
VENTILATION CONTROL DEVICES FOR MINING

over **20 years**
of experience

in the design and construction of underground
mine ventilation structures and bulkheads

product versatility
**supply &
installation**

- Direct product supply
- Product supply and service
- Full service and installation

**LARGEST RANGE
OF LIVE TESTED,
EXPLOSION RATED
VENTILATION
CONTROL DEVICES,
TESTED AT WORLD
RENOWNED
FACILITIES.**



5 psi rated overcast

VENTILATION CONTROL DEVICES.

For more than 20 years, Minova has manufactured a range of cementitious and steel fabricated systems that are used in the design and construction of underground mine ventilation structures and bulkheads.

In 1999 we diversified into contract design and installation of Ventilation Control Devices (VCD's). Since then we have considerably expanded the range of products, devices and services available to the underground coal and metal mining industries globally.

We offer vast experience and capability in engineering, design, product manufacture, fabrication and contract installation of VCD's. We have successfully developed and implemented many specific devices for individual customer requirements.

KEY FEATURES

- Enhanced air quality in underground mines
- Improved re-entry times after blasting due to advanced air control
- Improved cost efficiency with mine ventilation systems
- Trusted designs and engineering certification
- Complete service by one supplier for design, construction and installation of ventilation structures
- Safe to handle VCD's with convenient and rated lifting points, allowing easy and safe handling during installation
- Customised products to suit any roadway dimension and mine layout
- Protective coatings for harsh environments

BLASTFLOW® LOUVRE REGULATORS



Blastflow louvre regulators provide enhanced control of airflow in primary ventilation circuits which are subject to air overpressures from stope firings.

Blastflow maximises the time available to underground operators by allowing them to work in a controlled ventilation environment right up to the time of the blast. Once adjusted, airflow is regulated immediately before and after the blast. Blastflow can be converted to allow remote control of the modules through the use of electric actuators and the mines SCADA system.

VENTILATION BLINDS



Minova's QBC blind is an easy to install ventilation device that allows for stopping of airflow to or from the area of a mine that may require access at a later stage.

Designed for a wide range of operating pressures to suite any opening size up to 5.6 metres in width. QBC Blinds have been developed for a wide range of applications in underground metal mines, coal mines and rail tunnels.

ADVANTAGES

"Set and forget solution" - simple hand wheel adjustment that establishes airflow settings before and after stope firings

Reduced safety risk exposure as operators are not required to remove hardwood drop boards and other ventilation controls before firings

Minimise manual handling by simply lifting modules into place using an ITC and locking pins for fixing inside steel regulator frames

Modules can be interchanged at other regulator sites, allowing for increased design flexibility

No requirement to disassemble before blasting

Blastflow modules can be fitted with man-doors, and the frame centre struts can be removed on double and triple 7 blade module regulators to enable light vehicle access

Workers aren't exposed to return air dust and removing timber boards

ADVANTAGES

Easily installed using existing mine services

Can be opened and closed with one person in a few seconds to allow vehicle and truck access

Can be tailored to suit specific size and ventilation requirements

Durable and high tensile cloth eliminates wear and impact damage

Flexible support ribs eliminate damage due to excessive ventilation pressure

Easily relocated for use where required

Approved cloth material for use in coal mines

OVERCAST SYSTEMS



The Minova overcast systems provide a tried and tested method to separate air paths, preventing contamination.

Overcasts are made to a standard size with four 1.3m wide panels, a standard internal clearance height of 3.1 to 3.5m and 6m wide. Each wall is stabilised with two struts bolted to the floor and an innovative U beam roof bracing that has been incorporated into the roof panels eliminating the need for roof struts.

VEHICLE ACCESS DOORS



Doors are available with two or three hinged leaves. Every set of machine doors has an air relief slider which can be configured for manual and pneumatic operation.

Vehicle access doors can be fitted with a 1.5m high, 5 psi rated man door with air relief slider. Doors incorporate bottom and central sealing rubber flaps and are fitted with three lifting lugs. Roof braces can be added for extra stability for use in higher ceilings. We can supply pneumatic controls for coal mine vehicle access doors.

ADVANTAGES

The overcast system can incorporate other ventilation control devices including man doors and air locks into its design

Flexible design allows provision for changes in the floor profile with 9m adjustable swing hinged ramps

Easy attachment of formwork providing a backing for pneumatically spraying the wings and lips to seal the overcast to the strata

Minova provides both Gypsum and cement-based shotcrete for sealing the overcast to the roadway periphery

ADVANTAGES

Pneumatic operation removes the risk of injury that can be caused by manual operation.

Door interlock and motion alarms can be provided

No requirement for electricity at the installation site

Simple design and lower installation costs compared to hydraulic systems

Very low maintenance requirements

Easy to transport kits are available and include a control box and pneumatic cylinders.

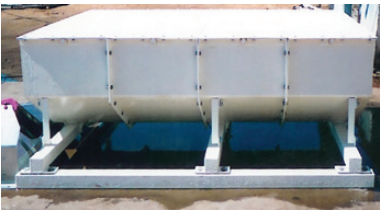
RELATED PRODUCTS



MAN DOORS are designed to be installed into sprayed stoppings with standard sizes of 1x1 metre or 1x 1.5m. Optional air-relief sliders designed to minimise jamming from debris.

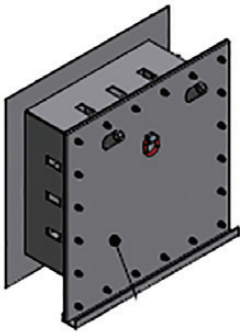
Man doors can also be designed as a louvre air regulator or as access through Minova's Flexistop flexible stopping.

