

Torishima Pump Global Network



East Asia

① Torishima Pump Mfg. Co., Ltd. ■ ■
1-1-8 Miyata-cho, Takatsuki-city, Osaka 569-8660 Japan
Tel : +81-72-690-2308 / Fax : +81-72-690-2329

② Kyushu Torishima Co., Ltd. ■
9857-13, Ohaza Kawako, Wakagi-cho, Takeo-city,
Saga 843-0151 Japan
Tel : +81-954-26-3081 / Fax : +81-954-26-3080

③ Torishima Pump Mfg. Co., Ltd.
Korea Liaison Office
4F, EC Bldg., Sinsa-dong 506-4, Gangnam-gu,
Seoul, 135-887, Republic of Korea
Tel : +82-2-3442-0238 / Fax : +82-2-3442-0242

④ Torishima Pump (Tianjin) Co., Ltd. ■ ■
No.9 Gaoxin Road, Wuqing Development Zone,
Tianjin, P.R.China PC:301700
Tel : +86-22-59695601 / Fax : +86-22-59695609

⑤ Torishima Pump Mfg. Co., Ltd.
Beijing Office
Rm707, Building 1, KUNSHA CENTER,
No.16 Xinyuanli, Chaoyang District,
Beijing, P.R.China PC:100027
Tel : +86-10-84682891 / Fax : +86-10-84682890

⑥ Torishima (Hong Kong) Ltd.
Unit A, 21/F., Tower A, Billion Centre,
1 Wang Kwong Road, Kowloon Bay, Kowloon,
Hong Kong
Tel : +852-2795-1838 / Fax : +852-2754-3293

South East Asia

⑦ Torishima (Hong Kong) Ltd.
Vietnam Office
No.76 Bui Thi Xuan Street, Hai Ba Trung District,
Hanoi, Socialist Republic of Vietnam
Tel : +84-4-943-7880 / Fax : +84-4-943-7876

⑧ Torishima Pump Mfg. Co., Ltd.
Singapore Office
82 Toh Guan Road East
#C2-14-4 WaterHub Singapore 608576
Tel : +65-6779-0123 / Fax : +65-6779-6900

⑨ Torishima Service Solutions
Asia Pte.Ltd. ■
48, Toh Guan Road East, #02-142,
Enterprise Hub, Singapore 608586
TEL : +65-6933-8772 / FAX : +65-6933-8777

■ Manufacturing ■ Service Center

⑩ P.T. Torishima Guna Engineering ■ ■

P.T. Torishima Guna Indonesia ■
Jalan Rawa Sumur Timur No.1 Pologadung
Industrial Estate, P.O.Box 1160, Jakarta, Indonesia
Tel : +62-21-460-3963 / Fax : +62-21-460-3937

⑪ P.T. Geteka Founindo ■

JL Pulo Ayang Kav.
AA2 Pologadung Industrial Estate,
P.O.Box 1160 JAT, Jakarta 13011 Indonesia
Tel : +62-21-460-3963 / Fax : +62-21-460-3937

South Asia

⑫ Torishima Pumps India Pvt. Ltd.

Tower B 1106, Millennium Tower, Sector27
Gurgaon-122002, Haryana, India
Tel : +91-124-4728950 / Fax : +91-124-4728950

⑬ Torishima Pumps India Pvt. Ltd. Service Division ■

Plot No.27 B, Candi, Hoskote KIADB Industrial Area,
Chokkahalli Village, Kasaba Hobli, Hoskote Taluk,
Bangalore-562114, Karnataka, India

Oceania

⑭ Torishima Australia Pty. Ltd.

643-645 Glenhuntly Road,
Caulfield South VIC 3162 Australia
Tel : +61-3-9523-7998

Middle East

⑮ Torishima Service Solutions FZCO ■

Plot of Land TP010501 Techno Park-Jebel Ali,
PO Box 37603 Dubai, U.A.E.
Tel : +971-4-880-7344 / Fax : +971-4-880-7354

⑯ Torishima Pump Mfg. Co., Ltd. Middle East Office

Office No.901, Deluxe Tower, Delma Street,
Al Nahyan Camp Area, P.O.Box 53567,
Abu Dhabi, U.A.E.
Tel : +971-2-674-3880 / Fax : +971-2-674-3881

⑰ Torishima Pump Mfg. Co., Ltd. Qatar Project Office

Office No.11,1st Floor, West Corner Centre,
Salwa Road-Midmac R/A,
P.O.Box 37027 Doha, Qatar
Tel : +974-4450-6915 / Fax : +974-4450-6916

⑲ Torishima Pump Mig. Co.,Ltd. Saudi Arabia Office

P.O.Box 12241-6208, 3202 Al Amir Mohammed
Bin Abdulaziz Street (Tahlea Street), Al Olaya,
Kingdom of Saudi Arabia
Tel : +966-1-1293-1355

Europe

⑳ Torishima Europe Ltd.

Sunnyside Works, Gartsherrie Rd, Coatbridge,
Scotland ML5 2DJ
Tel : +44-1236-443951 / Fax : +44-1236-702875

㉑ Torishima Service Solutions Europe Ltd. ■

Sunnyside Works, Gartsherrie Rd, Coatbridge,
Scotland ML5 2DJ
Tel : +44-1236-442390 / Fax : +44-1236-702875

㉒ Torishima Europe Projects Ltd.

Torishima House, Brook Lane, Westbury,
Wiltshire, England BA13 4ES
Tel : +44-1373-858143

㉓ Torishima Europe Ltd. Madrid Office

Avda, Fuente Nueva 12A, 28703
San Sebastian de los Reyes, Madrid, Spain
Tel : +34-91-002-7541 / Fax : +34-91-284-6901

㉔ Torishima Europe Ltd. Poland Office

ul. Pomianowska 7, 03-136 Warszawa, Poland
Tel : +48-604-557-137

North America

㉕ Torishima Pump Mfg. Co., Ltd.

North America East Office
100 Grove Street, Suite 217, Worcester
MA 01605-2654 U.S.A.
Tel : +1-508-753-6600 / Fax : +1-508-753-8276

㉖ Torishima Pump Mfg. Co., Ltd.

North America West Office
2192 Dupont Drive, Suite 112, Irvine, CA 92612 U.S.A.
Tel : +1-949-379-6141 / Fax : +1-949-379-6181

Central America

㉗ Torishima Europe Ltd. Mexico Office

Av Paseo de La Reforma 350,11th floor,
Juárez,Cuauhtémoc, 06600
Ciudad de México,D.F., México
Tel : +52-55-9171-1426 / Fax : +52-55-9171-1499

CAL (Cast Iron) CAR (Stainless Steel)

End-Suction Volute Pump



PT TORISHIMA GUNA INDONESIA



End-Suction
Volute Pump

The Torishima "Eco Pumps" lead the World!

End-Suction Volute Pump (10 bar type)

CAL is of Cast Iron construction. CAR is of Stainless Steel construction.

CA series pumps are eco-friendly high-efficiency pumps based on technology from our engineered pumps.



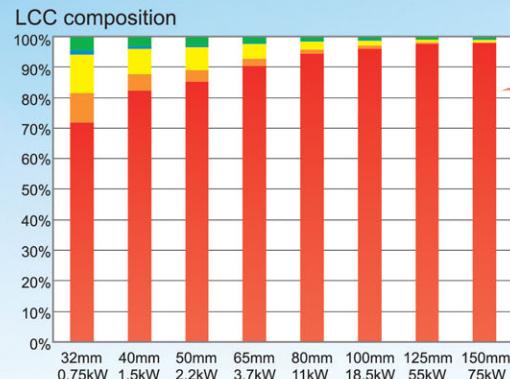
Energy Saving & Cost Reduction

Eco pumps significantly reduce the life cycle costs of pumps and CO₂ emissions because of their design (3D impeller, casing), motor (Torishima ultra high efficiency motor) and optimized specification (impeller cut).

■ Reduction of LCC (Life Cycle Cost)

About 90% of the pump LCC is generated from electricity cost.

Increased efficiency leads to big reduction of LCC.



About 90% of pump LCC is electricity cost.

LCC is calculated on the basis of:
CAL size 32 to 150mm;
24hours day, 365days, 15years operation;
Operating at 60Hz-4P with normal temperature clean water;
Electricity cost of JP¥10 per kWh.

