



Quartz CR 3

FINDING THE PERFECT FIT

Climbing harnesses are more complicated than they appear. Is there a perfect balance between lightweight and comfort, durability and abrasiveness with materials, the ratio in sizing between the waist belt and leg loops? Are webbing gear loops better than plastic-molded gear loops? Are features like a full-strength haul loop and drop seat mandatory?

With all of these questions, can there possibly be a perfect harness? The answer, of course, is that there is no silver bullet. By definition, the perfect harness perfectly addresses the specific needs of the individual climber looking to accomplish a specific feat. Every climber's needs evolve with time and with each new foray into different styles of climbing. If we find the perfect harness for mountaineering, it will not be perfect for rock climbing and rock climbing harnesses are not always optimized for ice climbing. We would each need multiple harnesses to ensure that we have the perfect harness for every occasion. But this does not mean harnesses cannot come close to being ideal all-arounders. The challenge is to strike the proper balance on features, materials and construction.

This is precisely the challenge CAMP took head on when we developed the new Quartz CR 3 and women's Jade CR harnesses. Here we explain how we created an ideal all-arounder with the highest possible attention to detail in Features, Materials and Construction.



Jade CR

FEATURES

Slide-Through Waist Belt: Most harnesses are designed with a single buckle on the waist belt. This obviously allows for just a single point of adjustment which can prove problematic when climbers have to adjust the harness outside of the sweet spot for a proper fit. This is common for climbers with large legs and small waists or vice versa. After fitting the leg loops, the waist belt either does not get small enough or does not get big enough to fit well. That, or the harness can be made snug, but the adjustment is on the extreme small or large end of the range so the padding is offset and the belay loop and tie-in point are not centered. One historic method for addressing this problem is to provide two buckles, (one on each side of the tie-in point) that can each be adjusted for a perfect fit. This is a good solution, but it is also heavy and bulky. Our solution accomplishes the same result, but in a more refined way. By constructing the harness so the structural webbing on the waist belt can slide through the waist belt padding, we've created a system where the padding can be moved to the perfect center of the back independent of how large or small the waist must be made to fit the climber. The padding is locked securely in place by a separate smaller buckle so it will not shift.

Edge-Load Leg Loops: Edge-Load refers to a specific type of construction where the strength of the leg loop (or waist belt on some harnesses) is gained from a combination of full-strength tape webbing sewn along the edges of a padded material and joined on either side. Edge-Load construction eliminates the structural webbing running behind the padding that can often produce a friction point when weighted. Instead, the weight applied to the padding is spread more evenly over the entire surface area for a better distribution. The leg loops on the Quartz CR 3 and women's Jade CR harnesses feature Edge-Load construction.



Edge-Load

Full-Strength Haul Loop: Is a full-strength haul loop required? The answer to this question is highly dependent on the specific style of climbing. If you are trailing a tag line, the answer is most likely yes. While a tag line will never exert a force equivalent to the breaking strength of a full-strength haul loop (~14 kN), it could prove disastrous to lose a tag line on big rock routes where full rope length rappels are often required. The Quartz CR 3 and women's Jade CR harnesses both feature full-strength haul loops.



Full-Strength Haul Loop



No Twist Belay Loop

No Twist Belay Loop: This is a patented feature from CAMP. An extra opening in the belay loop holds the belay carabiner securely in place so it cannot flip around and get loaded incorrectly in the event of a fall. The loop is reinforced with a piece of Hypalon to create extra friction for the carabiner once the webbing has stretched out after several uses. The No Twist belay loop is also nice for keeping the belay biner down and out of the way while climbing. This eliminates the need to attach and detach the biner at each belay making it far less likely to be dropped.



Flat Link Elastic – Waist



Flat Link Elastic Drop Seat



Flat Link Elastic: Another patented feature from CAMP. By eliminating any large plastic buckles and flushing the elastic straps that connect the waist and leg loops as tightly as possible, we have created a system that significantly reduces the chances of snagging and breaking in chimneys and other tight spots. The straps run through strong Hypalon slots on the waist belt and connect with low-profile metal hooks to the leg loops. This allows the climber to drop the seat, but maintains a very tight profile for the highest performance.

Ice Clipper Slots: Hypalon slots on both sides of the waist belt accommodate ice clipper carabiners to hold axes and ice screws.

