

Technical & Installation Manual

Free Standing – Rigid
Top Fix – Trapezoidal
Top Fix – Standing Seam
Top Fix – Concrete
Free Standing – Folding



Information

General and Conformity

Guard Angel is designed for use on roofing areas and raised platforms for access to areas of buildings and structures that are deemed unsafe to do so otherwise.

The Guard Angel System is not designed for use as an attachment point for fall protection PPE.

The equipment used should be stored in a safe manner and moved to the point of installation in line with the Manual Handling Regulations in the region of use.

Installation should only be carried out by a trained and competent installer with the permission of Universal Safety or their appointed representatives. Appropriate safety measures must be taken to ensure the complete safety of all installation personnel.

All tools used must be in good working order and calibrated and tested where applicable.

Testing and Conformity

Guard Angel complies with the current standards and requirements:

- BS EN 13374:2013
- BS EN 14122-3:2016
- BS 13700:2021
- BS 6399: Part 2 1995 Wind Code.

WARNING!

- This manual is invalid if any unauthorised alteration has occurred.
- Unauthorised use of this manual may lead to prosecution
- This manual was, to the best of our knowledge, correct at its date of issue.
- It is the user's responsibility to ensure that all subsequent authorised amendments are incorporated and that the manual is to the current issue status.
- A manual that is not to the latest issue status is invalid and must not be used.

Information

Pre Installation

Foreword

The nature of the following text is instructional on the installation attachment of the Guard Angel System. Selection of structural anchorages is a function of the mounting structure material, potential system forces, and the environment. As such the selection must be made by the competent Engineer in charge of the system installation. A competent engineer is defined as: -

'A person who has a recognised Structural or Civil Engineering qualifications, and who has had adequate previous installation experience.'

Such an Engineer must have attended Universal Safety training and be familiar with the Guard Angel System.

This manual does not automatically infer design approval to or for particular system configurations. This must be obtained from architectural or site authority as appropriate, before commencement of work.

Pre-requisite Installation requirements

Installation cannot take place until the following have been fully considered and completed.

Site Plan

A site plan must be drawn up to indicate the Guard Angel System configuration, to include: -

- Span lengths
- Extremities
- Entry / exit access points
- Roof surface angle
- Direction of Installation
- Obstacles.

System components

When components are required, please contact Universal Safety quoting relevant part number from the list. Guidance is provided in the component explanatory notes.

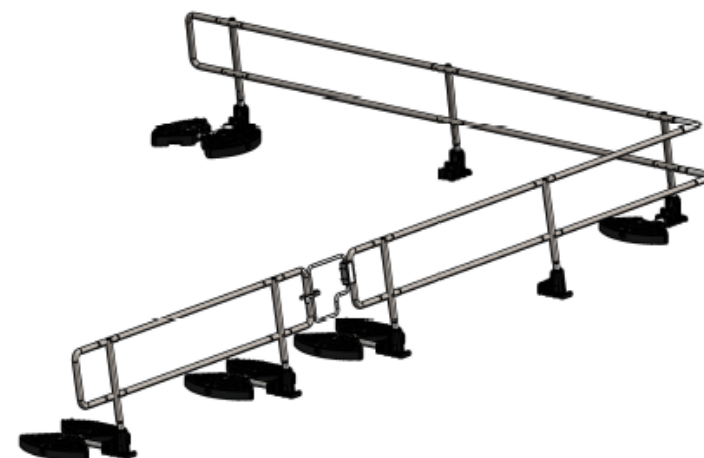
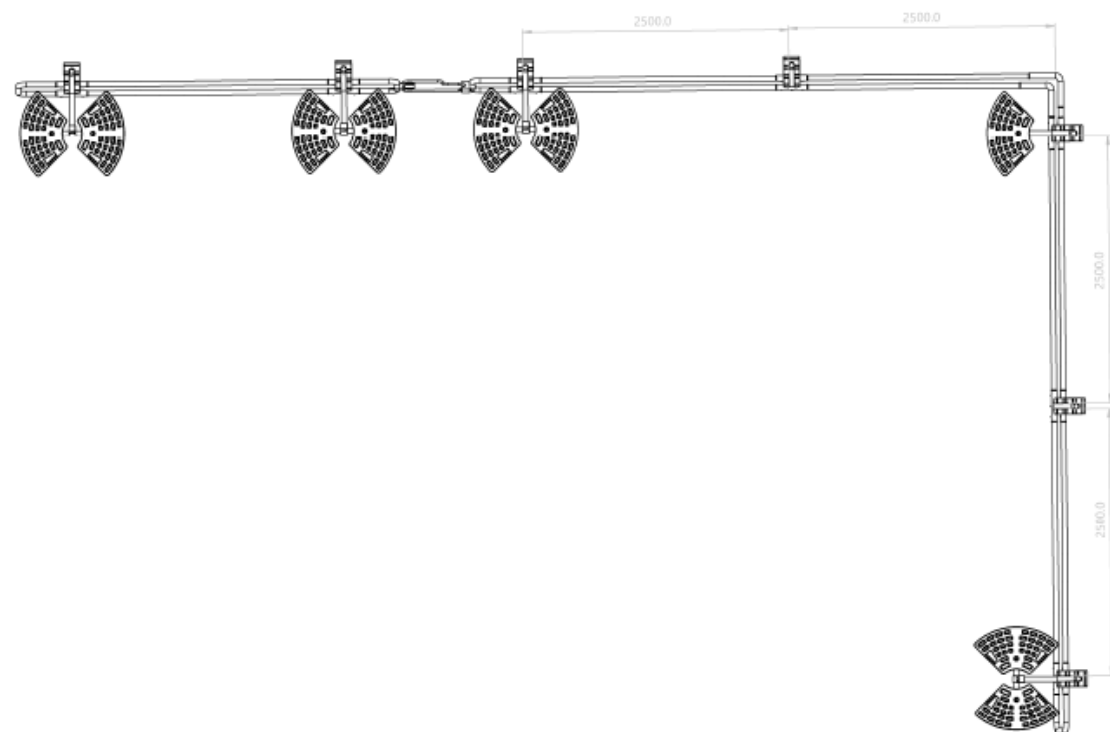
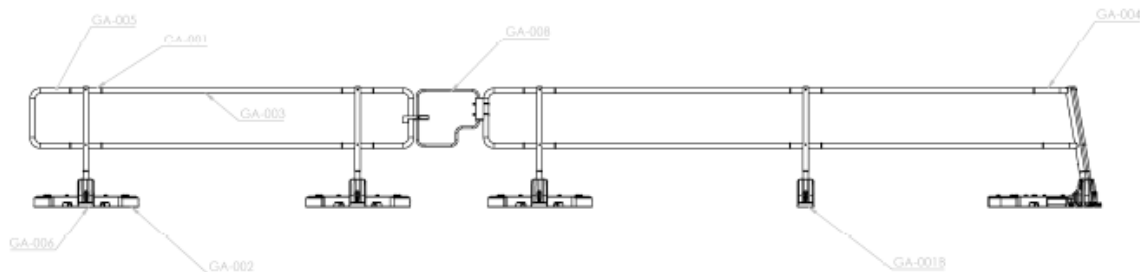
Amendments

1. Universal Safety reserve the right to continually update their range of products and manufacturing processes, in the interests of reliability, durability and performance
2. In this respect, this installation and servicing manual will need occasional updating. Universal Safety shall issue all registered holders the relevant amendments.
3. If in any doubt regarding the current Issue Status of a manual, please contact Universal Safety.

Free Standing

Rigid





Configurations	
Example Assembly of Free Standing Guard Angel	

Installation

End Termination

Specifications

1. 1 x GA-001 Free Standing Leg
2. 2 x GA-002 Weight
3. 1 x GA-005 D-End
4. 1 x GA-006 Double Weight Connector

Installation

1. Insert Lower Leg into Upper Leg
2. Adjust to correct height
3. Tighten grub screw to retain.
4. Insert D-End
5. Tighten grub screws to retain.
6. Insert horizontal tubes.
7. Tighten grub screws to retain.
8. Add Double Weight connector to end of lower leg and tighten grub screw to retain.
9. Insert Aluminium Blocks into weights
10. Slide weights onto end of double weight connector until the end of the tube can be seen through the hole in the weight.
11. Tighten grub screw to retain.



Installation

Weighted Intermediate

Specifications

1. 1 x GA-001 Free Standing Leg
2. 1 x GA-002 Weight

Installation

1. Insert Lower Leg into Upper Leg
2. Adjust to correct height
3. Tighten grub screw to retain.
4. Insert horizontal tubes.
5. Tighten grub screws to retain.
6. Insert Aluminium Blocks into weights
7. Slide weights onto end of lower leg until the end of the tube can be seen through the hole in the weight.
8. Tighten grub screw to retain.



Non - Weighted Intermediate

Specifications

1. 1 x GA-001B Free Standing Leg

Installation

1. Insert Lower Leg into Upper Leg
2. Adjust to correct height
3. Tighten grub screw to retain.
4. Insert horizontal tubes.
5. Tighten grub screws to retain.



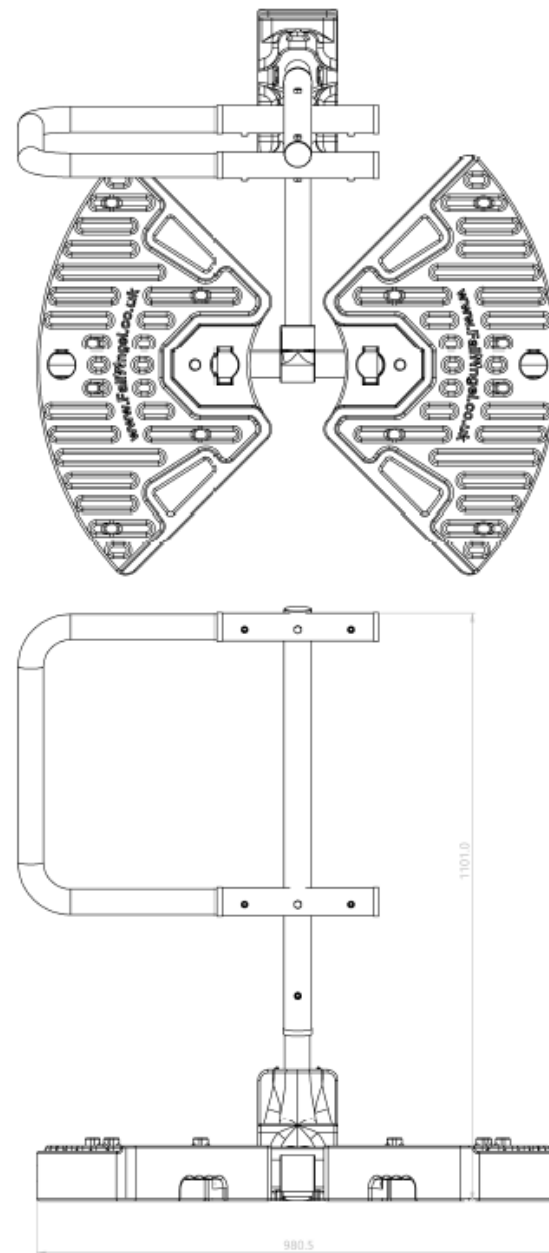
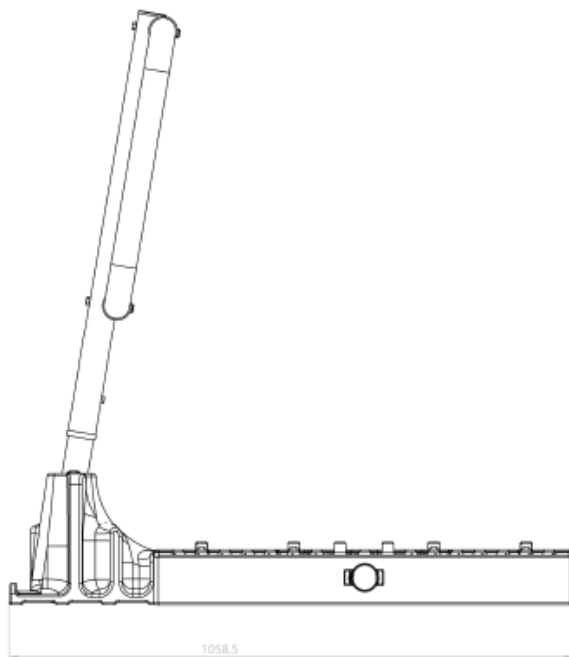
Installation

Corner

Installation

1. Follow Installation for Weighted and Non-Weighted Leg
2. Insert a cut section of tube into the leg at the corner
3. Connect the corner tube to the section
4. Insert GA-003 tube into the corner sections
5. Insert the opposite end of the tube into the next leg placed max 2.5m from the corner
6. Tighten all grub screws on legs and corner tubes to retain.



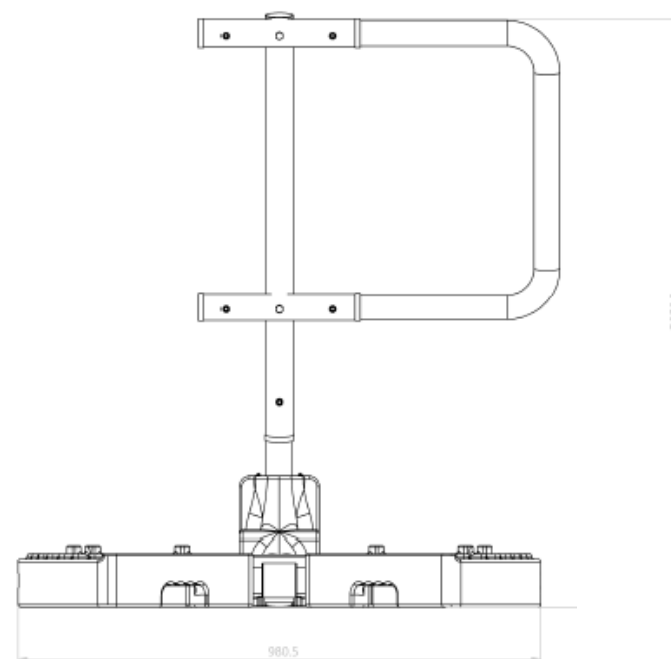
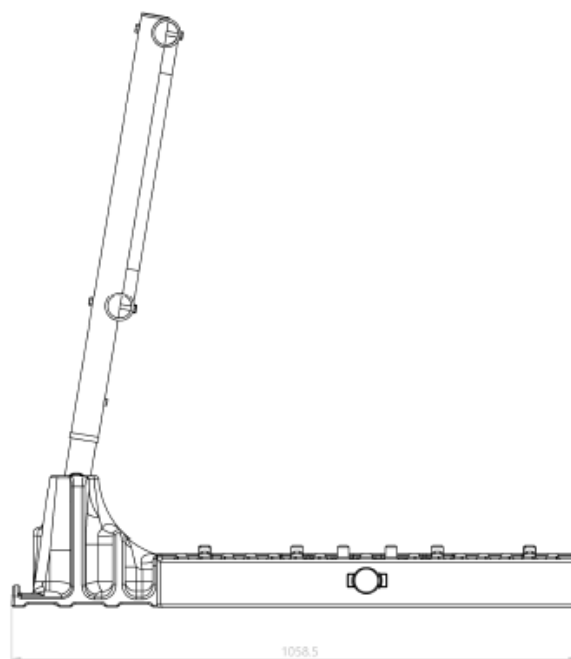
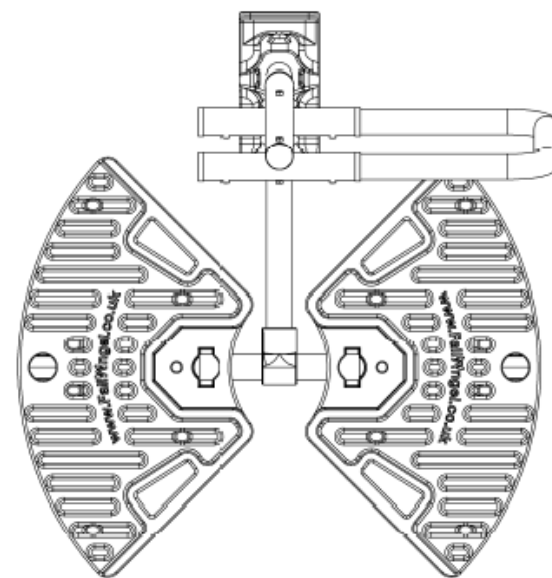


Configurations

Weight, D-End and Double Weight Connector not included in GA-001END L

Assembly Components

GA-001 - Weighted Leg
GA-002 - Weight (2 qty)
GA-006 - Double Weight
GA-005 - D End

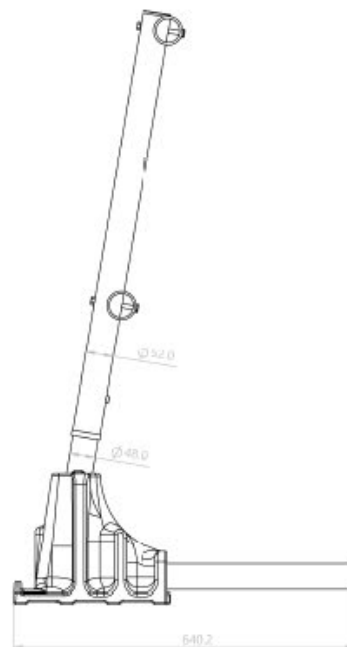
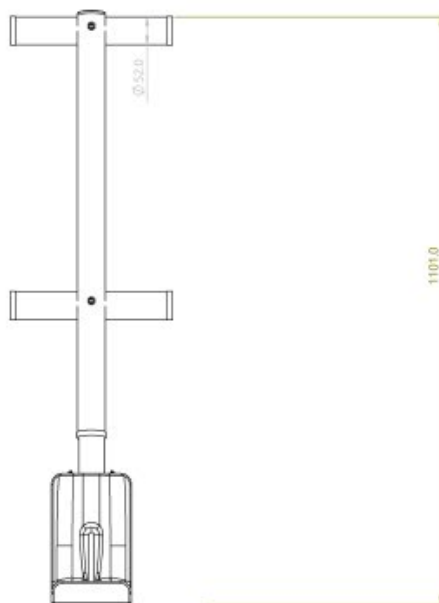
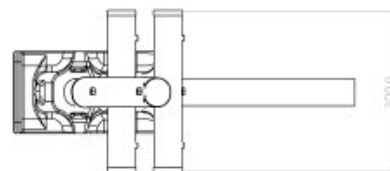


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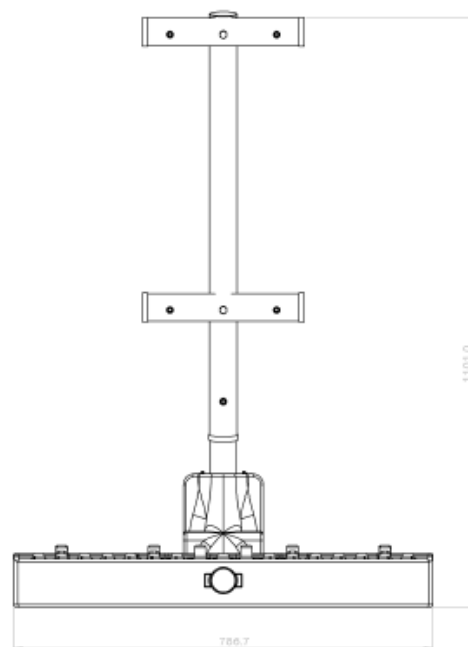
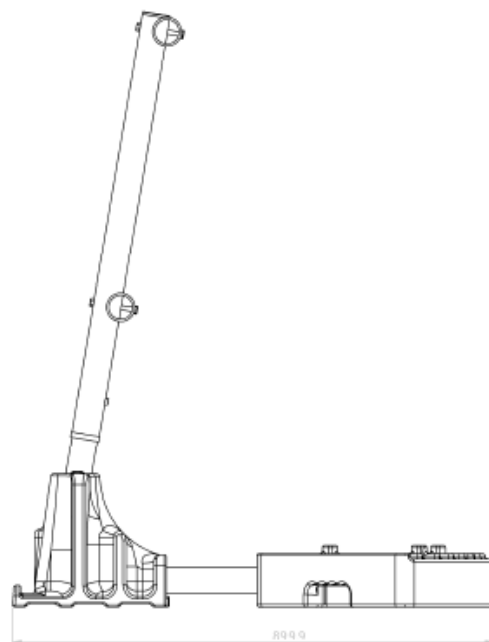
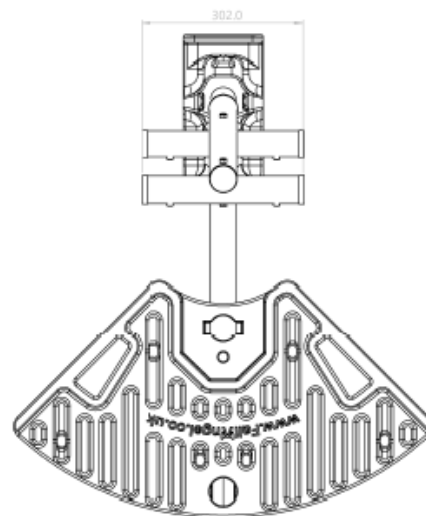
Weight, D-End and Double Weight Connector not included in GA-001END R

