

NASH[®]

An Ingersoll Rand Business

A collection of various sugar products arranged on a dark surface. From top to bottom and left to right, there are: white granules, brown granules, white crystals, brown crystals, and a pile of sugar cubes. The products are neatly stacked and separated into distinct sections.

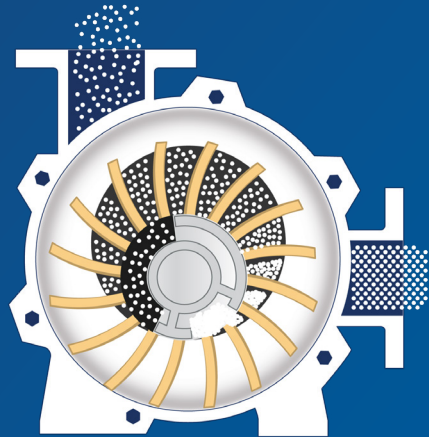
VACUUM PUMPS AND COMPRESSORS FOR THE SUGAR INDUSTRY

REQUEST A QUOTE

TURN TO THE TRUSTED MARKET LEADER!

Get the original NASH

They say that imitation is the sincerest form of flattery. Nash imitators make many claims, but none of them have the equipment quality, engineering know-how, technical support and global service capabilities of the original NASH. Our newest models were designed using state-of-the-art CFD and 3D solid modeling tools. They are significantly more efficient in energy and water usage, offering improved vacuum and capacity performance. Don't settle for an imitation.



A NASH liquid ring system

- Is more economical over its life cycle,
- Will last longer,
- Requires significantly less maintenance than other vacuum pumps and compressors,
- Provides more uptime for your plant,
- Does not require many of the complicated instrumentation safety and ancillary accessories that add complexity to hot-running pumps and compressors.



Uniform operational vacuum

From Plant to Juice

Sugar Cane:

After harvesting and delivery to a sugar mill, the cane is washed, chopped, and shredded by revolving knives. The shredded cane is then repeatedly mixed with water and crushed between rollers. The juice is collected and the remaining fibrous solids (called bagasse) are burned for fuel and used for papermaking. Nash pumps are used in these processes as well.

Sugar Beets:

After harvesting and delivery to a processing plant, the beet roots are washed, mechanically sliced into thin strips called cossettes, and passed through a diffuser to extract their sugar content into a water solution. The used cossettes, or pulp, is pressed down to 75% moisture, recovering additional sucrose and reducing the energy needed to dry the pulp. The pulp is then dried and sold as animal feed.

