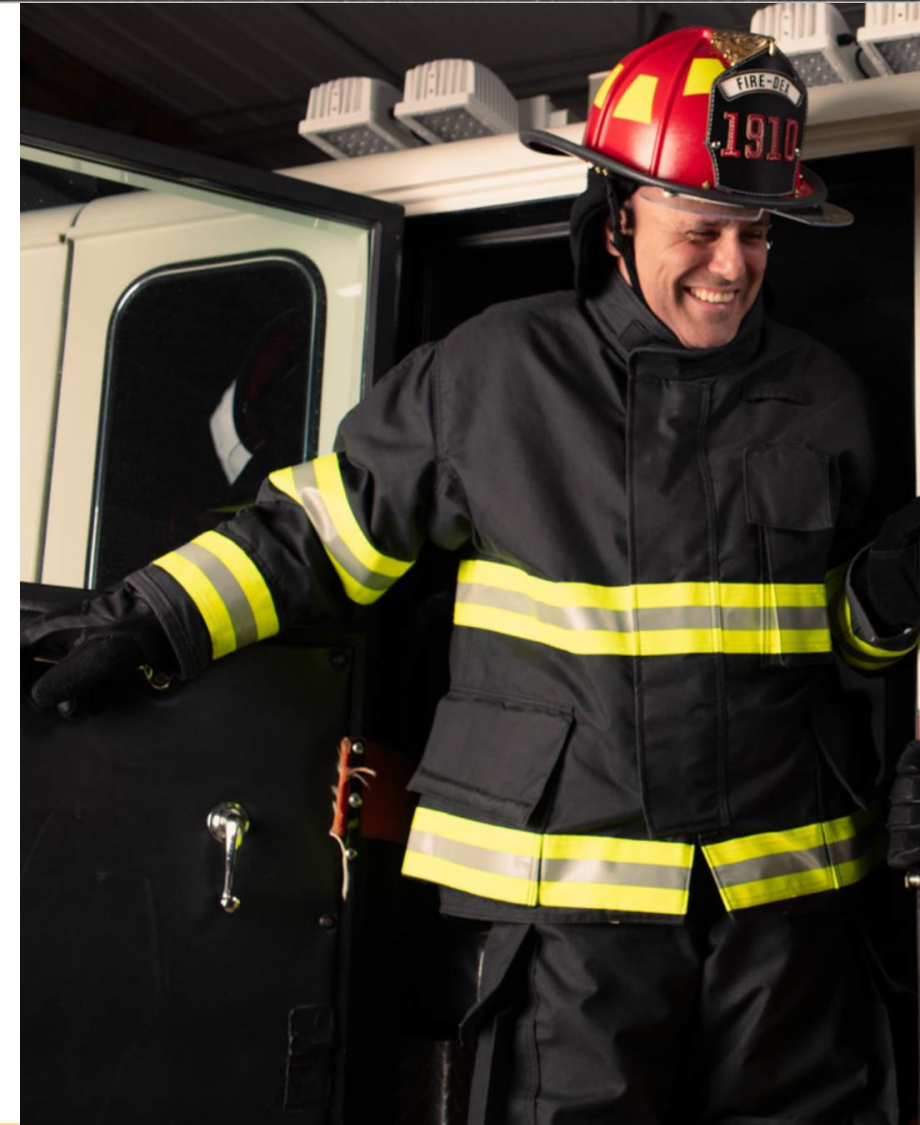




Fire  Dex®

# FXM TURNOUTS

- FXM turnout gear was brought to the market to offer our popular features at an economic position that fits all budgets.
- Our smart ergonomic design eliminates the need for antiquated designs that incorporate pleats, oversize sleeves, and oversize leg pipes.
- Bunker gear inherently inhibits the wearer's ability to move freely. The FXM pattern is engineered to minimize that effect.
- All of our engineering, product enhancements, and product releases are brought to market with the 58% of firefighters who perish from cardiovascular related failures.





Fire  Dex<sup>®</sup>

**FXM DESIGN ELEMENTS**

# UNIQUE DESIGN ELEMENTS



**SEAMLESS COLLAR**

**OMNIDEX ELBOWS**

**TAPERED HEM**

**DEXFLEX KNEES**

**TAPERED CUFFS**



The NFPA overall liquid integrity test involves a simulated firefighter subjected to water exposure. The closure of the coat must prevent water from contacting the firefighter.

Throat tabs or throat straps are incorporated into bunker designs to provide a solution to this test.

