



Coal Mining Range

Intrinsically safe health and safety solutions for the underground coal mining industry.



MineARC Systems - Built for Safety.

www.minearc.com


mineARC
SYSTEMS

Company Profile

MineARC Systems is the global leader in the manufacture and supply of emergency safe refuge solutions for the mining, tunnelling, chemical processing and disaster relief industries.

With 20 years' experience, our dedication to ongoing research and development is driven by our key focus to continually offer the best and most advanced safety solutions on the market.

Our team of qualified engineers, electrical designers and technical experts form a global network across several international locations including;

- Perth, Western Australia
- Johannesburg, South Africa
- Dallas, Texas
- Santiago, Chile
- Beijing, China
- Hamburg, Germany
- Guanajuato, Mexico

This allows MineARC to provide 24 hour service and engineering support to our expanding list of clients in over 60 countries across the globe.

All MineARC Refuge Chambers and Safe Havens comply with the highest international regulations and recognised 'world's best practice' industry guidelines. Our key focus on quality control and product advancement has meant that MineARC Refuge Chambers have successfully saved lives in multiple real life industrial emergencies around the globe.

www.minearc.com



TRC ISO 9001:2015 Quality Management Systems
 API 753 Management of Hazards Associated with Location or Process Plant Portable Buildings
 2009 ASCE Design of Blast Resistant Buildings in Petrochemical Facilities
 BakerRisk Blast Assessment Third Party Testing



Voluntary Protection Programs Participants' Association
 National Safety Council
 Canadian Standards Association (CSA)
 Quality Management System (QMS)
 United States National Electrical Code



Global Supply Chain Risk Management Solutions
 Contractor Management Services
 Contractor and Supplier Management
 Mine Safety and Health Administration

CoalSAFE International High Seam

Engineered to withstand the hazards associated with working in a blast, toxic, or flammable zone.



CoalSAFE IHS Standard Configurations

In consultation with the world's leading mining companies and regional mining authorities, MineARC Systems has designed and engineered the CoalSAFE International High Seam Refuge Chamber range to suit the underground coal mining environment. Refined over a number of years, the CoalSAFE's intrinsically safe design provides miners with optimum safety features, functionality and performance.

Standard configurations are available based on occupancy – from 12 to 20 people - with each model engineered for maximum durability and manoeuvrability, both above and below ground.



CS-IHS2-16-IS-48

Ultimately CoalSAFE chamber dimensions and rated occupancy can be custom-engineered to site specifications, without compromising on safety or performance.

Special transport configurations include narrow builds specifically tailored for shaft mines or modular builds, allowing a complete refuge chamber to be split into smaller sections before being transported and then reassembled underground.

Standard Models



CS-IHS1-12-IS-48
with airlock
(12 Person)



CS-IHS2-16-IS-48
with airlock
(16 Person)



CS-IHS3-20-IS-48
with airlock
(20 Person)

Custom dimensions and occupancies available. Refuge dimensions are ultimately designed to client specifications. Standard models based on International high seam mine specifications and 48 hour occupancy.

CoalSAFE IHS Exterior - Front

The 'face' of the CoalSAFE Refuge Chamber is designed primarily for easy identification and quick access during an emergency. The reflective signage alerts passers-by to the chamber's location, whilst the interlocking rotating door handles provide simple, straight forward access to the safety of the interior airlock.

The CoalSAFE has been engineered to ensure ease of transport and robust design. Constructed from explosion resistant steel plate with external support wraps and surround package as standard, the refuge can withstand in excess of 5psi overpressure with no permanent damage. Push points, forklift slots and towing and lifting eyes are provided top and bottom on front and rear.



PROTECTED WARNING SIGNALS

- Air powered trumpet siren
- Battery flasher warning light

AIR VENTS



ROTATING HANDLES

- Double locking

12MM PORTHOLE WINDOW

- AS 2208
- Blast resistant upon request

REFLECTIVE SIGNAGE

- Safety & operational
- Optional extra: Multiple languages

SEALING DOOR

- Outward opening
- Vacuum tested seal

SKID BASE

- 250 x 100mm forklift slots
- Front and rear mounted tow points
- Front mounted 25mm steel plate push blocks

CS-IHS2-16-IS-48

CoalSAFE IHS Interior

Inside the MineARC CoalSAFE International High Seam Refuge Chamber, a number of vital systems combine to create a safe, ongoing environment for occupants.

The MARCis is the chamber's innovative, intrinsically safe life-support system; providing both powerless CO/CO₂ scrubbing and airconditioning. Utilising a sequential operating procedure, MARCis can be activated in less than 60 seconds during an emergency.

