Dräger Mine Refuge Chamber—MRC 5000
Innovative, portable life support system

Looking for ways to increase the safety of your work environment? An underground emergency chamber is a key part of any mine rescue plan. The Dräger Mine Refuge Chamber (MRC 5000) answers the need for a cost effective, high quality chamber. Backed by expert Dräger service and support, the MRC 5000 is a safe haven of escape from contaminated air.

Extreme conditions call for extreme safety

Today's mines are getting deeper and travel distances are growing longer for miners, which challenges mine rescue plans. To protect miners from dangerous conditions, you need an underground emergency chamber you can trust. The Dräger MRC 5000 is a safe haven that will help you reduce risks and protect one of your most critical assets: your people.

Well-integrated life support system

The MRC 5000 is designed by Dräger inside and out—from the seal-welded steel structure and breathing air system, to the soda lime cartridges and gas detection devices. Because we design and build most of the individual components, we are able to create a well-integrated, technically advanced life support system.

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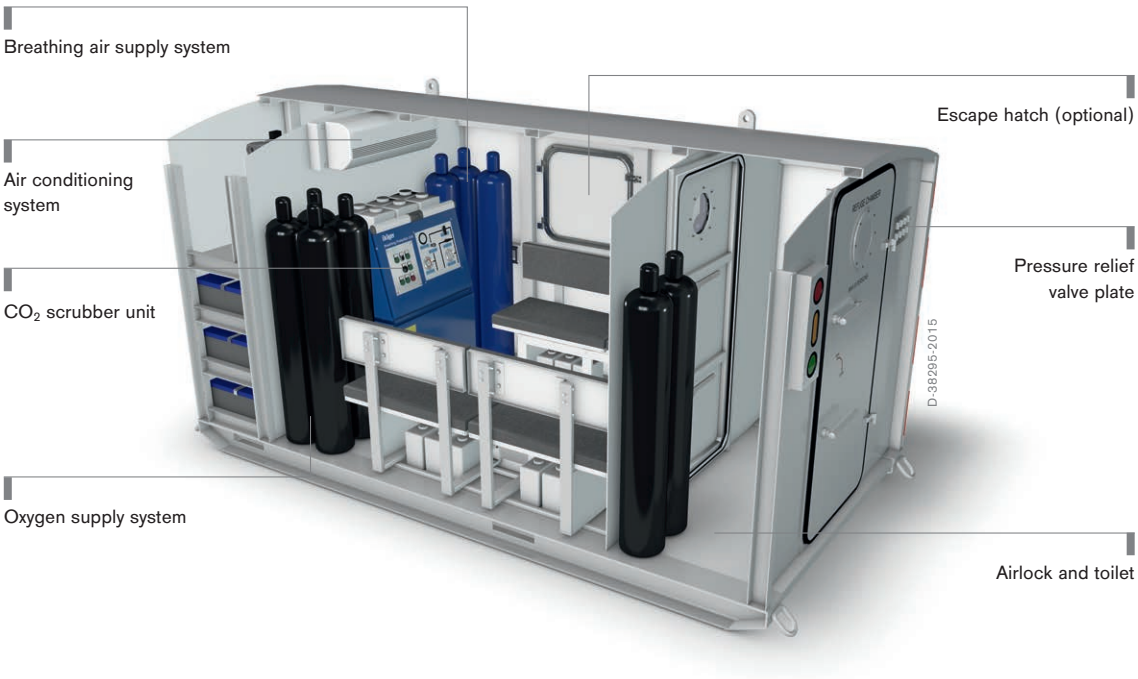
Have special requirements? Talk to us about our custom chambers.

In addition to the MRC 5000, Dräger can design and build customer-specific solutions. We have global engineering capabilities and extensive mine rescue expertise based on more than a century of real-world experience. As a result, Dräger is the single source for all underground emergency chamber needs—regardless of the situation.

