



MSA Cairns® FIRE HELMET PRODUCT SPECIFICATION

PRODUCT TYPE:

Structural and Urban Search and Rescue Firefighting Helmet

PRODUCT MODEL(S):

MSA Cairns Commando HP3 Fire Helmet

PURPOSE:

To supply a uniform, standard product specification for a fiberglass-reinforced composite structural and urban search and rescue fire helmet.

SCOPE:

The scope of this product specification encompasses the performance criteria, design, construction and materials deemed necessary for helmets utilized for structural and urban search and rescue firefighting.

GENERAL:

Helmets manufactured in accordance with this specification are designed to mitigate adverse environmental effects to the firefighter's head while providing the specifying authority with what are, in their opinion, essential requirements.

PERFORMANCE CRITERIA:

MSA Cairns Commando HP3 Fire Helmets shall meet the requirements of NFPA 1971:2013 and NFPA 1951: 2013 (or the current editions); US-OSHA 1910.156, and CAL-OSHA.

All eye/face protection sold as part of the original helmet assembly shall be compliant with the impact requirements of the current versions of ANSI/ISEA Z87.1 and NFPA 1971:2013.

PERFORMANCE VERIFICATION DATA REQUIREMENT:

Response to this specification shall include complete and current NFPA 1971 and NFPA 1951 test reports from a recognized, accredited test facility detailing all performance data for the helmet being offered and all compliant helmet components. Certificates of conformance and / or letters of certification alone shall not be acceptable. Component testing is not acceptable. Certification testing is conducted every year to a random lot size, as per NFPA requirements.

MANUFACTURER'S WARRANTY:

MSA warrants MSA Cairns Fire Helmets manufactured on or after January 1, 2015, to be free from defects in materials and/or faulty workmanship for a period of ten (10) years from the date of manufacture by MSA. For warranty details, please see "10-Year Warranty and Terms of Sale" (ID 3600-72-MC / February 2015). For MSA Cairns Fire Helmets manufactured prior to January 1, 2015, please refer to ID 3600-09-MC / Jan 2005. All warranty documents can be found on the MSA website (MSAsafety.com).



PRODUCT VISUAL:



MSA Cairns HP3 Commando Fire Helmet

HELMET SHELL:

MSA Cairns Commando HP3 Fire Helmet shall be a European Fire Service style. The shell shall have a down sloping brim along the front of the helmet shell to enhance water shed. The radius of the juncture of the brim and crown shall be no less than 0.1875" to maximize deflection of debris and impact protection.

The shell material shall be a composite consisting of a high-temperature, flame- and chip-resistant "through-colored" thermoset resin reinforced with 1" and 2" chopped fiberglass, compression-molded to form a one-piece shell. The "through-colored" thermoset resin is pigmented to match the color of the paint.

The reinforcing rib which runs down the center of the helmet, and pockets for overhead strap assembly shall be molded into the helmet shell. The helmet consists of a crown section with a downward angled attached brim.

The shell dimensions (w/ edge-trim) shall be 12.25" in length, 9.75" in width and a crown depth of 5.9". The shell shall have a nominal wall thickness of 0.065".

The exterior of the shell shall be completely coated with a color pigmented, high gloss, abrasion, high heat and chemical resistant paint finish. The shell color and matched paint finish shall be available in the standard colors of white, red, black, and yellow. Orange, blue, and green painted finishes shall be available over a white composite shell.

MSA Cairns Commando HP3 Fire Helmet shells shall have black or white¹, high-temperature, flame-resistant, flexible edge trim composed of an aluminum core coated with thermoplastic rubber (TPR). The edge-trim is secured around the entire brim of the helmet by crimping the aluminum core, and

¹ Available on white helmet shells only



secured at the mating ends with a high temperature adhesive and clamped by the helmet hanger clip at the edge of the rear brim.

The shell shall have a helmet hanger comprised of a 3/4" nickel-plated "D" ring and a stainless steel clip. The helmet hanger shall be attached to the center rear of the brim.

IMPACT CAP:

The impact cap is designed to help provide increased thermal and impact protection. The impact cap shall be comprised of a rigid cell, high-temperature urethane foam dome attached to a flame-resistant, thermoplastic Polyphenylene Oxide (PPO) inner liner that covers the entire inside crown of the helmet. The impact cap shall be modular and field-removable for periodic inspection of the foam's integrity.

HEAD SUSPENSION:

MSA Cairns Commando HP3 Fire Helmet shall consist of a six-way head suspension system, attached to the impact cap. The head suspension system comprises three (3) fixed 0.75" wide nylon straps mounted at six points on the impact liner and fastened at their intersection to form the 6-way overhead strap assembly. The straps are attached to the impact cap by means of a rigid plastic strap that locks the straps into a routed round groove in the impact cap.

SHELL RELEASE SYSTEM:

The impact liner, complete with suspension system and chinstrap assembly (retained as described under "**CHINSTRAP**") shall be retained to the helmet shell by means of two (2) thermoplastic retention clips mounted under the eye/face protection hardware, and by four (4) pieces of hook-and-pile fastener sections between the impact liner and helmet shell in the crown area. This design will enable the shell to be released from the helmet when impacted from below the brim, reducing the chance of being injured by the chinstrap, and leaving the impact cap on the wearer's head for continued thermal and impact protection.

SIZING ADJUSTMENT:

The size of the headband may be adjusted to fit the wearer's head by means of a ratchet adjustment system. The headband is attached to the sides of the impact cap liner by four (4) flexible retention tabs. The rear ratchet arms shall have three (3) adjustable positions so that the angle of the ratchet may be set to accommodate the nape of the wearer's head. The headband height shall be adjustable at the front of the helmet via a hook and look system to provide additional comfort to the wearer.

