Instructions for use

Digital/Analogue Rough Vacuum Gauges
PTB 98 ATEX 2207
Dear customer,

Your VACUUBRAND vacuum gauge shall support you at your work for a long time without any trouble and with full load output. Thanks to our large practical experience we attained much information how you could add to an efficient application and to personal safety. Please read these instructions for use prior to the initial start-up of your controller.

VACUUBRAND vacuum gauges are the result of many years of experience in construction and practical operation of these vacuum gauges combined with the latest results in material and manufacturing technology.

Our quality maxim is the “zero fault principle”:

Every delivered vacuum gauge is tested extensively including an endurance run. Due to this endurance run, also faults, which occur rarely, are reported and can be corrected. Every single vacuum gauge is tested on achievement of the specification after the endurance run.

Every VACUUBRAND controller leaving our factory achieves the specification. We feel obliged to this high quality standard.

We are aware that the controller should not draw a part of the real work and we hope to contribute with our products to an effective and troublefree realisation of your work.

Yours
VACUUBRAND GMBH + CO KG

After sales service:
Contact your local dealer or call +49 9342 808-5500.

Danger! Immediate danger. Death or severe injuries as well as damage to equipment and environment can occur.

Warning! Possible danger. Severe injuries as well as damage to equipment and environment can occur.

Caution! Possible danger. Slight injuries as well as damage to equipment and environment can occur.

Note. Disregarding of notes may cause damage to the product.

Note: The device contains a battery!
Remove battery before disposal (see section "Replacing the battery") and dispose of battery and device separately and according to regulations.
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Trademark index:
VACUU•LAN® (US-Reg.No 3,704,401), VACUU•BUS®, VACUU•CONTROL®, Peltronic®, VARIO® (US-Reg.No 3,833,788), VACUUBRAND® (US-Reg.No 3,733,388) and also the shown company logos are registered trademarks of VACUUBRAND GMBH + CO KG in Germany and/or other countries.

Documents are only to be used and distributed completely and unchanged. It is strictly the users' responsibility to check carefully the validity of this document with respect to his product.
Safety information!

**General information**

Read and comply with this manual before installing or operating the equipment.

Remove all packing material, remove the product from its packing-box, remove the protective covers and keep, inspect the equipment.

If the equipment is damaged, notify the supplier and the carrier in writing within three days; state the item number of the product together with the order number and the supplier's invoice number. Retain all packing material for inspection.

**Do not use the equipment if it is damaged.**

If the equipment is not used immediately, replace the protective covers. Store the equipment in suitable conditions.

**Intended use**

- The devices DVR 3 are electronic rough vacuum gauges of the facility performance group II for the intended use in hazardous areas. They have a special approval and are subject to the guideline 94/9/EG (see “Declaration of Conformity”).
- Respect the permitted connection parameters.
  Attention: DVR 3 has only an approval for zone 1 and zone 2.
- Electrical and vacuum components might require a separate approval (see also "Accessories").
- The device is designed for ambient and gas temperatures at the pressure transducer connection of +10°C to +40°C at continuous operation, up to +80°C for short periods (< 5 minutes) at the pressure transducer. If installing the device into a cabinet or a housing check maximum temperature. Ensure that the maximum permitted gas temperature at the pressure transducer (see "Technical data") is not exceeded.

**NOTICE**

Use the equipment and all system parts for the intended use only, i.e. for measurement of vacuum in vessels designed for that purpose.

**Connecting the device**

- Connect the vacuum gauge to the vacuum application.
- Position the vacuum gauge and its vacuum connection line so that condensate cannot flow towards the internal pressure transducer.
- Connect hoses at the pressure transducer connection gas tight.
- Ensure stability of the hose connection.
- Comply with all relevant safety requirements.

**CAUTION**

Avoid uncontrolled overpressure (e.g. when connecting to a locked or blocked tubing system). **Risk of bursting.**

The power supply unit BVE 9V is an intrinsically safe electrical operating device of the facility performance category 2 (PTB 98 ATEX 2206). The user can replace the sealed power supply unit of vacuum gauges DVR 3 within the hazardous area of category 2 (according to the approvals of power supply unit and vacuum gauge). Further interventions and repair must only be done by the manufacturer.

Using non-genuine power supply units or doing further interventions void the approval for use in explosive areas.

**CAUTION**

Power supply by an power supply unit BVE 9V. Do not charge the battery. Do not open the battery. Do not throw the battery into fire. Do not heat over 100°C and do not bring in contact with water.
• Comply with **max. permitted ambient and gas temperature** (see “Technical data”) and make sure ventilation is adequate if the equipment is installed in a housing or if ambient temperature is elevated.
• Avoid high heat supply (e.g. due to hot process gases).
• In case of residues or aggressive or condensable media install a gas washing bottle if necessary.

When the device is brought from cold environment into a warm room for operation **bedewing** may occur. Allow the device to acclimatize.

Comply with **national safety regulations and safety requirements** concerning the use of vacuum and electrical equipment. Comply with all **applicable and relevant safety requirements** (regulations and guidelines), implement the required actions and adopt suitable safety measures.

**Operating conditions**

 jailed DVR 3 has only an approval according to device labelling.

Ensure that the materials of the wetted parts are compatible with the substances processed in the vacuum system, see section “Technical data”.

**Safety during operation**

• Adopt suitable measures to prevent the release of dangerous, toxic, explosive, corrosive, noxious or polluting fluids, vapors and gases.
• Prevent any part of the human body from coming in contact with the vacuum.

Max. permitted pressure at the vacuum gauge: 1.1 bar absolute with hose nozzle; 1.5 bar absolute with small flange connection.
• The display flashes at a pressure above 1060 mbar.

**Attention:** If the pressure is higher than approximately 1060 mbar the pressure reading becomes incorrect (saturation of the pressure transducer). The display flashes. **Immediate pressure relief necessary! Risk of bursting!**

• Use only **genuine spare parts and accessories**. Otherwise safety and performance of the equipment as well as the electromagnetic compatibility of the equipment might be reduced. Possibly the CE mark becomes void if not using OEM spare parts.

Electronic equipment is never 100% fail-safe. This may lead to an ill-defined status of the equipment or of other connected devices. Provide protective measures against malfunction and failure. Ensure that in case of failure the device and the vacuum system always will turn into a safe status.
Maintenance and repair

- **Attention:** Due to the operation the equipment might be contaminated by harmful or dangerous substances, clean or decontaminate prior to maintenance.

The user can replace the sealed power supply unit of vacuum gauges DVR 3 within the hazardous area (according to the approvals of power supply unit and vacuum gauge). Further interventions and repair must only be done by the manufacturer.

Returned products will not be repaired or calibrated until the completed health and safety clearance form has been received. In order to comply with law (occupational, health and safety regulations, safety at work law and regulations for environmental protection) vacuum pumps, components and measuring instruments returned to the manufacturer can be repaired only when certain procedures (see section "Repair - Maintenance - Return - Calibration") are followed.
## Technical data

<table>
<thead>
<tr>
<th>Type</th>
<th>DVR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring principle</td>
<td>capacitive, absolute pressure, gas type independent</td>
</tr>
<tr>
<td>Pressure transducer</td>
<td>ceramic diaphragm (alumina)</td>
</tr>
<tr>
<td>Pressure reading</td>
<td>analogue and digital LCD display</td>
</tr>
<tr>
<td>Pressure units</td>
<td>mbar, Torr or hPa (selectable)</td>
</tr>
<tr>
<td>Measuring cycle</td>
<td>automatic, once in 3s, once in 1s, three times in 1s (factory-set: automatic)</td>
</tr>
<tr>
<td>Automatic sleep mode</td>
<td>operation time: 1-1000 minutes or continuous operation (&quot;On&quot;), (factory-set: 15 minutes)</td>
</tr>
<tr>
<td>Measuring range (absolute)</td>
<td>1080 mbar - 1 mbar (810 Torr - 1 Torr)</td>
</tr>
<tr>
<td>Maximum permissible pressure at pressure transducer</td>
<td>1.5 bar absolute</td>
</tr>
<tr>
<td>Measurement uncertainty (absolute)</td>
<td>&lt;±1 mbar (0.75 Torr) / ±1 digit</td>
</tr>
<tr>
<td>Temperature coefficient</td>
<td>&lt;±0.07 mbar/K (0.05 Torr/K)</td>
</tr>
<tr>
<td>Maximum permissible temperature of gaseous media at pressure transducer</td>
<td>continuous operation: 40°C, for short periods (&lt; 5 minutes): up to 80°C</td>
</tr>
<tr>
<td>Ambient temperature range (operation)</td>
<td>10°C to +40°C</td>
</tr>
<tr>
<td>Ambient temperature range (storage)</td>
<td>-10°C to +60°C</td>
</tr>
<tr>
<td>Permitted relative atmospheric moisture during operation (no condensation)</td>
<td>30% to 85%</td>
</tr>
<tr>
<td>Degree of protection according to IEC 529</td>
<td>IP 40</td>
</tr>
<tr>
<td>Ex proof classification</td>
<td>II 2 G Ex ia IIC T4, for use in zone 1</td>
</tr>
<tr>
<td>Vacuum connection</td>
<td>small flange KF DN 16 and screw-in hose nozzle DN 6/10 mm</td>
</tr>
<tr>
<td>Power supply</td>
<td>BVE 9V, PTB 98 ATEX 2206, II 2 G Ex ia IIC T5</td>
</tr>
<tr>
<td>Weight approx.</td>
<td>430 g</td>
</tr>
<tr>
<td>Dimensions L x W x H</td>
<td>116 mm x 116 mm x 66 mm</td>
</tr>
</tbody>
</table>

### Wetted parts

<table>
<thead>
<tr>
<th>Components</th>
<th>Wetted materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor</td>
<td>Aluminium oxide ceramic</td>
</tr>
<tr>
<td>Sensor housing</td>
<td>stainless steel</td>
</tr>
<tr>
<td>Seals</td>
<td>chemically resistant fluoroelastomer</td>
</tr>
<tr>
<td>Vacuum connection / hose nozzle</td>
<td>PBT / PPS glass fibre reinforced</td>
</tr>
</tbody>
</table>

---

Technische Änderungen vorbehalten!
## Accessories / Spare parts

The approval for use in hazardous areas covers also the following accessories.

For connections to hazardous areas of category 1, obey separate regulations (see EN 50284).

Adapter (material: stainless steel) to connect the vacuum gauges to pipeline systems:

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small flange NW 10, G 3/8 female thread</td>
<td>20643813</td>
</tr>
<tr>
<td>Small flange NW 10, G 3/8 male thread</td>
<td>20643810</td>
</tr>
<tr>
<td>Small flange NW 16, G 1/2 female thread</td>
<td>20643812</td>
</tr>
<tr>
<td>Small flange NW 16, G 1/2 male thread</td>
<td>20643809</td>
</tr>
</tbody>
</table>

For welding:

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small flange NW 10 with pipe socket (long)</td>
<td>20662100</td>
</tr>
<tr>
<td>Small flange NW 10 with pipe socket (short)</td>
<td>20661300</td>
</tr>
<tr>
<td>Small flange NW 16 with pipe socket (long)</td>
<td>20662104</td>
</tr>
<tr>
<td>Small flange NW 16 with pipe socket (short)</td>
<td>20661304</td>
</tr>
</tbody>
</table>

### Spare parts

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply unit BVE 9V</td>
<td>20637986</td>
</tr>
<tr>
<td>O-ring 28x2</td>
<td>20636975</td>
</tr>
</tbody>
</table>
Use and operation

Changing the pressure unit

- Switch the vacuum gauge off.
- Press key "MODE" and keep it pressed while switching the DVR 3 on (key "ON/OFF").
- The pressure unit as of the last operation (Torr, mbar or hPa) is displayed.
- Select the desired pressure unit with the key "UP/DOWN".
- Press key "ON/OFF" to confirm the selected pressure unit and to terminate the mode.
Pressure measurement

Upon switching on, the absolute pressure (total pressure, independent of gas type) ranging from 1 mbar to 1080 mbar is displayed in the selected pressure unit (Torr, mbar or hPa).

The pressure transducer was adjusted using factory standards. In general, there is no need for readjustment by the user because of the excellent longtime stability (see section “Readjustment”).

Clock symbol

The vacuum gauge is equipped with an automatic sleep mode to save battery power when the instrument is not used. When the clock symbol appears on the display, the vacuum gauge will switch off automatically after approx. 1 minute.

Press key "ON/OFF". The clock symbol will disappear and the preselected operation time will start again.

Adjusting the operating time and the measuring cycle

The time until automatic switching off (operating time) can be set by the user within a range from 1 to 1000 minutes (factory-set: 15 minutes) or continuous operation "On" can be selected.

Press key "MODE" to select the time setting mode.

The clock symbol and the currently set operating time in minutes are displayed.

Press key "UP/DOWN" to increase operating time.

The arrow to the right indicates that the time can be increased using key "UP/DOWN".

Press key "UP/DOWN" to increase operating time.

To decrease the operating time:

Press key "MODE" to change the arrow to the left.

Press key "UP/DOWN" to decrease the operating time.

Press key "ON/OFF" to confirm.

The device switches to the mode "Adjusting the measuring cycle".

The measuring cycle can be set to Automatic, 1 measurement in 3s, 1 measurement in 1s and 3 measurements in 1s.

Adjusting the measuring cycle:

The measuring cycle as of the last operation (factory-set: "A") is displayed.

Press key "UP/DOWN" to select the measuring cycle: A = Automatic (automatic determination of the measuring cycle; frequent measurement in case of great pressure change), S1 = 1 measurement in 3s, S2 = 1 measurement in 1s, S3 = 3 measurements in 1s.

The flashing of the arrow (only “S1”, “S2” or “S3”) symbolizes the frequency of the pressure measurement.

Press key "MODE" to change the direction of the adjustment.
Press key “ON/OFF” to confirm the measuring cycle and to terminate the mode.

Display of the battery’s discharge status

When switching off the device, the remaining battery capacity is displayed qualitatively by the number of arrows in the display.
☞ If the battery symbol appears in the display during measurement, the battery should be replaced.
☞ The correct operation of the device is no longer ensured.

Troubleshooting

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>❑ No display or display disappears.</td>
<td>➔ Automatic sleep mode?</td>
<td>✔ Switch on, increase operating time if necessary.</td>
</tr>
<tr>
<td></td>
<td>➔ Battery flat?</td>
<td>✔ Replace battery.</td>
</tr>
<tr>
<td></td>
<td>➔ Other cause?</td>
<td>✔ Contact local distributor.</td>
</tr>
<tr>
<td>❑ Incorrect pressure reading.</td>
<td>➔ Pressure transducer not correctly adjusted?</td>
<td>✔ Readjust pressure transducer.</td>
</tr>
<tr>
<td></td>
<td>➔ Moisture in the pressure transducer?</td>
<td>✔ Dry or evacuate the pressure transducer and readjust if necessary.</td>
</tr>
<tr>
<td></td>
<td>➔ Battery flat, battery symbol is displayed?</td>
<td>✔ Replace battery.</td>
</tr>
<tr>
<td>❑ Display is flickering and/or battery symbol appears.</td>
<td>➔ Battery flat?</td>
<td>✔ Replace battery.</td>
</tr>
<tr>
<td>❑ Adjustment mode cannot be activated.</td>
<td>➔ At the applied pressure, readjustment is not possible.</td>
<td>✔ Admit air to atmospheric pressure or evacuate to a pressure below 20 mbar.</td>
</tr>
<tr>
<td>❑ All segments of the LCD are displayed or no display although battery has been replaced.</td>
<td>➔ Pressure transducer or measuring electronics defective?</td>
<td>✔ Contact local distributor.</td>
</tr>
</tbody>
</table>
**Readjustment of the vacuum gauge**

The equipment has been adjusted at the factory. In general, there is no need for adjustment by the user due to the excellent longtime stability. Depending on operation conditions, type of application and accuracy requirements, an inspection and readjustment may become necessary.

### Adjustment at atmospheric pressure

Admit air to the vacuum gauge. Make sure that the vacuum connection at the vacuum gauge is at atmospheric pressure.

**Attention:** Determine the exact actual atmospheric pressure, e.g. by using an accurate barometer or get accurate reading from the weather service, e.g. at the next airport, etc. (take into account the difference in altitude between e.g. airport and laboratory).

- Press key "UP/DOWN" and keep it pressed while switching on.
- The vacuum gauge switches into the adjustment mode (indicated by a warning triangle).
- The arrow at the right indicates, that the pressure reading can be increased using key "UP/DOWN".
- Press key "UP/DOWN" to increase the reading to the actual atmospheric pressure.

To reduce the reading:
- Press key "MODE" to change the direction of adjustment. The arrow moves to the left indicating that the pressure reading can be reduced.
- Press key "UP/DOWN" to reduce the reading.
- Press key "ON/OFF" to confirm the adjustment and to terminate the adjustment mode.

### Adjustment under vacuum

Evacuate the vacuum gauge to a pressure <0.5 mbar (<0.4 Torr) e.g. by applying a good rotary vane pump.

- Press key "UP/DOWN" and keep it pressed while switching on.
- The vacuum gauge switches into the adjustment mode (indicated by a warning triangle).
- The reading is adjusted automatically to "zero".

**Attention:** Adjustment under vacuum with a pressure higher than 0.5 mbar (0.4 Torr) reduces the accuracy of measurement. If the pressure is significantly higher than 0.5 mbar (0.4 Torr), adjustment to a reference pressure is recommended.

- Press key "ON/OFF" to confirm the adjustment and to terminate the adjustment mode.
**Adjustment to a reference pressure**

Evacuate the vacuum gauge to an exactly known reference pressure within the range of 0 .... 20 mbar (0 .... 15 Torr). Switch the vacuum gauge to the adjustment mode (see "Adjustment under vacuum").

- Press key "UP/DOWN" to adjust the reading from "0" ("zero") to the actual reference pressure in the vacuum line in the range of 0 to 20 mbar (0 to 15 Torr).
- Press key "ON/OFF" to confirm the adjustment and to terminate the adjustment mode.

**Attention:** The accuracy of the value of the reference pressure will directly affect the accuracy of the adjustment. If the nominal ultimate vacuum of a diaphragm pump is used as "reference" vacuum, the accuracy of the adjustment of the vacuum gauge might be doubtful. The diaphragm pump may not achieve the specified value due to condensate, poor state, failure of the valves or the diaphragm.

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**Calibration in the factory**

**Control of measuring equipment**

The VACUUBRAND DAkkS calibration laboratory is accredited by the Deutsche Akkreditierungsstelle GmbH (national accreditation body of the Federal Republic of Germany) for the measurable variable pressure in the pressure range from 7.5*10^-4 Torr to 975 Torr (10^-3 mbar to 1300 mbar) in accordance with the general criteria for the operation of testing laboratories defined in the DIN EN ISO/IEC 17025:2000 series of standards (accreditation number D-K-15154-01). The DAkkS is signatory to the multilateral agreements of the European cooperation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates.

Rely on calibration in the VACUUBRAND calibration laboratory:

- To meet the requirements of the DIN ISO 9000ff and 10012 series of standards regarding the calibration of inspection, measuring and test equipment at specified intervals.
- To document that the vacuum gauges calibrated are traceable to national standards of the PTB (Physikalisch-Technische Bundesanstalt; German national institute for science and technology and the highest technical authority of the Federal Republic of Germany for the field of metrology and certain sectors of safety engineering).

DAkkS calibration ................................................................. 20900215
Replacement of power supply unit

Technical data of the power supply unit:

Approval: IIA 2 G Ex ia IIC T5
Type: BVE 9V
PTB 98 ATEX 2206

$U_N = 9 \text{ V}$
$I_N = 23 \text{ mA}$
$U_0 = 11.1 \text{ V}$
$I_0 = 28.8 \text{ mA}$
$P_0 = 79.8 \text{ mW}$
$C_0 = 1.9 \mu\text{F}$
$L_0 = 50 \mu\text{H}$

The user can replace the sealed power supply unit of vacuum gauges DVR 3 within the hazardous area of category 2 (according to the approvals of power supply unit and vacuum gauge).

Note: Some of the components on the printed circuit board are sensitive to electrostatic discharge. Do not touch components. Ground printed circuit board and person replacing power supply unit suitably.

Attention: Use only genuine power supply unit BVE 9V. When using other power supply units the approval for use in explosive atmosphere is void! The power supply unit must not be charged. Do not open the battery. Do not throw the battery into fire. Do not heat over 100°C and do not bring in contact with water.

Unscrew the four countersunk head screws at the rear side of the housing by using a Phillips screw driver.

Open the housing carefully.

Attention: The two housing parts are connected by the sensor cable.

Remove the power supply unit from the housing rear part.

Remove the two contact springs and insert the springs into the new power supply unit.

Insert the new power supply unit in the housing rear part.

When reassembling the vacuum gauge, make sure that the switch pad and the printed circuit board are positioned correctly.

Carefully screw both parts of the housing together.
IMPORTANT

Every employer (user) is held responsible for the health and safety of his employees. This also applies to service personnel performing repair, maintenance, return or calibration.

The health and safety clearance form informs the contractor about any possible contamination of the device and forms the basis for the risk assessment.

In case of devices which have been in contact with biological substances of risk level 2 contact the VACUUBRAND service absolutely before dispatching the device. These devices have to be completely disassembled and decontaminated by the user prior to shipment. Do not return devices which have been in contact biological substances of risk level 3 or 4. These devices cannot be checked, maintained or repaired. Also decontaminated devices must not returned to VACUUBRAND due to a residual risk. The same conditions apply to on-site work.

No repair, maintenance, return or calibration is possible unless the correctly completed health and safety clearance form is returned. Devices sent are rejected if applicable. Send a completed copy of the health and safety clearance form to us in advance. The declaration must arrive before the equipment. Enclose a second completed copy with the product.

Remove all components from the device that are no original VACUUBRAND components. VACUUBRAND will not be responsible for lost or damaged components that are no original components.

Drain the device completely of fluids and residues. Decontaminate the device. Close all openings airtight especially if using substances hazardous to health.

To expedite repair and to reduce costs, please enclose a detailed description of the problem and the product's operating conditions with every product returned. If you do not wish a repair on the basis of our quotation, the device may be returned to you disassembled and at your expense.

In many cases, the components must be cleaned in the factory prior to repair.

For cleaning we use an environmentally friendly water based process. Unfortunately the combined attack of elevated temperature, cleaning agent, ultrasonic treatment and mechanical stress (from pressurised water) may result in damage to the paint. Please mark in the health and safety clearance form if you wish a repaint at your expense just in case such a damage should occur. We will also replace parts for cosmetic reasons at your request and at your expense.

Before returning the device

Pack the device properly, if necessary, please order original packaging materials at your costs.

Mark the package completely

Enclose the completed health and safety clearance form.

Notify the carrier of any possible contamination if required.

Scraping and waste disposal

Dispose of the equipment and any components removed from it safely in accordance with all local and national safety and environmental requirements. Particular care must be taken with components and waste oil which have been contaminated with dangerous substances from your processes. Do not incinerate fluoroelastomer seals and O-rings. You may authorize us to dispose of the equipment at your expense. Otherwise we return the device at your expense.
# Health and safety clearance form

1. Device (Model): 

2. Serial no.: 

3. Reason for return / malfunction: 

4. Has the device been used in a copper process step (e.g., semiconductor production): 
   - [ ] yes
   - [ ] no

5. Substances (gases, liquids, solids, biological material, e.g. bacteria, viruses) in contact with the device / which have been pumped:  

6. Risk level of the used biological material:  
   - [ ] none
   - [ ] 1
   - [ ] 2*
   - [ ] 3**
   - [ ] 4**
   * Contact the VACUUBRAND service absolutely before dispatching the device.
   ** Devices which have been in contact with biological substances of risk level 3 or 4 cannot be checked, main- tained or repaired. Also decontaminated devices must not returned to VACUUBRAND due to a residual risk.

7. Radioactive contamination:  
   - [ ] yes
   - [ ] no

8. Prior to return to the factory the device has been decontaminated:  
   - [ ] yes
   - [ ] no

9. All parts of the device are free of hazardous, harmful substances:  
   - [ ] yes
   - [ ] no

10. Protective measures required for service staff: 

11. If the paint is damaged, we wish a repaint or a replacement of parts for reason of appearance (repaint and replacement at customer’s expense):  
   - [ ] yes
   - [ ] no

12. Legally binding declaration  
   We assure for the returned device that all substances, which have been in contact with the device are listed in section 5 and that the information is complete and that we have not withheld any information. We declare that all measures - where applicable - have been taken listed in section “Repair - Maintenance - Return - Calibration”. By our signature below, we acknowledge that we accept liability for any damage caused by providing incomplete or incorrect information and that we shall indemnify VACUUBRAND from any claims as regards damages from third parties. We are aware that as expressed in § 823 BGB (Public Law Code of Germany) we are directly liable for injuries or damages suffered by third parties, particularly VACUUBRAND employees occupied with handling/repairing the product. Shipping of the device must take place according to regulations.

   Name: ........................................ Signature: ........................................
   Job title: ........................................ Company’s seal: ........................................
   Date: ........................................
EG-Konformitätserklärung
EC Declaration of Conformity
Déclaration CE de conformité

Hersteller / Manufacturer / Fabricant:
VACUUBRAND GMBH + CO KG · Alfred-Zippe-Str. 4 · 97877 Wertheim · Germany

Hiermit erklärt der Hersteller, dass das Gerät konform ist mit den Bestimmungen der Richtlinien:
Hereby the manufacturer declares that the device is in conformity with the directives:
Par la présente, le fabricant déclare, que le dispositif est conforme aux directives:

2014/30/EU
2014/34/EU
2011/65/EU

Vakuummessgerät / Vacuum gauge / Vacuomètre
Typ / Type / Type: DVR 3
Artikelnummer / Order number / Numéro d'article: 20682903
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Wertheim, 01.07.2018

Ort, Datum / place, date / lieu, date

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Documents are only to be used and distributed completely and unchanged. It is strictly the users' responsibility to check carefully the validity of this document with respect to his product.
DECLARATION OF CONFORMITY – China RoHS 2

VACUUBRAND GMBH + CO KG has made reasonable efforts to ensure that hazardous materials and substances may not be used in its products. In order to determine the concentration of hazardous substances in all homogeneous materials of the subassemblies, a “Product Conformity Assessment” (PCA) procedure was performed. As defined in GB/T 26572 the “Maximum Concentration Value” limits (MCV) apply to these restricted substances:

- Lead (Pb): 0.1%
- Mercury (Hg): 0.1%
- Cadmium (Cd): 0.01%
- Hexavalent chromium (Cr(+)VI)): 0.1%
- Polybrominated biphenlys (PBB): 0.1%
- Polybrominated diphenyl ether (PBDE): 0.1%

Environmental Protection Use Period (EPUP)

EPUP defines the period in years during which the hazardous substances contained in electrical and electronic products will not leak or mutate under normal operating conditions. During normal use by the user such electrical and electronic products will not result in serious environmental pollution, cause serious bodily injury or damage to the user’s assets. The environmental Protection Use Period for VACUUBRAND products is 40 years.

此表格是按照 SJ/T 11363-2006 中规定所制定的。
This table is created according to SJ/T 11363-2006.

<table>
<thead>
<tr>
<th>PART NAME</th>
<th>LEAD (Pb)</th>
<th>MERCURY (Hg)</th>
<th>CADMIUM (Cd)</th>
<th>CR(+)VI</th>
<th>PBB</th>
<th>PBDE</th>
<th>EPUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Plastic housing / parts</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<tr>
<td>Vacuum oil</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<tr>
<td>Battery</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<tr>
<td>Glass</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Electrical and electronic parts</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<tr>
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<td>O</td>
</tr>
<tr>
<td>Metal housing / parts</td>
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<td>O</td>
<td>O</td>
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<td>O</td>
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<tr>
<td>Motor</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Accessories</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
### Note:
Table applies to all products. Some of the components or parts listed above may not be part of the enclosed product.

**O:** 表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。

**O:** Indicates that the above mentioned hazardous substance contained in all homogeneous materials of the part is below the required limit as defined in GB/T 26572.

**X:** 表示该有毒有害物质至少在该部件某一均质材料中的含量超出GB/T 26572规定的限量要求。

**X:** Indicates that the above mentioned hazardous substance contained in at least one of the homogeneous materials of this part is above the required limit as defined in GB/T 26572.

除上表所示信息外，还需声明的是，这些部件并非是有意用铅（Pb）、汞（Hg）、铬（Cd）、六价铬（Cr(+VI)）、多溴联苯（PBB）或多溴二苯醚（PBDE）来制造的。

Apart from the disclosures in the above table, the subassemblies are not intentionally manufactured or formulated with lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (Cr+VI), polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE).

Products manufactured by VACUUBRAND may enter into further devices (e.g., rotary evaporator) or can be used together with other appliances (e.g., usage as booster pumps).

With these products and appliances in particular, please note the EFUP labeled on these products. VACUUBRAND will not take responsibility for the EFUP of those products and appliances.

**Place, date:** Wertheim, 04/24/2017

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(Dr. F. Gitmans)  (Dr. J. Dirscherl)
Managing Director  Technical Director

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