swam

• Technology • Innovation • Excellence

ISO 9001
ISO 14001
OHSAS 18001

Liquid Ring Vacuum Pumps And Compressors

SVL Series

Advance & Next Generation Designed Equipment with Superior Features

Unmatched Technology, Superior Performance, Trouble Free Operation

THE COMPANY

Swam a leading engineering company and global leader specializing in design, engineering manufacturing, supply of Rotary Air and Gas blowers, Liquid Ring Vacuum Pumps & Compressors, Heat Exchangers & related equipments.

Swam Liquid Ring Technology, developed by our technical highly skilled engineers are of advanced design superior performance & high reliability. The design and construction of the Liquid Ring Vacuum Pump and Compressors reflect the experience and know-how acquired over years of product development in this particular field of machine engineering. These pumps are used in industries like Paper, Sugar Coal, Chemical, Steel Plants, Mines, Pharmaceuticals, Fertilizer, Food Processing, Solvent Extractions, Powerplants, Oil Refineries, Distilleries, Railways, Textile and Tyre Industries etc.

With over three decades of experience the company has adequately matured to execute different projects and is today represented in over 15 countries. Our quality system has been accredited with ISO-9001 Quality Standards S procedures. The company's head office and works are located at Noida near New Delhi, the capital city of India. The company has **FOUR manufacturing plants equipped with CNC Machines and in-house testing facility upto 1000 kw.**

Our highly motivated engineers and work force faces, each contract with commitment to meet the client process specification and quality requirement. The company has executed many prestigious projects under the stringent quality compliance.

The company's quality system is as per ISO 9001:2008 and has very high regard for safety environment and hence has all plants certified to ISO 14001 and OHSAS 18001.

FOCUS ON QUALITY & RELIABILITY

Emphasis on quality S performance is a commitment of every individual at Swam beginning at grass root level. The quality control is practiced at all levels of the organization and all its aspects are thoroughly complied with the specified standard and specification, till the product gets delivered.

The quality assurance system encompasses self quality control by each worker, supervised by quality control engineers. Each product undergoes thorough and stringent tests at different stages of manufacturing and are test run for several hours prior to despatch as per the relevant code, customers' specification and approved quality plan.

ADVANCE MANUFACTURING SYSTEM

Swam has the most advance manufacturing system with a large number of CNC Machines installed in our four plants. The Liquid Ring Vacuum Pumps and other products are manufactured with most optimum profile resulting higher efficiencies, high displacement, lower slippage. Thus our products are more energy efficient compared to other.

LATEST RELIABLE TECHNOLOGY FO THE INDUSTRIAL PROCESSES

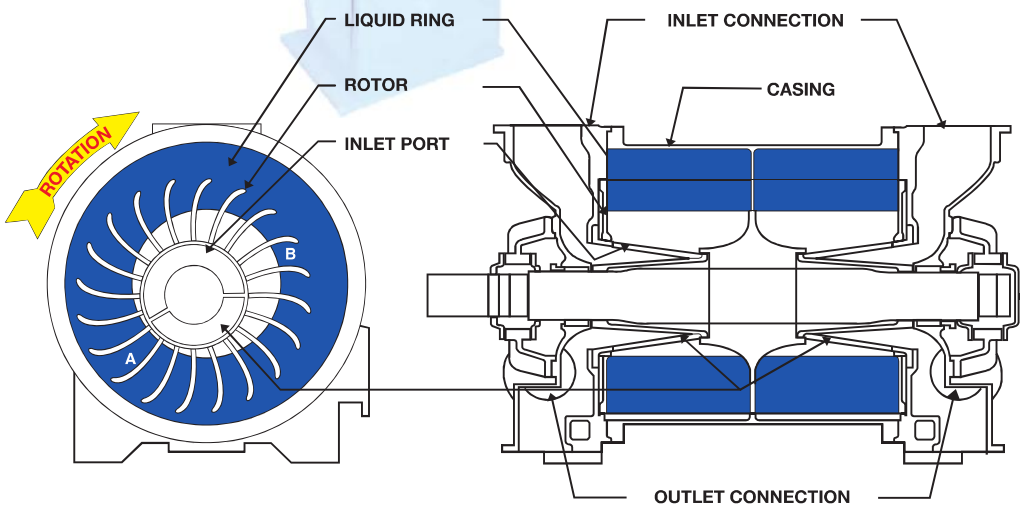
Swam pumps provide lower maintenance and lower life cycle costs and greater overall value to our clients. The Liquid Ring Vacuum Pumps have improved variable port design, enabling wider ranger of operation, higher efficiency, saving of water and simpler seal line piping.

