

## TECHNICAL SHEET



Article: **B0177 CHESTER TOP ESD**  
 Norm: **EN ISO 20345:2012**  
 Safety Class: **S3 ESD SRC**  
**(CEI EN 61340-5-1:2016, CEI EN 61340-4-5:2018 and CEI EN 61340-4-3:2018)**  
**Mod. B, H 126 mm (≥ 113 mm; Rif. EN ISO 20345 - 5.2.2)**  
**11**

Footwear height:  
 Width:  
 Construction: **STROBEL; PU SOLE**  
 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: **Electronic (EPA=Electrostatic protected areas ESD), automotive, automated lines, light industry, services.**

### ESD Protection (Electrostatic discharges) for electronic devices

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



Component	Description	Value	Norm Requirements	Norm
Entire footwear	Total resistance footwear/ground (footwear worn on a metal ground)	1,75 x 10 <sup>7</sup> Ω	< 1,00 x 10 <sup>8</sup> Ω	<b>CEI EN 61340-5-1</b>
	Sole electrical transversal resistance (footwear resistance)	5,2 x 10 <sup>7</sup> Ω	≤ 1,00 x 10 <sup>8</sup> Ω	<b>CEI EN 61340-5-1</b>
	Chargeability	32V	< 100V	<b>CEI EN 61340-5-1</b>

Entire footwear: protections				
Component	Description	Value	Norm Requirements	EN 20345
Steel	Impact resistance(200 J)			
Toe-cap	• Free height after impact	15,5 mm	≥14 mm	5.3.2.3
	• Compression resistance (15 kN)			
	• Free height after compression	15 mm	≥14 mm	5.3.2.4
Sole (SRC)	Slip resistance			
	• SRA – Sole (entire sole)	0,44	≥ 0,32	5.3.5.4
	• SRA – Heel (Angle of 7°)	0,39	≥ 0,28	5.3.5.4
	• SRB – Sole (entire sole)	0,21	≥ 0,18	5.3.5.4
	• SRB – Heel (Angle of 7°)	0,18	≥ 0,13	5.3.5.4
Fresh'n Flex (P)	Puncture resistance	No perforation	≥ 1100 N	6.2.1.1.2
Footbed (A)	Antistatic properties			
	• Electrical resistance	dry 7,4 x 10 <sup>8</sup> Ω	≥ 10 <sup>5</sup> Ω , ≤ 10 <sup>9</sup> Ω	6.2.2.2
		humid 4,4 x 10 <sup>8</sup> Ω	≥ 10 <sup>5</sup> Ω , ≤ 10 <sup>9</sup> Ω	6.2.2.2
Sole/Upper	Thermal insulation			
Heat (HI)	• Insole temperature increase	N/A	≤ 22°C	6.2.3.1
Cold (CI)	• Insole temperature decrease	N/A	≤ 10°C	6.2.3.2
Heel (E)	Shock-absorption in the heel region	25 J	≥ 20 J	6.2.4
(WR)	Water resistance (Water absorption)	N/A	≤ 3 cm <sup>2</sup>	6.2.5
(M)	Metatarsal protection	N/A	≥ 40 mm	6.2.6
Upper				
Component	Description	Value	Norm Requirements	EN 20345
	Tear resistance	188 N	≥ 120 N	5.4.3
	Traction resistance	19 N/mm <sup>2</sup>	≥ 15 N/mm <sup>2</sup>	5.4.4
Nabutek	Water steam permeability	4,2 mg/cm <sup>2</sup> h	≥0.8 mg/cm <sup>2</sup> h	5.4.6
leather	pH value	4,05	≥ 3,2	5.4.7
	Chromium VI	Not detected	Not detectable	5.4.9
	Water passed	0.0 g	≤ 0.2 g	6.3
	Water absorption	14 %	≤ 30%	6.3

Lining				
Component	Description	Value	Norm Requirements	EN 20345
	Tear resistance	47 N	≥ 15 N	5.5.1
	Abrasion resistance	• Dry : the surface shows no holes	No holes till 51.200 cycles	5.5.2
		• humid: the surface shows no holes	No holes till 25.600 cycles	5.5.2
3D Hi Tech	Water steam release	21,1 mg/cm <sup>2</sup> h	≥ 2,0 mg/cm <sup>2</sup> h	5.5.3
Fabric	pH value	N/A	No detectable	5.5.4
	Chromium VI	N/A	No detectable	5.5.5

Insole				
Component	Description	Value	Norm Requirements	EN 20345
Fresh n' flex	Thickness	3,7 mm	≥ 2,0 mm	5.7.1
	pH value	N/A	No detectable	5.7.2
	Water absorption	102 mg/cm <sup>2</sup>	≥ 70 mg/cm <sup>2</sup>	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	No detectable	5.7.5

Removable footbed				
Component	Description	Value	Norm Requirements	EN 20345
Anatomical, breathable, textile and expanded polymeric material	Thickness	3,5± 0,5 mm	N/A	5.7.1
	pH value	N/A	No detectable	5.7.2
	Water absorption	Permeable	Permeable or ≥ 70mg/cm <sup>2</sup>	5.7.3
	Water release	Permeable	Permeable or ≥ 80%	5.7.3
	Abrasion resistance	No damage	Dry No holes till 25.600 cycles Humid no holes till 12.800 cycles	5.7.4.2
	Chromium VI	N/A	No detectable	5.7.5

Component	Description	Value	Norm Requirements	EN 20345
Dry'n air Gel	Thickness	3,5± 0,5 mm	N/A	5.7.1
	pH value	N/A	No detectable	5.7.2
	Water absorption	Permeable	Permeable or ≥ 70mg/cm <sup>2</sup>	5.7.3
	Water release	Permeable	Permeable or ≥ 80%	5.7.3
	Abrasion resistance	No damage	Dry No holes till 25.600 cycles Humid no holes till 12.800 cycles	5.7.4.2
	Chromium VI	N/A	No detectable	5.7.5

Sole				
Component	Description	Value	Norm Requirements	EN 20345
PU Monodensity Sole	Sole thickness without profile	9 mm	≥4 mm	5.8.1.1
	Profile height	4 mm	≥ 2,5 mm	5.8.1.3
	Tear resistance	7,9 kN/m	≥ 5 kN/m	5.8.2
	Abrasion resistance	163 mm <sup>3</sup>	≤ 250 mm <sup>3</sup>	5.8.3
	• Relative volume loss			
	Flexion resistance	1,5 mm	≤4 mm	5.8.4
	• Notches increase after 30.000 cycles			
	Hydrolysis	2,5 mm	≤6 mm	5.8.5
	• Notches increase after 150.00 cycles			
	Outsole – insole detachment	N/A	≥ 4 N/mm; (* ) ≥ 3 N/mm with sole ripping	5.8.6
(HRO) Contact heat resistance (300°C)	N/A	No damage (melting, breaking)	6.4.1	
(FO) Fuel resistance (volume changes)	0,1 %	≤ 12%	6.4.2	

Date: 01/08/2019

Copy in accordance with the Italian sheet