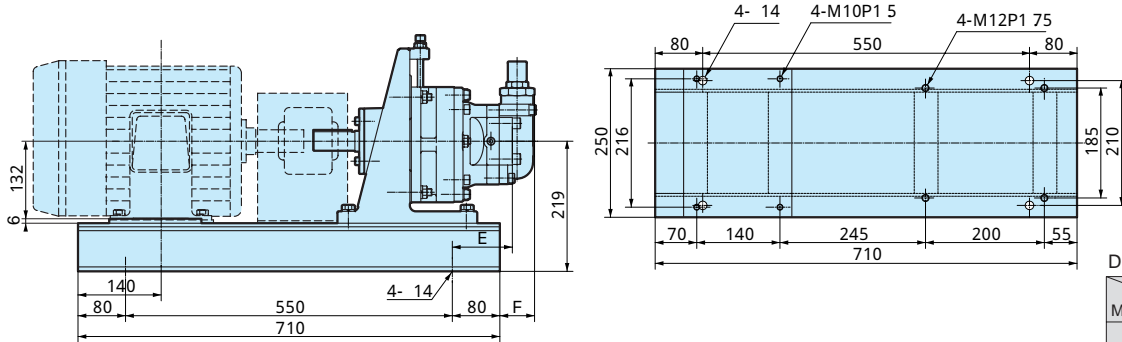
TOP-4MBY3700-6-4100AMIVB (3,700W, with angle plate and relief valve)

TOP-4MBY5500-6-4130AMILVB (5,500W, with angle plate and relief valve, clockwise rotation as seen from the pump side)

Dimensional Diagrams

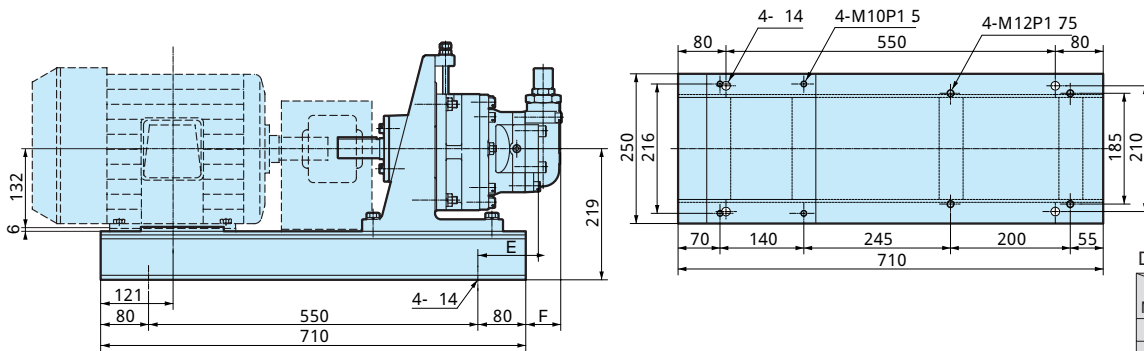
Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

Model : TOP - 4MBY3700 - 6 - 4AMVB



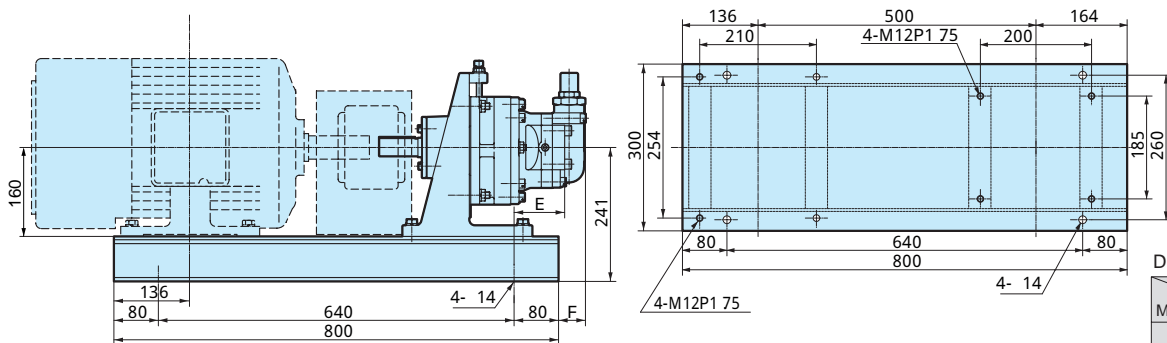
Dimensions		Item	E	F
Model	Item	E	F	
4100AMIVB		84	40	
4130AMIVB		94	50	

Model : TOP - 4MBY5500 - 6 - 4AMVB

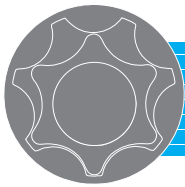


Dimensions		Item	E	F
Model	Item	E	F	
4100AMIVB		84	40	
4130AMIVB		94	50	

Model : TOP - 4MBY7500 - 6 - 4AMVB



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



TOP-4A

Specifications

Model	Item	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 °C.