PRINCIPLE OF OPERATION

Swam Liquid Ring Vacuum Compressors and Pumps are rotary machines in which liquid is made to act as a piston. This liquid is generally water for most of the applications. Hence these are known as Water Ring. A balanced rotor with fixed radial blades having slight curvature at the tips and a hollow hub revolves in a circular casing containing the liquid. The axis of rotor is placed eccentric with the axis of casing. At the operating speed the liquid rotates in the casing forming a circular hollow ring whose internal surface is at varying distance from the axis of rotor. Starting at a position in which the liquid ring is nearest to the rotor axis and completely fills the space between the two adjacent rotor blades the moving liquid ring now acts as piston on its suction stroke. This continues till the rotor chamber moves to the next position. During this travel all the chambers formed by the blades are connected to the inlet branch of the pump through specially designed ports in the cones and end covers (heads). While traveling between these positions the chamber formed by any two adjacent blades decrease in volume as the liquid ring is moving towards the centre acting as piston on its compression stroke.

At the end of the part of their travel the chambers are connected to the outlet branch of the pump through the specially designed ports in the end covers and the air is discharged into this branch. This completes one cycle operation and one such cycle is completed by every chamber formed by any two adjacent blades for one revolution of rotor. Thus during every cycle the air is sucked from inlet branch, compressed and delivered to the outlet branch. Due to more number of vanes, the operation is continuous and the discharge is non-pulsating. Part of the rotating liquid also flows out of the pump along with the discharged air and has to be replenished by supplying fresh liquid to the pump. The continuous flow of this liquid takes away part of the heat of compression from the air / gas handled, there by cooling the pump. When the inlet is connected to closed system and the outlet to atmosphere and will act as a vacuum pump. When the inlet is connected to the atmosphere S' the outlet to a closed system the machine will draw the air from the atmosphere and discharge into the system and will act as compressor.

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
MECHANICAL SEALS	FLEXIBILITY & EASE OF MAINTENANCE
100% PERFORMANCE TESTED	TROUBLE-FREE-START-UP AND OPERATION
OPTIMUM DESIGN	HIGHER EFFICIENCY PERFORMANCE AND VALUE



SELECTION OF PUMP
SINGLE STAGE (CONE DESIGN)

For selection of vacuum pump size, clients needs to determine the capacity required for the system and 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 S' 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 into and out of the rotor are more direct. The advantages gained recognition during a time when narrow, large-diametre pumps were evolving into longer units with proportionally smaller-diametre bodies.

Thus Swam has designed and 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 also supples Vacuum Pumps in SS 410, 304, 316, 316L and 317L material of construction to suit corrosive environment.

PERFORMANCE TESTINGS:

Our each Compressors / Pumps are tested thoroughly for their performance for several hours as per test standards of BS 1571 part 2, 1975 and the same can be witnessed by any third party inspection agency as per customer's choice.

DOUBLE STAGE
(LIQUID RING VACUUM PUMPS & COMPRESSOR)

SPECIFICATIONS				
PUMP	MOTOR	PUMP	CAPACITY	WATER
MODEL	HP	RPM	m^3/HR.	L.P.M
SVLD 1	10	1450	200	25
SVLD 2	20	1450	420	35
SVLD 3	25	1450	475	45
SVLD 5	25–40	980/1450	550	50
SVLD 7	40–60	890/1150	1100	65
SVLD 11	120–180	450/590	3500	140

TWO-STAGE LIQUID RING VACUUM PUMPS

NOTE:

1. Seal water capacity will vary as per the vacuum requirement.
2. Above data is considering 30°C temperature and 50% relative humidity at perssure of 1.0 Kg/cm^2
3. Power and capacity is within the tolerance of + 5%
4. The mentioned capacities are based on DRY AIR
5. Above data is subject to change without prior notice

COMPRESSOR

The pump can also be used to deliver pure compressed air or gas, free from oil upto 1.5 Kg/cm^2 Discharge pressure. Inlet water and sucked air / gas is led into the water separator. Where the air / gas is separated from water

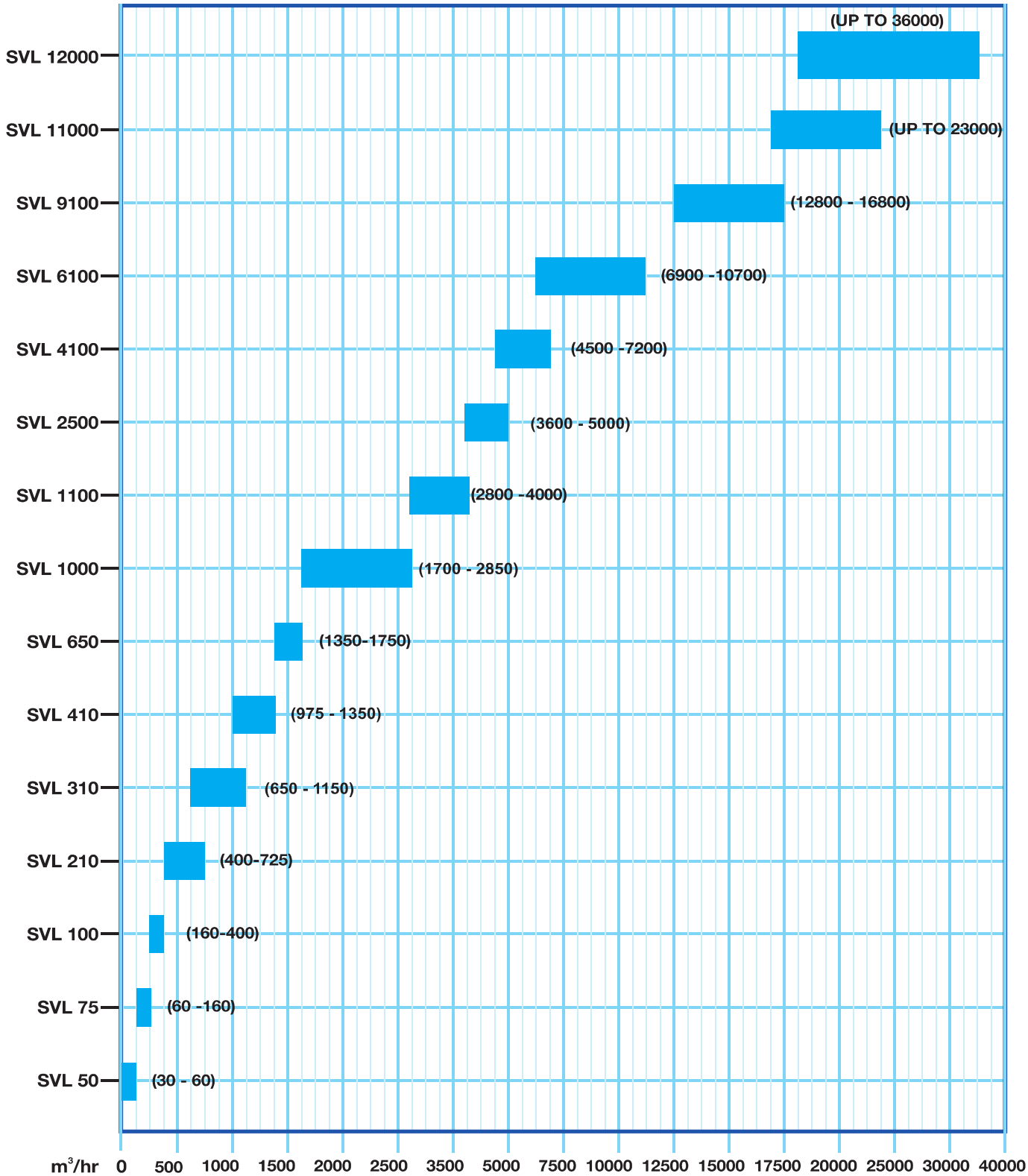
CHOICE OF MATERIALS

Type	Materials
A	Complete cast iron
C	Partial SS-316
S	Complete SS-316

Other materials are also available on customer's requirements.

