

## European Technical Approval ETA-08/0262

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung <i>Trade name</i>	SFS intec Flachdachbefestigungselemente  <i>SFS intec Flat Roof Fasteners</i>
Zulassungsinhaber <i>Holder of approval</i>	SFS intec AG FasteningSystems Rosenbergsaustraße 10 9435 HEERBRUGG SCHWEIZ
Zulassungsgegenstand und Verwendungszweck <i>Generic type and use of construction product</i>	Befestigungselemente für Dachabdichtungssysteme  <i>Fasteners for flexible roof waterproofing systems</i>
Geltungsdauer: <i>Validity:</i>	vom from bis to  4 June 2012  28 October 2017
Herstellwerke <i>Manufacturing plants</i>	Werk 1, Werk 2, Werk 3, Werk 4, Werk 5, Werk 6, Werk 7, Werk 8, Werk 9 <i>Factory 1, factory 2, factory 3, factory 4, factory 5, factory 6, factory 7, factory 8, factory 9</i>
Diese Zulassung umfasst <i>This Approval contains</i>	97 Seiten einschließlich 91 Anhänge <i>97 pages including 91 annexes</i>
Diese Zulassung ersetzt <i>This Approval replaces</i>	ETA-08/0262 mit Geltungsdauer vom 27.10.2008 bis 27.10.2013 sowie ETA-08/0321 mit Geltungsdauer vom 27.10.2008 bis 27.10.2013 <i>ETA-08/0262 with validity from 27.10.2008 to 27.10.2013 and ETA-08/0321 with validity from 27.10.2008 to 27.10.2013</i>

## I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European technical approval is issued by Deutsches Institut für Bautechnik in accordance with:
  - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products<sup>1</sup>, modified by Council Directive 93/68/EEC<sup>2</sup> and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council<sup>3</sup>;
  - *Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998<sup>4</sup>, as amended by law of 31 October 2006<sup>5</sup>;*
  - Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC<sup>6</sup>;
  - Guideline for European technical approval of "Systems of mechanically fastened flexible roof waterproofing membranes", ETAG 006.
- 2 Deutsches Institut für Bautechnik is authorized to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.
- 3 This European technical approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European technical approval.
- 4 This European technical approval may be withdrawn by Deutsches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.
- 5 Reproduction of this European technical approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of Deutsches Institut für Bautechnik. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.
- 6 The European technical approval is issued by the approval body in its official language. This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

<sup>1</sup> Official Journal of the European Communities L 40, 11 February 1989, p. 12  
<sup>2</sup> Official Journal of the European Communities L 220, 30 August 1993, p. 1  
<sup>3</sup> Official Journal of the European Union L 284, 31 October 2003, p. 25  
<sup>4</sup> *Bundesgesetzblatt Teil I 1998*, p. 812  
<sup>5</sup> *Bundesgesetzblatt Teil I 2006*, p. 2407, 2416  
<sup>6</sup> Official Journal of the European Communities L 17, 20 January 1994, p. 34

## **II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL**

### **1 Definition of the products and intended use**

#### **1.1 Definition of the construction product**

The construction products are mechanical fasteners. The fasteners comprise a screw, blind rivet or anchor made of coated carbon steel, aluminium or stainless steel and a washer with or without integrated sleeve. The washers without integrated sleeve are made of coated carbon steel whereas the washers with integrated sleeve are made of polypropylene or polyamide.

#### **1.2 Intended use**

The fasteners are intended to be used for the fastening of flexible roof waterproofing membranes according to ETAG 006. The possible substructures are steel or aluminium decks, concrete, aerated concrete, pumice panel or timber.

The provisions made in this European technical approval are based on an assumed working life of the fasteners of 10 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

In order to use the fasteners for systems of mechanically fastened flexible roof waterproofing membranes a separate ETA according to ETAG 006 is necessary for the entire roof waterproofing system.

### **2 Characteristics of the products and methods of verification**

#### **2.1 Characteristics of the products**

The fasteners shall correspond to the information given in Annexes 1 to 85.

Corrosion resistance of blind rivet type TPR-L shall be provided by minimum 8 µm galvanisation.

The material properties, dimensions and tolerances not indicated in Annexes 1 to 85 shall correspond to the information laid down in the technical information<sup>7</sup> to this European technical approval.

#### **2.2 Safety in use (ER 4)**

The characteristic values of the axial load resistance of the fasteners are given in Annexes 86 to 91. The values were determined by axial loading tests according to ETAG 006.

The fasteners are deemed to satisfy the requirements of ETAG 006 concerning unwinding. This was either evaluated by tests or on the basis of the existing field experience of the manufacturer.

<sup>7</sup> The technical documentation is deposited with Deutsches Institut für Bautechnik and as far as relevant for the tasks of the approved bodies involved in the attestation of conformity procedure is handed over to the approved bodies.

### 2.3 Aspects of durability

The durability requirements of ETAG 006 (resistance to corrosion of metallic fasteners, impact resistance and brittleness of plastic fasteners before and after heat ageing, requirements for results of Charpy tests for plastic materials before and after heat ageing) are satisfied for the coated carbon steel, aluminium, stainless steel, polypropylene and polyamide components of the fasteners.

All coated carbon steel components resisted to 15 cycles of the test procedure described in ETAG 006 (Kesternich test) and did not show more than 15 % surface corrosion.

The test results of the tests to check the impact resistance and brittleness of the polyamide components showed a drop height of more than 1,0 m before and after heat ageing of these components. Furthermore the results of the corresponding Charpy tests after heat ageing did not show any significant decline compared to the results before heat ageing.

## 3 Evaluation and attestation of conformity and CE marking

### 3.1 System of attestation of conformity

According to the Decision 98/143/EC of the European Commission<sup>8</sup> system 2+ of the attestation of conformity applies.

This system of attestation of conformity is defined as follows:

System 2+: Declaration of conformity of the products by the manufacturer on the basis of:

(a) Tasks for the manufacturer:

- (1) initial type-testing of the product;
- (2) factory production control;
- (3) testing of samples taken at the factory in accordance with a prescribed test plan.

(b) Tasks for the approved body:

- (4) certification of factory production control on the basis of:
  - initial inspection of factory and of factory production control;
  - continuous surveillance, assessment and approval of factory production control.

Note: Approved bodies are also referred to as "notified bodies".

### 3.2 Responsibilities

#### 3.2.1 Tasks for the manufacturer

##### 3.2.1.1 Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall insure that the products are in conformity with this European technical approval.

The manufacturer may only use initial materials stated in the technical documentation of this European technical approval.

<sup>8</sup> Official Journal of the European Communities L 42 of 14 February 1998

The factory production control shall be in accordance with the control plan which is part of the technical documentation of this European technical approval. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited with Deutsches Institut für Bautechnik.<sup>9</sup>

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

#### 3.2.1.2 Other tasks for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body which is approved for the tasks referred to in section 3.1 in the field of "Fasteners for flexible roof waterproofing membranes" in order to undertake the actions laid down in section 3.2.2. For this purpose, the control plan referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the approved body involved.

The manufacturer shall make a declaration of conformity, stating that the construction products are in conformity with the provisions of this European technical approval.

#### 3.2.2 Tasks for the approved bodies

The approved body shall perform the

- initial inspection of factory and of factory production control,
- continuous surveillance, assessment and approval of factory production control

in accordance with the provisions laid down in the control plan.

The approved body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in a written report.

The approved certification body involved by the manufacturer shall issue an EC certificate of conformity of the factory production control stating the conformity with the provisions of this European technical approval.

In cases where the provisions of the European technical approval and its control plan are no longer fulfilled the certification body shall withdraw the certificate of conformity and inform Deutsches Institut für Bautechnik without delay.

#### 3.3 CE marking

The CE marking shall be affixed on each packaging of fasteners. The letters "CE" shall be followed by the identification number of the approved certification body, where relevant, and be accompanied by the following additional information:

- the name and address of the producer (legal entity responsible for the manufacture),
- the last two digits of the year in which the CE marking was affixed,
- the number of the EC certificate for the factory production control,
- the number of the European technical approval,
- the name of the product.

<sup>9</sup>

The control plan is a confidential part of the European technical approval and only handed over to the approved body involved in the procedure of attestation of conformity. See section 3.2.2.

**4 Assumptions under which the fitness of the products for the intended use was favourably assessed**

**4.1 Manufacturing**

The European technical approval is issued for the products on the basis of agreed data/information, deposited with Deutsches Institut für Bautechnik, which identifies the products that have been assessed and judged. Changes to the products or production process, which could result in this deposited data/information being incorrect, should be notified to Deutsches Institut für Bautechnik before the changes are introduced. Deutsches Institut für Bautechnik will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

**4.2 Installation**

The installation is carried out according to the manufacturer's instructions. The manufacturer hands over the assembly instructions to the assembler.

In order to use the fasteners for systems of mechanically fastened flexible roof waterproofing membranes a valid ETA according to ETAG 006 is issued for the entire roof waterproofing system. The ETA according to ETAG 006 covers the wind uplift resistance of the entire system as well as the product characteristics of the components of the system.

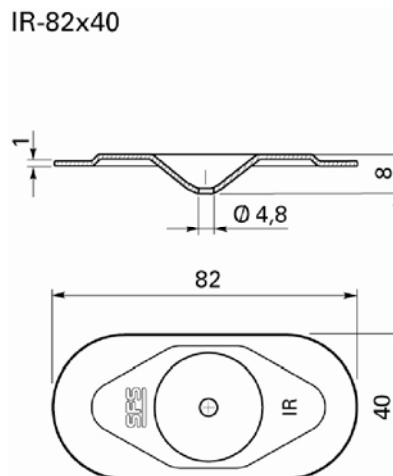
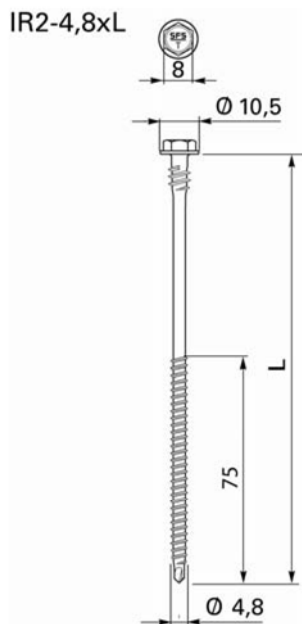
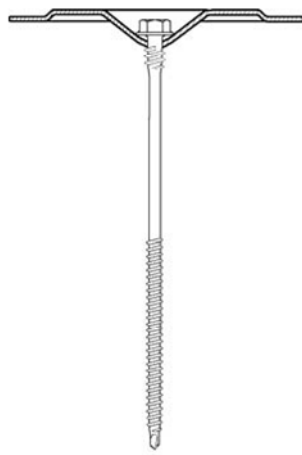
The conformity of the installed fastener with this ETA is attested by the executing company.

**5 Indications to the manufacturer**

It is in the responsibility of the manufacturer to ensure that the information on the specific conditions according to 1, 2 and 4 is given to those who are concerned. The information may be given by reproduction of the European technical approval. In addition all installation data shall be shown clearly on the package and/or on an enclosed instruction sheet, preferably using illustration(s).

Georg Feistel  
Head of Department

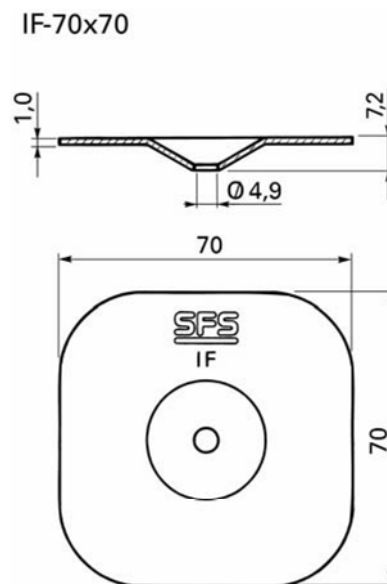
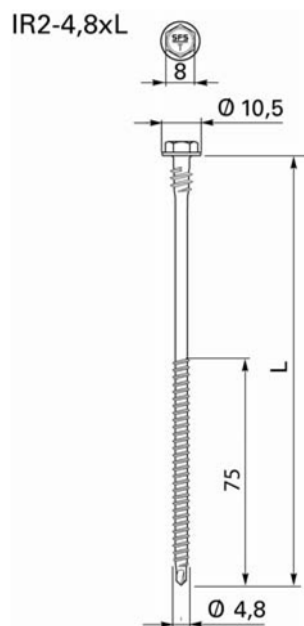
*beglaubigt:*  
Spohn



SFS intec flat roof fasteners

Combination 1  
SFS intec IR2-4,8xL  
SFS intec IR-82x40

Annex 1



SFS intec flat roof fasteners

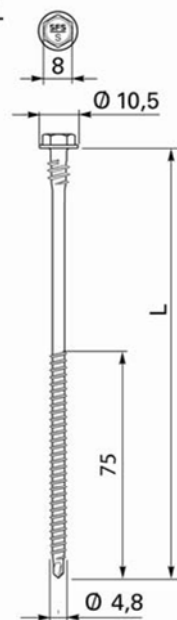
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SFS intec IF-70x70

Annex 2

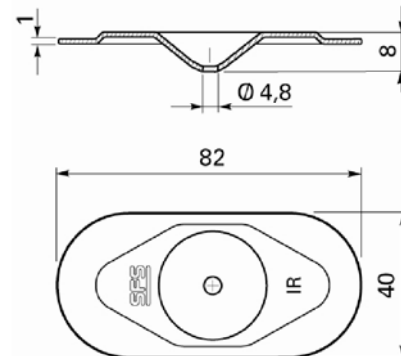




IR2-S-4,8xL



IR-82x40



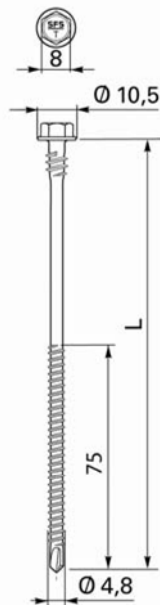
SFS intec flat roof fasteners

Combination 3  
SFS intec IR2-S-4,8xL  
SFS intec IR-82x40

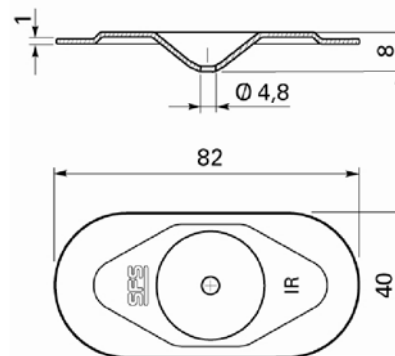
Annex 3



IR3-4,8xL



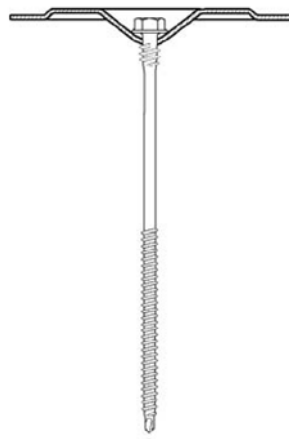
IR-82x40



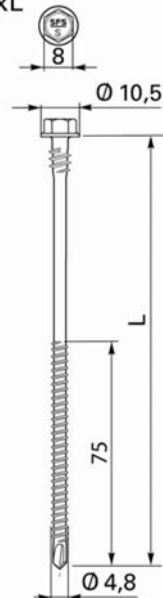
SFS intec flat roof fasteners

Combination 4  
SFS intec IR3-4,8xL  
SFS intec IR-82x40

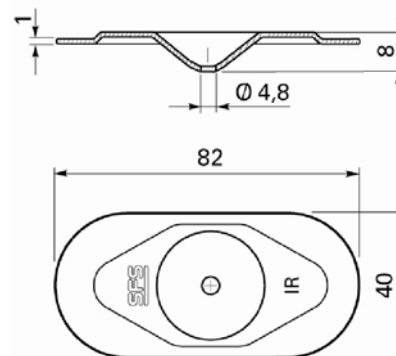
Annex 4



IR3-S-4,8xL



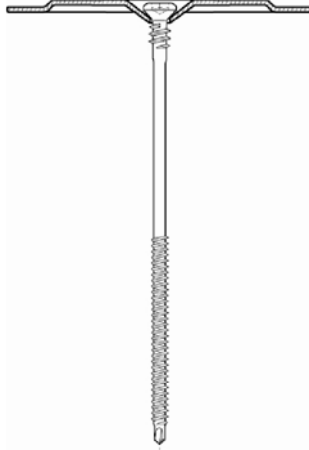
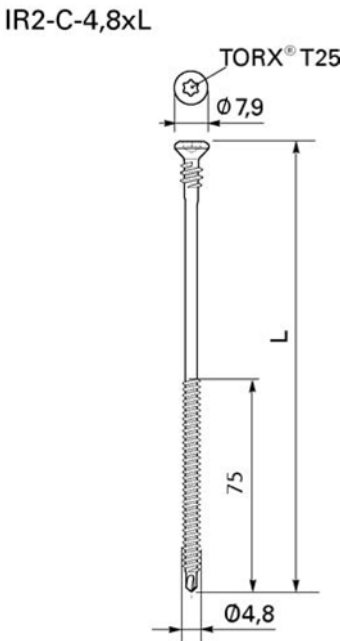
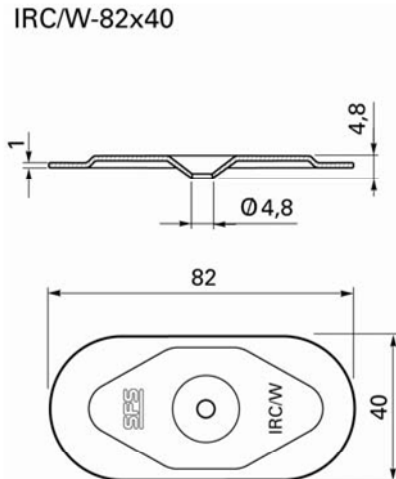
IR-82x40

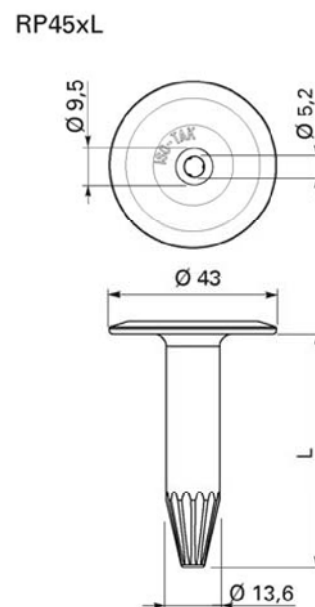
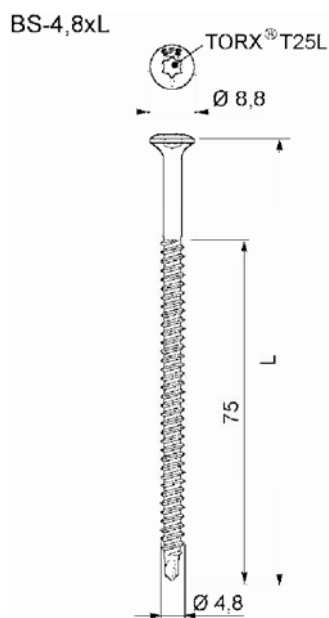


SFS intec flat roof fasteners

Combination 5  
SFS intec IR3-S-4,8xL  
SFS intec IR-82x40

Annex 5


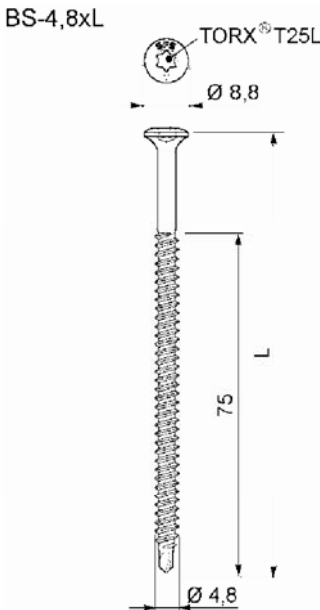
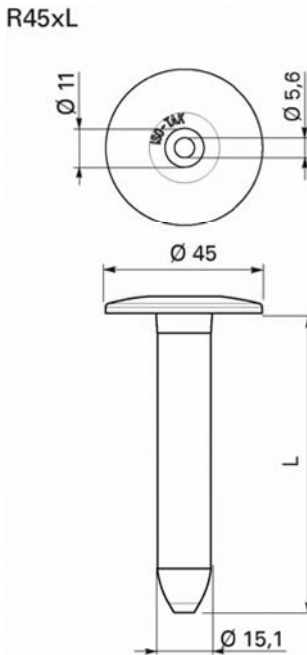
		
		
SFS intec flat roof fasteners		Annex 6
Combination 6 SFS intec IR2-C-4,8xL SFS intec IRC/W-82x40		