**Fire-Dex engineers our collar solution to:**

- Eliminate need for unused throat strap
- Provide uninterrupted thermal & moisture protection to the top of the collar
- Offer 360° protection in a hazardous environment while maintaining comfort in a relaxed state
- Integrate properly with SCBA face piece



**Competitive Design**  
4 seam elbow design



The Dex-Flex Elbow is a core component of our Arms Forward Design.

- Expanded elbow mobility – dart solution
- Strategic seam placement does not interfere with hinged joint
- Minimizes outer shell & moisture barrier seam failure



The FXM Modern Tapered Hem is engineered to reduce the weight of coats and allow the safe use of a pant without a rear bib.

The 4-inch differential allows a comfortable fit in the front and sufficient overlapping coverage in the back.

**Available in 3 standard lengths:**

- 27 front/31 back
- 29 front/33 back
- 32 front/36 back



**The Fire-Dex Dex-Flex Knee is a core component of our Active Posture Design similar to the arms forward/elbows flexed philosophy.**

**The FXM pants design paired with the Dex-Flex Knee articulates slightly forward of the waist to create an uninhibited range of motion for the knees.**

- Expanded knee mobility – dart solution
- Strategic seam placement does not interfere with hinged joint
- Enhancement engineered into design rather than component pieces sewn in place



- **Wear and abrasion is common in pant cuff**
- **Our design incorporates a true tapering of the pant cuff, which is 1-inch shorter in the back verses the front**
- **Minimizes fabric wear and tear by reducing materials that drag and rub against the ground**

## Competitive Design

Internally processed hook & loop



**Hook & loop failure is a major repair cost and garment failure concern.**

## Fire-Dex Solution:

- We purchase finished hook & loop cut to size
- Hook & loop has a defined edge to establish stitch integrity

## Competitive Design



Traditional bunker pants are constructed with horizontal and vertical seams joining in the crotch of the pant. This design is bulky and uncomfortable, and a common failure point for both the outer shell and moisture barrier due to abrasion.

## Fire-Dex Solution Seamless Gusset



The Fire-Dex engineered solution is:

- A seamless gusset that enhances mobility and reduces wear!



Fire  Dex<sup>®</sup>

**FXM SAFETY FEATURES**

**The NFPA mandates specific levels of firefighter protection in NFPA 1971 structural firefighter ensembles. These mandates are written around minimally accepted levels of protection.**

**Fire-Dex safety enhancements are designed to exceed NFPA minimum standards and should be factored into the value of our product.**

- Drag Rescue Device
- Collar
- Thermal Enhancements
- Coat Wristlet

### Competitive Design



Drag rescue device is a mandated NFPA component of bunker ensembles.

### Fire-Dex Design:

- Double loop system
- Deploys easily and can be used by two rescuers w/gloved hands
- Efficient installation
- Completely removable
- Inspection-Yellow Kevlar (easy to detect contamination)
- Easy to clean and maintain
- Avoid entanglement hazards

### Fire-Dex Design



**The National Institute of Standards and Technology through data collection report an average of 6.4% of Firefighters each year will receive and report a serious burn. They break these burns into four measurable categories:**

- Hand/Wrist
- Shoulder/Head-Neck
- Biceps
- Knee

**Fire-Dex specifically addresses these high frequency injury areas with specific protection philosophies, designs, and safety features.**

*\* NISTIR 5804: Fire Fighter's protective clothing and thermal environments of structural firefighting.*

## ENHANCEMENTS – HAND/WRIST



Hands are naturally extended toward a fire during the attack where they may receive a high heat flux. A fire fighter may touch a hot object and compress the protective glove.

Steam produced by applying water to the fire and hot surfaces during firefighting is a common source of injury.

Sleeve water wells are made of a moisture barrier sewn from shell to knit-wrist to prevent any risk of water entering the sleeve

Turning the finished sleeve inside out shows the added thermal protection from the Fire-Dex design to the common burn area in the wrist.

Stored energy from retroreflective trim is combatted with this thermal enhancement.



**The combined statistics for these two areas account for 56% of all burn injuries. As with the head, the shoulders are generally exposed to thermal radiation emitted from the hot gas cloud above the fire fighter.**

**Thermal lining is extended to the top of the collar. (1971 6.1.4)**

*6.1.4 Garment moisture barriers and thermal barriers, or materials meeting the performance requirements of these components, shall extend at least to the neckline seam of coats. NFPA 1971 standard, PG 23.*

**Integrated collar design ensures proper closure and eliminates secondary closing straps.**



The head and shoulders are exposed to thermal radiation emitted from the hot gas cloud above the fire fighter.

