

# JOINT MARKET SURVEILLANCE ACTION 2016 ON **PRODUCT SAFETY** GPSD 2001/95/EC



## **FINAL REPORT** **Personal Protective Equipment (PPE) - Climbing Equipment**

The Joint Market Surveillance Action on  
Consumer Products 2016 (JA2016)

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#JA2016

Photo on cover page: Climbing in Paklenica National Park, Croatia (credit: Neilson Active Holidays)

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### NB

Please note that the project and all related written production is exclusively in English. Dissemination at national level is carried out by each participating Member State.

# Table of contents

Table of contents .....	3
List of Tables .....	4
List of Acronyms .....	5
Executive Summary.....	6
1 Introduction.....	8
1.1 Participating authorities.....	8
1.2 Key Staff in the Activity .....	9
1.3 Main Objectives .....	9
1.4 Volume of the activity .....	9
1.5 The phases of the activity.....	9
1.6 Timeline for the Activity .....	12
2 Background.....	13
2.1 The market for climbing equipment.....	13
2.2 Regulatory framework .....	13
2.3 European harmonised standards for climbing equipment .....	15
2.4 UIAA standards and safety label.....	15
2.5 Accident data.....	16
2.6 RAPEX notifications.....	17
3 Setting up the Activity .....	18
3.1 Determination of the scope .....	18
3.2 Selection of test laboratories.....	19
3.3 Sampling.....	19
4 Checks and tests .....	25
4.1 Checks on markings and documents .....	25
4.2 Test Programmes .....	25
4.3 Results of checks and tests .....	30
5 Follow-up.....	42
5.1 Risk assessment .....	42
5.2 Corrective measures .....	43
5.3 ‘Safety Gate’ (RAPEX) notifications .....	43
5.4 Harmonised standards - JA2016 recommendations .....	44
6 Conclusions & lessons learned .....	46
7 Bibliography.....	47
Annex 1 - RAPEX notifications from 2005 to 2016 .....	48
Annex 2 - Checklists for marking, labelling and documentation .....	50
Annex 3 - Test programmes.....	76

## List of Tables

Table 1 - Authorities participating in the JA2016 Climbing Equipment Activity .....	8
Table 2 - Timeline of the JA2016 Climbing Equipment Activity .....	12
Table 3 - Number of models of climbing equipment sampled .....	20
Table 4 - Place of sampling .....	21
Table 5 - Country of the manufacturer of the equipment sampled .....	21
Table 6 - Year of manufacture of the equipment sampled .....	22
Table 7 - Price of models sampled (including VAT, in Euros) .....	23
Table 8 - Number of models without evidence of EC type-examination .....	23
Table 9 - Conformity assessment procedure applied for the production phase .....	24
Table 10 - Number of models bearing the UIAA safety label .....	24
Table 11 - Overview of the results of checks and tests .....	31
Table 12 - Number of non-compliant dynamic ropes .....	31
Table 13 - Dynamic ropes: types of non-conformity relating to markings and documents .....	31
Table 14 - Dynamic ropes: types of failure in performance tests .....	32
Table 15 - Number of non-compliant harnesses .....	33
Table 16 - Harnesses: types of non-conformity relating to markings and documents .....	33
Table 17 - Harnesses: types of failure in performance tests .....	34
Table 18 - Non-compliant EAS .....	37
Table 19 - EAS: types of non-conformity relating to markings and documents .....	37
Table 20 - EAS: types of failure in performance tests .....	37
Table 21 - Non-compliant connectors .....	39
Table 22 - Connectors: types of non-conformity relating to markings and documents .....	39
Table 23 - Connectors: types of failure in performance tests .....	40
Table 24 - Non-compliant helmets .....	40
Table 25 - Helmets: types of non-conformity relating to markings and documents .....	40
Table 26 - Helmets: types of failure in performance tests .....	41
Table 27 - Corrective measures taken .....	43
Table 28 - Notifications of climbing equipment to 'Safety Gate' (RAPEX) .....	43

## List of Acronyms

ADCO	Administrative Cooperation Group The PPE Administrative Cooperation Group brings together the market surveillance authorities of the EU and EEA Member States.
CEN	Comité Européen de Normalisation - European Standardisation Organisation Two of the Technical Committees of CEN develop harmonised standards for climbing equipment, supporting the EU PPE Legislation.
Chafea	Consumers, Health and Food Executive Agency
DoC	Declaration of Conformity
EAS	Energy Absorbing System (for via ferrata climbing) Part of a via ferrata set: equipment used to connect a harness to the safety line along the climbing route in order to protect against falls.
EC	European Commission
EEA	European Economic Area
EOG	The European Outdoor Group (member organisation of FESI)
EU	European Union
FESI	The Federation of the European Sporting Goods Industry The Federation of the European Sporting Goods Industry represents some 1 800 sporting goods companies, either directly or indirectly, with a total annual turnover of about 81 billion €.
GA	Grant Agreement
GPSD	General Product Safety Directive
MSA	Market Surveillance Authority
PPE	Personal Protective Equipment Equipment designed and manufactured to be worn or held by a person for protection against one or more risks to that person's health or safety. The EU PPE Legislation sets mandatory essential health and safety requirements and conformity assessment procedures for PPE that are applicable to climbing equipment.
PROSAFE	The Product Safety Forum of Europe
RAPEX	Rapid Exchange of Information System Rapid Alert system for the exchange of information on dangerous non-food products, managed by the European Commission - now referred to as ' <i>Safety Gate</i> '.
UIAA	Union Internationale des Associations d'Alpinisme - International Association of Mountaineering Associations The UIAA develops safety standards for climbing equipment and manages a safety label.
WP	Work Package

## Executive Summary

This report presents the activities undertaken and the results achieved in the PPE - Climbing Equipment Activity carried out in the framework of the Joint Market Surveillance Action JA2016 that was co-funded by the European Union (EU) under Grant Agreement (GA) N° 739851.

The activity was carried out by 10 Market Surveillance Authorities (MSAs) from 7 EU Member States and 2 European Economic Area (EEA) countries: Belgium, Bulgaria, Croatia, Germany (Baden-Württemberg), Germany (Bavaria), Iceland, Latvia, Luxembourg, Malta and Norway. The project was coordinated by [PROSAFE](#) - The Product Safety Forum of Europe.

The activity aimed to identify and remove from the market non-compliant and unsafe climbing equipment, and also to monitor the operation of the mandatory conformity assessment procedures and the adequacy of the relevant harmonised standards. To that end, it focused on 5 commonly used categories of equipment: **dynamic ropes**, **sit-harnesses**, **basic connectors (carabiners)**, **mountaineering helmets** and **energy absorbing systems for via ferrata climbing**.

A total of 185 models of equipment was sampled in specialised shops, general sports equipment shops and online, from specialist websites or general Internet platforms. The markings, labelling and documents accompanying the equipment – the EC (or EU) Declaration of Conformity (DoC) and information leaflet – were checked by the authorities themselves. The equipment was then sent for testing to one of the three test laboratories selected for the project.

The checks on markings and documents revealed a significant number of models placed on the market without any accompanying information. This clearly increases the risk of accidents due to misuse of the equipment. In other cases, certain elements of information were missing from the markings and documents. Such non-conformities could be easily corrected by the economic operators.

Furthermore, the testing revealed a significant proportion of non-compliant or unsafe products:

- ▶ 10% of the ropes tested had insufficient dynamic strength.
- ▶ 16% of the harnesses failed the whole harness static strength test.
- ▶ More than half of the energy absorbing devices failed one or other of the performance tests.
- ▶ 20% of the mountaineering helmets tested showed insufficient energy absorption capacity, insufficient resistance to penetration or both.

On the other hand, all of the connectors tested passed the safety-critical strength tests, although several

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### Caution!

The above results are based on products that were sampled from the markets in the participating countries by experienced market surveillance inspectors looking for non-compliant and potentially unsafe products. As in any market surveillance activity, the results represent the targeted efforts that authorities undertake to identify unsafe products and should not be taken as giving a statistically valid picture of the state of the market.

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lacked the necessary accompanying information.

The participating MSAs analysed the risks associated with the non-conformities discovered during the checks and testing in order to determine appropriate corrective measures. In many cases, the economic operators concerned accepted to bring the defective equipment into conformity or to withdraw it from the market. In cases where this was not possible, the authorities took the necessary compulsory measures to withdraw the unsafe equipment from the market and recall it where appropriate.

The activity also provided experience of applying the relevant harmonised European standards and thereby enabled the authorities to propose some improvements to be communicated to the relevant standardisation groups (Technical Committees) of CEN.

# 1 Introduction

This is the final Technical Report prepared for the PPE/Climbing Equipment activity of the Joint Market Surveillance Action JA2016. The Joint Action was co-funded by the EU in the framework of the European Union's Consumer Programme (2014-2020). The project was coordinated by [PROSAFE](#).

PPE refers to equipment designed and manufactured to be worn or held by a person for protection against one or more risks to that person's health or safety.

Between 2005 and 2016, there were 32 RAPEX notifications on climbing equipment. Furthermore, since 2000, the UIAA has recorded almost 40 product recalls or safety alerts with almost half of these recalls/alerts being notified since 2011. Spain sampled 30 pieces of climbing equipment in 2015 and expressed its concerns over its findings. Germany has also undertaken market surveillance on PPE and reported high levels of non-compliance with certain product requirements. Austria has noted some recent recalls of climbing equipment, while a recent report of a PPE-related accident in Belgium resulting in paralysis underlines further the gravity of the associated hazards and the importance for market surveillance of these products.

Accident statistics in relation to climbing equipment failures are hard to come by as most of climbing accidents occur as a result of errors by climbers rather than failure of climbing equipment to provide the requisite level of protection. Equipment such as ropes, harnesses, connectors, belay devices and so on are elements of safety systems whose failure may cause severe injuries or lead to fatal consequences. They are therefore classified as PPE of Category III according to the European Union (EU) PPE Legislation (Directive 89/686/EEC and Regulation EU 2016/425), subject to the most stringent conformity assessment procedures.

This chapter presents a short extract of the project description. The full description can be found in the Grant Agreement.

## 1.1 Participating authorities

10 MSAs from 7 EU Member States and 2 EEA countries took part in the PPE/Climbing Equipment activity:

*Table 1 - Authorities participating in the JA2016 Climbing Equipment Activity*

Country	Acronym	Authority
Belgium	FPSE	Federal Public Service Economy
Bulgaria	SAMTS	State Agency for Metrological and Technical Surveillance
Germany	MEBW	Ministry of Environment, Climate Protection and the Energy Sector of Baden-Württemberg
Germany	ROGA	Regierung von Oberbayern - Gewerbeaufsichtsamt
Croatia	MINGO	Sector of Market Surveillance for the Ministry of Economics
Iceland	CA	Consumer Agency
Luxembourg	ILNAS	Institut luxembourgeois de la normalisation, de l'accréditation, de la sécurité et qualité des produits et services -Surveillance du Marché
Latvia	CRPC	Consumer Rights Protection Centre
Malta	MCCAA	Malta Competition and Consumer Affairs Authority
Norway	DSB	Norwegian Directorate for Civil Protection

## 1.2 Key Staff in the Activity

The Activity Leader was Alexander KÄLBERER of the Bavarian MSA in Germany, supported by the PROSAFE Consultant, Ian FRASER, responsible for the day-to-day coordination of the activity.

## 1.3 Main Objectives

The overarching goal of the JA2016 PPE/Climbing Equipment activity was to exercise a general positive influence on the level of conformity and safety of the PPE placed on the European market.

The key objectives of the activity as per the GA were:

- ▶ To ensure that climbing equipment available on the EU market complies with the EU PPE legislation providing an adequate level of protection for the end user/consumer and carries the appropriate warnings and instructions;
- ▶ To remove unsafe products from the market;

In addition, the activity enabled the participating authorities to examine:

- ▶ The working of the mandatory conformity assessment procedures;
- ▶ The adequacy of the relevant harmonised standards.

## 1.4 Volume of the activity

The participating authorities sampled **185** models of climbing equipment belonging to the 5 most commonly used categories. The authorities themselves carried out checks on the markings and accompanying documents before sending the equipment to be tested in one of 3 laboratories.

## 1.5 The phases of the activity

The Activity was a market surveillance action that followed the following phases:

### a. Preparatory phase

During the preparatory phase, the project group studied the market for climbing equipment, identified the main brands, examined the relevant RAPEX notifications and the available accident reports and investigated previous market surveillance exercises in this area as of 29 July 2019.

The relevant stakeholders – equipment manufacturers, user associations and standardisers of climbing equipment – were contacted and asked to present their views with respect to the priorities for market surveillance in this area.

PROSAFE issued an invitation to express interest in testing climbing equipment in order to identify the laboratories able to carry out tests in this area and to obtain estimates for the cost of testing different categories of equipment.

### b. Delimitation of the scope of the activity

Climbing equipment subject to the EU PPE legislation includes ropes, cord, tape, slings, connectors, harnesses, helmets, chocks, rope clamps, braking devices, energy absorbers, ice anchors, frictional anchors, ice tools, pitons and crampons.

In light of the information collected during the preparatory phase, the project group decided to limit the sampling and testing to 5 categories of climbing equipment: dynamic ropes, sit-harnesses, energy absorbing systems for via ferrata climbing, connectors and mountaineering helmets (see Section 3.1).

### c. Selection of test laboratories

Since all of the laboratories active in the area of climbing equipment are Notified Bodies carrying out certification activities for the manufacturers, the project group agreed that it was necessary to appoint more than one test laboratory in order to avoid potential conflicts of interest.

PROSAFE issued a public call for tender for the testing of the 5 designated categories of climbing equipment. Following evaluation of the responses, the project group decided to appoint three test laboratories (see Section 3.2).

### d. Checklists for markings & documentation

The project group agreed that, before sending samples for testing, the authorities themselves would carry out checks on the safety markings on the equipment, on the EC (EU) Declaration of Conformity (DoC) and on the instructions provided with the equipment. For this purpose, the project group drew up checklists for each of the 5 designated categories of equipment to be sampled (see Section 4.1).

### e. Determination of test programmes

In order to approach the objective set by the Grant Agreement for the number of models of equipment to be tested, the project group decided to limit the testing to the most safety-critical tests, taking account of the related costs and the number of samples of each model required to carry out the tests.

With the assistance of representatives of the selected laboratories, the project group drew up a test programme for each of the 5 designated categories of equipment (see Section 4.2 and Annex 3).

### f. Sampling

The project group agreed on a sampling plan setting out the number and characteristics of the samples to be collected. The number of models to be sampled for each category of equipment was based on an estimate of the number of different brands available on the market. The sampling was shared out between the participating authorities, taking account of the size of their respective markets.

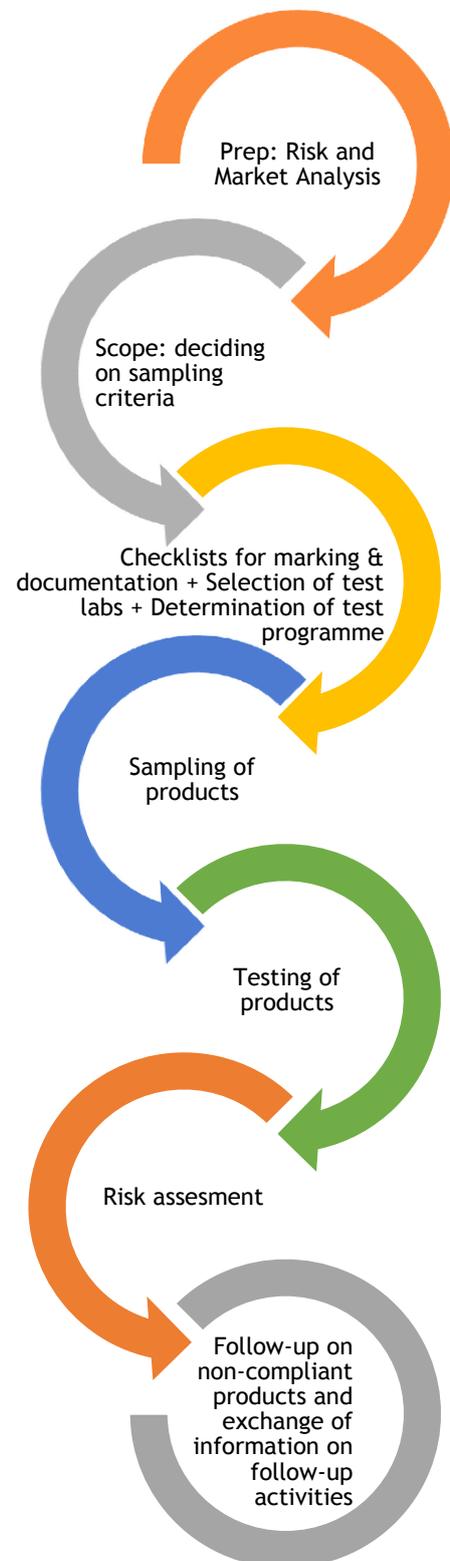


Figure 1 - Main phases of the Activity

In order to avoid duplication and to ensure an adequate coverage of the market, the project group developed a tool for the rapid exchange of information on sampling.

Samples were collected from retailers specialised in climbing equipment, from general sports equipment shops, from specialist online websites as well as from general online platforms. After taking the samples, the authorities carried out the checks on markings and documents and sent the equipment to one of the selected test laboratories, chosen in light of the Notified Body involved in the certification of the equipment (see Section 3.3).

### g. Testing

The laboratories carried out the agreed test programme on the samples received from the market surveillance authorities and provided up a test report for each model tested that was sent to the authority concerned. The test reports were made available to the other participating MSAs.

Representatives of the test laboratories presented and explained the results of the testing to the project group at a meeting held at the premises of one of the laboratories (see Section 4.3).



*Figure 2 - The project group visits one of the test laboratories*

Photo: I. Fraser

### h. Risk assessment

In order to determine the follow-up actions to be taken with respect to equipment shown to be non-compliant during the checks and tests, the participating authorities carried out a risk assessment using the European Commission's online Risk Assessment Guidelines.<sup>1</sup>

The risk assessment depends on the characteristics of each product and is the responsibility of each market surveillance authority. With the aim of harmonising the approach to the risk assessment as far as possible, the project group worked out common templates for risk assessments for several typical non-conformities. The results of the risk assessments were shared with all of the participating authorities (see Section 5.1).

### i. Follow-up on non-compliant equipment

The participating authorities informed the economic operators about the non-compliances detected during the checking and testing of the equipment that they had sampled. They then determined the necessary

<sup>1</sup> <https://ec.europa.eu/consumers/consumer-safety/rag/#/screen/home>

corrective measures and communicated them to the other authorities. Where appropriate, the measures taken were notified to the EC using the RAPEX rapid alert system (see Section 5.2).<sup>2</sup>

In addition, the project group drew up some recommendations for improvement of the relevant harmonised standards in light of the experience gained during the checks and testing (see Section 5.3).

