

**TORSTRAN™ CNT M20/STDM1 AND CNT M20/STDM1 CARBON NANOTUBE SHEET AND TAPE****Product overview**

Torstran™ is a light-weight and tough carbon nanotube material which has exceptional EMI attenuation and EMI Gasket forming properties. It is available in sheet and tape form. There are two grades available CNTM20/STDM1 and CNTM60/STDM1 which have area densities of  $20\text{gm}^{-3}$  and  $60\text{gm}^{-3}$  respectively. The very low area density of Torstran allows non-metallic enclosures e.g. polymer moulded or composite construction to be shielded against RF/EMI to a very high level with an extremely low weight penalty. Torstran also has excellent potential for shielding cables and wiring looms where weight reduction and flexibility are key requirements.

Torstran also exhibits excellent low impedance connection properties allowing it to be directly terminated when used as a shield or serving as a gasket in small-scale high-performance applications such as waveguide flanges and RF connectors.

**Features**

- Combines high RF/EMI shielding performance with very low weight per unit area (area density)
- High electrical conductivity
- Very flexible / high conformability
- Very wide operating temperature range from cryogenic to  $+400^{\circ}\text{C}$
- High thermal shock resistance
- Low out-gassing/negligible volatile content – the uncoated version is predominantly pure carbon
- Uncoated version unaffected by fuels, oils, solvents and most other contaminants
- Resistant to radiation

**TORSTRANä CNT M20/STDM1 AND CNT M20/STDM1 CARBON NANOTUBE SHEET AND TAPE**

Technical Data	
Colour	Black
Density	0.35 gcm <sup>-3</sup>
Thickness (CNTM20/STDM1 grade)	0.05mm
Thickness (CNTM60/STDM1 grade)	0.17mm
Tensile Strength	70 MPa
Tear strength	8 Nmm <sup>-1</sup>
Elongation to break	20%
Electrical conductivity M20 GRADE (planar)	111000 Sm <sup>-1</sup>
Electrical conductivity M60 GRADE (planar)	65000 Sm <sup>-1</sup>
Electrical resistance M20 GRADE (surface)	0.18 Ω□ <sup>-1</sup>
Electrical resistance M60 GRADE (surface)	0.09 Ω□ <sup>-1</sup>
Thermal conductivity (planar)	80 Wm <sup>-1</sup> K <sup>-1</sup>
Shielding effectiveness (100kHz – 40GHz)	80+ dB

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