PRORIL

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Instruction Manual

TANK / TANK SLIM Series
STORMY Series
GOCUT / GOVOX / GOVOX-S / -U / -G / GOMAX- Series
SMART / SMART LITE
SAVVY / SAVVY JUMBO / SAVVY BASE
X-SMART / X-VOX Series

SUBMERSIBLE PUMPS ORIGINAL INSTRUCTIONS

Table of Content

Introduction

Dear Customer,

Thank you for choosing a PRORIL submersible pump. This manual provides instructions for the installation, operation, and maintenance of the pump. Improper use of the product can cause personal injury and damage to property, and may void the warranty. Upon receiving the pump, it should be inspected for damage or shortages. Please read this manual carefully before installing and using the product, and keep this manual at hand for future reference.

Please visit our website www.prorilpumpseurope.com for further technical reference. Thank you!

Safety Information

Please read this manual thoroughly before operating the product, and retain it for future reference. Disregard of this warning could result in personal accidents and health problems, damage to the product and or product malfunction.

Hazard Notice Symbols

DANGER	A hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	A hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	A hazardous situation which, if not avoided, will result in minor or moderate injury.
NOTICE	A potential situation which, if not avoided, could result in undesirable condition.

Complementary Hazard Notice Symbols


ELECTRICAL HAZARD


CRUSH HAZARD


HOT SURFACE HAZARD


CUTTING HAZARD

Safety Requirements

DANGER

Risk of electric shock - This pump is supplied with a grounding conductor or grounding-type attachment plug. To reduce the risk of electric shock, be certain that it is connected to a residual current device or proper grounding-type receptacle. This pump is NOT intended for use where water is occupied by people.

WARNING

- This pump has been evaluated for use with water only.
- Do not operate the product near a potentially explosive environment.
- Do not use the product in the presence of flammable liquids or gases.
- Always turn off and disconnect the pump from the main power and Lock-Out-Tag-Out (LOTO) before carrying on inspection, maintenance, and adjustment.
- Never attempt to change the settings of all protective devices without consulting with a PRORIL representative
- The product is designed for moving wastewater, raw and clean water. The following should not be handled for the pump and your safety:
  - i) Flammable, toxic, abrasive, crystallizing, and polymerizing liquid.
  - ii) Liquid chemicals and food, alkaline and corrosive liquid.
  - iii) High temperature, high viscosity, and high content solid matter liquid.
- Protect the electric plug or the end of the power cable from invasive moisture at all times. Never touch the piping or electrical connections while the pump is running.
- Never touch the water while the pump is under operation.
- Never put the pump into operation if it has been partially dismantled.
- Hearing protection should be used in case of long exposure to noise.
- Never run the pump without water, do not operate the pump out of water or insufficient water. Do not use the pump if the power cable is damaged. If you have any questions, please contact our representative or company.

Environmental Safety

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

Product Warranty

PRORIL's sole obligation under this 12 months warranty shall be limited to the repair or replacement of any parts that the Seller determines, in its discretion, to be defective. The warranty is void if the damage is caused by the following factors:

- Improper installation
- Deficient maintenance
- Damage caused by improper use, or abuse.
- Third party modifications or attempted alterations to the pump.
- Normal wear and tear
- The pump has been used for purposes other than those for which it is intended.

PRORIL assumes no liability for the following:

- Body injuries
- Material damages
- Economic Losses

PRORIL reserves the right to change design and specifications without prior notification.

Transportation and Storage


CRUSH HAZARD

Stay clear of the suspended load. The unit and components can be heavy. Observe accident prevention regulations in force.

Lifting

- Make sure the pump is properly secured during transportation and cannot roll or fall over.
- Pay close attention to the pump's center of gravity and mass. Improper lifting may result in product damage, injury, or death.
- Always lift the pump by its lifting handle or by using suitable equipment. Use eyebolts or lifting lugs if available.
- Never lift the pump by the motor cable or hose.
- When the pump will be carried by hand, decide the number of persons considering the mass of the pump. When lifting the pump, ensure a good handle hold, do not bend your back, (use your knees to protect your back), look ahead, and move smoothly.

