



TOLAN ELECTRICAL AND METAL INDUSTRIES CO.LTD

GUARD RAIL SYSTEM



Guard rails

Overview:

Over the last few decades, the number of motorcyclists killed and injured in traffic accidents has decreased, along with other categories of road users. In particular, the decreasing trend is maintained despite a sharp increase in powered two-wheeler use and ownership. However, more efforts have to be made in order to consolidate the trend and further reduce the number of lives lost on Sudan's roads. One way is to improve infrastructure design and maintenance in order to achieve a higher level of protection for everyone

Why Guardrail?

'The main purpose of guardrail is to reduce the potential for, and severity of accidents involving vehicles that leave the road'



Roadside rails and bridge parapets

TOLAN guard rail systems are customized solutions for improving traffic safety. Guard rails prevent vehicles from running off the road, direct traffic, and close off and protect desired areas.

TOLANGuard Rail (Crash Barrier)

Motorcyclists & Road Safety Barrier



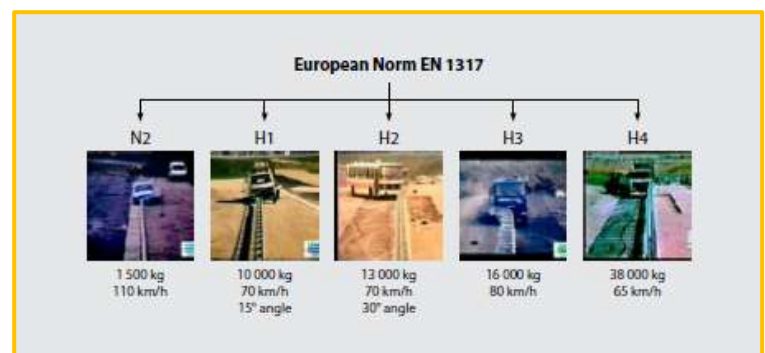
TOLAN Guard Rail (Crash Barrier) Specifications

Features:

- The barriers ensure minimum damage to the vehicle and its occupant
- During collision "W" beam absorbs maximum energy by flattening out laterally and restrains the vehicle from veering over
- Prevents the vehicle from skidding back onto the carriage way

Standards:

Specifications conform to EN1317-1 and EN1317-2 (Standards for the design, manufacture & testing of vehicle restraint systems (VRS) to a common European Standard)

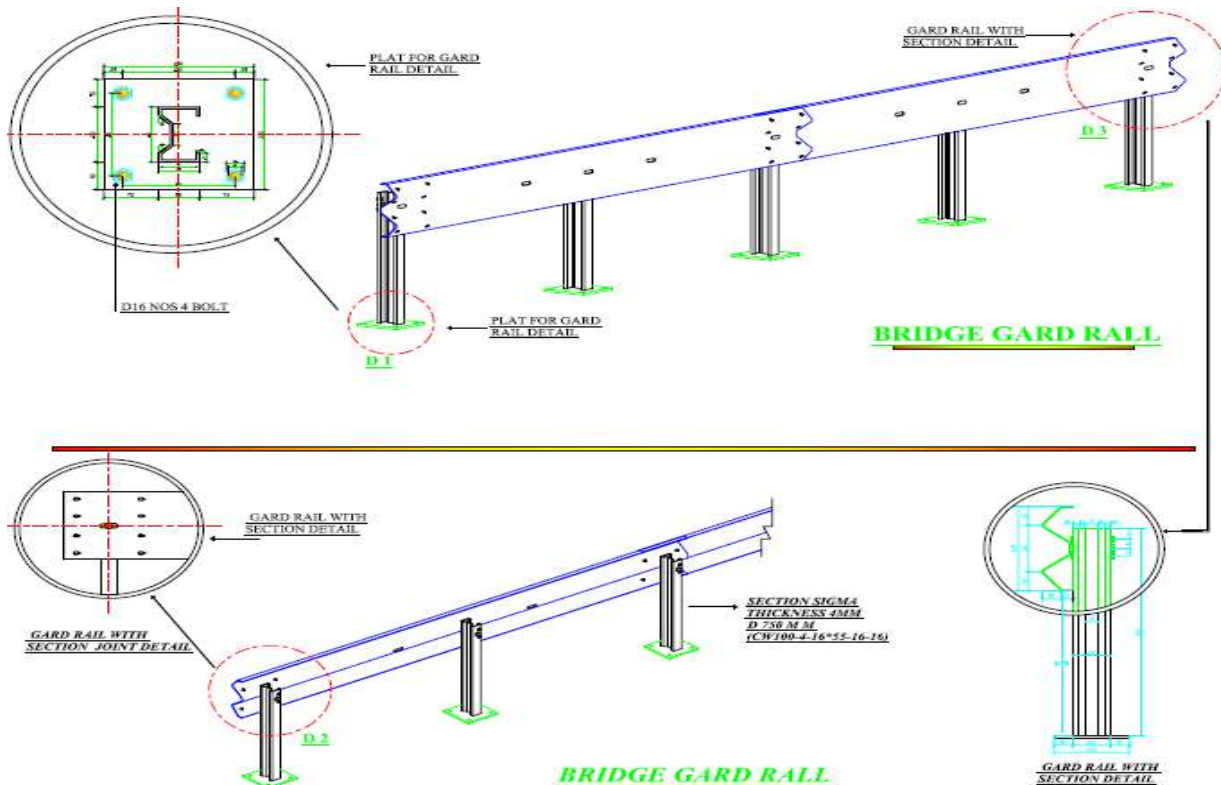


Standards:

Containment level	N2
Working width	W3
Impact severity level	B
Wheel penetration	0.9 m
Dynamic deflection (estimated)	Less than 1 m for semi rigid barrier (wbeam)
Post spacing	1.35m center to center
Post section	Sigma 100 *55 *4 mm
Post ultimate moment capacity	9.04 KN.m
Post ultimate shear capacity	74.6 KN

Details of Guard rail

The standard delivery length of rail type W305/3 is 3 meters. The rails are perforated for 1.35meters post spacing. The end rails are also delivered perforated. The posts are SIGMA100x55/4 profile



Materials:

Post and rails:

The metal guardrail and posts are manufactured in accordance to DIN 17100-St37/S235 with following mechanical properties

Rail (3mm):

Minimum Yield Stress = 240 N/mm²

Tensile Strength = 345N/mm²

Sigma Post (4mm):

Minimum Yield Stress = 311 N/mm²

Tensile Strength = 414 N/mm²

Bolts:

The guardrail elements are joined by button head bolts with hex nuts and washers in accordance to DIN931/933 grade 8.8 with following mechanical properties

Minimum Yield Stress = 640 N/mm²

Tensile Strength = 800 N/mm²



Anchorage System:

(1) Base plate with anchor Bolts



(2) Driven post



Finishing:

All components are hot dip galvanized in accordance to **BS: EN ISO 1461 /ASTM A123**

Service life:

We offer **1-year** warranty against manufacturing faults

Applications:

- Roads
- Bridges
- Parking areas and multi-level car parks
- Ports
- Manufacturing plants and warehouses



Benefits:

- ✓ Long-term durability
- ✓ Overall economy and ease of installation
- ✓ Easy replacement of damage parts

Projects implemented:

- ✓ Mandour El Mahdi Bridge
- ✓ Blue Nile Bridge
- ✓ Soba Bridge



Blue Nile Bridge

Soba Bridge

GUARD

Mandour ElMahdi Bridge