



**PARS VACUUM INDUSTRIES**

**PUMPS   BLOWERS   COMPRESSORS**

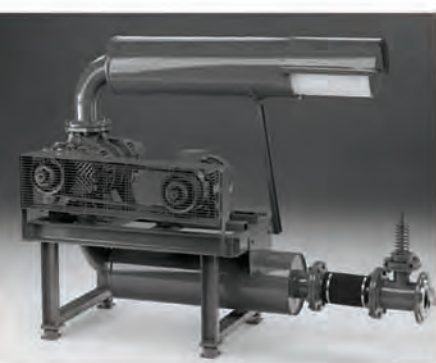




## Introduction and History:

Pars Vacuum Industries Co. was founded in 1985 and started the manufacture and supply of rotary liquid ring vacuum pumps and compressors in the same year. PVI is the first Iranian based company manufacturing these types of pumps.

Rotary positive displacement blowers were put into production in 1992 with the technical cooperation of Robuschi from Italy and are vastly used in different industries throughout the country.



In 2009, based on a technical contract with Aerzen Maschinenfabrik from Germany, which is the largest manufacturer of Roots-rotary Piston type blowers in the world and a well-known manufacturer of screw compressors, air/gas blowers of sizes greater than 25,000 cubic meters per hour and oil-free/oil-injected screw compressors were added to the range of products supplied by PVI.

Our company relies on dynamic research and development system, well trained personnel, suitable training programs, well-oriented information processing and using ISO 9001:2008 quality management systems, to ensure products with high quality and reasonable delivery time. At PVI, we constantly try to develop new ways to improve the quality of our products.



## Introducing Aerzen Maschinenfabrik:

Aerzen Maschinenfabrik was founded in 1864. In 1868, the first European rotary piston blower based on Roots principle was designed and manufactured by Aerzen. Gas meters were added to the production line in 1930 while 1943 marked the year in which screw compressors were added to the range of products.

Aerzen designs and manufactures blower packages called "Delta Blower" and screw compressor packages called "Delta Screw" which are based on the latest developed technology in the world.





## Products:

Our products are divided into the following 4 categories:

- Liquid Ring Pumps
- Positive Displacement Blowers
- Screw Compressors
- Gas Meters

Each one of our products is briefly introduced in the following sections.

### Liquid Ring Vacuum Pumps



PVI series of vacuum pumps with curved impellers use the latest technology in manufacturing "Rotary Liquid Ring" vacuum pumps. They are vastly used for suction and conveyance of different gases and vapors. The fact that the internal parts of the pump do not make contact with each other increases the lifetime of the pump and bearings.

Low power consumption, simple installation, minimum maintenance costs, increased suction pressure (up to 33 mbar), real suction capacity at the inlet port and finally oil-free, heavy-duty and non-stop operation are among the advantages of these pumps.



Liquid ring package units (with oil or water as the service liquid) are vastly employed in different industries such as chemical, petrochemical, brick and central suction systems in hospitals. These units consist of necessary components including a separating vessel, cooling system, service liquid reservoir and electrical control panel.

Simple and low cost installation, reduced noise level, small required space, with no environmental-related damages, low power consumption and increased suction pressure (up to 14 mbar for oil units) are among the advantages of these packages.



|                   |                  | Nominal Width | Abs. Pressure    |      | Capacity<br>m <sup>3</sup> /h | Power<br>kW |
|-------------------|------------------|---------------|------------------|------|-------------------------------|-------------|
|                   |                  |               | mbar             | mmHg |                               |             |
| Standard Products | PVI T42-782      | DN 25-100     | 33               | 25   | Up to 780                     | Up to 22    |
|                   | PVI 1000-5000    | DN 125-250    | 100              | 80   | Up to 5,000                   | Up to 160   |
| Packages          | PVI OT42-1000    | DN 25-125     | 14               | 10   | Up to 1,000                   | Up to 55    |
|                   | PVI PT42-1000    | DN 25-125     | 100              | 80   | Up to 1,000                   | Up to 45    |
|                   | Special Packages | DN 25-400     | 10 <sup>-2</sup> | —    | Up to 20,000                  | Up to 450   |