Storage

NOTICE

- Protect the pump against humidity, heat sources, and mechanical damage.
- Do not place heavyweights on the packed product.
- Storage temperature should be within a range of -25°C to 55°C.
- For temperature up to 70°C above, storage must be within a short period and do not exceed 24 hours.
- In cold climates, do not allow water in the pump to freeze.
- After an extended storage time, the pump should be inspected before use.
- Turn the impeller by hand before using the pump.
- Check the seals and the cable entry.

Product Specification

Additional information on the product specific information, e.g. dimensions, specifications, performance curves for the corresponding model will be provided separately. Please find the product specification tables and product nameplate on page 17 or contact our representative.

Pump Design

The pump is submersible and driven by an electric motor. The pump is designed for moving wastewater, raw and clean water. Never operate this product under any conditions other than those that have been specified.

WARNING

- This pump is neither dust-proof nor explosion-proof. Do not use it at a place where toxic, corrosive, or explosive gas is present. Use in such a place could cause fire or explosion.
- Do not operate the product under any voltage other than described on the nameplate with the voltage variation limit within ±10%. Failure to observe this caution may cause malfunction and breakdown of the product, which may lead to electrical leakage or electrical shock.
- Do not use the product for hot or warm liquid over 40°C, as doing so will damage the product, which may lead to electrical leakage or electrical shock.
- Do not operate the pump in an area that is exposed to a water pressure that exceeds any conditions other than those that have been specified.

Pump Application Conditions

Conditions	Description
Liquid Temperature	5°C to 40°C (41°F to 104°F)
ph liquid	5-8
Rated Output Variation	±10%
Voltage Variation without overheating	±10%, provided that it does not run
Frequency Variation	±1%
Maximum Allowable Pressure	0.2 MPa (2kgf/cm2) – Discharge pressure

Installation

Pump Installation

WARNING

- Before installing the pump, check if the cable and cable entry have not been damaged during transportation.
- Be aware of the pump's center of gravity and weight. If the pump is not suspendedproperly, it may lead to injury.
- Never use the pump cable to suspend the pump. Doing so will damage the cab andmay cause electric shock or fire.
- DO NOT dismantle the product before/during installation without any authorizedinstructions from PRORIL

NOTICE

The following installation requirement must be implemented:

- Use the pump dimensional drawing to ensure proper installation. If you have anyquestions, please contact our representative or company.
- Provide a suitable protective barrier around the pump working area.
- Check for any explosion risk before pipe welding or use of any electrical hand tools.
- Remove any remaining debris from the inlet piping system before installing the pump.

CAUTION

During piping work be aware if welding sparks, paint, concrete, etc. come in contact with the pump, it may cause the pump to malfunction, and current leakage or electric shock may occur.

Pump Design

CAUTION

The pump is partly-completed machinery without safeguard. The pump cannot in itself perform a specific function, and will only be complete once incorporated into the system including all necessary protective means/guard and control power circuit. Finally, the system integrator shall take all appropriate measures to ensure that partly completed machinery can be placed on the market only if it satisfies the relevant provisions with EN 60204-1 and EN ISO 12100. Safety distance and slot/gap shall comply with table 1, 3, 4 of EN ISO 13857.

The following installation instructions are only applicable when the installation has been designed following the pump dimensional drawings.

1. Run the cable so that it has no sharp bends, is not pinched, and cannot be drawn into the pump inlet.

2. Connect the discharge pipe. The pump is equipped with a discharge connection for hose or pipe. Piping work must not create air pocket in the middle of the piping.

NOTICE

The discharge pipe can be run vertically or horizontally, but must be without sharp bends. Excessive bending could obstruct the flow of water, reduce the pumping volume, or clog the pump.

3. Install a non-return valve if the pump pit is deep, or if the vertical/lateral piping is too long.
4. Lower the pump into the sump pit. Attach a rope, chain, or wire to the handle of the eyebolts for lowering and lifting the pump.

