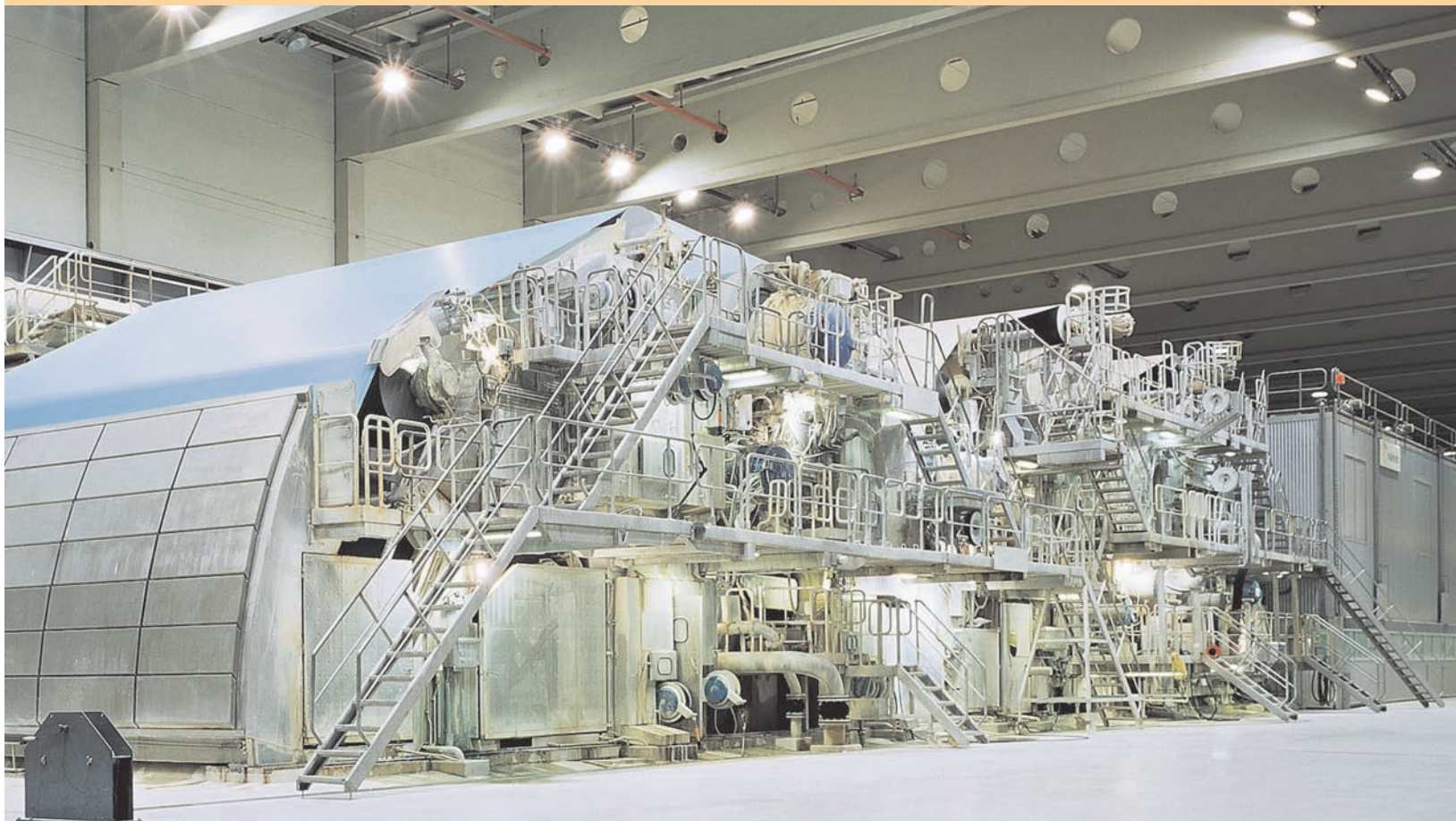




Vacuum Systems for the Paper Industry





Energy savings

With the increasing cost of power, energy cost is a key concern of today's papermaker. Our large liquid ring vacuum pumps have a patented variable porting design that allows the pump to operate continuously at its peak efficiency, reducing power consumption.

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 short 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 its peak performance.

