

# **RUVAC<sup>®</sup>** Roots Pumps Improved Vacuum

Technical information 173.23.02



### Proven Technology Fully Optimized

RUVAC roots pumps have been manufactured by Oerlikon Leybold Vacuum for many decades. The dry compressor roots principle has proven itself in many areas of vacuum technology.

Combined with oil-sealed fore-vacuum pumps such as the TRIVAC® or SOGEVAC®, RUVAC roots pumps are used very effectively to increase the pumping speed at low pressures, thus extending the operating pressure range of the fore-vacuum pumps.

Additionally, RUVAC roots pumps may be combined with dry-compression fore-vacuum pumps such as SCREWLINE® pumps where a total dry vacuum solution is desired.

RUVAC roots pumps are manufactured in three series with different motor drives.

The RUVAC WA series uses air cooled, flange-mounted standard three phase motors. The RUVAC WS series are equipped with canned (rotor) motors in air-cooled or water-cooled versions.

Each series consists of various sizes to always provide an optimized pumping speed for each application. All three series are available with or without integrated bypass valve (also known as pressure compensation valve).

**Pumping speed for fore-vacuum pump combined with RUVAC roots pump with and without integrated pressure bypass valve (example: WA/WAU1001 with SOGEVAC SV300):**

1. Fore-vacuum pumping speed
2. RUVAC pumping speed without pressure bypass valve
3. RUVAC pumping speed with integrated bypass valve



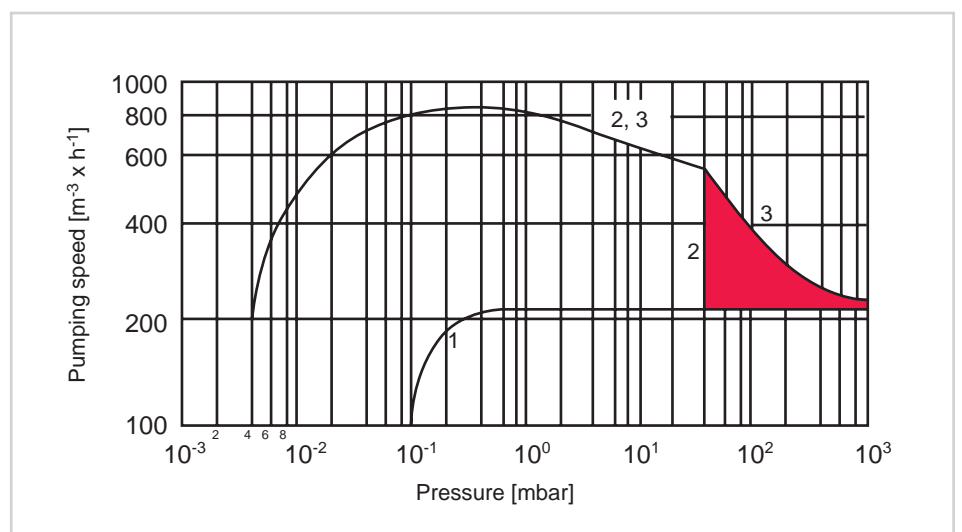
Range of RUVAC WAU pumps: WAU 2001, WAU 1001, WAU 501, WAU 251

- RUVAC roots pumps can be used either in vertical or horizontal position, thus ensuring flexibility in achieving compact design within systems. Position selected may be changed later if required.
- RUVAC roots pumps have rugged bearings, which in combination with the highly efficient lubrication systems enhances quiet running properties.
- The rotor and stator coils in the drive motor of the RUVAC WS and RUVAC WSU are separated by a vacuum-sealed can.

As there is no drive shaft leadthrough, the requirement for reliability combined with a perfect seal is met in an ideal manner.

The canned (rotor) motors combined with the highly efficient lubrication system in the RUVAC WS series allow running speeds up to 6,000 RPM (by frequency modulation).

This means increased pumping speed with the same size of pump.



# Proven Technology for Your Applications

## The Intelligent Series

RUVAC roots pumps are used in almost all areas of vacuum technology. They are a standard in combination with the established oil-sealed TRIVAC and SOGEVAC families. But they are also a standard as a complete dry combination with the SCREWLINE® family.



Vacuum pump system RUTA WAU 2001/SP 630/G for industrial applications, consisting of RUVAC WAU 2001 and SCREWLINE SP 630

## ATEX (94/9/EG) Compliant RUVAC Roots Pumps

**ATEX certified Roots pumps are available for the lines RUVAC WA / WAU 251/501/1001/2001.**

The pumps certified in accordance with ATEX Cat. 3 (inside) are equipped with a standard motor whereas the pumps certified in accordance with ATEX Cat. 3 (inside) and (outside) are equipped with a special ATEX motor which either complies with the requirements of temperature class T3 or T4.

- The RUVAC Roots pumps WA/WAU can optionally be equipped with a temperature monitoring facility (Pt 100 temperature sensor)



Oerlikon Leybold Vacuum has taken the well-proven roots principle further and applied it in the RUVAC series to meet the highest requirements demanded by modern vacuum-based production processes:

- The most frequent use of RUVAC roots pumps is to work as a booster stage for smaller forevacuum pumps to enable the compression of large volume flows of gases or vapors in the fine vacuum range.

