Confined Spaces Safety
An Expert Guide

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Confined Space Identification
Hazards to Consider

Entry Procedures and Training
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Gas Detection
Breathing Apparatus

Rescue & Escape
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Safety Lighting
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Our Service

As part of our commitment to keeping people safe in the workplace, we have created this expert guide to highlight the existence of confined spaces, the hazards that may be encountered in confined space work and other factors to be considered before anyone enters such an area.

This is a brief guide and anyone contemplating managing confined space work, carrying out a risk assessment, preparing a safe system of work or entering a confined space must ensure they have the competencies required at all levels or seek assistance from someone who does before any entry is made.

Legislation:

The Confined Space Regulations 1997 defines a confined space as a place which is substantially (though not always entirely) enclosed and there is a reasonably foreseeable risk of serious injury from hazardous substances or conditions within the space or nearby.

Under The Management of Health and Safety at Work Regulations 1999 a risk assessment must be completed to identify the risks of the work activity and the measures that need to be implemented to ensure a safe working environment and try to eliminate entry in to the confined space by reviewing a different approach.

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The Personal Protective Equipment at Work Regulations 2002 and the Control of Substances Hazardous to Health state: The risk to health and safety should be assessed on how to prevent or reduce the workers exposure to hazardous conditions and substances. The Personal Protective Equipment at Work Regulations 2002 and the Respiratory Protective Equipment Guidance HSG53 stipulate that PPE and RPE is to be supplied and used at work wherever there are risks to health and safety that cannot be adequately controlled in other ways. It is essential that anyone using PPE and RPE, understand why they require the equipment, when and how it should be used, repaired or replaced and if there are any limitations. The employer is duty bound to provide training on all PPE and RPE equipment.

All of Arco’s PPE and RPE conform to all relevant European standards and carries the CE mark, complying with the requirements of the Personal Protective Equipment Regulations 2002 and the Respiratory Protective Equipment at Work Guidance HSG53. The CE marking signifies that the protection satisfies the necessary requirements and in some cases will have been tested by an independent body.

We have brought to you a range of training, services and products suitable for keeping you safe while working in confined spaces.
Legislation

In the UK the Confined Space Regulations 1997 specifically pertain to the identification and management of confined space working, the regulations are published with an accompanying Guidance and Approved Code of Practice (HSE L101). The regulations apply to all premises covered by the Health and Safety at Work etc Act 1974 with the exception of mines and diving operations.

Other regulations that need to be taken into consideration when working in confined spaces are:

- The Health and Safety at Work etc Act 1974
- The Management of Health and Safety at Work Regulations 1999
- The Personal Protective Equipment at Work Regulations 2002
- Respiratory Protective Equipment at Work Guidance HSG53
- The Control of Substances Hazardous to Health Regulations 2002
- The Provision and Use of Work Equipment Regulations 1998
- Electricity at Work Regulations 1989
- Workplace (Health, Safety and Welfare) Regulations 1992
- Control of Noise at Work Regulations 2005
- Control of Lead at Work Regulations 2002
- Control of Asbestos Regulations 2012
- Work at Height Regulations 2005

Source: The Confined Space Regulations 1997

Health and Safety Executive: Confined Spaces, A Brief Guide to Working Safely

Ireland Legislation

The regulations state:

- Confined space entry is prohibited, providing the work can be carried out in a reasonably practicable way and by other means
- A risk identification and evaluation must be carried out before entering a confined space detailing the purpose of the work involved
- A safe system of work must be completed before entry into the confined space
- It is imperative that a rescue plan is in place, detailing the arrangements in case of an emergency
- The emergency arrangements will need to demonstrate how to raise the alarm, the type of rescue equipment, resuscitation equipment and rescue teams, the provision of correct information, instruction and training is required on all these elements identified
- Implementation of the rescue plan

Source: http://www.hsa.ie/eng/Topics/Confined_Spaces/
Confined Space Identification

The existence of confined spaces in predominantly commercial, or non-industrial premises, is less well known. Service ducts, loft and void spaces, some plant rooms and similar areas are found in premises like hospitals, universities and other large premises.

The regulations identify confined spaces primarily as somewhere that is substantially, but not always entirely, enclosed. This description illustrates that, for example, an open topped pit may have easy access but the possibility of the presence of heavier than air gases would make it a confined space. Similarly an open topped or open ended carbon steel tank or container that features rust inside could also be a confined space due to the lack of oxygen.

The secondary, though equally important, consideration when identifying confined spaces is the reasonably foreseeable risk from hazards in the confined space or nearby.

Some confined spaces will develop during construction; for example the assembly of a tank or process plant, particularly where welding takes place on the inside.

Every year people are killed or seriously injured in the UK across a range of industries while working in confined spaces. High risk industries include oil and gas, petro-chemical, utilities, shipping and marine, manufacturing and tank cleaning.

Confined spaces are found in many industries across the world. The existence of confined spaces in some workplace environments is reasonably easy to identify and understand. Tanks, vessels, sewers and the like are known to be confined spaces to people in the industry that use them and arrange work inside them.

Other factors detailed in the approved code of practice and to be dealt with in turn where applicable are:-

- Supervision
- Competence
- Testing and monitoring the atmosphere
- Gas purging
- Ventilation
- Removal of residues
- Isolation from gases, liquids, other flowing materials
- Isolation from electrical and mechanical equipment and stored energy
- Selection of suitable equipment
- Personal protective equipment and respiratory protective equipment (PPE and RPE)
- Gas cylinders and internal combustion engines
- Gas supplied by pipes and hoses
- Safe way in and out
- Fire prevention
- Lighting
- Static electricity
- Smoking
- Emergencies and rescue
- Limiting working time

Each hazard should be addressed in turn and reasonably practicable control measures developed and applied in each case. Ensure personnel at all levels are competent and suitably trained.

