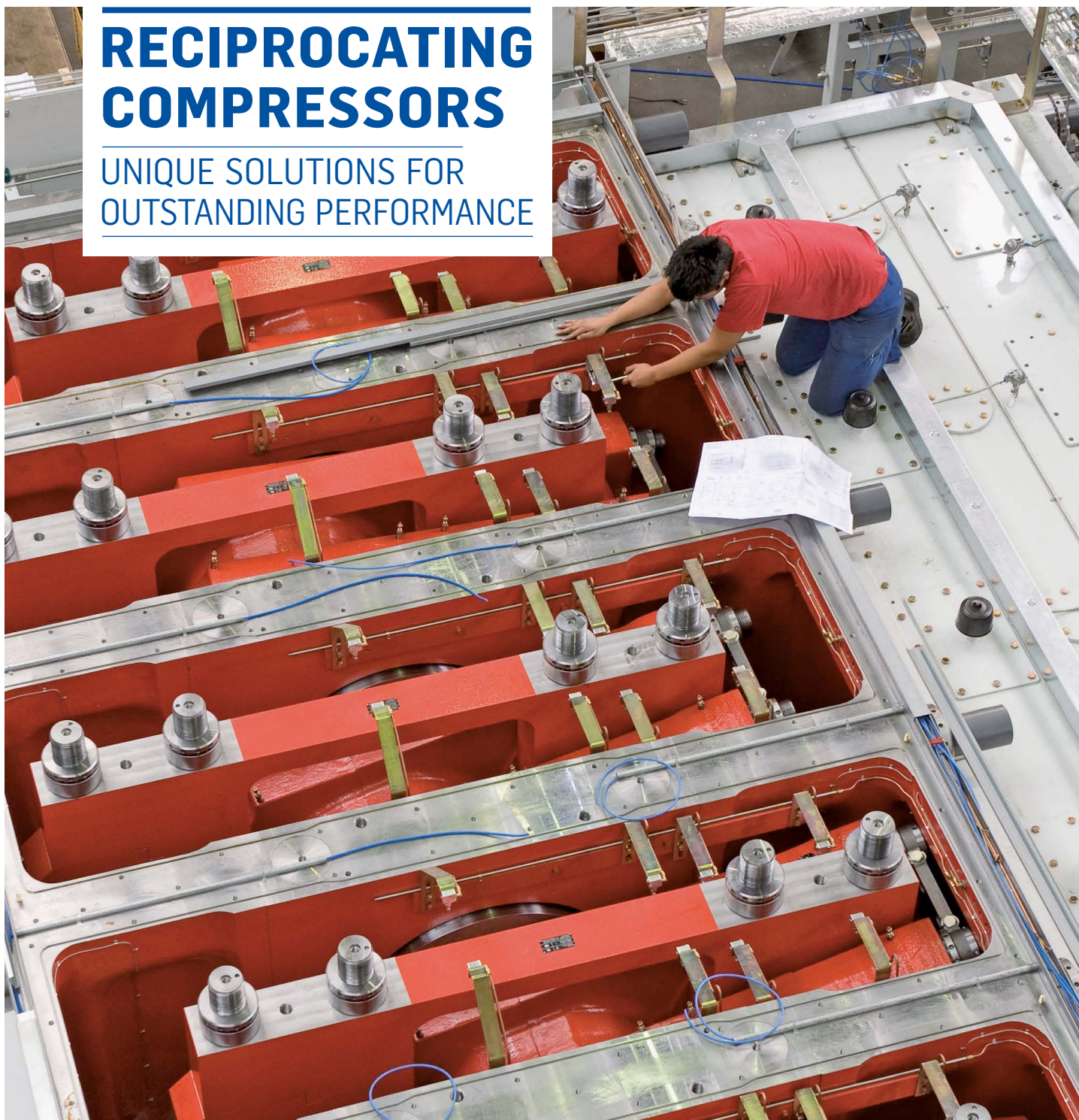


RECIPROCATING COMPRESSORS

UNIQUE SOLUTIONS FOR
OUTSTANDING PERFORMANCE



Compressors for a Lifetime™

OVERVIEW RECIPROCATING COMPRESSORS

LEADING TECHNOLOGY

Burckhardt Compression's leading technology, high-quality compressor components and the full range of services help customers to minimize life cycle costs of their reciprocating compressor solutions around the world. Since 1844 its highly skilled workforce has crafted superior solutions expertise and set the benchmark in the gas compression industry. Burckhardt Compression is the first choice partner for new innovative compressor solutions.