## 1.6 Timeline for the Activity

Period	Activity
September 2017	Start of JA2016
September - November 2017	Preparatory phase - market and accident data
October 2017	JA2016 Launch meeting
	Invitation to express interest in testing
November 2017	PPE/Climbing Equipment kick-off meeting
December 2017 - January 2018	Selection of categories of climbing equipment to be sampled
January 2018	Call for tender for test laboratories
February 2018	2 <sup>nd</sup> project group meeting
	Selection of test laboratories
April - May 2018	Contracts with test laboratories
	Determination of test programmes
May 2018	3 <sup>rd</sup> project group meeting
	Sampling plan
	Checklist for markings and documentation
June - August 2018	Sampling
	Checks on markings and documentation by the authorities
August - October 2018	Testing of climbing equipment and test reports
November 2018	4 <sup>th</sup> project group meeting at the laboratory
December 2018 - May 2019	Follow-up activities with respect to economic operators
April 2019	5 <sup>th</sup> project group meeting
April - May 2019	Risk assessment for non-compliant equipment
June - September 2019	Preparation of final technical report
June 2019	6 <sup>th</sup> project group meeting with stakeholder session
September 2019	Delivery of final Technical Report

*Table 2 - Timeline of the JA2016 Climbing Equipment Activity*

<sup>2</sup>[ec.europa.eu/consumers/consumers\\_safety/safety\\_products/rapex/alerts/repository/content/pages/rapex/index\\_en.htm](https://ec.europa.eu/consumers/consumers_safety/safety_products/rapex/alerts/repository/content/pages/rapex/index_en.htm)

## 2 Background

### 2.1 The market for climbing equipment

Climbing equipment is used in sports and leisure (mountaineering, rock climbing and indoor climbing) and professional activities (e.g. building maintenance, rescue, tree-service). The JA2016 Climbing Equipment Activity only examined equipment for sports and leisure use.

Market data for climbing equipment was made available by the European Outdoor Group (EOG)<sup>3</sup> which represents the major European brands. In 2016, the total market for outdoor equipment amounted to 5.47 billion Euros (wholesale value). The share of climbing equipment was 126 million Euros (wholesale value), that is to say, 2.31 % of the total outdoor equipment market.

The market for climbing equipment is partially seasonal. In 2016, 4.3 million articles worth 75 million Euros (wholesale) were sold during the spring and summer season, whereas 2.6 million articles worth 51 million Euros (wholesale) were sold during the autumn and winter season.

The largest markets are in the alpine countries. The combined markets of France, Germany, Austria and Italy represent about 60% of the total European market for climbing equipment.

Concerning the categories of climbing equipment, the most sold categories are harnesses (16%) and connectors (15%). Climbing ropes account for 10% in terms of value and 5% in terms of volume.

The industry associations were not able to provide quantitative data concerning the distribution channels for climbing equipment. However, the working group was able to establish that the majority of climbing equipment is sold in specialist climbing shops or in the climbing sections of general sports equipment shops. These distribution outlets only sell equipment from a limited number of well-known brands.

Like other consumer products, climbing equipment is increasingly sold online. Here again, the specialist websites offer equipment from a limited number of well-known brands, whereas generalist web platforms such as Amazon or eBay also propose equipment from less well-known (mainly Chinese) brands.

### 2.2 Regulatory framework

Most climbing equipment is classified as Personal Protective Equipment (PPE) since it is intended to protect the user against the risk of falling from a height or against the risk of being struck by falling objects. PPE for use in climbing activity is subject to mandatory safety requirements set out in EU legislation. These requirements are supported by a group of harmonised European standards that establish performance criteria and the related laboratory tests to ensure that the equipment placed on the market provides an adequate level of protection.

#### a) The PPE Directive 89/686/EEC

The design, manufacture and placing on the market of PPE has been subject, since 1995, to the requirements of the PPE Directive 89/686/EEC. The Directive sets out the basic safety requirements that must be satisfied by the design and manufacture of the PPE.

The relevant basic requirements of Annex II that may be applicable to climbing equipment (depending on the category of equipment) include the following:

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<sup>3</sup> <https://europeanoutdoorgroup.com/>

## 1. GENERAL REQUIREMENTS APPLICABLE TO ALL PPE

- 1.1.1 Ergonomics
- 1.1.2.1 Highest level of protection possible
- 1.2.1.2 Satisfactory surface condition of all PPE parts in contact with the user
- 1.2.1.3 Maximum user impediment
- 1.3.1 Adaptation of PPE to user morphology
- 1.3.2 Lightness and design strength
- 1.4. Information supplied by the manufacturer

## 2. ADDITIONAL REQUIREMENTS COMMON TO SEVERAL CLASSES OR TYPES OF PPE

- 2.1 PPE incorporating adjustment systems
- 2.4 PPE subject to ageing

## 3. ADDITIONAL REQUIREMENTS SPECIFIC TO PARTICULAR RISKS

- 3.1.2.2 Prevention of falls from a height

Most PPE for climbing is considered as equipment designed to prevent falls from a height. As such, it is classified as category III PPE, subject to the following mandatory conformity assessment procedures:

- EC type-examination by a Notified Body (according to Article 10);  
and either:
- EC quality control system for the final product (according to Article 11A) - a Notified Body takes samples of the product at random intervals at least once a year and tests them to check the conformity of the production;
- or
- System for ensuring EC quality of production by means of monitoring (according to Article 11B) - the manufacturer's quality control system is checked and approved by a Notified Body that carried out initial and periodic audits of the system.

Mountaineering helmets are classified as category II PPE, implying that the conformity of production to the approved design is checked by the manufacturer himself.

When the conformity of the PPE has been assessed according to the above procedures, the manufacturer shall draw up an EC Declaration of conformity and affix the CE marking on each product.

For category III PPE, the CE marking is followed by the 4-figure identification number of the Notified Body carrying out the quality control system according to Article 11A or 11B. The identification number of the Notified Body that carried out the EC type-examination is not marked on the product but shall be indicated in the EC Declaration of conformity and in the instructions.

### **b) The new PPE Regulation (EU) 2016/425**

The PPE Directive has now been replaced by the PPE Regulation (EU) 2016/425. The Regulation adapts the rules for PPE to the so-called New Legal Framework (NLF). In particular, the obligations of manufacturers, importers and distributors are more clearly distinguished and defined, the obligations of Notified Bodies and the notifying authorities are laid down and the conformity assessment procedures are aligned with the so-called 'Modules' set out in the NLF Decision.

Although certain changes are made to the essential health and safety requirements set out in Annex II, the requirements applicable to climbing equipment are unchanged.

The risk categories determining the conformity assessment procedures to be followed are now set out in Annex I. PPE intended to protect users against falling from a height remains in risk category III. The conformity assessment procedures are very close to the current procedures:

- EU type-examination (module B) set out in Annex V;  
and either:
- conformity to type based on internal production control plus supervised product checks at random intervals (module C2) set out in Annex VII;  
or
- conformity to type based on quality assurance of the production process (module D) set out in Annex VIII.

The Regulation does not require transposition into the national law of the Member States as it is directly applicable. Most of the provisions of the Regulation became applicable as from 21 April 2018. However, until 21 April 2019, PPE that complied with the PPE Directive could still be placed on the market (transition period). EC type-examination certificates and approval decisions issued under the PPE Directive in principle remain valid until 21 April 2023, unless they expire before that date, and under certain conditions as explained in the “Guidance document on the implementation of Article 47 on transitional provisions” approved by the PPE Working Group and issued by the Commission in December 2017<sup>4</sup>.

Given the above application dates and the calendar of the activity, most of the products sampled for the purposes of JA2016 were placed on the market according to the PPE Directive 89/686/EEC.

## 2.3 European harmonised standards for climbing equipment

The health and safety requirements of the EU PPE legislation are supported by a set of European harmonised standards, the references of which are listed in the Official Journal of the European Union (OJEU).<sup>5</sup> Application of the specifications of the harmonised standards is not mandatory, but confers a presumption of conformity with the essential requirements of the EU legislation that they cover.

Most of the harmonised standards for climbing equipment are developed by Working Group 5 of the CEN Technical Committee 136 – *Sports, playground and other recreational facilities and equipment*.<sup>6</sup>

The standard for climbing helmets is developed by the CEN Technical Committee 158 – *Head protection*.<sup>7</sup>

The specifications of the relevant harmonised standards provided the basis for the checks and tests carried out on climbing equipment in the framework of JA2016 (See Section 4.2).

## 2.4 UIAA standards and safety label

The International Union of Mountaineering Associations (UIAA), founded in 1932, is an important stakeholder with a longstanding commitment to improving the safety of climbing equipment. The UIAA started to develop safety standards for climbing equipment in the 1960’s. The European standards developed by CEN in the 1990’s were largely based on the work initiated by UIAA. Today, the UIAA maintains a collection of standards which are very close to the European harmonised standards.

UIAA also manages a safety label based on certification to UIAA standards. Since the UIAA standards are very close to EN standards, the UIAA label is considered compatible with the CE marking and many products bear both markings (see Section 3.3 (h)). Furthermore, according to the rules of for the UIAA

<sup>4</sup> <https://ec.europa.eu/docsroom/documents/26782>

<sup>5</sup> [https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/personal-protective-equipment\\_en](https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/personal-protective-equipment_en)

<sup>6</sup> [https://standards.cen.eu/dyn/www/f?p=204:7:0:::FSP\\_LANG\\_ID,FSP\\_ORG\\_ID:25,6118&cs=18A5AD338604C05443E9B3E53746330EF#1](https://standards.cen.eu/dyn/www/f?p=204:7:0:::FSP_LANG_ID,FSP_ORG_ID:25,6118&cs=18A5AD338604C05443E9B3E53746330EF#1)

<sup>7</sup> [https://standards.cen.eu/dyn/www/f?p=204:7:0:::FSP\\_LANG\\_ID,FSP\\_ORG\\_ID:25,6139&cs=14C7728638A8F0C29DA980075801AEC36#1](https://standards.cen.eu/dyn/www/f?p=204:7:0:::FSP_LANG_ID,FSP_ORG_ID:25,6139&cs=14C7728638A8F0C29DA980075801AEC36#1)

safety label, EC (EU) type-examination certificates and approvals according to Article 11A or 11B of the PPE Directive or to Annexes V or VIII to the PPE Regulation are considered equivalent to UIAA-approved test reports, provided the Notified Body that issued the certificates or approval are also UIAA-approved laboratories.

## 2.5 Accident data

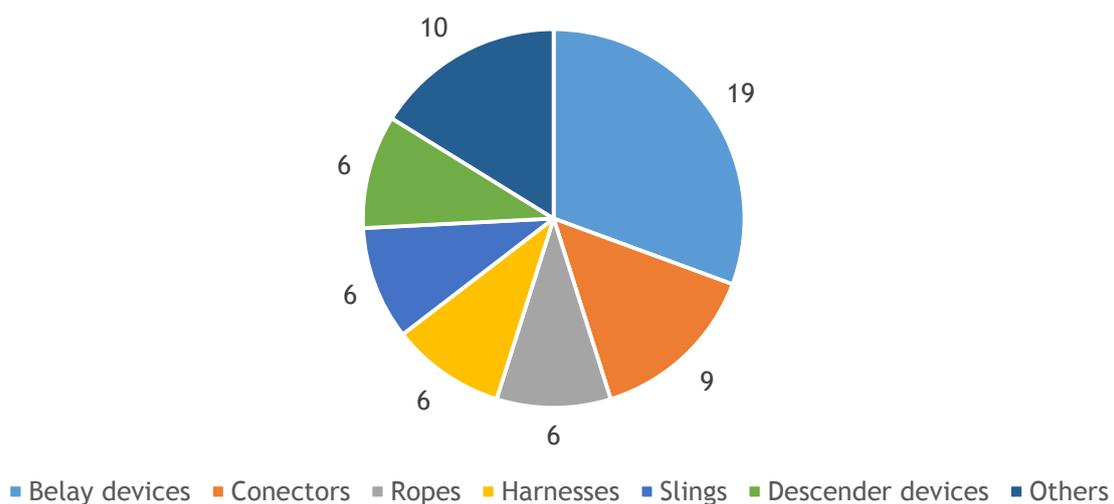
The project group noted a general lack of information at EU level on climbing accidents. In general, the available accident reports rarely mention the climbing equipment involved.

The local authorities in some of the alpine areas of France publish annual statistics on accidents based on reports from rescue services. The statistics only indicate the number of accidents by activity and their consequences but provide no information on the circumstances of the accidents or the causal factors involved.

Research has been carried out at the University of Lyon on mountaineering accidents, based on the analysis of reports provided by mountaineers themselves in the SERAC database<sup>8</sup> set up by the *CamptoCamp* organisation. The analysis focuses mainly on the organisational and psychological factors involved in mountaineering accidents. The analysis is certainly very valuable for mountaineers but does not provide any information about climbing equipment.

A brochure edited by the British Mountaineering Council entitled *“Care and Maintenance: Equipment standards - Equipment wear and failure - Routine checks and care”*, includes description of failure modes for a range of climbing equipment which is useful for the risk assessment of climbing equipment.

Furthermore, the Norwegian authorities carried out a survey of climbing accidents with a view to examining cases where the failure or malfunction of the equipment used was involved. They identified 62 reports concerning climbing accidents that occurred between 1998 and 2015. The following categories of equipment were concerned:



**Figure 3 - Accidents in Norway involving climbing equipment - 1998 to 2015**

In 22 cases, the Norwegian authorities indicated that the accident was due to misuse of the equipment involved. This was frequently indicated in cases involving the malfunctioning of belay devices.

<sup>8</sup> <https://www.camptocamp.org/articles/697210/en/serac-database-of-incident-and-accident-reports>

## 2.6 RAPEX notifications

During the period from 2005 to 2016, 32 types of climbing equipment were notified under the European Commission’s RAPEX system/’Safety Gate’<sup>9</sup> for the rapid exchange of information on products liable to endanger the health and safety of individuals. Most of the notifications followed product recalls initiated by the manufacturers of the products concerned – a table summarising the 32 notifications is provided in Annex 1.

The UIAA maintains a database of product recalls notified by manufacturers which overlaps to a large extent with the RAPEX notifications. Most of the files concerned design and/or production defects that could affect the safety of users.

Most of the product recalls relating to energy absorbing devices for via ferrata climbing followed serious and fatal accidents involving this category of equipment that had occurred in 2011 and 2012.

The following figure indicates the numbers of RAPEX notifications between 2005 and 2016 by category of climbing equipment, in order of frequency:

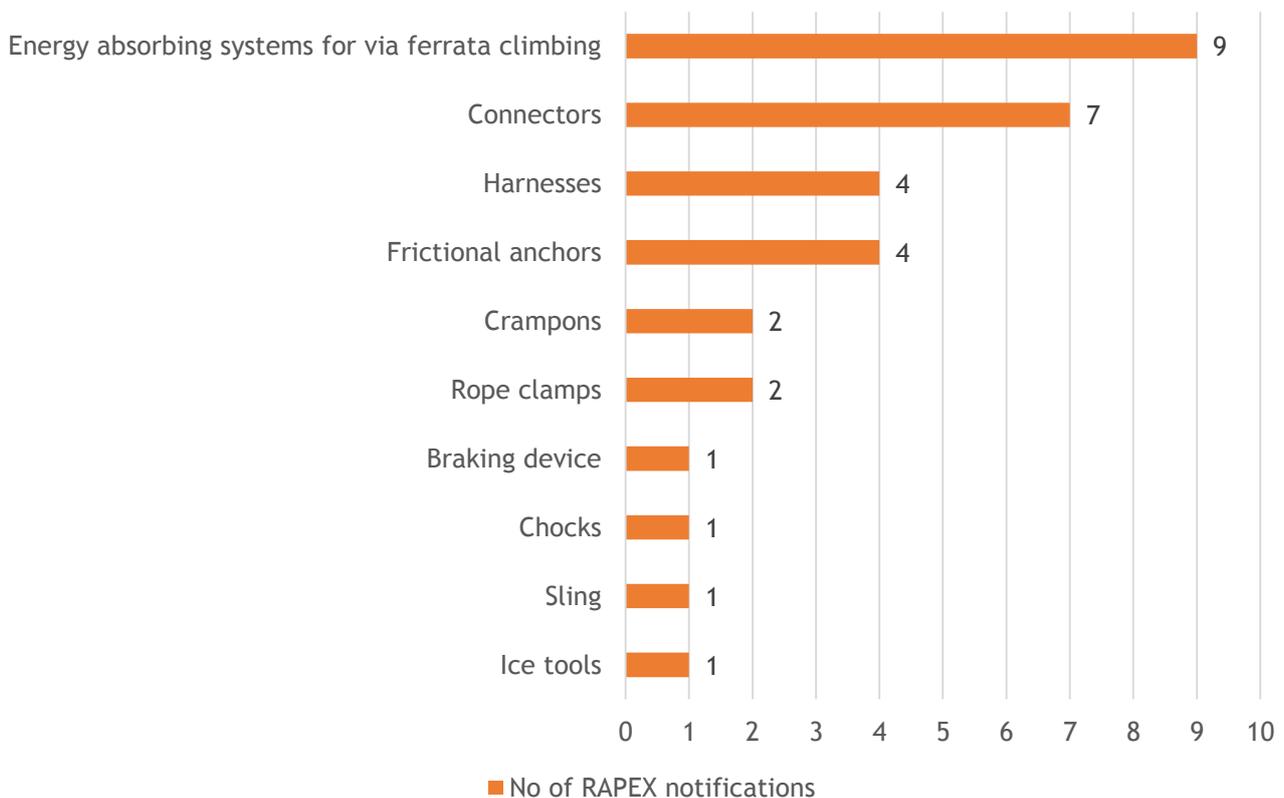


Figure 4 - RAPEX notifications between 2005 and 2016

<sup>9</sup> [https://ec.europa.eu/consumers/consumers\\_safety/safety\\_products/rapex/alerts/?event=main.listNotifications&lng=en](https://ec.europa.eu/consumers/consumers_safety/safety_products/rapex/alerts/?event=main.listNotifications&lng=en)

## 3 Setting up the Activity

### 3.1 Determination of the scope

Climbing equipment subject to the EU PPE legislation includes ropes, cord, tape, slings, connectors, harnesses, helmets, chocks, rope clamps, braking devices, energy absorbers, ice anchors, frictional anchors, ice tools, pitons and crampons. In light of the budget available for testing, the project group considered that it would not be possible to test a representative sample for all of these categories of equipment. It was therefore decided to target a limited number of categories of climbing equipment.

