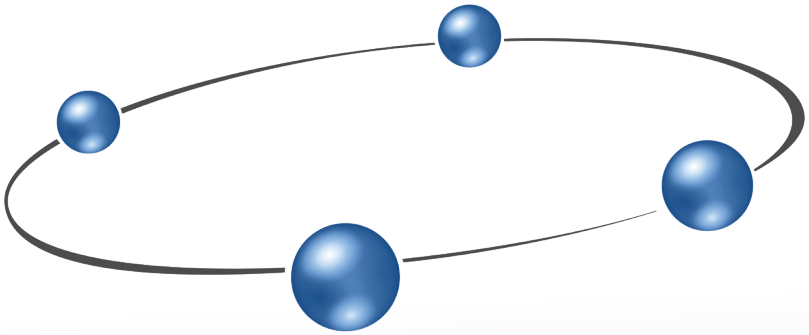

NANOTEC

BY TECNIVIAL

RAILWAY **NANOTEC** MARKER BOARD

| DESCRIPTION

Sustainable vertical railway marked board. Manufactured in a composite material of fiber/resin and carbon nanoparticles that improve its mechanical properties, while providing extreme toughness and lightness.

Of greater resistance and durability than the rest of the fixed code vertical signage on the market, with the highest quality reflective sheet that guarantees optimal signage in any environment.

Nanotec signals have been developed to meet the **Sustainable Development Goals (SDGs) 9, 11 and 12, and the environmental aim of transition towards a closed circular economy of the European Union.**

| TECHNICAL FEATURES

Substrate material: State-of-the-art GRP(1), incorporating carbon nanoparticles. Maximum thickness 3mm with total width fold of 30mm.

Reference rule: UNE-EN 12899-1 and complies with technical specifications of the most demanding railway infrastructure administrators such as ADIF, having supported with a wide margin of tolerance wind efforts equivalent to the passage of trains through a tunnel at more tan 310 km/h (wind tunnel test).

Fixing system: M8 galvanized steel anchor screwed to a support / post with correct sizing for post section used. Standard clamps to standard posts 80 x 40mm, 100 x 50 mm and 120 x 60mm or cylindrical steel, aluminium or fiber posts of Ø 60, Ø76 or Ø90 mm.

Reflective finish: Available in chromatic coordinates and luminance factor CR1 and CR2 and retroflection coefficients: RA1, RA2, RA3. It is not necessary to apply a surface coating to the substrate, this is SP2 according to standard UNE-EN 12899-1.

| ADVANTAGES OF NANOTEC OVER STEEL AND ALUMINIUM SIGNS

	NANOTEC	ALUMINIUM	STEEL
Resistant to corrosive environments	🟢	🔴	🔴
Environmental impact due to the release of oxides	🔴	🟢	🟢
Strength to weight ratio	🟢	🟡	🔴
Weight comparison (m^2)	4 kg	9 kg	15,5 kg
Behavior to temperature variations	🟢	🟡	🟡
Behavior towards moisture	🟢	🟡	🔴
Frangible material	🟢	🔴	🔴
Transport cost	🟢	🟡	🔴
Easy handling	🟢	🔴	🔴
Maintenance and storage costs	🟢	🔴	🔴
Resistance to wind speeds of up to 160 km / h	🟢	🔴	🔴
Electrical conductivity	🔴	🟢	🟢
Residual value (salvage value)	🔴	🟢	🟢
Easy part molding	🟢	🔴	🔴
Elasticity	🟢	🔴	🔴

Chart legend: Good 🟢 Moderate 🟡 Poor 🔴

Calle Livorno 59
19004 Guadalajara - Spain
Tlf; +34 949 325 000
@tecnivial.es