



sera ComPress

A company of the sera group

Compressor Technology

Fluid Technology is our Passion

Contents

■ sera ComPress	3
■ Oil-free compressors	
General overview	4
PTFE-diaphragm compressors	6
Metal diaphragm compressors	8
Piston compressors	10
■ Control technology	12
■ Services	14
■ Compressor solutions	
Industrial sectors overview	16
Gas industry	18
Chemical and petrochemical industry	20
Renewable energies	22
Conventional energies	24
Research and development	26
Steel industry and metal processing	28
■ Reference projects worldwide	from 30

sera ComPress

**We stand for reliability, efficiency and quality.
With our compressors we create added value
for people, companies and nature.**

Fluid Technology is our passion.

Oil-free and environmentally sensitive compression of all gases is the basis of our product philosophy.

Our customers' and partners' individual needs are at the center of our interest at any time.

Since 1945, **sera** has been one of the global leading system providers for dosing and feeding technology handling a wide range of fluids.

In 1959 **sera** developed the first metal diaphragm compressor for the oil-, contamination- and leakage-free compression of nearly all industrial gases. In order to meet and improve the growing demands of our customers for comprehensive industrial solutions, **sera's** core competences in compressor technology were concentrated and outsourced in the subsidiary **sera ComPress** in 2010.

This concentration of expertise and technological know-how enables us to place optimum focus on the different industrial sectors and business areas of our customers.

sera offers complete systems which are economically, technologically and ecologically trendsetting. They are used in different industrial sectors, for example in the gas, chemical and petrochemical industries, research and development as well as in the sector of renewable energies.

The extensive product and service portfolio includes:

- Diaphragm compressors and piston compressors
- Complex system solutions for different applications
- Control technology
- Extensive service before, during and after the sale as for example:
 - Active service and maintenance management
 - Global assembly and commissioning
 - Global spare parts service
 - Repairs and modernization/automations of machines on site
- Highly competent technical support
- Individual customer trainings

Oil-free compressors

General overview

MLG and KMG series

Flow rates*:	up to approx. 50 Nm ³ /h
Pressures:	up to 40 bar
Leakrate:	10 ⁻³ mbar l/s
Field of applications:	oil- and leakage-free compression of nearly all gases

MV series

Flow rates*:	up to approx. 1500 Nm ³ /h
Pressures:	up to 1000 bar
Leakrate:	<10 ⁻⁵ mbar l/s
Field of applications:	oil- and leakage-free compression of nearly all gases

KV series

Flow rates*:	up to approx. 6000 Nm ³ /h
Pressures:	up to 85 bar
Field of applications:	oil- and leakage-free compression of nearly all gases with low corrosivity and toxicity depending on gas characteristics and pressure ranges

- Oil- and impurity-free compression
- Leakage-free (diaphragm compressors)
- Durable and low-maintenance industrial designs
- Suitable for tough operating conditions and continuous operation
- Low noise level
- High safety standards
- Long service life and low life-cycle costs
- Fully-automatic operation
- ATEX- and CE-compliant

(*Data depending on gases and pressures)





PTFE-diaphragm compressors

MLG and KMG series

MLG series

Multi-layer diaphragm compressors with mechanically coupled PTFE-diaphragms

Type range

410.2 - MLG

420.1 - MLG

511.1 - MLG

KMG series

Diaphragm compressors with hydraulically coupled PTFE-diaphragms

Type range

410.2 - KMG

420.1 - KMG

511.1 - KMG

Product characteristics

- Oil- and leakage-free compression of nearly all gases
- PTFE-multi-layer diaphragm technology
- Continuous diaphragm monitoring
- Continuously variable flow rates (depending on type)
- Integrated control electronics (C-MLG- and C-KMG-series)
- ATEX-designs (not for C-series)
- Corrosion-resistant materials
- Suitable for continuous operation
- Integrated overpressure protection (only KMG-series)
- Multi-stage designs (max. 3-stage)
- Pressures up to 40 bar
- Flow rates up to 50 Nm³/h (depending on pressure and gas characteristics)
- Gas inlet temperatures up to 120°C
- Horizontal design



C420.1-500 MLG
(1-stage)



M 420.1-500 MLG
(1-stage)



R 410.2-310 KMG
(1-stage)



*Typ 511.1-1200 MLG
(2-stage)*



*Typ 420.1-500 MLG
(2-stage)*



*C420.1-1200 MLG
(3-stage)*

Metal diaphragm compressors

MV series

MV series

Diaphragm compressors with hydraulically coupled PTFE-diaphragms

Type range

MV1, MV2, MV3, MV4

Design

vertical

Type range

MV5, MV6

Design

horizontal

Type range

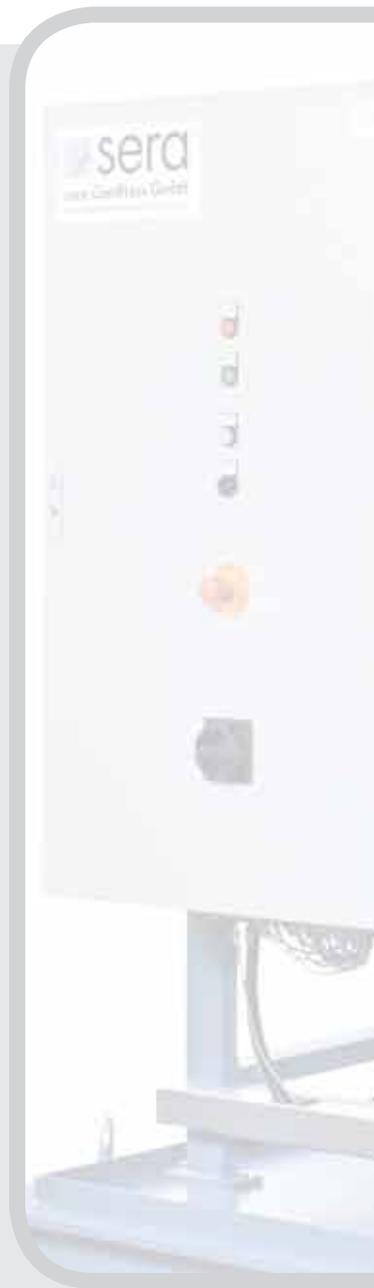
MV5 II

Design

V-design

Product characteristics

- Oil- and leakage-free compression of nearly all gases
- PTFE-multi-layer diaphragm technology
- Continuous diaphragm monitoring, as well as all other relevant operating parameters
- Continuously variable flow rates (speed and/or bypass)
- Integrated control electronics (only C-MV6 series)
- ATEX-designs (not for C-series)
- Corrosion-resistant materials
- Suitable for continuous operation
- Multi-stage designs (max. 3-stage)
- Pressures up to 1.000 bar (depending on type)
- Flow rates up to 1.500 Nm³/h (depending on pressure and gas characteristics)
- Gas inlet temperatures up to 150°C
- Low noise level



