



Aviator[®]

RAPTOR RAIL ABSEIL AND RESTRAINT RAIL

PRODUCT DATA SHEET
REPORT NO: 022

REVISION NO: 002

PRODUCT CODE: RR255



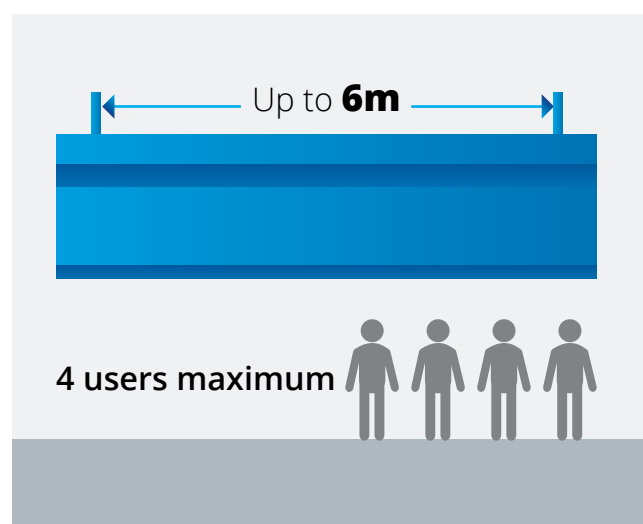
RAPTOR RAIL - ABSEIL AND RESTRAINT RAIL



PRODUCT DESCRIPTION:

Raptor Rail is designed to be fixed to a structural substrate such as structural steel or concrete to provide a continuous rope access connection point. The rail is supplied with a unique wheeled connection point which moves smoothly along the track and around any profiled corners and bends, without the need to disconnect. The robust sealed bearing trolley ensures effortless operator mobility when used as a rope access or fall arrest system. Lateral stabilising bearings allow the trolley to function normally when angled or side loading is required providing unlimited flexibility for positioning the rail to best suit the application and safety of the operator. The Raptor Rail provides the highest level of safety for all abseil, fall arrest and fall restraint use. Both the track and the connection point are certified for 33kN loads. For four users the support structure needs to be able to support 33kN.

The Raptor Rail is extruded in aluminium and every batch is load tested to ensure material compliance. The aluminium has a unique material specification which enables the product to maintain a lightweight structure with increased load bearing capacity. Provided the rail is fitted in accordance with the fitting instructions, the Raptor Rail can span up to 6m between brackets. The Raptor Rail can be designed for use by up to 4 users at any 1 time. In order to accommodate these requirements a longspan section may be required to be fitted together with the rail. The wheeled connection points are cast in stainless steel for durability and strength.



