



AiR SHIELD

complete cabin air quality solutions

delivering clean, protected air for every operator, every shift.

ISO 23875 compliant



CO₂ & Pressure Monitoring

RS 20 compliant



High Efficiency Filter



Reduce occupation exposure



Brushless Variable Fan Motor



SIGMA

Why is Cabin Pressurisation important?

Cabin pressurisation is vital in mining environments to protect operator health and maintain equipment performance. By creating a controlled, positive-pressure environment, it prevents dust and contaminants from entering the cabin, ensuring cleaner air and reducing exposure to harmful airborne particles.

Effective pressurisation enhances operator comfort, supports long-term well-being, and keeps machinery running reliably even in the harshest conditions.

What is ISO 23875?

ISO 23875 is an international standard that specifies requirements for the quality of air inside operator enclosures (cabins) on mining equipment. Its goal is to reduce operators' exposure to airborne contaminants.

Why it matters?

The standard shifts the focus from simply installing an enclosed cab to demonstrating that the enclosure consistently protects the operator throughout its service life.

This means compliance depends not only on good design but also on proper maintenance, testing, and operation. In practice, ISO 23875 has become a benchmark for creating cleaner, healthier operator environments and reducing long-term occupational exposure to airborne contaminants in mining.

What is RS20?

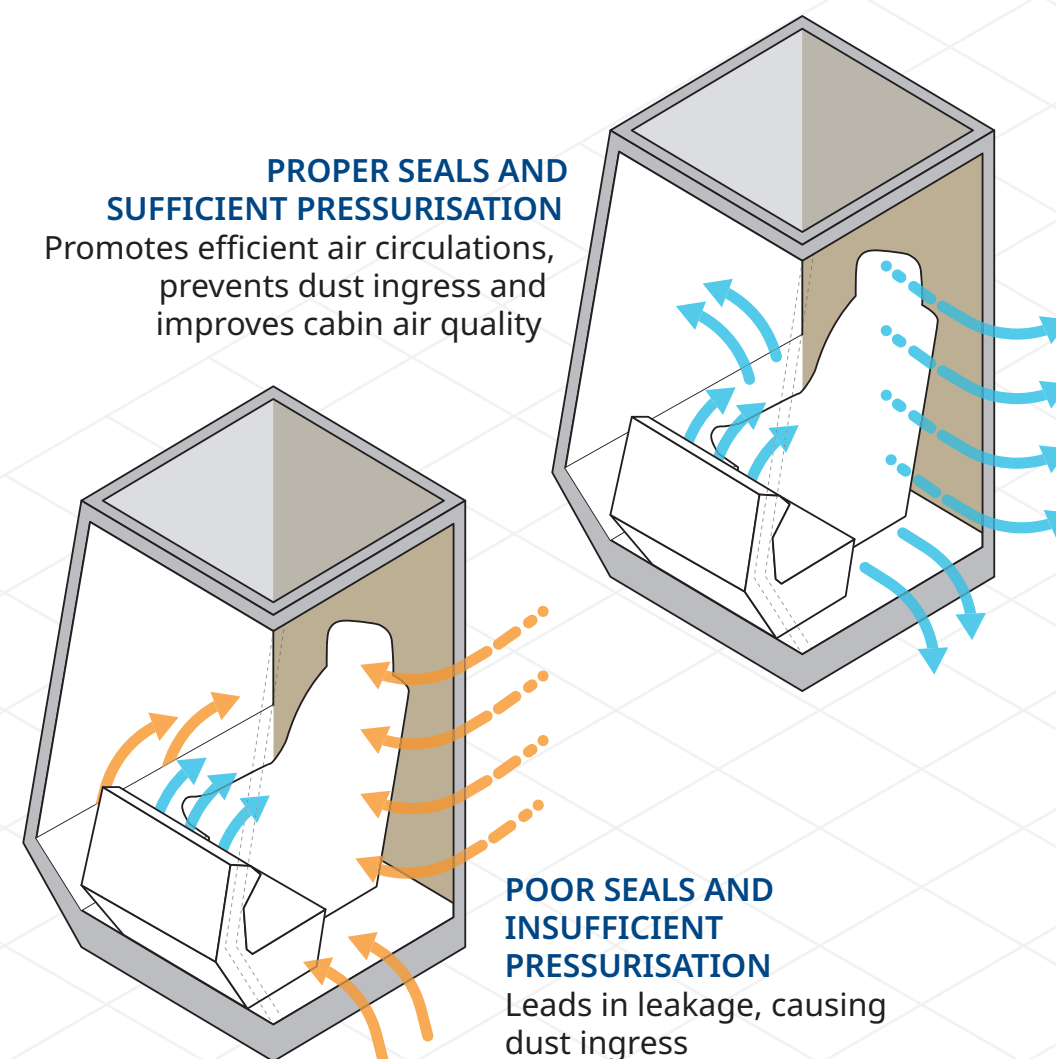
RS20 is the Queensland Resources Safety & Health guidance document "**Recognised Standard 20** – Dust Control in Surface Mines." It is issued under Queensland mining safety legislation and provides guidance on how mine operators can meet their legal obligations for managing respirable dust exposure.

