

PPE Standards

Summary Guide

Introduction

The overriding legislation is The Personal Protective Equipment at Work (Amendment) Regulations 2022.

For each type of equipment there are a number of specific standards that apply understandably too many to comprehensively list here given the number of PPE categories.

It should also be remembered that Regulation (EU) 2016/425 (as incorporated into UK law) sets out the essential health and safety requirements for PPE in the UK.

Employees too have a responsibility to use Personal Protective Equipment (PPE) in the correct way, as instructed by the employer.

The specific requirements also need to be set in context of the client's individual Minimum Standards as they may exceed these regulatory requirements, especially for task / job specific activities based on the profile and assessment of the risk.

Please note that in addition to employer and site specific requirements there are also Industry requirements including those for the Highways and Rail sectors amongst others.

Specifically but not exclusively the more significant of these standards that regulate the provision of all of the PPE that we supply are as follows

Eye Protection

Basic Standards

- EN166, 2002: Personal Eye Protection – Requirements
- EN167, 2002: Optical Test Procedures, e.g. refraction of light, spherical and astigmatic refraction
- EN168, 2002: Non-Optical Test Procedures, e.g. mechanical strength, drops of liquid and splashes, etc.

Specific Requirements

- EN169, 2002: Personal Eye Protection – Filters for Welding Work
- EN170, 2002: Personal Eye Protection – UV Filter Transmission Requirements
- EN171, 2002: Personal Eye Protection – IR Filter Transmission Requirements
- EN172, 2002: Personal Eye Protection – Sunlight Protective Filter for Commercial Use
- Laser Goggles – EN 207, 2009

Footwear

EN ISO 20345:2011

The standard for all styles that are classified as 'safety footwear' which specifies basic and optional requirements for general purpose safety footwear, including impact protection, slip resistance, mechanical and thermal risks, ergonomics including additional classifications such as water resistance, cold insulation, metatarsal protection, heat resistance, heat insulation resistance, etc.

ISO 20347:2021(en)

Personal protective equipment — Occupational footwear

EN ISO 20349:2017

Certified Protection Against Thermal Risks and Molten Metal Splashes

BS EN 17249:2013

Chainsaw Protection Boot

ASTM F2413-18 | EH Certified

Electrical Hazard footwear is used to protect wearers from up to 18kV Electrical risks

EN 61340-4-3:2018 | ESD Certified

used to prevent damage to electronic components via an Electrostatic discharge.

Protective Clothing (including Hi-Vis and FR ARC Flash)

EN471 EN ISO 20471 - Reflectivity and Fluorescence

Class 3 - highest class: typically consist of upper body and full sleeved garments

Class 2 - mid level: typically consist of short or no sleeve garments and some trousers

Class 1 - lowest level: typically consist of lower body or partially fluorescent garments

y: level of the retro-reflective material (2 performance classes). Class 2 being the highest.

EN343 - Rain Protection & Breathable properties

x: protection against water penetration (4 classes)

y: breathable properties (4 classes)

GO/RT 3279 and RIS 3279-TOM

This Rail Group Standard mandates minimum requirements for high visibility clothing that is to be provided for wearing by people on the lineside or on or near the line. It applies to all high visibility clothing worn in order to meet the requirements of GE/RT8000 Rule Book.

The rail industry standard has now replaced GO/RT 3279 Issue 8. However, garments previously certified to GO/RT 3279 continue to meet the requirements of the rail industry standard.

EN 13758-1 2002 - Protection Against Harmful UV Rays

Textiles Solar UV protective properties. Clothing is designed to offer the wearer protection against solar UV exposure. The UPF (Ultra-violet protection factor) shall be larger than 50.

EN ISO 11612 - Protection Against Heat & Flame 1 (this standard replaces EN531)

A: limited flame spread (essential condition) - fabric combination conforms to EN14116 index 3 (Limited Flame Spread)

B: (B1-B5) - insulation against convection heat

C: (C1-C4) - insulation against radiant heat

D: (D1-D3) - insulation against molten aluminium

E: (E1-E3) - insulation against molten cast iron

F: (F1-F3) - insulation against contact heat

EN ISO 11611 - Protective Clothing For Use In Welding and Allied Process

Class 1: lower level less hazardous welding situations

Class 2: high level more hazardous welding situations

EN1149-5 - Protection Against Electrostatic

This standard covers 2 test methods (EN1149-1/EN1149-3) and the performance requirements (EN1149-5). It specifies material and design requirements for electrostatic dissipative protection clothing used as part of a total earthed system to avoid incendiary discharge of static electricity. Garments meeting this standard do not offer protection from mains voltage.

