For the Thrie Beam Connection Detail See Drawing SD-RB-03010. Drawing SD-RB-03010 Details a Proposed Engineered Solution (Untested) and Should be Assessed by the Relevant Design Engineer to Determine its Suitability Specific to Each Site.

Performance under:
MASH TL4:

Normalised Working Width: 1161mm (45.7 inches)
Normalised Dynamic Deflection: 502mm (19.8 inches)

1. All aluminium welding, if applicable, to be in accordance with BS EN 1011-4:2000

2. Welders and welding procedures are in accordance with BS EN ISO 9606-2:2004 and BS EN ISO 15614-2:2005 respectively

3. Main rails can be radiused to suit on site down to minimum radii of 150 metres. Tighter radii can be supplied preformed by special arrangement

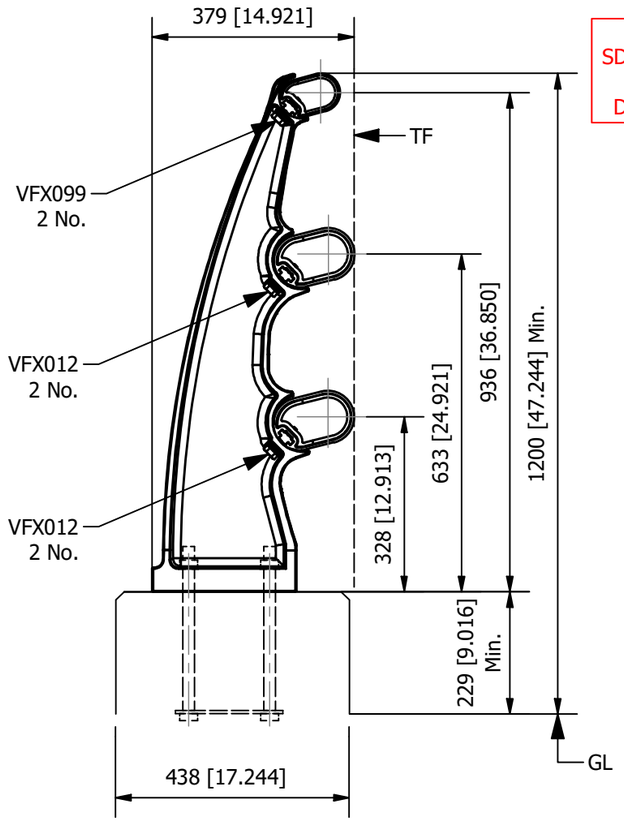
4. Dimensions relative to height datum assume there is no longitudinal fall on the plinth. Additional tolerances to take account of these falls are permissible

5. Fabrication to be in accordance with BS EN 1999-1-1:2007+a2:2013

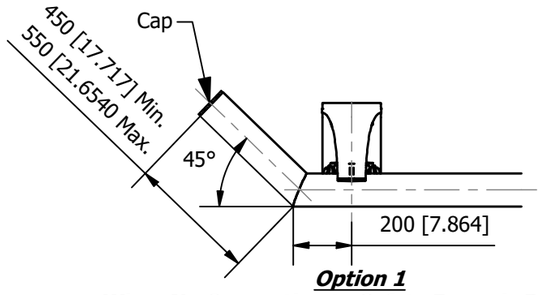
6. An easily legible identification plate shall be applied and located near to the top of the first post at each approach end in an easily visible position

7. All dimensions in mm [inches]

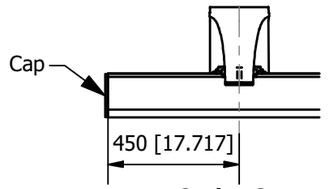
8. To be read in conjunction with HSM1107