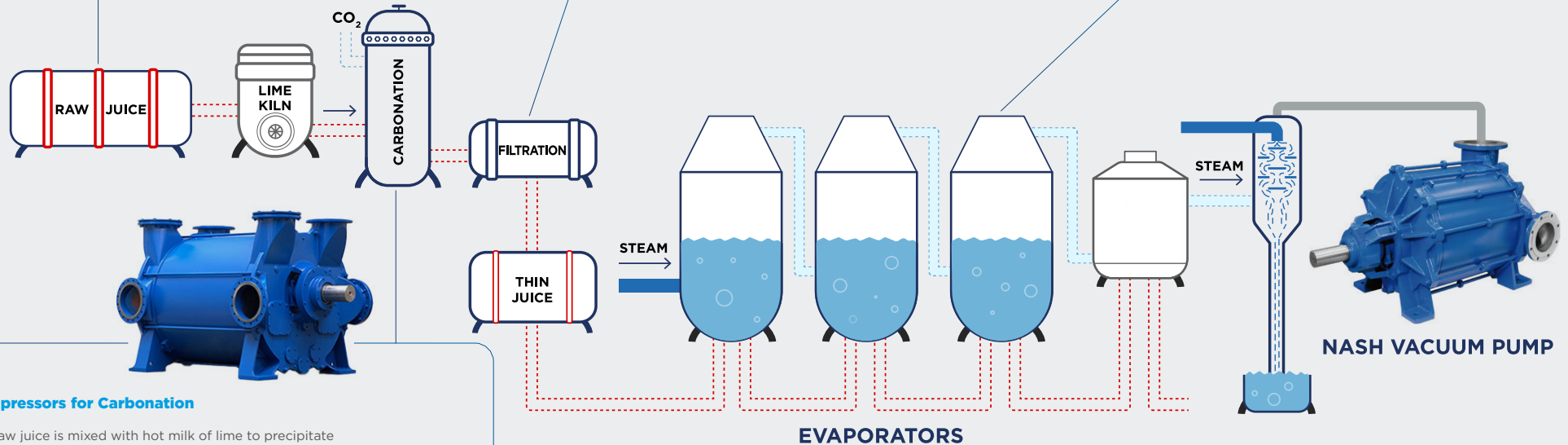
Rotary Vacuum Filters

Extracting available sucrose from the mud at the bottoms of clarifiers (filters) is usually a rotary drum filter operation. NASH vacuum pumps are the preferred auxiliaries for these filters in the sugar industry - as they also are in many other industries. Moisture in the vacuum line - even soft solids - will not damage a NASH vacuum pump.

Vacuum requirements are well within the range of single-stage pumps. Typically, a rotary vacuum filter requires a vacuum of about 405 mbar abs (18" HgV) at the wash section and about 675 mbar abs (10" HgV) at the pickup section. Allowing for pressure drops, this usually means about 303 mbar abs (21" HgV) at the pump inlet. With one vacuum pump serving both sections, the reduced vacuum at the pickup section can be maintained with a vacuum regulation valve.

Drawing Non-Condensables Off Condensers

Vapor, air and other non-condensables can be drawn off evaporators and vacuum pans in several ways. The modern approach is to evacuate counter-current condensers with single-stage NASH vacuum pumps. In a wet vacuum system like this, a NASH vacuum pump serves as a secondary condenser. Liquid compressant in intimate contact with the saturated air condenses most of the vapor that was not removed in the counter-current condenser. The significance of this is that transforming vapor into liquid decreases the volume that the pump must handle. Its effect is to decrease the size of the pump required by increasing the NASH pump's capacity significantly beyond its dry air rating. How much added capacity can be attained depends on how cool the liquid compressant is with respect to the temperature of the incoming air-vapor mixture.



Compressors for Carbonation

The raw juice is mixed with hot milk of lime to precipitate a number of impurities. Next, CO₂ is bubbled through the alkaline sugar solution, precipitating the lime as calcium carbonate.

With Nash liquid ring compressors

- CO₂ can be introduced at a constant pressure
- CO₂ quantity can be precisely regulated
- Small amounts of lime dust are easily handled with no pump damage
- No lubrication oil is carried over to the juice

[LEARN MORE](#)

Simple & Dependable

The high cost of shutting down a plant operation in the middle of a campaign leads sugar refiners to seek out the simplest, most dependable equipment available. They choose NASH vacuum pumps and compressors.

- Slugs of liquid carryover can be handled without damage
- Vapor is condensed into a liquid
- Gas is cooled and scrubbed by the compressors, delivering clean, oil-free gas

Better Sugar Crystallization

The characteristics of Nash vacuum pumps and compressors enable you to achieve more uniform sugar crystallization.

- Product can be upgraded
- Color is better
- Production at lower cost



Materials of Construction

This is an application that demands some care in material specification. Carbonic acid is produced when CO₂ is mixed with water. Corrosive sulfur compounds come through with flue gas from sulfur-bearing fuels. Either can make trouble, and both together are most likely to attack ordinary materials unless suitable precautions are taken. If the gas stream contains hard particles, they will subject equipment to abrasive wear. A successful remedy for this is to install a wet scrubber ahead of the compressor.

If a cast iron compressor is used, it should be protected by pH control of the liquid compressant seal water. Adding soda ash to the water and pH monitoring are recommended. These precautions will extend a cast iron compressor's life from one or two campaigns to more than four. Many years of service are reported with lime kiln gas and where flue gas does not have a high sulfur content.

Stainless steel is the most durable material for CO₂ compressors. If you are seeking long compressor life and a virtually trouble-free system, specify stainless. Your objectives for equipment life, your budget for initial equipment cost, the level of your system maintenance, and the composition of your gas mixture all should be considered. Ask your Nash technical representative to study the tradeoffs so that you can make the best choice in terms of your own operating conditions.