MV 1206
(1-stage, air cooled)



MV 2386 III
(3-stage, air cooled)



MV 3555 II K
(2-stage, water cooled)



*MV 4766 III K
(3-stage, water cooled)*



*MV 4801
(1-stage, water cooled)*



*MV 5206 II
(2-stage, air cooled)*



*RC-MV 6186
(1-stage, air cooled)*

Piston compressors

KV series

KV series

Type range

KV1, KV2, KV3

Design

Air-cooled piston compressors
vertical

Type range

KV4, KV5, KV6, KV7, KV8

Design

Water-cooled piston compressors
vertical

Type range

KV9

Design

Water-cooled piston compressors
V-Construction

Product characteristics

- Oil- and leakage-free compression of nearly all gases with low corrosivity and toxicity
- Contamination-free separation of power unit and gas-contacted part
- Continuous monitoring of all relevant operating parameters
- Crosshead guidance
- Special sealing systems for use of purge- and buffer gases, as well as nearly loss-free discharge of leakage gas quantity
- Continuously variable flow rates (speed and/or bypass)
- ATEX-designs
- Corrosion-resistant materials
- Suitable for continuous operation
- Multi-stage designs (max. 3-stage)
- Pressures up to 85 bar (depending on type)
- Flow rates up to 6.000 Nm³/h (depending on pressure and gas characteristics)
- Gas inlet temperatures up to 50°C (higher gas inlet temperatures possible when using a gas cooler on suction side)



KV 4051 II K
(2-stage, water cooled)



KV 2001 I L
(1-stage, air cooled)



KV 3001 I L
(1-stage, air cooled)



*KV 9002 II K
(2-stage, water cooled)*

left:

*KV 7002 I K
(1-stage, water cooled)*

right:

*KV 9001 I K
(1-stage, Duplex, water cooled)*



Control technology

As a system provider, **sera** provides, besides standardized compressor systems and components, customized solutions for compressor systems ("turn key plants"), which are tailored optimally to the respective customer demands and application cases due to comprehensive control technology.

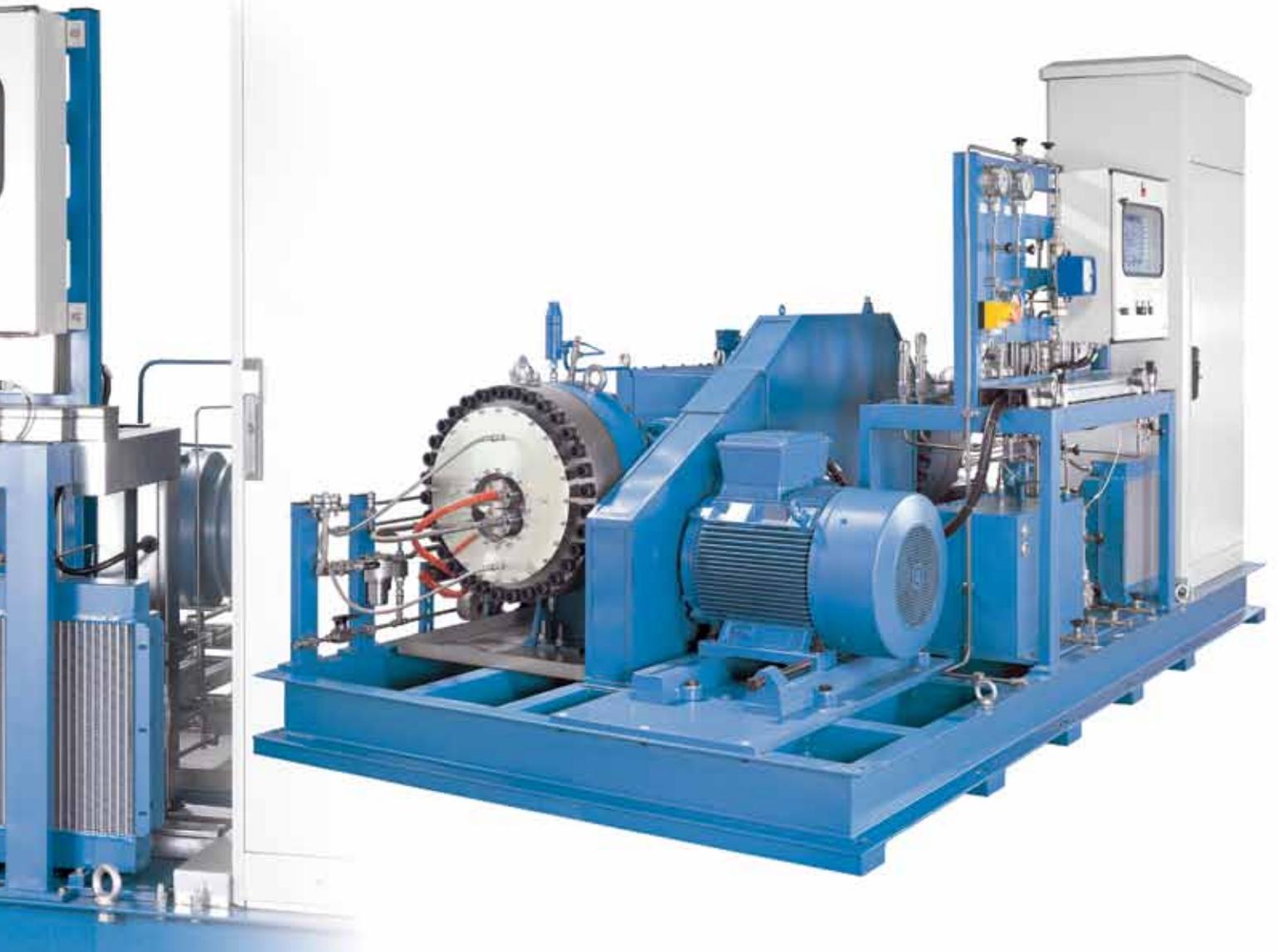
From the planning, engineering and documentation to the total assembly and commissioning worldwide - everything is from a single source!

