NOP®

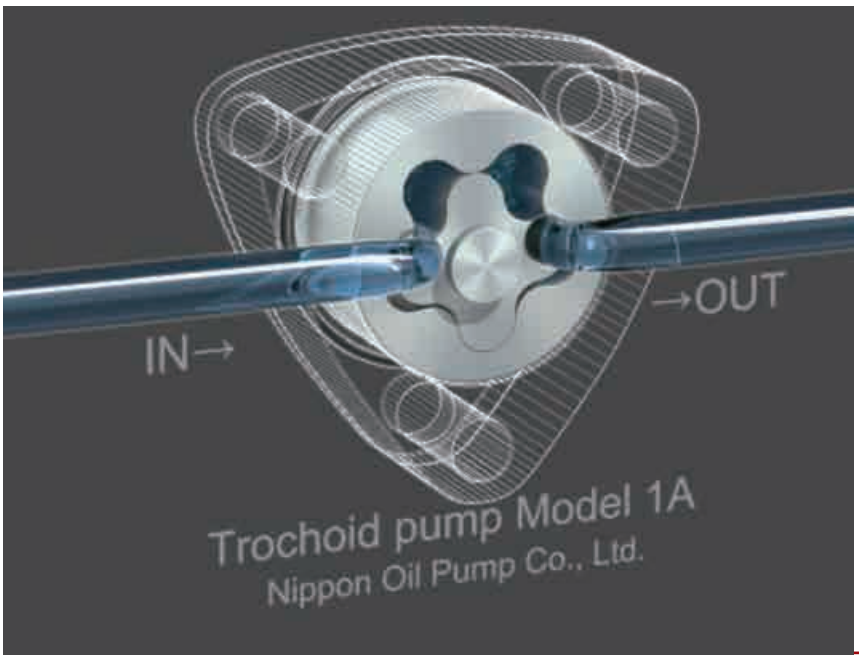
TROCHOID® PUMPS

NOP INDIA

Nippon Oil Pump India Private Limited

Trochoid™ Internal Gear Pump

How Trochoid™ Pump works



Trochoid pump has an inner rotor and outer rotor that come into contact with each other and create gaps in between.

As the pump rotates, the volume of the gap expands and shrinks continuously. Expansion of the gap creates vacuum, and fluid is drawn into the pump and as the gap shrinks, compression occurs and fluid is pumped out.

While being proud of providing the best quality products, NOP is the world's top manufacturer of Trochoid™ Pump*1 in terms of the production volume.

Features

Compact size

Trochoid™ Pump is an internal gear pump, which is more compact than other pump types for the same capacity. The compactness of Trochoid™ Pump allows more flexibility in designing customer's application system.

Self-priming

Trochoid™ Pump is a displacement pump, which does not require priming oil.

Low noise and low pulsation

Trochoid™ Pump's noise and pulsation caused by the gear meshing are low.

Long product life

The high precision rotor and parts minimize wear and extend the product life.

Trochoid™ Pump Products Guide

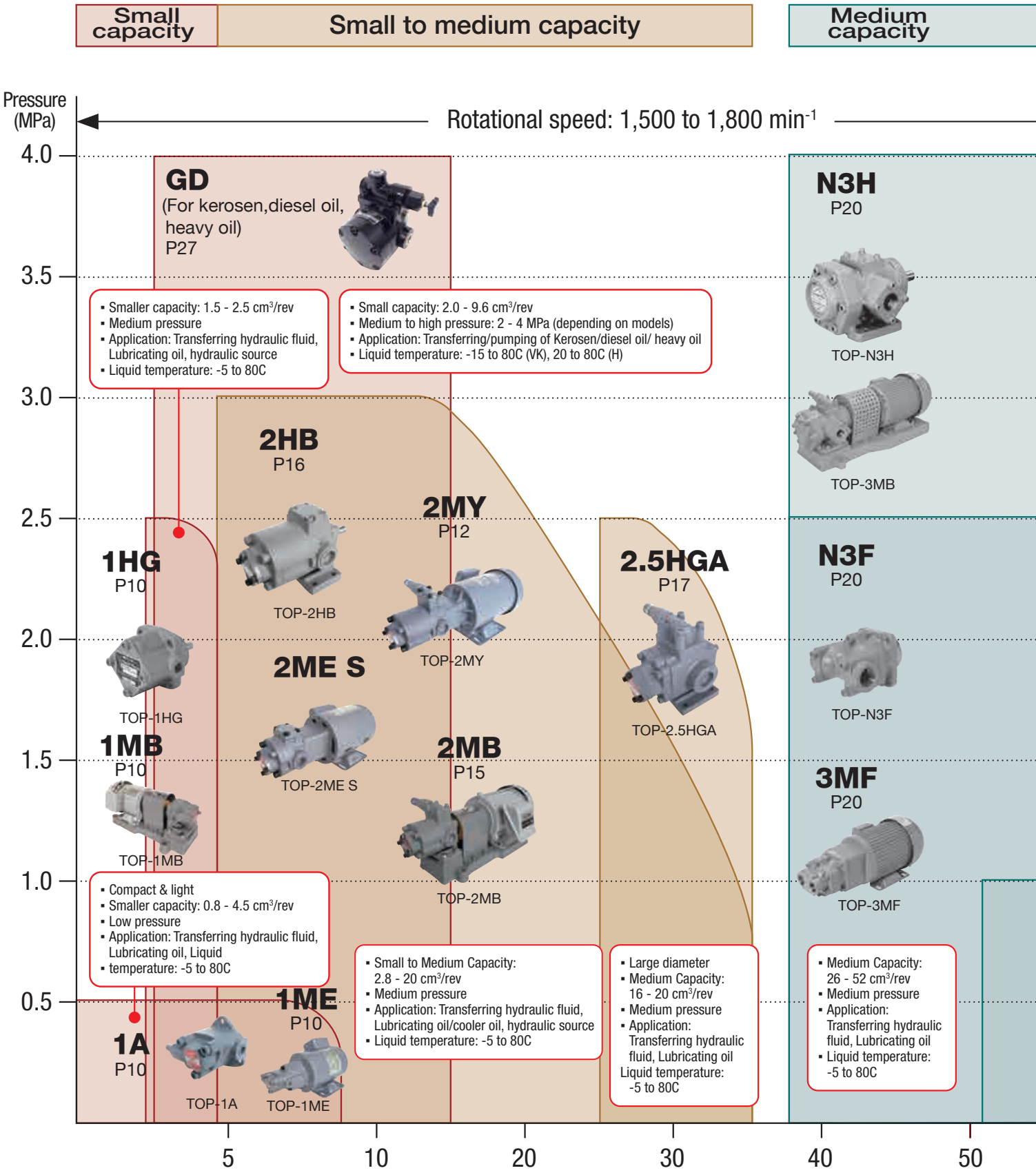
Select a pump

Specifications

- The model numbers given in this catalogs are examples with the most typical options.
  For other options, please refer to the e-catalog on our website. http://www.nopgroup.com/english/products/
- Max.pressures shown in this catalog are calculated under the following conditions:
  Test solution for general lubricant oil: ISO-VG46 Oil temperature: 40C
  Test solution for metal-cutting fluid and fuel oil: ISO-VG2 Oil temperature: 40C
- The model number ends with “IE3” if you select a three phase motor with rated power of over 750W.

Trochoid™ Pump, Lunary™ Pump Performance Distribution Map

The pumps are classified based on the discharge flow rate and pressure on the following chart.
Please refer to the applicable pages for further information.



Large capacity

Test oil: ISO-VG46 at 40C

Rotational speed: 1,000 to 1,200 min^{-1}

- Medium Capacity: 26 - 65 cm^3/rev
- Medium to high pressure
- Application: Transferring hydraulic fluid, Lubricating oil
- Liquid temperature: -5 to 80C

- Large Capacity: 115.5 - 280.5 cm^3/rev
- Medium pressure
- Application: Transferring hydraulic fluid, Lubricating oil
- Liquid temperature: -5 to 120C

4AM
P23

TOP-4AM

TOP-4MB

- Large Capacity: 349.8/580.8 cm^3/rev
- Small pressure
- Application: Transferring hydraulic fluid, Lubricating oil
- Liquid temperature: -5 to 120C

- High viscosity
- Large Capacity: 150/200/250 cm^3/rev
- Application: Transferring hydraulic fluid, Lubricating oil
- Liquid temperature: -5 to 80C

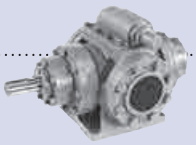
3V
P21

TOP-3V

GPL/MB-GPL
Lunary™ Pump
P23
(960-1750min^{-1})

GPL

4A
P23



TOP-4A

100 200 300 400 500 600

Flow rate (L/min)

- High viscosity
- Medium Capacity: 39 - 65 cm^3/rev
- Medium pressure
- Application: Transferring hydraulic fluid, Lubricating oil
- Liquid temperature: -5 to 80C

1ME (WITH INTEGRATED 3-PHASE MOTOR)

Model TOP-1ME ▲▲▲▲ - 1▲MA (VB)

- Motor size: 75-1 *75W Motor*; 75-2 *75W Motor, Vertically Mounted*; 100 *100W Motor*; 200 *200W Motor*
- Valve option

■ SPECIFICATION

Model	Motor speed 50Hz 1500min⁻¹ Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 75W	100W	200W	Motor speed 60Hz 1800min⁻¹ Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 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

Note: 1ME series can not be provided with explosion-proof increased safety motor or motor with terminal box attached on the other side. For outdoor use, please consult us.

■ MOTOR SPECIFICATION

3-phase squirrel-cage induction motor, Totally enclosed, Class E insulation, Protection level IP44 200VAC 50/60Hz or 220VAC 60Hz, 4 poles, Continuous rating at 75W, 100W, 200W.

*The pump with a single phase power supply (100V) is also available. Output : 75W, 200W
Please contact us for more information.

1MB (BASE-COUPLING MOUNT TYPE)

TOP-1MB M ▲▲▲ - 1▲HGI

- Motor size
- M *Mitsubishi Motor*; T *Toshiba Motor*
- 200 *200W Motor*; 400 *400W Motor*

■ SPECIFICATION

Model	Theoretical displacement (cm³/rev)	Theoretical discharge (ℓ/min) 1500min⁻¹	1800min⁻¹	Max. pressure (MPa)	Max. revolution (min⁻¹)	Approx. Weight (Kg)
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

■ MOTOR SPECIFICATION

3-phase squirrel-cage induction motor, Totally enclosed, Class E insulation, Protection level IP44 200VAC 50/60Hz or 220VAC 60Hz, 4 poles, Continuous rating at 200W, 400W

1A/1HG (PUMPHEAD)

Model TOP-1▲ A / HG (VB)

- Valve option
- A *Stanedard type*; HG *High pressure type*

■ SPECIFICATION

Model	Theoretical displacement (cm³/rev)	Theoretical discharge (ℓ/min) 1500min⁻¹	1800min⁻¹	Max. pressure (MPa)	Max. revolution (min⁻¹)	Approx. Weight (Kg)
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)
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

1MA (PUMPHEAD FOR 1ME MOTOR)

Model TOP-1▲MA (VB)