Assembly Components

GA-001 - Weighted Leg
GA-002 - Weight (2 qty)
GA-006 - Double Weight
GA-005 - D End

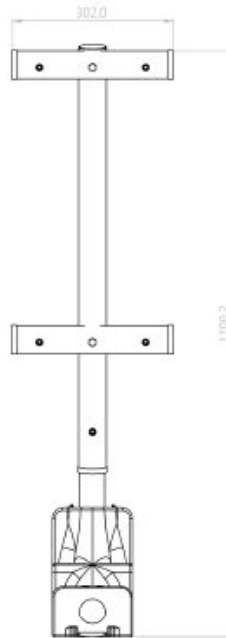
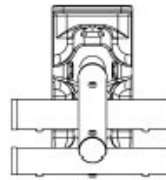


Configurations	
Weight not included in GA-001	
Add reference GA-002	



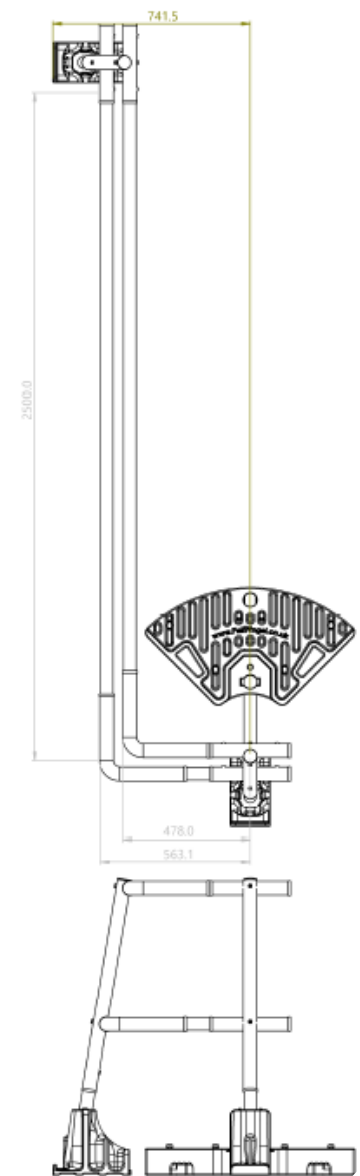
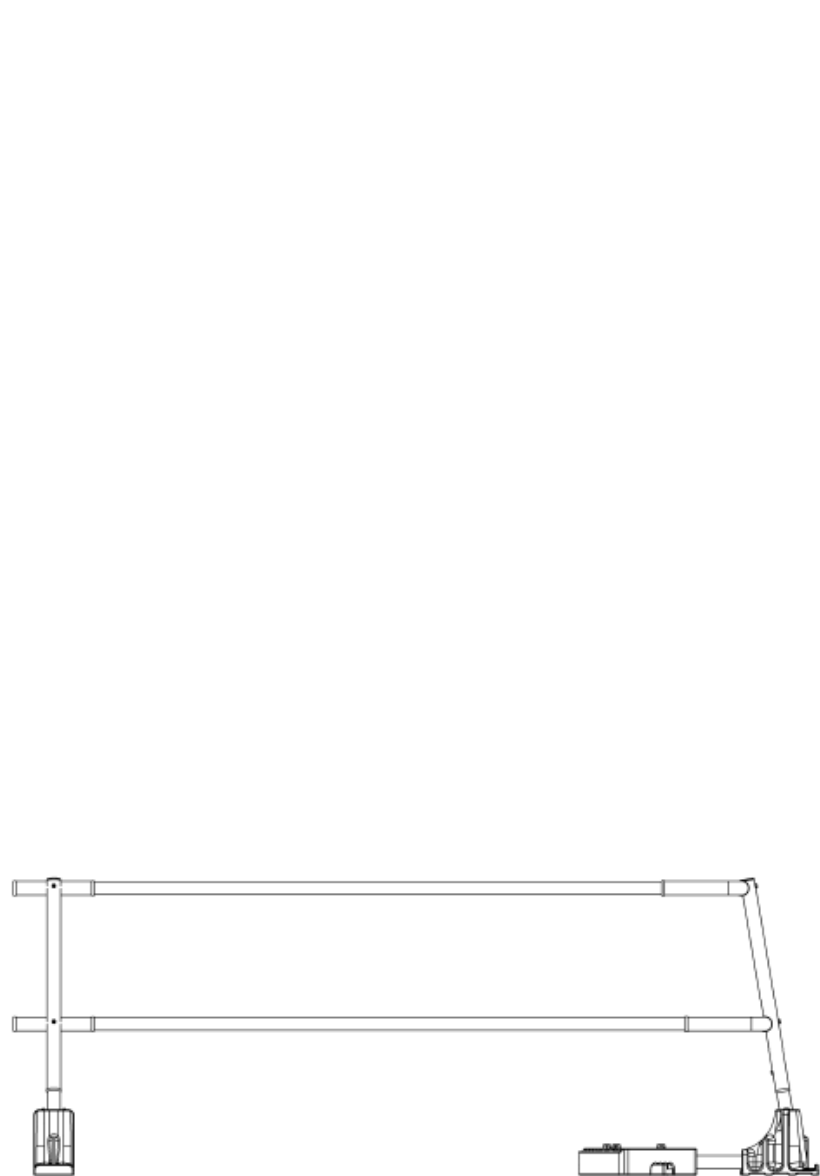
Configurations

Weight not included in GA-001
Add reference GA-002



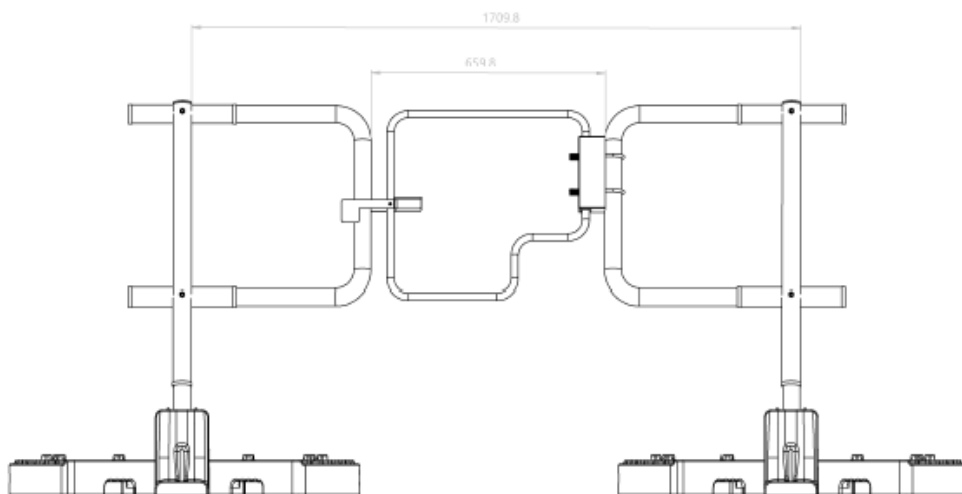
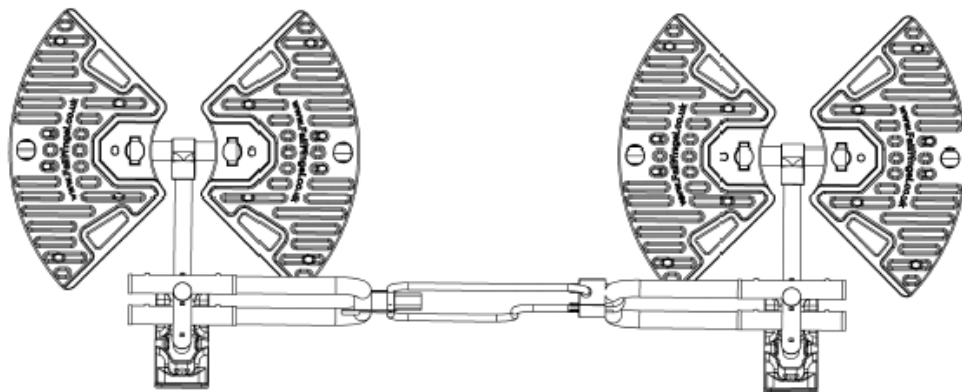
Configurations

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Configurations

The last leg entering the corner can be either weighted or un-weighted, but must be flush connected to the corner tube.

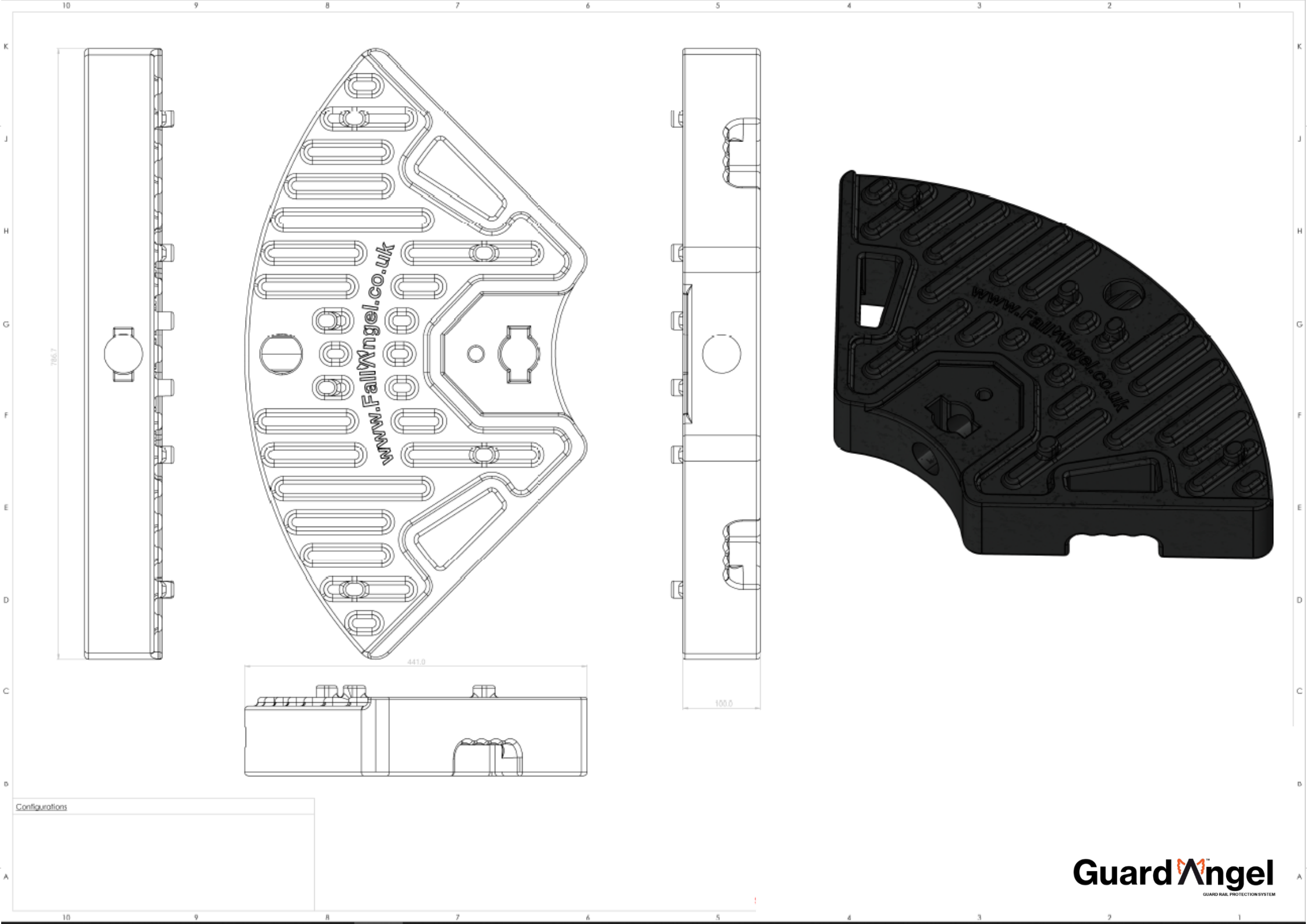


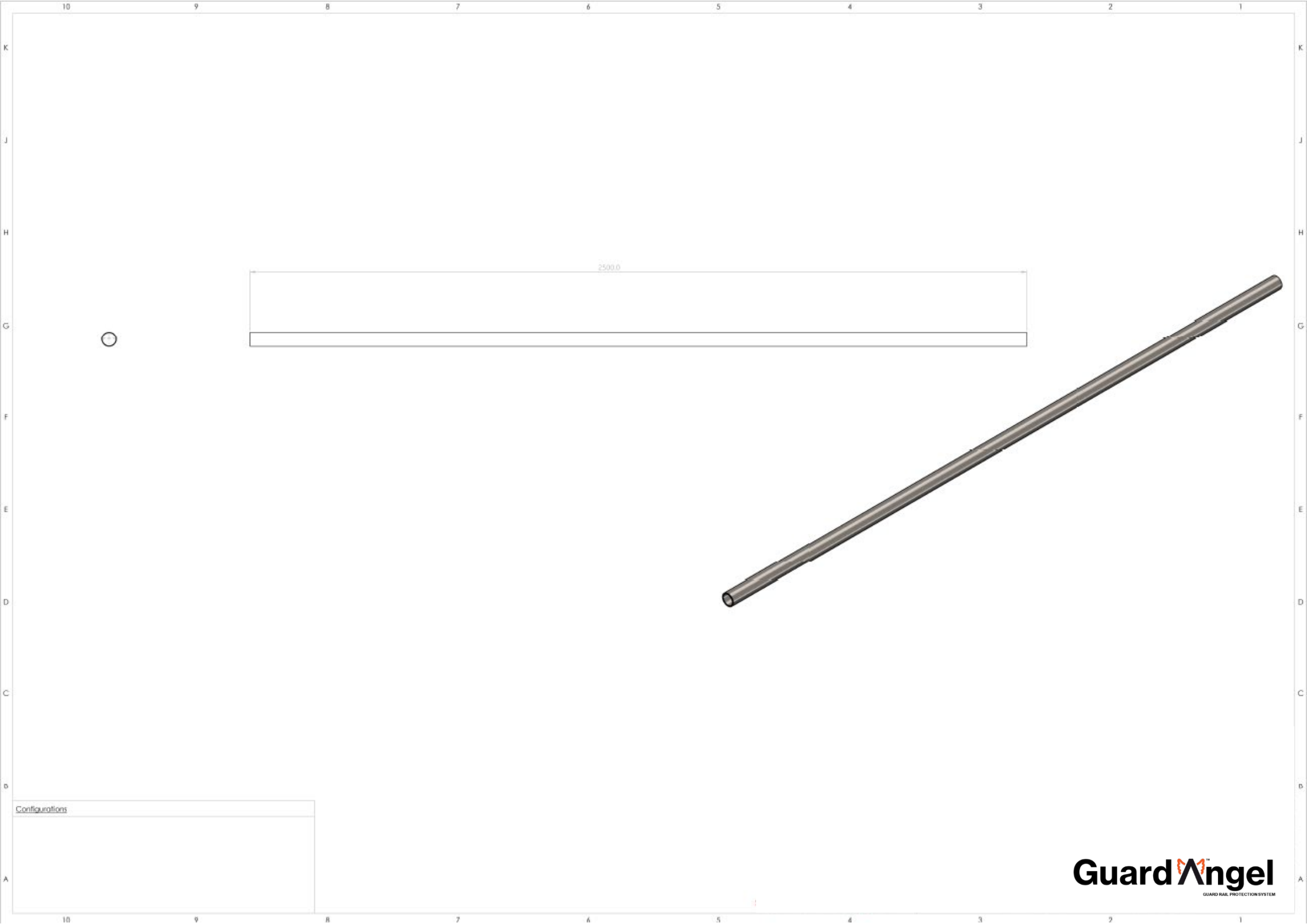
Configurations

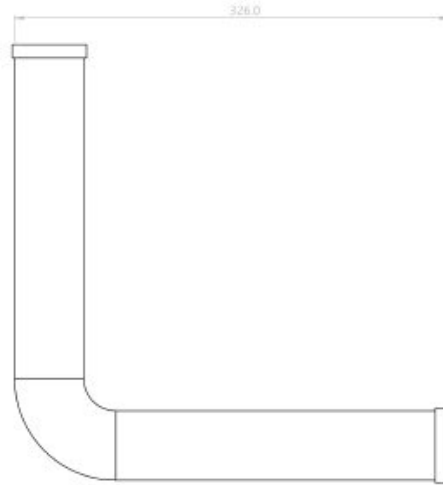
Gate position allows for single direction use of the gate.

