

# MSA PRODUCTS FOR THE MILITARY

volume 1 | January 2007



**MSA**  
★ FRONT LINE ★



# PROVEN UNDER FIRE



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Department of Defense photo by Sgt. 1st Class Dexter D. Clouden, U.S. Army.



## MSA Frontline: A History of Trust

United States military forces have trusted MSA since World War I to provide the best in personal protective equipment, as generations of soldiers have worn MSA gas masks. In recent years, our military forces in Iraq and Afghanistan have trusted MSA's battle-tested Advanced Combat Helmet (ACH) and MICH™ Communication System. MSA's ACH has been adopted as standard issue for all troops deploying to the Iraq/Afghanistan Operations Theatre, and is credited with saving soldiers' lives during combat. MSA's scope of equipment performance and comfort is essential to the safety and well-being of our military forces. MSA Paraclete's products have been Proven Under Fire, leading the industry in high-quality protective equipment and tactical gear systems.

## MSA's Commitment to Our Armed Forces

With today's increasing need for specialized personal protection, MSA has invested significant resources toward our research and engineering capabilities, including three ballistic testing chambers. We take the business of protecting our troops very seriously, evidenced by our working relationships with the military community. As an ISO 9001-2000 certified manufacturer, MSA strives to improve and innovate our designs, materials procurement, and production processes. Our products are thoroughly field-tested to exacting requirements, and meet or exceed industry standards. We consider ease of use, excess weight reduction, and employ quality assurance processes in order to provide maximum performance as well as comfort. Our first priority is our commitment to the U.S. military's personal protective equipment. MSA—protecting the protectors, since 1914.

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## MSA Advanced Combat Helmet (ACH) ★

The MSA Advanced Combat Helmet (ACH) delivers advanced ballistic, fragmentation, and impact head protection, with unsurpassed comfort for long-term use.

The helmet's low-profile design reduces the risk of interference in target acquisition and ensures compatibility with NVGs (night-vision goggles), MSA's CBRN (Chemical, Biological, Radiological and Nuclear) Gas Masks, and MSA's communication devices.

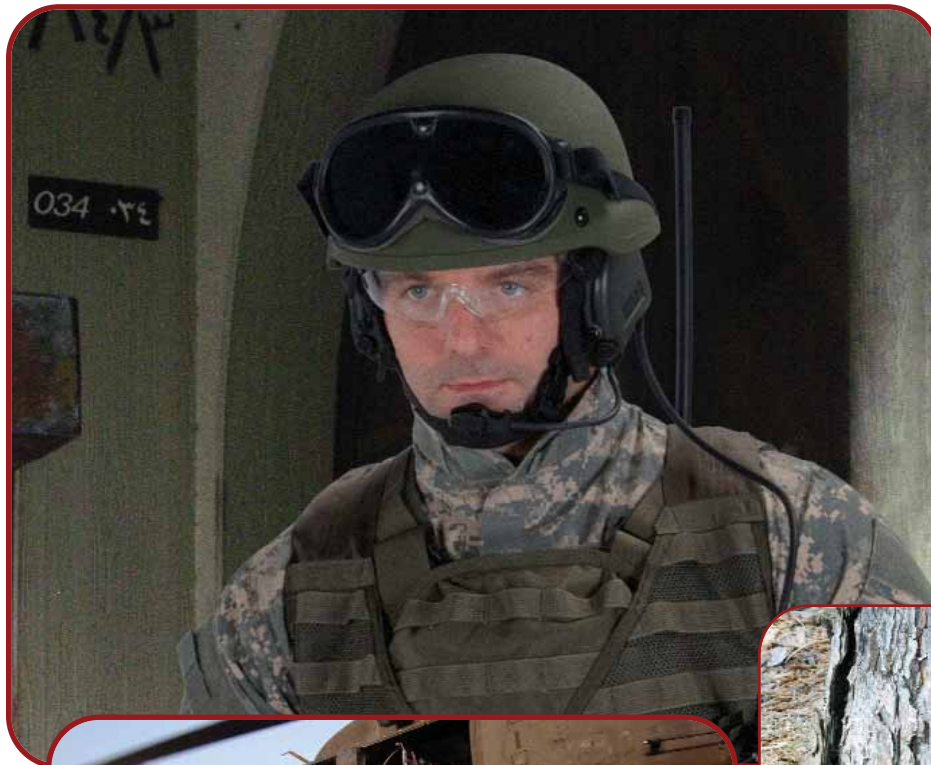
An innovative suspension system of movable comfort pads provides customized sizing and superior comfort. The sized pads conform to the shape of your head to distribute the helmet's weight evenly and comfortably. Simply adjust and move the absorbent pads for a flexible, personalized fit.

### Proven Under Fire

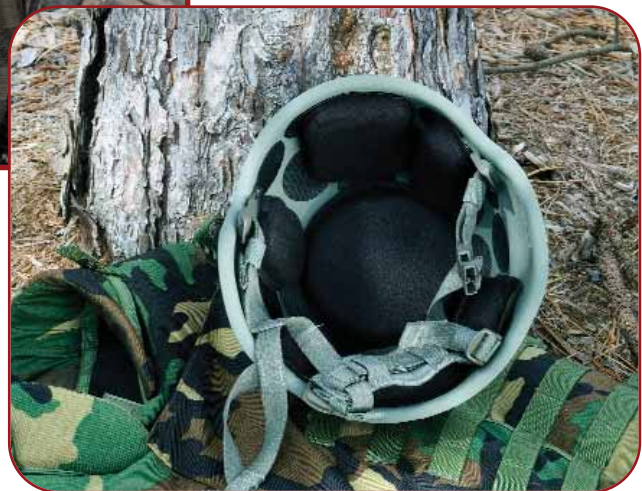
The MSA ACH, based on MSA's original MICH helmet, was developed for the U.S. Military Special Operations Command, meeting stringent requirements and unprecedented demands, and setting new performance standards. Named a Best Invention by U.S. Army Materiel Command, the U.S. Army was so impressed that MSA's ACH was adopted as the standard of issue for all troops deploying to the Iraq/Afghanistan Operations Theatre.



Department of Defense photo



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**Specifications—  
ACH - TC 2000 - MICH Series**

*Components*

- Ballistic-resistant Kevlar® shell
- Four-point adjustable chinstrap retention system
- Seven-pad adjustable suspension system
- Instruction manual

*Ballistic Resistance*

9mm, 124 grain, FMJ @ 1450 fps,  
backface < 12 mm

*Fragmentation Resistance*

- 2 grain RCC @ 4075 fps
- 4 grain RCC @ 3450 fps
- 16 grain RCC @ 2425 fps
- 64 grain RCC @ 1700 fps
- 17 grain FSP @ 2150 fps

*Other Features / Performance*

- Minimum static load test of 150 lbs.
- Minimum dynamic load test of 25 fps
- Impact mitigation, less than 150 gs force transmitted to the head at 10 fps
- Compatible with the use of all major gas masks worn under the helmet
- Weights: Medium, 3.0 lbs., Large 3.25 lbs., XL 3.4 lbs.
- Berry Amendment Compliant
- No degradation of performance after 3' immersion in salt water for 3 hours
- Ballistic performance within the following temperature range: -40°F to 160°F
- Standard helmet fits over MSA MICH Communication Systems

*Customer Options*

- Available in black, tan or O.D. Green
- 1-, 2- or 3-hole drilled for NVG Mounting
- TC 2001 – Full Ear Cutout (Medium & Large)
- TC 2002 – Partial Ear Cutout (Medium & Large)



Sizing		
Shell Size	Pad Size	Head Size (U.S.)
Medium	No. 8 (1")	6½ – 7
Medium	No. 6 (¾")	7 – 7¼
Large	No. 8 (1")	7¼ – 7½
Large	No. 6 (¾")	7½ – 7¾
X-Large	No. 8 (1")	7¾ – 8
X-Large	No. 6 (¾")	8+



Department of Defense Photo



**"It saved my life," 1SG (First Sergeant) Colin Rich said simply, of MSA's ACH he was wearing when a "friendly" Afghan soldier shot him in the back of the head. He traveled nearly 10,000 miles to MSA's factory in Newport, Vermont, to thank MSA associates who had made his helmet.**



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### ACH TC-2000 (Green)

	Medium Size Pad Set #6	Medium Size Pad Set #8	Large Size Pad Set #6	Large Size Pad Set #8
No. Holes	Part No.	Part No.	Part No.	Part No.
0	300098A	300641A	300099A	300642A
1	300188A	300647A	300189A	300648A
2	300363A	300653A	300371A	300654A
3	300364A	300659A	300372A	300660A

### ACH TC-2000 (Green)

	X-Large Size Pad Set #6	X-Large Size Pad Set #8
No. Holes	Part No.	Part No.
0	10050873	10050874

### ACH TC-2000 (Tan)

	Medium Size Pad Set #6	Medium Size Pad Set #8	Large Size Pad Set #6	Large Size Pad Set #8
No. Holes	Part No.	Part No.	Part No.	Part No.
0	300132A	300665A	300133A	300666A
1	300365A	300671A	300373A	300672A
2	300366A	300677A	300374A	300678A
3	300367A	300683A	300375A	300684A



### ACH TC-2001 (Green)

	Medium Size Pad Set #6	Medium Size Pad Set #8	Large Size Pad Set #6	Large Size Pad Set #8
No. Holes	Part No.	Part No.	Part No.	Part No.
0	300136A	300643A	300137A	300644A
1	300379A	300649A	300388A	300650A
2	300380A	300655A	300389A	300656A
3	300381A	300661A	300390A	300662A

### ACH TC-2001 (Tan)

	Medium Size Pad Set #6	Medium Size Pad Set #8	Large Size Pad Set #6	Large Size Pad Set #8
No. Holes	Part No.	Part No.	Part No.	Part No.
0	300138A	300667A	300139A	300668A
1	300382A	300673A	300391A	300674A
2	300383A	300679A	300392A	300680A
3	300384A	300685A	300393A	300686A



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### ACH TC-2002 (Green)

No. Holes	Medium Size Pad Set #6	Medium Size Pad Set #8	Large Size Pad Set #6	Large Size Pad Set #8
	Part No.	Part No.	Part No.	Part No.
0	300142A	300645A	300143A	300646A
1	300397A	300651A	300406A	300652A
2	300398A	300657A	300407A	300658A
3	300399A	300663A	300408A	300664A

### ACH TC-2002 (Tan)

No. Holes	Medium Size Pad Set #6	Medium Size Pad Set #8	Large Size Pad Set #6	Large Size Pad Set #8
	Part No.	Part No.	Part No.	Part No.
0	300144A	300669A	300145A	300670A
1	300400A	300675A	300409A	300676A
2	300401A	300681A	300410A	300682A
3	300402A	300687A	300411A	300688A

## MSA Ballistic Helmet Pad System

The MSA Ballistic Helmet Pad System is the suspension system for ACH, MICH and TC 2000 series ballistic helmets for the military. The Pad System provides standoff, comfort, protection and stability. The pads are easily attached, removed, and reattached to the inside of the inside of the helmet shell via a hook and loop fastening system in order to facilitate user comfort and integration with other equipment. The pads remain firmly in place when attached and provide the user with the ability to attach the pads where the wearer desires (i.e. in a variety of locations) and permit accommodation among different size and shape heads and some equipment.

**Impact:** Shock mitigation performance for a 10 fps impact velocity of <150 g's.

**Compression Durability:** No performance change following 6570 compressions.

**Water Absorbency:** <3% weight gain following a 12 hour salt water soak.

**Environmental:** Operating temperature range of -40° to 160°F and altitude of 40,000 ft.

### Pads

Size 6	Size 8	Description
160003A	160004A	Pad Kit, Combat Helmet, MD/LG, 1 set
10060735	10060736	Pad Kit, Combat Helmet, MD/LG, 10 sets
160010A	160011A	Oblong/Oval Pad
160012A	160013A	Circular Crown Pad
160014A	160015A	Trapezoidal Pad

### Miscellaneous Helmet Accessories

Part No.	Description
162040A	Retrofit Kit, one-hole, PSGT/MICH Helmet
300021A	Chinstrap Assembly, 4-point, TC-2000
300171A	Chinstrap Assembly, 3-point, PSGT Helmet
10054157	Chinstrap, 4-point, XL
300031A	Retention Straps, set of 2, TC-2000
300106A	Spare Parts Kit for 20 TC-2000 Helmets
301059A	Spare Parts Kit for 100 TC-2000 Helmets
300131A	Supplemental Spare Parts Kit, TC-2000
300107A	Mounting Hardware Kit, TC-2000
101014A	Fastener Tape, Hook (use inside shell), ea.
101014A-400	Fastener Tape, Hook (use inside shell), 400/roll
150005A	Screw (attach mounting hardware to ACH), ea.
150005A-050	Screw (attach mounting hardware to ACH), 50/box
150006A	Nut (attach mounting hardware to ACH), ea.
150006A-050	Nut (attach mounting hardware to ACH), 50/box
153006A	Ladder-lock (mount chinstrap to p-clamp), ea.
153006A-050	Ladder-lock (mount chinstrap to p-clamp), 50/box
160010A	MICH Pad Oblong #6
161009A	P-Clamp (mount ladder-lock to shell), ea.
161009A-050	P-Clamp (mount ladder-lock to shell), 50/box

### Accessory Visors

Part No.	Description
10072800	Military Style Shield, .250" Thickness, 5", Anti-Fog
10072804	Military Style Shield, .250" Thickness, 8", Anti-Fog
10072799	Riot Shield, .150" Thickness, 5"
10072803	Riot Shield, .150" Thickness, 8"

### Helmet Covers

Part No.	Description	Size
300025A	Reversible Helmet Cover Assembly, Woodland/Desert Camo	MD/LG
10055698	Reversible Helmet Cover, with pocket	XL

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## Releasable Assault Vests (RAV) ★

The original Releasable Assault Vest can be removed instantly via a patented single-point release feature. Vest includes full Molle-style grid webbing, sewn-on drag strap, integrated drink tube, communication channels, zip-off back panel and full modular system of add-on pouches and accessories. Complies with NIJ Standard-0101.04, 2005 interim requirements when with armor.

