

Predator 24-12 volt

INSTALLATION AND MAINTENANCE



Predator Performance

KPM never stops innovating and listening to customer's demanding applications , This has shaped our design ethos over 28 years .

KPM not only design for performance but also robust construction and the ability to repair in the field in the rare situation that the product fails. When we said to a customer "you can throw this off a mountain " we never thought that the customer would throw it off a mountain. The predator still worked and did not leak.

By listening to our customers we were asked to develop a light , high capacity pumping system run at 16 amps but deliver Maximum flow of 200l/min. The result was the Predator range which KPM then tested on our own race platform .

With over 4000 predator units in operation globally the recorded failure rate is an astonishing 0.03% over 10 years . This small number are normally repaired and sent back into operation within a few days.

KPM do not compromise on materials and quality since we know that people depend on our products to work first time every time. It's a matter of Pride.





This pump is designed for use with fresh water and salt water only. Do not use with any hazardous , caustic or corrosive material.



Always use the proper sized fuse as per the instructions on the product. Failure to install the proper fuse could increase pump failure



Disconnect the power before working or unblocking the pump to avoid personal injury and damage to the unit



Keep all the wire connections above the highest water level . Wires must be connected and waterproofed



Disconnect pump before working on the impeller to avoid personal injury .



Follow the wiring instructions for pump and ensure cable cross section is suitable to eliminate resistive losses causing under pumping



Do not use with any hazardous , caustic or corrosive substances.



Do not attempt to modify the pump and its accessories this may cause personal injury or failure of the product.



Do not use this pump on hydro carbons and fuel oils. Over a period of time this will degrade the water seals .



Do not attempt to repair the product . Return the product to an authorised KPM repair facility .

Predator 350s, Deep Reach and LM specification

Flow rates

- 200l/min at 3m head and 10m of suction hose (Declared at 167l/min on pump)
- Note: flow will be determined by the type of hose used and any bends in the system.*

Motor

- 24V dc 450w 3100 rpm motor max current draw of 10A under full load torque of 1.11Nm. Mean operating torque of 0.72Nm with current draw of 9.6A. maximum possible current draw < 16amps. No load current draw 1.2 amps.
- CE certified.

Crash test performance

- 12 g crash tested

Impeller

- Hybrid vane and stainless turbine delivers high pressure smooth pumping.
- Stainless turbine designed to macerate solids and paper in emergency situations where floating debris may be encountered,

Casing

- Robust aluminium waterproof casing hard anodised and powder coated in rescue orange. The whole pump is non conductive and will not leak current.
- 24 volt operating light indicator.
- Supplied with 2 meter marine grade power cable (optional 12m and lanyard for emergency).
- Quick release bracket for ease of removal for either rescue or inspection.
- Whole unit is totally repairable.
- All cables etc. are fully potted for total waterproofing.

Easy mounting

- Quick release hard anodised bracket for ease of removal for either rescue or inspection.
- Bracket base weld able to hull or bulkhead.

Wire and electrics

- All power wire is 2.5mm marine grade and tinned to BS6883 sw4.
- Float switch wire 1.5mm 3 core marine grade and tinned to BS6883 SW4.
- Connectors when option supplied IP68 rated at 32A at 600V ac/dc.
- Cable glands are IP68.

Environmental

- The pump is 95% recyclable by weight , and contains no Asbestos or materials containing Volatile Organic Chemicals. Please see our full environmental declaration.

Warranty

1 Year.

Run dry capability:

- The pump and motor has been tested under run dry conditions for 2 weeks without damage to the pump and its components.

Continuous running:

- The pump has been tested for 2 weeks without effect to the pump. The motor will not overheat but there will be an amperage increase of 2 amps under these conditions unless the whole pump is covered in water.

Air Locks:

- There is an air lock bleed in the main pump chamber. If however an air lock is encountered turn the pump on for about 10 seconds turn off and then on again. This switching will eliminate the air lock and the pump will start flowing at its specified pump rate.

Standards conformity

- EN6100-6:2001
- EN61000-6-3:2007
- 2004/108/EC electro magnetic
- ISO8846 Electrical protection ignition of surrounding gasses
- ISO 8849:2003 electrically operated bilge pumps
- ISO 10133/electrical systems low voltage DC - 94/25/EEC

Classification approval

- The following classification certificates can be supplied upon request



Electrical specification - Pump and float switch

Connection

Wire #1 / Red 24 v positive
Wire #2 / Black 24v negative

Fuses

20 amp slow burn

Normal operating capability.

