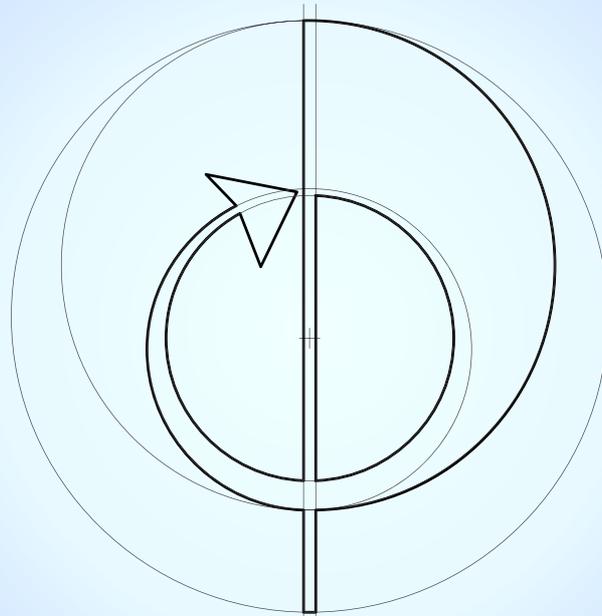


GLASS



VACUUM FOR GLASS

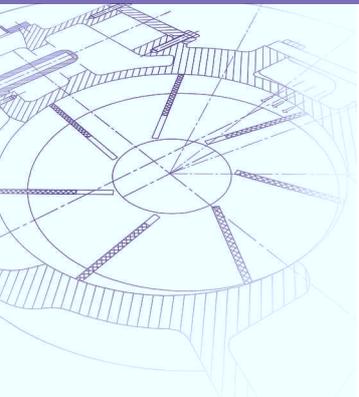
UV SERIES VACUUM PUMPS

The vacuum solution for the **glass industry**

Vacuum is the energy that Pneumofore delivers to its worldwide customers, ensuring **efficiency, reliability** and **accuracy** for the **glass industry**. With about 100 years of experience and sales in more than 50 countries, Pneumofore guarantees an unique know-how: every vacuum system project is designed according to the specific process needs, environment and workload.

This is why the UV Series of rotary vane vacuum pumps is the best solution for **energy savings, reduced maintenance costs** and constant 24/7 operation even in tough working conditions. Along with the high performances, Pneumofore units set another record: the lowest **Life Cycle Cost** in the market.

TECHNOLOGY

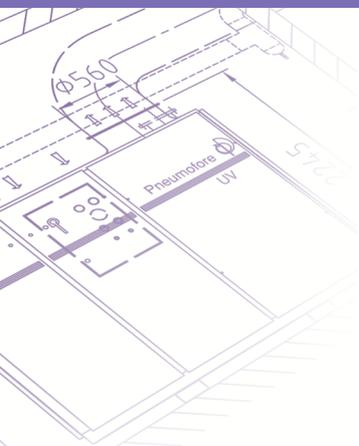


the **benefits of vacuum**

Vacuum works as an additional force in the glass containers forming. Together with the use of compressed air, **vacuum on the blow side increases the process speed, contributes to an even distribution of the glass on the container walls, reduces the gob weight and helps to remove heat from the molds**. Most IS machines come with vacuum on the blow side as a standard feature. Furthermore, **vacuum can be used on the blank side, with many advantages in energy savings, container quality and production speed**. Vacuum has proved to be a valid help in the container glass industry and is extensively used by glassmakers all over the world.

Pneumofore rotary vane vacuum pumps are the most efficient way to produce vacuum for the glass manufacturing industry and UV vacuum pumps can be found working with the most famous brands of IS machines in Europe as well as in the rest of the world.