Carbon Dioxide & Carbon Monoxide Scrubbing

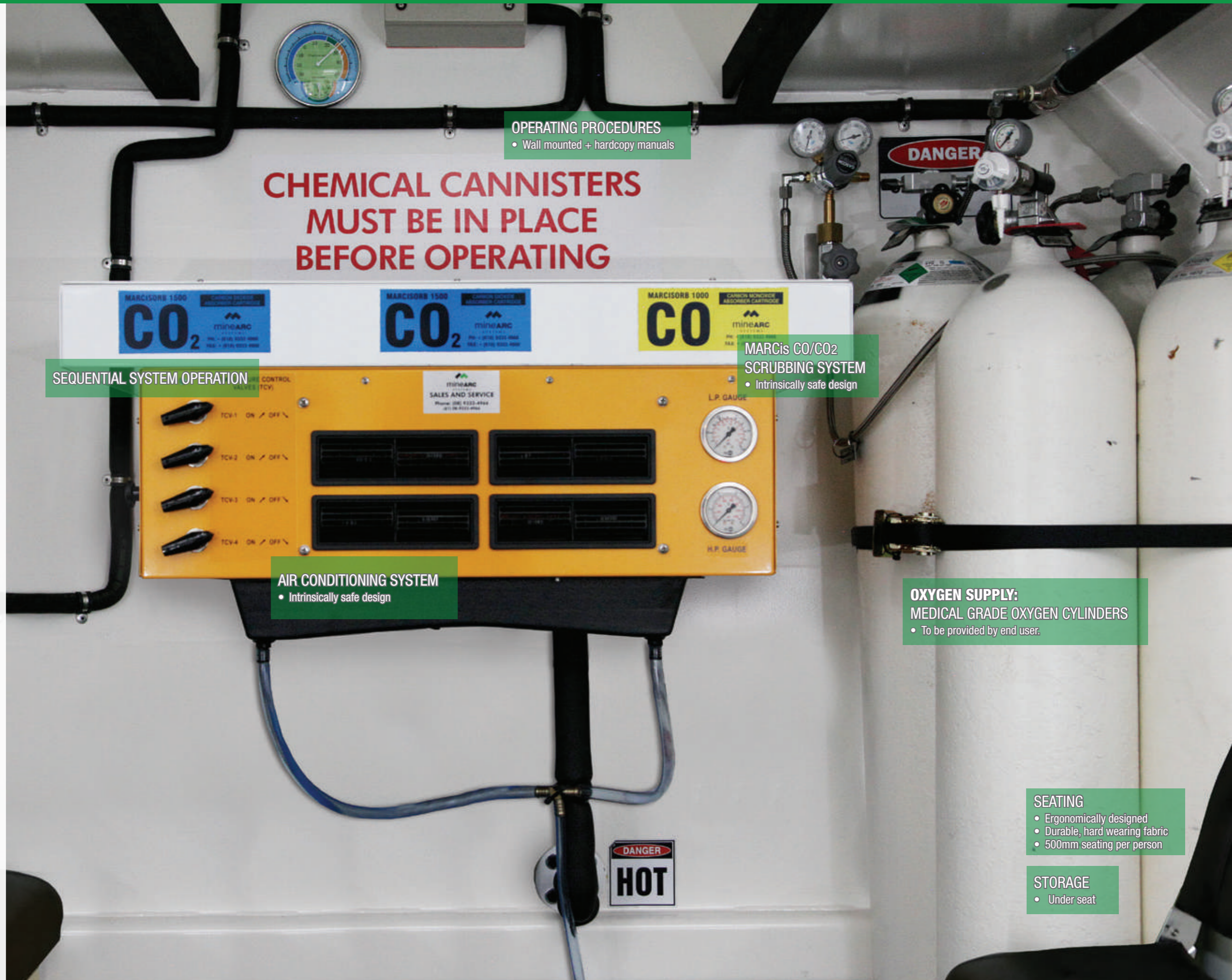
The MARCis Carbon Dioxide (CO₂) and Carbon Monoxide (CO) Scrubbing System does not require any electrical power to operate. The active chemical scrubbing system is designed to clean the air of these harmful gases and toxins that build up over time within a sealed, occupied environment.

MARCISORB CO₂ and CO Chemical Cartridges provide proven chemical scrubbing capabilities and are easy to handle. The cartridges will store efficiently for long periods of time without degradation or requiring any maintenance.

Intrinsically Safe Air-Conditioning

Independent testing has verified that a cooling system is essential for combating the potentially fatal effects of metabolic heat build-up inside the refuge. To maintain the internal atmosphere of the CoalSAFE, the MARCis incorporates a non-electrical air conditioning system that both cools and dehumidifies the refuge.

International regulations state that manufacturers must specify the maximum mine air temperature under which the refuge is designed to operate when fully occupied, whilst maintaining an internal apparent temperature of 35°C.



OPERATING PROCEDURES
• Wall mounted + hardcopy manuals

**CHEMICAL CANNISTERS
MUST BE IN PLACE
BEFORE OPERATING**

SEQUENTIAL SYSTEM OPERATION

**MARCis CO/CO₂
SCRUBBING SYSTEM**
• Intrinsically safe design

AIR CONDITIONING SYSTEM
• Intrinsically safe design

**OXYGEN SUPPLY:
MEDICAL GRADE OXYGEN CYLINDERS**
• To be provided by end user.

SEATING
• Ergonomically designed
• Durable, hard wearing fabric
• 500mm seating per person

STORAGE
• Under seat

CoalSAFE IHS Airlock

A major feature of the CoalSAFE is a fully pressurised internal airlock, designed to act as a secure staging area between the outside environment and the enclosed protection of the refuge chamber.

The airlock features a pneumatic flushing system that ensures the out-flow of air; preventing the ingress of contaminants while the door is open for entry.



Integrated into the main shell of the CoalSAFE, the internal airlock provides a seamless entry way into the main chamber, while retaining portability of the unit as a whole. This also ensures coherent structural integrity and protection across the refuge chamber.

The CoalSAFE airlock provides additional storage for items such as first aid equipment, stretchers, human waste disposal, lighting and emergency food rations. It can also be utilised as refuge space for occupants once all personnel have entered the chamber.

MineARC offers a range of airlock options and custom features, dependent on site specifications and requirements.