Proposed Entry into a Confined Space

Where a confined space has been identified and the need to carry out some form of work inside the space is needed then the following should be considered:- Preventing the need for entry, where work in a confined space is required then employers, and the self-employed, have to consider reasonably practicable methods of doing the work from the outside, thus preventing entry. This might be remote sampling, inspection or cleaning for example. This is a requirement for every proposed confined space entry job and subsequent risk assessments should identify and define that this ‘prevention of entry’ process has taken place.

Where the work cannot be achieved by a reasonably practicable remote or outside system then a safe system of work will have to be developed.

Developing a safe system of work – the safe system of work will begin by a competent and experienced person completing a risk assessment. The factors to consider when producing a risk assessment are those listed in the foregoing hazard detail section of this guide, as a minimum.
Hazards to consider before entering confined spaces

The main hazards to be considered before entering confined spaces are as follows:

**Reduced physical dimensions** - Which can in themselves, be hazardous simply because they can make the way in and out of a confined space difficult to negotiate and similarly make movement inside restrictive and increase exertion levels. There is also the possibility of gases being trapped in low lying areas inside the confined space for example where ventilation may be difficult to achieve or maintain. Consideration should always be given to the possibility of an incapacitated person having to be rescued from inside the confined space. The use of breathing apparatus and rescue stretchers and equipment becomes much more difficult in areas of smaller dimensions and specifying the right equipment and having it to hand before the first entry is very important.

**Lack of oxygen** – The normal oxygen level is 20.9%. 19.5% is the minimum working level, below which harm can occur to anyone in the confined space. A lack of oxygen will affect the functioning of the brain quite quickly and reduce the affected person’s ability to respond to their environment. Oxygen can be diminished by the presence of rust or the contents of the confined space or by operations such as welding or burning. Materials such as wet grain can also deplete oxygen. At levels below 16% unconsciousness and death can occur.

**Excess of oxygen** – The normal oxygen level is 20.9%, the maximum is 23.5%, levels above this figure can increase the risk of fire, particularly in clothing. Excess oxygen is usually caused by leaking oxy/fuel gas cutting and welding equipment.

**Flammable substances** – May be present in the confined space, and could cause fire or explosion if ignited. These can be from gases, fumes, vapours and dusts and may come from the confined space contents or from the materials being used to clean the confined space, for example a flammable liquid base or propellant gases of aerosol sprays. In addition to the possibility of the presence of the above materials, detritus and discarded materials from repair operations in confined spaces can also be ignited by hot work operations. Where there is a possibility of flammable substances being present in a confined space then suitable equipment, including electrical equipment, will have to be specified to eliminate the risk of a spark or ignition source. Static electricity can also be a source of ignition in confined space operations where flammable gases and vapours are present as can incorrectly specified electrical equipment.

**The possible presence of toxic gases fumes and vapours** – Which can be identified using correctly specified atmospheric testing equipment. Consideration should be given to the possibility of gases trapped in residues and sludge, scale or animal waste which may not have been identified by initial atmospheric testing and may be disturbed and released by someone in the confined space. Toxic gases, fumes and vapours may contaminate the confined space from outside; from nearby processes or vehicle exhaust fumes for example. Where work in excavations is taking place then the contamination can come from hazardous substances previously deposited in the ground or from natural sources such as limestone producing carbon dioxide.

**The unintended ingress of materials** – Can occur when connected pipes, ducts and conveyors etc. are not isolated and disconnected from the confined space. Consideration should be given to the delivery or supply system for the normal contents of the confined space, the back-flow from any exit methods from the area such as pipes and sumps. Liquids unintentionally entering the confined space may cause drowning or the liquid may have corrosive or toxic properties. Powders and granulated materials, such as sugar, grain and sand can submerge someone in a confined space and prevent them from breathing.

**Excessive heat** – Can also create problems for people working in confined spaces. Excessive heat can cause heat stress, leading to heat stroke and unconsciousness and possibly death. The heat can come from a plant, such as boilers or oven that has not had sufficient cooling time before entry or from the use of steam cleaners or hot water high pressure jetting systems. The effect of the sun’s rays on steel tanks and vessels can also cause the internal temperature to rise.

Inadequate ventilation or the lack of chilled ventilation along with the confined space entrants wearing chemical protection suits, which impair natural body temperature control, can exacerbate the heat problems in confined spaces.

**Other hazards** – There are a number of other hazards, already referred to in the Legislation section, that can create problems for anyone entering a confined space. Typically these could include hazardous substances, including biological, other than those causing the specified problems above, mechanical and electrical hazards or a combination of both, noise and vibration, lack of light and so on. Whilst these hazards are not specified in the confined spaces regulations they will still have to be considered, once the risk is assessed and where the risk cannot be prevented, suitable control measures must be provided and take into account each hazard’s own regulation or approved code of practice and guidance if applicable.

**Manufacturing or constructing new plants, buildings or infrastructure**

Where a new plant is being manufactured which will be a fixed structure or where new construction is taking place then the requirements of the Construction, (Design and Management) Regulations 2007 will have to be taken into account. These regulations require the safe construction, maintenance, cleaning and demolition of structures and buildings so, by default, the minimisation of the presence of confined spaces will be a requirement.
Confined Space Entry Procedure

Is it a confined space?

- Identify foreseeable specified risks

  Does the space meet the specified risks highlighted in the regulations governing the entry to confined spaces?

  Yes
  - Confined Space Regulations apply
  - Risk assess all aspects of the work relating to the confined space
  - Risk assess all identified hazards inside and outside the confined space

  No
  - Confined Space Regulations do not apply
  - Can the work be carried out in another way to avoid entry or work in the confined space that is reasonable practicable

  No
  - Safe system of work to be developed demonstrating the alternative work method

  Yes
  - Develop a safe systems of work with the following considerations:
    - Risk Assessment
    - Method statement
    - Permit to work
    - Competence at all levels
    - Training
    - Atmospheric testing
    - Ventilation
    - Monitoring
    - Inspection
    - Personal protective equipment and respiratory protective equipment

  - Carrying out training on the use of equipment involved in safe confined space entry, such as gas monitors, self-rescue breathing apparatus, and personal protective equipment along with any equipment used.