IEC 61482 - Protection Against The Thermal Hazards Of An Electric Arc

IEC 61482-2 is the European standard for the thermal hazards of an arc flash. The standard includes requirements for material testing and additional information for garments constructed from compliant materials.

Garments certified to this standard are defined as complex design and are subject to annual audits under Article 11 of the PPE Directive.

ATPV / EBT - Arc Thermal Protective Value / Arc Thermal Protective Value (Knit Wear)

An Arc Thermal Protective Value (ATPV) refers to the maximum incident energy (in calories per centimetre squared) that protective equipment can be exposed to and prevent to onset of a second-degree burn.

Ratings are based upon the total weight of the fabric and ratings can be stacked when using a layered system. A higher rating means better protection.

Other types of clothing protection

- EN 14126 - For garments offering protection against infective agents including viruses.
- ISO 13982-1 - Protective clothing for use against solid particulates
- BS EN 13034 –Type 6 chemical protection suits for both one-off and multiple use applications

Hand Protection

EN 388:2016+A1:2018 covering Abrasion, Tear, Coupe and Puncture Tests

A new version of EN 388, the standard used to regulate cut protection in safety gloves, was published in November 2016.

EN ISO 13997 -Cut Test

The objective of this new EN ISO 13997 cut test is to determine the resistance of the safety glove by applying the sample fabric with great force in a single movement, a better representation to the pressure type cut risk experienced in the workplace

NB Please note that there are also solutions for specialist applications including ARC Flash Safety gloves, Chemical, Welding so one or more of the following may also be required

EN 374 2016 - Protective gloves against dangerous chemicals and micro-organisms

EN 407:2004 - Protection from thermal hazards (heat and/or fire)

EN 12477 - Protective gloves for welders

EN 511:2006- Gloves giving protection from cold

EN 10819 - Gloves giving protection from vibrations - vibration attenuation

EN 421 - Protection from ionising radiation and radioactive contamination

EN 1149 - Protective gloves with electrostatic properties

EN 388:2016/ISO 13997 - Protective gloves against dangerous chemicals Types a, B and C

EN 1186 - Contact with food

EN455 - Medical Gloves for Single Use Parts 1,2,3&4

EN 420:2003+A1:2009 Protective gloves. General requirements and test methods

(BSI notified as withdrawn with the current BS EN ISO 21420:2020 Protective gloves. General requirements and test methods Current and Under Review)

Head and Face Protection

EN397 - The European standard for Industrial safety helmets for use at ground level

EN 12492 - safety helmets for use at height

EN12899-1 - night time visibility / reflectivity of head protection

EN 812 standard for safety cap head protection for the wearer of PPE

EN170 - UV Protection

EN 166.1.FT.KN, offering impact protection

K Rated - Anti-Scratch resistance to surface damage from fine particles

N Rated - Anti-Mist resistance to fogging

Hearing Protection

The overriding standard is BS EN352 which applies to the three types of hearing protection; Earplugs (disposable and reusable), Earmuffs and Protective communication headsets.

In addition for communication devices in the UK the use of any radio transmitting device is required to be either licensed or specifically exempted from licensing under the Wireless Telegraphy Act 2006 (WT Act 2006).

BS EN 352-1:2002	Ear-plugs and Ear-muffs
BS EN 352-3:2002	Ear-muffs attached to safety helmet / head protection
BS EN 352-4:2001	Level-dependent ear-muffs
BS EN 352-5:2002	Active noise reduction ear-muffs
BS EN 352-6:2002	Ear-muffs with electrical audio input
BS EN 352-7:2002	Level-dependent ear-plugs

Fall Protection

Harnesses

EN 361:2002 Personal protective equipment against falls from a height. Full body harness.

This standard states that the harness has passed the free fall test involving a free fall drop with a 100kg weight in the harness to simulate a person. This shows how the harness will respond in a fall.

EN 1497:2007 Personal fall protection equipment – rescue harnesses

This European standard specifies requirements, test methods, marking and information supplied by the manufacturer for rescue harnesses. Rescue Harnesses conforming to this standard are used as components of rescue systems, which are personal fall protection systems.