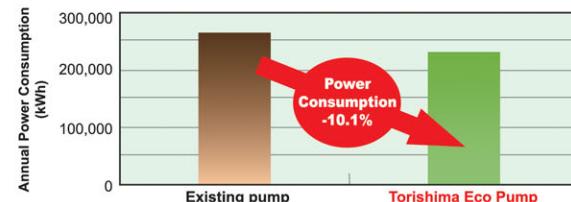
Operating cost
Initial cost
Electricity
Maintenance
Spare parts
Installation work
Unit price

■ Energy Saving with Eco Pumps

Cooling water pump

Annual operating hours: 8,760hours

	Existing pump spec	Torishima pump CAL125-250	Difference
Facility spec	Motor capacity 30kW	30kW	
Capacity(m ³ /min)	4.7	4.7	0%
Head(m)	26.5	27.7	-1.2m
Pump efficiency(%)	78	81	+3.0%
Shaft power(kW)	27.2	25.1	-2.1kW
Motor efficiency(%)	91.9	94.5	+2.6%
Power consumption(kW)	29.6	26.6	-3.0kW(-10.1%)
Annual Power Consumption(kWh)	259,296	233,016	-26,280kWh



Annual Saving
USD\$2,628
(= 26,280 kWh x USD 0,1)

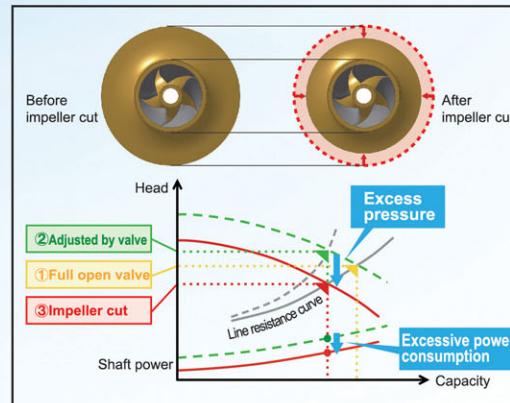
Electricity cost per kWh : USD 0,1

Annual CO₂ Reduction
11.8t-CO₂
(=26,280kWh x 0.00045t-CO₂/kWh)

Conversion factor of CO₂ emission: 0.00045 (t-CO₂/kWh)
referred from Tokyo Electric Power Co., Inc, 2011

■ Meeting Customer's Specification (Impeller cut)

The impeller diameter can be cut to meet the customer's specification to reduce unnecessary power consumption.



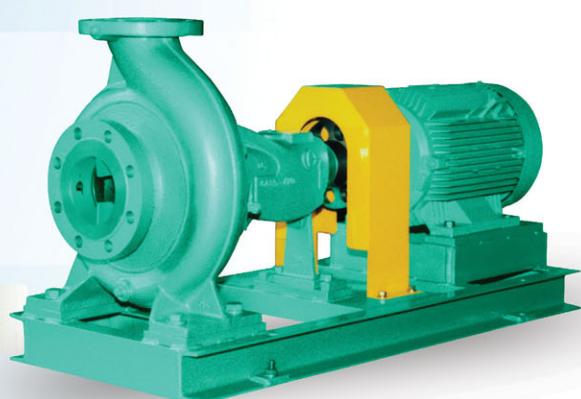
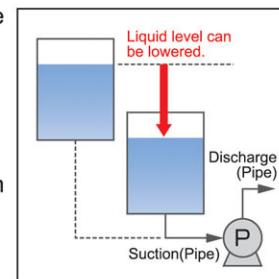
■ High Speed and Simplified Design

CAL/CAR are simplified with high speed and compact design, which enable to reduce the installation space.

■ Low NPSH and a Wide Application Range

Low NPSH performance enables lower suction level which reduces plant construction cost.

CAL/CAR can handle liquid temperatures from -40 to +350°C (heat medium) and various liquid types.



Maintenance & Operation

■ Mechanical Seal as Standard Part

Maintenance free.



No leakage from seal parts allows cleanliness around pumps.

Standard mechanical seal (rubber bellows seal) is easy to install and does not damage shaft, thus does not require shaft sleeve.

	Mechanical seal	Gland packing
Leakage	0 cc/min	15 cc/min
5-year leakage	0 l	39,420 l
Cost amount	USD\$ 0	USD\$ 138*

* In case of using tap water
- Industrial Water : USD\$ 17.74 (USD\$ 0.45/m³)
- Tap Water : USD\$ 138 (USD\$ 3.5/m³)
- Pure Water : USD\$ 591,000 (USD\$ 15/l)

39,420l leakage from using gland packing for 5 years equals to about 197 bathtubs (200l home bathtub)



■ Safe Operation with Precision Bearing Design

■ Stable Operation

The stable pump performance facilitates valve control and parallel operation.

Coupling Guard

CAL/CAR are covered with and enclosed type coupling guard as an optional

An enclosed coupling guard improves safety and maintenance compared to an existing coupling guard due to the wide area of coverage



Standard Coupling Guard



Enclosed Coupling Guard
(as optional)



TU Motor : 2P-55kW or less, 4P-110kW or less
Coupling Diameter : 280 mm or less
Motors have different size and frame by manufacturers

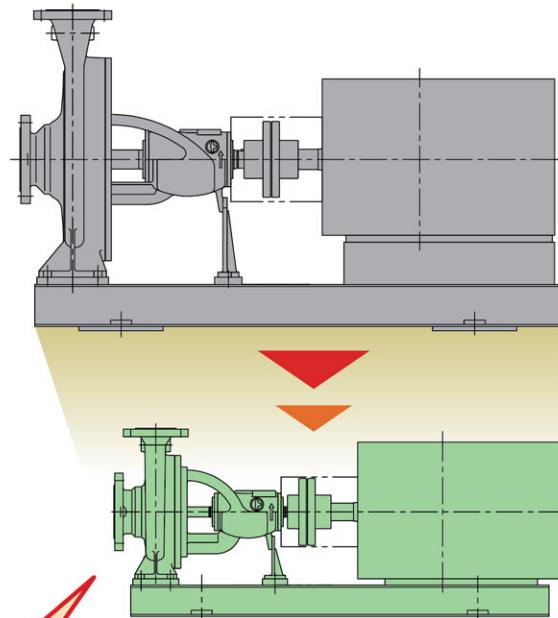
Downsizing to 2P Design

Increasing the pump speed by using a 2 pole motor reduces the pump size and weight.

Conditions: total head of 50m, capacity of 1m³/min, and 60Hz

Pole number: 4P
Pump size: CAL80-400
Motor output: 18.5kW
Weight: 400kg

Pole number: 2P
Pump size: CAL50-200
Motor output: 15kW
Weight: 209kg



**Weight reduced by 47%
compared to 4P**
 $= (400 - 209) \div 400 \times 100$

The above diagram describes characteristics of 2P. We can provide the design for 4P as well.
Weight includes pump, base plate, motor and coupling.
Motor weight differs depending on manufacturers.

Applications

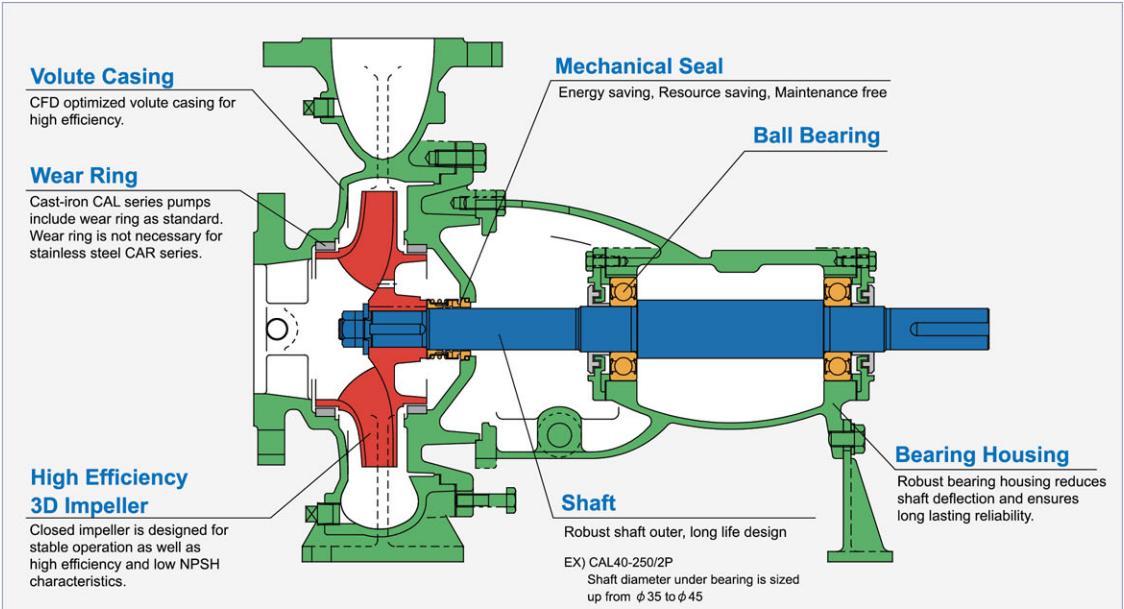
Utility	Co-generation	Cooling water pump, Hot water (circulation) pump	CAL CAR
	Air conditioning	Cold water pump, Cooling water pump, Hot water pump	
	Drainage treatment	Raw water pump, Filtrate pump, Back wash pump, Transfer pump	
	Pure water facility	Raw water pump, RO wash pump, Recovering back wash pump, Filtrate water pump	
Iron & Metal	Power generation	Deaerator feed water pump	CAL CAR
	Hot rolling	Transfer pump, Hot water pump, Water pumping pump, Filtrate pump, Back wash pump,	
	Flue gas desulfurization	Cooling water pump, Industrial water pump	
	Roll coolant	Spray pump	
Food & Beverage	Plating	Wash pump (Rinse pump)	CAL CAR
	Manufacturing process	Cold water pump, Cooling water pump (Circulation / Boost), Recycle water pump, Filtrate pump, Sprinkling pump	
	Refrigerator	Chilled pump, Defrost pump	
	CIP system	CIP supply / return pump	
Automobile (Painting Plant)	Degreasing process	Degreasing pump, Hot / Cold water wash pump, Spray pump	CAL CAR
	Transformation process	Chemical pump, Hot / Cold water wash pump, Pure water pump	
	Electrodeposition process	Electrodeposition liquid circulation pump, Wash pump, Pure water pump	
Garbage Incinerating Plant	Power generation	Deaerator feed water pump, Condensate pump,	CAL
	Heat decrease tower	Heat decrease pump, Spray pump for heat decrease tower	
	Drainage	Reuse water pump (pumping, transferring, feeding)	
Other Liquid Handled	Brain, Acetone, Calcium chloride, Kalium chloride, Alkaline solution, Ethylene glycol, Aqua fortis, Sulfate, Sodium hydroxide, Ammonia liquor, Caustic soda, etc.		CAR

