

GS



series MAGNETIC PUMP
WITH HIGH PUMP-HEAD
CAPABILITY

GV



series VALVELESS
SELF-PRIMING
MAGNETIC PUMP

GS series

MAGNETIC DRIVE PUMP WITH HIGH PUMP HEAD CAPABILITY

YD-250GS
YD-251GS
YD-252GS
YD-253GS
YD-400GS/GSF
YD-401GS/GSF
YD-402GS/GSF
YD-403GS/GSF
YD-405GS
YD-16GS[H]/GS[H]F
YD-20GS[H]/GS[H]F



MAX TDH **41** m (60Hz)

The highest pump head in its class

The GS magnetic drive pumps are designed specifically for high pressure transfer.

The most compact design in its class, ideal for installation in limited space

More compact in size, more power in pump with neodymium magnet (2HP motor and above)

Models with 2HP and above use neodymium magnet, guaranteeing high performance in this compact, lightweight GS/GSF series.

High-performance, high-head magnetic drive pumps for a variety of needs in manufacturing process lines.

Application

For filters

Increases the effectiveness of filters and filter life

For heat exchangers

A compact pump with high performance in both pump head and discharge volume is ideal for heat exchangers

For washers

Increases the washing capability of various washers including spray washers

For pumping to high places

More than TDH 25m head capability for liquid transfer to high ground (GS/GSF pump with 2 HP motor and above).

For limited space installations

Neodymium magnet in a compact design (2HP or above) is ideal for limited space and when designing lines for new equipment

For LCD manufacturing equipment

Sliding parts use abrasion-resistant SiC, making the GS/GSF pump ideal for surface processing in LCD manufacturing.

A full line of ETFE (Ethylene-Tetrafluoroethylene resin) pumps for IT-related manufacturing lines.

New Chemi-Free GS series 250~253

For low-volume, high-head applications

- Bushing design (thermal radiation/insulation) efficient against dry running
- Loose flanges for easy installation
- Neodymium magnet enables compact pump construction
- Handling application with sp. gr. up to 1.9 (GSF Series)
- Convenient for wiring with terminal box on top of motor



Double protection against dry running

Internationally patented PPS bushing construction

Dry running of pumps leads to failure of the shaft or bushing from excess heat caused by friction in the sliding portion. Our internationally patented construction of the GS models (Chemi-free) use heat-releasing and heat-resistant materials in the sliding portion, lowering the temperature of pump parts to prevent thermal deformation.



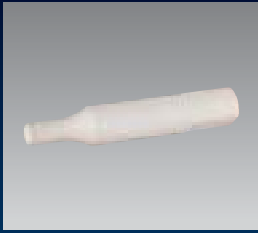
- Shaft (Ceramic)
- Heat-releasing construction (PPS)
- Bushing (Carbon)

Anti-airlock construction

When air enters the chamber during operation, air pockets generate within the rear casing, but the unique anti-airlock design of the rear casing and impeller will easily direct and release the air.



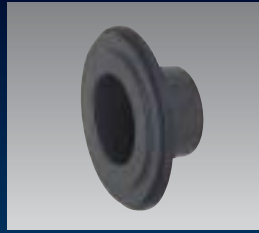
The two-point support construction of the shaft for durability



- Durability is enhanced by the two-point stationary shaft.
- SiC shafts, resistant to frictional wear, is also available.

A Shaft

The air-releasing construction of the rear casing prevents trapped air



- The original air-releasing construction of the rear casing prevents air retention and airlock situations.
- Carbon fiber adopted for the reinforcement of the rear casing strengthens the pump against burst pressure.

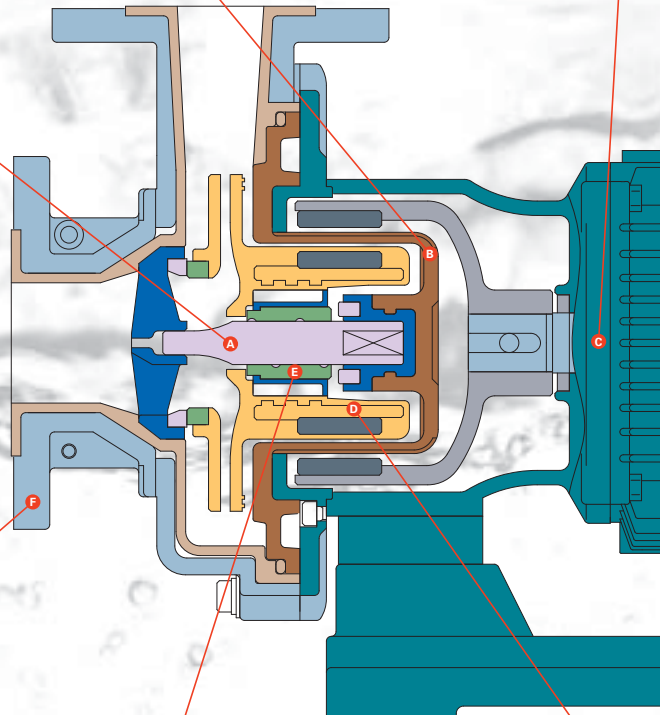
B Rear Casing

Sturdy outdoor-type motors for standard use *NEMA and IEC brackets are also available



- Made of reinforced plastic, the terminal box does not compromise its durability even in demanding conditions with a chemical atmosphere. The terminal box is positioned at the top of the motor for convenience in wiring.
- The oil seal prevents corrosion caused by fume and liquid leakage, and extends motor life.

C Motor (with terminal box)



F Loose Flange

Loose flange for easy installation



- The loose flange allows flexibility in installation and easy connection to any pipe flange.

E Bushing

Four kinds of bushings for a wide range of chemicals



- Bushings can be selected by chemical type and presence of slurry. (Common parts available to minimize stock requirements)
- Bushing is available in carbon, ceramic, PTFE and SiC.

D Impeller & Magnet

Neodymium magnet for a compact design (2HP or above)



- Powerful Neodymium magnet allows a compact design with excellent performance.
- The casting of the impeller and the magnet improves the handling of reverse rotation and high-temperature situations.
- The unique, unrivalled configuration of the impeller increases efficiency in performance.

GS series MAGNETIC PUMP WITH HIGH PUMP-HEAD CAPABILITY

YD-250GS YD-253GS YD-402GS/GSF
 YD-251GS YD-400GS/GSF YD-403GS/GSF
 YD-252GS YD-401GS/GSF YD-405GS/GSF



Part Name	Material	
	GS	GSF
Front Casing	GFR PP	CFR ETFE
Shaft Support	Alumina Ceramics + GFR PPS	Alumina Ceramics + CFR ETFE
Mouth Ring	CFR PTFE	
Impeller	GFR PP + Magnet	CFR ETFE + Magnet
Bushing	Carbon / Ceramic / PTFE / SiC	
Shaft	Alumina Ceramics / SiC	
Rear Thrust Ring	Alumina Ceramics / SiC	

Part Name	Material	
	GS	GSF
O-ring	EPDM / FPM	
Rear Casing	GFR PP + GFR PPS	CFR ETFE
Rear Casing Support	FC200	
Outer Magnet	FCD450-10 + Magnet	
Motor	FC200 + Aluminum Frame Motor	
Base	GFR PP / FC200	

YD - 400 GSF - CE 5 1

DISCHARGE BORE

MOTOR OUTPUT

0 : 0.4kW 3 : 2.2kW
 1 : 0.75kW 5 : 3.7kW
 2 : 1.5kW

MAIN MATERIAL

GS : GFP PP
 GSF : CFR ETFE

FREQUENCY

5 : 50Hz
 6 : 60Hz

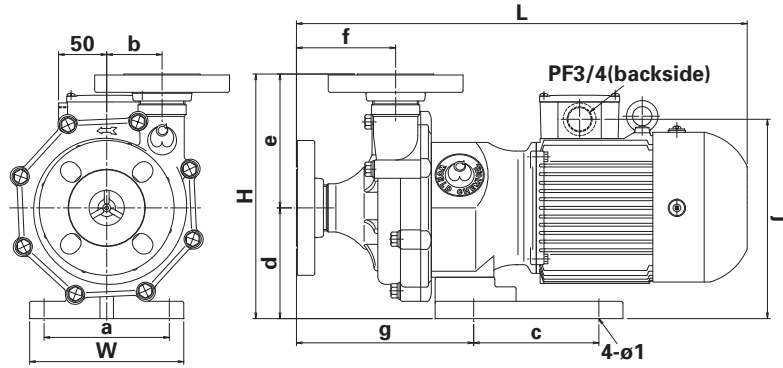
Specific Gravity(S.G.)

1 : 1.05 (0.4~0.75kW)
 0 : 1.10 (1.5~3.70kW)
 2 : 1.2
 3 : 1.3
 5 : 1.5
 9 : 1.9

BUSHING/O-RING MATERIAL

Parts	Type	CE	CD	RE	RD	AE	AD	TT
Bushing		Carbon	Carbon	CFR PTFE	CFR PTFE	Alumina ceramics	Alumina ceramics	Special material
O-ring		EPDM	FPM	EPDM	FPM	EPDM	FPM	Special material

Outside Drawing



Unit:mm

MODEL	W	H	L	a	b	c	d	e	f	g	i	j
YD-250GS	160	260	431	130	65	130	115	145	90	173	ø12	200
YD-251GS			457									207
YD-252GS	260	261	490	208	51	98	95	121	87	150	14-36	216
YD-253GS												
YD-400GS(F)	140	216	423	110	58	130	115	139	103	184	ø12	207
YD-401GS(F)	160	254	468	130	58	130	115	139	103	184	ø12	207
YD-402GS(F)	260	261	490	208	65	200	116	145	89	156	14-36	216
YD-403GS(F)												
YD-405GS												280

Performance Specification

GS series

Model	Nominal End-Flange Diameter [mm]		Max Head - Max Capacity (m-g)		Standard Specified Point (m-g)		Motor Output [kW]	Weight [kg]
	Suction	Discharge	50Hz	60Hz	50Hz	60Hz		
YD-250GS	25A	25A	15.5-130	16 - 90	14- 50	14 - 50	0.4	19.5
YD-251GS			22.5-130	23.5-130	21- 50	21.5- 50	0.75	21.5
YD-252GS			29 -150	37 -150	24- 50	27 - 50	1.5	26.5
YD-253GS			42 -150	42 -150	27- 50	40 - 50	2.2	28.5
YD-400GS	40A	40A	14 -215	15 -200	11-100	11 -100	0.4	16.5
YD-401GS			19 -300	21 -290	15-150	15 -150	0.75	19.5
YD-402GS			25.5-415	27 -400	19-200	19 -200	1.5	25.5
YD-403GS	50A	40A	30 -445	33 -450	23-200	25 -200	2.2	27.5
YD-405GS			29.5-490	40 -550	25-200	34 -200	3.7	58.5

