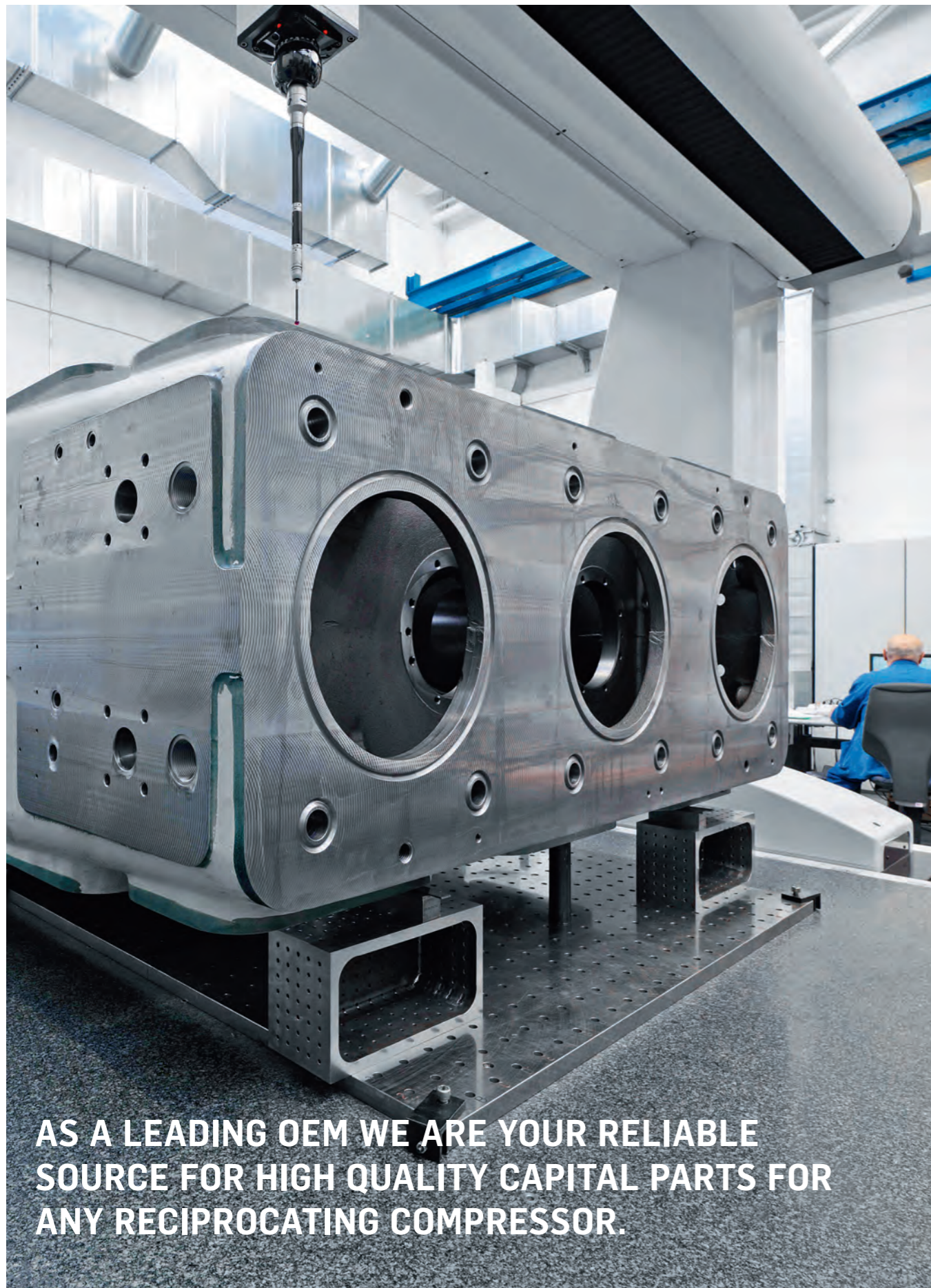


## **CAPITAL PARTS**

HIGHEST QUALITY FOR  
LOWEST LIFE CYCLE COSTS





**AS A LEADING OEM WE ARE YOUR RELIABLE SOURCE FOR HIGH QUALITY CAPITAL PARTS FOR ANY RECIPROCATING COMPRESSOR.**

## RELIABLE SOLUTIONS FOR HIGHEST AVAILABILITY

### CAPITAL PARTS FROM A LEADING OEM

#### **BURCKHARDT COMPRESSION**

Burckhardt Compression is one of the market leaders in the field of reciprocating compressors. As the only manufacturer that offers a complete range of reciprocating compressor technologies, we are ideally suited to support you in every situation.

With more than 170 years of experience, we are committed to producing continuous innovative solutions for highest reliability and lowest life cycle costs for new or improved compressors.

#### **YOUR ADVANTAGE: MOST RELIABLE CAPITAL PARTS**

Reliable performance of capital parts is crucial for the trouble-free operation of your compressor systems.

