Burckhardt Compression

Process Gas Compressors

Expertly Manufactured – Easily Maintained

Durable and Reliable

Today, plant designers ask for:

- Higher flexibility
- Higher efficiency
- Lower emissions
- Lower downtime
- Lower operating costs
- Minimal capital investment

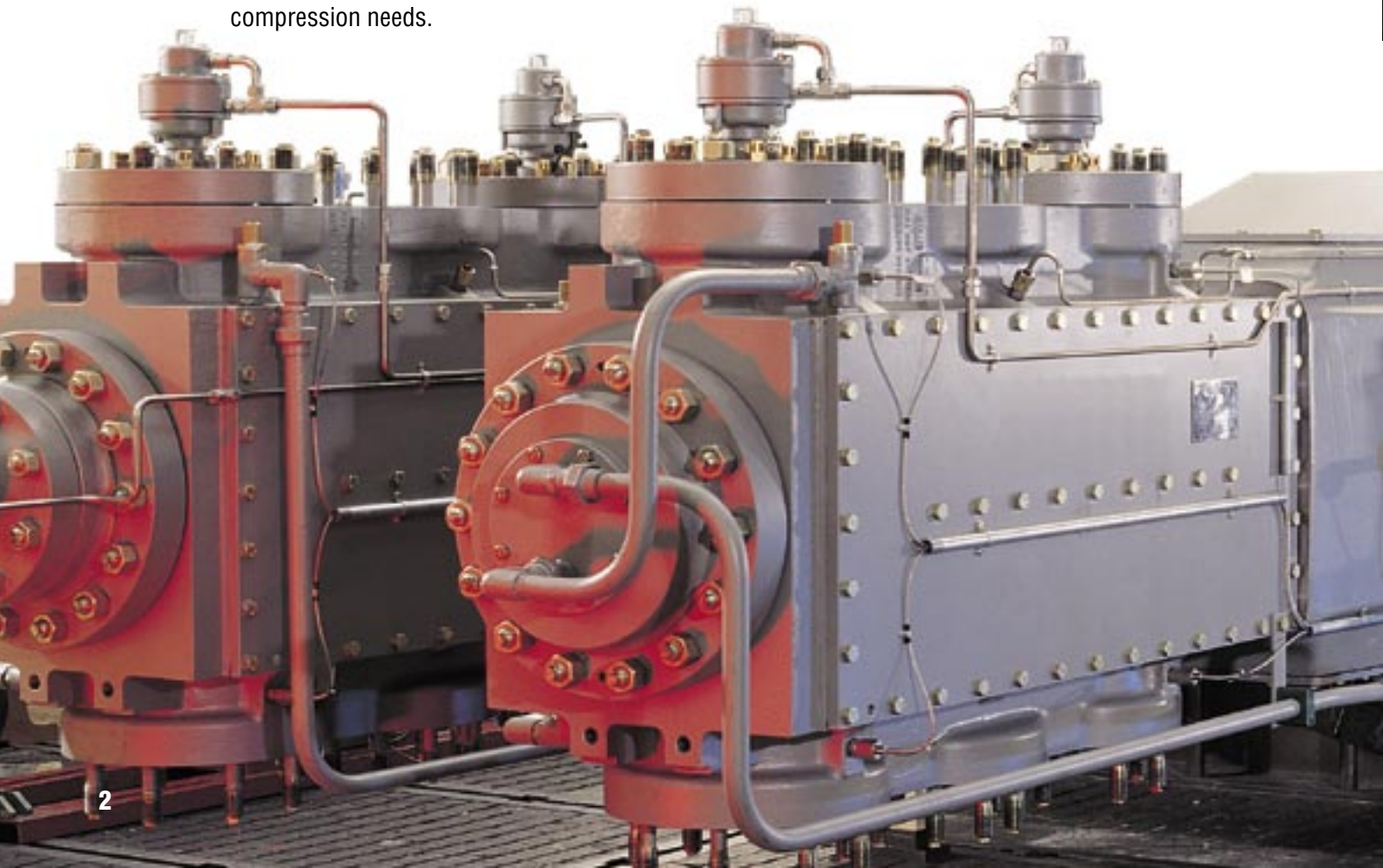
Within these restrictions a compressor must be able to handle gases at high pressure, which are e.g.:

- Corrosive
- Dirty
- Toxic

With many decades of experience and a wide range of solutions, Burckhardt Compression is at the cutting-edge range of solutions to compression needs.

We are represented in 80 countries around the globe. This presence ensures a tailor-made service in your locality. Our product policy, embedded in Total Quality Management and implemented through three-dimensional CAD and computer-integrated manufacturing, is the basis of our life-cycle engineering.

Our products are consistently renowned for high quality and availability. Burckhardt Compression's reference installations cover a comprehensive range of cylinder-lubricated and oil-free compressors. They are manufactured with proven and standardized components for compressors suited to individual specifications.



Hydrogen and the Future

Clean air regulations require lower levels of sulphur compounds and heavy hydrocarbons in gasoline and diesel fuel. To comply with these regulations, refineries must add hydrogen-consuming process units. For feed and recycle duties, piston compressors are required.

