



EURO-ET™

END TERMINAL

PRODUCT DESCRIPTION ASSEMBLY MANUAL

PN 619489

REVISION D FEBRUARY 2023

EURO-ET™

Product Description Assembly Manual



15601 Dallas Parkway
Suite 525
Addison, Texas 75001



Important: These instructions are to be used only in conjunction with the assembly, maintenance, and repair of the EURO-ET™ End Terminal system. These instructions are for standard assemblies specified by the appropriate highway authority only. In the event the specified system assembly, maintenance, or repair would require a deviation from standard assembly parameters, contact the appropriate highway authority engineer. This system has been tested to the European Standard ENV 1317-4 for use on the roadway systems under strict criteria utilized by that agency. **Valtir, LLC** representatives are available for consultation if required.

This Manual must be available to workers overseeing and/or assembling the product at all times. For additional copies, contact Valtir directly +1 214 589 8140.

The instructions contained in this Manual supersede all previous information and manuals. All information, illustrations, and specifications in this Manual are based on the latest EURO-ET™ system information available to Valtir at the time of printing. We reserve the right to make changes at any time. Please contact Valtir to confirm that you are referring to the most current instructions.

Table of Contents

Customer Service Contacts	3
Important Introductory Notes	3
Safety Rules for Assembly	4
Safety Symbols	5
Warnings and Cautions	5
Limitations and Warnings	6
Know Your EURO-ET™	7
Inspect Shipment	7
How EURO-ET™ Works	7
Where to Use EURO-ET™	7
Why Specify EURO-ET™	7
System Components	8
Assembling the EURO-ET™	11
Materials	11
Recommended Tools	11
Site Preparation	12
Hinged Breakaway (HBA®) Posts	12
Deploying HBA® Bottom Posts	12
Attaching HBA® Top Posts	13
Attaching the Angle Strut	15
Deploying C120 Posts	15
Attaching U-Brackets and Rail Panels	16
Cable Anchor Assembly	17
Attaching Guardrail Extruder Head	19
Attaching Tether Cable	20
Assembly Checklist	21
Maintenance and Repair	22
Recommended Equipment for Repair Operation	22
Maintenance	22
Repair	22
EURO-ET™ Drawing	23

Customer Service Contacts

Valtir is committed to the highest level of customer service. Feedback regarding the EURO-ET™, its assembly procedures, supporting documentation, and performance is always welcome. Additional information can be obtained from the contact information below:

Valtir:

Telephone:	(888) 356-2363 (USA) +1 214 589-8140 (International)
Fax:	(800) 770-6755 (USA) +1 214 589-8423 (International)
Website:	www.Valtir.com

Important Introductory Notes

Proper assembly of the EURO-ET™ is critical to achieve tested performance that has been tested and evaluated per ENV 1317-4. These instructions should be read in their entirety and understood before assembling the EURO-ET™. Assembly of this system should only be performed by an experienced worker familiar with highway products who has both the ability and experience to read and understand these instructions. These instructions are to be used only in conjunction with the assembly of the EURO-ET™ and are for standard assemblies only as specified by the appropriate highway authority. If you need additional information, or have questions about the EURO-ET™, please contact the highway authority that has planned and specified this assembly and, if needed, contact Valtir Customer Service Department. This product must be assembled in the location specified by the appropriate highway authority just as it was tested and/or approved. If there are deviations, alterations, or departures from the assembly protocol specified in this Manual, the device may not perform as it was tested and accepted. These instructions are intended for an individual who is qualified to both read and accurately interpret them as written. They are intended for the individual who is experienced and skilled in the assembly of highway products which are specified and selected by the highway authority.

This Manual is intended to provide guidance for new assemblies of the EURO-ET™. **It is critical that the EURO-ET™ posts are placed in suitable ground/soil/foundations that will allow the system to fully perform in accordance with the design specification. Should you have any questions about this, please contact the appropriate highway authority that specified the EURO-ET™ at this particular location for guidance. Valtir is available for consultation with that authority.**

This product has been specified for use by the appropriate highway authority and has been provided to that user who has unique knowledge of how this system is to be assembled. No person should be permitted to assist in the assembly, maintenance, or repair of this system that does not possess the unique knowledge described above.



Important: Read safety instructions thoroughly and follow the suggested safe practices before assembling, maintaining, or repairing the EURO-ET™. Failure to Follow this warning can result in serious injury or death to the worker and/or bystanders. Please have these instructions available for use and reference by anyone involved in the assembly of the product.



Warning: Ensure that all Danger, Warning, Caution, and Important statements Within the EURO-ET™ Manual are followed completely. Failure to follow this warning could result in serious injury or death in the event of a collision.

Safety Rules for Assembly

*** Important Safety Instructions ***

This Manual must be kept in a location where it is readily available to persons who assemble, maintain, or repair the EURO-ET™. Additional copies of this Manual are available from Valtir by calling +1 214 589 8140 or by visiting Valtir.com. Please contact Valtir if you have any questions concerning the information in this Manual or about the EURO-ET™.

Always use appropriate safety precautions when operating power equipment and when moving heavy equipment or the EUR -ET™ components. Work gloves, safety goggles, safety-toe shoes, and back protection should be used.

Safety Symbols

This section describes safety symbols that may appear in the EURO-ET™ Manual. Read the Manual for complete safety and assembly information.

Symbol Meaning



Safety Alert Symbol: Indicates Danger, Important, Warning, or Caution. Failure to read and follow the Danger, Warning, Important, or Caution indicators could result in serious injury or death to the workers and/or bystanders.

Warnings and Cautions

Read all instructions before assembling, maintaining, or repairing the EURO-ET™.



Danger: Failure to comply with these warnings could result in increased risk of serious injury or death as a result of a vehicle impact with a system **that is no longer compliant with ENV 1317.**



Warning: Do not assemble, maintain, or repair the EURO-ET™ until you have read this Manual thoroughly and completely understand it. Ensure that all Danger, Warning, Caution, and Important statements within the Manual are completely followed. Please call Valtir at +1 214 589 8140 if you do not understand these instructions.



Warning: Ensure that the specifications, EURO-ET™ and delineation used meet all local



Warning: Do NOT modify the EURO-ET™ in any way.



