

## **SUMMARY DESCRIPTION OF HOT SHIELD WILDLAND FACE PROTECTOR MASK MODEL HS-2**

Hot Shield Face Protector Mask Model HS-2 is designed for and primarily used by the wildland firefighter. The US patented design provides for several benefits. Its primary benefit is a high degree of thermal protection to face & neck areas. This is accomplished by use of highly thermally resistant materials and adequate air-spacing, both of which are crucial to meet the goal of protecting the human skin. Hot Shield USA uses CarbonX materials from Tex Tech Industries. CarbonX is a proprietary material tested to withstand extreme temperatures, far exceeding the Radiant Protective Performance requirements of NFPA #1977 Standards for Wildland PPE (see charts on website). The interior CarbonX fabrics also absorb perspiration, adding to overall user comfort. The HS-2 is NOT a respirator but does provide a measure of respiratory relief by the reduction of smoke & ash particulate through an interior “pocket” that accommodates a respirator filter. Any low-level N-95 or EN respirator filter with exhalation valve centered in the middle will work. For USA sales/deliveries, one (1) activated carbon N-95 filter is included with each packaged HS-2. Deliveries outside USA may not include filters due to customs requirements/regulations on N-95 importation. Features 3M Scotchlite Reflective Trim for nighttime visibility. Velcro fasteners behind the neck. One size fits all. Machine washable.

### **KEY FEATURES**

- ★Patented CarbonX materials inside and out
- ★Designed by firefighters for wildland firefighting operations
- ★Moderately easy to breathe through...designed for intermittent use as needed
- ★Filter pocket allows insertion of low-level, N-95 or EN respirator filter with exhalation valve
- ★Very lightweight....only 5.8 oz / 162.4 grams
- ★Comfortable and absorbs perspiration
- ★Hangs loose around your neck until you need it (integral CarbonX hang strap)
- ★One size fits all
- ★3M Reflective Trim for nighttime visibility
- ★Wash and dry in any temperature and detergent

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## HS-2 SPECIFICATIONS

<b>Name:</b>	Hot Shield Firefighter Face Mask
<b>Model Number:</b>	HS-2
<b>Weight:</b>	5.8oz / 162.4 grams
<b>Wt w/Filter Installed:</b>	6.5oz / 182 grams
<b>Sizing:</b>	One size fits all (hook & loop fasteners behind neck)
<b>Main Benefits:</b>	1) Extreme thermal protection (radiant heat or direct flame) of major portions of the face and neck. 2) Reduction of inhalation of airborne particulate by means of a screening mesh and use of a disposable filter w/exhalation valve.
<b>Description:</b>	A safety garment for the face. Can be classified as an interface component. Mask is designed with a filter pocket that allows insertion of nearly any type of disposable (N-95) filter. Mask can hang loosely around neck until ready for immediate use. Mask uses hook and loop fasteners to secure around back of neck of wearer. Nighttime visibility with 3M Scotchlite® reflective trim.
<b>Main Users:</b>	Firefighters and other workers that are subject to direct flame, radiant heat, smoke and airborne particulate hazards in an outdoor environment and where use of a self-contained breathing apparatus is either impractical or impossible.
<b>Limitations:</b>	Will not block gases, vapors or significant or fine airborne particulate. NOT A RESPIRATOR.
<b>Coverage:</b>	Most areas of the face and neck. Leaves ears exposed.
<b>Product Testing:</b>	Mask itself subjectively tested only. The performance of the two layer fabrics used in Hot Shield HS-2 exceed several critical NFPA #1977 tests, including the RPP (Radiant Protective Performance) ASTM F1939, the TPP (Thermal Protective Performance) ISO 17492, the Flame Resistance (Vertical Flame Test) ASTM D6413, the Cleaning/ Shrinkage Resistance Test AA135, and the Seam Breaking Test ASTM 1683.
<b>Care:</b>	Machine or hand wash mild soap, air dry.
<b>Warranty:</b>	One year materials and workmanship
<b>Filter Info:</b>	Activated carbon sandwiched by cotton media. A disposable (N-95) Respirator Filter Mask with Exhalation Valve
<b>Sold by:</b>	Only authorized dealers; see our website for a list.

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## **FREQUENTLY ASKED QUESTIONS OF THE HOT SHIELD LINEUP AND THE MODEL HS-2 IN PARTICULAR**

### **Q: WHAT IS THE HOT SHIELD? IS THERE MORE THAN ONE?**

A: When people say “Hot Shield”, they usually mean the HS-2 model, the most popular and best selling model, however we make a variety of facial protection masks, shrouds and fire resistant housings. All of our masks, housings and helmet shrouds protect the users facial areas from heat & flame. However, each model offers differing levels of airborne particulate and respiratory relief. The HS-2 model uses an integral “filter pocket” to allow installation of a low-level N-95 filter. The UB-V2 model does not use or have a filter pocket; it uses a double layer of screening mesh. The HS-4 is designed specifically to fit the Sundstrom SR-100 half face respirator. The HS-5 is designed in the same way for the Draeger brand, Xplore model 3500 half face respirator. Our design is so unique it was granted U.S. Patents (# 5,628,308 & 5,823,188).