Sweat from the head and neck tends to collect at a fire fighter's shoulders. In addition, SCBA straps extend across the shoulders and back compressing protective clothing layers increasing the thermal conductivity in the area under and adjacent to the straps.



In most firefighting scenarios, the fire fighter's arms are extended toward the fire and sweat is being produced.

The fabric and moisture within the clothing is heated from thermal radiation to a temperature high enough to cause a burn, and/or the hot turnout coat fabric is compressed against the skin by the fire fighter.

### Additional thermal enhancements provide:

- A channel for additional air to be trapped between the outer shell and thermal liner. The full sleeve enhancement offers increased thermal protective performance up to **186% of non-enhanced areas.**



In many firefighting scenarios, the fire fighter's knee will be pressed against a hot surface. This can cause degradation of the turnout gear's thermal protection due to moisture and compression.

Even if the fire fighter's knee was far away from the fire and was exposed to very little thermal radiation, the knee was pressed against a surface preheated by the fire. This hot surface then transmitted its heat to the protective clothing and the fire fighter once touched.

**The Fire-Dex seam to seam knee is our best solution for:**

- Compressive conductive heat resistance
- Surface area coverage
- Natural inner rotation of pant when crouching



## DESIGN PHILOSOPHY SUMMARY

**Fire-Dex is committed to engineering decreased cost of ownership through our advanced PPE designs. In addition, Fire-Dex is dedicated to manufacturing garments with the firefighter's safety, comfort, and peace of mind at the forefront of everything we do.**

- Strategic Seam Usage/Placement
- Hook & Loop
- Dex-Cuff
- Snap Tab Placement
- Liner Attachment
- Wrist Interface
- Waistband
- Advanced Stitch Technology



**Thermal liner/moisture barrier “creep” is a common wearer complaint.**

**Moisture barrier abrasion against the outer shell is a common failure.**

**(NFPA 1851 – Hydrostatic test)**

**Fire-Dex incorporates two snap tabs to stabilize the thermal liner/moisture barrier for comfort and durability.**

## SNAP TAB PLACEMENT

Inseam to inseam abrasion is a common failure point, compromising both the outer shell and retroreflective trim.

**Fire-Dex attaches the thermal liner/moisture barrier combination via two snap tabs placed at the front and rear of the pant to prevent additional failure points.**



**Competitive Design –  
Snap tab on  
inseam**



**Fire-Dex  
Solution**



Compromising the liner attachment integrity requires the garment to be removed from service and repaired at a cost to the fire department. This also poses a safety hazard to the wearer.

**Fire-Dex utilizes a snap attachment method that is a benefit to the total cost of ownership in relation to care and maintenance.**

## LINER ATTACHMENT – WAISTBAND

An open waistband concept promotes donning failure. As well as, leaving the moisture barrier exposed to particulates and debris.

**Fire-Dex incorporates an overlapping design to prevent donning issues as well as provide moisture barrier protection from particulates and debris.**

**Competitive Design – Unprotected waistband concept**



**Fire-Dex Solution**





**Competitive Design**

The NFPA overall liquid integrity test involves a simulated firefighter subjected to water exposure. This test is performed with the firefighter's hands in a relaxed posture.

**Fire-Dex Solution**



**To help provide real world protection, the Fire-Dex wristlet is designed to protect against liquid exposure when the firefighter's arms are extended above the head.**