Model



TOP - 4300A
4500A

Rotation Direction



Relief Valve

VB

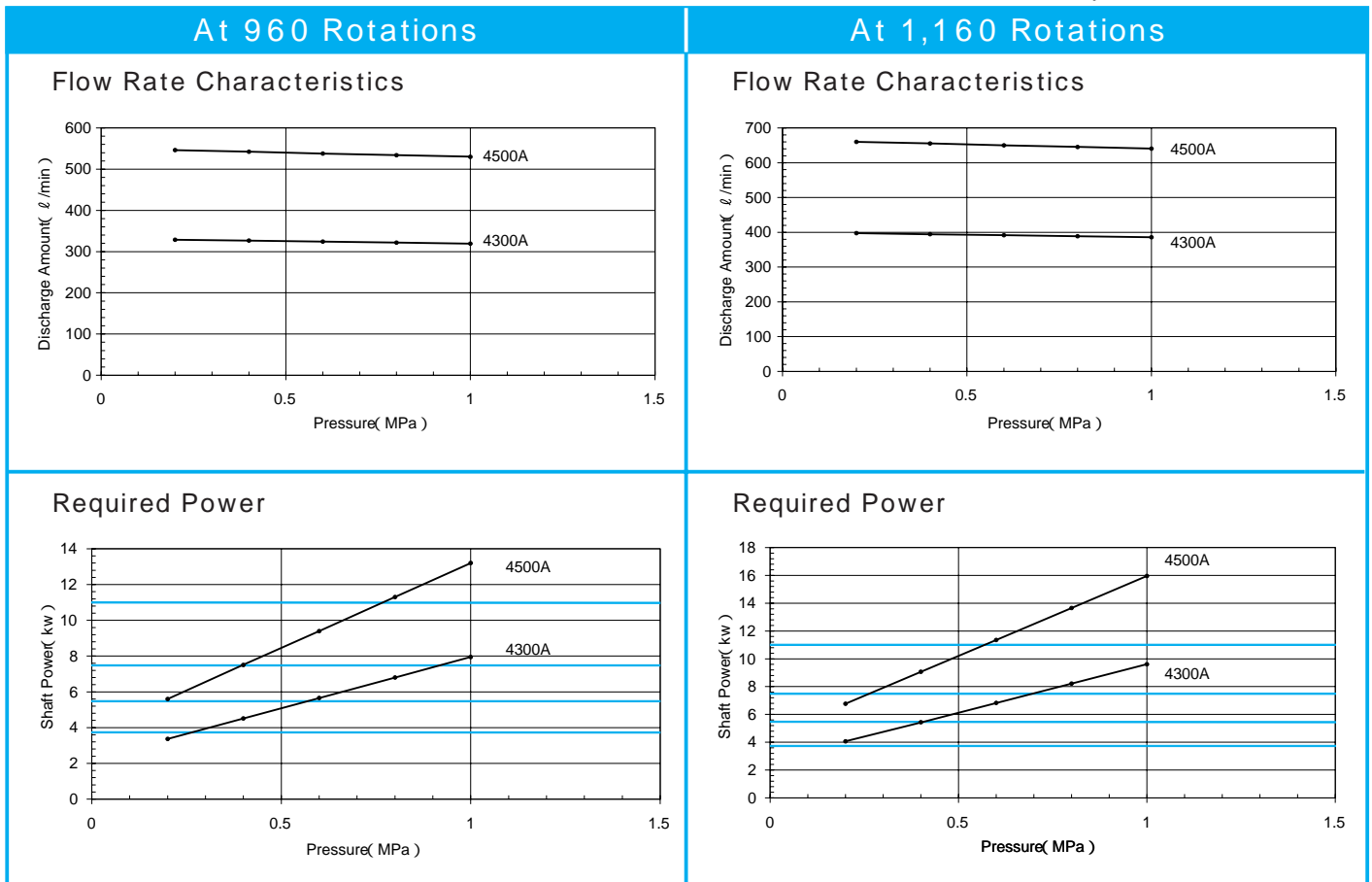
No mark: Clockwise rotation as seen from the end of the shaft (standard rotation direction)
 L: Counter-clockwise rotation as seen from the end of the shaft

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 °C

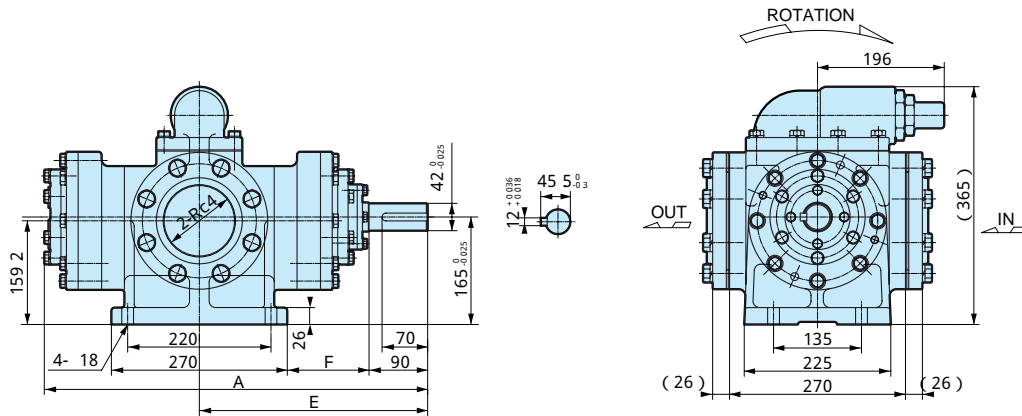


Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

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

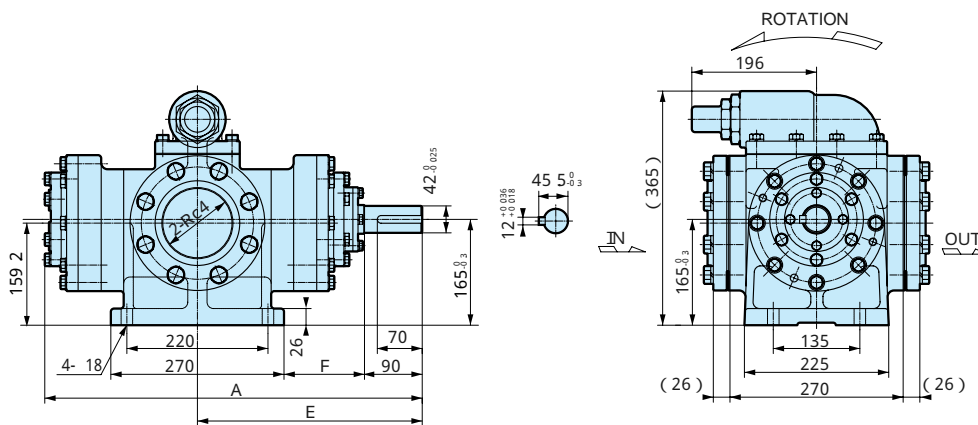
Model : TOP - 4AVB



Dimensions

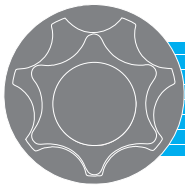
Model	Item	A	E	F
4300AVB		518.5	315.5	90.5
4500AVB		588.5	350.5	125.5

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

Model	Item	Theoretical Displacement cm ³ /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 °C.

*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

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

I : With angle plate
F: Without angle plate

Model Examples:

GPL-150IVB (with angle plate)

GPL-150FLVB (without angle plate, counter-clockwise rotation seen from end of shaft)