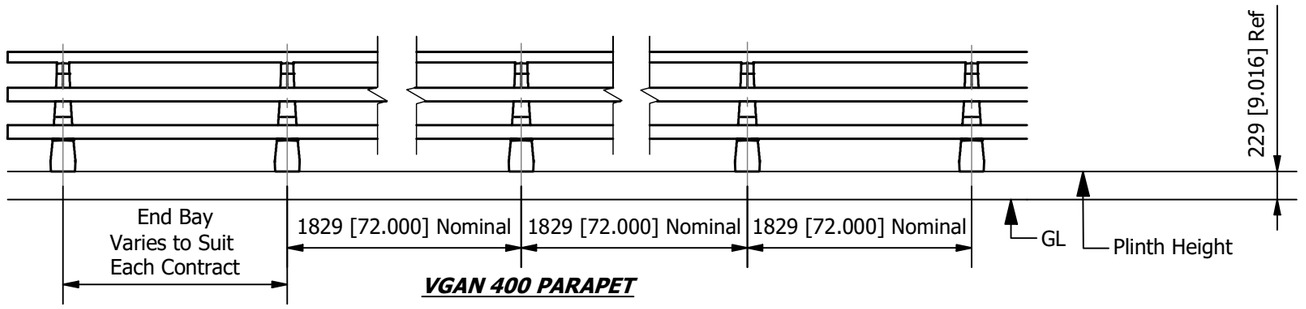
General System Dimensions



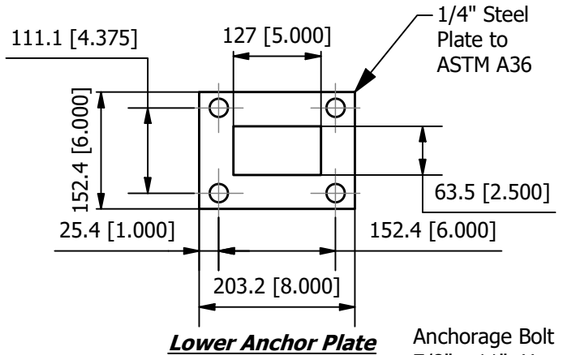
Option 1
When No Connection to Safety Fence is Required
All Rails to be Cranked Back at 45° on Plan and Capped



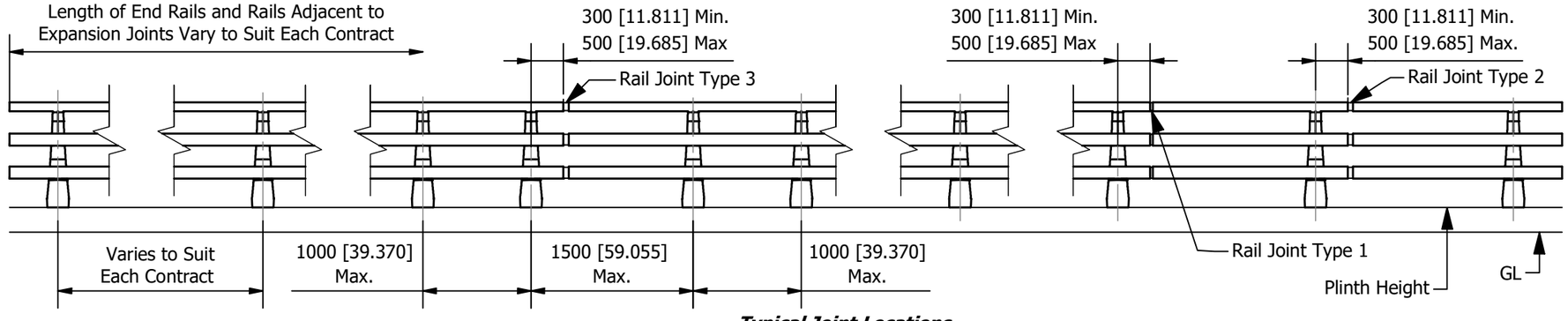
Option 2
All Rails Left Straight and Capped
Typ. Connection to Safety Barrier



