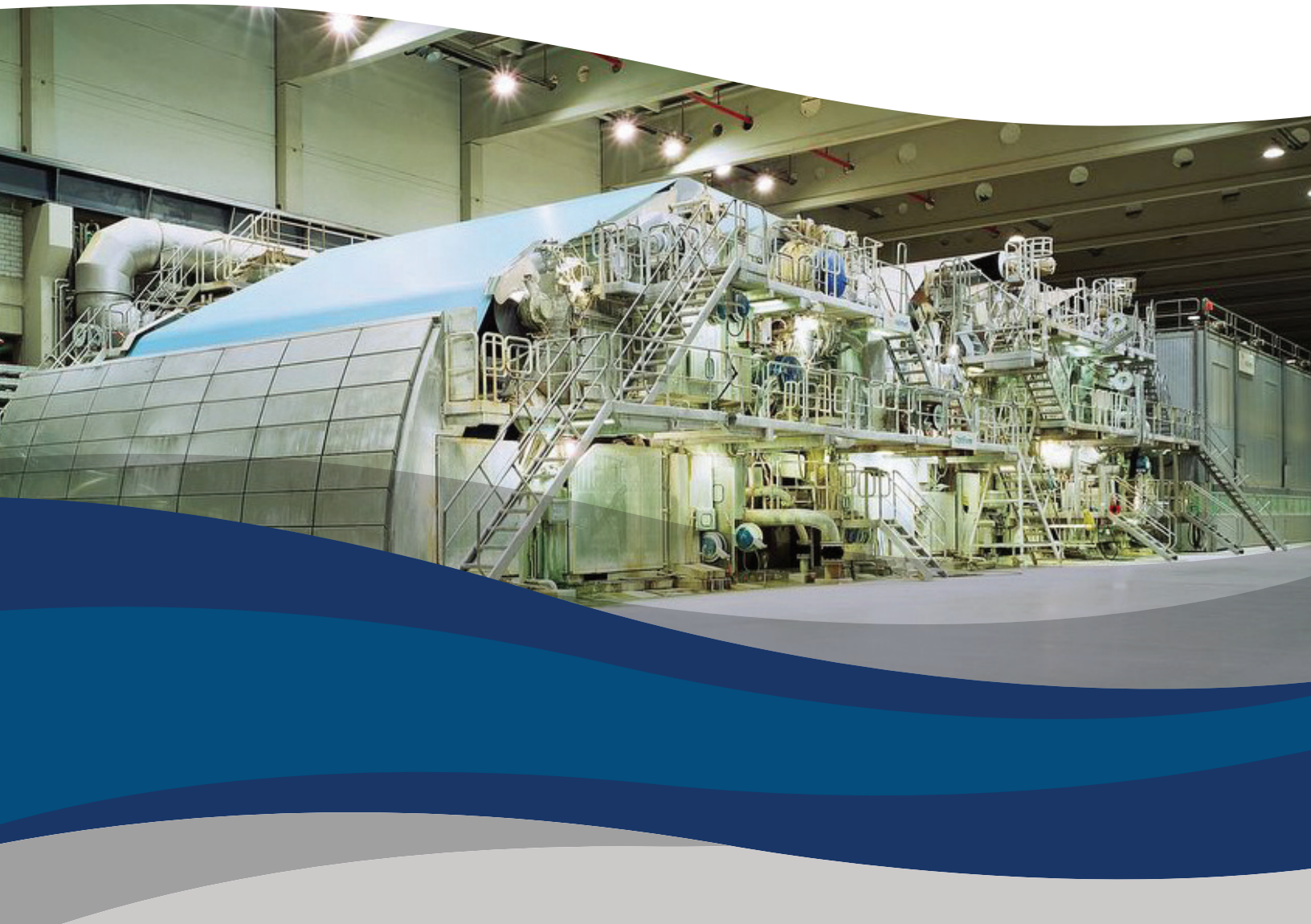




VACUUM PUMPS & SYSTEMS FOR THE

# PAPER Industry





## Customized Solutions Unparalleled Expertise.

### A WINNING COMBINATION.

With almost a century of combined experience as both **The NASH Engineering Company** and **Siemens-elmo**, you can be sure that the most efficient and reliable vacuum pumps and dewatering system equipment is specified for your application. Our reputation in the paper industry is well-known and hard-earned. The reason is simple - NASH® liquid ring vacuum pumps and systems are proven to help your mill produce quality paper at a lower cost.