The use of the latest sensor technology enables the safe and efficient operation of the systems. All process parameters are monitored and if required, evaluated and controlled directly in the compressor system on site or by a central control unit.

The communication to the superior control unit is possible in a conventional way via analog signals and potential-free contacts, or via Profibus- or Ethernet interface when it comes to complex systems.

All systems meet the currently applicable VDE-Directives and European Standards.





Services

What does characterize sera ComPress?

Our customers' and partners' individual needs are always at the centre of our interest.

Beside our product portfolio, we also provide the following extensive services:

- Global commissioning and installation
- Spare parts service
- Conversion and modernization of compressors and units
- Maintenance and repair service on site or in our works
- Competent technical support
- Individual customer trainings and qualifications





Fluid Technology is our Passion

Industrial-sector-solutions

sera compressors and units are used in different branches worldwide.

- Automotive industry/ Industrial automation
 - Biogas technologies
 - Chemical industry
 - Energy production and -supply
 - Research and development
 - Gas industry
 - Food and beverage
 - Laboratories
 - Aviation and astronautics
 - Medical technology
 - Metal extraction and processing
 - Petrochemical industry
 - Pharmaceutical and cosmetics industry
 - Renewable Energy (PtG, PtL)
 - Environmental technology
 - Oxygen storage
- and many more





Gas industry

Industrial-sector-solutions

Field applications

- Gas bottle filling and decanting (e.g. trailer > gas bottle(s))
- Production of special gas mixtures
- Recover residual quantities of gas bottles
- all applications with high demands on gas purity and tightness

Gases

- all noble gases
- Hydrogen
- Oxygen
- Nitrogen
- Silane
- Ethylen

and many more

usual

Pressures

up to **300 bar**

and

Flow rates

up to **100 Nm³/h** (and higher)





Chemical- and petrochemical industry

Industrial-sector-solutions

Field of applications

- Air separation (noble gases)
- Blanketing with inert gases
- Natural gas desulfurization
- Polyethylene-, polypropylene- and more polymer processes
- Hydrogenation
- Chemical processes

Gases

- Hydrogen, Ethylene, noble gases
- Fluorine-containing gases (TFE, BF_3 , SiF_4 , HF etc.)
- Chlorinated gases (HCL, Cl_2 etc.)
- Corrosive, toxic, explosive gases (H_2S , CO etc.)
- Flammable gases

and many more

usual

Pressures

up to **250 bar**

and

Flow rates

up to **400 Nm³/h** (and higher)





Renewable energies

Industrial-sector-solutions

Field applications

- Hydrogen filling stations
- PtG applications (storage of Oxygen)
- PtL applications (Fischer-Tropsch process)
- Biogas plants

Gases

- Hydrogen
- Oxygen
- Syngas
- Biogas

usual

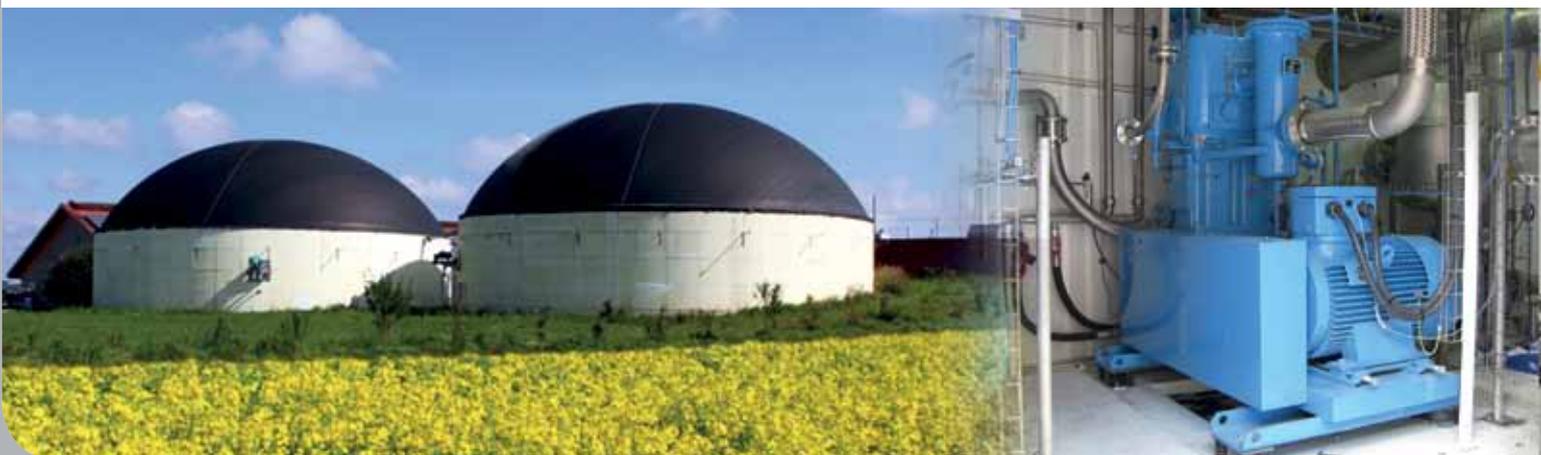
Pressures

and

Flow rates

up to **850 bar**

up to **100 Nm³/h** (and higher)





Conventional Energies

Industrial-sector-solutions

Field applications

- Cooling of turbo-generators in power plants via Helium or Hydrogen
- Reclamation and preparation of radioactive gases in power plants and research facilities.