LABY® COMPRESSORS

THE ULTIMATE CHOICE FOR OIL-FREE COMPRESSION



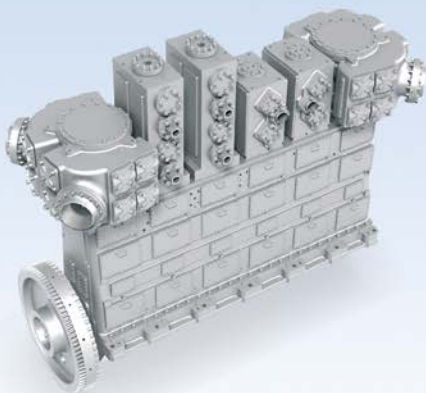
GAS TRANSPORT
& STORAGE

PETROCHEMICAL/
CHEMICAL INDUSTRY

INDUSTRIAL GASES

LABY®-GI COMPRESSORS

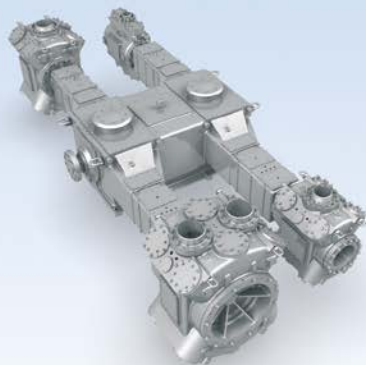
OFFSHORE LNG BOIL-OFF GAS COMPRESSION UP TO 350 BARA / 5'070 PSIA



GAS TRANSPORT
& STORAGE

PROCESS GAS COMPRESSORS API 618

HIGH AVAILABLE UP TO 1'000 BARA / 15'000 PSIA



UPSTREAM OIL & GAS

GAS TRANSPORT &
STORAGE

PETROCHEMICAL/
CHEMICAL INDUSTRY

INDUSTRIAL GASES

REFINERY

HYPER COMPRESSORS

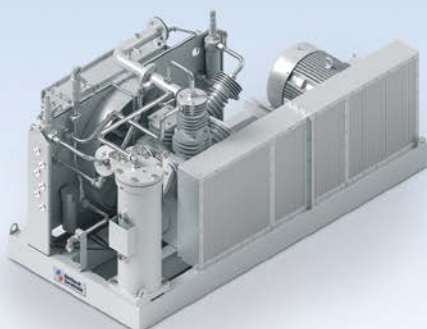
SAFE AND RELIABLE COMPRESSION UP TO 3'500 BARA / 50'000 PSIA



