MSA Cairns® 1836 Traditional Fire Helmet Product Specification

Product Type

Structural Firefighting Helmet

Product Model(s)

MSA Cairns® 1836 Traditional Fire Helmet

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 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

The MSA Cairns® 1836 Traditional Fire Helmet shall meet the requirements of the current edition of NFPA 1970-2025, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting.

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 1970-2025, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting.

Performance Verification Data Requirement

Response to this specification shall include a complete and current edition of NFPA 1970-2025, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, including a 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 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)*. All warranty documents can be found on the *MSA website (MSAsafety.com)*.

Product Visual

MSA Cairns® 1836 Traditional Fire Helmet (photos show 6-inch front holder; 5.5-inch also available)

Helmet Shell

The MSA Cairns® 1836 Traditional Fire Helmet 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-inch and 2-inch chopped fiberglass, compression-molded to form a one-piece shell.

Unpainted Helmet Colors

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

Painted 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, green, and pink painted finishes shall be available over a white composite shell.

The shell shall have black or white[1], 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. The edge-trim is secured at the mating ends and clamped by the stainless steel helmet hanger clip, with integrated barbs, at the edge of the rear brim.

The shell shall have a helmet hanger comprised of a stainless steel helmet hanger and a stainless steel wire formed loop. The helmet hanger shall be attached to the center rear of the brim by a brass rivet.

Weights/Dimensions

Depending on helmet configuration, weight may vary; ranging from 53.6 oz. (1.5 kg)* to 63.0 oz. (1.8 kg).

**Base Cairns® 1836 Fire Helmet comprised of the following components:*

Unpainted shell with edge trim and helmet hanger, retro-reflective trim, 6-inch front holder, and front bracket with screws. The impact cap liner system is fitted with a headband, suspension, standard cushion liner, standard chinstrap with Quick-Release buckle and postman slide, yellow Nomex Earlap, and Defender® integrated visor.

Shell Dimensions

The shell dimensions *(with edge-trim)* shall be 15.3 inches length, 11.8-inches width, and a crown depth** of 5.78 inches.

***The maximum height from the bottom of the side of the shell adjacent to the chin strap location to the top of the shell is: 5.78 inches.*

The shell shall have a nominal wall thickness of 0.075 inches in the crown and 0.085 inches on the brim.

[1] *Available on white shells only.*

Front Holder

The helmet shell shall be furnished with a crushable 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-inch or 5.5-inch fire department identification shields *(i.e., leather front piece)*. The front holder shall be a carved brass eagle, silk-screened brass eagle, or a silk-screened brass Maltese cross.

The shell shall have a thermoplastic, front-piece dovetail mounting bracket affixed to the front center of the shell with a single screw attachment. The bracket shall provide for positioning and retention of 6-inch or 5.5-inch front pieces.

Impact Cap Assembly

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

Helmet Suspension

The MSA Cairns® 1836 Traditional Fire Helmet suspension shall consist of a six-way head suspension system, attached to the impact cap assembly. The helmet suspension system comprises three (3) fixed 0.75-inch 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 assembly by means of location-specific rigid plastic clips that lock the straps into the impact cap assembly.

Shell Release System

The impact energy-absorption system, complete with suspension system and chinstrap assembly *(as described under "Chinstraps")* shall be retained to the helmet shell by means of two (2) thermoplastic shell release tabs. This design will enable the energy-absorption system to be released from the helmet shell when impacted from below the brim and leaving the energy-absorption assembly on the wearer's head for continued, limited, thermal, and impact protection.

Sizing Adjustment

The size of the headband may be adjusted to fit the wearer's head by means of a pivoting ratchet adjustment system. The headband is attached to the sides of the impact cap liner by five (5) flexible retention tabs.

The two 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 have three (3) adjustable positions to provide additional comfort to the wearer and maximize compatibility with the SCBA facepiece.

The headband and energy-absorption system shall fully accommodate a head size range of 5⅜ to 8⅜, adjustable in ⅛-inch increments.

