



VACUUM PUMPS, COMPRESSORS & SYSTEMS FOR THE

CHEMICAL PROCESS Industry





Proven Solutions. Unparalleled Expertise.

A WINNING COMBINATION.

Gardner Denver Nash has been serving process industries such as petroleum, chemical, and pharmaceutical for more than a century. You can count on Gardner Denver Nash to design and deliver the right solutions for your vacuum pump and compressor system application. As a worldwide leader in vacuum technology, Gardner Denver Nash has the expertise and knowledge to ensure that you receive the best product for your application.

We don't just sell something off the shelf. With a strong emphasis on putting the needs of our customers first, Nash has employed distinguished and highly experienced teams of Application Engineers in conjunction with seasoned Mechanical Design teams to ensure our customer's success when applying vacuum to the most demanding applications. We design the system to meet your specific requirements beginning with the fundamentals - capacities, vacuum or pressure levels and the unique demands your process will require. We take into consideration your objectives relative to operating costs and initial capital investment. Then, we engineer a NASH® system to satisfy all of your needs.

NASH® & GARO® Technologies for Chemical Process Applications

Compatible Technologies

- Liquid Ring Vacuum Pumps and Compressors
- Steam and Air Ejectors
- Dry Screw Vacuum Pumps and Systems
- MagDrive Pumps and Compressors
- Standard, Engineered-to-Order and Hybrid Vacuum Systems
- Booster Hybrid Vacuum Systems

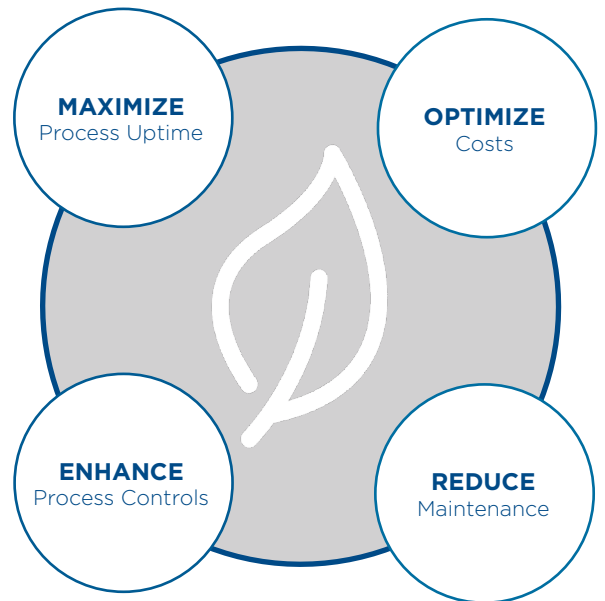
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|-------------|--------------------|--------------------------|
| • Acetone | • Carbon Dioxide | • Ketones |
| • Acids | • Chlorine | • Nitrous Oxides |
| • Air | • Freon | • Propylene Oxides |
| • Alcohols | • Hydrocarbons | • PVC |
| • Ammonia | • Hydrogen | • Styrene |
| • Aniline | • Hydrogen Cyanide | • Sulfur Dioxide |
| • Aromatics | • Hydrogen Sulfide | • Vinyl Chloride Monomer |
| • Butadiene | • Isopropyl Ether | |

Quality Sustainable Solutions

Nash is committed to providing sustainable solutions that help your company comply with environmental regulations while lowering total cost of ownership. Our products and systems reduce resource consumption, effluent and emissions while operating reliably with minimal maintenance requirements. Together we build more sustainable and profitable plants.

CERTIFICATIONS

In our ongoing effort to provide quality, sustainable solutions, Nash manufacturing & service facilities are ISO 9001, ISO 14001, and OHSAS 18001 certified. ATEX-certified systems available.



Liquid Ring Pumps, Compressors & Systems

Versatile product technology expertly applied

Gardner Denver Nash knows the technology behind liquid ring vacuum pumps because it invented the liquid ring principle of operation. Liquid ring vacuum pumps operate at low temperatures and are suitable for handling liquids, steam, and condensate. Developed for the toughest applications, these pumps can safely and reliably handle explosive gases and corrosive vapors.

