



• Technology • Innovation • Excellence

# VACUUM ENGINEERING SOLUTIONS



Unmatched Technology, Superior Performance, Trouble Free Operation



## SWAM Vacuum Division at a glance

**Swam** a name synonymous for technology, innovation and excellence is the world's largest manufacturers of Pressure & Vacuum Technology Blowers & Pumps. The design and construction of the Vacuum Pumps and Compressors reflect the experience and know-how acquired over years of product development in this particular field of machine engineering.

As a part of **SWAM GROUP** and through its experienced & specialized product teams, Swam is an ideal and competent partner offering its customers comprehensive engineering and project management capability, attending to its customers' needs and process requirements to provide the latest innovative engineered solutions.

The specialist knowledge and experience gained in the vacuum industry enables us to offer a wide range of vacuum systems. These can be offered at very competitive prices due to our purchasing expertise for vacuum components and parts based on nearly 25 years of experience in the field.

**Swam** Vacuum Division is all about combining process knowledge and our ability to deliver customer-specific solutions for vacuum engineering on a timely basis using standardized system platforms. This is what sets Swam apart when it delivers value to its customer base.

**Swam** supplies a diverse range of Vacuum Products Systems and Packages from standard compact units to complex purpose built systems with integrated instrumentation and control panels. Typical vacuum generation packages may include Rotary Oil Pumps, Piston Pumps, Liquid Ring Vacuum Pumps, Mechanical Vacuum Boosters, Screw Pumps, Pre-Condensers, Dry Pumps, Heat Exchangers, Scrubber Systems, Gauges, Separators, Traps, etc.

*Whatever you are looking for, SWAM has a solution for you.*

### Swam Vacuum Systems and Products :-

- Mechanical Vacuum Boosters
- Screw Dry Vacuum Pumps
- Liquid Ring Vacuum Pumps
- Vacuum Systems and Packages
- Roots Pumping Units





## SWAM- MECHANICAL VACUUM BOOSTERS

**Swam** a name synonymous for technology, innovation and excellence is the world's largest manufacturers of Pressure and Vacuum Technology Boosters Pumps, Vacuum Systems & Blowers. The design and construction of the Swam Vacuum Boosters and Systems reflect the experience and know-how acquired over years of product development in this particular field of machine engineering.

The Mechanical Vacuum Boosters have been designed for conveying, boosting air or neutral gases and are used in high vacuum applications. Swam offers a wide range to choose from 150 - 52000 m<sup>3</sup>/hr. with vacuum upto 10<sup>-4</sup> mbar and lower with backup pump. There are many high vacuum applications which cannot be, ordinarily and economically by the use of conventional Mechanical Vacuum Pumps. The Vacuum Boosters, in such cases help pumps perform better.

The Vacuum Boosters do not and should not be used to discharge direct into atmosphere and must be combined with a suitable back-up pump. It is thus an auxiliary equipment designed to improve the performance of backing pump, both in terms of increased capacity and reduced pumping down time.

The performance of combined unit **Booster & Vacuum Pump** is determined by the performance characteristic of the later as the Booster mainly acts as a pre-compressor. The ultimate vacuum capability of the combined unit is definitely much better than of Vacuum pump alone.

The vacuum boosters also referred to as Mechanical Boosters, are used to deliver large quantities of gas operating at very low vacuum backup pump. The internal working clearances are extremely small, amounting to a few tenths of millimeter. The clearances ensure no mechanical friction of rotating parts, but do cause certain degree of back streaming. The advantage of free rotation is booster's capability of operating at high speed without mechanical wear and tear.

### Salient Features of the Mechanical Boosters

- Compact design, robust construction and suitable for continuous duty.
- Can be used with all types of backing pumps and water ejectors.
- Flexible choice of flows – horizontal and vertical.
- A large no. of models and capacity to choose from : 150 m<sup>3</sup>/hr. to 52,000 m<sup>3</sup>/hr.
- Compatible to be coupled to flanged motor or V-belt drive or Gear box drive.
- High quality and reliability of operation.
- Unique advance technology sealing system ideally suited for high vacuum application.

The aforesaid features ensure flexibility of installation, efficient and reliable operation and requiring very less maintenance, in addition to energy efficient operation.





## SWAM- SCREW DRY VACUUM PUMPS

Swam SVP series is the most advanced design Screw Vacuum Pumps with features like variable pitch screws for the movement of gasses inside appear more freely, chances of overheating is reduced & operation is more stable.

### ISO Standard Motor C-Flange

The installing motor is easy extremely easy and, convenient, because the ISO standard motor C-flange fit makes the work convenient as well as saving space, low noise and vibration.

### Materials & Coating

Materials of pump casing (integral cooling jacket), two screw rotors are made of cast iron. Inner part of the casing, screw rotors and the front / rear cover which are contacted with process gas continuously are coated to prevent from corrosion.

- ▶ Standard coating : 40  $\mu$ m PFA

Also, special protection from corrosive process gas, Kalrez, Teflon O-ring for mechanical seal is available optionally.

