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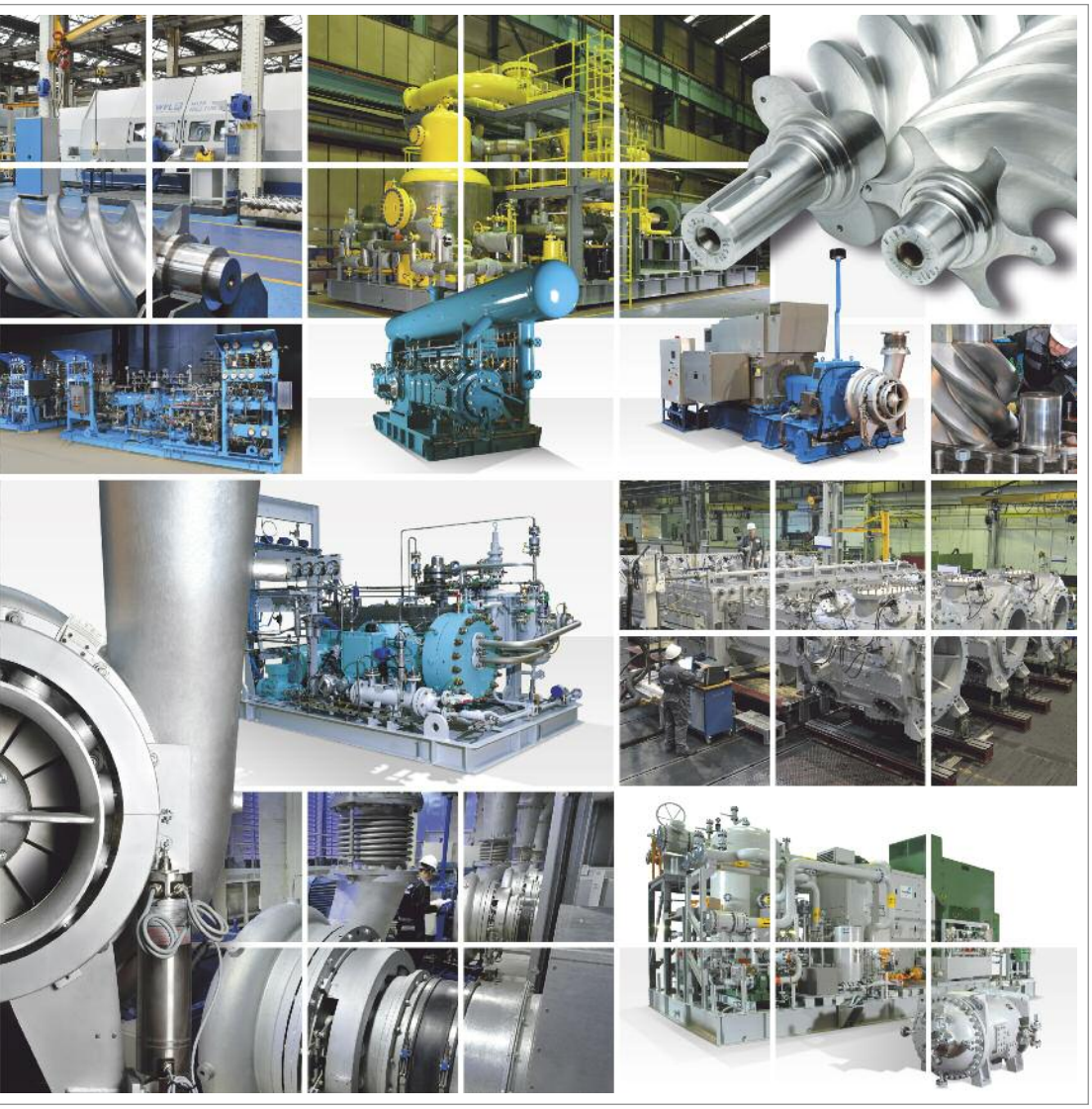
Howden