Polish up your process with a Burckhardt Compression process gas compressor

High availability

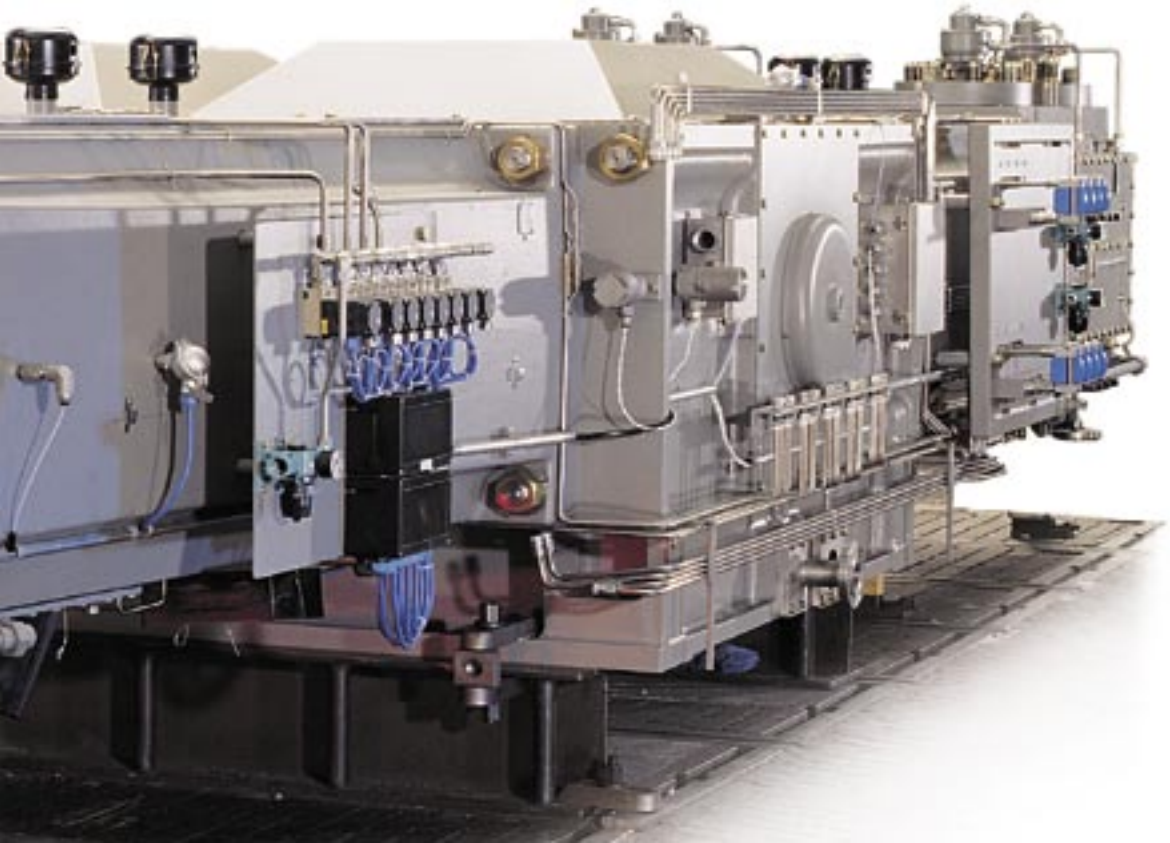
- Heavy-duty design
- Optimized selection of materials
- Moderate to low operating speed
- Guidelines according to API 618

Low operating cost

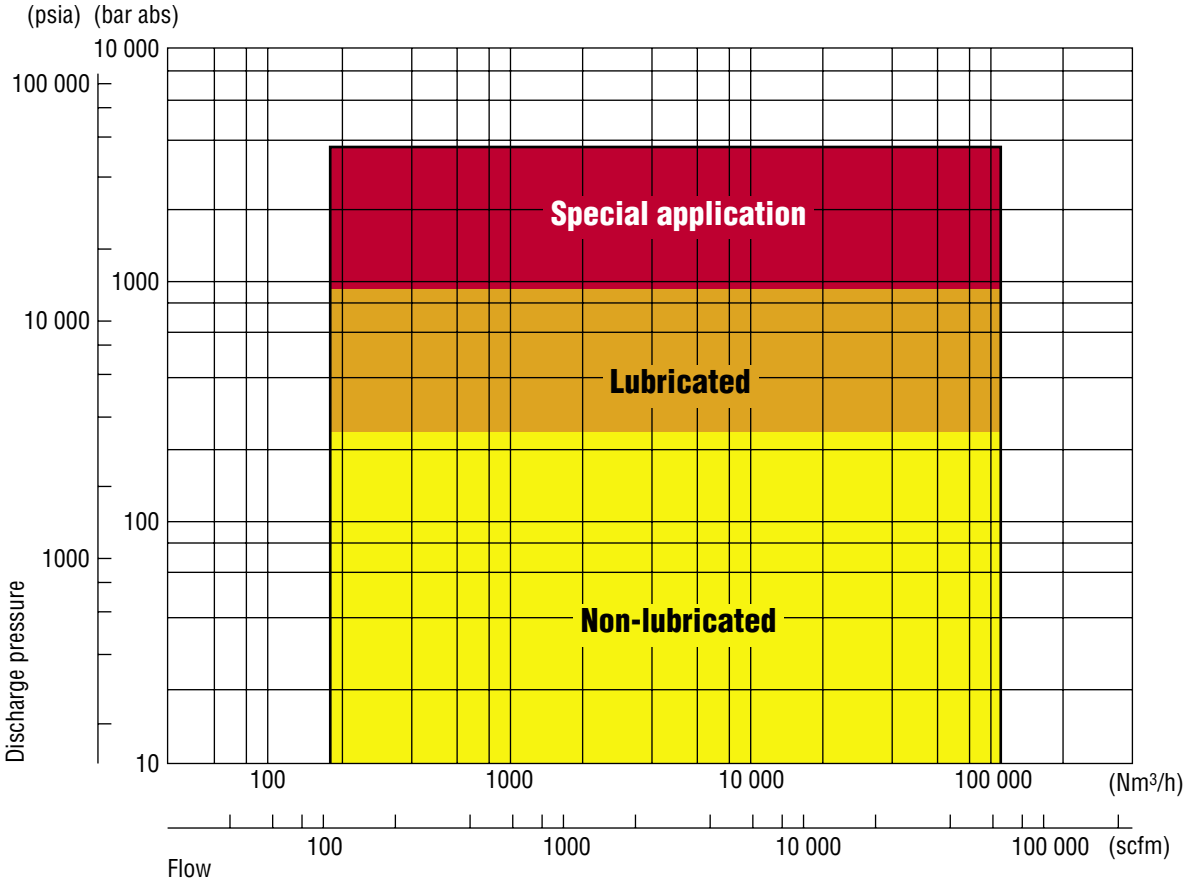
- High efficiency through careful selection of valves and seals
- Power savings by optimum flow control according to process requirements

