

# NEW STANDARDS FOR MOTORCYCLIST'S PROTECTIVE CLOTHING

Do Your Products Conform to EN 17092 parts 1-6: 2020?

Motorcycle clothing is designed to help protect the rider in a crash, particularly from impact and the effect of high-speed abrasion. These products are classified as Personal Protective Equipment for both personal and professional use and has to be CE and/or UKCA marked. In this article, Joyce Moore, Certification Team Leader, introduces the standard and highlights key considerations for ensuring compliance including testing requirements, reporting and marking.



## Regulatory market drivers

New EU standards for clothing have recently been published to compliment existing standards for boots, gloves and impact protection.

These allow CE marking to a common set of requirements relevant to most types of commercially available products, from abrasion resistant trousers to full riding leathers. Most clothing items will also include some form of impact protectors to absorb or distribute force at specific impact points.

The current professional motorcyclist protective clothing standard EN 13595 will at some point be withdrawn, the timescale for this has not yet been determined.

## New standards

The European Standard EN 17092 consists of the following parts, under the general title "Protective Garments for Motorcycle Riders":

- Part 1: Test methods
- Part 2: Class AAA garments - Requirements
- Part 3: Class AA garments - Requirements
- Part 4: Class A garments - Requirements
- Part 5: Class B garments - Requirements
- Part 6: Class C garments - Requirements

There are several technical differences which have been incorporated in the new editions by comparison with the older professional standard. This is to encourage a changing rider profile to wear PPE. Ergonomic considerations, material innovations, and testing deemed to be more replicative of real-life abrasion accidents have all been considered and addressed in the new structures and content.

Performance requirements are typically a compromise between protection, comfort, and ergonomic requirements. Motorcycle products often market functional advantages such as breathability and a low-profile to facilitate improved comfort and fit. These may not be considered within the new standards and usual validation testing pertinent to any additional claims is still recommended.

The new suite of standards defines the basic performance requirements considered essential for motorcyclists' protective garments, for them to offer useful classes of protection to riders according to the risks they may encounter.

**Class AAA garments:** Offer protection from impact and abrasion, using materials and construction that meet higher requirements than parts 3 and 4 of the suite of standards. These garments may have limiting ergonomic, weight and thermal penalties for some riding

activities. Some common examples are one-piece or two-piece suits.

**Class AA garments:** Also offer protection from impact and abrasion, but at a lower level more suited to the greatest diversity of riding activities and may therefore have lower ergonomic and thermal penalties than AAA garments. Some common examples are garments designed to be worn by themselves or to be worn over other clothing.

**Class A garments:** May have the lowest ergonomic and weight penalties and offer a minimum necessary degree of protection from impact and abrasion. Some common examples are garments designed to be worn by themselves or to be worn over other clothing in warm environments.

**Class B garments:** Specialised protection for abrasion only (equivalent abrasion to class A) and would not contain impact protection. They should be worn with other garments which provide the impact protection as a modular system

**Class C garments:** Non-shell impactor protector ensemble garments which offer impact protection only and should be worn additionally to the above garments to provide either the minimum or enhanced impact protection.

## Did you know?

The European Standard EN 1621 for impact protection inserts has also been adopted for other applications, the most common include equipment and clothing for downhill mountain biking and winter sports such as snowboarding. In these applications, items such as back protectors for snow boarders have been tested to EN 1621 with preconditioning to reflect their use in a cold environment.