Typical applications are heat treatment, furnaces, metallurgy or large area coating.

- RUVAC roots pumps are standard equipment in the architectural glass coating industry. Combined with established oil sealed SOGEVAC pumps they realize the shortest pump down time at the loadlock chambers. Combined with the dry compressing SCREWLINE® pumps they guarantee a dry, reliable and trouble-free vacuum at the process chambers.

- RUVAC roots pumps are used in many applications to achieve the shortest possible cycle times. Wherever fast evacuations are important, for example at load lock chambers or for food packaging, they will be applicable.
- RUVAC roots pumps quickly reach a pressure of less than 10-3 mbar or Torr when evacuating lamps and insulating surfaces prior to the vapor deposition processes.
- RUVAC pumps are also used in monocrystal pulling equipment such as are used for the manufacture of silicon mono-crystal, the basic material for the manufacture of semiconductors and solar cells.

A special offer from Oerlikon Leybold Vacuum is our application support for customers.

We would be pleased to put the know-how of our well experienced application experts to your service.

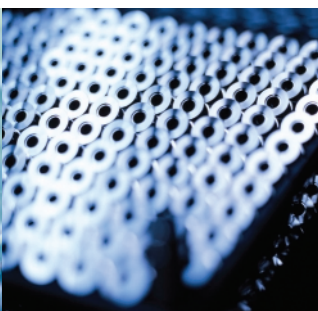
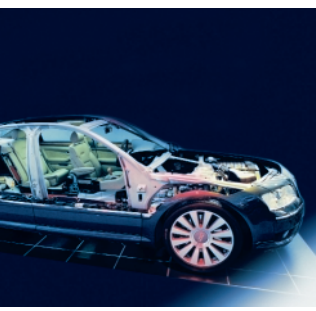
Automotive industry

Decorative coatings

Lamp and bulb production

Wear protection coating

Electron beam melting





# Technical Data

## Ordering Information

<b>RUVAC</b>	<b>WA/WAU WS/WSU</b>	<b>251</b>	<b>501</b>	<b>1001</b>	<b>2001</b>
Nominal pumping speed	m <sup>3</sup> x h <sup>-1</sup>	253	505	1000	2050
Rotational speed (50/60)	min <sup>-1</sup>	≤ 3000/3600	≤ 3000/3600	≤ 3000/3600	3000/3600
Motor power	(kW)	≤ 1.1	≤ 2.2	≤ 4.0	7.5
Maximum permissible pressure difference <sup>1)</sup>	mbar	80	80	80	50
Connection flanges		3" ANSI	3" ANSI	4" ANSI	6" ANSI
Catalog number <sup>2)</sup>	WA/WAU	91720/91721	91730/91721	91740/91741	91750/91751
Connection flanges		DN 63 ISO-K	DN 63 ISO-K	DN 100 ISO-K	DN 160 ISO-K
Catalog number <sup>2)</sup>	WA/WAU	11720/11721	11730/11731	11740/11741	11750/11751
Connection flanges		DN 63 ISO-K	DN 63 ISO-K	DN 100 ISO-K	DN 160 ISO-K
Catalog number <sup>2)</sup>	WS/WSU	11722/11723	11732/11733	11742/11743	11752/11753
Connection flanges		–	DN 63 ISO-K	DN 100 ISO-K	DN 160 ISO-K
Catalog number <sup>3)</sup>	WS/WSU...W	–	12860 / –	upon request	upon request
Frequency controlled version		–	–	–	DN 160 ISO-K
Catalog number <sup>4)</sup>	WS...FC	–	–	–	155 020

<sup>1)</sup> Integrated bypass valve adjusts for any intake pressure

<sup>2)</sup> Air-cooled motor/N62 oil

<sup>3)</sup> Water cooled motor/PFPE oil (or prepared for PFPE oil)

<sup>4)</sup> WS 2001 FC with frequency controlled motor and Anderol 555 oil offers up to 4100 m<sup>3</sup>/h nominal pumping speed. PFPE oil filling is possible. For additional information please contact us.

<b>RUVAC ATEX (94/9/EG)</b>	<b>WA/WAU</b>	<b>251</b>	<b>501</b>	<b>1001</b>	<b>2001</b>
Connection flanges		DN 63 ISO-K	DN 63 ISO-K	DN 100 ISO-K	DN 160 ISO-K
ATEX Cat.3 (inside) T3/T4	Cat.No.	11720/155021	11730/155031	11740/155041	11750/155051
ATEX Cat.3 (inside) T3/T4 and (outside) T3	Cat.No.	155026/155027	155036/155037	155046/155047	155056/155057
ATEX Cat.3 (inside) (outside) T4	Cat.No.	155028/155029	155038/155039	155048/155049	155058/155059
ATEX Cat.2 (inside) (outside)	Cat.No.	upon request	upon request	upon request	upon request

**You can obtain further technical details on our full series of RUVAC roots pumps by contacting your nearest Oerlikon Leybold Vacuum sales office.**

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