Gases

- Helium
- Hydrogen
- Mixtures of gases

usual

Pressures

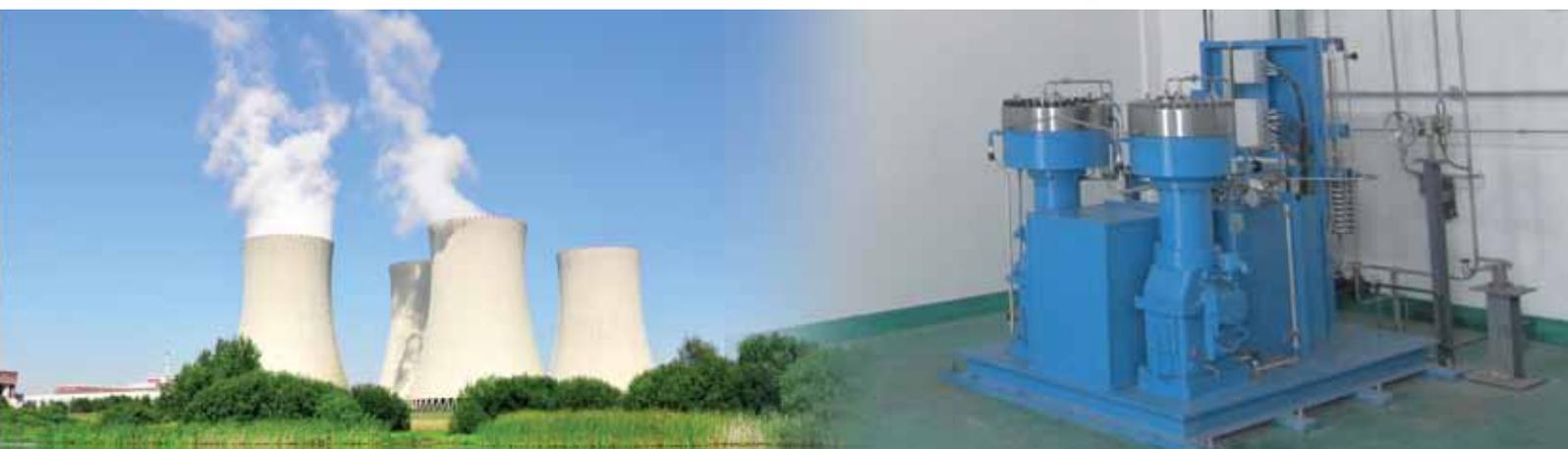
up to **200 bar**

and

Flow rates

up to **100 Nm³/h** (and higher)





Research and development/Universities

Industrial-sector-solutions

Field applications

Development projects for:

- Chemical and petrochemical industry
- Gas industry
- Renewable Energy (u.a. PtG, PtL)
- Fuel cell applications
- Solar cells

and many more

Gases

- Natural gas
- Hydrogen
- Biogas
- Mixture of gases

and many more

usual

Pressures

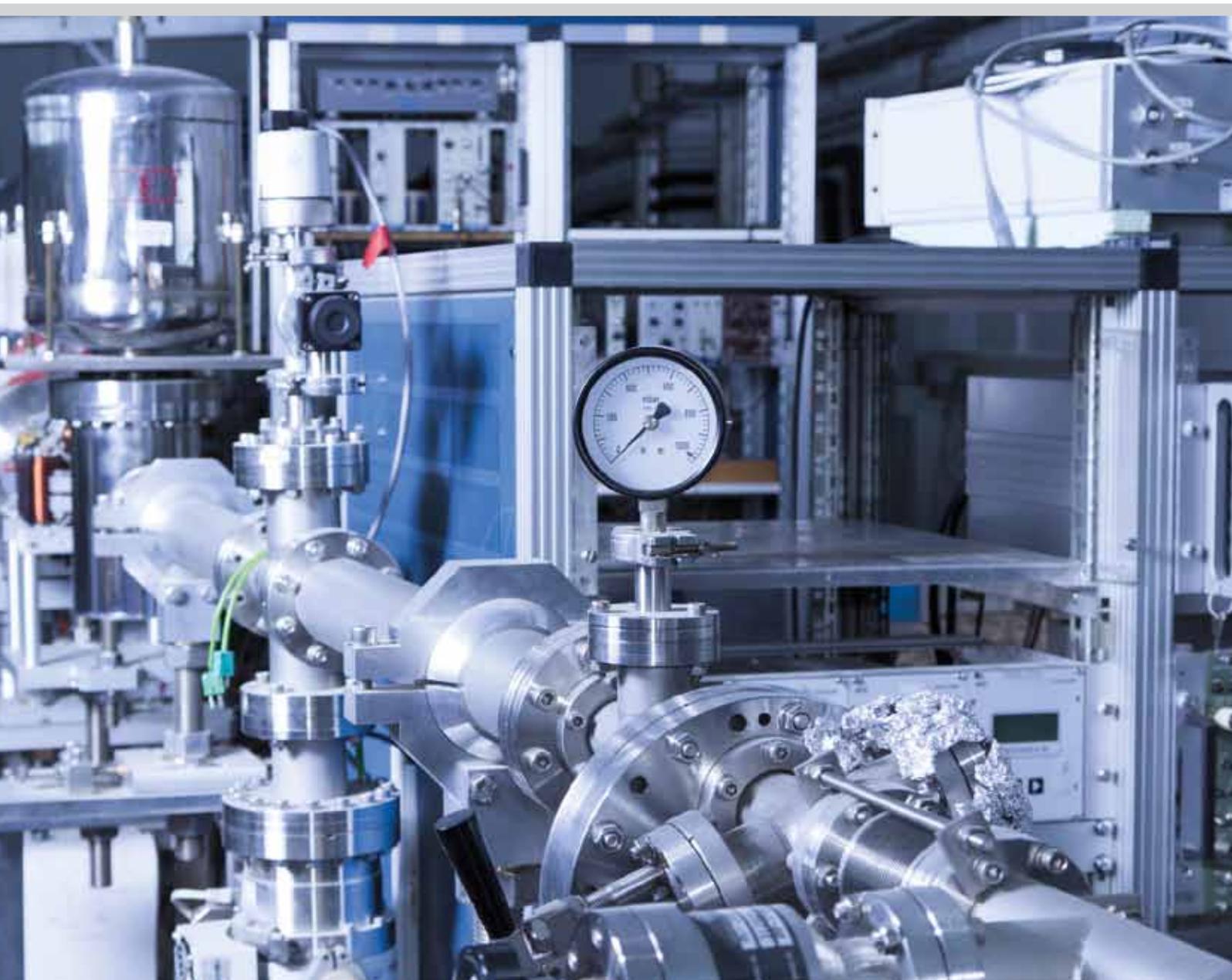
up to **1000 bar**

and

Flow rates

0,005 up to 50 Nm³/h (and higher)





