

RECIPROCATING COMPRESSOR SOLUTIONS FOR REFINERIES

ENGINEERING EXCELLENCE FOR HIGHEST AVAILABILITY



Compressors for a Lifetime™



BURCKHARDT COMPRESSION

OVER 170 YEARS OF KNOW-HOW AND EXPERTISE

OVER 170 YEARS OF EXPERIENCE

Burckhardt Compression is one of the global market leaders in the field of reciprocating compressors and the only manufacturer that covers a complete range of reciprocating compressor technologies. Its compressor systems are used in the upstream oil & gas, gas transport and storage, refinery, chemical, petrochemical and industrial gas sectors. 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 systems around the world. Since 1844 its highly skilled workforce has crafted superior solutions and set the benchmark in the gas compression industry.

MEETING THE CUSTOMER'S STANDARDS

Our compressor systems are tailored to individual customer specifications. All parts are manufactured in-house or sourced from reliable suppliers. From the tiniest screw to massive castings, fully compliant, at a minimum, with API 618. Burckhardt Compression is committed to upholding the highest of standards, in acknowledgement that there is no better way to maintain our position as one of the world's leading manufacturers of reciprocating compressors. Our far-reaching quality concept ensures that the compressors we deliver will meet all customer specifications for decades to come.

UNIQUE SOLUTIONS FOR A CHALLENGING MARKET

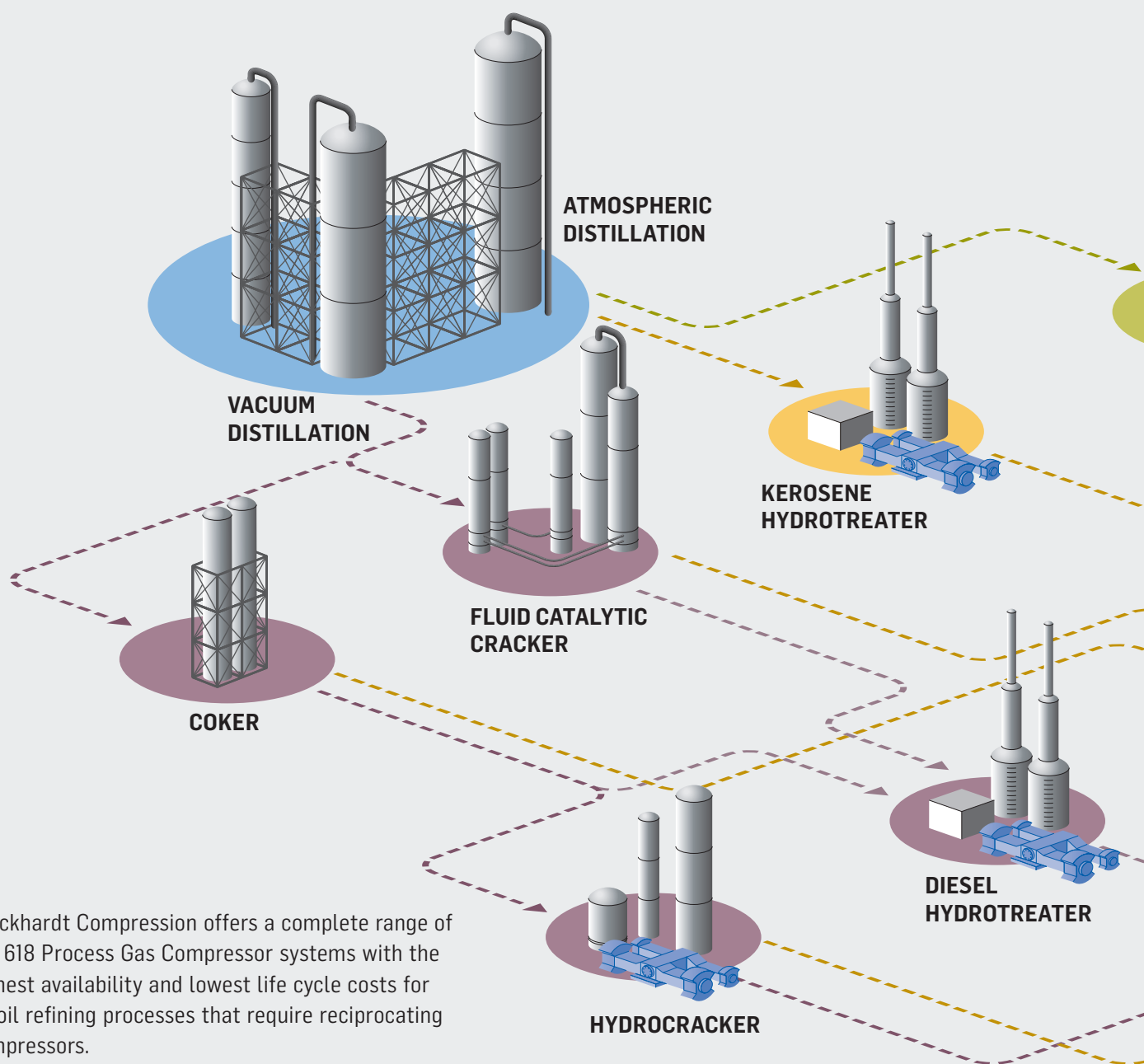
Worldwide demand for refinery products will continue to grow over the long term. In addition, the refinery industry faces more stringent environmental regulations, plant expansion trends and the need to process a wide range of crude oil and, in technologically more advanced processes, heavy petroleum by-products. Burckhardt Compression offers a complete range of API 618 Process Gas Compressor systems with the highest possible availability and lowest life cycle costs for all oil refining processes that require reciprocating compressors.