HOWDEN COMPRESSOR DIVISION

ADVANCED **COMPRESSOR TECHNOLOGIES**

ENGINEERED FOR PERFORMANCE, RELIABILITY AND PROCESS OPTIMISATION



ROTARY TWIN SCREW COMPRESSORS

PACKAGED SCREW COMPRESSORS | **TURBO** BLOWERS

PISTON COMPRESSORS | **DIAPHRAGM** COMPRESSORS

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HOWDEN COMPRESSOR DIVISION

A UNIQUE HERITAGE AND PASSION FOR COMPRESSION

HOWDEN COMPRESSOR DIVISION COMPANIES OCCUPY A UNIQUE POSITION IN COMPRESSOR DESIGN AND MANUFACTURING. WE PIONEERED MANY OF THE TECHNOLOGIES THAT THE GLOBAL OIL AND GAS, PETROCHEMICAL, INDUSTRIAL REFRIGERATION, POWER AND CHEMICAL INDUSTRIES NOW RELY ON.

Together, Howden Compressor Division companies have supplied more than 50,000 compressors worldwide over a period of almost 100 years, and today have compressors installed in the world's most demanding and process-critical operating environments.

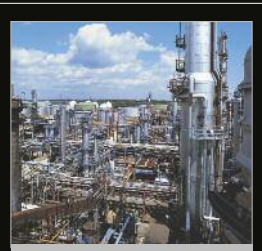
The compressor division is part of the Howden group of companies, world leaders in air and gas handling engineering. The Howden Group is a division of Colfax Corporation.

HOWDEN KNOW HOW

- Efficient and reliable technologies based on 150 years of engineering research.
- Every compressor meets or exceeds local regulations and industry standards.
- All Howden compressors are backed by lifetime global support.

HOWDEN COMPRESSOR DIVISION MARKETS

Oil and Gas


Petrochemical/Chemical

Industrial Refrigeration

Power and Industrial

HOWDEN'S HISTORICAL COMPRESSOR BRANDS

HOWDEN COMPRESSORS

THOMASSEN COMPRESSION SYSTEMS

Burton Corblin®

donkin

ROTARY TWIN SCREW COMPRESSORS

(BARE SHAFT SCREW COMPRESSORS)

Example of WRV model range

Example of XRV model range

HOWDEN COMPRESSORS LTD MADE THE WORLD'S FIRST COMMERCIAL ROTARY TWIN SCREW COMPRESSOR IN THE 1930s, AND TODAY SUPPLIES THE LARGEST AND MOST VERSATILE RANGE OF OIL INJECTED AND OIL FREE SCREW COMPRESSORS. WITH 35,000 BARE SHAFT UNITS SUPPLIED WORLDWIDE, WE ARE STILL AT THE FOREFRONT OF SCREW COMPRESSOR DEVELOPMENT.

HOWDEN OIL INJECTED SCREW COMPRESSOR RANGE PERFORMANCE ENVELOPE

Pressures	Up to 75 bar a	1,087 psia
Power	Up to 5,000 kW	6,700 hp
Flow rate	Up to 16,000 sm^3/hr	13.56 mmScfd
Speed	Up to 5,000 rpm	

WRV 163 WRV 204 WRV 255 WRV 321 WRV 365 WRV 510

Howden Compressors Ltd supplies Oil Injected bare shaft screw compressors through our global network of nominated packagers and distributors. We also offer Oil Free screw compressors as bespoke designed, complete packaged systems supplied through our specialist packaging business Howden Process Compressors.