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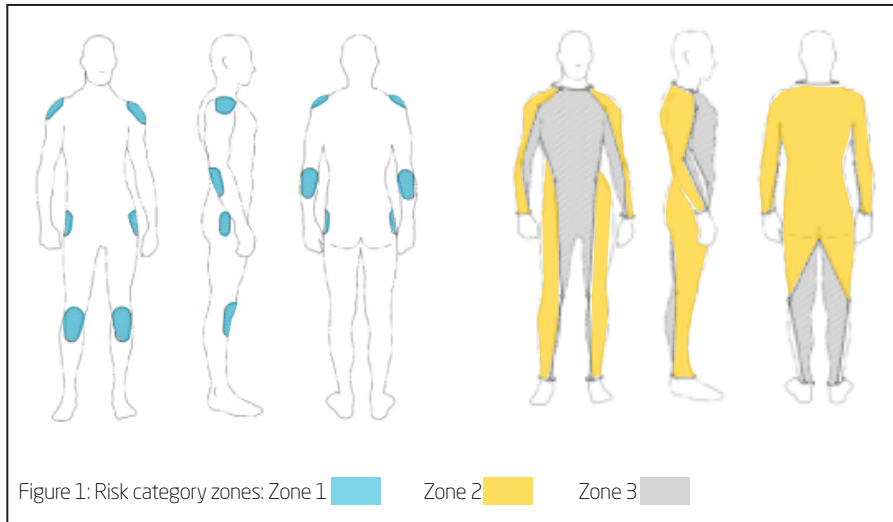


Figure 1: Risk category zones: Zone 1 ■ Zone 2 ■ Zone 3 ■

## Robust evaluation

For many items of Motorcycle clothing it is important to ensure the highest level of protection is placed in the critical 'zones' on the body identified by research into accidents and incorporated into these standards as marked performance areas on a 'manikin' shape. It is necessary therefore to view completed garments as part of the certification process to ensure the zoning requirements are met.

The "risk category zones" are defined according to the likelihood that the area of the garment included in the zone will be subject to mechanical stress, in the event of an accident. There are three zones, as below:-

- Zone 1 – the areas of motorcyclists' protective garments that have a high risk of damage e.g. impact, abrasion and tearing
- Zone 2 - the areas of motorcyclists' protective garments that have a moderate risk of damage e.g. abrasion and tearing
- Zone 3 - the areas of motorcyclists' protective garments that have a low risk of damage e.g. abrasion and tearing

An example is shown in Figure 1, above.

## Reporting and Marking

For the different parts of the standard requirements are given for the following:-

- Impact protections, their fixation and fixation (where),
- Impact abrasion resistance (excluding parts
- Seam strength
- Tear strength
- Restraint (For two-piece suits and sleeves on jackets)
- Fit and Ergonomics

There may be other additional garment construction requirements for Structural

closures, Vents, Pockets, Zone Intrusions, collar material, use of open mesh materials, use of reflective materials

## Reporting and Marking

Robust reporting is required to support your demonstration of conformity. The test report shall include the information such as the methods used in testing, the results, the output of the ergonomic assessment and details of any unusual features observed during the tests.

## Marking

Marking of the garments is laid down in the standards. The product should be permanently and conspicuously marked with the information given below

1. Name and Address of the Manufacturer or Authorised Representative
2. Style Reference
3. Sizing
4. Pictogram for example (at right)
5. The indication of the garment Class as specified by the standard
6. Number and year of the standard i.e. EN 17092-2:2020
7. The "i-booklet" pictogram instructing the user to read the information supplied by the manufacturer

Information to be supplied to the user  
This is the information as details in the standard which gives wearer information and instructions for use



## Did you know?

According to the MOSAFIM Project "Motorcyclists road SAFety IMprovement through better behaviour of the equipment and first aid devices" commissioned by the European Commission Directorate General for Mobility and Transport, (published 2013) <sup>(3)</sup> multiple findings were found upon analyzing several accident/risk data bases. These include:

- Injuries to a motorcyclists chest is the most frequent body region sustaining the maximum score on the Abbreviated Injury Scale (AIS). (AIS is an anatomically-based, consensus-derived, global severity scoring system that classifies each injury by body region according to its relative importance on a 6 point ordinal scale.)
- Chest injuries are often severe or critical and they are major contributors to reduced survival following head injuries
- It has been found that the chest area is likely to register life-threatening injuries, i.e. around 30% of thorax



Figure 2: Pictogram

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## How does this affect your business?

