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VEGETABLE

OIL INK



Valveless self-priming magnet drive pump SUPERMAG



series 🕿 VALVELESS SELF-PRIMING MAGNETIC PUM

YD-2500GV YD-2501GV/GVF YD-4001GV/GVF YD-4002GV/GVF

YD-4003GV/GVF YD-5002GV/GVF YD-2502GV/GVF YD-5003GV/GVF YD-5005GV/GVF

Suction head: 5 m/2 min.

The internal structure, which easily separates air from liquid, compresses much self-priming time and improves the pump performance. The pump is compact, but the self-priming ability is five meter in only two minutes. This is our valveless technology.

Strong against dry running!

1 Valveless structure

Our valveless structure leaves enough self-priming liquid to restart without a check valve. It prevents dry running.

7 Heat release & insulated bearing

Usually, dry runnung generates heat to sliding parts and the heated shaft and bearing cause the pump damage. However, heat insulation material of our sliding parts and our heat dissipation structure produce less heat deformation.

2 Air lock prevention

The air enters in pumps during self-priming operation, accumulating the air. However, our special shape of the rear casing's inside and impeller easily move and discharge the air.

Space-saving!

The compact body is the smallest and light in this class.

Especially pumps with the motor (1.5kW and over) with strong rare-earth magnets are small but powerful. (It is possible to use the pump for high specific gravity liquid.)

Valveless structure: Priming liquid remains.





Before operation





GV pumps sprang from "More compact" are light and space saving. They have high self-priming performance.

The self-priming power changes design of production lines!

Use application

Install on tanks or upstairs

Installing pumps on tanks or upstairs save spaces, promoting more effective use of spaces. It is suitable to downsize process lines or equipment and a strong ally to design production lines in limited spaces.

Pump up from deep tanks

It is possible to pump liquid up from deep tanks due to high self-priming ability. The pump shows stable and high performance inspite of the bore size, big or small.

Environmental protection, earthquake countermeasures Don't worry about liquid leakage due to unexpected accidents because of up-and-down piping without drilling.

Enable to plumb horizontally / up-and-down

It is possible to plumb under the difficult condition like10 m pipping horizontally, up-and-down or no space near tanks that they are used to be hard to install pumps. (Example: To transfer liquid from cleanrooms to outside.)

For liquid whic is easy of gas lock

This anti-dry running self-priming pump is suitable for foamable liquid (Hydrogen peroxide, Sodium hypochlorite, Sodium carbonate, etc.) that gas easily accumulates in pumps and piping.

It is necessary to change the impeller bore or increase the motor output if high specific gravity liquid is transferred. Our GV transfers high specific graivty liquid efficiently without decreasing the pump performance.



Stop 2 : Siphon cut (Leftover liquid)

The liquid flows back after stopping the operation, but our original siphon cut structure blocks off the back flow liquid quickly and leaves enough self-priming liugid in the casing







Any installation location & horizontal piping are adaptable. It is also suitable to take measures against earthquake or leakage.

GVseries

- Install far from tanks or filtration system.
- Strict install conditions are much relaxed.
- Up-and-down piping is possible.
- No need foot valves.





Outline dimension



Dimension

													(mm)											
Model	W	Н	L	а	b	с	d	е	f	g	i	j	0	Weight(kg)										
YD-2500GV1			533								<i>(</i> 012)	200		18.5										
YD-2501GV(F)3	196	325	560	130	160	130	255	70	167	275	φ12	207	18	20.5(23.0)										
YD-2502GV(F)3			592								φ12	215		24.5(27.0)										
YD-4001GV(F)3			590									217		22.5(25.0)										
YD-4002GV(F)3	228	360	360	360	360	360	360	360	360	360	360	360	(22)	130	160	130	276	84	190	305	φ12	225	18	26.5(29.0)
YD-4003GV(F)3			622									225		29.0(31.5)										
YD-5002GV(F)3		200	642	200		200	207				14.26	226	21	29.5(32.5)										
YD-5003GV(F)3	248	390	043	200	260	200	297	93	206	309	14-30	230	21	32.0(35.0)										
YD-5005GV(F)3		389	684	230		261	296				36-14	245	20	53.0(56.0)										
	-		-	-	-	-	-	-				-												

Material

Notice

*GV series: It is regulated by Catch-all. When exporting the pump, please observe the export regulations. %GVF series : It is regulated by List Control. When exporting the pump, it requires export license by METI.

