REVERSE ROTATION OF CENTRIFUGAL PUMPS

Most centrifugal pumps are driven by electric motors and since electric motors operate equally well in either direction, we suppose it is inevitable that some pumps will be run backwards.

What is really remarkable is that they often run backwards for years with no apparent problems. It has gotten to the point that direction of rotation is the first item we check on a pump trouble job. The extremely red face and sheepish expression of the engineer doing the complaining is almost worth the time and trouble.

Actually centrifugal pumps run pretty well backward! Their capacity suffers somewhat and their head generation is off, but they run smoothly. Since many pumps are oversized for both head and capacity anyway, the process generally does not suffer.

Before you get the idea that you can run our pumps in any old direction, let us point out that this is definitely contrary to company policy. Besides, we build some pumps so that reverse rotation will do great things for our parts business.

For instance, in chemical process pumps handling corrosive liquids, the impellers are usually screwed to the shaft. Reverse rotation causes the impeller to back into the suction piece and jam the pump. Some manufacturers of double suction pumps screw the shaft sleeves to the shaft in such a way that correct rotation tends to tighten them. Reverse rotation here again is great for the repair parts business.

Never bump the motor starter with the coupling connected. After all, the chances are 50/50 that the rotation is wrong and usually twenty-five or thirty revolutions will unscrew the sleeves or impeller enough to help the parts business.

Most pump manufacturers have standardized the following definitions of rotation:

1) A right hand pump turns clockwise when viewed from the driver end.
2) A left hand pump turns counterclockwise when viewed from the driver end.

Furthermore, impellers rotate so that the convex side is leading. They rotate in such a direction as to push liquid toward the discharge flange on a double suction pump.

Just to confuse the discussion a little more, you should realize that there are two ways to “reverse rotation.” One is to run the motor on an end suction pump backwards; the other is to reverse the impellers in a double suction pump and run it in the correct direction as far as the casing is concerned. In both cases the pumps will be less efficient, lower in capacity and head but the first case - that is, running the impeller backwards with respect to the casing will be the far worst departure from normal operations of the pump.

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