Aluminium Rail OH255 **33kN**

BIM No: SpecEquip_RfSftySymAbsRptRail_SayfaSystems_RR255_M3_G2



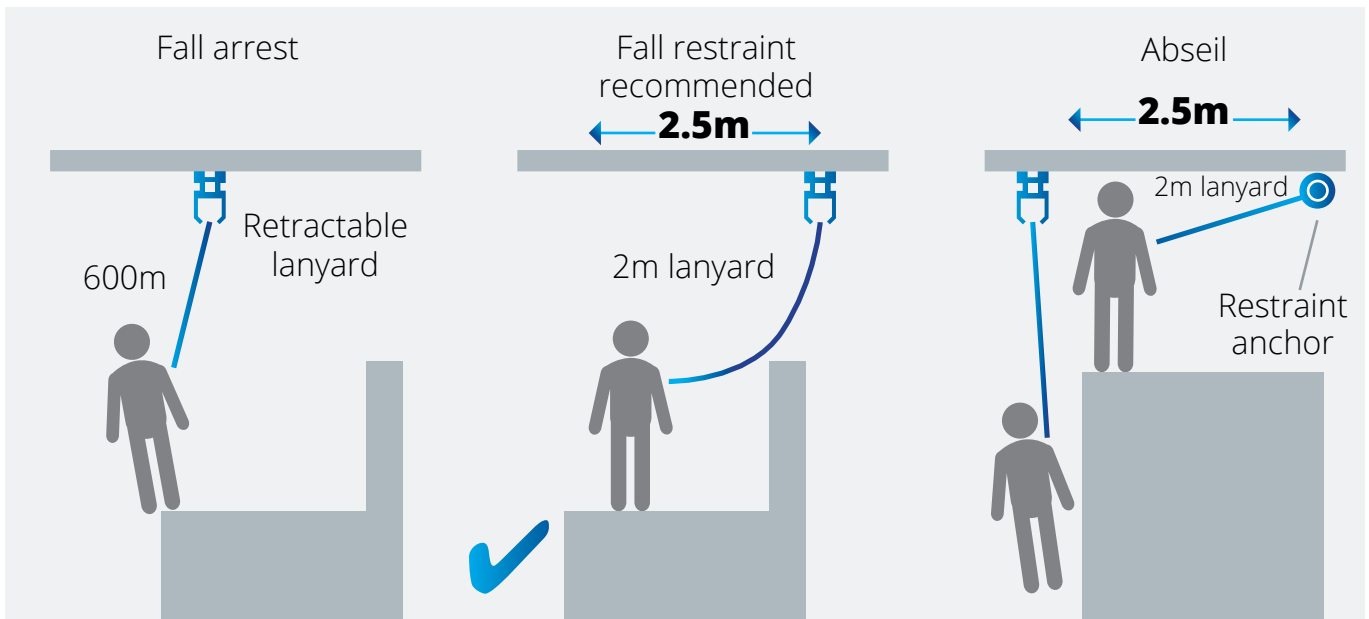
Fall Arrest Trolley RR260 **15kN**

BIM No: SpecEquip_RfSftySymAbsRptRailTrlyl_SayfaSystems_RR260_M3_G2



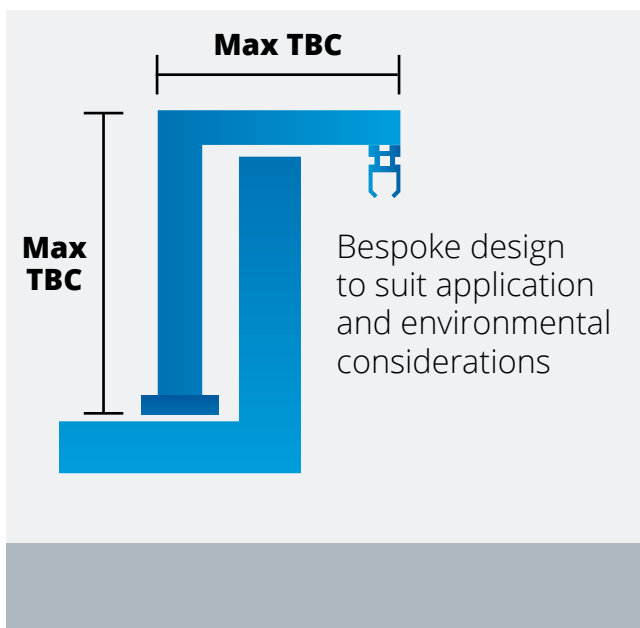
The Raptor Rail is designed for use for Abseil, fall arrest and fall restraint use. The position of the rail in relation to a fall hazard will determine whether a system is fall arrest or fall restraint. It is our recommendation to always design a system to be fall restraint. For abseil use care must be taken to ensure a suitable hook on anchor to enable safe attachment to the rail for abseil use. Involving our specialist design teams as early as possible will ensure the most cost effective system is used without compromising any safety or access requirements. Our designers will consider the welfare and safety of both rope access and non-rope access personal during the construction and future use.

When the Raptor rail is set up to be used as a fall arrest system, the retractable lanyard needs to be positioned at least 600mm above the operators head to ensure correct fall arrest action of the system.

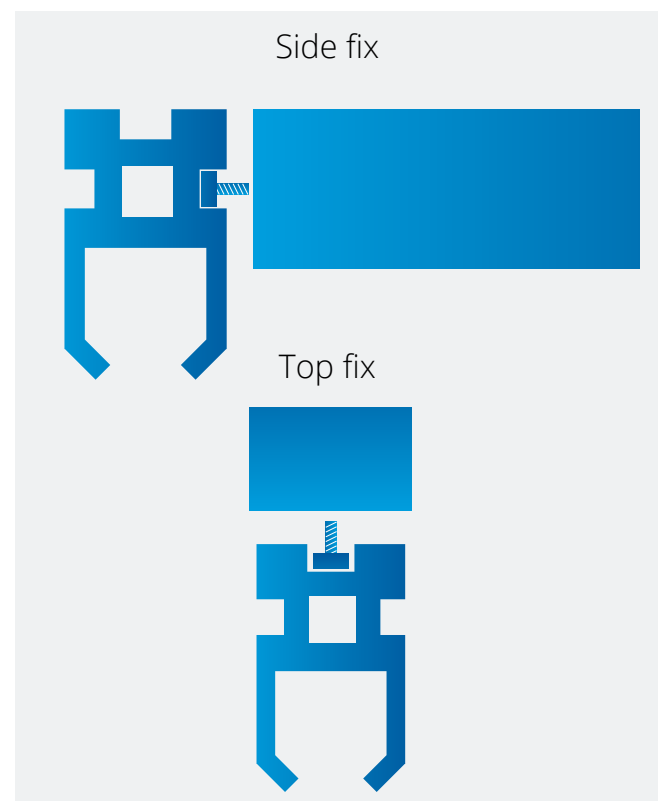


When using the system for abseil use it may be necessary to fit support steels and brackets over a parapet wall or obstruction if the abseil ropes cannot press down on the building edge. This is normally required when there is a light duty edge capping or parapet wall or balustrade that has not been designed for abseil use.

All support steel and the connection to the building construction must be designed to an ultimate force of 15 - 33kN dependent on the number of users. It is recommended that any support brackets are designed prior to the building construction to avoid any unnecessary or additional rework.



A number of different fixing options are available for the Raptor rail. Due to the construction of the extrusion it is very easy to attach the rail to both top or side fixings. The extrusion has a fixing slot which can accommodate Sayfa T-bolts along the complete section of the track. This flexibility ensures reduced installation time on site.



RAPTOR RAIL - ABSEIL AND RESTRAINT RAIL



The aluminium Raptor Rail extrusion is profiled to bend around an angle of 45 and 90 degrees. The rail can be colour coded to match a building façade to ensure very low visual impact. End stops are easily fitted on each system. Wheeled connection points are always supplied in

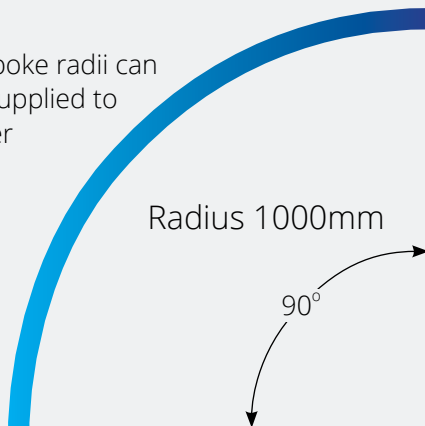
pairs to ensure a double connection point is available. No specialist PPE is supplied with the installation and this is brought to site by the system users when required.