VERSATILE OIL INJECTED SCREW COMPRESSOR RANGE FOR ALL APPLICATIONS

XRV	Model 127	1 L/D Ratio – direct drive and 3 gear drives
XRV/WRV	Model 163	2 L/D Ratios
XRV/WRV	Model 204	4 L/D Ratios
WRV	Model 255	6 L/D Ratios
WRV	Model 321	4 L/D Ratios
WRV	Model 365	2 L/D Ratios
WRV	Model 510	3 L/D Ratios
GTV	Model 228	1 L/D Ratio
Operating Speeds		1,000 – 5,000 rpm
Capacity Range		200 – 16,000 m^3/hr
Pressure Ratio		20/1 (Single Stage)
Max Discharge Pressure		75 bar g
Max Discharge Temperature		115°C
Materials Casings		Cast Iron, Nodular Iron, Carbon Steel, LT Carbon Steel

PROCESS GAS SCREW COMPRESSOR SYSTEMS

(PACKAGED SCREW COMPRESSORS)

Howden Process Compressors packaged process gas screw compressor system, built to meet of exceed API 619

HOWDEN PROCESS COMPRESSORS IS AN EXPERT OEM PACKAGER OF HIGH SPECIFICATION PROCESS GAS SCREW COMPRESSOR SYSTEMS, CUSTOM DESIGNED FOR PROCESS-CRITICAL APPLICATIONS THROUGHOUT THE WORLD. WE HAVE DESIGNED, MANUFACTURED AND SUPPLIED OVER 1,200 COMPLETE PACKAGED SYSTEMS OVER THE PAST 50 YEARS.

HOWDEN OIL INJECTED SCREW COMPRESSOR RANGE PERFORMANCE ENVELOPE

Pressures	Up to 75 bar a	1,087 psia
Power	Up to 5,000 kW	6,700 hp
Flow rate	Up to 16,000 sm^3/hr	13.56 mmScfd
Speed	Up to 5,000 rpm	

Oil injected compressors offer a number of advantages across a range of applications that demand high efficiency and high discharge pressures. The synthetic oil is an integral part of the machine. It is specifically engineered to suit the specific process – it can, for example, be designed to keep the gas within the machine at neutral acidity, whatever its original pH value. Issues such as dew point control and compatibility with the process gas are always considered when selecting the oil.

HOWDEN OIL FREE SCREW COMPRESSOR RANGE PERFORMANCE ENVELOPE

Pressures	Up to 15 bar a	218 psia
Power	Up to 4,000 kW	5,364 hp
Flow rate	Up to 26,000 m^3/hr	22.04 mmScfd
Speed	Up to 15,000 rpm	

There are many situations where oil free technology presents the best approach. Oil free screw compressors are available in different configurations and materials to provide the most compact arrangement, allowing the handling of gases with high levels of liquid, dirt and particulates. This makes them eminently suitable for use with hazardous or corrosive gases, or where contamination is an issue.

Examples of Howden oil injected and oil free process gas screw compressor systems

TURBO BLOWERS

Howden 'SG' Turbo Blower

HOWDEN PROCESS COMPRESSORS ALSO DESIGNS AND MANUFACTURES A RANGE OF HIGH EFFICIENCY TURBO BLOWERS FOR PROCESS AIR APPLICATIONS. OVER 1,250 HOWDEN TURBO BLOWERS HAVE BEEN SUPPLIED WORLDWIDE OVER THE PAST 50 YEARS.

HOWDEN SG TURBO BLOWER RANGE PERFORMANCE ENVELOPE

Pressures	Up to 2 bar	29 psig
Power	Up to 5,000 kW	6,700 hp
Flow rate	Up to 130,000 m^3/hr	80,000 CFM
Tip speed	Up to 450 m/sec	1,476 ft/sec

EFFICIENCY THROUGH CONTROL

Howden Turbo Blowers range in capacity from 4,000 to a maximum 130,000 m^3/hr with a pressure rise of up to 2 bar, bridging the specification range between fans and compressors. The maximum power rating of the product range is up to 5MW, although the capacity exists to exceed this power if required. The exceptional efficiency of our 'SG' Blower range is based on the principle of integrating bespoke operational technology into each blower. The 'SG' range operates to a constant speed provided by a horizontally split gearbox that requires minimal maintenance and is encased within a compact package design.