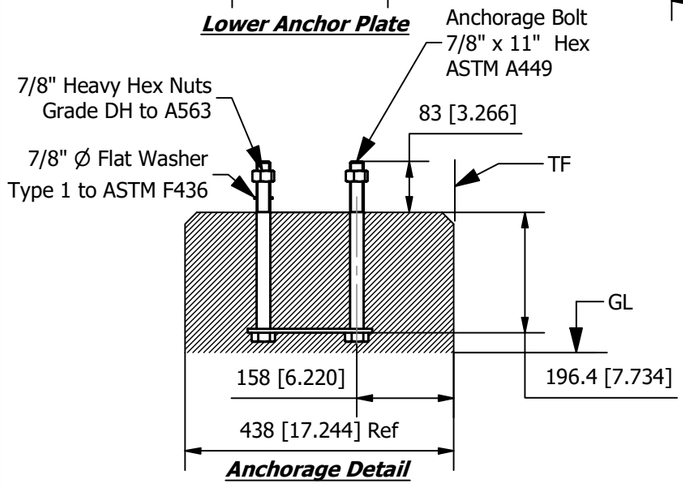
VGAN 400 PARAPET



Lower Anchor Plate



Typical Joint Locations



Anchorage Detail

VGAN 400 Series Post Information	
Unfactored Moment of Resistance of Post (KNm) [Kip-ft] at Underside of Base Plate	71.7 [52.9]
Ultimate Shear Force Resistance of Post (kN) [Kip]	152.6 [34.3]
Size of Anchorage Bolts	7/8" Hex ASTM A449

Approved Anchorage Units
Anchorage Bolt 7/8" Hex ASTM A449
Or Other Appropriately Approved Cast-In or Drilled or Resin Anchorage System

Material Specification			
Item	Specification	Item	Specification
Main Rail	All Extrusions are to be Aluminium Alloy EN AW6082 T6 in Accordance with BS.EN.515, BS.EN.573-3, BS.EN.573-4, BS.EN.755-1, BS.EN.755-2, BS.EN.755-5, BS.EN.755-7 and BS.EN.755-9. Post Section to be Aluminium Alloy A444.2 T4 to ASTM B 108.	Bolts	All M16 Setpins to Conform to BS.3692 and be Stainless Steel to BS.EN.ISO.3506-1 Grade A4/80.
Main Rail Joint			
Pedestrian Rail		Spring Washers	All Spring Washers to Conform to BS.4464 Type 'B' and be Stainless Steel to BS.EN.ISO.3506-2 Grade A4 or A2.
Pedestrian Rail Joint			
Rail Clamp Nut		Plain Washers	Washers to be M16 Form 'C' Conforming to BS.4320 and be Stainless Steel to BS.EN.ISO.3506 Grade A4 or A2.
Post Section			

MATERIAL:
FINISH:

STATUS	NAME	DATE
DRAWN	W. Refahi	4/02/2026
CHK'D	T. Colquhoun	6/02/2026
APPV'D	H. Wallace	6/02/2026

SafeDirection CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

UNLESS OTHERWISE SPECIFIED:
GENERAL TOLARANCES: ±0.5mm
ALL DIMENSIONS ARE IN: mm
THIRD ANGLE PROJECTION

STATUS: APPROVED

PROJECT:
TITLE: VGAN 400 Bridge Railing System
CONFIGURATION:
DWG TYPE:
DWG NO. SD-RB-03009
REVISION: A
SHEET SIZE: A3
WEIGHT: kg
DO NOT SCALE DRAWING
SCALE: 1:1
SHEET 1 of 3