Raptor Rail can be installed on a horizontal or vertical substrates of a building. Careful consideration must be taken when designing the rail positions to ensure abseil ropes and lanyards will not foul with any roof plant or roof penetrations. If ropes are required to lie over any parapet walls or edge protection such as balustrading it will be necessary to ensure that the parapet has been re-enforced at the point of contact. The use of an abseil rope spreader plate can reduce the point loading considerably.

90 degree corner

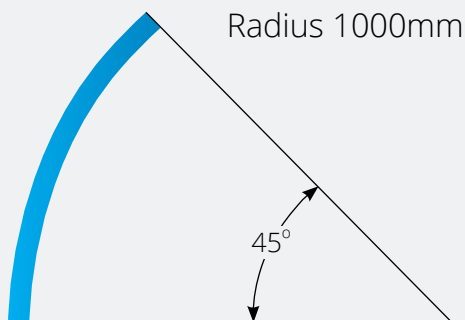
BIM No: SpecEquip_RfSftySymAbsRptRail_SayfaSystems_RR256.90_M3_G2

Bespoke radii can be supplied to order

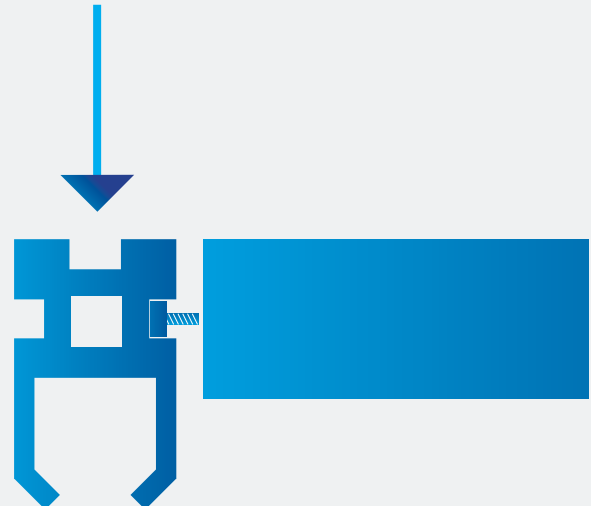


45 degree corner

BIM No: SpecEquip_RfSftySymAbsRptRail_SayfaSystems_RR256.45_M3_G2



Refer to table for support structure load requirements



MATERIAL SPECIFICATION: Brackets - galvanised steel

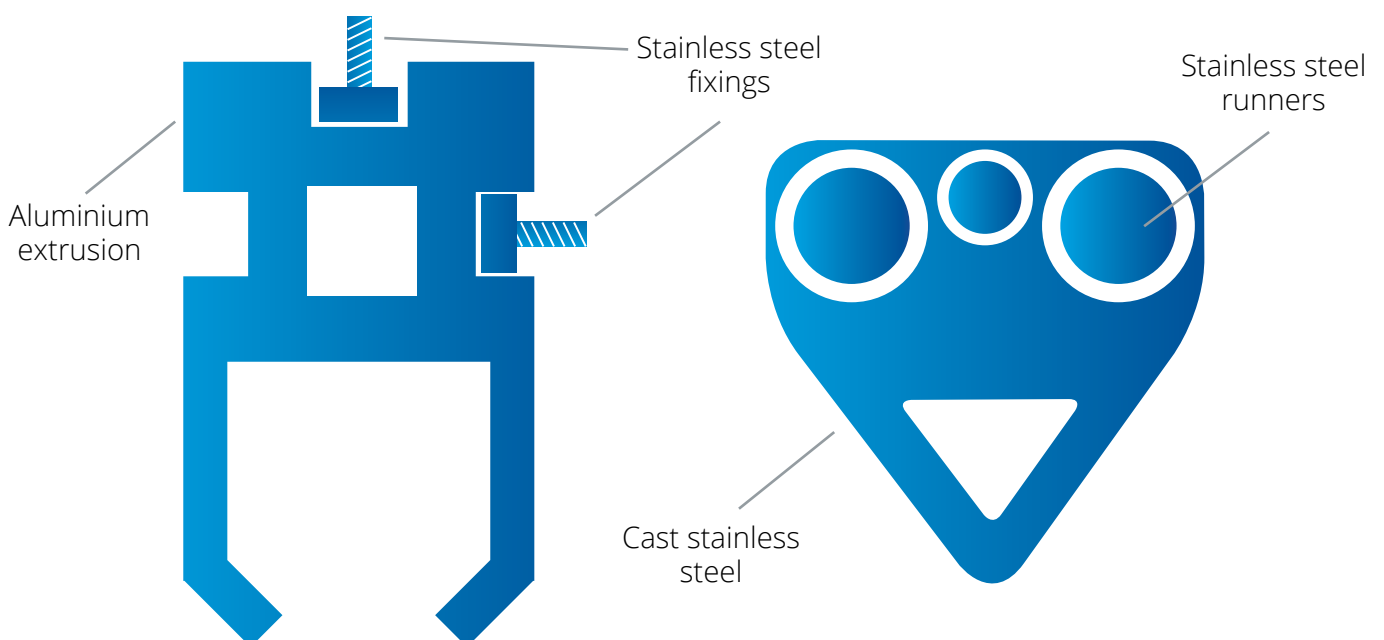
Yield	275 N/mm ² C 0.15 – 0.26; Si < 0.35; Mn < 1.5; P < 0.035; S < 0.040; Mo 0.4 – 0.6.
Young's Modulus of Elasticity	200 x 10 ³ MPa at 20 °C
Density	7.87 g/cm ³ at 20 °C
Coefficient of Thermal Expansion	Low-Carbon/HSLAS: 12.4 µm/m/°C in 20 °C to 100 °C range I-F Steel: 12.9 µm/m/°C in 20 °C to 100 °C range
Thermal Conductivity	Low-Carbon/HSLAS: 89 W/m°C at 20°C I-F Steel: 93 W/m°C at 20°C
Specific Heat	481 J/kg/°C in 50 °C to 100 °C range
Electrical Resistivity	0.142 µΩ•m at 20 °C

