



‘Compressed Air and Vacuum Systems: Selection, Design and Operation’

Pneumofore



UV SERIES VACUUM PUMPS



A SERIES AIR COMPRESSORS

ISO 9001
ISO 14001
CERTIFIED

SWISS ENGINEERING
ITALIAN DESIGN
GLOBAL PRESENCE

SINCE
1923



Facts & Figures



45.000 +

Number of Pneumofore machines produced since 1923

73 TOTAL

Countries with Pneumofore installations
28 EU 23 ASIA 22 OTHERS



12.000 +

Estimated number still in operation today, worldwide

44 TOTAL

Pneumofore distributors and service centers
27 EU 9 ASIA 8 OTHERS



58 YEARS KNOWN

Longest operational lifespan of a Pneumofore machine

0,40%

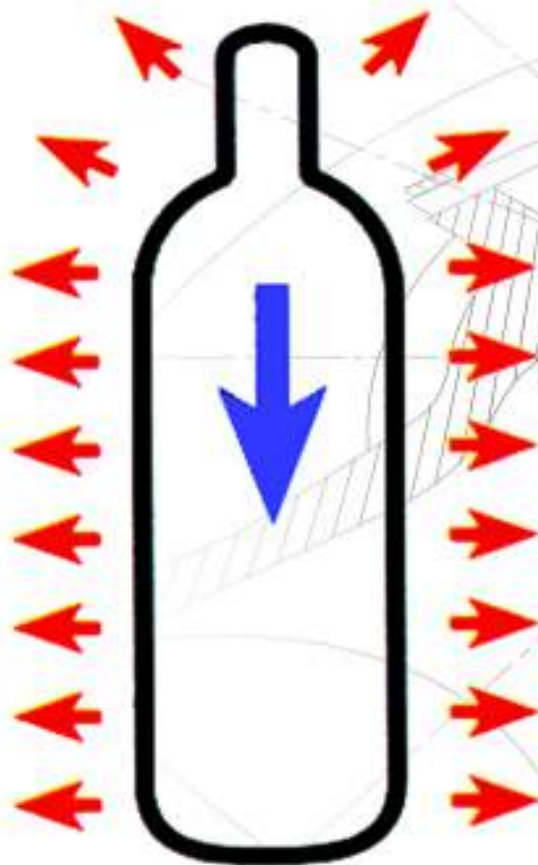
Pneumofore's own warranty cost in relation to turnover

Worldwide Presence





Combination of Pneumatic Energies acting in the Mould



Benefits of exact compressed air pressure value and vacuum degree:

Productivity

- Superior heat evacuation
- Higher forming speed
- More bottles / day

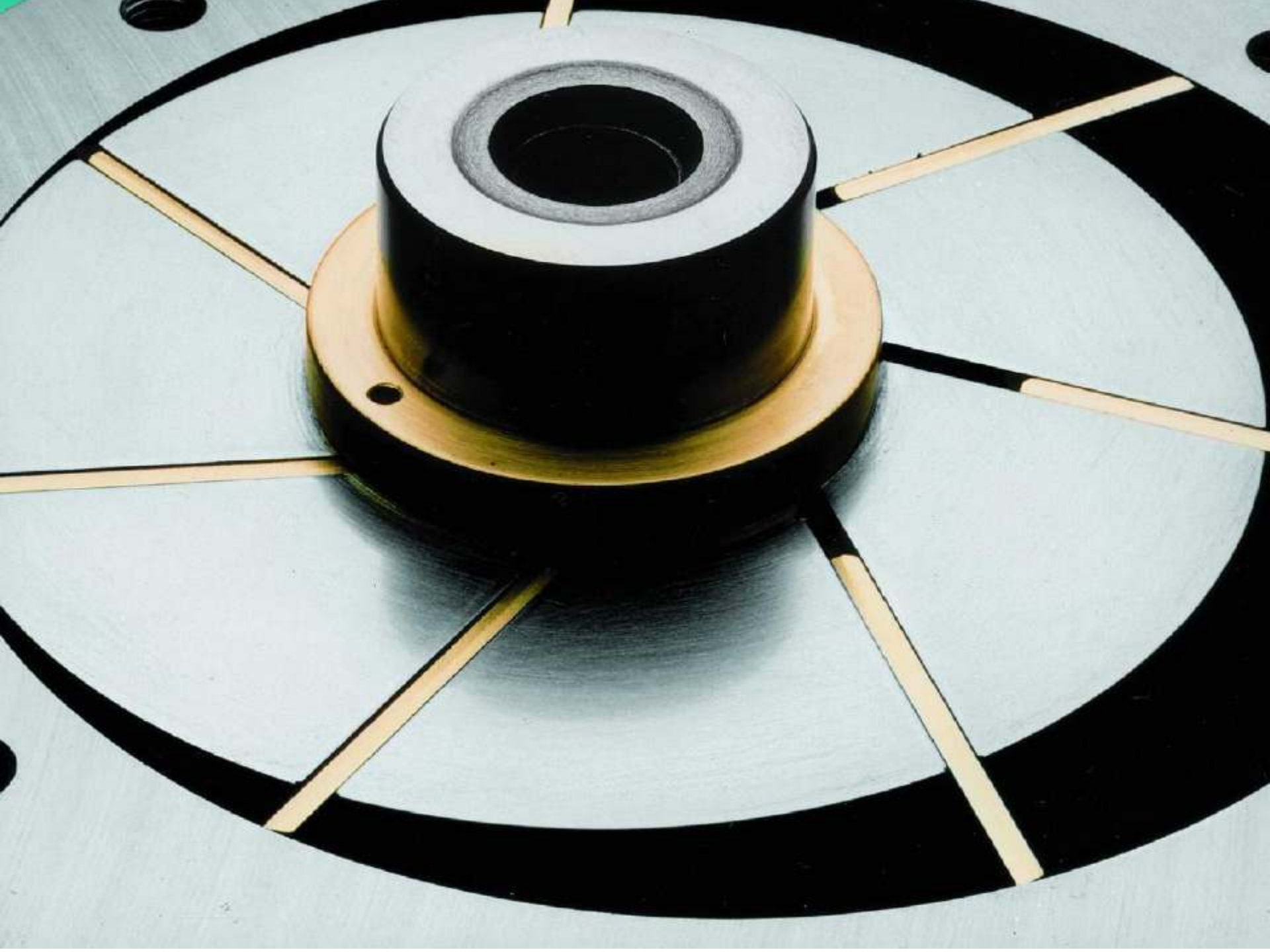
Quality

- Better 3D engraving
- Sharper corners / shoulders
- Lower rejection rate
- Lighter bottle