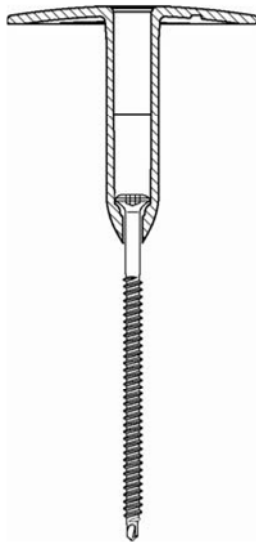
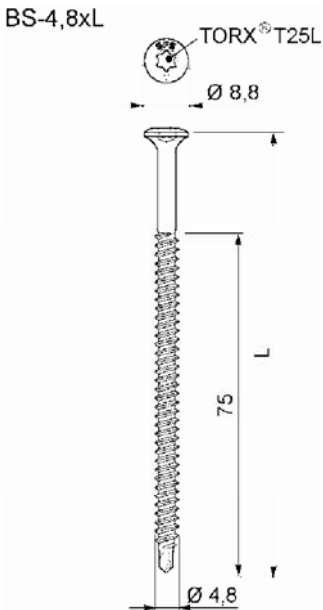
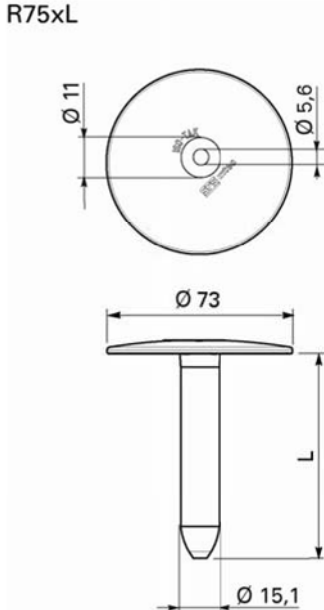


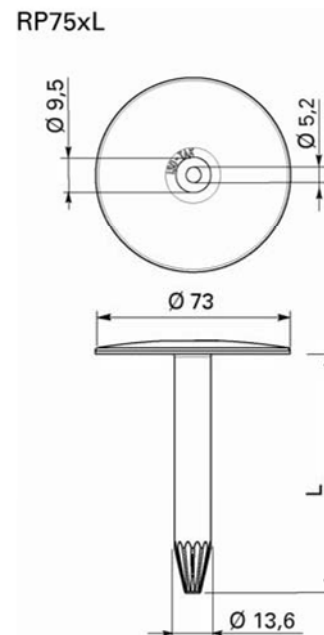
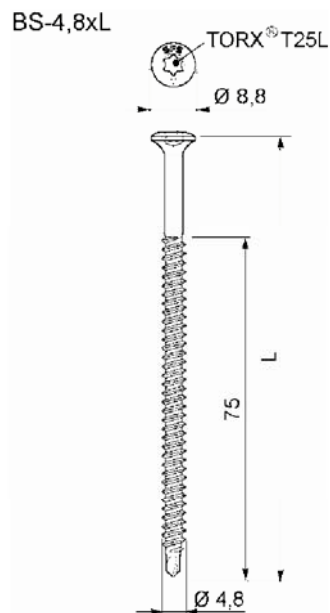
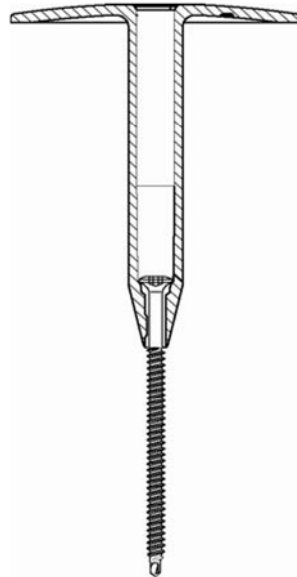
SFS intec flat roof fasteners

Combination 7  
SFS intec BS-4,8xL  
SFS intec RP45xL

Annex 7

		
		
SFS intec flat roof fasteners		Annex 8
Combination 8 SFS intec BS-4,8xL SFS intec R45xL		

		
		
SFS intec flat roof fasteners		Annex 9
Combination 9 SFS intec BS-4,8xL SFS intec R75xL		


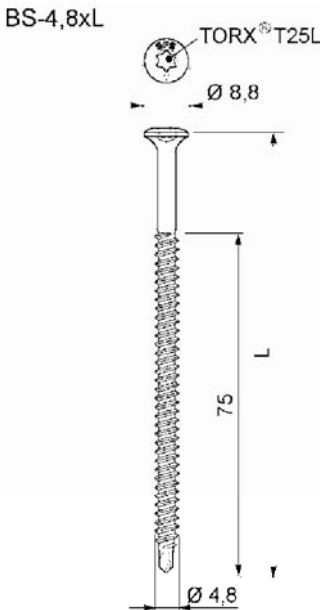
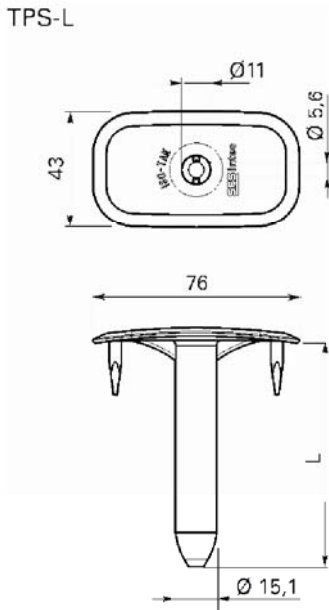


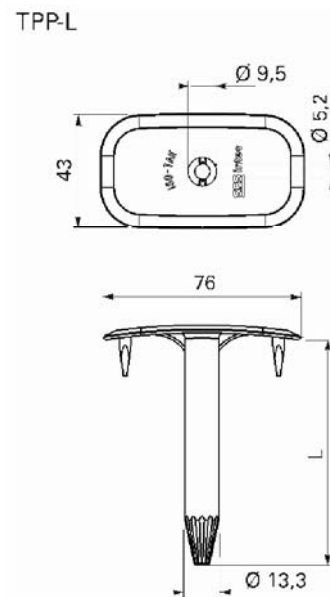
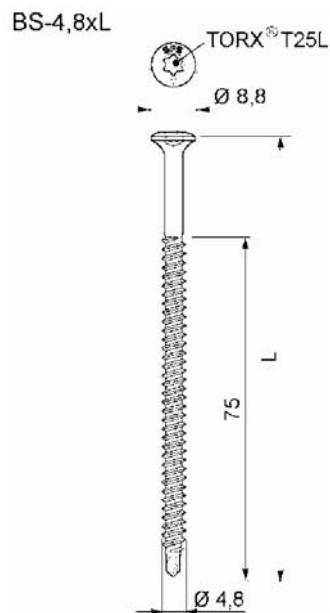
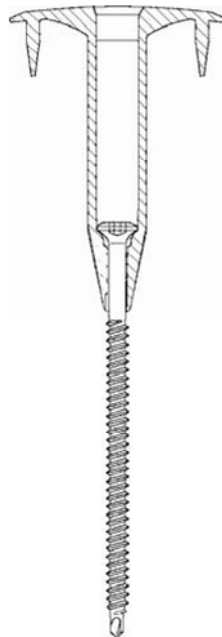
SFS intec flat roof fasteners

Combination 10  
SFS intec BS-4,8xL  
SFS intec RP75xL

Annex 10




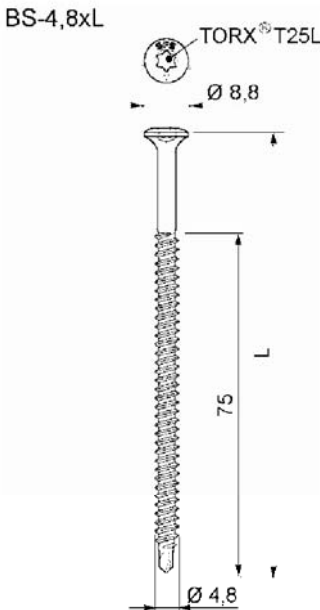
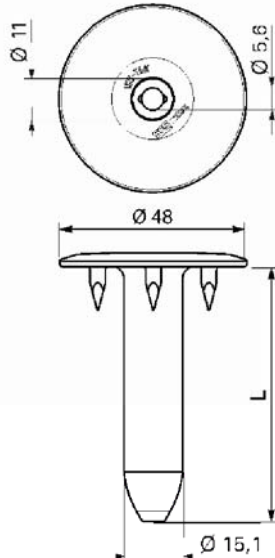
		
		
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Combination 11 SFS intec BS-4,8xL SFS intec TPS-L		

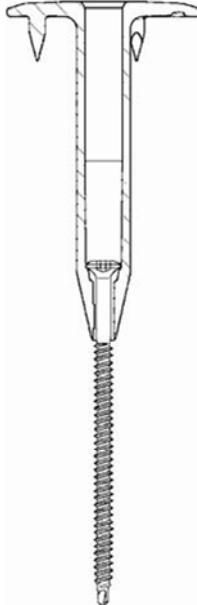
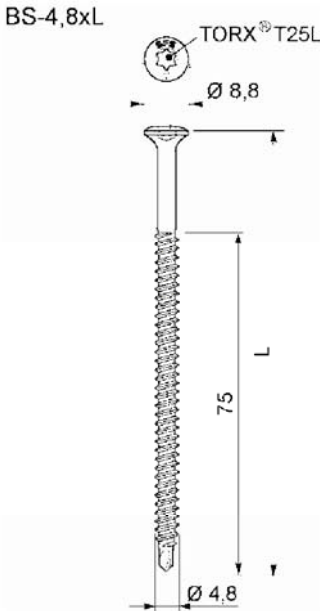
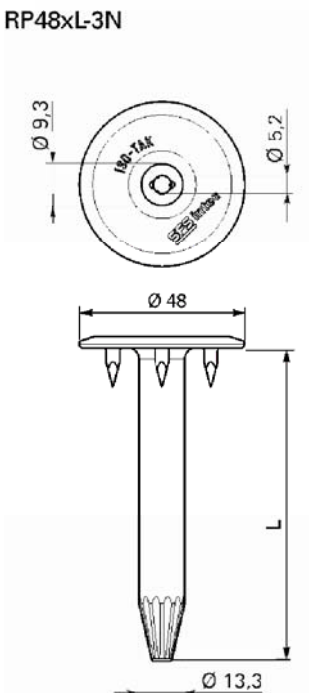



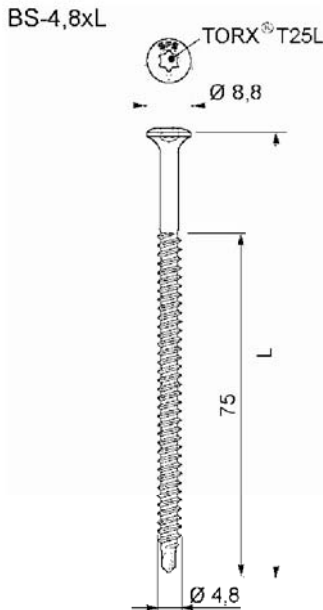
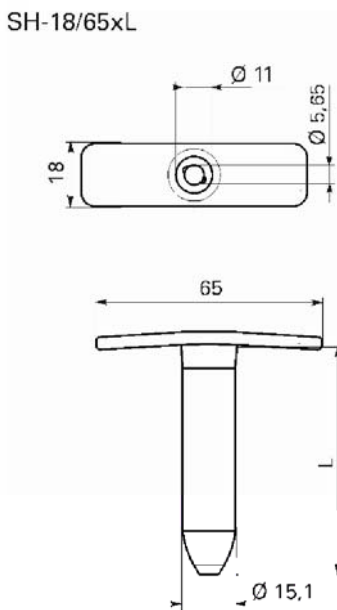
SFS intec flat roof fasteners

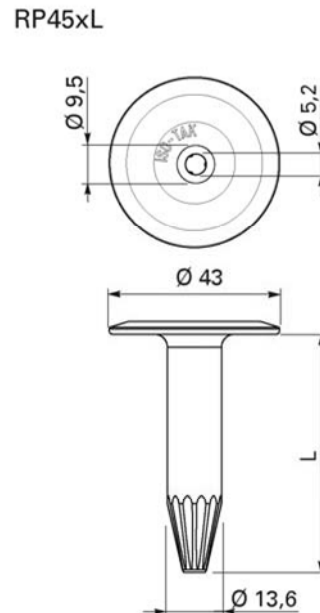
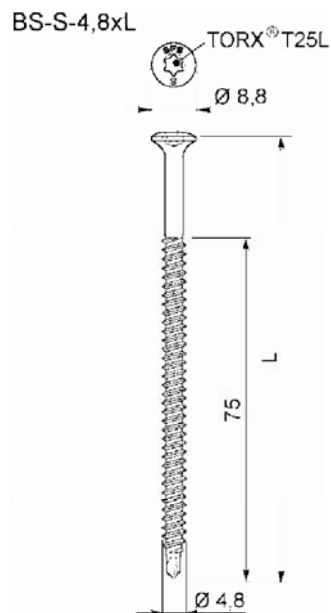
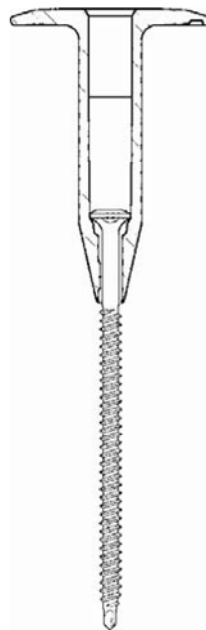
Combination 12  
SFS intec BS-4,8xL  
SFS intec TPP-L

Annex 12

		
		
SFS intec flat roof fasteners		Annex 13
Combination 13 SFS intec BS-4,8xL SFS intec R48xL-3N		

		
		
SFS intec flat roof fasteners		Annex 14
Combination 14 SFS intec BS-4,8xL SFS intec RP48xL-3N		

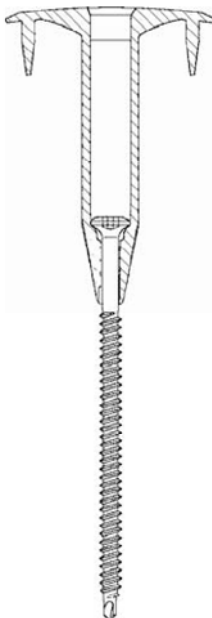
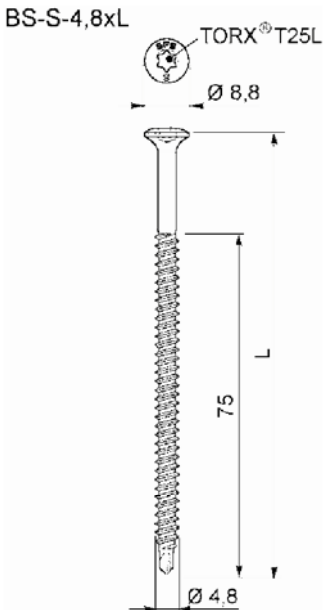
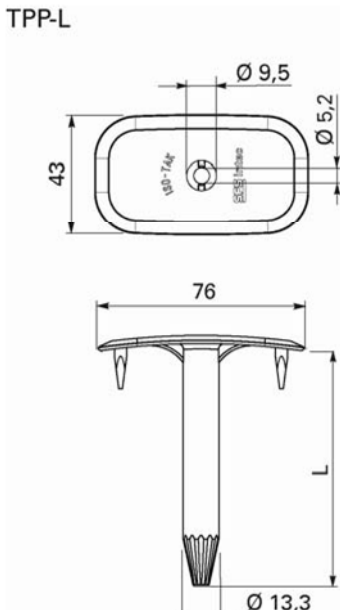
		
		
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Combination 15 SFS intec BS-4,8xL SFS intec SH-18/65xL		

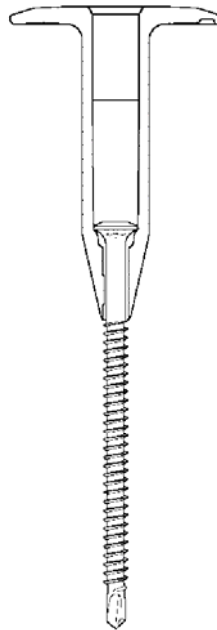


SFS intec flat roof fasteners

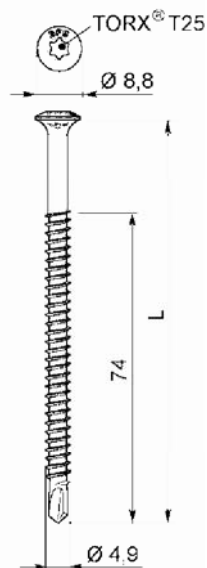
Combination 16  
SFS intec BS-S-4,8xL  
SFS intec RP45xL

Annex 16

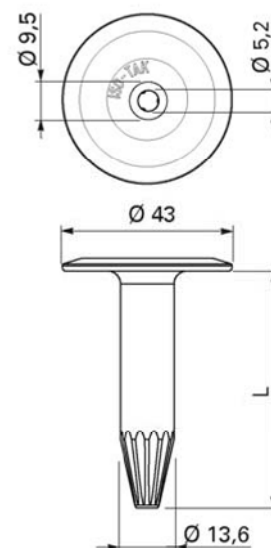
		
		
SFS intec flat roof fasteners		Annex 17
Combination 17 SFS intec BS-S-4,8xL SFS intec TPP-L		



BS3-4,8xL



RP45xL

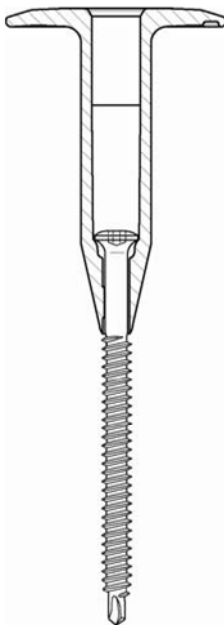
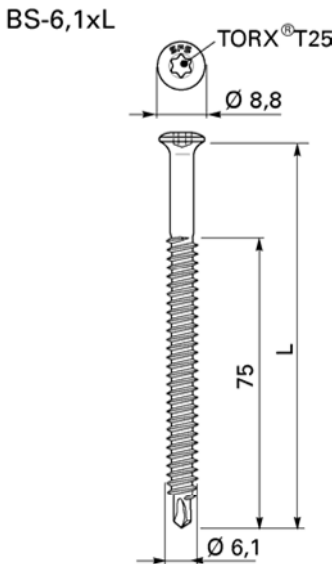
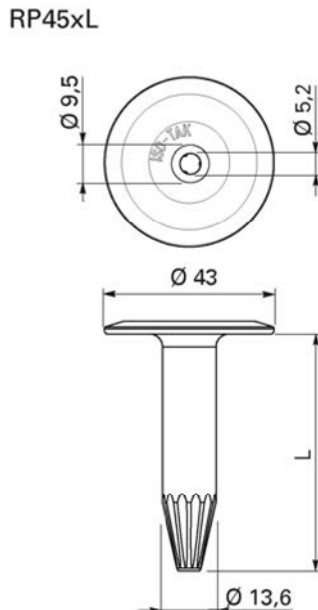


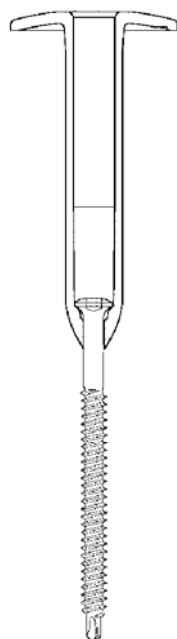
SFS intec flat roof fasteners

Combination 18  
SFS intec BS3-4,8xL  
SFS intec RP45xL

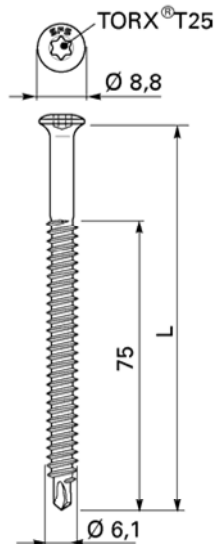
Annex 18



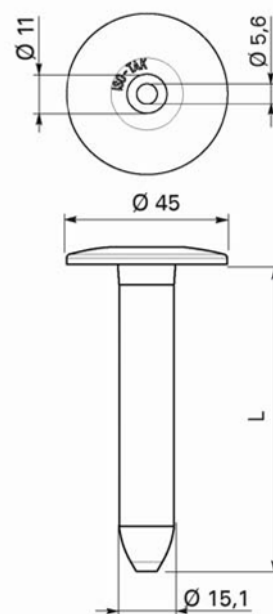
		
		
SFS intec flat roof fasteners		Annex 19
Combination 19 SFS intec BS-6,1xL SFS intec RP45xL		



