



Issue1
2017

Our foot protection guide.

www.sitexindustrial.com



Our foot protection guide.

Answering common questions in a handy guide.

PRODUCT SPOTLIGHT

OUR REF: BR2/S3

- Tan apollo leather upper.
- Warm fleecy lining.
- External leather loops.
- Dual density PU sole.
- 200 joule steel toe cap.
- Shock absorber heel.
- Anti static properties.
- Oil resistant outsole.
- Steel midsole.
- Wide fit.

**EN 20345:2011
S3 SRC**



More information available online at www.sitexindustrial.com

Current standards

Recent changes in legislation have resulted in the improved EN ISO 20345:2011 standard being introduced to replace the older EN 345 standard, although products tested to this older standard remain available and may still be sold. The relevant standard will be marked on the product either on a label or printed directly onto the footwear.

Areas of protection

While all safety footwear offers toe protection to some degree, there are other areas of the foot which may need additional protection. For example penetration of the sole by sharp objects such as nails or the top of the foot (metatarsal). The type of protection can also include protection from extreme heat, cold, slipping, liquids, chemicals etc. It goes without saying that the preferred option is always to remove a hazard first and only use PPE as a last line of defence when all other options have been explored.

Marking

To comply with regulations all safety footwear must be marked with a simple code which gives a basic indication of the protection offered. The basic types of footwear most commonly in use are detailed below. There is a huge range of other footwear available for more specialised applications such as fire fighting, extreme cold, chemical protection etc. which are beyond the scope of this simplified guide and only the more common industrial applications are discussed below.

Class	Features and benefits
SB	Safety basic, 200 joules Toe Protection, Oil Resistant outer sole. (Minimum Requirement)
SBP	As SB plus Mid-Sole for penetration resistance.
S1	As SB plus Anti-Static properties and fully enclosed Energy Absorbing heel area.
S1P	As S1 plus Mid-Sole for penetration resistance.
S2	As S1 plus resistance to Water Penetration and absorption
S3	As S2 plus Mid-Sole for penetration resistance and cleated outsole
S4	200 joules Toe Protection. All rubber or polymer construction (waterproof). Anti-Static properties, Energy Absorbing heel area.
S5	As S4 plus Mid-Sole for penetration resistance and cleated outsole.

S1

Combines the SB protection with an energy absorbing heel, oil resistant sole and Anti-Static properties. It is worth noting that the Anti-Static properties incorporated are designed to reduce the static build up but may not eliminate it. This becomes important if the footwear is used in explosive atmospheres or when handling electronic components where additional measures will be required. (eg Our BS1 shoe)

S1P

In this case the P indicates penetration resistance and the footwear is the same as S1 footwear with the addition of a metal or composite mid-sole. (eg Our BB1/SM Boot)

S2

Similar to S1 footwear but with a water resistant upper. The important point to note here is that a water resistant upper is not designed to be immersed in water and should not be considered as waterproof. (eg Our SNMT2 shoe)

S3

This type of footwear is the same as S2 footwear but with the addition of a penetration resistant mid-sole.(eg Our BR2/S3 rigger)

Our foot protection guide.

Slip resistance to waterproof uppers.

DID YOU KNOW?



Sitex are one of the best independent sourcing houses and distributors of PPE in the UK.



Waterproof upper

While the above standards generally cover leather shoes and work boots to which a waterproof membrane can be added (identified by adding WM or WP to the above markings), the standards below apply to footwear made from rubber and polymers which are designed to be waterproof, in simple terms wellingtons or similar.

S4

Offers 200 joule toe protection and must be waterproof. It also has anti-static properties (though not 100% anti-static) and an energy absorbing heel area. It is generally the lowest standard found on safety wellingtons. We would usually recommend this level of protection for use indoors, for example in the food industry. (Eg. Our WEL/S4 white)

S5

This gives the same protection as S4, but adds a penetration resistant mid-sole and cleated outsole. This is generally the type of wellington we would recommend for use on construction sites. (Eg. Our WEL/S5)

Composite toe caps and mid soles

Traditionally safety footwear has always had a metal toe cap, usually made of steel or sometimes aluminium with a thin steel mid-sole for penetration protection. This type of construction has certain disadvantages in certain applications as footwear can be heavier to wear and may also affect security metal scanners, for example if working at airports.