Low maintenance cost

- Designed for easy maintenance to minimize downtime



The Process Gas Compressor with Many Facets



Performance range of Burckhardt Compression reciprocating process gas compressors

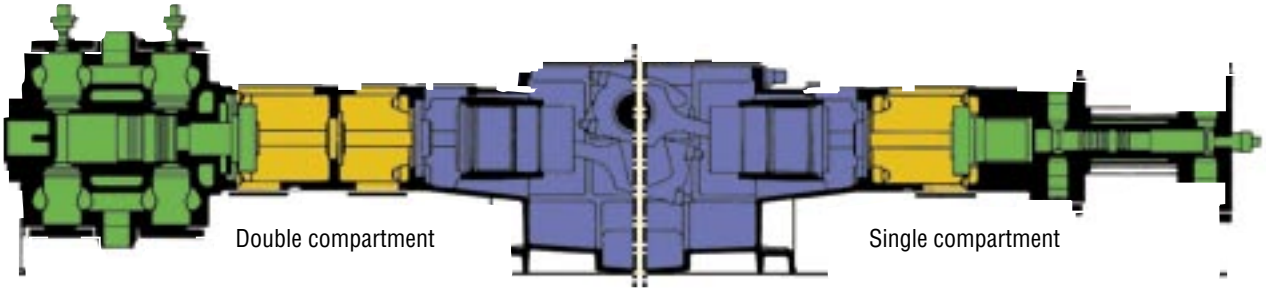
Markets and applications

- Petrochemical plants
- Chemical industry
- Refinery services and utilities
- Polyolefin plants
- Hydrotreatment
- Hydrodesulfurization
- Aromatics
- Natural gas handling and storage
- Seismic exploration
- Wet oxidation units
- Industrial gases

Duties

- Hydrocarbon gases
- Hydrogen
- Hydrogen sulphide
- Syngas
- Hydrogen chloride
- Chlorine
- Mixed gases
- Highly corrosive gases
- Toxic gases
- Bone-dry gases
- High pressure

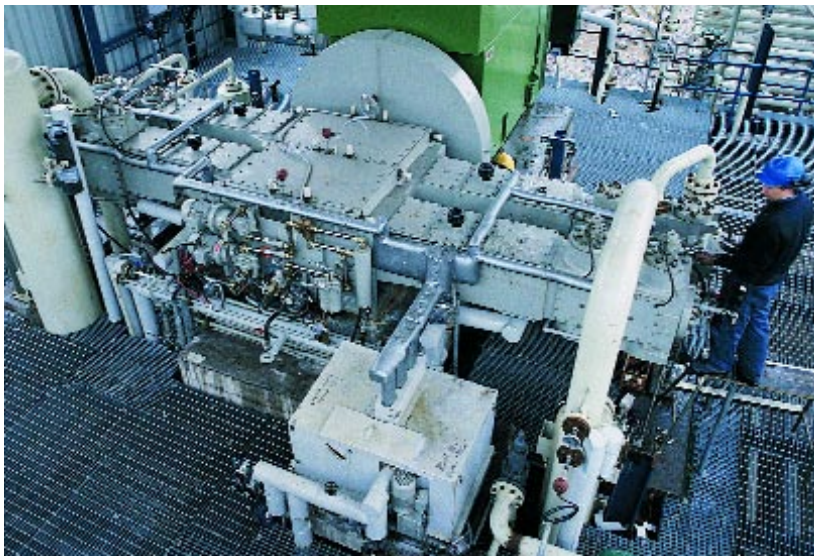
Balanced-Opposed Reciprocating Process Gas Compressor



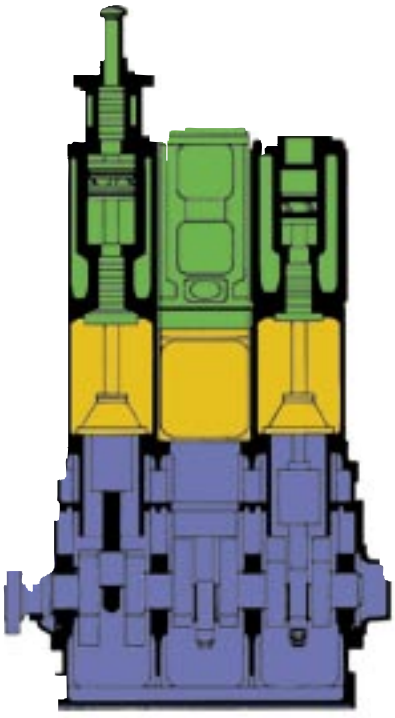
Design features

- Oil-free or lubricated compression
- Horizontal balanced-opposed or vertical design
- Single and/or double compartment distance piece
- Discharge pressure up to 1000 bar
- Flow up to 100'000 m³/h
- Shaft power up to 11'700 kW
- Leading tribological technology for oil-free applications such as hydrogen compression