Stay safe in dangerous situations



Benefits

Integrated systems create a safe environment

Several systems work together in the chamber to provide a safe breathing environment. The MRC 5000 has positive pressure protection and a reliable air supply system. A gas-tight door prevents contaminated air from entering the chamber.

The unique Dräger Airlock has an air purging system that dilutes any contaminated air that enters the Airlock. This allows people to enter or leave the chamber multiple times, while minimizing the risk of noxious gas and smoke ingress to the main chamber.

Dräger gas detection systems continually monitor the air inside the chamber, which allows occupants to make adjustments to the system depending on the values of CO_2 and O_2.

Breathing air regeneration system and power backup systems

The MRC 5000 is a self-sufficient underground emergency chamber and does not depend on external air or power supplies to keep occupants safe. The air inside the chamber is regenerated by the CO_2 scrubbing process in the breathing air regeneration system.

The Dräger Breathing Protection Unit (BPU) has a dedicated battery backup system, and each fan works independently and can be adjusted according to the number of occupants. Oxygen is added from high pressure cylinders to replenish oxygen levels.

Multigas monitors inform occupants when adjustments are required to the oxygen supply and CO_2 scrubbing functions. Power is supplied from a maintenance-free battery backup system which, together with the inverter/charger system, ensures continuous power for up to a minimum of 24 hours (extended times are optional). The air conditioning system keeps the chamber's interior temperature and humidity at comfortable levels.

Automatic positive pressure lets miners breathe easy

The chamber can be connected to an external air supply. Oils, water and small particles are filtered from the air. As long as the external supply is operating, the chamber works in externally supported mode.

A constant positive pressure of between 150 and 200 Pa in the chamber prevents contaminated air from entering the main room. This safety feature is automatically sustained and controlled by the Dräger Breathing Protection Unit (BPU).

Gas detection technology for monitoring and alarm activation

Dräger's proprietary gas detection equipment continuously monitors the internal atmosphere for the presence of CO_2 and CO, as well as O_2 levels. If gas concentrations fall outside pre-set limits, audible and visual alarms warn occupants so they can adjust systems and maintain a safe atmosphere.

In addition, a fixed external gas monitoring system that measures the CO and O_2 concentrations outside of the chamber and displays results inside the chamber can be installed as an option.

MRC 5000 Application Scenarios

Benefits

Soda lime cartridges eliminate exposure to soda lime dust

Carbon dioxide (CO_2) is removed (scrubbed) from the interior air by easy-to-use Drägersorb® soda lime cartridges, which eliminate direct contact with soda lime dust. Simply remove the caps, break the foil seals, and insert the cartridges into the top of the Breathing Protection Unit (BPU). This pour-free scenario eliminates the possibility of soda lime dust exposure in a small space.

Third-party approved electrical system supports safety

The electrical system for the MRC 5000 includes batteries for all electrical functions, the air conditioning system, and green and red external status lights.

Benefits

Communication system supports fast rescue

To keep the lines of communication open during an emergency, Dräger can install whatever communication system you supply and seal all required cabling that is required outside of the main room.

Ease of use helps avoid operator error

At Dräger, we understand that ease of use is most critical in times of emergency. That's why our innovative automation technologies and in-depth training videos support the intuitive use of the MRC 5000. In an emergency, occupants can activate the chamber step-by-step by following the plan illustrated on labels and signs inside the chamber.

Designed for portability

Sleigh-type skids, forklift slots, and lifting lugs make it safe and easy to transport the MRC 5000 around the mine. Plus, the MRC 5000 can be fitted with wheels to support easy transport inside and outside the mine. We also offer 4 and 6-person chambers that are highly portable and can be fitted with transport attachments such as a towing hitch.

Expert service and support for peace of mind

Dräger stands behind the MRC 5000 every step of the way. We offer professional consultation to make sure the chamber will meet your specific needs. From concept development to installation and complete implementation, we act efficiently and productively as a general contractor.

Our worldwide service network ensures that we can be onsite quickly for all your maintenance and repair needs. Dräger can also stock all required consumables and spare parts, such as soda lime cartridges, filters, and gas detection components, including sensors.