Warning: Ensure that your assembly meets all appropriate local specifications and standards. If you have any questions during the assembly of a EURO-ET™ at a particular system assembly site, contact the specifying highway authority immediately.



Important: Valtir makes no recommendation whether use or reuse of any part of the system is appropriate or acceptable following an impact. It is the sole responsibility of the local highway authority and its engineers to make that determination. It is critical that you inspect this product after assembly is complete to make certain that the instructions provided in this Manual have been strictly followed.

Limitations and Warnings

The EURO-ET™ was tested to meet the requirements and guidelines of the P4 performance class using the CEN criteria described in European Standard ENV 1317-4 (Terminals and Transitions).

The required tests are not intended to represent the performance of products when impacted by every vehicle type or every impact condition.

Valtir expressly disclaims any warranty or liability for injury or damage to persons or property resulting from any impact, collision or harmful contact with the EURO-ET™, other vehicles, or nearby hazards or objects by any vehicle, object or person, whether or not the products were assembled in consultation with Valtir or by third parties. Impacts that exceed the tested specifications of the product may not result in acceptable crash performance as outlined in ENV 1317-4.

The highway authority engineer, or other specifying authority, should be careful to properly select, assemble, and maintain the EURO-ET™. Careful evaluation of the site geometry, vehicle population type, speed, traffic direction, and visibility are some of the elements that require evaluation in the proper selection of a safety appurtenance. For example, curbs could cause conditions which differ from those described in ENV 1317-4 and may result in different performance results than those encountered in applicable crash testing.

Know Your EURO-ET™

For specific assembly, maintenance, or repair details; refer to the specifying agency's standard drawing(s) and/or Valtir standard layout drawings. A reference system drawing can be found on page 23 of this Manual.

Inspect Shipment

Carefully uncrate all components. Before assembling the EURO-ET™, check the received parts against the shipping list supplied with the system. Refer to the System Components section on pages 8-10 of this Manual for help in identifying each component. Verify that all parts received.

How EURO-ET™ Works

When the EURO-ET™ is impacted end-on within ENV 1317-4 testing criteria, an impacting vehicle has been shown to force the Extruder Head along the guardrail, bending the steel posts while flattening and curving the guardrail away from the traffic as it brings the vehicle to a controlled stop. The EURO-ET™ has also been shown to be a redirecting and gating terminal when it is impacted according to those specific criteria.

Where to Use EURO-ET™

When minimal right-of-way or limited shoulder exists, or if limited budgets do not cover the cost of added earth work requirements for flared terminals, EURO-ET™ is a choice for ENV 1317-4 guardrail end treatments.

Why Specify EURO-ET™

Potentially reusable Guardrail Extruder Head and HBA Posts of the EURO-ET™ may reduce repair cost if hit, which allows reduced parts inventories. Other system features make EURO-ET™ easy to assemble and repair.



Warning: Use only Valtir parts that are specified herein for the EURO-ET™ for assembling, maintaining, or repairing the EURO-ET™. **Do not utilize or otherwise comingle parts from other systems even if those systems are other Valtir systems.** Such configurations have not been tested, nor have they been accepted for use. Assembly, maintenance, or repairs using unspecified parts or accessories is strictly prohibited.

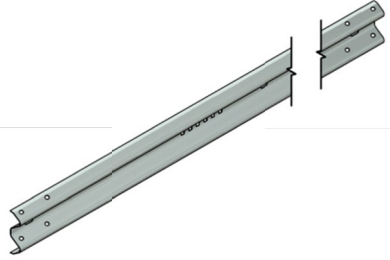
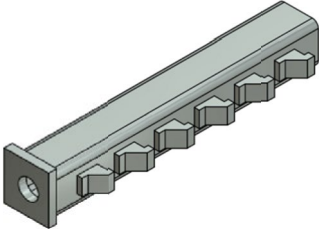
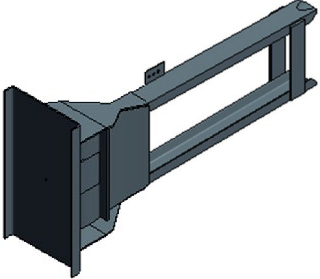
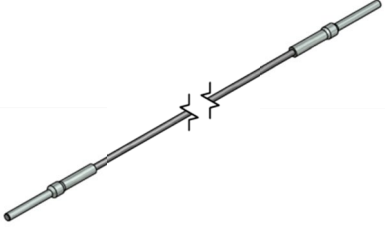

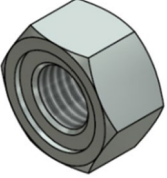

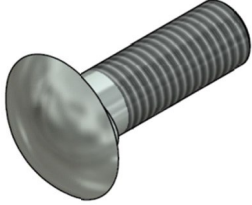



Warning: Safety measures incorporating appropriate traffic control devices specified by the appropriate highway authority must be used to protect all personnel while at the assembly, maintenance, or repair site.

System Components

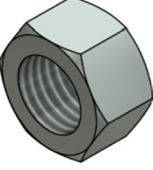
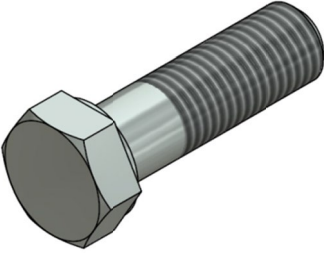
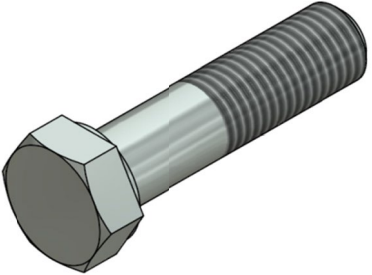
Below is the list of required system components and quantities.

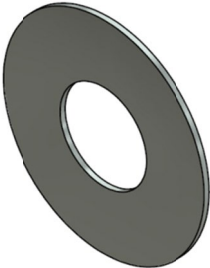
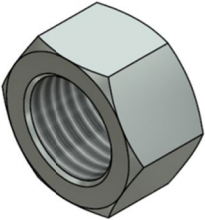

Note: Components are not shown to scale.