Watch our brand movie:
www.recip.com/movie



REFINERY OVERVIEW

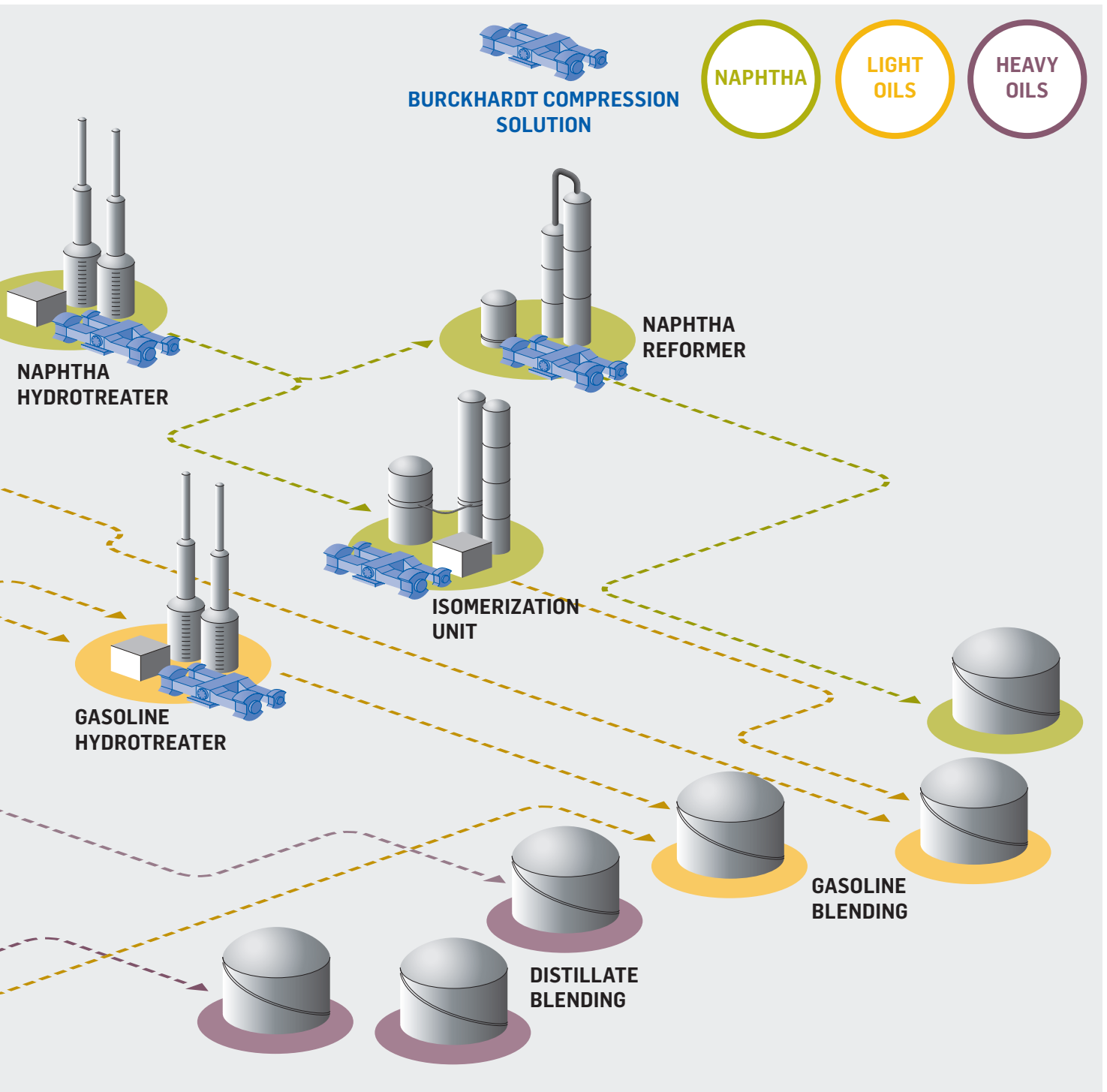
COMPRESSOR SOLUTIONS FOR YOUR PROCESSES



Burckhardt Compression offers a complete range of API 618 Process Gas Compressor systems with the highest availability and lowest life cycle costs for all oil refining processes that require reciprocating compressors.

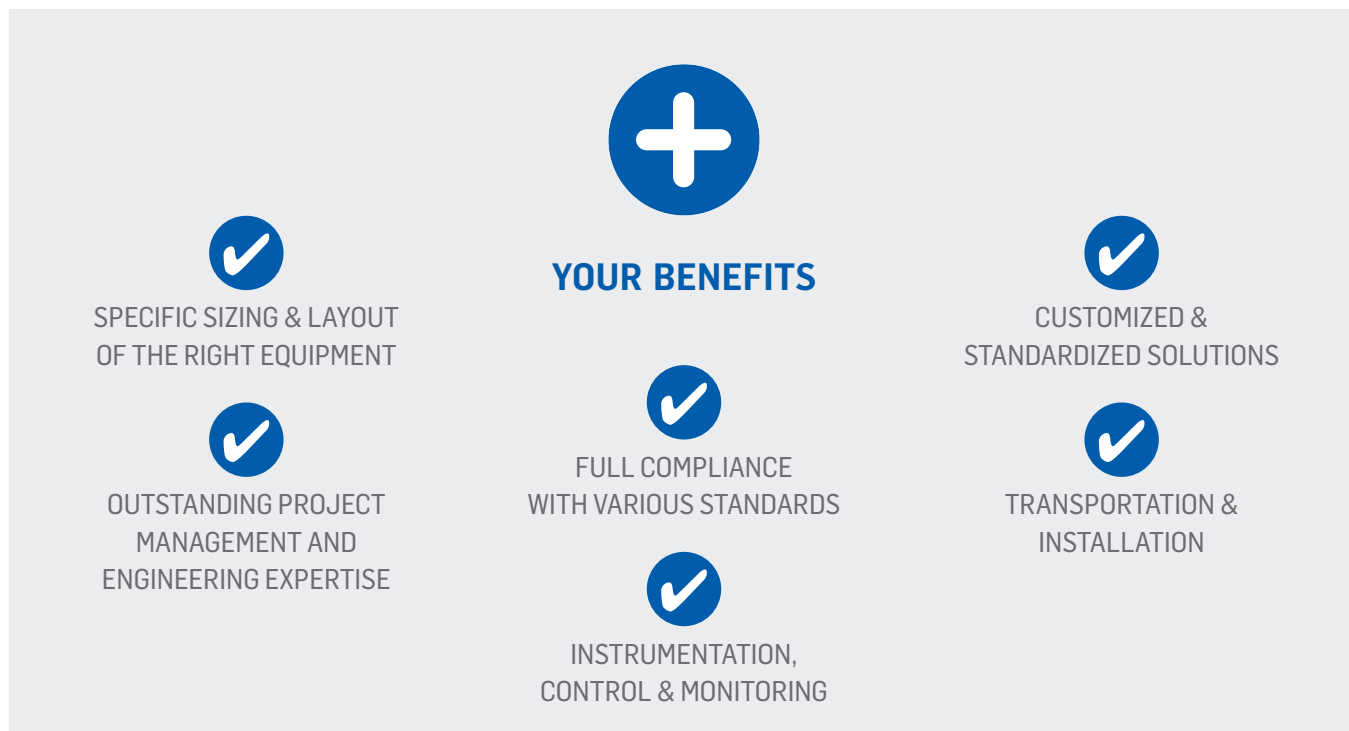
Online portfolio:
www.recip.com/refinery





REFINING EXPERTISE

SOLUTIONS FOR ALL APPLICATIONS



SPECIFIC SIZING & LAYOUT OF THE RIGHT EQUIPMENT

Choosing the right equipment is essential for the efficient operation of the compressor system and therewith the entire plant. Burckhardt Compressions offers profound knowledge of the engineering and design of compressors and individual auxiliary components backed by its in-house sizing tool RecipCalc™ and its global engineering center organization. These competence centers support global delivery of Swiss quality solutions while meeting all applicable standards and local regulations.