- Valve option

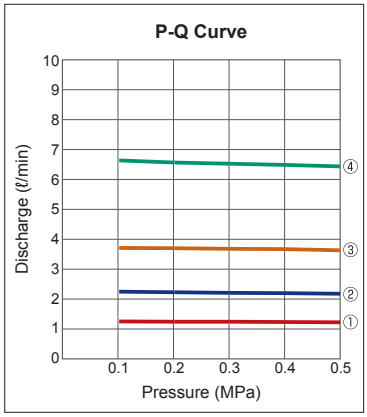
■ SPECIFICATION

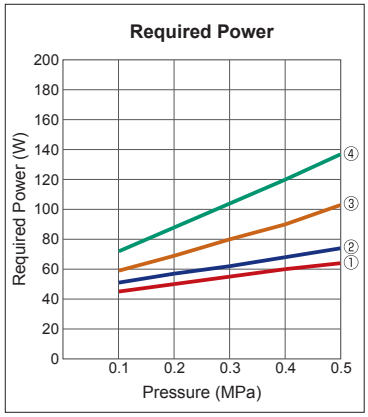
Model	Theoretical displacement (cm³/rev)	Theoretical discharge (ℓ/min) 1500min⁻¹	1800min⁻¹	Max. pressure (MPa)	Max. revolution (min⁻¹)	Approx. Weight (Kg)
TOP-10MA	0.8	1.2	1.4	0.5	3000	0.5 (0.8)
TOP-11MA	1.5	2.2	2.7	0.5	2000	0.5 (0.8)
TOP-12MA	2.5	3.7	4.5	0.5	1800	0.6 (0.9)
TOP-13MA	4.5	6.7	8.1	0.5	1800	0.8 (1.1)

■ 1A/1MA Performance Curve

1450 min^{-1}

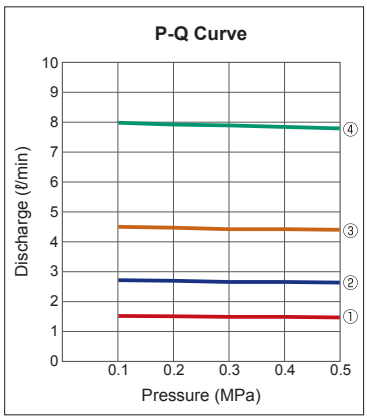
①10A ②11A
③12A ④13A

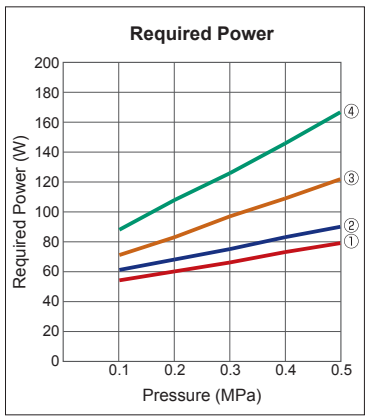




1750 min^{-1}

①10A ②11A
③12A ④13A

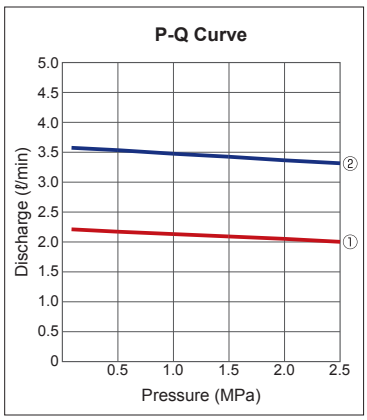


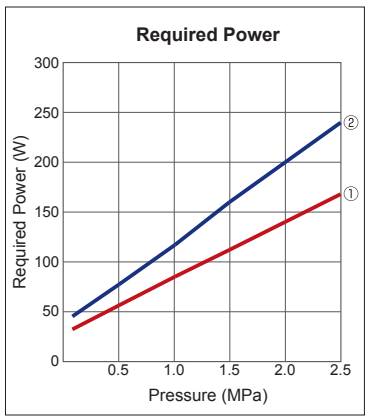


■ 1HG Performance Curve

1450 min^{-1}

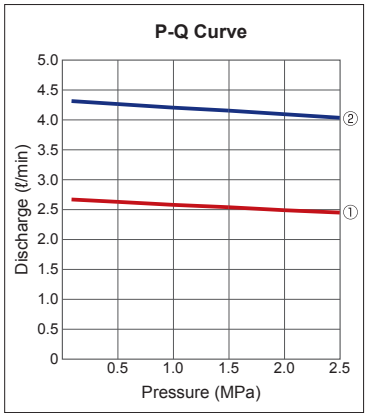
①11HG ②12HG

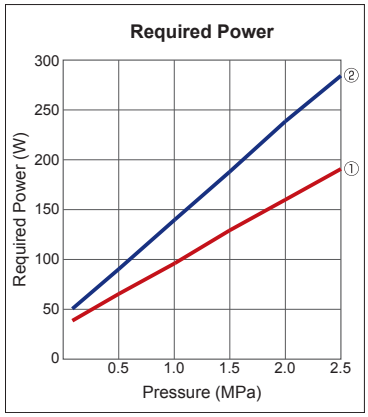




1750 min^{-1}

①11HG ②12HG





2MY-2HBM (WITH INTEGRATED 3-PHASE MOTOR)

Model TOP-2MY▲▲▲▲ - 2▲▲HBM

Motor size

Non	*No valve*
VB	*With valve*
VD	*With valve (External return type)*

■ SPECIFICATION (For General Lubricant Oil)

Model	Motor speed 50Hz 1500min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 200W	400W	750W	1500W	Motor speed 60Hz 1800min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 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

Note: TOP-2HB series is the updated model of TOP-2HA series. It is compatible with the old model in mounting dimensions and performance. Only the port type was changed from “G” to “Rc” type.

■ MOTOR SPECIFICATION

3-phase squirrel-cage induction motor, Totally enclosed, Class E insulation (200, 400W), Class F insulation (750, 1500W), IE3(750, 1500W), CE-marking (750, 1500W), Protection level IP44, 200VAC 50/60Hz, 220VAC 60Hz, 4 poles with continuous rating at 200, 400, 750,1500W.
Please consult us when ordering outdoor-type, increased safety-type, motor other than for standard voltage, one with CE marking, with terminal box attached on the other side, or other special motor.

*The pump with a single phase power supply (100V) is also available. Output : 200, 400, 750W

2MY-2HTM (WITH INTEGRATED 3-PHASE MOTOR)

Model TOP-2MY▲▲▲▲ - 2▲▲HTM

Motor size

Non	*No valve*
VB	*With valve*
VD	*With valve (External return type)*

■ SPECIFICATION (For Diesel Oil, Kerosene, Heavy Oil)

Model	Motor speed 50Hz 1500min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 200W	400W	750W	1500W	Motor speed 60Hz 1800min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 200W	400W	750W	1500W
TOP-203HTM	4.2	0.7	0.7	0.7	0.7	5.0	0.7	0.7	0.7	0.7
TOP-204HTM	6.0	0.7	0.7	0.7	0.7	7.2	0.7	0.7	0.7	0.7
TOP-206HTM	9.0	0.7	0.7	0.7	0.7	10.8	0.6	0.7	0.7	0.7
TOP-208HTM	12.0	0.6	0.7	0.7	0.7	14.4	0.4	0.7	0.7	0.7
TOP-210HTM	15.0	0.5	0.7	0.7	0.7	18.0	0.3	0.7	0.7	0.7
TOP-212HTM	18.0	0.4	0.7	0.7	0.7	21.6	0.2	0.7	0.7	0.7
TOP-216HTM	24.0	0.3	0.7	0.7	0.7	28.8	–	0.6	0.7	0.7
TOP-220HTM	30.0	–	0.6	0.7	0.7	36.0	–	0.5	0.7	0.7

■ MOTOR SPECIFICATION

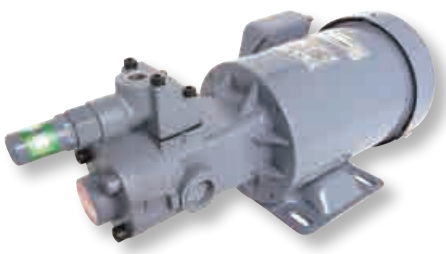
3-phase squirrel-cage induction motor, Totally enclosed, Class E insulation (200, 400W), Class F insulation (750, 1500W), IE3 (750, 1500W), CE-marking (750, 1500W), Protection level IP44, 200VAC 50/60Hz, 220VAC 60Hz, 4 poles with continuous rating at 200, 400, 750,1500W.
Please consult us when ordering outdoor-type, increased safety-type, motor other than for standard voltage, one with CE marking, with terminal box attached on the other side, or other special motor.

2MY-2HWM (WITH INTEGRATED 3-PHASE MOTOR)

Model TOP-2MY▲▲▲▲ - 2▲▲HWM

Motor size

Non	*No valve*
VB	*With valve*
VD	*With valve (External return type)*



■ SPECIFICATION (For Metal-Cutting Fluid)

Model	Motor speed 50Hz 1500min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 200W	400W	750W	1500W	Motor speed 60Hz 1800min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 200W	400W	750W	1500W
TOP-204HWM	6.0	1.2	2.0	2.0	2.0	7.2	1.0	2.0	2.0	2.0
TOP-206HWM	9.0	0.8	1.8	2.0	2.0	10.8	0.6	1.6	2.0	2.0
TOP-208HWM	12.0	0.6	1.4	2.0	2.0	14.4	0.4	1.2	2.0	2.0
TOP-210HWM	15.0	0.4	1.2	2.0	2.0	18.0	0.3	1.0	1.9	2.0
TOP-212HWM	18.0	0.3	1.0	2.0	2.0	21.6	0.2	0.8	1.6	2.0
TOP-216HWM	24.0	0.2	0.8	1.5	2.0	28.8	–	0.6	1.2	2.0
TOP-220HWM	30.0	–	0.6	1.2	1.5	36.0	–	0.5	1.0	1.5

■ FEATURES

·Designed in a special structure for coolant use
This coolant pump is designed to ensure excellent durability against coolant, because special design considerations are given to each part of the pump.
·High operating pressure
The pump can be used at the pressure up to 1.5 to 2.0MPa. Powerful jet from the high pressure nozzle removes cutting chips and cools blades effectively.
·Self-priming structure
While the conventional impeller pump is not self-priming and needs to be submerged in the tank or primed, 2HWM trochoid pump has a self-priming structure to eliminate such burdensome requirements.

■ MOTOR SPECIFICATION

3-phase squirrel-cage induction motor, Totally enclosed, Class E insulation (200, 400W), Class F insulation (750, 1500W), IE3 (750, 1500W), CE-marking (750, 1500W), Protection level IP44, 200VAC 50/60Hz, 220VAC 60Hz, 4 poles with continuous rating at 200, 400, 750,1500W.
Please consult us when ordering outdoor-type, increased safety-type, motor other than for standard voltage, one with CE marking, with terminal box attached on the other side, or other special motor.

CLEAN HAT SERIES

2MY-S Filter (WITH INTEGRATED 3-PHASE MOTOR & SINGLE SUCTION FILETER)

Model TOP-2MY▲▲▲▲ - 2▲▲H [B/W] MPVB [/ E]

Motor size

B	*For General Lubricant Oil*
W	*For Metal-Cutting Fluid*

Non	*Cartridge Type*
E	*Element Type*

■ SPECIFICATION (For General Lubricant Oil)

Item / Model	Motor speed 50Hz 1500min^{-1}					Motor speed 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-203HBMPVB (E)	4.2	1.7	2.5	2.5	2.5	5.0	1.3	2.5	2.5	2.5
TOP-204HBMPVB (E)	6.0	1.2	2.5	2.5	2.5	7.2	0.9	2.3	2.5	2.5
TOP-206HBMPVB (E)	9.0	0.7	1.8	2.5	2.5	10.8	0.5	1.4	2.5	2.5
TOP-208HBMPVB (E)	12.0	0.5	1.3	2.5	2.5	14.4	0.3	1.0	2.3	2.5
TOP-210HBMPVB (E)	15.0	0.4	1.1	2.5	2.5	18.0	0.3	0.9	2.0	2.5

■ SPECIFICATION (For Metal-Cutting Fluid)

Item / Model	Motor speed 50Hz 1500min^{-1}					Motor speed 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-204HWMPVB (E)	6.0	1.2	2.0	2.0	2.0	7.2	1.0	2.0	2.0	2.0
TOP-206HWMPVB (E)	9.0	0.8	1.8	2.0	2.0	10.8	0.6	1.6	2.0	2.0
TOP-208HWMPVB (E)	12.0	0.6	1.4	2.0	2.0	14.4	0.4	1.2	2.0	2.0
TOP-210HWMPVB (E)	15.0	0.4	1.2	2.0	2.0	18.0	0.3	1.0	1.9	2.0

■ MOTOR SPECIFICATION

"203" is unavailable for the coolant models.
Visocisty range of pumped liquid is 2-50mm^2/sec. The vacuum gauge will indicate beyond the green zone If pumped fluid exceeds the permissible viscosity range.

