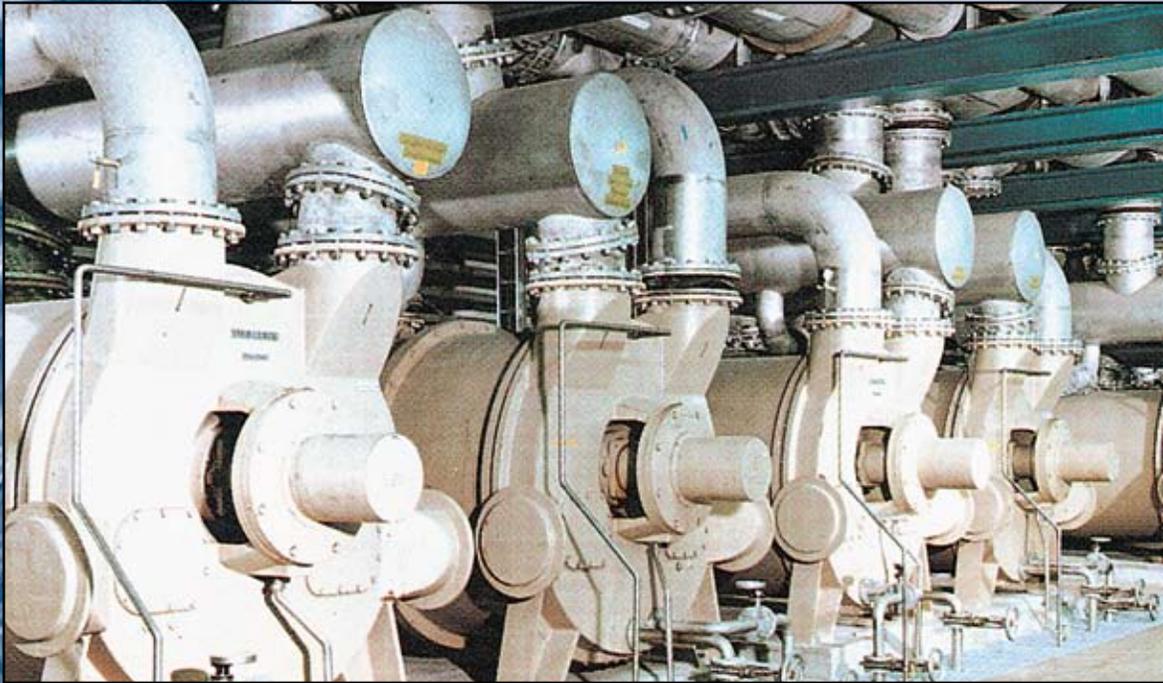


Manufactured Since 1942 by: Apex Engineering Products Corporation

**RYDLYME**<sup>®</sup>  
World's Leading Biodegradable Descaler

## Vacuum Pumps

*RYDLYME dissolves water scale, lime, mud and rust deposits safely, quickly and effectively!*



***The solution to your water scale problems!***



*Safe  
Chemical Solutions  
Since 1942*



# **RYDLYME Procedure for Cleaning Nash, SIHI, Somarakis and Vooner Liquid Ring Vacuum Pumps**

When water scale, lime, mud and rust accumulate on the water side of liquid ring compressors or vacuum pumps, this not only drastically reduces volume and efficiency, but also increases electrical consumption. This information is quantified by measuring the before & after draw of amperage in your drive motors multiplied by the cost per kw/hr at your facility. By performing regular **RYDLYME** cleanings, your vacuum pump will continue running efficiently and avoid potential costly shutdowns. But the benefits don't stop here; shutdowns caused by scale in vacuum pumps can result in, but are not limited to, under deposit corrosion, unbalanced rotors, reduced seal water supply and overworked drive motors!

In order to effectively and safely return operating efficiency to Nash, SIHI, Somarakis, Vooner and other liquid ring vacuum pumps, the following procedure should be followed:

1. Write down current or "before" amperage readings, cfm at vacuum capacity and the vacuum in inches of mercury.
2. Take unit out of service.
3. Insert "blank" in flanges of discharge piping (see figure 1) and tighten flange bolts.
4. Remove bottom drain plug and allow all water to drain from pump casing. Replace bottom plug.
5. Break seal water piping and attach **RYDLYME** pump discharge hose.
6. Remove top plug, attach return hose and place other end of return hose in **RYDLYME** receiver.
7. Add the prescribed quantity of **RYDLYME** to the receiver (see chart on back page) and start pump.
8. In some instances additional water may be required to maintain circulation. Add only enough water to maintain circulation.
9. Tighten pump seal packing to minimize leakage of **RYDLYME**.
10. After 15 minutes of **RYDLYME** circulation, turn pump rotor 90 degrees by pulling on the drive belts or jacking the starter switch.
11. Every 15 minutes thereafter, turn the pump rotor 90 degrees to assure a thorough cleaning of all interior parts of your pump, including hub, cones and rotor.
12. Continue the circulation of **RYDLYME** for the recommended time frame.
13. After the recommended circulation time, with intermittent turning of rotor, the pump should be clean and the rotor should turn freely.
14. Shut off your pump and add a water supply hose into the receiving bucket. Disconnect your return hose from the pump system and put it in a drain. Turn on the water supply and the circulation pump, begin flushing out the unit for 20 to 30 minutes or until the discharge runs clear.
15. Shut off circulation pump and disconnect all the **RYDLYME** hoses.
16. Reconnect the seal water piping.
17. Remove "blank" in flanges of the discharge piping and tighten flange bolts.
18. Return pump or compressor to service.
19. Adjust the seal water rate to manufacturer's recommendations.
20. After unit has stabilized, write down current or "after" amperage readings, cfm at vacuum capacity and vacuum in inches of mercury.
21. Compare "before" readings with the "after" readings. The difference between the "before" and "after" amperage readings multiplied by the cost per kw/hr at your facility, will help you determine the short payback time required to justify future **RYDLYME** cleanings. **RYDLYME** cleanings of your liquid ring vacuum pumps should be performed on a preventative or predictive maintenance schedule.

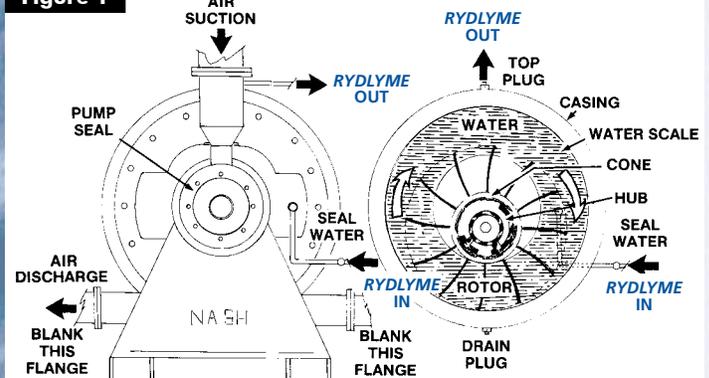
## **When a Seized Rotor is Encountered**

- A. Complete steps 1 through 7, then continue with steps B through E.
- B. It is best to introduce **RYDLYME** wherever possible. Start by removing both plugs from the top of the pump (if scale blocks the passage, take a screwdriver and poke it through). Then add 100% **RYDLYME** into the top ports as well as pumping some into the seal water passage. Once you have done this, please allow the **RYDLYME** to sit for 30 to 45 minutes. This will enable the product to start freeing up the pump. (Do not put the plugs back in until you start the circulation process). Be careful of foaming, as foaming could build pressure!
- C. After pumping **RYDLYME** for 10-15 minutes, turn rotor 180 degrees with wrench and pump another 15 minutes.
- D. **RYDLYME** will dissolve the water scale that causes the seizing and allow the remaining steps to be accomplished.
- E. Should the rotor remain seized after circulating **RYDLYME** for 10-15 minutes, disconnect the hose from the plug (discharge hose from pump) and attach this hose to the opening at the top of the casing. Circulate **RYDLYME** into this opening for 10 minutes while periodically testing to see if the rotor has freed. When rotor is free, proceed according to the instructions. Now continue with steps 8 through 22.

# **SAVE \$25,000!**

To calculate your approximate annual electrical savings, multiply the difference in the "before" and "after" amperage readings by 1000. For instance, if your amperage readings dropped by 25 amps, your approximate annual savings is \$25,000! Please contact our manufacturing facility for our detailed electrical conservation worksheet to ascertain your return on investment by using **RYDLYME**.

