

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-08/0262**  
**of 1 June 2022**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

SFS Flat roof fasteners

Product family  
to which the construction product belongs

Systems of mechanically fastened flexible roof  
waterproofing sheets

Manufacturer

SFS Group Schweiz AG  
Rosenbergsaustraße 10  
9435 HEERBRUGG  
SCHWEIZ

Manufacturing plant

Factories of SFS Group Schweiz AG

This European Technical Assessment  
contains

124 pages including 119 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

EAD 030351-00-0402

This version replaces

ETA-08/0262 issued on 12 January 2021

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## Specific Part

### 1 Technical description of the 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. Some fasteners include a perforated lath made of coated carbon steel.

The fasteners are shown in the Annexes to this ETA.

### 2 Specification of the intended use in accordance with the applicable European Assessment Document

The fasteners are intended to be used for the fastening of flexible roof waterproofing membranes according to EAD 030351-00-0402. The possible substrates are steel or aluminium decks, concrete, aerated concrete, pumice panel or timber.

The performances given in Section 3.2 are only valid if the fasteners are used in compliance with the specifications and conditions given in sections 3.1 and 3.3 and the Annexes to this ETA.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fasteners of at least 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 according to EAD 030351-00-0402 a separate ETA is necessary for the entire roof waterproofing system. The system ETA covers the wind uplift resistance of the entire system as well as the product characteristics of the components of the system.

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

#### 3.1 Characteristics of the product

The fasteners shall correspond to the information given in Annexes 1 to 106.

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

The material properties, dimensions and tolerances not indicated in Annexes 1 to 106 shall correspond to the information laid down in the technical information<sup>1</sup> to this European technical assessment.

#### 3.2 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic tensile loading	See Annexes 107 to 119
Resistance to unwinding	pass
Resistance to corrosion of metallic fasteners	pass; ≤ 15 % surface corrosion

<sup>1</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.

Essential characteristic	Performance
Impact resistance and brittleness of plastic fasteners (before and after heat ageing <sup>*)</sup> )	pass; drop height > 1,0 m
Requirements for results of Charpy tests for plastic materials (before and after heat ageing <sup>*)</sup> )	pass; not any significant decline compared to the results before heat ageing
<sup>*)</sup> For the components FL-R-20, RG50, RP50 and TPA50 no tests after heat ageing according to EAD 030351-00-0402, subclause 2.2.3.5 were proceeded. These components shall not be exposed to UV and water.	

The thickness and strengths of the materials listed in the tables of characteristic axial loads (Annexes 107 to 119) are minimum requirements. The values given are also applicable for materials with higher thickness and strengths. The values of axial loading shown in Annexes 107 to 119 were determined by axial loading tests according to EAD 030351-00-0402.

The fasteners are deemed to satisfy the requirements of EAD 030351-00-0402 concerning unwinding. This was evaluated on the basis of the existing field experience of the manufacturer.

The durability requirements of EAD 030351-00-0402 (resistance to corrosion of metallic fasteners, impact resistance and brittleness of plastic fasteners before and after heat ageing (also regard table above), requirements for results of Charpy tests for plastic materials before and after heat ageing (also regard table above)) 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 EAD 030351-00-0402 (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 (also regard table above) did not show any significant decline compared to the results before heat ageing.

### 3.3 Indications concerning installation

The installation is solely carried out according to the manufacturer's instructions. When assembling the fastener's components, the screw thread penetrating into the substrate shall not be damaged. The manufacturer hands over the assembly instructions to the assembler.

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

It is in the responsibility of the manufacturer to ensure that the information on the specific conditions according to 1, 2, 3.1 and 3.2 is given to those who are concerned. The information may be given by reproduction of the ETA. In addition, all installation data shall be shown clearly on the package and/or on an enclosed instruction sheet, preferably using illustration(s).



English translation prepared by DIBt

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

In accordance with EAD 030351-00-0402 the applicable European legal act is: 1998/143/EC.  
The system to be applied is: 2+

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

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 1 June 2022 by Deutsches Institut für Bautechnik

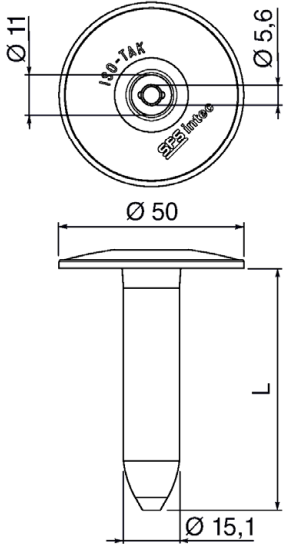
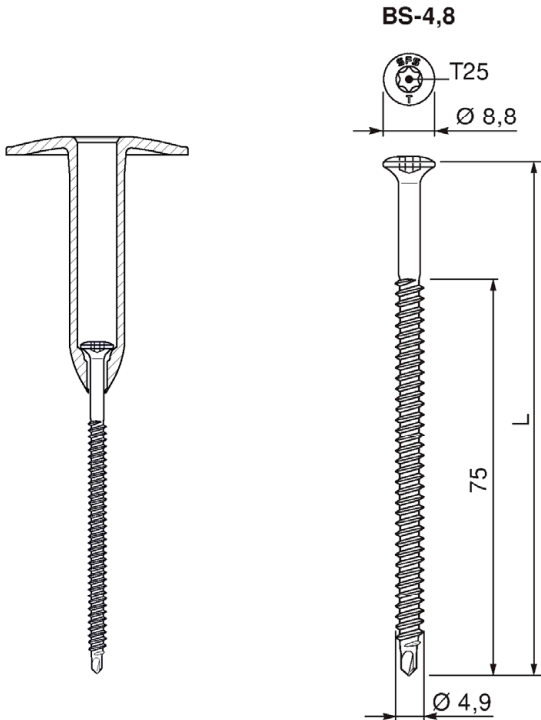
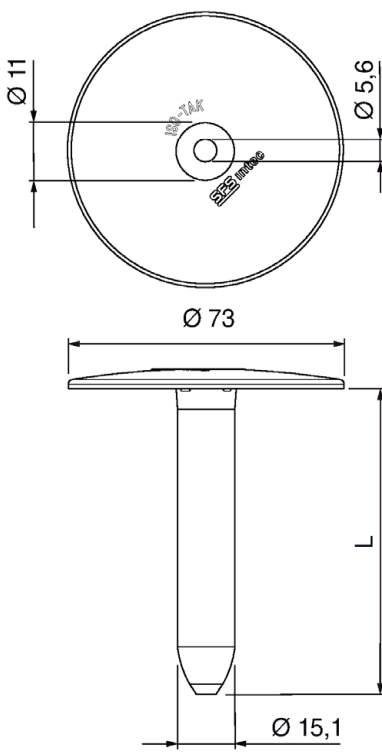
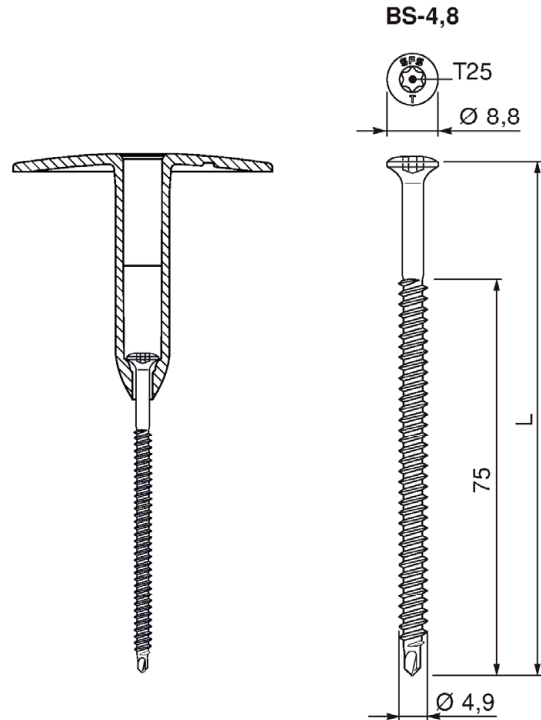
Andreas Schult  
Head of Section

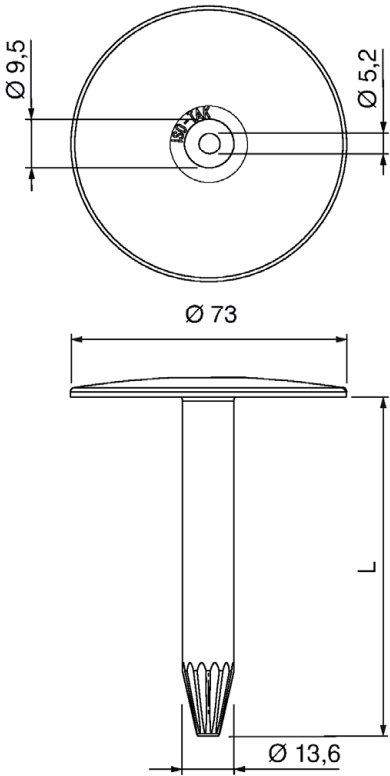
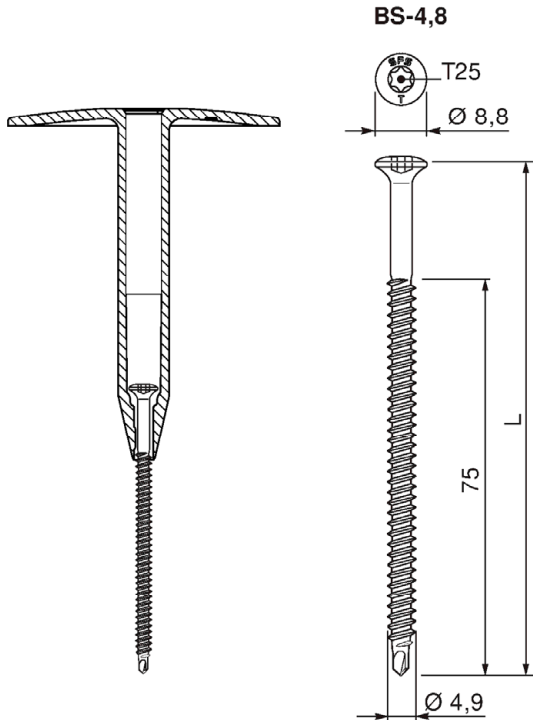
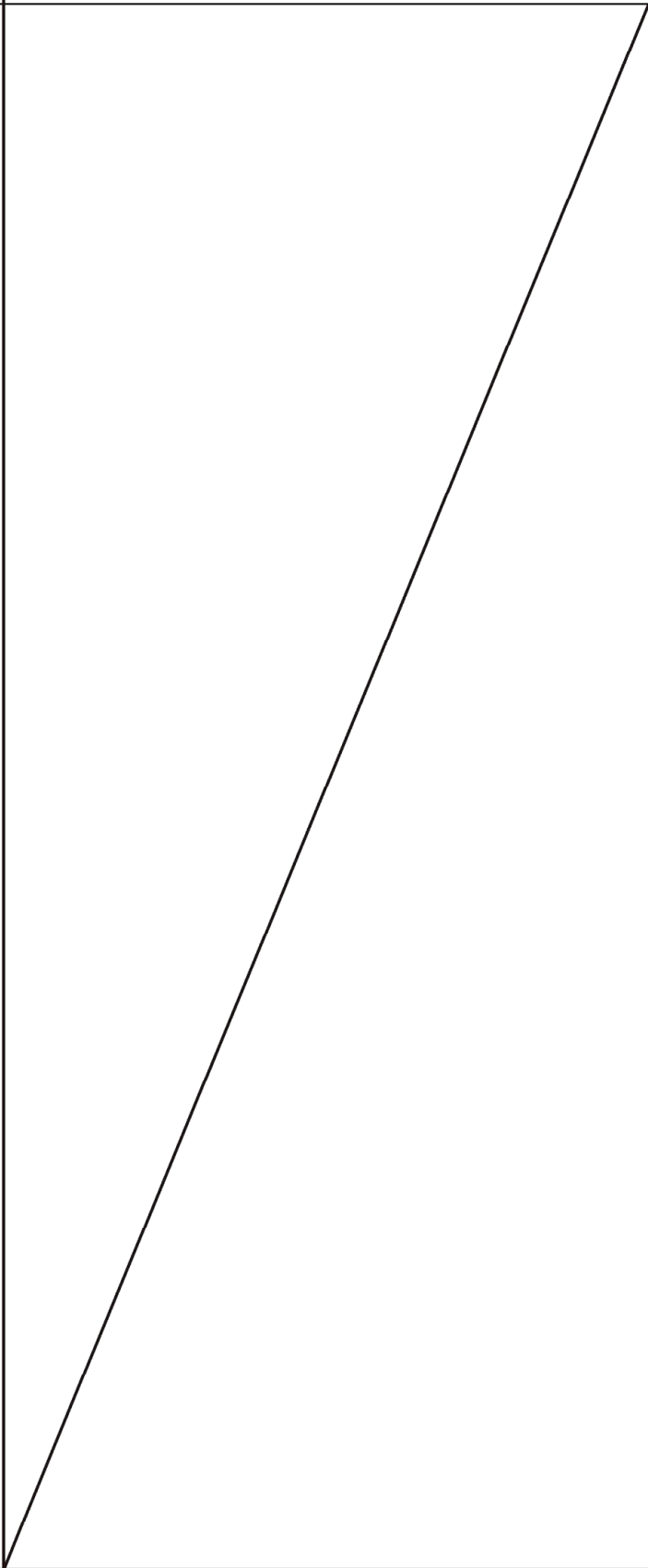
*beglaubigt:*  
Reimuth

<p>Combination 1A IR2-4,8 / IR-82x40</p>	<p>Combination 1B IR2-4,8 / IF-70x70</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 1</p>

<p>Combination 2A IR2-S-4,8 / IR-82x40</p>	<p>Combination 2B IR3-4,8 / IR-82x40</p>
<p>SFS Flat roof fasteners</p>	
<p>Annex 2</p>	

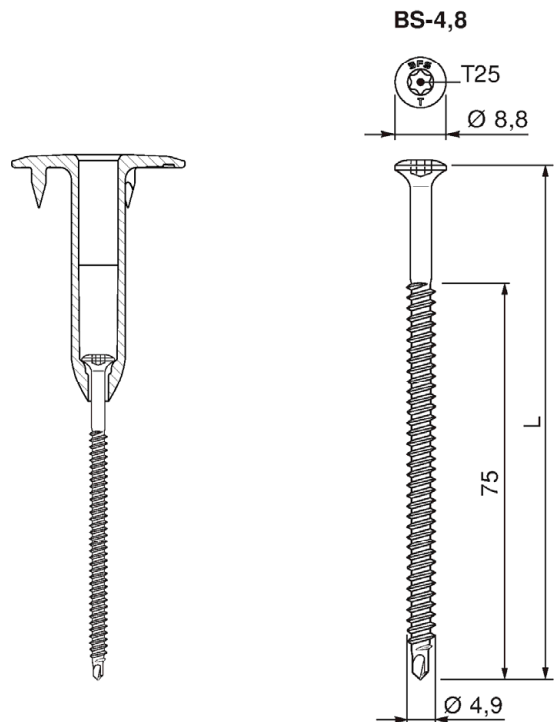
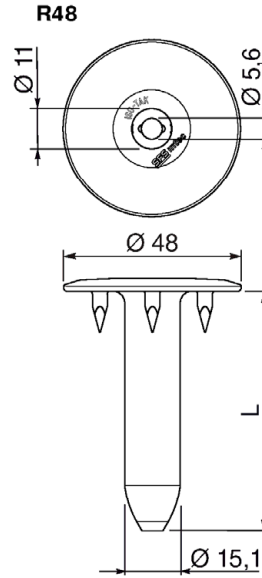
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<p>SFS Flat roof fasteners</p>	<p>Annex 3</p>

