

These instructions are intended as a guide only. If in any doubt over pump suitability, installation or electrical connection, please contact Totton Pumps before proceeding.

DESCRIPTION

The NEMP range of pumps is designed to suit a wide variety of chemical transfer and recirculation duties pumping mild acid or alkali (photographic & printing chemicals), sterilisation equipment, hygienic applications & many more.

These motor driven centrifugal pumps have wetted components in plastic & are magnetically coupled. Materials in contact with the pumped fluid are as follows:

Polypropylene (PP) & Polyphenylene Sulphide (PPS) plastic parts, graphite filled PTFE and alumina ceramic bearings, EPDM or Viton O-rings. Optionally available are Polyvinylidene Fluoride (PVDF) plastic parts and Rulon bearings.

Correctly installed and commissioned in a suitable application the pumps should give several years of maintenance free life. However, unsuitable installation or application can cause premature failure. The following is designed to provide information to aid you in optimising the pump to the installation, for queries or additional advice contact Totton Pumps.

PUMPED FLUID

The standard pump is suitable for fluids with a specific gravity up to 1.2SG, viscosity up to 30 centipoise and a temperature -20°C to 85°C. Special variants can be supplied to suit fluid to 1.8SG and higher viscosities or temperature. The pump housing materials (PP/PPS standard, optional PVDF) and O-ring (EPDM standard, optional Viton) must be compatible with the chemical being pumped. A chemical compatibility chart is available on request from Totton Pumps.

Pumping solids in suspension can cause clogging and premature wear of the bearings in the pump. A small percentage of solids may be handled if not abrasive and pump is regularly cleaned.

INSTALLATION

When designing the pump installation the following must be considered:

ELECTRICAL SUPPLY AND MOTOR ENCLOSURE: 400v 3ph 50hz or 230v 1ph 50hz with IP55 enclosure are available as standard. Special voltages and motor specifications are available to order.

ELECTRICAL CONNECTION: ENSURE THE POWER SUPPLY IS SWITCHED OFF BEFORE CONNECTION. Fitting of an RCD to pump is recommended. Follow appropriate regulations on connection to mains. The pump is suitable for permanent hard-wiring only. The hard-wired supply should have a means of disconnection with a contact separation of a least 3mm on all poles. The supply cord should be routed & restrained such that it cannot come into contact with any part of the pump or interconnecting pipe-work. **WARNING: THIS APPLIANCE MUST BE EARTHED**

PUMP CONNECTION: Connect pump to pipe-work etc., using appropriate fittings. Avoid over-tightening fittings since damage to threads or ports may occur. The pump and pipe-work should be adequately supported and correctly fitted to avoid shock loading and strain on the pump & its ports. Do not mount pump vertically with motor above pump. Any additional information required i.e. installation drawings etc. will be packed in the box with the pump. Adequate clearance should be provided between the pump & surrounding parts of the installation to ensure free flow of air over the motor. Inadequate ventilation can cause the motor to overheat.

SUCTION: Centrifugal pumps do not self-prime; therefore the pump must be provided with a flooded suction. To avoid cavitation, air ingress etc., these pumps should have a minimum suction head at the pump inlet when the pump is operating at its normal duty point. Therefore filters or restrictions should not be fitted before the pump inlet.

Pump Model	Minimum Suction Head
NEMP60/6 and NEMP100/6	400mm
NEMP120/8 and NEMP160/9	600mm
NEMP200/12	800mm
NEMP300/20 and NEMP500/20	1000mm
NEMP800/30	1500mm

The foregoing assumes a pumped fluid of 30°C with vapour pressure similar to water. Extremes of temperature or vapour pressure will require higher suction heads.

MAXIMUM SYSTEM PRESSURE

Pump Model	Maximum System Pressure
NEMP60/6 and NEMP100/6	1.0 Bar
NEMP120/8 and NEMP160/9	1.7 Bar
NEMP200/12	2.0 Bar
NEMP300/20 and NEMP500/20	3.0 Bar
NEMP800/30	3.0 Bar