**Figure 1**

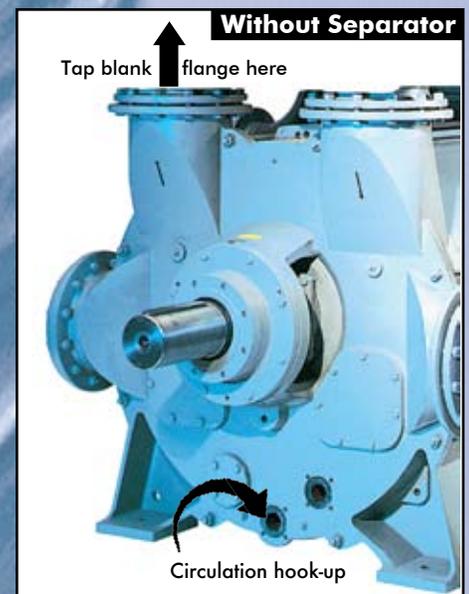
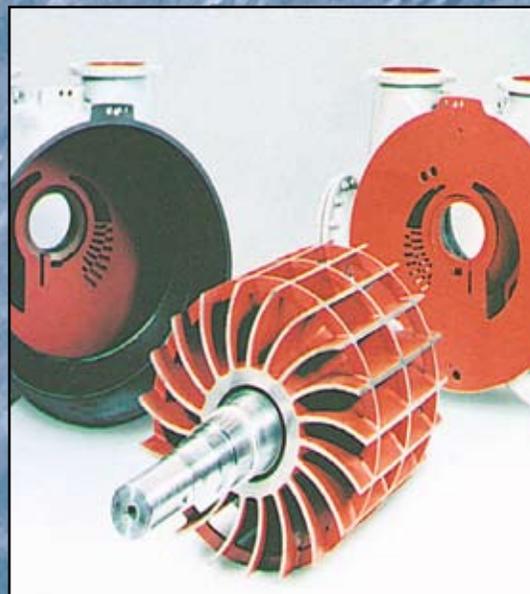
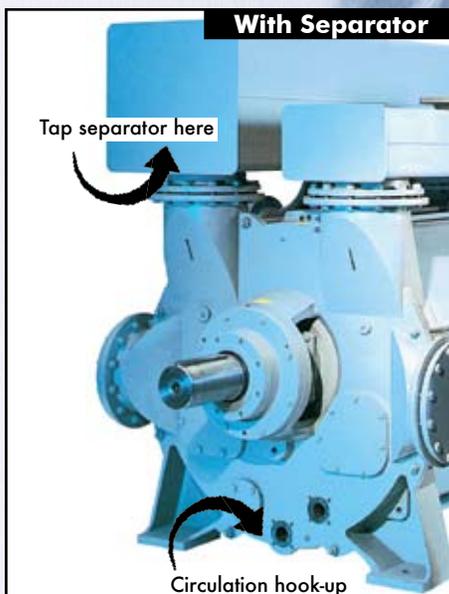


# RYDLYME Procedure for Cleaning Siemens Vacuum Pumps

In order to effectively and safely return operating efficiency to your Siemens vacuum pump, the following instructions should be followed. When cleaning Siemens vacuum pumps there are two methods we propose, please utilize one of these techniques. If your pump has a separator tank, we recommend you drill and tap the side wall of the separator tank three inches from the bottom (these taps should be no less than one inch). If your pump does not have the separator tank, you will need to drill and tap the top of the blank flange (see diagrams below). Either method will allow the vacuum pump to be completely flooded with the **RYDLYME** solution and provide a proper return point.

**Caution:** Do not utilize the seal water feed when cleaning a Siemens vacuum pump, Siemens has pressure sensitive packing that can be compromised if the feed rate is too high.

