



## **PRESTAR ENGINEERING SDN BHD**

**A subsidiary of Prestar Resources Berhad**



# **PRESTAR**

**YOUR PARTNER IN HIGHWAY GUARDRAIL**

**SUPPLY • INSTALLATION • MAINTENANCE**

# PRESTAR RESOURCES BERHAD

We are a group of companies specializing in the manufacture and export of steel products from Malaysia.

Our integrated facilities include:

- Highway Guardrails & Handrails
- Hot-Dip Galvanizing Plant
- Steel / Carbon Steel Pipes & Hollow Section
- Steel Coil Centre for Stainless & Carbon Steel
- Wheelbarrows & Material Handling Products
- Steel Shelving & pallet Packing



## PRESTAR PRODUCT MANUFACTURING UNIT



### PRESTAR ENGINEERING SDN BHD

We are the manufacturer of Highway Guardrail, Posts, Packers, Handrail and steel related product to the major highway project in Malaysia.

### PRESTAR GALVANISING SDN BHD

Major division services are Hot dip galvanizing service and Powder coating service.



# COMPANY PROFILE



## **PRESTAR ENGINEERING SDN BHD (PESB)**

is a fully integrated manufacturer and supplier of highway guardrail, handrail and accessories. Our highway guardrail, handrail and accessories are manufactured strictly conforming to the design usage and application with the latest engineering know how and is certified by SIRIM.

As an affiliated company to **PRESTAR RESOURCES BHD**, PESB have the access to the various facilities and technical support which further enhance the capability to undertaken all aspect of project involving highway guardrail, handrail and accessories. The range of facilities include hot dip galvanising services and metal fabrication equipment such as press and forming machines etc.

The highway guardrail and accessories is in compliance with:

- ✓ American Association Of State Highway & Transportation Official (AASHTO)
- ✓ Standard Industry Research Institute Of Malaysia (SIRIM)
- ✓ Malaysia Public Work Department Standard (JKR)

The product galvanising finish is in compliance with:

- ✓ British, European And International Standards (BS EN ISO)

# Certified by

01



Sirim Test Report

02



ISO Certificate

03



Malaysia CIDB  
Registration Class :  
G7

04



JKR RMAL Certified  
(Guardrail & Handrail)

05



Malaysia Ministry  
of Finance (MOF)  
Registered Company

# OUR PRODUCT



01

W BEAM



02

THRIE BEAM



03

HANDRAIL

# W BEAM

## Highway Guardrail Product Features & Application

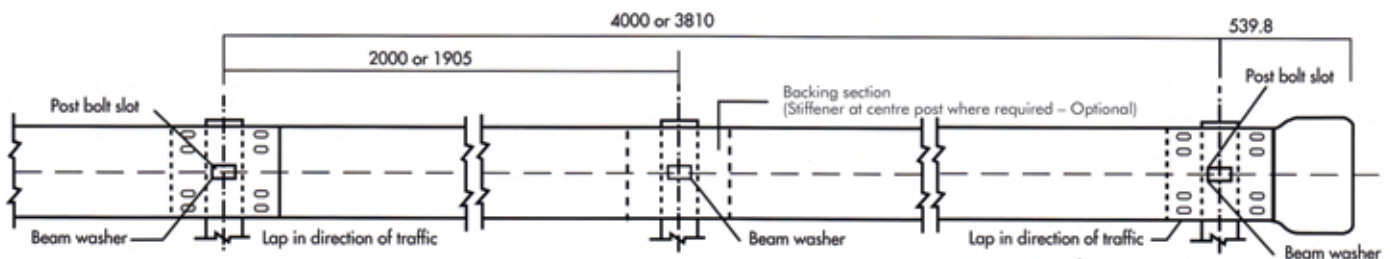
- ✓ To provide guardrail protection to motor vehicle at dangerous road area such as:
  - Steep Slope
  - High Embankment
  - Obscure Curve/Bend
  - Sharp Corner
- ✓ To absorb sudden impact during collision thus minimize injury to vehicle and passenger.
- ✓ To act as a directional railing for vehicle moving in the right direction.
- ✓ To act as a median barrier for avoiding head on collision.
- ✓ To act as a protective barrier for pedestrian along the highway.

