

# MSA Safety Equipment Catalog

Volume 15, Number 1  
2015–2016



*Because every life has a **purpose...***

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## MSA-U® Training Center



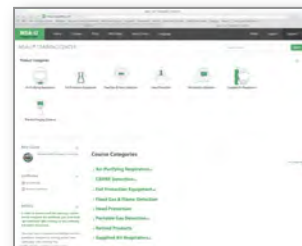
### What is MSA-U?

MSA-U is a feature-rich online training center that offers courses anytime, anywhere to maximize the users' competencies on MSA products, product technologies, and safety industry standards.

[www.msasafety.com/msau](http://www.msasafety.com/msau)

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## Over 100 Years of Products, Service and Expertise



### **Promoting Protection is Part of our History**

Mine Safety Appliances Company was founded in 1914 by two mining engineers who designed or improved safety, rescue and protective gear. MSA has continued to help protect people from hazards great and small, and today helps protect millions of workers in many industries worldwide. MSA has sold gas masks for military use since World War I. We have always understood the demands placed on crucial protective equipment in extremely hazardous conditions. MSA historically and steadfastly has helped first responders before, during, and after emergencies, from small house fires to multiple explosions at chemical plants, from hazardous materials spills to hurricanes.

MSA makes and markets respiratory protection, gas-and-flame-detection instruments, head, eye, face, and hearing protection, fire helmets, fall protection, thermal imaging cameras, and mining, emergency, and specialty equipment via a national network of trained distributors, product specialists and knowledgeable sales associates. MSA has been a global company for more than seven decades, protecting millions of people around the world. What have we done for YOU lately?

### **MSA Offers More than Safety on the Job**

#### ***Great Products***

Technology enhances our innovation in product development, with computer-aided design and the latest rapid prototyping capability. MSA responds quickly as your needs change. Within most product groups is a wide selection of models, sizes, colors, materials, options, accessories and prices. Many components of MSA products are formulated, machined, tooled or molded in-house from raw materials, allowing for greater manufacturing control as well as enhanced quality assurance. MSA processes are certified as meeting ISO 9001-2008 quality assurance requirements of the International Standard Organization (ISO).

### ***Great Plans for the Future***

MSA continues to enhance our operations and expand/improve our product lines by acquiring companies and/or new capabilities to better serve our customers. In 2010, MSA acquired General Monitors Inc., which, when combined with already extensive capabilities in portable and fixed gas products, created the World Leader in Fixed Gas and Flame Detection. This is just one example of how focusing on our core products—Fixed Gas & Flame Detection; Portable Gas Detection; Head Protection; Fall Protection; Respiratory Protection—means greater innovation and product development for you.

### ***Great People and Resources***

Your personalized MSA service starts with a trained MSA-authorized distributor near you and the largest team of field representatives in the safety industry. They understand your hazards and the regulations with which you must comply, and will help to analyze your safety requirements and recommend solutions. MSA-authorized distributors are knowledgeable, well-trained and proficient at providing the services you need and also can assist in training your in-house trainer. Training your employees properly in the use, care and maintenance of our products is easy with MSA-U, our on-line application for 24/7 training. Go to [www.MSAsafety.com/msau](http://www.MSAsafety.com/msau) for a list of available programs. New programs are being added regularly.

MSA's website includes additional information about most products in this printed catalog, plus links to PDF versions of printed literature and other materials that you can print yourself. Go to [www.MSAsafety.com](http://www.MSAsafety.com).

To send us an e-mail message, use [info@MSAsafety.com](mailto:info@MSAsafety.com).





Respirators fall under two classifications: **air-purifying** and **air-supplied**. Air-purifying respirators are used against particulates, gases, and vapors. These are categorized as negative-pressure respirators that use chemical cartridges and/or filters; gas masks; and positive-pressure units such as powered air-purifying respirators (PAPRs). Air-supplied devices rely on a primary air source to deliver a steady flow of respirable air to the user's facepiece. These consist of Self-Contained Breathing Apparatus (SCBA) and air-line devices.





# About Respirators

## MSA Air-Purifying Respirators (APRs)

range from low-maintenance half-mask facepieces with cartridges and/or filters to the more complex PAPRs with full facepieces, or hoods.

- APRs for particulates use filters to capture dusts, mists, and fumes. Filters do not protect against gases or vapors, and generally become less effective as particles accumulate on the filter and plug spaces between the fibers. Filtering APRs require filter replacement when the user finds it difficult to breathe through them.
- Gas and vapor APRs employ chemical cartridges or canisters to remove hazardous gases or vapors from the air. They do not protect against airborne particles. Made to protect against specific gases or vapors, they provide protection only as long as the cartridge's absorbing capacity is not depleted.

The service life of a chemical cartridge depends upon many factors and can be estimated in various ways. Cartridges and

canisters require an end-of-service-life indicator (ESLI) or a change schedule, based on objective information or data that will ensure that canisters and cartridges are changed before the end of their useful life. You can access the MSA Cartridge Life Calculator on our website ([MSAsafety.com](http://MSAsafety.com)). Click Resources, then Tools, then MSA Response Guide.

- Combination APRs, fitted with both particulate filters and gas/vapor cartridges, are worn in atmospheres that contain hazards of both particulates and gases.

## Supplied-Air Respirators (SARs),

comprise air-line respirators, SCBA, and combination supplied-air respirators.

- Air-Line Respirators are used for extended periods in non-IDLH atmospheres. They use an air-line hose to deliver clean breathing air from a stationary source of compressed air for prolonged periods of time. Although comparatively

lightweight, air-line respirators can limit users' mobility because of the air-line hose that must be attached.

- Self-Contained Breathing Apparatus (SCBA) have an open-circuit design that provides air rated for 30 to 60 minutes. They consist of a wearable, clean-air supply and a tight-fitting facepiece, and are used for short duration entrance or escape from atmospheres that are or may be IDLH. They offer relatively unrestricted movement.
- Combination SARs are air-line devices used for extended work periods in atmospheres that are or may be IDLH (Immediately Dangerous to Life or Health). They have an auxiliary self-contained air cylinder that can be used if the primary air supply fails. With certain restrictions, the air cylinder can also be used for entry into or escape from IDLH atmospheres, such as confined spaces.

## Respirator Selection

All respirators in use must be NIOSH-approved (NIOSH 42 CFR Part 84). Selecting respirators entails knowing what level of respiratory protection employees need, as well as which size respirator is right for any face and facial contours. Respiratory protective devices vary in design, application, and protective capability. Thus, the user must assess the inhalation hazard and understand the specific use limitations of available equipment to assure proper selection.

If your calculation shows that exposure concentrations exceed recommended limits and engineering/administrative controls do not reduce exposure below the permissible limit, tailor your respiratory protection program to the specific conditions based on:

- |                                  |  |                         |   |
|----------------------------------|--|-------------------------|---|
| • Toxicity (TLV or TWA)          | • Oxygen level                         | • Sorbent limitations   | • Type of use (routine, escape, or emergency entry) |
| • Maximum Expected Concentration | • IDLH concentration                   | • Facepiece fit         | • OSHA-assigned protection factor of respirator     |
|                                  | • Warning properties (adequate or not) | • Mobility requirements |   |

*All MSA Respirators are NIOSH-approved.*



## Advantage® 420 Half-Mask Respirator

- UniBond over-mold facepiece, AnthroCurve™ face seal, and low profile design ensure the unit provides an excellent fit and comfort to the wearer
- Four-point yoke and harness design promotes easy donning and doffing
- Easily switches between lock-down and drop-down mode
- Other features include a ComforTop™ headband, a built-in moisture release chin cup hole, and extra-wide head and neck straps
- Designed for easy integration with other personal protective equipment such as safety glasses and welding shields
- Latex-free



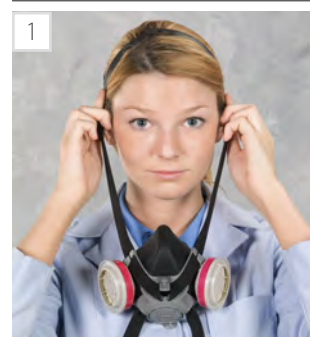
	Small	Medium	Large	
ADVANTAGE 420 RESPIRATOR	10102182	10102183	10102184	Advantage 420 Assembly (includes facepiece, head cradle, elastic straps, buckle set, yoke with lever, two (2) inhalation valves, one (1) exhalation valve)

ADVANTAGE 420 RESPIRATOR SPARE PARTS AND ACCESSORIES	10097807	Harness Assembly with Buckles (includes head cradle, elastic straps, and buckle set)
	10097883	Maintenance Valve Set (includes one (1) exhalation valve and two (2) inhalation valves)
	10097886	Advantage 420 Maintenance Kit (includes harness assembly with buckles, one (1) exhalation valve, and two (2) inhalation valves)
	10097810	Yoke with lever
	10097881	Lever, package of 5
	10097888	Inhalation valve, package of 10
	10097891	Exhalation valve, package of 10
	10097884	Buckle set, package of 5
	10097887	Storage poly bag
	468730	Vinyl storage bag with belt loops
	809999	Advantage Adapter for threaded Comfo cartridges, package of 2
	10009971	MSA Confidence Plus Germicidal Cleaner (32 oz.)
	697383	Cleaning Towelettes (individually wrapped), package of 100
	697444	Bitrex Qualitative Fit-Test Kit
	10056424	Advantage Quantitative Fit Test Adapter
	10097899	Instruction Manual, CD format

Applications include:

- Asbestos Abatement
- Painting
- Welding
- Sanding & Grinding

Easy 3-Step Donning Process



See page 11 for Advantage filters and cartridges and page 12 for flexible pad-style filters.  
See page 12 for Comfo filters and cartridges.  
For more information, please see MSA bulletin 1012-36-MC.



## Advantage 200 LS Half-Mask Respirator

- Lightweight, cost-efficient
- Thermoplastic rubber increases softness and decreases weight
- Patented MultiFlex® System equalizes pressure on the face-seal area, ensuring the respirator doesn't collapse during wear
- AnthroCurve face seal conforms to each user's face

	Small	Medium	Large	
ADVANTAGE 200 LS RESPIRATOR <i>facepiece only</i>	815696	815692	815700	Advantage 200 LS Respirator, with 2-piece neckstrap
	815448	815444	815452	Advantage 200 LS Respirator, with single neckstrap
ADVANTAGE 200 LS RESPIRATOR <i>with cartridge</i>	816943	816939	816947	Advantage 200 LS Respirator, with OV-N95 cartridges
	816701	816697	816705	Advantage 200 LS Respirator, with Multigas R95 cartridges

See page 11 for Advantage filters and cartridges and page 12 for flexible pad-style filters.  
For more information, please see MSA bulletin 1012-10-MC.



### Applications include:

- Asbestos Abatement
- Painting
- Welding
- Sanding & Grinding

## Advantage P100 Splash Guard® Filter



- Patent-pending hinge design allows for easy negative pressure seal check
- Low profile design keeps user's field of vision intact
- NIOSH-approved for P100 filtration

SPLASH GUARD FILTER 10146939



## Comfo Classic® Half-Mask Respirator

- SoftFeel® rubber and Silicone facepieces enhance softness, increasing wearer comfort
- Face seal design provides secure, comfortable fit
- Color-coded sizing system makes sorting and identification easy

	Small	Medium	Large	
COMFO CLASSIC FACEPIECES	808075	808074	808076	Comfo Classic Facepiece, SoftFeel hycar
	808072	808071	808073	Comfo Classic Facepiece, SoftFeel silicone

See page 12 for threaded Comfo cartridges and filters.  
For more information, please see MSA bulletin 1021-02-MC.



### Applications include:

- Asbestos Abatement
- Painting
- Welding
- Sanding & Grinding

## Advantage 4000 Series Full-Facepiece Respirators

- Facepieces provide comfortable, cost-efficient performance
- Both twin-port and single-port facepieces are compatible with several MSA respirator models, including air-purifying respirators, supplied-air respirators, and powered air-purifying respirators
- Option of three standard sizes ensures user will find a solid fit
- Standard nosecup reduces lens fogging
- Components lock into place in seconds for quick, convenient performance



rubber head harness



polyester net head harness



Kevlar net head harness

	Small	Medium	Large	
ADVANTAGE 4200 FACEPIECES <i>Twin-Port Hycar</i>	10083785	10083781	10083789	Advantage 4200 Facepiece, with <b>polyester net</b> head harness, hycar
	10083787	10083783	10083791	Advantage 4200 Facepiece, with <b>rubber</b> head harness, hycar
	10108570	10108568	10108572	Advantage 4200 Facepiece, with <b>Kevlar net</b> head harness, hycar
ADVANTAGE 4200 FACEPIECES <i>Twin-Port Silicone</i>	10083784	10083760	10083788	Advantage 4200 Facepiece, with <b>polyester net</b> head harness, silicone
	10083786	10083782	10083790	Advantage 4200 Facepiece, with <b>rubber</b> head harness, silicone
	10108569	10108567	10108571	Advantage 4200 Facepiece, with <b>Kevlar net</b> head harness, silicone
ADVANTAGE 4100 FACEPIECES <i>Single-Port Hycar</i>	10083797	10083793	10083801	Advantage 4100 Facepiece, with <b>polyester net</b> head harness, hycar
	10083799	10083795	10083803	Advantage 4100 Facepiece, with <b>rubber</b> head harness, hycar
	10108576	10108574	10108578	Advantage 4100 Facepiece, with <b>Kevlar net</b> head harness, hycar
ADVANTAGE 4100 FACEPIECES <i>Single-Port Silicone</i>	10083796	10083792	10083800	Advantage 4100 Facepiece, with <b>polyester net</b> head harness, silicone
	10083798	10083794	10083802	Advantage 4100 Facepiece, with <b>rubber</b> head harness, silicone
	10108575	10108573	10108577	Advantage 4100 Facepiece, with <b>Kevlar net</b> head harness, silicone

See page 11 for Advantage filters and cartridges and page 12 for flexible pad-style filters.

**Note:** The 4100 Facepiece can be converted for use with Advantage filter cartridges by adding the Twin-Cartridge Adapter Assembly P/N 10065328.

For more information, please see MSA bulletin 1030-01-MC.

WELDER'S ACCESSORIES	10077063	Clip-On Welder's Adapter for 4200 Twin-Port Facepiece; with cover lens, less filter plate
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Advantage 4100 Facepiece, single port, w/net head harness



Advantage 4200 Facepiece w/polyester net head harness & GMA/OV cartridges



Welder's Adapter for Advantage 4200 Respirator



## Advantage 3000 Series Full-Facepiece Respirators

- Full-face respirator features state-of-the-art design to lower breathing resistance, while the nosecup reduces fogging and silicone facepiece increases comfort
- Scratch-resistant wraparound lens allows for wide field-of-vision
- Pre-adjustable straps ensure the mask delivers a consistent fit, while the preset upper straps provide a tighter, more secure seal
- Optional European-style Advantage head harness dons like a catcher's mask
- Single-port, standard thread filter connection

	Small	Medium	Large	
ADVANTAGE 3200 FACEPIECES	10028996	10028995	10028997	Advantage 3200 Facepiece, with <b>rubber</b> head harness
	<i>Twin-Port</i> 10031340	10031309	10031341	Advantage 3200 Facepiece, with <b>Advantage European-style</b> harness
ADVANTAGE 3100 FACEPIECES	10028999	10028998	10029000	Advantage 3100 Facepiece, with <b>rubber</b> head harness
	<i>Single-Port</i> 10031343	10031342	10031344	Advantage 3100 Facepiece, with <b>Advantage European-style</b> harness

See page 11 for Advantage filters and cartridges and page 12 for flexible pad-style filters.  
For more information, please see MSA bulletin 1012-10-MC.

## Applications

- Asbestos Abatement
- Welding
- Sanding & Grinding



Advantage 3200 Respirator with rubber harness  
and chemical cartridges



Advantage 3200 Facepiece with European-style harness



Advantage 3100 Facepiece with rubber harness

## Ultra-Twin® Full-Facepiece Respirator

Designed to provide a secure fit and strong protection, Ultra-Twin Full-Facepiece Respirators offer several options that make it a clear choice for defense against toxic chemicals:

- Turned lip, large chin cup, and 5 headstraps with roller buckles offer secure, comfortable fit
- Wide lens is scratch resistant
- Speaking diaphragm provides clear communications
- Nosecup reduces lens fogging

	Small	Medium	Large	
ULTRA-TWIN FACEPIECES	471298	471286	471310	Ultra-Twin Facepiece, hycar
	480263	480259	480267	Ultra-Twin Facepiece, silicone

See page 12 for Comfo filters and cartridges. See page 14 for accessories, and pages 15–16 for fit test kits.  
For more information, please see MSA bulletin 10-00-03-MC.



Ultra-Twin Respirator (small) with GMC threaded metal Comfo Cartridges

## Ultra Elite® Twin-Cartridge Full-Facepiece Respirator

- State-of-the-art mask provides excellent comfort and protection
- Distortion-free lens allows wide field-of-view
- 5-point harness allows easy on/off
- Models include Hycar rubber and silicone versions
- Face blank has a single-sealing flange
- Unique airflow prevents lens fogging
- Speaking diaphragm provides excellent close-range communication

	Small	Medium	Large	
ULTRA ELITE FACEPIECES with twin-cartridge adapter	10016755	10016756	10016757	Ultra Elite Facepiece, SoftFeel silicone
ULTRA ELITE FACEPIECES less twin-cartridge adapter	493064	493020	493108	Ultra Elite Facepiece, SoftFeel hycar
	493072	493928	493116	Ultra Elite Facepiece, SoftFeel silicone




See page 12 for threaded filters and cartridges.  
See page 14 for accessories, and pages 15–16 for fit test kits.

**Note:** Ultra Elite Facepieces must be fitted with a Twin-Cartridge Adapter P/N 803622 to be used as a twin-cartridge respirator.

## Advantage Respirator Cartridges

The Advantage line of particulate, chemical and combination cartridges is NIOSH-certified to 42 CFR, Part 84 and provides lightweight, low-profile performance. Cartridges fit 200 LS and 420 Half-Mask, 1000, 3000 and 4000 Series Full-Facepiece Advantage Respirators.

### Acid Gases

The Advantage line of particulate, chemical and combination cartridges is NIOSH-certified to 42 CFR, Part 84 and provides lightweight, low-profile performance. Cartridges fit 200 LS and 420 Half-Mask, 1000, 3000 and 4000 Series Full-Facepiece Advantage Respirators.			Organic Vapor	Chlorine	Sulfur Dioxide	Chlorine Dioxide	Hydrogen Chloride	Hydrogen Sulfide	Ammonia	Methylamine	Formaldehyde	Hydrogen Fluoride	Mercury Vapor	Filter Type & Efficiency  See Definitions below				
MSA Cartridge Description	Re-Order Part Number	Color Coding	OV	CL	SD	CD	HC	HS	AM	MA	FM	HF	MV	P100	R95	N95	See Notes below	
Organic Vapor (GMA)	815355																2,3	
Organic Vapor w/N95 Prefilter (GMA)	815355 w/815394 or 816357																2,3,5	
Organic Vapor w/R95 Prefilter (GMA)	815355 w/815397																2,3,5	
Organic Vapor/P100 (GMA)	815362																2,3,4	
Acid Gas (GMB)	815356																2	
Acid Gas w/N95 Prefilter (GMB)	815356 w/815394 or 816357																2,5	
Acid Gas w/R95 Prefilter (GMB)	815356 w/815397																2,5	
Acid Gas/P100 (GMB)	815363																2,4	
Organic Vapor/Acid Gas (GMC)	815357																2,3	
Organic Vapor/Acid Gas w/N95 Prefilter (GMC)	815357 w/815394 or 816357																2,3,5	
Organic Vapor/Acid Gas w/R95 Prefilter (GMC)	815357 w/815397																2,3,5	
Organic Vapor/Acid Gas/P100 (GMC)	815364																2,3,4	
Ammonia/Methylamine (GMD)	815358																2,3	
Ammonia/Methylamine w/N95 Prefilter (GMD)	815358 w/815394 or 816357																2,3,5	
Ammonia/Methylamine w/R95 Prefilter (GMD)	815358 w/815397																2,3,5	
Ammonia/Methylamine/P100 (GMD)	815365																2,3,4	
Multigas (GME)	815359																2,3	
Multigas w/N95 Prefilter (GME)	815359 w/815394 or 816357																2,3,5	
Multigas w/R95 Prefilter (GME)	815359 w/815397																2,3,5	
Multigas/P100 (GME)	815366																2,3,4	
Iodine Vapor/P100 (GMI)*	815641																2,4	
Chlorine/Mecury Vapor (Mersorb)	815361																2	
Chlorine/Mecury Vapor w/N95 Prefilter (Mersorb)	815361 w/815394 or 816357																2,5	
Chlorine/Mercury Vapor w/R95 Prefilter (Mersorb)	815361 w/815397																2,5	
Chlorine/Mercury Vapor/P100 (Mersorb)	815368																2,4	
Low-Profile P100	815369 Pack of 2 10123079 Pack of 100																1,4	
 P100 with Splash Guard	10146939 Pack of 2																1,4	
N95 Snap-On Prefilter and Cover	815394 Pack of 10 816357 Box of 50 815392 Reusable Snap-On Cover, 2 in a Package	<div>▲ WARNING</div> <p>An appropriate cartridge change-out schedule must be developed by a qualified professional, unless the cartridge/canister utilizes an end-of-service-life indicator. The change-out schedule must take into account all factors that may influence respiratory protection including specific work practices and other conditions unique to the worker's environment. If using against substances having poor warning properties, there is no secondary means of knowing when to replace the cartridges/canister. In such cases, take appropriate additional precautions to prevent overexposure, which may include a more conservative change-out schedule or using an air-supplied respirator or SCBA. Failure to follow this warning can result in serious personal injury or death. As a reference, below is a partial list of substances having poor warning properties:</p>																
R95 Snap-On Prefilter and Cover	815397 Box of 20 815401 Reusable Snap-On Cover, 2 in a Package																	
<b>Definitions</b>																		
<b>N95-Particulate Filter (95% filter efficiency level)</b> effective against particulate aerosols free of oil; time use restrictions may apply.			Acrolein                      Hydrogen cyanide                      Nitric acid                      Phosphorus trichloride															
<b>R95-Particulate Filter (95% filter efficiency level)</b> effective against all particulate aerosols; time use restrictions may apply.			Aniline                      Hydrogen selenide                      Nitro compounds                      Stibine															
<b>P100-Particulate Filter (99.97% filter efficiency level)</b> effective against all particulate aerosols.			Arsine                      Methanol                      Nitrogen oxides                      Sulfur chloride															
			Bromine                      Methyl bromide                      Nitroglycerin                      Urethane or other diisocyanate-containing paints															
			Carbon monoxide                      Methyl chloride                      Nitromethane                      Vinyl chloride															
			Diisocyanates                      Methylene chloride                      Phosgene															
			Dimethyl sulfate                      Nickel carbonyl                      Phosphine															
* Effective against, but not NIOSH-approved, for Iodine Vapor.																		

### Notes

- Do not use in atmospheres containing less than 19.5 percent oxygen, in atmospheres containing gases or vapors or in atmospheres immediately dangerous to life and health.
- Do not use in atmospheres containing less than 19.5 percent oxygen, or in atmospheres immediately dangerous to life and health.
- Do not wear for protection against organic vapors with poor warning properties or those which generate high heats of reaction with the sorbent material in the cartridge.
- 99.97 percent efficient against 0.3 micron DOP.
- Both a prefilter and cover must be used with the cartridge in order to obtain R95 or N95 particulate protection.



# Air-Purifying Respirators

## Comfo Respirator Cartridges

The Comfo line of particulate, chemical and combination cartridges is NIOSH-certified to 42 CFR, Part 84. Cartridges fit Comfo Classic, Ultra-Twin, Ultra Elite Twin-Cartridge and Duo-Twin Respirators, and certain half-mask and full-face Advantage Respirators with Adapter (P/N 809999).

MSA Cartridge Description	Re-Order Part Number	Color Coding	Acid Gases										Filter Type & Efficiency See <b>Definitions</b> on previous page	See Notes on p. 11
			Organic Vapor	Chlorine	Sulfur Dioxide	Chlorine Dioxide	Hydrogen Chloride	Hydrogen Sulfide	Ammonia	Methylamine	Formaldehyde	Hydrogen Fluoride		
Organic Vapor (GMA)	464031 (10 in pkg.)													2,3,5
Organic Vapor/P100 (GMA)	815178 (6 in pkg.)													2,3,4
Organic Vapor/P100 Short Stack (GMA)	815186 (6 in box)													2,3,4
Acid Gas (GMB)	464032 (10 in box)													2,5
Acid Gas/P100 (GMB)	815179 (6 in box)													2,4
Organic Vapor/Acid Gas (GMC)	464046 (10 in pkg.)													2,3,5
Organic Vapor/Acid Gas/P100 (GMC)	815180 (6 in box)													2,3,4
Organic Vapor/Acid Gas/P100 Short Stack (GMC)	815188 (6 in box)													2,3,4
Ammonia/Methylamine (GMD)	464033 (10 in box)													2,3,5
Ammonia/Methylamine/P100 (GMD)	815181 (6 in box)													2,3,4
Multigas (GME)	492790 (10 in box)													2,3,5
Multigas/P100 (GME)	815182 (6 in box)													2,3,4
Iodine Vapor/P100 (GMI)*	815184 (6 in box)													2,4
Chlorine/Mercury Vapor (Mersorb)	466204 (10 in box)													2,5
Chlorine/Mercury Vapor/P100 (Mersorb)	815185 (6 in box)													2,4
P100	815175 (10 in box)													1,4
Sparkfoe® P100	815176 (10 in box)													1,4
Low-Profile P100	10153412 (16 in box)													1,4
Stand-alone and cover N95 and covers required for Comfo Respirators	816662 N95 (10 in pkg.) 816661 N95 (50 in box) 489353 Reusable snap-on cover (1 in pkg.; 2 req.)													1
Prefilter and Cover N95	816662 N95 (10 in pkg.) 816661 N95 (50 in pkg.) 489353 Reusable snap-on cover (1 in pkg.; 2 req.)													1
Prefilter and Cover R95	816287 R95 (20 in box) 489219 R95 Reusable snap-on cover (1 in pkg.; 2 req.)													1

\* Effective against, but not NIOSH-approved for Iodine Vapor. Note: See **WARNING** on previous page.

## Flexi-Filter® Pads for Advantage Respirators

These low-profile, flexible pads fit well under a welding hood and with other personal protective equipment. They offer great balance and weight distribution for maintaining a good face seal, while their swept-back design provides improved vision and comfort.

Filter Type & Efficiency  
See **Definitions** on previous page

See Notes on p. 11

MSA Filter Description	Part No.	Color Coding	P100	P95	N95	Notes
Flexi-Filter/P100	818342					1,4
Flexi-Filter/P100 w/Nuisance Level OV, Ozone Removal	818343					1,4
Flexi-Filter/P100 w/Nuisance Level AG, HF Removal	818344					1,4
Flexi-Filter/N95	818346					1
Flexi-Filter/N95 w/Nuisance Level OV Removal	818347					1
Flexi-Filter/P95	818354					1
Flexi-Filter/P95 w/Nuisance Level OV Removal	818355					1

THREADED RESPIRATOR CARTRIDGES FOR ULTRA FILTER RESPIRATORS

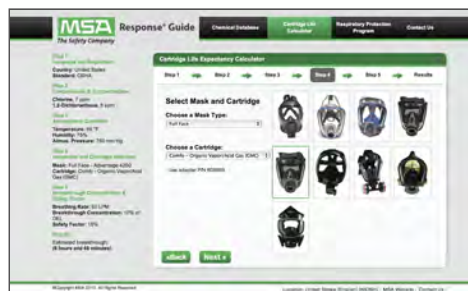
10010420	Round Ultra Filter Cartridge, box of 6
10010421	Round Ultra Filter Cartridge, box of 50



## Online Response® Respirator Selector

Available at [www.MSAafety.com/responseguide](http://www.MSAafety.com/responseguide)

- Helps identify the proper respirator you need
- Has broadest range of respiratory protective devices available
- Recommends respirators for more than 700 chemical hazards
- Has nearly 3,000 chemical synonyms
- Lists up to 27 categories of respirators, with MUCs
- Is generic in nature



## Cartridge Life Expectancy Calculator

Available at [www.MSAafety.com/responseguide](http://www.MSAafety.com/responseguide)

MSA's interactive web pages help users determine the life expectancy of specific respirator cartridges in various hazardous situations. This information provides guidance for how long a cartridge should be used before it must be replaced.



## Personal Safety Equipment Towelettes

Provides an excellent method for wiping and refreshing respirators, hardhats, and other safety equipment between full cleaning periods.








## MSA Confidence Plus® Germicidal Cleaner



Mix with warm water for a germicidal cleaner that is effective against various micro-organisms including immunodeficiency virus Type 1 (HIV-1, associated with AIDS). EPA-approved for use on safety equipment.

CLEANING ACCESSORIES	697383	Box of 100 individually wrapped towelettes, 7-1/4" x 5"
	697382	Canister with 220 towelettes, 4-1/4" x 6"
	10022871	"The Big Ones", box of 50 individually wrapped towelettes, 8" x 11"
	10009971	MSA Confidence Plus Germicidal Cleaner, 32 oz. bottle

## Facepiece Accessories

ADVANTAGE 420 ACCESSORIES		10097887	Storage poly bag
		468730	Carrying pouch with belt loops for half-mask respirators
		809999	Advantage Adapter for threaded cartridges, package of 2
		10056424	Advantage Quantitative Fit Test Adapter
		10097899	Instruction Manual, CD Format
ADVANTAGE 200 LS ACCESSORIES		809999	Advantage Adapter for threaded cartridges, package of 2
		10056424	Advantage Quantitative Fit Test Adapter
		468730	Carrying pouch for half-mask respirators
COMFO CLASSIC ACCESSORIES		812022	QuikChek II Fit-Test Adapter for Comfo Respirators
		803196	QuikChek II Replacement Kit with 25 ft of sampling tubing and 25 connectors, clips, and suction cups
		468730	Carrying pouch with belt loops for half-mask respirators
ADVANTAGE 3000 SERIES ACCESSORIES		10029298	Spectacle Kit for Advantage Respirators
		10056424	Advantage Quantitative Fit Test Adapter
		10031542	Cover Lens, clear, box of 25
		10031543	Cover Lens, smoke-tinted, box of 25
		D2056734	Black plastic carrying/storage case
ADVANTAGE 4000 SERIES ACCESSORIES		10029298	Spectacle Kit for Advantage Respirators
		10056424	Advantage Quantitative Fit Test Adapter, for Advantage 4200 Facepieces
		805078	QuikChek III Fit Test Adapter for Advantage 4100 Facepieces*
		10031542	Cover Lens, clear, box of 25
		10031543	Cover Lens, smoke-tinted, box of 25
		10077063	Clip-On Welders Adapter for Advantage 4200 Twin-Port Facepiece, with cover lens, less filter plate
		10065326	Clip-On Welders Adapter for Advantage 4100 Single-Port Facepiece, with cover lens, less filter plate
		D2056734	Black plastic carrying/storage case

\*Also requires RD40 Adapter P/N 10065330

ULTRA-TWIN/ ULTRAVUE ACCESSORIES		454819	Spectacle Kit for Ultra-Twin/Ultravue
		812022	QuikChek II Fit-Test Adapter for Ultra-Twin Respirator
		803196	QuikChek II Replacement Kit with 25 ft of sampling tubing and 25 connectors, clips, and suction cups
		817446	QuikChek IV Adapter for Ultravue/Ultra Elite facepieces w/1/4-turn quick-disconnect, w/Type H cartridge
		803622	Twin-Cartridge Adapter for Ultravue Facepieces
		456975	Cover Lens, clear, box of 25
		480326	Cover Lens, smoke-tinted, box of 25
		813138	Nosecup, black, small
		813139	Nosecup, black, medium
		813140	Nosecup, black, large
		D2056734	Black plastic carrying/storage case
ULTRA ELITE ACCESSORIES		804638	Spectacle Kit for Ultra Elite Respirator, side wire support
		493581	Spectacle Kit for Ultra Elite Respirator, center support
		805078	QuikChek III Fit-Test Adapter for Ultra Elite Respirators
		817446	QuikChek IV Adapter for Ultravue/Ultra Elite facepieces w/1/4-turn quick-disconnect, w/Type H cartridge
		803622	Twin-Cartridge Adapter for Ultra Elite Facepieces
		491500	Cover Lens, clear, box of 25
		805456	Cover Lens, smoke-tinted, box of 25
		D2056734	Black plastic carrying/storage case



## MSA Respirator Fit Test Compliance

29 CFR Part 1910.134



*Advantage 200LS Respirator*



*Advantage 420 Respirator*



*Comfo® Classic Respirator*



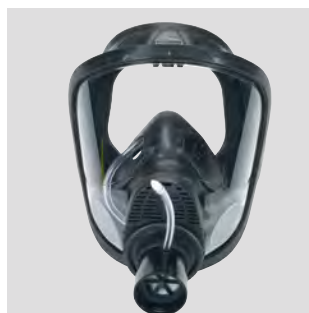
*Comfo Elite Respirator*



*Advantage 3100 Respirator*



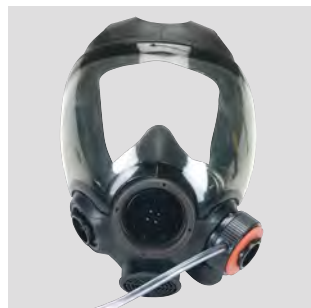
*Advantage 3200 Respirator*



*Advantage 4100 Respirator*



*Advantage 4200 Respirator*



*Advantage 1000 Respirator/  
Millennium® Respirator*



*Ultra-Twin Respirator*



*Ultravue Respirator*



*Ultra Elite Respirator*

MSA RESPIRATOR FIT TEST KITS	697287	Saccharin Qualitative Fit Test Kit
	697444	Bitrex Qualitative Fit Test Kit
	801628	Banana Oil Qualitative Fit Test Kit
	697285	Replacement (Saccharin) Sensitivity Test
	697445	Solution, 55 ml bottle (Bitrex)
	697286	Replacement Fit-Test (Saccharin) Solution, 55 ml bottle
	697446	Replacement Fit-Test (Bitrex) Solution, 55 ml bottle
	697447	#1 Sensitivity Nebulizer
	697459	#2 Fit-Test Nebulizer
	697448	Test Hood (Same for Both)
	697325	"Using the Qualitative (Saccharin) Fit Test Kit" videotape
	697449	"Using the Qualitative (Bitrex) Fit-Test Kit" videotape

## Fit Test Compliance Reference Guide

Respirator Description	Class	Material	APF	OSHA Acceptable Fit Test Methods	Required Fit Factor Quantitative	MSA Fit Test Adapter Required	Cartridge Type	Probed Facepiece P/N (if applicable)	Controlled Negative Pressure (OHD) Quan Fit Test Adapter
Advantage 200 LS	Half-Mask Negative Pressure	TPR	10	Qualitative or Quantitative	100	Advantage Adapter #10056424	Bayonet or threaded with adapter #809999	S (816515), M (8165130), L (816517)	OHD P/N 9513-0210
Advantage 420	Half-Mask Negative Pressure	Silicone	10	Qualitative or Quantitative	100	Advantage Adapter #10056424	Bayonet or threaded w/adapter #809999	S (10107710), M (10107731), L (10107732)	OHD P/N 9513-0210
Comfo Classic	Half-Mask Negative Pressure	Silicone	10	Qualitative or Quantitative	100	Quik Chek® II Adapter #812022	Threaded	S (808255), M (808249), L (808261)	OHD P/N 9513-0109
Comfo Classic	Half-Mask Negative Pressure	Hycar™	10	Qualitative or Quantitative	100	Quik Chek II Adapter #812022	Threaded	S (808253), M (808247), L (808259)	OHD P/N 9513-0109
Comfo Elite	Half-Mask Negative Pressure	Silicone	10	Qualitative or Quantitative	100	Quik Chek II Adapter #812022	Threaded	S (491862), M (491860), L (491864)	OHD P/N 9513-0109
Advantage 3100	Full-Face Negative Pressure	Silicone	50	Qualitative or Quantitative*	500	Quik Chek III Adapter #805078	N/A	N/A	OHD P/N 9513-0210
Advantage 3200	Full-Face Negative Pressure	Silicone	50	Qualitative or Quantitative*	500	Advantage Adapter #10056424	Bayonet or threaded w/adapter #809999	N/A	OHD P/N 9513-0210
Advantage 4100	Full-Face Negative Pressure	Hycar or Silicone	50	Qualitative or Quantitative*	500	Quik Chek III Adapter #805078	N/A	N/A	OHD P/N 9513-0217
Advantage 4200	Full-Face Negative Pressure	Hycar or Silicone	50	Qualitative or Quantitative*	500	Advantage Adapter #10056424	Bayonet or threaded w/adapter #809999	N/A	OHD P/N 9513-0218
Advantage 1000	Full-Face Negative Pressure	Silicone	50	Qualitative or Quantitative*	500	Advantage Adapter #10056424	Bayonet	N/A	OHD P/N 9513-0219
Ultra-Twin	Full-Face Negative Pressure	Silicone	50	Qualitative or Quantitative*	500	Quik Chek II Adapter #812022	Threaded	S (482025), M (482024), L (482026)	OHD P/N 9513-0109
Ultra-Twin	Full-Face Negative Pressure	Hycar	50	Qualitative or Quantitative*	500	Quik Chek II Adapter #812022	Threaded	S (417683), M (465457), L (471684)	OHD P/N 9513-0109
Ultravue	Full-Face Negative Pressure	Silicone	50	Qualitative or Quantitative*	500	Quik Chek I Adapter #802710	N/A	S (482009), M (482008), L (482010)	OHD P/N 9513-0130
Ultravue	Full-Face Negative Pressure	Hycar	50	Qualitative or Quantitative*	500	Quik Chek I Adapter #802710	N/A	S (471681), M (465425), L (471682)	OHD P/N 9513-0130
Ultravue for use with ¼ turn quick disconnect	Full-Face Negative Pressure	Hycar or Silicone	50	Qualitative or Quantitative*	500	Quik Chek IV Adapter #817446	N/A	N/A	OHD P/N 9513-0130
Ultra-Elite	Full-Face Negative Pressure	Silicone	50	Qualitative or Quantitative*	500	Quik Chek III Adapter #805078	N/A	S (813211), M (813209), L (813213)	OHD P/N 9513-0210
Ultra-Elite	Full-Face Negative Pressure	Hycar	50	Qualitative or Quantitative*	500	Quik Chek III Adapter #805078	N/A	S (813210), M (813208), L (813212)	OHD P/N 9513-0210
Ultra-Elite for use with ¼ turn quick disconnect	Full-Face Negative Pressure	Hycar or Silicone	50	Qualitative or Quantitative*	500	Quik Chek IV Adapter #817446	N/A	N/A	OHD P/N 9513-0210
Millennium® Facepiece	Full-Face Negative Pressure	Hycar	50	Qualitative or Quantitative*	500 2000±	Quik Chek III Adapter #805078	Threaded	Probe Assembly (10006227)	OHD P/N 9513-0130
Ultra Elite Pressure-Demand	Full-Face Positive Pressure	Silicone	10,000 SCBA 1000 Air-Line	Qualitative or Quantitative	500†	APR Fit Test Adapter Kit, ¼ turn #10107257 (10029823 APR adapter only) APR Fit Test Adapter Kit, Slide Version #10107229 (10032511 APR adapter only) APR Fit Test Adapter Kit, Push-to-Connect #10107256 (10040052 APR adapter only) Quik Chek Adapter Kit, Firehawk #10044576‡	Bayonet	Negative Pressure S (813211), M (813209), L (813213)	OHD P/N 9513-0380
Ultra Elite Pressure-Demand	Full-Face Positive Pressure	Hycar	10,000 SCBA 1000 Air-Line	Qualitative or Quantitative	500†	APR Fit Test Adapter Kit, ¼ Turn #10107257 APR Fit Test Adapter Kit, Slide Version #10107229 APR Fit Test Adapter Kit, Push-to-Connect #10107256 Quik Chek Adapter Kit, Firehawk #10044576‡	Bayonet	Negative Pressure - S (813210), M (813218), L (813212)	OHD P/N 9513-0210
Ultra Elite Respirator	Full-Face Positive / Negative Pressure	Hycar	10,000 SCBA 50 APR	Qualitative or Quantitative	500† SCBA 2000± APR	Responder Fit Test Kit #10082555	Threaded	N/A	N/A

\* If only qualitative fit test is performed on a full-face negative pressure respirator, then an APF of only 10 can be assigned. If a quantitative fit test is performed, the APF is 50.

† For quantitative fit testing of pressure-demand facepiece, the facepiece must be tested in a negative pressure mode which requires a minimum fit factor of 500.

± MSA recommends a fit factor of 2000 if the application is a CBRN environment.

‡ The Quik-Chek Adapter allows quantitative fit tests to be performed on a pressure demand Ultra Elite Firehawk facepiece by only trained and qualified personnel. Special probed facepiece is not required.

## OptimAir® Mask-Mounted Powered Air-Purifying Respirator (PAPR) and OptimAir MM2K PAPR with Type HE OptiFilter® XL Filter

- Lightweight, compact design for long-life, high-performance and low maintenance
- Sealed, water-resistant battery fits inside most pockets
- Dual-rate charger recharges fully discharged battery in less than three hours
- Water-resistant HEPA filter for protection against particulate contaminants
- Choice of facepiece model in several configurations
- Facepiece, motor/blower and filter combine to produce high air flow
- Compact, easy to maneuver, simple to decontaminate
- Constant air flow also cools user's face



### OptimAir Mask-Mounted PAPR

OptimAir Mask-Mounted PAPR Kits consist of motor/blower, NiMH battery, dual-rate charger, cable, one Type HE OptiFilter XL Cartridge, PVC decon belt, and choice of facepiece. Housing of polycarbonate/ polyester construction and stainless steel connectors result in extreme durability. NIOSH-approved as mask-mounted PAPR. OptimAir Mask-Mounted PAPR offers a full two-year warranty.



### OptimAir MM2K PAPR

OptimAir MM2K PAPR assemblies include motor/ blower, NiMH battery, dual-rate battery charger, cable, one Type HE OptiFilter XL Cartridge, belt, and Advantage 3000 Facepiece. OptimAir MM2K PAPR for mold remediation/abatement, asbestos and nuclear applications offers long life, high performance and low maintenance in an economical package. NIOSH-approved as mask-mounted PAPR. MSA OptimAir MM2K PAPR offers a full one-year warranty.

## Specifications

### Weight:

- Motor/blower with cable 7.0 oz
- Battery pack 12.5 oz
- OptiFilter Cartridge, 3.5 oz

**Motor/blower:** approximately 1500 hours

**Battery:** nickel metal hydride rechargeable battery pack provides 8 hours (one shift) of continuous use. Battery pack delivers 4.8 volts (nominal).

**Battery life:** up to 1,000 charge/discharge cycles

**Battery charger:** rated service of 100-264 volts @ 50/60 Hz

### Limitations:

- OptimAir Mask-Mounted PAPR and OptimAir MM2K PAPR with Type HE OptiFilter XL Cartridge are approved as high-efficiency particulate PAPRs
- OptimAir Mask-Mounted PAPR and OptimAir MM2K PAPR do not remove vapors or gases from air
- No filter is designed for all concentrations of all substances
- It is essential to determine contaminants present and to determine airborne concentrations and explosive limits before respirator selection

- OptimAir Mask-Mounted PAPR and OptimAir MM2K PAPR do not supply oxygen and should not be used unless surrounding air contains minimum 19.5% oxygen
- Respirators may be used in temperatures between 0°F and 120°F (-17°C to 49°C); however, if used in temperatures below 40°F (4.4°C), fully-charged battery may not operate for full 8 hours
- Replaceable filter cartridge for trapping particulate contaminants is minimum 99.97% efficient against 0.3 micron DOP



## Complete Assemblies for OptimAir Mask-Mounted PAPR and OptimAir MM2K PAPR

All assemblies include: motor/blower, NiMH battery, dual-rate battery charger and cable, one Type HE OptiFilter XL Cartridge, waist belt, and choice of facepiece.

		OPTIMAIR MASK-MOUNTED PAPR			OPTIMAIR MM2K PAPR		
ADVANTAGE 3100 PAPR	Head Harness	Small	Medium	Large	Small	Medium	Large
	With <b>rubber</b> head harness	10095181	10095182	10095183	10034152	10034150	10034151
	With <b>Advantage</b> Head Harness	10095184	10095185	10095186	10034155	10034153	10034154
ADVANTAGE 4100 PAPR	Material	Small	Medium	Large	Small	Medium	Large
	Black silicone with <b>rubber</b> harness	10095193	10095189	10095197	10084547	10084543	10084551
	Black Hycar Rubber with <b>rubber</b> harness	10095194	10095190	10095198	10084548	10084544	10084552
	Black silicone with <b>net</b> harness	10095191	10095187	10095195	10084545	10084541	10084549
	Black Hycar Rubber with <b>net</b> harness	10095192	10095188	10095196	10084546	10084542	10084550

## Kits (less facepiece) for OptimAir Mask-Mounted PAPR and OptimAir MM2K PAPR and Replacement Facepieces

Upgrade Kit includes: motor/blower, NiMH battery, dual-rate battery charger and cable, one Type HE OptiFilter XL Cartridge, and waist belt. Use your present facepiece or order facepiece separately from ordering chart.

	Description	Part No.
KITS	OptimAir Mask-Mounted PAPR Upgrade Kit	10095166
	OptimAir MM2K PAPR Upgrade Kit	10025945
REPLACEMENT FACEPIECES <i>Advantage 3100</i>	Facepiece	
	Black silicone with rubber harness	10095193
	Black Hycar Rubber with rubber harness	10095194
REPLACEMENT FACEPIECES <i>Advantage 4100*</i>	Material	
	Black silicone with net head harness	10083796
	Black Hycar Rubber with net head harness	10083797
REPLACEMENT FACEPIECES <i>Ultra Elite</i>	Material	
	Silicone rubber head harness	493072
	Hycar Rubber head harness	493064

\*Also requires RD40 Adapter P/N 10065330

## Parts and Accessories

	Description	Part No.
OPTIMAIR MASK-MOUNTED PAPR	Battery pack	10095162
	Motor/blower, w/o cable	10095163
	Cable	10095164
	Charger	10095165
OPTIMAIR MM2K PAPR	Cable	10023480
	Battery pack	10023481
	Motor/blower, w/o cable	10023482
	Charger, dual-rate, OptimAir MM2K PAPR	10023483
OTHER ACCESSORIES	Flow check device	487995
	Adapter for flow check device	491046
	Replacement belt, PVC	473902
	Carrying/storage case, black plastic	D2056734
	MSA Confidence Plus Germicidal Cleaner, 32 oz. bottle	10009971

## OptiFilter Cartridges for OptimAir Mask-Mounted and MM2K PAPR

	MSA Purifying Element	Purifying Protection Code	Code Color	No. in Box	Part No.
OPTIFILTER CARTRIDGES	OptiFilter XL, Type HE	HE		20	10042346
	OptiFilter XL, Type HE	HE		6	496081

### Waist Belts for OptimAir Mask-Mounted and MM2K PAPRs

PVC belt with slide-through friction buckle is comfortable and easy to decontaminate

- **Standard**—P/N 473902 clear polyvinylchloride (PVC) support belt, 52 inches long (for waist sizes of up to 48 inches)
- **Optional**—P/N 492827 polyurethane-coated nylon belt, 67 inches long
- **No-decon applications**—P/N 9961 uncoated nylon web waist belt

## OptimAir® TL Powered Air-Purifying Respirator

- Single hip-hugging design for motor blower, cartridges; battery provides lightweight comfort and fit
- Low-profile motor blower offers optimal airflow through a crushproof breathing tube
- Ergonomic battery pack allows for free movement within confined spaces
- Unit automatically adjusts flow rates for altitude changes via an internal pressure sensor
- Cutting-edge design permits fast, accurate change-out of cartridges, hoods and batteries
- Audible and visual alarms indicate low flow condition and low battery voltage
- Available with standard or an extended-life battery
- Less bulk and better weight distribution improves worker efficiency

## OptimAir TL Kits

Kits include: motor blower, battery, Smart Charger, breathing tube and decon belt.

OPTIMAIR TL KITS for facepieces	10081114	OptimAir TL Kit with <b>standard</b> battery
	10081115	OptimAir TL Kit with <b>long-life</b> battery
OPTIMAIR TL KITS for hoods	10081116	OptimAir TL Kit with <b>standard</b> battery
	10081117	OptimAir TL Kit with <b>long-life</b> battery

## Facepieces Only

	Small	Medium	Large	
ADVANTAGE 3100 FACEPIECE ONLY <i>single-port</i>	10028999	10028998	10029000	Advantage 3100, black silicone, with <b>rubber</b> head harness
	10031343	10031342	10031344	Advantage 3100, black hycar, with <b>Advantage</b> head harness
ADVANTAGE 4100 FACEPIECE ONLY <i>single-port</i> <i>Also requires RD40 Adapter P/N 10065330</i>	10083796	10083792	10083800	Advantage 4100, black silicone, with <b>polyester net</b> head harness
	10083798	10083794	10083802	Advantage 4100, black silicone, with <b>rubber</b> head harness
	10108575	10108573	10108577	Advantage 4100, black silicone, with <b>Kevlar net</b> head harness
	10083797	10083793	10083801	Advantage 4100, black hycar, with <b>polyester net</b> head harness
	10083799	10083795	10083803	Advantage 4100, black hycar, with <b>rubber</b> head harness
	10108576	10108574	10108578	Advantage 4100, black hycar, with <b>Kevlar net</b> head harness
ULTRA ELITE FACEPIECES ONLY <i>single-port</i>	493072	493028	493116	Ultra Elite, black silicone, with <b>rubber</b> head harness
	493064	493020	493108	Ultra Elite, black hycar, with <b>rubber</b> head harness

## Facepiece Accessories

FACEPIECE ACCESSORIES	10065330	RD-40 Inlet assembly, required for all Advantage 4100 facepieces
	10049630	Hose for facepiece
	10087129	Flow check device for facepiece only



OptimAir TL PAPR with  
Advantage 4100  
Facepiece



White Hood for OptimAir TL PAPR

## Applications

- Asbestos Abatement
- Welding
- Sanding & Grinding

## OptimAir TL Hoods

DESCRIPTION	Tychem® QC (polyethylene-coated Tyvek)	Tychem® SL (Saranex-coated Tyvek)
SINGLE BIB		
4-pack, threaded connector, with suspension	10083329	10083381
20-pack, threaded connector, less suspension	10095739 (white) 10095748 (yellow)	10095741
4-pack, standard, with suspension	10083383	10083385
20-pack, standard, less suspension	10095740	10095742
DOUBLE BIB		
4-pack, threaded connector, with suspension	10083330	10083382
20-pack, threaded connector, less suspension	10095743 (white) 10095749 (yellow)	10095745
4-pack, standard, with suspension	10083384	10083386
20-pack, standard, less suspension	10095744	10095746

HOOD SUSPENSIONS	10103864	20-pack
	10078469	1 each
HOODS FOR USE WITH OPTIMAIR 6A PAPR	10095747	Single-bib, 20-pack, 6A connector, with suspension
	10084820	Single-bib, 4-pack, 6A connector, with suspension
HOOD ACCESSORIES	10083843	Hose clamp for standard hood, 6-pack
	10049631	Hood hose
	10082281	Hood hose, extended length
	10078469	Suspension only, for Tyvek hood
	10083618	Sweatband for hood suspension, 10-pack
	10082441	Cover lens for hood, 10-pack
	10087130	Flow check device for hood only
	10089665	Fastener kit, hood to V-Gard helmet
	10082281	Extended length hose





## OptimAir TL Parts and Accessories

CARTRIDGES	10080455	P100 cartridge (6-pack)
	10154877	P100 cartridge (54-pack)
	10080454	OV/AG P100 cartridge (6-pack)
	10080456	AG, AM, FM, P100 cartridge (6-pack)
	10068152	Spark Guard cartridge cover (single unit) (2 req.)
BATTERY AND CHARGERS	10076108	Standard battery for OptimAir TL PAPR
	10076110	Standard battery charger for OptimAir TL PAPR
	10076109	Long-life battery for OptimAir TL PAPR
	10076107	Long-life battery charger for OptimAir TL PAPR
DECON ACCESSORIES	10075799	Decon cover for OptimAir TL PAPR, 5-pack, natural
	10087152	Decon cover for OptimAir TL PAPR, 5-pack, yellow
	10091958	Decon cover for OptimAir TL PAPR, urethane, .12 ml thick, 5-pack, yellow
	10078201	Decon belt (backpack buckle)
	10074725	Decon belt (cam lock buckle)
MISCELLANEOUS	10085084	O-ring replacement, hose hood, 10-pack
	10049623	Comfort belt
	10081414	Cartridge receptacle cover
	10059112	Shoulder strap for OptimAir TL
	10088150	Blower unit only

## Welder's Adapter for Full-Facepiece Respirators

MSA Welder's Adapters are molded of polycarbonate plastic, which has high resistance to impact, heat, and welding splatter. The clip-on adapter attaches to the facepiece by molded-in clips. A large vision area—4-1/2" x 5-1/4"—provides an unobstructed view of work. The Welder's Adapter is supplied with an impact-resistant cover lens; the desired filter plate is ordered separately. Rayfoe™ Filter Plates are available in two standard shades—10 and 12.

The heat-resistant Welder's Hood is designed to protect the welder's head, neck, and shoulders from welding splatter and sparks. The Kevlar hood has a rubber seal which fits snugly over the Welder's Adapter. The hood also helps protect cartridges when an air-purifying respirator is used in welding operations.

WELDER'S ADAPTERS AND ACCESSORIES	472859	Clip-On Welder's Adapter for <b>Ultravue</b> and <b>Ultra Twin</b> Facepieces; with cover lens, less filter plate
	806482	Clip-On Welder's Adapter for <b>Ultra Elite</b> Facepiece; with cover lens, less filter plate
	10077063	Clip-On Welder's Adapter for <b>Advantage 4200 Twin-Port</b> Facepiece; with cover lens, less filter plate
	10065326	Clip-On Welder's Adapter for <b>Advantage 4100 Single-Port</b> Facepiece; with cover lens, less filter plate
	38347	Rayfoe Filter Plate, shade 10, heat-treated, 4-1/2 x 5-1/4
	38277	Rayfoe Filter Plate, shade 12, heat-treated, 4-1/2 x 5-1/4
	696095	Cover Lens
	486328	Welder's Hood, Kevlar



Welder's Adapter for Ultra Elite Facepiece



Kevlar Welder's Hood

## Chin-Type Gas Masks

- Lightweight, comfortable gas masks offer protection against particulate matter, vapors, and gases
- Small round canister and comfortable facepiece provide easy downward head movement
- Canisters offer protection from:
  - Phosphine/Ammonia/Chlorine-P100
  - Organic Vapor-P100
  - Hydrogen Fluoride/ Chlorine/P100,
  - Formaldehyde/Acid Gas/Chlorine Dioxide/Hydrogen Sulfide/P100

**Note:** Not meant for fire fighting.



	Small	Medium	Large	
ADVANTAGE 3100 SINGLE-PORT FACEPIECES	10028999	10028998	10029000	Advantage 3100 Facepiece, black silicone, with <b>rubber</b> head harness
	10031343	10031342	10031344	Advantage 3100 Facepiece, black hycar, with <b>Advantage</b> head harness
ADVANTAGE 4100 SINGLE-PORT FACEPIECES	10083796	10083792	10083800	Advantage 4100 Facepiece, black silicone, with <b>polyester net</b> head harness
	10083797	10083793	10083801	Advantage 4100 Facepiece, black hycar, with <b>polyester net</b> head harness
ULTRAVUE FACEPIECES	480251	480247	480255	Ultravue Facepiece, black silicone
	471218	457126	471230	Ultravue Facepiece, black hycar
ULTRA ELITE FACEPIECES	493072	493028	493116	Ultra Elite Facepiece, black silicone
	493064	493020	493108	Ultra Elite Facepiece, black hycar

## Replacement Canisters and Accessories

REPLACEMENT CANISTERS	Single Canister	Box of 12 Canisters	Color Coding	
	10059903*	10094314		Phosphine/Ammonia/Chlorine/P100 Canister (PH/AM/CL) <i>Approval: TC-14G-0274</i>
	10067469*	10094315		Organic Vapor/P100 Canister (OV) also effective against organic iodides and iodide vapors <i>Approval: TC-14G-0279</i>
	10067491*	10091352		Hydrogen Fluoride/Chlorine/P100 Canister (HF/CL) <i>Approval: TC-14G-0280</i>
	10067470*	10094316		Formaldehyde/Acid Gas/Chlorine Dioxide/Hydrogen Sulfide/P100Canister (FM/AG/CD/HS) <i>Approval: TC-14G-0282</i>

\* Canister contains a P100-particulate filter (99.97% filter efficiency level) against all particulate amounts.

STORAGE CASES AND STORAGE ACCESSORIES	10075204	For Phosphine/Ammonia/Chlorine/P100 Gas Mask	ADDITIONAL PARTS FOR BELT- MOUNTING	10068195	Belt clip
	10075207	For Organic Vapor/P100 Gas Mask		10068129	Breathing tube
	10075205	For Hydrogen Fluoride/P100 Gas Mask		473902	PVC belt
	10075206	For Formaldehyde/Acid Gas/Chlorine Dioxide/ Escape from Hydrogen Sulfide/P100 Gas Mask		9961	Web support belt, uncoated
	10071231	Wall bracket		492827	Polyurethane-coated nylon support belt
				10068152	Spark cover

## Riot Control and CBRN Gas Masks

Protect law enforcement and military personnel from a variety of respiratory hazards with this full line of CBRN and riot control gas masks. Featuring flexible lenses, wider field of view, permeation-resistant construction and built-in speaking diaphragms, these masks provide protection with a comfortable fit and superior visibility. Available in a variety of styles and configurations.

- Provides respiratory protection against military warfare, civil unrest and CBRN threats
- High-performance, custom-fit comfort in a variety of military- and riot-style masks
- Attracts, regains and neutralizes contaminants
- Flexible lens with a wider field of view for superior visibility
- Easy on/off and adjustment
- Choose from a variety of styles including total head protection

### CBRN and Riot Control Gas Masks

	Small	Medium	Large	
MILLENNIUM® CBRN/ RIOT CONTROL GAS MASK	10051286	10051287	10051288	Millennium Gas Mask, with nosecup, drinking tube, and clear polycarbonate outsert <i>Order either Riot Control or CBRN canisters separately.</i>
ADVANTAGE 1000 RIOT CONTROL GAS MASK	813860	813859	813861	Advantage 1000 Riot Control Mask, complete with canister, nosecup, and identification tag <i>NOTE: the Advantage 1000 Riot Control Mask is NOT CBRN approved and uses Riot Control canisters only.</i>
ULTRA ELITE CBRN GAS MASK	10052776	10052781	10052778	Ultra Elite CBRN Gas Mask, with rubber head harness
	10052780	10052779	10052777	Ultra Elite CBRN Gas Mask, with Speed-ON Head Harness <i>Order CBRN canisters separately.</i>



Millennium® Gas Mask  
(for use with CBRN or Riot Control canisters)



Advantage 1000 Riot Control Gas Mask



Ultra Elite CBRN Gas Mask

### Gas Mask Canisters and Accessories

RIOT CONTROL CANISTERS	818264	Millennium RC canisters, box of 6
	817590	Advantage 1000 RC canisters, box of 6
CBRN CANISTER	10046570	MSA CBRN canister, for Millennium and Ultra Elite Facepieces
LENS OUTSERT <i>For Millennium Facepiece</i>	10008907	Polycarbonate lens outsert, <b>clear</b> , small
	10008906	Polycarbonate lens outsert, <b>clear</b> , medium/large
	10008909	Polycarbonate lens outsert, <b>tinted</b> , small
	10008908	Polycarbonate lens outsert, <b>tinted</b> , medium/large
LENS OUTSERT <i>For Advantage 1000 Facepiece</i>	806463	Polycarbonate lens outsert, <b>clear</b> , small
	806462	Polycarbonate lens outsert, <b>clear</b> , medium/large
	806465	Polycarbonate lens outsert, <b>tinted</b> , small
	806464	Polycarbonate lens outsert, <b>tinted</b> , medium/large
ESP® II COMMUNICATION SYSTEM <i>For Millennium and Advantage 1000 Facepieces</i>	10026265	ESP II Communications System (1-piece, self-contained, electronic speech projection device) less battery
OTHER ACCESSORIES <i>For Millennium and Advantage 1000 Facepieces</i>	10034184	Gas Mask Pouch, Military Style
	817040	Black Nylon Bag
	816137	Advantage 1000/Millennium Spectacle Kit



## Responder® Powered Air-Purifying Respirator

With its industry-leading motor-blower and constantly filtered airflow, the belt-mounted Responder CBRN PAPR is ideal for first responders, military, and special ops personnel who require non-IDLH respiratory protection for up to 8 hours. The unit offers a choice of two MSA gas mask CBRN facepieces and three proprietary cartridges designed for CBRN, particulate and poisonous gases or vapors. The unit's constant airflow helps a user stay physically alert and focused, while also preventing fogging in the facepiece. Batteries can be "hot-swapped," and the blower's EMI shield ensures there is no interference with radio communications.

- Respirator provides constant filtered airflow, which reduces fatigue and prevents facepiece fogging
- Long-life unit provides non-IDLH respiratory protection for up to 8 hours
- Unit is compatible with MSA Millennium and Ultra Elite facepieces



## Responder PAPR Complete Systems

You must choose Responder PAPR Kit, facepiece, and cartridge for complete system.

<b>RESPONDER PAPR KITS</b> <i>less facepiece and cartridge</i>	B-60141-030	Responder CBRN PAPR Kit with 30" Breathing Tube, LiSO2 Battery
	B-60141-036	Responder CBRN PAPR Kit with 36" Breathing Tube, LiSO2 Battery
	B-60170-030	Responder CBRN PAPR Kit with 30" Breathing Tube, NiMH Battery
	B-60170-036	Responder CBRN PAPR Kit with 36" Breathing Tube, NiMH Battery

	Small	Medium	Large	
<b>GAS MASK FACEPIECES</b> <i>with head harness, less cartridge</i>	10051286	10051287	10051288	Millennium Facepiece, hycar, with <b>6-point elastic</b> head harness
	10052776	10052781	10052778	Ultra Elite Facepiece, hycar, with <b>rubber</b> head harness
	10052780	10052779	10052777	Ultra Elite Facepiece, hycar, with <b>Speed-ON</b> Head Harness

<b>CARTRIDGES</b>	10046570	CBRN Canister, each
	496081	OptiFilter XL cartridge, 6 pack
	10072237	PAPR GME Multigas HE cartridge, each
<b>ACCESSORIES FOR RESPONDER PAPR</b>	B-20040-001	NiMH Rechargeable Kit (2 NiMH Batteries, Charger & Cap)
	S-20036	NiMH Rechargeable Battery Pack
	B-20090-001	NiMH Rapid Battery Charger
	M-20020	LiSO2 Mission Battery
	B-30060-001	NiMH Rechargeable Battery Cap Assembly
	S-30019	Web Belt Assembly
	B-10079-001	PAPR Carrying Case

## Applications

- CBRN Incidents
- Civil Disturbances
- Clandestine Labs



Millennium Facepiece



Ultra Elite Facepiece  
w/Speed-ON Head Harness

## Safe Escape® CBRN Respirator

The Safe Escape Hood from MSA gives you the protection you need to escape from a terrorist situation safely, quickly and easily—whether you work in a high-profile office environment, for a government agency or embassy, or as a law enforcement officer or first responder. Manufactured with a high-performance laminate material, the hood is designed to provide optimum head and neck coverage with respiratory protection against CBRN agents.

- Convenient respirator guards against chemical, biological, radiological or nuclear hazards
- Unit features self-adjusting cradle-type head straps
- Wide field of view provides excellent visibility and reduces claustrophobia
- High-stretch rubber neck seal ensures tight fit
- Nosecup reduces lens fogging
- Guards against: HD vapor, GB, ammonia, cyanogen chloride, cyclohexane, formaldehyde, hydrogen cyanide, hydrogen sulfide, nitrogen dioxide, phosgene, phosphine, sulfur dioxide

SAFE ESCAPE RESPIRATORS <i>in Hextreme Case</i>	10073702	Safe Escape Respirator, <b>standard</b> , universal size
	10073923	Safe Escape Respirator, <b>tactical</b> version, universal size
	10073703	Safe Escape Respirator, <b>trainer</b> version, universal size
ACCESSORIES	10068310	Optional carrying straps and harness kit
	10068013	DVD training video for Safe Escape Respirator

*Note: The only difference between the standard and tactical versions is the outside labeling on Hextreme Case.*



Hextreme Case

## S-CAP™ Fire Escape Hood

Most victims of fire are not injured by heat or flames but rather by smoke and gases, especially carbon monoxide. The S-CAP Fire Escape Hood is simple to don and use and is effective within seconds, using a filter designed for a minimum rated service time of 15 minutes.

- Filters out CO and smoke
- Universal size
- Easily fitted with quick donning
- Minimal training required
- EN 403:2004 approved
- Highly visible yellow hood
- Adjustable head harness on the outside of the hood, with cotton neck seal for easy donning
- Wide field of view lens
- Heat-resistant against brief flame contact and elevated temperatures

S-CAP FIRE ESCAPE HOOD	10064644	S-CAP in cardboard box
	10064645	S-CAP in wall box



Wall Box



## A Guide to **Air-Line Systems**

Type-C Supplied-Air Respirators, more commonly referred to as air-line respirators, are designed to provide long-duration respiratory protection.

They generally consist of a full-facepiece or half-mask facepiece connected by an air-supply hose to an air source, either a compressor or bank of large air cylinders. When connected to the air source, the respirator delivers a supply of respirable air to the user.

Accessory equipment, such as pressure regulators, pressure relief valves, carbon monoxide monitors and filters for air compressors, may be necessary to ensure that the air is at the proper pressure and quality for breathing. Air quality must be Quality Verification Level Grade D or better as defined in ANSI Standard Z-86.1-1973 (Compressed Gas Association Specification G-7.1 Commodity Specification for Air).

Current air-line systems fall into two categories: **Pressure-Demand** and **Constant Flow**. The difference between the two is how the air is supplied.

Pressure-demand systems deliver air only when the user needs it. Thus, pressure-demand devices afford greater breathing efficiency.

In contrast, with a constant flow device, air flow to the respirator is continuous. However, because the air flow is continuous, constant flow air-line systems are generally used only with a compressor for a virtually unlimited air supply.

Type-C Supplied-Air Respirators are approved by the National Institute for Occupational Safety and Health (NIOSH) for use in atmospheres not immediately dangerous to life and health (IDLH) or from which the wearer can escape without wearing the respirator.

“Not immediately dangerous to life and health” means any hazardous atmosphere which may produce physical discomfort immediately, chronic poisoning after repeated exposure, or acute adverse physiological symptoms after prolonged exposure. (42 CFR, Part 84 subpart A, 84.2(x)).

This limitation is necessary because the air-line respirator depends entirely on an air supply not carried by the wearer. Therefore, if the air hose were severed or crimped, or the air compressor failed, the air supply to the wearer would be shut off. The wearer would be without respiratory protection and might not be able to safely escape from an IDLH atmosphere.

Another limitation of air-line respirators is that the air-supply hose limits the wearer to a fixed distance from the air source. As an air-line respirator user, it is your responsibility to supply the respirator with breathable air—Grade D or better. The following pages show complete hook-ups of various air-line systems, both pressure-demand and constant flow, from the air source to the respirator and will aid you in hooking up your own air-line system.



## Constant Flow Air-Line Respirators

Constant Flow Air-Line Respirators maintain a slight positive pressure of air inside the facepiece whether the wearer is inhaling or exhaling. This helps prevent contaminants from seeping in around the facepiece, even if there should be small breaks in the face-to-facepiece seal.

Constant Flow Air-Line Respirators maintain air flow at all times, rather than only on demand. Because of this, constant flow units almost always use a compressor as their air source. A constant flow unit would quickly exhaust the air from a cylinder or cascade system.

There are two types of Constant Flow Air-Line Respirators: one uses a tight-fitting facepiece; the other, a loose-fitting hood or helmet. Inlet air pressure must be able to maintain at least 4 cfm for a tight-fitting facepiece and 6 cfm for a loose-fitting hood.

The inlet pressure for Constant Flow Air-Line Respirator facepieces varies between 10-15 psig for low pressure systems and 35-40 psig for high pressure systems.

For Constant Flow Air-Line Hoods, the inlet pressure usually ranges between 10-15 psig and 85-100 psig, depending on the type. Also, depending on the inlet pressure, the length of approved air-supply hose for these systems is usually between 8-50 feet for low-pressure systems and 8-300 feet for high-pressure systems. Consult the instruction manual for your respirator to determine the specific inlet pressure and hose length.

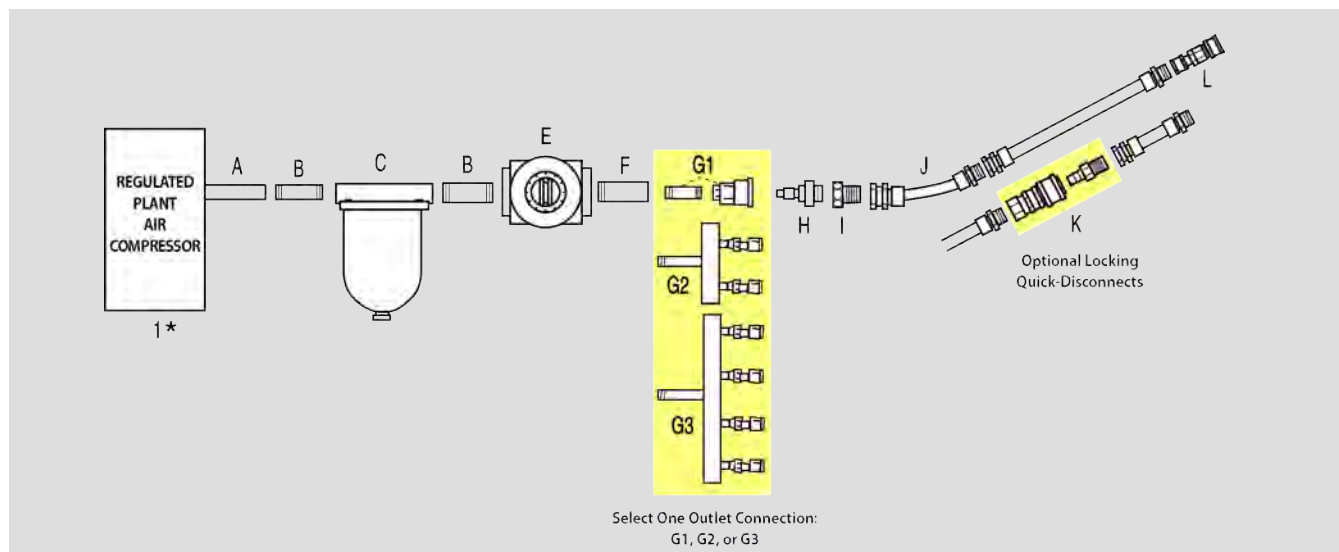
### MSA Constant Flow Respirators with Tight-Fitting Facepieces include:

- Constant Flow Air-Line Respirator
- Constant Flow Duo-Twin™ Air-Line Respirator
- Constant Flow Duo-Flo™ Air-Line Respirator
- Abrasi-Blast™ Supplied-Air Respirator

### MSA Constant Flow Respirators with Loose-Fitting Hoods include:

- Versa-Hood™ Air-Supplied Hood

## Typical Plant-Supplied Air-Line Systems: Constant Flow or Pressure Demand System



<b>1</b>	PLANT AIR COMPRESSOR	not supplied by MSA
<b>A</b>	OUTLET FITTING FOR SYSTEM	Varies with system
<b>B</b>	NIPPLE	(1/2" x 1/2" x 1-1/2" NPT) P/N 68833
<b>C</b>	AIR LINE FILTER	P/N 81857
<b>E</b>	PRESSURE REGULATOR	P/N 66716
<b>F</b>	OUTLET CONNECTIONS	Bushing (1/2" M x 1/4" F) P/N 625528
<b>G1</b>	FEMALE SOCKET NIPPLE	Female Socket—P/N varies with type (See pg. 40—column 1) Nipple—1/4" x 1/4" NPT—(needed only w/Female Socket) P/N 459867
<b>G2</b>	2-OUTLET MANIFOLD	Foster Steel P/N 84416 Snap-Tite Aluminum P/N 486053 (See pg. 43)
<b>G3</b>	4-OUTLET MANIFOLD	Foster Steel P/N 474370 Snap-Tite Aluminum P/N 93931 (See pg. 43)

<b>H</b>	MALE PLUG WITH MALE 1/4" NPT	(See pg. 40—column 4)
<b>I</b>	UNION ADAPTER	(See pg. 40—column 3)
<b>J</b>	MSA AIR-SUPPLY HOSE	P/N varies with type (See pg. 42)
<b>K</b>	OPTIONAL LOCKING QUICK-DISCONNECT ASSEMBLIES for interconnecting lengths of MSA air-supply hose	CEJN Locking Quick-Disconnect Assembly (Chrome) P/N 479009  Snap-Tite Locking Quick-Disconnect Assembly (Aluminum) P/N 479010
<b>L</b>	FEMALE SOCKET ASSEMBLY	P/N varies with type (See pg. 40—column 5)



## Pressure-Demand Air-Line Respirators

Pressure-Demand Air-Line Respirators are designed to maintain a slight positive pressure of air inside the facepiece whether the wearer is inhaling or exhaling. This helps prevent contaminants from seeping in around the facepiece, even if there should be small breaks in the face-to-facepiece seal.

Pressure-Demand Air-Line Respirators are designed specifically for non-IDLH toxic atmospheres. The exception is if the respirator is equipped with an egress cylinder of air to use during escape.

Pressure-Demand Air-Line Units require an air supply from an uncontaminated compressed-air source as stipulated in General Industry Safety and Health Regulations, Part 1910.134 (OSHA) with the delivered air conforming to at least Grade D of ANSI Standard Z86.1.

A common air source for pressure-demand systems is a cylinder of air which can be set up in remote sites that might otherwise be impossible to reach with a large stationary compressor.

Another air source option for pressure-demand respirators is a cylinder cascade system. A cascade system consists of several air cylinders joined together in a bank by means of coupler tees. Generally, the banks consist

of three or more cylinders of either 244 cubic-feet or 330 cubic-feet capacity. One or more workers can breathe from a cascade system.

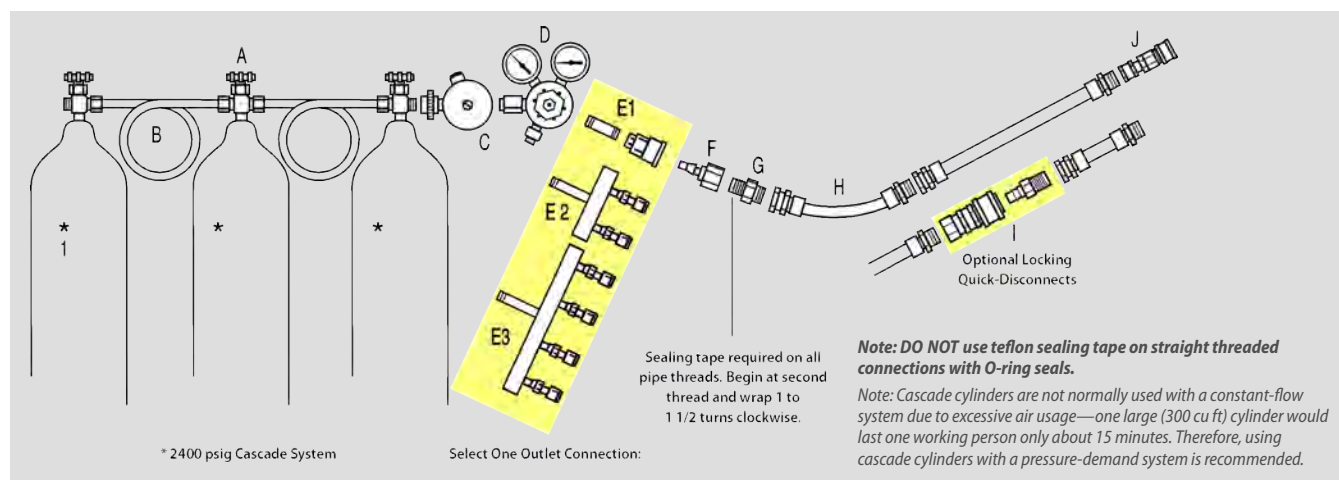
If using a compressed air or a compressor system, each respirator generally requires 1.5 cfm per person and needs to maintain the inlet (working) pressure specified in the respirator instruction manual.

At a normal rate of consumption, a three-cylinder bank used with a pressure-demand unit will provide between 12 to 16.5 man-hours of air, depending on cylinder capacity.