**Fire-Dex wristlets provide complete integrity and prevent liquid exposure to the wearer.**

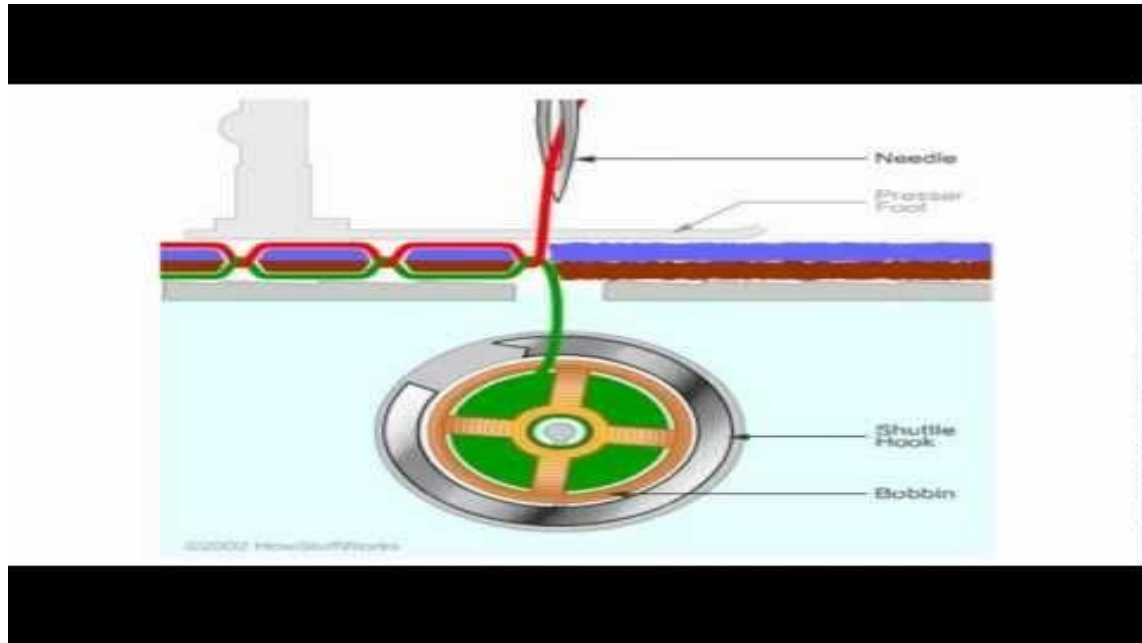
# DESIGN PHILOSOPHY SUMMARY

## STITCH TECHNOLOGY

The NFPA recognizes multiple types of acceptable stitch technology. Fire-Dex utilizes technology using double needle lock stitch for all garment assembly.

- Lock stitch is the most durable stitch type
- Lock stitch is the protocol for all NFPA 1851 governed repairs
- Lock stitch creates a flatter seam which leads to less abrasion
- Safer for the wearer
- Lower cost of ownership for the fire department

<http://home.howstuffworks.com/sewing-machine1.htm>





Fire  Dex®

**CUSTOM, STANDARD, &  
EXPRESS OPTIONS**

## FIRE-DEX BUILDS BUNKER GEAR ON EIGHT SIZED PARAMETERS

- Chest – two-inch increments
- Stomach – six inch or ten-inch expansion
- Sleeve – one-inch increments
- Torso length – one-inch increments
- Wrist/Forearm – one-and-a-half-inch expansion
- Waist – two-inch increments
- Hip – six inch plus enhancement
- Inseam – one-inch increments



### BUILT WITH THE POWER OF:

Armor AP™ (in gold)

Milliken® CoreCXP™ 2-Layer

Stedair® 3000

### PROTECTION

39.5 TPP

246.30 THL



### This model comes standard with the following features:

- Thermoplastic Zippers
- Survivor Flashlight Holder
- 3" Scotchlite Trim, Lime
- DexFlex Elbows
- Knit Wrist Thumb Loops
- Semi-Bellow Handwarmer with Fleece & Kevlar Lining
- Modern Tapered Hem
- H-Back Padded Suspenders with Cam Lock
- Low-Rise Waist
- Full-Bellow Pant Pockets with Rolled Flap
- DexFlex Knees with Foam Padded Knee Patches
- Reverse Tapered Cuffs

FXM Express is a standardized version of FXM and has a lead time of just 5-10 business days!

**COMPOSITE**

**Outer Shell:** Gold Armor APT™

**Thermal Liner:** Milliken® CoreCXP™ 2-layer

**Moisture Barrier:** GORE® RT7100

**PROTECTION**

**TPP:** 38

**THL:** 267





### **JACKET FEATURES**

- Thermoplastic Zipper
- Survivor® Flashlight Holder
- Single-Notch Radio Pocket
- Mic Clip
- 3" NYC Style 3M™ Scotchlite™ Trim, Lime Silver
- American Flag Patch
- DexFlex Elbows
- Semi-Bellow Handwarmer Pocket with Full Kevlar® and Fleece Lining
- Nomex® Knit Wrist with Thumb Loop

### **AVAILABLE JACKET SIZES**

**Chest:** 36" to 60" in 2" increments



### PANT FEATURES

- Thermoplastic Zipper
- Regular-Rise Waist
- H-Back Padded Suspenders with Cam Lock
- Full-Bellow Pant Pockets with Rolled Flap
- DexFlex Knees with Foam Padded Knee Patches
- 3" 3M™ Scotchlite™ Trim, Lime Silver
- DexCuff Reverse Tapered Cuff

### AVAILABLE PANT SIZES

- **Waist:** 34" to 58" in 2" increments
- **Inseam:** 30" or 32" available on most waist sizes