Steel industry and metal processing

Industrial-sector-solutions

Field applications

- Recovery of noble gases
- Hydrogen for reduction purposes
- Blanketing for methods of surface treatment

Gases

- Hydrogen
 - Argon
 - Helium
- and many more

usual

Pressures

up to **200 bar**

and

Flow rates

up to **200 Nm³/h** (and higher)





Reference projects worldwide

Africa

Project specifications

Application	Diaphragm compressores for oxygen filling in a hospital
Application site	Democratic Republic of the Congo
Compressor Design	Metal diaphragm compressor Type MV 3456 II K vertical, 2-stage, water cooled
Gas	Oxygen
Inlet pressure	5 bar (a)
Output pressure	151 bar (a)
Flow rate	12 Nm ³ /h





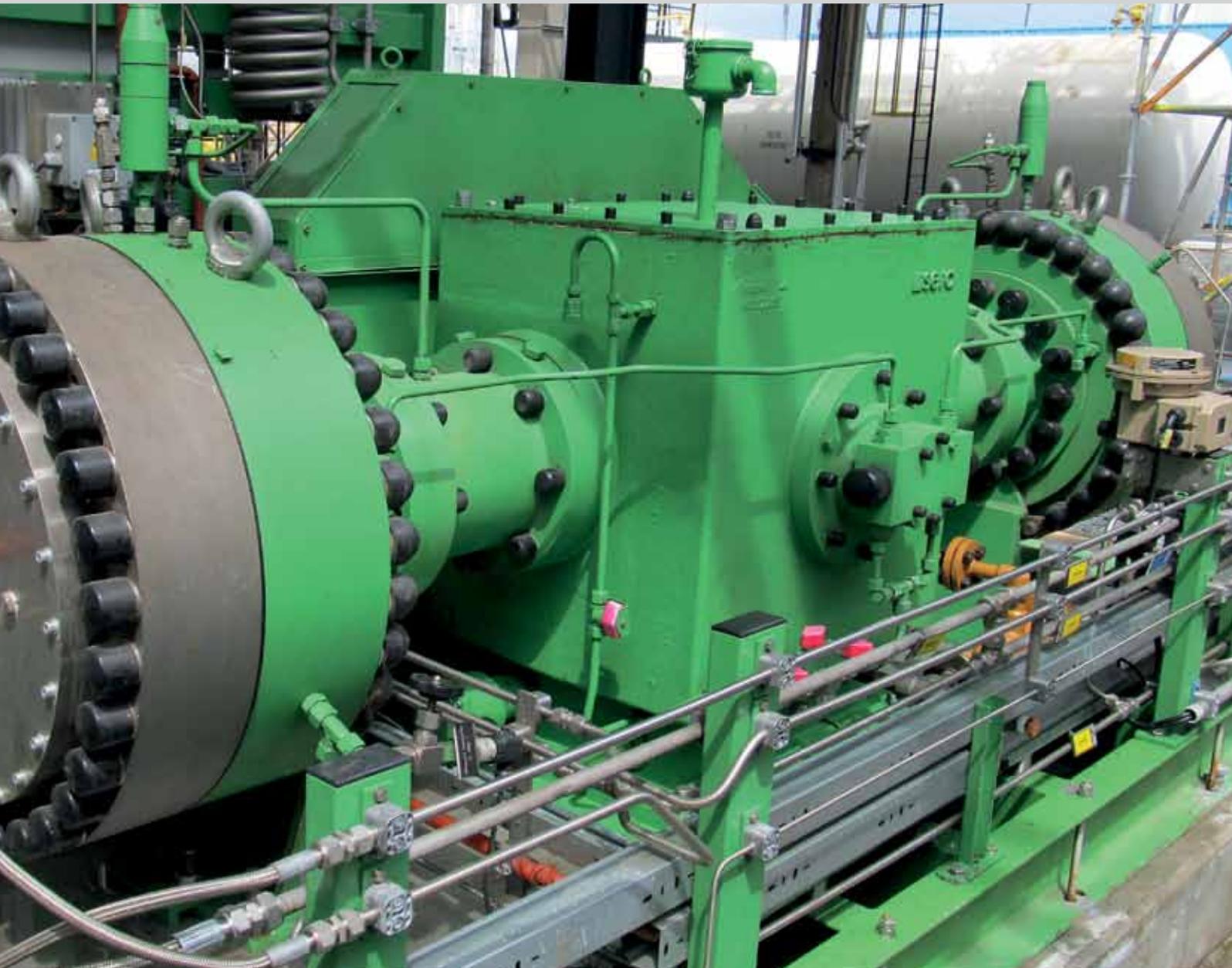
Reference projects worldwide

Belgium

Project specifications

Application	Nitrogen diaphragm compressor for the production of Butyl in the chemical industry
Application site	Belgium
Compressor Design	Metal diaphragm compressor Type MV 5624 II K horizontal, 1-stage, duplex, water cooled
Gas	Nitrogen
Inlet pressure	20 bar (a)
Output pressure	85 bar (a)
Flow rate	112 Nm ³ /h





Reference projects worldwide

Germany

Project specifications

Application	Mobile hydrogen filling station for fork lifters
Application site	Germany
Compressor	Metal diaphragm compressor Type MV 2188 II
Design	vertical, 2-stage, air cooled
Gas	Hydrogen
Suction pressure	30 bar (a)
Final pressure	450 bar (a)
Flow rate	1 Nm ³ /h





Reference projects worldwide

Germany

Project specifications

Application Diaphragm compressor for natural gas recirculation in a pilot plant
Application site Germany

Compressor Metal diaphragm compressor Type **MV 4813**
Design vertical, 1-stage, water cooled

Gas Natural gas
Inlet pressure 10 bar (g)
Output pressure 55 bar (g)
Flow rate 200 Nm³/h





