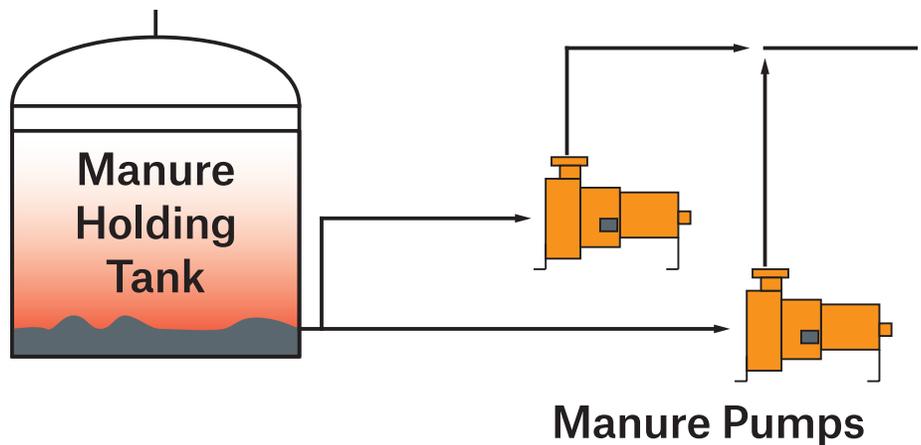


## Agitators and manure pumps

HSB, a Munich Re company, is a technology-driven company built on a foundation of specialty insurance, engineering, and technology, all working together to drive innovation in a modern world.

### Equipment description

Agitators and manure pumps are used for the blending and transfer of mixed-content batches. Many transfer pumps use a simple propeller, paddle, or screw to move fluids of varying consistencies. When high-capacity fluid transfer is needed, centrifugal manure pumps are used. Most systems are mobile. They are mounted on wheels, trailers, or attached to a tractor. Some units are powered by an electric motor or internal combustion engine but most are powered by the tractor power-take-off shaft. Agitators and manure pumps are designed to be operated while stationary.



## Maintenance tips

- Agitators, manure pumps, and other gross volume systems usually operate under extremely dirty, abrasive, and corrosive conditions. Periodic cleaning and inspection of the equipment will help to extend the equipment life.
- Operating and maintenance manuals are readily available from the manufacturer. These manuals are usually provided with all new equipment. Keep all existing manuals in a safe place for future reference. If any older equipment manuals have been lost, contact the manufacturer to acquire new reference manuals.
- Systems are frequently operated under shock-loading conditions. This results from foreign objects getting caught in the moving parts. It is very important to understand and follow the assembly, operation and maintenance guidelines provided by the original equipment manufacturer.

## Failure/loss prevention tips

- Most major mechanical failures are the result of severe or repeated shock-loading due to foreign objects getting caught in rotating parts. Special care should be taken to follow all OEM recommendations to avoid jamming and shock-loading.
- Pump intake screens should be checked prior to each use. This will verify the screen integrity and make sure the screen is not plugged with debris.
- Another major cause of failure is damage to drive motors due to locked-rotor conditions or shock loading of the agitator or pump. The same precautions apply as to prevention of mechanical failure.
- Failures attributed to metal erosion and corrosion can be mitigated by cleaning the agitator and pump after each use and storing them in a dry location.

## Energy savings/conservation tips

- Follow the OEM recommendations to avoid jamming and shock-loading this equipment which results in higher energy demand on the driven equipment and less effective and efficient operation.
- When selecting a manure pump, choose the highest efficiency system for the expected operating range. A small operating efficiency improvement can save significant energy over the life of the pump.

## Safety tips

- Almost all equipment with moving parts presents possible pinch points, and other hazards. Care must be taken to prevent potentially severe injury to fingers, hands, and other body parts from moving parts.
- Use of equipment as described by the OEM in the owner's documents and safety pamphlets is the best way of assuring safe operation. Never approach or reach into or near equipment while the equipment is in operation.
- Always disconnect the unit from the power supply before performing any maintenance activity.
- Always disconnect power before attempting to locate and remove jammed items.
- Explosive gas, such as methane from decomposing materials, can accumulate near agitating or pumping operations. Make sure the area is well-vented and that no smoking, open flames, or sparks are in the vicinity that could cause gas ignition.