

Total Mine Ventilation Solutions

The fully flexible, integrated suite of expertise, products and services that provide efficiency and safety across your mine operations.



An evolutionary leap forward in the concept, design, engineering, equipment and control of mine ventilation.

For more than a century Howden has supplied ventilation equipment to every major mining company in the world, from frozen sites in the Arctic and the hottest nations in Africa to some of the deepest mines on the planet.

Our fully integrated approach to mine ventilation and air quality control can dramatically reduce energy usage, typically by 50% or more. We provide flexible, fully expandable packages that will grow and adapt with the changing requirements of your mines.



TMVS – Total Mine Ventilation Solutions. A fully customizable, integrated suite of expertise, products and services. It provides efficiency and safety across mine operations globally.

Watch our animation visit:
www.chartindustries.com/howden



TOTAL

Equipment

Engineering proven over decades of robust operation

Howden incorporates many of the most celebrated names in fan innovation and engineering. As manufacturers of mining ventilation fans and ancillary equipment of every type, we can offer unbiased advice about matching product technologies to demands and duties.



Our products

Mine ventilation fans

Our product range covers axial, centrifugal and mixed flow fans in a vast variety of configurations for both underground and surface fan applications. They provide versatility, economic advantages, low noise characteristics and outstanding aerodynamic performance.

By adopting an integrated, project-based approach, we can optimize overall performance and eliminate any mismatches that might prevent individual parts from operating to specification.

Cooling systems

With a range of temperature control options, we apply a flexible and effective approach to mine cooling to suit your specific conditions.

Using ammonia chillers – with our own highly respected screw compressor packages – we can provide custom-designed and skid mounted units ready for integration with mine ventilation systems. If you require equipment that offers a smaller footprint and higher thermal efficiency, our bulk air coolers have a unique counter-flow design.

We also offer portable, skid-mounted cooling units for underground or surface use. They incorporate single or multi-stage compressors and use the condenser and evaporator technologies that best suit local conditions and requirements.

Heating systems

Howden provides complete mine air heaters in the following configurations:

Portable
Permanent
Direct Fired
Indirect Fired
Horizontal Discharge
Vertical Discharge
Single Fan and Multi-Fan

Our heaters are capable of burning everything from natural gas and propane to waste oil. Premium efficiency, serviceability, and low emissions are key to the design of a mine shaft heating system. We ensure every heater is designed to operate safely and effectively even in the toughest environments.

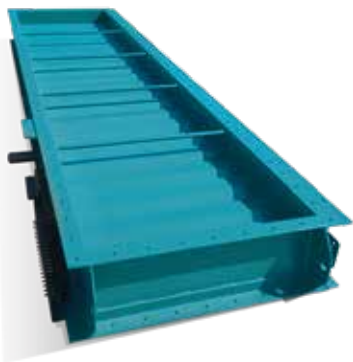
MINE

Fully comprehensive, fully customised

In addition to supplying the fans themselves, we can provide a full advisory, consultation and design service. We deliver complete, integrated systems as a comprehensive turnkey service because this offers you the greatest peace of mind and lowest lifetime

costs. We also readily provide packages ranging from single fans or cooling units to factory tested, skid mounted assemblies complete with your choice of ancillary equipment. From the initial proposals through to factory testing and commissioning, we

ensure that all the elements work together to optimize the overall performance. With a Howden integrated system, we can ensure that all the silencers, cooling/heating apparatus and auxiliary ventilation are designed to work in harmony with the main ventilation system.



Damper systems

We manufacture back draft damper systems for horizontal, vertical-up and vertical-down configurations, in standard sizes up to eight feet in diameter. Our custom builds allow us to offer units twice the size of our standard products.

Engineered for maximum strength with quiet operation, they are designed ready for integration into the control system.

Our dampers are fitted with electric actuators, local overrides and a fail-safe arrangement that, on power loss, holds the fan operation steady.

Silencers

As well as producing fans that offer inherently low-noise running, we can provide acoustic attenuators of various types that will bring virtually any installation within both legal and comfort levels.

Designed to fit most types of ventilation fans either during production or after installation, our attenuators draw on reactive, reactive-dissipative and absorptive technologies to provide the best outcomes even in hazardous or contaminated situations.

Electrical and control hardware

Howden electrical and control panels play a vital role in the start-up and carrying out the operations of mine ventilation packages.

Technologically advanced and supremely practical they offer exceptional levels of adaptability through our easy to install plug-and-play system.

