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Oerlikon Leybold Vacuum - World Wide

Customer Satisfaction through Leadership in the Competition for Quality

In Cologne in 1850 and in Hanau in 1851, Ernst Leybold and Wilhelm Carl Heraeus founded two independent companies that were eventually to become one high-tech company of global standards.

The life-work of these two vacuum pioneers is continued by the Oerlikon Leybold Vacuum GmbH and its subsidiaries – the Oerlikon Leybold Vacuum Group – with competence and know-how.

As part of the Oerlikon holding company, more than approx. 1400 employees in this group are responsible worldwide for the development, manufacture and sales of devices that produce, control and monitor vacuum.

In line with their particular design as well as their varied applications, these pumps, components and monitoring devices need be suitable for differing fields of application.

But our customers expect more from us than simple vacuum components, they look for functional and application-orientated products that offer excellent solutions for their individual requirements. Oerlikon Leybold Vacuum Group is a true partner of these industries.

Qualified and highly motivated employees, as well as a great potential for innovation, guarantee the continuous strengthening of our global leadership position in all relevant areas.

This leading position secures financial stability and guarantees future optimized support for solutions for our customers' requirements.

A quality assurance program specifically matched to the structures of the company which also includes the suppliers, forms the basis for the continual improvement of all business processes. The yardstick for all our quality related activities is here the satisfaction of our customers:

- short delivery times,
- high percentage of on-time deliveries,
- highest quality requirements

define our targets and our activities.

An important prerequisite is the certification in accordance with DIN EN ISO 9001 : 2000.



The Sales and Service Network

Think Global – Act Local

Our vision

“We aspire to become the world-wide leading vendor of premium high-tech products and services in our branch.”

and our strategy

“Customer satisfaction through market proximity, speed and reliability.”

require, besides our production locations in Europe and China, a world-wide network of sales and service organizations – matching the regionally differing market requirements.

With its current 17 sales companies in different countries, 30 service centers and representative offices in a total of 70 countries, Oerlikon Leybold Vacuum has the largest sales and service network in the vacuum product industry.

At 45%, Asia represents the major part of the relevant market. In the Far East, China in particular is gaining importance in the area of semiconductor and display technology, for example, and the thereby created over proportional market growth.



Oerlikon Leybold Vacuum (Tianjin), P.R. China

The Oerlikon Leybold Vacuum sales organisations in Japan, Korea, Taiwan, China and Singapore with a total of eight further branch offices have attained a competitive edge through their on-location presence, competent consulting, comprehensive training and the rapid service they provide to this region, this being impressively confirmed through the positive business development over recent years.

The increasing importance of the Indian market is recognised through a sales organisation located at Puna.

In the USA, Oerlikon Leybold Vacuum maintains a subsidiary serving over 20 sales and service locations.

In Western Europe, Oerlikon Leybold Vacuum extensively represented by its own companies and field offices in all countries of importance in the vacuum-product market.



Oerlikon Leybold Vacuum France S.A., Valence, France



Oerlikon Leybold Vacuum GmbH, Cologne



Oerlikon Leybold Vacuum GmbH, Dresden

Sales Net Worldwide

AMERICA

USA

Oerlikon
Leybold Vacuum USA Inc.
5700 Mellon Road
USA-Export, PA 15632
e-mail:
info.vacuum.ex@oerlikon.com

Eastern & Central time zones
Phone: +1-724-327 5700
Telefax: +1-724-333 1217

Pacific, Mountain, Alaska & Hawaiian
time zones
Phone: +1-480-752 9191
Telefax: +1-480-752 9494

EUROPE

Germany

Oerlikon
Leybold Vacuum GmbH
Bonner Strasse 498
D-50968 Cologne
e-mail:
sales.vacuum@oerlikon.com
Phone: +49-221-347-12 34
Telefax: +49-221-347-12 45
www.oerlikon.com

Oerlikon
Leybold Vacuum GmbH
Sales Area North / Northeast
Branch office Berlin
Buschkrugallee 33
1. Obergeschoss
D-12359 Berlin
e-mail:
sales.vacuum.bn@oerlikon.com
Phone: +49-30-435 609 0
Telefax: +49-30-435 609 10