### **Q: WHY WOULD SOMEBODY NEED THIS MUCH PROTECTION? ISN'T THIS “OVERKILL”?**

A: Burns are arguably the worst survivable injury a human can sustain. Many firefighters have been overrun by fast moving fires, sustaining severe burns to the face, neck and ears. The PPE most firefighters have used for face & neck protection for years simply did not do enough to protect the skin. The choice of poor PPE often results in inadequate air exchange, 1st, 2nd and 3rd degree burns and inhalation of smoke & ash particulate. The face is especially vulnerable and exposed. Should you suffer a facial burn, you cannot easily cover it up, disguise the injury or look the same as you did before the incident.

Some argue that this much protection gives a firefighter a “false sense of security”. We respectfully disagree. Our opinion is that your training should tell you when to go in or leave your environment. Tools and equipment should offer the highest protection level possible when it comes to delicate human skin tissue, which burns at a mere 116 degrees F. Our personal experience in the California Firestorms of 1993 spurred us to invent something to protect our own skin. The Hot Shield lineup serves to reduce these risks in a major way.

### **Q: HOW DOES THE HOT SHIELD FACE MASKS & HOUSINGS PROTECT ME?**

A: In general, our products greatly reduce the risk of burns to your face by the use of highly thermally resistant materials combined with our patented design. The outer shell of every Hot Shield mask, shroud or respirator housing is made of super tough & extreme fire resistant CarbonX fabric. CarbonX is an inherently non-flammable fabric that will not burn, melt, drip, ignite, shrink, or char when exposed to direct flame or extreme heat; are highly resistant to molten metal splash, flammable liquids, and certain chemicals. The CarbonX thermal protective properties will not wash out or wear away. CarbonX accomplishes this with less weight than traditional PPE materials.

When exposed to intense heat or flame, the CarbonX fiber blend carbonizes and then expands, eliminating any oxygen content within the fabric, tested to achieve an astonishing Limit of Oxygen rating of 55. CarbonX products combine an extreme level of protection with maximum comfort. They are lightweight, soft to the touch, and flexible, wearing much like

cotton. They also breathe well, wick away moisture, and dry quickly, enhancing the wearer's comfort and productivity and reducing the potential for fatigue and heat stress.

CarbonX was initially developed by a race car driver after he suffered severe burns and is used extensively in that industry in racing suits & gloves. Hot Shield USA has been using CarbonX exclusively since November 2001.

The HS-2 also provides a measure of respiratory relief by the physical barriers of twin layers of "mesh" fabric and the integral use of a N-95 filter.

**Q: IS THE HOT SHIELD HS-2 COMPLIANT WITH NFPA STANDARDS?**

A: To date, NFPA Standard #1977 Wildland Protective Clothing and Equipment does not contain a category for "face masks". Until then, it is our understanding and those of everyone else we have consulted on this issue, until this is established, no face mask has a standard to be tested to. Consequently, firefighters, users, workers, employers are free to choose whatever face mask they wish to protect themselves or their employees from the hazards of heat and flame.

However it is important to know all the facets surrounding "wildland face masks", "wildland respirators" and applicable regulatory standards in order to obtain a true & clear understanding of heretofore very confusing issue. We offer the following logical, linear numbered items in order to help you understand the entire issue. Then you can make an informed decision for yourself, your department and/or your employees.

#1- NFPA Standard #1977 does not contain a specific category for a "face mask". It does contain a category for a "face/neck shroud". Face masks and face/neck shrouds are not the same and although can overlap, are not the same piece of equipment nor are they designed to be the same.

#2- Until a "face mask" category is written into NFPA Standard #1977, no product or face mask has a standard or bench mark to follow and/or be tested to. This includes the Hot Shield HS-2 and any other face mask available on the market.

#3- The Hot Shield HS-2 is a face mask, not a respirator.

#4- All Hot Shield masks, including the HS-2, far exceed the *thermal protection performance requirement minimums* of any & all categories listed in NFPA Standard #1977 (pants, shirts, etc), as well as NFPA Standard #1971 and #2112.

#5- The thermal protection performance minimums in NFPA Standard #1977 are set low; even FR cotton will "meet or exceed" the Standard.

#6- Human skin will begin to burn at approximately at a mere 116 degrees F. If a chosen piece of protective clothing meets the minimum thermal protective performance, but cannot adequately prevent the inside temperature from rising beyond 116 degree F for more than 1 second of time, your skin will suffer a burn. Logic dictates our skin must be adequately protected from the workplace hazard that may be encountered.