Why it matters?

It provides Queensland surface mines with a recognized framework for managing respirable dust and protecting workers from serious occupational lung diseases such as black lung and silicosis.

It translates legal health and safety obligations into practical expectations for dust control, including engineering controls, equipment maintenance, monitoring, and enclosed operator cabins. It sets the "what" the health and safety outcomes mines should achieve.

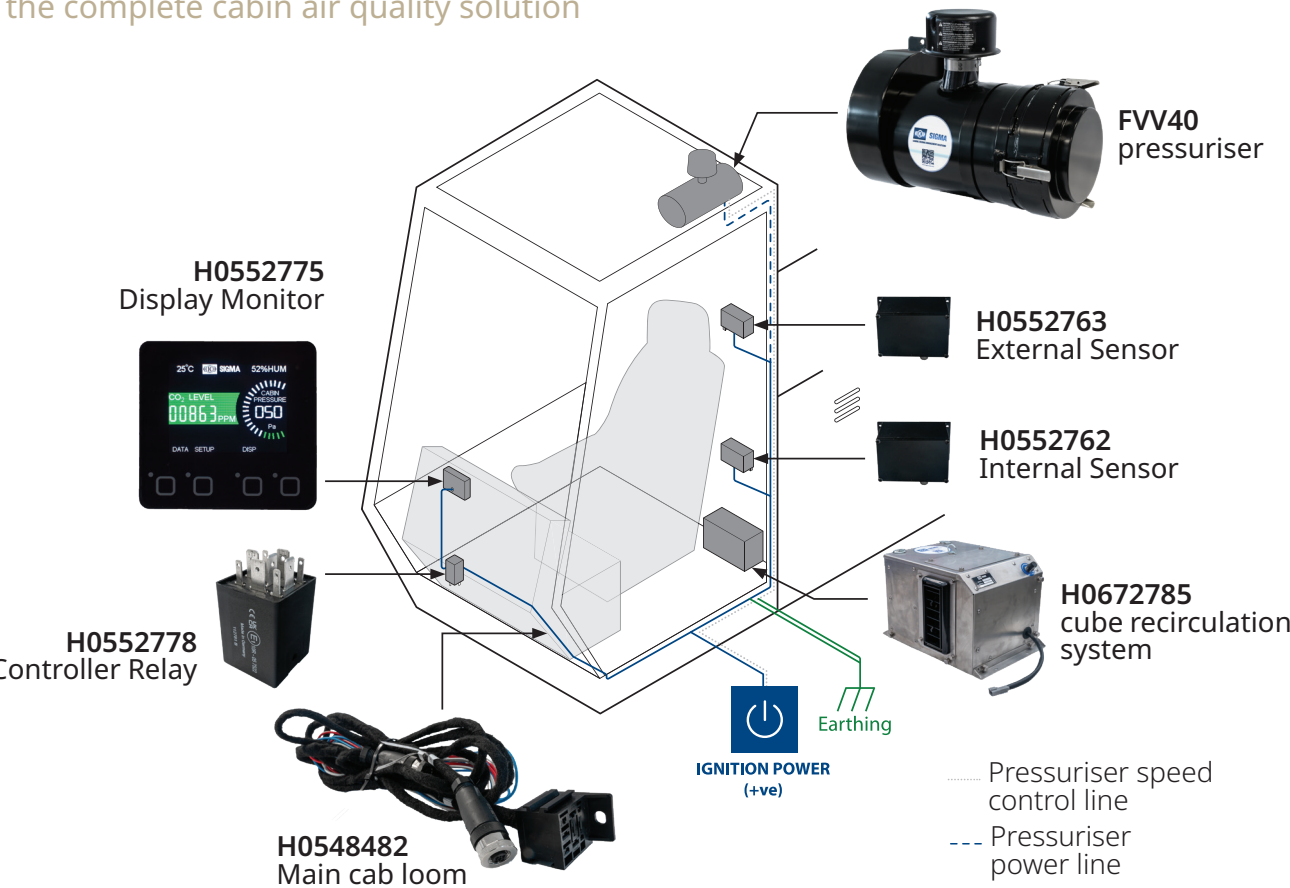
PROTECT YOUR OPERATOR REDUCE OCCUPATION EXPOSURE