With more than 80 years of combined paper industry experience as both The NASH Engineering Company and Siemens-elmo, you can be sure that the most efficient, most reliable equipment is specified for your application.



Upgrading and re-engineering existing installations

As the demand of the market and the economy changes, so must the paper industry. A state-of-the-art paper machine 10 years ago may be considered marginal by today's standards. Whether it involves adding capacity through additional vacuum pumps/water removal equipment or changing the configuration of your existing equipment, we will analyze your vacuum system needs and determine a solution that best fits your needs and requirements.

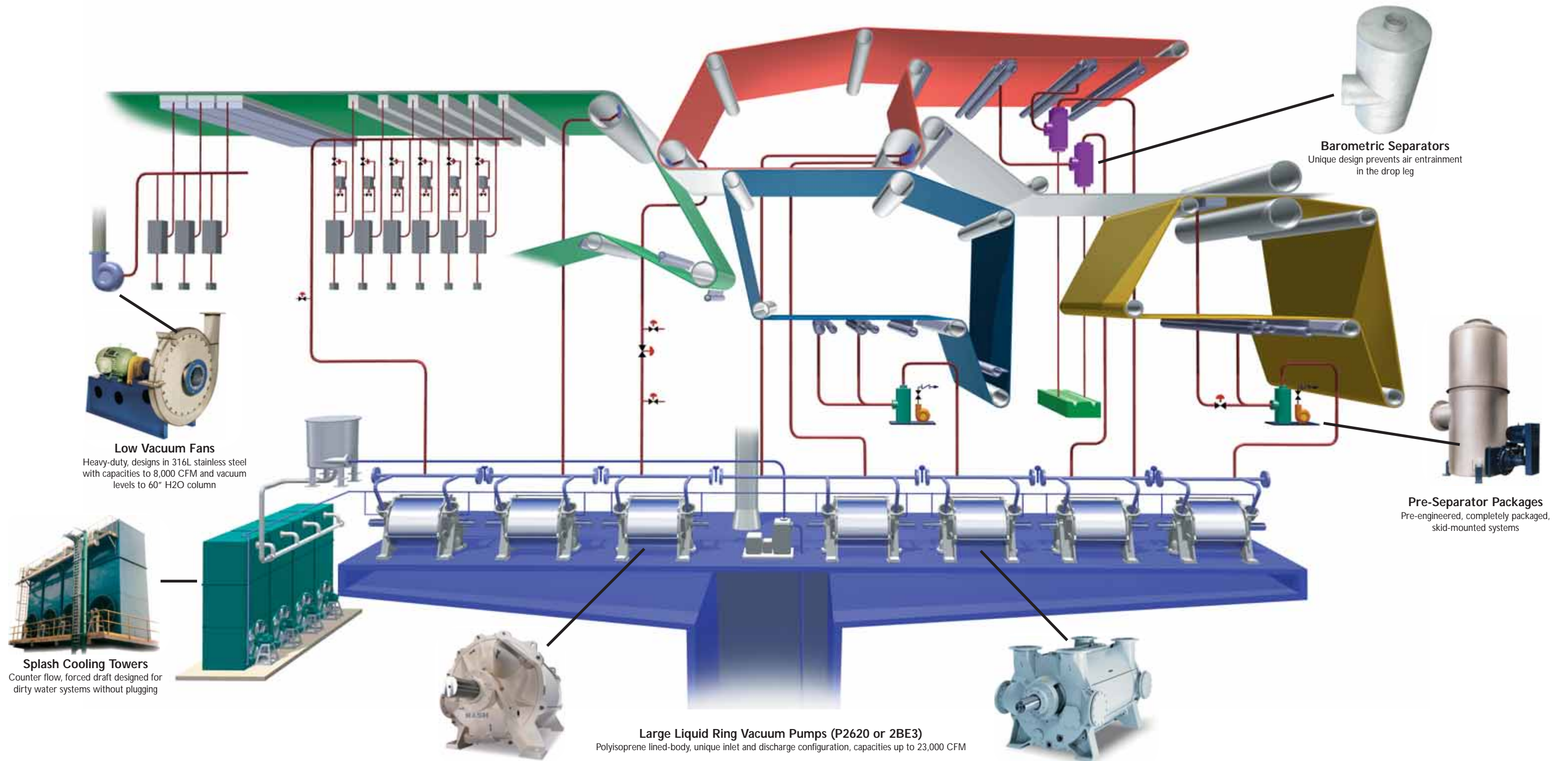
Reliability that's built to last

Many of the NASH and Siemens-elmo pumps installed in paper mills decades ago are still operating today. They are solid, reliable and trouble-free. All of the 2BE3 and P2620 vacuum pumps come with a polyisoprene lined body that reduces corrosion and wear. All of this is backed by an exclusive two year warranty against defects in material and workmanship.

