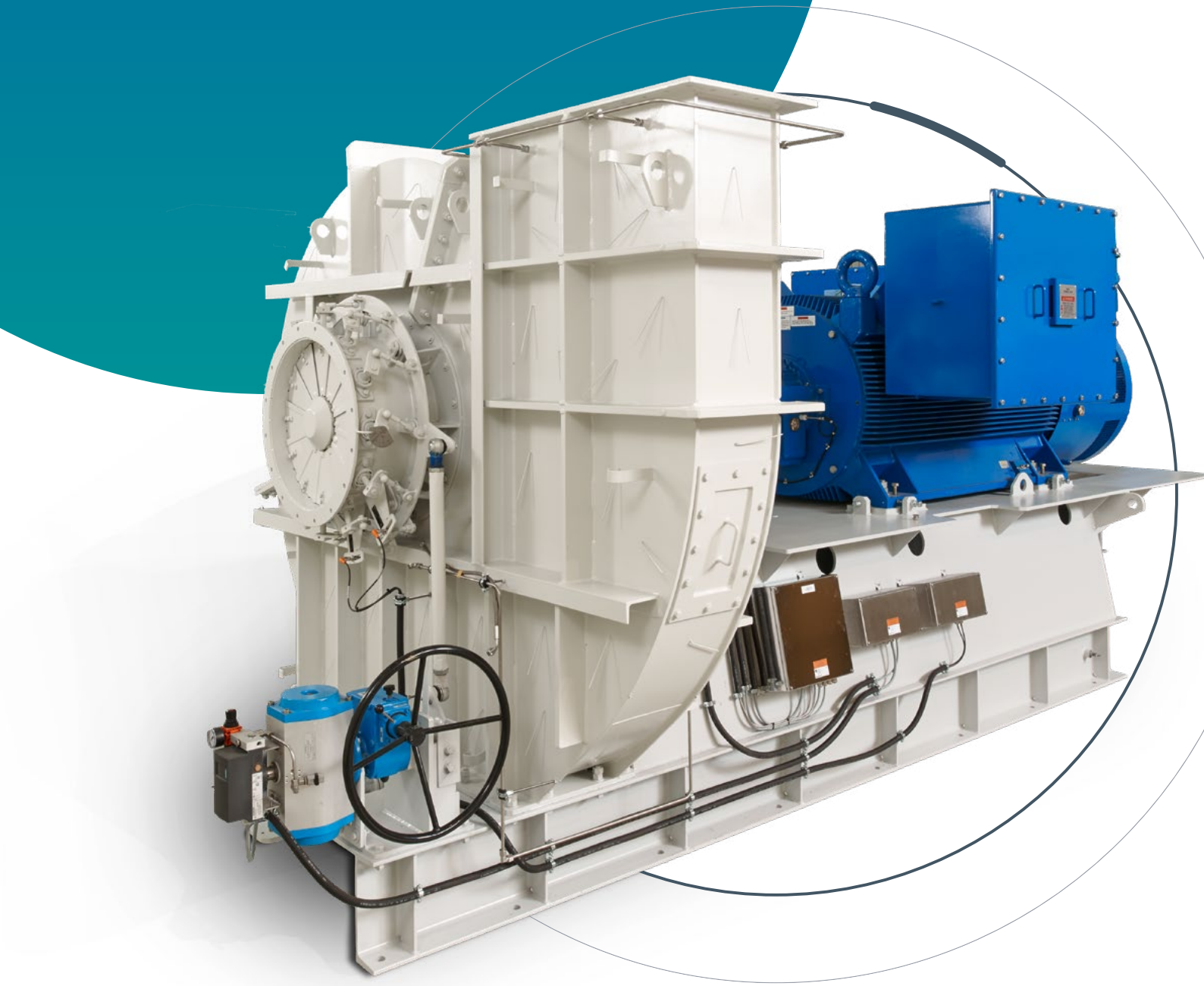
Howden
A Chart Industries Company

Centrifugal fans

High performance air and gas handling for heavy and general industrial processes



Revolving Around You™

chartindustries.com/howden

Howden fans are central to **effective and efficient process.** Designed to match operational duty points, each fan gives an **assured performance** within demanding industrial environments

Howden, a Chart Industries company, has a fan engineering pedigree developed over hundreds of years through the original Howden brand and those which joined the company such as Buffalo Forge, Covent, Sirocco, Solyvent-Ventec, Sturtevant and Turbowerke Meissen

Meeting the needs of modern industry
Howden engages with operators and engineers to support industrial production and in the development of their own technological advancements using our fan technology.