Components for Assembly

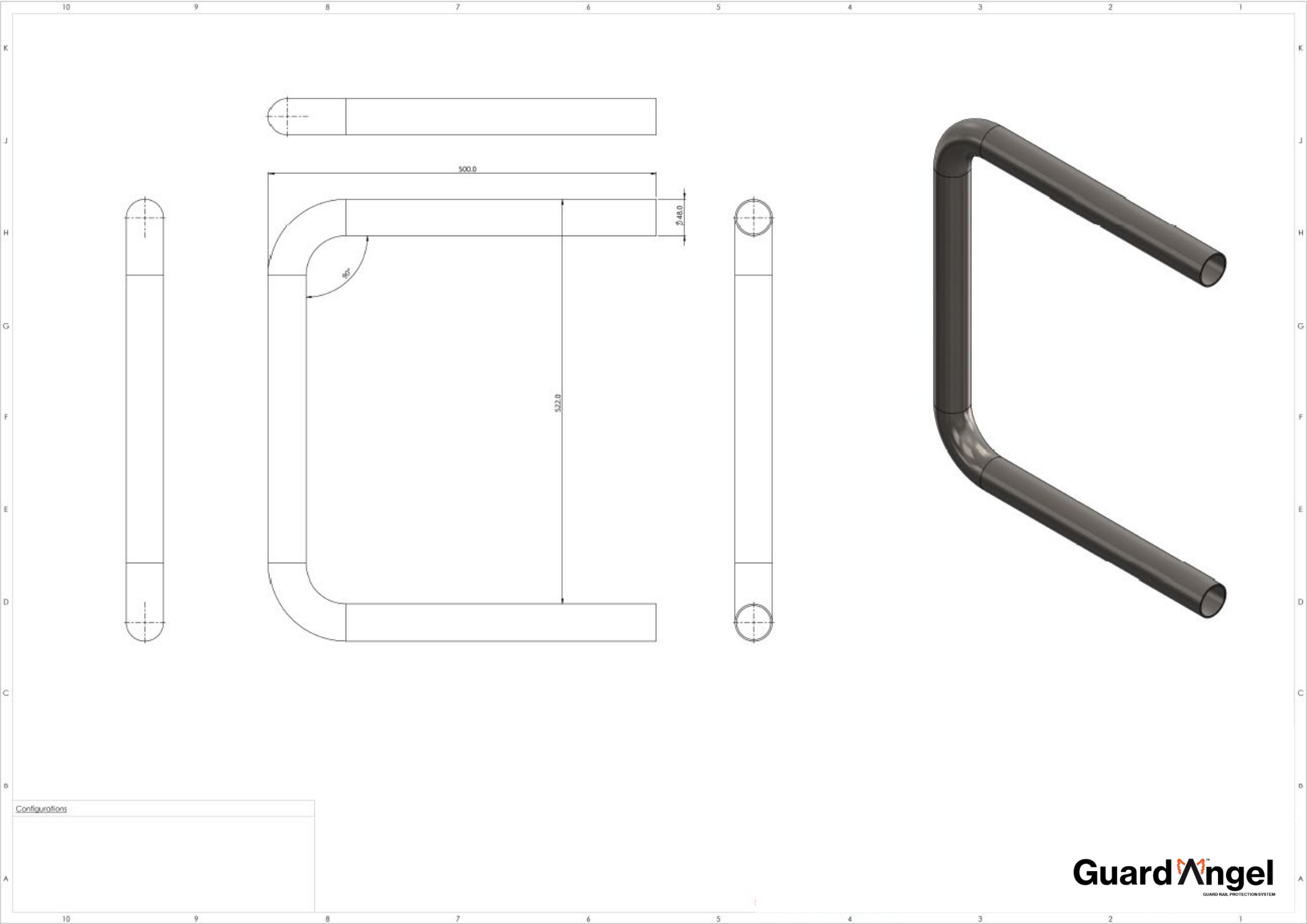
- GA-001 Standard Free Standing Leg (2 Qty)
- GA-002 Weight (4 Qty)
- GA-005 D-End (2 Qty)
- GA-006 Double Weight Connector (2 Qty)
- GA-008 Self Closing Gate



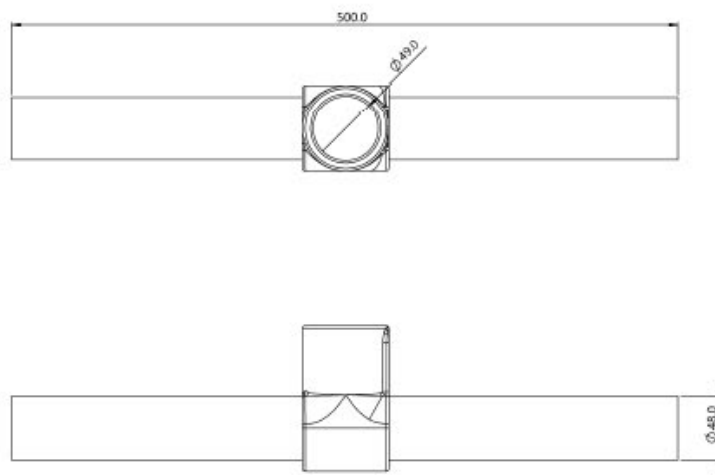
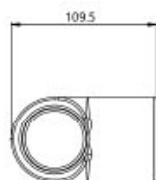




Configurations	



Configurations



Configurations	

Top Fix

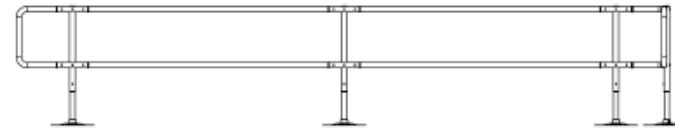
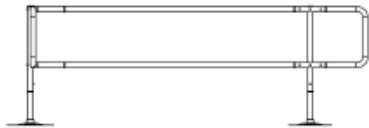
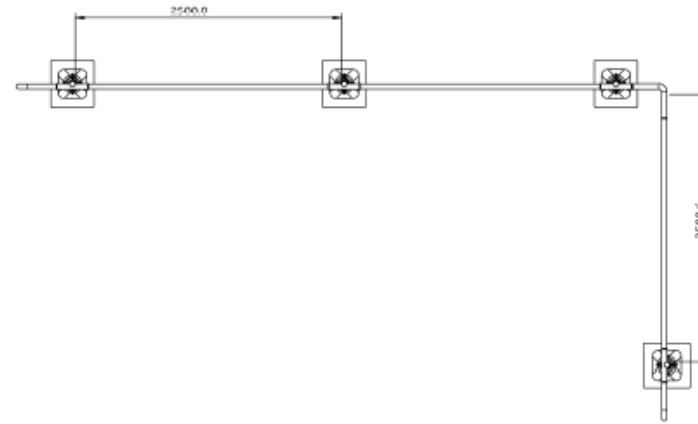
Trapezoidal



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Configurations
suitable for rivet or clamp fix up to 500mm crown centres

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Installation

End

Specifications

1. 1 x GA-014 Upper Leg
2. 1 x GA-011 Lower Leg
3. 1 x GA-005 D-End
4. 1 x Base Plate (GA-012 - 333/400 or GA-013 500/509)
5. 1 x RA-4005 Rivet & Sealant Pack

Installation

1. Place base plate onto roof and drill holes for rivets.
2. Place sealant under correct holes on base plate.
3. Rivet base to the roof using the RA-4005 Rivets
4. Insert lower leg into base.
5. Tighten grub screw to retain.
6. Insert Upper Leg onto Lower Leg
7. Adjust to correct height and Tighten grub screw to retain.
8. Insert D-End
9. Tighten grub screws to retain.
10. Insert horizontal tubes.
11. Tighten grub screws to retain.



Installation

Intermediate

Specifications

1. 1 x GA-014 Upper Leg
2. 1 x GA-011 Lower Leg
3. 1 x Base Plate (GA-012 - 333/400 or GA-013 500/509)
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6. Insert Upper Leg onto Lower Leg
7. Adjust to correct height
8. Tighten grub screw to retain.
9. Insert horizontal tubes.
10. Tighten grub screws to retain.

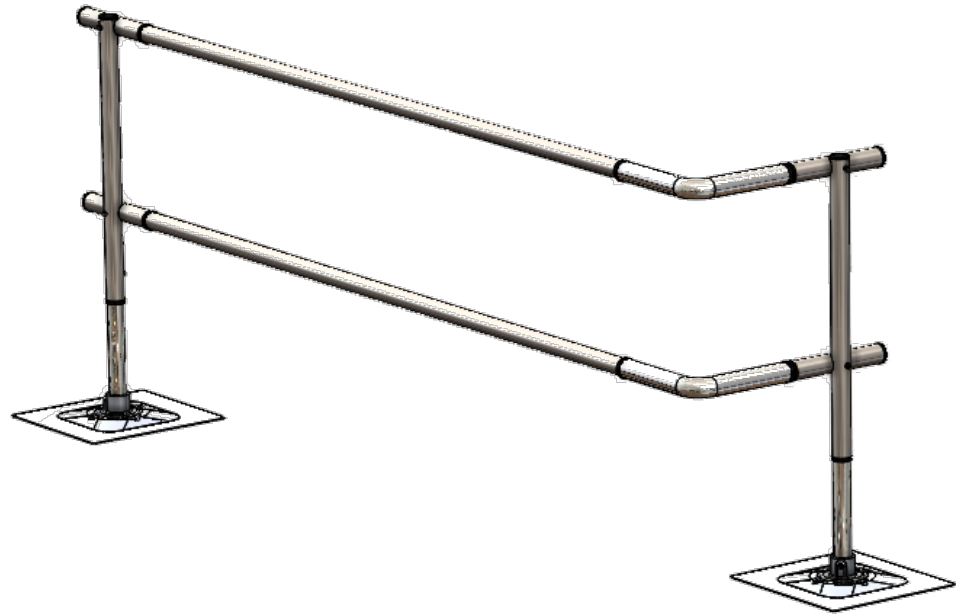


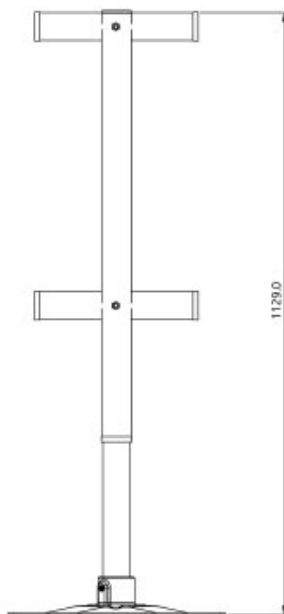
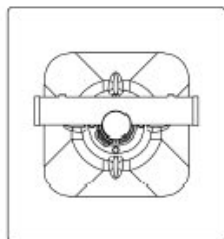
Installation

Corner

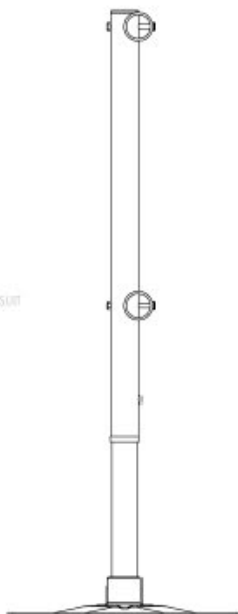
Installation

1. Follow Installation for leg
2. Insert a cut section of tube into the leg at the corner
3. Connect the corner tube to the section
4. Insert GA-003 tube into the corner sections
5. Insert the opposite end of the tube into the next leg placed max 2.5m from the corner
6. Tighten all grub screws on legs and corner tubes to retain.

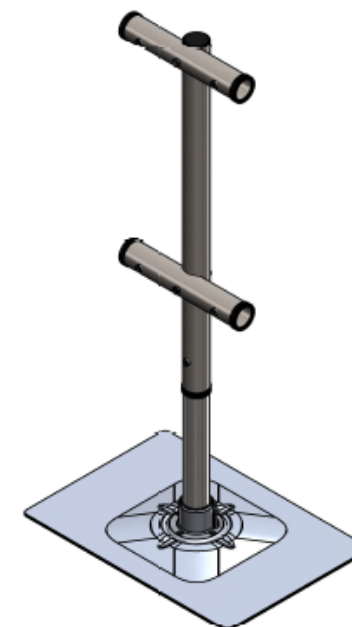
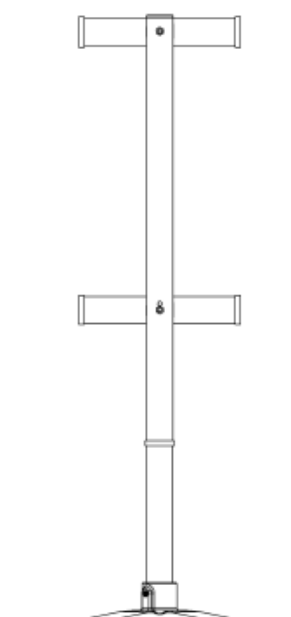
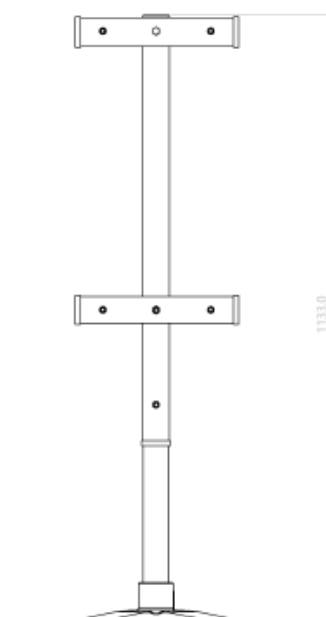
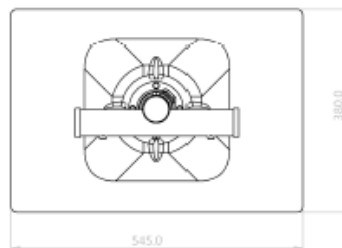




ADJUSTABLE HEIGHT TO SUIT

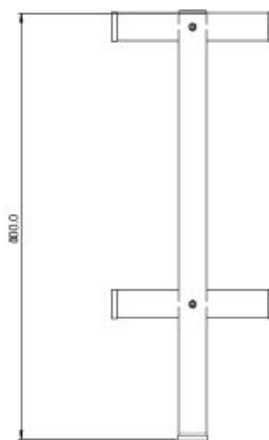
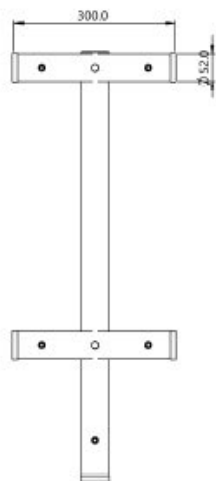


Configurations	
suitable for rivet or clamp installation	

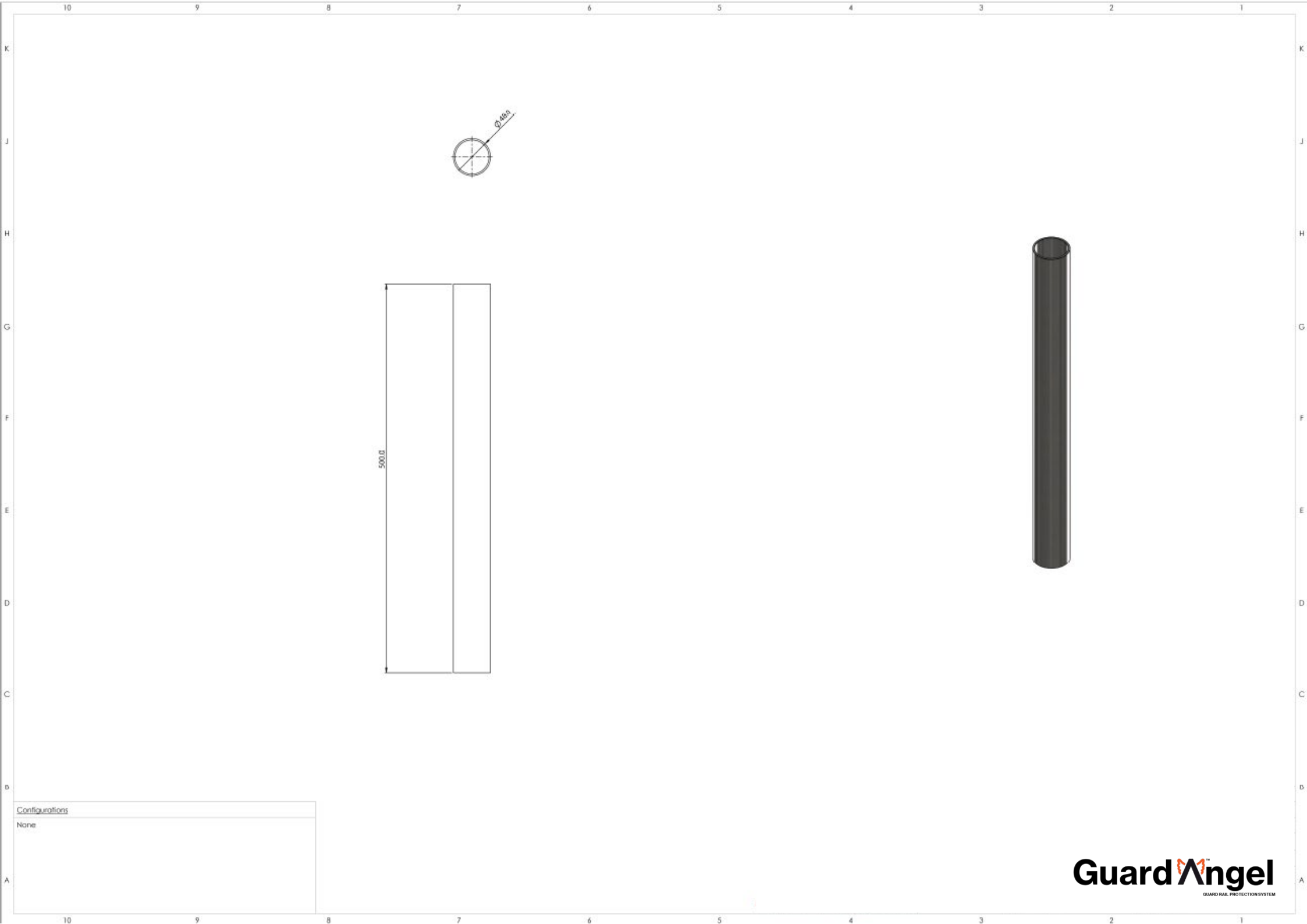


Configurations

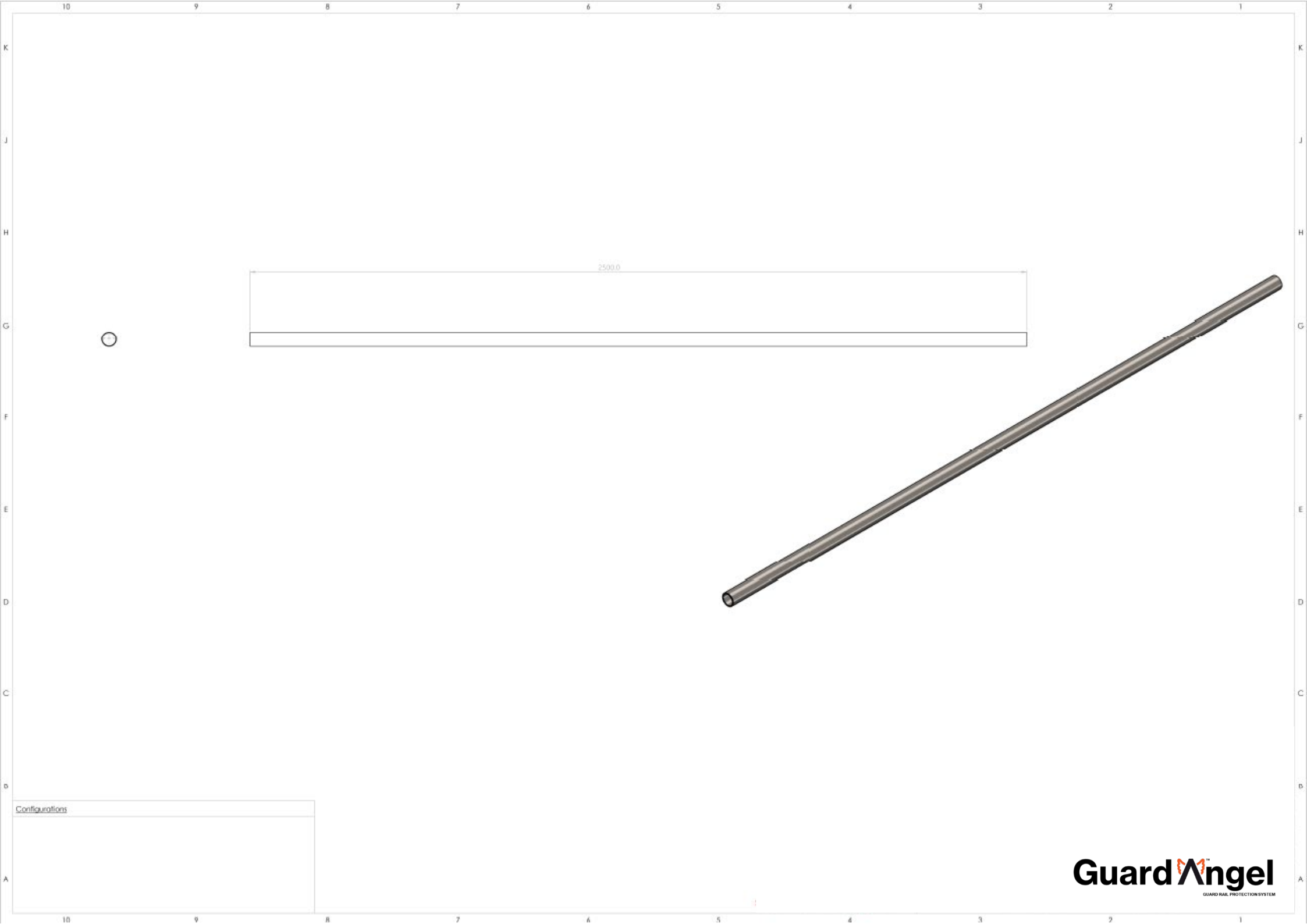
Can be installed on 400-500 crowns with site-drilled holes to suit.
Can be installed using 12 No Bulbrite Rivets
or standing seam clamps.