Please ask about special fluid.

Specification

		CAL(Cast Iron)	CAR(Stainless Steel)
Handled liquid	Kinds	Clean water, Warm water, Oil, Chemical medicine, Alkaline solution, Brine, Heat transfer media, Abrasive slurry liquid under 3wt%, etc.	Pure water, Hot water, Sea water, Salted water, Refrigerant, Electrodeposition paint, Abrasive slurry liquid under 3wt%, etc.
	Temperature	Standard: -10°C < T < 100°C Option: 100°C < T < 350°C	Standard: -10°C to +80°C Option: -40°C to +140°C
	Max. discharge pressure	Standard: 1MPa (10kgf/cm ² G) Option: 1.4MPa (14kgf/cm ² G)	1MPa (10kgf/cm ² G)
	Max. suction pressure	0.8MPa (8kgf/cm ² G)	0.8MPa (8kgf/cm ² G)
Design	Impeller	Closed	Closed
	Shaft seals	Standard: Single mechanical seal (Rubber bellows) Option: Double mechanical seal, Gland packing	Standard: Single mechanical seal (Rubber bellows) Option: Double mechanical seal, Gland packing
	Water injection for shaft seal	Standard: Internal injection Option: Quenching, Flushing	Standard: Internal injection Option: Quenching, Flushing
	Lubricated bearing	Standard: Grease lubrication Option: Oil lubrication	Standard: Grease lubrication Option: Oil lubrication
	Flange standard, Suction / Discharge direction	JIS 10KRF Shaft direction suction / Vertical top discharge	JIS 10KRF Shaft direction suction / Vertical top discharge
Pump material	Casing	Standard: FC250 Option: FCD400	Standard: SCS13 Option: SCS14
	Impeller	Standard: FC200 Option: SCS13, SCS14, BC6	Standard: SCS13 Option: SCS14
	Shaft	Standard: SUS420J2 Option: SUS329J1, SUS304	Standard: SUS304 Option: SUS316, SUS329J1
	Case wear ring	Standard: FC200	-

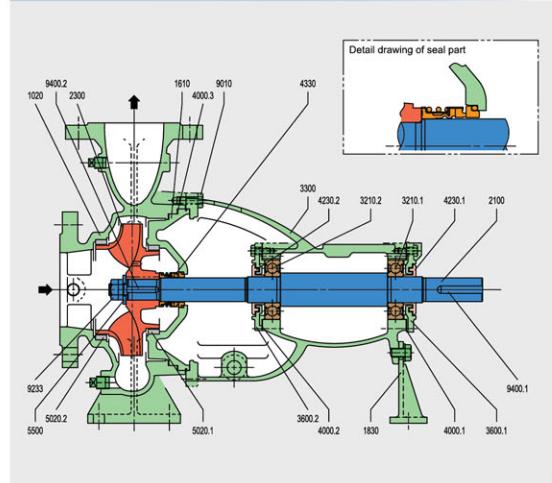
Design Features



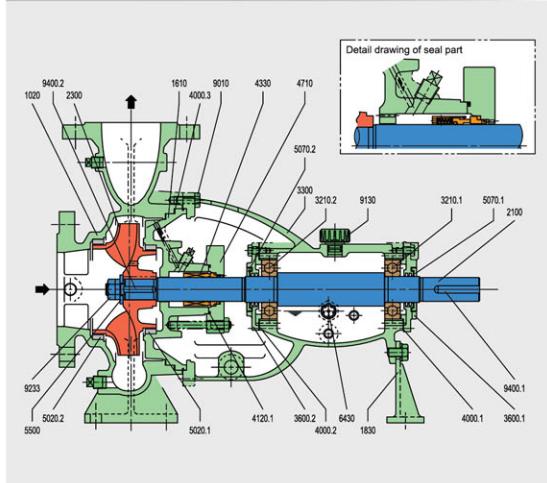
Pump Sectional Drawing

The basic structure is same between CAL and CAR for parts interchangeability. CAR, which is made from stainless, does not require case wear ring. Due to adopting build to order method, various combination with pump material, seal and bearing is available according to liquids kinds and temperature.

Standard Seal: Mechanical seal
Bearing: Grease lubrication



Option Seal: Mechanical seal + Water cooling
Bearing: Oil lubrication



Parts Interchangeability

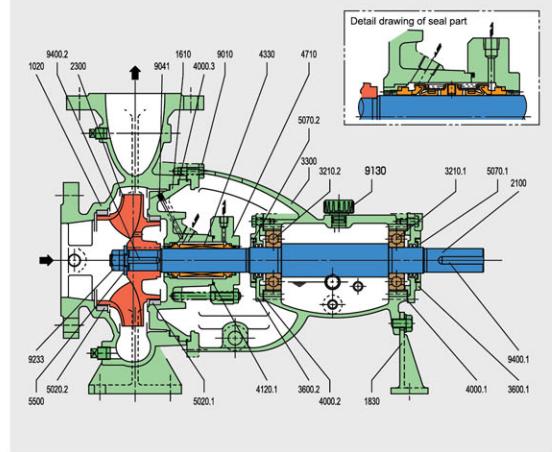
■2P type Same color and number in the same parts indicate interchangeability.

Parts Pump type	Casing	Casing Cover	Bearing Housing	Shaft	Mechanical Seal
32-125	1				
40-125	2	1			
65-125	3				
32-160	4				
40-160	5	2	1	1	1
50-160	6				
65-150	7				
32-200	8				
40-200	9				
50-200	10				
65-190	11				
80-150	12				
80-190	13				
100-190	14				
32-250	15				
40-250	16				
50-250	17				
65-240	18				
80-240	19				
100-245	20				
100-250	21				
50-315	22				
65-310	23				
80-320	24				
100-320	25				
150-190	26				
150-200	27				
125-240	28				
125-250	29				
200-240	30				
200-250	31				
125-310	32				
80-400	33				
100-400	34				
125-400	35				
150-310	36				
150-315	37				
50-250	38				
80-250	39				

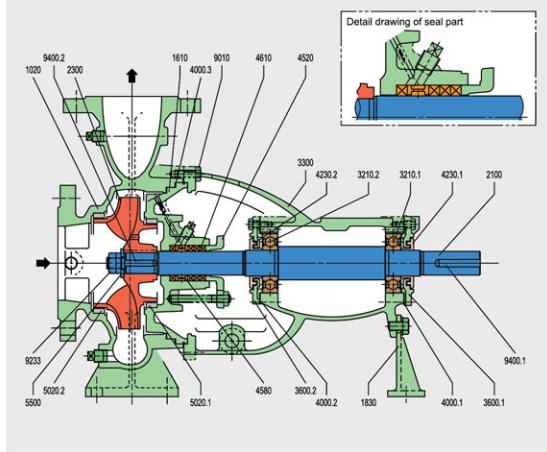
■4P type Same color and number in the same parts indicate interchangeability.