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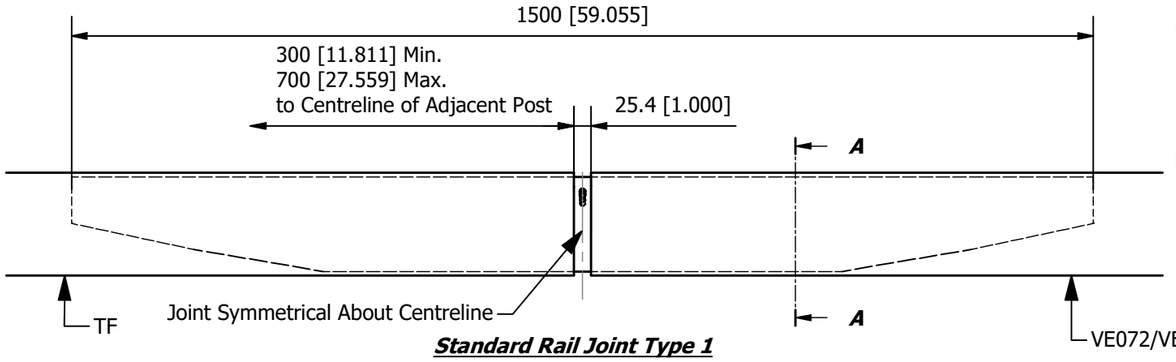
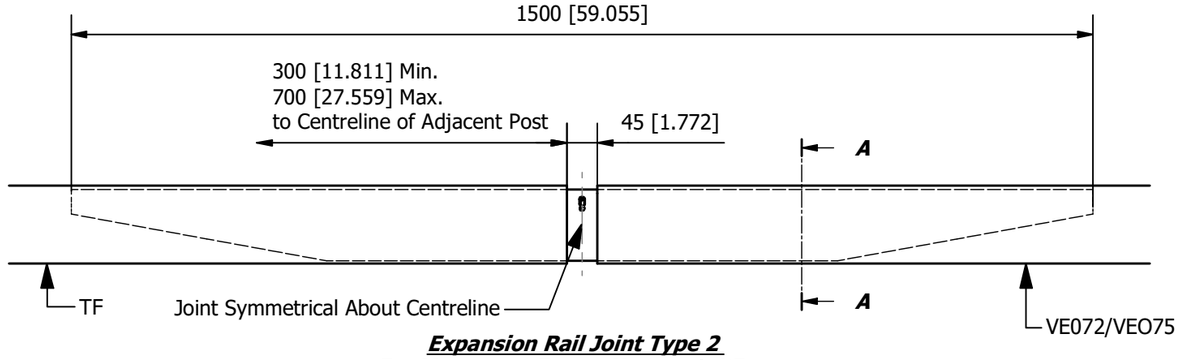
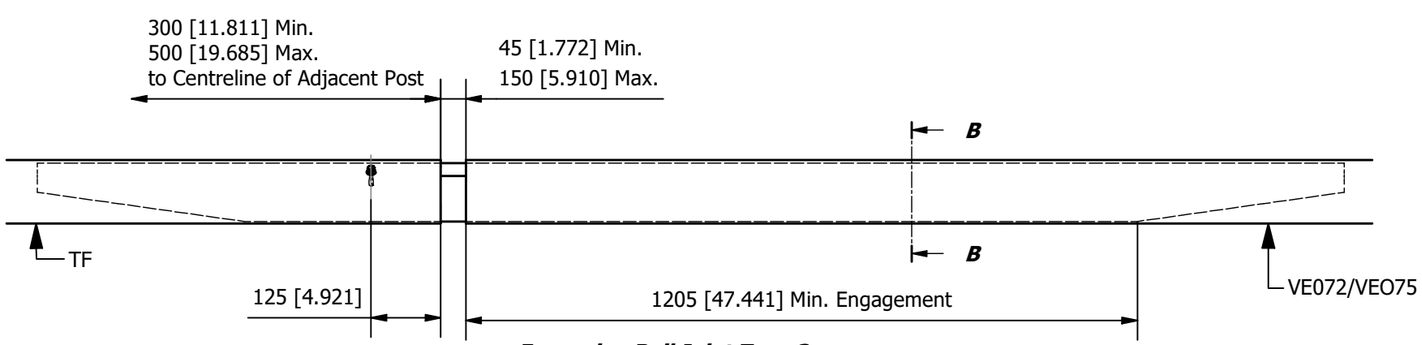


Standard Rail Joint Type 1
For Movement Range Up to +/- 9mm



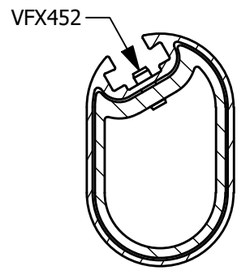
Expansion Rail Joint Type 2
For Movement Range Up to +/- 25mm



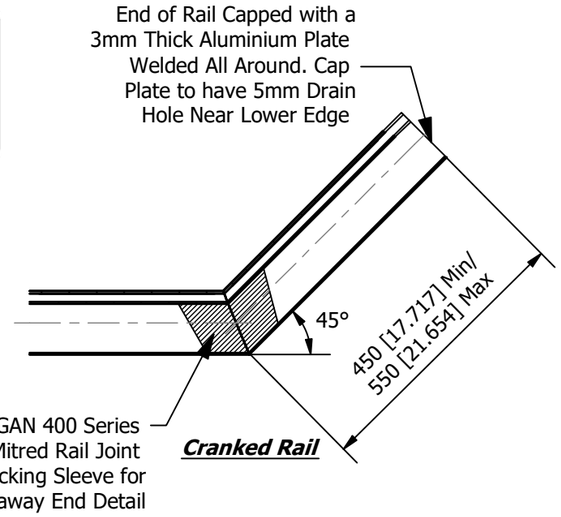
Expansion Rail Joint Type 3
No Tension Expansion Joint For Movement Over +/- 25mm Up to +/- 150mm