PRODUCTS



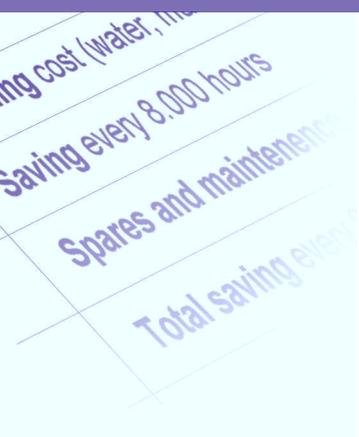
pneumofore solutions: the **vacuum, efficiently**

The UV Series vacuum pumps are “**ready-to-use**” machines, designed for easy installation and trouble free integration into the industrial process: an attentive care for the customer's needs that turns into high savings and the guarantee of reliability.

For every project, **Pneumofore designs a complete system that fits the specific application requirements**, delivering the best pumps and accessories sizing solution for the vacuum system centralization. Along with the standard version, the offer includes special and customizable machines as **the VS version, Variable Speed units with frequency converter** for a constant vacuum level at the IS Machine and enhanced energy savings.

Pneumofore also takes care of its customers during the system start-up, providing the appropriate training to the plant technicians. Furthermore, the **international service** ensures the ordinary and long-term maintenance at the lowest possible cost. Ultimately, the UV Series vacuum pumps can be supplied with **up to 5-years warranty**.

RESULTS



glass quality and cost savings

The design efficiency, the simplicity and the mechanical parts durability guarantee **low power consumption** and provide added value in terms of **sustainability and reduced operating costs**. These are not promises but objective data.

The air-cooling system of the UV series vacuum pumps drastically cuts down the installation costs and resets to zero the expenses related to **water connections, water treatment and disposal**. This means high savings and environmental concern, being water the world's most precious resource. The simple, sturdy design and the use of built-to-last components also guarantee low **operational and maintenance** costs.

Therefore, the UV series vacuum pumps offer the best Return-On-Investment and **the lowest Life Cycle Cost** in the market.

ROTARY VANE Technology signed by Pneumofore

Since its foundation, Pneumofore develops and improves the rotary vane technology. The UV Series vacuum pumps as well as the A series compressors refine the concept of efficiency itself: based on the rotary vane technology, the vanes active sealing ensures the best performance. The high capacity delivered by the UV pumps and the A compressors allows to create **centralized** systems, **made up of few reliable units, easy to install and maintain**. Specifically dedicated to the glass industry that requires constant vacuum and a huge flow of clean air at low pressure, the Pneumofore rotary vane technology is the solution to meet low power consumption with excellent reliability in the long run. The UV Series of vacuum pumps guarantees the highest performances compared to other single-stage air-cooled machines, constant in every working and weather conditions.

The UV Series capacity ranges **from 250 to 3.240 m³/h** in a single stage, with a nearly constant flow rate from 450 to 50 mbar(a). The double-stage option reaches an even higher flow with vacuum values **up to 0.05 mbar(a)**.

The A Series is designed to supply air at low and high pressure and guarantees the most efficient solution compared to other air-cooled machines, delivering clean air in all industrial and climate conditions. The A Series capacity ranges **from 175 to 1.720 m³/h**, and is available with three different pressure ranges from 2.5 to 10 bar(g).



A120.4

MAIN FEATURES

Air cooling system through an aluminum radiator and electric fan thermostat for operating without cooling water

No coolant consumption thanks to the closed-loop lubrication circuit

Durability and efficiency guarantee by the special aluminum alloy vanes that ensure constant performances even after tens of thousands hours of operation

Reduced energy consumption that other vacuum technologies cannot guarantee

Ready-to-use machines that can be easily and directly connected to the vacuum systems and the power supply, with no need of foundations

Limited footprint thanks to the compact layout designed to minimize the space needs

Direct coupling between motor and air end to ensure reliability, high performances and low maintenance

Sound-proof cabin for reduced noise impact

Fully automatic operation: intake valve, coolant temperature control, thermostat, auxiliary control switches and safety vacuum gauge