GENERAL SYSTEM NOTES

- Care should be taken with system design to avoid pressure transients i.e. avoid fast closing valves and long uninterrupted pipe runs.
- Pumps should not run at flows below 10% of their maximum flow rate or at closed valve.
- Avoid sealed pipe systems as the system pressure can increase with temperature.
- Ensure pipe-work to pump is well supported.
- Ensure there are no leaks or blockages in the pipe-work.
- Minimise air ingress to fluid. Ensure air cores do not form in suction tanks i.e. fit baffles etc adjacent to the suction pipe. Ensure tank return pipes are submerged i.e. return fluid does not splash in tank entraining air.
- Mount the pump either horizontally or vertically with the pump inlet upwards. **Do not** mount with pump inlet below horizontal.
- It is imperative that the inlet to the pump is unrestricted to prevent the possibility of damage due to cavitation. This can be caused by small diameter pipe-work, filters, changes in section, elbows bends, diaphragm valves and partially closed valves etc.
- Running the pump at very high flow rates is more likely to cause cavitation. This can be identified by a crackling noise from the pump. Cavitation can cause damage to the pump and should be avoided.
- Allowing the pump to run with the magnetic coupling slipping may cause the coupling to be weakened.

COMMISSIONING & MAINTENANCE

The pump is designed to run in an anti-clockwise direction looking at the pump inlet. This can be viewed by looking at the motor cooling fan. If direction of rotation is incorrect swap two of the phase connections (3 phase motors only). **Disconnect electrical supply before swapping connections.**
 When priming, operate the pump in 10 second bursts to facilitate clearing of air. Do not operate pump against closed valve for longer than 30 seconds.
 Where pumped fluid causes deposition periodic cleaning of the pump internals may be necessary. This can be achieved by flushing through with an appropriate cleaning agent (stripping the pump down will void the warranty).

START UP AND SHUT DOWN PROCEDURE

To Start the Pump:

- Ensure the level of liquid above the pump inlet is not less than the minimum to ensure a suction head as stated above.
- If the pump has not been run before, briefly run the motor and check the rotation (should be clockwise looking on fan end).
- If it cannot be guaranteed that the pump is full of liquid, open all the valves on the inlet and outlet pipe-work of the pump.
- Allow time for the liquid to flood into the pump.
- Close the outlet valve from the pump.
- Switch on pump.
- Gradually open outlet valve from the pump.
- Check reading on pressure gauge on pump outlet.

Do not run the pump dry
 Do not run the pump with the inlet valve closed or partially closed
 Do not run the pump for long periods with the outlet valve closed
 Do not allow air to be drawn into the inlet of the pump

To Stop the Pump

- Gradually close the outlet valve.
 - Switch off the pump.
- If required close the inlet valve(s).

COSHH SAFETY NOTE

PVDF plastic in normal use is safe and non-toxic. However if it is exposed to extreme heat (>660C), say in a fire then the plastic will decompose releasing of Hydrogen Fluoride and Fluorophosgene. These products are very dangerous by inhalation or contact with the skin. Therefore in the event of fire fighting, self-contained breathing equipment and protective clothing must be worn.

SPARES & REPAIRS

Spares and repairs are available from Totton Pumps or an approved Distributor.

Address for returned goods:

Totton Pumps
Rushington Business Park,
Southampton
SO40 9AH

Phone: +44 (0) 2380 666685

Fax: +44 (0) 2380 666880

Email: info@totton-pumps.com

Internet: www.totton-pumps.co.uk

WARRANTY

This pump is guaranteed for 12 months from date of manufacture. In the event of failure, return the pump **intact** for inspection & rectification. Incorrect use or tampering with the pump will render warranty void.

PUMP INSTALLATION DETAILS

Pump Model	Height mm	Width mm	Length mm	Weight kg	Port Details	Max Flow L/min	Max Head metres	Watts In	Watts Out
NEMP60/6	155	110	270	4	Plain 21mm or 1/2"BSPPM	60	6	140	90
NEMP100/6	155	110	270	4	Plain 26mm or 3/4"BSPPM	100	6	140	190
NEMP 120/8	165	120	340	5.6	1.1/4"BSPPM in 3/4"BSPPM out	120	8	400	250
NEMP 160/9	165	120	340	5.6	1.1/4"BSPPM in 3/4"BSPPM out	160	9	400	250
NEMP 200/12	180	136	410	9.2	1.1/2"BSPPM in 1"BSPPM out	200	12	825	550
NEMP 300/20	240	174	520	22	2"BSPPM in 1.1/4"BSPPM out	300	22	1900	1500
NEMP 500/20	240	174	550	25	2"BSPPM in 1.1/4"BSPPM out	520	22	2800	2200
NEMP800/30	268	224	615	43	75mm Flange in 63mm Flange out BS10/BS4504/AS A150	800	37	-	4000