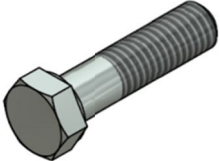
<p>4 m Anchor Guardrail</p> 	<p>Cable Anchor Bracket</p> 	<p>Guardrail Extruder Head</p> 			
29G	x1	704A	x1	995A	x1
<p>Cable Assembly 19 mm x 1980 mm</p> 	<p>16 mm Flat Washer</p> 	<p>16 mm Rail Nut</p> 			
3000G	x1	3300G	x5	3340G	x29
<p>16 mm x 32 mm Guardrail Splice Bolt</p> 	<p>16 mm x 50 mm Guardrail Post Bolt</p> 	<p>19 mm Flat Washer</p> 			
3360G	x24	3400G	x5	3701G	x7





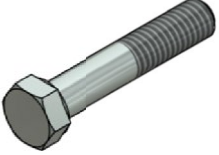
Important: DO NOT use any component part that has not been specifically crash tested and/or approved for this system during the assembly or repair of this system.


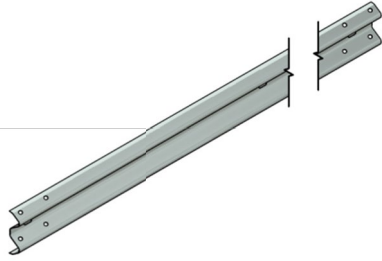
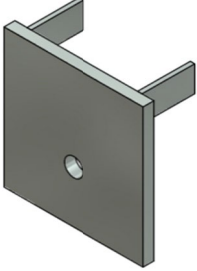
19 mm Hex Nut			19 mm x 64 mm Hex Bolt			19 mm x 76 mm Hex Bolt		
								
3704G	x4		3717G	x3		3718G	x1	



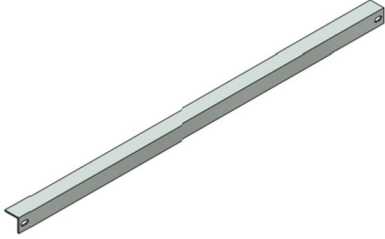
25 mm Flat Washer			25 mm Hex Nut			10 mm Flat Washer		
								
3900G	x2		3910G	x2		4254G	x8	

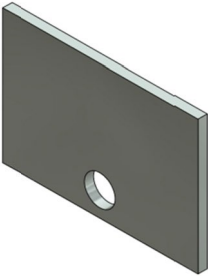
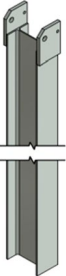
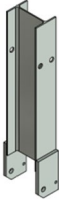
10 mm Fender Washer			10 mm Lock Washer			10 mm x 38 mm Hex Bolt, G5		
								
4255G	x2		4258G	x8		4261G	x4	

Tether Cable			Thimble			Cable Clip		
								
105389G	x1		105038G	x2		3371G	x4	

19 mm Lock Washer		C120 Post 2000 mm		10 mm x 51 mm Hex Bolt, G5	
					
4699G	x4	6183G	x4	6321G	x4

10 mm Hex Nut		4 m Standard Guardrail		Bearing Plate 203 mm x 203 mm x 16 mm	
					
6405G	x8	10629G	x2	19258A	x1

U-Bracket		HBA Top Post 1		Angle Strut 2062 mm	
					
33461G	x4	33462A	x1	33463G	x1

Flange Plate 5 mm x 70 mm x 100 mm		HBA Bottom Post		HBA Top Post 2	
					
33464G	x2	33873A	x2	33877A	x1

Assembling the EURO-ET™

Materials

As packaged, your EURO-ET™ system includes all materials needed for a complete assembly. This will include a 12.0 meter pay length. Note that concrete footings or foundations are not required.

Recommended Tools

Documentation

- Manufacturer's Assembly Manual
- Manufacturer's Drawing Package

Wrenches

- 38 mm Socket or Wrench
- 32 mm Socket or Wrench
- 24 mm Socket or Wrench
- 14 mm Socket or Wrench

Personal Protective Equipment

- Safety Glasses
- Work Gloves
- Safety-Toe Shoes
- Back Protection
- Reflective Vest

Miscellaneous

- Traffic Control Equipment
- Chalk Line
- Tape Measure
- Marking Paint
- Straight Edge
- Level
- Plumb Line
- Augers
- Soil Tamper
- Post Pounder (commonly used for driving posts)
- 16 mm Alignment Tool (Drift Pin)
- Vise Grip Pliers or Channel Locks



Warning: EURO-ET™ fasteners use imperial units and metric equivalents are approximations. Metric tools may not be sufficient for assembly.

Note: The above list of tools is a general recommendation. Depending on specific site conditions and the complexity of the assembly specified by the appropriate highway authority, additional or fewer tools may be required. Decisions as to what tools are needed to perform the job are entirely within the discretion of the specifying highway authority, and the authority's selected contractor performing the assembly of the system at the authority's specified site.

Site Preparation

The EURO-ET™ can be connected to guardrail that is assembled tangentially in-line with edge of the shoulder. Minor site grading may be necessary for the assemblies beyond the edge of the shoulder to prevent the HBA® Bottom Posts (PN 33873A) from extending more than 100 mm above the ground.



Warning: Ensure that there is proper site grading for EURO-ET™ placement as dictated by the specifying agency. Failure to follow this warning could result in serious injury or death in the event of a collision.

Hinged Breakaway (HBA®) Posts

Deploying HBA® Bottom Posts

Option (1) Drive the HBA® Bottom Posts (PN 33873A) with an approved driving head to the appropriate depth(s), approximately 1825 mm. Ensure that the posts are positioned so that the larger holes in the post plates (ears) are on the downstream side (see Figures 1 and 2).

Option (2) To facilitate assembly in extremely hard soil, drill a 300 mm pilot hole approximately 1825 mm deep and force the HBA Bottom Post (PN 33873A) to the appropriate depth by impact or vibratory means with an head. approved driving

Note: If option (2) is used, material should be placed in 150 mm lifts and compacted with pneumatic equipment to optimum compaction.