### MSA Pressure-Demand Air-Line Units include:

- PremAire® Cadet Respirator (for non-IDLH atmospheres)
- PremAire Cadet Escape Respirator
  - with Escape Cylinder (for egress from IDLH atmospheres)
- PremAire Air-Line Respirator System:
  - with Escape Cylinder (for egress from IDLH atmospheres)
  - with Vortex Tube (for suit-cooling applications)
  - with Dual-Supply (to eliminate additional hose lengths)

## Typical Cascade Cylinder Air-Line Systems: Pressure Demand System



1	AIR CYLINDER	not supplied by MSA
A	AIR TEE BLOCK	P/N 68850 or P/N 10081206 (See pg. 42)
B	AIR PIGTAIL	P/N 68851 or P/N 10081205 (See pg. 42)
C	AUDI-LARM WARNING DEVICE	P/N 85078 or P/N 492307 (See pg. 42)
D	AIR CYLINDER PRESSURE REGULATOR	P/N 68858 or P/N 633352 (See pg. 43)
E1	OUTLET CONNECTIONS	Female Socket—P/N varies with type (See pg. 40); Nipple 1/4" x 1/4" NPT (needed only w/Female Socket) P/N 459867
E2	2-OUTLET MANIFOLD	Foster Steel P/N 84416 Snap-Tite Aluminum P/N 486053 (See pg. 43)
E3	4-OUTLET MANIFOLD	Foster Steel P/N 47370 Snap-Tite Aluminum P/N 93931 (See pg. 43)

F	MALE PLUG WITH FEMALE 1/4" NPT	P/N varies with type (See pg. 40)
G	UNION ADAPTER	(See pg. 40)
H	MSA AIR-SUPPLY HOSE	P/N varies with type (See pg. 42)
I	OPTIONAL LOCKING QUICK-DISCONNECT ASSEMBLIES for interconnecting lengths of MSA air-supply hose	CEJN Locking Quick-Disconnect Assembly (Chrome) P/N 479009 Snap-Tite Locking Quick-Disconnect Assembly (Aluminum) P/N 479010 (See pg. 40)
J	FEMALE SOCKET ASSEMBLY	P/N varies with type (See pg. 40)

## Constant Flow Air-Line Respirator

This Type-C, supplied-air respirator supplies a continuous flow of air to the facepiece from an external source. The complete assembly is available with either an Ultravue or Ultra Elite Full Facepiece, Comfo Half-Mask Facepiece or Comfo Welder's Facepiece, plus breathing tube, web support belt and air flow control valve. Use only in non-IDLH environments.

### Features and Benefits

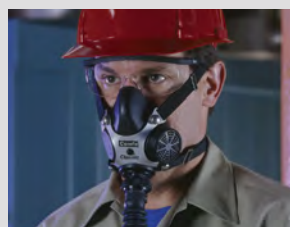
- Supplies long-duration respiratory protection
- Ideal for a wide range of applications including welding, painting and hazardous materials
- Maintains a slight positive pressure of air during both inhalation and exhalation to prevent contaminant seeping inside facepiece
- For use only in non-IDLH environments



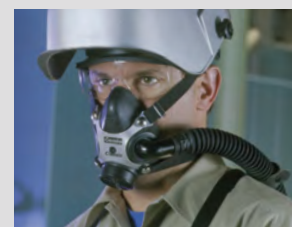
Constant Flow Air-Line Respirator with Advantage 4100 Facepiece



Constant Flow Air-Line Respirator with Ultra Elite Facepiece



Constant Flow Air-Line Respirator with Comfo Facepiece



Constant Flow Air-Line Respirator with Welder's Comfo Facepiece

<b>CONSTANT FLOW AIR-LINE RESPIRATOR KITS</b>	Kits include: a Constant Flow Air-Line Respirator with an Advantage 4100 Facepiece (medium size, hycar rubber, polyester net head harness) with a High or Low Pressure Flow Control Valve, breathing tube and nylon belt assembly, Foster Steel quick-disconnects for connecting the respirator to the air-supply hose, a 50 foot section of neoprene air-supply hose complete with Foster Steel plug to attach the air-supply hose to your air source.	10108494	Constant Flow Air-Line Respirator, <b>LOW</b> Pressure Control Valve, Black body
		10108593	Constant Flow Air-Line Respirator, <b>HIGH</b> Pressure Control Valve, Gold Body

	<b>Advantage 4000 Facepiece</b>	<b>Ultra Elite Facepiece</b>	<b>Ultravue Facepiece</b>	<b>Comfo Facepiece</b>	<b>Welder's Comfo Facepiece</b>	
<b>CONSTANT FLOW COMPLETE ASSEMBLIES</b>  <i>High-pressure control valve (35–40 psig inlet pressure for 8–300 ft of hose)</i>	10088132	810829	460863	460865	460862	with <b>Snap-Tite aluminum</b> quick-disconnect
	10088134	810831	461717	480466	480600	with <b>Foster steel</b> quick-disconnect
	10088136	†	486258	†	†	with <b>Hansen brass</b> quick-disconnect
	10088135	810832	480629	480631	480671	with <b>CEJN Locking chrome-plated brass</b> quick-disconnect
<b>CONSTANT FLOW COMPLETE ASSEMBLIES</b>  <i>Low-pressure control valve (10–15 psig inlet pressure for 8–50 ft of hose)</i>	10088107	806775	463300	463302	463281	with <b>Snap-Tite aluminum</b> quick-disconnect
	10088109	806776	480472	480474	480468	with <b>Foster steel</b> quick-disconnect
	10088121	806779	484836	484837	†	with <b>Hansen brass</b> quick-disconnect
	10088110	806777	480637	480639	480645	with <b>CEJN Locking chrome-plated brass</b> quick-disconnect

Note: Facepieces can also be ordered in silicone instead of hycar rubber. Three sizes of facepieces are available. For belts, MSA Air-Supply Hose and other accessories, see pages 42–43. For separate quick-disconnect plugs and sockets, see page 40. See pages 27–28 for typical Pressure Demand Air-Line and Constant Flow Air-Line Systems setup.

† Available by special order only. High-pressure control valves are also available with the following special order quick-disconnects: Snap-Tite brass or stainless steel, Foster brass, and Hansen brass, or stainless steel. Low-pressure control valves also available with: Snap-Tite brass or stainless steel, Foster brass, and Hansen brass. Please call your nearest MSA distributor for complete ordering information.

# Air-Line Respirators

## Duo-Twin™ Respirators

The Duo-Twin Respirator comes in a Constant-Flow version; Constant-Flow respirators are normally used where an ample air supply is available, such as that provided by an air compressor. The MSA Duo-Twin Respirator features air-purifying cartridges, which also protect against a variety of contaminants. If the air supply should ever fail on the Constant-Flow unit, the user is automatically protected by the air-purifying cartridges.

This product is popular in the pharmaceutical, chemical, petrochemical, and nuclear industries. This MSA respirator should not be used in atmospheres containing less than 19.5% oxygen. NIOSH approved.



Duo-Twin Respirator with Advantage 4000 Facepiece

DUO-TWIN RESPIRATOR COMPLETE ASSEMBLIES	10091873	Constant-Flow Duo-Twin Respirator with <b>Advantage 4200 Facepiece</b> – complete with facepiece, breathing tube, adapter assembly/regulator, web belt and Foster steel plug and socket assembly. Uses Advantage Respirator Cartridges listed on page 11.
	490143	Constant-Flow Duo-Twin Respirator with <b>Ultravue Facepiece</b> – complete with facepiece, breathing tube, adapter assembly/regulator, web belt and Foster steel plug and socket assembly. Uses Comfo Respirator Cartridges listed on page 12.

## Duo-Flo™ Respirators

This combination air-supplied/air-purifying respirator is designed for use in adequately ventilated areas with at least 19.5% oxygen. Featuring a unique, switchable exhalation valve, these units are well suited for abatement work.

- Air-supplied mode permits long service use
- Air-purifying mode is for entry, egress and moving from station to station in a contaminated atmosphere

### Duo-Flo Respirator Designed for Torus and Wetwell Abrasive Blasting

MSA's custom designed products for torus and wetwell blasting include the Duo-Flo Respirator with a tight-fitting facepiece, a durable hood that provides head, neck and upper body protection and replacement 3-layer lens covers for workers engaged in abrasive blasting. The Constant Flow Duo-Flo Option is designed to handle both air-supplied and air-purifying (P100) modes of operation. The 3-layer cover lens allows for lens removal without stopping work. The shoulder-length hood is made of cotton-polyester material. It has an elastic neck and Velcro closures for comfortable sealing around the neck.

- APR filter for entry/egress
- Constant-Flow Airline with Type CE approval for blasting operation
- Customized blasting hood designed for maximum vision and mobility
- Standard Ultravue Facepiece maximizes vision in tight quarters
- Easy integration with Fall Protection
- NIOSH approved



Constant-Flow Duo-Flo Respirator

Ultra Filter P100 cartridge

DUO-FLO RESPIRATOR COMPLETE ASSEMBLIES	466095	Constant-Flow Duo-Flo Respirator w/full-face <b>Ultravue Facepiece</b> , includes one (1) P100 Ultra Filter
	10091952	Constant-Flow Duo-Flo Respirator w/full-face <b>Advantage 4000 Facepiece</b> , includes one (1) P100 Ultra Filter
REPLACEMENT CARTRIDGES	10010420	Round Ultra Filter Cartridge, box of 6
	10010421	Round Ultra Filter Cartridge, box of 50
HOODS	10125492	Torus Blast Hoods, box of 20*
LENS COVERS	10125177	Replacement lens covers 3/stack, package of 5

\* Required for Abrasive Blasting Approval

## Abrasi-Blast™ Supplied-Air Respirator

- Provides respiratory and upper body protection for personnel engaged in abrasive blasting
- Modular design allows customization for a range of applications
- Heavy, rubber hood protects against rebounding abrasive materials
- In addition to hood, respirator includes facepiece with lens housing, breathing tube, lens cartridge, flow-control device, air-supply hose, and support belts.
- Removable flat-glass cover lens
- Choose waist-length or shoulder-length style



	Waist-Length Hood	Shoulder-Length Hood	
COMPLETE ASSEMBLIES WITH ADVANTAGE 4000 FACEPIECE	10089177	10089210	Abrasi-Blast Respirator with <b>Advantage 4000 Facepiece</b> Includes hood, medium facepiece with net head harness (10089910), lens housing, one lens cartridge (three 0.12" untempered glass cover lenses per cartridge), breathing tube (470734), web belt (9961), and adjustable valve connector with Snap-Tite (AL) socket assembly. Flow-control device: 35–40 psi. <i>Order air-supply hose separately.</i>
COMPLETE ASSEMBLIES WITH DUO-FLO CONSTANT FLOW ADVANTAGE 4000 FACEPIECE	10116961	10116962	Abrasi-Blast Respirator with <b>Duo-Flo Constant-Flow Advantage 4000 Facepiece</b> Includes hood, medium facepiece with net head harness (10089910), lens housing, one lens cartridge (three 0.12" untempered glass cover lenses per cartridge), breathing tube (457158), web belt (9961), and adjustable valve connector with Snap-Tite (AL) socket assembly. Flow-control device: 35–40 psi.
COMPLETE ASSEMBLIES WITH ULTRAVUE FACEPIECE  <i>Assemblies can be specially ordered with different options</i>	468716	468720	Abrasi-Blast Respirator with <b>Ultravue Facepiece</b> Includes hypalon hood with collar, medium facepiece with dual exhalation valves, lens housing, one lens cartridge (four 0.06-inch untempered glass cover lenses), breathing tube, web belt, flow control device with Snap-Tite (AL) quick-disconnect fitting. <b>Inlet Pressure Range: 10–15 psi.</b>
	468718	468722	Abrasi-Blast Respirator with <b>Ultravue Facepiece</b> Includes hypalon hood with collar, medium facepiece with dual exhalation valves, lens housing, one lens cartridge (four 0.06-inch untempered glass cover lenses), breathing tube, web belt, flow control device with Snap-Tite (AL) quick-disconnect fitting. <b>Inlet Pressure Range: 35–40 psi.</b>
	478116	478117	Abrasi-Blast Respirator with <b>Ultravue Facepiece</b> Includes hypalon hood with collar, medium facepiece with dual exhalation valves, lens housing, one lens cartridge (four 0.06-inch untempered glass cover lenses), breathing tube, web belt, flow control device with Snap-Tite (AL) quick-disconnect fitting. <b>Abrasi-Blast Duo-Flo.</b>

LENS CARTRIDGES  <i>12 cartridges per carton</i>	473798	0.09"-thick, untempered lens; 3 per cartridge; recommended use: medium blasting
	473800	0.09"-thick, tempered lens; 3 per cartridge; recommended use: medium blasting
	10013407	0.12"-thick, untempered, laminated lens; 1 per cartridge; recommended use: heavy blasting
	473802	0.12"-thick, untempered, laminated lens; 2 per cartridge; recommended use: heavy blasting
	481742	0.12"-thick, untempered, laminated lens; 3 per cartridge; recommended use: heavy blasting



## PremAire® Cadet Supplied-Air Respirator

- High-performance, Type-C, supplied-air respirator supplies on-demand respiratory protection
- Mask-mounted regulator responds quickly to changing breathing requirements
- Provides longer-duration air supply when used with a compressor
- Maintains a slight positive pressure of air during both inhalation and exhalation
- Well-suited for chemical, petrochemical, utility and industrial applications
- For use only in non-IDLH environments

## PremAire Cadet Respirator Kits

These PremAire Cadet Respirator Kits include PremAire Cadet Respirator with Advantage 4000 Facepiece (medium size, hycar rubber, polyester net head harness) with Push-To-Connect Firehawk® Regulator, nylon belt assembly, listed quick-disconnect for connecting respirator to air-supply hose, neoprene air-supply hose 50-foot section complete with corresponding plug to attach air-supply hose to air source.



PREMAIRE CADET KITS	10108493	PremAire Cadet Air-Line Respirator with <b>Foster Steel</b> quick-disconnects, neoprene air-supply hose 50-foot section with <b>Foster Steel Plug</b>
	10108594	PremAire Cadet Air-Line Respirator with <b>Snap-Tite Aluminum</b> quick-disconnects, neoprene air-supply hose 50-foot section with <b>Snap-Tite Aluminum Plug</b>
	10108495	PremAire Cadet Air-Line Respirator with TransportAire™ Portable Air-Supply Assembly: kit includes a PremAire Cadet Respirator with an Advantage 4000 Facepiece (medium size, hycar rubber, polyester net head harness) with Push-To-Connect Firehawk Regulator and nylon belt assembly, Snap-Tite Quick-Disconnect and a low-pressure TransportAire Portable Air Supply with 30-minute carbon fiber cylinder, and eight-foot coiled nylon air-supply hose

## PremAire Cadet Respirator Assemblies

All listed configurations include: Ultra Elite Facepiece (medium size, hycar, rubber head harness) or Advantage 4000 Facepiece (medium size, hycar, polyester net head harness) with Push-To-Connect Firehawk Regulator and nylon belt assembly.

PREMAIRE CADET COMPLETE ASSEMBLIES <i>with Ultra Elite Facepiece</i>	10054790	with 30" IP (intermediate pressure) hose, no fittings
	10054792	with 30" IP (intermediate pressure) hose, Snap-Tite AL fittings
	10054791	with 42" IP (intermediate pressure) hose, no fittings
	10054793	with 42" IP (intermediate pressure) hose, Snap-Tite AL fittings
PREMAIRE CADET COMPLETE ASSEMBLIES <i>with Advantage 4000 Facepiece</i>	10081100	with 30" IP (intermediate pressure) hose, no fittings
	10081098	with 30" IP (intermediate pressure) hose, Snap-Tite AL fittings
	10081171	with 42" IP (intermediate pressure) hose, no fittings
	10081099	with 42" IP (intermediate pressure) hose, Snap-Tite AL fittings
PREMAIRE CADET ASSEMBLIES <i>without facepiece</i>	10121413	with 30" IP (intermediate pressure) hose, no fittings
	10121416	with 42" IP (intermediate pressure) hose, no fittings

Note: See page 40 to order quick-disconnects for use with the PremAire and PremAire Cadet Systems (column 2 for the plug and column 5 for the socket assembly).

## Facepieces for PremAire Cadet and PremAire Cadet Escape Respirators

MSA offers choice of two facepieces, the Ultra Elite Facepiece or the Advantage 4000 Facepiece for the PremAire Cadet family of respirators. Choose from three facepiece sizes (small, medium, or large) in either hycar or silicone rubber. Nosecups are available in two sizes, standard and large.

### Ultra Elite Facepiece



#### The Ultra Elite Facepiece features:

- One-way check valve preventing exhaled air from entering the mask-mounted regulator
- A rugged polycarbonate lens with scratch-resistant coating
- A mechanical speaking diaphragm for short-range communications
- Five adjustable rubber straps for exceptional head comfort, security, and safety
- Optional heat-resistant Kevlar net-style head harness

	Small	Medium	Large	
ULTRA ELITE FACEPIECES  <i>Push-To-Connect Adapter</i>	10037650	10037648	10037652	hycar, <b>rubber</b> head harness, nose cup
	10043417	10043413	10043431	Silicone, <b>rubber</b> head harness, nose cup
	10043419	10043415	10043433	hycar, <b>Speed-ON</b> head harness, nose cup
	10043430	10043416	10043434	Silicone, <b>Speed-ON</b> head harness, nose cup

### Advantage 4000 Facepiece



#### The Advantage 4000 Facepiece features:

- Available adapters to convert the Advantage Facepiece to a Twin-Cartridge Respirator (using Advantage Cartridges) or an RD40 Facepiece
- One-way check valve preventing exhaled air from entering the mask-mounted regulator
- Rugged polycarbonate lens with scratch-resistant coating
- Four-point silicone head harness for exceptional comfort and security
- Optional polyester net or Kevlar net head harness

	Small	Medium	Large	
ADVANTAGE 4000 FACEPIECES  <i>Push-To-Connect Adapter</i>	10075911	10075905	10075917	hycar, <b>rubber</b> head harness, nose cup
	10075910	10075904	10075916	Silicone, <b>rubber</b> head harness, nose cup
	10075915	10075909	10075921	hycar, <b>polyester net</b> head harness, nose cup
	10075914	10075908	10075920	Silicone, <b>polyester net</b> head harness, nose cup
	10108547	10108561	10108565	hycar, <b>Kevlar net</b> head harness, nose cup
	10108545	10108549	10108563	Silicone, <b>Kevlar net</b> head harness, nose cup

## PremAire® Cadet Escape Respirator

- Combination supplied-air respirator with SCBA designed especially for use in and escape from IDLH atmospheres
- One-piece assembly with both first-stage regulator and cylinder valve
- Small size and profile are perfect for confined spaces
- Downstream design and dual springs for maximum reliability
- Recessed pressure gauge for added protection
- Choice of cylinder hip placement for freedom and versatility
- Standby mount for second-stage regulator

## PremAire Cadet Escape Respirator Kits

The PremAire Cadet Escape Respirator Kits below include an Advantage 4000 Facepiece (medium size, hycar rubber, polyester net head harness) with Push-To-Connect Firehawk Regulator and nylon harness, aluminum cylinder, and the listed quick-disconnect for connecting the respirator to the air-supply hose, a 50-foot section of neoprene air-supply hose complete with the corresponding plug to attach the air-supply hose to your air source.



PREMAIRE CADET ESCAPE KITS	10108496	PremAire Cadet Escape Air-Line Respirator, <b>5-minute</b> aluminum egress cylinder, with Hansen Brass Quick-Disconnects, 50-foot section of neoprene air-supply hose with Hansen Brass Plug
	10108592	PremAire Cadet Escape Air-Line Respirator, <b>10-minute</b> aluminum egress cylinder, with Hansen Brass Quick-Disconnects, 50-foot section of neoprene air-supply hose with Hansen Brass Plug

## PremAire Cadet Escape Respirators

PREMAIRE CADET ESCAPE RESPIRATORS	10087895	PremAire Cadet Escape Air-Line Respirator, <b>5-minute</b> aluminum egress cylinder, nylon strap carrier/harness, less facepiece, less fittings, less case
	10087897	PremAire Cadet Escape Air-Line Respirator, <b>10-minute</b> aluminum egress cylinder, nylon strap carrier/harness, less facepiece, less fittings, less case
	10092034	PremAire Cadet Escape Air-Line Respirator, <b>5-minute</b> aluminum egress cylinder, nylon strap carrier/harness, Advantage 4000 Facepiece, hycar, polyester net head harness, Hansen brass fittings, less case
	10092036	PremAire Cadet Escape Air-Line Respirator, <b>10-minute</b> aluminum egress cylinder, nylon strap carrier/harness, Advantage 4000 Facepiece, hycar, polyester net head harness, Hansen brass fittings, less case
	10093986	PremAire Cadet Escape Air-Line Respirator, <b>5-minute</b> aluminum egress cylinder, nylon strap carrier/harness, Ultra Elite Facepiece, hycar, rubber head harness, less fittings, with hard case
	10093987	PremAire Cadet Escape Air-Line Respirator, <b>10-minute</b> aluminum egress cylinder, nylon strap carrier/harness, Ultra Elite Facepiece, hycar, rubber head harness, less fittings, with hard case
	10093988	PremAire Cadet Escape Air-Line Respirator, <b>5-minute</b> aluminum egress cylinder, nylon strap carrier/harness, Advantage 4000 Facepiece, hycar, polyester net head harness, less fittings, with hard case

## Approvals

The PremAire Cadet Escape Respirator is approved by the National Institute for Occupational Safety and Health (NIOSH) as an Open-Circuit, Pressure-Demand, Escape, Self-Contained Breathing Apparatus or Combination, Open-Circuit, Pressure-Demand, Escape, Self-Contained Breathing Apparatus and Type-C, Supplied-Air Respirator (TC-13F-542,543,544,545). The respirator is approved for use at temperatures above -25°F. The compressed-air container shall be fully charged with air meeting the requirements of CGA C-7.1 Grade D or higher quality. When supplied with respirable air through an air-supply hose, the air-supply pressure range shall be 70-90 psig, the hose length shall be 8-300 feet, and the air supply shall meet the requirements of CGA C-7.1 Grade D or higher quality.

## The Assemble-To-Order System for PremAire Cadet Escape Respirator

Thousands of possible combinations lets you select just the right PremAire Cadet Escape Respirator for the job. The ATO System works by allowing users to create their own part numbers. Each digit of an ATO part number will represent a specific component, so that the entire part number represents a finished respirator built exactly to your desired specifications. Advantages of the ATO System include: you get the exact model of PremAire Respirator you need; no special orders, because all orders are customized; fresher cylinders from our continually rotated inventory; simplified ordering process; and timely delivery.

Type	Carrier & Harness Type	Pad Option	Escape Cylinder	MMR Regulator	Facepiece	Nosecup	Head Harness	Quick Disconnect	Case	QUANTITY
PC PremAire Cadet Escape	1 Nylon, strap carrier, standard 2 Kevlar, strap carrier, standard 3 Nylon, bag carrier, standard 4 Kevlar, bag carrier, standard  <i>Aluminum escape cylinders are not compatible with bag carriers</i>	0 None 1 Shoulder	A 5-minute aluminum B 10-minute aluminum C 5-minute carbon D 10-minute carbon E 15-minute carbon F 5-minute aluminum, less air G 10-minute aluminum, less air H 5-minute carbon, less air J 10-minute carbon, less air K 15-minute carbon, less air	A Firehawk, Push-To-Connect, solid cover C Firehawk, Slide, solid cover  <i>Firehawk slide regulators are not compatible with Advantage 4000 Facepiece</i>	A None B Ultra Elite, hycar, small C Ultra Elite, hycar, medium D Ultra Elite, hycar, large E Ultra Elite, silicone, small F Ultra Elite, silicone, medium G Ultra Elite, silicone, large H Advantage 4000, hycar, small J Advantage 4000, hycar, medium K Advantage 4000, hycar, large L Advantage 4000, silicone, small M Advantage 4000, silicone, medium N Advantage 4000, silicone, large	0 None 1 Ultra Elite, medium 2 Ultra Elite, large  <i>Nosecup standard with Advantage 4000 Facepiece</i>	0 None 1 Ultra Elite Rubber 2 Ultra Elite Speed-ON 3 Advantage 4000 Rubber 4 Advantage 4000 Poly Net 5 Advantage 4000 Kevlar Net	0 None A Snap-Tite, aluminum B Snap-Tite, stainless steel C Snap-Tite, brass D Hansen, stainless steel E Hansen, brass F Foster, steel G Foster, stainless steel H Foster, brass J Snap-Tite, locking, aluminum K Snap-Tite, locking, stainless steel M Snap-Tite, locking, brass N Foster, locking, stainless steel P Cejn, locking, chrome	0 None 1 Hard plastic case	
A- PC										



## PremAire® Air-Supplied Respirator System

This full-face, pressure-demand, Type-C supplied-air respirator features a patented waist-mounted manifold for incredible flexibility. Dual-supply option lets users connect from one pressurized continuous air source to another—without losing continuity of airflow. The vortex tube option delivers whole-body temperature control for added comfort.

- Cost-efficient supplied-air respirator
- Modular system allows user to match respiratory needs to the task at hand
- Lightweight, mask-mounted regulator provides high air flow
- Suitable for IDLH environments (with escape cylinder option)



## Traditional MSA Part Numbers

See the following page for Assemble-To-Order information. For customers who require faster delivery, the most popular PremAire system combinations can still be ordered with a traditional MSA part number. These assemblies come with a medium hycar Ultra Elite Facepiece and noseclip with rubber harness. For these assemblies, quick-disconnects must be ordered separately (see page 40; you need a male plug with female 1/4" NPT (column 2), and a female socket assembly (column 5).

<b>PREMAIRE COMPLETE ASSEMBLIES</b>	10045164	PremAire System Complete Assembly w/ Firehawk Slide-To-Connect Regulator, <b>5-minute</b> 3AL aluminum cylinder, right-hip model, with case
<i>with Firehawk STC Regulator</i>	10045165	PremAire System Complete Assembly w/ Firehawk Slide-To-Connect Regulator, <b>10-minute</b> 3AL aluminum cylinder, right-hip model, with case

## Replacement PremAire Respirator Facepieces

	Small	Medium	Large	
<b>ADVANTAGE 4000 FACEPIECES</b> <i>for Firehawk PTC MMR Regulator</i>	10075911	10075905	10075917	hycar, <b>rubber</b> head harness, noseclip
	10075910	10075904	10075916	Silicone, <b>rubber</b> head harness, noseclip
	10075915	10075909	10075921	hycar, <b>polyester net</b> head harness, noseclip
	10075914	10075908	10075920	Silicone, <b>polyester net</b> head harness, noseclip
<b>ULTRA ELITE FACEPIECES</b> <i>for Firehawk PTC MMR Regulator</i>	10037650	10037648	10037652	hycar, <b>rubber</b> head harness, noseclip, non-NFPA
	10043417	10043413	10043431	Silicone, <b>rubber</b> head harness, noseclip, non-NFPA
	10037651	10037649	10037653	hycar, <b>EZ-Don</b> Head Harness, noseclip, non-NFPA
	10043418	10043414	10043432	Silicone, <b>EZ-Don</b> Head Harness, noseclip, non-NFPA
	10043419	10043415	10043433	hycar, <b>Speed-ON</b> Head Harness, noseclip, non-NFPA
	10043430	10043416	10043434	Silicone, <b>Speed-ON</b> Head Harness, noseclip, non-NFPA
<b>ULTRA ELITE FACEPIECES</b> <i>for Firehawk STC MMR Regulator</i>	—	10039982	—	hycar, <b>rubber</b> head harness, noseclip, non-NFPA
	—	10039983	—	Silicone, <b>rubber</b> head harness, noseclip, non-NFPA

## The Assemble-To-Order System for PremAire Supplied-Air Respirator System

Type	Belt Assembly	Escape Cylinders	Dual-Supply	MMR Regulator	Facepiece Type	Facepiece	Facepiece Size	Nosecup	Head Harness	Quick Disconnect*	Case
PS PremAire System	1 Nylon	0 None	0 None	E Firehawk STC 30" Solid Cover	0 None	0 None	0 None	0 None (only if you have no FCPC)	0 None	A None ♦	0 None
	2 Urethane	1 5-Min Right Hip Carbon	1 8" Hose less QD	F Firehawk STC 42" Solid Cover	1 Non-NFPA	1 Ultra Elite, hycar	S Small	1 Ultra Elite, medium	1 Ultra Elite Rubber	B Snap-Tite, aluminum	1 Hard case
	3 Nomex	2 5-Min Left Hip Carbon	2 15" Hose less QD	G Firehawk PTC 30" Solid Cover	2 NFPA	2 Ultra Elite, silicone	M Medium	2 Ultra Elite, large	2 Ultra Elite, EZ-Don, small	C Snap-Tite, stainless steel	
		3 5-Min Right Hip Aluminum		H Firehawk PTC 42" Solid Cover	NFPA facepiece is Ultra Elite	E Advantage 4000, hycar	L Large	Nosecup standard with Advantage 4000 facepiece	3 Ultra Elite, EZ-Don, medium	D Snap-Tite, brass	
		4 5-Min Left Hip Aluminum		J Firehawk STC 30" No Bypass		F Advantage 4000, silicone			4 Ultra Elite, EZ-Don, large	E Hansen, stainless steel	
		5 10-Min Right Hip Carbon		K Firehawk STC 42" No Bypass	Firehawk slide regulators are not compatible with Advantage 4000 facepiece			5 Ultra Elite Speed-ON	F Hansen, brass		
		6 10-Min Left Hip Carbon		L Firehawk PTC 30" No Bypass				6 Advantage 4000 Rubber	G Foster, steel		
		7 10-Min Right Hip Aluminum		M Firehawk PTC 42" No Bypass			7 Advantage 4000 Poly Net	H Foster, stainless steel			
		8 10-Min Left Hip Aluminum					8 Advantage 4000 Kevlar Net	I Foster, brass			
								J Cejn, locking, chrome			
♦ Unit requires use of a Quick-Disconnect to maintain approval											
Note: If you have selected the Dual-Supply option, you will need two of the same Quick-Disconnects. Just put one letter in the part number to indicate your selection, but when you calculate the price of your system, make sure you include a price for each Quick-Disconnect.											
Must choose No Bypass option when ordering PremAire less an escape cylinder											
C- PS											

QUANTITY

\* Unit requires use of a quick-disconnect for connection to air-line to maintain approval. All quick-disconnects listed are non-locking except for the Cejn chrome (J). Note: See page 42 for air-line hoses.

Note: This matrix must only be used for ordering complete PremAire Systems. This matrix cannot be used for ordering individual components (i.e., facepieces, escape cylinders, etc.). Please order components separately using their standard MSA part number.

For applications strictly limited to non-IDLH atmospheres, NIOSH requires that the respirator system be configured without a bypass on the Firehawk Mask-Mounted Regulator (MMR). Please contact MSA Customer Service for more information.

## PremAire System Upgrades

<b>ESCAPE CYLINDER KITS</b> <i>Includes carrier assembly, 1st stage regulator, hose and cylinder</i>	800696	Kit with fully-wound carbon fiber, 5-minute cylinder, for right hip
	800694	Kit with fully-wound carbon fiber, 5-minute cylinder, for left hip
	800697	Kit with fully-wound carbon fiber, 10-minute cylinder, for right hip
	800695	Kit with fully-wound carbon fiber, 10-minute cylinder, for left hip
<b>VORTEX TUBE KITS</b>	800706	Kit with 6" hose, cool-only version
	800710	Kit with 6" hose, warm/cool version
	801012	Kit with 12" hose, cool-only version
	801014	Kit with 12" hose, warm/cool version
<b>DUAL-SUPPLY KITS</b>	800044	Includes 8-inch extension hose, less quick-disconnect assembly
	800986	Includes 15-inch extension hose, less quick-disconnect assembly
<b>PREMAIRE AIR-LINE FILTER KITS</b>	811940	Filter Kit
	811984	Replacement filter element and gasket



Escape Cylinder Kit (for rt hip)



Vortex Tube Kit



Dual-Supply Kit



Air-Line Filter Kit

## Air-Line Accessories

- Enhance long-duration respiratory protection
- Designed especially for use with MSA air-line systems
- Ensure proper pressure and air quality
- Pressure regular reduces plant air system compressor pressure and maintains desired operating pressure
- Manifolds feature quick-disconnect assemblies and automatic shut-off outlets, supplying single-source air to up to four respirators

## Industrial Air Cart



The Industrial Air Cart permits up to 4 NIOSH-approved air-line respirators to be connected to 2 one-hour 4,500 psig breathing apparatus cylinders (not included). See table below for cylinder ordering information. A 60-minute cylinder will provide maximum air supply.

### Features

- Two-wheel poly powder-coated cart, two sets of double-cylinder straps, air-line hose rack and adjustable pull handle.
- A 5,500 psig pressure regulator reduces the 4,500 psig cylinder air to the proper air-line respirator inlet pressure.
- Low-pressure cylinder alarm whistle.
- An outlet pressure gauge operates in 0-125 psig range.
- Four-outlet manifold is available with 4 outlet fitting options.

### Cart Weight and Dimensions

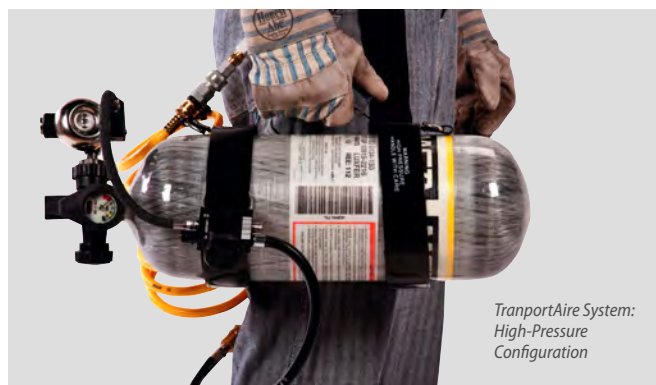
**Size:** 35" H x 21" W x 15.25" D

**Unit Weight:** 38.5 pounds without cylinders

For more complete information, see Bulletin 0114-28.

INDUSTRIAL AIR CART	10107537	Industrial air cart equipped with <b>union</b> adapters
	10107779	Industrial air cart equipped with <b>Snap-Tite aluminum</b> quick-disconnects
	10107780	Industrial air cart equipped with <b>Foster steel</b> quick-disconnects
	10107811	Industrial air cart equipped with <b>Hansen brass</b> quick-disconnects
CYLINDERS <i>All cylinder weights shown are approximate.</i>	807586	L-30* carbon-wrapped cylinder, 30-minute NIOSH service life rating, 2216 psig, weight (empty): 8 lb. 0 oz.
	816115	L-30+* carbon-wrapped cylinder, 30-minute NIOSH service life rating, 3000 psig, weight (empty): 9 lb. 8 oz.
	10127944-SP	H-30SL*, SuperLite, 30-minute NIOSH service life rating, 4500 psig, weight (empty): 6 lb. 9 oz.
	807570	H-45* carbon-wrapped cylinder, 45-minute NIOSH service life rating, 4500 psig, weight (empty): 9 lb. 7 oz.
	10127945-SP	H-45SL, SuperLite, 45-minute NIOSH service life rating, 4500 psig, weight (empty): 8 lb. 8 oz.
	10127946-SP	H-60SL*, SuperLite, 60-minute NIOSH service life rating, 4500 psig, weight (empty): 10 lb. 12 oz.
	469619	Fiberglass hoop-wound cylinder, 30-minute NIOSH service life rating, 2216 psig, weight (empty): 13 lb. 0 oz.
	809872	Aluminum cylinder, 30-minute NIOSH service life rating, 2216 psig, weight (empty): 18 lb. 0 oz.

\*These cylinders are capable of custom options. Contact MSA Customer Service at 1-800-MSA-2222 for more information. All weights approximate.



## The TransportAire™ System

The TransportAire System is available in two versions: one for high-pressure cylinders and one for low-pressure cylinders. Both versions consist of an impact-resistant handle with urethane-coated nylon straps that fit around a standard MSA SCBA air cylinder (purchased separately), a regulator, and a regulator-to-hose adapter. An Audi-Larm device is provided standard on the high-pressure system and is available as an option for the low-pressure system. Both systems are designed for use with MSA supplied-air respirators equipped with a dual-supply option. A major advantage of the dual-supply option is improved mobility; workers need not remain tethered to a single air-supply hose throughout a work period. For more complete information, see Bulletin 0114-21.



## The PortAire® System

The PortAire System holds two standard SCBA air cylinders to provide firefighters, industrial personnel, confined-space workers, and others with a portable, compressed-air source any time an air-line device is required.

Designed for use with MSA pressure-demand supplied-air respirators, including dual-purpose self-contained breathing apparatus (SCBA), the PortAire System consists of a compact air-pressure regulating system housed in a lightweight, yet durable, anodized aluminum frame. For more complete information, see Bulletin 0114-21.

THE TRANSPORTAIRE SYSTEM	812217	TransportAire Assembly, <b>high-pressure</b> (4500 psig)—complete with cylinder carrier, regulator, and regulator-to-hose adapter, and Audi-Larm
	10125955	TransportAire Assembly, <b>low-pressure</b> (2216 psig)—complete with cylinder carrier, regulator, and regulator-to-hose adapter
	85078	Low-pressure Audi-Larm assembly
	491513	8-ft Coiled nylon hose
THE PORTAIRE SYSTEM	807052	PortAire Portable Air-Supply System with Audi-Larm low-pressure warning device, high-pressure regulator, and carrying frame with air-supply hose retainer (cylinders and air-line hose not included)
	807053	Quick-Fill Kit
	10017089	Wheeled Cart for PortAire Portable Air-Supply System
CYLINDERS <i>All cylinder weights shown are approximate.</i>	807586	L-30* carbon-wrapped cylinder, 30-minute NIOSH service life rating, 2216 psig, weight (empty): 8 lb. 0 oz.
	816115	L-30+* carbon-wrapped cylinder, 30-minute NIOSH service life rating, 3000 psig, weight (empty): 9 lb. 8 oz.
	10127944-SP	H-30SL*, SuperLite, 30-minute NIOSH service life rating, 4500 psig, weight (empty): 6 lb. 9 oz.
	807570	H-45* carbon-wrapped cylinder, 45-minute NIOSH service life rating, 4500 psig, weight (empty): 9 lb. 7 oz.
	10127945-SP	H-45SL, SuperLite, 45-minute NIOSH service life rating, 4500 psig, weight (empty): 8 lb. 8 oz.
	10127946-SP	H-60SL*, SuperLite, 60-minute NIOSH service life rating, 4500 psig, weight (empty): 10 lb. 12 oz.
	469619	Fiberglass hoop-wound cylinder, 30-minute NIOSH service life rating, 2216 psig, weight (empty): 13 lb. 0 oz.
	809872	Aluminum cylinder, 30-minute NIOSH service life rating, 2216 psig, weight (empty): 18 lb. 0 oz.

\*These cylinders are capable of custom options. Contact MSA Customer Service at 1-800-MSA-2222 for more information. All weights approximate.



## Quick-Disconnects for Air-Line Respirators and Air-Supplied Hoods

Quick-disconnect assemblies connect air-supply hoses to the manifold and to the air source. If you want to use a quick-disconnect to interconnect lengths of air-supply hose, you must use a locking-type quick-disconnect—specifically, the locking quick-disconnects listed in the yellow box at the bottom of this page. For more complete information, see the Pocket Guide to Air-Line Systems (Bulletin 0114-14-MC).

### Quick-Disconnects and Adapters

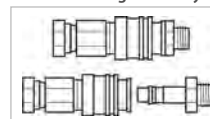
AL-Aluminum; S-Steel; SST-Stainless Steel; BR-Brass

QUICK-DISCONNECT TYPE	Interchangeability	1 	2 	3 	4 	5* 
SNAP-TITE (AL)	C	66272	66274	69542	66273	455019
SNAP-TITE (SST)	C	629673	629672	808358	629671	471778
SNAP-TITE (BR)	C	630305	630307	69542	630306	471777
HANSEN (SST)	A	628768	628208	808358	473502	471779
HANSEN (BR)	D	630311	630313	69542	630312	471501
FOSTER (S)	B	628770	55716	69542	56549	467044
FOSTER (SST)	B	636459	636460	808358	—	801016
FOSTER (BR)	A	629980	629981	69542	473501	470194
SCHRADER (S)	B	See Foster (S)	See Foster (S)	See Foster (S)	See Foster (S)	See Foster (S)
CEJN LOCKING (CHROME-PLATED—BR)	E	631870	479026	69542	479020	479001
CEJN LOCKING (CHROME)	E	—	479026	69542	479020	476956
SNAP-TITE LOCKING (AL)	F	—	479027	69542	—	479032
SNAP-TITE LOCKING (SST)	F	—	479028	808358	479022	479033
SNAP-TITE LOCKING (BR)	F	—	479029	69542	479023	479034
FOSTER (SST)	D	636473	637851	808358	—	800805

### Locking Quick-Disconnects

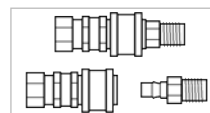
CEJN LOCKING	479009	CEJN Locking Quick-Disconnect Assembly, Socket and Plug (Chrome)
	476956	CEJN Locking Female Quick-Disconnect Socket (Chrome)
	476955	CEJN Locking Male (w/ Male 3/4" NPT) Quick-Disconnect Plug (Chrome)
SNAP-TITE LOCKING	479010	Snap-Tite Locking Quick-Disconnect Assembly, Socket and Plug (AL)
	479032	Snap-Tite Locking Female Quick-Disconnect Socket (AL)
	479015	Snap-Tite Locking Male (w/ Male 3/4" NPT) Quick-Disconnect Plug (AL)
	479011	Snap-Tite Locking Quick-Disconnect Assembly, Socket and Plug (SST)
	479033	Snap-Tite Locking Female Quick-Disconnect Socket (SST)
	479016	Snap-Tite Locking Male (w/ Male 3/4" NPT) Quick-Disconnect Plug (SST)

CEJN Quick-Disconnect Socket & Plug Assembly



CEJN Q-D Socket  
CEJN Q-D Plug

Snap-Tite Quick-Disconnect Socket & Plug Assembly



Snap-Tite Q-D Socket  
Snap-Tite Q-D Plug

## Breathing Air Distribution System Filtration Box

The Breathing Air Distribution System Filtration Box is housed in a rugged polymer case. It is equipped with three-stage filtration, a pressure regulator, a four-outlet manifold and a continuous flow 115 VAC carbon monoxide monitor. The filtration box may be used in a portable or stationary position. Two models of filtration boxes are available—one box provides 50 cubic feet of air per minute and a second provides 100 cubic feet of air per minute.

*Portable Grade-D filtration system provides breathing air for up to four air-line respirators*



	For use in the United States (Carbon Monoxide monitor set at 10 ppm)	For use in Canada (Carbon Monoxide monitor set at 5 ppm)	
<b>FILTRATION BOXES</b>  50 CFM	10107538	10113347	50 CFM Filtration Box four-outlet, carbon monoxide monitor, with <b>union</b> adapters
	10107814	10113349	50 CFM Filtration Box four-outlet, carbon monoxide monitor, with <b>Snap-Tite aluminum</b> quick-disconnects
	10107812	10113348	50 CFM Filtration Box four-outlet, carbon monoxide monitor, with <b>Foster Steel</b> quick-disconnects
	10107813	10113346	50 CFM Filtration Box four-outlet, carbon monoxide monitor, with <b>Hansen Brass</b> quick-disconnects
<b>FILTRATION BOXES</b>  100 CFM	10107539	10113345	100 CFM Filtration Box four-outlet, carbon monoxide monitor, with <b>union</b> adapters
	10107816	10113343	100 CFM Filtration Box four-outlet, carbon monoxide monitor, with <b>Snap-Tite aluminum</b> quick-disconnects
	10107817	10113342	100 CFM Filtration Box four-outlet, carbon monoxide monitor, with <b>Foster Steel</b> quick-disconnects
	10107815	10113344	100 CFM Filtration Box four-outlet, carbon monoxide monitor, with <b>Hansen Brass</b> quick-disconnects

<b>OTHER REPLACEMENT PARTS AND ACCESSORIES</b>	10108138	Upright support bracket, 50 and 100 CFM units
	10107741	Remote audible alarm with mounted visual strobe and guard, includes 50 ft. cable and 9-12 VDC
	10107527	Calibration Kit (for U.S. models), 20 ppm CO, zero air, regulator and case, 17-liter size
	10107526	Calibration Kit (for Canadian models), 10 ppm CO, zero air, regulator and case, 17-liter size
	10116617	Calibration Gas, 20 ppm CO
	10116618	Calibration Gas, 10 ppm CO
	10116619	Calibration Gas, 0 ppm CO

<b>BREATHING AIR DISTRIBUTION SUPPLY HOSES FOR INLET PORTS</b>  <i>from plant air system to filtration box</i>	10113330	Hose, 50 feet, Industrial Interchange Connections, 1/2 inch NPT male and female
	10113341	Hose, 100 feet, Industrial Interchange Connections, 1/2 inch NPT male and female
	10113328	Quick-Disconnect Socket, Hansen Industrial, 1/2 inch male NPT
	10113329	Quick-Disconnect Plug, Hansen Industrial, 1/2 inch male NPT

	50 CFM	100 CFM	
<b>FILTER CHANGE KITS</b>	10107545	10107541	Filter Change Kit, first stage
	10107546	10107542	Filter Change Kit, second stage
	10107544	10107543	Filter Change Kit, third stage

## Breathing Air Distribution System—Point of Attachment Box

The Breathing Air Distribution System point of attachment box is housed in a rugged polymer case. It is equipped with one-stage filtration, a pressure regulator and a four-outlet manifold. The point of attachment box may be used in a portable or stationary position.

POINT OF ATTACHMENT BOX 4-outlet	10107536	Point of attachment box, with union adapters
	10107822	Point of attachment box, with Snap-Tite aluminum quick-disconnects
	10107823	Point of attachment box, with Foster steel quick-disconnects
	10107821	Point of attachment box, with Hansen brass quick-disconnects
FILTER CHANGE KIT	10107545	Filter change kit



Portable Grade-D filtration system provides breathing air for up to four air-line respirators



## Approved Air-Supply Hose (3/8" ID)

Available in smooth, reinforced, lightweight polyvinylchloride (PVC); chemical-resistant black neoprene; or smooth, coiled nylon. Must be used with respirators in this section to maintain NIOSH certifications. Quick-Disconnects are sold separately (see p. 40).

### Air-Supply Hose Temperature Ranges

Neoprene	PVC	Nylon
-25° to 212°F	32° to 120°F	0° to 160°F

NEOPRENE AIR-SUPPLY HOSE	481071	8ft, with brass hose coupling
	455020	15ft, with brass hose coupling
	455021	25ft, with brass hose coupling
	455022	50ft, with brass hose coupling
	481077	8ft, with stainless steel hose coupling
	481078	15ft, with stainless steel hose coupling
	481079	25ft, with stainless steel hose coupling
	481080	50ft, with stainless steel hose coupling
PVC AIR-SUPPLY HOSE	481051	8ft, with brass hose coupling
	471511	15ft, with brass hose coupling
	471512	25ft, with brass hose coupling
	471513	50ft, with brass hose coupling
	484225	8ft, with stainless steel hose coupling
	481057	15ft, with stainless steel hose coupling
	481058	25ft, with stainless steel hose coupling
	481059	50ft, with stainless steel hose coupling
COILED NYLON AIR-SUPPLY HOSE	481060	100ft, with stainless steel hose coupling
	491513*	8ft, with brass hose coupling
	491514*	15ft, with brass hose coupling
	491515*	25ft, with brass hose coupling
	474043*	50ft, with brass hose coupling

\* Recommended usable length 4–25ft



## Cascade System Accessories

The following components are used to assemble a 2400 psi cascade system, which consists of a bank of respirable-air cylinders (user-supplied) that supply a flow of air to pressure-demand air-supplied respirators. Air-supply hoses are listed separately at left.

CASCADE SYSTEM ACCESSORIES	85078	Audi-Larm Warning Device, low-pressure CGA 346, 0–3000 psig
	492307	Audi-Larm Warning Device, high-pressure CGA 347, 0–5500 psig
	68850	Air Coupler Tee—low-pressure CGA 346, 0–3000 psig
	10081206	Air Coupler Tee—high-pressure CGA 347, 0–5500 psig
	68851	Air Pigtail—low-pressure CGA 346, 0–3000 psig
	10081205	Air Pigtail—high pressure CGA 347, 0–5500 psig
	68858	Air Cylinder Pressure Regulator, dual-gauge, 0–3000 psig
	633352	High-Pressure Air Cylinder Regulator, dual-gauge, 0–5500 psig
	55716	Male Air-supply Hose Adapter for Foster quick-disconnects (for PVC hose)
	69542	Union Adapter (required to attach male plug )



## Manifolds

Required when using multiple (2–4) respirators from a single air source; some of these manifolds have quick-disconnect assemblies with automatic shut-off outlets. Note: Gauge required when greater than 10' between air-line point of connection and the regulator.

MANIFOLDS 4-outlet	47370	Manifold, with Foster quick-disconnect
	93931	Manifold, with Snap-Tite quick-disconnect
	488914	Manifold, less quick-disconnect
MANIFOLDS 2-outlet	84416	Manifold, with Foster quick-disconnect
	486053	Manifold, with Snap-Tite quick-disconnect
	84418	Manifold, less quick-disconnect



## Air-line Filter

The MSA air-line filter removes a minimum of 99% of 0.3 micron and larger particulates, including dusts, mists, fumes, smoke, and petroleum vapors. Caution: It does not remove carbon monoxide. The air-line filter can be used at inlet pressures up to 125 psig. The pressure drop is one psig at a maximum rated air flow of 25 cfm.

AIR-LINE FILTER	81857	Air-line Filter - with 1/2" NPT female inlet and outlet
	488041	Air-line Filter - with 3/4"-16 straight threads
	484923	Replacement Filter Kit



## Pressure Regulator

MSA's pressure regulator is used with a plant air compressor system to reduce compressor pressure to the desired operating pressure. The regulator maintains pressure on the outlet side until readjusted for use with inlet pressure of up to 125 psig.

PRESSURE REGULATOR	66716	Pressure regulator
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## Inlet Pressure Gauge

MSA offers an inlet pressure gauge that enables a user to check pressure at the inlet of the MSA air-supply Hose, thereby assuring that air pressure is within the certified range. The gauge is supplied with Quick-Disconnect fittings.

INLET PRESSURE GAUGE	476734	Inlet pressure gauge, with Snap-Tite fitting
	476735	Inlet pressure gauge, with Foster or Schrader fitting
	476737	Inlet pressure gauge, with Hansen fitting
	492586	Inlet pressure gauge, less quick-disconnect*

\*See Column 4 plug and Column 3 union on page 40.



## Support Belts

MSA PVC belts are easy to decontaminate. If decontamination is not a factor, users may opt for an uncoated nylon web belt.

SUPPORT BELTS	9961	Web support belt (uncoated)
	473902	PVC support belt, clear
	492827	Polyurethane-coated nylon support belt, black





## TransAire® 5 and TransAire 10 Escape Respirators

- Provides emergency air in dangerous and deadly atmospheres, including those with high concentrations of toxic gases or vapors or oxygen deficiency
- 5- and 10-minute standard-flow air supply
- One-control operation for a swift exit
- Compact and lightweight for easy egress from tight spaces
- Fog-reducing hoods in urethane or Teflon easily fit over eyeglasses and facial hair
- Rugged, high-density polyethylene carrying case available
- Washable nylon cloth carrier can be worn on the waist, neck or shoulder

TRANSAIRE 5 ESCAPE RESPIRATOR	10008292	TransAire 5 Escape Respirator complete (includes <b>aluminum</b> cylinder, carrier, hood tube, hood assembly)
	10066739	TransAire 5 Escape Respirator complete, less air (includes <b>aluminum</b> cylinder, carrier, hood tube, hood assembly)
TRANSAIRE 10 ESCAPE RESPIRATOR	10008293	TransAire 10 Escape Respirator complete (includes <b>aluminum</b> cylinder, carrier, hood tube, hood assembly)
	10083327	TransAire 10 Escape Respirator complete (includes <b>fully-wound carbon</b> cylinder, carrier, hood tube, hood assembly)
	10066740	TransAire 10 Escape Respirator complete, less air (includes <b>aluminum</b> cylinder, carrier, hood tube, hood assembly)

Two-unit and single-unit wall mounting cases feature a chemical-resistant ABS plastic case which resists weathering, moisture, and corrosion to ensure escape respirators stay in ready-to-use condition.

ACCESSORIES	696192	Single-unit wall-mounting case
	696193	Two-unit wall-mounting case
	10012530	Single unit carrying case, yellow polyethylene, with handle, for all escape respirators



## Custom Air V® Escape Respirators

Escape toxic gases, vapors or oxygen deficiency with this quick-use, hooded emergency respirator. Features a high flow rate of 72 liters per minute (lpm) and a continuous flow of air from the compressed air cylinder. The flexible urethane hood reduces fogging and fits over eyeglasses and facial hair. Lightweight and easy to carry, the unit can also be wall-mounted, as needed.

- 5-minute high-flow cylinder meets stringent air-flow requirements for extremely aerobic escape applications
- Quick-retracting protective cover saves precious time when donning the hood
- Weighs less than 5 pounds

CUSTOM AIR V ESCAPE RESPRIATOR	484353	Custom Air V Escape Respirator complete (includes <b>fully-wound carbon</b> cylinder, carrier, hood tube, hood assembly)
	802197	Custom Air V Escape Respirator complete (includes <b>aluminum</b> cylinder, hood tube, hood assembly), less air





## About **Industrial SCBA**

Industrial Self-Contained Breathing Apparatus (SCBA) are designed for use in Immediately Dangerous to Life or Health (IDLH) atmospheres.

These are respirators that do not require compliance with NFPA-1981, the National Fire Protection Association's (NFPA) standard on open circuit breathing apparatus for firefighters.

Applications for Industrial Self-Contained Breathing Apparatus include industrial facilities, agricultural grain fumigation, water and waste water treatment plants, HazMat work, HVAC, oil, gas and petrochemical plants.

Industrial SCBA use compressed air cylinders that are available in low pressure (cylinders rated from 2216-3000 psig) and high pressure (cylinders pressurized to 4500 psig).

Optional air-line connections allow greater versatility.

All MSA SCBA are "pressure-demand" apparatus designed to maintain a slight positive pressure of air inside the facepiece during inhalation and exhalation. Positive pressure helps prevent contaminants from seeping in around the facepiece, even if there should be small breaks in the face-to-facepiece seal.

The Industrial SCBA consists of the following basic components: Facepiece; mask-mounted regulator; first-stage regulator; carrier and harness assembly; cylinder; and end-of-service-time indicator (EOSTI).





# Self-Contained Breathing Apparatus (SCBA)

## AirHawk® II Industrial Air Mask

Lightweight, durable and economical, this SCBA is ideal for a variety of industrial-hazard applications. Choose from a variety of options for many of the system's major components including: facepiece; mask-mounted regulator; carrier and harness assembly; cylinder; and end-of-service-time indicator (EOSTI).

### Features & Benefits

- Lightweight, durable, economical SCBA
- Pressure-demand maintains positive air pressure inside facepiece
- Choice of Ultra Elite or Advantage 4000 Facepiece
- Ergonomic carrier and harness assembly for comfortable, stable wear
- Detachable components for easy maintenance
- Easy-release friction buckles



	Hard Case	No Case	Facepiece	Harness Carrier	Cylinder
AIRHAWK II SCBA LOW-PRESSURE (2216 PSIG)	10095800	10095801	Ultra Elite, medium hycar, <b>rubber</b> head harness	Nylon with chest strap	30-min aluminum
	10095802	10095803	Ultra Elite, medium hycar, <b>Speed-ON</b> Head Harness	Nylon with chest strap	30-min carbon
	10095804	CALL	Adv 4000, medium hycar, <b>polyester net</b> head harness	Nylon with chest strap	30-min aluminum
	CALL	10095805	Adv 4000, medium hycar, <b>rubber</b> head harness	Nylon without chest strap	30-min aluminum
	10095806	10095807	Adv 4000, medium hycar, <b>polyester net</b> head harness	Nylon with chest strap	30-min carbon
	CALL	10116783	No facepiece	Nylon with chest strap	No cylinder
AIRHAWK II SCBA HIGH-PRESSURE (4500 PSIG)	10116452	CALL	Ultra Elite, medium hycar, <b>Speed-ON</b> Head Harness	Kevlar with chest strap	45-min carbon low profile
	10116453	CALL	Adv 4000, medium hycar, <b>polyester net</b> head harness	Nylon with chest strap	45-min carbon low profile
	CALL	10116454	Adv 4000, medium hycar, <b>polyester net</b> head harness	Nylon without chest strap	45-min carbon
	CALL	10116781	Adv 4000, medium hycar, <b>rubber</b> head harness	Nylon without chest strap	30-min carbon
	CALL	10116782	No facepiece	Nylon with chest strap	No cylinder

### Storage Cabinets

Single-unit wall-mounting case. Chemical resistant ABS plastic case resists weathering, moisture, and corrosion to ensure SCBA stay in ready-to-use condition.

STORAGE CABINETS	10052744	Single case for SCBA supplied with LP30, HP45, HP60 and low-profile cylinders
	10052745	Single case for SCBA supplied with H30 cylinders only



AirHawk SCBA air-line option





Introducing the **MSA G1 SCBA**: The most comfortable, streamlined, balanced, configurable, and customizable SCBA we've ever produced.

*Approved!*

**1. Facepiece is lightweight and compact:  
no electronics needed**

- Open port design with cross contamination protection
- Comfortable and easy to use, with low breathing resistance on and off air

**2. Control module provides both  
color LCD and analog displays**

- Display automatically turns on when control module is lifted into viewing position
- Large print makes display easy to read
- Provides more data and functionality than ever before
- No matter which button is pressed, necessary information displays

**3. Improved visibility through buddy lights  
and reflective material**

- 4 buddy lights located on the backplate
- 2 control module lights
- Regulator light

**4. Heads up display (HUD) shows  
remaining cylinder pressure  
in 4 increments via colored LEDs**

- Clear and easy to understand and interpret provided information

**5. Electronic communications  
are integrated into every unit**

- Loud, clear communication
- Removes inhalation breathing noise





**6. MSA G1 SCBA ergonomics**

- Swiveling, adjustable lumbar pad manages SCBA weight
- Improved comfort, balance, fit

**7. Central power system for all electronics**

- Only **one** power source
- Uses either alkaline or rechargeable battery
- No need for multiple battery sizes
- **Low cost of ownership**

**8. Available in easily-upgradeable threaded or quick-connect cylinder attachment**

- Quick attachment and replacement for return to the fireground

**Integrated technology for future expansion**

- Bluetooth, RFID, Near Field Communication (NFC), long-range radio

**Customizable — Built to meet your specific needs**

- Control module and HUD display required information; easily adapt to your existing standard operating procedure
- Wires/hoses can be routed as necessary

# Self-Contained Breathing Apparatus (SCBA)

## Assemble-To-Order System for the MSA G1 SCBA

A	B	C	D	E	F	G	H	J	K	L	
System Pressure	Cylinder Connection	Harness	Cradle Type	Lumbar Type	Regulator Type	Regulator Hose Type	Emergency Breathing Support	Speaker Module	PASS	Battery Type	
2 2216 psig	1 CGA Threaded Direct Connection ‡	1 Standard without Chest Strap	M Metal Band	B Basic	1 Purge cover Left Shoulder †	C Continuous	0 None	L Left Chest †	A PASS Right Shoulder †	A Alkaline	
4 4500 psig	2 CGA Threaded Remote Connection	2 Standard with Chest Strap	F Fabric Band ‡	F Fixed Swiveling Lumbar Pad	2 Solid cover Left Shoulder †	Q Quick-Connect	1 Waist Mounted Quick-Fill ‡	R Right Chest †	B PASS Left Shoulder †	R Rechargeable Δ	
5 5500 psig Δ	3 CGA Quick Connect Direct Connection ‡	3 Serviceable Tunnel without Chest Strap		A Adjustable Swiveling Lumbar Pad	3 Purge cover Right Shoulder †		2 ExtendAire II ◇		C PASS Telemetry Right Shoulder †		
	4 CGA Quick Connect Remote Connection	4 Serviceable Tunnel with Chest Strap		1 Rescue Belt II 50' Hook ‡	4 Solid cover Right Shoulder †		3 Waist Mounted Quick-Fill and ExtendAire II ‡		D PASS Telemetry Left Shoulder †		
	<i>If 1 or 3 are selected, fabric band must be used.</i>			2 Rescue Belt II 50' Carabiner Δ							
				3 Rescue Belt II 50' FireTech Rope, Hook Δ							
				4 Rescue Belt II, 50' FireTech Rope, Carabiner Δ							
G1FS											QUANTITY

† As worn   ◇ Available Summer 2015   Δ Available Fall 2015   ‡ Available Late 2015

## Assemble-To-Order System for the MSA G1 SCBA Facepiece

Application	Size	Material	Nosecup	Head Harness	Neckstrap	Regulator Connection
F Fire	S Small M Medium L Large	1 Hycar	0 None S Small M Medium L Large	0 None 4 4 pt Adjustable 5 5 pt Adjustable R Rubber*	0 None C Cloth R Rubber	1 Fixed Push-to-Connect
G1FP	F	1				1

Note: Part number facepieces are also available.   \* Available in March 2015



## MSA G1 SCBA Facepieces

Part No.	Type	Size	Nosecup Size	Head Harness	ATO Configuration
10156458	Fire Service	Small	Small	4 pt Adjustable	G1FP-F-S-1-S-4-0-1
10156459	Fire Service	Medium	Medium	4 pt Adjustable	G1FP-F-M-1-M-4-0-1
10156460	Fire Service	Large	Large	4 pt Adjustable	G1FP-F-L-1-L-4-0-1
10156461	Fire Service	Small	Small	Rubber	G1FP-F-S-1-S-R-0-1
10156462	Fire Service	Medium	Medium	Rubber	G1FP-F-M-1-M-R-0-1
10156463	Fire Service	Large	Large	Rubber	G1FP-F-L-1-L-R-0-1

## Spectacle Kit

Working with TriSpec, MSA has designed a modern and sophisticated option, providing both clear sight and style.

Part No.	Description
10144230	Spectacle Kit for G1 Facepiece





## MSA G1 SCBA Cylinders

### MSA G1 SCBA Cylinders for Remote Connection



remote connection

Cylinder Pressure	Cylinder Duration	Connection Type	Air	Less Air
2216 psig	30-minute	Remote	10156422-SP	10156431-SP
4500 psig	30-minute	Remote	10156423-SP	10156432-SP
4500 psig	45-minute LP <sup>1</sup>	Remote	10156424-SP	10156433-SP
4500 psig	45-minute	Remote	10156425-SP	10156434-SP
4500 psig	60-minute	Remote	10156426-SP	10156435-SP

PLEASE NOTE: Quick Connect Cylinder Adapter must be ordered for each cylinder separately. Quick Connect Cylinder Adapter part number is TBD.

<sup>1</sup>Low Profile version of the 45 min, 4500 psig cylinder

### MSA G1 SCBA Cylinders for Direct Connection



direct connection

Cylinder Pressure	Cylinder Duration	Connection Type	Air	Less Air
2216 psig	30-minute	Direct	10156440	10156449-SP
4500 psig	30-minute	Direct	10156441-SP	10156450-SP
4500 psig	45-minute LP <sup>2</sup>	Direct	10156442-SP	10156451-SP
4500 psig	45-minute	Direct	10156443-SP	10156452-SP
4500 psig	60-minute	Direct	10156444-SP	10156453-SP

PLEASE NOTE: Quick Connect Cylinder Adapter must be ordered for each cylinder separately. Quick Connect Cylinder Adapter part number is TBD.

<sup>2</sup>Low Profile version of the 45 min, 4500 psig cylinder

### MSA G1 SCBA Cylinders for 5500 psig System

Cylinder Pressure	Cylinder Duration	Connection Type	Air	Less Air
5500 psig	30-minute	Remote	10156427-SP	10156436-SP
5500 psig	45-minute	Remote	10156428-SP	10156437-SP
5500 psig	60-minute	Remote	10156429-SP	10156438-SP
5500 psig	75-minute	Remote	10156430-SP	10156439-SP
5500 psig	30-minute	Direct	10156445-SP	10156454-SP
5500 psig	45-minute	Direct	10156446-SP	10156456-SP
5500 psig	60-minute	Direct	10156447-SP	10156457-SP
5500 psig	75-minute	Direct	10156448-SP	10156458-SP





# Self-Contained Breathing Apparatus (SCBA)

## MSA G1 SCBA Accessories

### MSA G1 SCBA Facepiece Accessories

Part No.	Description
10144230	Spectacle Kit for G1 Facepiece
10144220-SP	Replacement Cloth Neck Strap
10159699-SP	Replacement Rubber Neck Strap
10144231-SP	APR Adapter
10158384	Fit Test Adapter

### MSA G1 SCBA Rescue Accessories

Part No.	Description
10156464	ExtendAire® II Kit for G1 SCBA
10156465	Waist Mounted Quick-Fill® for G1 SCBA
10156466-SP	Replacement ExtendAire II Pouch for G1 SCBA
10156467-SP	Replacement Quick-Fill Pouch for G1 SCBA
10156468	3 ft Quick-Fill hose in pouch for G1 SCBA

### MSA G1 SCBA Accessories

Part No.	Description
10148740-SP	Replacement Alkaline Battery Pack
10148741-SP	Replacement Rechargeable Battery Pack
10158385	Rechargeable Battery Charging Station
10149701-SP	Quick Connect Adapter for 2216 psig Cylinders
10149702-SP	Quick Connect Adapter for 4500/5500 psig Cylinders
10158389	Retainer Kit for H-30 Carbon (807587) 4500 psig (Type 2 - dovetail)
10158390	Retainer Kit for H-45 LP Carbon (10035644) 4500 psig (Type 3 - dovetail)
10158401	Retainer Kit for L-30 Carbon (807586) 2216 psig (Type 4 - dovetail)
10158401	Retainer Kit for H-45 Carbon (807570) 4500 psig (Type 4 - dovetail)
10158402	Retainer Kit for H-60 Carbon (807588) 4500 psig (Type 5 - dovetail)
10158408	Quick Connect Adapter for Fill Station
TBD	G1 Regulator for RescueAire II
TBD	Spare Regulator - QC
10158403	Tool Kit
10158409	G1 Flow Test Adapter
TBD	RFID
10158407	RFID Reader/Writer

## FireHawk® M7XT Air Mask

- Durability & performance for critical life-safety personnel.
- Compliant to the NFPA 1981 and 1982 2013-edition standards.

Through the NFPA, firefighters strive to improve the durability and performance of SCBA and PASS devices. To this end, the new 2013 edition of the NFPA 1981 and 1982 NFPA standards for self-contained breathing apparatus and personal alert safety systems (PASS) call for low pressure alarm set points at 33 percent of cylinder operating pressure, improved facepiece lens performance against radiant heat, 500° F heat exposure, and standard PASS device alarm sound patterns. In addition, NFPA has raised the bar on voice communication capability, now requiring a measurable, minimum Sound Transmission Index (STI) score for both mechanical and electronic communications.





## SCBA Key Components: Facepiece Assemblies for FireHawk M7XT Air Masks



### Ultra Elite® XT Facepiece

Designed to provide exceptional peripheral and downward vision, the Ultra Elite XT Facepiece features a super-soft facepiece texture for a smooth and comfortable fit. It also resists chemical attack and temperature extremes, and withstands rugged day-to-day use without tearing and ripping. The design of the Ultra Elite XT Facepiece is based on extensive anthropometric studies of the face-length, temple-width and chin-width data from more than 8,000 individuals. The result is a facepiece that provides an improved seal against a wide range of facial contours. To provide a secure, comfortable fit, the facepiece utilizes five adjustable straps with stainless steel, field-replaceable buckles that resist chemical attack. The straps also feature slightly larger adjustment tabs that are easier to grab, even with gloves on.

For slip-on convenience, the Ultra Elite XT Facepiece is equipped with a Speed-ON® Facepiece Harness. Made of flame- and heat-resistant Kevlar Fabric, the harness features a hair-net type, five-point suspension that can be easily and securely adjusted at four points.

The NEW Tufflens used on the Ultra Elite XT facepiece is molded from a specially blended plastic, created to withstand the high thermal environments encountered in today's firefighting and protected with a special super hardcoating that resists scratches.



### Firehawk® MMR

The Firehawk second-stage regulator features a unique Slide-To-Connect (STC) attachment system that allows firefighters to hang the regulator on the facepiece in the "ready position," then simply push it into the facepiece when SCBA air is needed. Doffing of the regulator, while wearing gloves, is also easy with two large release buttons that automatically turn-off the flow of air as the regulator is doffed. A dual-swivel feature on the pressure hose provides maximum freedom-of-head movement and the silicone hose material ensures hose flexibility even at very cold temperatures.

In addition to the STC system, MSA also offers a second connection option for the Firehawk Regulator, the Push-to-Connect (PTC). The PTC's Adapter self-centers the Firehawk regulator, and the loud dual sound of the regulator engaging onto the facepiece provides you with confidence that the Firehawk PTC is securely attached to your facepiece—an action that takes just seconds, when seconds count!

Maintenance is also a breeze, considering the Firehawk MMR design requires no tools, adhesives, or sealants, and has approximately 70% fewer parts as compared to other regulators on the market. Additionally, there are no internal adjustments required. Any adjustments to the regulator may be accomplished at a single adjustment point through the outlet port of the regulator.

	Small	Medium	Large	
ULTRA ELITE XT FACEPIECE for Firehawk STC MMR Regulator	10149305	10149283	10149327	External HUD Receiver Ready
	10149307	10149285	10149329	External HUD and Communication Ready
ULTRA ELITE XT FACEPIECE for Firehawk PTC MMR Regulator	10149306	10149284	10149328	External HUD Receiver Ready
	10149309	10149286	10149330	External HUD and Communication Ready



SCBA Key Components: Facepiece Assemblies for FireHawk M7XT Air Masks



MSA I-HUD Receiver for FireHawk M7XT Air Mask

Features & Benefits

- Wireless I-HUD Receiver contoured shape fits securely inside Ultra Elite XT facepiece
- Nearly 40% lighter than external M7 HUD Receiver
- Placement inside facepiece eliminates snag point
- Unit automatically awakes and sleeps based upon pairing with SCBA
- Wireless magnetic radio transfers actual SCBA data via IEEE 802.11 network
- Enhanced light pattern for safety and security differentiation
- Displays SCBA cylinder pressure in quarter-cylinder increments
- If telemetry-equipped PASS device is used, M7 I-HUD Receiver displays evacuation alarm
- Red “buddy lights” in three locations alert other firefighters to low cylinder pressure, or motion alarm
- Powered by single, disposable CR2 lithium battery
- Low battery condition displays via single LED flash on display’s left side; low battery SCBA condition displays as double flash
- TEST function button to verify functionality before use.

Durability Testing

- I-HUD Receiver survives two meter drop test when mounted inside Ultra Elite XT Facepiece
- IP67-rated to withstand extreme hot and cold environments
- Vibration testing to NFPA 1981 standards
- Protection against short-time water submersion for thorough facepiece cleaning

**Note:** I-HUD Receiver is not compatible for use with FireHawk M7 Less PASS SCBA.

I-HUD RECEIVER	10114190	Receiver, M7 I-HUD (for use with Ultra Elite XT Facepieces equipped with Hycar Rubber Nosecups)		
	Small	Medium	Large	
I-HUD RECEIVER-READY ULTRA ELITE XT FACEPIECE ASSEMBLIES	10149309	10149287	10149331	STANDARD I-HUD RECEIVER-READY
for Firehawk STC MMR Regulator	10149311	10149289	10149310	COMMUNICATION SYSTEM-READY
I-HUD RECEIVER-READY ULTRA ELITE XT FACEPIECE ASSEMBLIES	10149310	10149288	10149332	STANDARD I-HUD RECEIVER-READY
for Firehawk PTC MMR Regulator	10149312	10149290	10149334	COMMUNICATION SYSTEM-READY

## SCBA Key Components: Facepiece Assemblies for FireHawk M7XT Air Masks



### MSA Ultra Elite® XT Communication System for MSA Facepieces

Ultra Elite® XT Communication Systems feature an internally-mounted microphone coupled with a large diameter (50.8mm) amplifier speaker producing optimal voice clarity and volume. Integrating a patented circuit design, the system delivers STI scores (Speech Transmission Index) that exceed the minimums in the NFPA 1981-2013 Edition Standard requirements. Profile mounted on an Ultra Elite XT Facepiece, the system does not block vision or impede the facepiece's fully functional mechanical voice communications. Lapel Mic and PTT radio interfaces can be found on pages 64–65.

<b>ULTRA ELITE XT COMMUNICATIONS</b>	10144673	Ultra Elite XT Amp c/w Facepiece Bracket and Microphone
	10144676	Ultra Elite XT Amp / Radio Interface c/w Facepiece Bracket and Microphone
	10144672	Ultra Elite XT Amp only
	10144675	Ultra Elite XT Amp / Radio Interface only
	10023055	Microphone Kit, with mounting bracket

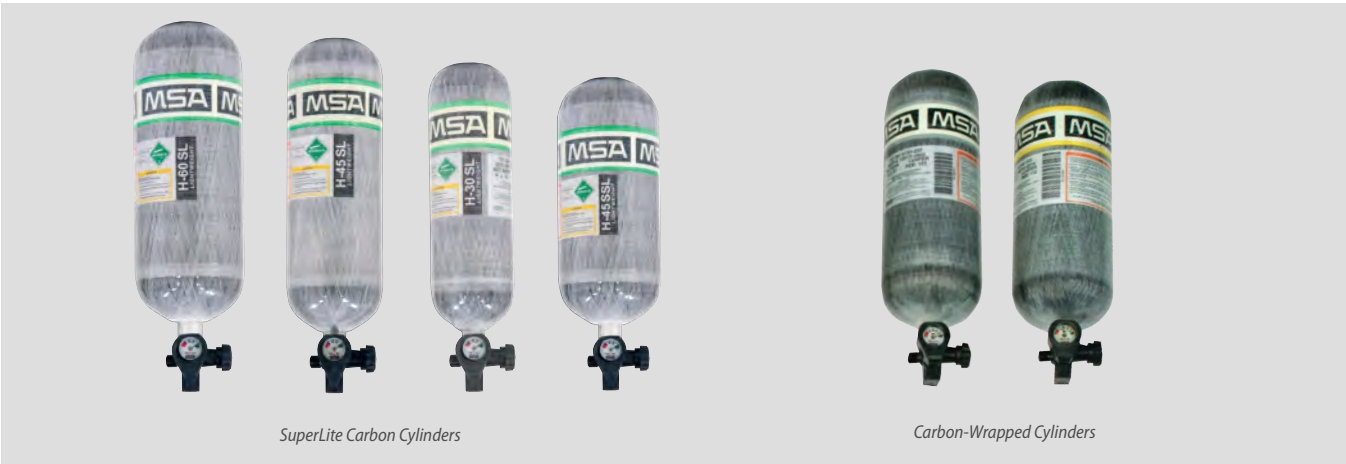


### ClearCommand® Communications System

MSA's ClearCommand Communications System features an internally mounted microphone coupled with a large-diameter (50mm) amplified speaker for optimal clarity and volume. Using a proprietary circuit design, the system delivers more than twice the volume of a facepiece alone. The ClearCommand System doesn't block vision or mechanical communication. The Ultra Elite Facepiece's mechanical speaking diaphragm is still fully functional, even with the system installed. Lapel Mic and PTT radio interfaces can be found on pages 64–65.

<b>CLEARCOMMAND SYSTEM KITS</b>	10024074	Amplifier Kit, complete with microphone
	10051290	Amplifier Radio Interface Kit, w/ microphone, less PTT
	10023055	Microphone Kit, with mounting bracket

SCBA Key Components: Cylinders



SuperLite Carbon Cylinders (4500 psi)

MSA's SuperLite Carbon Cylinders reduce cylinder weight by up to 12% over traditional carbon cylinders, significantly decreasing your firefighters' SCBA weight burden. Double-drawn, super lightweight cylinder liner combined with optimized carbon-based composite materials reduces cylinder weight while maintaining a high strength-to-weight ratio. Available in four high-pressure (4500 psig) models, SuperLite Carbon cylinders incorporate the same proven technology found in MSA's fully-wound carbon composite Stealth Cylinders.

Carbon-Wrapped Cylinders (2216 / 3000 psi)

MSA's 2216 and 3000 psi Carbon-wrapped Cylinders feature a unique outer-wrap made of lightweight, high-performance carbon fibers, which reduces cylinder weight by two to six pounds when compared to fiberglass-wrapped cylinders and as much as ten pounds when compared to aluminum cylinders.

Two models available.

Part No.	Cylinder Type	NIOSH Service Life	Pressure	Weight**
10127944-SP	H-30 SL, SuperLite Carbon	30-minute	4500 psig	6 lb. 9 oz.
10127945-SP	H-45 SL, SuperLite Carbon	45-minute	4500 psig	8 lb. 8 oz.
10149432-SP	H-45S SL, SuperLite Carbon, Short	45-minute	4500 psig	8 lb. 6 oz.
10127946-SP	H-60 SL, SuperLite Carbon	60-minute	4500 psig	10 lb. 12 oz.
807586-SP	L-30* Carbon-Wrapped	30-minute	2216 psig	8 lb. 0 oz.
816115-SP	L-30+* Carbon-Wrapped	30-minute	3000 psig	9 lb. 8 oz.
469619-SP	Fiberglass Hoop-Wound	30-minute	2216 psig	13 lb. 0 oz.
809872-SP	Aluminum	30-minute	2216 psig	18 lb. 0 oz.

\*These cylinders are capable of custom options.

\*\*All weights shown are approximate.

## SCBA Key Components: FireHawk M7XT Carrier and Harness Assembly



The one component of any SCBA that has the most impact on firefighter comfort is the carrier and harness assembly. The FireHawk M7XT Carrier and Harness assembly places an emphasis on firefighter comfort while maintaining the robustness and reliability that is expected in the fire service. The carrier comes standard with large side handles and a central attachment point for pulling firefighters to safety in rescue scenarios. The swiveling lumbar pad provides maximum freedom of movement and comfort when crawling or climbing.