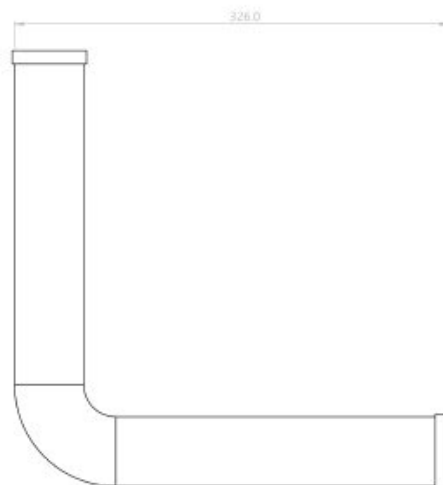


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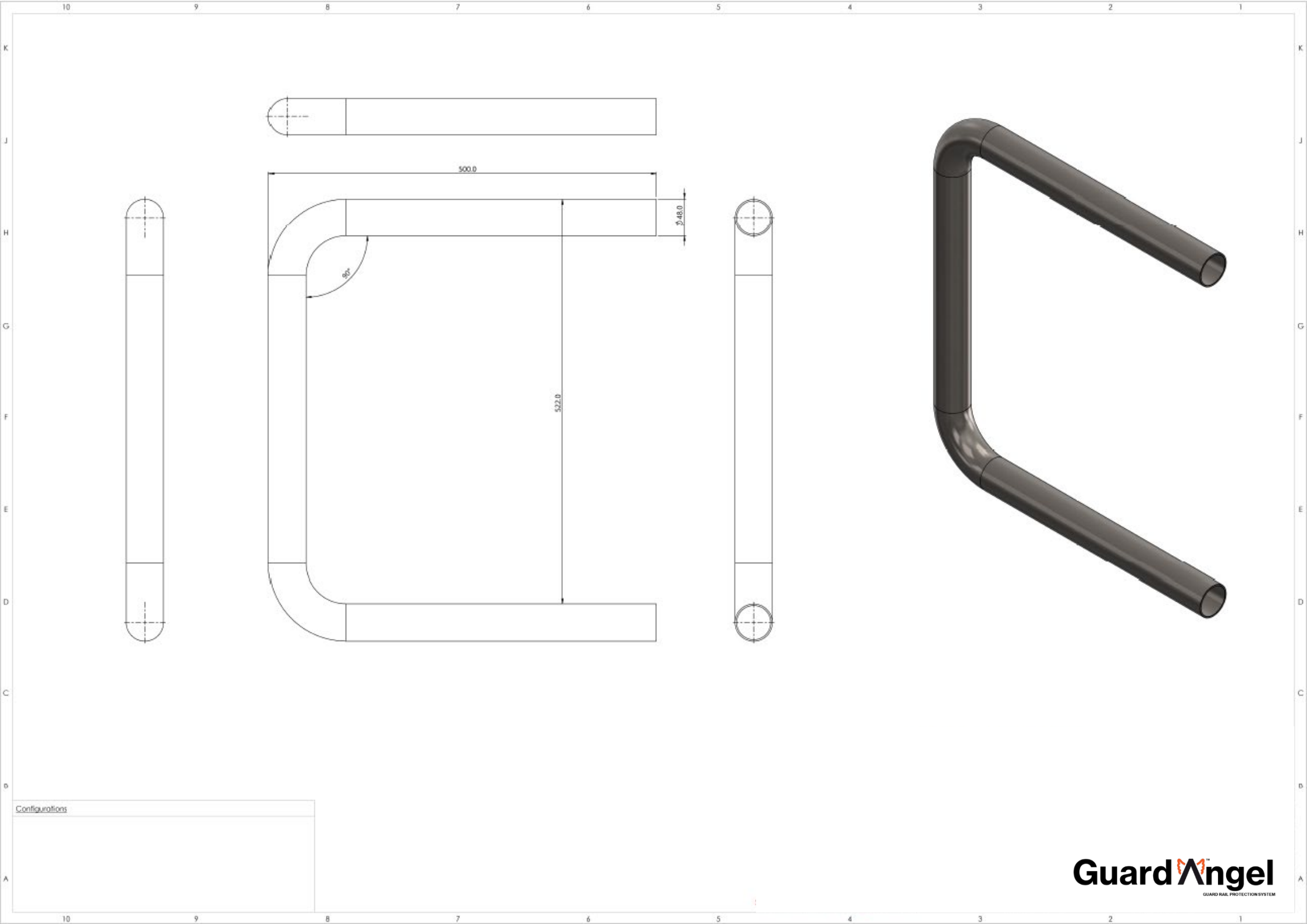


Configurations
None

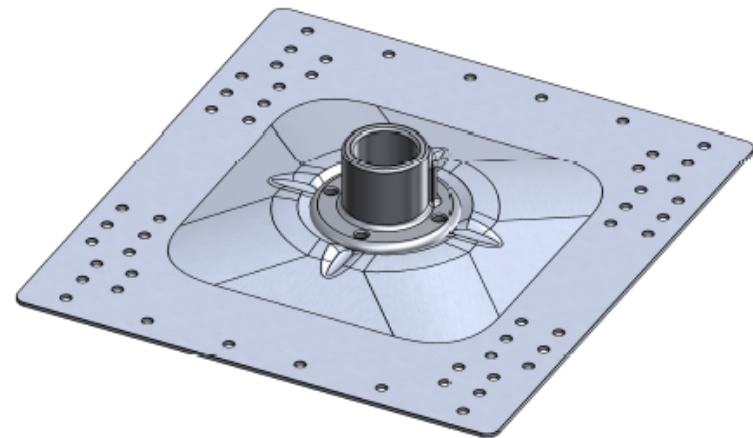
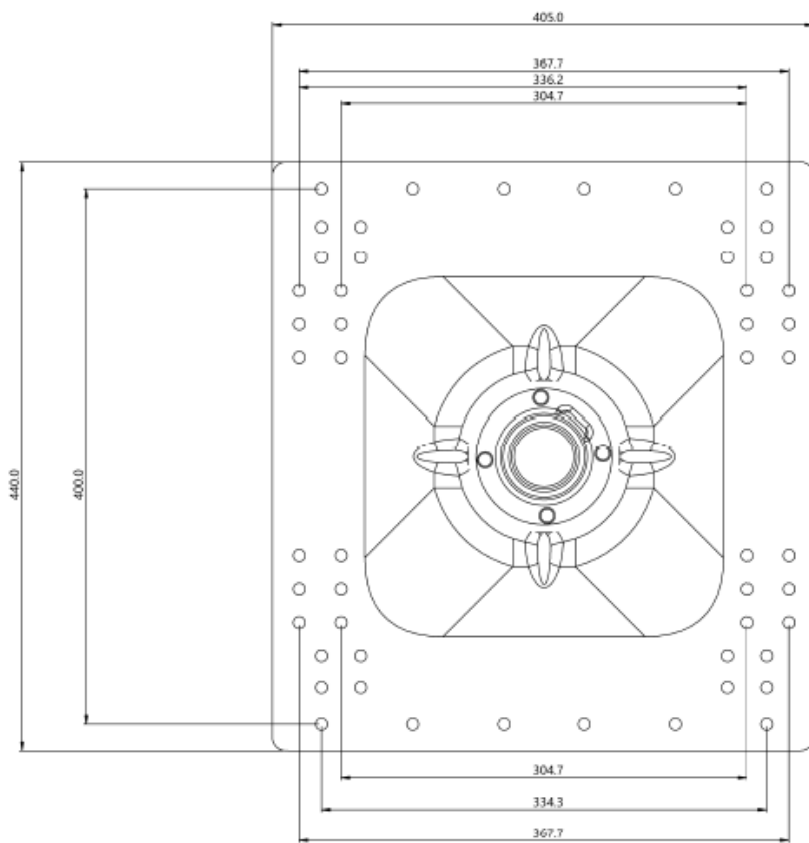




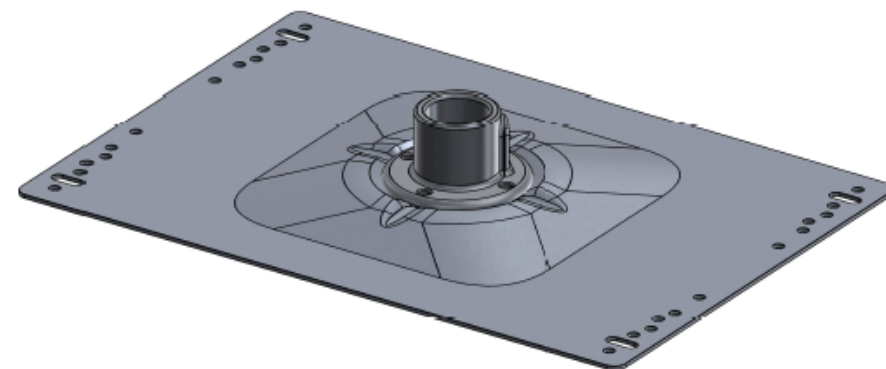
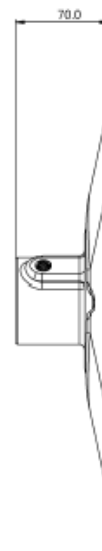
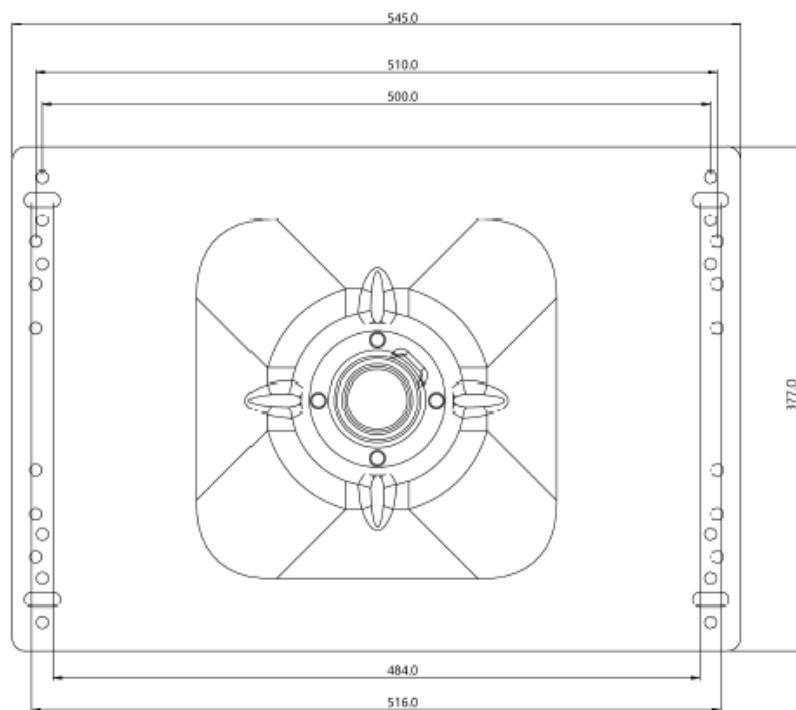
GuardAngel
GUARD RAIL PROTECTION SYSTEM



Configurations



Configurations	
Suitable for Rivet and Clamp Fix	

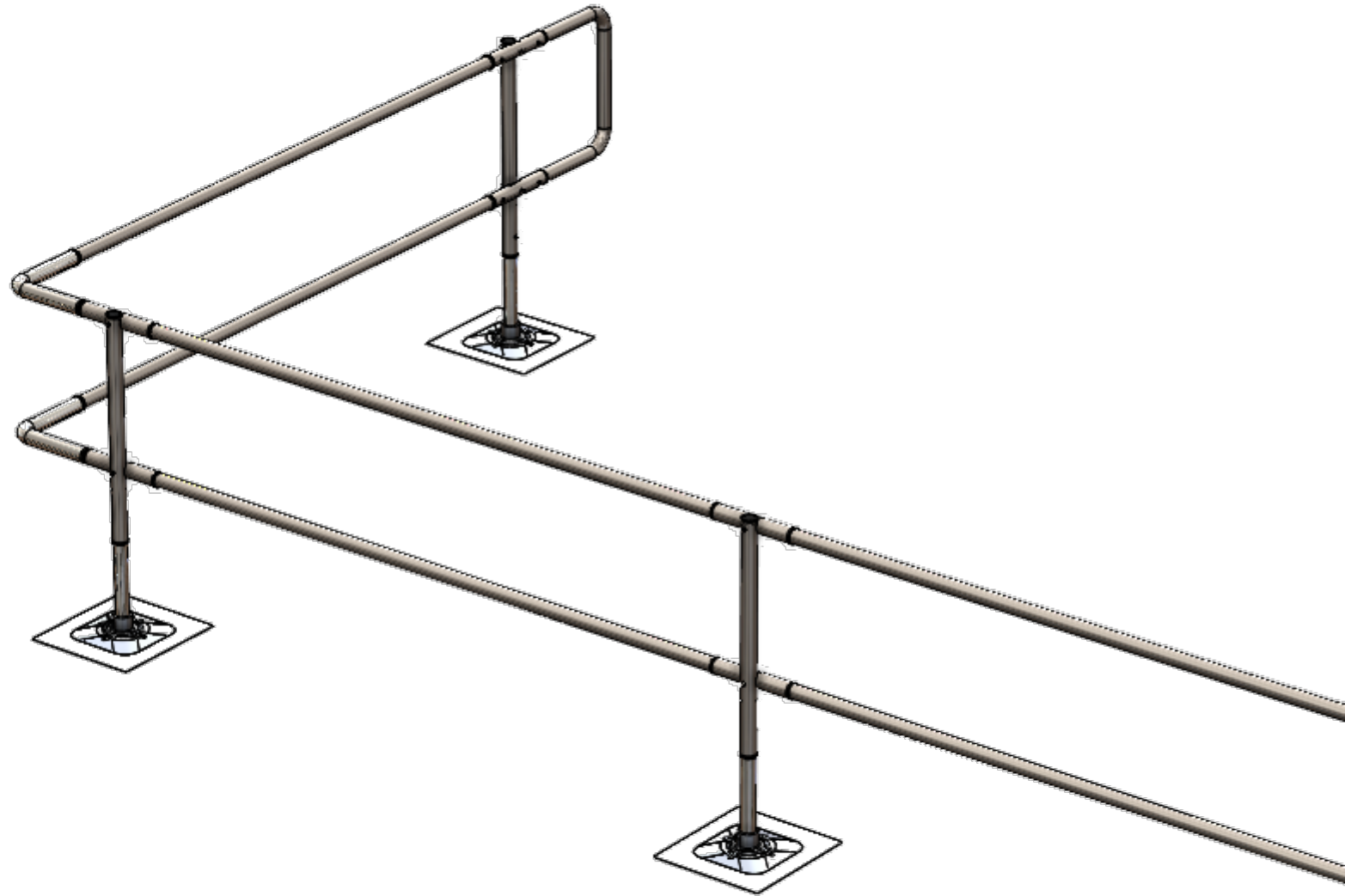


Configurations

Suitable for Rivet and Clamp fix

Top Fix

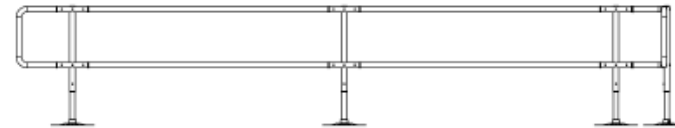
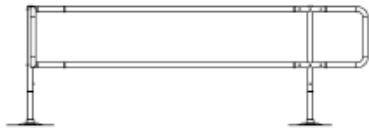
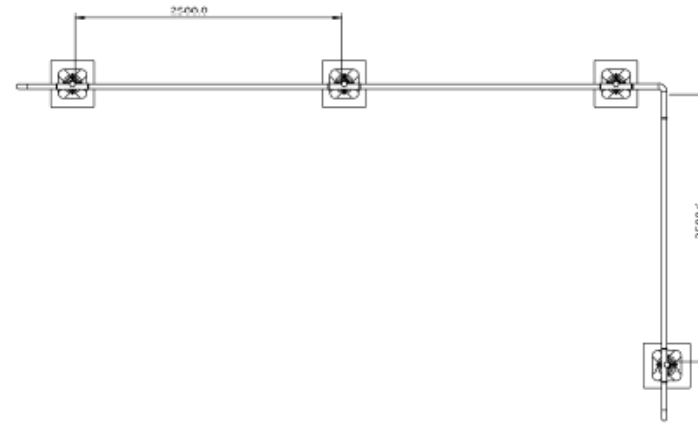
Standing Seam



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Configurations
suitable for rivet or clamp fix up to 500mm crown centres

10 9 8 7 6 5 4 3 2 1

Installation

End

Specifications

1. 1 x GA-014 Upper Leg
2. 1 x GA-011 Lower Leg
3. 1 x GA-005 D-End
4. 1 x Base Plate (GA-012 - 333/400 or GA-013 500/509)
5. 1 x RA-4006 S-5! Z-Mini Clamp Set (x4)

Installation

1. Fix the RA-4006 clamps to the slotted holes on the base plate
2. Place base plate onto roof
3. Tighten the grub screws in the clamps to fix the base to the roof
4. Insert lower leg into base.
5. Tighten grub screw to retain.
6. Insert Upper Leg onto Lower Leg
7. Adjust to correct height
8. Tighten grub screw to retain.
9. Insert D-End
10. Tighten grub screws to retain.
11. Insert horizontal tubes.
12. Tighten grub screws to retain.



Installation

Intermediate

Specifications

1. 1 x GA-014 Upper Leg
2. 1 x GA-011 Lower Leg
3. 1 x Base Plate (GA-012 - 333/400 or GA-013 500/509)
4. 1 x RA-4006 S-5! Z-Mini Clamp Set (x4)

Installation

1. Fix the RA-4006 clamps to the slotted holes on the base plate
2. Place base plate onto roof
3. Tighten the grub screws in the clamps to fix the base to the roof
4. Insert lower leg into base.
5. Tighten grub screw to retain.
6. Insert Upper Leg onto Lower Leg
7. Adjust to correct height
8. Tighten grub screw to retain.
9. Insert horizontal tubes.
10. Tighten grub screws to retain.

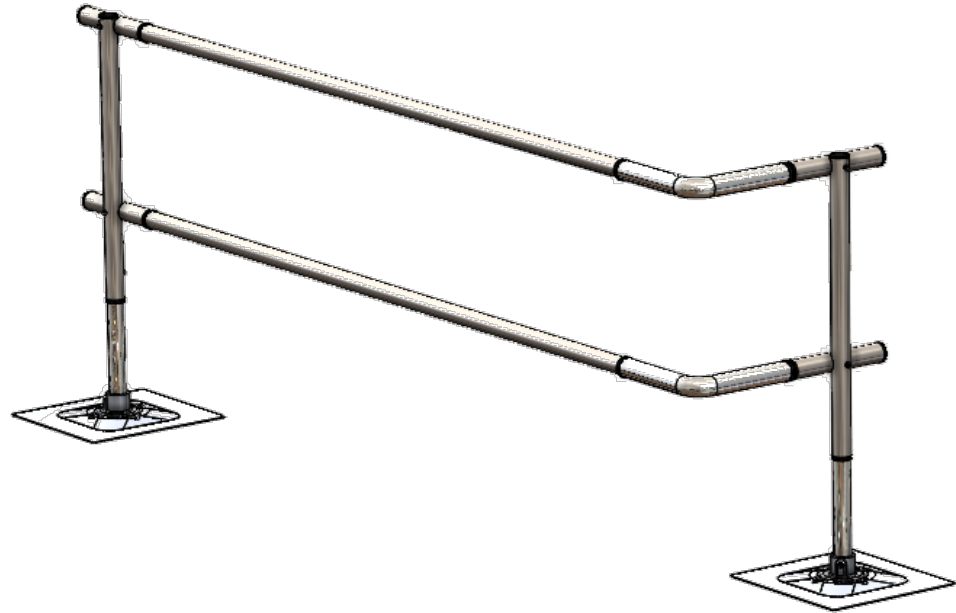


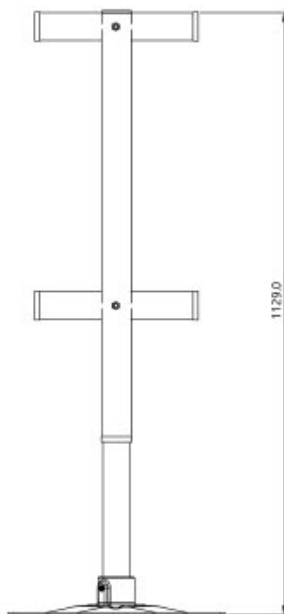
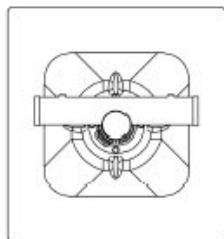
Installation

Corner

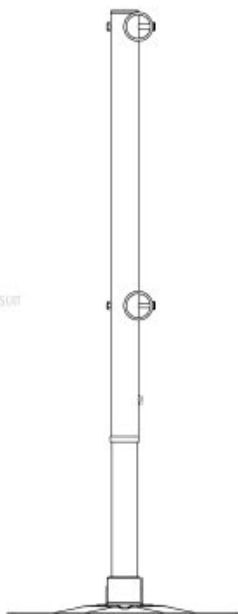
Installation

1. Follow Installation for leg
2. Insert a cut section of tube into the leg at the corner
3. Connect the corner tube to the section
4. Insert GA-003 tube into the corner sections
5. Insert the opposite end of the tube into the next leg placed max 2.5m from the corner
6. Tighten all grub screws on legs and corner tubes to retain.