## Specification And Technical Data

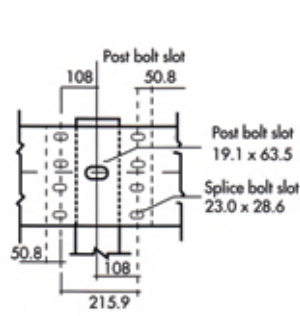
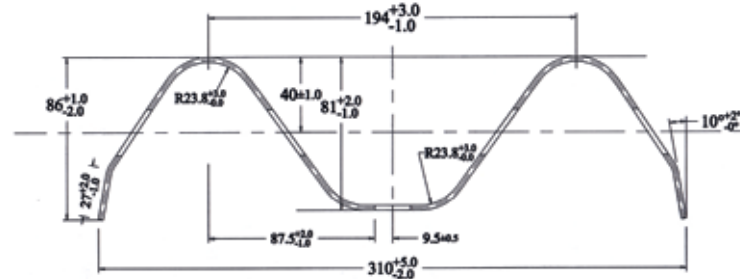
1. Base Metal specification comply to AASHTO M 180-00 (2004)
  - Minimum Yield Strength : 345 N/mm<sup>2</sup>
  - Minimum Tensile Strength : 483 N/mm<sup>2</sup>
  - Minimum Elongation : 15%
2. Galvanizing Specification comply to:
  - AASHTO Designation: M 111M/M 111-09
  - BS EN ISO 1461 : 2009
3. PRESTAR Dimension comply to AASHTO M 180-00 (2004)

Type	Effective Length (mm)	Overall Length (mm)	Nominal Thickness (mm)
PE 1	3810	4128	2.67
PE 2	4000	4318	2.67
PE 3	3810	4128	3.00
PE 4	4000	4318	3.00

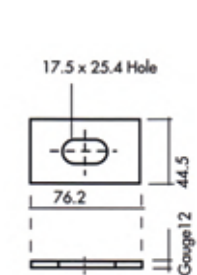
(Tolerance allowable under specific thickness)



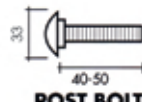
**SECTION THROUGH BEAM**



**BEAM SPLICE**



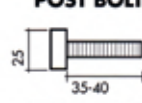
**SPLICE WASHER**



**POST BOLT**



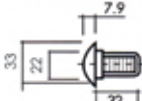
**HEX NUT**



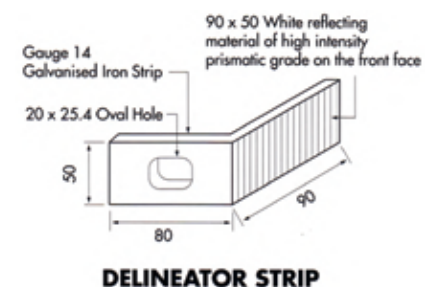
**HEX BOLT**



**ROUND WASHER**



**SPLICE BOLT & NUT**

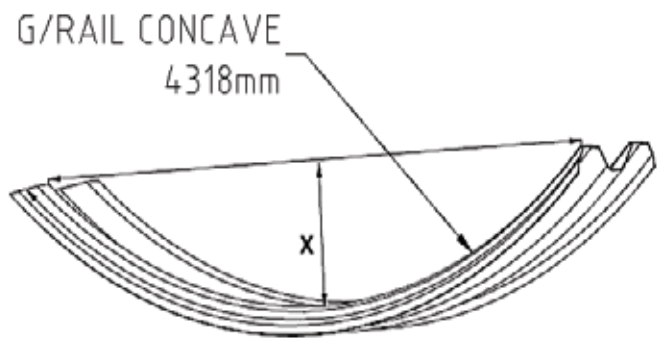
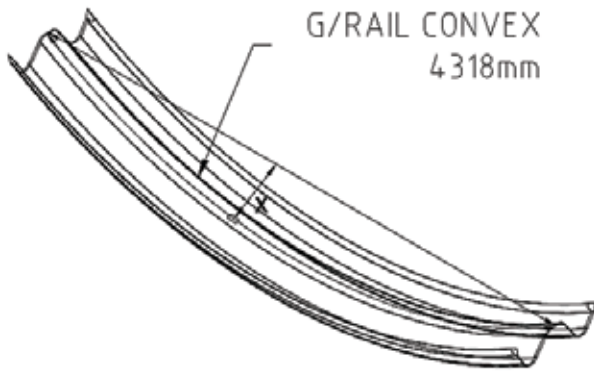


**DELINEATOR STRIP**

NOTE: All dimensions are subject to manufacturer's design tolerance. All dimensions are in millimeter.

