

'AS' AIR SEPARATOR CENTRIFUGAL PUMPS

SCAVENGING IN A CIP (CLEANING IN PLACE) SYSTEM



'AS' Pump on free standing base



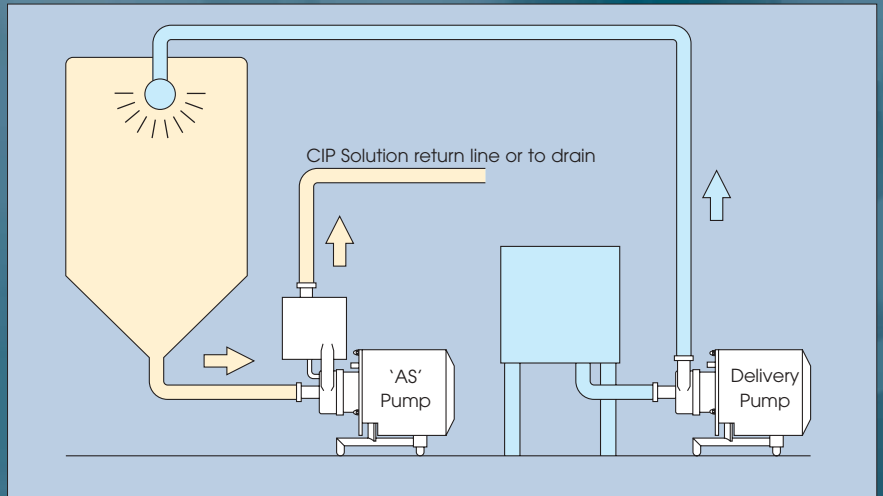
'AS' Pump standard

Flows up to 200m³/hr, pressures up to 15bar, powers up to 75kW, viscosities up to 200cP

The 'AS' range of stainless steel pumps is designed to:

- 1) Scavenge vessels and pipelines in a CIP (Cleaning In Place) system.
- 2) Unload liquids from road tankers.

The pumps are similar to the flooded suction centrifugal pumps, but are fitted with integral air separation chambers. They have all the advantages of centrifugal pumps, with the added capability of efficiently pumping mixtures of air and liquid.



The 'AS' pump is widely used in CIP systems to scavenge vessels and pipelines.

ADVANTAGES

Low cost and long life

A simple design, consisting of a rotating impeller driven directly by a motor. Pressure relief valves, non-return valves and gearboxes are not required.

Trouble free and low maintenance costs

There are no close running components and the only wearing part is the mechanical seal. Hence minimal servicing is needed, the performance does not deteriorate with use and soft solids will not damage the pump.

Fast and thorough

The 'AS' pump quickly starts pumping and empties the vessel or tanker, unlike a conventional flooded suction centrifugal pump which often air locks both when initially priming and as the liquid falls to the bottom of the vessel or tanker.

Hygienic and easy to clean

There are no dead areas in the pump where bacteria can lodge and multiply, and no wearing metal components.

