PRODUCT SPECIFICATION

T50-01

EUROPEAN TEST COMPLIANCE CEN/TS 1317-7

PEFC Promoting Sustainable Forest Management PEFC/18-31-56 www.pefc.org

ON THE ROAD

MARGARITELLI ROAD SAFETY

SPD 034 Rev 03

The **T50-01** is a certified terminal for road side barriers designed in collaboration with CrashTech. Compatible with all products in the range, it is an energy absorbing terminal in laminated wood and steel and has been successfully tested for Class T50 performance according to CEN/TS 1317-7.

Figure 1 Transparent surface treatment, natural color

Figure 2 Beep brown color surface treatment

GENERALITY

The T50-01 terminal represents the natural evolution of the curved, untested terminal historically used as a closure element for barriers with double-rail protection, such as the H1BL-01 or H2BL-01 types.
The system includes a T-shaped reinforcement element made of wooden beams and a T-shaped support in corten steel.
The spacer installed near the T50-01 has been modified with milling cuts to reduce its structural resistance.
The reinforcement element is then connected to the post using a corten steel bracket.
The post located at the terminal must be of the H2BL-01 type and equipped with a single wooden cladding element.
The system can also be installed as a retrofit upgrade for the untested curved terminal, subject to verification of the post type and the specific type of curved terminal already in place.
The device has been successfully tested for T50 Class performance in accordance with CEN/TS 1317-7 at the UNI CEI EN ISO/IEC 17025 accredited testing center CSI SpA in Bollate, Milan.

MAIN DIMENSIONAL CHARACTERISTICS.

Total length of the terminal	648	mm
Side clearance	375	mm
Height on the road surface	830	mm
Post embedment	1000	mm
Length of the barrier section during the test	20	m
Barrier installed during the test	H2BL-01	

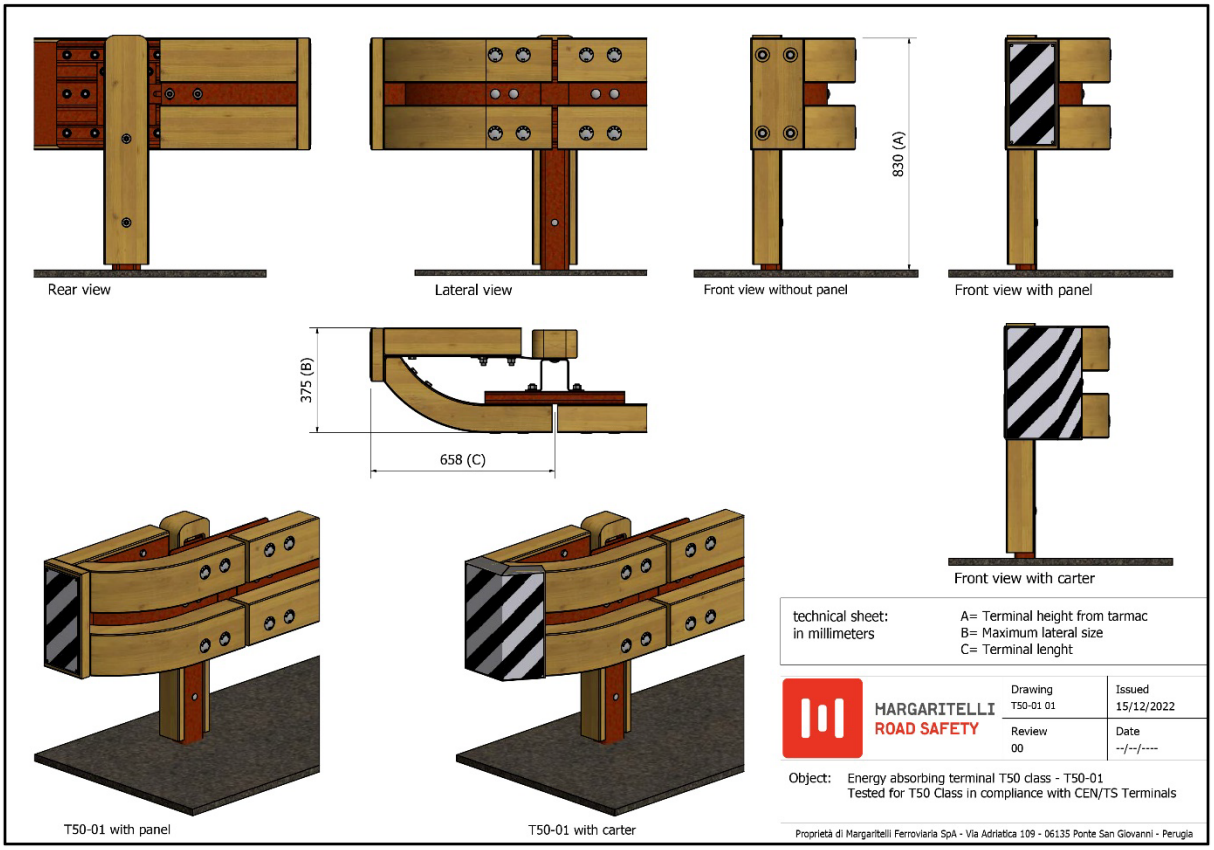

Figure 3 T50-01 Terminal

PERFORMANCE CHARACTERISTICS.