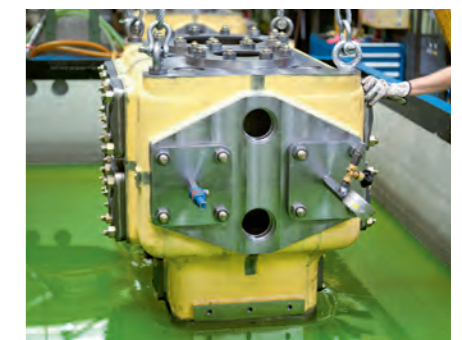
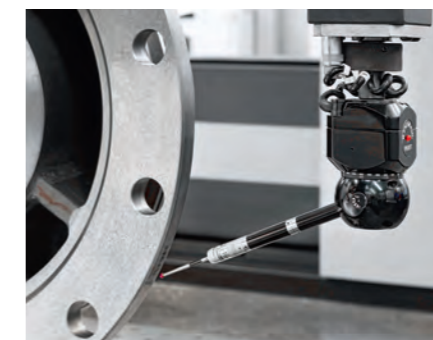
Manufacturing, replacement and repair of these parts require comprehensive know-how of every aspect of a compressor's technological and operational correlations. With thorough analysis and competent in-house engineering capabilities we support you in all circumstances, no matter if with troublesome parts or parts from an OEM that no longer exist.

To ensure fast replacement and dependable compressor availability, our proven approach incorporates:

- Comprehensive requirements evaluation
- (On-site) situation analysis
- Experienced engineering services
- In-house manufacturing of all parts at highest quality standards
- Fast track production processes
- Professional installation by our highly skilled compressor specialists
- Strategic spare parts management

Burckhardt Compression provides a fully documented and certified service for its customers. We are experts at meeting demanding design guidelines such as:

- API 618
- NACE
- Individual customer specifications



# SERVING EVERY APPLICATION WITH HIGHEST QUALITY STANDARDS

## APPLICATIONS



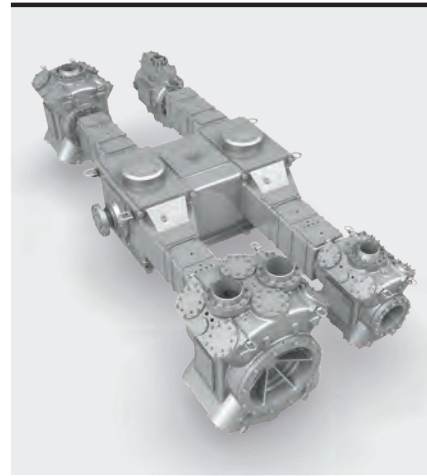
- Upstream oil & gas
- Gas transport & storage
- Refinery
- Petrochemical/Chemical industry
- Industrial gases
- Food & beverage industry
- Wood & charcoal industry
- Mining industry
- Power stations
- Hydro-electric power plants
- Nuclear power plants

## GASES



- Hydrogen, nitrogen, argon, helium
- Hydrocarbons, ethylene, ethylene oxides
- Chlorine, ammonia
- Air, oxygen
- Nitrous oxides, carbon dioxide, carbon monoxide, sulfur dioxide
- Hydrogen sulphide, hydrogen chloride, sulfur hexafluorides, vinyl chlorides
- Gas mixtures and flare gases

## COMPRESSORS



- Lubricated and non-lubricated
- Cooled and non-cooled
- Horizontal, balanced opposed, vertical in-line, V-type, W-type
- Labyrinth piston compressors
- Integral compressor design

