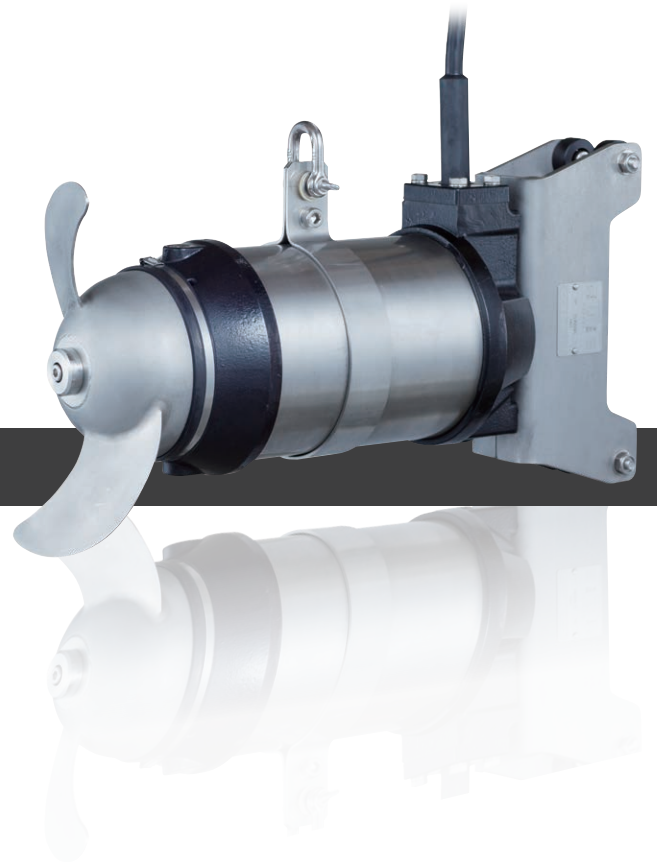


SERIES  
**MR**

SUBMERSIBLE MIXERS

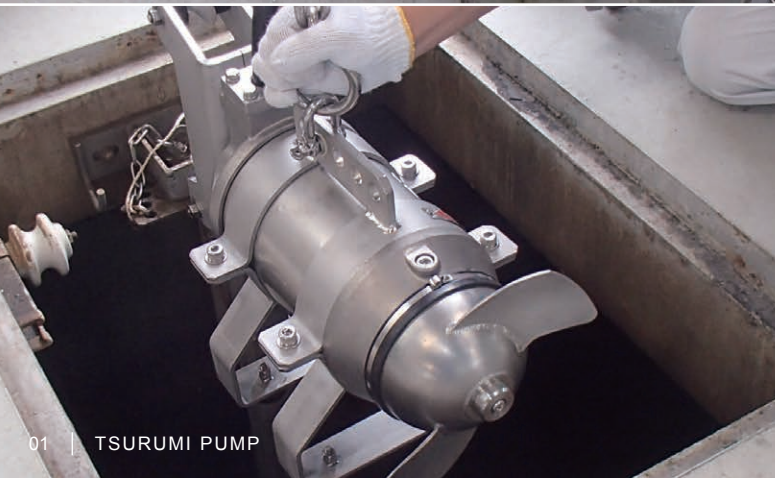


# Submersible Mixers

- The highly-efficient shape of the propeller, which is directly connected with the submersible motor, provides a powerful jet of water.
- The oil chamber incorporates an electrode type leakage sensor to detect for water intrusion into the chamber. (1.5kW and above)
- Tsurumi submersible mixers are available in wide variations. Lineups include models without a guide ring to improve the mixing effect while increasing water flow, models with a guide ring that provides an excellent flow regulating effect, and low-water level models that are applicable with a minimum operating water level of 500mm. The cast iron type or stainless steel casting type can be selected according to field applications.
- The mixers can be used for either aerobic/aeration treatment that mixes water and air, or anaerobic treatment that does not mix air into the water.
- When used in combination with lifting device (optional), the mixer can be easily inspected and serviced without entering the tank.

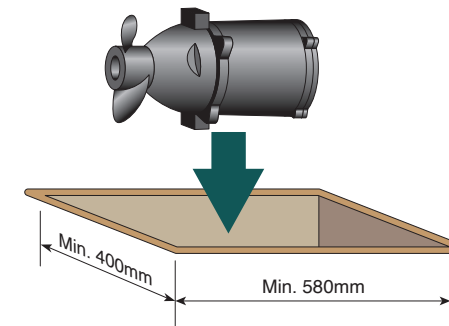
## Applications

- For industrial wastewater treatment and tap water/sewage treatment
- For environmental conservation in ponds and rivers
- For artificial water flow in amusement facilities
- For mixing, stirring, dissolving, density equalization and aeration



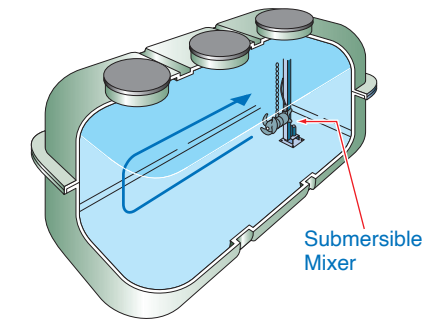
# Tsurumi submersible mixers are available in wide variations that can be selected according to application.

