



## **Installation Manual**

**WOOD & STEEL GUARDRAILS**

**Model T22 4M**

**Containment level N2**

**Working width W6 (1.90m)**

**Severity class : A**



**N° : 1826 – CPD – 09 – 02 – 06 – DR4**

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1826



**TERTU SAS – FR 61160 VILLEDIEU LES BAILLEUL**

**09**

1826-CPD-09-02-06-DR5

**EN 1317-5**

**Barrière mixte bois-métal simple lisse (support tous les 4 mètres)  
à utiliser dans les zones de circulation**

**Mixed wood-steel barrier simple beam (posts every 4 metres)  
to be used in circulation areas**

**Glissière/Guardrail type T22 4M**

**Performance au choc – Performance under impact :**

- a) Niveau de retenue : N2 - Containment level: N2
- b) Sévérité de choc : A - Impact severity level: A
- c) Largeur de fonctionnement : W=1,9 m (W6)  
Working width: W=1,9 m (W6)
- d) Déflexion dynamique maximale : Dm=1,8 m  
Maximum dynamic deflection : Dm=1,8 m

**Durabilité – Durability:**

S235JR, galvanisé selon EN ISO 1461

S235JR, galvanised according EN ISO 1461

Bois traité selon la norme EN 335

Wood treated according to the EN 335 standard

**Substance dangereuse : aucune**

**Dangerous substance : none**

# WOOD & STEEL GUARDRAIL MODEL « T22 4M »

## Brief description :

## The system does include :

- C 100 steel posts with 4m spacing
- pressure treated wooden spacers diameter 18 cm-TE 18
- 4m- long steel backed timber rails with half round logs Ø 22 cm; wood & steel components are assembled together on production site with bolts TRCC 16x160
- a main fishplate connecting 2 rails : U62
- a reinforcing fishplate TL20 joining two M 16 nuts
- 4 TRCC 16X160 bolts securing the assembly of the rail; 3 of them are pre mounted at production site

## BILL OF MATERIALS FOR 4M . (Dimensions in millimeters)

Item	Tertu Co-de	Description	Quantity	Weight
Steel post	C100	Post C100x50x25x5 Length = 2000 ou 1500	1	17 kg
Wooden Spacer	TE 18	Wooden spacer Ø180 pre-drilled with notch , length 0.73 m	1	9 kg
Beam T	T22 4M	Includes : one pressure treated 1/2 round log Ø220, length 3980 with 4 holes + 1 steel U channel U90x45x4, length 3920 with 4 bolts welded to the U profile. Factory assembled with 2 TRCC 16x110 & 1 TRCC 16x120	1	60 kg
Connecting fishplate	U62	Structural steel U shape 80x10, length 620 1 steel fuse box welded	1	6 kg
Reinforcing fishplate	TL22	Structural steel 60x4, length 200	2	0.33 kg
TRCC Round head bolt	M16x110 M16x120 M16x140	Class 5.8 Class 5.8 Class 5.8	2 pre mounted 1 pre mounted 1	0.22 kg 0.24 kg 0.27 kg
Nut	M16	Class 5	4	0.03 kg
Fishplate for terminal	TL41	Structure steel 80x10, length 410	1	2.10 kg
Boulon TH HEX head bolt	16x40	Classe 5.8	1	0.18 kg