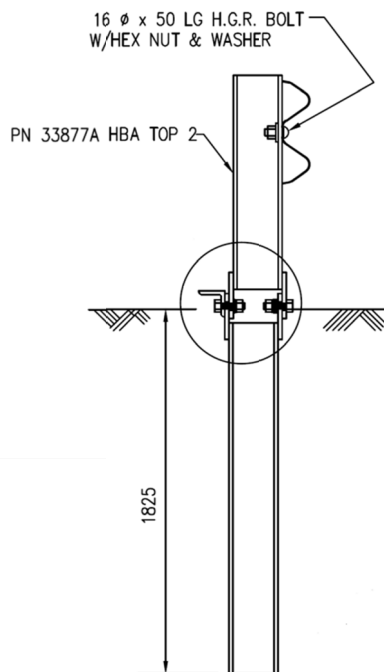


Figure 1

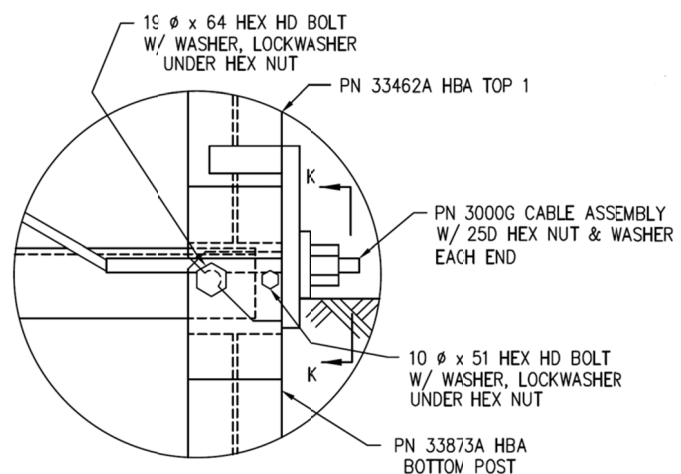


Figure 2

Attaching HBA® Top Posts

Once the HBA® Bottom Posts (PN 33873A) are placed, the HBA® Top Posts can now be attached.

Post 1

1. At Post No. 1, attach the HBA® Top Post 1 (PN 33462A) by aligning the holes of the post plates (ears) on the Top and Bottom Posts.

Note: The HBA® Top Post Plates (Ears) can be placed on either side of the HBA® Bottom Post Plates (Ears).

2. Insert a 10 mm diameter x 51 mm hex head bolt (PN 6321G) through the 11 mm holes of the post plates (ears) on the Top and Bottom Posts. The bolts should be positioned so the nuts are on the inside of the post plates (ears) (see Figures 4 and 5).
3. Place a 10 mm flat washer (PN 4254G), and 10 mm lock washer (PN 4258G) under the 10 mm hex nut (PN 6405G) (see Figures 4 and 5).
4. Insert a 19 mm diameter x 64 mm hex head bolt (PN 3717G) through the 21 mm hole (on the traffic side) of the post plates (ears) on the Top and Bottom Posts. The bolts should be positioned so the nuts are on the inside of the post plates (ears) (see Figures 4 and 5).
5. Place a 19 mm flat washer (PN 3701G), and 19 mm lock washer (PN 4699G) under the 19 mm hex nut (PN 3704G) (see Figures 4 and 5).

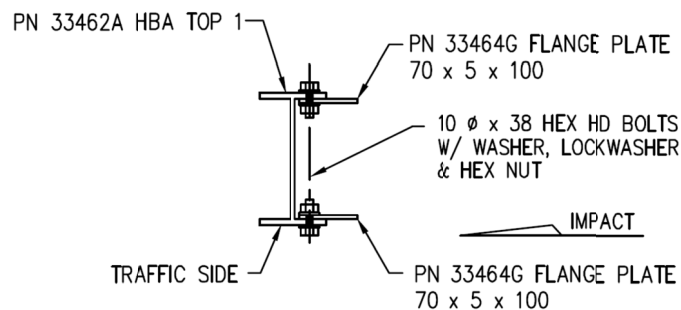


Important: Do not attach the 19 mm diameter bolt on the field side until the Angle Strut is ready to be attached.

6. Attach the Flange Plates (PN 33464G) to center holes of the HBA Top Post 1 (PN 33462A) flanges with a 10 mm diameter x 38 mm hex head bolt (PN 4261G) and 10 mm hex nut (PN 6405G) with a 10 mm flat washer (PN 4254G) under the bolt head and a 10 mm lock washer (PN 4258G) under the hex nut (PN 6405G) (see Figure 3).



Important: There is no torque requirement for these bolts. They should be tightened to a snug position. Do not over tighten these bolts.



ET HEAD NOT SHOWN FOR CLARITY.

Figure 3

Post 2

1. At Post No. 2 attach the HBA Top Post 2 (PN 33877A) by aligning the holes of the post plates (ears) on the Top and Bottom Posts.

Note: The HBA Top Post Plates (Ears) can be placed Bottom Post Plates (Ears). on either side of the HBA

2. Insert a 10 mm diameter x 51 mm hex head bolt (PN 6321G) through the 11 mm holes of the post plates (ears) on the Top and Bottom Posts. The bolts should be positioned so the nuts are on the inside of the post plates (ears) (see Figures 4 and 5).
3. Place a 10 mm flat washer (PN 4254G), and 10 mm lock washer (PN 4258G) under the 10 mm hex nut (PN 6405G) (see Figures 4 and 5).
4. Insert a 19 mm diameter x 64 mm hex head bolt (PN 3717G) through the 21 mm hole (on the traffic side) of the post plates (ears) on the Top and Bottom Posts. The bolts should be positioned so the nuts are on the inside of the post plates (ears) (see Figures 4 and 5).
5. Place a 19 mm flat washer (PN 3701G), and 19 mm lock washer (PN 4699G) under the 19 mm hex nut (PN 3704G) (see Figures 4 and 5).



Important: There is no torque requirement for these bolts. They should be tightened to a snug position. Do not over tighten these bolts



Important: Do not attach the 19 mm diameter bolt on the field side until the Angle Strut is ready to be attached.

