



MSA Cairns® FIRE HELMET PRODUCT SPECIFICATION

PRODUCT TYPE:

Structural Firefighting Helmet(s) with Proximity Firefighting Option

PRODUCT MODEL(S):

MSA Cairns 1010/1044 Traditional Fire Helmets

PURPOSE:

To supply a uniform, standard product specification for a fiberglass composite structural 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 proximity as applicable) 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/STANDARDS:

MSA Cairns 1010/1044 Traditional Fire Helmets shall meet the requirements of NFPA 1971:2018 (or the current edition) for structural firefighting and proximity firefighting when that option is selected; 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 editions of ANSI/ISEA Z87.1 and NFPA 1971.

PERFORMANCE VERIFICATION DATA REQUIREMENT:

Response to this specification shall include a complete and current NFPA 1971 test report from a recognized, accredited test facility detailing all performance data for the helmet(s) and compliant helmet components included in the original assembly. 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(S):



MSA Cairns 1010 Traditional Fire Helmets



MSA Cairns 1044 Traditional Fire Helmets

HELMET SHELL:

MSA Cairns 1010/1044 Traditional Fire Helmets shall have a classic American Fire Service style helmet shell, comprising a crown, with four (4) major ribs (front, back, left and right sides), and four minor ribs equidistant between each major rib, and a brim that has a short front visor continuing around the sides to a large rear watershed area. The upper surface of the watershed shall have a textured finish with ivy scroll on the back of the watershed brim. The underside of the brim shall have drill guides for the various eye/face protection that can be attached to the shell.

The shell material shall be a fiberglass 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.

1010 Helmet Colors

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.

1044 Helmet Colors

The shell shall be available in white, red, black, and yellow with an unpainted, matte finish.

The shell dimensions (with edge-trim) shall be 15.5" in length, 11.88" in width and a crown depth of 6.5". The shell shall have a nominal wall thickness of 0.065" in the crown and 0.080" in the brim.



The shell shall have black or white¹, high-temperature, flame-resistant, flexible edge trim made of thermoplastic rubber (TPR) with an aluminum core. The edge-trim is secured around the entire brim of the helmet by crimping the aluminum core, which simultaneously captures and retains a wire used to reinforce the brim of the helmet. The edge-trim is 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 ¾", nickel plated "D" ring and a stainless steel clip. The helmet hanger shall be attached to the center rear of the brim.

FRONT HOLDER:

The helmet shell shall be furnished with a collapsible brass front-piece holder designed to absorb impact that shall be attached to the main rib on the shell front, and positioned to capture the top of standard 6" fire department identification shields (i.e., front piece). The front holder shall be a brass carved eagle, silk-screened brass eagle, a brass silk-screened Maltese cross, brass carved dragon or a brass carved beaver.

The shell shall have a thermoplastic, front-piece mounting bracket affixed to the front center of the brim. The bracket shall provide for positioning and retention of 6" front pieces.

IMPACT CAP:

The impact cap is designed to help provide increased thermal and impact protection. The impact cap shall be an impact-resistant polymer liner covered by a rigid cell, high temperature, energy absorbing urethane foam cap that covers the entire inner crown of the helmet. This impact cap is held into the helmet shell by the Shell Release tabs and corresponding brackets. It is removable for inspection and replacement.

HEAD SUSPENSION:

MSA Cairns 1010/1044 Traditional 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 clip that locks the straps into the lugs of the impact cap liner. A cloverleaf crown pad shall be incorporated into the overhead strap assembly.

SHELL RELEASE SYSTEM:

The impact liner, complete with suspension system and chinstrap assembly (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. 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.

¹ Available on white shells only.



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 loop system to provide additional comfort to the wearer and maximize compatibility with the SCBA facepiece.

The headband shall have a head size range of 6 3/8 to 8 3/4, adjustable in 1/8" increments.

COMFORT LINER:

MSA Cairns 1010/1044 Traditional 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 an optional cast zinc postman's slide buckle on the right side of the helmet. The middle section shall be a minimum of 23" in length and the total length of the chinstrap shall be 35" at full extension, end to end. An optional four-point chin strap shall be available without requiring an alternate impact cap assembly.

EAR/NECK PROTECTION:

MSA Cairns 1010/1044 Traditional Fire Helmet provides ear and neck protection with a 7.25" wide, 19" long, full-cut earlap with an expanded opening at the neck, making the ratchet adjustment easily accessible.