- 10" x 12" rifle plate pockets
- Built-in side plate pockets for 6" X 6" hard plates
- Hook and loop closure for access to internal armor plate pockets and soft armor package
- Military specification materials
- Ballistic performance exceeds outer tactical vest fragmentation standards



In May 2006 tactical commander Chris Joyner, a private security contractor assigned to the U.S. Embassy in Baghdad, was riding in an armored vehicle when an IED nearly ended his life. The powerful blast almost rolled the five-ton vehicle.

The explosion broke his cheekbones and dislocated his jaw. A spray of molten copper and shrapnel destroyed his right eye and lacerated his face and body.

Although dazed and disoriented, he never lost consciousness. When a medic tried to cut open his MSA Paraclete RAV, Joyner stopped him.

"Whoa, whoa, whoa," he cried, "just pull the cord!"

Cutting the tough, 1000-denier nylon could take 10 minutes—time Joyner didn't have. The medic grabbed the emergency cord and pulled. In seconds, the fully loaded

vest separated into five components and was out of the way.

"It saved my life," Joyner said of the RAV's patented cutaway system. In fact, he was told that the 10 minutes saved by the quick release of his MSA Paraclete vest were truly the difference between his life and his death. In September 2006, he visited the MSA Paraclete plant in North Carolina to thank those who made these vests.



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*To: MSA Paraclete Armor & Equipment From: a 24th Infantry Soldier in Iraq*

I just wanted to write you and let you know that your RAV vest saved my life last week. I am up here in Mosul and we got caught in an ambush. I was hit with a 7.62.x54 bullet in the very top part of my SAPI plate. The round went through my arm, through 2 full mags, and finally stopped in the final liner of my SAPI.

The reason that I say it saved my life is that because of the RAV design, the SAPI plate does not sag and it is always in the proper place. With the interceptor, if you wear it incorrectly or the hook and pile is worn, the SAPI plate sags and does not cover all of the "vitals". Your RAV does not sag and it is impossible for it to be worn incorrectly.

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2005 Version - Releasable Assault Vest with patented single point release system. This vest is MOLLE/SPEAR pocket compatible. It features a drag strap, zip off back panel, and it is compatible with soft armor accessories to include shoulder, neck, collar, and groin protectors. This version of the vest features an internal adjustable cummerbund, a single cable external adjustable cummerbund, front and back plate pockets, 6" X 6" side plate pockets, and communication and drink tube channel flaps. The vest is designed with a hook and pile soft armor panel closure and cummerbund snaps.



The MVL019 vest is designed for the military or law enforcement user who want the lightest vest possible. This vest has a four point adjustable light weight elastic cummerbund, an external adjustable cummerbund, front and back plate pockets, and 6" X 6" side plate pockets. The vest does not have a zip off back panel, internal cummerbund, or shoulder covers for communication or drink tubes.

<b>Releasable Assault Vest (RAV)</b>	
<i>Part No.</i>	<i>Description</i>
RMV019-05	Releasable Assault Vest (without armor)

<b>Modular Vest Light</b>	
<i>Part No.</i>	<i>Description</i>
MVL019	Modular Vest Light (without armor)

**All RAV Vests, Packages and Accessories are available in the following camo patterns/colors:**

Universal	
Coyote Brown	
Black	
Smoke Green	



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## RAV Packages

All RAV Packages include the following:

No./Pkg	Part No.	Description	No./Pkg	Part No.	Description
1	RMV019-05	Releasable Assault Vest	2	GPL019	medium general purpose pouches
1	BPS019	back panel	2	GPS019	small general purpose pouches
6	ADP019	double M4/M16 magazine pouches	1	GPU019	upright medium general purpose pouch
1	AQP019-9	quad 9MM magazine pouch	1	MCR019	M45 mask carrier
1	AFP019R-9	magazine pouch 9MM double,	1	RLC019R	MBITR radio pouch
2	ASP007-9	single magazine pouches 9MM	1	RUL019	large universal radio pouch
5	BSP019L	large single flash bang pouches	1	RUS019	small universal radio pouch
1	CBK019	100 oz. Camelback Canteen			



### RAV Package without Armor

Part No.	Description
RAV019	Releasable Assault Vest Package

Package includes all products shown in chart above.

### RAV Package with Level IIIA Soft Armor Inserts

Part No.	Description
RAV019-SA	Releasable Assault Vest Package

Package includes all products shown in chart above, plus those listed below.

1 set	DSTS3A-PAE	Level IIIA Soft Armor Inserts
1	PFY019	front yoke w/ armor
1 set	PSP019	shoulder protectors with armor
1	PGP019	groin protector with armor
1	PCL019	collar with armor

All RAV Vests, Packages and Accessories are available in the following camo patterns/colors:

Universal	
Coyote Brown	
Black	
Smoke Green	

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### RAV Package with Level IIIA Soft Armor Inserts and Hard Armor

Part No.	Description
RMV019-SA-AP	Releasable Assault Vest Package with armor and plates
<i>Package includes all products shown in chart on p. 10, plus those listed below.</i>	
1 set	DSTS3A-PAE Level IIIA Soft Armor Inserts
1	PFY019 front yoke w/ armor
1 set	PSP019 shoulder protectors with armor
1	PGP019 groin protector with armor
1	PCL019 collar with armor
1 set	E-SAPI enhanced small arms protection inserts, hard plates

### Special Tactics Armor Kit

Part No.	Description
STAK019-D	Special Tactics Armor Kit (STAK)
<i>Kit includes all products listed below.</i>	
1	RMV720 STS Cutaway Armor Carrier
1 set	DSTS3A-PAE Level IIIa front and back soft armor
2	E-SAPI Front and back multi hit plates
1	HPC019 Hard plate carrier with cummerbund
1	RCV019 Low profile soft armor holder
2	AFP019-9 Double 9MM magazine pouches
2	ATX077 Triple M4 / .45 / 9MM magazine pouches
4	ADP40MM Double M4 magazine pouches with 40MM pocket
2	ATXSSTS Triple M4 + frag + smoke grenade w/ fastex closure
2	SMC077 SAW drum / 2 Qt. canteen pouches
2	RSQC0817 1 Qt. canteen pouches with no lining
2	FLS019 Strobe light pouches
1	RUL019 Large universal radio pouch
1	NVG019STK NOD pocket strobe pouch
2	GPS019 Small general purpose pouches
2	GPL019 Medium general purpose pouches
1	LCB019 Carry bag

### Soft Armor Inserts ★

Available in Dyneema, Goldflex and Twaron; in outer tactical and concealment cuts.

#### Soft Armor Inserts

Part No.	Description
DSTS3A-PAE	Soft armor inserts, Dyneema
GFX3A-PAE	Soft armor inserts, Goldflex
K3K3A-PAE	Soft armor inserts, Twaron



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## Carriers ★

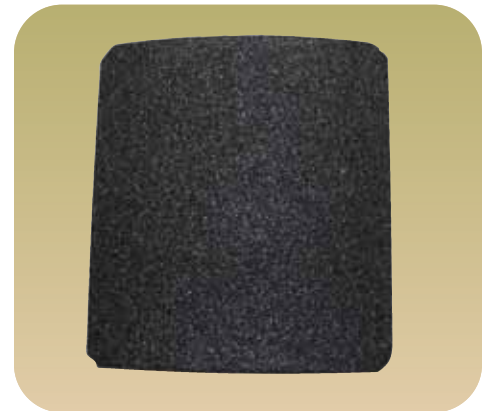
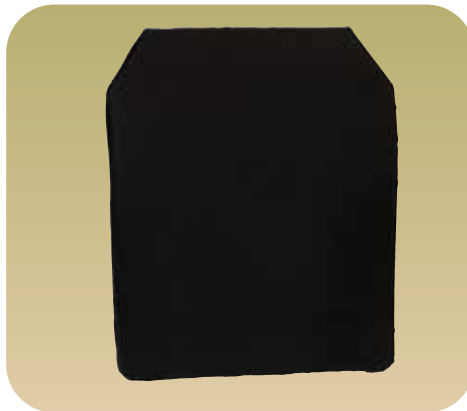


Hard Plate Carrier	
Part No.	Description
HPV019H	Carrier will accept all Paraclete- and Molle-compatible pouches and is designed to carry a single ballistic hard plate in the front and a single hard plate in the back.

Hard Plate Carrier with Cummerbund	
Part No.	Description
HPC019	Carrier will accept all Paraclete- and Molle-compatible pouches and is designed to carry a single ballistic hard plate in the front and a single hard plate in the back. Cummerbund gives added load-carrying capacity.

## Hard Armor ★

Hard plates for ballistic threats are durable and offer concealable and stand-alone options. Available sizes range from small to extra large.



E-SAPI Hard Plate	
Part No.	Description
E-SAPI	Enhanced small arms plate insert. Meets DOD specifications MIL-STD-662 and CO/PD-04-19B.

Stand-Alone Plate, Level IV	
Part No.	Description
TC4C-2092	Tested to NIJ level IV without a soft armor backing

Side Plates, 6 x 6	
Part No.	Description
SHP019	Boron Carbide 6x6 inch single hit API plate. Single curve.

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## Armor Accessories ★



Cummerbund Side Plate Pockets	
Part No.	Description
CSPA019	Allow for 6" x 6" armor package to be used as side protection on hard plate carriers with cummerbund.



Front Yoke (with armor)	
Part No.	Description
PFY019	Throat protection (with armor) for use on RAV or MTV. Goldflex, Dyneema, or Twaron armor available. Built to level IIIA standards.



Ballistic collar (with armor)	
Part No.	Description
PCL019	For use on RAV or MTV. Goldflex, Dyneema, or Twaron armor available. Built to level IIIA standards.



Groin Protector (with armor)	
Part No.	Description
PGP019	For use on RAV or MTV. Goldflex, Dyneema, or Twaron armor available. Built to level IIIA standards.



Shoulder Protectors (with armor)	
Part No.	Description
PSP019	For use on RAV or MTV. Goldflex, Dyneema, or Twaron armor available. Built to level IIIA standards. Sold in sets.



Bicep Protectors (with armor)	
Part No.	Description
BPA019	For use on RAV or MTV. Goldflex, Dyneema, or Twaron armor available. Built to level IIIA standards. Sold in sets.

All Accessories are available in the following camo patterns/colors:							
Universal		Coyote Brown		Black		Smoke Green	



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## Modular Pouches and Pockets ★

Modular pockets and pouches include a patented tactical modular attachment system that negates the need for clips, snaps, plastic tie downs, and cordage. This attachment device is permanently affixed to the equipment assembly, so it cannot be lost or otherwise separated from the pocket, pouch, or holster.

- Simple, durable, flexible and patented strap attachment system
- No secondary fragmentation from metal clips
- No rusting under extreme environmental conditions
- Maintains flexibility in frigid climates
- Molle/Spear compatible



Single Double M16/M4 Magazine Pouch	
<b>Part No.</b>	ADP019
<b>No. and Type of Magazines</b>	(2) 30 round M4/M16 magazines, with hook and pile flap closure
<b>Approx. Dimensions</b>	7.5" x 3.5" x 2" (H x W x D)

Double Double M4/M16 Magazine Pouch	
<b>Part No.</b>	ADD019
<b>No. and Type of Magazines</b>	(4) 30 round M4/M16 magazines, with hook and pile flap closure
<b>Approx. Dimensions</b>	7.3" x 6.3" x 2.5" (H x W x D)

Double Triple M16/M4 Magazine Pouch	
<b>Part No.</b>	ADT019
<b>No. and Type of Magazines</b>	(6) 30 round M4/M16 magazines, with hook and pile flap closure and fastex clips
<b>Approx. Dimensions</b>	7" x 9" x 2" (H x W x D)



Triple M4/M16 Magazine Pouch	
<b>Part No.</b>	ATP019
<b>No. and Type of Magazines</b>	(3) 30 round M4/M16 magazines, open top with retention system—hook and pile front for use underneath cummerbund
<b>Approx. Dimensions</b>	6.50" x 9.75" x 1" (H x W x D)

Triple M4/.45/9mm Magazine Pouch	
<b>Part No.</b>	ATX077
<b>No. and Type of Magazines</b>	(3) double stacked 9mm or .45 magazines and three 30 round M4/M16 magazines, open top on M4/M16 pouch with hook and pile flap closure
<b>Approx. Dimensions</b>	6.75" x 9.5" x 2" (H x W x D)

Single .45 Caliber Magazine Pouch	
<b>Part No.</b>	ASP007-45
<b>No. and Type of Magazines</b>	(1) .45 in-line magazine
<b>Approx. Dimensions</b>	5.75" x 2.5" x 1" (H x W x D)



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Single 9mm Magazine Pouch	
<b>Part No.</b>	ASP007-9
<b>No. and Type of Magazines</b>	(1) 9mm double stack magazine
<b>Approx. Dimensions</b>	5.75" x 2.5" x 1" (H x W x D)

Double .45 Caliber Magazine Pouch	
<b>Part No.</b>	AFP019R-45
<b>No. and Type of Magazines</b>	(2) .45 caliber in-line magazines
<b>Approx. Dimensions</b>	5.5" x 4" x 1" (H x W x D)

Double 9mm Magazine Pouch	
<b>Part No.</b>	AFP019R-9
<b>No. and Type of Magazines</b>	(2) 9mm double stack magazines
<b>Approx. Dimensions</b>	5.5" x 4" x 1" (H x W x D)



Triple .45/9mm Magazine Pouch	
<b>Part No.</b>	AFP3019
<b>No. and Type of Magazines</b>	(3) .45 or 9mm double stack magazines
<b>Approx. Dimensions</b>	6" x 5.5" x 1" (H x W x D)

Quad .45 Caliber Magazine Pouch	
<b>Part No.</b>	AQP019-45
<b>No. and Type of Magazines</b>	(4) .45 caliber in-line magazines
<b>Approx. Dimensions</b>	5.75" x 6.75" x .75" (H x W x D)