### Liquid Ring Compressors



AK and K series of air and gas compressors with rotary liquid ring mechanism are suitable for conveyance of air and aggressive gases such as CO<sub>2</sub> and SO<sub>2</sub> in the operating pressure range of 2000 mbar which have found their own niche in different industries.



|  | Nominal Width | Dif. Pressure<br>mbar | Capacity<br>m³/h | Power<br>kW |
|--------------------------------------------------------------------------------------|---------------|-----------------------|------------------|-------------|
| PVI-AK42-5000                                                                        | DN 25-250     | Up to 1,000           | Up to 5,000      | Up to 250   |
| Special Design                                                                       | DN 25-400     | Up to 2,000           | Up to 20,000     | Up to 630   |





Our new series of blowers which are packaged through the technical cooperation of Aerzen Maschinenfabrik are among the best in the world market and meet all the requirements of different industries with regard to oil-free conveyance of air, neutral gases, gas mixture, process gases and finally aggressive, flammable and poisonous gases.

**GM:** These series of blowers have 3-lobe rotors and are designed based on the latest technology in manufacturing these types of machines.

### Delta Blower :

The new generation of air blower packages has distinctive advantages over similar products from other companies such as lower noise level, simpler installation, simpler maintenance procedures, having a mechanical fan instead of an electric one thus eliminating the electric motor for the fan, lower power consumption and a smaller space required for the units.

|                          |                                   | Normal Width   | Capacity<br>m <sup>3</sup> /h | Dif. Pressure<br>mbar | Power<br>kW | Vacuum Pressure<br>mbar |
|--------------------------|-----------------------------------|----------------|-------------------------------|-----------------------|-------------|-------------------------|
| Air, Neutral Gas Blowers | Delta Blowers<br>GM3S- 240S       | DN50 to DN400  | 30-15,000                     | Up to 1,000           | Up to 500   | -500 mbar g             |
|                          | Special Packages<br>GM 315L-1080L | DN400 to DN800 | Up to 65,000                  | Up to 1,000           | Up to 1,100 | -500 mbar g             |
|                          | Bulk Vehicle<br>GM25S-35S         | DN150          | 600-2,250                     | Up to 1,000           | Up to 75    | -500 mbar g             |

### GR/GQ:

These process gas blowers are of Roots type and suitable for conveyance of aggressive gases, gas mixtures and process gases. These series of blowers come in different sizes and the largest model has a capacity of 100,000 cubic meters per hour which is indeed the largest Roots-type blower ever produced in the world.

### GMa/b/c...HV:

These vacuum blowers are applicable in high vacuum applications. They are manufactured in three different versions based on the Roots principle; with pre-inlet cooling, with pre-inlet and with canned motor. The final suction pressure these machines can reach is  $10^{-3}$  mbar and the capacities range from 80 to 97,000 cubic meters per hour.

|               |                                   | Normal Width | Capacity<br>m <sup>3</sup> /h | Dif. Pressure<br>mbar | Power<br>kW | Vacuum Pressure<br>mbar abs |
|---------------|-----------------------------------|--------------|-------------------------------|-----------------------|-------------|-----------------------------|
| Process Gases | Gas Blowers<br>GR, GQ             | DN 100-1,200 | Up to 100,000                 | Up to 1,500           | Up to 2,400 | -                           |
|               | Vacuum Blowers<br>GM a/b/c ... Hv | DN 50-800    | Up to 97,000                  | -                     | Up to 160   | Up to $10^{-3}$             |







Screw compressors operate based on the rotary positive displacement principle and are manufactured in two versions; oil-free and oil-injected.

The following sections contain information about the above mentioned products.



### Oil-Free

**Delta Screw:** These series are the new generation of single-stage oil-free screw compressor packages and suitable for conveyance of air and neutral gases. Their design is based on the latest technological advances in the world. Small space required for the cabinet, no need for water-based cooling system, low power consumption, simple installation and using either v-belt drive or gearbox as the power transmission system are a few advantages of these series.