Cylinder Rack and Storage

High pressure cylinders used to power the CoalSAFE's life support systems are stored securely in cylinder racks integrated into the rear of the refuge chamber.

Note: Cylinders are to be provided by the end user.



CoalSAFE IHS Exterior - Rear



LIFTING LUGS

EMERGENCY ESCAPE HATCH

- Inward opening
- Accessible internally and externally
- Neoprene memory seal

PAINT

- AS/NZS 2312:2002
- Sand blasted to 2.5 grit

REFLECTIVE SIGNAGE

- Safety & operational
- Optional extra: Multiple languages

AIR VENT / CHECK VALVE

SKID BASE

- 250 x 100mm forklift slots
- Front and rear mounted tow points
- Front mounted 25mm steel plate push blocks

CS-IHS2-16-IS-48

CoalSAFE IHS Options



Compressed Air Filtration System

The MineARC compressed air filtration system is a dedicated air management unit designed specifically for MineARC Refuge Chambers.

The compressed air system offers a four-stage filtration method, ensuring that contaminants are thoroughly removed and the air entering the chamber is suitable for breathing.

- Four stage filtration: water separation, pre-filter, coalescing and absorption
- Flood protection valve for automatic mine air shut off in the event of water ingress
- Intrinsically safe operation
- Easier installation and faster service time

Thermal Insulation

As an optional feature, the internal walls of the CoalSAFE Refuge Chamber can be fitted with a thermal insulation barrier to help limit external heat transfer to the internal environment, and can withstand temperatures in excess of 500°C.

Blast Protection

MineARC offers two levels of increased blast protection available as an upgrade to the CoalSAFE International High Seam.

Level One: Blast Shield Protection

Structural additions to the chamber in order to provide blast shield protection for susceptible components. This added protection prevents damage to areas of the chamber that either provide life support or components that, if damaged, will compromise the breathing integrity of the chamber (such as the portal window).

Level Two: Blast Rating Upgrade

MineARC utilises highly specialised materials and engineering techniques to build chambers that can withstand the concussive forces of extreme blasts and explosions within heavy industry. Through careful analysis of a site's application and hazard assessment, MineARC can engineer a highly customised refuge chamber or safe haven to meet their specific blast rating requirements.

The CoalSAFE International High Seam Refuge Chamber offers a 5psi blast rating as standard, however can be upgraded to a rating as high as 12psi through the use of additional upright and lateral stiffeners and reinforcement to the chamber walls.

