

APPLICATION, INSTALLATION AND SCOPE OF SUPPLY FOR SUBMERSIBLE SEWAGE AND WASTE WATER PUMPS

APPLICATIONS:

Domestic and light commercial sewage sumps (for water, wastewater, human waste and water soluble domestic toilet paper only.)

For Municipal and Heavy Commercial (Motor Camps, Hotels etc) call us for our “Homa” range of Industrial & Commercial Sewage Pump range.

Call us for larger pumps; our range exceeds 1,000 l/sec and 200 metres.

DOMESTIC APPLICATION SUBMERSIBLE SEWAGE PUMP SELECTION GUIDE:

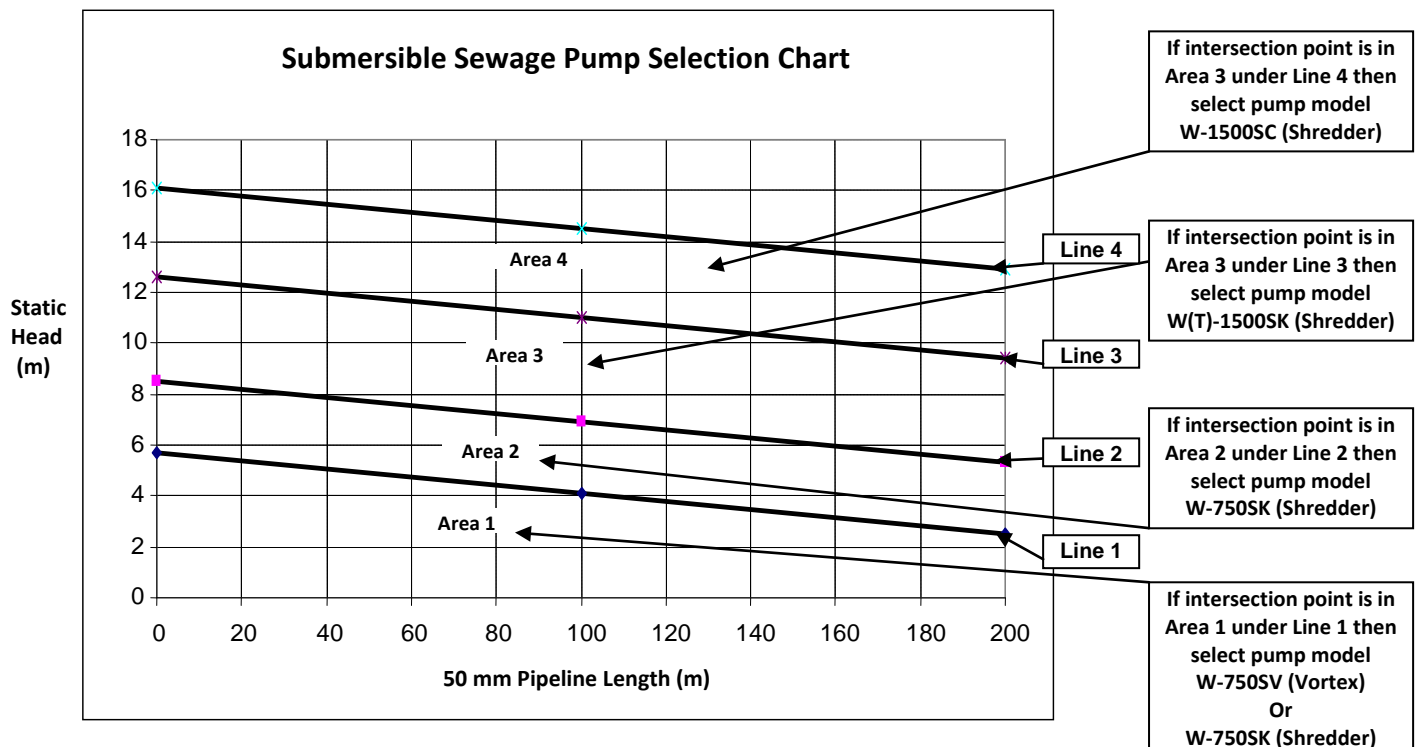
SELECTION CHART PARAMETERS

Refer our sewage pump selection chart below.

This is based on pumping domestic raw sewage from one house through a 50 mm internal diameter pipeline, and assuming the pipeline will have no more than 8 x 50 mm long radius bends and will have one Wallace 50 mm full flow non return valve.