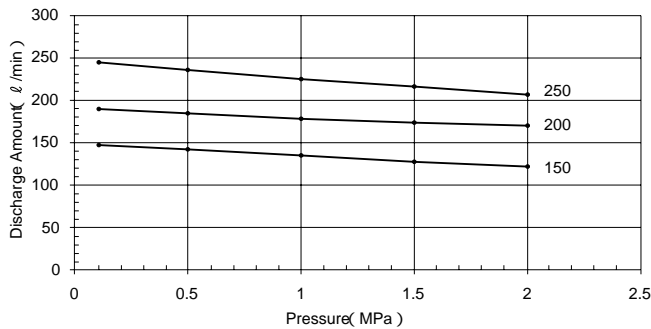
Performance Table

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

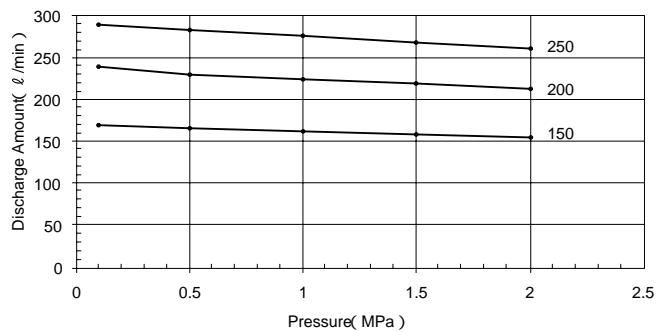
At 960 Rotations

At 1,160 Rotations

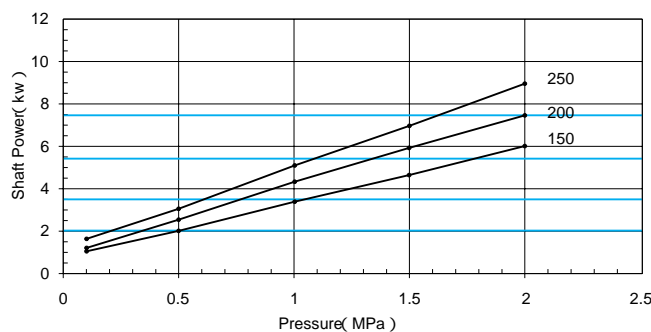
Flow Rate Characteristics



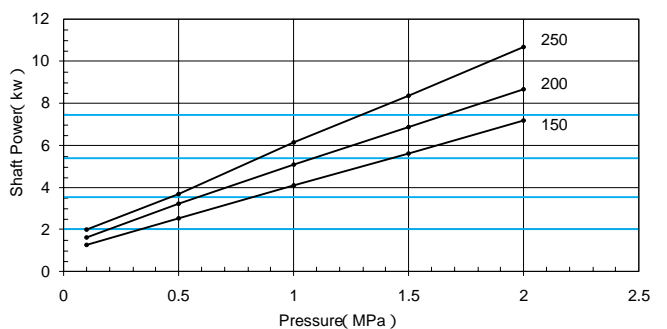
Flow Rate Characteristics



Required Power



Required Power

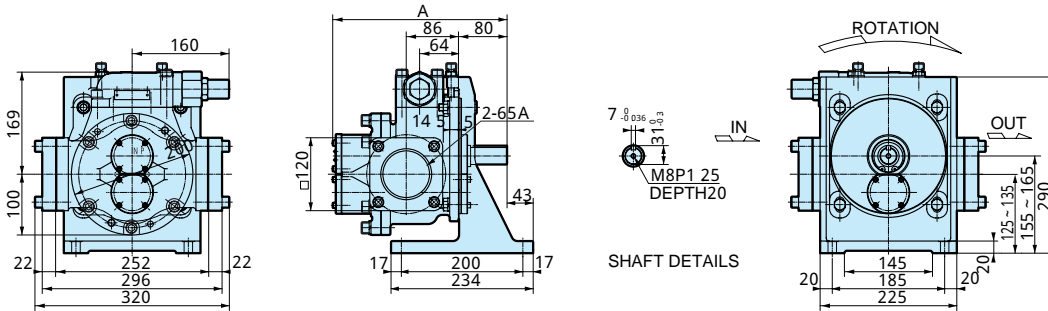


Select the best motor using the lines in the "Required Power" table as the applicable standards.

Dimensional Diagrams

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

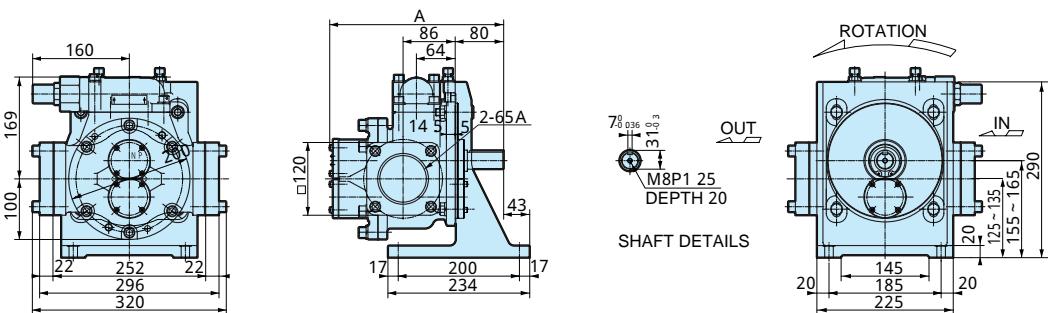
Model : GPL - IVB



Dimensions

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

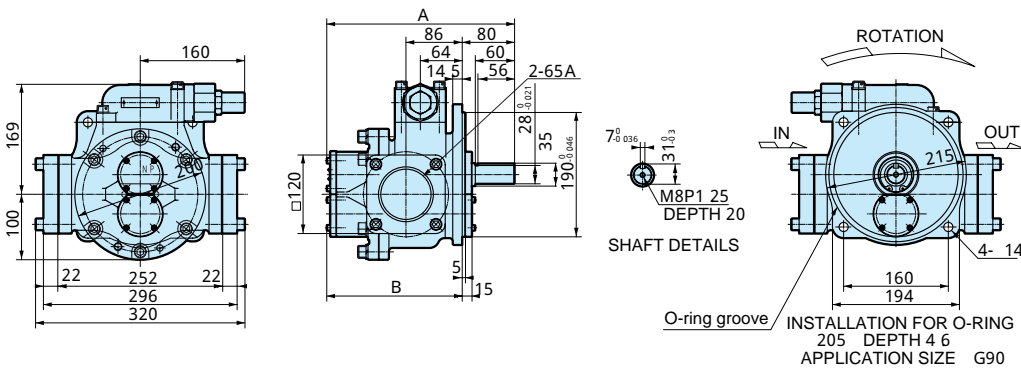
Model : GPL - ILVB



Dimensions

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

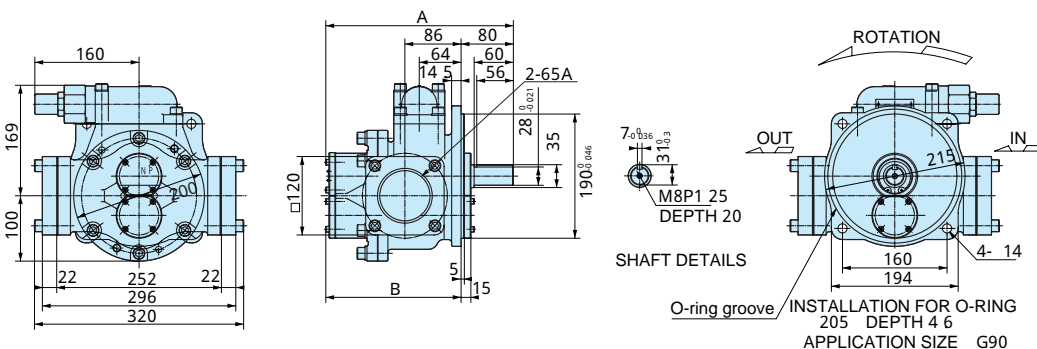
Model : GPL - FVB



Dimensions

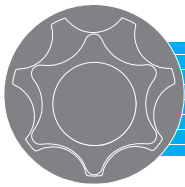
Model	Item	A	B
GPL-150FVB		268	188
GPL-200FVB		287	207
GPL-250FVB		306	226

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

Model	Item	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 °C.