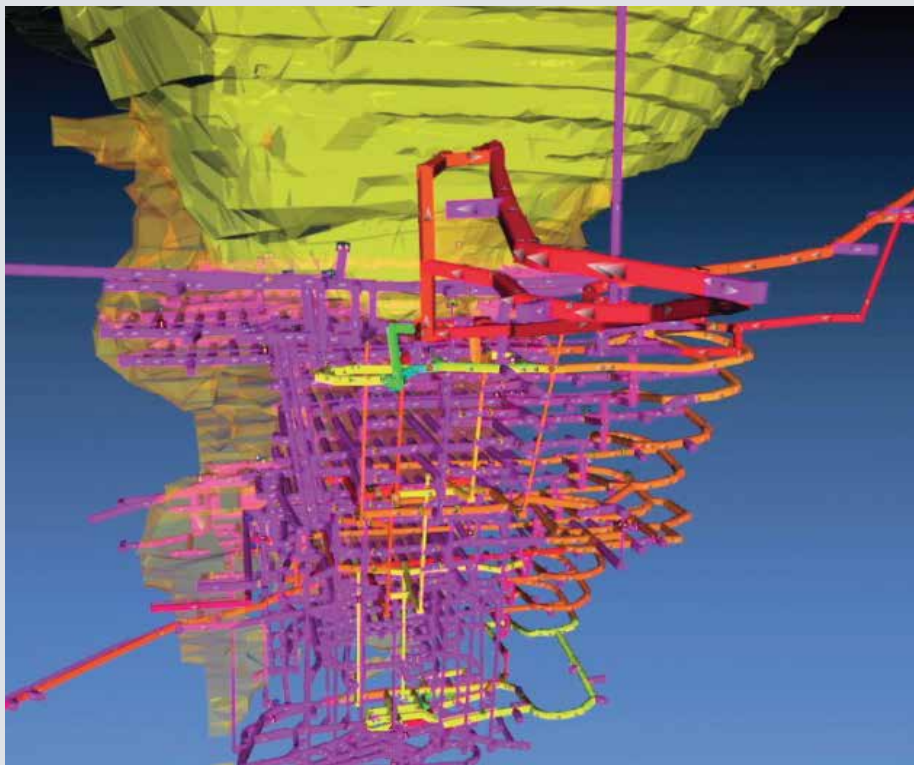
To learn more about TMVS and download our literature please scan or visit: www.chartindustries.com/howden



VENTILATION

Ventsim solutions

Ventilation software, hardware and control



Ventsim DESIGN

Our Ventsim DESIGN software is the ultimate 3D mine ventilation design solution. It allows you to create a 3D model of your tunnels, shafts and raises using your existing 3D mine drawings. You can also simulate and animate air flow and fan behaviour in real time and analyse mine ventilation within a rich and dynamic visual environment.

Various colours indicate over 70 different data types including air flow, velocity, pressure, temperature, contaminants and costs.

Originally introduced to mining operations in 1993, it is now licensed to over 1,000 mining sites, consulting and research agencies, universities, and governments worldwide.

“A great 3D environment, good mining split, visually very strong. It is quick and easy to use, (with the ability) to load the fans curves. We love using it!”



SOLUTIONS

Ventsim solutions offer systematic intelligence

Reduce operating costs – increase safety and production

Ventsim CONTROL

Fully automated and optimized mine ventilation solution including powerful data analytics tools.

The fully automatic system that allows you to change mine ventilation to fit with working schedules and real-time operations.

Fan speed is automatically reduced, increased, or switched on and off according to shift changes or planned events such as blasting and position of vehicles and personnel.

Schedules and events can be easily added or overridden to accommodate one-off or unplanned incidents. It uses tagging and tracking technology for an intelligent ventilation on-demand system.

