

Confined Space Entry

Solutions for Oil and Gas Workers



WE KNOW WHAT'S AT STAKE.

Confined Space Entry Solutions



Confined Space in OGPC

Confined space is widely spread at oil refining, petrochemical and gas refining plants, in underground compartments, such as oil products storage tanks, underground sewage collectors and many other areas. The hazards which can be faced when entering and working in confined spaces can cause bodily injury, disease and death of the worker.

Working in confined spaces is estimated to be 100 to 150 times more hazardous than operating on an open site. Unknown areas and their interior environments with confined space characteristics should always be treated as confined spaces considering all necessary safety precautions.

What is a Confined Space?

An enclosed or partially enclosed space under atmospheric pressure, not intended and not initially designed as working spot, and anytime:

- is exposed to atmosphere containing potentially excessive contamination levels,
- experiences lack or excessive content of oxygen,
- causes absorption, or
- has limited means of entry and escape.

Examples of Confined Spaces

- Storage tanks, road tankers, boilers, bins, pipelines and other tank-type compartments
- Cavities, pits
- Mine shafts and tunnels
- Any ship spaces accessed through a hatch or an access point, cargo tanks (except for dry cargo holds)

Entries into the confined spaces conjugate to the uncharted danger of the enclosed atmosphere. For safe work and proactively identifying the danger before each entry, it is necessary to conduct an atmosphere analysis, as well as continuously monitoring the inside atmosphere. Specially designed for sampling and monitoring, MSA offers a wide portfolio of rugged portable gas detectors, dedicated test stations and accessories. Together with cloud-hosted Grid services we enable a broad range of safety activities, ensuring compliance and real time awareness.



ALTAIR® 4XR Multi-Gas Detector

The versatile 4-gas detector ALTAIR 4XR offers constant gas monitoring, ideal for confined space workers. Together with ALTAIR Pump Probe can be quickly converted into a pumped detector for remote pre-entry atmosphere analysis.

ALTAIR 4XR has IP 68 rating and withstands multiple drops from 7.5 m, exceeding the military standard MILSTD-810 drop test requirements (25 drops from 1.2 m). It is equipped with MSA XCell® sensors providing longer service life and run time and faster response times that help saving lives.

With its 4-year warranty ALTAIR 4XR is equipped with Bluetooth connectivity allowing real-time awareness with live gas readings and alarm notifications. For additional safety, ALTAIR 4XR features the MotionAlert mandown alarm and InstantAlert manual alarm.



ALTAIR® 5X Multi-Gas Detector

The ALTAIR 5X detector with Bluetooth wireless technology, integrated pump and PID option for VOC detection measures up to 6 gases simultaneously. Clearance measurements can be performed remotely using sampling line and floating probe.

Driven by advanced MSA XCell® Sensor Technology, the ALTAIR 5X delivers faster response time, better stability, accuracy, longer service life, and cost savings. Inside, a field-proven integral pump provides consistent gas flow without the problems of externally attached components. Ergonomic design, glove-friendly buttons and a high-contrast display make the ALTAIR 5X multigas detector easy to use for confined space applications.



ALTAIR® io360 Gas Detector

The new area monitor offers four-gas continuous detection for high risk areas in confined spaces. The ALTAIR io360 combines the simple set-up of a smart home device, while allowing local or remote monitoring of hazard areas. The ultra-long battery life keeps the focus on safety and less on maintenance. The ALTAIR io360 delivers IP68 ruggedness and best-in-class, XCell sensors.



Safety io Grid services

Transform your gas detection program into an empowering safety platform. Boost your world-class MSA hardware with the Safety io Grid services and break down the obstacles standing between you and your safety goals:

Grid Fleet Manager allows proactively track and monitor the status of ALTAIR Family gas detectors and GALAXY GX2 test stations and make standard operating procedures more efficient.

Grid Live Monitor enables real time, remote tracking and monitoring of all confined space workers using multigas detectors or area monitors.

safety^{io}



Fall Protection

For confined space entries without support points, MSA offers a unique system for personnel and cargo lowering into / rising from a confined space. The universal tripod provides a class B anchor point. Lifting is controlled by the MSA Workman Winch. Self-retractable lanyards serve as fall-arrest devices. The MSA Workman Rescuer provides fast, easy and intuitive fall protection with integral bidirectional retrieval capability.