SINGLE STAGE

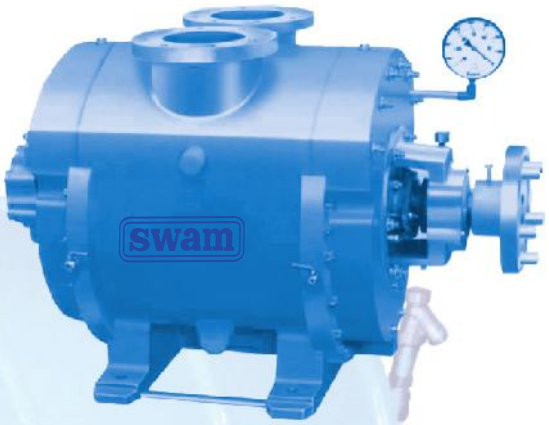
Liquid Ring Vacuum Pumps/Compressor



PERFORMANCE DATA OF SVLP- SERIES VACUUM PUMPS

CHEMICAL SERIES SINGLE STAGE PLATE DESIGN

VACUUM PUMP MODEL	MOTOR H.P.	SPEED RPM	MAX. CAPACITY M^3/HR.	SEAL WATER QTY. LPM
SVLP–30	3	2880	31	4
SVLP–40	5	2880	50	6
SVLP–50	5	2880	81	9
SVLP–70	7.5	2880	121	13
SVLP–75	7.5	1440	175	16
SVLP–100	10	1440	220	20
SVLP–150	15	1440	330	28
SVLP–200	20	1440	440	35
SVLP–300	30	980	725	55
SVLP–350	40	980	850	70
SVLP–400	40/50	980	1080	85
SVLP–650	60/70	725	1700	120
SVLP–900	100	725	2150	150



PERFORMANCE DATA OF SVL- SERIES VACUUM PUMPS

CHEMICAL SERIES DOUBLE STAGE

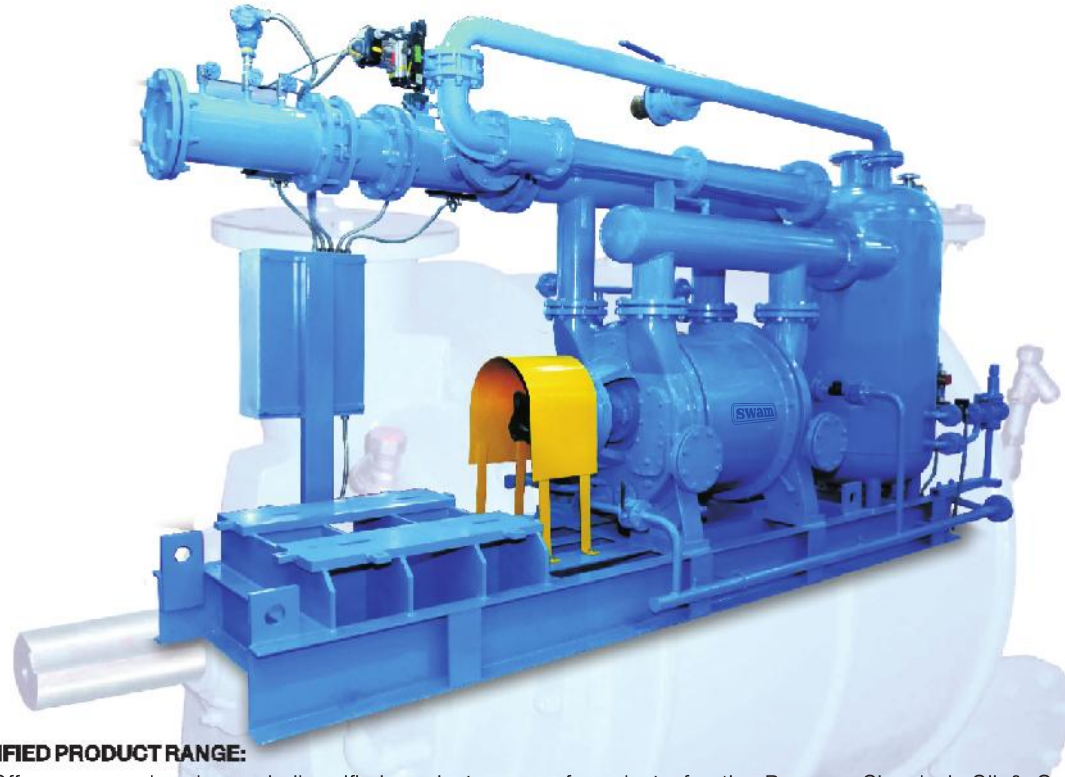
VACUUM PUMP MODEL	MOTOR H.P.	SPEED RPM	CAPACITY m^3/HR.	SEAL WATER QTY. LPM
SVLD–50	5	1440	85	6–8
SVLD–75	7.5	1440	175	8–14
SVLD–100	10	1440	220	14–20
SVLD–150	15	1440	305	20–25
SVLD–200	20	1440	400	25–30
SVLD–250	25/30	1440	525	30–40
SVLD–300	30/40	1440	725	50–60