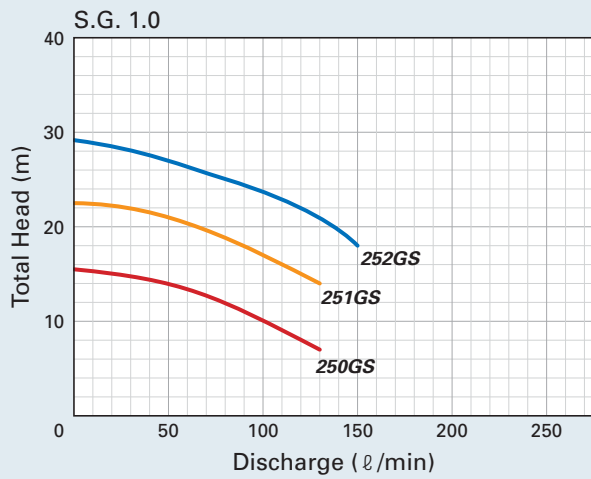
GSF series

Model	Nominal End-Flange Diameter [mm]		Max Head - Max Capacity (m-g)		Standard Specified Point (m-g)		Motor Output [kW]	Weight [kg]
	Suction	Discharge	50Hz	60Hz	50Hz	60Hz		
YD-400GSF	40A	40A	12 -195	12-180	8.5-100	9 -100	0.4	17.5
YD-401GSF			17 -280	18-260	12 -150	11.5-150	0.75	20.5
YD-402GSF	24.5-395		26-385	18 -200	17.5-200	1.5	27	
YD-403GSF	50A		29 -440	31-435	21 -200	22.5-200	2.2	29
YD-405GSF			30 -485	37-520	25 -200	30 -200	3.7	60

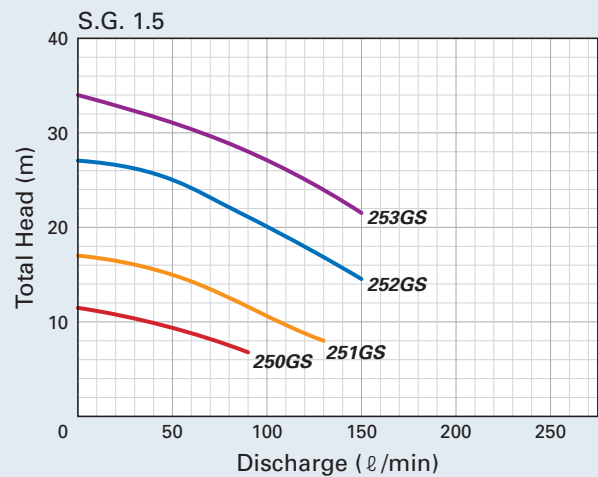
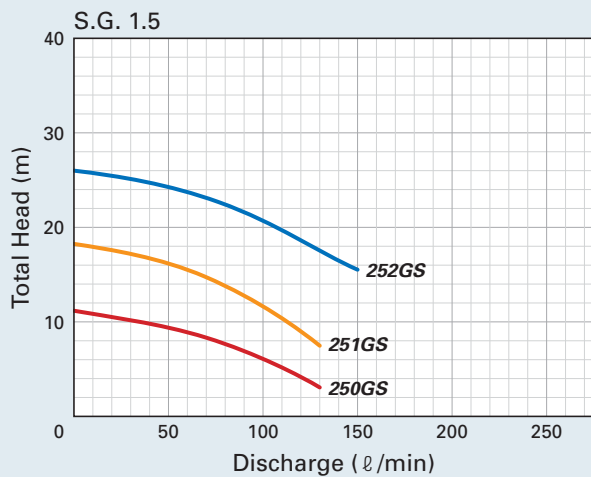
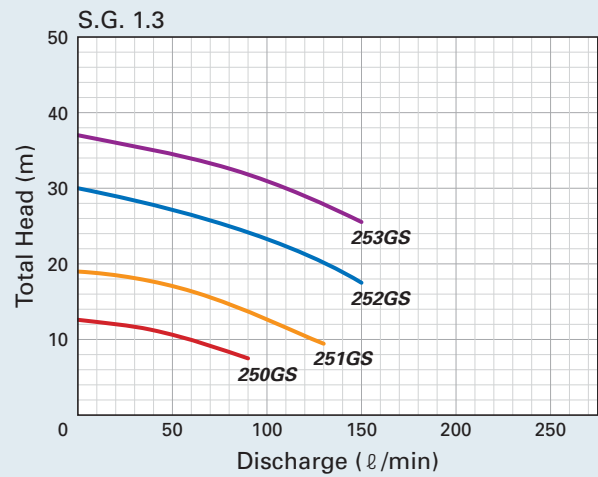
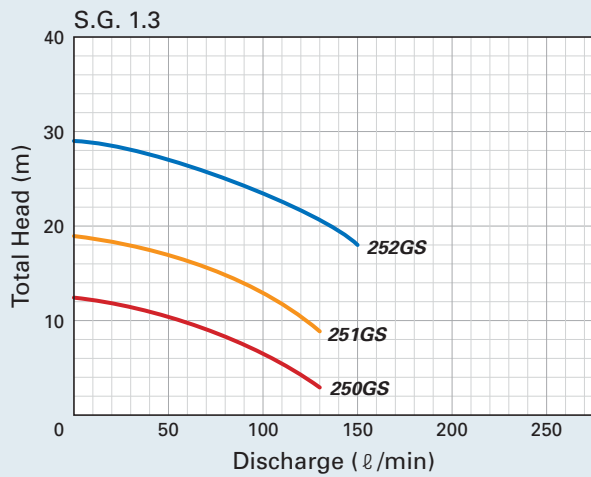
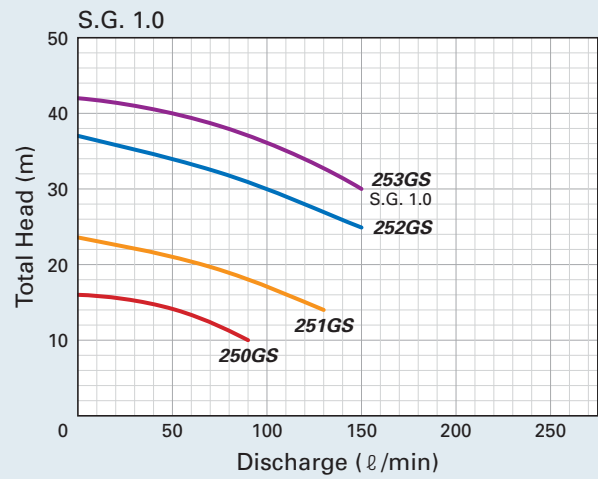
Performance Curves

GS series

50Hz



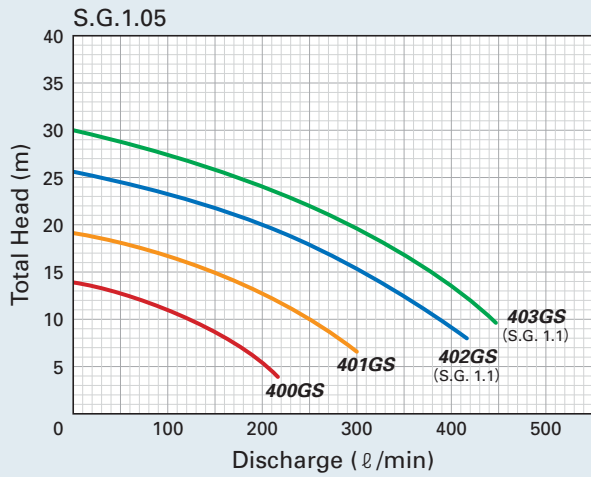
60Hz



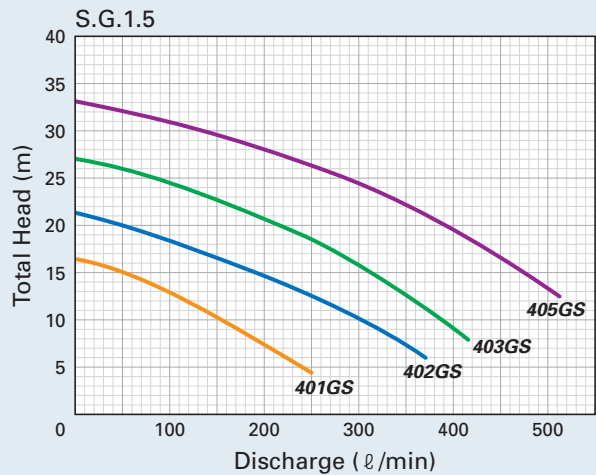
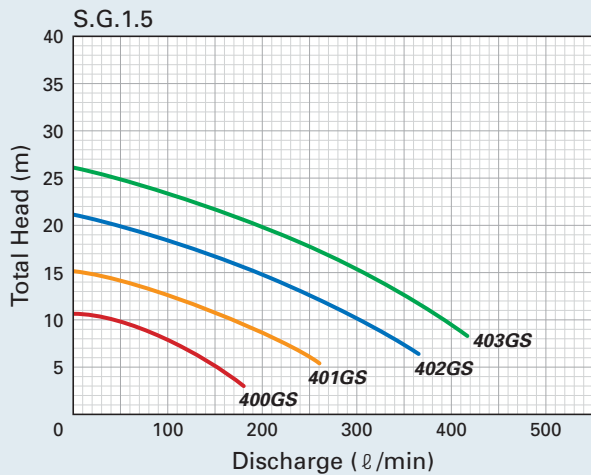
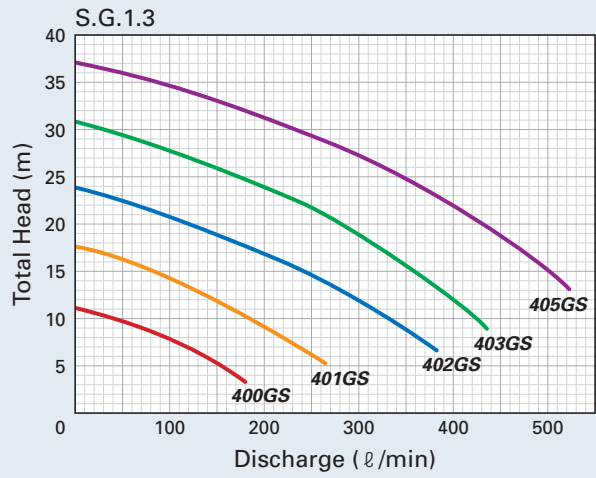
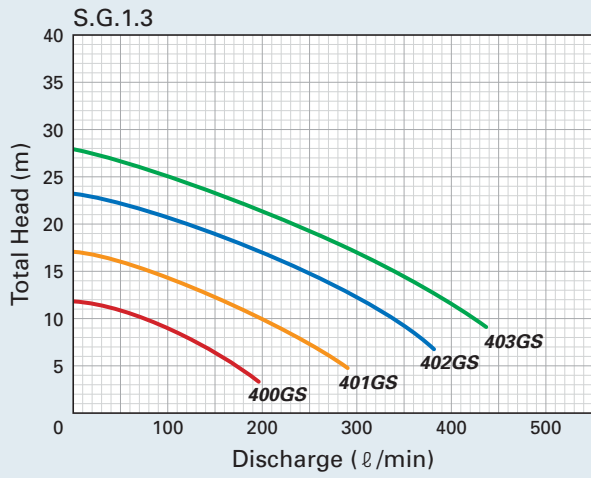
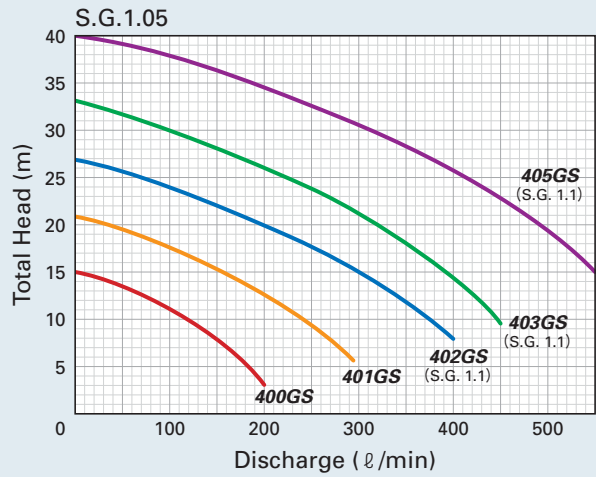
Performance Curves

