



Introduction

This pump has been designed to meet BS EN 13951:2012. Liquid pumps - Safety requirements - Agrifoodstuffs equipment; Design rules to ensure hygiene in use. This sheet should be kept with the instruction manual. **Please retain it safely for future reference.**

Application

The pump, when used in accordance with the instruction manual, will not cause contamination of the pumped product. Note however: due to the influence of the product, the process and the cleaning regime adopted, it is only the end-user that can ultimately ensure hygienic conditions during operation.

Cleanability level

The cleanability level is stated in the data sheet and has been selected taking into account the risks arising from the pumped product, the placement of the pump in the process and the cleaning regime anticipated.

Cleanability level

Level	BS EN 13951 clauses	Soils visibility to the naked eye	Level of micro-organisms
1	5.2.1, 5.3.8 & 5.5	Soils visible	Not defined
2	All	Soils visible	Not defined
3	All	No soils visible	Not defined
4	All	No soils visible	Defined level

The customer has selected the most appropriate inlet / outlet connections having considered the hazards which may arise from their selection, installation and operation. Retention of product may be due to misalignment, physical change from thermal or chemical effects, incorrect installation (over or under tightening, omission of parts), or gaps and cavities inherent in the design. Hazards can arise from forces and moments from the pipework, unscrewing or mechanical shocks.

There is a hygienic risk level which depends on the seal type fitted:

Product viscosity	Product bacteriologic risk	Hygienic risk with single mechanical seal	Hygienic risk with single mechanical seal + quench or tandem or double arrangement
Low viscous	No	Low	Low
Low viscous	Yes	Medium	Low
Viscous	No	Medium	Low
Viscous	Yes	High	Low

Installation

Self-draining

Where there is a requirement for the pump to be self-draining, either

- the outlet should be positioned so that it is horizontal at the lowest point of the pump, or
- the pump should be mounted vertically, with the inlet facing downwards, or
- the cover should be fitted with a self-draining valve mounted at the lowest point.

For 'AS' models options a) and b) are not possible as the cover must be mounted with the outlet vertical.

Where the pump is not self-draining, liquid will be retained in the pump cover. To drain, clean and disinfect this area, the cover should be removed.

ATTENTION

Note: before restarting the pump, ensure that

- the cover is flooded with liquid;
- for liquid ring pumps (CR), the pump must be primed with liquid before use;
- where fitted, the self-priming reservoir is filled with liquid before use.

Seal quench liquid



Where the mechanical seal has been fitted with a quench, it is possible that the inner seal will fail allowing the quench liquid to come into contact with the pumped fluid. Therefore there should be a system which informs the user if this occurs and the quench liquid should be non-toxic and compatible with the pumped fluid.

Operation

It has been assumed that the pump has been installed and operated correctly according to the instruction manual. Where replacement parts have been used they have been correctly specified, purchased from MDM PUMPS LTD, suitably stored and the pump correctly reassembled.

The pump has been designed for mechanical cleaning (CIP - cleaned in place) and manual cleaning (COP - cleaned out of place).

The pump should be cleaned before first use.

Material compatibility



The fluids pumped and those used for cleaning must be compatible with the seals. Swelling or degradation of the seals could allow the fluid to escape. The data sheet shows the fluids that have been designed for.

Sterilisation



The method of sterilisation will be constrained by the seal materials used in the pump, as stated in the data sheet. Where steam sterilisation is used, the pump must be stationary.

Cavitation

The NPSH (Net Positive Suction Head) is stated in the data sheet. The NPSH available must be at least 1m greater than that required by the pump.



If there is insufficient NPSH, there will be cavitation in the cover and impeller leading to damage to the material surfaces. This in turn may reduce the cleanability of the pump, and the removed material (stainless steel 316L) will end up in the fluid pumped.

Abrasive liquids



If abrasive fluids are pumped (eg crystalline or fibrous foodstuffs), then there is a possibility of wear of the surfaces, possibly affecting the cleanability of the pump and leading to debris in the fluid pumped.

Mechanical seal failure / dry running



If the mechanical seal fails or is run dry, the seal will overheat, possibly leading to debris in the fluid pumped. With single seals, pumped fluid may be lost. With quenched seals, the quench liquid will come into contact with the pumped fluid.

Quick-release fasteners



The pump clamp ring and where fitted, the inlet, outlet and drain triclamp fittings, can be removed without the use of tools. Therefore care should be taken to ensure that they are correctly fitted, as there is a risk of contact with the pumped fluid and of the fluid being ejected.

Maintenance



The mechanical seal, static seals and motor bearings should be replaced at the recommended intervals. During maintenance and the replacement of parts, the integrity of material and the original level of hygiene and safety must be maintained. If there is any damage to the wetted surfaces, the cleanability of the pump may be affected.