**Weight per ml = 23 Kg including steel post C100 in 2 m**

## Installation method

### Recommended tools :

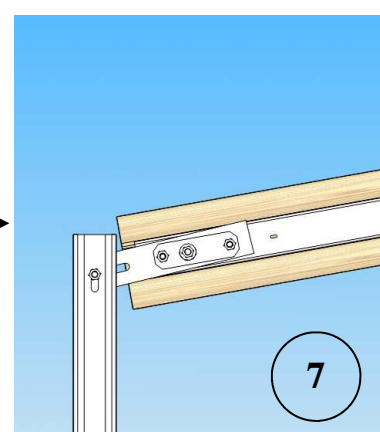
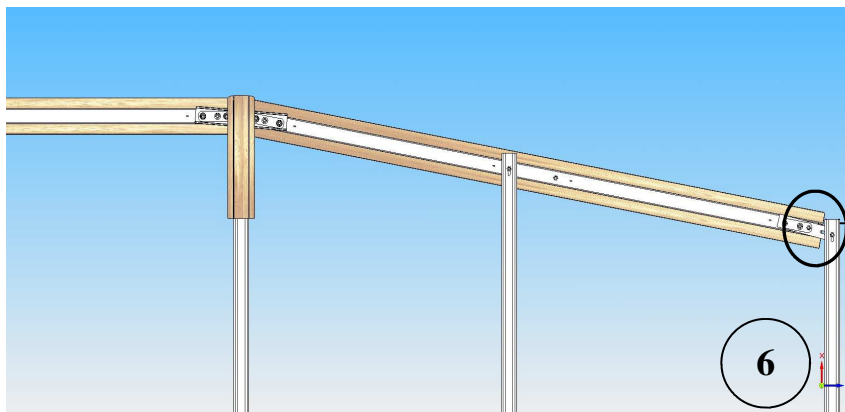
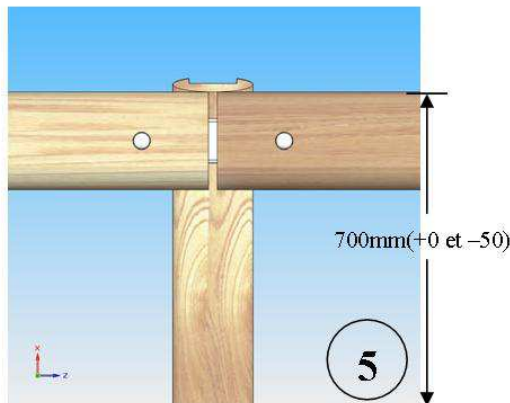
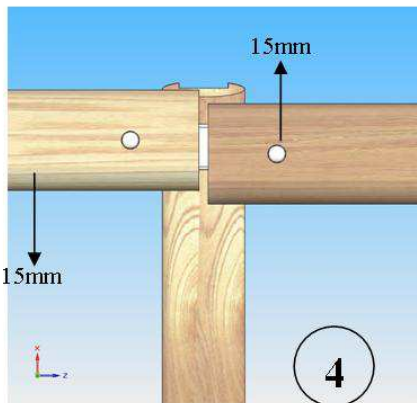
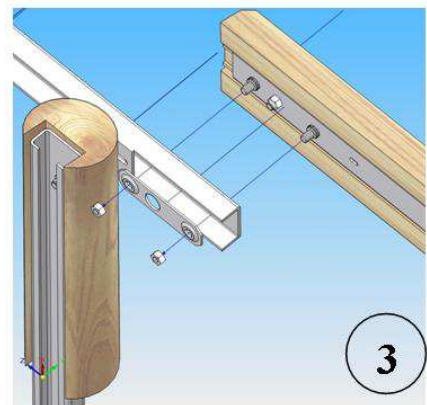
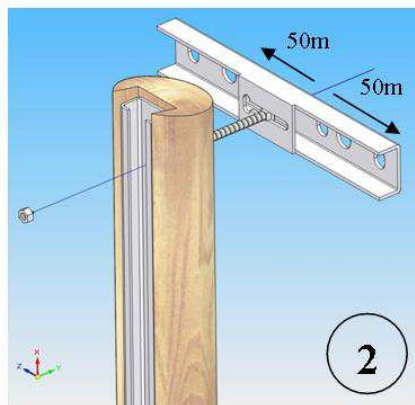
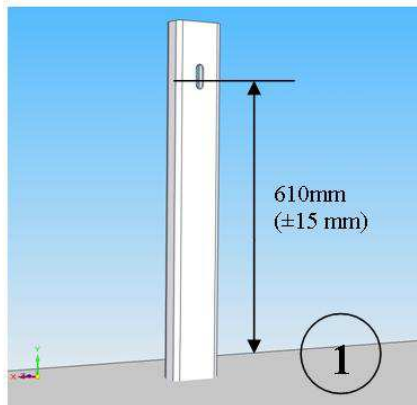
The T22 4M can be installed with the same expertise level and tools as required for steel crash barrier in particular: Post driving machine adapted to suit C100 profile post, a torque wrench, a socket wrench / nut spanner (M16 Bolt), compressor and lorry mounted lifting arm (if applicable).