Quad 9mm Magazine Pouch	
<b>Part No.</b>	AQP019-9
<b>No. and Type of Magazines</b>	(4) 9mm double stack magazines
<b>Approx. Dimensions</b>	5.75" x 6.75" x .75" (H x W x D)

All Accessories are available in the following camo patterns/colors:							
Universal		Coyote Brown		Black		Smoke Green	

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Grenade Pouch	
<b>Part No.</b>	AGL019
<b>No. and Type of Magazines</b>	(2) 40mm grenades with additional fastex closure
<b>Approx. Dimensions</b>	5.5" x 5.25" x 1.5" (H x W x D)



Double UMP .45 Caliber Magazine Pouch	
<b>Part No.</b>	UMP045
<b>No. and Type of Magazines</b>	(2) double stack UMP .45 Caliber magazines
<b>Approx. Dimensions</b>	11" x 4.5" x 2" (H x W x D)



Double SR-25 Magazine Pouch	
<b>Part No.</b>	ASR019
<b>No. and Type of Magazines</b>	(2) 20 round 7.62 NATO SR-25 box magazines
<b>Approx. Dimensions</b>	6.5" x 4" x 2.5" (H x W x D)



Saw Drum/2-Quart Canteen Pouch	
<b>Part No.</b>	SMC077
<b>No. and Type of Magazines</b>	holds 1 2-quart canteen or saw drum magazine with side-release buckle
<b>Approx. Dimensions</b>	8" x 6.5" x 3.55" (H x W x D)



Horizontal Mounted Quad M4 Magazine Pouch	
<b>Part No.</b>	RSHM0814-L (left opening) RSHM0814-R (right opening)
<b>No. and Type of Magazines</b>	(4) 30 rounds M4/M16 magazines
<b>Approx. Dimensions</b>	9.75" x 7.5" x 2" (H x W x D)



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All Accessories are available in the following camo patterns/colors:

Universal		Coyote Brown		Black		Smoke Green	
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### ACU Uniform

Comes in 50/50 Nylon/Cotton blend or 100% Cotton. The following is the newest design as a result of input from the battlefield: Hip pockets replaced by sleeve pockets; No Zipper; Chest pockets slanted outward for access under body armor; Padded and removable foam elbow and knee pads; Tapered collar with hook and pile closure for airborne operations; Traditional button or hook and pile front. Available in Small, Medium, Large and X-large. Please specify short or regular/long. Top and bottom can be ordered separately.

ACU Uniform	
Part No.	Description
SOFACU-S	ACU Uniform

Radio Pouch MBITR	
<b>Part No.</b>	RLC019R
<b>Description</b>	Designed specifically for MBITR radio. Features 6 elastic loops for chem-light and small flashlight pouch. Easy attachment using patented strap attachment system. MOLLE and SPEAR compatible.
<b>Approx. Dimensions</b>	7" x 4.5" x 1.5" (H x W x D)



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## MICH™ (Modular Integrated Communication Headset) Communication Systems ★

U.S. Special Forces were first to wear MSA's new durable MICH Communication Systems under their Advanced Combat Helmets (ACH) in theater. Now, you can wear MSA's MICH systems either as a stand-alone headset or under MSA's ACH.

Your MICH system will protect your hearing while enabling clear radio/intercom communications and situational awareness, including these benefits:

- Noise-cancelling boom microphone assembly, or unobtrusive bone-conduction microphone/ sound transmission system to interface with various radio transceivers and intercom systems
- A high-noise headset for areas where weapons may be fired, provides hearing protection above 82 dB (an NRR of 22), and amplification of ambient noise below 82 dB (situational awareness)
- Functional with gloved hands
- Interfaces well with MSA's ACH, Millennium® CBRN and M40 gas mask, and eyewear
- Military-spec construction
- Lightweight, comfortable, and easy to use
- Superior hearing protection and amplification
- Hands-free monitoring



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**MSA's ACH + MICH System = Unsurpassed protection, optimum balance, unshakable stability, crucial communication, lightweight comfort**

### MICH Communications Gen I

#### MICH Communications Gen I — Headsets and Accessories

Part No.	Description
154002A	Standard high-noise headset with bone microphone
154018A	High-noise headset with MBITR maritime connector and boom microphone
154003A	Low-noise headset with headband and helmet retention clip (complete pair)
10049078	High-Noise Headset, Maritime, with boom microphone
10049079	High-Noise Headset, Maritime, with boom microphone and quick-disconnect
10049802	High-Noise Headset, with boom microphone and quick-disconnect
10050545	Stand-alone (no radio connector) Hearing Protection Headset
10050642	Headset with aviation-style boom microphone with Lemo breakaway connector and headband, Air Force
10050643	Headset with aviation-style boom microphone with U-93 connector and headband, Air Force
<b>Accessories</b>	
160008A	Headband
154008A	Hygiene kit (ea. kit includes full set of spare ear cups & foam inserts (both rings and disks))



High Noise Headset with boom microphone and quick-disconnect

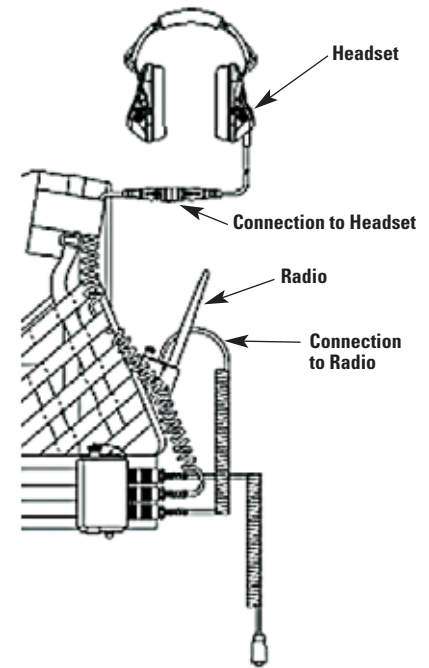
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## MICH Communications Gen I — Dual-Communication System and Accessories

Part No.	Description
340003A	MICH Dual-Communication System
<b>Accessories</b>	
154014A	MBITR Maritime Cable
154010A	MBITR Land Cable
154009A	ICOM Army Cable
154011A	Motorola Saber Cable
154015A	MH/AH-6, MH-60K/L, MH-47D/E, MH-53 & MC-130 Aircraft Two-Prong TP-106 Intercom Cable
154016A	MH/AH-6, MH-60K/L, MH-53 & MC-130 Aircraft Single-Prong U-93 Intercom Cable
10047582	Motorola Astro® XTS™ Cable
340014A	Light Vehicle Intercom System Cable
340013A	Light Vehicle Intercom System Extension Box
154004A	Cable Assembly with Lemo Plug for connection of headsets to impedance box
154005A	Remote ring finger push-to-talk with cable
154006A	Printed circuits for impedance matching box
154009A	Coil cable (7" coiled to 21" extended) with std military 6-pin connector for the ICOM army soldier intercom system
154010A	Coil cable (7" coiled to 21" extended) with std military 6-pin connector for the MBITR (land) PRC family, PSC-5, LST-5, MST-20 and std GMV ATSOV vehicle intercom/radios
154011A	Coil cable (7" coiled to 21" extended) with std military 6-pin connector for the SABER radio system
154012A	Coil cable (7" coiled to 21" extended) with std military 6-pin connector for the impulse with 6-pin connector for the MK-V, NSW rib boat intercom systems
154014A	Coil cable (7" coiled to 21" extended) with std military 6-pin connector for the impulse 10-pin waterproof connector (MBITR maritime cable)
154015A	Coil cable (15" coiled to 36" extended) with std military 6-pin connector to a connector for the MH/AH-6, MH-60K/L, MH-47D/E, MH-53 & MC-130 aircraft radios/intercoms [aircraft intercom types are Palomar Aircraft Intercom Series (AIC): 18, 25, 30(V)2, 33, 38, 40, & the C-11746( i.e., TP-106)
154016A	Coil cable (15" coiled to 36" extended) with std military 6-pin connector to a connector for the MH/AH-6, MH-60K/L, MH-53 & MC-130 aircraft radios/intercoms [Aircraft Intercom Series (AIC): 18, 25, 30(V)2, 33, 40, & the C-11746(V)4] (i.e., NEXUS U-93).
10047582	Coil Cable (7" coiled to 21" extended) w/Motorola connector for Motorola XTS family radios
10050092	Coil Cable (15" coiled to 36" extended) w/standard military 6-pin connector to Nexus AP-107 connector for VIC 1, 2, or intercom
340009A	Complete Impedance Matching Box to include cable assembly w/Lemo Plug & remote ring finger PTT w/cable
340010A	Right hand Impedance Matching Box Pocket
340011A	Left hand Impedance Matching Box Pocket
340012A	Headband Cover with high-noise mic flap
340013A	LVIS Extension Box
340014A	LVIS connector to 6-pin military connector w/cable
590028A	Impedance Matching Metal Box
340008A	Spare Parts Kit for Dual Communications System
154005A	Remote ring finger push-to-talk with cable



Dual-Communication System



Single-Communication System

## MICH Communications Gen I — Single-Com System and Accessories

Part No.	Description
10043356	ICOM Single-Communication System
10043358	MBITR Maritime Single-Communication System
10043357	MBITR Land Single-Communication System
10047078	Motorola Astro® XTS™ Single-Communication System

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## MICH Communications Ranger System ★

MICH Communications Ranger Systems	
Part No.	Description
Ranger Systems	
Dual-Comm Kits	
10056619	Dual-comm kit, right-mount mic, configuration #APRC1G280
10056620	Dual-comm kit, left-mount mic, configuration #APRC2G280
Single-Comm Kits	
10056622	Single-comm kit, right-mount mic, configuration #APRC3F280
10056623	Single-comm kit, left-mount mic, configuration #APRC4F280
Headsets	
10053550	Headset, Single Comm, High-Noise Headset-Mic on Left
10053611	Headset, Single Comm, High-Noise Headset-Mic on Right
10053612	Headset, Dual Comm, High-Noise Headset- Mic on Left
10053613	Headset, Dual Comm, High-Noise Headset- Mic on Right
PTTs and Accessories	
10053291	Cable, PRC (MBITR land) straight, 14-inch
10053280	Cable, ICOM, straight, 14-inch
10054233	Cable, PRC (MBITR land) coiled, 8-foot (extended)
160010A	Pad, Oblong #6 for ACH ballistic shell
101014A	Velcro Disc Kit for ACH ballistic shell
10054739	Green carrying pouch for MICH PRC Kit



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## Electronic Hearing Protection ★

With over 40 years of experience, MSA now offers hearing protection with built-in electronics. They are comfortable hearing protectors, designed to prevent you from feeling isolated, thereby encouraging you to use them and protecting your hearing. Noise Reduction Rating (NRR) is third-party certified in accordance with ANSI S3.19-1974 and EN352-3. Also meets CSA Z94.2.

### Supreme Pro Headband Model (NRR 18dB)

Our top model. Provides optimum protection with high amplification, AUX input and watertight battery compartment. Both earmuffs are shaped to suit both right-handed and left-handed shots.

- Two separate, well-shielded microphones for optimum stereo effect and location of sound direction
- High amplification and natural sound reproduction without “chopping”
- Around 600 hours battery life with two standard AAA batteries
- AUX input for connecting external audio sources, such as a radio. Lead with 3.5 mm mono jack plug included.



Supreme Pro	
Part No.	Description
10061285	Supreme Pro headband model (NRR – 18dB)
10061294	Hygiene Kit



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## Sun, Wind and Dust Goggles ★

Protect your eyes comfortably with the Sun, Wind & Dust Goggles from MSA. The goggles feature a soft rubber frame with snap-in polycarbonate clear, tinted and laser-protective lenses.



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Sun, Wind and Dust Goggles	
Part No.	Description
306805	Sun, Wind and Dust Goggle, clear lens
306813	Clear Lens
306814	Gray Lens
306815	Laser-Protective Lens, green (52)
306816	Laser-Protective Lens, brown (53)

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## MCU-2/P Chemical-Biological Mask ★

When the United States Air Force has a risk of chemical warfare attack, it needs respiratory protection, it turns to MSA for the reliability—and durability—of the MCU-2/P Chemical-Biological Mask. The MCU-2/P Mask has proven to be the respirator of choice for the Air Force as well as other U.S. Government agencies, including the U.S. Navy, the Federal Bureau of Investigation (FBI) and the Coast Guard, to name a few.

MCU-2/P Mask is available in small, medium and large sizes to accommodate a wide range of respirator users. It uses the ESP II Communications System (optional).

The MCU-2/P Mask is shipped complete with a drinking tube and an internal nosecup that deflects exhaled air away from the eyepiece to eliminate fogging. Accessories include clear outsert, tinted outsert, laser-protective outsert, durable carrier and butyl hood.

