



TECHNICAL SUBMITTAL

PROJECT NAME	
SUBMISSION DATE	June 2026
REV	01
PRODUCT TYE	Soter II Fall Prevention System (Metal Deck & Timber)

SECTION 1	Declaration of Conformity
SECTION 2	Test Reports
SECTION 3	Components Overview
SECTION 4	Drawings TBC



Declaration of Conformity

We (manufacturer or authorised representative)

SFS
153 Kirkstall Road
Leeds
LS4 2AT

Declare under our sole responsibility for the equipment:

Fall Protection Systems

Are manufactured in accordance with our ISO9001 quality system & conform to:

Soter II Horizontal Lifeline System

EN795:2012 Class A & Class C
TS16415:2013 – 4 Users
UNI 11578: 2015 type C
AS/NZS 1891.2 - 2001

Soter Overhead Life Line System

EN795:2012 & CEN/TS 16415:2013 Type C
4 Users

Soter Vertical System

EN353-1 2014 + (A1:2017 ≠)
PPE Regulation (EU) 2016/425 Category III Product
Certificate number: 2777/12068-01/E00-00

Tested & Certified by:

Satra Technology
Wyndham Way,
Telford Way Ind Est,
Kettering, Northampton,
NN16 8SD

J Gooder
Business Unit Manager
June 2021

Soter 2 Posts	Material	Components	Material
M10 Washer	304	Toggle Cup	304
S2 Pivot Boss	304	Shark Fin	304
S2 Load Washer	304	2 Hole Plate	304
S2 Shuriken	304	3 Hole Plate	304
M10x22 Washer	304	3 Hole Corner	304
S2 R Coil	304	Variable Int Bracket	304
M10x25 Bolt	304	Corner Base Plate	304
S2 420x388 Base Plates	304	Corner Tube	304
M12 Washer	304	Housing Shock	304
M12x22 Washer	304	S2 Swivel Anchor	304
M12x130 Bolt	304	Seam Clamp Base Set	304
Spring Washer M10	304	Dished Washer	304
S2 Absorber	304	Spring 6x33x166	304
Spring Washers M12	304	2 Part Line Tensioner	316
M12x24x2.5 Red	304	Line Tensioner	316
S2 Load Ring	304	Threaded Fork	316
S2 Spun Can	304	Eyebolt M12x200	316
M10 Nut	316	Female M10 Ring	316
M12 Ny-Loc	316	Female M12 Ring	316
M12 Ny-loc	316	Strop End Eye	316
		Toggle Fork End	316
		Swage Joint Sleeve	316
		Wire	316
		Universal End Anchor	ANC4B
		Tension Fork	ANC4B
		Intermediate Bracket	ANC4B
		S5-U/Mini/Z Clamps	Clamp-Aluminium, Grub screws 316
		Solid Corner	304 Tube is 316
		Toggles (All Sizes)	304/Brass Insert
		Rivet 6605-9-6W	Aluminium
Overhead	Material		
Device	ANC22		
Intermediate Bracket	316		
Wall Mounted Int Bracket	304		
Int Wall Mounted Corner	304		
Ext Wall Mounted Corner	304		
Vertical	Material		
Standard Bracket	316		
Ext Upper Bracket	304		
Intermediate Bracket Assy	304		
Device	304		

Certificate of Test



For QBM Distributors Ltd
153 Kirkstall Road
(Opposite Yorkshire TV)
Leeds
LS4 2AT

Our reference: SPC0257234/1719
Date: 5 August 2017

Product SOTER II

Description Multi span horizontal anchor line with intermediates and corners for use by a maximum of 4 users simultaneously

Test Data

Testing carried out between the 13th & 14th June 2017 in accordance with EN 795: 2012, CEN/TS 16415: 2013 & UNI 11578: 2015 type C following clauses only:

EN 795: 2012 type C

4.1 General	PASS
4.2 Materials	PASS
4.3 Design & Ergonomics	PASS
4.4 Specific requirements – Type C	PASS

CEN/TS 16415: 2013 type C

4.1 General	PASS
4.2 Specific requirements – Type C	PASS

UNI 11578: 2015 type C

4.1 General	PASS
4.2 Materials	PASS
4.3 Design & Ergonomics	PASS
4.4 Specific requirements – Type C	PASS

Full details of test data provided in the following reports:

SPC0257234/1719/1 Issue 2 & SPC0257234/1719/2 Issue 2 dated 5th August 2017



SIGNATURE

D Harrison
PPE Technologist
Safety Products Centre

1. This report is designed to indicate the performance of the sample tested by SATRA. SATRA have not approved the on-going quality control. It is the responsibility of purchasers to satisfy themselves that other production batches perform similarly.
2. Please refer to original test report stated above for terms and conditions
3. This is not an EC type examination certificate

D Harrison



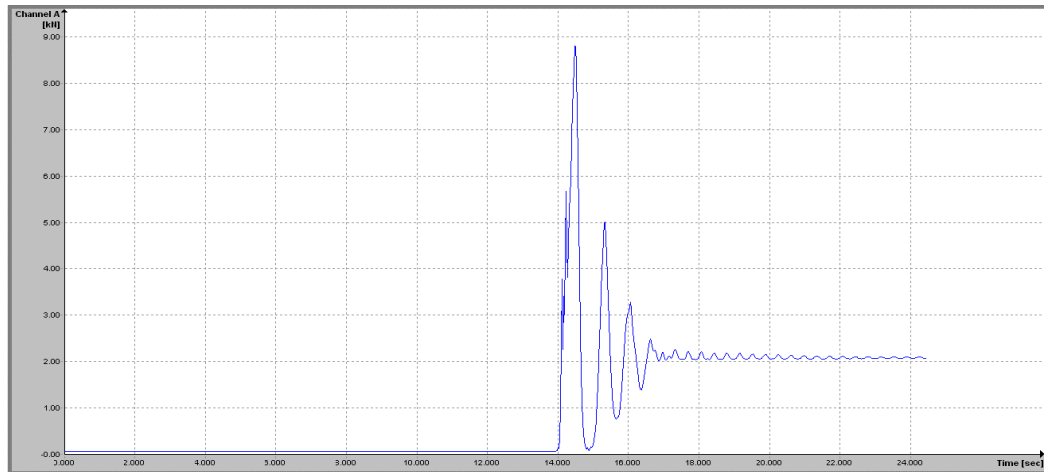
Fall Protection - Test Facility Report

Nr:	00000059
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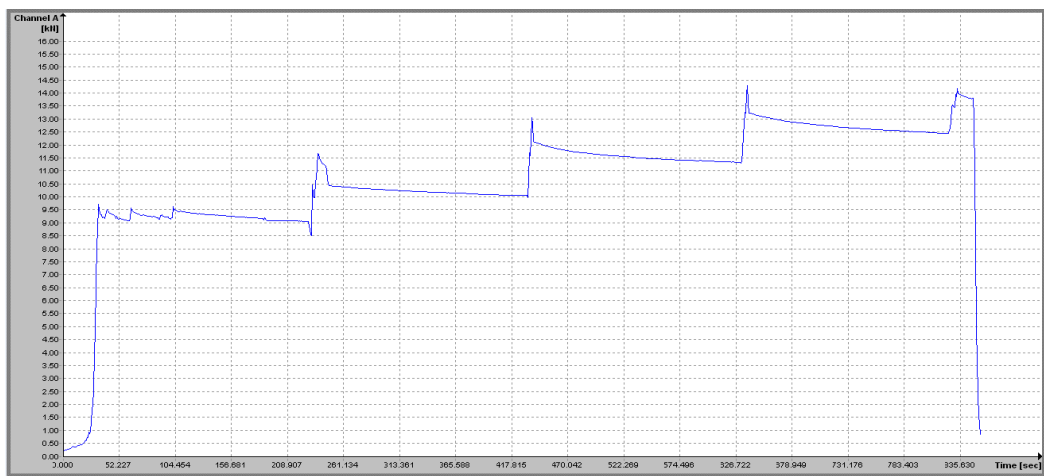
MO/Customer:	SFS-FP				
Client:	SFS-Benelux (Afast)			BU:	C-FP
Start date:	27/08/2019		End date:	27/08/2019	
Title:					
Soter 2 HL Post Test on metal deck					
Description:					
Customer needs performance results for GWT sleeve & BS fasteners to metal deck (e.g. Customer require's)					
Test Parameters:					
Testing standard:	EN795:2012 & CEN/TS16415:2013				
Number of tests:	Two				
Part Nrs:	FP-FTA-HLA, FP-BP-MU-RIV		Specification:	N/A	
Fasteners:	BS-6,1x100	Art.-Nr:	TBC	Batch-Nr:	N/A
Sleeves:	GWT120	Art.-Nr:	TBC	Batch-Nr:	N/A
Testing Assessment:					
Test Setup:	(e.g. Layout/Deck etc)				
Single post positioned on 200mm of PIR insulation and secured to a metal deck with 10 GWT sleeves and SFS BS-6,1 fasteners. The insulation was secured to the metal deck using Isoweld sleeves and BS-6,1x140 fasteners. No membrane was used in the test so that the only mechanism securing the base plate was the fasteners. The metal deck was secured to rolled steel purlins at 1.5m spacings.					
Test type:	(e.g. Dynamic/Static)				
Dynamic 12kN (-0.0/+1kN) and static 9,10,11 & 12kN for 3 mins					
Results:	(e.g. Results/Notes etc)				
Graphs and photographs for the testing are shown on the following pages. The test conducted can be considered as a 'worse case scenario' due to all the force being applied to a single point. In a system based scenario the loads would be distributed across multiple anchor points. The fastener arrangement used in this test pass the requirements of the standards listed above. Dynamic peak force at the anchor point was recorded at 8.86kN.					
Test Report:					
Additional:			Photos required:	See below	
Other:			Outcome:	Pass	
Costs (GBP):					
Material:		Test duration:		Expense:	
Internal order:		Date:		Status:	

Graphs:

Dynamic



Static



Photos:





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Member of



www.eota.eu

European Technical Assessment

ETA-08/0285
of 2018-09-01

General Part

Technical Assessment Body issuing the ETA:
SINTEF Building and Infrastructure

Trade name of the construction product	Guardian Fastening System
Product family to which the construction product belongs	Fasteners for mechanically fastened flexible roof waterproofing systems
Manufacturer	Guardian B.V. Grasbeemd 14 5705 DG Helmond The Netherlands
Manufacturing plant(s)	Guardian B.V. Grasbeemd 14 5705 DG Helmond The Netherlands
This European Technical Assessment contains	23 pages including 2 Annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	ETAG 006 used as EAD, 2012, Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes
This version replaces	ETA-08/0285 issued on 2018-02-06

Specific parts

For the **Specific Parts** of the ETA please see Regulation (EU) No 1062/2013 at

<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1500532911238&uri=CELEX:32013R1062>

1. Technical description of the product

Guardian Fastening System is used as mechanical fastening of insulation, bitumen based single/multi-layer or single ply waterproofing membranes, or polymeric single ply waterproofing membranes, for flat roofing. The supporting roof structure may be of profiled steel sheets, concrete, light weight concrete or wood as defined in ETA Guideline No. 006 edition March 2000, amended November 2012. For Systems of mechanically fastened flexible roof waterproofing membranes, paragraph 2.2 iii.

The range of fasteners consists of washers, washers with integrated sleeve, screws, nails, and plugs as illustrated in Annex 1. Guardian Fastening System also consists of GuardianWeld & Centrix electro bonding system which is used to bond special adhesive coated metal fixing plates to single-ply waterproofing membranes.

The fastener system is introduced to the market separately from the other components of roof waterproofing membrane kits, and this ETA covers only the performance characteristics of the Guardian Fastening System. A separate ETA according to ETAG 006 is necessary in order to cover an entire kit for mechanically fastened roof waterproofing membranes.

The fasteners may be used for all types of flexible membranes. The supporting roof structure may consist of profiled steel sheets, concrete, light weight concrete, or a wood based construction. The Guardian Fastening System may be used with membranes installed on a thermal insulation material or directly to the supporting roof deck.

2. Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD)

General

The fasteners must be installed according to the manufacturer's instructions. It is the manufacturer's responsibility to provide correct information about the application of the products to the users.

Fastening with steel washers may on stiff substrates, i.e. on wood-based roof substrate, non-compressible insulation or on concrete.

Plastic fasteners with integrated sleeve or step secured steel washers (steel washers together with screws equipped with a separate threading which avoid the washer to be pressed down) are recommended on thermal insulation.

If there is doubt about the suitability of the substrate, e.g. on a construction site, a pull-out test on site should be performed to verify the performance of the fastener (see ETAG 006 Annex C). Furthermore, care should be taken during design to ensure that galvanic corrosion between metal parts, especially between substrate and screw, does not occur. Likewise, use of insulation materials containing substances which can affect the performance of the fasteners must be avoided.

Fastening in wood

Minimum thickness for timber based substrate is 18 mm. For timber deck applications a site pull out test is recommended.

Fastening in concrete

When fixing Guardian concrete nails and screws the drill hole diameter must be normally 5 mm. The drill hole depth should be normally minimum 30 mm, unless special precautions are taken regarding installation control and inspection. Minimum anchorage depth shall be normally minimum 20 mm. Fixings in 40 mm thick concrete without penetration requires drilling with depth control. Concrete compression strength is minimum class C25/30 according to EN 206-1.

Fastening in light weight concrete

When fixing Guardian Light Weight Concrete Screw LBS 8.0 and LBS 6.0 in aerated concrete, the anchoring depth must be normally minimum 65 mm. Pull-out tests are always recommended in light weight concrete. The LBS 6.0 screw can also be used in lower quality concrete less than C25/30 according to EN 206-1 with a minimum anchoring depth of 40mm and drill hole diameter of 5 mm.

Fastening in steel sheets

Load bearing decks made of profiled steel sheets normally have a minimum thickness of 0.7 mm and quality S280. Using Guardian steel sheet fasteners in profiled steel sheets, the anchoring depth must be minimum 20 mm. In annex 2 table 4 the axial load resistance of every steel sheet fastener is listed.

Fastening with GuardianWeld & Centrix-system

The GuardianWeld & Centrix electro bonding system must be applied according to the manufacturer's user manual. The different types of plates are laminated with special heat activated adhesive for PVC, TPO or EPDM waterproofing membranes.

3. Performance of the product and references to the methods used for its assessment

See Annex 2.

4. Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

Mechanical resistance and stability

Not relevant.

Safety in case of fire

No performance determined. The reaction to fire of roof waterproofing kits is determined for the complete kits including the membrane.

Hygiene, health and environment

According to the manufacturer's declaration the screws and washers with corrosion protection contains no chromium 6 compounds. Consequently the products do not contain any dangerous substances according to the EU database.

Safety in use

The fasteners have been tested for wind uplift according to EN-16002:2010 / ETA Guideline No. 006 edition March 2000, amended November 2012. For Systems of mechanically fastened flexible roof waterproofing membranes, paragraph 2.2 iii. Axial pull out performance from substrates and resistance to unwinding are shown in Annex 2. The wind uplift performance of roof waterproofing kits is mainly determined by the roofing membranes. More than 180 full scale wind load tests with bituminous and polymeric membranes have been executed. The membranes are fixed with washers, washers with integrated sleeves and barbed washers in combination with fixings to substrates of steel sheets, wood, concrete and light weight concrete. The complete test reports may be obtained from Guardian B.V..

Protection against noise

Not relevant

Energy consumption and heat retention

Not relevant

Aspects of durability

The plastic fasteners produced of polypropylene and polyamide satisfy the aspects of durability according to ETAG 006 ch. 5.3.7, see Annex 2. The Guardian tube washers made of polypropylene and polyamide have an acceptable resistance to brittleness according to ETAG 006 ch. 5.3.4, see Annex 2.

Carbon steel fasteners have a corrosion protection of Chrome 6 free Enduroguard 15[®] or Durocoat[®] coating. Stainless steel fasteners in grade SS304/A2 or SS316/A4. All metallic components in the Guardian fastening system correspond to corrosion protection according to ETAG 006 ch.5.3.7, see Annex 2. Test procedure is 15 cycles Kesternich (2l SO₂).

Identification

The characteristic values of detailed product dimensions and respective tolerances are stated in the manufacturer's technical dossier and form a part of the control plan for the factory production control. All fasteners, steel washers and tube washers are either marked with the Guardian "G" mark or brand name "Guardian". The marking of tube washers may be combined with the Guardian Type or another brand name for products produced under private label. All packaging is to be marked with product type and batch number, including CE marking.