Energy Saving

- Correct set-up between air and vacuum leads to energy saving





Available Technologies for Compressed Air and Vacuum Supply



Rotary Vane



Piston






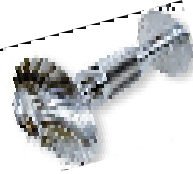

Screw




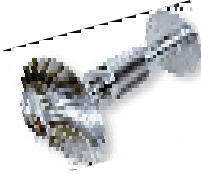



Turbo

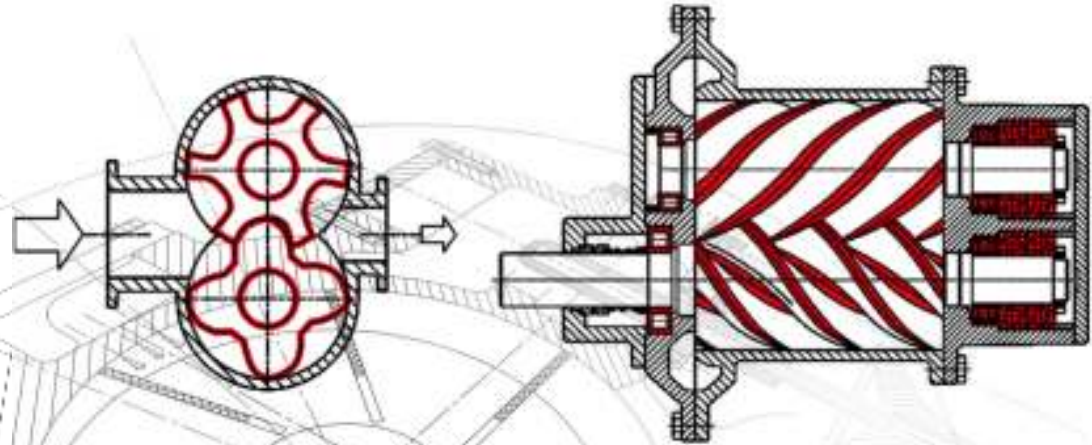


Liquid Ring

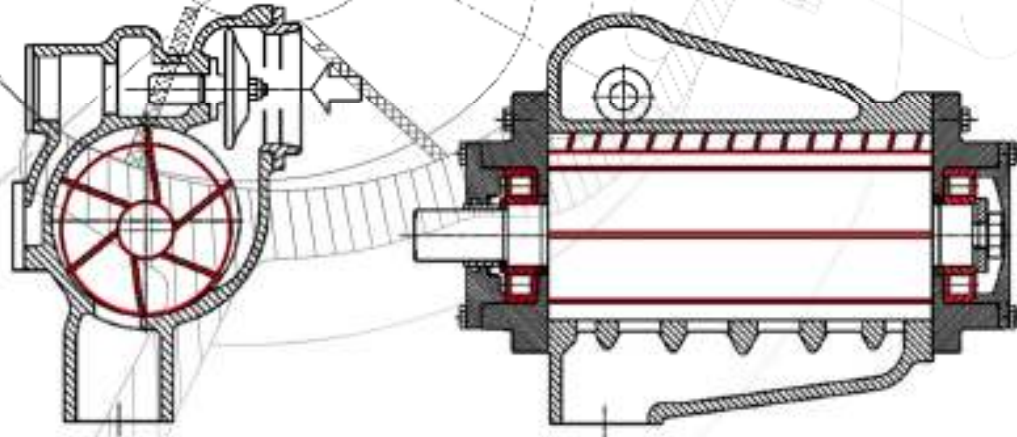
					
	Rotary Vane	Piston	Screw	Turbo	Liquid Ring
Service	Regular	Regular	Regular	Very little	Little
Repair	Easy	Costly	Not possible	Very costly	Medium
Cooling	Air	Water	Air	Water	Water

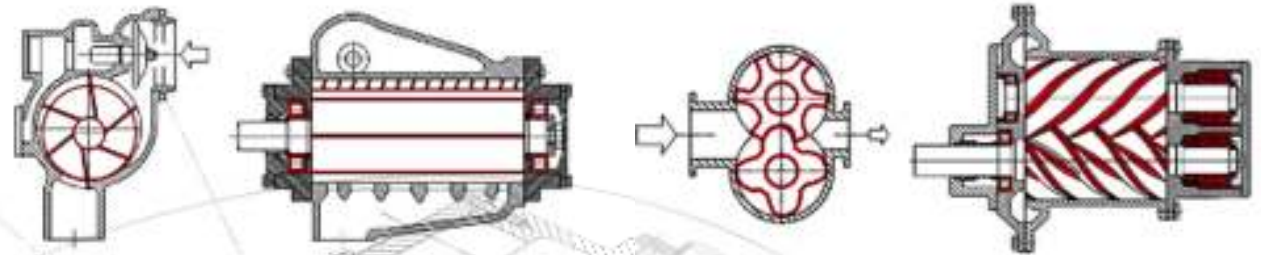
					
	Rotary Vane	Piston	Screw	Turbo	Liquid Ring
Advantage	Low running cost	Durable	Low price	Large flow	Sturdy
Disadvantage	Initial investment	High maintenance	Short life	Delicate	Costly operation
Total Life Cost	Low, 30 years	Medium, 30 years	High, 5 years	Medium, 20 years	High, 20 years

Screw



Rotary Vane





Sealing	Active	Passive
Bearings	2 x big	6 x small (or more)
Rotation speed	1.450 rpm	4.000 - 6.000 rpm
Life time	30 years	3 years
Efficiency	Constant	Minor in time
Coupling	Direct	Mostly gearbox
Temperature	110°C	200°C
Repair	Yes, easy	Limited, impossible
Life Cycle Cost	Lowest	High



UV Series Vacuum Pumps

- 7 models
- 250 - 6.480 m³/h capacity
- Vacuum 0,5 - 450 mbar(a)
- Single-stage
- Low rotation speed
(1.450 rpm @ 50Hz)
- Fully automatic operation
- Air cooled





Siam Glass with Vacuum for Forming Precision Rojana Plant (TH) - 3 x IS Lines

Production performances per IS line:

	BEFORE	AFTER	DEVIATION
Weight (g)	145	140	-3,35%
Speed (bottle/min)	515	520	0,97%
Efficiency (%)	93,2	94,5	1,30%