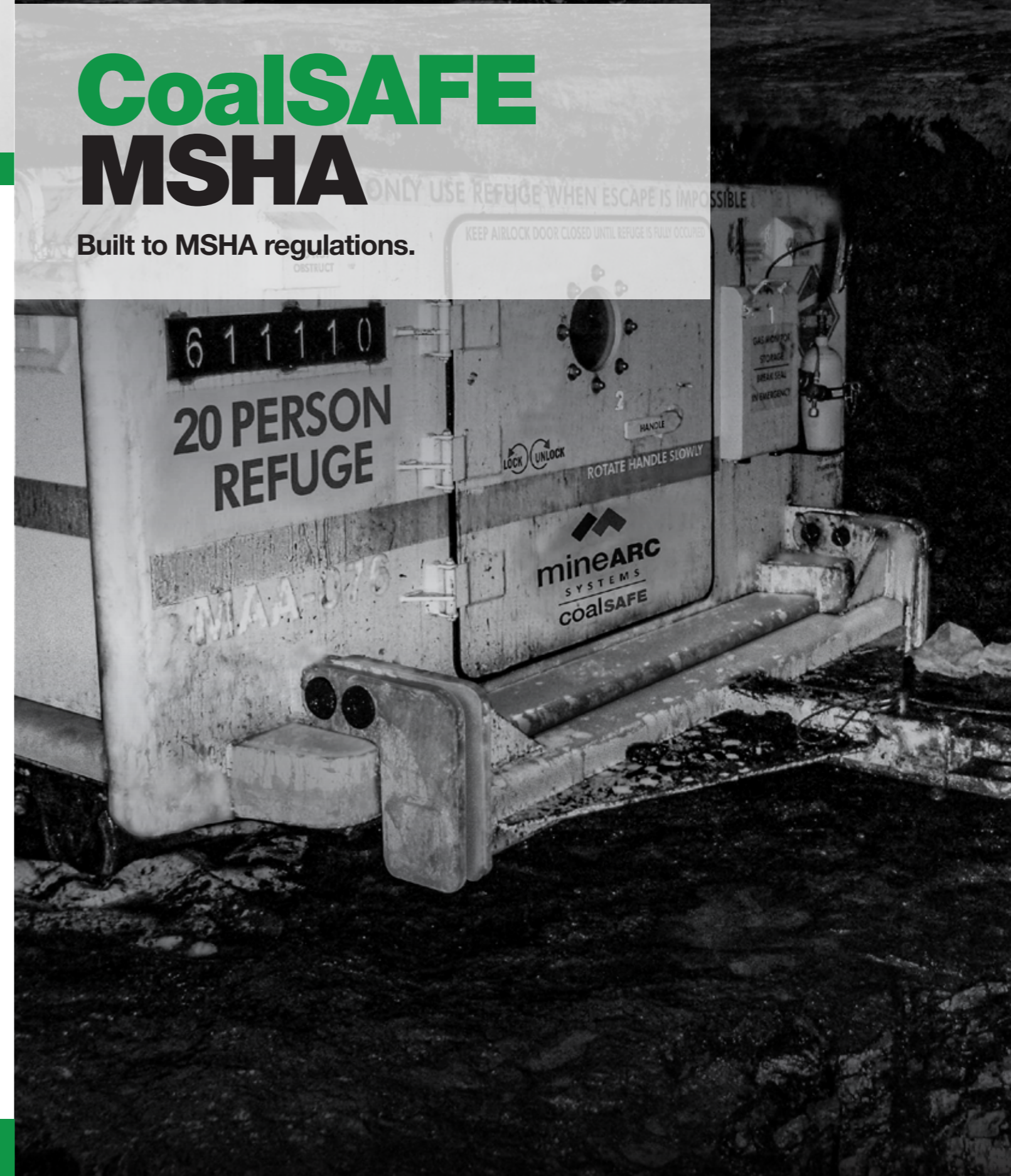
Custom Design

MineARC has the in-house capabilities to custom design a CoalSAFE Refuge Chamber that meets any individual site-specific requirements. Each client's mine layout, transport and handling, emergency response procedures, and risk management needs are thoroughly investigated, in order to provide a unique and flexible solution.

Engineering drawings and models are generated and reviewed in consultation with each client prior to fabrication, ensuring that the product is used to its full potential and that the client's goals and objectives are met.

CoalSAFE MSHA

Built to MSHA regulations.



CoalSAFE MSHA Refuge Chambers

ONLY USE REFUGE WHEN ESCAPE IS IMPOSSIBLE

AIRLOCK CAPACITY - 4 PERSONS MAXIMUM

LOCK UNLOCK

ROTATE HANDLE SLOWLY

mineARC
SYSTEMS
coalSAFE

GAS MONITOR
STORAGE
BREAK SEAL
IN EMERGENCY

NON-FLAMMABLE GAS
2

All MineARC CoalSAFE MSHA Refuge Chambers are approved in the United States by the West Virginia Office of Miners' Health, Safety & Training and built to the Mine Safety & Health Administration (MSHA) Federal Regulations '30 CFR Refuge Alternatives for Underground Coal Mines'.

CoalSAFE MSHA Refuge Chambers features an innovative, intrinsically safe life-support system that is unique to MineARC Systems; providing both powerless CO/CO₂ scrubbing and air-conditioning. Utilising a

sequential operating procedure, the intrinsically safe system can be activated in less than 60 seconds during a coal mining emergency.

The CoalSAFE has been engineered to ensure ease of transport and robust design. Constructed from explosion resistant steel plate with external support wraps and surround package as standard, the refuge can withstand in excess of 15psi overpressure with no permanent damage. Push points, forklift slots and towing and lifting eyes are provided top and bottom on front and rear.



CSLS-24-44119
(24 Person)

CoalSAFE MSHA Low Seam

The CoalSAFE MSHA Low Seam Refuge Chamber is designed for underground coal mines with a minimum seam height of 46" (1.2m). The refuge chamber can be custom designed to client specifications, but typically features 12, 16, 20 and 24 person configurations.

Due to the height restrictions of low seam operations, the CoalSAFE MSHA Low Seam Refuge Chamber features a secure, separately transportable External Cylinder Bay (ECB) to house the oxygen and liquid CO₂ cylinders required to power the refuge's internal life support systems.



CS-20-54119
(20 Person)

CoalSAFE MSHA Mid Seam

The CoalSAFE MSHA Mid Seam Refuge Chamber is designed for underground coal mines with a minimum seam height of 56" (1.4m). The refuge chamber can be custom designed to client specifications, but typically features 8, 12, 16 and 20 person configurations.



CS-24-72119
(24 Person)

CoalSAFE MSHA High Seam

The CoalSAFE MSHA High Seam Refuge Chamber is designed for underground coal mines with a minimum seam height of 74" (2.2m). The refuge chamber can be custom designed to client specifications, but typically features 12, 16, 20 and 24 person configurations.