To overcome these issues, modern composite materials can be used to replace the metal components with no loss of protection. This development produces lighter footwear which is not detected by security metal scanners, making this type of footwear ideal for secure environments. (Eg. Our BINMT)

Slip hazards

While safety footwear can help protect the foot from injury, another common accident can simply involve the wearer slipping on wet or oily floors. This has largely been overlooked in the past but has become more important in recent years with the introduction of EN ISO 13287. This standard is becoming more common on newer footwear as modern soles can be engineered to improve grip in a variety of situations. This standard covers the slip resistance of footwear in two basic scenarios, either individually, or combined, and is outlined below.

SRA slip resistance

This basically tests the footwear for slipping on a ceramic tiled floor coated with a soap solution. There are two tests involved to cover a "flat slip" and a "heel slip" and footwear carrying the SRA marking must achieve a minimum* coefficient of friction in both tests.

SRB slip resistance

Similar to the SRA test but a steel plate coated with glycerene is used instead. There are two tests involved to cover a "flat slip" and a "heel slip" and footwear carrying the SRB marking must achieve a minimum* coefficient of friction in both tests.

SRC slip resistance

Footwear rated as SRC has been tested to SRA and SRB and achieved at least the minimum coefficient of friction in both tests.



More information available online at www.sitexindustrial.com



Our selection guides to eyewear, head protection, respiratory protection, work at height, hearing protection, workwear and clothing and hand and arm protection.



Information about certification of new PPE products.



Slip resistance ratings .

Slip resistance ratings for industrial PPE footwear in Europe, EN ISO 13287

Marking	Slip resistance	Minimum Coefficient of Friction for	
		Forward heel slip	Forward flat slip
SRA	Ceramic tile with 0.5% SLS* solution	0.28	0.32
SRB	Steel with 90% glycerine	0.13	0.18
SRC	Both of the above	Both of the above on respective surfaces	

HOW LONG SHOULD THEY LAST?

How long safety footwear should last is very difficult to quantify. An office worker may have shoes lasting for years, a construction site worker a matter of weeks. While the most common component, leather, is extremely tough and durable, if it is not maintained, its life can be shortened considerably. Exposure to water, concrete, oils, excessive abrasion and other environmental factors can seriously reduce service life, as can the physical characteristics of the wearer. While manufacturing defects within a reasonable period are covered by our standard replacement procedures, excessive wear and damage by water or chemicals is not.



19,250⁺

Pairs of footwear in stock at any one time



More information available online at www.sitexindustrial.com

Slip hazards - points to note

These slip ratings give an indication of the sort of grip you can expect and allow comparison of different footwear, but they are carried out under laboratory conditions so may not replicate real life situations.

Additional information

This guide deals generally with the EN 20345 Standard which applies to all our footwear, however there are other standards you may come across when considering purchasing footwear. Some of the more common standards as well as additional information on markings are included below for information purposes only.

EN ISO 20346

While similar to the more common EN ISO 20345, this standard only requires the footwear to have 100 joule impact protection to the toes so is not normally used in industrial applications. While this may be suitable for some applications such as shop or office workers, it should not be used unless a specific risk assessment has been carried out. Sitex do not currently supply footwear to this standard.

EN ISO 20347

Not widely used in industry as it offers no toe protection, but may be suitable for specialised applications. It is used to provide protection against specific hazards (P, C, A, E, CI, AN, WR or HI from the table to the right)

Footwear markings

You may also come across other marking on footwear and a brief list of the most common abbreviations is shown below:

HRO – Heat resistant outsole compound tested at 300°C

P – Penetration resistant outsole tested at 1100 newtons

A – Electrical resistance between foot and ground of between 0.1 and 1000 mega ohms

C – Electrical resistance between foot and ground of less than 0.1 mega ohms

AN – Ankle protection – mean transmitted force <10kN when tested at 10J

CR – Cut resistant upper – cut index >2.5

CI – Insulation against the cold – temperature drop less than 10°C when tested at -17°C

HI – Insulation against heat – temperature increase less than 22°C when tested at 150°C

E – Energy absorption of the seat region tested at 20 joules

WRU – Water resistant upper leather

WR – Water resistant footwear

WP or **WM** – Indicates footwear with an inner waterproof membrane.

M – Metatarsal protection – tested with 100J impact

FO – Oil-resistant outsole (applies to EN ISO 20347 only)