Confined Space Entry Competence and Training

Personnel involved in confined space work whether those entering or those in support or preparing safe systems of work should be experienced and competent, both in confined space entry and the task to be undertaken. If not it is essential that they undergo a full practical training programme.

The requirements for all confined space training are detailed in The Confined Space Regulations 1997.

**The training should equip personnel with competency and understanding of:**

- The need for preventing entry into confined spaces, as far as is reasonably practicable
- The hazards and the control measures and precautions
- Safe systems of work and, if appropriate, the use of permits to work
- How emergencies arise, emergency procedures, how to follow them and the dangers of not doing so

Refresher training will be required periodically and its timing will depend on the continued experience after initial training. For example, those completing training and working on a small number of jobs immediately afterwards are likely to have forgotten much of the training if a period of months passes before the next confined space entry job.

Additionally, personnel will need training on the use of items of equipment involved in safe confined space entry; such as gas monitors, self-rescue breathing apparatus, possibly self-contained breathing apparatus, and personal protective equipment along with any equipment used.

Source: The Confined Space Regulations 1997

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Arco Training & Consultancy Courses:
Arco Training and Consultancy can provide training on Dynamic Risk Assessments, Safe Systems of Work, Permit to Work and Confined Space Entry Training.
Mobile Confined Space Entry Training

Arco Training & Consultancy offer expert training and specialist safety services for working in confined spaces. We take time to understand your needs and develop courses, training and services to mirror the way you work, enabling maximum benefit to you and your employees.

The confined space entry mobile training unit enables confined space training, face fit testing and breathing apparatus training with both theoretical and practical training to take place on site.

Accredited, non-accredited and bespoke training

Designed to accommodate a variety of industry confined space standards, this new unit incorporates advanced technology and can be used for accredited training including all levels of City and Guilds approved courses, non-accredited and bespoke training. The courses delivered from the unit are designed around real life confined space incident scenarios.

Practical training covers actual entry, suitability checks (i.e. for claustrophobia), selection and use of equipment, developing a safe working system, and the initiation of self-rescue or full rescue.

Advanced Training

Our team also has experience in delivering more in-depth rescue courses covering trauma assessment and realistic rescue scenarios.

Refresher Training

There is not a specified time in which confined space training has to be renewed, however employers should always ensure that their employees are not only trained in the relevant skills, but remain competent in them after a period of time. It is recommended that Confined Space Entry Refresher Training is provided at least three years after the initial training.

Face fit testing and breathing apparatus training

The unit is fully equipped to deliver onsite face fit testing and breathing apparatus training on sites such as oil refineries, petrochemical plants and power stations.

The mobile confined space unit provides:

- Cost saving and minimal disruption
- Rapid set up of the totally self-sufficient unit
- Live monitoring and videoing of training
- Realistic simulation of industrial environments
- Vertical entry, with over 3 metres vertical access
- Horizontal entry, 30 metres of internal tunnels
- Training equipment supplied

Arco Training & Consultancy also provide training on:

- Risk Assessments
- Health and Safety Legislation
- Managing Safety
- Hazardous Substances
- Safe Systems of Work
- Fire and Explosion
- Risk Control
- Policy Writing
- Harness Inspection

For more information contact:
UK: Tel: +44 (0)1482 347590 or email: services@arco.co.uk
Ireland: Tel: 01409 5000 or email: services@arcosafety.ie

www.arco.co.uk/confinedspaces
Breathing Apparatus

Decision Tree

The diagram below gives simple guidance on choosing the most appropriate breathing apparatus for working in a confined space. It highlights the key factors which must be considered when choosing the correct equipment to ensure that it best meets the requirements of the user to allow them to work safely and comfortably.

These factors include assessing the risk of oxygen deficiency and the potential for a contaminated atmosphere which could present an atmosphere which is immediately dangerous to life or health as well as considering the duration of the job, working conditions and time it would take to escape if there was a hazard.

Gas Detection

Gas detectors monitor the levels of flammable gases, oxygen enrichment or depletion and toxic gases, providing personal protection from a wide range of industrial hazards when entering a confined space.

Scott Safety gas detectors are easy to use with single button operation and incredibly reliable, giving industrial workers and first responders the confidence to focus on the task at hand.

The Protégé ZM provides a zero maintenance alternative which measures oxygen, carbon dioxide or hydrogen sulphide. The Protégé ZM delivers two years of gas detection without charging, calibration or maintenance, providing high performance with low ownership costs. The devices are designed to be lightweight, so they can be attached easily to the user where most comfortable, but also robust in order to withstand the rigour of a range of different industries.

The Protégé multi-gas monitor is designed to monitor potentially hazardous levels of combustible gases, oxygen enrichment or depletion, carbon monoxide and hydrogen sulphide. It has been designed to be a simple and easy to use unit with enhanced user ergonomics.

Scott Protégé ZM Zero Maintenance

Single Gas Monitor

- Use hibernate mode on the CO and H2S models for up to one year additional operating life
- Custom or factory programmed alarm set points
- User configurable bump and calibration reminders
- Multiple LCD display options including real-time gas readings, monitor life remaining or both
- Three point alarms (audible, visual and tactile)
- Data-logging capabilities
- Name or assign monitors using a six-character user ID

ATEX Directive approved (94/9/EC)

Ref: 4T0816 – O2
Ref: 4T0814 – CO
Ref: 4T0815 – H2S

Scott Protégé Multi-Gas

The Protégé multi-gas monitor is simple to use and incredibly durable, giving industrial workers and first responders the confidence to focus on the task at hand.