EN 358:2018 Belts and lanyards for work positioning or restraint

Dynamic Performance

Work positioning belts/lanyards are subjected to a drop test to generate a shock load on the product. A lesser force is applied to the work positioning belt/lanyard compared with fall arrest harness attachments as the possibility of a period of free-fall is significantly less in use. Work positioning belts/lanyards are subjected to a 1 metre drop and in both cases, the belt/lanyard is required to safely arrest the fall of the test dummy or test weight following the drop.

Static Strength

Belts are first subjected to cycling between no force and 1kN 5 times, followed by 5kN tensile force to assess slippage of webbing through buckles. The force is then increased 15kN, which is applied and held for at least 3 minutes, to ensure the breaking strength of the product is in excess of the force specified by the standard. A work positioning lanyard is assessed in the same way but using a force of 4kN for the slippage test.

Corrosion Resistance

Metallic components used in fall protection equipment are subjected to a neutral salt-spray test intended to prove a minimum resistance to environmental corrosion (specifically rust). Products are held within a sealed chamber, which is filled with a salt-water mist, which can induce rust in unprotected metals. Products are subjected to 48 hours exposure and examined for rusting and function afterward.

EN 813:2008 Personal fall protection equipment – Sit harnesses

EN 813 specifies requirements, testing, marking and information to be supplied by the manufacturer for sit harnesses to be used in restraint, work positioning and rope access systems, where a low point of attachment is required.

Arrest Blocks

EN 360:2002 Personal protective equipment against falls from a height. Retractable type fall arresters.

This standard deals with fall arrester with self-locking device and a self-retractable system for the lanyard. An energy dissipating element can be built-in to the equipment.

Lanyards

EN 354:2010 Personal protective equipment against falls from a height. Lanyards.

This standard indicates that the lanyard has withstood a free fall test without releasing the load or doing undue damage to it.

EN 355: 2002 Personal protective equipment against falls from a height. Energy absorbers.

This standard is for lanyards with shock absorbers. These are lanyards that are suitable for attachment to a full body harness and connection to an anchorage point. The shock absorber part of the lanyard reduces the shock caused in the event of a fall being arrested by slowing down the speed of the arrest.

Connectors / Rope / Rope Grab

EN 362:2004 Personal protective equipment against falls from a height. Connectors.

This standard shows that all connectors in this range have passed the strength test required for this standard.

EN 353-2:2002 Personal protective equipment against falls from a height. Guided type fall arresters including a flexible anchor line.

This standard describes the different test methods for traveling devices incorporated into systems made up of a line intended to be fixed (either temporarily or permanently) to a structure.

EN 1891:1998 Personal protective equipment for the prevention of falls from a height. Low stretch kernmantle ropes.

This standard confirms that low stretch kernmantle ropes have the ability for low extension during normal work activities but the ability to withstand forces generated by a fall.

Anchorage Devices

EN 795 :2012 Personal Fall Protection Equipment – Anchor Devices

This standard pertains to anchorage devices to be used as part of a fall protection system. It tests the devices to make sure they can withstand the maximum dynamic force generated in a fall.

Respiratory Protection (RPE) – including

Respirators (air purifying) – Also known as filtering devices. They remove contaminants from the air using filters and can be powered or non-powered.

Masks

EN 149:2001+A1:2009(MAIN) - Respiratory protective devices - Filtering half masks to protect against particles

Filters

All respirator filters are labelled with standard colour coding used throughout Europe in accordance with the EN 14387 standard

Breathing apparatus provides an independent supply of air to the wearer, e.g. from a cylinder or compressor

BS EN 12941:1998+A2:2008 - for powered filtering devices incorporating a helmet or a hood with gas, particle or combined filter

BS EN12021:2014 Breathing Compressed Air

Note HSG53 (Respiratory protective equipment at work: A practical guide) definition of RPE applies.

NB Ladies PPE (including maternity and modesty wear) should meet the same standards.

Children's PPE.

We also provide Children's range of PPE including boots to adult UK size 1 and helmets. It should be noted that hi vis standards are hard to achieve because of the lack of sufficient material in the garment to meet the requirements. (this can also apply to smaller ladies sizes).

The above list of standards is designed to be comprehensive but not necessarily exhaustive.