Oerlikon
Leybold Vacuum GmbH
Sales Area South / Southeast
Branch office Munich
Sendlinger Strasse 7
D-80331 Munich
e-mail:
sales.vacuum.mn@oerlikon.com
Phone: +49-89-357-33 9-10
Telefax: +49-89-357-33 9-33

Oerlikon
Leybold Vacuum GmbH
Sales Area West & Benelux
Branch office Cologne
Bonner Strasse 498
D-50968 Cologne
e-mail:
sales.vacuum.kn@oerlikon.com
Phone: +49-221-347-12 70
Telefax: +49-221-347-12 91

Belgium

Oerlikon
Leybold Vacuum Nederland B.V.
Belgische bijkantoor
Leuvensesteenweg 542-9A
B-1930 Zaventem
e-mail:
sales.vacuum.zv@oerlikon.com
Phone: +32-2-711 00 83
Telefax: +32-2-720 83 38

France

Oerlikon
Leybold Vacuum France S.A.
7, Avenue du Québec
Z.A. de Courtaboeuf 1 - B.P. 42
F-91942 Courtaboeuf Cedex
e-mail:
sales.vacuum.or@oerlikon.com
Phone: +33-1-69 82 48 00
Telefax: +33-1-69 07 57 38

Great Britain

Oerlikon
Leybold Vacuum UK Ltd.
Unit 2
Silverglade Business Park
Leatherhead Road
UK-Chessington, Surrey KT9 2QL
e-mail:
sales.vacuum.ln@oerlikon.com
Phone: +44-13-7273 7300
Telefax: +44-13-7273 7301

Italy

Oerlikon
Leybold Vacuum Italia S.p.A.
8, Via Trasimeno
I-20128 Mailand
e-mail:
sales.vacuum.mi@oerlikon.com
Phone: +39-02-27 22 31
Telefax: +39-02-27 20 96 41

Netherlands

Oerlikon
Leybold Vacuum Nederland B.V.
Proostwetering 24N
NL-3543 AE Utrecht
e-mail:
sales.vacuum.ut@oerlikon.com
Phone: +31 (30) 242 63 30
Telefax: +31 (30) 242 63 31

The latest information is available on
the internet "www.oerlikon.com".

EUROPE

Sweden

Oerlikon
Leybold Vacuum Scandinavia AB
Box 9084
SE-40092 Göteborg
e-mail: info.vacuum.gt@oerlikon.com
Phone: +46-31-68 84 70
Telefax: +46-31-68 39 39

Switzerland

Oerlikon
Leybold Vacuum Schweiz AG
Leutschenbachstraße 55
CH-8050 Zürich
e-mail:
sales.vacuum.zh@oerlikon.com
Phone: +41-044-308 40 50
Telefax: +41-044-302 43 73

Spain

Oerlikon
Leybold Vacuum Spain, S.A.
C/. Huelva, 7
E-08940 Cornellà de Llobregat
(Barcelona)
e-mail:
sales.vacuum.ba@oerlikon.com
Phone: +34-93-666 46 16
Telefax: +34-93-666 43 70

ASIA

P.R. China

Oerlikon
Leybold Vacuum (Tianjin)
International Trade Co. Ltd.
Beichen Economic Development
Area (BEDA)
Shanghai Road
Tianjin 300400, China
e-mail:
sales.vacuum.tj@oerlikon.com
Telefon: +86-22-2697 0808
Telefax: +86-22-2697 4061
Telefax: +86-22-2697 2017

Oerlikon
Leybold Vacuum (Tianjin) Co. Ltd.
Beichen Economic Development
Area (BEDA)
Shanghai Road
Tianjin 300400, China
e-mail: info.vacuum.tj@oerlikon.com
Telefon: +86-22-2697 0808
Telefax: +86-22-2697 4061
Telefax: +86-22-2697 2017

ASIA

P.R. China

Oerlikon
Leybold Vacuum (Tianjin)
International Trade Co. Ltd.
Shanghai Branch:
Add: No.33, 76 Futedong San Rd.
Waigaoqiao FTZ
Shanghai 200131, China
e-mail: info.vacuum.sh@oerlikon.com
Phone: +86-21-5064-4666
Telefax: +86-21-5064-4668

