FLEXIBLE IMPELLER PUMPS

General Information

These notes apply to virtually all flexible impeller wine pumps irrespective of manufacturer.

Please read our additonal publications concerning

- **Pumps with Pulley, Hydraulic, or Mechanical Speed Variators.**
- **3-Phase Power Wiring Information.**

BACKGROUND

- Note that a flexible impeller pump in its simplest form consists only of an impeller mounted on a shaft inside a pump housing. The impeller simply rotates to move the juice or must through the pump housing.
- The pump is typically powered by an electric motor.
- Pumps with variable speed have an additional feature of either a pulley or transmission.
- Pumps that are an integral part of a crusher/destemmer are powered through the pulley system of the crusher/destemmer and cannot be used independently.

SELF-PRIMING

- A pump is 'primed' when the suction line is filled with liquid. Self-Priming is the ability of a pump (on startup) to suck liquid into the suction line and prime itself. If a pump is not self-priming, you need to fill the entire suction line with liquid before starting the pump.
- Virtually all wine and must pumps with flexible impellers are self-priming. You do not need to fill the suction line.

HOWEVER, PUT LIQUID IN THE PUMP HEAD BEFORE STARTING THE PUMP.

- The reason for this is not to prime the pump, but to provide lubrication for the rubber impeller. The rubber impeller wears out due to friction between it and the pump housing. The liquid provides lubrication and cooling for the impeller and thus extends its life.

NEVER RUN A FLEXIBLE IMPELLER PUMP DRY.

- This shuts off the cooling and lubrication to the impeller. For this reason, always place a shutoff valve on the outlet side of the pump, not on the inlet side.
- If you shut off the pump flow with a valve on the outlet side, open the bypass. The pump will run easier and the impeller stays cooler.

BYPASS

- A bypass is simply a tube connecting the outlet of a pump with the inlet (other than the obvious path directly through the pump head). The purpose of a bypass is to reduce the outlet pressure (and flow rate), typically 25-30% pressure reduction with the bypass open.
- Never open the bypass when pumping must. The reason is that the bypass is a small diameter tube and you risk clogging it.
- Bypass should always be closed when starting the pump.
- If you use a valve on the outlet side of the pump to shut off the flow, open the bypass.

PUMPING SPEED

- Typical pump flow rates are for water which is very similar for juice or wine. Pump rates for must will be less, typically 30-40% less.

ROUTINE MAINTENANCE

- Always flush the pump with clean water after each use. Be sure to open and close the bypass several times to clean it as well.
- End of season maintenance: If the pump will not be used for a few months, then it is best to do the following maintenance. Remove the housing cover and the impeller and the steel plate behind the impeller. Clean all parts and then reassemble. Coat the impeller with a small amount of petroleum jelly or food grade grease—a tablespoon is sufficient. Also, put a thin coat of petroleum jelly on the cover oring or gasket. Tighten bolts in a 'round robin' fashion (alternate between the bolts, tightening incrementally). TIGHTEN LESS THAN POSSIBLE TO AVOID STRIPPING THE BOLT HOLES.

PUMP DOES NOT START (IT HUMS)

- You will often find that a centrifugal pump will hum and not start. Simply switch to the opposite direction, start the pump momentarily, then switch back to the other direction.

CE Electrical System

- Many of the pumps have a "CE" electrical system. The CE features are not essential but protect against electrical power surges, provide emergency shutoff (red kill button), and put the controls in a more convenient position on the cart handle.

- **DO NOT RUN PUMP DRY**.
- YOU MUST FILL PUMP HEAD 1/2 FULL WITH WATER OR WINE BEFORE STARTING PUMP. [REMOVE EITHER INLET OR OUTLET HOSE TO FILL]
- BYPASS **CLOSED** BEFORE STARTING [CLOSED = LEVER PERPENDICULAR TO FLOW]
- BYPASS ALWAYS CLOSED WHEN PUMPING MUST
- IF PUMPING DOESN'T START WITHIN 10 SECONDS, TURN OFF PUMP AND CHECK FOR AIR LEAK AT CONNECTION
- IF MOTOR HAS DIFFICULTY STARTING (HUMS), CHANGE PUMPING DIRECTION MOMENTARILY THEN BACK AGAIN

Here's a a technique to fill the pump with liquid without disconnecting a hose. *It works on any pump that has a bypass and the level of the wine you are pumping from is higher than the pump.* Simply open the bypass on the pump, open the valve on the tank you are emptying, and be sure the OUT hose is open as well. Wine will drain from the tank and fill the pump. Then simply close the bypass and start the pump.