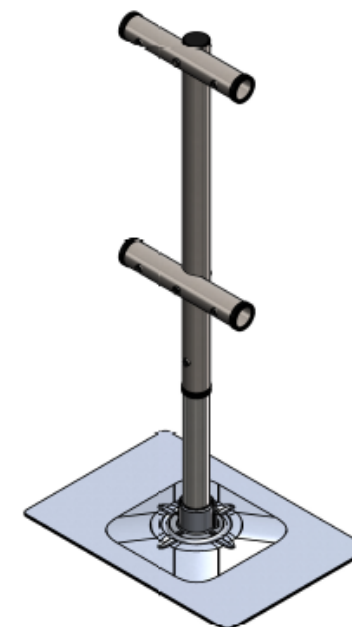
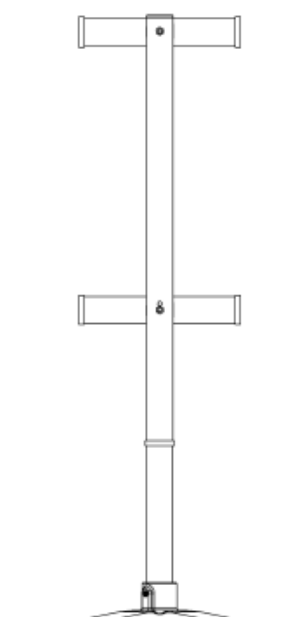
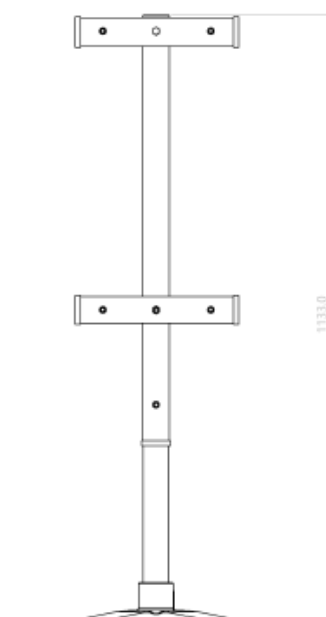
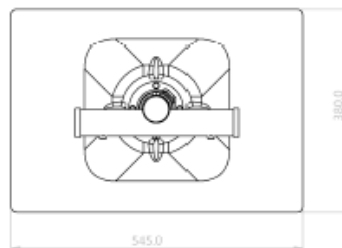


ADJUSTABLE HEIGHT TO SUIT



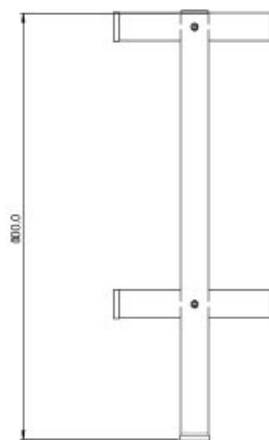
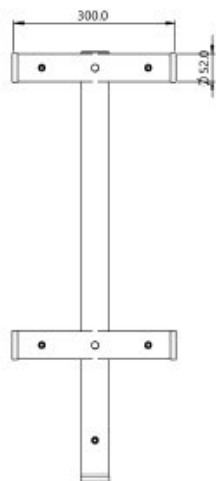
Configurations

suitable for rivet or clamp installation

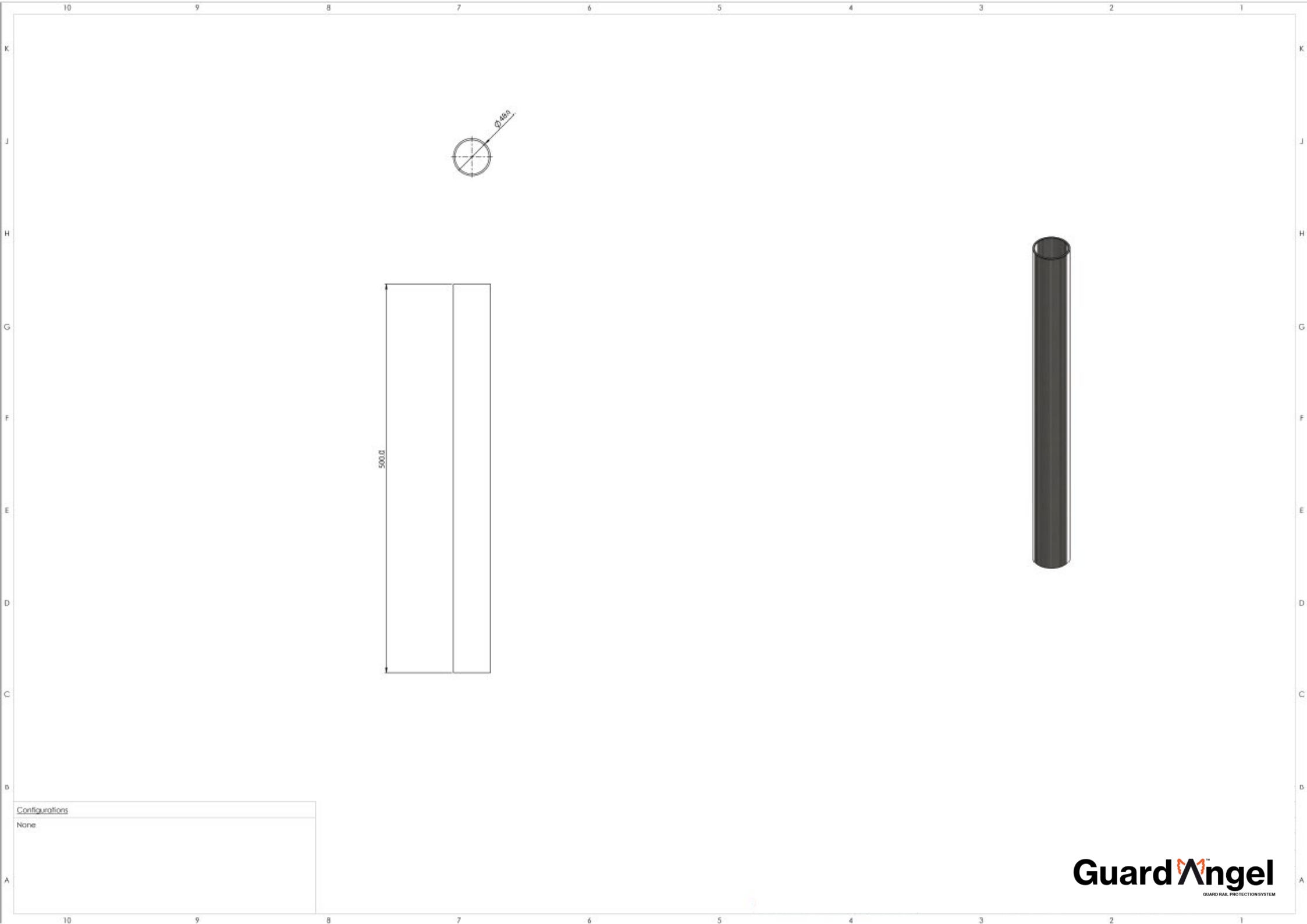


Configurations

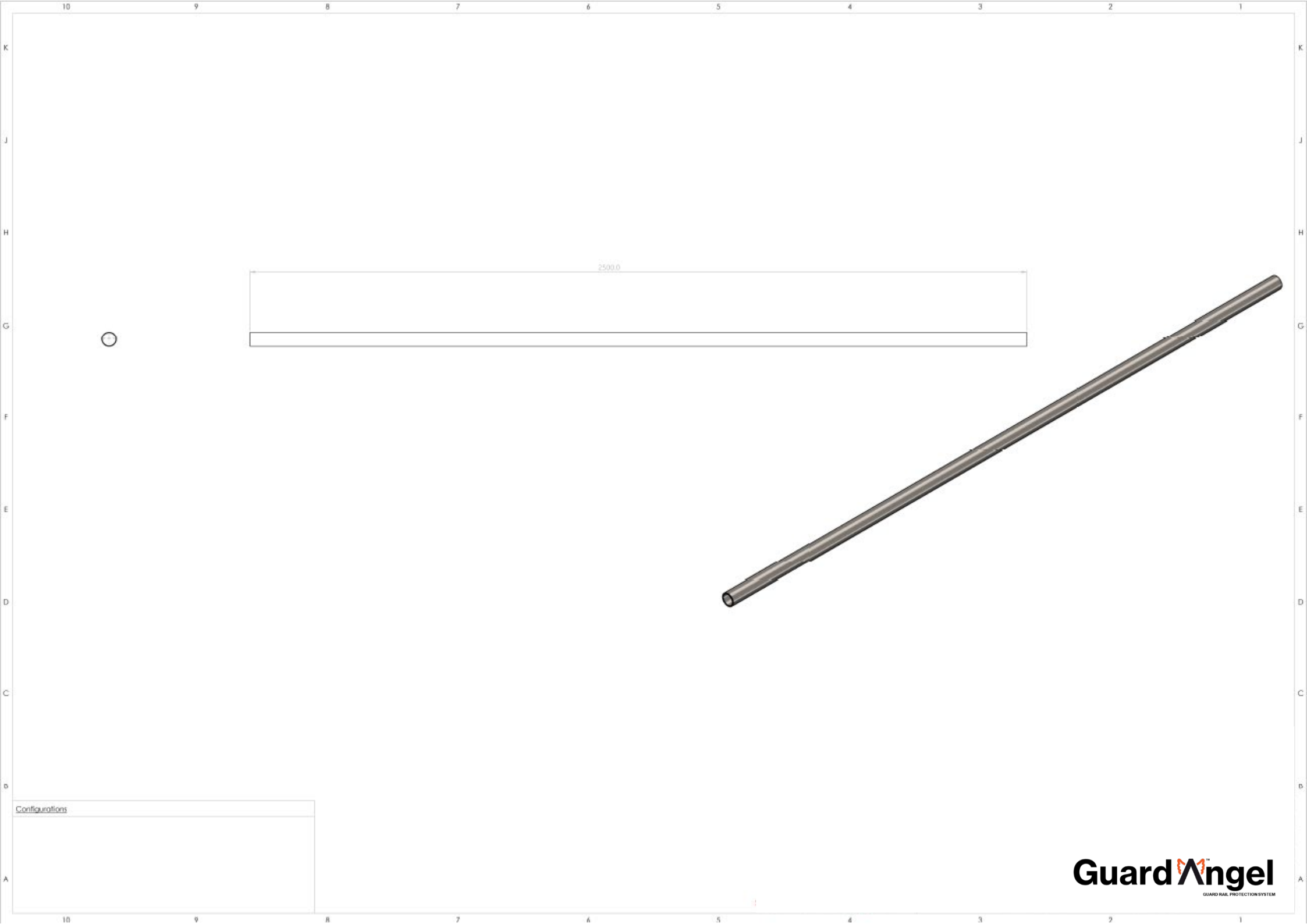
Can be installed on 400-500 crowns with site-drilled holes to suit.
 Can be installed using 12 No Bulbrite Rivets
 or standing seam clamps.



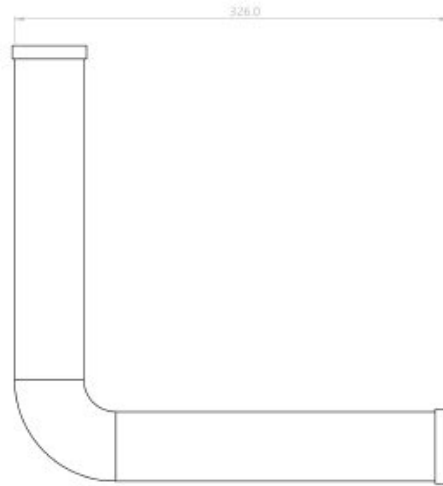
Configurations



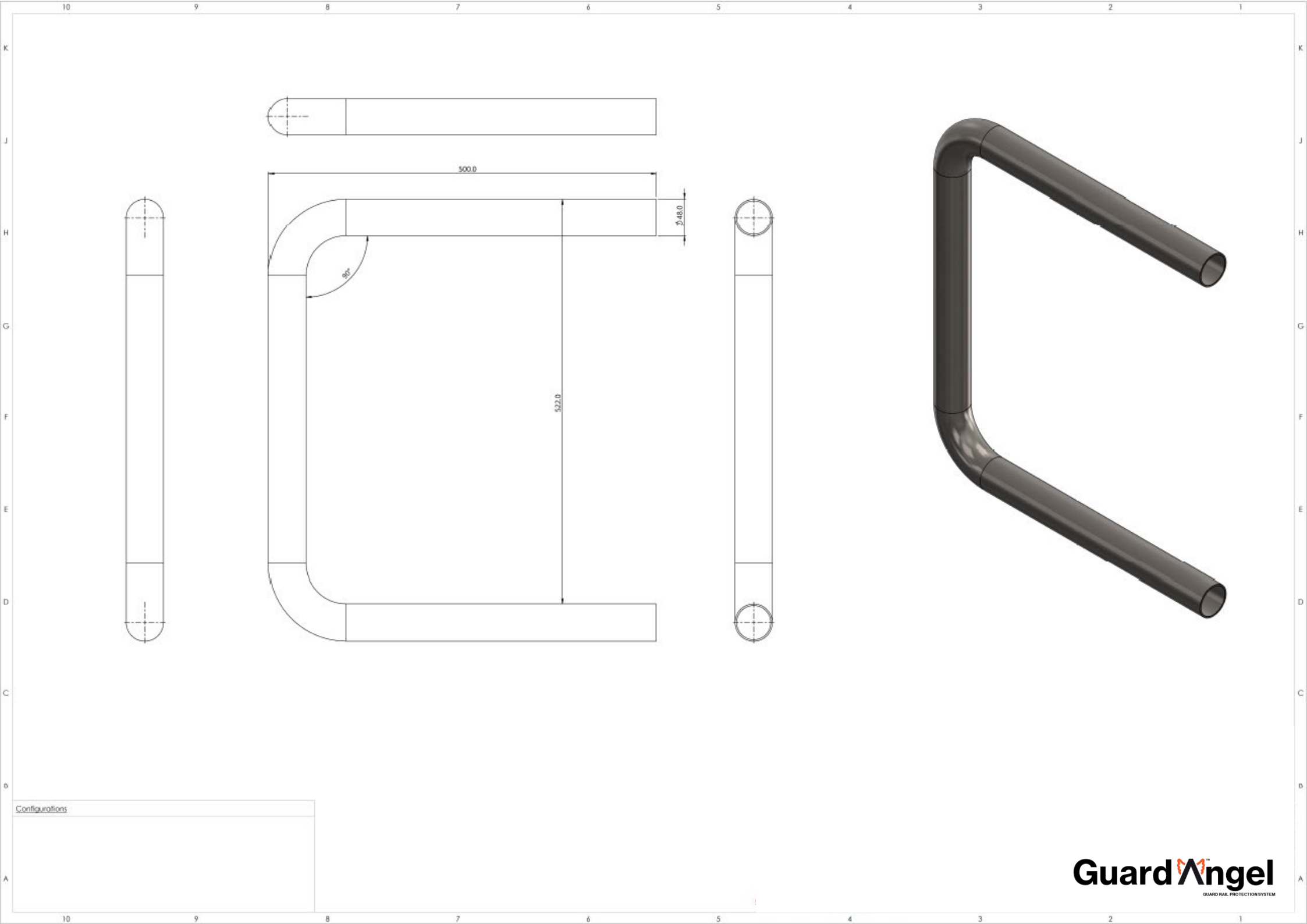
Configurations
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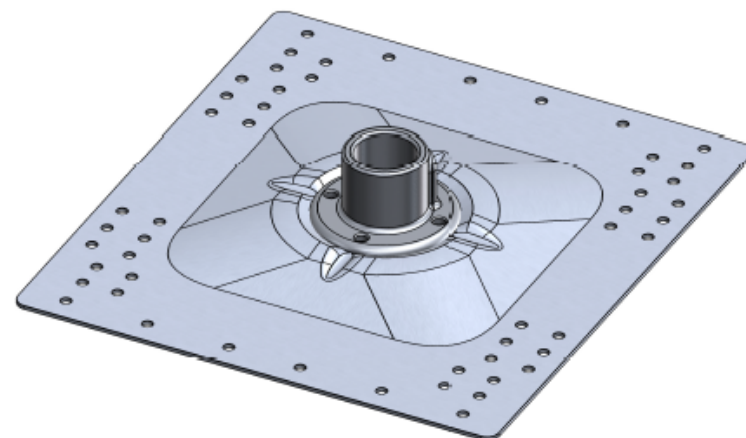
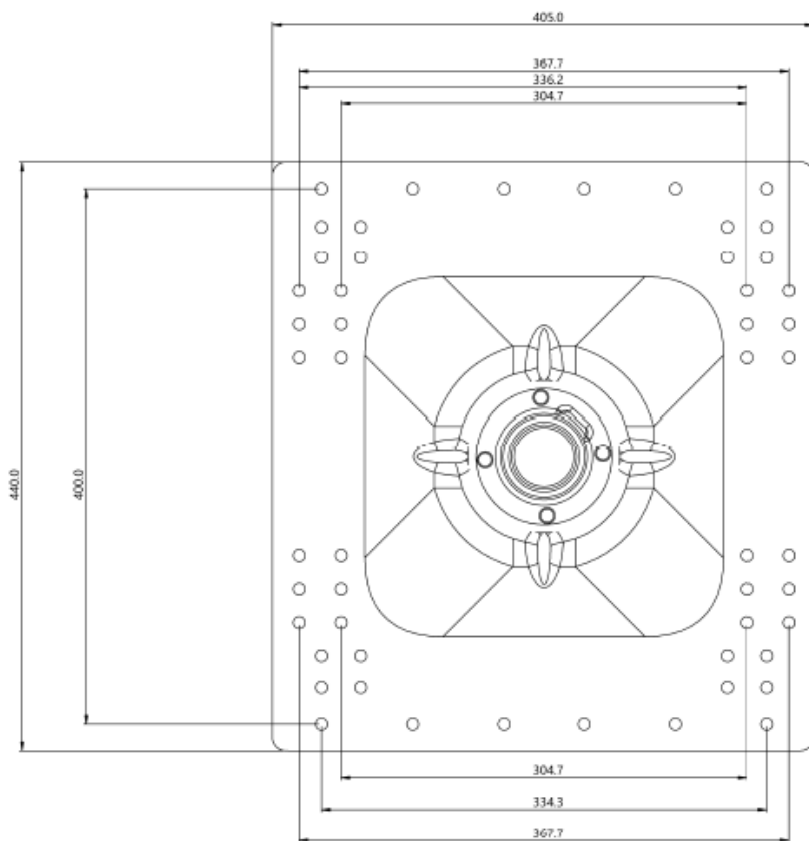
Configurations



