GWN series

Submersible pump "SUBMERSE"

World Chemical Co.,Ltd.

〈 Model description 〉

YD-5002GWN1-CP-AD61-HP-Z

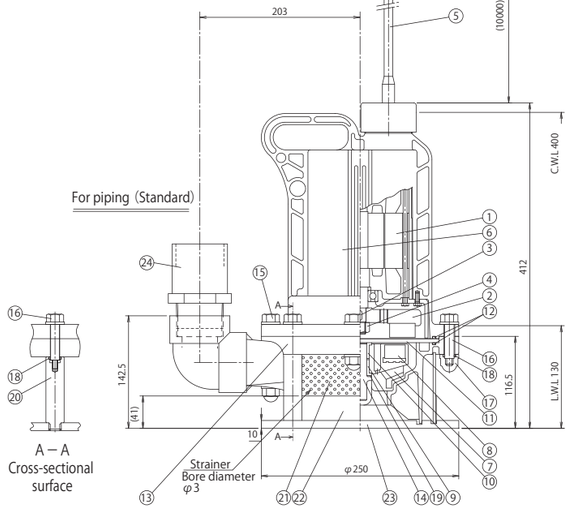
- Bore: 50 = 50A
- Motor output: 02 = 1.1kW
- Model
- Cover main material: CFR PP
- Bearing material: R = PTFE, A = Alumin ceramics
- O-ring material: E = EPDM, D = FPM
- Frequency: 5 = 50Hz, 6 = 60Hz
- S.G.: 1 = 1.1, 3 = 1.3, 5 = 1.5
- Impeller shape: No mark = Standard, HP = High pressure type
- Option: with PVC tube

〈 Standard performance 〉

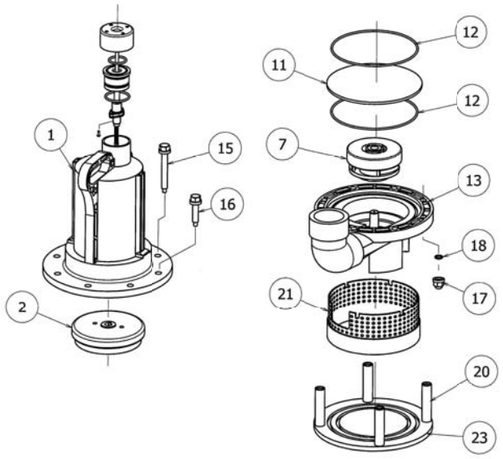
Standard	Frequency	Standard performance		Motor output	Power	Insulation	Bore (Discharge)	Liquid temperature	Weight
		THD	Capacity						
5002GWN1	50Hz	8.3m	200L/min	1.1kW	200V × 3 phase	H	50mm	70℃ MAX	23kg
5002GWN1	60Hz	8.3m	200L/min		200/220V × 3 phase				
5002GWN1-HP	60Hz	11.9m	100L/min						