- An intuitive user interface and simple two button operation make calibration and basic operation virtually thought free
- Protégé software, compatible with Windows, gives administrators the ability to quickly adjust monitor configurations
- Its robust construction survives drops while being dust tight and immersion resistant

ATEX Directive approved (94/9/EC)

Ref: 4T0810 - Gas Monitor Kit PRO1Z-2212 O2 LEL H2S CO
Ref: 4T0811 - Gas Monitor Kit PRO1Z-1212 O2 LEL H2S CO
Ref: 4T0813 - Confined Space PRO1Z-1111 O2 LEL H2S CO

Source: Scott Safety

Confined Spaces Respiratory Decision Tree

Has it been determined through a risk assessment that a breathing apparatus is required?

- No: Carry out a Risk Assessment

- Yes: Is the atmosphere oxygen deficient or are there toxic gases present which make it immediately dangerous to life & health?
  - No: Do you know the potential gas hazard?
  - Yes: Can you monitor for the potential gas hazard?
    - No: What is the duration of the job?
      - <1hr: Do you require escape facility?
        - Yes: Escape Set
          - Airline Escape Set
        - No: SCBA Set
          - Airline Set
    - Yes: Is the working space or entry point very tight?
      - <15min: How long will it take you to follow your escape route?
        - No: Is the working space or entry point very tight?
          - No: SCBA Set
            - Airline Set
        - Yes: Airline Set
          - Airline Escape Set
      - >15min: SCBA Set
        - Airline Set
          - Airline Escape Set

Scott Safety gas detectors are designed to meet a wide range of hazardous atmospheres encountered in confined spaces, providing personal protection from a wide range of industrial hazards when entering a confined space.

www.arco.co.uk/confinedspaces
MSA ALTAIR 5X Multi-Gas Detector
This high-performance multi-gas detector featuring MSA's XCell sensors provides outstanding durability and reliability. Unique features such as MotionAlert and InstantAlert provide added confidence when working in confined space entry situations.

- Ergonomic design with large glove-friendly buttons and large easy-to-read display
- MotionAlert option tells others that user has become immobile
- InstantAlert provides manual alarm to alert others of a dangerous situation
- Versatile MSA Link™ allows user to transmit data to a computer
- Only weighs 454g
- Comprehensive data logging facility
- “End of sensor life” warning
- Rapid bump test gives results in under 15 seconds
- Up to 18hr run time, charging time up to 6hrs
- Passes 10ft drop test
- Wireless USB option
- Optional glow-in-the-dark version
- 3-year warranty
- Other sensor configurations are available

ATEX-approved II 2G Ex d ia mb IIC T3/T4 G6 - Zone 1
Delivery 7 Days
Ref: 4T4000 – O2, CO, H2S
Ref: 4T4100 – O2, H2S, CO2
Ref: 4T4600 – O2, CO, H2S, SO2

MSA ALTAIR Maintenance-Free Single-Gas Detector
The MSA ALTAIR is a reliable high-performance single-gas detector that is simple to use and extremely economical.

- Two years or 1080 alarm minutes of service life under warranty with no maintenance
- Simple, easy-to-read display
- Single button press to carry out bump check test
- Designed to withstand a 3m drop test
- Triple alarm system effectively alerts the wearer to any danger
- Records the last 25 alarm events automatically, offering the ability to assess recent alarm conditions
- Three sensor options: H2S, CO and O2
- Ingress protection rating is IP67

ATEX-approved II 2G Ex e IIC T6 -20°C to +50°C
Delivery 7 Days
Ref: 4T0700 – O2
Ref: 4T0800 – CO
Ref: 4T0900 – H2S

MSA ALTAIR 4X Multi-Gas Detector
The ALTAIR 4X is a tough, functional and reliable multi-gas detector for LEL, CO, H2S and O2. The rugged housing provides unsurpassed durability, including the ability to withstand a 6m drop onto concrete. The large glove-friendly buttons and high-contrast display make the ALTAIR 4X easy to use in any work environment.

- MSA XCell sensors design gives a typical life of more than 4 years
- IPC67 rated and passes 6m drop test
- Rechargeable li-polymer battery with charge time less than 4hrs
- Size 112x76x35mm, weight 222g
- Std 50hr minimum data log
- 24hr run time
- Three-year standard warranty

ATEX-approved II 1G Ex ia ia IIC T4, -40°C to +60°C, IP67
Delivery 7 Days
Ref: 4T1300 – Detector
Ref: 4T1400 – Detector with Luminous Case
Ref: 4T1500 – Detector with 4-Year Warranty

MSA ALTAIR 4X Bump Check Kit
The Altair 4X Bump Check Kit provides everything needed to undertake a quick and easy bump test. Simply apply the cap, press the button and turn on the gas.

- Test in under 15 seconds
- 24 hour check mark displayed on Altair 4X once it passes the test
- Date, time and result of tests are recorded in the detector

Ref: 4T4900

TO FIND OUT MORE CALL +44 (0)1482 347590

ARCO TRAINING & CONSULTANCY
CALIBRATION SERVICE:
- Six month requirement
- Arco Training & Consultancy offers a gas detector calibration service for the MSA range
- Speedy on-site service or calibration

www.arco.co.uk/confinedspaces
Selection and Use of PPE & RPE

The Health and Safety at Work etc Act 1974 and the Management of Health and Safety at Work Regulations 1999 require you to provide and maintain a safe working environment, so far as is reasonably practicable.

In addition, the COSHH Regulations 2002 stipulate, Respiratory Protective Equipment may need to be used to satisfy requirements when working in confined spaces.

The Personal Protective Equipment at Work Regulations 2002 (PPE) and the Respiratory Protective Equipment at Work Guidance HSG53 (RPE) state that PPE and RPE should only be used where there are risks to health and safety that cannot be controlled in other ways.

When supplying PPE or RPE, it is the duty of the employer to provide training on the equipment, ensure the equipment is maintained in good order and ensure the maintenance records are documented.

It is imperative that anyone using PPE or RPE understand why they need the equipment, when and how it should be used, repaired or replaced and if there are any limitations.