### Delta Twin/VMT:

These series are the new generation of double-stage oil-free screw compressor packages and suitable for conveyance of air and neutral gases. They are supplied in two models: air cooled and water cooled, both with v-belt drive or gearbox as the power transmission system.

Special designs in these models include stainless steel design, deploying special instrumentation, special coatings for parts and finally designing based on the ATEX standard.



### VRa/VRO:

These series of compressors are specially designed for process gases and come in single-stage or multiple-stage which are vastly employed in oil, gas, chemical and petrochemical industries. They are manufactured based on API/NACE/ASME and European standards and are suitable for compressing practically all process gases such as natural gas, lime-kiln, hydrogen, flue gas, torch gas, nitrogen monoxide, ammonia and all hydrocarbon combinations.



|  |                        | Normal<br>Width | Capacity<br>m <sup>3</sup> /h | Dif.Pressure<br>bar                    | Power<br>kW                   | Vacuum Pressure<br>mbar abs |
|-------------------------------------------------------------------------------------|------------------------|-----------------|-------------------------------|----------------------------------------|-------------------------------|-----------------------------|
| Air, Neutral Gas                                                                    | Delta Screw<br>VM, VML | DN 65-400       | 200-15,000                    | 3.5 (VM)<br>2 (VML)                    | Up to 900                     | 150                         |
|                                                                                     | Delta Twin/ VMT        |                 | 600-9,000                     | Up to 10.5                             | Up to 1,100                   | -                           |
| Process Gases                                                                       | VRa/VRO                | DN 150-1,400    | 550-120,000                   | 3.5 (single stage)<br>40 (multi stage) | Up to 8,500<br>(single stage) | 100                         |



## VMX:

These series of oil-injected screw compressors are among the best in the European as well as world markets. They are applicable in stationary and mobile packages for compressing air and neutral gases.

## VMY:

These process gas screw compressors are used in chemical and petrochemical industries, power plants and steel industry. They are manufactured based on API/ASME/NACE standards and suitable for compressing practically all oil-compatible process gases such as natural gas, hydrocarbon combinations, helium and nitrogen.

## VMY, VARI Screw:

These series of compressors are specially designed to be employed in the refrigeration industry for air conditioning, freezing plants, liquid chiller, cold storage and process cooling. They can be used for compressing most refrigeration gases such as R717 (NH<sub>3</sub>), R22, R134a, R507, R404a, propane, methane and butane.

|                                |  | Nominal Width | Capacity<br>m <sup>3</sup> /h | Dif. Pressure<br>bar       | Power<br>kW | Vacuum Pressure<br>mbar abs. |
|--------------------------------|------------------------------------------------------------------------------------|---------------|-------------------------------|----------------------------|-------------|------------------------------|
| Air, Neutral Gas<br>Compressor | VMX                                                                                |               | 70-3,200                      | Up to 13<br>(single stage) | Up to 355   | 100                          |
| Process Gases<br>Refrigeration | VMY                                                                                | DN 50-300     | 200-10,000                    | Up to 25<br>(single stage) | Up to 1,500 | 1 mbar                       |



## Rotary Piston Gas Meters



### Rotary Piston Gas Meter:

Rotary piston gas meters are used to measure the volume of gases flowing in a closed-loop system. Aerzen Maschinenfabrik is among the most-experienced companies in manufacturing rotary piston gas meters. This type of gas meter is vastly used in gas pipelines in cities, chemical industry, car manufacturing plants and other industries. They are compatible with all non-aggressive gases such as refinery gas, propane, butane, methane, hydrogen and natural gas.

|  | Nominal width | Capacity<br>m <sup>3</sup> /h | Measuring ratio | Pressure Drop<br>mbar | Re-Calibration                                               |
|-------------------------------------------------------------------------------------|---------------|-------------------------------|-----------------|-----------------------|--------------------------------------------------------------|
| Gas Meter Za/Zb/Zc                                                                  | 50-300        | 1-6,500                       | 1:160           | 2-7                   | 16 years (G 40 to G 1,000)<br>Unlimited (G 1,600 to G 4,000) |





## Applications:

PVI products consisting of liquid ring pumps, blowers and screw compressors are used in different industries for conveyance and compression of air, process gases and gas mixtures, aggressive, flammable and poisonous gases in the operating pressure range of  $10^{-3}$  mbar up to 40 bars.