PETROCHEMICAL/
CHEMICAL INDUSTRY

STANDARD HIGH PRESSURE COMPRESSORS

COMPACT COMPRESSOR SOLUTION UP TO 400 BARA / 6'000 PSIA



GAS TRANSPORT
& STORAGE

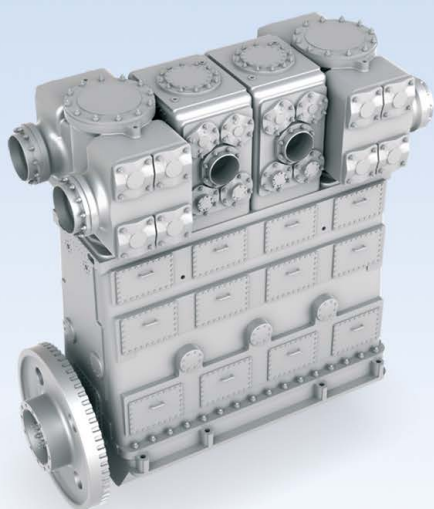
INDUSTRIAL GASES

OTHER APPLICATIONS

LABY® COMPRESSORS

CONTACTLESS LABYRINTH SEALING FOR HIGHEST AVAILABILITY

THE ULTIMATE CHOICE FOR OIL-FREE COMPRESSION



GAS TRANSPORT & STORAGE

Boil-off gas handling
Liquefied natural gas (LNG)
Liquefied petroleum gas (LPG)
Propylene
Ethylene and other hydrocarbon gases or refrigerants

PETROCHEMICAL/ CHEMICAL INDUSTRY

Polyethylene
Polypropylene
Ethylene oxide/
glycol production

INDUSTRIAL GASES

Oxygen
Nitrogen
Carbon dioxide
Carbon monoxide
Bone-dry gases

DESIGN FEATURES

Oil-free compression due to the unique labyrinth sealing system on piston and piston rod gland

Ultimate contactless sealing for less wear and maximum MTBO (mean time between overhaul)

No contamination of the pure gas with abrasives or oil

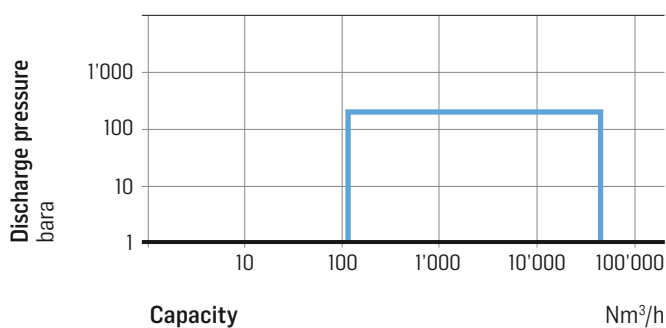
Insensitive to particles, dirty and contaminated gases

Gas-tight design to avoid gas emissions and losses for safe, ecological and economical operation

Top quality key compressor components and material selection for highest reliability and availability

PERFORMANCE RANGE

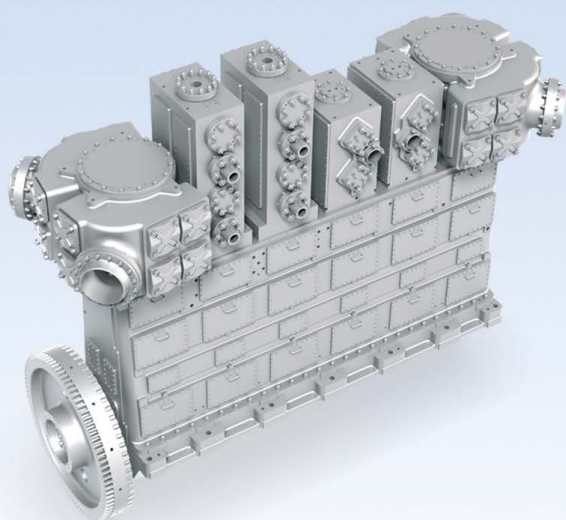
Discharge pressure	bara / psia	up to 300 / 4'350
Capacity	(Nm ³ /h) / scfm	up to 48'000 / 28'200



LABY®-GI COMPRESSORS

FULLY BALANCED RECIPROCATING COMPRESSORS
WITH HIGHEST OPERATIONAL FLEXIBILITY

OFFSHORE LNG BOIL-OFF GAS COMPRESSION UP TO 350 BARA / 5'070 PSIA



GAS TRANSPORT & STORAGE

Fuel gas injection
for ME-GI dual fuel
propulsion system
(DFDM)
from MAN Diesel
& Turbo

Fuel gas injection for
4-stroke diesel dual
fuel propulsion system
(DFDE)

Floating storage and
regasification unit
(FSRU)

Floating production,
storage and offloading
(LNG FPSO)