<p>Combination 4A BS-4,8 / R50</p>	<p>Combination 4B BS-4,8 / R75</p>
<p><b>R50</b></p>  <p><b>BS-4,8</b></p> 	<p><b>R75</b></p>  <p><b>BS-4,8</b></p> 
<p>SFS Flat roof fasteners</p>	<p>Annex 4</p>

<p>Combination 5A BS-4,8 / RP75</p>	<p>Combination 5B No longer in product range</p>
<p><b>RP75</b></p>  <p><b>BS-4,8</b></p> 	
<p>SFS Flat roof fasteners</p>	<p>Annex 5</p>

Combination 6A  
No longer in product range

Combination 6B  
BS-4,8 / R48



SFS Flat roof fasteners

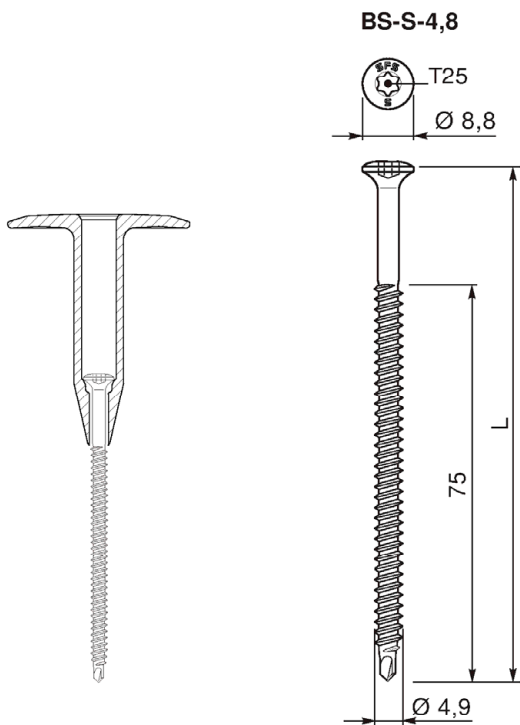
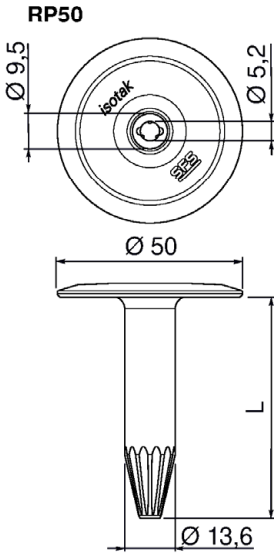
Annex 6

<p>Combination 7A BS-4,8 / RP48</p>	<p>Combination 7B BS-4,8 / SH-18/65 / Protan steelbar</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 7</p>



Combination 8A  
BS-S-4,8 / RP50

Combination 8B  
No longer in product range



SFS Flat roof fasteners

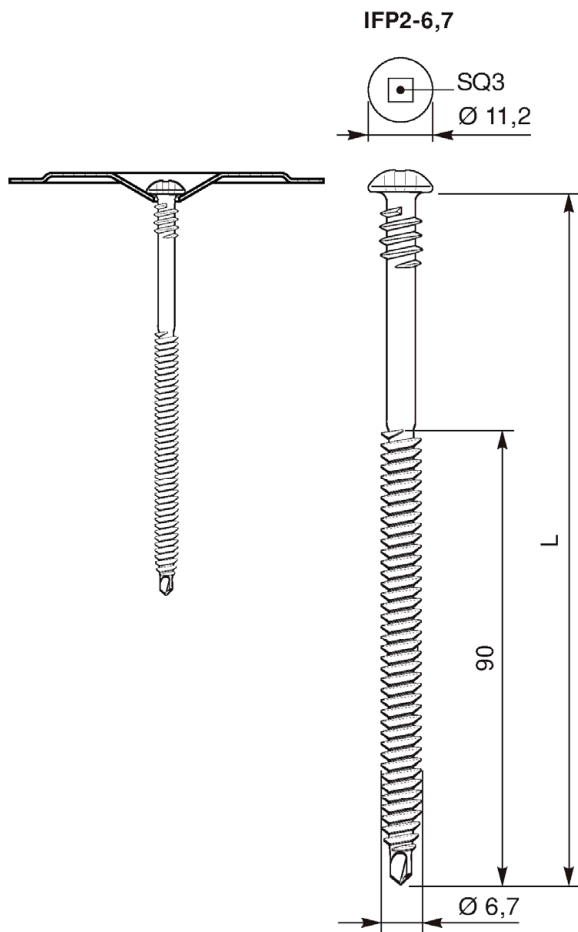
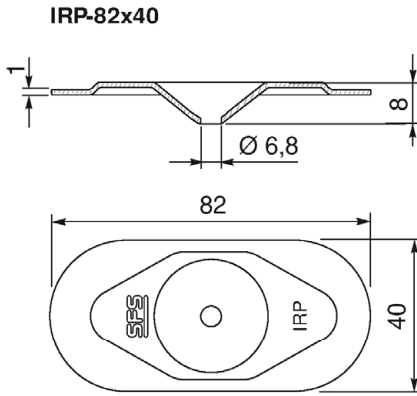
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English translation prepared by DIBt

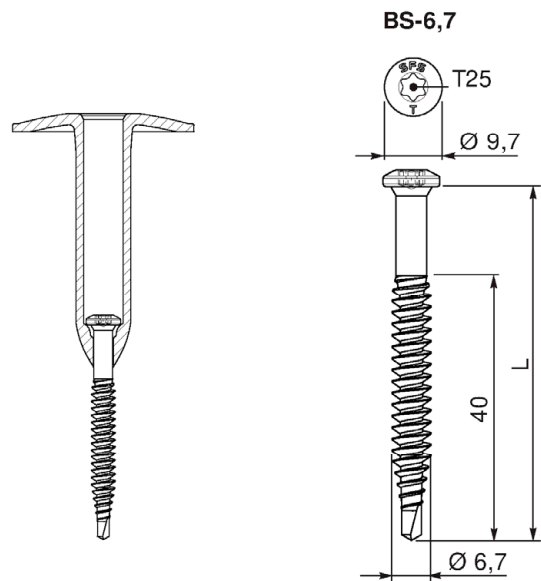
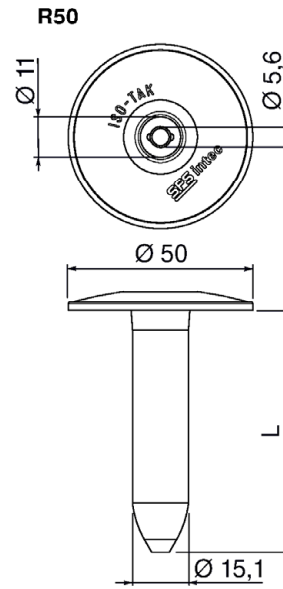
<p>Combination 9A BS3-4,8 / RP50</p>	<p>Combination 9B BS-6,1 / R50</p>
<p>SFS Flat roof fasteners</p>	
<p>Annex 9</p>	

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Combination 10A  
IFP2-6,7 / IRP-82x40



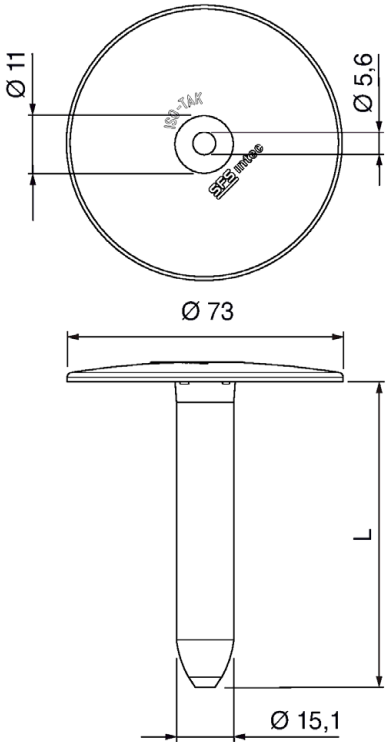
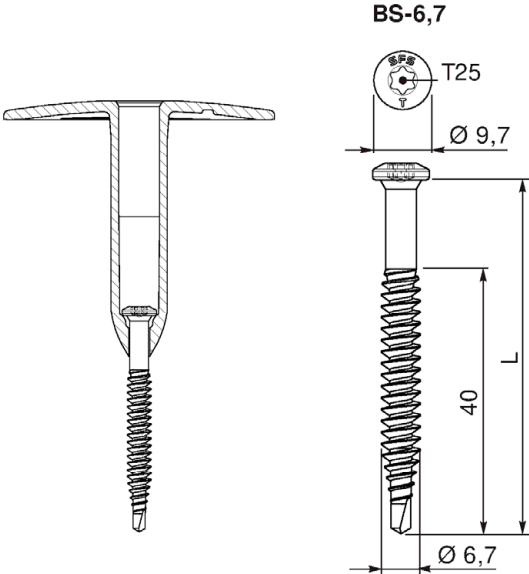
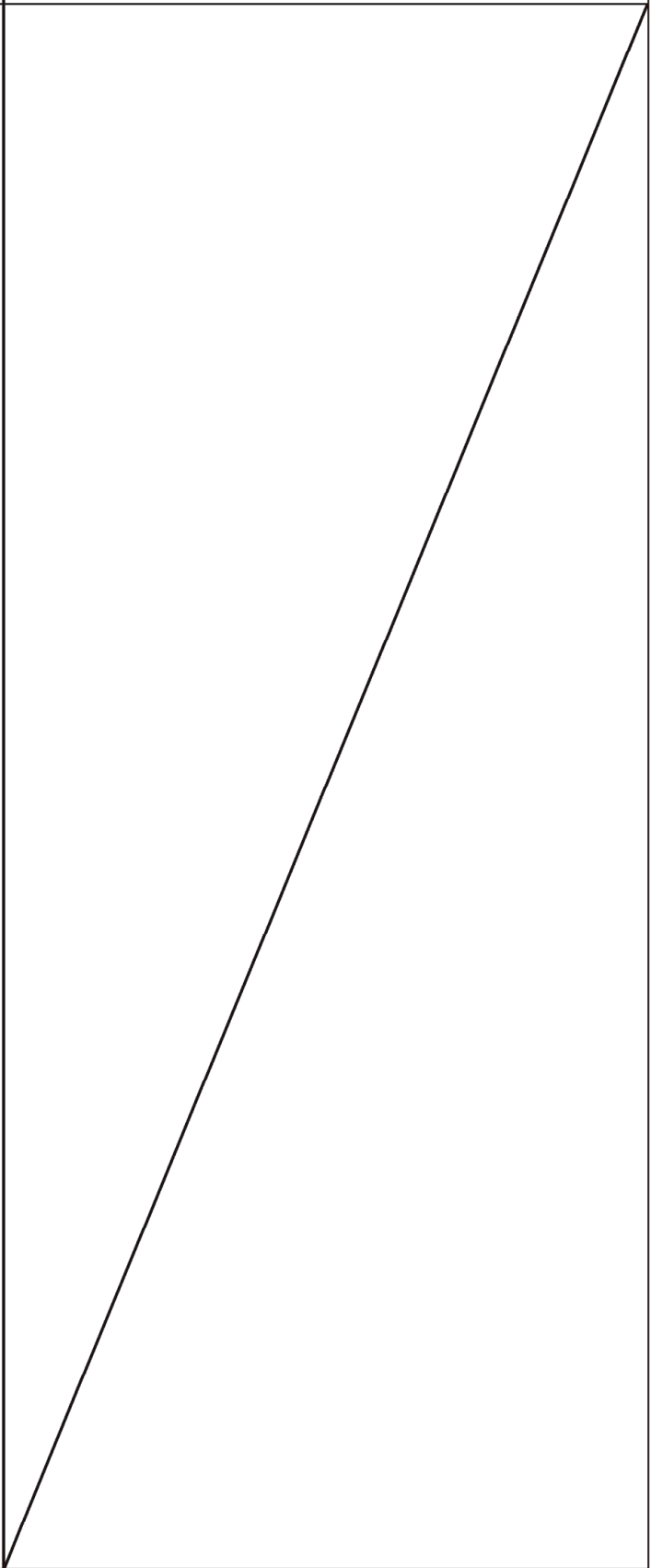
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BS-6,7 / R50



SFS Flat roof fasteners

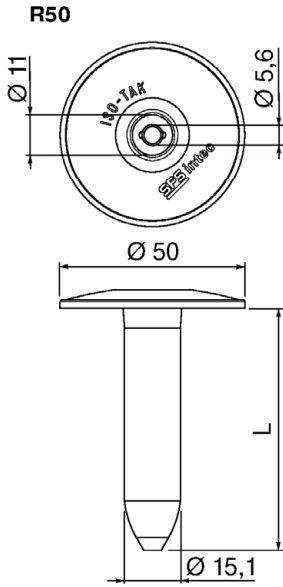
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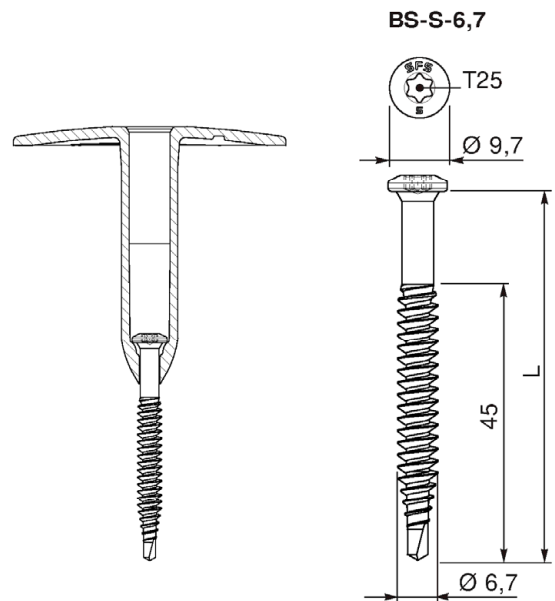
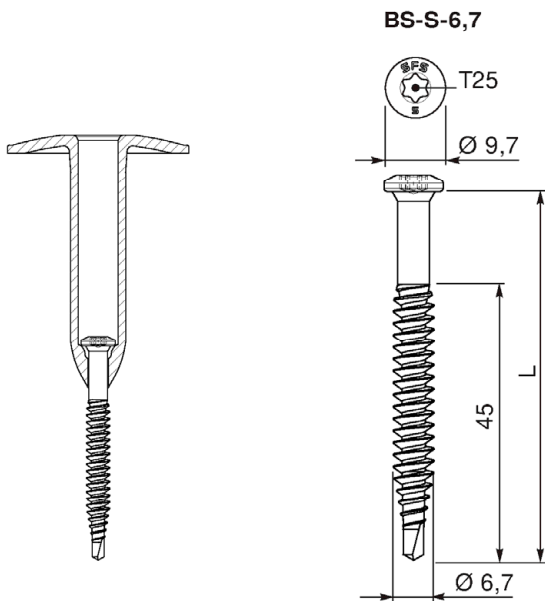
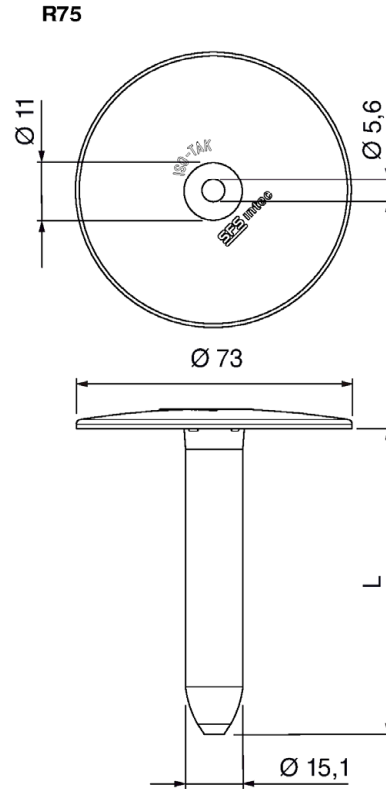
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<p><b>R75</b></p>  <p><b>BS-6,7</b></p> 	
<p>SFS Flat roof fasteners</p>	<p>Annex 11</p>