In-depth training comes standard

Instructions for Use (IFU) for the MRC 5000 are available digitally, giving you fast access to the necessary information. Dräger also offers expert training for your staff. In addition to hands-on training, we offer customer training materials, including videos and classroom presentation materials.

Rental and flexible finance options

Owning an MRC 5000 is easy. You can either buy or rent this affordable chamber. If you choose to buy, Dräger offers flexible finance options.

Why Dräger?

Ever since mine rescuers were first called Drägermen, the name Dräger has been synonymous with mine safety. Dräger has more than 100 years of experience providing products to the mining industry. We have extensive expertise in respiratory protection technology and configuration of underground safety solutions.

Our products are used in all aspects of the mining process—from daily use to emergency situations. Dräger's extensive portfolio of safety and mining products includes portable gas detection, stationary gas detection, thermal imaging cameras, breathing protection, self-rescuers, life support systems, test equipment, and breathing gas supply.

In short, Dräger is in the life support business: we design, build and manufacture life support solutions—not just products.

SI-4904.2005

Dräger MRC 5000 Technical Specifications

Number of occupants	8, 12, 16, 20
Dimensions (H x W x L)	8: 2.16 x 2.07 x 4.50 m (7'1" x 6'10" x 14'9") 12: 2.16 x 2.07 x 5.50 m (7'1" x 6'10" x 18") 16: 2.16 x 2.07 x 6.45 m (7'1" x 6'10" x 21'4") 20: 2.16 x 2.07 x 7.50 m (7'1" x 6'10" x 24'8") Air lock: 2.16 x 2.07 x 1.02 m (7'1" x 6'10" x 3'4")
Weight (including Airlock)	8: 5,500 kg (12,000 lb.) 12: 6,450 kg (14,300 lb.) 16: 7,350 kg (16,200 lb.) 20: 8,700 kg (19,200 lb.)
Temperature range	0°C to 45°C (32°F to 113°F)
Electrical supply	230V to 60Hz; step-down transformer (optional) changes the incoming voltage (up to 1,000 volts) to 230 volts AC, 50–60Hz
Positive pressure	Minimum 100 Pa
Duration	24/36 hours or greater if required
Steel structure	6mm single wall, I-shaped skid, hinges, lifting lugs and forklift pockets for transport, cylinder brackets
Paint	Exterior: white corrosion-resistant epoxy Interior: white chemical-free, water-based
Electrical system	Batteries, AC unit, external status lights, input connection (230V/60Hz), CSA-approved: meets CAN/CSA 22.2 No. 14 standard for low voltage distribution and control; other approvals available if required
Oxygen supply	Dosage for oxygen
Breathing air	Dräger Breathing Protection Unit (BPU), Drägersorb® soda lime cartridges, automatic positive pressure
Gas detection	Internal: 3 Dräger Pac® 7000 (portable; CO_2, CO, O_2)
Monitoring system	Customization is available
Accessories	Chemical toilet with curtain
Labelling	Activation instructions, English
Documentation	Instructions For Use (IFU), wiring diagram, spare parts list, rigging instructions, troubleshooting checklists, periodic test and inspection procedure

Options

Steel structure	50 mm insulation with 3 mm steel plate inside, escape hatch
Paint	Green and red (external)
Electrical system	Step-down transformer (input voltage up to 1,000 volts), siren, additional lights
Oxygen supply	Oxygen cylinders: may be supplied by Dräger or the customer (to meet local connection needs)
Breathing air	LP filter unit with noise reducer, CO catalyst
Gas detection	Internal: Dräger X-am® (portable; CO_2, CO, O_2) Polytron 5000 (fixed; CO_2, CO, O_2) External: Polytron 8000 (fixed; CO_2, CO, O_2); displays results inside chamber
Accessories	Stretcher, fire extinguisher, first aid kit, water, wheel system, connection point for mine communication devices

Notes

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