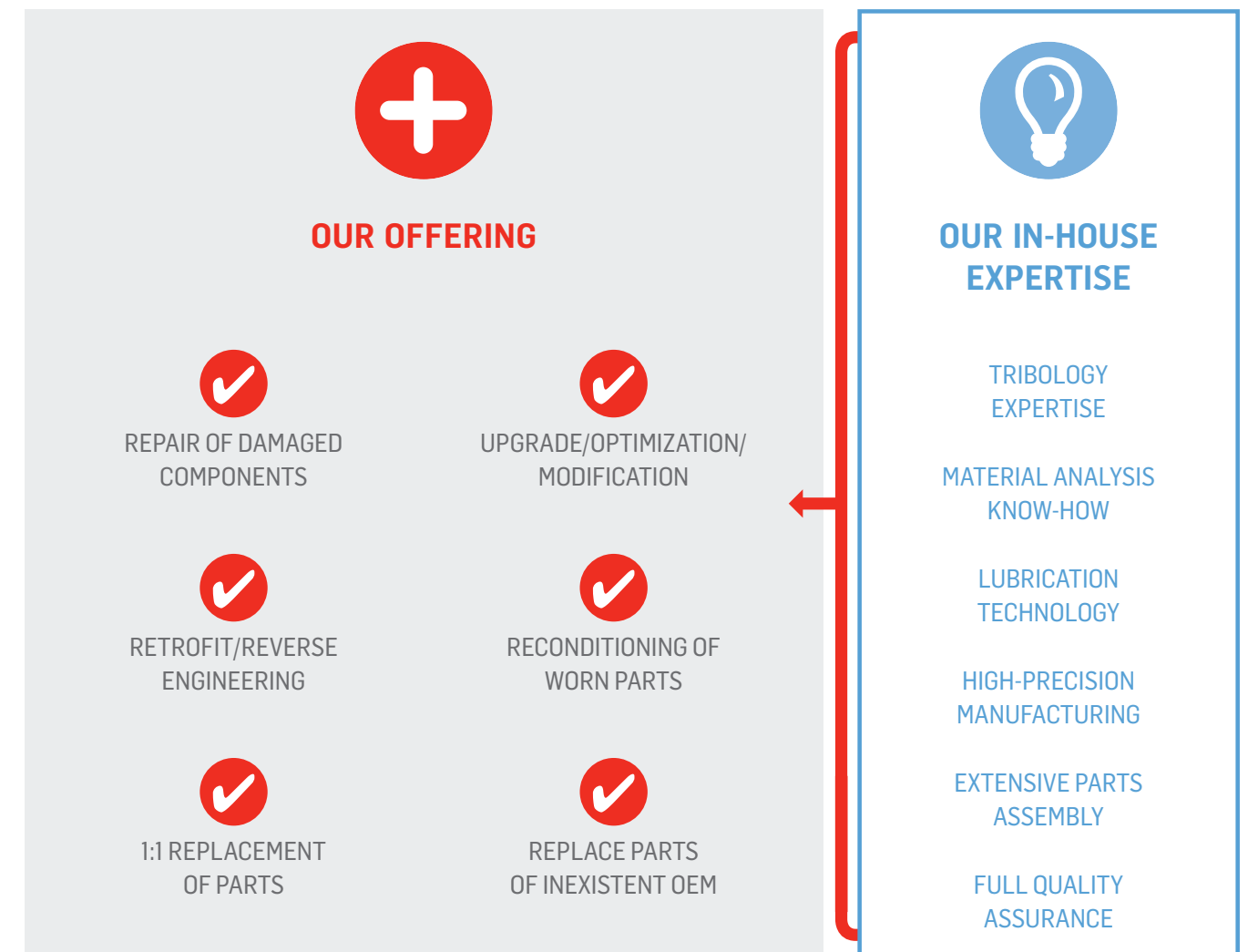
# MORE THAN SUITABLE PARTS FOR COMPRESSORS OF ANY KIND OR BRAND

With our broad in-house expertise we are ideally suited to provide integrated solutions for retrofit, reengineered or repaired capital parts – designed to maximize the reliability and availability of your equipment.

The necessary know-how and experience to design and manufacture perfect solutions for the replacement of supposedly ordinary capital parts is often underestimated. In most cases it is not only the individual

component that needs to be replaced or repaired. Often the interaction with other components, the process parameters, the environment of the parts and even auxiliary equipment must also be inspected and subsequently reengineered.

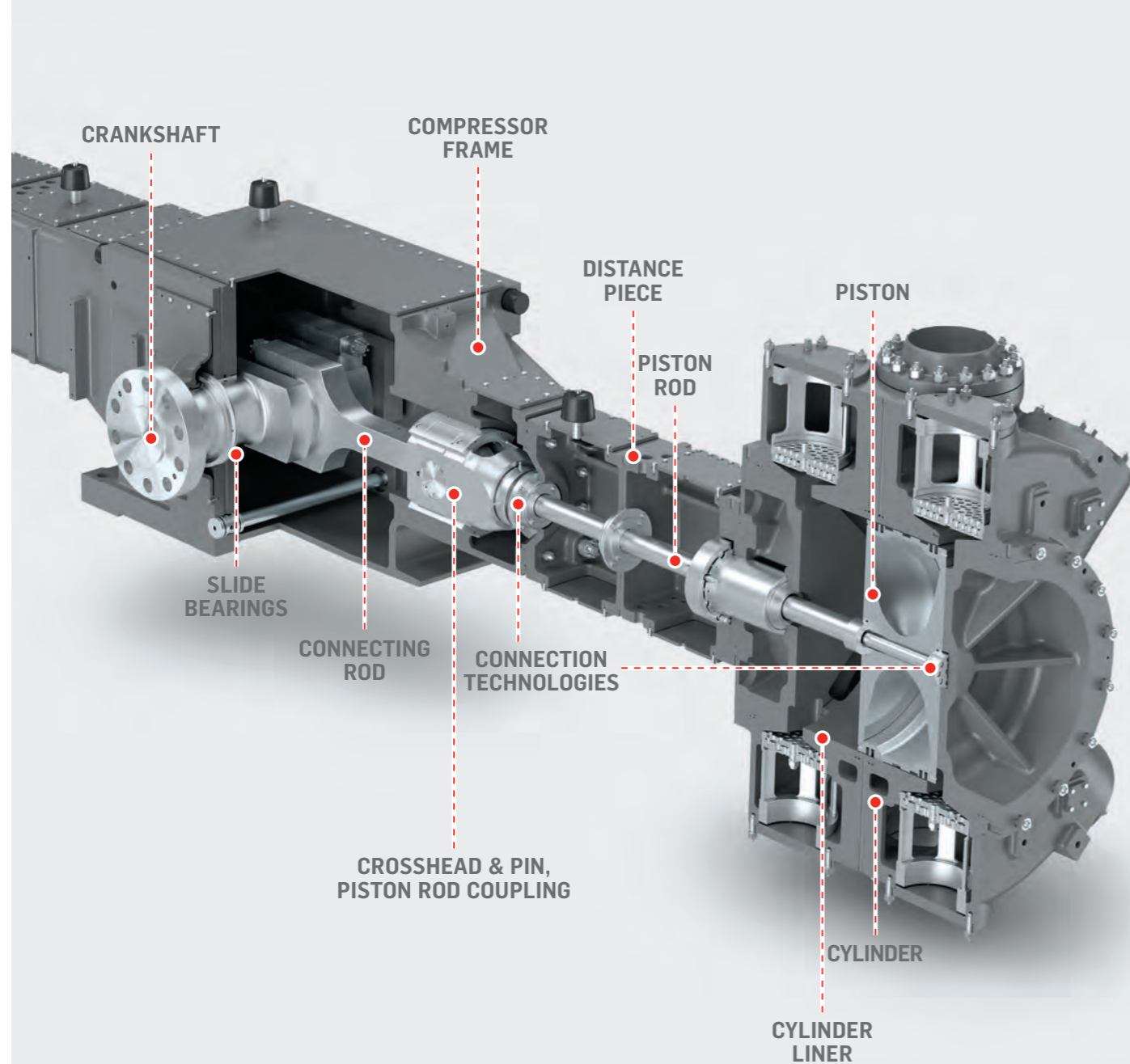
In close collaboration with our customers, we define the necessary scope in order to meet the requirements placed on the performance of the entire compressor.