## Compact Design



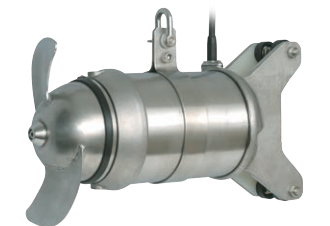
The compact type MR-series (0.75kW and below) is easy to handle and can be smoothly inserted through narrow openings (400 x 580mm) for installation in small treatment tanks.

## Septic Tank/Johkasou or Factory Production Type



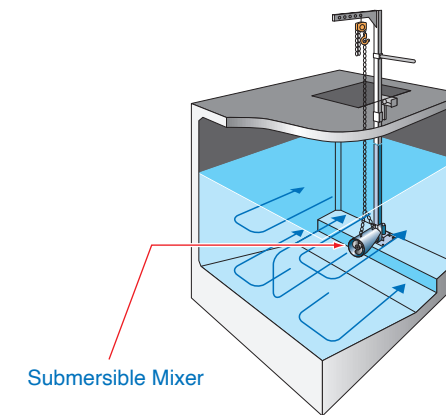
The MR-series is effective in equalizing water quality while preventing the sedimentation of solids. Also, when used in combination with an air diffuser, the MR-series effectively improves aerobic/aeration treatment efficiency and anaerobic mixing, as with an aerator.

## Without/With Guide Ring Type



MR-series

## Denitrifying Wastewater Treatment



Submersible Mixer

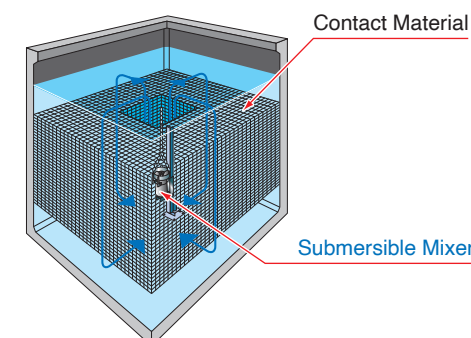
The MR/MRL-series are effective towards preventing the sedimentation of solids and equalizing water quality in flow rate regulating tanks and intermediate flow rate regulating tanks that do not need air (oxygen).

## Low Water Level Type



MRL-series

## Contact Tank



Contact Material

Submersible Mixer

The MRT-series is used to generate a circulating flow in denitrifying contact tanks, etc. The simple structure of the MRT-series is suitable for small-scale treatment facilities where maintenance/inspection space is limited.

## Vertical Top-discharge Type



MRT-series



## Without Guide Ring Type



MR300-series  
Stainless Steel Casting Type



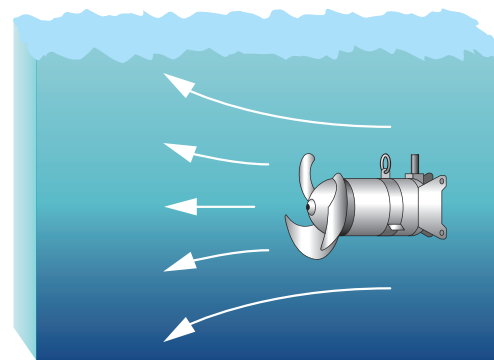
MR300-series  
Cast Iron Type



MR650-series  
Stainless Steel Casting Type



MR650-series  
Cast Iron Type



Without Guide Ring type improves the mixing effect while increasing water flow.

### Model Selection 50Hz

Model	Motor Output kW	Pole	Propeller Rotation Speed min <sup>-1</sup>	Flow Rate m <sup>3</sup> /min	Fresh Water Mixing Output kW	Reaction Force N	Dry Weight kg	Propeller Nominal Dia. mm
MR21NF250	0.25	4	1420	2.0	0.12	50	24	155
MR21NF400	0.4	4	1420	2.8	0.17	80	24	185
MR21NF750	0.75	4	1410	3.6	0.35	130	24	190
MR2521EC/CR	0.75	6	942	5.0	0.62	170	28	270
MR31NF/NR1.5	1.5	6	910	7.5	1.0	195	36	300
MR32NF/NR1.5	1.5	6	910	7.8	1.1	210	36	300
MR33NF/NR1.5	1.5	6	910	9.8	1.2	295	36	300
MR31NF/NR2.8	2.8	6	915	10.9	2.1	395	46	300
MR32NF/NR2.8	2.8	6	915	11.8	2.3	420	46	300
MR33NF/NR2.8	2.8	6	915	13.0	2.5	500	46	300
MR41NF/NR3.0	3	8	730	11.6	2.5	330	112/122	400
MR42NF/NR3.0	3	8	730	13.0	2.6	465	112/122	400
MR43NF/NR3.0	3	8	730	15.0	2.7	570	112/122	400
MR41NF/NR4.0	4	8	710	17.4	3.4	610	112/122	400
MR42NF/NR4.0	4	8	710	19.0	3.6	660	112/122	400
MR61NF/NR5.0	5	12	483	27.0	3.7	900	144/150	600
MR62NF/NR5.0	5	12	483	32.0	4.1	1200	144/150	600
MR63NF/NR5.0	5	12	483	38.0	4.7	1500	144/150	600
MR61NF/NR7.5	7.5	12	483	32.0	5.6	1200	164/170	600
MR62NF/NR7.5	7.5	12	483	38.0	6.1	1500	164/170	600
MR63NF/NR7.5	7.5	12	483	42.0	6.7	1800	164/170	600

\* TOMR type lifting device is also available. For details, contact your dealer.  
\* Weights of MR400/650-series is shown in NF (cast iron)/NR (stainless steel casting) type.

