

INSTALLATION, OPERATION & MAINTENANCE
INSTRUCTIONS FOR



END SUCTION BACK PULL OUT PUMPS



WARNINGS

The following warning should be read and understood before installing the pumpset.

WARNING

- **OPERATION MAY CAUSE INJURY**
- **TAKE ALL NECESSARY PRECAUTIONS**
- **WEAR PROTECTIVE EQUIPMENT**
- **REFER TO ENGINEERING DEPARTMENT**

- **CHECK ROTATION BEFORE INSTALLATION**
REVERSE ROTATION VOIDS WARRANTY

ALIGNMENT

- This unit was accurately aligned before despatch
- Check alignment before commissioning pumpset to prevent damage to the coupling and bearings
- Misalignment can occur in transit or when bolted down
- No responsibility will be accepted for damaged caused by faulty alignment

DO NOT RUN PUMP DRY

- Ensure all pipework is completely self supporting and not imposing any forces whatever on the pump and casing

LOCATION

Select a site as near as possible to the source of the liquid to be pumped, involving the smallest suction lift and the shortest length of suction pipe. Reference should be made to the pump performance pump curve to determine the maximum permissible suction lift of the pump.

FOUNDATION

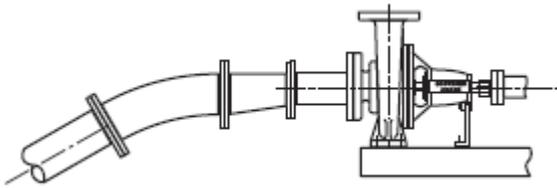
Set the pump unit base plate on a firm foundation. The foundations should be sufficiently substantial to support the pump unit (eg. concrete), depending upon whether the pump is electric or diesel engine driven.

INSTALLATION

NOTE: All pipe work should be correctly aligned with the pump and firmly supported so that no external loads are imposed on the pump body. The pump shaft must be free to turn after the pump has been bolted in position and pipe work connected.

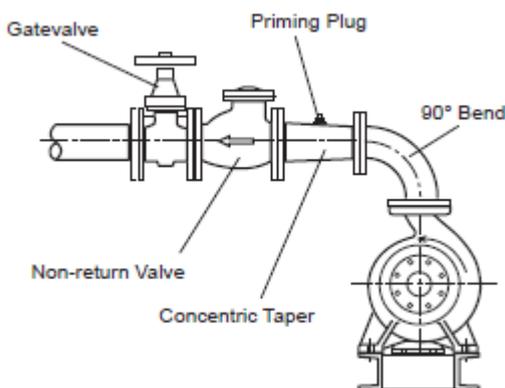
SUCTION PIPING

Suction piping must be free from air leaks. Suction piping should be the same size or larger than that of the pump flange. Tapered eccentric reducers should be used. A straight length of pipe should be fitted to the pump inlet. Suction piping should have a continual fall from pump to the liquid source. Avoid sharp turns, by using long radius bends and not elbows. Ensure that the end of the suction line is sufficiently below the low level of the liquid to prevent the formation of whirlpools, and the consequent entry of air into the suction pipe. Where there is a suction lift, a good type of footvalve, with a water opening of at least equal to that of the pipe, is essential.



DISCHARGE PIPING

Discharge piping should be selected of a size suitable to carry the required capacity, such that the friction head created is not excessive. To avoid the formation of air pockets in the discharge piping (ie. at the high points), vent cocks must be placed to expel any accumulation of air which may affect the discharge capacity of the pump.



DIRECT COUPLED PUMPS

Flexible couplings should be fitted and aligned in accordance with the coupling manufacturers instructions. Failure to align the coupling may result in early bearing failure. Coupling alignment should be checked after the pump unit has been bolted to the foundations.

BELT DRIVEN UNITS

A bearing housing bracket must be fitted when the pump is belt driven.

STARTING

NOTE: Do not run the pump dry as the shaft seal will be severely damaged.

1. Ensure the discharge gate valve is closed. Do not run the pump for very long with the discharge valve closed.
2. Prime the pump. The pump casing and suction line must be filled with the liquid to be pumped, either by direct filling or evacuation of air (diaphragm pump). The pump shaft should be turned slowly to expel air trapped in the impeller. It should not be necessary to re-prime the pump before subsequent starts if the footvalve has remained sealed.
3. Ensure the drive shaft rotation conforms to the direction arrow on the pump.
4. The unit may now be started. When the pump reaches full speed, open the gatevalve on the discharge pipe gradually until the desired quantity of liquid is being delivered. If no liquid is being delivered, shut down the unit immediately.
5. Check for exceptional noise or operating temperature and check pump mechanical seal for leaks.

TROUBLES AND THEIR CAUSES

FAILURE TO DELIVER WATER / OPERATING BELOW RATED CAPACITY

1. Long suction and short delivery. A minimum discharge head of approximately 1.5m will help to eliminate this trouble.
2. Obstruction in suction/discharge line:
 - a. Valve closed.
 - b. Suction strainer clogged.
 - c. Suction footvalve stuck in closed position or partially closed.
 - d. Footvalve too small.
 - f. Suction and/or discharge pipes of insufficient diameter causing excessive friction loss.
3. Slight air leaks in suction piping or joints or a badly worn or damaged shaft seal.
4. Pump not properly primed.
5. Speed too low.
6. Discharge head beyond pump's rating. Check both suction and discharge heads with gauges.
7. Excessive suction lift.
8. Incorrect direction of rotation.
9. Impeller partially or fully clogged.
10. Air or gases in liquid handled.