#7- NFPA #1984 “Standard on Respirators for Wildland Fire-Fighting Operations” does have specific and detailed requirements for a “wildland respirator”. However, it is our understanding that no manufacturer has been able to create a wildland respirator that can meet or exceed this Standard. In essence, a Standard was created in absence of an actual device. Fire departments are free to choose whether to adopt Standard #1984 or not.

**Q: ARE ANY OF THE HOT SHIELD PRODUCTS RESPIRATORS?**

A: No. Respiratory relief is achieved differently for every model. The HS-2 provides a measure of respiratory relief but not a perfect one. It has an integral filter pocket that accommodates any low-level N-95 or P-2 filter. Our replacement filters are steam activated carbon sandwiched by twin layers of cotton media and an exhalation valve. Inexpensive and efficient for the job. The UB-V2 Ultimate Bandanna uses a double layer of CarbonX knit mesh to block large airborne ash particles. The UNI-V2 Ultra Shroud Extreme uses the same concept but in a helmet shroud. However, both of these products cannot remove or obstruct the finer airborne particulate. The HS-4 and HS-5 are masks/housings that fit onto & around two popular well known brands of half face cartridge style respirators (Sundstrom SR-100 & Draeger Xplore 3500), protecting both the face & the respirator itself. In these two product combinations, the user can depend on the filtration data of Sundstrom or Draeger products while having the thermal resistance protection of the Hot Shield.

**Q: CAN THE HOT SHIELD PROTECT ME FROM SUPERHEATED AIR?**

A: No. Only a positive pressure breathing apparatus can do that! However, in an environment like wildland firefighting operations, where a SCBA is impossible or impractical, the only remaining option is a negative pressure filtration device combined with extreme heat protection....which is exactly what the HS-2, HS-4 & HS-5 can offer.

**Q: WHAT FILTERS DO THE MODEL HS-2 COME WITH? CAN I USE MY OWN?**

A: If sold in the USA, each packaged HS-2 contains one (1) activated carbon, low-level, N-95 filters. If sold in some countries, customs regulations forbids the inclusion of N-95 filters (Europe for example). These are activated carbon sandwiched by cotton media with an exhalation valve. Inexpensive and fairly efficient. You can use any N-95 filter you wish, or even leave the filter out, although that defeats the purpose). You don't have to buy our use our specific filters necessarily.

**Q: ARE YOUR HOT SHIELD MASKS & SHROUDS COMPATIBLE WITH ALL FIRE HELMETS and CAN I USE MY CURRENT SHROUD?**

A: Models HS-2 and UB-V2 are “stand-alone” masks that do not interfere with any helmet. Of course, the HS-4 & HS-5 models, combined with their respective half face respirators are completely compatible with any helmet as they are “stand-alone’ (not attached to the helmet). The basic standard shroud made of Nomex based fabric typically will not wrap completely over these four models, but usually will wrap and fasten below the air exchange opening of the HS-2 and UB-V2. We recommend the use of our Ultra Shroud Extreme Helmet Shroud made of CarbonX which allows the user to breathe through two layers of CarbonX knit mesh at the mouth/nose area overlap. The UNI-V2 Ultra Shroud is compatible with nearly every wildland helmet made in the world and we package it with a complete set of fasteners to accomplish this.

**Q: ARE THE HOT SHIELDS COMPATIBLE WITH GOGGLES?**

A: Low profile goggles with some type of foam work best. We personally like the “Wildcat” goggle because of its low profile with a foam lining. Remember, nearly every goggle wants to occupy the little bit of “real estate” spanning the bridge of your nose up to your forehead. Any type of face mask will need to share this area and “anchor” itself to the bridge of your nose.

We did invent a novel replacement goggle strap that helps out with this. Our Blazer QuikConnect Goggle Strap replaces your existing continuous elastic band goggle strap with one that has a Fas-Tek buckle (like the buckle on any backpack), so that you can put your goggles on without removing your helmet or mask. You can keep your goggles in a separate pouch or in your Web Case (we make it!) so that they stay clean and are ready for use at a moments notice. Several manufacturers have copied our design and we are pleased by the compliment!

**Q: WHAT KIND OF MAINTENANCE OR ANY SPECIAL CLEANING PROTOCOLS IS REQUIRED?**

A: Hand, machine or dry cleaning. Fasten any Velcro before machine washing to prevent ripping and tearing of the fabric mesh. Remove any filters and re-install after completely dry.

**Q: WHAT LENGTH OF SERVICE CAN I EXPECT TO SEE?**

A: With normal firefighter abuse/use, you should not find replacement issues for at least 5-10 years. There is not much to break or tear. We warranty all of our products for one full year. Most of what we see in repairs/returns is simply caused by people not removing the filter before washing, abusing the mask by storing hard tools (pliers, etc) in the same pocket as the mask; which is why we invented the Web Case; to keep your mask clean and easy to access).

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