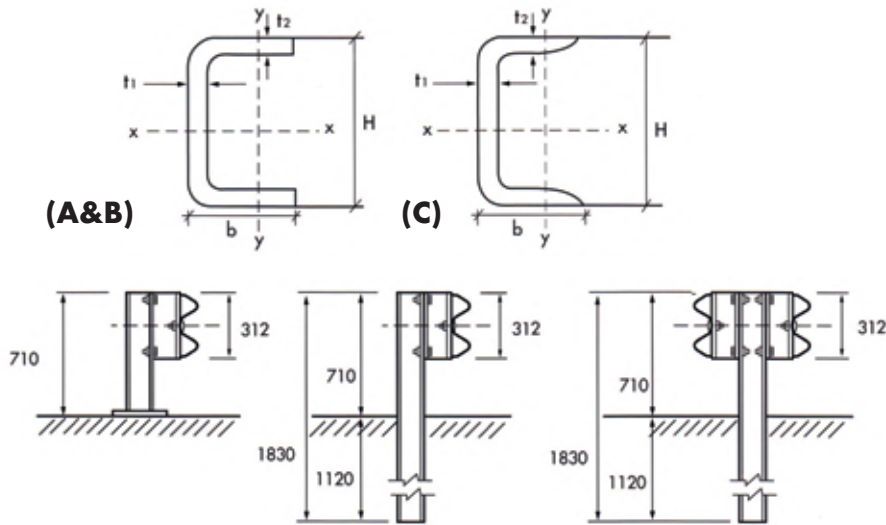


## Curve Beam



Type of Curve Beam	Effective Length (mm)	Overall Length (mm)	Size (X inch)
Convex	4000	4318	4", 6", 8", 10", 12", 14"
Concave	4000	4318	4", 6", 8", 10", 12", 14"

## Post



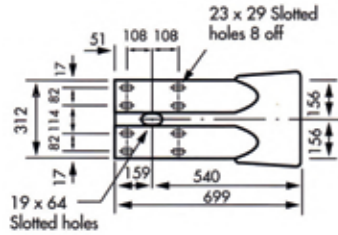
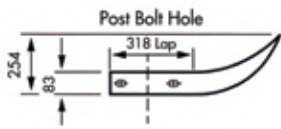
Type	H x B x T1 x T2 (mm)	Unit Weight (kg/m)	Section Area (cm <sup>2</sup> )	Movement of Inertia		Section Modulus	
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )	Sx (cm <sup>3</sup> )	Sy (cm <sup>3</sup> )
A	C178 x 76 x 6 x 6	14.3	19.08	903.5	102.5	101.5	52.0
B	C150 x 76 x 6 x 6	13.2	17.50	610.0	98.0	80.3	45.3
C	C125 x 65 x 6 x 8	13.4	17.11	425.0	65.5	68.0	14.4

NOTE: All dimensions are subject to manufacturer's design tolerance. All dimensions are in millimeter.

# Guardrail Ends

## End Wing

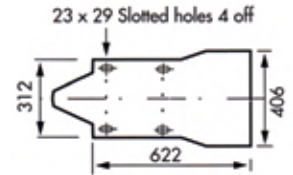
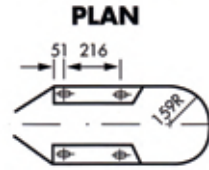
**DETAIL 'A' - END WING PLAN**



**ELEVATION**

## Buffer End

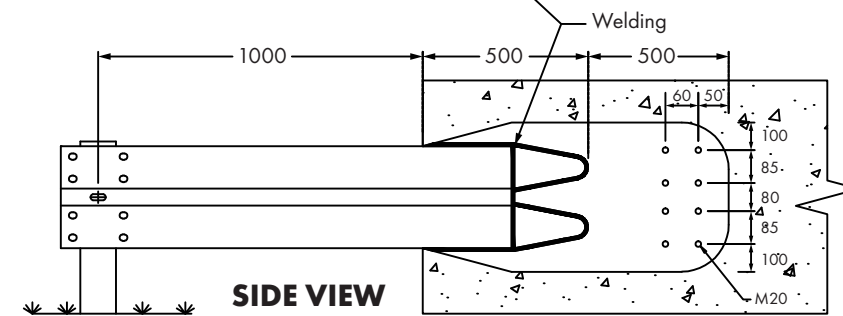
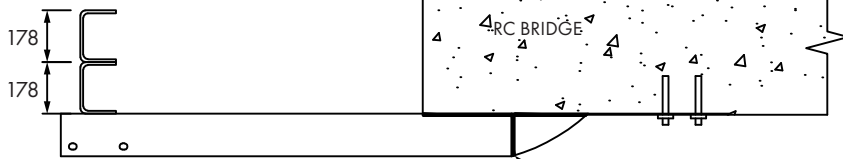
**TERMINAL BUFFER END (DETAIL 'C')**