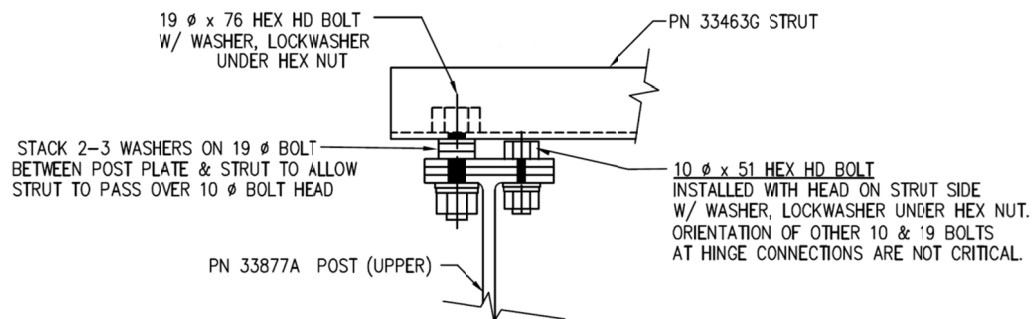


Figure 4

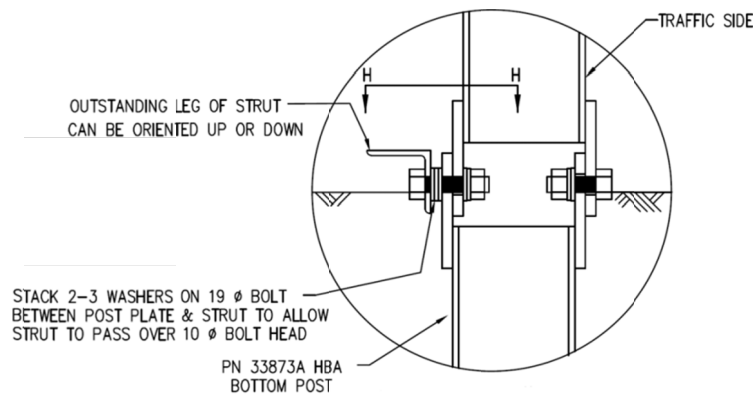


Figure 5

Attaching the Angle Strut

1. Place the Angle Strut (PN 33463G) on the outside flanges of the HBA Bottom Posts (PN 33873A) at the base of Posts 1 and 2.
2. At Post No. 1, insert a 19 mm diameter x 64 mm hex head bolt (PN 3717G) through the Angle Strut (PN 33463G) and into the 21 mm hole (on the field side) of the post plates (ears) on the Top and Bottom Posts. The bolts should be positioned so the nuts are on the inside of the post plates (ears) (see Figures 4 and 5).
3. Place a 19 mm flat washer (PN 3701G), and 19 mm lock washer (PN 4699G) between the 19 mm hex nut (PN 3704G) and the post plates (ears) on the Top and Bottom Posts (see Figures 4 and 5)
4. At Post No. 2, insert a 19 mm diameter x 76 mm hex head bolt (PN 3718G) through the Angle Strut (PN 33463G).
5. Place three (3) 19 mm flat washers (PN 3701G) between the Angle Strut (PN 33463G) and the 21 mm hole (on the field side) of the post plates (ears) on the Top and Bottom Posts at Post No. 2 (see Figures 4 and 5).
6. Next insert the 19 mm diameter x 76 mm hex head bolt (PN 3718G) through the 21 mm hole (on the field side) of the post plates (ears) on the Top and Bottom Posts. The bolts should be positioned so the nuts are on the inside of the post plates (ears) (see Figures 4 and 5).
7. Place a 19 mm flat washer (PN 3701G) and 19 mm lock washer (PN 4699G) between the 19 mm hex nut (PN 3704G) and the post plates (ears) on the Top and Bottom Posts (see Figures 4 and 5)



Important: There is no torque requirement for these bolts. They should be tightened to a snug position. Do not over tighten these bolts.

Deploying C120 Posts

On a tangent line with HBA Pos #1 and #2, designate C120 Posts #3, #4, #5, and #6 assembly locations in increments of 2000 mm.

Option (1) Drive the C120 Posts (PN 6183G) with an approved driving head to the appropriate depth(s), approximately 1300 mm (see Figure 6).

Option (2) To facilitate placing Posts in extremely hard soil, drill a 130 mm pilot hole approximately 1300 mm deep and force the C120 Post (PN 6183G) to the appropriate depth by impact or vibratory means with an approved driving head.

If option (2) is used, material should be placed in 150 mm lifts and compacted with pneumatic equipment to optimum compaction.

Attaching U-Brackets and Rail Panels



Caution: Do not bolt the Rail Panels to Posts 1, 3, 5, and 7.

1. At Post location 7, splice a 4 m Standard Guardrail (PN 10629G) to the standard run of Guardrail with hardware supplied by the guardrail provider.



Important: Do not bolt the Rail Panels to the Post and/or bracket at Post 7.

2. At Post location 6, fasten the Standard Guardrail (PN 10629G) and U-Bracket (PN 33461G) to the 2000 mm C120 Post (PN 6183G) using a 16 mm x 50 mm Guardrail Post Bolt (PN 3400G), a rail hex nut (PN 3340G), and a flat washer (PN 3300G) (see Figure 6). The flat washer is positioned between the post and the nut.

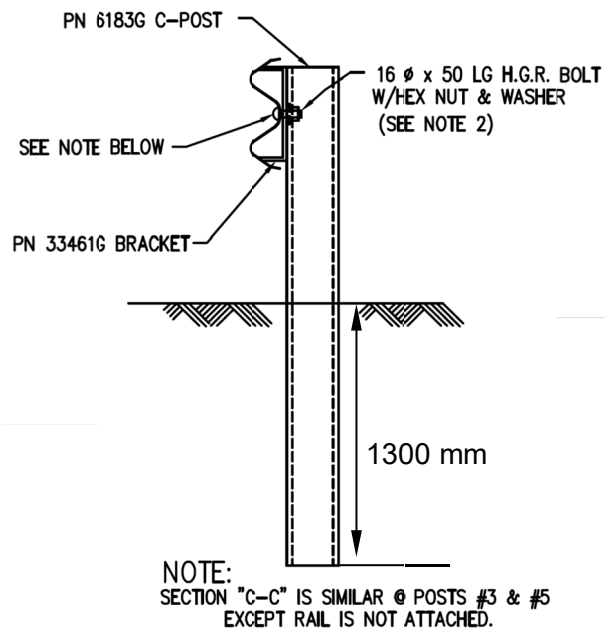


Figure 6

3. At Post location 5, splice a 4 m Standard Guardrail (PN 10629G) to the 4 m Standard Guardrail (PN 10629G) attached in Step 1 (above) using eight (8) 16 mm x 32 mm Guardrail Splice Bolts (PN 3360G) and rail nuts (PN 3340G).