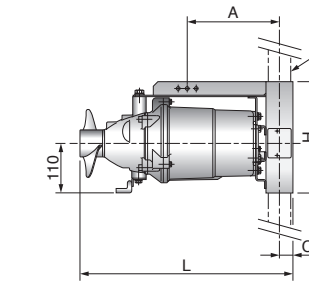
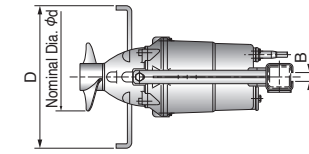
### Model Selection 60Hz

Model	Motor Output kW	Pole	Propeller Rotation Speed min <sup>-1</sup>	Flow Rate m <sup>3</sup> /min	Fresh Water Mixing Output kW	Reaction Force N	Dry Weight kg	Propeller Nominal Dia. mm
MR21NF250	0.25	4	1700	1.4	0.08	40	24	145
MR21NF400	0.4	4	1700	1.8	0.13	60	24	155
MR21NF750	0.75	4	1690	3.2	0.28	110	24	185
MR2521EC/CR	0.75	6	1126	4.4	0.68	160	28	240
MR31NF/NR1.5	1.5	6	1085	9.3	1.2	260	36	300
MR32NF/NR1.5	1.5	6	1085	9.6	1.3	285	36	300
MR31NF/NR2.8	2.8	6	1090	11.9	2.1	430	46	300
MR32NF/NR2.8	2.8	6	1090	13.1	2.5	535	46	300
MR41NF/NR3.0	3	8	870	14.1	2.5	485	112/122	400
MR42NF/NR3.0	3	8	870	16.4	2.8	665	112/122	400
MR41NF/NR4.0	4	8	840	18.6	3.8	795	112/122	400
MR61NF/NR5.0	5	12	578	25.0	3.7	800	144/150	600
MR62NF/NR5.0	5	12	578	32.0	4.6	1300	144/150	600
MR61NF/NR7.5	7.5	12	577	32.0	5.4	1300	164/170	600
MR62NF/NR7.5	7.5	12	577	40.0	6.4	1700	164/170	600

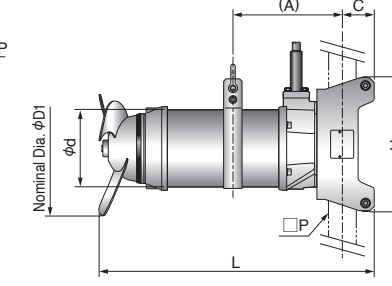
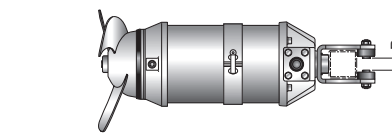
\* TOMR type lifting device is also available. For details, contact your dealer.  
\* Weights of MR400/650-series is shown in NF (cast iron)/NR (stainless steel casting) type.

### Dimensions

#### MR200-series



#### MR250/300/400/650-series



#### 50Hz

Model	D	D1	d	L	H	A	B	C	P
MR21NF250	317	-	155	473	247	205	20	30	50
MR21NF400	317	-	185	473	247	205	20	30	50
MR21NF750	317	-	190	473	247	205	20	30	50
MR2521EC/CR	-	270	165	470	258	177	21	67	50
MR31NF/NR1.5	-	300	168	556	294	210	26	70	60
MR32NF/NR1.5	-	300	168	557	294	210	26	70	60
MR33NF/NR1.5	-	300	168	560	294	210	26	70	60
MR31NF/NR2.8	-	300	168	600	294	240	26	70	60
MR32NF/NR2.8	-	300	168	608	294	240	26	70	60
MR33NF/NR2.8	-	300	168	608	294	240	26	70	60
MR41NF/NR3.0	-	400	-	668	300	285	26	70	60
MR42NF/NR3.0	-	400	-	668	300	285	26	70	60
MR43NF/NR3.0	-	400	-	668	300	285	26	70	60
MR41NF/NR4.0	-	400	-	668	300	285	26	70	60
MR42NF/NR4.0	-	400	-	686	300	285	26	70	60
MR61NF/NR5.0	-	600	-	795	380	300	45	98	100
MR62NF/NR5.0	-	600	-	800	380	300	45	98	100
MR63NF/NR5.0	-	600	-	805	380	300	45	98	100
MR61NF/NR7.5	-	600	-	800	380	290	45	98	100
MR62NF/NR7.5	-	600	-	805	380	290	45	98	100
MR63NF/NR7.5	-	600	-	815	380	290	45	98	100

\* Dimension "A" is a reference value.