24v dc 450w ,3100 rpm motor max current draw of 10 A under full load torque of 1.11Nm. Mean operating torque of 0.72Nm with current draw of 9.6 A. maximum possible current draw < 16amps at stalled state. No load current draw 1.2 amps.
CE certified.

Flow rates

250l/min at 0m head and 10m of suction hose

200l/min at 3m head and 10m of suction hose

Note flow will be determined by the type of hose used and any bends in the system.

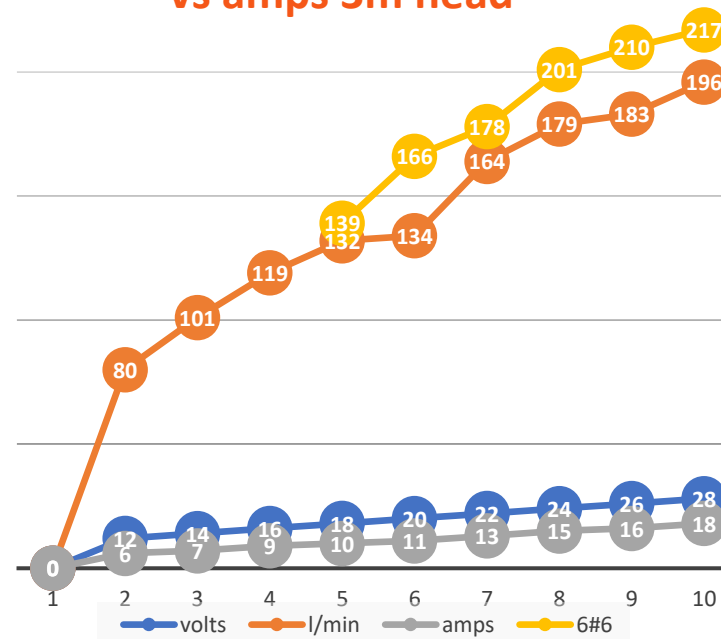
Low voltage operating capability.

16 volts ,1800 rpm max motor current draw of 18A under torque of 0.36Nm. Flows 119 l/min at 3m head and 10 meters of hose.

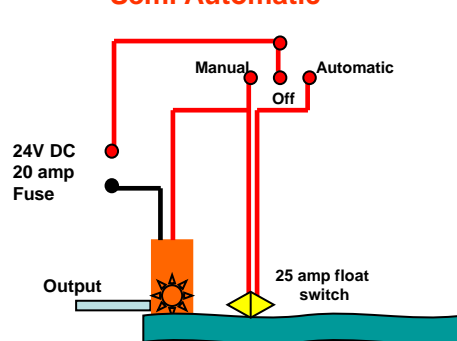
Minimum operating

15 volts ,900 rpm current draw of 1.8 amps under torque of 0.19Nm. Flows 106 l/min at 3m head and 10m of hose

KPM pump 5-5 pitch Flow vs Volts vs amps 3m head



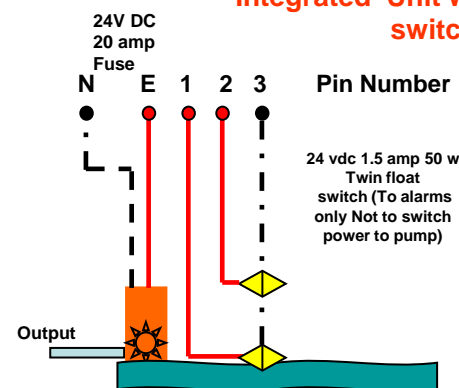
Semi Automatic



KPM 25A
Float switch



Integrated Unit with twin float switch



Electrical specification – 12-24 bilge switch connection

The KPM Bilge switch is industrial grade and has the capability to be wired directly with the pumps and float switches. For ease of use and fitting all wire connections have the WAGO fittings supplied ready fitted.

Input Connection

Input Voltage rate 24 VDC Voltage range 10~29Vdc

- Wire #1 / Red 24 v positive
- Wire #2 / Black 24v negative

Output connection

- Current output Voltage rate 28VDC Current 20AMPS Rated Power 560Watts.