Wheeled connection point and runners

Cast Stainless Steel - Grade 304 (UNS S30400)
Fe, <0.08% C, 17.5-20% Cr, 8-11% Ni, <2% Mn, <1% Si,
<0.045% P, <0.03% Stainless Steel

Profiled extrusion

Aluminium extrusion 0.56 - 0.72 Si,
Max 0.45, Fe 0.40 - 0.70 Mg
Tensile strength 186MPa
Yield strength 131MPa



INSPECTION/MAINTENANCE/ TRAINING

INSPECTION ROUTINE:

All systems to be inspected at least every 12 months from date of installation.

In harsh environments all systems to be inspected at least every 3 months.

Inspections must be carried out by approved Aviator engineers.

Inspections must be approved to SIMS (Safety Inspection and Maintenance Service) standards.

All inspections to be carried out to EN795:2012 and BS 7883:2005 and WAHSA (inspection of eyebolts) requirements for safety line and anchor points.

All inspections to be carried out to EN364 requirements for personal protective equipment.

Contact Sayfa Systems to arrange inspections.

MAINTENANCE SCHEDULE:

All maintenance to be carried out by approved Aviator engineers. Maintenance to be in accordance with Sayfa Systems UK (manufacturer) guidelines and recommendations.

In harsh environments all systems to be inspected at least every 3 months.



Maintenance to be in accordance with SIMS standards. (details available on request)

Maintenance to be carried out at time of yearly inspection.

Contact Sayfa Systems to arrange system maintenance.



TRAINING REQUIREMENTS:

All personnel who use the Aviator system should have attended a Sayfa Systems Ltd, Aviator users course.

Courses are available from Sayfa Systems UK Ltd.

Courses cover the use of all Aviator and Payload products, the legal and practical side of the Working at Height legislation - 2005 and how to use and carry out safety checks on harnesses and all necessary PPE equipment.



CERTIFICATE

OF
OPERATIVE INSTRUCTIONAL TECHNIQUES AND
WORKING AT HEIGHT SAFETY

In recognition of successful completion of training for the installation and assembly, use, handling and safety checks of:-

Aviator Safety Line Systems	<input checked="" type="checkbox"/>
Aviator Mobile Anchors	<input type="checkbox"/>
Payload Access Ladder Systems	<input type="checkbox"/>
Payload Handrail Systems	<input type="checkbox"/>
Aviator PPE	<input checked="" type="checkbox"/>

To: _____

Location of Training: _____

Certificate Number: _____

Name of trainee: _____ Signed by trainee: _____

Inductor's name: Adrian Stutterheim..... Signed: *Adrian Stutterheim*.....

Date of Training: 00 January 1900.....




OPERATING AND DESIGN STANDARDS:

Eurocodes are designated by EN

British standards are designated by BS

- Steel – EN10 113 and EN 10 025
- BS 7985: 2013 Code of Practice for Rope Access Methods for industrial purposes
- The lifting operations and lifting equipment regulations 1998
- LOLER REG. 5(1) (a and b) for design
- LOLER REG. 7(a, d and e) for marking
- LOLER REG. 9 (1, 2, 3 a and b) for examination
- ISO 9001:2008, ISO14001:2004, BS OHSAS 18001:2007
- Management of health and safety at work regulations 1999 (MHSWR) ref.2
- Work at height regulations 2005 (Ref 7)
- Work at height (amended) regulations 2007 (Ref. 8) WAHR
- BS EN 795 : 2012 Class D
- BS ISO 22846 - 2 Personal Equipment for protection against falls code of practice
- BS ISO 22846 - 1 : 2003 Personal Equipment for protection against falls Fundamental principles for a system of work
- BS 7883:2005– Design, selection, installation, use and maintenance for anchors conforming to EN 795
- PD CEN/TS 16415:2013