BS-6,1xL



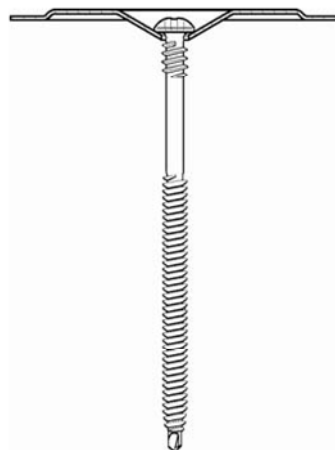
R45xL



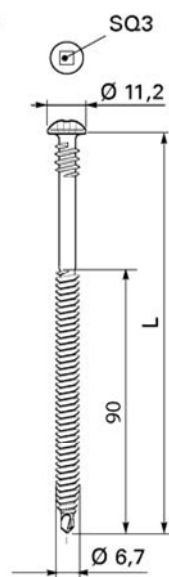
SFS intec flat roof fasteners

Combination 20  
SFS intec BS-6,1xL  
SFS intec R45xL

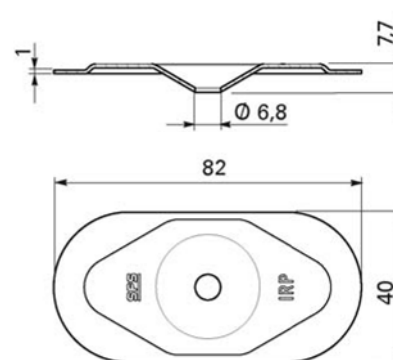
Annex 20



IFP2-6,7xL



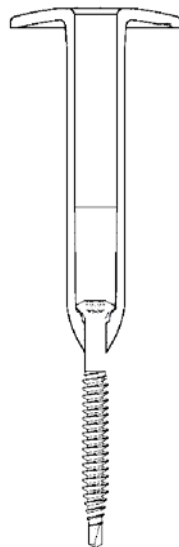
IRP-82x40



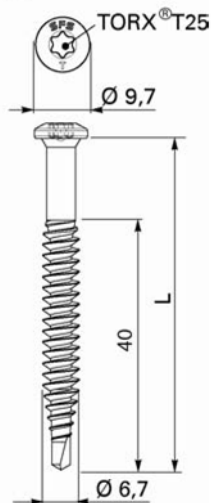
SFS intec flat roof fasteners

Combination 21  
SFS intec IFP2-6,7xL  
SFS intec IRP-82x40

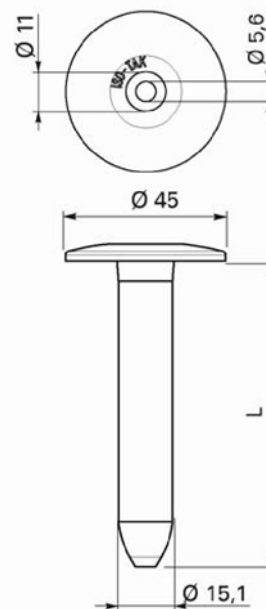
Annex 21



BS-6,7xL



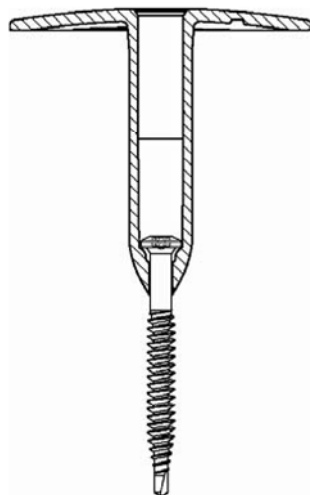
R45xL



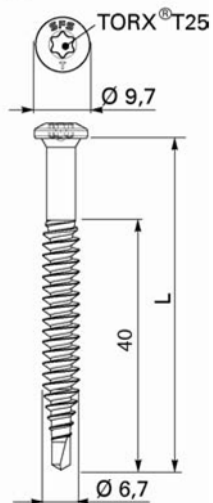
SFS intec flat roof fasteners

Combination 22  
SFS intec BS-6,7xL  
SFS intec R45xL

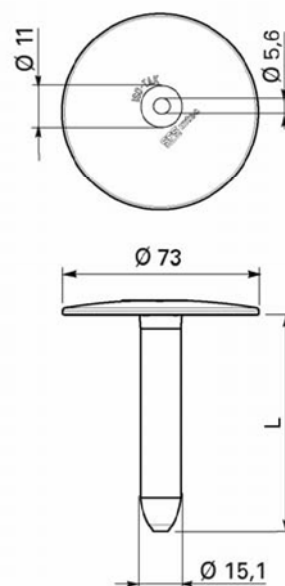
Annex 22



BS-6,7xL



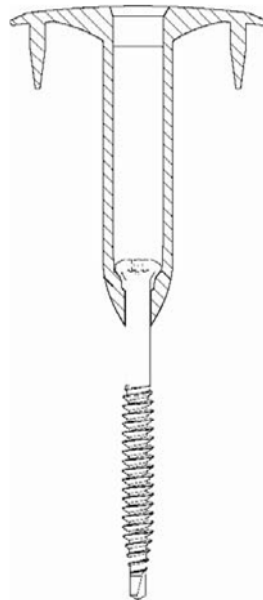
R75xL



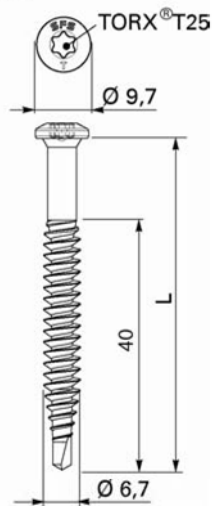
SFS intec flat roof fasteners

Combination 23  
SFS intec BS-6,7xL  
SFS intec R75xL

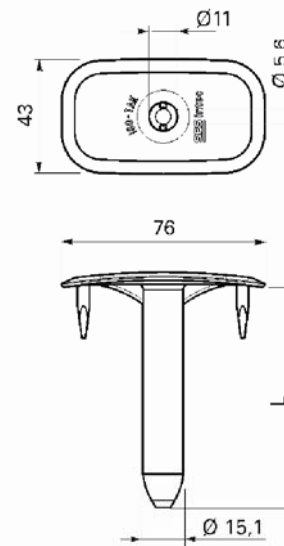
Annex 23



BS-6,7xL



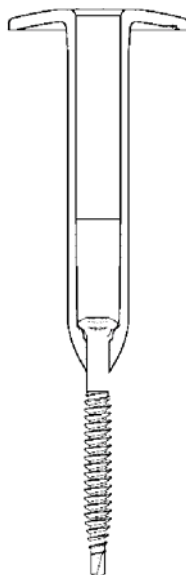
TPS-L



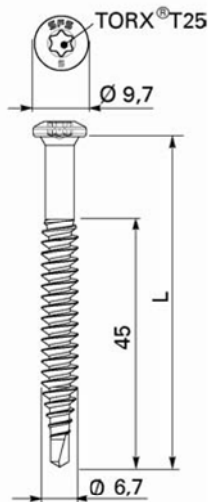
SFS intec flat roof fasteners

Combination 24  
SFS intec BS-6,7xL  
SFS intec TPS-L

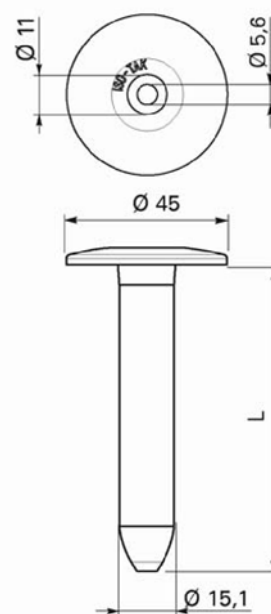
Annex 24



BS-S-6,7xL



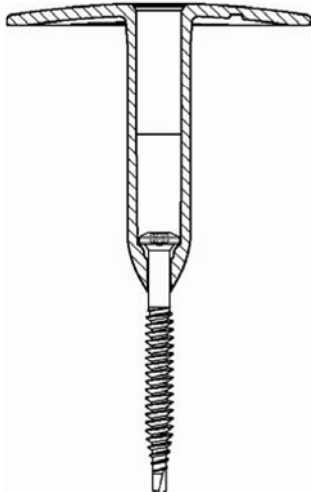
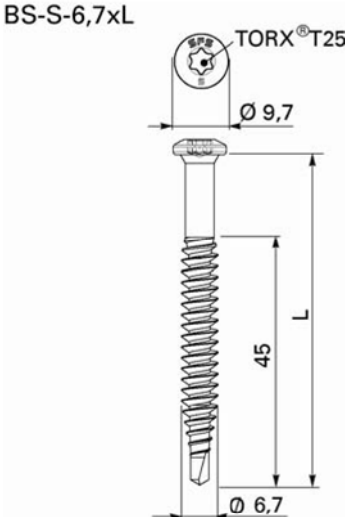
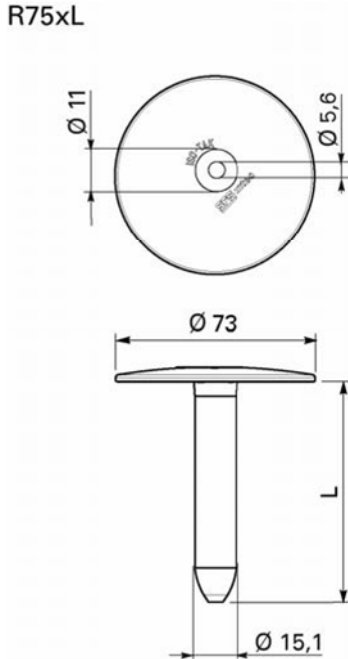
R45xL



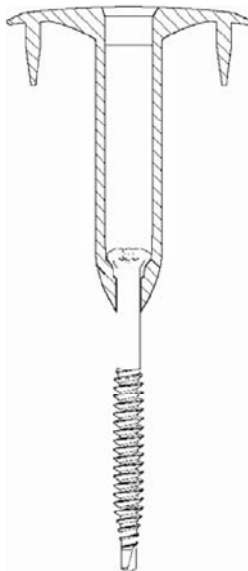
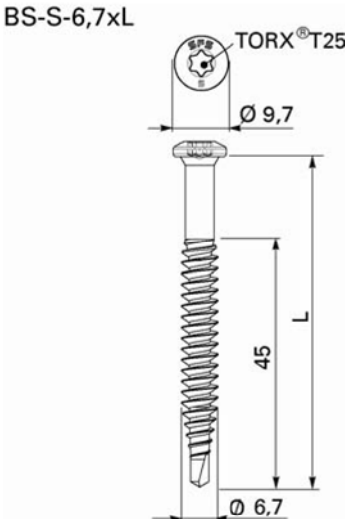
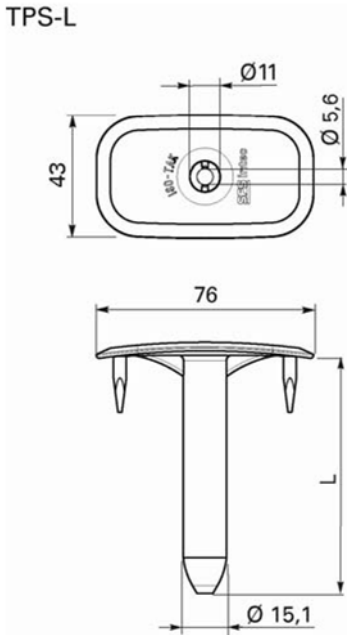
SFS intec flat roof fasteners

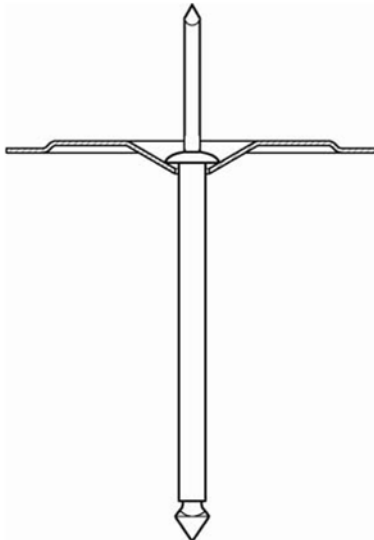
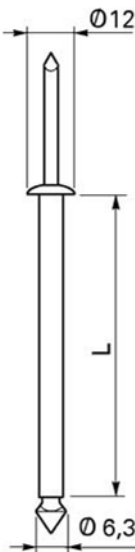
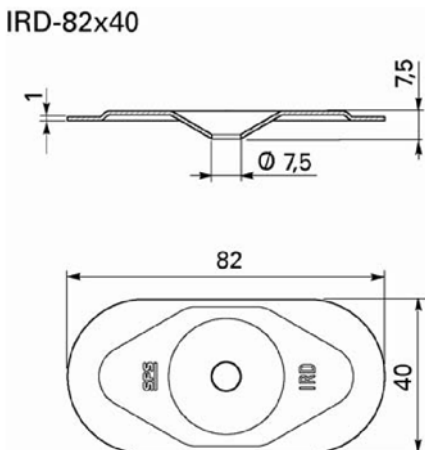
Combination 25  
SFS intec BS-S-6,7xL  
SFS intec R45xL

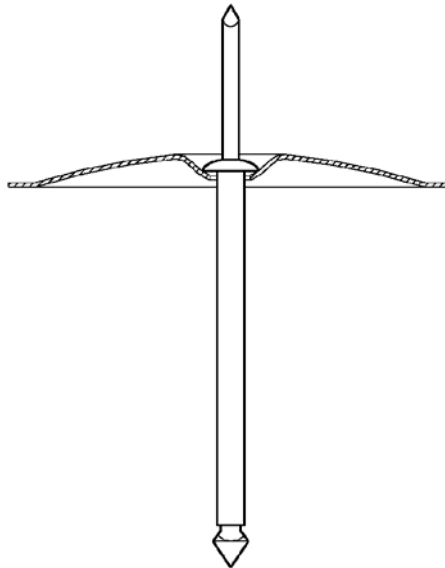
Annex 25

		
		
SFS intec flat roof fasteners		Annex 26
Combination 26 SFS intec BS-S-6,7xL SFS intec R75xL		



		
		
SFS intec flat roof fasteners		Annex 27
Combination 27 SFS intec BS-S-6,7xL SFS intec TPS-L		

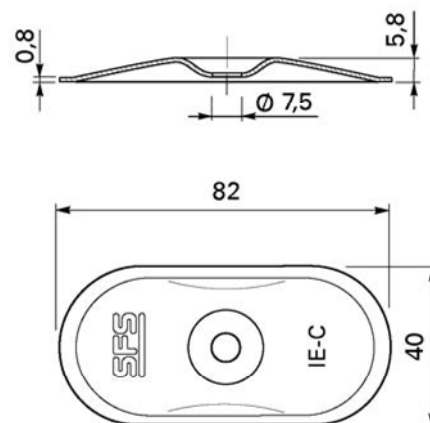
		
<p>TPR-L-6,3xL</p> 	<p>IRD-82x40</p> 	
SFS intec flat roof fasteners		Annex 28
Combination 28 SFS intec TPR-L-6,3xL SFS intec IRD-82x40		



TPR-L-6,3xL



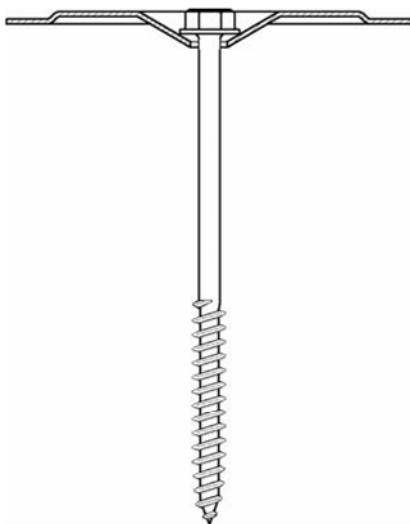
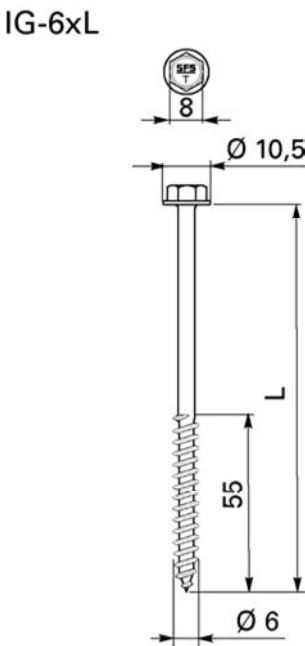
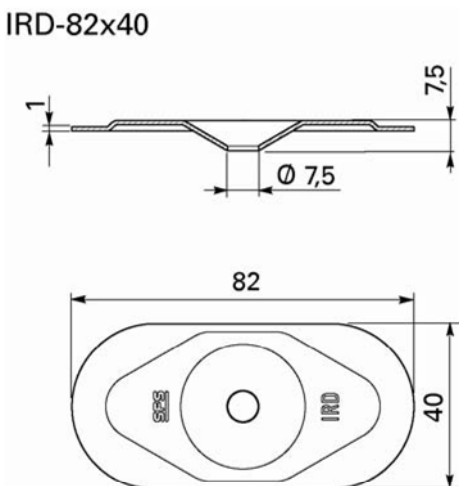
IE-C-82x40

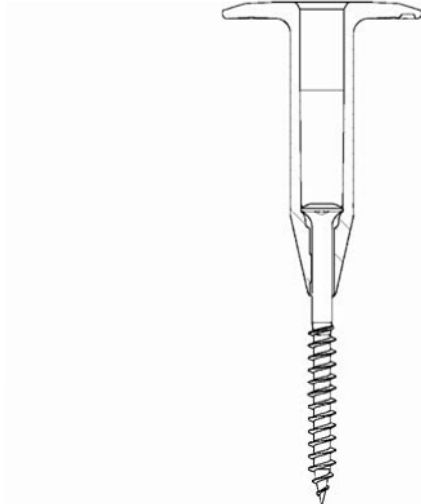
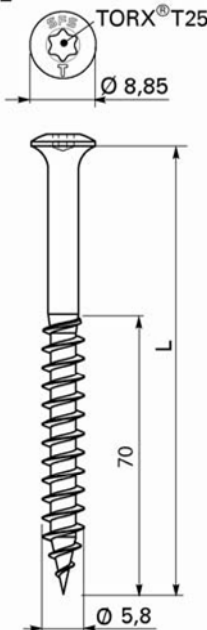
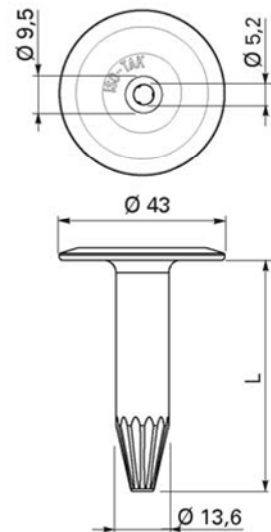


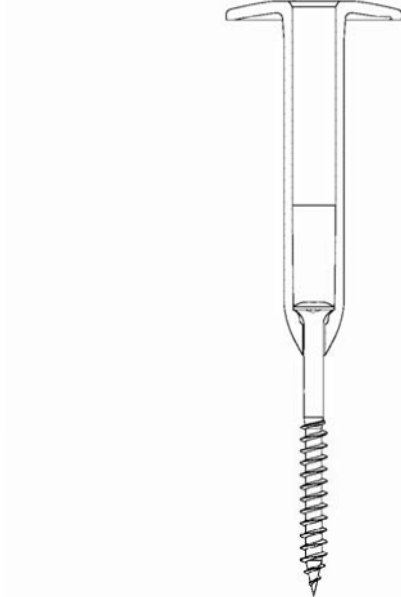
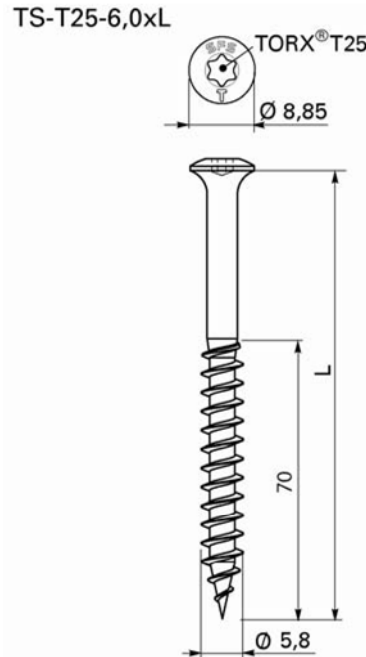
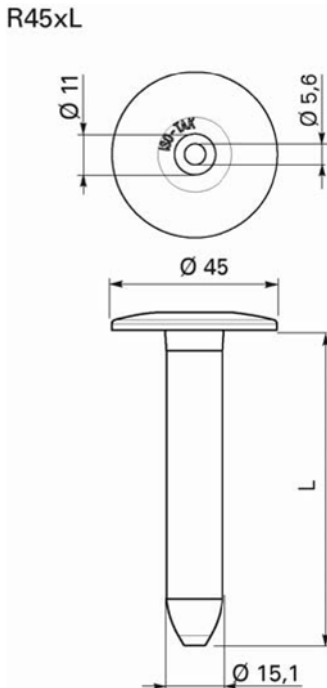
SFS intec flat roof fasteners

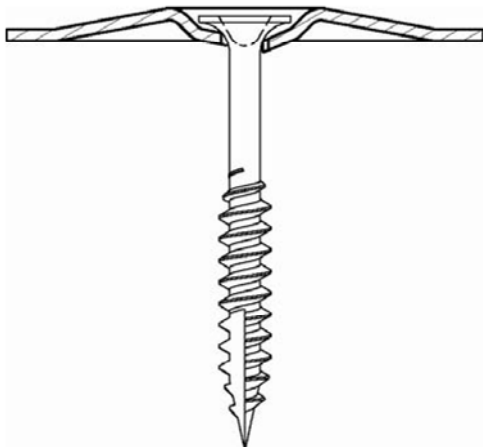
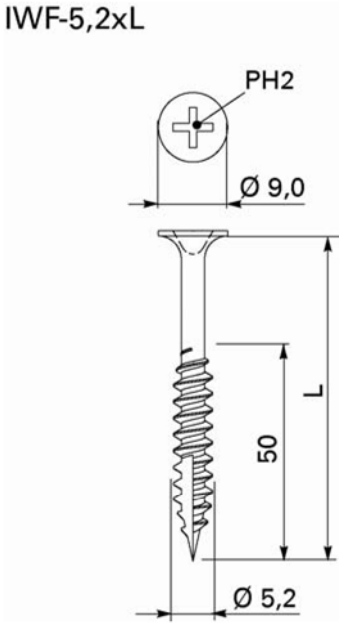
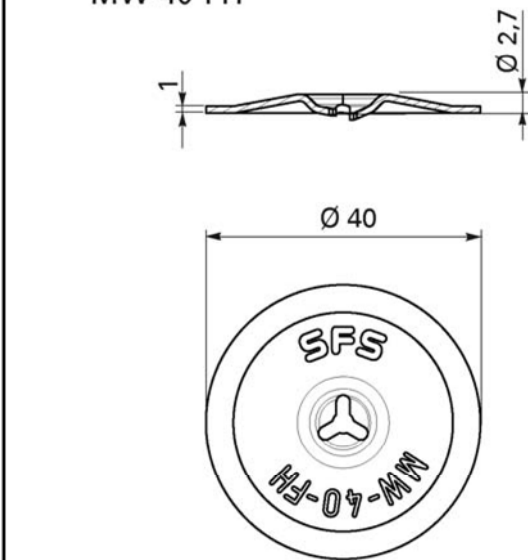
Combination 29  
SFS intec TPR-L-6,3xL  
SFS intec IE-C-82x40