5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

According to Decision 98/143/EC by the European Commission, the system 2+ of assessment and verification of constancy of performance applies. See Annex V to Regulation (EU) No. 305/2011.

Issued in Trondheim on 2018-09-01

By

SINTEF Building and Infrastructure



Hans Boye Skogstad
Approval Manager

Annex 1

Description of Guardian Fastening System

Table 1

Fastener type	Fig. no	Function	Material
GUARDIAN R 45 & HR 45	1	Tube washer	Polypropylene
GUARDIAN RB 48	2	Tube washer with three barbs	Polypropylene
GUARDIAN RBS 50	3	Tube washer with six barbs	Polypropylene
GUARDIAN TBPA 8040 GUARDIAN TBPP 8040	4	Tube washer with two barbs	Polyamide 6.6 Polypropylene
GUARDIAN R 75 & HR 75	5	Tube washer	Polypropylene
GUARDIAN PP 45	6	Washer with ten barbs	Polyamide 6.0
GUARDIAN SP 40-D, F, DD, FD	7	Steel washer	Galvanized steel
GUARDIAN SP 40-LBS	8	Steel washer	Galvanized steel
GUARDIAN SP 50-D,F,S	9	Steel washer	Galvanized steel
GUARDIAN SPB 50-S	10	Barbed steel washer	Galvanized steel
GUARDIAN SP 8240-D, F, S GUARDIAN SPA 8240-D,F	11	Steel washer	Galvanized steel
GUARDIAN SPB 8240-D GUARDIAN SPBA 8240-D	12	Barbed steel washer	Galvanized steel
GUARDIAN SP 70-D,F,S, CP	13	Steel washer	Galvanized steel
GUARDIAN STBS GUARDIAN STBT GUARDIAN STBST GUARDIAN STBS7T15	14	Steel bar	Galvanized steel
GUARDIAN GWSP(P,T,E)-80-F4E GUARDIAN GWSP(P,T,E)-80-F2E	15	Steel washer	Galvanized steel + Coated & laminated
GUARDIAN GWT & GWT ASTL GUARDIAN CT & CT ASTL	16	Tube washer for combination with steel washers/bars	Polyamide 6.0 Polypropylene
GUARDIANWELD INDUCTION MACHINE*	17	Machine for welding GWSP(P,T,E)-80-F2E/F4E	
GUARDIAN BN 5.6	18	Concrete nail	Coated carbon steel
GUARDIAN BNRF 5.5	19	Concrete nail	Stainless steel
GUARDIAN CS 6.1	20	Concrete screw	Coated carbon steel
GUARDIAN ACS-6.1	21	Concrete screw with hexagonal nut	Coated carbon steel
GUARDIAN CP-8 & CPN-8	22	Concrete plug	Coated steel pin/ Polypropylene
GUARDIAN LBS 6.0	23	Light weight concrete/wood screw	Coated carbon steel
GUARDIAN LBS 8.0	24	Light weight concrete screw	Coated carbon steel
GUARDIAN HD 6.1	25	Concrete/light weight concrete/wood screw	Coated carbon steel
GUARDIAN PS 4.8	26	Steel sheet screw	Coated carbon steel
GUARDIAN BS 4.8	27	Steel sheet screw	Coated carbon steel
GUARDIAN BSHD 4.8	28	Steel sheet screw	Coated carbon steel
GUARDIAN BSRF 4.8	29	Steel sheet screw	Stainless steel
GUARDIAN DBT(A) 4.8	30	Steel sheet screw	Coated carbon steel
GUARDIAN DB(A) 4.8	31	Steel sheet screw	Stainless steel
GUARDIAN DBT(A) S 4.8	32	Steel sheet screw	Coated carbon steel
GUARDIAN BS 5.5	33	Steel sheet screw	Coated carbon steel
GUARDIAN BS 6.1	34	Steel sheet screw	Coated carbon steel
GUARDIAN BS 6.8	35	Steel sheet screw	Coated carbon steel
GUARDIAN GPR 6.3	36	Peel Rivet	Aluminium body/Galvanized Pin
GUARDIAN TS 5.2	37	Timber deck screw	Coated carbon steel
GUARDIAN MTS 4.8	38	Timber deck screw	Coated carbon steel
GUARDIAN LBS 6.0	39	Light weight concrete/wood screw	Coated carbon steel
GUARDIAN HD 6.1	40	Concrete/light weight concr./wood screw	Coated carbon steel

*The GUARDIANWELD induction machine is not assessed by SINTEF

Guardian Tubes

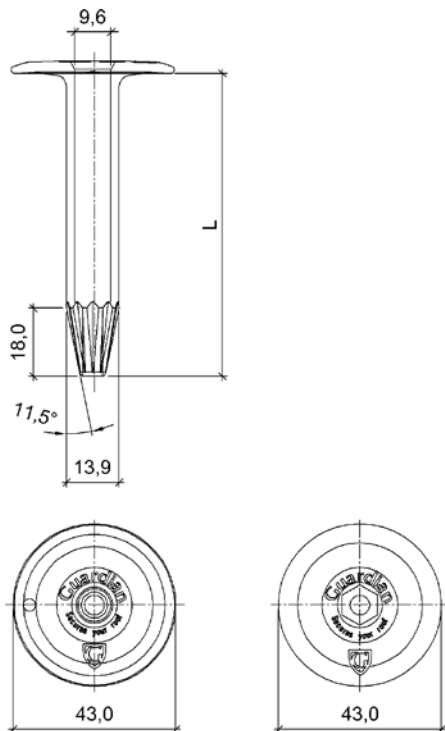


Fig.1
Tube washer R(P) 45
Tube washer HR45 with hexagonal internal tube shape (used together with ACS 6.1).

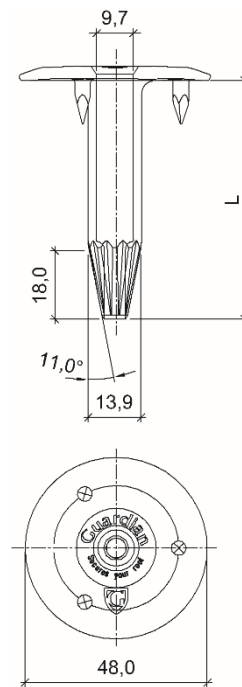


Fig. 2
Tube washer RB 48 with three barbs

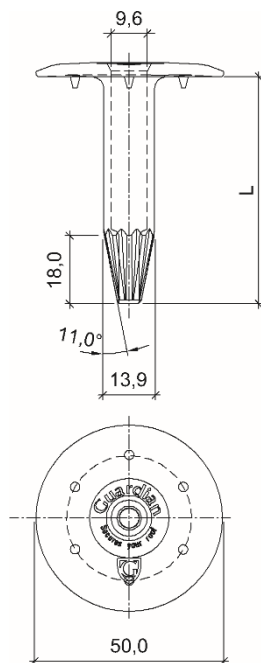


Fig. 3
Tube washer RBS 50 with six barbs

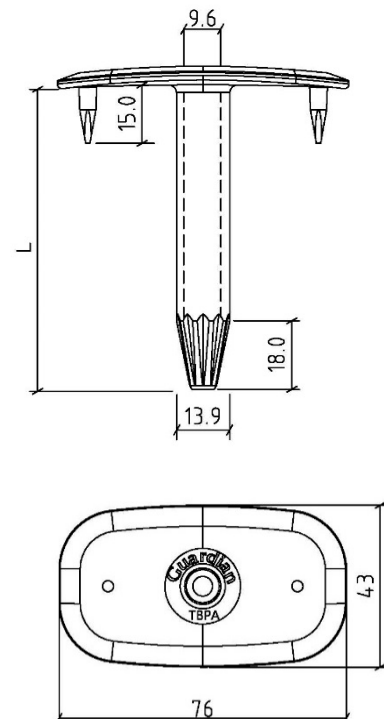


Fig. 4
Tube washer TBPA-8040 with two barbs (Polyamide)
Tube washer TBPP-8040 with two barbs (Polypropylene)

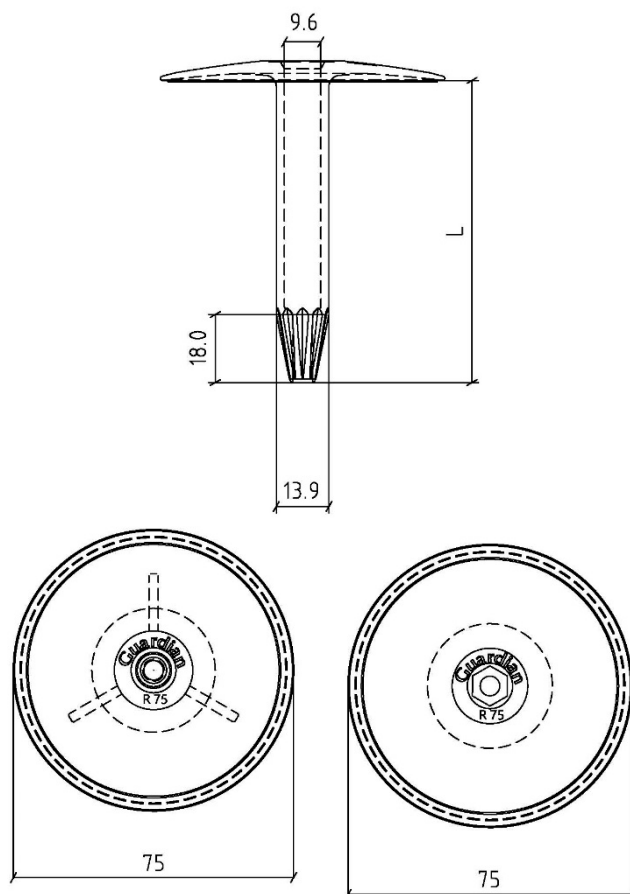


Fig. 5
 Tube washer R-75
 Tube washer HR-75 with hexagonal internal tube shape (used together with ACS 6.1)

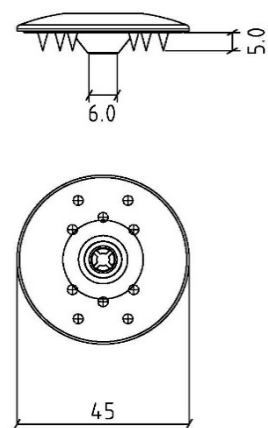


Fig. 6
 Tube washer PP-45 with ten barbs for fixation of synthetic membranes

Guardian steel pressure plates

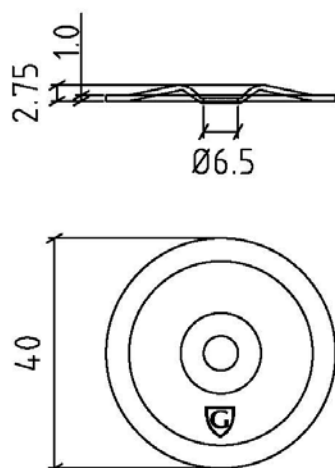


Fig. 7
SP-40-D, F, DD, FD

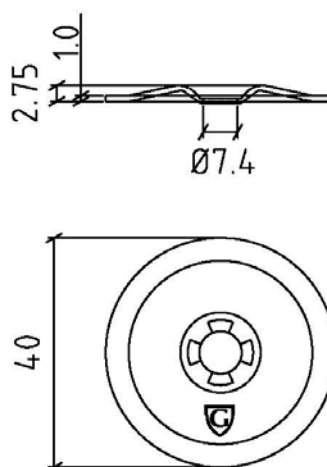


Fig. 8
SP-40-LBS

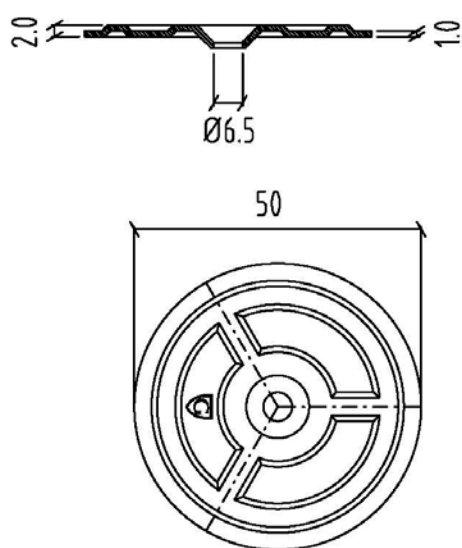


Fig. 9
SP-50-D, F, S

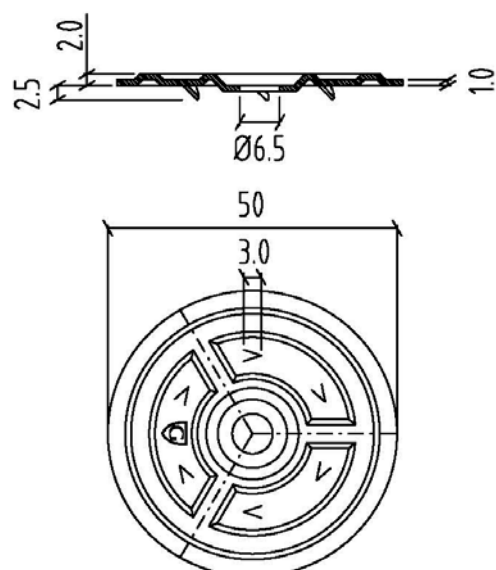
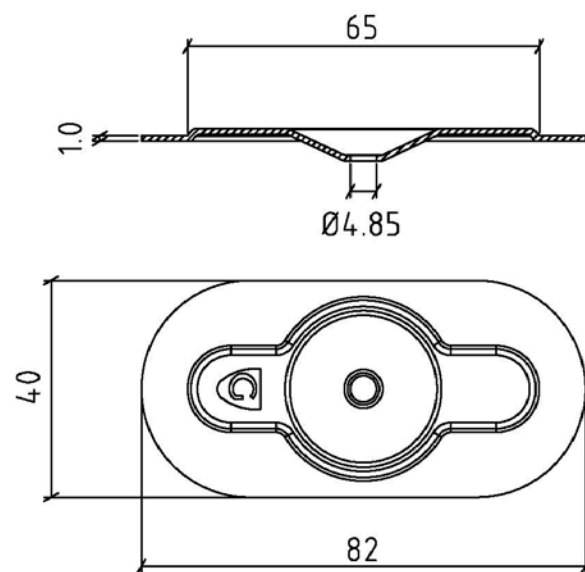


