



# LIGHT

# IS RIGHT

BY CLYDE SOLES

**A**S PARTICIPANTS IN A GRAVITY sport, climbers have long been obsessed with keeping weight to a minimum. Back in the day, we used to drill holes in our hexes just to save a few ounces.

Despite the evolution of climbers opting for longer rope lengths combined with racks filled with cam assortments, climbers are finding ways to save weight. This is possible because over the past few years, many technologies have come together to give climbers of all abilities lighter and more efficient gear—hallelujah! The trickle down from pricey, cutting-edge equipment is finally reaching the middle market. And even price-point, entry-level gear is far better than what climbers started out with just a decade ago.

After many decades of developing new products, the climbing industry is now reaching a technical plateau.

For the most part, materials haven't improved dramatically and there aren't any major new design concepts. Instead, designers are working on the third, fourth, and fifth generations of existing products. While less than revolutionary, eking out small improvements has added up to significant gains for climbers.

Barring any major new innovations, this trend toward lighter and more efficient climbing gear will continue. Perhaps nanotechnology will stir things up in a few years with stronger metals, better polymers and more effective coatings. In the meantime, we expect manufacturers to place greater emphasis on improving the safety and efficiency of their products.

Climbing equipment makers are

## SHAVING WEIGHT

from ropes, webbing

runners, carabiners, cams,

pro and helmets.

### ROPES

Last summer, GearTrends® examined the climbing rope market in general (see GearTrends® Summer Outdoor 2005 for the "Climbing a New Line" article at [www.GearTrends.com/magazines](http://www.GearTrends.com/magazines)) and the move to skinnier, longer ropes in particular. While a 10.5 mm 50-meter rope was a long-time standard in the industry, sub-10 mm 60-meter ropes are now the mainstay.

The basic math is pretty easy: Reducing the weight of a rope by 10 grams per meter equals a saving of 600 grams or 21 ounces on the approach hike. Less obvious is the fact that skinnier ropes also reduce rope drag. By the end of a long pitch, the combined effect is greater than merely cutting over a pound of raw weight.

At this point in history, the 9.5 mm to 9.8 mm ropes, weighing around 58 grams to 63 grams per meter, are the go-to ropes for both traditional and sport climbing. For the average climber, these represent a good compromise between durability, cut resistance and reduced weight. These won't last as long as beefier 10 mm to 10.5 mm ropes, which still rule for top-roping and big walls, but the lighter ropes are such a joy to use that many climbers are accepting the trade-offs.

The new generation of hybrid ropes is still something of a conundrum for most climbers. These 8.9 mm to 9.1 mm ropes are approved by UIAA (the worldwide body that represents climbers and moun-

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tainers) both as single and half ropes (the Beal Joker is also approved as a twin rope). In general, Americans have never been keen on using double ropes, and very few have warmed to using twin ropes. Certainly, elite sport climbers will use the ultra-skinny models as single ropes for their hardest routes, but that's a limited market awash with pro deals.

However, alpine and rock climbers may use these hybrids paired with an even lighter half or twin rope (7.5 mm to 8.1 mm). This opens the possibility of combining various techniques on a long route or even within a pitch. Since hybrid ropes are so new, it may take a couple of years to work out optimal techniques for using unmatched rope pairs. But these have potential to become quite popular once the word gets around.

There is a continued trend in the sport world toward 70-meter and even 80-meter ropes since these allow lowering off of taller cliffs, as well as the ability to trim worn ends. However, for traditional rock climbing, 60-meter ropes appear to be the sweet spot, because rope drag, communication problems and the extra gear required negate the few advantages of longer ropes.

### WEBBING

When high-strength polyethylene (Spectra and Dyneema) webbing hit the market over a decade ago, the advantages over nylon webbing were minimal. The 12 mm white webbing was a tad lighter and less bulky than the 11/16-inch (17 mm) super-tape nylon that had replaced 1-inch (25 mm) webbing for most climbers.

But the introduction of 8 mm webbing several years ago has made a huge difference on a climber's rack. First offered

by Mammut, these ultra-skinny webbing runners are now offered by several companies, including Edelweiss and Petzl.