GS series

50Hz



60Hz

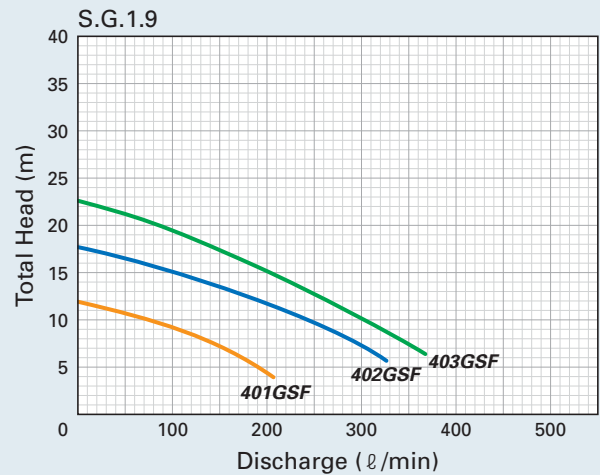
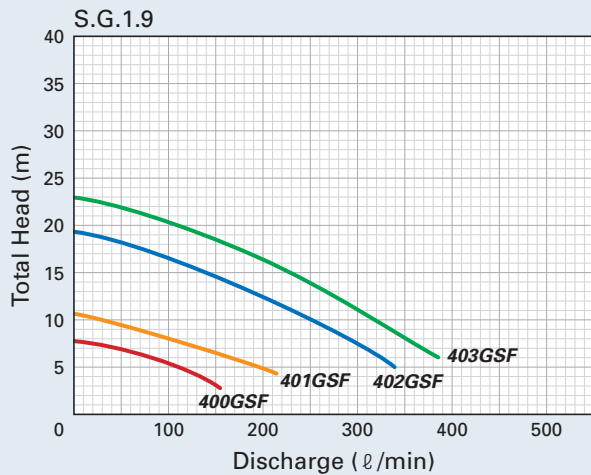
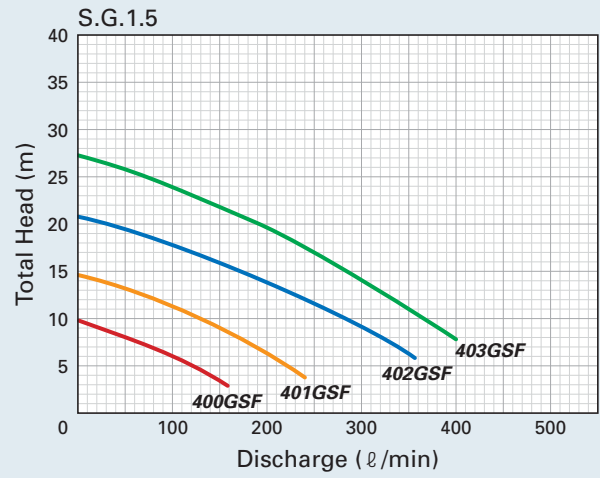
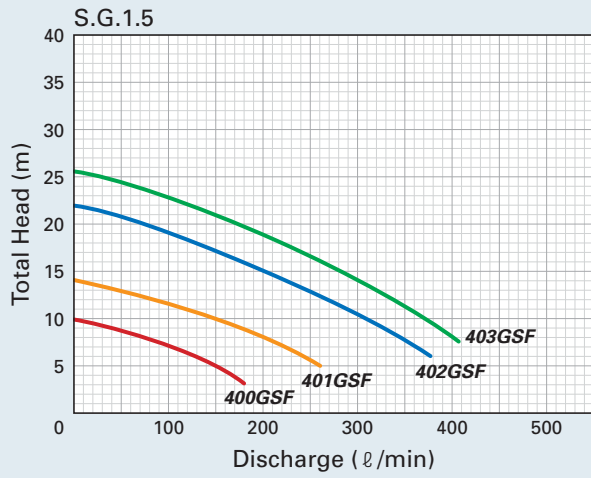
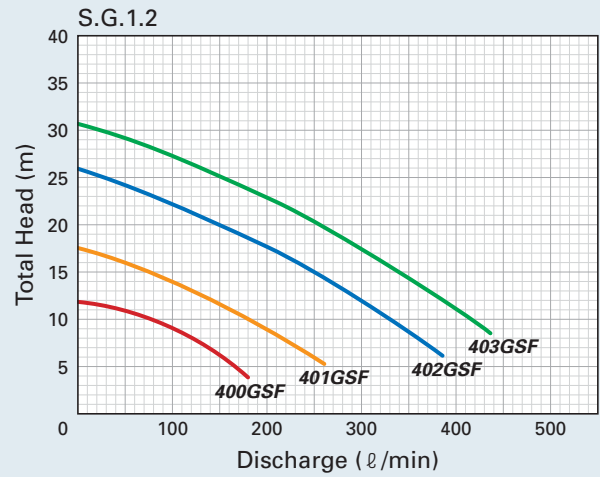
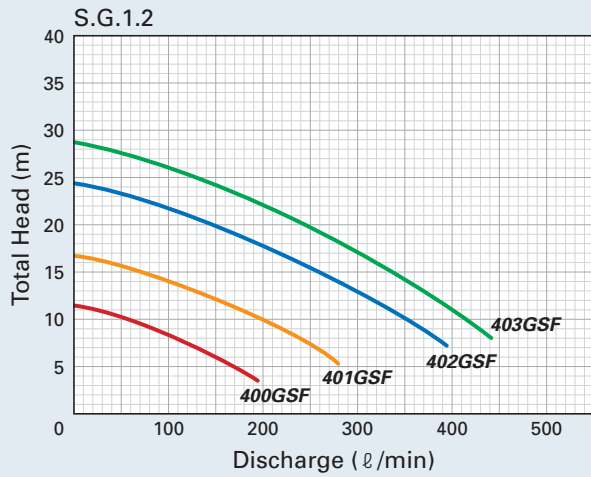