Parts Pump type	Casing	Casing Cover	Bearing Housing	Shaft	Mechanical Seal
32-125	1				
40-125	2	1			
65-125	3				
32-160	4				
40-160	5	2	1	1	1
50-160	6				
65-150	7				
32-200	8				
40-200	9				
50-200	10				
65-190	11				
80-150	12				
80-190	13				
100-190	14				
32-250	15				
40-250	16				
50-250	17				
65-240	18				
80-240	19				
100-245	20				
100-250	21				
50-315	22				
65-310	23				
80-320	24				
100-320	25				
150-190	26				
150-200	27	10			
125-240	28	11			
125-250	29	12			
200-240	30	13			
200-250	31	14			
125-310	32	15			
80-400	33	16			
100-400	34	17			
125-400	35	18			
150-310	36	19			
150-315	37	20			
50-250	38	21			
80-250	39	22			

Option Seal: Double mechanical seal
Bearing: Oil lubrication



Option Seal: Gland packing
Bearing: Grease lubrication



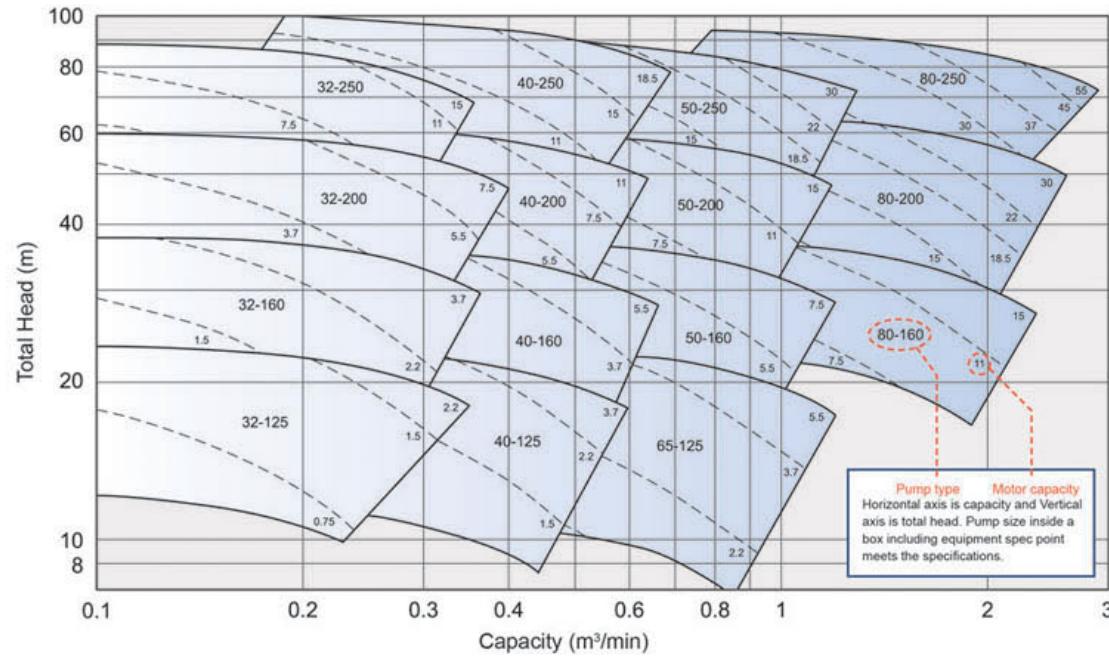
Parts number	Parts name	Parts number	Parts name	Parts number	Parts name	Parts number	Parts name
1020	Volute casing	3600.2	Bearing cover	4580	Lantern ring	9010	Hex. bolt
1610	Casing cover	4000.1	Flat gasket	4610	Gland packing	9041	Nock
1830	Support foot	4000.2	Flat gasket	4710	Seal cover	9130	Plug
2100	Shaft	4000.3	Flat gasket	5020.1	Casing wear ring	9233	Lock nut
2300	Impeller	4120.1	O-ring	5020.2	Casing wear ring	9400.1	Key
3210.1	Deep groove ball bearing	4230.1	Labyrinth ring	5070.1	Deflector	9400.2	Key
3210.2	Deep groove ball bearing	4230.2	Mechanical seal	5070.2	Deflector		
3300	Bearing housing	4330	Shaft box gland	5500	Washer		
3600.1	Bearing cover	4520	Oil gauge	6430			

CAL (Cast Iron) Selection Range Charts

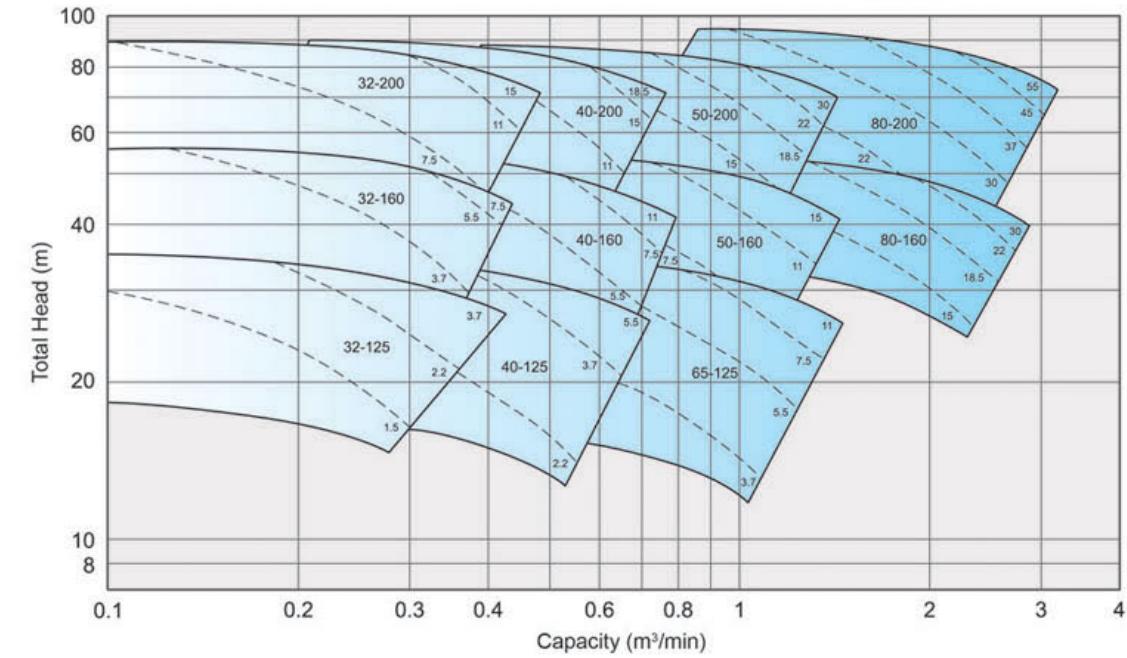
6P is also available. Please ask our sales representative for details.



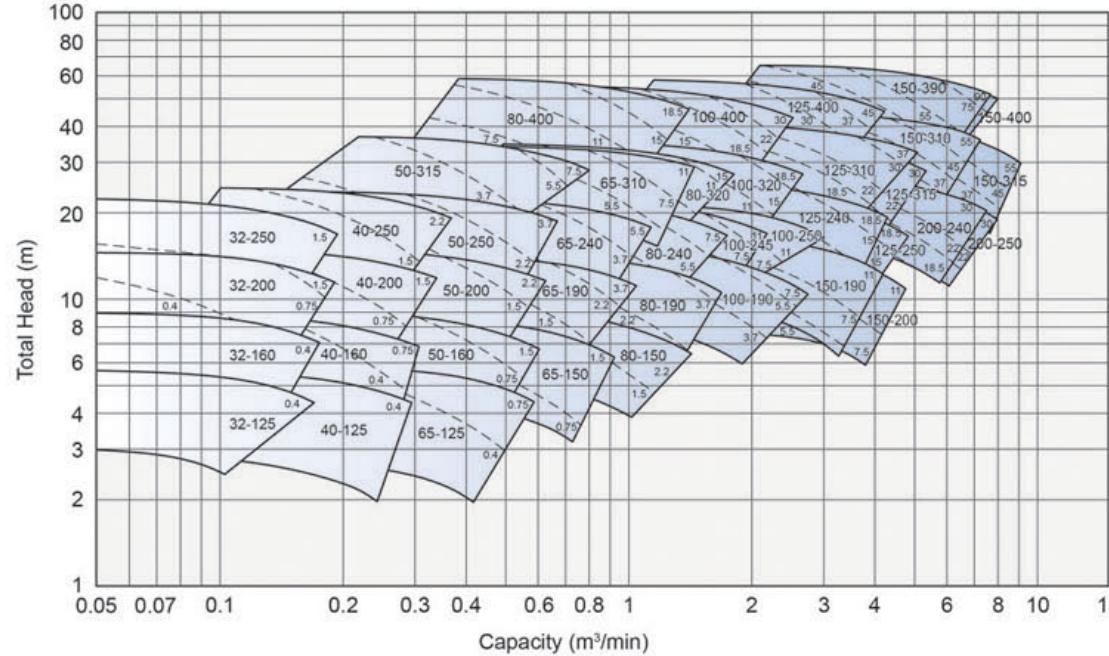
■ 50Hz-2P (3000min^{-1})