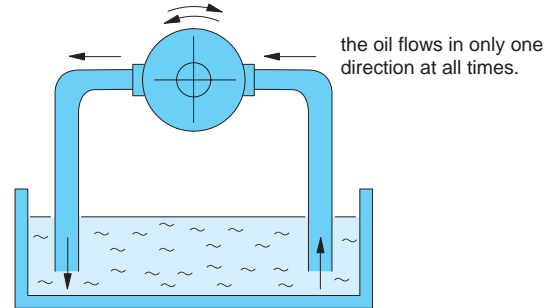
Model



TOP - 1RA -

100
200
300

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

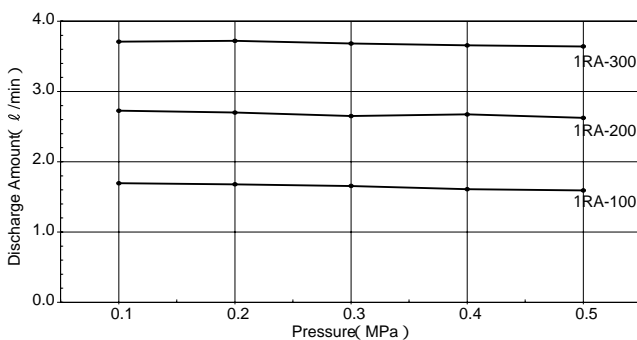


Performance Table

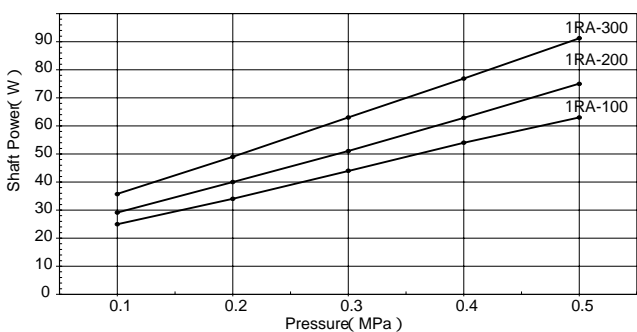
Test Conditions Oil: ISO-VG46 with a temperature of 40 °C

At 1,450 Rotations

Flow Rate Characteristics

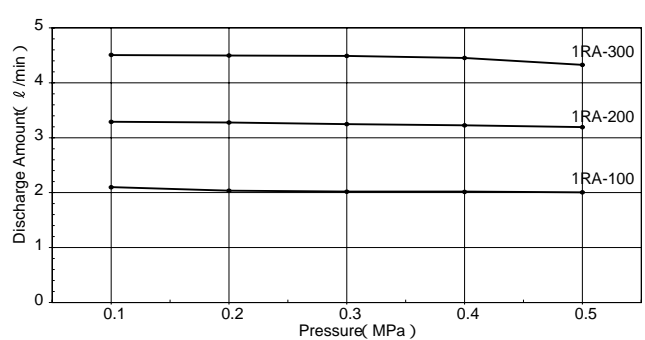


Required Power

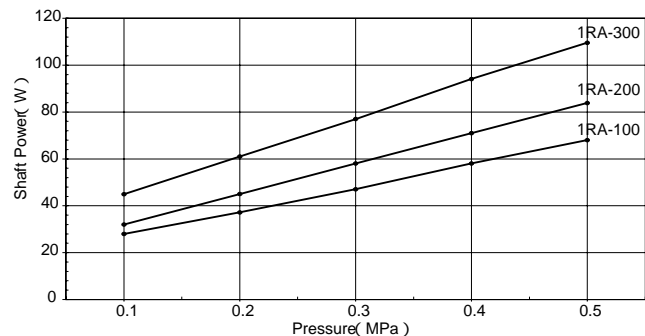


At 1,750 Rotations

Flow Rate Characteristics



Required Power



Model : 2RA Specifications

Model	Item	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 °C.

Model



TOP - 2RA -

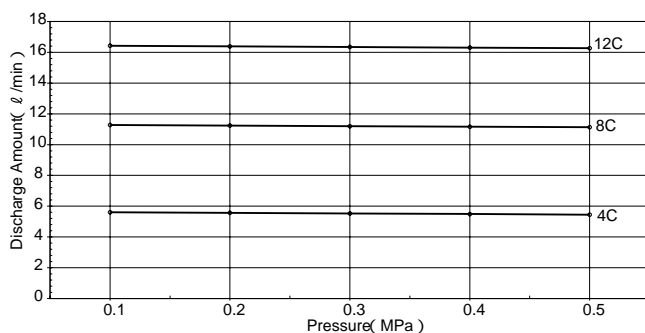
4C
8C
12C

Performance Table

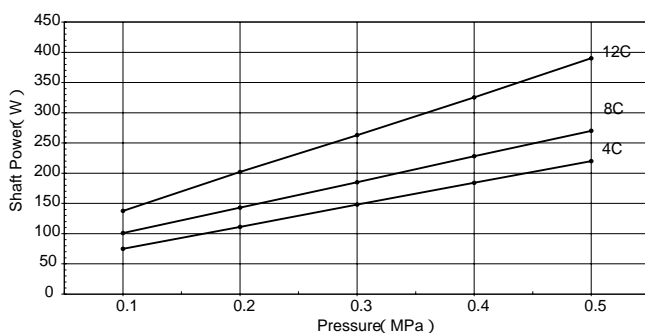
Test Conditions Oil: ISO-VG46 with a temperature of 40 °C