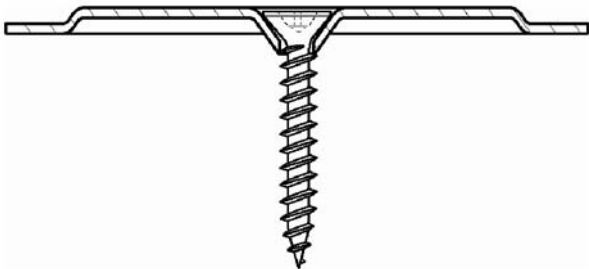
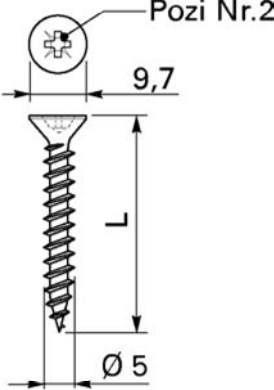
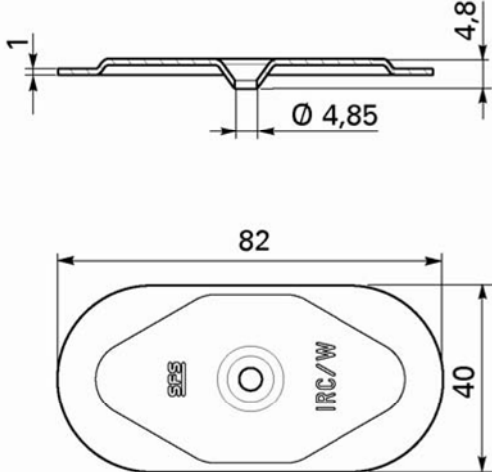
Annex 29

		
		
SFS intec flat roof fasteners		Annex 30
Combination 30 SFS intec IG-6xL SFS intec IRD-82x40		

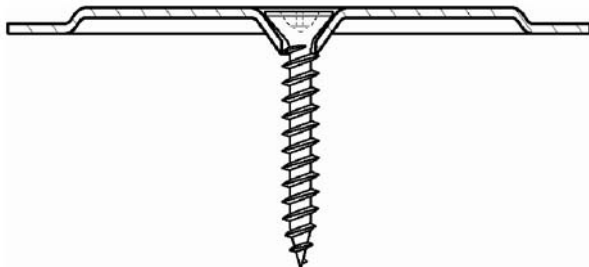
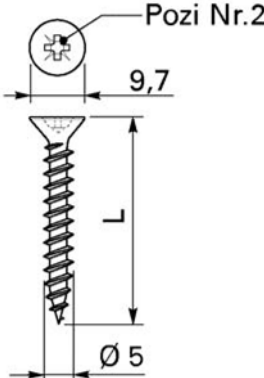
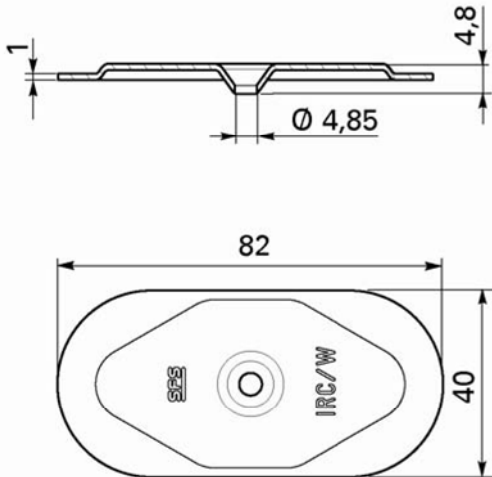
		
<p>TS-T25-6,0xL</p>  <p>TORX® T25 Ø 8,85 L 70 Ø 5,8</p>	<p>RP45xL</p>  <p>Ø 9,5 Ø 5,2 Ø 43 L Ø 13,6</p>	
SFS intec flat roof fasteners		Annex 31
Combination 31 SFS intec TS-T25-6,0xL SFS intec RP45xL		

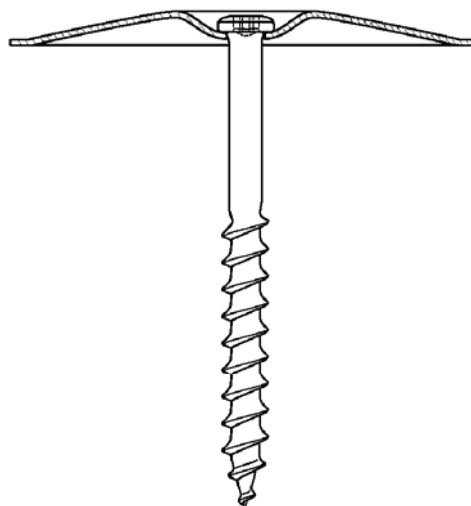
		
		
SFS intec flat roof fasteners		Annex 32
Combination 32 SFS intec TS-T25-6,0xL SFS intec R45xL		

		
<p>IWF-5,2xL</p> 	<p>MW-40-FH</p> 	
SFS intec flat roof fasteners		Annex 33
Combination 33 SFS intec IWF-5,2xL SFS intec MW-40-FH		

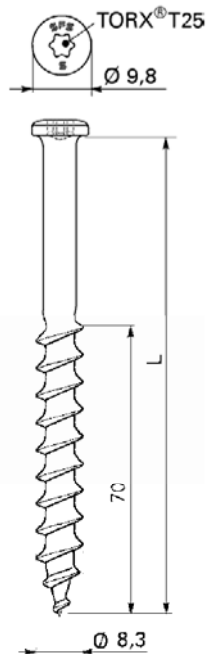
		
<p>IW-T-5,0xL</p> 	<p>IRC/W-82x40</p> 	
<p>SFS intec flat roof fasteners</p>		<p>Annex 34</p>
<p>Combination 34 SFS intec IW-T-5,0xL SFS intec IRC/W-82x40</p>		



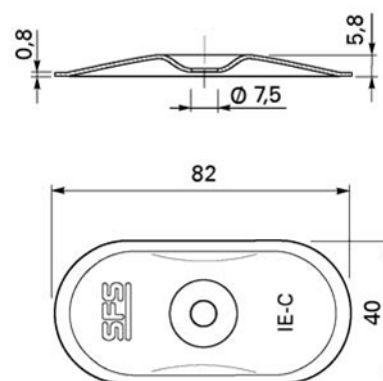
		
<p>IW-S-5,0xL</p> 	<p>IRC/W-82x40</p> 	
SFS intec flat roof fasteners		Annex 35
Combination 35 SFS intec IW-S-5,0xL SFS intec IRC/W-82x40		



LBS-S-T25-8,0xL



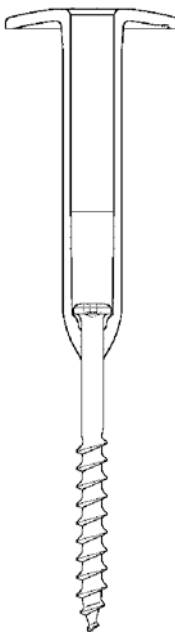
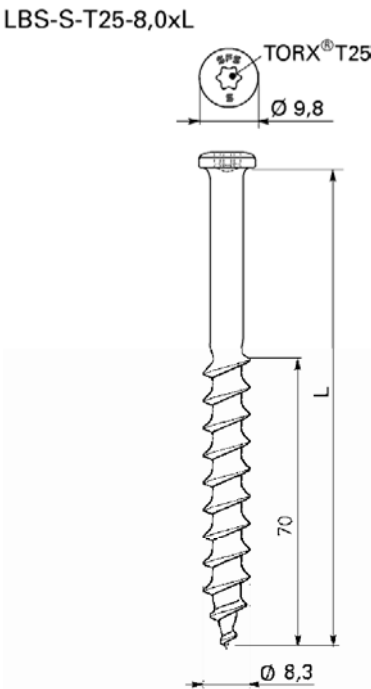
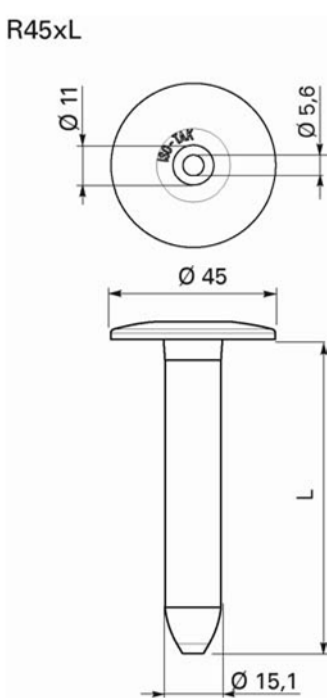
IE-C-82x40

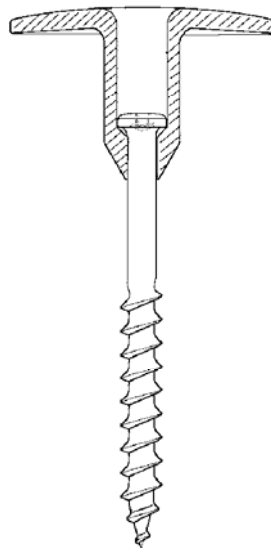


**SFS intec flat roof fasteners**

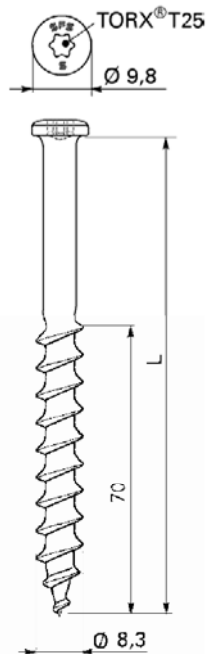
**Combination 36**  
**SFS intec LBS-S-T25-8,0xL**  
**SFS intec IE-C-82x40**

**Annex 36**

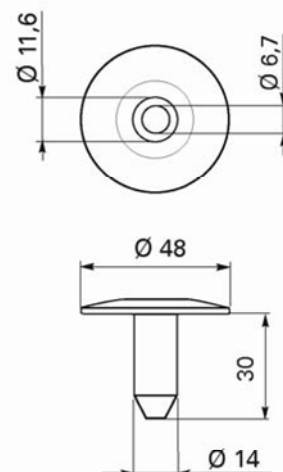
		
<p>LBS-S-T25-8,0xL</p> 	<p>R45xL</p> 	
SFS intec flat roof fasteners		Annex 37
Combination 37 SFS intec LBS-S-T25-8,0xL SFS intec R45xL		



LBS-S-T25-8,0xL



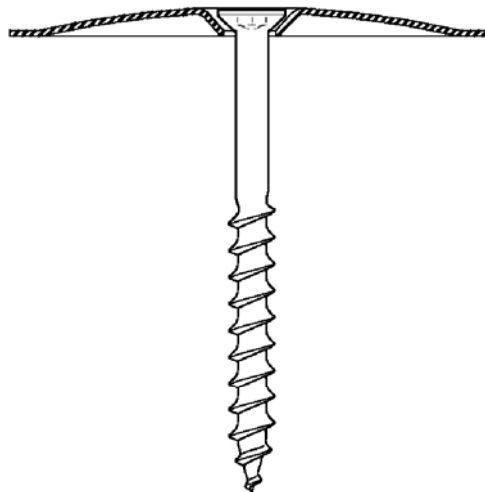
TC-50-30



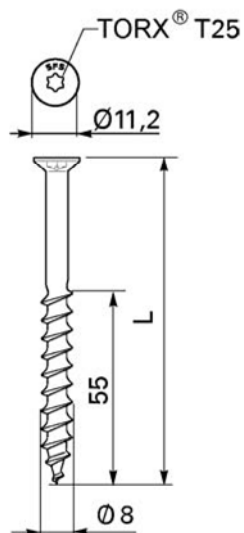
SFS intec flat roof fasteners

Combination 38  
SFS intec LBS-S-T25-8,0xL  
SFS intec TC-50-30

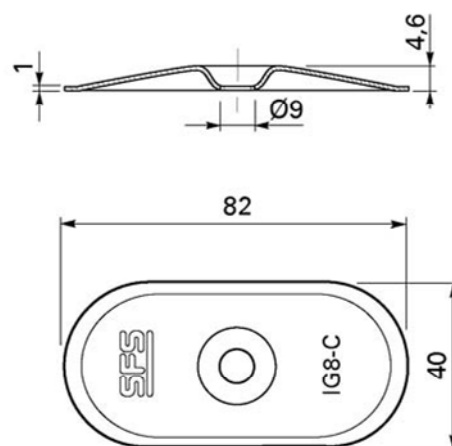
Annex 38



IGR-T-T25-8,0xL



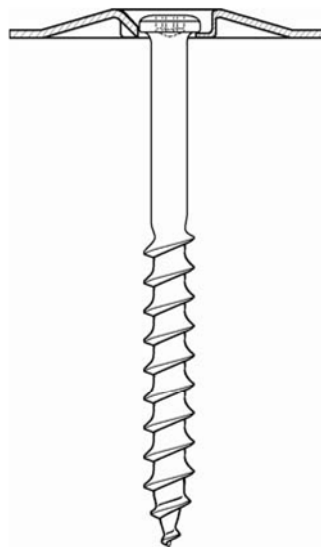
IG8-C-82x40



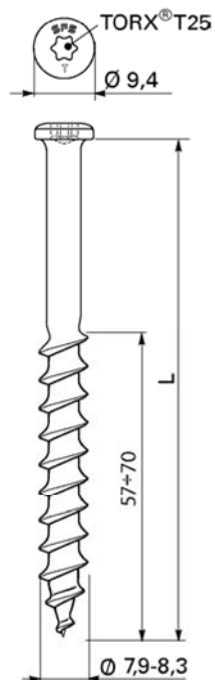
SFS intec flat roof fasteners

Combination 39  
SFS intec IGR-T-T25-8,0xL  
SFS intec IG8-C-82x40

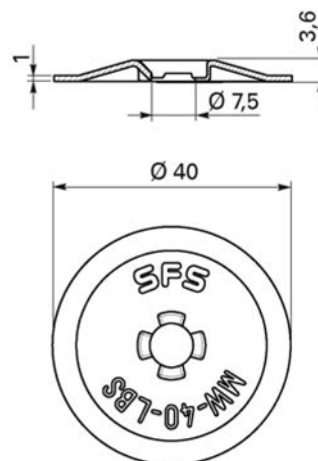
Annex 39



LBS-T25-8,0xL



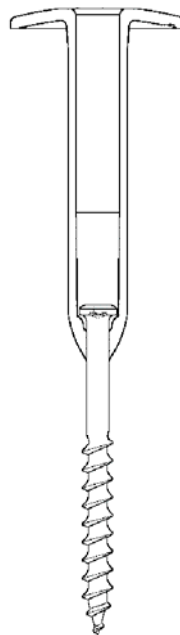
MW-40-LBS



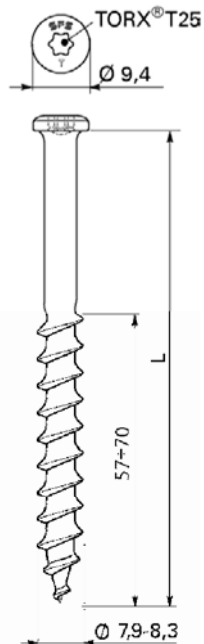
SFS intec flat roof fasteners

Combination 40  
SFS intec LBS-T25-8,0xL  
SFS intec MW-40-LBS

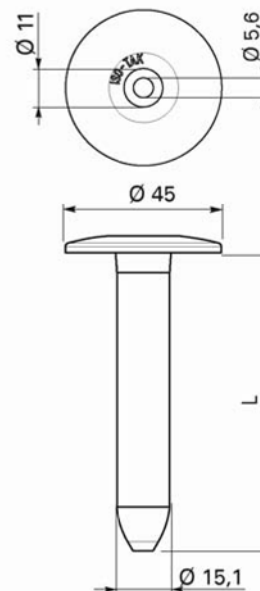
Annex 40



LBS-T25-8,0xL



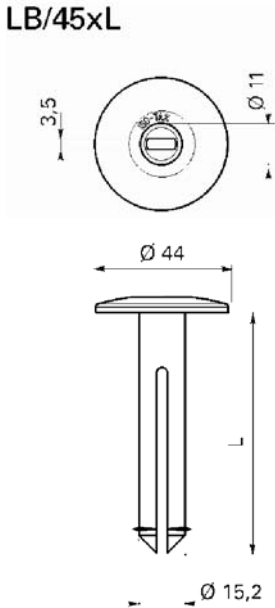
R45xL



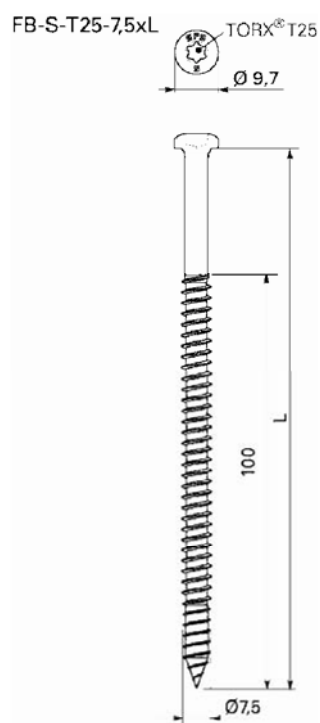
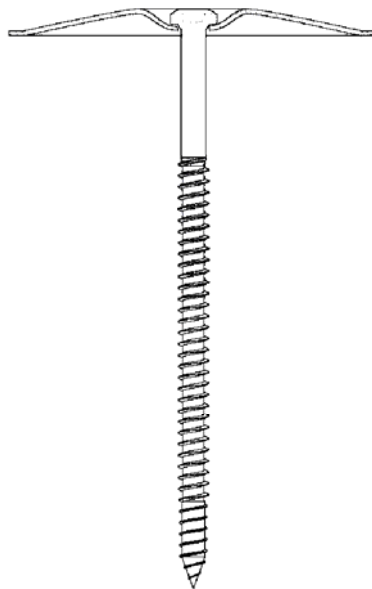
SFS intec flat roof fasteners

Combination 41  
SFS intec LBS-T25-8,0xL  
SFS intec R45xL

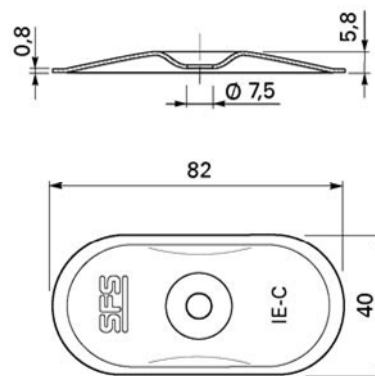
Annex 41

<div>LB/45xL</div> 		
SFS intec flat roof fasteners		Annex 42
SFS intec LB/45xL		






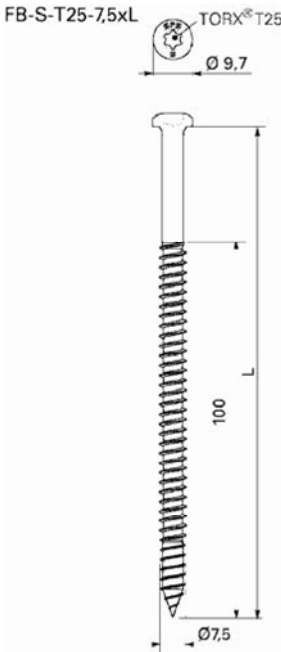
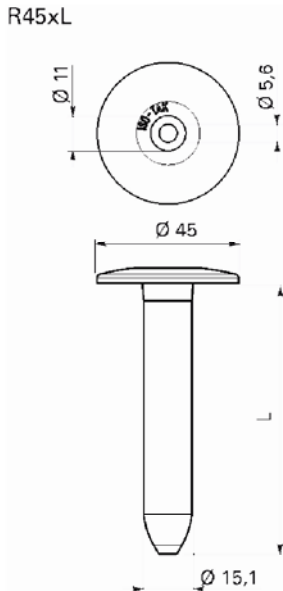
IE-C-82x40

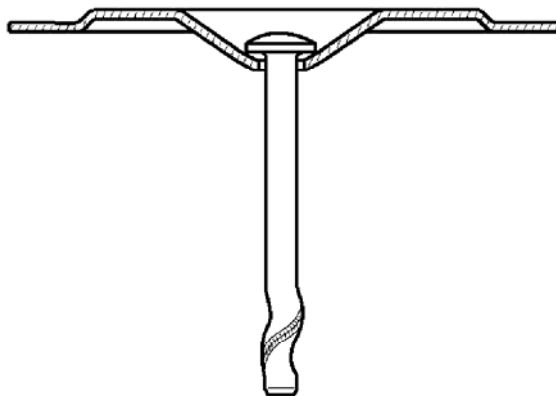


SFS intec flat roof fasteners

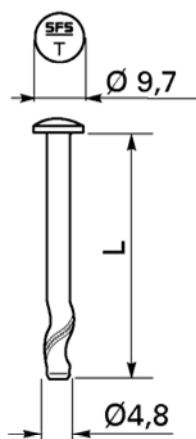
Combination 43  
SFS intec FB-S-T25-7,5xL  
SFS intec IE-C-82x40