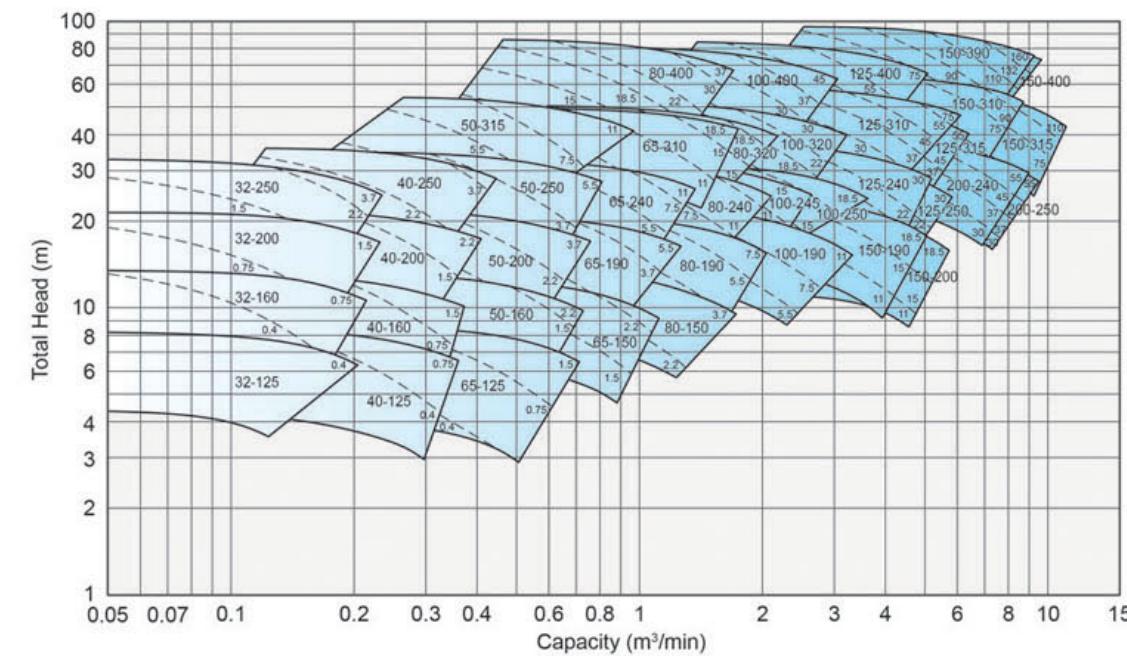
■ 60Hz-2P (3600min^{-1})



■ 50Hz-4P (1500min^{-1})



■ 60Hz-4P (1800min^{-1})

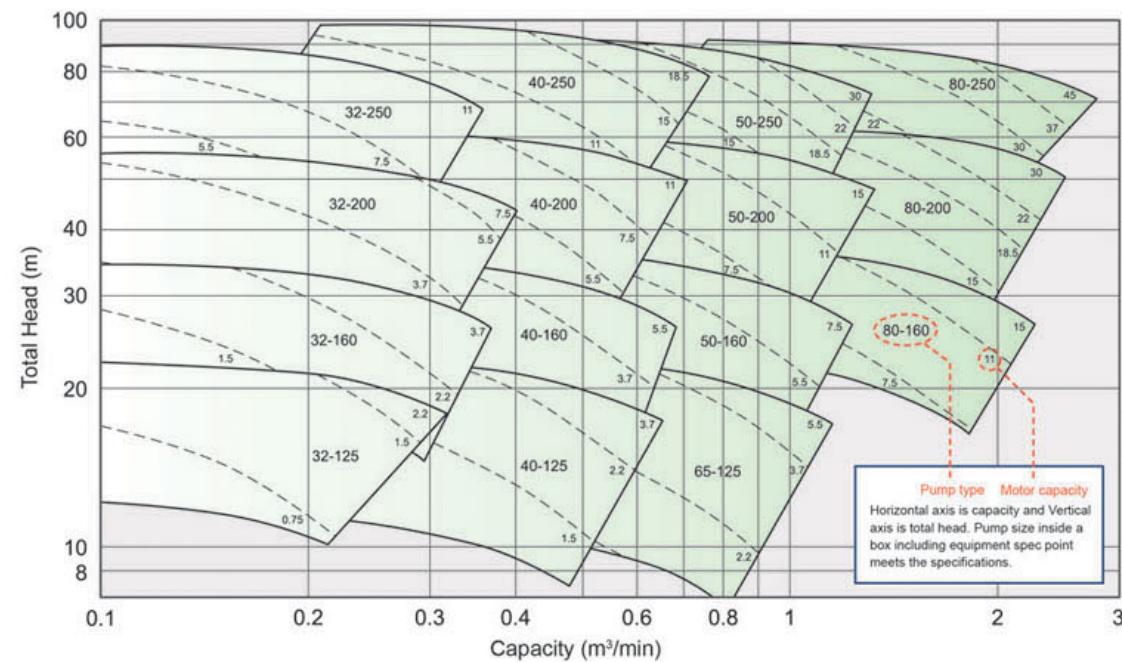


CAR (Stainless Steel) Selection Range Charts

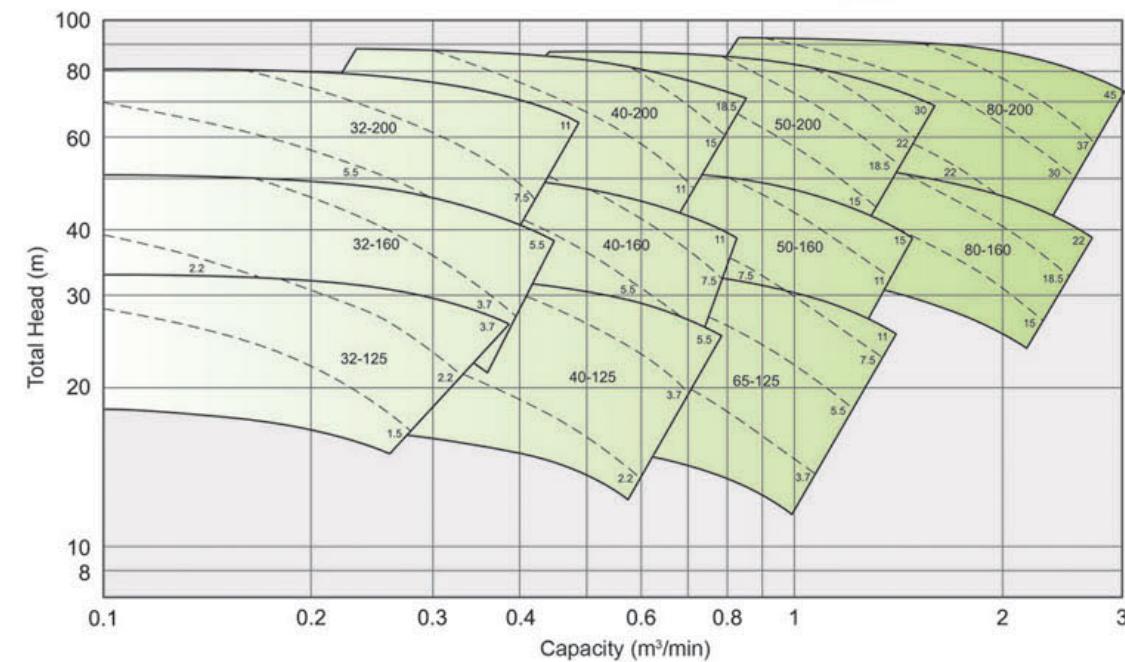
6P is also available. Please ask our sales representative for details.



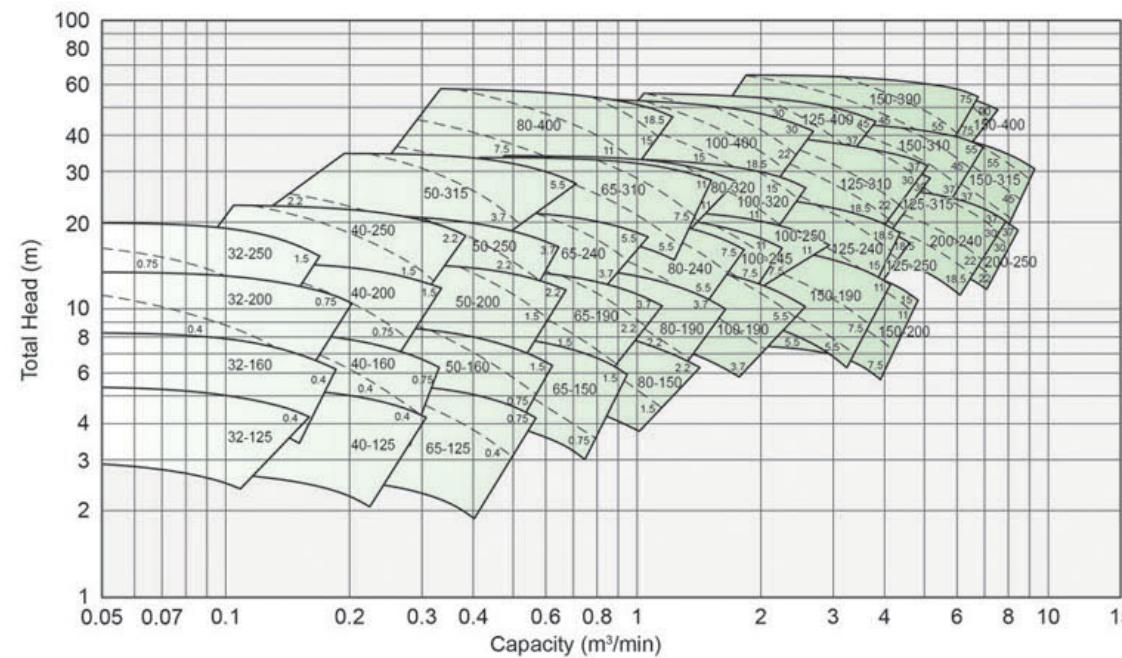
■ 50Hz-2P (3000min⁻¹)