At 1,450 Rotations

Flow Rate Characteristics

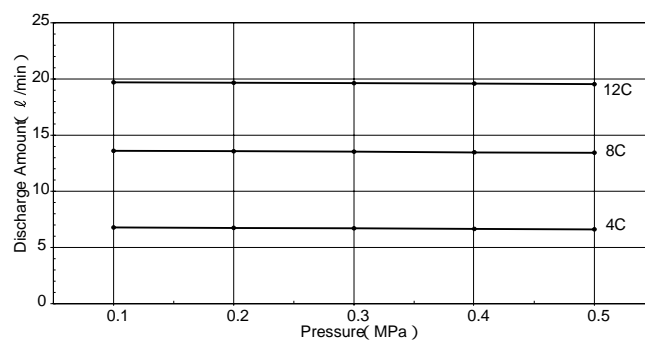


Required Power

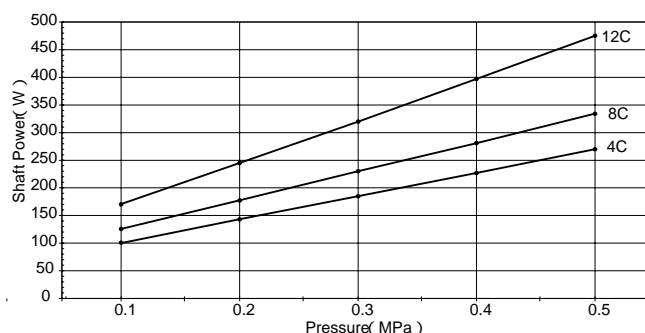


At 1,750 Rotations

Flow Rate Characteristics



Required Power



Model : 3RD

Specifications

Model	Item	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 °C.

Model



TOP - 3RD -

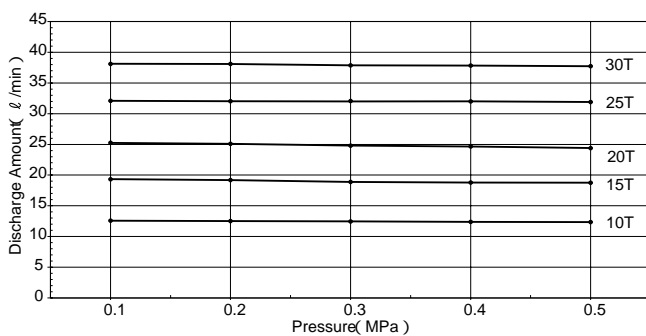
10T
15T
20T
25T
30T

Performance Table

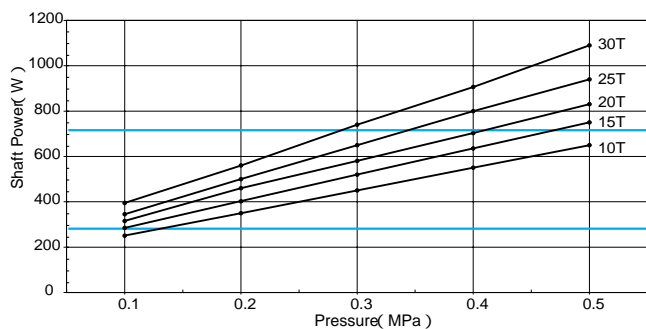
Test Conditions Oil: ISO-VG46 with a temperature of 40 °C