Annex 43

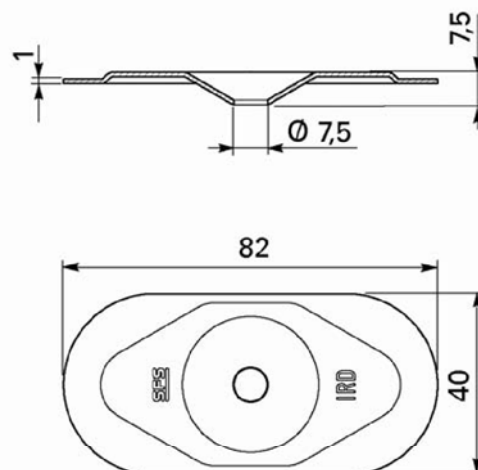
		
		
SFS intec flat roof fasteners		Annex 44
Combination 44 SFS intec FB-S-T25-7,5xL SFS intec R45xL		



DT-4,8xL



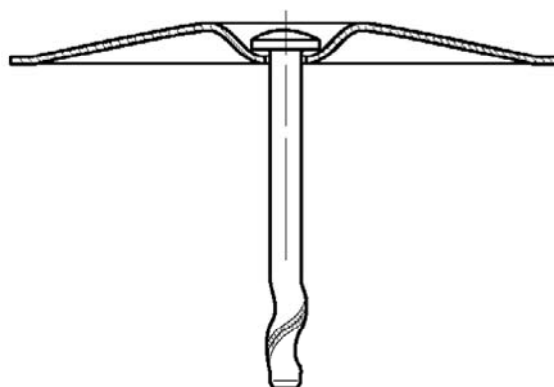
IRD-82x40



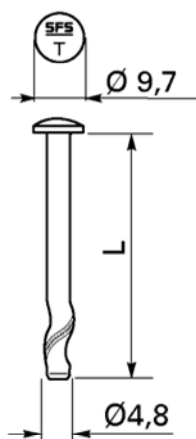
SFS intec flat roof fasteners

Combination 45  
SFS intec DT-4,8xL  
SFS intec IRD-82x40

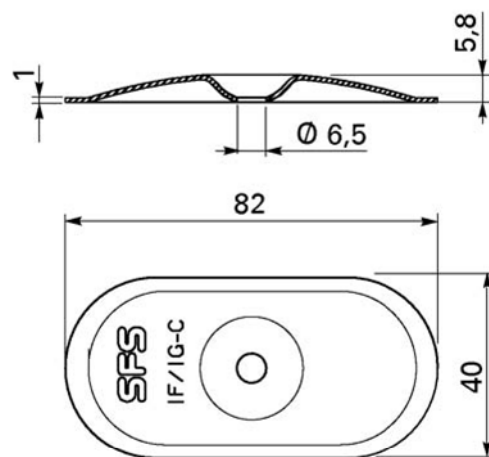
Annex 45



DT-4,8xL



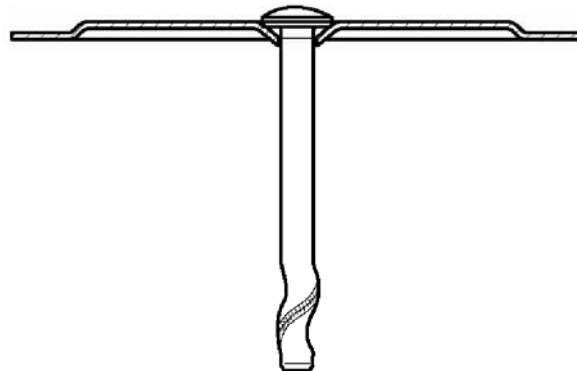
IF/IG-C-82x40



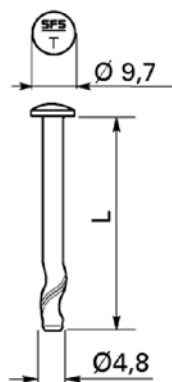
SFS intec flat roof fasteners

Combination 46  
SFS intec DT-4,8xL  
SFS intec IF/IG-C-82x40

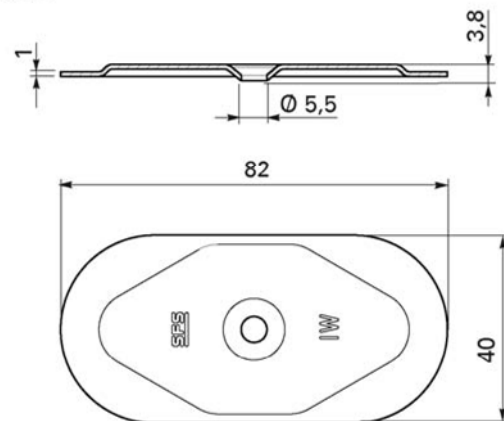
Annex 46



DT-4,8xL



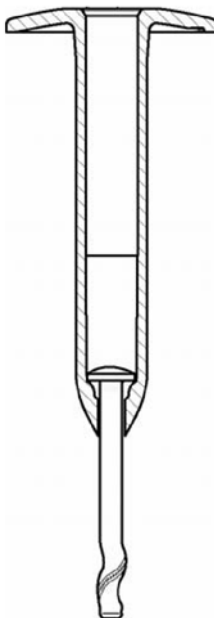
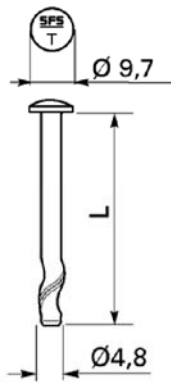
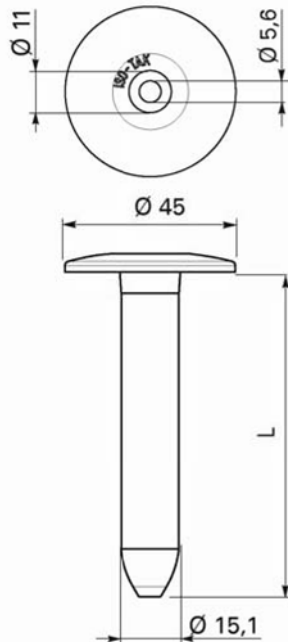
IW-82x40

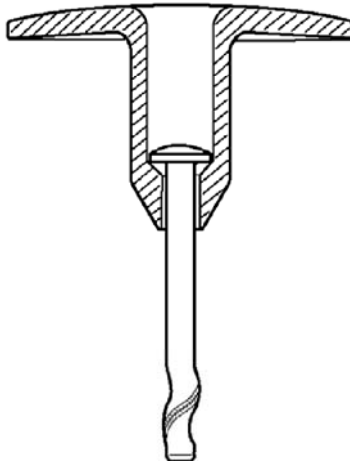
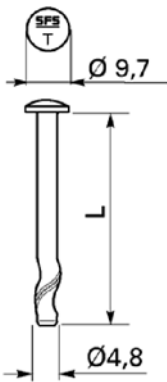
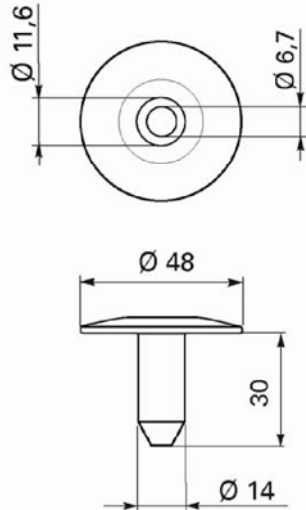


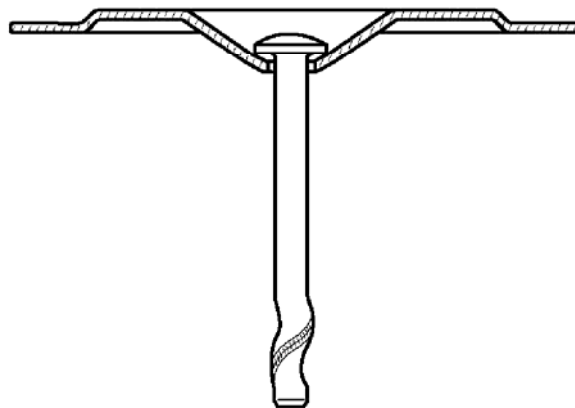
SFS intec flat roof fasteners

Combination 47  
SFS intec DT-4,8xL  
SFS intec IW-82x40

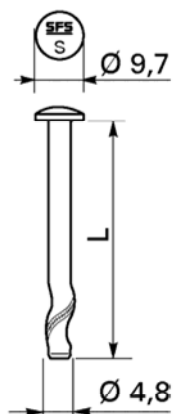
Annex 47

		
<p>DT-4,8xL</p> 	<p>R45xL</p> 	
SFS intec flat roof fasteners		Annex 48
Combination 48 SFS intec DT-4,8xL SFS intec R45xL		

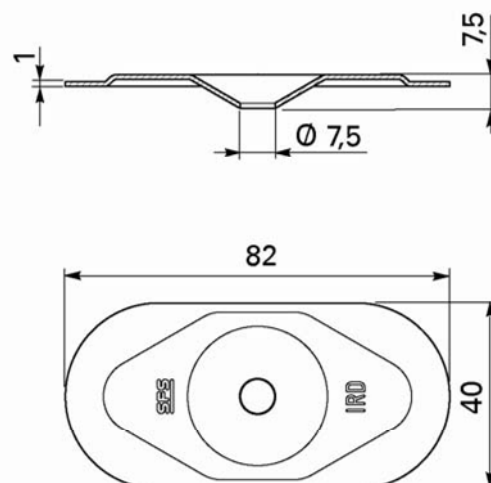
		
<p>DT-4,8xL</p> 	<p>TC-50-30</p> 	
SFS intec flat roof fasteners		Annex 49
Combination 49 SFS intec DT-4,8xL SFS intec TC-50-30		



DT-S-4.8xL



IRD-82x40

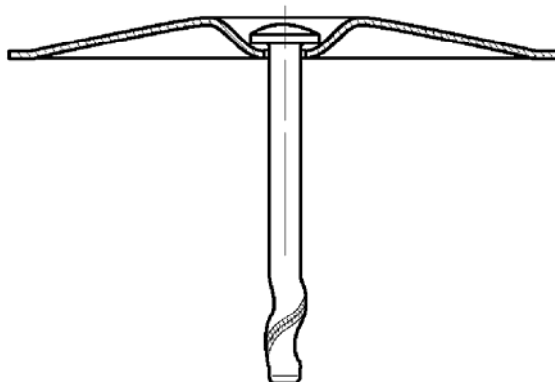


SFS intec flat roof fasteners

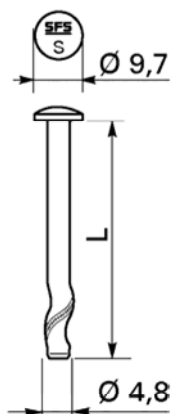
Combination 50  
SFS intec DT-S-4,8xL  
SFS intec IRD-82x40

Annex 50

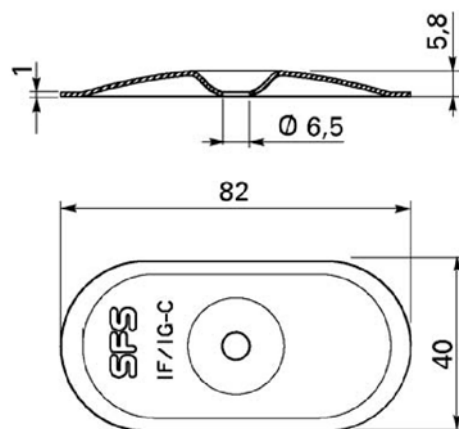




DT-S-4.8xL



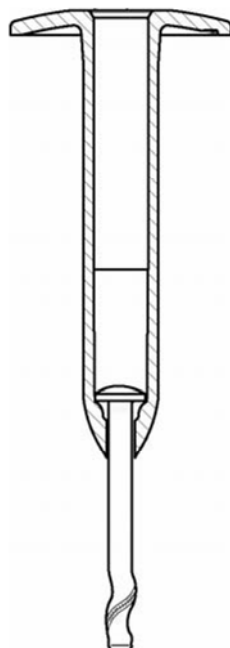
IF/IG-C-82x40



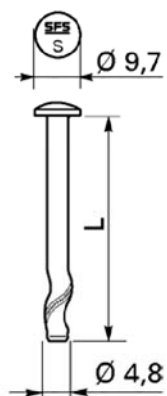
SFS intec flat roof fasteners

Combination 51  
SFS intec DT-S-4,8xL  
SFS intec IF/IG-C-82x40

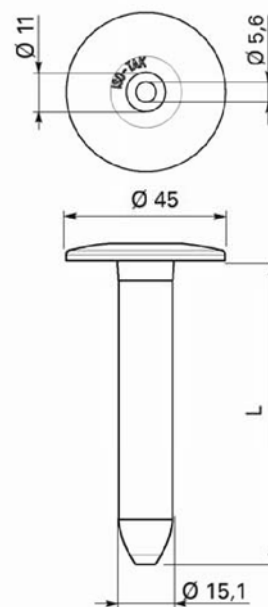
Annex 51



DT-S-4,8xL



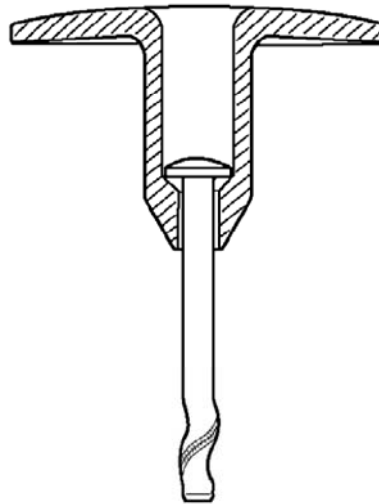
R45xL



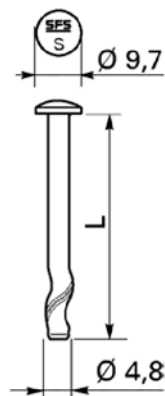
SFS intec flat roof fasteners

Combination 52  
SFS intec DT-S-4,8xL  
SFS intec R45xL

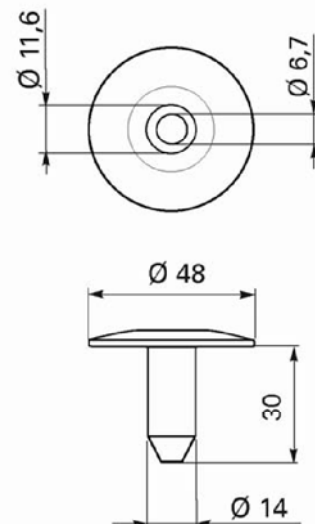
Annex 52



DT-S-4.8xL



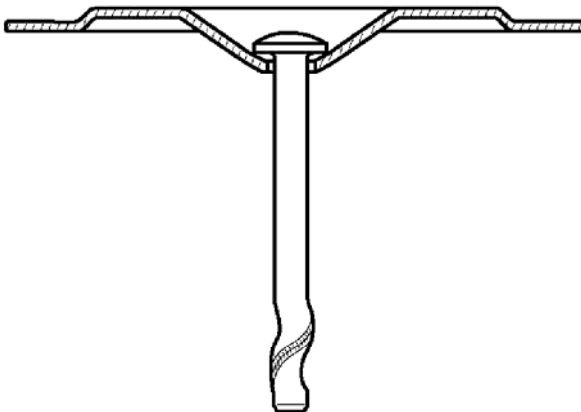
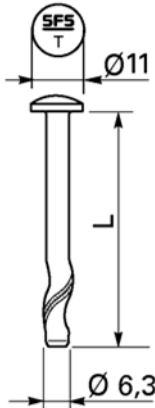
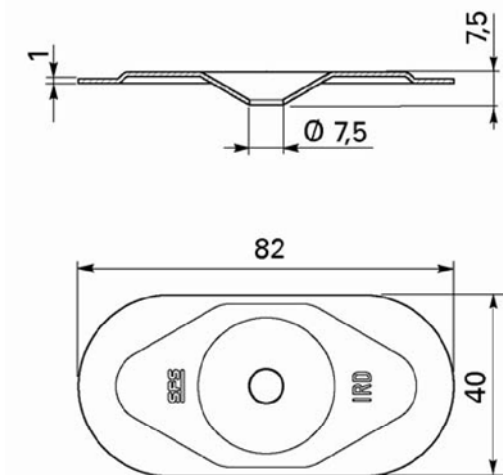
TC-50-30

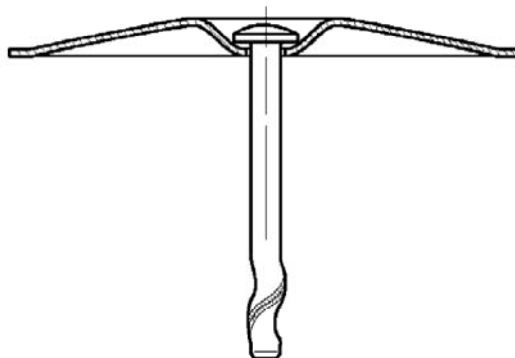


SFS intec flat roof fasteners

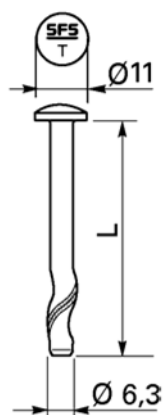
Combination 53  
SFS intec DT-S-4,8xL  
SFS intec TC-50-30

Annex 53

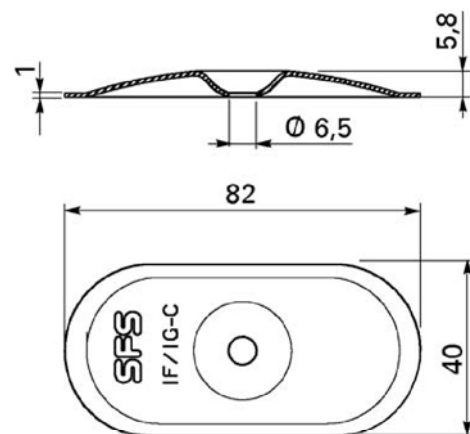
		
<p>DT-6,3xL</p> 	<p>IRD-82x40</p> 	
<p>SFS intec flat roof fasteners</p>		<p>Annex 54</p>
<p>Combination 54 SFS intec DT-6,3xL SFS intec IRD-82x40</p>		



DT-6,3xL



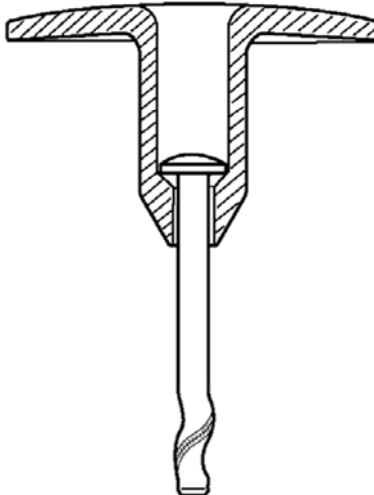
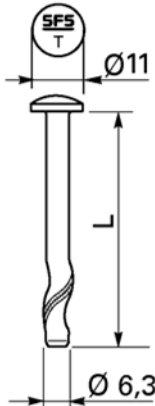
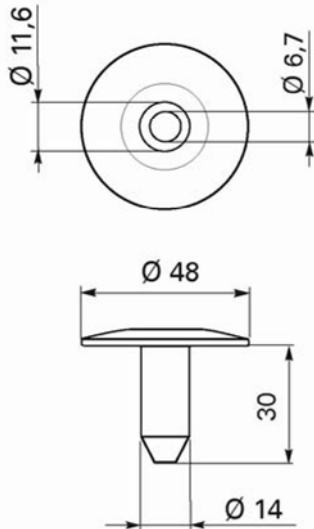
IF/IG-C-82x40

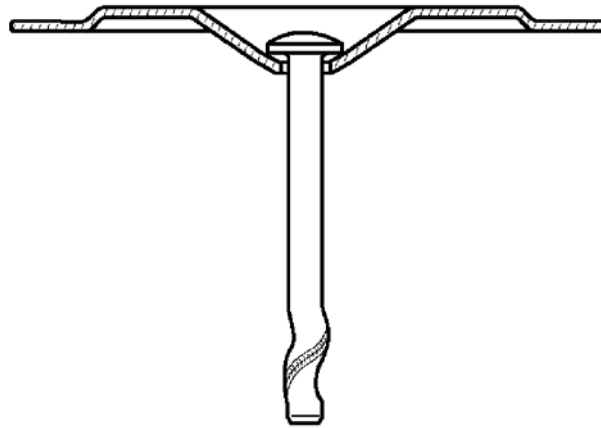


SFS intec flat roof fasteners

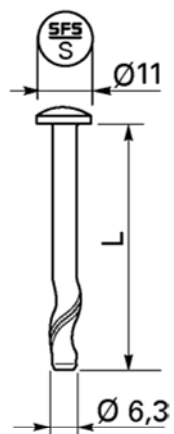
Combination 55  
SFS intec DT-6,3xL  
SFS intec IF/IG-C-82x40

Annex 55

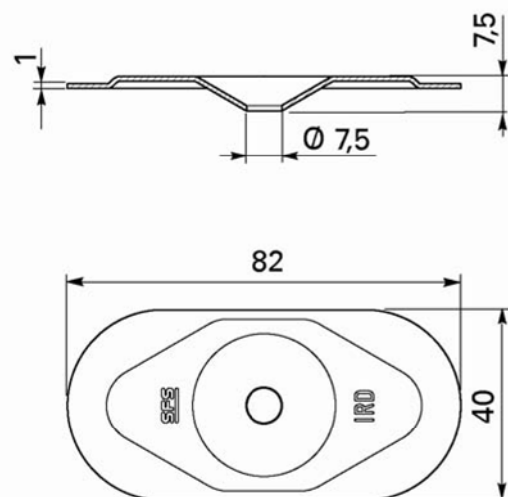
		
<p>DT-6,3xL</p> 	<p>TC-50-30</p> 	
SFS intec flat roof fasteners		Annex 56
Combination 56 SFS intec DT-6,3xL SFS intec TC-50-30		