Oerlikon
Leybold Vacuum (Tianjin)
International Trade Co. Ltd.
Guangzhou Office and
Service Center:
1st F, Main Building
Science City Plaza
No.111 Science Revenue,
Guangzhou Science City
(GZSC) 510663, Guangzhou, China
e-mail: info.vacuum.gz@oerlikon.com
Phone: +86-20-8723-7873
Phone: +86-20-8723-7597
Telefax: +86-20-8723-7875

Oerlikon
Leybold Vacuum (Tianjin)
International Trade Co. Ltd.
Beijing Branch:
1-908, Beijing Landmark Towers
8 North Dongsanhuan Road
Chaoyang District
Beijing 100004, China
e-mail: sales.vacuum.bj@oerlikon.com
Phone: +86-10-6590-7622
Telefax: +86-10-6590-7607

India

Oerlikon
Leybold Vacuum India Pvt Ltd.
EL-22, J Block
MIDC Bhosari
Pune 411026
India
e-mail:
sales.vacuum.pu@oerlikon.com
Phone: +91-20-3061 60000
Telefax: +91-20-2712 1571

Japan

Oerlikon
Leybold Vacuum Japan Co., Ltd.
Headquarter
23-3, Shin-Yokohama, 3-chome
Tobu A.K. Bldg., 4th Floor
Kohoku-ku, Yokohama-shi 222-0033
e-mail: info.vacuum.yh@oerlikon.com
sales.vacuum.yh@oerlikon.com
Phone: +81-45-471 3330
Telefax: +81-45-471 3323

Oerlikon Leybold Vacuum
Japan Co., Ltd.
Osaka Sales Office
5-13, Kawagashi-machi
Suita-chi, Osaka 564-0037
e-mail: info.vacuum.os@oerlikon.com
sales.vacuum.os@oerlikon.com
Phone: +81-6-6393-5211
Telefax: +81-6-6393-5215

Korea

Oerlikon
Leybold Vacuum Korea Ltd.
3F. Jellzone 2 Tower, 159-4
Jeongia-Dong, Bundang-Gu
Sungnam-Si, Gyeonggi-Do
Korea 463-384
Phone: +82-31 785 1367
Telefax: +82-31 785 1359

Singapore

Oerlikon
Leybold Vacuum Singapore Pte. Ltd.
No.1, International Business Park
B1-20B, The Synergy
Singapore 609917
Phone: +65-6665 2910
Telefax: +65-6566 8202
e-mail:
sales.vacuum.sg@oerlikon.com

Taiwan

Oerlikon
Leybold Vacuum Taiwan Ltd.
No 416-1, Sec. 3
Chung-Hsin Rd., Chu-Tung
Hsin-Chu, Taiwan, R.O.C.
e-mail:
sales.vacuum.hc@oerlikon.com
Phone: +886-3-500 1688
Telefax: +886-3-583 3999

Service Net Worldwide

AMERICA

USA

Oerlikon
Leybold Vacuum USA Inc.
5700 Mellon Road
USA-Export, PA 15632
e-mail:
info.vacuum.ex@oerlikon.com
Phone: +1-724-327 5700
Telefax: +1-724-325 3577

EUROPE

Germany

Oerlikon
Leybold Vacuum GmbH
Service Competence Center
Emil-Hoffmann-Strasse 43
D-50996 Cologne-Suerth
e-mail:
service.vacuum.kn@oerlikon.com
Phone: +49-221-347-14 39
Telefax: +49-221-347-19 45

Oerlikon
Leybold Vacuum GmbH
Mobil Customer Service
Emil-Hoffmann-Strasse 43
D-50996 Cologne-Suerth
e-mail:
service.vacuum.kn@oerlikon.com
Phone: +49-221-347-17 65
Telefax: +49-221-347-19 44

Oerlikon
Leybold Vacuum GmbH
Sales Area South / Southwest
Branch office Munich
Sendlinger Strasse 7
D-80331 Munich
e-mail:
service.vacuum.mn@oerlikon.com
Phone: +49-89-357-33 9-10
Telefax: +49-89-357-33 9-33

Oerlikon
Leybold Vacuum GmbH,
Dresden
Zur Wetterwarte 50, Haus 304
D-01109 Dresden
e-mail:
info.vacuum.dr@oerlikon.com
Phone: +49-351-88 55 00
Telefax: +49-351-88 55 041