The company operates to the following standards



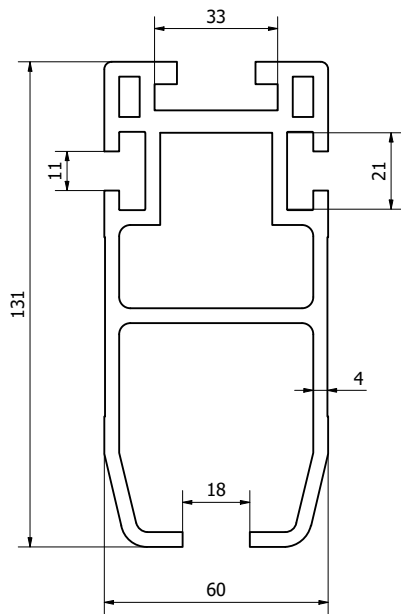
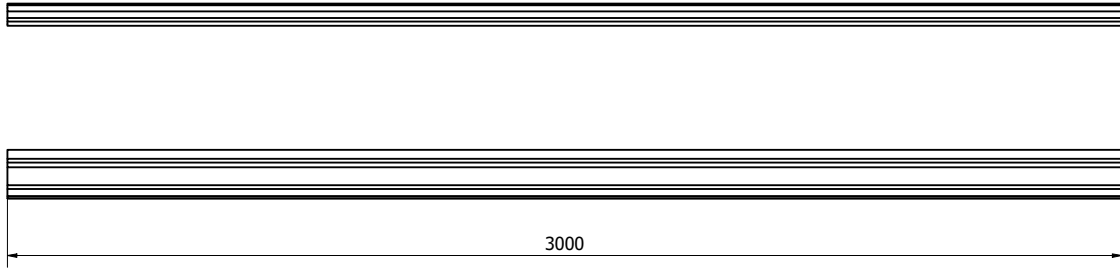
- Provision and use of work equipment regulations 1999 PUWER 98 (Ref.5)
- the work at height safety association WAHSA-guidance on inspecting eyebolts for personal fall protection purposes

RAPTOR RAIL SPAN TABLE (FOR FALL ARREST USE)

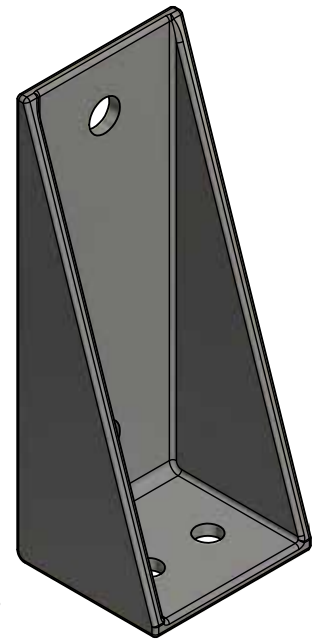
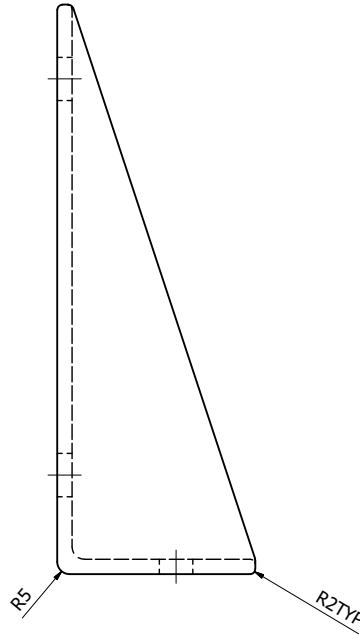
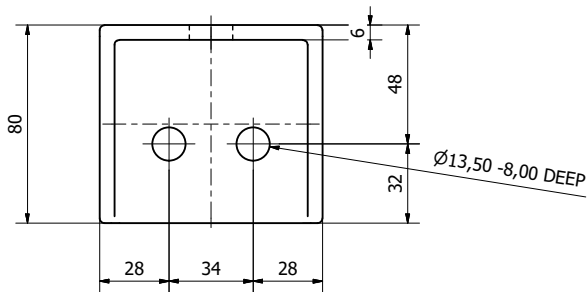
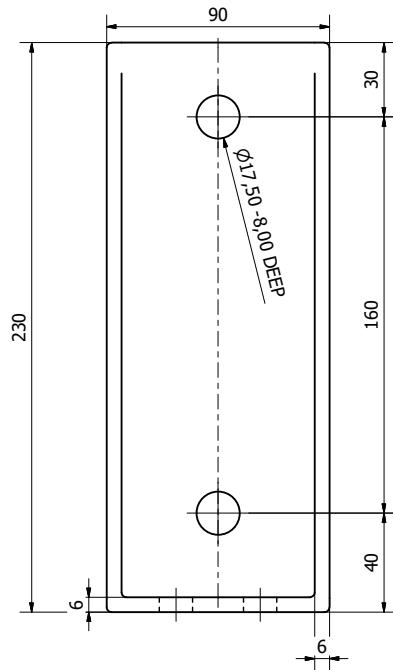
RAPTOR RAIL ONLY		
No of Users Per Span	Max Span Length	Support Structure Design Load
1	4000mm	15kN
2	3200mm	21kN
3	2500mm	27kN
4	2000mm	33kN

RAPTOR RAIL WITH LONGSPAN SUPPORT		
No of Users Per Span	Max Span Length	Support Structure Design Load
1	6000mm	15kN
2	5500mm	21kN
3	4800mm	27kN
4	4200mm	33kN