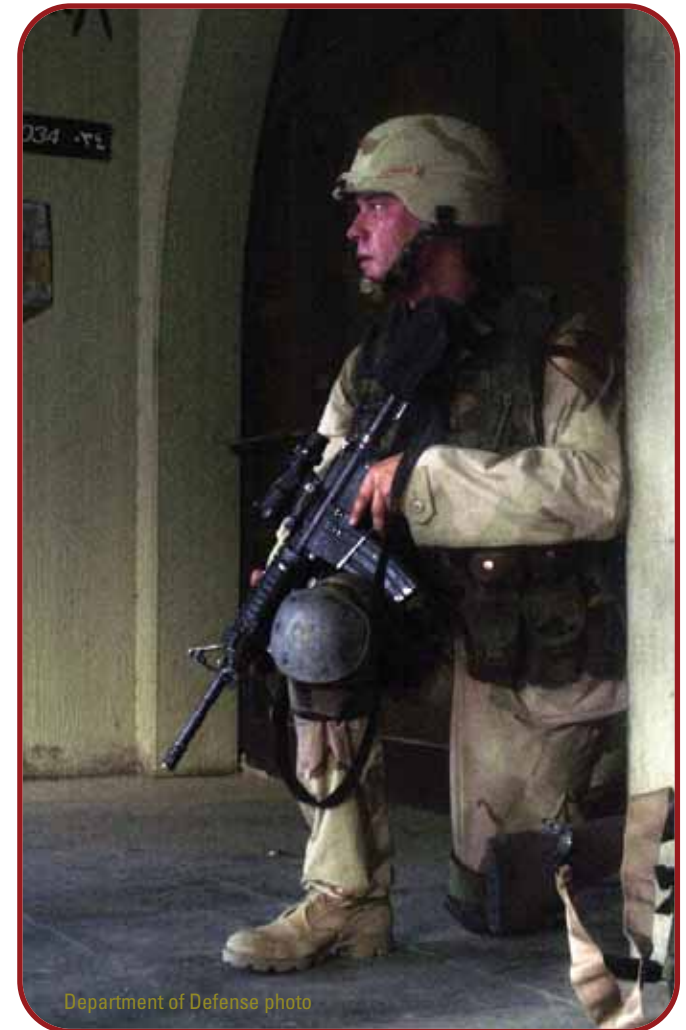


### MCU-2/P Chemical-Biological Mask

Part No.	Description
305530	MCU-2/P Mask, grey (small)
305531	MCU-2/P Mask, grey (medium)
305532	MCU-2/P Mask, grey (large)

### Accessories

Part No.	Description
816137	Prescription spectacle kit
305131	Tinted outsert assembly (small)
305132	Tinted outsert assembly (medium/large)
306666	Laser outsert assembly, 2 band (small)
306668	Laser outsert assembly, 2 band (medium/large)
306667	Laser outsert assembly, 3 band (small)
306669	Laser outsert assembly, 3 band (medium/large)
10026265	ESP® II Communications System
305022	NBC Hood
305023	Carrier
305026	Clear Outsert (small)
305027	Clear Outsert (medium/large)



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## Responder™ PAPR (Powered Air-Purifying Respirator) ★

A belt-mounted powered air-purifying respirator with choice of 2 proven tight-fitting facepieces in 3 sizes. The motor/blower provides constant air flow of a minimum 115 lpm to the facepiece via the breathing tube. Can be used with cartridge designed to meet upcoming NIOSH CBRN PAPR requirements or with the OptiFilter® XL or PAPR GME Multigas HE cartridge for tactical operations.

- Protects wearers for up to 8 hours under many hazardous conditions
- Passed MSA developmental tests against live chemical warfare agent as proposed by the recently published PAPR CBRN standard
- Choice of 2 proven positive-pressure facepieces, the MSA Millennium and the MSA Ultra Elite
- Choice of CBRN cartridge (pending approval) or multi-gas / particulate chemical cartridges for non-CBRN use

MSA's C420 PAPR system is ideal for military and special operations personnel who need non-IDLH respiratory protection for an extended period of time.

Industry trusted, with over 50,000 C420's fielded in various U.S. military programs, the C420 Motor-Blower is ideal for filtering contaminants from ambient air and providing a constant airflow of at least 115 lpm to the user's facepiece, providing a twenty times greater OSHA assigned protection factor than APR, due to positive pressure in the mask.

The C420 is available with 2 batteries that have the ability to be "hot-swapped" during warm environment use. The Lithium-Sulfur Dioxide mission battery has an 8 hour run-time. The Nickel Metal Hydride rechargeable battery has a 4 hour run-time. The motor / blower will not interfere with radio communications as it is EMI shielded to MIL-STD-461C.

The C420 comes complete with the motor-blower, belt, airflow indicator and breathing tube.



C420 PAPR with Millennium Facepiece and CBRN cartridges



C420 PAPR with Ultra Elite Facepiece and multigas cartridges

### Accessories for C420 PAPR

Part No.	Description
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	LiSO <sub>2</sub> Mission Battery
B-30060-001	NiMH Rechargeable Battery Cap Assembly
S-30019	Web Belt Assembly
B-10079-001	PAPR Carrying Case

#### About the CBRN PAPR Standard

NIOSH released a CBRN standard for powered air-purifying respirators (PAPRs) in October 2006. NIOSH will conduct product testing and issue approvals to manufacturers' respirators that pass the NIOSH requirements, expected early in 2007.

C420 PAPR					
You must choose C420 PAPR Kit, facepiece, and cartridge for complete system.					
Part No.	Description				
C420 PAPR Kits (less facepiece and cartridge)					
B-60141-030	C420 PAPR Kit with 30" Breathing Tube				
B-60141-036	C420 PAPR Kit with 36" Breathing Tube				
Gas Mask Facepieces with Head Harness (less cartridge)					
Facepiece	Material	Head Harness	Size		
			Small	Medium	Large
Millennium	Hycar	6-point elastic	10051286	10051287	10051288
Ultra Elite	Hycar	rubber	10052776	10052781	10052778
Ultra Elite	Hycar	Speed-ON	10052780	10052779	10052777
Cartridges					
Part No.	Description				
10071055	PAPR Responder* cartridge, each				
496081	OptiFilter XL cartridge, 6 pack				
10072237	PAPR GME Multigas HE cartridge, each				

\*Designed to meet upcoming NIOSH CBRN PAPR Requirements.

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## Millennium® Facepiece

- Flexible, 1-piece polyurethane lens with wide field of vision is bonded to durable Hycar rubber facepiece.
- Dual-breathing tube mount allows weapon sighting from either shoulder
- Drinking tube provides connection for fluid ingestion in uncontaminated atmospheres
- Fully elastic, 6-point head harness promotes easy on/off and adjustment, with no hair pulling
- Internal nose cup with 2 check valves, deflects air from the lens, reduces fogging
- Standard mechanical speaking diaphragm included, or add MSA's optional ESP® II Communications System
- Optional butyl-coated nylon hood for total head protection



## Ultra Elite® Hycar Facepiece

- Large lens with 83% unimpeded vision
- Centrally located inlet port for secure, comfortable fit and feel
- Centrally located mechanical speaking diaphragm for clear communications
- Optional ClearCommand® Amplifier for increased communication capabilities
- Available with a 5-point rubber or Speed-ON® head harness



### Accessories for Ultra Elite Facepiece

Part No.	Description
<b>ClearCommand</b>	
10024074	Amp
10051290	Amp / RI
10023055	Bracket Only
305022	Butyl Hood
<b>Cover Lens</b>	
491500	Clear
805456	Tinted
804638	Spectacle Kit

### Accessories for Millennium Facepiece

Part No.	Description
10026265	ESPII Communications System
305022	Butyl Coated Nylon Hood
10034184	Gas Mask Pouch
816137	Spectacle Kit
<b>Cover Lens</b>	
10008907	Clear, Small
10008906	Clear, Medium/Large
10008909	Tinted, Small
10008908	Tinted, Medium/Large

### Storage Device for Facepieces

Part No.	Description
D2056734	Hard Case
10034184	Pouch

### Other Accessories

Part No.	Description
697444	Bitrex Qualitative Fit Test Kit
10009971	MSA Confidence Plus Germicidal Cleaner, in 32 oz. bottle



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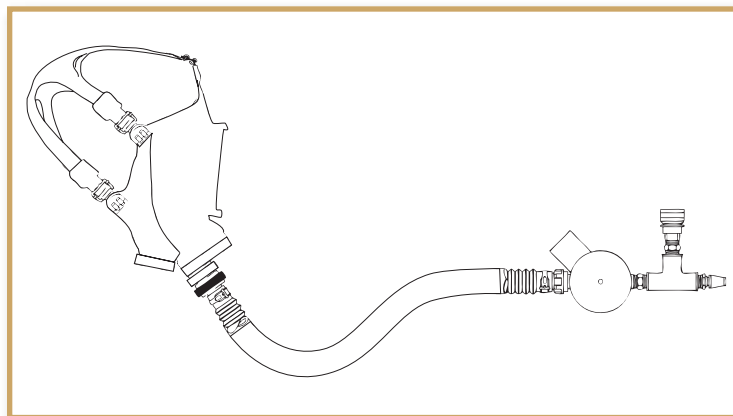
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## Demand Respirator for Confined Spaces ★

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.



### Demand Respirator

Part No.	Description
95021	Demand Respirator with buddy connector



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## FireHawk® Air Mask with CBRN Protection ★

MSA has you protected with the latest enhancements to our FireHawk Air Mask, the fire service's FIRST NFPA 1981-2002 edition, NIOSH-approved CBRN self-contained breathing apparatus.

MSA's new FireHawk CBRN SCBA was developed to provide you with positive protection from CBRN agents, according to the stringent live-agent test regimen of the NIOSH approval process. Because conventional silicone diaphragms are among the SCBA components most vulnerable to CBRN agent permeation, our positive-protection design seals the new diaphragm of the Firehawk® regulator from any initial contact with contaminants.

The key to this protection are these revolutionary components, which lie within the CBRN version of the second-stage regulator:

- MSA's exclusive Tetraplex™ Protective Shield (patent pending).
- A permeation-resistant regulator diaphragm made of a proprietary rubber compound.
- A modified valve core body (the engine of the regulator).

These components, plus one of the industry's best-fitting facepieces, MSA's Ultra Elite® Facepiece, ensure reliable and effective respiratory protection not only from agents that might be used in a terrorist attack, but also from many of the lethal byproducts of combustion that



are encountered in everyday firefighting. Chemical plants, nuclear facilities, laboratories, and other industries harbor unknown and life-threatening environments that you might have to face. With MSA's CBRN FireHawk Air Mask, you can be positive you are protected.

## FireHawk® Air Mask (Self-Contained Breathing Apparatus - SCBA) ★

### Safety

- MSA's **exclusive Quick-Fill® System** makes every SCBA capable of both receiving and donating air to firefighters in need. Although the NFPA standard requires all brands of SCBA to incorporate the RIC connection, only the MSA Air Mask can make full utilization of the fitting with our exclusive transfilling capability.
- An NFPA-compliant emergency egress system, integral to the SCBA waist belt, is available as an option. This **Rescue Belt** comes complete with Kevlar line (50 ft. or 75 ft.) and rappelling hardware.
- The all new **Airframe™ Carrier and Harness** comes standard, with large side handles and a central attachment point for pulling firefighters to safety in rescue scenarios.
- MSA's Ultra Elite® Facepiece is designed with a **one-way check valve** to prevent cross-contamination. Although regulators are shared among users, harmful pathogens (SARS, hepatitis, flu virus) are kept within each individual-issue facepiece.
- **Wireless electronics** add safety benefits by eliminating snag hazards that can accompany unnecessary wires on an SCBA.

### Simplicity

- An optional **swiveling lumbar pad** for maximum freedom of movement and comfort when crawling or climbing.
- A **slide-to-connect** or **push-to-connect** regulator attachment to meet the widest range of your preferences.
- Modular **"stand alone" electronic components** for easy maintenance, with no wires to route and no complicated mounting brackets.
- A maintenance policy that delivers the **lowest possible cost of ownership**, based on the frequency of use of the Air Mask. For many departments, this means only conducting an annual flow test according to the NFPA 1852 standard. Even a busy department using one cylinder every other day would find the cost of maintaining an SCBA to be less than \$7 per year.
- State-of-the-art regulator designs that have among the **fewest number of parts** in the industry. The Firehawk regulator requires no tools, lubricants, or sealants in its maintenance.
- **NFPA and CBRN upgrade kits** to help users meet the most current performance standards.

### Reliability

- **In-house manufacturing** of nearly every pneumatic, electronic, and structural component of the Air Mask to ensure optimal quality and performance.
- Use of the **highest quality** and grades of stainless steel and aluminum with select blends of Kevlar, rubber, and plastic molding compounds for the highest strength and durability.
- A "best-in-class" service network with **over 2,000 certified repair facilities** and a team of service specialists, committed to resolving customer issues any time, anywhere, all backed by a lifetime warranty.

### Assemble-To-Order System

MSA's Assemble-To-Order System (ATO) will make ordering the right mask easier and faster than ever. Instead of choosing from a handful of complete Air Mask assemblies, users can order a custom-made Air Mask with every option exactly as desired. See ATO chart on p. 27 and contact the MSA Customer Service Center for details.

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## FireHAWK<sup>®</sup> Air Mask

**CBRN Compliant FireHawk<sup>®</sup> Air Mask**  
(NFPA 1981-2002 edition compliant, NIOSH 42 CFR Part 84 CBRN certified)

SCBA Type	Carrier/Harness Assembly	Lumbar Pad/Rescue Belt†	Cylinder	MMR Regulator Type	Air-Line Options	Emergency Breathing System	Facepiece	Nosecup	Head Harness	Communications	Gauge/Integrated PASS	Case	
UM 2216 FireHawk Air Mask	A Airframe Single Pull without Chest Strap	0 None	0 None	N CBRN Firehawk STC, Threaded, Solid Cover	0 None	0 None	A None	0 None	0 None	A Standard Speaking Diaphragm	A None	0 None	
	B Airframe Double Pull without Chest Strap	1 Lumbar Pad	1 3AL Aluminum	Q CBRN Firehawk STC, QC, Solid Cover		1 Quick-Fill Shoulder Mounted*	B Ultra Elite Hycar, Small	1 Medium	2 Speed-ON less Neckstrap	B Clear-Command Ready	B Pressure Gauge	1 Hard Case	
	C Airframe Single Pull with Chest Strap	2 Swiveling Lumbar Pad	2 Hoop-Wound	R CBRN Firehawk PTC, Threaded, Solid Cover		3 ExtendAire (EBS) with Dual Quick-Connect	C Ultra Elite Hycar, Medium	2 Large	4 Speed-ON with Neckstrap	C Clear-Command AMP	C ICM Tx with Heat Sensor	2 Soft Case	
	D Airframe Double Pull with Chest Strap	A Rescue Belt, Standard 50"	3 30" Carbon	S CBRN Firehawk PTC, QC, Solid Cover		4 Shoulder Mounted Quick-Fill & ExtendAire (EBS) with Dual Quick-Connect*	D Ultra Elite Hycar, Large			D Clear-Command AMP/RI (Less PTT)	D ICM Tx without Heat Sensor		
MM 3000 FireHawk Air Mask	Options A & C can only be chosen if either a rescue belt or an air-line option is selected.	E Swiveling Rescue Belt, Standard 50"	4 3AL Aluminum less Air										
		F Swiveling Rescue Belt, Standard 75"	5 Hoop-Wound less Air										
CM 4500 FireHawk Air Mask		G Swiveling Rescue Belt, Long 75"	6 30" Carbon less Air										
		H Swiveling Rescue Belt, Long 75"	7 45" Carbon Low-Profile less Air										
		If choosing a rescue belt, the carrier/harness assembly must be a single pull (options A or C).	8 60" Carbon less Air										
								*Note: Standard Rescue Belt fits waist sizes up to 54 inches. Long Rescue Belt fits waist sizes up to 74 inches.					