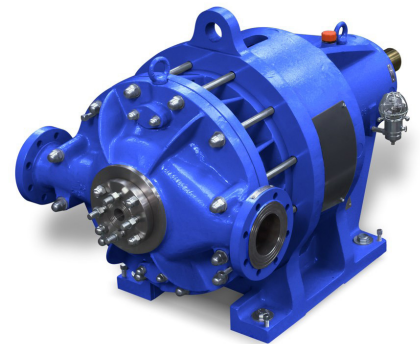
Requiring minimal care and known for extremely low maintenance, NASH liquid ring vacuum pumps provide years of dependable service due to their robust design, rigorous quality, and their fewer and generously proportioned parts. Thanks to their low operating costs and extensive performance range, they excel in any application.

- Cool running, liquid ring technology
- Process compatible seal liquid
- Low maintenance, high reliability
- Wear-free performance - no metal to metal contact
- Handles carryover and moisture-laden gas streams
- ATEX versions available



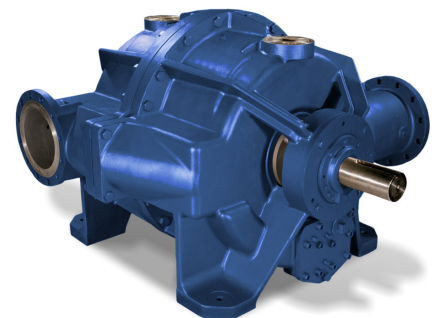
LIQUID RING VACUUM PUMPS

The NASH liquid ring vacuum pump family provides a wide range of product options. From the top-of-the-line high flow 2BE4 to the mid-range Vectra and the smaller close-coupled 2BV series, we have the right answer for your individual vacuum requirement.



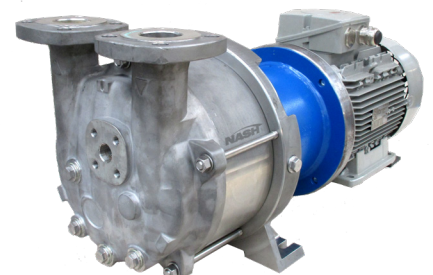
LIQUID RING COMPRESSORS

Gardner Denver Nash offers the widest pressure and capacity ranges of liquid ring compressors worldwide. Together the NASH & GARO compressor models form our core compressor product line, expanding the capacity and pressure ranges of our previous compressors to meet the ever-growing requirements of our customers. As a result, Nash offers the widest pressure and capacity ranges of liquid ring compressors available worldwide.



2BM MAGDRIVE VACUUM PUMPS AND COMPRESSORS

The NASH 2BM Mag Drive liquid ring vacuum pump and compressor series provides reliable, leak free performance for applications requiring the highest levels of safety. With a hermetically sealed pump body and capacity from 45 to 850 ACFM (75 to 1450 m³/h) the 2BM liquid ring pump/compressor series is an ideal match for process applications in the chemical, pharmaceutical, petrochemical industries.



Dry Vacuum Technology

DRY-PRO® VSB VARIABLE PITCH SCREW ROTORS

Variable pitch screw rotors optimize efficiency and minimize temperature rise. Available with PTFE, PFA, or PEEK coatings, application specific options and ATEX models are available.



DRY VACUUM SYSTEMS

From pre-engineered packages to custom engineered-to-order systems we deliver a dry vacuum solution for your chemical vacuum applications. NASH dry systems are designed to address varying process characteristics based on our hard-earned experience serving the chemical industry.



Ejectors & Hybrid Vacuum Systems

Whether on their own, or as part of a NASH Hybrid Vacuum System, our steam and air jet ejectors are engineered for optimum efficiency, while maintaining their ability to handle large volumes at very high vacuum levels. With no moving parts, steam and air ejectors deliver reliable performance, simple operation with a low capital cost.

ENER-JET EJECTORS

Offering up to 15% improved efficiency over previous designs, ENER-JET ejectors deliver reliable performance for large volumes and high vacuum levels.

HYBRID VACUUM SYSTEMS

Combining the stability of NASH liquid ring vacuum pumps with the high vacuum capabilities of NASH steam ejectors results in a hybrid vacuum system that reduces GHG emissions and operating costs while improving system stability.

