

Nash Pumps for Wood Preservation

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About Wood Preserving

The structure of wood is similar to that of a sponge, with cell cavities and cell walls, which represent the actual wood. The aim of wood preservation is to coat these walls with preservative to protect them from decay caused by wood-destroying fungi and insects. The preservative penetrates deep into the wood with the aid of pressure and a vacuum. First the vacuum removes the air from the cavities to create space for the preservative solution, which is then forced deep into the wood under high pressure.

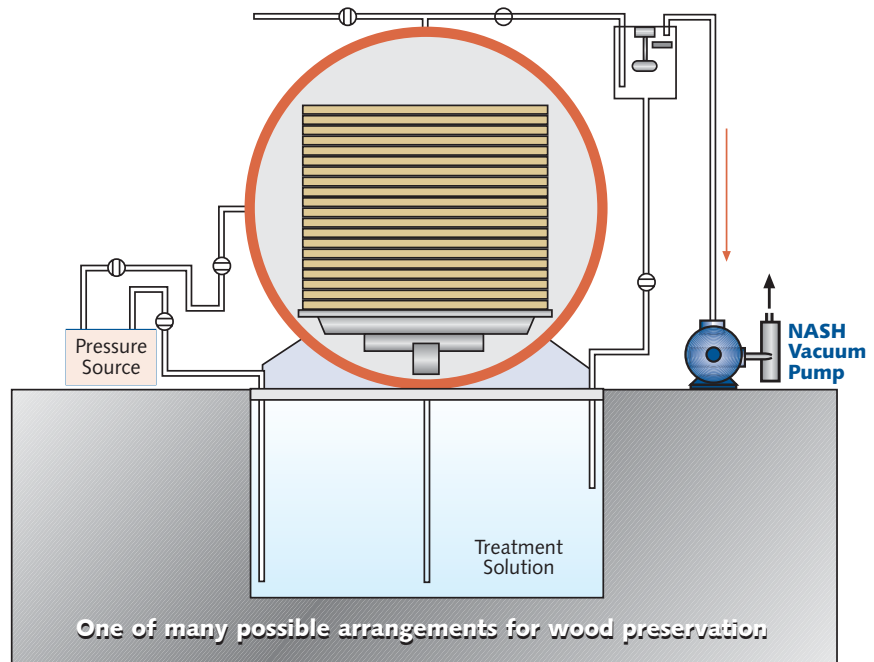
Once limited to creosote pressure treatment of piling, fence posts and utility poles, wood preserving has increased in scope and versatility. It is now common practice to treat many types of structural lumber to resist rot and infestation. This process is widely employed in damp and excessively humid areas. While creosote is still used, many other preservatives have been developed. To obtain maximum penetration of preservative, vacuum impregnation is the usual method employed.

A number of proprietary processes exist, e.g. Arch/Koppers, Osmose, Joslyn and Wolman, and individual lumber dealers may design and install their own systems.

Basic Process Procedures

While process requirements vary widely both in desired vacuum and capacity, the basic procedures are similar.

- 1 Initial Vacuum** - Once the wood is sealed in the autoclave, vacuum is applied. This removes some surface moisture and expands cell structure for easier penetration. Removal of air at this point accelerates, and makes more effective, the following stages of treatment. The length of the vacuum cycle will vary with the type of wood.
- 2 Filling** - Preservative is introduced from a storage tank - initially by vacuum and, finally, by a multi-stage high pressure solution transfer pump
- 3 Application of Pressure** - Autoclave pressure is raised to between 100 and 200 psig and held until desired penetration is achieved. Time required will vary widely with the size and type of lumber, the solution pressure and the efficacy of preconditioning.
- 4 Discharging the solution** - Any solution not absorbed by the wood is returned to the storage tank for reuse. In some cases, solution removal may be assisted by introduction of compressed air.
- 5 Recovery vacuum** - Another round of vacuum is used to help the bonding of the active principles of the wood.
- 6 End of cycle** - The autoclave returns to atmospheric pressure and the wood is removed.

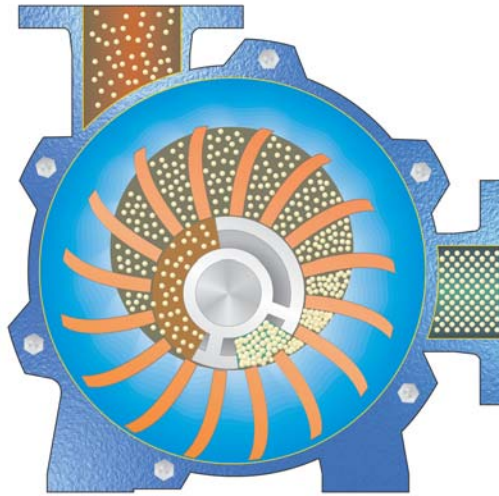


The Liquid Ring Advantage

Nash liquid ring vacuum pumps offer obvious advantages here - they have no trouble handling the saturated air with entrained liquid and they are very tolerant of the resinous components and vapors from the preservative chemicals.

Nash Reliability

Nash liquid ring vacuum pumps and compressors have been used in many industrial applications for more than 100 years. They are known as tireless workhorses, designed to stand up to the rigorous, nonstop demands of the harshest industrial environments. Built better than industry standards, Nash pumps are known for their reliability.



| NASH Features | User Benefits |
|--|--|
| Ability to handle process carryover or recycled gases | Increased operating efficiency and reduced operating costs |
| Long design life | Highest reliability |
| No internal lubrication required | Less maintenance required; less downtime |
| No metal-to-metal contact | Simple operation; wear-free performance |
| Cool Running | Incoming vapor is condensed. Smaller, less costly equipment can be selected |
| Only one moving part | Simple and trouble-free operation |
| Proven energy efficient design | Lower operating costs, year after year |
| Over a century of engineering and application experience | Peace of mind |

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