Fig. 10
SPB-50-S



SP-8240-D, F, S
SPA-8240-D, F

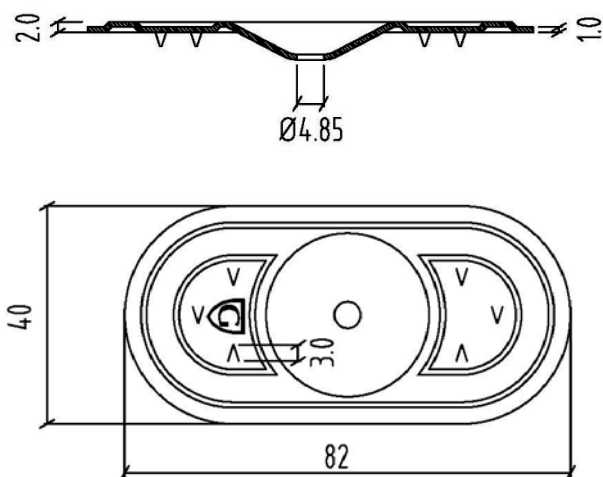


Fig. 12
SPB-8240-D
SPBA-8240-D

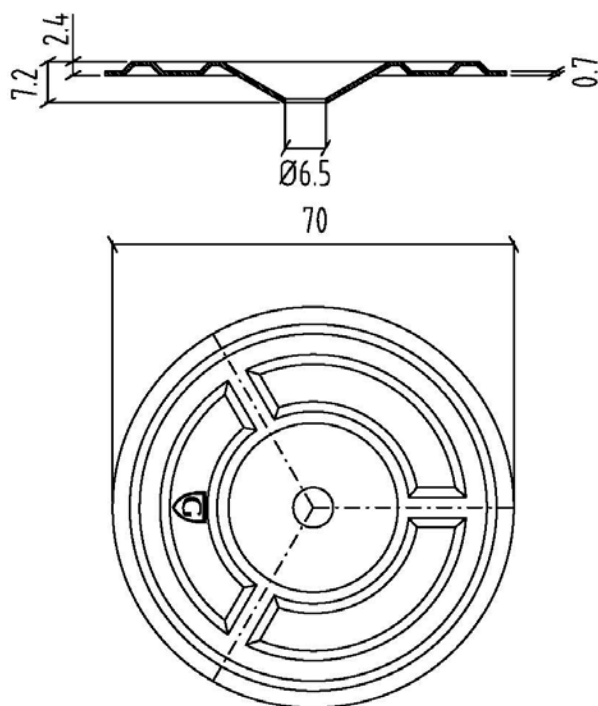


Fig. 13
SP-70-D, F, S, CP

Guardian steel bar

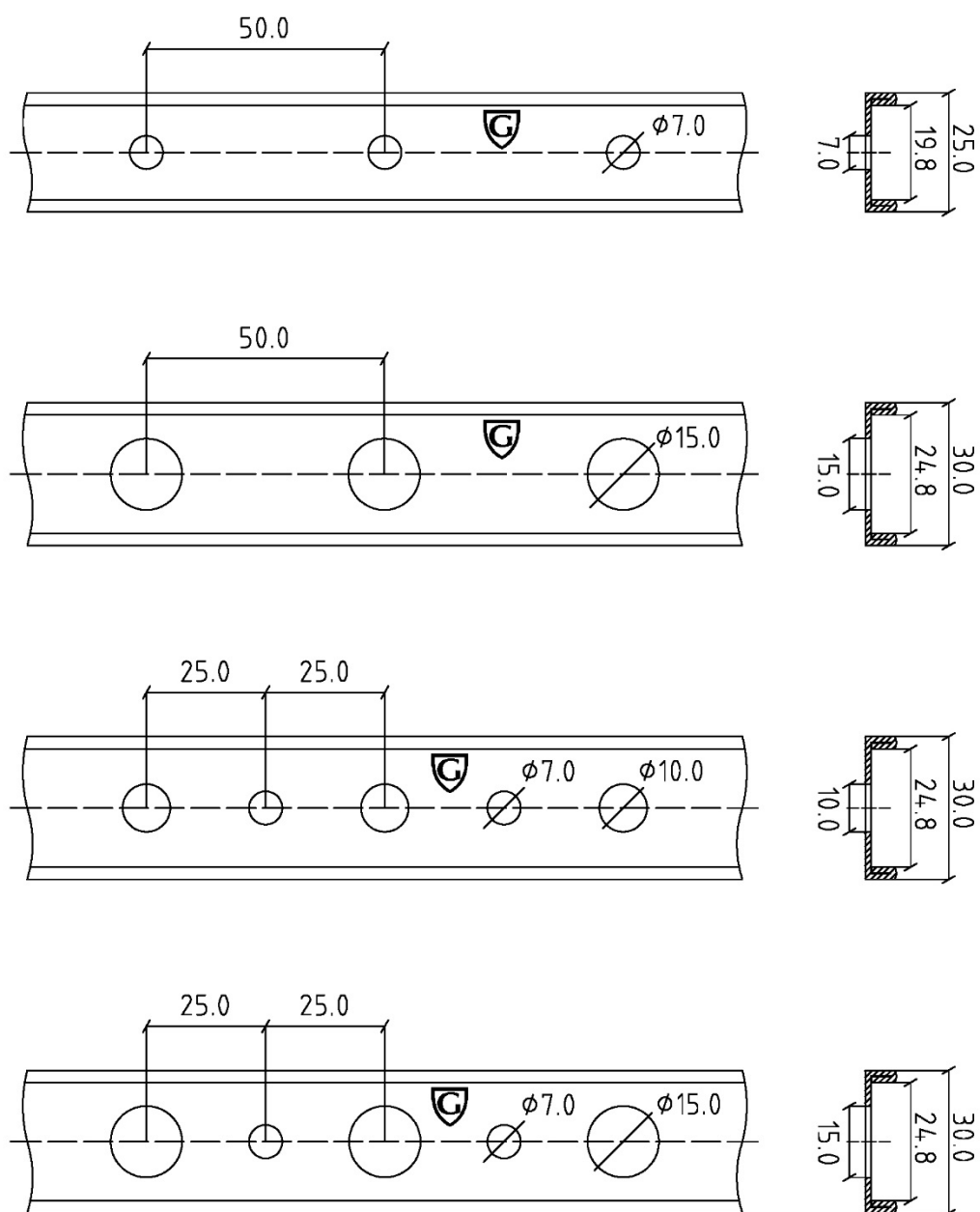


Fig. 14

STBS Steel bar with small holes and a thickness of 1.25mm

STBT Steel bar with big holes (usable with CT tube fig. 15) and a thickness of 1.25mm

STBST Steel bar with small and big holes and a thickness of 1.25mm

STBS7T15 Steel bar with small and big holes and thickness of 1,25 mm

GuardianWeld induction system

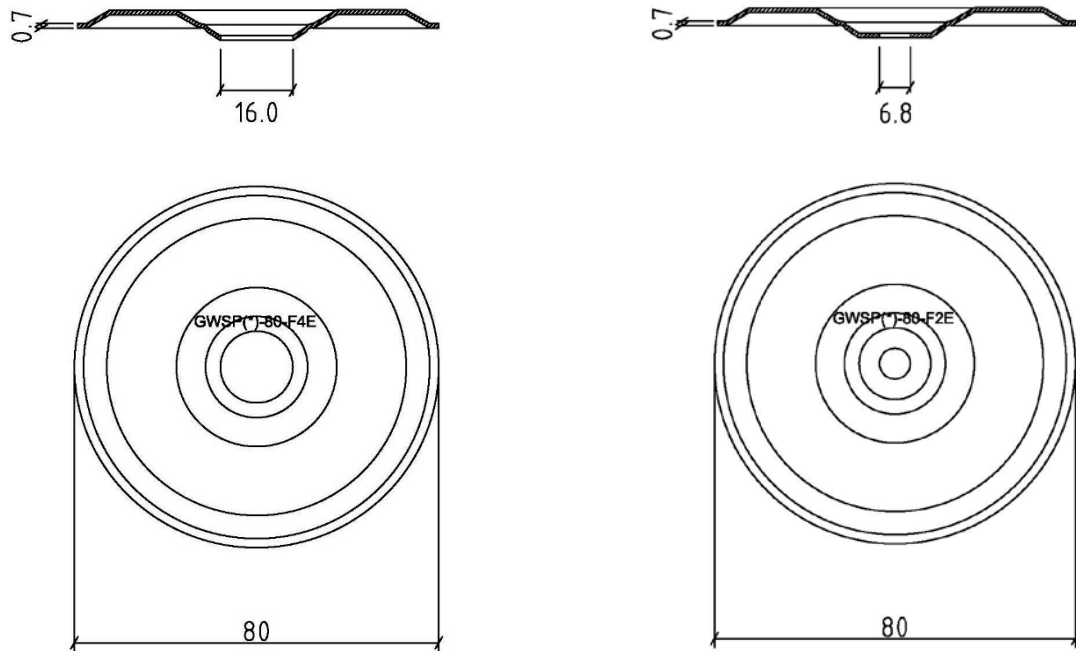


Fig. 15
GWSP(P,T,E)-80-F4E (usable with GWT fig. 16)
GWSP(P,T,E)-80-F2E

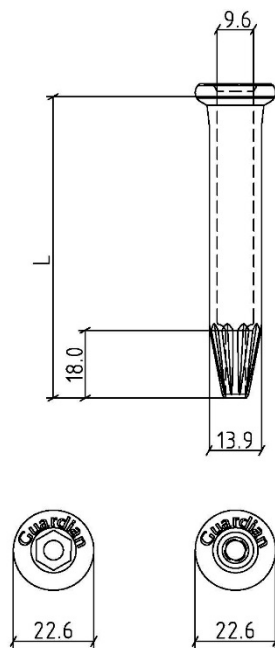


Fig. 16
GWT tube for GWSP(*)-80-F4E (Polyamide)
CT tube for STBT (Polypropylene)



Fig. 17
GuardianWeld induction machine
Welds the GWSP(*)-80-F2E/F4E to PVC, TPO and EPDM
membranes

Guardian Fasteners for profiled steel sheets substrate

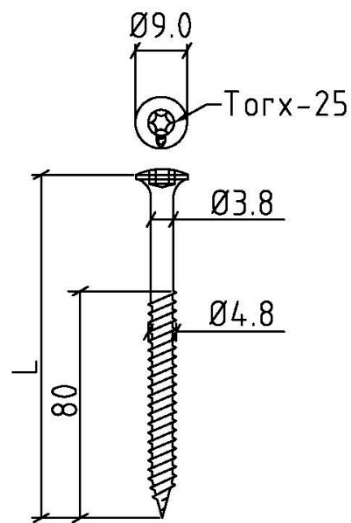


Fig. 26
PS 4.8 Screw for fixing in steel sheets

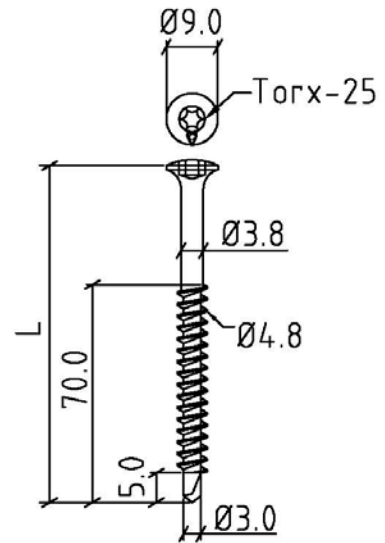


Fig. 27
BS 4.8 Screw for fixing in steel sheets

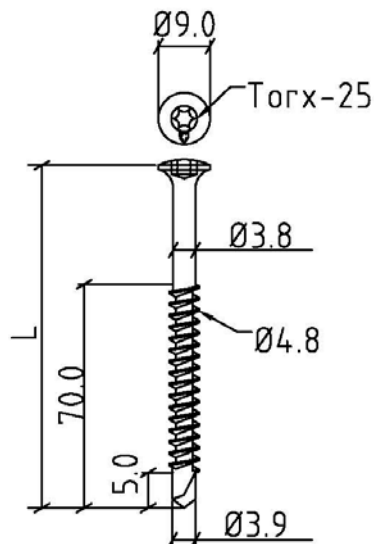


Fig. 28
BSHD 4.8 Screw for fixing in steel sheets
(steel thickness from 1,0mm up to maximum 3,0mm)

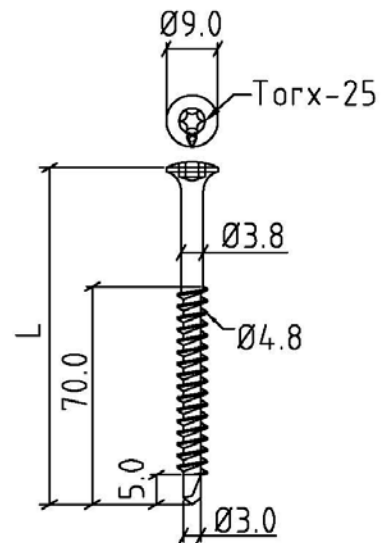


Fig. 29
BSRF 4.8 Stainless screw for fixing in steel sheets

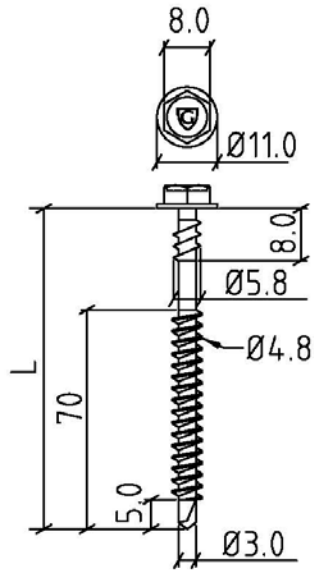


Fig. 30
DBT(A) 4.8 Screw for fixing in steel sheets
(usable with automatic setting tool)

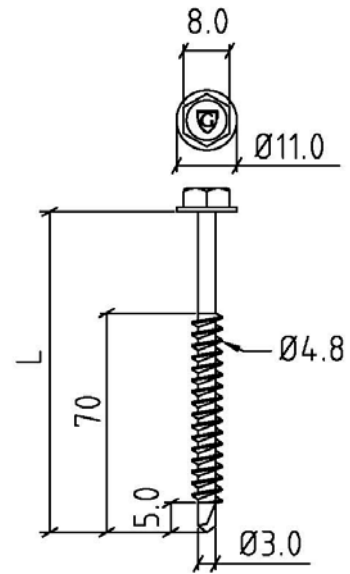


Fig. 31
DB(A) 4.8 Screw for fixing in steel sheets
(usable with automatic setting tool)

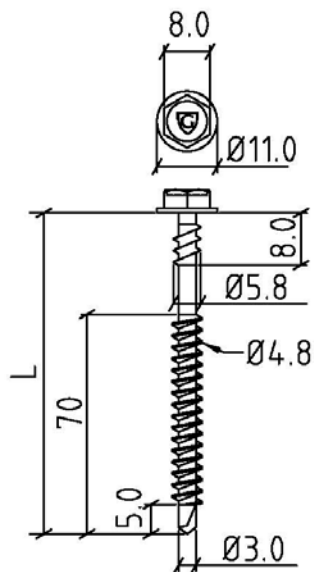


Fig. 32
DBT(A)-S 4.8 Stainless-steel A4 screw for fixing in steel sheets
(usable with automatic setting tool)

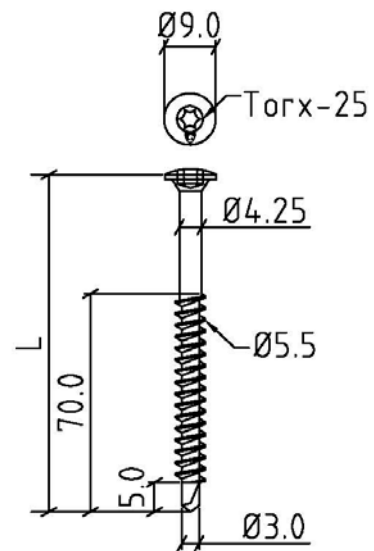


Fig. 33
BS 5.5 Screw for fixing in steel sheets

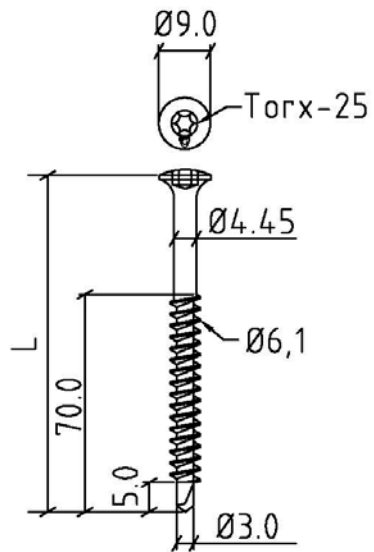


Fig. 34
BS 6.1 Screw for fixing in steel sheets

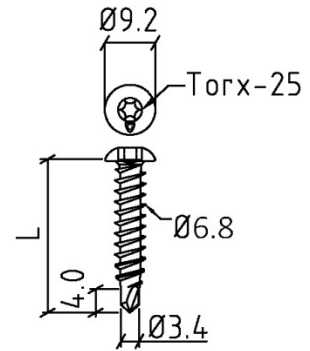


Fig. 35
BS 6.8 Screw for fixing in thin steel sheets

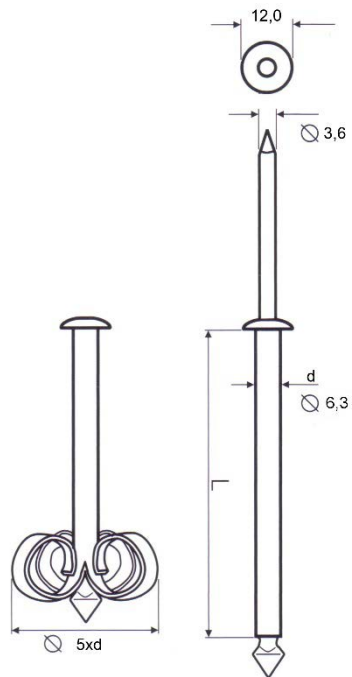


Fig. 36
GPR 6.3 Peel Rivet

Guardian Fasteners for wooden substrates

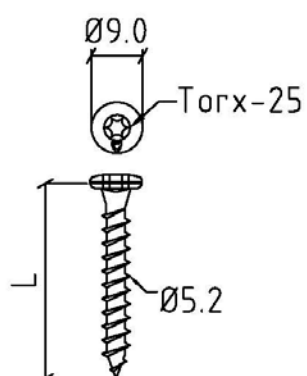


Fig. 37
TS 5.2 Screw for fixing in wood

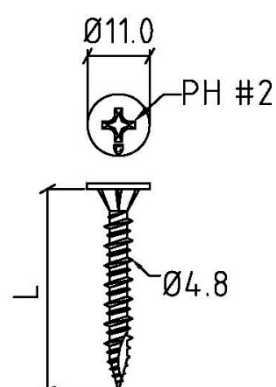


Fig. 38
MTS 4.8 screw for fastening metal to timber constructions

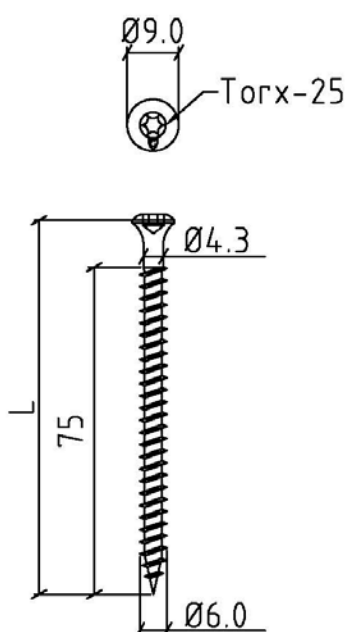


Fig. 39
LBS 6.0 Screw for light weight concrete, concrete and wooden substrates

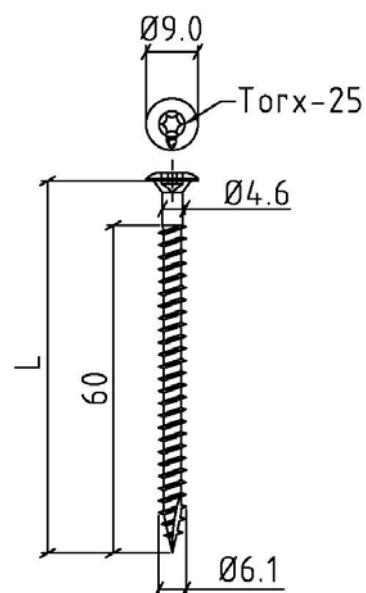


Fig. 40
HD 6.1 Screw for light weight concrete, concrete and wooden substrates

Performance of Guardian Fastening system on different substrates

Characteristic values are calculated from the following formula:

$$W_{char}: \alpha (X_m - (k \times s))$$

where: W_{char} = characteristic y values of axial load resistance

α = corr. factor for tested substrate spec. compared with nominal substrate spec.

X_m = mean axial pull-out load for 10 specimens

$k = 1,92$ (according to Table D1 in EN-1990:2002)

s = standard deviation

Table 2: Concrete substrate ¹⁾

Fastener	Substrate	Washer	Characteristic values of axial load resistance (kN)
GUARDIAN CS 6.1 / ACS-6.1	C25-C30	SP 50	4,28
GUARDIAN BNRF 5.5	C25-C30	SP-50	1,79
GUARDIAN BN 5.6	C25-C30	SP 50	1,92
GUARDIAN CP & CPN (Polypropylene)	C25-C30	-	1,57
GUARDIAN HD 6.1	C25-C30	SP 50	4,83
GUARDIAN LBS 6.0	C20-C25	SP 50	2,92
GUARDIAN LBS 6.0	C25-C30	SP 50	3,26

¹⁾ See clause 2 regarding hole diameter and drill depth

Table 3: Light weight concrete substrate ²⁾

Fastener	Substrate	Washer	Characteristic values of axial load resistance (kN)
GUARDIAN LBS 6.0	YtongTM Density 600 kg/m3	SP 50	2,07
GUARDIAN LBS 8.0	Density 450 kg/m3	SP-40-LBS	0,93
GUARDIAN LBS 8.0	Density 550 kg/m3	SP-40-LBS	1,44
GUARDIAN HD 6.1	Density 600 kg/m3	SP 50	1,36

²⁾ Autoclaved aerated concrete units according to EN 771-4

Table 4: Profiled steel sheets substrate ³⁾

Fastener	Substrate	Washer ⁵⁾	Characteristic values of axial load resistance (kN)	Durability Resistance to unwinding ETAG 006 cl. 5.3.7 D.2.3, D.3.1, D.3.2 and cl. 5.3.4 D.2.2
GUARDIAN PS 4.8	Steel sheet 0,70mm	SP 50	1,31	Approved
GUARDIAN PS 4.8	Steel sheet 0,75mm	SP 50	1,52	Approved
GUARDIAN PS 4.8	Steel sheet 1,00mm	SP 50	1,94	Approved
GUARDIAN BS 4.8	Steel sheet 0,70mm	SP 50	1,17	Approved
GUARDIAN BS 4.8	Steel sheet 0,75mm	SP 50	1,45	Approved
GUARDIAN BS 4.8	Steel sheet 0,80mm	SP 50	1,54	Approved
GUARDIAN BSHD 4.8	Steel sheet 1,00mm	SP 50	1,65	Approved
GUARDIAN BSHD 4.8	Steel sheet 1,25mm	SP 50	2,10	Approved
GUARDIAN BSRF 4.8	Steel sheet ,75mm ⁴⁾	SP 50	1,02	Approved
GUARDIAN BS 5.5	Steel sheet 0,72mm ⁴⁾	SP 50	1,74	Approved
GUARDIAN BS 6.1	Steel sheet 0,60mm	Sleeve R 45	1,56	Approved
GUARDIAN BS 6.1	Steel sheet 0,70mm	SP 50	1,78	Approved
GUARDIAN BS 6.1	Steel sheet 0,75mm	SP 50	1,98	Approved
GUARDIAN BS 6.1	Steel sheet 1,00mm	SP 50	2,77	Approved
GUARDIAN BS 6.8	Steel sheet 0,50mm	SP 50	1,06	Approved
GUARDIAN BS 6.8	Steel sheet 0,60mm	SP 50	1,31	Approved
GUARDIAN BS 6.8	Steel sheet 0,70mm	SP 50	1,78	Approved
GUARDIAN DBT 4.8	Steel sheet 0,70mm	SPA 8240	1,17	Approved
GUARDIAN DBT 4.8	Steel sheet 0,75mm	SPA 8240	1,41	Approved
GUARDIAN DBT 4.8	Steel sheet 0,80mm	SPA 8240	1,52	Approved
GUARDIAN DBT(A)S 4.8	Steel sheet 0,75mm ⁴⁾	SPA 8240	1,16	Approved
GUARDIAN GPR 6.3	Steel sheet 0,50mm	SP 50	1,19	Approved

³⁾ Steel sheets, galvanized,min S280 according to EN 10147

⁴⁾ Steel sheets, galvanized, yieldstrength 320 MPa

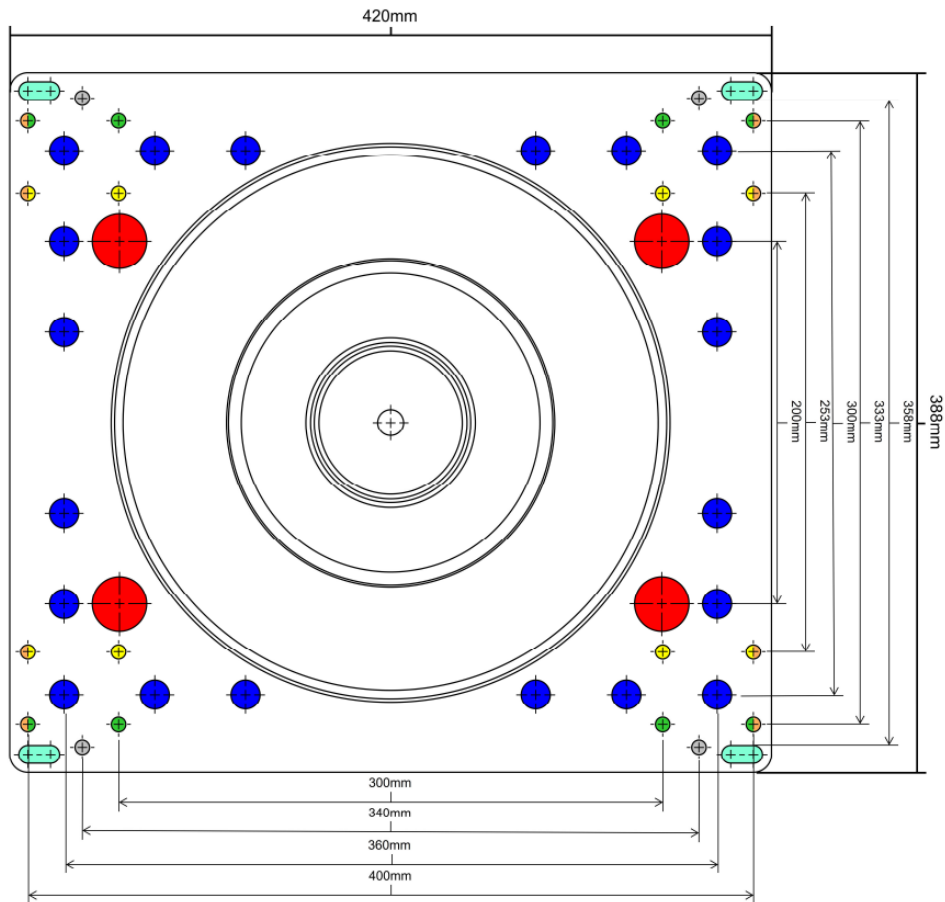
⁵⁾ Obtained value from the axial load test in steel sheets substrates, table 4, and the pullover test, table 6, of washers is compared and the lowest of the two gives the characteristic value for the fastener / sleeve, washer combination of the application.

Table 6: Pullover test of washer

Washer	Fastener ⁸⁾ Guardian																Characteristic values of axial load resistance (kN)	Durability ETAG 006 cl. 5.3.7 D.2.3, D.3.1, D.3.2 and cl. 5.3.4 D.2.2
	ACS 6.1	BS 4.8	BS 5.5	BS 6.1	BS 6.8	BSHD 4.8	BSRF 4.8	CS 6.1	DB(A) 4.8	DBT(A) 4.8	DBT(A)-S 4.8	HD 6.1	LBS 6.0	LBS 8.0	PS 4.8	TS 5.2		
SP-40 – D/F/DD/FD	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	3,88	Approved
SP-40-LBS	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	4,29	Approved
SP-50-D, F, S	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	4,83	Approved
SPB-50-S	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	4,83	Approved
SP-70-D, F, S	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	2,88	Approved
SPA 8240-D/F/S	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	5,30	Approved
SPA 8240-D	-	-	-	-	-	-	-	-	X	X	X	-	-	-	-	-	5,00	Approved
STBS	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	3,68	Approved
Sleeve CT – STBT	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	1,78	Approved
Sleeve CT – STBST7T15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,78	Approved
Guardian screw-STBST7T15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,68	Approved
STBST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,68	Approved
GWSP (*)-80-F2E	-	-	X	X	X	-	-	X	-	-	-	-	X	-	-	X	2,48	Approved
Sleeve GWT + GWSP (*)-80-F4E	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	3,17	Approved
Sleeve R 45	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	1,58	Approved
Sleeve RB 48	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	1,58	Approved
Sleeve RBS 50	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	1,58	Approved
Sleeve R 75	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	1,58	Approved
Sleeve TBPP	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	1,58	Approved
TBPA 8040	-	X	X	X	X	X	X	X	-	-	-	X	X	-	X	X	2,52	Approved
PP 45	-	X	X	X	-	X	X	X	-	-	-	-	X	-	X	X	2,50	Approved
Sleeve HR 45	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,54	Approved
Sleeve HR 75	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,54	Approved

⁸⁾Obtained values from the axial load test in different substrates (table 2 - 5) and the pullover test (table 6) of washers/sleeves are compared and the lowest of the two gives the characteristic value for the fastener / sleeve, washer combination of the application.

Multi-Use Base Plate



Red: 4x30 mm (240x300 mm) holes for gravity toggles with toggle cups- 4 required into 0.7 mm metal and 18 mm ply & OSB decks.

Blue: 10x16 mm holes for sleeve and stainless steel fastener into 0.7 mm metal, concrete, and timber decks. Please consult SFS for fixing numbers and details.

Green: 8x8 mm rivet holes for 333 mm sheet crown centres

Orange: 8x8 mm rivet holes for 400 mm sheet crown centres

Yellow: 8x8 mm rivet holes for 300 mm sheet crown centres

Purple: 8x8 mm rivet holes for 250 mm sheet crown centres.

Grey: 4x8 mm rivet holes @ 358 mm centres for fixing SOTER™ seam clamp for 400 mm standing seam roofs.

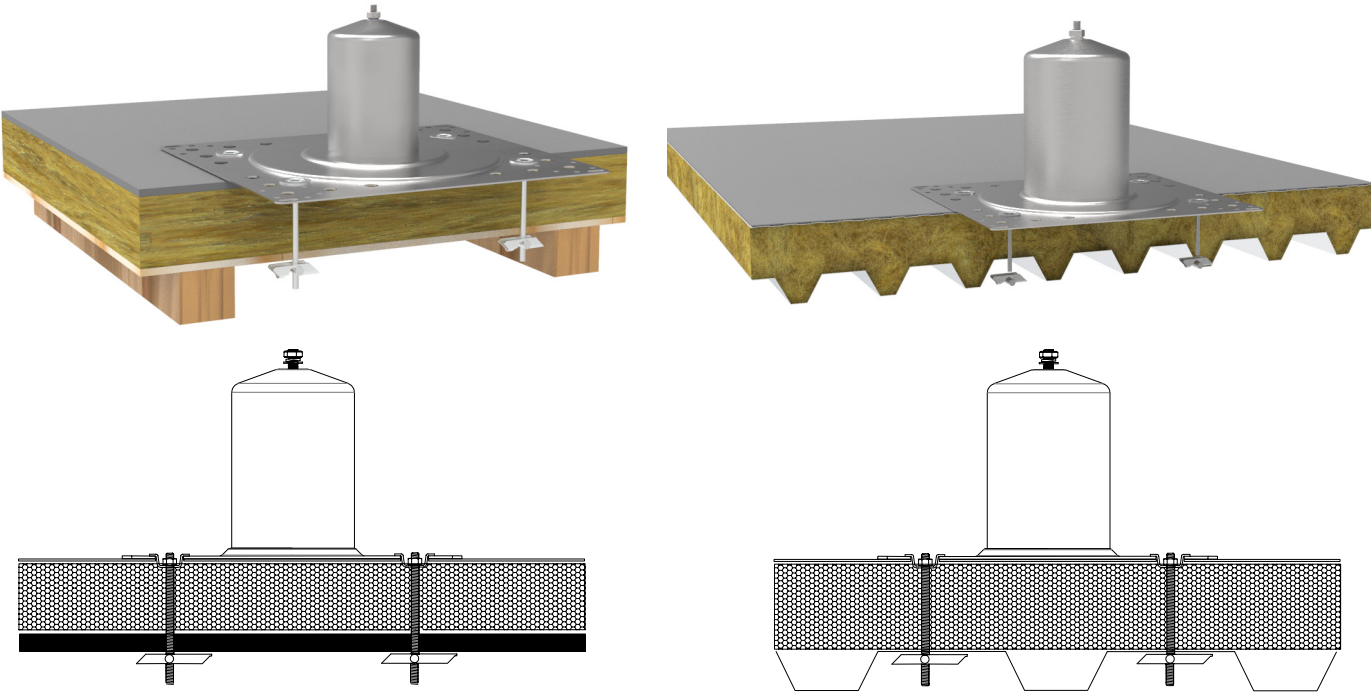
Turquoise: 4 x Elyptical holes @ 400 x 300 mm centres for fixing S5 clamp for 400 mm & 300 mm standing seam roofs.

Black: 4x8 mm rivet holes @ 220 mm centres for fixing of leg straps for special applications e.g Rivertherm.