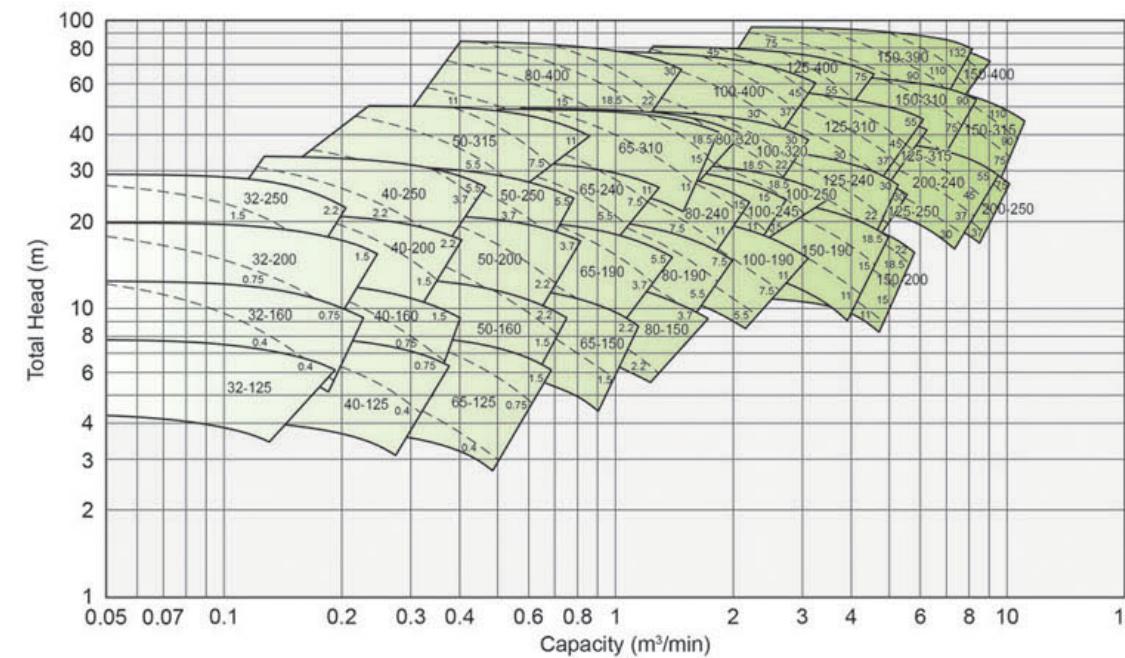
■ 60Hz-2P (3600min⁻¹)



■ 50Hz-4P (1500min⁻¹)



■ 60Hz-4P (1800min⁻¹)

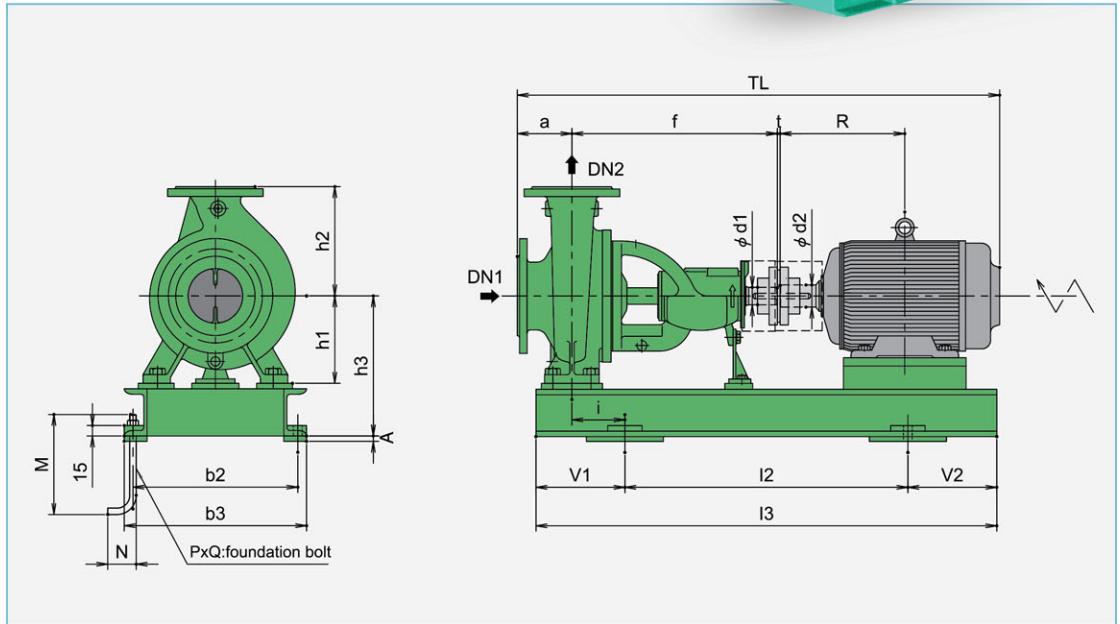


Dimension Chart

■ Flange standard CAL : JIS10K RF / CAR : JIS10K RF

■ Below dimension is based on totally enclosed fan-cooled motor.

- Motors have different size and frame depending on manufacturers.



Dimension Chart for 2P Motor Drive

Pump Sizes	Pump								Motor				Base Plate								Foundation Dimensions								Refer.					
	Bore		Dimension			Axle		Weight		Frame		Dimension		Base Plate				Foundation Dimensions								Coupling								
	DN1	DN2	a	f	h1	h2	d1	Grade L	Grade R					b3	i3	A	Wt.	h3	i	b2	I2	M	N	P	Q	V1	V2	t	Wt.					
	mm	mm	mm	mm	mm	mm	mm	kg	kg	---	mm	mm	mm	mm	mm	mm	kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	mm				
32-125 40-125	50 65	32 40	80 80	360 360	112 112	140 140	24 24	27 28	28 29					71M	120	14	320	670	0	27	202	45	290	420	200	50	4	M12	105	145	3	1.1	681	
														80	140	19	320	670	0	27	202	45	290	420	200	50	4	M12	105	145	3	1.1	725.5	
														80M	140	19	320	670	0	27	202	45	290	420	200	50	4	M12	105	145	3	1.1	705	
														90S	156	24	320	750	0	28	202	55	290	480	200	50	4	M12	115	155	3	1.1	750.5	
														90L	168.5	24	320	750	0	28	202	55	290	480	200	50	4	M12	115	155	3	1.1	775.5	
														100L	193	28	320	750	0	28	202	55	290	480	200	50	4	M12	115	155	3	1.6	809	
														112M	200	28	320	750	0	27	202	55	290	480	200	50	4	M12	115	155	3	1.6	834.5	
														132S	239	38	350	870	0	32	219	90	320	600	200	50	4	M12	150	120	3	3.2	897	
32-160 40-160 65-125	50 65 80	32 40 65	80 80 100	360 360 360	132 132 132	160 160 180	24 24 24	28 30 31	30 31 33						80	140	19	320	670	0	28	222	45	290	420	200	50	4	M12	105	145	3	1.1	745.5
									80M	140	19	320	670	0	28	222	45	290	420	200	50	4	M12	105	145	3	1.1	725						
									90S	156	24	320	750	0	30	222	55	290	480	200	50	4	M12	115	155	3	1.1	770.5						
									90L	168.5	24	320	750	0	30	222	55	290	480	200	50	4	M12	115	155	3	1.1	795.5						
									100L	193	28	320	750	0	29	222	55	290	480	200	50	4	M12	115	155	3	1.6	829						
									112M	200	28	320	750	0	28	222	55	290	480	200	50	4	M12	115	155	3	1.6	854.5						
									132S	239	38	350	870	0	31	222	90	320	600	200	50	4	M12	150	120	3	3.2	917						
									160M*	323	42	430	1000	0	41	250	110	400	660	200	50	4	M12	170	170	3	6.7	1071						
									160M**	323	42	430	1000	0	41	250	110	400	660	200	50	4	M12	170	170	3	6.7	786						
									160L	345	42	430	1000	0	41	250	110	400	660	200	50	4	M12	170	170	3	6.7	1115						