Fasten a U-Bracket (PN 33461G) to the 2000 mm C120 Post (PN 6183G) using a 16 mm x 50 mm Guardrail Post Bolt (PN 3400G), a rail nut (PN 3340G), and a flat washer (PN 3300G). The washer is positioned between the Post and the nut (see Figure 6).



Important: Do not bolt the Rail Panels to Post 5.

4. At Post location 4, fasten the Standard Guardrail (PN 10629G) and U-Bracket (PN 33461G) to the 2000 mm C120 Post (PN 6183G) using a 16 mm x 50 mm Guardrail Post Bolt (PN 3400G), a rail nut (PN 3340G), and a flat washer (PN 3300G) (see Figure 6). The washer is positioned between the post and the nut.
5. At Post location 3, splice the 4 m Anchor Guardrail (PN 29G) to the 4 m Standard Guardrail (PN 10629G) attached in Step 3 (above) using eight (8) 16 mm x 32 mm Guardrail Splice Bolts (PN 3360G) and rail nuts (PN 3340G).

Fasten a U-Bracket (PN 33461G) to the 2000 mm C120 Post (PN 6183G) using a 16 mm x50 mm Guardrail Post Bolt (PN 3400G), a rail nut (PN 3340G), and a flat washer (PN 3300G). The washer is positioned between the Post and the nut (see Figure 6)



Important: Do not bolt the Rail Panels to Post 3.

6. At Post location 2, fasten the 4 m Anchor Guardrail (PN 29G) to the HBA Top Post 2 (PN 33877A) using a 16 mm x 50 mm Guardrail Post Bolt (PN 3400G), a rail nut (PN 3340G), and a flat washer (PN 3300G) (see Figure 1). The washer is positioned between the post and the nut.
7. At Post Location 1, the 4 m Anchor Guardrail (PN 29G) must **not** be attached to the HBA Top Post 1 (PN 33462A).



Important: Do not bolt the Rail Panel to Post 1.

Cable Anchor Assembly

The Cable Anchor Bracket (PN 704A) is secured to the 4 m Anchor Guardrail (PN 29G) by inserting the protruding hooks on the Cable Anchor Bracket (PN 704A) into the square slots in the Anchor Guardrail (PN 29G). The Cable Anchor Bracket (PN 704A) is locked into place by pulling the bracket towards the front end of the system.

1. Slide one end of the Cable Assembly (PN 3000G) into the Cable Anchor Bracket (PN 704A) and the other end through the space between the HBA Top Post 1 (PN 33462A) and HBA Bottom Post 1 (PN 33873A) (see Figure 7).
2. Place a 25 mm flat washer (PN 3900G) and a 25 mm hex nut (PN 3910G) on the end of the Cable Assembly (PN 3000G) that extends through the Cable Anchor Bracket (PN 704A). Turn the nut until at least 2 threads are completely through the nut.
3. Place the Bearing Plate (PN 19258A) [125 mm dimension up and the 76 mm dimension down] in front of the HBA Top Post 1 (PN 33462A) and HBA Bottom Post 1 (PN 33873A) (see Figures 7 and 8).

Note: The tabs on the Bearing Plate (PN 19258A) rest on top of the HBA Top Post plates (ears).



Warning: Any grout, backfill, or other materials (such as concrete, asphalt, or soil) must be low enough so as not to obstruct, constrain, or otherwise engage the bearing plate. Failure to eliminate the interaction of soil or materials with the bearing plate will hinder the performance of the EURO-ET™ system and could result in serious injury or death in the event of a collision.

4. Slide the other end of the Cable Assembly (PN 3000G) through the hole in the Bearing Plate (PN 19258A) (see Figure 7).
5. Place a 25 mm flat washer (PN 3900G) and a 25 mm hex nut (PN 3910G) on the end of the Cable Assembly (PN 3000G) that extends through the Bearing Plate (PN 19258A).
6. Tighten the 25 mm hex nuts (PN 3910G) on either end of the Cable Assembly (PN 3000G). Restrain the Cable Assembly (PN 3000G) with vise grips at the end being tightened to avoid twisting the Cable Assembly (PN 3000G). Confirm that the 25 mm hex nuts (PN 3910G) are tight and the Cable Assembly (PN 3000G) is taut.

Note: The Cable is considered taut when it does not deflect more than 25 mm when pressure is applied by hand in an up or down direction.

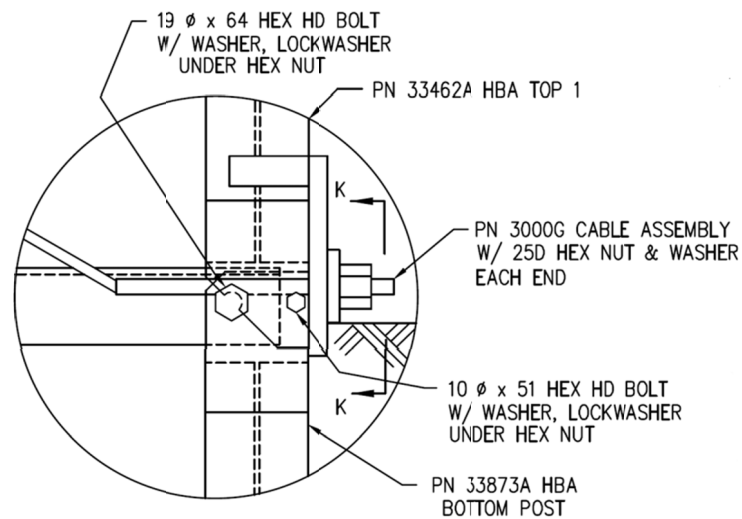


Figure 7

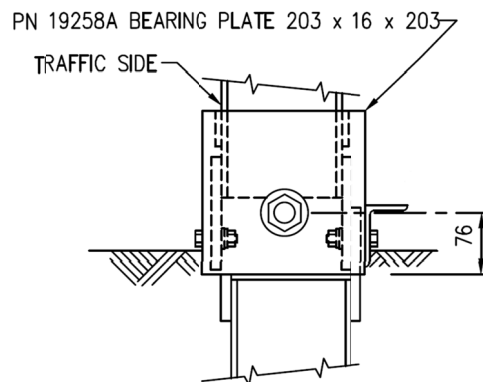


Figure 8

Attaching Guardrail Extruder Head

1. Place the Guardrail Extruder Head (PN 995A) (PN 29G). over the end of the Anchor Guardrail



Important: The Guardrail Extruder Head (PN 995A) can be used on the left- or right-hand shoulder/verge. Be sure the exit slot is on the field side, away from traffic.