DT-S-6,3xL



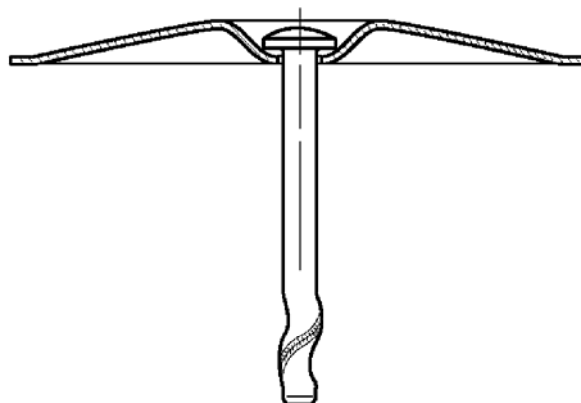
IRD-82x40



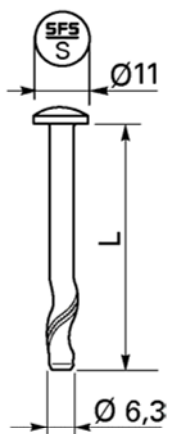
SFS intec flat roof fasteners

Combination 57  
SFS intec DT-S-6,3xL  
SFS intec IRD-82x40

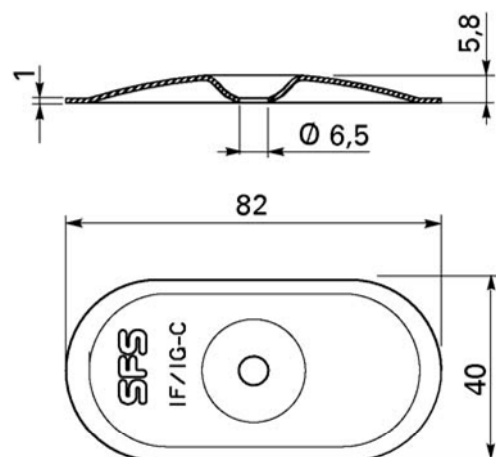
Annex 57



DT-S-6,3xL



IF/IG-C-82x40

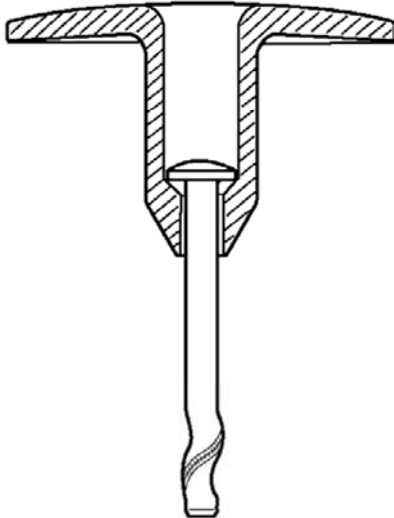
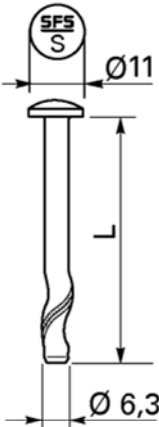
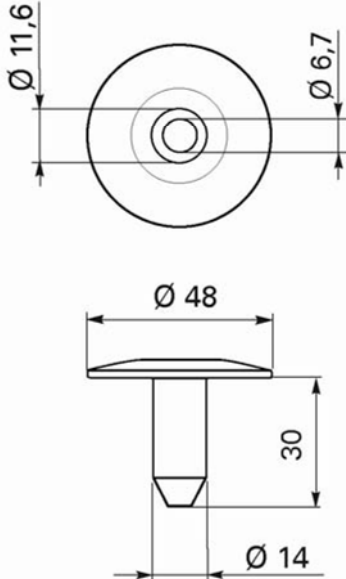


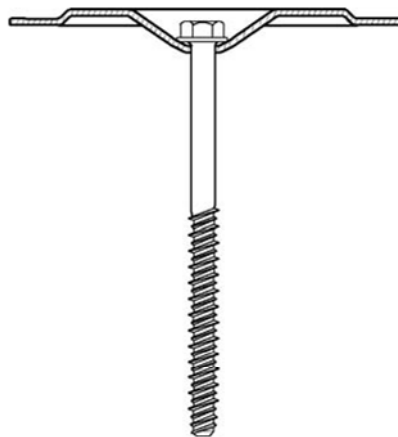
SFS intec flat roof fasteners

Combination 58  
SFS intec DT-S-6,3xL  
SFS intec IF/IG-C-82x40

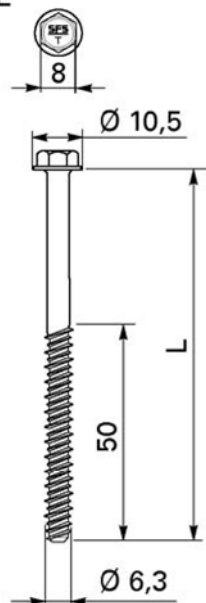
Annex 58



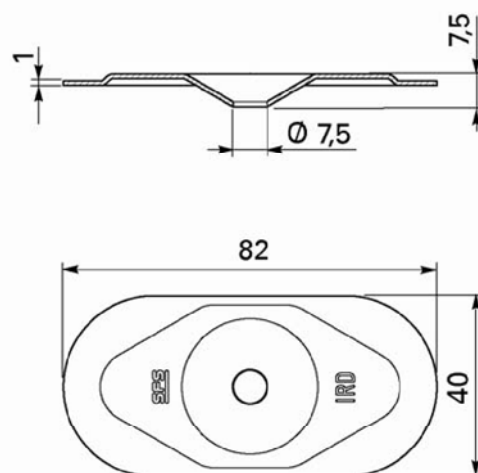
		
<p>DT-S-6,3xL</p> 	<p>TC-50-30</p> 	
SFS intec flat roof fasteners		Annex 59
Combination 59 SFS intec DT-S-6,3xL SFS intec TC-50-30		



TI-6,3xL



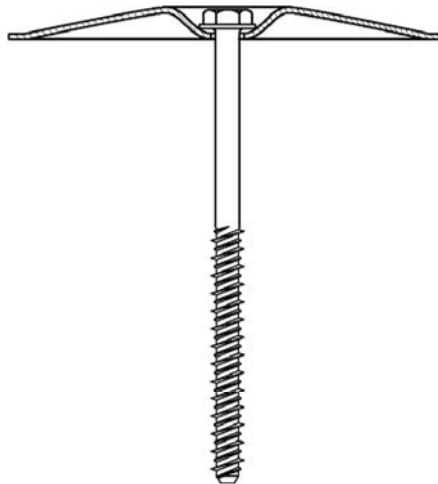
IRD-82x40



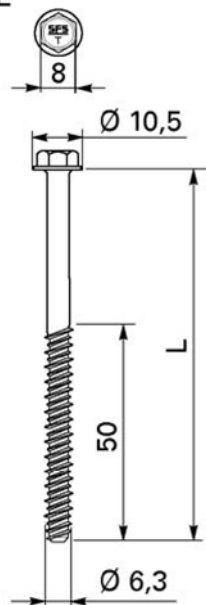
SFS intec flat roof fasteners

Combination 60  
SFS intec TI-6,3xL  
SFS intec IRD-82x40

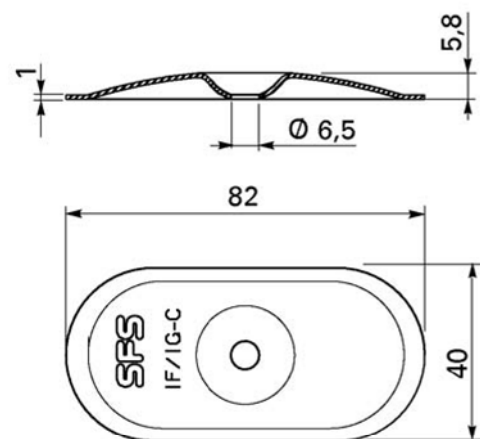
Annex 60



TI-6,3xL



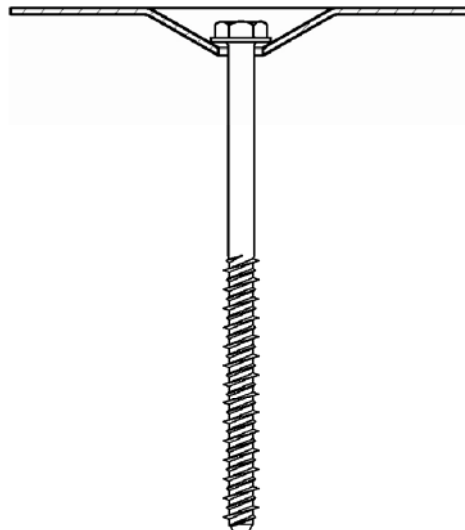
IF/IG-C-82x40



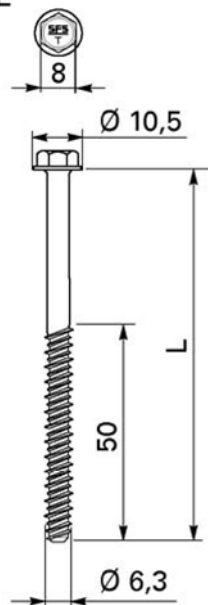
SFS intec flat roof fasteners

Combination 61  
SFS intec TI-6,3xL  
SFS intec IF/IG-C-82x40

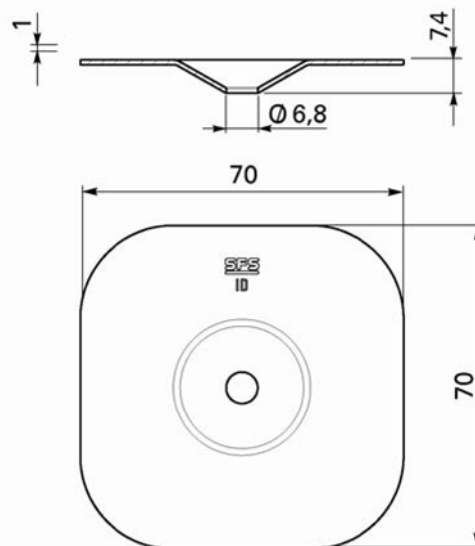
Annex 61



TI-6,3xL



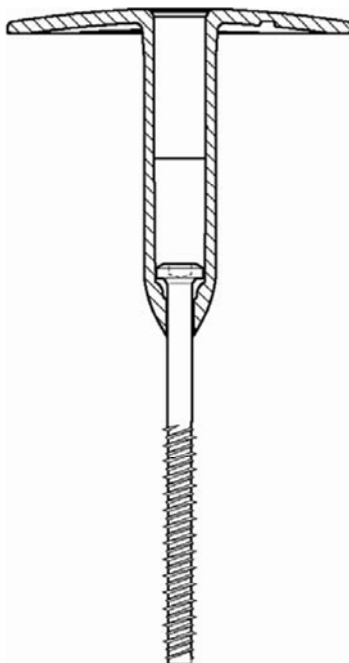
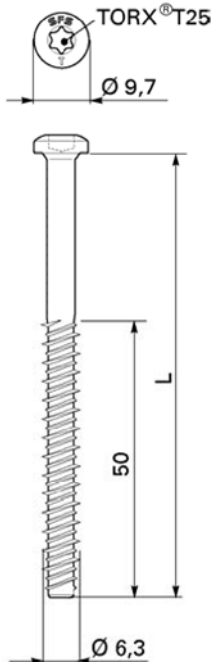
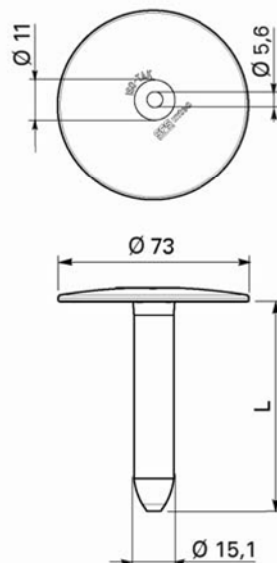
ID-70x70

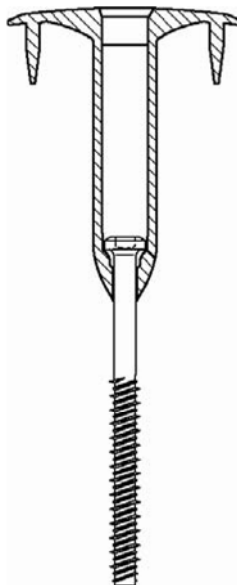
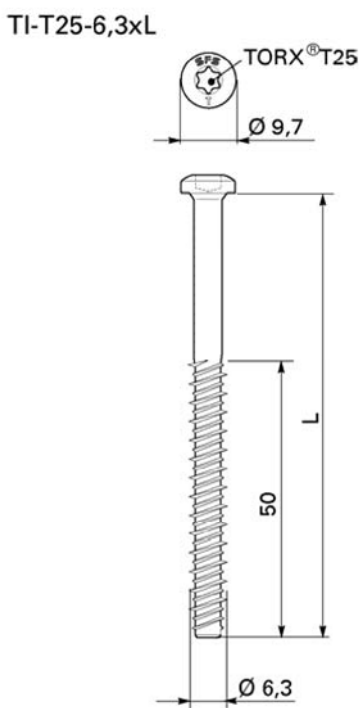
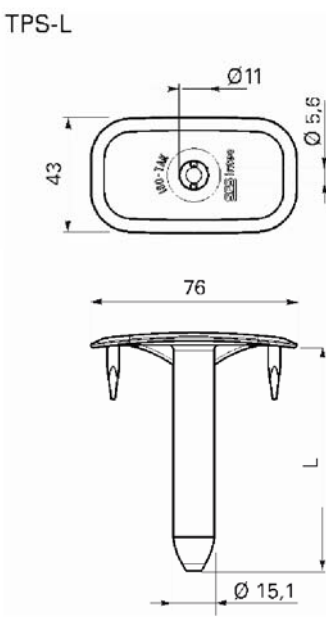


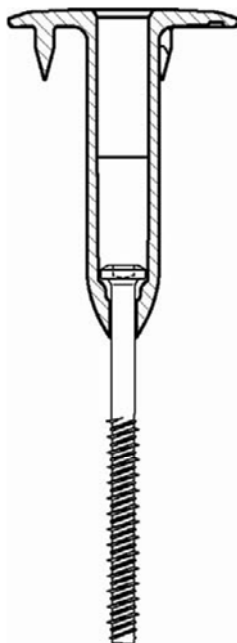
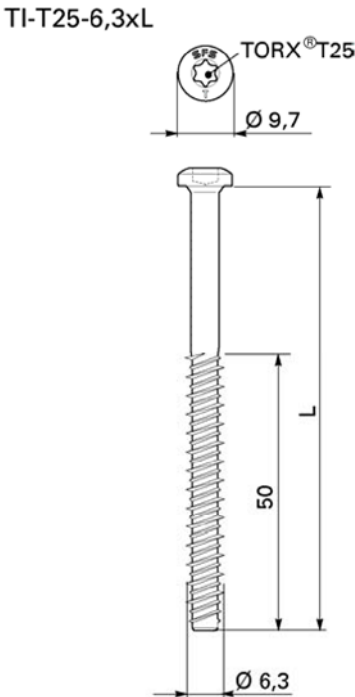
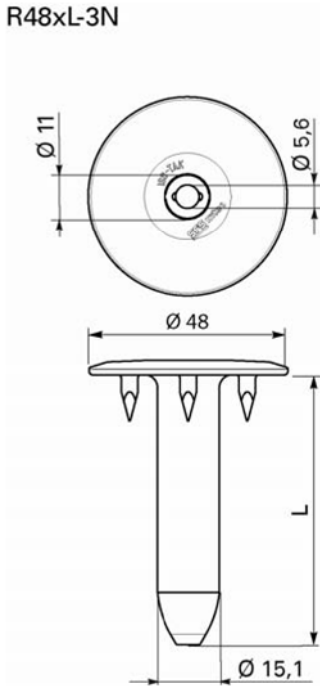
SFS intec flat roof fasteners

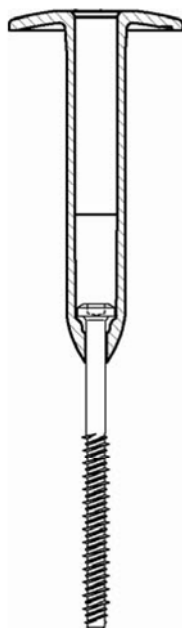
Combination 62  
SFS intec TI-6,3xL  
SFS intec ID-70x70

Annex 62

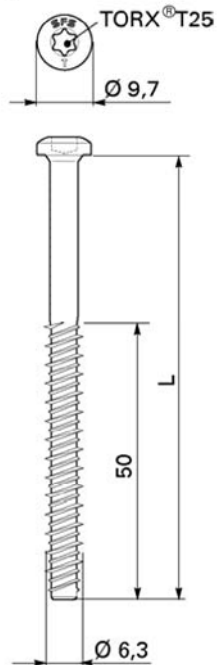
		
<p>TI-T25-6,3xL</p> 	<p>R75xL</p> 	
SFS intec flat roof fasteners		Annex 63
Combination 63 SFS intec TI-T25-6,3xL SFS intec R75xL		

		
		
SFS intec flat roof fasteners		Annex 64
Combination 64 SFS intec TI-T25-6,3xL SFS intec TPS-L		

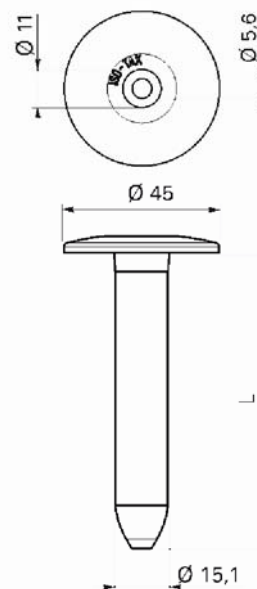
		
		
SFS intec flat roof fasteners		Annex 65
Combination 65 SFS intec TI-T25-6,3xL SFS intec R48xL-3N		



TI-T25-6,3xL



R45xL

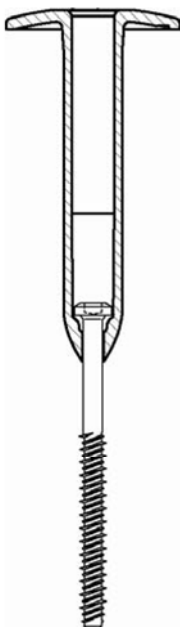
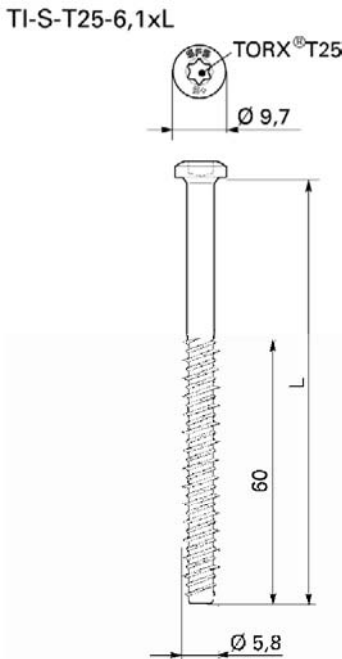
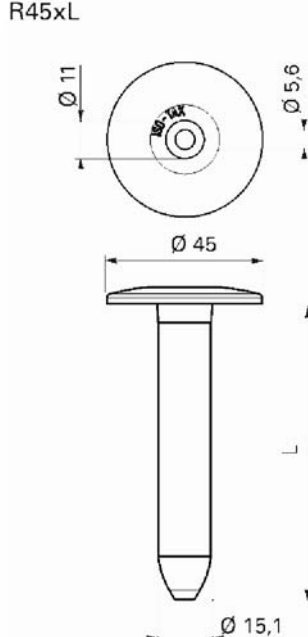


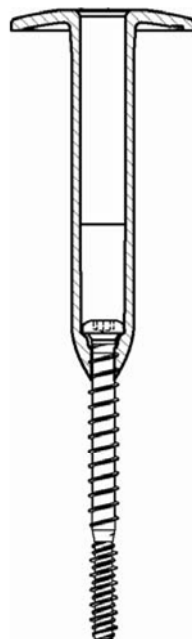
**SFS intec flat roof fasteners**

**Combination 66**  
**SFS intec TI-T25-6,3xL**  
**SFS intec R45xL**

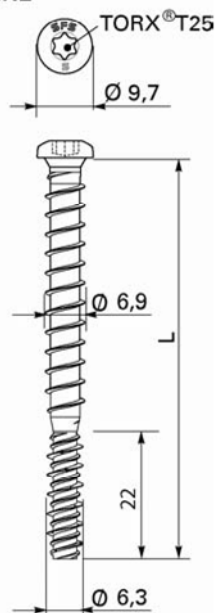
**Annex 66**



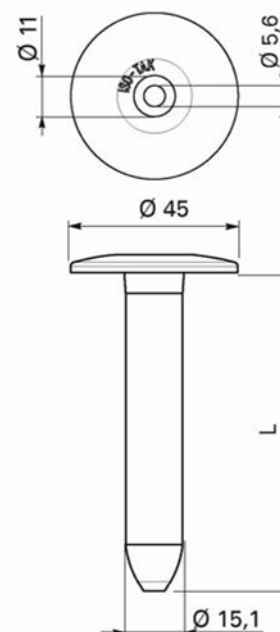
		
		
SFS intec flat roof fasteners		Annex 67
Combination 67 SFS intec TI-S-T25-6,1xL SFS intec R45xL		