Reference projects worldwide

Europe

Project specifications

Application	Mobile diaphragm compressor for the recovery of oxygen from partially emptied gas bottles in aviation
Application site	Germany + Europe
Compressor Design	Metal diaphragm compressor Type MV 5216 II V-design, 2-stage, air cooled
Gas	Oxygen
Inlet pressure	10 bar (a)
Output pressure	200 bar (a)
Flow rate	2 Nm ³ /h





Reference projects worldwide

Netherlands

Project specifications

Application	Diaphragm compressor for filling inert gas in air separation plant
Application site	Netherlands
Compressor Design	Metal diaphragm compressor Type MV 3426 II K vertical, 2-stage, water cooled
Gas	Mixture with the following composition: Helium (15,5%), Neon (52%), Hydrogen (1,2%) and Nitrogen (31%)
Inlet pressure	5,2 bar (g)
Output pressure	200 bar (g)
Flow rate	8,5 Nm ³ /h





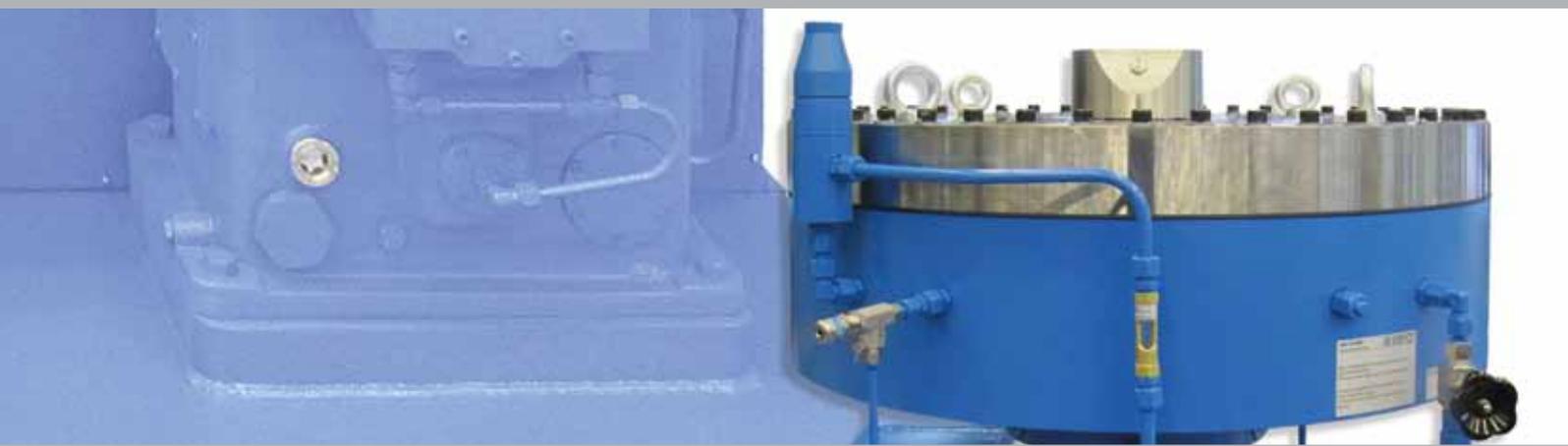
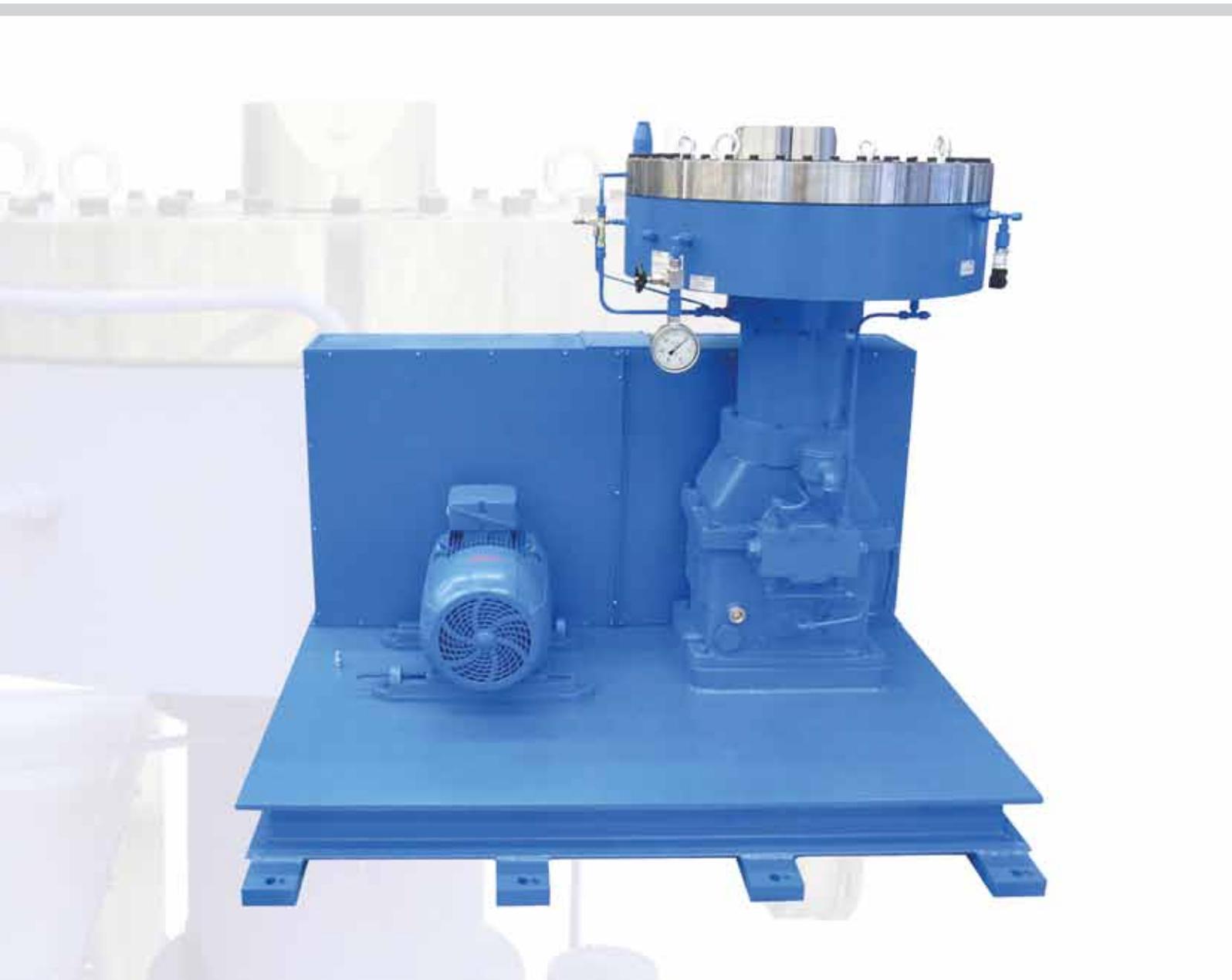
Reference projects worldwide