Comfort Liner

The MSA Cairns® 1836 Traditional Fire Helmet shall have a removable comfort liner, consisting of a one-piece headband with crown cushion, and a separate ratchet pad. Both components made of a flexible open-cell foam laminate system, comprised of a soft black flame-resistant jersey-knit material against the user's head backed by a soft unbroken loop material. The comfort liner is secured to the headband via location-specific slot and tab attachments with secondary hook and loops supports. The ratchet pad is secured via hook and loop fasteners.

The comfort liner and ratchet pad are machine-washable and both can easily be upgraded to a deluxe leather-lined version.

Chinstraps

The chinstrap shall be constructed of three (3) pieces *(or sections)* of ¾-inch wide, spun-Nomex webbing, which are connected by a high-temperature, durable thermoplastic Quick-Release (QR) buckle on the left side of the helmet, and by an optional cast zinc postman slide buckle on the right side of the helmet. The middle section shall be a minimum of 23 inches in length and the total length of the chinstrap shall be 35 inches at full extension, end to end. All chinstraps are removable and washable.

Additional chinstrap options:

- Extended-length chinstrap with QR buckle and postman slide.
- Shorter-center chinstrap with QR buckle and postman slide.
- Extended-length chinstrap with postman slide and leather sheath.
- Four-point chinstrap with QR buckle and postman slide shall be available without requiring an alternate impact cap assembly.

Ear/Neck Protection

The MSA Cairns® 1836 Traditional Fire Helmet provides ear and neck protection via an earlap with an expanded opening to easily make ratchet adjustments.

The triple-layer earlap consists of a 7.5 oz./yd., yellow or black colored Nomex outer layer and two flame-resistant black flannel inner layers. The earlap shall be secured via four (4) discrete Thermoplastic hooks located across the top of the earlap and enabling easy attachment to the energy-absorption system.

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 MSA Cairns® 1836 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 for Reflexite include: Lime-Yellow.
- Color options for Scotchlite include: Lime-Yellow, Red-Orange, Triple Trim Lime-Yellow, or Triple Trim Red-Orange.

Eye Protection

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

Defender® Integrated and Articulating Visor (internal)

The MSA Cairns® 1836 Traditional Fire Helmet could have an integral visor that retracts between the helmet shell and impact cap. The visor shall be a wrap-around design meeting the minimum performance requirements set forth by NFPA, latest revision. The lens, once deployed, shall be capable of articulation to and away from the face, helping to provide gap-free protection. 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 *(amber 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 securely stowed without the use of spring-loaded mechanics or lever system.

Bourke Eye Shield

The Bourke Eye Shield is comprised of two 6.5-inch (W) x 2.75-inch (L) x 0.2-inch (D) lenses that pivot up and down at 90° simultaneously. The lens material shall be high-performance, impact-resistant plastic. 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 (external)

Faceshield

The MSA Cairns® 1836 Traditional Fire Helmet could have an amber Tuffshield faceshield that shall be a wrap-around, high pivot design, 4.0 inch, 18.0 inch long and 0.150 inch 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.

Hardware

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.

Goggle System

The MSA Cairns® 1836 Traditional Fire Helmet 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 thickness of 1/16 inch. The goggle strap will require a one-time adjustment to facilitate donning if wearing gloves.

Goggle options include:

- ESS Innerzone 2
- ESS Innerzone 2 Low-Profile
- ESS Innerzone 3

Accessories/Options

Accountability Brackets

For quick firefighter identification, accountability brackets shall be available. The thermoplastic accountability brackets are mounted to the left and right sides of the helmet by engaging the Slide-Lok arms on both sides of the helmet.

Berry Compliance

The Cairns® 1836 Traditional Fire Helmet is manufactured in the United States of America, country of origin US, and complies with the Berry Amendment FAR 252 225-7012 and Trade Agreement FAR 252 225-7021. Supplier shall acknowledge it has fully investigated the source of all elements and components of the product described in accordance with the Berry Amendment and must supply a certificate to confirm such compliance.

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

Maintenance, Repair, and Retirement

The Cairns® 1836 Traditional Fire Helmet impact cap liner system shall have the ability to be completely disassembled and reassembled, for cleaning and advanced cleaning purposes, without requiring any special tools.

Proper maintenance, repair, and retirement of the helmet can be found in the MSA Cairns® 1836 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*.

MSA operates in over 40 countries worldwide. To find an MSA office near you, please visit ***MSAsafety.com/offices***.

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