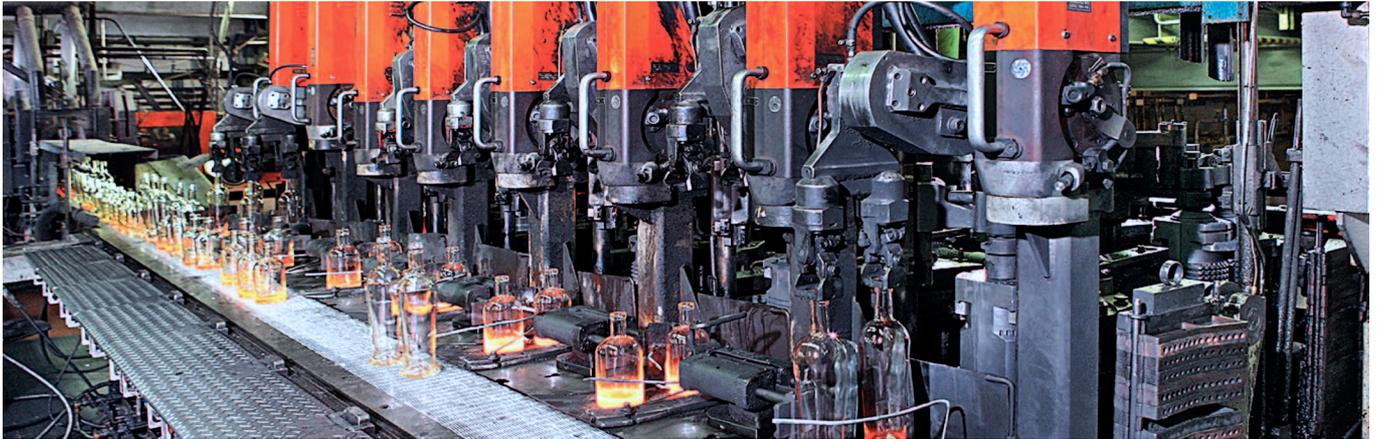
Coolant separator and recovery for clean air exhaust without treatment

Complete and easy-to-use **control panel**

Model		UV4	UV8	UV16	UV30	UV50
Nominal Capacity at 50 Hz	m ³ /h	250	462	971	1775	2700
Operating Pressure range ⁽¹⁾	mbar(a)	450 - 0,5				
Water vapor Capacity ⁽²⁾	kg/h	17	32	66	126	181
Pump Motor (400V)	kW	5,5	11	22	45	75
Rotation Speed	rpm	1450	1460	1460	1470	1475
Fan Motor	kW	0,07	0,1	0,37	0,75	1
Intake and Exhaust connections		2 ½" - 2" BSP	4" - 3" BSP	DN 125	DN 150	DN 200 - DN 150
Lenght	mm	825	1600	1850	2270	2670
Width		915	680	950	1450	1500
Height		1170	1775	1950	2050	2250
Weight	kg	200	780	1070	1800	2100
Total absorbed Power at 150 mbar(a)	kW	5,2	9	18	35	54
"VS" version Nominal Capacity variable speed, 4 poles motor, 35-60 Hz	m ³ /h	175 - 300	324 - 554	680 - 1165	1242 - 2130	1890 - 3240

Performance according to ISO 1607 and DIN 28426
 (1) from UV4 to UV50: 1013 - 0,5 mbar(a) upon request
 (2) "H" version, Water Vapor Tolerance: 120 mbar(a)

HOLLOW GLASS INDUSTRY



IS machine in operation producing different containers (courtesy of Bottero S.p.A.)



Light weight containers with the use of vacuum on IS machine



Complex shapes for design containers with vacuum assisted forming

Pneumofore is the proud supplier of the best glass makers in the world. Among others and in alphabetic order:

Actis	RUSSIA	Sisecam	TURKEY AND RUSSIA
Bangkok Glass Industries	THAILAND	Vedapack	RUSSIA
Gallo Glass	USA	Verallia	WORLDWIDE
Hindustan National Glass	INDIA	Vidrala	SPAIN
Leventis Group	UK AND NIGERIA	Wiegand Glass	GERMANY
O-I	WORLDWIDE	Youla Glass	GREECE AND BULGARIA