CoalSAFE MSHA Features

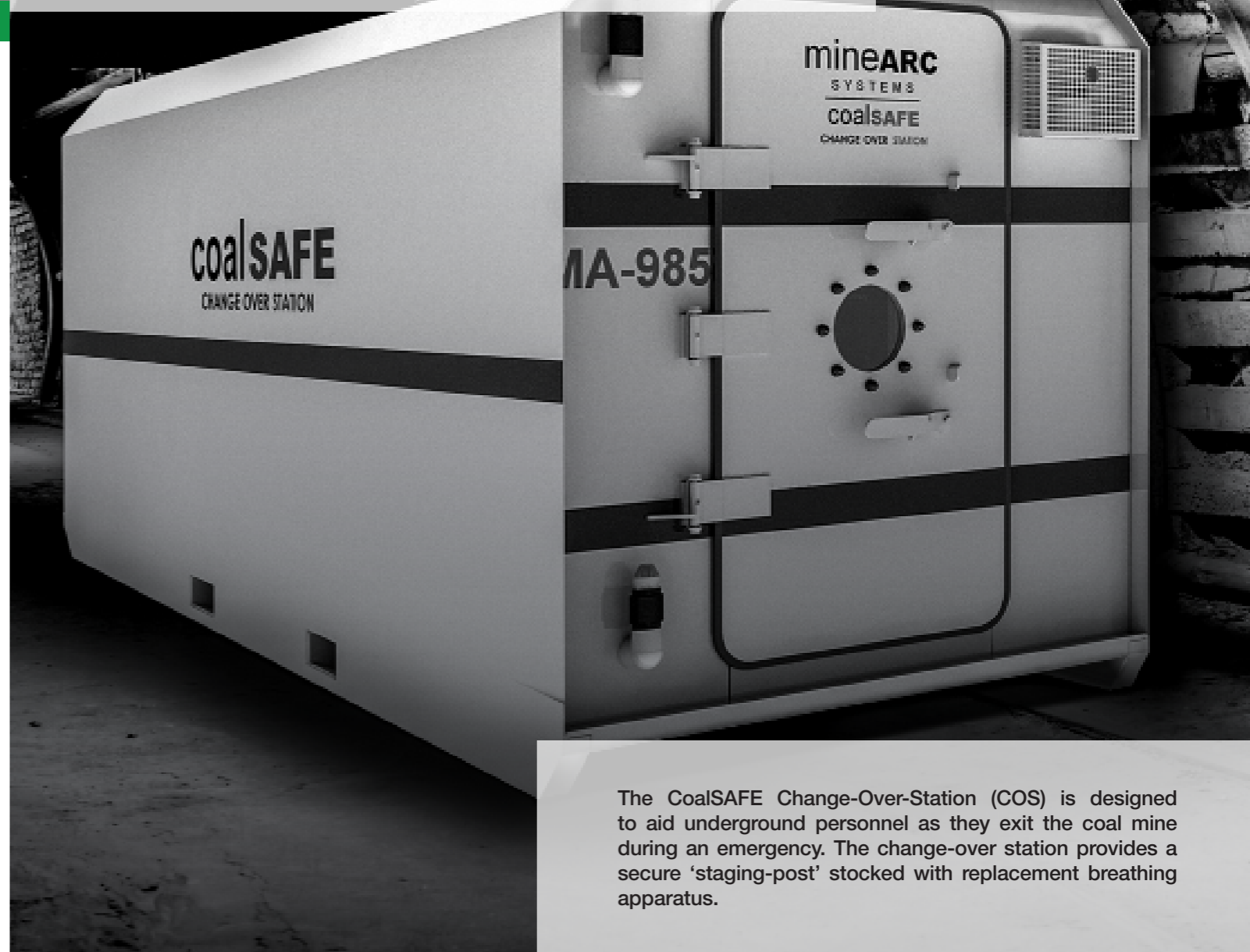


Standard Features

- ✓ Intrinsically Safe Design
- ✓ Blast Rating: 15psi
- ✓ CO & CO₂ Scrubbing
- ✓ Breathable Air (O₂) Supply
- ✓ Fully Flushing, Internal Airlock
- ✓ Air Conditioning
- ✓ 96hrs Standalone Operation with Option to Upgrade
- ✓ Viewing Porthole
- ✓ Gas Monitoring
- ✓ In-built Cylinder Storage
- ✓ Cyalume Light Sticks

Optional Features

- ✓ Special Dimensions and Configurations
- ✓ Duration Upgrade
- ✓ Blast Rating Upgrade
- ✓ MSHA Approved Strobe
- ✓ Towbar
- ✓ 58cm (23") Wheels
- ✓ Emergency Escape Hatch
- ✓ Reinforced Attachment Points
- ✓ Lifting Eye Shackles



The CoalSAFE Change-Over-Station (COS) is designed to aid underground personnel as they exit the coal mine during an emergency. The change-over station provides a secure 'staging-post' stocked with replacement breathing apparatus.

CoalSAFE COS Configurations

The CoalSAFE Change-Over-Station is constructed from 5mm steel plate, with internal support wraps and surround package as standard. The intrinsically safe design features both a positive pressure entry and independent breathable air supply (high pressure compressed air cylinders), stored within the robust steel structure.

The floor of the COS is manufactured from 6mm steel plate with tubular skids. Push points are provided top and bottom at both the front and rear of the unit, providing easy manoeuvrability within an enclosed space.



CS-COS1-08

Other internal features include durable, ergonomically designed seating, dedicated storage areas for housing SCSR's, and a communications port.



CS-COS1-08



CS-COS2-12



CS-COS3-16



CS-COS4-20



CS-COS5-26



CS-COS6-30

Standard Dimensions

Model	Seated occupancy (persons)	Entry & exit flushing system	Height (m/inch)	Width (m/inch)	Length (m/inch)	Compressed air cylinders*	Total rotating occupancy**
CS-COS1-08	8	Air curtain	2.4 / 94"	2.3 / 91"	3.2 / 126"	6 = 51,600L	20 persons for 20 mins
CS-COS2-12	12	Airlock	2.4 / 94"	2.3 / 91"	4.4 / 173"	8 = 68,600L	30 persons for 15 mins
CS-COS3-16	16	Airlock	2.4 / 94"	2.3 / 91"	5.5 / 216"	10 = 86,000L	40 persons for 15 mins
CS-COS4-20	20	Airlock	2.4 / 94"	2.3 / 91"	6.9 / 272"	12 = 163,200L	50 persons for 15 mins
CS-COS5-26	26	Airlock	2.4 / 94"	2.3 / 91"	9.2 / 362"	15 = 129,000L	60 persons for 16 mins
CS-COS6-30	30	Airlock	2.4 / 94"	2.3 / 91"	10.4 / 409"	17 = 120,400L	70 persons for 15 mins

*More cylinders will increase duration of rotating occupancy

**Fewer occupants will increase duration

CoalSAFE COS Standard Features



Positive Pressure Breathable Atmosphere

If personnel are planning to spend a prolonged time within the COS, they should activate the breathable air supply.