API 618 cylinder-lubricated or oil-free, either double or single compartment



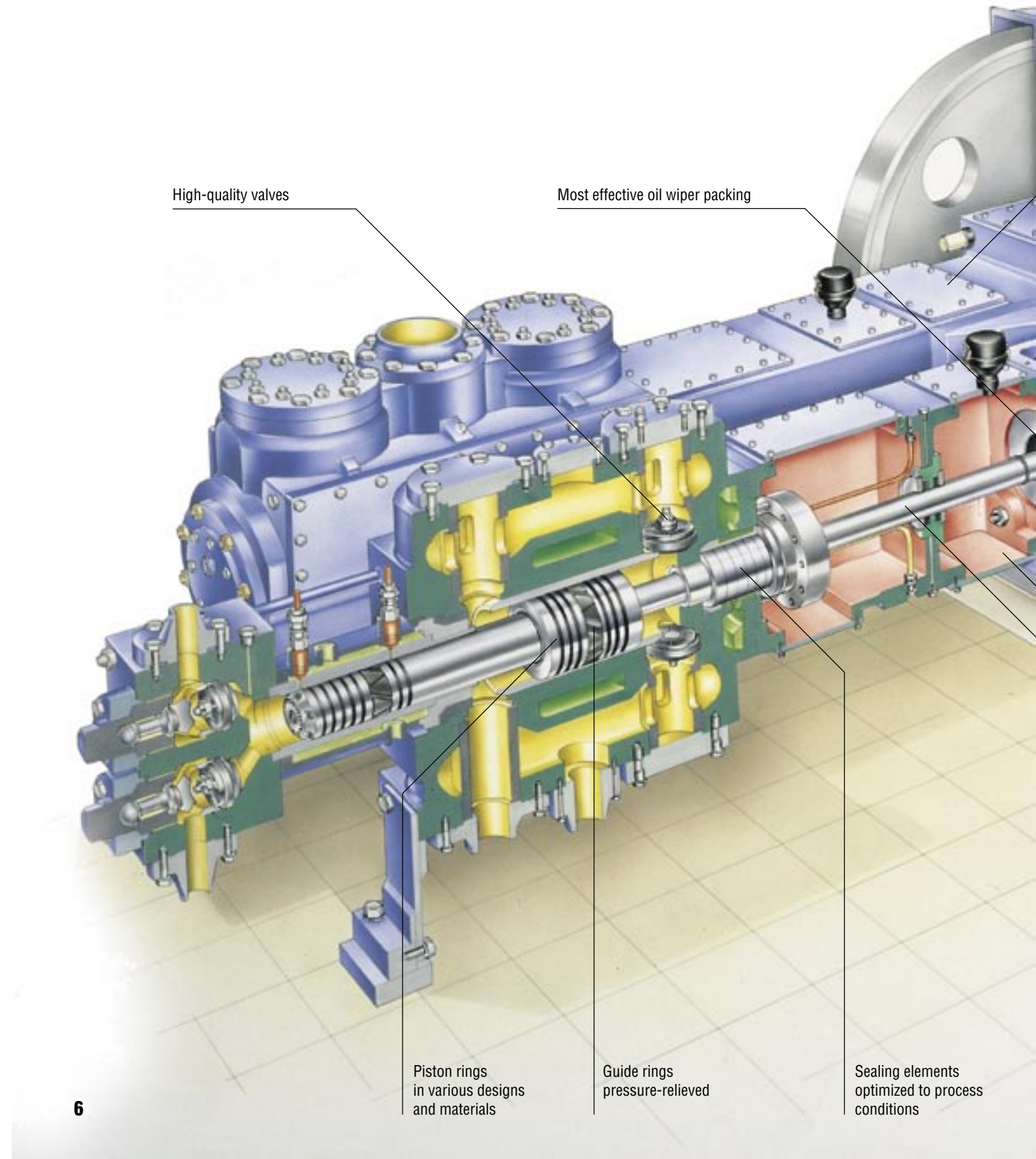
Vertical In-Line Reciprocating Process Gas Compressor