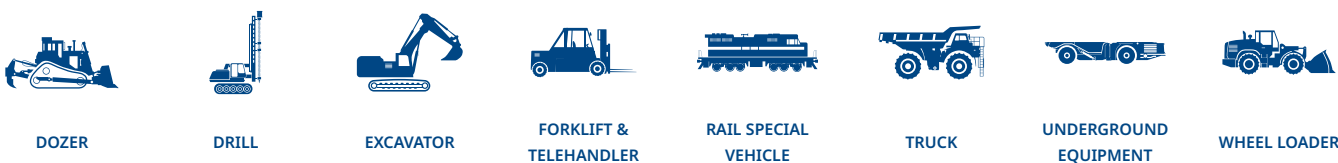
ISO 23875 compliant

the complete cabin air quality solution



- ✓ **Monitor CO₂ Levels**
Monitor system display visual & audio alarm at pre-set levels.
- ✓ **Fresh & Recirculation System Efficiency**
Recirculation and fresh air filter enables efficient removal of harmful particles out of the cabin to meet ISO 23875 in a complying cabin.
- ✓ **High Efficiency Filter**
H13 HEPA filter upto 99.95% efficient at MPPS.
- ✓ **Pressurization**
Maintain a continuous stage of positive pressure (20Pa to 200Pa) in the cabin to avoid ingress of external particulates and contaminants.
- ✓ **Real-Time Monitoring**
Always-on sensors measures cabin air pressure and CO₂ levels and allows the operator to monitor in real time the operating conditions or air quality condition inside the cabin.
Data is available on CAN network to link up to central monitoring system.

Applications



Key benefits

- Ensure operator safety
- Reduce total cost of ownership
- Easy to install & user-friendly
- Increase productivity
- Extend overall machine life
- modular & compact footprint

H0552775

12V/24V CO₂ and cabin pressure monitor



- Cabin Display**
- CO₂ level in PPM
 - Cabin Pressure in Pa & "WC
 - CAN bus connectivity

SPECIFICATIONS

	DISPLAY	SENSOR	CONTROLLER
Operating voltage	9-32 V	8-32VDC	9-32V
Current Draw	0.6mA (at 12V) 0.7mA (at 24V)	45mA (at 12V) 90mA (at 24V)	35mA (at 12V) 40mA (at 24V)
Environmental protection	IP 6K8 for variant with NMEA plug	-	IP 6K8 (watertight socket is used)
CO ₂ sensor	-	0 to 5000 ppm	-
Temperature and Humidity sensor	-20°C to 60°C	-40°C to 70°C 0 to 100%RH	-40°C to 85°C
Pressure	-	0 to 500Pa	-
Weight	100g (3.5oz)	450g (15.9oz)	28g (1.0 oz)
Dimensions (L X W X H)	74mm x 40mm x 70mm (2.9in x 1.6in x 2.8in)	96mm x 46mm x 90mm (3.8in x 1.8in x 3.5in)	30mm x 30mm x 52mm (1.2in x 1.2in x 2.0in)

FVV40

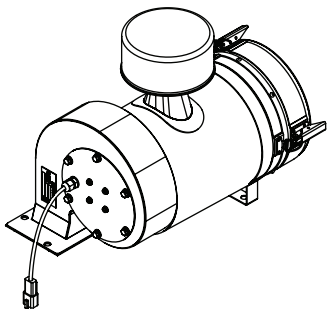
Brushless variable fan motor pressuriser



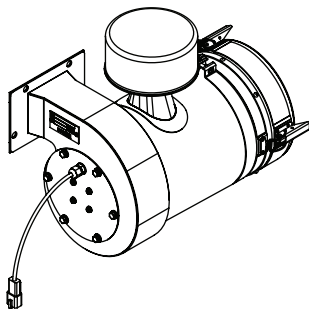
SPECIFICATIONS

	METRIC	IMPERIAL
Fan Speeds	variable	variable
Air Flow (H13 HEPA)	35 l/s	74 CFM
Air Flow (F7 FILTER)	40 l/s	84 CFM
Power Supply	24V	24V
Current Draw	2.5A	2.5A
Weight (nominal)	8.0 Kg	17.6 lbs
Dimension (L X W X H)	409mm X 226mm X 327mm	16.1in X 8.9in X 12.9in