1. Write down current or "before" amperage readings, cfm at vacuum capacity, and the vacuum in inches of mercury.
2. Take the unit out of service.
3. Shut the water off to the unit.
4. Remove the "total drain plug" and allow the unit to completely drain.
5. Insert "blanks" on the flange manifold, separator flange, and both the top and / or side discharge flanges, then tighten bolts.
6. Take a screwdriver and poke it through any deposit that might be blocking or impeding the flow during the circulation on the "total drain port."
7. Hook up one circulation hose to the pump discharge and the other end to the total drain port.
8. Hook your second hose up to the 1" male fitting on either the separator tank or the blank flange (depending on your situation), and return it to the receiver bucket.
9. Add the prescribed quantity of **RYDLYME** to the receiver bucket (see chart on back page) and start pumping into the vacuum pump.
10. Once you have introduced the recommended amount of **RYDLYME**, you will want to use water as the make up to complete the circulation. Add only enough water to maintain circulation.
11. During the cleaning process, additional water may be needed to maintain circulation. It is common to keep the level inside of the receiving bucket 12 inches below the top.
12. After 30 minutes of **RYDLYME** circulation, it is best to start turning the rotor 90-degrees every 15 minutes by pulling on the drive belts or jacking the starter switch. This will assure a thorough cleaning of the hub and rotor.
13. Continue the **RYDLYME** circulation for the designated amount of time (see chart on back page). After the designated amount of circulation time, the pump should be clean and the rotor should turn freely. If not, the pump may have been more fouled than anticipated. In this case a longer circulation period, more **RYDLYME**, or both, may be needed to completely clean the unit.
14. Shut off the circulating pump and disconnect the hose from the receiving bucket and put it in a drain.
15. Now you are ready to flush the unit.
16. Put a water supply hose into the receiving bucket, turn the circulation pump on and flush out the unit for 20 to 30 minutes or until the discharge runs clear.
17. Disconnect all the **RYDLYME** hoses and the circulation pump.
18. Replace your "total drain plug."
19. Remove all of the blanks in the flanges and tighten up the flange bolts.
20. Open the seal water valves.
21. Return the pump to service.
22. Adjust the seal water rate to manufacturer's recommendations.
23. After the unit has stabilized, write down the current or "after" amperage readings, cfm at vacuum capacity, and vacuum in inches of mercury.
24. Compare the "before" and "after" readings. The difference between the "before" and "after" amperage readings multiplied by the cost per kW/hr at your facility, will help you determine the short payback time required to justify future **RYDLYME** cleanings.
25. **RYDLYME** cleanings of your liquid ring vacuum pumps should be performed on a preventative or predictive maintenance schedule. Please reference page two of this brochure to calculate your approximate electrical cost savings as a result of a **RYDLYME** cleaning.



## Recommended **RYDLYME** Quantities

Horse Power	NASH	SIEMENS	SIHI	SOMARAKIS	VOONER	Rydlyme Quantity	Circulation Time
10	CL-200, SC-3 & 4, L3, H4, MT/AT-124	2BE1/1202 & 1203	LPH40412, 40517, 45317, 50512, 50518, 50523 & LEM250	SV0808	LR-3, LP-3 & VG-3	10 gallons	1 hour
15	CL-300, SC-5, L4, H5 & AT-184	2BE1/1252	LPH55320, 60520, 65320, KEH360 & 460, LEH360 & 460	None	LR-7, LP-7 & VG-7	10 gallons	1 hour
25	CL-400, SC-6, SC-7, L5, H6 & K5	None	LPH60527, 65327 KEH560 & 760 LEH560	SV-1211 & HV-7	None	10 gallons	1 hour
30 to 45	CL-700, L6, L7, L8, H7, H8, K6, 8 & 9	2BE1/1252	LPH70123, 75320 KEH860 & LEH760	SV-1414	LR-7, LP-7 & VG-7	15 gallons	2 hours
60	CL-1000, CL-1500, H10 & AT1004	None	LPH70530, 70540, 75330 & LEH860	SV-1818 & SV-2023	LR-10, LP-10 & VG-10	20 gallons	2 hours
80 to 120	CL-2000 & CL-2003	None	LPH75340, 80540, 80553, 85340 80557	SV-2523	LR-20, LP-20 & VG-20	25 gallons	2 hours
125 to 175	CL-3000 & AT-2004	3BE1/1303 & 1304	LPH85353, 90554	SV-3028	LR-30, LP-30 & VG-30	55 gallons	3 hours
180 to 225	CL-4000 & AT-3004	None	LPH90567, 95354, 95367	SV-3633	LR-40, LP-40 & VG-40	60 gallons	3 hours
250 to 325	CL-6000, 904L & 904M	2BE1/1353	LPH10054 & 10534 & 1355	SV-4440, SVP-3434 & SVP-3442	None	90 gallons	3 hours
425 to 500	CL-9000, 904P & 904R	2BE1/1403	LPH11055 & 11535	SV-5348, SVP-4243 & SVP-4252	V4L50	120 gallons	3 hours
500 to 700	CL-14000, 904S, 904T & Premier 2160	2BE1/1405 & 2BE3/342	None	SV-5372, SVP-5152 & SVO-5159	V460	180 gallons	4 hours
650	Premier 2280	2BE3/350, 352 2BE1/1603	None	None	V4R95 V4S110 & V4T130	330 gallons 360 gallons 360 gallons	4 hours 5 hours 5 hours
750	Premier 2370	2BE1/1604 & 2BE3/360, 362	None	None	None	440 gallons	5 hours
825	Premier 2480	2BE1/1655 & 2BE3/367 2BE1/1703 2BE1/1705 2BE3/372	None	None	None	550 gallons 600 gallons 660 gallons 715 gallons	5 hours 6 hours 6 hours 6 hours
1175	Premier 2620	None	None	None	None	990 gallons	7 hours



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