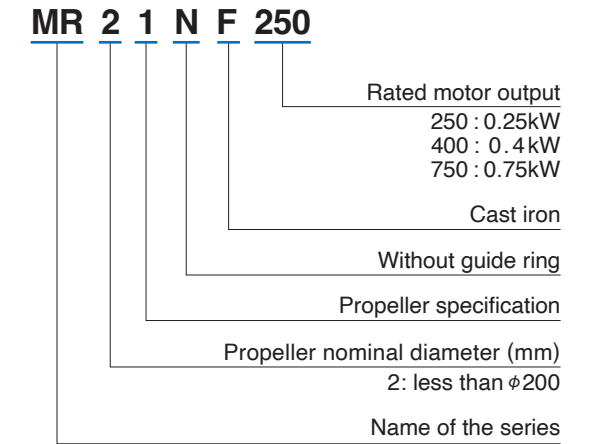
#### 60Hz

Model	D	D1	d	L	H	A	B	C	P
MR21NF250	317	-	145	473	247	205	20	30	50
MR21NF400	317	-	155	473	247	205	20	30	50
MR21NF750	317	-	185	473	247	205	20	30	50
MR2521EC/CR	-	240	165	470	258	177	21	67	50
MR31NF/NR1.5	-	300	168	556	294	210	26	70	60
MR32NF/NR1.5	-	300	168	557	294	210	26	70	60
MR31NF/NR2.8	-	300	168	600	294	240	26	70	60
MR32NF/NR2.8	-	300	168	600	294	240	26	70	60
MR41NF/NR3.0	-	400	-	668	300	285	26	70	60
MR42NF/NR3.0	-	400	-	668	300	285	26	70	60
MR41NF/NR4.0	-	400	-	668	300	285	26	70	60
MR61NF/NR5.0	-	600	-	790	380	300	45	98	100
MR62NF/NR5.0	-	600	-	795	380	300	45	98	100
MR61NF/NR7.5	-	600	-	795	380	290	45	98	100
MR62NF/NR7.5	-	600	-	800	380	290	45	98	100

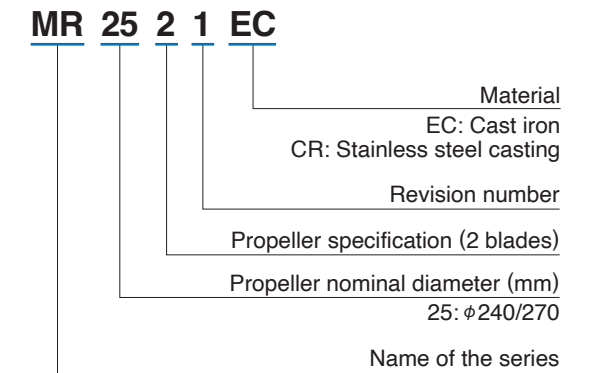
\* Dimension "A" is a reference value.

### Model Number Designation

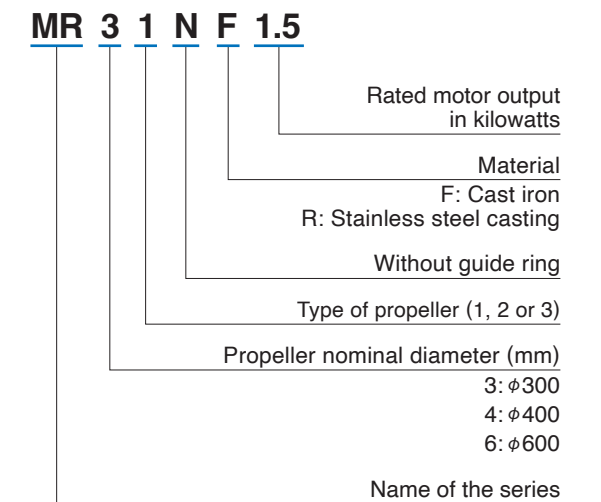
#### MR200-series



#### MR250-series



#### MR300/400/650-series



## With Guide Ring Type



MR300-series  
Stainless Steel Casting Type



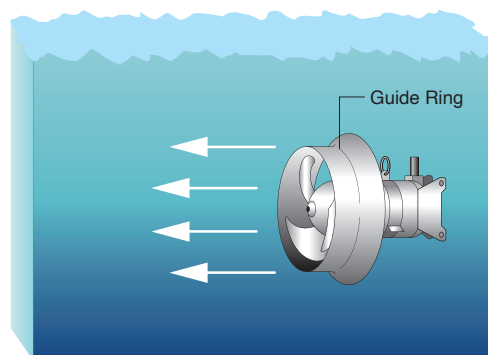
MR300-series  
Cast Iron Type



MR650-series  
Stainless Steel Casting Type



MR650-series  
Cast Iron Type



With Guide Ring type provides an excellent flow regulating effect.