Performance Curves

GSF series

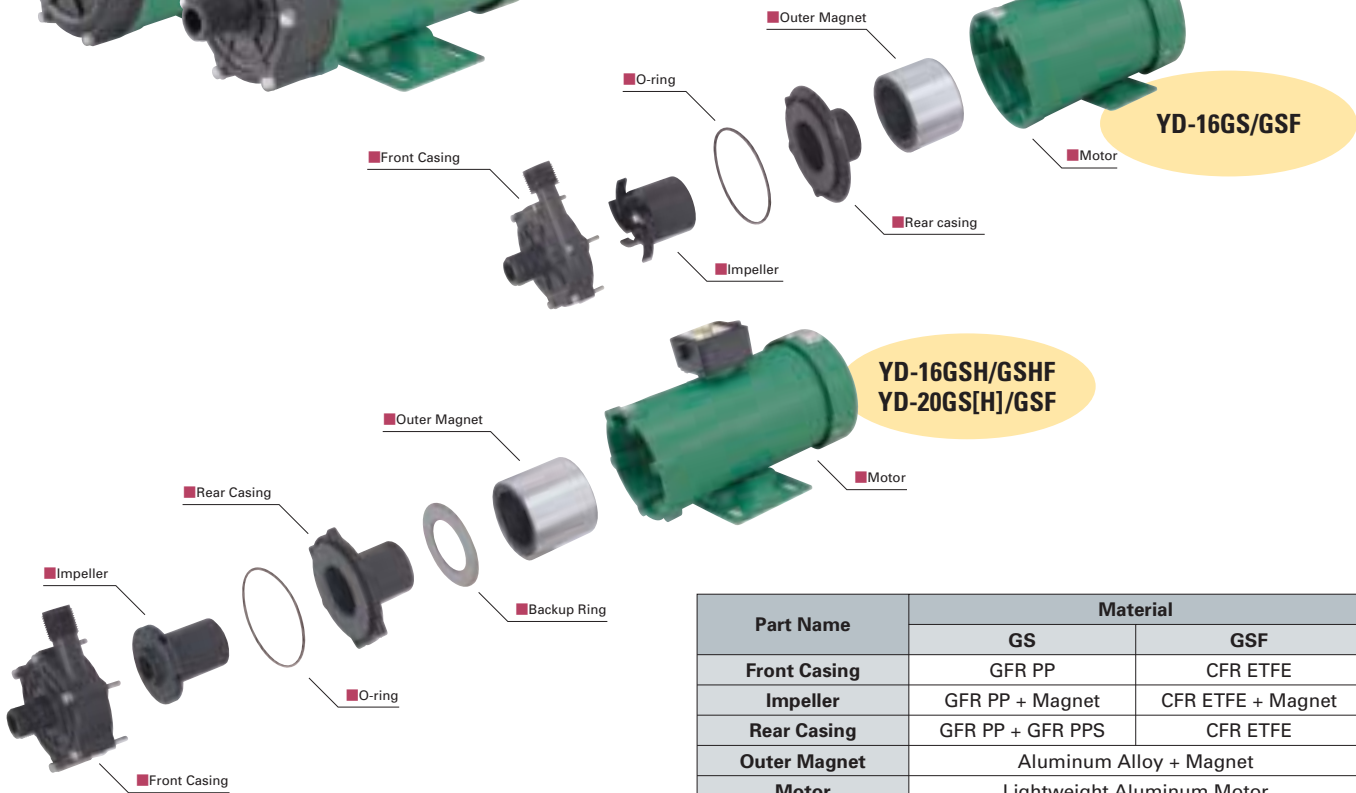
50Hz

60Hz



YD-16/20 class

YD-16GS(H)/GS(H)F
YD-20GS(H)/GS(H)F



Part Name	Material	
	GS	GSF
Front Casing	GFR PP	CFR ETFE
Impeller	GFR PP + Magnet	CFR ETFE + Magnet
Rear Casing	GFR PP + GFR PPS	CFR ETFE
Outer Magnet	Aluminum Alloy + Magnet	
Motor	Lightweight Aluminum Motor	
O-ring	EPDM/FPM	
Backup Ring	SPCC	

Impeller

World Chemical's uniquely designed impeller for high efficiency and durability
The industry standard for compact magnetic drive pumps



- Affordable price for a highly durable impeller
- GSF series capable of handling sp. gr. up to 1.9

GS/GSF Motor (with built-in thermal protector)

Designed to enhance motor's durability



- Motor with thermal box for standard use
- Oil seal prevents corrosion caused by fume and liquid leakage.
- Built-in thermal protector prevents overload operation.

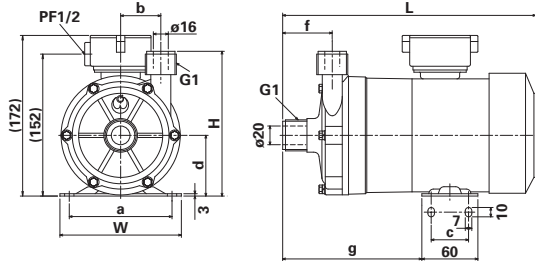
YD - 16 GS [H] F - SU



Outside Drawing

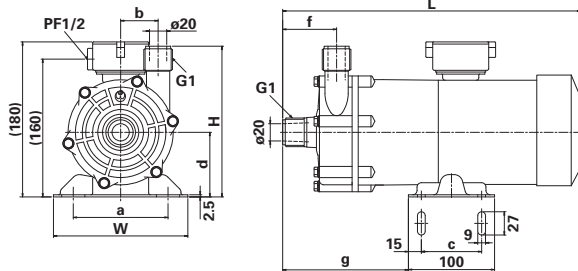
YD-16GS/GSF

● S type

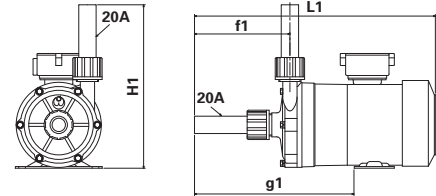


16GSH/16GSHF/20GS(H)/20GSF

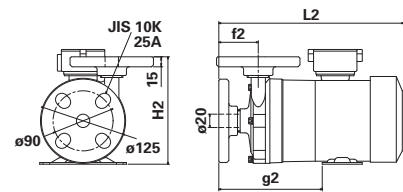
● S type



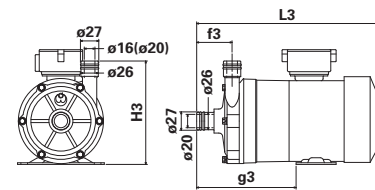
● SU type



● SF type



● H type



Unit:mm

MODEL	W	H	L	a	b	c	d	f	g	f1	f2	f3	g1	g2	g3	H1	H2	H3	L1	L2	L3
YD-16GS YD-16GSF	130	155	269	110	43	40	65	51	147	141	57	51	237	153	147	245	161	155	359	275	269
YD-16GSH YD-16GSHF YD-20GS YD-20GSH YD-20GSF	156	175	346	110	44	70	75	63	146	153	69	63	236	152	146	265	181	175	436	352	346

Performance Specification

GS/GSH series

Model	Bore [mm]		Max Head - Max Capacity (m-ℓ)		Standard Specified Point (m-ℓ)		Motor Output (kW)	Weight (kg)
	Suction	Discharge	50Hz	60Hz	50Hz	60Hz		
YD-16GS	20A	16A	7.0- 70	10.0- 75	5 -50	6.5-60	0.18	6.1
YD-20GS		20A	8.5- 85	12.0-100	7 -60	9.5-70		
YD-16GSH		16A	13.5- 40	19.0- 40	12 -24	17 -25	0.26	8.1
YD-20GSH		20A	12.5-100	—	9.5-70	—		

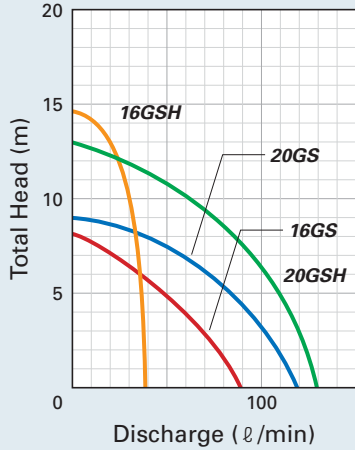
GSF/GSHF series

Model	Bore [mm]		Max Head - Max Capacity (m-ℓ)		Standard Specified Point (m-ℓ)		Motor Output (kW)	Weight (kg)
	Suction	Discharge	50Hz	60Hz	50Hz	60Hz		
YD-16GSF	20A	16A	8.2- 96	8.7- 95	5 -60	5-60	0.18	6.2
YD-20GSF		20A	11.0-127	12.0-135	7.5-70	8-70		
YD-16GSHF		16A	13.8- 40	15.5- 40	12 -24	14-25	0.26	8.3

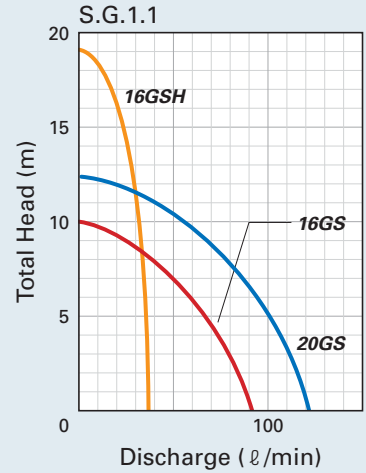
Performance Curves

GS/GSH series

50Hz

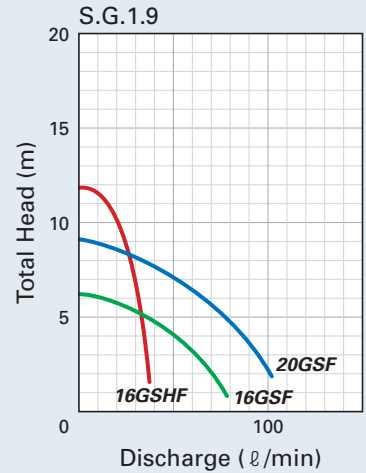
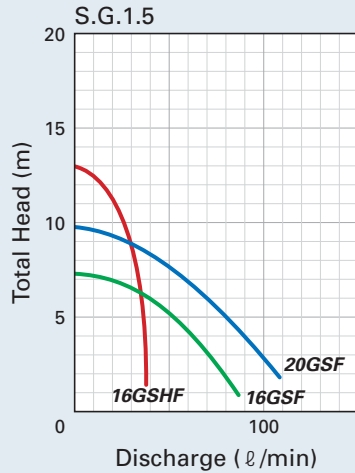
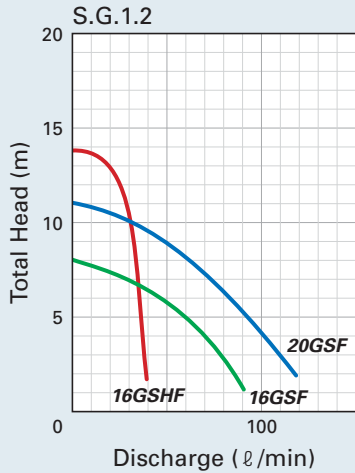


60Hz

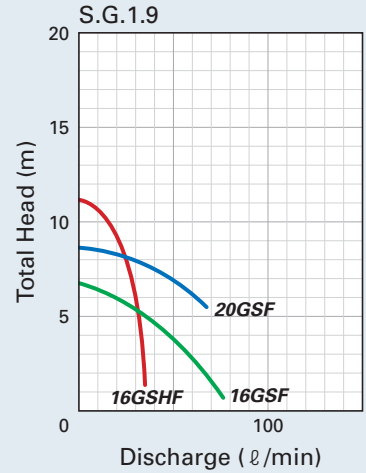
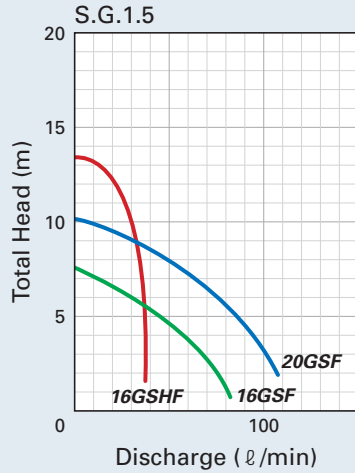
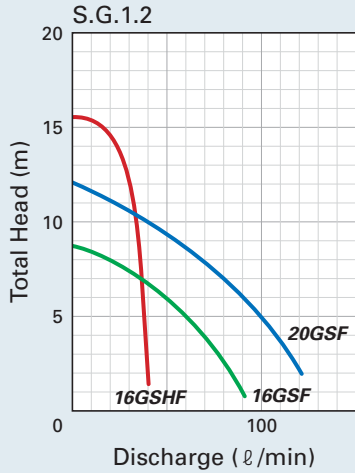


GSF/GSHF series

50Hz



60Hz



CAUTIONS WHEN INSTALLING AND LAYING PIPES

YD-GS[H] / GSF series

1) Caution when installing

- ① **If a large amount of air enters during operation, the pump will be unable to pump the liquid and result in a failure.**
 - The inlet of the suction pipe attached to the tank should be located lower than 50 cm below the liquid surface.
 - There should be no projection in the piping where air may be trapped in the suction pipe. Do not lay the suction pipe up/down.
 - The suction pipe should have an ascending gradient of more than 1/100 toward the pump.
 - The pipe diameter should be larger than the pump suction bore.
If the diameters of the pump suction port and the suction pipe are different, use an eccentric reducer pipe. Connect the eccentric reducer pipe so that the upper side is level.
- ② **Place a strainer at the inlet of the piping to prevent foreign matter from entering the suction pipe.**

Clean the strainer periodically to prevent clogging and minimize loss resistance.
- ③ **It is recommended that a check valve be attached to the vertical pipe on the discharge side to prevent "water hammer". Place a bypass for air exhaust on the lower section of the check valve when:**
 - The discharge pipe is long or when the discharge head is more than 10 m.
 - The end of the discharge pipe is located higher than 9 m above the liquid level of the suction tank.
 - Two or more pumps are used in parallel.
- ④ **Increased liquid temperature causes the piping to expand, leading to pump deformation. Install bent pipes and expansion joints on the pipes to prevent liquid leakage.**
- ⑤ **Handle the pump carefully to prevent any impact as the main parts within the pump are made of resin.**

2) Do not tighten the pump flange excessively.