Belgium

Oerlikon
Leybold Vacuum Nederland B.V.
Belgische bijkantoor
Leuvensesteenweg 542-9A
B-1930 Zaventem
e-mail:
service.vacuum.zv@oerlikon.com
Phone: +32-2-711 00 82
Telefax: +32-2-720 83 38

France

Oerlikon
Leybold Vacuum France S.A.
7, Avenue du Québec
Z.A. de Courtaboeuf 1 - B.P. 42
F-91942 Courtaboeuf Cedex
e-mail:
sales.vacuum.or@oerlikon.com
Phone: +33-1-69 82 48 00
Telefax: +33-1-69 07 57 38

Great Britain

Oerlikon
Leybold Vacuum UK Ltd.
Unit 2
Silverglade Business Park
Leatherhead Road
UK-Chessington, Surrey KT9 2QL
e-mail:
service.vacuum.ln@oerlikon.com
Phone: +44-20-8971 7030
Telefax: +44-20-8971 7003

Italy

Oerlikon
Leybold Vacuum Italia S.p.A.
8, Via Trasimeno
I-20128 Mailand
e-mail:
service.vacuum.mi@oerlikon.com
Phone: +39-02-27 22 31
Telefax: +39-02-27 20 32 17

Netherlands

Oerlikon
Leybold Vacuum Nederland B.V.
Proostwetering 24N
NL-3543 AE Utrecht
e-mail:
sales.vacuum.ut@oerlikon.com
Phone: +31 (30) 242 63 30
Telefax: +31 (30) 242 63 31

Hotline

Sales: +49-221-347 1234

Service: +49-221-347 1765

sales.vacuum@oerlikon.com

service.vacuum@oerlikon.com

EUROPE

Sweden

Oerlikon
Leybold Vacuum Scandinavia AB
Box 9084
SE-40092 Göteborg
e-mail:
info.vacuum.gt@oerlikon.com
Phone: +46-31-68 84 70
Telefax: +46-31-68 39 39

Switzerland

Oerlikon
Leybold Vacuum Schweiz AG
Leutschenbachstraße 55
CH-8050 Zürich
e-mail:
service.vacuum.zh@oerlikon.com
Phone: +41-044-308 40 62
Telefax: +41-044-302 40 60

Spain

Oerlikon
Leybold Vacuum Spain, S.A.
C/. Huelva, 7
E-08940 Cornellà de Llobregat
(Barcelona)
e-mail:
service.vacuum.ba@oerlikon.com
Phone: +34-93-666 49 51
Telefax: +34-93-685 40 10

ASIA

P.R. China

Oerlikon
Leybold Vacuum (Tianjin)
International Trade Co. Ltd.
Beichen Economic Development
Area (BEDA)
Shanghai Road
Tianjin 300400, China
e-mail:
sales.vacuum.tj@oerlikon.com
Phone: +86-22-2697 0808
Telefax: +86-22-2697 4061
Telefax: +86-22-2697 2017

ASIA

P.R. China

Oerlikon
Leybold Vacuum (Tianjin) Co. Ltd.
Beichen Economic Development
Area (BEDA)
Shanghai Road
Tianjin 300400, China
e-mail:
service.vacuum.tj@oerlikon.com
Phone: +86-22-2697 0808
Telefax: +86-22-2697 4061
Telefax: +86-22-2697 2017

Oerlikon
Leybold Vacuum (Tianjin)
International Trade Co. Ltd.
Shanghai Branch:
Add: No.33, 76 Futedong San Rd.
Waigaoqiao FTZ
Shanghai 200131, China
e-mail:
service.vacuum.sh@oerlikon.com
Phone: +86-21-5064-4666
Telefax: +86-21-5064-4668

Oerlikon
Leybold Vacuum (Tianjin)
International Trade Co. Ltd.
Guangzhou Office and
Service Center:
1st F, Main Building
Science City Plaza
No.111 Science Revenue,
Guangzhou Science City
(GZSC) 510663, Guangzhou, China
e-mail:
service.vacuum.gz@oerlikon.com
Phone: +86-20-8723-7873
Phone: +86-20-8723-7597
Telefax: +86-20-8723-7875