**ELEVATION**

## NJB Bracket

**TOP VIEW**



**SIDE VIEW**

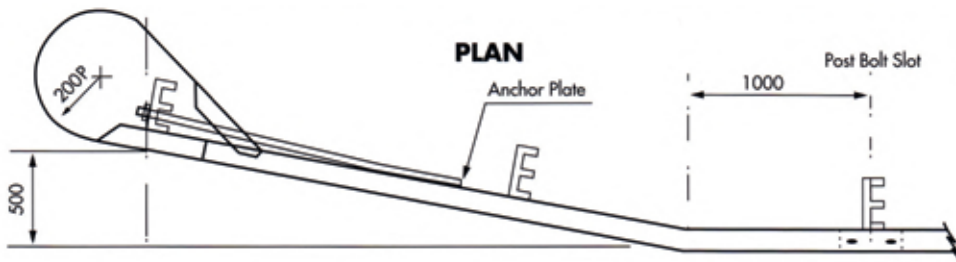


**NJB Bracket**

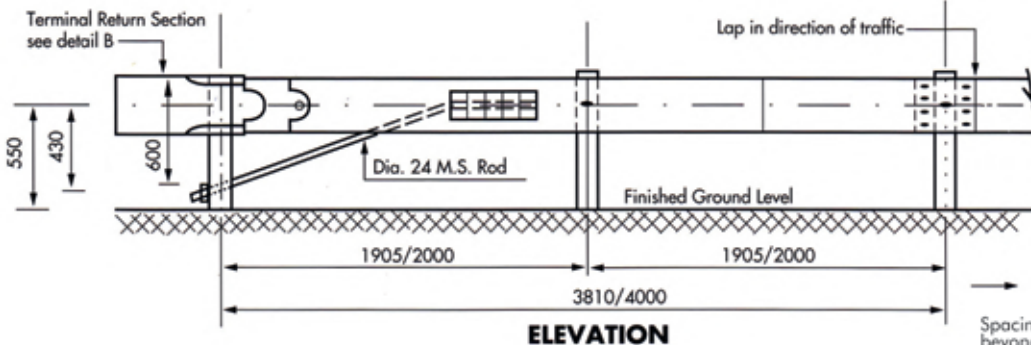
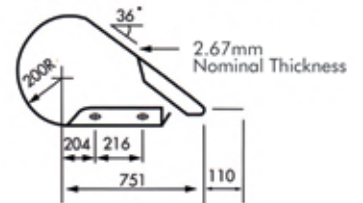


**Buffer Return**

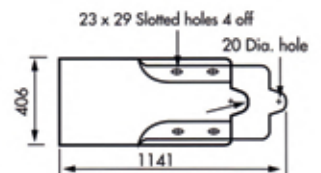
## Terminal Anchorage Unit or Flare End (Type 2)