At 1,000 Rotations

Flow Rate Characteristics

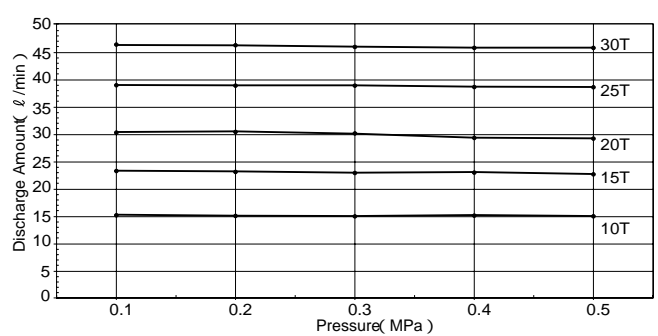


Required Power

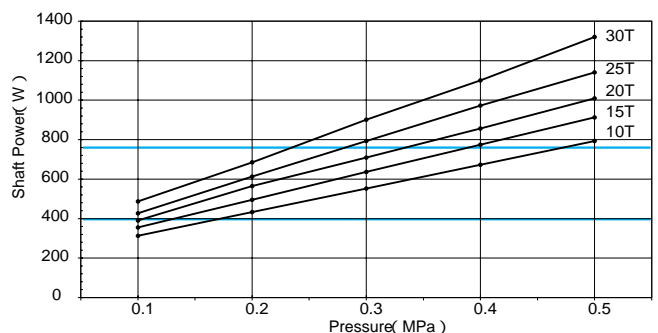


At 1,200 Rotations

Flow Rate Characteristics



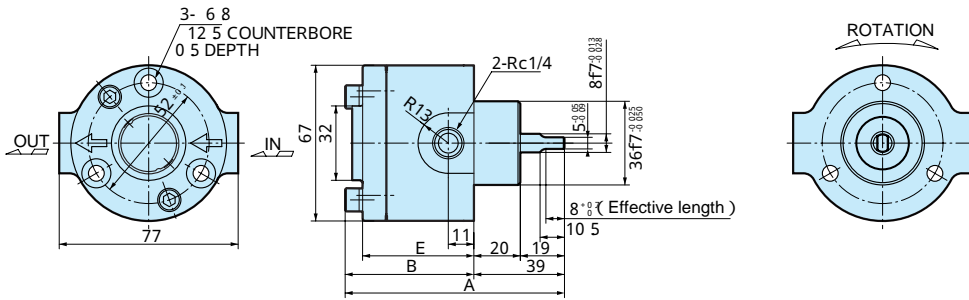
Required Power



Dimensional Diagrams

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

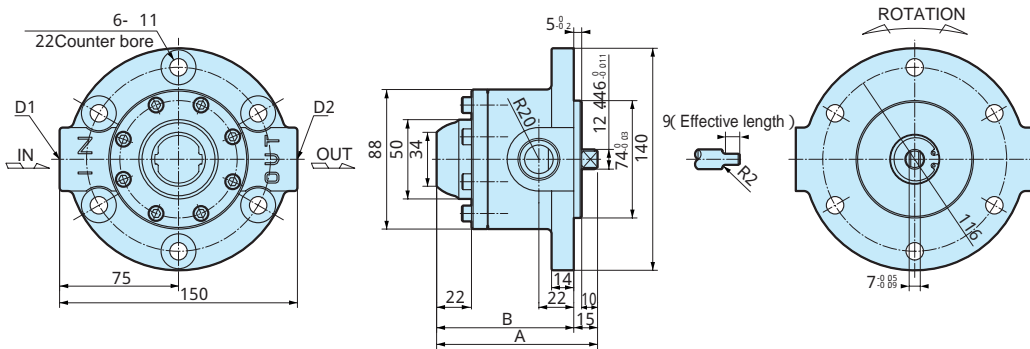
Model : TOP-1RA



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

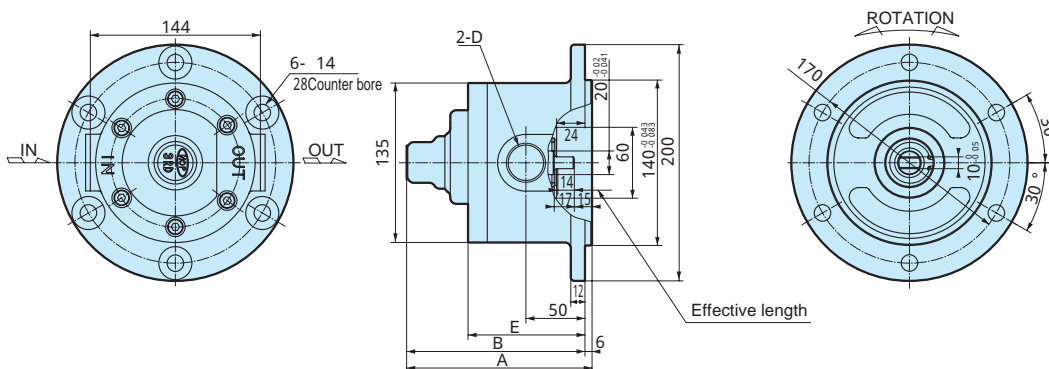
Model : TOP-2RA



Dimensions

Model	Item	A	E	D1	D2
2RA-4C		92	77	Rc ¹ / ₂	Rc ³ / ₈
2RA-8C		102	87	Rc ³ / ₄	Rc ¹ / ₂
2RA-12C		112	97	Rc ³ / ₄	Rc ³ / ₄

Model : TOP-3RD

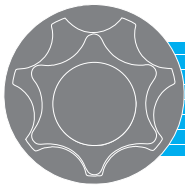


Dimensions

Model	Item	A	B	D	E
3RD-10T		147	141	Rc ¹ / ₂	89
3RD-15T		152	146	Rc ¹ / ₂	94
3RD-20T		157	151	Rc ³ / ₄	99
3RD-25T		162	156	Rc ³ / ₄	104
3RD-30T		167	161	Rc1	109

! CAUTION

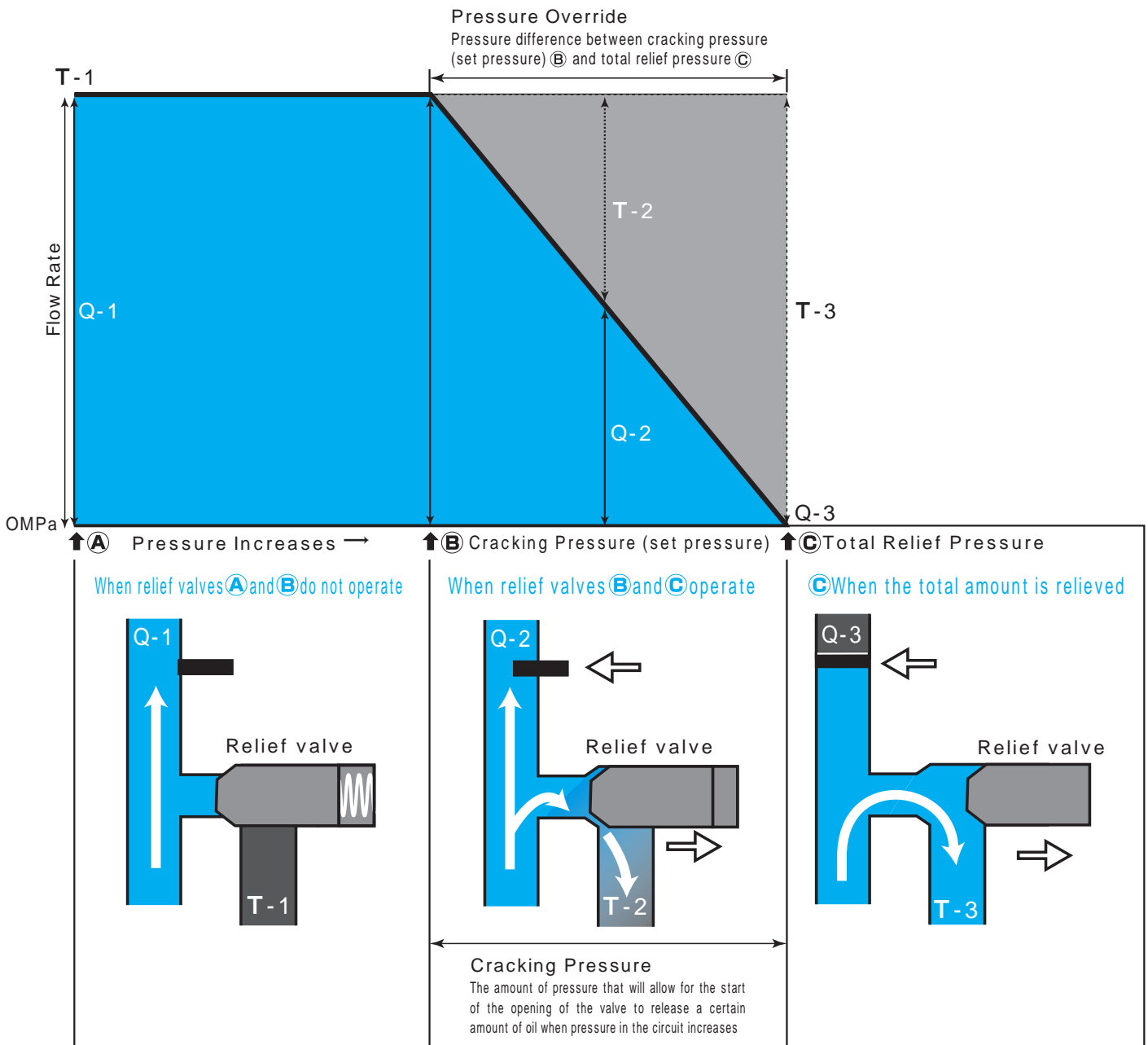
The use of low-speed rotations and liquids with high viscosity could result in poor pump operations.
 Applying a thrust load or radial load to the pump shaft could result in poor pump operations.
 When using a check valve, be sure to install it on the pump discharge side. If a check valve is installed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