OUTSTANDING PROJECT MANAGEMENT AND ENGINEERING EXPERTISE

Burckhardt Compression has integrated its design expertise stemming from decades of reciprocating compressor

engineering into an advanced and constantly improving holistic engineering tool suite. The use of this tool suite, from first customer contact to delivery, enables us to produce highly available, reliable and efficient compressor systems solutions. Our proprietary and fully integrated engineering tool suite includes:

- Compressor design & selection of material
- Piston rings and rod packing operation modeling
- Performance calculations
- Full load cycle analysis
- Valve dynamics analysis
- Pulsation & vibration analysis
- Torsional analysis and drive train design
- 3D modeling
- Thermal design for heat exchangers

FULL COMPLIANCE WITH VARIOUS STANDARDS

In order to meet diverse standards and regulations worldwide, Burckhardt Compression has established an extensive knowledge and experience base. Our dedicated team of refinery experts provides certified compressor solutions specifically designed according to most industry standards, local regulations, highly demanding licensor/client specifications as well as our own tried-and-tested Burckhardt Compression standard.

INSTRUMENTATION, CONTROL & MONITORING

Burckhardt Compression offers a complete portfolio of electrical-engineering services. Our in-house competencies include scoping of instrumentation, defining of control interfaces and designing of local instrument boards, operator panels and control cabinets. We provide sophisticated in-house solutions for the engineering of control concepts and the standardized programming of redundant and safety-oriented control systems. In addition, our experts have managed asynchronous and synchronous motor projects involving power ratings of up to 30 MW or more, coordinated customer and motor supplier requirements, and provided consulting on all technical aspects of electric motors and drive systems.

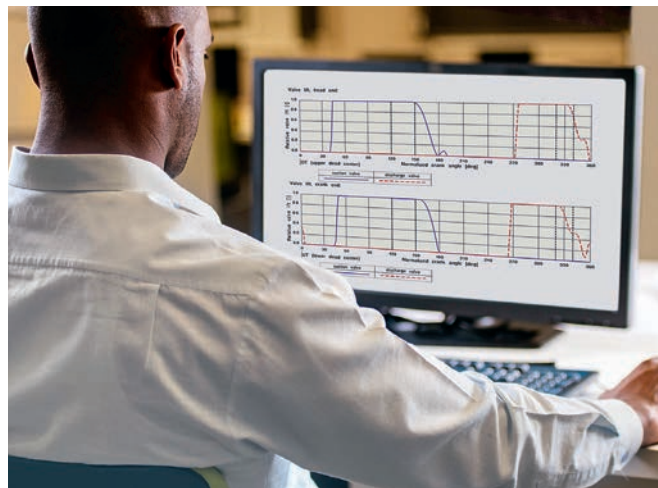
Remote condition monitoring and diagnostic systems for reciprocating compressors are valuable instruments for enhancing operating safety and prolonging service intervals. Permanent machine diagnostics detects faults at an early stage and thus helps to avoid costly and unscheduled downtime. Burckhardt Compression recommends PROGNOST Systems, which can be fully integrated into a control cabinet upon request.