- Note: 1) JX-400S is not suitable for human sewage, only dairy and sheep effluent and grey water.
2) The submersible sewage & drainage pumps in this document are **not designed for continuous running**. For continuous pump operation duty call one Wallace Pumps Engineers for recommendation on suitable pump.

SUBMERSIBLE SEWAGE PUMP SELECTION CHART



PUMP SELECTION STEPS

A) Measure Static Head. This is the vertical difference in height between the bottom of the sump and the highest point in the delivery pipe which is discharging sewage to final delivery point.

Note: The highest point may not necessarily be the final delivery point as in some cases the pipe may drop to the delivery point.

B) Mark the above measured Static Head in metres (as explained in point **A**) at the appropriate same value point on the Left Hand Side Vertical "Y" axis of the above chart. Draw a Horizontal line from this marked point across the chart.

C) Measure actual length in metres of the 50mm delivery pipe. Mark this measured length in metres at the appropriate same value point on the Bottom Horizontal "X" axis of the above chart. Draw a Vertical line from this marked point upwards. Find out the area where this intersection point of the Horizontal and Vertical lines is in the above chart.

D) Select the recommended pump (as shown in above chart)

For applications outside the parameters of this chart, please Contact wallace pumps. Our sewage and waste water pump range extends to:-

Over 60 metres head with vortex impeller. Up to 220 metres head with macerator and progressive cavity pump system. Over 150 mm solids clearance. Delivery sizes over 800 mm diameter, this gives flows of over 1,000 litres per second per pump.

SCOPE OF SUPPLY (Wallace Pumps)

Supply only as per client's order of following items.

A) pump/s. **B)** non return and/or isolating valve/s. **C)** high / low level alarm/s and protection systems against flooding. **D)** control panel/s. **E)** float switch/es or any other items as per order.

- Built in float (wherever applicable or with separate float & control box) to start and stop automatically based on the rise & drop of level in sump.
- High quality submersible cable of 4m or 5m or 10m length (as applicable).
- Integral thermal over heat motor protection for all pumps

Shaft sealing systems

- Double mechanical seal in oil chamber, with external lip seal for JX-180, JX-250, JX-400, W-400, W-750, W-1500SK, WT-1500SK & GRP16WA.
- Threaded BSPF delivery with matching hosetail, except W-400 which is w/o hosetail.
- installation instructions

COMPLETION OF INSTALLATION BY OTHERS WILL REQUIRE AT LEAST

Please refer to installation instructions for full recommendations.

- A sump of adequate dimensions to allow full movement of the float switch and to prevent cycling (10 to 15 starts per hour maximum)
see sump dimensions on individual pump specification sheets
- Discharge line should be the same internal diameter as the pumps' discharge size throughout the full length to reduce blockages
- A non return valve to prevent back flow into the sump.
it must be of the ball type full flow non return valve when pumping sewage, waste water, or solid laden liquids.

1.25 "	32 mm	Wallace Part # 5222
2.0 "	50 mm	Wallace Part # 3205 (cast iron) or # 5224 (PVC)
3.0 "	80 mm	Wallace Part # 2528

- If pumping grey or clear water a flap valve, either with compression fittings or with glued socket connections, maybe used. Refer below.

Size(inch)	Size(mm)	Compression Connections	Glued End Connections
1"	25mm	Not available	Wallace Part # 1520-10
1 1/4"	32 mm	Wallace Part # 1500-12	Wallace Part # 1520-12
1 1/2"	40mm	Wallace Part # 1500-15	Wallace Part # 1520-15
2"	50 mm	Wallace Part # 1500-20	Wallace Part # 1520-20

Wallace stock sewage non-return valves up to 8", 200 mm. Data available on request.

- Lifting rope or chain to raise or lower the pump
 - **Note:- never lift pump by the power cable. Any damage to pump by lifting with Power cable is not covered under warrantee.**
- Junction box or multi-pin plug connection to power supply
- An overload (fuse / curcuit breaker etc) must be installed to suit the full load current of the pump, the trip value must not exceed 250% of the pump's full load current.
- A high level alarm is recommended in any situation where warning of a possible overflow is desirable
Wallace Pumps part number 1950610

Wallace pumps supply optional alarm systems capable of preventing overflows, data is available on request.