Fuses /circuit breakers

- Built in 20 amp slow burn built in wire type Rate Power 560Watts

Connections

- Wago 600v max 32A awg24 - 1,6/2.5mm wire

Volt meter

- Built in volt meter 24volts red LED

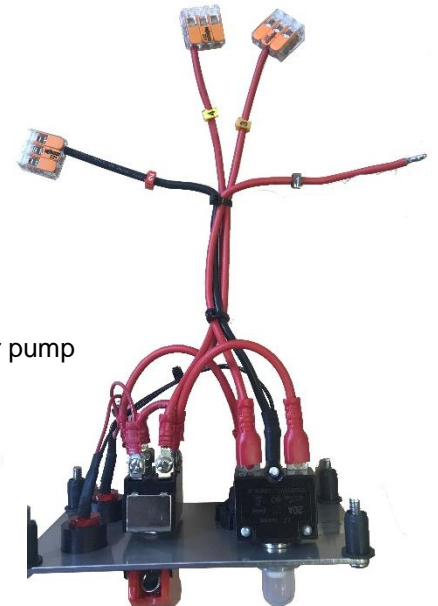
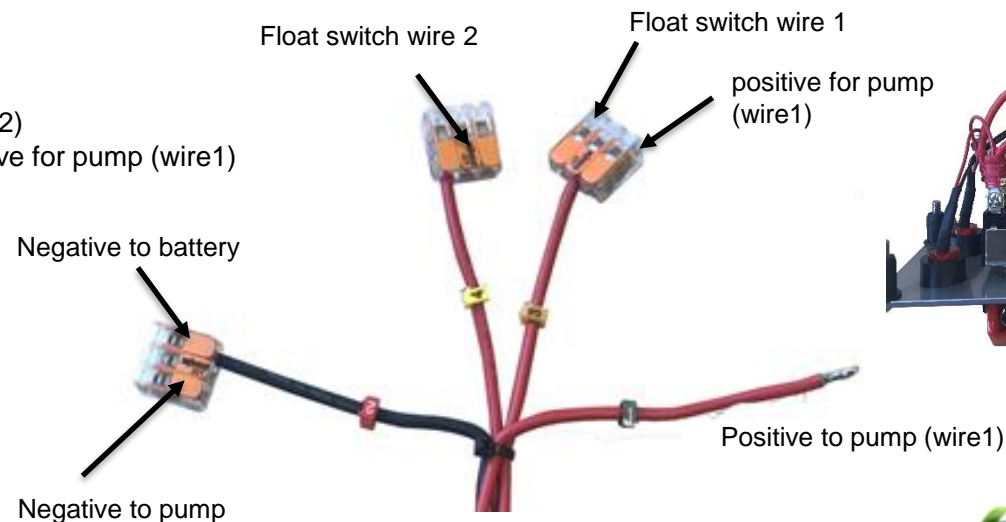
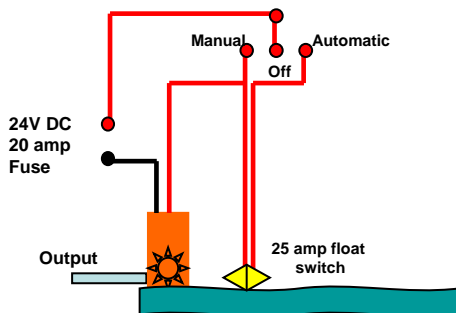
Working temp -20~80°C

Wire 1 to positive battery 24v dc

Wire 2 negative to battery and pump (wire2)

Wire 3 to float switch(any wire) and positive for pump (wire1)

Wire 4 is just the float wire 2



Electrical specification – 12-24 volt driver pack

The KPM driver pack allows the user to connect the optimised 24 volt Predator pump unit to a 12volt system with a 93% efficiency.