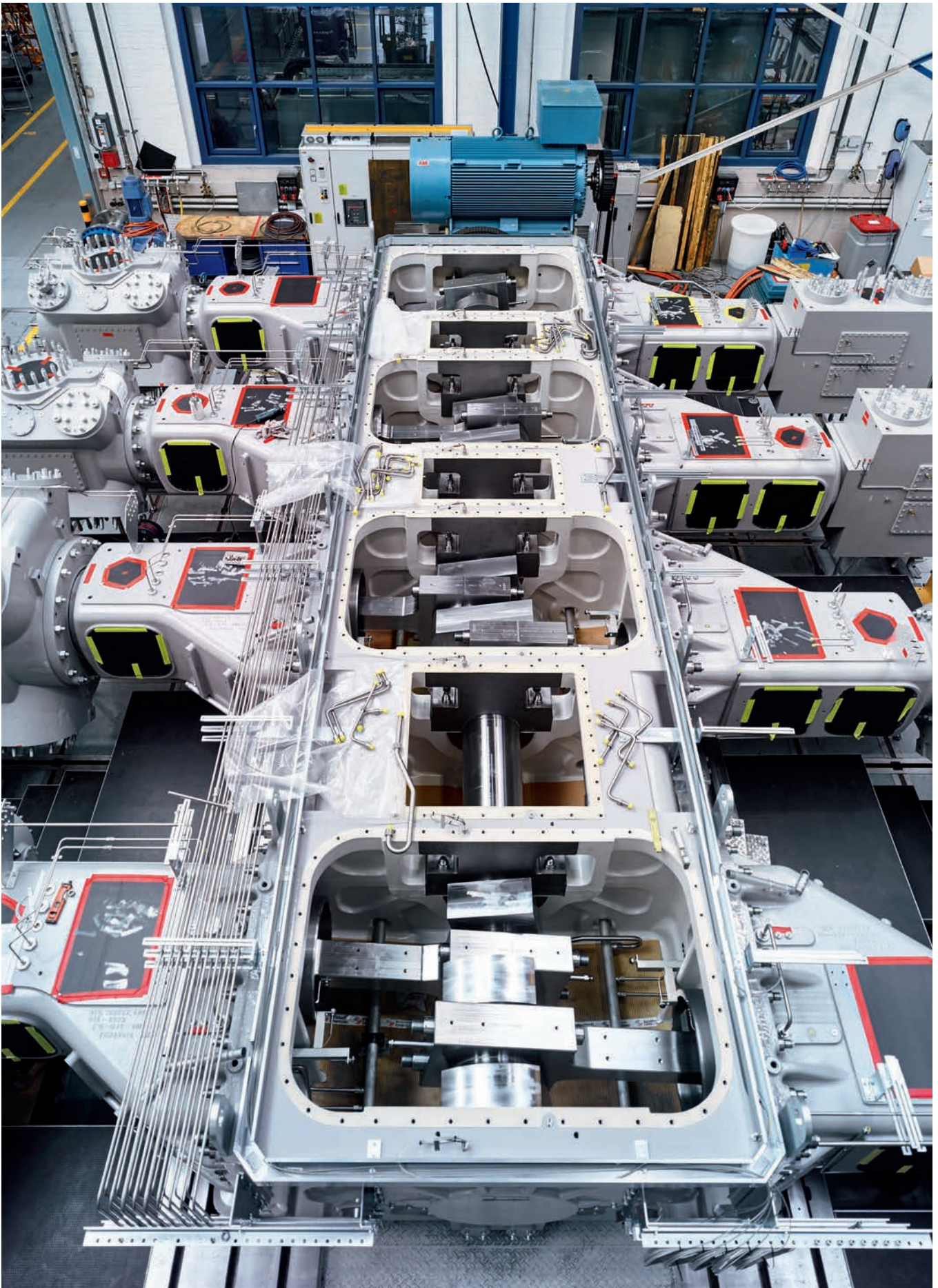
CUSTOMIZED & STANDARDIZED SOLUTIONS

Burckhardt Compression understands the different customer needs in terms of specification and cost-efficiency. Therefore, we offer tailored solutions for all refinery processes handling hydrogen mixtures, off-gases as well as abrasive, corrosive, toxic, explosive or cryogenic gases. In addition, our customers can benefit from a wide range of standardized sets and products based on decades of experience in refinery solutions.

TRANSPORTATION & INSTALLATION

Upon request, we assume full responsibility for the transportation and installation of the entire compressor system, worldwide. This helps EPCs to schedule better and reduce overall project risks and enables on-time startup of the compressor without expensive time losses and deviations.





HIGHEST AVAILABILITY

COMBINED WITH BEST MAINTAINABILITY

AVAILABILITY AND LOWEST LIFE CYCLE COSTS

Burckhardt Compression offers high quality make-up and recycle compressor systems, designed in full compliance with API 618 standards. Our compressor portfolio stands for state-of-the-art technology and engineering, in order to reduce overall operating costs. In addition, the unequalled high availability leads to a significant improvement of mean time between overhauls (MTBO) and minimizes the risk of unplanned shutdowns.

The highest level of in-house expertise on compressor valves, sealing elements and materials and a fleet of five test compressor sets enable us to offer our demanding customers proven innovative valves and sealing elements with longest lifetime.