Features

- Ability to handle carryover
- Long design life of 40+ years
- No internal lubrication required
- No metal-to-metal contact
- Cool Running, minimal temperature rise between inlet and discharge
- Only one moving part

Benefits

- Minimal process problems resulting in more uptime; intended for severe applications
- Highest reliability
- Less maintenance required; less downtime
- Constant wear-free performance
- Pump acts as condenser, allowing smaller, less costly equipment selection
- Simple and reliable operation

Other NASH Products



2BE4 | P2620

- Large liquid ring vacuum and compressors 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 24" HgV
- Capacity of 6,800 to 39,000 m³/h with vacuum to 200 mbar abs



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
- Capacity of 195 to 4,860 m³/h with vacuum to 31 mbar abs



2BE1 vacuum pumps

The NASH 2BE1 liquid ring vacuum pump and compressor series covers a broad range of suction volume, vacuum, and pressure. Based on the proven reliable flat sided liquid ring vacuum pump design the 2BE1 is available in 23 models, has a large differential pressure capability, and is ATEX Certified.



2BV

- Compact liquid ring vacuum pumps built for serious cost savings
- Use up to 50 percent less water than other liquid ring pumps
- Monoblock and pedestal designs available
- Capacity of 4 to 350 CFM with vacuum to 29+'' HgV
- Capacity of 7 to 595 m³/h with vacuum to 33 mbar abs

Compressors

- Wide range of liquid ring compressors designed for many applications.
- Rugged and reliable, they can handle highly toxic, explosive and corrosive gases. Specifically developed for applications such as flare-gas, Chlorine and Vinyl Chlorine Monomer (VCM) recovery
- Capacity of 60 to 2,200 SCFM with pressure to 200 PSIG
- Capacity of 100 to 3,740 m³/h with pressure to 15 bar abs
- Single and two stage models available

Service & Support

Local Support Backed by Global Expertise

Nash offers a comprehensive range of service and support products that are designed to help keep your operations running smoothly and efficiently, avoiding potential equipment failure and costly downtime.

Our **ISO 9001:2008** and **ISO 14001 certified service centers** are strategically located around the world, providing our customers with a range of service and support for your vacuum pump, compressor, or blower system, including:

- Inspections & Repair
- OEM Spare Parts
- Service & Repair Kits
- Conversions and Upgrades
- Materials & Seals
- Coatings & Linings
- ATEX Repairs
- Factory Performance Testing
- Field Service
- Installation & Start-Up Services
- Maintenance
- On-site Capacity & Performance Testing
- Fiberscope Inspections
- Pump Cleaning
- Vacuum Audits

[LEARN MORE](#)



Each service center is staffed by CERTIFIED, factory trained professionals who have access to a range of state-of-the-art, specialty equipment, tools, and fixtures that are required to rebuild and overhaul a range of pumps, compressors, blowers, screw vacuum pumps and engineered systems. Nash's technical service and support group is also on hand to provide engineering support as required.

Our team of experts relies on the latest engineering drawings and specifications, as well as a complete inventory of high quality OEM parts and spares. This ensures that your equipment is guaranteed to work within the same performance and reliability tolerances as a new pump or compressor.

Manufacturing Facilities

Nash - Zweigniederlassung der Gardner Denver

Deutschland GmbH
Katzwanger Straße 150
90461 Nürnberg
Germany
Tel: +49 911 1454-0

Pune India Gardner Denver Engineered Products India Pvt

Ltd Gat No: 182, 183, 184 Gat No:
182, 183, 184, Alandi - Markal Road
Fulgaon Pune Maharashtra 412216

Sales Office/Service Center

Zoeterwoude, Netherlands Gardner Denver Nash Benelux BV

Produktieweg 10 Zoeterwoude
Zuid-Holland 2382 PB
Contact Us
Sales/Service: +31 (0)71 582 3456

Saint Quentin Fallavier, France Gardner Denver France SAS

42 rue du Montmurier BP 604
Saint Quentin Fallavier Lyon 38070
Contact Us
Sales: +33-4-74-94-16-73
Service: +33-4-74-94-91-55

Winsford UK Cheshire Gardner Denver Ltd

Road One Winsford Industrial
Estate Winsford Cheshire CW7 3PL
Sales: +44-160-654-24-00
Service: +44-160-654-24-00

Kingdom of Bahrain (middle east) Manama Bahrain Gardner Denver International Ltd

75, Kingdom Tower, Building 8,
Road 1901 Al Hooraa 319 Manama
Bahrain Sales: +973-17-81-31-87