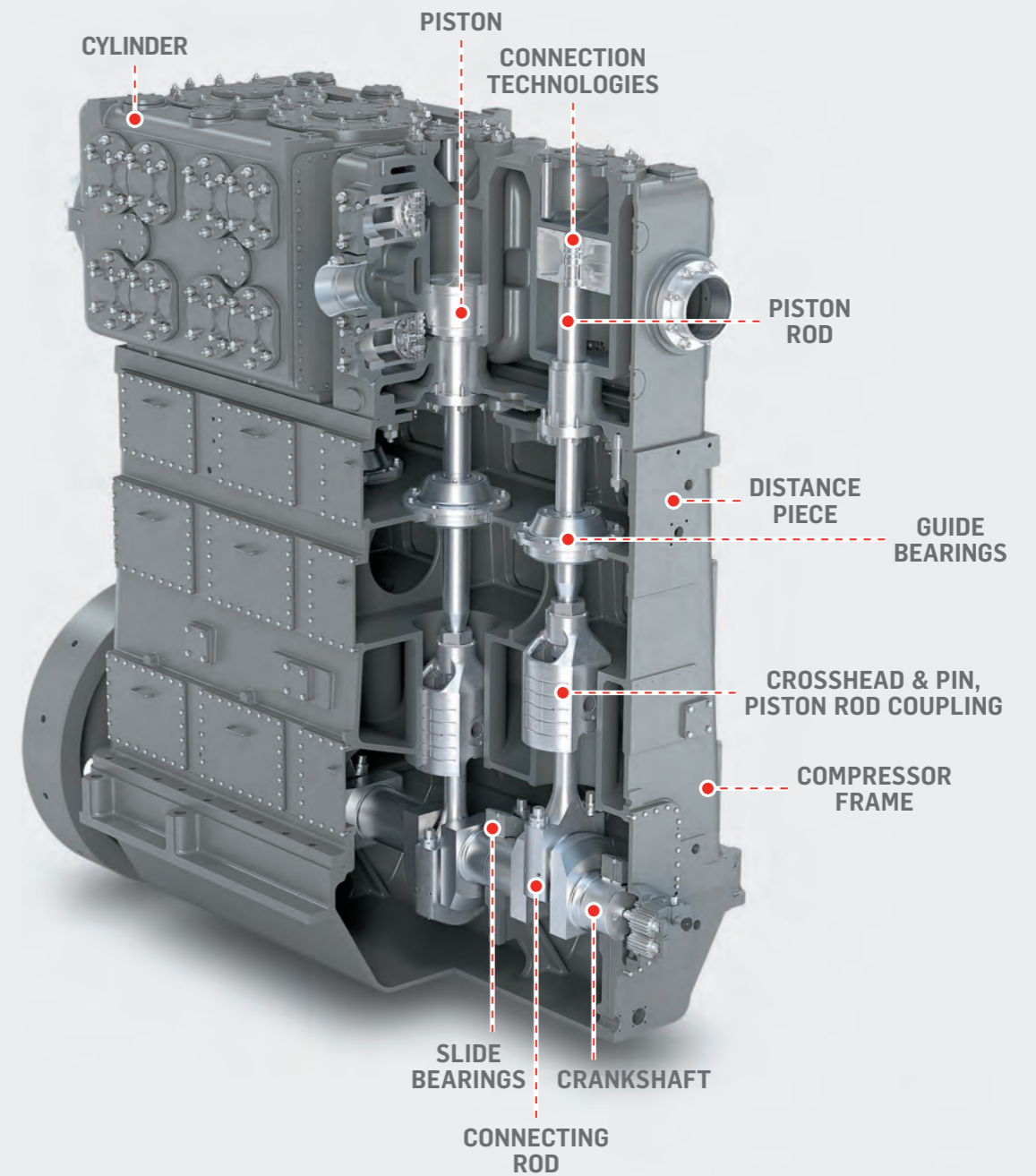
# CAPITAL PARTS OVERVIEW

## PROFOUND TECHNOLOGICAL KNOW-HOW AND EXPERIENCE

### PROCESS GAS COMPRESSORS API 618

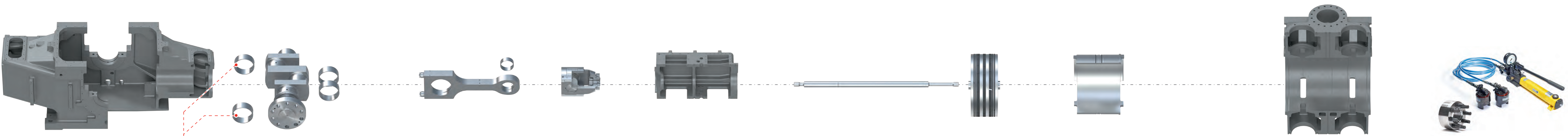


### LABYRINTH PISTON COMPRESSORS



# CAPITAL PARTS DETAILED

## EVERY SINGLE PART IS A MASTERPIECE



	COMPRESSOR FRAME	BEARINGS	CRANKSHAFT		CONNECTING ROD	CROSSHEAD & PIN, PISTON ROD COUPLING	DISTANCE PIECE		PISTON ROD	PISTON	CYLINDER LINER		CYLINDER	CONNECTION TECHNOLOGIES
DESIGN	<ul style="list-style-type: none"> <li>1-8 cranks</li> <li>50-1500 kN rod load</li> <li>Vertical, horizontal, inclined</li> <li>FE analysis optimized</li> <li>Solid, rigid design aspects are engineered for reliable performance</li> <li>API 618 or OEM standard design upon request</li> </ul>	<ul style="list-style-type: none"> <li>High precision bearings</li> <li>Radial and axial thrust bearing</li> <li>Any required bearing (main-/pin-connecting rod and external bearing)</li> <li>Different orientation of gap/split</li> <li>1-, 2-part design</li> <li>Anti-twist protection</li> <li>Upgrade with vibration and temperature control</li> <li>Leading labyrinth piston compressor know-how for guide bearings with oil scraper, robust and precise linear guides</li> </ul>	<ul style="list-style-type: none"> <li>1-8 cranks</li> <li>Stroke up to 400 mm / 15.75 in</li> <li>Bearing diameter up to 450 mm / 17.72 in</li> <li>Lubrication long bore for bearing lubrication. Oil to feed main and connection rod bearings</li> <li>API 618 or OEM standard design upon request</li> </ul>		<ul style="list-style-type: none"> <li>Lubrication bore for bearing lubrication oil feed can be integrated</li> <li>Appropriate connection technologies (multi jack-bolt tensioner, hydraulic tensioner) to provide optimal tensioning to crankshaft/bearing avoids bearing fretting</li> <li>API 618 or OEM standard design upon request</li> </ul>	<ul style="list-style-type: none"> <li>1-piece, solid OEM design</li> <li>3-piece design with replaceable and adjustable shoes</li> <li>Cross head - piston rod connection: direct/indirect or clamped</li> <li>Cross head connection with adjustable plate design for easy rod run out alignment</li> <li>50-660 mm / 1.97-25.98 in diameter (other dimensions upon request)</li> <li>Appropriate connection technologies (Multi jack-bolt tensioner hydraulic tensioner) depending on the forces</li> <li>API 618 or OEM standard design upon request</li> </ul>	<ul style="list-style-type: none"> <li>Single or double compartment</li> <li>Large openings for easy maintenance access</li> <li>API 618 or OEM standard design upon request</li> </ul>		<ul style="list-style-type: none"> <li>Rod diameter up to 250 mm / 9.84 in</li> <li>Length up to 3'500 mm / 137.80 in (other dimensions upon request)</li> <li>Rolled thread provides reliable operation</li> <li>1-, 2-, 3-part piston rod</li> <li>Minimal wear between piston rod and sealing elements with Redura® Rod Sealing System</li> <li>API 618 or OEM standard design upon request</li> </ul>	<ul style="list-style-type: none"> <li>Piston diameter up to 1'200 mm / 47.24 in</li> <li>Types:                             <ul style="list-style-type: none"> <li>Double acting</li> <li>Single acting</li> <li>Dual acting</li> <li>Step piston</li> <li>Tail rod