TIA-T25-6,3xL



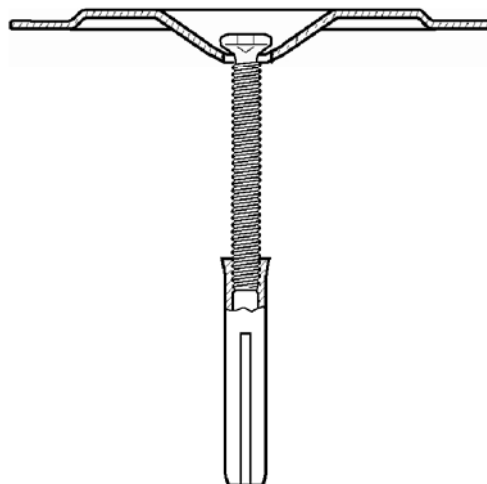
R45xL



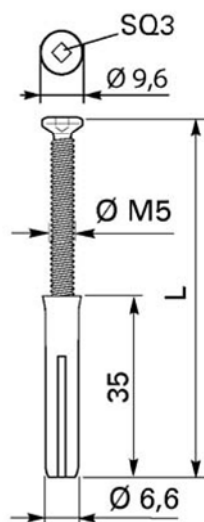
SFS intec flat roof fasteners

Combination 68  
SFS intec TIA-T25-6,3xL  
SFS intec R45xL

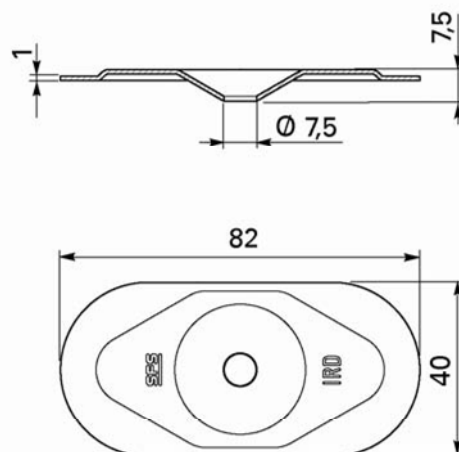
Annex 68



IE-6,3xL



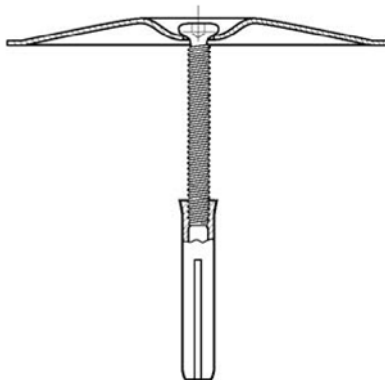
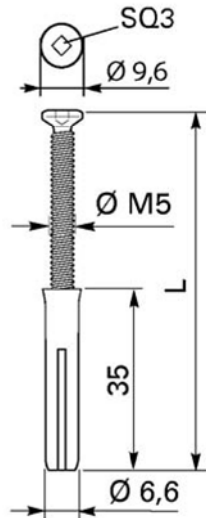
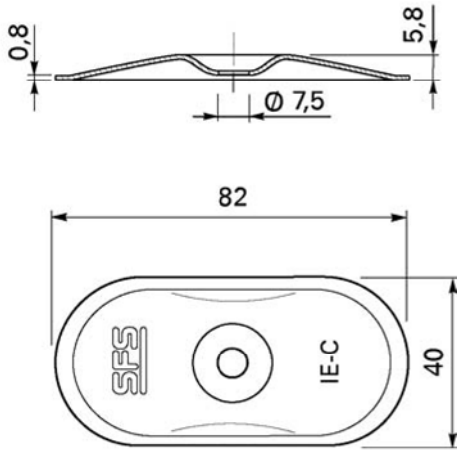
IRD-82x40

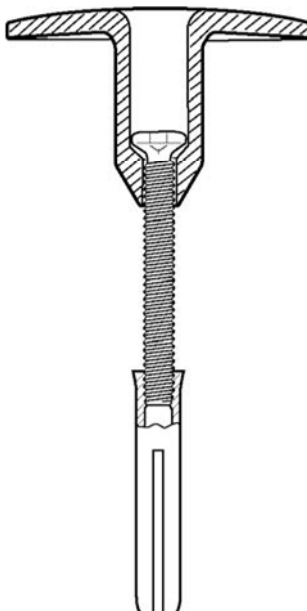
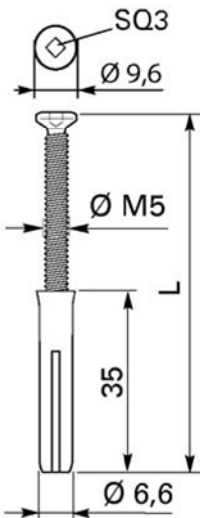
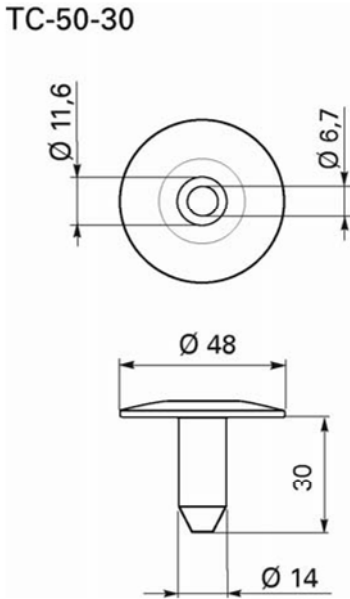


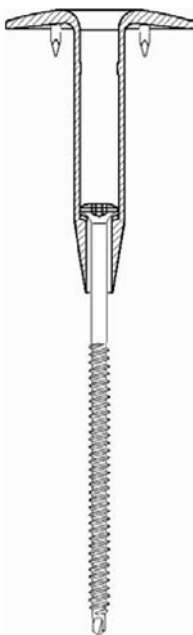
SFS intec flat roof fasteners

Combination 69  
SFS intec IE-6,3xL  
SFS intec IRD-82x40

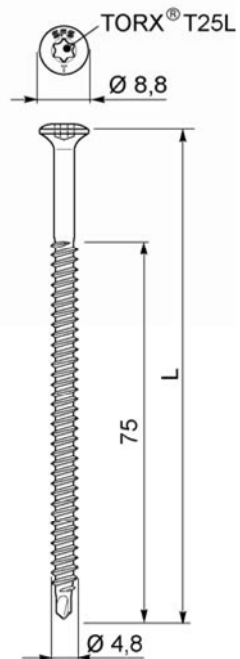
Annex 69

		
<p>IE-6,3xL</p> 	<p>IE-C-82x40</p> 	
<p>SFS intec flat roof fasteners</p>		<p>Annex 70</p>
<p>Combination 70 SFS intec IE-6,3xL SFS intec IE-C-82x40</p>		

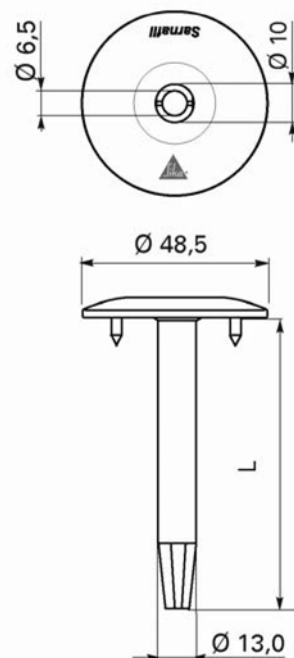
		
<p>IE-6,3xL</p> 	<p>TC-50-30</p> 	
SFS intec flat roof fasteners		Annex 71
Combination 71 SFS intec IE-6,3xL SFS intec TC-50-30		



BS-4,8xL




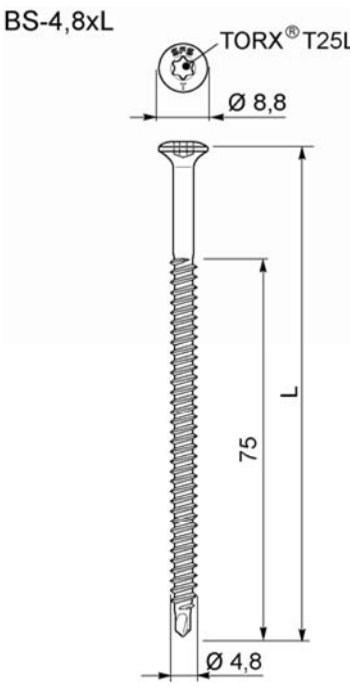
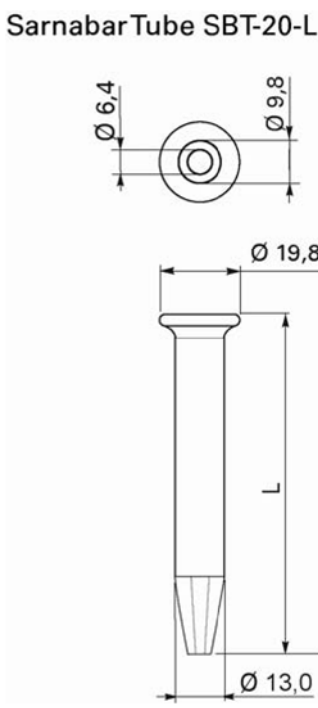
Sarnafast Tube SFT-50-L

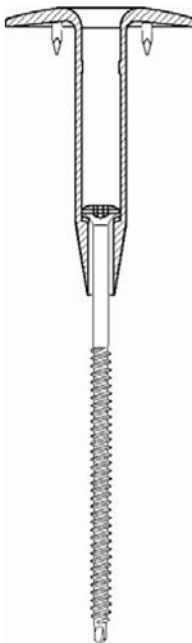
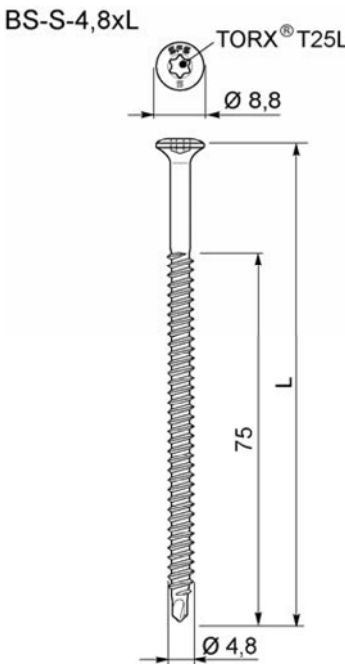
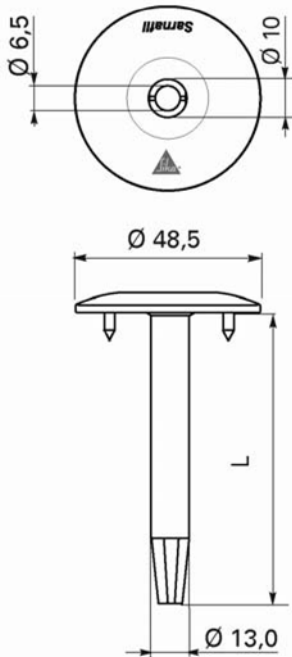


SFS intec flat roof fasteners

Combination 72  
SFS intec BS-4,8xL  
Sarnafast Tube SFT-50-L

Annex 72

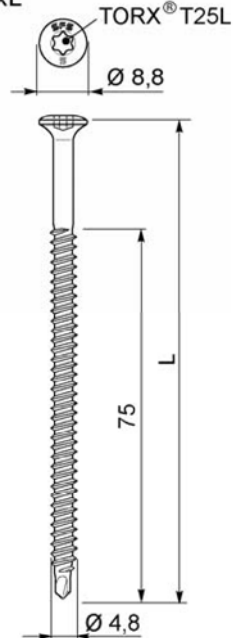
						
						
SFS intec flat roof fasteners						Annex 73
Combination 73 SFS intec BS-4,8xL Sarnabar Tube SBT-20-L						

		
		
SFS intec flat roof fasteners		Annex 74
Combination 74 SFS intec BS-S-4,8xL Sarnafast Tube SFT-50-L		

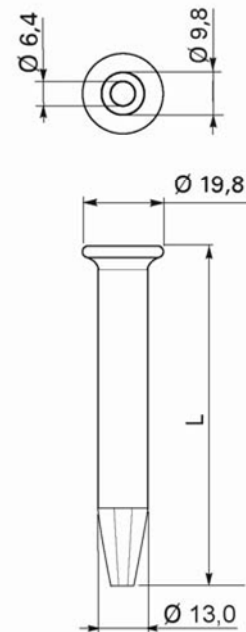




BS-S-4,8xL



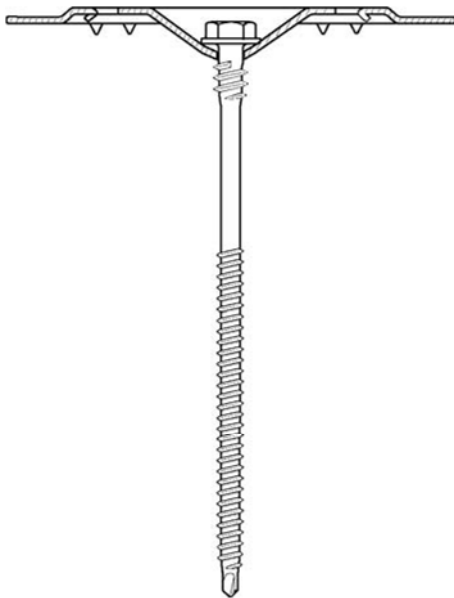
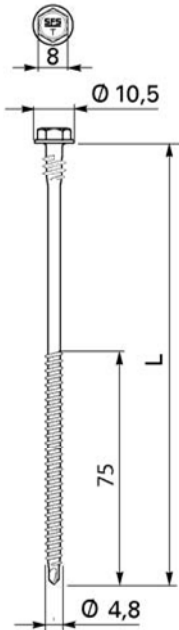
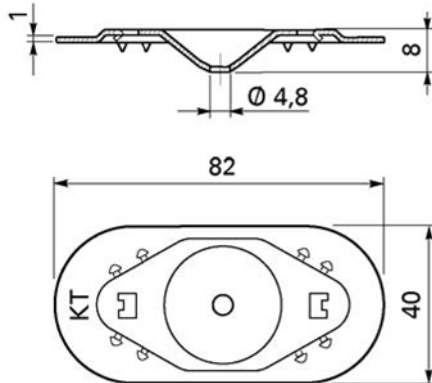
Sarnabar Tube SBT-20-L

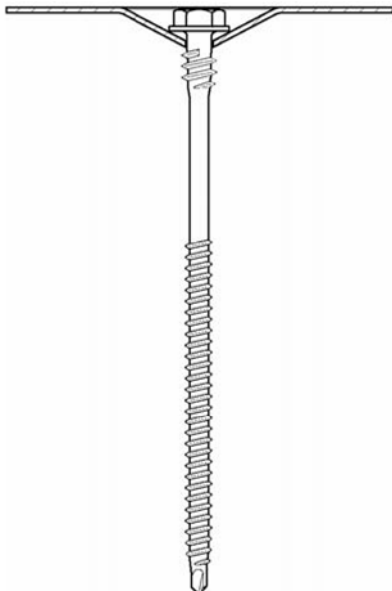
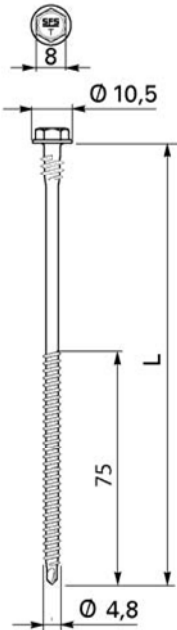
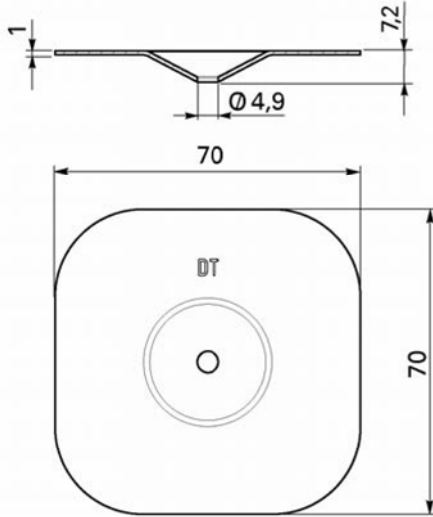


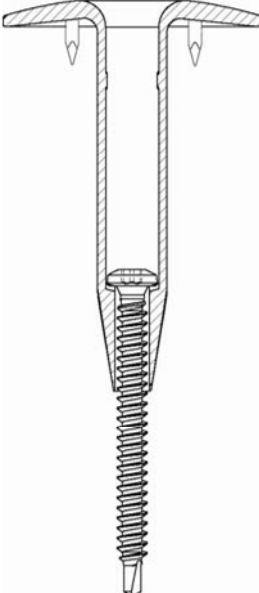
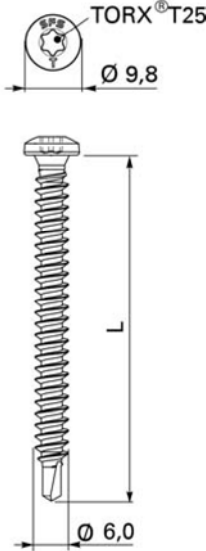
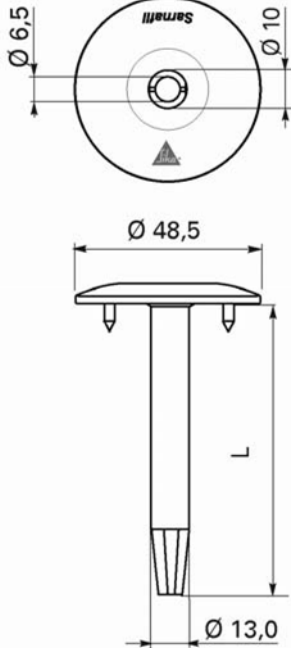
SFS intec flat roof fasteners

Combination 75  
SFS intec BS-S-4,8xL  
Sarnabar Tube SBT-20-L

Annex 75

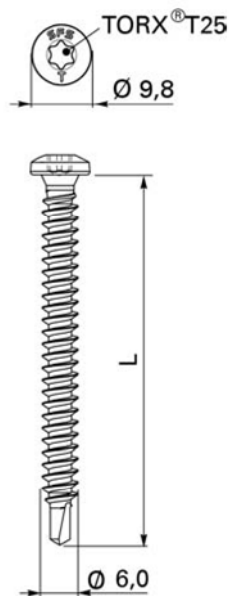
		
<p>Sarnafast SF-4,8xL</p> 	<p>Sarnafast KT-82x40</p> 	
<p>SFS intec flat roof fasteners</p>		<p>Annex 76</p>
<p>Combination 76 Sarnafast SF-4,8xL Sarnafast KT-82x40</p>		

		
<p>Sarnafast SF-4,8xL</p> 	<p>Sarnafast DT-70x70</p> 	
<p>SFS intec flat roof fasteners</p>		<p>Annex 77</p>
<p>Combination 77 Sarnafast SF-4,8xL Sarnafast DT-70x70</p>		

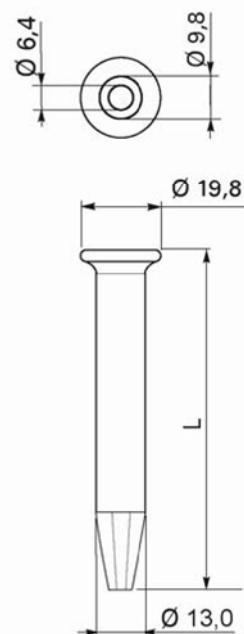
		
		
<p>Sarnafast SBF-6,0xL</p> <p>TORX® T25</p> <p>Ø 9,8</p> <p>Ø 6,0</p> <p>L</p>		
		
<p>Sarnafast Tube SFT-50-L</p> <p>Ø 6,5</p> <p>Ø 10</p> <p>Ø 48,5</p> <p>L</p> <p>Ø 13,0</p>		
SFS intec flat roof fasteners		Annex 78
Combination 78 Sarnafast SBF-6,0xL Sarnafast Tube SFT-50-L		