**BUFFER RETURN (Detail B)**



**ELEVATION**



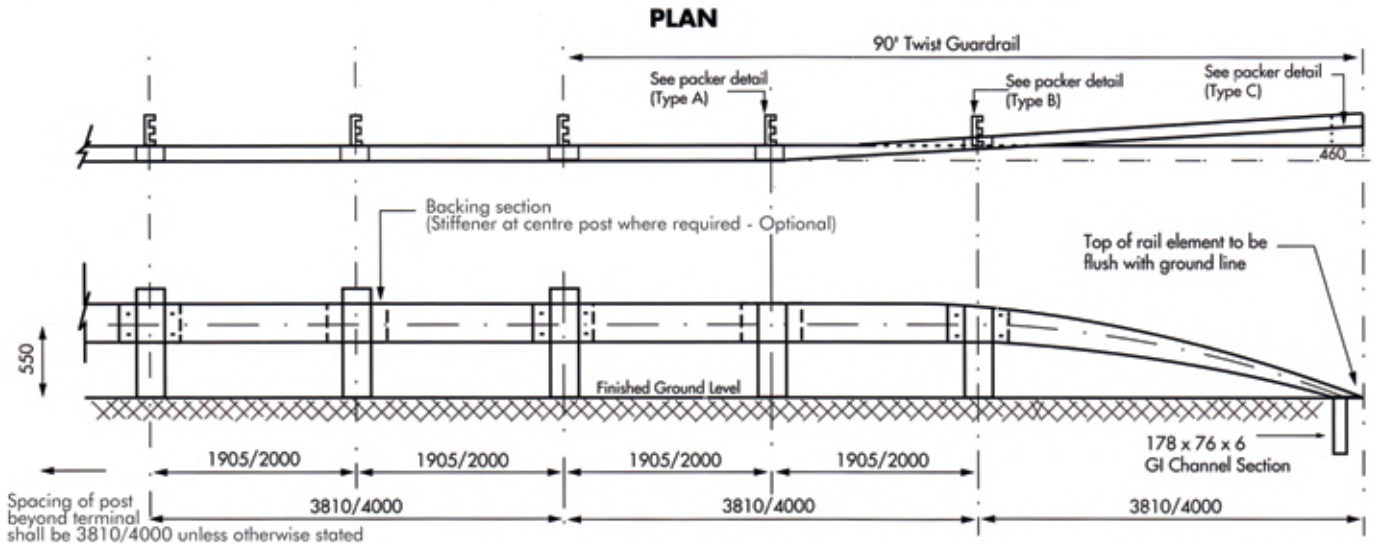
**ELEVATION (Detail B)**

Spacing of post beyond terminal shall be 3810/4000 unless otherwise stated

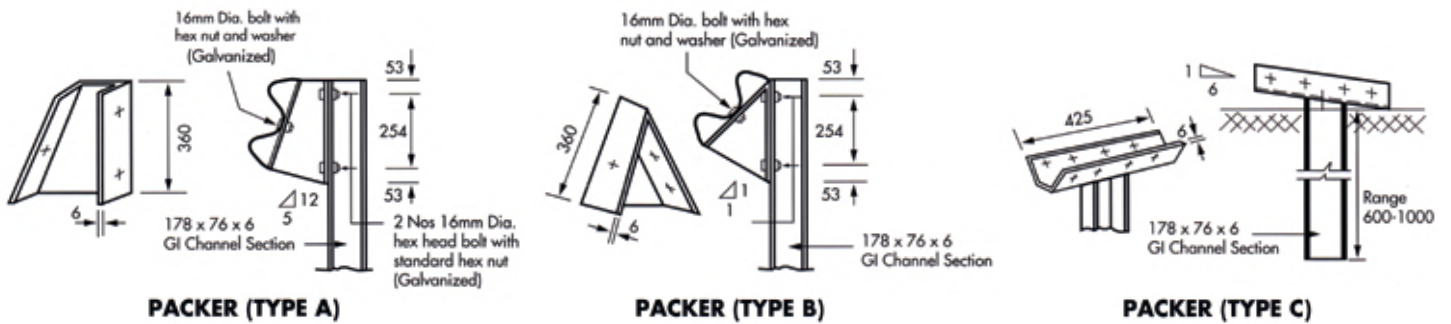
NOTE: All dimensions are subject to manufacturer's design tolerance. All dimensions are in millimeter.



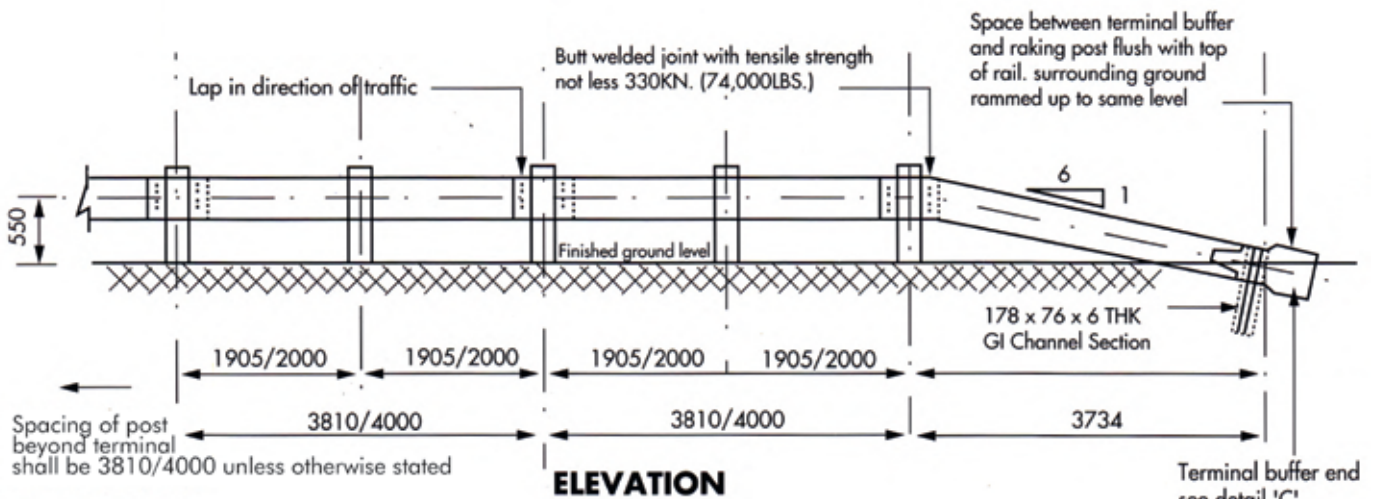
# 90° Twist Terminal Anchorage Unit (Type 3)