Flat Roof Types

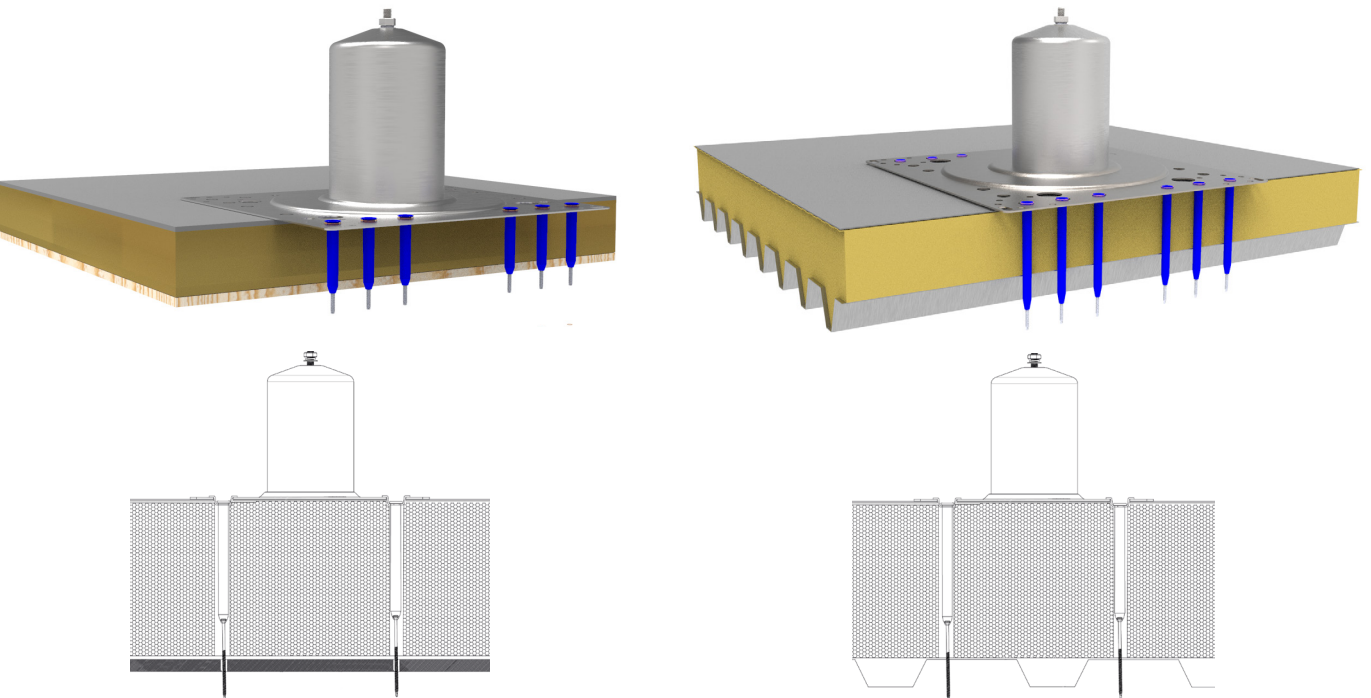
18 mm Ply/OSB Board & 0.7 mm Metal deck

Gravity toggles



18 mm Ply & 0.7 mm Metal deck

Typical sleeve and fastener installation. Please consult SFS for fixing numbers and details.



System Design Fundamentals & Limitations

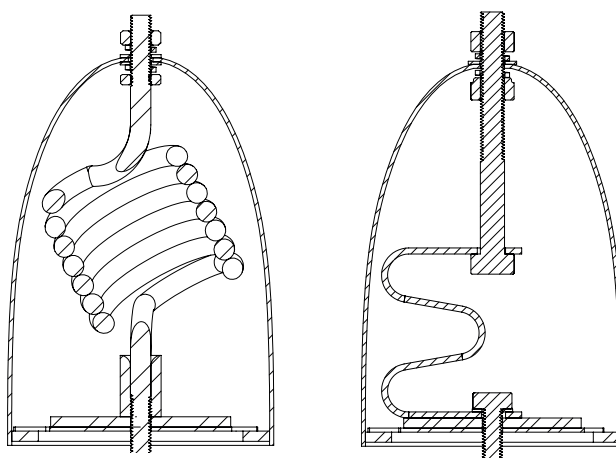
High Load and Intermediate

The SOTER™ Horizontal Lifeline system is created using two post types.

The High Load post contains a shock absorbing element to reduce the load in the event of a fall that is sent back to the roof substrate. When falls occur, the majority of load generated is sent back to the ends of each straight run, these can be at the starts and ends of straight lines, or corners on systems which turn. For this reason, it is imperative that SOTER™ High Load posts are fitted at the start, end, and corners of systems - therefore every straight run has a shock absorbing post at start and end.

The Intermediate post has a smaller shock absorbing element inside, which is designed to tip over as quickly as possible, and overall reduce system deflection. As both posts at first look very similar, we have designed them so that the incorrect post cannot be fixed in the wrong location. The High Load post has a silver washer, and M10 stud.

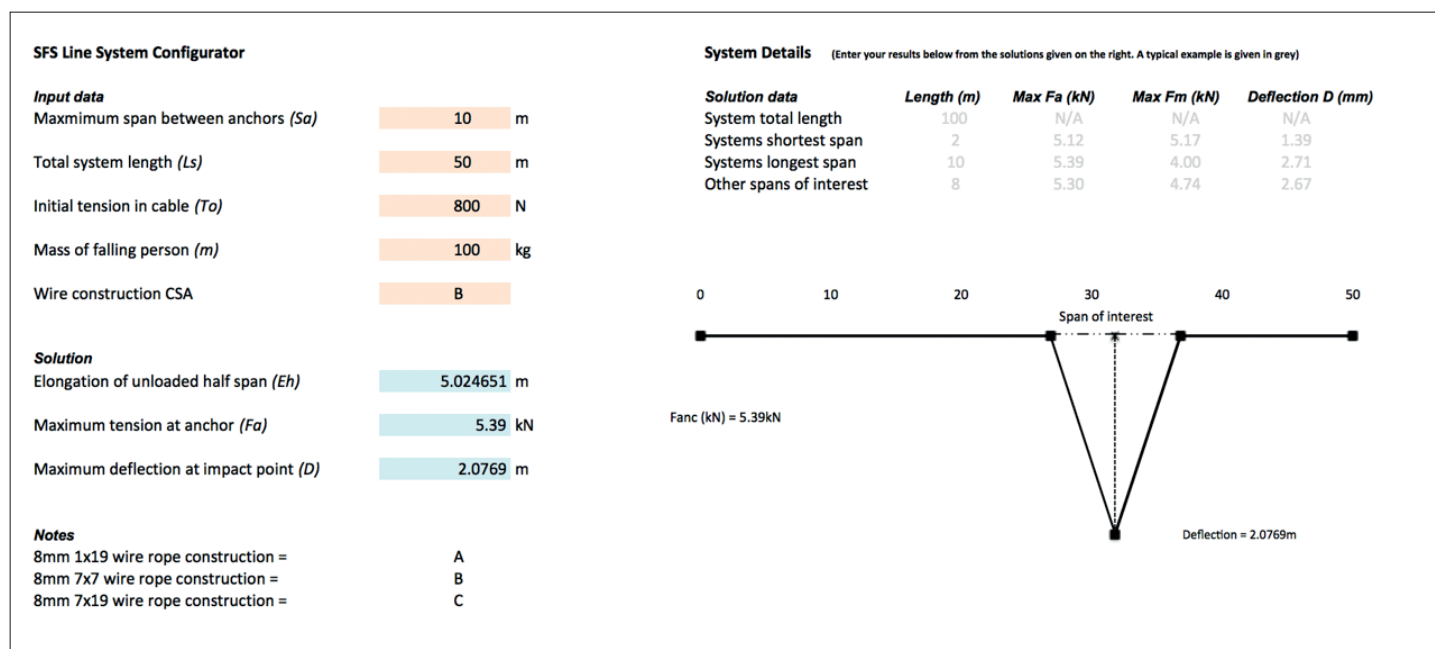
The Intermediate post has a red washer with a M12 stud. Combining this logic to our fittings, those components which are used at the starts, corners and ends of systems are drilled M10, so if an intermediate post was placed in the wrong location, the component would not fit onto it.



Calculation Package and Loadings

SF Fall Protection systems come complete with a calculation package allowing for calculations to be made to give end loadings, system deflections and other detailed information

assisting the system designer to propose a system that is fit for purpose. This calculation package can be used on shock absorbing posts, and components with in-line shock absorbers for systems fitted to rigid/fabricated posts, walls, and rigid structures.



Typical example of output provided to customer.

Maximum Spacings

To ensure both end loadings and system deflections are kept to a minimum, the Horizontal Lifeline system has been designed and tested to a maximum span of 12 m between 2 posts on all roof types.

Each straight run of a system should have a High Load post at the start and end with intermediate posts evenly spaced along its length, not exceeding the maximum 12 m stated spacing.

Maximum System Lengths

SOTER™ systems can support straight system lengths up to a maximum of 250 m, however this figure reduces once you add a corner, and further for every subsequent corner added. This is mainly down to the static loading that a corner post is subjected to under system tensioning. The more corners, the more load each corner post must support in two directions which can cause post lean.

Please refer to guidelines adjacent, however this should be assessed at the installers discretion on site.

Number of Corners	Max. System Length
Straight run	250 m
1	175 m
2-4	150 m
5+	125 m

*It is advised that systems of long lengths, or those that have multiple turns, have a tensioning termination at both ends of the system, so that the tension can be pulled into the line from both ends.

Starting and Stopping a System on a Single Post/Closed Loop

The SFS Horizontal Lifeline has been designed and tested to allow a system to be started and finished on the same post creating a closed loop on system lengths up to a maximum of 100 m. This can be created by using a Universal End Anchor with a Female M10 ring, or a 3-hole corner plate.

T-Off on a Single Post/Throw

You can also create a T-Off/Throw where one High Load post can act as both the start/end of a system and the intermediate of another. This is created by using a 2-hole plate and intermediate bracket.

Only the stated number of users can be on the system as a whole, not per line.

45 Degree Turns and Hip Details

Due to the unique way both our Slider attachment device and intermediate bracket are designed, a 45-degree turn can be created by using an intermediate bracket located on an intermediate post. If however, a system needs to turn 45 degrees twice in a line between 2 posts, therefore creating a 90 degree turn, which is often seen on trapezoidal roof sheets in hip details, one of these posts must be a high load.



Crossing Ridges, Valleys and Distance from End of Sheets

When a system is required to cross over either a ridge or valley detail it is important that the wire itself does not come in to contact with the capping at the ridge, and doesn't rise above knee height when meeting two slopes at a valley once tensioned. Variable intermediate brackets can help in this application.

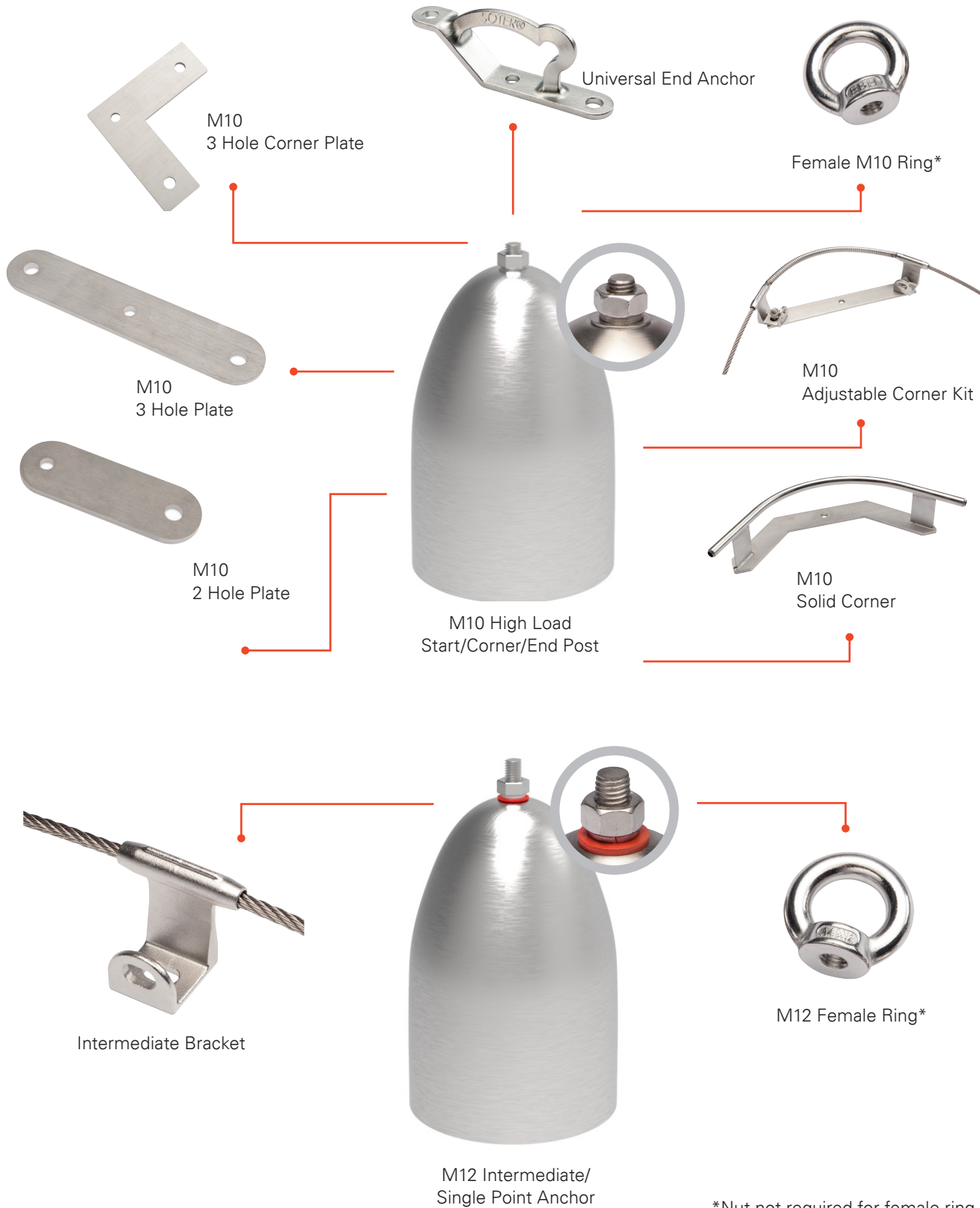
At both ridges and eaves locations, and at the end of any sheet next to a roof edge/fall hazard, the post must be fitted inside a fixing line/purlin on metal sheet constructions.

Systems to Standing Seam Roofs

Due to the construction methods of standing seam roofs, arrest systems using top fixed shock absorbing posts, are not suitable. This includes all forms of standing seam where the sheet is not 'fixed' and the lap detail is rolled or folded.

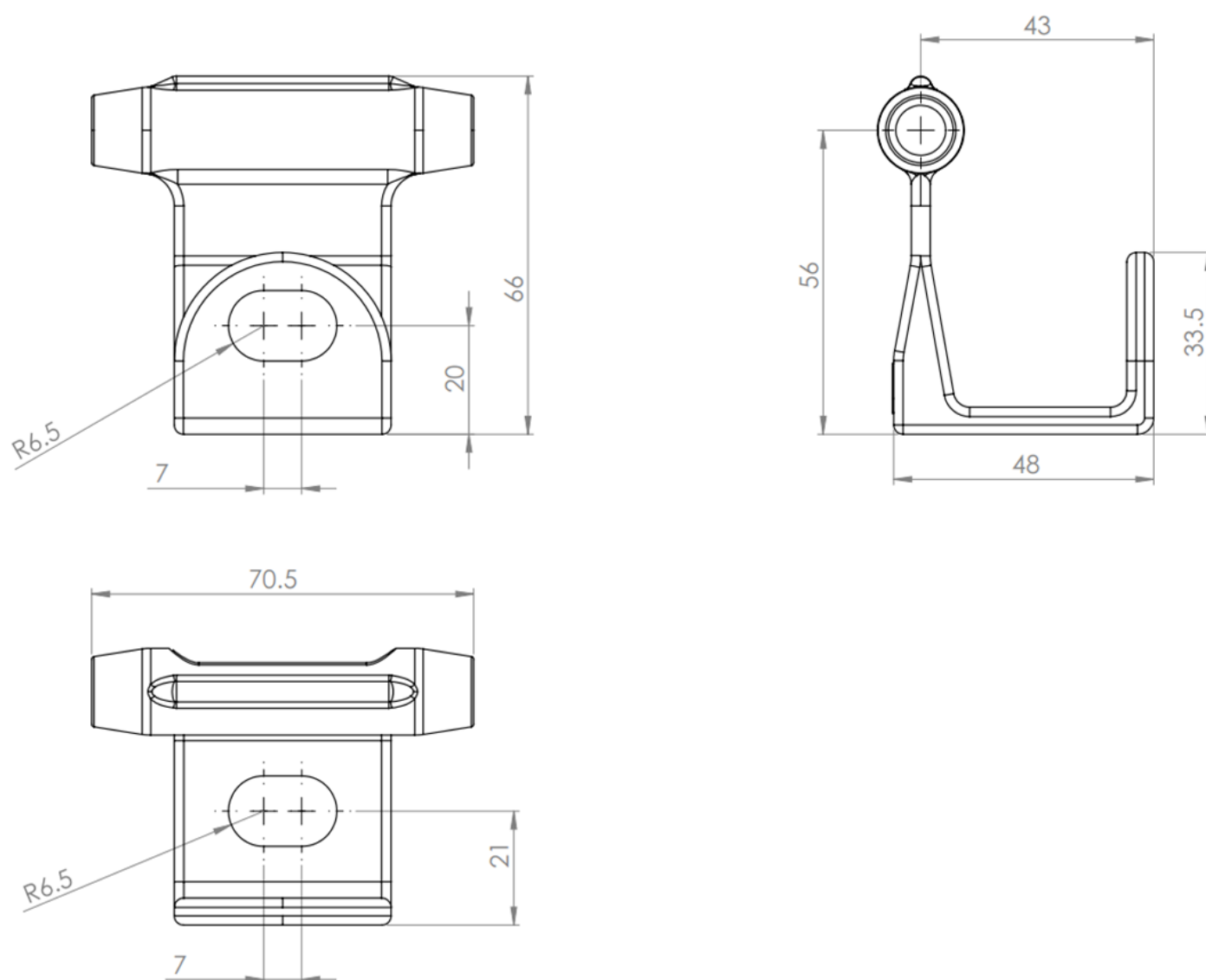
Component Installation

Due to the unique way the SOTER™ cans have been designed M10 & M12, the required component can only fit on the correct post type.