For decades, the standard 22-inch single runner weighed around 40 grams and has been carried over the shoulder where it is sometimes a nuisance to get to in the middle of a climb. Instead, the new single runners only weigh about 15 grams and can be tripled with two carabiners to carry as 7-inch quickdraws, which are much more accessible. A 44-inch double runner can be quadrupled to nicely rack as a 10-inch quickdraw—a major convenience versus the old way. Even a 68-inch runner can be reduced to an 8-inch quickdraw. A savings of 25 grams per single runner doesn't seem like much until you consider that a trad climber often carries six to 10. That works out to around a half-pound less weight just in webbing runners, plus the major convenience of reduced bulk.

However, the tradeoff to ultra-skinny webbing is extra cost (roughly twice that of nylon webbing) and reduced abrasion resistance. While fabulously strong, the polyethylene tends to fuzz significantly with use (weave makes a significant difference between brands). The 7 mm webbing from Edelweiss and 6 mm from Mammut, both introduced this season, are likely to have even shorter life spans, so they are best sold to and used by more experienced climbers.

The Yates 12-inch Speed Draw is made with 11 mm polyethylene webbing for a remarkably versatile and durable short runner. Next year, Black Diamond will offer 10 mm polyethylene webbing, which the company literature states offers the best compromise on weight and durability.

### CARABINERS

In the past few years, lightweight carabiners have dramatically improved in performance. But it's been a long evolution.

tionary process to get here. Early attempts at reducing weight include the first aluminum carabiner in 1941 and the Salewa hollow ovals in 1970.

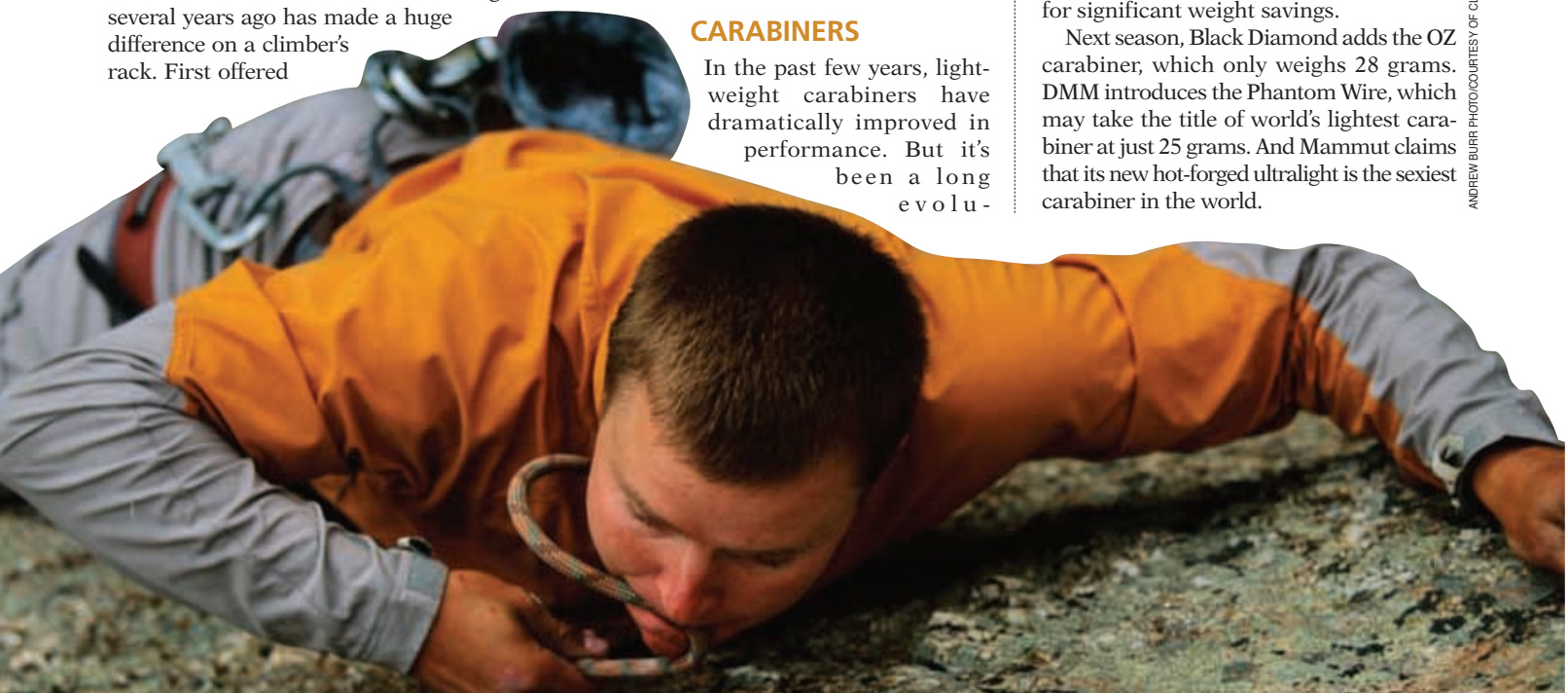
When Black Diamond introduced the HotWire in 1995, the first wire gate in the climbing world, that carabiner sparked a flurry of cheap knock-offs. Most of these were me-too designs from companies that just slapped a wire gate onto an existing carabiner body. There were a lot of price-point carabiners produced over the next five years that left much to be desired. Now that wire gate carabiners are entering their second and third generations, the small details that affect performance are getting attention.