**ELEVATION**



# Terminal Section 1:6 (Type 4)

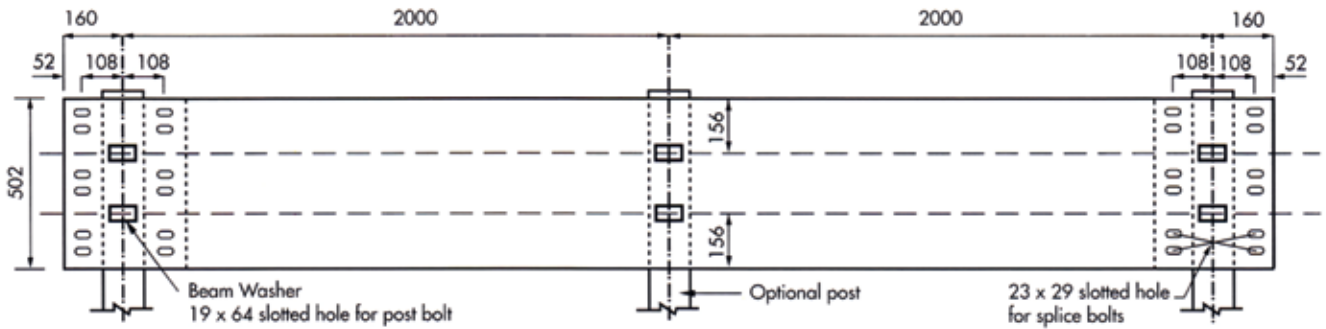


**TYPE 4 (LEFT SIDE)**

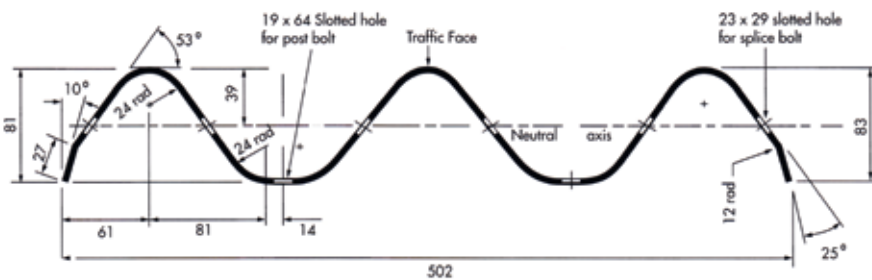
NOTE: All dimensions are subject to manufacturer's design tolerance. All dimensions are in millimeter.

# THRIE BEAM

Type	Effective Length (mm)	Overall Length (mm)	Nominal Thickness (mm)
PE 5	4000	4318	2.67



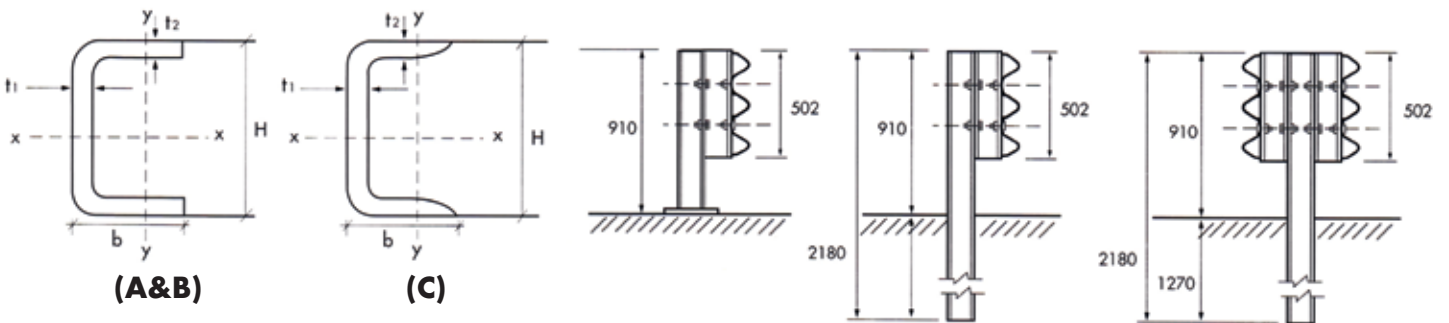
**THRIE BEAM**



**TYPICAL RAIL SECTION**



## Post



Type	H x B x T1 x T2 (mm)	Unit Weight (kg/m)	Section Area (cm <sup>2</sup> )	Movement of Inertia		Section Modulus	
				I <sub>x</sub> (cm <sup>4</sup> )	I <sub>y</sub> (cm <sup>4</sup> )	S <sub>x</sub> (cm <sup>3</sup> )	S <sub>y</sub> (cm <sup>3</sup> )
A	C178 x 76 x 6 x 6	14.3	19.08	903.5	102.5	101.5	52.0
B	C150 x 76 x 6 x 6	13.2	17.50	610.0	98.0	80.3	45.3
C	C125 x 65 x 6 x 8	13.4	17.11	425.0	65.5	68.0	14.4

NOTE: All dimensions are subject to manufacturer's design tolerance. All dimensions are in millimeter.