Sarnafast SBF-6,0xL



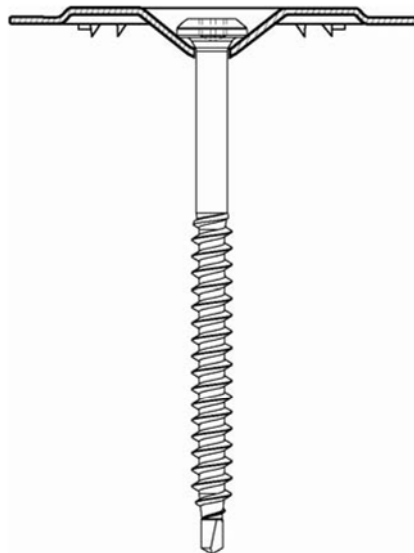
SarnabarTube SBT-20-L



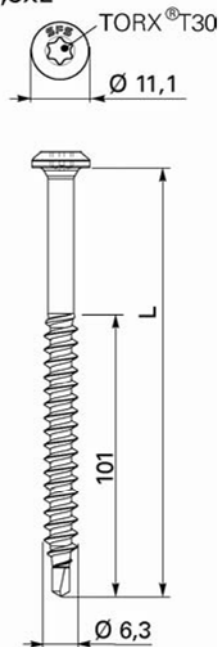
SFS intec flat roof fasteners

Combination 79  
Sarnafast SBF-6,0xL  
Sarnabar Tube SBT-20-L

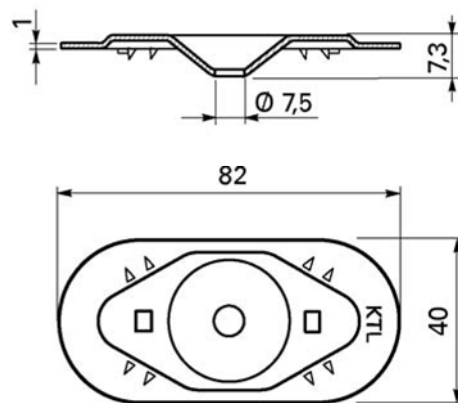
Annex 79



Sarnafast SB-6,3xL



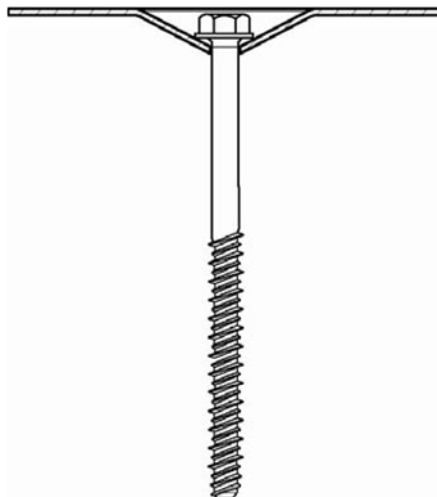
Sarnafast KTL 82x40



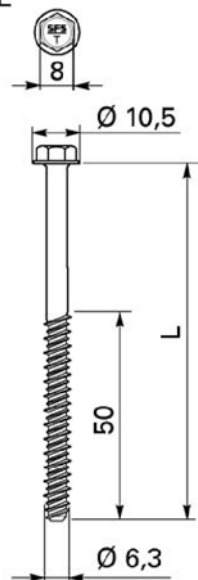
SFS intec flat roof fasteners

Combination 80  
Sarnafast SB-6,3xL  
Sarnafast KTL-82x40

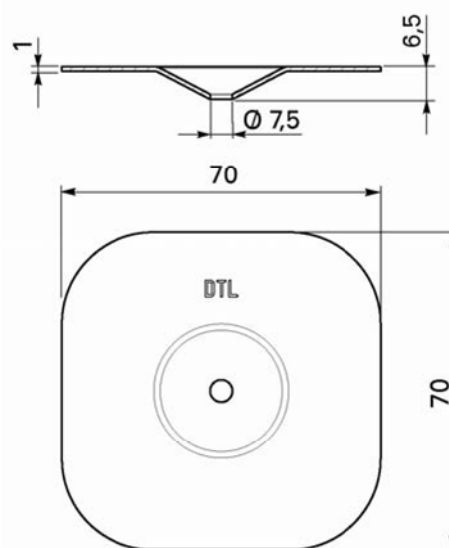
Annex 80



TI-6,3xL



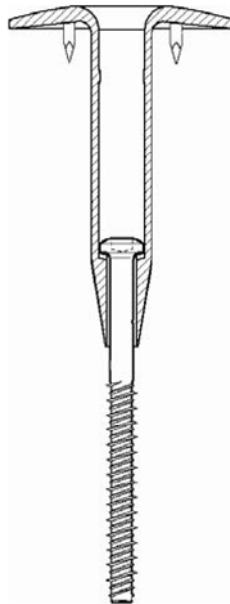
Sarnafast DTL-70x70



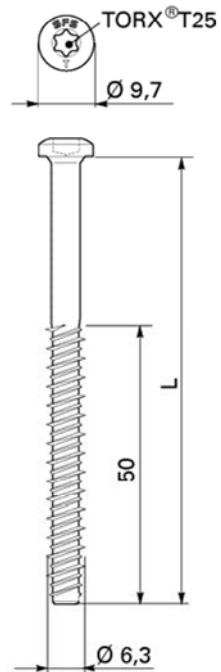
SFS intec flat roof fasteners

Combination 81  
SFS intec TI-6,3xL  
Sarnafast DTL-70x70

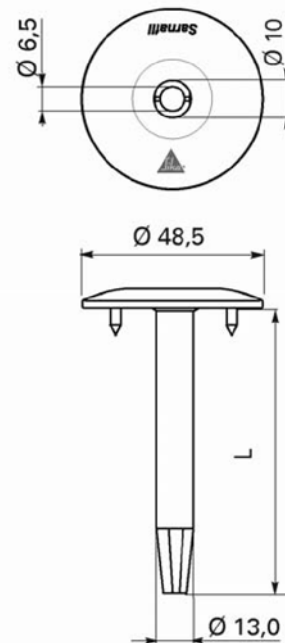
Annex 81



TI-T25-6,3xL



Sarnafast Tube SFT-50-L

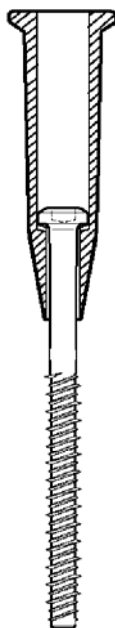


SFS intec flat roof fasteners

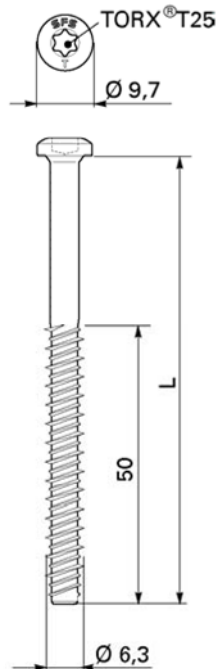
Combination 82  
SFS intec TI-T25-6,3xL  
Sarnafast Tube SFT-50-L

Annex 82

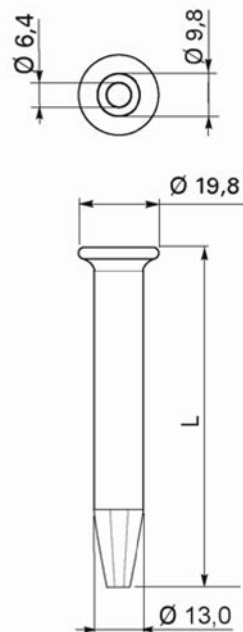




TI-T25-6,3xL



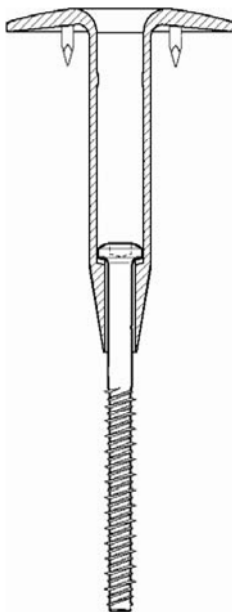
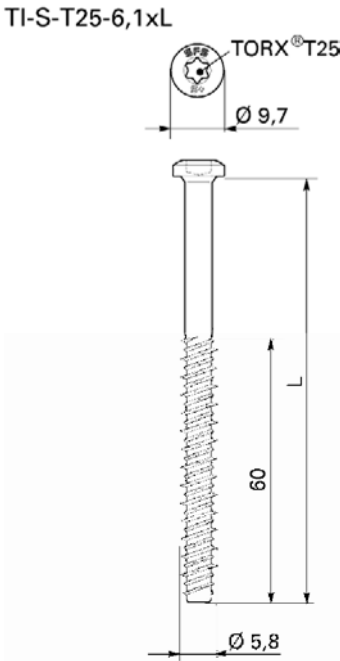
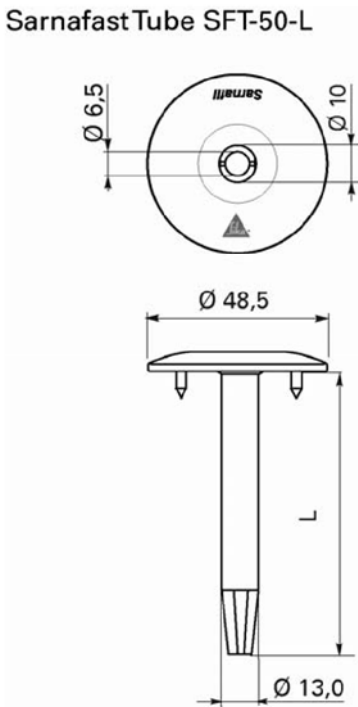
SarnabarTube SBT-20-L

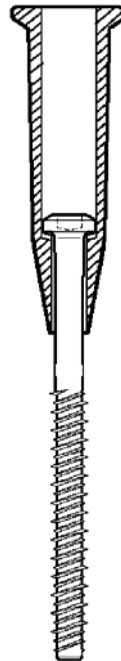


SFS intec flat roof fasteners

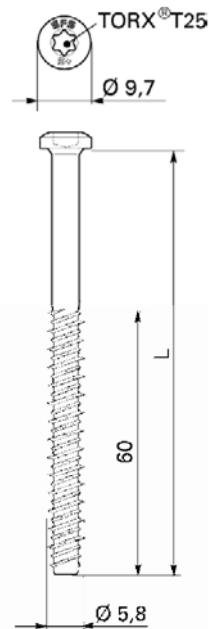
Combination 83  
SFS intec TI-T25-6,3xL  
Sarnabar Tube SBT-20-L

Annex 83

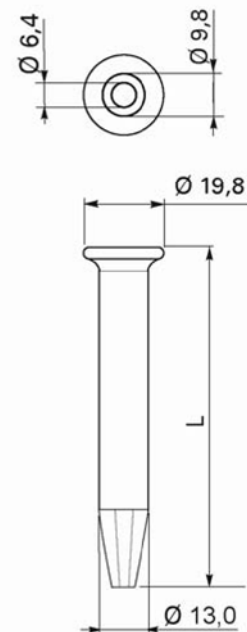
		
		
SFS intec flat roof fasteners		Annex 84
Combination 84 SFS intec TI-S-T25-6,1xL Sarnafast Tube SFT-50-L		



TI-S-T25-6,1xL



SarnabarTube SBT-20-L



SFS intec flat roof fasteners

Combination 85  
SFS intec TI-S-T25-6,1xL  
Sarnabar Tube SBT-20-L

Annex 85

Characteristic values of axial load resistance [kN]								
Annex	SFS intec flat roof fasteners		Substructure					
			Steelsheets S320GD <sup>1)</sup> EN 10346			Timber		
	Fastener	Plate	0,63mm	0,75mm	1,00mm	OSB3 EN 300 t ≥ 18mm <sup>2)</sup>	Structural Timber EN 338/C24 t ≥ 22mm <sup>3)</sup>	Particle board EN 312/P5 t ≥ 19mm <sup>4)</sup>
1	IR2-4,8	IR-82x40		1,08	1,77	1,28	1,74	1,99
2	IR2-4,8	IF-70x70		1,08	1,77	1,28	1,74	1,99
3	IR2-S-4,8	IR-82x40		1,08	1,77	1,28	1,74	1,99
4	IR3-4,8	IR-82x40			1,36			
5	IR3-S-4,8	IR-82x40			1,36			
6	IR2-C-4,8	IRC/W-82x40		1,08	1,73	1,28	1,73	1,73
7	BS-4,8	RP45xL		1,08	1,77	1,28	1,74	1,99
8	BS-4,8	R45xL		1,08	1,38	1,28	1,38	1,38
9	BS-4,8	R75xL		1,08	1,38	1,28	1,38	1,38
10	BS-4,8	RP75xL		1,08	1,77	1,28	1,74	1,99
11	BS-4,8	TPS-L		1,08	1,38	1,28	1,38	1,38
12	BS-4,8	TPP-L		1,08	1,77	1,28	1,74	1,99
13	BS-4,8	R48xL-3N		1,08	1,38	1,28	1,38	1,38
14	BS-4,8	RP48xL-3N		1,08	1,77	1,28	1,74	1,99
15	BS-4,8	SH-18/65xL		1,03	1,03	1,03	1,03	1,03
16	BS-S-4,8	RP45xL		1,08	1,77	1,28	1,74	1,99
17	BS-S-4,8	TPP-L		1,08	1,77	1,28	1,74	1,99
18	BS3-4,8	RP45xL			1,14			
19	BS-6,1	RP45xL	1,13		2,19			
20	BS-6,1	R45xL	1,13		1,38			

<sup>1)</sup> for steelsheets S280GD, the values have to be reduced to 92 %  
<sup>2)</sup> effective embedment depth (penetration length of threaded part) ≥ 18mm  
<sup>3)</sup> effective embedment depth (penetration length of threaded part) ≥ 22mm  
<sup>4)</sup> effective embedment depth (penetration length of threaded part) ≥ 19mm

SFS intec flat roof fasteners		Annex 86
Characteristic values of axial load resistance		

Characteristic values of axial load resistance [kN]						
Annex	SFS intec flat roof fasteners		Substructure			
			Steelsheets S320GD <sup>1)</sup> EN 10346 t ≥		Perforated steelsheets <sup>2)</sup> S320GD <sup>1)</sup> t ≥ 0,75mm	Aluminiumsheets R <sub>m</sub> ≥ 195N/mm t ≥ 0,6 mm
	Fastener	Plate	0,50 mm	1,00 mm		
21	IFP2-6,7	IRP-82x40			0,87	
22	BS-6,7	R45xL			0,87	
23	BS-6,7	R75xL			0,87	
24	BS-6,7	TPS-L			0,87	
25	BS-S-6,7	R45xL			0,87	
26	BS-S-6,7	R75xL			0,87	
27	BS-S-6,7	TPS-L			0,87	
28	TPR-L	IRD-82x40	0,88	1,36		0,58
29	TPR-L	IE-C-82x40	0,88	1,36		0,58
			Timber			
			OSB3 EN 300 t ≥ 18mm <sup>3)</sup>	Structural Timber EN 338/C24 t ≥ 22mm <sup>4)</sup>	Particle board EN 312/P5 t ≥ 19mm <sup>5)</sup>	
30	IG-6,0	IRD-82x40	1,31		1,43	1,97
31	TS-T25-6,0	RP45xL	1,31		1,43	1,97
32	TS-T25-6,0	R45xL	1,31		1,38	1,38
33	IWF-5,2	MW-40-FH	1,39		1,07	1,39
34	IW-T-5,0	IRC/W-82x40	1,08		1,12	1,68
35	IW-S-5,0	IRC/W-82x40	1,08		1,12	1,68
<sup>1)</sup> for steelsheets S280GD, the values have to be reduced to 92 % <sup>2)</sup> triangular array of holes, hole diameter 5,0 mm, distance of holes 12,5 mm <sup>3)</sup> effective embedment depth (penetration length of threaded part) ≥ 18mm <sup>4)</sup> effective embedment depth (penetration length of threaded part) ≥ 22mm <sup>5)</sup> effective embedment depth (penetration length of threaded part) ≥ 19mm						
SFS intec flat roof fasteners						Annex 87
Characteristic values of axial load resistance						

Characteristic values of axial load resistance [kN]								
Annex	SFS intec flat roof fasteners		Substructure					
			Pumice panel EN 1520 LAC 6 D 1,0	Aerated Concrete DIN 4223-1		embedment depth [mm]	drill hole diameter [mm]	
	Fastener	Plate		P3,3 density 0,45	P4,4 density 0,55			
								36
	37	LBS-S-T25-8,0	R45xL	0,93	1,43	60	-	
	38	LBS-S-T25-8,0	TC-50-30	0,93	1,44	60	-	
	39	IGR-T-T25-8,0	IG8-C-82x40	0,93	1,44	60	-	
	40	LBS-T25-8,0	MW-40-LBS	0,93	1,44	60	-	
	41	LBS-T25-8,0	R45xL	0,93	1,43	60	-	
	42	LB-45		1,44	1,44	65	15	
	43	FB-S-T25-7,5	IE-C-82x40	0,59			17	4,8
	44	FB-S-T25-7,5	R45xL	0,59			17	4,8
SFS intec flat roof fasteners							Annex 88	
Characteristic values of axial load resistance								

Characteristic values of axial load resistance [kN]						
Annex	SFS intec flat roof fasteners		Substructure			
			Concrete EN 206-1		embedment depth [mm]	drill hole diameter [mm]
	Fastener	Plate				
45	DT-4,8	IRD-82x40	2,40	2,56	25	4,8
46	DT-4,8	IF/IG-C-82x40	2,40	3,10	25	4,8
47	DT-4,8	IW-82x40	2,40	3,34	25	4,8
48	DT-4,8	R45xL	1,39	1,39	25	4,8
49	DT-4,8	TC-50-30	1,45	1,45	25	4,8
50	DT-S-4,8	IRD-82x40	2,56	2,56	25	4,8
51	DT-S-4,8	IF/IG-C-82x40	2,65	3,10	25	4,8
52	DT-S-4,8	R45xL	1,39	1,39	25	4,8
53	DT-S-4,8	TC-50-30	1,45	1,45	25	4,8
54	DT-6,3	IRD-82x40	2,93	3,68	32	6,3
55	DT-6,3	IF/IG-C-82x40	2,93	4,07	32	6,3
56	DT-6,3	TC-50-30	1,92	1,92	32	6,3
57	DT-S-6,3	IRD-82x40	2,23	3,10	32	6,3
58	DT-S-6,3	IF/IG-C-82x40	2,23	3,10	32	6,3
59	DT-S-6,3	TC-50-30	1,92	1,92	32	6,3
60	TI-6,3	IRD-82x40	1,83	1,83	20	5,0
			2,56	2,56	30	5,0
61	TI-6,3	IF/IG-C-82x40	1,83	1,83	20	5,0
			2,73	3,10	30	5,0
62	TI-6,3	ID-70x70	1,83	1,83	20	5,0
			2,73	3,79	30	5,0
63	TI-T25-6,3	R75xL	1,42	1,42	20	5,0
			1,42	1,42	30	5,0
64	TI-T25-6,3	TPS-L	1,42	1,42	20	5,0
			1,42	1,42	30	5,0
65	TI-T25-6,3	R48xL-3N	1,42	1,42	20	5,0
			1,42	1,42	30	5,0
SFS intec flat roof fasteners					Annex 89	
Characteristic values of axial load resistance						

Characteristic values of axial load resistance [kN]						
Annex	SFS intec flat roof fasteners		Substructure			
			Concrete EN 206-1		embedment depth [mm]	drill hole diameter [mm]
			C12/15	C25/30		
	Fastener	Plate				
66	TI-T25-6,3	R45xL	1,42	1,42	20	5,0
			1,42	1,42	30	5,0
67	TI-S-T25-6,1	R45xL	1,42	1,42	20	5,0
68	TIA-T25-6,3	R45xL	1,42	1,42	20	5,0
69	IE-6,3	IRD-82x40	0,52	0,73	25 <sup>1)</sup>	6,3
			0,80	1,13	35	6,3
70	IE-6,3	IE-C-82x40	0,52	0,73	25 <sup>1)</sup>	6,3
			0,80	1,13	35	6,3
71	IE-6,3	TC-50-30	0,52	0,73	25 <sup>1)</sup>	6,3
			0,80	1,13	35	6,3
<div><sup>1)</sup> Minimum thickness of the concrete component <math>h \geq 25</math> mm</div>						
SFS intec flat roof fasteners					Annex 90	
Characteristic values of axial load resistance						



Characteristic values of axial load resistance [kN]							
Annex	SFS intec flat roof fasteners		Substructure				
			Steelsheets S320GD <sup>1)</sup> EN 10346		Timber		
					OSB3 EN 300 t ≥ 18mm <sup>2)</sup>	Structural Timber EN 338/C24 t ≥ 22mm <sup>3)</sup>	Particle board EN 312/P5 t ≥ 19mm <sup>4)</sup>
	Fastener	Plate	0,75mm	1,00mm			
72	BS-4,8	Sarnafast Tube SFT-50	1,08	1,66	1,28	1,66	1,66
73	BS-4,8	Sarnabar Tube SBT-20	1,08	1,66	1,28	1,66	1,66
74	BS-S-4,8	Sarnafast Tube SFT-50	1,08	1,66	1,28	1,66	1,66
75	BS-S-4,8	Sarnabar Tube SBT-20	1,08	1,66	1,28	1,66	1,66
76	Sarnafast SF-4,8	Sarnafast KT-82x40	1,08	1,77	1,28	1,74	1,99
77	Sarnafast SF-4,8	Sarnafast DT-70x70	1,08	1,77	1,28	1,74	1,99
78	Sarnafast SBF-6,0	Sarnafast Tube SFT-50	1,34	1,66			
79	Sarnafast SBF-6,0	Sarnabar Tube SBT-20	1,34	1,66			
80	Sarnafast SB-6,3	Sarnafast KTL-82x40	1,36	2,01	1,31	1,49	1,34
			Concrete EN 206-1		embedment depth [mm]	drill hole diameter [mm]	
			C12/15	C25/30			
81	TI-6,3	Sarnafast DTL-70x70	1,83	1,83	20	5,0	
			2,56	2,56	30	5,0	
82	TI-T25-6,3	Sarnafast Tube SFT-50	1,66	1,66	20	5,0	
			1,66	1,66	30	5,0	
83	TI-T25-6,3	Sarnabar Tube SBT-20	1,66	1,66	20	5,0	
			1,66	1,66	30	5,0	
84	TI-S-T25-6,1	Sarnafast Tube SFT-50	1,66	1,66	20	5,0	
85	TI-S-T25-6,1	Sarnabar Tube SBT-20	1,66	1,66	20	5,0	
<sup>1)</sup> for steelsheets S280GD, the values have to be reduced to 92 % <sup>2)</sup> effective embedment depth (penetration length of threaded part) ≥ 18mm <sup>3)</sup> effective embedment depth (penetration length of threaded part) ≥ 22mm <sup>4)</sup> effective embedment depth (penetration length of threaded part) ≥ 19mm							
SFS intec flat roof fasteners						Annex 91	
Characteristic values of axial load resistance							