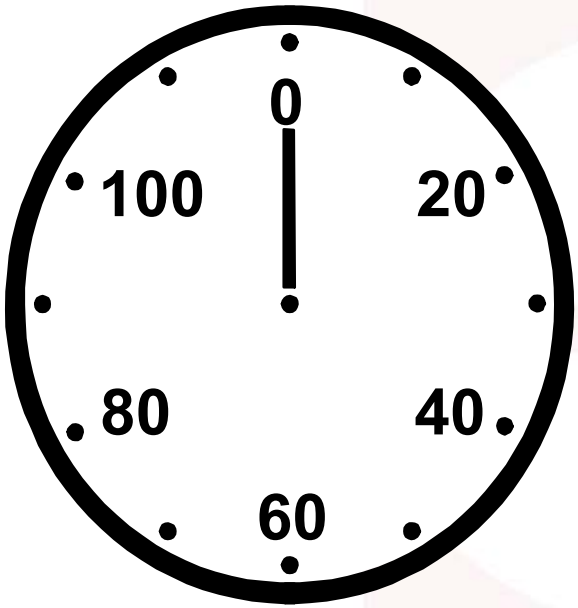
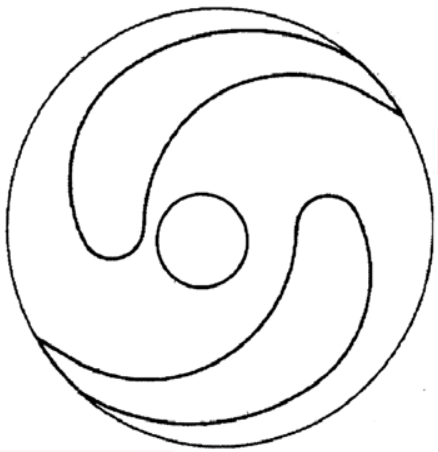
GAUGE PRESSURE



