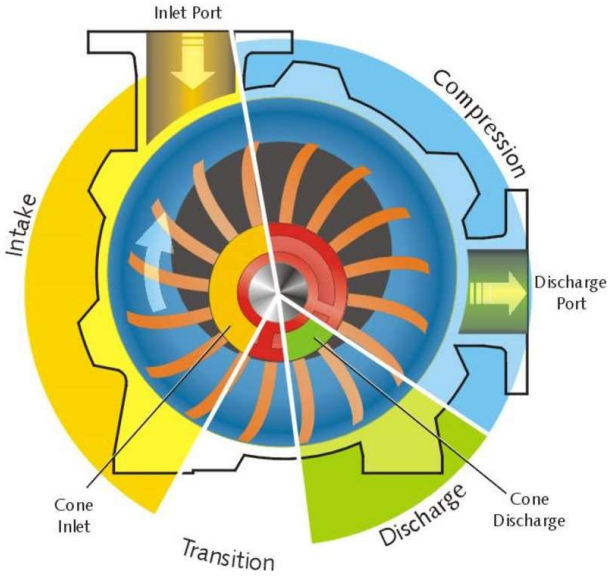
August 2019

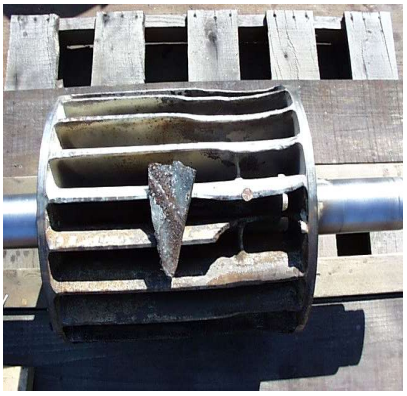
It's been over 6 months since I took the plunge and jumped from over a decade in operations into the world of technical sales. The amount of learning on this new career path has been exciting and eye-opening. I am humbled and encouraged by the feedbacks I have received since I began sharing bite-sized vacuum knowledge I've learned in these "Learning Vacuum with the New Guy" emails. Please continue with the feedbacks, positive or negative. Or let me know if you don't want to receive these emails anymore, no skin off my back.

While we are on the topic of learning, I have to say I was impressed by Nash's effort to train its sales reps in existing and new product lines. We've been having monthly training webinars on various aspects of liquid ring vacuum pumps, and we recently had an action packed 2-day training session at Nash Service Center in Moody, AL, on Runtech products' whole new philosophy on paper manufacturing and DRY-PRO dry screw vacuum pumps.

During this training session, something caught my eye: flooding the pump. Rather, do NOT flood the pump. Although a Nash liquid ring vacuum pump uses a liquid, like water, to create piston's pumping action, too much water would force the pump to compress an incompressible liquid and causing catastrophic failure. This below graph shows the various functional zones inside the pump. As you can see, a correct amount of liquid is needed to seal off each "bucket" (the cell created by two rotor blades) at the boundary of intake and compression zones, but not too much that it overwhelms the discharge cone at the bottom of the discharge zone. Not enough water, insufficient vacuum and heat removal; too much water, overstressing the rotor.



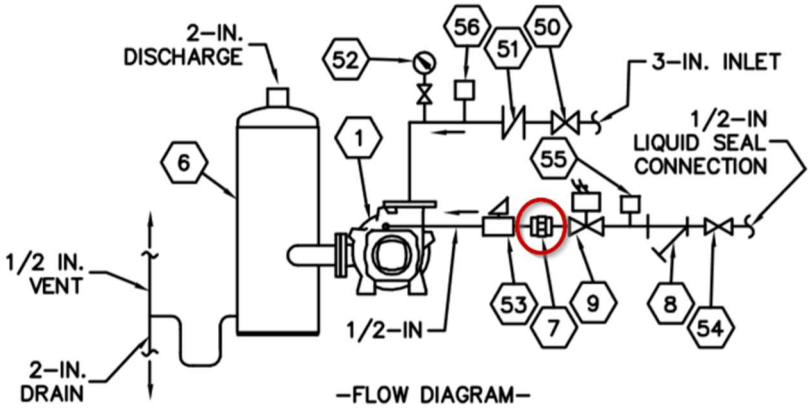
Here are some pictures of what can happen to an overstressed rotor due to flooding the pump:



Cones can also become victims of flooded pumps:

How to prevent this?

1. Use a flow control valve on the seal liquid connection line. This is often shipped with a new pump, and is set to the specific GPM required by the pump at its operating vacuum depth. Below is a typical flow diagram of an once-through XL 35/45 pump pacakge, with its flow control valve cirlced in red. If you are not sure of the GPM requirement for your pump, shoot us a note, we can look that up for you.



2. Avoid plumbing discharge piping vertically up from the pump. If discharge pipe is vertically above the pump, when the pump stops, the water in the vertical pipe will fall back into the pump, flooding it with excess water. The next time the pump starts, it will try to compress too much water, and it will make a loud screeching noise until it has pushed the excess water out.

Below is a picture of two Busch LRVP's setup at my friend's plant in California. He runs a small extrusion line, on and off a few times a week. The discharge piping is vertical from the pumps, without immediate separation. He hears that loud screeching noise every time he starts the pump, and he thought that was just the pump "wearing itself in"… Please, don't be like my friend here.

I hope are finding value in what I'm sharing. Take care and have a great rest of the week!