

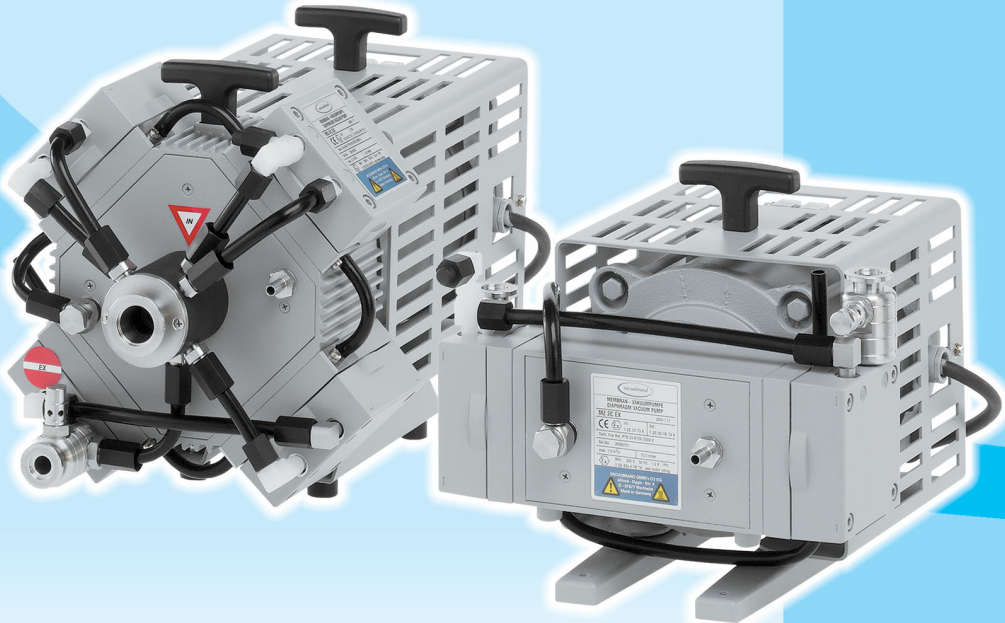


Technology for Vacuum Systems



*Explosion-protected, oil-free,
chemically resistant materials:*

ATEX CHEMISTRY DIAPHRAGM PUMPS CHEMISTRY VACUUM SYSTEMS VACUUM GAUGES



ATEX CHEMISTRY DIAPHRAGM PUMPS, VACUUM SYSTEMS AND VACUUM GAUGES



CHEMISTRY DIAPHRAGM PUMPS

VACUUBRAND offers chemistry diaphragm pumps for use in potentially explosive atmospheres of equipment category 2 (e.g. for zone 1) with ATEX-conformity (European Union Directive 94/9/EC). Chemistry diaphragm pumps offer an excellent basis for avoiding ignition sources due to their high chemical resistance, their oilless design, the absence of gliding surfaces and the hermetic sealing of the pumping chamber.

EXPLOSION-PROTECTED, OIL-FREE, CHEMICALLY RESISTANT MATERIALS



Four stage ATEX chemistry diaphragm pump
MV 10C EX



Two stage ATEX chemistry vacuum system
MZ 2C EX AK + EK



Three stage ATEX chemistry vacuum system
MD 4C EX AK + EK

SPECIAL ADVANTAGES

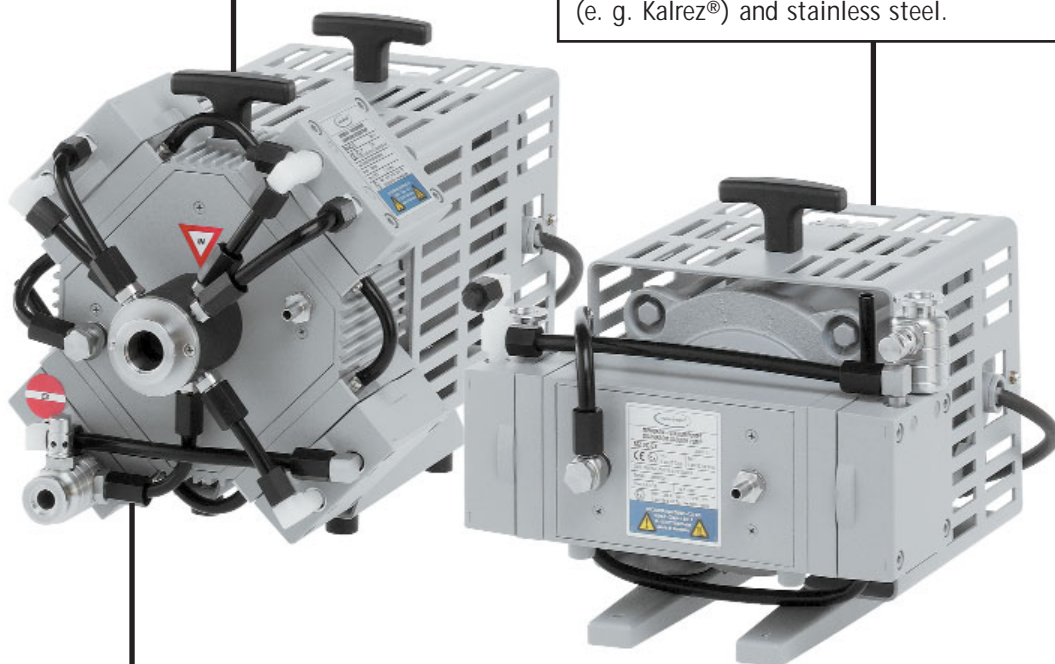
- **flame proof motor**
with integrated, self-locking overload and excess temperature protection for direct 230 V / 50 Hz single phase power supply
- **antistatic materials**
diaphragm pump heads made of antistatic, reinforced fluorinated plastic compounds partly with metallic core. Connecting elements and other parts made of antistatic materials.
- **chemical resistance**
gas and vapour contacting parts: fluorinated plastics, stainless steel, FFKM (e. g. Kalrez®)
- **gas ballast**
separate inert gas connection included
- **overpressure safety relief valve**
internally and at outlet
- **safety diaphragm technology**
with inert gas purge

... high-performance

Ultimate vacuum 12 to 2 mbar.
Pumping speed 1.9 to 8.1 m³/h.

... chemically resistant materials

Gas and vapour contacting materials:
fluorinated plastics (PTFE, ETFE), FFKM
(e. g. Kalrez®) and stainless steel.



... explosion-protection

ATEX-conformity:

- **pumping chamber** (pumped gas):
II 2G IIC T3 X
- **environment** (around the pump):
II 2G IIB T4 X (with inert gas purge)
II 3G IIB T4 X (without inert gas purge)
(motor: II 2G EEx d IIB T4)



ATEX vacuum gauge DVR 3



ATEX vacuum gauge DVR 4S
with interface




ATEX vacuum gauge DVR 4S
rear view

Vacuum gauges with ATEX-approval:

Since 1. July 2003 only equipment with ATEX approval/ATEX-conformity may be used in areas with potentially explosive atmospheres. VACUUBRAND offers beside the chemistry diaphragm pumps with ATEX-conformity the ATEX

vacuum gauges DVR 3, DVR 4 and DVR 4S with integrated pressure transducer made of alumina-ceramic, high corrosion resistance and excellent long term stability.

 CHEMISTRY DIAPHRAGM PUMP	MZ 2C EX	MD 4C EX	MV 10C EX
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TECHNICAL DATA

Max. pumping speed (DIN 28432) 50 Hz	m ³ /h	1.9	3.7	8.1
Ultimate vacuum (total) without gas ballast	mbar	12	3	2
Ultimate vacuum (total) with gas ballast	mbar	18	10	10
Number of stages		2	3	4
Inlet connection		small flange NW 16	small flange NW 25	small flange NW 25
Outlet connection		small flange NW 16	small flange NW 16	small flange NW 16
Motor voltage/frequency		230 V +/- 10% 50 Hz	230 V +/- 10% 50 Hz	230 V +/- 10% 50 Hz
Motor power (shaft)	kW	0.15	0.25	2 x 0.25
Rated current 230 V	A	1.2	2	2 x 2
Dimensions (L x W x H)	mm	340 x 290 x 250	440 x 265 x 305	560 x 430 x 410
Mass	kg	21.6	29.3	63.2

ORDERING INFORMATION

230 V ~ 50 Hz, 1-ph.*	69 69 20	69 69 30	69 69 45
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* with on/off switch, 2 m cable without plug.

 CHEMISTRY VACUUM SYSTEM	MZ 2C EX AK + EK	MD 4C EX AK + EK
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TECHNICAL DATA

Max. pumping speed (DIN 28432) 50 Hz	m ³ /h	1.9	3.7
Ultimate vacuum (total) without gas ballast	mbar	12	3
Ultimate vacuum (total) with gas ballast	mbar	18	10
Number of stages		2	3
Inlet connection		small flange NW 16	small flange NW 25
Outlet connection		hose nozzle 10 mm	hose nozzle 10 mm
Motor voltage/frequency		230 V +/- 10% 50 Hz	230 V +/- 10% 50 Hz
Motor power (shaft)	kW	0.15	0.25
Rated current 230 V	A	1.2	2
Dimensions (L x W x H)	mm	410 x 330 x 470	600 x 365 x 420
Mass	kg	25.4	37.4

ORDERING INFORMATION

230 V ~ 50 Hz, 1-ph.*	69 69 21	69 69 31
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* Chemistry vacuum system completely mounted with pumps MZ 2C EX or MD 4C EX, with inlet separator AK and exhaust emission condenser EK, on/off switch and 2 m cable without plug. **To be protected externally by the user for glass damage and breakage!**

ATEX-conformity:

pumping chamber: II 2G IIC T3 X / environment*: II 2G IIB T4 X (motor: II 2G EEx d IIB T4)

*with inert gas purge of the crank space. Without inert gas purge: external area II 3G IIB T4 X

 VACUUM GAUGE	DVR 3	DVR 4/DVR 4S
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TECHNICAL DATA

Measuring range		1080 - 1 mbar (hPa), 810 - 1 Torr	1080 - 1 mbar (hPa), 810 - 1 Torr
Uncertainty of measurement		< +/- 1 mbar (0.75 Torr) +/- 1 digit	< +/- 1 mbar (0.75 Torr) +/- 1 digit
Principle of measurement		capacitive, gas type independent	capacitive, gas type independent
ATEX approval		II 2G EEx ia IIC T4 (for use e. g. in zone 1)	II 1/2G EEx ia IIC T5 (e. g. measurement volume at zone 0)
Interface		-	4 - 20 mA (DVR 4S)*
Dimensions (L x W x H)	mm	116 x 116 x 66	116 x 116 x 86
Mass	kg	0.43	0.73

* no power supply, only for communication!

ORDERING INFORMATION

	68 29 03	68 29 04 (DVR 4)/68 29 05 (DVR 4S)
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DVR 3, 4, 4S must be operated exclusively with the VACUUBRAND power supply unit BVE 9 V.

ACCESSORIES

Power supply unit BVE 9 V	63 79 86	63 79 86
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150 employees work in a flexible team structure to design and manufacture our products. Our focus is to develop innovative products with excellent quality. VACUUBRAND has over 40 years experience in manufacturing vacuum technology. Our company offers the most comprehensive range of customer oriented laboratory and instrumentation vacuum pumps, gauges and controllers for rough and fine vacuum.

The product range comprises high performance rotary vane pumps, oil free diaphragm pumps, well proven pumping units, flexible vacuum systems and solutions for local area networks. The range is completed by a wide choice of KF fittings and accessories as well as various vacuum gauges and controllers for rough and fine vacuum. The design of VACUUBRAND products is driven by our customer's requirements.

In recent years, vacuum local area networks with pumps combining the latest electronic control technology and high performance mechanics have gained more and more importance.

Our technical literature is only intended to inform our customers. The validity of general empirical values and results obtained under test conditions for specific applications depends upon a number of factors beyond our control. It is, therefore, strictly the users' responsibility to verify carefully the validity or suitability to their specific requirements. No claims arising from the information provided in this catalogue will consequently be entertained. Technical data are subject to change without notice.

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