MECHANICAL BOOSTER - CHEMICAL DRY PUMP HYBRID SYSTEMS

When vacuum levels cannot be met by a chemical dry screw vacuum pump alone, our extensive expertise allows us to use mechanical boosters to efficiently deliver more pumping speeds at lower pressures, just where it is needed, with the reliable and low maintenance operation you expect from Nash.

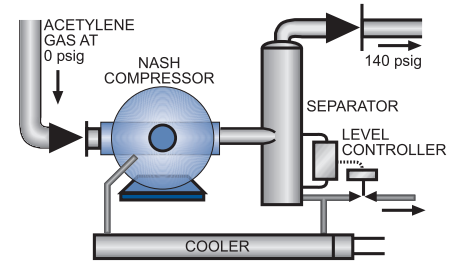


Complete Application Solutions

Our goal at Gardner Denver Nash is to provide long life, reliable, low maintenance and energy efficient solutions to processes like: evaporation, distillation, vacuum filtration, gas compression, VOC recovery, solvent recovery and drying.

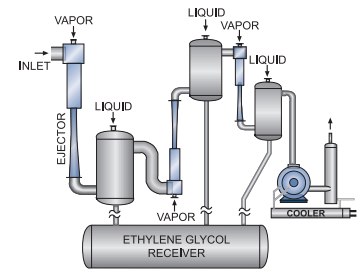
EXPLOSIVE GAS COMPRESSION

A typical arrangement for handling explosive gases, this compressor system keeps acetylene cool and saturated with water, which is used as the seal liquid. By doing this, the risk of explosion is minimized.



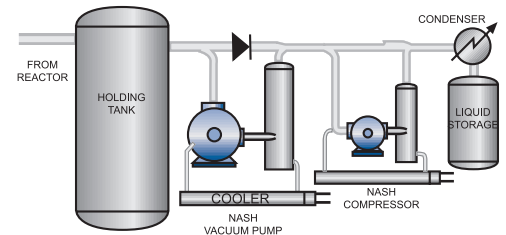
POLYMERIZATION REACTOR

To eliminate plugging from polymer carryover, NASH ejectors are driven with ethylene glycol vapor. Liquid ethylene glycol is then used as the vacuum pump seal liquid and also to cool the direct contact condensers. This eliminates process contamination from water, steam and air.



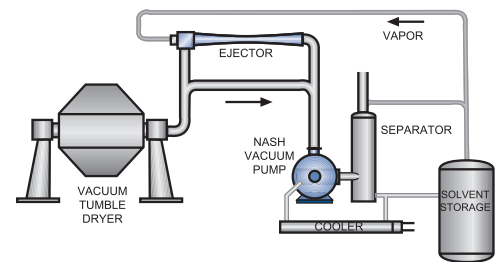
VCM RECOVERY

In one of several batch monomer recovery systems, unreacted vinyl chloride is first transferred into the evacuated holding tank. A NASH vacuum pump scavenges gas out of the PVC and delivers it to the compressor inlet at or near atmospheric pressure. The single-stage compressor then compresses the gas for condensation and storage as a pressurized liquid.



VOC RECOVERY

Vacuum tumble-drying performed in batch processing requires a gradually increasing vacuum to draw out solvents at the maximum sustainable rate. Often times this same solvent can be used as the pump seal liquid and motive vapor in the ejector to operate the process. Contamination is eliminated and pure solvent is recovered.