KEY PRODUCT FEATURES

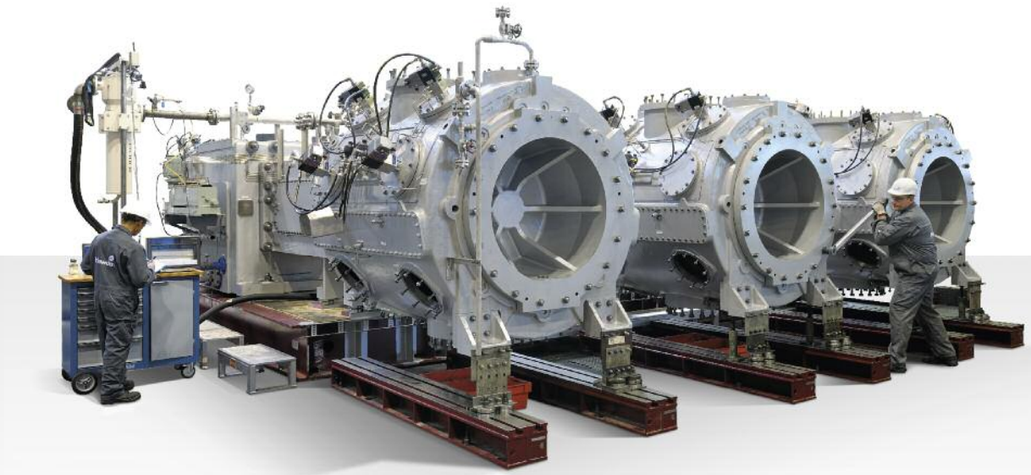
Adaptability
- Industrial or bespoke
- API Standards 617, 672 & 614
- Compact skid design or separate lube oil console
- Turn down to 45% volume flow

Efficiency
- High efficiency impeller
- Maintains optimum efficiency in all duty points

Reliability
- Ease of maintenance
- Minimum downtime
- Designed to suit all environments

Examples of Howden 'SG' Turbo Blower range

PISTON COMPRESSORS



Thomassen Piston Compressor

HOWDEN THOMASSEN COMPRESSORS, FORMERLY THOMASSEN COMPRESSION SYSTEMS, WAS ESTABLISHED IN 1906 AND IS TODAY A MAJOR FORCE IN THE MANUFACTURING OF LARGE CAPACITY PISTON COMPRESSORS. THE COMPANY DESIGNED, BUILT AND INSTALLED A PISTON COMPRESSOR THAT, AT 13MW, IS ONE OF THE WORLD'S LARGEST.

Thomassen high power C-Series heavy duty reciprocating compressors, covering the range from one to 24.8MW, are designed for the most challenging demands of process-critical applications. This series offers significant advantages in operating costs and reliability in the oil & gas, petrochemical and refining industries.

HOWDEN THOMASSEN PISTON COMPRESSOR RANGE PERFORMANCE ENVELOPE

Pressures	600 bar	8.700 psi
Power	24.800 kW	33.250 hp

THOMASSEN COMPRESSION SYSTEMS

HOWDEN BC COMPRESSORS, ESTABLISHED IN 1884, DESIGNS AND PACKAGES SMALL TO MEDIUM SIZE BURTON CORBLIN® COMPRESSORS, CUSTOM DESIGNED TO PROCESS APPLICATIONS.

Burton Corblin® compressors are designed and manufactured as individually engineered packages to meet the specific demands of unique applications. Our equipment is the preferred choice when safety, reliability and performance are paramount. Through our expertise in completing compressor contracts worldwide, we have established a benchmark for handling compression projects within demanding applications and emerging processes.