The assembly utilizes the proven components from previous generations of air masks such as the tunneled shoulder straps for hose containment, and tri-bar slides for easy removal/installation of the waist belt and shoulder straps. All units are equipped with double-pull waist belts and an optional chest strap is available.

FIREHAWK M7XT CARRIER AND HARNESS ASSEMBLIES	10147448	Low-pressure, with chest strap
	10147449	High-pressure, with chest strap
	10147450	Low-pressure, with chest strap and swiveling lumbar pad
	10147471	High-pressure, with chest strap and swiveling lumbar pad
ACCESSORIES	10083134	Replacement FireHawk M7XT and M7 lumbar pad
	10012167	Chest strap kit

## SCBA Key Components: Emergency Egress System/MSA Rescue Belt II System



Rappel to safety with this innovative, quick-release device for emergency egress. Ergonomically contoured, it easily stores rescue rope, hook or carabiner and descender. Ideal for extreme conditions, it features a web management system that also integrates a regulator holder. One belt fits all (up to 310 pounds, including equipment).

### Features & Benefits

- Single-handed pouch opening for rapid deployment of hook and descender
- Ergonomically contoured rope lumbar pad for handling ease and comfort
- Durable Ara-Shield construction
- Low-profile steel D-ring for positioning attachment
- 10- and 15-foot end markers
- Termination knot easily releases under load, even with gloved hands
- Quick-release system for SCBA drop in emergency situations
- No special tools or training required

RESCUE BELT II SYSTEM <i>For FireHawk M7XT and M7 Models</i>	10119369	with 50-ft aramid/nylon rope and Crosby hook
	10119370	with 50-ft aramid/nylon rope and carabiner
	10119391	with 50-ft FireTech 32 rope and Crosby hook
	10119392	with 50-ft FireTech 32 rope and carabiner



# Self-Contained Breathing Apparatus (SCBA)

## MSA Accountability System



MSA's FireHawk M7/M7XT Accountability System revolutionizes fireground safety by combining the latest computer software with a high-performance radio module and the field-proven technology of MSA's ICM TxR Integrated PASS.



### A new way to monitor vital information

- Each MSA base station can monitor up to 50 firefighters, and you can use multiple base stations on a single computer.
- The FireHawk M7XT/M7 Air Mask with telemetry transmits to incident command the firefighter's name, team assignment, cylinder pressure, service-time remaining, PASS alarms (motion or manual), thermal alarms, battery status, radio connectivity, and evacuation acknowledgement.

### A fireground management system

- Personalized ID tags for each firefighter tell incident command exactly who is on scene.
- An integrated PAR (personnel accountability report) timer helps manage radio calls to each team.
- Incident command can manually add firefighters who are not wearing an SCBA or mutual aid firefighters, so all personnel can be accounted for.

### Intuitive and easy to use

- Assign firefighters to teams by clicking on a firefighter's icon and dragging it to another team.
- A volume of critical information is available at a glance of the screen, due to the large number of firefighters that can be displayed and the pictorial format of the information.
- Receive both audible and visual indications of critical events such as PASS alarms or low-pressure alarms.

### A two-way evacuation feature

- An individual firefighter, a team of firefighters, or all firefighters can be evacuated with the click of a button.
- When incident command transmits the alarm through the FireHawk M7XT/M7 Air Mask, they'll know the firefighter received it, because the unit automatically sends a confirmation message to the base station.
- Firefighters will hear the evacuation alarm on their own personal PASS device. Also, visual indications in the HUD and an icon on the control module will alert the firefighter that it is time to evacuate.
- By simply pressing a button on the control module, a firefighter can send a manual confirmation to acknowledge that they have received and understand the critically important evacuation message.
- Although certain concrete and steel commercial structures can challenge any radio signal, MSA's Accountability System coverage with radio technology provides highly reliable performance for a 1-mile line-of-sight range.
- Due to the spread-spectrum design, it does not interfere with other high-band radio frequency equipment.
- For additional safety, both base station and firefighter modules have an icon message to inform users if a firefighter falls out of radio signal range, so that alternate accountability measures, such as voice contact with teammates, can be taken.

ACCOUNTABILITY SYSTEM BASE STATION KITS	10072240	Accountability Base Station Kit (includes software, <b>magnetic antenna kit</b> , USB cable, wall-mount cable, and 8-24 volt power cable)
	10098767	Accountability Base Station Kit (includes software, <b>fixed antenna kit</b> , USB cable, wall-mount cable, and 8-24 volt power cable)
ACCOUNTABILITY SYSTEM	10083876	M7XT/M7 Control Module Reader / M7XT/M7 ID tag writer
	10083875	M7XT/M7 ID tags
	10075756	Antenna kit with magnetic base
	10098766	Antenna kit with fixed base
	10063880	USB cable
	10049410	8-24 volt, power cable
	10047342	Wall-mount power cable

## Emergency Breathing Systems



### The Quick-Fill® System

The Quick-Fill System lets MSA air mask users refill and transfill air cylinders while the SCBA is worn, without removing the air cylinder—even in IDLH atmospheres. Use this MSA option to:

- Fill an SCBA cylinder from a mobile compressor or cascade system in less than a minute.
- Transfill between two cylinders, providing an Emergency Breathing System.
- Extend the air supply over longer durations, using a remote compressed-air source.

Air masks compliant to recent NFPA standards have the Quick-Fill URC fitting located at the Audi-Larm warning device. A Quick-Fill hose with a quick-disconnect connects the air source to the adapter for air transfer. See Bulletin 0105-92-MC for a Quick-Fill Systems Q&A.

QUICK-FILL SYSTEM REPLACEMENT PARTS <i>For MSA G1 SCBA</i>	10156467	Replacement Quick-Fill Pouch for MSA G1 SCBA
	10156468	3 ft Quick-Fill hose in pouch for MSA G1 SCBA
	10156465	Waist Mounted Quick-Fill for MSA G1 SCBA
QUICK-FILL SYSTEM REPLACEMENT PARTS <i>For M7XT and M7 SCBA</i>	10111642	Quick-Fill Hose Kit in Pouch, 3-ft emergency transfill hose
	485331	Emergency transfill hose, less Kevlar pouch
	10111404	Replacement Pouch for Quick-Fill or ExtendAir II
	485391	Male stainless steel quick-disconnect with SAE-10 thread, complete with dust cover (also for use as a fitting for customized refilling systems)
	485392	Female quick-disconnect with SAE-4 thread, complete with dust cover

	25 ft	12 ft	10 ft	8 ft	6 ft	3 ft	
QUICK-FILL HOSES	485332	802690	802689	802688	802687	485331	FQD x FQD
	487907	802677	802675	802673	802671	492796	FQD x CGA-347 Outlet
	487909	802685	802683	802681	802679	487427	FQD x CGA-347 CN
	487906	802704	802703	802702	802701	802705	FQD x SAE-4
	487908	802678	802676	802674	802672	492797	FQD x CGA-346 Outlet
	487910	802686	802684	802682	802680	487428	FQD x CGA-346 CN

25-ft lengths are stocked; other "custom lengths" are available on a special material basis. All SAE Fittings are for high-pressure service. Female quick-disconnect fittings have dust covers.



The ExtendAir™ System



The ExtendAir II System upgrade

### The ExtendAir™ I and II Systems

The ExtendAir System can be used as both an emergency breathing system and a dual-purpose device for MMR SCBA to allow firefighters to quickly and easily connect to an air-line.

The new ExtendAir II offers an integrated rescue hose into the PR14 First-Stage Regulator with both a male and female quick-connect fitting.

THE EXTENDAIRE I AND II SYSTEMS	10156464	ExtendAir II Kit for MSA G1 SCBA
	10156466	Replacement ExtendAir II Pouch for MSA G1 SCBA
	812958	ExtendAir Air-line Hose with foster plug
	812973	40" Rescue Hose
	10031798	ExtendAir Upgrade Kit for Threaded Firehawk MMR
	10031797	ExtendAir Upgrade Kit for Quick-Connect Firehawk MMR
	10105883**	ExtendAir II Upgrade Kit for PR14 Regulator

**Note:** the ExtendAir I system is not approved on the FireHawk M7XT Air Mask.

**\*\*** Approvals Pending for the ExtendAir II on the FireHawk M7XT Air Mask.

# Self-Contained Breathing Apparatus (SCBA)

## RescueAire™ II Portable Air-Supply System



The RescueAire II Portable Air-Supply System is designed to meet the needs of Rapid Intervention Teams (RITs). The system consists of a lightweight Carbon-Wrapped cylinder, Quick-Fill emergency breathing system, ExtendAire™ emergency breathing system, and an MMR regulator, supported by a flame- and heat-resistant harness. The RescueAire II is a complete system that can provide emergency breathing air for most any victim and is available in both low-pressure (2216 psig) and high-pressure (4500 psig) versions.

RESCUEAIRE II PORTABLE AIR-SUPPLY SYSTEM  <i>Low-pressure (2216 psig)</i>	10100096	RescueAire II, Firehawk <b>Responder</b> MMR and L-30 cylinder
	10041196	RescueAire II, Firehawk <b>STC</b> MMR and L-30 cylinder
	10041230	RescueAire II, Firehawk <b>PTC</b> MMR and L-30 cylinder
	10100095	RescueAire II, Firehawk <b>Responder</b> MMR, less cylinder
	10041198	RescueAire II, Firehawk <b>STC</b> MMR, less cylinder
	10041232	RescueAire II, Firehawk <b>PTC</b> MMR, less cylinder
RESCUEAIRE II PORTABLE AIR-SUPPLY SYSTEM  <i>High-pressure (4500 psig)</i>	10100097	RescueAire II, Firehawk <b>Responder</b> MMR and H-60 cylinder
	10041195	RescueAire II, Firehawk <b>STC</b> MMR and H-60SL cylinder
	10041199	RescueAire II, Firehawk <b>PTC</b> MMR and H-60SL cylinder
	10100094	RescueAire II, Firehawk <b>Responder</b> MMR, less cylinder
	10041197	RescueAire II, Firehawk <b>STC</b> MMR, less cylinder
	10041231	RescueAire II, Firehawk <b>PTC</b> MMR, less cylinder

## Technical Rescue Cart

### Cart Weight and Dimensions

Size: 35" H x 21" W x 15" D

Unit Weight: 54.5 pounds without cylinders



The Technical Rescue Cart is a steel cart with a color-designated control panel that allows one side of the panel to be used for primary respirator breathing air and one side for tool/secondary air requirements.

Two 1-hour cylinders are used to provide air for respirators. High-pressure cascade (fire truck) cylinder air is used to operate pneumatic tools.

### Features

#### Breathing-Air Segment includes:

- Two-wheeled, poly-coated steel cart, two sets of double-cylinder straps, air-line hose rack and adjustable pull handle
- Low-pressure cylinder bell alarm
- Four-outlet manifold—available with four outlet fitting options

#### Tooling-Air Segment includes:

- CGA-347 fitting to attach to an auxiliary remote high-pressure air source
- Low-pressure pneumatic alarm whistle
- Four-outlet manifold with quick-disconnects

The Technical Rescue Cart is sold without air cylinders. The following MSA cylinders can be used with the cart:

- 60-minute, H-60SL carbon-wrapped cylinder, PN 10127946-SP
- 45-minute, H-45SL carbon-wrapped cylinder, PN 10127945-SP
- 30-minute, H-30SL carbon-wrapped cylinder, PN 10127944-SP
- 45-minute, H-45S SL SuperLite Carbon Cylinder, Short, PN 10149432-SP

See p. 58 for cylinder ordering information. 60-minute cylinders will provide maximum air supply.

TECHNICAL RESCUE CART	10107535	Technical Rescue Cart equipped with <b>union</b> adapters
	10107818	Technical Rescue Cart equipped with <b>Snap-Tite Aluminum</b> Quick-Disconnects
	10107820	Technical Rescue Cart equipped with <b>Foster Steel</b> Quick-Disconnects
	10107819	Technical Rescue Cart equipped with <b>Hansen Brass</b> Quick-Disconnects

# ClearCommand Helmet Communication System



- Virtually eliminates high ambient noise levels via bone-conduction voice transmitter
- Maintains transmission quality through facepiece head harness, hood and liner
- Is intrinsically safe for use in hazardous environments
- Easily snaps onto the fire helmet ratchet
- Quickly transfers from one helmet to another without tools
- Configures for use over either ear
- Connects to MSA lapel microphone and PTT
- Includes flannel pad for cushioning

<b>HELMET MICROPHONE ASSEMBLY</b>	10042902	Helmet Microphone Assembly (includes Custom-Fitted Flannel Headband Liner)
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See pp. 64–65 for lapel mics, PTTs, and accessories.

## Parts and Accessories for ClearCommand Communication Systems

<b>PARTS AND ACCESSORIES</b>	10046087	Dust Cover
	10046123	Guard Ring, Tall
	10046122	Guard Ring, Short
	10046120	Belt Clip Assembly
	10046121	O-ring, Single-Pin Connector
	10045778	Flannel Head Band Liner



# Self-Contained Breathing Apparatus (SCBA)

## Kits for Radio Interface

Brand	Radio Model	LM	PTT
BENDIX-KING	DPH-5102X, EPH, EPI, EPU,EPV, GPH, LPH, LPI, LPU, LPX, MPH	10042938	10045707
E.F. JOHNSON	5850, 5855, 5860, 5861, 5862, FM-5852, LX-2442/2443, ZX-2452/2453	10042942	10045711
	5100 series (511x, 5133, 514x, 518x)	10091194	10055501
	VIKING CL-500/5870/5876/5877/8560/8561/8565/8566/8570/8571/ 8587/8591, CH-HM91	10042943	10045712
GE ERICSSON	Jaguar 700P/700PI, P700IP/7150/7170, HT-7150S/7170T, HA8VSX	10068237	10070362
	500P, KPC	10042933	10045702
	Monogram	10042934	10045703
	GF (PACUDX), MPA, MPD, MTL, PAPST5, TPX	10042932	10045701
ICOM	IC-F14	10093301	
	IC-2A/2AT/2AE, ICH-2/6/12/16, ICU-2/6/12/16, IC-F11/F11S/F21/F21BR/ F21S/F3033S	10042944	10045713
	IC-F30/30LT/40/40LT	10042946	10045715
	IC-F30GS/F30GT/F40GS/40GT	10058090	10067523
	IC-F50/F60/F70, M88, 4161	10072223	10064623
	Side connector IC-F3GS/F3GT/F4G-2/F4GT/F12/F12S/F22/F22S		10045714
	Top Load IC-F3S/F4S/F10/F20	10042945	10045714
KENWOOD	TK-190/280/290/290K/380/390/480/481/2140/2180/3140/3180/5210/5220, NX200/300/300K	10042941	10045710
	TK-208/220/240/248/250/260/270/270G/272/308/320/340/350/353/ 360/370/372/373G/430/2100-2/2160/ 2170/2200/2202/2302/2312/ 3101K/3160/3170/3173/3200/3202/3212/3360, TH-21/25A/41/45/75/ 91A/2102/ 3102, DEMITOSS 9 (JAPAN), FREETALK LINE	10042939	10045708
KYODO	KG-209	10093729	10093730
MACOM/HARRIS	P5100/5130/7100/7150/7200	10068237	10070362
	P5300/5400/7300, XG-25/75	10126347	10128997
MAXON	PL-1145/2245/5161/5164		10061404
	SP-2000 Series, SP-2550/2850, SL-70W	10042947	10045716
	SP-5000 Series, CP-0500 Series	10042948	10045717
MIDLAND	70-145/148/154/245/254	10042951	10045720
	70-153	10042949	10045718
	70-165/166/265/266	10042950	10045719
	70-195/295	10042952	10045721

Continued on next page

## Kits for Radio Interface

Continued from previous page

Brand	Radio Model	LM	PTT
MOTOROLA	GP-900, HT-1000, JEDI, JT-1000, MT-1500/2000, MTS-2000, MTX, MTX-838/ 839/2000/8000/9000 Transcript Stealth, PR1500, PTX-1200/3600, XTS-1500/ 2250/2500/3000/3500/5000/5000R	10042903	10045662
	APX-5000/6000/7000, DGP-6150+, XPR-6500/6550/6580/7350/7380/7550/7580	10092733	10108643
	270, 280, FR-50/60, 289/5100/5200/5300/5320/5400/5410/5420/5600/5620/ 5700/5720/5800/5820/6200/6210/ 6220/6250/6300/6310/6320/6400/7200, Talk About	10061629	10061630
	AXU-4100, CP-100, SP-10/21		10059441
	EX-500/560/600	10053716	10057505
	EXPO, HT-10, RADIUS P10/50	10042924	10045693
	GP-350	10042930	10045699
	GP-350 (QD)	10042931	10045700
	HT-50/90/440, RADIUS P100	10042925	10045694
	GP-328/329/338/339/340/360/680, HT-750/1250/1550/1550-XLS, MTX-850/ 850-LS/950/4550/ 8250/8250-LS/ 9250, PR-860, PRO 5150/7150/7350/7550/ 9150, PTX-700/760/780	10042922	10045691
	GP-328 (QD), HT-750 (QD)/1250 (QD), PRO 5150 (QD)	10042923	10045692
	MT-500	10042928	10045697
	MX-300/310/320/340/350/360	10042927	10045696
	AP-73, CLS Series, CP-150/200/300, CT-150/185/250/250LS/450/450LS, EP-450, GP-63/68/88/ 300/308/2000, GTX, GTX-8250, LTS-2000, MAG ONE A-8, MTX-638, P110/1225, MU-21CV/21CZ, PR-400, PRO 2150/3150, SP-10/ 21/50, SPIRIT-111, SPIRIT-Pro, SU-21C, XTN Series, XTV-2100, XU-2100, XV-1100, XZ-1100	10042905	10045664
	VISAR	10042926	10045695
RELM/SMARTCOM	Minicom 3200, MPS, MPU-08B/32, MPV-08/32, WHS150	10042953	10045722
RITRON/JOBCOM	JBX-151, JMX-100/400 Series, RTX-150/450, SST Series	10042954	10045723
STANDARD	HX-240U/V	10042935	10045704
	HX-320	10042936	10045705
	HX-381/482/580T/581T/582T/585T/587T	10042937	10045706
TEKK	T-20/40/50/60	10042955	10045724
UNIDEN	SPH Series, SPU Series	10042956	10045725
	SPS-310T/320TS	10042957	10045726
VERTEX	VX-2R/160/180/210/417/420/424/427/454	10058088	10073293
YAESU-VERTEX	FT-11R/41R/416/816, FTH-2005/2008/2009/7005/7008/7009	10042958	10045727
	FT-76	10042962	10045779
	FTH-2070	10042960	10045729
	F-10/40/50, FT-50R, VX-10/300, VX-400, VXF Series	10042959	10045728
	VX-500/510	10042961	10045730
	VX-600/600U/600UB/600V/600VB/800/900	10058089	10061244

# Self-Contained Breathing Apparatus (SCBA)

## APR Adapter



The APR Adapter allows users to switch from a positive-pressure facepiece to a negative-pressure air-purifying respirator. The Adapter uses MSA's comprehensive line of air-purifying cartridges; select from Advantage cartridges or our CBA/RCA canisters to protect against a multitude of airborne contaminants.

The APR Adapter is designed for use in non-IDLH environments and is NIOSH-approved. Contact MSA for more information.

	Firehawk MMR STC Version	Firehawk MMR PTC Version	
APR ADAPTERS	10032511	10040052	APR Adapter
	10032927	10040055	APR Adapter Individual Kit
	10032925	10040054	APR Adapter Truck Kit
ACCESSORIES	10037809	Ultra Elite Facepiece, Anti-Fog Applique (10/pkg)	
	817590	CBA/RCA Canisters (box of 6)	
	809858	Replacement Baffle	
	813341	Replacement Bayonet Cover	
FIT TEST ADAPTER KITS	10107229	APR Fit Test Adapter Kit, Slide-to-Connect	
	10107256	APR Fit Test Adapter Kit, Push-to-Connect	

## Cleaning Accessories



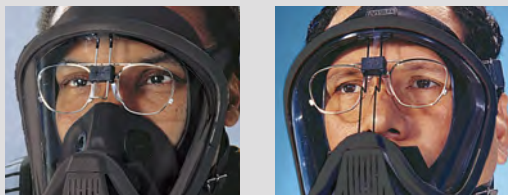
CLEANING ACCESSORIES	10009971	MSA Confidence® Plus Germicidal Cleaner, 32 oz. bottle
	697383	Box of 100 individually wrapped towelettes, 7-1/4" x 5"
	697382	Canister with 220 towelettes, 4-1/4" x 6"
	10022871	"The Big Ones," Box of 50 individually wrapped towelettes, 8" x 11"

## Nosecups



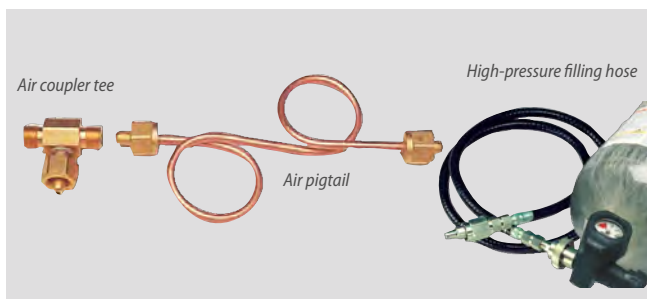
NOSECUPS for Ultra Elite Facepieces	495188	Nosecup, medium, silicone
	495189	Nosecup, large, silicone
	10126378	Nosecup, medium, hycar
	10126379	Nosecup, large, hycar

## Spectacle Kits



SPECTACLE KITS	804638	Ultra Elite Spectacle Kit (side wire support)
	493581	Ultra Elite Spectacle Kit (center support)

## Other SCBA Accessories



ACCESSORIES FOR FILLING LOW-PRESSURE CYLINDERS	68846	Air Outlet Connection, complete w/ Gauge
	68850	Air Coupler Tee
	68851	Air Pigtail
	476156	Low-Pressure Air-Filling Hose, 5 feet long
HIGH-PRESSURE FILLING HOSE	476105	High-Pressure Filling Hose Assembly (High-pressure filling hose provides a convenient means to connect and charge high-pressure air into a high-pressure 4500 psig cylinder)

## Field Maintenance and Repair

MSA offers a complete program for maintenance and repair of MSA air masks. The program is supported with personalized training tailored to customers' needs and taught in the field by MSA-authorized personnel.

User maintenance covers procedures necessary to conduct general cleaning, inspection, and limited maintenance in accordance with the Occupational Safety and Health Administration (OSHA), National Fire Protection Association (NFPA), and the American National Standards Institute (ANSI) standards.

C.A.R.E. Certified Air Mask Repair Education covers all maintenance for both low- and high-pressure SCBA. Air Mask inspection and maintenance can be performed by MSA or a factory-authorized service center. Or, individuals can obtain training for C.A.R.E. certification from MSA. By having a C.A.R.E.-certified technician on staff, fire departments and other facilities with a large number of Air Masks can perform all inspection and maintenance in-house.

- All repairs and maintenance can be done in the field.
- A selection of overhaul kits, spare parts, and tool kits is available.
- Users may conduct periodic performance testing using an authorized MSA regulator tester.

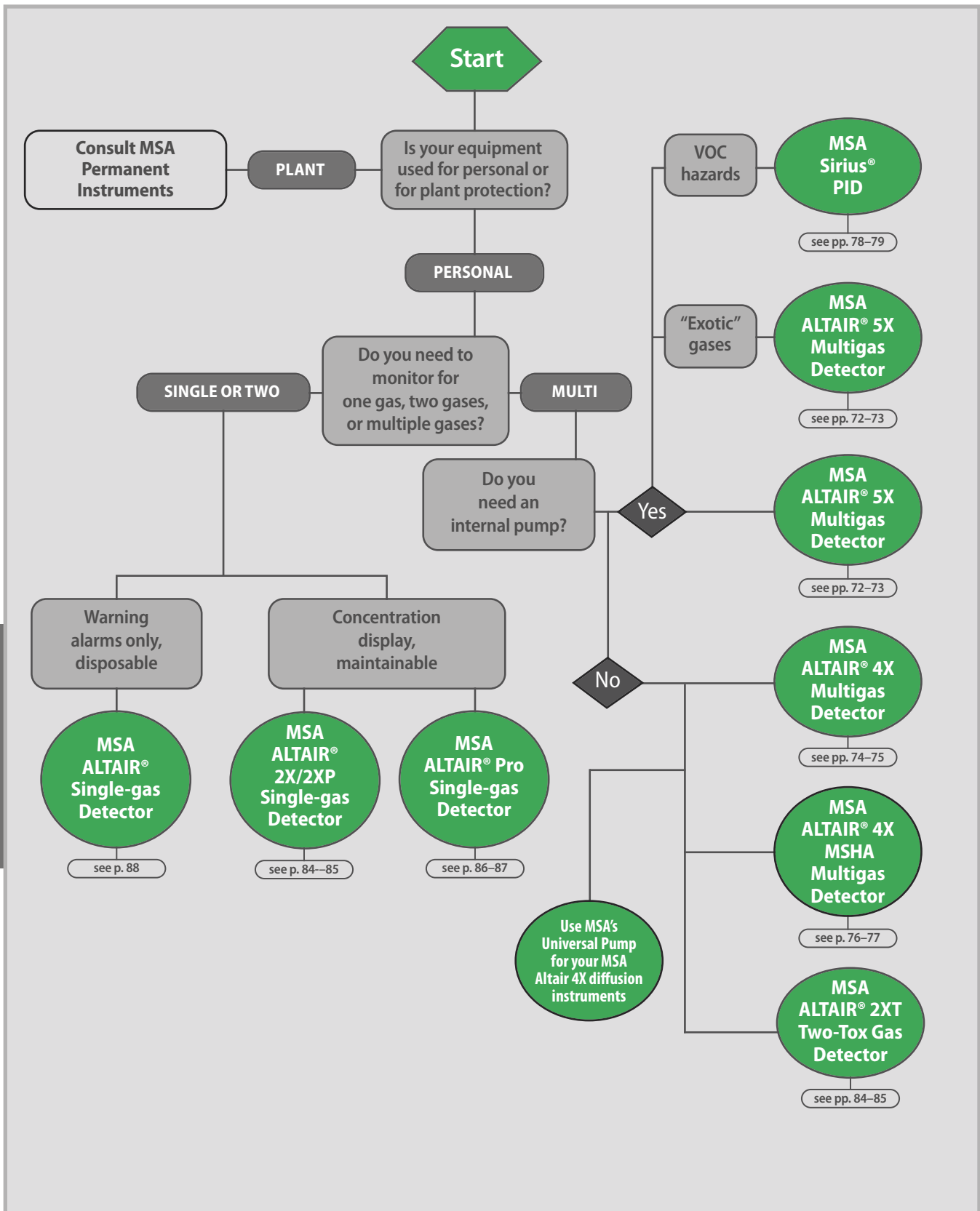








## Portable Instrument Selection Quick Guide



## Understanding Environmental Surveillance

Battery-powered, direct-reading instruments are classified as two groups—**single-gas instruments** or **multiple-gas instruments**—typically monitoring one or a combination of the following atmospheric conditions:

1. *oxygen deficiency or enrichment*
2. *the presence of combustible gas*
3. *the presence of certain toxic gases*

Depending on the capabilities of the instrument, monitoring can be conducted simultaneously for oxygen and combustible gas, or for oxygen, combustible gas and toxic gases. These devices are commonly referred to as 2-in-1, 3-in-1, 4-in-1 or 5-in-1 alarms.

No matter which type of instrument is used to check environmental gas concentrations, regular monitoring should be performed because a contaminant's level of combustibility or toxicity might increase even if it initially appears to be low or non-existent. In addition, oxygen deficiency can occur unexpectedly.

### Atmospheric Composition

To determine the composition of an atmosphere, reliable instruments should be used to draw air samples. If possible, do not open the entry portal to the confined space before this step has been completed. Sudden changes in atmospheric composition within the confined space could cause violent reactions, or dilute the contaminants in the confined space, giving a false low initial gas concentration.

When testing permit-required spaces for acceptable entry conditions, always test in the following order:

1. *oxygen content*
2. *flammable gases and vapors*
3. *potential toxic air contaminants*

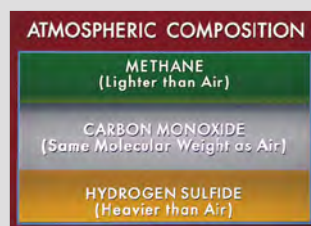


Figure 1

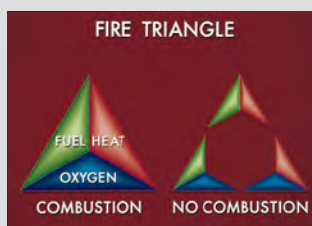


Figure 2

### Combustible Gases

In order for combustion to occur, there must be three elements:

1. *fuel*
2. *oxygen to support combustion*
3. *heat or a source of ignition*

This is known as the fire triangle, but if you remove any one of the legs, combustion will not occur (see Figure 2).

The percentage of combustible gas in the air is important, too. For example, a manhole filled with fresh air is gradually filled by a leak of combustible gas such as methane or natural gas, mixing with the fresh air. As the ratio of gas to air changes, the sample passes through three ranges: lean, explosive and rich (see Figure 3). In the lean range, there isn't enough gas in the air to burn. On the other hand, the rich range has too much gas and not enough air. However, the explosive range has just the right combination of gas and air to form an explosive mixture. Care must be taken, however, when a mixture is too rich, because dilution with fresh air could bring the mixture into the flammable or explosive range. An analogy is the automobile that won't start on a cold morning (a lean atmosphere because the liquid gasoline has not vaporized sufficiently), but can be flooded with too much gasoline (a rich atmosphere with too much vaporization). Eventually, when the right mixture of gas and air finally exists (explosive), the car starts.

### How Combustible Gas Monitors Work

To understand how portable combustible gas detection instruments work, it is first important to understand what is meant by the Lower Explosive Limit (LEL) and Upper Explosive Limit (UEL). When certain proportions of combustible vapors are mixed with air and a source of ignition is present, an explosion can occur. The range of concentrations



Figure 3

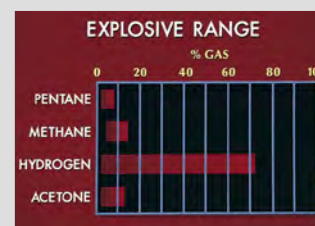


Figure 4

Comprehensive testing should be conducted in various locations within the work area. Some gases are heavier than air, and tend to collect at the bottom of a confined space. Others are lighter, and are usually in higher concentrations near the top of the confined space. Still others are the same molecular weight as air, so they can be found in varying concentrations throughout the space. This is why test samples should be drawn at the top, middle and bottom of the space to pinpoint varying concentrations of gases or vapors (see Figure 1).

The results of the atmospheric testing will have a direct impact on the selection of protective equipment necessary for the tasks in the area. It may also dictate the duration of worker exposure to the environment of the space, or whether an entry will be made at all. Substance-specific detectors should be used whenever actual contaminants have been identified.

over which this reaction can occur is called the explosive range. This range includes all concentrations in which a flash will occur or a flame will travel if the mixture is ignited (see Figure 3). The lowest percentage at which this can happen is the LEL; the highest percentage is the UEL.

Most combustible instruments display gas concentrations as a percentage of the LEL. Some models have gas readouts as a percentage by volume and others display both percent of LEL and percent combustible gas by volume. What's the difference? For example, the LEL of methane (the major component in natural gas) is 5 percent by volume, and the UEL is 15 percent by volume. If we slowly fill a room with methane, when the concentration reaches 2.5 percent by volume, it is 50 percent of the LEL; at 5 percent by volume it is 100 percent of the LEL. Between 5 and 15 percent by volume, a spark could set off an explosion.

Different gases need different percent by volume concentrations to reach 100 percent of the LEL (see *Figure 4*). Pentane, for example, has an LEL of 1.5 percent by volume. Instruments that measure in percent of the LEL are easy to use because, regardless of the gas, you are most concerned with how close the concentration is to the LEL.

### Single-Gas Monitors for Oxygen Deficiency

Oxygen indicators measure atmospheric concentrations of oxygen. Concentrations are generally measured over a range of 0 to 25 percent oxygen in air, with readings displayed on either digital readout or an analog meter.

Oxygen indicators are calibrated with uncontaminated fresh air containing a minimum of 20.8 percent oxygen. With some models, an alarm is activated when oxygen levels drop below 19.5 percent.

### Infrared Detectors for Gas Detection

The IR gas detection method is based upon absorption of infrared radiation at specific wavelengths as radiation passes through a volume of gas. IR gas detectors use an infrared energy source and may use two detectors that convert the energy into electrical signals. One detector monitors environmental gas as the other acts as a reference gas. Gas concentration is determined by comparing relative values between the two detectors.

IR detectors (see *Figure 5*) offer some advantages when compared to catalytic detectors. IR sensors are not affected by poisons such as silicones and lead compounds. Because no sensor combustion occurs, IR sensors do not experience corrosion due to by-product exposure. In addition, IR sensors require less frequent calibration. They do not require oxygen for operation, allowing sensors to be used for inert

### Single-Gas Monitors for Toxic Gases

Compact, battery-powered devices can be used to measure levels of such gases as carbon monoxide (CO) or hydrogen sulfide (H<sub>2</sub>S), depending on the model selected. Toxic gas monitors use electrochemical cells (see *Figure 6*). If the gas of interest enters the cell, the reaction produces a current output proportional to the amount of gas in the sample. With these instruments, audible and visible alarms sound if the gas concentration exceeds a preset level. These devices are well suited for use in confined spaces containing motors or engines, which can generate large quantities of CO, as well as in sewers, waste treatment plants and "sour crude" processing stations which tend to have hazardous volumes of H<sub>2</sub>S.

### Multiple-Gas Monitors for Oxygen and Combustible Gas

In applications where it is necessary to determine oxygen and combustible gas levels simultaneously, 2-in-1 devices can be used. Sensors measure 0 to 100 percent of the LEL and oxygen from 0 to 25 percent. Remote sampling with a diffusion device requires either a pump module or an aspirator bulb adapter.

### Photoionization Devices for Toxic Gases and Vapors

A photoionization detector uses ultraviolet light to ionize molecules of chemical substances in a gaseous or vaporous state (see *Figure 7*). A real-time digital readout allows the user to make an immediate determination of gas and vapor concentrations. Depending upon calibration input, gas and vapors are measured over a 0.1 to 10,000 ppm scale. Some instruments automatically compensate for signal loss due to humidity, which is inherent in all PID detectors.



Figure 5

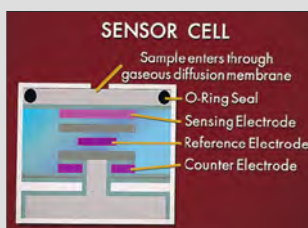


Figure 6

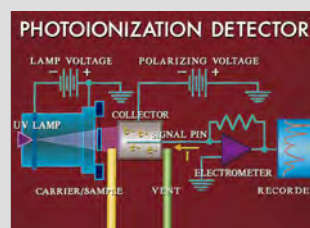


Figure 7

gas sampling when oxygen concentration is below 10%. IR sensors have a long life, typically more than five years depending upon operating conditions.

IR technology also has its own disadvantages. As IR gas detection is based upon the ability of some gases to absorb IR radiation, gases that do not absorb IR energy (such as hydrogen) are not detectable using IR sensors.

MSA offers IR sensors for detection of carbon dioxide, butane, methane, and propane. Carbon dioxide (CO<sub>2</sub>) is an example of an important gas that is difficult to detect reliably using typical electrochemical cells.

### Calibration

To ensure the accuracy of all monitoring and detection equipment, calibration should be performed regularly. If the instrument reading differs significantly from the values of the known standard, the instrument should not be used until it has been adjusted or, if necessary, repaired.



## ALTAIR® 5X Multigas Detector

- Rugged detector tests levels of LEL, O<sub>2</sub>, CO, H<sub>2</sub>S and SO<sub>2</sub>, and other toxic gases
- Rapid bump test gives results in under 15 seconds
- Versatile MSA Link™ Software allows user to transmit data to a computer
- Exclusive MotionAlert™ option tells others that user has become immobile
- InstantAlert™ Panic Button provides manual alarm to alert others of a dangerous situation
- Large buttons and bright display provide easy operation, even when user is wearing gloves
- Available glow-in-the-dark housing makes it easy to see in a confined space
- Durable XCell® sensors last longer than 3 years
- Rugged housing protects detector from drops of up to 10 feet
- Exclusive end-of-sensor warning cautions user when unit's sensor must be changed
- Polycarbonate housing is both dust-tight and water-tight

	Approvals/ U.S.	Approvals/ Canada	Configuration
ALTAIR 5X DETECTORS	Includes 3-year warranty, monochrome display, data logging, charger, integral pump, and tubing		
	10116924	10115118	LEL, O <sub>2</sub> , CO, H <sub>2</sub> S
	10116925	10115119	LEL, O <sub>2</sub> , CO, H <sub>2</sub> S, SO <sub>2</sub>
ALTAIR 5X DETECTOR INDUSTRIAL KITS	Includes monochrome display, integral pump, 10 ft sampling line, and 1 ft probe		
	10116926	10115120	LEL, O <sub>2</sub> , CO, H <sub>2</sub> S
	10116927	10115141	LEL, O <sub>2</sub> , CO, H <sub>2</sub> S, SO <sub>2</sub>
	10160201	10160201	LEL, O <sub>2</sub> , CO, H <sub>2</sub> S, HCN
ALTAIR 5X DETECTOR DELUXE KITS	Includes color display, integral pump, 10 ft sampling line, and 1ft probe		
	10116928	10115142	LEL, O <sub>2</sub> , CO, H <sub>2</sub> S
	10116929	10115143	LEL, O <sub>2</sub> , CO, H <sub>2</sub> S, SO <sub>2</sub>
	10160193	10160193	LEL, O <sub>2</sub> , CO, H <sub>2</sub> S, HCN
ACCESSORIES	10082834	USB IR receiver	
	10114837	Battery pack, Alkaline	
	10088099	MSA Link Software CD	



MSA XCell sensors



Galaxy GX2 and MSA Link Pro Software allows for automated calibration, bump testing and fleet management



## Specifications

Gas Type	Range	Resolution
O <sub>2</sub>	0–30% vol	0.1% vol
CO	0–2000 ppm	1 ppm
H <sub>2</sub> S	0–200 ppm	1 ppm
SO <sub>2</sub>	0–20 ppm	0.1 ppm
Cl <sub>2</sub>	0–10 ppm	0.05 ppm
NH <sub>3</sub>	0–100 ppm	1 ppm
NO <sub>2</sub>	0–20 ppm	0.5 ppm
ClO <sub>2</sub>	0–1 ppm	0.01 ppm
PH <sub>3</sub>	0–5 ppm	0.1 ppm
HCN	0–30 ppm	0.5 ppm
CO <sub>2</sub>	0–10% vol	0.01% vol
Butane	0–25% vol	0.1% vol
Methane	0–100% vol	1% vol
Propane	0–100% vol	1% vol

## Assemble-To-Order (ATO) Options

To create your instrument configuration, select the instrument option codes and mark them in the boxes to the right.

1	INSTRUMENT TYPE	All ALTAIR 5X Multigas Detectors come standard with data logging and MotionAlert and InstantAlert features. Choose your instrument type, equipped with internal pump. The monochrome full-graphic display is standard; a high-resolution crystal-clear color display with logo customization is optional.	<b>Instrument Type</b> Pumped with monochrome display Pumped with color display Color and glow-in-the-dark case <i>(unit must be configured with IR sensor)</i>	<b>Code</b> A B H	Selection
2	COMBUSTIBLE SENSOR	Choose your combustible sensor calibration. To select 0-100% LEL pentane, please choose <b>L</b> ; for 0-5% Vol methane, choose <b>M</b> . For no combustible sensor, select <b>0</b> for none.	<b>Combustible Sensor Options</b> None LEL 1- 100% pentane 0-5% Vol methane	<b>Code</b> 0 L M	Selection
3	SENSOR #1	To have an oxygen sensor installed in your new ALTAIR 5X Multigas Detector, please select <b>K</b> ; if you plan on configuring the ALTAIR 5X Detector with two exotic sensors with CO/H <sub>2</sub> S, please select <b>1</b> for both CO and H <sub>2</sub> S sensors; for no sensor, enter <b>0</b> .	<b>Sensor #2 Options</b> None Oxygen 0-30% CO/H <sub>2</sub> S 0-2000 ppm and 0-200 ppm CO 0-2000 ppm H <sub>2</sub> S 0-200 ppm CO/H <sub>2</sub> S-LC 0-1999 ppm & 0-99.9 ppm CO-HC 0-10,000 ppm CO/NO <sub>2</sub> 0-1999 ppm & 50 ppm CO-H <sub>2</sub> -ResH <sub>2</sub> S 0-1999 ppm & 0-200 ppm	<b>Code</b> 0 K 1 2 3 4 5 6 7	Selection
4	SENSOR #2	Choose your toxic gas sensor for the ALTAIR 5X Multigas Detector.	<b>Toxic Sensor 1 and 2 Options</b> None SO <sub>2</sub> 0-20 ppm Cl <sub>2</sub> 0-10 ppm NO <sub>2</sub> 0-20 ppm NH <sub>3</sub> 0-100 ppm PH <sub>3</sub> 0-5 ppm HCN 0-30 ppm ClO <sub>2</sub> 0-1 ppm NO 0-250 ppm	<b>Code</b> 0 A B C D E F G H	Selection
5	SENSOR #3	Choose your additional toxic gas sensor for the ALTAIR 5X Multigas Detector.	<b>Toxic 3 Sensor Options</b> None CO/H <sub>2</sub> S 0-2000 ppm and 0-200 ppm CO 0-2000 ppm H <sub>2</sub> S 0-200 ppm CO/H <sub>2</sub> S-LC 0-1999 ppm & 0-99.9 ppm CO-HC 0-10,000 ppm CO/NO <sub>2</sub> 0-1999 ppm & 50 ppm CO H <sub>2</sub> -ResH <sub>2</sub> S 0-1999 ppm & 0-200 ppm SO <sub>2</sub> 0-20 ppm Cl <sub>2</sub> 0-10 ppm NH <sub>3</sub> 0-100 ppm	<b>Code</b> 0 1 2 3 4 5 6 7 A B D	Selection
6	ADVANCED SENSOR	Add your IR sensor to complete your sensor suite in the ALTAIR 5X Multigas Detector. Combustible sensors are not available with CSA approvals.	<b>Advanced Sensor Options</b> None CO <sub>2</sub> 0-10% Vol Butane 0-25% Vol Propane 0-100% Vol Methane 0-100% Vol	<b>Code</b> 0 B D F L	Selection
7	PACKAGING	For an economy plastic carrying case, choose <b>E</b> ; for red, choose <b>R</b> ; for standard carton packaging, choose <b>0</b> .	<b>Packaging Options</b> Standard carton Economy plastic Red economy	<b>Code</b> 0 E R	Selection
8	APPROVAL LABEL	Choose the applicable approval label for your area. For North America, choose <b>C</b> , for Europe choose <b>E</b> , for Australia, choose <b>A</b> .	<b>Approval Label Options</b> NORTH AMERICA UL only <i>(no catalytic combustible sensor in unit)</i> Europe ATEX Australia	<b>Code</b> C T E A	Selection
9	LOGO EXPRESS	Upon startup, the ALTAIR 5X Multigas Detector can display your company logo or other information. Be sure to select color display for this option. To add your company logo, choose <b>L</b> and upload your logo to the web address which will be sent automatically to you via email. Your order with customized logo cannot be processed without uploading your logo.	<b>Logo Express* Service Options</b> None Logo Express Service	<b>Code</b> 0 L	Selection
10	SAMPLING LINE AND PROBE KIT	MSA's quality sampling lines and probes are durable, easy to use, offer high speed and convenience using our quick-connect fittings. If you are sampling Cl <sub>2</sub> , ClO <sub>2</sub> , and/or NH <sub>3</sub> , please select option <b>2</b> ; for all other gases, select option <b>1</b> . For no sampling line and probe kit, select <b>0</b> .	<b>Sampling Line and Probe Kit Options</b> None 1 ft probe and 10 ft P/U line 1 ft probe and 10 ft teflon line <i>(reactive gases)</i>	<b>Code</b> 0 1 2	Selection

Your Model Part Number

Please transfer your option codes from the Selection boxes above into the appropriate boxes here and contact your Safety Products Distributor to place your order.

Selection      1      2      3      4      5      6      7      8      9      10

A-ALT5X-  -  -  -  -  -  -  -  -  -

## ALTAIR 4X Multigas Detector

- Dependable multigas detector tests for LEL, O<sub>2</sub>, CO, H<sub>2</sub>S and NO<sub>2</sub>
- Economical construction saves users more than 50% on calibration gas, replacement sensors and maintenance
- Four-year sensor life means detector lasts 60% longer than the industry average
- 24-hour run time exceeds the industry average by 71%
- Unit uses 50% less calibration gas per minute than the average detectors within the industry
- Two-tox CO/H<sub>2</sub>S sensor removes practically all cross-channel interference
- Large buttons and high-contrast screen make operation easy in low-light conditions
- Ribbed rubber housing provides secure grip and high durability—unit is designed to withstand a drop of up to 20 feet
- Unit features 95+ db alarm and ultra-bright LEDs
- Exclusive end-of-sensor warning cautions user when unit's sensor must be changed
- MotionAlert option tells others that user has become immobile
- InstantAlert provides manual alarm to alert others of a dangerous situation

ALTAIR 4X Multigas Detectors listed below come with North American approval, quick-start card, data logging, charger, calibration cap and tubing, CD manual. MotionAlert feature is now included as standard on all detectors.

ALTAIR 4X MULTIGAS DETECTORS	10107602	ALTAIR 4X Multigas Detector (LEL, O <sub>2</sub> , CO, H <sub>2</sub> S) Charcoal
	10148343	ALTAIR 4X Multigas Detector (LEL, O <sub>2</sub> , CO, H <sub>2</sub> S-LC) Charcoal
	10110443	ALTAIR 4X Multigas Detector (LEL, O <sub>2</sub> , CO) Charcoal
	10110444	ALTAIR 4X Multigas Detector (LEL, O <sub>2</sub> ) Charcoal
	10107603	ALTAIR 4X Multigas Detector (LEL, O <sub>2</sub> , CO, H <sub>2</sub> S) Glow-in-the-dark
	10110445	ALTAIR 4X Multigas Detector (LEL, O <sub>2</sub> , CO) Glow-in-the-dark
	10110446	ALTAIR 4X Multigas Detector (LEL, O <sub>2</sub> ) Glow-in-the-dark
SENSORS AND SPARE PARTS	10106722	Sensor Kit, XCell Ex Combustible
	10106729	Sensor Kit, XCell O <sub>2</sub>
	10106725	Sensor Kit, XCell CO/H <sub>2</sub> S Two-tox
	10121213	Sensor Kit, XCell CO/H <sub>2</sub> S-LC Two-tox
	10121217	Sensor Kit, XCell NO <sub>2</sub> /CO Two-tox
	10110030	Front housing with integrated dust filters (Charcoal)
	10110029	Front housing with integrated dust filters (Glow-in-the-dark)
	10106621	Main board with battery pack
	10110061	LCD frame assembly (frame, LCD, zebra strips, screws)
	10110062	Sensors gasket, Phillips screws (4x), self-tapping (2x)
	10106623	CD manual, ALTAIR 4X Multigas Detector
ACCESSORIES	10069894	Stainless steel suspender clip
	10046528	Universal Pump Probe (UL)
	10088099	MSA Link™ Software CD-ROM
	10082834	JetEye IR Adapter with USB connector
	10050333	Hand aspirator assembly
POWER SUPPLY	10086639	Charging cradle components
	10087913	North American power supply
	10092233	Charging cradle assembly
	10095774	Vehicle charger
	10127422	4-Unit multi-unit charger NA plug
	10143372	12-Unit multi-unit charger NA plug

For more accessories, please refer to page 81. See pages 92–96 for calibration accessories.



ALTAIR 4X Multigas Detector – charcoal



ALTAIR 4X Multigas Detector – glow-in-the-dark



MSA XCell sensors

## Specifications

Gas Type	Range	Resolution
LEL	0–100% LEL	1% LEL
O <sub>2</sub>	0–30% vol	0.1% vol
CO	0–1999 ppm	1 ppm
H <sub>2</sub> S	0–200 ppm	1 ppm

## Assemble-To-Order (ATO) Options

To create your instrument configuration, select the instrument option codes and mark them in the boxes to the right.

<b>A</b>	<b>INSTRUMENT TYPE</b>	The Altair 4X Multigas Detector comes standard with MSA's XCell Sensors and MotionAlert feature to indicate 'man-down'.	<b>Instrument Type</b> Altair 4X w/ XCell Sensors and MotionAlert feature	<b>Code</b> X	<b>Selection</b> X
<b>B</b>	<b>COMBUSTIBLE SENSOR</b>	Choose your combustible sensor calibration. To select 0-100% LEL pentane, please choose L; for 0-5% Vol methane, choose M. For no combustible sensor, select 0 for none.	<b>Combustible Sensor Options</b> None LEL 1- 100% pentane 0-5% Vol methane	<b>Code</b> 0 L M	<b>Selection</b>
<b>C</b>	<b>OXYGEN SENSOR</b>	To have an oxygen sensor installed, please select 2. For no sensor, enter 0.	<b>Oxygen Sensor Options</b> None Oxygen 0-30%	<b>Code</b> 0 2	<b>Selection</b>
<b>D</b>	<b>TOXIC SENSOR</b>	To configure your new ALTAIR 4X Multigas Detector, choose 0 for no toxic sensor. Choose A for both CO and H <sub>2</sub> S sensors, choose B for CO, and C for H <sub>2</sub> S. To select a low concentration H <sub>2</sub> S (H <sub>2</sub> S-LC) sensor with 0-100 ppm range and 0.1 ppm resolution, choose option G for both CO and H <sub>2</sub> S-LC, choose option H for H <sub>2</sub> S-LC only. Choose option J for both NO <sub>2</sub> and CO sensors. For SO <sub>2</sub> and H <sub>2</sub> S-LC sensors, choose option K. For a Hydrogen Resistant CO sensor with H <sub>2</sub> S, choose L.	<b>Toxic Sensor Options</b> None 0-1999 ppm CO and 0-200 ppm H <sub>2</sub> S 0-999 ppm CO 0-200 ppm H <sub>2</sub> S 0-1999 ppm CO and 0-100 ppm H <sub>2</sub> S-LC 0-99.9 ppm H <sub>2</sub> S-LC 0-1999 ppm CO and 0-50 ppm NO <sub>2</sub> 0-99.9 ppm H <sub>2</sub> S-LC and 0-20 ppm SO <sub>2</sub> 0-1999 ppm CO H <sub>2</sub> -Res and 0-200 ppm H <sub>2</sub> S	<b>Code</b> 0 A B C G H J K L	<b>Selection</b>
<b>E</b>	<b>POWER SUPPLY</b>	Select the correct power supply for your region. Add an instrument cradle to firmly secure your instrument while charging on the shelf or on a vehicle.	<b>Power Supply Options</b> None North American European with cradle Australian with cradle North American with cradle Global	<b>Code</b> 0 N E A M G	<b>Selection</b>
<b>F</b>	<b>APPROVAL LABEL</b>	Choose the applicable approval label for your area. For Europe choose E, for North America choose C, and for Australia choose A.	<b>Approval Label Options</b> Europe ATEX North America Australia	<b>Code</b> E C A	<b>Selection</b>
<b>G</b>	<b>EXTENDED WARRANTY</b>	MSA includes a full 3-year warranty on the Altair 4X Multigas Detector, which includes sensors, battery and electronics. Choose 1 for an additional year (four years total).	<b>Extended Warranty Options</b> Three years standard warranty Extended warranty (four years total)	<b>Code</b> 0 1	<b>Selection</b>
<b>H</b>	<b>PACKAGING</b>	To order bulk packaging for up to 10 units, choose 1 (one instrument version per package); to order the standard single unit carton, choose 0.	<b>Packaging Options</b> Single carton 10-unit bulk package	<b>Code</b> 0 1	<b>Selection</b>
<b>I</b>	<b>CASE COLOR OPTIONS</b>		<b>Case Color Options</b> Standard Charcoal Glow-in-the-dark (glow-in-the-dark)	<b>Code</b> 0 G	<b>Selection</b>

### Your Model Part Number

Please transfer your option codes from the Selection boxes above into the appropriate boxes here and contact your Safety Products Distributor to place your order.

Selection      A      B      C      D      E      F      G      H      I

A-ALT4- X - - - - -



## ALTAIR 4X MSHA Multigas Detector

### Optimized for Miners

Building on years of design experience, MSA revolutionizes sensor technology with breakthroughs that improve mining application performance:

- Methane-optimized catalytic bead sensor provides increased stability over time
- Sensor response and clear times in less than 15 seconds
  - Reduces gas usage for bump testing and calibration
- Greater accuracy and repeatability within changing environmental conditions
  - Temperature, humidity and pressure
- Digital sensors offer increased RF (radio frequency) immunity
  - Eliminate false alarms from radios
- Accurate CO readings from 0-2000 ppm
- Industry-first CO/NO<sub>2</sub> combination sensor with wide range and fast response times
- Increased methane sensor poison resistance decreases down time and frequency of sensor replacements
- End-of-sensor life warning gives advanced notice of failing sensors
- Sensor life that greatly exceeds industry average

### Technical Specifications

Gas Type	Range	Resolution
LEL	0–100% LEL	1% LEL
O <sub>2</sub>	0–30% vol	0.1% vol
CO	0–1999 ppm	1 ppm
NO <sub>2</sub>	0–50 ppm	0.1 ppm
H <sub>2</sub> S	0–200 ppm	1 ppm

ALTAIR 4X MSHA Multigas Detectors listed below come with 3-year warranty, data logging, charger, calibration cap, and tubing

ALTAIR 4X MSHA MULTIGAS DETECTORS	10125912	ALTAIR 4X Multigas Detector (CH <sub>4</sub> , O <sub>2</sub> , CO), charcoal case
	10125913	ALTAIR 4X Multigas Detector (CH <sub>4</sub> , O <sub>2</sub> , CO), glow-in-the-dark case
	10125914	ALTAIR 4X Multigas Detector (CH <sub>4</sub> , O <sub>2</sub> , CO, NO <sub>2</sub> ), charcoal case
	10125915	ALTAIR 4X Multigas Detector (CH <sub>4</sub> , O <sub>2</sub> , CO, NO <sub>2</sub> ), glow-in-the-dark case
REPLACEMENT SENSORS	10121212	XCell Ex-M Combustible Sensor
	10106729	XCell O <sub>2</sub> Sensor
	10106725	XCell CO/H <sub>2</sub> S Two-tox Sensor
	10121217	XCell CO/NO <sub>2</sub> Two-tox Sensor
ACCESSORIES	10127422	4-unit multi-unit charger NA plug
	10143372	12-unit multi-unit charger NA plug



ALTAIR 4X Multigas Detector



ALTAIR 4X Multigas Detector  
Optional glow-in-the dark housing for mining and confined space applications



30 CFR Part 22, Methane Detector  
30 CFR Part 75 Determination testing for methane and oxygen deficiency

## Assemble-To-Order (ATO) Options

To create your instrument configuration, select the instrument option codes and mark them in the boxes to the right.

<b>A</b>	<b>INSTRUMENT TYPE</b>	The Altair 4X MSHA Multigas Detector comes standard with MSA's XCell Sensors and MotionAlert feature to indicate 'man-down'. Please select your instrument's case color; select option <b>C</b> for charcoal and option <b>G</b> for glow-in-the-dark.	<b>Instrument Type</b> Charcoal Glow-in-the-dark	<b>Code</b> C G	Selection
<b>B</b>	<b>COMBUSTIBLE SENSOR</b>	To have a combustible sensor installed in your new ALTAIR 4X MSHA Multigas Detector, please select <b>C</b> . For no combustible sensor, select <b>0</b> .	<b>Combustible Sensor Options</b> None 0-5% Vol methane	<b>Code</b> 0 C	Selection
<b>C</b>	<b>OXYGEN SENSOR</b>	To have an oxygen sensor installed in your new ALTAIR 4X MSHA Multigas Detector, select <b>1</b> . For no sensor, enter <b>0</b> .	<b>Oxygen Sensor Options</b> None 0-30%	<b>Code</b> 0 1	Selection
<b>D</b>	<b>TOXIC SENSOR</b>	To configure your new ALTAIR 4X MSHA Multigas Detector, choose <b>0</b> for no toxic sensor. Choose <b>A</b> for both CO and H <sub>2</sub> S sensors, choose <b>B</b> for CO, <b>C</b> for H <sub>2</sub> S, <b>D</b> for CO and NO <sub>2</sub> , and <b>E</b> for NO <sub>2</sub> .	<b>Toxic Sensor Options</b> None 0-1999 ppm CO and 0-200 ppm H <sub>2</sub> S 0-999 ppm CO 0-200 ppm H <sub>2</sub> S 0-1999 ppm CO and 0-50 ppm NO <sub>2</sub> 0-100 ppm NO <sub>2</sub>	<b>Code</b> 0 A B C D E	Selection
<b>E</b>	<b>POWER SUPPLY</b>	Select the correct power supply. Add an instrument cradle to firmly secure your instrument while charging on the shelf or on a vehicle.	<b>Power Supply Options</b> None North American North American with cradle	<b>Code</b> 0 N M	Selection
<b>F</b>	<b>APPROVAL LABEL</b>	The ALTAIR 4X MSHA Multigas Detector is fully approved by MSHA.	<b>Approval Label Options</b> MSHA	<b>Code</b> M	Selection <b>M</b>
<b>G</b>	<b>EXTENDED WARRANTY</b>	MSA includes a full 3-year warranty on the ALTAIR 4X MSHA Multigas Detector, including sensors, battery and electronics. Choose <b>1</b> for an additional year (4 years total).	<b>Extended Warranty Options</b> Three years standard warranty Extended warranty (four years total)	<b>Code</b> 0 1	Selection

### Your Model Part Number

Please transfer your option codes from the Selection boxes above into the appropriate boxes here and contact your Safety Products Distributor to place your order.

Selection      A      B      C      D      E      F      G

A-ALT4XM-  -  -  -  -  -  -  -

## Sirius® Multigas Detector

- Reliable four-gas detection in a single easy-to-use and durable unit
- Designed and built for safety and reliability across multiple applications and hazards
- Features MSA's proprietary patent-pending PID sensor
- Simultaneously monitor for volatile organic compounds (VOCs) with low vapor pressures while simultaneously measuring for combustible, toxic or oxygen-deficient atmospheres
- Stable zero readings with fast response/clear times



		10.6 eV	LEL	O <sub>2</sub>	CO	H <sub>2</sub> S	Li Ion	Alka Bat	10 ft line	1 ft probe	Ret Line	BI Boot	Cor Jac	Cal Kit	Data Log	Blk Cas	Std Cap	Lamp C Kit
<b>SIRIUS MULTIGAS DETECTOR KITS (LEL)</b>																		
<b>DELUXE KITS</b>																		
4-GAS LITHIUM-ION	10051141	■	■	■	■	■	■		■	■	■	■	■	■		■	■	
3-GAS H <sub>2</sub> S LITHIUM-ION	10051142	■	■	■		■	■		■	■	■	■	■	■		■	■	
3-GAS CO LITHIUM-ION	10051143	■	■	■	■		■		■	■	■	■	■	■		■	■	
4-GAS LITHIUM-ION DATALOG	10051144	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	
4-GAS LITHIUM-ION NO BATT/JACKET	10051117	■	■	■	■	■	■		■	■	■			■		■	■	■
<b>INDUSTRIAL KITS</b>																		
4-GAS LITHIUM-ION	10051146	■	■	■	■	■	■		■	■	■	■	■				■	
3-GAS H <sub>2</sub> S LITHIUM-ION	10051147	■	■	■		■	■		■	■	■	■	■				■	
3-GAS CO LITHIUM-ION	10051148	■	■	■	■		■		■	■	■	■	■				■	
4-GAS LITHIUM-ION NO JACKET	10051149	■	■	■	■	■	■		■	■	■	■					■	
4-GAS LITHIUM-ION WITH CAL	10051150	■	■	■	■	■	■		■	■				■	■	■	■	
<b>ECONOMY KITS</b>																		
4-GAS ALKALINE	10051151	■	■	■	■	■		■									■	
3-GAS H <sub>2</sub> S ALKALINE	10051152	■	■	■		■		■									■	
3-GAS CO ALKALINE	10051153	■	■	■	■			■									■	
4-GAS LITHIUM-ION	10051154	■	■	■	■	■	■										■	
<b>SIRIUS MULTIGAS DETECTOR KITS (CH<sub>4</sub>)</b>																		
<b>DELUXE KITS</b>																		
4-GAS LITHIUM-ION	10051177	■	■	■	■	■	■		■	■	■	■	■	■		■	■	
3-GAS H <sub>2</sub> S LITHIUM-ION	10051178	■	■	■		■	■		■	■	■	■	■	■		■	■	
3-GAS CO LITHIUM-ION	10051179	■	■	■	■		■		■	■	■	■	■	■		■	■	
4-GAS LITHIUM-ION DATALOG	10052511	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■
<b>INDUSTRIAL KITS</b>																		
4-GAS LITHIUM-ION	10051181	■	■	■	■	■	■		■	■	■	■	■				■	
3-GAS H <sub>2</sub> S LITHIUM-ION	10051182	■	■	■		■	■		■	■	■	■	■				■	
3-GAS CO LITHIUM-ION	10051183	■	■	■	■		■		■	■	■	■	■				■	
4-GAS LITHIUM-ION PID NO JACKET	10051184	■	■	■	■	■	■		■	■	■	■					■	
<b>ECONOMY KITS</b>																		
4-GAS ALKALINE	10051185	■	■	■	■	■		■									■	
3-GAS H <sub>2</sub> S ALKALINE	10051186	■	■	■		■		■									■	
3-GAS CO ALKALINE	10051187	■	■	■	■			■									■	
4-GAS ALKALINE	10051188	■	■	■	■	■	■										■	

For more accessories, please refer to page 82. See pages 92–96 for calibration accessories.

## Assemble-To-Order (ATO) Options

To create your instrument configuration, select the instrument option codes and mark them in the boxes to the right.

<b>A</b>	<b>PHOTOIONIZATION DETECTOR LAMP OPTION</b>	To choose the standard 10.6 eV lamp for most VOC's, choose selection <b>A</b> .	<b>PID Lamp</b> PID with 10.6 eV Lamp (0-2000 ppm)	<b>Code</b> A	<b>Selection</b>
<b>B</b>	<b>COMBUSTIBLE SENSOR OPTION</b>	To choose to have your MSA 20L combustible sensor reading set to be displayed as 0-100% LEL, enter selection <b>L</b> . For a display of 0-5% methane, enter a <b>M</b> .	<b>Combustible Sensor</b> None LEL 1- 100% pentane 0-5% Vol methane	<b>Code</b> 0 L M	<b>Selection</b>
<b>C</b>	<b>OXYGEN SENSOR OPTION</b>	To choose an oxygen sensor, enter selection <b>1</b> . For no oxygen sensor, enter a <b>0</b> .	<b>Oxygen Sensor</b> None Oxygen 0-25%	<b>Code</b> 0 1	<b>Selection</b>
<b>D</b>	<b>CARBON MONOXIDE SENSOR OPTION</b>	To choose a carbon monoxide sensor, enter selection <b>1</b> . For no carbon monoxide sensor, enter a <b>0</b> .	<b>Carbon Monoxide Sensor</b> None Carbon Monoxide 0-500 ppm	<b>Code</b> 0 1	<b>Selection</b>
<b>E</b>	<b>HYDROGEN SULFIDE SENSOR OPTION</b>	To choose a hydrogen sulfide sensor, enter selection <b>1</b> . For no hydrogen sulfide sensor, enter a <b>0</b> .	<b>Hydrogen Sulfide Sensor</b> None Hydrogen Sulfide 0-100 ppm	<b>Code</b> 0 1	<b>Selection</b>
<b>F</b>	<b>BATTERY PACK AND CHARGER OPTIONS</b>	You may choose between MSA's lithium-ion battery pack which includes a standard lithium-ion battery charger, or the convenience of an alkaline battery pack. You may also choose to have both battery pack types included with your new Sirius Multigas Detector.	<b>Battery Pack/Charger</b> None lithium-ion, includes charger and cord Replaceable alkaline Both lithium-ion and replaceable alkaline battery packs	<b>Code</b> 0 A B C	<b>Selection</b>
<b>G</b>	<b>VEHICLE CHARGER OPTION</b>	If you would like to order the vehicle charger, enter selection <b>1</b> .	<b>Vehicle Charger</b> None Vehicle Charger	<b>Code</b> 0 1	<b>Selection</b>
<b>H</b>	<b>SAMPLING LINES</b>	MSA's Quick-Connect sampling lines are of the highest quality materials, guaranteed to provide accurate sampling concentrations. Sirius Multigas Detector sampling lines all include a Quick-Connect air-line fitting for easy attachment and tight seal. For sampling jet fuel, enter selection <b>3</b> for the 10' teflon sampling line option, or selection <b>4</b> for the 25' teflon sampling line option.	<b>Sampling Lines</b> None 10-foot polyurethane 25-foot polyurethane 10-foot teflon (for jet fuel sampling) 25-foot teflon (for jet fuel sampling) 3-foot polyurethane coiled	<b>Code</b> 0 1 2 3 4 5	<b>Selection</b>
<b>I</b>	<b>SAMPLING PROBES</b>	MSA's sampling probes are durable and comfortable to use. The built in Water-Stop filter ensures that your sampling system is not contaminated with dirt and debris if the probe tip is dipped in water. You must order a probe if you order a sampling line, as we strongly recommend that you operate the instrument with this filter in place.	<b>Sampling Probes</b> None 1-foot probe 3-foot probe 8-inch probe	<b>Code</b> 0 1 2 3	<b>Selection</b>
<b>J</b>	<b>CARRYING ATTACHMENTS</b>	While a high-strength stainless steel D-Ring is offered with this instrument at no extra charge, there are three other options for handling the instrument: the retractable carrying line for use with the D-Ring, the shoulder harness and the wrist harness to be used on the user's arm with a Level A suit.	<b>Carrying Attachments</b> None Retractable Carrying Line with Belt Clip Shoulder Harness Wrist Harness	<b>Code</b> 0 1 2 3	<b>Selection</b>
<b>K</b>	<b>INSTRUMENT JACKET AND BOOTS</b>	To offer the highest level of instrument protection, you may choose a protective black rubber boot and harness, or a cordura jacket. You may also order both options by choosing selection <b>C</b> .	<b>Instrument Jacket/Boots</b> None Black Boot with Harness Cordura Jacket with Harness Black Boot, Cordura Jacket and Harness	<b>Code</b> 0 B C D	<b>Selection</b>
<b>L</b>	<b>CALIBRATION KITS</b>	You may choose one of two calibration options for your Sirius Multigas Detector. The fixed-flow .25 lpm regulator includes a multigas calibration cylinder and also an isobutylene calibration gas cylinder if a PID selection is chosen. You may also order just the isobutylene calibration kit with gas cylinder.	<b>Calibration Kits</b> None Econo-Cal Fixed-Flow Regulator Calibration Kit (includes multigas and isobutylene cylinders) Model RP Fixed-Flow Regulator Calibration Kit (includes multigas and isobutylene cylinders) Isobutylene Calibration Kit (includes gas cylinder)	<b>Code</b> 0 1 2 3	<b>Selection</b>
<b>M</b>	<b>DATA COMMUNICATIONS</b>	If you need to track the readings and operations of your Sirius Multigas Detector, consider ordering the instrument with the optional built-in datalogging module. The option also provides TWA and STEL capabilities.	<b>Data Communications</b> None Data Link Module Data Link Module and Software Kit	<b>Code</b> 0 1 2	<b>Selection</b>
<b>N</b>	<b>PACKAGING</b>	Your new Sirius Multigas Detector may be protected by a standard black plastic case, or by a black premium field case. You may also choose the option of a long-term storage kit case for emergency response, large enough to hold the Sirius Multigas Detector, calibration cylinders, spare sensors, spare PID lamp and lithium-ion battery pack with charger, spare alkaline battery pack, lamp cleaning kit and simple-to-read and understand refresher instructions.	<b>Packaging</b> Standard shipping carton Standard black PVC case Premium black field case Long-term storage kit case Long-term storage kit basic (includes PID lamp and 4 replacement sensors)	<b>Code</b> 0 1 2 4 5	<b>Selection</b>
<b>O</b>	<b>PID LAMP CAP</b>	The standard easy-access lamp cap is included with your Sirius Multigas Detector at no extra charge. You may also choose a tamper-proof lamp cap.	<b>PID Lamp Cap</b> None Standard easy-access lamp cap Tamper-proof lamp cap	<b>Code</b> 0 S T	<b>Selection</b>

**Your Model Part Number:** Please transfer your option codes from the Selection boxes above into the appropriate boxes here and contact your Safety Products Distributor to place your order.

Selection    **A**    **B**    **C**    **D**    **E**    **F**    **G**    **H**    **I**    **J**    **K**    **L**    **M**    **N**    **O**

A-SIRIUS-



## ALTAIR 5X Multigas Detector Accessories

### Spare Parts/Replacements

Part No.	Description
10114835	Battery pack assembly, rechargeable
10114837	Battery pack, alkaline (includes belt clip)
10114839	Battery pack, rechargeable, IR
10094830	Kit, belt clip replacement
10083591	Filter cover assembly
10114949	Maintenance kit
10114950	Maintenance kit, Cl <sub>2</sub> , ClO <sub>2</sub> , NH <sub>3</sub>
474555	Shoulder strap
10050976	Retractable line with belt clip
10040586	Carrying case, Cordura, UL only
10099648	Holster, leather
10099397	Vehicle charger
10114853	Front housing with integrated filters
10127427	Multi-unit charger, 4-unit

### Calibration Accessories

Part No.	Description
710288	Demand Regulator Kit
10034391	Cl <sub>2</sub> /NH <sub>3</sub> /ClO <sub>2</sub> Demand Regulator Kit
10050985	Kit, case with Gas Miser® Regulator, demand flow RP (includes tubing and fitting, less gas)
10041225	Calibration tubing with quick-disconnect fitting
10045035	58L RP 60 ppm CO, 20 ppm H <sub>2</sub> S, 15% O <sub>2</sub> , 1.45% CH <sub>4</sub>
10103262	58L RP 60 ppm CO, 20 ppm H <sub>2</sub> S, 15% O <sub>2</sub> , 1.45% CH <sub>4</sub> , 2.5% CO <sub>2</sub>
10117738	58L RP 60 ppm CO, 20 ppm H <sub>2</sub> S, 15% O <sub>2</sub> , 1.45% CH <sub>4</sub> , 10 ppm SO <sub>2</sub>
10048280	34L Econo-Cal® Cylinder, 60 ppm CO, 20 ppm H <sub>2</sub> S, 15% O <sub>2</sub> , 1.45% CH <sub>4</sub>
10048789	34L Econo-Cal Cylinder, 60 ppm CO, 15% O <sub>2</sub> , 1.45% CH <sub>4</sub>
10098855	34L Econo-Cal Cylinder, 60 ppm CO, 20 ppm H <sub>2</sub> S, 15% O <sub>2</sub> , 1.45% CH <sub>4</sub> , 10 ppm SO <sub>2</sub>
711068	34L Econo-Cal Cylinder, 10 ppm NO, air balance

### Sampling Accessories

Part No.	Description
10040665	Sampling line with quick-disconnect, 10-ft polyurethane
10040664	Sampling line with quick-disconnect, 25-ft polyurethane
10049058	Sampling line with quick-disconnect, 10-ft teflon
10049057	Sampling line with quick-disconnect, 25-ft teflon
10040667	Sampling line with quick-disconnect, 3-ft polyurethane; coiled
10105210	Sampling line with quick-disconnect for reactive gases, 5-ft polyurethane coiled
10105251	Sampling line with quick-disconnect for reactive gases, 5-ft polyurethane straight
10105839	Sampling line with quick-disconnect for reactive gases, 10-ft teflon straight
10042621	Probe, 1-ft
10042622	Probe, 3-ft
801582	Filter, water stop, pack of 10
10153041	Hand probe
10161755	Quick connector, hand probe
10153217	Tubing, hand probe, 5-ft
10153218	Tubing, hand probe, 10-ft
10153219	Tubing, hand probe, 15-ft

### Replacement Sensors

Part No.	Description
10106722	Kit, XCell Ex Combustible Sensor
10106729	Kit, XCell O <sub>2</sub> Sensor
10106725	Kit, XCell CO/H <sub>2</sub> S Two-tox Sensor
10121213	Kit, XCell CO/H <sub>2</sub> S-LC Two-tox Sensor
10121214	Kit, XCell CO H <sub>2</sub> S-res H <sub>2</sub> S Two-tox Sensor
10121216	Kit, XCell CO-HC Sensor
10121217	Kit, XCell NO <sub>2</sub> /CO Two-tox Sensor
10106375	Kit, replacement, HCN
10106728	Kit, XCell Cl <sub>2</sub> Sensor replacement
10080222	Kit, replacement, ClO <sub>2</sub> Sensor
10106727	Kit, XCell SO <sub>2</sub> Sensor replacement
10080224	Kit, replacement, NO <sub>2</sub> Sensor
10106726	Kit, XCell NH <sub>3</sub> Sensor replacement
10116638	Kit, replacement, PH <sub>3</sub> Sensor
10114750	Kit, replacement, NO Sensor
10105650	XCell Sensor Plug
10088192	Sensor Plug, oxygen and toxics 20 mm

## ALTAIR 4X Multigas Detector Accessories

### Calibration Accessories

Part No.	Description
467895	Regulator 0.25 lpm Model RP
10089321	Calibration assembly (cap, tube, connector)
10048280	34L Quad gas mix (1.45% CH <sub>4</sub> , 15% O <sub>2</sub> , 60 ppm CO, 20 ppm H <sub>2</sub> S)
10045035	58L Quad gas mix (1.45% CH <sub>4</sub> , 15% O <sub>2</sub> , 60 ppm CO, 20 ppm H <sub>2</sub> S)

### Power Supply

Part No.	Description
10086639	Charging cradle components
10087913	North American power supply
10092233	Charging cradle assembly
10095774	Vehicle charger
10127422	4-Unit multi-unit charger NA plug

### Accessories

Part No.	Description
10069894	Stainless steel suspender clip
10152669	ALTAIR Pump Probe NA w/ Charger
10088099	MSA Link™ Software CD-ROM
10082834	JetEye IR Adapter with USB connector
10050333	Hand aspirator assembly

### Sampling Lines

Part No.	Description
10053795	5-foot polyurethane
10153103	10-foot polyurethane
10153104	25-foot polyurethane
10153105	50-foot polyurethane

### Sensors/Spare Parts

Part No.	Description
10106722	Kit, XCell Ex combustible Sensor
10106729	Kit, XCell O <sub>2</sub> Sensor
10106725	Kit, XCell CO/H <sub>2</sub> S Two-tox Sensor
10121213	Kit, XCell CO/H <sub>2</sub> S-LC Two-tox Sensor
10121217	Kit, XCell CO/NO <sub>2</sub> Two-tox Sensor
10121214	Kit, XCell CO H <sub>2</sub> -RES/H <sub>2</sub> S Two-tox Sensor
10121215	Kit, XCell SO <sub>2</sub> /H <sub>2</sub> S-LC Two-tox Sensor
10110030	Front housing with integrated dust filters (Charcoal)
10110029	Front housing with integrated dust filters (Glow-in-the-dark)
10106621	Main board with battery pack
10110061	LCD frame assembly (frame, LCD, zebra strips, screws)
10110062	Sensors gasket, Phillips screws (4x), self-tapping (2x)
10106623	CD manual, ALTAIR 4X Multigas Detector



## Sirius Multigas Detector Accessories

BATTERY PACKS	10050347	Standard Rechargeable lithium-ion Battery Pack
	10052512	lithium-ion Battery Charger, consists of power supply and charge adapter
	10049412	Replaceable Alkaline Battery Pack
	10049098	Replaceable Alkaline Battery Pack less door
	10052513	Vehicle Charger (includes charge adapter)
SAMPLING ACCESSORIES	10040665	Sampling Line with Quick-Connect, 10-foot polyurethane
	10040664	Sampling Line with Quick-Connect, 25-foot polyurethane
	10049058	Sampling Line with Quick-Connect, 10-foot teflon
	10049057	Sampling Line with Quick-Connect, 25-foot teflon
	10040667	Sampling Line with Quick-Connect, 3-foot polyurethane coiled
	10042621	Probe, 1-foot
	10042622	Probe, 3-foot
PROTECTIVE JACKETS, BOOTS AND CARRYING ATTACHMENTS	10052514	Black Rubber Boot (includes harness)
	10050122	Cordura Jacket (includes harness)
	474555	Shoulder Harness only
	10050976	Retractable Carrying Line with Belt Clip
	10051803	Wrist Harness
LONG-TERM STORAGE KIT	10051176	Includes 4-Gas PID, lithium-ion and Alkaline Battery Packs, Vehicle Charger, 10' sampling line w/1' probe, retractable carrying line w/belt clip, Cordura jacket and black boot, Econo-Cal kit, Data Link w/software, 4 replacement sensors and PID Lamp, lamp cleaning kit, standard lamp cover and case
REPLACEMENT LAMPS AND SENSORS	10049692	10.6 eV Lamp
	10051717	4 Sensor Kit (LEL, O <sub>2</sub> , CO, H <sub>2</sub> S)
	10049808	Combustible Sensor (both LEL and CH <sub>4</sub> )
	10049806	Oxygen Sensor
	10049804	Carbon Monoxide Sensor
	10049805	Hydrogen Sulfide Sensor
	10049807	Long-Term Storage Oxygen Sensor (hermetically sealed for 2-year storage)
ACCESSORIES	10047463	Disposable Ionization Chamber
	10049691	Lamp Cleaning Kit
	10049680	Filter Replacement Kit with O-rings and replacement dust filters
	10050841	Standard Lamp Cover
	10050750	Tamper-Proof Lamp Cover
	636913	Sirius Multigas Detector Screwdriver
	10054667	Sirius Multigas Detector Instructional CD
	10050856	Sirius Multigas Detector Instructional Video
	10048887	Instruction Manual
CARRYING CASES	710948	Standard Black Plastic Case
	10052515	Premium Black Field Case w/foam insert
	10020541	Standard Red Plastic Case
	10051539	Long-Term Storage Kit Case with labeled foam insert

## Solaris MSHA Multigas Detector Accessories

SENSORS	10046944	Replacement CO Sensor
	10046945	Replacement H <sub>2</sub> S Sensor
	10059040	Replacement NO <sub>2</sub> Sensor
	10046946	Replacement O <sub>2</sub> Sensor
	10046947	Replacement Combustible Sensor
	10049406	4 Sensor replacement kit (CO, H <sub>2</sub> S, O <sub>2</sub> , Comb)
	10059039	4 Sensor replacement kit (NO <sub>2</sub> , CO, O <sub>2</sub> , Comb)
CARRYING CASES	10049053	Cordura Jacket (Orange)
	10054586	Cordura Jacket (Black w/velcro jacket)
	10064766	Leather Case
REPLACEMENT PARTS	10044994	Calibration Cap
	637266	Calibration cap fitting
	10046042	Horn Chamber Protective Insert
	10068059	Horn Cap Repair Kit
	10066049	Suspender stainless steel attachment clip
SAMPLING ACCESSORIES	10047595	Universal Pump Probe, MSHA Approval
	10050333	Solaris Aspirator Assembly
	10059116	Metal fitting for universal pump probe
SAMPLE LINE	10053795	5-foot polyurethane
	10053794	10-foot polyurethane
	10047370	25-foot polyurethane
	10047349	50-foot polyurethane
DATALOGGING	10082834	USB Infrared reader
	10088099	MSA Link Datalogging Software CD
POWER SUPPLY	10048185	Charger Cradle Assembly
	10047342	North American Power Supply
	10049410	Vehicle Charger
	10069498	Multi-unit Power Supply
	10069856	Multi-unit Charge Station (no cradles)
	10069857	Multi-unit Charge Station (with cradles)
CALIBRATION ACCESSORIES	10044995	Calibration cap assembly
	467895	Regulator 0.25 lpm Model RP
	10047392	Metal fitting for calibration



## ALTAIR 2X Gas Detector



Introducing the ALTAIR 2X Gas Detector from MSA; the first one- or two-gas detector that incorporates industry-leading XCell Sensor technology to deliver unparalleled performance while dramatically minimizing total cost of ownership, increasing durability and delivering enhanced worker safety, compliance and traceability.