Pump Sizes	Pump								Motor				Base Plate				Foundation Dimensions								Coupling		Refer.		
	Bore		Dimension			Axle		Weight		Frame		Dimension		Base Plate				Foundation Dimensions											
	DN1	DN2	a	f	h1	h2	d1	Grade L	Grade R	R	d2	b3	I3	A	Wt.	h3	i	b2	I2	M	N	P	Q	V1	V2	t	Wt.	TL	
	mm	mm	mm	mm	mm	mm	mm	kg	kg	---	mm	mm	mm	mm	kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	mm	
32-200	50	32	80	360	160	180	24	36	38	90L	168.5	24	320	750	0	33	250	55	290	480	200	50	4	M12	115	155	3	1.1	795.5
										100L	193	28	320	750	0	33	250	55	290	480	200	50	4	M12	115	155	3	1.6	829
										112M	200	28	320	750	0	32	250	55	290	480	200	50	4	M12	115	155	3	1.6	854.5
										132S	239	38	350	870	0	34	250	90	320	600	200	50	4	M12	150	120	3	3.2	917
										160M*	323	42	430	1000	0	39	250	110	400	660	200	50	4	M12	150	120	3	6.7	1071
										160M**	323	42	430	1000	0	39	250	110	400	660	200	50	4	M12	170	170	3	6.7	786
										160L	345	42	430	1000	0	39	250	110	400	660	200	50	4	M12	170	170	3	6.7	1115
										180M	351.5	48	430	1000	0	42	270	110	400	660	200	50	4	M12	170	170	3	9.0	1107
50-200	80	50	100	360	160	200	24	37	39	112M	200	28	320	750	0	32	250	55	290	480	200	50	4	M12	115	155	3	1.6	854.5
										132S	239	38	350	870	0	34	250	90	320	600	200	50	4	M12	150	120	3	3.2	917
										160M*	323	42	430	1000	0	39	250	110	400	660	200	50	4	M12	170	170	3	6.7	1071
										160M**	323	42	430	1000	0	39	250	110	400	660	200	50	4	M12	170	170	3	6.7	786
										160L*	345	42	430	1000	0	39	250	110	400	660	200	50	4	M12	170	170	3	9.0	1033.5
										180MA	351.5	48	430	1000	0	42	270	110	400	660	200	50	4	M12	170	170	3	9.0	1135
										180M*	351.5	48	430	1000	0	42	270	110	400	660	200	50	4	M12	170	170	3	9.0	1107
										180M**	351.5	55	430	1000	0	42	270	110	400	660	200	50	4	M12	170	170	3	13.9	1040
										180L	370.5	55	430	1000	0	42	270	110	400	660	200	50	4	M12	170	170	3	13.9	1145
										200LA	395.5	55	470	1120	0	53	292	130	440	740	200	50	4	M12	190	190	3	13.9	1233
										200L	395.5	55	470	1120	0	53	292	130	440	740	200	50	4	M12	190	190	3	13.9	1213.5
										225S	402	55	530	1250	10	71	342	145	490	840	250	63	4	M16	205	205	3	13.9	1230
80-160	100	80	125	470	160	225	32	50	52	132S	239	38	350	1000	0	33	250	110	320	660	200	50	4	M12	170	170	3	3.2	1052
										160M*	323	42	430	1120	0	36	250	130	400	740	200	50	4	M12	190	190	3	6.7	1206
										160M**	323	42	430	1120	0	36	250	130	400	740	200	50	4	M12	190	190	3	6.7	921
										160L*	345	42	430	1120	0	36	250	130	400	740	200	50	4	M12	190	190	3	6.7	1250
										160L**	345	48	430	1120	0	36	250	130	400	740	200	50	4	M12	190	190	3	9.0	1168.5
										180MA	351.5	48	430	1120	0	44	270	130	400	740	200	50	4	M12	190	190	3	9.0	1242
										180M*	351.5	55	430	1120	0	44	270	130	400	740	200	50	4	M12	190	190	3	13.9	1175
										180L	370.5	55	430	1120	0	44	270	130	400	740	200	50	4	M12	190	190	3	13.9	1280
										200LA	395.5	55	470	1250	10	63	317	145	430	840	250	63	4	M16	205	205	3	13.9	1368
										200L	395.5	55	530	1250	10	67	317	130	490	840	250	63	4	M16	205	205	3	13.9	1348.5
										225S	402	55	530	1250	10	69	342	130	490	840	250	63	4	M16	205	205	3	13.9	1365
										225MA	414.5	55	530	1250	10	69	342	130	490	840	250	63	4	M16	205	205	3	13.9	1409
										225M	414.5	55	530	1250	10	69	342	130	490	840	250	63	4	M16	205	205	3	13.9	1462.5
										250SA	463.5	60	530	1250	10	76	370	130	490	840	250	63	4	M16	205	205	4	21.0	1481.5
										250M	452.5	55	530	1250	10	76	370	130	490	840	250	63	4	M16	205	205	3	13.9	1526
80-250	100	80	125	470	225	280	32	67	160M*	323	42	470	1120	0	52	317	100	440	740	200	50	4	M12	190	190	3	6.7	1206	
										160M**	323	42	470	1120	0	52	317	100	440	740	200	50	4	M12	190	190	3	6.7	921
										160L*	345	42	470	1120	0	52	317	100	440	740	200	50	4	M12	190	190	3	6.7	1250
										160L**	345	48	470	1120	0	52	317	100	440	740	200	50	4	M12	190	190	3	9.0	1168.5
										180MA	351.5	48	470	1120	0	53	317	100	440	740	200	50	4	M12	190	190	3	9.0	1270
										180M*	351.5	48	470	1120	0	53	317												

*Motor frame is the same but shaft axle diameter (d2) is different.

*Motor frame is the same but shaft axle diameter (d2) is different.

Dimension Chart

Dimension Chart for 4P Motor Drive

Pump Sizes	Pump								Motor				Base Plate								Foundation Dimensions								Coupling		Refer.
	Bore		Dimension		Axe		Weight		Frame		Dimension		Base Plate								Foundation Dimensions								Coupling		
	DN1	DN2	a	f	h1	h2	d1	Grade L	Grade R	R	d2	b3	i3	A	Wt.	h3	i	b2	I2	M	N	P	Q	V1	V2	t	Wt.	TL			
	mm	mm	mm	mm	mm	mm	mm	kg	kg	---	mm	mm	mm	kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	mm			
32-125	50	32	80	360	112	140	24	27	28	71M	120	14	320	670	0	27	202	45	290	420	200	50	4	M12	105	145	3	1.1	681		
	65	40	80	360	112	140	24	28	29		80	140	19	320	670	0	27	202	45	290	420	200	50	4	M12	105	145	3	1.1	726	
32-160	50	32	80	360	132	160	24	28	30	71M	120	14	320	670	0	28	222	45	290	420	200	50	4	M12	105	145	3	1.1	681		
	65	40	80	360	132	160	24	30	31		80	140	19	320	670	0	28	222	45	290	420	200	50	4	M12	105	145	3	1.1	726	
40-160	50	32	80	360	132	160	24	30	31	80M	140	19	320	670	0	27	202	45	290	420	200	50	4	M12	105	145	3	1.1	705		
	65	40	80	360	132	180	24	31	33		90L	168.5	24	320	750	0	30	222	55	290	480	200	50	4	M12	115	155	3	1.1	776	
40-200	50	32	80	360	160	180	24	36	38	71M	120	14	320	670	0	30	250	45	290	420	200	50	4	M12	105	145	3	1.1	701		
	65	40	80	360	160	180	24	37	39		80	140	19	320	670	0	30	250	45	290	420	200	50	4	M12	105	145	3	1.1	746	
50-160	80	50	100	360	160	180	24	32	33	80M	140	19	320	670	0	30	250	45	290	420	200	50	4	M12	115	155	3	1.1	796		
	80	65	100	360	160	180	24	34	36		90L	168.5	24	320	750	0	33	250	55	290	480	200	50	4	M12	115	155	3	1.1	838	
65-150	80	50	100	360	160	180	24	34	36	100L	193	28	320	750	0	33	250	55	290	480	200	50	4	M12	115	155	3	1.6	838		
	80	65	100	360	160	180	24	34	36		112M	200	28	320	750	0	32	250	55	290	480	200	50	4	M12	115	155	3	1.9	855	
50-200	80	50	100	360	160	200	24	37	39	80M	140	19	320	670	0	30	250	45	290	420	200	50	4	M12	105	145	3	1.1	746		
	80	65	100	360	160	200	24	37	41		90L	168.5	24	320	750	0	33	250	55	290	480	200	50	4	M12	105	145	3	1.1	796	
65-190	80	50	100	360	160	200	24	37	41	100L	193	28	320	750	0	33	250	55	290	480	200	50	4	M12	115	155	3	1.6	838		
	80	65	100	360	160	200	24	37	43		112M	200	28	320	750	0	32	250	55	290	480	200	50	4	M12	115	155	3	1.9	855	
80-150	100	80	100	470	160	200	32	47	49	90L	168.5	24	320	870	0	30	250	45	290	420	200	50	4	M12	105	145	3	1.1	746		
	100	80	100	470	160	200	32	47	49		100L	193	28	320	870	0	30	250	45	290	420	200	50	4	M12	105	145	3	1.1	796	
80-200	100	80	100	470	160	200	32	47	49	112M	200	28	320	870	0	29	250	50	290	480	200	50	4	M12	115	155	3	3.2	965		
	100	80	100	470	160	200	32	47	49		132S	239	38	350	870	0	34	250	90	320	660	200	50	4	M12	150	120	3	3.2	917	
80-150	100	80	100	470	160	200	32	47	49	132S	239	38	350	1000	0	33	250	110	320	660	200	50	4	M12	170	170	3	3.2	1027		
	100	80	100	470	160	200	32	47	49		100L	168.5	24	320	870	0	38	270	75	350	600	200	50	4	M12	150	120	3	3.2	965	
32-250	50	32	100	470	180	225	32	49	51	80M	140	19	380	870	0	38	270	75	350	600	200	50	4	M12	150	120	3	3.2	860		
	65	40	100	470	180	225	32	50	53		90L	168.5	24	380	870	0	36	270	75	350	600	200	50	4	M12	150	120	3	3.2	931	
40-250	65	40	100	470	180	225	32	52	54	100L	193	28	380	870	0	38	270	75	350	600	200	50	4	M12	150	120	3	3.2	973		
	80	50	100	470	180	225	32	52	54		112M	200	28	380	870	0	38	270	75	350	600	200	50	4	M12	150	120	3	3.2	990	
50-250	80	50	100	470	180	225	32	52	54	132S	239	38	430	1000	0	46	292	80	400	660	200	50	4	M12	150	120	3	3.2	1052		
	80	50	100	470	180	225	32	52	54		132M	258	38	430	1000	0	46	292	80	400	660	200	50	4	M12	170	170	3	3.2	1052	
65-240	80	65	100	470	180	225	32	52	54	132M	258	38	430	1000	0	42	270	95	400	660	200	50	4	M12	170	170	3	3.2	1052		
	80	65	100	470	180	225	32	52	54		132M	258	38	430	1000	0	42	270	95	400	660	200	50	4	M12	170	170	3	3.2	1052	
80-190	100	80	100	470	180	225	32	63	67	160L	345	42	470	1120	0	49	292	100	440	740	200	50	4	M12	170	170	3	6.7	1250		
	100	80	100	470	180	225	32	63	67		160L	345	42	470	1120	0	41	292	60	350	600	200	50	4	M12	150	120	3	3.2	973	
80-240	100	80	100	470	200	250	32	63	67	160L	345	42	470	1120	0	41	292	60	350	600	200	50	4	M12	150	120	3	3.2	990		
	125	100	125	470	225	280																									

