

Achieve a safe working environment while reducing costs and energy consumption to meet net-zero commitments

**The Howden mine ventilation team is a valuable resource for mine operators. With our engineering expertise and advanced ventilation management systems such as Ventsim™, we can assist in achieving a safe underground environment, reduce downtime and costs, improve reliability and provide efficient life cycle management, all from one point of contact.**

## Mine ventilation specialists

Howden, a Chart Industries Company, has worked with the mines of every major mining company in the world's most significant mining areas. Our equipment operates in permanently frozen sites north of the Arctic Circle, and near-equatorial conditions in Africa and South America. We've supplied equipment to some of the deepest mines on Earth. Howden engineering and technology have been tested and proven in the most demanding circumstances.

Our mine ventilation engineers are dedicated specialists immersed in the challenges and technologies of mining. The global nature of our activities gives us an enormous breadth of experience and the crucial ability to transfer ideas to optimally address the variety and complexity of mine ventilation situations found around the world. Our global reach allows us to offer highly responsive service.

## Comprehensive services, from analysis and advice to turnkey installation

The Howden team of experts has comprehensive capabilities in evaluating, designing and optimizing mine ventilation systems using Ventsim DESIGN and Ventsim CONTROL.

We take the widest overview of any mining challenge, and present an integrated proposal that considers all factors, aims and constraints to determine a course of action that is both efficient and practical. Our approach enables you to plan current and future production reliably and economically, and to maximize long-term returns.

Whether a full Life of Mine Ventilation plan is required or a ventilation system design advisory, the Howden mine ventilation Engineering team will be able to support you throughout any of your projects or operations ensuring a sustainable, economic and safe ventilation system.

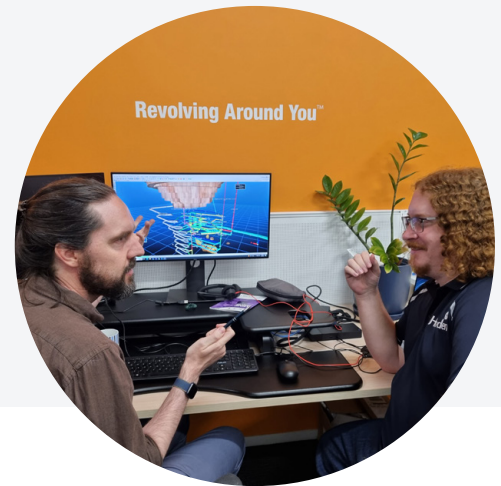
The team also has core competencies in performing cooling and heating studies for underground mine.

Howden is revolutionizing mine ventilation by providing design advice adapted to the latest technologies available on the market by optimizing the use of fresh air according to dynamic operations enabling the mine to make sound decisions that can end up saving millions in ventilation infrastructure while maintaining safety above all.



## Our service typically includes all or some of the following components:

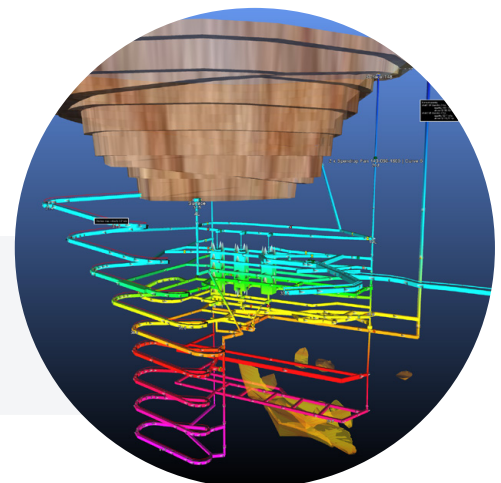
- Full ventilation surveys, including analysis of specific airflows and pressures throughout the mine and evaluation of all the relevant K-factors
- Fire simulations, emergency preparedness and response simulations
- Ventsim model update and calibration
- Ventilation and network improvement plans
- Ventilation on demand feasibility studies
- Ventilation equipment sizing, selection and trade off studies
- Ventilation simulation including airflow, heating, cooling, gases, DPM and fire
- Analysis of current and future ventilation requirement including LOM studies
- Remote or on-site software training



## We engage our customers to ensure the most appropriate solutions are found and considered. The benefits of working with the Howden team are:

- Optimized ventilation for any mine and method of extraction
- Provide a comprehensive evaluation of capital and operating costs for realistic comparisons
- Present different production projections and their associated ventilation demands so the optimum scenario can be identified
- Allows accurate and reliable selection of the most appropriate ventilation fans, regulators and infrastructure
- sizing, selection and trade-off studies
- Eliminates the high costs associated with excessive or inadequate shaft sizing by precisely planning the optimal sizing of shafts and raises
- Incorporates future ventilation needs, including expansions and closures for lifetime mine planning
- Accommodates various requirements with different Ventsim options

With unmatched experience and reference installations in all worldwide mines and methods of extraction, Howden's experts are capable of delivering optimal ventilation design solutions.



**This service is part of TMVS – Total Mine Ventilation Solutions,** the integrated suite of expertise, products and services that provides efficiency and safety across your mine operations.

For further information get in touch with our team today:

ventsim@howden.com | [www.howden.cloud/EngServ](http://www.howden.cloud/EngServ)