DESIGN FEATURES

Contactless and oil-free sealing system on the low pressure side to increase lifetime and reduce wear, and best available sealing technology on the high pressure side

Non-complex compressor system for lowest maintenance costs and simple operation and control

Flexible solution for fuel gas supply and/or reliquefaction for lowest life cycle costs

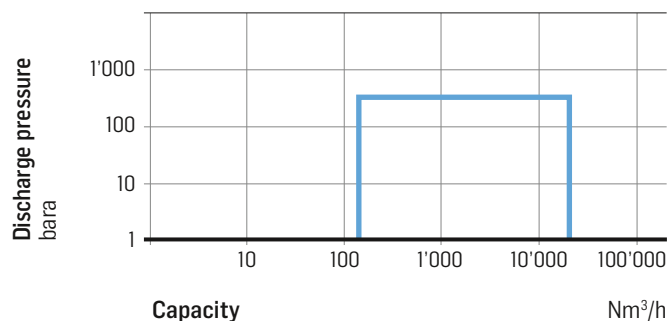
Lubricated piston rod guiding system for precise alignment and long life

No vibrations due to elimination of unbalanced forces and moments caused by rotating masses

Top quality key compressor components for highest reliability and availability

PERFORMANCE RANGE

Suction pressure	bara / psia	1.03 to 1.17 / 14.9 to 16.9
Discharge pressure	bara / psia	up to 350 / 5'070
Suction temp.	°C / °F	-170 to 45 / -270 to 113
Mass flow	(kg/h) / (lbs/h)	up to 16'000 / 35'200
Capacity	(Nm³/h) / scfm	up to 22'000 / 13'000



PROCESS GAS COMPRESSORS API 618

DESIGNED FOR LOWEST LIFE CYCLE COSTS

HIGH AVAILABLE UP TO 1'000 BARA / 15'000 PSIA

UPSTREAM OIL & GAS

Enhanced oil recovery –
gas injection
Gas gathering
Gas treating

GAS TRANSPORT & STORAGE

Pipeline feed applications
Underground gas storage

PETROCHEMICAL/ CHEMICAL INDUSTRY

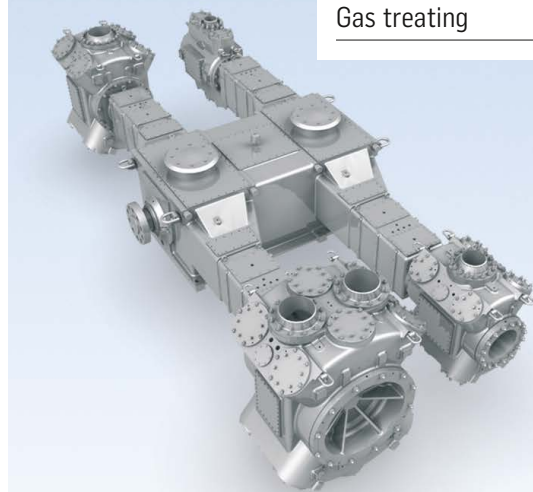
Polyolefins
Aromatics/BTX
Alcohols
Ammonia
Urea
Wet oxidation
Polyethylene
Ethylene oxide/glycol
LDPE production

INDUSTRIAL GASES

Hydrogen generation
Air separation
Chlorine
High pressure CO₂
Gas bottle filling
Polysilicon production
Biogas

REFINERY

Hydrogen & hydrogen mix
gases for hydrocracking
Reforming
Isomerisation
Desulphurisation
Dearomatisation
Denitrogenation