CAUTION

Make sure that the rope doesn't get tangled or twisted during installation.

5. Place the pump on a horizontal and rigid base, in an area that is free from and does not cause the pump to take air in. This area must have a sufficient water level and collects water easily. Alternatively, the pump can be suspended with a lifting chain just above the sump pit bottom. Make sure that the pump cannot rotate at the startup or during operation.

NOTICE

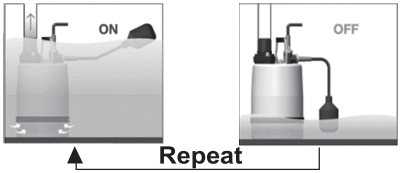
For the water level required for operating the pump, refer to the pump's dimensional drawing that can be obtained from our representative or company.

6. Make sure that the impeller rotation is correct.
7. Should there be any problems occurred during installation, please get in touch with a PRORIL representative.

Float Switch Location Installation Requirement

CAUTION

Place the pump with integrated float switch hardware in an area where the float can properly and easily move up and down without getting caught with the pit walls, cable, or lifting chains.



Electrical Connections

ELECTRICAL HAZZARD

- A certified electrician must supervise all electrical work. Comply with all local codes and regulations.
- Before starting work on the unit, make sure that the unit and the control panel are isolated from the power supply and cannot be energized. This applies to the control circuit as well.
- Leakage into the electrical parts can cause damaged equipment or a blown fuse. Keep the end of the motor cable above the liquid level.
- Make sure that all unused conductors are insulated.
- There is a risk of electrical shock or explosion if the electrical connections are not correctly carried out or if there is fault or damage to the product.

Connection Requirements (External Protection Devices)

- The supply authority must be notified before installing the pump if it will be connected to the public mains. When the pump is connected to the public power supply, it may cause flickering of incandescent lamps when started.
- The mains voltage and frequency must agree with the specifications on the data plate. The supply voltage and frequency variation must be within ±1% of the rated voltage. If the pump can be connected to different voltages, then the connected voltage is specified by a yellow sticker close to the cable entry.
- The pump is to be supplied through a residual current device (RCD) having a rated residual current not exceeding 30mA.
- The fuses and circuit breakers must have the proper rating, and the pump overload (motor protection breaker) must be connected and set to the rated current according to the data plate and if applicable the cable chart.
- The starting current in direct-on-line start can be up to six times higher than the rated current. When start-delta is used, the current is reduced by the factor 0.58 (1/3), which must be taken into account when setting the circuit breakers.
- The fuse rating and the cables must be in accordance with the local rules and regulations.
- If an intermittent operation is prescribed, then the pump must be provided with monitoring equipment supporting such operation.

NOTICE

It is possible to control the water level by combining float switches with an analog pressure sensor. Two additional safety float switches can be installed in the dedicated Control System for high-level and dry-running alarm.

- The thermal contacts/thermistors must be in use.
- The cables must be in good condition, not have any sharp bends, and not be pinched.
- The voltage drop in long cables must be taken into account. The drive unit's rated voltage measured at the cable connection point in the pump.

Grounding (Earthing)

ELECTRICAL HAZARD

- You must earth (ground) all electrical equipment. This applies to the pump equipment, the driver, and any monitoring equipment. Test the earth (ground) lead to verify that it is connected correctly.
- If the motor cable is jerked loose by mistake, the earth (ground) conductor should be the last conductor to come loose from its terminal. Make sure that the earth (ground) conductor is longer than the phase conductors. This applies to both ends of the motor cable.
- Risk of electrical shock or burn. You must connect additional earth- (ground-) fault protection device to the earthed (grounded) connectors if persons are likely to come into physical contact with the pump or pumped liquids.
- Connecting the Power Cables

CAUTION

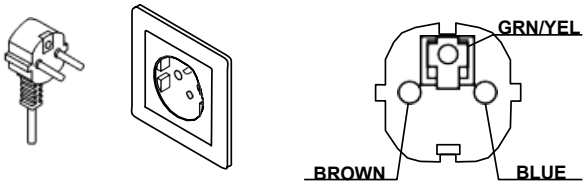
Leakage into the electrical parts can cause damaged equipment or a blown fuse. Keep the end of the motor cable above the liquid level.