In determining the categories to be sampled, the project group took account of the market data provided by the EOG, of advice from the Notified Bodies and from the Union of mountaineering associations, UIAA, as well as of knowledge shared within the group. It was decided to limit the sampling to the following five categories of equipment:

- Dynamic mountaineering ropes (single ropes);
- Sit harnesses (type C);
- Connectors (Basic connectors - class B);
- Mountaineering helmets;
- Energy absorbing systems (EAS) for via ferrata climbing.

The first four categories (dynamic ropes, sit harnesses, connectors and helmets) were chosen because they are among the most commonly used kinds of climbing equipment. Furthermore, the failure of dynamic ropes, harnesses, connectors and EAS during use can lead immediately to a serious or fatal accident: the user does not usually have the possibility to retrieve the situation. It may also be noted that EAS for via ferrata climbing, connectors and harnesses are the categories of equipment concerned by the largest numbers of RAPEX notifications (see Section 2.6).

The project working group chose to sample EAS for via ferrata climbing because the related harmonised standard had recently been substantially revised, following several serious and fatal accidents involving the failure of such systems. The market surveillance authorities wished to examine how the new version of the standard was being applied by manufacturers. This category of climbing equipment is also sensitive since it is frequently used by inexperienced climbers.



*Figure 5 - From left to right: Dynamic rope, Sit harness, Basic connector, Mountaineering helmet, Energy absorbing system for via ferrata climbing*

## 3.2 Selection of test laboratories

During the preparatory phase, PROSAFE issued an invitation to express interest in testing climbing equipment. Because the European Commission's database of Notified Bodies, NANDO, does not have a specific category for climbing equipment, the invitation was sent to all of the Bodies notified for PPE to protect against falls from a height and to those notified for sports equipment, knowing that only a small proportion of these laboratories were actually active in the area of climbing equipment.

The laboratories were invited to indicate the approximate cost of testing and the number of samples required for all of the categories of climbing equipment covered by European harmonised standards. In order to help the project group to determine the scope of the activity, the laboratories were also asked to suggest which categories should be sampled and tested as a priority in the framework of a joint market surveillance exercise.

Six laboratories responded to the invitation to express interest and provided useful input for the formulation of the subsequent call for tender.

In January 2018, PROSAFE issued a public call for tender for the testing of the 5 designated categories of climbing equipment. The call was published on PROSAFE's website and also sent to all of the Notified Bodies potentially concerned.

Six laboratories sent responses to the call for tender, 2 of which were negative. 2 further laboratories sent enquiries about the call for tender but did not send proposals.

Since all of the candidate laboratories are Notified Bodies involved in the conformity assessment of climbing equipment for the manufacturers before it is placed on the market (see Section 1.8), the project group concluded that it would be necessary to appoint more than one laboratory in order to avoid potential conflicts of interest. If a model sampled on the market had been certified by one of the selected laboratories, it could then be sent for testing to another laboratory.

The project group evaluated the 4 positive responses according to the following main criteria:

- ▶ Capacity of the laboratory to carry out the required tests;
- ▶ Experience of the laboratory in testing climbing equipment;
- ▶ Experience of the laboratory staff;
- ▶ Involvement of the laboratory in standardisation activities.

The project group then examined the prices quoted by the candidate laboratories for testing the 5 designated categories of climbing equipment and made a quality/cost comparison. In light of this evaluation, the project group decided to appoint 3 laboratories:

After contracts had been signed between PROSAFE and the 3 selected laboratories, their representatives took part in a meeting with a project sub-group to discuss the test programmes and the number of samples required for each of the 5 designated categories of climbing equipment (see Section 4.2).

## 3.3 Sampling

### 3.3.1 Number of models of climbing equipment sampled

The project group determined the number of models to be sampled for each category of equipment, taking account of the budget available for testing, the estimated unit cost of testing and the number of different brands available on the market for each category.

**Table 3 - Number of models of climbing equipment sampled**

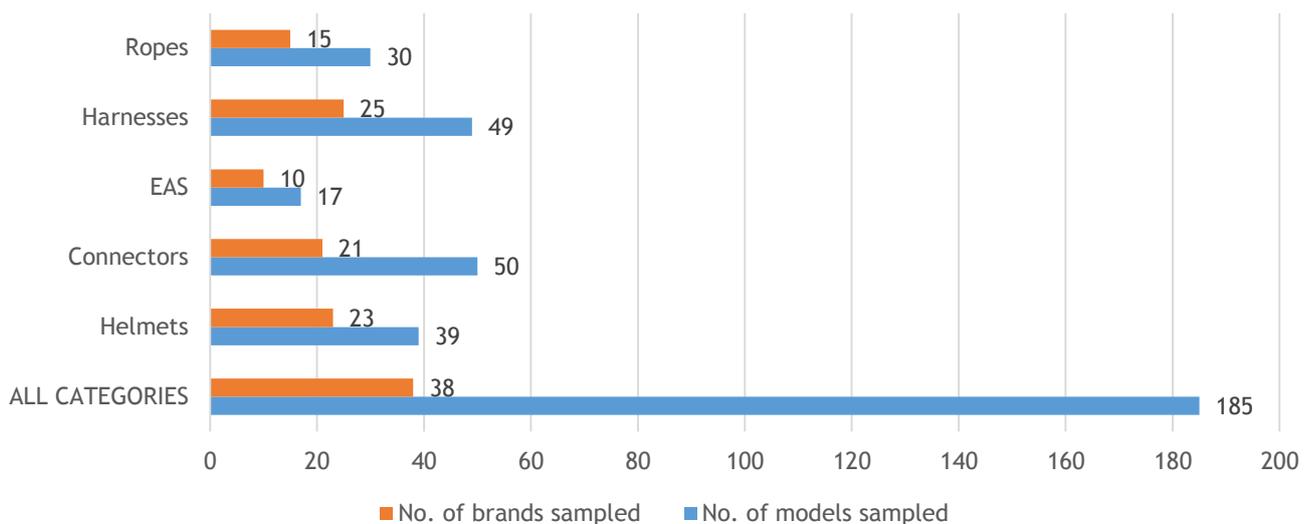
Authority	Ropes	Harnesses	EAS	Connectors	Helmets	TOTAL
Belgium	6	8	3	8	7	32
Bulgaria	3	5	2	5	4	19
Croatia	2	4	2	4	3	15
Germany B-W	6	8	3	8	7	32
Germany BAY	6	8	3	8	6	31
Iceland	1	3	-	3	2	9
Latvia	2	4	-	4	3	13
Luxembourg	1	3	1	3	2	10
Malta	1	2	1	3	2	9
Norway	2	4	2	4	3	15
<b>TOTAL</b>	<b>30</b>	<b>49</b>	<b>17</b>	<b>50</b>	<b>39</b>	<b>185</b>

The project group initially planned to sample 190 different models of climbing equipment. The shortfall was due to the difficulty finding appropriate samples, in particular samples of EAS designed according to the new version of the harmonised standard.

### 3.3.2 Number of brands sampled

The system for the exchange of information on sampling was able to prevent duplicate sampling of the same model of equipment by different authorities. However, in many cases, two or more models of equipment were sampled from the same brand. This reflects the domination of the market by a limited number of leading brands (see Section 2.1).

**Figure 6 - Number of models and brands sampled**



### 3.3.3 Place of sampling

The samples for testing were taken, according to the rules and procedures in force in each participating country, from the following sources:

*Table 4 - Place of sampling*

Category of equipment	Specialist retailer	Sports equipment retailer	Importer	Specialist e-commerce	General e-commerce	Manufacturer
Ropes	10	12	-	2	3	3
Harnesses	16	18	4	5	4	2
EAS	5	6	-	4	-	2
Connectors	17	14	3	5	9	2
Helmets	16	7	3	3	9	2
<b>TOTAL</b>	<b>64</b>	<b>57</b>	<b>10</b>	<b>19</b>	<b>25</b>	<b>11</b>

66% of the samples were taken from high-street shops, either specialist retailers for climbing equipment or general sports equipment retailers with a climbing equipment department.

11% of the samples were taken before the product reached the distribution channel, from manufacturers or importers. The participating authorities carried out online sampling for 23% of the models concerned.

### 3.3.4 Country of the manufacturer of the equipment sampled

The manufacturer's name must be marked on the equipment and his address must be indicated in the information leaflet.

*Table 5 - Country of the manufacturer of the equipment sampled*

Country of manufacturer	Ropes	Harnesses	EAS	Connectors	Helmets	ALL
France	9	12	1	9	7	38
Germany	7	8	3	6	7	31
Austria	1	-	1	3	-	5
Spain	1	1	-	-	-	2
Italy	-	7	5	11	12	35
Slovakia	1	-	-	-	-	1
Switzerland	3	2	-	-	1	6
Czech Republic	3	10	6	3	3	25
Belgium	1	-	-	-	-	1
Hungary	-	-	1	-	-	1
Norway	-	1	-	-	-	1
UK	-	1	-	3	1	5
USA	2	3	-	4	2	11
Canada	-	1	-	-	-	1
China	2	3	-	6	4	15
Unknown	-	-	-	5	2	7
<b>TOTAL</b>	<b>30</b>	<b>49</b>	<b>17</b>	<b>50</b>	<b>39</b>	<b>185</b>

It should be noted that ‘manufacturer’, according to the PPE Regulation, means any natural or legal person who manufactures PPE or has it designed or manufactured, and markets it under his name or trademark. For several of the models sampled, in addition to the manufacturer in this legal sense, the country of origin was also indicated on the product:

- Among the harnesses sampled, 2 models from Swiss manufacturers were marked as made in the Czech Republic and Vietnam respectively; 2 harnesses from French manufacturers and 1 from an Italian manufacturer were made in Madagascar; 2 harnesses from German manufacturers were made in Hungary and Vietnam respectively; 1 harness from a US manufacturer was made in the Philippines;
- One of the EAS from an Italian manufacturer was made in the Czech Republic;
- 4 helmets from Italian, German, US and Swiss manufacturers were marked made in China; 1 helmet from a Czech manufacturer was made in Taiwan.

Since there is no legal obligation to indicate the country of origin of the product, it is likely that further models of climbing equipment from European manufacturers were also made in other countries, although this was not indicated on the product.

### 3.3.5 Year of manufacture of the equipment sampled

The indication of the date of manufacture is relevant for products subject to loss of performance due to ageing. It is not applicable to connectors except to possible textile components, none of which were sampled. For ropes, harnesses and EAS, the year of manufacture must be marked on the equipment. For helmets, the year and quarter of manufacturer must be marked on the product but, in the following table, only the year of manufacture is indicated for comparison purposes.

*Table 6 - Year of manufacture of the equipment sampled*

Category	2018	2017	2016	2015	2014	2013	2012	Earlier	Not indicated
Ropes	13	8	4	-	1	-	-	1(2011)	3
Harnesses	7	17	12	4	5	-	-	-	4
EAS	10	7	-	-	-	-	-	-	-
Helmets	6	15	6	-	3	-	1	1(2007)	7

All of the samples were taken from the distribution chain during 2018. It may be noted that for ropes, harnesses and helmets, a significant proportion of the samples had been in the distribution chain for 2 years or more. One of the helmets sampled was 10 years old (it had already reached the end of maximum period of use indicated by the manufacturer).

The EAS sampled were all manufactured in 2018 or 2017 because the authorities decided to sample only equipment designed to the revised version of the harmonised standard.

### 3.3.6 Price of the equipment sampled

In the checklists, the participating authorities recorded the retail price (including VAT) for the models of equipment sampled. Since the samples were not selected on a statistically representative basis, the prices indicated in the following table are given as an approximate reflection of the state of the market.

**Table 7 - Price of models sampled (including VAT, in Euros)**

Category	Average price	Lowest price	Highest price
Ropes)	265	45	361
Harnesses	59	19	140
EAS	87	69	113
Connectors	12	5	28
Helmets	60	13	238

### 3.3.7 Conformity assessment procedures applied

As explained in Section 1.9, the conformity of the design of climbing equipment is assessed by means of EC (or EU) type-examination by a Notified Body before the equipment is placed on the market (Article 10 of the PPE Directive - Annex V to the PPE Regulation).

For mountaineering helmets, classified as Category II PPE, the conformity of production with the approved design is checked by the manufacturer himself.

For PPE intended to protect against falls from a height such as dynamic ropes, sit-harnesses, EAS for via ferrata climbing and connectors, classified as Category III PPE, conformity to the approved type is assessed by one of two alternative procedures:

- Periodic testing of samples of production by a Notified Body (Article 11A of the PPE Directive - Annex VII of the PPE Regulation);
- or
- approval and monitoring of the manufacturer's production quality assurance system by a Notified Body (Article 11B of the PPE Directive - Annex VIII to the PPE Regulation).

Both the EC (or EU) Declaration of conformity and the instructions supplied with the equipment must indicate the number of the relevant EC (or EU) type-examination certificate and the name and identification number of the Notified Body that carried out the examination.

The JA2016 PPE/Climbing Equipment activity provided the opportunity for the market surveillance authorities to monitor the functioning of these mandatory conformity assessment procedures.

For several of the models of climbing equipment, no evidence was provided that the design of the product had been subject to an EC or EU type examination by a notified body:

**Table 8 - Number of models without evidence of EC type-examination**

Category	Number of models	Proportion of total number
Ropes	2	7%
Harnesses	3	6%
EAS	-	-
Connectors	9	18%
Helmets	7	17%
<b>ALL CATEGORIES</b>	<b>21</b>	<b>11%</b>

Concerning the conformity assessment procedure relating to the production phase for the Category III PPE targeted during the Climbing Equipment activity (ropes, harnesses, EAS and connectors), the identification number of the Notified Body concerned must be marked on the product after the CE marking and the

identity of the Notified Body and the procedure chosen by the manufacturer must be indicated in the EC or EU Declaration of Conformity.

The participating authorities checked which of the two alternative procedures had been chosen by the manufacturers concerned.

*Table 9 - Conformity assessment procedure applied for the production phase*

Category of equipment	Article 11A or Annex VII	Article 11B or Annex VIII	Not identified
Ropes	2	21	7
Harnesses	10	29	10
EAS	1	16	-
Connectors	4	31	15
<b>ALL 4 CATEGORIES</b>	<b>16</b>	<b>97</b>	<b>33</b>

Two thirds of the manufacturers concerned chose to use the procedure involving approval by a Notified Body of their production quality assurance system (Article 11B or Annex VIII), while only 11% chose periodic checks by a Notified Body on samples of production (Article 11A or Annex VII). The large number of models for which the information about the production phase conformity assessment procedure used was missing reflects missing or incomplete documentation.

### 3.3.8 UIAA safety label

61% of the models sampled bore the UIAA safety label (See Section 2.4). The UIAA label was present on the product or in the information leaflet in addition to the CE marking. The models that did not have the UIAA Safety Label either had the CE marking only or had no markings.

*Table 10 - Number of models bearing the UIAA safety label*

Category	Number of models	Proportion of total number
Ropes	25	83%
Harnesses	28	57%
EAS	8	47%
Connectors	32	64%
Helmets	20	51%
<b>ALL CATEGORIES</b>	<b>113</b>	<b>61%</b>

## 4 Checks and tests

### 4.1 Checks on markings and documents

The participating MSAs decided to carry out checks on the markings and labels that must be present on the climbing equipment and on the documents that shall accompany the equipment. On the one hand, it is easier for the national authorities to check written information that must be presented in their national language. On the other, this exercise also enables the national inspectors, who are usually not specialists, to become familiar with the equipment concerned.

For this purpose, checklists were drawn up for each of the 5 categories of equipment to be sampled.

In the first section of the checklist, the authorities recorded important information about the equipment such as the name and address of the manufacturer, the authorised representative, the importer and the distributor, the place of sampling, the retail price of the equipment and the conformity assessment procedures used by the manufacturer.

The following sections of the checklists concerned the marking or labelling of the equipment, the EC (or EU) Declaration of conformity and the information supplied by the manufacturer with the equipment. The authorities checked these elements against the requirements of the EU PPE Legislation and the relevant harmonised standards. The checklists are presented in Annex 2.

### 4.2 Test Programmes

The test programmes were determined by the project group following discussions with the representatives of the selected test laboratories. The objective was to ensure that the safety-critical tests were carried out while limiting the cost of testing and the number of samples required in order to test the largest possible number of different models of climbing equipment with the available test budget.

The programmes were based on the tests foreseen in the relative harmonised standards that confer a presumption of conformity with the requirements of the EU PPE legislation. However, for some categories of equipment, not all of the tests foreseen in the standards were carried out. In such cases, the results of the testing did not verify the full conformity of the products concerned with the requirements of the harmonised standard. Nevertheless, the testing verified the adequate performance of the equipment according to the parameters considered to be most important for the safety of users.

The test programmes are presented in Annex 3.

#### 4.2.1 Dynamic ropes (single ropes)

The dynamic ropes were tested according to standard EN 892:2012+A1:2016 *Mountaineering equipment - Dynamic mountaineering ropes - Safety requirements and test methods*<sup>10</sup>. All of the verifications and tests foreseen by the standard were carried out. A sample of at least 40 metres of rope was required.

The key test is the dynamic strength test (drop test). This test aims to ensure that the rope has sufficient dynamic strength to arrest a fall while having sufficient elasticity to avoid injuring the climber's body when a fall is arrested.

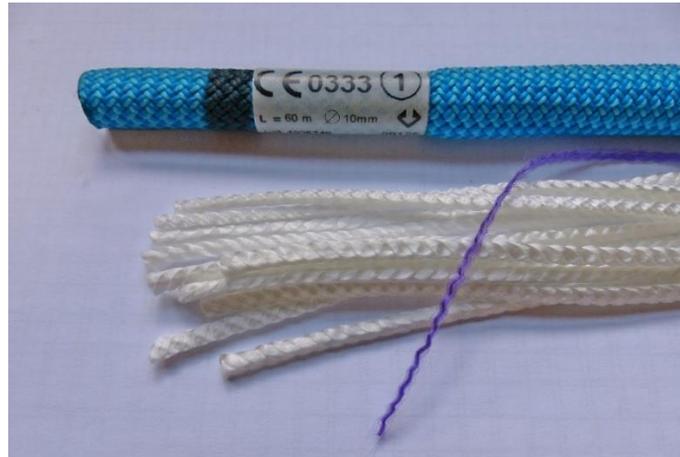
A guided mass of 80 kg is tied to the rope and dropped in a test tower so that the rope arrests the fall of the mass. During the first drop, the dynamic elongation of the rope and the peak braking force are measured. The dynamic elongation of the rope shall not exceed 40 %. The peak force shall not exceed 12

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<sup>10</sup> Reference published in the OJEU under the PPE Directive since 12.4.2017 conferring presumption of conformity until 20.4.2019; not published under the PPE Regulation.

kN. Similar drops are repeated every 5 minutes until the rope breaks. Dynamic single ropes shall withstand at least 5 drops without breaking.