# NASH® Vacuum Pumps, Systems, & Service

## Energy Efficiency

We understand your need to improve efficiency, reduce energy & utility consumption, and reduce operating costs all while maintaining performance. Our new, innovative solutions cut your energy & water use while maintaining the reliability you expect from Nash.

NASH® pumps have a patented variable porting design that allows the pump to operate continuously at peak efficiency, reducing power consumption.

Our ongoing investment in research & development has led to patented designs and upgrades aimed at improving your vacuum pumps and system. Don't be fooled by imitators - and don't risk the reliability that lets you sleep at night.

## Optimum Performance

Bigger and/or faster is not necessarily better. A vacuum pump operating at off-design conditions may consume enough excess energy to pay for a properly sized, more efficient pump in a shorter period of time.

Our experienced engineers can properly size and select the vacuum pumps and water removal equipment required to operate your paper machine at peak performance.

## Upgrading & Re-Engineering Existing Installations

In an industry that is ever changing you need equipment that is flexible, and a partner who can provide vacuum solutions that evolve with industry changes and demands.

Whether it involves adding or redirecting capacity or water removal equipment, or changing the configuration of your existing system to improve efficiency, we have the expertise to analyze, evaluate and recommend solutions that best fit your current conditions and requirements.

## Reliability That's Built To Last

NASH and Siemens-elmo pumps installed in paper mills decades ago are still in operation today. They are solid, reliable and trouble-free. Select models include polyisoprene lining for added protection against corrosion and wear.

All of this is backed by our NASH CERTIFIED warranty against defects in material and workmanship.