For many years, the 48-gram Petzl Spirit (\$9) was the standard against which other carabiners were judged. That role is now held by the Wild Country Helium (\$11), which is the same size yet weighs only 33 grams. Though not the first with I-beam construction (MSR preceded it), the Helium is the most refined design with great ergonomics, a notchless gate, a hooded nose (to prevent the gate getting pushed open), and an open gate strength (the most important rating) of 10 kN.

The new generation of ultralight carabiners has been winning a lot of converts in recent years. At first, carabiners like the Black Diamond Neutrino (36 grams), C.A.M.P. NanoWire (29 grams) and Trango Superfly (30 grams) seemed too small to be easily manipulated, especially for those with large hands or those who are wearing gloves. But the huge gate clearance and flat gate make these weigh-nothing carabiners quite easy to use. All three retail for \$8, which makes them an affordable upgrade for significant weight savings.

Next season, Black Diamond adds the OZ carabiner, which only weighs 28 grams. DMM introduces the Phantom Wire, which may take the title of world's lightest carabiner at just 25 grams. And Mammut claims that its new hot-forged ultralight is the sexiest carabiner in the world.

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Locking carabiners too are going on a diet. DMM is bringing out the Shadow Screw Gate offset D that is a mere 53 grams. And Black Diamond will offer the VaporLock pearbiner that is supposed to increase friction of an ATC by 30 percent when lowering or rappelling.

Depending on the climb, a typical rack for a climber placing protection contains about 30 to 40 carabiners. Cutting 20 grams off each of these saves around 25 ounces. On sport climbs with a dozen quickdraws, there can a pound less weight swinging off the back of a harness compared to regular carabiners.

Since the latest generation carabiners are so much better, it's likely that even grizzled old-timers will finally replace the Chouinard Light-Ds on their racks. It's important to note that these new carabiners are designed for use with narrow webbing (12 mm and under); wider webbing can put too much stress on the gate.

### CAMS

Selling cams has changed. It used to be that climbers would start out with a set of one brand, usually Friends or Camalots when price wasn't the prime considera-

tion. No matter the model, when it was time to fill in the rack, it made more sense to duplicate or triplicate sizes of that brand; other brands had a similar expansion range but different feel and color-coding.

Within the past year, new introductions to the market have opened up the possibilities, and climbers are starting to rethink what they carry. The greater expansion range of the latest cams changes the modern rack. While it once made sense to carry a homogenous rack of cams, a hybrid rack can yield greater versatility.

For example, the Omega Pacific Link Cams fit a wider range of cracks than any other; however, they are rather heavy. Rather than duplicating sizes, they can be paired up nicely with Metolius Ultralight Power Cams for maximum versatility. Other hybrid racks might consist of Black Diamond C4s and Trango MaxCams, or Wild Country Technical Friends and Metolius Supercams.