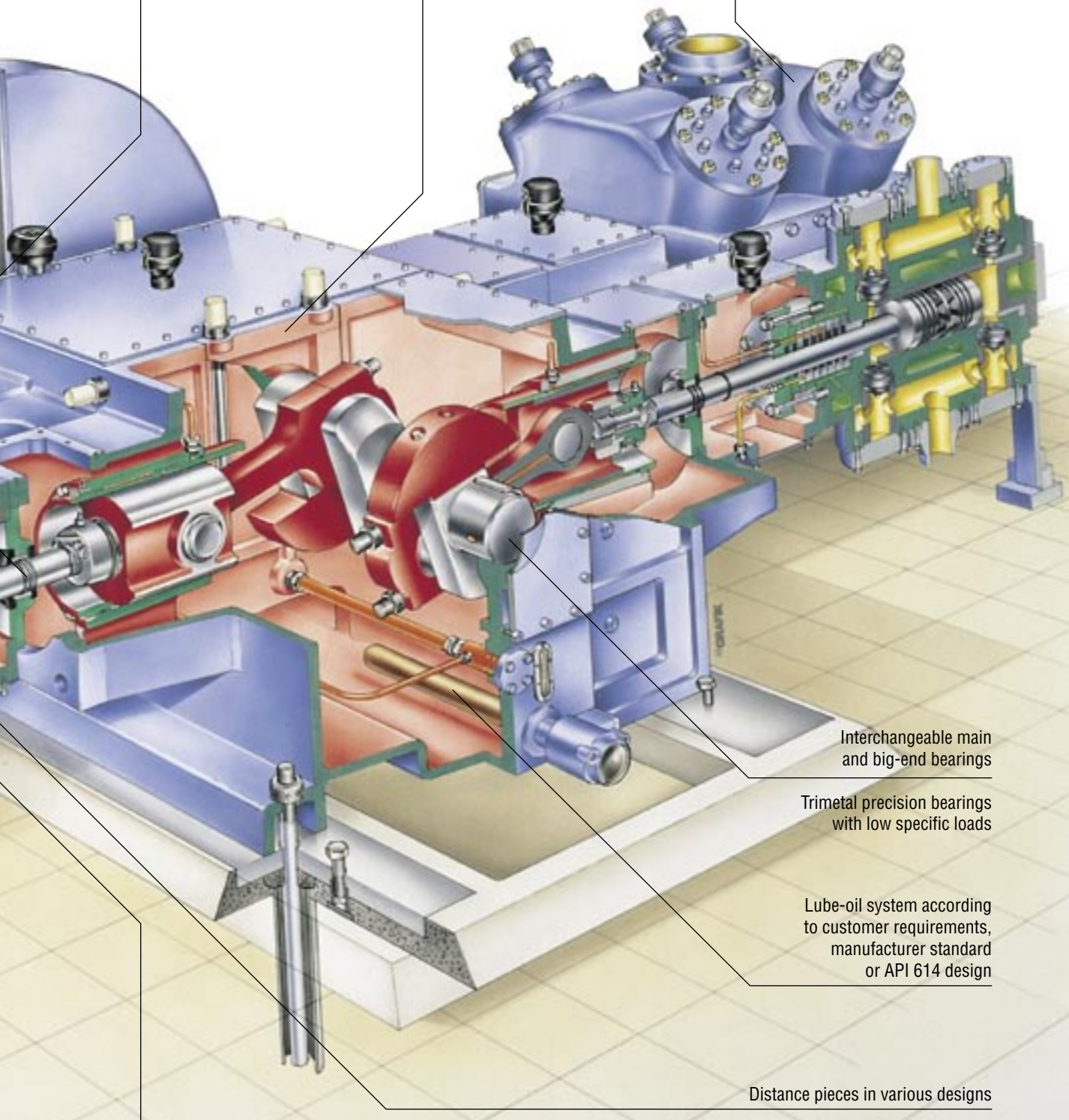


API 618 cylinder-lubricated or oil-free, either double or single compartment

Cutting-Edge Technology

The Process Gas Compressor according to API 618





Burckhardt Compression

The Process Gas Compressor of Compact Design with a Well-Balanced Performance Range

Key to type designation

Number of cranks
B = Horizontal balanced-opposed
C = Vertical in-line
Number of stages
Design stroke
C = Non lubricated
– = Lubricated
Number of cylinders 1st stage
Cylinder diameter 1st stage in cm

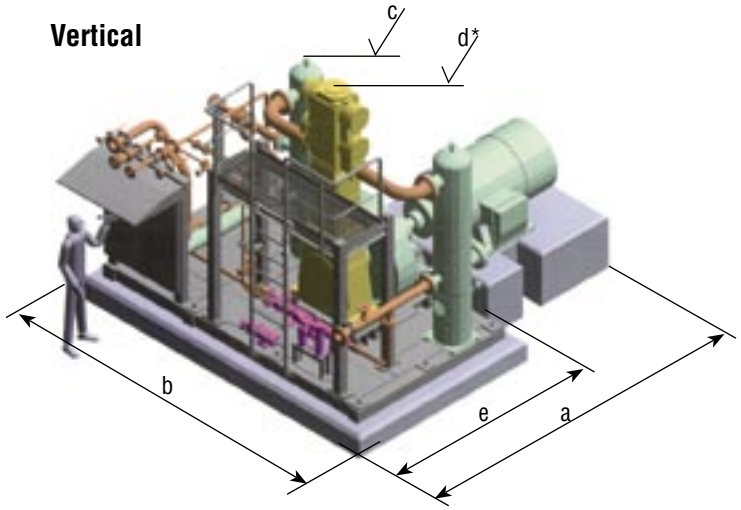
4 B 3 **Y** C 2 . 45

Design data

Type	Max. stroke	Max. power	Max. speed
Q	125	200	1000
Y	160	800	850
S	200	2300	600
X	270	3300	600
A	320	9500	500
C	450	11700	375

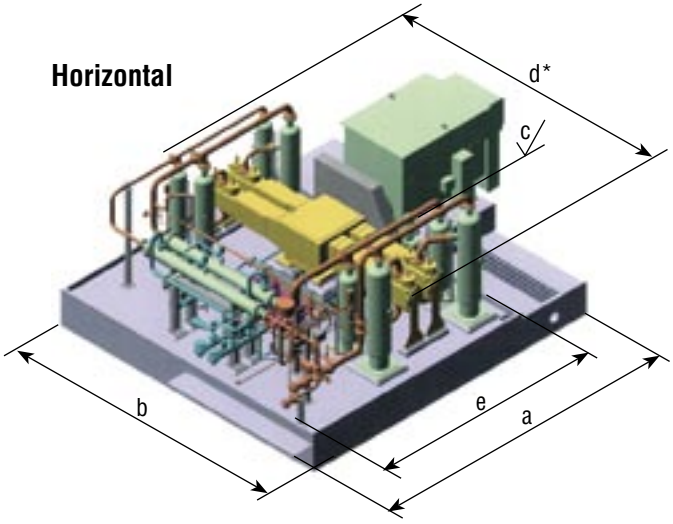
Main dimensions for estimating purposes only

