



# **BETA's Guide to Riding Hats**

Modern technology has enabled manufacturers to reproduce hats which are very strong, lightweight and extremely comfortable to wear. All hats and skulls must be fitted with an integral adjustable nylon harness and must conform to a **minimum of EN 1384**. This indicates that the hat has passed the required tests. To protect properly the hat must be fitted correctly, ideally by someone who has attended a BETA hat fitting course.

If that hat suffers a severe impact – even dropping onto a hard surface, it should be thrown away and a new one purchased. It is easy to replace a hat, but impossible to replace a head!

### **Obsolete Standards:**

BS3686; BS6473:1984; BS4472:1988

All these standards preceded the first European standard and were all withdrawn in 1997. They are no longer viewed as suitable by the Health & Safety Executive (HSE) although some organizations continue to allow the latter of the standards, e.g. Dressage.

EN 14572 - This was a high performance hat standard designed to complement, not replace the existing standards and includes a radical new lateral crush test. As no hats were made to this standard, it has been deleted in 2011.

### **Current Standards:**

Standards are usually composed by a committee, in Europe each country sending their own representative to the European technical committee. European standards are reviewed every five years or following a complaint about its efficacy and although a review does not necessarily lead to a new standard, history has shown that a new standard emerges every ten years or so. PAS standards are managed by BSI staff and are reviewed every two years.

### **EN1384 1996 / BSEN 1384 1997 with CE mark**

This standard may be found prefixed by other initials belonging to the country testing the helmet, e.g. DIN EN1384 indicating testing in Germany. The BS prefix symbolizes that the hat has been tested in Britain and though in theory there should be no difference, some European countries have approved helmets that may have failed if tested in Britain.

The two standards are identical in content and were a major leap forward over the previous British standards, offering bottom edge protection for the first time. The helmet is impact tested almost right on the bottom edge (as opposed to 75mm up from the bottom edge on BS4472 hats) so the protective liner has to extend all the way down to the rim. This change came about because it was found that in 25% of falls the rider did not land on the top of their heads, but on the sides, front or back. Bottom edge protection also ensures your temples are safer. It does include a penetration test.

This is the basic minimum standard for almost all forms of riding.

### **PAS015: 1998/ PAS015: 2011 with BSI mark**

This stands for Product Approval Specification and was developed by the British Standards Institute (BSI) in response to concerns about the time it was taking to develop what would become the EN1384. The first version was formulated by looking at drafts for the European standard and taking the highest option in each case.

After the official publication of the EN1384 in 1997 certain differences occurred between it and PAS015, leading to the 1998 revision of the PAS015 to remove those differences and address

new areas of protection such as crush resistance and protection against injury when landing on an edged surface. As the test line is lower at the front it tends to lead to slightly bulkier helmets. A stability test is also included to limit excessive movement during wearing or a fall. This has been revised in 2011 with an increased drop height and several other amendments affecting the performance of hats. It is expected that the 1998 version will run parallel with the 2011 for 18 months.

### **ASTM F1163: 2004a with SEI mark**

This is the American standard for riding hats and is similar to PAS015:1998 although it does not include a lateral rigidity (crushing) test nor a penetration test, meaning these hats often have quite large ventilation holes or slots. There is much debate about the ventilation holes and whether they do help to cool the head or put the rider at more risk of penetration type injuries. There are many helmets on the market however with ventilation holes that do pass the PAS and EN1385 penetration tests as well as the ASTM standard.

### **Snell E2001**

This is the newest standard, developed in America by the Snell Institute. It is a higher performance standard which includes all aspects of ASTM and PAS 015 but with a sharper horseshoe anvil (to replicate a horse kick or impact with a sharp surface), higher impacts and an additional hemispherical anvil to represent an uneven but not sharp surface such as a tree, fence or cobbled surface.

### **AS/NZS 3838: 2006 with SAI global mark**

This Australasian standard is comparable to the EN1384 but testing includes the hazard anvil from PAS 015 but does not include a penetration test.

## **Quality Symbols**

### **The Kitemark**

The Kitemark is the registered trademark of the British Standards Institute and can only be affixed to products certified by them. As well as complying with the requirements of the relevant standard, e.g EN1384 or PAS 015, the mark indicates that the company complies with a rigorous system of regulation and testing. Companies are required to provide the BSI with unrestricted access to their offices and factories and allow regular testing of randomly chosen samples through batch and audit testing. Hats are only released for sale once batch testing is completed, thus avoiding product recall.



Kitemark certification is voluntary and can be withdrawn at any time.

### **SEI – Safety Equipment Institute**

The SEI quality mark is the American equivalent of the Kitemark for ASTM standard hats. The SEI is an organization similar to the BSI, set up to test the claims of manufacturers that their product meets the claimed standard. Its system of regulation includes design approval and audit testing of product.

Hats must be tested a minimum of annually, however the company must also show an internal auditing and quality control system of regular testing that may include batch testing.

## **SAI Global**

The “five ticks” Standards Mark for the Quality Assurance Scheme of Australia shows certification to their version of the Kitemark, requiring batch testing and company auditing.

## **CE Mark**

The CE Mark is neither a quality mark nor a standard in itself but is a mandatory declaration under EU law by a manufacturer to show compliance with essential requirements of all relevant EU Directives. It was introduced to allow government officials a way of ensuring that products entering a European Country met the basic safety requirements of Europe. Under the Personal Protective Equipment Directive all safety equipment must bear the CE mark showing compliance with the appropriate European safety standard.

## **Which is the safest hat?**

Firstly it is important to understand that no hat can prevent serious injury in certain circumstances. Hats that offer a high level of protection in terms of shock absorbency, penetration and retention are the current ones listed above.

## **Who will allow Which hat?**

Riders competing under the rules of a Discipline or the Pony Club or Riding Clubs should refer the respective rule books as to the standards allowed under such rules.

## **Legal Requirements**

By law children aged 14 years or younger must wear a riding hat to at least EN1384 when riding on the road.

## **Fitting**

Comfort and correct size are paramount when fitting a hat. A BETA retailer is the best person to advise, particularly if they display the BETA Safety Course Certificate indicating they have been trained to fit hats. Points to remember when buying a hat:

- Take care not to choose a hat that is too large because firmness has been mistaken for tightness
- Adjust the harness, chin strap first, then the back strap. Check it each time it is used.
- After being subjected to a severe blow a hat should be replaced, even though there may be no visible sign of damage. The exterior hard shell could look fine but the inner shell could be badly damaged and the protection in a certain area could be greatly reduced.

**To find your local BETA retail member who attended a hat and body protector fitting course please see [www.beta-uk.org](http://www.beta-uk.org) or email [tin@beta-int.com](mailto:tin@beta-int.com) or call 01937 587062**