While the new expanded-range cams are nice, they all have drawbacks, and few climbers would care to devote an entire rack to them. Both the MaxCams and Supercams require greater care in placement. The Link Cams enjoy ease of use, but each is roughly 50 grams heavier—

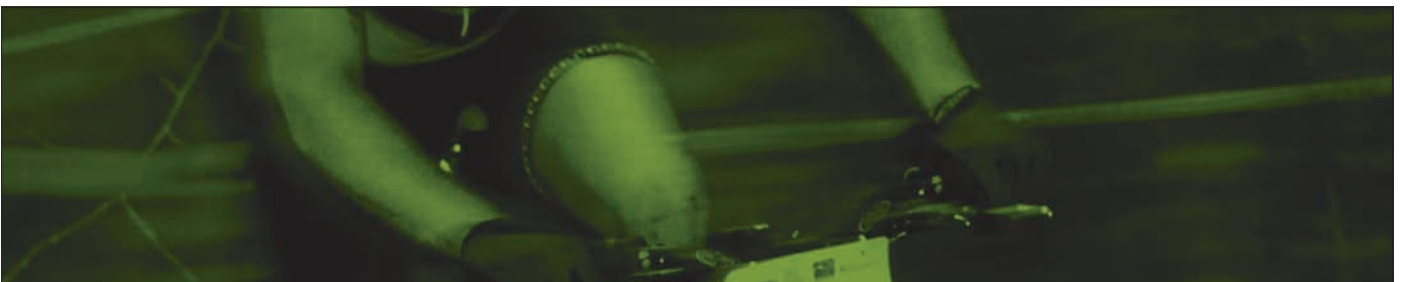
not to mention about \$30 more expensive—than more conventional cams.

Of course, the mainstay Black Diamond Camalot C4s and Wild Country Technical Friends remain the standards against which others are often judged. Neither is particularly light, but their performance ensures continued popularity.

When weight is the prime consideration for conventional cams, the Metolius Ultralight Power Cams now rule the roost, though some climbers may not care for the dual-stem design. The DMM 4 CUs are close, and have the advantage of longer slings and color-coding that matches Wild Country Friends.

Among the lightest single-stem cams are the Trango FlexCams, which are more refined than the many knock-offs of this style. And Wild Country Forged Friends are still among the lightest and most durable cams on the market.

With careful selection of cams in finger to fist crack sizes, it's possible to reduce the weight of a standard rack by nearly a pound while increasing versatility. Racks for desert climbs and big wall routes, both of which often call for copious cams, can now be several pounds lighter than



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core

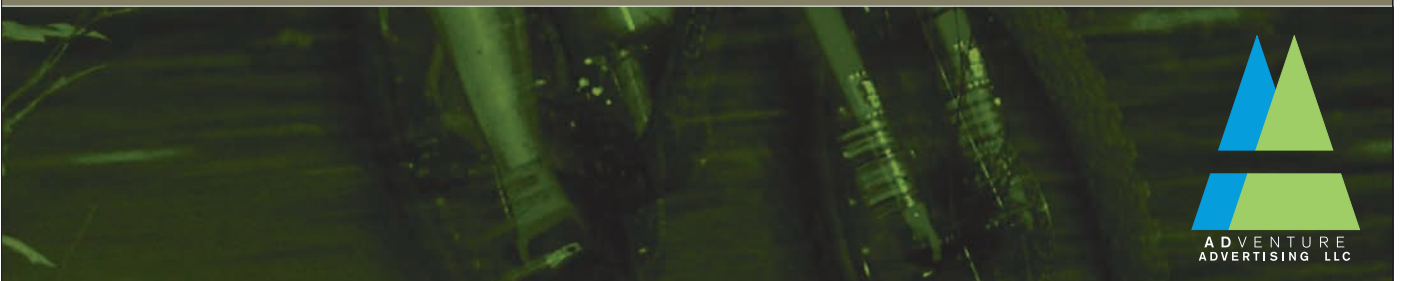
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just a few years ago.

In the smaller cam sizes, the weight differences are negligible, so choices depend more upon performance and price. The new Black Diamond C3s seek to unseat CCH Aliens as the micro cams of choice. However, longer stems and new triggers on this year's Wild Country Zeroes make these real contenders. And Metolius Ultralight TCUs are popular alternatives that behave differently than the four-cam designs.