- This standard is now in the public domain and can be applied to your products immediately
- Ensure that your Certificates of Conformity are available either with the individual items of PPE or available via a link on your website.
- To better manage the safety of your product, the requirements and advice/guidance within the standards should be closely followed and incorporated within your product development and control procedures.
- Retailers should implement comprehensive due diligence programs which address all critical performance safety aspects of the products
- Ensure that ongoing production runs of the same product remain in conformity by application of ongoing batch testing.
- Investigate and record any complaint made in relation to the product whilst keeping a register of complaints, non-compliant products and recalled products bring non-conforming products into compliance. Make this information available to authorities if requested and proactively communicate with authorities if there is a perceived safety risk. It is best practice to define a rapid response approach to quickly evaluate instances of non-conformity. A well-designed response plan should effectively evaluate, test and report in a robust and documented manner.
- When selecting a third party assessor or testing body partner, selection should be influenced by a number of qualities which demonstrate competency.

These include:

**A customized evaluation and test program** customized to meet your individual company requirements should consider the nature of your products. This should be uncomplicated, easy to execute and ensure smooth continuity in your development cycle, ongoing production or supply chain.

### Excellence in project management

- Project management is fundamental to addressing the range of unique compliance, time-critical and quality related needs for smooth implementation of test programs. Excellence in project management techniques and communications can effectively facilitate necessary scheduling, risk management, and control requirements in order to mitigate risks.

**Responsiveness** – Should an instance of non-conformity arise, your chosen partner should be able to implement the necessary testing program promptly to support you.

**Experience Assessors** – Your service providers should record relevant training showing ongoing and regular training completed. Training records should be kept up-to-date.

## Why Intertek?

Conforming to these standards demonstrates to your distributors, retailers, consumers and other stakeholders that your organisation is following best practice to improve product safety and quality. The steps to ensure conformity can be complex, however working with a Notified Body with experienced industry professionals who specialize in PPE evaluation and, in particular, motorcyclist's protective clothing and equipment can help de-risk the process. This will lead to a smooth process for obtaining an EU Type Examination Certificate to show your garments are safe and well-performing which conform to the applicable safety standards.

## References:

1. BS EN ISO 17092-1:2020 Protective garments for motorcycle riders, Part 1: Test Methods
2. BS EN ISO 17092-2:2020 Protective garments for motorcycle riders, Part 2: Class AAA garments - Requirements
3. BS EN ISO 17092-3:2020 Protective garments for motorcycle riders, Part 3: Class AA garments - Requirements
4. BS EN ISO 17092-4:2020 Protective garments for motorcycle riders, Part 4: Class A garments - Requirements
5. BS EN ISO 17092-5:2020 Protective garments for motorcycle riders, Part 5: Class B garments - Requirements
6. BS EN ISO 17092-6:2020 Protective garments for motorcycle riders, Part 6: Class C garments - Requirements
7. BS EN 1621 3:2018, Motorcyclists' protective clothing against mechanical impact, Part 3 Motorcyclists' chest protectors - Requirements and test methods

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## Intertek's expertise

If this new standard impacts your organization then contact our experts to discuss your challenges. Our in-house experts for PPE and in particular EN 17092, are able to advise on the new standards, deliver test programs which are relevant to your products and their end-use, and generate robust reports to support your product's conformity to EN 17092.

## About our Expert

Joyce Moore, C.Text ATI


Joyce initially began her career in textile testing, moving not the certification of PPE since the PPE

Directive was first introduced. She also has experience in quality assurance, laboratory management and product technical specification roles. She joined Intertek as a Certification Assessor of PPE Clothing and Gloves in 1999 and since then has added more areas of PPE including Motorcycle impact protectors and Clothing, Sports PPE, Footwear, Helmets and Equestrian Body Protectors.

Joyce has contributed to the development of British and European standardisation for around 15 years as a committee member of a number of committees. She has also represented the UK as a Technical Expert on high visibility clothing.



## FOR MORE INFORMATION

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