※ Cabtyre cable = 2PNCT（1.25mm2× 10m）

〈 Outline dimension 〉



〈 Exploded view 〉



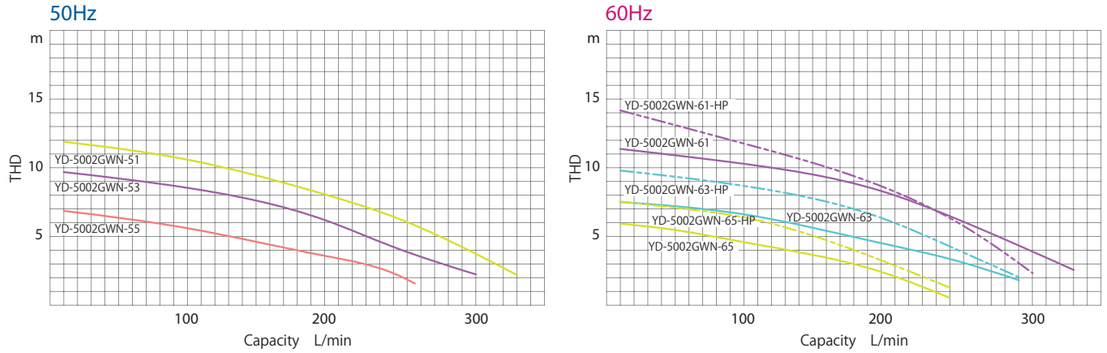
〈 Parts list 〉

No.	Part name	Remarks
①	Motor	FC
②	Motor side magnet	Ferrite magnet
③	Key for motor side magnet	SS
④	Nut for motor side magnet	SS
⑤	Cabtyre cable	CR 2PNCT(10m)
⑥	Motor cover	CFR PP
⑦	Impeller	CFR PP
⑧	Impeller side magnet	Ferrite magnet
⑨	Front bearing	PTFE / Ceramics
⑩	Rear bearing	PTFE
⑪	Separating board	Ceramics
⑫	O-ring	EPDM / FPM

No.	Parts name	Remarks
⑬	Casing	CFR PP
⑭	Pump shaft	SiC
⑮	Set bolt 92	CFR PP
⑯	Set bolt 52	CFR PP
⑰	Nut for set bolt	CFR PP
⑱	O-ring	EPDM/FPM
⑲	Floating washer	PTFE (only for Ceramics bearing)
⑳	Stand bolt	HT.PVC
㉑	Strainer	PP
㉒	Sludge fence	PP
㉓	Bottom board	PP
㉔	50A valve socket	PVC

※ When using a pump for high temperature (55℃ and more) , do not use Valve socket (PVC) : No. 24.

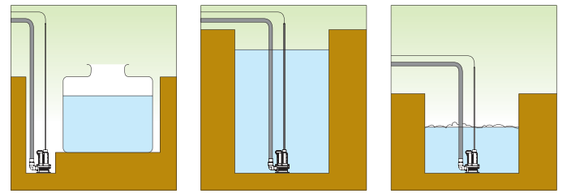
〈 Performance curve 〉



〈 Example of use 〉

- Pumping up chemical liquid or wastewater from a deep or narrow tank.
- Pumping up foamable liquid.
- Pumping up chemical liquid from a sealed tank.
- Circulating liquid in a tank.
- Agitating liquid in a tank or equipment.
- Pumping or transferring liquid for emergency.

〈 Example of installation 〉



Pumping up liquid from a pit of breakwater.

Pumping up liquid from a deep tank.

Pumping up foamable liquid.

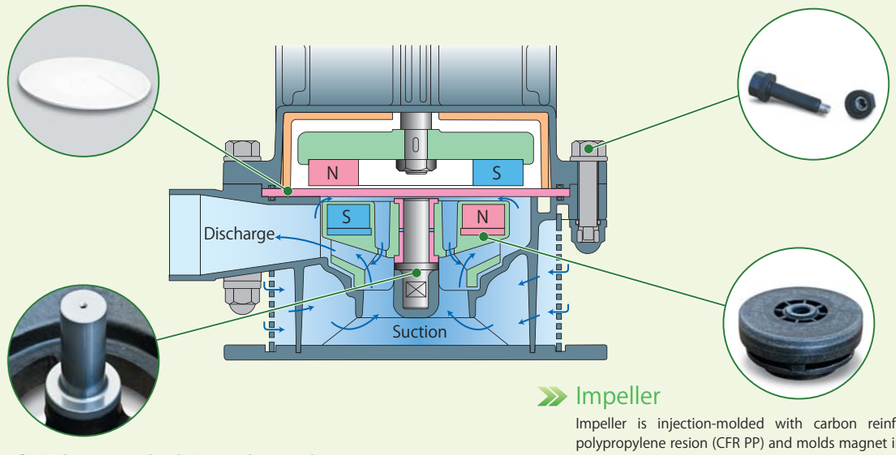
Structure

Separating board

The disk type magnet drive method is adopted that a drive side disk-shaped magnet and a passive magnet (Disk-shaped impeller) hold a strong ceramics separating board and rotate. The simple water path resists air lock and slurry.

Even a bolt is our “original”.

The exclusive bolt for SUBMERSE is covered a stainless bolt with molded carbon fiber reinforced polypropyl-ene resin (CFR PP). It is our orinal bolt which is similar in strong to metal and high corrosion resistance. O-ring between the nut and joint is as well.



Sic shaft (Silicon carbide) is adopted as standard.

