

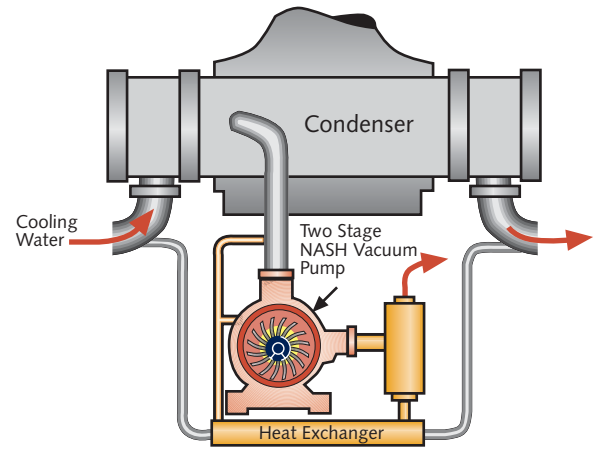
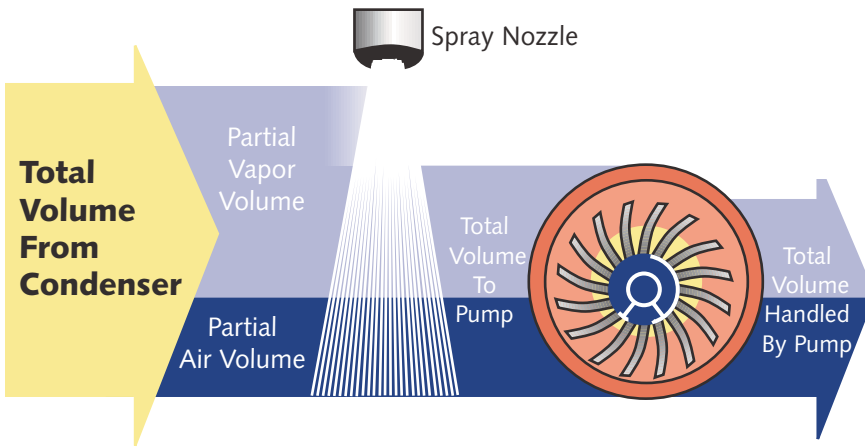
**Vacuum Pumps and Compressors for the  
Electric Power Industry**



# NASH Electric Power Generation Vacuum Systems

## Condenser exhauster systems assure maximum power availability

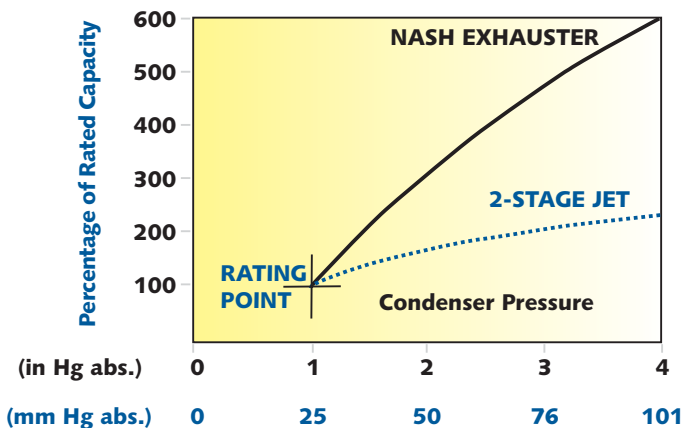
Nash self-contained condenser exhauster packages in steam cycle plants efficiently remove inward air leakage from the condenser. The effect is to provide lower turbine backpressure, improve heat rates and reduce generating costs. The packages consist of a two-stage liquid ring vacuum pump, air-liquid discharge separator, heat exchanger and associated controls.



**Capacity Bonus:** You get more capacity and save energy when water vapor is condensed ahead of the NASH pump. This performance bonus is made possible by NASH conical porting.

