

# 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/GSF  
YD-251GS/GSF  
YD-252GS/GSF  
YD-253GS/GSF  
YD-400GS/GSF  
YD-401GS/GSF  
YD-402GS/GSF  
YD-403GS/GSF  
YD-405GS/GSF  
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, and show high performance in this compact 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.

# GS/GSF

## series 250~253

### For low-volume, high-head applications

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



## Double protection against dry running

### Internationally patented PPS bearing construction

Dry running of pumps leads to failure of the shaft or bearing from excess heat caused by friction in the sliding portion. Our internationally patented construction of the GS models (Chemifree) 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)
- Bearing (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.



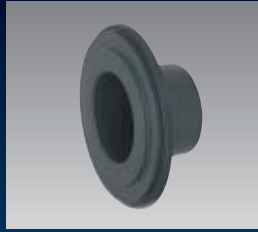
**The two-point support construction of the shaft for durability**



- 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.
- ※Only 402-405GSF

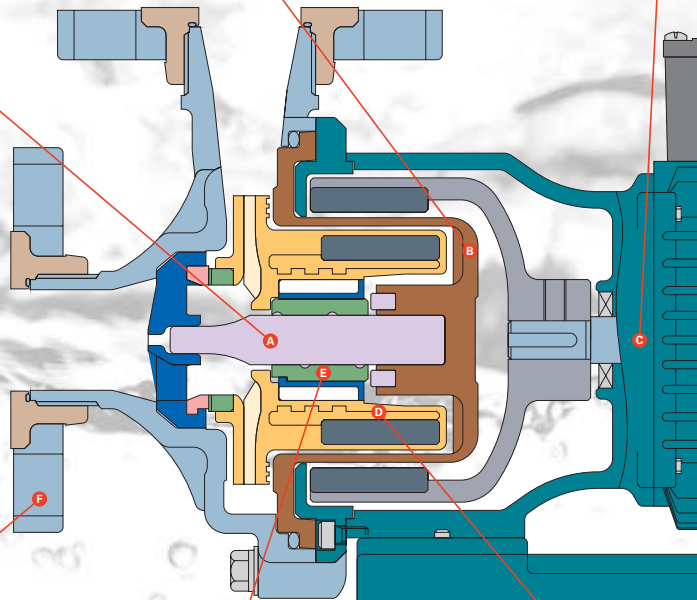
**B Rear Casing**

**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.
- ※250~405 Series.

**E Bearing**

**Four kinds of bearing for a wide range of chemicals**



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

**D Impeller & Magnet**

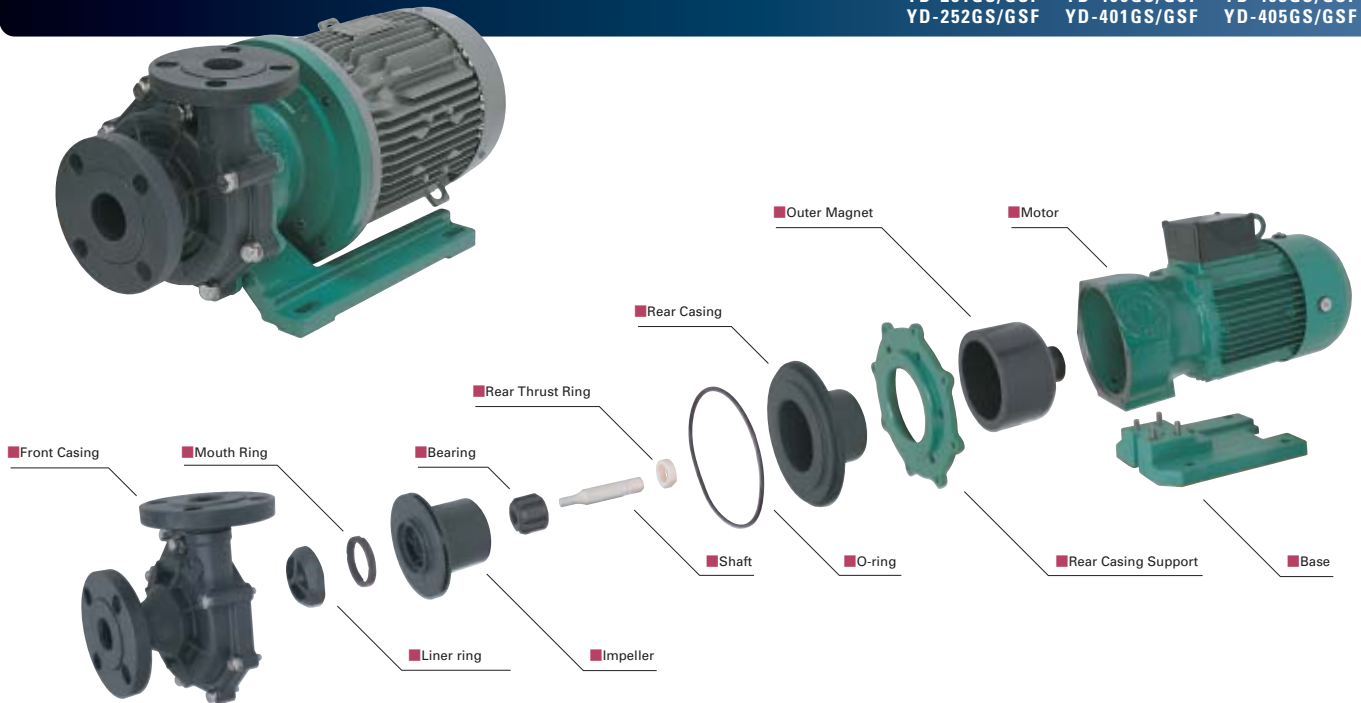
**Neodymium magnet for a compact design (2HP or above)**



- 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/GSF series MAGNETIC PUMP WITH HIGH PUMP-HEAD CAPABILITY

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



Part Name	Material	
	GS	GSF
Front Casing	GFR PP	CFR ETFE
Liner ring	Alumina Ceramics + GFR PPS	Alumina Ceramics + ETFE
Mouth Ring	CFR PTFE	
Impeller	(GFR) PP + Magnet	CFR ETFE + Magnet
Bearing	Carbon / Ceramic / CFR 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	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

25 : 25A  
40 : 40A

### 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.)

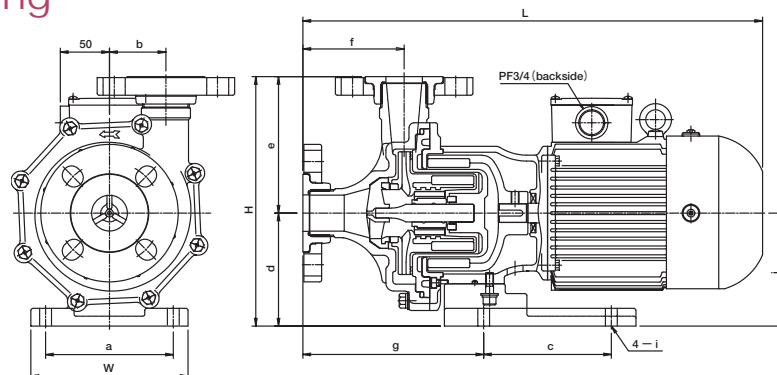
0 : 1.0  
1 : 1.1 (253GS 60Hz only)  
1 : 1.05 (400/401GS only)  
2 : 1.2  
3 : 1.3  
4 : 1.4  
5 : 1.5  
9 : 1.9

### Bearing/O-ring Material

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

※ The contents given in this booklet might be changed with no prior notice due to product improvement.