MSA Workman® Tripod

Weighing just 19.5 kg with a maximum extension length of 245 cm, this aluminium tripod is an ideal anchorage point for work assignments with limited staff. It is suitable for fall arrest, rescue, retrieval or evacuation and loads of up to 140 kg for personnel and 225 kg for materials. Installation is intuitive and fast taking 2 minutes only.

MSA Workman® Winch

The winch with built-in energy absorber and a cable length of up to 30 m offers safe entry when no aids such as rungs or conductors are available. The integrated bracket can easily be mounted on the tripod. A double braking system provides secondary protection. In addition, loads of up to 140 kg for personnel and 225 kg for materials can be transported.

MSA Workman® Rescuer

The appropriate 15 m long stainless steel cable fall arrester with integrated rescue lift and bracket makes mounting on the tripod a simple and very flexible security system.



MSA V-FORM™ Full-Body Harness

With unique racing style bayonet buckle and athletic cut that contours the harness to the body, the new MSA V-FORM range of safety harnesses provides full comfort to the users. Pull-down adjustments allow for quick and easy adjustment that lasts throughout the work day. The integrated load indicator facilitates rapid visual inspection by the user prior to use. Harness versions with rescue loops allow rescue operations through narrow manholes. Certified according to EN 361, EN 1497.



MSA Workman® Spreader Bar

When connected to the shoulder D-Rings of the MSA V-FORM harness, the MSA Workman spreader bar can be used for rescuing people from confined spaces. The attached web loops can be used to secure an incapacitated victim's arms when lifting or lowering. Certified according to EN 354.



V-TEC™ Self-Retracting Lifeline

The completely field-serviceable SRL with precision-made spring radial energy absorber that requires zero calibration or adjustment. Retraction dampening controls the cable speed protecting from damage. Clear polycarbonate housing simplifies pre-use inspection. Stainless steel cable and components allow for use in the harshest confined spaces applications.



In confined space areas with a constantly high potential for hazardous emissions, MSA offers combination supplied airline respirators operated by an airline trolley system to provide proper safety at work. If there is a risk for unexpected hazardous events, an escape device or an oxygen self-rescuer are the right choice to help workers escape from the confined space in case of oxygen deficient or toxic atmosphere.



PremAire® Combination Supplied Airline Respirator

This supplied airline respirator with compressed air cylinder provides sufficient breathing air for about 15 minutes for short revisions, inspection work, or, in case of emergency, to bring oneself or a colleague out of the danger zone. A streamlined design offers a first stage pressure reducer and cylinder valve within one assembly, creating a very small size and profile that is less likely to snag when working in confined space or tight places.

In combination with an airline system or simply as a self-rescue device, PremAire Combination is ideal for working independently of the ambient air in all applications with short distances, where a short-duration SCBA is applicable.



PremAire® Escape Emergency Escape Breathing Device

This positive pressure short duration compressed air emergency escape breathing device (EN 402) provides the user with respiratory protection while escaping from toxic atmospheres. The components of the respirator withstand high levels of potential industrial gas leaks and harsh chemical environments. It offers an air supply of 10-15 minutes duration and is equipped with a 3S full face mask or for potential high concentration industrial gas leaks like H₂S with the innovative Mask-Hood combination.



MASS Trolley System

For applications requiring an extended source of compressed air, MSA offers the MASS Trolley System. This Mobile Air Supply System provides the user with a mobile air source wherever needed. It can be ordered in several configurations and with a variety of accessories to fulfill any unique requirements for working in hazardous and dangerous situations.



SavOx Self-Rescuer

The SavOx is a small and compact self-rescuer with a breathing air supply of approximately 30 minutes (at 40 litres/min). This is particularly suitable for hard and dirty missions due to the robust design with stainless steel housing. With a low weight of only 2.5 kg, it can easily be attached to the belt and is therefore always ready to use, should self-rescue be necessary.



Respiratory Protection

Confined space operations may require longer time to fulfill the tasks and use of Self-Contained Breathing Apparatus during whole task. This is typical for technical maintenance and rescue teams. Then operational efficiency and proven extended performance are important for SCBA to protect the user irrespective of operating conditions. MSA's modular SCBA with full face mask and optional communication set, for a variety of advanced missions, complete your solution for demanding confined space jobs.



MSA M1 Industrial SCBA

The new M1 SCBA is a modular system breathing apparatus that can be configured from Basic to Advanced version. It is suitable either for confined space maintenance or rescue tasks, including firefighting.