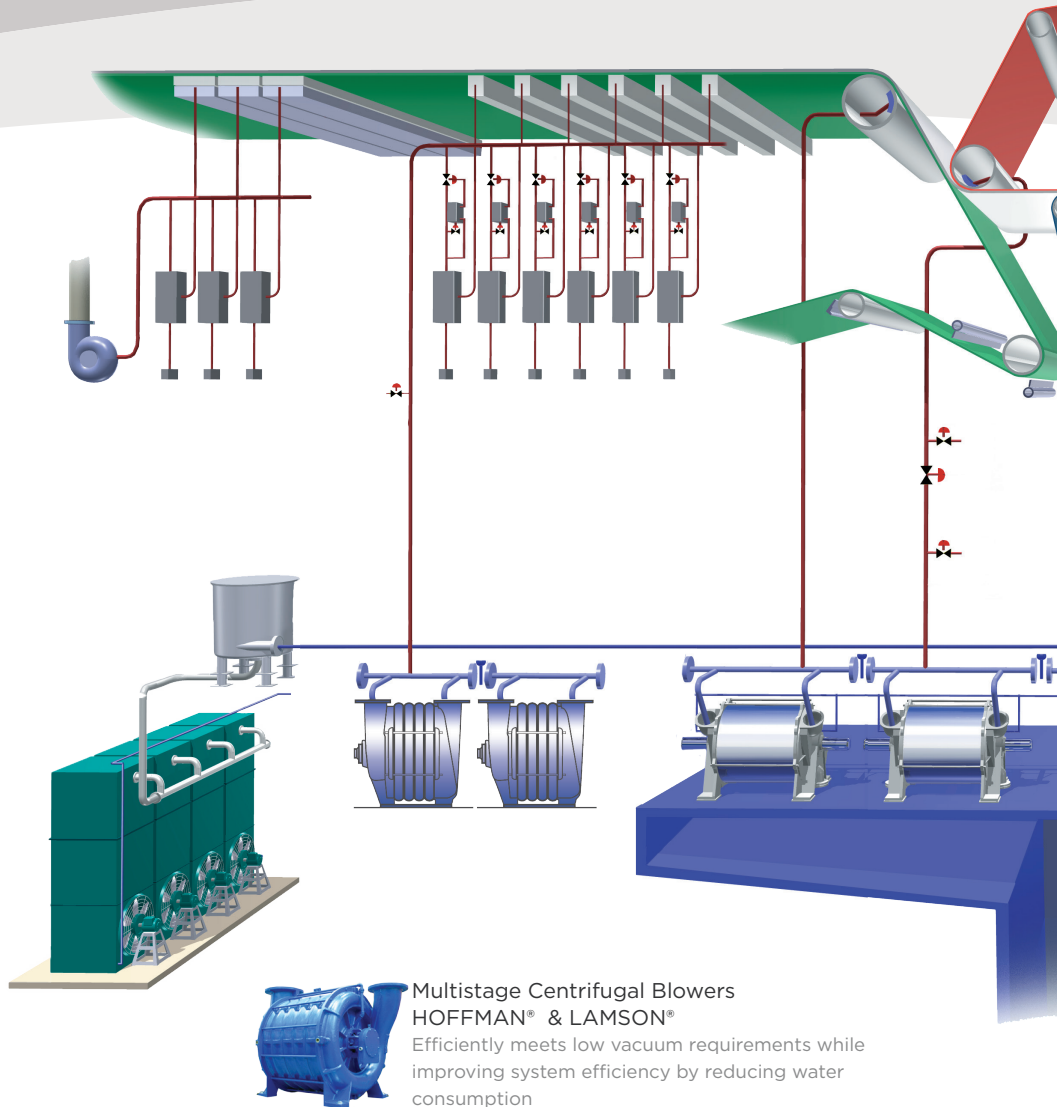
## NASH CERTIFIED™ Service & Support

For repairs and rebuilt pumps there is no better source than the original. Only NASH CERTIFIED Service Centers have the experienced technicians, OEM parts, and the original OEM designs and drawings to return your pump to factory specifications. You also have the benefit of our patented upgrades and most up-to-date design changes for optimal efficiency and performance.





**Splash Cooling Towers**  
Counter flow, forced draft designed for dirty water systems without plugging



**Multistage Centrifugal Blowers**  
HOFFMAN® & LAMSON®  
Efficiently meets low vacuum requirements while improving system efficiency by reducing water consumption

## Dewatering At Its Best

### FORMING SECTION

Removing as much water as possible early in the paper making process allows the formation of a stronger, more consistent sheet, while reducing web breaks and water removal costs in the Press and Drying Sections. Low vacuum fans efficiently aid water removal at the foils.

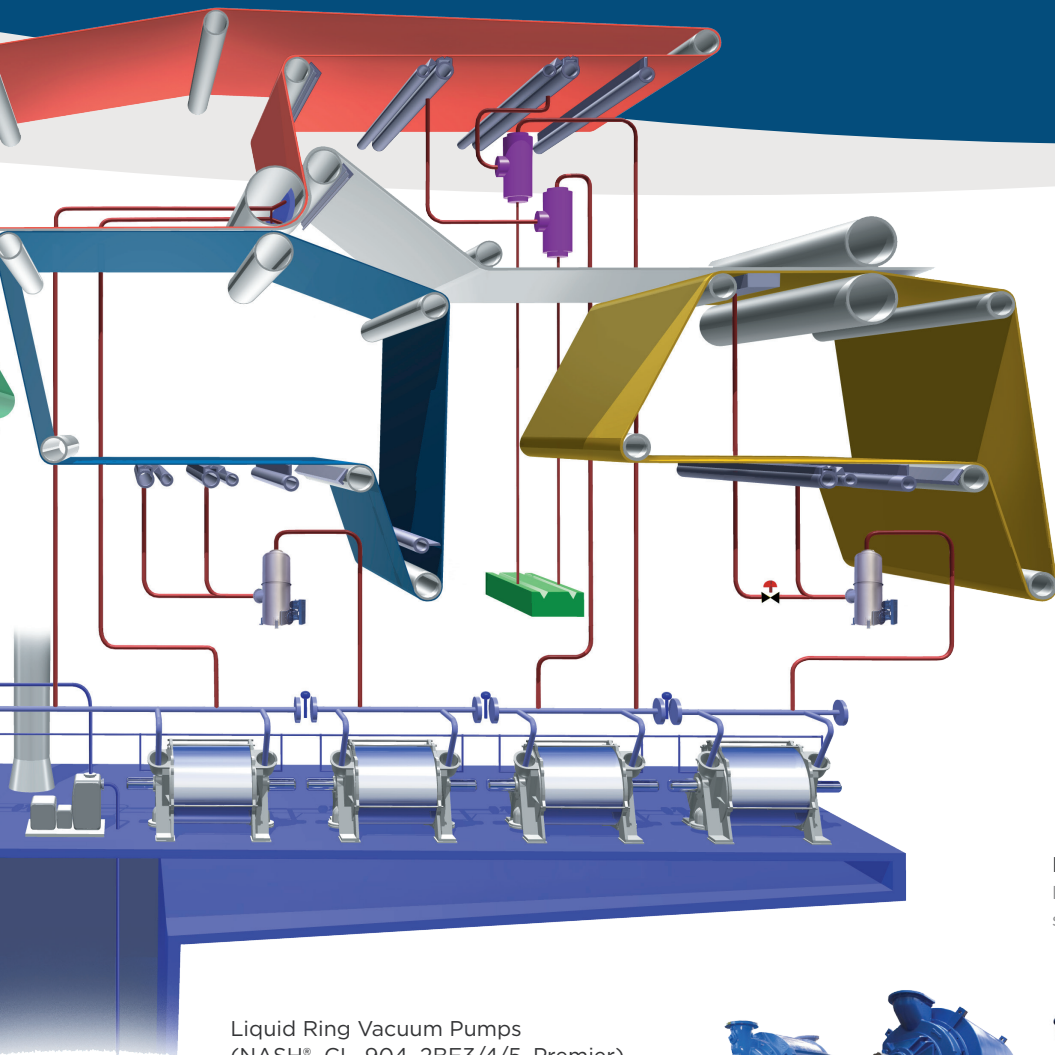
As the sheet moves down the wire, the alignment of the web fibers makes it more difficult to remove water from the sheet. This requires flatboxes to operate at a slightly higher vacuum level and require the use of NASH Liquid Ring Vacuum Pumps to help remove water. When the sheet reaches the Couch, the NASH Liquid Ring Vacuum Pump provides the high vacuum dewatering needed for proper sheet consistency entering the Press Section. its unique design allows the NASH Liquid Ring Vacuum Pump to operate at varying vacuum levels, and handle