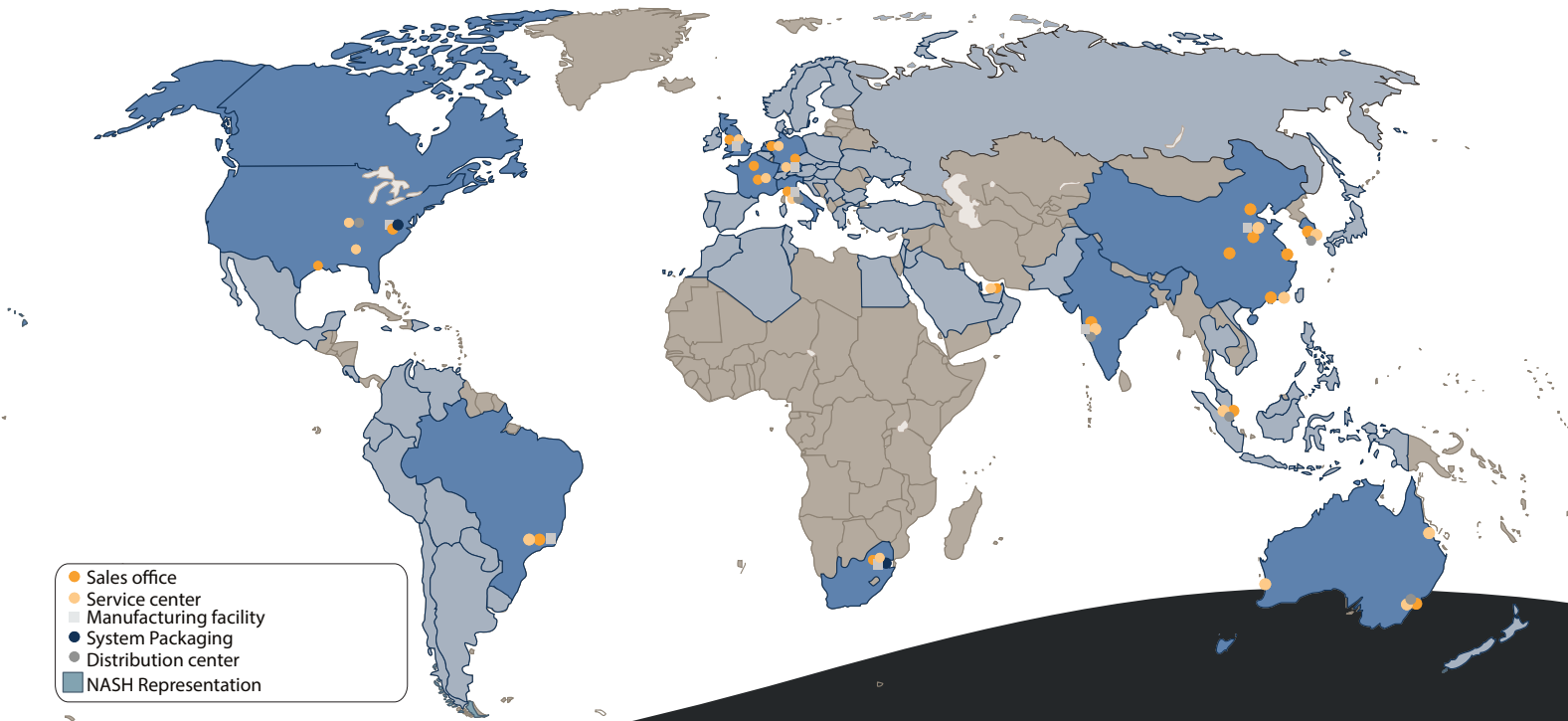


ENGINEERED & PACKAGED SOLUTIONS

We'll never forget our roots. As the original Nash Engineering Company, and today operating as Gardner Denver Nash, we know customized engineered solutions.

We utilize our extensive knowledge of vacuum technology and decades of application expertise to design and provide the most cost effective, world class, innovative, and reliable systems for the most demanding chemical applications.

From packaged systems such as our DRY-PRO Pre-Engineered Systems, and our ENER-JET™ Hybrid Vacuum System, to completely customized packaged solutions, Nash is the name you can trust for efficient, reliable systems that perform under the most demanding conditions.



Global Service & Support

NASH product and system is backed by our global network of NASH CERTIFIED™ Support & Service. With certified service centers in key industrial regions, and field service technicians at the ready, we keep your vacuum equipment and processes running smoothly - wherever that happens to be.

What We Offer

- Engineering & Technical Support
- Inspections & System Analysis
- Repairs, Remanufacturing & Unit Upgrades
- Field Service
- Certified OEM Parts
- UX - Unit Exchange



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.



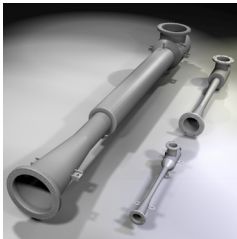
NASH and GARO® Liquid Ring Compressors & Systems

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.