piston</li> </ul> </li> <li>Low temperature applications</li> <li>Modification from lube to non-lube</li> <li>Dry-running applications up to 300 bara / 4'351 psia</li> <li>Lowest leakage with Redura® Piston Sealing System</li> <li>Leading labyrinths piston compressor know-how for contactless labyrinth sealing</li> <li>API 618 or OEM standard design upon request</li> </ul>	<ul style="list-style-type: none"> <li>80-1'200 mm / 3.15-47.24 in piston diameter (other dimensions upon request)</li> <li>Shrink fit or non-shrink fit</li> <li>Highest sealing efficiency between cylinder liner and piston rings with Redura® Piston Sealing System</li> <li>API 618 or OEM standard design upon request</li> </ul>		<ul style="list-style-type: none"> <li>80-1'200 mm / 3.15-47.24 in piston diameter (other dimensions upon request)</li> <li>Single or double acting</li> <li>High pressure applications up to 350 bara / 5'076 psia</li> <li>Low temperature applications less than -100 °C / -148 °F</li> <li>Various number of suction and discharge valves</li> <li>With or without tail rod</li> <li>FE analysis optimized</li> <li>Computational fluid dynamic analysis to optimize gas and cooling medium flow</li> <li>Continuous best performance with our valves and Burckhardt Valve Service</li> <li>API 618 or OEM standard design upon request</li> </ul>	<ul style="list-style-type: none"> <li>Safe and reliable connection of the different capital parts</li> <li>Appropriate and maintenance friendly connection technology for the different connecting points:                             <ul style="list-style-type: none"> <li>Crank gear</li> <li>Connecting rod</li> <li>Compressor foundation</li> <li>Distance piece</li> <li>Cylinder</li> <li>Cross head</li> <li>Piston</li> <li>- etc.</li> </ul> </li> <li>Multi jack-bolt tensioner</li> <li>Hydraulic tightening device for highest forces on the connection</li> </ul>
	MANUFACTURING & MATERIALS	<ul style="list-style-type: none"> <li>In-house manufacturing capabilities</li> <li>State-of-the-art laser measurement guarantees highest quality standards</li> <li>Various materials (e.g. cast iron)</li> <li>Requirements &amp; situation analysis, comprehensive engineering services for reliable solutions</li> </ul>	<ul style="list-style-type: none"> <li>Best material selection based on requirements and application:                             <ul style="list-style-type: none"> <li>Bi-metal bearings</li> <li>Tri-metal (galvanic) bearings</li> <li>Bronze</li> </ul> </li> <li>Special material application for NH3</li> <li>In-house manufacturing capabilities</li> </ul>	<ul style="list-style-type: none"> <li>High precision manufacturing for optimal compressor performance</li> <li>Materials:                             <ul style="list-style-type: none"> <li>Forged steel</li> <li>Cast iron</li> <li>Cast steel</li> <li>- etc.</li> </ul> </li> <li>Bearing surfaces are ground and polished</li> <li>Requirements &amp; situation analysis, comprehensive engineering services for reliable solutions</li> </ul>	<ul style="list-style-type: none"> <li>Materials:                             <ul style="list-style-type: none"> <li>Forged steel</li> <li>Cast steel</li> <li>- etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Materials:                             <ul style="list-style-type: none"> <li>Nodular cast iron</li> <li>Cast iron</li> <li>Cast steel</li> <li>- etc.