This platform incorporates several innovative and customizable features that improve comfort. Easy to adjust backplate, padded harness and hip belt design preventing pressure points and slipping, ensuring even weight distribution.

Confined space workers can benefit from reduced risk of snagging in narrow areas thanks to guided hoses in backplate. Increased chemical resistance together with easy cleaning and disassembly make this SCBA ideal choice also for emergency response and escape.



G1 Full Face Mask

The G1 mask with its wide distortion free field of vision is not only lightweight and compact with overall low profile design, it's comfortable and built to last. Various mask sizes combined with different harness options or helmet attachment brackets set new standards in wearing comfort. The outstanding single-sealing flange further increases the comfort while the unique airflow prevents lens misting and reduces breathing resistance.

The additional C1 communication module allows users to easily communicate when wearing breathing apparatus.

Thanks to an exceptional voice transmission, this module helps in better coordination of both standard and emergency tasks within confined spaces.



Regardless of what kind of work is carried out inside a confined space, it is necessary to use preventive personal protective equipment such as helmets, ear-defenders, full face visors and goggles. Working in the field of safety for more than 100 years, MSA offers a wide range of reliable and comfortable PPE for preventive protection.



V-Gard® H1 Safety Helmet

The V-Gard H1 Safety Helmet is the ideal choice providing exceptional comfort and ease of use in a stylish design. Its low-profile conception - even when accessories such as visor or spectacles are attached - is perfect for confined spaces environments. The patent-pending integrated rail system provides effortless integration of the V-Gard H1 accessories and the helmet shell integrates universal clips for head lamp. The V-Gard H1 chinstrap includes a rescue whistle for additional safety. And as for all MSA helmets, logo customization option is available!



V-Gard® 950 Unvented Safety Helmet with integrated full face visor

The V-Gard 950 safety helmet is the optimal choice when you need to reliably protect your head & your face in confined spaces : low-profile, compact and lightweight, this electrician helmet makes no compromise on comfort. Its premium integrated - and retractable - full face visor protects against impacts, chemical splashes, molten metal splashes and electric arc effects. Available in 6 colours, it comes with many accessories & options including badge/lamp holder, arc-flash ear-flaps or logo customization.



left/RIGHT™ Helmet-Mounted Ear Defenders

left/RIGHT™ ear defenders feature a unique design to fit ears of all shapes and sizes, for increased comfort and protection. With a range of passive versions (up to 33 dB of SNR) and electronic models featuring ambient sound awareness (CutOff system) and Bluetooth communication capabilities (WW : Wireless World versions).



Altimeter Goggles

The multipurpose Altimeter goggles can be worn with headband or temples. They come with a soft frame for complete coverage and outstanding shock absorption. The Sightgard coating and 18 indirect ventilation holes provide perfect, fog-free vision. Altimeter can be taken from the head without taking off the helmet using the comfortable, adjustable head strap with snap button on the middle band.



Ordering Information

Portable Gas Detectors, Area Monitors & Accessories	
10178573	ALTAIR 4XR LEL, PEN, O ₂ , CO, H ₂ S, Charcoal
10178569	ALTAIR 4XR LEL, PEN, O ₂ , CO, H ₂ S, Phosphorescent
A-ALT4XR-L-1-G-E-E-0-0-0-0-0	ALTAIR 4XR LEL, O ₂ , CO, H ₂ S-LC, Charcoal
10119611	ALTAIR 5X LEL, CH ₄ , O ₂ , CO, H ₂ S, CO ₂ , Colour
10119614	ALTAIR 5X LEL, PEN, O ₂ , CO, H ₂ S, Colour
A-ALT5X-D-L-K-0-1-1-0-E-0-0-0	ALTAIR 5X LEL, PEN, O ₂ , CO, H ₂ S, PID, Colour
10207440	ALTAIR io360 LEL, O ₂ , CO/H ₂ S, green, single unit
10207468	ALTAIR io360 LEL, O ₂ , CO/H ₂ S, black, single unit
10207457	ALTAIR io360 LEL, O ₂ , CO/H ₂ S, green, 4 pack with MSA HUB
10207453	ALTAIR io360 LEL, O ₂ , CO/H ₂ S, black, 4 pack with MSA HUB
10200410	MSA HUB for ALTAIR io360, 868MHz
10152668	ALTAIR Pump Probe w/o charger
10103191	30 cm Standard Probe Assembly
10082307	5 m Sampling Line with Floating Probe
10128636	GALAXY GX2, ALTAIR 5X/5X PID, 4 Valve, EU Plug
10128640	GALAXY GX2, ALTAIR 4X/4XR, 4 Valve, EU Plug
10105756	Smart Electronic Cylinder Holder, integrated DFR
10053022	Gas can (58 l), 1.45% CH ₄ , 15.0% O ₂ , 60ppm CO, 20ppm H ₂ S
10207603	Gas can (58 l), 2.5% CH ₄ , 15.0% O ₂ , 60 ppm CO, 20 ppm H ₂ S
Fall Protection	
10116521	MSA Workman tripod
10158192	MSA Workman Rescuer fall arrester, 15 m
10147567	MSA Workman winch, 15 m, stainless steel cable
10129888	Steel carabiner
10169369	Carrying bag for MSA Workman tripod
506222	Pulley
10206046	V-Form harness with Back/Chest/Shoulder D-Rings, bayonet buckles
10115550	MSA Workman spreader bar
63315-00AEU	V-TEC SRL, 15 m, stainless steel cable