India

Oerlikon
Leybold Vacuum India Pvt Ltd.
EL-22, J Block
MIDC Bhosari
Pune 411026
India
e-mail:
service.vacuum.pu@oerlikon.com
Phone: +91-20-3061 60000
Telefax: +91-20-2712 1571

Japan

Oerlikon
Leybold Vacuum Japan Co., Ltd.
Tsukuba Technical Service Center
Kogyo Danchi
21, Kasuminosato, Ami-machi
Inashiki-gun Ibaraki-ken 300-0315
e-mail:
info.vacuum.iik@oerlikon.com
service.vacuum.iik@oerlikon.com
Phone: +81-298-89-2841
Telefax: +81-298-89-2838

Korea

Oerlikon
Leybold Vacuum Korea Ltd.
623-7, Upsung-Dong
Cheonan-Si
Chungcheongnam-Do
Korea 330-290
e-mail:
service.vacuum.cn@oerlikon.com
Phone: +82-41 589 3035
Telefax: +82-41 588 0166

Singapore

Oerlikon
Leybold Vacuum Singapore Pte. Ltd.
No.1, International Business Park
B1-20B, The Synergy
Singapore 609917
e-mail:
service.vacuum.sg@oerlikon.com
Phone: +65-6665 2910
Telefax: +65-6566 8202

Taiwan

Oerlikon
Leybold Vacuum Taiwan Ltd.
No 416-1, Sec. 3
Chung-Hsin Rd., Chu-Tung
Hsin-Chu, Taiwan, R.O.C.
e-mail:
service.vacuum.hc@oerlikon.com
Phone: +886-3-500 1688
Telefax: +886-3-583 3999

The latest information is available on
the internet "www.oerlikon.com".

Oerlikon Leybold Vacuum in Practice

Vacuum Seminars from Oerlikon Leybold Vacuum GmbH

For further information on a wide range of courses in vacuum technology please contact the Oerlikon Leybold Vacuum Training Center in Cologne:

Oerlikon Leybold Vacuum GmbH
Bonner Strasse 498
D-50968 Cologne

We would like to point out that also courses are given in the Oerlikon Leybold Vacuum Training Center in Great Britain:

Oerlikon Leybold Vacuum UK Ltd.
Unit 2
Silverglade Business Park
Leatherhead Road
UK Chessington, Surrey KT9 2QL

The latest information about our seminars including content and time schedule is available on the Internet:
“www.oerlikon.com”.

The ideal connection

Your current source of information

www.oerlikon.com

Vacuum Systems

Vacuum Service

Product Informationen

Online Catalogue

Documentation

Contact Data

oerlikon leybold vacuum vacuum systems headquarter

ABOUT VACUUM SYSTEMS PRODUCTS APPLICATIONS DOCUMENTATION MEDIA CONTACT SERVICES CORPORATE

New & modified pages

- Coating 25.09.
- Research and Devel... 18.01.
- Industrial Applica... 18.01.
- Online Catalogue 07.12.
- Semiconductor... 22.01.

Language english

Vacuum systems worldwide

Choose a country

Top Issue

Multi Inlet Pump

Examples of innovative solutions Made by Oerlikon Leybold Vacuum are for example the MULTI INLET ...

Product of the Month

DISPLAY TWD and DISPLAY

Welcome to the world of vacuum

Customer orientation, flexibility and the permanent search for innovative solutions, products technology is the key.

Online Catalogue

The direct way to our products

oerlikon leybold vacuum vacuum systems headquarter

ABOUT VACUUM SYSTEMS PRODUCTS APPLICATIONS DOCUMENTATION MEDIA CONTACT SERVICES CORPORATE

Products

Products Online Catalogue

Language english

Online Catalogue

The direct way to our products

Product Selection

TURBOVAC TW 1600

TURBOVAC TW 1600 with integrated Frequency Converter and Power Supply Unit

Turbomolecular Pumps with Mechanical Rotor Suspension with Composite Stages

oerlikon leybold vacuum vacuum services

ABOUT VACUUM SERVICES SERVICES APPLICATIONS DOCUMENTATION MEDIA CONTACT SERVICES

Services

Services Customer Care Program

Language

Customer Care Program

Maintenance and Service packages for your vacuum equipment. Comprehensive and just in time.

The Customer Care Program

Fast, competent and customer-oriented

Oerlikon Leybold Vacuum offers as a leading manufacturer of vacuum components and system solutions a full line of products for almost any application.