Vertical



		a	b	c	d	e
1 Crank	**1CQ**	2300	2900	2400	3200	1200
	1CY	3600	4000	3000	4200	1800
	1CS	5400	4700	3700	5700	3200
2 Cranks	**2CQ**	3100	2900	2400	3200	1700
	2CY	4800	4000	3000	4200	2900
	2CS	6400	4700	3700	5700	4100
3 Cranks	**3CQ**	4200	2900	2400	3200	2400
	3CY	5900	4000	3000	4200	3900
	3CS	8300	4700	3700	5700	5900

Horizontal



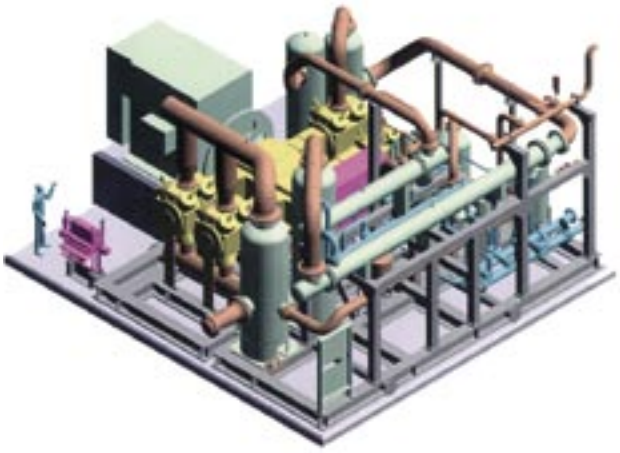
		a	b	c	d	e
2 Cranks	**2BQ**	3000	3000	2400	5500	2000
	2BY	4000	4000	2500	6500	2400
	2BS	5300	5400	2600	10900	2700
	2BX	5600	6500	3000	10000	3100
	2BA	7300	7600	3100	13100	4300
	2BC	8300	9000	3600	13000	4800
4 Cranks	**4BQ**	4000	3000	2400	5500	3000
	4BY	5000	4000	2500	6500	3000
	4BS	6100	5400	2600	10900	3400
	4BX	6900	6500	3000	10000	4200
	4BA	8500	7600	3100	13100	5500
	4BC	10000	9000	3600	13000	6000
6 Cranks	**6BS**	8300	5400	2600	10900	5500
	6BX	8000	6500	3000	10000	5000
	6BA	9800	7600	3100	13100	6400
	6BC	11500	9000	3600	13000	7500

d*: Piston/rod dismantling and service space requirement

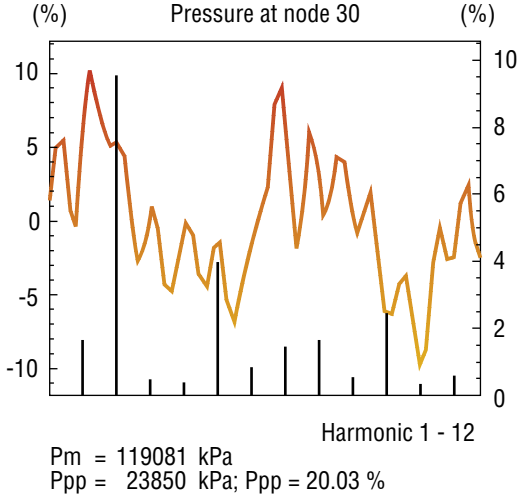
Advanced Software Solutions

Design studies ensure outstanding performance and low vibration level of your plant

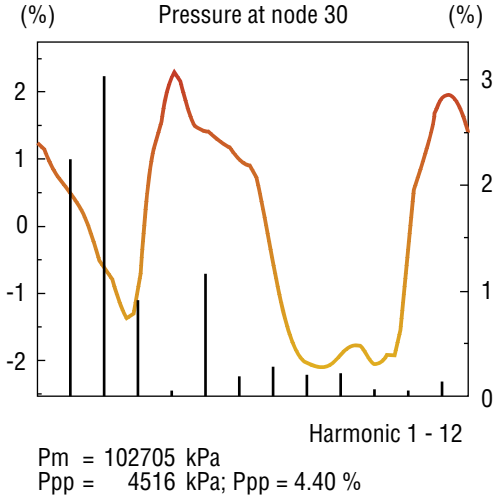
- State-of-the-art according to API 618 studies, approaches 2 and 3
- Pressure and flow pulsation calculations
- Interaction between pulsations and compressor valve dynamics
- Calculation of vibrations induced by pulsation and compressor motion
- Thermal expansion analysis



Design study using latest methods



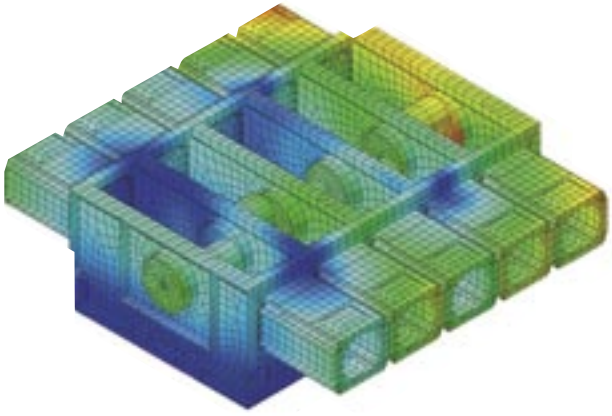
Original design



Optimized design

Rely on our design studies

- Compressor and plant engineering know-how is closely linked
- Studies are carried out by our own team of specialists
- More than 25 years in-house design study experience
- Close cooperation with universities and research institutes
- Continuous improvement of programs and methods