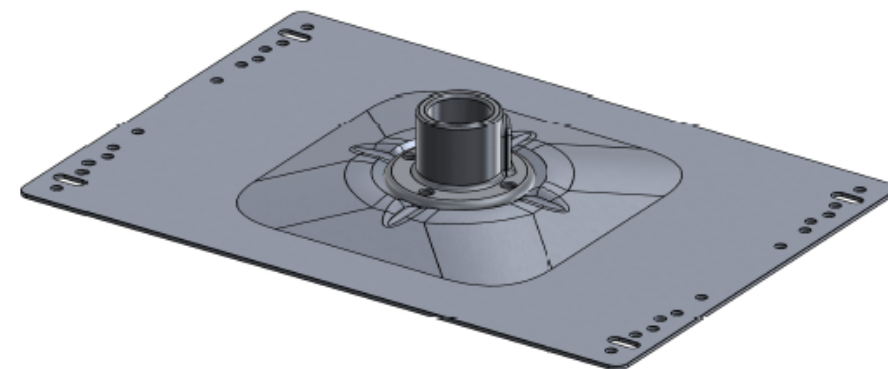
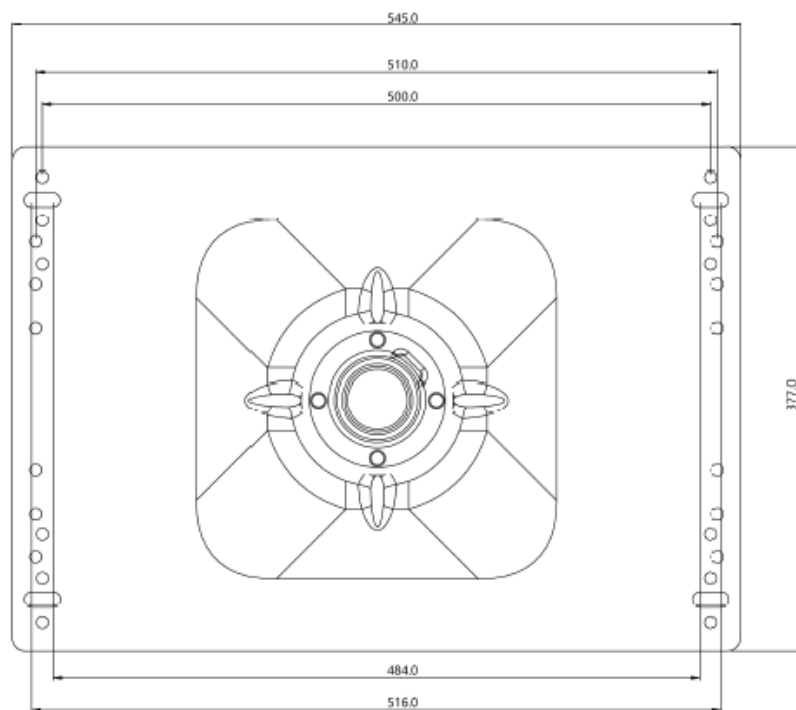
Configurations	



Configurations



Configurations	
Suitable for Rivet and Clamp Fix	

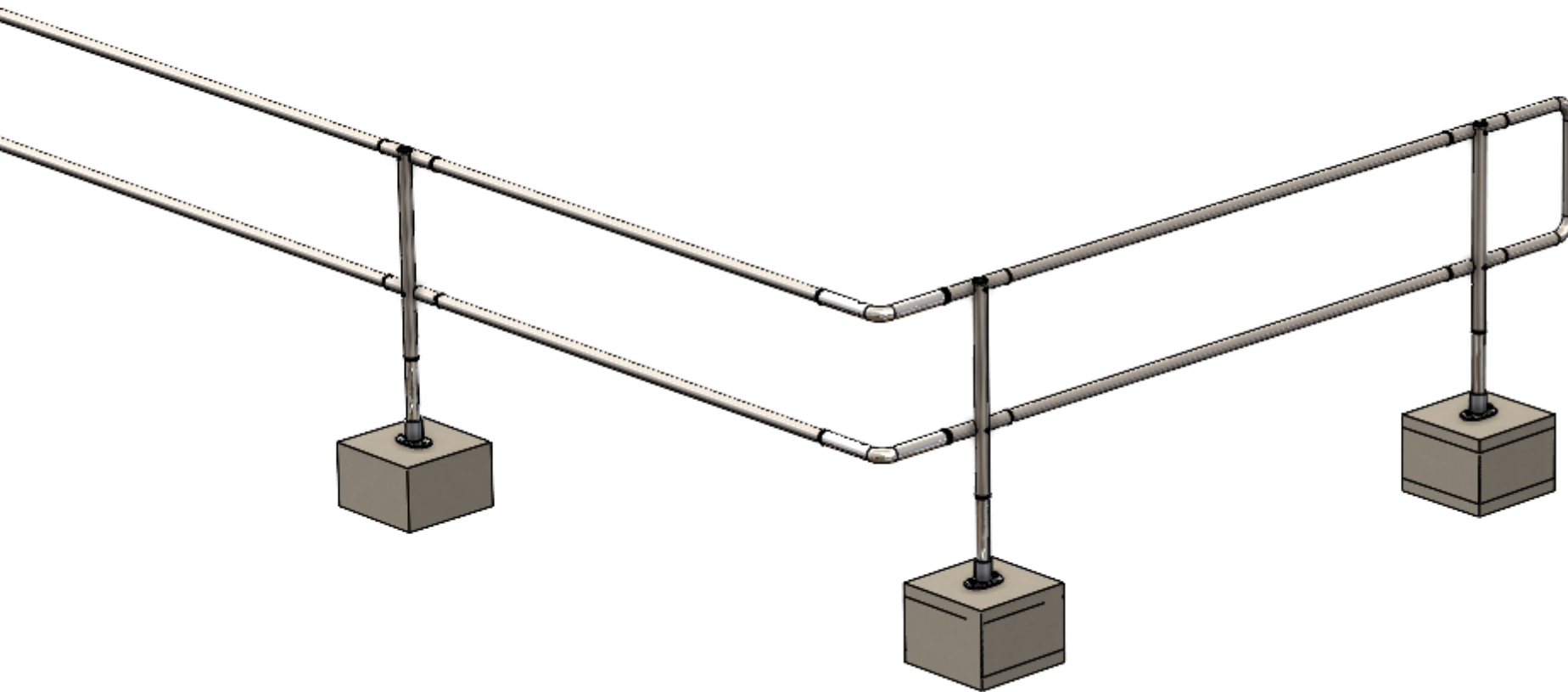


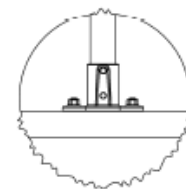
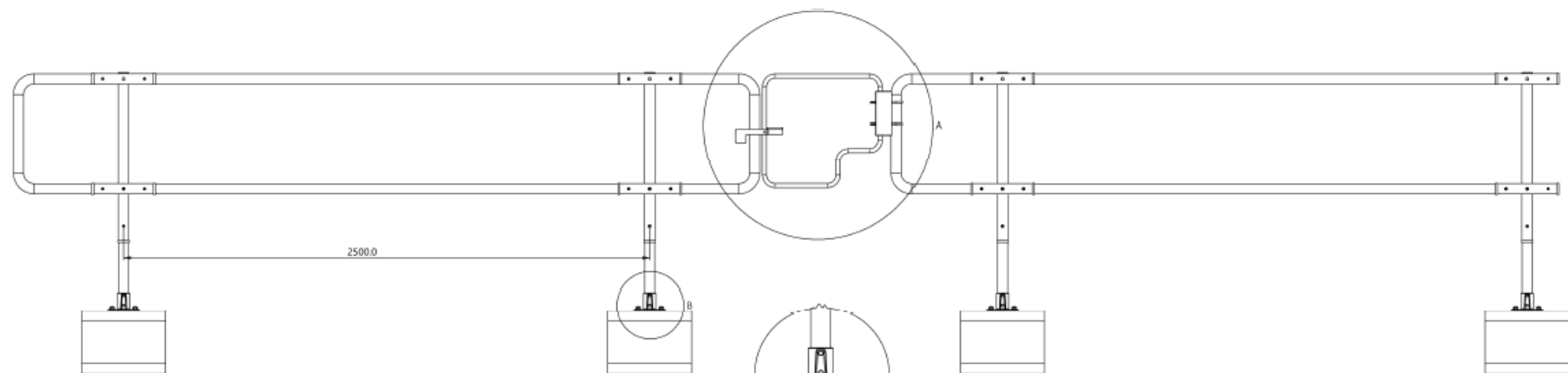
Configurations

Suitable for Rivet and Clamp fix

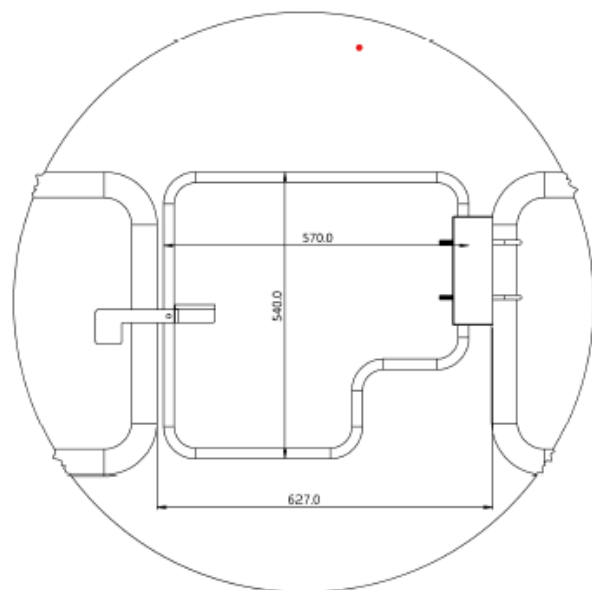
Top Fix

Concrete

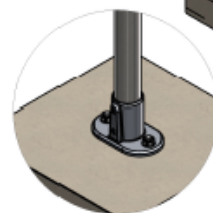




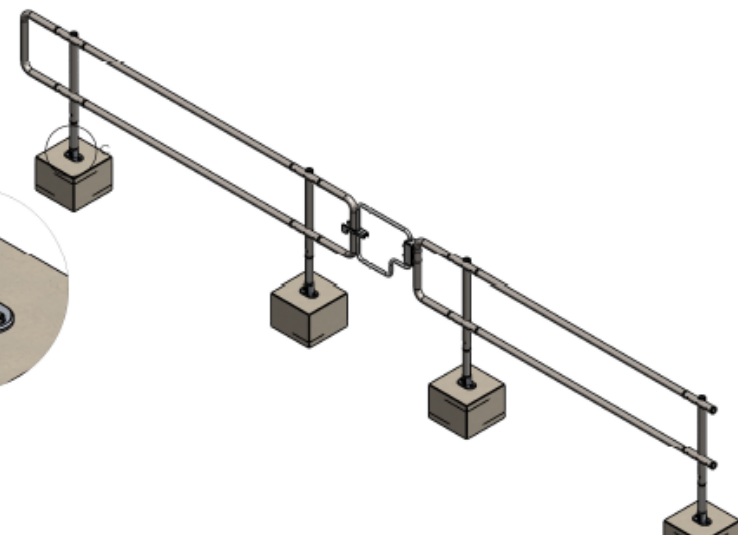
DETAIL B
SCALE 1:5



DETAIL A
SCALE 1:5



DETAIL C
SCALE 1:5



Configurations

Gate position allows for single direction use of the gate.
For dual direction an additional 75mm is required, but this
would leave the gate as a risk to falls.

PLEASE NOTE THAT VARIANCES ON THE GATE
MAY OCCUR.
BETTERSAFE INTERNATIONAL DESERVE THE RIGHT
TO ALTER THE PARTS WHERE PRODUCTION DICTATES

Installation

End

Specifications

1. 1 x GA-014 Upper Leg
2. 1 x GA-011 Lower Leg
3. 1 x GA-005 D-End
4. 1 x GA-009 Foot

Installation

1. Place foot onto roof and drill holes fixings.
2. Fix the foot using the required fixings for the substrate
3. Insert lower leg into base.
4. Tighten grub screw to retain.
5. Insert Upper Leg onto Lower Leg
6. Adjust to correct height and Tighten grub screw to retain.
7. Insert D-End
8. Tighten grub screws to retain.
9. Insert horizontal tubes.
10. Tighten grub screws to retain.



Installation

Intermediate

Specifications

1. 1 x GA-014 Upper Leg
2. 1 x GA-011 Lower Leg
3. 1 x GA-009 Foot

Installation

1. Place foot onto roof and drill holes fixings.
2. Fix the foot using the required fixings for the substrate
3. Insert lower leg into base.
4. Tighten grub screw to retain.
5. Insert Upper Leg onto Lower Leg
6. Adjust to correct height
7. Tighten grub screw to retain.
8. Insert horizontal tubes.
9. Tighten grub screws to retain.

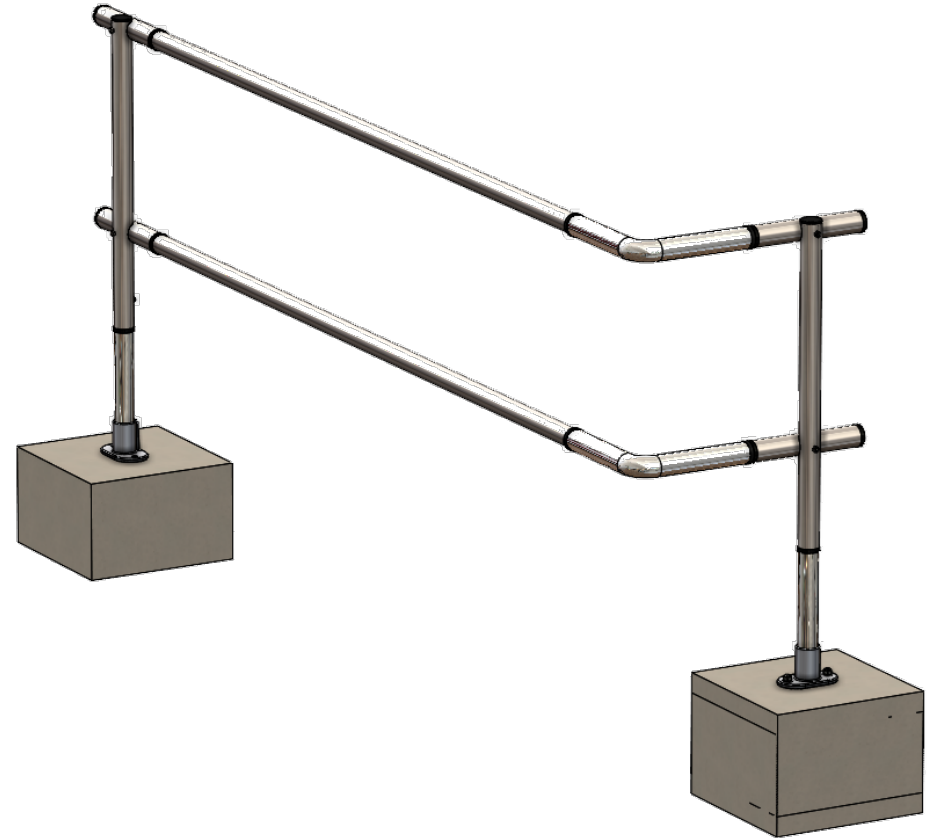


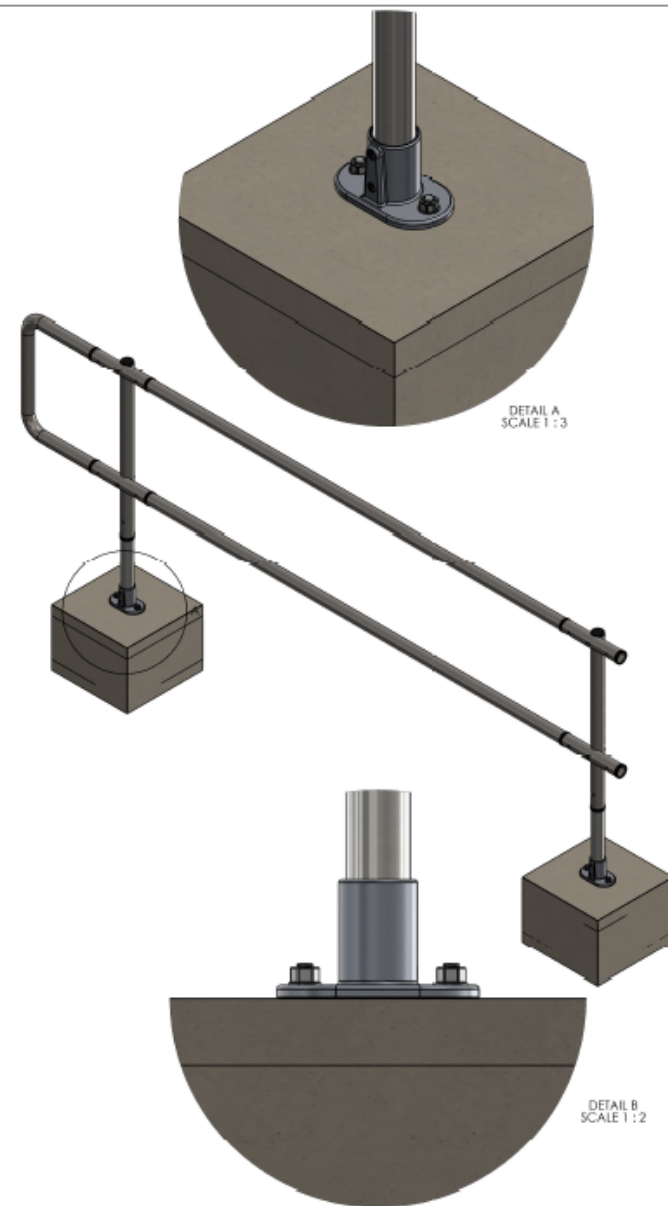
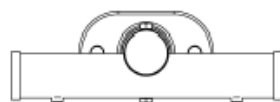
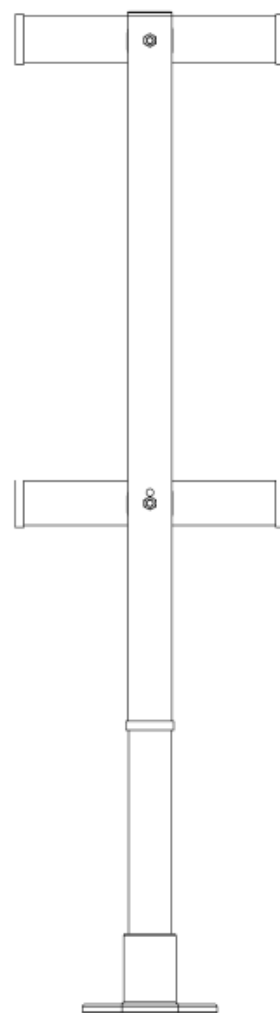
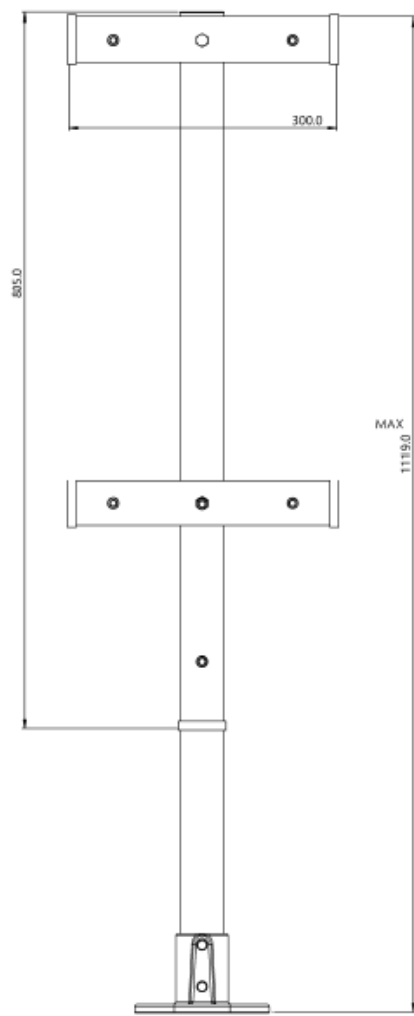
Installation