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Combination 12A  
BS-S-6,7 / R50



Combination 12B  
BS-S-6,7 / R75

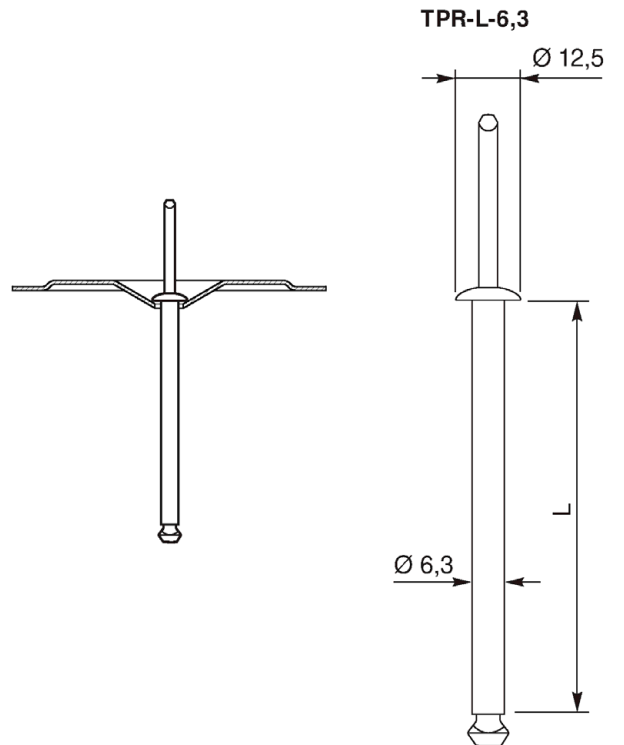
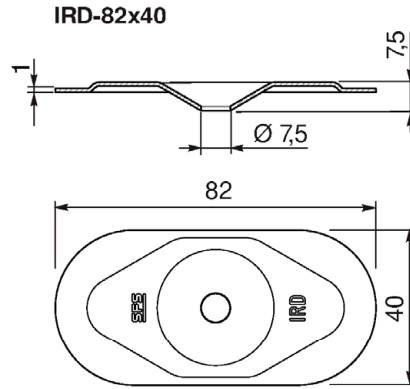


SFS Flat roof fasteners

Annex 12

Combination 13A  
No longer in product range

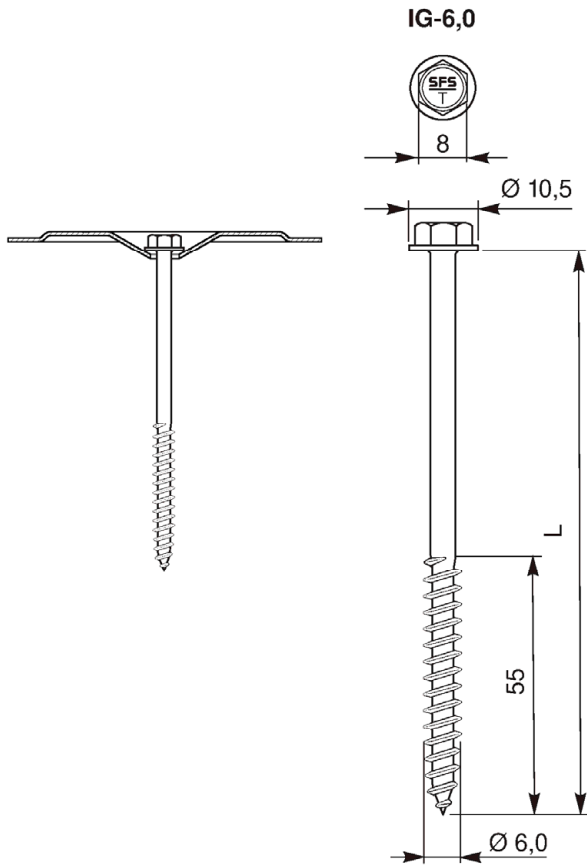
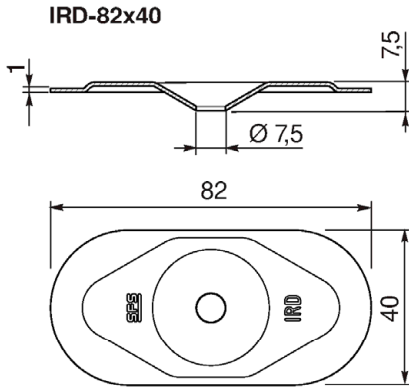
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TPR-L-6,3 / IRD-82x40



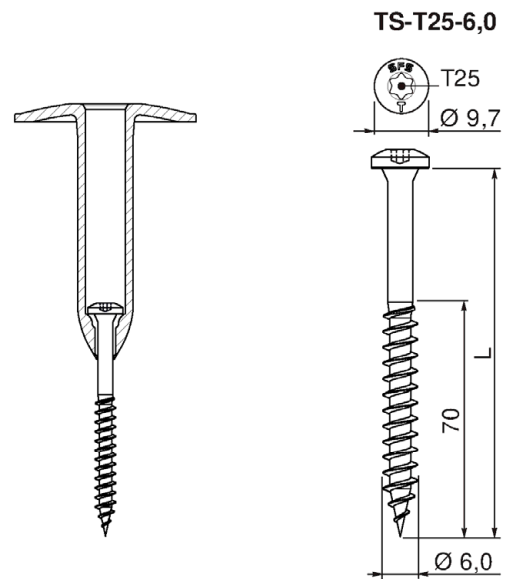
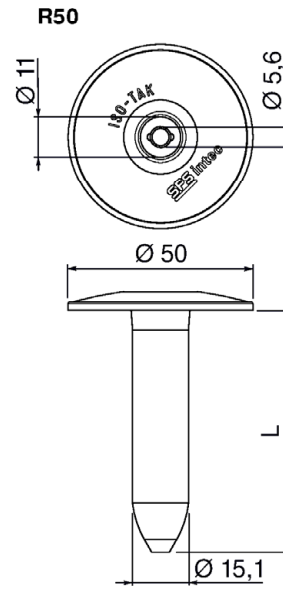
SFS Flat roof fasteners

Annex 13

Combination 14A  
IG-6,0 / IRD-82x40

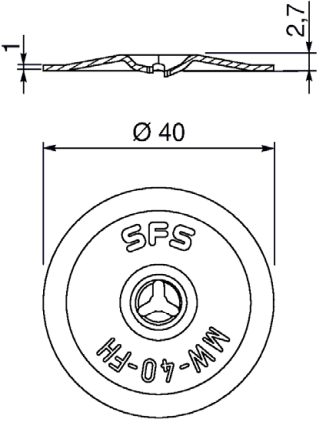
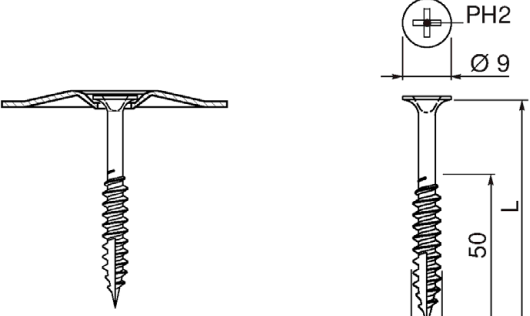
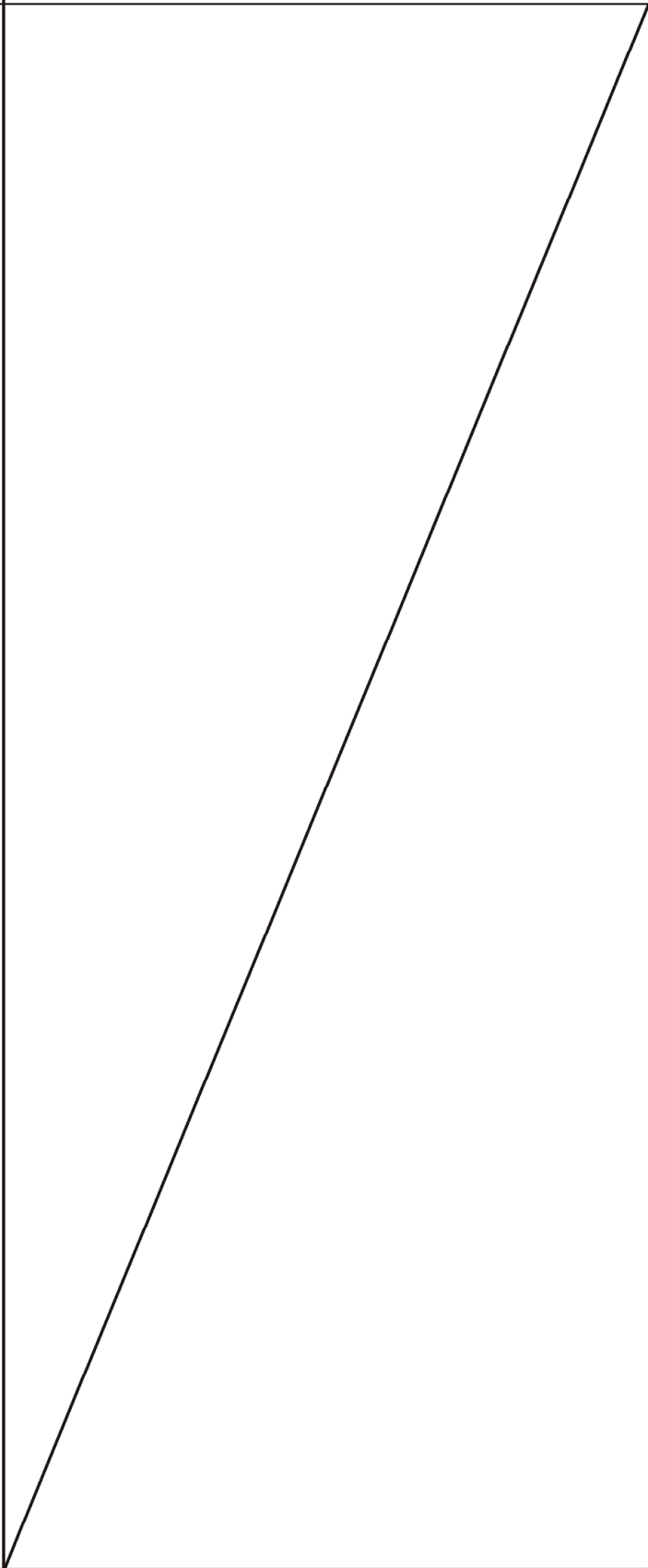


Combination 14B  
TS-T25-6,0 / R50



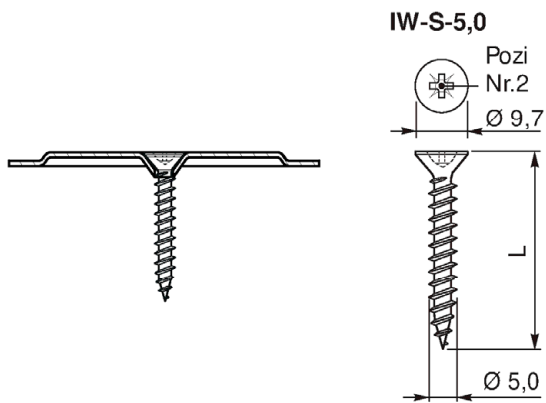
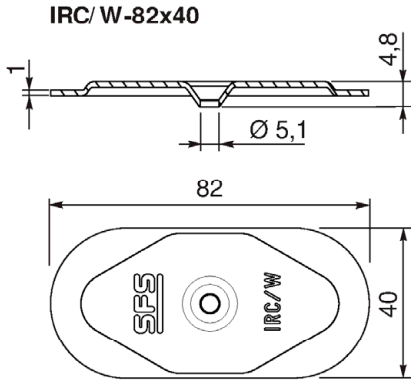
SFS Flat roof fasteners

Annex 14

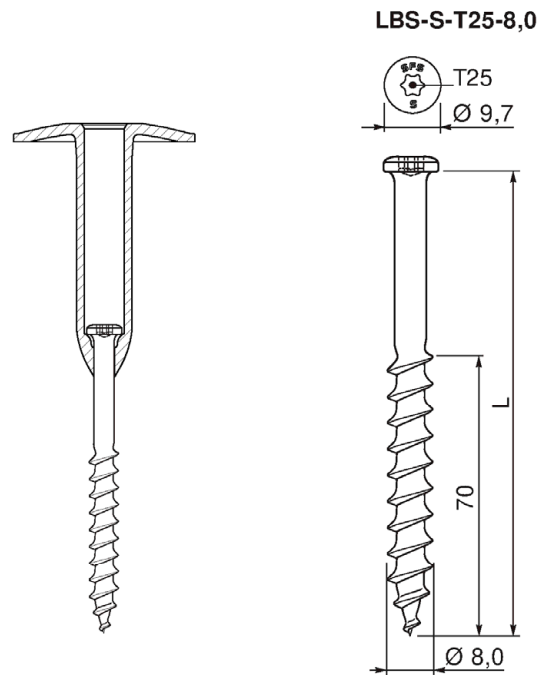
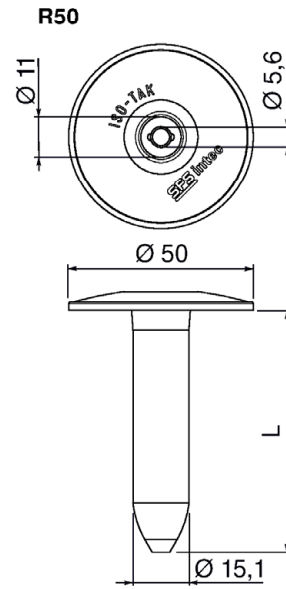
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<p>SFS Flat roof fasteners</p>	<p>Annex 15</p>



Combination 16A  
IW-S-5,0 / IRC/W-82x40



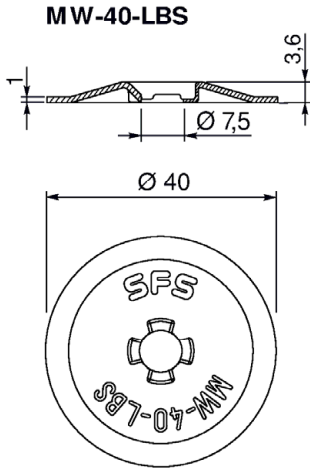
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LBS-S-T25-8,0 / R50