Our products are vastly employed in all sectors ranging from water and wastewater treatment, cement, food industry to oil, gas and petrochemical industries.

Application Sectors

|                          | Liquid Ring Pumps |            | Positive Displacement Blowers |        |             | Screw Compressors |             |
|--------------------------|-------------------|------------|-------------------------------|--------|-------------|-------------------|-------------|
|                          | Vacuum            | Compressor | Air                           | Vacuum | Process Gas | Air               | Process Gas |
| Food industry            | ✓                 |            | ✓                             | ✓      |             | ✓                 |             |
| Wood and paper           | ✓                 |            | ✓                             |        |             | ✓                 |             |
| Cement                   |                   |            | ✓                             |        |             | ✓                 |             |
| Oil, gas & petrochemical | ✓                 | ✓          | ✓                             | ✓      | ✓           | ✓                 | ✓           |
| Chemical                 | ✓                 | ✓          | ✓                             | ✓      | ✓           | ✓                 | ✓           |
| Pharmaceutical           | ✓                 |            | ✓                             | ✓      |             | ✓                 |             |
| Mining                   | ✓                 | ✓          | ✓                             | ✓      | ✓           | ✓                 | ✓           |
| Steel                    | ✓                 |            | ✓                             | ✓      | ✓           | ✓                 | ✓           |
| Hospitals                | ✓                 |            | ✓                             |        |             | ✓                 |             |
| Plastic                  | ✓                 |            | ✓                             |        |             | ✓                 |             |
| Textile                  | ✓                 |            | ✓                             |        |             | ✓                 |             |
| Sugar                    | ✓                 | ✓          | ✓                             |        |             | ✓                 |             |
| Material conveying       | ✓                 |            | ✓                             |        |             | ✓                 |             |
| Water & wastewater       | ✓                 |            | ✓                             |        |             | ✓                 |             |
| Glass                    | ✓                 |            | ✓                             | ✓      |             | ✓                 |             |
| Flour                    |                   |            | ✓                             |        |             | ✓                 |             |
| Fish & shrimp ponds      |                   |            | ✓                             |        |             | ✓                 |             |
| Printing                 | ✓                 |            | ✓                             |        |             | ✓                 |             |
| Power plants             | ✓                 | ✓          | ✓                             | ✓      | ✓           | ✓                 | ✓           |



Oil, gas & petrochemical



Food industry



Water & wastewater



Steel industry



Power plants

## After-Sales Services:

We rely solely on the knowledge and experience of our technical staff to realize one goal we have in mind; customer satisfaction. The following list is a brief explanation of different after-sales services we provide to our customers country-wide:

- Technical advice on choosing the proper machinery for replacing the old and worn out systems.
- Dispatching our experts to all parts of the country for supervising the installation, operation and maintenance of the machines.
- Providing assistance in periodical service points, repairing, upgrading the operation etc. in the shortest period of time (all the products are guaranteed for six months after repairs).
- Providing training courses for commissioning, installation, repair and maintenance of products.
- All the products have 15 months of warranty
- Full support in terms of providing spare parts for a period of 15 years. Spare parts can be ordered based on the designated coding of the parts and will be quickly supplied from our spare parts warehouse.

## Sales Network:

At PVI, we have one goal in mind; customer satisfaction. One of the factors affecting customer satisfaction is the delivery time of products. With this fact in mind, we have spread our sales network throughout all the industrial provinces in Iran and we currently have at least one sales distributor in all of these provinces.

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