1. Check the nameplate for output and voltage required for the pump.
2. Connect the power cables, including ground (earth), to the terminal or starter unit.
3. It is important that the pump should be properly grounded and provided with a leakage breaker to prevent the users from serious electric shock injury.
4. Firmly tighten the cable entry into its bottom-most position.

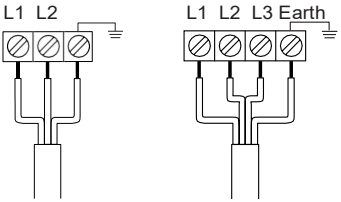
Connecting the Power Cables

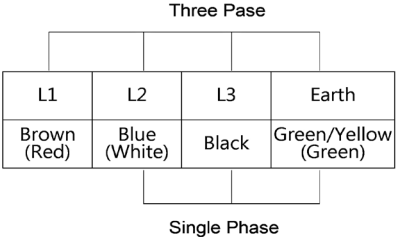
CAUTION

Beware that the power plug varies by country or region.

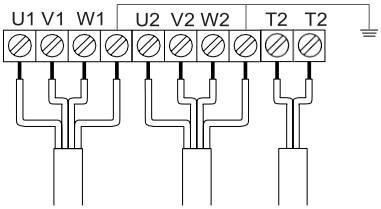


Single Phase/Three Phase Direct on Line





Three Phase Start - Delta Start



U1	V1	W1	U2	V2
Brown	Blue	Black	Brown	Blue

W2	T1	T2	Earth
Black	White	White	Green/Yellow

Electrical Circuit Diagrams

Additional information on the product circuit diagram for the corresponding model will be provided separately. Please contact our representative or company.

Operation

Prior to Operation

- Never operate the pump without safety devices installed.
- Never operate the pump with the discharge valve closed.
- Make sure that all safety guards are in place and secure.
- Make sure you have a clear path of retreat.
- Never work alone.
- Beware of the risk of a sudden start if the product is used with a float switch level control and/or internal contactor.
- Never start the pump while it is suspended, as the pump may jerk and cause serious accidents.

ELECTRICAL HAZARD

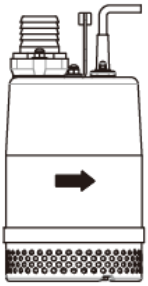
Risk of electrical shock. Make sure no one gets closer than 20 m or 65 ft. to the unit when being in contact with the pumped or mixed liquid.

NOTICE

The noise level of the product is lower than 70 dB However, the noise level of 70 dB may be exceeded in some installations and at certain operating points on the performance curve. Make sure that you understand the noise level requirements in the environment where the pump is installed. Failure to do so may result in hearing loss or violation of local laws.

1. Check and verify the nameplate for output and voltage required for the pump.
2. Check the wiring, power supply voltage, the capacity of the ground leakage circuit breaker, etc.
3. Start the pump.

Trial Operation Non-Float Switch



Run the pump for a short time (1 to 2 seconds) and verify the direction if the rotation of the impeller. If the starting jerk is counterclockwise (seen from above), the direction of its rotation is correct. If the direction of rotation is incorrect, two of the wires should be switched (consult a certified electrician).

CAUTION

- Make sure to check the pump's direction of rotation while the pump is not submerged in water. Otherwise, the pump will get damage, which may lead to current leakage and electrical shock.
- Never hold the handle while checking the direction of rotation. The starting jerk may be very violent.
- Operate the pump from 3 to 10 minutes and perform the following checks:
- Using an AC ammeter (clamp), measure the operating current at the phases U, V, and W that are connected to the terminal board.
- Using an AC voltmeter (tester), measure the voltage at the terminal board.