### Post installation (figure 1)

Posts C100 in 2m or 1.5m length shall be driven into the ground every 4m; service height above ground = 720 mm

### Spacer & fishplate installation (drawing 2)

Once the C100 post installed, place the wooden spacer, then set up the fishplate U 62 having previously inserted the TRCC 16x140 bolt inside the fuse box and finally bolt the complete set onto the C100 posts



### **Rail T22 installation ( drawing 3)**

Place the 4m-rails with the welded bolts facing the fishplate U 62, introduce the said bolts inside the U 62, then place the 2 reinforcing fishplates TL22, then tighten the complete set with the 4 M16 nuts( Drawing 4).

### **Adjustment ( drawings 4 & 5)**

After the installation of several components, it is possible to adjust horizontally the connexion between the rails thanks to the U 62 oblog holes ; the height of the rail can be adjusted whilst using the C100 openings .

### **End terminals treatment ( drawings 6 et 7).**

The terminals may be dropped and buried into the ground, or horizontally inserted in the bank. The T22 4M can be also connected to an energy absorbing end terminal Euro ET (level P4 according to ENV 1317-4 - installation drawing upon request).

### **RAIL SERVICE HEIGHT**

The top-line of the rail face should be 70 cm (+0.5cm) above the road shoulder average elevation in a 50 cm wide band in front of the said rail. At no time, should the center-line of the rail face be less than 55 cm above the average elevation of the road shoulder in front of the rail section in question.

For the rails, the tightening torque is 140 Nm

### **MINIMUM LENGTH**

The minimum length required is 60 lm, with 2x4 m end terminals included, in order to ensure a proper correct anchorage of the system. For shorter lengths, it is recommended to contact our Export Department for a prior study.

### **PARTICULAR SITUATIONS**

#### **Curvatures**

Fishplates U 62 ablongs holes allow to cover a 6° angle between 2 rails devices in the horizontal or vertical plan. Therefore, it is possible to follow easily highway horizontal or vertical curvature. The T22 4M is adapted to follow radii  $\geq 20$ m. For radii  $< 20$  m, it is recommended to use the T22 2M with 2m rails.

#### **Soil conditions**

The anchoring system behavior depends on the soil quality. Therefore, it is important to evaluate on site the soil's capacity of resistance which must be adequate to guaranty the proper anchoring of the crash barriers section. The T22 4M has been tested with steel post in 2m. However, 1.5m and 2.5m long posts can be used if necessary, according to the soil conditions measured during the ground testing procedure.

#### **Installation in front of a drop**

It is necessary to maintain a distance of 1.30m between the front side of the rail and the beginning of the slope

#### **Repairs**

All damaged parts must be systematically replaced according to the product installation instructions.

#### **Remark**

During a crash, components weighting more than 2kgs can be detached

#### **Traceability, components marking**

Except the hardware, every single steel components is identified with a marking: Tertu logo (except for C100 post), manufacture stamp, batch number and CE official logo

#### **Packaging**

Rails are delivered by packets of 12 units, wooden spacers are packed on pallets.

# Echelle: 1:20 - 1:10 - 1:5 - 1:2

Nom de la pièce				
Fer en U 45x90x4 en 3920mm				
LISSE T22 4M				
ECLISSE U62				
ECLISSE TL22				
Eclisse TL41				
TRCC 16x110 +Ecrou				
TRCC 16x120 +Ecrou				
TRCC16x140 +Ecrou				
Ecartereur Bois				
Goujon				

Matière :	Date :	Dessiné par : R.J.	
Réf:	Désignation: Glissière T22 4M		
	Echelle:	Document n°:	
Masse:	Volume:		
Validé par :	Rév. 1 :		
Rév. 3 :	Rév. 4 :		
Dimensions : mm		Feuille : 6	