0 psig

= 14.7 psia

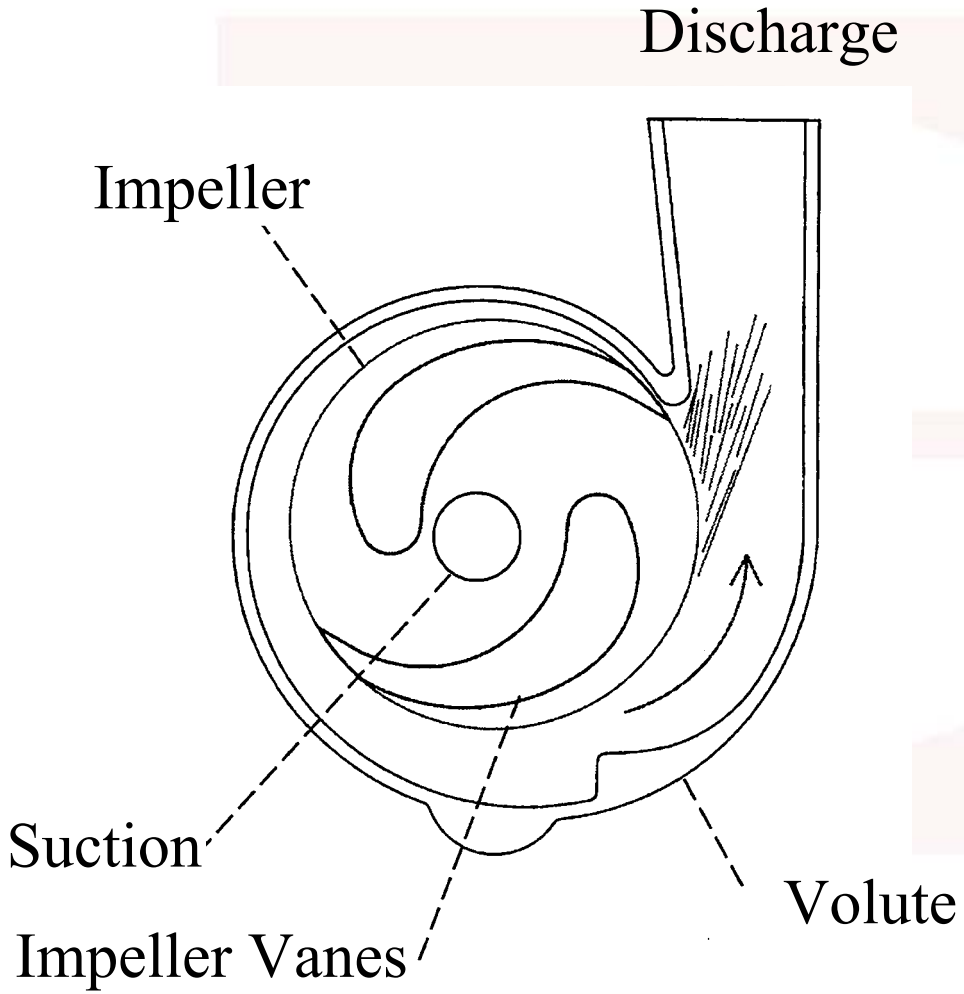
Centrifugal Pump Impeller



Which way should the impeller rotate?

CW or CCW?

Impeller and Volute



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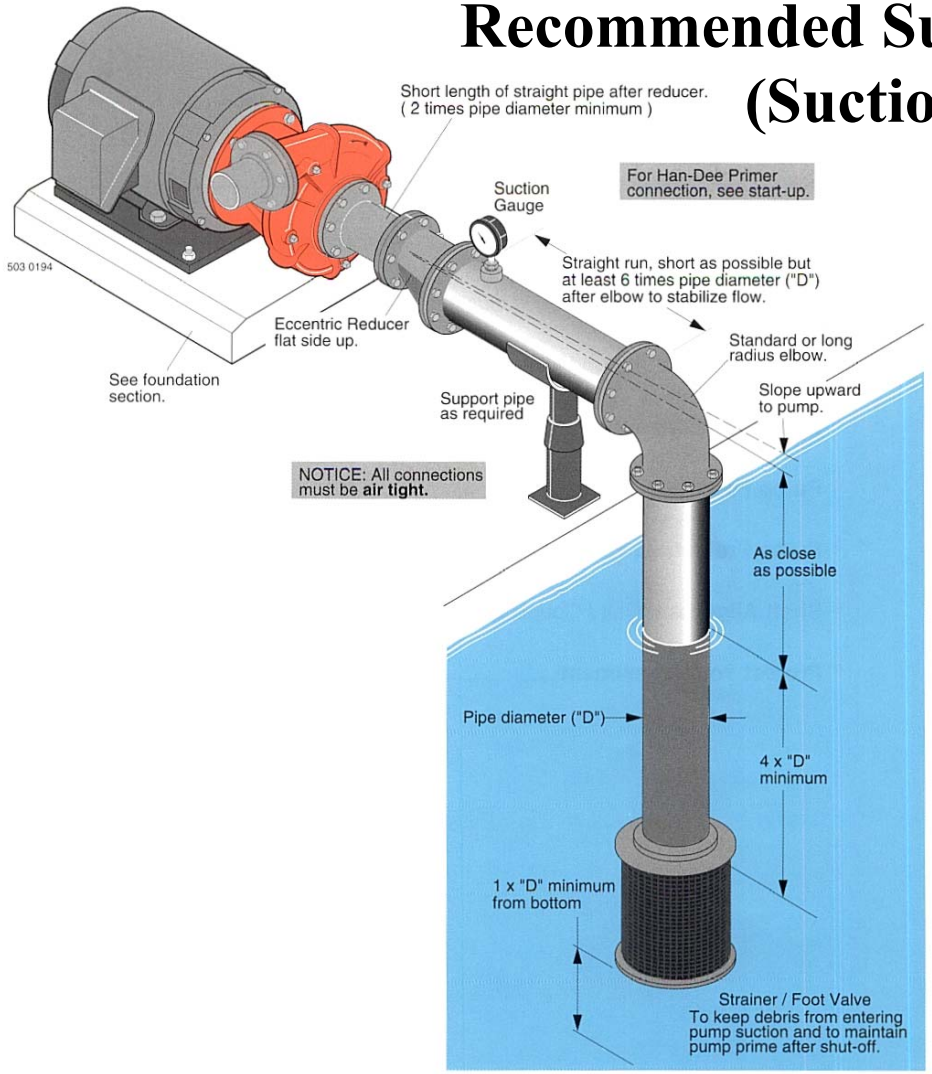
Recommended Suction Connections (Suction Lift)