Conditions	Description
Rated Output Variation	±10%
Voltage Variation without overheating	±10%, provided that it does not run
Frequency Variation	±1%

- Proceed with the normal operation if no abnormal conditions are found during the trial operation.

Trial Operation Float Switch

1. Direct the float switch downward.
2. Raise the float to its highest location. This will cause the pump to start.
3. Next, return the float switch to its original position. This will cause the pump to stop
4. Perform steps (2) and (3) consecutively two or more times to verify the operation.

Operation


HOT SURFACE HAZARD

Do not touch the product with bare hands during or immediately after the operation, as the product may become very hot during operation. Failure to observe this caution may lead to being burned.

CAUTION

- Do not run the pump dry or operate it with its gate valve closed, as doing so will damage the product, which may lead to electrical leakage or electrical shock.
- Pollution of the liquid could occur due to leakage of lubricants. Never use the product for potable water.

1. Pay attention to the water level during operation.
2. Do not operate the pump at the lowest water level longer than 30 minutes. For details on the lowest water level, refer to the dimensioning drawing, which is provided separately.
3. If the built-in motor safety is activated, the pump will shut down and restart automatically.

Maintenance and Inspection

Regular checkups and preventive maintenance will ensure a more reliable and safe operation. An initial inspection of the pump within 3 to 4 months after installation is recommended.
Subsequent inspections/maintenance can be carried out every 6 months.

WARNING

- Always disconnect and lock out the pump from the power supply before inspecting the pump.
- Make sure that the pump cannot roll or fall over to injure people and damage property.
- Rinse the pump thoroughly with clean water before working on the pump.
- The pump should not be activated if it is partially dismantled.

Maintenance Requirements

- Allow all system and pump components to cool before handling them.
- Make sure that the pump and its components have been thoroughly cleaned.
- Inspect and verify that there is no damage on the pump exterior, and that the bolts and nuts have not loosened.
- Do not open any vent or drain valve or remove any plugs while the system is pressurized.
- Make sure the pump is isolated from the system.

Maintenance General Guidelines

- Clean all parts thoroughly, especially O-rings grooves.
- Change all O-rings, and gasket.
- During assembly or service of the pumps, it is recommended that the screws be tightened to approximately 6- Nm (4.5 6 ft-lb). The tightening torque ensures the parts are correctly fastened and that the pump will operate as intended

CUTTING HAZARD

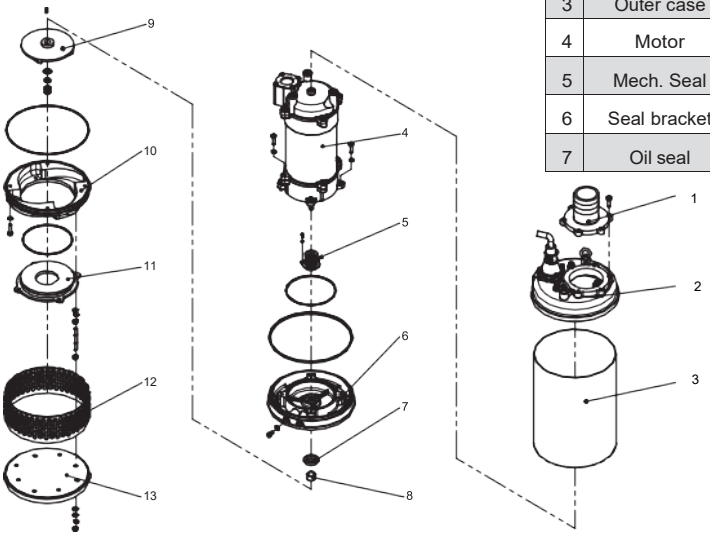
Worn impellers often have very sharp edges. Be very careful when replacing them.