Performance under:
MASH TL4:

Normalised Working Width: 1161mm (45.7 inches)
Normalised Dynamic Deflection: 502mm (19.8 inches)

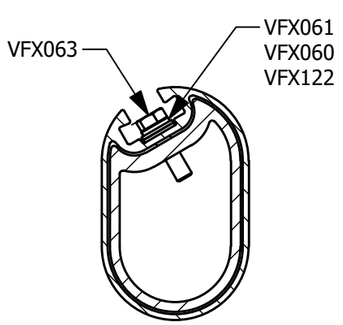


Section A-A

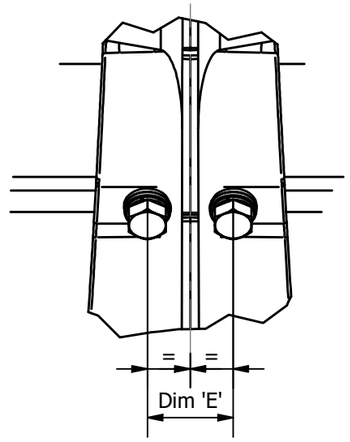


Cranked Rail

Expansion Connection		
Joint Type	Main Rail	Pedestrian Rail
1	VA486	VA489
2	VA486	VA489
3	VA488	VA491

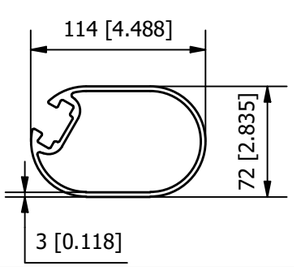
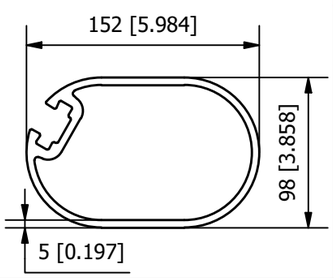
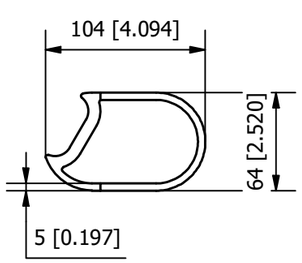
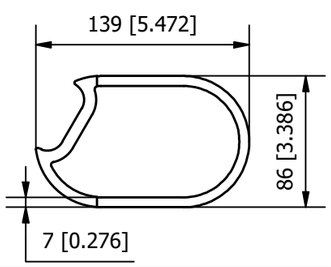


Section B-B



Rear View on Post to Rail Cleat Connection

Dimension 'E'		
Rail Position	Value	Fixing
Top Pedestrian Rail	56mm	M16x35
Middle Main Rail	56mm	M16x45
Bottom Main Rail	80mm	M16x45

Section Schedule			
Top Pedestrian Rail (VE075)	Middle/Bottom Main Rail (VE072)	Pedestrian Rail Joint / Expansion Section (VA489/VA491)	Main Rail Joint / Expansion Section (VA486/VA488)
			

Uncontrolled When Printed

Note:
The Mean Temperatures are for General Guidance Only. They May Need to be Ammended to Suit the Design of the Bridge Structure and the Location.

Expansion Gap Set at Mean Temp as Below:
Australia: 21°C
Middle East: 30°C
US: State Specific

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Refahi	4/02/2026
CHK'D	T. Colquhoun	6/02/2026
APPV'D	H. Wallace	6/02/2026

SafeDirection CRASH BARRIER SOLUTIONS

ABN: 53 156 459 684

UNLESS OTHERWISE SPECIFIED:
GENERAL TOLERANCES: ±0.5mm
ALL DIMENSIONS ARE IN: mm

THIRD ANGLE PROJECTION

STATUS: APPROVED

PROJECT:	
TITLE:	VGAN 400 Bridge Railing System
CONFIGURATION:	
DWG TYPE:	
DWG NO.	SD-RB-03009
REVISION:	A
SHEET SIZE	A3
WEIGHT: kg	DO NOT SCALE DRAWING
SCALE: 2:3	SHEET 2 of 3