SAFETY AND MAINTAINABILITY

Besides offering highest availability, our compressor solutions are specifically designed for best maintainability. The maintenance-optimized compressor designs provide access to all main wear parts and enable rapid

parts repair and replacement, which results in a shorter down-time as well as reduced maintenance costs, by lowering service hours billed as well as spare-parts and logistics costs.

SERVICE EXCELLENCE

Burckhardt Compression is the first choice service provider for all reciprocating compressors. Our original spare parts backed by Burckhardt Compression's manufacturing warranties stand for superior quality and ensure both low life cycle costs as well as the optimal operation of compressor systems.

A highly motivated team carries out refurbishment projects of any complexity to the full satisfaction of customers and can prolong the operating life of older compressors by retrofitting them with the latest technology.





“Burckhardt Compression’s project management is very professional and committed. Throughout our refinery EPC contract, they were highly flexible and successful in finding the right solutions, using their profound technical knowledge.”

Project Manager, EPC Company

REDUCED PROJECT RISKS

THROUGH PROFESSIONAL AND FLEXIBLE PROJECT MANAGEMENT

PROFOUND IN-HOUSE PROJECT EXPERTISE

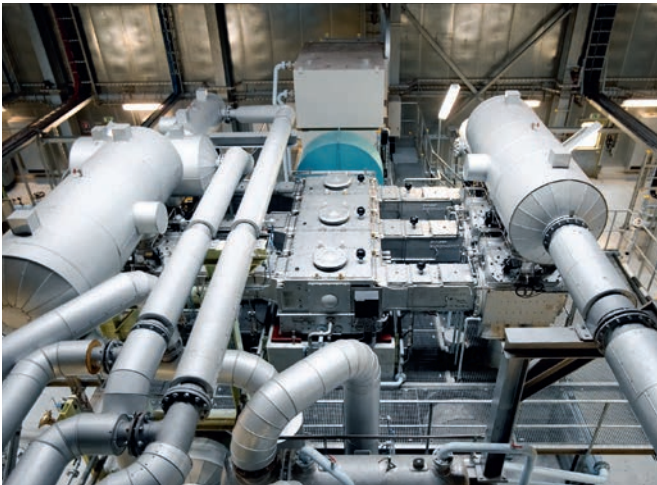
Burckhardt Compression's highly competent project management team consists of well-experienced project managers, technical experts and specialists for electrical drive systems, instrumentation and control. We focus on best customer value, on-time delivery and installation as well as highest quality of documentation.

OPTIMIZED INTERFACES

Burckhardt Compression refinery solution standards are designed to optimize the total costs of the compressor solution installed. The interfacing on-site construction work between the compressor and individual auxiliary components is minimized to reduce on-site installation and testing effort to minimum.

MATERIAL CONSULTING FOR ENHANCED LIFETIME

Our material experts help to determine the right materials that will provide the most reliable, durable and available compressor solution for your refinery processes. This includes tailor-made solutions and materials for corrosive and contaminated gases, according to NACE requirements. Selecting the optimal material and design expands the lifetime of compressor components and compressor systems.



