

## Why lubrication is important in Extended Shaft (Vertical Submerged) Pumps?

In long shaft vertical pumps, overhang rotating assembly needs support in addition to dry bearings. The support is given by the bush-sleeve arrangement (which is also known as wet bearings). In order to minimize wear due to friction, lubrication between bush-sleeve is required all the time during running of the pumps.

### What are the ways to lubricate bush-sleeve?

#### 1) Flushing with Internal Piping :

1. Conventional method for clear liquids, with flushing pipes from delivery pipe.
2. Not suitable for liquids with solids, as solids can choke the flushing pipes.
3. Every bush-sleeve joint requires flushing pipe.
4. Number of flushing pipe joints requires good sealing.



#### 2) Flushing by External Piping :

1. External pipes for liquids containing solids or where chances of clogging are there.
2. Requires external liquid compatible with liquid being pumped, when mixed.
3. Requires external liquid pressure higher than pump pressure.
4. In absence of external flushing liquid, bush-sleeve wears out causing further damages to pump.

#### 3) Grease Lubrication :

1. Suitable for clogging liquids
2. Requires perfect sealing for the grease.
3. Requires regular topping up of the grease with grease pump.
4. Any leakage of grease or absence of grease can lead to bush-sleeve wear and damage to the pump.

#### 4) Internal self lubrication and flushing :

1. No need for external lubrication connections
2. Allows for ease of lubrication for the wet bearings
3. Eliminates need for external lubrication
4. Can handle fine soft solids without any trouble
5. Minimizes energy losses in lubrication process