MATERIALS

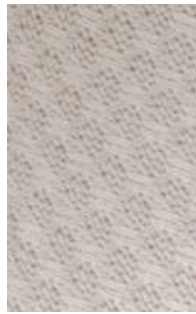
Perforated EVA Foam: EVA or Ethylene Vinyl Acetate is a polymer material with several distinct properties that make it an excellent choice for harness padding. First, it is great at absorbing shock. The material is used in footwear for this reason. It compresses upon impact to absorb energy, but quick re-forms to its original form without degrading over the course of its lifetime. It also has excellent buoyancy which means it is both lightweight and hydrophobic. It will not soak up sweat or degrade from repeated exposure to moisture. Finally, EVA is very flexible and can be cut and constructed into myriad shapes. This means we can form fit the foam to ergonomic cuts and use different thickness and perforation patterns optimized for different styles of climbing. For the Quartz CR 3 and Jade CR harnesses, we use a thickness of 3mm with a lot of perforation to make the padding both plush and breathable.



High Denier Ripstop



High Denier Ripstop



3-D Honeycomb Padding



Hypalon Reinforcements

3-D Honeycomb Mesh: This is the material that touches the skin so it must be soft. Yet, as with all things harnesses, it must also be durable. Our 3-D honeycomb mesh is a fabric with a unique weave comprised of thousands of fine threads woven much like a spider web that has both length and width, but also depth. With this structure, the material has a lot of structure and a lot of space giving it superior properties of suppleness, touch and light weight without sacrificing durability. The space between the fibers also allows air to circulate and moisture to dissipate so climbers are less likely to experience swamp back on warm and humid days.

High-Denier Coated Ripstop Nylon: Much of the testing for the Quartz CR 3 and Jade CR harnesses occurred in the deserts of Utah. Nothing degrades a harness like tight sandstone chimneys. Admittedly, we did not just get it right the first time. We thrashed harnesses until we settled on an external material that was rugged enough to shuffle big climbers up tight squeeze chimneys over and over and over again. The material is a high denier ripstop nylon that is coated for additional resistance to abrasion and UV resistance.

Hypalon: A material common in the construction of inflatable boats. Even under extreme pressure, this stuff does not tear when it smashes into sharp rocks! We use Hypalon to reinforce strategic stitch and abrasion points and our harnesses are both stronger and more durable as a result.



Fold-Over Waist Padding



Round Structural Stitching



Coated Webbing Gear Loops



Hypalon Ice Clipper Slots

CONSTRUCTION

Fold-Over Waist Belt: By carrying the mesh foam over the top of the waist belt, we eliminate the stitching and rough webbing material that often forms the top of a harness belt. Webbing and stitches are often rough and abrasive so they can be extremely uncomfortable against bare skin.

Round Structural Stitching: Round stitches require more force to unravel than straight bar tacks. Additionally, if they do experience a tear, they have a tendency to prevent further unraveling better than straight bar tacks that can unravel like a zipper opening under extremely high loads. The specific shapes and patterns of the round structural stitches used on CAMP harnesses have been optimized based on their positions and relative to the forces exerted on that part of the harness.

Coated Webbing Gear Loops: Solid plastic-molded gear loops can be dangerous. They are unlikely to fail, but if they do, it can mean dropping the rack and getting stuck on the wall without gear to progress or to bail. For this reason, CAMP only uses gear loops with a webbing core. Even our gear loops that look like solid pieces of rubber are actually webbing with plastic molded over the top. With webbing core gear loops we can guarantee a strong attachment to the main body of the harness with bar tack stitching. Solid plastic gear loops cannot be bar tacked and when they are weighted, the stitches are stretched and become very thin. Over time, the stitches can cut through the plastic and the loop will detach from the harness. The plastic-coated webbing-core gear loops on the Quartz CR 3 and Jade CR harnesses are stiff enough to remain erect from the harness, grippy enough to keep gear in place, supple enough to squeeze through chimneys and strong enough to carry a huge rack through tight spaces.

PUTTING IT ALL TOGETHER

The Quartz CR 3 and women's Jade CR harnesses are highly durable, precise in their sizing, generous in their features and extremely comfortable with innovative materials and construction. The result is a harness that is optimized for nearly every style of rock climbing and many other kinds of climbing as well. The unique slide-through waist allows climbers to dial in a perfect fit despite imperfect ratios between their legs and waists. It also allows climbers to use the same harness with different clothing layers making it a great choice for climbers seeking one harness that can do it all (indoor, outdoor, rock and ice). Patented features like the No Twist Belay Loop and Flat Link Elastic give these harnesses an edge other harnesses simply cannot offer. The rugged construction with round structural stitching and Hypalon reinforcements provide superior durability, and an astute attention to detail with materials and construction make the Quartz CR 3 and women's Jade CR harnesses exceptionally comfortable.