</li> </ul> </li> <li>Requirements &amp; situation analysis, comprehensive engineering services for reliable solutions</li> </ul>	<ul style="list-style-type: none"> <li>Materials:                             <ul style="list-style-type: none"> <li>Nodular cast iron</li> <li>Cast iron</li> <li>Cast steel</li> <li>- etc.</li> </ul> </li> <li>Coatings:                             <ul style="list-style-type: none"> <li>NITRONIC 50</li> <li>Tungsten carbide coated (HVOF or D-Gun)</li> <li>Chrome plated for special applications</li> </ul> </li> <li>Surface treatment: super finish (lapping, polishing, abrasive fluid lapping technique)</li> <li>Reconditioning service</li> <li>NACE</li> </ul>	<ul style="list-style-type: none"> <li>In-house manufacturing capabilities</li> <li>Materials:                             <ul style="list-style-type: none"> <li>Cast iron</li> <li>Ductal cast iron</li> <li>Nodular cast iron</li> </ul> </li> <li>Requirements &amp; situation analysis, comprehensive engineering services for reliable solutions</li> <li>NACE</li> </ul>	<ul style="list-style-type: none"> <li>Materials:                             <ul style="list-style-type: none"> <li>Forged steel</li> <li>High alloy steel</li> <li>- etc.</li> </ul> </li> <li>Special material upon request</li> <li>Coatings:                             <ul style="list-style-type: none"> <li>NITRONIC 50</li> <li>Tungsten carbide coated (HVOF or D-Gun)</li> <li>Chrome plated for special applications</li> </ul> </li> <li>Surface treatment: super finish (lapping, polishing, abrasive fluid lapping technique)</li> <li>Reconditioning service</li> <li>NACE</li> </ul>	<ul style="list-style-type: none"> <li>Materials:                             <ul style="list-style-type: none"> <li>Nodular cast iron</li> <li>Carbon steel</li> <li>Aluminum (hard coated)</li> <li>Bronze</li> <li>Welded steel</li> <li>Ni-Resist</li> </ul> </li> <li>Special material upon request</li> <li>Reconditioning service</li> <li>NACE</li> </ul>	<ul style="list-style-type: none"> <li>Materials:                             <ul style="list-style-type: none"> <li>Cast steel</li> <li>Austenitic cast iron</li> <li>Nitradable steel</li> <li>Ni-Resist</li> </ul> </li> <li>Various coatings (e.g. nitrated/tungsten carbide coatings less than 150 mm / 5.91 in diameter)</li> <li>NACE</li> </ul>	<ul style="list-style-type: none"> <li>Materials:                             <ul style="list-style-type: none"> <li>Gray cast iron</li> <li>Nodular cast iron (Ni-Resist)</li> <li>Cast steel</li> <li>Forged steel</li> <li>Stainless steel</li> </ul> </li> <li>Special materials upon request</li> <li>Manufactured from standardized or customized blanks</li> <li>State-of-the-art laser measurement guarantees highest quality standards</li> <li>In-house non-destructive testing (pressure test, etc.)</li> <li>Requirements &amp; situation analysis, comprehensive engineering services for reliable solutions</li> <li>NACE</li> </ul>	<ul style="list-style-type: none"> <li>High precision manufacturing for optimal compressor performance</li> <li>Requirements &amp; situation analysis, comprehensive engineering services for reliable solutions</li> </ul>	