- Use pipe, tubing, or reinforced hose to make suction connection. Hose must have sufficient strength to resist collapse under the atmospheric pressure differential that occurs while pump is running.
- Piping run and connection fittings should be properly aligned and independently supported to reduce strain on pump case.
- Suction pipe size should be at least one commercial pipe size larger than opening of pump inlet. Flow velocity should not exceed 8 ft./sec.
- Suction screen must screen out solids that could clog pump impeller.
- Suction screen area must be at least four times suction pipe area.
- Net Positive Suction Head Available (NPSHA) must exceed Net Positive Suction Head Required (NPSHR) by the pump or reduced performance and severe pump damage may result.
- All suction piping must have a continuous rise to the pump suction inlet. A 1/4 inch per foot minimum slope is recommended.

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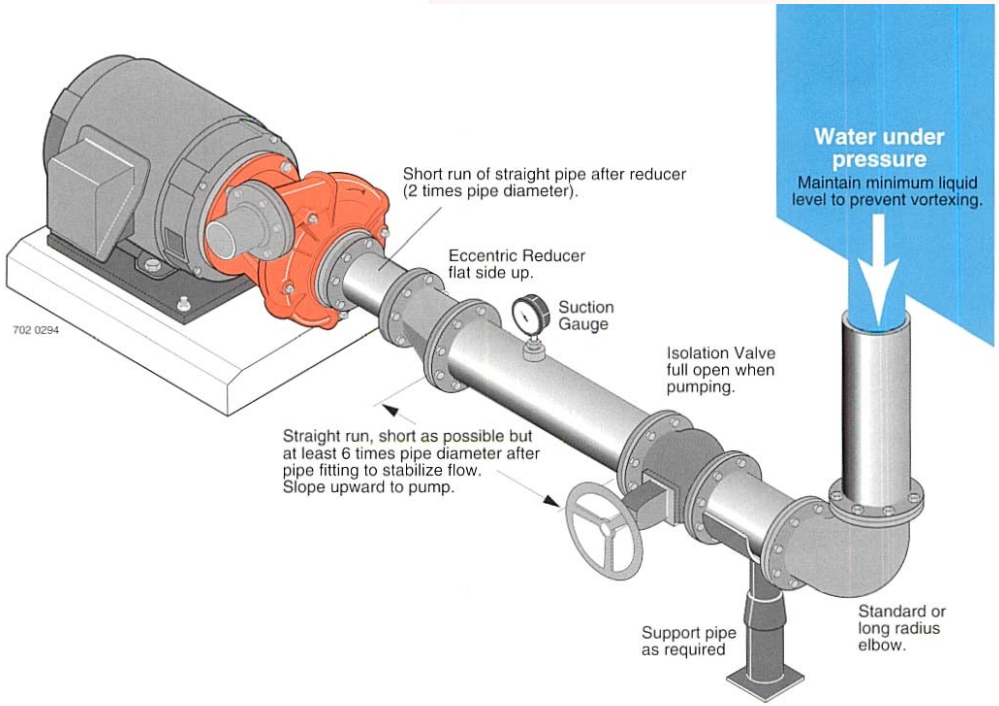
Recommended Suction Connections (Flooded Suction)



- Use pipe, tubing, or reinforced hose to make suction connection. Hose must have sufficient strength to resist collapse under the atmospheric pressure differential that may occur while pump is running.
- It is important, even with a flooded suction condition, that proper pipe fittings are used so water is delivered to impeller eye with a smooth flow and constant velocity.
- Suction pipe size should be at least one commercial pipe size larger than opening of pump inlet. Flow velocity should not exceed 8 ft./sec.
- An isolation valve is used in a pressurized suction pipe to permit servicing pump.
- Piping run and connection fittings should be properly aligned and independently supported to reduce strain on pump case.
- If solids are present, a strainer should be used to protect the pump.