A simple compressed air regulator and auto-muffler releases 85L of compressed air, per person, per minute, providing oxygen while effectively flushing poisonous carbon dioxide from the inside of the COS. This ensures occupants are provided with clean, breathable air while they rest.



Secure Cylinder Storage

High pressure compressed air cylinders provide oxygen supply to the main internal area, as well as powering the entry / exit air curtain system. All cylinders are stored within the Change-Over-Station's robust steel structure, housed securely within MineARC certified cylinder racks.

Note: Medical grade oxygen cylinders to be provided by end user.



PAINT

- AS3570.0-18
- Sand blasted to 2.5 grit

AIR VENT / CHECK VALVE

PORTHOLE WINDOW

- AS 2208
- Blast resistant upon request

REFLECTIVE SIGNAGE

- Safety & operational
- Optional extra: Multiple languages

ROTATING HANDLES

- Double locking

SEALING DOOR

- Outward opening
- Vacuum tested seal

FORKLIFT SLOTS

CS-COS1-08

CoalSAFE COS

Entry and Exit Flushing



The Change-Over-Station range features a flushing entry-way designed to act as a secure staging area between the enclosed protection of the station and the outside environment.

8-person Stations feature a pneumatically operated air curtain, while models from 12 to 30-persons offer a full airlock solution.

Flushing systems are located at both the front (entry) and rear (exit) of the station.

Entry / Exit Air Curtain (8 Person Station)

The walk through layout of the 8-person COS features a pneumatically operated air curtain, fitted to both the entry and exit doors.

When a door is opened, the system is activated; releasing 200L of compressed air directly over the door and creating a barrier to help prevent toxins and smoke from entering the COS. Once the door is closed, a further release of compressed air over-pressures the internal environment, forcing any remaining toxins out through the one-way check valves.

Entry / Exit Airlock (12-30 Person Stations)

The entry and exit airlocks featured in larger model Change-Over-Stations act as a secure staging area between the enclosed protection of the COS and the outside environment.

COS airlocks feature a positive pressure flushing system that ensures the out-flow of air; preventing the ingress of contaminants while the door is open for entry. The Positive Pressure Flushing System (PPFS) provides high speed pressurisation and is activated via a simple electric push-button system.

RocROOM Control Station

The MineARC CoalSAFE Remote Operating Control Room



The RocROOM Control Station is constructed from 5mm steel plate. The intrinsically safe design features airconditioning and electronics to cater for the client's own control panel set-up.

RocROOM Control Station

Made from 2mm steel, RocROOM is fitted with 50mm insulation, viewing windows and cooled positive pressure ventilation or air conditioning, dependent on hazardous area requirements, including both fixed and adjustable ventilation ports.



RocROOM Exterior - Front

EXTERIOR LIGHTING

VIEWING WINDOWS

OUTWARD OPENING DOOR WITH ROTATING HANDLE

NO REFUGE

2MM STEEL PLATE CONSTRUCTION

FORKLIFT SLOTS

SKID BASE

VENTILATION PORT



RocROOM Interior



EnviroLAV Coal-Spec

The MineARC Coal-Spec Toilet System



Custom Interiors for Client's Own Fit-Out

Internally, RocROOM features rubberized flooring, a control panel and a ventilated electrical cabinet. Internal GPOs, lighting and air conditioning are also standard features.

The RocROOM can be fully customised to suit site requirements, providing the ability for the client to fit-out the unit to their specifications upon delivery.

Pictured opposite: Ventilation Hatch with Skylight



EnviroLAV Coal-Spec Features

MineARC's EnviroLAV Coal-Spec features a shorter height for lower seam scenarios. The unit is designed to be intrinsically safe for coal mining applications; featuring a pneumatic operating system that simply requires connection to compressed air.

Featuring an integrated waste tank, MineARC's unique EnviroZYME solution is deposited with every flush; working simultaneously with the system's aerobic technology to quickly break down waste.

Available in male, female and unisex configurations, the EnviroLAV Coal-Spec provides the much needed option of a private toilet facility for all personnel. It's robust design means transportation and installation is a simple one-person job.



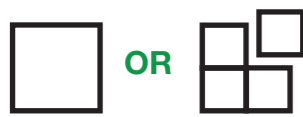
MALE, FEMALE OR UNISEX CONFIGURATIONS

Accommodating the needs of all personnel onsite is essential. A site must consider how they can satisfy these requirements through the supply of single-sex, unisex or dual capacity toilets as well as additional sanitary options. Preferences may also impact the frequency of use during each shift.



PEDESTAL OR SQUAT PAN FACILITIES

It is important to consider cultural factors when sourcing the right facilities. Geography and cultural preference may impact toilet design requirements. MineARC Systems can work closely with site to provide a toilet solution to best suit the needs of their personnel.



FIXED OR MODULAR CONSTRUCTION

The layout of and access to a site can restrict toilet positioning, especially when it comes to height requirements. The EnviroLAV is available in both fixed and modular configurations, allowing sites to easily transport units into place, whilst still enjoying flexibility when it comes to choice.