To select the right PPE and RPE you will have to take account of the properties of the hazardous substances, the needs of the wearer, the work and workplace conditions.

All of Arco’s PPE and RPE conforms to all relevant European standards and carries the CE mark, ensuring the equipment complies with the requirements of the Personal Protective Equipment Regulations 2002 and the Respiratory Protective Equipment at Work Guidance HSG53. The CE marking signifies that the protection satisfies the necessary requirements and in some cases will have been tested by an independent body.

Face Fit Testing and Breathing Apparatus Training

Arco Training and Consultancy has the largest RPE team in the UK, providing face fit testing, breathing apparatus training and RPE Management.

TO FIND OUT MORE CALL 01482 347590

MSA’s range of self-contained breathing apparatus systems are designed for long life and low maintenance. With a variety of pre-configured sets designed to meet a wide range of industrial applications and a bespoke service allowing you to custom build a set to meet your own needs.

MSA AirGo Pro Self-Contained Breathing Apparatus

Specifically designed for emergency response and escape purposes in industrial applications AirGo compact is the obvious choice in areas where SCBA sets are mandatory.

- High-quality construction
- Integrated warning whistle
- Padded straps for wearer comfort
- Ergonomic back plate for comfort and balance
- Long cylinder strap, suitable for single or twin cylinder use
- Low maintenance costs
- Face mask and cylinder purchased separately

Approved to EN 137:2006, type 2
Alex II 1 G c IIC T6
Delivery 14 Days
Ref: 21M4100

MSA Ultra Elite-PS-MaXX Full Face Mask

Combining practical experience and modern design to provide superior performance, comfort and durability in a full face mask.

- Ergonomic design and five-point adjustment harness for comfort
- Large visor allows excellent field of vision
- Silicone material
- For use with AirGo Pro and AirGo Compact SCBA and AutoMaXX demand valve

Approved to EN 136 Class 3
Delivery 14 Days
Ref: 21M4300

MSA AutomaXX Demand Valve

Designed for use with the AirGo Pro this positive-pressure demand valve delivers a sensitive response to the individual’s breathing in the toughest conditions.

- Swivel action on the face piece allows maximum freedom of movement
- Activated by first breath
- Automatically shuts down positive pressure when removed from mask
- Low maintenance
- MaXX plug connector

Approved to EN 137:2006
Ref: 21M4200

MSA Breathing Air Cylinders

MSA breathing air cylinders for use with MSA SCBA sets.
6 litre / 300 bar
Ref: 21M4400 – Composite
Ref: 21M4500 - Steel
Self-Contained Breathing Apparatus

Scott Safety’s range of SCBA units deliver breathable air from a cylinder carried by the wearer in environments which are immediately dangerous to life or health, such as oxygen deficient atmospheres.

An SCBA allows the user freedom of movement by allowing them to operate independently from a remote air source such as a compressor.

ASSFX & ACSf SCBA Contained Breathing Apparatus

The ACS represents a major advancement in SCBA. Significantly lighter than any other carrying system and offers the wearer the ultimate in comfort and flexibility, comprising a lightweight flexible backplate with Kevlar blend cylinder band and fully adjustable padded body harness with swivel movement waist belt. Fully adjustable waist belt can be simply moved to 3 positions to provide 3 sizes of back plate to cater for different sized users.

- Reduced user burden – The lightest carrying system in its class
- Lower through life costs / Easy upgrade path
- Easy decontamination – Both back plate and harness can be washed
- High performance pneumatics, exceptionally high airflow

Approved to EN137:2006 Type II and MED

*Apparatus supplied less facemask, please order desired mask separately

Ref: 21A9100

Scott Vision 3 Face Mask

Positive-pressure face mask with silicone outer and TPE inner mask.

- Uniquely shaped visor for improved vision
- Left-sided quick-fit connection for demand valve
- Adjustable rubber head harness

Approved to: EN136

Ref: 2115600

Scott Sigma-2-PS Set

Low-cost self-contained breathing apparatus set supplied complete with a black neoprene panaseal face mask.

- Moulded composite backplate
- Fully adjustable, flame-retardant polyester harness
- Ideal for marine applications
- Cylinder supplied separately

Approved to EN 137

Assigned protection factor 2000

Ref: 2107500

Airline Breathing Apparatus

Ideal for environments where the ambient oxygen cannot be guaranteed, airline breathing apparatus combine the highest degree of respiratory protection with long duration use. Air is supplied to the user from a remote air source through a compressed air supply hose. The complete modular system allows users to configure a unit which exactly meets their operational requirements.

Scott Flite Airline Breathing Apparatus

Can be used either as a working set for general industry or as an airline escape set.

- Compact automatic positive-pressure demand valve
- Side-mounted
- Constant flow by-pass
- Lightweight harness

Face mask and cylinder purchased separately

Approved to EN 139 and EN402

Ref: 21A1000 – Flite Airline

Ref: 2103100 – 10 Minute Cylinder

Scott Air Filter Unit

Two-stage filtration unit for use with Scott Airline Breathing Apparatus.

- Effective filtration of particles and oil
- Charcoal element removes nuisance odours
- Clogged pre-filter warning
- Oil and water auto drain

AFU 300 with single outlet, provides 300 litres of air per minute
AFU 600 with twin outlet, provides 600 litres of air per minute

Ref: 183700 – AFU 300

Ref: 183800 – AFU 600

Contact your local branch for the full range of Airline Breathing Apparatus

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Confined Space Rescue

It is a requirement that suitable and sufficient arrangements for rescuing an incapacitated person from a confined space is implemented before the work begins. This will include having sufficient equipment and trained personnel to carry out a rescue. Consideration should be given to all foreseeable injuries or situations not just the specific hazards detailed in the approved code of practice.

On longer or more complex jobs it is good practice to contact the emergency services if they are to be called upon to assist with a rescue but it should be noted that the emergency services cannot be the only form of rescue provision; i.e. ‘call 999’ is not a suitable and sufficient rescue plan.