3,7 TPD saved / day / IS → **7.200** more bottles / day / IS

Total of:
21.600 more bottles produced in the plant / day



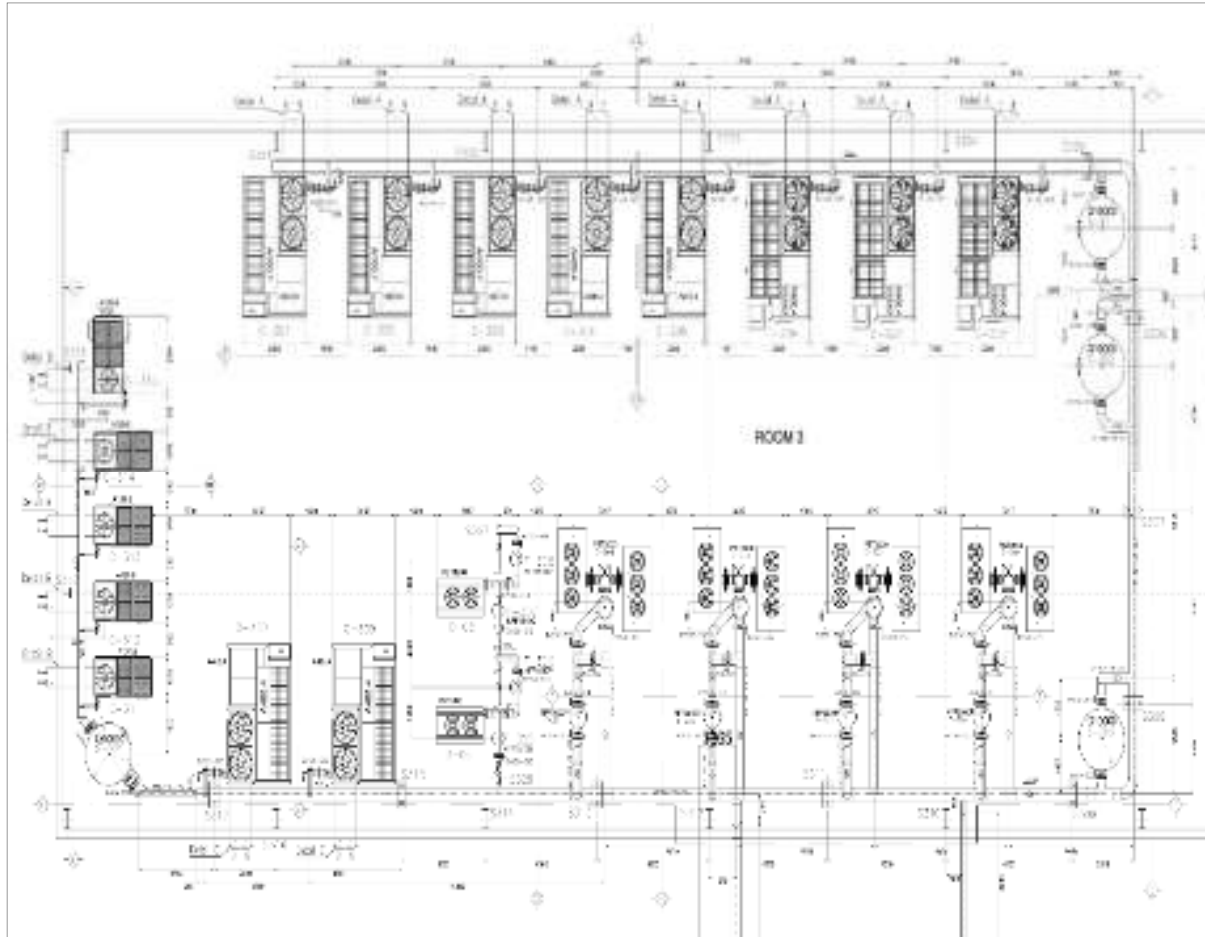
A400 Air Compressor



- 2.300m³/h @50Hz, 250 kW
- air cooled, lubricated, rotary vane, single-stage air compressor, 2,5 - 10 bar(g)

- Ring loop design for balance
- Air receivers at correct point
- No pressure loss
- Calculated pipeline layout





Complete Room Design

- Machine layout
- Set-up of easy installation
- Air cooling and room ventilation
- Access for control
- Fast maintenance