Parts and Service - just a phone call away

If you require parts or service on your NASH or Siemens_elmo vacuum pump, our extensive parts and service network is only a phone call away. We offer 24/7/365 service on all your parts requirements, with same day shipping in most cases.

Our five, company owned, North American service centers are ready to respond to your service needs and restore your vacuum pump back to its original factory performance.



Dewatering at its best

In the FORMING SECTION, removing as much water as possible early in the papermaking process speeds up the formation of a hard, strong, consistent sheet, while also reducing web breaks and water removal costs. **Low vacuum fans** efficiently aid water removal at the foils.

Moving down the wire, flatboxes have a slightly higher vacuum level to remove water. **NASH liquid ring vacuum pumps** provide the ability to adjust vacuum levels to optimize water removal. Once the sheet reaches the Couch, the opportunity exists to impart extra hardness and strength by increasing the vacuum level. The **NASH liquid ring vacuum pump** is the ideal vacuum source as it provides maximum efficiency at varying vacuum levels, flexibility, and durability while offering exclusive performance features.

In the PRESS SECTION, additional moisture is removed from the sheet. Felt conditioning, which is critical to sheet dryness and paper machine run-ability, requires a variable vacuum source to track felt performance. As the felt ages, it becomes more compact, less permeable and more resistant to

water removal. A higher vacuum level is then required to remove water. Because press felts fill at different rates during their lifetime, TAPPI recommends that each felt be serviced by an independent vacuum source. The inherent operating characteristics of NASH liquid ring vacuum pumps provide this tracking by automatically adjusting vacuum levels as the felt ages.

The water removed from the press felts during the felt conditioning process contains debris and chemical contaminants that cannot be tolerated in the vacuum pump seal water under today's regulatory climate. **NASH Air-Water Separators** (with barometric drop legs or with low-NPSH water removal pumps) prevent the contaminated white 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 that are available in both single and multiple compartment configurations and provide a visual indication of the water removed from the process

system. Water removed from the felts at the uhle box contains process debris and chemical contaminants.

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. 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.

Other NASH Products

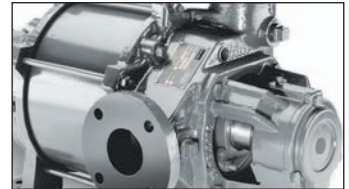
2BE3/P2620

Large liquid ring vacuum pumps with superior corrosion resistance
Top discharge capability which eliminates need for trench
Self-recirculating seal water, reducing need for external seal water source
Capacity of 4,000 to 23,000 CFM with vacuum to 29+” HgV



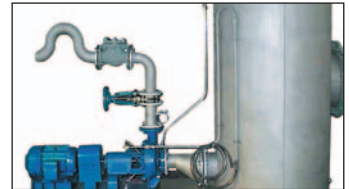
Vectra

Liquid ring vacuum pumps and compressors
Available in feature rich budget designs (XL or GL)
Designed to handle high back pressure requirements
Capacity of 115 to 2,860 CFM with vacuum to 29” HgV



Pre-Separator Packages

Stainless steel separator with all SS or SS-fitted low NPSH removal pump
Skid or tank mounted design
500 - 15,000 CFM capacity
Flows from 50-500 GPM



Splash Cooling Towers

Counterflow, forced draft designs
Modular, FRP Construction
PVC (ABS available) & SS internal wetted components
Suitable for flows greater than 100 GPM



Low Vacuum Fans

Single stage, 316 SS impeller & housing
500 - 8,000 CFM
0 - 60 in. H2O



Gardner Denver Liquid Ring Pump Division
9 Trefoil Drive
Trumbull, CT 06611

phone: +1 800 553 NASH

fax: +1 203 459 3988

email: nash@gardnerdenver.com

www.gardnerdenver.com