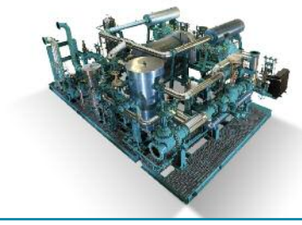
BURTON CORBLIN® PISTON COMPRESSOR RANGE PERFORMANCE ENVELOPE

Pressures	Up to 350 bar	5,100 psi
Power (common range)	10 - 2.500 kW	3.400 hp
Flow rate	22.000 m³/hr	13.000 cfm

Burton Corblin®

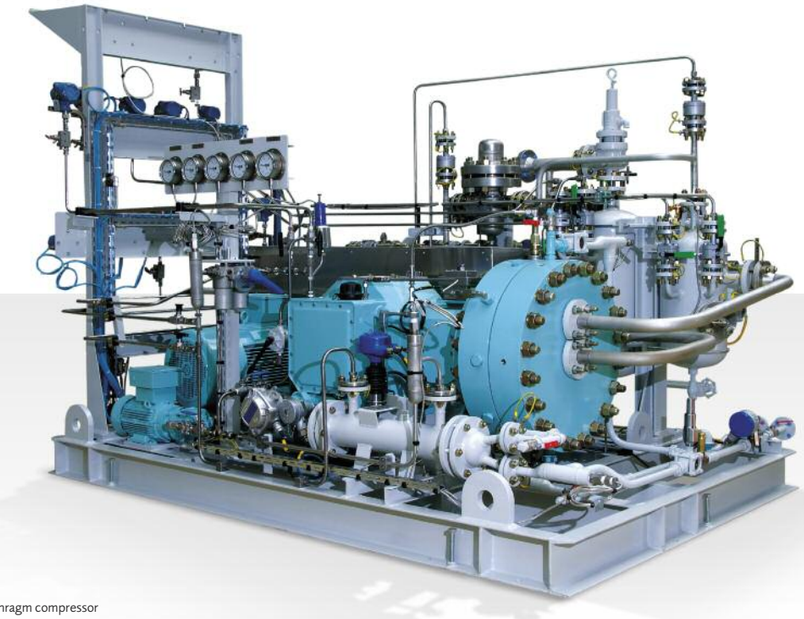
KEY PRODUCT FEATURES

Each fully integrated package can incorporate control systems, regulation equipment, gas treatment plant and any other additional modules and utility packages required by the circumstances, and all our products meet API 618 specifications. Howden's innovative approach can be clearly seen not only in technology such as Free Floating Piston (FFPTM) which extends the gaps between maintenance breaks on compressors, but also the way we select compression solutions that precisely match site and customer needs.



Burton Corblin® Piston Compressor packages

DIAPHRAGM COMPRESSORS



Burton Corblin® diaphragm compressor

HOWDEN BC COMPRESSORS INVENTED THE WORLD'S FIRST DIAPHRAGM COMPRESSOR IN 1916, AND BRANDED THE EQUIPMENT UNDER THE BURTON CORBLIN® NAME. OUR DIAPHRAGM AND PISTON TECHNOLOGY RANGES TOGETHER HAVE A GLOBAL INSTALLED BASE OF 10,000 UNITS.

Burton Corblin® diaphragm compressor packages have been installed in many hundreds of situations where complete isolation of gas is vital, including production sites and laboratories handling high purity, rare, toxic, flammable, corrosive, explosive or radioactive gases. Today's designs are built on decades of experience and success.

BURTON CORBLIN® DIAPHRAGM COMPRESSOR RANGE PERFORMANCE ENVELOPE

Pressures	Up to 3,000 bar	43,500 psi
Power	Up to 600 kW	815 hp
Flow rate	Up to 200 m³/hr	177 cfm at suction
Speed	200 to 750 rpm	

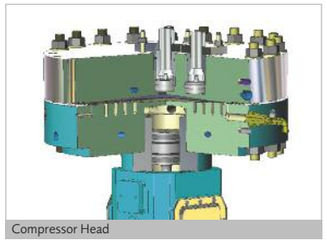
KEY PRODUCT FEATURES

Compression Ratios

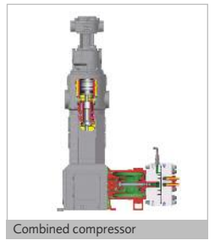
Extraordinary compression ratio up to 15:1 in a single stage can be achieved. Raising pressure from normal atmospheric pressure up to 600 bar in industrial applications only requires three compression stages.