Dimension Chart

Dimension Chart for 4P Motor Drive (continuation)

Pump Sizes	Pump								Motor		Base Plate								Foundation Dimensions								Coupling		Refer.													
	Bore		Dimension		Axe		Weight		Dimension		Frame		B3		I3		A		Wt.		H3		I		B2		I2		M		N		P		Q		V1		V2		t	Wt.
	DN1	DN2	a	f	h1	h2	d1	kg	Grade L	Grade R	R	d2	mm	mm	mm	mm	mm	kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	mm	mm	mm	kg	mm								
	mm	mm	mm	mm	mm	mm	mm	kg			---	mm	mm	mm	mm	mm	kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	mm	mm	mm	kg	mm							
125-400	150	125	140	530	315	400	42	165	180MC	351.5	48	590	1250	10	90	435	95	550	840	250	63	4	MI6	205	205	3	9.0	1263.5														
	200	200	160	530	315	375	42	165	180M*	351.5	48	590	1250	10	90	435	95	550	840	250	63	4	MI6	205	205	3	9.0	1365														
	200	200	160	530	315	375	42	165	180M**	351.5	48	590	1250	10	90	435	95	550	840	250	63	4	MI6	205	205	3	9.0	1337														
	200	200	160	530	315	375	42	165	180M**	351.5	48	590	1250	10	90	435	95	550	840	250	63	4	MI6	205	205	3	13.9	1278														
	200	200	160	530	315	375	42	165	180LC	370.5	48	590	1250	10	90	435	95	550	840	250	63	4	MI6	205	205	3	9.0	1403														
	200	200	160	530	315	375	42	165	180L*	370.5	55	590	1250	10	90	435	95	550	840	250	63	4	MI6	205	205	3	13.9	1375														
	200	200	160	530	315	375	42	165	180L**	400.5	60	590	1250	10	90	435	95	550	840	250	63	4	MI6	205	205	4	21.0	1367														
	200	200	160	530	315	375	42	165	200M	406.5	65	590	1400	10	99	435	120	550	940	250	63	4	MI6	230	230	4	21.0	1401.5														
	200	200	160	530	315	375	42	165	200LC	395.5	55	590	1400	10	99	435	120	550	940	250	63	4	MI6	230	230	3	13.9	1463														
	200	200	160	530	315	375	42	165	200L*	395.5	55	590	1400	10	99	435	120	550	940	250	63	4	MI6	230	230	3	13.9	1488.5														
	200	200	160	530	315	375	42	165	200L**	425.5	60	590	1400	10	99	435	120	550	940	250	63	4	MI6	230	230	4	21.0	1474.5														
	200	200	160	530	315	375	42	165	225SC	432	60	590	1400	10	95	435	120	550	940	250	63	4	MI6	230	230	4	21.0	1510														
	200	200	160	530	315	375	42	165	225S*	432	65	590	1400	10	95	435	120	550	940	250	63	4	MI6	230	230	4	21.0	1566														
	200	200	160	530	315	375	42	165	225S**	432	75	590	1400	10	95	435	120	550	940	250	63	4	MI6	230	230	4	31.0	1551														
	200	200	160	530	315	375	42	165	225MC	444.5	60	590	1400	10	95	435	120	550	940	250	63	4	MI6	230	230	4	21.0	1535														
	200	200	160	530	315	375	42	165	225M*	444.5	60	590	1400	10	95	435	120	550	940	250	63	4	MI6	230	230	4	21.0	1588.5														
	200	200	160	530	315	375	42	165	225M**	444.5	75	590	1400	10	95	435	120	550	940	250	63	4	MI6	230	230	4	31.0	1551														
	200	200	160	530	315	375	42	165	250SC	463.5	70	640	1400	10	99	435	120	600	940	250	63	4	MI6	230	230	4	31.0	1576.5														
	200	200	160	530	315	375	42	165	250S	463.5	75	640	1400	10	99	435	120	600	940	250	63	4	MI6	230	230	4	31.0	1574														
	200	200	160	530	315	375	42	165	250MC	482.5	70	640	1400	10	99	435	120	600	940	250	63	4	MI6	230	230	4	31.0	1614.5														
	200	200	160	530	315	375	42	165	250M*	482.5	65	640	1400	10	99	435	120	600	940	250	63	4	MI6	230	230	4	21.0	1627.5														
	200	200	160	530	315	375	42	165	250M**	482.5	75	640	1400	10	99	435	120	600	940	250	63	4	MI6	230	230	4	31.0	1652														
	200	200	160	530	315	375	42	165	280SB	544	80	710	1600	10	109	435	160	670	1060	250	63	4	MI6	270	270	4	45.0	1765.5														
	200	200	160	530	315	375	42	165	280S	514	75	710	1600	10	109	435	160	670	1060	250	63	4	MI6	270	270	4	31.0	1718.5														
	200	200	160	530	315	375	42	165	280M*	539.5	75	710	1600	10	109	435	160	670	1060	250	63	4	MI6	270	270	4	31.0	1769.5														
	200	200	160	530	315	375	42	165	280M**	569.5	85	710	1600	10	109	435	160	670	1060	250	63	4	MI6	270	270	4	45.0	1777														
	200	200	160	530	315	375	42	165	315SB	589	85	710	1600	10	109	445	160	670	1060	250	63	4	MI6	270	270	4	61.0	1855														

*Motor frame is the same but shaft axle diameter (d2) is different.

TU Motor (Torishima Ultra High Efficiency Motor)



■ Torishima pursues high efficiency for not only pump but motor.

IEC (International Electrotechnical Commission) classifies IE1 (standard), IE2 (high efficiency), IE3 (premium efficiency) by motor efficiency. TU motor is equivalent to IE3.

Class in IEC60034-30

Refer.

Class	IE3	IE2	IE1
TU motor			
High Efficiency Motor (JIS C 4212)			
Standard Motor (JIS C 4210)			

in case of 50Hz-200V/400V, 60Hz-220V/440V

TU Motor Efficiency (Ex. 50Hz, 400V)