### Model Selection 50Hz

Model	Motor Output kW	Pole	Propeller Rotation Speed min <sup>-1</sup>	Flow Rate m <sup>3</sup> /min	Fresh Water Mixing Output kW	Reaction Force N	Dry Weight kg	Propeller Nominal Dia. mm
MR31GF/GR1.5	1.5	6	910	7.3	0.9	185	46	300
MR32GF/GR1.5	1.5	6	910	7.7	1.0	200	46	300
MR33GF/GR1.5	1.5	6	910	9.6	1.2	285	46	300
MR31GF/GR2.8	2.8	6	915	10.7	2.1	385	56	300
MR32GF/GR2.8	2.8	6	915	11.5	2.2	410	56	300
MR33GF/GR2.8	2.8	6	915	12.7	2.4	490	56	300
MR41GF/GR3.0	3	8	730	11.3	2.4	235	125/135	400
MR42GF/GR3.0	3	8	730	12.6	2.5	375	125/135	400
MR43GF/GR3.0	3	8	730	14.4	2.6	435	125/135	400
MR41GF/GR4.0	4	8	710	16.6	3.2	475	125/135	400
MR42GF/GR4.0	4	8	710	18.1	3.3	540	125/135	400
MR61GF/GR5.0	5	12	483	27.0	3.8	900	154/160	600
MR62GF/GR5.0	5	12	483	32.0	4.1	1200	154/160	600
MR63GF/GR5.0	5	12	483	38.0	4.7	1500	154/160	600
MR61GF/GR7.5	7.5	12	483	32.0	5.5	1200	174/180	600
MR62GF/GR7.5	7.5	12	483	38.0	6.0	1500	174/180	600
MR63GF/GR7.5	7.5	12	483	42.0	6.4	1800	174/180	600

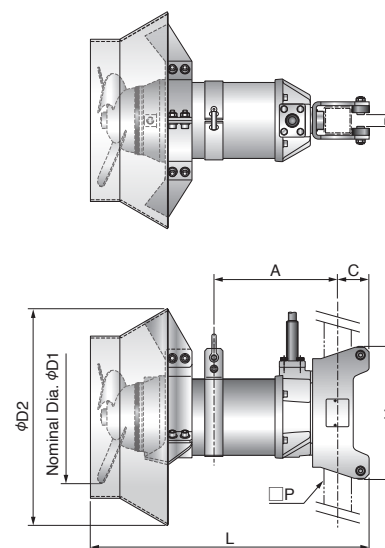
\* TOMR type lifting device is also available. For details, contact your dealer.  
\* Weights of MR400/650-series is shown in GF (cast iron)/GR (stainless steel casting) type.

### Model Selection 60Hz

Model	Motor Output kW	Pole	Propeller Rotation Speed min <sup>-1</sup>	Flow Rate m <sup>3</sup> /min	Fresh Water Mixing Output kW	Reaction Force N	Dry Weight kg	Propeller Nominal Dia. mm
MR31GF/GR1.5	1.5	6	1085	9.0	1.1	245	46	300
MR32GF/GR1.5	1.5	6	1085	9.4	1.2	275	46	300
MR31GF/GR2.8	2.8	6	1090	11.5	2.0	420	56	300
MR32GF/GR2.8	2.8	6	1090	12.6	2.3	525	56	300
MR41GF/GR3.0	3	8	870	13.4	2.4	345	125/135	400
MR42GF/GR3.0	3	8	870	15.6	2.7	530	125/135	400
MR41GF/GR4.0	4	8	840	17.7	3.4	630	125/135	400
MR61GF/GR5.0	5	12	578	25.0	3.6	800	154/160	600
MR62GF/GR5.0	5	12	578	32.0	4.5	1300	154/160	600
MR61GF/GR7.5	7.5	12	577	32.0	5.4	1300	174/180	600
MR62GF/GR7.5	7.5	12	577	40.0	6.4	1700	174/180	600

\* TOMR type lifting device is also available. For details, contact your dealer.  
\* Weights of MR400/650-series is shown in GF (cast iron)/GR (stainless steel casting) type.

### Dimensions



### 50Hz

Unit: mm

Model	D1	D2	L	H	A	B	C	P
MR31GF/GR1.5	300	479	576	294	255	26	70	60
MR32GF/GR1.5	300	479	576	294	255	26	70	60
MR33GF/GR1.5	300	479	576	294	255	26	70	60
MR31GF/GR2.8	300	479	616	294	275	26	70	60
MR32GF/GR2.8	300	479	616	294	275	26	70	60
MR33GF/GR2.8	300	479	616	294	275	26	70	60
MR41GF/GR3.0	400	572	691	300	315	26	70	60
MR42GF/GR3.0	400	572	691	300	315	26	70	60
MR43GF/GR3.0	400	572	691	300	315	26	70	60
MR41GF/GR4.0	400	572	691	300	315	26	70	60
MR42GF/GR4.0	400	572	691	300	315	26	70	60
MR61GF/GR5.0	600	780	825	380	325	45	98	100
MR62GF/GR5.0	600	780	825	380	325	45	98	100
MR63GF/GR5.0	600	780	825	380	325	45	98	100
MR61GF/GR7.5	600	780	825	380	325/315	45	98	100
MR62GF/GR7.5	600	780	825	380	325/315	45	98	100
MR63GF/GR7.5	600	780	825	380	325/315	45	98	100

\* Dimension "A" is a reference value.