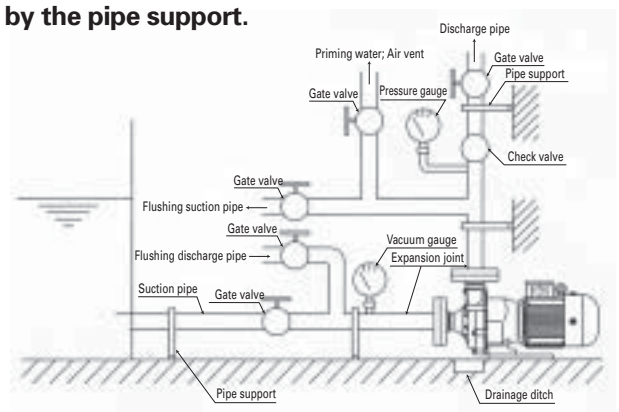
- ① **Arrange the pipe flange surface and the pump flange surface parallel to one another and do not tighten the bolts excessively.**
- ② **Excessively tightening the bolts can deform the pump flange if flexible joints, SUS loose flanges or internal packing are used.**

3) Do not apply weight on the pipes.

- ① **The weight of the pipe should be completely supported by the pipe support.**
- ② **If the liquid temperature is higher than 40 °C, install bent pipes and expansion joints on the pipes so that the pump is not loaded with weight from pipe thermal expansion.**

- ③ **Avoid using metal pipes. Use resin pipes only.**

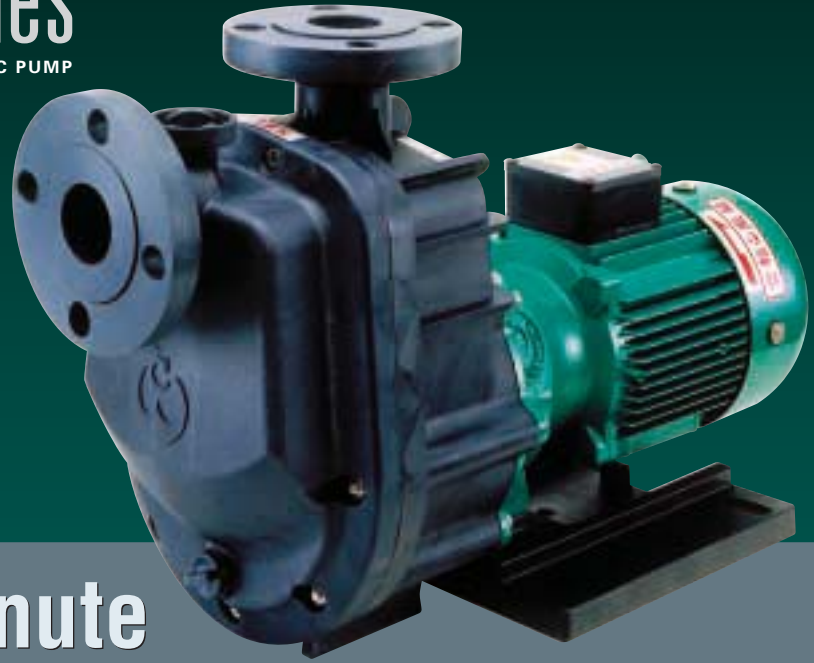
※ Follow instructions in 2) and 3) particularly in applications that use sulfuric acid and caustic acid.



GV series

SEALLESS AND VALVELESS SELF-PRIMING MAGNETIC PUMP

YD-250GV
YD-251GV/GVF
YD-252GV/GVF(60Hz)
YD-401GV-GVF(50Hz)
YD-402GV/GVF
YD-403GV/GVF(60Hz)
YD-502GV/GVF(50Hz)
YD-503GV/GVF
YD-505GV/GVF



SUCTION
LIFT **5m 2minute**

High-speed self-priming power

This pump is designed to prevent suction of excess air to maintain optimum priming. While compact in design, it has the high-speed self-priming capacity, priming 5m less than 2 minutes.

Prevents dry running, resistant to dry running

1 Unique valveless mechanism (Internationally patented)

2 Heat resistant bushing (Internationally patented)

When pumps run dry, the friction at the contact points causes the shaft and bushing to break down from excess heat. World Chemicals patented heat resistant materials and construction prevents extreme temperature changes at the contact point.

3 Air-lock/cavitations free construction

Pockets are created when air enters the chamber during priming. The unique internal design of the rear casing and impeller directs and releases the air without affecting the performance of the pump and prolongs pump life.

The most compact design in its class, ideal for limited space installations.

Models with 2HP and above use neodymium magnet, guaranteeing high performance in this compact, lightweight GS/GSF series Ideal for liquids with high specific gravity.

5m less than 2 minutes; the powerful self-priming performance changes the way of production line setup

Applications

For transferring liquid from the top of the tank and for anti-earthquake and anti-leakage measures against unexpected pipe broken.

For pumping liquid to higher grounds or from underground pits

Astounding self-priming power enables pumping from a deep pit or to higher ground 25m. Regardless of bore diameters, the pump can maintain its high self-priming performance.

Capable of running with long horizontal suction piping and up-and-down piping

The pump can handle a wide range of installation sites: 10m horizontal piping, up-and-down piping, as well as other demanding conditions.

For transferring foamy liquid

The valve less self-priming pump equipped with anti-dry-running measures is capable of handling hydrogen peroxide, sodium hypochlorite, sodium carbonate and any other foamy liquid that produces gas in the pump and pipes.

For transferring high specific gravity liquid

No impeller trimming required. No need for changing models. With the new GV, an increase in motor horsepower and the magnet torque alone will provide the self-priming power to lift high specific gravity liquid.

The evolution of the world-leading valveless self-priming pump

The world's first valveless pump was developed in 1971 by World Chemical from the unique idea of eliminating check valves, a common cause of pump failures, from the conventional pump design.

1971

SV:Valveless self-priming pump

Mechanical seal
PVC (polyvinyl chloride)



1994

GV:Valveless self-priming magnetic pump

PP (polypropylene)



GV:Valveless self-priming magnetic pump

PP (polypropylene)
Molded pump

2000

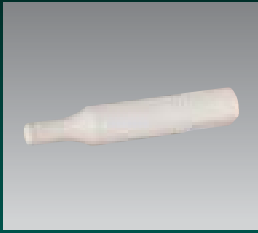


GVF:Valveless self-priming magnetic pump

ETFE (Ethylene-Tetrafluoroethylene)
Molded pump

2002

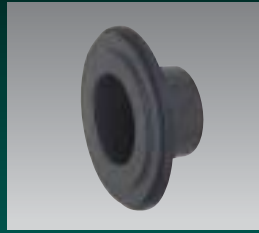
The two-point support construction of the shaft for durability



- Durability is enhanced by the two-point stationary shaft.
- SiC shafts, resistant to frictional wear, is also available.
- One-size shaft fits all GS/GSF series, minimizing stock requirements.

A Shaft

The air-releasing construction of the rear casing prevents trapped air



- The original air-releasing construction of the rear casing prevents air retention and airlock situations.
- Carbon fiber adopted for the reinforcement of the rear casing strengthens the pump against burst pressure.

B Rear Casing

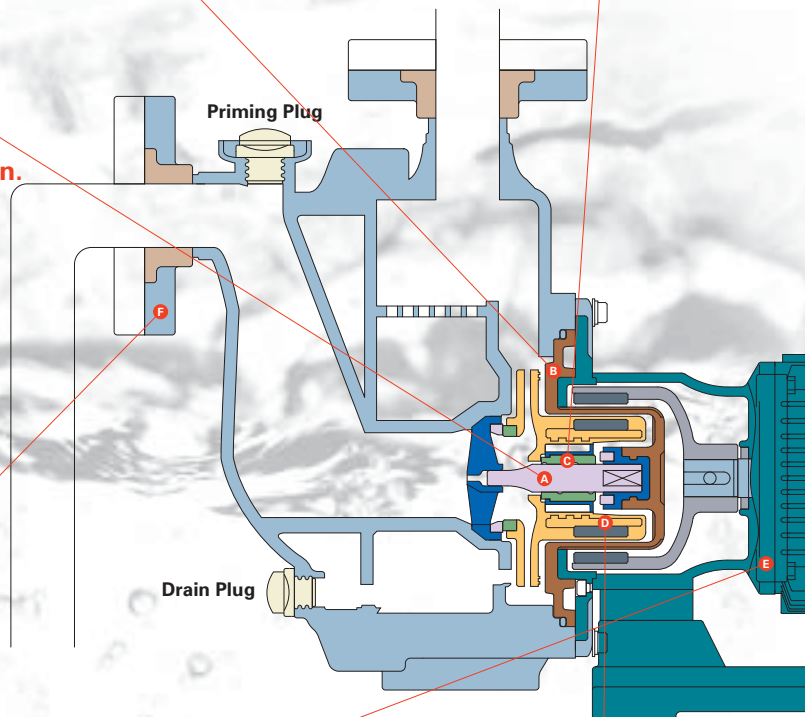
Three kinds of bushings for a wide range of chemicals



- Bushings can be selected by chemical type and presence of slurry. (Common parts available for GV series to minimize stock requirements).
- Bushing is available in carbon, ceramic, and SiC.