2MY-S Filter (WITH INTEGRATED 3-PHASE MOTOR & SINGLE SUCTION FILTER)

Model TOP-2MY▲▲▲▲ - 2▲▲HWNPEVB **Element type only*

Motor size

■ SPECIFICATION (For Metal-Cutting Fluid)

Item / Model	Motor speed 50Hz 1500min^{-1}					Motor speed 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-212HWNPEVB	18.0	0.3	1.0	2.0	2.0	21.6	–	0.8	1.6	2.0
TOP-216HWNPEVB	24.0	0.2	0.8	1.5	2.0	28.8	–	0.6	1.2	2.0
TOP-220HWNPEVB	30.0	–	0.6	1.2	1.5	36.0	–	0.5	1.0	1.5

■ MOTOR SPECIFICATION

Visocisty range of pumped liquid is 2-50mm^2/sec. The vacuum gauge will indicate beyond the green zone If pumped fluid exceeds the permissible viscosity range.

2MY-W Filter (WITH INTEGRATED 3-PHASE MOTOR & DOUBLE SUCTION FILTERS)

Model TOP-2MY▲▲▲▲ - 2▲▲HWMDPVDE-005 **Element type only*

Motor size

■ SPECIFICATION (For Metal-Cutting Fluid)

Item / Model	Motor speed 50Hz 1500min^{-1}					Motor speed 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-204HWMDPVDE	6.0	1.2	2.0	2.0	2.0	7.2	1.0	2.0	2.0	2.0
TOP-206HWMDPVDE	9.0	0.8	1.8	2.0	2.0	10.8	0.6	1.6	2.0	2.0
TOP-208HWMDPVDE	12.0	0.6	1.4	2.0	2.0	14.4	0.4	1.2	2.0	2.0
TOP-210HWMDPVDE	15.0	0.4	1.2	2.0	2.0	18.0	0.3	1.0	1.9	2.0
TOP-212HWMDPVDE	18.0	0.3	1.0	2.0	2.0	21.6	–	0.8	1.6	2.0

Note: Visocisty range of pumped liquid is 2-50mm^2 /sec. The vacuum gauge will indicate over the green zone If pumped fluid exceeds the permissible viscosity range.

■ MOTOR SPECIFICATION

3-phase squirrel-cage induction motor, Totally enclosed, Class E insulation (200, 400W), Class F insulation (750, 1500W), Protection level IP44, 200VAC 50/60Hz, 220VAC 60Hz, 4 poles with continuous rating at 200, 400, 750,1500W

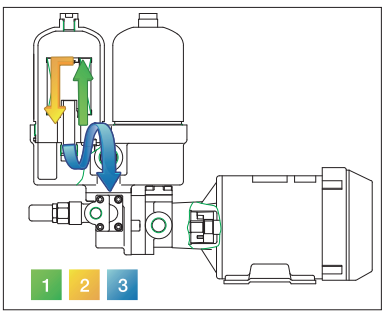
■ FILTER OPTIONS FOR "CLEAN HAT" SERIES

Filter Type	Model Name	Mesh Size
Cartridge for 2HBMPVB Cartridge for 2HWMPVB	F913-3-150W	150
Element for 2HBMPVBE Element for 2HWMPVBE	351-04-60W 351-04-100W 351-04-150W	60 100 150
Element for 2HWNPE	351-06-60W 351-06-100W 351-06-150W	60 100 150

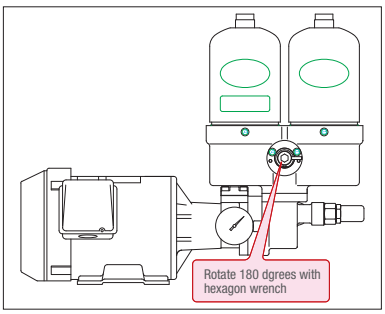
Note: Please specify the model number when ordering filters.

Note: If you also need to purchase O ring in the element case, order "G75" type for the filter of which model number begins with "351-04", and order "G95" type if it begins with "351-06".

Flow of oil inside the filter



How to switch between filters



Safety precautions for the cartridge replacement

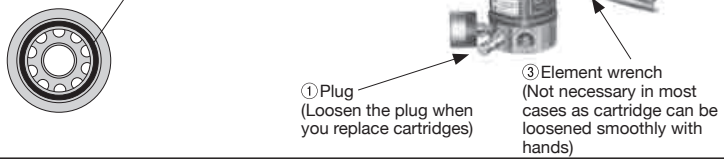
Before replacing the cartridges, make sure that there is no oil remaining inside the cartridge. You can drain the oil by loosening the air suction plug on the side of suction port (Indicated on yellow label on the case)

Note: ①Loosen the adjustment knob and hold it for 10 seconds. ②Replace the cartridges. ③After the replacment is complete, tighten the adjustment knob back in place.

The oil remaining inside the cartridge will be released to the tank through the suction line. This process normally takes about 10 seconds before the oil is completely drained from the cartridge.Note: Make sure no check valve is installed on the suction line.

The cartridge is removable with hands by rotating it counter-clockwise and if it is still too tight, use element wrench (Available in a shop or from us). When you replace with new cartridge, tighten the cartridge onto the screw on subplate. Cartridge may draw air if it is not tight. You can tighten the cartridge more tightly by using element wrench.

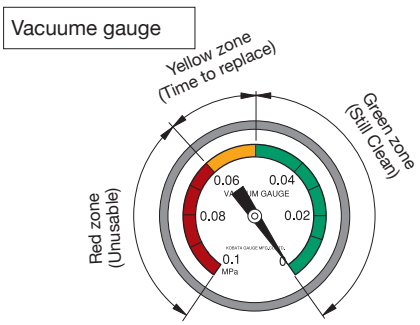
2HBMPVB (Cartiridge type)



When to replace cartridge and clean element

·For cartridge type, replace the cartridges when the pointer on the pressure gauge indicates the yellow zone. Cartridge is installable and removable easily with hands.

·For element type, rotate the element and remove it from the element case and clean it when the pointer on the pressure gauge indicates the yellow zone.



2MY-2HBM+2HB (DUAL PUMP WITH INTEGRATED 3-PHASE MOTOR)

Model TOP-2MY▲▲▲▲-2▲▲HBM (VB)+2□□HB

Motor size *Valve option*

VB	Non	*No valve*
VD	VB	*With valve*
	VD	*With valve (External return type)*

■ SPECIFICATION (For Metal-Cutting Fluid)

Item / Model	Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min) 1500min^{-1}	Theoretical discharge (ℓ/min) 1800min^{-1}	Max. pressure (MPa)	Max. revolution (min^{-1})
TOP-203HBM+203HB	2.8+2.8	4.2+4.2	5.0+5.0	1.0×1.0	1800
TOP-204HBM+204HB	4.0+4.0	6.0+6.0	7.2+7.2	1.0×1.0	1800
TOP-206HBM+206HB	6.0+6.0	9.0+9.0	10.8+10.8	1.0×1.0	1800
TOP-208HBM+208HB	8.0+8.0	12.0+12.0	14.4+14.4	1.0×1.0	1800
TOP-210HBM+210HB	10.0+10.0	15.0+15.0	18.0+18.0	0.9×0.9	1800
TOP-212HBM+212HB	12.0+12.0	18.0+18.0	21.6+21.6	0.7×0.7	1800
TOP-216HBM+216HB	16.0+16.0	24.0+24.0	28.8+28.8	0.5×0.5	1800
TOP-220HBM+220HB	20.0+20.0	30.0+30.0	36.0+36.0	0.4×0.4	1800

■ MOTOR SPECIFICATION

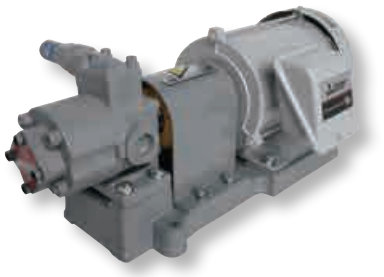
3-phase squirrel-cage induction motor, Totally enclosed, Class E insulation (200, 400W), Class F insulation (750, 1500W), IE3(750, 1500W), CE-marking (750, 1500W), Protection level IP44, 200VAC 50/60Hz, 220VAC 60Hz, 4 poles with continuous rating at 200, 400, 750,1500W.
Please consult us when ordering outdoor-type, increased safety-type, motor other than for standard voltage, one with CE marking, with terminal box attached on the other side, or other special motor.

2MB (BASE-COUPLING MOUNT TYPE)

Model TOP-2MB M/T ▲▲▲▲-2□□H B/T VB/VD

Motor size

M	*Mitsubishi Motor*	
T	*Toshiba Motor*	
B	*For General Lubricant Oil*	
T	*For Diesel Oil, Kerosene, Heavy Oil*	
Non	*No valve*	
VB	*With valve*	
VD	*With valve (External return type)*	



■ SPECIFICATION (For General Lubricant Oil)

Item / Model	Motor speed 50Hz 1500min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 200W	400W	750W	1500W	2000W	Motor speed 60Hz 1800min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 200W	400W	750W	1500W	2000W
TOP-203HB	4.2	1.7	3.0	3.0	3.0	3.0	5.0	1.3	3.0	3.0	3.0	3.0
TOP-204HB	6.0	1.2	3.0	3.0	3.0	3.0	7.2	0.9	2.3	3.0	3.0	3.0
TOP-206HB	9.0	0.7	1.8	2.5	2.5	2.5	10.8	0.5	1.4	2.5	2.5	2.5
TOP-208HB	12.0	0.5	1.3	2.5	2.5	2.5	14.4	0.3	1.0	2.3	2.5	2.5
TOP-210HB	15.0	0.4	1.1	2.5	2.5	2.5	18.0	0.3	0.9	2.0	2.5	2.5
TOP-212HB	18.0	0.3	0.9	2.0	2.0	2.0	21.6	–	0.7	1.6	2.0	2.0
TOP-216HB	24.0	0.2	0.7	1.5	1.5	1.5	28.8	–	0.5	1.2	1.5	1.5
TOP-220HB	30.0	–	0.4	1.2	1.2	1.2	36.0	–	0.3	0.9	1.2	1.2

Note: TOP-2HB is the updated series of TOP-2HA. It is also compatible with the old series in performance and mounting dimensions. Only the port type was changed from G to Rc type.

■ MOTOR SPECIFICATION

Compatible motor: 200, 400, 750, 1500, 2200W.

■ SPECIFICATION (For Diesel Oil, Kerosene, Heavy Oil)

Item / Model	Motor speed 50Hz 1500min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 200W	400W	750W	Motor speed 60Hz 1800min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 200W	400W	750W
TOP-203HT	4.2	0.7	0.7	0.7	5.0	0.7	0.7	0.7
TOP-204HT	6.0	0.7	0.7	0.7	7.2	0.7	0.7	0.7
TOP-206HT	9.0	0.7	0.7	0.7	10.8	0.6	0.7	0.7
TOP-208HT	12.0	0.6	0.7	0.7	14.4	0.4	0.7	0.7
TOP-210HT	15.0	0.5	0.7	0.7	18.0	0.3	0.7	0.7
TOP-212HT	18.0	0.4	0.7	0.7	21.6	–	0.7	0.7
TOP-216HT	24.0	0.3	0.7	0.7	28.8	–	0.6	0.7
TOP-220HT	30.0	–	0.6	0.7	36.0	–	0.5	0.7

■ MOTOR SPECIFICATION

Compatible motor: 200, 400, 750W.