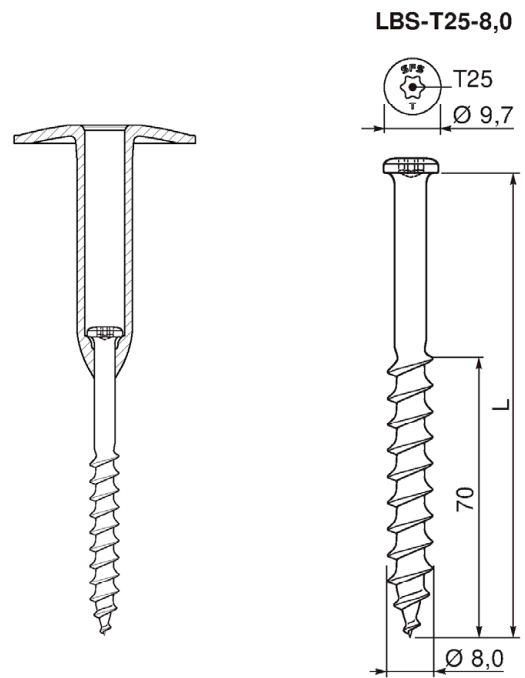
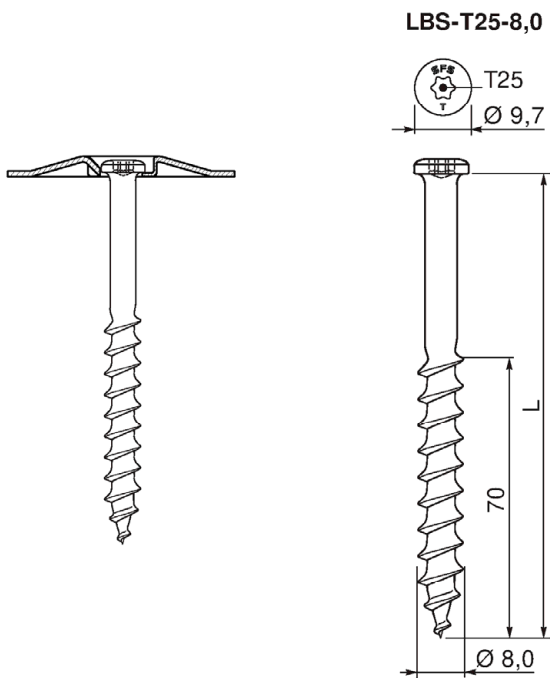
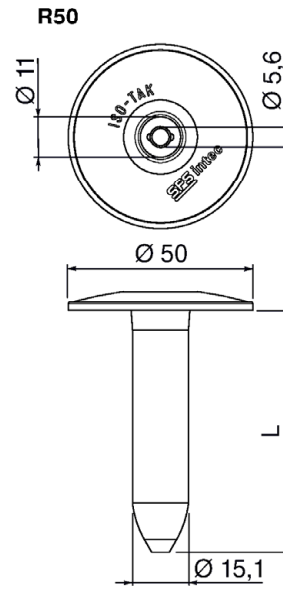
SFS Flat roof fasteners

Annex 16

Combination 17A  
LBS-T25-8,0 / MW-40-LBS



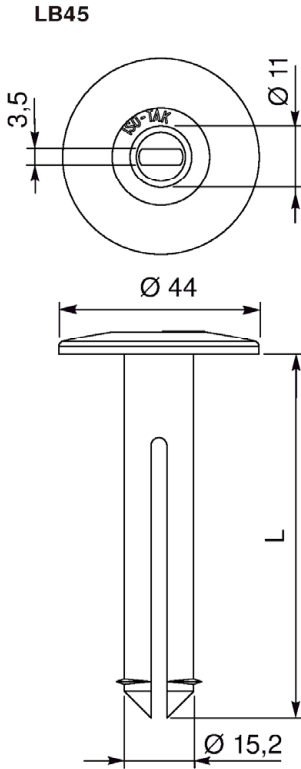
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LBS-T25-8,0 / R50



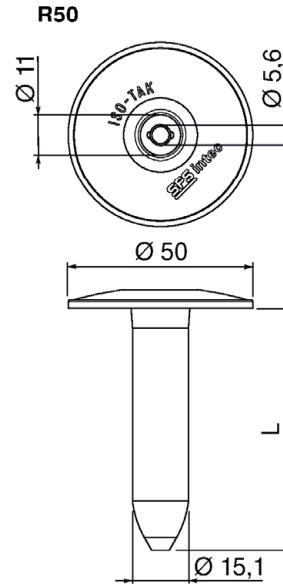
SFS Flat roof fasteners

Annex 17

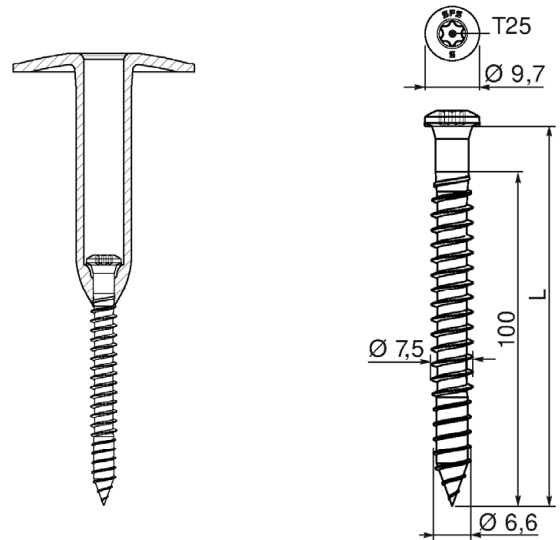
Combination 18A  
LB45



Combination 18B  
FB-S-T25-7,5 / R50


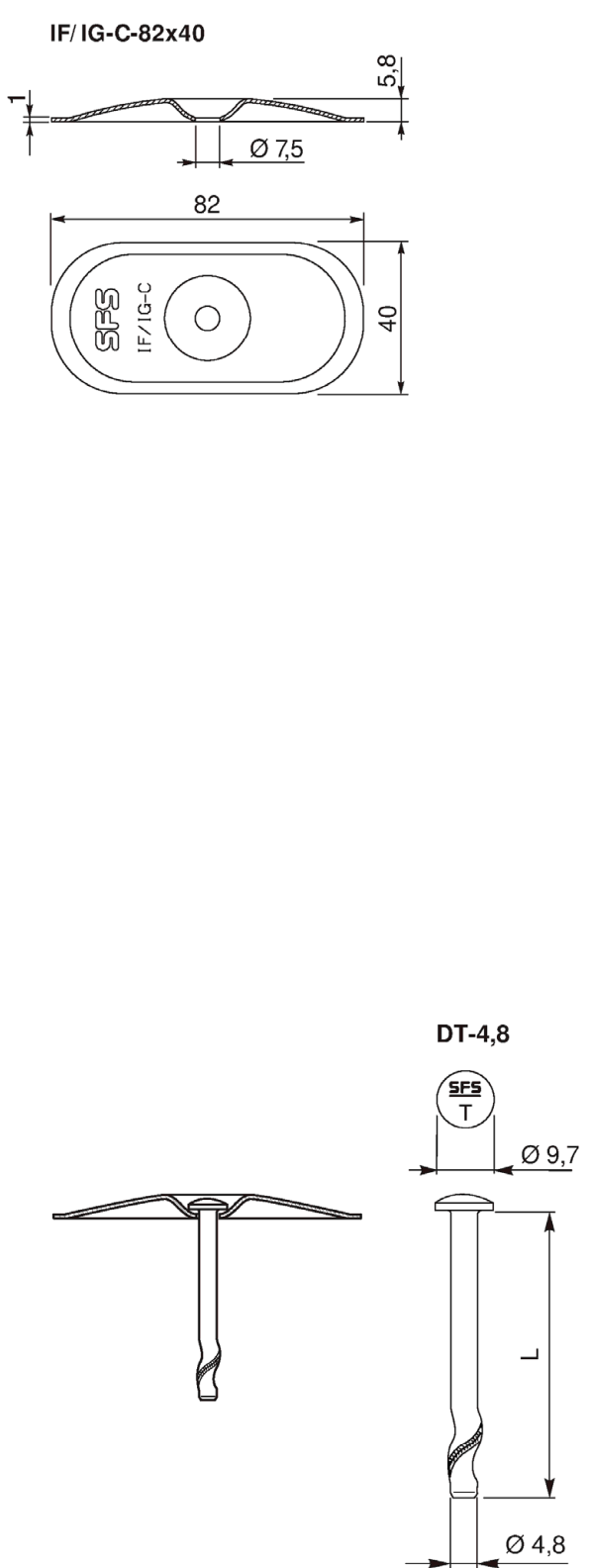


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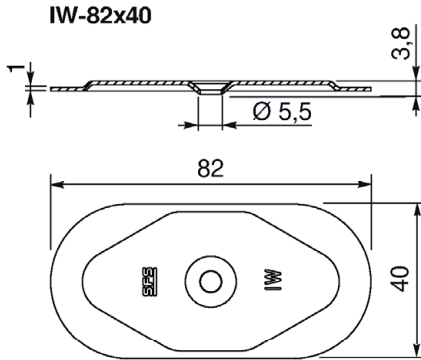


SFS Flat roof fasteners

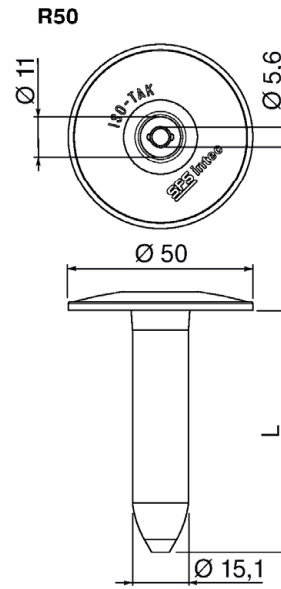
Annex 18

<p>Combination 19A DT-4,8 / IRD-82x40</p>	<p>Combination 19B DT-4,8 / IF/IG-C-82x40</p>
 <p><b>IRD-82x40</b></p> <p><b>DT-4,8</b></p>	 <p><b>IF/IG-C-82x40</b></p> <p><b>DT-4,8</b></p>
<p>SFS Flat roof fasteners</p>	<p>Annex 19</p>

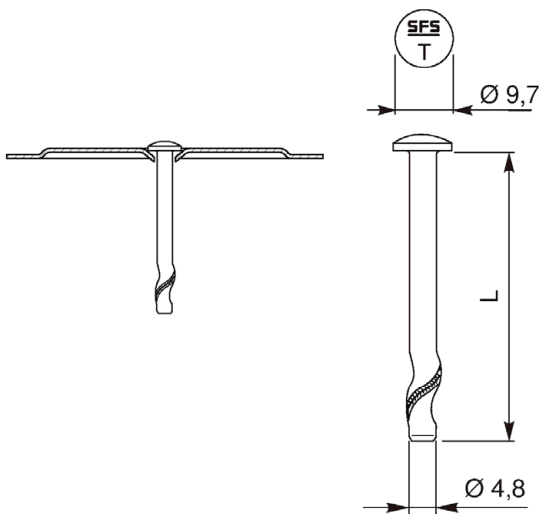
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DT-4,8 / IW-82x40



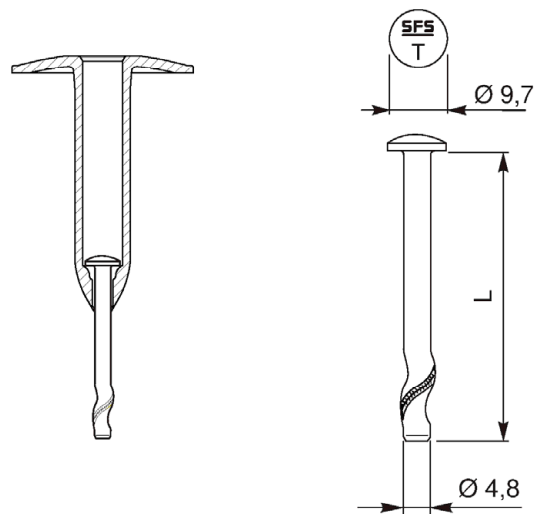
Combination 20B  
DT-4,8 / R50



DT-4,8



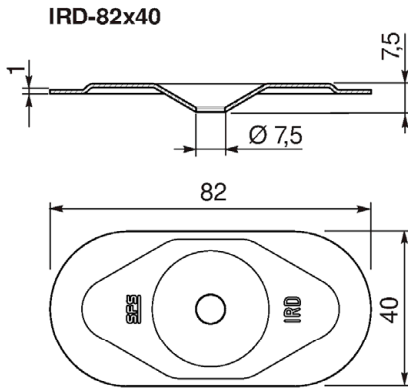
DT-4,8



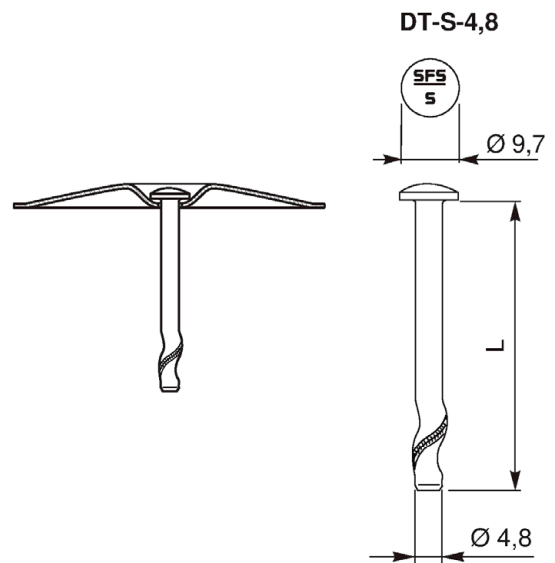
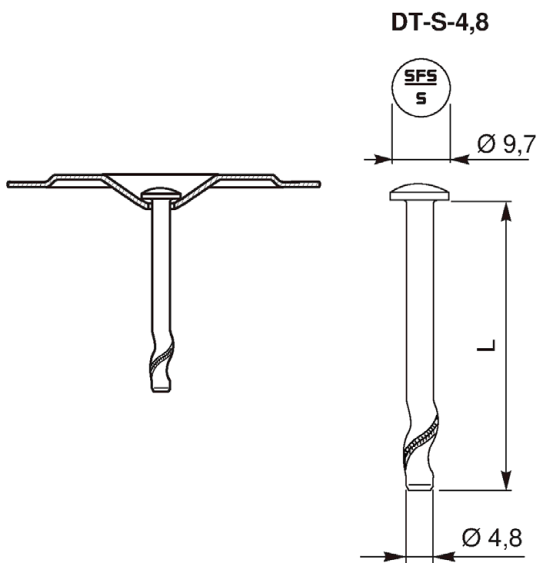
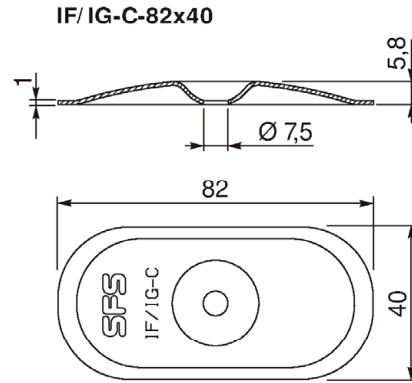
SFS Flat roof fasteners

Annex 20

Combination 21A  
DT-S-4,8 / IRD-82x40



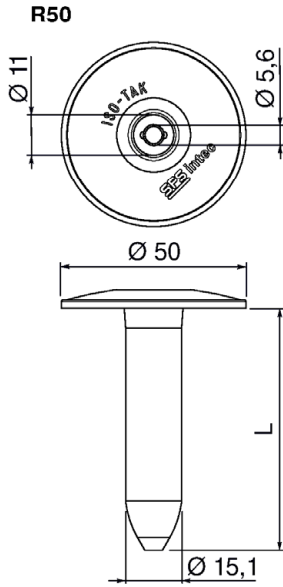
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DT-S-4,8 / IF/IG-C-82x40