Our application expertise allows us to design the fan to meet the technical demands of each process often leading to efficiency gains and equipment savings versus other air handling technologies.

Our customers benefit from our renowned engineering expertise and dependable quality-assured manufacturing

Supporting multiple industries

Howden centrifugal fans serve a wide spectrum of industrial processes focused on the provision of air, thermal exchange and drying, and product handling

Industries

Applications

Air supply
Transferring ambient air to a part of a process

Heat exchange
Transferring air to/from a heat exchanger or to substance to be dried/ warmed/chilled/quenched

Product handling
Transferring solid, liquid or gas particles with air between two points

Fan selection considerations

Aerodynamics
Volume to be processed at desired pressure rise for specified density and temperature

Operating conditions
Location, machine control, noise emission, layout integration

Asset valuation
Life expectancy and total cost of ownership

Meeting each challenge with the right fan

Howden's expertise and product range results in the right technology match for each application considering operational flow, pressure and conditions

CFi

Engineered

CFi	Considerations	Engineered
Typically, below 100 m³/s in flow and 20 kPa in pressure	**Measure of flow and pressure to be met**	Reaching flows of up to 1000 m³/s and pressures of 43 kPa
Limited to a series of configurable such as stainless steel construction, carbon ring shaft seal, anti-vibration pads etc	**Level of customisation required for the application and operating parameters**	Open to higher levels of special design aspects such as aerodynamic performance or special materials and construction to support conditions
Shorter lead time in line with availability and level of configuration	**Speed of delivery expected for the project**	Longer lead item in line with higher technical project requirements
Durable and reliable operation for given application with minimal service intervals. Whole unit replacement at end-of-life	**Expected long-term operation and maintenance for fan within selected process**	Long operating performance maintained relative to application demands due to specialized materials and construction. Backed up by scheduled maintenance and life extension via upgrade or retrofit

Howden has a global engineering community skilled with the most advanced numeric simulation tools to support any specific need. Whether it's a rapid configured solution or more specialised design, we offer fans aligned to your needs with smooth integration for each layout and process.

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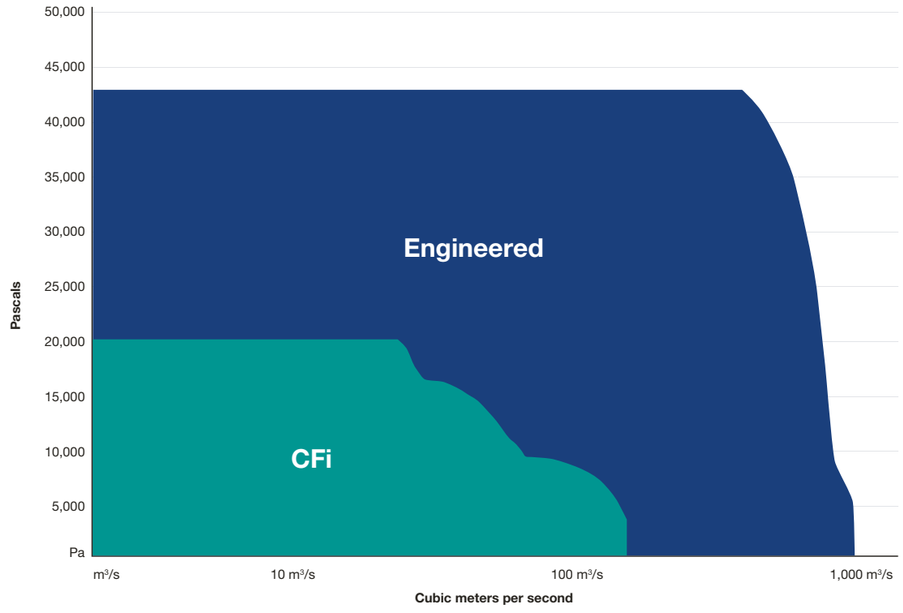
Temperature
Ability to operate in high temperature applications up to 1000°C in line with the demands of industrial processes

Flow/Pressure
Flexible fan range to meet every volume requirement from <1m³/s to 1000m³/s with variable flow control options. Pressures up to 43 kPa

Efficiency
All fans are designed to maximize efficient operation with some reaching over 90% depending on application and operation.