## Outline Drawing



Unit:mm

Model	W	H	L	a	b	c	d	e	f	g	i	j
YD-250GS(F)	160	260	431	130	65	130	115	145	90	173	ø12	200
YD-251GS(F)			457									207
YD-252GS(F)	260	261	490	208		200	116			156	14-36	216
YD-253GS(F)												
YD-400GS(F)	140	216	423	110	51	98	95	121	87	150	12-18	180
YD-401GS(F)	160	254	468	130	57.5	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(F)		280	531	230		261	135			36-14	(245)	

## Performance Specification

### GS series

Model	Suction Bore A (mm)	Discharge Bore A (mm)	Standard Performance (m-ℓ /min)						Motor Output (kW)	Weight (kg)
			50Hz			60Hz				
			Standard Specified Point	S.G.Limit	S.G.Indicator	Standard Specified Point	S.G.Limit	S.G.Indicator		
YD-250GS	25A	25A	14 - 50	1.0	0	14 - 50	1.0	0	0.4	19.5
YD-251GS			21 - 50	1.0	0	21.5 - 50	1.0	0	0.75	21.5
YD-252GS			25.5 - 50	1.3	3	34 - 50	1.0	0	1.5	26.5
YD-253GS			—	—	—	37 - 50	1.1	0	2.2	28.5
YD-400GS	40A	40A	11 -100	1.05	1	11 -100	1.05	1	0.4	16.5
YD-401GS			15 -150	1.05	1	15 -150	1.05	1	0.75	19.5
YD-402GS	50A		19 -200	1.1	1	19 -200	1.1	1	1.5	25.5
YD-403GS			23 -200	1.1	1	25 -200	1.1	1	2.2	27.5
YD-405GS		25 -200	1.4	4	34 -200	1.1	1	3.7	41.5	

### GSF series

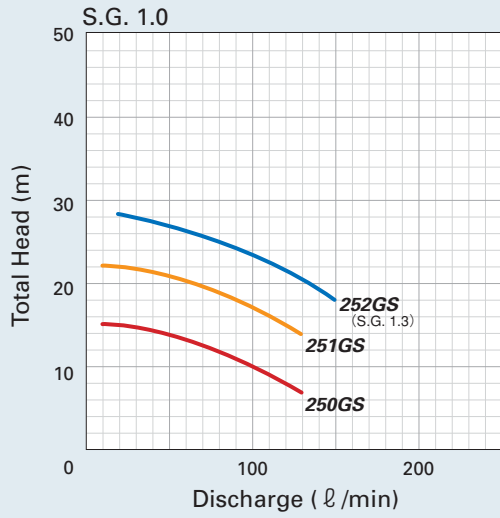
Model	Suction Bore A (mm)	Discharge Bore A (mm)	Standard Performance (m-ℓ /min)						Motor Output (kW)	Weight (kg)
			50Hz			60Hz				
			Standard Specified Point	S.G.Limit	S.G.Indicator	Standard Specified Point	S.G.Limit	S.G.Indicator		
YD-250GSF	25A	25A	9 - 50	1.2	2	9 - 50	1.2	2	0.4	20.5
YD-251GSF			16.5 - 50	1.2	2	15 - 50	1.2	2	0.75	22.5
YD-252GSF			24 - 50	1.2	2	26 - 50	1.2	2	1.5	28
YD-253GSF			23.5 - 50	1.9	9	33 - 50	1.2	2	2.2	30
YD-400GSF	40A	40A	8.5 -100	1.2	2	9 -100	1.2	2	0.4	17.5
YD-401GSF			12 -150	1.2	2	11.5 -150	1.2	2	0.75	20.5
YD-402GSF	50A		18 -200	1.2	2	17.5 -200	1.2	2	1.5	27
YD-403GSF			21 -200	1.2	2	22.5 -200	1.2	2	2.2	29
YD-405GSF		25 -200	1.3	3	30 -200	1.2	2	3.7	43	



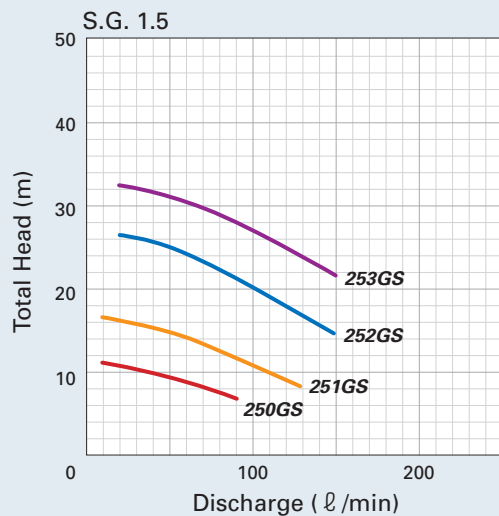
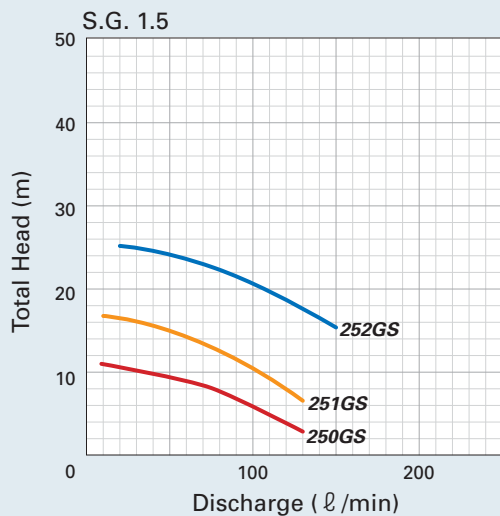
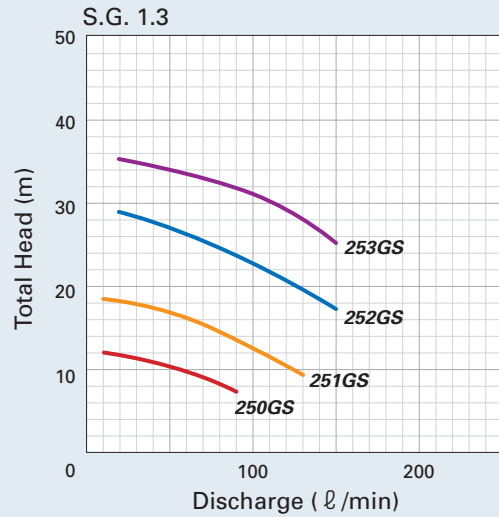
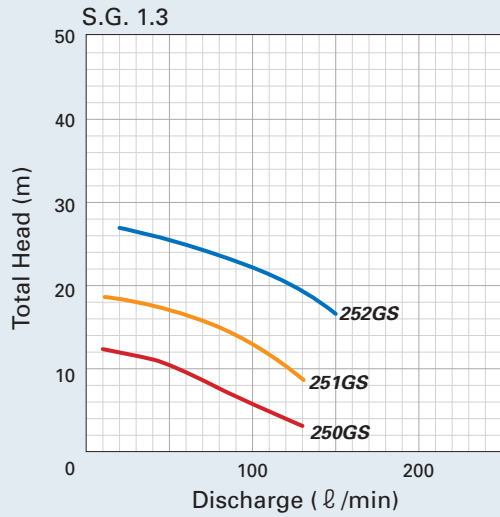
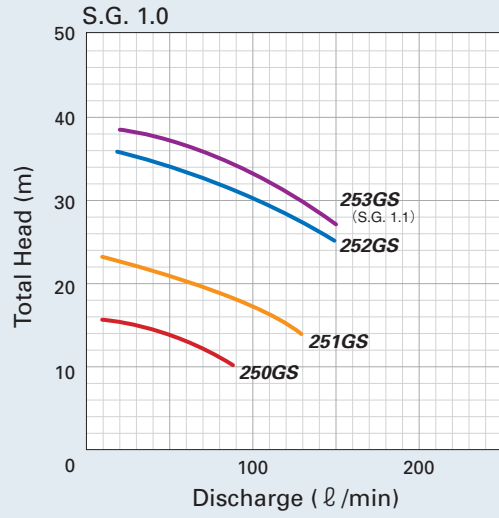
Performance Curves

