ATEX VACUUM PUMPS AND GAUGES
CHEMICALLY RESISTANT, OIL-FREE AND SAFE
ATEX CHEMISTRY DIAPHRAGM PUMPS.
ATEX VARIO® CHEMISTRY DIAPHRAGM PUMPS.

Chemistry diaphragm pumps, vacuum systems and gauges
for use in areas with potentially explosive atmospheres

When intended for use in areas with potentially explosive atmospheres, European Community Directive 94/9/EC (ATEX) requires equipment in conformity with ATEX standards. VACUUBRAND offers Category 2 chemistry diaphragm pumps and vacuum systems in conformity with ATEX (for use in zones where an explosive atmosphere is likely to occur). These chemistry diaphragm pumps are appropriate for such locations because they are oil-free, have no sliding surfaces, and the expansion chamber is hermetically sealed against the drive zone. ATEX chemistry vacuum systems with solvent recovery provide safe, convenient vacuum while protecting the environment.

NEW: ATEX chemistry diaphragm pumps and vacuum systems are now available with variable speed motor for vacuum control as VARIO®-version.

The VACUUBRAND range of ATEX chemistry diaphragm pumps is supplemented by an ATEX vacuum gauge with excellent corrosion resistance and long-term stability. (Note: Compliance with EC Directive 94/9/EC does not ensure compliance with similar codes in countries outside of the EC. These pumps are not available in every location. Contact your local VACUUBRAND representative for availability.)

ATEX CHEMISTRY DIAPHRAGM PUMPS

ATEX chemistry diaphragm pumps offer all advantages of oil-free chemistry diaphragm pumps. Typical applications are rotary evaporators and drying ovens with potentially explosive atmospheres. The ATEX approval includes the interior of the pump (in contact with pumped gases) as well as the surrounding area of the pump. All wetted parts of the pumps have excellent chemical resistance and are mainly made of antistatic materials. Included in delivery is a separate gas ballast connection port for use of inert gas. ATEX chemistry vacuum systems are equipped with separator and condenser. The separator at the inlet (AK) retains particles and liquid droplets. The waste vapor condenser at the outlet (EK) is highly efficient and compact. The condenser enables near-100-percent solvent recovery.

ATEX VARIO® CHEMISTRY DIAPHRAGM PUMPS

With the new ATEX VARIO® chemistry diaphragm pumps and vacuum systems, the vacuum can be precisely controlled by the motor speed. The VARIO® pump is driven by an additional control signal line. The optional vacuum controller CVC 3000 with system accessories (I/O-Module, supply / isolation amplifier) and ATEX vacuum sensor enable fully automatic evaporations without the need for parameter settings or user programming. With the adaptive control it finds the boiling pressure independently and adjusts the vacuum continuously and optimally according to the vapor pressure. The vacuum controller and system accessories are installed in a non-hazardous area.
PUMPING SPEED DIAGRAM

at 50 Hz, without gas ballast

A characteristic feature of all models is their high performance even close to specified ultimate vacuum. The pumps are also characterized by excellent long-term stability of performance.
MZ 2C EX
MZ 2C EX +AK +EK

Technical data

ATEX conformity
Pumping chamber (pumped gases): II 2G IIC T3X
Environment with inert purge gas: II 2G IIB T4 X
Environment without inert purge gas: II 3G IIB T4 X
Motor: II 2G Ex d IIB T4 Gb

Max. pumping speed at 50 Hz 1.9 m³/h
Ultimate vacuum (abs.) 12 mbar
Ultimate vacuum (abs.) with ballast 18 mbar

Inlet connection Small flange KF DN 16
Outlet connection Small flange KF DN 16
Outlet connection Hose nozzle DN 8–10 mm
Degree of protection IP 54
Degree of protection IP 52
Dimensions (L x W x H) 337 x 287 x 251 mm
Dimensions (L x W x H) 357 x 308 x 470 mm
Weight, approx. 21.6 kg
Weight, approx. 25.4 kg

Ordering data

<table>
<thead>
<tr>
<th>Product</th>
<th>Voltage</th>
<th>Type</th>
<th>Code</th>
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<tbody>
<tr>
<td>MZ 2C EX</td>
<td>230 V~50 Hz</td>
<td>Open wires</td>
<td>696920</td>
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<tr>
<td>MZ 2C EX +AK +EK</td>
<td>230 V~50 Hz</td>
<td>Open wires</td>
<td>696921</td>
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Accessories
PTFE tubing KF DN 16 (1000 mm: 686031)

Items supplied
Pump completely mounted, ready for use, with manual, 2 m cable without plug. Shatter and shock protection for glass parts must be provided by the customer.

- outstanding chemical resistance and tolerance to condensate by use of fluoro plastics
- flame-proof motor with built-in and self-retaining overcurrent and excess temperature protection, the customer does not need any additional overcurrent protection system
- overpressure safety relief valve at the outlet
- safety diaphragm design with inert gas purge feature to permit optional installation of a diaphragm crack-detection system
- separator AK and emission condenser EK for pump protection and solvent recovery

down to 12 mbar // 1.9 m³/h
MD 4C EX
MD 4C EX +AK +EK

- outstanding chemical resistance and tolerance to condensate by use of fluoro plastics
- flame-proof motor with built-in and self-retaining overcurrent and excess temperature protection, the customer does not need any additional overcurrent protection system
- overpressure safety relief valve internal and at the outlet
- safety diaphragm design with inert gas purge feature to permit optional installation of a diaphragm crack-detection system
- separator AK and emission condenser EK for pump protection and solvent recovery

down to 3 mbar // 3.7 m³/h

Technical data

ATEX conformity
Pumping chamber (pumped gases): II 2G IIC T3X
Environment with inert purge gas: II 2G IIB T4 X
Environment without inert purge gas: II 3G IIB T4 X
Motor: II 2G Ex d IIB T4 Gb
Max. pumping speed at 50 Hz 3.7 m³/h
Ultimate vacuum (abs.) 3 mbar
Ultimate vacuum (abs.) with bas ballast 10 mbar

Inlet connection Small flange KF DN 25
Outlet connection Small flange KF DN 16
Outlet connection Hose nozzle DN 10 mm
Degree of protection IP 54
Dimensions (L x W x H) 440 x 265 x 305 mm
Dimensions (L x W x H) 600 x 365 x 420 mm
Weight, approx. 29.3 kg
Weight, approx. 37.4 kg

Ordering data

<table>
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<th>Frequency</th>
<th>Accessory</th>
<th>Part Number</th>
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<tr>
<td>MD 4C EX</td>
<td>230 V</td>
<td>50 Hz</td>
<td>Open wires</td>
<td>696930</td>
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<tr>
<td>MD 4C EX +AK +EK</td>
<td>230 V</td>
<td>50 Hz</td>
<td>Open wires</td>
<td>696931</td>
</tr>
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Accessories

PTFE tubing KF DN 25 (1000 mm: 686033)

Items supplied

Pump completely mounted, ready for use, with manual, 2 m cable without plug. Shatter and shock protection for glass parts must be provided by the customer.
MV 10C EX
MV 10C EX +AK +EK

outstanding chemical resistance and tolerance to condensate by use of fluoro plastics

flame-proof motor with built-in and self-retaining overcurrent and excess temperature protection, the customer does not need any additional overcurrent protection system

overpressure safety relief valve internal and at the outlet

safety diaphragm design with inert gas purge feature to permit optional installation of a diaphragm crack-detection system

separator AK and emission condenser EK for pump protection and solvent recovery

down to 2 mbar // 8.1 m³/h

Technical data

ATEX conformity
Pumping chamber (pumped gases): II 2G IIC T3X
Environment with inert purge gas: II 2G IIB T4 X
Environment without inert purge gas: II 3G IIB T4 X
Motor: II 2G Ex d IIB T4 Gb
Max. pumping speed at 50 Hz 8.1 m³/h
Ultimate vacuum (abs.) 2 mbar
Ultimate vacuum (abs.) with bas ballast 10 mbar

MV 10C EX
Inlet connection Small flange KF DN 25
Outlet connection Small flange KF DN 16
Outlet connection Hose nozzle DN 8–10 mm
Degree of protection IP 54
Dimensions (L x W x H) 560 x 430 x 410 mm
Dimensions (L x W x H) 560 x 430 x 410 mm
Weight, approx. 63.2 kg
Weight, approx. 64.0 kg

MV 10C EX +AK +EK
Open wires 696945
Open wires on demand

Ordering data

MV 10C EX
230 V–50 Hz
MV 10C EX +AK +EK
230 V–50 Hz

Accessories
PTFE tubing KF DN 25 (1000 mm: 686033)

Items supplied
Pump completely mounted, ready for use, with manual, two 2 m cables without plug (two motors).
MD 4C EX VARIO
MD 4C EX VARIO +AK +EK

- full advantage of ATEX chemistry diaphragm pumps
- short process times due to hysteresis-free VARIO® vacuum control
- VARIO®-pump operates on demand only as fast as necessary – minimal power consumption, extended maintenance intervals, silent operation
- vacuum controller CVC 3000 (optional) for precise vacuum control and fully automatic processes
- complete system accessories I/O-Module, supply / isolation amplifier and ATEX vacuum sensor

down to 3 mbar // 3.7 m³/h

Technical data
ATEX conformity
Pumping chamber (pumped gases): II 2G IIC T3X
Environment with inert purge gas: II 2G IIB T4 X
Environment without inert purge gas: II 3G IIB T4 X
Motor: II 2G Ex d IIB T4 Gb
Max. pumping speed at 50 Hz 3.7 m³/h
Ultimate vacuum (abs.) 3 mbar
Ultimate vacuum (abs.) with bas ballast 10 mbar

Inlet connection Small flange KF DN 25
Outlet connection Small flange KF DN 16
Outlet connection Hose nozzle DN 8–10 mm
Degree of protection IP 54
Dimensions (L x W x H) 440 x 265 x 305 mm
Dimensions (L x W x H) 600 x 365 x 420 mm
Weight, approx. 27.0 kg
Weight, approx. 35.1 kg

Ordering data
MD 4C EX VARIO 230 V~50 Hz Open wires 696936
MD 4C EX VARIO +AK +EK 230 V~50 Hz Open wires 696937

Accessories
PTFE tubing KF DN 25 (1000 mm: 686033)

Items supplied
Pump completely mounted, ready for use, with manual. Shatter and shock protection for glass parts must be provided by the customer. Speed control via 4-20 mA current loop (4 mA = 0 rpm, 20 mA = 1500 rpm). Control signal line 10 m, mains cable 2 m without plug.
NEW

MV 10C EX VARIO
MV 10C EX VARIO +AK +EK

don't take mbar // 8.1 m³/h

Technical data
ATEX conformity

Pumping chamber (pumped gases): II 2G IIC T3X
Environment with inert purge gas: II 2G IIB T4 X
Environment without inert purge gas: II 3G IIB T4 X
Motor: II 2G Ex d IIB T4 Gb

Max. pumping speed at 50 Hz 8.1 m³/h
Ultimate vacuum (abs.) 2 mbar
Ultimate vacuum (abs.) with bas ballast 10 mbar

Inlet connection Small flange KF DN 25
Outlet connection Small flange KF DN 16
Outlet connection Hose nozzle DN 8–10 mm

Degree of protection IP 54

Dimensions (L x W x H) 560 x 430 x 410 mm
Dimensions (L x W x H) 649 x 525 x 452 mm

Weight, approx. 58.6 kg
Weight, approx. 61.0 kg

Ordering data
MV 10C EX VARIO 230 V~50 Hz Open wires 696946
MV 10C EX VARIO +AK +EK 230 V~50 Hz Open wires 696947

Accessories
PTFE tubing KF DN 25 (1000 mm: 686033)

Items supplied
Pump completely mounted, ready for use, with manual. Shatter and shock protection for glass parts must be provided by the customer. Speed control via 4-20 mA current loop (4 mA = 0 rpm, 20 mA = 1500 rpm). Control signal line 10 m, mains cable 2 m each without plug.

- full advantage of ATEX chemistry diaphragm pumps
- short process times due to hysteresis-free VARIO® vacuum control
- VARIO®-pump operates on demand only as fast as necessary – minimal power consumption, extended maintenance intervals, silent operation
- vacuum controller CVC 3000 (optional) for precise vacuum control and fully automatic processes
- complete system accessories I/O-Module, supply / isolation amplifier and ATEX vacuum sensor

MV 10C EX VARIO
MV 10C EX VARIO +AK +EK
ACCESSORIES FOR VACUUBRAND
ATEX VARIO®-PUMPS

CVC 3000  Installation outside of the EX-area, without integrated sensor

| Control range (dependent on the sensor) | 1080 - 0.1 mbar / 810 – 0.1 torr |
| Interface external | RS 232C |
| Interface to pump / sensor | Analog-I/O-Module, connectable via isolation amplifier |
| Dimensions (L x W x H) | 144 x 124 x 115 mm |
| Weight, approx. | 0.44 kg |

Ordering data

| 1  | CVC 3000, 100–230 V ~50–60 Hz | CEE/CH/UK/US/AUS/CN | 635028+612090 |
| 2  | Analog-I/O-Module | IN 4 – 20 mA, OUT 0 – 10 V | 635425 |
| 3  | Isolation amplifier | IN 0 – 10 V, OUT 4 – 20 mA | 635426 |
|  | Supply / isolation amplifier | IN / OUT 4 – 20 mA | 635427 |
| 4  | ATEX-sensor | Accuracy + 1 mbar | 635423 |
|  | ATEX-sensor | Accuracy better than +/− 3 mbar | 635424 |
### DVR 3

**Vacuum Gauge**  
ATEX category 2 approval

### Technical data

- **ATEX-approval**: II 2G Ex ia IIC T4  
- **Upper measuring limit**: 1080 mbar / 810 torr  
- **Lower measuring limit**: 1 mbar / 1 torr  
- **Accuracy of measurement**: < ± 1 mbar/torr / ± 1 digit  
- **Temperature coefficient**: < 0.07 mbar / 0.05 torr/K  
- **Material of outer housing**: Robust plastic (conductive) with good chemical resistance  
- **Power supply**: Power supply unit BVE 9 V  
- **Degree of protection**: IP 40  
- **Dimensions (L x W x H)**: 116 x 116 x 66 mm  
- **Weight, approx.**: 0.43 kg  
- **Connection**: Small flange KF DN 16

### Ordering data

| DVR 3 | ATEX vacuum gauge | 682903 |

### Accessories

- PTFE tubing KF DN 16 (1000 mm: 686031)  
- Stainless steel tubing KF DN 16 (1000 mm: 673336)  
- Power supply unit BVE 9 V (637986)  
- DAkkS calibration with first delivery (900214)  
- DAkkS recalibration (900215)

### Items supplied

Vacuum gauge complete with integrated vacuum sensor and power supply unit, ready for use, with manual.