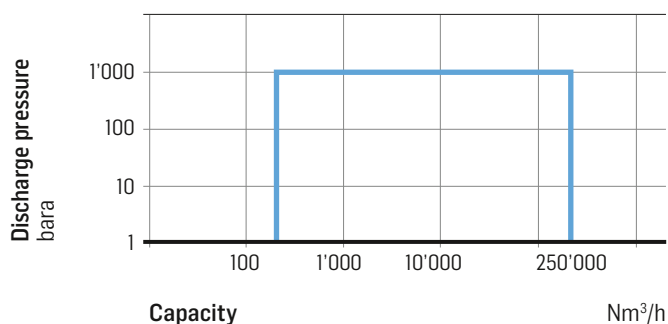


DESIGN FEATURES

Full conformity to API 618 guidelines
Lubricated or non-lubricated compression
Vertical or horizontal balanced opposed design
Simple and robust compressor design
Top quality key compressor components for highest reliability and availability
Various design options
Designed for easy maintenance to save time and minimize costs

PERFORMANCE RANGE

Discharge pressure	bara / psia	up to 1'000 / 15'000
Power	kW / hp	up to 31'000 / 42'100
Rod load	kN / lbs	up to 1'500 / 335'000
Capacity	(Nm ³ /h) / scfm	up to 250'000 / 147'000



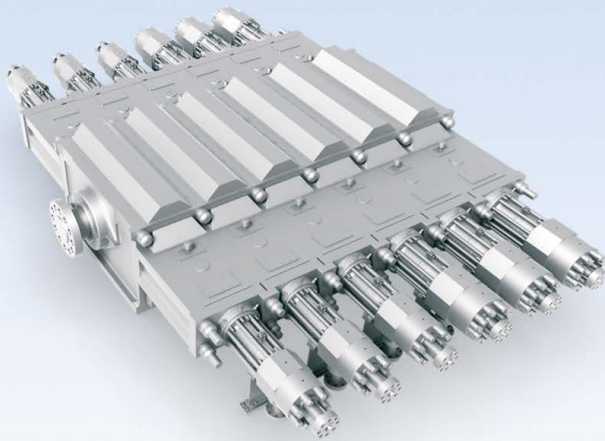
HYPER COMPRESSORS

FOR LDPE PRODUCTION – CUSTOMERS' CHOICE
SINCE 1951

SAFE AND RELIABLE COMPRESSION UP TO 3'500 BARA / 50'000 PSIA

PETROCHEMICAL/
CHEMICAL INDUSTRY

Low density polyethylene
(LDPE) production



DESIGN FEATURES

Design with lowest number of cylinders in the market

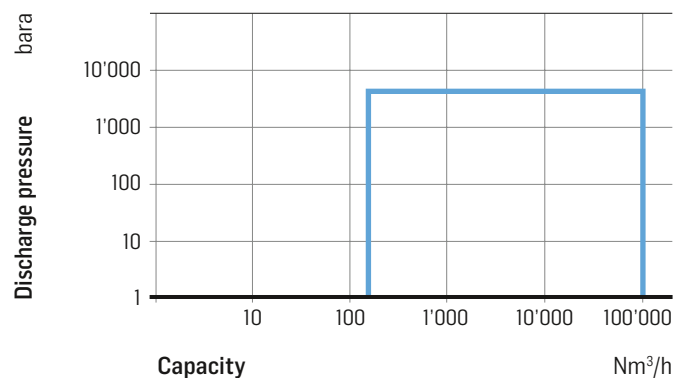
Latest technology for high reliability and availability

Top quality key compressor components designed for safe operation and long lifetime

Easy maintenance thanks to the Burckhardt HyproPack™ cartridge system and the Burckhardt HyproPull™ integrated hydraulic cylinder for shortest downtimes and lowest life cycle costs

PERFORMANCE RANGE

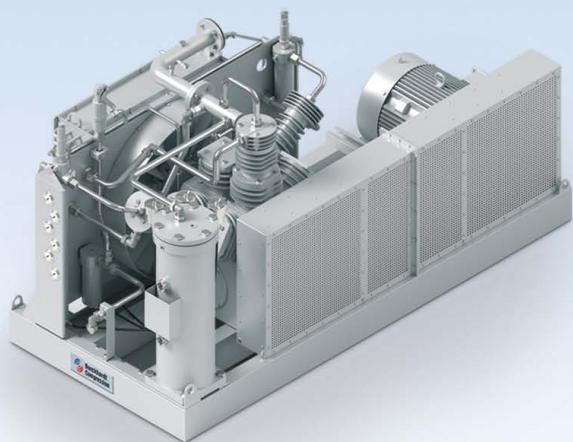
Discharge pressure	bara / psia	up to 3'500 / 50'000
Capacity	(Nm³/h) / scfm	100'000 / 59'000
Mass flow	(kg/h) / (lbs/h)	40'000 – 225'000 / 88'000 – 500'000