Since more than two thirds of the gas drawn from the condenser is water vapor, the Nash conical ported design is ideal for handling this air-vapor mixture. Spray water condenses a substantial portion of the vapor ahead of the pump and, as that condensate passes through the pump as a liquid, pumping capacity is increased and energy saved. This is the Nash capacity bonus that is not possible with other pump designs.

Nash condenser exhausters perform reliably, operate automatically and hold the condenser at the best possible vacuum during unexpected transients of air leakage.



With a NASH condenser exhauster, your turbine backpressure rises very slowly under excess inward air leakage conditions.

## Product Features

Steep Rising Capacity Characteristic

Shrouded Rotor Design

Completely Automatic Operation

Conical Design

Two Stage Pump

Only One Moving Part With No Metal to Metal Contact

100% Performance Tested

No Internal Lubrication Required

Two Year Warranty

## Customer Benefits

Handle Excess Air Leakage with Minimal Rise in Turbine Backpressure

Handle Water Slugs and Condensate

No Local Operator Required - Performs Both Hogging and Holding

Provides Higher Efficiencies

Eliminates Cavitation at High Vacuum Levels

Simple Design, Long, Trouble-Free Life

Simple Start Up

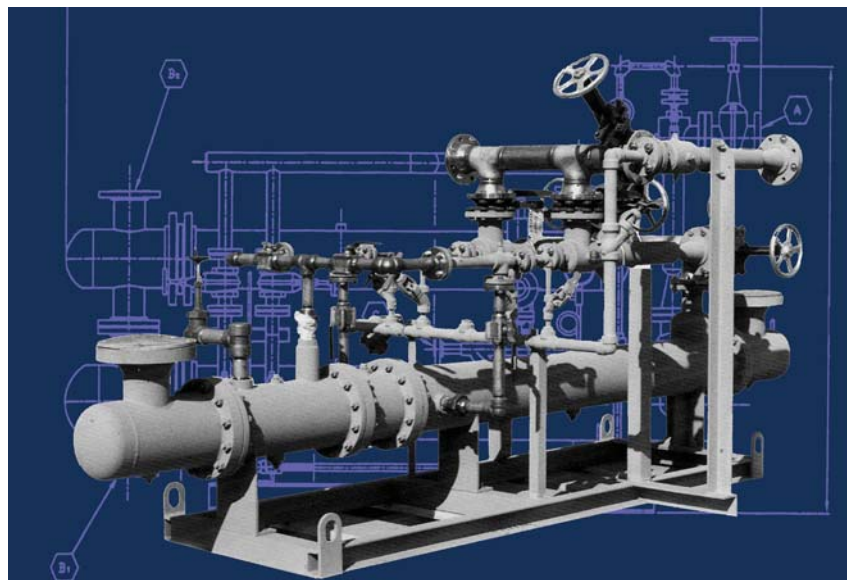
No Local Exhaust Contamination

Peace of Mind

## A low cost alternative: NASH Steam Jet Air Removal Packages

When low cost reliability is your principal concern, Nash has two-stage, twin-element air removal packages to cover the complete range of HEI requirements. These pre-engineered packages have capacities from 3.0 SCFM to 15 SCFM (6 to 30 kg/hr).