Test carried out.

Test reports	Trial code	Point of Impact	Velocity	Mass	Vehicle Type
CEN/TS 1317-7 Required	TT 2.1.50		50 km/h	900 kg	Car
0221/ME/HRB/22 of 22/12/2022			50.1 km/h	893.60 kg	Fiat UNO

Test results.

PARAMETER	Detected value	Limit value
ASI index	0,9	≤ 1.0
Flight time (ms)	142	
THIV (km/h)	38	≤ 44
Impact severity class	**A**	
VCDI index	FS 1010000	
Maximum longitudinal deformation (m)	0,10	
Maximum lateral deformation (m)	0,36	
Za - Exit box approach side (m)	1,54	6
Zd – Exite box departure side (m)	3,22	6
Exit box class	**Z1**	
Detached elements weighing more than 2 kg	None	
Terminal elements penetrated into the passenger compartment	None	
Deformation and/or intrusion into the passenger compartment	None	

MATERIALS.

Steel.

EN 10025-S355J0WP steel, CE-certified for structural applications, offers enhanced resistance to atmospheric corrosion (commonly referred to as Corten steel). This steel contains specific alloying elements that improve its resistance to weathering by forming a protective oxide layer on the base metal when exposed to atmospheric agents.

Laminated wood.

The laminated wood used is CE-certified for structural applications in accordance with the harmonized standard EN 14080.
The beams must be manufactured in compliance with the UNI EN 386 standard for Service Class 3, with minimum mechanical properties corresponding to Class GL24C, as specified in UNI EN 1194. This ensures uniformity in the mechanical characteristics of the finished product and compliance with the prototype subjected to crash test evaluations.
The adhesive used is Type I as defined by EN 301, making it suitable for climatic conditions involving relative air humidity equivalent to full exposure to weather.
Additionally, the bonding process is carried out to ensure resistance to autoclave impregnation treatments.

PEFC CHAIN OF CUSTODY

The implementation and maintenance of a PEFC Chain of Custody is the tool through which Margaritelli Road Safety demonstrates its commitment to halting deforestation, conserving biodiversity, and acting responsibly on a social level, through the adoption of a legal and sustainable raw material supply system: the wood used in the Bettona facility for the production of the device comes exclusively from sustainably managed forests.

WOOD PRESERVATIVE TREATMENTS.

Autoclave pressure impregnation treatment.

The pressure impregnation treatment in an autoclave, using preservative substances, ensures that the wood is protected both on the surface and deep within against the degenerative effects of atmospheric agents and biological attacks to which the barrier is exposed in outdoor environments (refer to SPD 022).
Treatment: Pressure impregnation with salts using a vacuum/pressure/vacuum cycle in an autoclave. Preservative substance: Eco-friendly, completely odorless preservative based on copper salts, boron, and organic compounds, free of chromium and arsenic. Absorption: Not less than the R3 value, as specified by CTBA certificate. Usage conditions: Suitable for Risk Class 3 according to EN 355-1, corresponding to the intended use conditions.

Surface treatment – optional pigmentation.

To protect the wood from the degenerative effects of sunlight and atmospheric agents, a hydrophobic surface treatment is applied. This treatment enhances the wood's natural appearance while significantly slowing the typical graying process that occurs with any wood exposed to outdoor environments.
The presence of resins in the surface impregnating agent also reduces moisture exchange with the environment, thereby decreasing the tendency to crack—a common issue for wood used outdoors.
Additionally, the surface treatment can be complemented with a dark walnut finish achieved through the use of specific pigments.

COMPATIBILITY WITH SAFETY BARRIERS.

The terminal can be used on the road in combination with all Margaritelli Road Safety road side barriers. The minimum number of posts to be installed downstream of the terminal is 10, excluding the terminal post.
In the case of installation with the H1BL-01 barrier, it is recommended to install 2 meters of H2BL-01 immediately adjacent to the terminal itself and then continue with at least 27 meters of the H1BL-01 barrier.
In the case of installation with the N2BL-01 barrier, a 2-meter connection between the H2BL-01 and N2BL-01 barriers must be installed, followed by at least 27 meters of the N2BL-01 barrier.
In the case of installation with the N2BL-02 barrier, a 2-meter connection between the H2BL-01 and N2BL-01 barriers must be installed, followed by a 1.5-meter connection between the N2BL-01 and N2BL-02 barriers, and then at least 32 meters of the N2BL-02 barrier.

