

# Making carriage systems integrated and personally fitted

Soldier Modernisation talks to Glenn Nelson of Crossfire Australia about their unique Crossfire carriage systems

**Q: What sets Crossfire apart from other military pack manufacturers?**

**A:** Crossfire Australia has a heritage born in white water rafting and back country hiking, this combination of skills and experience has allowed Crossfire, over the last four decades, to approach the science of design and manufacture of military packs with a solution-based approach.

Crossfire employs a methodology that integrates evolutionary design with advanced material components, resulting in improved performance and operational efficiency while delivering a load carriage systems that is designed to function interactively as an integrated system. By utilizing the equipment as a system, an overall weight reduction, weight transfer and operational scalability is achieved that is far superior to systems that fail to consider the challenges that the end user must face in an operational environment.

What is integrated into the Crossfire line is reflective of constant dialogue with end users that wear and rely on our packs. This includes, but is not limited to, military, emergency services globally, from the Australian outback to the frozen tundra of Northern Lapland.

Crossfire achieves this relationship by putting complete focus on the user's needs and their overarching requirements. Each subcomponent of the overall system integrates field feedback from concept development, through rapid prototyping, and ultimately production and delivery. Impact to the overall weight, form, function and durability is considered in every detail down to fabric and hardware selection.

**Q: What is the Crossfire load carriage system?**

**A:** Every Crossfire pack, from the frame to the pack itself is designed as an integrated system. Our DG Frame is unique in design and function, the frame is tuned to flex with the wearer's gait pattern.

Our reasoning lays in biomechanics, as the user moves under load the spine will flex with every stride, hips and shoulders move in opposition.

Rigid pack frames lock the back into a stressed system where muscle groups fight each other. Soft frames allow the

load to slew sideways with each step forcing the shoulders to fight angular momentum.

The Crossfire live frame allows 6% of flexion in the frame to support gait whilst spreading the load across the frame. Our unique harness system will all but mitigate against *brachial plexus* compression via our laminated tapered shoulder straps which are kinked to allow integration with Combat Body Armour (CBA).

The Frame itself is designed via a frame window to allow the integration of the wearers CBA back plate into the frame without frame slap or need for additional bolsters etc.

The Frame itself is robust and has been rigorously tested in extreme conditions weather (+50c to -55c) and extremes of use. Our frame isn't perfect nor have we ever claimed it to be, however, it is a mature product that continues to evolve and develop as we receive feedback and technology and material also evolve.

**Q: Logistically it makes sense if one size fits all**

**A:** We couldn't agree more, but unfortunately not everyone is the same size, nor do most current military pack harness systems take into consideration the anatomical differences between the sexes.



DG Frame



The Crossfire Frame has three levels of adjustment in both harness and back length (adjustments can be completed quickly and easily in under 5 minutes without tools). We have also designed and tested a female's harness that is scaled and proportioned to support female wearers (this also swaps into the frame's system easily, again without any tools).

**Q: What is Crossfire's design methodology?**

**A:** Our design methodology comes 100% from feedback from end users; warfare continues to evolve alongside textile and design technology.

We continue to evolve and support end users from the outback of Australia to the tundra of Northern Norway. Each environment has its own unique requirements but Crossfire's load carriage systems are equally at home in both environments.

We apply the lessons and advice from end users to provide cutting edge, light-weight, durable and robust design solutions. Because we own the whole process from design to manufacture we can, at short notice, make 1 to 50,000 units.

We have a proud history of excellence, but the future is where we are focused. Crossfire is the choice of professionals who demand load carriage solutions manufactured without compromise. ■

**For more information, please visit:**

[crossfire.com.au](http://crossfire.com.au) | [www.crossfirepacks.com](http://www.crossfirepacks.com)

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130 litre DG 'Skadi' AW Pack