It remains to be seen whether CCH will survive the debacle of poor quality control and customer service from the past year. Talks of a buyout by C.A.M.P. fell through, and CCH continues to flounder, with only minor improvements to its Aliens—and that's a shame.

### PASSIVE PRO

For the most part, wedges and hex nuts haven't changed much in over a decade. These are still excellent options for beginners starting out who want to supplement their cams. And alpine climbers often use passive pro when the weight of cams is prohibitive. Nuts can also be pounded into icy cracks if necessary, and they are cheaper to leave behind during a retreat.

ROB FROST PHOTO COURTESY OF MAMMUT

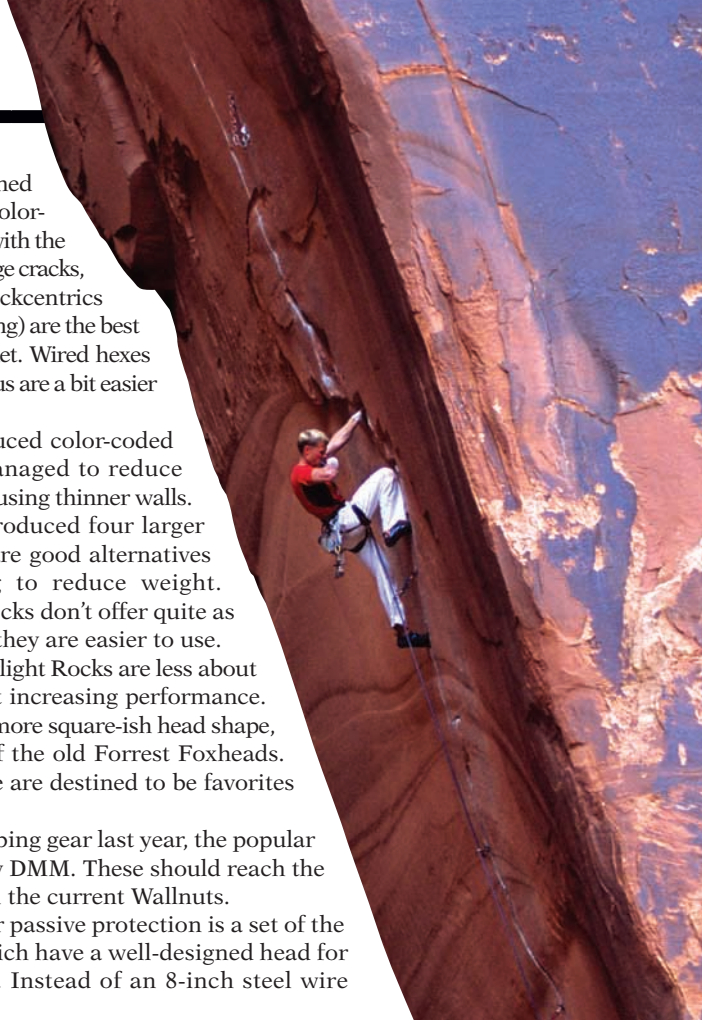
This year, C.A.M.P. has switched the ever-popular Tri Cams to color-coded Dyneema webbing along with the colored heads. For medium to large cracks, these and the Wild Country Rockcentrics (also slung with Dyneema webbing) are the best lightweight options on the market. Wired hexes from Black Diamond and Metolius are a bit easier to place but heavier.

When Wild Country introduced color-coded Rocks last year, they also managed to reduce weight slightly on four sizes by using thinner walls. More significantly, it also introduced four larger size Rocks (#11 to #14) that are good alternatives for alpine climbers seeking to reduce weight. Compared to hexes, the big Rocks don't offer quite as many placement options, but they are easier to use.

The new Wild Country Superlight Rocks are less about saving weight and more about increasing performance. These use a single cable with a more square-ish head shape, like a much refined version of the old Forrest Foxheads. The largest three sizes of these are destined to be favorites on many trad climbers' racks.

After the demise of HB climbing gear last year, the popular Offset Nuts were taken over by DMM. These should reach the market next season along with the current Wallnuts.