HOT BEARINGS

1. Incorrectly aligned coupling.
2. Belt drive too tight or out of line.
3. Unsupported pipes straining the pump.

NOTE: A temperature uncomfortably hot to the hand is not necessarily injurious to the pump - however any sudden rise in temperature should be investigated.

POWER CONSUMPTION TOO HIGH

1. Total head is lower than estimated causing too much water to be pumped. Throttle capacity by means of gate valve on delivery side or turndown impeller.
2. Pump speed too high.
3. Density of liquid greater than water.
4. Bent shaft.
5. Foreign body jammed in pump.
6. Misalignment.

EXCESSIVE VIBRATION

1. Misalignment.
2. Foundation not sufficiently rigid.
3. Impeller partially clogged, causing imbalance.
4. Worn bearings.
5. Unbalanced coupling or pulley.

EXCESSIVE INTERNAL WEAR OF PUMP

1. Cavitation from air gases in liquid.
2. Abrasion caused by solid particles.
3. Corrosive action of liquid pumped.

NOISY OPERATION

1. Foreign body jammed in impeller or body.
2. Impeller binding in body.
3. Worn or faulty bearings.
4. Pump not properly primed.
5. Cavitation noise.

DISMANTLING PROCEDURE

NOTE: If spacer type coupling has been fitted between the pump and driver, the pump casing can remain bolted to the suction and discharge pipes.

1. Remove the backplate to casing bolts. Jacking screw holes are provided in the backplate, to facilitate removal of the bearing housing shaft element.



2. Unscrew the impeller nut about two turns and drive a pair of wooden or metal wedges gently between the impeller and backplate, being careful not to distort the impeller. Give the impeller nut a sharp blow, using a hammer and piece of hardwood, to spring the impeller from the taper. Remove the impeller nut and sealing washer and lift off impeller. Lift out impeller key and slide the moving section of the mechanical seal from the shaft.

3. Remove the bearing housing to backplate bolts and remove the backplate.

NOTE: Some pumps do not have separate bearing housing to backplate bolts and these would have been removed in step (1).

4. Remove stationary face of mechanical seal by tapping out gently with a piece of wood.
5. Remove the bearing cover to bearing housing bolts. By tapping on the end of the shaft with a piece of wood the shaft, bearing assembly and bearing cover can be removed.

Inset spare parts picture

RE-ASSEMBLY PROCEDURE

Re-assemble the pump by reversing the dismantling procedure, paying particular attention to the following:

1. Ensure gasket surfaces are clean.
2. Mechanical seal: It is advisable to fit a new mechanical seal whenever the seal in the pump has been dismantled during an overhaul. If a used seal is refitted, leakage from the seal may occur. When fitting the mechanical seal, the following points should be observed:-

NOTE: The mechanical seal seat and carbon rotating face must be handled with care, ensuring the rubbing faces are kept clean and free from scratches, otherwise they are unfit for use.

- a) Fit 'O'-ring to groove in mechanical seal seat and oil outside of 'O'-ring and recess in backplate. Push seat completely into recess, using a soft, clean cloth. After fitting backplate to bearing housing, check to see if seal seat is seated in recess.
- b) Smear a small quantity of waterproof grease on to the shaft where the moving section of the seal operates.
- c) Place the running face (carbon) on to the shaft.
- d) Oil 'O'-ring and push into position in the mechanical seal, using the mechanical seal washer and spring.
- e) Fit spring cap.
- f) Fit impeller key and impeller to shaft.

WARRANTY

REMKO END SUCTION BACK PULL OUT PUMPS

1. Remko Pumps are covered by warranty for a period not exceeding twelve months from dispatch from our warehouse.
2. Remko will make good by repair, or at its option the replacement of faulty parts under warranty, providing always that:
 - a) The equipment was correctly installed and properly used in accordance with Remko installations and operating instructions and accepted codes of good engineering practice.
 - b) The claim for goods under warranty arises solely from faulty design, material or workmanship.
 - c) The repair is carried out in the Remko service department or by an authorised agent or distributor appointed by Remko. Authorised repair agents must obtain written approval from Remko before completing repair under warranty.
 - d) Authorised agents will be refunded with the amount equivalent to a similar repair in the Remko service department.
 - e) All freight costs to and from the service department or repair agent to be paid by the purchaser.
3. In the case of equipment or components which are not manufactured by the Remko factory, but supplied by them, the warranty is limited to that extended by the supplier or manufactures of such equipment.
4. Remko warranty does not cover any of the following:
 - a) Claims for third party liability or damage caused by failure of any of the company's products.
 - b) Damage caused by abnormal operating conditions, war, violence, storm, cataclysm or any other force.
 - c) Damaged caused by the equipment being used for an application or which it is not recommended.
 - d) Damage caused by sand or abrasive materials, corrosion due to acid waters, electrolytic action, liquid temperature beyond the recommended range, cavitations, improper supply voltage or insufficient liquid to enable the pump to perform to specification.
5. The decision of Remko in relation to any claims or disputes over warranty is final.
6. This warranty is in lieu of all other warranties and conditions expressed or implied, written or oral, statutory to the extent allowable by law or otherwise, which are hereby negated and excluded.
7. The express warranty does not exclude any conditions of warranty implied by the Trade Practices Act 19754 or separate State laws and in addition to any other right, which the original purchaser or subsequent purchaser may have at law.



End Suction Back Pull Out Pumps

Distributed By:

ALLFLO PUMPS & EQUIPMENT

4 McHarry Place

Shepparton, Victoria, 3630