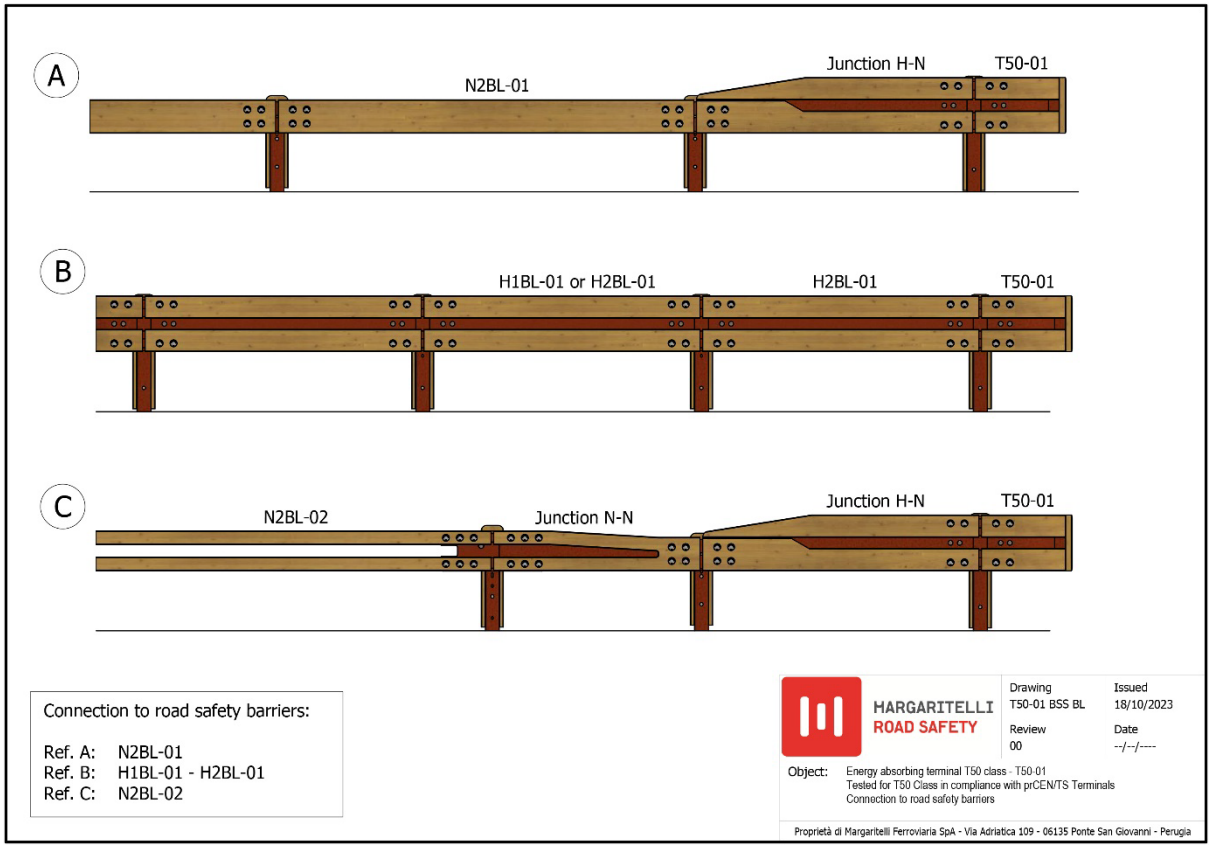

Figure 4 Connection with side safety barriers

DURABILITY AND MAINTENANCE.
Due to the materials used, the construction techniques, and the treatments applied to the wooden components, the installed barrier does not require any maintenance and retains its performance characteristics over time.
However, wood, like any other material permanently exposed to the outdoor environment, tends to lose its original color, more or less quickly, over time due to the degenerative effects of UV rays. In the case of a walnut-colored finish, it may be necessary, after a few years (depending on the extent of exposure to sunlight), to restore the original aesthetic appearance of the barrier by repeating the surface treatment on-site using a manual application of staining impregnators.

CLASSIFICATION OF TREATED TIMBER AS WASTE.
The laminated wood used, subjected to the double impregnation treatment, is assigned the EWC code 170201 (Wood). Therefore, it is classified as NON-HAZARDOUS WASTE, making it easily manageable in the event of replacement during maintenance after accidents.

DECLARATION OF NON-EMISSION OF HAZARDOUS SUBSTANCES.
The use of CE-certified laminated wood, in accordance with the harmonized standard EN 14080, guarantees the non-emission of harmful or dangerous substances listed in the European Community directive 76/769/EEC.

issued by:
Technical Office
Eng. Filippo Leone

verified and approved by:
CEO
Dr. Stefano Lucarini