Troubleshooting

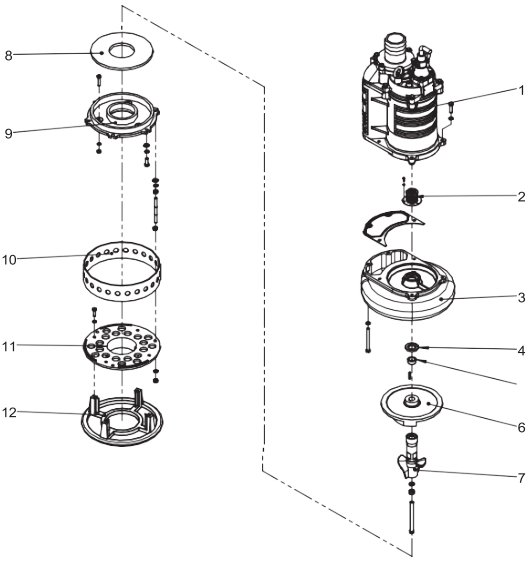
Problem	Possible Causes	Solutions
Pump fails to Start	No electricity	Contact the electric power company or an electrical repair shop
	Open circuit or poor connection of the cable.	Check if there is an open circuit in the wiring
	Impeller is clogged.	Inspect the pump and remove the block.
Pump starts but stops immediately, causing the motor protector to activate	Impeller is clogged.	Inspect the pump and remove the block.
	Voltage drop	Correct the voltage rating, or use a cable that meets the standard length.
	A 50Hz model is operated at 60Hz.	Check the nameplate and replace the pump or impeller.
	The strainer is clogged, and the pump was operated dry for long hours.	Remove the block.
	Motor abnormal	Repair the motor or replace with a new motor.
	The pump is picking up too much sediment	Place the pump on a concrete surface to prevent the pump from
The pump's head and pumping volume is lower.	The impeller is worn	Replace a new impeller
	The hose may be clogged.	Reduce the number of bends in the hose, or in an area with a large amount of debris, use the pump in a
	The strainer is clogged or buried.	Reduce the number of bends in the hose, or in an area with a large amount of debris, use the pump in a
	The motor rotates in reverse.	Exchange the power supply terminal connection.
The pump makes noise or vibration.	The bearing of the motor may be damaged or the impeller is damaged.	Repair or replace the part.

Part List Tank / Tank Slim Pumps

No	Denomination	No	Denomination
1	Discharge	8	Shaft sleeve
2	Upper cover	9	Impeller
3	Outer case	10	Pump casing
4	Motor	11	Inlet plate
5	Mech. Seal	12	Strainer
6	Seal bracket	13	Base plate
7	Oil seal		

