

VACUUM SYSTEM RELIABILITY AUDIT

RECOMMENDED AT LEAST EVERY SIX (6) MONTHS!

Vacuum systems on the wet end of paper machines are critical to good quality, maintaining production rates, and even ability to operate in case of a catastrophic pump failure. Reliability includes operator skill base, maintenance, and paper machine up time. A reliability audit of the entire vacuum system including vacuum boxes, showers, separators, pumps, and pump bearing conditions in terms of vibration, temperature, and condition of lubrication can eliminate the cause of most catastrophic pump failures, which is a bearing failure.

We can also provide a Vacuum Pump Feasibility Study where we measure the pump airflow at vacuum and calculate the pump efficiency and how much more life the pump has before a rebuild is needed.

VACUUM BOXES

- Examine condition of vacuum boxes.
- Verify vacuum level with calibrated gauge.
- Examine condition of strips or covers.
- Check conformity of vacuum line on wire or felt.
- Vacuum system sizing, compare to TAPPI?

INLET SEPARATOR

- Drop leg or unloader pump operating condition?
- How is the operation of a separator, is it overloading?

RECORD SPECS OF EACH VACUUM PUMP

- Model?
- Motor HP and RPM?
- Pump RPM?
- Airflow at vacuum, ACFM @ Inch Hg. Vac?
- Date installed?
- Date of last rebuild?
- Vacuum service, uhle box, suction roll, etc.?
- List any obvious problems, such as leaks, surging, or belt slippage?
- Calculate annual energy, water, and maintenance costs. Report life cycle cost, and total cost of ownership for X years.

RECORD TEMPERATURES OF EACH PUMP

- Inboard bearing, Outboard bearing, Housing

(Right) Vooner VG20 Vacuum Pump;
Drop-In Replacement for CL2000

All Vooner VG Model Vacuum Pumps have **Patented** Self Aligning Removable Bearing Carrier

Vooner V4 Vacuum Pump; Drop-In-Replacement for 904



RECORD VIBRATIONS OF EACH BEARING

- Outboard: Axial, Horizontal, Vertical
- Inboard: Horizontal, Vertical
- **Maximum 0.22 in/sec. Average Velocity**

SEAL WATER ANALYSIS

- Temperature?
- Fresh water or recycled? Lab report?
- Inlet spray nozzles used for condensing?
- Lines open or plugged?
- Are there orifice plates for fixed flow or a regulating valve for variable flow?
- What is mill line pressure?
- What is standard flow for this pump?

EXAMINE PUMP BEARING

LUBRICATION CONDITIONS

- Is bearing sufficiently lubricated?
- Is the bearing 1/2 full of grease?
- Is bearing over lubricated, as indicated by build up of grease around the bearing?
- Are bearing rubber lip seals intact or damaged?
- Are bearing isolators in good condition?



info@cvnvooner.com; telephone +1 (423) 638-2211; fax +1 (423) 638-8805