The headband shall have a head size range of 6-3/8 to 8-3/8, adjustable in 1/8" increments.

COMFORT LINER:

MSA Cairns Commando HP3 Fire Helmet shall have a removable comfort liner, consisting of a headband cushion and a ratchet pad. Both components made of a foam-core laminate system, comprised of a soft black flame-resistant flannel material against the user's head backed by a soft loop material secured to the headband and ratchet with hook fastener. The comfort liner is machine-washable. It can easily be upgraded to a standard flannel or deluxe leather-lined version.

CHINSTRAP:

The chinstrap shall be constructed of three (3) pieces (or sections) of 3/4" wide, spun-Nomex webbing, which are connected by a high-temperature, durable thermoplastic quick-release buckle on the left side



of the helmet, and by a cast zinc postman's slide buckle on the right side of the helmet. An optional 3-point chinstrap is also available.

The chinstrap is attached at either end of the impact cap by means of a plastic tube that travels the circumference of the impact cap assembly, locking the chinstrap into a groove in the impact cap.

The middle section, with the female half of the quick-release buckle sewn to the left end, shall pass through the postman's slide buckle on the right. The middle section shall be a minimum of 23.0" in length and the total length of the chinstrap shall be 35.0" at full extension, end to end. The chinstrap includes a hook-and-loop fastener to secure extra material.

An optional 3-point chin strap shall be available, with the additional (third) point being routed through a nylon "D" ring (in place of 3/4" nickel-plated "D" ring).

EAR/NECK PROTECTION:

MSA Cairns Commando HP3 Fire Helmet provides for ear and neck protection with a 6.5" wide, 19.0" long, full-cut earlap. The double-layer earlap consists of a 4.5 oz. / yd., yellow or black colored Nomex outer layer, and a flame resistant black flannel inner layer. The earlap shall be secured to the shell by pieces of hook and pile fastener in no fewer than five (5) locations.

The earlap is machine washable and can be easily upgraded to a PBI/Kevlar earlap. The ear and neck protector shall be removable without interfering with the overhead strap assembly in any way and without removing any part of the helmet suspension.

RETRO-REFLECTIVE TRIM:

The helmet shall have three bar-shaped pieces of lime-yellow retro-reflective, fluorescent Reflexite trim around the exterior of the crown of the helmet shell. There shall be two additional pieces of tetra-bar-shaped Reflexite trim on the posterior slope of the helmet for maximum daytime and nighttime visibility. Red-orange and lime-yellow Scotchlite bars are also available.

EYE PROTECTION OPTIONS:

<i>Name</i>	<i>Description</i>
Defender® Visor	The MSA Cairns Commando HP3 Fire Helmet shall have an integral visor that retracts between the helmet shell and impact cap. The visor shall be a wrap-around design, 4.5" high and 8.25" long and have a comfort nose pad. The lens shall be coated with a scratch resistant coating on both inner and outer surfaces to help protect it from abrasion. The lens shall be optically correct to eliminate distortion. Lens shall be available in clear or Tuffshield (yellow tinted). Lens material shall be high-performance, impact-resistant plastic. Lens shall be able to be replaced within 15 seconds and without the use of tools (e.g. Allen wrench, screwdriver). Lens must be retained without the use of spring-loaded mechanics or lever system.
Faceshield and Hardware	<i>Faceshield</i> The faceshield shall be a wrap-around, high pivot design, 4.5" wide, 19.0" long and 0.150" thick. Lens material shall be high performance, high-temperature, impact-resistant thermoplastic. Lens shall be coated with a scratch resistant coating on both inner and outer surfaces to protect the



Name	Description
	<p>lens from abrasions.</p> <p><i>Hardware</i></p> <p>The faceshield shall be mounted to the helmet shell by means of two (2) glass-reinforced, high-temperature and flame-resistant thermoplastic bracket assemblies, with adjustable thermoplastic knobs one (1) on either side of the helmet shell. The brackets allow the faceshield to be raised above the helmet shell when not in use.</p>
Goggle System	<p>The goggle system shall be comprised of a high-temperature, flame- and impact-resistant goggle lens and frame, a flame-resistant, elastic goggle strap, and a goggle retention system. This retention system will lock the goggle onto the helmet at the back brim, preventing loss of the goggle when either stowed or donned. Both inner and outer surfaces of the goggle lens will have an anti-scratch and anti-fog coating. Both ends of the lens will be reinforced with a fiberglass insulating label for extra durability at elevated temperatures. The lens will be low profile, optically correct with a nominal thickness of 1/16". The goggle strap will require a one-time adjustment to facilitate donning if wearing gloves.</p>

OPTIONS:

A full range of fire helmet accessories, such as customizable front pieces and front holders, is available. Please see the MSA Cairns Fire Helmet catalog and/or contact an MSA representative.

MAINTENANCE, REPAIR and RETIREMENT:

Proper maintenance, repair, and retirement of the helmet can be found in the MSA Cairns Fire Helmet Owner's Guide and on our web site (MSASafety.com). Users should also refer to NFPA-1851 (current edition) regarding proper inspection, maintenance, repair schedules, and retirement requirements for structural firefighting helmets. Upon the customer's request, an MSA representative will conduct training explaining the proper maintenance, repair and retirement of MSA Cairns Fire Helmets.

CONTACT INFORMATION:

For additional information on MSA Cairns products, please contact MSA Customer Service at 1-877-MSA-FIRE or visit us on MSAfire.com.