# 250GS series

50Hz



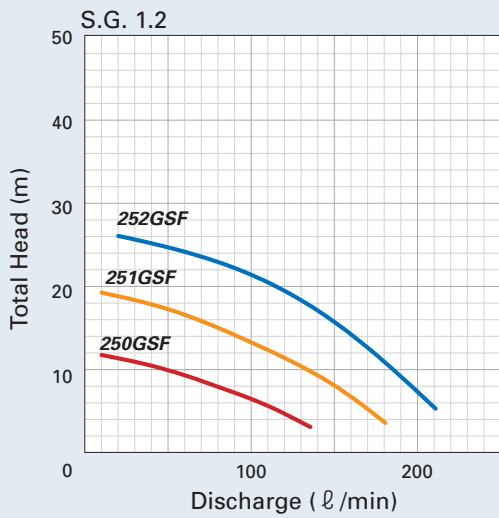
60Hz



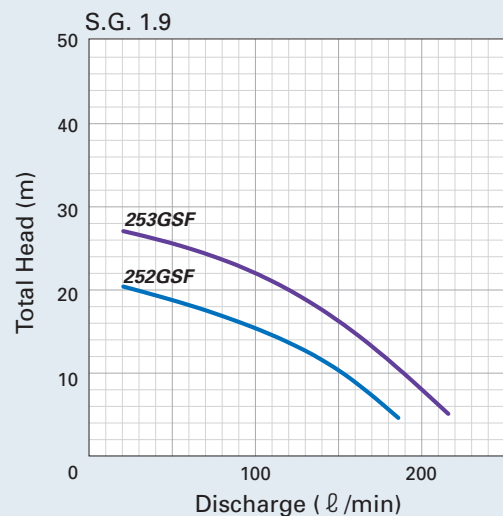
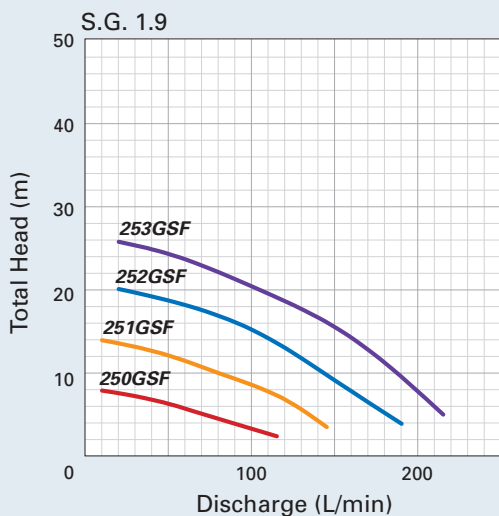
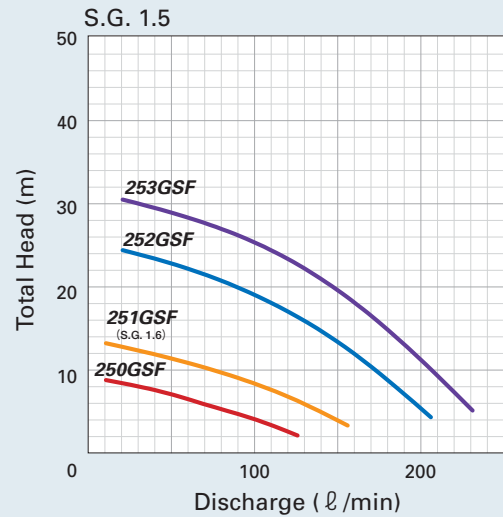
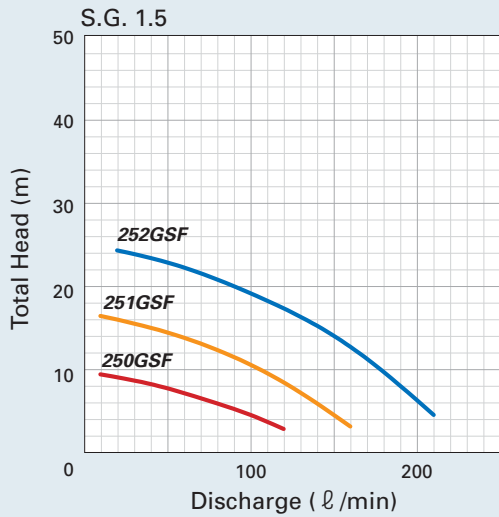
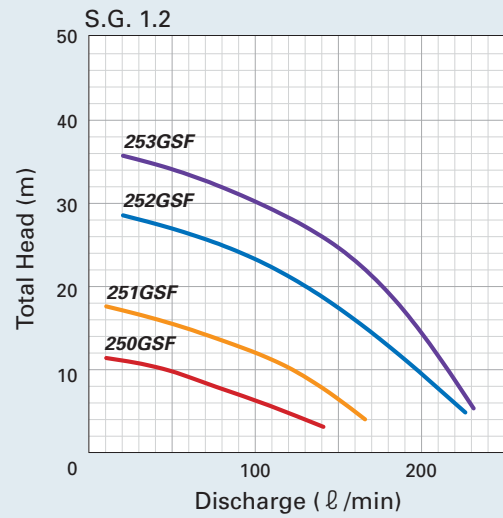
Performance Curves

# 250GSF series

50Hz



60Hz

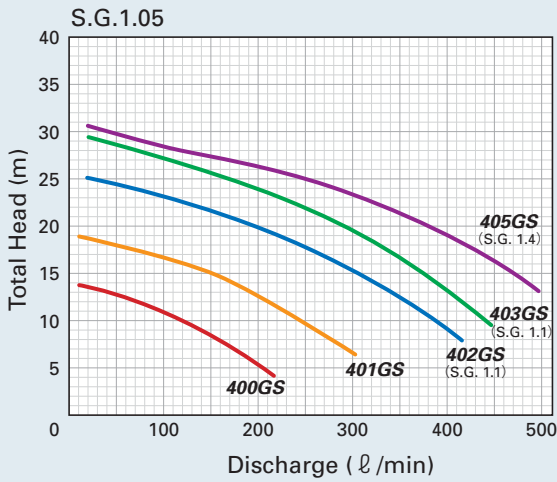




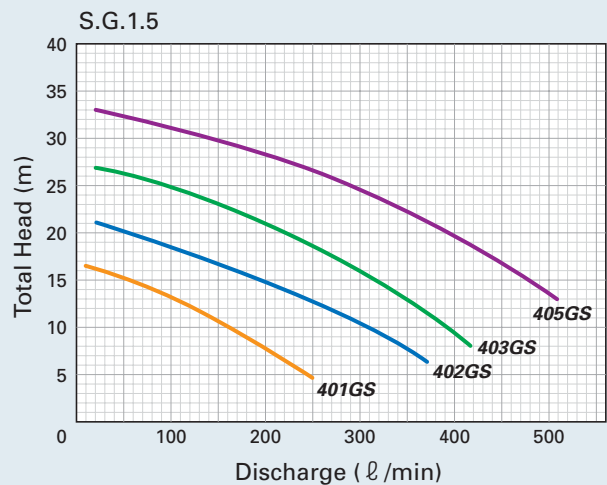
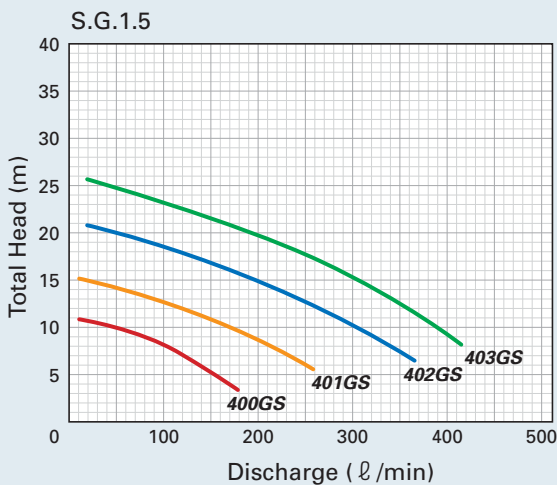
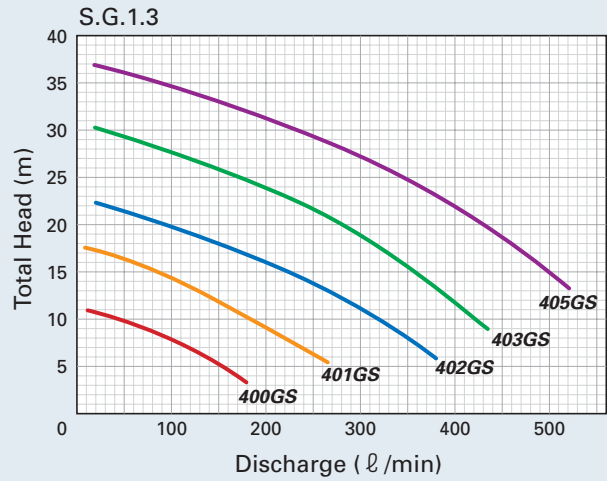
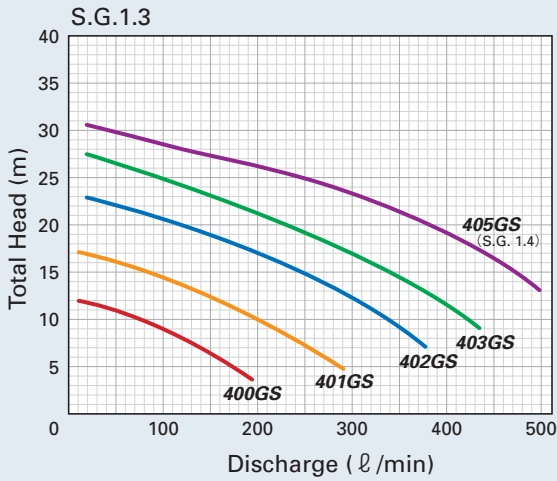
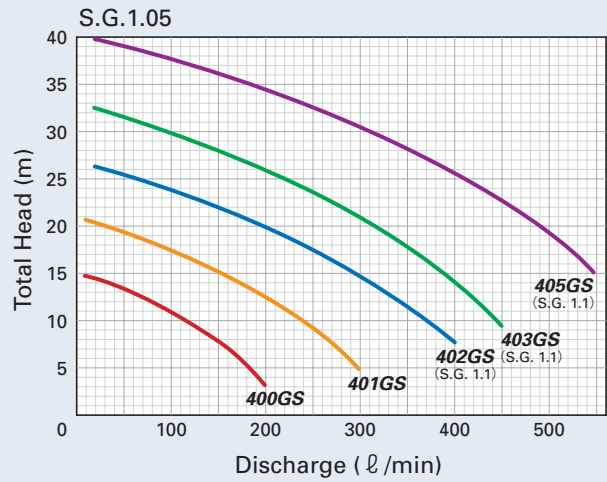
Performance Curves