Man doors are designed to be interchangeable on all Minova structures. Floor mounted man-doors are also supplied for Flexistop flexible stoppings.



COFFIN SEALS are designed to suit various belt sizes. These structures are easy to install with the main structure.

Coffin seals can be installed in situ as they can be broken down into component parts



ACCESS HATCHES are designed so that the doors can be shut while the operator is outside the hatch. Once the installation is complete and all the doors have been bolted shut, the hatch can be left for filling at a later time through filling ports.

Access hatches are available in various thicknesses to suit ventilation seal designs. The hatch is designed for an overpressure rating of 50 psi prior to concrete filling.



AIR LOCKS

A standard 5 psi air-lock has dimensions 3 m length x 2.0 m height x 1.5 m width with 1.5 x 1 meter man doors. Air-locks can be supplied as a flat pack unit for easy assembly on site or as fully assembled units.



CONSUMABLES

Minova is able to supply a variety of consumables ranging from telescoping stopping poles to water traps, pipes, depth gauges for spray thickness, Flexistop™ pipe manifolds and gas sample tubes. All inclusions such as water traps and inertisation pipes are galvanized.

VENTILATION SEALS

Minova ventilation seals can be individually designed to suit the strata conditions and roadway dimensions of most underground mines, and have been installed throughout coal mines globally for more than 20 years.

We offer a full underground roadway evaluation, and the subsequent design and contract installation of explosion rated plug seals. Our contract installed structures are fully rated and quality control tested to ensure construction is completed according to full design specifications.

Explosion rated Tekseal plug seals & Meshblock concrete seals have been extensively tested to withstand blast pressure of 20psi and 50 psi at the Lake Lynn test mine in the United States.

PLUG SEALS



Minova Plug Seals have been installed throughout coal mines globally for more than 20 years. Plug Seals are constructed using Minova's High Volume Grouts, FB200 and Tekseal, and can be designed for use in mines where seals experience roadway convergence.

ADVANTAGES

Rapid placement and quick strength gain

Rapid gelling quickly seals leakage paths

Proven history and suitable for a variety of ground conditions

Remote pumping of seals

SPRAYED PLASTER SEALS



Minova's Sprayplast ventilation seals require simple formwork with no steel reinforcement to construct a rated seal. From our comprehensive live testing program, suitable designs can be developed for almost any roadway size and rating.

ADVANTAGES

Rapid seal construction

Versatile designs

Water resistant

No requirement for accelerator

MESHBLOCK SEALS



Meshblock seals are constructed using the Minova Meshblock system, reinforced by a series of steel rebar anchored into the surrounding strata. The meshblock is subsequently filled with a specially designed concrete mix to form an effective explosion resistant coal mine ventilation seal, water and gas barrier.

ADVANTAGES

Explosion rated to 20psi and 50psi

Quality control tested and audited to ensure construction is completed according to design specifications

Low seal permeability as the concrete is poured into the Meshblock instead

VENTILATION STOPPINGS

We offer a range of rated and non-rated stoppings for any underground mine ventilation requirement. We offer a full underground roadway evaluation, and the subsequent design and contract installation of the required stopping. Our installed structures are fully rated and quality control tested to ensure construction is completed according to full design specifications. Rated man-door designs can be provided to suit customer requirements.

Devices available include Flexistop, rapidly installed flexible ventilation stoppings, and various sprayed structures using our Sprayplast, Rappass or Tekflex® products.

Explosion rated Flexistop stoppings have been extensively tested to withstand blast pressures of 2psi and 5psi at the Lake Lynn test mine in the United States. Explosion rated Sprayplast structures have been extensively tested to withstand blast pressures of 2psi and 5psi at the TestSafe Londonderry test chamber in Australia.

FLEXISTOP



Flexistop is a rapidly installed flexible stopping system designed by Minova. Fully tested and designed ventilation device capable of withstanding mine explosion overpressures of 2psi and 5psi. Offered as a complete supply and install option.

Successfully tested at NIOSH's Lake Lynn Experimental Mine, PA in the USA in November 2003.

ADVANTAGES

Enables rapid installation with between 2-4 stoppings installed per shift

Easily installed in high ventilation areas

Flexible structure and sealing system allows stopping to take significant convergence without affecting stopping integrity

Superior cloth strength ensures resilience to projectile damage

Explosion rated Flexistop stoppings have been extensively tested to withstand blast pressures of 2psi and 5psi at the Lake Lynn test mine in the USA.

SPRAYED PRODUCT



Sprayplast UW is used primarily in the construction of rated ventilation structures. It is a water-resistant plaster for locations where water is expected to impact the VCD.

ADVANTAGES

High build and high yield

High early strength development

Minimal respirable dust content

Natural product, gypsum product

Quickly self-supporting due to rapid set

Explosion rated Sprayplast structures have been extensively tested to withstand blast pressures of 2psi and 5psi at the Londonderry test chamber in Australia.



Tekflex is a cement-based spray material designed with excellent flexibility, high tensile strength and excellent adhesion qualities. Tekflex is impervious to gas and water making it an effective method of reducing leakage around VCD's.

ADVANTAGES

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High early strength development

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Quickly self-supporting due to rapid set

NEW SOUTH WALES

Kurri Kurri
Smithfield
Nowra

QUEENSLAND

Mackay

SOUTH AUSTRALIA

Adelaide

WESTERN AUSTRALIA

Perth

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