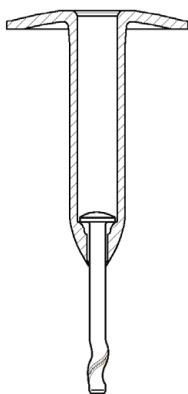
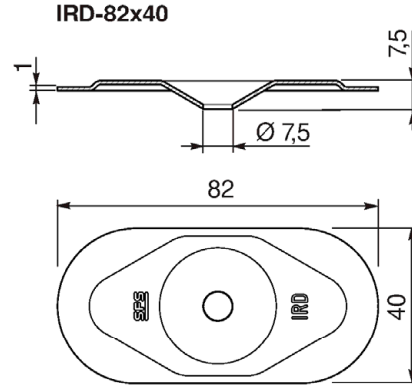
SFS Flat roof fasteners

Annex 21

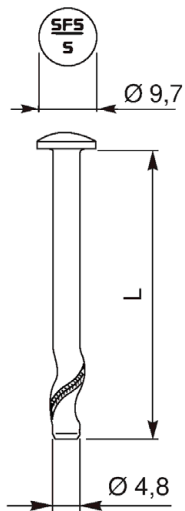
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DT-S-4,8 / R50



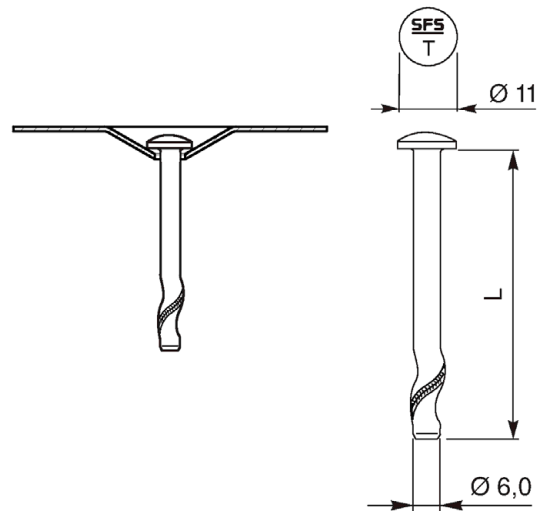
Combination 22B  
DT-6,3 / IRD-82x40



DT-S-4,8



DT-6,3



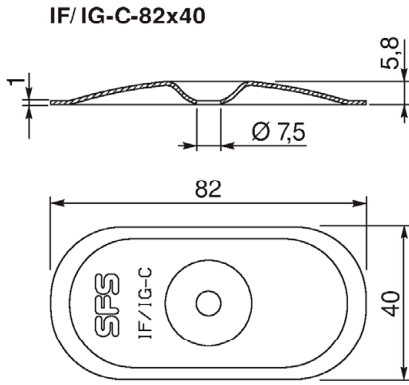
SFS Flat roof fasteners

Annex 22

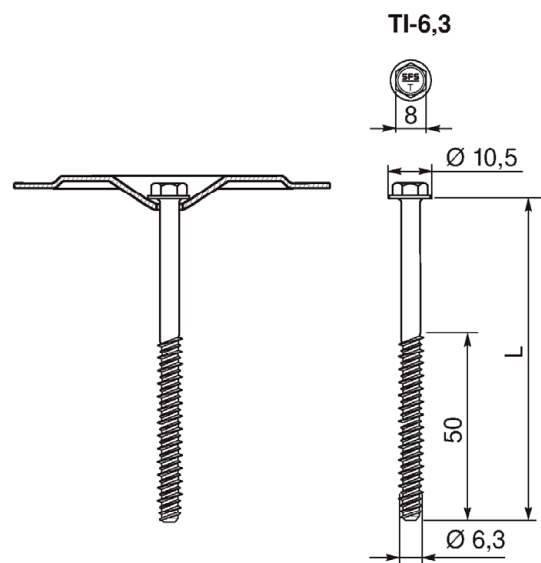
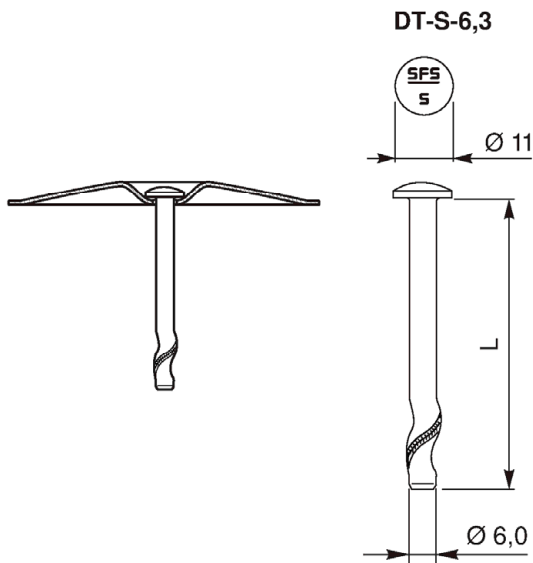
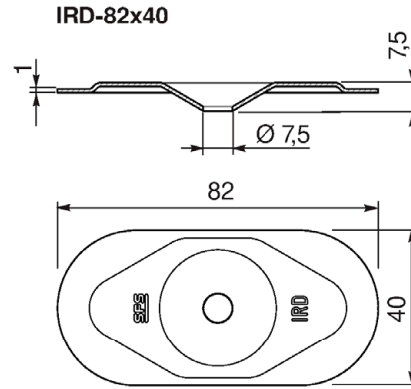
<p>Combination 23A DT-6,3 / IF/IG-C-82x40</p>	<p>Combination 23B DT-S-6,3 / IRD-82x40</p>
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>IF/IG-C-82x40</b></p> </div> <div style="text-align: center;"> <p><b>DT-6,3</b></p> </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>IRD-82x40</b></p> </div> <div style="text-align: center;"> <p><b>DT-S-6,3</b></p> </div> </div>
<p>SFS Flat roof fasteners</p>	<p>Annex 23</p>



Combination 24A  
DT-S-6,3 / IF/IG-C-82x40



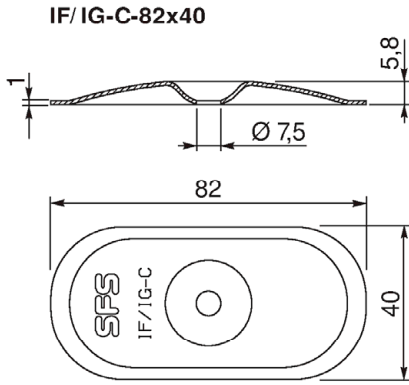
Combination 24B  
TI-6,3 / IRD-82x40



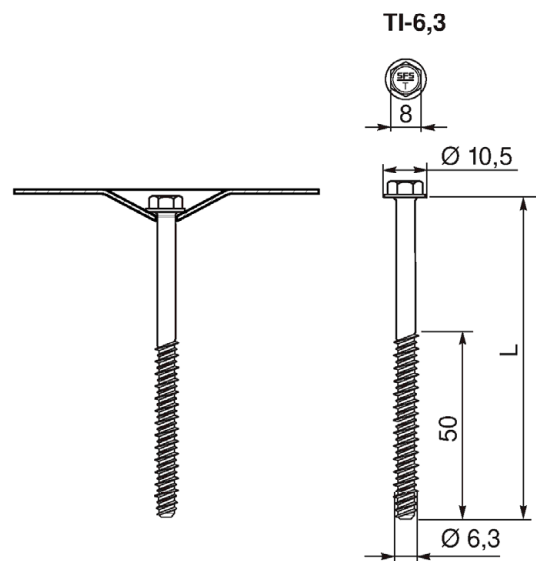
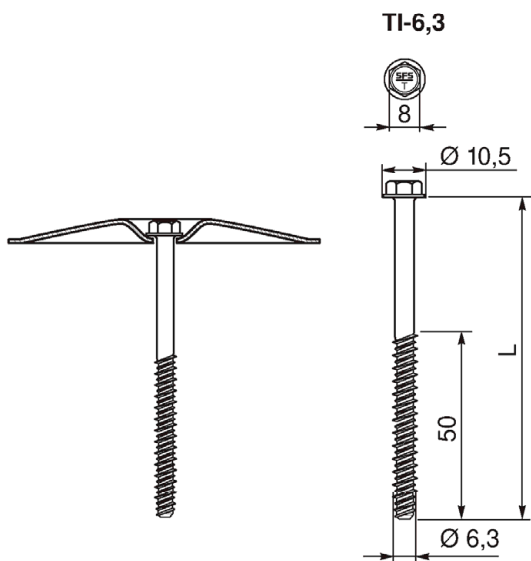
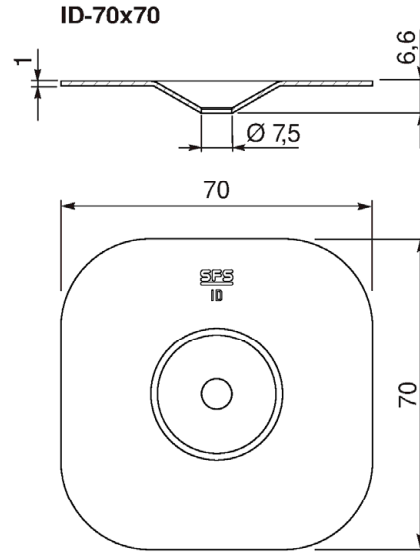
SFS Flat roof fasteners

Annex 24

Combination 25A  
TI-6,3 / IF/IG-C-82x40



Combination 25B  
TI-6,3 / ID-70x70



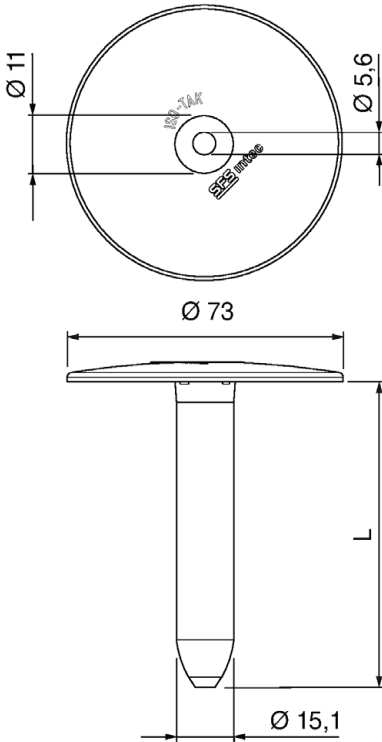
SFS Flat roof fasteners

Annex 25

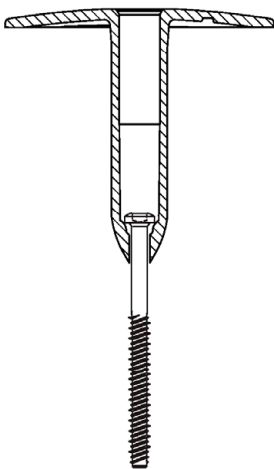
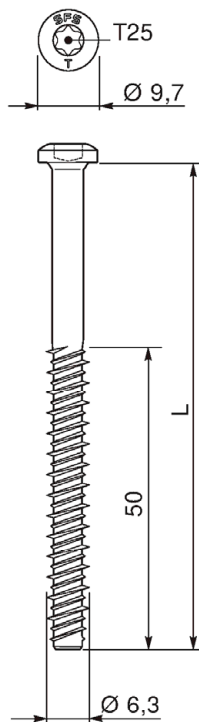
Combination 26A  
TI-T25-6,3 / R75

Combination 26B  
No longer in product range

R75



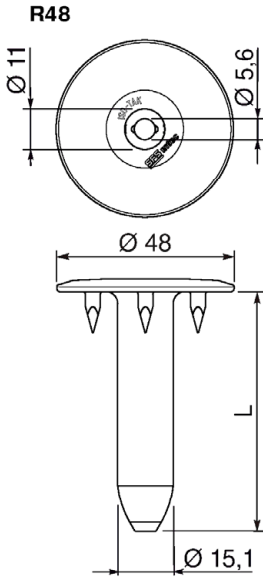
TI-T25-6,3



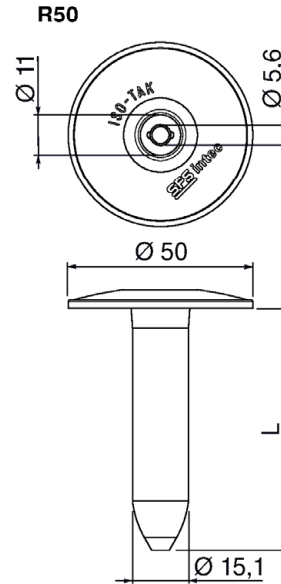
SFS Flat roof fasteners

Annex 26

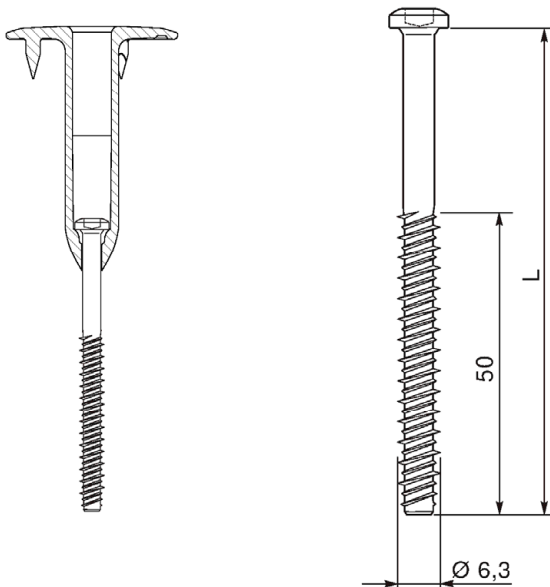
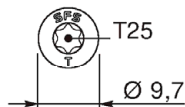
Combination 27A  
TI-T25-6,3 / R48



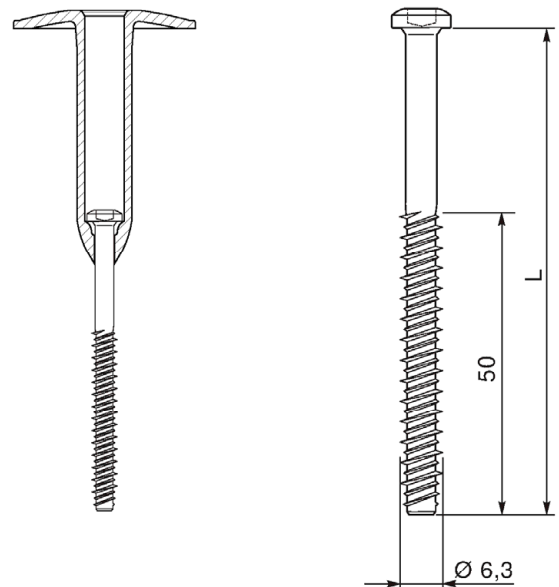
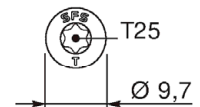
Combination 27B  
TI-T25-6,3 / R50