400GS series

50Hz



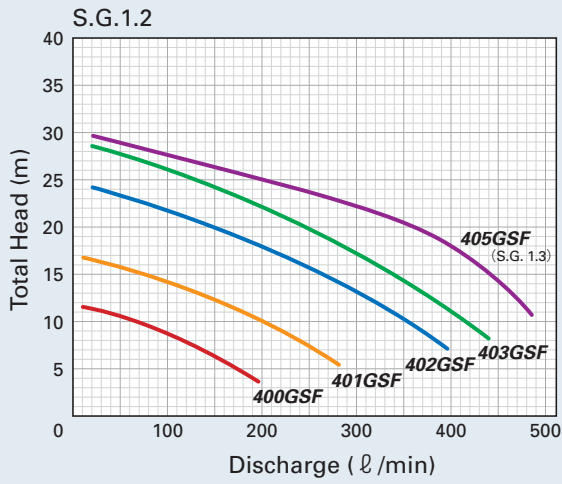
60Hz



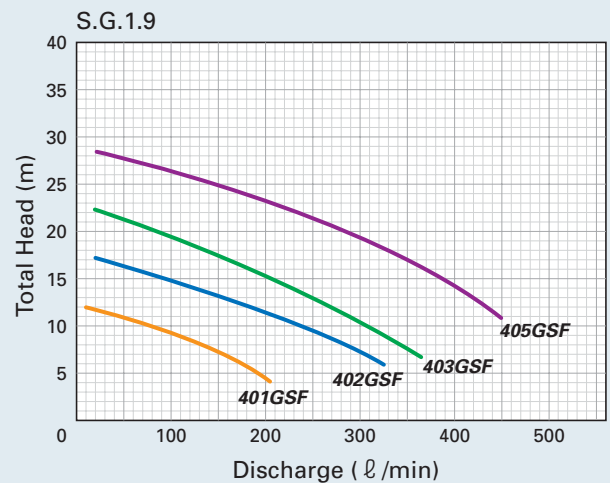
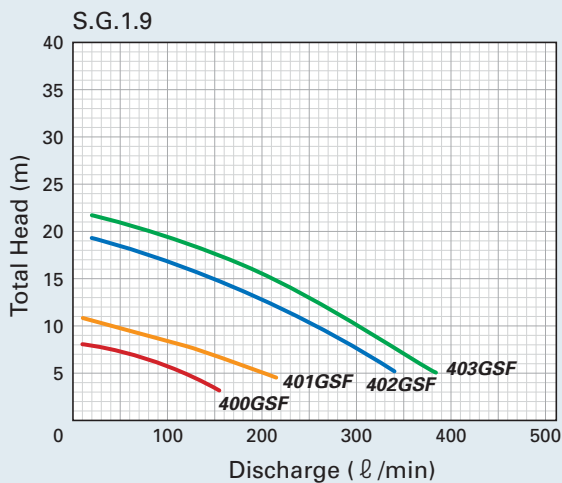
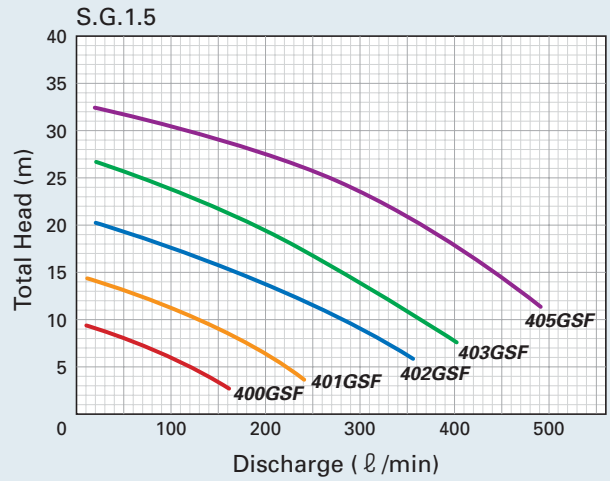
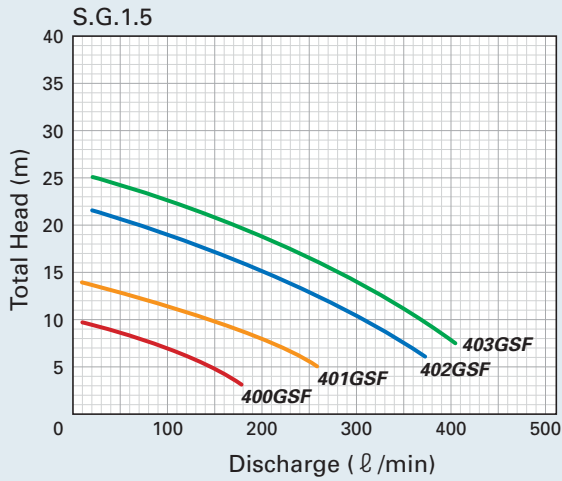
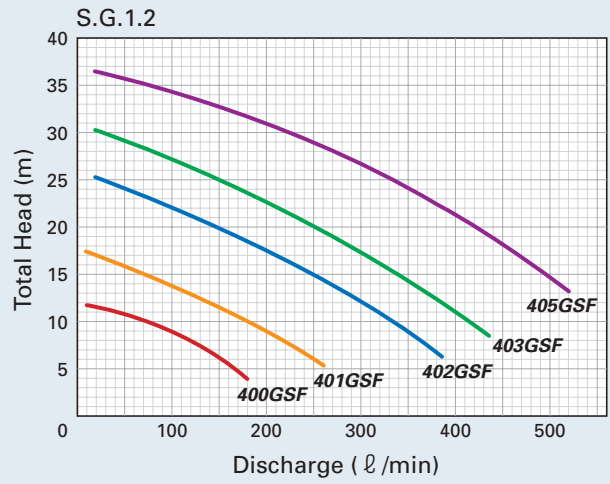
Performance Curves

