

# DRAEGER ESCAPE SHELTERS



# ESCAPE SOLUTIONS

## APPLICATION OVERVIEW

SHELTERS FOR OFF-SHORE PLATFORMS



RESCUE RAIL VEHICLE FOR TUNNELS



RESCUE TRAINS FOR RAILWAY TUNNELS



SHELTERS FOR MINING

# SHELTER SOLUTIONS for MINING and TUNNELING



....CUSTOM  
SOLUTIONS

# SHELTER SOLUTIONS for MINING and TUNNELING



...MORE EXAMPLES

# ESCAPE SHELTERS

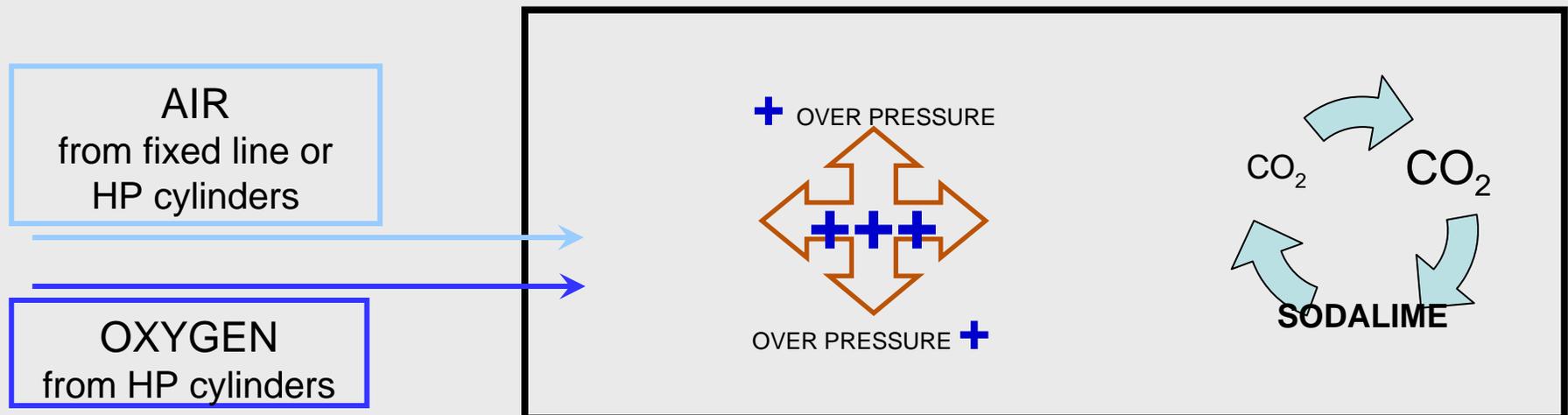
## PROTECTION PRINCIPAL

Refuge shelters designed by Draeger offer protection to the users by creating a respirable atmosphere inside an enclosed space.

Protection is ensured by:

- Maintaining the **Oxygen level** in the range  $19\%vol > O_2 > 22\%vol$
- Maintaining the **Carbon Dioxide level**  $CO_2 < 1\%vol$
- Creating an **overpressurized atmosphere** inside the shelter

The shelters are designed for protecting a certain number of people for a certain length of time.



# ESCAPE SHELTERS FOR MINING GENERAL FEATURES



- CO2 scrubber
- Oxygen Supply
- Breathing Air supply
- Air Conditioning
- Alarm/Siren
- Overpressure valves

- Gas tight doors
- External Air Supply
- External Elect. Power
- Battery power supply
- Standard & Emergency Lighting