**TI-T25-6,3**



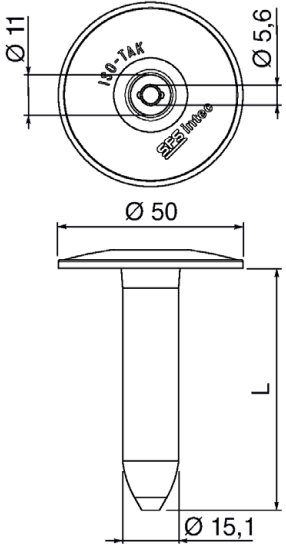
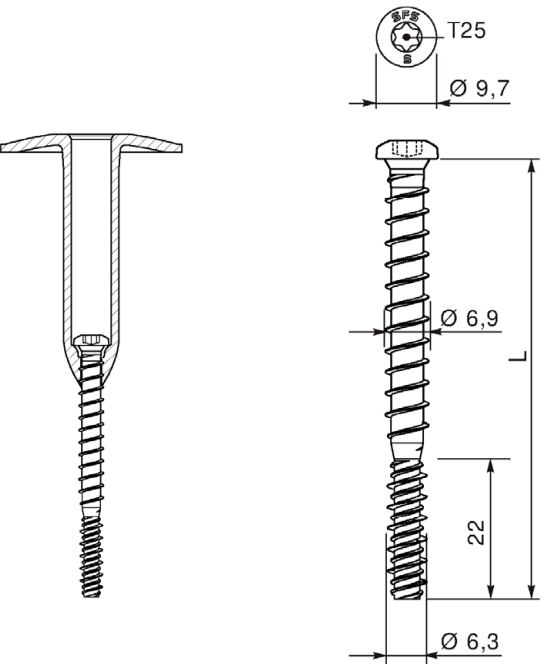
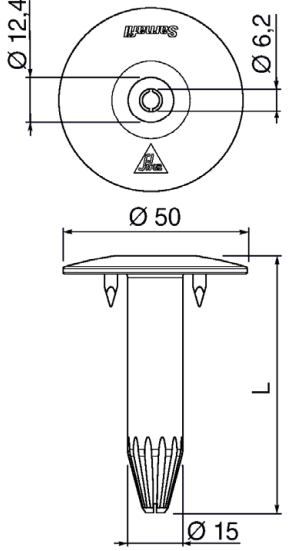
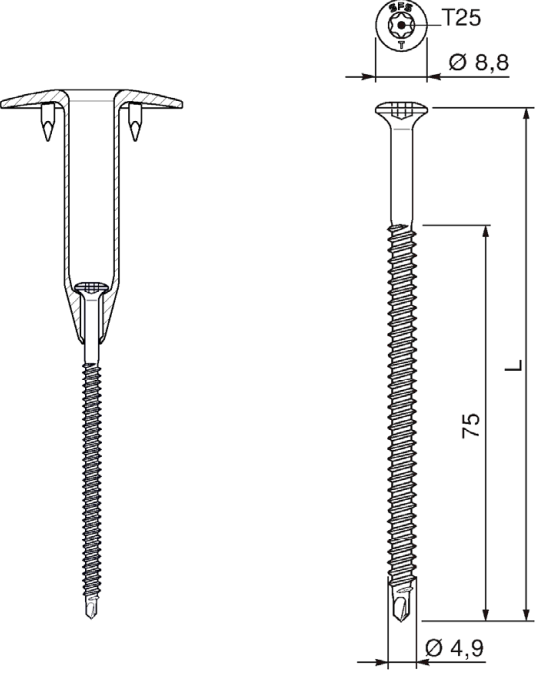
**TI-T25-6,3**



SFS Flat roof fasteners

Annex 27

English translation prepared by DIBt

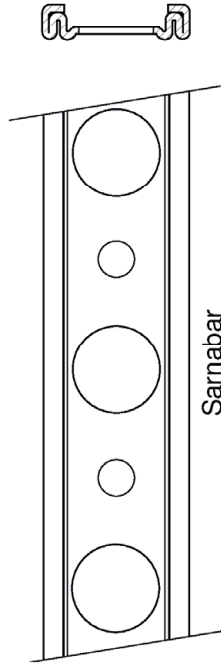
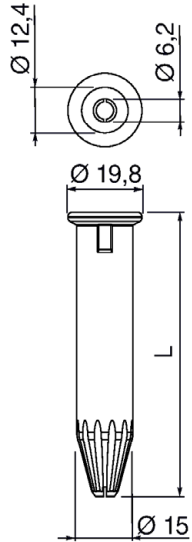
<p>Combination 28A TIA-T25-6,3 / R50</p>	<p>Combination 28B BS-4,8 / Sarnafast Tube SFT-50</p>
<p><b>R50</b></p>  <p><b>TIA-T25-6,3</b></p> 	<p><b>Sarnafast Tube SFT-50</b></p>  <p><b>BS-4,8</b></p> 
<p>SFS Flat roof fasteners</p>	<p>Annex 28</p>

Electronic copy of the ETA by DIBt: ETA-08/0262

English translation prepared by DIBt

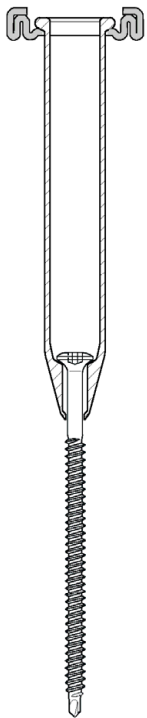
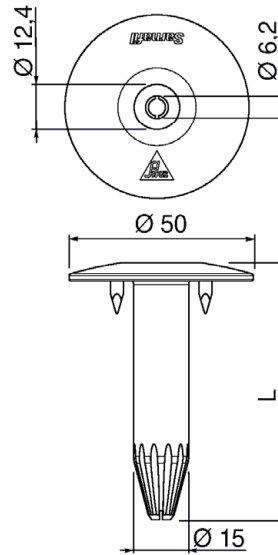
Combination 29A  
BS-4,8 / Sarnabar Tube SBT-20 / Sarnabar

**Sarnabar Tube  
SBT-20**

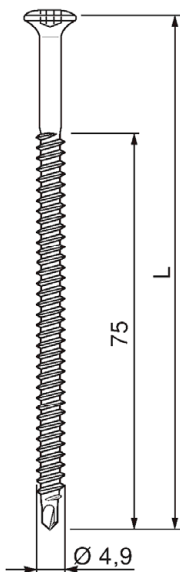
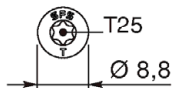


Combination 29B  
BS-S-4,8 / Sarnafast Tube SFT-50

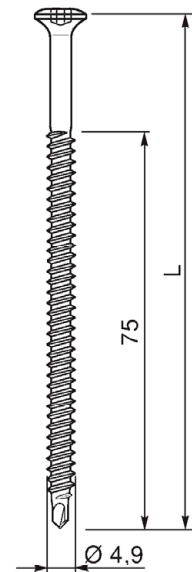
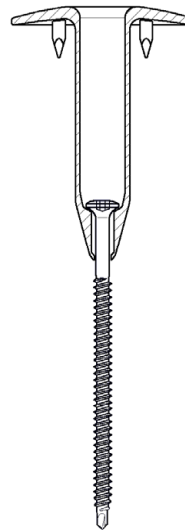
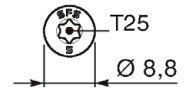
**Sarnafast  
Tube SFT-50**



**BS-4,8**



**BS-S-4,8**



SFS Flat roof fasteners

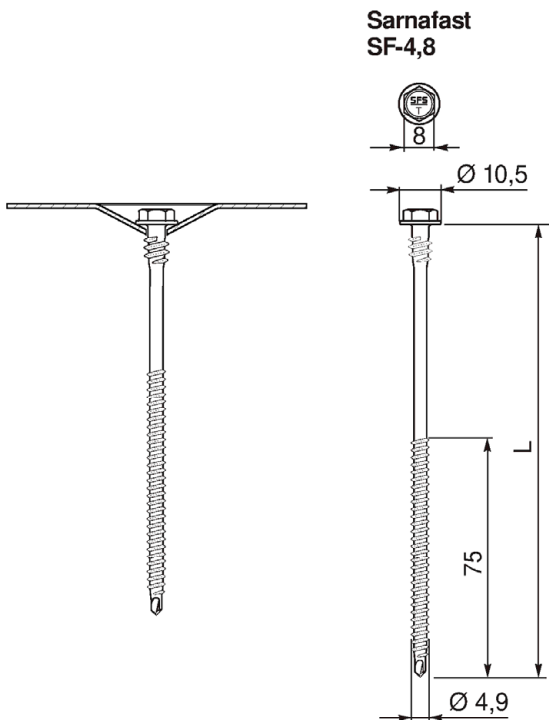
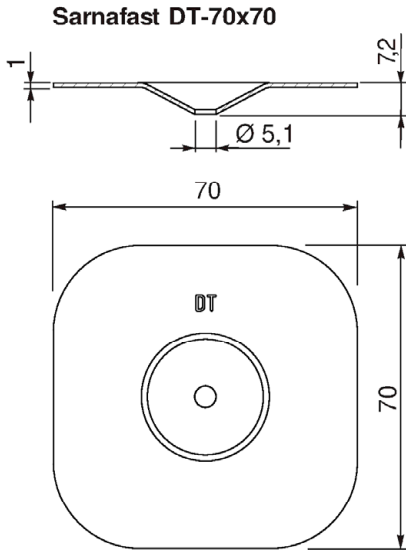
Annex 29

English translation prepared by DIBt

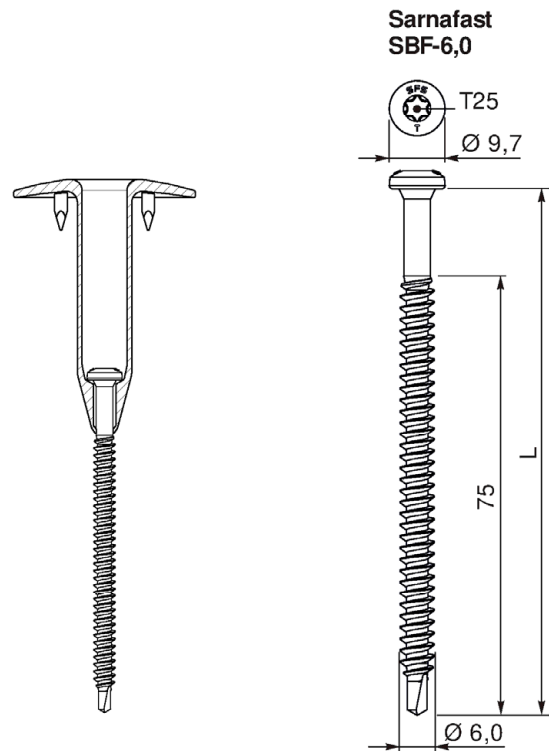
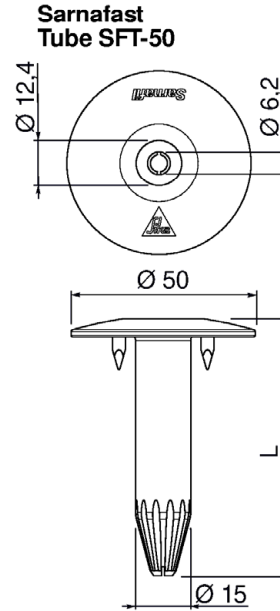
<p>Combination 30A BS-S-4,8 / Sarnabar Tube SBT-20 / Sarnabar</p>	<p>Combination 30B Sarnafast SF-4,8 / Sarnafast KT-82x40</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 30</p>

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Combination 31A  
Sarnafast SF-4,8 / Sarnafast DT-70x70



Combination 31B  
Sarnafast SBF-6,0 / Sarnafast Tube SFT-50



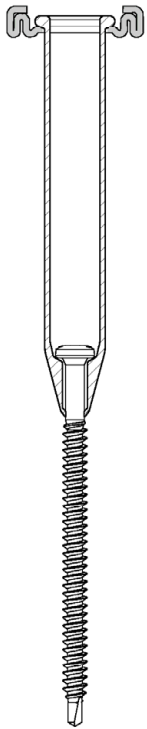
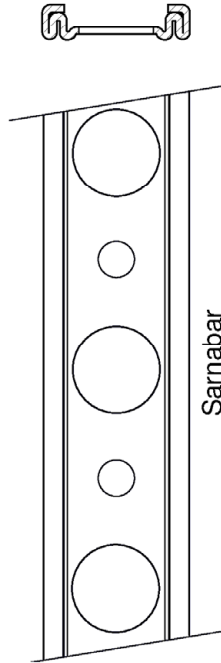
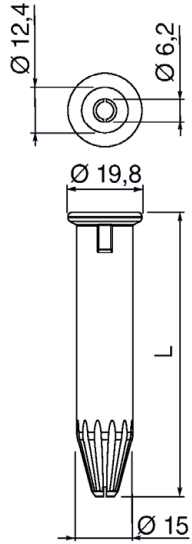
SFS Flat roof fasteners

Annex 31

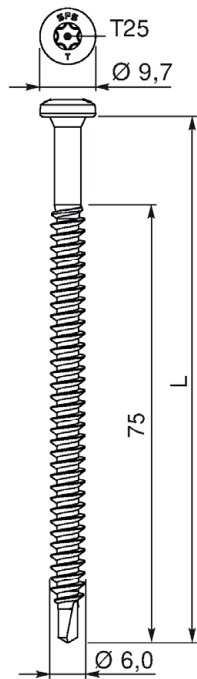


Combination 32A  
Sarnafast SBF-6,0 / Sarnabar Tube SBT-20 / Sarnabar

**Sarnabar Tube  
SBT-20**

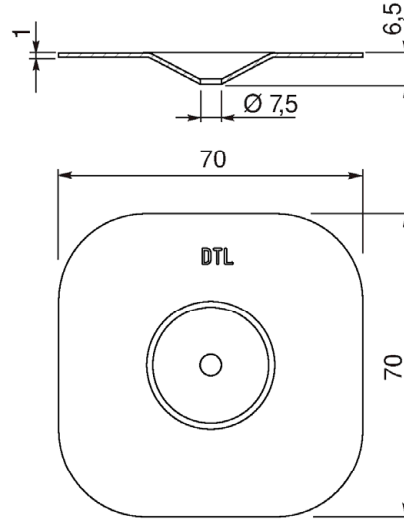


**Sarnafast  
SBF-6,0**

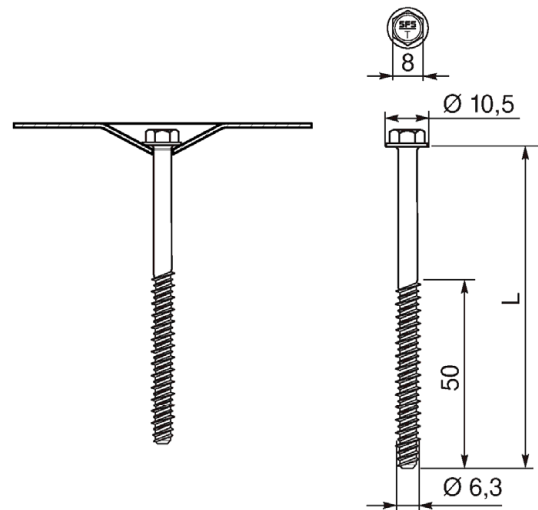


Combination 32B  
TI-6,3 / Sarnafast DTL-70x70

**Sarnafast DTL-70x70**



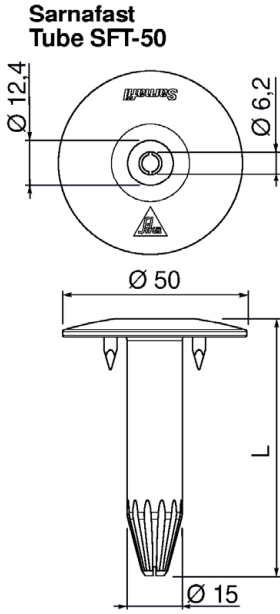
**TI-6,3**



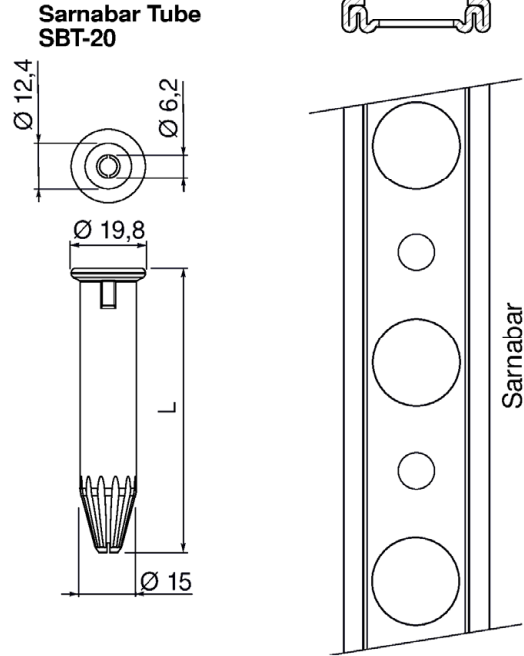
SFS Flat roof fasteners

Annex 32

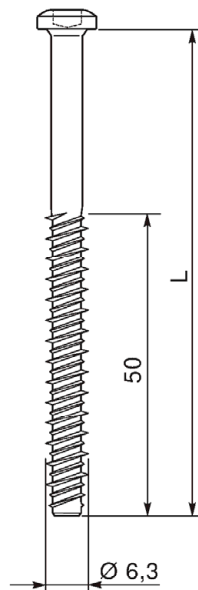
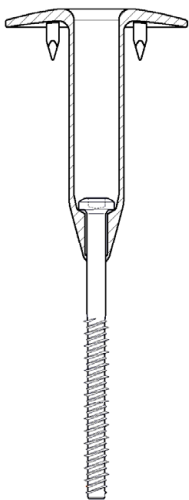
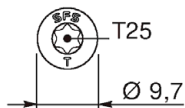
Combination 33A  
TI-T25-6,3 / Sarnafast Tube SFT-50