EnviroLAV Coal-Spec Exterior



EXTERNAL AIR VENT (NOT SHOWN)

REFLECTIVE DECALS

PAINT

- AS/NZS 2312:2002
- Blasted to 2.5 grit
- UV protection (Optional for above ground models)

INTERNALLY LOCKING DOOR

- 1.6mm steel plate
- Outward opening

STEEL PLATE FRAME

- 3mm walls, roof & floor
- 5mm waste tank

WASTE TANK

WASTE TANK LEVEL

FORK LIFT SLOTS

- 200 x 100mm
- 100mm C Channel

EnviroLAV Coal-Spec Fixed Configurations

Single



CODE	MODEL	SPECIFICATIONS				
		H	W	L	WEIGHT (WET)	TANK
ET-PN-S-CS	Standard Pneumatic	2.26m raised	1.7m	1.7m	2200kg	960L

- MineARC's original EnviroLAV Toilet System configuration
- Offers a reasonably compact footprint of less than 3m²
- Available in male, female and unisex configurations

Dual



CODE	MODEL	SPECIFICATIONS				
		H	W	L	WEIGHT (WET)	TANK
ET-PN-D-CS	Dual Pneumatic	2.26m raised	2.25m	1.7m	2800kg	1000L

- Dual toilet configuration, allowing for gender-specific options
- Offers a significant economic advantage over the standard model in scenarios where more than one toilet is required
- Available in male/female, unisex and single sex configurations

Mounting Plate Models

To cater towards individual site transport requirements, MineARC Systems offers Mounting Plate models to allow for QDS or RAS attachments, as well as IT Hitches.

Attachments themselves can be provided at an additional cost.

For more information visit www.minearc.com



EnviroLAV Coal-Spec Interior



ENVIROWASH SOAP DISPENSER

TOILET ROLL HOLDER

- Stainless steel
- Compatible with EnviroSOFT Toilet Tissue

USE ENVIROWASH HAND SOAP ONLY

HAND BASIN

- Stainless steel

TOILET PEDESTAL (NOT SHOWN)

- High durability plastic
- Flushing foot pedal

PNEUMATIC COMPRESSED AIR OPERATION

DANGER
COMPRESSED AIR
DO NOT ADJUST REGULATOR

WASTE TANK PORTAL

EnviroLAV Coal-Spec Modular Configurations

Driven by industry demand, the Modular EnviroLAV Coal-Spec range has been engineered specifically for low seam mines or for transport through areas with height limitations. With a unique collapsible top, the toilet can be reduced in height for transportation and re-assembled once it is placed in position.



Standard Modular



CODE	MODEL	SPECIFICATIONS				
		H	W	L	WEIGHT (WET)	TANK
ET-PN-SM-CS	Standard Pneumatic	2.26m raised 1.65 lowered	1.7m	1.7m	2200kg	960L

- MineARC's original EnviroLAV Toilet System, now in a Modular configuration
- Offers a reasonably compact footprint of less than 3m²
- Available in male, female and unisex configurations

Dual Modular



CODE	MODEL	SPECIFICATIONS				
		H	W	L	WEIGHT (WET)	TANK
ET-PN-DM-CS	Dual Pneumatic	2.26m raised 1.65 lowered	2.25m	1.7m	2800kg	1000L

- Dual toilet configuration, allowing for gender-specific options
- Offers a significant economic advantage over the standard model in scenarios where more than one toilet is required
- Available in male/female, unisex and single sex configurations

DEZEGA[®]

Market-leading range of SCSRs & SCBAs; designed for that moment.



DEZEGA SCSRs

DEZEGA is one of the world's largest developers and suppliers of mine rescue equipment. They specialise in the design and manufacture of closed circuit breathing equipment, engineered for use by; mine rescue teams escape of miners and workers from irrespirable atmospheres that pose an Immediate Danger to Life and Health (IDLH) escape of civilians in the case of fire and smoke DEZEGA products are utilised in more than 50 countries across the globe, with over 500,000 self-rescuers standing by, ready to protect miners worldwide.

DEZEGA's range of portable waist and shoulder-worn self-rescuers are designed for escape from irrespirable atmospheres over long, medium and short-haul routes.

DEZEGA SCSRs contain a cartridge with chemically bound oxygen (KO₂). As oxygen is released, the active cartridge substance simultaneously absorbs carbon dioxide, and thus the self-rescuer completely isolates the user's respiratory organs from the irrespirable atmosphere.

DEZEGA consists of:
Management company
Production facilities, located in Europe and Asia
Modern Research and Development Center (R&D Center)
Representative offices in 5 regions worldwide
They design, produce, distribute and service their products with the sole purpose of protecting users in situations when nothing else can help them survive.
www.dezega.com

Ci-30 KS

- ✓ 30 minute minimum duration
- ✓ EN and AU certified
- ✓ Compact design at 2.5kg weight
- ✓ Automatic starter device - begins when the lid is detached
- ✓ Moisture indication
- ✓ Rugged construction with abrasion resistant case

CARBO-70

- ✓ 70 minute minimum duration
- ✓ GOST certified
- ✓ Compact design at 2.78kg weight
- ✓ Automatic starter device - begins when lid is removed
- ✓ Optional moisture indication
- ✓ Rugged construction with abrasion resistant case



DEZEGA Ci-30 KS SCSR

The DEZEGA Ci-30 KS is a closed-circuit breathing apparatus, ensuring the user does not inhale outside gases after donning. The device provides the user with both an oxygen source and a carbon dioxide neutraliser (scrubber).

Chemically bound oxygen reacts with the carbon dioxide exhaled by the user; ultimately absorbing the CO₂ and allowing breathable air to circulate within the device.

The Ci-30 KS features an automatic starter, in which oxygen generation begins automatically when the self-rescuer is donned and exhalation is detected.

Designed specifically for underground mining, the Ci-30 KS is housed in an anti-deformation, ruggedised casing. This ensures the life-saving equipment is kept free from damage, particularly in mines with highly abrasive surfaces and narrow passageways.