Part namo		Material							
	Fait Haille	GV series	GVF series						
	Casing	GFR PP	CFR ETFE		Sha				
	Priming water plug	GFR PP	CFR ETFE	[Rea				
	Drain plug	GFR PP	CFR ETFE		Rea				
	Liner ring	Alumina ceramics + GFR PPS	Alumina ceramics + CFR ETFE		Rea				
	Mouth ring	CFR	PTFE		Out				
	Impeller	(GFR) PP + Magnet	CFR ETFE + Magnet		Mot				
	Bearing	Carbon / Ce		Base					

* * The exploded view is for only explanation of the structure. Parts are sold as a set. For more information, contact us.

Dart name	Mat	erial				
Fait fiame	GV series	GVF series				
Shaft	Alumina ceramics / SiC					
Rear thrust ring	Alumina ce	ramics / SiC				
Rear casing	GFR PP	CFR ETFE				
Rear casing support	FC200					
Outer magnet	FCD450-10) + Magnet				
Motor	FC200 + Alum	ii frame motor				
Base	GFR PP	/FC200				
O-ring	EPDN	1/FPM				

Liquid temperaure and Self-priming ability

Tast model: VD 4001CV2 CD CD5 (Used fluid: Water)

Fest model: YD-4001GV3-GP-CD5 (Used fluid: Water) (Our experimental data)									
Water ten	nperature	40 ℃	45 °C	50 ℃	55 ℃	60 ℃			
Hoight 2m	Suction	29 sec.	36 sec.	35 sec.	44 sec.	49 sec.			
Height 211	Full discharge	58 sec.	1min. 09 sec.	1min. 10 sec.	1min. 16 sec.	1min. 23 sec.			
Listalat Aus	Suction	1min. 03 sec.	1min. 16 sec.	1min. 20 sec.	1min. 30 sec.	1min. 50 sec.			
Height 4m	Full discharge	1min. 31 sec.	1min. 47 sec.	1min. 52 sec.	2min. 07 sec.	2min. 20 sec.			
Hoight Em	Suction	1min. 39 sec.	_	_	_	_			
neight sin	Full discharge	2min. 13 sec.	—	—	—	—			

* The time of discharge at Height 5m (20°C) is 1 min. 48 sec.

Suction:Time until water starts entering pumps. Full discharge:Time until water is stably discharged from pumps.

53.0(56.0) The figure in () is shown GVF series.

GV series



GV series (Main material : GFR PP type)



Standard performance

* Limited temperature of used liquid: To 80 degrees If the product is used for liquid whose temperature is 60 degrees and over.

* Limited height of self-priming: 5m (Clear water 20 degrees)

	Bore (mm)			E3 Standard pe		Maltana												
Model	Suc	Die	50	Hz	6	0Hz	Outoput	voltage (V)										
	Suc.	DIS.	Std. spec.	Std. S.G.	Std. spec.	Std. S.G.												
YD-2500GV1			8-80	1.05	8-80	1.05	0.4	3PH/200V										
		25	25	0.00	2.0	12-110	1.1	0.75	2014 (200)/									
YD-2501GV3	25	25	8-80	2.0	8-80	1.8	0.75	3PH/ 200V										
YD-2502GV3				_	12-110	2.0	1.5	3PH/200V										
YD-4001GV3			11-160	1.1	_	_	0.75	3PH/200V										
YD-4002GV3	40	40	40	40	40	40	40	40	40	40	40	40	11-160	1.8	17-200	1.1	1.5	3PH/200V
YD-4003GV3				_	17-200	1.4	2.2	3PH/200V										
YD-5002GV3			17-200	1.1		_	1.5	3PH/200V										
			17-250	1.1			2.2	2014 (200)/										
YD-5003GV3	YD-5003GV3 50		17-200	1.4	18-250	1.1	2.2	3PH/ 200V										
	1		10.250	1.0	28-200	1.2		3PH/200V										
YD-5005GV3			18-250	1.8	28-250	1.6	3./											

Performance curve



200

300

Capacity (L/min.)

400

500

* The data is for clear water at 20 $^\circ\!\!C$ and flooded suction. * Ensure the following min. flow rate during operation to cool sliding parts.
Motor output 0.4 ~0.75kW : 10 L/min. • Motor output 1.5 \sim 3.7 kW : 20 L/min.

0

100

GVF series (Main material: CFR ETFE type)