400GSF series

50Hz

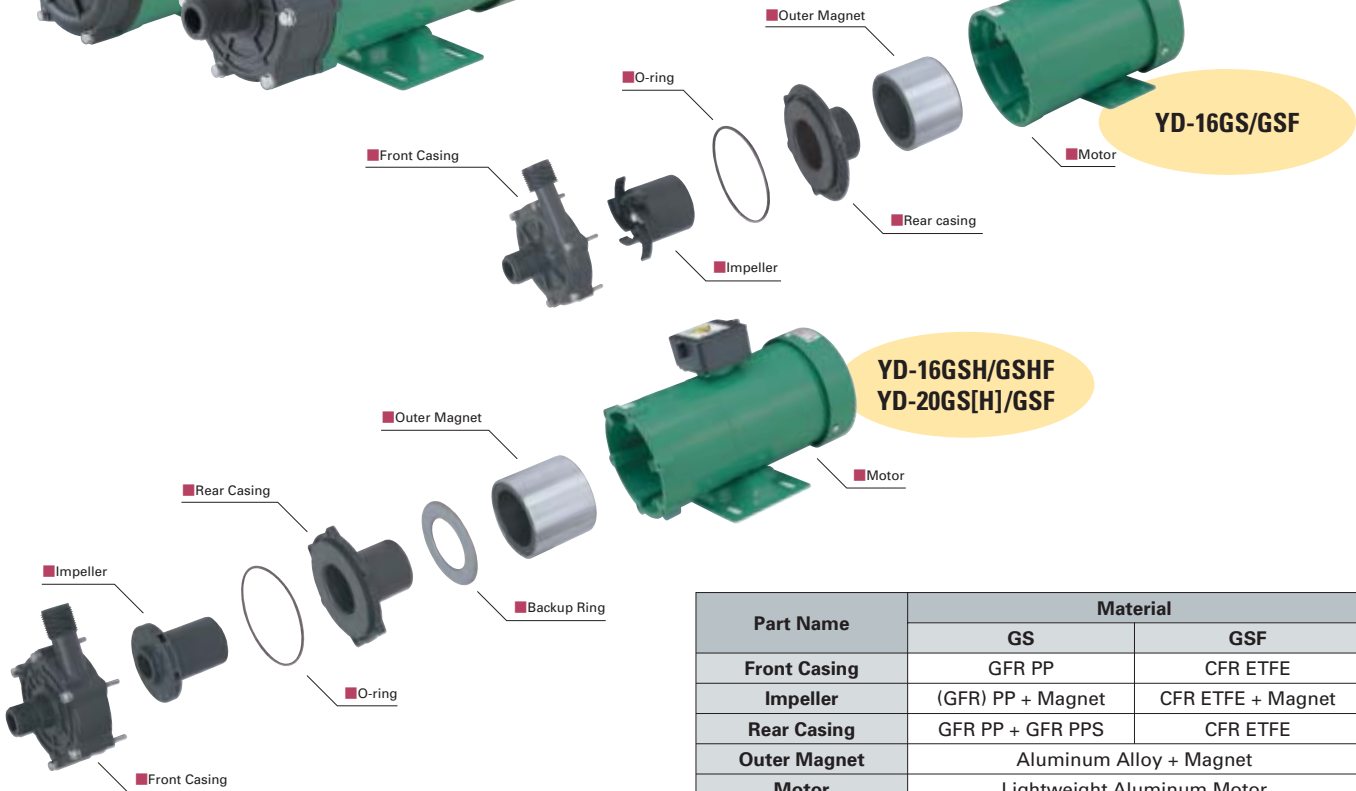


60Hz



# GS/GSF series MAGNETIC PUMP WITH HIGH PUMP-HEAD CAPABILITY

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	20GS(F), 16GSH(F)	

## 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 S. G. 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

Discharge bore

Main material

GS : GFP PP  
GSF : CFR ETFE

NONE : Standard Pump Head  
H : High Pump Head

Connection

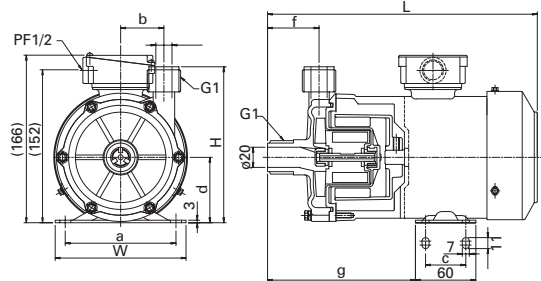
S : Thread(G1/G1)  
SU : Union(20A/20A)  
SF : Flange(25A/25A)

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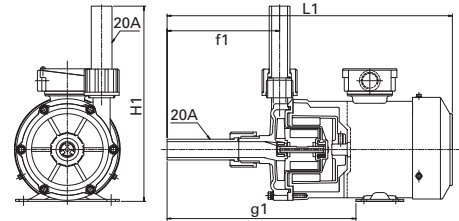
## Outline Drawing

### YD-16GS/GSF

#### ● S type

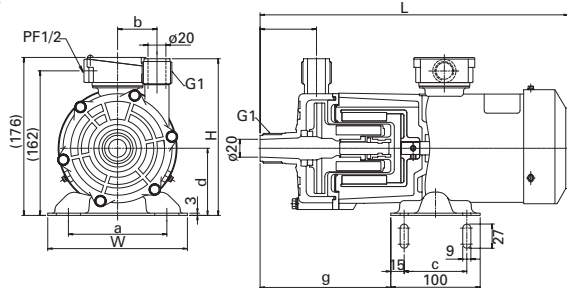


#### ● SU type

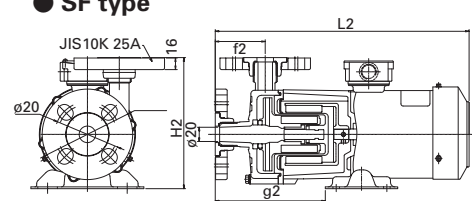


### 16GSH/16GSHF/20GS(H)/20GSF

#### ● S type



#### ● SF type



Unit:mm

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

## Performance Specification

### GS/GSH series

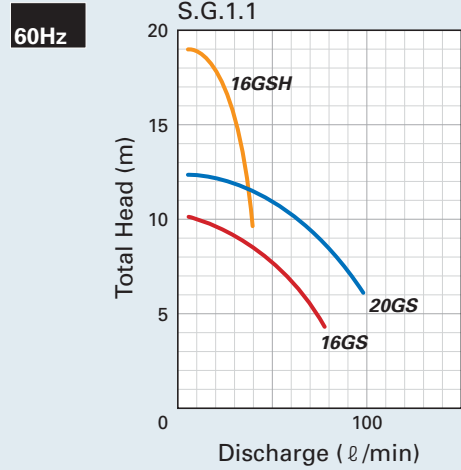
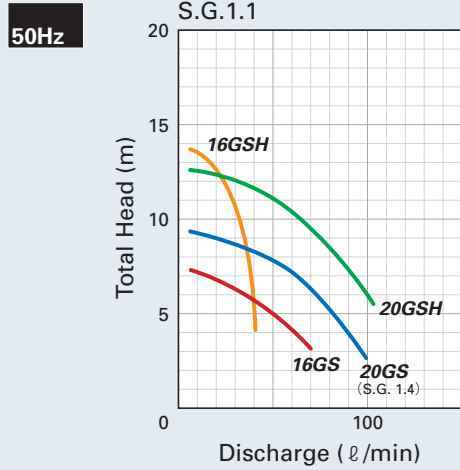
Model	Suction Bore (mm)	Discharge Bore (mm)	Standard Performance (m-ℓ/min)				Motor Output (kW)	Weight (kg)
			50Hz		60Hz			
			Standard Specified Point	S.G.Limit	Standard Specified Point	S.G.Limit		
YD-16GS	20A	16	5 -50	1.1	6.5 -60	1.1	0.18	6.2
YD-20GS		20	7 -60	1.4	9.5 -70	1.1		
YD-16GSH		16	12 -24	1.1	17 -25	1.1	0.26	8.0
YD-20GSH		20	9.5 -70	1.1	—	—		