In the Confined Space Regulations 1997 training must be provided on:

- The likely causes of an emergency
- The use of rescue equipment, e.g. breathing apparatus, lifelines, and where necessary a knowledge of its construction and working
- The check procedures to be followed when donning and using apparatus
- Checking of correct functioning and/or testing of emergency equipment for immediate use and to enable specific periodic maintenance checks
- Identifying defects and dealing with malfunctions and failures of equipment during use; works, site or other local emergency procedures including the initiation of an emergency response
- Instruction on how to shut down relevant process plant as appropriate (this knowledge would be required by anyone likely to perform a rescue)

This equipment could include any or all of the following:

- Means of sounding the alarm
- Means of communicating with emergency services
- Breathing apparatus (separate air supply)
- Personal protective equipment for the rescuers
- Winch for lifting the casualty
- Harness and lanyard
- Stretcher for removing the casualty horizontally
- Torches
- First Aid equipment – resuscitator
- Fire-fighting equipment
- Tripod/winch
- Lifelines
- Resuscitation procedures and, where appropriate, the correct use of relevant ancillary equipment and any resuscitation equipment provided (if intended to be operated by those receiving emergency rescue training)
- Emergency first aid and the use of the first aid equipment provided
- Use of fire-fighting equipment
- Liaison with local emergency services in the event of an incident, providing relevant information about conditions and risks, and providing appropriate space and facilities to enable the emergency services to carry out their tasks
- Rescue techniques including regular and periodic rehearsals/exercises. This could include the use of a full-weight dummy
- Training should be realistic and not just drill based, and should relate to practice and familiarity with equipment.

Source: The Confined Space Regulations 1997

Additionally training will be required on all the equipment that will be used to successfully complete the rescue operation and it is essential that all rescue training is practised until a competent response can be achieved in an emergency.

Confined Space Rescue & Escape

Escape sets are only meant to be worn in situations where the breathable air quality has been compromised and it is critical to quickly escape contaminated areas. The ELSA range must only be used as a means of escaping and should not be used for normal working, entry hazardous areas or rescue.

Scott Cen-Paq
Simple, quick-to-don short-duration BA set built in to a highly visible jacket.
- Ideal for survey work, sewer work, rescue situations
- Proven pneumatic system
- Pressure gauge and warning whistle
- Facemask storage pouch
- Lightweight – less than 7.5kg including cylinder and mask
Face mask and cylinder purchased separately
Approved to EN 137
Assigned protection factor of 2000
Ref: 2106400 – Jacket & Pneumatics Only
Ref: 2106200 – 20 Minute Cylinder

Scott Elsa Sprint 10 Minute Escape Set
Lightweight positive-pressure escape set with panaseal face mask for escape purposes.
- Ideal for smoke, gas or chemical escape applications
- Provides 400 litres of breathing air
- Automatic start up and positive pressure
- Highly visible flame-retardant carry bag
- 10-minute duration
Approved to EN 402
Ref: 2100700 – Escape Set
Ref: 210100 – Cylinder

Scott Elsa-10-B Escape Set
Simple and reliable constant flow escape set with easy to don hood and automatic operation.
- For smoke, gas and chemical escape applications
- Excellent vision
- 10 minute cylinder included
- Pressure gauge and warning whistle
- Transparent section on pouch for ease of inspection
Approved to EN 1146
Ref: 2101500

On longer or more complex jobs it is good practice to contact the emergency services if they are to be called upon to assist with a rescue but it should be noted that the emergency services cannot be the only form of rescue provision; i.e. ‘call 999’ is not a suitable and sufficient rescue plan.

In the Confined Space Regulations 1997 training must be provided on:

- The likely causes of an emergency
- The use of rescue equipment, e.g. breathing apparatus, lifelines, and where necessary a knowledge of its construction and working
- The check procedures to be followed when donning and using apparatus
- Checking of correct functioning and/or testing of emergency equipment for immediate use and to enable specific periodic maintenance checks
- Identifying defects and dealing with malfunctions and failures of equipment during use; works, site or other local emergency procedures including the initiation of an emergency response
- Instruction on how to shut down relevant process plant as appropriate (this knowledge would be required by anyone likely to perform a rescue)

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- Means of communicating with emergency services
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- Harness and lanyard
- Stretcher for removing the casualty horizontally
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- First Aid equipment – resuscitator
- Fire-fighting equipment
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- Rescue techniques including regular and periodic rehearsals/exercises. This could include the use of a full-weight dummy
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Source: The Confined Space Regulations 1997

Additionally training will be required on all the equipment that will be used to successfully complete the rescue operation and it is essential that all rescue training is practised until a competent response can be achieved in an emergency.

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- 10-minute duration
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Ref: 210100 – Cylinder

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- Pressure gauge and warning whistle
- Transparent section on pouch for ease of inspection
Approved to EN 1146
Ref: 2101500
Vertical Entry

Vertical entry equipment facilitates the safe entry and exit of the confined space and the retrieval of casualties. The equipment must be used by competent people who are trained to use the items and are aware of the procedures and rescue plan for the work involved.