C Bushing

5m of suction lift in 2 min.



F Loose Flange

Loose flange for easy installation



- The loose flange allows flexibility in installation and easy connection to any pipe flange.

E Motor (with terminal box)

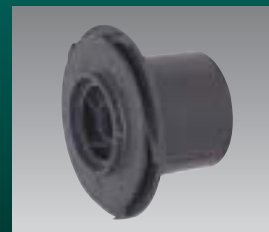
Sturdy outdoor-type motors for standard use *NEMA and IEC brackets are also available



- Made of reinforced plastic, the terminal box does not compromise its durability even in demanding conditions with a chemical atmosphere. The terminal box is positioned at the top of the motor for convenience in wiring.
- The oil seal prevents corrosion caused by fume and liquid leakage, and extends motor life.

D Impeller & Magnet

Neodymium magnet for a compact design (2HP or above)



- Powerful Neodymium magnet allows a compact design with excellent performance.
- The casting of the impeller and the magnet improves the handling of reverse rotation and high-temperature situations.
- The unique, unrivalled configuration of the impeller increases efficiency in performance.

GV series VALVELESS SELF-PRIMING MAGNETIC PUMP

YD-250GV	YD-401GV/GVF	YD-502GV/GVF
YD-251GV/GVF	YD-402GV/GVF	YD-503GV/GVF
YD-252GV/GVF	YD-403GV/GVF	YD-505GV/GVF

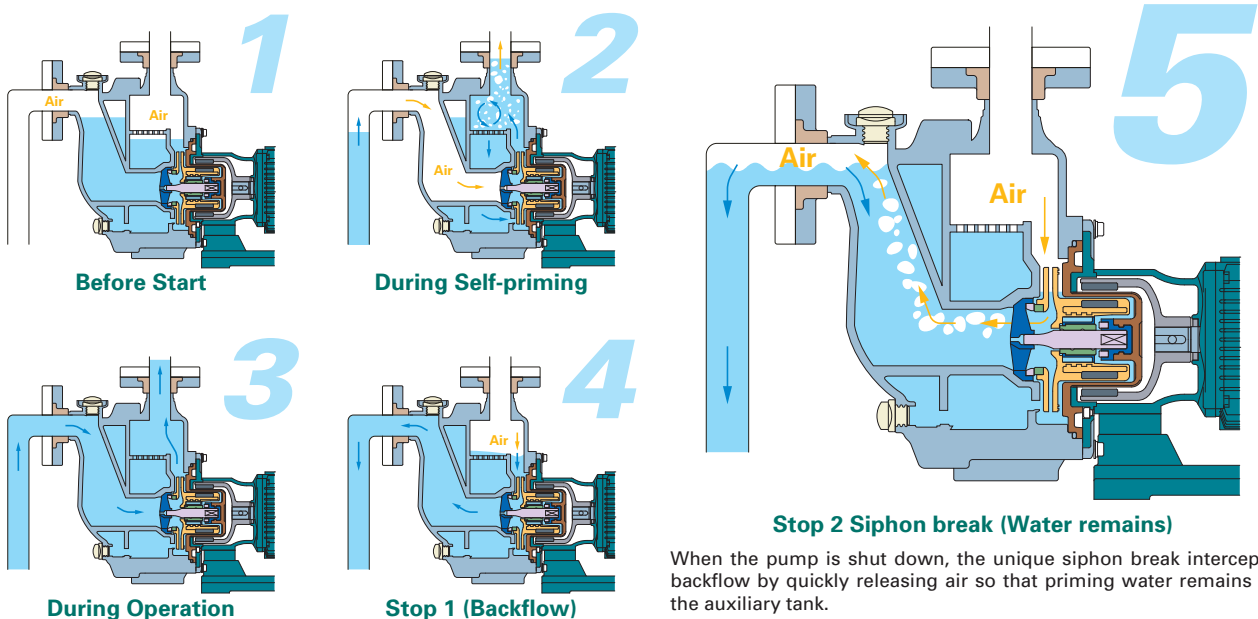


Part Name	Material	
	GV	GVF
Casing	GFR PP	CFRR ETFE
Priming Plug	GFR PP	CFR ETFE
Drain Plug	GFR PP	CFR ETFE
Shaft Support	Alumina Ceramics + GFR PPS	Alumina Ceramics + CFR ETFE
Mouth Ring	CFR PTFE	
Impeller	GFR PP + Magnet	CFR ETFE + Magnet
Bushing	Carbon / Ceramic / SiC	

Part Name	Material	
	GV	GVF
Shaft	Alumina Ceramics / SiC	
Rear Thrust ring	Alumina Ceramics / SiC	
Rear Casing	GFR PP + GFR PPS	CFR ETFE
Rear Casing Support	FC200	
Outer Magnet	FCD450-10 + Magnet	
Motor	FC200 + Aluminum Frame Motor	
Base	GFR PP / FC200	
O-ring	EPDM / FPM	

Internationally Patented Valveless Mechanism

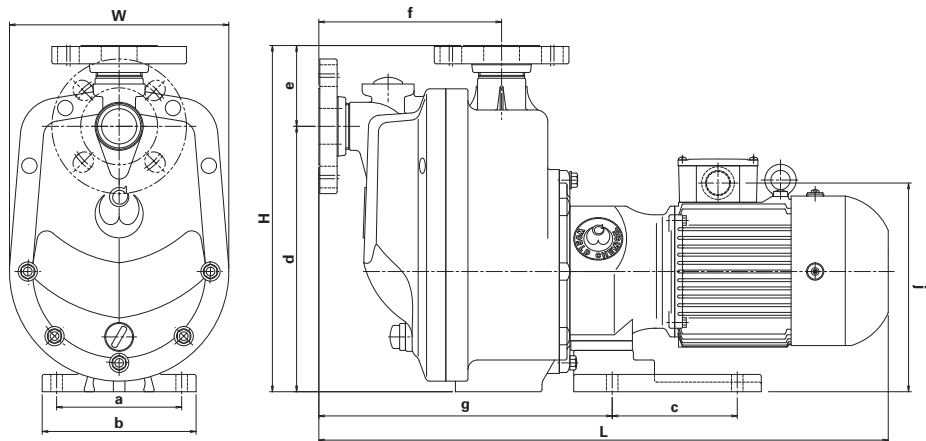
→ Liquid → Air



YD - 402 GVF - CE 5 G

DISCHARGE BORE	MOTOR OUTPUT	MAIN MATERIAL	FREQUENCY	Specific Gravity (s.g.)	
	0 : 0.4 3 : 2.2 1 : 0.75 5 : 3.7 2 : 1.5	GVF : GFP PP GVF : CFR ETFE	5 : 50Hz 6 : 60Hz	None: For S.G.=1.1 (S.G.=1.05 for 250GV) G: For high S.G. or for higher HP For S.G.=1.1 for GSF (S.G.=1.2 for 505GVF)	
BUSHING/O-RING MATERIAL					
Parts \ Type	CE	CD	AE	AD	TT
Bushing	Carbon	Carbon	Alumina ceramics	Alumina ceramics	Special Material
O-ring	EPDM	FPM	EPDM	FPM	Special Material

Outside Drawing



(Unit:mm)

MODEL	W	H	L	a	b	c	d	e	f	g	i	j
YD-250GV	196	325	533	130	160	130	255	70	167	275	ø12	200
YD-251GV(F)			562									207
YD-252GV(F)			592									215
YD-401GV	228	360	622	208	260	200	276	84	190	305	14-36	217
YD-402GV(F)			622									225
YD-403GV(F)			643									230
YD-502GV	248	389	713	230	260	261	296	93	206	309	36-14	235
YD-503GV(F)			713									82
YD-505GV(F)			713									82

Liquid Temperatures and Self-Priming Performance Data

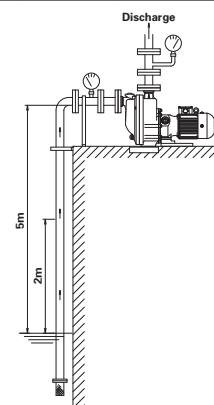
Test Model: 401GV-CD5 Test Liquid: Water

Our Test Data

Liquid Temperatures		40 °C	45 °C	50 °C	55 °C	60 °C
Depth 2m (6.6 ft.)	Suction	29 sec.	36 sec.	35 sec.	44 sec.	49 sec.
	Discharge	58 sec.	1 min. 09 sec.	1 min. 10 sec.	1 min. 16 sec.	1 min. 23 sec.
Depth 4m (13.1 ft.)	Suction	1 min. 03 sec.	1 min. 16 sec.	1 min. 20 sec.	1 min. 30 sec.	1 min. 50 sec.
	Discharge	1 min. 31 sec.	1 min. 47 sec.	1 min. 52 sec.	2 min. 07 sec.	2 min. 20 sec.
Depth 5m (16.4 ft.)	Suction	1 min. 39 sec.	—	—	—	—
	Discharge	2 min. 13 sec.	—	—	—	—

Note: The discharge time is 1 min. 48 sec. for water at 20 °C at a depth of 5m .

Suction: elapsed time until liquid enters the pump.
Discharge: elapsed time until stable discharge of liquid.