The standard also requires the manufacturer to state, in the information supplied with the rope, the number of drops sustained without breaking which the manufacturer guarantees will be achieved at the date of production. Consequently, the number of drops achieved without breaking during the tests was also compared with number of drops indicated in the information supplied by the manufacturer.



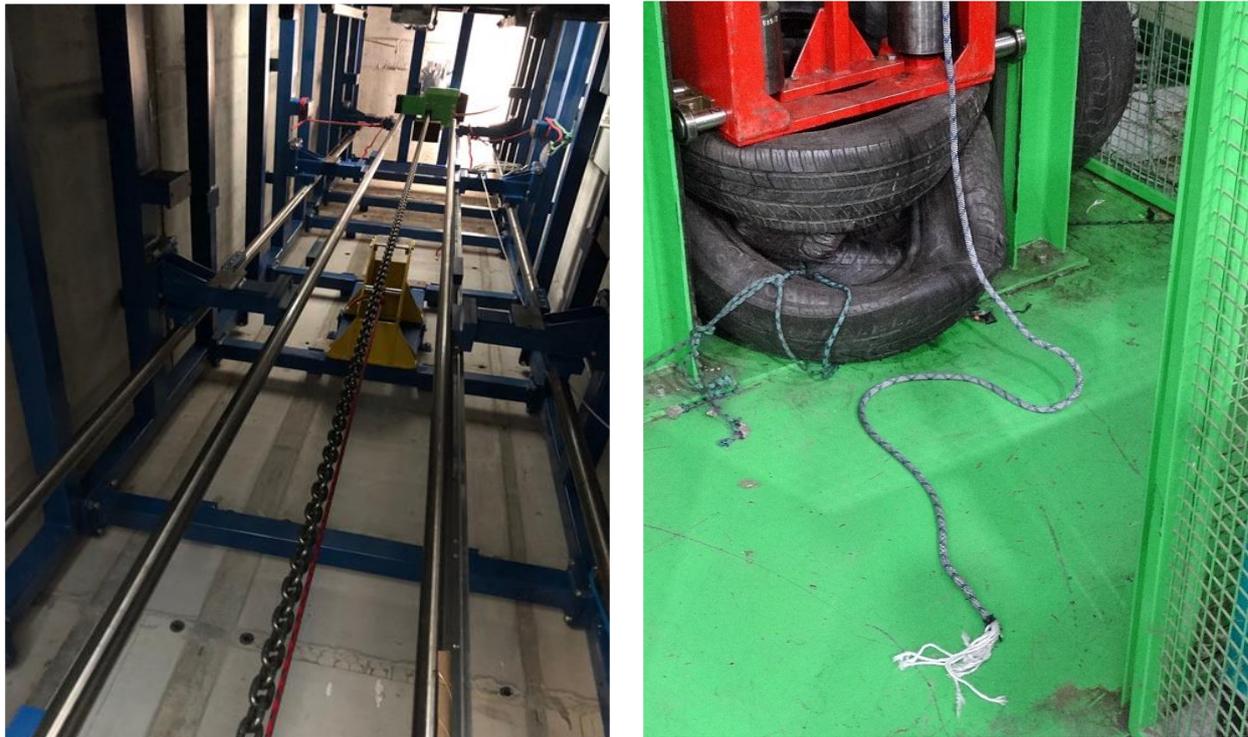
**Figure 7 - Structure of a dynamic single climbing rope and marking band**

*Credit.: Laboratory*



**Figure 8 - External view of a test tower**

*Credit: W. Van Aerschot*



**Figure 9 - (Left) View inside a test tower and (Right) the last of a series of drop tests**

(Photo: I. Fraser)

#### 4.2.2 Harnesses

The type C sit-harnesses were tested according to standard EN 12277:2015 *Mountaineering equipment - Harnesses - Safety requirements and test methods*<sup>11</sup>. The testing was limited to the safety-critical tests carried out on a single sample. The key tests are **static strength tests** carried out first on the harness as a whole and then on the belt. These tests are intended to ensure that the harness will not break and will hold the climber if a fall is arrested.

During the whole harness strength test, the harness is fitted to a test dummy and the attachment point is gradually pulled by a traction machine up to a force of 15 kN. The force is held for 1 minute then released and reapplied for 3 minutes. No load transmitting part shall break completely during the test and the dummy shall not be released. Load bearing buckles shall not slip more than 20 mm.

For the belt strength test, carried out on the same sample, the belt of the harness is placed on a cylinder and gradually pulled up to force of 10 kN that is held for 1 minute. The force is then released and reapplied for 3 minutes.

When the test programme was determined, the project group assumed that the harnesses available on the market at the time of sampling, that is to say mid-2018, would be designed according to the latest version of the harmonised standard, EN 12277:2015. However, after the tests had been carried out, it appeared that most of the harnesses sampled had been designed according to the previous version of the harmonised standard, EN 10277:2007. This was due to the fact that, for administrative reasons, publication of the reference of the 2015 version of the standard in the OJEU was delayed until April 2017.

Most of the relevant requirements of the standard are unchanged in the new version. In particular, the whole harness strength test is identical. On the other hand, the test method for the belt strength test was amended. The force applied and the duration of the test are the same but the way the belt is attached to

<sup>11</sup> Reference published in the OJEU under the PPE Directive since 12.4.2017 conferring presumption of conformity until 20.4.2019; published under the PPE Regulation since 21.4.2018.

the cylinder is modified. Consequently, this factor had to be taken into account by the market surveillance authorities when the market surveillance authorities were assessing the outcome of the tests.

### 4.2.3 Energy absorbing systems for via ferrata climbing (EAS)

EAS were tested according to standard EN 958:2017 - Mountaineering equipment - Energy Absorbing Systems for use in 'klettersteig' (via ferrata) climbing - Safety requirements and test methods.<sup>12</sup> This standard was revised to take into account the lessons of several serious and fatal accidents involving the failure of EAS. In order to limit the cost of testing and the number of samples required, the test programme was limited to safety-critical tests. The agreed test programme could be carried out with 2 samples.

The key test is the dynamic performance test which aims to ensure that the EAS is able to arrest a fall within a safe distance while limiting the maximum braking force acting on the climber's body in order to avoid injury if a fall is arrested.

The previous 2006 version of the standard applied to equipment for users of at least 50 kg and the dynamic performance test was carried out with a single test mass of 80 kg.

The new 2017 version of the standard applies to equipment for users weighing between 40 kg (without equipment) and 120 kg (including the equipment). The dynamic performance test is now carried out twice with test masses of 40 kg and 120 kg respectively. In the test tower, the EAS is connected to the guided test mass which is dropped over a distance of 5 m. When tested with a mass of 40 kg, the maximum impact force shall not exceed 3,5 kN and the maximum braking length shall not exceed 2 200 mm. When tested with a mass of 120 kg, the maximum impact force shall not exceed 6 kN and the maximum braking length shall not exceed 2 200 mm.

### 4.2.4 Connectors

Connectors were tested according to the requirements of standard EN 12275:2013 - Mountaineering equipment - Connectors - Safety requirements and test methods.<sup>13</sup> The test programme was limited to safety critical tests in order to limit the number of samples required.

The key tests are static strength tests which are intended to ensure that connectors are able to withstand the forces that may be applied to them in case of a fall. The static tests are carried out in the major axis with the gate closed, in the major axis with the gate open (connectors with automatic gate locking devices are not subjected to this test) and in the minor axis. The connectors are pulled in a traction machine in the axis concerned until the sample breaks. The force at which the sample breaks is recorded. Basic connectors (class B) shall withstand a force of 20 kN in the major axis with the gate closed, 7 kN in the major axis with the gate open and 7 kN in the minor axis without breaking. The agreed test programme could be carried out with 2 or 3 samples.

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<sup>12</sup> Reference published in the OJEU under the PPE Directive since 13.10.2017 conferring presumption of conformity until 20.4.2019; published under the PPE Regulation since 21.4.2018.

<sup>13</sup> Reference published in the OJEU under the PPE Directive since 13.12.2013 conferring presumption of conformity until 20.4.2019; published under the PPE Regulation since 21.4.2018.



**Figure 10 - Basic connector before and after a strength test**

*(Photo: Laboratory)*

Although it was intended to test only class B connectors, in 4 cases (out of a total of 50 models sampled), the suppliers provided class H connectors instead. The project working group decided to test these connectors since the test method is identical and the requirements are similar (the minimum breaking force in the major axis with the gate open is 6 kN).

The standard also requires the manufacturer to mark on the connector itself the minimum strength values guaranteed by the manufacturer for loading in the major axis with the gate closed, in the minor axis and in the major axis with the gate open. Consequently, the breaking strengths measured during the tests were also compared with the guaranteed values marked on the connectors.



**Figure 11 - Example of marking of guaranteed strength values on a connector**

*(Photo: Laboratory)*

#### 4.2.5 Helmets

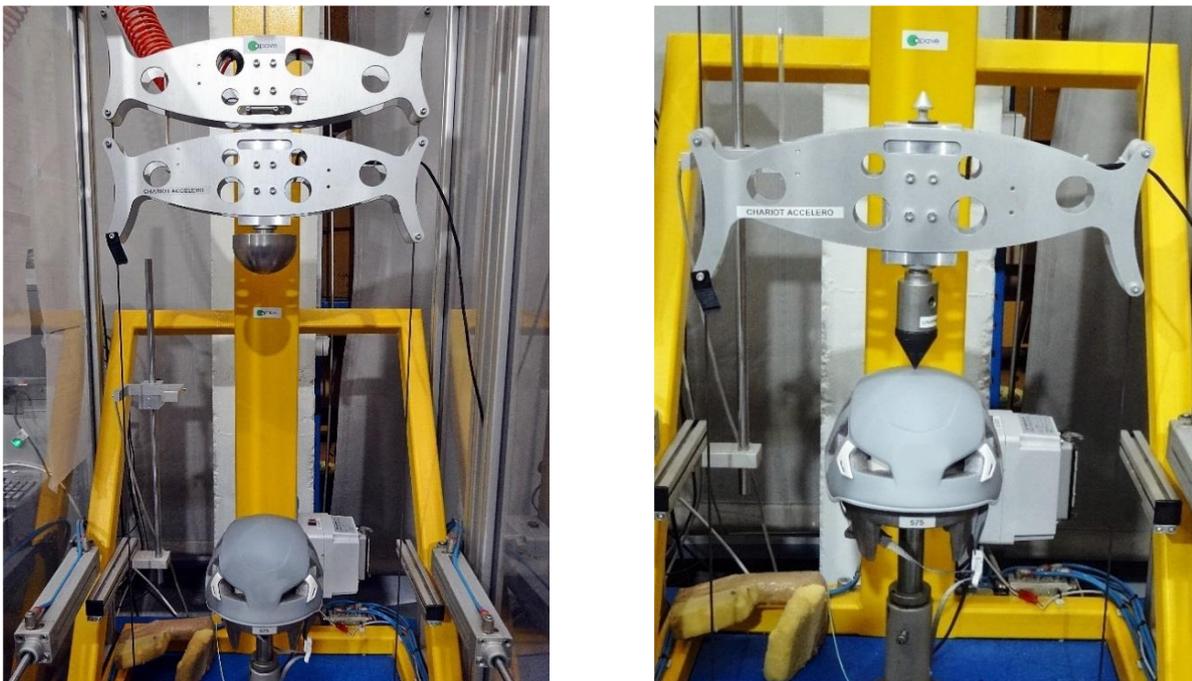
The helmets were tested according to the requirements of standard EN 12492:2012 - Mountaineering equipment - Helmets for mountaineers - Safety requirements and test methods.<sup>14</sup> The key tests are the energy absorption capacity tests and the penetration resistance tests. These tests aim to ensure that the helmet provides adequate protection against injuries to the head in case of falling objects such as stones.

<sup>14</sup> Reference published in the OJEU under the PPE Directive since 20.12.2012 conferring presumption of conformity until 20.4.2019; published under the PPE Regulation since 21.4.2018.

To measure the energy absorption capacity of the helmet, the standard foresees 4 series of tests on the top, side, front and rear of the helmet. The helmet is placed on a headform and a hemispherical striker is dropped on the helmet from a height of 2 metres. The force transmitted to the headform shall not exceed 10 kN. The tests are carried out both at high temperature (+35°C) and at low temperature (-20°C) to take account of the variation of performance of materials in different atmospheric conditions.

In order to limit the number of samples required, the project group decided to carry out the test of energy absorption capacity on the top of the helmet only.

The test of the resistance of the helmet to the penetration of sharp objects is also carried out at high and low temperature. A conical striker is dropped from a height of 1 metre on 2 impact points at least 50 mm apart on the top of the helmet. There shall be no contact between the striker and the headform.



*Figure 12 - (Left) Energy absorption capacity test - (Right) Penetration resistance test  
(Photo.: I. Fraser)*

## 4.3 Results of checks and tests

### 4.3.1 Overview of results

Table 11 below presents an overview of the results of the checks and tests carried out on **185** models of climbing equipment belonging to the 5 categories that were sampled. When appreciating these results, it should be borne in mind that the sampling was not carried out in such a way as to be statistically representative of the market.

**Table 11 - Overview of the results of checks and tests**

Type of non-conformity	Number of models	% of total
<i>One or more non-conformity relating to markings and documents</i>	<b>87</b>	<b>47 %</b>
<i>Failure in one or more performance tests</i>	<b>37</b>	<b>20 %</b>
<i>Total number of models with one or more non-conformity</i>	<b>106</b>	<b>57 %</b>

**57 % of the models of climbing equipment tested showed one or more non-conformity.**

47 % of the models sampled had one or more non-conformities relating to markings and documents. The seriousness of these non-conformities varied from minor omissions that can easily be corrected from complete failure to supply the required information or to supply information in the official language of the country of sale (particularly in the case of internet sales).

20 % of the models sampled failed one or more of the performance tests carried out in one of the selected laboratories. In some cases, the failure was marginal and did not constitute a significant risk. In other cases, the performance shown by the equipment was well below the level required by the relevant harmonised standard, exposing the user to a significant risk (see Section 5.1).

#### 4.3.1.1 Dynamic ropes

The tables below provide a summary of the results of checks and tests for dynamic ropes:

**Table 12 - Number of non-compliant dynamic ropes**

Non-conformity	Number of models	% of total
<i>One or more non-conformity of markings and/or documents</i>	10	33 %
<i>Failure in one or more performance tests</i>	5	16 %
<i>Total number of non-compliant dynamic ropes</i>	13	43 %

**Table 13 - Dynamic ropes: types of non-conformity relating to markings and documents**

Non-conformity	Number of non-conformities	% of total
<i>No EC (EU) Declaration of Conformity</i>	5	16 %
<i>Elements missing from EC (EU) DoC</i>	5	16 %
<i>No marking bands</i>	2	6 %
<i>Elements missing from marking bands</i>	4	13 %
<i>No information supplied with rope</i>	2	6 %
<i>Information not in official language</i>	4	13 %
<i>Elements missing from information</i>	3	10 %

Non-conformities relating to the EC (EU) DoC are an obstacle to the traceability of the equipment. Lack of markings and information supplied by the manufacturer increase the risk of misuse of the equipment.

**Table 14 - Dynamic ropes: types of failure in performance tests**

Non-conformity	Number of non-conformities	% of total
Sheath slippage greater than 1%	1	3 %
Static elongation greater than 10%	2	6 %
Static elongation greater than the value declared by manufacturer	4	13 %
Diameter greater than that declared by the manufacturer	3	10 %
Less than 5 drops without breaking	3	10 %
Number of drops less than the number declared by the manufacturer	1	3 %
Peak force greater than the value declared by the manufacturer	1	3 %

Excessive sheath slippage can cause deformations or bulges making handling of the rope difficult; in extreme cases, bulges can no longer be pulled through belay devices; bulges can also build up at deflection points so that an increased load is applied to the sheath, which can damage the rope.



**Figure 13 - Bulge in a dynamic rope due to excessive sheath slippage**

(Photo: [Verticalextrême.de](http://Verticalextrême.de))

Excessive static elongation can give rise to problems when lifting loads, for example, during ‘big wall’ climbing. A wrongly specified rope diameter can lead to problems when using belay devices with a limited diameter range.



**Figure 14 - Example of a belay device for ropes with a limited range of diameters**

(Photo: Laboratory)

Two of the ropes showing insufficient dynamic strength sustained no drop or only one drop. They were not really climbing ropes, although they were sold as such. The other rope with insufficient dynamic strength broke repeatedly at the knot used to tie the rope to the test apparatus. These ropes might fail to arrest a fall in use, giving rise to risks of serious injury or death.

