



# OPERATING INSTRUCTIONS

EN

Translation of the original instructions

## OME 25S

Oil Mist Eliminator

**PFEIFFER**  **VACUUM**

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# 1 About this manual

## 1.1 Validity

This operating manual is for customers of Pfeiffer Vacuum. It describes the functioning of the designated product and provides the most important information for safe use of the unit. The description follows applicable EU guidelines. All information provided in this operating manual refers to the current state of the product's development. The documentation remains valid as long as the customer does not make any changes to the product.

Up-to-date operating instructions can also be downloaded from [www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com).

This manual covers products with the following part numbers:

Part number	Description
104200	OME 25S Standard Oil mist eliminator

### 1.1.1 Applicable documents

Operating Instructions	Part Number
Rotary Vane Pump, Pascal series 5, 10, 15, 21 m <sup>3</sup> /h	103275*
Rotary Vane Pump, DuoLine type, Duo 10 M model	PK0170*
Rotary Vane Pump, DuoLine type, Duo 20 M model	PK0203*

\*also available at [www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com)

## 1.2 Conventions

### 1.2.1 Safety instructions

Operating manual safety instructions Pfeiffer Vacuum are based on the UL, CSA, ANSI Z-535, SEMI S2, ISO 3864 and DIN 4844 certification standards. This document describes the following information and danger levels:

<b>DANGER</b>
<p><b>Imminent danger</b> Indicates an imminent hazardous situation that will result in death or serious injury.</p>
<b>WARNING</b>
<p><b>Possibly imminent danger</b> Indicates an imminent hazardous situation that can result in death or serious injury.</p>
<b>CAUTION</b>
<p><b>Possibly imminent danger</b> Indicates an imminent hazardous situation that can result in minor or moderate injury.</p>
<b>NOTICE</b>
<p><b>Command or note</b> Command to perform an action or information about properties, the disregarding of which may result in damage to the product.</p>

### 1.2.2 Pictographs



Warning of a displayed source of danger in connection with operation of the unit or equipment



Command to perform an action or task associated with a source of danger, the disregarding of which may result in serious accidents



Important information about the product or this document

### 1.2.3 Instructions/Abbreviations used

→ Work instruction: here you have to do something.

OME : Oil Mist Eliminator

▼ Inlet

▲ Exhaust

## 2 Safety

### 2.1 Safety precautions



#### Obligation to inform

Any person responsible for installing, using or maintaining the product must first read the security instructions in this operating manual and comply with them.

→ It is the operating customer's responsibility to protect all operators against the dangers associated with the product, with the media pumped and with the entire installation.

→ Comply with all safety and risk prevention instructions in accordance with local safety standards.

→ Regularly check compliance with all precautionary measures.

### 2.2 Protective equipment

In some situations, personal protective equipment must be worn when handling the vacuum pump and its components. The owner must provide operators with the necessary equipment. This equipment must be checked regularly and used in accordance with the supplier's recommendations.



#### DANGER

#### Health risk due to contact with toxic materials

The vacuum pump, pumping line components, and operating media may be contaminated with toxic, corrosive, reactive, or radioactive materials, depending on the process.

→ Wear appropriate safety equipment when pump is disconnected for maintenance, while it is being re-installed, and during filling and draining of operating media.

## 2.3 Proper use

The OME is used only, to separate oil mist from gaz flow at the exhaust of a rotary vane pump.

- The OME is used only with Rotary Vane Pump for which it is compatible (see 1.1.1).
- The OME is installed at the exhaust of the Rotary Vane Pumps, Pascal series, models SD, I
- The OME is installed at the exhaust of the Rotary Vane Pumps, DuoLine type, models Duo 10 M and Duo 20 M.

## 2.4 Improper use

Improper use will cause all claims for liability and warranties to be forfeited. Improper use is defined as usage for purposes deviating from those mentioned above, especially:

- connection to Rotary Vane Pumps, Pascal series, models C1, C2.
- connection to Rotary Vane Pumps, DuoLine type, models Duo 10 MC, Duo 20 MC.
- connection to pumps and devices for which it is not intended,
- connection to devices un insulated electrically,
- use of accessories or spare parts, which are not named in this manual
- use of the OME on corrosives pumping applications
- use of the OME on pumping applications flammables products such as oxygen, silane,
- use for applications:
  - drying,
  - freeze drying,
  - pumping condensable vapors,
  - impregnation with polymesirables resins,
  - debubbling monomers,

# 3 Transport and storage

## 3.1 Storage

The filter elements inserted in the OME can absorb moisture.

If the new OME must be stored:

- Store the OME in a dry place in its original packaging.
- Store the OME at storage temperatures (+5 / +65°C).
- Make sure that the filter elements are not crushed during storage.

Before using the OME, make sure that the valve is not stuck on the filter element.

If the OME was unpacked, used, or stored for a long period (> 1 year):

- Proceed to its maintenance by replacing the filter element (see 7).

## 4 Product description

### 4.1 Product identification

To correctly identify the product when communicating with Pfeiffer Vacuum, always have the information from the rating plate available.

#### 4.1.1 Scope of delivery

Supplied with	Reference	Part Number
1 centering ring with O-Ring DN25 ISO-KF Macrovac	B (see 5.2.2) (see 5.2.3)	
1 O-Ring DN25 ISO-KF Nitrile	C (see 5.2.2) (see 5.2.3)	
1 quick connect clamp DN25 ISO-KF	D (see 5.2.2) (see 5.2.3)	
1 elbow fitting DN25 ISO-KF Polyamid	A (see 5.2.2) (see 5.2.3)	104113
1 operating manual		

### 4.2 Function

The OME is mounted at the exhaust of a rotary vane pump and separates oil droplets and vapors from gases emitted at the exhaust. Stopped by the filter element, they are transformed into liquid.

The OME must be mounted vertically above the pump, the condensed oil is recovered by flowing back through the filter element into the oil case, if the inlet pressure is less than 1 hPa for a sufficiently long time.

The OME has a safety valve set to 500 hPa relative pressure which prevents overpressure in the pump oil case when the filter element is saturated. Do not allow solid or pasty deposits created by pumped vapors to stick the valve to the filter element.

## 5 Installation

### 5.1 General

#### NOTICE

To allow the oil return in the pump tank and avoiding all risk of seizing, it is mandatory to take off the vent valve located at the exhaust port of the pump.



#### WARNING

##### Poisonous substances exit from the exhaust!

There is a poisoning hazard from discharged gases or vapors that can be hazardous and/or polluting during use.

- Install and run the exhaust line so that overpressure cannot build up inside it.
- Follow the vacuum pump installation instructions in the respective operating instructions.
- Perform the installation on the pump stopped and off.
- Use connection accessories provided with the OME.
- Use accessories on the inlet and exhaust lines whose materials and sealing properties are compatible with gases being used.
- Provide in the pumping line, accessories to isolate the pump from the vacuum and exhaust line, to make the maintenance easier (inlet and exhaust isolation valves, purges,...).
- Remove the blanking plates blocking the inlet and exhaust ports.

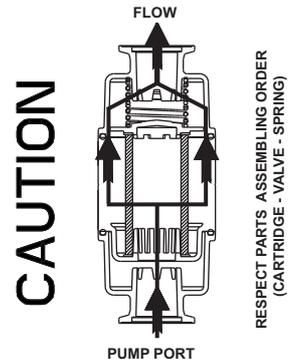
In case of distance installation of the OME from the pump:

- Use the same diameter tube between the pump and the OME.
- Install the OME to a level higher than the pump exhaust.

## 5.2 Assembly

### 5.2.1 Direction assembling on the pump

- Install the OME to the pump's exhaust respecting the assembling direction (see label).
  - The side where the filter element (white) (8) of the OME is visible must be assemble on the pump.
  - The side where the spring is visible (black caps) (4) will be connected to a chimney or an exhaust duct (see 10).

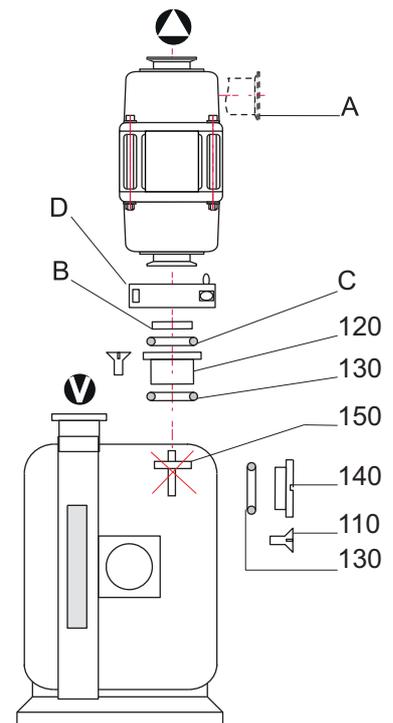


### 5.2.2 Vertical assembling to the pump

- Remove the vent valve (150) mounted in the exhaust port (120).
- Assemble as shown in (see 4.1) using the connection accessories provided with the OME or ordered separately (see Pfeiffer Vacuum products catalogue).
- Insure sealing's assembling.

For congestion purpose, a vertical assembly can be performed; the use of an elbow fitting (A) can be used to return the axis of exhaust to a horizontal position.

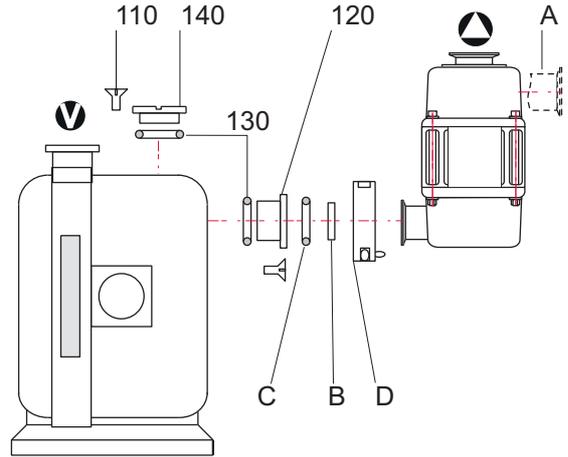
- Unscrew the 4 nuts (15) (see 10), by manually pressing on each end of the OME (**to avoid sudden release of the spring**), and remove the 4 screws (13).
- Remove the straight upper nipple (2) spring side of the valve.
- Replace the straight upper nipple (2) with the elbowed fitting (A).
- Assemble using the mounting screws (13) washers (14) and the nuts (15) and apply a torque of 2 N·m.



### 5.2.3 Lateral assembling relative to the pump

It is possible to order separately an elbow fitting (A) to obtain an horizontal/lateral pumping line.

- Remove the vent valve (150) mounted in the pump exhaust port (120).
- Remove the lateral flange (140) and the exhaust port (120).
- Reverse the positions of the nipple (120) and the flange (140).
- Reinstall screws (110) .
- Unscrew the 4 nuts (15) (see 10), by manually pressing on each end of the OME (**to avoid sudden release of the spring**), and remove the 4 screws (13).
- Remove the lower end (2b) opposite side to the spring.
- Replace the upper straight nipple by the elbow fitting (A).
- Assemble using the mounting screws (13), washers (14) and the nuts (15) and apply a torque of 2 N·m.
- Assemble as shown using the connection accessories provided with the OME or ordered separately (see Pfeiffer Vacuum products catalogue).
- Insure sealing's assembling.



## 6 Operation

### CAUTION

**Do not reuse an OME that has been stored for a long period (> 1 year) without first performing maintenance on it and replacing its filter element.**

### WARNING

#### Risk of overpressure

At the pump exhaust, the discharge circuit must be such that the resulting overpressure in the oil case is as low as possible. The maximum overpressure recommended for correct pump operation is 500 hPa. A slight negative pressure in the oil case (100 to 200 hPa), at the exhaust, will prevent gases from accumulating and reduce pump corrosion and pollution.

When the OME is installed to a pump exhaust, check periodically that:

- the exhaust valve is not clogged and does not prevent the operation of the OME's valve,
- the exhaust valve operates to avoid overpressure in the oil case.

### WARNING

#### Emission of toxic substances from the exhaust!

Danger of poisoning from emitted gases or vapours, which can be detrimental to health and/or can pollute the environment, depending on the particular application.

- Comply with the applicable regulations when working with toxic substances.
- Only officially approved filter systems may be used to separate and remove these substances.



#### Commissioning

- Turn the pump on.
- During operation, oil and vapors are trapped by the filter element until it becomes clogged/saturated. In this case, the relief valve should open when the internal pressure exceeds atmospheric pressure by 500 hPa.

**Filter element saturation** The time taken to reach saturation point depends on the number of pumping cycles, the volume of pumped gas and the kind of operating fluid used.

The signs of a saturated filter element are:

- excess of smokes or droplets, or puffs of stream at the OME exhaust,
- rapid or significant drop in the oil level,
- increase of the pump tank temperature,
- valve noise.

When the filter element is saturated, replace it (see 7).

**Decommissioning**

- Stop the pump,
- Bring the pump back to the atmospheric pressure and let the pump cool down.
- Make sure the exhaust pipe is not under pressure.

## 7 Maintenance / replacement

### 7.1 Precautions



#### NOTICE

##### Disclaimer of liability

Pfeiffer Vacuum accepts no liability for personal injury or material damage, losses or operating malfunctions due to improperly performed maintenance. The liability and warranty entitlement expires.

#### DANGER

##### Risk to the health in the event of contact with toxic substances

During pump disconnection, operator could be in contact with process residues on the exhaust that could cause severe injury or death.

→ Take the appropriate safety measures to prevent injury. Consult the department manager for instructions and safety information.

→ Wear gloves, goggles, a respirator or other appropriate safety equipment,

→ Ventilate well the premises or work under an extract hood.

→ Do not dispose of residues in the usual network and, if necessary, seek a competent agency for their destruction.

→ Do not discard the used filter element in the usual network, seek a competent agency for its destruction.

→ Set up the shutters at the inlet and exhaust of the pump (supplied with the product).

### 7.2 Dismantling

#### Decommissioning

→ Stop the pump,

→ Bring the pump back to the atmospheric pressure and let the pump cool down.

→ Make sure the exhaust pipe is not under pressure.

When the filter element is saturated, proceed to its change as follows: (see 10)

→ Remove the OME from the pump (possible oil leak), and disassemble it on a workbench.

→ Loosen the 4 nuts (15), by pressing manually on each end of the OME (**to avoid sudden release of the spring**), and remove the 4 screws (13) and washers (14).

- Remove successively and in the following order, the upper nipple (2) (or elbow fitting A) and its O-ring (7), the spring (5), the valve (4) equipped with its flat ring (6), the filter element (8) and the flat ring (6) the lower body and its O-ring (2b).

## 7.3 Cleaning

### WARNING

**A used filter element must not be cleaned up. It must systematically be replaced with a new one.**

If when disassembling, the filter element appears very clogged, filled with condensable products or gels, or is filled with very blackish, strong-smelling oil, it is then necessary to check the quality of the pump oil. It probably needs to be changed.

In this case, drain and rinse the pump, replace the oil before installing an OME equipped with a new filter element (see Maintenance Manual of the Rotary Vane Pump).

- Elastomer seals (6) and (7) must always be replaced by new seals.

**After using mineral or synthetic oil**, clean the parts with a solvent, mineral-based in accordance with the legislation in force, for example, the type **AXAREL**<sup>1)</sup>, **CARE-CLEAN**<sup>2)</sup>, **PREMACLEAN**<sup>3)</sup>, **NAPHTESOL**<sup>4)</sup>.

Proceed as follows:

- Clean when cold or hot (max. 45°C) by dipping or using a dry, lintfree cloth.
- Vacuum dry in a ventilated heating chamber then,
- The component must be cleaned a second time with alcohol.

**After use in (perfluorinate) synthetic oil**, clean the components in a solvent such as **GALDEN S 90**<sup>5)</sup> and proceed as follows:

- Clean when cold by dipping or using a dry, lintfree cloth.
- Dry the components in the open air or using compressed air.

**After use in (non-perfluorinate) synthetic or mineral oil**, clean the components with a solvent such as alcohol and proceed as follows:

- Clean when cold by dipping or using a cloth.
- Dry the components in the open air.

## 7.4 Reassembly

- Install the flat ring (6) in the base of the body (1).
- Position the filter element (8) so that it rests on the flat ring (6) in the body (1).
- Mount the new O-ring (7) on the lower and upper nipples.
- Mount the flat ring (6) on the valve (4) and install the unit on the filter element, with the flat ring resting on the filter element.
- Install the spring (5) on the valve (4): for mounting see direction on the label (see 5.2.1)
- Position the body thus assembled (1) on the lower nipple.
- Assemble the upper nipple on the spring 5 and assemble using the mounting screws (13), (14), (15).
- Tighten in cross and apply 2 N·m of torque.
- Connect the OME to the pump exhaust port (by means of the supplied accessories) (see 5.2).

1) Registered trademark DUPONT DE NEMOURS

2) Registered trademark CASTROL

3) Registered trademark DOW

4) Registered trademark NIPPON OIL CORPORATION

5) Registered trademark MONTEDISON

## 8 Disposal



### WARNING

#### Environmental protection

The product or its components must be disposed of in accordance with the applicable regulations relating to environmental protection and human health, with a view to reducing natural resource waste and preventing pollution.

Our products contain various materials which must be recycled: (see 10)

Take special care for:

- fluoroelastomers which may breakdown if they are subjected to high temperatures.
- components in contact with the products resulting from the processes which may have been contaminated.

## 9 Service

### Pfeiffer Vacuum offers first-class customer service!

- On-Site maintenance for many products
- Overhaul/repair at the nearby Service Location
- Fast replacement with refurbished exchange products in mint condition
- Advice on the most cost-efficient and quickest solution

Detailed information, addresses and forms at: [www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com) (Service).

### Overhaul and repair at the Pfeiffer Vacuum Service Center

The following general recommendations will ensure a fast, smooth servicing process:

- Fill out the "Service Request/Product Return" form and send it to your local Pfeiffer Vacuum Service contact.
- Include the confirmation on the service request from Pfeiffer Vacuum with your shipment.
- Fill out the declaration of contamination and include it in the shipment (mandatory!). The Declaration of contamination is valid for any product/device including a part exposed to vacuum.
- Dismantle all accessories and keep them.
- Close all the flange opening ports by using the original protective covers or metallic airtight blank flanges for contaminated devices.
- If possible, send the pump or unit in its original packaging.

### Sending contaminated pumps or devices

No devices will be accepted if they are contaminated with micro-biological, explosive, or radioactive substances. "Hazardous substances" are substances and compounds in accordance with the hazardous goods regulations (current version).

- Neutralize the pump by flushing it with nitrogen or dry air.
- Close all openings airtight.
- Seal the pump or device in suitable protective film.
- Return the pump/device only in a suitable and sturdy transport container and send it in while following applicable transport conditions.

Pump or device returned without declaration of contamination form fully completed and/or not secured in suitable packaging will be decontaminated and/or returned at the shipper's expense.

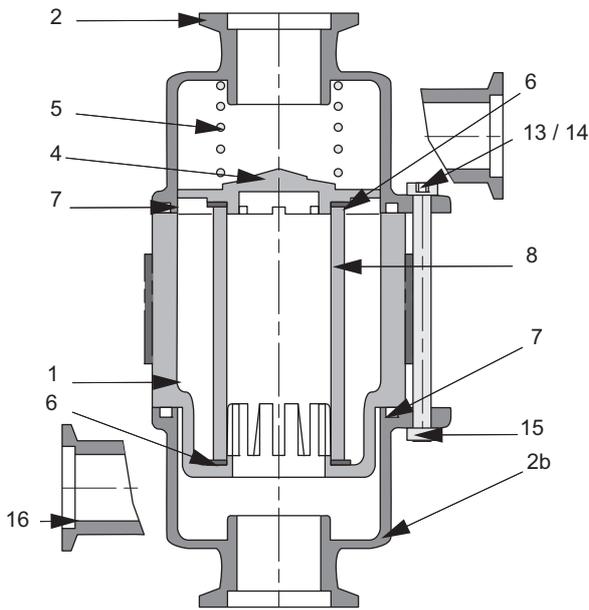
**Exchange or repair**

The factory operating parameters are always pre-set with exchange or repaired devices. If you use specific parameters for your application, you have to set these again.

**Service orders**

All service orders are carried out exclusively according to our general terms and conditions for the repair and maintenance, available on our website.

# 10 Spare parts



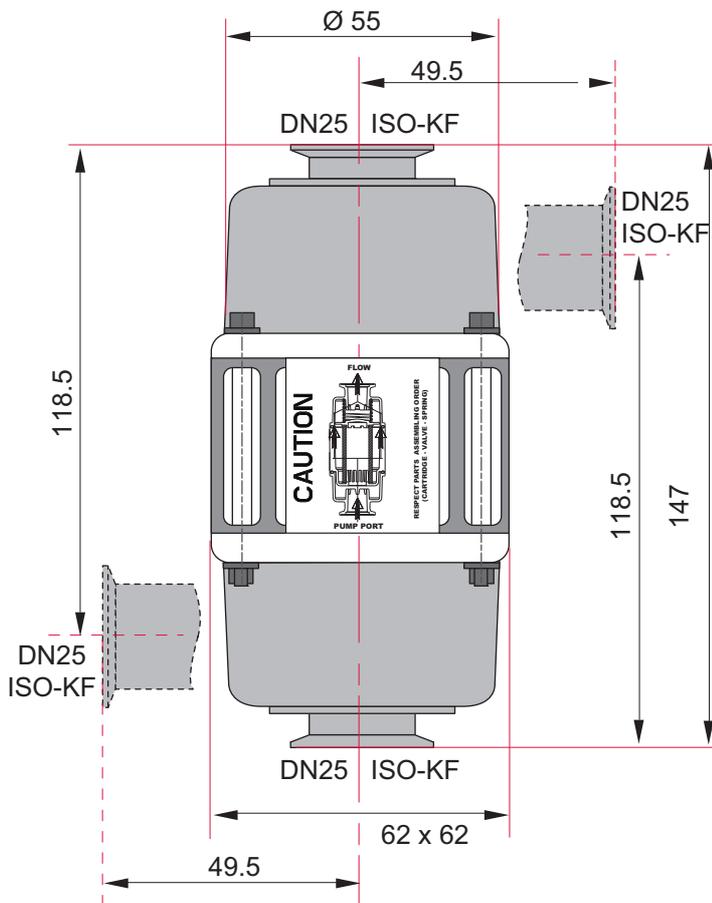
Ref.	Designation	Material	Quantity	Part number
1	Body	Polyamid	1	-
2 & 2b	Upper Nipple	Polyamid	1	-
4	Valve	Polyamid	1	-
5	Spring	Stainless Steel	1	-
13	Screw CHC	Steel	4	-
14	Washer	Steel	8	-
15	Nut	Steel	4	-
16	Elbow fitting	Polyamid	1	-

**Replacement parts for each maintenance**

6	Flat ring	Elastomer NBR*	2	052117
7	O-ring	Elastomer NBR*	2	111197
8	Filter element	Filter element (glass microfibers + epoxy resine)	1	068304

(\*) Following normalize NFT 40-002

# 11 Technical data and dimensions



OME 25S	
Weight	0.217 kg
Connection	DN 25 ISO-KF
Tightness	$5 \cdot 10^{-3}$ hPa l/s
Filtration level	Original filter element from manufacturer. Trapping: 99.99% of vapor droplets greater than 0.6 microns in diameter.
Maximum working pressure	1500 hPa
Maximum flow through the OME	5900 hPa l/s



# Declaration of incorporation of partly completed machinery

We hereby declare that the product cited below satisfies all relevant provisions according to the following **EC directives**:

- **Machinery 2006/42/EC (Annex II, no. 1 A)**
- **Restriction of the use of certain Hazardous Substances 2011/65/EU**

This partly completed machinery must not be put into operation until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the **2006/42/EC** Directive.

We, authorized representatives undertake to transmit, in response to a reasoned request by national authorities, relevant information on the partly completed machinery.

The technical file is drawn up by Mr Gilles BARET, Pfeiffer Vacuum SAS, [simplified joint stock company], 98, avenue de Brogny · B.P. 2069, 74009 Annecy cedex.

**OME 25S**

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Signatures:

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(M. Taberlet)  
President

(M. Baret)  
Products and Technologies Director

24/04/2012

## VACUUM SOLUTIONS FROM A SINGLE SOURCE

Pfeiffer Vacuum stands for innovative and custom vacuum solutions worldwide, technological perfection, competent advice and reliable service.

## COMPLETE RANGE OF PRODUCTS

From a single component to complex systems:

We are the only supplier of vacuum technology that provides a complete product portfolio.

## COMPETENCE IN THEORY AND PRACTICE

Benefit from our know-how and our portfolio of training opportunities!

We support you with your plant layout and provide first-class on-site service worldwide.

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Are you looking for a  
perfect vacuum solution?  
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