Relief Valves

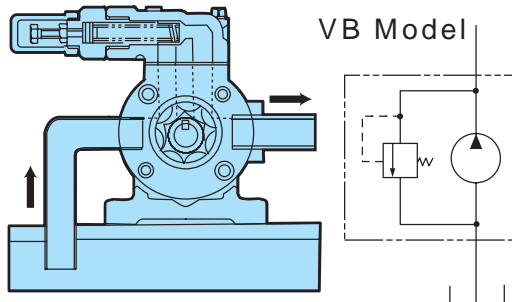
Operations

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

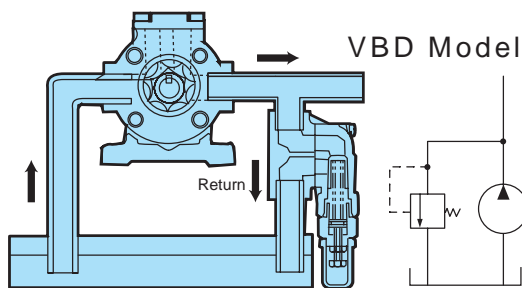
Internal Return (safety valve)



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 or should be adopted in this case.

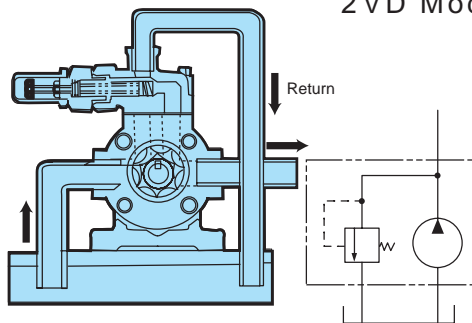
External Return (safety valve / adjustment valve)



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

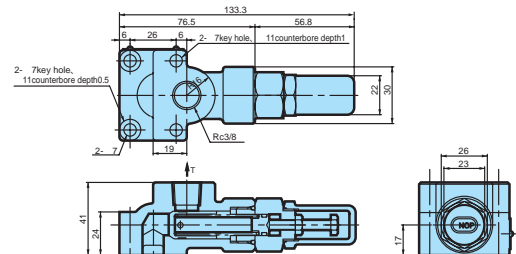
The most desirable method is to attach a sub-plate to the VB model and then use the bypass circuit created from the piping as the relief valve. This should be used for a full-amount bypass conducted over a long period of time, regular use and to adjust the pressure.

2VD Model



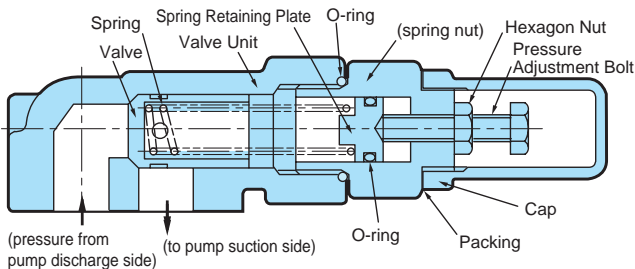
This relief valve is used in the same manner as the above , but it can also be directly attached to the Trochoid pump 2HB model.

*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

Remove the cap.

Loosen the hexagonal nut.

Turn the adjustment bolt to the right (to raise the pressure setting) or to the left (to lower the pressure setting).

Tighten the hexagonal nut to affix the adjustment bolt.

Tighten the cap. (Be careful not to damage the packing during this process.)

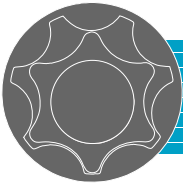
Model

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)

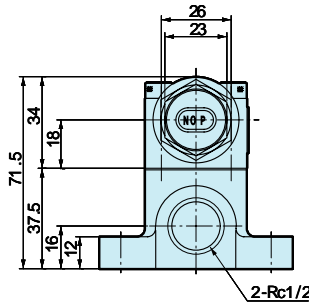
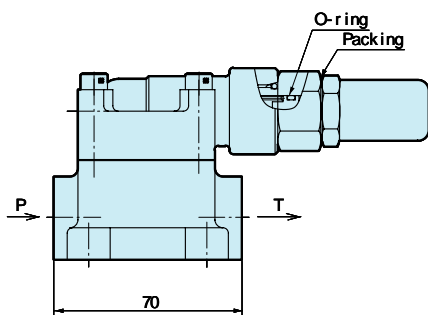
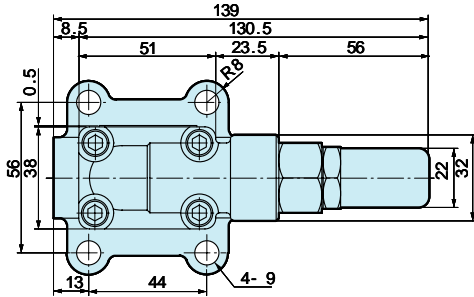


Relief Valves

Dimensional Diagrams

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

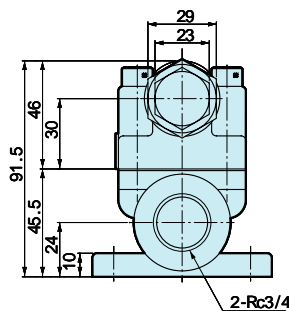
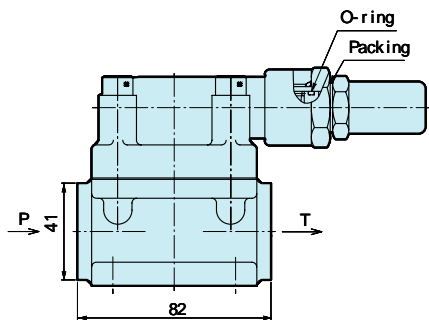
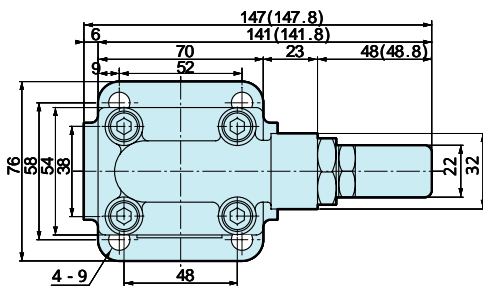
Model : 2VBD



Dimensions

Spring No.	Wire Diameter	External 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