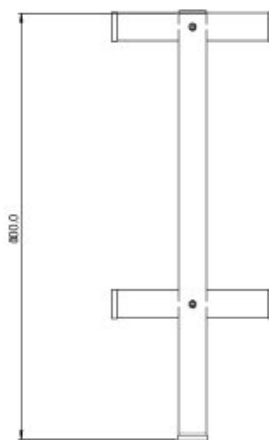
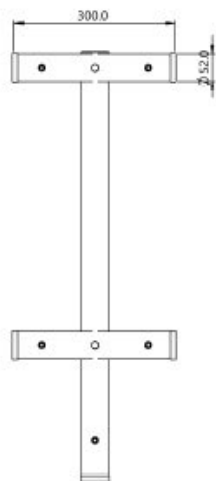
Corner

Installation

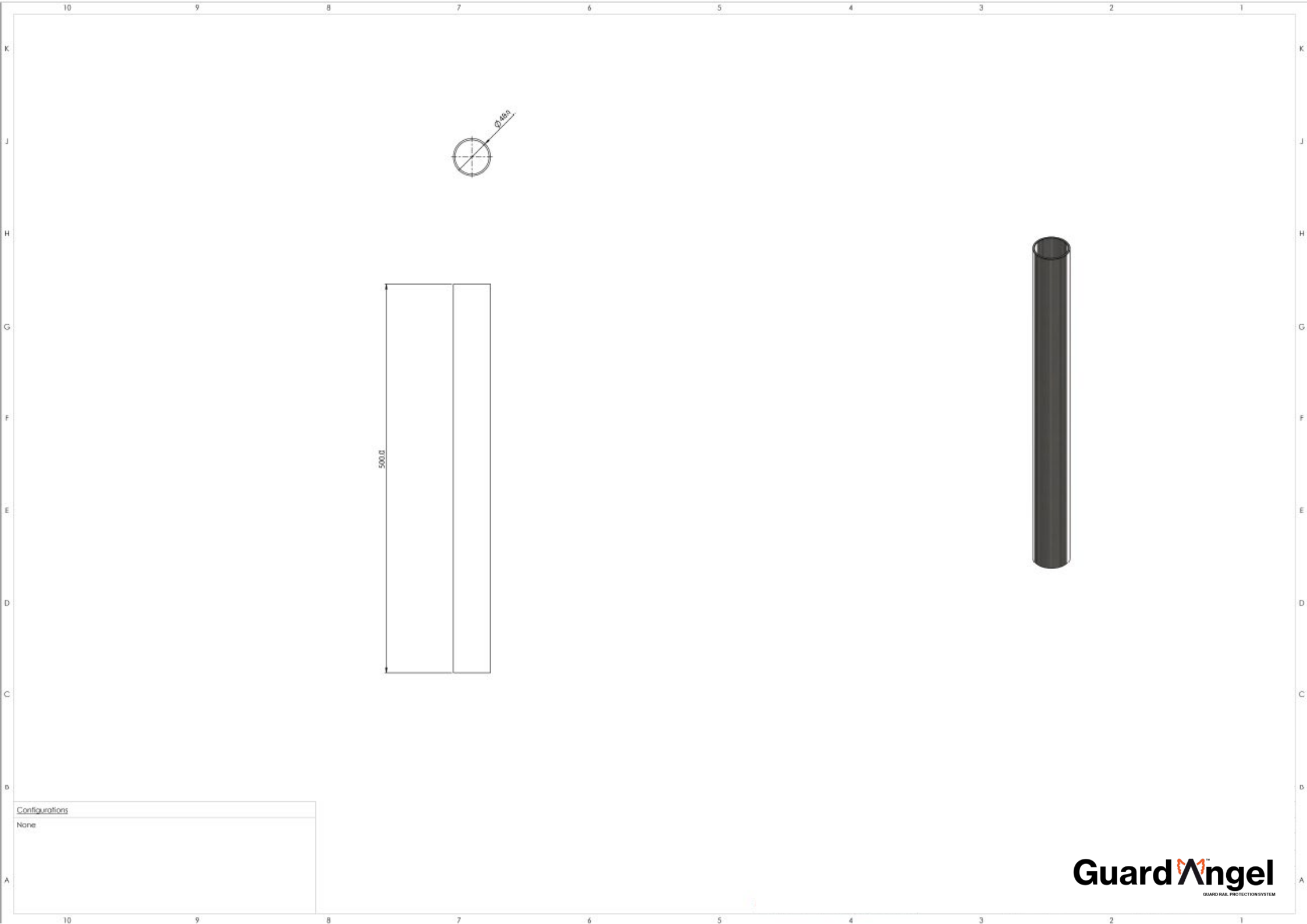
1. Follow Installation for leg
2. Insert a cut section of tube into the leg at the corner
3. Connect the corner tube to the section
4. Insert GA-003 tube into the corner sections
5. Insert the opposite end of the tube into the next leg placed max 2.5m from the corner
6. Tighten all grub screws on legs and corner tubes to retain.



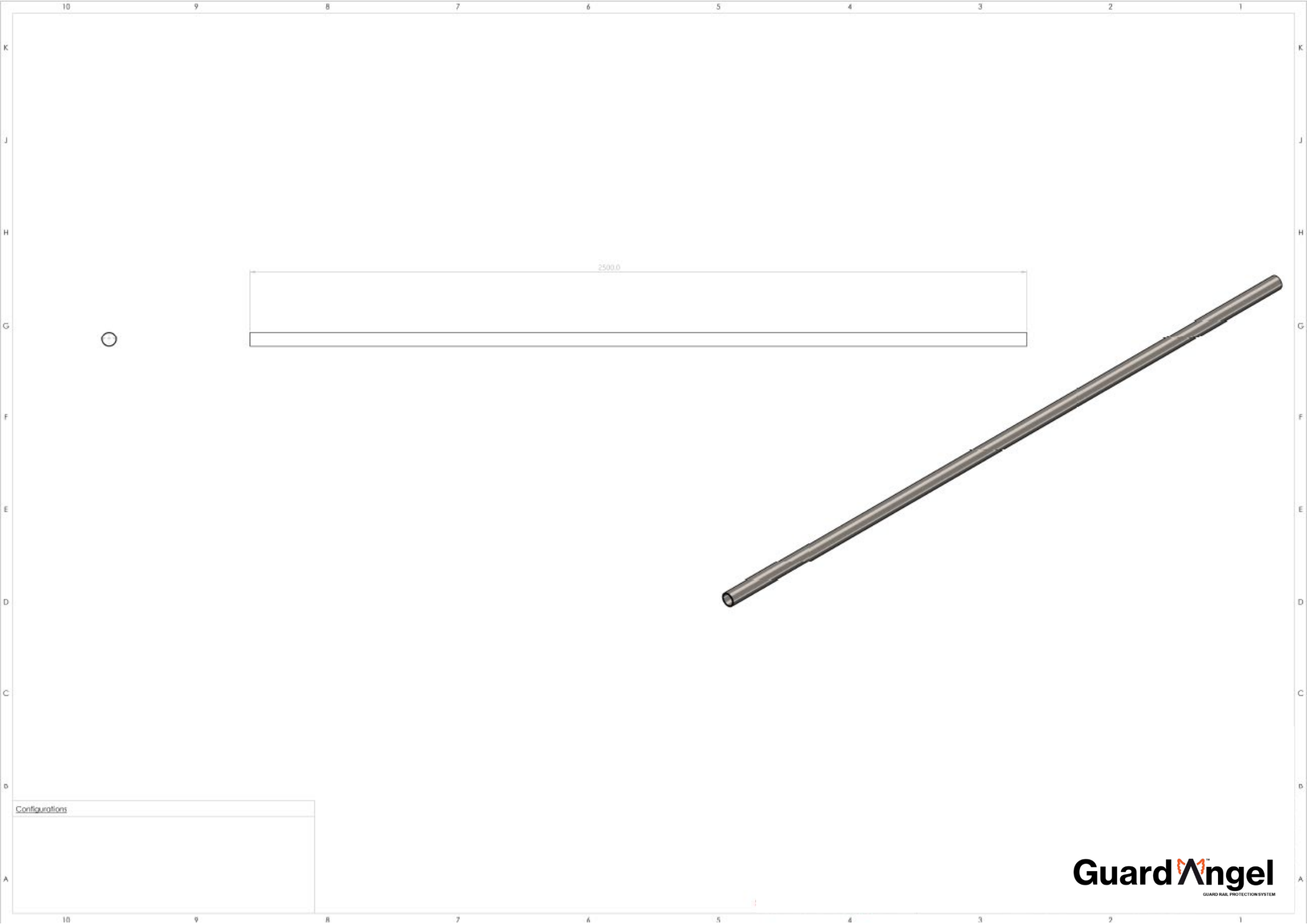


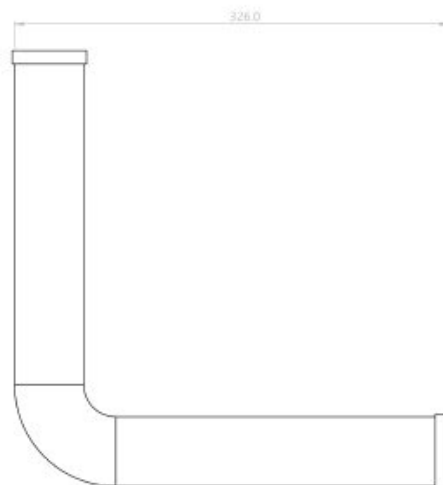


Configurations

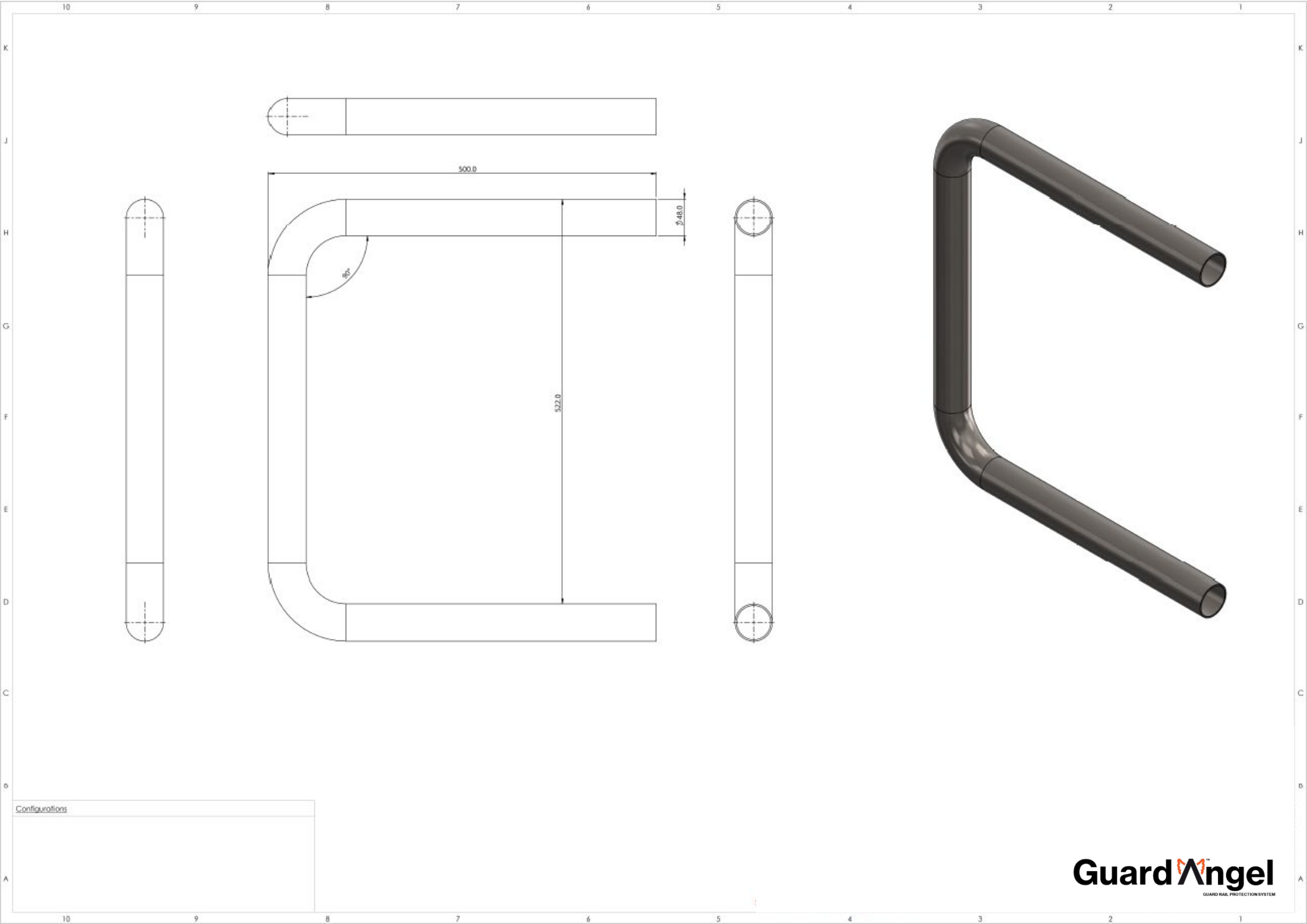


Configurations
None

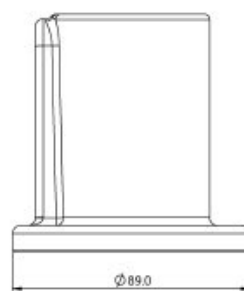
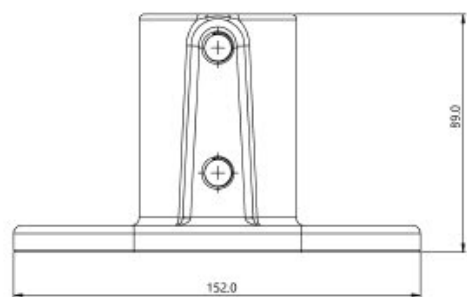
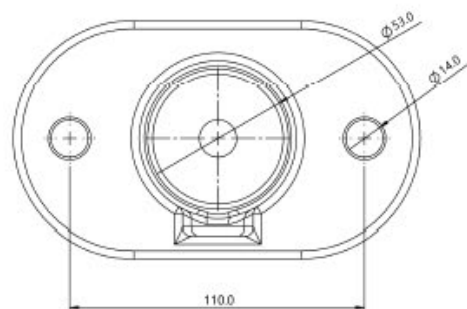




GuardAngel
GUARD RAIL PROTECTION SYSTEM



Configurations



Configurations

NOTE: DIMENSIONS MAY VARY

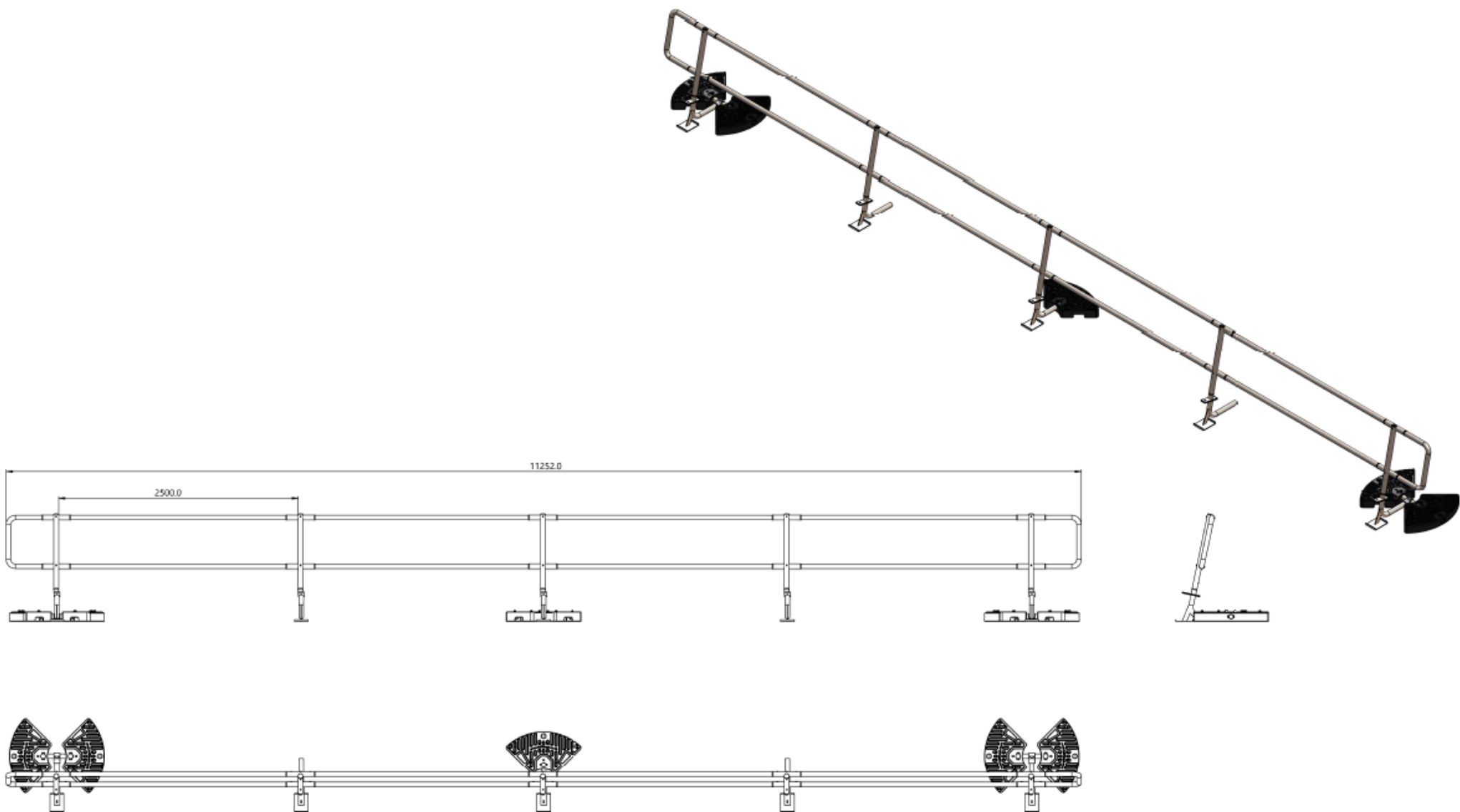
Free Standing

Folding



10 9 8 7 6 5 4 3 2 1

K J H G F E D C B A



Configurations

--

10 9 8 7 6 5 4 3 2 1

Installation

End Termination

Specifications

1. 1 x GA-014 Upper Leg
2. 1 x GA-017 Lower Folding Leg
3. 2 x GA-002 Weight
4. 1 x GA-005 D-End
5. 1 x GA-006 Double Weight Connector

Installation

1. Insert Lower Leg into Upper Leg
2. Adjust to correct height
3. Tighten grub screw to retain.
4. Insert D-End
5. Tighten grub screws to retain.
6. Insert horizontal tubes.
7. Tighten grub screws to retain.
8. Add Double Weight connector to end of lower leg and tighten grub screw to retain.
9. Insert Aluminium Blocks into weights
10. Slide weights onto end of double weight connector until the end of the tube can be seen through the hole in the weight.
11. Tighten grub screw to retain.



Installation

Weighted Intermediate

Specifications

1. 1 x GA-014 Upper Leg
2. 1 x GA-017 Lower Folding Leg
3. 1 x GA-002 Weight

Installation

1. Insert Lower Leg into Upper Leg
2. Adjust to correct height
3. Tighten grub screw to retain.
4. Insert horizontal tubes.
5. Tighten grub screws to retain.
6. Insert Aluminium Blocks into weight
7. Slide weight onto end of lower leg until the end of the tube can be seen through the hole in the weight.
8. Tighten grub screw to retain.