Input Connection

Input Voltage rate 12VDC Voltage range 10~20VDC DC: 2m of marine cable supplied

- Wire #1 / Red 12 v positive
- Wire #2 / Black 12v negative

Output connection

- Current output Voltage rate 28VDC Current 20AMPS Rated Power 560Watts.
- 3m of cable supplied with pump
- 2 pin 24v IP 68 socket to connect 20 amp

Fuses

- Built in 20 amp slow burn built in wire type Rate Power 560Watts

Volt meter

- Built in volt meter 24volts red LED

Working temp -20~80°C

Efficiency 93%

Waterproof Level IP65

Size and construction

- 100mm wide x 180mm high x50mm deep
- Anodised aluminium

Mounting

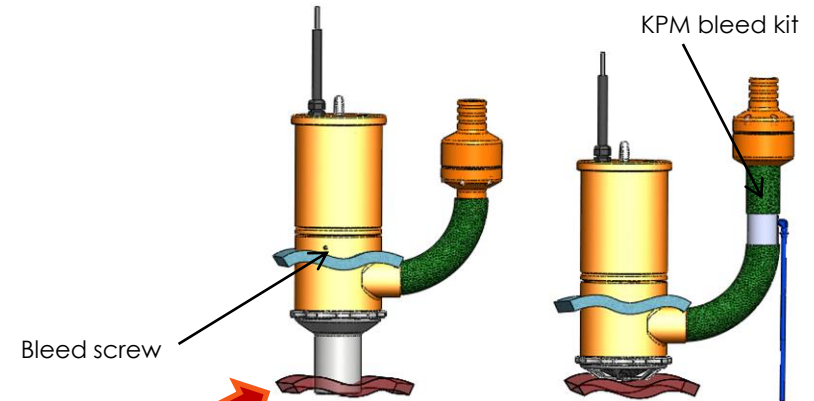
- Stainless quick release bracket
- 4 x M6 screws supplied



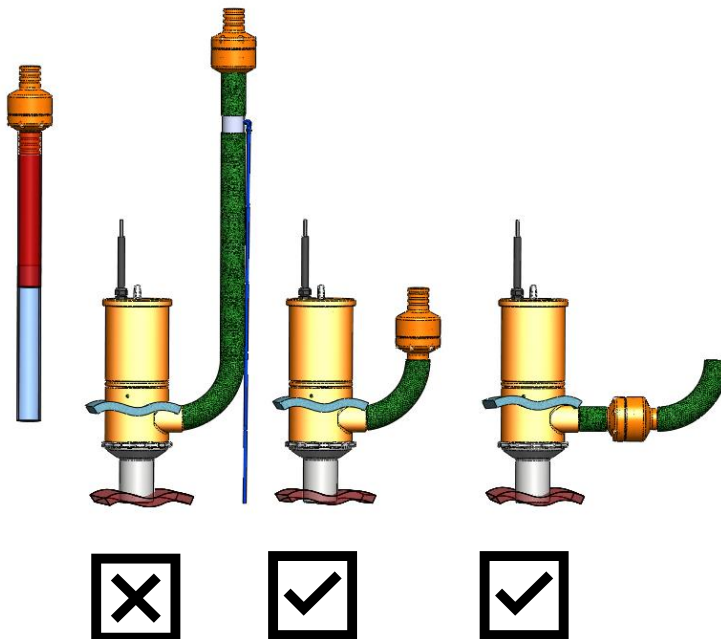
Best rigging practice

- Keep bends to a minimum. A 90 degree bend offers less loss than a sweeping curve in the pipe.
- Use smooth bore pipe where ever possible
- Ensure that Non return valves have the correct crack pressure if not KPM
- Ensure that air locks are kept to a minimum since this will reduce the effectiveness of the pump.
- Always try and run the output pipe vertically to the discharge and keep the pipe as short as possible.
- Always put the pump in the lowest part of the bilge to ensure that the pump is submerged.
- If the water is aerated this will reduce the pump effectiveness and potentially create an air lock and stop prime.

Acceptable rigging practice

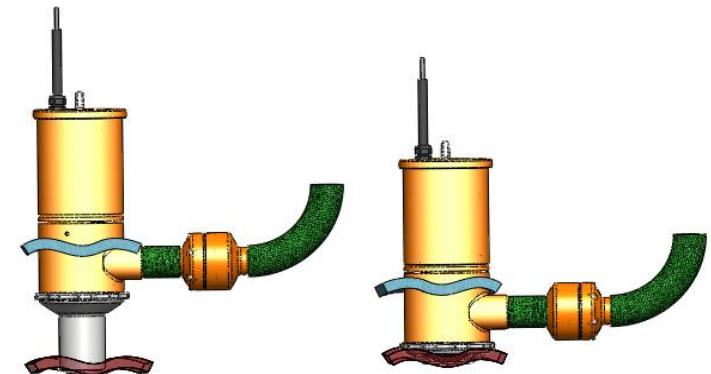


Minimum prime height 12mm



Best rigging practice (with Non Return valves)