YD-250GV	YD-401GV/GVF	YD-502GV/GVF
YD-251GV/GVF	YD-402GV/GVF	YD-503GV/GVF
YD-252GV/GVF	YD-403GV/GVF	YD-505GV/GVF

Performance Specification

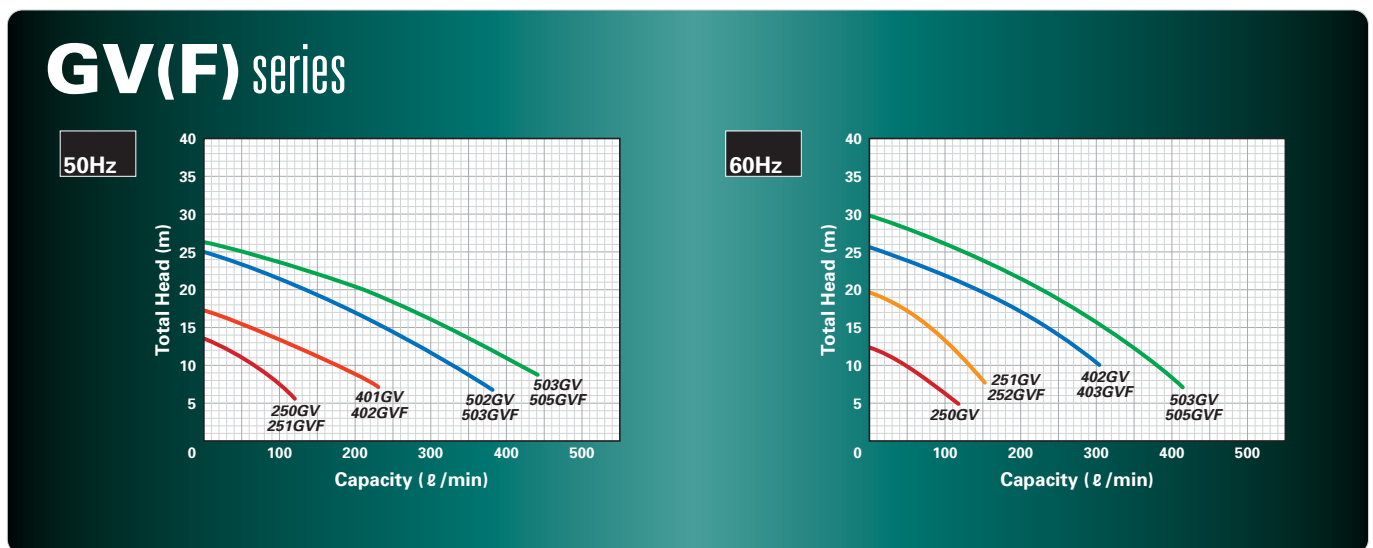
GV series

Model	Bore [mm (inch)]		Max Head - Max Capacity (m-ℓ/ft. - gpm)		Standard Specified Point (m-ℓ/ft. - gpm)		Motor Output (kW)	Weight (kg)
	Suction	Discharge	50Hz	60Hz	50Hz	60Hz		
YD-250GV	25A	25A	13.5-120	12.5-120	08-080	08-080	0.40	18.5
YD-251GV			14.0-115	20.0-155			0.75	20.5
YD-252GV			—	20.5-160		—	12-110	1.50
YD-401GV	40A	40A	17.0-230	—	11-160	—	0.75	22.5
YD-402GV			18.0-270	25.5-305			1.50	26.5
YD-403GV			—	26.5-350		—	17-200	2.20
YD-502GV	50A	50A	25.0-380	—	17-200	—	1.50	29.5
YD-503GV			26.0-440	30.0-415			2.20	32.0
YD-505GV			26.0-430	35.0-495		—	18-250	3.70

GVF series

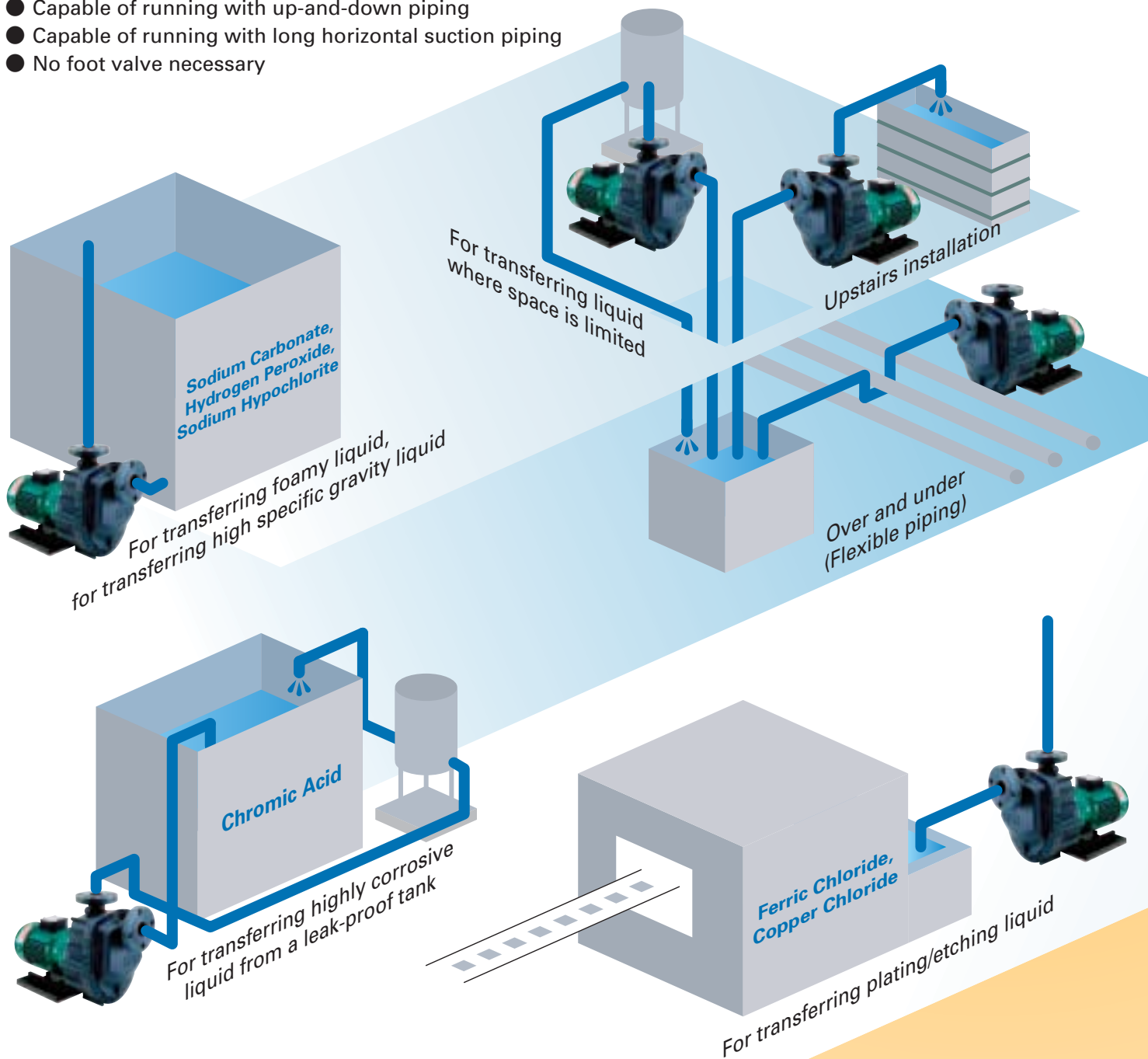
Model	吸込呼び口径 A (mm)	吐出呼び口径 A (mm)	Max Head - Max Capacity (m-ℓ/ft. - gpm)		Standard Specified Point (m-ℓ/ft. - gpm)		Motor Output (kW)	Weight (kg)
			50Hz	60Hz	50Hz	60Hz		
YD-251GVF	25A	25A	13.5-115	19.0-155	08.0-080	12-100	0.75	23.0
YD-252GVF			—	19.5-160	—	12-105	1.50	27.0
YD-401GVF	40A	40A	14.5-230	—	10.0-110	—	0.75	25.0
YD-402GVF			18.0-280	23.0-300	11.0-160	15-200	1.50	29.0
YD-403GVF			—	26.0-320	—	16-200	2.20	31.5
YD-502GVF	50A	50A	23.5-380	—	15.5-200	—	1.50	32.5
YD-503GVF			25.5-450	28.5-420	17.0-250	17-250	2.20	35.0
YD-505GVF			26.5-440	33.5-470	18.0-250	23-300	3.70	56.0

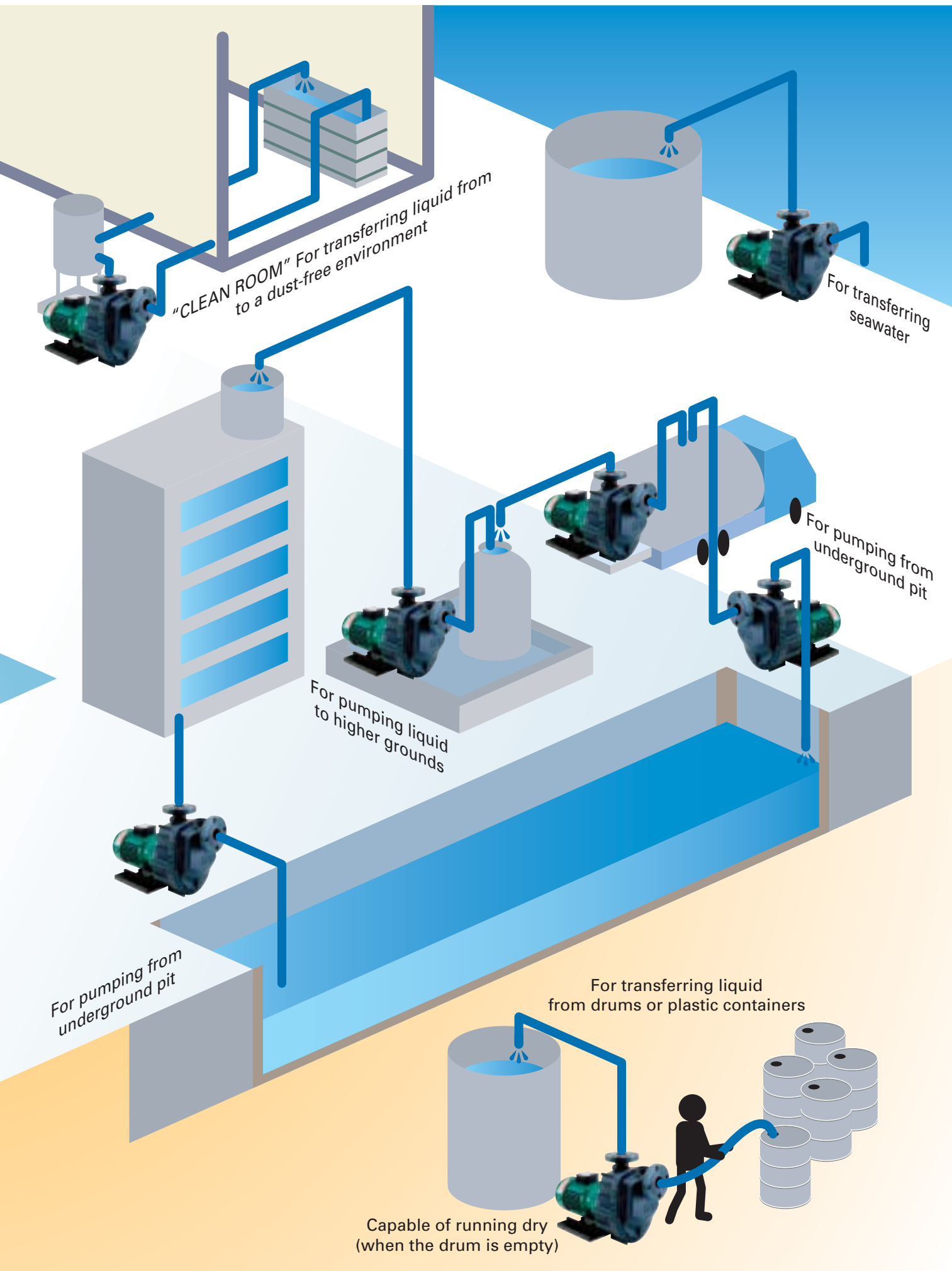
Performance Curves



High versatility self-priming magnetic pumps equipped with anti-earthquake and anti-leakage measures. Handles a wide range of installation sites, horizontal suction piping, as well as other demanding conditions.