### 60Hz

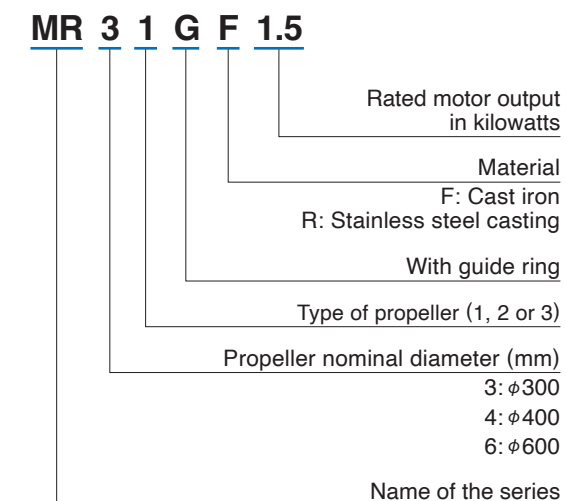
Unit: mm

Model	D1	D2	L	H	A	B	C	P
MR31GF/GR1.5	300	479	576	294	255	26	70	60
MR32GF/GR1.5	300	479	576	294	255	26	70	60
MR31GF/GR2.8	300	479	616	294	275	26	70	60
MR32GF/GR2.8	300	479	616	294	275	26	70	60
MR41GF/GR3.0	400	572	691	300	315	26	70	60
MR42GF/GR3.0	400	572	691	300	315	26	70	60
MR41GF/GR4.0	400	572	691	300	315	26	70	60
MR42GF/GR4.0	400	572	691	300	315	26	70	60
MR61GF/GR5.0	600	780	825	380	325	45	98	100
MR62GF/GR5.0	600	780	825	380	325	45	98	100
MR61GF/GR7.5	600	780	825	380	325/315	45	98	100
MR62GF/GR7.5	600	780	825	380	325/315	45	98	100

\* Dimension "A" is a reference value.

### Model Number Designation

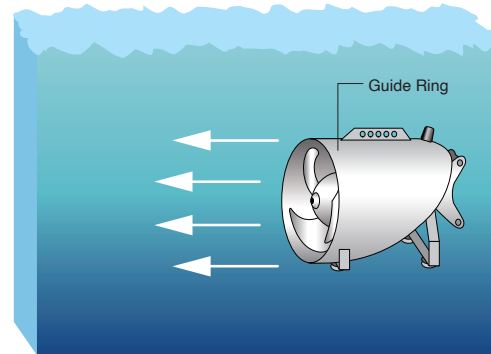
#### MR300/400/650-series



# MRL (Low Water Level Type)



Cast Iron Type



## Model Selection 50Hz

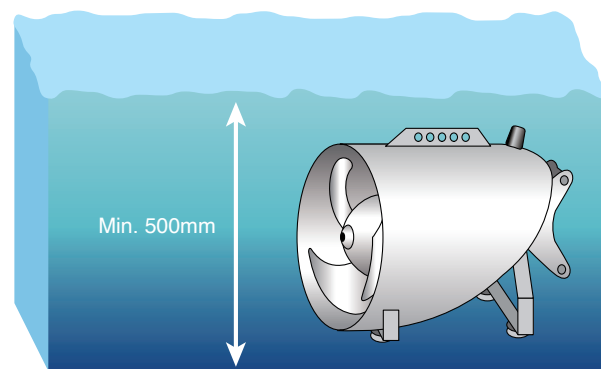
Model	Motor Output kW	Pole	Propeller Rotation Speed min <sup>-1</sup>	Flow Rate m <sup>3</sup> /min	Fresh Water Mixing Output kW	Reaction Force N	Dry Weight kg	Propeller Nominal Dia. mm
MRL21GF250	0.25	4	1420	1.91	0.09	45	27	155
MRL21GF400	0.4	4	1420	2.67	0.13	72	27	185
MRL21GF750	0.75	4	1410	3.44	0.27	117	27	190
MRL2541EC/CR	0.75	6	942	4.8	0.61	160	39	270
MRL31GF/GR1.5	1.5	6	910	6.2	0.9	120	50	300
MRL32GF/GR1.5	1.5	6	910	6.6	1.0	130	50	300
MRL33GF/GR1.5	1.5	6	910	8.1	1.2	185	50	300
MRL31GF/GR2.8	2.8	6	915	9.5	2.1	225	61	300
MRL32GF/GR2.8	2.8	6	915	10.2	2.2	265	61	300
MRL33GF/GR2.8	2.8	6	915	11.0	2.4	300	61	300

\* TOMRL type lifting device is also available. For details, contact your dealer.

## Model Selection 60Hz

Model	Motor Output kW	Pole	Propeller Rotation Speed min <sup>-1</sup>	Flow Rate m <sup>3</sup> /min	Fresh Water Mixing Output kW	Reaction Force N	Dry Weight kg	Propeller Nominal Dia. mm
MRL21GF250	0.25	4	1700	1.32	0.06	37	27	145
MRL21GF400	0.4	4	1700	1.7	0.10	55	27	155
MRL21GF750	0.75	4	1690	3.02	0.22	101	27	185
MRL2541EC/CR	0.75	6	1126	4.2	0.67	150	39	240
MRL31GF/GR1.5	1.5	6	1085	7.7	1.1	160	50	300
MRL32GF/GR1.5	1.5	6	1085	8.0	1.2	180	50	300
MRL31GF/GR2.8	2.8	6	1090	10.4	2.0	275	61	300
MRL32GF/GR2.8	2.8	6	1090	11.3	2.3	310	61	300

\* TOMRL type lifting device is also available. For details, contact your dealer.

