

WHAT DOES CE MARKING MEAN?

CE is a European safety mark – it means products with the CE mark have been tested to a minimum standard. Having a CE mark is often required for Personal Protective Equipment as it indicates that a garment meets minimum standards for High-Visibility or that boots have a minimum standard of protective cap etc.



EN ISO 20345:2004 – Relates to Safety Boots

A safety boot should have a protective toe cap to protect from impact and compression. Safety toes were traditionally steel, but composite material is now being used more and more. The composite material can be made from Kevlar, carbon fibre or other non-metallic material. Composite toes are often preferred as they are non-metallic and non-magnetic, and they are lighter than steel but still meet the same safety standards.

What Do Safety Boots Protect From?

Safety toes should protect from both falling objects and from compression (as if a car rolled over the foot for example). To see how well a toe cap protects from the impact of falling objects, the tests are calculated in units of energy (Joules) rather than weight. This is because a heavy object falling from a height of 2 feet could have less of an impact than a lighter object falling from 20 feet. Boots classified to EN ISO 20345 should withstand 200J of energy. It should also withstand a resting weight of 1000kg.

For additional protection safety boots may also have a protective midsole. This could be a plate (such as steel or aluminium) or it could be incorporated into material (such as Kevlar) which protects against penetration of the sole by nails etc.

Safety boots should also be anti-static. During normal activities clothing and environmental factors can cause a build up of static electricity in the body. Then when you touch something it can cause the charge to rush from your body, causing a spark and an electric shock. Anti-static footwear will significantly reduce this effect.

Who Needs Safety Boots?

There are three basic categories of PPE; simple, intermediate and complex. Simple is protection against minimal risk – where any element of danger or harm is gradual and can be safely identified in good time. Intermediate should provide protection against risk of severe injury. Most safety footwear falls in this category. Complex covers products designed to protect against mortal danger or serious and irreversible harm to the health of the user (this would include footwear for fire fighters).

Making Sense of Marking Codes

Safety footwear should all be marked with the code EN ISO 20345 (you can usually find safety marking inside the tongue of the boot). This will usually be followed by a number of different codes indicating the level of protection given, for example if they also have midsole protection, heat insulation, the level of non slip. The chart below is a quick guide to the most common marking found in boots aimed at the law enforcement and security industry.

MARKING CODES	SB	Toe protection tested with 200J impact and 15kN compression force (includes fuel and oil resistant outsoles)
	S1	As SB with the addition of anti-static properties and energy absorption of heel region
	S2	As S1 with the addition of water resistant upper materials
	S3	As with S2 with the addition of a penetration resistant mid-sole, must also have cleated out-sole
SLIP RESISTANT RATINGS		
	SRA	Meets minimum requirement on ceramic tile with sodium lauryl sulphate solution
	SRB	Meets minimum requirements on steel floor with glycerol
	SRC	Passes both of SRA and SRB
ADDITIONAL PROTECTION		
	HRO	Heat resistant out-sole compound: shall withstand 300°C for 60 seconds
	P	Penetration resistant outsole: penetration force >1100N
	A	Anti-static: Electrical resistance between 0.1 and 1000MΩ
	E	Energy Absorption of the seat (heel) region: energy absorbed to >20J
	WR	Water resistant uppers
	ORO	Oil resistant out-sole
	HI	Heat insulation of sole complex
	CI	Cold insulation of sole complex
	FRU	Fire resistant uppers

Your employer should let you know what level of protection you require and issue suitable footwear. If you have to buy your own boots you should ensure they are designed for the level of risk – if you have been told you need S3, it is essential you make sure the boots are S3. It is also important to remember that, as with all PPE, safety boots are designed to protect you from certain risks but they should never be assumed to guarantee 100% protection. You should still remain vigilant for potential dangers and make sure your boots are properly maintained and replaced as soon as there are any signs of deterioration.