Raptor Rail 3000mm Section - RR255.3000

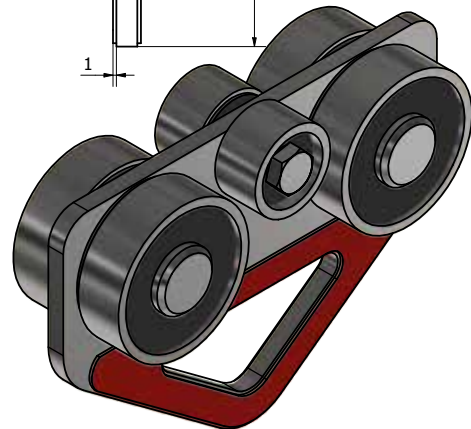
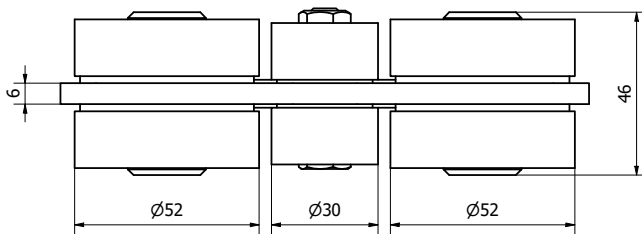
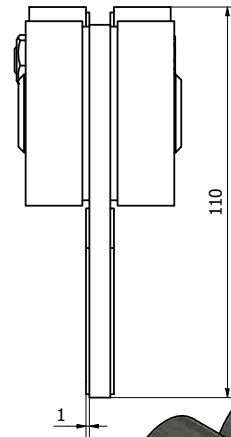
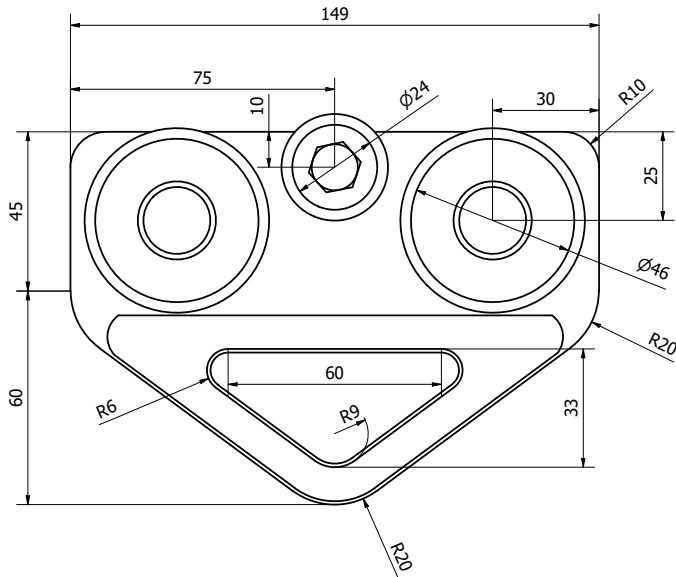


Raptor Rail Wall Mount

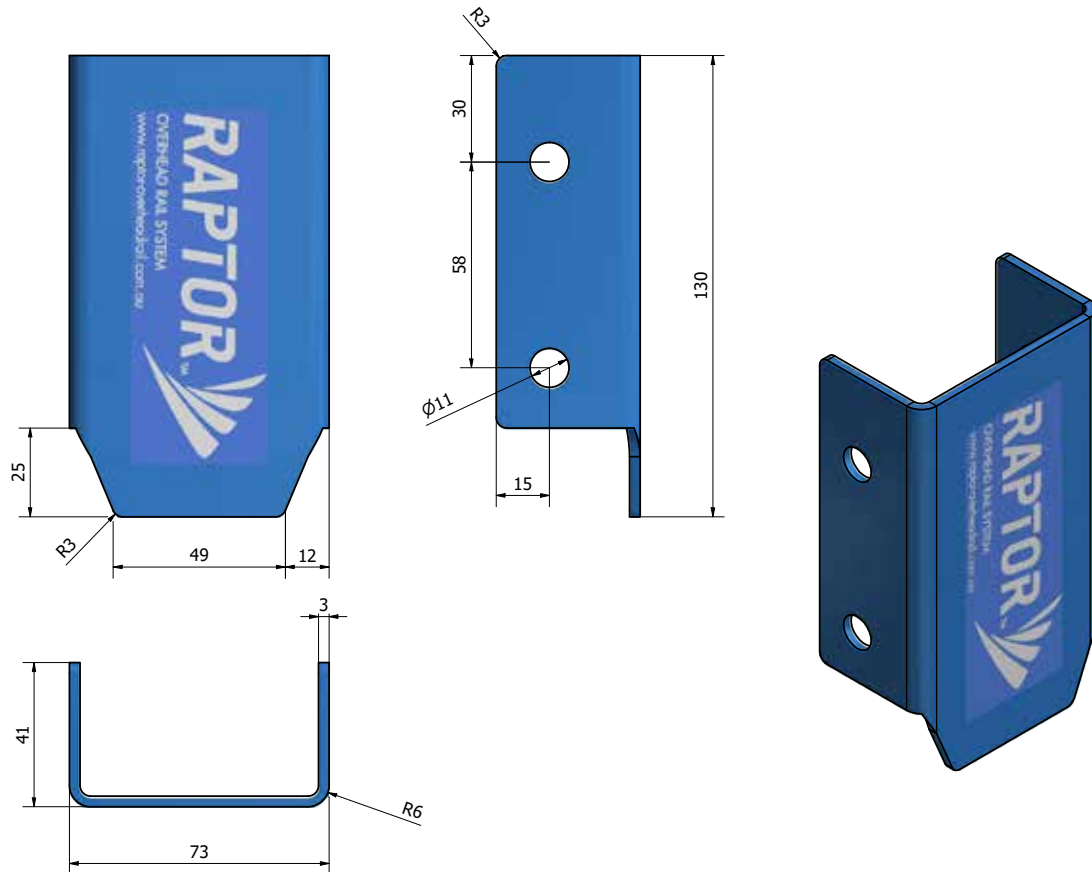


Note:
 Fillet welded
 6mm Stainless Steel or
 8mm 6082 T6 Aluminium
 All edges debur and fillet