### ALTAIR 2XP Gas Detector – with XCell Pulse Technology

#### Compliance, Traceability and Simplicity without Compromising Safety



##### Don't Leave Safety to Chance!

- The industry best practice of conducting a bump test prior to each day's use is easily achieved with the ALTAIR 2XP. Bump anywhere, any time, without bottled gas or accessories.
- Visual indicators on the detector make verification of bump test easy
- Highly visible green light verifies successful bump test (green light, check mark)
- Flashes red when not bumped
- The ALTAIR 2X family of detectors have full instrument traceability of bump and calibration records, peak readings, event logs and data logs.

*Increase your safety compliance and promote worker confidence.*

### ALTAIR 2XT – Two-Tox Gas Detector

The ALTAIR 2XT Detector eliminates the need for a second detector by utilizing proven XCell Two-Tox Sensors. XCell Two-Tox Sensors detect two gases on distinct sensor channels with digital output that minimizes cross-channel interference.

### ALTAIR 2X – Single-Gas Detector

MSA revolutionized gas detection with XCell Sensor technology. By miniaturizing the sensors' controlling electronics and placing them inside the sensor itself using MSA's proprietary application-specific integrated circuit (ASIC) design, MSA XCell Sensors offer superior stability, accuracy, and sensor life.



ALTAIR 2X – charcoal



ALTAIR 2XT – glow-in-the-dark

Features	Benefits
VARIETY OF OPTIONS	<ul style="list-style-type: none"> <li>• ALTAIR 2X single-gas detectors with XCell sensors</li> <li>• ALTAIR 2XP single-gas detector with XCell pulse technology for gas-free bump testing</li> <li>• ALTAIR 2XT Two-tox gas detectors with XCell Two-tox sensors</li> </ul>
LOW COST OF OWNERSHIP	<ul style="list-style-type: none"> <li>• Fastest sensor response times, lowest calibration gas flow rate on the market</li> <li>• 4-year expected instrument &amp; sensor life</li> <li>• 3-year warranty on instrument &amp; most sensors (2 years on Cl<sub>2</sub>, NH<sub>3</sub>)</li> <li>• Stand-alone bump tests reduce maintenance, increase productivity (ALTAIR 2XP Detector only)</li> <li>• 1 device can monitor 2 gases (ALTAIR 2XT Detector only)</li> </ul>
INCREASED SAFETY AWARENESS & REAL-TIME COMPLIANCE	<ul style="list-style-type: none"> <li>• Stand-alone bump test anytime, anywhere without bottled calibration gas (ALTAIR 2XP Detector only)</li> <li>• Bump PASS: Green LED flash every 15 seconds, large on-screen checkmark for real-time compliance</li> <li>• Bump FAIL: Red LED flash every 15 seconds, no checkmark</li> <li>• End-of-sensor-life warning and alarm</li> </ul>
FULL-TIME TRACEABILITY	<ul style="list-style-type: none"> <li>• Records 75 alarm events and over 100 hours of periodic data, including bump and calibration records</li> <li>• Compatible with MSA GALAXY® GX2 Automated Test System and MSA Link Pro software</li> </ul>
RUGGED DURABILITY	<ul style="list-style-type: none"> <li>• Tough over-molded rubber armor</li> <li>• Survives multiple 25-ft drops onto concrete</li> <li>• Agency-certified dust- and water-tight IP67 and intrinsically-safe construction</li> </ul>
EASY TO USE	<ul style="list-style-type: none"> <li>• 1-button, gloved hand operation</li> <li>• Large LCD, characters, and status icons</li> <li>• Onscreen step-by-step user instructions for stand-alone bump test (ALTAIR 2XP Detector only)</li> <li>• 10-second backlight with adjustable timeout</li> </ul>

### Lower Total Cost of Ownership

MSA's industry leading technology combined with product durability means that ALTAIR 2X Gas Detectors provide a lower total cost of ownership than competitive instruments and will pay for itself quickly.

### Built Tough

Like all MSA detectors, ALTAIR 2X is built for durability and designed for the tough everyday tasks.

- Withstands extreme impacts with rugged polycarbonate housing and passes 25-foot drop test
- IP 67-rated ALTAIR 2X is both dust-tight and water-tight
- Minimal RF interference
- Full three-year warranty supports the entire instrument, including the sensors

### Reduced Costs and Expense

- XCell Sensor response and recovery time reduces the gas consumption for calibration and gas bump tests (where applicable).
- The ALTAIR 2XP with XCell Pulse Technology reduces the need for specific calibration gas and bump test accessories to provide significant savings!
- The ALTAIR 2XT Two-Tox eliminates the need for a second instrument in several applications.

### Increased Productivity

- Skip the gas line! The stand-alone bump test on the ALTAIR 2XP means that you will be spending more time doing the job and less time waiting in line or conducting bump tests. Spending less time at the bump station means less down time and more time producing!
- Faster bump tests, easy compliance and product reliability means you can get to work faster and safer!

### Glow-in-the-Dark Version

- For low-light applications
- Easier fleet management of multiple detector settings

### Stored Instrument Records

- Records can be easily downloaded during periodic gas calibrations using the Galaxy GX2 Automated Test System.
- MSA Link Pro Software provides full networking, traceability, proactive safety, compliance, and reporting.



ALTAIR 2XP GAS DETECTORS WITH XCELL PULSE TECHNOLOGY	10153984	H <sub>2</sub> S-Pulse (10,15), charcoal
	10154188	H <sub>2</sub> S-Pulse (10,15), glow-in-the-dark
ALTAIR 2XT TWO-TOX GAS DETECTORS	10154071	CO-H <sub>2</sub> /H <sub>2</sub> S (CO: 25, 100; H <sub>2</sub> S: 10, 15), charcoal
	10154072	CO/H <sub>2</sub> S-LC (CO: 25, 100; H <sub>2</sub> S: 5, 10), charcoal
	10154073	CO/NO <sub>2</sub> (CO: 25, 100; NO <sub>2</sub> : 2.5, 5), charcoal
	10153985	SO <sub>2</sub> /H <sub>2</sub> S-LC (SO <sub>2</sub> : 2, 5; H <sub>2</sub> S: 10, 15), charcoal
	10154181	CO/H <sub>2</sub> S (CO: 25, 100; H <sub>2</sub> S: 10, 15), glow-in-the-dark
	10154182	CO-H <sub>2</sub> /H <sub>2</sub> S (CO: 25, 100; H <sub>2</sub> S: 10, 15), glow-in-the-dark
	10154183	CO/H <sub>2</sub> S-LC (CO: 25, 100; H <sub>2</sub> S: 5, 10), glow-in-the-dark
	10154184	CO/NO <sub>2</sub> (CO: 25, 100; NO <sub>2</sub> : 2.5, 5), glow-in-the-dark
	10154190	SO <sub>2</sub> /H <sub>2</sub> S-LC (SO <sub>2</sub> : 2, 5; H <sub>2</sub> S: 10, 15), glow-in-the-dark

ALTAIR 2X SINGLE GAS DETECTORS	10153986	CO (25, 100), charcoal
	10154074	CO-H <sub>2</sub> (25, 100), charcoal
	10154075	CO-HC (25, 100), charcoal
	10154076	H <sub>2</sub> S-LC (5, 10), charcoal
	10162042	H <sub>2</sub> S (10, 15), charcoal
	10154077	SO <sub>2</sub> (2, 5), charcoal
	10154078	NO <sub>2</sub> (2.5, 5), charcoal
	10154079	NH <sub>3</sub> (25, 50), charcoal
	10154080	Cl <sub>2</sub> (0.5, 1), charcoal
	10154185	CO (25, 100), glow-in-the-dark
	10154186	CO-H <sub>2</sub> (25, 100), glow-in-the-dark
	10154187	CO-HC (25, 100), glow-in-the-dark
	10154189	H <sub>2</sub> S-LC (5, 10), glow-in-the-dark
	10162043	H <sub>2</sub> S (10, 15), glow-in-the-dark
	10154191	SO <sub>2</sub> (2, 5), glow-in-the-dark
	10154192	NO <sub>2</sub> (2.5, 5), glow-in-the-dark

### ALTAIR Pro Single-Gas Detector



ALTAIR Pro family of gas detectors

Based on the industry-standard ALTAIR Single-Gas Detector—but with added features and functionality—ALTAIR Pro toxic gas and oxygen detectors combine reliable detection and LED/audible/flashing/vibrating alarms with clear, backlit LCD displays. Electrochemical sensors measure concentrations of toxic gas (ammonia, carbon monoxide, chlorine, chlorine dioxide, hydrogen cyanide, hydrogen sulfide, nitrogen dioxide, phosphine and sulfur dioxide) or percent oxygen. Purpose-built for superior dust and water protection, excellent impact resistance and excellent RFI performance.

- Gas concentration ( $\text{NH}_3$ ,  $\text{CO}$ ,  $\text{Cl}_2$ ,  $\text{ClO}_2$ ,  $\text{HCN}$ ,  $\text{H}_2\text{S}$ ,  $\text{NO}_2$ ,  $\text{PH}_3$  and  $\text{SO}_2$ ) or percent oxygen displayed on a large, clear, backlit LCD
- Automatically records the last 50 alarm/test events while simultaneously recording peak gas readings or low  $\text{O}_2$  readings every three minutes in a periodic data log
- User can read data or change alarm set points by connecting unit to MSA Link Software via built-in IR communication port
- Adjustable alarm set-points
- No-miss quad-alarm system includes bright flashing LEDs, piercing audible alarm, LCD notification, and an internal vibrating alarm
- Rubberized armor housing and one-button operation for maximum durability and simplicity
- Easy alarm check, bump check, fresh-air zero, and calibration
- Easily replaceable batteries and sensors

		Instrument Type	Low Alarm	High Alarm	STEL	TWA
ALTAIR PRO SINGLE-GAS DETECTORS	10074137	Oxygen (O <sub>2</sub> )	19.50%	23.00%	N/A	N/A
	10074135	Carbon Monoxide (CO)	25 PPM	100 PPM	100 PPM	25 PPM
	10076723	Carbon Monoxide (CO) Fire	25 PPM	100 PPM	100 PPM	25 PPM
	10076724	Carbon Monoxide (CO) Steel	75 PPM	200 PPM	200 PPM	75 PPM
	10074136	Hydrogen Sulfide (H <sub>2</sub> S)	10 PPM	15 PPM	15 PPM	10 PPM
	10076729	Hydrogen Cyanide (HCN)	4.5 PPM	10 PPM	10 PPM	4.7 PPM
	10076716	Chlorine (Cl <sub>2</sub> )	0.5 PPM	1.0 PPM	1.0 PPM	0.5 PPM
	10076717	Chlorine Dioxide (ClO <sub>2</sub> )	0.1 PPM	0.3 PPM	0.3 PPM	0.1 PPM
	10076736	Sulfur Dioxide (SO <sub>2</sub> )	2.0 PPM	5.0 PPM	5.0 PPM	2.0 PPM
	10076731	Nitrogen Dioxide (NO <sub>2</sub> )	2.0 PPM	5.0 PPM	5.0 PPM	2.0 PPM
	10076730	Ammonia (NH <sub>3</sub> )	25 PPM	50 PPM	35 PPM	25 PPM
	10076735	Phosphine (PH <sub>3</sub> )	0.3 PPM	1.0 PPM	1.0 PPM	0.3 PPM
	10076733	Oxygen Remote (O <sub>2</sub> -R)	19.50%	23.00%	N/A	N/A
ALTAIR PRO SINGLE-GAS DETECTORS  <i>Alternate Set Point Models</i>	10076732	Oxygen (O <sub>2</sub> )	18.00%	19.50%	N/A	N/A
	10076718	Carbon Monoxide (CO)	30 PPM	60 PPM	60 PPM	30 PPM
	10076719	Carbon Monoxide (CO)	35 PPM	100 PPM	100 PPM	35 PPM
	10076720	Carbon Monoxide (CO)	35 PPM	400 PPM	400 PPM	35 PPM
	10076721	Carbon Monoxide (CO)	50 PPM	200 PPM	200 PPM	50 PPM
	10076722	Carbon Monoxide (CO)	100 PPM	300 PPM	300 PPM	100 PPM
	10080532	Carbon Monoxide (CO) Steel	75 PPM	200 PPM	200 PPM	35 PPM
	10076728	Hydrogen Sulfide (H <sub>2</sub> S)	10 PPM	20 PPM	20 PPM	10 PPM
	10076725	Hydrogen Sulfide (H <sub>2</sub> S)	5 PPM	10 PPM	10 PPM	5 PPM
	10076727	Hydrogen Sulfide (H <sub>2</sub> S)	8 PPM	12 PPM	12 PPM	8 PPM
	10076726	Hydrogen Sulfide (H <sub>2</sub> S)	7 PPM	14 PPM	14 PPM	7 PPM

ACCESSORIES AND PARTS	467895	Regulator, 0.25 lpm
	10030325	Tubing, 16" (do not use with NH <sub>3</sub> , Cl <sub>2</sub> , and ClO <sub>2</sub> )
	10080534	Tubing, 16" Teflon-lined (NH <sub>3</sub> , Cl <sub>2</sub> , and ClO <sub>2</sub> )
	10074132	3V CR2 battery
	10069894	Clip, stainless steel
	10041105	Cell phone clip
	10041107	Lanyard clip
	10073346	Hardhat clip
	10040002	Clip, suspender (standard)
	10082834	JetEye IR USB adapter
	10088099	MSA Link software CD-ROM



## ALTAIR Maintenance-Free Single-Gas Detector

- Sensor options for CO, H<sub>2</sub>S, and O<sub>2</sub>
- Patented electrochemical sensors and MSA-built button sensors operate for over two years
- Stainless steel and solid electrolyte construction virtually eliminate sensor leakage
- Automatically records the last 25 alarm/test events and can communicate data by connecting to MSA Link via built-in IR communication port
- No-miss triple alarm system includes bright flashing LEDs, piercing audible alarm, and an internal vibrating alarm
- Rubberized armor housing and one-button operation for maximum durability and simplicity
- Superior dust/water protection
- High RFI resistance

		Instrument Type	First Alarm	Second Alarm
ALTAIR SINGLE-GAS DETECTORS	10092522	Carbon Monoxide (CO)	25 PPM	100 PPM
	10092521	Hydrogen Sulfide (H <sub>2</sub> S)	10 PPM	15 PPM
	10092523	Oxygen (O <sub>2</sub> )	19.5% VOL	23% VOL
ALTAIR SINGLE-GAS DETECTORS <i>Alternate Set Point Models</i>	10071334	Carbon Monoxide (CO)	30 PPM	60 PPM
	10071335	Carbon Monoxide (CO)	35 PPM	100 PPM
	10071336	Carbon Monoxide (CO)	35 PPM	400 PPM
	10071337	Carbon Monoxide (CO)	50 PPM	200 PPM
	10071338	Carbon Monoxide (CO)	100 PPM	300 PPM
	10071340	Hydrogen Sulfide (H <sub>2</sub> S)	10 PPM	20 PPM
	10071361	Hydrogen Sulfide (H <sub>2</sub> S)	5 PPM	10 PPM
	10071362	Hydrogen Sulfide (H <sub>2</sub> S)	8 PPM	12 PPM
	10071363	Hydrogen Sulfide (H <sub>2</sub> S)	7 PPM	14 PPM
	10071364	Oxygen (O <sub>2</sub> )	19.5% VOL	18% VOL

ACCESSORIES AND PARTS	710882	Cylinder, 60 ppm CO
	473180	Cylinder, 300 ppm CO
	467897	Cylinder, 40 ppm H <sub>2</sub> S, RP
	711062	Cylinder, 40 ppm H <sub>2</sub> S, Econo-Cal
	467895	Regulator, 0.25 lpm
	10040002	Clip, suspender (standard)
	10069894	Clip, stainless steel
	10041105	Cell phone clip
	10041107	Lanyard kit
	710946	FiveStar® Link® with IR (for event log)
	10030325	Tubing, 16"
	10073346	Hardhat clip



## ALTAIR Quick-Check Station

- Station administers a bump test and uses a microphone and electronic check to ensure a detector is ready for action
- Station is compatible with all 3 ALTAIR Detector versions (CO, H<sub>2</sub>S and O<sub>2</sub>) and with ALTAIR Pro O<sub>2</sub>, H<sub>2</sub>S, CO, CO Fire and CO Steel detectors
- Station comes in manual and automatic versions
- Easy-to-see LEDs give simple-to-understand test results

ALTAIR QUICK-CHECK STATION  <i>with Manual Regulator</i>	10076692	Gas Type: O <sub>2</sub> /CO/H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub>
	10076701	Gas Type: Cl <sub>2</sub> /ClO <sub>2</sub>
	10076695	Gas Type: NH <sub>3</sub>
	10076698	Gas Type: HCN
ALTAIR QUICK-CHECK STATION  <i>with Automatic Regulator</i>	10076704	Gas Type: O <sub>2</sub> /CO/H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub>
	10076713	Gas Type: Cl <sub>2</sub> /ClO <sub>2</sub>
	10076707	Gas Type: NH <sub>3</sub>
	10076710	Gas Type: HCN
REPLACEMENT AND ACCESSORY PARTS	10047342	North American Power Supply
	10049410	Vehicle Power Supply
	10077384	Regulator Tubing
	10077385	Front Housing Assembly
	10075893	Automatic Gas Regulator
	467895	Manual Regulator
	710386	Single Cylinder Holder



**HAZMATCAD® and HAZMATCAD® Plus Chemical Agent Detectors**

The clear choices for initial assessment of chemical warfare agent or toxic industrial spill, the HAZMATCAD and HAZMATCAD Plus Chemical Agent Detectors detect both chemical warfare agents and selected toxic industrial chemicals (TICs). Ruggedly constructed, compact and lightweight, each is designed for ease of use and requires no prior training.

- HAZMATCAD utilizes Surface Acoustic Wave (SAW) microsensors
- HAZMATCAD Plus utilizes both SAW technology and electromechanical cells
- Single-key automatic sampling and analysis
- Alphanumeric system display with both audible and LED alarms
- Operates 8–12 hours using lithium-ion rechargeable batteries
- Rapid warm-up with self-diagnostic check
- RS 232 and IrDA communication ports store up to eight hours of data
- Includes battery charger, belt clip, two long-life lithium-ion rechargeable batteries, waterproof carrying case, vapor check source and operating manual



**HAZMATCAD Detector Kits**

Kits include: HAZMATCAD Detector battery charger; belt clip; two Sony rechargeable batteries; hard, water-resistant carrying case; operating manual; vapor check source.

HAZMATCAD DETECTOR KITS	10055094	HAZMATCAD Detector	<i>Chemical Agents Detected:</i> Nerve and Blister
	10055095	HAZMATCAD Detector	<i>Chemical Agents Detected:</i> Nerve, Blister and Hydrogen Cyanide
	10055096	HAZMATCAD Detector	<i>Chemical Agents Detected:</i> Nerve, Blister and Phosgene
	10055097	HAZMATCAD Plus Detector	<i>Chemical Agents Detected:</i> Nerve and Blister agents and TICs (phosgene, hydrogen cyanide, halogen and hydride gas)

## SAFESITE® Multi-Threat Detection System



### SAFESITE Multi-Threat Detectors

Monitor, detect and alert to potential threats with these advanced detection systems. Provides critical information and data for rapid decision-making in the face of chemical, gas, radiation and other hazard-inducing conditions. Flexible, scalable and customizable, these detection systems offer superior preventive and countermeasure solutions for first responders, law enforcement, government agencies and more.

- State-of-the-art, 24/7 threat detection and advanced communication capabilities
- Detects a variety of threats, including chemical warfare agents, gamma radiation, volatile organic compounds, combustible gas and more
- Ideal for numerous applications, including homeland security, emergency response, public events, mass transportation and perimeter monitoring
- Multiple-system integration and management
- Wired or wireless network access
- Delivers precise results with fewer false positives

### SAFECONNECT Belt-Bridge with Sirius Wireless Interface

For thorough gas detection and seamless communication in emergency situations, the SAFECONNECT Belt-Bridge with Sirius Wireless Interface provides excellent results. Used in conjunction with a Sirius Multigas Detector, the belt-bridge allows users to transmit data from a remote location to a SafeCOM Command Center. The work begins with the Sirius Multigas Detector, which features PID and detection for CO, H<sub>2</sub>S, O<sub>2</sub> and combustible gases. The detector sends its data to the user's belt-bridge via Bluetooth technology. The belt-bridge then converts the signal and transmits the data—plus the user's GPS location—to a SAFECOM command center via a one-watt, spread spectrum, frequency hopping 900 MHz radio for up-to-the-moment results when seconds count.

- Belt-Bridge converts data from Sirius Multigas Detector and transmits to SAFECOM Command Center up to two miles away
- Belt-Bridge uses a one-watt, spread spectrum, frequency hopping 900 MHz radio to ensure results are received
- GPS tracking provides real-time updating

Threat	Technology	Benefit
CHEMICAL WARFARE AGENTS	Surface acoustic wave (SAW)	Low false positives and false alarms, differentiates nerve and blister agents
GAMMA RADIATION	Cadmium zinc telluride (CZT)	Sensitive with adjustable threshold and 2 ranges. (0-100 mR/hr, 0.1 mR/hr resolution and 0-1000 mR/hr, 1 mR/hr resolution)
VOLATILE ORGANIC COMPOUNDS	Photo-ionization (PID)	10.6 eV lamp provides ppm readings for broadband toxics and VOC detection
TOXIC INDUSTRIAL CHEMICALS	Electrochemical	Detects many specific toxic gases such as chlorine, ammonia, hydrogen cyanide and hydrogen chloride
OXYGEN DEFICIENCY ENRICHMENT	Electrochemical	Oxygen monitoring for confined space
COMBUSTIBLE GAS	Catalytic bead	Wide range detection for hydrocarbons



## GALAXY® GX2 Automated Test System

The GALAXY GX2 Automated Test System provides simple and intelligent testing and calibration of MSA ALTAIR and ALTAIR PRO Single-Gas Detectors, as well as ALTAIR 4X and ALTAIR 5X Multigas Detectors, driven by the most advanced technology available in any portable gas detector: MSA XCell Sensors.

This easy-to-use automated test stand offers high performance as either a stand-alone unit or an integrated portable detector management system, enabling total data access and control of your MSA ALTAIR Gas Detector fleet.

Once any ALTAIR Family Gas Detector is placed within the GALAXY GX2 System, it can be tested, calibrated and charged automatically. Flexibility allows for up to 10 test stations, four cylinder holders and multi-unit charger within one GALAXY GX2 System detector bank.



- Color touchscreen for ease of setup and viewing; no touch operation is needed for calibration or bump test
- Visual indicators on GALAXY GX2 System and software
- RFID automated calibration gas setup, status alerts and traceability
- MSA Link Pro and MSA Link Software
- Global platform—many language options
- Significant cost of ownership reduction when used with MSA XCell Sensors
- Simultaneous testing of up to 10 gas detectors
- Securely configure gas detectors at the touch of a button
- MSA XCell Sensor Technology
- Your MSA ALTAIR Multigas Detectors are always ready for use

GALAXY GX2 SYSTEM TEST STAND/ 1 VALVE  for use with 1 calibration gas cylinder	10128644	ALTAIR / ALTAIR PRO / ALTAIR 2X Detectors, no-charging
	10128630	ALTAIR 4/4X Multigas Detector, charging
	10128642	ALTAIR 4/4X Multigas Detector, no-charging
	10128626	ALTAIR 5/5X Multigas Detector, charging
	10128628	ALTAIR 5/5X Multigas Detector, no-charging
GALAXY GX2 SYSTEM TEST STAND/ 4 VALVE  for use with 1–4 calibration gas cylinders	10128643	ALTAIR / ALTAIR PRO / ALTAIR 2X Detectors, no-charging
	10128629	ALTAIR 4/4X Multigas Detector, charging
	10128641	ALTAIR 4/4X Multigas Detector, no-charging
	10128625	ALTAIR 5/5X Multigas Detector, charging
	10128627	ALTAIR 5/5X Multigas Detector, no-charging
CALIBRATION GAS	10048280	Calibration gas cylinder (34L) 1.45% CH <sub>4</sub> , 15% O <sub>2</sub> , 60 ppm CO, 20 ppm H <sub>2</sub> S
	10045035	Calibration gas cylinder (58L) 1.45% CH <sub>4</sub> , 15% O <sub>2</sub> , 60 ppm CO, 20 ppm H <sub>2</sub> S
	10117738	Calibration gas cylinder (58L) 1.45% CH <sub>4</sub> , 15% O <sub>2</sub> , 60 ppm CO, 20 ppm H <sub>2</sub> S, 10 ppm SO <sub>2</sub>
	10098855	Calibration gas cylinder (34L) 1.45% CH <sub>4</sub> , 15% O <sub>2</sub> , 60 ppm CO, 20 ppm H <sub>2</sub> S, 10 ppm SO <sub>2</sub>
	10103262	Calibration gas cylinder (58L) 1.45% CH <sub>4</sub> , 15% O <sub>2</sub> , 60 ppm CO, 20 ppm H <sub>2</sub> S, 2.5% CO <sub>2</sub>
ACCESSORIES	10105756	Electronic cylinder holder
	10125135	Non-electronic cylinder holder
	10127111	4 GB SD card
	10123938	MSA Link Pro Software key
	10123937	Digital secure USB key
	10125907	End cap
	10127422	ALTAIR 4/4X Detector Multi-unit Charger, NA
	10127427	ALTAIR 5/5X Detector Multi-unit Charger, NA
	10127112	Laminated quick start guide
	10127518	12" (TBR) Ethernet cable for test stand to test stand connection
	10126657	DIN rail clip kit (2 clips & screws per kit)

ACCESSORIES	10062364	Type Omega DIN Rail 0.5m, perforated, steel, zinc-plated
	10062365	Type Omega DIN Rail 1m, perforated, steel, zinc-plated
	10062366	Type Omega DIN Rail 2m, perforated, steel, zinc-plated
	10082834	USB IR dongle (for use with MSA Link Software)
	10034391	Demand flow regulator (universal)
	710289	Large capacity (<3000 psi) demand regulator
	10124286	NA power supply (1 of 2)
	10127146	NA power cord (2 of 2)
	10126268	Vehicle power adapter
	10127808	Printer - detector or receipt sticker
	10126437	Detector sticker label roll
	10126138	Receipt & sticker label roll
	10145138	Printer ribbon

## Galaxy GX2 Assemble-To-Order (ATO) Options

To create your Galaxy GX2 Test System configuration, select the instrument option codes and mark them in the boxes to the right.

<b>A</b>	<b>TEST STAND INSTRUMENT TYPE</b>	Each instrument type has a dedicated GALAXY GX2 System test stand. 10 test stands can be banked together in any combination, allowing for ultimate flexibility.	<b>Test Stand Options</b> ALTAIR/ALTAIR Pro/ALTAIR 2X Detector ALTAIR 4/4X Detector ALTAIR 5/5X Detector	<b>Code</b> A B C	<b>Selection</b>
<b>B</b>	<b>ACTIVE CYLINDER PORTS</b>	Single valve test stands allow for only one calibration cylinder to be used. 2 valves allow for 1-2 calibration cylinders. 4 valves allow for 1-4 calibration cylinders to be accessed.	<b>Calibration Cylinder Options</b> 1 Valve / 1 Cylinder 2 Valves / Up to 2 Cylinders 4 Valves / Up to 4 Cylinders	<b>Code</b> 1 2 4	<b>Selection</b>
<b>C</b>	<b>INSTRUMENT CHARGING</b>	Instrument charging allows for a single instrument to be charged per test stand. Only available on ALTAIR 4/4X and ALTAIR 5/5X Multigas Detector test stands. Choose Yes/1 if you wish to use the "always ready" function of ALTAIR 4X or ALTAIR 5X Detectors.	<b>Test Stand Options</b> No Yes	<b>Code</b> 0 1	<b>Selection</b>
<b>D</b>	<b>SMART CYLINDER HOLDER</b>	Smart cylinder holder provides calibration gas information and gas levels. Information such as part number, gas types, concentrations, expiration date, lot number, and real time pressure levels are automatically set up in the test stand. Smart cylinder holder provides end users with automated, remote warnings as to low or no gas and expired or nearly expired cylinders.	<b>Smart Cylinder Holder Options</b> None 1 Cylinder Holder 2 Cylinder Holders 3 Cylinder Holders 4 Cylinder Holders	<b>Code</b> 0 1 2 3 4	<b>Selection</b>
<b>E</b>	<b>MULTI-UNIT CHARGER</b>	Selection of ALTAIR 4/4X Detector and multi-unit charger provides charging for 1-4 ALTAIR 4/4X Detectors. Selection of ALTAIR 5/5X Detectors and multi-unit charger provides charging for 1-4 ALTAIR 5/5X Detectors.	<b>Multi-unit Charger Options</b> None Multi-unit charger	<b>Code</b> 0 1	<b>Selection</b>
<b>F</b>	<b>POWER CORD</b>	Each test stand (with the exception of Argentina version) comes with 6V power supply. Power cord option then chooses the appropriate power cord by region. None provides power supply and no power cord. Argentina version provides no power supply and no power cord.	<b>Power Cord Options</b> North America Europe United Kingdom Australia Argentina None	<b>Code</b> N E U A R 0	<b>Selection</b>
<b>G</b>	<b>MSA LINK PRO SOFTWARE</b>	Proactively manage safety by addressing gas exposure information and missing or failed calibration and bump tests. End user receives software on digitally-keyed USB drive.	<b>MSA Link Pro Software Options</b> None 1 MSA Link Pro Software USB Key	<b>Code</b> 0 1	<b>Selection</b>
<b>H</b>	<b>SECURE DIGITAL USB</b>	Allows end user to securely configure instrument set points at GALAXY GX2 System test stand. Must be inserted to process any setting changes to an instrument.	<b>Secure Digital USB Options</b> None 1 Secure Digital USB Key	<b>Code</b> 0 A	<b>Selection</b>

Your Model Part Number

Please transfer your option codes from the Selection boxes above into the appropriate boxes here and contact your Safety Products Distributor to place your order.

Selection      A      B      C      D      E      F      G      H

A-GX2-          0

## MSA Calibration Cylinders

### Model RP and Model R Calibration Cylinders— Non-Reactive Gases, Steel Cylinder



#### Model RP Cylinder

- **Contents:** Pressure 1000 psig; approximately 100 liters at atmospheric pressure
- **Size:** 13-3/4" x 3"
- **Weight:** 2 lb 13 oz
- **Material:** Steel

### Model RP and Econo-Cal Calibration Cylinders— Reactive Gases, Aluminum Cylinders



#### Model RP Cylinder

- **Contents:** Pressure 500 psig; approximately 58 liters at atmospheric pressure
- **Size:** 3-1/2" dia. x 14-1/2" high
- **Weight:** 1 lb 11 oz
- **Material:** Aluminum

#### Econo-Cal Cylinder

- **Contents:** Pressure 500 psig; approximately 34 liters at atmospheric pressure
- **Size:** 2-3/4" dia. x 11-1/4" high
- **Weight:** 1 lb 1 oz
- **Material:** Aluminum

### Model RP Calibration Cylinder—Steel, 100% Methane



#### Model RP Cylinder

- **Contents:** Pressure 1000 psig; approximately 58 liters of pure methane with odorant added to smell like natural gas in all commercial gas lines
- **Size:** 8-1/2" x 3"
- **Weight:** 1 lb 13 oz
- **Material:** Steel

### Model BD-20 Calibration Cylinders—Steel



#### Model BD-20 Cylinder

- **Contents:** Pressure 2200 psig; approximately 552 liters (20 cu ft) of gas at atmospheric pressure
- **Size:** 25" x 4-1/4"
- **Weight:** 1 lb 9 oz
- **Material:** Steel

## MSA Calibration Cylinders

Model RP Check Kits include regulator with cylinder pressure gauge, adapter hose, sensor adapter (where applicable), instructions, and two-cylinder case. Model RP Kit steel calibration gas cylinders measure approximately 14¼" high, 3½" in diameter, or aluminum container 13¼" high, 3" in diameter. Depending upon individual pressure requirements, cylinders contain 58 to 100 liters of specified gas mixture.

P/N	Description
477149	Calibration Check Kit, Model RP, with 0.25 lpm regulator, includes:
467895	Regulator (0.25 lpm)
24194	Tubing, 30" (without sampling line connection)
10089321	Calibration Cap: ALTAIR 4/4X
635833	Fitting, Quick Disconnect
628474	Zero plug for MSA electrochemical sensors
465898	Fitting, Quick Disconnect., Internal, 3/16 Barb

NON-REACTIVE GASES					
Gas Type	Concentration	34L	58L	100L	116L
AIR (ZERO GAS)	THC < 1 ppm	–	–	801050	10150608
CARBON DIOXIDE (CO <sub>2</sub> )	2.5%	–	–	479265	–
CARBON DIOXIDE (CO <sub>2</sub> )	1.5%	–	–	807386	–
CARBON DIOXIDE (CO <sub>2</sub> )	10.00%	–	801050	–	–
CARBON MONOXIDE (CO)	300 ppm	–	–	473180	–
CARBON MONOXIDE (CO)	60 ppm	–	–	–	10150609
CARBON MONOXIDE (CO)	50 ppm	–	–	809241	–
ISOBUTYLENE	100 ppm	–	–	494450	–
OXYGEN (O <sub>2</sub> )	20.80%	–	–	–	10150610
METHANE	50%	–	10075804	–	–
METHANE (W/ODORANT)	100%	–	711014	–	–

REACTIVE GASES				
Gas Type	Concentration	34L	58L	116L
AMMONIA (NH <sub>3</sub> )	25 ppm	711078	814866	10150611
CHLORINE (CL <sub>2</sub> )	10 ppm	711066	806740	10150612
	2 ppm	711082	710331	10150613
HYDROGEN CHLORIDE (HCL)	40 ppm	711080	710210	–
HYDROGEN CYANIDE (HCN)	10 ppm	711072	809351	10150614
HYDROGEN SULFIDE (H <sub>2</sub> S)	40 ppm	711062	467897	10150616
	20 ppm	10153844	10153845	10153846
	15 ppm	711064	806253	–
	10 ppm	711060	467898	–
	5 ppm	711086	710414	–
NITRIC OXIDE (NO)	50 ppm	711074	812144	10150617
NITROGEN DIOXIDE (NO <sub>2</sub> )	10 ppm	711068	808977	10150599
	5 ppm	711084	710332	–
SULFUR DIOXIDE (SO <sub>2</sub> )	10 ppm	711070	808978	10150600
PHOSPHINE (PH <sub>3</sub> )	0.5 ppm	711088	710553	10151016
ISOBUTYLENE	100 ppm	10048279	10028038	–



## MSA Calibration Cylinders

MULTIGAS ("COCKTAIL MIXES") TABLE									
REACTIVE GASES									
COMB Gas	CO	O <sub>2</sub>	H <sub>2</sub> S	NO <sub>2</sub>	SO <sub>2</sub>	CO <sub>2</sub>	34L	58L	116L
1.45% METHANE AS PENTANE SIMULANT	60 ppm	15%	20 ppm	–	–	–	10048280	10045035	10150595
1.45% METHANE AS PENTANE SIMULANT	60 ppm	15%	20 ppm	–	10 ppm	–	10098855	10117737	10150622
1.45% METHANE AS PENTANE SIMULANT	60 ppm	15%	–	10 ppm	–	–	10058036	10058034	10150597
1.45% METHANE AS PENTANE SIMULANT	60 ppm	15%	20 ppm	–	–	2.50%	10104621	10103262	10150606
1.45% METHANE AS PENTANE SIMULANT	300 ppm	15%	10 ppm	–	–	–	711058	804770	–
2.5% METHANE	60 ppm	15%	20 ppm	–	–	–	10048981	10048890	10150596
2.5% METHANE	60 ppm	15%	–	10 ppm	–	–	10058172	10058171	10150598
2.5% METHANE	300 ppm	15%	10 ppm	–	–	–	711076	813720	–
NON-REACTIVE GASES									
COMB Gas	CO	O <sub>2</sub>	34L	58L	116L	100L			
1.45% METHANE AS PENTANE SIMULANT	60 ppm	15%	10048789	478191	–	–			
2.5% METHANE	60 ppm	15%	10049056	813718	–	–			
1.45% METHANE AS PENTANE SIMULANT	300 ppm	15%	–	–	–	10010162			
1.45% METHANE AS PENTANE SIMULANT	–	15%	–	–	–	478192			
ALTAIR 2X DETECTOR									
H <sub>2</sub> S	SO <sub>2</sub>	CO	NO <sub>2</sub>	34L	58L	116L			
20 ppm	–	–	–	10153844	10153845	10153846			
20 ppm	10 ppm	–	–	10153808	10153807	10153808			
20 ppm	–	60 ppm	–	10153800	10153801	10153802			
–	–	60 ppm	10 ppm	10153803	10153804	10153805			

REGULATORS							
GAS MISER® DEMAND REGULATOR			FIXED FLOW REGULATORS				COMBINATION REGULATOR
Model RP	BD-20	BD-20	Model RP		Model R		Model RP
	CGA 330	CGA 590	0.25 lpm	1.5 lpm	0.25 lpm	0.5 lpm	0.25 lpm
10034391	10148159	710289	467895	467896	459949	459948	711175
	Up to 3000 psi cylinders	Up to 3000 psi cylinders	–	–	–	–	–
Can be used with all reactive gases (replaces 710288)	CGA 330 is standard fitting for H <sub>2</sub> S containing mixtures	CGA 590 is standard fitting for non-H <sub>2</sub> S mixtures	–	–	–	–	Easily converts 34, 58, 116, or 100L into "squirt" bottle; provides stable gas concentration

**Model RP** – Regulator threads onto into 34, 58 and 116L aluminum bottles and 100L steel bottles; limited to 1000 psi

**Model BD** – Regulator attaches directly onto cylinder containing up to 3000 psi gas pressure

**Model R** – Regulator fits 19L steel cylinder (red or blue); often contains combustible gas mixture

## Calibration Cylinders Are Recyclable!

MSA has affiliated with the Association of Retarded Citizens, Butler County—a nonprofit organization that employs mentally retarded citizens—and established a Cylinder Recycling Center. The calibration cylinders are not refilled, but salvaged for scrap. All money generated from selling the scrap cylinders is placed in the ARC operating fund for salaries and operating costs.

Calibration cylinders are considered hazardous unless the cylinders are empty. MSA has developed special devalving tools that will ensure the cylinder is empty and render the cylinder non-fillable. For your convenience, MSA also offers a specially pre-addressed shipping box (also recyclable) which helps you pay the lowest shipping costs available.

The MSA Recycling Center limits the return of calibration cylinders to MSA-logoed cylinders only. Non-MSA cylinders will be rejected. Contact the Customer Service Center for additional details at 1-800-MSA-2222.



### DEVALVING TOOLS

Model RP	Model R	Return Box
711228	711229	711227





## Head, Eye, Face, and Hearing **Protection**



# Standards for Industrial Head Protection

## ANSI/ISEA Z89.1-2014 and CSA Z94.1-2005

ANSI/ISEA Z89.1-2014 and CSA Z94.1-2005 are voluntary industry standards that establish the types and classes of industrial helmets and provide performance and testing requirements for these helmets. These standards include specifications for helmets designed to offer protection from top and/or lateral impact.


The three classes included in these standards indicate the helmet's electrical insulation rating:

**Class E (Electrical)** – Helmets intended to reduce the danger of exposure to high-voltage electrical conductors, proof-tested at 20,000 volts

**Class G (General)** – Helmets intended to reduce the danger of exposure to low-voltage electrical conductors, proof-tested at 2,200 volts

**Class C (Conductive)** – Helmets do not provide protection from electrical conductors

The test requirements for Industrial Head Protection per ANSI/ISEA Z89.1-2014 and CSA Z94.1-2005 are separated by helmet type: Type I helmets protect the wearer from top impact, while Type II helmets protect the wearer from top and lateral impact. The test requirements for ANSI/ISEA Z89.1-2014 and CSA Z94.1-2005 are available from the Industrial Safety Equipment Association ([www.safetysiteequipment.org](http://www.safetysiteequipment.org)) and [www.CSA.ca](http://www.CSA.ca), respectively.

In addition to the three non-mandatory tests for reverse donning [  ], lower temperature [LT] and high-visibility [HV], the ANSI/ISEA Z89.1-2014 standard also includes these provisions:

### Section 5: Accessories and Replacement Components

The revised Standard includes language to further support the premise that accessory/component manufacturers are responsible for proving that their products do not cause helmets to fail.

### Section 6: Instructions and Markings

Clarification language was added to help customers understand that "useful service life" for helmets is not required by the Standard, although helmet manufacturers may choose to include it.

### Section 7.3.3 Higher Temperatures (HT)

The revision enables additional protection in response to the needs of users who may work within hot environments. Optional preconditioning at higher temperatures of  $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$  ( $140^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ ) has been added. (In the 2009 Standard, temperature conditioning was  $48.8^{\circ}\text{C} \pm 2^{\circ}\text{C}$  ( $120^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ )). If a helmet has been pre-conditioned to  $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$  ( $140^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ ), the helmet will be marked as HT. In addition, new updates allow for flexibility and inclusion of emerging and current best manufacturing materials for higher temperature protection.

**NOTE:** the Standard does not address pre-conditioning that could be needed for temperature and radiant heat extremes. To ensure that you have the proper head protection level needed for your specific heat application, check with the manufacturer for stated usage of any helmet.

## Non-Mandatory ANSI/ISEA Z89.1-2014 Tests

### Reverse Donning [ ]

In order for a helmet to be worn in reverse or a swing ratchet suspension to be used in a helmet, that particular helmet must be marked with the "double-arrowed circle" to indicate that it meets the non-mandatory reverse donning test.

### Lower Temperature [LT]

The traditional low temperature test for a helmet is  $-18^{\circ}\text{C}$  or  $0^{\circ}\text{F}$ . Helmets that meet ANSI Z89.1 requirements for LOWER temperatures ( $-30^{\circ}\text{C}$  or  $-22^{\circ}\text{F}$ ) can be marked with "LT" by the manufacturer.

### High-Visibility [HV]

Helmets that meet the non-mandatory requirements for high-visibility, including special tests for Chromaticity and Luminescence for added visibility, can be marked with "HV" by the manufacturer.

### Higher Temperature [HT]









The traditional pre-conditioning temperature test for a helmet is  $48.8^{\circ}\text{C} \pm 2^{\circ}\text{C}$  ( $120^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ ). Helmets that meet ANSI Z89.1 requirements for HIGHER temperatures pre-conditioned to  $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$  ( $140^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ ) can be marked with "HT" by the manufacturer. HT does not indicate pre-conditioning that could be needed to validate temperature and radiant heat extremes.

For additional details on updates to the ANSI/ISEA Z89.1-2014, please refer to the MSA white paper entitled, "ANSI/ISEA Z89.1-2014 American National Standard for Industrial Head Protection (ID0600-66-MC / August 2014)." This white paper is available as a **FREE** download on any MSA industrial helmet page when you visit [www.MSAafety.com](http://www.MSAafety.com).



## ANSI/ISEA Z89.1-2014 and CSA Z94.1-2005

All MSA helmets have been tested per the mandatory and non-mandatory ANSI/ISEA Z89.1-2014 and CSA Z94.1-2005 requirements , as indicated. MSA offerings include:

MSA Helmet	Standard(s)	Type	Class	ANSI Z89 Non-Mandatory Tests
V-GARD CAP/HAT	ANSI/ISEA Z89.1-2014; CSA Z94.1-2005	TYPE I	CLASS E	HT/  /LT/HV
V-GARD GREEN CAP	ANSI/ISEA Z89.1-2014; CSA Z94.1-2005	TYPE I	CLASS E	HT/  /LT/HV
V-GARD 500 VENTED CAP	ANSI/ISEA Z89.1-2014	TYPE I	CLASS C	HT/  /LT/HV
V-GARD 500 NON-VENTED CAP	ANSI/ISEA Z89.1-2014	TYPE I	CLASS E	HT/  /LT/HV
SMOOTHDOME CAP	ANSI/ISEA Z89.1-2014; CSA Z94.1-2005	TYPE I	CLASS E	HT/  /LT/HV
TOPGARD CAP/HAT	ANSI/ISEA Z89.1-2014; CSA Z94.1-2005	TYPE I	CLASS E	HT/  /LT/HV
THERMALGARD CAP	ANSI/ISEA Z89.1-2009; CSA Z94.1-2005	TYPE I	CLASS G	 /LT/HV
SKULLGARD CAP/HAT	ANSI/ISEA Z89.1-2014	TYPE I	CLASS G	HT/  /LT/HV
SUPER-V CAP	ANSI/ISEA Z89.1-2014/CSA Z94.1-2005	TYPE II	CLASS E	HT/LT/HV
VANGUARD CAP	ANSI/ISEA Z89.1-2014; CSA Z94.1-2005	TYPE II	CLASS E	HT/LT/HV
COMFO CAP	ANSI/ISEA Z89.1-2014	TYPE I	CLASS G	HT/LT



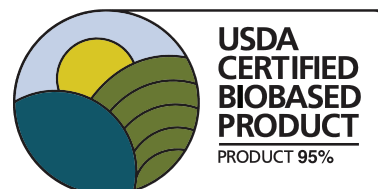
## V-Gard® GREEN Protective Hats and Caps

### The world's first hard hat made from renewable resources

V-Gard GREEN helmets offer the same trusted look and quality customers have come to expect from their MSA V-Gard helmets. The V-Gard GREEN helmets are made with renewable green high-density polyethylene (GHDPE), while the traditional V-Gard helmets are made through standard HDPE production methods. The test results for V-Gard GREEN helmet shells indicated a biobased content of 95%.



- Classification:** Type I
- Market(s):** General industry, manufacturing, repair and maintenance, construction, oil and gas, shipbuilding, automotive, mining
- Application:** General purpose
- Shell Material:** Green high-density polyethylene (GHDPE)
- Available Styles:** Slotted full brim hat with 4-point Fas-Trac III Suspension  
Slotted cap with 4-point Fas-Trac® III Suspension
- Sizes:** Standard (6-1/2" to 8")
- Standards:** ANSI/ISEA Z89.1-2014 (Class E); CSA Z94.1-2005 (Class E)
- Certification:** Third-party by SEI  
USDA Biobased Certified
- Customization:** Logos, striping and MSA accessories available



### V-Gard GREEN Full-Brim Hats

**NEW!**

White	Yellow	Blue	Green	Red
10160923	10160924	10160925	10160926	10160927

### V-Gard GREEN Caps

White	Yellow	Blue	Green	Red
10150199	10150200	10150221	10150222	10150223



On average, the production of each V-Gard GREEN helmet removes approximately 2 lbs. of CO<sub>2</sub> from the atmosphere, according to the GHDPE material supplier.

## V-Gard Protective Caps and Hats

**Classification:** Type I

**Application:** General purpose

**Shell Material:** Polyethylene

**Available Styles:** Slotted Cap; Slotted Full-Brim Hat

**Sizes:** **Cap:** Small (6 – 7½"); Standard (6½ – 8"); Large (7 – 8½") **Hat:** Standard (6½ – 8")

**Standards:** ANSI/ISEA Z89.1-2014 (Class E); CSA Z94.1-2005 (Class E)

**Certification:** Third-party by SEI

**Customization:** Imprinting and striping available

**Replacement Suspensions:** See page 104

### V-Gard Caps



### V-Gard Hats



## V-Gard Protective Caps and Hats

	Small V-Gard Slotted Cap		Standard V-Gard Slotted Cap			Large V-Gard Slotted Cap		V-Gard Slotted Full-Brim Hat		
Color	w/ Staz-On® Suspension	w/ Fas-Trac® III Suspension <sup>1</sup>	w/ Staz-On Suspension	w/ 1-Touch® Suspension <sup>1</sup>	w/ Fas-Trac III Suspension <sup>1</sup>	w/ Staz-On Suspension	w/ Fas-Trac III Suspension <sup>1</sup>	w/ Staz-On Suspension	w/ 1-Touch Suspension <sup>1</sup>	w/ Fas-Trac III Suspension <sup>1</sup>
<b>COMPLETE V-GARD ASSEMBLIES</b>										
WHITE	466354	477477	463942	10057441	475358	473284	477482	454733	10058321	475369
BLUE	466355	477478	463943	10057442	475359	476928	477483	454732	10058320	475368
YELLOW	466356	477479	463944	10057443	475360	473285	477484	454730	10058318	475366
ORANGE	—	—	463945	10057444	475361	—	—	454734	10058322	496075
RED	—	—	463947	10057446	475363	—	—	454736	10058324	475371
GREEN	—	—	463946	10057445	475362	—	—	454735	10058323	475370
GRAY	—	—	463948	10057447	475364	—	—	454731	10058319	475367
HI-VIZ® ORANGE <sup>2</sup>	—	—	488148	10057420	488146	—	489364	489360	10058326	10021292
HI-VIZ YELLOW-GREEN <sup>2</sup>	—	—	—	10061514	10061512	—	—	—	10061516	10061515
BRIGHT LIME GREEN	—	489368	815558	—	815565	—	—	815562	—	815570
DARK (CANADIAN) BLUE	—	—	—	—	802972	—	—	—	—	802975
GOLD	—	—	464852	—	475365	—	—	—	—	—
ROBIN'S EGG BLUE	—	—	463111	—	495853	—	—	—	—	—
BROWN	—	—	464658	—	495854	—	—	—	—	—
SILVER	—	—	484340	—	495855	—	—	—	—	—
TAN	—	—	461180	—	—	—	—	—	—	—
BLACK	—	—	475235	—	492559	—	—	—	—	—
LIGHT BUFF	—	—	478237	—	495856	—	—	—	—	—
PURPLE	—	—	488398	—	495858	—	—	—	—	—
PINK	—	—	—	—	495862	—	—	—	—	—
HOT PINK	—	—	10155231	—	10155230	—	—	10156374	—	10156373
<b>SPECIAL V-GARD ASSEMBLIES</b>										
HI-VIZ ORANGE w/Yellow-Green Stripe <sup>2</sup>	—	—	—	10102195	10102193	—	—	—	—	—
HI-VIZ YELLOW-GREEN w/Red-Orange Stripe <sup>2</sup>	—	—	—	10102234	10102233	—	—	—	—	—
HI-VIZ YELLOW-GREEN w/Silver Stripe <sup>2</sup>	—	—	—	10102196	10102194	—	—	—	—	—
WHITE w/Lamp Bracket and Cord Holder (Class C)	—	—	460018	—	—	—	—	460069	—	815009
WHITE w/American Flag	—	—	474159	—	—	—	—	—	—	—
<b>V-GARD ASSEMBLY WITH SWING-RATCHET SUSPENSION</b>										
WHITE	10004689	White standard-size V-Gard Cap, w/Swing-Ratchet Suspension								



White V-Gard w/Lamp Bracket  
and Cord Holder



White V-Gard  
w/Swing-Ratchet  
Suspension



All V-Gard helmets have UV  
inhibitor molded right in.

<sup>1</sup>Certified to CSA.

<sup>2</sup>V-Gard Cap/Hat meets the voluntary standard for hi-visibility as prescribed by ANSI/ISEA Z89.1-2014. Look for the official hi-visibility marking [HV] on the helmet's ANSI label.



## Replacement Suspensions for MSA Safety Helmets

### MSA Fas-Trac® III Ratchet Suspension

Ensuring your workforce wears their safety helmets can be a real headache. MSA, the leading provider of protective helmets, has the perfect remedy: the Fas-Trac III Suspension. No more pressure headaches. No more pulled hair. No more falling off. No more sacrificing worker comfort for safety.

- ① Sweatband fully covers the headband and worker's forehead.
- ② Three levels of nape strap adjustment for customized fit.
- ③ Lower nape strap cradles the head. Retention is greatly improved—even when bending over!
- ④ Smooth ratchet rotation and secure hold.

Learn how the Fas-Trac III Suspension can relieve your headaches. Visit [www.MSAafety.com/fastrac](http://www.MSAafety.com/fastrac).



HELMET TYPE (SIZE)	SUSPENSION TYPE (4-point, unless otherwise noted)			
	Fast-Trac III	1-Touch	Staz-On	Swing Ratchet <sup>1</sup>
V-GARD CAP OR HAT (STANDARD)	10148708	10061123	10087218	816645
V-GARD CAP (SMALL)	10148706	—	467386	—
V-GARD CAP (LARGE)	10148707	—	492566	—
V-GARD 500 VENTED OR NON-VENTED (STANDARD)	10148708 (4-point) 10153382 (6-point)	—	—	—
SMOOTHDOME CAP (STANDARD)	10148708 (4-point) 10153382 (6-point)	—	—	—
TOPGARD CAP OR HAT (STANDARD)	10153384	10061127	—	816648
THERMALGARD CAP (STANDARD)	10153384	—	—	—
SKULLGARD CAP OR HAT (STANDARD)	10153385	10061128	454231	816654
SKULLGARD CAP (LARGE)	10126693	—	468096	—
SUPER-V CAP (STANDARD)	10126683	—	—	—
VANGUARD CAP (STANDARD)	10153386	—	—	—
COMFO-CAP (STANDARD)	10153385	10061128	454231	—

The new **Fas-Trac III sweatband** accessory helps keep workers cool and dry.

FAS-TRAC III SWEATBAND ACCESSORY		Part No.	Product Specifics
		10153518	<ul style="list-style-type: none"> <li>• For use with MSA Fas-Trac® III Suspension</li> <li>• Optional, moisture-wicking and washable</li> <li>• Can be attached/replaced while suspension is assembled in helmet</li> <li>• Sold ONLY in packages of 10</li> </ul>

### ⚠ WARNING

Use only the indicated MSA suspension in your MSA helmet. Do not mix suspension sizes and helmet sizes (i.e., putting a standard sized suspension in a large helmet or any other mismatched combination). Do not use competitor suspensions in MSA helmets. Inspect your suspension frequently. Suspensions should be replaced every 12 months, regardless of inspection results. Replace immediately (along with the helmet), if an impact has occurred. Failure to follow these instructions will reduce the energy absorbing ability of the protective helmet to receive impact, and could result in serious injury or death.

<sup>1</sup>Swing ratchet size is 6¼" through 7½"

## Helmet Customization

**Put your reputation on ours: add your company logo, slogan or even a picture to your MSA helmet!**

MSA offers 14 different helmets (in up to 20 colors), 4 suspensions, 27+ striping options, 22 stock logos/slogans, and multiple logo locations for endless customized helmet possibilities. We've been logoing hard hats for 30+ years—longer than anyone else in the business!

### Custom Logos

All logos are submitted to MSA Logo Express® Service design team by a MSA distributor. Logo Express Service artists then send an approval form that includes a FREE rendering of the selected hard hat. Once we receive written approval, we get started on the order!

### Striping

Add any of 27+ different reflective and retro-reflective stripes<sup>1</sup> to your helmet. MSA reflective stripes help enhance the visibility of workers in daytime conditions, while retro-reflective stripes offer additional enhancement in nighttime or low-light conditions. Stripes are available in various sizes and shapes, and can be placed on all types of MSA helmets.

### Minimum Order Quantities (MOQ)

MSA requires MOQs, by helmet type, for logoing and striping. Qualifying MOQs of custom-imprinted or striped helmets must be of the same size, model and options (i.e., color and suspension). MOQs are:

- 20 for V-Gard, V-Gard 500, V-Gard GREEN, SmoothDome, Topgard and Comfo Cap Helmets
- 16 for Skullgard or Thermalgard Helmets
- 12 for Super-V and Vanguard Helmets
- 40 for Bump Caps



### Placing Customized Helmet Orders

In three easy steps, you can get your first order of new logos and/or striping:

1. Complete all sections on the MSA Logo Express Order Form (ID 0617-01 MC).
2. See "Artwork Guidelines" (ID 0617-06-MC) for details on artwork submission.
3. Submit an electronic file of your artwork by email (Logo.Express@msasafety.com) or by US Postal Service (MSA Logo Express, 3880 Meadowbrook Rd., Murrysville, PA 15668-1753). Be sure to include a copy of the completed Order Form with your artwork submission.




### Questions about Helmet Customization?

Contact your MSA distributor or MSA Logo Express.

**EMAIL:** Logo.Express@msasafety.com  
**PHONE:** 1-800-MSA-LOGO (1-800-672-5646)  
**ADDRESS:** MSA Logo Express  
 3880 Meadowbrook Rd.  
 Murrysville, PA 15668-1753

**You can also visit us on the web:**  
**us.msasafety.com/logoexpress**  
**KEYWORD: Logo**



The "Try It" sample program offers some of the most popular MSA Head, Eye, Face and Hearing Protection products, including V-Gard Helmets, V-Gard Accessories, left/RIGHT earmuffs, and Sightgard® eyewear—completely FREE of charge! Look for the  that tells you which products are in the program.

<sup>1</sup>Most of our retro-reflective stripes meet the Type II requirements under ASTM D4956. ASTM D4956 is the specification for flexible, non-exposed glass bead lens and microprismatic, retroreflective sheeting designed for use on traffic control signs and other devices.

# Head, Eye, Face, and Hearing **Protection**



## Officially Licensed NFL V-Gard Helmets

<b>Classification:</b>	Type I	<b>Suspension:</b>	1-Touch
<b>Application:</b>	General purpose	<b>Sizes:</b>	Standard (6½ – 8")
<b>Shell Material:</b>	Polyethylene	<b>Standards:</b>	ANSI/ISEA Z89.1-2014 (Class E); CSA Z94.1-2005 (Class E)
<b>Available Styles:</b>	Slotted Cap	<b>Certification:</b>	Third-party by SEI

				
Arizona Cardinals Part No. 818384	Atlanta Falcons Part No. 818385	Baltimore Ravens Part No. 818386	Buffalo Bills Part No. 818387	Carolina Panthers Part No. 818388
				
Chicago Bears Part No. 818389	Cincinnati Bengals Part No. 818390	Cleveland Browns Part No. 818391	Dallas Cowboys Part No. 818392	Denver Broncos Part No. 818393
				
Detroit Lions Part No. 818394	Green Bay Packers Part No. 818395	Houston Texans Part No. 10031348	Indianapolis Colts Part No. 818396	Jacksonville Jaguars Part No. 818397
				
Kansas City Chiefs Part No. 818398	Miami Dolphins Part No. 818399	Minnesota Vikings Part No. 818400	New England Patriots Part No. 818401	New Orleans Saints Part No. 818402
				
New York Giants Part No. 818403	New York Jets Part No. 818404	Oakland Raiders Part No. 818405	Philadelphia Eagles Part No. 818406	Pittsburgh Steelers Part No. 818407
				
San Diego Chargers Part No. 818408	San Francisco 49ers Part No. 818409	Seattle Seahawks Part No. 818410	St. Louis Rams Part No. 818411	Tampa Bay Buccaneers Part No. 818412
				
Tennessee Titans Part No. 818413	Washington Redskins Part No. 818414			

NFL Properties, the NFL and its Member Clubs make no express or implied claims with respect to the effectiveness and safety of these products and have not manufactured or endorsed these products in any way.

## Freedom Series™ and Specialty V-Gard Protective Caps and Hats

**Classification:** Type I

**Application:** General purpose

**Shell Material:** Polyethylene with thermoformed graphics

**Available Styles:** Slotted Cap; Slotted Full-Brim Hat (Freedom Series only)

**Sizes:** Standard (6½ – 8")

**Standards:** ANSI/ISEA Z89.1-2014 (Class E); CSA Z94.1-2005 (Class E)

**Certification:** Third-party by SEI

**Customization:** Imprinting and striping available (see page 105)

**Replacement Suspensions:** See page 104



DESCRIPTION	Slotted V-Gard Cap w/Fas-Trac III Suspension	Slotted V-Gard Hat w/Fas-Trac III Suspension
<b>AMERICAN FREEDOM SERIES ASSEMBLIES</b>		
AMERICAN EAGLE	10079479	—
AMERICAN STARS AND STRIPES	10052945	10071157
AMERICAN FLAG WITH 2 EAGLES	10052947	10071159
CAMOUFLAGE	10103908	10104254
DUAL AMERICAN FLAG	10050611	—
<b>CANADIAN FREEDOM SERIES ASSEMBLIES</b>		
WHITE WITH RED MAPLE LEAF	10050613	10082234
BLACK WITH RED MAPLE LEAF	10082233	10082235
CAMOUFLAGE /CANADIAN FLAG ON FRONT <sup>1</sup>	10104925	—
<b>SPECIALTY V-GARD ASSEMBLIES</b>		
RALLY CAP	10101535	—
METALLIC GOLD	10101854	—
BLACK FIRE	10092015	—
EXTREME HI-VIZ CAP <sup>2</sup>	10102180	—

<sup>1</sup>Not pictured

<sup>2</sup>Extreme Hi-Viz Cap meets the high-visibility requirements of ANSI/ISEA 107.



## V-Gard 500 Protective Caps

**Vented V-Gard 500 Caps** provide cooling vents for improved air circulation and comfort; the **Non-Vented V-Gard 500 Caps** provide users with dielectric head protection.

**Classification:** Type I

**Application:** General purpose

**Shell Material:** Polyethylene

**Available Styles:** Vented or Non-Vented Slotted Cap

**Sizes:** Standard (6½ – 8")

**Standards:** ANSI/ISEA Z89.1-2014 (Vented - Class C; Non-Vented Class E)

**Certification:** Third-party by SEI

**Customization:** Imprinting and striping available (see page 105)

**Replacement Suspensions:** See page 104



DESCRIPTION	w/4-Point Fas-Trac III Suspension	w/6-Point Fas-Trac III Suspension
<b>VENTED STYLE</b>		
WHITE	10034018	10034027
BLUE	10034019	10034028
YELLOW	10034020	10034029
RED	10034022	10034031
GREEN	10034023	10034032
HI-VIZ ORANGE <sup>1</sup>	10034026	10034035
HI-VIZ YELLOW-GREEN <sup>1</sup>	10074819	10074820
<b>NON-VENTED STYLE</b>		
WHITE	10034088	10034097

<sup>1</sup>Meet the voluntary standard for hi-visibility as prescribed by ANSI/ISEA Z89.1-2014. Look for the official hi-visibility marking [HV] on the helmet's ANSI label.

## SmoothDome® Protective Caps

**Classification:** Type I

**Application:** General purpose; welding

**Shell Material:** Polyethylene

**Available Styles:** Slotted Cap


**Sizes:** Standard (6½ – 8")

**Standards:** ANSI/ISEA Z89.1-2014 (Class E); CSA Z94.1-2005 (Class E)

**Certification:** Third-party by SEI

**Customization:** Imprinting and striping available (see page 105)


**Replacement Suspensions:** See page 104



SmoothDome with Fas-Trac III Suspension




white




blue




yellow



orange red




red




green



gray



hi-viz yellow-green



hi-viz orange w/striping

DESCRIPTION		w/ 4-Point Fas-Trac III Suspension	w/6-Point Fas-Trac III Suspension
WHITE		10074067	10084078
BLUE		10074068	10084079
YELLOW		10074069	10084080
ORANGE		10074070	10084081
RED		10074071	10084082
GREEN		10074072	10084083
GRAY		10074073	10084084
HI-VIZ ORANGE <sup>1</sup>		10074077	10084088
HI-VIZ YELLOW-GREEN <sup>1</sup>		10074084	10084095
HI-VIZ ORANGE W/YELLOW-GREEN STRIPE <sup>1</sup>		10095987	10095988
HI-VIZ YELLOW-GREEN W/ORANGE STRIPE <sup>1</sup>		10095989	10095990
HI-VIZ ORANGE W/SILVER STRIPE <sup>1</sup>		10096141	—
HI-VIZ YELLOW-GREEN W/SILVER STRIPE <sup>1</sup>		10096142	—

<sup>1</sup>Select SmoothDome Caps meets the voluntary standard for hi-visibility as prescribed by ANSI/ISEA Z89.1-2014. Look for the official hi-visibility marking [HV] on the helmet's ANSI label.

## Topgard® Protective Caps and Hats

**Classification:** Type I

**Application:** General purpose; elevated temperature<sup>1</sup>

**Shell Material:** Polycarbonate

**Available Styles:** Slotted Cap; Non-Slotted Full-Brim Hat

**Sizes:** Standard (6½ – 8")

**Standards:** ANSI/ISEA Z89.1-2014 (Class E); CSA Z94.1-2005 (Class E)

**Certification:** Third-party by SEI

**Customization:** Imprinting and striping available (see page 105)

**Replacement Suspensions:** See page 104



DESCRIPTION	Topgard Slotted Cap (standard size)		Topgard Non-Slotted Hat (standard size)	
	w/ 1-Touch Suspension	w/ Fas-Trac III Suspension	w/ 1-Touch Suspension	w/ Fas-Trac III Suspension
TOPGARD ASSEMBLIES				
WHITE	454728	475385	454719	475393
YELLOW	454721	475378	454712	475387
GRAY	454722	475379	454713	—
BLUE	454723	475380	—	—
ORANGE	454725	475382	—	—
GREEN	454726	475383	—	—
RED	454727	475384	—	—
BRIGHT ORANGE	—	804396	—	804397
WHITE W/LAMP BRACKET AND CORD HOLDER	448914	—	—	—

<sup>1</sup>Topgard Caps and Hats have been tested to radiant heat loads producing temperatures up to, but not exceeding, 275°F.

## Thermalgard® Protective Caps

**Classification:** Type I

**Application:** General purpose; elevated temperature<sup>1</sup>

**Shell Material:** Glass-reinforced Nylon

**Available Styles:** Slotted Cap

**Sizes:** Standard (6½ – 8")

**Standards:** ANSI/ISEA Z89.1-2009 (Class G); CSA Z94.1-2005 (Class G)

**Certification:** Third-party by SEI

**Customization:** Imprinting and striping available (see page 105)

**Replacement Suspensions:** See page 104



DESCRIPTION	w/ 1-Touch Suspension	w/ Fas-Trac III Suspension
<b>THERMALGARD ASSEMBLIES</b>		
YELLOW	486964	486959
WHITE	486965	486960
RED	—	486961
ORANGE	486967	486962
BLUE	486968	486963
BRIGHT ORANGE	800359	800360
GREEN	487399	814343
STEEL GRAY	—	10095325



*NFPA 70E is a work practice; it is not a standard and does not specify any test methods. No products "meet" NFPA 70E—the user simply follows the practice of NFPA 70E. When it comes to head protection, NFPA 70E recommends that a user wear a Class E hard hat in order to follow this work practice.*

<sup>1</sup>Thermalgard caps have been tested to radiant heat loads producing temperatures up to, but not exceeding, 350°F.



## Skullgard® Protective Caps and Hats

**Classification:** Type I

**Application:** General purpose; elevated temperature<sup>1</sup>

**Shell Material:** Phenolic

**Available Styles:** Non-Slotted Cap and Full-Brim Hat

**Sizes:** **Cap:** Standard (6½ – 8"); Large (7 – 8½")

**Hat:** Standard (6½ – 8")

**Standards:** ANSI/ISEA Z89.1-2014 (Class G)

**Certification:** Third-party by SEI

**Customization:** Imprinting and striping available (see page 105)

**Replacement Suspensions:** See page 104



*MSA helmets marked "LT" meet the voluntary requirements for "Lower Temperature." Helmets marked "LT" are conditioned to -22°F and then tested for impact and penetration, as outlined in the Standard. Any helmet NOT marked with "LT" is tested to 0°F.*



DESCRIPTION	Skullgard Cap (standard size)			Skullgard Hat (standard size)	
	w/ Staz-On Suspension	w/ Fas-Trac III Suspension	w/ Swing-Ratchet Suspension	w/ Staz-On Suspension	w/ Fas-Trac III Suspension
SKULLGARD ASSEMBLIES					
NATURAL TAN	454617	475395	816651	454664	475407
WHITE	454618	475396	—	454665	475408
YELLOW	454619	475397	—	454666	—
RED	454620	—	—	—	—
GREEN	454621	—	—	454668	—
GRAY	454622	—	—	—	—
BLUE	454623	—	—	—	—
ORANGE	454626	—	—	454673	—
HI-VIZ RED-ORANGE <sup>2</sup>	458702	—	—	—	—

	w/ Staz-On Suspension	w/ Fas-Trac Suspension	
ALTERNATIVE SKULLGARD ASSEMBLIES			
SKULLGARD CAP	82018	475405	Large size, natural tan
	—	10104377	Small size, natural tan
	460409	—	Standard size, with lamp bracket and cord holder, natural tan
	—	482002	With welder's lugs, natural tan
SKULLGARD HAT	460389	—	Standard size, with lamp bracket and cord holder, natural tan

<sup>1</sup>Skullgard caps and hats have been tested to radiant heat loads producing temperatures up to, but not exceeding, 350°F.

<sup>2</sup> Hi-Viz red-orange Skullgard Cap meets the voluntary standard for hi-visibility as prescribed by ANSI/ISEA Z89.1-2014. Look for the official hi-visibility marking [HV] on the helmet's ANSI label.

## Super V® Protective Caps

- Classification:** Type I (ANSI) and Type II CSA  
**Application:** Lateral protection  
**Shell Material:** Polyethylene  
**Available Styles:** Slotted Cap w/foam liner  
**Sizes:** Standard (6½ – 8")  
**Standards:** ANSI/ISEA Z89.1-2014 (Class E);  
 CSA Z94.1-2005 (Class E)  
**Certification:** Third-party by SEI  
**Customization:** Imprinting and striping available  
 (see page 105)

**Replacement Suspensions:** See page 104

DESCRIPTION	w/Fas-Trac III Suspension
SUPER V ASSEMBLIES	
WHITE	C217091
YELLOW	C217093
RED	C217095
ORANGE	C217094
BLUE	C217092
NAVY GRAY	C217097
HI-VIZ ORANGE <sup>1</sup>	C217100
GREEN	C217096
GOLD	C217098
BLACK	C217140
SILVER	10025227



### ⚠ WARNING

Use only MSA's Fas-Trac III Suspension designed for Super-V Helmets. Use of any other suspension will reduce the energy-absorbing ability of the protective helmet, which can result in serious personal injury or death.

## Vanguard™ Protective Caps

- Classification:** Type II (ANSI and CSA)  
**Application:** Lateral protection  
**Shell Material:** Polyethylene  
**Available Styles:** Slotted Cap w/foam liner  
**Sizes:** Standard (6½ – 8")  
**Standards:** ANSI/ISEA Z89.1-2014 (Class E);  
 CSA Z94.1-2005 (Class E)  
**Certification:** Third-party by SEI  
**Customization:** Imprinting and striping available  
 (see page 105)

**Replacement Suspensions:** See page 104

DESCRIPTION	w/Fas-Trac III Suspension
VANGUARD ASSEMBLIES	
WHITE	804940
YELLOW	804939
RED	804944
HI-VIZ ORANGE <sup>1</sup>	804947
BLUE	804946



### ⚠ WARNING

Use only MSA's Fas-Trac Suspension designed for Vanguard Helmets. Use of any other suspension will reduce the energy-absorbing ability of the protective helmet, which can result in serious personal injury or death.

<sup>1</sup>Super V Cap and Vanguard Cap meet the voluntary standard for hi-visibility as prescribed by ANSI/ISEA Z89.1-2014. Look for the official hi-visibility marking [HV] on the helmet's ANSI label.

## Comfo-Cap® Protective Caps

- Classification:** Type I  
**Application:** Mining  
**Shell Material:** Polycarbonate  
**Available Styles:** Non-Slotted Cap  
w/ lamp bracket and cord holder  
**Sizes:** Standard (6 1/2 – 8")  
**Standards:** ANSI/ISEA Z89.1-2014 (Class G)  
**Certification:** Third-party by SEI  
**Customization:** Imprinting and striping available  
(see page 105)

**Replacement Suspensions:** See page 104

DESCRIPTION	w/Staz-On	w/Fas-Trac III
<b>COMFO CAP ASSEMBLIES</b>		
WHITE	91522	475336
BLUE	91586	—
YELLOW	91585	—
ORANGE	91589	—
RED	91590	—
GREEN	91584	—
BLACK	82769	—



## Bump Caps

- Classification:** None  
**Application:** Non-impact  
**Shell Material:** Polyethylene  
**Available Styles:** Non-Slotted Cap w/ plastic suspension  
**Sizes:** Standard (6 1/2 – 8")  
**Standards:** Not applicable  
**Certification:** None  
**Customization:** Imprinting and striping available (*locations limited*)

DESCRIPTION	w/Plastic Suspension
<b>BUMP CAP ASSEMBLIES</b>	
WHITE	10033652
BLUE	10033650
YELLOW	10033651
ORANGE	10033654
RED	10033653
GREEN	10033655











### **⚠ WARNING**

Bump caps are not safety helmets and do not meet OSHA or ANSI/ISEA Z89.1 requirements. DO NOT use bumps caps for impact protection, for sports or when an ANSI-compliant helmet is required.

## V-Gard Accessory System: V-Gard Frames for Caps

The V-Gard Accessory System offers helmet-mounted frames for various work conditions and MSA helmets. The sloped design allows liquids, chips and other materials to slide off the frame and away from the line of sight. Each frame, whether used with or without debris control, meets the applicable requirements for ANSI/ISEA Z87.1-2010, EN 166, CSA Z94.3, AS/NZS 1337, and many local standards.<sup>1</sup>

<b>Classification:</b>	General purpose
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, metalworking, automotive, mining
<b>Applications:</b>	Chipping, splash, chiseling, drilling, grinding, machining, power fastening, sanding, sawing
<b>Material:</b>	High density polyethylene (HDPE)
<b>Color(s):</b>	Black
<b>Available Styles:</b>	Frame for Slotted Caps Universal Frame for Caps
<b>Size:</b>	Fits MSA Safety Caps
<b>Features:</b>	Offered with or without debris control
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166; CSA Z94.3; and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	10

V-GARD FRAMES FOR GENERAL PURPOSES		Part No.	Product Specifics
		10115730	<ul style="list-style-type: none"> <li>Fits all MSA Slotted Caps</li> <li>Sold with replaceable debris control which creates tight seal between frame and cap</li> <li>Stowable slot adaptors secure frame tightly in slotted MSA caps, and allow frame to work with or without earmuffs<sup>2</sup></li> <li>Sliding adjustment blades allow visor to work with most half-mask respirators and other PPE worn under a visor</li> </ul>
		10121266	<ul style="list-style-type: none"> <li>Fits all MSA Slotted Caps<sup>3</sup></li> <li>Debris control sold separately</li> <li>Stowable slot adaptors secure frame tightly in slotted MSA caps, and allow frame to work with or without earmuffs<sup>2</sup></li> <li>Sliding adjustment blades allow visor to work with most half-mask respirators and other PPE worn under a visor</li> </ul>
		10115822	<ul style="list-style-type: none"> <li>Fits all MSA Caps (Slotted or Non-Slotted)<sup>4</sup></li> <li>Sold with replaceable debris control which creates tight seal between frame and cap</li> <li>Heavy duty flat rubber strap allows easy and secure placement on all MSA caps, including non-slotted models</li> <li>Design allows use with other PPE, including MSA earmuffs and respirators</li> </ul>
		10121268	<ul style="list-style-type: none"> <li>Fits all MSA Caps (Slotted or Non-Slotted)<sup>4</sup></li> <li>Debris control sold separately</li> <li>Heavy duty flat rubber strap allows easy and secure placement on all MSA caps, including non-slotted models</li> <li>Design allows use with other PPE, including MSA earmuffs and respirators</li> </ul>

### ⚠ WARNING

Use V-Gard Frames ONLY with V-Gard Visors, to ensure compliance with safety standards. Misuse can result in death, permanent impairment of sight, or other serious injury.