*Nut not required for female ring

Intermediate Bracket

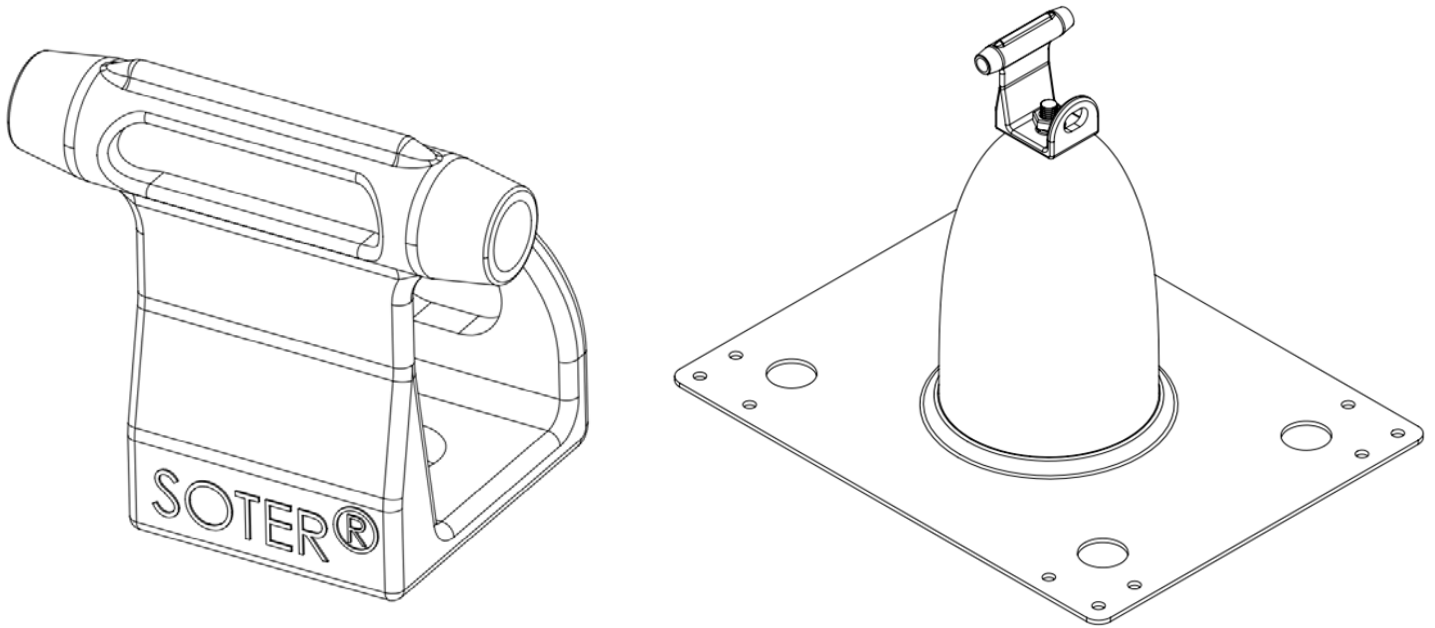


Specification

Product code	FP-IB
Material number	1501210
Material	Stainless steel grade ANC4B
Finish	Polished
Weight (kg)	0.240
Quality	ISO 9001
Conformity	EN 795:2012, CEN/TS 16415:2013

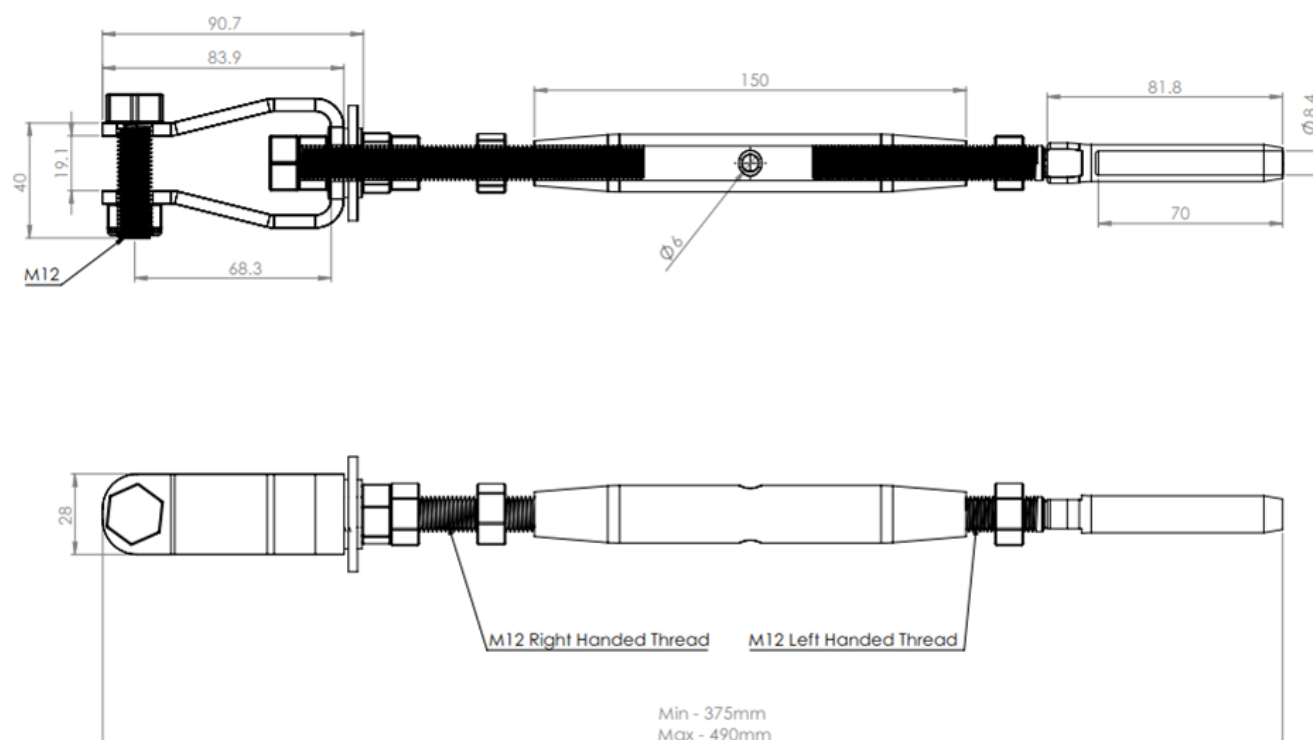
Application

Intermediate bracket to be fitted to Soter™ Horizontal Lifeline system post or rigid structure at spans no greater than 10m to reduce system deflection. Allows user to pass bracket with ease using the Slider travelling device even up to 45 degrees turn.



The details stated are results of tests and/or calculations and therefore are non-binding and do not represent guarantees or warranted characteristics for not specified applications. All calculations therefore have to be checked and approved by the responsible planner ahead of execution. The user is responsible to assure compliance with all applicable laws and regulations.

Combined Tensioner with Indicator

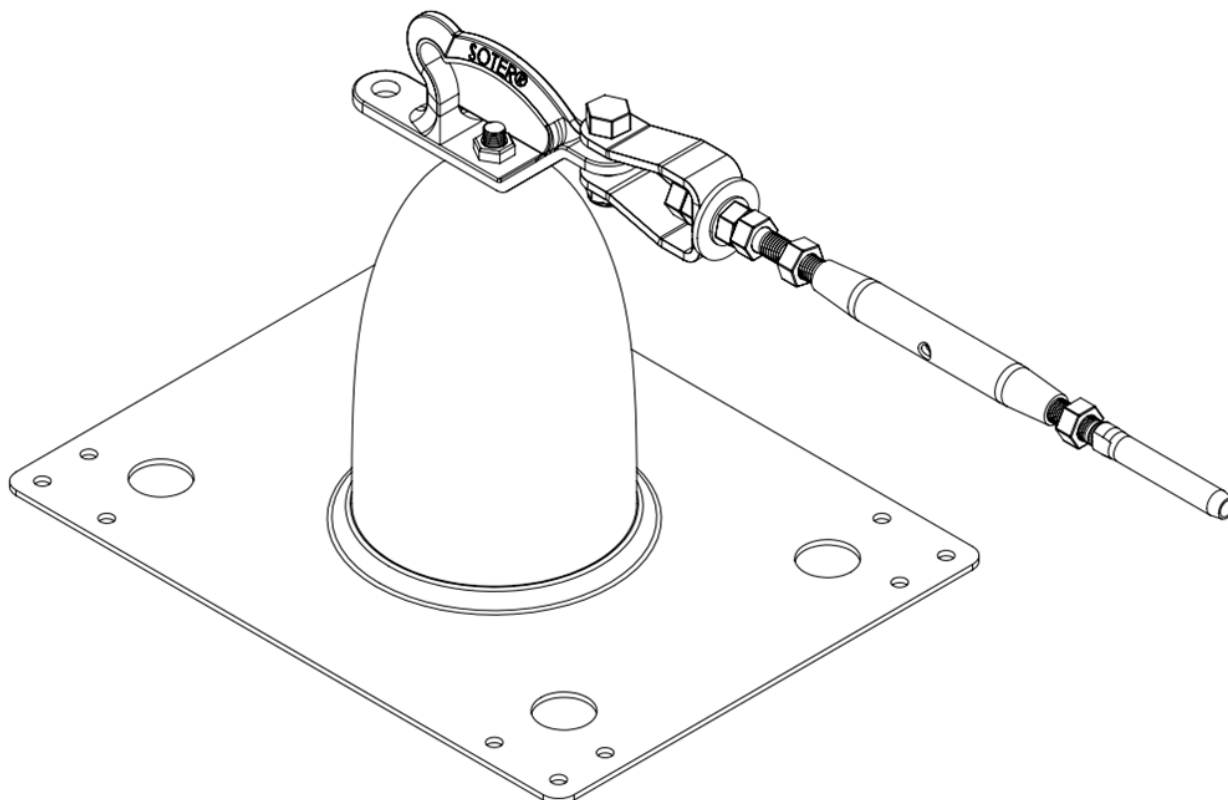


Specification

Product code	FP-LT-D
Material number	1501205
Material	Stainless steel grade 316
Finish	Polished
Weight (kg)	0.740
Quality	ISO 9001
Conformity	EN 795:2012, CEN/TS 16415:2013

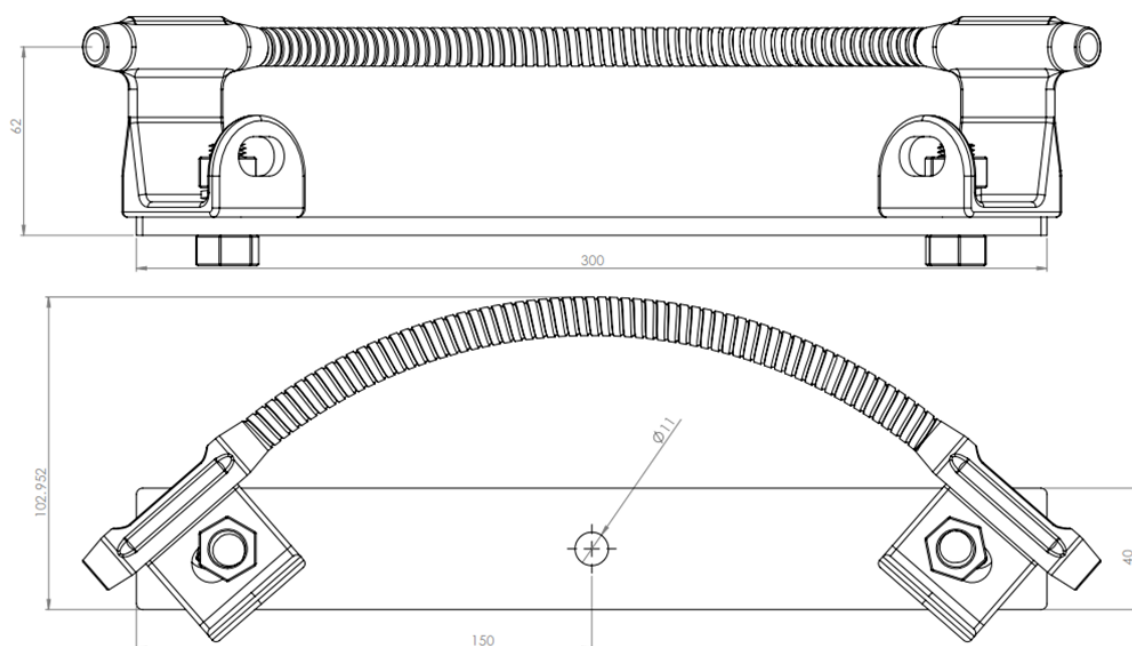
Application

Combined Line Tensioner and Tension Indicator to be fitted to start/end termination on Soter™ II high load post or rigid structure/ wall termination bracket. When correct tension is achieved red disc will turn.



The details stated are results of tests and/or calculations and therefore are non-binding and do not represent guarantees or warranted characteristics for not specified applications. All calculations therefore have to be checked and approved by the responsible planner ahead of execution. The user is responsible to assure compliance with all applicable laws and regulations.