COMPRESSOR KNOW-HOW

BEST RELIABILITY & LONGEST LIFETIME

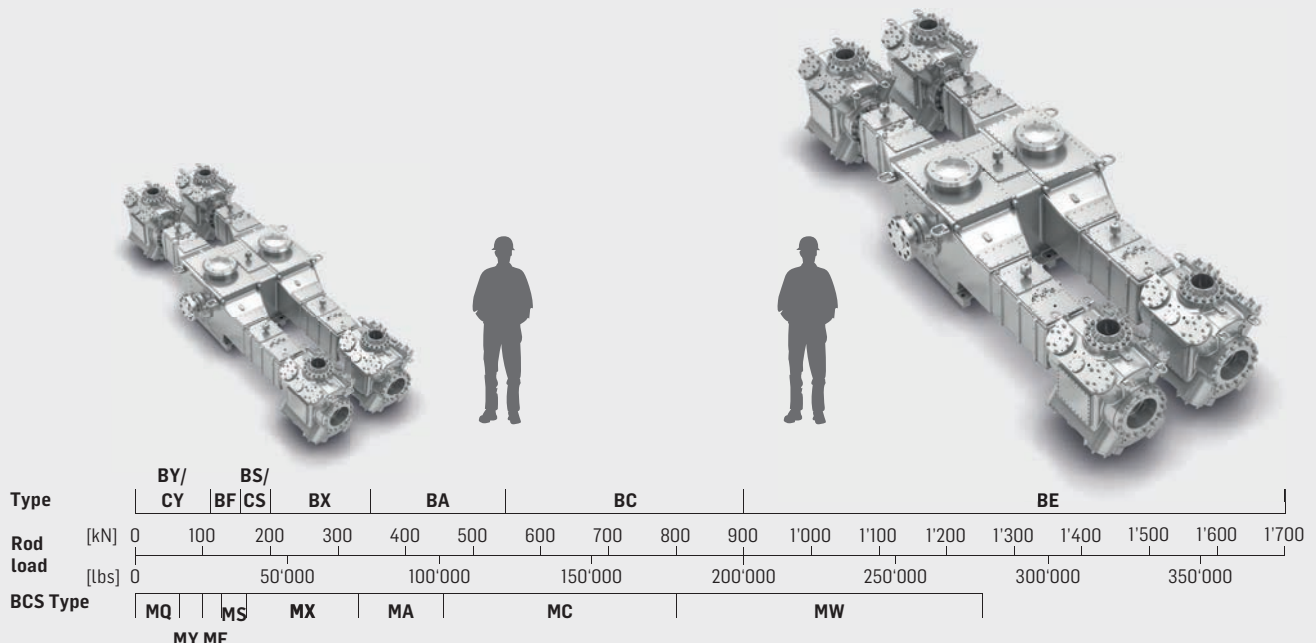
REQUIREMENT SPECIFICATION SUPPORT

Burckhardt Compression's refinery competence teams strongly support end customers and FEED engineering while specifying the most viable and economic refinery compressor solution. Burckhardt Compression's focus on pre-defining refinery standards during product development and continuous improvement of optimization tools helps the decision makers of new refinery projects to specify the most economic compressor solution over the entire life cycle of the installation.

STRIVING FOR LONGEST LIFETIME

Decades of extensive research and testing on materials, production processes, tribology field experience with all kinds of different demanding gas compositions have resulted in sealing solutions that provide longest mean time between overhaul (MTBO). Burckhardt Compression offers everything you need to achieve longer lifetime and strives to build compressor solutions that will operate for 24'000 hours or up to 3 years without interruption.

OUR PERFORMANCE RANGE



API 618 REFINERY COMPRESSOR SOLUTIONS

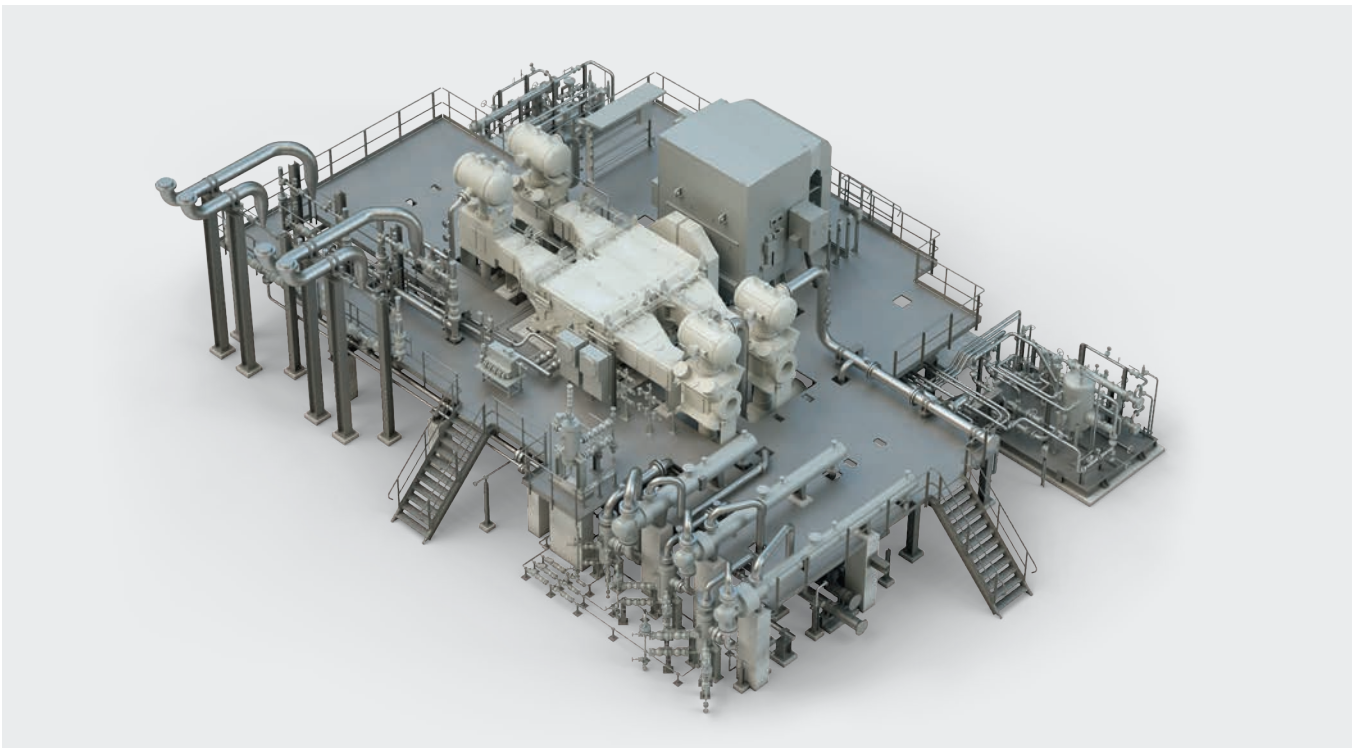
The Burckhardt Compression product offering consists of a complete portfolio from 65 kN up to 1'700 kN with power up to 31'000 kW. All compressor frames are available as lubricated or non-lubricated versions. Non-lubricated compressors compress at up to 300 bara, lubricated at up to 1'000 bara.