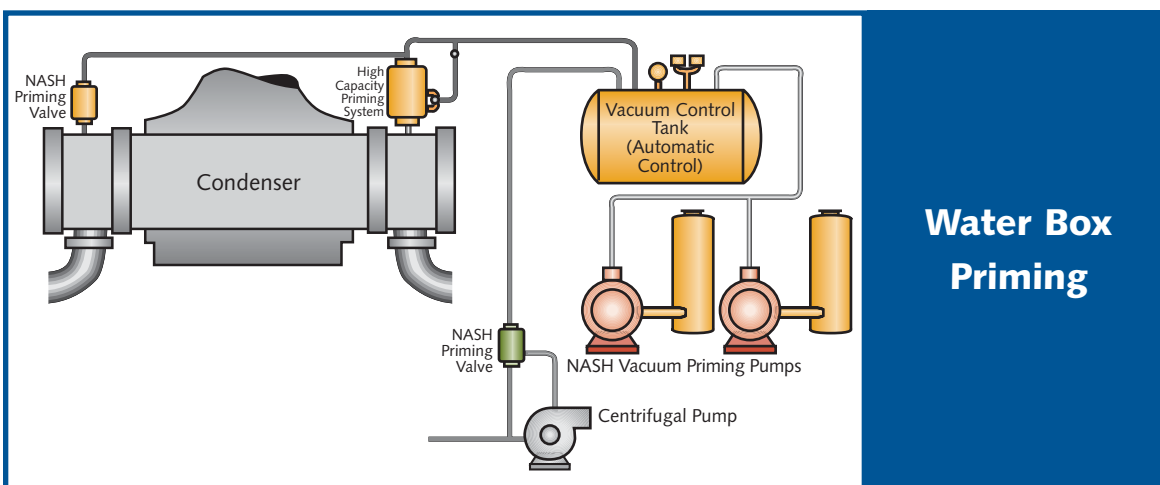
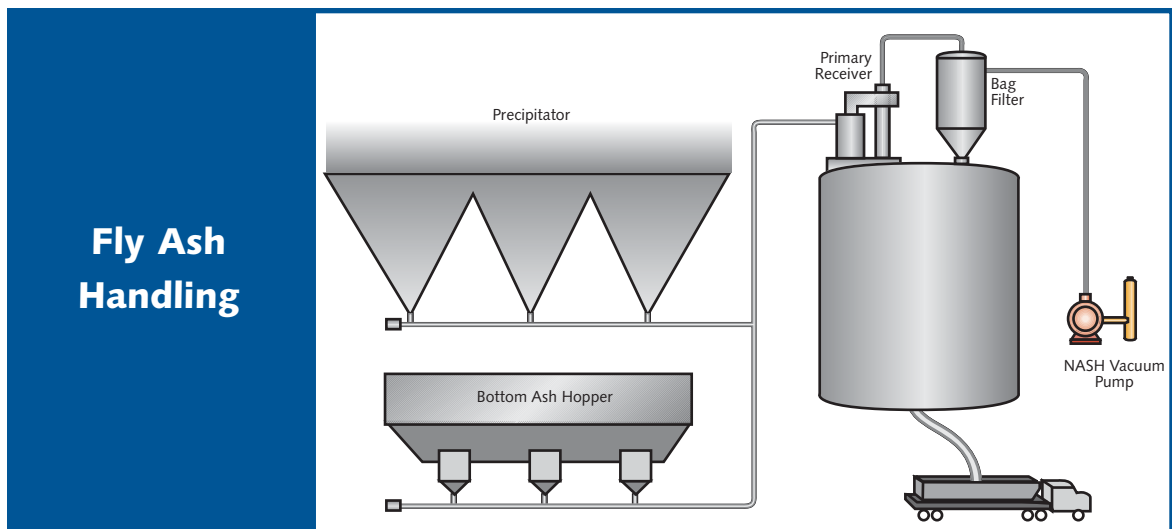
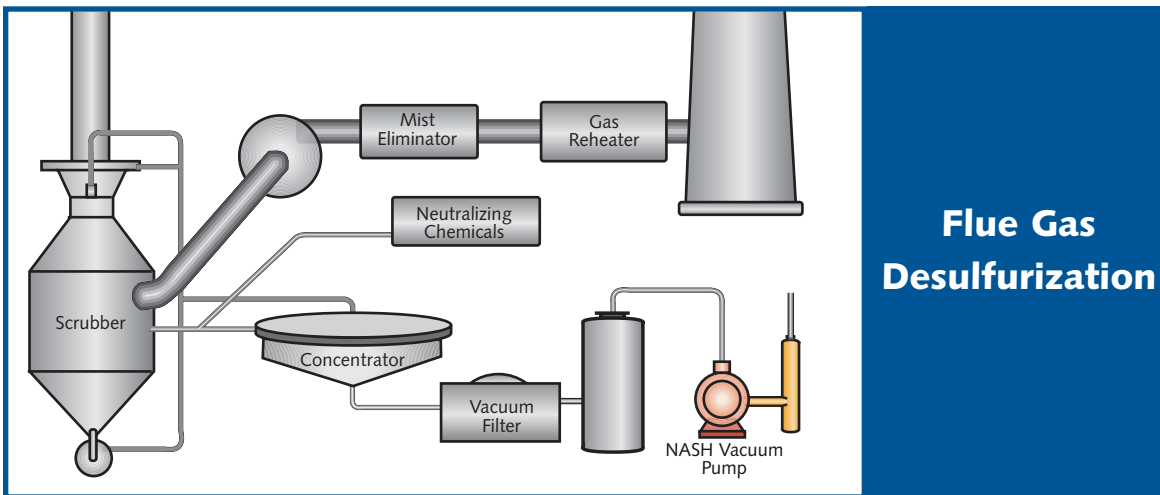
Nash is the only manufacturer of a complete range of steam jets and liquid ring vacuum pumps and has the experience to help you select the best air removal equipment for your specific requirements. Engineering data, system layouts and cost comparisons are available from your Nash sales engineer.