K- 



  
Part Number

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## Safe Escape™ CBRN Respirators ★

When escaping from CBRN agents, every second counts. Depend on the Safe Escape Hood from MSA. The hood gives your employees the protection they need to escape from a terrorist situation safely, quickly, and easily — whether they work in high-profile office environments, for government agencies or embassies, or as law enforcement or first responders. The MSA Safe Escape Hood is the equipment of choice for today's diverse workforce.

### Engineered for Maximum Performance

Manufactured with a high-performance laminate material, the hood is designed to provide you with the latest in head and neck coverage with respiratory protection against CBRN agents. The soft, high-stretch rubber neck seal conforms to irregular neck contours, allowing a secure fit on a wide variety of users. Its unique sized nosecup helps reduce lens fogging and carbon dioxide buildup by directing air flow inside the hood.

The Safe Escape Hood canister features a high-efficiency particulate filter and activated carbon to combat aerosols, gases, and vapors. In fact, the canister used in the hood contains 50% more carbon than similar canisters used by the U.S. military. Furthermore, MSA has performed extensive testing on the Safe Escape Hood against both simulated and live chemical agents—beyond what is tested by NIOSH.



Hextreame Case

### Designed for Comfort

In addition to designing the hood for maximum protection, MSA also took into account the comfort factor. A user who is potentially under stress requires ease of donning and use. The large lens and translucent hood allow better visibility, face recognition, and minimal claustrophobia. The nose cup allows communication superior to that of conventional devices, which require wearers to breathe through a mouth bit. With the integrated nose cup, wearers can breathe and speak normally to provide potentially life-saving communications. The hood also features cradle-type self-adjusting head straps that allow for quick, no-assistance donning in the event of an emergency.



Department of Defense photo

### Canister Test Challenge and Test Breakthrough Concentrations

Agent	Test Concentration	NIOSH CBRN Allowable Breakthrough	Safe Escape Average Breakthrough Time
HD-Vapor	50 mg/m <sup>3</sup>	0.6 mg/m <sup>3</sup>	> 45 min.
GB	210 mg/m <sup>3</sup>	0.087 mg/m <sup>3</sup>	> 45 min.
Ammonia	1250 ppm	25 ppm	> 40 min.
Cyanogen chloride	150 ppm	2 ppm	> 30 min.
Cyclohexane	1300 ppm	10 ppm	> 40 min.
Formaldehyde	250 ppm	1 ppm	> 120 min.
Hydrogen cyanide	470 ppm	4.7* ppm	> 200 min.
Hydrogen sulfide	500 ppm	5 ppm	> 200 min.
Nitrogen dioxide	100 ppm	1 ppm NO <sub>2</sub>	> 50 min.
Phosgene	125 ppm	1.25 ppm	> 450 min.
Phosphine	150 ppm	0.5 ppm	> 290 min.
Sulfur dioxide	750 ppm	5 ppm	> 30 min.

\* Sum of HCN and C<sub>2</sub>N<sub>2</sub>

### Safe Escape Respirators (Universal Size)

Part No.	Description
10073702	Safe Escape Respirator in Hextreame Case, standard
10073923	Safe Escape Respirator in Hextreame Case, tactical version
10073703	Trainer version of Safe Escape Respirator

**Note:** The only difference between the standard version and tactical version is the outer labeling on the hextreame case.

### Accessories

Part No.	Description
10068310	Optional carrying straps and harness kit

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## General Harness Information ★

A fall arrest system must always include a full body harness and means of connection between the harness and a qualified anchorage point or anchorage connector. Such connecting means may consist of a lanyard, energy (shock) absorber, fall arrester (rope grab), lifeline, self-retracting lanyard, or qualified combinations of these.

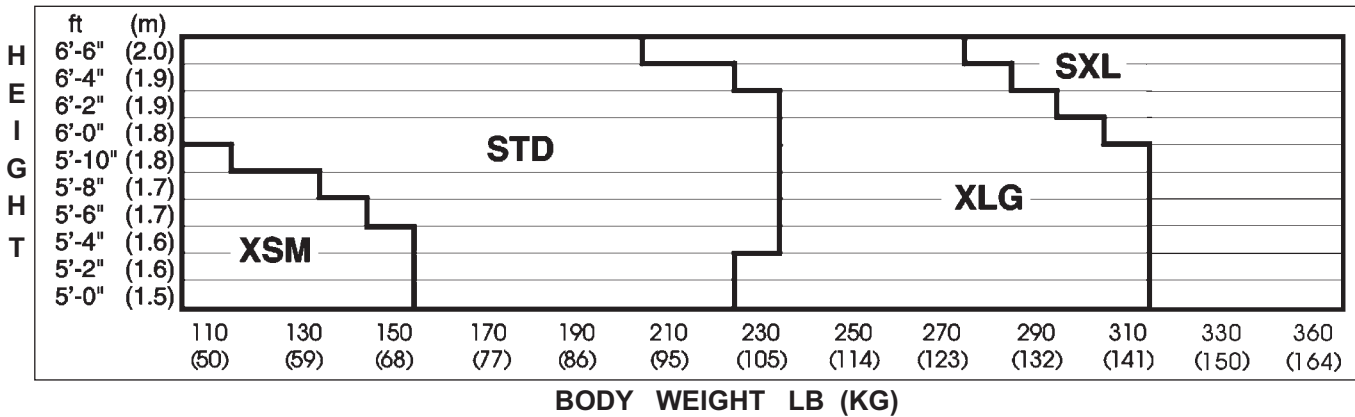
### Product Sizing

Most harnesses listed in this catalog are Standard (STD) Size. Other sizes are available for weight capacities up to 360 lbs.\* Custom harnesses are available up to a 400 lb weight capacity at no additional charge (custom harnesses with weight capacities of 361–400 lbs are priced at the SXL harness size).

\*360 lb weight capacity applies to size SXL harnesses and excludes all Gravity Harnesses and Derrick Harnesses. Gravity and Derrick harnesses must be custom ordered for weight capacities above 310 lbs. When ordering a harness for a worker exceeding 310 lbs, a custom shock-absorbing lanyard, designed for the weight of the individual, must also be ordered.

### Why do we have harness sizes?

Universal or One-Size-Fits-All harnesses do not offer proper fit for all users. We offer different size harnesses to provide you with the best possible fit, and optimum safety and comfort. If you have any questions on selecting the proper harness size, please contact our Fall Protection Technical Hotline at 1-888-421-8324.



## Harnesses ★

### Gravity™ Cross-Over Harness

The Gravity Cross-Over Harness is a multi-purpose full body harness. The unique cross-over design allows for adjustment of both the back and chest D-rings. The harness is suitable for controlled descent, positioning, ladder climbing, rescue, and fall arrest. Available in nylon, polyester, and reflective nylon. Meets ANSI Z359.1 and OSHA standards, and is CSA certified.

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#### Gravity Crossover Harnesses

Harnesses are made of nylon and feature tongue buckle-style leg straps.

Part No.	D-Rings				Size
	Back	Hip	Chest	Shoulder	
10067411	1	2	1	2	Standard
10067414	1	2	1	2	X-Small
10067415	1	2	1	2	X-Large
10067416	1	2	1	2	Super X-Large



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## TechnaCurv™ Full Body Harness

The TechnaCurv Full Body Harness offer many features never before seen in a full body harness:

- Curvilinear Comfort System, which features (1) *curvilinear torso webbing*— a patent-pending process curves the webbing around the neck area to help prevent chafing and discomfort on the neck that can be caused by some standard harnesses and (2) an *adjustable back D-locator pad* for complete adjustment of the back D-ring to provide proper harness fit and additional comfort.
- Available Visco-Elastic Shoulder padding, developed by NASA, does not have memory and will not break down over time, while Sorbtek™ fabric on shoulder pads helps keep moisture away from the body.
- Meets ANSI Z359.1, all applicable OSHA regulations, and is CSA certified.



### Technacurve Full Body Harness

Part No.	Description
10041591	Technacurv Harness, with 1 back D-Ring
10041595	Technacurv Harness, with 1 back D-Ring, 2 hip D-Rings
10041599	Technacurv Harness, with 1 back D-Ring and shoulder padding

## Gravity™ Rigger/Rescue Harness

The Gravity Rigger/Rescue Harness is designed to be used for most work applications that require a full body harness. The harness incorporates a sit harness design which allows the user a much higher degree of comfort while in the sit position. The Gravity Rigger/Rescue Harness is suitable for rappelling/control descent, positioning, ladder climbing, rescue, and fall arrest. Meets ANSI Z 359.1 and applicable OSHA standards, and is CSA certified.



### Gravity Rigger/Rescue Harness

Part No.	Description
SSH60930001	Gravity Riggers Harness, black polyester webbing, cross-over design, integral belt

Additional sizes available. See Sizing Chart on previous page.

## Tactical™ Harness

The Tactical Harness has the same great features as the Classic Pullover Harness including easy donning and doffing, great comfort, and sub-pelvic support. Available with tongue buckle leg straps, the Tactical Harness has many additional features including waist level rescue loop. Other features include:

- Black webbing to decrease visibility
- Grey stitching for easy inspection
- Black vinyl coated hardware connection points (back D-ring, chest D-ring, hip D-rings, and tongue buckles on leg straps) for sound deadening
- Wide sub-pelvic straps for improved comfort in suspension
- Rescue loop for controlled upright and inverted descents
- Meets ANSI ANSI Z 359.1, and applicable OSHA standards
- CSA certified

### Tactical Harness

Part No.	Description
10021371	Tactical Harness, Standard size
10021373	Tactical Harness, X-Large size

Additional sizes available. See Sizing Chart on previous page.

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## Arc Flash Protection Products ★

### ArcSafe™ Harness

The ArcSafe harness is SEI-certified to the requirements of the ASTM F887-05 standard for arc flash protection up to 40 cal/cm<sup>2</sup> and is designed to meet the needs of utility and maintenance workers.

#### Additional features

*For safety:*

- Nylon web loop attachment points
- Reduce overall harness weight
- Reduce metallic components
- Meets all applicable OSHA regulations and ANSI Z359.1 & A10.32 standards
- Certified to CSA Z259.10-M90 classes A, D, L, P

*For versatility & comfort:*

- Y-shaped back web loop locator pad
- Allows for effortless adjustment of the back web loop
- Provides comfort by moving the webbing away from the wearer's neck
- Color-coded torso straps to simplify donning
- Downward-adjusting torso straps to ease adjustment



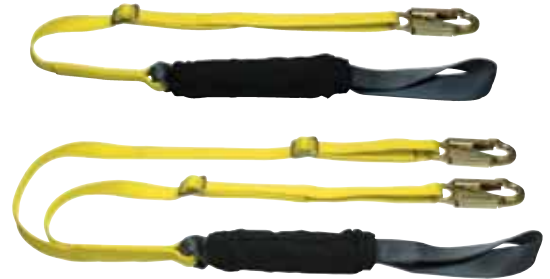
Front attachment loops can be tucked away when not in use

ArcSafe Harness				
Part No.	Size	Style	Leg Buckles	Attachment Points
10070463	Std	Chest-Style	Tongue	Hip, Front
10060110	Std	Chest-Style	Qwik-Fit	Front
10070431	Std	Vest-Style	Qwik-Fit	—
10070427	Std	Vest-Style	Tongue	—

### ArcSafe™ Shock-Absorbing Lanyard

The ArcSafe shock-absorbing lanyard is SEI-certified to the requirements of the ASTM F887-05 standard for electrical arc flash protection up to 40 cal/cm<sup>2</sup>.

- Limits fall arrest forces to 900 lbf or less
- Constructed of nylon webbing
- Includes sewn loop on shock-absorber end, and LS snaphook on lanyard leg
- Incorporates a protective cover over the shock-absorber
- Adjustable in length



ArcSafe Shock-Absorbing Lanyard				
Part No.	Harness Connection	Anchorage Connection	Twin	Single
10060139	Sewn Loop	LS Snap Hook		X
10060140	Sewn Loop	(2) LS SNAp Hooks	X	

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## Lanyards ★

### FP Diamond™ Shock-Absorbing Expanyard

- Durable polyester sheath for increased abrasion and UV resistance
- Keeps fall arrest forces below 900 lbf
- Highly visible deployment tag
- Pouchless design
- Comfortable to wear, lightweight
- Meets OSHA regulations, ANSI Z359.1, and is CSA certified.
- Elastic design reduces trip hazards and snag hazards
- Contracts to 4.5'



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### FP5K™ Tie-Back™ Shock-Absorbing Lanyard

- Uses the FP5K Carabiner,
  - 5000-pound gate strength in any direction allows the FP5K Carabiner to be tied back directly to the lanyard
  - Unique carabiner body shape helps avoid confusion with standard connectors not designed for tie-back applications
  - FP5K carabiner design allows for maximum clearance inside the body of the carabiner (1" Gate Opening)
- Monster-Edge™ Webbing with 12,000-pound minimum breaking strength is designed for increased abrasion resistance
- Internal wear indicator consists of two yellow threads that, when visible, alert a user as to when the lanyard should be removed from service due to severe abrasion
- Keeps fall arrest forces below 900 lbf
- Meets OSHA regulations, ANSI Z359.1, and is CSA certified



### Tie-Back™ Shock-Absorbing Lanyard

The integral adjustable D-ring of the MSA Tie-Back lanyard allows for a compatible means of connection, minimizes the potential for roll-out, and eliminates the necessity of a separate anchorage connector.