All compressor frames are specifically designed to meet the API 618 guidelines and higher specifications applicable to the refinery industry. In addition, we offer highest availability combined with best maintainability. In advance, we offer a full range of services and top performing components through our global organization and local service centers.

FROM BARE COMPRESSORS TO TURNKEY SOLUTIONS

Burckhardt Compression offers proven, standardized refinery compressors configured according to the project requirements including the complete interface description, auxiliary components specifications and engineering. This enables packagers and EPCs to integrate the compressor into their specific refinery process. Depending on the preferences of the EPCs, Burckhardt Compression additionally offers a package consisting of compressors and a set of proven auxiliary equipment.

On request, the dedicated project management team of Burckhardt Compression will offer comprehensive turnkey solutions for smooth project execution requiring minimal project coordination effort by the customer.



FULL SERVICE PROVIDER

WITH A WORLDWIDE NETWORK

EXTENSIVE IN-HOUSE EXPERTISE

Burckhardt Compression is a reliable provider of a full range of services for reciprocating compressors. Original spare parts backed by Burckhardt Compression's manufacturing warranties stand for superior quality and ensure both low life cycle costs as well as the optimal operation of compressor systems.

In the services business, our internal specialists for every technical field, supported by proprietary, advanced software tools, are very proficient in resolving even highly complex technical problems cost-effectively and efficiently.



GLOBAL NETWORK – LOCAL SUPPORT

Burckhardt Compression has a global network of local service centers. This enables us to offer local support with a quick response rate and greater personal contact. The close relationship between our field service engineers and our customers allows us to jointly develop service innovations. Besides extended warranty options, Burckhardt Compression offers its profound knowledge and experience with intensive customer cooperation when scheduling and planning upcoming or condition-based maintenance projects.



REVAMP, MODERNIZATION & ENGINEERING

The requirements of any compressor can change over time due to bottle-necks, capacity changes, reapplications and modernization of the plant. Burckhardt Compression offers efficient and effective solutions for all kinds of revamp and modernization projects. Our work includes theoretical calculations, size simulations as well as feasibility checks and studies.

Our dedicated team approaches every project with the support of our in-house experts for design and manufacturing of new compressors. We incorporate up-to-date technologies where appropriate and all of our solutions are backed by extended warranties. Burckhardt Compression is your solution partner for the entire life cycle of the compressor system.



COMPONENTS FOR HIGHEST RELIABILITY

Compressor components such as valves or seals are subject to wear and tear, so these parts largely determine the duration of service intervals and operational availability and, ultimately, the overall life cycle costs of reciprocating compressors.

With our invaluable knowledge and compressor experience, we provide compressor components designed for longest lifetime in demanding applications and for any compressor brand, with the goal of steadily minimizing life cycle costs.



**YOUR SOLUTION PARTNER
FOR THE ENTIRE LIFE
CYCLE OF COMPRESSOR
SYSTEMS.**



DESIGN & ENGINEERING



BARE COMPRESSORS TO
TURNKEY SOLUTIONS



SERVICE & COMPONENTS

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

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