## System solutions for every requirement

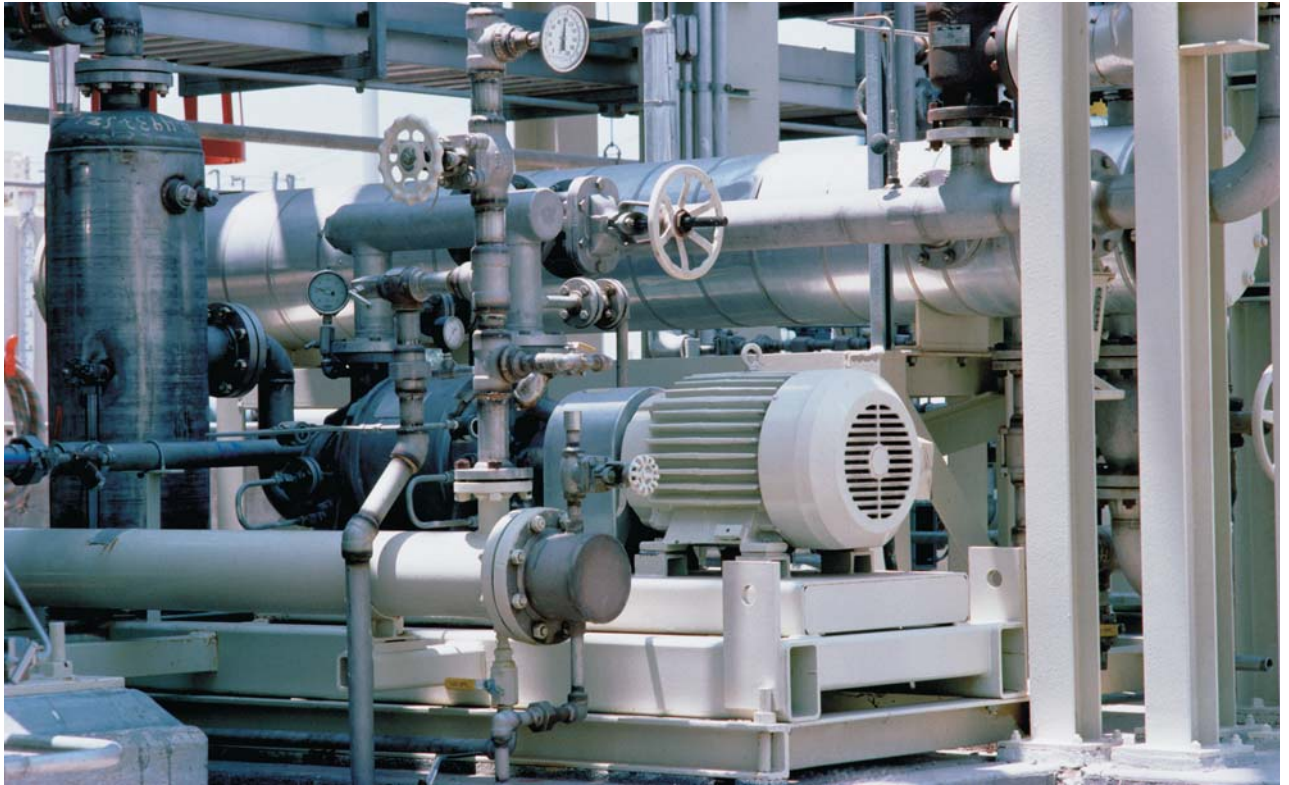
Nash also provides systems for other power plant applications. Many of these address environmental concerns by providing economical solutions for sludge de-watering, fly ash handling and flue gas desulfurization. Another application important to optimum condenser backpressure is water box priming. Your Nash representative will be happy to provide the necessary engineering data and specific recommendations to meet your needs. Nash has been a member of HEI since 1985.