### GSF/GSHF series

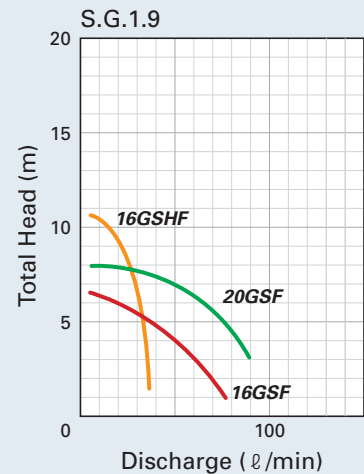
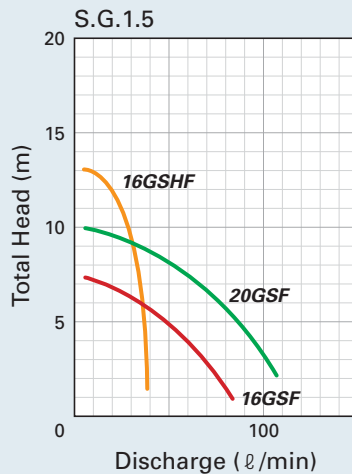
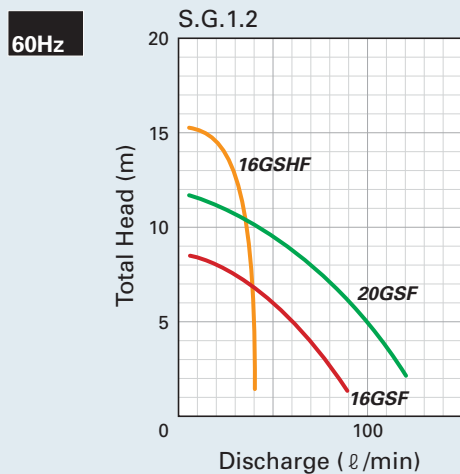
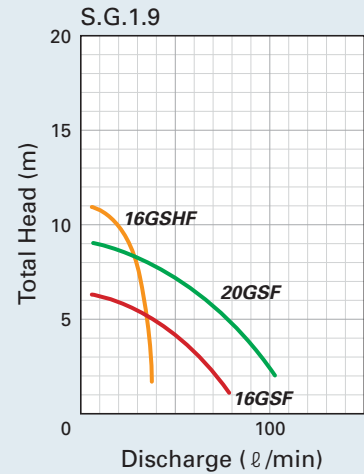
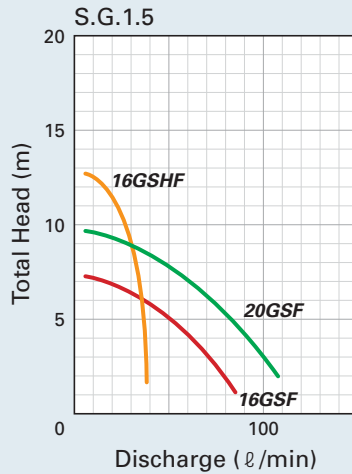
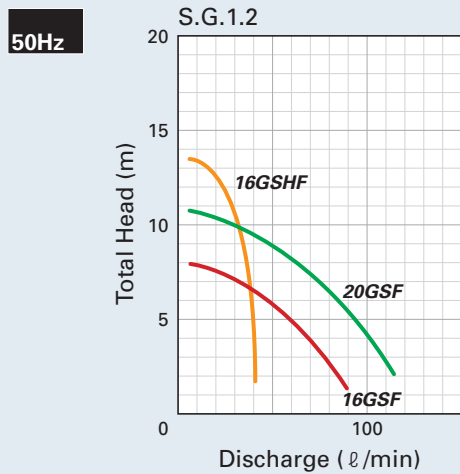
Model	Suction Bore (mm)	Discharge Bore (mm)	Standard Performance (m-ℓ/min)				Motor Output (kW)	Weight (kg)
			50Hz		60Hz			
			Standard Specified Point	S.G.Limit	Standard Specified Point	S.G.Limit		
YD-16GSF	20A	16	5 -60	1.2	5 -60	1.2	0.18	6.6
YD-20GSF		20	7.5 -70	1.2	8 -70	1.2		
YD-16GSHF		16	12 -24	1.2	14 -25	1.2	0.26	8.3

Performance Curves

# GS/GSH 16/20 series



# GSF/GSHF series



# 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 **The imposed dimension between the pump and the piping should be fitted. If not, pump casing could be damaged. Meanwhile, uneven clamping could cause the liquid leaks from the packing. Tighten the bolts diagonally and evenly.**

## 3) Do not apply weight on the pipes.

① **The weight of the pipe should be completely supported by the pipe support.**

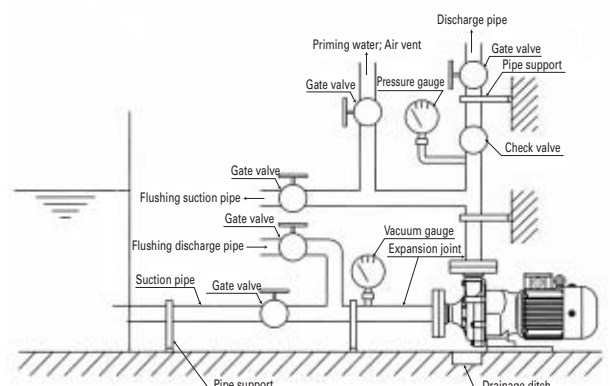
② **If the liquid temperature is higher than 40 °C, install bent pipes and expansion joints on the pipes so that the pump is not loaded with weight from pipe thermal expansion.**

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.

④ **Maintain the lowest flow  
Maintain the lowest flow during the operation for cooling down the sliding parts.**

- ※ Motor Output 0.18 \_ 0.26kW: 5 ℓ /min
- ※ Motor Output 0.4 \_ 0.75kW: 10 ℓ /min
- ※ Motor Output 1.5 \_ 3.7kW: 20 ℓ /min







**GV** series

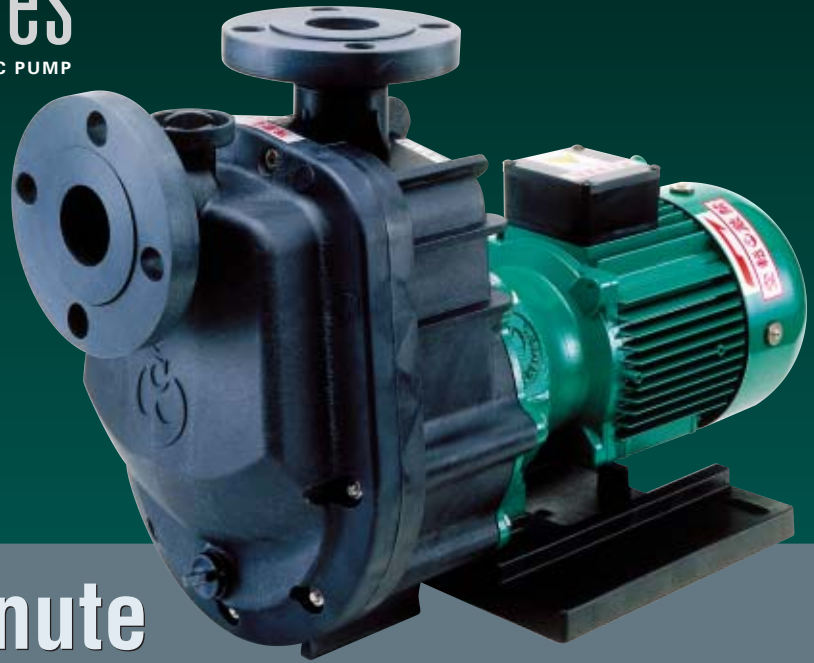
VALVELESS SELF-PRIMING MAGNETIC PUMP



# 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 bearing (Internationally patented)**

When pumps run dry, the friction at the contact points causes the shaft and bearing 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, and show high performance in this compact, GV/GVF series. They are ideal for high specific gravity liquids.

# 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 liquids.

## 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**

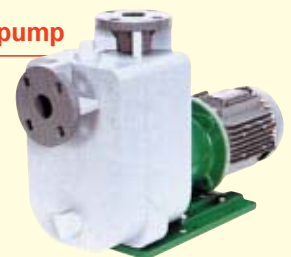
PP (polypropylene)



**GV:Valveless self-priming magnetic pump**

PP (polypropylene)  
Molded pump

2000



**GVF:Valveless self-priming magnetic pump**

ETFE (Ethylene-Tetrafluoroethylene)  
Molded pump

2002



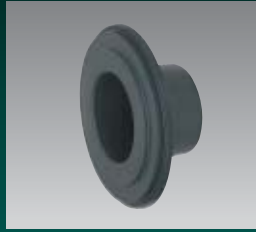
**The two-point support construction of the shaft for durability**