UV50



UV30 VS55

PARTS AND ACCESSORIES

efficient, reliable, durable

Intake air filter

Coolant filter cartridge for lubrication circuit

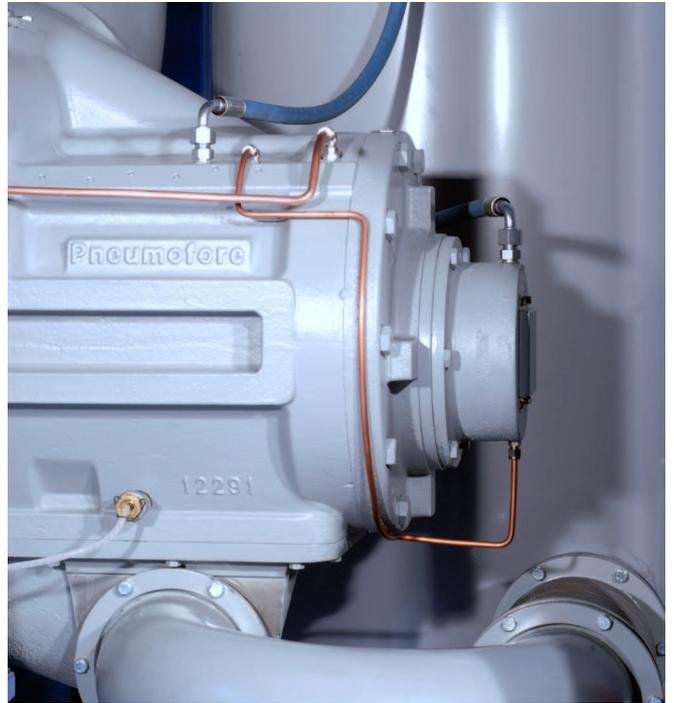
Coolant separator filter with coolant recovery for clean and residue-free exhaust

Special aluminum alloy vanes, designed by Pneumofore to last for decades

Cylinder built in non return valve to avoid air and coolant backflow

Direct coupling between the cylinder and electric motor

Pneumatically driven inlet valve for preserving the pump from exceeding operating range, allowing immediate start from any stand-by conditions

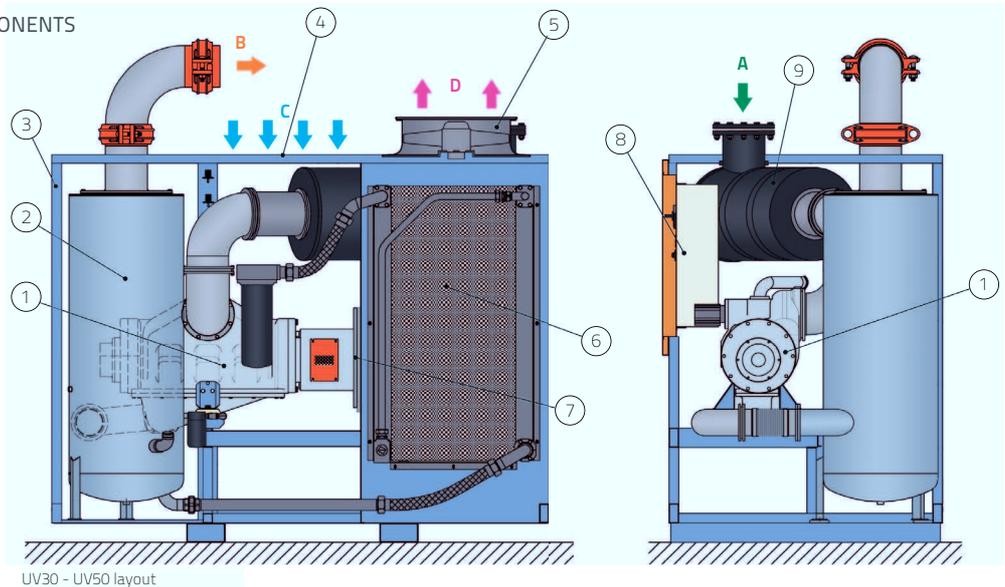


detail of air end

UV SERIES VACUUM PUMP COMPONENTS

1. Air end
2. Coolant receiver and separator
3. Soundproof cabin
4. Cooling inlet air filter
5. Fan
6. Coolant radiator
7. Electric motor
8. Control and power panel
9. Air intake filter