# NASH Electric Power Generation Vacuum Systems

## Controlling worldwide electric energy costs

**For over half a century**, NASH systems have been the products of choice for air removal systems in steam cycle and geothermal power generation plants throughout the world. By reducing the energy loss due to increased turbine backpressure, our vacuum systems save millions of dollars worth of energy every day.



*Steam jet/vacuum hybrid system by Gardner Denver Nash at a Geothermal Power Station*

## Providing solutions for complete system reliability

Whether you are planning a new unit or a system upgrade, Nash sales engineers have years of application experience. Our expertise has been achieved through hundreds of installations. We will provide you with the right solution for your specific requirements.

- Manufacturer of two stage liquid ring air removal systems for over 50 years
- Thousands of installations worldwide
- Complete systems engineered, designed and manufactured by Nash
- Our ability to provide the total vacuum system is unmatched in the industry
- Specifically designed for your power plant
- Manufactured in compliance with ISO 9001 standards
- 100% tested to HEI requirements in our factories before shipment
- Warrantied for two full years

## Global service and support

The Nash service organization is one of the best in the world. From startup supervision to solving operating problems and providing fast response to emergencies, our global sales and service organization is positioned to serve all of your needs wherever your plant may be. No other liquid ring pump supplier can make this claim.

## Other NASH Products

### TC/TCM

Integral 2 stage liquid ring pumps with improved performance at vacuum levels down to 0.8" HgA (27 mbar)  
Designed to handle large amounts of liquid carryover without difficulty  
Capacity of 100 to 2,240 CFM with vacuum to 0.8" HgA  
Capacity of 170 to 3,740 m<sup>3</sup>/h with vacuum to 27 mbar abs



### Steam Jet Ejectors

Sizes range from one-inch (25mm) to 78-inch (2 meters) inlets  
Capacities range from 20 to 20,000 CFM  
Capacities range from 34 to 34,000 m<sup>3</sup>/h  
Multi-stage system pressures as low as 0.001 mm HgA



### 2BE4/P2620

Large liquid ring vacuum pumps with superior corrosion resistance  
Top discharge capability which saves space  
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 m<sup>3</sup>/h with vacuum to 200 mbar abs



### Vectra

Liquid ring vacuum pumps and compressors  
Available in feature rich budget designs (SX, XL or GL)  
Designed to handle high back pressure requirements  
Capacity of 20 to 4,000 CFM with vacuum to 29+ HgV  
Capacity of 34 to 6,796 m<sup>3</sup>/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 Chloride Monomer (VCM) recovery  
Capacity of 60 to 2,200 SCFM with pressure to 200 PSIG  
Capacity of 100 to 3,740 m<sup>3</sup>/h with pressure to 15 bar abs  
Single and two stage models available



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