Another good alternative for passive protection is a set of the Frostworks Sentinel Nuts, which have a well-designed head for easy placement and removal. Instead of an 8-inch steel wire



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cable that is fairly stiff, like most wedges, these have a 12-inch stainless-steel cable that is very flexible. For the most part, Sentinel Nuts eliminate the need for a runner, so climbers can carry fewer slings and carabiners.

### HARNESSES

Perhaps more than any other segment of the climbing market, the pursuit for reducing grams in a sit harness has the least advantages. A typical well-designed harness weighs around 500 grams, while a stripped-down sport harness is about 300 grams. That rather minor 7-ounce saving comes at the tradeoff of significantly less hanging comfort and back support. In addition, the slightly heavier harnesses tend to have better buckles and gear loops for better ease of use.

Considering that harnesses can last five years or more, saving a few bucks on a price-point model (typically around \$45) is often false economy. Climbers who spend a bit more will get a better value in the long run from improved performance and reduced hassles.

Most manufacturers have recently upgraded their higher-end models to single-pull buckles that don't need to be re-threaded. These speed buckles are both more convenient and safer than the old-style buckles that are all too easy to forget to secure properly. Speed buckles are quickly becoming the industry standard and harnesses that lack them are on the way out.

Harnesses like the Black Diamond Focus Speed (\$75) and C.A.M.P. Quartz CR (\$70) have two buckles on the waist harness so that the tie-in point and gear loops are properly centered no matter the amount of clothing worn. Quick-release buckles on the leg loops make these suitable for all types of climbing, so they are particularly versatile.

Considering the aging of sport and trad climbers, it is no surprise that more harnesses are now emphasizing greater lumbar support. Often called "big wall harnesses," these increasingly are worn at the crags and even in rock gyms by those who want to take it easy on their spine, particularly heavier climbers. The Metolius Waldo (\$130) is likely the most comfortable harness on the market, but even its Deluxe Harness (\$85) has more support than most. Next season, Black Diamond will offer the Inertia Wall Harness, which also boasts greater support.

Surprisingly, no manufacturer has yet built a zippered pocket onto the rear of a climbing harness. The Metolius Harness

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Packs (about \$20) are a step in that direction, serving as an excellent place to carry a few necessities. But an integrated pocket would work even better without getting in the way while climbing.

When a climber absolutely has to cut weight, the harness of choice is the C.A.M.P. XLH 95 (\$40), which, as the name implies, weighs only 95 grams. This remarkable harness packs down to the size of a tennis ball and is surprisingly comfortable, but is certainly designed for special applications.

## HELMETS

Aside from alpine and ice climbing, where use is almost universal, helmets have been slow to catch on with climbers. But new ultralight entries on the market within the past few seasons are starting to change the tide. Once limited to just a couple brands, lightweight foam climbing helmets are now offered by Black Diamond, C.A.M.P., Cassin, Dynafit, Grivel, Kong, Liberty and Petzl; Mammut enters the market next season.

Borrowing technology from the cycling world, climbing helmets have greatly improved in comfort and style. Old-style hard shell helmets, such as the venerable Petzl Ecrin Roc (\$84), offer great durability, but they also weigh in around 450 grams. The new class of EPS foam helmets with a thin co-molded micro-shell typically weighs less than 300 grams. Both the new Black Diamond Tracer and the Petzl Meteor III tally a mere 235 grams each—they are barely noticeable—and sell for \$90.

With the rise of adventure racing, there has also been an increase in demand for true multi-sport helmets that are lightweight and comfortable. The new Dynafit Race Pro (\$175, 280 grams) is certified in Europe to the standards for climbing, skiing and cycling. The Kong Scarab (\$158, 255 grams) is certified in Europe for climbing, cycling, kayaking and horseback riding. However, neither of these helmets has passed the CPSC standard, so they cannot legally be sold for cycling in the United States. Likely, there will be more multi-sport helmets in the future, though the cost of certifications may be their biggest obstacles.

While impressive, there is still room for improvement in climbing helmets. In particular, fitting systems on many models can use refinement. And side-impact protection can be improved. Currently, all the helmet tests are pass/fail, so there is no way to compare the difference in head protection offered by various models.

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### Tuesday, Sept. 19

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Apparel Sourcing Symposium-Asia  
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Noon – 1:00 p.m.  
Symposium Networking Lunch  
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