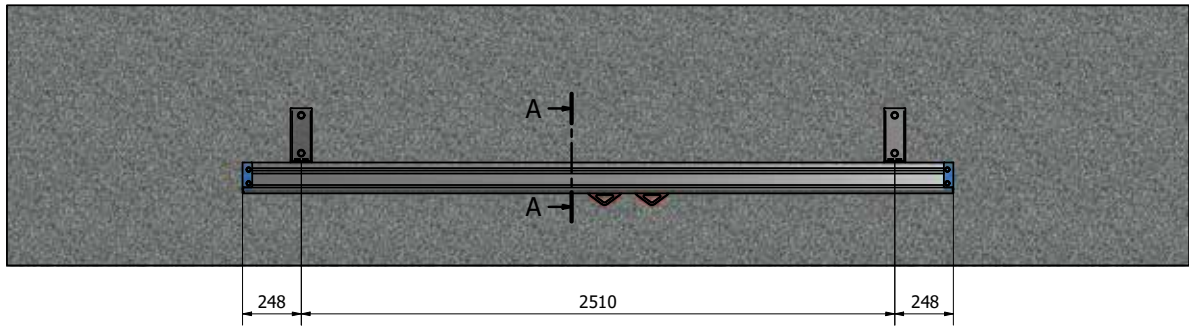
Raptor Rail Overhead Trolley - RR260



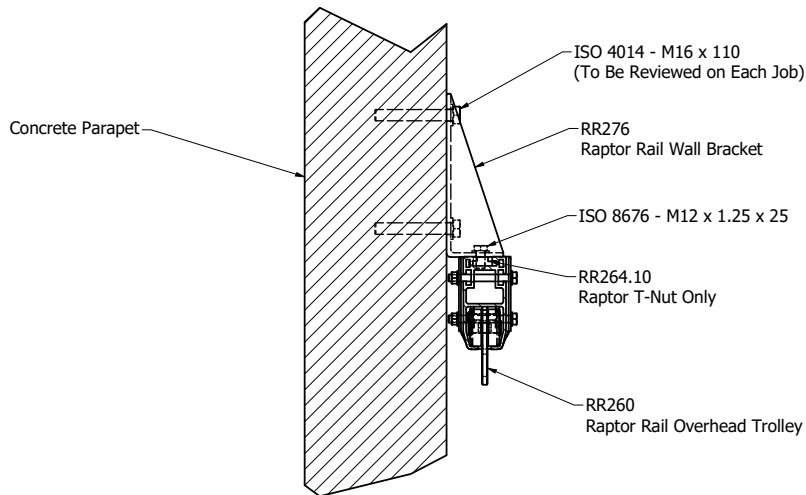
Raptor Rail™ End Stop - RR265



Raptor Rail™ Fixed to Parapet



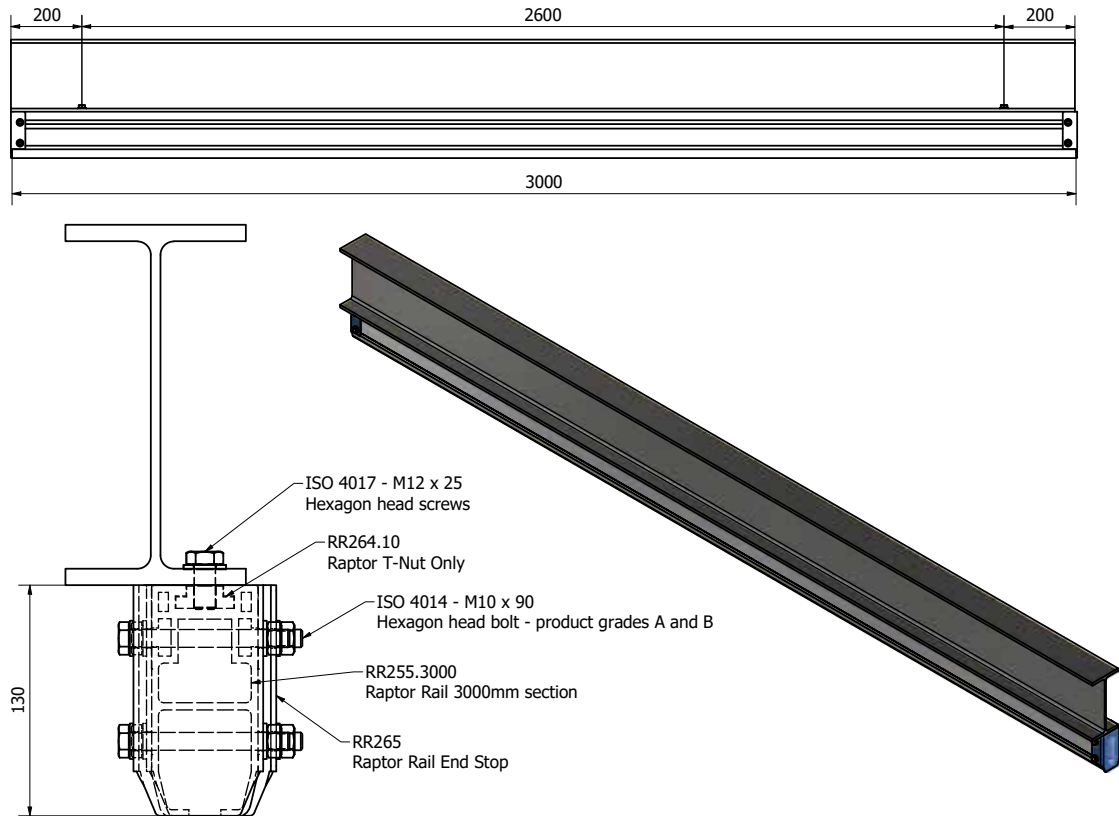
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NOTE:

- CONNECTION DEPENDANT ON STRUCTURAL CALCULATIONS.