2HB/2HT (PUMPHEAD)

Model TOP-2▲▲H [B/T] [/ VB / VD]

B	For General Lubricant Oil
T	For Diesel Oil, Kerosene, Heavy Oil

Non	No valve
VB	With valve
VD	With valve (External return type)

■ SPECIFICATION (For General Lubricant Oil)

Model / Item	Theoretical displacement (cm³/rev)	Theoretical discharge (ℓ/min) 1500min⁻¹	Theoretical discharge (ℓ/min) 1800min⁻¹	Max. pressure (MPa)	Max. revolution (min⁻¹)	Approx. Weight (Kg)
TOP-203HB	2.8	4.2	5.0	3.0	3000	3.5 (3.9)
TOP-204HB	4.0	6.0	7.2	3.0	3000	3.6 (4.0)
TOP-206HB	6.0	9.0	10.8	2.5	2500	3.8 (4.2)
TOP-208HB	8.0	12.0	14.4	2.5	2500	4.0 (4.4)
TOP-210HB	10.0	15.0	18.0	2.5	2500	4.1 (4.6)
TOP-212HB	12.0	18.0	21.6	2.0	2000	4.3 (4.7)
TOP-216HB	16.0	24.0	28.8	1.5	1800	4.6 (5.1)
TOP-220HB	20.0	30.0	36.0	1.2	1800	5.0 (5.5)

Note: Values in ( ) are approx. weights of the pump when the valve is attached.
TOP-2HB is the updated series of TOP-2HA. It is compatible with old series in performance and mounting dimensions.Only the port type was changed from G to Rc type.

■ SPECIFICATION (For Diesel Oil, Kerosene, Heavy Oil)

Model / Item	Theoretical displacement (cm³/rev)	Theoretical discharge (ℓ/min) 1500min⁻¹	Theoretical discharge (ℓ/min) 1800min⁻¹	Max. pressure (MPa)	Max. revolution (min⁻¹)	Approx. Weight (Kg)
TOP-203HT	2.8	4.2	5.0	0.7	1800	3.5 (3.9)
TOP-204HT	4.0	6.0	7.2	0.7	1800	3.6 (4.0)
TOP-206HT	6.0	9.0	10.8	0.7	1800	3.8 (4.2)
TOP-208HT	8.0	12.0	14.4	0.7	1800	4.0 (4.4)
TOP-210HT	10.0	15.0	18.0	0.7	1800	4.1 (4.6)
TOP-212HT	12.0	18.0	21.6	0.7	1800	4.3 (4.7)
TOP-216HT	16.0	24.0	28.8	0.7	1800	4.6 (5.1)
TOP-220HT	20.0	30.0	36.0	0.7	1800	5.0 (5.5)

Note: Values in ( ) show approx. weights of the pump when the valve is attached.

2HBM/2HTM/2HWM (PUMPHEAD FOR 2MY-MOTOR)

Model TOP-2▲▲H [B/T/W] M [/ VB / VD]

B	For General Lubricant Oil
T	For Diesel Oil, Kerosene, Heavy Oil
W	For Metal-Cutting Fluid

Non	No valve
VB	With valve
VD	With valve (External return type)

■ SPECIFICATION (For General Lubricant Oil)

Model / Item	Theoretical displacement (cm³/rev)	Theoretical discharge (ℓ/min) 1500min⁻¹	Theoretical discharge (ℓ/min) 1800min⁻¹	Max. pressure (MPa)	Max. revolution (min⁻¹)	Approx. Weight (Kg)
TOP-203HBM	2.8	4.2	5.0	3.0	3000	2.5 (3.2)
TOP-204HBM	4.0	6.0	7.2	3.0	3000	2.6 (3.3)
TOP-206HBM	6.0	9.0	10.8	2.5	2500	2.8 (3.5)
TOP-208HBM	8.0	12.0	14.4	2.5	2500	3.0 (3.7)
TOP-210HBM	10.0	15.0	18.0	2.5	2500	3.1 (3.8)
TOP-212HBM	12.0	18.0	21.6	2.0	2000	3.3 (4.0)
TOP-216HBM	16.0	24.0	28.8	1.5	1800	3.7 (4.4)
TOP-220HBM	20.0	30.0	36.0	1.2	1800	4.0 (4.7)

Note: Values in ( ) show approx. weights of the pump when the valve is attached.
TOP-2HB is the updated series of TOP-2HA. It is also compatible with old series in performance and mounting dimensions. Only the port type was changed from G to Rc type.
2HBM and 2HWM series come with 2MY coupling and screws for the attachment.

■

Model / Item	Theoretical displacement (cm³/rev)	Theoretical discharge (ℓ/min) 1500min⁻¹	Theoretical discharge (ℓ/min) 1800min⁻¹	Max. pressure (MPa)	Max. revolution (min⁻¹)	Approx. Weight (Kg)
TOP-203HTM	2.8	4.2	5.0	0.7	1800	3.5 (3.9)
TOP-204HTM	4.0	6.0	7.2	0.7	1800	3.6 (4.0)
TOP-206HTM	6.0	9.0	10.8	0.7	1800	3.8 (4.2)
TOP-208HTM	8.0	12.0	14.4	0.7	1800	4.0 (4.4)
TOP-210HTM	10.0	15.0	18.0	0.7	1800	4.1 (4.6)
TOP-212HTM	12.0	18.0	21.6	0.7	1800	4.3 (4.7)
TOP-216HTM	16.0	24.0	28.8	0.7	1800	4.6 (5.1)
TOP-220HTM	20.0	30.0	36.0	0.7	1800	5.0 (5.5)

Note: Values in ( ) show approx. weights of the pump when the valve is attached.

■ SPECIFICATION (For Metal-Cutting Fluid)

Item / Model	Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min)		Max. pressure (MPa)	Max. revolution (min^{-1})	Approx. Weight (Kg)
		1500min^{-1}	1800min^{-1}			
TOP-204HWM	4.0	6.0	7.2	2.0	1800	2.6 (3.3)
TOP-206HWM	6.0	9.0	10.8	2.0	1800	2.8 (3.5)
TOP-208HWM	8.0	12.0	14.4	2.0	1800	3.0 (3.7)
TOP-210HWM	10.0	15.0	18.0	2.0	1800	3.1 (3.8)
TOP-212HWM	12.0	18.0	21.6	2.0	1800	3.3 (4.0)
TOP-216HWM	16.0	24.0	28.8	2.0	1800	3.7 (4.4)
TOP-220HWM	20.0	30.0	36.0	1.5	1800	4.0 (4.7)

Note: Values in ( ) show approx. weights of the pump when the valve is attached.

2.5HGA (PUMPHEAD)

Model TOP-2▲▲▲HGA (VB)

Valve option

■ FEATURES

This pump has been developed as an intermediate model between Model 2 and Model 3. It doesnot produce noise even during operation at a high speed. The relief valve is installed on the top of the pump. It is designed to allow shared use of the 3VB.

■ SPECIFICATION (For General Lubricant Oil)

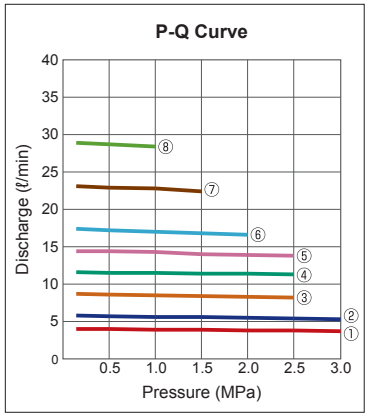
Item / Model	Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min)		Max. pressure (MPa)	Max. revolution (min^{-1})	Approx. Weight (Kg)
		1500min^{-1}	1800min^{-1}			
TOP-2516HGA	16	24	28.8	2.5	2500	6.9 (7.5)
TOP-2520HGA	20	30	36.0	2.0	2000	7.2 (7.7)

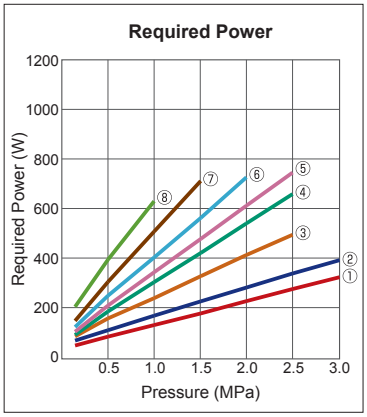
Note: Values in ( ) show approx. weights of the pump when the valve is attached.

■2HB(M) Performance Curve

1450 min^{-1}

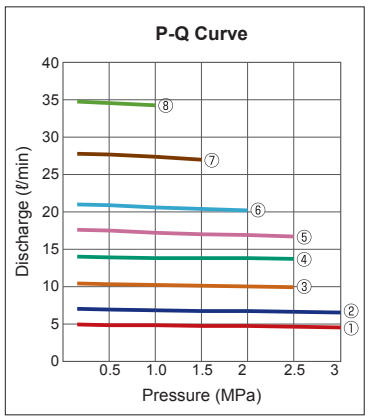
①203HB ②204HB
③206HB ④208HB
⑤210HB ⑥212HB
⑦216HB ⑧220HB

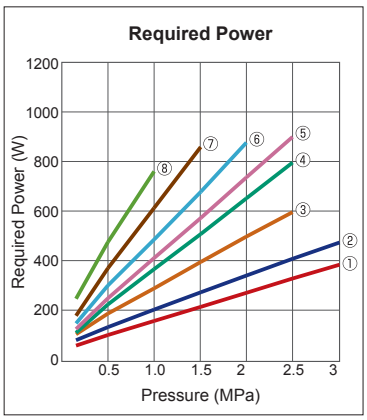




1750 min^{-1}

①203HB ②204HB
③206HB ④208HB
⑤210HB ⑥212HB
⑦216HB ⑧220HB

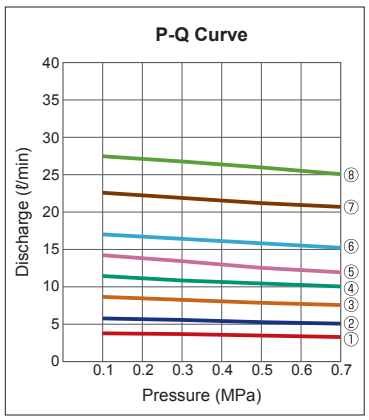


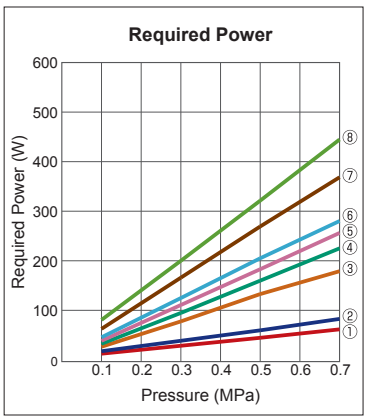


■2HT(M) Performance Curve

1450 min^{-1}

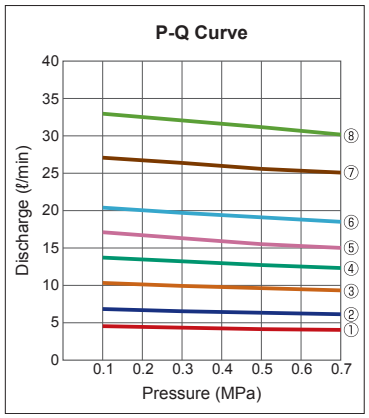
①203HT ②204HT
③206HT ④208HT
⑤210HT ⑥212HT
⑦216HT ⑧220HT