**IKAR Tripod Kits**
Kit containing aluminum rescue tripod, fall arrest retriever and mounting bracket.
- Tripod designed for rapid setup
- Block retriever mechanism allows user to be lifted or lowered
- Kits available with block lengths of 12m, 18m, 24m, 30m and 42m
Approved to EN 360, EN 795 and EN 1496
Delivery 2 Days
Ref: 4D4300 – 12m
Ref: 4D4400 – 18m
Ref: 4D2300 – 24m
Ref: 4D2400 – 30m
Ref: 4D2500 – 42m

**IKAR Aluminium Tripod**
Aluminium, height-adjustable rescue tripod designed for rapid setup.
- Maximum rated loads - two persons or one person and one load winch
- SWL - 272kg for persons; 500kg for load
- Height-adjustable from 1.44m to 2.42m
- Two attachment eyebolts on tripod head
- Weight 19kg
Approved to EN 795
Delivery 2 Days
Ref: 4D1300

**IKAR Fall Arrest Retrievers**
Fall arrest block with an integral recovery mechanism, steel rope lifeline in an aluminium housing.
- Low maintenance
- Steel double-action hook
- Can be used in conjunction with tripod to protect the user when ascending and descending a vertical shaft
- Built-in recovery mechanism
Delivery 2 Days
Ref: 4D4100 – 12m
Ref: 4D4200 – 18m
Ref: 4D1800 – 24m
Ref: 4D1900 – 30m
Ref: 4D2000 – 42m

**IKAR Fall Arrest Retriever with Chain**
Fall arrest block with an integral recovery mechanism and steel rope lifeline in an aluminium housing
- Low maintenance
- Aluminium double-action hook
- Designed to be anchored above the place of work / entry
- Built-in recovery mechanism operated by the chain drive
Delivery 2 Days
Ref: 4D2900 - 12m
Ref: 4D7200 - 18m

**IKAR Tripod Load Winch with Bracket**
Load winch for use with IKAR tripod.
- Complete with 20m x 5mm diameter galvanised steel rope to give an SWL of 250kg
- Not suitable for man riding
Delivery 2 Days
Ref: 4D3200

**IKAR Tripod Mounting Brackets**
Mounting bracket for attaching an IKAR retriever device onto an IKAR aluminium rescue tripod.
Delivery 2 Days
Ref: 4D1400 – 12m to 30m Devices
Ref: 4D1500 – 42m Device
**Vertical Entry**

**IKAR Kernmantle Safety Lifeline**
- 14mm kernmantle rope, safety lifelines with sewn eye terminations at each end
- Suitable for confined space use, for hauling and draging
- Approved to EN 1891, type A
- Purchase separately x2 steel karabiners - 4D3400
Deliver 2 Days
Ref: 4D3300 – 10m
Ref: 4D5500 – 20m

**IKAR Tripod Storage & Carrying Bag**
- Easy for carrying over shoulder
Delivery 2 Days
Ref: 4D3300

**Paraguard Evacuation Stretcher**
Perfect for use underground, in confined spaces and high buildings.
- Centre unlocks and bends for use in awkward spaces
- Quick and easy to use, with straps to secure the chest, arms, thighs and lower legs
- A three-point, non-slip forehead strap holds the head in place, with a figure of eight strap to support the feet
- Four integral side handles clip out of the way when not in use
- Impervious to oil, water, grease and other petroleum products and resistant to rot and corrosion
- Detachable wipe-clean flaps to enhance infection control
Ref: 4F7999

**Arco Recovery Safety Harness**
Adjustable single-point fall arrest harness with overhead rescue attachment for working in and recovery from a confined space.
- Rear fall arrest ‘D’ ring
- Overhead rescue attachment
Ref: 436900

**Arco Arrester Safety Harness with Jacket**
Fully adjustable two-point fall arrest harness, complete with overhead rescue attachment and heavy-duty PVC waistcoat.
- “Thru-the-Slot” buckle system
- Front and rear fall arrest attachment D-rings
- Overhead attachment D-ring for confined space rescue
- Heavy-duty PVC waistcoat aids donning and protects harness
Ref: 437000
Safety Lighting

When working in a confined space lighting can pose a potential problem. Our range of lighting covers all needs and ensures you have quality lighting as required. With ATEX options available for all zones and various IP ratings for water and dust protection, we have a lighting solution for all working conditions.

**Wolf ATEX Zone 0 Headtorch**
The HT-650 is a battery powered head lamp with LED light source. ATEX approved for safe use in zone 0 hazardous areas, it is the ideal for applications where hands free lighting is essential.
- ATEX certified for use in zones 0, 1 and 2
- 130 lumens from a single high power LED
- 25,000 hrs + LED life (fitted for life)
- 14 hours duration from 3 x AA alkaline batteries
- Tilt adjustment to angle the light
- Fitted with fabric headband for comfort over long periods
- 4 helmet clips provided
- Supplied with silicone rubber strap for better grip on hard hats and safety helmets
- Weight 180 grams
- IP66 rated

Ref: 456506

**Wolf ATEX Zone 1 Headtorch**
The HT-400 is a battery powered head lamp with LED light source. ATEX approved for safe use in zone 1 and 2 hazardous areas, it is the ideal for applications where hands free lighting is essential.
- ATEX certified for use in zones 1 and 2
- 50 lumens from a single high power LED
- 25,000 hrs + LED life (fitted for life)
- 6 hours duration from 3 x AAA alkaline batteries
- Tilt adjustment to angle the light
- Fitted with fabric headband for comfort over long periods
- 4 helmet clips provided
- Weight 90 grams
- IP66 rated

Ref: 456505

**Petzl Tikka 2 ATEX Headlamp**
Robust ATEX head torch with mixed beam for working close-up and moving around.
- Durable head torch with high-power LED
- 2 Lighting modes giving constant, regulated lighting
- Rotating switch, easy to operate when wearing gloves
- Storage position protects lens
- Resistant to chemicals
- Excellent resistance to falls and crushing (withstands 80 kg)
- Comfortable adjustable headband, detachable for washing
- Compatible with alkaline, rechargeable Ni-MH* or Lithium* AA batteries (*double burn time with these batteries)
- ATEX zone 2 certified - CE0080, Ex II 3 GD, Ex nAnL IIB T4
- 40 Lumens brightness, 30 metre beam, Waterproof to IP 67

Ref: 466108

**Petzl Pixa 2 ATEX Headlamp**
New generation of iconic Petzl Tikka headtorch.
- 4 LEDs with 3 lighting modes (high, low, flash)
- Lithium-ion and rechargeable NiMh battery compatible (3 AAA alkalines included)
- Electronic push-button switch, easy-to-access battery case
- Comfortable and adjustable headband
- Improved specification: 40 lumens / 120 hours battery life / 28 metre beam
- IPX4 stormproof
- Weight: 81 grams including batteries.