liquid carryover while providing the rugged, reliable performance that you expect from NASH.

For improved efficiency, our HOFFMAN & LAMSON Multistage Centrifugal Blowers can be used on the low vacuum table services in the Forming Section. Combining the strengths of NASH Liquid Ring and Centrifugal Blower technologies can improve overall system efficiency by up to 30% in energy consumption, reduced water consumption, and have the added benefit of potential heat recovery from the exhaust air.

### PRESS SECTION

Felt conditioning, which is critical to sheet dryness and paper machine runability, requires a vacuum source at each uhle box that can effectively track felt performance and respond to changes in vacuum level over the life of the felt. As the felt ages, it becomes less permeable and is more resistant to water removal. This



**Liquid Ring Vacuum Pumps**  
 (NASH® CL, 904, 2BE3/4/5, Premier)  
 Unique inlet and discharge configuration,  
 Polyisoprene linings and stainless steel  
 cladding available, capacities up to 23,000 CFM



**TC Series Pre-Separators**  
 Unique design prevents air entrainment  
 in the drop leg



**NK Pre-Separators**  
 Pre-engineered, completely packaged  
 skid mounted systems

requires an increasing vacuum level to remove water. For more effective felt conditioning, TAPPI recommends that each felt be serviced by an independent vacuum source. The inherent operating characteristics of NASH Liquid Ring Vacuum Pumps applied to the felt uhle box services automatically adjusts the operating vacuum levels to provide optimum water removal over the life of the felt.

The water removed from the felts during the felt conditioning process contains felt hairs, paper fibers and chemical contaminants that can cause premature wear of the vacuum pump internal components if not removed prior to pump inlet. NASH Air-Water Separators (NASH TC Series Pre-Separators with barometric drop legs, or NASH NK Pre-Separator Packages with low-NPSH water removal pumps) prevent this process water from entering the seal water systems.

Water effluent from the separators and separator packages can be easily monitored and quantified through the use of NASH V-Notch Seal Tanks. These Seal Tanks are available in both single and multiple compartment configurations and provide a visual indication of the water removed from the process.

In closed-loop applications where the vacuum pump seal water is reused and the heat of compression must be removed, or in once-through applications where the temperature of the water must be reduced for environmental concerns the NASH Splash Series Cooling Tower can be used. Designed specifically for paper mills, its compact/modular design allows it to be used both indoors and outdoors and its unique fill design reduces clogging in most dirty water applications.