Standards
Compliance with industry standards as required for each application e.g. API, ATEX, Nuclear certifications

Availability
High availability from fans proven to deliver reliable non-stop performance. Fans can operate well beyond life spans of 30 years



Supporting technical excellence in process design

Howden works closely with Original Equipment Manufacturers (OEMs), system technology developers and operators to ensure their process designs are optimised using our fan knowledge

Heavy industrial processes
Our fans are found throughout energy intensive processes such as metals, cement and chemicals production, power generation, refining and underground mining.

Typically positioned for Forced or Induced Draft (FD/ID), our fans play a critical role supplying air into combustion boilers, ovens and furnaces and removing exhaust gas from the process for treatment within FGD and/or SCR emission reduction units and beyond to the stack.

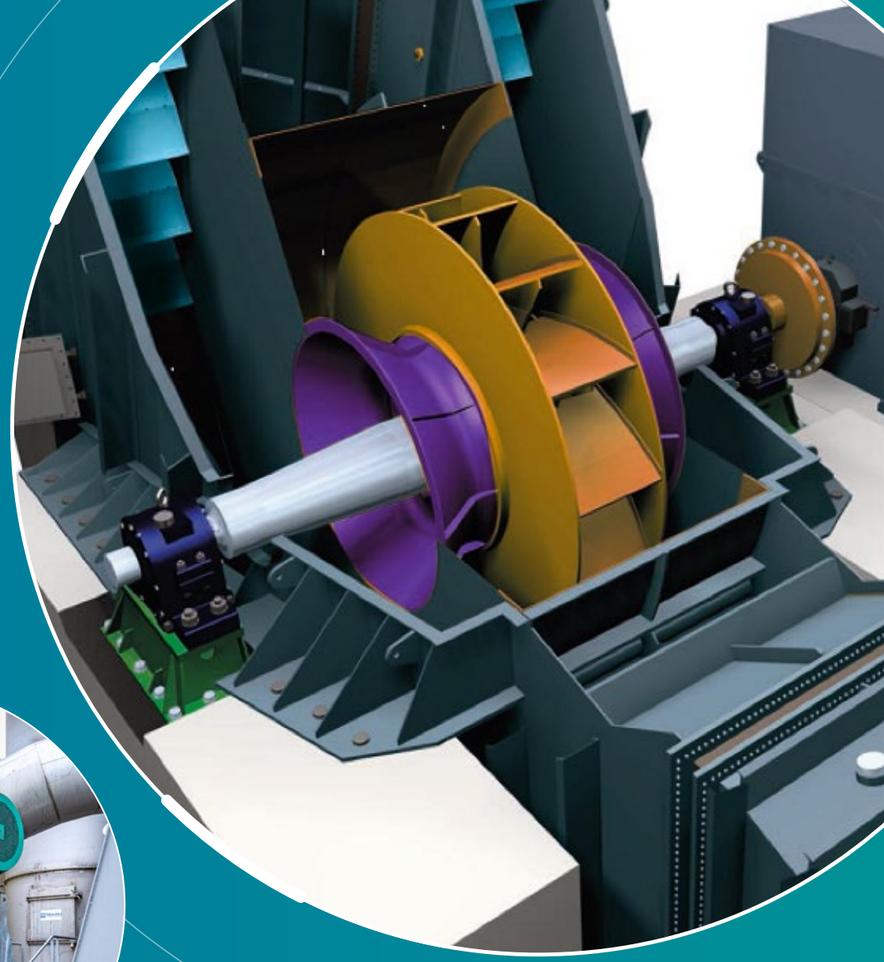
Using our global facilities, fans are manufactured in the region of demand giving cost and delivery advantages

Waste gas fan assembly within a steel sinter plant

Induced draft fan in a cement plant

Fans within an oil refining process

Main ventilation fans for underground mine



Insulation plant de-dusting fans

Fans in operation in a brewery

Durable products
To enable this, our engineers design the fan impeller to maximise performance according to projected operating duties. They make expert selections in material and blade protection to ensure long term durable service. The housing and supporting structure layout consider site dynamics to fit the overarching engineering design of the process plant.

General industrial processes
Many industries need fans for air supply for combustion processes, product drying and transfer via pneumatic conveyance.

In some cases, our customers are developing production lines, some are producing systems that can be used across industrial processes, while others design and manufacture products requiring air at pressure or vacuum.

Each application can be met through fans selected from across Howden's range. Once the best fan design is identified based on the scale and operational demands, they then become integral to the successful operation of each system or product.

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Make an enquiry through our website

chartindustries.com/howden

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