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Tested to MASH TL4
VGAN 400 Aluminium Bridge Railing

Performance Under Impact:

a) Containment Level: TL4
b) Normalised Working Width: 1161mm (45.7 inches)
c) Normalised Dynamic Deflection: 502mm (19.8 inches)

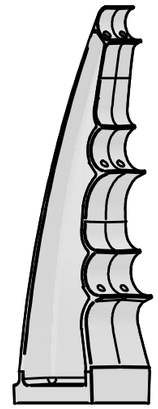
Durability: Aluminium Alloy 6082 T6 In Accordance With EN.755-2

Resistance to snow removal: NPD

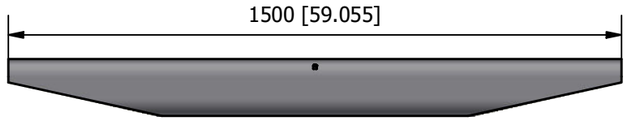
Dangerous Substance: NPD

Quantity of Parts Per 100m - Weight Per Meter 29 Kgs (63.9 lbs)		
QTY	ITEM No.	ITEM NAME
51	VA417	VGAN 300/400 Post Casting Aluminium
305	VA428	VGAN 300/400 Rail Connection Nut
28	VA486	VGAN 400 Main Rail Joint (VGAN400/AD-09) (Type 1 and 2)
14	VA489	VGAN 400 Top Pedestrian Rail Joint (VGAN400/AD-11) (Type 1 and 2)
28	VE072-7290	VGAN 300/400 Main Rail 7290lg (110931)
14	VE075-7290	VGAN 300/400 Pedestrian Rail 7290lg (110934)
204	VFX012	M16 x 45 Hex Setpin (VG001086)
102	VFX099	M16 x 35 Hex Setpin
305	VFX164	M16 Flat Washer Form 'C' (Ø34 O/D x 3mm Thick) (VG001166)
305	VFX166	M16 Flat Nylon Washer (VG000840)
305	VFX230	M16 Spring Washer Type 'B' Stainless Steel (VG000771)
42	VFX452	M8x20 Coiled Spring Pin

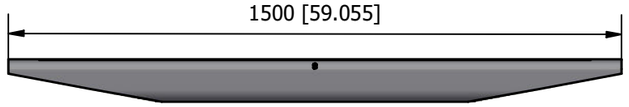
Note: No End Rails Accounted For



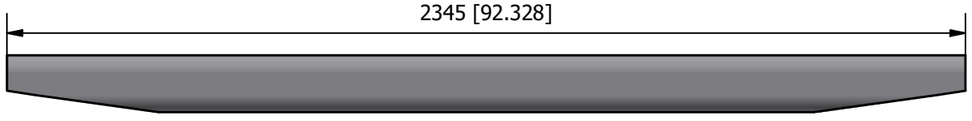
VA417
VGAN 300/400 Post
Casting Aluminium A444.2-T4
Shot Blasted 20.0 Kgs [44.09 lbs]



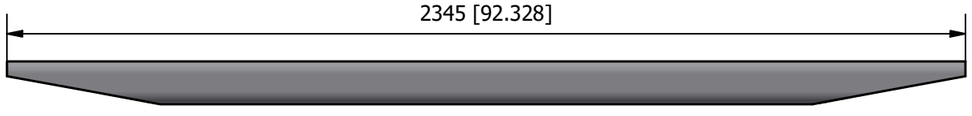
VA486 - *VGAN 400 Main Rail Joint (VGAN400/AD-09) (Type 1 and 2) 8.38 Kgs [18.48 lbs]*



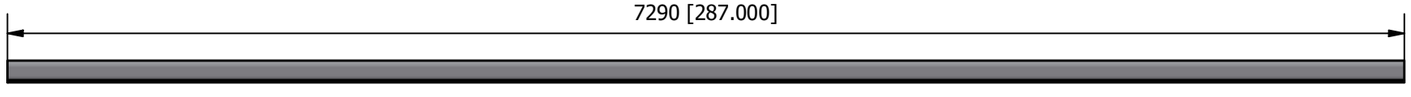
VA489- *VGAN 400 Top Pedestrian Rail Joint (VGAN400/AD-11) (Type 1 and 2) 5.07 Kgs [11.18 lbs]*