Zero Leakage, Zero Contamination

The gas under compression is fully confined in a hermetic, leak-tight chamber sealed by static contact, and system integrity is continuously monitored by the Head Integrity Detection System. The HIDS safety mechanism has made Burton Corblin® diaphragm compressors the ideal choice in critical areas such as high purity gas handling, nuclear installations or toxic gas processing.



Compressor Head



Combined compressor

Combined compressor

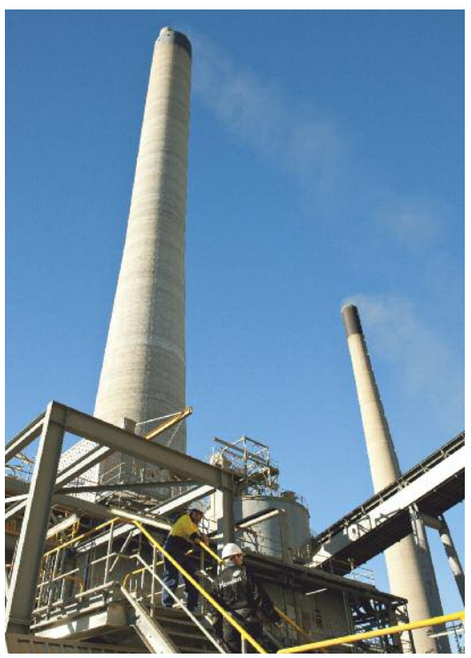
Oil & Gas package

Industrial gas package

HOWDEN KNOWHOW

APPLICATIONS
EXPERTISE

HOWDEN COMPRESSOR DIVISION COMPANIES BRING TOGETHER UNPARALLELED EXPERIENCE AND EXPERTISE IN ALL ASPECTS OF GAS COMPRESSION EQUIPMENT, WITH UNIQUE SKILLS AND UNMATCHED REPUTATION IN AREAS WHERE TOXIC, CORROSIVE OR UNSTABLE GASES PRESENT ADDED COMPLICATIONS. IN ANY SECTOR, IN EVERY APPLICATION WHERE RELIABLE, ROUND THE CLOCK OPERATION IS PARAMOUNT, HOWDEN INNOVATION AND TECHNOLOGY KEEPS THE WORLD'S INDUSTRIES RUNNING.



HOWDEN COMPRESSOR DIVISION COMPANIES

HCL Howden Compressors Ltd
HBC Howden Burton Corblin
HPC Howden Process Compressors
HTC Howden Thomassen Compressors

PISTON API 618 | **DIAPHRAGM** | **SCREW** API 619 | **BLOWER** API 617 & 672

OIL AND GAS UPSTREAM				
Flare gas, Hydrocarbon vapour recovery, Flash gas	HBC		HCL, HPC	
Coal Bed Methane & Shale gas gathering	HTC		HCL, HPC	
Oil & gas onshore & offshore	HTC		HCL, HPC	
GTL & CTL, Syngas make up & recycle, Compact GTL	HBC, HTC		HCL, HPC	
GTL LNG sulphur recovery			HCL, HPC	

OIL AND GAS MIDSTREAM				
Natural gas boosting	HBC, HTC		HCL, HPC	
Gas turbine fuel gas boosters	HBC, HTC		HCL, HPC	
LNG BOG	HTC		HCL, HPC	
Gas drying, Separation, Decanting	HBC			
Gas offloading	HBC			