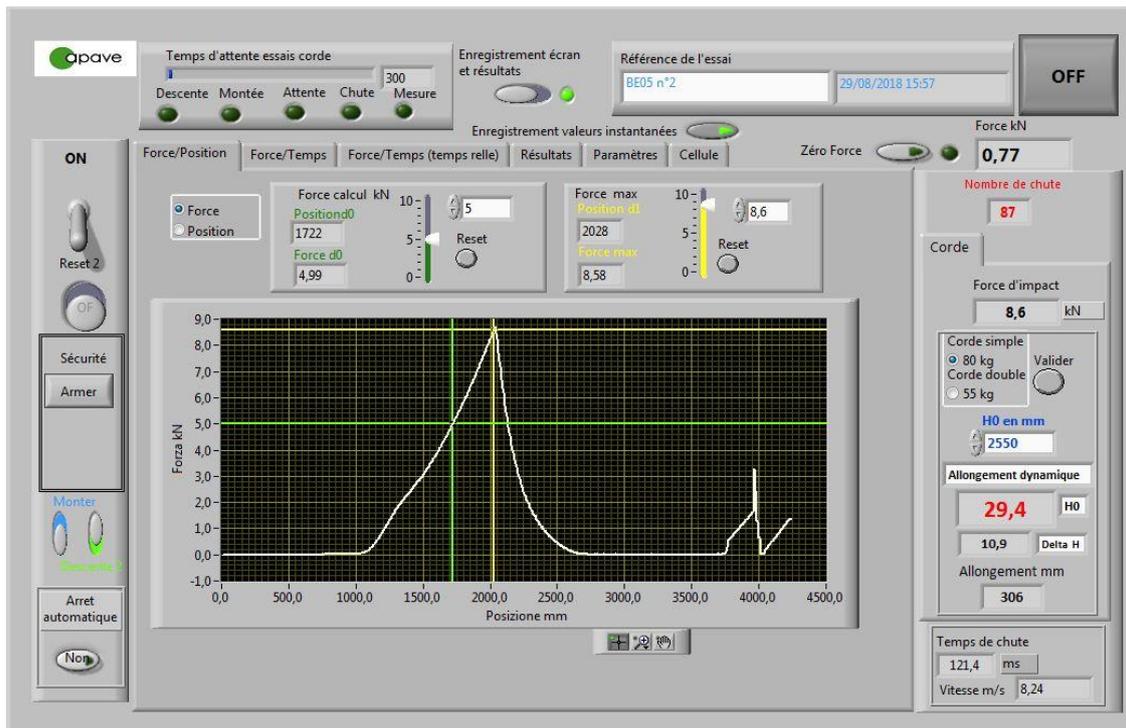


Figure 15 - Graph showing the peak force generated during a drop test

The peak force is lower than the maximum value set by the standard (12 kN) but higher than the value declared by the manufacturer (7.8 kN)

(Photo: Laboratory)

#### 4.3.1.2 Harnesses

The tables below provide a summary of the results of checks and tests on harnesses:

Table 15 - Number of non-compliant harnesses

Non-conformity	Number of models	% of total
One or more non-conformity of markings and/or documents	25	51 %
Failure in one or more performance tests	16	33 %
Total number of non-compliant harnesses	33	67 %

Table 16 - Harnesses: types of non-conformity relating to markings and documents

Non-conformity	Number of non-conformities	% of total
No EC (EU) Declaration of conformity	6	12 %
Elements missing from EC (EU) Declaration of conformity	8	16 %
No label	1	2 %
Elements missing from label	5	10 %
No information supplied with rope	2	4 %
Information not in official language	8	16 %
Elements missing from information	11	22 %

**Table 17 - Harnesses: types of failure in performance tests**

Non-conformity	Number of non-conformities	% of total
Failed harness strength test	7	14 %
Failed belt strength test	9	18 %

The harnesses that failed the harness strength test must be considered unsafe since they could fail to hold the climber in case of a fall.



**Figure 16 - (Left) Harness placed on dummy (front) - (Right) Harness placed on dummy (rear)**

(Photo: Laboratory)



**Figure 17 - Harness torn during the harness strength test**

(Photo: Laboratory)



**Figure 18 - (Left) Harness placed on dummy (front) - (Right) Harness placed on dummy (rear)**

*(Photo: Laboratory)*



**Figure 19 - Harness torn during the harness strength test**

*(Photo.: Laboratory)*



**Figure 20 - Failure of safety stitching during the harness strength test**

*(Photo: Laboratory)*



**Figure 21 - Harness torn during the harness strength test**

*(Photo: Laboratory)*

Some of the marginal failures in the belt strength test can be explained by the fact that the manufacturers had applied the previous version of the harmonised standard (see Section 3.1 (b)) – the MSAs took this into account during the follow-up phase.

### 4.3.1.3 Energy absorbing systems for via ferrata climbing

The tables below provide a summary of the results of checks and tests on EAS:

*Table 18 - Non-compliant EAS*

Non-conformity	Number of models	% of total
<i>One or more non-conformity of markings and/or documents</i>	5	29 %
<i>Failure in one or more performance tests</i>	7	41 %
<i>Total number of non-compliant EAS</i>	10	59 %

*Table 19 - EAS: types of non-conformity relating to markings and documents*

Non-conformity	Number of non-conformities	% of total
<i>Incorrect CE marking</i>	2	12 %
<i>Elements missing from EC (EU) DoC</i>	2	12 %
<i>Information not in official language</i>	3	17 %
<i>Elements missing from information</i>	2	12 %

*Table 20 - EAS: types of failure in performance tests*

Non-conformity	Number of non-conformities	% of total
<i>Insufficient static strength of whole system</i>	1	6 %
<i>Performance test with a mass of 120 kg: maximum impact force greater than 6 kN</i>	2	12 %
<i>Performance test with a mass of 120 kg: breakage</i>	1	6 %
<i>Performance test with a mass of 120 kg: braking distance greater than 2 200 mm</i>	1	6 %
<i>Performance test with a mass of 40 kg: maximum impact force greater than 3.5 kN</i>	4	25 %

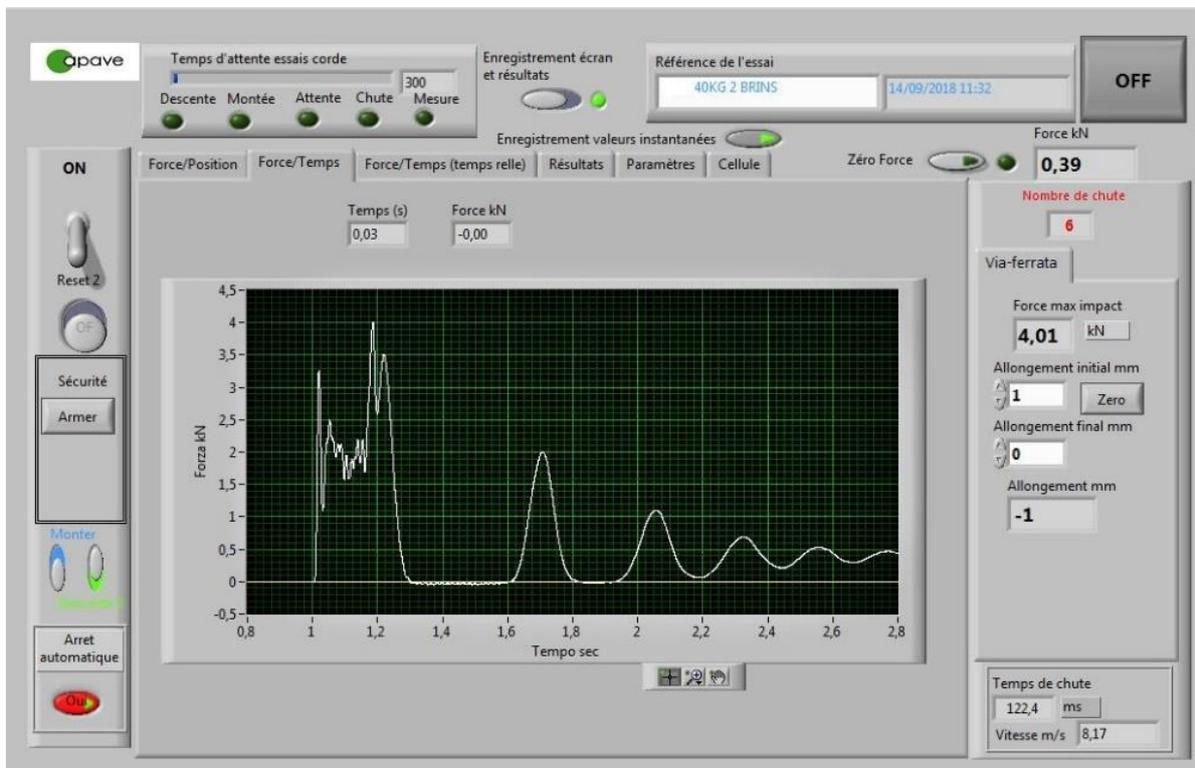
The dynamic performance tests aim to ensure that the EAS is able to stop a fall within a safe distance while limiting the maximum impact force acting on the climber's body in order to prevent injury in case a fall is arrested.

The tests are carried out both with weights of 40 kg and 120 kg in order to ensure that the EAS will function correctly over this weight range. It is clear that certain manufacturers are finding it difficult to satisfy the new performance requirements for both 40 kg and 120 kg.



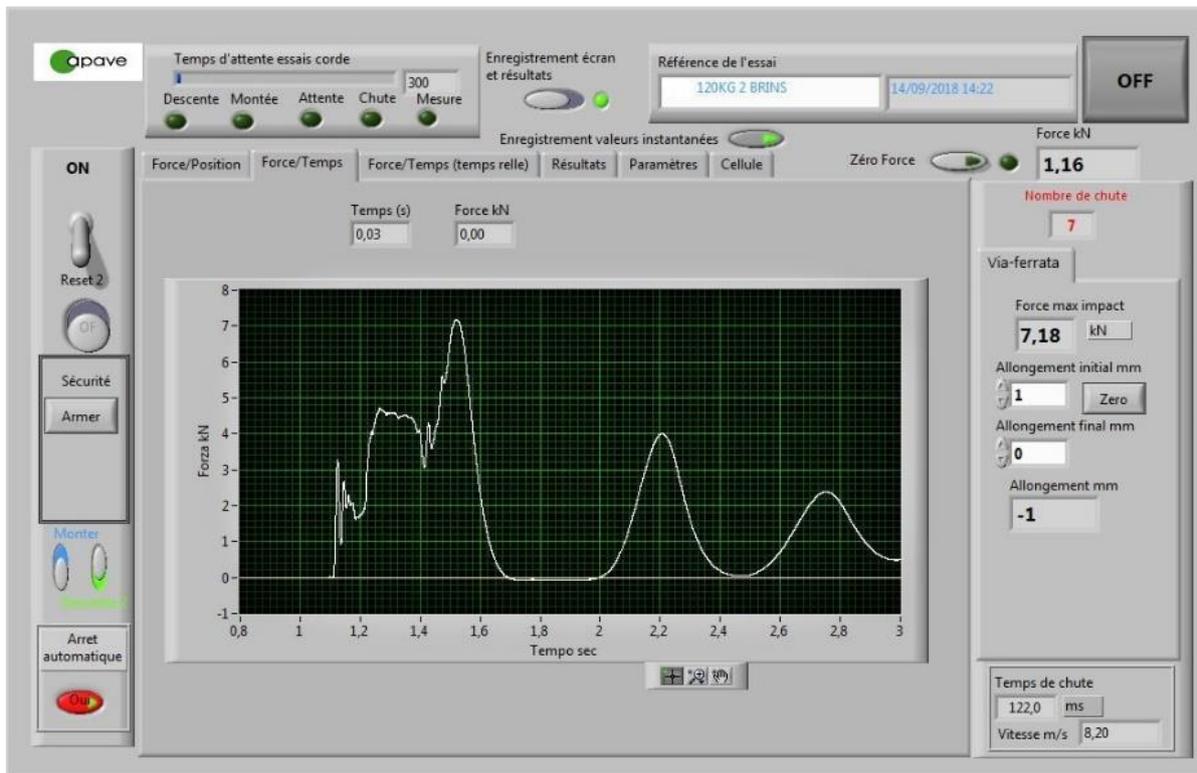
**Figure 22 - Breakage of the secure resting connection of an EAS during the static test**

(Photo: Laboratory)



**Figure 23 - Graph showing the result of the dynamic performance tests on an EAS with 40 kg**  
**The maximum impact force exceeds the limit set by the standard (3.5 kN)**

(Photo: Laboratory)



**Figure 24 - Graph showing the result of the dynamic performance tests on an EAS with 120 kg. The maximum impact force exceeds the limit set by the standard (6 kN)**

(Photo: Laboratory)

#### 4.3.1.4 Connectors

The tables below provide a summary of the results of checks and tests on connectors:

**Table 21 - Non-compliant connectors**

Non-conformity	Number of models	% of total
<i>One or more non-conformity of markings and/or documents</i>	24	48 %
<i>Failure in one or more performance tests</i>	2	4 %
<i>Total number of non-compliant connectors</i>	26	52 %

**Table 22 - Connectors: types of non-conformity relating to markings and documents**

Non-conformity	Number of non-conformities	% of total
<i>Elements missing from marking</i>	10	20 %
<i>No EC (EU) DoC</i>	10	20 %
<i>Elements missing from EC (EU) DoC</i>	12	24 %
<i>No information supplied with the connector</i>	12	24 %
<i>Information not in official language</i>	7	14 %
<i>Elements missing from information</i>	3	6 %

**Table 23 - Connectors: types of failure in performance tests**

Non-conformity	Number of non-conformities	% of total
<i>Gate opens too easily</i>	2	4 %

All of the connectors tested satisfied the safety-critical strength requirements set by the harmonised standard, although four connectors were not as strong as claimed by the manufacturer.

If the gate opens too easily, the rope may slip out of the connector inadvertently. This defect is considered to present only a low risk.

### 4.3.1.5 Helmets

The tables below provide a summary of the results of checks and tests on helmets:

**Table 24 - Non-compliant helmets**

Non-conformity	Number of models	% of total
<i>One or more Non-conformity of markings and/or documents</i>	23	59 %
<i>Failure in one or more performance tests</i>	7	18 %
<i>Total number of non-compliant helmets</i>	24	61 %

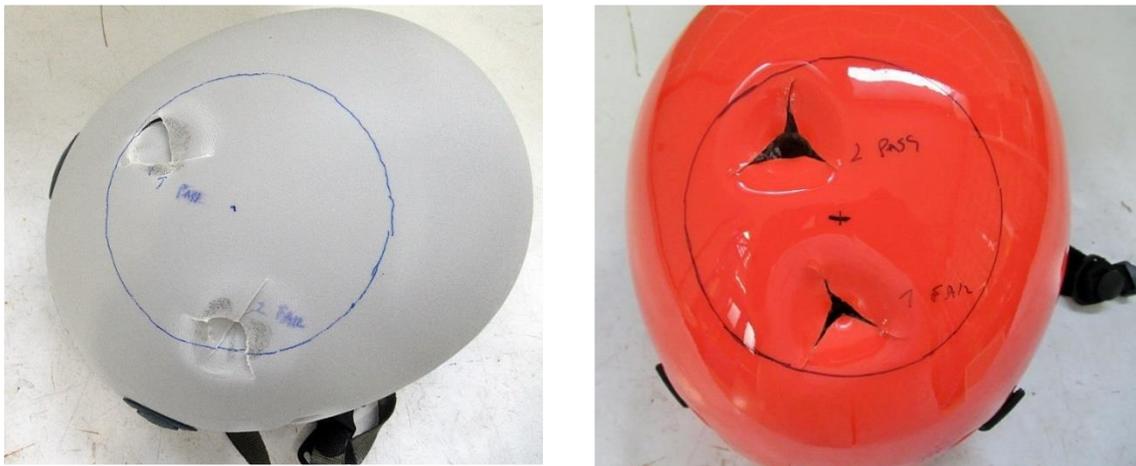
**Table 25 - Helmets: types of non-conformity relating to markings and documents**

Non-conformity	Number of non-conformities	% of total
<i>No EC (EU) DoC</i>	6	15 %
<i>Elements missing from EC (EU) DoC</i>	7	17 %
<i>No label</i>	5	12 %
<i>Elements missing from label</i>	7	17 %
<i>Label not in official language</i>	5	12 %
<i>No information supplied with helmet</i>	4	10 %
<i>Information not in official language</i>	5	12 %
<i>Elements missing from information</i>	8	20 %

**Table 26 - Helmets: types of failure in performance tests**

Type of non-conformity	Number of non-conformities	% of total
<i>Insufficient energy absorption capacity at high temperature: force transmitted to headform greater than 10 kN</i>	2	5 %
<i>Insufficient energy absorption capacity at high and low temperatures: force transmitted to headform greater than 10 kN</i>	2	5 %
<i>Insufficient resistance to penetration at high and low temperatures</i>	2	5 %
<i>Insufficient resistance to penetration at low temperature</i>	2	5 %
<i>Insufficient resistance to penetration at high temperature</i>	1	2.5%

An insufficient energy absorption capacity gives rise to an increased risk of head injury if the helmet is hit by a stone. Similarly, insufficient penetration resistance gives rise to an increased risk of injury due to impact by sharp objects.



**Figure 25 - Helmets that failed the penetration resistance test**

*(Photo: Laboratory)*

It may also be noted that the UIAA standard 106 for helmets sets a stricter requirement for energy absorption capacity than the European harmonised standard: the maximum admissible force transmitted to the headform is 8 kN instead of 10 kN. 20 of the helmets tested bore the UIAA safety label indicating conformity with the relevant UIAA standard. 10 of these helmets (50 %) showed a force transmitted to the headform greater than 8 kN: 4 at both high and low temperature, 5 at low temperature only and 1 at high temperature only.

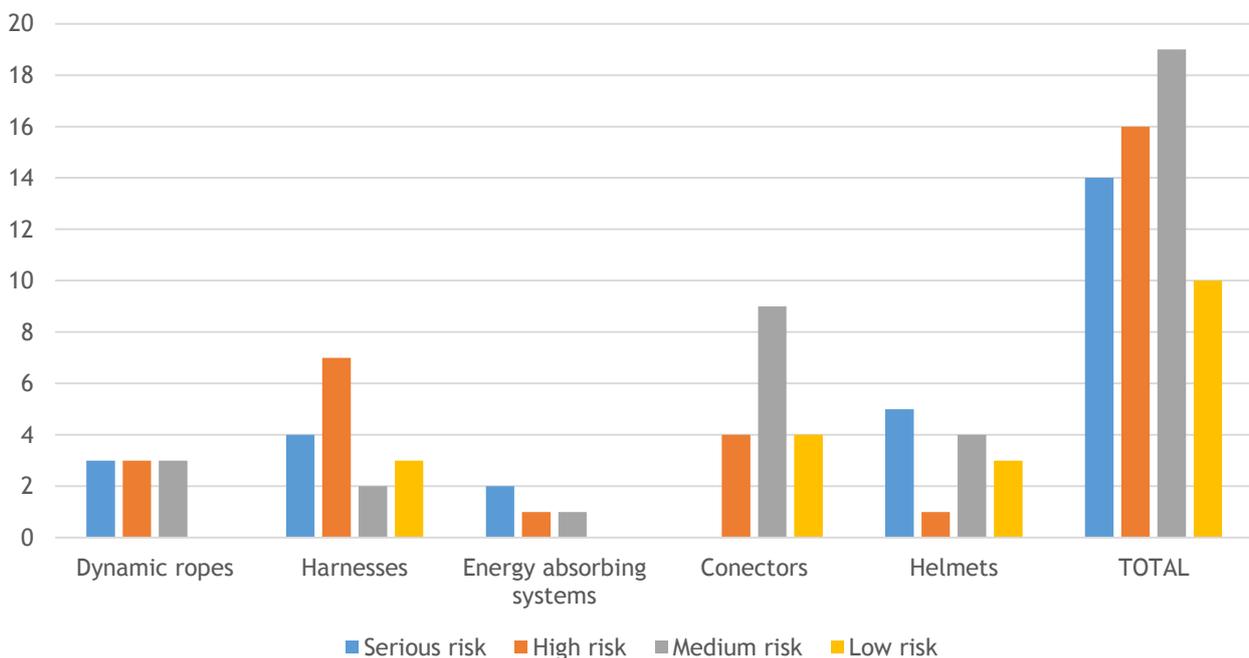
## 5 Follow-up

### 5.1 Risk assessment

Each participating MSA carried out an assessment of the risks associated with the non-conformities detected on the models of climbing they had sampled using the method described in the European Commission’s RAPEX Guidelines.<sup>15</sup> The purpose of the risk assessment is to ensure that the follow-up actions decided by the authorities is proportional to the risk involved by the non-compliant products, in accordance with the EU rules on market surveillance.