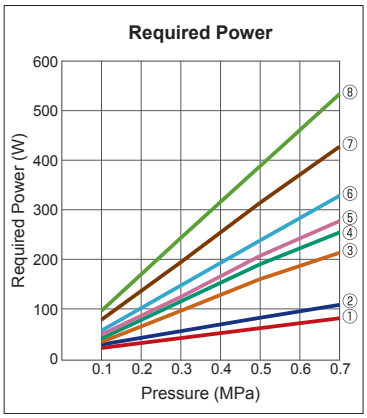




1750 min^{-1}

①203HT ②204HT
③206HT ④208HT
⑤210HT ⑥212HT
⑦216HT ⑧220HT

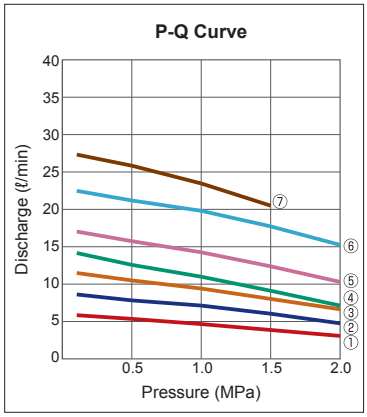


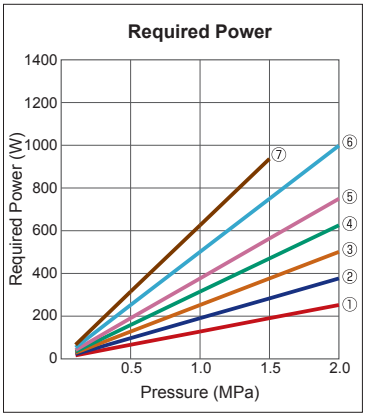


■ 2HW(M) Performance Curve

1450 min^{-1}

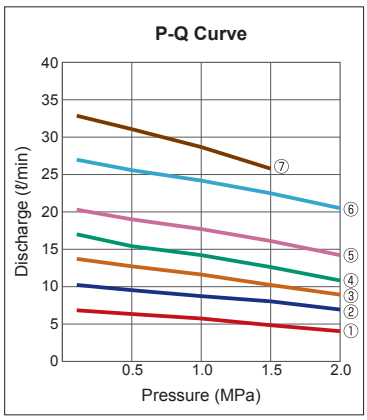
①204HWM ②206HWM
③208HWM ④210HWM
⑤212HWM ⑥216HWM
⑦220HWM

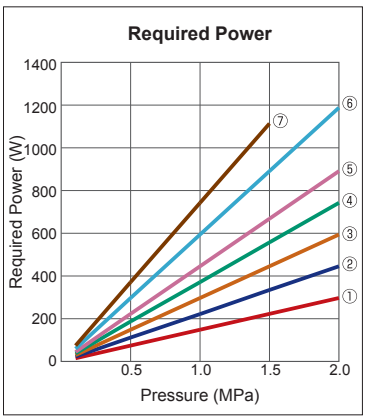




1750 min^{-1}

①204HWM ②206HWM
③208HWM ④210HWM
⑤212HWM ⑥216HWM
⑦220HWM

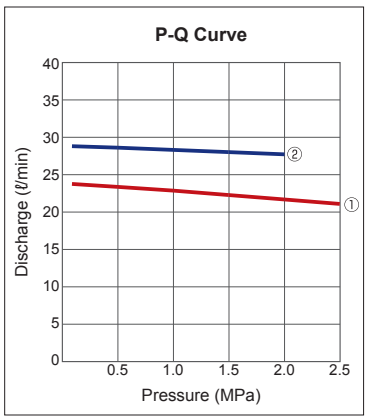


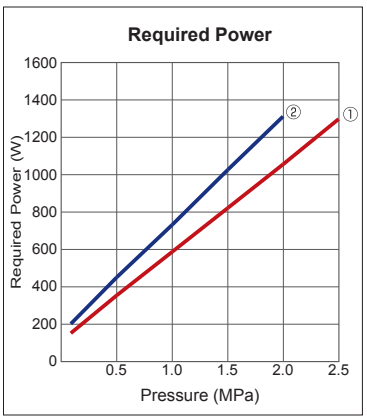


■ 2.5HGA Performance Curve

1450 min^{-1}

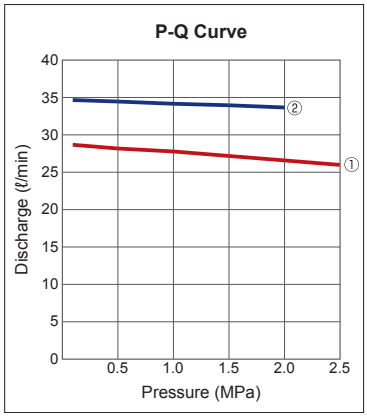
①2516HGA ②2520HGA

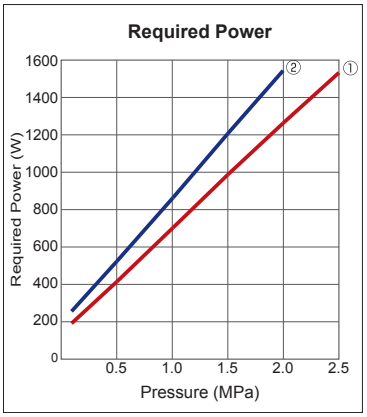




1750 min^{-1}

①2516HGA ②2520HGA





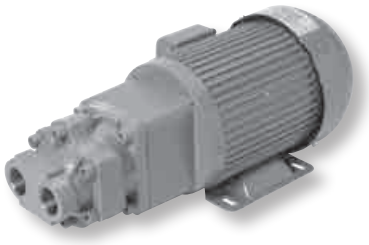
3MF (WITH INTEGRATED 3-PHASE MOTOR)

Model TOP-3MF▲▲▲▲ - N3▲▲ FA/FB (VB)

▲▲▲▲: Motor size

FA/FB: Valve option

FA	Discharge port parallel to pump shaft
FB	Discharge port perpendicular to pump shaft



■ SPECIFICATION

Model	Item	Motor speed 50Hz 1500min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 750W	1500W	2200W	Motor speed 60Hz 1800min^{-1} Theoretical discharge (ℓ/min)	Max. pressure for motor output (MPa) 750W	1500W	2200W
TOP-N320	FA / FA VB / FB	39.0	0.4	1.3	2.1	46.8	0.2	1.0	1.7
TOP-N330	FA / FA VB / FB	58.5	0.1	0.8	1.3	70.2	—	0.6	1.0
TOP-N340	FA / FA VB / FB	78.0	—	0.5	0.9	93.6*	—	0.3	0.6

Note: The value"*" can not always be achieved as it is subject to operating conditions and specifications.
TOP-N3F is the updated series of TOP-3F. It is also compatible with old series in performance and mounting dimensions.

■ MOTOR SPECIFICATION

3-phase squirrel-cage induction motor, Totally enclosed, Class F insulation, IE3.
CE-marking, Protection level IP44, 200VAC 50/60Hz, 220VAC 60Hz, 4 poles with continuous rating at 750, 1500, 2200W
Please consult us when ordering outdoor-type, increased safety-type, motor other than for standard voltage, one with terminal box attched on the other side, or other special motor.

N3F (PUMPHEAD)

Model TOP-N3▲▲ FA/FB M (VB)

Valve option

FA	Discharge port parallel to pump shaft
FB	Discharge port perpendicular to pump shaft

Non	For mounted on 3MF motor
M	For using other pump driving forces

■ SPECIFICATION

Model	Item	Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min) 1500min^{-1}	1800min^{-1}	Max. pressure (MPa)	Max. revolution (min^{-1})	Approx. Weight (Kg)
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

Note: The value"*" can not always be achieved as it is subject to individual operating conditions and specifications.
TOP-N3F is the updated series of TOP-3F. It is also compatible with the old series in performance and mounting dimensions.
N3FAM and N3FBM can not be coupled with 3MF motor.

3MB-N3H (BASE-COUPLING MOUNT TYPE)
N3H (PUMPHEAD)

Model TOP-3MB M/T ▲▲▲▲ - N3▲▲H (VB)

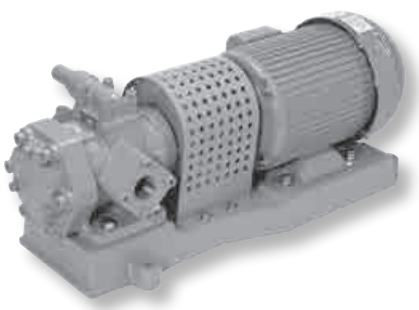
▲▲▲▲: Motor size

(VB): Valve option

M	Mitsubishi Motor
T	Toshiba Motor

TOP-N3▲▲H (VB)

(VB): Valve option



■ SPECIFICATION

Model	Item	Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min) 1500min^{-1}	1800min^{-1}	Max. pressure (MPa)	Max. revolution (min^{-1})	Approx. Weight (Kg)
TOP-N320H		26.0	39.0	46.8	4.0	1800	14.8 (15.4)
TOP-N330H		39.0	58.5	70.2	4.0*	1800	14.9 (15.5)
TOP-N340H		52.0	78.0	93.6	3.0*	1800	14.9 (15.5)
TOP-N350H		65.0	97.5	117.0	2.0*	1800	15.6 (16.2)

Note: The value"*" can not always be achieved as it is subject to individual operating conditions and specifications.
Values in ( ) show approx. weights of the pump when the valve is attached.
TOP-N3H is the updated series of TOP-3H. It is compatible with the old series in performance and mounting dimensions.

■ MOTOR SPECIFICATION

Compatible motor: 1500, 2200, 3700, 5500W.

3MB-3V (BASE-COUPLING MOUNT TYPE)
3V (PUMPHEAD)

Model TOP-3MB [M/T] ▲▲▲▲ - N3▲▲ (VB)

- [M/T]: M = Mitsubishi Motor, T = Toshiba Motor
- ▲▲▲▲: Motor size
- (VB): Valve option

TOP-3□□V (VB)

- (VB): Valve option

■ SPECIFICATION (For High Viscosity Oil)

Model \ Item	Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min) 1500min^{-1}	Theoretical discharge (ℓ/min) 1800min^{-1}	Max. pressure (MPa)	Max. revolution (min^{-1})	Approx. Weight (Kg)
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)

Note: For delivering oil with high viscosity (46-2000mm^2/sec), such as high viscosity lubricant oil or gear oil.
Values in ( ) show approx. weights of the pump when the valve is attached.

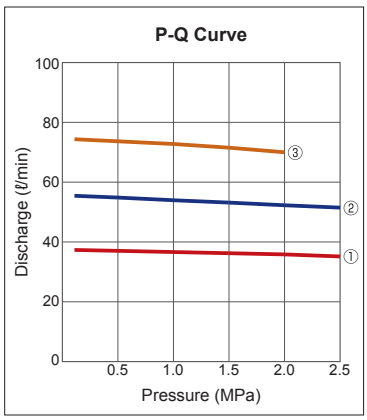
■ MOTOR SPECIFICATION

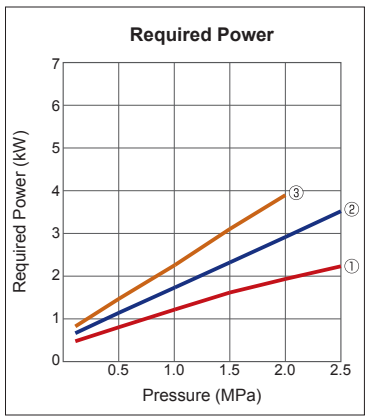
Compatible motor: 2200, 3700, 5500W.