SVL - CLOSED COUPLED SERIES

VACUUM PUMP MODEL	MOTOR H.P.	SPEED RPM	CAPACITY m^3/HR.	SEAL WATER QTY. LPM
SVLC–25	1.5	2880	25	2
SVLC–45	3	2880	45	4
SVLC–80	3	1440	75	4
SVLC–100	5	1440	110	6
SVLC–200	7.5	1440	200	9

CONDENSER EXHAUSTER

Swam offers advanced design Condenser Exhausters for hogging and holding service in power generation. The system consists of Liquid Ring Vacuum Pump separator, Heat Exchanger & Ejector (optional) with total re-circulation provide cavitation protection. Operate simply and automatically. Perform reliably over the entire condenser operating range and has superior performance and high reliability.



DIVERSIFIED PRODUCT RANGE:

Swam Offer a comprehensive and diversified product range of products for the Process, Chemical, Oil & Gas, Steel, Aluminum,Cement,Water & Waste Water and Power Industries.

BLOWER & FANS
- Rotary Piston Blower (Tri & Twin)
- Process Air Blowers
- Gas Boosters
- Truck Blowers
- Centrifugal Fans
- Process Air Fans
- Turbo Blower
- Screw Blower
- Helical blowers

VACUUM PUMPS & SYSTEMS
- Dry Screw Vacuum pumps
- Mechanical Vacuum Boosters
- Vacuum Systems
- Rotary Vane Vacuum Pumps
- Liquid Ring Vacuum Pumps
- Condenser Exhausters
- Oil lubricated/Oil Sealed Vacuum Pump

HEAT TRANSFER EQUIPMENTS
- Shell & Tube Type Heat Exchangers
- Finned Tube Heat Exchangers

INDUSTRIAL VALVE
- Butterfly Control Valves up to 1400 mm.

NOISE REDUCTION EQUIPMENTS
- Industrial Silencers
- Acoustic Enclosures

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Applications:

- **Oil and Gas Plants**
- **Pulp & Paper Industries**
  - Removing water from paper pulp
  - Vacuum filtration
  - Vacuum distillation
  - Moisture extraction
- **Power Plants**
  - Ash Conveying
  - Negative Conveying
  - Condenser Exhauster
- **Filter Plants**
- **Sugar Industries**
- **Process Industries**
- **Mineral Beneficiation Plants / Coal Washeries**
- **Chemical Plants**
- **Ship Building**
- **Textile Industries**
- **Petrochemical Plants**
- **Jet and Surface Condensers and various other uses**

Manufacturing Plants:

CUSTOMER SUPPORT SERVICES:

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

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

For detail contact H.O. or the nearest service n

SWAM PNEUMATICS PVT. LTD.

(ISO-9001:2000 Quality Certified)

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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