SiC enormously resists heat shock and stronger than ceramics. The abrasion resistance is the best for the shaft for the submersible magnet drive pump.

Impeller

Impeller is injection-molded with carbon reinforced polypropylene resion (CFR PP) and molds magnet inside. CFR-PTFE (Carbon filled teflon resin) bearing, which slides with the shaft, is inserted in the center of the impeller.

※ It is possible to adjust the specific gravity by trimming of the impeller.
※ Non standard voltage is available.

〈 Operating precautions 〉

Corrosion

1. CFR PP（Carbon fiber reiforced polypropylene resin)
   It is used for the main body, so using the pump for general acid and alkali liquid is fine. However, it is corroded by sulfruric acid, nitric acid, hydrofluoric acid, chromic acid or sodium hypochlorite depending on the concentratioin. Please consult with chemical liquid supplier.
2. Ceramics
   High chmical-resistant and highly pure ceramics is adopted and using the pump for acid and alkali is available.
3. Sealing material
   Selecting O-ring depending on chemical resistance is available. EPDM O-ring for alkali and FPM O-ring for acid are provided. They are not used for organic solvent.
4. 2PNCT
   The cabtyre cable is made of 2PNCT and can used for acid and alkali except organic solvent.

Limit temp.

The motor insulation is H type and can be used for liuqid until 70 degrees C as standard.

Safety & measures

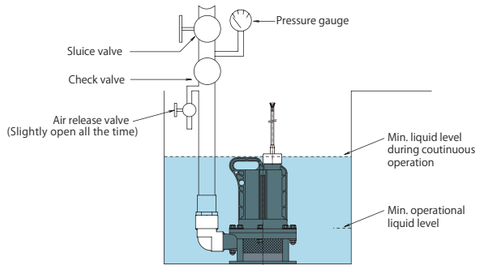
1. A thermal protector is incorporated to prevent the motor heating by overload and the single operation, but make sure to install an earth leakage circuit breaker to prevent electric leakage. It makes the motor stop and prevent burn when liquid goes into the motor as well as the prevention of electric leakage.
   ※ When using, always check the motor insulation resistance.
2. Do not disassemble the motor and connection of the cabtyre cable. It may cause to have accidents by electric leakage.

Example of installation

Piping as right drawing to prevent "Waterhammer".

Minimum liquid level during continuous operation: 400mm
(The state of the motor with fully submerged)

Minimum operational liquid level: 130mm
(It is possible to prime liquid, but the cooling of the motor is not enough. Using a pump for 10 minutes is as a guide.)



Operating cautions

1. Liquid with slurry makes the bearing wear. Especially, when using the pump in a settlement tank, provide the mounting and raise the pump not to slurry go into, or install the pump after removing slurry. (Bearing change is easy. When slurry is in liquid, use the ceramic bearing.)
2. Use the pump with fully submerged. The operation in the air is the cause of failure.
3. Check valve on the discharge pipe causes dry running not to release the air. If the check valve is attached, install the air release pipe beneath the check valve to release the air all the time.
4. If the pump is operated out of liquid, the motor resin cover may be damaged because the motor is not cooled.
5. The pump may run dry for glitch of the liquid level indicator. Check whether it works properly before use.
6. Do not remove the strainer not to dirt go into the pump and, always clean the strainer not to clog it with dirt. If the strainer is clogged, it cause priming failure and causes the pump burn.
7. When extending the cable, consider the cable bore to prevent a voltage drop.
8. When using the pump with high temperature liquid (55 degrees C and more), change the discharge valve socket from PVC to other material.

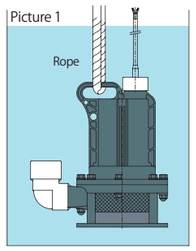
Handling cautions

The pump is made of resin. Handle the pump with care since it is damaged, If it is dropped and hit. Pulling the cabtyre cable when lifting the pump makes it break. Make sure to use the attached rope.
Unreasonable handling of the pump parts may cause the pump damage or get injured.