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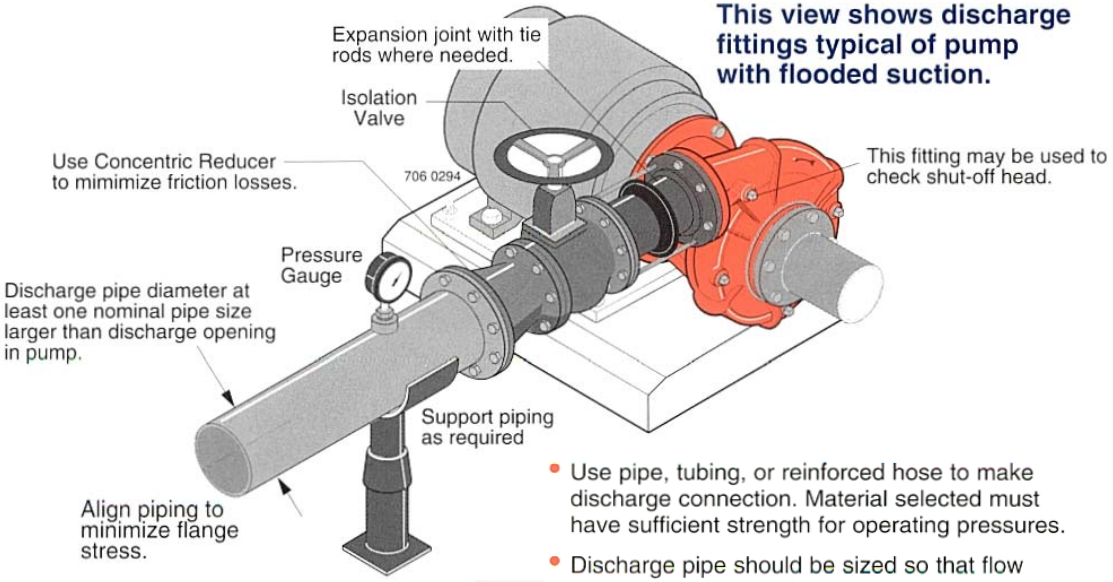
Recommended Discharge Connections

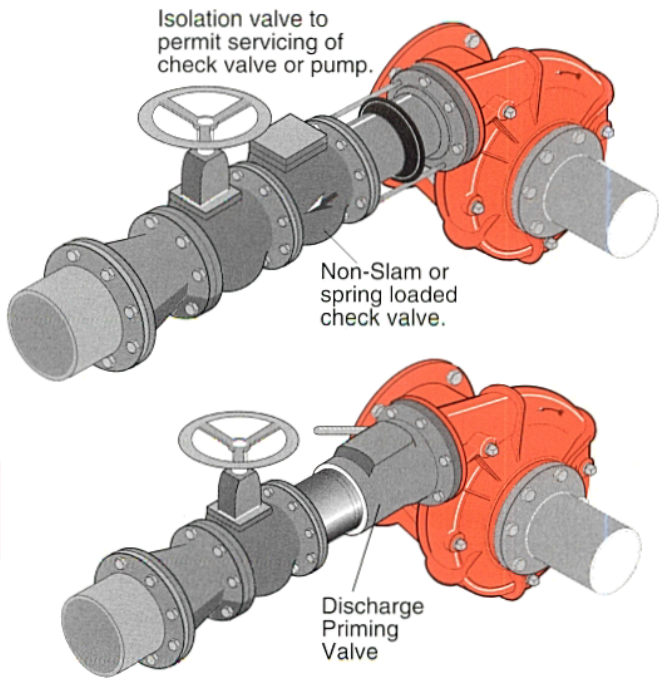


This view shows discharge fittings typical of pump with flooded suction.

This fitting may be used to check shut-off head.

- Use pipe, tubing, or reinforced hose to make discharge connection. Material selected must have sufficient strength for operating pressures.
- Discharge pipe should be sized so that flow velocity is below 8 ft./sec.
- Use only non-slamming check valves to prevent hydraulic shock (water hammer).
- Use gate, ball, or butterfly valve for isolation. Valve should be full open during operation.
- Maintain proper pipe size throughout discharge system, using as few elbows and tees as possible to keep friction loss to a minimum.
- Install pressure gauge after reducer as shown to check operating pressure.

