

TECHNICAL SHEET



Article:	B1211 I-ROBOX TOP
Norm:	UNI EN ISO 20345:2011
Safety Class:	S3 CI ESD SRC
ESD protection of electronic components:	CEI EN 61340-5-1:2016, CEI EN 61340-4-5:2018 and CEI EN 61340-4-3:2018
Footwear height:	Mod. B, H 130 mm (≥113 mm, Rif. EN 20345-5.2.2)
Width:	11,5
Weight size 42	590 g
Construction:	STROBEL; CEMENTED BIDENSITY SOLE PU/TPU ESD
Cleaning and maintenance:	Use only soft brushes and water. Do not use substances such as alcohol, thinners, gasoline, oil or any other chemicals. Keep the footwear, dry and clean, in a proper place at room temperature.
Suggested fields:	Electronics (EPA=Electrostatic protected areas ESD), automotive, automated lines, building

ESD Protection (Electrostatic discharges) for electronic devices

Suitable for use in EPA areas (Electrostatic discharges protected area)

Component	Description	Value	Norm Requirements
Entire footwear	Total resistance footwear/ground (footwear worn on a metal ground)	$3,8 \times 10^7 \Omega$	$< 1,00 \times 10^8 \Omega$
	Sole electrical transversal resistance (footwear resistance)	$6,1 \times 10^7 \Omega$	$\leq 1,00 \times 10^8 \Omega$
	Chargeability	20,9 V	$< 100 \text{ V}$

Entire footwear: protections

Component	Description	Value	Norm Requirements	EN 20345	
Composite SLIM CAP toe-cap	Impact resistance (200 J)	15,0 mm	$\geq 14 \text{ mm}$	5.3.2.3	
	• Free height after impact				
Sole (SRC)	Compression resistance (15 kN)	18,0 mm	$\geq 14 \text{ mm}$	5.3.2.4	
	• Free height after compression				
Sole (SRC)	Slip resistance				
	• SRA – Sole (entire sole)	0,46	$\geq 0,32$	5.3.5.4	
	• SRA – Heel (Angle of 7°)	0,44	$\geq 0,28$	5.3.5.4	
	• SRB – Sole (entire sole)	0,18	$\geq 0,18$	5.3.5.4	
	• SRB – Heel (Angle of 7°)	0,13	$\geq 0,13$	5.3.5.4	
Fresh'n Flex (P)	Puncture resistance	No perforation	$\geq 1100 \text{ N}$	6.2.1.1.2	
Footbed (A)	Antistatic properties	• Electrical resistance	dry $5,6 \times 10^7 \Omega$	$\geq 10^5 \Omega, \leq 10^9 \Omega$	6.2.2.2
			humid $2,5 \times 10^7 \Omega$	$\geq 10^5 \Omega, \leq 10^9 \Omega$	6.2.2.2
Sole/Upper Heat (HI)	Thermal insulation				
	Insole temperature increase	N/A	$\leq 22^\circ\text{C}$	6.2.3.1	
Cold (CI)	Insole temperature decrease	7,5°	$\leq 10^\circ\text{C}$	6.2.3.2	
Heel (E)	Shock-absorption in the heel region	30 J	$\geq 20 \text{ J}$	6.2.4	
(WR)	Water resistance (Water absorption)	N/A	$\leq 3 \text{ cm}^2$	6.2.5	
(M)	Metatarsal protection	N/A	$\geq 40 \text{ mm}$	6.2.6	

Upper

Component	Description	Value	Norm Requirements	EN 20345
Nabutek suedeleather	Tear resistance	188 N	$\geq 120 \text{ N}$	5.4.3
	Traction resistance	19 N/mm ²	$\geq 15 \text{ N/mm}^2$	5.4.4
Nabutek suedeleather	Water steam permeability	4,2 mg/cm ² h	$\geq 0.8 \text{ mg/cm}^2 \text{ h}$	5.4.6
	pH value	4,05	$\geq 3,2$	5.4.7
	Chromium VI	Not detected	Not detectable	5.4.9
	Water passed	0,0 g	$\leq 0.2 \text{ g}$	6.3
	Water absorption	14 %	$\leq 30\%$	6.3

Lining				
Component	Description	Value	Norm Requirements	EN 20345
3D Fabric	Tear resistance	47 N	≥ 15 N	5.5.1
	Abrasion resistance	<ul style="list-style-type: none"> Dry : the surface shows no holes humid: the surface shows no holes 	No holes till 51.200 cycles	5.5.2
			No holes till 25.600 cycles	5.5.2
	Water steam release	21,1 mg/cm ² h	≥ 2,0 mg/cm ² h	5.5.3
	pH value	N/A	Not detectable	5.5.4
	Chromium VI	N/A	Not detectable	5.5.5

Insole				
Component	Description	Value	Norm Requirements	EN 20345
Fresh'n Flex ESD	Thickness	3,7 mm	≥ 2,0 mm	5.7.1
	pH value	N/A	Not detectable	5.7.2
	Water absorption	102 mg/cm ²	≥ 70 mg/cm ²	5.7.3
	Water release	97%	≥ 80 %	5.7.3
	Abrasion resistance (after 400 cycles)	No damage	Damage ≤ to norms reference	5.7.4.1
	Chromium VI	N/A	Not detectable	5.7.5

Removable footbed*				
Component	Description	Value	Norm Requirements	EN 20345
DRY'N AIR OMNIA ESD WEARECO	Thickness	3,5 ± 0,5 mm (tip)	N/A	5.5.1
	Ph value	N/A	Not detectable	5.5.2
	Water absorption	Permeable through the holes	Permeable or ≥ 70mg/cm ²	5.5.3
	Water release	Permeable through the holes	Permeable or ≥ 80%	5.5.3
	Abrasion resistance	No damage	Dry No holes till 25.600 cycles Humid no holes till 12.800 cycles	5.5.4.2
	Chromium VI	N/A	Not detectable	5.7

* Compatible with DRY'N AIR SCAN&FIT OMNIA and Dry'n AIR OMNIA ESD insoles

Sole					
Component	Description	Value	Norm Requirements	EN 20345	
PU Midsole	Sole thickness without profiles	6,5 mm	≥ 4 mm	5.8.1.1	
	Profiles height	4,5 mm	≥ 2,5 mm	5.8.1.3	
	Tear resistance	8,7 kN/m	≥ 8 kN/m	5.8.2	
	Abrasion resistance	<ul style="list-style-type: none"> relative volume loss 	73 mm ³	≤ 250 mm ³	5.8.3
TPU ESD Outsole	Flexion resistance	<ul style="list-style-type: none"> Notches increase after 30.000 cycles 	2 mm	≤ 4 mm	5.8.4
	Hydrolysis	<ul style="list-style-type: none"> Notches increase after 150.00 cycles 	2,5 mm	≤ 6 mm	5.8.5
	Outsole – insole detachment	4,5	≥ 4 N/mm; (*) ≥ 3 N/mm with sole ripping	5.8.6	
	(HRO) Contact heat resistance (300°C)	No damage	No damage (melting, breaking)	6.4.1	
	(FO) Fuel resistance (volume changes)	9 %	≤ 12%	6.4.2	

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