<sup>1</sup>Standards requirements met by each V-Gard Frame/V-Gard Visor combination designated on each V-Gard Visor.

<sup>2</sup>Patent pending

<sup>3</sup>MSA recommends the use of debris control on V-Gard frames when wearing BOTH large V-Gard molded Visors and cap-mounted earmuffs.

<sup>4</sup>MSA does not recommend the use of the V-Gard Universal Frame with the MSA SmoothDome when using cap-mounted muffs and large V-Gard molded Visors. The V-Gard Frame for Slotted Caps should be worn with this particular combination.



## V-Gard Accessory System: V-Gard Frames for Caps

<b>Classification:</b>	Elevated temperature
<b>Markets:</b>	Food manufacturing/canneries, steel mills, construction, open-pit mining, agriculture, oil/gas/petrochemical refineries, rubber manufacturing, and steam tunnels
<b>Applications:</b>	Food processing, machine operation, maintenance, millwright, cutting, punching, extrusion, drilling, blasting, casting/conveying, chemical mixing, sanding
<b>Material:</b>	Polycarbonate
<b>Color(s):</b>	Gray
<b>Available Styles:</b>	Frame for Slotted Caps Universal Frame for Caps
<b>Size:</b>	Fits MSA Safety Caps
<b>Features:</b>	Offered with or without debris control Tested to withstand temperatures of 350°F (176.7°C), reducing warping, cracking or crazing All non-metal construction
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166; CSA Z94.3; and AS/NZS 1337.
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	10

V-GARD FRAMES FOR ELEVATED TEMPERATURE APPLICATIONS		Part No.	Product Specifics
		10115821 	<ul style="list-style-type: none"> <li>• Stowable slot adaptors secure frame tightly in slotted MSA caps, and allow frame to work with or without earmuffs<sup>2</sup></li> <li>• Sliding adjustment blades allow visor to work with most half-mask respirators and other PPE worn under a visor</li> <li>• Replaceable debris control tested against EN 166 hot solids requirements</li> </ul>
		10121267 	<ul style="list-style-type: none"> <li>• Stowable slot adaptors secure frame tightly in slotted MSA caps, and allow frame to work with or without earmuffs</li> <li>• Sliding adjustment blades allow visor to work with most half-mask respirators and other PPE worn under a visor</li> <li>• Debris control sold separately<sup>3</sup></li> </ul>
		10116552 	<ul style="list-style-type: none"> <li>• Heavy duty flat rubber strap allows easy and secure placement on all MSA caps, including non-slotted models<sup>4</sup></li> <li>• Design allows use with other PPE, including MSA earmuffs and respirators</li> <li>• Replaceable debris control tested against EN 166 hot solids requirements</li> </ul>
		10124426 	<ul style="list-style-type: none"> <li>• Heavy duty flat rubber strap allows easy and secure placement on all MSA caps, including non-slotted models<sup>4</sup></li> <li>• Design allows use with other PPE, including MSA earmuffs and respirators</li> <li>• Debris control sold separately<sup>3</sup></li> </ul>

<sup>1</sup>Standards requirements met by each V-Gard Frame/V-Gard Visor combination designated on each V-Gard Visor.



<sup>2</sup>Patent pending

<sup>3</sup>MSA recommends the use of debris control on V-Gard frames when wearing BOTH large V-Gard molded Visors and cap-mounted earmuffs.



<sup>4</sup>MSA does not recommend the use of the V-Gard Universal Frame with the MSA SmoothDome when using cap-mounted muffs and large V-Gard molded Visors. The V-Gard Frame for Slotted Caps should be worn with this particular combination.

## V-Gard Accessory System: V-Gard Frames for Full-Brim Helmets

<b>Classification:</b>	General purpose
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, mining
<b>Applications:</b>	Chipping, splash, chiseling, drilling, grinding, machining, power fastening, sanding, sawing
<b>Material:</b>	High density polyethylene (HDPE)
<b>Color(s):</b>	Black
<b>Available Styles:</b>	Universal Frame
<b>Size:</b>	Fits MSA Full-Brim Safety Helmets
<b>Features:</b>	Offered without debris control ONLY
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166; CSA Z94.3; and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	10

V-GARD FRAME FOR FULL-BRIM HELMETS FOR GENERAL PURPOSE	Part No.	Product Specifics
	10116627 	<ul style="list-style-type: none"> <li>• Heavy duty flat rubber strap allows easy and secure placement on all MSA hats, including non-slotted models</li> <li>• Design allows use with other PPE, including MSA earmuffs and respirators</li> </ul>

<b>Classification:</b>	Elevated temperature
<b>Markets:</b>	Food manufacturing/canneries, steel mills, construction, open-pit mining, agriculture, oil/gas/petrochemical refineries, rubber manufacturing, steam tunnels
<b>Applications:</b>	Food processing, machine operation, maintenance, millwright, cutting, punching, extrusion, drilling, blasting, casting/conveying, chemical mixing, sanding
<b>Material:</b>	Polycarbonate
<b>Color(s):</b>	Gray
<b>Available Styles:</b>	Universal Frame
<b>Size:</b>	Fits MSA Full-Brim Safety Helmets
<b>Features:</b>	Offered without debris control ONLY Tested to temperatures of 350°F (176.7°C), reducing warping, cracking or crazing All non-metal construction
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166; CSA Z94.3; and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	10

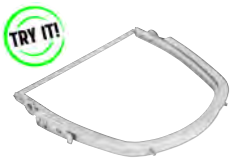


V-GARD FRAME FOR FULL-BRIM HELMETS FOR ELEVATED TEMPERATURE APPLICATIONS	Part No.	Product Specifics
	10116628 	<ul style="list-style-type: none"> <li>• Heavy duty flat rubber strap allows easy and secure placement on all MSA hats, including non-slotted models</li> <li>• Design allows use with other PPE, including MSA earmuffs and respirators</li> </ul>

<sup>1</sup>Standards requirements met by each V-Gard Frame/V-Gard Visor combination designated on each V-Gard Visor.



## V-Gard Accessory System: V-Gard Metal Frames for Caps and Full-Brim Hats

- Classification:** General purpose
- Markets:** Manufacturing; construction; steel/smelting operations
- Applications:** Machine operation, maintenance, millwright, extrusion, drilling, blasting, casting/conveying
- Material:** Anodized aluminum
- Color(s):** Silver
- Available Styles:** Universal (spring coil)
- Size:** For MSA Caps, MSA Skullgard® Caps and MSA Full Brim Hats (as indicated)
- Features:**
- Works with V-Gard Visors
  - Spring coil for fast loading of frame to helmet
  - Three visor resting positions
  - Locking device holds visor securely in the down position
  - Heavy duty anodized aluminum frame for tough work environments
- Standards:** ANSI/ISEA Z87.1-2010
- Certification:** Third-party by Intertek

V-GARD METAL FRAMES		Part No.	Product Specifics
		10158799	• For use with MSA Caps
		10158800	• For use with MSA Skullgard Caps
		10158821	• For use with MSA Full Brim Hats

### ⚠ WARNING

MSA does not recommend V-Gard Metal Frames for use where electrical hazards, including but not limited to arc flash, could occur.

## V-Gard Visors: General Purpose

<b>Classification:</b>	General purpose
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, metalworking, automotive, mining
<b>Applications:</b>	Chipping, splash, chiseling, drilling, grinding, machining, power fastening, sanding, sawing
<b>Material:</b>	Polycarbonate
<b>Color(s):</b>	Clear
<b>Available Styles:</b>	Contoured or flat; visors and nitrometers; bulk pack
<b>Size:</b>	Varies. See "Product Specifics" in Ordering Information chart.
<b>Features:</b>	Maximum UV protection ("U6") Impact-rated (Z87+)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; CSA Z94.3 and EN 166 (2C-1.2 MSA 1B); AS/NZS 1337 (except as noted)
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	10

V-GARD VISORS FOR GENERAL PURPOSE APPLICATIONS		Part No.	Product Specifics
	 	10144486 	<ul style="list-style-type: none"> <li>• 5.5" (14.61 cm) x 17" (43.2 cm) x .04" (1.02mm)</li> <li>• Nitrometer; for use with V-Gard Retractable or Standard Chin Protectors</li> <li>• Contoured visor; closer fit and improved resistance to impact and splash hazards</li> <li>• Approved to ANSI and CSA<sup>2</sup> Standards; does not meet EN standards.</li> </ul>
	 	10115836 	<ul style="list-style-type: none"> <li>• 8" (20.3 cm) x 17" (43.2 cm) x .04" (1.02mm)</li> <li>• Contoured visor; closer fit and improved resistance to impact and splash hazards</li> </ul>
	 	10115837 	<ul style="list-style-type: none"> <li>• 8" (20.3 cm) x 17" (43.2 cm) x .04" (1.02mm)</li> <li>• Nitrometer; for use with V-Gard Retractable or Standard Chin Protectors</li> <li>• Contoured visor; closer fit and improved resistance to impact and splash hazards</li> </ul>
		10120108 	<ul style="list-style-type: none"> <li>• 8" (20.3 cm) x 17" (43.2 cm) x .04" (1.02mm)</li> <li>• Bulk pack of 20</li> <li>• Contoured visor; closer fit and improved resistance to impact and splash hazards</li> </ul>
		10117750	<ul style="list-style-type: none"> <li>• 8" (20.3 cm) x 17" (43.2 cm) x .04" (1.02mm)</li> <li>• Flat visor; wider design; improved resistance to impact and splash hazards</li> <li>• Does not meet CSA Z94.3</li> </ul>
		10117781	<ul style="list-style-type: none"> <li>• 8" (20.3 cm) x 17" (43.2 cm) x .04" (1.02mm)</li> <li>• Flat nitrometer; for use with V-Gard Retractable or Standard Chin Protectors</li> <li>• Wider design; improved resistance to impact and splash hazards</li> <li>• Does not meet CSA Z94.3</li> </ul>
	 	10115863 	<ul style="list-style-type: none"> <li>• 9.5" (24.1 cm) x 17" (43.2 cm) x .04" (1.02mm)</li> <li>• Contoured visor; closer fit and improved resistance to impact and splash hazards</li> </ul>
		10118094	<ul style="list-style-type: none"> <li>• 9.5" (24.1 cm) x 17" (43.2 cm) x .04" (1.02mm)</li> <li>• Flat visor; wider design; improved resistance to impact and splash hazards</li> <li>• Does not meet CSA Z94.3</li> </ul>













<sup>1</sup>Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.

<sup>2</sup> PN 10144486 must be worn with a V-Gard Chin Protector to comply with CSA coverage requirements.



## V-Gard Visors: General Purpose with Anti-fog/Anti-scratch Coatings

<b>Classification:</b>	General purpose: humid conditions
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, metalworking, automotive, mining
<b>Applications:</b>	Hot/humid conditions, chipping, splash, chiseling, drilling, grinding, machining, power fastening, sanding, sawing
<b>Material:</b>	Polycarbonate with anti-fog/anti-scratch coatings
<b>Color(s):</b>	Clear Green tint
<b>Available Styles:</b>	Contoured; visors and nitrometers
<b>Size:</b>	8" (20.3 cm) x 17" (43.2 cm) x .06" (1.52mm)
<b>Features:</b>	Anti-fog/anti-scratch coatings Impact-rated (Z87+) Maximum UV protection ("U6") Slightly thicker for industrial impact applications
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3
<b>Certification:</b>	Third-party by Intertek and CSA International
<b>Min Order Qty:</b>	5

V-GARD VISORS FOR GENERAL PURPOSE APPLICATIONS		Part No.	Product Specifics
	 	10115839 	• Contoured visor; closer fit and improved resistance to impact and splash hazards
	 	10115841 	• Nitrometer; for use with V-Gard Retractable or Standard Chin Protectors • Contoured visor; closer fit and improved resistance to impact and splash hazards
	 	10115842 	• Contoured visor; closer fit and improved resistance to impact and splash hazards • Green tint, reduces glare. <b>Not for use where a Shade infrared (IR) visor is required.</b>
	 	10115843 	• Nitrometer; for use with V-Gard Retractable or Standard Chin Protectors • Contoured visor; closer fit and improved resistance to impact and splash hazards • Green tint, reduces glare. <b>Not for use where a Shade infrared (IR) visor is required.</b>









All V-Gard polycarbonate clear and green tinted visors, as well as green tint propionate offer maximum UV protection as measured under ANSI/ISEA Z87.1-2010. Just look for the "U6" marking.

<sup>1</sup>Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.

## V-Gard Visors: General Purpose

<b>Classification:</b>	General purpose
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, metalworking, automotive, mining
<b>Applications:</b>	Chipping, splash, chiseling, drilling, grinding, machining, power fastening, sanding, sawing
<b>Material:</b>	Polycarbonate
<b>Color(s):</b>	Clear
<b>Available Styles:</b>	Contoured or flat; visors and nitrometers
<b>Size:</b>	8" (20.3 cm) x 17" (43.2 cm) x .06" (1.52mm)
<b>Features:</b>	Impact-rated (Z87+) Maximum UV protection ("U6") Slightly thicker for industrial impact applications
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166 (2C-1.2 MSA 1B); CSA Z94.3 and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	10

V-GARD VISORS FOR GENERAL PURPOSE APPLICATIONS		Part No.	Product Specifics
	 	10115840 	• Contoured visor; closer fit and improved resistance to impact and splash hazards
		10117782	• Flat visor; wider design; improved resistance to impact and splash hazards • Does not meet CSA Z94.3
	 	10117783	• Flat nitrometer; for use with V-Gard Retractable or Standard Chin Protectors • Wider design improved resistance to impact and splash hazards • Does not meet CSA Z94.3

<sup>1</sup>Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.

## V-Gard Visors: Heavy Duty with High-Performance Anti-fog/Anti-scratch Coatings

<b>Classification:</b>	General purpose: heavy duty, humid conditions
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, metalworking, automotive, mining
<b>Applications:</b>	Hot/humid conditions, chipping, splash, chiseling, drilling, grinding, machining, power fastening, sanding, sawing, outdoor work
<b>Material:</b>	Polycarbonate, with EN166 performance-rated anti-fog and anti-scratch coatings
<b>Color(s):</b>	Clear Green tint
<b>Available Styles:</b>	Molded
<b>Size:</b>	10.375" (26.4 cm) x 17" (43.2 cm) x .098" (2.5 mm)
<b>Features:</b>	EN 166 performance-rated anti-fog and anti-scratch coatings (N, K marks, respectively) Impact-rated (Z87+) Maximum UV protection ("U6") Thick for heavy duty industrial impact applications
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166 (2C-1.2 MSA 1B89KN); CSA Z94.3 and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	5

V-GARD VISORS FOR HEAVY DUTY GENERAL PURPOSE APPLICATIONS		Part No.	Product Specifics
		10115853 	<ul style="list-style-type: none"> <li>Molded visor for superior optics under heavy duty use</li> <li>Extended length for greater coverage of neck/face</li> <li>Performs well against many chemicals. Please refer to MSA's Chemical Application Quick Reference Guide (ID 0670-007/MC) for details</li> </ul>
		10115854 	<ul style="list-style-type: none"> <li>Molded visor for superior optics under heavy duty use</li> <li>Extended length for greater coverage of neck/face</li> <li>Green tint, helps reduce glare; <b>not for use where a Shade IR visor is required</b></li> </ul>



V-Gard molded, green and clear visors (whether propionate or polycarbonate) offer superior optical quality and resistance to many chemicals. For details on optics, please refer to the MSA White Paper, "Optical Quality Requirements and V-Gard® Visors" (ID 0302-32 MC) available for download from MSA's Asset Library.

<sup>1</sup>Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.

## V-Gard Accessory System: General Purpose V-Gard Visors (Non-Impact)

<b>Classification:</b>	General purpose: non-impact
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, automotive, mining
<b>Applications:</b>	Flying chips and other light debris
<b>Material:</b>	Epoxy-coated steel mesh (20 x 20)
<b>Color(s):</b>	Black Aluminum
<b>Available Styles:</b>	Flat
<b>Size:</b>	Varies; see "Product Specifics" in Ordering Information chart.
<b>Features:</b>	General protector (Z87); <b>not for impact hazards</b>
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 1731-F; and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., and SAI Global Ltd.
<b>Min Order Qty:</b>	10

V-GARD VISORS FOR GENERAL PURPOSE APPLICATIONS		Part No.	Product Specifics
	 	10116557	<ul style="list-style-type: none"> <li>• 8" (20.3 cm) x 17" (43.2 cm)</li> <li>• Visor; plastic-edged mesh</li> <li>• Not for use against splash, impact, elevated temperatures or UV hazards</li> <li>• Can be worn with earmuffs</li> </ul>
	 	10116558	<ul style="list-style-type: none"> <li>• 8" (20.3 cm) x 17" (43.2 cm)</li> <li>• Nitrometer; for use with V-Gard Retractable or Standard Chin Protectors</li> <li>• Plastic-edged mesh</li> <li>• Not for use against splash, impact, elevated temperatures or UV hazards</li> <li>• Can be worn with earmuffs</li> </ul>
		10158822	<ul style="list-style-type: none"> <li>• 8" (20.3 cm) x 16.5" (41.9 cm)</li> <li>• Aluminum-bound mesh</li> <li>• Not for use against splash, impact, electrical or UV hazards</li> </ul>









Only eye/face products marked as Z87+ are impact-rated. The "+" indicates the impact rating. Product literature can be vague, indicating that eye/face products "meet the requirements" of ANSI Z87. If you need a Z87 impact-rated product, be sure to ask the manufacturer if it is marked with "Z87+."

<sup>1</sup>Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.



## V-Gard Visors: Heavy Duty Chemical and Splash

<b>Classification:</b>	Chemical and splash: heavy duty
<b>Markets:</b>	General industry, heavy manufacturing, laboratories, chem/petrochemical, agriculture, pharmaceutical, oil and gas, mining
<b>Applications:</b>	Chipping, splash, chemical mixing, grinding, machining, power fastening, sanding, sawing
<b>Material:</b>	Propionate
<b>Color(s):</b>	Clear
<b>Available Styles:</b>	Molded visor; molded nitrometer
<b>Size:</b>	Varies.; see "Product Specifics" in Ordering Information chart
<b>Features:</b>	Performs well against many types of chemicals. Please refer to MSA's Chemical Application Quick Reference Guide (ID 0670-007/MC) for details Impact-rated (Z87+)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166 (MSA 1B 3); CSA Z94.3 and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	5

V-GARD VISORS FOR CHEMICAL AND SPLASH APPLICATIONS		Part No.	Product Specifics
	 	10115855	<ul style="list-style-type: none"> <li>• 8" (20.3 cm) x 17" (43.2 cm) x .098" (2.5mm)</li> <li>• Visor</li> <li>• Extra-thick to help prevent warping, cracking or crazing under tough conditions</li> </ul>
	 	10115856	<ul style="list-style-type: none"> <li>• 8" (20.3 cm) x 17" (43.2 cm) x .098" (2.5mm)</li> <li>• Nitrometer; for use with V-Gard Retractable or Standard Chin Protectors</li> <li>• Extra-thick to help prevent warping, cracking or crazing under tough conditions</li> </ul>
	 	10115851	<ul style="list-style-type: none"> <li>• 9.25" (23.5 cm) x 18" (45.7 cm) x .098" (2.5mm)</li> <li>• Visor</li> <li>• Extra-thick to help prevent warping, cracking or crazing under tough conditions</li> <li>• Extended length and width for greater coverage of neck and face</li> </ul>







V-Gard propionate visors offer both chemical resistance and impact protection, unlike most propionate visors on the market. Not only are they marked with Z87+, but the clear visors are also compliant with EN166, meaning they were tested at a velocity nearly 32% faster than ANSI/ISEA Z87.1-2010. V-Gard green tint propionate Visors also offer maximum UV protection.

<sup>1</sup>Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.

## V-Gard Visors: Elevated Temperature with High-Performance Anti-fog/Anti-scratch Coatings

<b>Classification:</b>	Elevated temperature
<b>Markets:</b>	Food manufacturing/canneries, steel mills, construction, open-pit mining, agriculture, oil/gas/petrochemical refineries, rubber manufacturing, steam tunnels
<b>Applications:</b>	Food processing, machine operation, maintenance, millwright, cutting, punching, extrusion, drilling, blasting, casting/conveying, chemical mixing, sanding
<b>Material:</b>	Polycarbonate with EN166 performance-rated anti-fog and anti-scratch coatings
<b>Color(s):</b>	Clear
<b>Available Styles:</b>	Molded
<b>Size:</b>	Varies; see "Product Specifics" in Ordering Information chart.
<b>Features:</b>	EN166 performance-rated anti-fog/anti-scratch coatings (N, K marks, respectively) Impact-rated (Z87+) Maximum UV protection ("U6") <b>Not for protection against radiant heat or IR hazards.</b>
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166 (2C-1.2 MSA 1BT89KN); CSA Z94.3 and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	5

V-GARD VISORS FOR ELEVATED TEMPERATURE APPLICATIONS			Part No.	Product Specifics
			10115844 	<ul style="list-style-type: none"> <li>• 9.25" (23.5 cm) x 17" (43.2 cm) x .098" (2.5mm)</li> <li>• Extra-thick visor helps prevent warping, cracking or crazing under tough conditions</li> <li>• Conditioned to a high of 131°F and a low of 23°F, and then tested to the medium impact rating in the EN166 standard (higher impact speed than ANSI/ISEA Z87.1-2010)</li> <li>• <b>Visors do not reflect IR; not recommended for use against radiant heat hazards</b></li> </ul>
			10115846 	<ul style="list-style-type: none"> <li>• 9.25" (23.5 cm) x 18" (45.7 cm) x .098" (2.5mm)</li> <li>• Extra-thick visor helps prevent warping, cracking or crazing under tough conditions</li> <li>• Extended length for greater coverage of face and neck</li> <li>• Conditioned to a high of 131°F and a low of 23°F, and then tested to the medium impact rating in the EN166 standard (higher impact speed than ANSI/ISEA Z87.1-2010)</li> <li>• <b>Visors do not reflect IR; not recommended for use against radiant heat hazards</b></li> </ul>








V-Gard molded clear and green tint Visors with anti-fog and anti-scratch coatings offer EN166 "N" and "K" markings, respectively, having passed strenuous testing to confirm performance levels.

<sup>1</sup>Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.

## V-Gard Visors: Elevated Temperature with High Performance Anti-fog/Anti-scratch Coatings (Tinted)

<b>Classification:</b>	Elevated temperature: Heavy Duty
<b>Markets:</b>	Construction, open-pit mining, agriculture, oil/gas/petrochemical refineries
<b>Applications:</b>	Food processing, machine operation, maintenance, millwright, cutting, punching, extrusion, drilling, blasting, casting/conveying, chemical mixing, sanding
<b>Material:</b>	Polycarbonate
<b>Color(s):</b>	Green tint
<b>Available Styles:</b>	Molded
<b>Size:</b>	Varies; see "Product Specifics" in Ordering Information chart
<b>Features:</b>	<p>EN166 performance-rated anti-fog/anti-scratch coatings (N, K marks, respectively)</p> <p>Impact-rated (Z87+)</p> <p>Green tint helps alleviate eyestrain and reduces glare</p> <p>Maximum UV protection ("U6")</p> <p><b>Not for protection against radiant heat or IR hazards.</b></p>
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166 (2.2 MSA 1BT39KN); CSA Z94.3 and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	5

V-GARD VISORS FOR ELEVATED TEMPERATURE APPLICATIONS		Part No.	Product Specifics
		10115845 	<ul style="list-style-type: none"> <li>• 9.25" (23.5 cm) x 17" (43.2 cm) x .098" (2.5mm)</li> <li>• Extra-thick visor helps prevent warping, cracking or crazing under tough conditions</li> <li>• Conditioned to a high of 131°F (and a low of -23°F) and then tested to the medium impact rating in the EN166 standard (higher impact speed than ANSI/ISEA Z87.1-2010)</li> <li>• <b>Visors do not reflect IR; not recommended for use against radiant heat hazards</b></li> <li>• <b>Not for use where a Shade IR visor is required</b></li> </ul>
		10115849 	<ul style="list-style-type: none"> <li>• 9.25" (23.5 cm) x 18" (45.7 cm) x .098" (2.5mm)</li> <li>• Extra-thick visor helps prevent warping, cracking or crazing under tough conditions</li> <li>• Extended length for greater coverage of face and neck</li> <li>• Conditioned to a high of 131°F (and a low of -23°F) and then tested to the medium impact rating in the EN166 standard (higher impact speed than ANSI/ISEA Z87.1-2010)</li> <li>• <b>Visors do not reflect IR; not recommended for use against radiant heat hazards</b></li> <li>• <b>Not for use where a Shade IR visor is required</b></li> </ul>
			







Many people mistakenly believe that green tinted visors offer protection from infrared (IR) radiation. If you need a specific reduction in the transmittance level for IR, look for a visor with a "W" or "R" mark - these are generally known as "shade" visors. Reflectance is another way to reduce the IR transmittance through a lens. See also "V-Gard Visors: Radiant Heat/Elevated Temperature" (page 127) for information about IR reflectance.

<sup>1</sup>Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.

## V-Gard Visors: Radiant Heat/Elevated Temperature

<b>Classification:</b>	Radiant heat/elevated temperature
<b>Markets:</b>	Metal industries, glass manufacturing, iron and steel foundries, chemical manufacturing, construction, general manufacturing, textile manufacturing, mining, oil and gas
<b>Applications:</b>	Grinding, pouring, casting, blowing/melting, rolling, sawing, cutting, crimping, millwrighting, machining/operating, pipelining, pulping
<b>Material:</b>	Polycarbonate
<b>Color(s):</b>	Clear, reflective-coated Green tint, reflective-coated
<b>Available Styles:</b>	Molded
<b>Size:</b>	9.5" (24.1 cm) x 17.75" (45.09 cm) x .07" (1.8 mm)
<b>Features:</b>	Reflects >60% Infrared (IR) radiation (EN166 "R" mark) in the 780nm to 2000nm wavelengths Impact-rated (Z87+) Maximum UV protection ("U6")
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166 (2C-2.5 MSA 1BT3R [clear] and 2-4 MSA 1BT3R [green tint]); CSA Z94.3 and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	5

V-GARD VISORS FOR ELEVATED TEMPERATURE/ RADIANT HEAT APPLICATIONS	Part No.		Product Specifics
		10115848 	<ul style="list-style-type: none"> <li>• Clear, reflective-coated</li> <li>• Reflective coating reflects IR and helps dissipate heat</li> <li>• Thick visor helps prevent warping, cracking or crazing under tough conditions</li> <li>• Extended length for greater coverage of face and neck; <b>DO NOT use for welding</b></li> </ul>
		10115850 	<ul style="list-style-type: none"> <li>• Green tint, reflective-coated</li> <li>• Reflective coating reflects IR and helps dissipate heat</li> <li>• Green tint helps alleviate eyestrain and reduces glare; <b>not for use where a Shade IR visor is required</b></li> <li>• Thick visor helps prevent warping, cracking or crazing under tough conditions</li> <li>• Extended length for greater coverage of face and neck; <b>DO NOT use for welding</b></li> </ul>









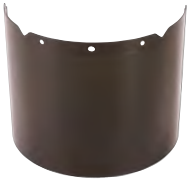


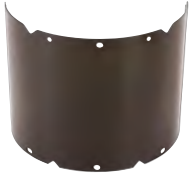

Reflective-coated visors offer protection from irradiance, or the electromagnetic radiation (EMR) energy created in elevated temperature environments. V-Gard Reflective Coated Visors offer an EN166 "R" mark. This means they have been certified to reflect >60% Infrared (IR) radiation in the 780 nm to 2000 nm wavelengths. V-Gard Reflective Visors have been shown to reduce temperatures behind the visor by several hundred degrees, and lower irradiance to below 0.1 kW/m<sup>2</sup>. For details on V-Gard Reflective-Coated Visor performance, please see the MSA White Paper, "Radiant Heat Resistance" (ID 0670-020 MC) and "MSA V-Gard® Reflective-Coated Visors: Radiant Heat Resistance Simplified" (ID 0670-023 MC), available on [MSAsafety.com](http://MSAsafety.com).

<sup>1</sup>Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.



## V-Gard Visors: Welding (Shade 3 and Shade 5)


<b>Classification:</b>	Welding
<b>Markets:</b>	Fabrication, steel mills, shipbuilding, construction, open-pit mining, agriculture, oil/gas/petrochemical refineries, rubber manufacturing
<b>Applications:</b>	Welding, metal pouring, gas soldering, light cutting/brazing, manufacturing, impact and debris
<b>Material:</b>	Polycarbonate
<b>Color(s):</b>	Shade 3 IR, green Shade 5 IR, green
<b>Available Styles:</b>	Molded or Nitrometer
<b>Size:</b>	8" (20.3 cm) x 17" (43.2 cm) x .07" (1.8 mm)
<b>Features:</b>	Protection from IR, up to Shade 3 or 5 (as noted) Impact-rated (Z87+)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166 (4-3/3 MSA 1BT39 [shade 3] and 4-5/5 MSA 1BT39 [shade 5]); CSA Z94.3 and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	5

V-GARD VISORS FOR WELDING APPLICATIONS		Part No.	Product Specifics
	 	10115859 	<ul style="list-style-type: none"> <li>• Shade 3 IR</li> <li>• Visor</li> <li>• Thickness helps prevent pitting and warping from heat or weld spatter</li> </ul>
		10115860 	<ul style="list-style-type: none"> <li>• Shade 3 IR</li> <li>• Nitrometer; for use with V-Gard Retractable or Standard Chin Protectors</li> <li>• Thickness helps prevent pitting and warping from heat or weld spatter</li> </ul>
	 	10115861 	<ul style="list-style-type: none"> <li>• Shade 5 IR</li> <li>• Visor</li> <li>• Thickness helps prevent pitting and warping from heat or weld spatter</li> </ul>
	 	10115862 	<ul style="list-style-type: none"> <li>• Shade 5 IR</li> <li>• Nitrometer; for use with V-Gard Retractable or Standard Chin Protectors</li> <li>• Thickness helps prevent pitting and warping from heat or weld spatter</li> </ul>


<sup>1</sup>Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.

## V-Gard Visors: Arc Flash Application<sup>1</sup>

<b>Classification:</b>	Arc
<b>Markets:</b>	Manufacturing, utilities, construction, oil/gas/petrochemical
<b>Applications:</b>	Maintenance, impact and debris, testing/repair
<b>Material:</b>	Polycarbonate
<b>Color(s):</b>	Special tint, light green
<b>Available Styles:</b>	Molded
<b>Size:</b>	9.25" (23.5 cm) x 18" (45.7 cm) x .065" (1.7 cm)
<b>Features:</b>	Rated to 12.9 cal/cm <sup>2</sup> (see "Product Specifics" in table below) Impact-rated (Z87+)
<b>Standards<sup>2</sup>:</b>	ANSI/ISEA Z87.1-2010; ASTM F2178-2008 (Ref: NFPA 70E, HRC 2)
<b>Certification:</b>	Third-party by Intertek and ArcWear
<b>Min Order Qty:</b>	5

V-GARD VISORS FOR ARC FLASH APPLICATIONS		Part No.	Product Specifics
		10115847	<ul style="list-style-type: none"> <li>• Visor</li> <li>• Extended length and width for greater coverage of face and neck</li> <li>• <b>Rated to 12.9 cal/cm<sup>2</sup></b> when tested to ASTM F2178-2008 (ref. NFPA 70E-2015 PPE Category 2), and when worn with a V-Gard Hard Hat (PN 475358) and V-Gard Frame (PN 10121266)</li> <li>• <i>Call MSA Customer Service (800-MSA-2222) for protection levels when using this V-Gard Arc Visor with other V-Gard Frames and MSA Helmet combinations</i></li> </ul>

<b>Classification:</b>	Arc
<b>Markets:</b>	Manufacturing, utilities, construction, oil/gas/petrochemical
<b>Applications:</b>	Maintenance, impact and debris, testing/repair
<b>Material:</b>	Polycarbonate
<b>Color(s):</b>	Special tint, light green
<b>Available Styles:</b>	Molded nitrometer
<b>Size:</b>	8" (20.3 cm) x 17.25" (43.8 cm) x .065" (1.7 cm)
<b>Features:</b>	Rated to 11.3 cal/cm <sup>2</sup> (see "Product Specifics" in table below) Impact-rated (Z87+)
<b>Standards<sup>2</sup>:</b>	ANSI/ISEA Z87.1-2010; ASTM F2178-2008 (Ref: NFPA 70E, HRC 2)
<b>Certification:</b>	Third-party by Intertek and ArcWear
<b>Min Order Qty:</b>	5




V-GARD NITROMETER WITH CHIN PROTECTOR FOR ARC FLASH APPLICATIONS		Part No.	Product Specifics
		10118480	<ul style="list-style-type: none"> <li>• Nitrometer; includes V-Gard Standard Chin Protector (required to achieve arc rating); must be assembled onto nitrometer by user</li> <li>• <b>Rated to 11.3 cal/cm<sup>2</sup></b> when tested to ASTM F2178-2008 (ref. NFPA 70E-2015 PPE Category 2), and when worn with a V-Gard Hard Hat (PN 475358) and V-Gard Frame (PN 10121266) and and V-Gard Standard Chin Protector (PN/10115827)</li> <li>• <i>Call MSA Customer Service (800-MSA-2222) for protection levels when using this V-Gard Arc Visor with other V-Gard Frames, V-Gard Chin Protectors and MSA Helmet combinations</i></li> </ul>

<sup>1</sup>Do not use V-Gard Arc Visors with V-Gard Headgear. These visors are designated for use with specified V-Gard Frames and MSA helmets ONLY. See "V-Gard Headgear" for additional details.

<sup>2</sup>Standards requirements met by each V-Gard Frame/V-Gard Visor combination designated on each V-Gard Visor.





## V-Gard Chin Protectors<sup>1</sup>

V-Gard Chin Protectors work with select V-Gard Nitrometers to help provide extra protection from impact and splash hazards to face and neck.




CHIN PROTECTORS		P/N 10115828 Retractable Chin Protector	<ul style="list-style-type: none"> <li>• 3.82" (9.7 cm) in height, when unretracted</li> <li>• Unique retractable plates allow greater flexibility of head movement both up and down, as well as side-to-side</li> <li>• Opaque polycarbonate ensures safety and standards compliance with clear, tinted, shaded and coated V-Gard Visors</li> <li>• Min Order Quantity: 5</li> </ul>
		P/N 10149029 Chin Protector	<ul style="list-style-type: none"> <li>• 2.86" (7.26 cm) in height</li> <li>• Clear polycarbonate for improved visibility</li> <li>• Compact, lightweight design provides additional protection between chin and neck area</li> <li>• Should not be worn with tinted, arc or shaded nitrometers to ensure compliance with stated Standards markings/requirements</li> <li>• Min Order Quantity: 5</li> </ul>
		P/N 10115827 Standard Chin Protector	<ul style="list-style-type: none"> <li>• 2.86" (7.26 cm) in height</li> <li>• Opaque high-density polyethylene ensures safety and standards compliance with clear, tinted, shaded and coated V-Gard Visors</li> <li>• Compact, lightweight design provides additional protection between chin and neck area</li> <li>• Min Order Quantity: 5</li> </ul>

## V-Gard Accessory System Kits

V-Gard Accessory System Kits are designed to offer easy customer solutions for a variety of needs – all in one convenient box.

V-GARD ACCESSORY SYSTEM KITS		P/N 10118695 V-Gard Accessory System Kit with V-Gard Cap	<b>Contains:</b> <ul style="list-style-type: none"> <li>• White V-Gard Cap with ratchet suspension (PN 475358)</li> <li>• V-Gard Frame for Slotted Caps; with debris control (PN 10115730)</li> <li>• V-Gard Clear, Polycarbonate Visor, 8" (20.3 cm) x 17" (43.2 cm) x .04" (1.02 mm) (PN 10115836)</li> </ul>
		P/N 10118697 V-Gard Accessory System Kit (without V-Gard Cap)	<b>Contains:</b> <ul style="list-style-type: none"> <li>• V-Gard Universal Frame for Caps with debris control (PN 10115822)</li> <li>• V-Gard Clear, Polycarbonate Visor, 8" (20.3 cm) x 17" (43.2 cm) x .04" (1.02 mm) (PN 10115836)</li> </ul> <b>Does not contain a MSA safety helmet.</b>
		P/N 10118694 V-Gard Forestry Kit	<b>Contains:</b> <ul style="list-style-type: none"> <li>• Hi-viz orange V-Gard Cap with ratchet suspension (PN 488146)</li> <li>• V-Gard Frame for Slotted Caps; with debris control (PN 10115730)</li> <li>• V-Gard Mesh Nitrometer (PN 10116558)</li> <li>• V-Gard Retractable Chin Protector (PN 10115828)</li> <li>• left/RIGHT, HIGH (NRR 28 db) Cap-Mounted Earmuffs (PN 10087422)</li> </ul>
		P/N 10118696 <sup>2</sup> V-Gard Accessory Arc Kit	<b>Contains:</b> <ul style="list-style-type: none"> <li>• White V-Gard Cap with ratchet suspension (PN 475358)</li> <li>• V-Gard Frame for Slotted Caps (PN 10121266)</li> <li>• V-Gard Arc Nitrometer with V-Gard Standard Chin Protector (PN 10118480); must be assembled by user prior to wearing to secure stated calorie rating.</li> <li>• Rated to 11.3 cal/cm<sup>2</sup> when tested to ASTM F2178-2008 (ref. NFPA 70E-2012, Hazard Risk Category 2), and when worn with a V-Gard Cap (PN 475358), V-Gard Frame (PN 10121266) and V-Gard Standard Chin Protector (PN/10115827)</li> </ul>

## V-Gard Accessory System Replacement Parts<sup>3</sup>

V-GARD ACCESSORY SYSTEM REPLACEMENT PARTS		P/N 10117496 (2 pair)	<ul style="list-style-type: none"> <li>• Slot Adaptors (2 pair). For use with V-Gard Frames for Slotted Caps</li> <li>• Sold in boxes of 10 (5 packages of 2)</li> </ul>
		P/N 10116539	<ul style="list-style-type: none"> <li>• Debris Control for V-Gard Frames</li> <li>• Debris control exceeds EN requirements for molten metal</li> <li>• All-rubber construction</li> <li>• Min Order Quantity: 10</li> </ul>
		P/N 10117495	<ul style="list-style-type: none"> <li>• Heavy Duty Rubber Strap for V-Gard Universal Cap or Hat Frames</li> <li>• Min Order Quantity: 10</li> </ul>

<sup>1</sup> MSA V-Gard Chin Protectors meet the applicable safety requirements as noted on the V-Gard Nitrometer Visor when worn in conjunction with V-Gard Frames and V-Gard Nitrometer Visors.


<sup>2</sup> Call MSA Customer Service (800-MSA-2222) for protection levels when using this V-Gard Arc Visor with other V-Gard Frames, V-Gard Chin Protectors and MSA Helmet combinations.

<sup>3</sup> Use only genuine MSA V-Gard Accessory System replacement parts to help ensure compatibility and compliance. MSA does not warrant, guarantee, or promote the use of components manufactured by other companies when used in conjunction with MSA products.


## V-Gard Headgear

V-Gard Headgear can be used for face protection when head protection is not required. V-Gard Headgear is available in two versions: General Purpose and Elevated Temperature (Extended). V-Gard Headgear are designed and approved for use with V-Gard Visors.<sup>1</sup>

<b>Classification:</b>	General purpose
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, metalworking, automotive, mining, chemical industries
<b>Applications:</b>	Chipping, splash, chiseling, drilling, grinding, machining, power fastening, sanding, sawing, laboratory
<b>Material:</b>	High Density Polyethylene (HDPE)
<b>Color(s):</b>	Black
<b>Available Styles:</b>	Ratchet closure
<b>Size:</b>	Standard (6½ – 8)
<b>Standards<sup>2</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166; CSA Z94.3; and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	10

V-GARD HEADGEAR FOR GENERAL PURPOSE APPLICATIONS	Part No.	Product Specifics
	10127061	<ul style="list-style-type: none"> <li>• Patent-pending, Infini-just lift/closure with grippable knobs that don't unscrew; no parts to lose!</li> <li>• Seven-point crown adjustment</li> <li>• Replaceable, sweat-wicking, cushioned headband helps keep workers dry and cool</li> <li>• Sweat-wicking ratchet cover keeps nape comfortable</li> <li>• For use ONLY with V-Gard Visors; <b>not for use where head protection is required</b></li> <li>• All non-metal construction</li> </ul>

<b>Classification:</b>	Elevated temperature
<b>Markets:</b>	Food manufacturing/canneries, steel mills, construction, open-pit mining, agriculture, oil/gas/petrochemical refineries, rubber manufacturing, and steam tunnels
<b>Applications:</b>	Food processing, machine operation, maintenance, millwright, cutting, punching, extrusion, drilling, blasting, casting/conveying, chemical mixing, sanding
<b>Material:</b>	Heat-Resistant Nylon
<b>Color(s):</b>	Gray
<b>Available Styles:</b>	Ratchet closure
<b>Size:</b>	Standard (6½ – 8)
<b>Standards<sup>2</sup>:</b>	ANSI/ISEA Z87.1-2010; EN 166; CSA Z94.3; and AS/NZS 1337
<b>Certification:</b>	Third-party by Intertek, INSPEC International Ltd., CSA International and SAI Global Ltd.
<b>Min Order Qty:</b>	5

V-GARD HEADGEAR FOR ELEVATED TEMPERATURE APPLICATIONS	Part No.	Product Specifics
	10127062	<ul style="list-style-type: none"> <li>• Extended browguard for additional coverage in high temperatures</li> <li>• Tested to withstand temperatures up to 400°F<sup>3</sup></li> <li>• Patent-pending, Infini-just lift/closure with grippable knobs that don't unscrew;</li> <li>• Seven-point crown adjustment</li> <li>• Replaceable, sweat-wicking, cushioned headband helps keep workers dry and cool</li> <li>• Sweat-wicking ratchet cover keeps nape comfortable</li> <li>• For use ONLY with V-Gard Visors; <b>not for use where head protection is required</b></li> <li>• All non-metal construction</li> </ul>

<sup>1</sup> **DO NOT** use V-Gard Headgear with V-Gard Arc Visors tested to ASTM F2178-2008 Test Method (ref. NFPA 70E-2012, Hazard Risk Category). These visors are designated for use with specified V-Gard Frames and MSA helmet ONLY as face protection for workers exposed to high voltage electric arcs. V-Gard Headgear has not been tested or certified to the Test Method, and should not be used for this type of Arc Flash protection.

<sup>2</sup> Standards requirements met by each V-Gard Frame or Headgear/V-Gard Visor combination designated on each V-Gard Visor.



<sup>3</sup> Exposure to extreme heat can cause thermal discomfort. Proper precautions should be taken to prevent heat stress and other injuries.



# Head, Eye, Face, and Hearing **Protection**


## V-Gard Headgear

V-Gard Headgear Kits offer simple and complete solutions for many general purpose and elevated temperature applications where face protection ONLY is needed.

V-GARD HEADGEAR KITS		P/N 10127063 V-Gard Headgear Kit, General Purpose	<b>Contains:</b> <ul style="list-style-type: none"><li>• V-Gard General Purpose Headgear (PN 10127061)</li><li>• V-Gard Clear, PC Visor, 8" (20.3 cm) x 17" (43.2 cm) x .04" (1.02 mm) (PN 10115836)</li></ul>
		P/N 10127064 V-Gard Headgear Kit, Elevated Temperature	<b>Contains:</b> <ul style="list-style-type: none"><li>• V-Gard Headgear, Elevated Temperature, Extended (PN 10127062)</li><li>• V-Gard Clear, Green tint PC, reflective coating, molded, 9.5" (24.1 cm) x 17.75" (45.09 cm) x .07" (1.78 mm) (PN 10115850)</li></ul>

## V-Gard Headgear Replacement Sweatband<sup>1</sup>

V-Gard Headgear Kits offer simple and complete solutions for many general purpose and elevated temperature applications where face protection ONLY is needed.

V-GARD HEADGEAR REPLACEMENT SEWATBAND		P/N 10127065 V-Gard Headgear Replacement Sweatband	<ul style="list-style-type: none"><li>• Sweat-wicking material over breathable foam helps keep workers cool, dry and comfortable</li><li>• Hook &amp; loop closure makes replacement easy</li><li>• Tested to the FR requirements in CSA Z94.3-07</li><li>• Sold in boxes of 25 (5 packages of 5)</li></ul>
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<sup>1</sup>Use only genuine MSA V-Gard Headgear replacement parts to help ensure compatibility and compliance. MSA does not warrant, guarantee or promote the use of components manufactured by other companies when used in conjunction with MSA products.






## V-Gard Winter Liners

**Flame resistant (FR)** garments are made of special fibers that allow them to self-extinguish when exposed to flame or thermal ignition. Flame resistance cannot be removed by washing. Unlike many other winter liners in the market, ALL layers of fabric in V-Gard Supreme Liners are flame resistant, affording FR protection throughout the life of the product.<sup>1</sup> For this reason, only V-Gard Supreme Liners offer resistance to arc exposure.



**Flame retardant** garments have been chemically treated to resist burning when a flame is present. While chemical treatment can wear off after the first wash, all layers of ALL V-Gard Select products offer flame retardancy up to 50 washings.














<b>V-GARD SUPREME LINERS</b> 		<b>P/N 10118421</b> Flame-Resistant V-Gard Supreme Liner	<ul style="list-style-type: none"> <li>• Multiple layers of flame-resistant fabric</li> <li>• Fabric tested to withstand arc exposure to an ATPV of 8 cal/cm<sup>2</sup></li> <li>• Water repellant</li> <li>• Adjustable chinstrap</li> <li>• Inside neck pocket holds warming packet<sup>2</sup></li> <li>• <b>Sold in sets of 3</b></li> </ul>
		<b>P/N 10118425</b> Flame-Resistant V-Gard Supreme Liner, Extended, 1-piece	<ul style="list-style-type: none"> <li>• Multiple layers of flame-resistant fabric</li> <li>• Fabric tested to withstand arc exposure to an ATPV of 8 cal/cm<sup>2</sup></li> <li>• Water repellant</li> <li>• Inside neck pocket holds warming packet<sup>2</sup></li> <li>• Extended nape and wraparound collar for tucking into coat/shirt</li> <li>• Quilted flaps allow uncompromised hearing protection levels when using earmuffs</li> <li>• <b>Sold in sets of 3</b></li> </ul>
	 	<b>P/N 10118427</b> Flame-Resistant V-Gard Supreme Liner, 2-piece	<ul style="list-style-type: none"> <li>• Multi-layered flame-resistant top cap</li> <li>• Fabric tested to withstand arc exposure to an ATPV of 8 cal/cm<sup>2</sup></li> <li>• Water repellant</li> <li>• Inside neck pocket holds warming packet<sup>2</sup></li> <li>• Extended, zipper on/off high-bulk flame-resistant knit bottom</li> <li>• No metal parts</li> <li>• <b>Sold in sets of 3</b></li> </ul>

<sup>1</sup>Garment care instructions must be followed. <sup>2</sup>Warming packets available at most sporting goods retailers; not sold with liners.



According to one of the formal, certifying test houses, winter liners cannot be certified to "NFPA 2112, Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire," as they are not considered "garments" under this Standard. Please contact MSA Customer Service for details.

## Head, Eye, Face, and Hearing **Protection**

<b>V-GARD SELECT LINERS</b>  	 	<b>P/N 10129659</b> Flame-Retardant V-Gard Select Liner, 2-piece	<ul style="list-style-type: none"> <li>• Double-layered flame retardant top cap, up to 50 washes</li> <li>• Extended, zipper on/off double-layer knit bottom; flame retardant, up to 50 washes</li> <li>• No metal parts</li> <li>• Water repellent</li> <li>• <b>Sold in sets of 12</b></li> </ul>
	 	<b>P/N 10129654</b> Flame-Retardant V-Gard Select Liner, Extended, No Earflaps	<ul style="list-style-type: none"> <li>• Two layers of fabric, flame retardant to 50 washes</li> <li>• Water repellent</li> <li>• Extended nape and wraparound collar for tucking into coat/shirt</li> <li>• For applications where earmuffs are not worn</li> <li>• <b>Sold in sets of 12</b></li> </ul>
		<b>P/N 10118420</b> Flame-Retardant V-Gard Select Liner	<ul style="list-style-type: none"> <li>• Two layers of fabric, flame retardant to 50 washes</li> <li>• Water repellent</li> <li>• Adjustable chinstrap</li> <li>• Quilted flaps allow uncompromised hearing protection levels when using earmuffs</li> <li>• <b>Sold in sets of 12</b></li> </ul>
<b>V-GARD VALUE LINERS</b>	 	<b>P/N 10118417</b> V-Gard Liner Knit Cap	<ul style="list-style-type: none"> <li>• Stylish skullie cap</li> <li>• Design prevents liner from obstructing vision</li> <li>• 100% high bulk acrylic</li> <li>• <b>Sold in sets of 12</b></li> </ul>
		<b>P/N 10118418</b> V-Gard Liner Knit Hat-Cap Cover	<ul style="list-style-type: none"> <li>• 100% acrylic</li> <li>• Bright yellow-green for greater visibility</li> <li>• Full face tube mounts under or over brim of MSA caps or hats, covering ears, mouth, cheeks and neck</li> <li>• Extended nape and wraparound collar for tucking into coat/shirt</li> <li>• <b>Sold in sets of 12</b></li> </ul>
		<b>P/N 10118419</b> V-Gard Value Liner	<ul style="list-style-type: none"> <li>• 100% cotton twill</li> <li>• Adjustable chin strap</li> <li>• <b>Sold in sets of 12</b></li> </ul>
	 	<b>P/N 10118422</b> V-Gard Value Liner, Extended	<ul style="list-style-type: none"> <li>• 100% cotton twill</li> <li>• Extended nape and wraparound collar for tucking into coat/shirt</li> <li>• <b>Sold in sets of 12</b></li> </ul>

## SunShade Hard Hat Accessory



MSA SunShades not only help to protect wearer's ears and neck from sun and heat, but also enhance worker visibility with contrasting color band and reflective striping. Fit most hats and caps. Features include:

- Breathable, bright mesh fabric
- Choice of bright yellow-lime or orange colors
- Hat clips help to keep SunShade from falling or rotating
- Min Order Qty: 5

SUNSHADE HARD HAT ACCESSORY	10098032	SunShade, Yellow-Green, with reflective striping
	10098031	SunShade, Orange, with reflective striping

## Sun Shields

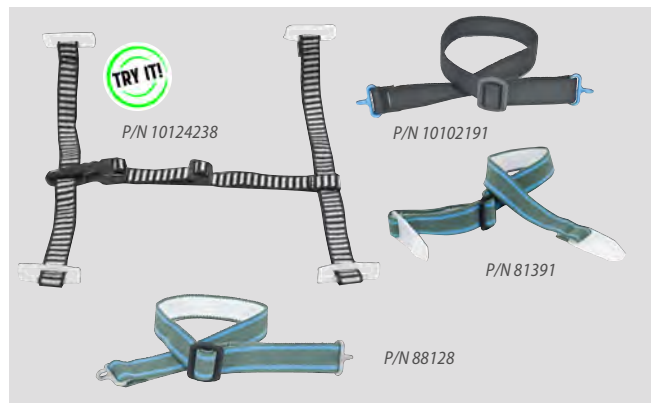


Protect ears and neck from sun and heat with these easily attachable brims. Extends brim all the way around the helmet. Made of flexible, resilient polyurethane, these brims feature a smoke-tinted, Lexan constructed front:

- Polyurethane brim extender protects against sun and heat
- Easily attaches to helmets and caps
- Smoke-tinted Lexan front for extra protection

SUN SHIELD HARD HAT ACCESSORY	697290	Sun Shield, for Standard V-Gard Caps only
	697410	Sun Shield, for V-Gard Hats only
	10039114	Sun Shield, for V-Gard 500 Caps only

## Chinstraps



Put and keep MSA helmets in their place with these comfortable, adjustable chinstraps.

- 2-, 3- and 4-point chinstraps available
- Non-metal chinstraps keep helmets in place
- Attaches directly to shell or suspension (as noted)
- Flexible construction and adjustable design for long-wearing comfort
- Available in cotton, polyester, nylon, or Nomex® webbing

CHINSTRAPS		
10124238		Chinstrap, 4-pt, 3/4" polyester webbing, attaches to suspension (pkg of 10)
10102191 <sup>1</sup>		Chinstrap, 2-pt, 3/4" Nomex webbing, attaches to shell
81390		Chinstrap, 2-pt, 3/4" cotton webbing, attaches to suspension
81391		Chinstrap, 2-pt, 3/4" polyester webbing, attaches to suspension
81329		Chinstrap, 2-pt, 3/4" cotton webbing, attaches to shell
88128		Chinstrap, 2-pt, 3/4" polyester webbing, attaches to shell
804629		Chinstrap, 3-pt, 3/4" nylon webbing, for Vanguard helmets only

<sup>1</sup>For elevated temperatures; flame-resistant. Not recommended for use where molten metal splash hazards exist.



## Custom Terri-Band Sweatband



Custom design fits all MSA suspensions. Washable, with plastic snaps.

CUSTOM TERRY SWEATBAND	10068911	Custom Terri-Band Sweatband (single)
	696688	Custom Terri-Band Sweatband (pkg of 10)

## Helmet Lights



MSA offers two helmet lights that fit into our special cap adapters. Both of the lights are FM and CSA-approved for intrinsic safety, and are non-incendive.

HELMET LIGHTS	697259 <sup>1</sup>	VersaLite Helmet Light with 2 AA alkaline batteries
	697261 <sup>2</sup>	Stealthlite Helmet Light (batteries not included)
	814322	Light holder for slotted cap, no metal parts

<sup>1</sup>VersaLite Helmet Light does not include, but requires, slot adapter (P/N 10117496 – see p. 130) to work in helmet slots.

<sup>2</sup>Stealthlite Helmet Light does not include, but requires, batteries and a light holder to work in helmet slots.

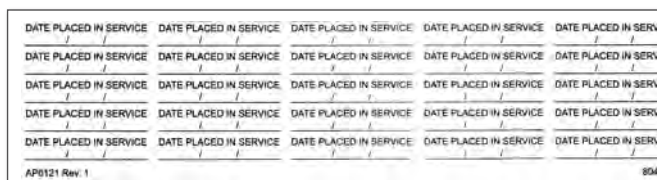
## Medical Information Carrier System



This simple helmet accessory provides crucial, lifesaving information in the event of a medical crisis on the job. Trilingual for today's multicultural workforce.

MEDICAL INFORMATION CARRIER SYSTM	10013393	Medical Information Carrier System (pkg of 10)—English/Spanish/French
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## In-Service Helmet Label



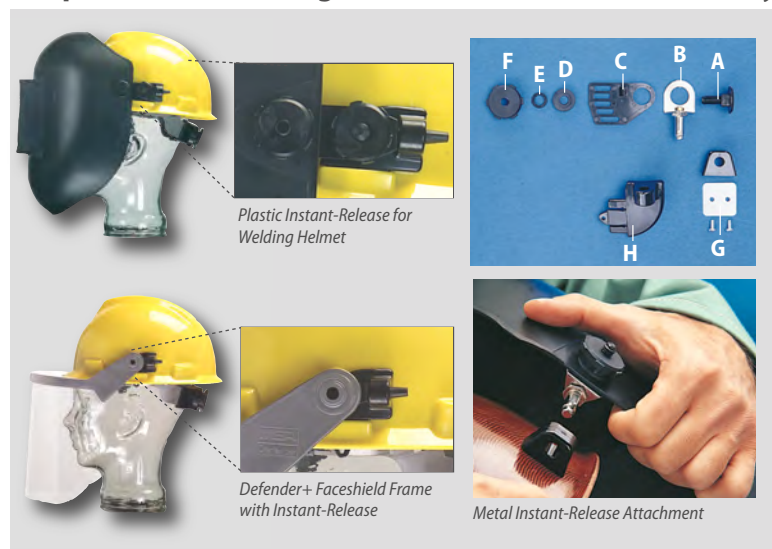
Add this label to the inside of helmet with the date the helmet was first used to track the shell's service life. MSA recommends that you replace the shell every 5 years and the suspension every 12 months.

IN-SERVICE HELMET LABEL	804358	In-Service Helmet Label (sheet of 25)
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## Welding Adapter Kits

### Adapter Kits for Welding Shields and Defender+ Assembly



Kits permit the easy attachment of Welding Shields and Sparkgard Faceshields with visors to MSA's helmets.

### Welding Shields and Accessories



MSA's thermal plastic welding shields protect workers' eyes and face from infrared burns, flying sparks, hot metal spatter and chips encountered in welding operations. The nylon welding shields come in a variety of styles.

For Shade 5 IR welding visors, see p. 128.

For Shade 5 IR welding spectacles, see p. 160.

ADAPTER KITS FOR WELDING SHIELDS AND DEFENDER+ ASSEMBLY		
WELDING ADAPTER KITS	488525	Standard Adapter for Welding Helmets and Sparkgards
	806211	EC Adapter Kit (positive positioning type)
	456568	Sparkgard only
PLASTIC INSTANT-RELEASE ATTACHMENT*	10036456	Quick Disconnect Kit, welder's adapter, with lugs
DEFENDER+ FRAME WITH INSTANT-RELEASE ATTACHMENT	10037098	Defender+ frame for slotted cap, without lock-down
METAL INSTANT-RELEASE ATTACHMENT	485460	Instant-Release and lugs for slotted caps (A, B, C, D, E, F, H)
	468771	Lugs only, for instant-release slotted caps (H)
	48733	Lugs only, for instant-release non-slotted caps (G)
WELDING SHIELDS AND ACCESSORIES		
WELDING SHIELDS ONLY <i>Less headgear and attachments</i>	695943	Plate Size: 2" x 4¼", non-coated black, slim-line, lift front
	695946	Plate Size: 2" x 4¼", non-coated black, full-curved, lift front
	695888	Plate Size: 4½" x 5¼", coated silver, slim-line, fixed front
POLYCARBONATE PLATES <i>Meet ANSI/ISEA Z87.1</i>	791923	Plate Size: 2" x 4¼", shade 5
	791928	Plate Size: 2" x 4¼", shade 10
	791930	Plate Size: 2" x 4¼", shade 12
	38347	Plate Size: 4½" x 5¼", shade 10
	38277	Plate Size: 4½" x 5¼", shade 10
POLYCARBONATE COVER/BACK PLATES	791933	Plate Size: 2" x 4¼", clear
	696095	Plate Size: 4½" x 5¼", clear

\*Note: Cannot be used on Vented V-Gard 500 Caps.

## Industrial Hearing Protection and Communication Systems





MSA has an impressive line of passive and electronic hearing protection and communication system products for nearly every industrial application. In fact, MSA offers what customers want most: economical options, cutting-edge technology, quality and outstanding performance.



### Helmet Mounted, Passive

#### SoundControl® Classic Hearing Protection

MSA SoundControl Classic hearing protection offers four helmet-mounted options for MSA caps and full brim hats. The classic line offers lightweight, low-profile cups with various protection levels for low to loud noise worksites.



<b>Classification:</b>	Slotted Helmet-Mounted, Passive
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, mining
<b>Applications:</b>	Confined space, sanding/grinding, power tool use, occupations with non-impulse noise, demolition, assembly
<b>Compatible PPE:</b>	V-Gard® Slotted and Universal Frames – no additional parts needed Most V-Gard Visors MSA Slotted Helmets (cap or full brim, as indicated)
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class A Standards


	Product Name	Part No.	NRR	Product Features
	SoundControl HPE	10061272	27 dBA	<ul style="list-style-type: none"> <li>• For use with MSA slotted caps</li> <li>• Excellent protection against low-frequency noises, such as road vehicles, aircraft or wind turbines.</li> <li>• Easy to adjust cups – even with gloves on</li> <li>• Spring arm design provides proper closure and low pressure</li> </ul>
	SoundControl EXC	10061230	25 dBA	<ul style="list-style-type: none"> <li>• For use with MSA slotted caps</li> <li>• Provide excellent attenuation and maximum ear space</li> <li>• Three distinct wearing positions</li> </ul>
	SoundControl XLS	10061535	23 dBA	<ul style="list-style-type: none"> <li>• For use with MSA slotted caps</li> <li>• Easy to remove ear cushions for quick replacement</li> </ul>
	SoundControl SH	10129327	25 dBA	<ul style="list-style-type: none"> <li>• For use with MSA slotted full brim helmets</li> <li>• Does not interfere with Class E rating of MSA Slotted Full Brim Helmets</li> <li>• Three wearing positions</li> </ul>

	Product Name	Part No.	Product Features
	HPE Hygiene Kit	10061291	<ul style="list-style-type: none"> <li>• Foam cushions and inserts</li> <li>• Works with Classic hearing protection helmet-mounted or headband products</li> </ul>
	EXC Hygiene Kit	10061292	
	XLS Hygiene Kit	10061537	

## Helmet Mounted, Passive

<b>Classification:</b>	Non-Slotted Helmet-Mounted, Passive
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, shipbuilding, mining
<b>Applications:</b>	High-noise environments, industrial plants, construction sites
<b>Compatible PPE:</b>	V-Gard Universal Frames – no additional parts needed Most V-Gard Visors MSA Non-Slotted Helmets (cap or full brim, as indicated)
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	Sound Blocker™ 26	10022021	26 dBA	<ul style="list-style-type: none"> <li>• For use with MSA non-slotted caps</li> <li>• Requires drilling into the helmet to mount the muffs</li> <li>• The ANSI/ISEA Z89.1 class rating of a drilled helmet is Class C</li> </ul>
	Soprano™	10034487	25 dBA	<ul style="list-style-type: none"> <li>• For use with MSA non-slotted full brim hats</li> <li>• Requires drilling into the helmet to mount the muffs</li> <li>• The ANSI/ISEA Z89.1 class rating of a drilled helmet is Class C</li> </ul>

	Product Name	Part No.	Product Features
	SoundBlocker 26 Hygiene Kit	10003360	<ul style="list-style-type: none"> <li>• Foam cushions and inserts</li> </ul>



*The Noise Reduction Rating (NRR) describes the average sound level reduction (“attenuation”) provided by hearing protectors in a laboratory setting. Because the NRR reflects lab (and perhaps not real-world) usage, the Occupational Safety and Health Administration (OSHA), recommends “de-rating” the NRR to help account for incorrect fit and inconsistent wear time on worksites. OSHA’s methodology for Estimating Hearing Protector Attenuation<sup>1</sup>:*

1. 8-hour Time Weighted Exposure (TWA) = 94 dBA
2. NRR of hearing protector = 31 dBA
3. Subtract 7 dB from the NRR = 31 dB – 7 dB is 24 dB
4. Reduce value by 50% = 12 dB
5. Subtract this value from the TWA = 82 dB (Estimated Protection)
6. Decide if the Estimated Protection works for your environment!




<sup>1</sup>[https://www.osha.gov/dts/osta/otm/noise/hcp/attenuation\\_estimation.html](https://www.osha.gov/dts/osta/otm/noise/hcp/attenuation_estimation.html)


## Helmet Mounted, Passive

### left/RIGHT® Passive Hearing Protection

MSA left/RIGHT passive hearing protection offers three helmet-mounted options. MSA left/RIGHT earmuffs are different from any other on the market: the cups are designed to account for the asymmetrical position of each ear on the head. MSA left/RIGHT cups can be adjusted to the angle of the ear, and also independently raised or lowered. MSA left/RIGHT muffs offer a truly personal fit.

<b>Classification:</b>	Slotted Helmet-Mounted, Passive
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, shipbuilding, mining
<b>Applications:</b>	Heavy mechanical industries, compression rooms, airports (HIGH) Utilities, construction, general industry (MEDIUM) Food manufacturing, automotive, light industry (LOW)
<b>Compatible PPE:</b>	V-Gard Slotted and Universal Frames – no additional parts needed Most V-Gard Visors MSA Slotted Caps
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT (HIGH)	10087422	28 dBA	<ul style="list-style-type: none"> <li>• For use with MSA slotted caps</li> <li>• For use in high-noise environments, such as paper mills, foundries, mines and airports</li> <li>• Cups are sized and shaped to provide space for most ear sizes</li> </ul>
	left/RIGHT (MEDIUM)	10087429	25 dBA	<ul style="list-style-type: none"> <li>• For use with MSA slotted caps</li> <li>• For use in medium-noise environments, such as oil, gas and petrochemical, forestry and agriculture</li> <li>• Cups are sized and shaped to provide space for most ear sizes</li> </ul>
	left/RIGHT (LOW)	10087439	21 dBA	<ul style="list-style-type: none"> <li>• For use with MSA slotted caps</li> <li>• For use in low-noise environments, such pharmaceuticals and outside maintenance, where overprotection is a concern</li> </ul>

	Product Name	Part No.	Product Features
	left/RIGHT (HIGH) Hygiene Kit	10092880	<ul style="list-style-type: none"> <li>• Cushions and inserts</li> <li>• Works with left/RIGHT passive helmet-mounted or headband products</li> </ul>
	left/RIGHT (MEDIUM) Hygiene Kit	10092879	
	left/RIGHT (LOW) Hygiene Kit	10092878	




*The pinnae (or auricles) are the external parts of the ear most people are familiar with. Like most paired anatomical structures, your two pinnae differ in shape. They also differ in location, being slightly asymmetrical to each other on both the vertical and horizontal planes of the head.*


## Helmet Mounted, Electronic

### left/RIGHT Electronic Hearing Protection

MSA left/RIGHT electronic hearing protection has three different helmet-mounted options that offer protection, communication and listening pleasure! Like their passive hearing protection counterparts, MSA left/RIGHT electronic cups can be adjusted to the angle of the ear, and also independently raised or lowered. Plus, left/RIGHT electronic muffs offer surface-coated electronics to help protect against impact and damage.

<b>Classification:</b>	Helmet-Mounted, Electronic with FM Radio
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining, agriculture
<b>Applications:</b>	Manufacturing/assembly, DIY
<b>Compatible PPE:</b>	V-Gard Slotted and Universal Frames – no additional parts needed Most V-Gard Visors MSA Slotted Caps
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT FM Pro	10111829	20 dBA	<ul style="list-style-type: none"> <li>• For use with MSA slotted caps</li> <li>• FM radio with excellent reception and superior sound quality and balance</li> <li>• Sound levels limited to a safe 82dB</li> <li>• Automatic tuning and volume adjustment via push buttons</li> <li>• Battery save and low battery warning functions</li> <li>• AUX input for MP3 player</li> </ul>

	Product Name	Part No.	Product Features
	left/RIGHT FM Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> <li>• Cushions, distance rings and inserts</li> <li>• Works with left/RIGHT helmet-mounted or headband electronic products</li> </ul>



*The most recent head protection standard, ANSI/ISEA Z89.1-2014, states that an accessory/component manufacturer is responsible to prove their products do not cause another manufacturer's helmet to fail:*


*"The entity claiming that an accessory or replacement component, when installed, does not cause the helmet to fail the requirements of this standard is responsible for providing justification upon request."*


*If you choose to wear hearing protectors other than an MSA product on an MSA helmet, be sure to check with the product's manufacturer for test results showing the helmet's compliance to ANSI/ISEA Z89.1 when their product and MSA helmets are tested together.*



Helmet Mounted, Electronic

- Classification:** Helmet-Mounted, Electronic with Cut Off
- Markets:** General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining
- Applications:** Manufacturing/assembly, food processing, high-impulse noise environments (such as steel and shipyards)
- Compatible PPE:** V-Gard Slotted and Universal Frames – no additional parts needed  
V-Gard Visors  
MSA slotted caps
- Standards:** Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT Cut Off Pro	10111823	20 dBA	<ul style="list-style-type: none"><li>• For use with MSA slotted caps</li><li>• Sound levels limited to a safe 82dB</li><li>• Enables face to face communication while hearing is protected</li><li>• Amplifies weak signals through the electronic system</li><li>• Requires two 1.5V AA/LR6 batteries</li><li>• Battery save and low battery warning functions</li><li>• AUX input for MP3 player</li></ul>


	Product Name	Part No.	Product Features
	left/RIGHT Cut Off Pro Hygiene Kit	10094605	<ul style="list-style-type: none"><li>• Cushions, distance rings and inserts</li><li>• Works with left/RIGHT helmet-mounted or headband electronic products</li></ul>




*Both the Cut Off Pro and the Dual Pro offer a level-dependent feature that allows the user to hear ambient sounds. Excess sound is compressed, not blocked, to a safe noise level of 82 dBA maximum. Additionally, low-level sounds are amplified so that face-to-face communication is possible—even while wearing hearing protection!*

## Helmet Mounted, Electronic

<b>Classification:</b>	Helmet-Mounted, Electronic , FM Radio & Cut Off Combination
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining, agriculture
<b>Applications:</b>	Manufacturing/assembly, high-impulse noise environments (such as steelworking)
<b>Compatible PPE:</b>	V-Gard Slotted and Universal Frames – no additional parts needed V-Gard Visors MSA Slotted Caps
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT Dual Pro	10111832	20 dBA	<ul style="list-style-type: none"> <li>• For use with MSA slotted caps</li> <li>• FM radio with excellent reception and superior sound quality</li> <li>• Speaker audio is limited to a safe 82dB</li> <li>• Enables face-to-face communication while hearing is protected</li> <li>• Level-dependent function allows users to hear ambient sounds (like warning signals and moving vehicles)</li> <li>• Requires two 1.5V AA/LR6 batteries; ~300 operating hours</li> <li>• Low battery warning signal</li> <li>• AUX input for MP3 player</li> </ul>

	Product Name	Part No.	Product Features
	left/RIGHT Dual Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> <li>• Cushions, distance rings and inserts</li> <li>• Works with left/RIGHT helmet-mounted or headband electronic products</li> </ul>



*Unprotected hearing at sustained noise levels between 90-95 db can cause permanent hearing loss. But, even short term exposure at 140dB with hearing protection could cause such damage. For a guide of noise levels vs. MSA protector you need, please see the Attenuation Chart on next page. Keep in mind that labeled noise reduction values are based on laboratory tests. To ensure protection, those wearing hearing protectors for occupational exposures must be enrolled in a worksite hearing conservation program.*

## Attenuation Chart

The attenuation chart below provides guidance on potential noise and protection levels for various types of work environments. This chart is provided as a tool for guidance in selecting protectors, however, it is not intended to replace a worksite-specific hearing conservation program where hearing protectors are required for occupational noise exposure.

Sound Level (dBA)	Example	Dangerous Unprotected Exposure Time	Suggested MSA Product	Style	NRR (EPA Label) <sup>1</sup>	NRR Reduction <sup>2,3</sup>	Derated Protection <sup>2,3</sup>	Estimated Protected Exposure <sup>2,3</sup>
85	Noise from city traffic	8 hours	Economuff	Headband	20	6.5	13.5	71.5
88	Backhoe	4 hours	left/RIGHT (LOW)	Headband Cap-Mounted	21	7	14	74
91	Home Stereo	2 hours	XLS	Headband Cap-Mounted	23	8	15	76
92	Crane	1.5 hours	Economuff MultiPosition (over the head) EXC	Headband Cap-Mounted	24	8.5	15.5	76.5
93	Bulldozer	1 hour	left/RIGHT (MEDIUM) EXC Soprano SoundControl SH	Headband Cap-Mounted (Slotted) Hat-Mounted (Non-Slotted) Full Brim Mounted (Slotted)	25	9	16	77
94	Front-end loader	1 hour	HPE	Headband Cap-Mounted	27	10	17	77
95	Lawn-mower	45 minutes	SoundBlocker 26	Cap-Mounted (Non-slotted)	26	9.5	16.5	78.5
97	Concrete joint cutter	30 minutes	left/RIGHT (HIGH)	Headband Cap-Mounted	28	10.5	17.5	79.5
100	Heavy equipment operation	15 minutes	Dual Protection <sup>4</sup> (FormFit II Uncorded Plugs + any MSA passive hearing protector)	Plugs + one: Cap-Mounted Full Brim Mounted Headband	31	12	23.5	76.5
103	Power saw	7.5 minutes	Dual Pro Cut-Off Pro	Cap-Mounted Headband	20 22	NA	NA	82
106	Abrasive blasting	< 4 minutes	Dual Pro Cut-Off Pro	Cap-Mounted Headband	20 22	NA	NA	82
109	Jack hammer	< 2 minutes	Dual Pro Cut-Off Pro	Cap-Mounted Headband	20 22	NA	NA	82
112	Rock drilling	< 1 minute	Dual Pro Cut-Off Pro	Cap-Mounted Headband	20 22	NA	NA	82



**You cannot simply add the NRR levels from a plug and muff to get a “dual protection level.” Rather, properly worn hearing protectors worn together will add 4-5 dB to the higher of the two NRR levels (after the higher number is de-rated<sup>2</sup>). It's best to wear cordless earplugs in dual protection situations to prevent compromising cup seal.**

**Keep in mind, dual protection can isolate the wearer, so plugs and muffs should only be worn together where there are extreme noise levels (i.e., where the 8-hour TWA exposure exceeds 100 decibels).**

<sup>1</sup> The labeled values of noise reduction are based on laboratory tests. To accurately assess occupational noise levels and understand required hearing protection, please refer to the occupational hearing conservation program at your worksite.

<sup>2</sup> For details on de-rating stated attenuation levels, please see page 139.

<sup>3</sup> Experts indicate that overprotection can occur at protected exposure levels of 70 dBA or lower.



<sup>4</sup> For details on dual protection, please see above.

## Headband, Passive

### Economuff Value Hearing Protection

MSA Economuff Value hearing protection offers two headband options. Economuff hearing protectors provide cost-effective options that don't sacrifice comfort or protection.

<b>Classification:</b>	Headband, Passive
<b>Markets:</b>	Repair and operation (MRO), mining, food and beverage manufacturing, metal fabrication, oil & gas, general manufacturing
<b>Applications:</b>	Facility maintenance, grinding, machine operations, sanding, welding, demolition, painting, assembly, cleaning
<b>Compatible PPE:</b>	MSA Helmets <sup>1</sup>
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class B Standards

	Product Name	Part No.	NRR	Product Features
	Economuff Multi-Position	10061273	23 dBA (under chin/ behind head)  24 dBA (over the head)	<ul style="list-style-type: none"> <li>• Offers three positions: under the chin, behind the head or over the head</li> <li>• Under the chin or behind the head positions allow use of head protection</li> <li>• Durable design for use in tough environments</li> <li>• No metal parts</li> <li>• Padded headband makes longer wear possible</li> <li>• One size fits most</li> </ul>
	Economuff	10004291	20 dBA	<ul style="list-style-type: none"> <li>• Soft wide cushions maintain comfortable pressure around the ears</li> <li>• Lightweight</li> <li>• One size fits most</li> <li>• No metal parts</li> <li>• Most economical option</li> </ul>



*The attenuation of an earmuff depends on the fit of the muff against the head and around the pinnae (i.e., the “tightness” of the seal). Gaps, including those caused by safety glasses, provide an easy path for sound to travel, reducing protection levels. To reduce this effect, try not to put **ANYTHING** under the cup (such as pencils, hair, etc.). But, if you must wear protective eyewear, select either those with a thin strap or a very thin temple. If the gap is noticeable, the protection level is compromised.*



<sup>1</sup>Economuff multi-position worn in behind-the-head or under-the-chin positions only.



## Headband, Passive

### SoundControl Classic Hearing Protection

MSA SoundControl Classic hearing protection offers two headband models, making it easy for safety directors to find the proper attenuation levels for noise in their particular environment. And, just like their helmet-mounted Classic counterparts, these muffs are lightweight and low-profile!

<b>Classification:</b>	Headband, Passive
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, mining, metal processing, automotive
<b>Applications:</b>	Confined space, sanding/grinding, power tool use, occupations with non-impulse noise (such as machine operations), demolition, assembly
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	SoundControl HPE	10061271	26 dBA	<ul style="list-style-type: none"><li>• Lightweight, low-profile earmuffs are ideal for a variety of noisy applications</li><li>• High attenuation and excellent sealing for reliable protection</li><li>• Headband design and two-point cup mounting distributes weight evenly, offering outstanding balance and comfort</li><li>• No metal parts</li><li>• Cups can be moved to a range of wearing positions for a custom fit</li></ul>
	SoundControl EXC	10061229	24 dBA	<ul style="list-style-type: none"><li>• Unique injection-molded inserts provide excellent attenuation and maximum ear space</li><li>• Medium attenuation for moderately-high noise exposures</li><li>• Three distinct wearing positions</li><li>• Cups can be moved to a range of wearing positions for a custom fit</li></ul>

	Product Name	Part No.	Product Features
	HPE Hygiene Kit	10061291	<ul style="list-style-type: none"><li>• Foam cushions and inserts</li><li>• Works with Classic helmet-mounted or headband products</li></ul>
	EXC Hygiene Kit	10061292	



*To maintain the stated sound attenuation performance of your earmuffs, it is important to regularly replace cushions and inserts. Under “normal use,” you should replace the hygiene kit **at least twice per year**.*







## Headband, Passive

### left/RIGHT Passive Hearing Protection

MSA left/RIGHT passive headband hearing products offer three levels of NRR values ranging from 21 to 28 dBA, making it simple to match the attenuation of the earmuff with the noise exposure of the worker.