Adjustable Corner Kit

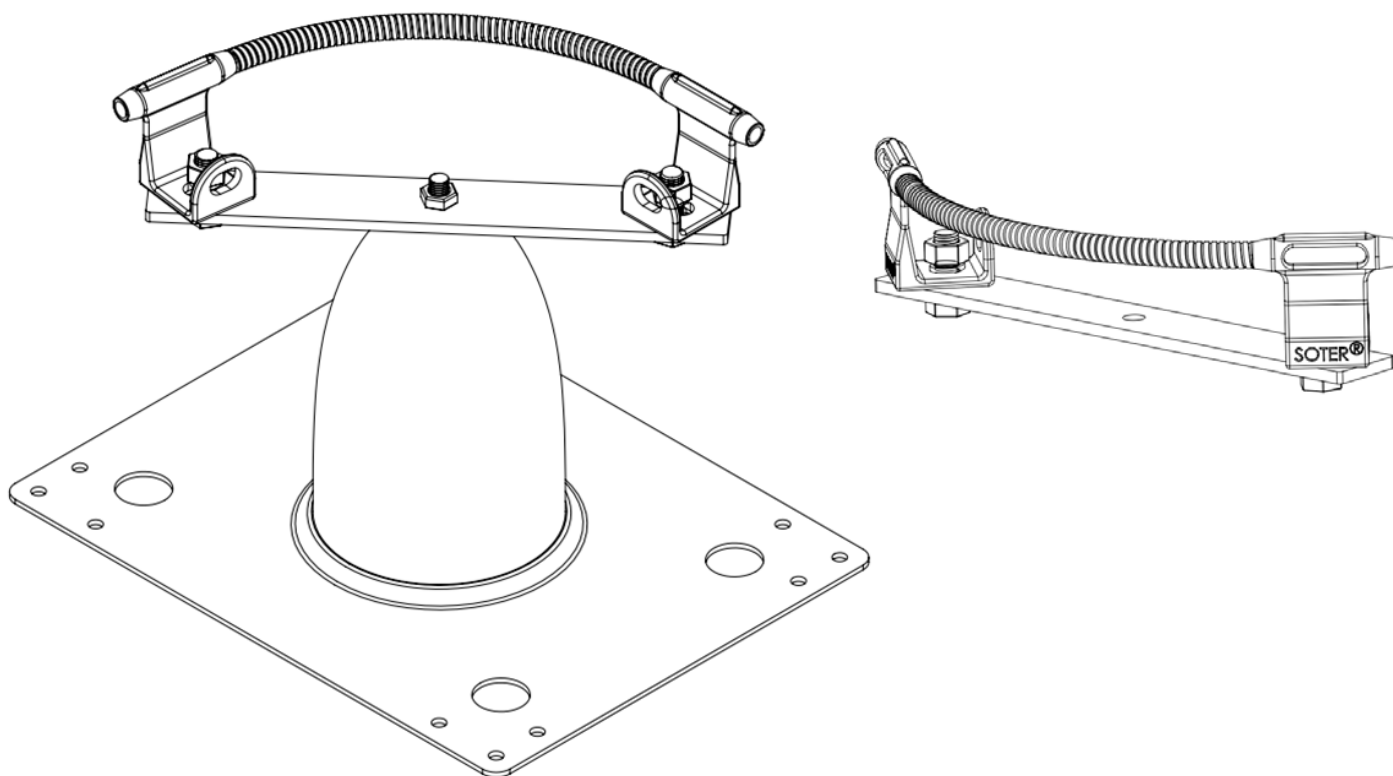


Specification

Product code	FP-CK-ADJ
Material number	1501223
Material	Stainless steel grade 304
Finish	Polished
Weight (kg)	1.220
Quality	ISO 9001
Conformity	EN 795:2012, CEN/TS 16415:2013

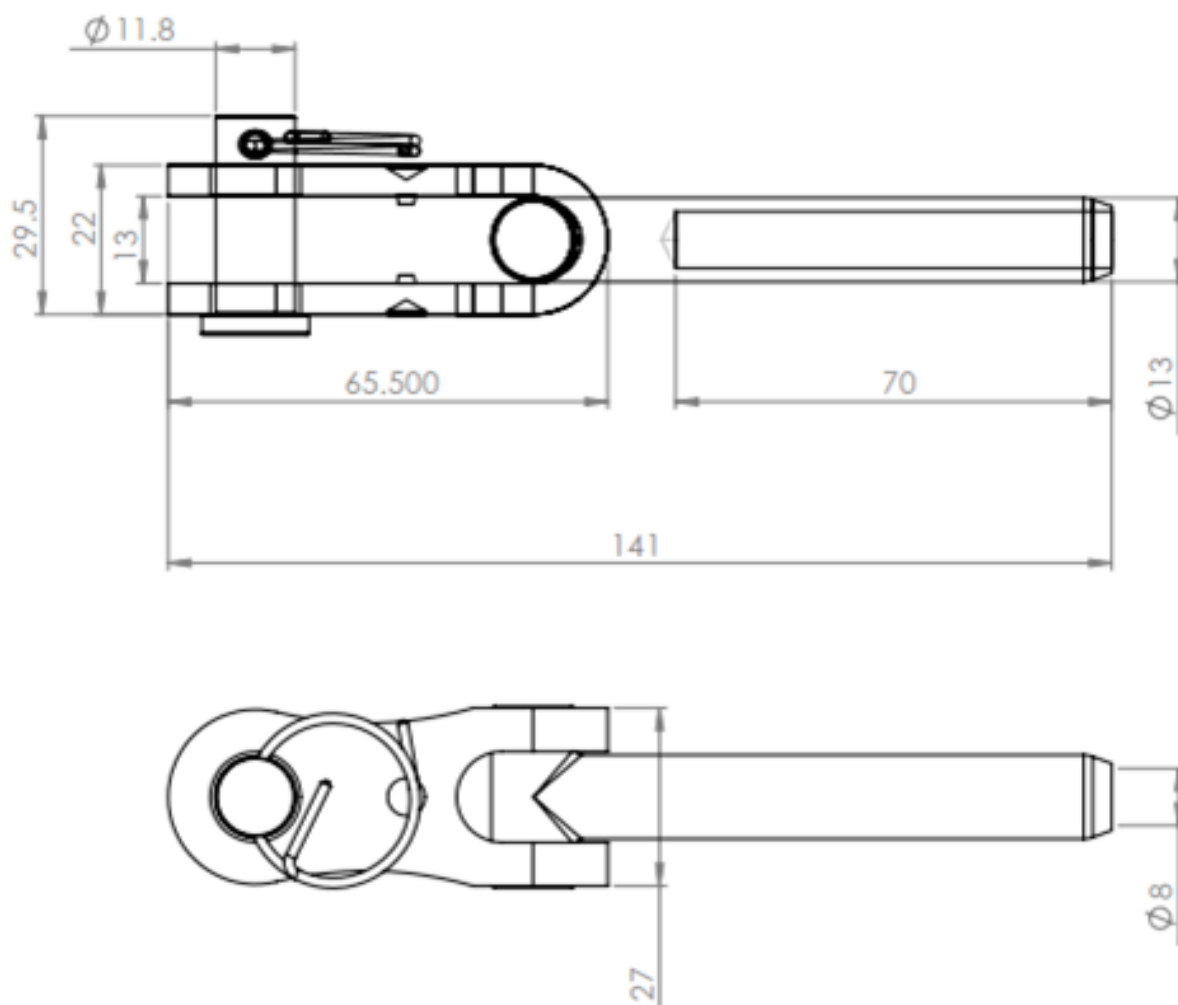
Application

Adjustable Corner Kit to be fitted to Soter™ II high load can to create a 90–135 degree turn, with adjustability. Flexible tube maintains smooth movement of Slider device over bracket.



The details stated are results of tests and/or calculations and therefore are non-binding and do not represent guarantees or warranted characteristics for not specified applications. All calculations therefore have to be checked and approved by the responsible planner ahead of execution. The user is responsible to assure compliance with all applicable laws and regulations.

Toggle Fork End

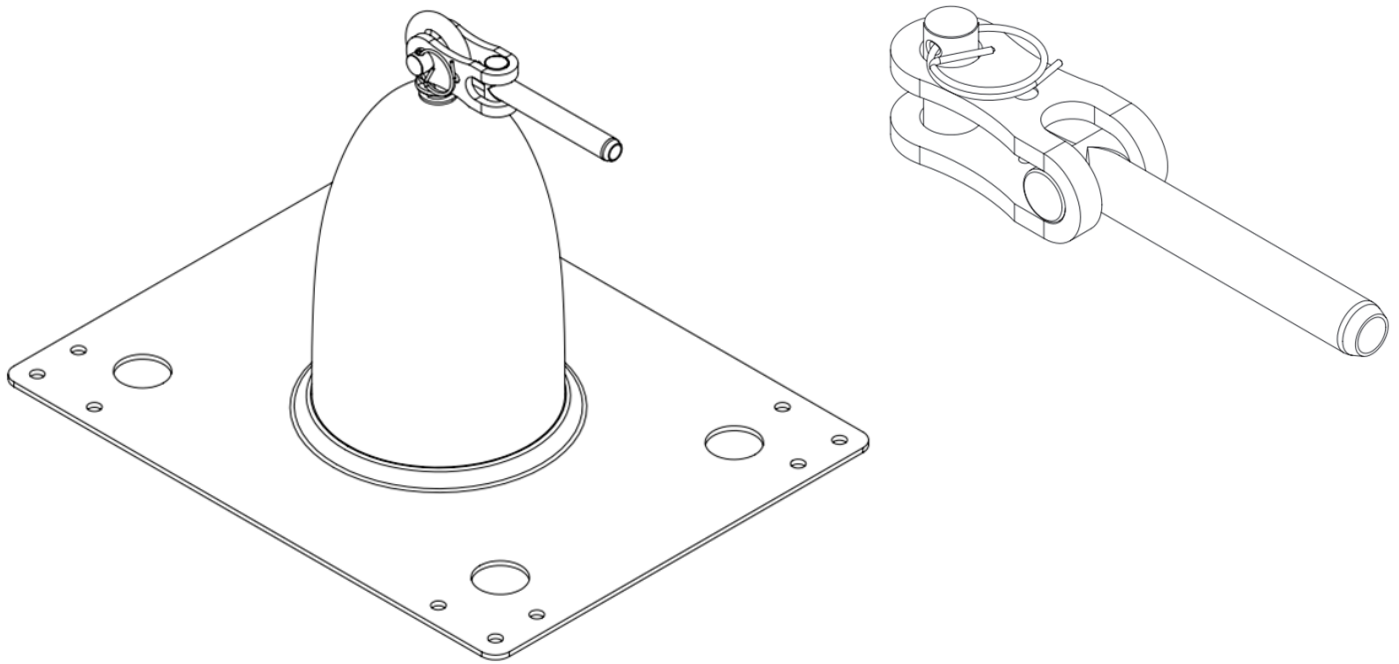


Specification

Product code	FP-AC-TF
Material number	1520785
Material	Stainless steel grade 316
Finish	Polished
Weight (kg)	0.195
Quality	ISO 9001
Conformity	EN 795:2012, CEN/TS 16415:2013

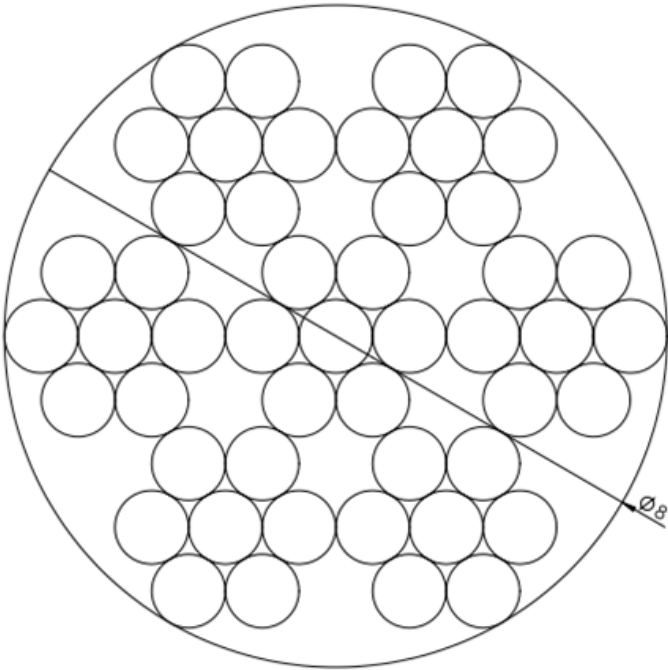
Application

Toggle Fork End termination to be fitted to start/end component on Soter™ high load or rigid structure/wall to approved termination point. Wire should be crimped inside hollow section with 5 no. 130kN swages. Please refer to SFS Fall Protection Installation Manual.



The details stated are results of tests and/or calculations and therefore are non-binding and do not represent guaranties or warranted characteristics for not specified applications. All calculations therefore have to be checked and approved by the responsible planner ahead of execution. The user is responsible to assure compliance with all applicable laws and regulations.

7x7x8mm



Application

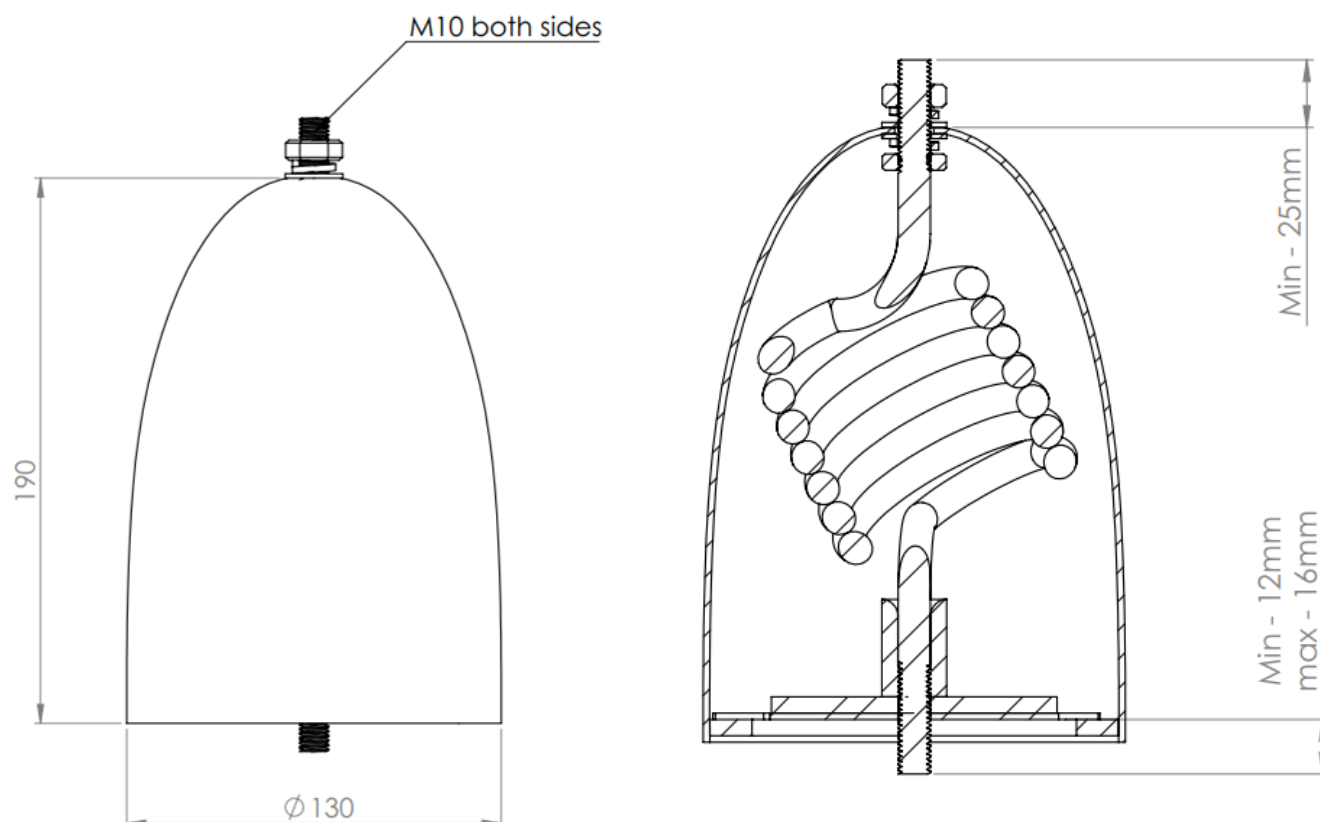
7x7x8mm marine grade stainless steel wire for horizontal and overhead safety line system requirements.

Specification

Product code	FP-AC-C-8
Material number	1501253
Material	Stainless steel grade 316
Finish	N/A
Weight (kg)	0.25 / Mtr
Quality	ISO 9001
Conformity	EN 795:2012, CEN/TS 16415:2013

The details stated are results of tests and/or calculations and therefore are non-binding and do not represent guaranties or warranted characteristics for not specified applications. All calculations therefore have to be checked and approved by the responsible planner ahead of execution. The user is responsible to assure compliance with all applicable laws and regulations.