REFINERY PETROCHEMICAL/HPI				
H_2 production, H_2 Process feed & cooling, H_2 rich gas	HBC, HTC	HBC	HCL, HPC	
Hydrocracking, Isomerisation, Catalytic reforming, Ammonia, Benzene, Nylon White oil unit	HBC, HTC			
Sulphur recovery units (SRU) & Sulphur acid plant, HDS (Oil free)	HBC			HPC
Butadiene, Ethylene, LDPE	HBC, HTC		HCL, HPC	
Flare gas recovery, Propane, Butane recovery, BOG (Ethylene), Process gas, Make up & recycle	HBC, HTC	HBC	HCL, HPC	
Soda ash, Sour hydrocarbons, VCM strip gas			HCL, HPC	
Ethylene, PTA, HDPE, LLDPE, VCM, TDI, MDI, TDM, Phenols, Polypropylene, Polymerising gas, Butadienne	HBC, HTC	HBC	HPC	

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PISTON API 618 | **DIAPHRAGM** | **SCREW** API 619 | **BLOWER** API 617 & 672

CHEMICAL				
Fluor process, Chemistry, Paints	HBC	HBC		
Pharmaceutical process		HBC		
Research & Laboratories		HBC		
Agrochemical process cooling & Critical gas			HCL, HPC	
Waste water treatment				HPC
Polysilicon for solar industry	HBC, HTC	HBC		

POWER GENERATION				
Vapour recovery	HBC			
Radioactive gas leak recovery		HBC		
Pressure testing	HBC	HBC		
Gas turbine feed	HBC		HCL, HPC	
Flue Gas Desulphurisation (FGD), Circulating Fluidised Bed (CFB)				HPC
Fuel cell, Landfill gases, Bio gas	HBC		HCL, HPC	
CO_2 capture, Gas Desulphurisation (Oxidation)			HCL, HPC	HPC

INDUSTRIAL & OTHERS				
Industrial gases/cylinder filling, Speciality gases, Defence, Aerospace, Glass furnace combustion	HBC	HBC	HCL, HPC	
Automotive industry: Air bag filling, Petrol tank manufacture, Hydrogen fuel cell		HBC		
Pure air breathing for diving, Toxic environment		HBC		
Food & drink, Bottling & CO_2 recovery	HBC	HBC	HCL, HPC	
Iron & steel Coke applications, Oven gas, Contaminant gases	HBC	HBC	HCL, HPC	
Fermentation industry				HPC
High temperature gases, Varying molecular weight gases, Mine cooling			HCL, HPC	
Effluent Treatment, Carbon Black, Fuel gas blowers				HPC
Mining: Smelting, Metal Refining, Sulphuric Acid Plants				HPC
Industrial Refrigeration, Process Cooling			HCL, HPC	

HOWDEN SUPPORTS

LIFETIME AFTERMARKET SUPPORT SERVICES

HOWDEN'S AFTERMARKET SERVICE TEAMS UNDERSTAND THE DIFFERENT NEEDS OF EACH INDUSTRY SECTOR AND ALWAYS STRIVE TO PROVIDE THE BEST POSSIBLE SOLUTION BOTH FROM A TECHNICAL AND ECONOMIC PERSPECTIVE.

OVERVIEW OF THE LIFETIME SUPPORT SERVICES AVAILABLE LOCALLY FROM HOWDEN COMPRESSOR REGIONAL SERVICE CENTRES:

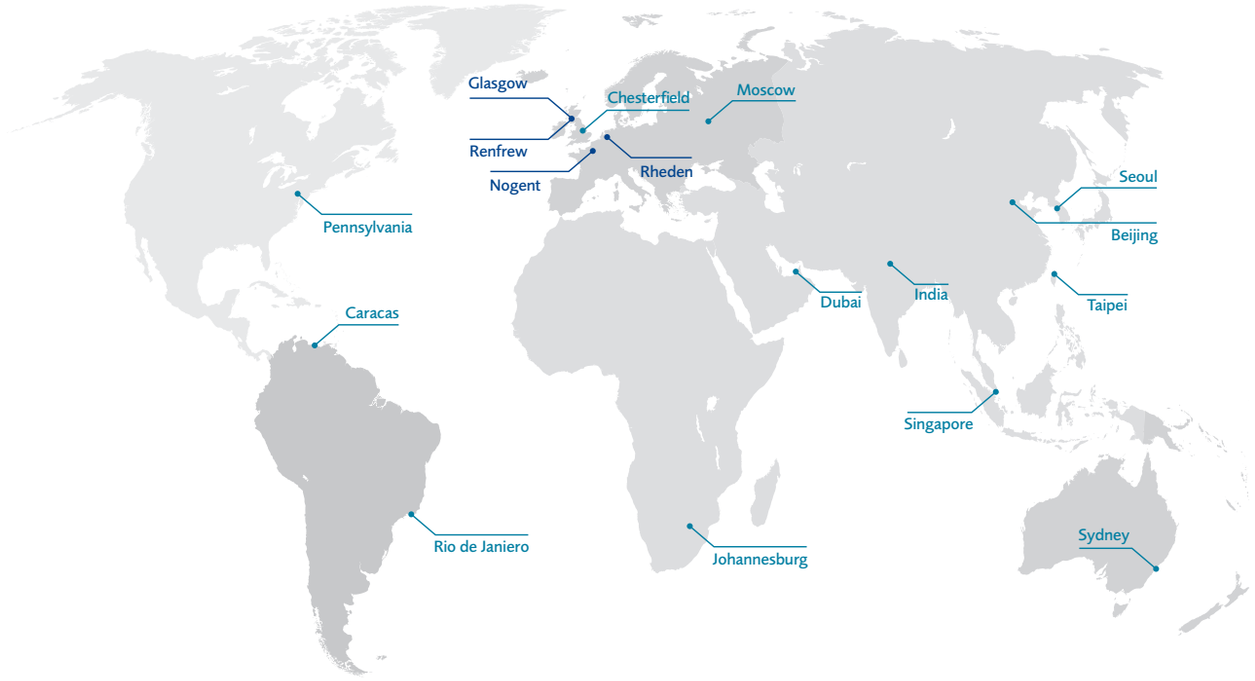
- Supply of Original Replacement Parts
- Compressor Up-grades and Retrofits
- Components & Valves Repairs
- Field Site Services
- Engineering Troubleshooting
- Maintenance Contracts
- Re-Commissioning
- Customer Operator Training

OUR SERVICES SUPPORT BOTH EXISTING HOWDEN COMPRESSOR PRODUCTS AND LEGACY PRODUCTS, INCLUDING:

- Thomassen Piston Compressors
- Centrifugal Compressors
- Steam Turbines
- Burton Corblin® Piston Compressors
- Burton Corblin® Diaphragm Compressors
- Burton Corblin® Periflow® Compressors
- Burton Corblin® Pumps
- Twin Screw Compressors
- Screw Compressor Packaged Systems
- Turbo Blowers

Original Howden replacement parts

MANUFACTURING, SALES AND REGIONAL SPARES, REPAIRS AND SERVICE CENTRES FOR HOWDEN COMPRESSOR PRODUCTS THROUGHOUT THE WORLD



- Regional Compressor Sales and Service Centres
- Compressor Manufacturing Centres of Excellence

PASSION FOR COMPRESSION

Howden, founded in 1854, is a world leading supplier of compressors, fans and rotary regenerative heat exchangers for a large range of industrial applications. Whether pre-engineered or custom built for a specific application, our products are known throughout the world for their high levels of performance, reliability and innovation.

The combination of our product knowledge with our extensive applications experience, gained by our engineers on sites throughout the world, allows us to provide our customers with full support, from the initial project inception right through to the end of the plant life.

Howden

HOWDEN COMPRESSOR DIVISION
GLOBAL CENTRES OF EXCELLENCE FOR HOWDEN COMPRESSOR PRODUCTS ENGINEERING DESIGN AND MANUFACTURE

Nogent, France

Rheden, The Netherlands

Renfrew, Scotland, UK

Glasgow, Scotland, UK

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