2. The Guardrail Extruder Head (PN 995A) should be pushed on the Anchor Guardrail (PN 29G) as far as it will go, while making sure that the end edge of the Anchor Guardrail (PN 29G) is completely inside the Guardrail Extruder Head (PN 995A) and butting up against the beginning of the bending slot inside the Guardrail Extruder Head (PN 995A).
3. The two Attachment Brackets of the Guardrail Extruder Head (PN 995A) have 3 holes in each Bracket. Choose the hole in the Bracket that is closest to the predrilled hole in the HBA Top Post 1 (PN 33462A) while making sure that the edge of the Anchor Guardrail (PN 29G) is completely inside the Guardrail Extruder Head (PN 995A).



Important: The guide channels of the Guardrail Extruder Head (PN 995A) should be approximately parallel to the ground.

4. Secure both top and bottom Attachment Brackets of the Guardrail Extruder Head (PN 995A) to HBA Top Post 1 (PN 33462A) with a 10 mm diameter x 38 mm hex head bolt (PN 4261G) and a 10 mm flat washer (PN 4254G) under the bolt head. A 10 mm Fender Washer (PN 4255G) and 10 mm lock washer (PN 4258G) are placed between the 10 mm hex nut (PN 6405G) and the flange on the HBA Top Post 1 (PN 33462A) (see Figure 9).



Important: There is no torque requirement for these bolts. They should be tightened to a snug position. Do not over tighten these bolts.

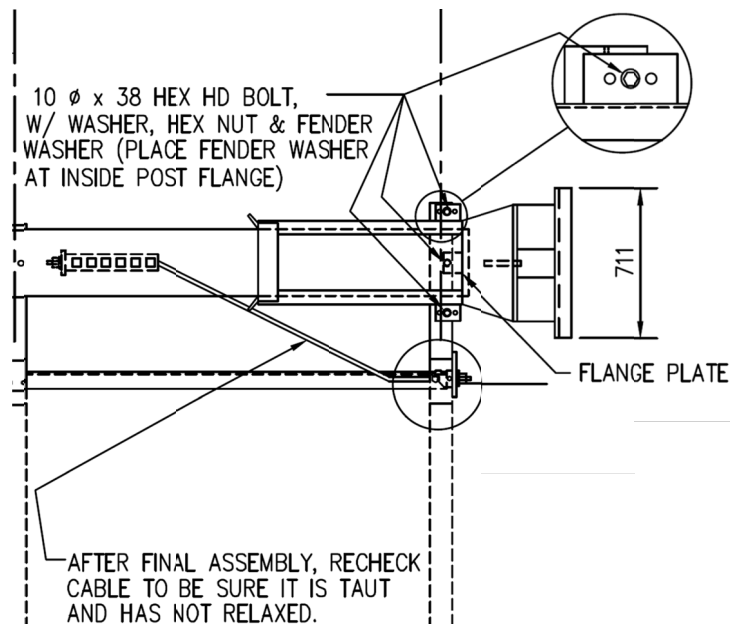


Figure 9

Attaching Tether Cable

1. Thread Thimble (PN 105038G) and Tether Cable (PN 105389G) through hole on the top of the non-traffic side of HBA® Top Post 2. Loop back 165 mm of the Tether Cable and attach two (2) Cable Clips (PN 3371G) to secure Tether Cable (see Figure 10 and 12).
2. Thread Thimble (PN 105038G) and attach Tether Cable to Cable Assembly (PN 3000G). Loop back 165 mm of Tether Cable and attach two (2) Cable Clips (PN 3371G) to secure Tether Cable (see Figure 11 and 12).