How to check the rotational direction

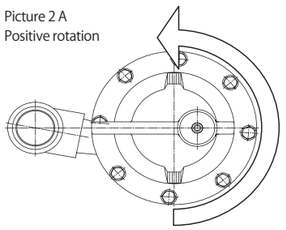
1. SUBMERSE is magnet drive type. If it runs dry, it may cause the sharft damage or the resin parts deformed by heat. The motor may rotates backwards, but the positive rotation can be checked by the pump head and discharge pressure are reduced 60% less than the positive rotation and the current value is low. If they are unverified, see the picture 1. Start and stop the pump instantly during it is hanging with a rope in water, then check the direction of the backlash.
2. When it is the positive rotation, the pump moves aunticlockwise as viewed form above like Picture 2 A at the start. (Be careful about liquid spout from the discharge pipe.)

Picture 1

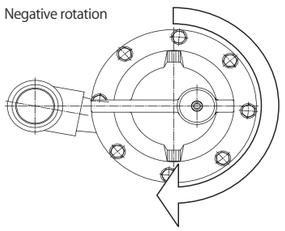


Submerge the pump in a container or pit and hang it, then check the rotational direction.

Picture 2 A
Positive rotation



Picture 2 B
Negative rotation



Small Submersible magnet pump

〈 Model description 〉

YD - 25 A6 GWN1 - CP - R D 5 2 - Z

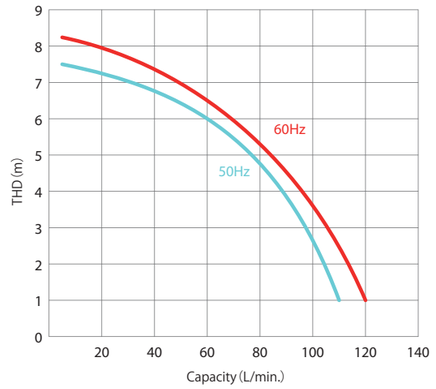
25	A6	GWN1	CP	R	D	5	2	Z
Discharge bore: 25: Correspond to Φ25	Motor output: A6: 0.26kW (100V/1PH)	Model	Main material: CP: CFR PP	Bearing material: R: CFR PTFE	O-ring material: D: FPM	Frequency: 5: 50Hz 6: 60Hz	S.G.: 2: 1.2	Option: With PVC tube

〈 Standard performance 〉

Model	Frequency	S.G.	Hose size	Std. performance		Motor			Liquid temp.	Weight
				THD	Capacity	Output	Voltage/PH	Insultation		
YD-25A6GWN1-CP-RD52	50Hz	1.2	Inner: 25mm Outer: 33mm	6m	60L/min	0.26kW	100/220/ 230V 1PH	E	40℃ MAX	14Kg
YD-25A6GWN1-CP-RD62	60Hz			6.5m	60L/min					

※ Cabtyre cable (2PNCT, 5m) is adopted as a power supply cable and can be used for common acid and alkali except for organic solvent.

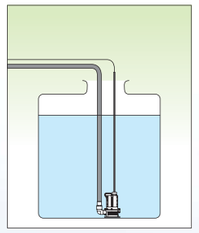
〈 Performance curve 〉



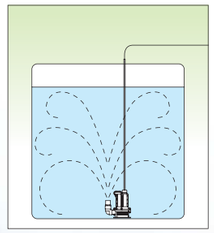
〈 Example of use 〉

- To replace liquid in a tank.
- To pump up liquid from a deep tank.
- To pump liuqid from a tank truck.
- For a raw tank in a wastewater plant.
- To pump up at breakwaters.
- To break chemical liquid in small amount.
- To transfer easily formy liquid.

〈 Example of installation 〉



Replace liquid in a tank

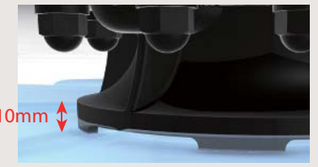


Mixing

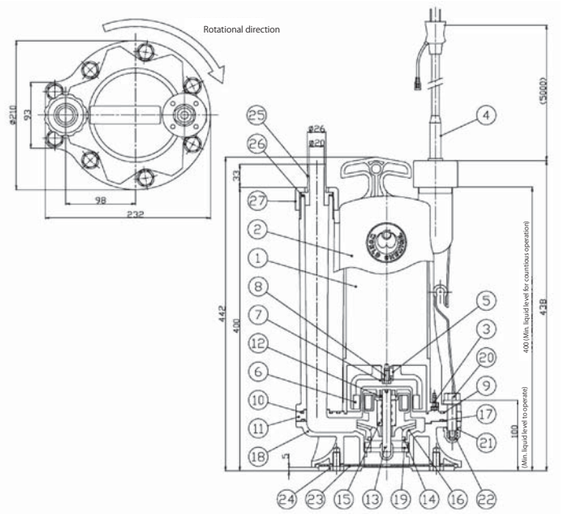
Feature

■ Motor: 100V, 1PH
100V is handy and easy to the ready!