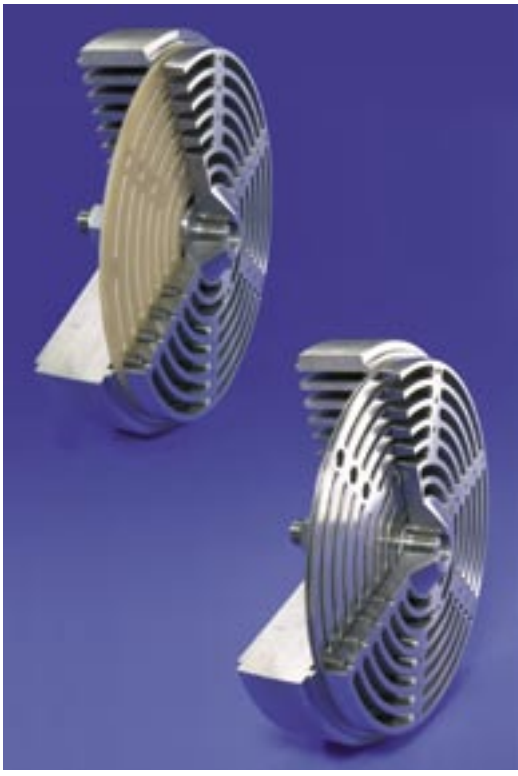


Finite element analysis of hyper compressor

Gas Flow under Control

Compressor valves

- Suction and discharge valve dimensions according to API specifications to prevent incorrect assembly in cylinder
- Valve plate or ring dynamics optimized by computer calculations
- State-of-the-art manufacturing process

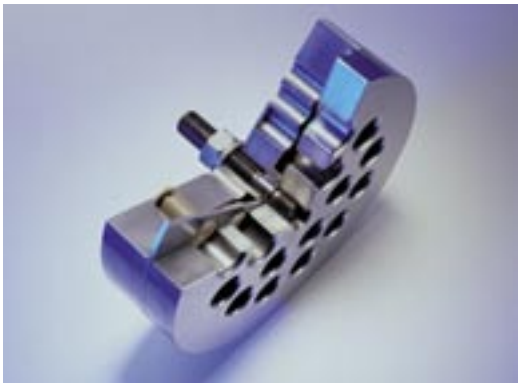


To ensure long operating times, Burckhardt Compression offers the appropriate valve.

Burckhardt Plate Valve™

- Maximum availability and reliability for clean and dry gases
- Designed and manufactured by Burckhardt Compression (OEM)
- Frictionless valve plate guiding
- Identical internal parts for suction and discharge valves
- Seat and guard made of stainless steel or nickel alloy
- Plate materials made of heat treated stainless steel, nickel alloy or temperature-resistant plastic

Burckhardt Poppet Valve™



- High efficiency at low cost
- Similar characteristics as ring type valves
- Designed and manufactured by Burckhardt Compression (OEM)
- Seat and guard made of stainless steel
- Poppets made of injecting molded plastic
- Tightness insensitive to thermal expansion of plastic material
- Easy maintenance
- Fully field repairable because of the removable seat plate

MANLEY® valves, licensed by Burckhardt Compression

- Maximum availability and reliability for gases bearing liquid or hard solid particles
- Original MANLEY® rings, buttons and springs
- Seat and guard made of stainless steel, manufactured in-house under Cook Manley®, USA license
- Different ring materials available to suit various operating conditions

Easy maintenance with special tools

To simplify routine service, we supply a set of special tools with each compressor. These tools save downtime and money on overhauls by facilitating:

- Assembly and installation of large valves in horizontal compressors
- Hydraulic fastening of vital connections, where applicable
- Quick and easy assembly of motion work

Minimized leakage

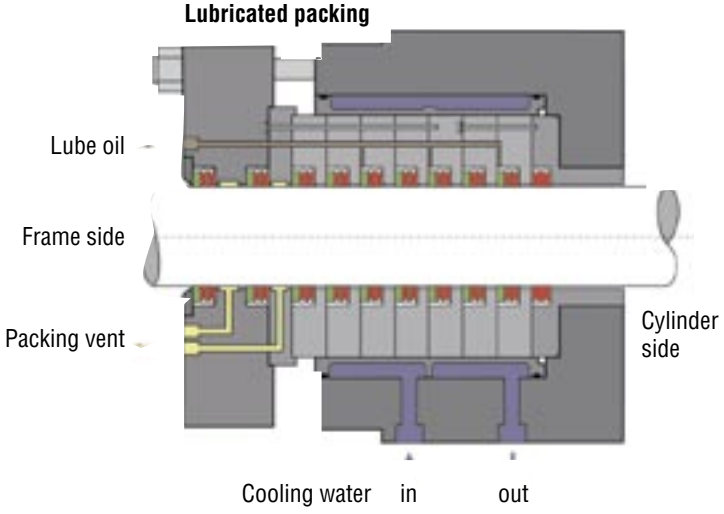
The seal between piston rod and cylinder comprises several stacked rings built as a cartridge for easy maintenance. We design our own packings for every duty, from high-pressure to non-lubricated cylinders and to special process conditions.