### Features and Benefits

#### ▶ Reduced Discharge Time

The screw type rotors with the design of optimum compression ratio reduces pumping time so faster exhausting speed achieved.

#### ▶ Stable Performance

No lubricant ensures stable performance.

#### ▶ Strong Against Corrosion

Every surface contacts with gas is highly hardened and coated for protection from corrosion.

#### ▶ Interchangeable Mechanical Seal & Lip Seal

No oil leak due to using mechanical seal. Flexible substitution with lip seal is available as well.

#### ▶ Flange with ISO Standard

Easy installation of motor with ISO standard motor flange.

#### ▶ Highly Stiffened Gear With High Accuracy

Quiet operation and low vibration at high speed due to high stiffness gear.

#### ▶ Excellent Durability

Outstanding ability to handle residues ensures long maintenance intervals. Perfectly optimized design distinguished long durability.

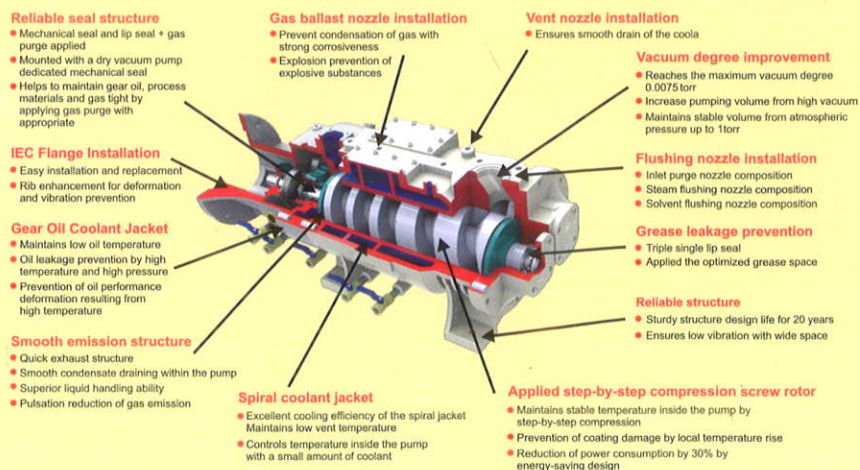
#### ▶ Low Operation Cost

Reduced consuming amounts of power, cooling water, nitrogen by using optimum screw type rotors for single stage pump.

#### ▶ Low Maintenance Cost

Easy installation with simple structure of the pump owing to selecting single body casing.

### Characteristics of SWAM Dry Screw Vacuum Pumps





## SWAM - LIQUID RING VACUUM PUMPS

**Swam** Liquid Ring Technology, developed by our technical highly skilled engineers and are of advanced design superior performance and high reliability. These pumps are used in industries like Paper, Sugar Coal Washeries in powerplants, Steel Plants, Mines, Chemical, Pharmaceuticals, Fertilizer, Food Processing, Railways, Asbestos, Solvent Extractions, Oil Refineries, Distilleries, Textile and Tyre industries etc.

### Latest Reliable Technology for the Industrial Processes

**Swam** pumps provide lower maintenance and lower life cycle costs & greater overall value to our customers. The pumps have improved variable port design, enabling wider range of operation, higher efficiency, saving of water and simpler seal line piping.

### Selection of pump :

For selection of vacuum pump size, user needs to determine the capacity required for the system and the operating vacuum level. Then size / model can be selected from the capacity range indicated. Swam can guide users for selection of the pump if required.

The Liquid Ring Vacuum Pumps are available in flat ported and conical ported designs. Operating efficiency, liquid handling ability and vapor condensation capacity of cone ported vacuum pumps are far better than flat ported vacuum pumps. Conical ported vacuum pumps have bigger port size. Flow paths in to and out of the rotor are more direct. These advantages gained recognition during a time when narrow, large-diameter pumps were evolving into longer units with proportionally smaller-diameter bodies.

Because of these advantages Swam has designed & developed conical ported energy efficient SVL- Series vacuum pumps.

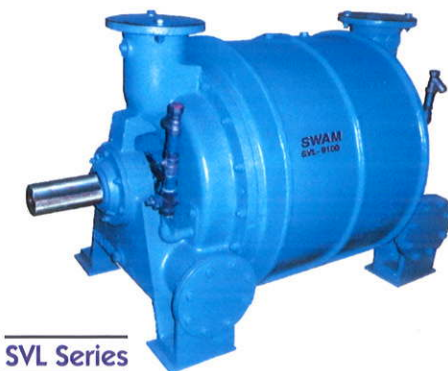
### Material of construction :

The vacuum pumps are manufactured in standard Cast iron material of construction. However depending on the application. Swam supplies Vacuum Pumps in SS 410, 304, 316, 316L and 317L material of construction to suit corrosive environment.