<b>Classification:</b>	Headband, Passive
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, shipbuilding, mining
<b>Applications:</b>	Heavy mechanical industries, compression rooms, airports (HIGH) Utilities, construction, general industry (MEDIUM) Food manufacturing, automotive, light industry (LOW)
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT (HIGH)	10087399	28 dBA	<ul style="list-style-type: none"> <li>• For use in high-noise environments, such as paper mills, foundries, mines and airports</li> <li>• Cups are sized and shaped to provide space for most ear sizes</li> </ul>
	left/RIGHT (MEDIUM)	10087426	25 dBA	<ul style="list-style-type: none"> <li>• For use in medium-noise environments, such as oil, gas and petrochemical, forestry and agriculture</li> <li>• Cups are sized and shaped to provide space for most ear sizes</li> </ul>
	left/RIGHT (LOW)	10087436	21 dBA	<ul style="list-style-type: none"> <li>• For use in low-noise environments, such pharmaceuticals and outside maintenance, where overprotection is a concern</li> </ul>


	Product Name	Part No.	Product Features
	left/RIGHT (HIGH) Hygiene Kit	10092880	<ul style="list-style-type: none"> <li>• Cushions and inserts</li> <li>• Works with left/RIGHT passive helmet-mounted or headband products</li> </ul>
	left/RIGHT (MEDIUM) Hygiene Kit	10092879	
	left/RIGHT (LOW) Hygiene Kit	10092878	


## Headband, Electronic

### left/RIGHT Electronic Hearing Protection


There are three different headband models of MSA left/RIGHT electronic hearing protection. Whether you want to listen to soothing music while you work or just reduce the high-noise around you ... or both ... MSA has your product. Like all left/RIGHT products, the cups can be adjusted to meet the angle of the ear, and also independently raised or lowered.


<b>Classification:</b>	Helmet-Mounted, Electronic with Radio
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining, agriculture
<b>Applications:</b>	Manufacturing/assembly, high-impulse noise environments (such as steelworking)
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT FM Pro	10108381	22 dBA	<ul style="list-style-type: none"> <li>• FM radio with excellent reception and superior sound quality</li> <li>• Sound levels limited to a safe 82dB</li> <li>• Automatic tuning and volume adjustment via push buttons</li> <li>• Battery save and low battery warning functions</li> <li>• AUX input for MP3 player or communication headset</li> </ul>

	Product Name	Part No.	Product Features
	left/RIGHT FM Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> <li>• Cushions, distance rings and inserts</li> <li>• Works with left/RIGHT helmet-mounted or headband electronic product versions</li> </ul>

<b>Classification:</b>	Headband, Electronic with Cut Off
<b>Markets:</b>	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining
<b>Applications:</b>	Manufacturing/assembly, food processing, high-impulse noise environments (such as steel and shipyards)
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT Cut Off Pro	10111789	22 dBA	<ul style="list-style-type: none"> <li>• Sound levels limited to a safe 82 dB</li> <li>• Innovative headband design provides optimal fit and comfort</li> <li>• Enables face to face communication while hearing is protected</li> <li>• Amplifies weak signals through the electronic system</li> <li>• Battery save and low battery warning functions</li> <li>• AUX input for MP3 player or communication headset</li> </ul>

	Product Name	Part No.	Product Features
	left/RIGHT FM Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> <li>• Cushions, distance rings and inserts</li> <li>• Works with left/RIGHT helmet-mounted or headband electronic product versions</li> </ul>


## Headband, Electronic


**Classification:** Heaband, Electronic , FM Radio & Cut Off Combination

**Markets:** General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining, agriculture

**Applications:** Manufacturing/assembly, high-impulse noise environments (such as steelworking)

**Standards:** Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT Dual Pro	10108385	22 dBA	<ul style="list-style-type: none"> <li>• FM radio with excellent reception and superior sound quality</li> <li>• Speaker audio is limited to a safe 82 dB</li> <li>• Innovative headband design provides optimal fit and comfort</li> <li>• Enables face-to-face communication while hearing is protected</li> <li>• Level-dependent function allows users to hear ambient sounds (like warning signals and moving vehicles)</li> <li>• Requires two 1.5V AA/LR6 batteries; ~300 operating hours</li> <li>• Low battery warning signal</li> <li>• AUX input for MP3 player or communication headset</li> </ul>

	Product Name	Part No.	Product Features
	left/RIGHT FM Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> <li>• Cushions, distance rings and inserts</li> <li>• Works with left/RIGHT helmet-mounted or headband electronic product versions</li> </ul>



*The EPA requirement (40 CFR 211) specifies that hearing protectors sold in the U.S. must be tested to ANSI S3.19-1974 and labeled with a Noise Reduction Rating (NRR). MSA Hearing Protectors have been tested and labeled according to the EPA requirements. Standards organizations, such as ANSI and CSA, do not approve or certify hearing protectors.*

<sup>2</sup>Occupational Safety and Health Administration (OSHA) "Method for Estimating HPD Attenuation" for dual protection; osha.gov.

<sup>3</sup>See page 139 for the OSHA recommended de-rating methodology.

## Industrial Communication Systems

### Connect by Cable

Connect by Cable (CbC) products are designed for industrial users working in high noise environments. They offer versatility along with hearing protection, providing clear communication with ambient listening, instant impact noise protection and a noise-canceling flexible microphone. Cable connection is hardwired to the communication radio headset for two-way communication.



Available as a helmet-mounted or headband product that filters harmful noise and amplifies useful sounds, such as alarms and warnings.

**Classification:** Communication with Cut-off Headset

**Markets:** Transportation, construction, automotive, maintenance, repair and operation (mro), mining, metal fabrication, oil & gas, general manufacturing

**Applications:** Heavy equipment operators, airport workers, construction, manufacturing, agricultural, racing

**Standards:** Meets ANSI S3.19-1974 and CSA Class A Standards



	Product Name	Part No.	NRR	Product Features
	Connect by Cable Helmet-Mounted	10064516	23 dBA	<ul style="list-style-type: none"><li>• Designed for use with MSA slotted caps.</li><li>• Sound level is limited to a safe 82dB</li><li>• Noise-cancelling lapel boom microphone permits two-way communication with minimal background interference</li><li>• Operates on 2 AA batteries, integrated into muff</li><li>• Push-to-Talk (PTT) transmit function (adapter required)</li></ul>
	Connect by Cable Headband	10064515	25 dBA	<ul style="list-style-type: none"><li>• Headband version offers higher attenuation</li><li>• Soft foam earcushions</li><li>• Noise canceling lapel boom microphone</li><li>• Push-to-Talk (PTT) transmit function (adapter required)</li></ul>

## Earplugs

### SoundControl FormFit® II Earplugs

FormFit II earplugs seal the ear canal with tapered, slow-recovery foam. When inserted correctly, FormFit II earplugs provide excellent attenuation. To properly insert earplugs, please see below for instructions.

<b>Classification:</b>	Earplugs, Foam
<b>Markets:</b>	Transportation, pharmaceutical, construction, automotive, military, maintenance, repair and operation (MRO), mining, food and beverage manufacturing, metal fabrication, oil & gas, general manufacturing
<b>Applications:</b>	Facility maintenance, health & safety testing, grinding, electrical, machine operations, sanding, welding, demolition, painting, blasting, assembly, cleaning
<b>Standards:</b>	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	FormFit II, Uncorded	10151070	31 dBA	<ul style="list-style-type: none"> <li>• Uncorded</li> <li>• Easy-to-roll foam expands for a comfortable, custom fit</li> <li>• Best choice when dual protection is needed</li> <li>• Standard size fits most earcanals</li> <li>• Min Order Qty: 200 pair container</li> </ul>
	FormFit II, Corded	10151069	31 dBA	<ul style="list-style-type: none"> <li>• Corded to avoid misplacement or loss</li> <li>• Especially useful in food and beverage manufacturing environments</li> <li>• Inserts easily into ear</li> <li>• Standard size fits most earcanals</li> <li>• Min Order Qty: 200 pair container</li> </ul>



*There's a proper way to insert a formable earplug. Follow these three easy steps:*



*1. Roll the plug between your thumb and your forefinger until it's thin and long.*



*2. Pull the top of your pinna back with your opposite hand to straighten your ear canal. Slide the plug into the canal.*













*3. Hold the plug for a count of 20-30 seconds while it expands. Once the seal is acceptable, sounds will be reduced.*



## Sightgard Safety Glasses: Indoor Humid Conditions




<b>Classification:</b>	Indoor: humid environments
<b>Markets:</b>	Facility maintenance, repair and operations, construction, food and beverage, general manufacturing and industry, mining, oil and gas, pharmaceuticals, transportation, shipbuilding, automotive
<b>Applications:</b>	Assembly and mechanical, drilling, grinding, machining, painting, sanding, sawing
<b>Material:</b>	Polycarbonate
<b>Features:</b>	Anti-fog coating Clear lenses Impact-rated (Z87+) Anti-scratch coating (as noted)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3 (as noted)
<b>Certification:</b>	Third-party by Intertek and CSA International
<b>Min Order Qty:</b>	12

HUMID INDOOR APPLICATIONS		Model	Part No.	Product Specifics
		Alaska	10118473	<ul style="list-style-type: none"> <li>• Frameless; lightweight</li> <li>• Padded, adjustable nosebridge</li> </ul>
		Arctic Elite	10038845	<ul style="list-style-type: none"> <li>• Rubber tipped temples and nosebridge for comfortable, yet secure fit</li> </ul>
		Aurora	10026005	<ul style="list-style-type: none"> <li>• Ratchet temple adjustment</li> <li>• Single, 7-base wrap curve lens</li> <li>• Tuff Stuff™ Anti-scratch Coating</li> </ul>
		Blockz	10106379	<ul style="list-style-type: none"> <li>• Brow shelf prevents debris from falling into eyes</li> <li>• Sliding temple adjustment</li> <li>• Tuff Stuff Anti-scratch Coating</li> </ul>
		Essential Adjust 	10119761	<ul style="list-style-type: none"> <li>• Horizontal and vertical temple adjustment</li> </ul>
		Pyrenees 	10033718	<ul style="list-style-type: none"> <li>• Full side protection</li> <li>• Dual injected, soft-tipped temples</li> </ul>
		Voyager 	10065849	<ul style="list-style-type: none"> <li>• Single wrap-style lens</li> </ul>

<sup>1</sup> CSA International certified models are denoted with a  symbol

## Sightgard Safety Glasses: Outdoor, High Glare and Ultraviolet (UV) Exposure

<b>Classification:</b>	Outdoor: high-glare with UV exposure
<b>Markets:</b>	Utility work, general industry, manufacturing, construction, oil and gas, forestry, shipbuilding, aviation, mining, transportation
<b>Applications:</b>	Chipping, chiseling, drilling, grinding, machining, power fastening, sanding, sawing, masonry, UV protection
<b>Material:</b>	Polycarbonate
<b>Features:</b>	Maximum UV protection ("U6") Rich mirrored or dark tinted lenses reduce glare Impact-rated (Z87+) Anti-fog anti-scratch coating (as noted)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3 (as noted)
<b>Certification:</b>	Third-party by Intertek and CSA International
<b>Min Order Qty:</b>	12











OUTDOOR HIGH-GLARE/ UV EXPOSURE APPLICATIONS		Model	Part No.	Product Specifics
		Alaska	10110420	<ul style="list-style-type: none"> <li>Rich silver mirror on a gray tint lens reduces light transmission, keeping eyes comfortable in sunlight</li> <li>Frameless; lightweight</li> <li>Padded, adjustable nosebridge</li> </ul>
		Espresso GlareGone™	10106383	<ul style="list-style-type: none"> <li>Polarized filter lenses block intense light</li> <li>Dark brown tint lens helps further reduce glare</li> </ul>
		Racer Red	10106381	<ul style="list-style-type: none"> <li>Rich-red mirrored lens reflects light and reduces glare without color degradation</li> <li>Sporty, single, wide-wrap lens</li> <li>Anti-fog coating</li> </ul>



Under ANSI/ISEA Z87.1-2010 there is a required marking if the manufacturer claims protection from UV. Look for eyewear that both meets ANIS/ISEA Z87.1-2010 and has a "U" mark.

## Sightgard Safety Glasses: Indoor/Outdoor

<b>Classification:</b>	Indoor/outdoor
<b>Markets:</b>	General industry, manufacturing, construction, oil and gas, forestry, shipbuilding, automotive, food and beverage, mining, pharmaceuticals, primary metals, transportation
<b>Applications:</b>	Assembly and mechanical, chipping, chiseling, cleaning, drilling, grinding, machining, masonry, riveting, sanding, sawing, UV protection
<b>Material:</b>	Polycarbonate, indoor/outdoor or light mirroring
<b>Features:</b>	Maximum UV protection ("U6") Light mirror lenses provide glare reduction without significantly reducing light transmittance Impact-rated (Z87+) Anti-fog and/or anti-scratch coatings (as noted)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3 (as noted)
<b>Certification:</b>	Third-party by Intertek and CSA International
<b>Min Order Qty:</b>	12

INDOOR/OUTDOOR APPLICATIONS		Model	Part No.	Product Specifics
		Arctic	10088179	<ul style="list-style-type: none"> <li>• Blue mirror reduces glare without causing color degradation</li> <li>• Popular, lightweight model</li> <li>• Full side coverage</li> <li>• Anti-scratch coating</li> </ul>
		Arctic Elite	10059671	<ul style="list-style-type: none"> <li>• Indoor/outdoor mirror allows workers to go from bright to low light conditions</li> <li>• Rubber tipped temples and nosebridge for comfortable, yet secure fit</li> <li>• Anti-fog coating</li> </ul>
		Essential Adjust 	10119757	<ul style="list-style-type: none"> <li>• Indoor/outdoor mirror allows workers to go from bright to low light conditions</li> <li>• Horizontal and vertical temple adjustment</li> <li>• Anti-scratch coating</li> </ul>
		Essential Adjust 	10119758	<ul style="list-style-type: none"> <li>• Light silver mirror reduces glare</li> <li>• Horizontal and vertical temple adjustment</li> <li>• Anti-fog coating</li> </ul>
		Vista™	10070916	<ul style="list-style-type: none"> <li>• Indoor/outdoor mirror allows workers to go from bright to low light conditions</li> <li>• Vertical temple adjustment</li> <li>• Lightweight, single lens</li> <li>• Tuff Stuff Anti-scratch Coating</li> </ul>















A common misconception is that all polycarbonate blocks UV. This is not the case. If UV filtration claims are made by a manufacturer, under ANSI/ISEA Z87.1-2010, applicable UV filtration markings must be placed on product.

<sup>1</sup> CSA International certified models are denoted with a  symbol

## Sightgard Safety Glasses: Indoor









<b>Classification:</b>	Indoor: temperate environments
<b>Markets:</b>	Facility maintenance, repair and operations, general manufacturing and industry
<b>Applications:</b>	Drilling, grinding, machining, sanding, sawing
<b>Material:</b>	Polycarbonate, clear
<b>Features:</b>	Impact-rated (Z87+) Anti-scratch coating (as noted)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3 (as noted)
<b>Certification:</b>	Third-party by Intertek and CSA International
<b>Min Order Qty:</b>	12

TEMPERATE INDOOR APPLICATIONS		Model	Part No.	Product Specifics
	 	Arctic	697514	<ul style="list-style-type: none"> <li>• Frameless and lightweight</li> <li>• Among our most popular models!</li> <li>• Tuff Stuff Anti-scratch Coating</li> <li>• Full side coverage</li> </ul>
	 	Discovery II 	10106382	<ul style="list-style-type: none"> <li>• Flexible, nylon temple arms adjust to head width</li> <li>• Soft nose bridge</li> <li>• So light, you forget you have them on</li> </ul>
	 	Easy Flex	10070917	<ul style="list-style-type: none"> <li>• Temples and frame flex for a custom fit</li> <li>• Tuff Stuff Anti-scratch Coating</li> </ul>
		Sierra 	697550	<ul style="list-style-type: none"> <li>• Classic full coverage look</li> <li>• Adjustable temples</li> <li>• Integral side protection</li> <li>• Tuff Stuff Anti-scratch Coating</li> </ul>
		Vista	10070914	<ul style="list-style-type: none"> <li>• Vertical temple adjustment</li> <li>• Lightweight, single lens</li> <li>• Tuff Stuff Anti-scratch Coating</li> </ul>
		Luxor™ 	697516	<ul style="list-style-type: none"> <li>• Single wrap style lens</li> <li>• Tuff Stuff Anti-scratch Coating</li> <li>• Horizontal temple adjustment</li> </ul>

<sup>1</sup> CSA International certified models are denoted with a  symbol

## Sightgard Safety Glasses: Outdoor with UV Exposure

<b>Classification:</b>	Outdoor: UV exposure
<b>Markets:</b>	General industry, manufacturing, construction, oil and gas, forestry, shipbuilding
<b>Applications:</b>	Chipping, splash, chiseling, drilling, grinding, machining, power fastening, sanding, sawing
<b>Material:</b>	Polycarbonate
<b>Features:</b>	Maximum UV protection ("U6") Gray tint lenses offer glare reduction with the least amount of color distortion Impact-rated (Z87+) Anti-fog coating (as noted)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3 (as noted)
<b>Certification:</b>	Third-party by Intertek and CSA International
<b>Min Order Qty:</b>	12














OUTDOOR UV EXPOSURE APPLICATIONS		Model	Part No.	Product Specifics
		Alaska	10118474	<ul style="list-style-type: none"> <li>• Frameless; lightweight</li> <li>• Padded, adjustable nosebridge</li> <li>• Anti-fog coating</li> </ul>
		Essential Adjust 	10119760	<ul style="list-style-type: none"> <li>• Gun metal silver frame with horizontal and vertical temple adjustment</li> <li>• Anti-fog coating</li> </ul>
		Feather Fit	10106384	<ul style="list-style-type: none"> <li>• Comfortable rubber flange nosepiece</li> <li>• Rubber temple grips help glasses stay put under hot working conditions</li> </ul>
		Nuevo Wrap 	10106385	<ul style="list-style-type: none"> <li>• Stylish, full wrap coverage</li> <li>• Anti-fog coating</li> </ul>
		Voyager 	10065850	<ul style="list-style-type: none"> <li>• Single lens</li> <li>• Anti-scratch coating</li> </ul>

<sup>1</sup> CSA International certified models are denoted with a  symbol



## Sightgard Safety Glasses: Outdoor







<b>Classification:</b>	Outdoor: general use
<b>Markets:</b>	Aviation, general manufacturing, mining, oil and gas, pharmaceuticals, primary metals, transportation
<b>Applications:</b>	Assembly and mechanical, chipping, chiseling, drilling, grinding, machining, sanding, sawing
<b>Material:</b>	Polycarbonate
<b>Features:</b>	Gray tint lenses offer glare reduction with the least amount of color distortion Anti-fog/anti-scratch coatings (as noted) Impact-rated (Z87+)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3 (as noted)
<b>Certification:</b>	Third-party by Intertek and CSA International
<b>Min Order Qty:</b>	12

GENERAL OUTDOOR USE APPLICATIONS		Model	Part No.	Product Specifics
	 	Arctic	697515	<ul style="list-style-type: none"> <li>• Popular, lightweight model</li> <li>• Full side coverage</li> <li>• Anti-scratch coating</li> </ul>
	 	Artic Elite	10038846	<ul style="list-style-type: none"> <li>• Rubber tipped temples and nosebridge for comfortable, yet secure fit</li> <li>• Anti-fog coating</li> </ul>
	 	EasyFlex	10070918	<ul style="list-style-type: none"> <li>• Temples flex for a custom fit</li> <li>• Tuff Stuff Anti-scratch Coating</li> </ul>
	 	EasyFlex	10070921	<ul style="list-style-type: none"> <li>• Rich-orange mirrored lens reflects light and reduces glare without color degradation</li> <li>• Temples flex for a custom fit</li> <li>• Tuff Stuff Anti-scratch Coating</li> </ul>
		Luxor 	697517	<ul style="list-style-type: none"> <li>• Horizontal temple adjustment</li> <li>• Wrap-style single lens</li> <li>• Tuff Stuff Anti-scratch Coating</li> </ul>
	 	Pyrnees™ 	10033719	<ul style="list-style-type: none"> <li>• Full side protection</li> <li>• Dual-injected soft-tipped temples</li> <li>• Anti-fog coating</li> </ul>

<sup>1</sup> CSA International certified models are denoted with a  symbol

## Sightgard Safety Glasses: Low Light













<b>Classification:</b>	Low light
<b>Markets:</b>	Transportation, inspection and repair, assembly, general industry, indoor construction, shipbuilding, automotive, food and beverage, pharmaceuticals
<b>Applications:</b>	Assembly, chipping, chiseling, drilling, grinding, machining, pouring/casting, power fastening, riveting, sanding, sawing
<b>Material:</b>	Polycarbonate
<b>Features:</b>	Contrast-enhancing lenses in various tints Impact-rated (Z87+) Anti-fog or anti-scratch coatings (as noted)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3 (as noted)
<b>Certification:</b>	Third-party by Intertek and CSA International
<b>Min Order Qty:</b>	12

LOW LIGHT APPLICATIONS		Model	Part No.	Product Specifics
				
		EasyFlex	10070919	<ul style="list-style-type: none"> <li>• Amber lens increases contrast in low light</li> <li>• Temples flex for a custom fit</li> <li>• Tuff Stuff Anti-scratch Coating</li> </ul>
		Pyrenees™ 	10033740	<ul style="list-style-type: none"> <li>• Amber lens increases contrast in low light</li> <li>• Full side protection</li> <li>• Dual-injected soft-tipped temples</li> <li>• Anti-fog coating</li> </ul>
		Yellow Jacket™ 	10106386	<ul style="list-style-type: none"> <li>• Amber gradient lens enhances perception under changing conditions of light and shadow</li> <li>• Full side protection</li> <li>• Maximum UV protection</li> </ul>

<sup>1</sup> CSA International certified models are denoted with a  symbol

## Sightgard Safety Glasses: Over-the-Glasses

<b>Classification:</b>	Over-the-glasses
<b>Markets:</b>	Facility safety, maintenance, repair and operations, overhaul, general industry, manufacturing, construction, oil and gas, metalworking, automotive
<b>Applications:</b>	Assembly and mechanical, drilling, grinding, machining, masonry, power fastening, riveting, sanding, sawing
<b>Material:</b>	Polycarbonate
<b>Features:</b>	Impact-rated (Z87+) Maximum UV protection ("U6") (as noted) Anti-fog coating (as noted)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3 (as noted)
<b>Certification:</b>	Third-party by Intertek and CSA International
<b>Min Order Qty:</b>	12

RX GLASSES REQUIRED APPLICATIONS		Model	Part No.	Product Specifics
	 	OvrG™	10110419	<ul style="list-style-type: none"> <li>• For use over small-to-medium Rx glasses</li> <li>• Integral nose pad for added comfort</li> <li>• Clear lenses</li> <li>• Anti-fog coating</li> </ul>
	 	OvrG™ II 	10118475	<ul style="list-style-type: none"> <li>• Clear lenses</li> <li>• For use over small-to-medium Rx glasses</li> <li>• Squared-off, stylish look</li> <li>• Maximum UV protection</li> <li>• 30% lighter weight than standard visitor specs</li> </ul>
	 	OvrG II 	10118476	<ul style="list-style-type: none"> <li>• Indoor/outdoor mirrored lens</li> <li>• For use over small-to-medium Rx glasses</li> <li>• Maximum UV protection</li> </ul>
		Plant Visitor 	10027944 697500 (10/box)  10008174 (144/box)	<ul style="list-style-type: none"> <li>• Classic look</li> <li>• Fits over most Rx glasses</li> <li>• Integral, vented side shields</li> </ul>
	 	Rx Overglasses	10008175	<ul style="list-style-type: none"> <li>• Clear lenses</li> <li>• Fits over most Rx glasses</li> <li>• Anti-fog coating</li> <li>• Horizontal and vertical temple adjustment</li> </ul>


<sup>1</sup> CSA International certified models are denoted with a  symbol

## Sightgard Safety Glasses: Specialty

<b>Classification:</b>	Specialty: magnifiers
<b>Markets:</b>	Facility safety, maintenance, repair and operations, overhaul, general industry, manufacturing, construction, metalworking, automotive
<b>Applications:</b>	Fine assembly and detail work, drilling, grinding, machining, soldering, riveting, sanding
<b>Material:</b>	Polycarbonate
<b>Features:</b>	Magnification for workers who have difficulty seeing or are performing detail work Impact-rated (Z87+) Anti-fog coating Full side coverage Dual-injected soft-tipped temples
<b>Standards:</b>	ANSI/ISEA Z87.1-2010
<b>Certification:</b>	Third-party by Intertek and UL
<b>Min Order Qty:</b>	12

MAGNIFICATION APPLICATIONS		Model	Part No.	Product Specifics
		Pyrenees™ MAG	10068832	1.5 bifocal magnification
		Pyrenees™ MAG	10065847	2.0 bifocal magnification

<b>Classification:</b>	Specialty: welding
<b>Markets:</b>	General industry, manufacturing, construction, oil and gas, forestry, shipbuilding, metalworking; automotive, aviation
<b>Applications:</b>	Welding, chiseling, drilling, grinding, machining, masonry, pouring/casting, power fastening, riveting, sanding, sawing
<b>Material:</b>	Polycarbonate
<b>Features:</b>	Shade 5 IR (W5) Impact-rated (Z87+)
<b>Standards:</b>	ANSI/ISEA Z87.1-2010
<b>Certification:</b>	Third-party by Intertek
<b>Min Order Qty:</b>	12

WELDING APPLICATIONS		Model	Part No.	Product Specifics
		Clearvue® IR	10012847	<ul style="list-style-type: none"> <li>• Classic look with Infrared (IR) radiation eye protection, up to Shade 5</li> <li>• Fits over most Rx glasses</li> <li>• Integral, vented side shields</li> </ul>

## Sightgard Vertoggle™: Safety Goggle/Faceshield Combination





- Classification:** Splash and impact
- Markets:** Construction, food and beverage, general manufacturing and industry, mining, oil and gas, pharmaceuticals, primary metals, transportation, shipbuilding
- Applications:** Cleaning, chipping, chiseling, drilling, grinding, machining, painting, power washing, sanding, sawing, splash
- Material:** Polycarbonate (clear lens/frosted faceshield)
- Features:** Anti-fog/anti-scratch coatings on goggle lens  
Impact (Z87+) and Splash-rated (D3)  
Unique, articulated lift-front retains the shield on the goggle in any of five positions
- Standards<sup>1</sup>:** ANSI/ISEA Z87.1-2010 and CSA Z94.3
- Certification:** Third-party by Intertek and CSA International
- Min Order Qty:** 5

SPLASH AND IMPACT APPLICATIONS		Model	Part No.	Product Specifics
	 	Vertoggle 	10150069	<ul style="list-style-type: none"> <li>• Anti-fog and anti-scratch coatings on goggle lens</li> <li>• Indirect venting on goggle and faceshield improve airflow while providing splash and high impact protection</li> <li>• Entire assembly tested at ANSI/ISEA Z87.1-2010 faceshield impact speed (300 ft/sec)</li> <li>• Soft, pliable goggle body helps ensure all-day comfort</li> <li>• Fully adjustable FR-tested (CSA Z94.3 test methodology) elastic strap prevents hair pulling</li> <li>• Disposable respirators can be worn under shield</li> <li>• Designed to work with MSA goggle retainers</li> </ul>

## Sightgard Safety Goggles

- Classification:** Chemical and splash
- Markets:** Chemicals, construction, food and beverage, general manufacturing and industry, mining, oil and gas, pharmaceuticals, primary metals, transportation, shipbuilding, automotive
- Applications:** Cleaning, chemical mixing and use, chipping, chiseling, drilling, grinding, machining, painting, power washing, sanding, sawing, splash
- Material:** Acetate lens
- Features:** Clear  
Impact-rated (Z87+)  
Splash-rated (D3)
- Standards<sup>1</sup>:** ANSI/ISEA Z87.1-2010 and CSA Z94.3
- Certification:** Third-party by Intertek and CSA International
- Min Order Qty:** 6

CHEMICAL AND SPLASH APPLICATIONS		Model	Part No.	Product Specifics
		FlexiChem™ iV 	10106281	<ul style="list-style-type: none"> <li>• Soft, pliable goggle body ensures all-day comfort</li> <li>• Indirect vent helps eliminate fogging while retaining splash resistance</li> <li>• Acetate lens resists warping, cracking and crazing from chemical splash</li> <li>• Anti-fog coating</li> <li>• Flame-retardant strap</li> </ul>

<sup>1</sup> CSA International certified models are denoted with a  symbol



## Sightgard Safety Goggles

<b>Classification:</b>	Industrial: impact/splash
<b>Markets:</b>	Construction, food and beverage, general manufacturing and industry, mining, oil and gas, pharmaceuticals, primary metals, transportation, shipbuilding, automotive
<b>Applications:</b>	Chipping, chiseling, drilling, grinding, machining, painting, power washing, sanding, sawing, splash
<b>Material:</b>	Polycarbonate
<b>Features:</b>	Clear Anti-fog coating Indirect venting helps keep lens fog-free Impact-rated (Z87+) Splash-rated (D3)
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3
<b>Certification:</b>	Third-party by Intertek, CSA International, UL
<b>Min Order Qty:</b>	6

INDUSTRIAL IMPACT/SPLASH APPLICATIONS			Model	Part No.	Product Specifics
			Clearvue® 200	10029693	• Smoke frame helps reduce peripheral light, reducing glare
			Model	Part No.	Product Specifics
			Vault™ 	10106282	• Modern styling • Comfortable, thick strap • Tuff Stuff anti-scratch coating

<b>Classification:</b>	General purpose: impact/splash
<b>Markets:</b>	Construction, general manufacturing and industry, oil and gas, pharmaceuticals, transportation, shipbuilding
<b>Applications:</b>	Splash, chiseling, drilling, grinding, sanding, sawing
<b>Material:</b>	Clear polycarbonate lenses
<b>Features:</b>	Anti-fog coating Impact-rated (Z87+) Splash-rated (D3) Tuff Stuff Anti-scratch Coating
<b>Standards<sup>1</sup>:</b>	ANSI/ISEA Z87.1-2010 and CSA Z94.3
<b>Certification:</b>	Third-party by Intertek and CSA International
<b>Min Order Qty:</b>	12

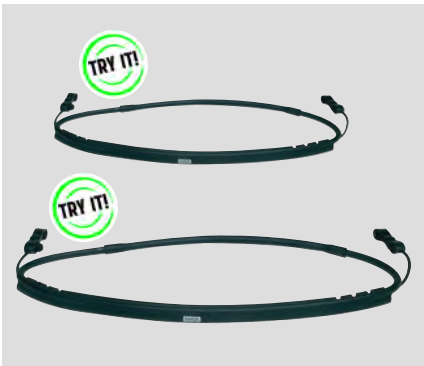
GENERAL PURPOSE IMPACT/SPLASH APPLICATIONS			Model	Part No.	Product Specifics
			Sightgard NV 	10106268	• Non-vented for tighter seal
			Model	Part No.	Product Specifics
			Sightgard iV 	10106270	• Indirect-venting helps keep goggles fog-free

<sup>1</sup> CSA International certified models are denoted with a  symbol

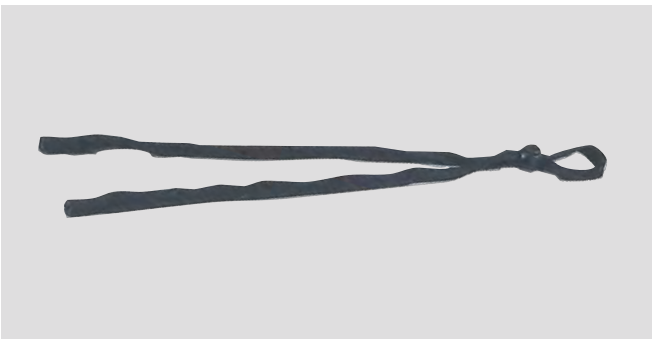
# Goggle Retainers

Sturdy neoprene-rubber accessory can be used with any protective cap or hat. Retains goggle on headwear when not in use and holds goggle securely when worn for eye protection. **MSA goggle retainers are manufactured for use ONLY with MSA goggles in order to comply with the applicable standards of the products in the assembly.**

GOGGLE RETAINERS	459458	Goggle Retainer, for caps
	449895	Goggle Retainer, for hats



# Eyewear Accessories



## Lanyard

- P/N: **10020871** Deluxe Eyewear Lanyard (pk/12)
- Features:* Holds eyewear securely  
Lanyard strap slides over temple ends



## Cleaning Accessories

- P/N: **13016** 4 oz. Fogpruf™ Cleaner Refill
- P/N: **10022087** Pre-moistened Towelettes (box of 100)

## Great Reasons to Choose MSA Cairns® Helmets

We've been proudly manufacturing fire helmets since 1836. And to this day when it comes to head protection, more first responders trust MSA Cairns brand fire helmets than any other. Here are just a few reasons why:



### 1 Patented Shell Release System (SRS)

The MSA Cairns patented Shell Release System (SRS), offered in our most popular fire helmets, protects from impact and heat—even when your helmet is dislodged from your head.

With the SRS, if your helmet comes off because you fell through a floor or roof, the impact cap separates from the helmet shell, **but remains on your head**, leaving your head better protected from additional impact, projectiles and heat. Without SRS, all you've got is a Nomex hood.

### 2 Retractable MSA Cairns Defender® Visor

North America's first (and still the best) NFPA 1971 and ANSI/ISEA Z87.1 impact-rated, integral visor. The Defender Visor was designed with firefighters in mind. The entire lens visor stows when not in use (so it can't be lost), and can be deployed the instant it's needed – even with a gloved hand. Replacement of the lens does not require special tools or disassembly of the helmet. All of these benefits make the Defender Visor the best-selling firefighting eye protection in the market.

### 3 Best In Class

In a recent survey of firefighters across the nation<sup>1</sup>, the majority listed MSA Cairns brand as "best in class."<sup>1</sup> When you consider the combined effectiveness of our SRS, crumple-zone front holder, impact cap, and suspension—our fire helmets offer the most complete package on the market.

### 4 MSA Cairns Helmets Take the Heat

MSA Cairns Helmets are up to 66% cooler than fire helmets without an impact cap. Our goal is to keep you cool when the situation gets heated, reducing your stress level and improving decision making.

### 5 With MSA Cairns, You Get **More** than You Pay For

We know, as do firefighters, that MSA Cairns Helmets are the most durable products on the market. We back up that claim with a 10-year lifetime warranty that the product will be free from defects in materials and/or faulty workmanship<sup>2</sup>. When you factor in the quality, ease of maintenance and unique safety features found **ONLY** in MSA Cairns Helmets, it's easy to see why firefighters are loyal to the MSA Cairns brand.

### 6 Same Day Shipping on Our Most Popular Items

When you can't afford to wait another day, MSA offers our most popular Cairns products in our Stock-Order-Ship (SOS) program. For these products, if your order is entered by 2:30 PM (EST), the product ships the same day from our warehouse in Pittsburgh, PA. Look for the SOS symbol (SOS) beside products in the program. Remember, too, you can always order customized Cairns Fire Helmets through Assemble-to-Order (ATO). ATO forms are on every fire helmet page on [www.MSASafety.com](http://www.MSASafety.com)

<sup>1</sup>Fire helmet brand assessment study conducted by an outside research firm for MSA.

<sup>2</sup>For MSA Cairns Fire Helmet Warranty details, please see [www.MSASafety.com](http://www.MSASafety.com).

## 1010 & 1044

### For Structural & Proximity Firefighting

- Unique shell-release system retains impact cap when shell is dislodged, providing improved head and heat protection over competitors' helmets
- Most popular traditional style Cairns fire helmet models:
  - 1010: painted high-luster finish
  - 1044: unpainted matte finish
- Certified to NFPA 1971 for structural and proximity firefighting<sup>1</sup>
- Three-position ratchet height adjustment
- Headband height adjustments allows "best fit" between helmet and SCBA mask
- D-ring helmet hanger comes standard—fits on large hooks and resists bending
- Nomex chinstrap offers quick-release buckles, postman's slide, and Velcro stowage system
- Available with industry-leading Defender Visor



Cairns 1010



Cairns 1044  
(shown with Defender visor)

## 660C Metro® & Invader 664®

### For Structural & Proximity Firefighting

- Unique shell-release system retains impact cap when shell is dislodged, providing improved head and heat protection over competitors' helmets
- Most popular modern style helmet models:
  - 660C: painted high-luster finish
  - 664: unpainted matte finish
- Sleek, low-profile design
- Certified to NFPA 1971 for structural and proximity firefighting<sup>1</sup>
- Three-position ratchet height adjustment
- Headband height adjustments allows "best fit" between helmet and SCBA mask
- D-ring helmet hanger comes standard—fits on large hooks and resists bending
- Nomex chinstrap offers quick-release buckles, postman's slide, and Velcro stowage system
- Available with industry-leading Defender Visor



Cairns 660C Metro  
(shown with Defender visor)



Cairns Invader 664  
(shown with Defender visor)

## Commando HP3®

### For Structural Firefighting & Urban Search and Rescue (USAR)



- Sleek, low profile design
- Same shell as 660C, except without the back watershed
- Streamlined side brims
- Light fiberglass helmet
- Painted high-luster finish
- Certified to NFPA 1971 for structural fire and & 1951 for USAR
- Three-position ratchet height adjustment
- Headband height adjustments allows "best fit" between helmet and SCBA mask
- D-ring helmet hanger comes standard—fits on large hooks and resists bending
- Nomex chinstrap offers quick-release buckles, postman's slide, and Velcro stowage system
- Available with industry-leading Defender Visor




(shown with Defender visor)

<sup>1</sup> For proximity certification, assembly must have bonnet, shroud and gold-coated faceshield.

## Cairns Helmets Overview

			
	Cairns 1010 & 1044	660C Metro & Invader 664	Commando HP3
<b>SHELL</b>			
10-year Warranty <sup>1</sup>	■	■	■
Made in the USA	■	■	■
Through-Color Fiberglass Composite	■	■	■
<b>SAFETY OPTIONS</b>			
Impact/Thermal Cap	■	■	■
Defender Visor Retractable Eye Protection	■	■	■
Shell Release System (SRS)	■	■	
Crumple-zone Front Holder	■		
ARFF Proximity System	■	■	
<b>NFPA COMPLIANCE</b>			
NFPA 1971 (structural)	■	■	■
NFPA 1971 (proximity)	■	■	
NFPA 1951 (rescue)			■
<b>ADDITIONAL FEATURES</b>			
3-position Adjustable Ratchet Height	■	■	■
Adjustable Headband Height	■	■	■
Ivy Vine Pattern Helmet Brim	■		
D-ring Helmet Hanger	■	■	■
Nomex Chinstrap	■	■	■
<b>COLORS</b>			
Black	■	■	■
Yellow	■	■	■
Red	■	■	■
White	■	■	■
Orange	1010 only	660C Metro only	■
Blue	1010 only	660C Metro only	■
Green	1010 only	660C Metro only	■

## Cairns Helmets Ordering Information

All of the items listed below are stocked on the SOS () program. You can also order customized Cairns Fire Helmets through Assemble-to-Order (ATO). ATO forms are on every fire helmet page on [www.MSASafety.com](http://www.MSASafety.com)

Part No.	Model	Color	Features
1010DSR	Cairns 1010	Red	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
1010DSY	Cairns 1010	Yellow	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
1010DSB	Cairns 1010	Black	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
1044DSR	Cairns 1044	Red	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
1044DSY	Cairns 1044	Yellow	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
1044DSB	Cairns 1044	Black	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
660DSR	660C Metro	Red	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
660DSY	660C Metro	Yellow	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
660DSB	660C Metro	Black	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
664DSR	Invader 664	Red	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
664DSY	Invader 664	Yellow	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim
664DSB	Invader 664	Black	with Clear Defender Visor, Yellow Nomex Earlap, Chinstrap with Postman's Slide and Lime Yellow Reflexite Trim

<sup>1</sup>For MSA Cairns Fire Helmet Warranty details, see [www.MSASafety.com](http://www.MSASafety.com).










## Front Pieces

Design your own at [www.msanet.com/fronts](http://www.msanet.com/fronts), and call 1-877-MSA-FIRE to order!

- Over 27 million possible configurations
- Reinforced with high-temperature, shrink-resistant backing
- Sewn with high-temperature, fire-retardant Nomex thread
- Configure your own front at <https://webapps.msanet.com/fronts>



## Replacement Parts

P/N	Description	 Cairns 1010 & 1044	 660C Metro & Invader 664	 Commando HP3
<b>DEFENDER VISOR</b>				
 10077117	Clear Lens w/ Hardware	■	■	■
 10077118	Amber Tuffshield Lens w/ Hardware	■	■	■
<b>SOFT GOODS KITS</b>				
 10160548	Soft Goods Kit: Standard Liner, Yellow Nomex Ear Lap, Velcro Tabs, Mesh Laundering Bag <sup>1</sup>	■	■	■
 10160549	Soft Goods Kit: Standard Liner, Black Nomex Ear Lap, Velcro Tabs, Mesh Laundering Bag <sup>1</sup>	■	■	■
<b>EARLAPS</b>				
L655XP	Yellow Nomex Earlap	■	■	■
L655AP	Yellow Nomex Earlap w/Under Chin Extension	■	■	■
L655GP	Black Nomex Earlap	■	■	■
10124742	Black Nomex Earlap w/Under Chin Extension	■	■	■
L955P	PBI/Kevlar Earlap	■	■	■
L955AP	PBI/Kevlar Earlap w/Under Chin Extension	■	■	■
L945P	PBI/Kevlar Bloodborne Pathogen Resistant Earlap	■	■	■

<sup>1</sup> Not for use with MSA Cairns Leather NSA, N6A or Cairns 880 helmets.



## Approvals and Standards

### What is OSHA?

OSHA (Occupational Safety and Health Administration) rules and regulations are enforceable by law. Non-compliance with OSHA rules and regulations can result in stiff penalties and abatement periods. For more updates on OSHA regulations, or to review OSHA's Fall Protection Campaign, check online at [www.osha.gov/stopfalls/](http://www.osha.gov/stopfalls/)

## OSHA REGULATIONS UNDER TITLE 29 OF THE CODE OF FEDERAL REGULATIONS

### OSHA's Occupational Safety and Health Standards for General Industry

#### Subpart D, Walking/Working Surfaces

- Fixed Ladders, Ladder Safety Devices . . . . . 1910.27 (d) (5)
- Safety Requirements for Scaffolding, Boatswain's Chairs . . . . . 1910.28 (j) (4)

#### Subpart F

- Powered Platforms and Building Maintenance . . . . . 1910.66
- Personal Fall Arrest Systems . . . . . 1910.66, Appendix C

#### Subpart R

- Agricultural Operations . . . . . 1910.267
- Telecommunications . . . . . 1910.268
- Electric Power Generation, Transmission and Distribution . . . . . 1910.269

### OSHA's Safety and Health Standards for Construction

#### Subpart E, Personal Protective Equipment

- Safety Belts, Lifelines and Lanyards . . . . . 1926.104
- Safety Requirements for Scaffolding, Boatswain's Chairs . . . . . 1926.105

#### Subpart L, Scaffolding

- Boatswain's Chairs . . . . . 1926.450–454
- Aerial Lift Platforms . . . . . 1926.453 (b) (2) (v)

#### Subpart M, Fall Protection

- Scope, Application and Definitions . . . . . 1926.500
- Duty to Have Fall Protection . . . . . 1926.501
- Scope, Application and Definitions . . . . . 1926.502
- Duty to Have Fall Protection . . . . . 1926.503

#### Subpart R, Scaffolding

- Fall Protection . . . . . 1926.750

#### Subpart M, Ladders





## Approvals and Standards


### What is ANSI?

ANSI (American National Standards Institute) is a voluntary standardization system and does not possess the ability to enforce its standards. ANSI facilitates development of national standards by establishing consensus among manufacturers and consumers. Many of OSHA's regulations are adopted from ANSI standards.

### ANSI Z359 Family of Standards

- ANSI Z359.0 .....Definitions & Nomenclature Used for Fall Protection & Fall Arrest
- ANSI Z359.1 .....Safety Requirements for Personal Fall Arrest Systems, Subsystems & Components
- ANSI Z359.2 .....Minimum Requirements for a Comprehensive, Managed Fall Protection Program
- ANSI Z359.3 .....Safety Requirements for Work Positioning and Travel Restraint Systems
- ANSI Z359.4 .....Safety Requirements for Assisted Rescue & Self-Rescue Systems
- ANSI Z359.6 .....Specifications and Design Requirements for Active Fall Protection Systems
- ANSI Z359.7 .....Qualification & Verification Testing of Fall Protection Products
- ANSI Z359.8 .....Safety Requirements for Rope Access\*
- ANSI Z359.9 .....Safety Requirements for Descent Devices\*
- ANSI Z359.11 .....Safety Requirements for Full-Body Harnesses
- ANSI Z359.12 .....Connecting Components for Personal Fall Arrest Systems
- ANSI Z359.13 .....Personal Energy Absorbers and Energy Absorbing Lanyards
- ANSI Z359.14 .....Safety Requirements for Self-Retracting Devices for Personal Fall Arrest & Rescue Systems
- ANSI Z359.15 .....Safety Requirements for Vertical Lifelines\*
- ANSI Z359.16 .....Safety Requirements for Fall Arrestors\*
- ANSI Z359.17 .....Safety Requirements for Horizontal Lifelines\*
- ANSI Z359.18 .....Safety Requirements for Anchorage Connectors\*

### What is CSA?

The Canadian Standards Association (CSA) Technical Committee Z259 sets standards for fall protection equipment and practices. The CSA Certification and Test Division is responsible for testing and certifying products to the CSA Z259 product standards. Other certification organizations, including the Safety Equipment Institute, also certify fall protection equipment to the CSA Z259 standards. Products that are certified to the Z259 fall protection standards carry compliance markings of the certifying agency, for example:  or CSEI. All Canadian Provinces and Territories require that fall protection equipment must be certified by a recognized third-party organization in compliance with Canadian standards (or meet equivalent levels of protection approved by the legislative authority).

### CSA Z259 Family of Standards

- CAN/CSA Z259.10 .....Full Body Harnesses
- CAN/CSA Z259.11 .....Energy Absorbers and Lanyards
- CAN/CSA Z259.12 .....Connecting Components for Personal Fall Arrest Systems
- CAN/CSA Z259.13 .....Flexible Horizontal Lifeline Systems
- CAN/CSA Z259.16 .....Design of Active Fall Protection Systems
- CAN/CSA Z259.2.2 .....Self-Retracting Devices for Personal Fall Arrest Systems
- CAN/CSA Z259.2.3 .....Descent Devices
- CAN/CSA Z259.2.4 .....Fall Arrestors & Vertical Rigid Rails\*
- CAN/CSA Z259.2.5 .....Fall Arrestor & Vertical Lifelines\*

\*At time of print, currently under revision with sub-committee



OUR COMMITMENT TO YOU...

## The MSA Fall Protection Promise

MSA promises to replace any MSA harness and/or textile lanyard FREE of charge if a user falls while properly using our product. If the fall occurs while using an MSA mechanical device, we will re-certify the device FREE of charge.

MSA believes that it is important to provide high quality products and recognize safe work practices.

*Products should be returned with a signed copy of the accident report to:*

MSA  
Attn: Fall Protection Product Line Manager  
1100 Cranberry Woods Drive  
Cranberry Township, PA 16066-5204











Need it **NOW?**  
Call MSA!

**Need it NOW!** is our fall protection delivery program that's designed to get you the products you need, when you need them — **NOW!**

Two tiers of priority shipping are offered under the **Need it NOW!** delivery program:

- Tier I includes MSA's most popular products. Tier I delivery offers same day or next-day shipping.
- Tier II delivery offers shipping within 5 days.

Products included in this program are identified by the following symbols:

- Symbols with a 1 denote Tier I product status  
- Symbols with a 2 denote Tier II product status  
- Black symbols denote that the maximum order quantity for priority shipping is 100 units  
- Red symbols denote that the maximum order quantity for priority shipping is 50 units  

Visit our website at [www.MSAafety.com](http://www.MSAafety.com) to view complete program terms and conditions.

### Attachment points



**Fall arrest systems** are an assembly of components and subsystems, including the necessary connectors, used to arrest the user in a fall from a working height and suspend the user until rescue can be effected.



**Suspension Systems** permit workers to sit and work safely while elevated. The system is designed to raise or lower, and support a worker at an elevated work station. This system alone cannot be relied upon to provide proper fall arrest protection.



**Restraint Systems** are an assembly of components and subsystems, including the necessary connectors, used to: (a) stabilize and partially support the user at an elevated work location and allow free use of both hands; (b) restrict the user's motion so as to prevent reaching a location where a fall hazard exists.

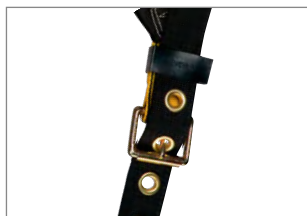


**Personnel-Riding Systems** provide a quick means of raising a user out of, or lowering a worker into, a working environment. The system supports full body weight for a short period of time, but should not be used for suspension. A retrieval system by itself may not provide all the protection a worker requires. Fall arrest and/or restraint systems may also be required.

### Harness Leg Buckle Options



Quik-Fit Buckle



Tongue Buckle



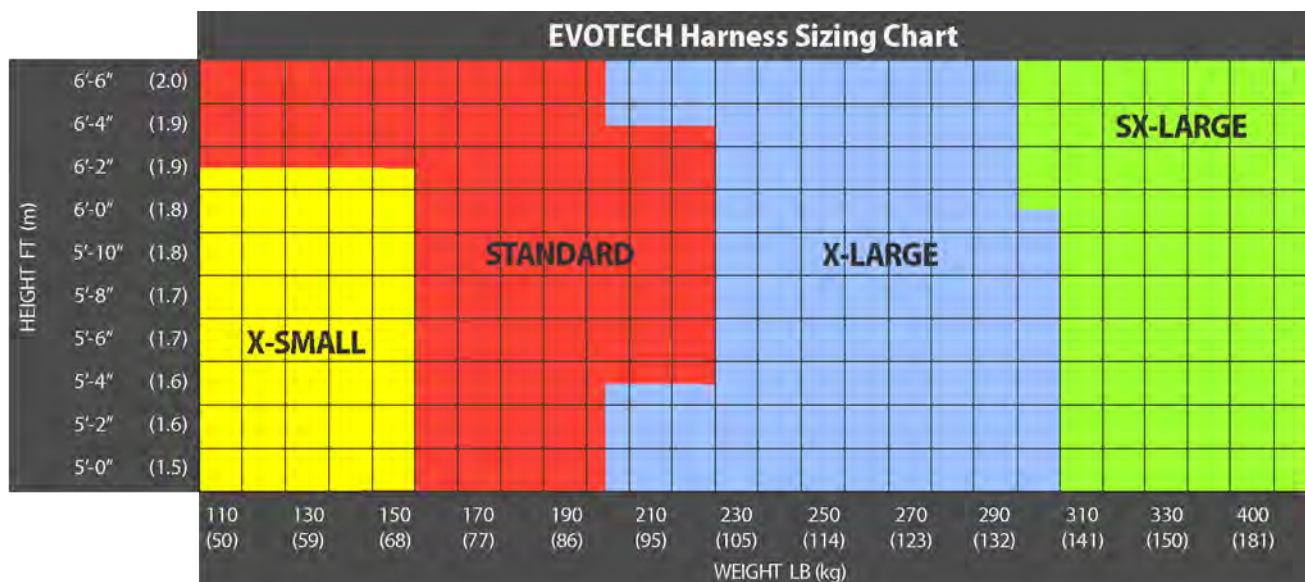
Quick-Connect Buckle



Quick-Connect Aluminum Buckle



## EVOTECH® Full-Body Harnesses



## EVOTECH Full-Body Harness and Construction Harness Assemble-To-Order Matrix

Approval	Style of Harness	D-Ring Configuration	Color	Size	Leg Strap Type	D-Ring Type	Chest Strap Type	Back Connection Type	Padding	Accessories	QUANTITY
A ANSI OSHA	1 Vest Style	1 Back	1 Red	1 SM	1 Quick-Connect	1 Steel	1 Quick-Connect	0 D-Ring only	0 None	0 None	
B ABNT	2 Vest Style Construction, Standard Hip D	2 Back, Chest	3 Hi Viz Orange	2 STD	2 Tongue Buckle		2 Qwik-Fit	1 Sure-Stop Shock Absorber	1 Shoulder Pad	1 Safety Step	
C CSA	3 Vest Style Construction, Cranked Hip D	3 Back, Chest, Hips		3 XL	3 Qwik-Fit			2 Dorsal Extension	2 Leg Pads	2 Medical ID Kit	
	4 Tower w/Saddle, Standard Hip D	4 Back, Chest, Hips, Shoulders		4 SXL				4 Twin-leg PFL Ext	3 Shoulder & Leg Pads	3 Safety Step and Medical ID Kit	
	5 Tower less Saddle, Standard Hip D	5 Back, Hips									
	6 Tower w/Saddle, Cranked Hip D	6 Back, Chest, Shoulders									
	7 Tower less Saddle, Cranked Hip D	7 Back, Shoulders									
	8 Tower w/Wood Saddle, Standard Hip D	8 Back, Hips, Shoulders									
A-EVO						1					

• Harnesses ordered using the ATO System are non-returnable.

## EVOTECH Harness Ordering Information



- NanoSphere® coating on webbing repels dirt, grease, moisture, etc.
- Patent-pending leg strap design keeps leg straps in place, increasing mobility and comfort
- Breathable padding with moisture-wicking material keeps users cooler
- No binding edge on shoulder padding prevents neck chafing
- Sub-Pelvic Strap with variable width webbing provides 50% more surface area for better weight distribution and improved comfort
- Dual-color webbing—red pattern on outside, black on inside—promotes easy identification of twisted webbing
- Patent-pending web management system provides means of storing excess webbing
- 3-position back D-Ring allows users to determine optimal lanyard connection position (excludes LITE version)
- Web finials prevent fraying on web ends and simplify threading through buckles
- Reflective webbing integrated into harness webbing increases visibility in low-light environment

EVOTECH Full-Body Harness  
Part No. 10105942

PART NO.	D-Ring Configuration				Size		Leg Buckle Type			Chest Strap Type		Padding			Accessories		Standards
	Back	Back Hips	Back Chest Hips	Back Chest	Std	XLG	Qwik-Fit	Tongue Buckle	Quick-Connect	Qwik-Fit	Quick-Connect	None	Shoulder	Shoulder & Leg	None	Safety Step	OSHA/ ANSI/ CSA
10105889	■				■		■			■		■			■		■
10105890	■					■	■			■		■			■		■
1 10105931	■				■			■			■		■		■		■
2 10105932	■					■		■			■		■		■		■
1 10105940	■				■				■		■		■		■		■
2 10105941	■					■			■		■		■		■		■
10105956	■				■			■		■			■		■		■
10105957	■					■		■		■			■		■		■
1 10105933		■			■			■			■		■		■		■
2 10105935		■				■		■			■		■		■		■
1 10105942		■			■				■		■		■		■		■
2 10105943		■				■			■		■		■		■		■
10105950		■			■				■		■			■	■		■
10105951		■				■			■		■			■	■		■
10105960		■			■				■		■			■		■	■
10105961		■				■			■		■			■		■	■
10105936			■		■			■			■		■		■		■
10105939			■			■		■			■		■		■		■
10105944			■		■				■		■		■		■		■
10105945			■			■			■		■		■		■		■
10105948			■		■				■		■			■	■		■
10105949			■			■			■		■			■	■		■
10105952			■		■			■			■			■	■		■
10105953			■			■		■			■			■	■		■
10105946				■	■				■		■		■		■		■
10105947				■		■			■		■		■		■		■

## EVOTECH Construction Harness Ordering Information



- Construction Harness features integral back pad and tool belt with dual-durometer padding for superior comfort in work positioning applications
- Breathable padding with moisture-wicking material keeps users cooler

EVOTECH Construction Harness  
Part No. 10112742

PART NO.	D-Ring Configuration		Size		Leg Buckle Type		Chest Buckle Type		Padding		Standards
	Back, Hips	Back, Chest, Hips	Std	XLG	Quick-Connect	Tongue Buckle	Quick-Connect	Quick-Fit	Shoulder	Shoulder & Leg	OSHA/ANSI/CSA
10112742	■		■		■		■		■		■
10112743	■			■	■		■		■		■
10112708	■		■			■	■		■		■
10112709	■			■		■	■		■		■
10112752	■		■			■	■			■	■
10112753	■			■		■	■			■	■
10112754	■		■			■		■	■		■
10112755	■			■		■		■	■		■
2 10112710		■	■			■	■		■		■
2 10112741		■		■		■	■		■		■
2 10112744		■	■		■		■		■		■
2 10112745		■		■	■		■		■		■
10112746		■	■		■		■			■	■
10112747		■		■	■		■			■	■
10112750		■	■			■	■			■	■
10112751		■		■		■	■			■	■

## EVOTECH Tower Harness Ordering Information

**NEW!**



front



back

EVOTECH Tower Harness  
Part No. 10112762

PART NO.	Hip D-Ring Style		Size		Leg Buckle Type		Padding		Accessories		Standards
	Standard	Crank	Std	XLG	Quick-Connect	Tongue Buckle	Shoulder	Shoulder & Leg	None	Safety Step	OSHA/ANSI/CSA
10112758	■		■			■	■		■		■
10112759	■			■		■	■		■		■
10112764	■		■			■		■	■		■
10112765	■			■		■		■	■		■
10112760	■		■		■		■		■		■
10112761	■			■	■		■		■		■
10112762	■		■		■			■	■		■
10112763	■			■	■			■	■		■
10112770	■		■		■			■		■	■
10112771	■			■	■			■		■	■
10112772		■	■		■		■		■		■
10112773		■		■	■		■		■		■
10112774		■	■		■			■	■		■
10112775		■		■	■			■	■		■
10112776		■	■		■			■		■	■
10112777		■		■	■			■		■	■

## EVOTECH Derrick Harness Ordering Information

**NEW!**



The derrickhand/worker is exposed to great risk with regard to falls occurring on a drilling rig. Most related hazards that workers encounter involve working on the monkey board. Accessing the derrick ladder to the board or basket exposes these workers to a fall; 100% tie-off is critical to help ensure worker safety.

Derrick harnesses provide an 18" extension to the dorsal D-Ring and a D-Ring at the back of the derrick belt for monkey board work, necessary for fall restraint when leaning over the tripping pipe.

### EVOTECH Derrick Harness Features

- 18" D-Ring extension
- Positioning D-Ring on back pad
- Metal or nylon saddle

PART NO.	Leg Buckle Type	Saddle		Size				Standards
	Tongue Buckles	Metal	Nylon	XSM	STD	XLG	SXL	ANSI/CSA/OSHA
10150836	■	■		■				■
2 10152949	■	■			■			■
2 10154124	■	■				■		■
10154125	■	■					■	■
10155538	■		■	■				■
2 10153611	■		■		■			■
2 10155680	■		■			■		■
10155691	■		■				■	■





## EVOTECH Arc Flash Harness Ordering Information



EVOTECH Arc Flash Harness  
Part No. 10150152

The EVOTECH Arc Flash Harness provides outstanding arc flash protection for utility company employees and contractors who work at heights. Its rugged design looks good on the job and is 30% lighter than comparable harnesses. Made from 100% Kevlar® webbing, the EVOTECH Harness is fire-resistant, so it maintains its performance in the event of a fall after an arc flash.

The inherent properties of the harness help to maintain its color, making formal inspection easy. Designed to provide more comfort for the user, our Kevlar shoulder padding has no binding edge. Our patent-pending horizontal leg strap design conforms to the user's body for increased support.

- Harness is lighter — by more than 1 lb. — than comparable harnesses
- Moisture-wicking padding keeps users cooler
- No binding edge on shoulder padding prevents neck chafing
- 100% Kevlar webbing is fire-resistant and self-extinguishing
- **High performance in welding applications as well**
- Reflectivity on shoulder padding provides increased visibility in low-light applications
- Patent-pending horizontal leg straps stay in place, providing increased mobility and added comfort
- RFID capability
- ASTM F887 tested with fire-resistant (FR) properties
- Meets CSA Z259.11 requirements (Web Loop version excluded)
- OSHA 1910.269 & 1926 Subpart V compliant

PART NO.	D-Ring Configuration		Web Loop	Size				Leg Buckle Type		Standards	
	Back	Back, Hips	Back	XSM	STD	XLG	SXL	Quik-Fit	Quick-Connect	OSHA/ANSI	OSHA/ANSI/CSA
10150159			■	■				■		■	
<b>2</b> 10150160			■		■			■		■	
10150161			■			■		■		■	
10150162			■				■	■		■	
10150147			■	■					■	■	
<b>1</b> 10150148			■		■				■	■	
<b>1</b> 10150149			■			■			■	■	
10150150			■				■		■	■	
10150155	■			■				■			■
<b>2</b> 10150156	■				■			■			■
10150157	■					■		■			■
10150158	■						■	■			■
10150143	■			■					■		■
<b>1</b> 10150144	■				■				■		■
<b>1</b> 10150145	■					■			■		■
10150146	■						■		■		■
10155823		■		■				■			■
<b>2</b> 10155824		■			■			■			■
10155825		■				■		■			■
10155826		■					■	■			■
10150151		■		■					■		■
<b>1</b> 10150152		■			■				■		■
<b>1</b> 10150153		■				■			■		■
10150154		■					■		■		■

## EVOTECH LITE Full-Body Harness Ordering Information



EVOTECH LITE Harness  
Part No. 10155578

### Features

- Lightweight, durable aluminum buckles, D-rings and hardware decrease harness weight by 20%
- NanoSphere coating repels water, dust and oil
- Patent-pending leg straps
- Shoulder pads with non-binding edge

### Durability

- Web finials prevent fraying on web ends
- Washable shoulder pad is easily added and removed with hook-and-loop fastener
- NanoSphere coating on webbing repels dirt, grease, moisture, etc.
- Covered label pack protects labels from environment

### Reliable NanoSphere Textile Protection

NanoSphere textile coating uses nanotechnology to repel water, oil and dirt. Ecologically clean NanoSphere textile finish is a part of this product's outstanding cost of ownership.

- Nanoparticles create a textile structure that causes water to run off and oil droplets to rinse away easily.
- Use of NanoSphere coating does not affect the appearance, texture or breathability of textiles.
- Self-cleaning function, less frequent washing and wash permanence provide greater product longevity.

### Added Safety

- Reflective piping integrated into harness webbing increases visibility in low-light environments

PART NO.	D-Ring Configuration		Size				Leg Buckle Type	Standards	
	Back	Back, Hips	XSM	STD	XLG	SXL	Quick-Connect	ANSI Z359.11	CSA Z259.10
10155574	■		■				■	■	■
2 10155559	■			■			■	■	■
2 10155575	■				■		■	■	■
10155576	■					■	■	■	■
10155577		■	■				■	■	■
2 10155578		■		■			■	■	■
2 10155579		■			■		■	■	■
10155580		■				■	■	■	■

## TechnaCurv® Full-Body Harnesses



front



back

TechnaCurv Vest-Type Harness  
Part No. 10041599



front



back

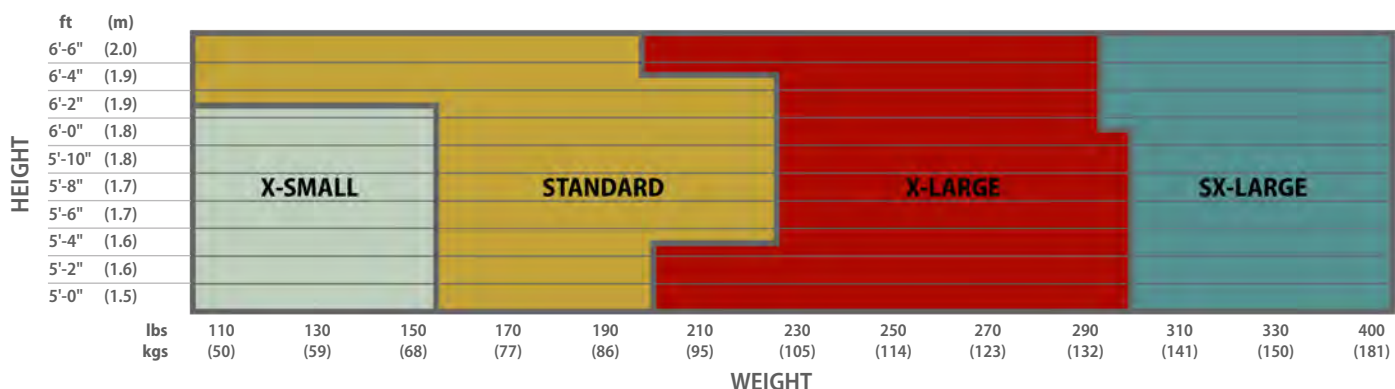
TechnaCurv Pullover Harness  
Part No. 10041609

TechnaCurv Full Body Harnesses offers many unique features including: Curvilinear comfort system, Visco-Elastic shoulder padding, Secure-Fit buckles, and Sorbtek fabric on the shoulder and sub-pelvic pads. The harness is designed with downward adjusting torso straps on most models to ease fitting. MSA's assemble-to-order (ATO) process allows you to order exactly (and only) the options you want for one of the most comfortable, versatile, and safe harness available today.

### Features and Benefits

- Resists water, oil, grease, and dirt with Teflon fabric protected webbing which increases the life of the harness
- Uses Visco-Elastic shoulder padding for comfort
- Designed with downward adjusting torso straps to ease fitting
- Tower Harness model available with integral body belt and removable saddle
- Order through MSA's assemble-to-order process to get the options you want

### TechnaCurv Harness Sizing Chart



## TechnaCurv Harness Ordering Information

PART NO.	Style		D-Ring Configuration			Size		Leg Buckle Type		Chest Buckle Type	Padding		Standards
	Vesttype	Pullover	Back	Back, Hips	Back, Chest, Hips	Std	XLG	Tongue Buckle	Qwik-Fit	Qwik-Fit	None	Shoulder	OSHA/ANSI/CSA
<b>2</b> 10041517	■		■			■			■	■	■		■
10041519	■		■				■		■	■	■		■
<b>1</b> 10041591	■		■			■		■		■	■		■
<b>1</b> 10041592	■		■				■	■		■	■		■
<b>1</b> 10041599	■		■			■		■		■		■	■
10041600	■		■				■	■		■		■	■
<b>1</b> 10041595	■			■		■		■		■	■		■
10041596	■			■			■	■		■	■		■
<b>2</b> 10041603	■			■		■		■		■		■	■
10041604	■			■			■	■		■		■	■
10041607	■				■	■		■		■	■		■
10041608	■				■		■	■		■	■		■
<b>2</b> 10041611	■				■	■		■		■		■	■
10041612	■				■		■	■		■		■	■
10041593		■	■			■		■			■		■
10041594		■	■				■	■			■		■
10041597		■		■		■		■			■		■
10041598		■		■			■	■			■		■
10041609		■			■	■		■			■		■
10041610		■			■		■	■			■		■





TechnaCurv Construction Harness  
Part No. 10054402

TechnaCurv Tower Harness  
Part No. 10048344

## TechnaCurv Construction Harness Ordering Information

PART NO.	Size		D-Ring Configuration	Leg Buckle Type		Chest Buckle Type		Webbing Color		Standards
	Std	XLG	Back, Hips	Secure-Fit	Tongue Buckle	Secure-Fit	Qwik-Fit	Red	Green	OSHA/ANSI/CSA
<b>2</b> 10054402	■		■		■		■	■		■
10054720		■	■		■		■	■		■
10054403	■		■		■	■		■		■
10054761		■	■		■	■		■		■
10054719	■		■	■		■		■		■
10054762		■	■	■		■		■		■
10063654	■		■		■		■		■	■
10063656		■	■		■		■		■	■

## TechnaCurv Tower Harness Ordering Information

PART NO.	Style		Size		Leg Buckle Type			Chest Buckle Type		Padding			Standards
	Vesttype	Pullover	Std	XLG	Secure-Fit	Tongue Buckle	Qwik-Fit	Secure-Fit	Qwik-Fit	None	Shoulder	Shoulder & Leg	OSHA/ANSI/CSA
<b>2</b> 10048344	■		■		■				■			■	■
10048345	■			■	■				■			■	■
10048348	■		■			■			■		■		■
10048349	■			■		■			■		■		■
10048432	■		■				■		■	■			■
10048433	■			■			■		■	■			■
10048342		■	■		■							■	■
10048343		■		■	■							■	■



## TechnaCurv Full-Body Harness Assemble-To-Order Matrix

Approval	Style of Harness	D-Ring Configuration	Version	Size	Leg Buckles	D-Ring Type	Chest Strap (Vest Style only)	Back D-Ring Options	Padding	Tool Belt	Accessories	Lanyard Clip	QUANTITY
N ANSI/OSHA C CSA B ABNT	1 Vest Style	1 Back	1 Red/Black Webbing	1 XSM	1 Secure-Fit	1 Steel	0 None	0 D-Ring only	0 None	0 None	0 None	2 With 2 Attachments	
	3 Tower (Vest Style)	2 Back, Chest	2 Green/Black Webbing	2 STD	2 Tongue Buckle		1 Secure-Fit	2 Integral Sure-stop Shock Absorber	1 Shoulder	1 Support Straps Only	1 Medical ID Kit		
	5 Tower (Vest Style less Saddle)	3 Back, Chest, Hips	3 Orange/Black Webbing	3 XLG	3 Qwik-Fit		2 Tongue Buckle	3 18" Integral Dorsal D Extension (Non-Shock Absorbing)	2 Sub-Pelvic	4 Modular Belt with Support Straps	2 Medical ID Kit and Safety Step		
		4 Back, Chest, Hips, Shoulders		4 SXL			3 Qwik-Fit		3 Shoulder & Sub-Pelvic	6 Belt Loops	3 Safety Step		
		5 Back, Hips								9 Modular Belt with Belt Loops			
		6 Back, Chest, Shoulders								10 Tradesman Belt with Belt Loops			
		7 Back, Shoulders											
		8 Back, Hips, Shoulders											
	2 Pullover Style	1 Back											
	4 Tower (Pullover Style)	2 Back, Chest											
	6 Tower (Pullover Style less Saddle)	3 Back, Chest, Hips											
		4 Back, Chest, Hips, Shoulders											
		5 Back, Hips											
		6 Back, Chest, Shoulders											
		7 Back, Shoulders											
		8 Back, Hips, Shoulders											
A-NGH													

- Harnesses ordered using the ATO System are non-returnable.
- If a Vest Style Harness with a Chest D-Ring is selected, the Secure-Fit Buckle is not available as an option for the Chest Strap. (All Tower Style Harnesses include a Chest D-Ring.)
- Tower Harness Styles include back pad, tool belt and saddle. (Tool Belt options listed in ATO are not available on Tower Harness.)
- Only D-Ring Configuration Options 3 and 4 are available on the Tower Harness Style.
- TechnaCurv Construction Harness is not available on ATO.

## Workman® Full-Body Harnesses



front



back

Workman Harness  
Part No. 10072479



front



back

Workman Construction Harness  
Part No. 10077571

Quality, comfort, and value come together in the Workman line of products. Workman Full-Body and Construction Harnesses feature lightweight components and durable webbing.

### Features and Benefits

- Optimum quality at an economical price
- Yellow polyester webbing for increased visibility
- Color-contrasting thigh and torso straps simplify donning
- Choice of Qwik-Fit or tongue-buckle leg straps for easy adjustment
- Web retainer collars to keep excess webbing neat
- Includes two lanyard keepers for added safety when lanyard leg is not in use
- All Workman Harnesses include a load-indicator to alert you when the harness has been involved in a fall event

For more complete information on Workman Products,  
see Bulletin 2302-11-MC.



## Workman Harness Ordering Information

PART NO.	D-Ring Configuration				Size				Leg Buckle Type		Standards
	Back	Back, Hips	Back, Chest	Back, Chest, Hips	XSM	STD	XLG	SXL	Tongue Buckle	Qwik-Fit	OSHA/ANSI/CSA
10072478	■				■					■	■
1 10072479	■					■				■	■
1 10072480	■						■			■	■
2 10072481	■							■		■	■
10072486	■				■				■		■
1 10072487	■					■			■		■
1 10072488	■						■		■		■
2 10072489	■							■	■		■
10072482		■			■					■	■
1 10072483		■				■				■	■
1 10072484		■					■			■	■
2 10072485		■						■		■	■
10072490		■			■				■		■
1 10072491		■				■			■		■
1 10072492		■					■		■		■
2 10072493		■						■	■		■
10108743			■		■				■		■
2 10108744			■			■			■		■
2 10108745			■				■		■		■
10108767				■	■				■		■
2 10108768				■		■			■		■
2 10108769				■			■		■		■
10108770				■				■	■		■
2 10108772				■		■				■	■
2 10108773				■			■			■	■

## Workman Construction Harness Ordering Information

PART NO.	Size				Padding		D-Ring Extension	Standards	
	XSM	STD	XLG	SXL	Lumbar	Shoulder & Lumbar		OSHA/ANSI/CSA	ANSI/OSHA
10072494	■				■			■	
1 10072495		■			■			■	
1 10072496			■		■			■	
2 10072497				■	■			■	
10077490	■					■		■	
1 10077571		■				■		■	
1 10077572			■			■		■	
2 10077573				■		■		■	
10122707	■					■	■		■
10122507		■				■	■		■
10122745			■			■	■		■
10122746				■		■	■		■



## Workman Arc Flash Harness Ordering Information



The Workman Arc Flash Harness provides excellent arc flash protection in a sleek, black design that's lightweight and comfortable. It's the economical choice for workers needing protection for arc flash and fall arrest. The high-strength nylon is designed to maintain its integrity after exposure to an arc flash and in the event of a fall. The Workman Arc Flash Harness is a cost effective option for safety managers and contractors who need to be compliant to the latest electrical requirements without breaking the budget.

- Durable nylon material won't melt or drip in the event of exposure to an arc flash
- Y-shaped D-locator pad keeps torso straps off of the user's neck to prevent chafing
- Comes in both vest-type and crossover styles allowing user preference
- Lanyard keepers for lanyard stowage when not in use
- Arc Flash symbol for easy identification
- ASTM F887 tested
- Meets CSA Z259.11
- OSHA 1910.269 & 1926 Subpart V compliant

Workman Arc Flash Harness  
Part No. 10152671

PART NO.	Style		D-Ring Configuration	Web Loop	Size				Leg Buckle Type		Standards
	Vesttype	Crossover	Back	Back	XSM	STD	XLG	SXL	Quik-Fit	Tongue Buckle	OSHA/ANSI/CSA
10152651	■		■		■				■		■
2 10152652	■		■			■			■		■
10152653	■		■				■		■		■
10152654	■		■					■	■		■
10152636	■		■		■					■	■
2 10152637	■		■			■				■	■
2 10152638	■		■				■			■	■
10152639	■		■					■		■	■
10152640	■			■	■				■		■
2 10152648	■			■		■			■		■
10152649	■			■			■		■		■
10152650	■			■				■	■		■
10152632	■			■	■					■	■
1 10152633	■			■		■				■	■
1 10152634	■			■			■			■	■
10152635	■			■				■		■	■
10152655		■		■	■				■		■
2 10152656		■		■		■			■		■
10152657		■		■			■		■		■
10152658		■		■				■	■		■
10152663		■		■	■					■	■
1 10152671		■		■		■				■	■
1 10152672		■		■			■			■	■
10152673		■		■				■		■	■



**Workman Stainless Steel Harness** Ordering Information



**Extreme Environments can do Extreme Harness Damage**

The Workman Stainless Steel Full-Body Harness and Workman Stainless Steel Lanyard are corrosion resistant, so they maintain durability when used in corrosive environments. Keep harnesses clean and in working condition—join the resistance against harsh environments with MSA.

**Applications**

- Oil, gas, petrochemical
- Mining
- Fertilizer plants
- Corrosive atmospheres



Workman Stainless Steel Harness  
Part No. 10155932

For information on Workman Stainless Steel  
Energy-Absorbing Lanyards, see pp. 193–194

PART NO.	Vest-Type Style	Back D-Ring	Qwik-Fit Leg Straps	Size				Standards
				XSM	STD	XLG	SXL	ANSI/CSA/OSHA
10155931	■	■	■	■				■
2 10155932	■	■	■		■			■
2 10155933	■	■	■			■		■
10155934	■	■	■				■	■





## Gravity™ Harnesses

Gravity harnesses meet the needs of workers in specialty environments or specific work applications.

### Gravity Thermatek & Welder Harness Ordering Information

- Thermatek harness has Kevlar/Nomex blend webbing and is resistant to chemicals, weld splatter, and other high-heat applications
- Gravity Welder harness is made of 100% Kevlar webbing and performs very well in high heat/welding applications



PART NO.	D-Ring Configuration		Size				Leg Buckle Type	Webbing Color		Standards
	Back	Back, Hips	XSM	STD	XLG	SXG	Quick-Fit	Green	Black	OSHA/ANSI/CSA
Thermatek Welder Harness										
10020067		■	■				■	■		■
2 10020062		■		■			■	■		■
10020066		■			■		■	■		■
10020065		■				■	■	■		■
Gravity Welder Harness										
10103213	■		■				■		■	■
1 10103216	■			■			■		■	■
1 10103217	■				■		■		■	■
10103218	■					■	■		■	■
10151154		■		■			■		■	■

## Gravity Urethane-Coated Harness Ordering Information



### Penetrating Substances Can Destroy a Harness

The Gravity Coated Harness uses a special urethane web coating to resist stains and wear and tear that are common when working in dirty/greasy environments. Keep harnesses clean and in working condition longer—join the resistance against harsh environments with MSA.