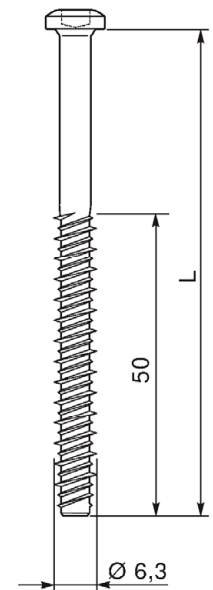
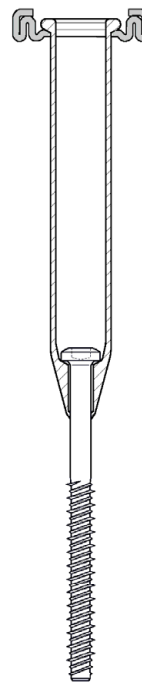
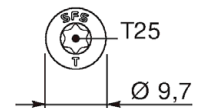
Combination 33B  
TI-T25-6,3 / Sarnabar Tube SBT-20 / Sarnabar



**TI-T25-6,3**



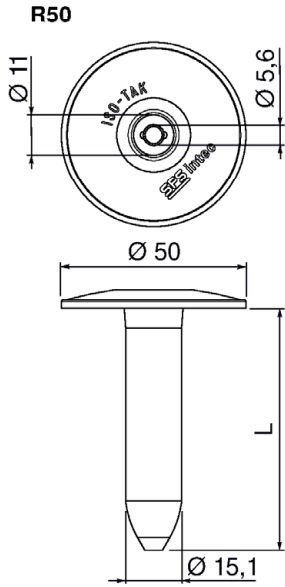
**TI-T25-6,3**



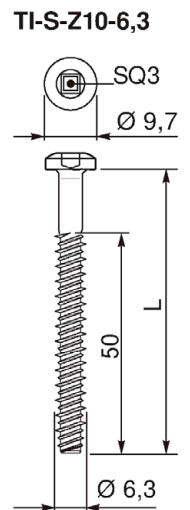
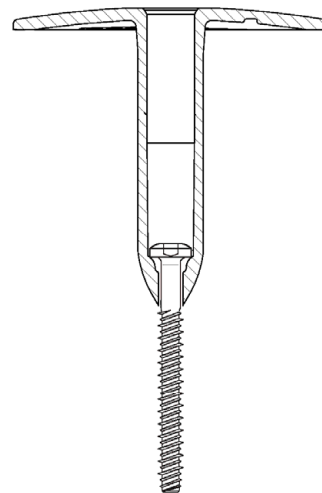
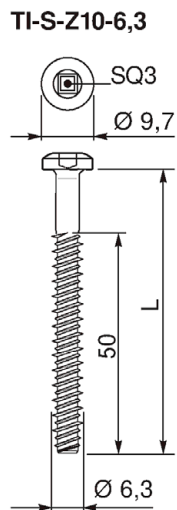
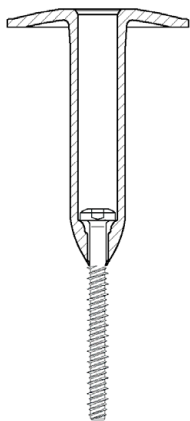
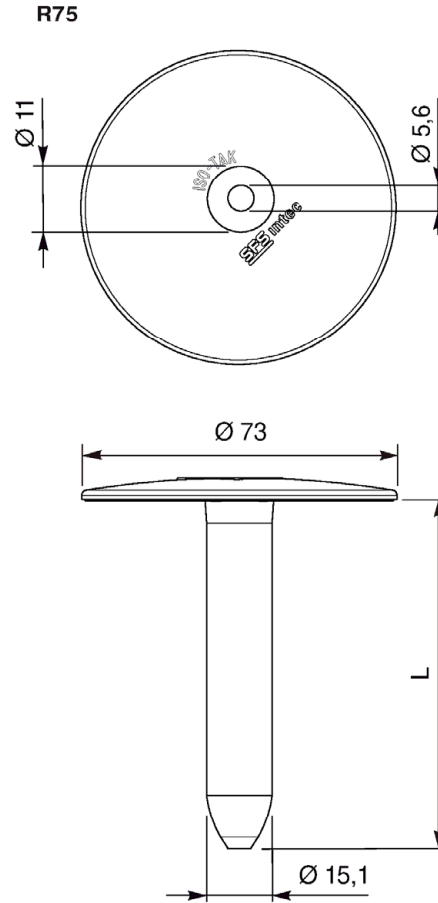
SFS Flat roof fasteners

Annex 33

Combination 34A  
TI-S-Z10-6,3 / R50



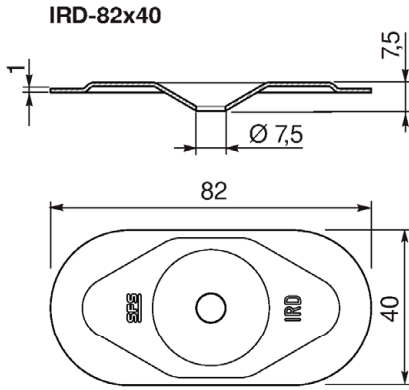
Combination 34B  
TI-S-Z10-6,3 / R75



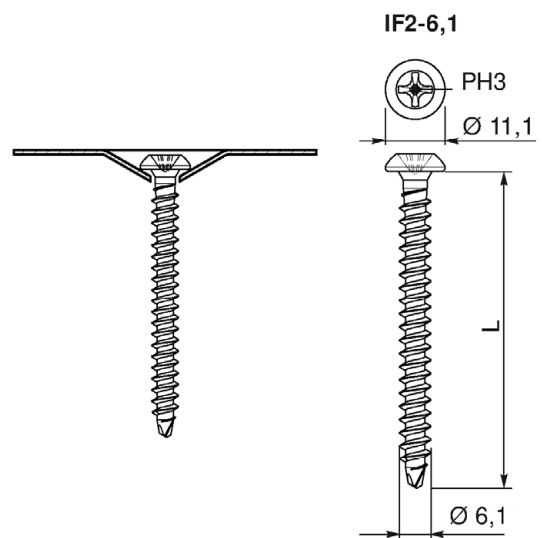
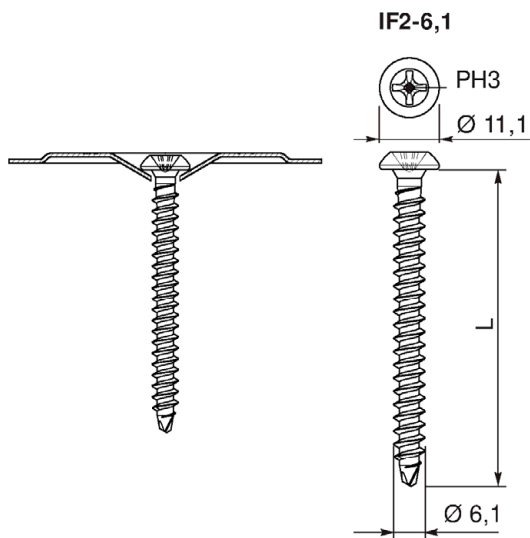
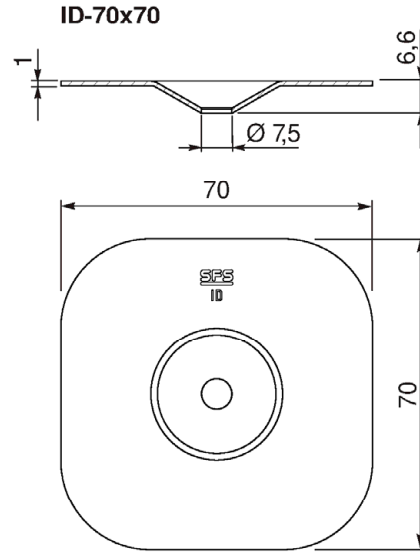
SFS Flat roof fasteners

Annex 34

Combination 35A  
IF2-6,1 / IRD-82x40



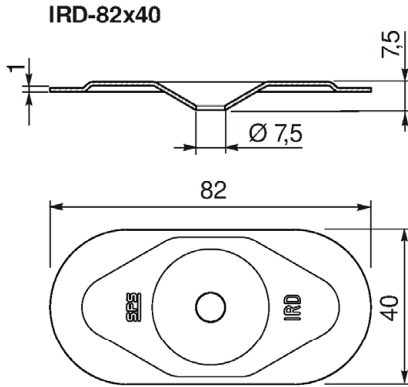
Combination 35B  
IF2-6,1 / ID-70x70



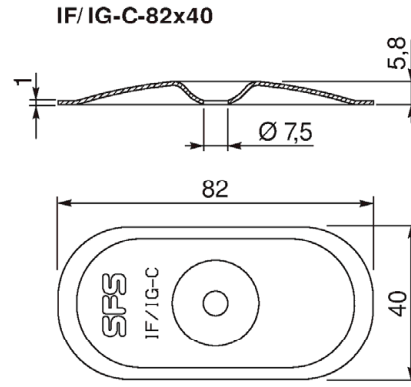
SFS Flat roof fasteners

Annex 35

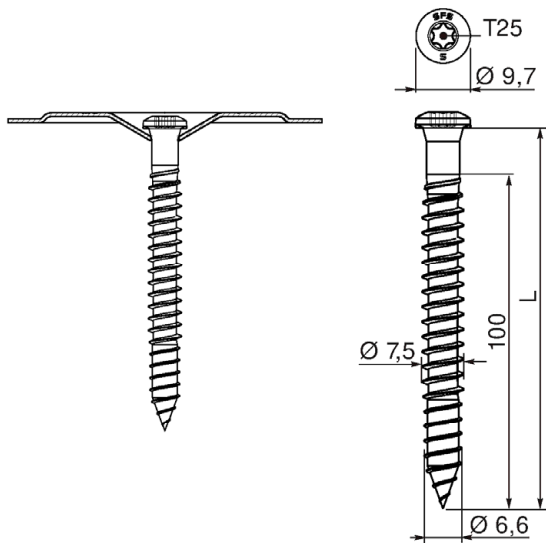
Combination 36A  
FB-S-T25-7,5 / IRD-82x40



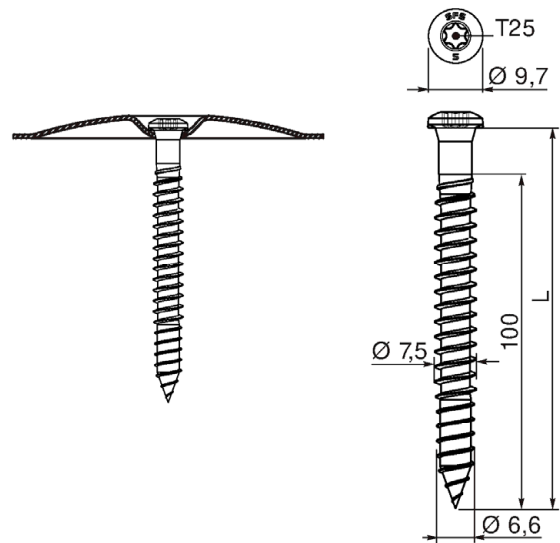
Combination 36B  
FB-S-T25-7,5 / IF/IG-C-82x40



FB-S-T25-7,5

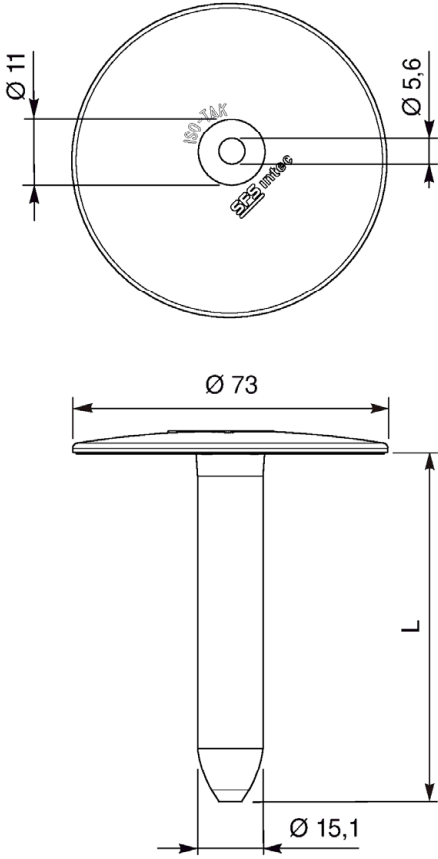
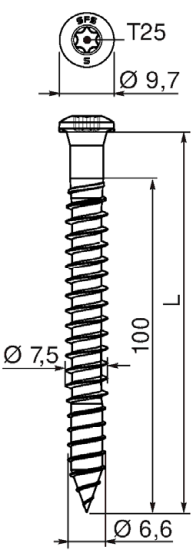
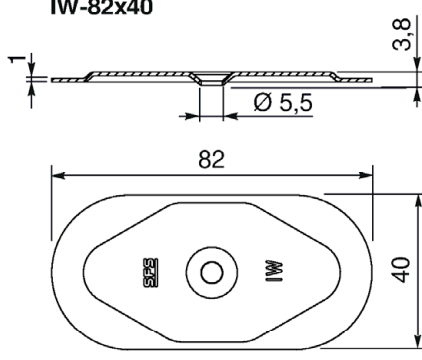
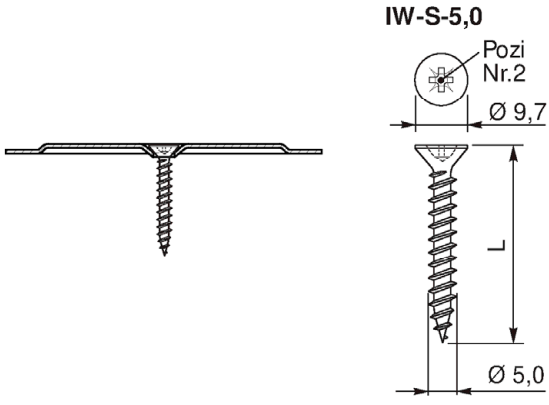