STANDARD HIGH PRESSURE COMPRESSORS

COMPACT PACKAGE FOR DEMANDING APPLICATIONS

COMPACT COMPRESSOR SOLUTION UP TO 400 BARA / 6'000 PSIA



GAS TRANSPORT & STORAGE

BOG handling
Fuel gas injection
(dual fuel engines)

INDUSTRIAL GASES

Bottling plants for industrial gases
Electrolysis plants
Helium recovery systems
Helium for research center
Air separation plants
Fertilizer plants and many more

OTHER APPLICATIONS

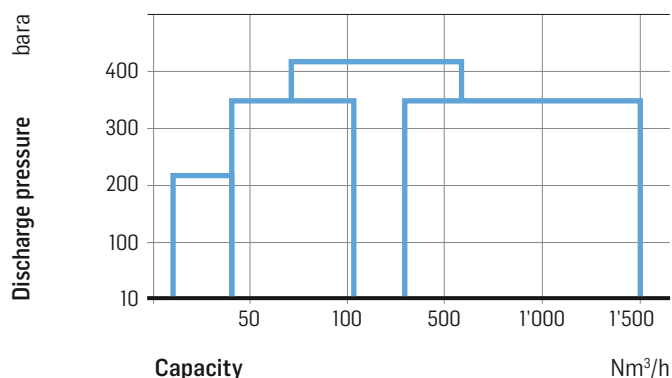
Hydropower stations
Seismic research
Air-blast circuit breaker systems

DESIGN FEATURES

Anti vibration mounts for special foundation
Gas tight design
Air cooled or water cooled
Easy installation and start-up
Marine standard certificate

PERFORMANCE RANGE

Discharge pressure	bara / psia	up to 400 / 6'000
Capacity	(Nm ³ /h) / scfm	up to 1'500 / 885



BURCKHARDT COMPRESSION

THOROUGH IN-HOUSE EXPERTISE

ENSURING COMPREHENSIVE SUPPORT

Burckhardt Compression is recognized as the global technology leader in the reciprocating world. As an OEM with over 160 years of in-house experience in developing, engineering and manufacturing compressors, we are committed to highest reliability and best quality. Our compressor design combined with in-house developed key compressor components and a full range of services result in lowest life cycle costs. Burckhardt Compression's customers include multinational companies active in the gas transport and storage, refinery, petrochemical/chemical and industrial gas industries.

RESEARCH & DEVELOPMENT

Tribology incl. test beds
Finite element analysis
Mechatronics

SERVICES

Engineering services
Spare parts logistics
Revamps
Field service
Valve service
Component repair
Technical support
Monitoring and diagnostics
Training

COMPRESSOR DESIGN

COMPRESSOR DESIGN

Instationary fluid dynamics
Pre-sales support
Engineering analysis
Feasibility study
Selection and sizing
Pulsation and vibration studies
3D CAD
Compressor valves
Rings and packings

PLANT ENGINEERING

PLANT ENGINEERING

Contracting
Customer and standard specifications
Compressor and auxiliaries on modules
Cooling water system
Instrument and control, motors
PLC programming
Turn-key projects