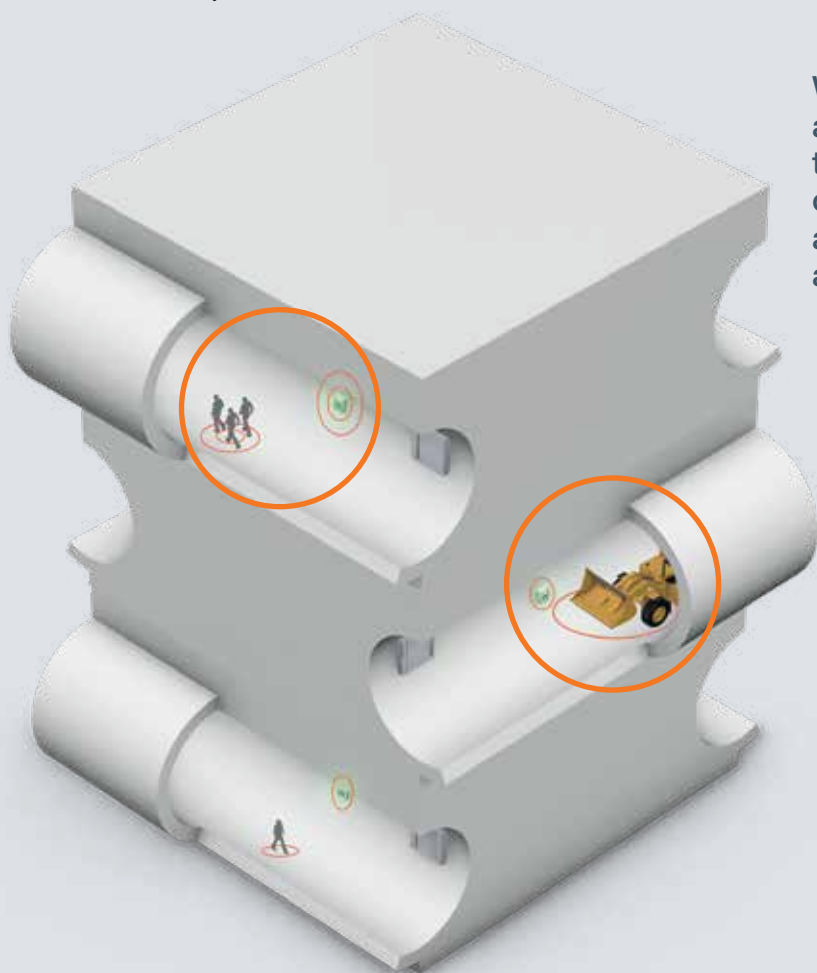
Underground workers and vehicles are electronically tagged, detecting their movements throughout different sectors of the mine. When personnel or machines enter or leave a specific sector, the software automatically adjusts the airflow.

Howden's Total Mine Ventilation Solutions significantly increase safety and production while reducing cost.

Constant vigilance - guaranteed.



Sector of mine busy with vehicles – Ventsim CONTROL will automatically detect this and adjust airflow accordingly.



Workers and vehicles are tagged, allowing us to track their movements throughout the mine. When they enter or leave specific areas, the software automatically adjusts the airflow and ventilation.



CONTROL

The Howden advantage

Delivering unrivalled advantages for the mining industry

Giving you a data driven advantage

Our Ventsim solutions gather a wealth of data from your ventilation systems and equipment. This data is critical to understanding the behavior of the products in your process.

We have used our 160 years of engineering expertise to develop a solution that brings the essential information and advice to your attention.

Ventilation as a Service

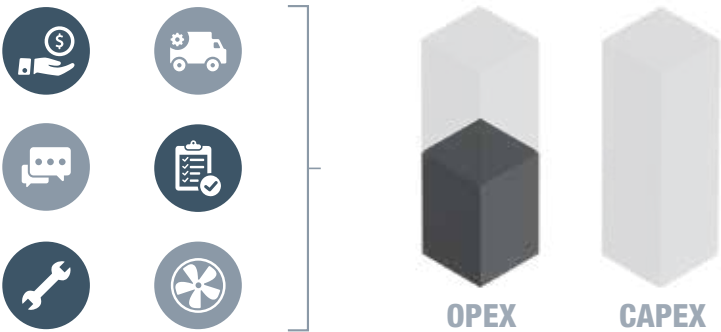
Our extensive experience and expertise in mine safety and productivity has led us to develop our Total Mine Ventilation Solutions; a fully flexible and integrated suite of products and software which create efficiency and safety across your mining operations.

Part of our Total Mine Ventilation Solution is VaaS or Ventilation as a Service.

VaaS encompasses all of our turnkey technologies and engineering services, that are customizable to suit any of your requirements. It also comprises financial solutions to help reduce your OPEX and eliminate your CAPEX needs.

If you require a more traditional financial solution we have a range of options to suit your needs.

VaaS – encompassing all of our turnkey technologies, engineering services and financial solutions.



Product integration



Our TMVS approach can fully integrate with other products and systems already available in your mine. Any existing control panels, tracking and communication systems, fans and ancillary equipment, can be integrated to our Ventsim solutions. This plug-and-play methodology allows us to yield the same results in cost savings, operational efficiency and safety from your mine.

Our TMVS solutions integrate with many other systems and product brands such as Schneider and Rockwell Automation.

ADVANTAGE



At the heart of your operations

Howden people live to improve our products and services and for over 160 years our world has revolved around our customers. This dedication means our air and gas handling equipment adds maximum value to your operations. We have innovation in our hearts and every day we focus on providing you with the best solutions for your vital operations.



To learn more about TMVS please scan
or visit: www.chartindustries.com/howden