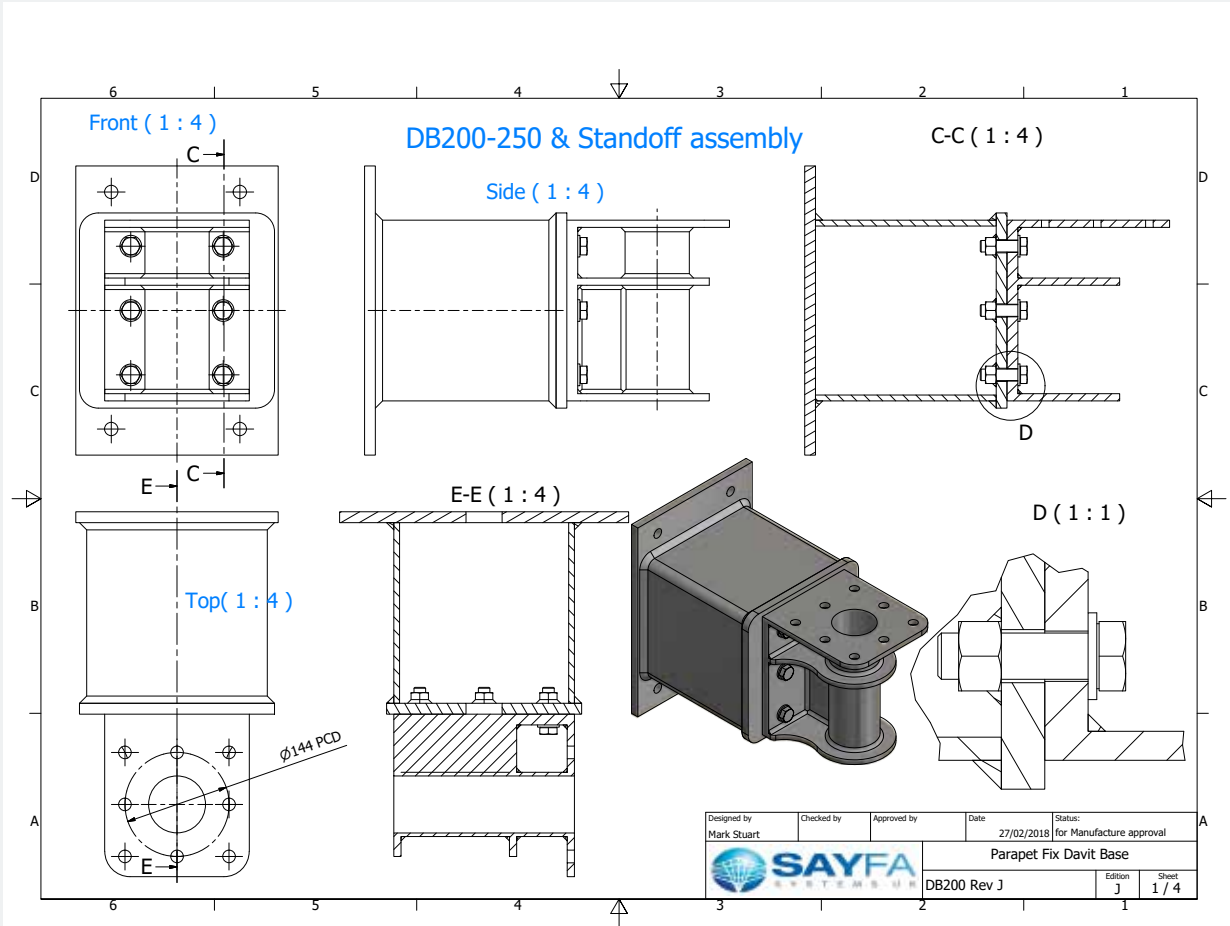
Raptor Rail™ Fixed to I-Beam



SYSTEM DETAILS:

- EACH PROJECT TO BE REVIEWED BY SAYFA SYSTEMS DESIGN DEPARTMENT BEFORE INSTALLATION.
- RAPTOR RAIL AVAILABLE IN 3m & 4m SECTIONS.
- RAIL TO BE LOCATED AS SHOWN ON LAYOUT DRAWINGS.
- INCORPORATES AVIATOR™ UNITS & ALL SAYFA SYSTEMS COMPONENTS REQUIRED.
- STRUCTURAL ENGINEER CONFIRM SUPERSTRUCTURE CAN WITHSTAND 21kN POINT LOADING.
- ENABLES TWO USERS SIMULTANEOUSLY AT ANY ONE TIME.
- ALUMINIUM FINISH AS STANDARD (POWDER COATING AVAILABLE AT ADDITIONAL COST).

FIXING DETAILS Raptor Rail fixed to Cantilever Arm





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