High-quality products are added with our comprehensive after sales service, a worldwide service network and an internationally unified quality standard.

Whether you manufacture for your local or the global market - we supply the support regarding all vacuum engineering questions.

Fast competent and customer oriented.

World map

Please choose a region:

- Africa
- Asia
- Australia
- Europe
- North America
- South America

oerlikon leybold vacuum vacuum services

ABOUT VACUUM SERVICES SERVICES APPLICATIONS DOCUMENTATION MEDIA CONTACT SERVICES

Contact

Contact Worldwide Sales & Service...

Worldwide Sales & Service Network

Here you can access our worldwide sales and service network.

Navigate by choosing a country from the menu, clicking through the map or by choosing a region from the list to the right.

Choose a country

World map

Please choose a region:

- Africa
- Asia
- Australia
- Europe
- North America
- South America

Vacuum Systems contacts

All Oerlikon contacts

Areas of Application

Many things are possible with vacuum

The pleasure of beholding a thing of beauty, the enjoyment of listening to a clear sound, the need for ultra-high strength materials, the demand for ever-higher performance products - these are just some things made possible by vacuum technology. In practical terms, this may involve the coating of surfaces, the enhancing of CDs, the fabrication of high-strength components, and the manufacture of compact yet powerful computers.

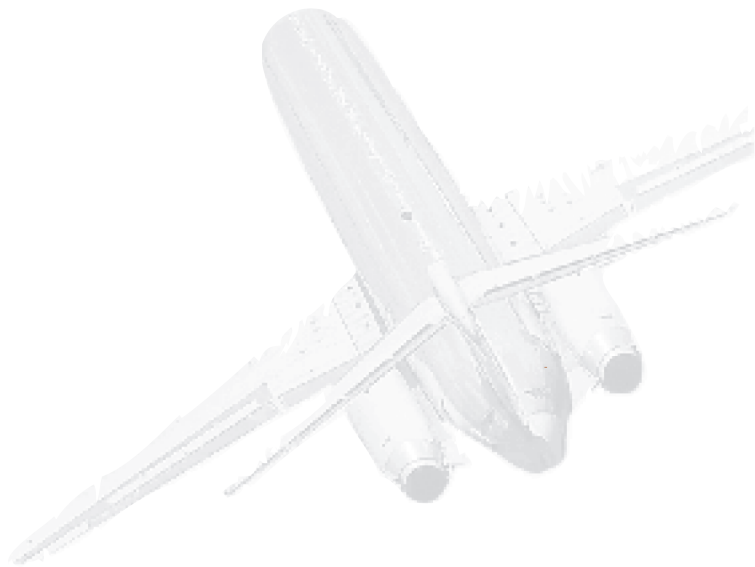
With Oerlikon Leybold's vacuum technology life's necessities and what makes life more pleasant can be produced with greater precision, more economically and, above all, in a manner friendlier to the environment.

The titanium coating on your watch, for example, or the anti-reflective coating on your eyeglasses, the high-capacity hard disk in your computer, your high-quality videotapes, the long-lasting

reliable packaging of your food, the high-strength turbine blades that make an aircraft more dependable, the flat-panel displays in small and light-weight notebooks and much, much more.

The applications and demands placed upon our products are numerous and, depending on the application, amazingly varied.





Members of the Oerlikon Leybold Vacuum staff from sales, marketing, applications consulting and product development are in continuous contact with the specialists of the users. This guarantees that any application-specific requirements are recognized in advance and can be allowed for at an early stage during product development.

Our customers are not buying just vacuum components – they are buying functional, application oriented products for individual solutions.