Risk assessments with respect to the same type of non-conformity may differ, since the estimation of the probability of accident scenarios and of the type and severity of injuries depends on the specific characteristics of the equipment concerned and the degree of failure during the testing. The risk assessment is the responsibility of each national authority, nevertheless, during the PPE/Climbing Equipment activity, steps were followed to facilitate a common approach to the risk assessment

In light of the outcome of testing and of the explanations provided by the representatives of the test laboratories, the project working group prepared risk assessment templates for dynamic ropes, harnesses and connectors, based on accident scenarios relating to the most common non-conformities. The probability of each step of the scenario and the severity of the possible injuries that may result were then estimated. Use of the RAPEX method enables the authorities to assign one of the following 4 risk levels to each non-conformity detected: low, medium, high or serious.



**Figure 26 - Non-compliant products associated with different risk levels**

<sup>15</sup> <https://eur-lex.europa.eu/eli/dec/2019/417/oj>

## 5.2 Corrective measures

In light of the risk assessment and after consulting the economic operators concerned, the participating MSAs determined the measures to be taken to correct the non-conformities noted during the checks and testing.

*Table 27 - Corrective measures taken*

Category of equipment	Voluntary measures			Mandatory measures		
	Bringing into conformity	Withdrawal from the market	Recall	Bringing into conformity	Withdrawal from the market	Recall
<i>Dynamic ropes</i>	12	3	-	-	2	2
<i>Harnesses</i>	13	7	3	2	6	6
<i>EAS</i>	4	2	1	1	1	1
<i>Connectors</i>	15	4	-	-	15	6
<i>Helmets</i>	11	3	-	-	6	5
<b>TOTAL</b>	<b>55</b>	<b>19</b>	<b>4</b>	<b>3</b>	<b>30</b>	<b>20</b>

## 5.3 ‘Safety Gate’ (RAPEX) notifications

Where appropriate, in order to enable the authorities of the other Member States to take appropriate corrective action on their markets, the authorities participating in the JA2016 PPE/Climbing Equipment activity notified the measures taken with respect to unsafe products using the European Commission’s [Rapid Alert System for dangerous non-food products ‘Safety Gate’ \(RAPEX\)](#).

*Table 28 - Notifications of climbing equipment to ‘Safety Gate’ (RAPEX) as of 29 July 2019*

Category of equipment	Number of notifications	Alert number
<i>Dynamic ropes</i>	2	A12/1871/18 A12/0002/19
<i>Harnesses</i>	3	A12/1994/18 A12/0001/19 A12/0003/19
<i>EAS</i>	2	A12/1995/18 A12/0398/19
<i>Connectors</i>	-	-
<i>Helmets</i>	4	A12/0073/19 A12/0072/19 A12/0074/19 A12/0075/19
<b>TOTAL</b>		<b>11</b>

## 5.4 Harmonised standards - JA2016 recommendations

In the course of using the harmonised European standards for climbing equipment for checking and testing samples for market surveillance purposes, certain issues came to light, indicating subjects on which the standards can be improved.

The following recommendations for improvement have been communicated to the relevant standardisation committees: CEN TC 136 (for dynamic ropes, harnesses, EAS and connectors) and CEN TC 158 (for helmets). Some of these suggestions may also be relevant for the harmonised standards for other categories of climbing equipment.

### a) Improved specifications to ensure the consistent expression of the results of tests

In order to ensure a consistent presentation of the results of measurements in the test reports, the harmonised standards should indicate the degree of precision with which the results should be expressed and also require the degree of uncertainty affecting those results to be indicated in the test reports. These elements of precision are important for correct interpretation of the outcome of the tests.

- In the standard EN 892 for dynamic mountaineering ropes, sub-clauses 5.3.2, 5.4.5, 5.5.2, and 5.6.4, entitled *Expression of results*, specify the degree of precision with which the outcome of the respective tests should be presented, but does not specify the need to mention the uncertainty factor.
- Standard EN 958 for energy absorbing systems for use in via ferrata climbing does not have sub-clauses on the expression of results. During JA2016, the selected test laboratories expressed the maximum impact force to a precision of 0.01 kN. This value may be compared with the precision required by EN 892 for the maximum braking force for ropes of 0.1 kN, which seems more reasonable. Indication of the uncertainty factor should also be required for this measurement.
- Standard EN 12275 for connectors does not have sub-clauses on the expression of the maximum breaking force attained during the static strength tests. During JA2016, one of the selected laboratories expressed the maximum breaking forces to 0.01 kN and indicated an uncertainty factor of  $\pm 0.5$  kN. The other laboratory expressed the results 0.1 kN (which seems more reasonable), without indicating an uncertainty factor.
- Clause 5.5.5 of standard EN 12492 for mountaineering helmets indicates that the results of the energy absorption tests should be expressed to the nearest 10 N. (0.01 kN). One of the laboratories selected for JA2016 applied this requirement and also indicated an uncertainty factor. The other laboratory expressed the results to the nearest 0.1 kN (which seems more reasonable) without however indicating an uncertainty factor.

### b) Information on the version of the standards used to design the equipment

Reference to a harmonised standard provides information to the user on the specifications that have been applied to design the equipment and the tests to which the model has been subjected. During the course of the sampling for JA2016, it became apparent that it is difficult to ascertain the version of standard that has been applied for the design of the equipment. This is particularly important when the revised version of standard includes specifications that represent a significant development of the state of the art.

Consequently, the specifications of the harmonised standards relating to marking and information supplied by the manufacturer on the harmonised standard used to design the equipment should require the inclusion of the date (version) of the standard. This is in line with the revised requirements in Section 1.4 (k) of Annex II and point (6) of Annex IX to the PPE Regulation (EU) 2016/425 to include the date of the harmonised standard applied in the information supplied with the equipment or in the EU Declaration of conformity.

## c) Improvements of specific standards

### Dynamic ropes

The specification relating to the maximum length of the marking bands in Clause 6 of standard EN 892 needs clarification. It is not clear whether the maximum length of 30 mm applies to each marking band or to both: the different language versions of the standard can be understood in a different way. The conclusions of RfU NB-PPE-R/11.125 on alternative methods of marking should be taken into account when re-examining this requirement.

### Harnesses

Experience during the testing has shown that the dimensions corresponding to different sizes of harness vary from one manufacturer to another. It is suggested to develop specifications for inclusion in the harmonised standard setting out body dimensions (e.g. waist measurement) corresponding to the different sizes (see other harmonised standards for PPE such as, for example, EN ISO 13688 2013 - *Protective clothing - General Requirements*).

### EAS for via ferrata climbing

Exchange with economic operators following the testing of Energy Absorbing Systems for Via Ferrata climbing has confirmed that there are currently some discrepancies between the results obtained by the laboratories of the European Notified Bodies for the dynamic performance tests of EAS.

Following an article in the German mountaineering magazine '*Alpin*' reporting on tests carried out on EAS for the magazine, the UIAA, in cooperation with WG 15 of CEN TC 136, organised a 'Round Robin' exercise involving the laboratories of all of the relevant EU Notified Bodies.

It is now important that the results of the Round Robin tests are analysed in order to identify the reasons for the discrepancies between the laboratories, with a view to amending the test method set out in standard EN 958, in order to ensure greater consistency.

### Connectors

Most connectors are designed to be opened under load, which is generally necessary for their effective use. The requirement set out in clause 7 (e) of standard EN 12275 relating to the warning against the opening of connectors under load should either be deleted or reformulated to make it clear that a warning is only necessary in the case of connectors that cannot safely be opened under load.

### Helmets

- Clause 6.1 of standard EN 12492 requires the marking on each helmet to remain legible throughout the life of the helmet. Clause 6.2 requires a label to be attached to each helmet. However, the standard does not include specifications or tests to ensure the durability of markings nor does the standard specify the characteristics of the label.
- There has been discussion of the dimensions of the headform used for penetration resistance test (clause 5.4 of EN 12492). This was the subject of the Recommendation for Use (RfU) sheet CNB/P/01.014 issued by the coordination of Notified Bodies for PPE under the PPE Directive concerning falls from a height. This RfU is no longer valid as from 21 April 2019.
- Clause 7 (d) of EN 12492 requires the manufacturer to provide relevant information regarding the obsolescence deadline or period of obsolescence of the helmet. The checks carried out during JA2016 showed significant differences in the nature of the information provided and in the way it is presented. The requirement should be made more precise. In particular, it should be made clear that the obsolescence period shall always be expressed as a period after the date of manufacture marked on the helmet according to clause 6.1 (d).

## 6 Conclusions & lessons learned

All in all, it can be concluded that the JA2016 Climbing Equipment Activity achieved its objectives:

- ▶ For the first time, the Activity has provided an overall view of the level of conformity and safety of 5 of the most common categories of climbing equipment made available on the market – although it should always be borne in mind that the results are not statistically representative;
- ▶ Effective measures have been taken to ensure the bringing into conformity or the withdrawal from the market of unsafe or non-compliant equipment. Where the non-conformity identified gave rise to a serious risk for users, other MSAs have been informed via the European Commission’s ‘Safety Gate’ RAPEX system;
- ▶ Interesting information relating to the application by climbing equipment manufacturers of the conformity assessment procedures required by the applicable EU legislation on PPE has been obtained. In particular, the sampling has indicated that manufacturers of Category III products have shown a distinct preference for the procedures involving the approval by a Notified Body of their production quality assurance system;
- ▶ Recommendations have been formulated for the improvement of the relevant harmonised European standard in light of issues that have emerged during the Activity and these have been forwarded to the relevant standardisation groups.

The results of the checks and tests have confirmed that some climbing equipment is being proposed on general internet platforms that has not been subjected to the required conformity assessment procedures and is not provided with the necessary markings and information documents. Some of this equipment also showed a quite inadequate level of performance. This practice is not only liable to compromise the safety of users but constitutes unfair competition for responsible economic operators.

The follow-up actions carried out by the MSAs that sampled climbing equipment from general internet platforms demonstrated the effectiveness of the implementation of the safety pledge, signed by several major internet platforms, to remove unsafe products from their websites<sup>16</sup>.

In light of these findings, sales of climbing equipment on general internet platforms should be subject to particular vigilance – for instance, future market surveillance actions on climbing equipment could specifically target equipment made available on general internet platforms.

The MSAs have also noted that climbing equipment supplied via internet sites, including sites specialising in climbing equipment, is frequently not accompanied by the required safety information in the national language of the country of use. It would certainly be useful for the authorities and the professional associations to remind internet sellers of their obligations in this respect.

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<sup>16</sup> [https://ec.europa.eu/info/sites/info/files/voluntary\\_commitment\\_document\\_4signatures3-web.pdf](https://ec.europa.eu/info/sites/info/files/voluntary_commitment_document_4signatures3-web.pdf)

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## Annex 1 - RAPEX notifications from 2005 to 2016

32 notifications of climbing equipment to RAPEX during the period 2005 to 2016

Alert N°	Brand	Category of equipment	Defect
0631/05	SINGING ROCK	Connector (Via ferrata snap hook)	Defect of finger mechanism - could fail to close
0952/07	ROCK	Harness	Seams may open
1007/07	DB4	Energy absorbing system (Via Ferrata set)	Uncontrollable braking
1084/07	SARKEN PETZL	Crampons	Front points could break
1088/07	MAMMUT	Energy absorbing system (Via ferrata set)	Malfunction of brake webbing
0477/08	KONG	Connector (Karabiner)	Insufficient strength
1742/10	DMM	Frictional anchors (Camming devices)	Defective axle boss - insufficient strength
0195/11	TOTEM	Frictional anchors (cams)	Insufficient holding power due to hard surface
0257/11	DMM	Frictional anchors (cams)	Insufficient strength of axle boss
0535/11	PETZL	Energy absorbing system	Lack of security stitching
0536/11	PETZL	Energy absorbing system (Via Ferrata set)	Lack of security stitching
0737/11	PETZL	Braking devices (Belaying devices)	Handle may stick in open position
0484/12	SLAKKLINE	Connectors (Karabiners)	Insufficient strength
0488/12	PETZL	Harness	Security stitching improperly positioned - could tear
A12/1332/12	AUSTRIALPIN	Energy absorbing system (Via ferrata set)	Defect in webbing - could tear under load
A12/1373/12	EDELRID	Energy absorbing system (Via ferrata set)	Defect in webbing - could fail
A12/1734/12	WILD COUNTRY	Energy absorbing system (Via ferrata set)	Defect in webbing - insufficient strength - could fail
A12/1826/12	WILD COUNTRY	Rope clamp (Ascender)	May fail to lock on rope and slip
A12/0347/13	EDELRID	Energy absorbing system (Via ferrata set)	Rope brake could fail due to wear
A12/1719/13	WILD COUNTRY	Chocks	Insufficient strength
A12/0371/15	NEVIS - NUPTSE	Crampons	Plastic bindings not strong enough
A12/0425/15	XIANGFU	Connector (Karabiner)	Insufficient strength
A12/1231/15	SKYLOTEC	Connector (Karabiner for via ferrata set)	Defect in gate - could fail to close or to lock
A12/1760/15	DMM	Connector (Karabiner)	Gate pusher may displace - could fail to close
A12/0332/16	BLACK DIAMOND	Sling	May be held only with adhesive tape - insufficient strength

A12/0333/16	BLACK DIAMOND	Connector (Karabiner)	Defect in gate - could fail
A12/0517/16	PETZL (unauthorised repair)	Harness	Repaired webbing - could fail
A12/0593/16	BLACK DIAMOND	Energy absorbing system (Via ferrata set)	Safety stitching may be missing - could fail
A12/0594/16	BLACK DIAMOND	Rope clamp (Ascender)	Defect in rivets - could become detached from rope
A12/0595/16	BLACK DIAMOND	Frictional anchors (Cammings devices)	Defect in riveting of axles - could fall apart
A12/0869/16	STUBAI	Ice tools (Telescopic ice axe)	Defect in connection between shaft and head - could become detached
A12/0964/16	WILD COUNTRY	Harness	Waist buckle could slip under load

## Annex 2 - Checklists for marking, labelling and documentation

### A. Checklist for dynamic mountaineering ropes - single ropes

IDENTIFICATION OF THE PRODUCT	
JA2016 Number (e.g. BE.01, LV.04 etc.)	
Brand or Trademark	
Name and/or reference of rope	
Name and address of manufacturer	
Name and address of authorised representative	
Name and address of importer	
Name and address of distributor	
Nature of place of sampling <sup>17</sup>	
Purchase price (€) including VAT	
Year of manufacture (see marking bands)	
Number and name of NB for EC (EU) type-examination	
EC (EU) type-examination certificate number	
Production phase procedure Article 11A (Annex VII) or Article 11B (Annex VIII)	
Number and name of NB for production phase procedure	

### MARKING

<sup>17</sup> Manufacturer / External border / Importer / Wholesaler / Specialised Retailer / General Retailer (e.g. Sports shop) / Specialist E-commerce / General E-commerce

PPE Directive PPE Regulation	EN 892	Requirement	Conformity C, NC, NA <sup>18</sup>	Explanations / comments Values marked
Annex II, 2.12	6	Ropes shall have durable bands at both ends with a maximum width of 30 mm (measured along the length of the rope). The bands shall be marked clearly, indelibly and permanently with at least the following information		
Art. 13 Annex IV Article 16 & 17 Article 30	-	CE marking		
		Number of NB for production phase procedure Art. 11A (Annex VII) or 11B (Annex VIII)		
	6 (a)	Name of the manufacturer or his/ her representative		
Annex II, 2.12	6 (b)	Diameter		
Annex II, 2.12	6 (b)	The corresponding graphical symbol for a single rope: 		
Annex II, 2.4	6 (d)	Year of manufacture of the rope		
Annex II, 2.12	6 (e)	The length of the rope		
-	-	Other markings? (e.g. UIAA safety label - UIAA standard) - Please specify   UIAA		

<sup>18</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable.

**EC (EU) DECLARATION OF CONFORMITY**

PPE Directive PPE Regulation	Requirement	Conformity C, NC, NA <sup>19</sup>	Explanations / comments
Article 8 (8)	The manufacturer shall either provide the EU declaration of conformity with the PPE or include in the instructions and information set out in point 1.4 of Annex II the internet address at which the EU declaration of conformity can be accessed		
Article 12 Annex VI	Business name and full address of the manufacturer		
	Business name and full address of the manufacturer's authorised representative established in the Community / Union (if applicable)		
Article 15 Annex IX	This declaration of conformity is issued under the sole responsibility of the manufacturer		
	Description of the PPE (make, type, serial number etc.)		
	Declaration that the PPE is in conformity with the provisions of Directive 89/686/EEC (Regulation (EU) 2016/425)		
	Reference the of the harmonised standard EN 892:2012+A1		
	Number of the EC (EU) type-examination certificate and the name and address of the Notified Body that issued it		
	Production phase procedure applied - Article 11A (Annex VII) or 11B (Annex VIII)		
	Notified Body carrying out the Art. 11A (Annex VII) or 11B (Annex VIII) procedure		
	Place and date of the Declaration		
	Name and position of the person empowered to sign on behalf of the manufacturer or his authorised representative		

<sup>19</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

**INSTRUCTIONS AND INFORMATION SUPPLIED BY THE MANUFACTURER**

PPE Directive PPE Regulation	EN 892	Requirement	Conformity C, NC, NA <sup>20</sup>	Explanations / comments Values declared
Annex II, 1.4 Article 8 (7)	-	Instructions and information supplied by the manufacturer in the official language(s) of the Member State		
Annex II, 1.4	7 (a)	Name and address of the manufacturer and/or his authorised representative		
Annex II 1.4 (i)	-	Name, address and identification number of the Notified Body that carried out the EC (EU) type-examination (not required if the EU DoC accompanies the PPE)		
Annex II, 1.4 (k)	7 (b)	The number of the European Standard EN 892: 2012 + A1:2016		
Annex II, 1.4 (i)	-	Reference to the PPE Regulation (not required if the EU DoC accompanies the PPE)		
Annex II, 1.4 (l)	-	The internet address where the EU declaration of conformity can be accessed (not required if the EU DoC accompanies the PPE)		
Annex II, 1.4 (d)	7 (c)	The length of the rope (in metres)		
Annex II, 1.4 (d)	7 (d)	Diameter (in mm)		
Annex II, 1.4 (d)	7 (e)	The model name or type		
Annex II, 1.4 (e) And 2.4	7 (f)	The year of manufacture of the rope		
Annex II, 1.4 (d)	7 (g)	The mass per unit length of the rope (in ktex or in g/m)		
Annex II, 1.4 (d)	7 (h)	Static elongation (expressed as a percentage to the nearest 0.1%)		
Annex II, 1.4 (d)	7 (i)	Dynamic elongation (expressed as a percentage to the nearest 1%)		
Annex II, 1.4 (d)	7 (j)	Peak force expressed (in kN to the nearest 0.1 kN)		

<sup>20</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable.