- By transferring liquid from the top of the tank, no drain hole in the tank is necessary.
- Pumps can be installed at a site distant from a tank or a filter.
- Self-priming performance of 5 m (16.4 ft) increases the range of applications.
- Severe installation conditions can be managed with ease.
- For transferring bubbly liquid, hazardous liquid or high-gravity liquid
- Capable of running with up-and-down piping
- Capable of running with long horizontal suction piping
- No foot valve necessary





CAUTIONS WHEN INSTALLING AND LAYING PIPES

YD-GV / GVF series

1) Caution when installing

- ① **If air enters the pump from couplings on the suction pipe, the pump will be unable to pump the liquid and cause a failure.**
 - There is negative pressure in the suction pipe during operation. Improper installation of the coupling lets air into the pump while preventing liquid from entering the pump. This can result in pump failure.
 - Use a suction pipe with the same diameter as the suction inlet. When the piping is larger than the pump diameter, self-suction ability is decreased and self-priming impossible.
 - Keep the minimum liquid level at a depth of more than double the suction pipe bore diameter from the tip of the suction pipe. If the liquid level is lower, air can enter the pump and cause dry running.
- ② **Place a strainer at the inlet of the piping to prevent foreign matter from entering the suction pipe.**

Clean the strainer periodically to prevent clogging and minimize loss resistance.
- ③ **It is recommended that a check valve be attached to the vertical pipe on the discharge side to prevent "water hammer." Place a bypass for air exhaust on the lower section of the check valve when:**

(Problems in self-priming can be expected if an air vent pipe is not installed.)

 - The discharge pipe is long or when the discharge head is more than 10 m.
 - The end of the discharge pipe is located higher than 9 m above the liquid level of the suction tank.
 - Two or more pumps are used in parallel.
- ④ **Increased liquid temperature causes the piping to expand, leading to pump deformation. Install bent pipes and expansion joints on the pipes to prevent liquid leakage.**
- ⑤ **Handle the pump carefully to prevent any impact as the main parts within the pump are made of resin.**

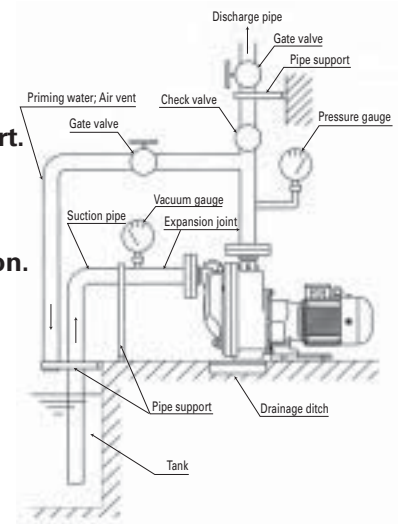
2) Do not tighten the pump flange excessively.

- ① **Arrange the pipe flange surface and the pump flange surface parallel to one another and do not tighten the bolts excessively.**
- ② **Excessively tightening the bolts can deform the pump flange if flexible joints, SUS loose flanges or internal packing are used.**

3) Do not apply weight on the pipes.

- ① **The weight of the pipe should be completely supported by the pipe support.**
- ② **If the liquid temperature is higher than 40 °C, install bent pipes and expansion joints on the pipes so that the pump is not loaded with weight from pipe thermal expansion.**
- ③ **Avoid using metal pipes. Use resin pipes only.**

※ Follow instructions in 2) and 3) particularly in applications that use sulfuric acid and caustic acid.



Chemical Resistance Table

			Pump Casing				Bushing		
			GFR PP			CFR ETFE	Carbon	Ceramics	
Chemicals	Formula	Density	20 °C	60 °C	70 °C	0 - 80 °C	0 - 80 °C	0 - 80 °C	
Acid	Hydrochloric acid	HCl	10	○	○	△	○	○	○
			20	○	○	×	○	○	○
			35	○	38°C ×	×	○	○	○
	Chromic acid	H ₂ CrO ₄	10	△	×	×	○	×	○
			25	×	×	×	○	×	○
	Acetic acid	CH ₃ COOH	50	○	○	△	○	○	○
			100	×	×	×	○	○	○
	Oxalic acid	(COOH) ₂ ·2H ₂ O	30	○	○	△	○	○	○
			50	○	△	×	○	○	○
	Nitric acid	HNO ₃	10	○	○	△	○	×	○
			30	△	×	×	○	×	○
			60	×	×	×	○	×	○
	Hydrofluoric acid	HF	10	×	×	×	○	50% ○ 70°C	△
	Phosphoric acid	H ₃ PO ₄	25	○	○	○	○	○	○
			50	○	○	○	○	○	○
85			○	△	△	○	○	○	
Sulfuric acid	H ₂ SO ₄	30	○	△	△	○	○	○	
		70	△	×	×	○	△	○	
		98	×	×	×	○	×	○	
Alkali	Aqueous ammonia	NH ₃	30	○	○	○	○	○	
	Sodium hydroxide	NaOH	10	○	×	×	○	○	○
			24	×	×	×	○	○	○
			48	△	×	×	○	○	○
Potassium hydroxide	KOH	50	○	△	×	○	○	△	
Salt	Sodium sulfite	NaSO ₃	Solution	○	○	○	○	○	○
	Aluminum chloride	AlCl ₃	Solution	○	○	○	○	○	○
	Ammonium chloride	NH ₄ Cl	Solution	○	○	○	○	○	○
	Calcium chloride	Ca(ClO ₃) ₂	Solution	○	○	○	○	×	○
	Cuprous chloride	CuCl	Solution	○	○	○	○	○	○
	Ferric chloride	FeCl ₃	Solution	○	○	△	○	○	○
	Mercuric chloride	HgCl ₂	40	○	○	×	○	○	○
	Sodium chlorate	NaClO ₃	Solution	○	○	×	○	×	○
	Potassium permanganate	KMnO ₄	6	○	○	○	○	○	○
			20	○	○	△	○	○	○
	Cuprous cyanide	Cu(CN) ₂	Solution	○	○	○	○	○	○
	Sodium cyanide	NaCN	Solution	○	○	○	○	○	○
	Sodium nitrate	NaNO ₃	Solution	○	○	○	○	○	○
	Ammonium nitrate	NH ₄ NO ₃	Solution	○	○	○	○	○	○
	Common salt	NaCl	Solution	○	○	○	○	○	○
	Sodium hypochlorite	NaClO	12	×	×	×	○	×	○
	Potassium dichromate	K ₂ Cr ₂ O ₇	Solution	○	○	○	○	○	○
	Sodium carbonate	Na ₂ CO ₃	Solution	○	○	○	○	○	○
	Ammonium carbonate	(NH ₄) ₂ CO ₃ ·H ₂ O	Solution	○	○	○	○	○	○
	Aluminum fluoride	AlF ₃	Solution	○	○	○	○	○	○
Ferrous sulfate	Fe ₂ (SO ₄) ₃	Solution	○	○	○	○	○	○	
Nickel solution		—	○	○	○	○	○	○	
Zink solution		—	○	○	○	○	○	○	
Solvent	Ethanol	C ₂ H ₅ OH	100	○	○	○	○	○	○
	Methanol	CH ₃ OH	100	○	○	○	—	○	○
	Trichloroethylene	Cl ₂ C=CHCl	100	×	×	×	○	×	○
	Butanone	CH ₃ COC ₂ H ₅	100	×	×	×	○	○	○

○ : Resistant (if used within specification)
 △ : Partially resistant
 × : Non-resistant

This chemical resistance table is intended as a guide for appropriate pump selection and shows corrosion resistance under limited conditions. It does not provide any guarantees.



Tsukuba Factory



Comprehensive Manufacturer of Environmental Equipment
Challenging the Liquid Transfer Technology,

World Chemical Co., Ltd.

World Chemical Co., Ltd (Main Office)

7F, TOUSEN Bldg., 1-5-2 Higashi-Azabu, Minato-ku, Tokyo, 106-0044 Japan

☎ 03(3588)1140 ☎ 03(3588)1141

IT & Planning Division ☎ 03(3588)1724 ☎ 03(3588)1499

Chemical Pump Division ☎ 03(3588)1140 ☎ 03(3588)1141

Overseas Sales Division ☎ 03(3588)1866 ☎ 03(3588)1141

E-mail overseas@wcc.co.jp

Nagoya Office

1-307 Yashirogaoka, Meitou-ku, Nagoya- shi, Aichi, 465-0051 Japan

☎ 052(701)1227 ☎ 052(701)1250

Osaka Office

1-27-6 Kujou, Nishi-ku, Osaka- shi, Osaka, 550-0027 Japan

☎ 06(6584)3185 ☎ 06(6584)3160

Tsukuba Factory

6127-5 Onogo, Joso-shi, Ibaraki, 300-2521 Japan

☎ 0297(24)1071 ☎ 0297(24)1075

Service Center **URL** <http://www.wcc.co.jp/>

E-mail chemical@wcc.co.jp

system@wcc.co.jp

Worchemi Taiwan Co., Ltd.

No. 13, Lane 513, Shern-lin South Rd. Taya Hsiang, Taichung Hsine, Taiwan R.O.C.

☎ 886-4-25609315 ☎ 886-4-25609056

E-mail worchemi@ms34.hinet.net

World Chemical USA, Inc.

20610 Manhattan Place, Suite 116 Torrance, CA 90501

☎ 310-328-9114 ☎ 310-328-9441

URL <http://www.worldchemicalusa.com>

E-mail wcusa@worldchemicalusa.com

Distributed by: