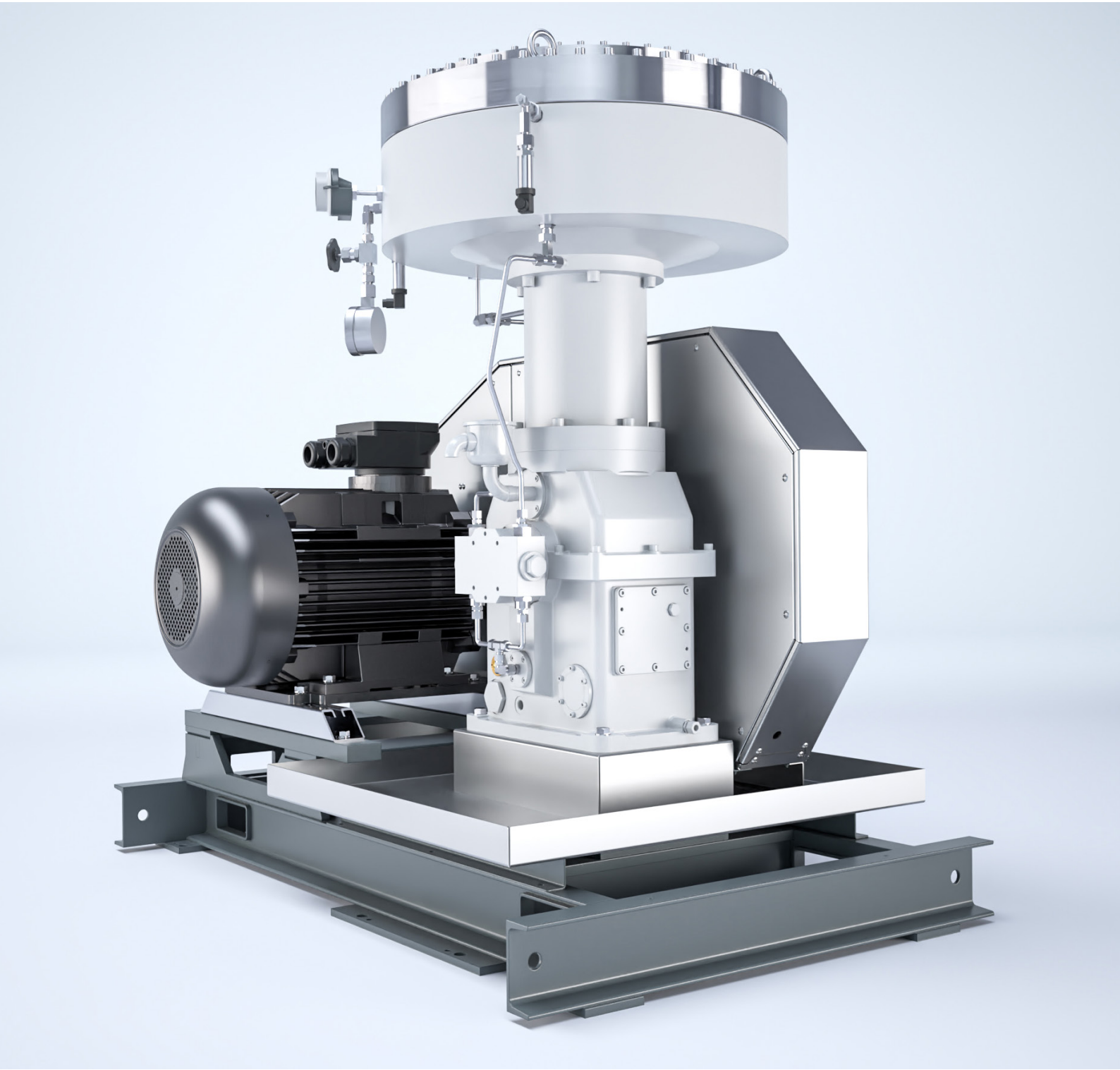
PRODUCT INFORMATION

PU series
METAL DIAPHRAGM COMPRESSORS



leak free – lubricant free – abrasion free

METAL DIAPHRAGM COMPRESSORS FOR ULTRA-CLEAN AND SAFE COMPRESSION

sera metal diaphragm compressors deliver absolutely contamination-free compression of sensitive and valuable gases.
Metal diaphragm compressors are the best choice for microelectronics, semiconductor and doping technology applications.

RANGE OF APPLICATIONS

- Gas bottle filling and transfilling units
- Production of specialty gas mixtures
- Recycling of noble gases
- Gas shielding for surface treatment processes
- Nitrogen compressors for butyl production
- Hydrogen refuelling stations
- Airbag inflator gas filling
- Natural gas filling in air separation plants
- Power-to-gas compressor units
- Experimental and research facilities

ADVANTAGES AT A GLANCE

- Hermetically sealed between outside and interior
- Compression of toxic and explosive gases
- Completely lubricant-free compression
- No contamination occurs from piston ring or rod sealing wear
- High resistance to corrosion
- No purge or seal gas systems required
- Pressurised start-up

An almost complete lack of outward leakage makes it possible to safely compress gases that have an extremely critical impact on humans and the environment. Because of this, **sera** metal diaphragm compressors are often used in applications involving toxic gases.

Depending on the process requirements, different material qualities of medium-contacted components are chosen. This allows a high degree of corrosion resistance and long service lives to be achieved for gas-contacted parts.

DESIGN AND HOW IT WORKS

Between the valve head and the upper part of the piston housing is a metal sandwich diaphragm is fixed using only static seals. This hermetically separates the gas compartment from the oil-lubricated drive, and completely prevents the medium from becoming contaminated by any lubricant or particulate matter. Thanks to this design, **sera** metal diaphragm compressors have a hermetic seal between the outside and their interior, enabling toxic and explosive gases to be compressed without difficulty.

The oscillating motion of the fixed diaphragm cyclically enlarges and reduces the gas compartment. This compresses the gas sucked in via the suction valve and pushes it out through discharge valve. The diaphragm oscillation is actuated by an oil cushion which is cyclically pressurised by a crank-driven piston.
sera metal diaphragm compressors meet the requirements of the European Union's Machinery Directive, ATEX Directive and Pressure Equipment Directive as standard.

TECHNICAL SPECIFICATIONS

SIZES		MV1	MV2	MV3	MV4	MV5
Number of stages	-	1	1/2	1/2	1/2	1/2
Max. compression ratio	-	1:10	1:10	1:10	1:10	1:10
Suction pressure, min.	bar(a)	1.0	1.0	1.0	1.0	1.0
Discharge pressure, max.	bar(a)	900	900	900	900	900
Tightness	mbar l/s	< 10-5	< 10-5	< 10-5	< 10-5	< 10-5
Rotational speed	rpm	360	360	360	360	360
Max. motor output	kW	3	11	18.5	45	75

ADDITIONAL FEATURES

- Drive housing heating and insulation
- Valve-head cooling
- Special materials for diaphragm and valve head
- Sensors
- Oil sump
- Transport lugs
- Oil cooling

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