China

Project specifications

Application	Recovery of contaminated inert gas in a research plant
Application site	China
Compressor	Metal diaphragm compressor Type MV 4731 in basic design
Design	vertical, 1-stage, water cooled
Gas	Argon
Inlet pressure	2 bar (g)
Output pressure	6 bar (g)
Flow rate	30 Nm ³ /h





Reference projects worldwide

Middle East

Project specifications

Application	Diaphragm compressor for syngas in a petrochemical pilot plant
Application site	Middle East
Compressor Design	Metal diaphragm compressor Type MV 3386 II K vertical, 2-stage, water cooled
Gas	Syngas
Inlet pressure	16 bar (g)
Output pressure	250 bar (g)
Flow rate	15 Nm ³ /h





Reference projects worldwide

Arctic Ocean

Project specifications

Application	Compressor for oxygen storage on a rescue ship
Application site	Arctic Ocean
Compressor Design	Metal diaphragm compressor Type MV 3486 II K vertical, 2-stage, water cooled
Gas	Oxygen
Inlet pressure	10 bar (a)
Output pressure	200 bar (a)
Flow rate	34 Nm ³ /h





Reference projects worldwide

China

Project specifications

Application	Noble gas filling with a diaphragm compressor in an air separation plant
Application site	China
Compressor Design	Metal diaphragm compressor Type MV 4766 III K vertical, 3-stage, water cooled
Gas	Mixture of gases
Inlet pressure	1,02 bar (a)
Output pressure	180 bar (a)
Flow rate	22 Nm ³ /h





Reference projects worldwide

Poland

Project specifications

Application	Diaphragm compressor for hydrogen storage in a steel plant
Application site	Poland
Compressor Design	Metal diaphragm compressor Type MV 4542 II vertical, 1-stage, duplex, water cooled
Gas	Hydrogen
Inlet pressure	9 bar (a)
Output pressure	41 bar (a)
Flow rate	135 Nm ³ /h





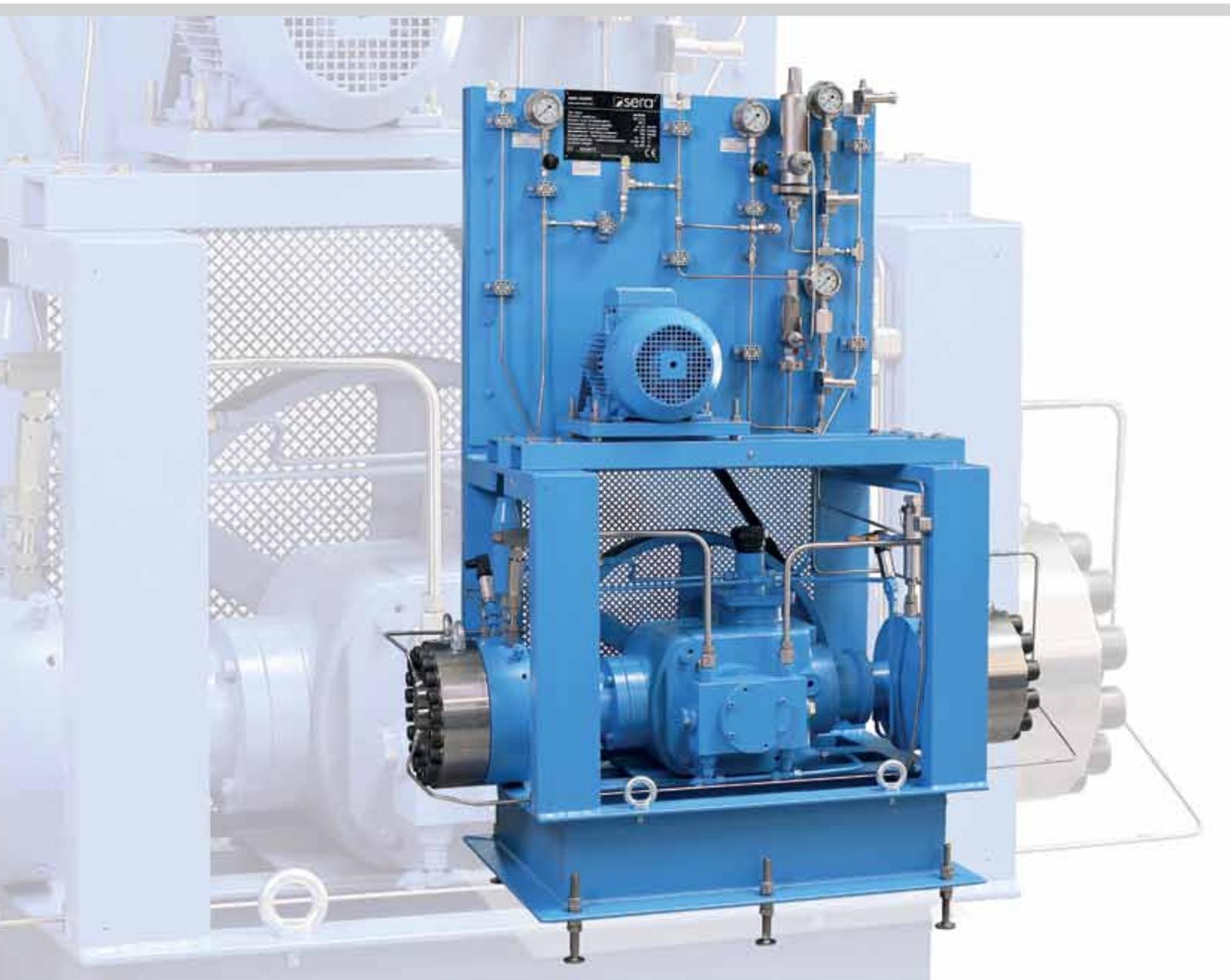
Reference projects worldwide

Germany

Project specifications

Application	High pressure diaphragm compressor for test stand for cooling systems of hydrogen filling stations
Application site	Germany
Compressor Design	Metal diaphragm compressor Type MV 5209 II horizontal, 2-stage, air cooled
Gas	Hydrogen
Inlet pressure	50 - 200 bar (a)
Output pressure	700 bar (a)
Flow rate	0,6 Nm ³ /h