Soter™ II High Load Can Assembly

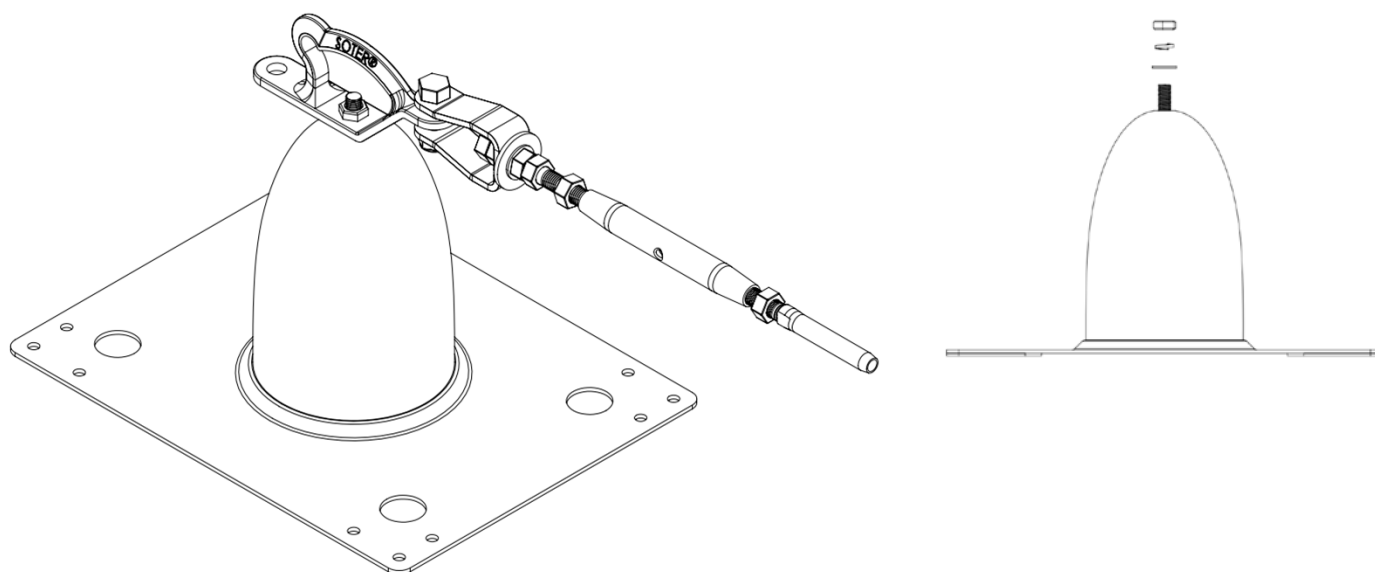


Specification

Product code	FP-A-HLA
Material number	1520732
Material	Stainless steel grade 304
Finish	Polished
Weight (kg)	2.290
Quality	ISO 9001
Conformity	EN 795:2012, CEN/TS 16415:2013

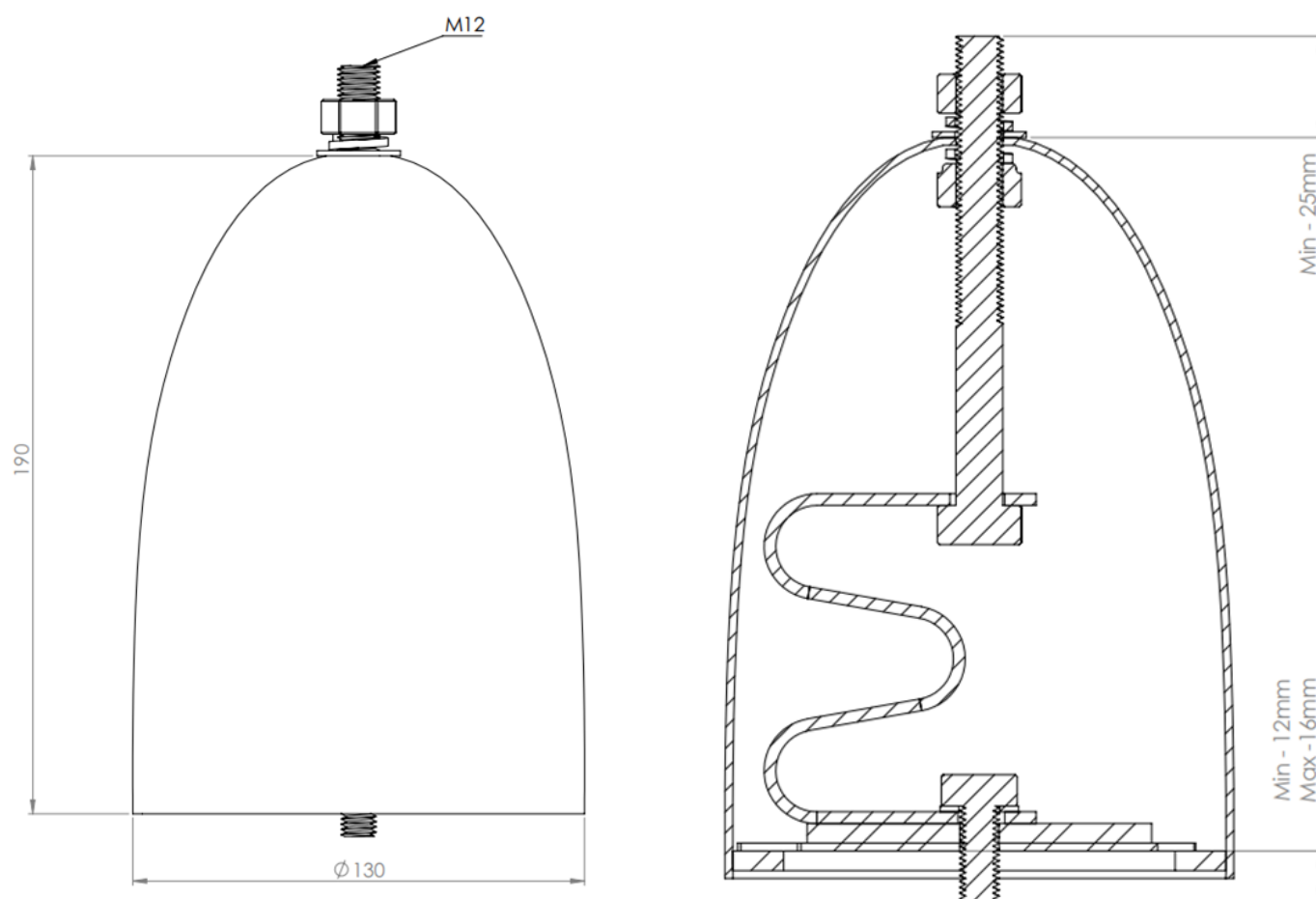
Application

Soter™ II High Load Post Assembly to be fitted to baseplate suitable for roof construction, tightened down to baseplate using strap wrench tool. Cans to be used at start, corners and ends of systems.



The details stated are results of tests and/or calculations and therefore are non-binding and do not represent guarantees or warranted characteristics for not specified applications. All calculations therefore have to be checked and approved by the responsible planner ahead of execution. The user is responsible to assure compliance with all applicable laws and regulations.

Soter™ II Intermediate Can

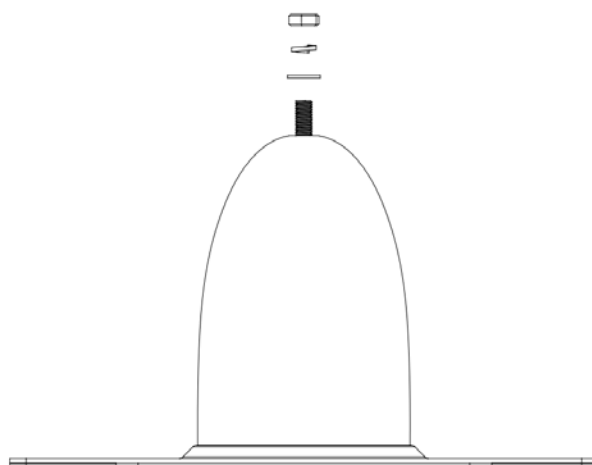
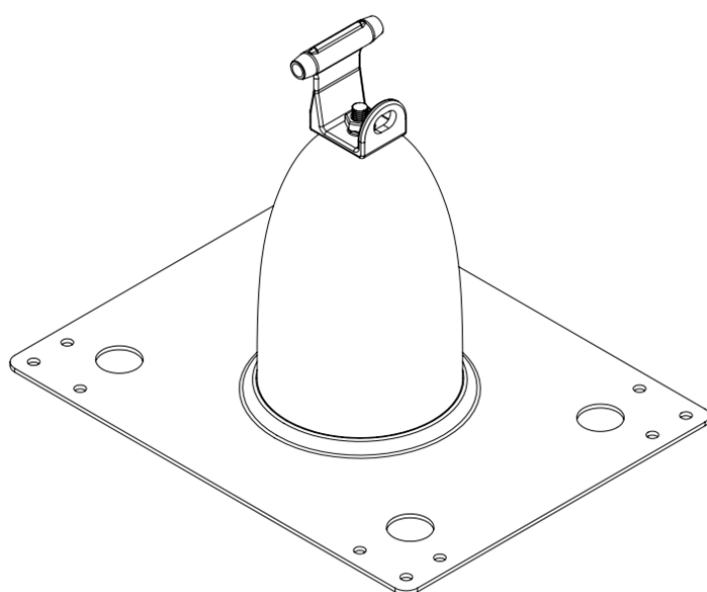


Specification

Product code	FP-A-IPA
Material number	1520733
Material	Stainless steel grade 304
Finish	Polished
Weight (kg)	1.445
Quality	ISO 9001
Conformity	EN 795:2012, CEN/TS 16415:2013

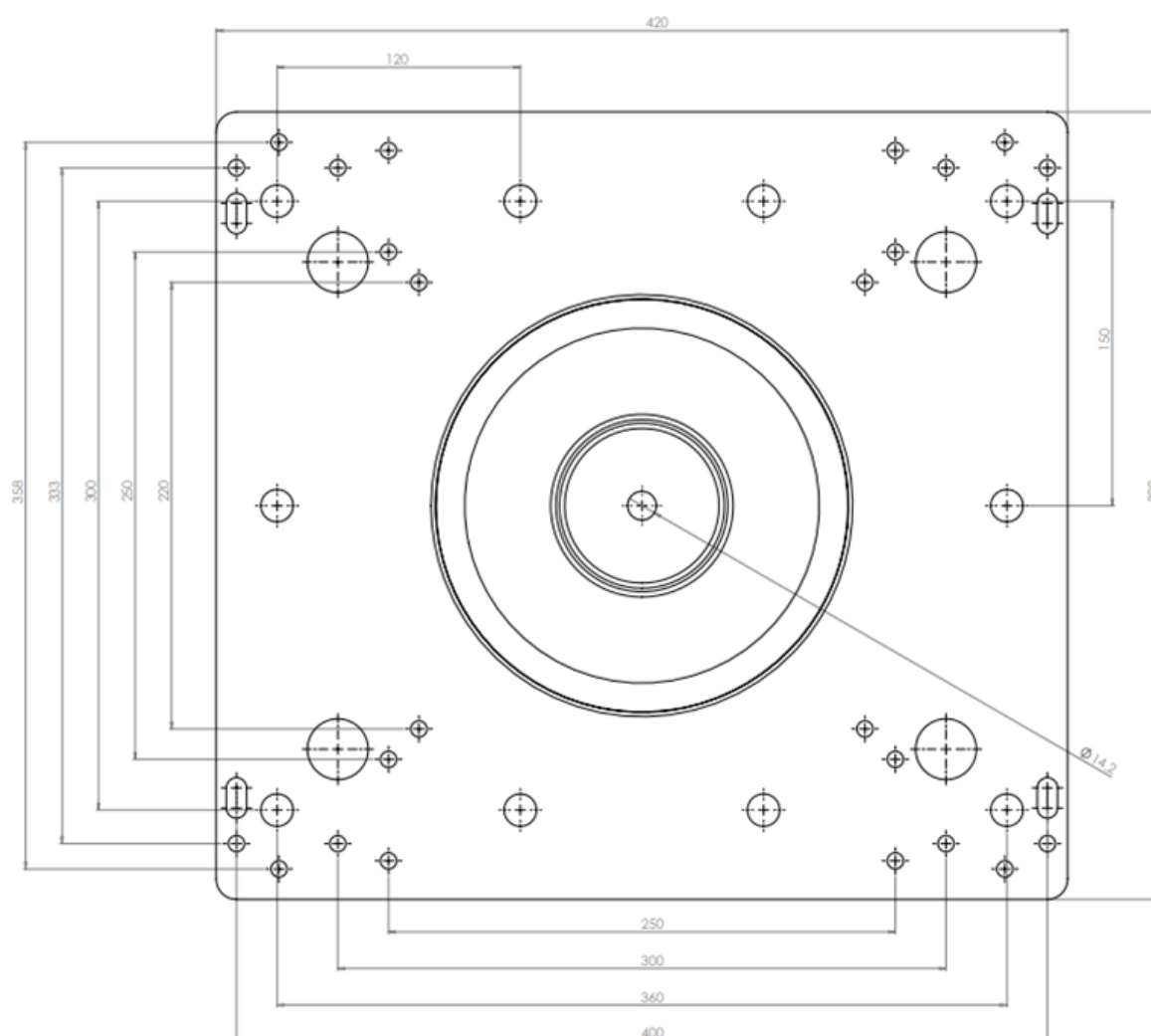
Application

Soter™ II Intermediate Can Assembly to be fitted to Multi-use baseplate suitable for roof construction, tightened down to baseplate using strap wrench tool. Posts to be used as intermediates at spans no greater than 10m. Can also be used as single point anchors.



The details stated are results of tests and/or calculations and therefore are non-binding and do not represent guarantees or warranted characteristics for not specified applications. All calculations therefore have to be checked and approved by the responsible planner ahead of execution. The user is responsible to assure compliance with all applicable laws and regulations.

Multi-use Baseplate

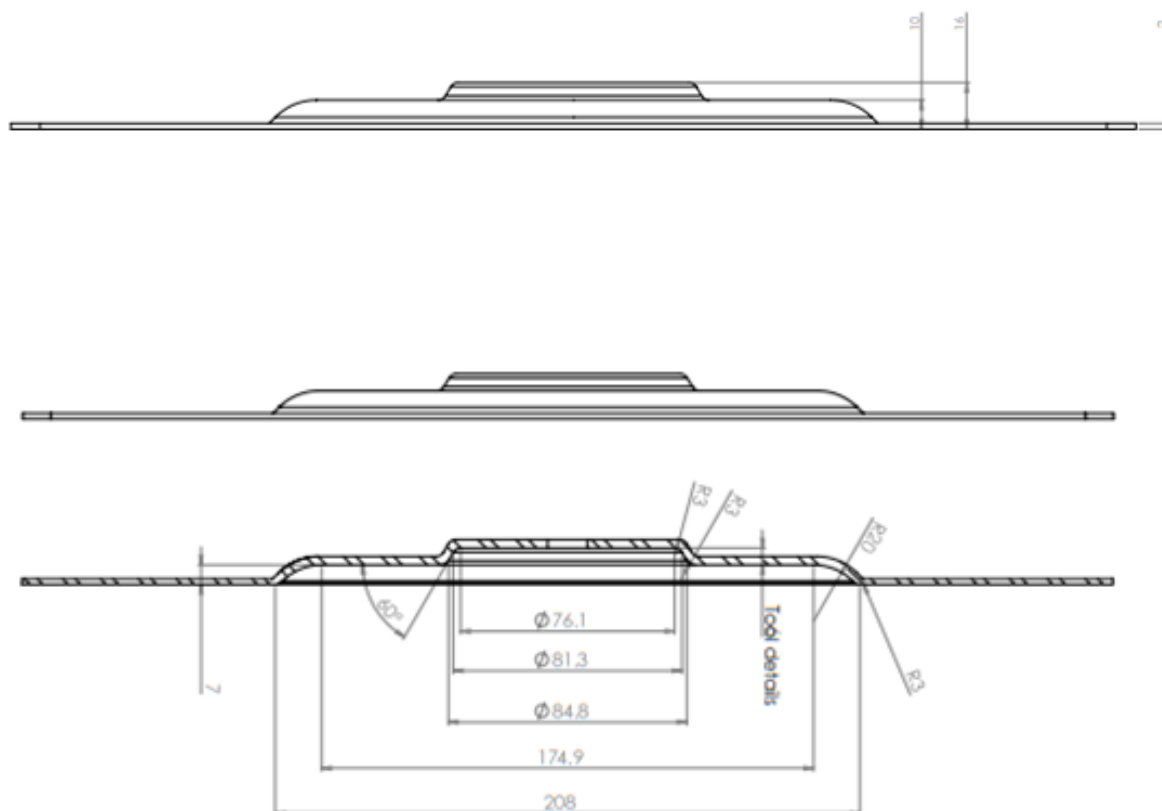


Specification

Product code	FP-BP-MU
Material number	1592404
Material	Stainless steel grade 304
Finish	Natural
Weight (kg)	2.45
Quality	ISO 9001
Conformity	EN 795:2012, CEN/TS 16415:2013

Application

Multi-use Baseplate to be fitted to Soter™ II high load and intermediate posts by turning the post into the central M10 boss. The Baseplate can be used on differing roof types, with multiple fixing options.



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