

产品说明书 绝缘安全鞋



本产品采用优质原料，引进最新技术，自始至终进行严格的质量控制，安全无害、穿戴舒适、柔韧透气。产品符合欧洲标准EN ISO 20345和/或中国标准GB 21148-2020。绝缘等级符合中国标准GB 21148-2020和/或美国标准ASTM F2413。产品符合GB/T 31009-2020足部防护鞋(靴)限量物质要求及测试方法中的产品安全性要求，达到A级。

功能说明:

安全鞋由牛皮或织物鞋面，PU或EVA中底，PU或橡胶大底构成。产品具有以下功能，请参见“安全鞋鞋舌”上的标识确定产品对应功能。

组合功能标识部分

欧标标识	分类	性能组合	GB 对应标识
SB	I或II	足趾保护	SB
S1	I	足趾保护+防静电+足跟吸能+鞋帮区域封闭	SB E A
S2	I	S1+防水性能	SB E A WRU
S3	I	S2+防穿刺功能+防滑外底	SB P E A WRU SRA
S4	II	足趾保护+防静电+足跟吸能+鞋帮区域封闭	SB E A
S5	II	S4+防穿刺功能+防滑外底	SB P E A SRA
S6	I	S2+全鞋防水	SB E A WR
S7	I	S6+防穿刺功能+防滑外底	SB P E A WR
SBH	—	混合鞋 I 类鞋面 + II 类鞋帮	SBH E A

上表为EN ISO 20345和GB 21148-2020 (附录E) 标示组合对比。

单一功能标识

功能	极限参数	欧标符号	欧标符号	欧标符号
防冲击保护	200J(ASTM 75ft-lb)冲击, 15kN(ASTM 2500 ft-lb)静态压力	SB	SB	I/C
金属防穿刺	使用φ4.5mm穿钉进行测试, 力值≥1100N	P	P	PR
非金属防穿刺	使用φ4.5mm穿钉进行测试, 力值≥1100N	P	PL	PR
非金属防穿刺	使用φ3mm穿钉进行测试, 力值≥1100N	P	PS	PR
绝缘鞋特性参数	不同标准下测试方式不同, 请参照具体标准	EH	EH	EH (10kV) (18kV)
鞋底的隔热或抗热性能	150°C环境中30min后内底表面温度不得高于22°C	HI	HI	—
鞋底的抗寒或耐寒性能	-17°C环境中30min后内底表面温度不得高于10°C	CI	CI	—
鞋后跟的吸能容量	≥20焦耳	E	E	—
防水性能	鞋底与鞋身接合面在80min期间, 不得存在任何渗水	WR	WR	—
跖骨保护	≥100±2J(ASTM 75 ft-lb)	M	M	Mt
踝关节保护	平均<10kN, 最大<15kN	AN	AN	—
防断裂性能(A类除外)	防刺指数>2.5 (防护区域高度≥30mm)	CR	CR	—
防磨鞋头	8000次循环摩擦测试, 无破损	SC	SC	—
鞋帮 渗水和吸水性能	60分钟透水率≤0.2g, 吸水率<30%	WRU	WPA	—
鞋帮 抗热性能/直接接触	60±1秒, 300°C	HRO	HRO	—
鞋底 抗热性能	体积增大≤12%	FO	FO	—
爬梯掌套(鞋帮区域)	鞋帮区域鞋钉高度至少1.5mm	—	LG	—

防滑性能标识

标识	标准	测试方法	摩擦系数要求
Ø	—	防滑测试不适用此类鞋, 未测试	—
无	EN ISO 20345:2022 + A1:2024	在瓷砖地面上用十二烷基硫酸盐(NaLS)液体进行防滑系数测试	鞋跟滑动≥0.31 前掌滑动≥0.36
SR	—	在瓷砖地面上用甘油润滑剂进行防滑系数测试	鞋跟滑动≥0.19 前掌滑动≥0.22
无	GB 21148-2020	带有洗涤剂溶液的陶瓷砖面测试防滑系数	后跟滑动≥0.28 水平滑动≥0.32
SR	—	测量鞋底与标准湿滑表面的摩擦系数	COF ≥0.4
SRO	ASTM F2913	模拟工业环境中的油污地面, 测量鞋底在油性表面上的摩擦系数	COF ≥0.33

无标识的防滑性能要求均为强制要求, 按照标准必须满足, 我司对安全鞋均能通过。

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储存与保养:

- 1.放在原包装内,置于干燥通风场所,防止霉变。堆放离开地面和墙壁20厘米以上,离开一切发热体1米以外,避免受油、酸碱类或其他腐蚀品的影响。
- 2.本安全鞋提供了可移动鞋垫,测试时是鞋垫在适当的位置时进行的。鞋只在适当位置使用鞋垫才能发挥相应的功能,请使用代尔塔原厂鞋垫。
- 3.请使用非金属刷子来清除鞋上的泥土和灰尘。对于污渍,必要时使用湿布沾肥皂液来清除。涂抹鞋油时,应严格按照鞋油说明书操作。出于环保,应尽可能将鞋拿去修理;清理你的废旧鞋时,请使用附近适当的再循环设施。
- 4.使用安全鞋时应避免与水长时间接触不可浸泡水洗,否则将影响使用寿命,引起脱胶等问题。建议同时配备两双或以上的鞋,可提高总体使用寿命。
- 5.从安全鞋舌上标明的制造日期算起,在正常存储条件下,安全鞋在3-5年内能够发挥相应的防护功能(一般PU鞋底为3年,橡胶鞋底为5年)。

电绝缘鞋注意事项:

鞋在首次使用前和持续使用间隙之间应存放在一个适宜的盒子或容器中,不易受压、折叠或靠近热源存放,不宜长时间暴露在阳光、人造光或其他臭氧源环境中,建议存放(20±15)°C的环境中。

●每次使用前应仔细检查,如果发现机械或化学损伤,鞋不宜穿用。如有疑问,鞋必须进行耐压测试。

●鞋帮必须干燥。在潮湿条件下穿用应特别注意。

●穿着者应检查鞋的耐压级别是否提供足够保护。

●鞋不宜在有切割、穿孔危险、可能降低绝缘性能的机械或化学侵犯的场所使用。如果鞋变脏或被污染,特别是鞋帮,需要按照制造商推荐的方法清洁和干燥。为确保使用安全,应定期依据GB 21148-2020的6.4.3检测鞋的电性能,如果没有相关规定,建议半年一次。

对于存放超过24个月(自生产日期起计算)的鞋,须逐只进行电性能检验,只有符合GB 21148-2020的6.4.3的鞋,方可继续销售和使用。

三包卡 (仅限中国大陆)

凡购买本公司合格品安全鞋,本公司承诺如下品质保证:

- 1.三个月内出现开胶(深度≥10mm且长度≥50mm),掉跟、裂跟、跟面脱落、断线,视具体穿着情况,包邮。
- 2.两个月内未穿过的新鞋,两只顺向,尺码不同、款式不同,或发现存在开胶(深度≥3mm且长度≥30mm),包邮。
- 3.一个月内出现断底,断面,断帮,包退。
- 4.产品退换凭发货票通过供货商进行。过期品和处理品,不实行三包。



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EN. USE INSTRUCTIONS:

This product uses high-quality raw materials, introduces the latest technology, and undergoes strict quality control from start to finish. It is safe, harmless, comfortable to wear, flexible, and breathable. The product complies with the European standard EN ISO 20345 and/or the Chinese standard GB21148-2020. The insulation level shall comply with the Chinese standard GB21148-2020 and/or the American standard ASTM F2413-24. **Function Description:** Safety shoes are made of cowhide or fabric upper, PU or EVA midsole, and PU or rubber outsole. The product has the following functions. Please refer to the markings on the "safety shoe tongue" to determine the corresponding functions of the product. **Storage and maintenance:** 1. Keep in the original packaging and place in a dry and ventilated area to prevent mold growth. Stack at least 20 centimeters away from the ground and walls, and 1 meter away from all heating elements, to avoid being affected by oil, acids, bases, or other corrosive substances. 2. This safety shoe provides a movable insole, which is tested when the insole is in the appropriate position. Shoes can only function properly when the insole is used in the appropriate position. Please use the original insole from Delta. 3. Please use a non-metallic brush to remove dirt and dust from the shoes. For stains, it is necessary to use a damp cloth dipped in soap solution to remove them. When applying shoe polish, follow the standard shoe polish instructions. For environmental reasons, shoes should be taken for repair as much as possible; When cleaning up your old shoes, please use the appropriate recycling facilities nearby. 4. When using safety shoes, avoid prolonged contact with water and do not soak or wash them, otherwise it will affect the service life and cause problems such as delamination. It is recommended to equip two or more pairs of shoes at the same time to improve the overall service life. 5. Starting from the manufacturing date indicated on the safety shoe tongue, under normal storage conditions, safety shoes can provide corresponding protective functions within 3-5 years (generally 3 years for PU soles, 5 years for rubber soles). **Precautions for electrically insulated shoes:** Shoes should be stored in a suitable box or container before first use and between continuous use. They should not be easily compressed, folded, or stored near heat sources. They should not be exposed to sunlight, artificial light, or other ozone sources for a long time. It is recommended to store them in an environment of (20 ± 15) °C. Careful inspection should be carried out before each use. If mechanical or chemical damage is found, shoes should not be worn. If there are any questions, the shoes must undergo a pressure test. The shoe upper must be dry. The wearer should check whether the pressure resistance level of the shoes provides sufficient protection. Shoes should not be used in places where there is a risk of cutting, puncturing, mechanical or chemical damage that may reduce insulation performance. Special attention should be paid when wearing under humid conditions. If the shoes become dirty or contaminated, especially the upper, they need to be cleaned and dried according to the manufacturer's recommended methods. **WARNING to User This protective footwear meets the testing requirements of ASTM F2413-24 and/or GB21148-2020 as marked on the footwear. THIS FOOTWEAR PROVIDES LIMITED PROTECTION.** The user must assure that the footwear is properly selected for the anticipated hazards, sized, fit and secured to the wear's feet and MUST BE WORN AT ALL TIMES when exposed to hazards. Inspect this footwear before each use. Damaged, torn, badly worn, altered or unsecured footwear can reduce the protection provided by this footwear. See your safety supervisor or contact DELTA PLUS GROUP with any questions.