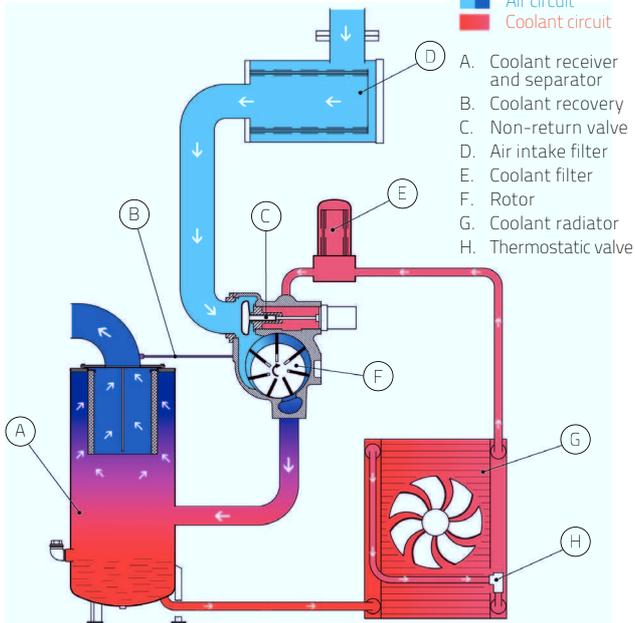
- A. Air intake
- B. Exhaust
- C. Cooling air inlet
- D. Cooling air outlet



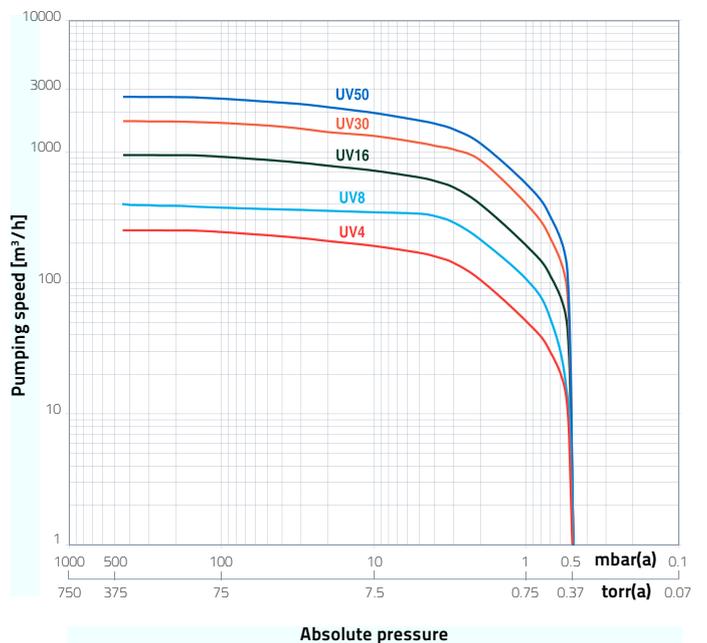
UV30 - UV50 layout

UV SERIES SCHEMATIC OPERATING DIAGRAM

- Air / Coolant
- Air circuit
- Air circuit
- Coolant circuit



VACUUM FLOW DIAGRAM at 50 Hz





Pneumofore S.p.A.

Via N. Bruno, 34 - 10098 Rivoli (TO) ITALY
Tel. +39 011.950.40.30 - Fax +39 011.950.40.40
info@pneumofore.com - www.pneumofore.com

Glass Application - October 12

Trademark and logo Pneumofore® are registered worldwide.
It is strictly forbidden to make unauthorised copies of this document. No dissemination without written permission.
© Pneumofore S.p.A. - all rights reserved.