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The integral adjustable D-ring allows the MSA Tie-Back Lanyard to accommodate a wide variety of anchorage point shapes and sizes.

- Integral Dyna-Brake shock absorber
- Twin-Leg configuration for 100% tie-off
- Maximum arrest force of 900 lbf
- Meets ANSI Z359.1 and all applicable OSHA standards

### MSA Y Retrieval Lanyard

For rescue, lifting and lowering. Used with shoulder D-ringed harnesses.

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#### Retrieval Lanyards

Part No.	Description
507130	MSA Y Retrieval Lanyard w/ 14 inch bar
507131	MSA Y Retrieval Lanyard w/ 22 inch bar

#### Shock-Absorbing Lanyards

Part No.	Description	Length
10045936	Diamond Expanyard Shock-Absorbing Lanyard (Single Leg)	6' fixed
10021671	Tie-Back Shock-Absorbing Lanyard (Twin Leg)	6' fixed
10047084	FP5K Tie-Back Shock-Absorbing Lanyard (Single Leg)	6' adjustable
10047085	FP5K Tie-Back Shock-Absorbing Lanyard (Twin Leg)	6' adjustable



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## Anchorage Connectors ★

- Have a minimum breaking strength of 5,000 lb.
- Compatible for use with MSA fall arrest and confined space entry/retrieval components
- Meet ANSI Z359.1 and OSHA standards



### Anchorage Connector Strap

- D-ring on one end and a sewn loop on the other end

## FP Stryder™ Anchorage Connector

- Easy to use: single-hand installation and push-button adjustment
- Glides effortlessly along the beam flange
- Lightweight - only 4.5 pounds!
- Mount overhead or at worker's feet
- 400 pound working capacity
- Field serviceable



## ManSafe Freestanding Constant Force Post

- Does not attach to the working surface
- Installer will never have to lift more than 55 lbs (25 kg) at any time
- Used on nominally flat roofs up to a maximum pitch of 5 degrees
- Tested and approved for use on concrete, single-ply membrane, asphalt-sanded, asphalt-stone chipped, and steel roof profiles
- Post is omni-directional



## Anchorage Connectors

Part No.	Description
505282	Anchorage connector strap, nylon, 5'
10051455	FP Stryder Anchorage Connector, Standard version, fits beam flange widths from 4"-14"
506632	D-plate anchorage connector, zinc-plated steel
10003206	Anchorage connector chain
10055719	ManSafe Freestanding Constant Force Post, 880 lbs (400 kg)
10038363	Post D-ring



### D-Plate Anchorage Connector

- Provides permanent anchorage point
- Bolts to beams or columns



### Anchorage Connector Chain

- Temporary anchorage connector
- Useful near sharp edges or in high heat environments

## Anthon Descent Device System ★

The Anthon Descent Controller is a manually operated descent device. It is most commonly used for suspended work positioning, self evacuation, or rescue operations. Other features include:

- Proper roping/rigging diagrams on the side of the Anthon Descender
- Device can be installed/removed at any point on rope
- Working load of 300 lbs (136 kg)
- System consists of a 7/16" (11mm) rope, Anthon Descender, and two carabiners

## Anthon Descent Device System

Part No.	Description
SDC726050	Anthon system includes: Anthon descender, 2 carabiners, 50 ft rope
SDC726100	Anthon system includes: Anthon descender, 2 carabiners, 100 ft rope
SDC726150	Anthon system includes: Anthon descender, 2 carabiners, 150 ft rope

Anthon systems and replacement ropes available in lengths of 25 ft increments from 50 ft up to 600 ft

Anthon System in use



Anthon Descender



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## Lynx™ Tripod Confined Space Entry Kit ★

This MSA confined space entry/retrieval system is designed for fall arrest, lifting and lowering, rescue, and work positioning applications. It incorporates an anchorage connector (Lynx Tripods), fall arrest component (Lynx Rescuer), a personnel and materials handling hoist (Lynx Hoist) and associated hardware to rig the system for use. The system can be used for leading edge work, maintenance and entry/retrieval from manholes, tank cars, silos, tanks, vaults, pits, vats and other confined space applications.

### Lynx™ Tripod

- Automatic hinge lock legs
- Constructed of three anodized aluminum legs and a zinc-plated carbon steel head
- Legs feature 1-1/4 in. incremental adjustment with positive locking pins
- Skid resistant feet with self-sharpening spikes

### Lynx™ Rescuer, Field Resettable Model with Lockout

- Self Retracting Lanyard with emergency retrieval capabilities
- User is able to reset device from retrieval mode to fall arrest mode
- The easiest, quickest field-reset mechanism on the market
- Same unit can be used in the field and for training situations
- Lock feature with key allows more control over who can reset unit to fall arrest mode
- Confined space entry provides fall arrest and emergency lifting and lowering
- Meets ANSI Z359.1, and all applicable OSHA standards, and is CSA certified

### Lynx™ Personnel/Material Hoist

- Designed for lifting, lowering, and positioning of personnel and materials
- Maximum work load of 310 lbs for personnel and 620 lbs for materials
- Anti-backlash crank handle with a lifting/lowering speed of 25 ft per minute
- Integral shock absorber
- Load-limiting clutch prevents overloading of hoist
- Emergency drive allows manual bypass of load-limiting clutch for extra lifting capacity in an emergency
- Primary gear backed up by two independent secondary brakes
- Air drive adapter enables powered lifting/lowering with optional air-powered drive assembly
- Meets ANSI Z359.1 and all applicable OSHA standards



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Lynx Rescuer



Lynx Hoist

### Confined Space Entry Kit

Part No.	Description
100023968	Lynx Tripod Confined Space Entry Kit #3

- Pulley/Bracket Assembly (P/N506473)
- Side Mount Lynx Hoist, with 50' galv. line (P/N 10016569)
- Lynx 8' Tripod (P/N 10022050)
- Includes Carry Bags for Tripod, Lynx Rescuer, & Lynx Hoist
- Split Mount Pulley (P/N 506222)
- Lynx Rescuer Mounting Bracket for Tripod (P/N 506232)
- Lynx Rescuer 16 m (P/N 10011744)



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## Rescue System Components ★

### Static Kernmantle Ropes



These ropes are 100% permanent solution dyed color with contrasting marker stripe. Superior flexibility and knotability, provided by a unique double-twist cable core construction, gives superior resistance to abrasion that is up to four times greater than other static kernmantle ropes. These ropes are designed with shock-absorbing capabilities to provide additional safety in the event a dynamic force is applied.

Static Kernmantle Ropes	
Part No.	Description
SRP323	3/8" (10 mm), polyester, 5,500 lb (2,495 kg), red/blue tracer
SRP508760	7/16" (11 mm), nylon, 6,500 lb (2,948 kg), black
SRP504860SL	1/2" (12 mm), nylon, 9,100 lb (4,128 kg), white/orange tracer
SRP530961	1/2" (12 mm), polyester, 9,100 lb (4,128 kg), red
SRP508960	5/8" (16 mm), nylon, 13,000 lb (5,897 kg), black
SRP510660SL	3/8" (10 mm), nylon, 5,000 lb (2,269 kg), white/blue tracer
SRP544000	7/16" (11 mm), nylon, 6,000 lb (2,722 kg), olive
SRP504866SL	1/2" (12 mm), nylon, 9,000 lb (4,083 kg), blue/white tracer
SRP504863SL	1/2" (12 mm), nylon, 9,000 lb (4,083 kg), red/white tracer

### Prusik & Accessory cords

Prusik cords have the same high quality and long wear design as rescue ropes. Size selection should be based upon diameter of the main line. The flexible cord is both strong and highly resistant to abrasion. Prusik cords and accessory cords are identical.

Prusik and Accessory Cords	
Part No.	Description
SRP500500	5 mm Accessory Cord, nylon, 1,275 lb (578 kg) strength
SRP5020550	5.5 mm Titian™ Cord, Spectra™ Core, 4,500 lb (2,042 kg) strength
SRP500700	7 mm Accessory Cord, nylon. Use with 3/8"-1/2" (1cm-1.3cm) main line, red, 2,600 lb (1,179 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)
SRP500900	9 mm Accessory Cord, nylon. Use with 1/2"-5/8" (1.3cm-1.6cm) main line, 3,600 lb (1,632 kg)

### SuretyMan™ Rescue Eight

- Designed for the fire service, rescue, and tactical operations
- Designed for rope diameters from 7/16" (11 mm) to 5/8" (16 mm)
- Available in aluminum or steel
- Weight 1.5 lb (675 g)
- Strength 6,720 lb (30 kN)



### SuretyMan™ Q-Eight

- Ears/cleat are positioned to make tie off very easy and safe
- Ears/cleat still prevent larks footing (girth hitch)
- Designed for 7/16" (11 mm) diameter rope (will work with 1/2" (12 mm) diameter rope)
- Aluminum, anodized gold
- Strength 13,000 lbs (58 kN)
- Weight 8 oz (.24 kg)



SuretyMan Rescue Eight and Q-Eight	
Part No.	Description
SRSF5045	Suretyman Rescue Eight, steel
SRSF5077	Suretyman Rescue Eight, aluminum
SRSFFE2120	Suretyman Q-Eight



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## V-Gards® Caps and Hats ★

V-Gard Protective Caps and Hats from MSA consist of a polyethylene shell and suspension system working together as a protection system. V-Gard headwear features advanced styling in either cap or hat styles. Part numbers listed are standard size (6½–8).

V-Gard Caps with Fas-Trac® ratchet suspension meet or exceed the applicable requirements for a Type I helmet (top impact) as outlined in ANSI Z89.1-2003, Class E, and also as outlined in CSA 294.1-2005 (Class E).

V-Gard Caps and Hats are not specifically designed to protect against lateral blows from the front, side, or rear. MSA's Vanguard™ II Protective Helmets are so designed and must be used if lateral protection is desired. For more information, contact your MSA distributor.



Camouflage Cap and Hat (Freedom Series)



Gray Cap and Hat  
(many other colors available)



American Flag and 2 Eagles Cap and Hat  
(Freedom Series)



American Stars and Stripes Cap and Hat  
(Freedom Series)



Dual American Flag Design  
(Freedom Series)

## V-Gard Complete Assemblies

Color		Part No.	
Federal Color No.	Color Name	Slotted Cap	Non-Slotted Hat
10091	Dark Brown	10052144	10052176
10371	Golden Brown	10052143	10052175
11105	Red	475363	475371
11670	Peach	10052146	10052178
12246	Orange	475361	496075
13538	Tangerine	10052147	10052179
13655	Yellow	475360	475366
14090	Dark Green	10052138	10052170
14187	Medium Green	10052149	10052181
14260	Light Green	10052145	10052177
15102	Blue	475359	475368
15200	Robin's Egg Blue	495853	—
15526	Pale Blue	10052140	10052172
16187	Gray	475364	475367
16492	Pearl Gray	10052136	10052168
16555	Light Olive	10052139	10052171
17038	Black	492559	—
17043	Gold	475365	—
17142	Magenta	10052148	10052180
17178	Silver	495855	—
17875	White	475358	475369
17886	Ivory	10052137	10052169
23814	Pale Green	10052141	10052173
25184	Medium Blue	10052151	10052183
30257	Tan	10052142	10052174
35275	Turquoise	10052150	10052182
—	Green	475362	475370
—	Hi-Viz Orange	488146	10021292
—	Hi-Viz Lime Green	815565	815570
—	Brown	495854	—
—	Light Buff	495856	—
—	Purple	495858	—

## V-Gard Freedom Series™ Complete Assemblies

Design	Slotted Cap	Non-Slotted Hat
American Stars and Stripes Design	10052945	10071157
American Flag with 2 Eagles	10052947	10071159
Camouflage Helmet	10065166	10071155
Dual American Flag Design	10050611	—

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Fas-Trac® Suspension System



Stealthlite & Light Holder



VersaBrite II Light & Holder



Economy Liner



Standard Winter Liner



Extended-Neck Liner



Extra-Warm Quilted Fleece Liner

## V-Gard Accessories

Part No.	Description
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### Replacement Suspensions

473332	Fas-Trac Ratchet Suspension, standard size (6-1/2–8)
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### Helmet Lights

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

697261	Stealthlite Helmet Light (batteries not included)
697417	VersaBrite II Helmet Light with 2 AA alkaline batteries
814322	Light holder for slotted Cap—no metal parts

### Chinstraps

88128	Chinstrap, plastic (attaches to the shell)
81391	Chinstrap, elastic (attaches to the suspension)

### Winter Liners

697116	Economy Liner (Flame-retardant shell w/soft-napped interior; adjustable Velcro chinstrap; and three-button loop straps)
697117	Standard Winter Liner (Universal size. Two-ply liner w/flame-retardant shell; soft lining; adjustable Velcro chinstrap; and three-button loop straps)
697118	Extended-Neck Liner (Extended-neck; two-ply liner w/flame-retardant shell; soft lining; adjustable Velcro chinstrap; and three-button loop straps)
697119	Extra Warm Quilted Fleece Liner (Green nylon tricot shell; quilted w/foam; soft fleece lining)



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## Custom-Imprinting and Striping/Logo Express® Service for MSA Helmets

A variety of MSA helmets are available with your logo, slogan or striping imprinted on the headwear. You can select the colors and the areas to be imprinted. MSA uses both single and multi-color imprinting techniques to provide a choice of up to four colors.

### Image 2000<sup>SM</sup>

MSA offers the Image 2000 Service, which uses a photographic process to reproduce images on white MSA helmets only.

### Ordering Information

A minimum quantity of 20 custom-imprinted caps or hats (of the same size or model) is required for initial and repeat orders.