**OUR IN-HOUSE EXPERTISE**

TRIBOLOGY EXPERTISE

MATERIAL ANALYSIS KNOW-HOW

LUBRICATION TECHNOLOGY

HIGH-PRECISION MANUFACTURING

EXTENSIVE PARTS ASSEMBLY

FULL QUALITY ASSURANCE

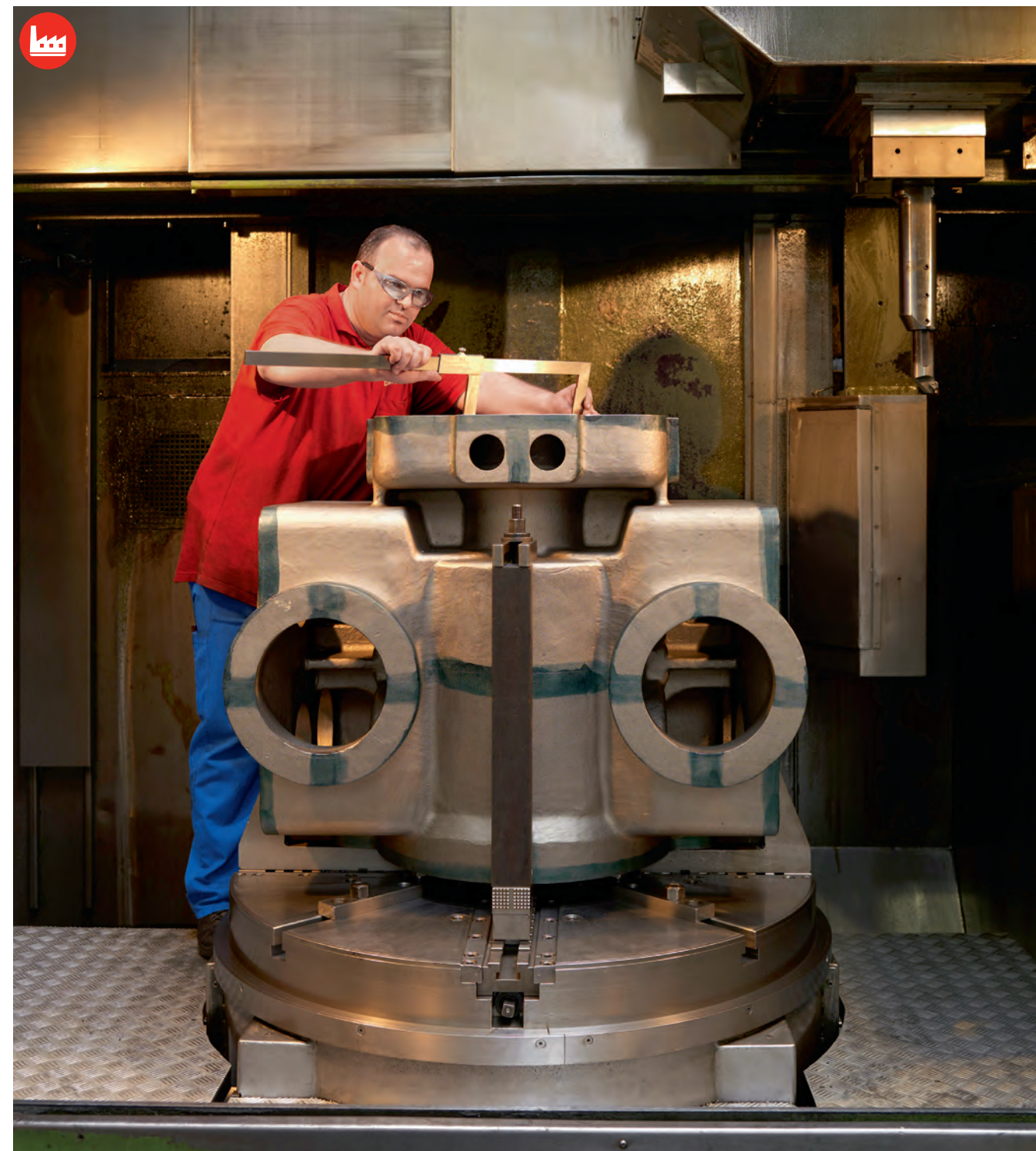
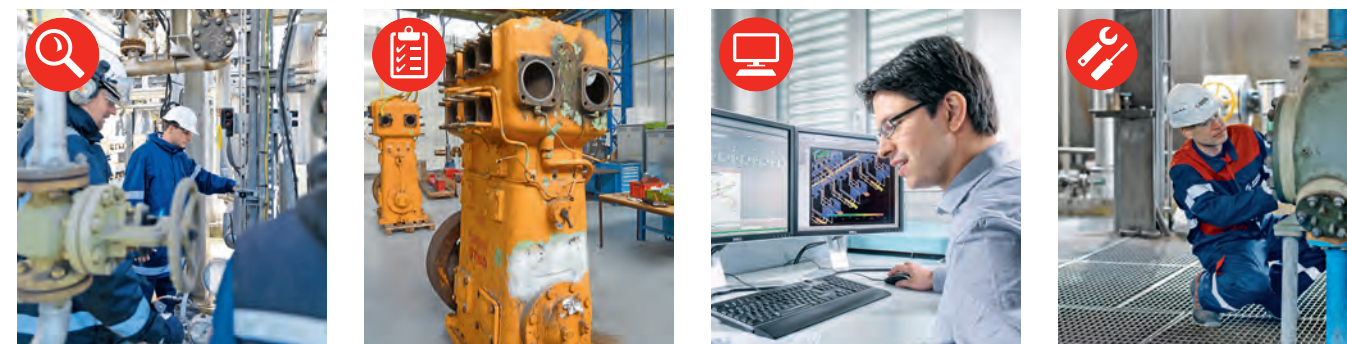
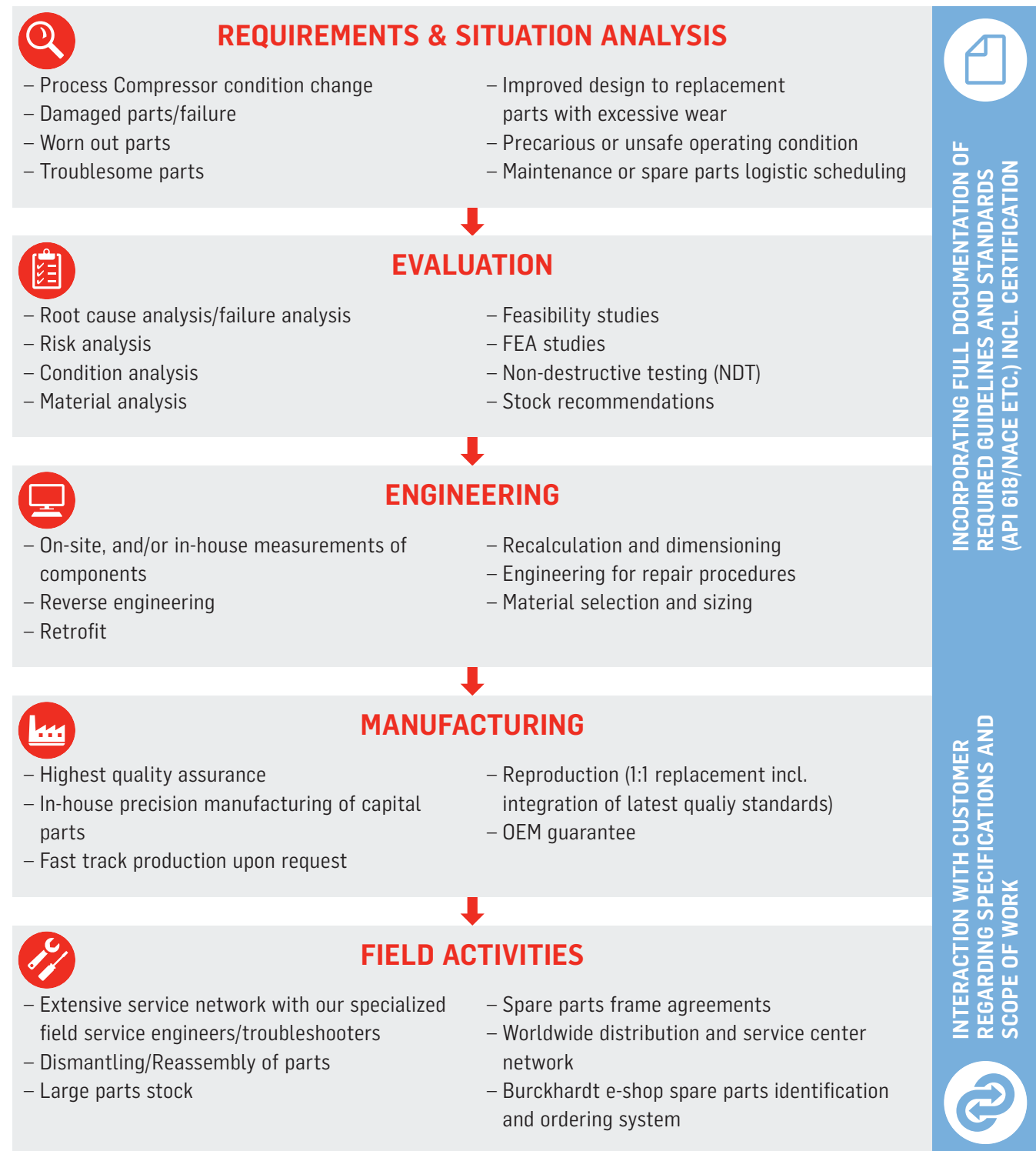
DESIGN

MANUFACTURING & MATERIALS

DESIGN

MANUFACTURING & MATERIALS

# OEM CAPABILITIES FOR EVERY RECIPROCATING COMPRESSOR



**"AFTER AN IMMEDIATE TEMPORARY SOLUTION, BURCKHARDT COMPRESSION STARTED A THOROUGH ANALYSIS AND OFFERED US A TECHNICALLY IMPROVED AND SUSTAINABLE SOLUTION. THE RESULT WAS AN INCREDIBLE 50% INCREASE IN MTBO."**

Technical Service Manager, United Kingdom



**YOUR RELIABLE SOURCE  
FOR HIGH QUALITY  
CAPITAL PARTS FOR  
ANY RECIPROCATING  
COMPRESSOR**



APPROPRIATE AND  
SUSTAINABLE SOLUTIONS  
CONSIDERING REPAIR,  
1:1 REPLACEMENT  
OR IMPROVEMENT



MAXIMIZED RELIABILITY  
AND AVAILABILITY  
OF YOUR EQUIPMENT

**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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