# ESCAPE SHELTERS FOR MINING

CO2 scrubber – 20ft container type 20 persons for 24 hours



CO2 Scrubber installed under bench

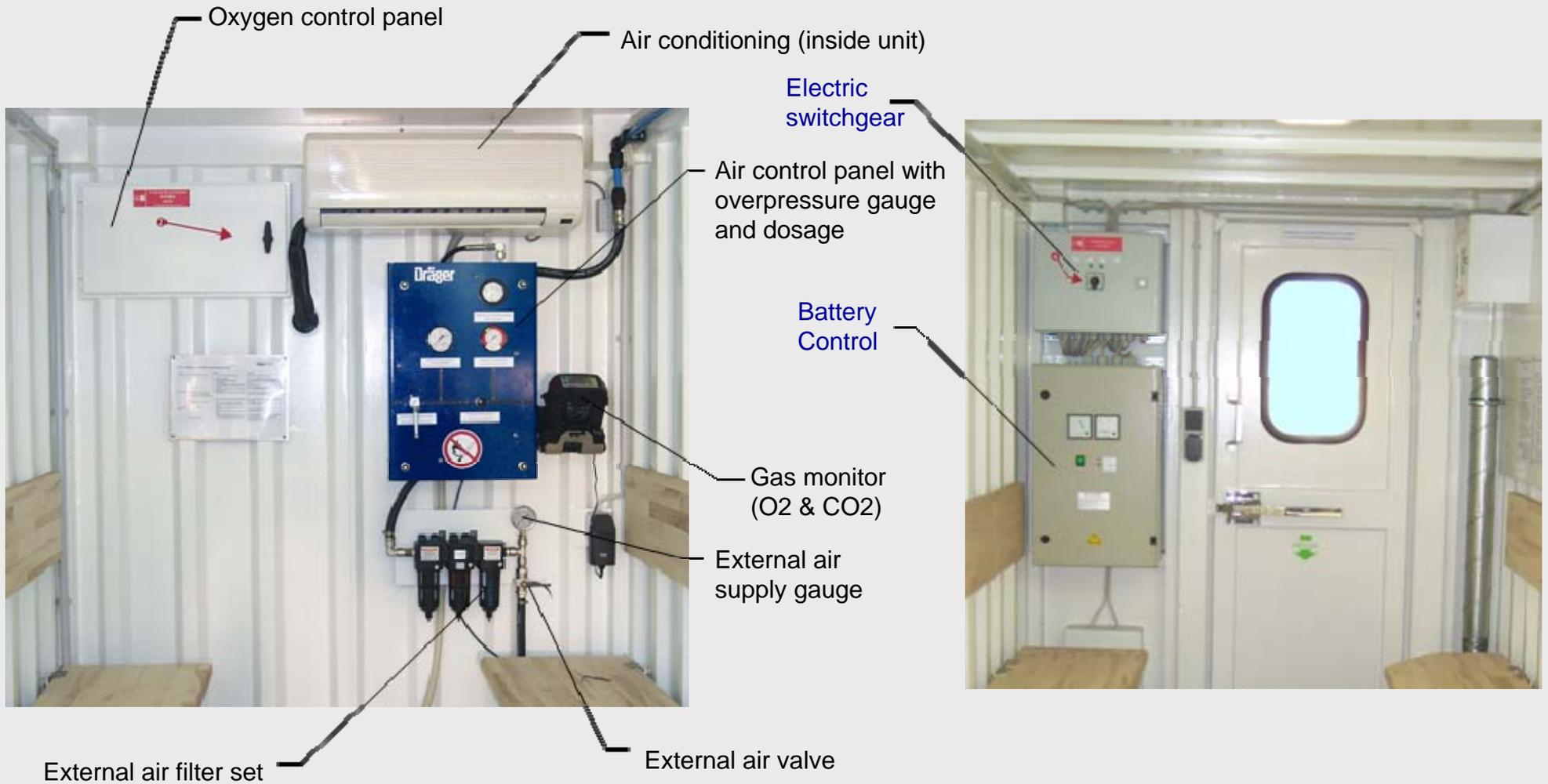
- Efficient twin blower design
- designed for emergency battery operation
- soda lime in cartridges for quick exchange

Spare CO2 cartridges



# ESCAPE SHELTERS FOR MINING

FEATURES (INSIDE) – 20ft container type 20 persons for 24 hours



# ESCAPE SHELTERS FOR MINING

Room equipment – 20ft container type 20 persons for 24 hours



- Chemical toilette
- Maps of emergency evacuation routes
- Food and Water
- First Aid equipment
- Additional breathing devices
- Portable gas monitors

## Other available OPTIONS

### PRESSURE EQUALIZATION DEVICE

– *for use in Blasting Environments*

### AIR CURTAIN

– *for entry protection*

### COMMUNICATION SYSTEM

– *for two-way communication*

### STRETCHER/GURNEY

– *for handling injured persons*



## ESCAPE SHELTERS FOR MINING

Escape Shelters can be designed to a required specification according to site conditions