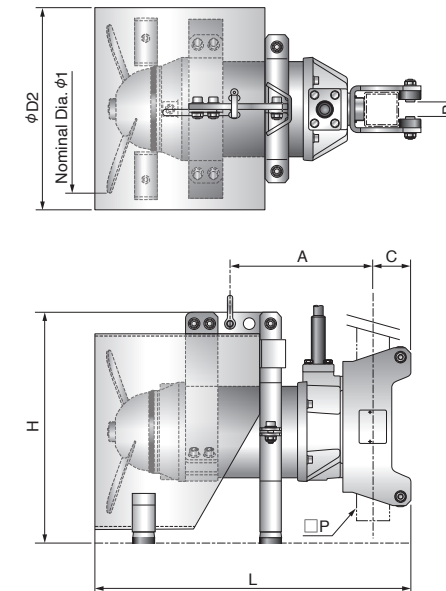


Applicable with a minimum operating water level of 500mm.



The mixer body has rubber feet, enabling installation at the bottom of a tank.

## Dimensions



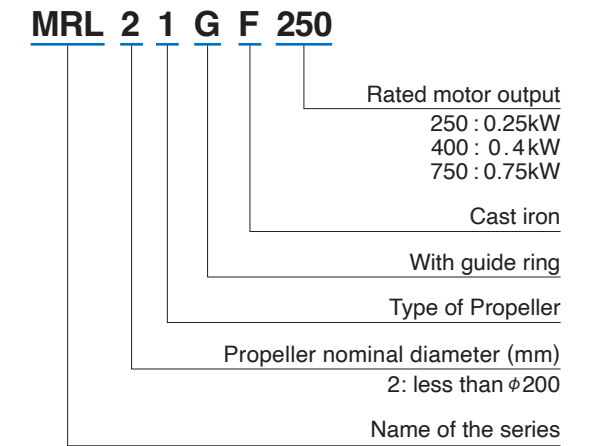
## 50/60Hz

Model	D1	D2	L	H	A	B	C	P
MRL21GF250	155/145	289	498	294	230	20	30	50
MRL21GF400	185/155	289	498	294	230	20	30	50
MRL21GF750	190/185	289	498	294	230	20	30	50
MRL2541EC/CR	270/240	319	495	393	208	21	67	50
MRL31GF/GR1.5	300	355.6	576	421	260	26	70	60
MRL32GF/GR1.5	300	355.6	576	421	260	26	70	60
MRL33GF/GR1.5	300	355.6	576	421	260	26	70	60
MRL31GF/GR2.8	300	355.6	626	421	270	26	70	60
MRL32GF/GR2.8	300	355.6	626	421	270	26	70	60
MRL33GF/GR2.8	300	355.6	626	421	270	26	70	60

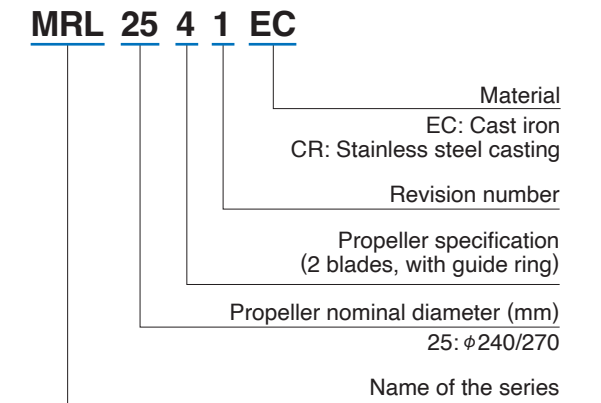
\* Dimension "A" is a reference value.

## Model Number Designation

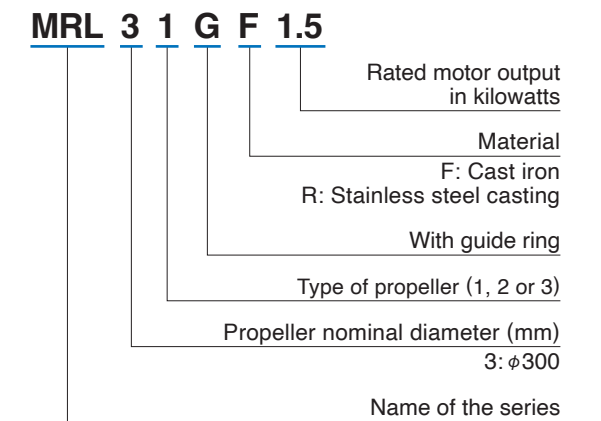
### MRL200-series



### MRL250-series



### MRL300-series





## Submersible Sewage Pumps / Channel Impeller



B / BZ

- Tsurumi basic sewage pumps, wide range lineup
- Wide solids passage of over 3 inches (76.2 mm) in diameter [BZ]
- Available in guide rail fitting system