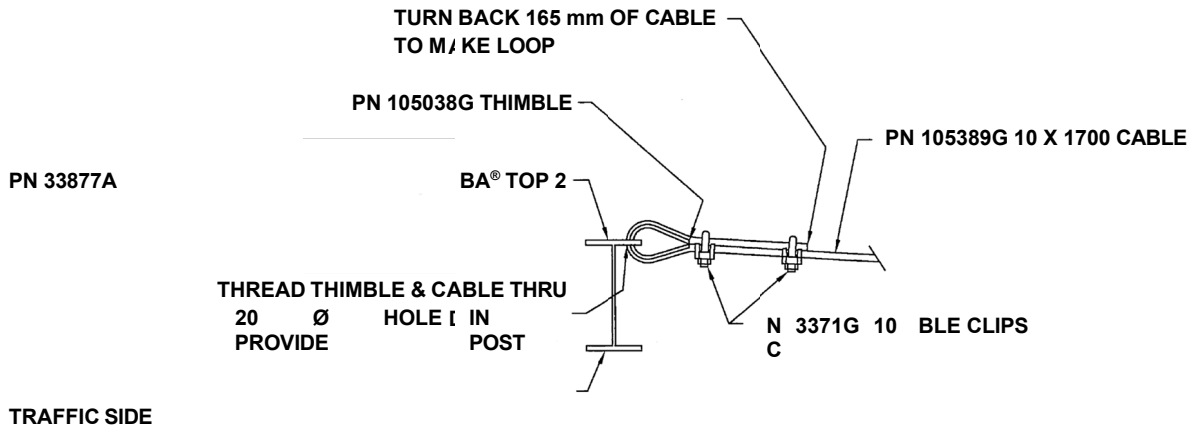


Figure 10

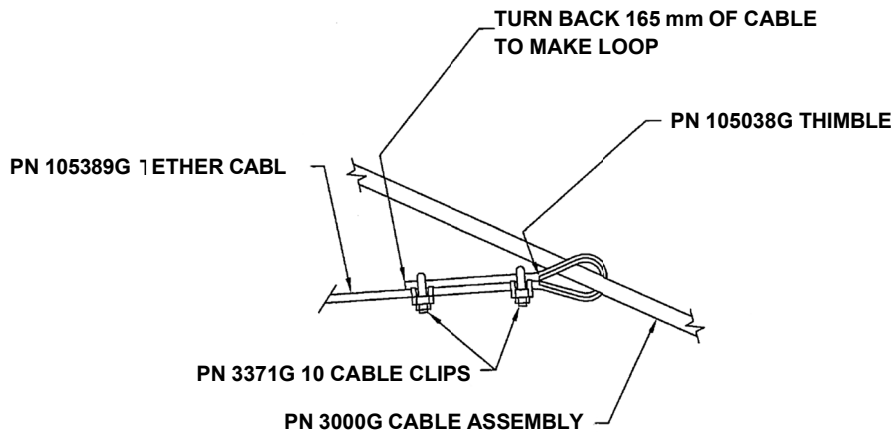


Figure 11

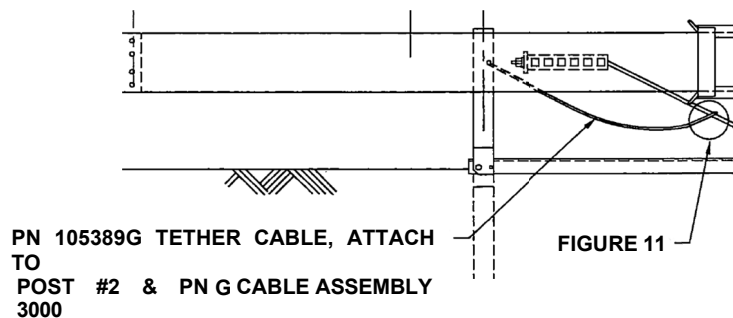


Figure 12

Assembly Checklist

COUNTRY: _____

DATE: _____

PROJECT: _____

LOCATION: _____

- The rail height is in accordance with the plans (generally 700 mm to 750 mm) above the edge of the shoulder of the ground line.
- The 19 mm hex head bolts that connect the HBA Bottom Posts to the HBA Top Posts are at ground level and HBA Bottom Posts do not protrude more than 100 mm above the ground line (measured by the AASHTO 1.5 m cord method). Site grading may be necessary to meet this requirement.
- The 19 mm hex head bolts that connect the HBA Bottom Posts to the HBA Top Posts are tightened to a snug position.
- The end of the Anchor Guardrail is fully inserted into the Guardrail Extruder Head and butted up to the beginning of the bending slot inside the Guardrail Extruder Head.
- The HBA Top Post 1 is the only post with holes for attaching the Guardrail Extruder Head and has connecting plates cut at a 45 degree angle.
- The 203 mm x 203 mm Bearing Plate at post 1 is correctly positioned, with the tabs resting on the post plates (ears) of the HBA top post, and the Cable Assembly is taut and correctly assembled (it should be rechecked after assembly to be sure it has not relaxed).
- Any grout, backfill, or other materials (such as concrete, asphalt, or soil) must be low enough so as not to obstruct, constrain, or otherwise engage the bearing plate.
- The backfill material around the posts is properly compacted.
- Each HBA Post has two bolts on either side of the post and should be oriented so that the larger bolt is downstream of the smaller bolt.
- The Anchor Guardrail and Standard Guardrails are **not** attached to the posts at post locations 1, 3, 5 and 7.
- The object marker (if required) is correctly positioned on the Guardrail Extruder Head Face.
- The Tether Cable attaches HBA® Top Post 2 to the Cable Assembly. It is secured to both points by a Thimble and two (2) Cable Clips.

SIGNATURE: _____

Maintenance and Repair

Recommended Equipment for Repair Operation

- Acetylene torch to cut off Extruded Rail
- Heavy duty chain to remove the Guardrail Extruder Head along with a chain hookup as recommended (see below)
- S.A.E. wrench or proper socket sizes
- Vise grip or channel lock pliers and sledgehammer
- Vehicle to pull the Guardrail Extruder Head off of the damaged rail

Maintenance

Maintenance consists of periodically checking the system to see that the Cable Assembly is taut, and the nuts have not been removed from the Cable Assembly.

Repair

- 1) At the accident site, remove any debris that has encroached onto the traveled way or shoulder/verge. Attach any necessary delineation for the damaged system. Take inventory of the damaged system and have a local authority engineer determine what parts are reusable and what parts need to be replaced. The Bearing Plate, nuts, washers, and Cable Anchor Bracket are rarely damaged.
- 2) All replacement parts **must** be obtained from Valtir (see p. 8 - 10).
- 3) Return to the repair site with genuine Valtir replacement parts.
- 4) Burn off the Extruded Rail near the Guardrail Extruder head. Attach a chain to the Guardrail Extruder Head. Pull the Guardrail Extruder Head off of the Rail with a chain attached to a truck frame while the other end of the Extruded Rail is still attached to the down-stream Rail and Posts that will provide an anchor.
- 5) Remove any damaged Rail that has to be replaced.
- 6) Remove any damaged C120 Posts and U-Brackets.
- 7) Remove any damaged Hinged Breakaway (HBA) Posts.
- 8) After the site has been cleared of damaged debris, the system can be reconstructed following the assembly instructions.



Warning: Use only Valtir parts that are specified herein for the EURO-ET™ for assembling, maintaining, or repairing the EURO-ET™. **Do not utilize or otherwise comingle parts from other systems even if those systems are other Valtir systems.** Such configurations have not been tested, nor have they been accepted for use. Assembly, maintenance, or repairs using unspecified parts or accessories is strictly prohibited. Failure to follow this warning could result in serious injury or death in the event of a vehicle impact with an UNACCEPTED system.

Notes:

Notes:

Notes:



USA Headquarters
+1-214-589-8140

Middle East - Africa
+65 6276 3398

Asia - Pacific - AUS - NZ
+65 6276 3398

Canada
+1-214-589-8284

Caribbean - Latin America
+1-916-644-9108

WWW.VALTIR.COM

For more complete information on Valtir products and services, visit us on the web at www.valtir.com. Materials and specifications are subject to change without notice. Please contact Valtir to confirm that you are referring to the most current instructions.