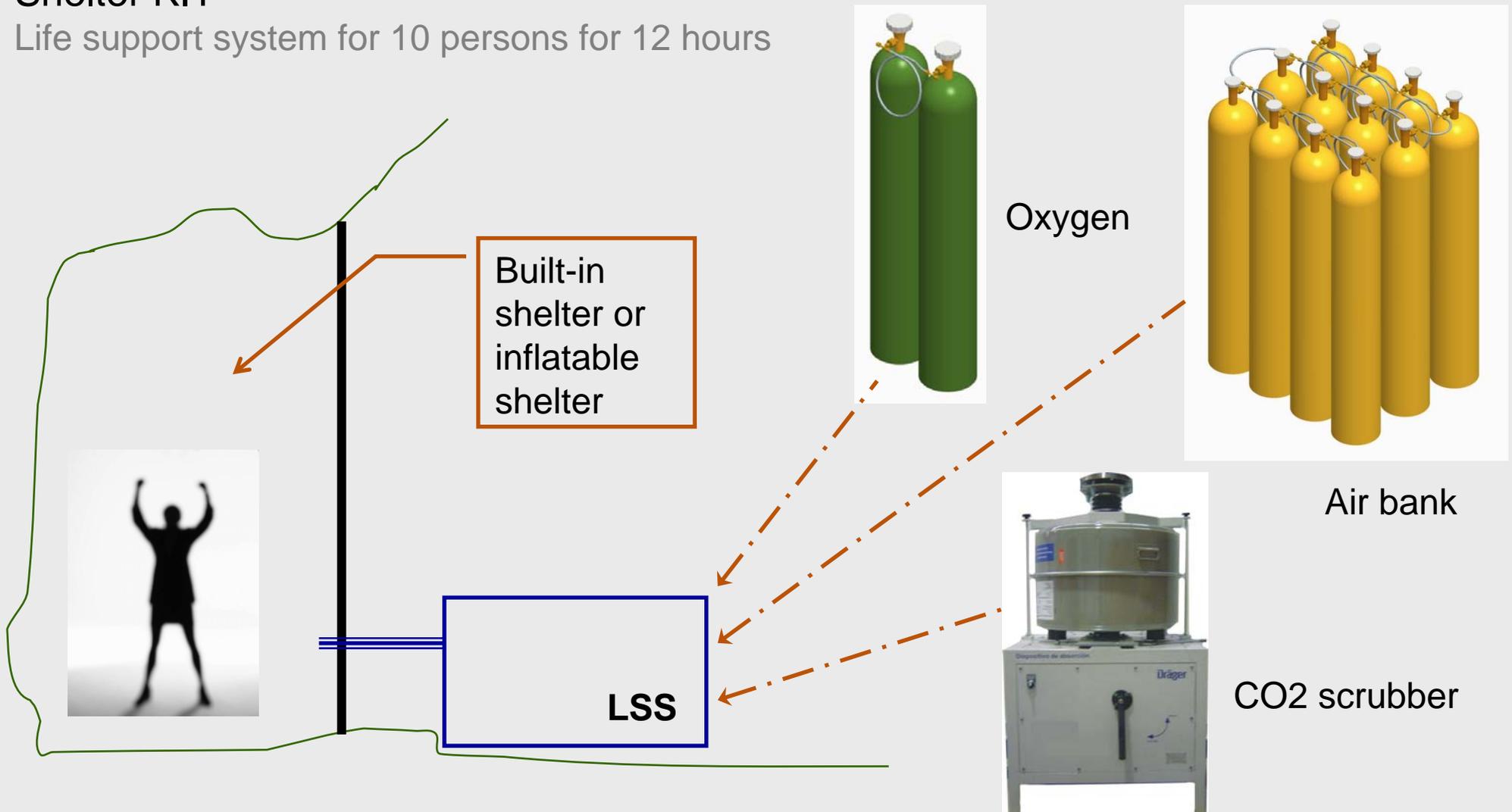
- Smaller shelters for low seam heights
- Shelters on skids or wheels for transportability
- Inflatable shelters
- Stand alone life support systems for built-in shelters



# ESCAPE SHELTERS for MINING

## Shelter KIT

Life support system for 10 persons for 12 hours



## ESCAPE SHELTERS FOR MINING

**Modifications necessary to current designs will be driven by MSHA & mining industry recommendations**

**Modifications- special requirements for the coal mines**

- MSHA approved components and parts
- Electrical equipment – Intrinsically safe, explosion proof
- Fire resistant materials, insulation
- Training programs
- Other modifications?



THANK YOU FOR YOUR ATTENTION!