The triple-layer earlap consists of a 4.5 oz. / yd., yellow or black colored Nomex outer layer, and two flame resistant black flannel inner layers. The earlap shall be secured via two (2) Velcro tabs at either end of the top of the earlap and one continuous length of Velcro along the top edge of the earlap.

The earlap is machine washable and can be easily upgraded to a PBI/Kevlar or Bloodborne Pathogen 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. All versions shall also be available with underchin extensions.

RETRO-REFLECTIVE TRIM:

MSA Cairns 1010/1044 Traditional Fire Helmet shall have eight (8) tetrahedron shaped pieces of retro-reflective trim around the exterior crown of the helmet shell for maximum visibility. Both Reflexite and Scotchlite trim shall be available. Color options include Lime-Yellow, Red-Orange*, Scotchlite Triple Trim in Lime-Yellow or Red-Orange; White* and Blue* Reflexite are also available (*not compliant with NFPA-1971).



EYE PROTECTION OPTIONS:

Four eye protection options are available. Selection of one is required to meet the performance criteria and standards as listed in this product specification.

<i>Name</i>	<i>Description</i>
Defender® Visor	The MSA Cairns 1010/1044 Traditional Fire Helmets could 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. The lens shall be available in clear or Tuffshield (yellow tinted). The lens material shall be high-performance, impact-resistant plastic. The lens shall be able to be replaced within 15 seconds and without the use of tools (e.g. Allen wrench, screwdriver). The lens must be retained without the use of spring-loaded mechanics or lever system.
Bourke Eye Shield	The Bourke Eye Shield is comprised of two 6.5" (W) x 2.75" (L) x 0.2" (D) polyarulate lenses that pivot up and down at 90° simultaneously. The lenses are fastened to a single keep and cable (spring) system that allows both lenses to move simultaneously. When not in use (i.e., up) they are low-profile against the underside of the front brim. The entire assembly is mounted to a brass plate, which is secured to front center brim of the helmet shell.
Faceshield and Hardware	<p><i>Faceshield</i></p> <p>The MSA Cairns 1010/1044 Traditional Fire Helmets could have a faceshield that shall be a wrap-around, high pivot design, 4.5” wide, 18.0” long and 0.150” thick. The lens material shall be high performance, high-temperature, impact-resistant thermoplastic. The lens shall be coated with a scratch resistant coating on both inner and outer surfaces to protect the 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	The MSA Cairns 1010/1044 Traditional Fire Helmets could have a goggle system that 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



Name	Description
	thickness of 1/16". The goggle strap will require a one-time adjustment to facilitate donning if wearing gloves.

OTHER OPTIONS:

Proximity Fire Fighting Helmet

The MSA Cairns 1010/1044 Traditional Fire Helmets shall be made available with optional components to enable helmets **without a brass front holder** to be used in proximity firefighting. The necessary components shall include a proximity bonnet, a proximity shroud, and gold-plated visor. Use of these components shall enable these helmets to be compliant with the proximity firefighting helmet requirements of NFPA 1971: 2013.

- Proximity Bonnet
The proximity bonnet shall be custom made to fit specifically over the MSA Cairns 1010/1044 Traditional Fire Helmets. The proximity bonnet shall consist of an outer aluminized PBI/Kevlar layer, and an inner moisture barrier with thermal liner. The proximity bonnet, when attached to the helmet, shall allow a faceshield to be attached to the helmet over the proximity bonnet.

- Proximity Shroud
The proximity shroud shall be custom made to work specifically with the proximity bonnet. The proximity shroud shall consist of an outer aluminized PBI/Kevlar layer, and an inner moisture barrier and thermal liner. The proximity shroud, when used in conjunction with the proximity bonnet, shall provide continuous radiant reflective protection for the head, face, and neck areas that do not receive primary protection from the helmet or faceshield.

- Faceshield
The faceshield used in the proximity system shall be a gold-coated 6" faceshield. The faceshield shall provide radiant reflective protection to the head, face, and neck areas that do not receive primary protection from the helmet or proximity bonnet or proximity shroud.

Accessories

A full range of fire helmet accessories, such as customizable front pieces, 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 Operation and Instruction Manual 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.