# NASH CERTIFIED™ Service & Support



Count on Nash - the original innovators in liquid ring technology, for the highest quality repairs and service at a competitive price. We know your pump, compressor or system - after all, we designed it!

There is a reason you invested in NASH in the first place. Protect your investment and maintain performance and reliability with NASH Certified Service.



## Repairs & Remanufacturing

Only NASH CERTIFIED Service Centers can return your NASH or Siemens-elmo pump to factory clearances and guarantee that your rebuilt pump will perform at 95% of new.



## Replacement Parts

Quality tested, OEM parts in stock and only a phone call away. Whether it is for an emergency or back up, we have a full supply of NASH CERTIFIED parts available for quick shipment. Each part is designed and built to Nash's legendary standards and is guaranteed to perform as well as the original.



## Replacement, Spare & Exchange Pumps

Stock a spare, or replace your original NASH pump with an identical, warranted, remanufactured unit. NASH CERTIFIED remanufactured pumps are repaired and rebuilt by our certified technicians using NASH CERTIFIED parts.



## Field Service

From full system evaluation to installation & commissioning, inspections, maintenance and updates our team of NASH CERTIFIED technicians are available to supplement your in-house maintenance operations year round.



## Inspections & System Analysis

Inspections and analysis are key to preventative maintenance, and can detect signs of calcification, erosion, and build up before they turn into larger problems.

- Machine Audits
- Fiberscope Inspections
- Capacity Testing
- Vibration Analysis
- Precision Laser Alignment

## NASH CERTIFIED GUARANTEE

Quality & Performance Guarantee on all NASH CERTIFIED:

- Parts
- Workmanship
- Upgrades
- Repairs
- Remanufactured pumps are guaranteed to perform at 95% of new.

# NASH CERTIFIED™ Upgrades & Efficiency Improvements

## Unit Upgrades & Efficiency Improvements

Our commitment to research & development ensure that you are always receiving the latest upgrades to equipment technology for efficient and reliable performance. Patented upgrades are available only from NASH, and are available on new and as an aftermarket upgrade for existing installations.

### PATENTED UPGRADES FOR PULP & PAPER MACHINES

- NASH ECO-FLO® Water Saving Technology
- NASH ENDURA-SEAL® Reliability Upgrade

### MATERIAL UPGRADES FOR PULP & PAPER MACHINES

- Polyisoprene Lining
- Stainless Steel Cladding
- Stainless Rotors/Cones

## Reduce Water Consumption Up To **50%**

With our patented ECO-FLO Upgrade for NASH CL & 2BE3/4 Pump Models. Available only from NASH.



# Gardner Denver Nash Products & Systems



## NASH® Liquid Ring Vacuum Pumps & Systems

The reliable and durable solution for demanding process applications. Through ongoing commitment to innovation, Nash continues to introduce liquid ring vacuum pumps that meet the rigors of the most demanding applications while improving efficiency and lowering total cost of ownership.



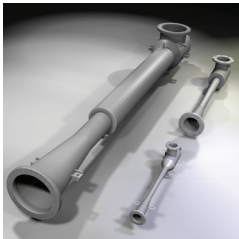
## NASH and GARO® Liquid Ring Compressors & Systems

The rugged, reliable solution for demanding process applications. Designed to handle toxic, explosive and corrosive gases, and backed by a reliable history of performance under the most demanding conditions.



## DRY-PRO® Dry Vacuum Pumps & Systems

Designed to meet your specific process needs, NASH engineered systems are ready for operation, easy to integrate into process automation, help minimize installation & operating costs, and meet the rigors of the most demanding applications.



## ENER-JET™ Ejectors & Systems

Whether on their own, or as part of a NASH ENER-JET Hybrid Vacuum System, NASH steam jet ejectors are engineered for optimum efficiency, reducing steam consumption, while maintaining their ability to handle large volumes at very high vacuum levels.



**Gardner Denver Nash, LLC**

PO Box 130  
Bentleyville, PA 15314 USA  
800-553-NASH  
+1 724 239 1500

[nash@gardnerdenver.com](mailto:nash@gardnerdenver.com)  
[www.GDNash.com](http://www.GDNash.com)

©2017 Gardner Denver Nash, LLC Printed in U.S.A.  
PAPER-S-1027-A 2nd Ed. 04/17  
Supersedes PAPER-S-2017-A 1st Ed. 12/04

**Gardner  
Denver**

Please recycle after use.