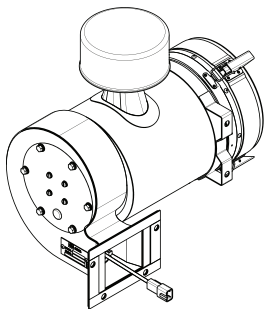
ORIENTATIONS



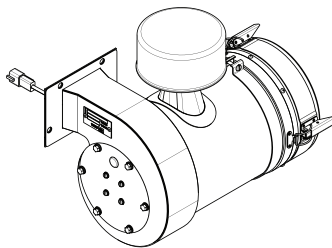
H0481841
Fresh Air Pressuriser,
ROOF MOUNT



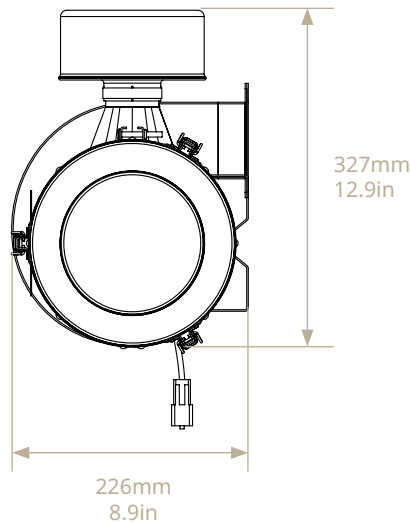
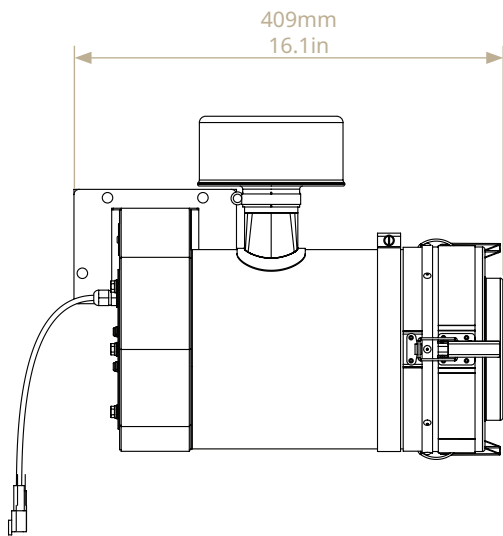
H0614665
Fresh Air Pressuriser,
WALL MOUNT



H0673983
Fresh Air Pressuriser,
WALL MOUNT 270



H0673984
Fresh Air Pressuriser,
WALL MOUNT



H0672785

Brushless Air Recirculation System



SPECIFICATIONS

	METRIC	IMPERIAL
Fan Speeds	Continuous Variable	Continuous Variable
Air Flow	35 - 70 l/s	74 - 148 CFM
Power Supply	24 VDC	24 VDC
Current Draw	5.8 A	5.8 A
Weight (nominal)	9.5 Kg	20.9 lbs
Dimension (L X W X H)	257 mm X 360 mm X 252 mm	10.1 in X 14.2 in X 9.9 in

MOUNTING OPTIONS

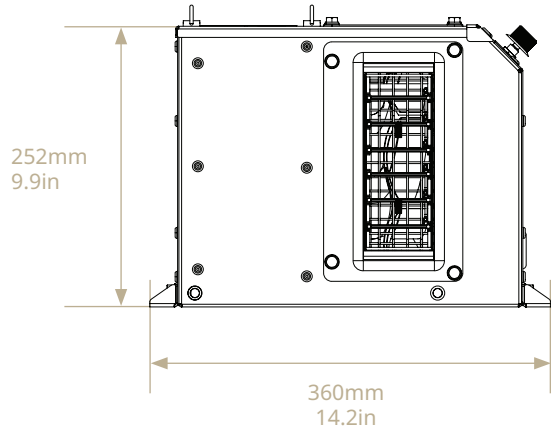
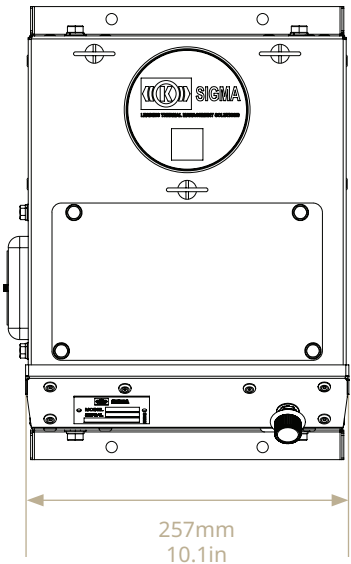
Floor-mounted



Wall-mounted



customisable
top or side blowing
diffuser



SIGMA AIR

Merak HVAC Australia Pty Ltd

23-29 Factory Street

Granville NSW 2142

Australia

Phone: 1300 643 643

www.sigma-hvac.com

www.merak-hvac.com