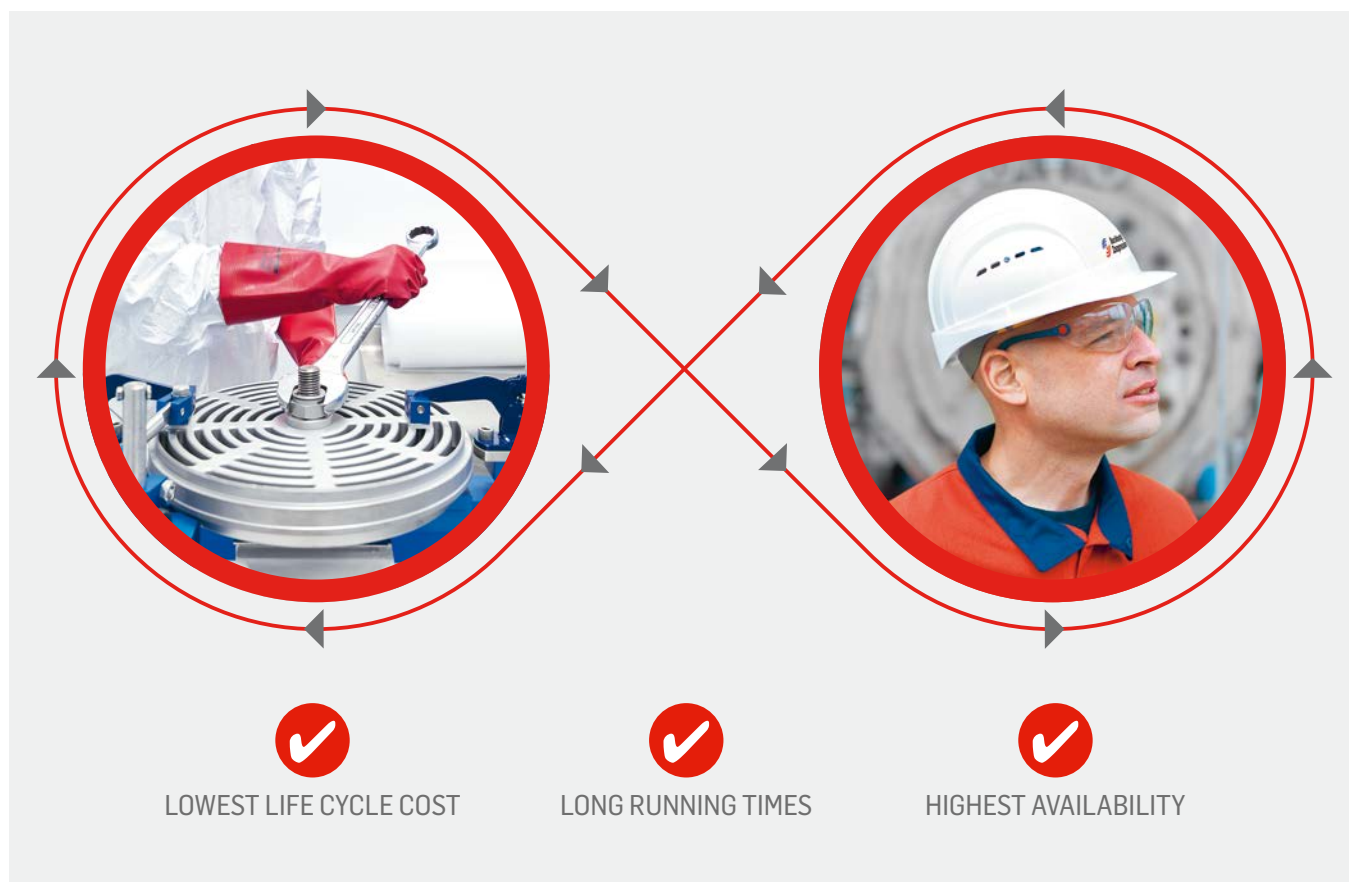
MANUFACTURING

MANUFACTURING

CAM in-house machining
Purchasing
Assembly
Test beds
Quality assurance



COMPONENTS, SERVICES & SUPPORT – HIGH-QUALITY COMPONENTS AND THE FULL RANGE OF SERVICES



As an OEM with more than 170 years of experience and a clear focus on reciprocating compressors, we offer our customers reliable, in-house developed compressor components and the full range of services. To ensure utmost reliability, performance and maximum cost benefit, we assist our customers throughout the entire life cycle of a reciprocating compressor, regardless of brand.

