



The Pump Detective

By Doug Kriebel

The case of the under capacity pump.

We were called because a customer had just installed a new pump. They started up and ran fine. Pump was smooth and no vibration. However, when they started running production, they noticed they were not getting enough feed to the production unit.

Using a level gauge and stop watch they determined the flow was too low, meaning the feed tank was not emptying quickly enough.

They took the pump apart and could not find anything wrong. They took the suction and discharge pipe apart and could not find any obstructions.

They called us to look at the installation.

This was a two hour drive to the job site.

We arrived to meet a very upset customer. We had asked and he told us that they measured the impeller diameter and it was correct.

Since no pressure gages were installed we asked to have at least a discharge gage be installed. The suction was atmospheric so we could determine suction pressure by the liquid heard.

When the pump started up, the pressure reached a point which would indicate proper flow through the pump. However, checking the flow rate by level (volume) and a stop watch it was almost half the flow indicated on the performance curve.

I asked, almost in jest, "Did you check rotation of the pump?"

The long silence was answer enough.

We "bumped" the pump and sure enough the pump was running in reverse rotation.

When wiring a three phase motor, it is real easy to get the leads reversed and this will cause the motor/pump to run in the reverse rotation. Fortunately, the impeller was keyed to the shaft and no damage occurred.

Lessons learned: It is always important to check the motor/pump rotation on start up. And always ask if they checked rotation before spending a four hour round trip to a site.