The configurations below show a trouble free installation and will allow a second inline non return valve to operate with ease as specified by MCA,DNV etc



Time to prime
1.5 seconds

GENERAL FAULT FINDING

PUMP DOES NOT WORK AND POWER LIGHT IS OFF

- NO ELECTRIC SUPPLY TO PUMP, CHECK ALL CONNECTIONS
- PUMP SEAL HAS BROKEN AND UNIT BADLY CORRODED INTERNALLY

PUMP LIGHT IS ON AND TURNING BUT NO WATER IS BEING PUMPED

- CHECK THAT FILTER IS NOT BLOCKED
- CHECK FOR AIR LOCK BY UNDOING THE PIPE AND RESTARTING
- CHECK THAT THE CHAMBER IS NOT BLOCKED
- CHECK THAT NON RETURN VALVE IS NOT CORRODED SHUT IF NOT A KPM NR

PUMP IS SPINNING BUT POWER LIGHT IS NOT ON

- PUMP IS WIRED BACK TO FRONT AND ROTATING IN REVERSE

PUMP TURNS BUT IS SPINNING SLOWLY

- CHECK IMPELLER NOT CLOGGED OR DAMAGED
- ELECTRICAL SUPPLY IS BELOW VOLTAGE REQUIRED-CHECK CONNECTIONS
- MOTOR BRUSH HAS BROKEN OR WORN OUT.

PUMP RUNS INTERMITTANTLY AND POWER LED FLICKERS

- INTERMITTANT SUPPLY OF POWER. CHECK ALL CONNECTIONS ARE GOOD

PUMP KEEPS TRIPPING CIRCUIT BREAKERS

- ENSURE THAT PUMP IS NOT JAMMED AND STALLING
- CHECK THAT NON RETURN VALVE IS ALLOWING FREE FLOW OF WATER
- CHECK THAT CIRCUIT BREAKERS ARE THE CORRECT SIZE.

PUMP DOES NOT TURN ON WITH AUTOMATIC FLOAT SWITCH.

- CHECK FLOAT SWITCH TO SEE IF IT IS WORKING
- CHECK ELECTRICAL SUPPLY AND CONNECTIONS

KPM DUAL FLOAT SWITCH DOES NOT ALARM.

- CHECK TO ENSURE THAT POWER IS GOING TO THE SWITCHES
- CHECK TO SEE IF FLOAT IS CLOGGED WITH DIRT OR DEBRIS-CLEAN IF REQUIRED
- FLOAT SWITCH HAS BURNT OUT- CHECK THAT FEED VOLTAGE IS NOT TOO HIGH

IF NONE OF THE FAULT FINDING STEPS SOLVE THE PROBLEM PLEASE CONTACT
KPM-MARINE FOR ADVICE . PLEASE QUOTE THE PUMP SERIAL NUMBER



Warranty Predator Products

All KPM predator pumps are covered for 1 year manufacturing guarantee when purchased directly with KPM marine or its designated distributors.

1. All warranty periods commence on the date of purchase and are non-transferable.
 2. The guarantee is limited to the provision of repairs, free of charge within the specified period providing the conditions are met.
- Guarantee does not cover;

The KPM Marine Guarantee is a manufacturing cover for your predator product. This Guarantee shall not apply to defects caused by;

- Misuse
 - Neglect
 - Accidental Damage
 - Improper storage
 - Installation or careless handling
 - Frost damage/heat damage
 - Alteration not carried out or authorized by KPM Marine approved supplier
 - The use of incorrect supply voltage
 - Contaminated water supply
 - Unsuitable chemicals
- Professional product guarantee does not cover accessories or electrical connections .
 - If your Predator was purchased with a retailer or supplier, you must contact them to initiate a guarantee claim.
 - Predator products registered with KPM on warranty@kpm-marine.com will be given an additional parts and labor warranty of 2 years, please quote the serial number .
 - If you have a KPM service contract with your pumps please contact our service team:

Retail warranty enquiries:

Tel.: +44 121 359 6434

Email: warranty@kpm-marine.com

Retail business enquiries:

Tel.: +44 121 359 6434

Email: sales@kpm-marine.com