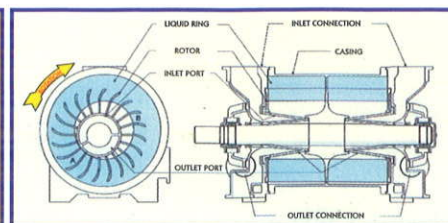
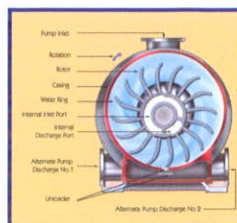
Basic Specifications	
Vacuum range	0 - 26 in Hg vac to 120 mbar abs
Mechanical seal*	Single or double cartridge
Differential pressure	15 psi 1bar
Construction Material	316L Stainless Steel, Double Iron, Nickel Alloy CI, Phosphorous, Bronze

\*Packing is supplied as standard. Mechanical seals are optional

Features	Benefits
One moving part	Higher reliability
Variable port design	Higher efficiency
Reduced water usage	Saving of water
Conical design	Better ability to handle water/particulate slugs
Lobe purges	Reduced erosion wear
Mechanical seals	Flexibility & ease of maintenance
100% performance tested	Trouble-free start-up and operation
Optimum design	Higher efficiency performance and value



SVL Series



## SWAM - VACUUM SYSTEMS & PACKAGES

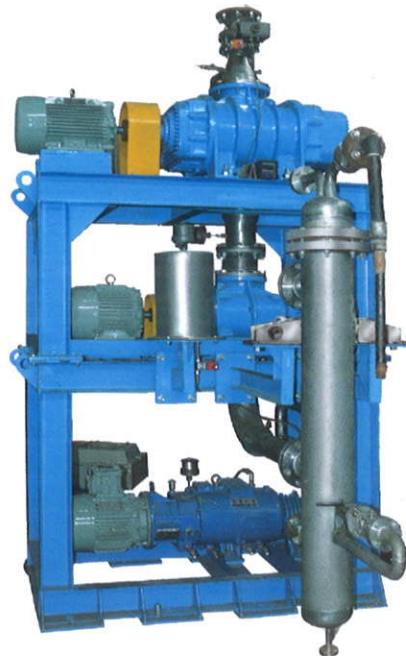


### INDUSTRIAL PROCESSING

- Impregnating Windings
- Drying Textiles Mills
- Sterilizing re-circulation through Ethylene Dioxide
- Incandescent CFL and Tube Light Manufacturing.
- TV / Semi conductor devices / capacitors.

### CHEMICAL & PHARMACEUTICAL

- Degassers
- Vacuum Distillation
- Evaporators
- Crystallizers
- Vacuum Filters
- Vacuum Dryers



### VACUUM FURNACE INDUSTRY

- Heat Treatment
- Hardening
- Optical Coating
- Metallizing
- Degreasers in furnace





### FOOD PROCESSING INDUSTRY

- Vacuum Packaging - Fresh & Cooked Meats
- Freeze Drying
- Deodorization of Vegetable Oil (FFA Distillation)
- Sugar Refining
- Vacuum Evaporative Cooling
- Vacuum Tray Drying
- Flash Drying

### SEMICONDUCTOR INDUSTRY

- Crystal Growing
- PCVD
- Implantation
- Sputtering
- Plasma Deposition



### ELECTRICAL INDUSTRY

- Transformer Vacuum Impregnation
- Transformer Oil Purifier
- Vapor Phase Drying



An ISO 9001 : 2008 Company

### Applications:

SWAM Vacuum Systems are ideally suited to a wide range of chemical and process applications including, but not limited to, the following

- Drying
- Distillation
- Reactor Service
- Solvent Recovery
- House/Central Vacuum
- Evaporation
- Polymerization
- Ethylene Oxide Sterilization
- Fatty Acids & Alcohols
- Bio-Fuels
- Corrosive Gases
- Flammable Gases
- Pervaporation
- Crystallization
- Absorption/Desorption/Thin Film Coating/Metalizing
- Filtration/Transformer Oil/Waste Lube Oil
- Electrical/CFL/LED
- Electronics/Semi Conductors Devices

SWAM's applications specialists throughout the world are able to advise on the most suitable vacuum equipment for your requirements.

### Customer Support Services:

A team of experienced and qualified engineers are deployed to rendering all kind of technical post supply services to our esteemed customers; such as pre-commissioning and post commissioning services, trouble shooting etc., to make the equipment perform to user's/ clients satisfaction.

Professionally and technically competent personnel are always ready to render these services, promptly and expeditiously.

For details contact H.O. or the nearest service network.

Manufacturing Plants:



PLANT - I



PLANT - II



PLANT - III



PLANT - IV



## SWAM PNEUMATICS PVT. LTD.

(ISO-9001:2000 quality certified)

### Corporate Head Office & Plant-I :

C-2, Sector-3, Noida-201301, Gautam Budh Nagar (INDIA)

Tel : +91-120-4696222, Fax : +91-120-2443283, 4696200

E-mail : sales@swamatics.com

**Plant-II :** B-9, Sector-57, Noida-201301 (INDIA)

**Plant-III :** B-111, Sector-67, Noida-201307 (INDIA)

**Plant-IV :** C-52, Sector-57, Noida-201301 (INDIA)

**Website : [www.swamatics.com](http://www.swamatics.com)**

For details of our local contact office in your region, contact H.O. or log on to website



**Leader in : Air-Gas Conveying , Boosting & Vacuum Technology**