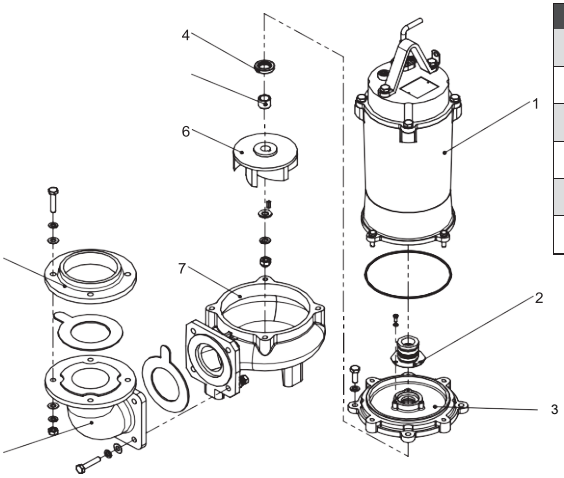


Part List Titan / Stormy Pumps



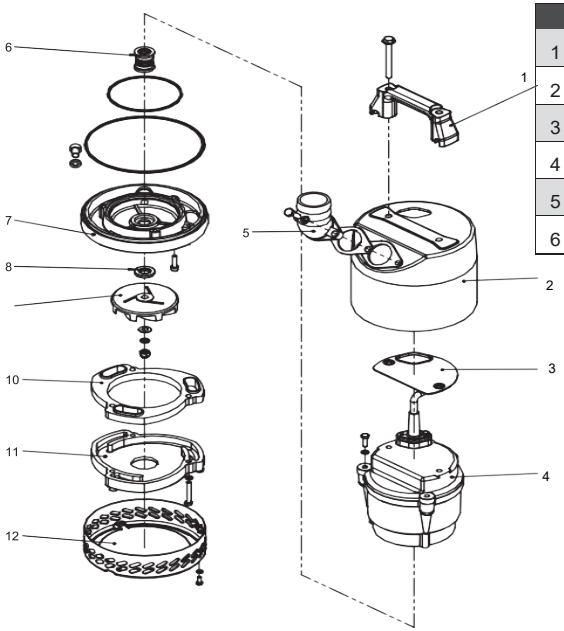
No	Denominatio	No	Denomination
1	Motor	7	Agitator
2	Mech. Seal	8	Wear plate
3	Pump casing	9	Inlet plate
4	Oil seal	10	Strainer
5	Shaft sleeve	11	Strainer Base
6	Impeller	12	Base plate

Part List GOCUT / GOVOX/-G/-U/-S / GOMAX / X-VOX Pumps



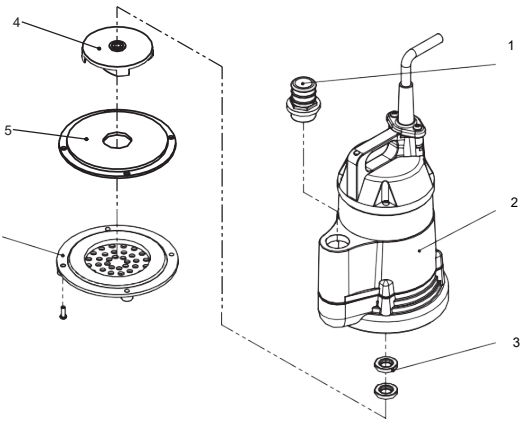
	Denomination	No	Denomination
1	Motor	7	Pump casing
2	Mech. Seal	8	Flange
3	Pump casing	9	Discharge elbow
4	Oil seal		
5	Shaft sleeve		
6	Impeller		

Part List SMART / LITE / VOX / X-SMART Pumps



	Denomination	No	Denomination
1	Handle	7	Seal bracket
2	Outer case	8	Oil seal
3	Gasket	9	Impeller
4	Motor	10	Gasket
5	Discharge	11	Inlet plate
6	Mech. seal	12	Strainer

Part List SAVVY / JUMBO / BASE Pumps



	enomination	No	Denomination
1	Discharge elbow	4	Impeller
2	Motor	5	Inlet plate
3	Oil seal	6	Base plate

Product Specification Table and Nameplate

TANK / TANK SLIM SERIES

XZ1	TANK / TANK SLIM	-Z2	x1x2x3	Z3

Z1 = Stainless Type	x1 = Discharge size	x2 = Power Output in kW		x3 = Phase
Z2 = Customer Code	2 inch discharge	15 = 1.5kW	80 = 8.0kW	Blanck = three phase
Z1 = Customer Request	3 inch discharge	22 = 2.2kW	110 = 11kW	S = single phase
	4 inch discharge	30 = 3.0kW	150 = 15kW	A = float switch
	6 inch discharge	37 = 3.7kW	220 = 22kW	SA = single phase with float switch
	8 inch discharge	55 = 5.5kW	370 = 37kW	
		75 = 7.5kW	450 = 45kW	

STORMY SERIES

STORMY	Y1Y2Y4Y5

Y1 = Discharge size	Y2 = Power Output in kW		Y4 = Standing Type	Y5 = Standing Type
3 inch discharge	37 = 3.7kW	370 = 37kW	P = open stand	Blanck = standard
4 inch discharge	55 = 5.5kW		S = strainer	L = enhanced flow
6 inch discharge	75 = 7.5kW			
8 inch discharge	110 = 11kW			
	150 = 15kW			
	220 = 22kW			

