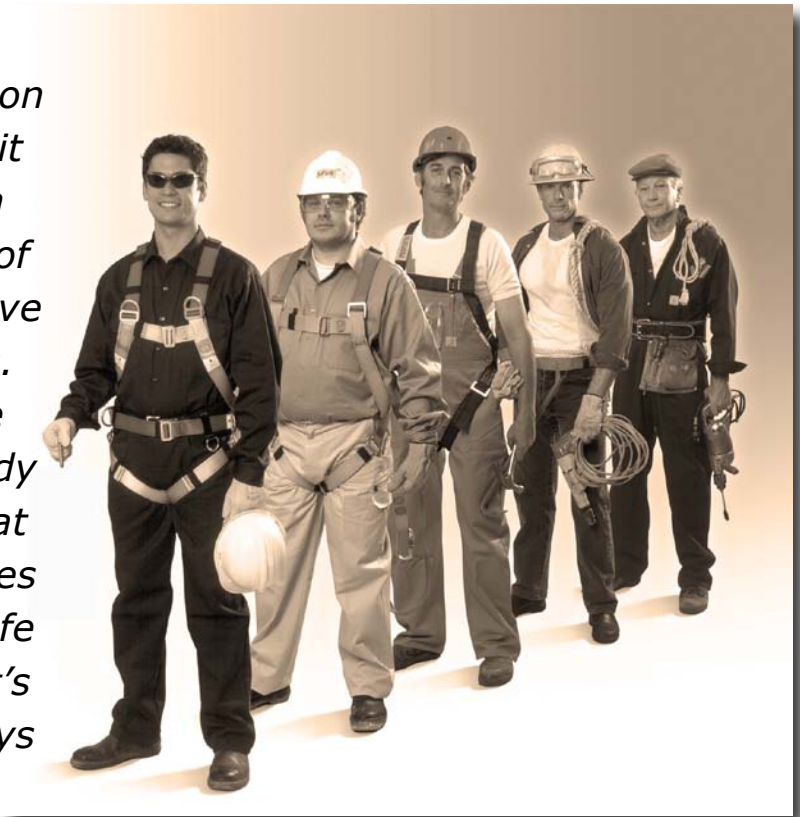


History of the Harness

A look at how the full body harness has evolved



With the launch of the ExoFit NEX™, the next-generation full body harness, we thought it would be interesting to take a look back on past generations of harnesses to see how things have changed throughout the years. And change they have! We've gone from barely protective body belts to specialty harnesses that provide industry-specific features in the most comfortable and safe designs currently available. Let's start by looking at the early days of fall protection equipment.



The concept of 'fall protection' is born

Fall protection equipment emerged in the early 20th century in the form of body belts and other equipment used by utility linemen to scale poles. Use of the equipment remained limited, especially within the construction industry. Indeed, construction in the early part of the century brings to mind iconic images of men at work without any fall protection equipment atop the Empire State Building and taking their lunch break on a steel beam high above the city during the construction of the RCA Building at Rockefeller Centre. Such images give us the shivers today, but it was simply the nature of the job back then.

The body belt remained in use for several decades, until its dangers were better understood. The problem was the belt was typically worn loosely around the waist and unreliable or even dangerous for fall arrest purposes. If a worker fell 'correctly,' the belt would arrest the fall, leaving the worker suspended horizontally. If a worker fell 'incorrectly,' the belt could be pulled up to his armpits or he could even slip out of the belt completely. In any case, a fall would send dangerous forces directly to the worker's spine and midsection.

In the 1940s, manufacturers began to look for a piece of equipment that would better distribute fall arrest forces throughout the body. They turned to the military for inspiration, and modelled the first harness after the parachute harness that paratroopers used. These cumbersome, bulky harnesses, although a vast improvement over body belts, still proved challenging to use and uncomfortable for extended periods of wear.

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History of the Harness

Capital Safety modernises fall protection equipment

In response to the industry's call for a harness that was easier to don, Capital Safety developed the triangular-style harness: the Delta™. The Delta marked a major shift in the way full body harnesses were built. Instead of a tangled mess of straps, the Delta harness could be lifted by the dorsal D-ring and fall into place, at which point it could be put on like a backpack. With the introduction of the triangular style Delta pad, the full body harness became easier to don and use than ever before.