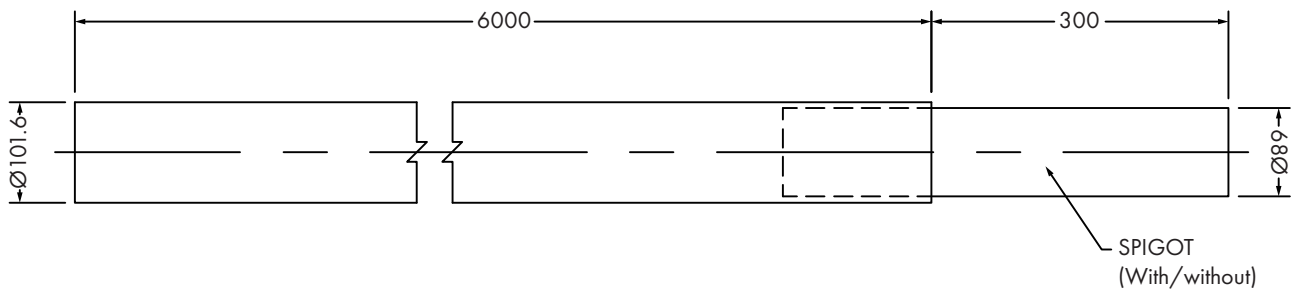
# HANDRAIL

## Parapet Handrail Features & Application

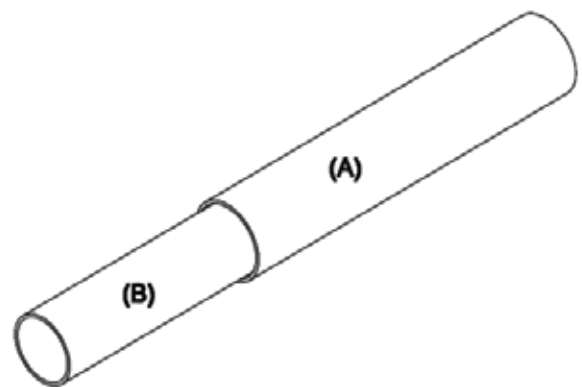
- ✓ This is achieved by absorbing some of the impact energy and deflecting the vehicle away from the edge.
- ✓ To prevent vehicles from hazardous element.
- ✓ To provide extra protection and shielded road users from hazard localize near the edge of travelled way.
- ✓ To minimize risk of injury to other roads occupants.

## Middle Rail

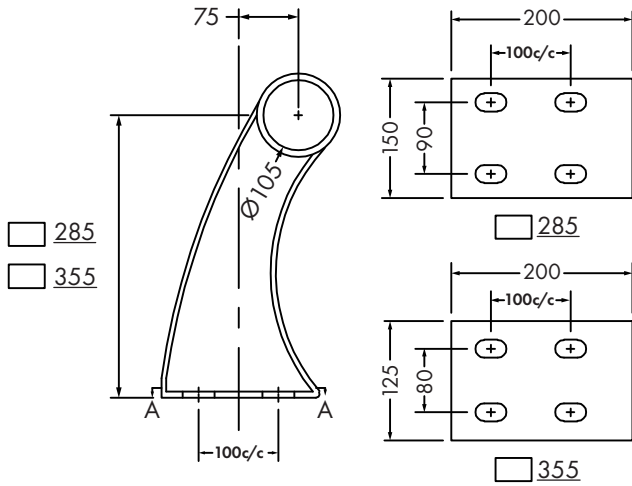
Type	Effective Length (mm)	Nominal Thickness (mm)
Class B	6000	4.0 ( + - )
Class C	6000	4.5 ( + - )