Head, Eye, Face & Hearing Protection	
10194795	V-Gard H1 Novent helmet, yellow, Fas-Trac® III Pivot Ratchet Suspension, 4-point chinstrap fitted, "push-button" accessory attachment rail, universal head lamp clips, retro-reflective stickers and integrated rescue whistle.
10194820	V-Gard H1 spectacles
10194818	V-Gard H1 clear full face visor
GVF1A-C0A00HG-000	V-Gard 950 Cap, Non-Vented, White, Arc flash ear flaps, Red Stickers, with 4 point chinstrap fitted and reusable bag
10087425	left/RIGHT ear muffs, headband, yellow, medium attenuation
10087428	left/RIGHT ear muffs, helmet mounted, yellow, medium attenuation
10176719-00	left/RIGHT WW ear muffs, headband
10176719-01	left/RIGHT WW ear muffs, helmet mounted
10153915	Altimeter safety goggles clear UV400, Sightgard Antifog
Respiratory Protection	
PremAire C4-F04-L2-M1-H3-W2-*. *-C07	PremAire Combination Mini, with 3S full face mask, 3 l composite cylinder (empty)
PremAire C3-F04-L2-A1-H3-W2-*. *-C04	PremAire Combination Airline /SCBA, with 3S full face mask, 2 l composite cylinder (charged)
PremAire C5-F04-L2-T1-*. *-C04	PremAire Combination Escape, with 3S full face mask, 2 l composite cylinder (charged)
PremAire E1 F01-L1-*. *-H1-*. *-C04	PremAire Escape, with 3S full face mask, 2 l composite cylinder (charged)
M0018642	MASS trolley system, 40 m hose, w/o cylinder
10023263	SavOx Self-Rescuer
10200950	Basic Industrial M1 SCBA with fixed M1 LGDV, harness & cylinder strap plastic buckles, classic pneumatics & gauge
M1-RE-C4-BSO-DN-TM-AM-GN-SL-IN-J2-KN-L1-MN-NN-EN-PN	Advanced M1 SCBA with removable M1 LGDV, swivel backplate, harness & cylinder strap metal buckles, SL pneumatics & combi gauge
10202909	G1 PS-MaXX mask M size, polycarbonate coated lens, rubber 5-point harness & neck strap
A-G1FP-C-M-1-M-E-0-U	G1 PS-MaXX mask M size, polycarbonate coated lens, rubber 5-point harness, C1 Ready

MSA Service

In addition to the extensive range of top quality personal protective equipment and gas detection systems, MSA provides a high level of customised service solutions. MSA's comprehensive and versatile range of services ensures that your equipment and systems will always be reliable, economical and ready for use. MSA is always at your service to provide you with the support you need, when you need it.

Note: This Bulletin contains only a general description of the products shown. While product uses and performance capabilities are generally described, the products shall not, under any circumstances, be used by untrained or unqualified individuals. The products shall not be used until the product instructions/user manual, which contains detailed information concerning the proper use and care of the products, including any warnings or cautions, have been thoroughly read and understood. Specifications are subject to change without prior notice.

MSA operates in over 40 countries worldwide. To find an MSA office near you, please visit [MSAsafety.com/offices](https://www.MSA.com/offices).