Ref: 466107

**Arco Essentials LED Headlamp**
Multi-function LED headlamp with switchable lighting levels.
- High power one watt Luxeon LED is extremely bright with a beam capacity of up to 50 metres
- 3 white regular LEDs provide diffuse proximity lighting
- 80,000 hours LED life
- Adjustable and comfortable elastic headband
- Rubberised body
- Weather-resistant
- Uses 3 AAA batteries (supplied)

Ref: 4E6111

**Guardian ATEX Spacelight**
A Zone 2 Gas and Dust certified product that provides high performance and illumination. Compact size, portability and cable-free operation combined with completely cool running ensure Nitech lighting products are ideal for use in confined areas including plant maintenance and inspection and vehicle repair.
A separate advanced electronic charger (for use outside Hazardous Area) provides rapid recharge and comprehensive battery monitoring.
- The Guardian incorporates visual and audible circuits for signalling low-battery status
- Very low maximum surface temperature
- Superb area illumination performance – 2000 lumens shadow-free light
- Compact, lightweight, highly portable
- Weatherproof, very robust
- Rechargeable
- Full power operating times up to 10 – 12 hours
- IP68 rating

Ref: 3715040
**Safety Barriers**

 Tanks, pressure vessels and other forms of confined space present hazards, not only to the personnel trained to work safely within confined spaces but also to other workers and/or members of the public who may find themselves in the same proximity, either intentionally or un-intentionally.

Safety barriers are an effective way of both highlighting the presence of a hazardous area, and restraining access to it. Used in conjunction with adequate warning signage ensures that non-authorised personnel are kept safely away from entrances to confined spaces.

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**Addgards Supergard Barrier**

Allow for greater safety and security when closing off work areas from the general public.

- Barriers can snap together to make this a versatile barrier system
- Lightweight, durable and can foldaway for easy storage
- All panels are fitted with rubber feet to grip any hard surface
- Available in 1100 mm 2 panel set or 550 mm 1 panel set for increased flexibility
- All sizes are 1100 mm high

Ref: 5757301 – 2 Panels 1100 mm x 1100 mm each
Ref: 5757302 – Single Panel 1100 mm x 550 mm each

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**Addgards Chapter 8 Barrier**

This 800 mm high compact lightweight system is easily transported and deployed especially for quick repairs when removing manhole covers.

- Suitable for indoor and outdoor use
- Complies with the regulations where the site is manned at all times
- Supplied as a standard 3 way unit, snap hinges ensure extra sections can be added quickly in order to cordon off large areas

Ref: 5756100

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**Titan One-Piece Barrier System**

A stackable barrier which meets proposed NRSWA changes affecting wind stability as setout in BS8442 when erected and assembled correctly.

- One-piece injection-moulded design made from virgin polypropylene offering sub-zero temperature and 2 year colour-fast properties
- Centre strut incorporates ergonomically-designed finger grip
- The new design is 100% metal-free and fully recyclable
- Can be folded and stacked whilst still linked
- New linking facility allows the quick and easy joining of modules
- 1.25 linear metres of reflective material
- 1.5 metre modules for ‘boxing-off’ ends of barrier runs


Ref: 5700130 – 2 metre
Ref: 5700131 – 1.5 metre
Ref: 5700132 – Spare Clips

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**Signage**

To comply with The Health & Safety (Safety, Signs & Signals) Regulations 1996 require “employers to ensure that safety signs are provided (or are in place) and maintained in circumstances where risks to health and safety have not been avoided by other means” When dealing with confined spaces it is imperative that mandatory and prohibition signs are used to inform employees and visitors where they can and cannot go and what PPE needs to be worn in certain areas.

If you are unsure of your business’s legal requirements one of our site survey specialists can help. With this service you can be confident that all your required signs meet the latest legislation and safety practices. To book one please contact your local branch or account manager.
Over 40 branches nationwide

Scotland

Aberdeen 01224 249 494 AB12 3LH
Bellshill 01288 841 867 ML4 3LR
Glasgow 0141 419 5233 G51 2XZ
Irvine 01294 315 908 KA12 8NB
Linlithgow 01506 841 510 EH49 7GY

North of England

Blaydon-on-Tyne 01274 732 211 NE21 3SJ
Carlisle 01228 591 100 CA3 0HA
Stockton-on-Tees 01642 617 441 TS18 2QX

Yorkshire and the Humber

Bradford 01274 732 211 BD4 8SL
Doncaster 01302 341 195 DN1 4JR
Grimsby 01472 361 768 DN31 2UJ
Hull 01482 611 611 HU1 2RZ
Leeds 0113 242 5134 LS1 6BP
Ossett 01924 268 800 WF5 9JQ
Sheffield 0114 253 6367 S9 4HA

East Midlands

Bury St Edmunds 01284 773 030 IP32 7BY
Leicester 0116 231 8700 LE3 1UQ
Northampton 01604 777 850 NN5 4JS
Nottingham 0115 938 8568 NG8 4GJ

West Midlands

Coventry 02476 369 780 CV7 1BN
West Bromwich 0121 500 6060 B71 1BU

South of England

Avonmouth 0117 982 3753 BS11 8DF
Basildon 01268 525 847 SS14 3JD
Brentford 01923 209 124 TW8 8QL
Heathrow 0181 500 1982 SL3 OES
Hedge End 023 8027 0000 SO30 2TQ
Orpington 0181 675 411 BRS 9QC
Park Royal 020 8965 2338 NW10 7UL
Plymouth 01752 751 650 PL6 6LT
Poole 01202 640 488 BH17 7AE
Portsmouth 02392 732 995 PO4 0PD
Stratford 02085 250 974 E9 9HD
Watford 01923 204 141 WD24 4YT

Wales

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Swansea 01792 792 390 SA6 8QG

Northern Ireland

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