BREWING

Beer tanker unloading
CIP

SOFT DRINKS

Tanker unloading
CIP

DAIRY

Milk tanker unloading
CIP

FOOD

Product unloading
CIP

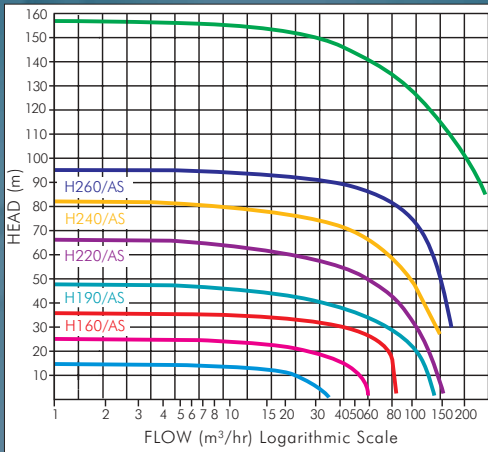
PHARMACEUTICALS

CIP

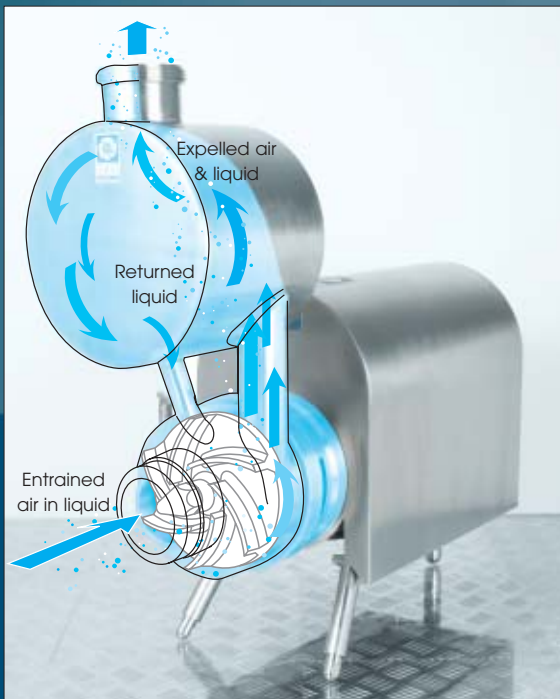
PRINCIPLES OF OPERATION

TANKER UNLOADING

INSTALLATION CONSIDERATIONS



To pump a mixture of air and liquid without air locking, the pump has an integral air separation chamber. This is connected to the impeller casing by two pipes. The liquid carrying entrained air flows up the discharge pipe into the chamber and is expelled through the outlet. To keep the pump primed, sufficient liquid is returned into the impeller casing by the recirculation pipe.



Principles of operation

ADVANTAGES

See the advantages described on the left plus:

Gentle to the product

Independent tests on milk demonstrate that the pump causes minimal shear and stress to the liquid, thereby ensuring a top quality product. "... the MDM pump has not caused an increase in Free Fatty Acids."

High pressures available

The pump can fill the tallest silos.

Minimal loss of liquid

The tanker is emptied minimising the loss of liquid when disconnecting the tanker hose.

Hygienic

The pump is cleanable in place, ensuring the product is microbiologically safe.

Cost effective

A separate air eliminating vessel is not required.

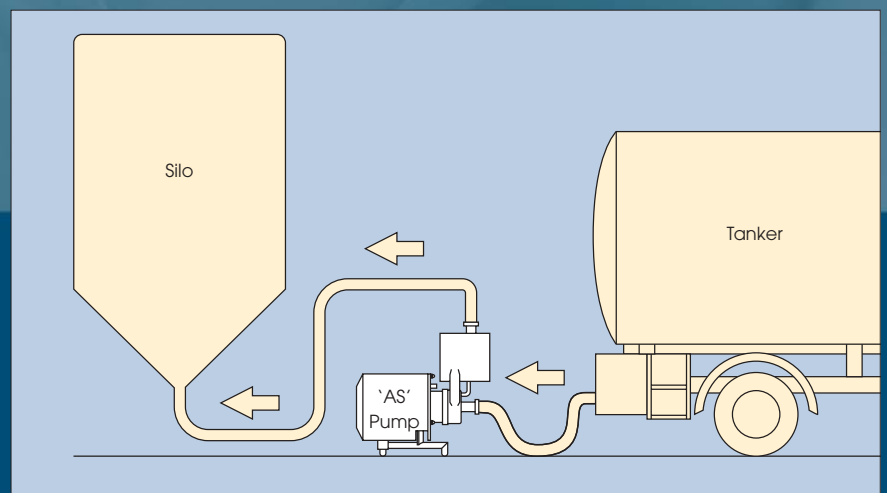
- The pump should be installed with the air separator mounted vertically.
- The suction line should be as short as possible.
- The level of the liquid must be above the centre line of the pump inlet.
- A non-return valve should NOT be fitted in the outlet pipeline as it prevents air from escaping and the pump from priming. Where one is fitted the pipeline should be vented with a vent valve. Alternatively the return valve could be replaced with an automatic valve set to open when the pump starts.

For CIP scavenging applications:

- For the best cleaning of vessels, the scavenge pump should pump a little faster than the delivery pump. This ensures that the liquid level doesn't rise in the tank.

For tanker unloading:

- To avoid foaming and damage to the liquid, the pump should only be run whilst unloading.
- Experience has shown that flow velocities through the suction pipe should be limited to about 2.5m/s to avoid deterioration of the liquid.



The 'AS' pump has proved to be ideally suited as a tanker unloading pump, and is used extensively in creameries and breweries.