Standard per	Standard performance * Limited temperature of ued liquid: To 80 degrees If the product is used for liquid whose temperature is 60 degrees and over. * Limited height of self-priming: 5m (Clear water 20 degrees)																			
	Bore	(mm)	IE3	Standard perfe	ormance (L/min	m)														
Model	Suc	Die	50Hz		6	0Hz	Output	Voltage (V)												
	Suc.	DIS.	Std. spec. Std. S.G.		Std. spec.	Std. S.G.	(KVV)													
					12-100	1.1	0.75													
YD-2501GVF3	25	25	8-80	2.0	8-80	1.6	0.75	3PH/ 200V												
YD-2502GVF3				_	- 12-105 1.8		1.5	3PH/200V												
YD-4001GVF3			10-110	1.1	_	_	0.75	3PH/200V												
YD-4002GVF3	40	40	40	40	40	40	40	40	40	40	40	40	40	40	11-160	1.6	15-200	1.1	1.5	3PH/200V
YD-4003GVF3					16-200	1.3	2.2	3PH/200V												
YD-5002GVF3			15-200	1.1	_	_	1.5	3PH/200V												
			17-250	1.1	17.050	1.1	2.2	3DH / 2001												
1D-2003GVF3	50	50	17-200 1.4		17-250	1.1	2.2	3ph/ 200V												
VD-5005GVE3			19 250	1.0	23-300	1.1	27													
1D-5005GVF3			18-250	1.8	18-250	1.6	5.7	3PH/ 200V												

Performance curve



The data is for clear water at 20°C and flooded suction.
Ensure the following min. flow rate during operation to cool sliding parts.
Motor output 0.4 ~0.75kW : 10 L/min.
Motor output 1.5 ~3.7 kW : 20 L/min.





GV series

Small self-priming pump

Chemical resistance is much improved by adopting CFR PP as main material!



Standard performance

	2			Std. performa	ance (m-L/min.)	0		Limited height	
Model Bore (mm)		Power supply	Limit of S.G.	50Hz	60Hz	Output (kW)	Weight	of self-priming (m)	
				Std. spec.	Std. spec.		(kg)		
YD-20Y6GV1		3PH 200V	1.2			0.26	10.0	2.5	
YD-20A6GV1	20A union	1PH 100V	1.2	6 - 30	7 - 30	0.20		(Clear water:	
YD-2000GV1	(Gi thread)	3PH 200V	1.6]		0.4	11.5	20 degrees)	

Big self-priming pump

High self-priming ability!

The structure which separates gas and liquid efficiency cuts self-priming loss and maximizes the pump ability

Strong against dry running!

Our original valveless structure leaves self-priming liquid for restart without check valves. It is the special structure which is strong against dry running.

- High performance.
- Max. head 25 meters / Max. Capacity 1,300 L/min. (YD-10010GV · 60Hz)
- Back pull out system, causing safe and easy maintenance.
- No need to worry about liquid leakage for the magnet drive system.
- It is strong against taking up liquid.

Resistant to slurry / sludge! (Impeller wearing)



- abrasion * If liquid with slurry is transferred, contact us.
- The sliding parts are made of SiC. (Yellw parts in the left picture)

The principle of residual Self-priming liquid.





Before operation





self-priming liquid in the casing. Therefore, it is not necessary to pour priming liquid for the second and subsequent times operation



8005GV: Suction three meters in 1 min30 sec.



GVserie

The slurry / sludge, which can pass through to the rear casing is only 0.127 mm or less due to the impeller wearing. It protects the magnet can and rear casing from

Big self-priming pump Model description 3 V G - 1 - K Discharge bore Output Model Frequency 80:80A 05:3.7kW Bearing / Gasket material 5 : 50Hz 07:5.5kW Motor type 100:100A 6:60Hz KP : SiC/FEP+FKM 10:7.5kW 3: IE3 KE : SIC/EPDM S.G. Pump material 1:1.1* 2:1.2 PP: Polypropylene *Only YD-10007GV3 60Hz



* Impeller & Rear casing are subject to the list control. When exporting them, please get the permission from the Minister of Economy, Trade and Industry. * The pump is subject to the catch-all control. When exporting it, observe the Export Trade Control Order and process it properly. * The catalogue contents are subject to change without notice due to product improvement.

Outline dimension



	,													(1111)
Model	A	В	С	D	Е	F	G	Н	I	J	К	L	М	Ν
YD-8005GV3	348	89	437	180	32	57.5	320	320	715	400	440	763.5	9	φ15
YD-10007GV3	200	100	402	211	21	212 5	210	210	050	100	500	000	0	. 1 5
YD-10010GV3	380	102	482	211	31	212.5	310	310	850	460	500	908	9	φ15



Material

Part name	Material	Part name	Material		
Casing	PP + SUS cover	Rear casing	CFR-ETFE+Kevlar reinforced		
Impeller	CFR-ETFE	Rear casing support	Ductile iron		
Bearing	SiC	Outer magnet	Ductile iron+Rare earth magnet		
Shaft	SiC	Motor bracket	Ductile iron		
Gasket	FEP+FKM / EPDM	Motor	Aluminum alloy		
	(FKM is a high chemical resistant gasket covered with FEP capsule.)	Base	SS400		





$2500 \sim 5005 \text{GV/GVF}$ series

Installation

Capable of installing anywhere. Piping horizontally and under strict conditions are possible.