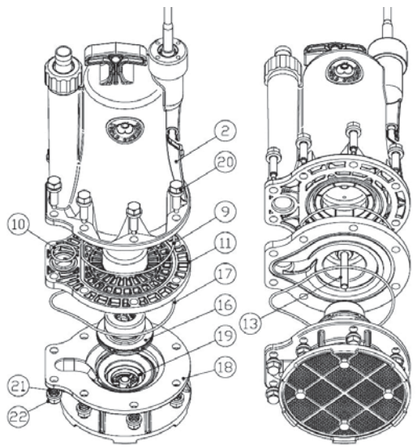
■ Possible to pump up liquid until the liquid level is 10mm at minimum.



〈 Outline dimension 〉



〈 Exploded view 〉



〈 Parts list 〉

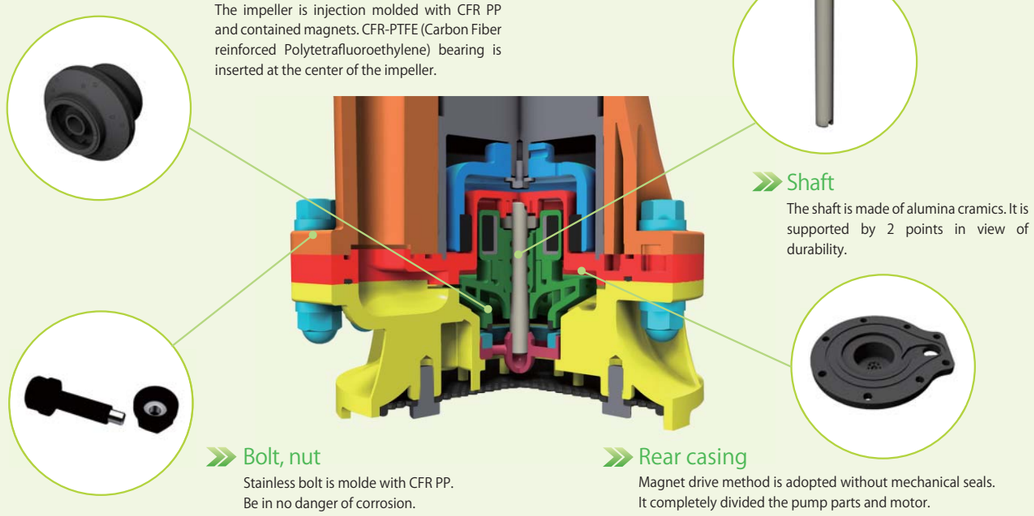
No.	Parts name	Qty	Material	Remarks
①	Motor	1	FC	
②	Motor cover	1	CFR PP	
③	Hex. bolt	4	SUS304	M5×15
④	Cabtyre cable	1	CR	2PNCT
⑤	Key	1	S45C	5×5×10
⑥	Outer magnet	1	Ferrite magnet	
⑦	Flat washer	1	SUS304	
⑧	Hex. bolt	1	SUS304	M6×15
⑨	O-ring for Rear casing	1	FPM	
⑩	O-ring for discharge outlet	1	FPM	P38
⑪	Rear casing	1	CFR PP	
⑫	Rear thrust ring	1	Alumina ceramics	
⑬	Pump shaft	1	Alumina ceramics	
⑭	Mouth ring	1	CFR PTFE	

No.	Parts name	Qty	Material	Remarks
⑮	Bearing	1	CFR PTFE	
⑯	Impeller	1	CFR PP	
⑰	O-ring for casing	1	FPM	
⑱	Casing	1	CFR PP	
⑲	Liner ring	1	Alumina caramics	
⑳	Set bolt 37	8	CFR PP	
㉑	O-ring for set bolt	8	FPM	P12
㉒	Set bolt nut	8	CFR PP	
㉓	Strainer	1	CFR PP	
㉔	Hex. bolt	4	PVC	M10×20
㉕	Hose joint	1	CFR PP	
㉖	O-ring for hose joint	1	FPM	P34
㉗	Hose joint nut	1	CFR PP	

Structure

Impeller

The impeller is injection molded with CFR PP and contained magnets. CFR-PTFE (Carbon Fiber reinforced Polytetrafluoroethylene) bearing is inserted at the center of the impeller.