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

**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**

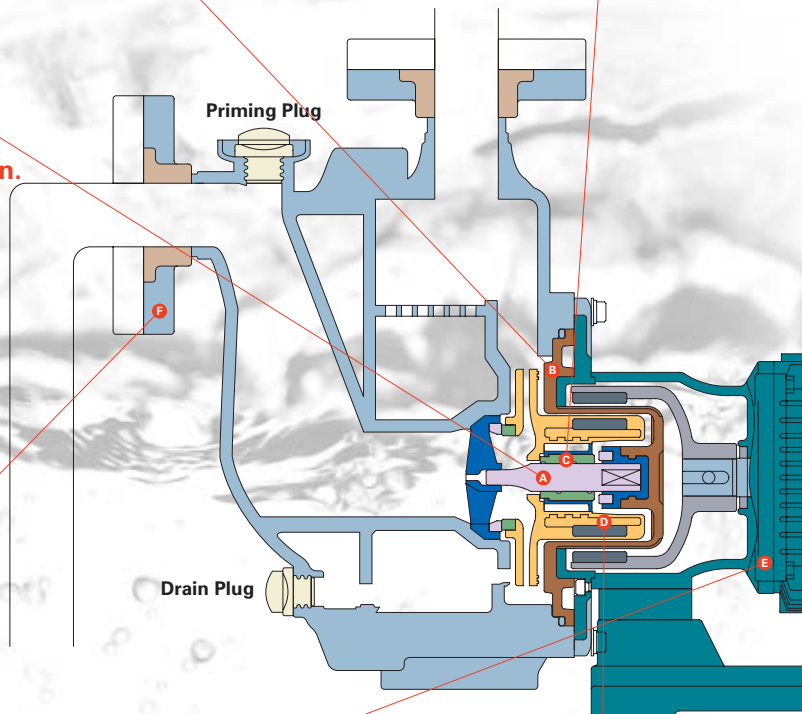
**Three kinds of bearing for a wide range of chemicals**



- Bearing can be selected by chemical type and presence of slurry.
- Bearing is available in carbon, ceramic, and SiC.

**C Bearing**

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)**

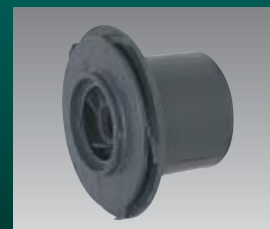
Sturdy outdoor-type motors for standard use \*NEMA and IEC brackets are also available



- 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/GVF series VALVELESS SELF-PRIMING MAGNETIC PUMP

YD-250GV  
YD-251GV/GVF  
YD-252GV/GVF

YD-401GV/GVF  
YD-402GV/GVF  
YD-403GV/GVF

YD-502GV/GVF  
YD-503GV/GVF  
YD-505GV/GVF

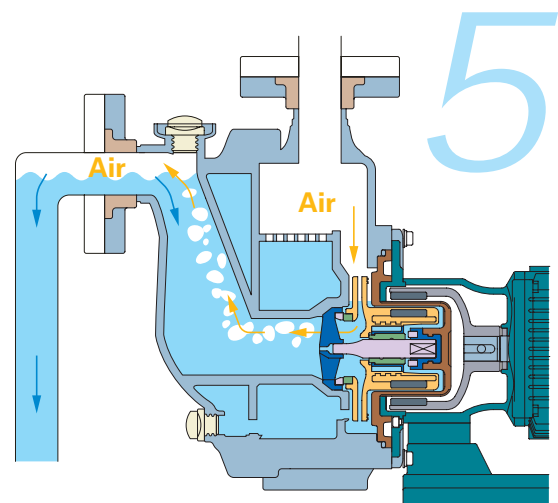
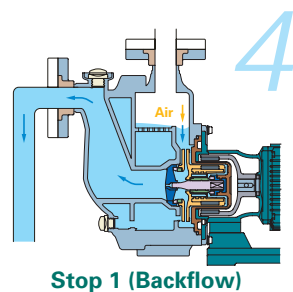
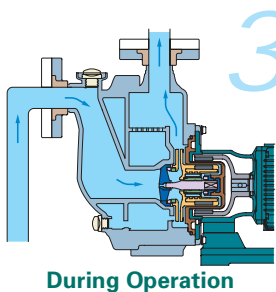
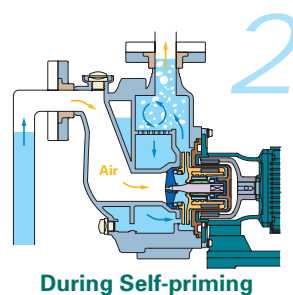
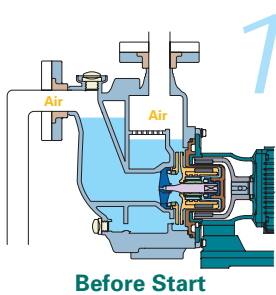


Part Name	Material	
	GV	GVF
Casing	GFR PP	CFR ETFE
Priming Water Plug	GFR PP	CFR ETFE
Drain Plug	GFR PP	CFR ETFE
Liner ring	Alumina Ceramics + GFR PPS	Alumina Ceramics + CFR ETFE
Mouth Ring	CFR PTFE	
Impeller	(GFR) PP + Magnet	CFR ETFE + Magnet
Bearing	Carbon / Ceramic / SiC	

Part Name	Material	
	GV	GVF
Shaft	Alumina Ceramics / SiC	
Rear Thrust ring	Alumina Ceramics / SiC	
Rear Casing	GFR PP	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

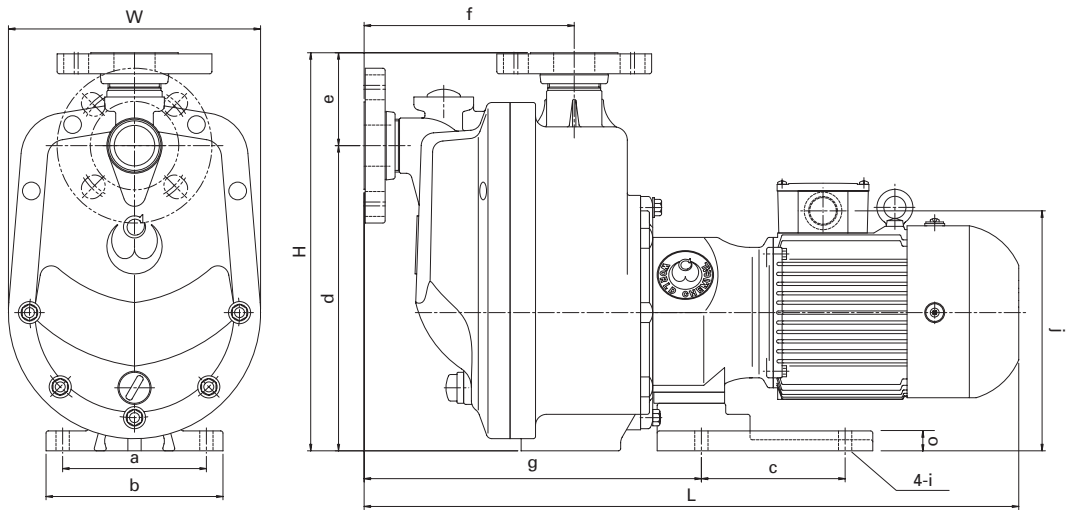


When the pump is shut down, the unique siphon break intercepts backflow by quickly releasing air so that priming water remains in the auxiliary tank.

# YD - 402 GVF - CE 5 G

<b>Discharge Bore</b>	<b>Motor Output</b>	<b>Main Material</b>	<b>Frequency</b>	<b>Specific Gravity (s.g.)</b>	
	0 : 0.4kW    3 : 2.2kW 1 : 0.75kW   5 : 3.7kW 2 : 1.5kW	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 F:For S.G.=1.1 for GVF (S.G.=1.2 for 505GVF)	
<b>Bearing/O-ring Material</b>					
<b>Parts</b> / <b>Type</b>	<b>CE</b>	<b>CD</b>	<b>AE</b>	<b>AD</b>	<b>TT</b>
<b>Bearing</b>	Carbon	Carbon	Alumina ceramics	Alumina ceramics	Special Material
<b>O-ring</b>	EPDM	FPM	EPDM	FPM	Special Material

## Outline Drawing



(Unit:mm)

MODEL	W	H	L	a	b	c	d	e	f	g	i	j	o
YD-250GV	196	325	533	130	160	130	255	70	167	275	ø12	200	18
YD-251GV(F)			562									207	
YD-252GV(F)			592									215	
YD-401GV(F)			592									217	
YD-402GV(F)	228	360	622	208	260	200	276	84	190	305	ø12	225	18
YD-403GV(F)			622									225	
YD-502GV(F)	248	389	643	230	260	200	296	93	206	309	14-36	235	20
YD-503GV(F)			643									235	
YD-505GV(F)			684									245	