- Urethane-coated webbing provides protection against heavy oil & grease
- Rated to 400-lb./180kg capacity
- Extremely easy to clean

### Applications

- Food processing
- Oil, gas, petrochemical
- Water treatment
- Painting
- Cleaning & maintenance

Gravity Urethane Harness  
Part No. 10155875

PART NO.	Vest-Type Style	D-Ring Configuration		Tongue Buckle Leg Straps	Size				Standards
		Back-D-Ring	Back & Hip D-Rings		XSM	STD	XLG	SXL	ANSI/CSA/OSHA
10155870	■	■		■	■				■
2 10155871	■	■		■		■			■
2 10155872	■	■		■			■		■
10155873	■	■		■				■	■
10155874	■		■	■	■				■
2 10155875	■		■	■		■			■
2 10155876	■		■	■			■		■
10155877	■		■	■				■	■



## Gravity Utility Harness Ordering Information

**COMING  
2015**



front

Gravity Utility Harness  
Part No. 10162117

back

- ANSI Z359.11
- ASTM F887



The Gravity Utility Harness is a versatile full-body harness that can be used in a diverse number of applications like Confined Space, Rescue, Transmission Tower, Telecom Tower, Rope Access, and many others. This harness is suitable for electrical environments and is also tested for arc flash, meeting all requirements of the ASTM F887 standard.

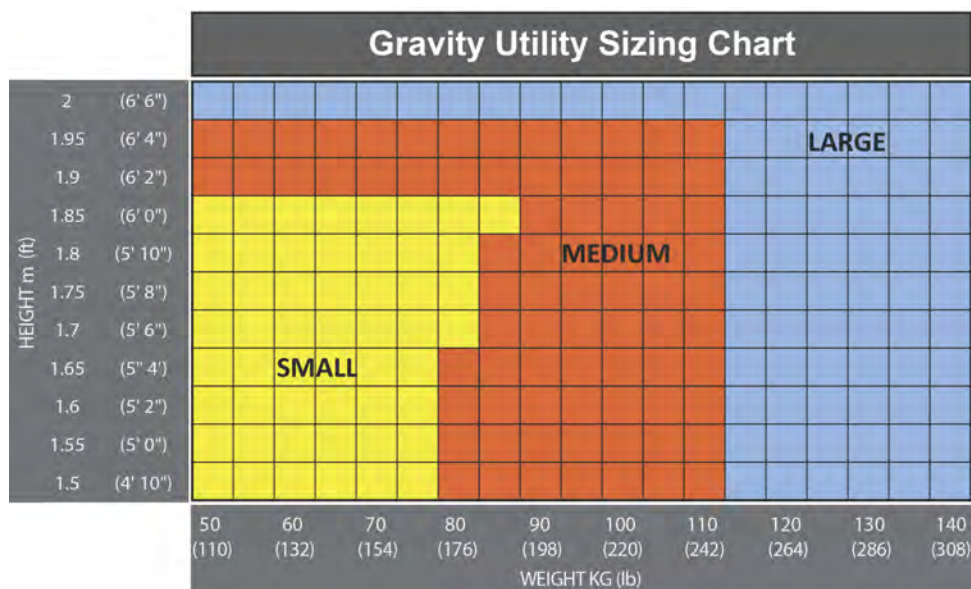
### Attachment options

- Front Loops – Fall arrest, suspension, positioning
- Dorsal – Fall arrest, suspension, positioning, restraint
- Shoulder Loops – Suspension, confined space entry; rescue
- Ventral – Suspension
- Waist D-rings – Positioning, restraint

### Features

- Waist and leg padding with flame-resistant fabrics using aramid fibers like Kevlar
- Leather pad insulators
- Reflective tape is flame-retardant-treated cotton fabric
- PVC-coated dielectric D-rings
- Buckles are easy to adjust and do not slip during use
- Nylon web meeting the minimum static strength of 7000 lbf (as per the requirement by ASTM F887)
- Built-in load indicators
- RFID capability
- 400lbs. worker capacity

PART NO.	PVC-Coated D-Ring Configuration	Size			Leg Buckle Type	Padding	Accessories				Standards		
	Back, Hips, Chest	Small	Medium	Large	Quick-Connect	Leg & Lumbar	Leather Insulators	Reflective Striping	Rescue Loops		ANSI Z359.11	CSA Z259.10	ASTM F887
<b>2</b> 10162117	■	■			■	■	■	■	■	■	■		■
<b>2</b> 10162118	■		■		■	■	■	■	■	■	■		■
10162119	■			■	■	■	■	■	■	■	■		■





## Gravity Suspension Harness Ordering Information



• CSA Z259.10

ANSI Approval Pending

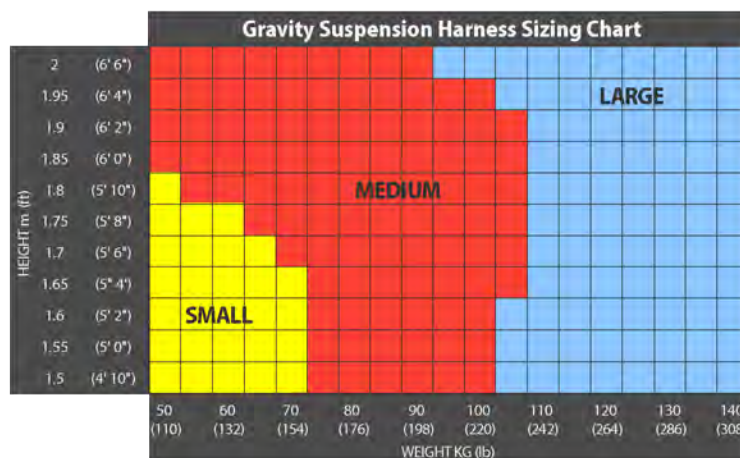
COMING 2015



The Gravity Suspension harness provides unparalleled comfort for all applications that require extended periods of time in a fall protection harness. The features and benefits of this new family of harnesses from MSA are designed to reduce fatigue and allow users to perform their duties better and in more comfort. Models are designed for very easy donning, one hand adjustment at all adjusters, and modern styling.

- 8 adjustment points for perfect sizing and fit
- Fold-back hip D-rings that allow users to reduce possible snag hazards
- Gravity Suspension versions available with comfort shoulder padding
- Tool loops with internal rigid supports to make connection of tools easier
- Tool loops on leg straps provide more tool-holding options, and may be cut off if not needed
- All versions include waist and leg padding to improve suspension comfort
- Quick adjusting buckles allow one-hand tightening and loosening
- Elastic web keepers provide flexibility to manage excess webbing
- D-rings available at Ventral (waist), Sternal, Hip and Back locations
- Waist pad with dual-layer construction to reduce pressure during suspension
- Fall arrest-rated Sternal and Back D-Ring
- Carabiner with 3,600 lb. (16kN) gate strength
- Bayonet-style buckles available with locking engagement window to confirm secure connection
- Bayonet buckles with undercut engagement, which prevents both tabs from disconnection while under tension
- Aluminum D-Ring hardware

PART NO.	Aluminum D-Ring Configuration	Size		Leg Buckle Type	Padding	Web Color		Standards	
	Back, Hips, Sternal & Ventral	Medium	Large	Quick-Connect	Shoulder, Leg & Lumbar	Green	Black	ANSI Z359.11	CSA Z259.10
10150454	■	■		■	■	■			■
10150455	■		■	■	■	■			■
10150457	■	■		■	■		■		■
10150458	■		■	■	■		■		■



## Harness Accessories

MSA Harness Accessories maximize user comfort and allow customization of harnesses.



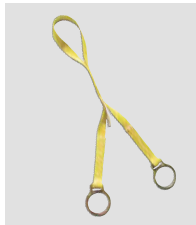
Universal Shoulder Pad  
Part No. 10028444



Universal Shoulder Pads  
Part No. 10077489



EVOTECH Shoulder Pads  
Part No. 10111358



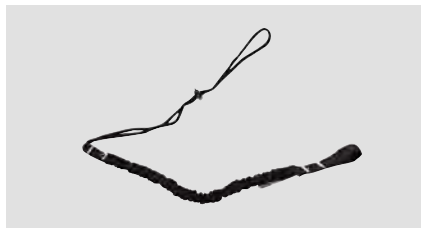
Double D-Ring Extension  
Part No. 10043147



Lanyard Keepers  
Part No. 10113240



Lanyard Connector Adapter  
Part No. 505318



Tool Lanyard  
Part No. 10110670



Rescue Etrier  
folded (above), extended (left)  
Part No. 10063441

Suspension Trauma Safety Steps allows workers to relieve pressure by inserting a foot into the step loops and then standing up in the harness to increase blood flow to the legs.

## Ordering Information

PADS	507144	Economic Back Support Pad, nylon
	10028444	Universal Shoulder Pad
	10077489	Universal Shoulder Pads, 1 set
	10111358	EVOTECH Shoulder Pads
D-RING EXTENSIONS	10043147	Double D-Ring Extension, 1" nylon web, sewn loop
	10071688	Single D-Ring Extension, 1" nylon web, sewn loop
LANYARD CONNECTOR ADAPTER	505318	Lanyard Connector Adapter, nylon, 1 D-Ring, 18" (Back D-Ring Extension)
LANYARD KEEPERS	10113240	Lanyard Keepers, MSA Velcro
LANYARD CLIP	SHW26	Lanyard Clip (Velcro key ring)
TOOL LANYARD	10110670	Tool Lanyard
SUSPENSION TRAUMA SAFETY STEP	10063431	Suspension Trauma Safety Step with carabiner
	10063441	Suspension Trauma Safety Step without carabiner



## Snaphooks



.83"

36C snaphook



.75"

36CS snaphook  
(swivel with load indicator)



.75"

36CSN snaphook  
(swivel without load indicator)



.79"

AL36C snaphook  
(aluminum)



.75"

LC snaphook



2.5"

36CL  
snaphook



2.44"

AL36CL  
snaphook  
(aluminum)



2.25"

GL3100  
snaphook



1"

FP5K  
snaphook



.69"

LI snaphook

### Snaphook Gate Strength Key:

36C .....3,600 lb. (ANSI & CSA compliant)

FP5K .....5,000 lb. (ANSI & CSA compliant)

LI .....250 lb. (OSHA only)

LC .....250 lb. (OSHA only)

GL3100 ....250-lb. gate (OSHA only)

## Energy-Absorbing Lanyards

Energy-absorbing lanyards are a component of a personal fall arrest system. They provide a means of connection between the back D-Ring of MSA full-body harnesses and a qualified anchorage and anchorage connector. The energy absorber keeps fall arrest forces below ANSI, CSA & OSHA limits and deceleration distance is controlled to meet the applicable standard requirements. The lanyard is available in web, rope, and cable configurations with a variety of snaphooks.

### Workman Energy-Absorbing Lanyards



Workman Tieback Energy-Absorbing Lanyard  
Part No. 10113157



Workman Twin-Leg Tieback Energy-Absorbing Lanyard  
Part No. 10113162



Workman Energy-Absorbing Lanyard  
Part No. 10113158



Workman Twin-Leg Energy-Absorbing Lanyard  
Part No. 10113159



Workman Energy-Absorbing Lanyard  
Part No. 10113164



Workman Twin-Leg Energy-Absorbing Lanyard  
Part No. 10113163



Workman LITE Energy-Absorbing Lanyard  
Part No. 10155581



Workman Twin-Leg Stainless Steel Energy-Absorbing Lanyard  
Part No. 10155936

When a fall hazard is present, use a lightweight, low-profile Workman Energy-Absorbing Lanyard. The energy absorber not only limits force on the body in a fall, but also on the anchor location. The shock absorber includes a clear, durable protective cover over the labels to increase service life and allow for easy inspection.

- Tear-tape design to keep average fall arrest forces below 900 lbs.
- Choice of single- or twin-leg configurations
- Choice of adjustable or tie-back configurations
- Workman LITE lanyards feature aluminum hardware
- Workman Stainless Steel Lanyards resist corrosion

## Workman Energy-Absorbing Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type			Standards		
			Single-Leg	Twin-Leg	Tie-Back	ANSI Z359.13	CSA Z259.11	OSHA
1 10113158	36C	36C	■			■		■
1 10113164	36C	36CL	■			■		■
1 10113157	36C	36C	■		■	■		■
1 10113159	36C	(2) 36C		■		■		■
1 10113163	36C	(2) 36CL		■		■		■
1 10113162	36C	(2) 36C		■	■	■		■
1 10072474	36C	36C	■				■	■
1 10076124	36C	36CL	■				■	■
1 10072472	36C	36C	■		■		■	■
1 10073708	36C	(2) 36C		■			■	■
1 10072475	36C	(2) 36CL		■			■	■
1 10072473	36C	(2) 36C		■	■		■	■
1 10129120	LC	LC	■					■
1 10129153	LC	GL3100	■					■
1 10129118	LC	LC	■		■			■
1 10129152	LC	(2) LC		■				■
1 10129151	LC	(2) GL3100		■				■
1 10129119	LC	(2) LC		■	■			■

## Workman LITE Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type			Material	Standards	
			Adjustable	Single-Leg	Twin-Leg	Polyester	ANSI Z359.13	CSA Z259.11
2 10155581	AL36C	AL36C	■	■		■	■	
2 10155583	AL36C	AL36CL	■	■		■	■	
2 10155582	AL36C	(2) AL36C	■		■	■	■	
2 10155584	AL36C	(2) AL36CL	■		■	■	■	
2 10155783	AL36C	AL36C	■	■		■		■
2 10155785	AL36C	AL36CL	■	■		■		■
2 10155784	AL36C	(2) AL36C	■		■	■		■
2 10155786	AL36C	(2) AL36CL	■		■	■		■

## Workman Stainless Steel Lanyard Ordering Information

PART NO.	Type		Snaphooks		Standards	
	Single-Leg Web	Twin-Leg Web	36C Stainless Steel Snaphook		ANSI Z359.13	CSA Z259.11
2 10155935	■		■		■	
2 10155936		■	■		■	
2 10155970	■		■			■
2 10155981		■	■			■

## ArcSafe® Energy-Absorbing Lanyards



Providing electrical arc flash protection, ArcSafe Lanyards use a tear-tape design to keep fall arrest forces and deceleration distances below ANSI, OSHA, and CSA limitations. ArcSafe Energy-Absorbing Lanyards connect the back D-Ring of MSA full-body harnesses to a qualified anchorage and anchorage connector.

- Constructed of nylon webbing and length is adjustable
- Includes sewn loop on shock-absorber end and 36C snaphook on lanyard leg
- Incorporates a protective cover over the energy-absorber

### ArcSafe Energy-Absorbing Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type		Standards			
			Single-Leg	Twin-Leg	ANSI Z359.13	CSA Z259.11	CSA Z259.11 (E6*)	ASTM F887
<b>1</b> 10107200	Hitch Loop	36C	■		■			■
<b>1</b> 10107201	Hitch Loop	(2) 36C		■	■			■
10107202	Hitch Loop	(2) 36CL		■	■			■
<b>1</b> 10060139	Hitch Loop	36C	■			■		■
<b>1</b> 10060140	Hitch Loop	(2) 36C		■		■		■
10088256	Hitch Loop	(2) 36CL		■		■		■
10118808*	Hitch Loop	36C	■				■	■
10118809*	Hitch Loop	(2) 36C		■			■	■
10118810*	Hitch Loop	(2) 36CL		■			■	■

\* E6 Heavy Worker version

## FP5K® Tie-Back Energy-Absorbing Lanyards



The dependable FP5K Tie-Back Energy-Absorbing Lanyard uses an FP5K Carabiner which can be tied directly back to the lanyard. This product uses the Sure-Stop energy absorber to keep fall arrest forces within the limitations set by ANSI, OSHA, and CSA. It's unique carabiner body shape helps avoid confusion with standard connectors not designed for tie-back applications.

- 5,000-lb. gate strength in any direction allows the FP5K carabiner to be tied back directly to the lanyard
- Monster-Edge Webbing with 12,000-lb. minimum breaking strength
- Internal wear indicator consists of two yellow threads that, when visible, alert a user when the lanyard should be removed from service due to severe abrasion
- Available in both single- and twin-leg configurations

### FP5K Web Tie-Back Energy-Absorbing Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type		Standards	
			Single-Leg	Twin-Leg	ANSI Z359.13	CSA Z259.11
<b>1</b> 10107207	36C	FP5K	■		■	
<b>1</b> 10107208	36C	FP5K		■	■	
<b>1</b> 10047084	36C	FP5K	■			■
<b>1</b> 10047085	36C	FP5K		■		■

### FP5K Cable Tie-Back Energy-Absorbing Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type		Standards	
			Single-Leg	Twin-Leg	ANSI Z359.13	CSA Z259.11
10107209	36C	FP5K	■		■	
10107210	36C	FP5K		■	■	
10047086	36C	FP5K	■			■
10047087	36C	FP5K		■		■



## Diamond™ Energy-Absorbing Lanyards and Expanyards

Raising the standard for energy-absorbing lanyards, the Diamond Energy-Absorbing Lanyard's light weight and streamlined design contains a strong and durable polyester sheath that's abrasion and UV-resistant. Diamond Energy-Absorbing Lanyards connect the back D-Ring of MSA full-body harnesses to a qualified anchorage and anchorage connector. Integral energy absorption keeps fall arrest forces and deceleration distances below ANSI, CSA, and OSHA limits.

- Keeps average fall arrest forces below 900 lbs
- Durable polyester sheath for increased abrasion and UV resistance
- Highly visible deployment tag
- Pouchless design for lighter weight and comfortable wear
- Single- and twin-leg configurations
- Twin-leg Diamond allows for 100% tie off
- Now available in Kevlar

### Diamond Lanyard Assemble-To-Order Matrix

Approval	Style of Lanyard	Single/ Twin Leg	Anchor Connector	Anchor Connector (2nd Leg - Twin Only)	User Connector	Length	
N OSHA-only C CSA A ANSI Z359.13 F ASTM/ANSI Z359.13	1 Non-Expanyard Polyester 2 Expanyard Polyester 3 Non-Expanyard Kevlar	1 Single Polyester Single Kevlar 2 Twin Polyester Twin Kevlar	07 LI Snaphook 10 Sewn Loop 11 10089207 Carabiner 12 SRCA883 Carabiner 13 10089209 Carabiner 14 SRCA722 Carabiner 15 36C Snaphook 16 36CL Snaphook 17 AL36C 18 AL36CL	00 None 07 LI Snaphook 10 Sewn Loop 11 10089207 Carabiner 12 SRCA883 Carabiner 13 10089209 Carabiner 14 SRCA722 Carabiner 15 36C Snaphook 16 36CL Snaphook	01 Hitch Loop 07 LI Snaphook 09 10089207 Carabiner 10 SRCA883 Carabiner 11 Sewn Loop 12 36C Snaphook 13 36CSN Snaphook 15 AL36C	0 4.5' Polyester, single-/ twin-leg Kevlar, single-leg Kevlar, twin-leg 1 5' Polyester, single-/ twin-leg Kevlar, single-leg Kevlar, twin-leg 2 6' Polyester, single-/ twin-leg Kevlar, single-leg Kevlar, twin-leg 3 10' Polyester single-leg Kevlar, single-leg	QUANTITY
A-DIA							

\*Diamond Expanyard is not available in 4.5', 5', and 10' lengths.

NOTE: Diamond Lanyards ordered using the ATO system are non-returnable.

## Diamond Energy-Absorbing Lanyard Ordering Information



Part No. 10023932



Part No. 10023970

PART NO.	Harness Connection	Anchorage Connection	Type		Length	Standards		
			Single-Leg	Twin-Leg		ANSI Z359.13	CSA Z259.11	OSHA
<b>2</b> 10088065	36C	36C	■		6'	■		■
<b>2</b> 10088066	36C	36CL	■		6'	■		■
<b>2</b> 10088069	36CSN	(2) 36C		■	6'	■		■
<b>2</b> 10164001	36CSN	(2) 36CL		■	6'	■		■
<b>1</b> 10023932	36C	36C	■		6'		■	■
<b>2</b> 10023933	36C	36CL	■		6'		■	■
<b>2</b> 10023970	36CSN	(2) 36C		■	6'		■	■
<b>1</b> 10023971	36CSN	(2) 36CL		■	6'		■	■

## Diamond Energy-Absorbing Expanyard Ordering Information



Part No. 10045936

PART NO.	Harness Connection	Anchorage Connection	Type		Length	Standards		
			Single-Leg	Twin-Leg		ANSI Z359.13	CSA Z259.11	OSHA
<b>1</b> 10045936	36C	36C	■		6'		■	■
<b>2</b> 10053015	36C	36CL	■		6'		■	■
<b>1</b> 10055189	36CSN	(2) 36C		■	6'		■	■
<b>1</b> 10045938	36CSN	(2) 36CL		■	6'		■	■

NOTE: Diamond Expanyards DO NOT meet ANSI Z359.13 requirements.

## Diamond Kevlar Energy-Absorbing Lanyard Ordering Information



PART NO.	Harness Connection	Anchorage Connection	Type		Length	Standards			
			Single-Leg	Twin-Leg		ANSI Z359.13	CSA Z259.11	OSHA	ASTM F887
<b>1</b> 10125910	36C	36C	■		6'	■		■	■
10125921	36C	36CL	■		6'	■		■	■
<b>2</b> 10125922	36CSN	(2) 36C		■	6'	■		■	■
<b>1</b> 10125923	36CSN	(2) 36CL		■	6'	■		■	■
<b>1</b> 10156242	36C	36C	■		6'		■	■	■
10156244	36C	36CL	■		6'		■	■	■
<b>2</b> 10156243	36CSN	(2) 36C		■	6'		■	■	■
<b>1</b> 10156245	36CSN	(2) 36CL		■	6'		■	■	■

## Diamond LITE Lanyard Ordering Information



MSA's Diamond Energy Absorbing Lanyard's streamlined design provides a strong and durable polyester sheath that's abrasion and UV-resistant. Lanyards connect an MSA full-body harness back (dorsal) D-Ring to a qualified anchorage and anchorage connector.

- Highly visible deployment tag
- Lightweight aluminum snaphooks
- Pouchless design for lighter weight and comfortable wear
- Single- and twin-leg configurations

PART NO.	Harness Connection	Anchorage Connection	Type		Length	Standards	
			Single-Leg	Twin-Leg		ANSI Z359.13	CSA Z259.11
<b>2</b> 10156525	AL36C	AL36C	■		6'	■	
<b>2</b> 10156527	AL36C	AL36CL	■		6'	■	
<b>2</b> 10156526	Hitch Loop	(2) AL36C		■	6'	■	
<b>2</b> 10156528	Hitch Loop	(2) AL36CL		■	6'	■	
<b>2</b> 10156529	AL36C	AL36C	■		6'		■
<b>2</b> 10156541	AL36C	AL36CL	■		6'		■
<b>2</b> 10156530	Hitch Loop	(2) AL36C		■	6'		■
<b>2</b> 10156542	Hitch Loop	(2) AL36CL		■	6'		■

## Sure-Stop® Energy-Absorbing Lanyards

Using a tear tape design, the Sure-Stop Energy-Absorbing Lanyard keeps fall arrest forces and deceleration distances within the limitations set by ANSI, CSA, and OSHA. Energy absorbing lanyards are a component of a personal fall arrest system. They provide a means of connection between the back D-Ring of MSA full-body harnesses and a qualified anchorage and anchorage connector.

- Tear tape design to keep average fall arrest forces below 900 lbs
- Available in adjustable or fixed lengths with your choice of rope, cable, or web
- Single- or twin-leg configurations
- Clear shock-absorber cover protects labels
- Also available in tie-back



## Sure-Stop Web Energy-Absorbing Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type					Length	Standards		
			Single-Leg	Twin-Leg	Adjustable	Fixed	Tie-Back		ANSI Z359.13	CSA Z259.11 (E4)	OSHA
1 10088259	36C	36C	■		■			6'	■		■
2 10088260	36C	36CL	■		■			6'	■		■
1 10088213	36C	36C	■			■	■	6'	■		■
2 10088265	36C	(2) 36C		■	■			6'	■		■
2 10088266	36C	(2) 36CL		■	■			6'	■		■
2 10088267	36C	(2) 36C		■		■		6'	■		■
2 10088268	36C	(2) 36CL		■		■		6'	■		■
2 10088214	36C	(2) 36C		■		■	■	6'	■		■
SWL4068706LS	36C	36C	■			■		6'		■	■
SWL4068704LS	36C	36C	■			■		4'		■	■
SWL4068703LS	36C	36C	■			■		3'		■	■
10073581	Carabiner	(2) Carabiners		■		■	■	6'			■

## Sure-Stop Energy-Absorbing Lanyards



## Sure-Stop Cable Energy-Absorbing Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type		Length	Standards		
			Single-Leg	Twin-Leg		ANSI Z359.13	CSA Z259.11 (E4)	OSHA
10088120	36C	36C	■		6'	■		■
10088211	36C	(2) 36C		■	6'	■		■
10088212	36C	(2) 36CL		■	6'	■		■
SCL4067306LS	36C	36C	■		6'		■	■
SCL4067304LS	36C	36C	■		4'		■	■

## Sure-Stop Rope Energy-Absorbing Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type	Material		Length	Standards		
			Single-Leg	Nylon	Polyester		ANSI Z359.13	CSA Z259.11 (E4)	OSHA
2 10088219	36C	36C	■	■		6'	■		■
10088221	36C	36C	■		■	6'	■		■
2 SNL4048406LS	36C	36C	■	■		6'		■	■
SNL4048404LS	36C	36C	■	■		4'		■	■



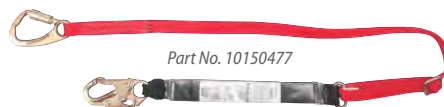


## 12FT Freefall Energy-Absorbing Lanyards Ordering Information

- 12FT freefall lanyards are for use in applications where tying-off at foot level is necessary
- Workman lanyards are made of 7,000lb. nylon web
- FP5K lanyards are made of 12,000lb. nylon web and have tie-back capability



Part No. 10150488



Part No. 10150477



Part No. 10150490



Part No. 10150478

PART NO.	Harness Connection	Anchorage Connection	Type					Length	Standards	
			Single-Leg	Twin-Leg	Tie-Back	Adjustable	Cable		ANSI	OSHA
WORKMAN 12FT FREEFALL										
10150488	36C	36C	■			■		6'	■	■
10150489	36C	36C	■		■	■		6'	■	■
10150490	36C	(2) 36C		■		■		6'	■	■
10150491	36C	(2) 36C		■	■	■		6'	■	■
FP5K 12FT FREEFALL										
10150477	36C	FP5K	■		■	■		6'	■	■
10150479	36C	FP5K	■		■		■	6'	■	■
10150478	36C	(2) FP5K		■	■	■		6'	■	■
10150480	36C	(2) FP5K		■	■		■	6'	■	■



## Thermatek® Energy-Absorbing Lanyard



Specially designed for high-heat applications, Thermatek Energy-Absorbing Lanyards feature a Kevlar/Nomex protective cover over the energy-absorber and a Kevlar back-up strap inside the energy-absorbing pouch. Energy-Absorbing Lanyards connect the back D-Ring of MSA full-body harnesses to a qualified anchorage and anchorage connector. The energy absorber keeps fall arrest forces and deceleration distances within the limitations set by ANSI, CSA, and OSHA.

- Designed to resist heat and especially suitable for the welding industry
- Kevlar/Nomex protective cover
- Kevlar back-up strap is resistant to charring and burning
- Available in Kevlar web, ASTM F887 tested

## Thermatek Cable Energy-Absorbing Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type		Length	Standards	
			Single-Leg	Twin-Leg	6 ft	ANSI Z359.13	CSA Z259.11 (E4)
<b>2</b> 10088246	36C	36C	■		■	■	
10114028	36C	36CL	■		■	■	
10088250	36C	(2) 36C		■	■	■	
10147459	36C	(2) 36CL		■	■	■	
<b>2</b> 10023485	36C	36C	■		■		■
10152844	36C	36CL	■		■		■
10152845	36C	(2) 36C		■	■		■
10099974	36C	(2) 36CL		■	■		■

## Thermatek Web Energy-Absorbing Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type			Length	Standards			
			Fixed	Single-Leg	Twin-Leg	6 ft	ANSI Z359.13	CSA Z259.11 (E4)	CSA Z259.11 (E6)	ASTM F887
<b>2</b> 10106935	36C	36C	■	■		■	■			■
10118737	36C	36CL	■	■		■	■			■
10107853	36C	(2) 36C	■		■	■	■			■
<b>2</b> 10118738	36C	(2) 36CL	■		■	■	■			■
<b>2</b> 10156246	36C	36C	■	■		■		■		■
10156248	36C	36CL	■	■		■		■		■
10156250	36C	36C	■	■		■			■	■
10156252	36C	36CL	■	■		■			■	■
10156247	36C	(2) 36C	■		■	■		■		■
<b>2</b> 10156249	36C	(2) 36CL	■		■	■		■		■
10156251	36C	(2) 36C	■		■	■			■	■
10156253	36C	(2) 36CL	■		■	■			■	■

## Workman Mini Personal Fall Limiters (PFL)



Part No.  
10157841



Part No.  
10157860



Part No.  
10157847



Part No.  
10157864

The Workman Mini Personal Fall Limiter is the premier option in MSA's line of self-retracting devices for users working at heights. Internal fast-acting cam-lock mechanism offers the most versatile compact self-retracting device on the market, allowing for increased user safety at lower heights. Fall limiter design stops a fall within inches, providing workers the ability to tie off at lower levels below the D-Ring (non-tieback version). Housing design is compact and lightweight; users can replace their standard 6-ft. energy-absorbing lanyards. The Workman Mini PFL is available in both single- and twin-leg, tie-back and non-tie-back configurations at lengths of 6-ft. and 9-ft. working capacity.

### Features

- Internal pawl-lock design provides many lower level tie-off points for numerous work applications (non-tieback versions)
- 6-ft. and 9-ft. retractable lifeline for standard and tie-back models
- Swivel eye connection eliminates line twisting
- 400-lb. user weight capacity
- Twin-leg carabiner connection keeps harness D-Ring available for use with other equipment while climbing, or for rescue purposes

### Durability

- Rugged, impact-resistant housing for increased product life

### Added Safety

- External energy absorber provides visual load indicator for easy inspection

### Approvals

- ANSI Z359.14, Class A
- CSA Z259.2.2
- OSHA

## Workman Mini PFL Ordering Information

PART NO.	Type		Connection		Length	Standards		
	Single-Leg	Twin-Leg	PFL Connection	Lifeline Connection		ANSI Z359.14 (Class A)	CSA Z259.2.2	OSHA
<b>1</b> 10157841	■		Carabiner	36C	6'	■		■
10157842	■		Carabiner	36CSN	6'	■		■
10157843	■		Carabiner	36CL	5'	■		■
<b>1</b> 10157844	■		Carabiner	AL36C	6'	■		■
<b>1</b> 10157845	■		Carabiner	AL36CL	6'	■		■
10157846	■		Carabiner	LC	6'			■
<b>1</b> 10157808	■		Carabiner	36C	6'		■	■
10157809	■		Carabiner	36CSN	6'		■	■
10157810	■		Carabiner	36CL	5'		■	■
<b>1</b> 10157831	■		Carabiner	AL36C	6'		■	■
<b>1</b> 10157832	■		Carabiner	AL36CL	6'		■	■
<b>1</b> 10157858		■	Carabiner	36C	6'	■		■
<b>1</b> 10157859		■	Carabiner	36CSN	6'	■		■
<b>1</b> 10157860		■	Carabiner	36CL	5'	■		■
<b>1</b> 10157861		■	Carabiner	AL36C	6'	■		■
<b>1</b> 10157862		■	Carabiner	AL36CL	6'	■		■
<b>1</b> 10157852		■	Carabiner	36C	6'		■	■
<b>1</b> 10157853		■	Carabiner	36CSN	6'		■	■
<b>1</b> 10157854		■	Carabiner	36CL	5'		■	■
<b>1</b> 10157855		■	Carabiner	AL36C	6'		■	■
<b>1</b> 10157856		■	Carabiner	AL36CL	6'		■	■
10157863		■	Carabiner	LC	6'			■

## Workman Mini PFL with Tie-back Ordering Information

PART NO.	Type			Connection		Length	Standards		
	Single-Leg	Twin-Leg	Tie-Back	PFL Connection	Lifeline Connection		ANSI Z359.14 (Class A)	CSA Z259.2.2	OSHA
10157847	■		■	Carabiner	FP5K	9'			■
<b>1</b> 10157864		■	■	Carabiner	FP5K	9'			■
10157833	■		■	Carabiner	FP5K	9'		■	■
<b>1</b> 10157857		■	■	Carabiner	FP5K	9'		■	■

## Workman Personal Fall Limiters (PFL)



Workman Personal Fall Limiters are designed to lock-up quickly in the event of a fall allowing minimal free fall distance.

- Rugged, impact-absorbing protective bumpers for added durability
- A 400-lb. working capacity eliminates the need to custom order a product for a worker exceeding 310 lbs.
- ATO ordering flexibility allows you to order the exact and only options you want
- Available in nylon web and cable to meet specific work applications

## Workman **Web** PFL Ordering Information

PART NO.	Description	PFL Connection	Lifeline Connection	Standards		
				ANSI Z359.14	CSA Z259.2.2	OSHA
<b>1</b> 10093353	Workman PFL, 12' line length	1" Steel Carabiner	36C Snaphook	■		■
<b>1</b> 10093354	Workman PFL, 12' line length	None	36C Snaphook	■		■
10093355	Workman PFL, 10' line length	None	AL36C Snaphook		■	■
<b>2</b> 10093356	Workman PFL, 10' line length	None	36C Snaphook		■	■
<b>2</b> 10093357	Workman PFL, 10' line length	1" Steel Carabiner	36C Snaphook		■	■
10093358	Workman PFL, 10' line length	Back D Connector	36C Snaphook		■	■
<b>1</b> 10093348	Workman PFL, 12' line length	None	LI Snaphook			■
<b>1</b> 10093349	Workman PFL, 12' line length	None	LC Snaphook			■
<b>1</b> 10093350	Workman PFL, 12' line length	1" Steel Carabiner	LC Snaphook			■
<b>2</b> 10093352	Workman PFL, 12' line length	Back D Connector	LC Snaphook			■

## Workman **Cable** PFL Ordering Information

PART NO.	Description	PFL Connection	Lifeline Connection	Standards		
				ANSI Z359.14	CSA Z259.2.2	OSHA
<b>2</b> 10104793	Workman PFL, 12' line length	1" Steel Carabiner	36C Snaphook	■		■
10104794	Workman PFL, 12' line length	None	36C Snaphook	■		■
10104795	Workman PFL, 10' line length	None	AL36C Snaphook		■	■
10104796	Workman PFL, 10' line length	None	36C Snaphook		■	■
10104797	Workman PFL, 10' line length	1" Steel Carabiner	36C Snaphook		■	■
10104798	Workman PFL, 10' line length	Back D Connector	36C Snaphook		■	■
10104708	Workman PFL, 12' line length	None	LI snaphook			■
10104709	Workman PFL, 12' line length	None	LC Snaphook			■
10104710	Workman PFL, 12' line length	1" Steel Carabiner	LC Snaphook			■
10104792	Workman PFL, 12' line length	Back D Connector	LC Snaphook			■



## Workman Personal Fall Limiter (PFL) Assemble-To-Order Matrix

Approvals	Line Length	PFL Connector	Lifeline Connector	Field Replaceable Line*	QUANTITY
C CSA & OSHA A ANSI Z359.1 & OSHA O OSHA E EN360: 2002	06 6' Web 07 7' Web 08 8' Web 09 9' Web 10 10' Web 11 11' Web 12 12' Web 07G 7' Cable 08G 8' Cable 09G 9' Cable 10G 10' Cable 11G 11' Cable 12G 12' Cable	0 None 1 Back D-Ring Connector 2 1" Aluminum Carabiner 3 1" Steel Carabiner 4 2" Aluminum Carabiner 5 2" Steel Carabiner 6 36CL Snaphook	0 LI Snaphook 1 Swivel Carabiner 2 1" Aluminum Carabiner 3 1" Steel Carabiner 6 LC Snaphook 8 36C Snaphook 9 36CSN Snaphook A Triple Lock Carabiner B 36CS Snaphook with Load Indicator D 36CL Snaphook E AL36C Snaphook	N No Y Yes	
A-PFL					

\* Replaceable Lifeline feature not available on Workman PFLs with cable lifeline.  
 NOTE: Workman PFLs ordered using the ATO matrix are not returnable.

## Workman Twin-Leg Personal Fall Limiters (PFL)

The Workman Twin-Leg Personal Fall Limiter increases worker productivity by providing greater mobility and continuous connection (100% tie-off) while moving from one location to another, offering a great alternative to twin leg shock-absorbing lanyards.

The Workman Personal Fall Limiter features the patent-pending ARCA™ Harness Connection. The innovative, integral ARCA Harness Connection makes the Workman Personal Fall Limiter easier to use than any product on the market—simply insert D-Ring into the slot and you're ready to work! This intuitive design offers several important safety features:

- Dual-locking cams offer redundancy of connection—only a single cam is required to maintain connection
- Locking cams move in opposite directions to prevent accidental disengagement
- Locking cam guards help to prevent unintentional contact with cam
- High-strength cam design—only one cam is needed to maintain secure attachment
- ARCA Harness Connection is also available with field-installable lock-out device that results in semi-permanent harness connection, helping to prevent theft or loss



## Workman Twin-Leg Personal Fall Limiter (PFL) Ordering Information

PART NO.	Description	Lifeline Connection	Standards		
			ANSI Z359.14	CSA Z259.2.2	OSHA
<b>1</b> 10118937	Workman Twin Leg PFL, 6' line length	36CL snaphook	■	■	■
<b>1</b> 10120050	Workman Twin Leg PFL, 6' line length	AL36CL snaphook	■	■	■
<b>1</b> 10120052	Workman Twin Leg PFL, 6' line length	36C snaphook	■	■	■
<b>1</b> 10125271	Workman Twin Leg Tie-Back PFL, 6' line length	FP5K Snaphook	■	■	■
<b>1</b> 10125272	Workman Twin Leg Tie-Back PFL, 7.5' line length	FP5K Snaphook		■	■
10129903	Workman Twin Leg PFL, 6' line length	LC snaphook			■
10122373	Optional lockout hardware	—	—	—	—

## Workman Self-Retracting Lanyard (SRL) 30 & 50 ft

With lightweight design, durable thermoplastic housing and impact-absorbing bumpers, the Workman SRL will not only be accepted by users, but also provides years of dependable service.

- RFID-enabled product for simplified product tracking and inspection
- 400-lb. working capacity for increased versatility
- Integral, ergonomic carrying handle for easier transport and installation
- Available with galvanized or stainless steel lifeline to fit your varied applications
- Swivel snaphook with load indicator at lifeline end greatly limits twisting of cable; also alerts users that the Workman SRL has been involved in a fall
- Available in 30-ft and 50-ft lengths to provide the mobility you need
- Certification to ANSI Z359.14 and CSA Z259.2.2
- Meets all OSHA requirements

WORKMAN SELF-RETRACTING LANYARDS	10119507	1	Workman SRL, 30-ft, galvanized cable, 36CS snaphook
	10120724	1	Workman SRL, 30-ft, stainless steel cable, 36CS snaphook
	10121834	1	Workman SRL, 50-ft, galvanized cable, 36CS snaphook
	10121778	1	Workman SRL, 50-ft, stainless steel cable, 36CS snaphook



## Short-Stop® and Sure-Lock™ Self-Retracting Lanyards

A fast-acting fall arrester limiting free-fall distance, deceleration distance, and fall arrest forces while allowing user freedom of movement. The Short-Stop and Sure-Lock Self-Retracting Lanyards are compact and lightweight.

- 7 or 10 ft web retractable 1-3/4" nylon webbing lifeline
- Easily installed and fast acting to minimize fall arrest forces
- 11/16" gate opening snaphook

PART NO.	Description	Length	SRL Connection	Lifeline Connection
1 10004277	Short-Stop	10'	None	LI Snaphook
10021840	Short-Stop	10'	10089207 carabiner	LI Snaphook
SFP6902001	Sure-Lock	7'	10089207 carabiner	LI Snaphook
SFP6902002	Sure-Lock	7'	10089207 carabiner	10089207 carabiner with swivel
SFP6902008	Sure-Lock	7'	10089207 carabiner	36CSN

Short-Stop SRL  
Part No. 10021840



Sure-Lock SRL  
Part No. SFP6902002



## Aptura® LT 30 Self-Retracting Lanyard (SRL)

With its solid design and fast-acting brake mechanism, the Aptura LT 30 SRL is the lightest weight, most versatile SRL available on the market today.

- Durable, high-impact thermoplastic housing to increase service life
- Rugged, impact-absorbing protective bumpers for added durability
- Field-replaceable lifeline option
- Lightweight design starting at 7.5 pounds
- A standard lifeline length of 30' with lengths available from 13' to 30' in 1' increments
- A 400-lb. working capacity as a standard feature
- No annual factory re-certification required due to high-quality construction
- An integral load indicator lets you know when it is time to remove the product from service
- ATO ordering flexibility allows you to order the exact and only the options you want



Aptura LT30  
Part No.  
10053558

## Aptura LT30 SRL Ordering Information

PART NO.	Description	SRL Connection	Lifeline Connection	Standards
				OSHA
10050504	Aptura LT30, 30' line length	None	AL36C	■
1 10053558	Aptura LT30, 30' line length	None	36C	■
1 10058886	Aptura LT30, 30' line length	None	36CS	■
1 10053559	Aptura LT30, 30' line length	1" Steel Carabiner	36C	■

Note: Aptura LT30 SRL is an OSHA-only product.

## Aptura LT30 SRL Assemble-To-Order Matrix

Approvals	Line Length	SRL Connector	Lifeline Connector	Field Replaceable Line	QUANTITY
N OSHA-only	08 13' 09 14' 10 15' 11 16' 12 17' 13 18' 14 19' 15 20' 16 21' 17 22' 18 23' 19 24' 20 25' 21 26' 22 27' 23 28' 24 29' 25 30'	00 None 01 Back D-Ring Connector (P/N 10089205) 02 1" Aluminum Carabiner (P/N SCRA883) 03 1" Steel Carabiner (P/N 10089207) 04 2" Aluminum Carabiner (P/N SRCA722) 05 2" Steel Carabiner (P/N 506308)	00 None (Sewn Loop) 05 LI Aluminum Snaphook 06 1" Steel Carabiner (P/N 10089207) 07 1" Aluminum Carabiner (P/N SRCA883) 08 1" Steel Swivel Carabiner 13 36C Snaphook 14 36CS Snaphook 15 LC Snaphook 16 36CSN Snaphook 17 AL36C Snaphook	N No Y Yes	
A-APT					

Note: Products ordered using the ATO System are non-returnable

## Dyna-Lock® Self-Retracting Lanyards (SRL)

MSA Dyna-Lock Self-Retracting Lanyards (SRL) are fast-acting fall arresters that limit free-fall distance, deceleration distance and fall arrest forces while allowing user freedom of movement. The Dyna-Lock SRL is ideal for climbing applications where vertical mobility is needed.

### Features and Benefits

- Three independent locking mechanisms provide proven dependability in corrosive or freezing environments
- Integral energy absorber limits average fall arrest forces to 900 lbs or less
- Visual impact loading indicator on snaphook alerts the user when the unit has been subjected to a load
- Wire rope available in galvanized or stainless steel
- Swivel snaphook to prevent birdcaging or kinking of lifeline
- Roller nozzle reduces wear on cable
- Durable stainless steel and extruded aluminum housing on web Dyna-Lock SRLs
- Durable galvanized steel housing on cable Dyna-Lock SRLs
- Integral carrying/mounting handle
- 4.5 feet per second locking speed



## Dyna-Lock SRL Ordering Information

	PART NO.	Description	Length	Standards	
				ANSI Z359.14	CSA Z259.2.2
1	506202	Galvanized Wire Rope	30'	■	
1	506204	Galvanized Wire Rope	50'	■	
	506206	Galvanized Wire Rope	70'	■	
	506208	Galvanized Wire Rope	95'	■	
2	506203	Stainless Steel Wire Rope	30'	■	
2	506205	Stainless Steel Wire Rope	50'	■	
	506207	Stainless Steel Wire Rope	70'	■	
	506209	Stainless Steel Wire Rope	95'	■	
1	506615	Nylon Web	20'	■	
1	10017931	Stainless Steel Wire Rope	20'	■	
	10088390	Backpacker, Web	20'	■	
	10006470	Galvanized Wire Rope	30' (10M)		■
2	10006468	Galvanized Wire Rope	50' (16M)		■
	10006466	Galvanized Wire Rope	70' (22M)		■
	10006464	Galvanized Wire Rope	95' (30M)		■
	10006469	Stainless Steel Wire Rope	30' (10M)		■
	10006467	Stainless Steel Wire Rope	50' (16M)		■
	10006465	Stainless Steel Wire Rope	70' (22M)		■
	10006463	Stainless Steel Wire Rope	95' (30M)		■
	10006447	Nylon Web	20' (6M)		■
2	10017933	Stainless Steel Wire Rope	20' (6M)		■
	10006446	Backpacker, web	20' (6M)		■

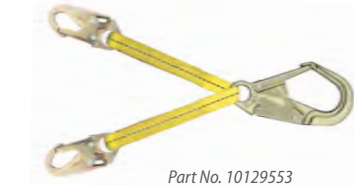
## Restraint Lanyards

Restraint lanyards are primarily used for travel restriction (to restrain a worker from reaching a fall hazard) and work positioning (stabilizing a worker at an elevated location) applications. All restraint lanyards meet applicable OSHA regulations. Compliance to CSA is noted in the tables below.



## Web Restraint Lanyard Ordering Information

PART NO.	Harness Connection	Anchorage Connection	Type			Length	Material	Standards		
			Single-Leg	Fixed	Adjustable			ANSI Z359.13	CSA Z259.11	OSHA
SWL3268710LS	36C	36C	■	■		10'	■	■	■	■
10125850	36C	36C	■	■		8'	■	■	■	■
<b>1</b> 505197	36C	36C	■	■		6'	■	■	■	■
SWL3268706LS	36C	36C	■	■		6'	■	■	■	■
SWL3268705LS	36C	36C	■	■		5'	■	■	■	■
<b>1</b> SWL3268704LS	36C	36C	■	■		4'	■	■	■	■
SWL3268703LS	36C	36C	■	■		3'	■	■	■	■
SWL3268702LS	36C	36C	■	■		2'	■	■	■	■
10122492	36C	36CL	■	■		8'	■	■	■	■
10035710	36C	36CL	■	■		6'	■	■	■	■
10036029	36C	36CL	■	■		4'	■	■	■	■
10038542	36C	36CL	■	■		3'	■	■	■	■
<b>1</b> 505204	36C	36C	■		■	6'	■	■	■	■
505217	36C	Web Loop	■		■	6'	■	■	■	■
10056762	36C	FP5K	■		■	5'	■	■	■	■
10094872	36C	36C	■		■	12'	■	■		■
415100	36C	36C	■		■	10'	■	■		■
10094717	36C	36C	■		■	8'	■	■		■
<b>1</b> 505088	36C	36C	■		■	6'	■	■		■
10103103	36C	36C	■		■	4'	■	■		■
<b>1</b> 10072499	36C	36C	■		■	6'	■			■



## Work Positioning Rebar Assemblies Ordering Information

PART NO.	Description	Standards		
		ANSI Z359.13	CSA Z259.11	OSHA
<b>1</b> 10108720	Rebar chain assembly, straight link, 36CS swivel snaphooks	■		■
<b>1</b> 10107326	Rebar chain assembly, 36CL snaphook with 2.5" (57mm) gate			■
10129553	Rebar web assembly, 18" legs, with sliding large snaphook			■
10072498	Rebar web assembly, 13" legs, with sliding large snaphook		■	■
415957	Rebar web assembly, 36CL snaphook with 2.5" (64mm) gate		■	■



## Restraint Lanyards



Part No. SNYR537DH306

### Sure-Grab™ Positioning Lanyard

Connects to the user's harness or belt for travel restriction or work positioning applications. Features fast and easy length adjustment. Meets applicable OSHA regulations.

SURE-GRAB POSITIONING LANYARDS	SNYR537DH306 <b>2</b>	Sure-Grab positioning lanyard, manual, closed body, c/w 5/8" x 6' blue, chrome locking swivel snaphook, right-handed version
	SNYL537DH306	Sure-Grab positioning lanyard, manual, closed body, c/w 5/8" x 6' blue, chrome locking swivel snaphook, left-handed version



Part No. 415834

### Lineman's Pole Strap

The Lineman's Pole Strap is used to assist a lineman in climbing wooden poles and for work positioning. Meets applicable OSHA regulations.

LINEMAN'S POLE STRAP	415834	Lineman's pole strap, nylon, adjustable to maximum length of 70"
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Part No. 10088064

### Energy-Absorbing Sub-Assembly Lanyards

PART NO.	Material		Harness Connection	Anchorage Connection	Standards		
	Nylon	Polyester			ANSI Z359.13	CSA Z259.11-05	OSHA
10088064	■		36C	D-Ring	■		■
SSA4002LS	■		36C	D-Ring		■	■
10090058	■		36C	D-Ring			■

## Anchorage Connectors

- Have a minimum breaking strength of 5,000 lb.
- Are compatible for use with MSA fall arrest and confined space entry/retrieval components
- Meet ANSI Z359.3 and all applicable OSHA regulations



Part No. 10042794



Part No. 10042792

### PointGuard™ Anchorage Connector Strap

- PointGuard Concrete Anchorage Connector Strap couples a single personal fall arrest system to an anchorage
- PointGuard Residential Anchorage Connector Strap provides a secure point of attachment for residential construction applications

POINTGUARD ANCHORAGE CONNECTOR STRAP	10042792	1	PointGuard residential anchorage connector strap, 3' with D-Ring
	10042794	1	PointGuard concrete anchorage connector strap, 4' with D-Ring
	10042793		PointGuard residential anchorage connector strap, 3'
	10042795		PointGuard concrete anchorage connector strap, 4'
	10097493		PointGuard residential anchorage connector strap, 3' with D-Ring, box of 50
	10094384		PointGuard concrete anchorage connector strap, 4' with D-Ring, box of 50



Part No. 10023487



Part No. 505282



Part No. SFP2267503

### Anchorage Connector Straps/BoomBelt

- Anchorage Connector Strap provides a temporary means of connecting to an anchor point
- Double D-Ring Anchorage Connector Strap is used as a removable anchor strap for connection to an anchorage point
- Boom Belt is used to prevent catapult accidents

ANCHORAGE CONNECTOR STRAPS	505282	1	Anchorage connector strap, nylon, 5' length
	505298		Anchorage connector strap, polyester, 5' length
	10023490	1	Anchorage connector strap, double D-Ring, 5' length
	SFP2267503		Double D-Ring anchorage connector strap, 3' length
	SFP2267504	1	Double D-Ring anchorage connector strap, 4' length
	SFP2267506		Double D-Ring anchorage connector strap, 6' length
	10023487		Anchorage connector strap, Kevlar web, ASTM F887 tested
BOOM BELT	SSB22040		Boom belt, 1-3/4" nylon webbing, adjustable, one size fits all

Part No. SFP2267402



Part No.  
SFP3267504

### Anchorage Slings

- SuretyMan Anchorage Sling is sewn into an endless loop that can be hitched to an anchorage point using various configurations

ANCHORAGE SLINGS	SFP2267402		SuretyMan anchorage sling, 2' length
	SFP2267404		SuretyMan anchorage sling, 4' length
	SFP2267406		SuretyMan anchorage sling, 6' length
	SFP3267504	1	Anchorage cable sling, 4' length
	SFP3267506	1	Anchorage cable sling, 6' length

## Anchorage Connectors



10K MEGA Swivel (D-Ring only)  
Part No. 10144954



MEGA Swivel Hybrid  
Part No. 10144957



5K MEGA Swivel (Steel)  
Part No. 10144944



Weld-on Puck  
Part No. 10144958  
(shown with 10K MEGA swivel D-Ring)



5k Drop-Through Anchorage Connector  
Part No. 10144960





5K Removable Concrete Anchor  
Part No. 10081594



10K Removable Concrete Anchor  
Part No. 10081570



5K Toggle Lok Anchor  
Part No. 10144961

5K MEGA ANCHORAGE CONNECTORS <i>zinc-plated steel</i>	10144944	5K MEGA anchorage connector kit (steel)
	10144945	5K MEGA anchorage connector kit (concrete)
	10144946	5K MEGA D-Ring
	10144947	5K MEGA bolt (steel)
	10144948	5K MEGA bolt (concrete)
5K MEGA ANCHORAGE CONNECTORS <i>stainless steel</i>	10144949	5K MEGA anchorage connector kit SST (steel)
	10144950	5K MEGA anchorage connector kit SST (concrete)
	10144951	5K MEGA SST D-Ring
	10144952	5K MEGA SST bolt (steel)
	10144953	5K MEGA SST bolt (concrete)
10K MEGA SWIVEL ANCHORAGE CONNECTORS <i>zinc</i>	10129084	10K MEGA swivel anchorage connector (steel)
	10129085	10K MEGA swivel anchorage connector (concrete)
	10144954	10K MEGA D-Ring
	10144955	10K MEGA bolt, Grade 8 (steel)
	10144956	10K MEGA bolt (concrete)
	10144957	10K MEGA swivel hybrid kit
REMOVABLE CONCRETE ANCHORS	10081594 	5K removable concrete anchor
	10081570 	10K removable concrete anchor
ANCHORAGE CONNECTORS	10144958	10K Weld-on puck, for MEGA swivel
	10144959	10K Backplate, for MEGA swivel
	10144960	5K Drop-through anchorage connector, 8.5 feet
	10144961	5K Toggle Lok anchor
	10144962	5K MEGA SST install tool for concrete bolt anchorage connector


## Anchorage Connectors





## Anchorage Connector Components

For use in fall arrest and confined space entry applications.

- Anchorage Connector Extension features a 3,600-lb. gate-rated rated snaphook on one end and a 3" O-ring on the other
- Bolt D-Ring with Hole Anchorage Connector is a permanent anchor connector designed for coupling a single fall arrest system to an anchorage such as beams or girders
- D-Plate Anchorage Connector provides a permanent anchorage point
- Chain Anchorage Connector is a temporary component for use near sharp edges or in high heat
- Large Hook with Strap is a temporary, overhead anchorage connector
- ManSafe Freestanding Constant Force Post is tested and approved for use on concrete, single-ply membrane, asphalt sanded, asphalt stone-chipped, and steel roof profiles (See Bulletin 2301-59-MC for more information.)

	Part No.	Tie-Off Connection	Anchorage Connection	Length	Standards	
					ANSI Z359	OSHA
ANCHORAGE CONNECTOR EXTENSIONS	10082683	O-ring	36C	12'	■	■
	10002182	O-ring	36C	10'	■	■
	10008492	O-ring	36C	8'	■	■
	10095264	O-ring	36C	6'	■	■
	505233 	O-ring	36C	5'	■	■
	10001609	O-ring	36C	3'	■	■
	10087003	O-ring	FP5K	6'	■	■
	10073847	O-ring	FP5K	5'	■	■

ANCHORAGE CONNECTORS	10003213 	Bolt D-Ring with hole, bolt not included			
	10062597	Single bolt anchor			
	506632 	D-plate anchorage connector, zinc-plated steel			
	506669	D-plate with 8 x 8 galvanized back plate			
	506672	D-plate with 8 x 8 aluminum back plate			
	10002820	Large hook with strap			
	10003206	Chain anchorage connector			
MANSAFE FREESTANDING POST	10055717	ManSafe Freestanding Constant Force Post, 440 lbs (200 kg) (requires PN 10101146)			
	10055718	ManSafe Freestanding Constant Force Post, 660 lbs (300 kg) (requires PN 10101146)			
	10055719	ManSafe Freestanding Constant Force Post, 880 lbs (400 kg) (requires PN 10101146)			
	10055716	220-lb. (100 kg) Upgrade kit for ManSafe Freestanding Constant Force Post			
	10101146	D-Ring Kit (bolt and washers) for ManSafe Freestanding Constant Force Post			
	10127545	Mansafe Post ( requires Part No. 10101146)			

## Anchorage Connectors



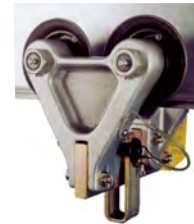
Workman FP Stryder  
Part No. 10144431



Workman XL FP Stryder  
Part No. 10144432



BeamGrip  
Part No. 506682,  
shown with Part No. 506643  
and Part No. 506673



BeamGlide Trolley  
Removable Model  
Part No. 506266

## Beam Grip™ Mounts and BeamGlide™ Trolley

- Workman FP Stryder/Beam Grips attach to I-beam flange—no tools required
- BeamGlide Trolley provides horizontal mobility and keeps anchorage connector directly overhead—fits all beams

WORKMAN FP STRYDER	10144431 <b>1</b>	Workman FP Stryder Anchorage Connector, Standard version, fits beam flange widths from 4" to 13.5"
	10144432	Workman FP Stryder Anchorage Connector, XL version, fits beam flange widths from 14" to 23.5"
BEAM GRIPS	506682	BeamGrip for beams with flange width: 3.94" to 5.64" flange thickness: .205" to .659"
	415171	BeamGrip for beams with flange width: 5.525" to 8.07" flange thickness: .36" to 1.09"
	415172	BeamGrip for beams with flange width: 8.06" to 10.475" flange thickness: .56" to .935"
	415173	BeamGrip for beams with flange width: 10.265" to 12.8" flange thickness: .605" to 1.25"
	506643	D-Ring insert for BeamGrip
	506673	Swivel D-Ring
	10072789	506682 BeamGrip with swivel D-Ring
BEAMGLIDE TROLLEY	506266	BeamGlide Trolley, removable model (customer must provide specs) (Max flange thickness: 7/8")
	506252	BeamGlide Trolley, permanent model (customer must provide specs) (Max flange thickness: 7/8")
	506379	Trolley End Stops (pair)

Permanent Roof Anchor  
Part No. 10016468



Temporary Roof Anchors  
Part No. 416068



Workman Reusable  
Roof Anchor  
Part No. 10102686



## Roof Anchors

Available in permanent or reusable models, roof anchors provide an anchor point for personal fall arrest systems for maintenance work, repair, and new construction.

ROOF ANCHORS	10016468 <b>2</b>	Permanent roof anchor, 2" x 4"
	10017593	Permanent roof anchor, 2" x 6"
	10017594	Permanent roof anchor, 2" x 8"
	10017595	Permanent roof anchor, 2" x 10"
	10017596	Permanent roof anchor, 2" x 12"
	416068 <b>2</b>	Temporary roof anchor, 3-pack
	10102686 <b>1</b>	Workman reusable roof anchor



## Anchorage Connectors



Rail-Slider  
Part No. SFPRS6000



Part No. 416003

### Rail-Slider™

Rail-Slider provides fall protection during horizontal movement on railway bridges (carabiner required—see below)

RAIL-SLIDER	SFPRS6000	Rail-Slider, steel, galvanized, for 80 - 136 # rail, used on train/crane type rail
	10030608	Rail-Slider, steel, galvanized, for 141 # rail, used on train/crane type rail

### Cab-mounting bracket

Cab-mounting bracket is used for above-head anchorage connection in order-picking forklift applications

CAB-MOUNTING BRACKET	416003	Cab-mounting bracket w/bolts (shown with 10' Workman web PFL, PN 10093356, sold separately)
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## Carabiners

MSA offers a wide variety of carabiners for almost every application. All carabiners have a minimum breaking strength of 5,000 lbs.



9/16"  
steel  
auto-locking  
ANSI Z, CSA

Part No. 10089205

1



3/4"  
aluminum  
auto-locking

Part No. SRCA613



7/8"  
aluminum  
twist-lock

Part No. 506259

1



7/8"  
steel  
auto-locking

Part No. 506572



1"  
steel  
auto-locking  
with pin  
ANSI Z, CSA

Part No. 10089207

1



1"  
aluminum  
auto-locking

Part No. SRCA883



1.2"  
steel  
auto-locking  
NFPA

Part No. SRCC642

1



1.2"  
steel, NFPA  
screw-lock

Part No. SRCC641

1



2.1"  
steel  
auto-locking  
with pin  
ANSI Z, CSA

Part No. 10089209

1



2.1"  
aluminum  
auto-locking

Part No. SRCA722



2.1"  
steel  
auto-locking  
with pin

Part No. 506308



2"  
steel  
auto-locking  
with pin  
ANSI Z, CSA

Part No. SRCC740

Fall Protection Kits



RCD® (Remote Connect/Disconnect) System

By using the strap tool the user can install the anchorage connector strap to an approved overhead anchorage point. By using the connect/disconnect tool the user can attach the MSA Backpacker (PN 10088390 or 10006446) to the overhead anchorage connector strap, use the same tool to remove the lifeline from the overhead anchorage and then to remove the anchorage connector strap.

RCD (REMOTE CONNECT/DISCONNECT) SYSTEM	501443	Remote Connect/Disconnect System
	RCD System includes:	
	505314	RCD Anchor Strap
	506507	Telescoping Pole
	506509	Strap Connecting Tool
	10129597	Remote Connect/Disconnect Tool
	507405	Large tote bag

Anthron Descent Device System

The Anthron Descender is a manually operated, controlled descent device most commonly used for suspended work positioning, self-evacuation, or rescue operations. A cam assembly provides friction on the rope to hold a load or allow the load to descend at a controlled rate. The system consists of a 7/16" (11mm) rope, the Anthron Descender, and two carabiners. Proper roping and rigging diagrams are on the side of the device, which can be installed or removed at any point on the rope and has a working load of 300 pounds (136 kg).

- Device can be installed/removed at any point on the rope
- Proper roping/rigging diagrams on the side of the Anthron Descender
- Working load of 300 lbs (136 kg)
- System consists of a 7/16" (11 mm) rope, Anthron Descender, and 2 carabiners

ANTHRON DESCENT DEVICE SYSTEM	SDC726050	Anthron system includes: Anthron descender, 2 carabiners, 50' rope
	SDC726100	Anthron system includes: Anthron descender, 2 carabiners, 100' rope
	SDC726150	Anthron system includes: Anthron descender, 2 carabiners, 150' rope
	SDSD25	Anthron descender

Anthron systems and replacement ropes available in lengths of 25' increments from 50' up to 600'



Anthron Descender

## Rope Grabs and Vertical Lifelines



Rope Grabs are designed as a means of fall arrest between a worker wearing a compatible full-body harness and a suitable fall arrest anchorage. They are used to arrest the user in a fall from a working height and suspend the user until rescue can be affected.

	Part No.	Length	Panic Grab	ANSI Z359.1	CSA Z259.2.5
ROPE GRABS, TRAILING, 5/8"	415941	19"		■	
	10011379	28"		■	
	415940	36"		■	
	10077718	30"	■		■
	10113287	grab only	■		■
ACCESSORY	10162823	Separate 30" lanyard for use with 10113287 rope grab to maintain CSA compliance			

	ANSI Z359.1	CSA Z259.2.5	Length					Base Rope Part No.
			25'	50'	75'	100'	Custom	
LIFELINES, 3-STRAND, 5/8"		■	R512539LLC025	R512539LLC050	R512539LLC075	R512539LLC100	R512539LLCXXX*	R512539
		■	R512544LLC025	R512544LLC050	R512544LLC075	R512544LLC100	R512544LLCXXX*	R512544
		■	SRP9200LLC025	SRP9200LLC050	SRP9200LLC075	SRP9200LLC100	SRP9200LLCXXX*	SRP9200
	■		415865	415869	415870	415871	R512539LLAXXX*	R512539

Base Ropes	Material	Elongation at 1800 lbs	Min Breaking Strength	Color	Features
R512539	100% Polyester	6.66%	7825 lbs	white	Best UV resistance
R512544	co-polymer core/Polyester outer	4.70%	9,450 lbs	white w/red and green	Low elongation. No loss of strength when wet. Stores wet.
SRP9200	co-polymer core/Polyester outer	5.25%	7530 lbs	blue w/orange	Low elongation. No loss of strength when wet. Stores wet.

\*For custom length part numbers, XXX represents length in feet. Custom rope lengths may be ordered in the following increments:

Overall Length	Increment
Up to 25'	1'
25' – 50'	5'
50' – 100'	10'
over 100'	25'

## Workman Tripod and Workman Confined Space Entry Kits



**Workman Tripod**  
(Part No. 10102002)

**Confined Space Entry Kit  
with Workman Rescuer and Winch**  
(Part No. 10163031)

Pulley (Part No. 506222)

Workman Winch  
65-ft  
(Part No. 10147301)

Includes carry bags for  
tripod, Workman Winch  
and Workman Rescuer

Carabiner  
(Part No. 10089207)

Workman Rescuer  
50-ft (16m)  
(Part No. 10158177)

Workman Tripod  
(Part No. 10102002)



MSA Tripods make confined space entry with vertical descent easy. The Workman Tripod features internal leg-locking mechanism, maximum height indicator on the tripod legs, cut-resistant leg pin retention chains, recessed product labels, reduced weight and integral carrying strap. The Workman Tripod can be set up and dismantled without the use of tools.

- Automatic hinge lock legs with incremental adjustment
- Skid resistant feet

Complete confined space entry kits for multiple confined space applications. Features three tripod kits and two folding davit kits with a single part number for simplified ordering.

- Allow for non-entry rescue of a confined space entrant
- Great portability of entire tripod kit
- Lift and lower materials and personnel via the hoist while having the ability to use an SRL

## Workman Confined Space Entry Kits

PART NO.	Galvanized Kit Components					Standards		
	8' Tripod	50' Workman Rescuer	65' Workman Winch	Pulleys	Carabiners	ANSI Z359.14	CSA Z259.2.2	OSHA
10163031	■	■	■	2	2	■		■
10163032	■	■		1	1	■		■
Stainless Steel Kit Components								
10163033	■	■	■	2	2	■		■
10163034	■	■		1	1	■		■

## Dynevac II Confined Space Entry Kits

PART NO.	Stainless Steel Kit Components					Standards		
	8' Tripod	50' Dynevac II	65' Workman Winch	Pulleys	Carabiners	ANSI Z359.14	CSA Z259.2.2	OSHA
10153102	■	■	■	2	2	■		■
10153142	■	■	■	2	2		■	■

## Replacement Parts and Accessories

10105612	Leg base support strap
10089207	Carabiner
506222	Pulley
506232	Mounting bracket for Dynevac II, 50'
10105656	Tripod duffel bag





## Workman Rescuer



The Workman Rescuer provides fast, easy and intuitive fall protection with an integral bi-directional retrieval capability. Not only does the Workman Rescuer arrest the fall, its retrieval capability allows the fallen worker to ascend or descend to a safe location. This durable, economical addition to the Workman Series of products offers fast installation and setup, ideal for applications where time and ease of use are a priority.

Exclusive integral bracket uses existing tripod pin, leaving fewer components to attach or become damaged or misplaced. The fall protection/retrieval mode knob simply pulls and rotates to activate. Use this device as a component of a confined space system for one application and as a standard self-retracting lanyard for another.

- Patent-pending integral bracket
- Intuitive mode switch
- ANSI Z359.14
- CSA Z259.2.2 (coming soon)

WORKMAN RESCUER	10158177	Workman Rescuer, galvanized cable, 50 ft. (16m)
	10158178	Workman Rescuer, stainless steel cable, 50 ft. (16m)



## Dynevac® II Self-Retracting Lanyard, Field Resettable Model

- Self-Retracting Lanyard with emergency retrieval capabilities
- Allows user to reset device from retrieval mode to fall arrest mode
- Same unit can be used in the field and for training situations
- Provides fall arrest and emergency lifting and lowering for confined space entry
- Available in 50 foot and 95 foot lengths

*Dynevac II SRL with  
Emergency Rescuer  
Part No. 10127293*

			ANSI	CSA
DYNEVAC II SELF-RETRACTING LANYARDS	10127293	50' (15m) Self Retracting Lanyard with Emergency Rescuer, 3/16" diameter stainless steel line	■	
	10127295	95' (29m) Self Retracting Lanyard with Emergency Rescuer, 3/16" diameter stainless steel line	■	
	10007782	50' (15m) Self Retracting Lanyard with Emergency Rescuer, 3/16" diameter stainless steel line		■
	10007783	95' (29m) Self Retracting Lanyard with Emergency Rescuer, 3/16" diameter stainless steel line		■



## Workman Winch

**NEW!**

The Workman Winch is rugged, versatile and economical for lifting, lowering and positioning of personnel and materials within confined space applications. Designed for maximum 400-lb workload for personnel and 620-lb for materials (20:1 design factor), the Workman Winch is built with tough thermoplastic housing to ensure high performance within the harshest environments. Winch offers integral, ergonomic carry grip and unique, foldable handle for simple storage. Patent-pending bracket design allows for easy, rapid assembly.

- Maximum work load of 400 lbs for personnel, 620 lbs for materials
- Patent-pending bracket attachment for easy installation
- Ergonomic carry grip
- Foldable crank handle
- Includes integral RFID technology
- Includes self-locking swivel 36C snaphook
- ANSI Z359.1-compliant

Workman Winch Synthetic  
Part No. 10148277



Workman Winch  
Part No. 10153757

<b>WORKMAN WINCH</b>	10153757	Workman Winch, galvanized cable, 65-ft (20m)
	10147301	Workman Winch, stainless steel cable, 65-ft (20m)
	10148277	Workman Winch, 65', Synthetic Rope
	10154686	Workman Winch, 95', Galvanized Cable
	10154684	Workman Winch, 95', Stainless Steel Cable

## Lynx Boom Mount Hoist



Lynx Boom Mount Hoist  
Part No. 10016682

- Boom mount hoist is to be used with column davit for confined space entry applications

<b>LYNX BOOM MOUNT HOIST</b>	10016682	Boom mount hoist , galvanized wire rope, 105' (32M)
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## Bosun Chair

Designed to be used in conjunction with MSA full-body Harnesses, the Bosun Chair, attached to the chest D-Ring, will keep the user in an upright position while suspended for long durations.

- Padded seat for comfort
- Adjustable web assembly ensures security

<b>BOSUN CHAIR</b>	SSH3505017	Bosun Chair, 5" x 16-1/2" padded seat, black nylon straps, 2 carabiners
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Bosun Chair  
Part No. SSH3505017

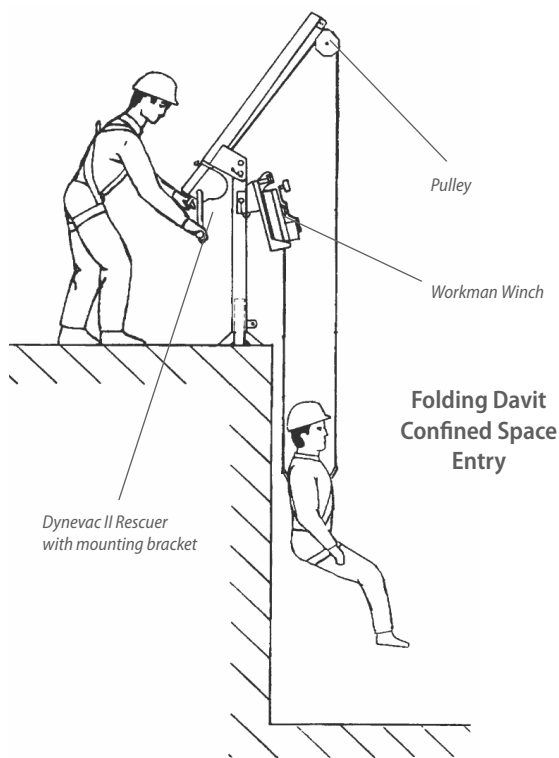
## Spreader Bars

<b>SPREADER BARS</b>	507130	Spreader bar, 14"
	507131	Spreader bar, 22"

Spreader Bar  
Part No. 507131



## Davits



Folding Davit and Base



### Folding Davit and Base

The Folding Davit and Base is a portable anchorage connector used where a tripod will not work. Available with a zinc-plated alloy-steel Davit Arm and your choice of zinc-plated carbon steel or stainless steel Davit Base. This lightweight device provides a 24-inch reach and 77 inches of head clearance. It pivots 360-degrees and can readily maneuver personnel and materials between spaces below the deck where it is mounted. The Folding Davit may be carried from base to base and installed in minutes. Meets or exceeds ANSI Z359.1 and applicable OSHA requirements. Mounting brackets and pulleys sold separately.

### Column Davit and Base

The Column Davit and Base are used for more permanent conditions where a tripod will not work. Available with a zinc-plated alloy-steel Davit Arm and zinc-plated carbon steel or stainless steel bases. Provides a 30 inch reach and 77 inches of head clearance. Pivots 360 degrees. Meets or exceeds applicable OSHA requirements. Mounting brackets and pulleys sold separately.

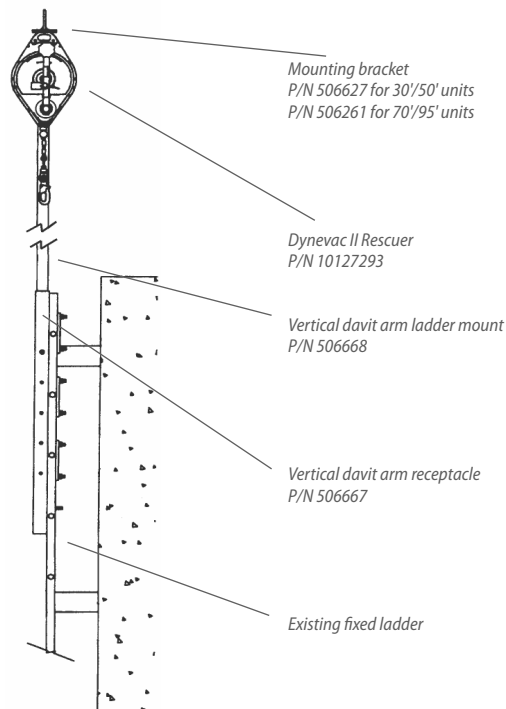
Column Davit and Base



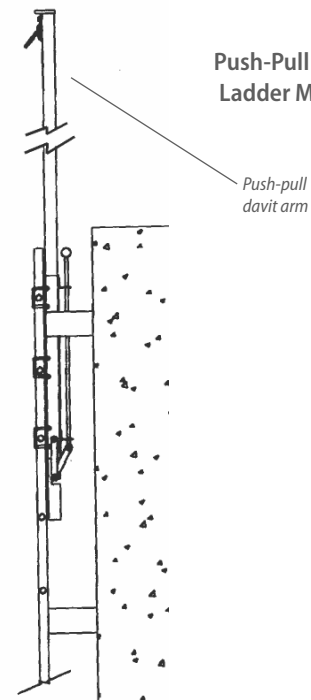
## Davits

FOLDING DAVIT	506613	Folding davit arm, 24" reach, 77" working height, swivels to extend over work area, folds for ease of transport and storage
	506614	Folding davit base
	506622	Mounting bracket for mounting 30' and 50' Dyna-Lock and Dynevac II
	506362	Mounting bracket for mounting 70' and 95' Dynevac II (excludes Dyna-Lock)
	506222	Pulley
COLUMN DAVIT	506568	Column davit arm, 30" reach, 77" working height, boom arm swivels to extend over work area
	506492	Column davit base
	506232	Mounting bracket for mounting 30' and 50' Dyna-Lock and Dynevac II (requires P/N 506590)
	506216	Mounting bracket for mounting 70' and 95' Dynevac II (excludes Dyna-Lock) (requires P/N 506590)
	506590	Mounting bracket assembly (requires P/N 506216 or 506232)
	506222	Pulley
	506603	Holster to store Lynx Boom Mount Hoist (when not in use)
	10016683	Lynx Boom Mount Hoist
VERTICAL DAVIT LADDER MOUNT	506668	Vertical davit arm
	506667	Receptacle for vertical davit arm
PUSH-PULL DAVIT	415837	Push-Pull davit – ladder mount, bolts to ladder and retracts to allow hatch cover to close, extends 60" above hatch when extended

**Vertical Davit Ladder Mount**



**Push-Pull Davit Ladder Mount**

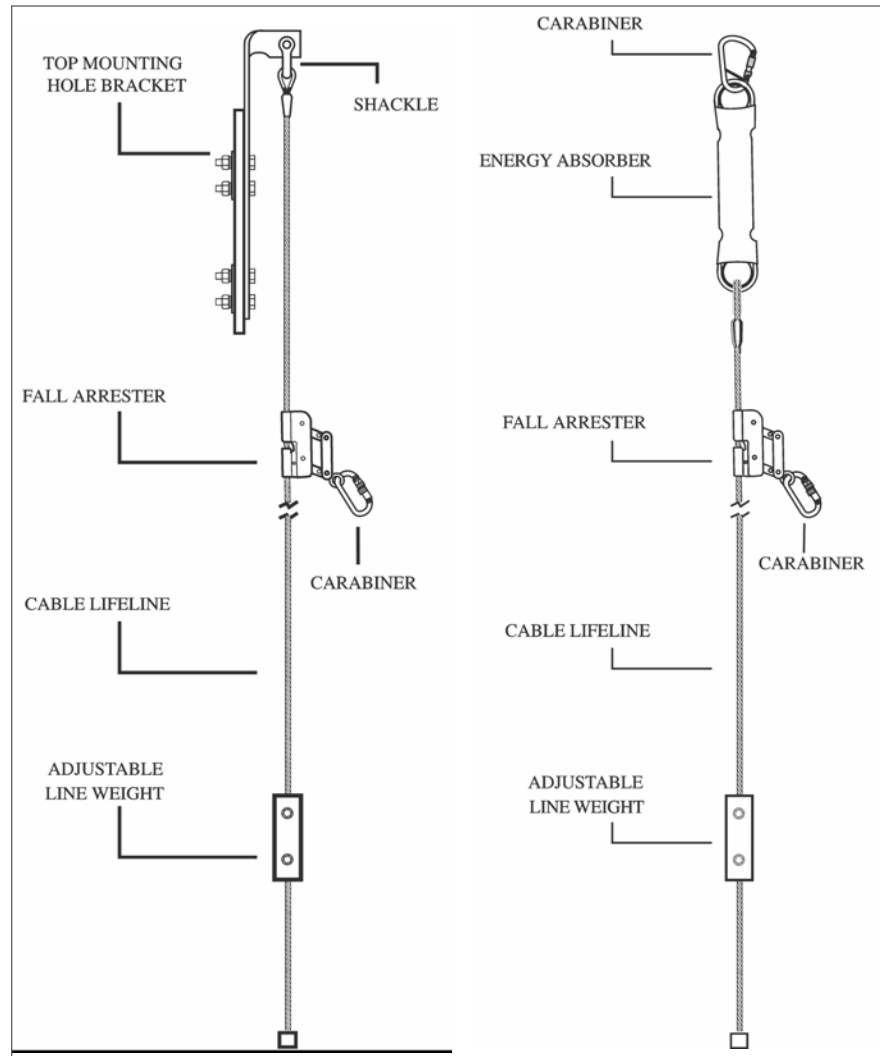


## Ladder Climbing Equipment: SureClimb™ Cable Systems

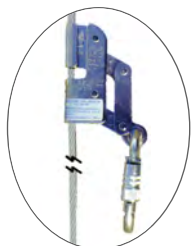
SureClimb Cable Systems are designed to provide fall protection when climbing or descending ladders or vertical structures up to 300 feet.