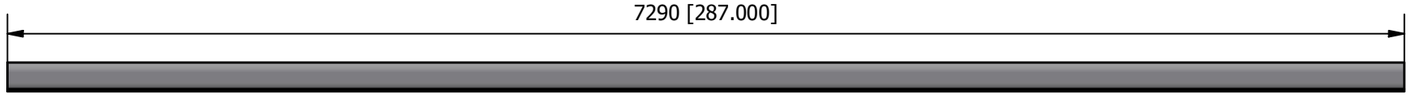
VA488- *VGAN 400 Main Rail Joint (Type 3) 14.38 Kgs [31.70 lbs]*



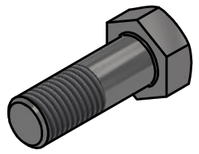
VA491 - *VGAN 400 Top Pedestrian Rail Joint (Type 3) 8.45 Kgs [18.63 lbs]*



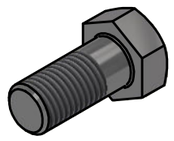
VE075-7290 - *VGAN 300/400 Pedestrian Rail 7290lg (110934) 22.12 Kgs [48.77lbs]*



VE072-7290 - *VGAN 300/400 Main Rail 7290lg (110931) 45.47 Kgs [100.24 lbs]*



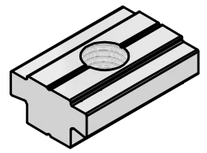
VFX012
M16x45 Hex Setpin
(VG001086)
0.06 Kgs [0.13 lbs]
(Torque 40Nm)



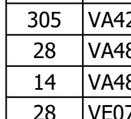
VFX099
M16x35 Hex Setpin
0.05 Kgs [0.11 lbs]
(Torque 40Nm)

VFX063
M8 x 30 Hex Setpin
(VG001128)
0.001 Kgs [0.002 lbs]
(Hand Tighten)

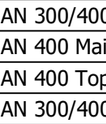
VFX452
M8 x 20mm
Long Coiled Spring Pin
0.002 Kgs [0.004 lbs]



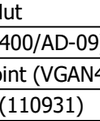
VA428
VGAN 300/400
Rail Connection Nut
(VGAN300/CD-01)
0.41 Kgs [0.90 lbs]



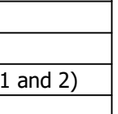
VFX166
M16 Flat Nylon
Washer
(VG000840)
0.01 Kgs [0.02 lbs]



VFX164
M16 Flat Washer Form 'C'
(34 O/D x 3.0mm Thick)
(VG001166)
0.01 Kgs [0.02 lbs]



VFX230
M16 Spring Washer Type 'B'
Stainless Steel
(VG000771)
0.01 Kgs [0.02 lbs]



VFX060
M8 Flat Washer Form 'A'
17 O/D x 1.6
(VG001189)
0.002 Kgs [0.004 lbs]

VFX061
M8 Spring Washer
Type 'B'
(VG001192)
0.002 Kgs [0.004 lbs]

VFX122
M8 Flat Nylon Washer
(VG000854)
0.001 Kgs [0.002 lbs]

Uncontrolled When Printed

MATERIAL:		
FINISH:		
STATUS	NAME	DATE
DRAWN	W. Refahi	4/02/2026
CHK'D	T. Colquhoun	6/02/2026
APPV'D	H. Wallace	6/02/2026

SafeDirection CRASH BARRIER SOLUTIONS

UNLESS OTHERWISE SPECIFIED:
GENERAL TOLARANCES: ±0.5mm
ALL DIMENSIONS ARE IN: mm
THIRD ANGLE PROJECTION

STATUS: APPROVED

PROJECT:
TITLE: VGAN 400 Bridge Railing System
CONFIGURATION:
DWG TYPE:
DWG NO. SD-RB-03009
REVISION: A
SHEET SIZE: A3
WEIGHT: kg
DO NOT SCALE DRAWING
SCALE: 2:3
SHEET 3 of 3

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