**INSTRUCTIONS AND INFORMATION SUPPLIED BY THE MANUFACTURER**

PPE Directive PPE Regulation	EN 892	Requirement	Conformity C, NC, NA <sup>20</sup>	Explanations / comments Values declared
Annex II, 1.4 (d)	7 (k)	Number of drops sustained without breaking		
Annex II, 1.4 (d)	7 (l)	The sheath slippage (expressed as a percentage to the nearest 0.1%)		
Annex II, 1.4 (g) and 2.12	7 (m)	The meaning of any markings on the product		
Annex II, 1.4 (d)	7 (n)	How to use the product (e.g. single, half or twin ropes)		
Annex II, 1.4 (c)	7 (o)	How to choose other components for use in the system		
Annex II, 1.4 (a)	7 (p)	How to maintain / service the product, on the effects of chemical reagents and how to disinfect the product without adverse effect		
Annex II, 1.4 (e) and 2.4	7 (q)	The lifespan of the product and how to assess it, and that after a serious fall, the rope should be withdrawn from use as soon as possible		
Annex II, 1.4 (d)	7 (r)	Influence of wet and icy conditions		
Annex II, 1.4 (d)	7 (s)	Danger of sharp edges		
Annex II, 1.4 (a) and (e)	7 (t)	The effects of storage and ageing due to use		

## B. Checklist for harness (sit harness - type C)

IDENTIFICATION OF THE PRODUCT	
JA2016 Number (e.g. BE.01, LV.04 etc.)	
Brand or Trademark	
Name and/or reference of model	
Name and address of manufacturer	
Name and address of authorised representative	
Name and address of importer	
Name and address of distributor	
Nature of place of sampling <sup>21</sup>	
Purchase price (€) including VAT	
Year of manufacture (see marking - label)	
Number and name of NB for EC (EU) type-examination	
EC (EU) type-examination certificate number	
Production phase procedure - Art. 11A (Annex VII) or Art. 11B (Annex VIII)	
Number and name of NB for production phase	

<sup>21</sup> Manufacturer / External border / Importer / Wholesaler / Specialised Retailer / General Retailer (e.g. Sports shop) / Specialist E-commerce / General E-commerce

MARKING (LABEL)				
PPE Directive PPE Regulation	EN 12277	Requirement	Conformity (C, NC, NA) <sup>22</sup>	Explanations / comments
Annex II, 2.12	6	Harnesses shall carry a label which will be marked with at least the following items		
Art. 13 Annex IV Articles 16 & 17 Article 30 of Regulation (EC) N° 765/2008		CE marking		
		Number of NB for production phase procedure - Art. 11A (Annex VII) or Art. 11B (Annex VIII)		
-	6 (a)	Name of the manufacturer or his/ her representative		
-	6 (b)	Reference of the harmonised standard EN 12277		
Annex II, 2.12	6 (b)	Type of harness - Type C		
Annex II, 2.12	6 (c)	Size, if applicable		
Annex II, 2.12	6 (d)	Drawing showing how to fasten and secure load transmitting buckles or adjusting devices		
Annex II, 2.4	6 (g)	Year of manufacture		
Annex II, 2.12	6 (h)	Graphical symbol which advises the user to read the information given by the manufacturer: 		
-	-	Other markings? (e.g. UIAA safety label - UIAA standard) - Please specify   UIAA		

<sup>22</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

**EC (EU) DECLARATION OF CONFORMITY**

PPE Directive PPE Regulation	Requirement	Conformity (C, NC, NA) <sup>23</sup>	Explanations / comments
Article 8 (8)	The manufacturer shall either provide the EU declaration of conformity with the PPE or include in the instructions and information set out in point 1.4 of Annex II the internet address at which the EU declaration of conformity can be accessed		
Article 12 Annex VI  Article 15 Annex IX	Business name and full address of the manufacturer		
	Business name and full address of the manufacturer's authorised representative established in the Community / Union (if applicable)		
	This declaration of conformity is issued under the sole responsibility of the manufacturer		
	Description of the PPE (make, type, serial number etc.)		
	Declaration that the PPE is in conformity with the provisions of Directive 89/686/EEC (Regulation (EU) 2016/425)		
	Reference the of the harmonised standard EN 12277: 2015		
	Number of the EC (EU) type-examination certificate and the name and address of the Notified Body that issued it		
	Production phase procedure applied - Art. 11A (Annex VII) or Art. 11B (Annex VIII)		
	Notified Body carrying out the Art. 11A (Annex VII) or Art. 11B (Annex VIII) procedure		
	Place and date of the Declaration		
Name and position of the person empowered to sign on behalf of the manufacturer or his authorised representative			

<sup>23</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

**INSTRUCTIONS AND INFORMATION SUPPLIED BY THE MANUFACTURER**

PPE Directive PPE Regulation	EN 12277	Requirement	Conformity (C, NC, NA) <small>24</small>	Explanations / comments
Annex II, 1.4 Article 8 (7)	-	Instructions and information supplied by the manufacturer in the official language(s) of the Member State		
Annex II, 1.4		Name and address of the manufacturer and/or his authorised representative		
Annex II 1.4 (i)		Name, address and identification number of the Notified Body that carried out the EC (EU) type-examination (not required if the EU DoC accompanies the PPE)		
Annex II, 1.4 (k)	-	Reference number of the European Standard EN 12277: 2015		
Annex II, 1.4 (i)	-	Reference to the PPE Regulation (not required if the EU DoC accompanies the PPE)		
Annex II, 1.4 (l)	-	The internet address where the EU declaration of conformity can be accessed (not required if the EU DoC accompanies the PPE)		
Annex II, 1.4 (d)	7 (a)	Advice that the product should only be used by trained and/or otherwise competent persons or the user should be under the direct supervision of a trained and/or otherwise competent person		
Annex II, 3.1.2.2	7 (b)	Advice that, before using the harness, the user should carry out a suspension test in a safe place to ensure that the harness is the correct size, has sufficient adjustment and is of an acceptable comfort level for the intended use		
Annex II, 3.1.2.2	7 (c)	Instruction for the proper way to put on the harness		
Annex II, 3.1.2.2	7 (d)	Explanation of sizing details and how to obtain the optimum fit		
Annex II, 3.1.2.2	7 (e)	Identification of rope attachment points and how to tie into them		
Annex II, 1.4 (a)	7 (f)	Advice on the importance of regularly checking any buckles or adjusting devices during use		

<sup>24</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

**INSTRUCTIONS AND INFORMATION SUPPLIED BY THE MANUFACTURER**

PPE Directive PPE Regulation	EN 12277	Requirement	Conformity (C, NC, NA) <small>24</small>	Explanations / comments
Annex II, 3.1.2.2	7 (g)	Advice on how attachment should be made to any connecting component or sub-system (e.g. for anchoring, belaying, ascending, abseiling or in a rescue situation)		
Annex II, 1.4 (c)	7 (h)	Instruction for the choice of other suitable components for use in the system		
Annex II, 1.4 (a)	7 (i)	Advice on the importance of checking the whole harness regularly for any damage during use and the necessity to withdraw it from use if any damage or defect is found		
Annex II, 1.4 (a)	7 (l)	Advice on the effects of chemical reagents with which the product might come into contact		
Annex II, 1.4 (a)	7 (m)	Instruction for the cleaning and/or disinfection of the product without adverse effects		
Annex II, 1.4 (e) and 2.4	7 (n)	Lifespan of the product or how to assess it		
Annex II, 1.4 (f)	7 (o)	Instruction for the protection of the product during transportation		
Annex II, 1.4 (g) and 2.12	7 (p)	Advice on the meaning of any markings on the product		
Annex II, 1.4 (a)	7 (q)	Instructions for drying: after any wetting, without affecting its performance and subsequent correct storage		
Annex II, 1.4 (a)	7 (r)	Advice on the effects of damp and icy conditions		
Annex II, 1.4 (a)	7 (s)	Advice on the effects of storage and of ageing		
Annex II, 1.4 (d)	7 (t)	Information, that the use of the harness is intended for mountaineering, including climbing		

## C. Checklist for energy absorbing systems (EAS) for via ferrata climbing

IDENTIFICATION OF THE PRODUCT	
JA2016 Number (e.g. BE.01, LV.04 etc.)	
Brand or Trademark	
Name and/or reference of model	
Name and address of manufacturer	
Name and address of authorised representative	
Name and address of importer	
Name and address of distributor	
Nature of place of sampling <sup>25</sup>	
Purchase price (€) including VAT	
Year of manufacture (see marking - label)	
Number and name of NB for EC (EU) type-examination	
EC (EU) type-examination certificate number	
Production phase procedure - Art. 11A (Annex VII) or Art. 11B (Annex VIII)	
Number and name of NB for production phase	

<sup>25</sup> Manufacturer / External border / Importer / Wholesaler / Specialised Retailer / General Retailer (e.g. Sports shop) / Specialist E-commerce / General E-commerce

## MARKING

PPE Directive PPE Regulation	EN 958	Requirement	Conformity (C, NC, NA) <small>26</small>	Explanations / comments Values marked
Annex II, 2.12	6	Energy absorbing systems shall be marked clearly, indelibly and durably with at least the following information		
Art. 13 Annex IV Article 16 & 17 Article 30 of Regulation (EC) No 765/2008	-	CE marking		
		Number of NB for production phase procedure - Art. 11A (Annex VII) or Art. 11B (Annex VIII)		
-	6 (a)	Name of the manufacturer or his/ her representative		
-	6 (b)	Identification of the model (if several models are marketed by the same manufacturer)		
Annex II, 2.4	6 (c)	Year of manufacture		
Annex II, 2.12	6 (d)	Indication of the initial arrangement of the EAS braking system		
Annex II, 2.12	6 (e)	Minimum and maximum user weights of 40 kg (without equipment) and 120 kg (with equipment)		
Annex II, 2.12	6 (f)	Graphical symbol which advises the user to read the information given by the manufacturer:  		
-	-	Other markings? (e.g. UIAA safety label - UIAA standard) - Please specify    UIAA		

<sup>26</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

**EC (EU) DECLARATION OF CONFORMITY**

PPE Directive PPE Regulation	Requirement	Conformity (C, NC, NA) <sup>27</sup>	Explanations / comments
Article 8 (8)	The manufacturer shall either provide the EU declaration of conformity with the PPE or include in the instructions and information set out in point 1.4 of Annex II the internet address at which the EU declaration of conformity can be accessed		
Article 12 Annex VI  Article 15 Annex IX	Business name and full address of the manufacturer		
	Business name and full address of the manufacturer's authorised representative established in the Community / Union (if applicable)		
	This declaration of conformity is issued under the sole responsibility of the manufacturer		
	Description of the PPE (make, type, serial number etc.)		
	Declaration that the PPE is in conformity with the provisions of Directive 89/686/EEC Regulation (EU) 2016/425		
	Reference the of the harmonised standard (EN 958: 2017)		
	Number of the EC (EU) type-examination certificate and the name and address of the Notified Body that issued it		
	Production phase procedure applied - Art. 11A (Annex VII) or Art. 11B (Annex VIII)		
	Notified Body carrying out the Art. 11A (Annex VII) or 11B (Annex VIII) procedure		
	Place and date of the Declaration		
Name and position of the person empowered to sign on behalf of the manufacturer or his authorised representative			

<sup>27</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

**INSTRUCTIONS AND INFORMATION SUPPLIED BY THE MANUFACTURER**

PPE Directive PPE Regulation	EN 958	Requirement	Conformity (C, NC, NA) <small>28</small>	Explanations / comments
Annex II, 1.4 Article 8 (7)	-	Instructions and information supplied by the manufacturer in the official language(s) of the Member State		
Annex II, 1.4	7 (a)	Name and address of the manufacturer and/or his authorised representative		
Annex II, 1.4 (k)	7 (b)	Reference number of the European Standard EN 958: 2017		
Annex II, 1.4 (i)	-	Reference to the PPE Regulation (not required if the EU DoC accompanies the PPE)		
Annex II, 1.4 (l)	-	The internet address where the EU declaration of conformity can be accessed (not required if the EU DoC accompanies the PPE)		
Annex II 1.4 (i)	-	Name, address and identification number of the Notified Body that carried out the EC (EU) type-examination (not required if the EU DoC accompanies the PPE)		
Annex II, 1.4 (d)	7 (c) 1)	Advice that the device should be used only by people weighing from 40 kg (total weight without equipment) to 120 kg (total weight including the equipment). If the user is outside this weight range progression in a rope party is required		
Annex II, 1.4 (d)	7 (c) 2)	Advice that the device should only be used by competent and trained individuals who are qualified to understand the information notes and ensure their application. Otherwise the user should be under the direct supervision of a competent and trained person		
Annex II, 1.4 (g) and 2.12	7 (c) 3)	The meaning of any marking on the product		
Annex II, 1.4 (d)	7 (c) 4)	A warning that during a fall, the EAS will deploy, and the deployed EAS may no longer function to safely arrest a second fall		

<sup>28</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

**INSTRUCTIONS AND INFORMATION SUPPLIED BY THE MANUFACTURER**

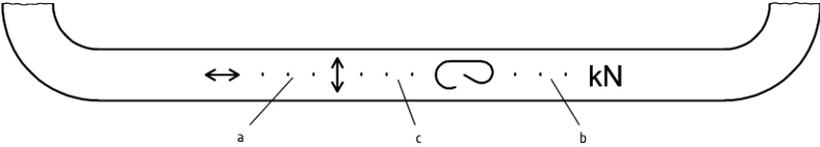
PPE Directive PPE Regulation	EN 958	Requirement	Conformity (C, NC, NA) <small>28</small>	Explanations / comments
Annex II, 1.4 (c)	7 (c) 5)	How to choose any other components for use in the system		
Annex II, 1.4 (a)	7 (c) 6)	How to carry out visual inspection by the user before and after use, and how to detect wear or damage		
Annex II, 1.4 (d)	7 (c) 7)	Never modify the EAS e.g.: never make any knot in the arms (strength decreasing)		
Annex II, 3.1.2.2	7 (c) 8)	How to correctly attach the EAS to the user's harness		
Annex II, 1.4 (d)	7 (c) 9)	A warning to beware of entrapment (strangulation risk while using the EAS)		
Annex II, 1.4 (a) And 1.4 (e)	7 (d) 1)	How to maintain /service the product, including: Advice on retirement criteria, after a fall or wear of the product		
Annex II, 1.4 (a)	7 (d) 2)	Storage (humidity, icing, dust, sun, heat ...)		
Annex II, 1.4 (a)	7 (d) 3)	Effects of chemical reagents and temperature on the product		
Annex II, 1.4 (a)	7 (d) 4)	Minimum annual inspection by a competent person		
Annex II, 1.4 (e)	7 (d) 5)	Lifespan of the product		

## D. Checklist for connectors (Basic connectors - class B)

IDENTIFICATION OF THE PRODUCT	
JA2016 Number (e.g. BE.01, LV.04 etc.)	
Brand or Trademark	
Name and/or reference of model	
Name and address of manufacturer	
Name and address of authorised representative	
Name and address of importer	
Name and address of distributor	
Nature of place of sampling <sup>29</sup>	
Purchase price (€) including VAT	
Number and name of NB for EC (EU) type-examination	
EC (EU) type-examination certificate number	
Production phase procedure - Art. 11A (Annex VI) or Art. 11B (Annex VIII)	
Number and name of NB for production phase (see CE marking)	

<sup>29</sup> Manufacturer / External border / Importer / Wholesaler / Specialised Retailer / General Retailer (e.g. Sports shop) / Specialist E-commerce / General E-commerce

## MARKING

PPE Directive PPE Regulation	EN 12275	Requirement	Conformity (C, NC, NA) <small>30</small>	Explanations / comments Values marked
Art. 13 Annex IV Article 16 & 17 Article 30 of Regulation (EC) No 765/2008		CE marking		
		Number of NB for production phase procedure - Art. 11A (Annex VII) or Art. 11B (Annex VII)		
	6 (a)	Name of the manufacturer or his/ her representative		
Annex II, 2.12	6 (b)	For class B connectors: the letter B surrounded by a circle (only if fitted with a gate-locking device)		
Annex II, 2.12	6 (c)	<p>Minimum strength in kN for the following modes of loading:</p> <ul style="list-style-type: none"> <li>• a - Major axis strength, gate-closed;</li> <li>• b - Major axis strength, gate-open;</li> <li>• c - Minor axis strength.</li> </ul> <p>The markings shall take the form in accordance with Figure 14 together with the marking "kN" either at the beginning or at the end. The marked strength shall be a whole number of kN</p> 		
Annex II, 2.4	6 (g)	Year of manufacturing (only when the connector has permanently attached load bearing textile parts)		

<sup>30</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

## MARKING

PPE Directive <b>PPE Regulation</b>	EN 12275	Requirement	Conformity (C, NC, NA) <small>30</small>	Explanations / comments Values marked
Annex II, 2.12	6 (e)	Graphical symbol which advises the user to read the information given by the manufacturer: 		
-	-	Other markings? (e.g. UIAA safety label - UIAA standard) - please specify   <b>UIAA</b>		

**EC (EU) DECLARATION OF CONFORMITY**

PPE Directive PPE Regulation	Requirement	Conformity (C, NC, NA) <sup>31</sup>	Explanations / comments
Article 8 (8)	The manufacturer shall either provide the EU declaration of conformity with the PPE or include in the instructions and information set out in point 1.4 of Annex II the internet address at which the EU declaration of conformity can be accessed		
Article 12 Annex VI  Article 15 Annex IX	Business name and full address of the manufacturer		
	Business name and full address of the manufacturer's authorised representative established in the Community / Union (if applicable)		
	This declaration of conformity is issued under the sole responsibility of the manufacturer		
	Description of the PPE (make, type, serial number etc.)		
	Declaration that the PPE is in conformity with the provisions of Directive 89/686/EEC (Regulation (EU) 2016/425)		
	Reference the of the harmonised standard EN 12275: 2013		
	Number of the EC (EU) type-examination certificate and the name and address of the Notified Body that issued it		
	Production phase procedure applied - Article 11A (Annex VII) or 11B (Annex VIII)		
	Notified Body carrying out the 11A (Annex VII) or 11B (Annex VIII) procedure		
	Place and date of the Declaration		
Name and position of the person empowered to sign on behalf of the manufacturer or his authorised representative			