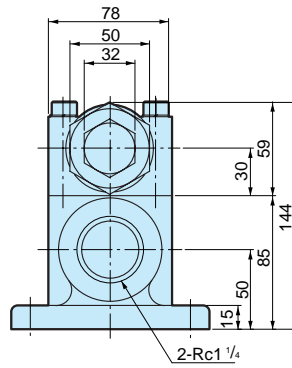
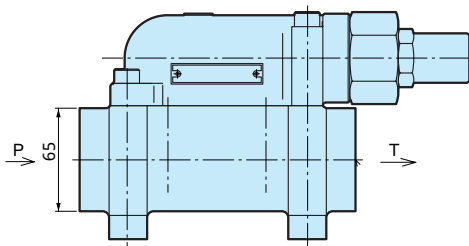
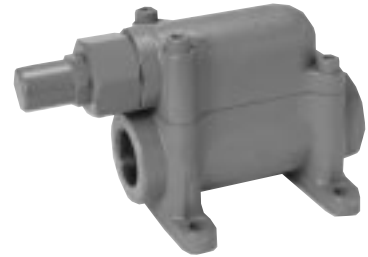
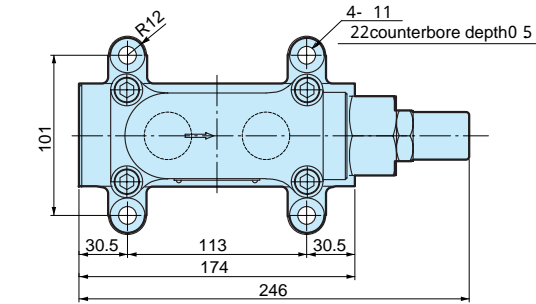
Dimensions

Spring No.	Wire Diameter	External 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

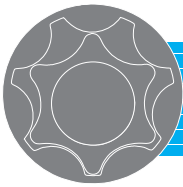
Be sure to check the Nippon Oil Pump homepage for the most up-to-date diagrams and dimensions.

Model : 4VBPD



Dimensions

Spring No.	Wire Diameter	External 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)					Required Power (W)				
	Pressure (MPa)					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)					Required Power (W)				
	Pressure (MPa)					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)					Required Power (W)						
	Pressure (MPa)					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)					Required Power (W)						
	Pressure (MPa)					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)						Required Power (W)							
	Pressure (MPa)						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)						Required Power (W)							
	Pressure (MPa)						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)					Required Power (W)						
	Pressure (MPa)					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)					Required Power (W)						
	Pressure (MPa)					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)					Required Power (kw)						
	Pressure (MPa)					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)					Required Power (kw)						
	Pressure (MPa)					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)						Required Power (kw)							
	Pressure (MPa)						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)						Required Power (kw)							
	Pressure (MPa)						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	Discharge Amount (ℓ / min)					Required Power (kw)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (kw)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (kw)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (kw)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (kw)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (kw)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (kw)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (kw)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (W)				
	Pressure (MPa)					Pressure (MPa)				
Model	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

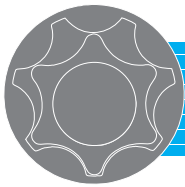
1RA Type Performance Table										
Standard Specifications when Discharge Amount is 1,750min ⁻¹ (60Hz)										
Specification	Discharge Amount (ℓ / min)					Required Power (W)				
	Pressure (MPa)					Pressure (MPa)				
Model	0.1	0.2	0.3	0.4	0.5	0.1	0.2	0.3	0.4	0.5
TOP-1RA-100	2.10	2.03	2.02	2.01	2.01	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	Discharge Amount (ℓ / min)					Required Power (W)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (W)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (W)				
	Pressure (MPa)					Pressure (MPa)				
Model	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	Discharge Amount (ℓ / min)					Required Power (W)				
	Pressure (MPa)					Pressure (MPa)				
Model	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



Trochoid Pump - List of Special Materials / Viscosity Table

List of Special Materials

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

VF and VH specifications are not possible for Trochoid pumps with a motor, such as the 2MY and 2ME.

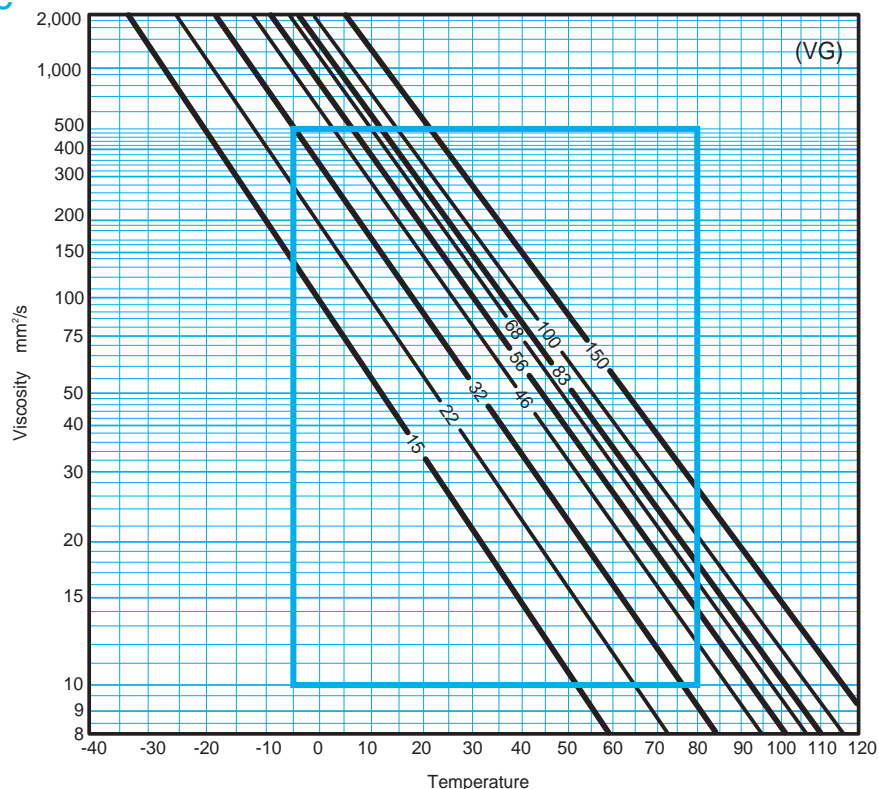
Refer to page 64 for the numbers for each product.

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

Nippon Oil Pump Co., Ltd.

Seal Kit Specifications

Nippon Oil Pump cannot be responsible for any products independently assembled or disassembled 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.

Type	Item	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

Type	Item	Bearing		Type	Item	Bearing	
		Model No.	Qty			Model No.	Qty
TOP-1HG		6201	2	4AM		6307	2
TOP-2HB		6202	1			NA309	1
TOP-2HB		6301	1	4A		6309	2
		6201	1			N309	2
TOP-2.5HGA		TAF192720	2	GPL		TR354830	4
N3FA		6205	2			6205	1
N3FB		TA2225Z	1	3RD		51104	1
N3H		6205	2				
		6305	1				