GOCUT /GOBITS / GOVOX / GOVOX-S / GOVOX-U / GOVOX-G / GOMAX SERIES

GOCUT / GOVOX / GOVOX-S / GOVOX-U / GOVOX-G / GOMAX SERIES	Y1Y2Y3

Y1 = Discharge size	Y2 = Power Output in kW		Y3 = Phase
2 inch discharge	04 = 0.4kW	55 = 5.5kW	Blanck = three phase
3 inch discharge	08 = 0.75kW	75 = 7.5kW	S = single phase
4 inch discharge	11 = 1.1kW	110 = 11kW	A = float switch
6 inch discharge	15 = 1.5kW	150 = 15kW	SA = single phase with float switch
	22 = 2.2kW	220 = 22kW	
	37 = 3.7kW		

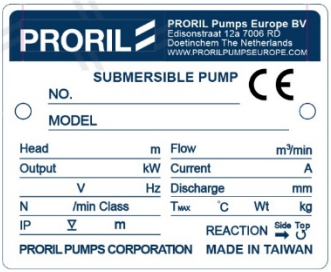
SMART / SMART LITE / SAVVY / SAVVY JUMBO / SAVVY BASE / X-SMART / X-VOX SERIES

SMART / SMART LITE / SAVVY / SAVVY JUMBO / SAVVY BASE / X-SMART / X-VOX SERIES	Y1Y2Y3

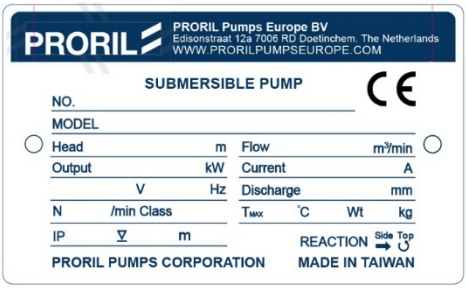
Y1 = Discharge size	Y2 = Power Output in kW		Y3 = Phase
2 inch discharge	08 = 0.75kW	600 = 0.55kW	Blanck = single phase
3 inch discharge	100 = 0.1kW	750 = 0.75kW	A = float switch
	150 = 0.15kW	1500 = 1.5kW	T = three phase
	200 = 0.25kW	15 = 1.5kW	
	300 = 0.25kW		
	400 = 0.4kW		

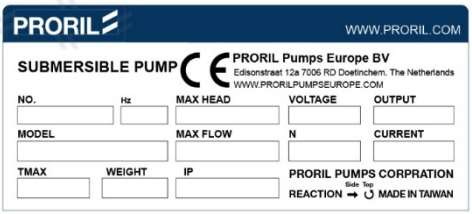
The nameplate provides important details. Be careful not to exceed the given specifications in the use of the product.

1st Letter (year)	2nd Letter (month)	Numbers
A = 2016	N = December	Continuous number sequence from production Examples: CP 1026 (2018 / November / 1026th pump) BS 1496 (2017 / August / 1496th pump) BN 1135 (2017 / December / 1135th pump)
B = 2017	P = November	
C = 2018	Q = October	
D = 2019	R = September	
E = 2020	S = August	
F = 2021	T = July	
G = 2022	U = June	
H = 2023	V = May	
I = 2024	W = April	
J = 2025	X = March	
K = 2026	Y = February	
L = 2027	Z = January	



Name	Description
No.	SerialNumber
Model	Pump Model
Head	Maximum Pressure Head（M）
Flow	Maximum Capacity
Output	Pump Out (KW)
Current	Electric Current(A)
Electrical Description	Phase (~) Voltage (V) Freq. (Hz)
Discharge	Outlet Size （mm）
N	Speed of rotation (N/min-1)
T max	Max. Liquid Temperature (°C)
Weight	Pump Weight (kg)
IP	Class of Protection
Depth ( )	Maximum Submersion Depth (m)
Class	Class of Insulation
Reaction	Direction of the start reaction





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