■ N3F Performance Curve

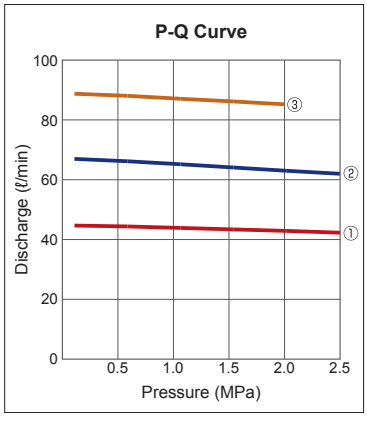
1450 min^{-1}

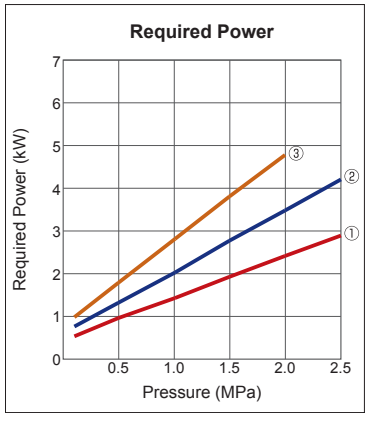
①N320F ②N330F
③N340F





①N320F ②N330F
③N340F

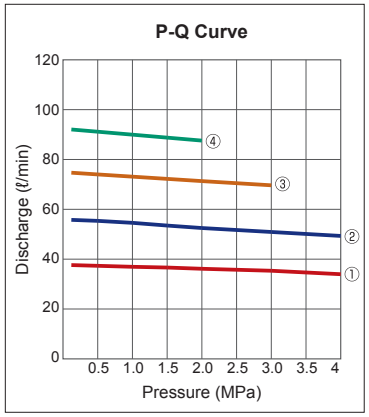


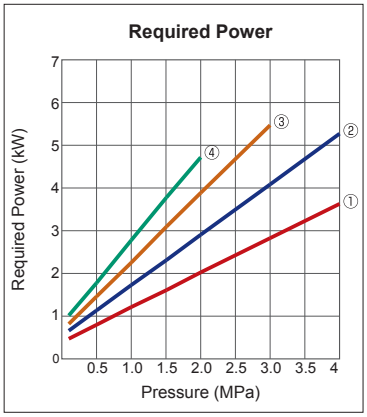


■N3H Performance Curve

1450 min^{-1}

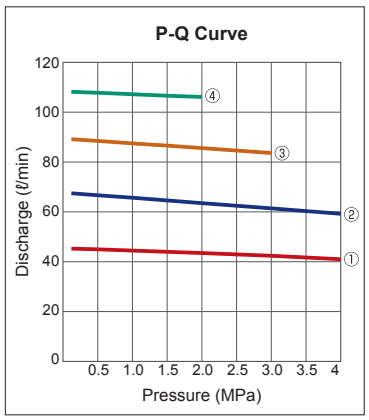
①N320H ②N330H
③N340H ④N350H

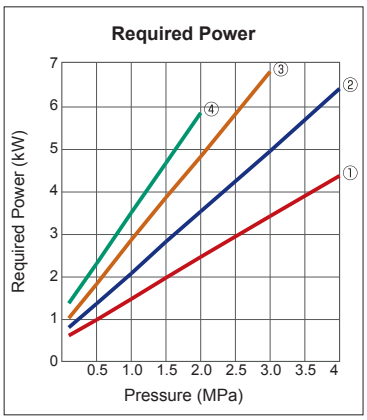




1750 min^{-1}

①N320H ②N330H
③N340H ④N350H

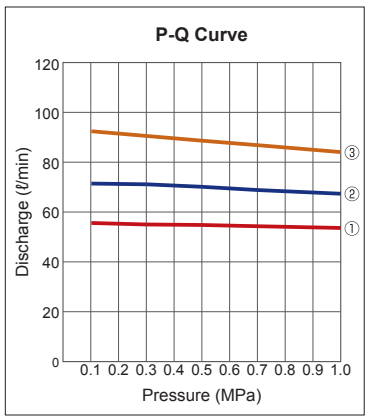


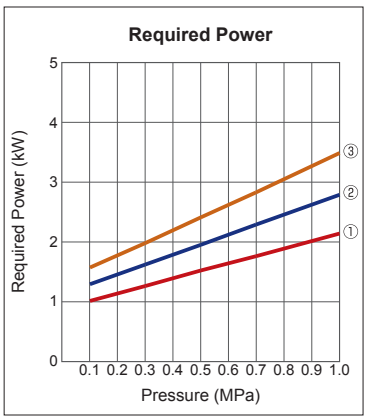


■3V Performance Curve

1450 min^{-1}

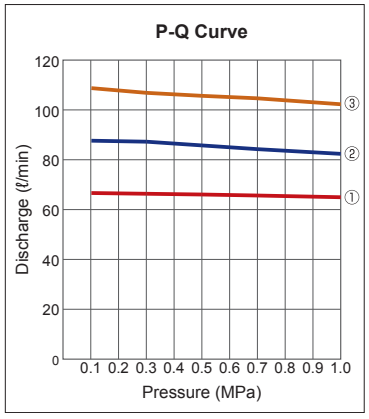
①330V ②340V
③350V

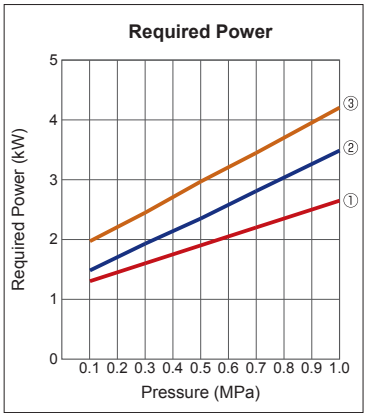




1750 min^{-1}

①330V ②340V
③350V





4MB-4AM (BASE-COUPLING MOUNT TYPE)
4AM (PUMPHEAD)

Model TOP-4MB [M/T] ▲▲▲▲-6-4▲▲▲AMIVB — Motor size; M Mitsubishi Motor, T Toshiba Motor

TOP-4▲▲▲AM (I) VB — Angle plate option

■ SPECIFICATION (For General Lubricant Oil)

Item / Model	Theoretical displacement (cm^3/rev)	Max. pressure (MPa)	Max. revolution (min^{-1})	Approx. Weight (Kg)
TOP-4100AM	115.5	2.0	1800	28.0
TOP-4130AM	148.5	2.0	1800	30.0
TOP-4150AM	171.6	2.0	1500	31.0
TOP-4200AM	231.0	2.0	1500	34.0
TOP-4250AM	280.5	2.0	1200	42.0

Note: Add 9 Kg to the total weight when the angle plate (I) is attached.
Values in ( ) show approx. weights of the pump when the valve is attached.

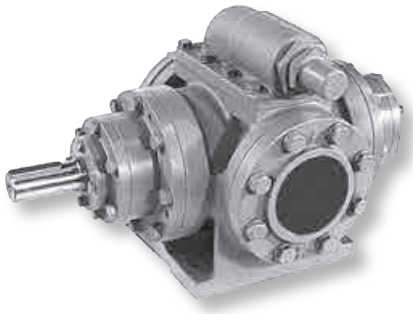
■ MOTOR SPECIFICATION

Compatible motor: 3700, 5500, 7500W, 6 Poles.

4MB-4A (BASE-COUPLING MOUNT TYPE)
4A (PUMPHEAD)

Model TOP-4MB [M/T] ▲▲▲▲-6-4▲▲▲AVB — Motor size; M Mitsubishi Motor, T Toshiba Motor

TOP-4▲▲▲VB



■ SPECIFICATION (For General Lubricant Oil)

Item / Model	Theoretical displacement (cm^3/rev)	Max. pressure (MPa)	Max. revolution (min^{-1})	Approx. Weight (Kg)
TOP-4300AVB	349.8	1.0	1200	120.0
TOP-4500AVB	580.8	1.0	1200	125.0

■ MOTOR SPECIFICATION

Compatible motor: 5500, 7500,11000, 15000W, 6 Poles.

LUNARY GEAR PUMP

MB-GPL (BASE-COUPLING MOUNT TYPE)
GPL (PUMPHEAD)

Model MB [M/T] ▲▲▲▲-6-GPL-▲▲▲IVB — Motor size; M Mitsubishi Motor, T Toshiba Motor

GPL-▲▲▲ [I/F] VB — I With angle plate, F No angle plate

■ STRUCTURE

This pump employs gears with special teeth called Lunary™ (patented), and rotates at continuous one-point contact. The conventional one-point contact gear (segmental gear, sinusoidal gear, etc.) is based on correction or combination of the theoretical curve, so the slip ratio tends to increase. However, the Lunary gear provides high durability to the pump with low slip ratio because an ideal closed curve is gained from a theoretical straight line and ellipse.

■ FEATURES

(1) Pulsation and noise are extremely limited due to lack of confinement.
(2) This pump is effectively used with highly viscous oil because there is no cavitation.
(3) Durability is provided by a patented Lunary gear.
(4) Use of a shaft input is eliminated to cut down costs.

■ SPECIFICATION (For High Viscosity Oil)

Item / Model	Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min) 1000min^{-1}	Theoretical discharge (ℓ/min) 1200min^{-1}	Max. pressure (MPa)	Max. revolution (min^{-1})	Approx. Weight (Kg)
GPL-150VB	150	150	180	1.0	1800	29.0
GPL-200VB	200	200	240	1.0	1800	30.0
GPL-250VB	250	250	300	1.0	1800	32.0

Note: For transfering oil with high viscosity (46-2000mm^2/sec), such as high viscosity lubricant oil or gear oil.
Add 13 Kg to the total weight when the angle plate (I) is attached.

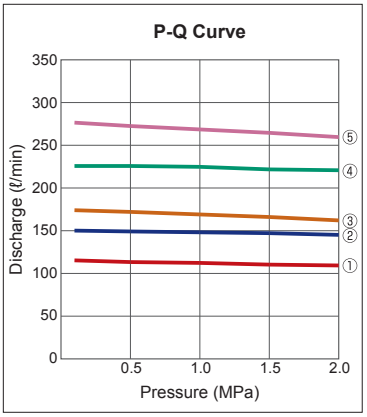
■ MOTOR SPECIFICATION

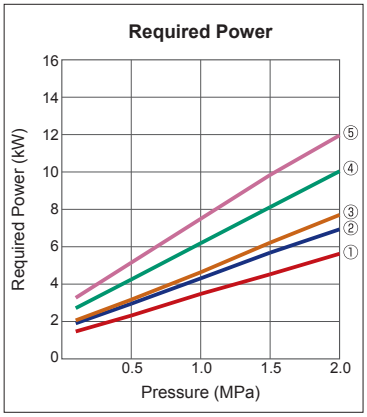
Compatible motor: 3700, 5000, 7500W.