These two views show discharge fittings typical of pump with suction lift.



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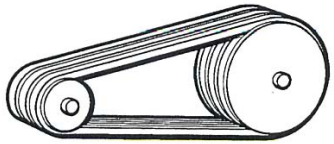
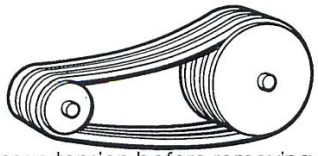
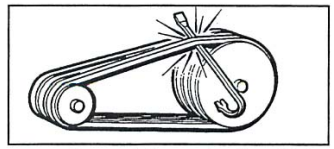
V-Belt Drives



Use a matched set of V-belts.

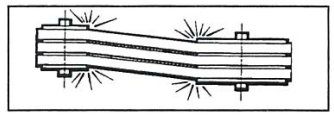


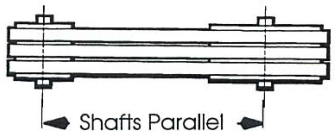
Loosen tension before removing or installing belts



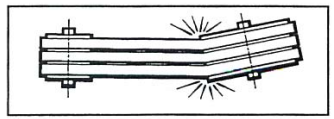
Do not force belts off sheaves.

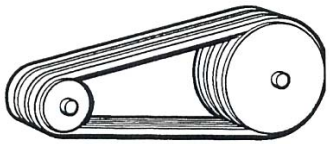
Align sheave grooves like this ..... Not this!



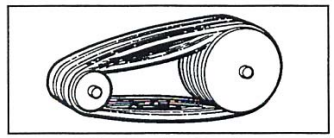


Align shafts like this like this ..... Not this!





Tighten the take-up until the belts are Snug. Run drive at full speed and adjust take-up until only slight bow appears in back side of belts. Vertical drives must be operated tighter than others.



If the belts slip, they are too loose or overloaded. Never use belt dressings.

Don't Forget!
Install Belt Guard
Before Operating

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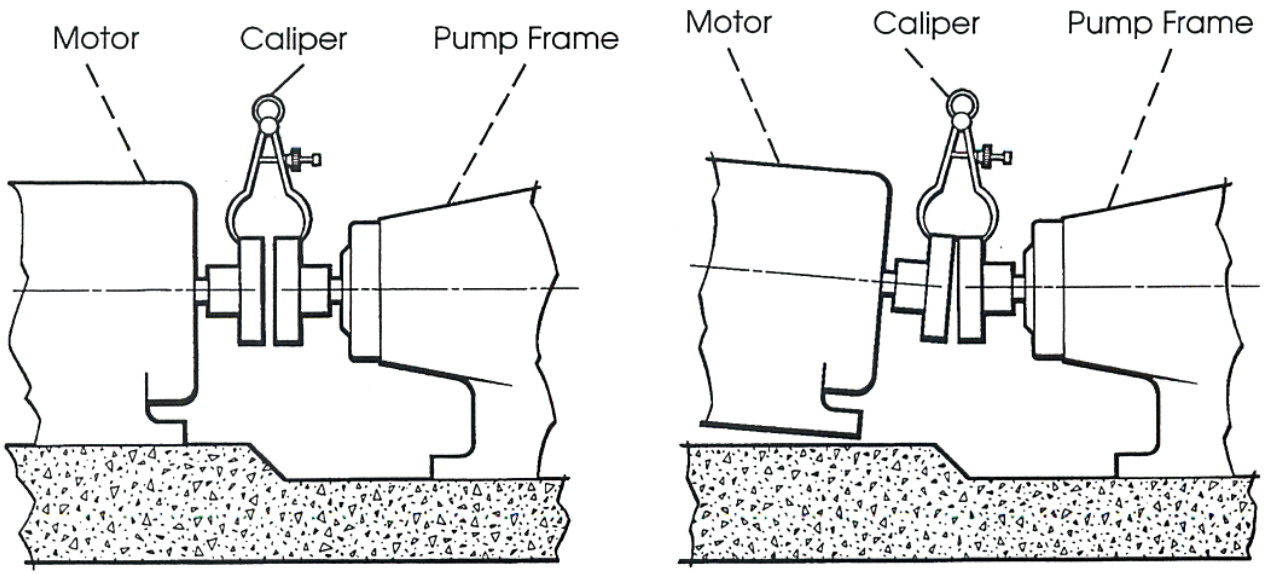
Drive Coupling Alignment