The next major shift came in the form of improved comfort and adjustability. Capital Safety introduced the world's first premium comfort harness, the ExoFit™, in 2003, in Australia. The ExoFit™ was the result of a multi-year collaborative effort between Capital Safety's designers and ergonomics experts, industrial engineers and sporting goods equipment designers. Based on the concept of a single piece of material constructed in the shape of an 'X' that wraps around the worker, the ExoFit™ featured soft, lightweight webbing on the outside, and padding and vents on the inside to keep the worker comfortable throughout the day. The ExoFit™ also featured the industry's first quick-connect buckles for effortless donning.

The ExoFit™ changed workers' attitudes about fall protection gear. No longer was it a piece of equipment the worker dreaded having to wear; the ExoFit™ was as quick and easy to put on as a backpack and almost as light and comfortable as a piece of work clothing.

Two years later, Capital Safety introduced the ExoFit™ XP, which brought five industry-firsts to the design of full body harnesses. Those features included lightweight, state-of-the-art 3-D mesh padding, removable back and leg pads, a spring-loaded stand-up dorsal D-ring, an impact indicator built into the back D-ring, and colour-coded quick-connect buckles. All of these features led to a harness that provided the best-in-class comfort, performance and safety, that is, until the ExoFit NEX™.

Delta™



ExoFit™



ExoFit NEX™, the next generation full body harness



As Capital Safety's most recent innovation, the ExoFit NEX™ marks the next major shift in full body harness design. This next-generation harness marries exceptional comfort with unmatched durability at a level that has never before been attained with a fall protection harness. The ExoFit NEX™ brings numerous industry innovations to the market, including:

- Rigid belt loops to reduce abrasion in suspect areas as well as to protect webbing and stitching from the stress of tool pouches.
- Duo-Lok™ quick-connect buckles that eliminate the need to adjust the harness throughout the day.
- Revolver™ ratcheting torso adjusters that spool the webbing as the user adjusts the harness.
- REPEL™ Technology webbing featuring exceptional abrasion-resistance and water-repellence.
- Lightweight but strong Tech-Lite™ aluminium D-rings.

Although designed with the end-user in mind, the ExoFit NEX™ meets the needs of the three stakeholder groups involved in any fall protection program:

- 1. The User** - the user complains that fall protection equipment is uncomfortable and a nuisance. The ExoFit NEX™ provides the ultimate in comfort to become a piece of equipment that the user doesn't begrudgingly wear, but actually wants to wear.
- 2. The Safety Officer** - the safety officer doesn't want to spend a lot of time trying to convince his workers to wear a fall protection harness and to wear it correctly. The ExoFit NEX™ is fast and simple to don, and provides supreme comfort to drive compliance rates.
- 3. The Purchasing Department** - the purchasing department doesn't want to spend a lot of money on equipment replacement. The ExoFit NEX™ offers features that prolong the life of the harness, thus reducing replacement frequency and therefore costs.

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Derrick Belts



Flotation Devices



Coated hardware



Seat slings

The harness becomes a tool

Over the years, the design of the harness isn't the only thing that has changed. Early models of the body belt and harness were constructed of cotton and leather. Today the predominant material is polyester, which strikes a balance between comfort and durability. Other materials such as heavy-duty Nomex® and Nomex®/Kevlar® blends are ideal for harnesses exposed to welding work or another heat source, or where an arc flash hazard exists.

In addition to specialty materials, specialty features geared to industry-specific challenges have customised the harness, turning it into more of a tool than a required piece of safety equipment. Features such as seat slings; derrick belts; built-in flotation devices, areas to attach tool pouches; PVC coated hardware; front, back, side and positioning D-rings; and pockets have all contributed to increased productivity and safety in such fields as tower climbing, oil and gas, construction, utilities, wind energy and transportation.

As we approach the 100th anniversary of the concept of fall protection equipment, the ExoFit NEX™ represents a new chapter in the evolution of fall protection equipment from the basic no-frills body belt to fully adjustable and industry specific full body harnesses with premium comfort, ease-of-use, and durability features. But the most important aspect of the evolution of the full body harness is that it has become safer—much safer. Cheers to 100 years of safety, and let's look forward to what the next 100 years will bring.

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