YOUR BENEFITS FOR CHOOSING US AS YOUR SERVICE PARTNER

- Reduced operating and maintenance costs
- Minimized downtimes and longest MTBO
- In-house state-of-the-art sizing tools and latest technologies backed by our recognized OEM expertise for the best possible support and sustainable solutions
- Experienced support for compressors in demanding applications: cryogenic, abrasive, corrosive, toxic or explosive gases and for applications with very high pressures up to 3'500 bara (50'000 psia).
- Extensive guarantees for spare parts, field service and component repair
- Our extensive service network enables us to offer a worldwide service, no matter where all your plants are located

SERVICES – THE FULL RANGE FOR ALL YOUR RECIPROCATING COMPRESSORS



The worldwide service network of Burckhardt Compression guarantees comprehensive services and support. Of course it is available 24 hours a day, 7 days a week. Our fast and reliable maintenance and service is set up to ensure maximum efficiency and durability of the compressor and its engineered components. Each service module is backed up with our extensive OEM know-how:

- Burckhardt Valve Service
- Spare parts logistics
- Field service
- Technical support

- Component repair
- Engineering services
- Revamps
- Condition monitoring & diagnostics
- Training

Our in-house experts in all specific fields of compression technology combined with our leading compressor know-how, engineering and manufacturing expertise enable us to support you for all brands of reciprocating compressors.

KEY COMPRESSOR COMPONENTS – LATEST TECHNOLOGY FOR BEST PERFORMANCE AND LONGEST LIFETIME



Always having the best MTBO in mind, we provide a wide range of in-house engineered top quality compressor components with OEM guarantee according to your application specific requirements and operating conditions:

- Valves: We offer three types of custom-engineered valves for your specific application:
 - Burckhardt Poppet Valve™
 - Burckhardt Plate Valve™
 - Manley® valve, licensed by Burckhardt Compression

- Piston rings: various patented designs and materials
- Guide rings: pressure relieved
- Piston rod packings: application specific systems
- Packing rings: tribology research and laboratory tests
- Oil scrapers: application specific material selection
- Hyper/secondary compressor parts: continuous development to optimize design

RECIPROCATING COMPRESSORS

LEADING TECHNOLOGY FOR
LOWEST LIFE CYCLE COSTS

**Laby®
Compressors**
Contactless
and oil-free



**Laby®-GI
Compressors**
Fully balanced



**Process Gas
Compressors**
API 618 – lowest life
cycle costs



Hyper Compressors
Safe and reliable
up to 3'500 bara /
51'000 psia



**Standard
High Pressure
Compressors**
Compact package for
demanding applications



COMPRESSOR COMPONENTS

BEST PERFORMANCE
AND LONGEST LIFETIME

Compressor valves

Redura® rings & packings

Capacity control systems

Capital parts

Labyrinth piston compressor
components

Hyper/secondary compressor
components

SERVICES

THE FULL RANGE

Burckhardt Valve Service

Spare parts logistics

Field service

Technical support

Revamps & upgrades

Component repair

Condition monitoring &
diagnostics

Training

FOR ALL YOUR RECIPROCATING COMPRESSORS

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Switzerland

Tel.: +41 52 262 55 00

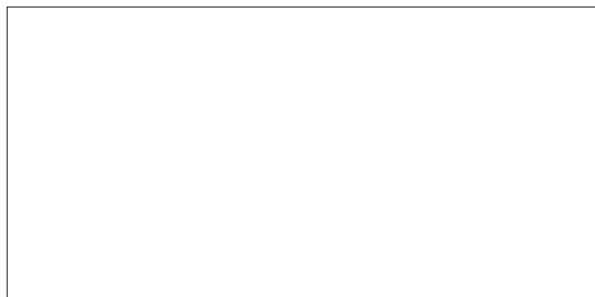
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www.burckhardtcompression.com

Your local contact



Compressors for a Lifetime™