The packings are subject to our own stringent quality standards. Features:

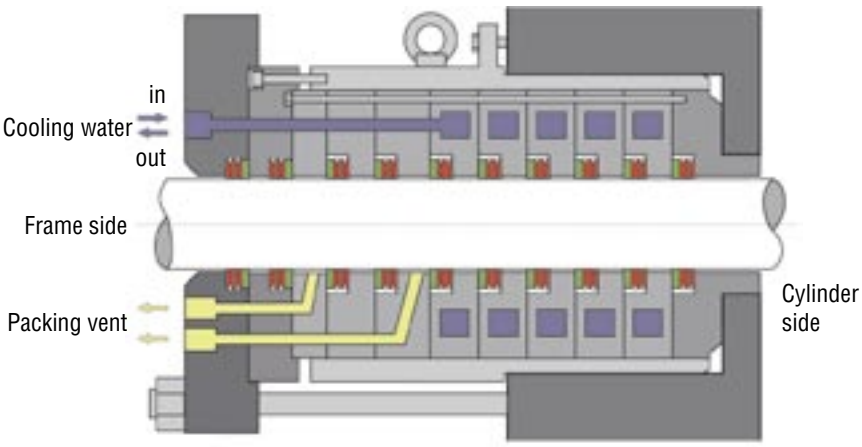
- Minimum gas leakage
- Low friction losses
- Direct or indirect cooling for effective heat removal

Our research department is continuously tests new materials and keeps up with the latest developments. Therefore, our packings meet the high demands of legislature to protect the environment.

Lubricated packing



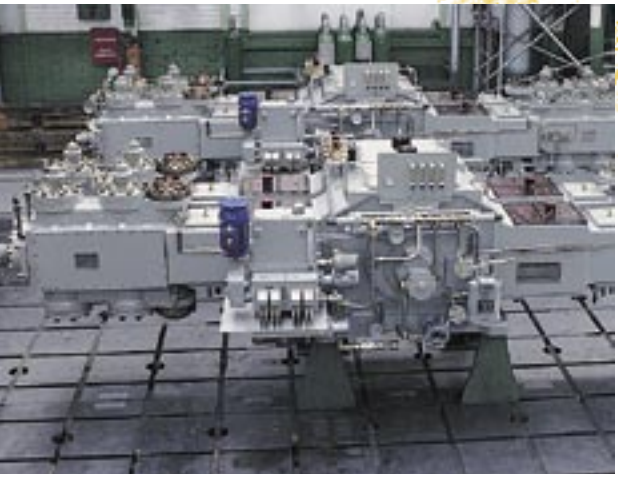
Unlubricated packing



Customer Support Service

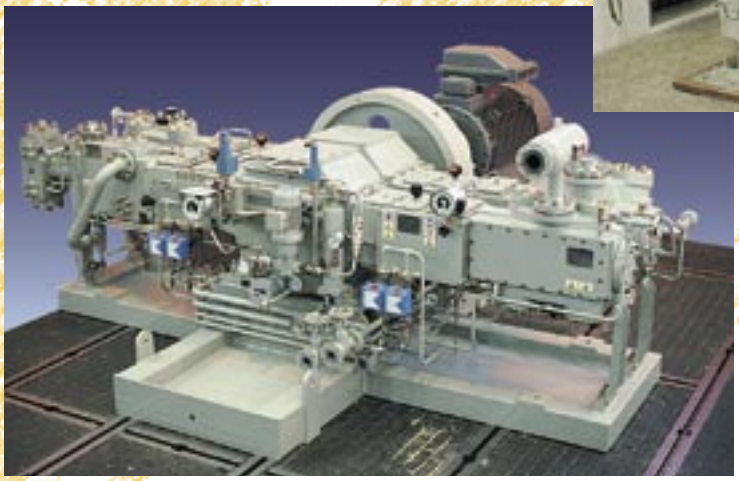
- Compressor installation and commissioning
- Major and minor overhauls and retrofits
- Worldwide OEM valve service
- Analysis of operation and maintenance
- Training courses for optimizing compressor operation and ensuring plant safety
- 24-Hour technical support

Downtime is a nightmare for every operator. Our worldwide organization provides parts and service as and when required.



Quality Assurance

We aim to provide you with high quality products and services by cost-effective development, manufacture, marketing and maintenance. Swiss quality is our byword. All Burckhardt Compression products and services meet predefined standards. Our Total Quality Management system complies with ISO 9001:2000 issued by the International Standards Organization.



Milestones of our Company History

1834 Sulzer was founded

1844 Engineering works Burckhardt established in Basel

1935 First labyrinth piston compressor (Laby®)

1940 First Laby® for oxygen

1951 First hyper compressor for ldPE production at 1500 bar

1971 First Laby® for LNG boil-off at minus 160 °C

1982 Merger of Sulzer and Burckhardt piston compressor businesses to form Sulzer-Burckhardt Engineering Works Ltd.

1982 First Laby® for lldPE and PP

1998 First hermetically sealed, oil-free high-pressure compressor package for hydrogen

1999 World's most powerful hyper compressor with 23'500 kW

2000 Consolidation of all business activities in Winterthur; manufacturing facilities and offices in Basel closed-down

2002 Legal independence through a management buy-out, Sulzer-Burckhardt Engineering Works Ltd. becomes Burckhardt Compression AG

LABY® oil-free
labyrinth piston compressor

Other products in our piston compressor range.

Burckhardt Compression services all types of oil-free and lubricated reciprocating compressors.

Your Local Contact

Hyper compressor
for ldPE process

Burckhardt Compression

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