Products

Applications	Semiconductor production	Vacuum coating	Research and development	Loadlock and transfer chambers	Chemistry/Pharmaceutical	Metallurgy/Furnaces	Lamps and tubes manufacture	Car industry	Laser technology	Packaging	Space simulation	Analytical engineering	Environment technologies	Cooling and air-conditioning	Electrical engineering	Mechanical engineering/Electronic	Paper / Printing
TRIVAC E and B rotary vane vacuum pumps and TRIVAC system	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SOGEVAC rotary vane vacuum pumps		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SCROLLVAC oil-free scroll vacuum pumps		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ECODRY dry compressing piston vacuum pumps		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
DIVAC diaphragm vacuum pumps		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SCREWLINE dry compressing vacuum pumps		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
E and DK rotary piston vacuum pumps	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
RUVAC Roots vacuum pumps	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
RUTA vacuum pump systems	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Magnetically suspended turbomolecular pumps	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Mechanically suspended turbomolecular pumps	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
PT turbomolecular pump systems		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
DIP oil diffusion pumps		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Refrigerator cryopumps	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Refrigerator cryostats		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Ultra-High vacuum components (IZ pumps)		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Valves and flange components (KF, ISO-K, ISO-F, CF)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Total pressure gauges	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Leak testing instruments and leak detectors	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
TURBOSTREAM turboradial blowers								■									
UNIVEX high vacuum experimentation systems		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Symbols used in Vacuum Technology





















Vacuum Symbols

All symbols, except those marked ¹⁾ may be used in any orientation.

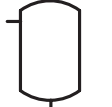
The symbols for vacuum pumps should always be so positioned that the narrowing lines point to the side of higher pressure.

¹⁾ These symbols must only be used in the indicated position (tip of the triangle pointing downwards)



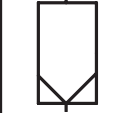
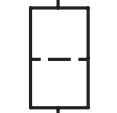


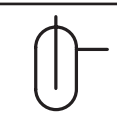


Vacuum Pumps

	Vacuum pump, general		Piston vacuum pump		Diaphragm vacuum pump
	Rotary positive displacement pump		Rotary piston vacuum pump		Sliding vane rotary vacuum pump
	Rotary plunger vacuum pump		Liquid ring vacuum pump		Roots vacuum pump
	Turbine vacuum pump, general		Turboradial vacuum pump		Turboraxial vacuum pump
	Turbomolecular pump		Ejector vacuum pump		Diffusion pump
	Adsorption pump		Getter pump		Sputter-ion pump
	Cryopump		Scroll vacuum pump		

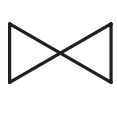
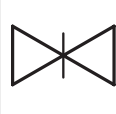
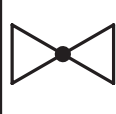


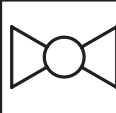
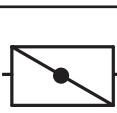

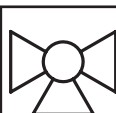
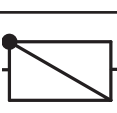
Container

	Vessel with crowned ends, general		Vacuum bell jar
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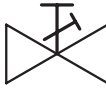




Accessories

	Seperator, general		Seperator with heat exchange, (e. g. cooled)		Gas filter, air filter, general
	Filter or filter device, general		Vapour baffle, general		Vapour baffle, cooled (with heat exchange)
	Cold trap, general		Cold trap with supply reservoir		Cold trap










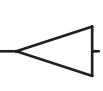









Isolating Devices

	Shut-off fitting, general		Gate valve		Shut-off valve, Straight-line valve
	Right-angle valve		Shut-off device with safety function		Stopcock
	Butterfly valve		Right-angle stopcock		Three-way stopcock
	Check valve				








Valve Actuation

	Manual operation		Metering valve		Fluid drive (hydraulic or magnetic)
	Solenoid operation		Electric motor drive		Weight-actuated

Connections and Piping

	Flange connector, general		Flange connector, bolted		Small flange connector
	Clamped flange connector		Threaded pipe connector		Ball-and-socket joint
	Spigot-and-socket joint		Connection by taper ground joint		Flange connector, general
	Change in pipe cross section (e.g. reducer nipple)		Junction of two pipes with communication		Cross-over of two pipes without communication
	Branch point		Bundle pipes		Port allowing sliding motion, with flange
	Linear motion feedthrough		Rotary and linear moti- on feedthrough		Rotary motion feedthrough
	Electric current feedthrough				

Vacuum Measurement and Gauges

	1) Vacuum (to indicate the presence of a vacuum)		1) Vacuum measurement, Vacuum measurement point		1) Vacuum gauge
	1) Recording vacuum gauge (writing)		1) Vacuum gauge with analogue display		1) Vacuum gauge with digital display
	Flow measurement				

1) These symbols must only be used in the indicated position (tip of the triangle pointing downwards)