It is effective to take measures against earthquakes and liquid leakage.

- No need a drain port when pumping up from the top of a tank.
- 5m self-priming ability expands versatility.
- For easy gas lock liquid, hazarous liquid, high S.G. liquid.
- Long horizontal suction piping is possible.

- Possible to install it far from a tank or filter.
- Stringent instal condition has a great reduction.
- Up and down suction piping is possible.
- No need foot valves.

1) Caution in installing

① The air enters from joints of the suction pipe, pumping is disabled and it causes damage.

- The inside of suction pipes during self-priming operation goes into the negarive pressure. Select joints which does not inhale the air. If the air enters due to installation error, pumping failure occurs because no liuqid goes inside. It may cause the pump breakdown.
- Be the same the bore of the suction pipe and the pump's suction inlet. If the bore of the suction pipe is bigger, self-priming ability may be decreased, casing pumping failure.
- Set as the off level which is double and more than the suction pipe bore. If the pump is operated in a setting less than double, it cuases dry running for air entrainment.
- 2 Try that dust and foreign objects do not enter into pumps from an inlet. If strainers are installed, clean them to prevent clogging periodically and minimize the loss resistance.
- ③ It is recommended to place check valves at discharge rising pipes to prevent water hammer as follows. Bypass pipes are also recommended to place down. (No air release pipes may cause self-priming failure.)
- The discharge pipe is long and the head is 10 meters and more.
- The tip of the discharge pipe is located nine meters and more higher from the surface of the suction tank.
- Two and more pumps are installed in parallel.
- ④ Install bendings and expansion joints not to leak liquid due to pump deformation by piping heat expansion.
- (5) Handle them with care not to make an impact, because main parts insdie pumps are made of plastic.
- ⁽⁶⁾ When self-priming pumps are used for easy foamed liquid which contains surfactant, it is recommended to install foot valves.
- * When food valves are installed, clean and check them for functional maitenance.

2) Prohibition on evenly tightening and overtightening flanges

- ① Align the pipe flange parallel to the pump flange and do not tighten bolts excessively.
- 2 At the time of plumbing, adjust the assembling dimensions to the pump. If it is plumbed while not fit in, the pump casing may breakdown. Moreover, uneven tightening may cause liquid leakage from gaskets. Tighten it diagonally and evenly.

3) Prohibition on supplying a load to pipping

① Be completely subjected to a piping load by pipe supports.

2 When the temperature of liquid is high (40°C and more), install bendings and expansion joints not to be applied a load to the pump by heat expansion of piping.



TITI

$8005 \sim 10010 \text{GV/GVF}$ series

Installation

The pump can be used for all types of installation site such as horizontal suction piping or under stringent conditions. It is also effective to take measure against earthquakes or liquid leakage.

- No need a drain port to evacuate liuid from the top of a tank.
- Installation far from a tank is possible.
- Self-priming ability is four meter.
- The conventional stringent condition is eased dramatically. *When the suction pipe is long or taking up operation is need, contact us.





1) Suction piping

① Be the same the bore of the suction pipe as the pump's suction inlet. ② Make the horizontal length of the suction pipe one meter or less.

- If it is one meter and more, self-priming ability is dramatically reduced because air volume in the suction pipe becomes big, causing the pump breakdown.
- ③ Submerge the tip of the suction pipe 500 mm and more from the liquid level to prevent air entrainment.
- ④ When the instal level is lower than the liquid level for up and down piping, attach sluice valves for maintenance. ⑤ Raise the suction pipe to the pump gently not to make the air stay in the pipe.
- ⁽⁶⁾ Be isolated the air release pip as much as possible from the suction pipe.
- ⑦ Set as the off level which is double and more than the suction pipe bore. If the pump is operated in a setting less than double, it cuases dry running for air entrainment.
- (8) Try that dust and foreign objects do not enter into pumps from an inlet. If strainers are installed, clean them to prevent clogging periodically and minimize the loss resistance.

2) Discharge pipe

- ① Be the same the bore of the discharge pipe as the pump's discharge outlet. Smaller bore makes the efficiency of air release reduce during self-priming operation and the ability is decreased. Moreover, the flow rate is may decreased due to increaseing the loss resistance of piping.
- ② Place check valves to prevent water hammer such as following.
- The suction pipe is long or the head is 10 meters and more.
- The tip of the discharge pipe is located nine meters and more higher from the surface of the suction tank.
- Two and more pumps are installed in parallel.
- ③ Place sluice valves to the discharge pipe for maintenance.
- ④ Place pressure gauges to check operaitonal aspects in a daily check.

- Taking up liquid is possible.
- Up and down piping is possible.
- Long horizontal piping is possible.
- No need foot valves.