The moisture indicator is a transparent capsule with hydrophobic material, installed in the self-rescuer casing on the top of the unit.

Should the indicator change colour from blue to pink, this is a sign that moisture has infiltrated the capsule; resulting in a risk of case leakage and untimely cartridge activation. The self-rescuer must then be checked with a DEZEGA testing unit.

Nominal rated duration in accordance with EN 13794:2002 and AS/NZS 1716:2012	
- Escape (35 l/min)	30 min
- Waiting for rescue (10 l/min)	90 min
Temperature of inhaled gas	50°C
Maximum breathing resistance	1 kPa
Average CO ₂ content	1.5%
Weight carried	2.5 kg
Shelf life	10 years

This 30-minute waist belt-worn self-rescuer is made for markets that accept the European and Australian Standards.

In case of dense smoke or irritating gas emissions, it is important to protect the eyes. As such, the Ci-30 KS self-rescuer comes equipped with protective goggles with an anti-fogging coating to improve vision during an escape.

DEZEGA CARBO-70 SCSR

The DEZEGA CARBO-70 is a closed-circuit breathing apparatus, ensuring the user does not inhale outside gases after donning. The device provides the user with both an oxygen source and a carbon dioxide neutraliser (scrubber).

Chemically bound oxygen reacts with the carbon dioxide exhaled by the user; ultimately absorbing the CO₂ and allowing breathable air to circulate within the device.

The CARBO-70 features an automatic starter, in which oxygen generation begins automatically when the device is opened.

Designed specifically for underground mining, the CARBO-70 is housed in an anti-deformation, ruggedised casing. This ensures the life-saving equipment is kept free from damage, particularly in mines with highly abrasive surfaces and narrow passageways.



Optional moisture indicator

The moisture indicator is a transparent capsule with hydrophobic material, installed in the self-rescuer casing on the top of the unit.

Should the indicator change colour from blue to pink, this is a sign that moisture has infiltrated the capsule; resulting in a risk of case leakage and untimely cartridge activation. The self-rescuer must then be checked with a DEZEGA testing unit.

This 70-minute waist or shoulder-worn self-rescuer is made for markets that accept the GOST standards.

In case of dense smoke or irritating gas emissions, it is important to protect the eyes. As such, the CARBO-70 self-rescuer comes equipped with protective goggles with an anti-fogging coating to improve vision during an escape.



Nominal rated duration in accordance with GOST 12.4.292-2015 and Technical Regulation of Customs Union 019/2011	70 min 210 min
- Escape (35 l/min)	
- Waiting for rescue (10 l/min)	
Temperature of inhaled gas	45°C
Maximum breathing resistance	980 Pa
Average CO ₂ content	1.5%
Weight carried	2.8 kg
Shelf life	7 years

DEZEGA P-70 SCBA

Introducing the newest technology in compressed oxygen breathing apparatus; with positive pressure for rescue and firefighting works in mines, tunnels, other underground and confined spaces.

- ✓ Smallest and lightest in it's class
- ✓ State-of-the-art adjustable harness
- ✓ Comfortable breathing conditions
- ✓ Oxygen sharing system for flexible rescue tactics



DEZEGA P-70 SCBA



Rated working duration	240 min
Operation temperature	-20 ... +60°C
Inhaled gas temperature	≤36°C
Dimensions, HxWxL	500mm x 400mm x 174mm
Pressure in breathing circuit	Positive
Weight	12.6kg without full face mask
Constant flow	1.7-1.9 l/min
Cylinder capacity	2L
Breathing resistance	0 ... +7 mbar
Soda Lime weight	2.3kg



Stench Gas Systems



Stench gas is commonly used in underground ventilation systems as an alert gas for emergency evacuations. The powerful odour can be quickly dispersed throughout an underground mine to alert workers of impending danger.

The MineARC Stench Gas System is designed to suit noisy locations where alarms cannot be heard. Available in either a manual or remotely operated electric configuration, the unit will send a clear and definitive odour in the event of an emergency, indicating the initiation of emergency response procedures. MineARC Stench Gas is non-flammable and can be located near a mine portal.

MineARC also provides an anti-stench flushing agent and wintergreen used to counteract the pungent smell of stench gas once the all-clear has been given, allowing production to recommence quickly.

Stench Gas Manual System

MineARC's standard manual stench gas unit comprises a set of twin gas cylinders housed within a durable steel cabinet with reflective signage, designed specifically for harsh underground conditions.

The stench gas cylinders are manually activated via gas release valves on the top of the exterior housing. Pressure gauges indicate successful release of the gas.



STANDARD FEATURES

- Easy installation
- Dispersion line venting 10m (33ft) from your location
- Two 1L stench gas cylinders (100g Ethyl Mercaptan & R134A Propellant)
- Independent operation of cylinders
- Steel housing with reflective signage and viewing window
- Powder coated red in accordance with ANSI Z535.1
- Pressure gauge to indicate gas levels
- Stainless steel pipe work and valving
- Tamper proof tags
- Simple operation via gas release valves
- Mounting brackets with slotted holes

STENCH GAS

MineARC Stench Gas cylinders carry 100g of Ethyl Mercaptan, a colourless organic liquid with a strong odour that, when added to an odourless gas, acts as a pungent warning agent. One MineARC Stench Gas Unit is effective in odourising approximately 1.25 million cubic metres of air throughout an underground mine, operating within a temperature range of 1°C to 54°C. MineARC Stench Gas is a non-flammable substance.





MineARC Systems - Built for Safety.

www.minearc.com