Pressure Units

	bar	mbar	Pa	atm	Torr	mTorr
1 bar	1	10 ³	10 ⁵	0.987	0.750 x 10 ³	0.750 x 10 ⁶
1 mbar	10 ⁻³	1	10 ²	0.987 x 10 ⁻³	0.750	0.750 x 10 ³
1 Pa ¹⁾ (N · m ⁻²)	10 ⁻⁵	10 ⁻²	1	0.987 x 10 ⁻⁵	0.750 x 10 ⁻²	0.750 x 10 ¹
1 atm = 760 Torr	1.01	1.01 x 10 ³	1.01 x 10 ⁵	1	0.760 x 10 ³	0.760 x 10 ⁶
1 Torr	1.33 x 10 ⁻³	1.33	1.33 x 10 ²	1.32 x 10 ⁻³	1	10 ³
1 mTorr	1.33 x 10 ⁻⁶	1.33 x 10 ⁻³	1.33 x 10 ⁻¹	1.32 x 10 ⁻⁶	10 ⁻³	1

1) Pa = Pascal

All dimensions given in the technical drawings are stated in mm.

Dimensions in () are stated in inch.

The products of Oerlikon Leybold Vacuum are subject to continual further development; thus the technical data or the dimensional drawings are subject to change without prior notice.

On the basis of international agreements (ISO/R 1000) and the regulations which apply in the Federal Republic of Germany based on these (laws on the units used in metrology) as well as the Vacuum Engineering Standards (DIN 28 400 and subsequent numbers) we have adapted the characteristic quantities stated in this catalog to the current regulations.

The table gives the conversion factors between commonly used pressure units.

$$1 \text{ mbar} \times l \times s^{-1} \cong 60 \text{ sccm}$$

Pressure Units

Conversion Factors

1 inch	2.54 cm
1 ft	30.48 cm
1 sq inch	6.45 cm ²
1 sqft	0.0929 m ²
1 cu inch	923.03 cm ³
1 cu ft	28.32 liter
1 US gallon	3.78 liter
1 Imp gallon	4.54 liter
1 micron	1.33 x 10 ⁻³ mbar
1 qt	0.946 liter
1 lb	0.453 kg
1 hp	735 W
1 r.p.m.	1 min ⁻¹

Temperature

°C	°F
0	32
10	50
20	68
30	86
40	104
50	122
60	140
70	158
80	176
90	194
100	212

$$^{\circ}\text{F} = 1.8 \times ^{\circ}\text{C} + 32$$

Pressure

psi	bar
1.0	0.07
10	0.70
14.5	1.00
20	1.38
30	2.07
40	2.76
50	3.45
60	4.14
70	4.83
80	5.51
90	6.20
100	6.90

Various pressure units

mbar (millibar)	Torr	inches Hg vacuum
1013	760	0
400	300	18.12
133	100	25.98
4	3	29.80
1	0.75	29.89
0	0	29.92

Various pumping speed units

	m ³ x h ⁻¹	l x s ⁻¹	cfm
m ³ x h ⁻¹ = m ³ /h	1.0	0.278	0.589
l x s ⁻¹ = l/s	3.60	1.0	2.12
cfm (cubic feet per minute)	1.699	0.472	1.0

Example: 1 m³ x h⁻¹ = 0.589 cfm

Please note: The nominal pumping speed of a pump at 60 Hz is 20% higher than at 50 Hz

Dimensions

Inches	Inches	mm
1/8	0.1250	3.1750
1/4	0.2500	6.3500
3/8	0.3750	9.5250
1/2	0.5000	12.7000
3/4	0.7500	19.0500
1	1.0000	25.4000

Various flow rate units

	mbar x l x s ⁻¹	kg x h ⁻¹	cm ³ x s ⁻¹	slm
mbar x l x s ⁻¹	1.0	4.28 x 10 ⁻³	0.987	59.2 x 10 ⁻³
kg x h ⁻¹ (0 °C)	218	1.0	215	12.91
cm ³ x s ⁻¹ (NTP)	2.81 x 10 ⁻⁴	1.2 x 10 ⁻⁶	1.0	1.66 x 10 ⁻⁵
slm (standard liter per minute)	16.88	72.15 x 10 ⁻³	16.67	1.0