# GV/GVF series VALVELESS SELF-PRIMING MAGNETIC PUMP

YD-250GV  
YD-251GV/GVF  
YD-252GV/GVF

YD-401GV/GVF  
YD-402GV/GVF  
YD-403GV/GVF

YD-502GV/GVF  
YD-503GV/GVF  
YD-505GV/GVF

## Performance Specification

### GV series

Model	Suction Bore (mm)	Discharge Bore (mm)	Standard Performance (m-ℓ/min)						Motor Output (kW)	Weight (kg)
			50Hz			60Hz				
			Standard Specified Point	S.G.Limit	S.G.Indicator	Standard Specified Point	S.G.Limit	S.G.Indicator		
YD-250GV	25A	25A	8-80	1.05	—	8-80	1.05	—	0.4	18.5
YD-251GV				2.0	G		12-110	1.8		
YD-252GV				—	—	—		2.0	G	1.5
YD-401GV	40A	40A	11-160	1.1	—	—	—	—	0.75	22.5
YD-402GV				1.8	G		17-200	1.1		
YD-403GV				—	—	—		1.4	G	2.2
YD-502GV	50A	50A	17-200	1.1	—	—	—	—	1.5	29.5
YD-503GV				1.4	G	18-250	1.1	—		
YD-505GV			18-250	1.1	—	—	—	—	3.7	53
				1.8	G	18-250	1.6	G		
						28-200	1.2	—		

### GVF series

Model	Suction Bore A (mm)	Discharge Bore A (mm)	Standard Performance (m-ℓ/min)						Motor Output (kW)	Weight (kg)
			50Hz			60Hz				
			Standard Specified Point	S.G.Limit	S.G.Indicator	Standard Specified Point	S.G.Limit	S.G.Indicator		
YD-251GVF	25A	25A	8-80	2.0	G	8-80	1.6	G	0.75	23
YD-252GVF						12-100	1.1	F		
YD-401GVF	40A	40A	10-110	1.1	F	—	—	—	0.75	25
YD-402GVF			11-160	1.6	G	15-200	1.1	F		
YD-403GVF			—	—	—	16-200	1.3	G	2.2	31.5
YD-502GVF			50A	50A	15-200	1.1	F	—	—	—
YD-503GVF	17-200	1.4			G	17-250	1.1	F	2.2	35
YD-505GVF	17-250	1.1			F					
	18-250	1.8			G	23-300	1.1	F		

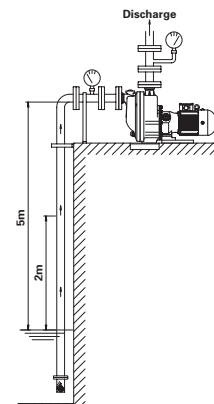
## Liquid Temperatures and Self-Priming Performance Data

Test Model: 401GV-CD5 Test Liquid: Water

Liquid Temperatures		40 °C	45 °C	50 °C	55 °C	60 °C
Depth 2m	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	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	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.



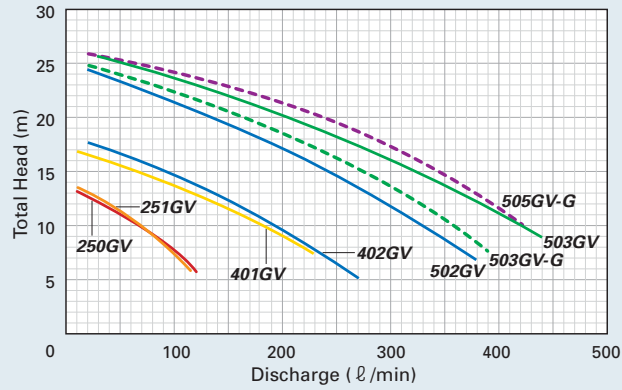


YD-250GV	YD-401GV/GVF	YD-502GV/GVF
YD-251GV/GVF	YD-402GV/GVF	YD-503GV/GVF
YD-252GV/GVF	YD-403GV/GVF	YD-505GV/GVF

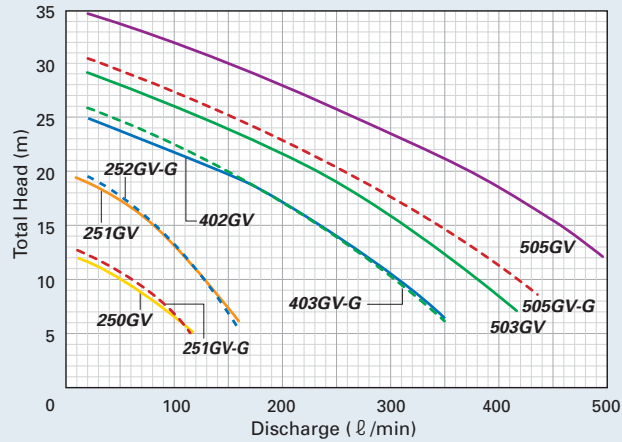
## Performance Curves

### GV series

50Hz

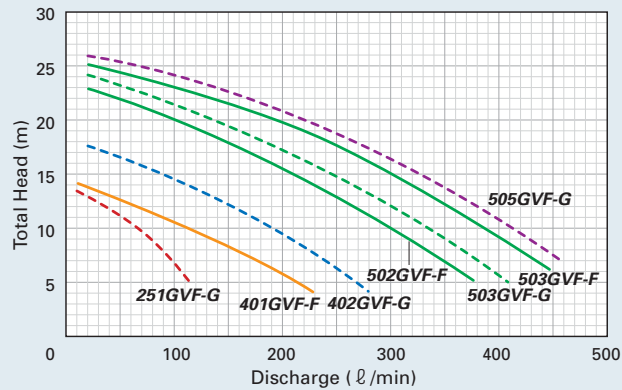


60Hz

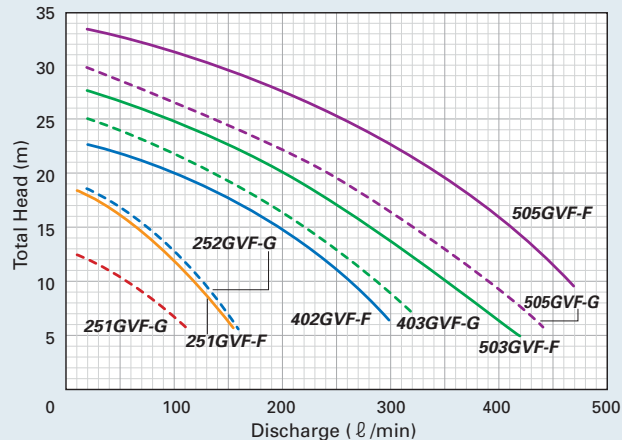


### GVF series

50Hz



60Hz



\* The performance data is based on clean water at 20°C with flooded suction.  
 \* Magnetic drive pumps must not be operated with discharge valve closed continuously.  
 Minimum flow rate is necessary as below:  
 250/251/401 type — 10 l/min  
 252/402/403/502/503/505 type — 20 l/min



# 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.**

**⑥ It is recommended to place the foot valve, as if the pump transfers the easy bubbling liquid when it is stirred like contained surfactant.**

\* If the foot valve is used, clean and check it for functional maintenance.

### 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 The imposed dimension between the pump and the piping should be fitted. If not, pump casing could be damaged. Meanwhile, uneven clamping could cause the liquid leaks from the packing. Tighten the bolts diagonally and evenly.**

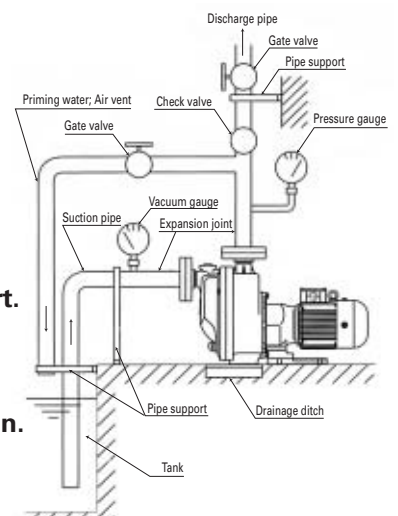
### 3) Do not apply weight on the pipes.

**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.





Comprehensive Manufacturer of Environmental Equipment  
Challenging the Liquid Transfer Technology,

**World Chemical Co., Ltd.**

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