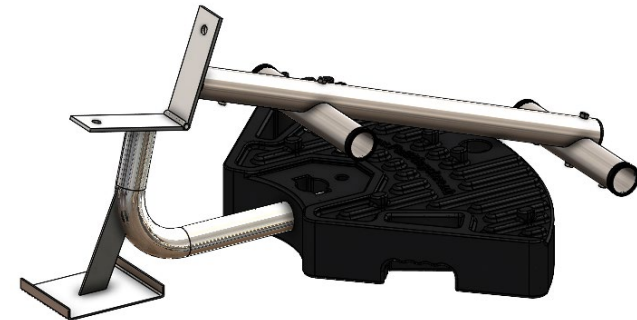
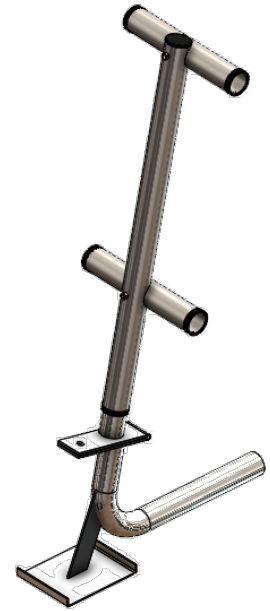
Non - Weighted Intermediate

Specifications

1. 1 x GA-014 Upper Leg
2. 1 x GA-017 Lower Folding Leg

Installation

1. Insert Lower Leg into Upper Leg
2. Adjust to correct height
3. Tighten grub screw to retain.
4. Insert horizontal tubes.
5. Tighten grub screws to retain.

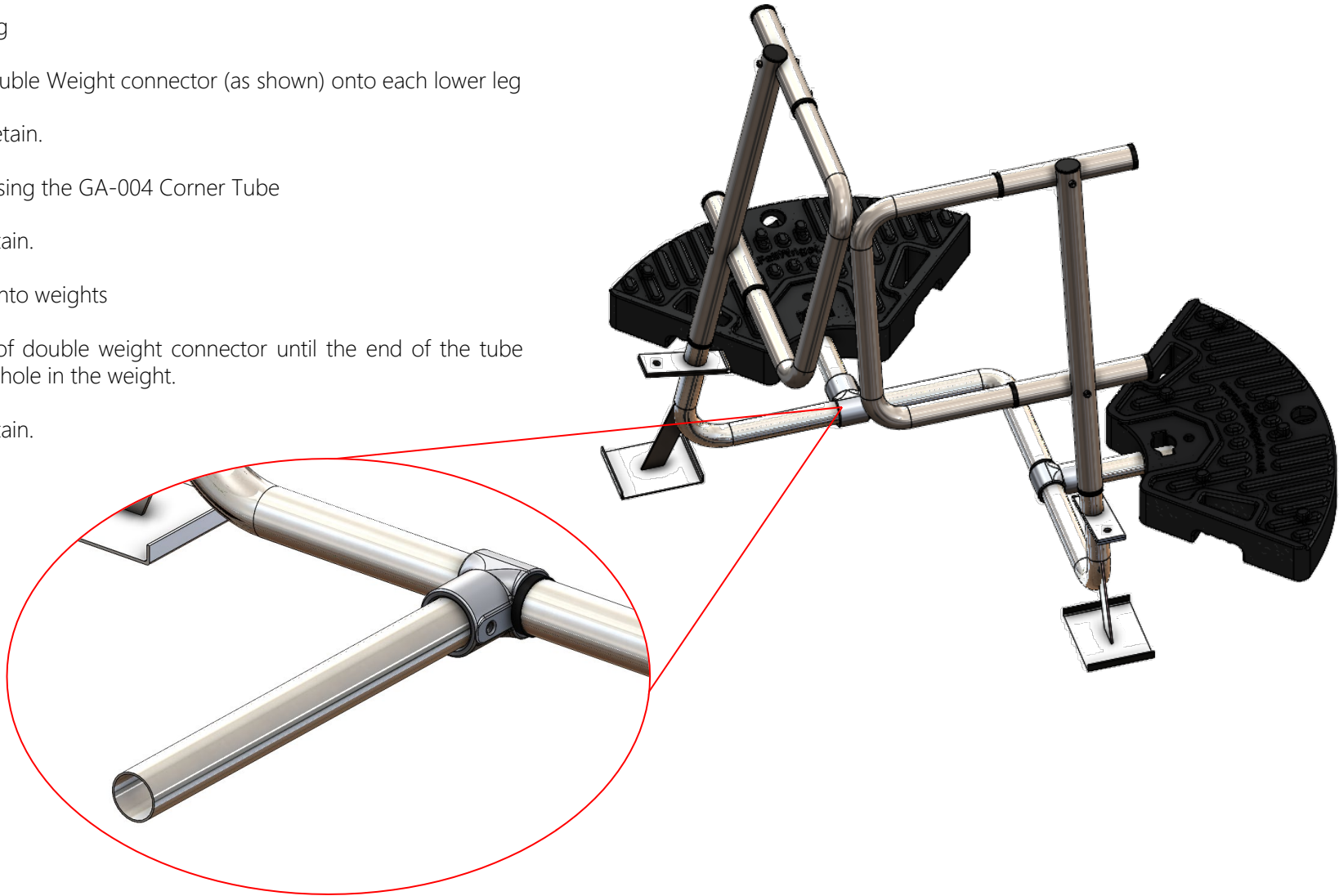


Installation

Corner

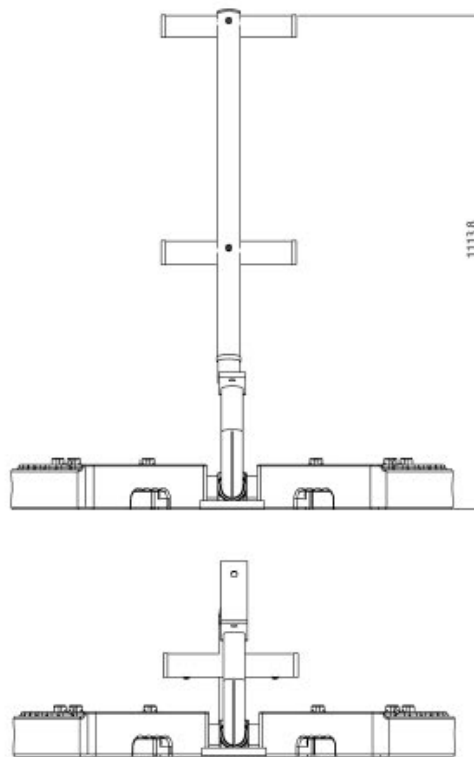
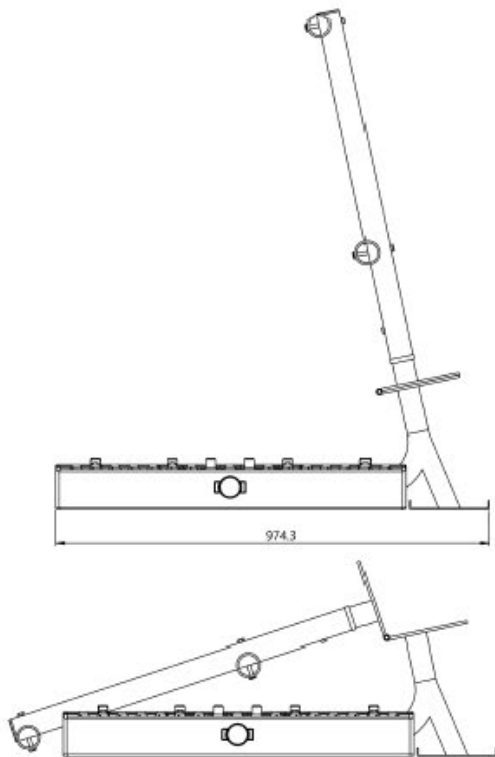
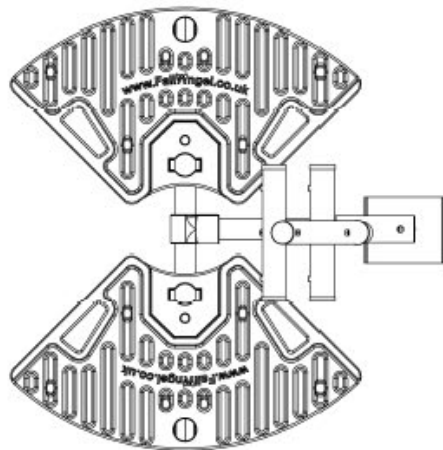
Installation

1. Follow Installation for Non-Weighted Leg
2. Insert D-End into each leg
3. Add the reconfigured Double Weight connector (as shown) onto each lower leg
4. Tighten grub screws to retain.
5. Connect the lower legs using the GA-004 Corner Tube
6. Tighten grub screw to retain.
7. Insert Aluminium Blocks into weights
8. Slide weights onto end of double weight connector until the end of the tube can be seen through the hole in the weight.
9. Tighten grub screw to retain.



Specifications

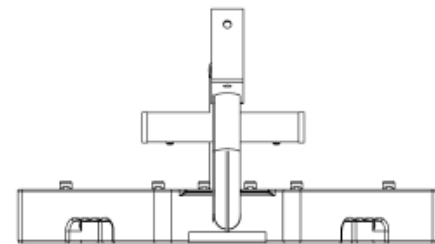
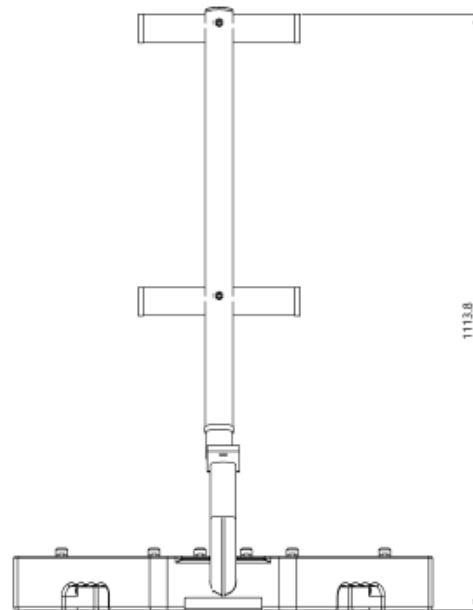
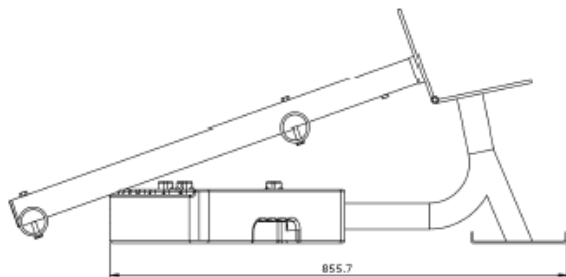
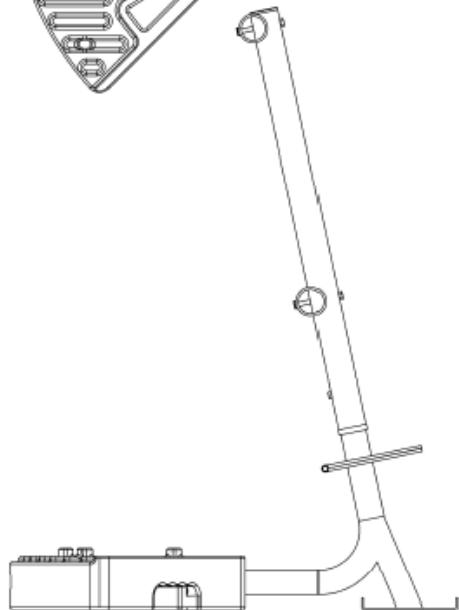
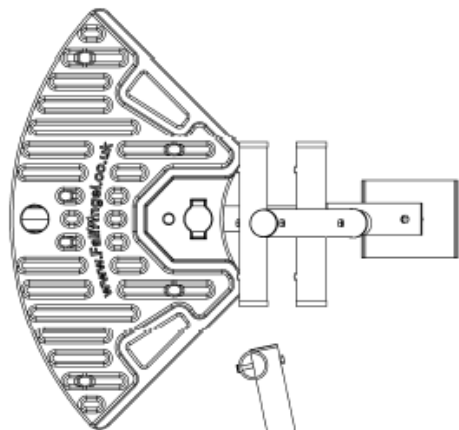
Dimensions and Weights



ADJUSTABLE HEIGHT TO SUIT



Configurations



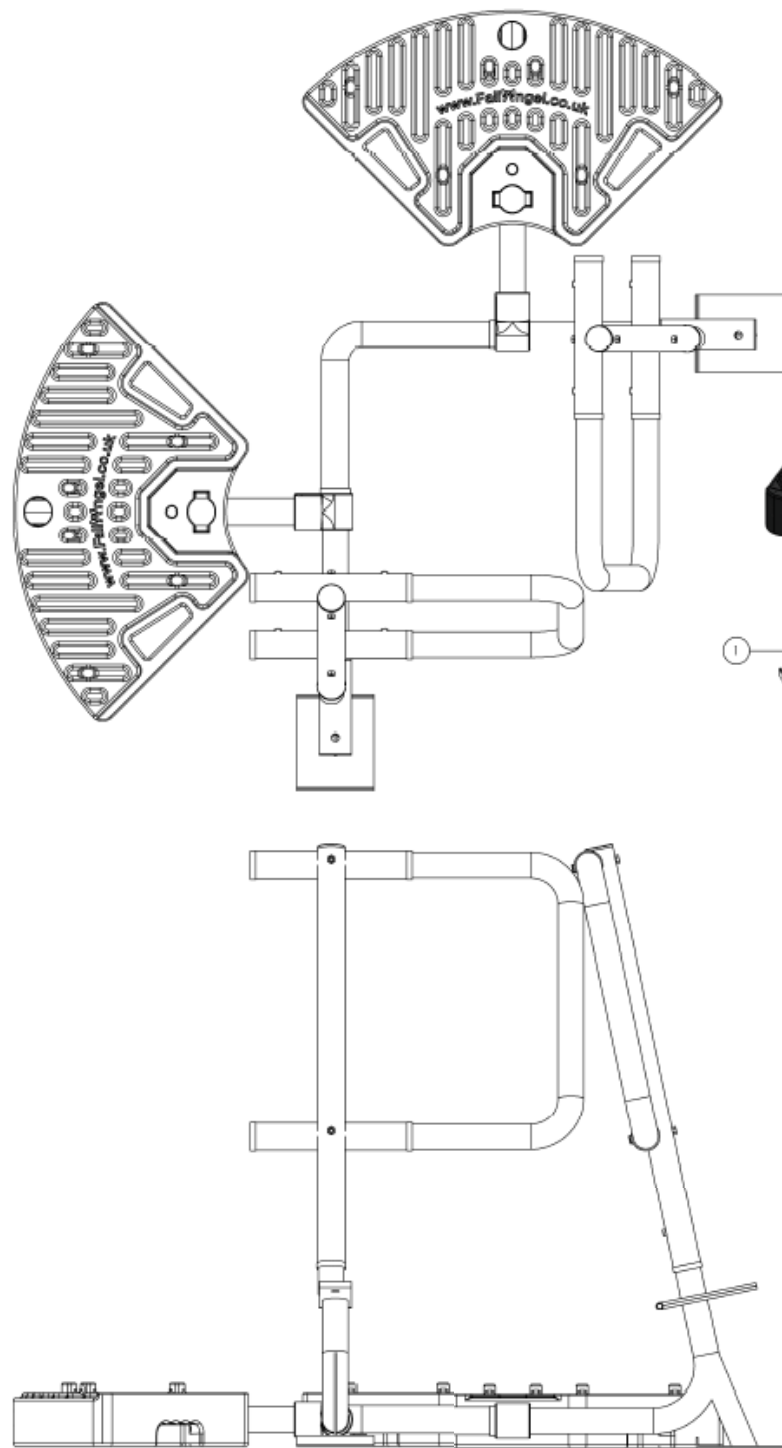
ADJUSTABLE HEIGHT TO SUIT

ADJUSTABLE HEIGHT TO SUIT

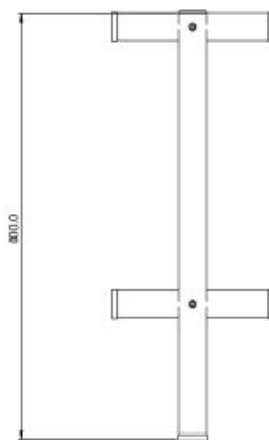
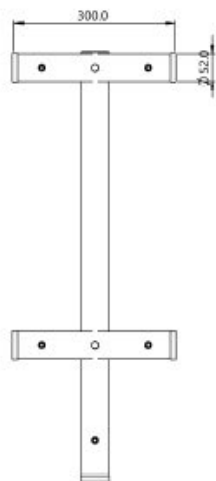
ADJUSTABLE HEIGHT TO SUIT



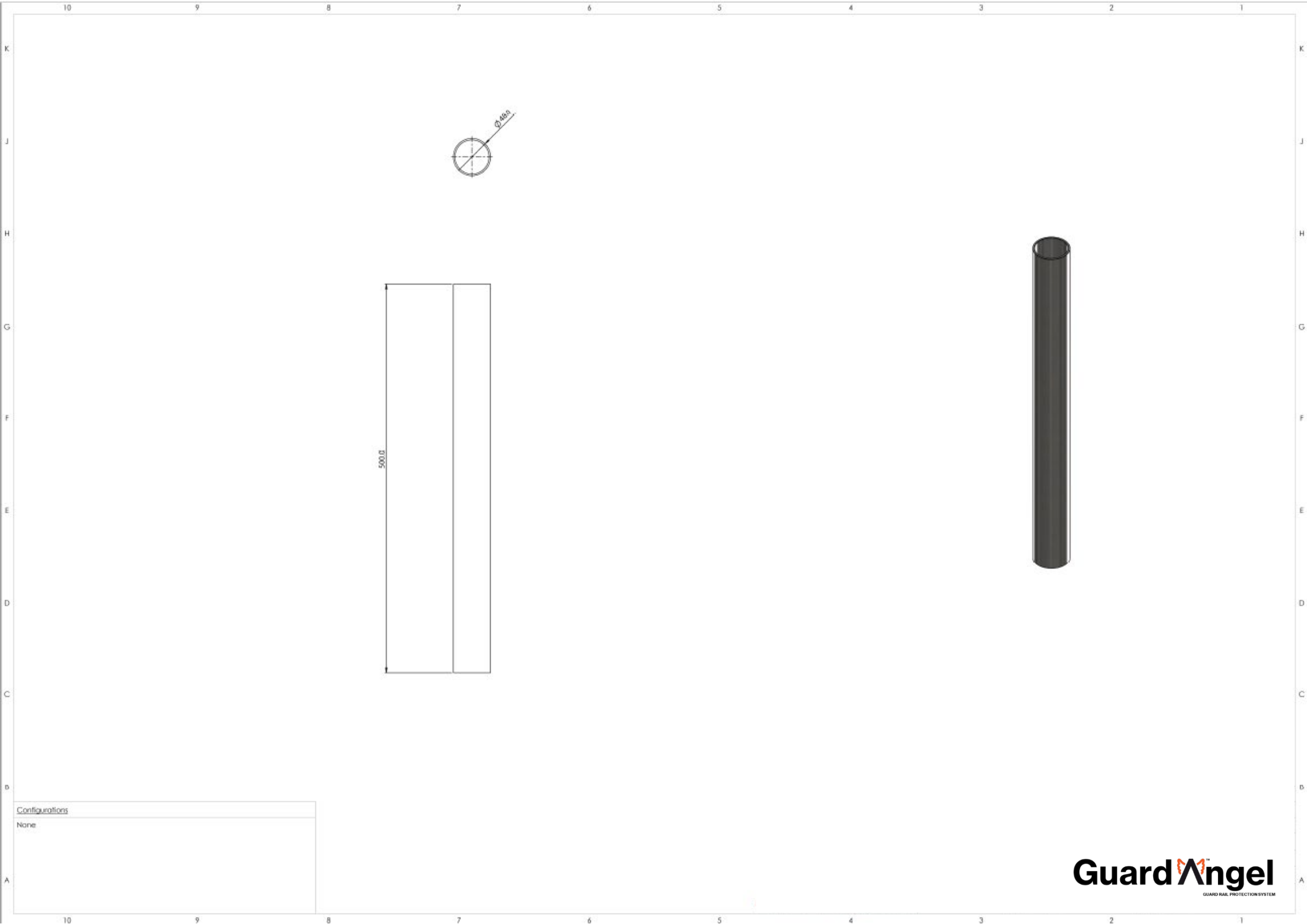
Configurations



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Folding Leg UP	Folding Guard Angel - Intermediate	2
2	GA-004	90 Degree Corner for Guard Angel	1
3	GA-005	D End for Guard Rail	2
4	GA-006-2		2
5	GA-006-1		2
6	GA-002	Guard Angel Weight	2



Configurations



Configurations
None



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