

Application Note to the Field

Lubrication of Bearings

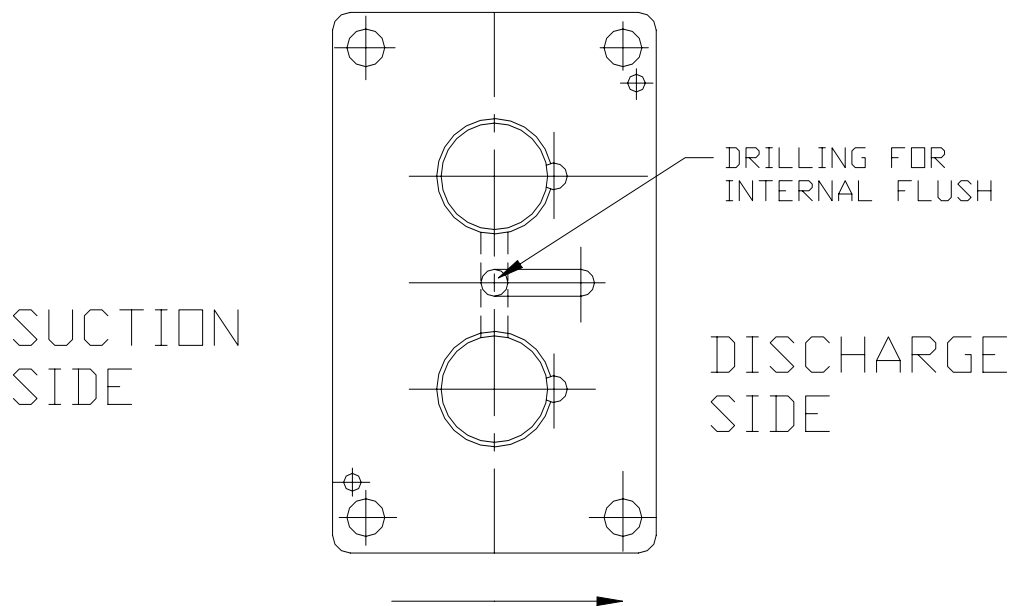
Application Note Number: 0006-1

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Our sleeve bearings are lubricated by the process fluid. The bearing imparts some heat to the fluid. It rises and exits towards the top and is replaced by cooler fluid at the bottom. The circulation through the containment can works in a similar manner.

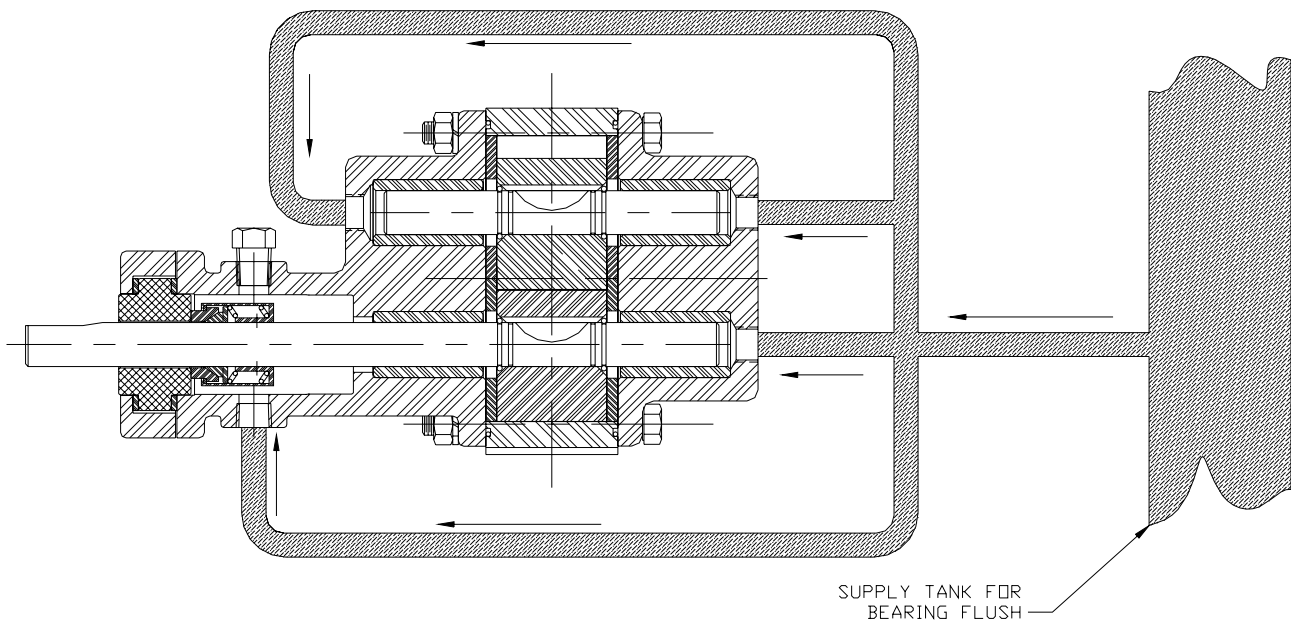
In most cases the above is fine, but for others it can be advantageous to have a positive flow across them. We can accomplish this in one of two ways:

- **Internal Bearing Flush:** This is where the front and rear housings are specially machined (see diagram below) to establish a pressure differential across the bearings and containment can (in the case of a mag-drive pump). This is done by exposing them to the high pressure side of the pump. Each bearing and the containment can is then seeing a differential across it of about half that across the pump. There is no additional piping required to utilize this feature.



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- **External Bearing Flush:** This can be done when “bearing flush plugs” are ordered with a pump (flush plugs are standard for the larger models, H12/312 and 314). Tubing can then be routed from the discharge pipe to the tapped plug holes (see diagram below). This has about the same effect as the internal bearing flush, with an important distinction: It can be removed, and can even be controlled with the use of small valves. There is, however, more potential for leakage and more piping is required.



A bearing flush can be used to provide better lubrication and heat dissipation at lower viscosities, or to allow the bearings and containment can to flood more quickly at higher viscosities.

It is important to note that you are using some of your flow to achieve this internal lubrication (adding to slip). For this reason, at lower viscosities and/or higher pressures, it is important to be sure that you are not slipping too high a portion of your total displacement. In the larger pumps this is seldom a problem, but in the smaller ones (primarily the H1/31/41 thru H5/35/45), it can be. This is because the internal flush passages pass basically the same amount of fluid across all the sizes (dependent upon differential pressure and viscosity) and so the percentage of flow gets larger the smaller the pump is.

The internal bearing flush can be especially helpful in the H12/312 or 314 if they are using the MCJ magnet set and running above about 700 RPM.

Please contact the factory for advice on whether this feature should be used for specific applications. Required information to determine this is the following: flow rate or pump and operating speed, viscosity, temperature and differential pressure.