FAILURE TO FOLLOW ALL OF THE ABOVE WARNINGS AND INSTRUCTIONS MAY RESULT IN SERIOUS PERSONAL INJURY INCLUDING LOSS OF DIGITS, PERMANENT DISABLEMENT OR DEATH!

Shoe Categories and Reference Standards

TYPE OF FOOTWEAR → Footwear categories: Reference standards:	SAFETY SB or SBH EN ISO 20345:2022 PL: nail Ø 4.5 mm / P: Ø 3 mm
The markings placed on this product (see marking above) guarantee:	
SB	The presence of a toe-protection cap offering protection against impacts equivalent to 200J(41) and risks of compression under a maximum load of 1500 ±0.1 daN(41)

Slip Resistance Identification

Mark	Standard	Test Method	Friction Coefficient Requirement
Ø	—	Slip resistance tests not applicable to this type of footwear; untested	—
None	EN ISO 20345:2022 + A1:2024	Slip resistance test on ceramic tile floor using sodium lauryl sulfate (NaLS) liquid	Heel slip ≥0.31 Forefoot slip ≥0.36
SR	—	Slip resistance test on ceramic tile floor using glycerol lubricant	Heel slip ≥0.19 Forefoot slip ≥0.22
SR	—	Measure the coefficient of friction (COF) between sole and standard wet surface	COF ≥0.4
SRO	ASTM F2913	Simulate oil-contaminated industrial floors. Measure COF on oily surfaces	COF ≥0.33

Single Function Identification (For ASTM F2413-24)

Function	Limits	Symbols
Impact Protection	75 ft-lb impact 2500 ft-lb static pressure	I/C
Penetration Resistant Insole	Tested with φ4.5mm puncture nail, force 270 ft-lb	PR
Insulation Parameters	Footwear shall withstand 18kV under dry test conditions for 1 minute, leakage current not exceeding 1.0 mA.	EH
Metatarsal Protection	The metatarsal guard shall cover the designated area and pass the 75 ft-lb impact test.	Mt

For certain applications however, additional requirements may be necessary.

For information on the degree of protection provided by this footwear, please refer to the table here below:

Special additional requirements	Limits	Symbols
In accordance with standards EN ISO 20345		
Perforation resistance: Metallic insert type P Non-metallic insert type PL Non-metallic insert type PS	(>1100 N) (>1100 N) (>950 N)	P PL PS
Electrically insulated	Refer ASTM F2413-24	EH
Heat insulation of sole complex	(At 150°C the temperature increase on the upper surface of the insole after 30 min shall be not greater than 22°C)	HI
Cold insulation of sole complex	(The temperature decrease on the upper surface of the insole shall be not more than 10°C)	CI
Energy absorption of seat region	(≥20 J)	E
Water-resistant footwear	Not any water penetration after 100 trough lengths or after 80 ± 5 mins if dynamic test	WR
Metatarsal protection	(≥100±2J) ≥40 mm (EU size 41/42)	M
Ankle protection	(Av< 10kN and single value < 15 kN)	AN
Cut resistance of the footwear	≥2.5 (index) (protection zone height ≥30 mm) + overlap of toecap ≥10 mm)	CR
Abrasion resistance of scuff cap	The scuff cap shall not develop any hole after 8 000 cycles	SC
Slip resistance	On ceramic floor with glycerine	SR
Upper	Water penetration and absorption after 60 min (≤ 0.2 g) and (≤ 30 %)	WPA
Outer sole	Resistance to hot contact (300°C for 60±1s)	HRO
	Resistance to fuel oil (volume increase ≤ 12%)	FO
	Ladder grip (cleat design)	LG



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Official website 202504_16