Reference projects worldwide

Middle East

Project specifications

Application	Diaphragm compressor for the storage of hydrogen in a refinery
Application site	Middle East
Compressor Design	Metal diaphragm compressor Type MV 5504 II horizontal, 1-stage, Duplex, water cooled
Gas	Hydrogen
Inlet pressure	31,33 bar (g)
Output pressure	101 bar(g)
Flow rate	135 Nm ³ /h



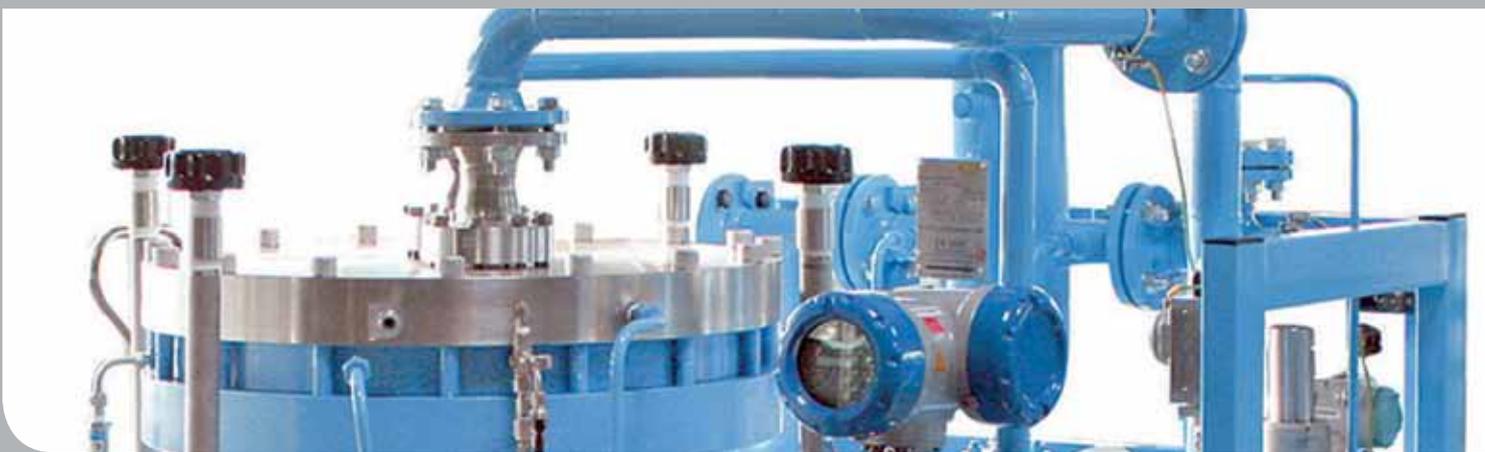


Reference projects worldwide

Germany

Project specifications

Application	Hydrochlorine diaphragm compressor in a chemical plant
Application site	Germany
Compressor Design	Metal diaphragm compressor Type MV 4801 vertical, 1-stage, water cooled
Gas(es)	Hydrochlorine connection
Inlet pressure	1,4 bar (a)
Output pressure	3,5 bar (a)
Flow rate	28 Nm ³ /h



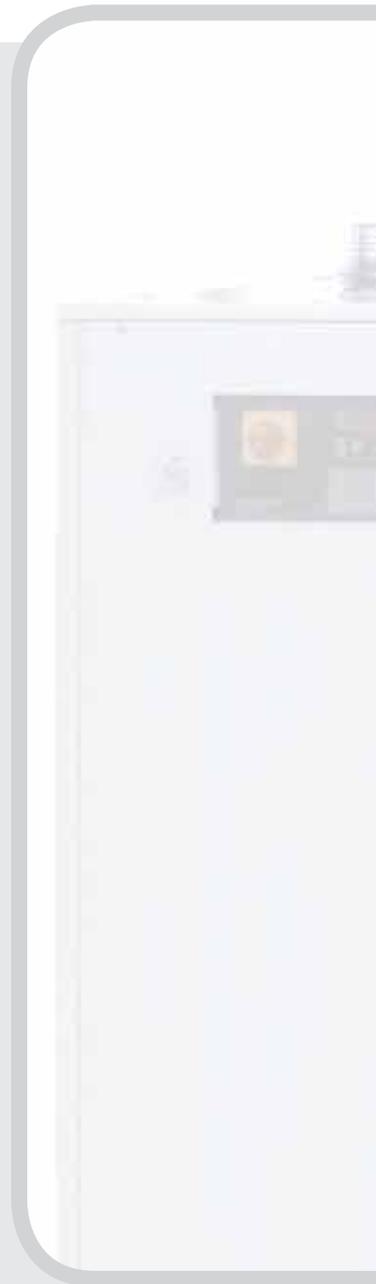


Reference projects worldwide

Germany

Project specifications

Application	Oil-free piston compressor for helium feeding in a research facility
Application site	Germany
Compressor Design	Piston compressor Type KV 5061 II K vertical, 2-stage, water cooled
Gas	Helium
Inlet pressure	1,0 bar (a)
Output pressure	15 bar (a)
Flow rate	100 Nm ³ /h





Satisfied customers worldwide



With a headquarter in Germany and local offices in England and South Africa and a worldwide sales and service network, **sera** guarantees optimum support for customers locally.



Local **sera** contact:

sera ComPress GmbH
sera-Straße 1
34376 Immenhausen
Germany
Tel.: +49 5673 999-04
Fax: +49 5673 999-05

info-compress@sera-web.com
www.sera-web.com