Discharge Bore: 50 - 350 mm  
 Motor Output: 0.4 - 75 kW  
 Total Head: 4.4 - 70 m  
 Max. Capacity: 18 m<sup>3</sup>/min



## Submersible Cutter Pumps / Cutter Impeller



C

- Incorporated cutting mechanism
- Impeller and suction cover of the "CR" type made of high-chromium cast iron
- Available in guide rail fitting system

Discharge Bore: 50 - 200 mm  
 Motor Output: 0.75 - 37 kW  
 Total Head: 11.4 - 70 m  
 Max. Capacity: 7.1 m<sup>3</sup>/min



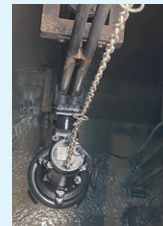
## Submersible Smashing Cutter Pumps / Heart Shaped Suction



CZ

- Smashing cutter pumps incorporated crushing and shredding mechanism
- Innovative scissor-like mechanism combining original heart-shaped suction cover and unique impeller
- Prevents clogging of the pump by crushing and shredding solids more finely
- Available in guide rail fitting system

Discharge Bore: 100 mm      Total Head: 13.5 - 33 m  
 Motor Output: 2.2 - 15 kW      Max. Capacity: 4 m<sup>3</sup>/min



## Submersible Resin Made Pumps



PU / PN / PSF / TM / OM

PLS

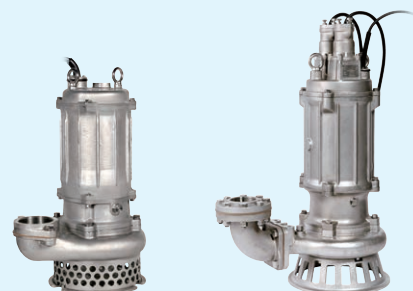


- "VANCS"; corrosion-resistant pumps made of special resin
- Fish friendly lubricating oil suitable for water feature, fish farm
- Wide variation; large solids type, high head type, horizontal type
- Available in seawater pumps made of titanium & special resin [TM]
- Available in automatic model and guide rail fitting system

Discharge Bore: 32 - 80 mm  
 Motor Output: 0.15 - 3.7kW  
 Total Head: 3.8 - 34 m  
 Max. Capacity: 0.95 m<sup>3</sup>/min



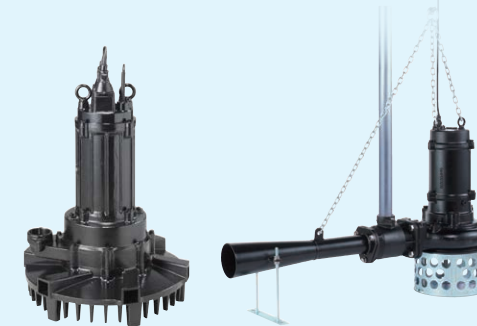
## Submersible Stainless Steel Casting Pumps



SFQ

- Corrosion-resistant pumps made of 316 stainless steel casting
- Suitable for acidic, chemical fluids of low pH value
- Available in guide rail fitting system

Discharge Bore: 50 - 80 mm  
 Motor Output: 0.4 - 11 kW  
 Total Head: 11.1 - 44 m  
 Max. Capacity: 2.08 m<sup>3</sup>/min



TRN

BER

## Submersible Aerators

- Self-aspirating aerators designed for aeration and mixing of wastewater
- High efficiency dissolution of oxygen by special impeller design, and multi directionally eject mixture of air and water from outlets [TRN]
- Eject mixture of air and water through the diffuser [BER]

Air-inlet Bore: 25 - 150 mm  
 Motor Output: 0.75 - 40 kW  
 Air Flow Rate: 7 - 528 m<sup>3</sup>/h



FSP

## Floating Scum Skimmers

- Collection of floating scum in the wastewater treatment
- Water, air and scum are drawn simultaneously by jet-injector mechanism
- Keep suction mouth relative position with the water surface

Discharge Bore: 50 mm  
 Motor Output: 0.4 - 0.75 kW



## Multi-disc Dehydrators



MDQ / MDC

JD

- Wide product lineup; treating capacity in a range of 3 to 216 kgDS/h
- Utilize both gravity filtration and screw displacement compression systems [MDQ / MDC]
- Utilize both gravity filtration and compression dehydration systems [JD]
- Major parts made of stainless steel

Treating Capacity: 3 - 216 kgDS/h  
 Total Motor Output: 0.6 - 3.15 kW



## Rotary Air Blowers



RSR-KS / TSR

- 3-lobe spur rotor designed for corrosion resistance, heat resistance and durability
- Low noise, low vibration, ease of maintenance and high efficiency
- Available in air-cooled type or water-cooled type, optional helical rotor

Discharge Bore: 50 - 350 mm  
 Air Volume: 0.72 - 246.8 m<sup>3</sup>/min



## Bar Screens



KE / KS / KM / KW

- Screening wastewater
- Available in front screen type or rear screen type
- Major parts made of stainless steel

Bar Spacing: 1 - 50 mm  
 Motor Output: 0.09 - 0.1 kW  
 Max. Capacity: 223 m<sup>3</sup>/h





We reserve the right to change the specifications and designs without prior notice. The OO series and model OO are indicated with our series/model codes in this catalog.

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