Shaft

The shaft is made of alumina cramics. It is supported by 2 points in view of durability.

Bolt, nut

Stainless bolt is molde with CFR PP.
Be in no danger of corrosion.

Rear casing

Magnet drive method is adopted without mechanical seals.
It completely divided the pump parts and motor.

〈 Operating precautions 〉

Corrosion

1. CFR PP (Carbon fiber reinforced polypropylene)
   The main body is made of CFR PP whic is used for common acid and alkali but eroded by sulfuric acid, nitric acid, hydrofluoric acid and sodium hypochlorite depending on the concentration. If necessary, consult the liquid manufacturer.
2. Ceramics
   High chemical resistant and pure ceramics is adopted and use for acid and alkali.
3. Sealing material
   It is possible to select the material of O-ring according to the chemical resistance. EPDM is for alkali and FPM for acid.
   It cannot be used for organic solvent.
4. 2PNCT
   The material of the cabtyre cable is 2PNCT and possilbe to use for acid and alkali except organic solvent.

Limit of temp

It is possible to use for liquid whose temperature is until 40℃ as standard.

Safety & measures

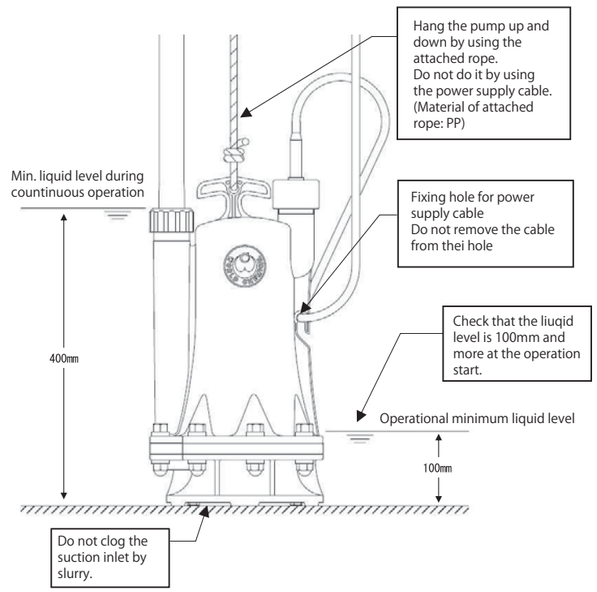
1. The thermal protector may work to protect the motor depending on the operational condition and the pump stops.
   In this regard, stop the operation for a while and check the pump normal. Then, start the operaiton after securing the appropriate liquid level.
2. Do not disassemble the motor and joint of the cabtyre cable. It may cause electric leakage.

Installation & operation

Minimum necessary flow rate during operation: 5L/min

Minimum liquid level during continuous operation is 400mm (at the state of the motor submerged.)

Operational minimum liquid level is 100mm. (It is possible to pump up, but the cooling of the motor is not enough. Therefore, operate it for 5 minutes or less.)



- Do not the pump up by using the power supply cable.
- Make sure to connect the earth wire with the plug.
- Do not run the pump dry.
- Do not use the pump for sludge and slurry.

Measures against air lock.

If there are liuqid pool in the dicharge pipe when the pump stops, it may happen pumping failure by air lock at the time of the pump re-start. It is also easy to be the same state after the deadhead operation. Thus, it is recommended to install the air release valve, or make sure to release the air and pour priming liqid before operation.
If check valves are installed on the discharge pipe, put the exhaust bypass pipe beneath. (If not, it may cause air lock.)

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Challenging the Liquid Transfer Technology,

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〈Chemmy〉

■Note:

●The contents are subject to change without notice. ●The catalogue is issued in August, 2017.

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