■4AM Performance Curve

960 min^{-1}

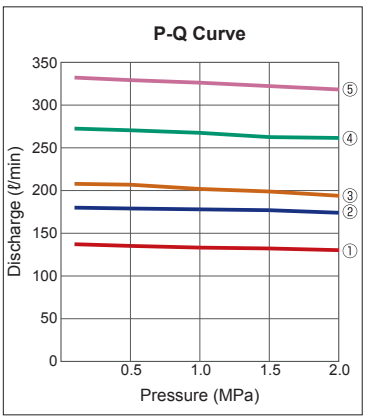
①4100AM ②4130AM
③4150AM ④4200AM
⑤4250AM

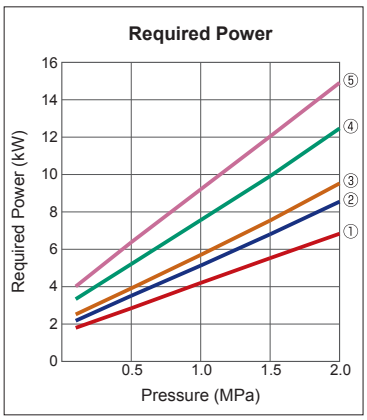




1160 min^{-1}

①4100AM ②4130AM
③4150AM ④4200AM
⑤4250AM

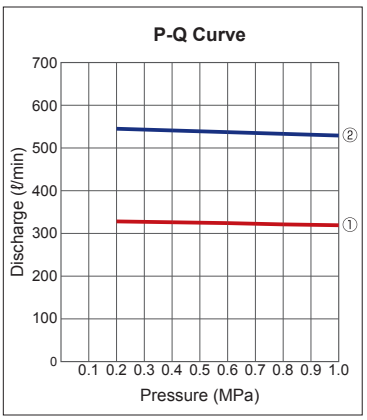


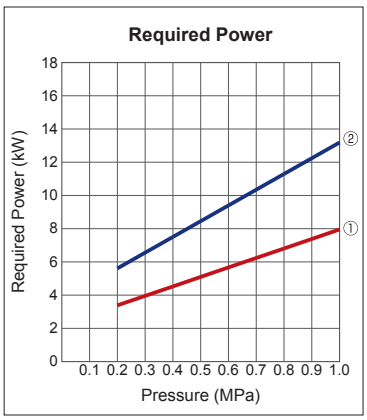


■4A Performance Curve

960 min^{-1}

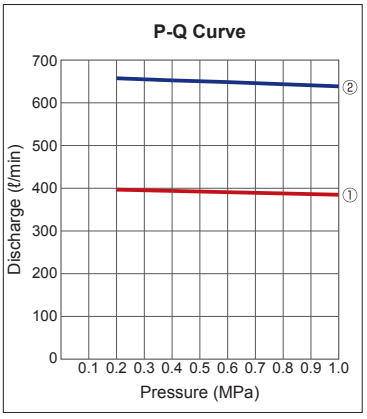
①4300AVB ②4500AVB

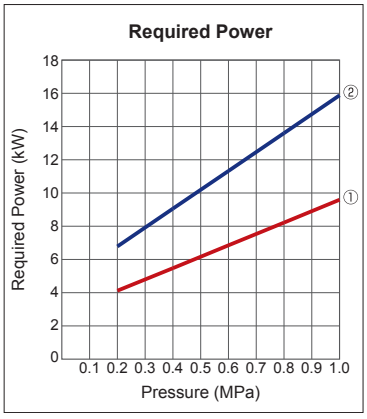




1160 min^{-1}

①4300AVB ②4500AVB

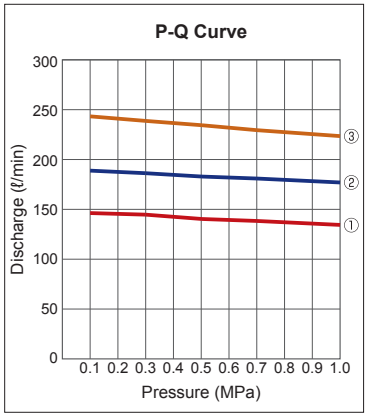


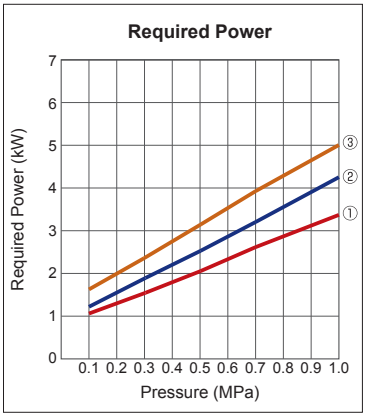


■ GPL Performance Curve

960 min^{-1}

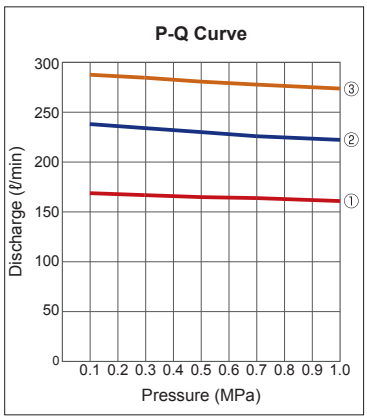
①GPL-150VB
②GPL-200VB
③GPL-250VB

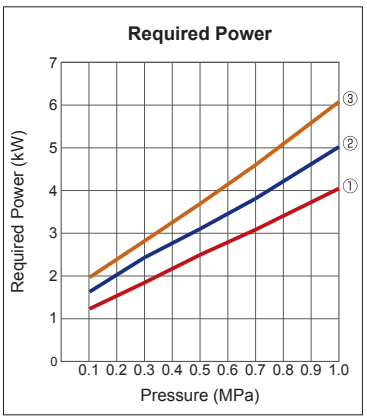




1160 min^{-1}

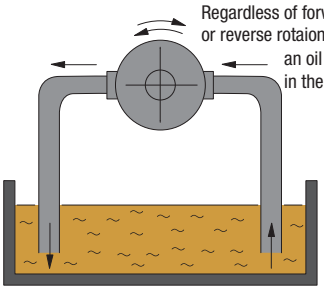
①GPL-150VB
②GPL-200VB
③GPL-250VB





REVERSIBLE TROCHOID PUMP

■ FEATURES



When the pump rotation is reversed, a reversing ring within which rotors are mounted will also rotate following the rotation direction by 180° degrees and thereby reverse the eccentricity of the pump. Because of that, pumping flow direction always stay the same regardless of its rotation direction.

1RA/2RA (PUMPHEAD, REVERSIBLE)

Model TOP-1RA-▲▲▲
TOP-2RA-▲▲C

■ SPECIFICATION (For General Lubricant Oil)

Item / Model	Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min)		Max. pressure (MPa)	Max. revolution (min^{-1})	Approx. Weight (Kg)
		1500min^{-1}	1800min^{-1}			
TOP-1RA-100	1.1	1.6	2.0	0.5	2000	1.1
TOP-1RA-200	1.8	2.7	3.2	0.5	2000	1.2
TOP-1RA-300	2.5	3.7	4.5	0.5	2000	1.3

■ SPECIFICATION (For General Lubricant Oil)

Item / Model	Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min)		Max. 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	3.9
TOP-2RA-8C	8.0	12.0	14.4	0.5	2000	4.2
TOP-2RA-12C	12.0	18.0	21.6	0.5	1800	4.5

3RD/4RD (PUMPHEAD REVERSIBLE)

Model TOP-3RD-▲▲T
TOP-4RD-100

■ SPECIFICATION (For General Lubricant Oil)

Item / Model	Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min)		Max. 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

■ SPECIFICATION (For General Lubricant Oil)

Item / Model	Theoretical displacement (cm^3/rev)	Max. pressure (MPa)	Max. revolution (min^{-1})	Approx. Weight (Kg)
TOP-4RD-100	100	0.5	1000	30.5

RELIEF VALVE

■ FEATURES

When pressure inside the hydraulic circuit has reached the valve set value, the valve opens to relieve part of or whole oil to the return side, thereby keeping the circuit pressure constant. It is also used to limit the maximum pressure to protect the pump and equipment.

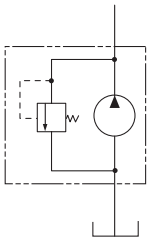
Relief valves are available in a range from 2 to 4 VBP(D) according to the capacity and set pressure.

■ TYPE OF RELIEF VALVES

Item \ Series	2	3	4
Used as a safety valve for temporary pressure reduction to protect the pump and equipment	2VD	3VD	4VD
Used as a pressure control valve for hydraulic system (or lubricating oil circulating system) (mounted on sub-plate)	2VBD	3VBD	4VBPD
Used as a pressure control valve for lubricating oil circulation system (or hydraulic system) (without sub-plate)	2VD	—	—
pressure control range (MPa)	0.08–2.5	0.08–3.0	0.15–2.0
Flow rate (MAX)	36	100	200

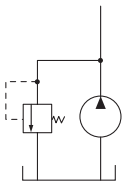
■ RELIEF VALVE CIRCUIT DIAGRAM AND INSTALLATION METHOD

Model VB



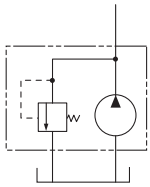
Installed directly on the pump

Model VBD



Installed on the circuit

Model VD



Installed directly on the pump(only 2VD)

FUEL PUMP

MB-GD (BASE-COUPLING MOUNT TYPE)
GD (PUMPHEAD)

Model TOP-MB [M/T] ▲▲▲-GD-2▲▲ [VK/H]

[M/T] Motor size

M	Mitsubishi Motor
T	Toshiba Motor

VK	For diesel oil/kerosene/heavy oil A
H	For heavy oil B/heavy oil C

TOP-GD-2□□ [VK/H]

VK	For diesel oil/kerosene/heavy oil A
H	For heavy oil B/heavy oil C

SPECIFICATION

Model \ Item		Theoretical displacement (cm^3/rev)	Theoretical discharge (ℓ/min) 1500min^{-1}	Theoretical discharge (ℓ/min) 1800min^{-1}	Max. pressure (MPa)		Max. revolution (min^{-1})	Approx. Weight (Kg)
202VK	202H	2.0	3.0	3.6	2.0	4.0	3600	6.4
203VK	203H	2.8	4.2	5.0	2.0	4.0	3600	6.5
204VK	204H	3.6	5.4	6.4	2.0	4.0	3600	6.7
206VK	206H	5.6	8.4	10.0	2.0	4.0	3600	7.3
208VK	208H	7.6	11.4	13.6	2.0	4.0	1800	7.6
210VK	210H	9.6	14.4	17.2	2.0	4.0	1800	8.1

Note: **VK: Set pressure of relief valve (fully closed) at factory is 2.0MPa.
***H: Set pressure of relief valve (fully closed) at factory is 2.5MPa.

■ MOTOR SPECIFICATION

Compatible motor: 750, 1500W.

MICRO TOP (SMALL AND HANDY SIZE OIL FILTER)

Model TFP400-S [100 / 200] -2512A- [00 / 03 / 10]

100	100V(Single phase)
200	200V (Single phase)

00	No filter with a closing lit
03	With 3μ filter
10	With 10μ filter

■ SPECIFICATION

The Micro-top is a convenient and economical oil filtering device designed in a compact configuration. It is a handy lightweight device which you can take with you wherever you want to go. It is completely equipped with the cords and hoses. It can be operated by a mere touch of a push button. This product serves as a multi-purpose device for your factory.