SUBMERSIBLE PUMP INSTALLATION GUIDELINES

If your installation is not as below it will probably lead to unreliable pump operation and invalidate the warranty

Ensure your installation complies with the relevant electrical and plumbing, drainage and bulbing code, or any other applicable code or regulation.

Submersible pumps must not be 'dry mounted' ie: they **must be submerged** in the liquid they are pumping. The only exception are 'A' series Homa brand pumps that are fitted with a cooling jacket, designation "U".

SUMP

- Should be large enough to prevent starting more than 10 to 15 times per hour.
- For sewage, have sloping sides at the bottom to within 50 mm of the pump base, with at least a 30 degree slope to allow all solids to be pumped, and not be of an excessive size that allows the waste to stand for more than 12 hours.
- Ensure float switch cannot tangle with anything in the sump, or foul on the sides.
- Provide a lifting chain or nylon rope - **do not lift by power cable.**
- Ensure pump is stable and cannot fall over

DISCHARGE LINE

- For sewage do not use delivery pipe with its internal diameter less than the Pumps' discharge / outlet size.
- For sewage and solids laden liquids use only a ball type full flow non return valve. This should be installed in a vertical section of the pipe as close to the pump as possible. See wallace pumps price list valves types 50, 208P, 508 and 408.
- Provide an easily disconnected mac-union pipe coupling at the top of the sump to facilitate pump removal.
- Provide an isolating valve after the non return valve. Ensure it has a through bore of the same size as the pumps' standard discharge size. Isolating valves using bronze components are not recommended for use with sewage.

- Flexible pipe in the sump is preferable (because it will not break like PVC due to pump starting torque) High Density PVC is useable provided a section of flexible pipe is included between the pump and the H.D PVC Pipe.
- The pipe material may be PVC, alkathene or other similar material provided it has a pressure capacity 1.5 times the max pump pressure and is no smaller internal diameter than the pump discharge size.

POWER SUPPLY, CONTROL BOX AND CABLE

- The power supply should be rated to suit the pump.
- Where supplied, the control box must be mounted in a clean, dry, **non-floodable position**.
- A junction box between the pump and control box will facilitate easy disconnection for future pump removal and servicing. This should also be mounted in a clean, dry, **non floodable position**
- Cables should be run through conduit and be protected from chafing.

Note:

- Use a draw cord for installation and removal of the cable joints should be submersible. Cable jointing kits are available from Wallace Pumps - Part #J80047 and these or equivalent must be used.
- An overload (fuse / curcuit breaker etc) must be installed to suit the full load current of the pump, the trip value must not exceed 250% of the pump's full load current.

LEVEL CONTROL

Set float switch to achieve the following:-

- Start:- After pump has been fully submerged.
- Stop:- Well before the pump starts to 'VORTEX' and suck air, approximately 100 to 150mm above the discharge connection.
- Ensure the float switch has free movement throughout its swing. check it cannot tangle with any obstruction including the cable, discharge pipe, high level alarm or the side of the sump.
- The alarm should be set to activate approximately 100 mm above the pump start level rather than near the top of the sump to give plenty of storage and warning, enabling remedial action to be taken before the sump overflows.

Homa Pumps with multiple float switches. One or two pumps

Float switch level settings

- | | |
|---------------------------------------|---|
| ➤ Lowest | Set to <u>stop</u> pumps when liquid is half way down the pump |
| ➤ Second from bottom | Set to <u>start pump one / duty pump</u> when pumps are fully submerged |
| ➤ Third from bottom (two pumps) start | Set to <u>start pump two / stand-by pump</u> 150 mm above pump one |
| ➤ Highest | Set to <u>activate alarm</u> 150 mm above pump two start |

SERVICING

- We suggest that every year the pump be removed from the sump and any fouling, build up to be removed from the impeller and casing.
- The general condition of the pump should be noted. Excessive rust is an indication of approaching failure.

Larger commercial Homa Submersible Pumps should be fully serviced every 2 years. A full service should include:

- Change oil in motor and seal chamber.
 - using shell tellus C22 transformer oil.
 - fill motor to top of rotor.
 - fill seal chamber ninety per cent full.
- Check condition of mechanical seal, replace if condition is suspect. this is indicated by face wear. Seal chamber oil level being low, missing or 'milky'.
- Check condition of shaft especially around the area where the lip seal seats.
- Check condition of bearings, replace if unserviceable.
- Reassemble with new o-rings.

If you are unsure about any of our recommendations please contact your nearest wallace pumps branch and speak to one of our sales engineers.