

✓ MXA TEAM TESTED 6D ATR-1 HELMET



WHAT IS IT? The most innovative helmet ever made.

WHAT'S IT COST? \$745.00.

CONTACT? www.6dhelmets.com or (714) 772-2121.

WHAT STANDS OUT? Here's a list of things that stand out with 6D's ATR-1 helmet.

(1) Theory. A modern motocross helmet has a crushable foam EPS liner to protect the rider's head in a crash. If the foam is thick enough, its density sufficient and the crash is not too violent, the rider's head will come to a gentle stop before he runs out of foam. To save a rider's life, the foam must be very stiff—stiff enough to absorb a 300G load. The problem is that when you build a foam liner to deal with a catastrophic G-load, it is too stiff to absorb blows that are less than catastrophic—say, 60Gs. Unfortunately, engineers have had a tough time figuring out how to make a helmet that could protect the brain from a life-threatening 300G crash and still absorb a concussion-producing 60G crash. Until now!

(2) Light bulb. A light bulb went off when 6D's designers realized that the solution to cushioning two different degrees of impact was to use two EPS foam liners instead of one. With two helmet liners, they could make one soft enough to reduce G-loads in small crashes, which cause the majority of concussions, and the second stiff enough to withstand life-threatening 300G blows. And, as icing on the cake, they separated the two foam liners with 27 hourglass-shaped elastomer dampers that space the two liners 7mm apart and can move three-dimensionally to absorb not only direct blows but oblique ones as well.

(3) Function. In a crash, the rider's head pushes against the inner foam liner, which deflects against the

27 hourglass dampers, which in turn compress toward the outer liner. Once the 7mm of elastomer travel is used up, the two foam liners join to become one thick foam liner. You have a soft, suspended, inner liner that absorbs blows below 120Gs and a thick unified liner for blows up to 300Gs. It is a very elegant solution to a problem that has stymied helmet designers for years.

(4) Fit. We expected the 6D ATR-1 to be heavy, but at 3.4 pounds, it is ballpark for premium helmets and in line with Shoei and Arai weights. With sizes from extra-small to extra-extra-large, the fit is above average. The comfort isn't on the level of an Arai, but test riders didn't complain about pressure points or hard spots. The eyeport offers excellent all-around views. The snap-in liner is washable, removable and available in different sizes. Plus, the cheek pads have quick-release tabs. The overall size of the carbon/Kevlar/fiberglass shell is a 1/2-inch larger than the typical shell to make room for the inner liner and hourglass dampers.

(5) Performance. What is most important about the 6D helmet is its ability to reduce the G-loads of not just high-G crashes but head-rattling low-G crashes. For a rider with second- or post-concussion syndrome, this is the helmet to wear, because it has the best low-impact protection (thanks to its dual liners).

WHAT'S THE SQUAWK? Price. The \$745.00 is less than an aftermarket exhaust system or an ambulance ride.

MXA RATING



MXA has only given five stars to two helmets over the last 20 years. The 6D ATR-1 is the third.