■ APPLICATION

Removal of contaminants from oil inside the hydraulic tank
Replacement and supply of oil for construction machinery and industrial vehicles
Lubrication and oil removal
Protection of oil against deterioration and contamination
Cleaning of oils

■ SPECIFICATION

Theoretical discharge (ℓ/min)	12/50Hz, 14.4/60Hz
Discharge pressure (MPa)	0.3
Filter(microns)	3 or 10 microns
Motor	Single phase: 100V/200V only, 400W
Accessories	Vinyl hoses for sunction and discharge wires (2 meters each)
Approx.weight (kg)	15

1PS (OIL COOLING UNIT)

Model 1PS 75 -2-12MAVB-C [23 / 24]

Motor size

23	Pump on the left (When viewed from level gauge side)
24	Pump on the right (When viewed from level gauge side)

■ APPLICATION

For cooling machinaries or other industrial equippment

Wiring diagram

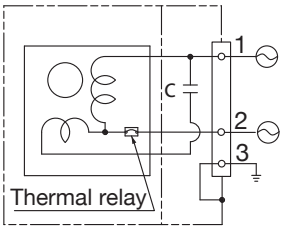
(Motor for pump)

U V W

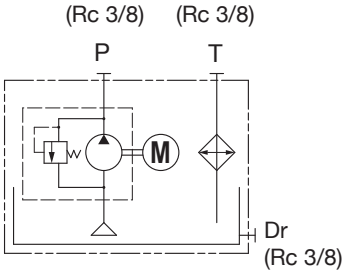
R S T

(L1) (L2) (L3)

Connection diagram



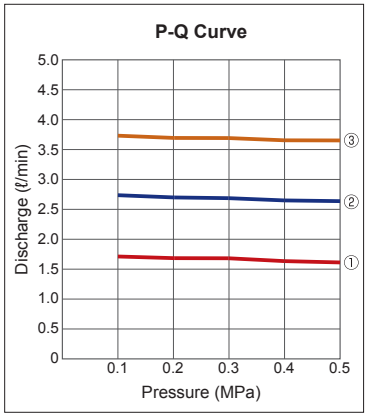
Hydraulic circuit diagram

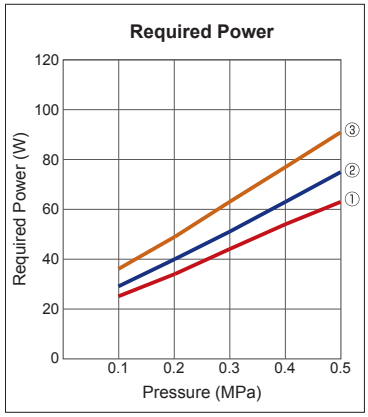


■ 1RA Performance Curve

1450 min^{-1}

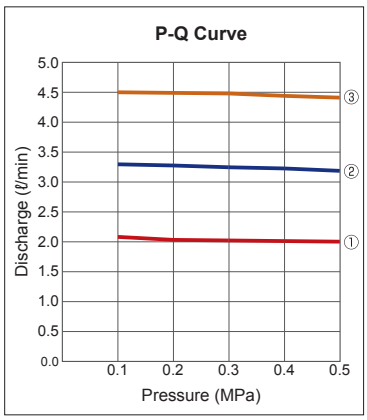
①1RA-100 ②1RA-200
③1RA-300

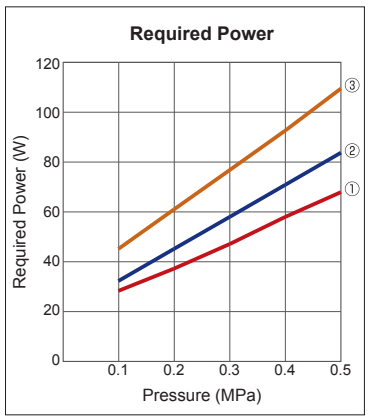




1750 min^{-1}

①1RA-100 ②1RA-200
③1RA-300

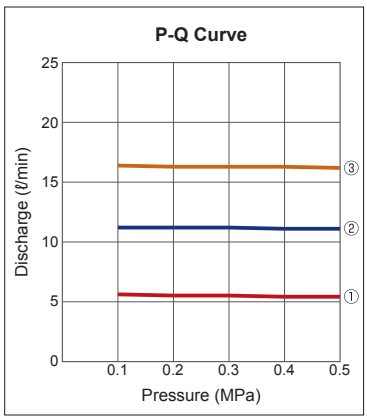


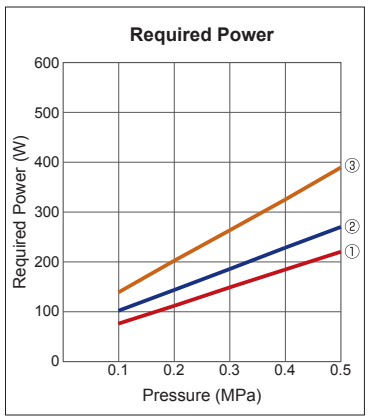


■ 2RA Performance Curve

1450 min^{-1}

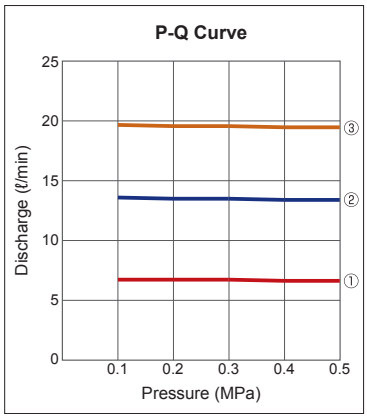
①2RA-4C ②2RA-8C
③2RA-12C

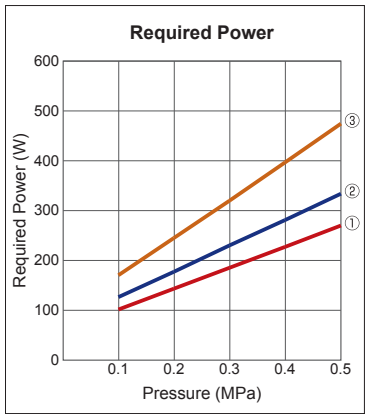




1750 min^{-1}

①2RA-4C ②2RA-8C
③2RA-12C

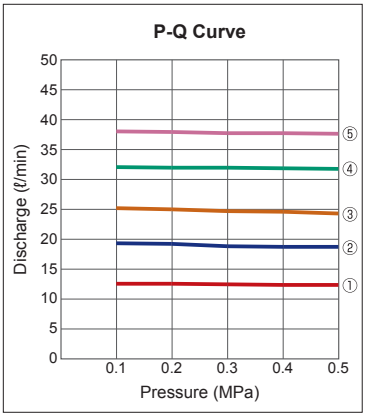


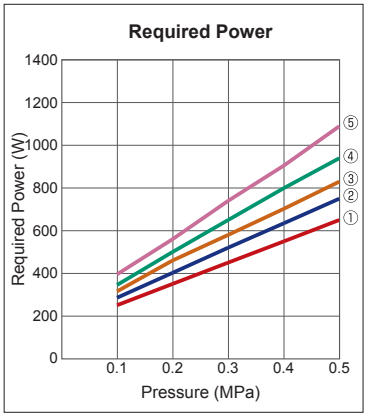


■ 3RD Performance Curve

960 min^{-1}

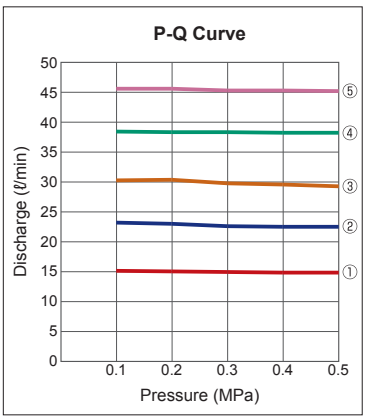
①3RD-10T ②3RD-15T
③3RD-20T ④3RD-25T
⑤3RD-30T

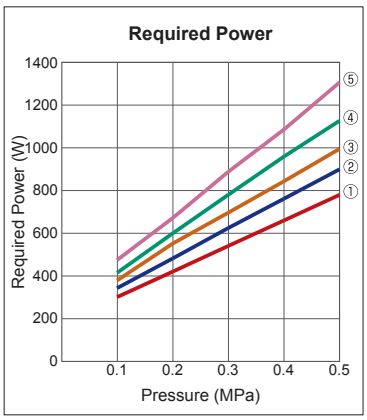




1160 min^{-1}

①3RD-10T ②3RD-15T
③3RD-20T ④3RD-25T
⑤3RD-30T

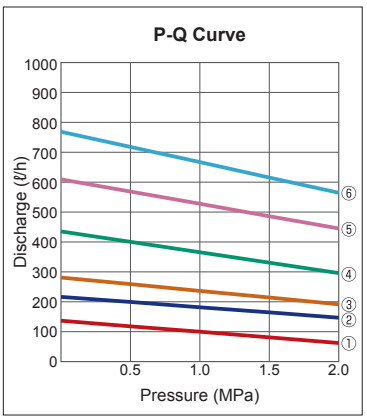


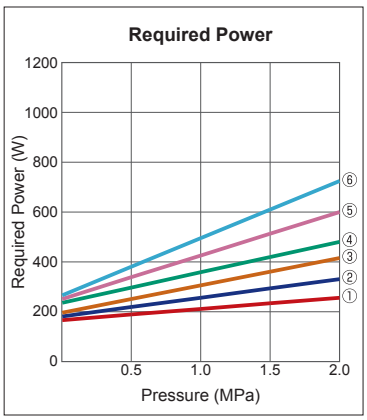


■ GD-VK Performance Curve

1450 min^{-1}

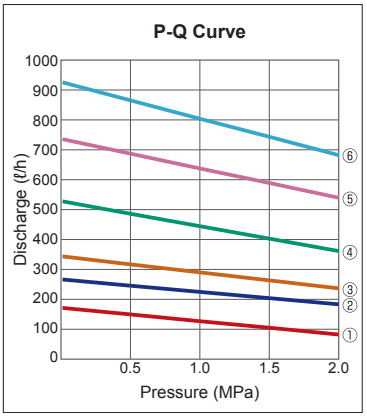
①GD-202VK
②GD-203VK
③GD-204VK
④GD-206VK
⑤GD-208VK
⑥GD-210VK

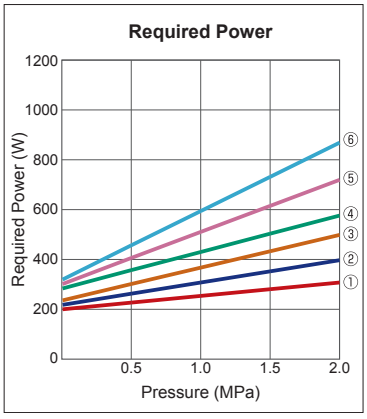




1750 min^{-1}

①GD-202VK
②GD-203VK
③GD-204VK
④GD-206VK
⑤GD-208VK
⑥GD-210VK

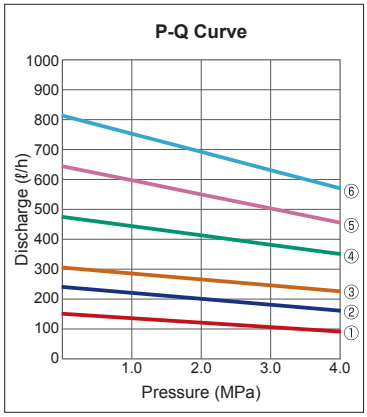


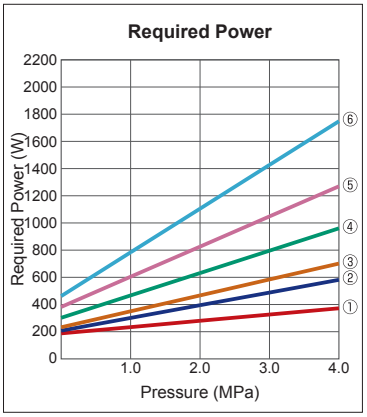


■ GD-H Performance Curve

1450 min^{-1}

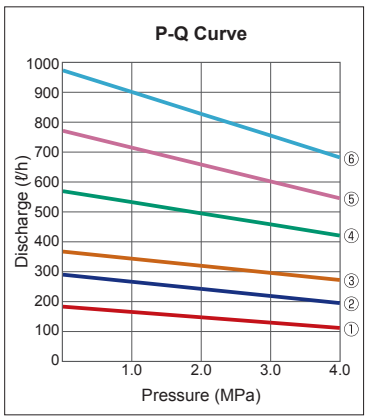
①GD-202H
②GD-203H
③GD-204H
④GD-206H
⑤GD-208H
⑥GD-210H

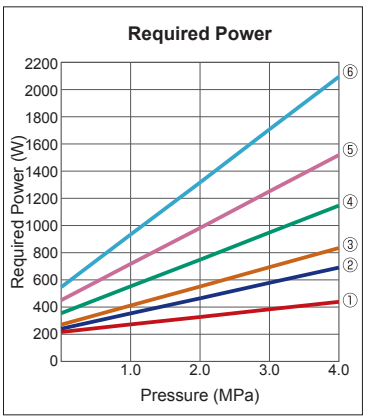




1750 min^{-1}

①GD-202H
②GD-203H
③GD-204H
④GD-206H
⑤GD-208H
⑥GD-210H





Trochoid® Pumps

Filtre^3

Filter Pumps

Hydraulic Index Motors

Air Oil Cooler

NOP INDIA

Nippon Oil Pump India Private Limited

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