- Available in permanent and temporary models
- Uses a stainless steel fall arrester
- Uses a 5/16" galvanized steel cable

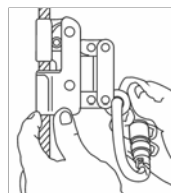
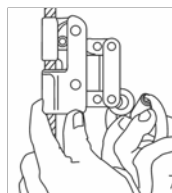
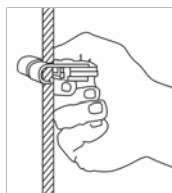
### SureClimb Temporary System



*SureClimb Temporary System  
with Integral Energy Absorber  
Part No. SFPLS353050*



*SureClimb Slider  
Part No. 10040010*

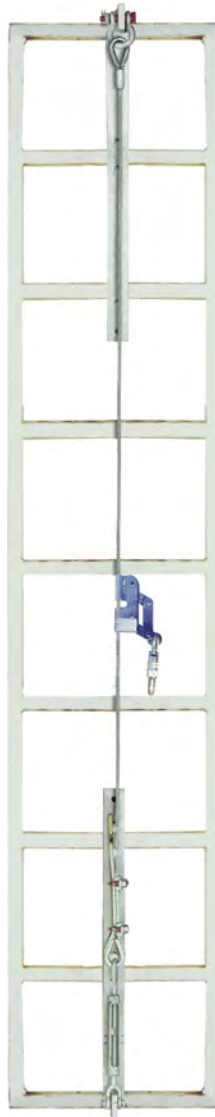
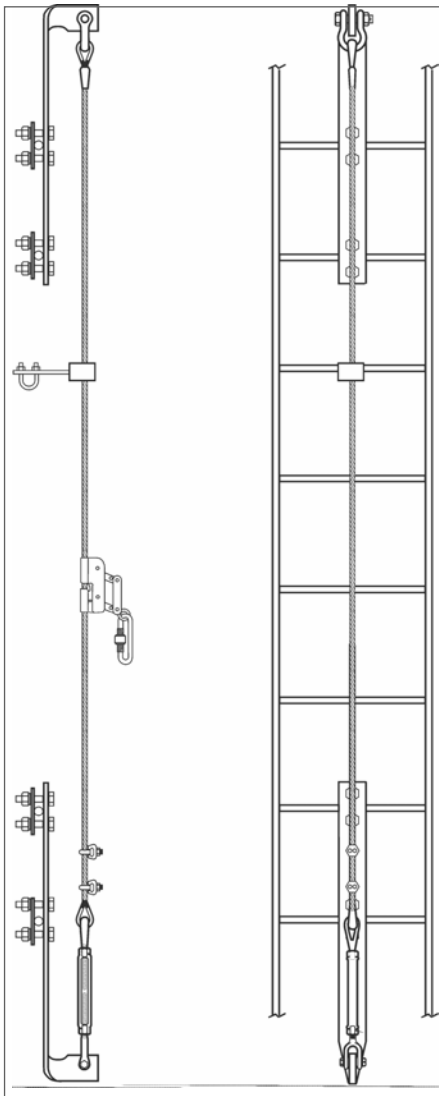


*SureClimb Slider can be attached and removed anywhere along  
the length of cable*



## Ladder Climbing Equipment: SureClimb Cable Systems

### SureClimb Permanent System



*SureClimb Permanent  
Cable System, 50 ft  
Part No. SFPLS350050*



*SureClimb Extension  
Davit and Base Assembly  
Part No. 10036032*

### SureClimb Cable Systems Ordering Information

<b>TEMPORARY SURECLIMB SYSTEM</b> <i>Additional lengths available from 50' up to 200' in 50' increments</i>	SFPLS353050	Temporary SureClimb System, 50' (15m), with integral shock absorber
	SFPLS353100	Temporary SureClimb System, 100' (30m), with integral shock absorber
	SFPLS353200	Temporary SureClimb System, 200' (61m), with integral shock absorber
<b>PERMANENT SURECLIMB SYSTEM</b> <i>Additional lengths available from 20' up to 300' in 10' increments</i>	SFPLS350050	Permanent SureClimb System, 50' (15m)
	SFPLS350100	Permanent SureClimb System, 100' (30m)
	SFPLS350150	Permanent SureClimb System, 150' (46m)
	SFPLS350200	Permanent SureClimb System, 200' (61m)
<b>ACCESSORIES</b>	10040010	SureClimb Slider (fall arrester) w/carabiner (for both temporary and permanent cable systems)
	10036032	SureClimb Extension Davit and Base Assembly (for temporary cable system)

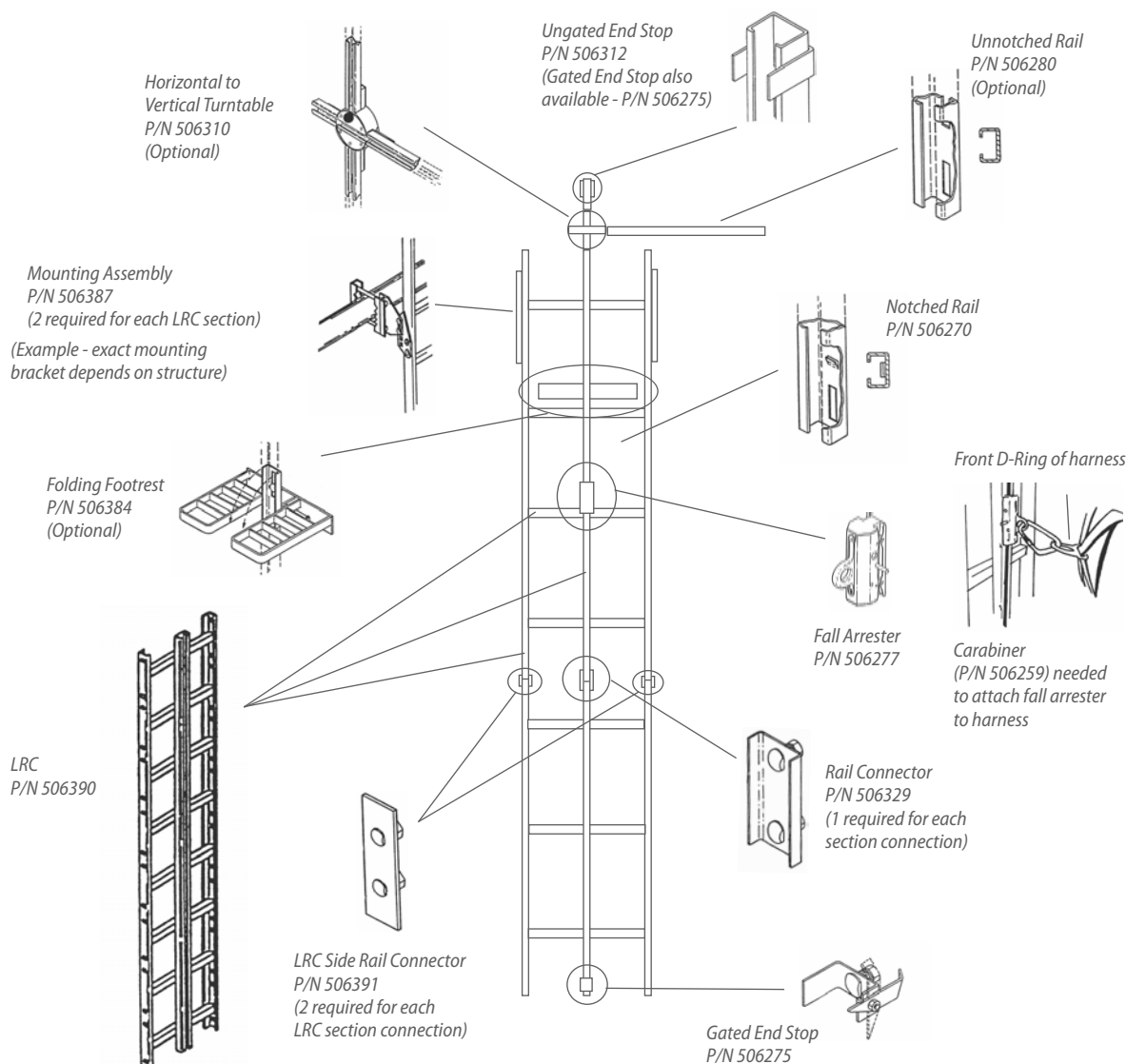
## Ladder Climbing Equipment: Dyna-Glide® Climbing System

This system is used to arrest falls from heights where workers may be climbing up ladders, towers, or almost any structure. These systems enhance the way a climber is able to perform the necessary work. Our systems can be mounted to already-installed ladders, to corners of lattice towers, and to other suitably strong structures your crew needs to climb. Using different MSA mounting assemblies, Dyna-Glide systems can be attached to almost any structure that is permissible to climb. Systems can be constructed to continuously protect climbers—whether they're traveling vertically, horizontally, or around curves, corners, or obstacles. For added performance, the Dyna-Glide system can be used by more than one person at a time.

- Limits total fall distance to inches
- Components for complete rescue systems
- Allows for vertical and horizontal mobility
- Galvanized or stainless steel for corrosion resistance
- Your choice of Ladder/Rail Combination (LRC) or Rail only
- Provides smooth travel—there's no binding of the fall arresters inside the rail
- Detachable, lightweight, stainless steel, and aluminum mechanism for hands-free ascent and descent
- Variety of accessories to enhance mobility and provide continuous protection, convenience, and comfort (if needed)

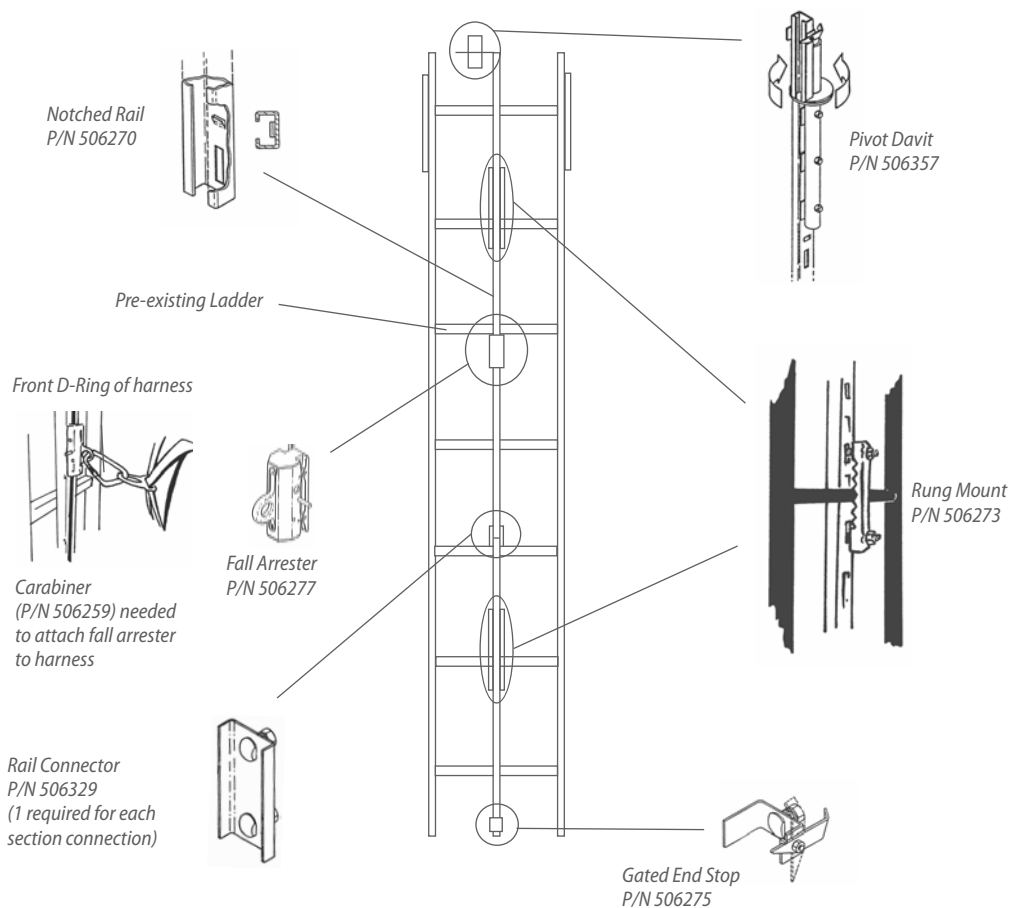
### Two Examples of Dyna-Glide Assembly & Applications

#### Ladder Rail Combination Assembly (LRC) System



## Ladder Climbing Equipment: Dyna-Glide® Climbing System

### Rail Only System Assembly



### Dyna-Glide System Ordering Information

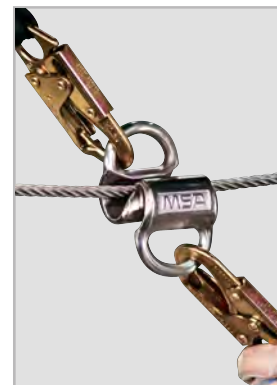
DYNA-GLIDE SYSTEM	506270	Straight Notched Rail, galvanized, standard length 7' 4-3/16"
	506273	Rung Mount Assembly, galvanized
	506274	Gated top end stop, stainless steel
	506275	Gated bottom end stop, stainless steel
	506277	Fall arrestor (CSA Part No. 415752)
	506282	Mounting base angle corner, galvanized
	506283	Mounting angle corner, galvanized
	506312	Ungated top end stop, stainless steel
	506329	Rail connector, galvanized
	506388	Ladder/Rail Combination (LRC) standoff bracket, galvanized, standard length 7' 4-3/16"
	506389	LRC standoff bracket, bottom, galvanized
	506390	LRC, galvanized (CSA Part No. 10006461)
	506391	LRC side rail connector, galvanized



For more complete information on the Dyna-Glide System, see the Dyna-Glide Catalog (Bulletin 2300-22-MC).

## Gravity Sure-Line™ Temporary Cable Horizontal Lifeline

Designed for quick and easy installation at temporary work sites, the Sure-Line Horizontal Lifeline is suspended between two approved anchor points to provide worker fall protection during horizontal movement. This lightweight system is rated for two people.



Bypass

- Patented bypass shuttles allow users to pass each other on the same system while maintaining 100% tie-off
- Steel cable
- Exclusive bypass shuttle enables two workers to share a line
- Incorporates combination clamp/thimble that provides effortless lifeline tensioning
- Available in 20 ft., 40 ft. or 60 ft. lengths in two models (with and without turnbuckles)
- Includes integral shock absorber



SureLine Cable					
Line Length	1-Worker System		2-Worker System		Initial Sag
	6' Lanyard	SRL (Workman 30)	6' Lanyard	SRL	
10 ft.	14' 1"	7' 1"	15' 4"	8' 0"	1"
20 ft.	15' 1"	8' 3"	18' 2"	9' 11"	1.5"
30 ft.	16' 2"	9' 3"	21' 1"	12' 3"	2"
40 ft.	17' 3"	10' 3"	23' 1"	14' 5"	2.5"
50 ft.	18' 4"	11' 3"	24' 6"	16' 2"	3"
60 ft.	19' 5"	12' 0"	26' 6"	18' 3"	4"

Assumes 220 lbs weight with HLL anchors 4ft above working platform

<b>STEEL CABLE HORIZONTAL LIFELINE SYSTEM</b>	10150420	Steel Cable Horizontal Lifeline System with turnbuckle, 20 ft. (6m)
	10150421	Steel Cable Horizontal Lifeline System with turnbuckle, 30 ft. (9m)
	10150416 <b>2</b>	Steel Cable Horizontal Lifeline System with turnbuckle, 40 ft. (12m)
	10150422	Steel Cable Horizontal Lifeline System with turnbuckle, 50 ft. (15m)
	10150418 <b>1</b>	Steel Cable Horizontal Lifeline System with turnbuckle, 60 ft. (18m)
<b>IRON WORKER CABLE HORIZONTAL LIFELINE SYSTEM</b>	10150417	Iron Worker Cable Horizontal Lifeline System without turnbuckle, 40 ft. (12 m)
	10150419	Iron Worker Cable Horizontal Lifeline System without turnbuckle, 60 ft. (18 m)

## Gravity Dyna-Line® Temporary Synthetic Horizontal Lifeline

Designed for easy installation and removal, the Dyna-Line Horizontal Lifeline temporary horizontal lifeline system suits many applications. This system can be mounted to any suitable 5,000-lb.-rated anchorage point and can be rigged using many standard components, eliminating the need for special or engineered equipment. With these features plus integral line tensioner to help ensure proper lifeline tensioning before use, the Dyna-Line Lifeline is the ultimate system for your crews!



Synthetic Dyna-Line  
Temporary Horizontal Lifeline  
P/N 10150414

- Patented bypass shuttles allow users to pass each other on the same system while maintaining 100% tie-off
- 12-strand red rope does not hockle and minimizes fall distance due to low stretch properties
- Can be used with any suitable 5000-lb. rated anchorage
- One- or two-worker system
- Shock absorber on two-worker system clearly indicates when system has experienced fall arrest forces and should be removed from service
- Can be rigged using many standard components, reducing the need for special or engineered equipment
- Lengths up to 200 ft.; comes in handy bucket for lengths up to 60 ft.

Line Length	Dyna-Line			
	1-Worker System		2-Worker System	
	6' Lanyard	SRL (Workman 30)	6' Lanyard	SRL
10 ft.	13' 11"	7' 2"	14' 7"	7' 9"
20 ft.	15' 3"	8' 7"	17' 4"	9' 10"
30 ft.	16' 6"	10' 1"	19' 10"	11' 11"
40 ft.	17' 10"	11' 6"	22' 3"	13' 11"
50 ft.	19' 3"	12' 11"	24' 5"	16' 0"
60 ft.	20' 2"	14' 5"	26' 7"	18' 1"

Assumes 220 lbs weight with HLL anchors 4ft above working platform

<b>DYNA-LINE TEMPORARY HORIZONTAL LIFELINE</b> <i>For single worker</i>	10013150	Dyna-Line Temporary Horizontal Lifeline for single worker, 30-ft. rope (9m)
	10013151	Dyna-Line Temporary Horizontal Lifeline for single worker, 60-ft. rope (18m)
	10022826	Dyna-Line Temporary Horizontal Lifeline for single worker, 200-ft. rope (61m)
<b>DYNA-LINE TEMPORARY HORIZONTAL LIFELINE</b> <i>For two workers</i>	10150413*	Dyna-Line Temporary Horizontal Lifeline for two workers, 30-ft. rope (9m)
	10150414* <b>1</b>	Dyna-Line Temporary Horizontal Lifeline for two workers, 60-ft. rope (18m)
	10150415*	Dyna-Line Temporary Horizontal Lifeline for two workers, 100-ft. rope (30m)

\* Includes anchor straps



**Gravity Sure-Line™ Temporary Synthetic Horizontal Lifeline**

Designed for quick and easy installation at temporary work sites, the Sure-Line Horizontal Lifeline is suspended between two approved anchor points to provide worker fall protection during horizontal movement. This lightweight system is rated for two people.



*SureLine Temporary Horizontal Lifeline for Two Workers  
P/N 10150424*

- Patented bypass shuttles allow users to pass each other on the same system while maintaining 100% tie-off
- Synthetic rope
- Exclusive bypass shuttle enables two workers to share a line
- Incorporates combination clamp/thimble that provides effortless lifeline tensioning
- Available in 40-ft. or 60-ft. lengths in two models
- Includes integral shock absorber

Sure-Line Synthetic				
Line Length	1-Worker System		2-Worker System	
	6' Lanyard	SRL (Workman 30)	6' Lanyard	SRL
10 ft.	14' 1"	7' 4"	15' 5"	8' 0"
20 ft.	15' 5"	8' 11"	18' 7"	10' 3"
30 ft.	16' 11"	10' 5"	21' 5"	12' 6"
40 ft.	18' 6"	11' 11"	23' 9"	14' 9"
50 ft.	20' 0"	13' 4"	26' 1"	16' 11"
60 ft.	21' 5"	14' 8"	28' 3"	19' 1"
Assumes 220 lbs weight with HLL anchors 4ft above working platform				

SURELINE TEMPORARY HORIZONTAL LIFELINE	10150423	SureLine Temporary Horizontal Lifeline, 40 ft. (12 m) black rope
	10150424	1 SureLine Temporary Horizontal Lifeline, 60 ft. (18 m) black rope

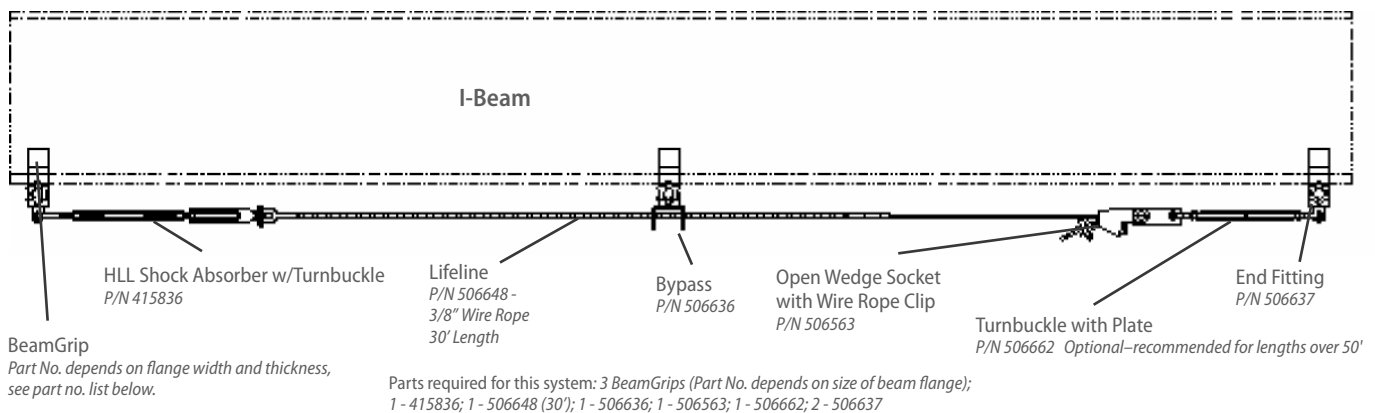
## Horizon® Permanent Horizontal Lifeline

This complete above-beam cable horizontal lifeline system allows for a continuous tie off point along the line of travel. Below Beam Horizontal Lifelines kits come in 30 ft or 60 ft lifeline lengths. Each kit includes: beam grips, end fittings, shock absorber, lifeline, open wedge socket, turnbuckle.

### ⚠ WARNING

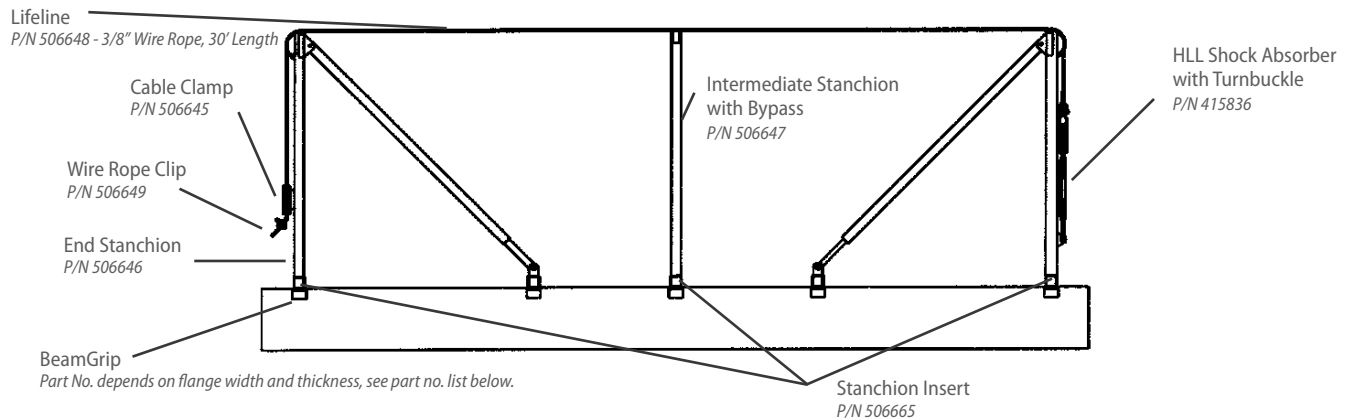
OSHA regulations state "Horizontal Lifeline Systems shall be designed, installed and used under supervision of a qualified person, as part of a complete fall arrest system, which maintains a safety factor of at least two." A qualified person is defined as "one with a recognized degree or professional certificate and/or extensive knowledge and experience in the subject field, who is capable of design, analysis, evaluation and specifications in the subject work, project or product." MSA can recommend a qualified person to design and install a Horizontal Lifeline System.

### Horizon Horizontal Lifeline Basic Below Beam Mount Sub-System



<b>HORIZON HORIZONTAL LIFELINE Beam Mount</b>	506682	BeamGrip for beams with flange width: 3.94" to 5.64", flange thickness: .205" to .659"
	415171	BeamGrip for beams with flange width: 5.525" to 8.07", flange thickness: .36" to 1.09"
	415172	BeamGrip for beams with flange width: 8.06" to 10.475", flange thickness: .56" to .935"
	415173	BeamGrip for beams with flange width: 10.265" to 12.8", flange thickness: .605" to 1.25"
	506636	BeamGrip bypass fitting
	506637	BeamGrip end fitting
<b>HORIZON HORIZONTAL LIFELINE COMPONENTS</b>	415836	Horizontal lifeline shock absorber
	506563	3/8" open wedge socket
	506636	BeamGrip bypass fitting
	506637	BeamGrip end fitting
	506648	3/8" wire rope, galvanized, length must be specified at the time of order
	506662	12" turnbuckle with plate
<b>HORIZON HORIZONTAL LIFELINE KITS Beam Mount</b>	10030270	HLL Kit #1, 30' (9m) Below Beam system, for I-beams with flange width 5.525"–8.07" and flange thickness .36"–1.09"
	10030271	HLL Kit #2, 60' (18m) Below Beam system, for I-beams with flange width 5.525"–8.07" and flange thickness .36"–1.09"
	10030272	HLL Kit #3, 30' (9m) Below Beam system, for I-beams with flange width 8.06"–10.475" and flange thickness .56"–.935"
	10030273	HLL Kit #4, 60' (18m) Below Beam system, for I-beams with flange width 8.06"–10.475" and flange thickness .56"–.935"

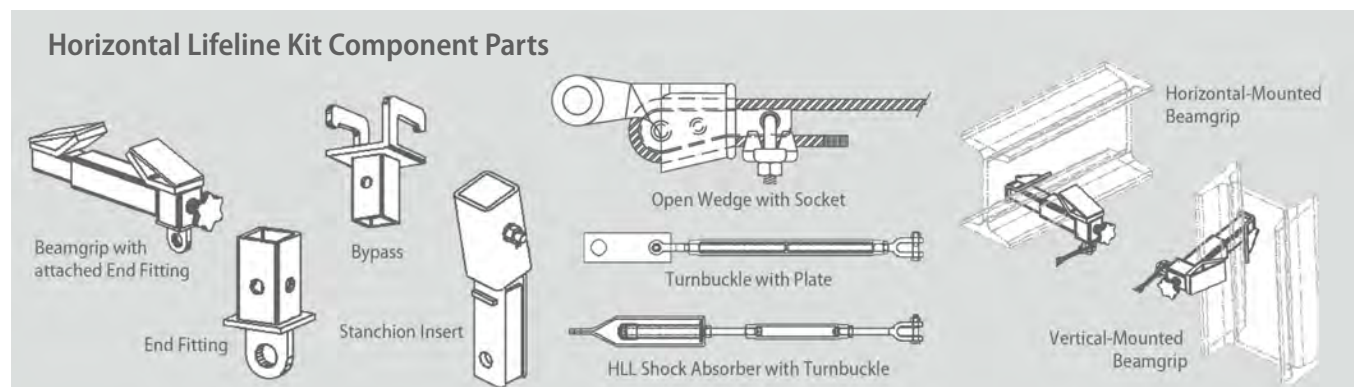
## Horizon Horizontal Lifeline Basic Stanchion Mount Sub-System



Parts required for this system: 5 - BeamGrips (part no. depends on size of Beam Flange); 2 - 506646; 1 - 506647; 1 - 506648 (30'); 1 - 506645; 1 - 415836; 3 - 506665; 1 - 506649.

<b>HORIZON HORIZONTAL LIFELINE</b>  <i>Stanchion Mount</i>	506682	BeamGrip for beams with flange width: 3.94" to 5.64", flange thickness: .205" to .659"
	415171	BeamGrip for beams with flange width: 5.525" to 8.07", flange thickness: .36" to 1.09"
	415172	BeamGrip for beams with flange width: 8.06" to 10.475", flange thickness: .56" to .935"
	415173	BeamGrip for beams with flange width: 10.265" to 12.8", flange thickness: .605" to 1.25"
	415836	Horizontal lifeline shock absorber
	506645	Cable clamp
	506646	BeamGrip end stanchion
	506647	BeamGrip bypass stanchion
	506648	3/8" wire rope, 30', galvanized
	506649	Wire rope clip 3/8"
	506663	Snatch block pulley for 3/8" wire rope
	506665	BeamGrip stanchion insert
<b>HORIZON HORIZONTAL LIFELINE KITS</b>  <i>Stanchion Mount</i>	10030274	HLL Kit #5, 30' (9m) Stanchion system, for I-beams with flange width 5.525"–8.07" and flange thickness .36"–1.09"
	10030275	HLL Kit #6, 60' (18m) Stanchion system, for I-beams with flange width 5.525"–8.07" and flange thickness .36"–1.09"
	10030276	HLL Kit #7, 30' (9m) Stanchion system, for I-beams with flange width 8.06"–10.475" and flange thickness .56"–.935"
	10030277	HLL Kit #8, 60' (18m) Stanchion system, for I-beams with flange width 8.06"–10.475" and flange thickness .56"–.935"

## Horizontal Lifeline Kit Component Parts



## Horizontal Lifeline Stanchions

MSA offers several Horizontal Lifeline Stanchions to meet a variety of applications and provide fall protection for multiple workers.

- Quick and easy installation
- For use as a single-point anchor attachment for workers while installing lifelines

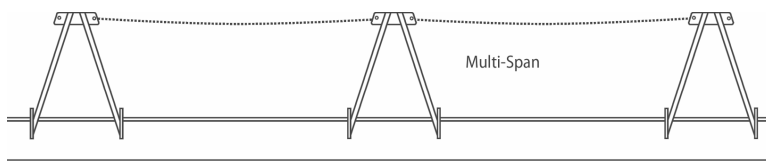
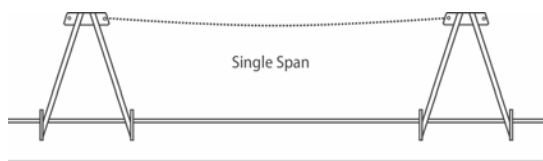


HLL quickly  
connects to  
Stanchion

Jaw clamp screw easily  
attaches to I-beam flange



<b>SKYLINK STANCHION</b> (concrete only)	10055659	Skylink Stanchion, Standard model - 44" height (pour-in-place Pigtail or concrete expansion anchors must be ordered separately)
	10055660	Skylink Stanchion, SL model - 23" height (pour-in-place Pigtail or concrete expansion anchors must be ordered separately)
	10055721	3.25" concrete expansion anchor with nut and washer
	10059805	0.5" x 12" pour in place "Pigtail" anchor with washer and vinyl cap
<b>WINGSPAN STANCHION</b>	SHLARD6A	WingSpan Stanchion A-frame design, galvanized steel



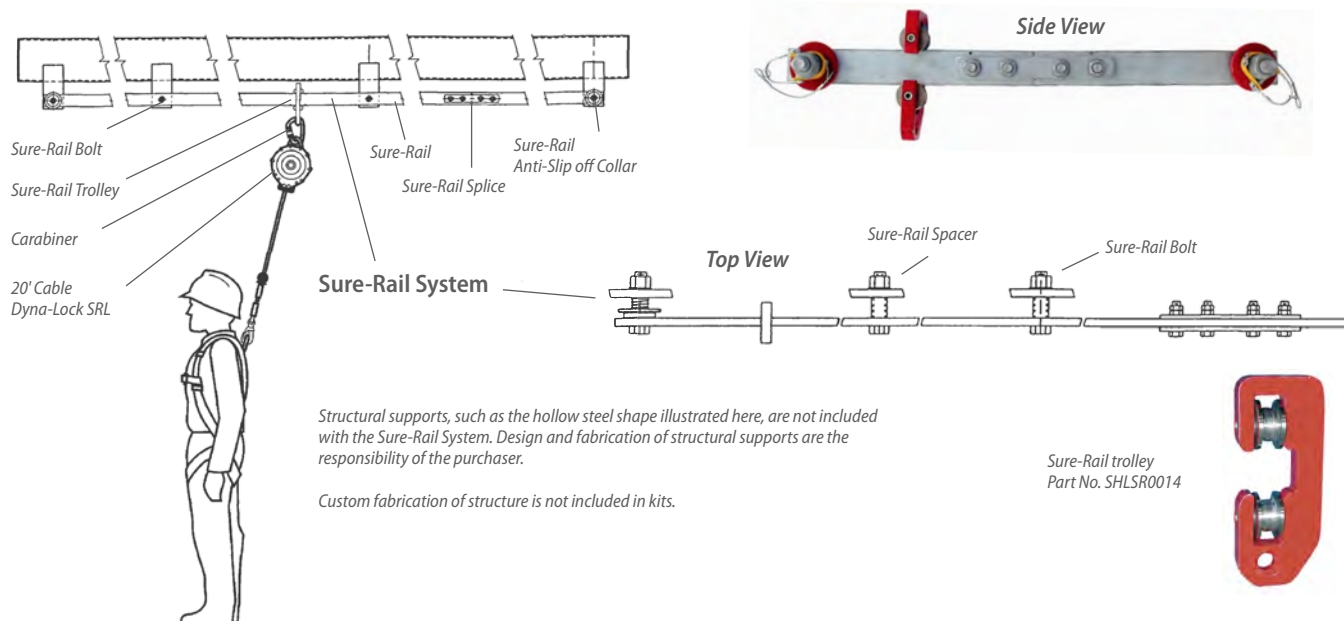
Horizon HLL Minimum Clearance Required Below Working Surface				
Line Length	1-Worker System		2-Worker System	
	6' Lanyard	SRL	6' Lanyard	SRL
10 ft	13'4"	5'0"	13'11"	5'4"
20 ft	14'4"	5'6"	14'10"	6'3"
30 ft	15'0"	6'1"	15'7"	6'9"
40 ft	15'9"	6'9"	16'3"	7'5"
50 ft	16'4"	7'3"	16'9"	8'0"
60 ft	16'9"	7'9"	17'5"	8'6"
70 ft	17'5"	8'3"	17'10"	9'0"
80 ft	17'11"	8'9"	18'5"	9'6"
90 ft	18'4"	9'3"	18'11"	10'0"
100 ft	18'9"	9'7"	19'5"	10'5"

NOTE: Calculations based on tests using 220-lb test torso

## Sure-Rail™ Horizontal Lifeline

Customizable to your application, the Sure-Rail Horizontal Lifeline is typically used in areas with limited clearance below the working surface. This system consists of galvanized steel 1/2x2x10 rail sections, an aluminum rail trolley with stainless steel wheels, end stops, and various mounting hardware. This product provides ease of movement, little or no deflection in the rail limits fall distance and fall arrest forces on the body. The design of the Sure-Rail Horizontal Lifeline allows for even distribution of fall arrest forces to the structure, and its twin-track configuration allows users to bypass each other without having to disconnect and reconnect.

- Available in many standard configurations, can also be customized
- Twin-track configuration allows users to bypass each other without having to disconnect and reconnect
- Spring-loaded end stops provide easy insertion/removal of the trolley
- Bent rails are available for travel around corners

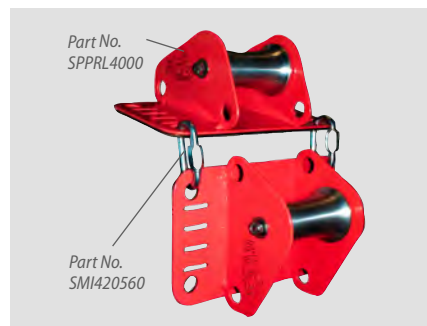


SURE-RAIL HORIZONTAL LIFELINE	SHLSR00104	Sure-Rail trolley
	SHLSR0021000	Sure-Rail, galvanized, predrilled, 1/2" (12mm) x 2" (50mm) x 10' (3m)
	SHLSR00501	Sure-Rail splice, galvanized, with bars and hardware [required every 10' (3m)]
	SHLSR00601	Sure-Rail spacer, galvanized [required every 5' (1.5m)]
	SHLSR00703	Sure-Rail anchorage bolt, galvanized [required every 5' (1.5m)]
	SHLSR00801	Sure-Rail anti-slip off collar, steel, painted [required at both ends of system]

SURE-RAIL TRUCK/RAIL CAR LOADING KITS	10030601	Sure-Rail truck/rail car loading kit, 60'		
	10030602	Sure-Rail truck/rail car loading kit, 80'		
	Kits include:		Qty. with 80 ft Kit	Qty. with 60 ft Kit
	SHLSR0021000	1/2" x 2" rail	8	6
	SHLSR00501	Splice joining hardware	8	6
	SHLSR00601	Spacers	16	12
	SHLSR00703	Standard anchorage bolts	16	12
	SHLSR00801	Anti-slip off collars	2	2
	SHLSR00104	Sure-Rail trolley	1	1
	10089207	Carabiner	1	1



## Rescue Equipment: FP Rescue™ Edge Roller



### SuretyMan Edge Roller

The best way to protect your rope from sharp edges and reduce rope friction. High quality construction. The 6" x 10" (15.3 cm x 24.4 cm) base is rubber covered to reduce slippage. The bottom and side plate feature attachment holes for ease of security in any situation. Added slots in the base plate accept tube webbing for security. Two edge rollers are required (sold separately). Two quick links are required (sold separately). Edge roller is 4" (10 cm) tall.

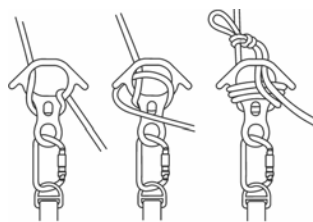
Weight: 2.8 lb. (1.3 kg).

EDGE ROLLER	SPPRL4000	SuretyMan Edge Roller, aluminum, weight: 2.8 lb. (1.3 kg) [two required]
	SMI420560	Quick Link 5/16" (8 mm) for use with SuretyMan Edge Roller [two required]

## Rescue Equipment: Components



SuretyMan Rescue Eight, Steel  
Part No. SRSF5045



Locking off the Rescue Eight

### SuretyMan Rescue Eight

- Designed for rope diameters from 7/16" (11 mm) to 5/8" (16 mm)
- Available in aluminum or steel
- Strength 6,720 lb. (30 kN)
- Weight 1.5 lb. (675 g)
- Designed for the fire service, rescue, and police tactical operations



### SuretyMan Rigging Plates

**Stealth Rigging Plate:** Anchor on the point and the wings will rotate toward the load for a straighter line of pull. Material: aluminum. Weight: .46 lb. (250g). Strength: 11,000 lb. (48 kN). Color: Teal

**Stretcher Rigging Plate:** Designed to unclutter and organize litter rigging points, reducing the chance of error. Material: aluminum. Weight: .74 lb. (330g). Strength: 12,200 lb. (54 kN). Color: Teal

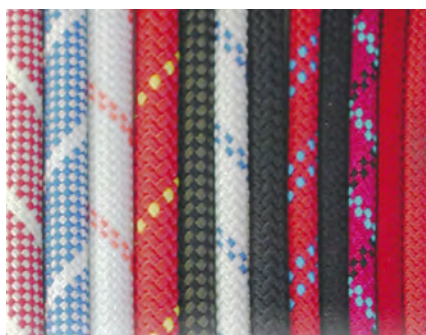


### SuretyMan Carabiner

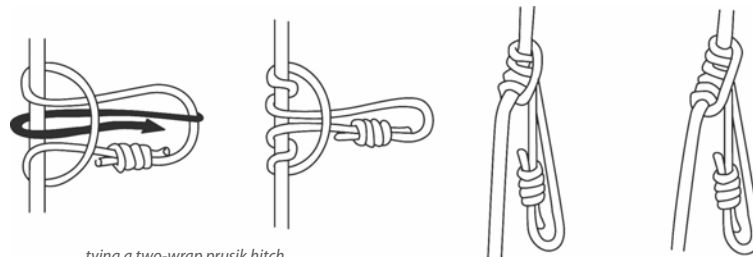
- Traditional large "D" design
- Carbon steel, zinc-plated
- Developed for fire and rescue communities
- Strength 12,364 lbs (55 kN)
- Manual locking
- Weight 11 oz (311g)
- Certified to meet NFPA 1993-1995, Class "G"
- Gate opening 1.2" (32mm)

RESCUE COMPONENTS	SRSF5077	SuretyMan Rescue Eight, aluminum
	SRSPR5990	SuretyMan Stealth Rigging Plate, aluminum, teal
	SRSPR5980	SuretyMan Stretcher Rigging Plate, aluminum, teal
	SRCC641	Carabiner, 1.2" (32mm) gate, steel, NFPA

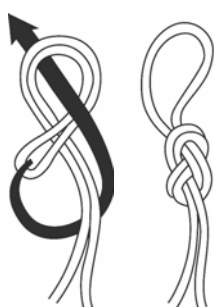
## Rescue Equipment: FP Rescue Ropes



Superior flexibility provided by unique double-twist cable core construction gives MSA Rescue Ropes resistance four times greater than other static kernmantle ropes. Designed with load absorbing capabilities to provide additional margin of safety in the event a dynamic force is applied.



tying a two-wrap prusik hitch



tying a figure eight on a bight



Rope Bag #1  
Part No. SRB430105



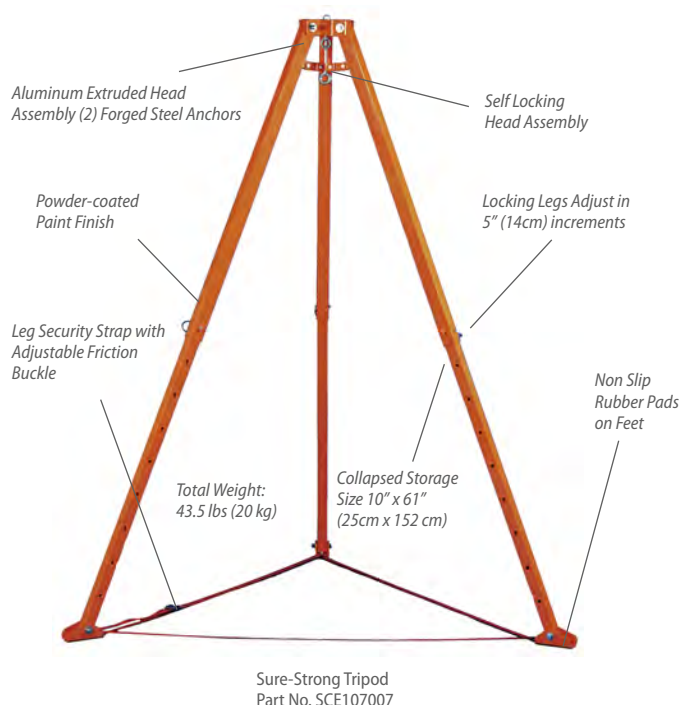
Rope Bag #2  
Part No. SRB430201



Termination Plate  
Part No. SRIW1000

FP RESCUE ROPES	SRP508960050	5/8" (16 mm), nylon, 11,400 lb. (5,171 kg), black, 50'
	SRP530961050	1/2" (12 mm) polyester, 9,100 lb. (4,128 kg), red, 50' (NFPA approved)
	SRP504860SL050	1/2" (12 mm), nylon, 9,100 lb. (4,128 kg), white/orange tracer, 50'
	SRP504866SL050	1/2" (12 mm), nylon, 9,000 lb. (4,083 kg), white/blue tracer, 50'
	SRP504863SL050	1/2" (12 mm), nylon, 9,000 lb. (4,083 kg), red/white tracer, 50'
	SRP508760050	7/16" (11 mm), nylon, 6,500 lb. (2,948 kg), black, 50'
	SRP544000050	7/16" (11 mm), nylon, 6,500 lb. (2,948 kg), olive, 50'
	SRP510660SL050	3/8" (10 mm), nylon, 5,000 lb. (2,269 kg), white/blue tracer, 50'
	SRP500900	9 mm Accessory Cord, nylon. Use with 1/2"-5/8" (1.3cm-1.6cm) main line, 3,600 lb. (1,632 kg)
	SRP500860	8 mm Accessory Cord, nylon. Use with 1/2"-5/8" (1.3cm-1.6cm) main line, black, 3,100 lb. (1,406 kg)
	SRP500700050	7 mm Accessory Cord, nylon. Use with 3/8"-1/2" (1cm-1.3cm) main line, red, 2,600 lb. (1,179 kg), 50'
	SRP5020550050	5.5 mm Titan Cord, Spectra Core, nylon, 4,500 lb. (2,042 kg), 50'
	SRP500500050	5 mm Accessory Cord, nylon, 1,275 lb. (578 kg), 50'
ROPE BAGS	SRB430101	Rope Bag #1, orange, holds 120-ft 1/2" (36.6m 12 mm) rope
	SRB430105	Rope Bag #1, black, holds 120-ft 1/2" (36.6m 12 mm) rope
	SRB430201	Rope Bag #2, orange, holds 200-ft 1/2" (60.1m 12 mm) rope
	SRB430205	Rope Bag #2, black, holds 200-ft 1/2" (60.1m 12 mm) rope
	SRB430301	Rope Bag #3, orange, holds 300-ft 1/2" (91.4m 12 mm) rope
	SRB430305	Rope Bag #3, black, holds 300-ft 1/2" (91.4m 12 mm) rope
	SRB430601	Rope Bag #6, orange, holds 600-ft 1/2" (182.8m 12 mm) rope
	SRB430605	Rope Bag #6, black, holds 600-ft 1/2" (182.8m 12 mm) rope
ACCESSORY	SRIW1000	Termination plate 5/8"

## Rescue Equipment: FP Rescue Workwinch and Tripod



- Sure-Strong® Tripod: portable, collapsible and designed for use in confined space applications for anchorage above a manhole or other confined space entry
- Sure-Strong Tripod is compatible with Dynevac II
- Sure-Strong Workwinch: used for work positioning, material handling, or as a means of retrieval in an emergency
- Sure-Strong Workwinch: used in conjunction with a fall protection system and a Sure-Strong Tripod



SURE-STRONG RESCUE EQUIPMENT	SCE107007	Sure-Strong 7' (2m) tripod, aluminum, 10,000 lb. (48 kN)
	SCE107010HD	Sure-Strong 10' (3m) tripod, aluminum, 10,000 lb. (48 kN)
	SCE1074411200	Sure-Strong Workwinch, 200' (61m) galvanized wire rope, with bracket (compatible with Sure-Strong Tripod)

## Fall Protection Rescue Kit



The Fall Protection Rescue kit is designed to be an "out of the bag" rescue system. This kit combines a remote hook and extension pole with a rescue utility system. The remote hook and extension pole allows for remote attachment of a rescue line to a victim. The Rescue Utility System allows a rescuer to raise or lower the victim to safety. This kit should be used with a back-up system (not included).

FALL PROTECTION RESCUE KIT	10030025	Fall Protection Rescue Kit
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## SuretyMan Rescue Utility System

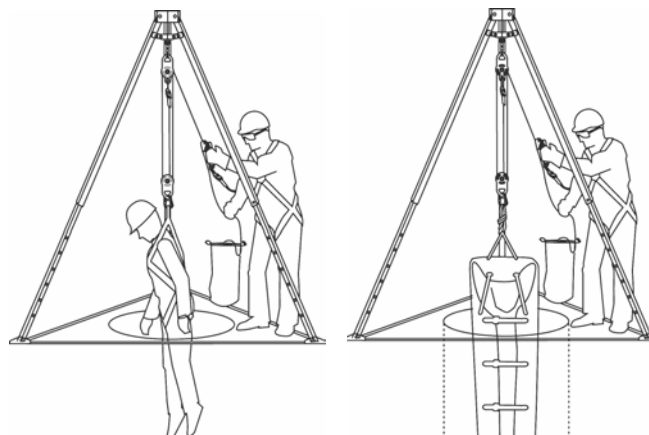


The SuretyMan Rescue Utility System is primarily used for raising and lowering people or equipment in rescue and industrial work access and confined space applications. Pulleys are equipped with a built-in anti-reversing lock. Offers rapid deployment, is virtually maintenance free, and is rated for two-person load.

- Compact and lightweight with a standard system weight of 17 pounds (7.7 kg)
- Rated capacity of 600 pounds (272 kg) for personnel
- Offers a standard rope length of 200 feet (66m) with a maximum rope length of 800 feet (267m)

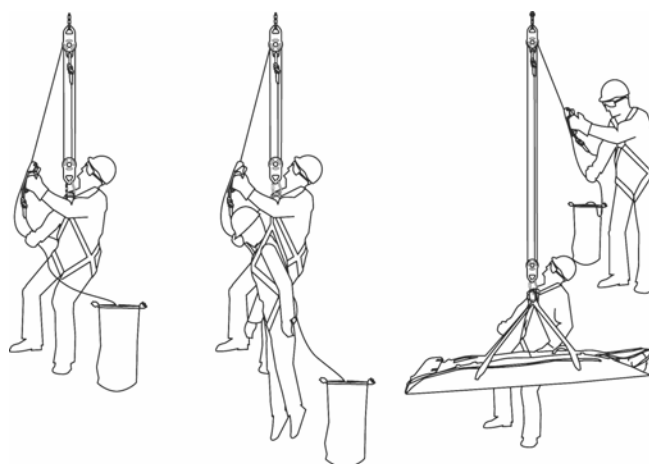
**NOTE:** Due to 4:1 mechanical advantage, user should order system with 4 times the rope necessary for the application. For example, a 50' application requires 200' of rope.

### SuretyMan Rescue Utility System Applications



The SuretyMan Rescue Utility System can be used in conjunction with the Sure-Strong Tripod

The SuretyMan Rescue Utility System can be used in conjunction with the Sure-Strong Tripod and Sked Rescue system

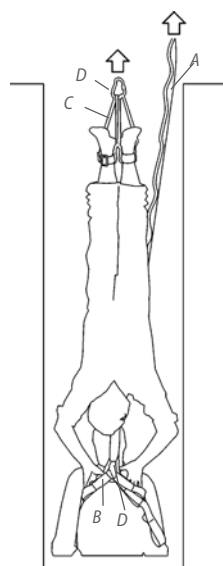


The SuretyMan Rescue Utility System can be used for self-rescue and/or victim rescue applications

The SuretyMan Rescue Utility System can be used in conjunction with the Sked Rescue system

SURETYMAN RESCUE UTILITY SYSTEM	SRS15200	2	SuretyMan Rescue Utility System, 200' (61m) length
	SRS15300		SuretyMan Rescue Utility System, 300' (91.4m) length
	SRS15400		SuretyMan Rescue Utility System, 400' (122m) length
	10093608		SuretyMan Rescue Utility System, 500' (152.4m) length
	10033360		SuretyMan Rescue Utility System, 600' (183m) length
	10101135		SuretyMan Rescue Utility System, 800' (244m) length
	10037101		Left-hand ascender with securing rope
	10035698		Right-hand ascender with securing rope

## Confined Space/Head First Extraction System



A specialized rescue product designed for extreme cases in which a rescuer needs to be lowered head-first into a confined space to perform a rescue. The Confined Space/Head First Extraction System (HFES) allows the rescuer to be lowered comfortably into a confined space head first, harness the victim, and raise both victim and rescuer out of a confined space. Consists of an adjustable lifting strap (A), an adjustable victim strap (B), one pair of ankle harnesses (C), two carabiners (D), and a storage bag (E). This compact system can be used with any confined space retrieval equipment such as tripods and davits.

- Leaves both hands free for the rescuer to assist in the retrieval of another person
- Small, lightweight system

Pair of Rescue Wristlets  
P/N 507002



CONFINED SPACE/ HEAD FIRST EXTRACTION SYSTEM	SRS3100	Confined Space/ Head First Extraction System
ACCESSORIES	SRS3103	Rescue Anklets
	507002	Rescue Wristlets

## Bucket Truck Evacuation Kit

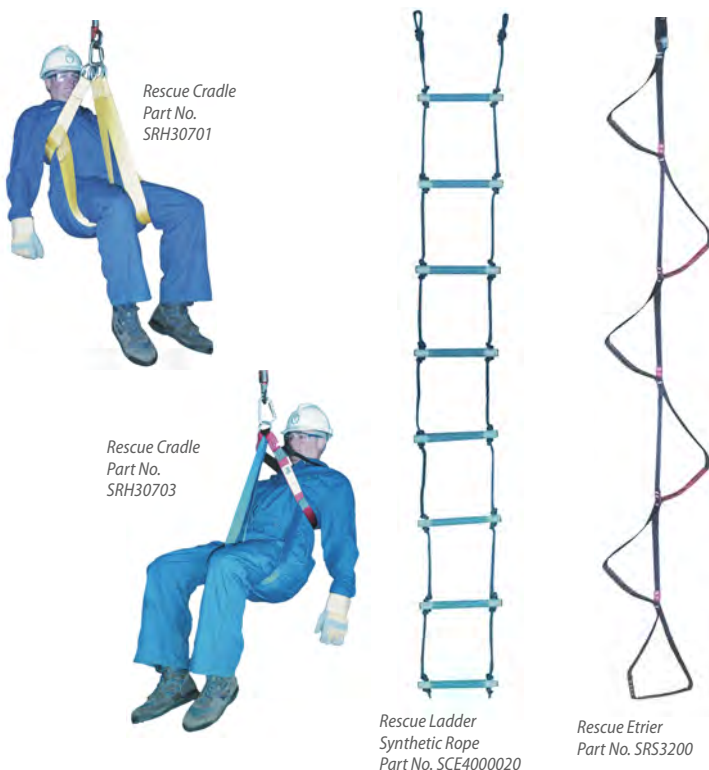


The Bucket Truck Evacuation Kit was created to provide all necessary equipment to allow a worker to safely evacuate an aerial bucket that has become inoperative.

BUCKET TRUCK EVACUATION KIT	SKITSMT001	Bucket Truck Evacuation Kit
	Bucket Truck Evacuation Kit includes:	
	SRB430205	#2 Rope Bag
	SCE405010	10-ft Synthetic Ladder with Swivel Snaphook
	SSB22040	Boom Anchor Strap
	SDC726075	Anthron system, which includes anthron device, carabiners (2), 75' (22m) 7/16" rope



## Rescue Equipment: Cradles, Ladder and Etrier



### Rescue Cradles

The Rescue Cradle is available in two model types. The SRH30701 model is designed to allow easy placement on a person. Equipped with 4" (10 cm) polyester webbing and 4 - 3" (7.6 cm) D-rings. One size fits all.

The Rescue Cradle, model SRH30703, is very similar to the SRH30701 model, except it is constructed with 1 - 3/4" (4.4 cm) nylon webbing, 2" (5 cm) attachment ring, and an elastic shoulder strap.

### Rescue Ladder

Our Rescue Ladder has synthetic rope with reinforced fiberglass rungs. Applications include: confined space access, theatrical stage rigging, mine access, and many others.

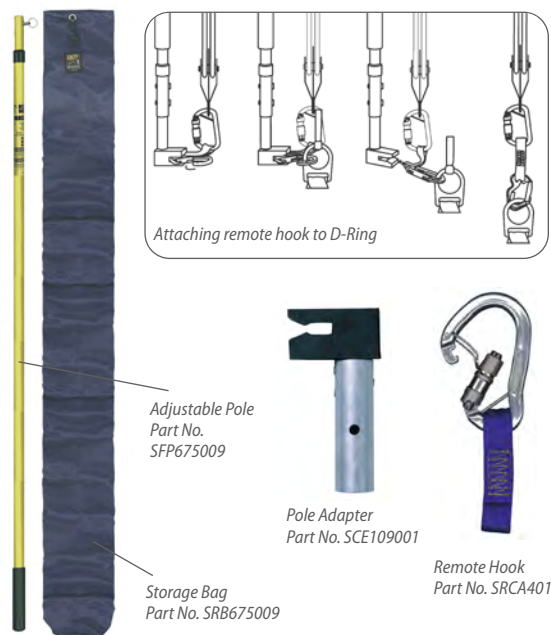
### Rescue Etrier

Etrier is a French word for a set of ascending web stirrups sewn or tied together. The Etrier is useful for stretcher tendering and other vertical activities including getting over difficult edges. The six-foot loops are reinforced/ stiffened for easier foot placement and abrasion resistance.

Length: 7 ft (2.1 m). Weight: 9 oz (280 g).

CRADLES	SRH30701	Rescue Cradle, 4 D-rings, 4" (10 cm) polyester webbing
	SRH30703	Rescue Cradle, 2" attachment ring, 1-3/4" (4.45 cm) nylon webbing
LADDER	SCE4000020	Rescue Ladder, synthetic rope, 20 ft (6.1 m)
ETRIER	SRS3200	Rescue Etrier, 1" web, 7 ft (2.1 m)

## Rescue Pole/Remote Hook



The Rescue Pole/Remote Hook is designed as a rescue tool for the retrieval of a worker suspended in a fall arrest system or for remote rescue access. In most cases, the need for the rescuer to go to the fallen worker (victim) is limited. The Rescue Pole can be used in a wide variety of rescue applications and will serve as an excellent tool to help perform a safer, efficient rescue. The system consists of an adjustable fiberglass pole, pole adapter, and remote hook. A nylon storage bag is optional.

RESCUE POLE/ REMOTE HOOK	SFP675009	Adjustable pole, fiberglass 6' (1.8m) to 12' (3.6m)
	SFP675012	Adjustable pole, fiberglass 8' (2.4m) to 24' (7.3m)
	SRCA401	Remote hook, aluminum, with web sling
	SCE109001	Pole adapter, aluminum/ rubber
	SCE109003	Pole adapter, 6' (1.8m), aluminum/rubber
	SRB675009	Storage bag for SFP675009

## SKED Basic Rescue System

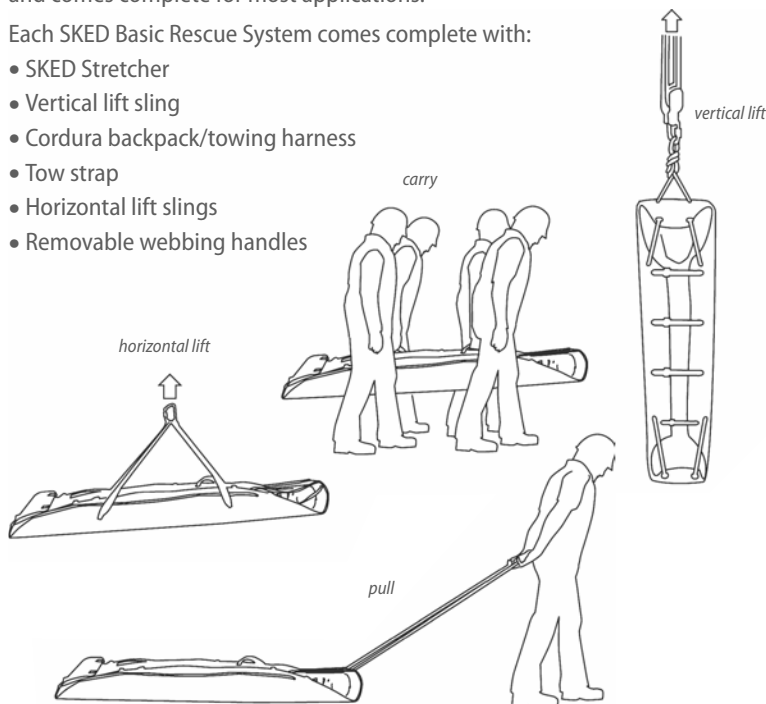


SKED Basic Rescue System  
Part No. SRSSK200

The best solution for confined space, high angle or technical rescue, and traditional land-based applications, the SKED stretcher is a revolutionary design which provides outstanding patient protection and security. The SKED stretcher comes equipped for horizontal hoisting by helicopter or vertical hoisting in caves or industrial confined spaces. When the patient is secured, the stretcher becomes rigid. The durable plastic provides protection for the patient while allowing extrication through the most demanding confined spaces. The stretcher is rolled for storage in a tough cordura backpack which is included in the system. The system ships at 19 lb. (8.6 kg) and comes complete for most applications.

Each SKED Basic Rescue System comes complete with:

- SKED Stretcher
- Vertical lift sling
- Cordura backpack/towing harness
- Tow strap
- Horizontal lift slings
- Removable webbing handles



SKED BASIC  
RESCUE SYSTEM

SRSSK200

SKED Basic Rescue System, International orange

## General Accessories



Hands-Off Chisel Grip  
Part No. 10040018

### Hands-Off™ Chisel Grip

The Hands-Off Chisel Grip keeps hands away from the point of contact. The Hands-Off Chisel Grip is ergonomically designed to match the specific shape of the human hand for a comfortable and firm grip.

- Permits faster, safer, more accurate work
- Easy adjustment to hold a variety of chisels and stakes up to 1" in diameter
- Vibration-absorbing handle
- Eases awkward hand positioning
- Economical
- Spark resistant

### Ergonomic Tool Holders

- Holds wrenches, chisels, etc.
- Vibration-absorbing design
- Attach to broom handles and mops for better grip
- Eases awkward hand positioning

CHISEL GRIP	10040018	1	Hands-Off Chisel Grip
TOOL HOLDER	507005	2	Tool Holder, 18"
	507006	2	Tool Holder, spark resistant, 18"
TAGLINE	505230		95'
SRL Accessory	10147490		50'
	10125759		30'
	10147631		10'



## MSA Safety-At-Heights Training

### Authorized Person for Safety at Heights

#### Course No. ZT-APHEIGHTS

The Authorized Person for Safety at Heights course is designed for the Fall Protection equipment user, or At Risk Worker, as well as their Supervisors or Manager, and the Safety Professional.

*At the completion of this course, the participants will be able to discuss and demonstrate the following topics:*

- Consensus Standards
- Dynamics of a Fall
- Fall hazard recognition and assessment
- Understanding impact forces
- Hierarchy of Controls
- Procedures for continuous Safety at Heights
- Selection, application, and use of fall protection systems
- Calculating fall clearances

*The following is included in the registration fee:*

- 1 Day of hands-on instruction by an MSA factory trained instructor
- The MSA Authorized Person for Safety at Heights instruction training manual and supporting documents
- Lunch and refreshments during the breaks in training
- MSA Safety at Heights Certificate

### Competent Person for Equipment Inspection

#### Course No. ZT-CPINSPECT

The Competent Person for Equipment Inspection course is designed for the Fall Protection equipment user, or At Risk Worker, as well as their Supervisors or Manager, and the Safety Professional.

*At the completion of this course, the participants will be able to discuss and demonstrate the following topics:*

- Consensus Standards
- Formal documentation requirements
- Formal inspection process, including the criteria for pass/fail and disposal
- Equipment cleaning and storage

*The following is included in the registration fee:*

- Half-day of hands-on instruction by an MSA factory trained instructor
- The MSA Competent Person for Equipment Inspection instruction training manual and supporting documents
- Refreshments during the breaks in training
- MSA Safety at Heights Certificate

### Training Centers

- Edmonton, AB, Canada
- Houston, TX
- IHSA Facility Toronto, ON, Canada
- Denver, CO
- Chicago, IL
- Butler, PA

***Or, Let Us Train You at YOUR Facility***

### Rescue Planning for Safety at Heights

#### Course No. ZT-RESCPLAN

The Rescue Planning for Safety at Heights course is designed for Supervisors, Managers, and Safety Professionals responsible for Fall Protection programs.

*At the completion of this course, the participants will be able to discuss and demonstrate the following topics:*

- Risk assessment of fall hazards
- Fall protection planning with proper rescue procedures
- Hierarchy of rescue
- Selection of rescue equipment
- Issues and considerations
- Rescue training and simulations

*The following is included in the registration fee:*

- Half-day of hands-on instruction by an MSA factory trained instructor
- The MSA Rescue Planning for Safety at Heights instruction training manual and supporting documents
- Refreshments during the breaks in training
- MSA Safety at Heights Certificate

### Competent Person for Safety at Heights

#### Course No. ZT-CPHEIGHTS

The Competent Person for Safety at Heights course is designed for Supervisors, Managers, and Safety Professionals responsible for Fall Protection programs.

*This 2 day course is comprised of the:*

- Authorized Person for Safety at Heights course
- Competent Person for Equipment Inspection course
- Rescue Planning for Safety at Heights course

*The following is included in the registration fee:*

- 2 Days of hands-on instruction by an MSA factory trained instructor
- The MSA Fundamentals for Safety at Heights, Competent Person for Equipment Inspection, and the Rescue Planning for Safety at Heights instruction training manuals and supporting documents
- Lunch and refreshments during the breaks in training
- MSA Safety at Heights Certificate

## Competent Person for Horizontal Lifeline Installation & Inspection

### Course No. ZT-CPHLL

The Competent Person for Horizontal Lifeline Installation and Inspection course is designed for the Fall Protection equipment user, or At Risk Worker, as well as their Supervisors or Manager, and the Safety Professional.

*At the completion of this course, the participants will be able to discuss and demonstrate the following topics:*

- Consensus Standards
- Design statement, use and limitations
- Installation procedures
- Inspection criteria, including pass/fail and disposal
- Cleaning and storage

*The following is included in the registration fee:*

- Half-day of hands-on instruction by an MSA factory trained instructor
- The MSA Competent Person for Horizontal lifeline Installation and Inspection instruction training manual and supporting documents
- Refreshments during the breaks in training
- MSA Safety at Heights Certificate



MSA Fall Protection Demo Truck

## MSA Custom Training Courses

- Focus on safety issues unique to your company
- Compliment your existing safety program
- Incorporate photos of your work hazards or conditions
- Hands-on training in your daily work environment
- Custom training structures at your facility

### REGISTRATION INFORMATION

We invite you to attend our next training session, which will prove to be a comprehensive and valuable experience.

Register by phone or fax:

Phone: 1-866-347-6093 • Fax: 724-776-4520.

**Visit [www.MSAafety.com](http://www.MSAafety.com) for the current training schedule.**

Course	Length	Course #
AUTHORIZED PERSON FOR SAFETY AT HEIGHTS	1-1/2 days	ZT-APHEIGHTS
COMPETENT PERSON FOR EQUIPMENT INSPECTION	1/2 day	ZT-CPINSPECT
RESCUE PLANNING FOR SAFETY AT HEIGHTS	1 day	ZT-MGRESCUE
COMPETENT PERSON FOR SAFETY AT HEIGHTS	2 days	ZT-CPHEIGHTS
TOWER CLIMBING SAFETY	1 day	ZT-TOWER
COMPETENT PERSON FOR HORIZONTAL LIFELINE INSTALLATION & INSPECTION	1/2 day	ZT-CPHLL
MSA CUSTOM TRAINING COURSES	Course length, cost, and schedule will be determined upon request.	







## Comfo-Cap® Protective Caps



**Classification:** Type I

**Application:** Mining

**Shell Material:** Polycarbonate

**Available Styles:** Non-Slotted Cap  
w/ lamp bracket and cord holder

**Sizes:** Standard (6 1/2 – 8")

**Standards:** ANSI/ISEA Z89.1-2014 (Class G)

**Certification:** Third-party by SEI

**Customization:** Imprinting and striping available

DESCRIPTION	w/Staz-On	w/Fas-Trac
<b>COMFO CAP ASSEMBLIES</b>		
WHITE	91522	475336
BLUE	91586	—
YELLOW	91585	—
ORANGE	91589	—
RED	91590	—
GREEN	91584	—
BLACK	82769	—
<b>REPLACEMENT SUSPENSIONS</b>		
STAZ-ON SUSPENSION	454231	
FAS-TRAC III SUSPENSION	10153385	
1-TOUCH SUSPENSION	10061128	

## W65 Self-Rescuer Respirator



Housed in a rugged stainless steel case and weighing only 2.2 pounds, the durable W65 Self-Rescuer provides emergency protection against carbon monoxide gas resulting from underground fires or explosions. The one-time-use device is for escape purposes only. The unit should not be used in atmospheres containing less than 19.5 percent oxygen or in atmospheres containing other toxic gases and vapors.

- Convenient, portable self-rescuer provides emergency protection against CO
- Lightweight unit weighing only 2.2 pounds

<b>W65 SELF-RESCUER RESPIRATOR COMPLETE ASSEMBLIES</b>	455299	W65 Self-Rescuer Respirator, complete in carton
	461100	W65 Self-Rescuer Respirator, w/protective boot and neoprene holster
<b>HOLSTER</b> <i>Adapts Self-Rescuer to belts up to 2-1/2 inches in width</i>	455535	Leather Holster
	460027	Neoprene Holster
<b>PROTECTIVE BOOT</b>	449428	Protective Boot
<b>SELF-RESCUER TRAINING MODEL</b>	455696	Training Model, in red case

## Miner's Support System and Multipurpose Pouch

The Miner's Support System from MSA is a lightweight but sturdy miner's belt that offers comfort, lumbar support, versatility and durability. It enables the miner to carry the cap lamp battery pack, filter self-rescuer, SCSR, tools, etc., on the job. A one-inch reflective strip sewn over a two-inch nylon strap makes the support system highly visible. For more complete information, see Bulletin 0115-03.

<b>MINER'S SUPPORT SYSTEM</b>	696757	Miner's Support System, small (28–34)
	696758	Miner's Support System, medium (34–44)
	696759	Miner's Support System, large (44–52)
<b>MULTIPURPOSE MINER'S POUCH</b>	803100	Multipurpose Miner's Pouch
	804655	Multipurpose Miner's Pouch with Velcro closure



## ALTAIR 4X MSHA Multigas Detector

### Optimized for Miners

Building on years of design experience, MSA revolutionizes sensor technology with breakthroughs that improve mining application performance:

- Methane-optimized catalytic bead sensor provides increased stability over time
- Sensor response and clear times in less than 15 seconds
  - Reduces gas usage for bump testing and calibration
- Greater accuracy and repeatability within changing environmental conditions
  - Temperature, humidity and pressure
- Digital sensors offer increased RF (radio frequency) immunity
  - Eliminate false alarms from radios
- Accurate CO readings from 0-2000 ppm
- Industry-first CO/NO<sub>2</sub> combination sensor with wide range and fast response times
- Increased methane sensor poison resistance decreases down time and frequency of sensor replacements
- End-of-sensor life warning gives advanced notice of failing sensors
- Sensor life that greatly exceeds industry average

### Technical Specifications

Gas Type	Range	Resolution
LEL	0–100% LEL	1% LEL
O <sub>2</sub>	0–30% vol	0.1% vol
CO	0–1999 ppm	1 ppm
NO <sub>2</sub>	0–50 ppm	0.1 ppm
H <sub>2</sub> S	0–200 ppm	1 ppm

ALTAIR 4X MSHA Multigas Detectors listed below come with 3-year warranty, data logging, charger, calibration cap, and tubing

ALTAIR 4X MSHA MULTIGAS DETECTORS	10125912	ALTAIR 4X Multigas Detector (CH <sub>4</sub> , O <sub>2</sub> , CO), charcoal case
	10125913	ALTAIR 4X Multigas Detector (CH <sub>4</sub> , O <sub>2</sub> , CO), glow-in-the-dark case
	10125914	ALTAIR 4X Multigas Detector (CH <sub>4</sub> , O <sub>2</sub> , CO, NO <sub>2</sub> ), charcoal case
	10125915	ALTAIR 4X Multigas Detector (CH <sub>4</sub> , O <sub>2</sub> , CO, NO <sub>2</sub> ), glow-in-the-dark case
REPLACEMENT SENSORS	10121212	XCell Ex-M Combustible Sensor
	10106729	XCell O <sub>2</sub> Sensor
	10106725	XCell CO/H <sub>2</sub> S Two-tox Sensor
	10121217	XCell CO/NO <sub>2</sub> Two-tox Sensor
ACCESSORIES	10127422	4-unit multi-unit charger NA plug
	10143372	12-unit multi-unit charger NA plug



ALTAIR 4X Multigas Detector



ALTAIR 4X Multigas Detector  
Optional glow-in-the-dark housing for mining and confined space applications



30 CFR Part 22, Methane Detector  
30 CFR Part 75 Determination testing for methane and oxygen deficiency

## Assemble-To-Order (ATO) Options

To create your instrument configuration, select the instrument option codes and mark them in the boxes to the right.

<b>A</b>	<b>INSTRUMENT TYPE</b>	The Altair 4X MSHA Multigas Detector comes standard with MSA's XCell Sensors and MotionAlert feature to indicate 'man-down'. Please select your instrument's case color; select option <b>C</b> for charcoal and option <b>G</b> for glow-in-the-dark.	<b>Instrument Type</b> Charcoal Glow-in-the-dark	<b>Code</b> C G	Selection
<b>B</b>	<b>COMBUSTIBLE SENSOR</b>	To have a combustible sensor installed in your new ALTAIR 4X MSHA Multigas Detector, please select <b>C</b> . For no combustible sensor, select <b>0</b> .	<b>Combustible Sensor Options</b> None 0-5% Vol methane	<b>Code</b> 0 C	Selection
<b>C</b>	<b>OXYGEN SENSOR</b>	To have an oxygen sensor installed in your new ALTAIR 4X MSHA Multigas Detector, select <b>1</b> . For no sensor, enter <b>0</b> .	<b>Oxygen Sensor Options</b> None 0-30%	<b>Code</b> 0 1	Selection
<b>D</b>	<b>TOXIC SENSOR</b>	To configure your new ALTAIR 4X MSHA Multigas Detector, choose <b>0</b> for no toxic sensor. Choose <b>A</b> for both CO and H <sub>2</sub> S sensors, choose <b>B</b> for CO, <b>C</b> for H <sub>2</sub> S, <b>D</b> for CO and NO <sub>2</sub> , and <b>E</b> for NO <sub>2</sub> .	<b>Toxic Sensor Options</b> None 0-1999 ppm CO and 0-200 ppm H <sub>2</sub> S 0-999 ppm CO 0-200 ppm H <sub>2</sub> S 0-1999 ppm CO and 0-50 ppm NO <sub>2</sub> 0-100 ppm NO <sub>2</sub>	<b>Code</b> 0 A B C D E	Selection
<b>E</b>	<b>POWER SUPPLY</b>	Select the correct power supply. Add an instrument cradle to firmly secure your instrument while charging on the shelf or on a vehicle.	<b>Power Supply Options</b> None North American North American with cradle	<b>Code</b> 0 N M	Selection
<b>F</b>	<b>APPROVAL LABEL</b>	The ALTAIR 4X MSHA Multigas Detector is fully approved by MSHA.	<b>Approval Label Options</b> MSHA	<b>Code</b> M	Selection <b>M</b>
<b>G</b>	<b>EXTENDED WARRANTY</b>	MSA includes a full 3-year warranty on the ALTAIR 4X MSHA Multigas Detector, including sensors, battery and electronics. Choose <b>1</b> for an additional year (4 years total).	<b>Extended Warranty Options</b> Three years standard warranty Extended warranty (four years total)	<b>Code</b> 0 1	Selection

### Your Model Part Number

Please transfer your option codes from the Selection boxes above into the appropriate boxes here and contact your Safety Products Distributor to place your order.

Selection      A      B      C      D      E      F      G

A-ALT4XM-  -  -  -  -  -  -  -

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## Our Mission

MSA's mission is to see to it that men and women may work in safety and that they, their families, and their communities may live in health throughout the world.

**MSA: Because every life has a purpose.**

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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