Check angular alignment with a caliper or micrometer. Measure from the outside of one flange to the outside of the other (Do Not rotate coupling).



CORRECT ALIGNMENT

INCORRECT ALIGNMENT

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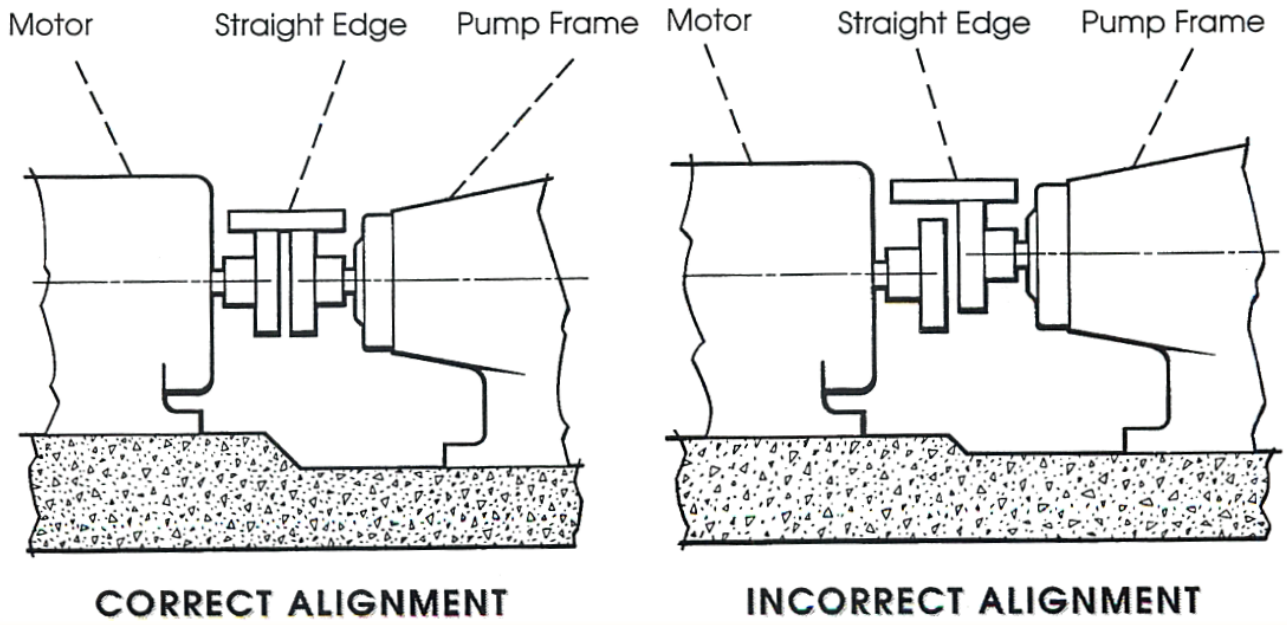
Drive Coupling Alignment

Check parallel alignment by placing a straight edge across two the coupling flanges and measuring the maximum offset around the periphery (Do Not rotate the coupling).



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Start-up Checklist

- ☐ Read and be familiar with the pump Installation, Operation and Maintenance Manual. Check to see that all aspects of these instructions have been complied with.
- ☐ Pipe connections must be securely fastened and air tight. All piping must be clean and free of debris.
- ☐ Is pump and all piping properly supported and are all supports securely fastened?
- ☐ Are required screens in place?
- ☐ Are all valves in the system in the proper open or close position for start-up?
- ☐ Confirm power source voltage matches the motor nameplate.
- ☐ Verify that belt or coupling alignment is properly adjusted if applicable, and that all safety guards are in place.