**INSTRUCTIONS AND INFORMATION SUPPLIED BY THE MANUFACTURER**

<sup>31</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

PPE Directive PPE Regulation	EN 12275	Requirement	Conformity (C, NC, NA) <small>32</small>	Explanations / comments
Annex II, 1.4 Article 8 (7)	-	<b>Instructions and</b> information supplied by the manufacturer in the official language(s) of the Member State		
Annex II, 1.4	7 (a)	Name and address of the manufacturer and/or his authorised representative		
Annex II 1.4 (i)	-	Name, address and identification number of the Notified Body that carried out the EC (EU) type-examination <b>(not required if the EU DoC accompanies the PPE)</b>		
Annex II, 1.4 (k)	7 (b)	Reference number of the European Standard EN 12275: 2013		
Annex II, 1.4 (i)	-	<b>Reference to the PPE Regulation (not required if the EU DoC accompanies the PPE)</b>		
Annex II, 1.4 (l)	-	<b>The internet address where the EU declaration of conformity can be accessed (not required if the EU DoC accompanies the PPE)</b>		
Annex II, 1.4 (b), (g) and 2.12	7 (c)	The meaning of any markings on the product		
Annex II, 1.4 (d)	7 (d)	The use of the product		
Annex II, 1.4 (d)	7 (e)	If the connector cannot be opened when under load		
Annex II, 1.4 (c)	7 (f)	How to choose other components for use in the system		
Annex II, 1.4 (a)	7 (g)	How to maintain and service the product		
Annex II, 1.4	7 (h)	The lifetime of the product or how to assess it		

<sup>32</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

**INSTRUCTIONS AND INFORMATION SUPPLIED BY THE MANUFACTURER**

PPE Directive PPE Regulation	EN 12275	Requirement	Conformity (C, NC, NA) <small>32</small>	Explanations / comments
(e) and 2.4				
Annex II, 1.4 (a)	7 (i)	The effects of chemical reagents and temperature on the product		
Annex II, 1.4 (a)	7 (j)	The effects of storage and ageing		

## E. Checklist for mountaineering helmets

IDENTIFICATION OF THE PRODUCT	
JA2016 Number (e.g. BE.01, LV.04 etc.)	
Brand or Trademark	
Name and/or reference of model	
Name and address of manufacturer	
Name and address of authorised representative	
Name and address of importer	
Name and address of distributor	
Nature of place of sampling <sup>33</sup>	
Purchase price (€) including VAT	
Year of and quarter of manufacture (see marking)	
Number and name of NB for EC (EU) type-examination	
EC (EU) type-examination certificate number	

<sup>33</sup> Manufacturer / External border / Importer / Wholesaler / Specialised Retailer / General Retailer (e.g. Sports shop) / Specialist E-commerce / General E-commerce

## MARKING AND LABELLING

PPE Directive PPE Regulation	EN 12492	Requirement	Conformity (C, NC, NA) <sup>34</sup>	Explanations / comments Values marked
Annex II, 2.12	6.1	Each helmet shall be marked in such a way that the following information is easily legible by the user and is likely to remain legible throughout the life of the helmet		
Article 13 Annex IV Article 16 & 17 Article 30 of Regulation (EC) No 765/2008		CE marking		
-	6.1 (a)	Number of the harmonised standard EN 12492		
-	6.1 (b)	Name of the trademark of the manufacturer and/his authorised representative		
-	6.1 (c)	The designation of the model		
Annex II, 2.4 and 2.12	6.1 (d)	The year and quarter of manufacture		
Annex II, 2.12	6.1 (e)	The size or size range (in cm)		
-	-	Other markings? (e.g. UIAA safety label - Reference of UIAA standard) - Please specify		
Annex II, 2.12	6.2	A label shall be attached to each helmet when offered to sales, giving the following instructions, at least in the official language(s) of the Member State of destination		
nAnex II, 2.12	6.2 (a)	The designation "Helmet for mountaineers"		
Annex II, 2.12	6.2 (b)	For adequate protection this helmet has to fit or to be adjusted to the size of the user's head		
Annex II, 1.4 (e)	6.2 (c)	The helmet is made to absorb the energy of a blow by partial destruction		

<sup>34</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

## MARKING AND LABELLING

PPE Directive PPE Regulation	EN 12492	Requirement	Conformity (C, NC, NA) <sup>34</sup>	Explanations / comments Values marked
and 2.12		or damage, and even though such damage may not be readily apparent, any helmet subjected to severe impact should be replaced		
Annex II, 2.12	6.2 (d)	The attention of the users is also drawn to the damage of modifying or removing any of the original component parts of the helmet, other than as recommended by the helmet manufacturer. Helmets should not be adapted for the purpose of fitting attachments in any way not recommended by the helmet manufacturer		
Annex II, 2.12	6.2 (e)	Do not apply paint, solvents, adhesives or self-adhesive labels, except in accordance with instructions from the helmet manufacturer		
Annex II, 1.4 (a) and 2.12	6.2 (f)	For cleaning, maintenance or disinfection, use only substances that have no adverse effect on the helmet and are not known to be likely to have any adverse effect upon the wearer, when applied in accordance with the manufacturer's instructions and information		
-	-	Other labelling? (e.g. UIAA safety label - UIAA standard) - Please specify   <span style="margin-left: 20px;">UIAA</span>		

**EC (EU) DECLARATION OF CONFORMITY**

PPE Directive PPE Regulation	Requirement	Conformity (C, NC, NA) <sup>35</sup>	Explanations / comments
Article 8 (8)	The manufacturer shall either provide the EU declaration of conformity with the PPE or include in the instructions and information set out in point 1.4 of Annex II the internet address at which the EU declaration of conformity can be accessed		
Article 12 Annex VI  Article 15 Annex IX	Business name and full address of the manufacturer		
	Business name and full address of the manufacturer's authorised representative established in the Community / Union (if applicable)		
	This declaration of conformity is issued under the sole responsibility of the manufacturer		
	Description of the PPE (make, type, serial number etc.)		
	Declaration that the PPE is in conformity with the provisions of Directive 89/686/EEC Regulation (EU) 2016/425		
	Reference the of the harmonised standard EN 12492: 2012		
	Number of the EC (EU) type-examination certificate and the name and address of the Notified Body that issued it		
	Place and date of the Declaration		
	Name and position of the person empowered to sign on behalf of the manufacturer or his authorised representative		

<sup>35</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

**INSTRUCTIONS AND INFORMATION SUPPLIED BY THE MANUFACTURER**

PPE Directive PPE Regulation	EN 12492	Requirement	Conformity (C, NC, NA) <small>36</small>	Explanations / comments
Annex II, 1.4 Article 8 (7)	7	<b>Instructions and</b> information supplied by the manufacturer in the official language(s) of the Member State		
Annex II, 1.4	7 (a)	Name and address of the manufacturer and/or his authorised representative		
Annex II, 1.4 (i)	-	Name, address and identification number of the Notified Body that carried out the EC (EU) type-examination <b>(not required if the EU DoC accompanies the PPE)</b>		
Annex II, 1.4 (i)	-	<b>Reference to the PPE Regulation</b> <b>(not required if the EU DoC accompanies the PPE)</b>		
Annex II, 1.4 (l)	-	<b>The Internet address where the EU declaration of conformity can be accessed</b> (not required if the EU DoC accompanies the PPE)		
Annex II, 1.4 (k)	-	<b>Reference number of the European Standard EN 12492: 2012</b>		
Annex II, 1.4 (a)	7 (b)	instructions or recommendations regarding adjustment, fitting, use, cleaning, disinfection, maintenance, servicing and storage		
Annex II, 1.4 (c)	7 (c)	Details of suitable accessories and appropriate spare parts		
Annex II, 1.4 (e) and 2.4	7 (d)	Relevant information regarding the obsolescence deadline or period of obsolescence of the helmet and component parts		
Annex II, 1.4 (a) and (f)	7 (e)	Relevant information regarding details of the type of packaging suitable for storage and transporting to the point of sale.		

<sup>36</sup> C = complies with the requirement; NC = does not comply with the requirement; NA = requirement is not applicable

## Annex 3 - Test programmes

### A. Dynamic mountaineering ropes (single rope) - EN 892:2012+A1:2016

BHSR of PPE Directive	Requirement of EN 892	Test	Test sample, requirements and tests	JA2016 ?	Comments
-	5.1	-	Test sample = 40 m	-	Commercial package usually > 40 m Sample either a length of 40 m or preferably a package ≥ 40 m (The origin of a package is more certain)
-		5.2	Conditioning	YES	
1.2.1 1.4 2.12	4.1 6 (b) 7 (d) & (g)	5.3	Construction, diameter and mass per unit length Measure and compare with marking and manufacturer's information	YES YES	Not safety critical
1.4	4.2 7 (l)	5.4	Sheath slippage (< 1%) Measure and compare with manufacturer's information	YES YES	Important for safety
1.2.1 1.4	4.3 7 (h)	5.5	Static elongation (< 10%) Measure and compare with manufacturer's information	YES YES	Important for safety
1.3.2 1.4 3.1.2.2	4.5.1, 7 (j) 4.4, 7 (i) 4.5.2, 7 (k)	5.6	Drop test - 3 series of drop tests Peak force (< 12 kN during first drop) Dynamic elongation (< 40% for first drop) Number of drops (at least 5 drops) Compare with manufacturer's information	YES YES	Safety critical 2 types of non-conformity: <ul style="list-style-type: none"> <li>&lt; 5 drops</li> <li>inaccurate information on the number of drops</li> </ul>
2.12	6		Marking	Check by authorities	To be investigated: Marking and information for rope sold by the metre
1.4	7		Information to be supplied by the manufacturer		

## B. Harness (sit harness - type C) EN 12277:2015

BHSR of PPE Directive	Requirement of EN 892	Test	Number of test samples, requirements and tests	JA2016 ?	Comments
-	4.2.3	-	1 test sample of type C climbing harness	-	Sample a size L or a universal size harness (waist $\geq$ 75 cm - leg $\geq$ 60 cm)
-	5.1	-	Conditioning	YES	
1.1.1 1.3.2	4.1.1 4.1.2	5.2.1	Dimensions of tapes for load transmitting parts ( $\geq$ 43 mm) Measurement on loaded dummy	NO	Not safety critical
1.3.2	4.1.3	5.2.2	Colour of safety stitching Visual examination	YES	Photo if considered non-compliant
1.2.1.2	4.1.4		Components - absence of burrs or sharp edges Visual and tactile examination	YES	Particularly metal buckles that can cut the tape
1.2.1.2	4.1.5		Textile parts - absence of burrs	NO	Comfort aspect
1.3.2 3.1.2.2	4.2.1	5.2.5.1 5.2.5.2	Strength test of harness on dummy 1 test carried out with rope tied in, according to the manufacturer's instructions	YES	Safety critical
		5.2.5.3	Strength test of belt on cylinder	YES	Safety critical
2.12	6		Marking	Check by authorities	
1.4	7		Information supplied by the manufacturer		

## C. Energy Absorbing Systems (EAS) for use in via ferrata climbing - EN 958:2017

Sample and order	BHSR of PPE Directive	Clause of EN 892	Test	Number of test samples, requirements and tests	JA2016 ?	Comments
-	-	5.2.1 5.3.2.1	-	2 test samples	-	
A 1	1.2.1 1.3.2 2.9 3.1.2.2	4.1.1.1		Connections cannot be altered or disassembled by user Absence of sharp or rough edges	YES	
A 2		4.1.1.2	5.1.2	Distance between the two arm extremities $\geq 1\ 000$ mm	YES	
A 3		4.1.1.3	5.1.3	Overall length $\leq 1\ 500$ mm	YES	
		4.1.2		Connecting device shall be a type K connector according to EN 12275	NO	Not always supplied with via ferrata set
		4.1.3		Connection to the safety line - at least 2 arms unless designed for a continuous system	NO	
		4.1.4		Initial arrangement easily checked by user	YES	
		4.1.5		Rest attachment point shall activate the EAS in case of fall	NO	Optional feature of EAS
		3.1.2.2	4.2.2 4.3.5	5.2.4.2	Minimum static force to initiate operation of EAS $> 1.3$ kN	NO
A 4		4.2.3 (a)	5.2.4.1 5.2.4.3 5.2.3	Dynamic test Maximum impact force with 40 kg $< 3.5$ kN Maximum braking length $< 2\ 200$ mm	YES	Safety critical
B 1		4.2.3. (b)	5.2.4.1 5.2.4.3 5.2.3	Dynamic test Maximum impact force with 120 kg $< 6$ kN Maximum braking length $< 2\ 200$ mm	YES	Safety critical
	1.2.1 3.1.2.2	4.2.4	5.2.4.3 5.2.4.4	Dynamic test Dynamic strength of the EAS under wet conditions Maximum impact force $< 6$ kN Maximum braking length $< 2\ 200$ mm	NO	Would require another sample

B 2	2.4 3.1.2.2	4.3.2	5.2.4.1 5.2.4.3 5.3.1	Static strength of whole system > 12 kN	YES	Safety critical
		4.3.3	5.3.2.2 5.3.2.3 5.2.4.5	Breaking strength of elasticated arms before and after fatigue test < -30% and > 12 kN	NO	Requires samples of components
		4.3.4	5.3.3	Breaking strength of the textile components of non-elasticated arms and harness attachment point > 15 kN	NO	Requires samples of components
		4.3.6	5.3.4	Breaking strength of the rest attachment point > 12 kN	NO	Optional feature of EAS
	1.4 2.12	6		Marking	Check by authorities	
	1.4 2.8	7		Information supplied by the manufacturer		

## D. Connectors (Basic connectors - Class B) - EN 12275:2013

Sample and order of tests	BHSR of PPE Directive	Requirement of EN 892	Test	Number of test samples, requirements and tests	JA2016 ?	Comments
	-	-	-	3 test samples for Class B connectors without an automatic gate locking device (i.e. with no gate locking device or with a manual gate locking device) or 2 test samples for Class B connectors with an automatic gate locking device	-	
A 1	1.2.1.2	4.1.1		No burrs or sharp edges	YES	
A 2	3.1.2.2	4.1.8		Gate opening of at least 15 mm	YES	
A 3		4.1.9	Figure 8	In region A, accommodate 2 rods of $\varnothing$ 11 mm without hindering movement of the gate	YES	
A 4		4.1.11		Hinged gate shall open inwards	YES	
A 5		4.1.12		Gate open latch shall latch only in fully open position and unlatch automatically	YES	Not usually present
		4.1.15		If tape is fitted with tape, it shall comply with stability requirements of EN 565:2006, 4.1 (Tape)	NO	Not in scope of JA
A 7	1.3.2 3.1.2.2	4.2.1.1 6 (c)	5.3.2.1.3	Static strength Major axis with gate closed $\geq$ 20 kN	YES	Safety critical
C	3.1.2.2	4.2.1.2 6 (c)	5.3.2.1.3	Static strength Major axis with gate open $\geq$ 7 kN (only connectors without an automatic gate locking device)	YES	Safety critical
B		4.2.1.3 6 (c)	5.3.2.1.4	Static strength Minor axis with gate closed $\geq$ 7 kN	YES	Safety critical
A 6	1.1.1 3.1.2.2	4.2.2.1	5.3.2.2.1	Self-closing gates Opening of the gate $\leq$ 3 mm When released from any open position, or unlatched if there is a gate-open latch, the gate shall return to the fully closed position	YES	

		4.2.2.2	5.3.2.2.3.1 5.3.2.2.3.2	Gate open latch Force required to latch the gate open $\geq 10$ N Force required to unlatch the gate $\leq 15$ N	NO	Not usually present
		4.2.2.3	5.3.2.2.4	Gate performance under load If not fitted with device to lock the gate closed when loaded: It shall be possible to open the gate fully by hand and, when released, the gate shall return to the fully closed position from any open position.	NO	
	1.3.2 3.1.2.2	4.2.3.1	5.3.2.2.5	Gate resistance - Gate face The gate locking feature shall withstand a force of 1 kN without separating the gate from the body by more than 1 mm and shall still function.	NO	
		4.2.3.2	5.3.2.2.6	Gate resistance - Gate side The gate locking feature shall withstand a force of 1.5 kN without separating the gate from the body of the connector by more than 1 mm and shall still function.	NO	
	1.4 2.12	6		Marking	Check by authorities	
	1.4	7		Information supplied by the manufacturer		

## E. Helmets for mountaineers - EN 12492:2012

Samples	BHSR of PPE Directive	Requirement of EN 892	Test	Requirements and tests	JA2016 ?	Comments
	-	5.1	-	4 test samples	-	Sample 4 helmets with size adjustment <b>Check range of sizes</b>
	1.2.1.1	4.1.1		Innocuity of materials in contact with the skin	NO	
A	1.2.1.2	4.1.2		No sharp edges, roughness or projection	YES	
A		4.1.3		Retention system, including chin strap, with 3 separate points of attachment to the shell.	YES	
	1.3.1 2.1	4.1.3		Chin strap adjustable with width of $\geq 15$ mm under a load of 250 N.	NO	
	1.1.1 1.2.1	4.1.4		Ventilation with cross-sectional area $\geq 4$ cm <sup>2</sup>	NO	
A & B	1.3.2 3.1.1	4.2.1.1	5.2, 5.3, 5.4	Vertical energy absorption capacity 2 tests at + 35° and -20° Force transmitted to headform $\leq 10$ kN	YES	Safety critical
	3.1.1	4.2.1.2	5.5	Front energy absorption capacity Force transmitted to headform $\leq 10$ kN	NO	
	3.1.1	4.2.1.3		Side energy absorption capacity Force transmitted to headform $\leq 10$ kN	NO	
	3.1.1	4.2.1.4		Rear energy absorption capacity $\leq 10$ kN	NO	
C & D	3.1.1	4.2.2	5.6	Penetration resistance 2 tests at + 35° and -20° No contact between the striker and the headform	YES	Safety critical
	2.1	4.2.3	5.7	Retention system strength Maximum elongation $\leq 25$ mm	NO	
	1.2.1 1.3.1	4.2.4	5.8	Retention system effectiveness (roll off) For the front way and rear way tests, the helmet shall not come off the headform	NO	
	1.4, 2.12	6		Marking and labelling	Check by authorities	
	1.4, 2.4	7		Information supplied by the manufacturer		



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