Pneumofore

FORBIDDEN
TO OPEN



7 x A400.4, 3 x A400.4 VS250, 4 x A90.8 and 1 x A90.8 VS90
Air Compressors for Glass Production - Changyu Glass, Quixia, China - 2016

Total Cost of Ownership

Purchase Price	10% +
Operational Cost	75% +
Maintenance Cost	10% +
Repair Cost	5%

ROI Calculation

Utility Room Audit

Before / After data collection

Pay-back Calculation

**Approach of modern
industry and future
oriented criteria**

UV24 Vacuum Pump



- New vacuum pump model
- Capacity from 850 to 1.490 m³/h
- Variable Speed drive

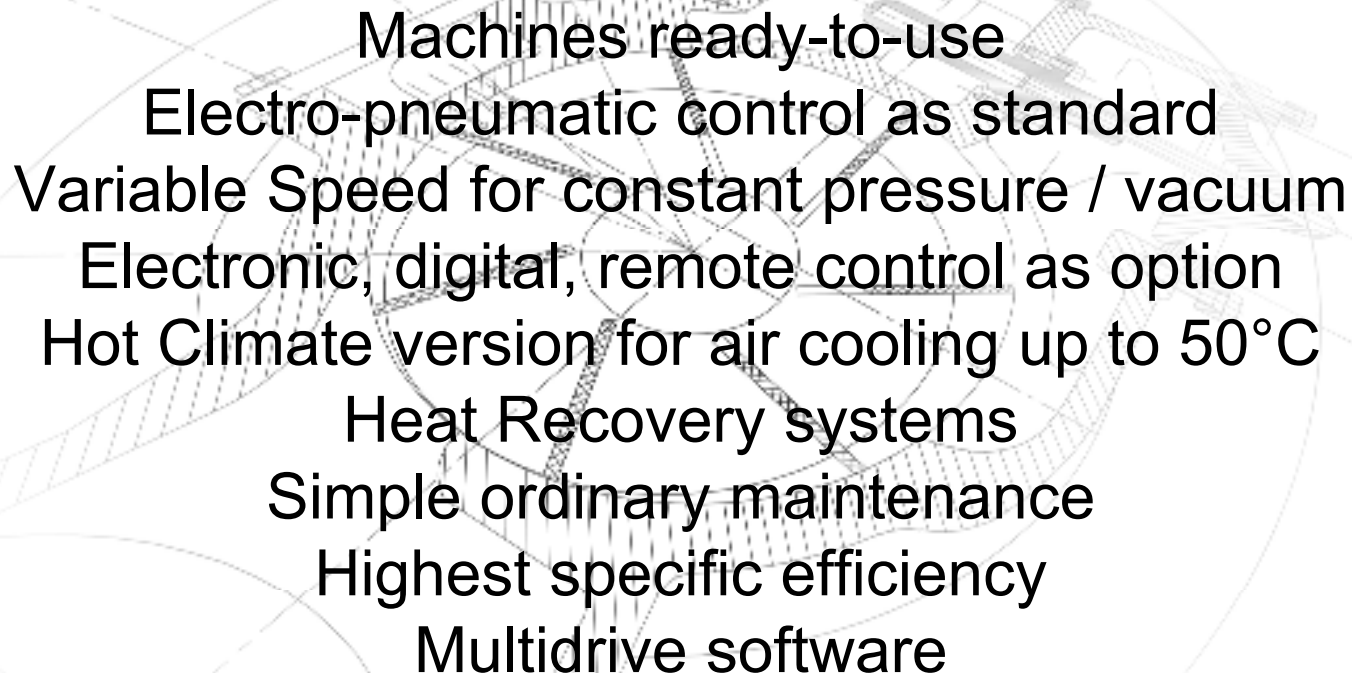


UV100 VS220 HC Vacuum Pump



- World's largest air-cooled, single stage rotary vane pump
- Hot Climate version
- Twin design with 2 x 110 kW
- Wide range of capacity from 1.800 to 6.480 m³/h
- Variable Speed drive

Options and Features of our Compressors and Vacuum Pumps



- Machines ready-to-use
- Electro-pneumatic control as standard
- Variable Speed for constant pressure / vacuum
- Electronic, digital, remote control as option
- Hot Climate version for air cooling up to 50°C
- Heat Recovery systems
- Simple ordinary maintenance
- Highest specific efficiency
- Multidrive software



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Thank you for your attention !