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## Evolution® 5200HD<sup>2</sup> TIC (Thermal Imaging Camera) ★

Proven handheld thermal imaging camera with a high ISDR\*. Best-in-class image quality provides clearer, sharper, larger, more detailed images in all temperatures. With nominal image resolution of 80,000 pixels; 4 times the picture elements of other TICs; 38µ pixel pitch; 3.5" display. Optional 2X digital zoom, Heat Seeker, and Quick Temp features.

*\*Instantaneous Scene Dynamic Range is the combined value of a sensor's sensitivity and temperature range to determine the number of temperature differences that can be at the scene at any given instant.*

**EVOLUTION<sup>®</sup>**  
**5200HD<sup>2</sup>**



Durability	
Features	Benefits
New internal mounting foam	60% increase in heat tolerance. Protects system electronics from rough handling. Insulates sensor and electronics.
High-impact housing	Adds durability, resists heat, and cleans up easily.
RFI shielded	Protects system electronics and image from harmful radio frequency interference.
External rubber bumpers	Protects the unit from drops and rough handling.
Locking battery compartment in handle	Fully encloses battery, does not expose bare battery surface to high heat and rough environment.
IP 67 Rating	Resists dust and water ingress.
Performance	
Features	Benefits
Widest high sense operating range on any Fire Service TIC	Provides better performance in high-heat conditions.
Indigo 320 x 240 Vanadium Oxide Microbolometer	Provides excellent image quality in a small format.
Lithium ion battery	Lightweight. Provides excellent run time (2 hours).
3 1/2" backlit display	Provides a large display in a "small format" camera.
30 Hz frame rate	Reduces image choppiness associated with slower frame rates.
Highest low sensitivity mode of any Fire Service TIC	Extends the dynamic range for better image distinction at higher scene temperatures.
Quick-Temp temperature measurement*	Gives users a digital temperature measurement along with a temperature scale measurement to determine advancing heat.
Heat Seeker PLUS indicator*	Allows the user to easily locate hot spots and the seat of the fire. Effective in High and Low Sensitivity.
2X Digital Zoom*	Enhances the image allowing for more visual detail from a safe distance.
Functionality	
Features	Benefits
Ergonomic design	Limits user fatigue. Provides better display orientation for the user.
Flexible secondary handle	Provides added protection from impact/drop, and easy handoff.
Single button for On/Off/Standby	Simple to use; prevents accidental shutdown.
Small size & light weight	Limits user fatigue, easy to use as a tool.
Carabiner attachment	Allows the Thermal Imager to be carried like a tool on a tool belt or gear. Quick attachment for other carrying attachments.
On-Screen Low	Sensitivity and shutter indicators. Provides user with notification of low sensitivity mode and sensor shutter activation (a safety feature).
LED Indicators	Provides user with On/Off/Standby status, over-temperature warning, and battery gas gauge.
Wrist strap*	Can be easily carried on the wrist.
Shoulder strap*	Completely frees hands when camera is not in use. Quick seatbelt release for added safety.
Retractable lanyard*	Retracts the Thermal Imager to ready position when not in use.
Universal vehicle-mounted charger*	Provides ready access to Thermal Imager and charges a spare battery.
Reflective label ID kit*	Allows user to personalize the TIC to specific station/department with a choice of five different color labels

**Heat Seeker PLUS provides image detail shading**



*Heat Seeker PLUS in High Sense Mode: Notice multiple heat temperature differences*



*Heat Seeker PLUS in Low Sense Mode: Notice wall and ceiling separation*

\*Optional

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## Evolution 5200HD<sup>2</sup> TIC Configurations

Part No.	Heat Seeker Plus	2X Digital Zoom	Quick-Temp	Charger	Batteries	Strap	Carrying Case	Reflective Label Kit
10076618	Yes		Yes	Standard	2	Wrist Strap	Yes	Yes
10076619	Yes		Yes	Universal Truck	2	Wrist Strap	Yes	Yes
10076620	Yes		Yes	Standard	2	Retractable Lanyard	Yes	Yes
10076681	Yes		Yes	Universal Truck	2	Retractable Lanyard		
10076682	Yes		Yes	Standard	2	Shoulder Strap		Yes
10076683		Yes	Yes	Standard	2	Wrist Strap	Yes	Yes
10076684		Yes	Yes	Universal Truck	2	Wrist Strap		
10076685		Yes	Yes	Standard	2	Retractable Lanyard	Yes	Yes
10076686		Yes	Yes	Universal Truck	2	Retractable Lanyard		
10076687		Yes	Yes	Standard	2	Shoulder Strap	Yes	Yes

## Evolution 5000 Series TIC Accessories

Part No.	Description	Part No.	Description
10041100	AC Charger with cigarette lighter adapter	10040005	Carabiner
10038412	Lithium Ion Battery	10039603	Sun Shroud
10067565	Vehicle-Mounted Charger	10062184	Reflective Label ID Kit
10039516	Wrist Strap	10038970	Disposable Display Covers - Clear
10039515	Shoulder Strap	10067707	Non-Charging Mounting Bracket
10040226	Retractable Lanyard	10040229	Tripod Adapter

## Evolution® 5000 Series Video Capture System ★

### Principles of Operation

MSA's Video Capture is a video recording system for Evolution 5000 Series Thermal Imaging Cameras. It offers fast and simple video recording of the original screen for documentation and training purposes. The small and easy-to-use stand-alone unit can be mounted and removed on any Evolution 5000 Series Thermal Imaging Camera within seconds. A new camera is not required to use this feature.

The system conveniently uses a standard flash memory card [RS-MMC]. With a card reader, the video clips can be downloaded to a computer, stored, viewed and followed up for documentation. The system offers up to 2 hours recording capability, providing a complete overview of the environment and incident in which the camera was used.

The Video Capture System features the same housing as the Evolution Transmitter, offering the same high durability, as well as the same lithium ion rechargeable battery and charger used in the whole Evolution 5000 Series of Thermal Imaging Cameras.

### Product Information

The Video Capture System (VCS) records the complete scene that the TIC sees. The system is capable of recording up to two hours of video, virtually eliminating the risk of a user missing critical information. The VCS is ideal for training and documentation purposes. A standard card reader stores the information and simply connects to a PC/laptop to download the recorded video. Still pictures can be captured from the video footage using available software programs like "Print Screen."



## Evolution 5000 Series Video Capture System

Part No.	Description
10071750	Video Capture Kit, complete with Video recorder, RS-MMC 512MB Storage Card, Card Reader, Instruction Manual, Battery and Carrying Case
10069792	RS-MMC Memory Card (512MB)

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## SafeSite® Multi-Threat Detection System ★

The SAFESITE Multi-Threat Detection System simultaneously monitors and wirelessly communicates six potential threats: CWAs, VOCs, TICs, gamma radiation, combustible gas and oxygen deficiency.

The SAFESITE System combines state-of-the-art detection technology with advanced wireless communication capabilities to provide superior preventative and counter-measure solutions for:

- Homeland Security
- Emergency Response
- Public Events
- Building Protection
- Mass Transportation Centers
- Perimeter Monitoring
- Hazardous Response
- Port Surveillance
- Confined Space Monitoring

SAFESITE System components consist of the SAFEMTX™ Multi-Threat Detector, the SAFECOM™ Command Center and the SAFECONNECT™ Belt-Bridge with Sirius wireless interface. The system can be installed permanently (wired or wireless) for continual monitoring or deployed as a portable system.

The **SAFEMTX** Multi-Threat Detector utilizes multi-sensing technologies to detect up to six potential threats; helping first responders, law enforcement and government agents reduce the risk of exposure and facilitate consequence management.

The **SAFECOM**™ Command Center receives mission-critical information from the SAFEMTX™ Detectors and permits this crucial and wide-ranging data to be converted quickly into practical information for rapid decision-making through an uncomplicated graphical user interface. The SAFECOM Command Center can manage up to four systems with 16 SAFEMTX Detectors per system, integrating SAFEMTX data, including:

- Gas readings
- Relative CWA threat level
- Radiation dose rate
- Alarm status
- GPS location
- Battery run time
- RF signal strength
- Fault conditions
- SAFEMTX min, max, and average values

Through the SAFECOM Command Center, alarms are identified with both visual and audible alarms. Alarms can then be acknowledged and silenced, detectors can be enabled and disabled, event logs and event log history can be viewed, plus units can be customized to suit the specific deployment scenario.

### Wireless Technology

The SAFESITE® System provides up to two miles of wireless communication between any SAFEMTX Detector, SAFECONNECT Belt-Bridge and SAFECOM Command Center. SAFECONFIG™ Software works with the SAFECOM Command Center or SAFECONNECT Belt-Bridge, enabling configuration of any SAFEMTX Detector as a repeater. This added capability maximizes deployment range and ensures maximum signal strength and reliable deployment without the need to move units.

### SAFEPAC™ Perimeter Area Command Kit

SAFESITE® SAFEPAC Perimeter Area Command Kit provides a basic kit for quick deployment and monitoring of an event or a location. The kit includes two Pelican cases with an internal battery charger, 4 SAFEMTX™ Multi-Threat Detectors, 1 SAFECOM™ Command Center, all necessary PC interface software, and 4 extra batteries. A laptop PC is also available as an option, or an existing PC can be used.

**The SAFESITE Multi-Threat Detection System can be ordered using MSA's Assemble-To-Order System. Please refer to Bulletins 07-2114-MC and 07-2115-MC.**



- 1 Threat Readings** – scrolling readings of up to 16 MTX Detectors per channel. Unit is identified by large icon to the left of the readings. In alarm condition, display snaps to unit in alarm.
- 2 MTX Icons** – identify number of units enabled in current network. Users may view specific unit reading by double-clicking on icon.
- 3 Map** – option for map view or uploaded image view.
- 4 Signal Strength** – communication status from SAFEMTX™ Detector to SAFECOM™ Command Center.
- 5 Power** – status of battery life of SAFEMTX Detectors.
- 6 System Status** – alerts user to alarm, warning or fault within a particular system.
- 7 Action Buttons** – allow user to select address, cycle units, acknowledge alarms and enable or disable units from the system.

Threat	Technology	Benefit
Chemical warfare agents	Surface acoustic wave (SAW)	Low false positives and false alarms, differentiates nerve & blister agents
Gamma radiation	Cadmium zinc telluride (CZT)	Sensitive with adjustable threshold and 2 ranges. (0-100 mR/hr, 0.1 mR/hr resolution & 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

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## SAFECONNECT™ Belt-Bridge with Sirius® Wireless Interface and SAFECONFIG™ Software ★

**Advanced Threat Detection. Superior Protection. Portability. Now, Repeater Expandability from MSA.**

The SAFECONNECT Belt-Bridge works with the Sirius Detector for integration into the MSA SAFESITE Multi-Threat Detection System. These new system components offer up to two miles of wireless communication plus an updated Graphical User Interface (GUI) which provides all mission-critical information in one uncomplicated format.

### SAFECONNECT Belt-Bridge

- Interfaces wirelessly to existing Sirius Multigas PID Detector
- Provides GPS location tracking in real time



### SAFECONFIG Software

- Configures SAFEMTX™ Detectors or SAFECONNECT Belt-Bridges as repeaters\*, ensuring maximum signal strength
- Modifies system assignment of SAFEMTX Detectors
- Greatly expands detection distance of SAFESITE System

### SAFECITY

The illustration at right demonstrates the benefits of the SAFESITE System with repeater capability.

The SAFECONFIG works in conjunction with the SAFECOM Command Center of the SAFESITE System. The SAFECONFIG Software enables the user to reconfigure SAFEMTX instruments as repeaters, giving the user maximum flexibility in the deployment of the SAFESITE System.

*For specifications, see Bulletin 07-2124-MC.*



- 1 SAFECOM Command Center receives and displays complete information from all detectors.
- 2 SAFEMTX Detector communicates directly to SAFECOM.
- 3 SAFEMTX Detector configured as Repeater #1, communicates directly to SAFECOM.
- 4 SAFEMTX Detector configured as Repeater #2, transmits through Repeater #1, then to SAFECOM.
- 5 SAFEMTX Detector communicates to SAFECOM through Repeater #2, then Repeater #1.
- 6 Sirius Wireless Interface with SAFECONNECT Belt-Bridge communicates to SAFECOM through Repeater #1.
- 7 SAFEMTX Detector communicates to SAFECOM through Repeater #2, then Repeater #1.

\*Repeater function with MTX does not eliminate units ability to monitor the environment.

### SAFECONNECT and SAFECONFIG

Part No.	Description
10071439	SAFECONNECT Belt-Bridge Assembly
10073837	Sirius Wireless Kit, includes extended boot and wireless module
10073312	SAFECONFIG Installation Software

### COMPONENTS WORK TOGETHER



The Sirius Wireless Interface features an IR link which gathers the information from the Sirius Multigas Detector (PID, CO, H<sub>2</sub>S, O<sub>2</sub> and combustible gases) and then sends the information to the SAFECONNECT Belt-Bridge via Bluetooth technology. (For Sirius Detectors, see p. 32.)



The SAFECONNECT Belt-Bridge converts the signal in from the Sirius Wireless Interface and transmits the information plus GPS location back to the SAFECOM Command Center via a 1 watt, spread spectrum, frequency hopping, 900 MHz radio. (See above.)

**For specifications and specific sensors available, see Bulletin 07-2067-MC.**



The SAFECOM Command Center receives the 900 MHz signal from the SAFECONNECT Belt-Bridge and converts it to practical information for rapid decision making. The SAFESITE System can display simultaneous information from the SAFEMTX™ Detectors and the Sirius Multigas Detector for complete coverage. (See p. 28.)

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## SAFESITE® Sentry™ Chemical Agent Detector

The SAFESITE Sentry Chemical Agent Detector is a continuous-use, permanently-mounted detection instrument for facility protection against weapons of mass destruction (WMDs). This unit provides superior preventative and countermeasure solutions for homeland security and emergency response.