Material = BS 1387 / BS EN 10255  
Galvanizing = BS EN ISO 1461

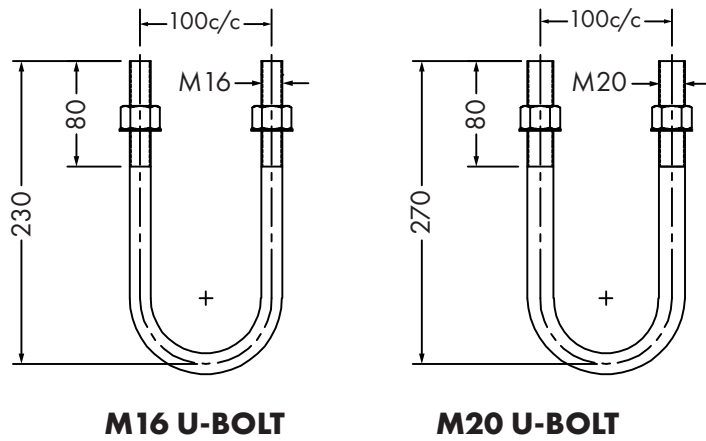


## Handrail Post

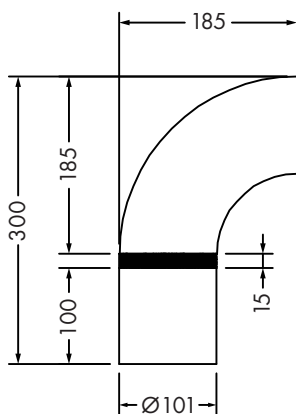


Material = BS EN 10025 S275  
Galvanizing = BS EN ISO 1461

## U-Bolt



## Elbow End



Material = BS 1387 / BS EN 10255  
Galvanizing = BS EN ISO 1461

# GUARDRAIL PROJECT RECORDS



Privatization Of West Coastal Expressway (WCE) (Taiping – Banting) Section 10 – Changkat Cermin Interchange To Beruas Interchange

Proposed Guardrail Enhancement Works At KM179.40 Median (Eastbound) And KM 199.40 - KM 145.00 Median (Westbound), Kuantan Section

Proposed R&D Test Course Expansion Of Lot 29139 And Lot PT 16027 Seksyen 20, Bandar Serendah, Daerah Hulu Selangor, Selangor Darul Ehsan For Perodua Manufacturing Sdn Bhd

Project : Package 20c4-1: Provision Of Engineering, Procurement, Construction And Commissioning (EPCC) For The Interconnecting Road from Rapid Site To JKR Road (P1, North Ring Road & J52)

Development And Upgrading Of The Proposed Pan Borneo Highway In The State Of Sarawak, Malaysia

Proposed Construction And Completion Of Common Infrastructure Works At Kwasa Damansara Township Development In Sungai Buloh, Selangor Darul Ehsan For Kwasaland Sdn Bhd - Work Package Contract : WPC1B & WPC1C

Maintenance Of Federal Roads In The Southern Region Of Peninsular Malaysia OPM-12

Cadangan Pembangunan Perniagaan Fasa 11A & 11B Di Atas Lot PT 834 Mukim Ijok Dan Lot PT 1092 Mukim Jeram, Darerah Kuala Selangor, Selangor Darul Ehsan Untuk Tetuan Hillpark Resources Sdn Bhd

Project Mass Rapid Transit Laluan 2



# HANDRAIL PROJECT RECORDS



Privatization Of West Coastal Expressway (WCE) (Taiping – Banting) Section 9 – Kampung Lekir Interchange To Changkat Cermin Interchange

Development And Upgrading Of The Proposed Pan Borneo Highway In The State Of Sarawak (Sg Tangap To Pujut Link Road) (Lambir Section)

Menaiktaraf Jalan Persekutuan FT003 dari Bandar Pekan Ke Kampung Sungai Miang, Pekan, Pahang

Cadangan Pembangunan Komersial Di Atas Lot 36101 (PT4774) Bandar Bukit Jalil, Mukim Petaling, Wilayah Persekutuan Kuala Lumpur

The Construction Of Jalan Stadium Chin Woo Flyover, Relocation Of Existing Utilities, Improvement Of Surface Road And Associate Works, Kuala Lumpur

Guardrail Works For Periodic Maintenance Works 2020 (Non-pavement At Route FT180, Section 3.00 - 5.38 Pelabuhan Utara District Of Klang, Selangor Darul Ehsan

Cadangan Membina Jejambat Penghubung Ice Tapak Cadangan Pembangunan Komersial Di Lot PT44016 dan PT 44017, Damansara Perdana, Selangor Darul Ehsan Untuk Tetuan Cosmopolitan Avenue Sdn Bhd

Projek Jalan Akses Ke Empangan Boleh, Bahagian Kapit, Sarawak – Pakej A (Fasa 2): Pembinaan Jalan Dari KM5.0 – KM9.8 Pembinaan Jambatan Sg.Selangir, Jambatan Sg.Sebatang Dan Kerja-Kerja Berkaitan.

Penyiapan Baki Kerja Menaiktaraf Jalan Negeri B27, Jalan Rawang-Batang Berjantai (Fasa 2) Dari Persimpangan Bandar Country Homes Ke Sempadan Daerah Kuala Selangor, Daerah Gombak, Selangor Darul Ehsan



Sales & Factory:-

Lot 1298, 16 1/2 Miles, Jalan Ipoh, Rawang Industrial Estate,  
48000, Rawang, Selangor Darul Ehsan, Malaysia.



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