- 24/7 detection plus communication of up to six potential WMD threats
- Integration of several proven technologies
- Highly selective to specific chemical agents, reducing false alarms
- Identifies selected TICs (Toxic Industrial Compounds) by specific gas with readings displayed in ppm
- Interchangeable smart sensors are pre-calibrated for fast change-out
- GPS and wireless access available

### Available Sensors

Sensor Type	Range/Full Scale
Ammonia	0-100 PPM 0-1000 PPM
Arsine	0-2 PPM
Bromine	0-5 PPM
Carbon Monoxide	0-100 PPM, 0-500 PPM, 0-1000 PPM
CWA/Nerve Agents	GA (Tabun) ≥ 0.5 mg/m <sup>3</sup> GB (Sarin) ≥ 0.7 mg/m <sup>3</sup> GD (Soman) ≥ 0.5 mg/m <sup>3</sup> GF (Cyclosarin) ≥ 0.5 mg/m <sup>3</sup>
CWA/Blister Agents	HD (Mustard) ≥ 2 mg/m <sup>3</sup> HN-3 (Nitrogen Mustard) ≥ 2 mg/m <sup>3</sup>
Chlorine	0-5 PPM 0-10 PPM 0-20 PPM
Chlorine Dioxide	0-3 PPM
Combustible Gases	0-100% LEL
Ethylene Oxide	0-10 PPM
Gamma Radiation (CZT)	0-100 mRem/hr. - 0.1 mRem/hr. resolution, 0-100 mRem/hr. - 0.1 mRem/hr. resolution
Hydrogen Chloride	0-50 PPM
Hydrogen Cyanide	0-50 PPM
Hydrogen Sulfide	0-10 PPM 0-50 PPM 0-100 PPM 0-500 PPM
Nitric Oxide	0-100 PPM
Nitrogen Dioxide	0-10 PPM
Oxygen	0-10% 0-25%
Phosphine	0-2 PPM
Sulfur Dioxide	0-25 PPM 0-100 PPM
VOC Photoionization Detection	0-200 PPM 0-1500 PPM



The SAFESITE Sentry Chemical Agent Detector and the SAFECOM™ Command Center make up MSA's permanently installed SAFESITE Sentry system. This system continuously monitors, detects, and communicates the presence of up to six potential threats: chemical warfare agents (CWAs), toxic industrial compounds (TICs), volatile organic compounds (VOCs), gamma radiation, combustible gas, and oxygen content.

This network—wired or wireless—is easily integrated into existing automation and security systems within facilities, buildings, transportation hubs, etc. It helps first responders, law enforcement, government agents, and security personnel reduce the risk of exposure and facilitate consequence management. The SAFESITE Sentry Detector integrates several proven technologies to detect advanced threats in superior ways. The Detector also offers GPS location technology, pumped flow operation, interchangeable smart sensors (for maximum flexibility), and automatic internal system diagnostics.

The Sentry System can be used for a magnitude of applications for Critical Infrastructure and Key Resource (CI/KR) Protection. The urgency of national preparation to recognize and protect CI/KR is conveyed in Homeland Security Presidential Directive – 7 (HSPD-7) and the National Infrastructure Protection Plan (NIPP). Refer to MSA's Critical Infrastructure Protection Bulletin ID#07-2139-MC for additional information on this very important topic.

**To order MSA's SAFESITE Sentry Chemical Agent Detector, please refer to Assemble-to-Order bulletin #07-2114.**

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## CW Sentry™ Chemical Warfare Agent Detector

The CW Sentry Detector is a fixed-point continuous-use chemical agent detector designed specifically for use in 24/7 operations. Its rugged and versatile design has been road-tested in harsh, everyday environments and has performed superbly.

- Accurate, quantifiable and highly specific detection of Chemical Warfare Agents (CWAs) and Toxic Industrial Chemicals (TICs)
- Built-in networking and testing capabilities
- Integrates into existing building security systems
- Currently deployed at hundreds of key stations
- Protects the lives of millions of people daily

### CW Sentry Detector Solutions

The CW Sentry Detector is designed to meet the growing need for facilities protection against chemical agents. Typical applications for which the CW Sentry Detector is well-suited are:

- Guardian Program
- Subway protection
- Airports protection
- Public buildings protection
- HVAC systems
- Event site monitoring (Olympics, high-profile sporting events, political conventions)

### CW Sentry Detector Features

With more systems installed than those of any other supplier in this industry, the CW Sentry Detector is rich with superior and desirable features:

- Broad threat detection (CWAs & TICs)
- Industry's lowest false-positive rate
- Field-proven experience
- On-board validation check source
- Reliable, low maintenance operation
- Sensor temperature controls
- Flexible connectivity (IP, ethernet, fiber, RS-232, wireless)
- Easy servicing
- Superior sampling system

### User Interface

The CW Sentry Detector is capable of communicating with a wide variety of security systems via a data port. The Sentry Detector also offers a networking accessory configurable to the specific application. This option employs a Graphical User Interface (GUI) to visually detail threat alarms, fault conditions and service requests at each instrument location. Bi-directional communication and comprehensive data-logging for historical event analysis is also provided. These features greatly improve operational capabilities, ease-of-use and incident response time.



### CW Sentry Detector Product Configurations

Part No.	Description
10056374	Detects nerve and blister agents
10074654	Detects nerve and blister agents and hydrogen cyanide (Blood Agent)
10074655	Detects nerve and blister agents and phosgene (Choke Agent)
10074656	Detects nerve and blister agents and Toxic Industrial Chemicals (TICs) (Hydrogen Cyanide, Phosgene, Halogen and Hydride Gases)

### Optional Features

Ethernet communications port, fiber optics communications port, conduit pipe power connector and annual service contract.

\* 2-minute exposure of the effective concentration that has a negative effect on 50% of population <http://fas.org/irp/doddir/army/fm3-11-9.pdf>.

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## HAZMATCAD™ and HAZMATCAD Plus Hazardous Material Chemical Agent Detectors ★

### HAZMATCAD Detector

The HAZMATCAD Hazardous Material Chemical Agent Detector is a handheld instrument that detects and classifies Chemical Warfare Agents (CWA). When compared to other technologies, the HAZMATCAD Detector offers more capabilities and greater reliability at a lower cost.

#### Features

- Compact, lightweight, and portable
- Self-diagnostic check during rapid warm-up
- Alphanumeric display with LED alarms
- Dual-Mode SAW Operation—Fast or High Sensitivity
- Operates between 8 and 12 hours on rechargeable Li-Ion batteries
- Vapor-diffusion check source verifies system performance
- Unit can be hand-carried or worn on belt
- RS-232 and IrDA communication ports; stores up to 8 hours of data
- Inlet design protects against dust and particulates



### HAZMATCAD Plus Detector

The HAZMATCAD Plus Detector detects for Chemical Warfare Agents (CWA) and selected Toxic Industrial Chemicals (TICs). It is a portable instrument designed for one-hand operation. It is very easy to operate and requires limited training for effective use.

#### Features

- Self-diagnostic check during rapid warm-up
- Alphanumeric display with LED alarms
- Dual-Mode SAW Operation – Fast or High Sensitivity
- Electrochemical Cells – Real time analysis
- Operates between 8 and 12 hours on rechargeable Li-Ion batteries
- Vapor-diffusion check source verifies system performance
- RS-232 and IrDA communication ports; stores up to 8 hours of data
- Inlet design protects against dust and particulates

### 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

Part No.	Instrument	Chemical Agents Detected
10055094	HAZMATCAD Detector	Nerve and Blister
10055095	HAZMATCAD Detector	Nerve, Blister and Hydrogen Cyanide
10055096	HAZMATCAD Detector	Nerve, Blister and Phosgene
10055097	HAZMATCAD Plus Detector	Nerve and Blister agents and TICs (phosgene, hydrogen cyanide, halogen and hydride gas)



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## Sirius® PID Multigas Detector ★

The Sirius Multigas Detector unit with PID Sensor gives users all they are looking for in a reliable, easy-to-use, durable package to detect volatile organic compounds, while measuring for combustible, toxic and oxygen deficient atmospheres.

**Tremendous Flexibility**—One PID and four gases in one instrument allows for detection of hundreds of chemicals.

**Reliable PID Performance**—MSA's own proprietary PID sensor design (patent-pending) provides users with excellent PID performance including humidity resistance, stable zero readings, and fast response and clear times to enable users to get their jobs done dependably.

**User-Friendly Software**—Easy-to-use software allows users to focus on their tasks at hand!

**Superior, Proprietary PID Sensor Design**—Reduces maintenance time and cost.

**Flexible Configurations**—This design combines two instruments into one the Sirius unit can be used with or without the PID sensor mode.

**Loud, Attention-Grabbing Alarm**—The Sirius Multigas Detector provides outstanding alarms to clearly warn users of a hazardous situation. A piercing alarm horn, resonating through a specially designed horn chamber, is designed into the Sirius unit to give users an audible warning in the event of an alarm condition. Multidirectional bright LED lights give users visible warning of alarm conditions that can be easily seen from any direction the Sirius unit is facing. A "Safe LED" light gives users confidence the unit is actively detecting gas by flashing every 15 seconds.

**Interchangeable Lithium-ion and Alkaline Battery Packs**—Allows for quick battery turn to keep users continually charged and ready to take action.

**Easy Calibration and Compatibility with MSA's Galaxy System**—One-button calibration makes calibration simple for any user. Intelligent software frees users from complicated calibration adjustments. The Sirius Multigas Detector is also compatible with MSA's Galaxy System for automated calibration and record keeping.

**Long-Term Storage Kit**—Provides all the tools necessary to keep the Sirius Multigas Detector running if the unit has not been frequently used.



Sirius Multigas Detector Kits	
<b>Deluxe Kits (includes calibration kit, sampling accessories, jacket and boot)</b>	
Part No.	Description
10051141	4-Gas (LEL, O <sub>2</sub> , CO, H <sub>2</sub> S), Lithium-ion battery
10051143	3-Gas (LEL, O <sub>2</sub> , CO), Lithium-ion battery
<b>Economy Kits</b>	
Part No.	Description
10051151	4-Gas (LEL, O <sub>2</sub> , CO, H <sub>2</sub> S), Lithium-ion battery
10051154	4-Gas (LEL, O <sub>2</sub> , CO, H <sub>2</sub> S), alkaline battery



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## Solaris® and Solaris FX Multigas Detectors ★

The Solaris Multigas Detector and the Solaris FX Detector are affordable, durable, reliable, easy-to-use portable instruments for detecting the presence of O<sub>2</sub>, H<sub>2</sub>S, CO and combustible gas. (The Solaris FX Detector is the same as the regular Solaris Detector, except that it features a different LEL sensor. The sensor has faster response and release times for toluene, xylene and other aromatic hydrocarbons. Both Solaris Detectors are designed to withstand rough handling in harsh environments. Best of all, they deliver MSA's commitment to quality at the smallest size and, even smaller price.

### Features

- **Ergonomic Design**— For maximum comfort.
- **Alarm System**— World-class triple alarm system with 100+ decibel audible alarm, multiple high-intensity visual alarm and strong vibrating alarm.
- **Display Features**— Superior display features simultaneous gas concentration display, backlighting for easy reading and alphanumeric message bar for easy use.
- **Lightweight**—Under 8 oz., compact size that makes it easy to wear.
- **Durable**—Case with rubberized armor provides superior protection against liquid and dust ingress (IP 65 rated).
- **Long-life Battery**— Rechargeable lithium ion battery provides 14+ hours of continuous run time and delivers best-in-class performance in extreme conditions.
- **Galaxy Compatible**— Compatibility for computer automated calibration and record-keeping.
- **Sampling Pump Option**—Optional powered sampling pump with extensive contaminant filtering system.
- **Warranty**— Outstanding 2-year, all-inclusive warranty.



Department of Defense photo

### Solaris and Solaris FX Kits

#### Standard Kits (includes datalogging option)\*

	<i>Solaris Part No.</i>	<i>Solaris FX Part No.</i>
4-Gas Instrument	10048147	10056453
3-Gas (LEL, O <sub>2</sub> , CO)	10048149	10056454
2-Gas (LEL, O <sub>2</sub> )	10048214	10056456

#### Deluxe Kits (includes Econo-cal calibration kit, datalogging & sampling pump)\*

	<i>Solaris Part No.</i>	<i>Solaris FX Part No.</i>
4-Gas Instrument	10049297	10056461
3-Gas (LEL, O <sub>2</sub> , CO)	10049298	10056462
2-Gas (LEL, O <sub>2</sub> )	10049300	10056464

All of the above kits include a UL approved Solaris, battery charger, calibration cap assembly and instruction manual in CD-rom.

\* To download the Solaris data the MSA data docking module (P/N 710946) must also be purchased.

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## Chemical Warfare Agent Detector Tubes ★

Detect a wide range of nerve, blister, blood, and choking agents.

- Quick, simple to use, easy to interpret results
- "Go/No Go" style
- Can be used with MSA's full line of pumps
- All sold in boxes of 10 tubes
- Important: Sold only in the U.S.



### Chemical Warfare Agent Detector Tubes

Part No.	CWA.
10055094	Nerve (Sarin, VX, GA, GD, etc.)
10055095	Blister (Mustard Gas)
10055096	Blister (Lewisite)
10055097	Blister (variety, including Mustard Gas)
10007651	Blood and Choking (CG, DP, AC, CK)

## Chemical Warfare Agent Detector Tube Kits

Chemical Warfare Kits are available in a Single CWA Tube Sampler and a Multi CWA Tube Sampler. The Single CWA Tube Sampler will only sample one CWA tube at a time. The Multi CWA Tube Sampler allows the user to simultaneously sample up to four CWA tubes at the same time without making adjustments. The kit is supplied with an MSA Escort ELF pump, which maintains constant flow with a built-in "Run/Hold" feature that allows the user to start/stop the pump and still maintain an accurate sampling timer. The four-port manifold tube holder is pre-set for the proper flow rate for CWA tube sampling.

### Chemical Warfare Agent Detector Tube Kits

Part No.	CWA
10049765	Multi CWA Tube Sampler with Escort ELF Pump
10044998	Single CWA Tube Sampler with Kwik-Draw Pump



Multi CWA Tube Sampler



Single CWA Tube Sampler



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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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