FB-S-T25-7,5



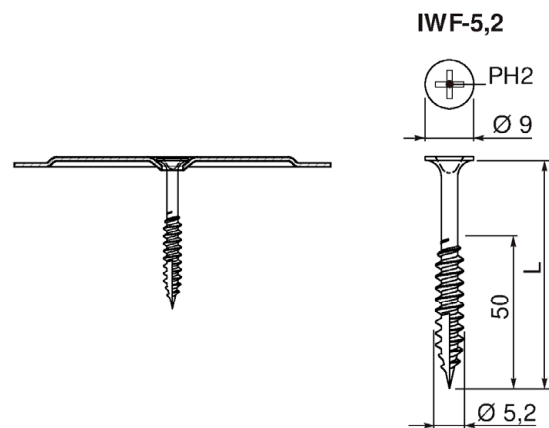
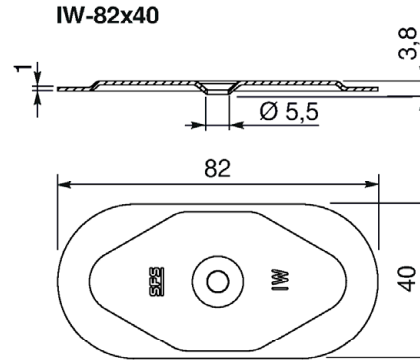
SFS Flat roof fasteners

Annex 36

<p>Combination 37A FB-S-T25-7,5 / R75</p> <p><b>R75</b></p>  <p><b>FB-S-T25-7,5</b></p> 	<p>Combination 37B IW-S-5,0 / IW-82x40</p> <p><b>IW-82x40</b></p>  <p><b>IW-S-5,0</b></p> 
<p>SFS Flat roof fasteners</p>	<p>Annex 37</p>

Combination 38A  
No longer in product range

Combination 38B  
IWF-5,2 / IW-82x40

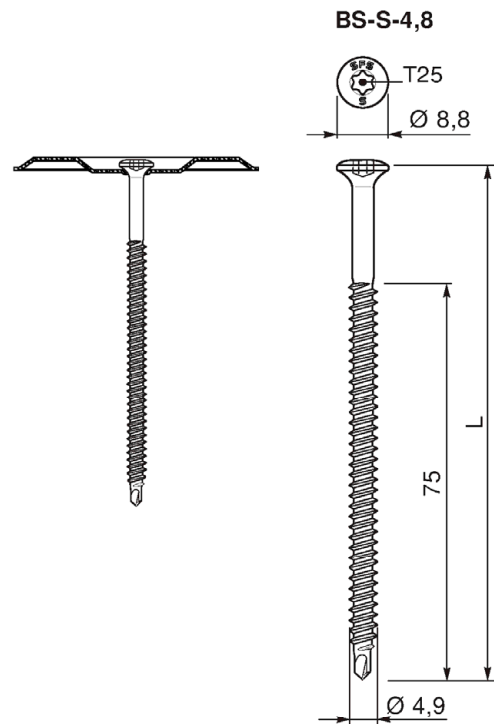
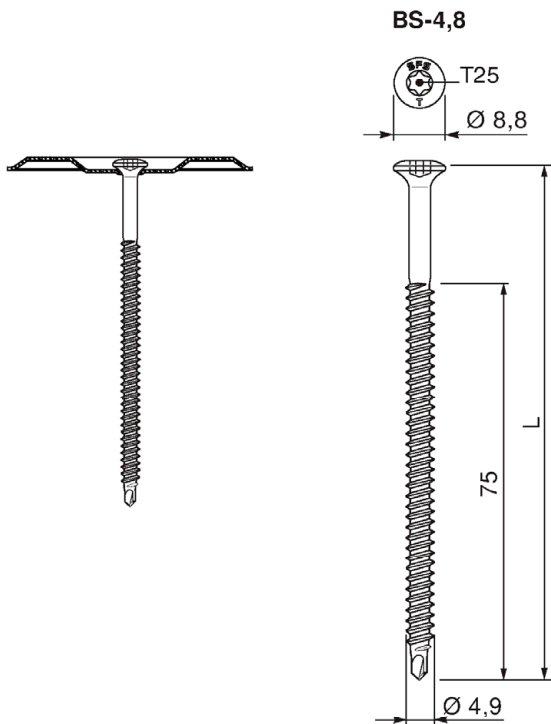
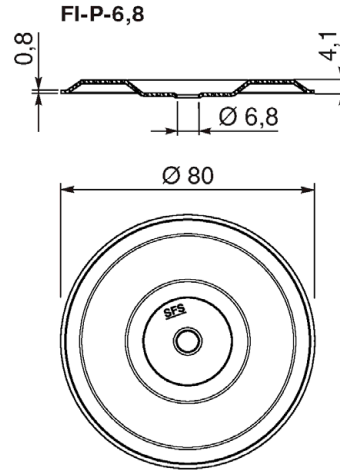
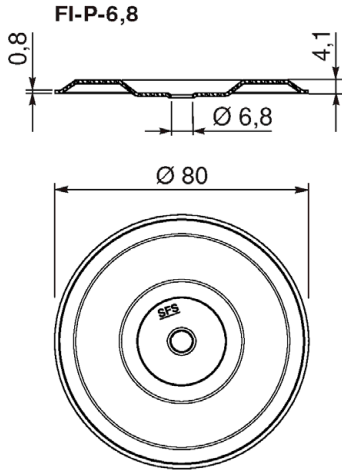


SFS Flat roof fasteners

Annex 38

Combination 39A  
BS-4,8 / FI-P-6,8

Combination 39B  
BS-S-4,8 / FI-P-6,8



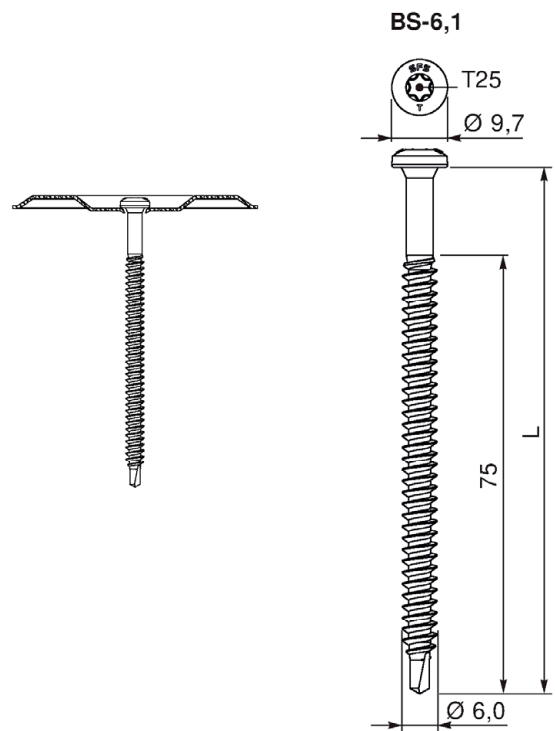
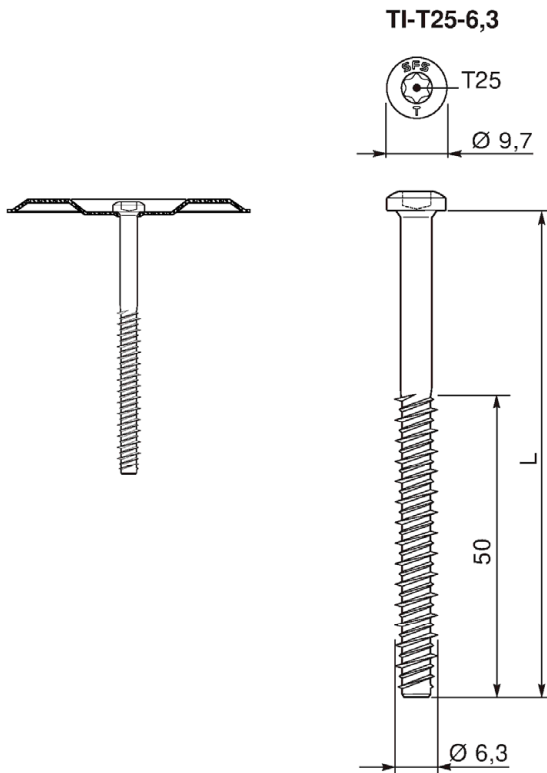
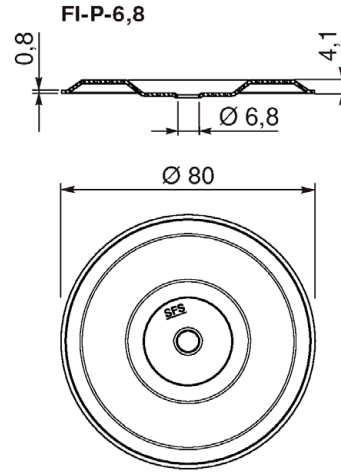
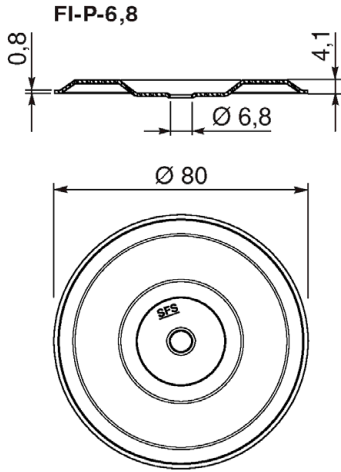
SFS Flat roof fasteners

Annex 39



Combination 40A  
TI-T25-6,3 / FI-P-6,8



Combination 40B  
BS-6,1 / FI-P-6,8



SFS Flat roof fasteners

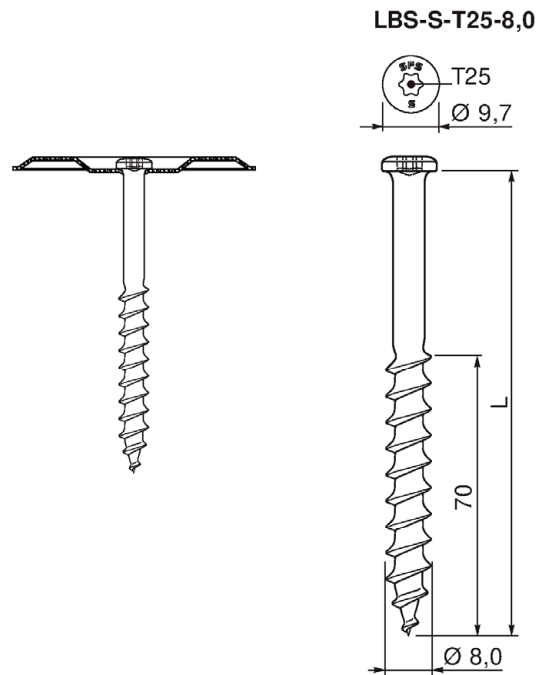
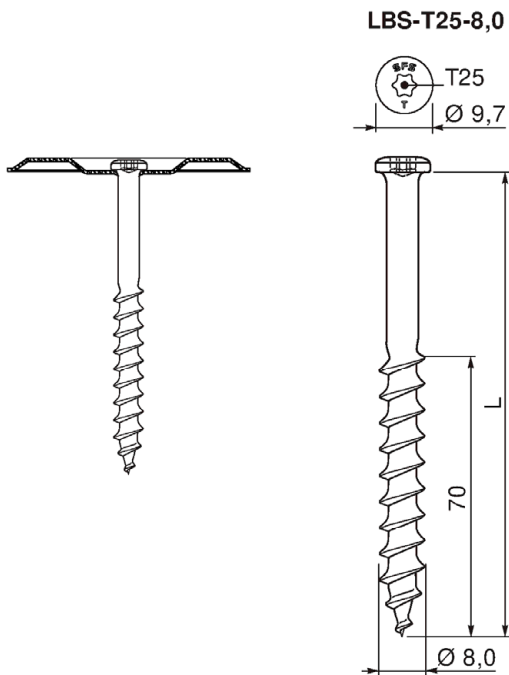
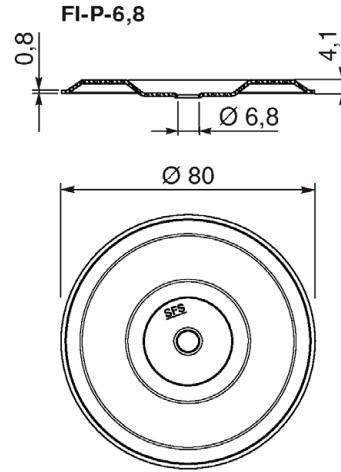
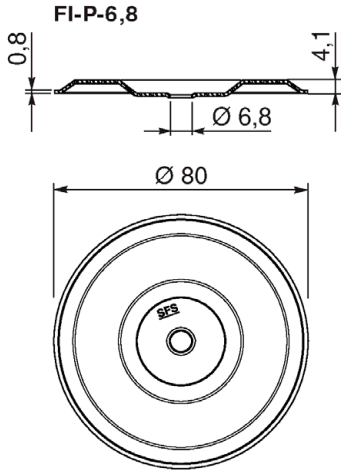
Annex 40

<p>Combination 41A DT-4,8 / FI-P-6,8</p>	<p>Combination 41B DT-S-4,8 / FI-P-6,8</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 41</p>

<p>Combination 42A DT-6,3 / FI-P-6,8</p>	<p>Combination 42B DT-S-6,3 / FI-P-6,8</p>
 <p>Technical drawing showing the head of the FI-P-6,8 fastener with dimensions: height 0,8, width 4,1, and diameter <math>\varnothing 6,8</math>. Below it is a top view of the head with an outer diameter of <math>\varnothing 80</math> and the SFS logo. To the right, the DT-6,3 fastener shaft is shown with a diameter of <math>\varnothing 11</math> at the top, a length <math>L</math>, and a diameter of <math>\varnothing 6,0</math> at the bottom. The SFS logo 'T' is visible on the top of the shaft.</p>	 <p>Technical drawing showing the head of the FI-P-6,8 fastener with dimensions: height 0,8, width 4,1, and diameter <math>\varnothing 6,8</math>. Below it is a top view of the head with an outer diameter of <math>\varnothing 80</math> and the SFS logo. To the right, the DT-S-6,3 fastener shaft is shown with a diameter of <math>\varnothing 11</math> at the top, a length <math>L</math>, and a diameter of <math>\varnothing 6,0</math> at the bottom. The SFS logo 'S' is visible on the top of the shaft.</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 42</p>

Combination 43A  
LBS-T25-8,0 / FI-P-6,8

Combination 43B  
LBS-S-T25-8,0 / FI-P-6,8

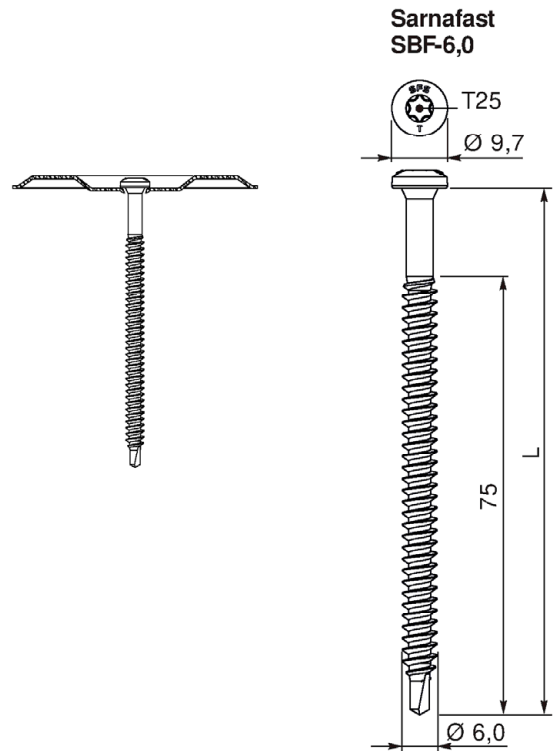
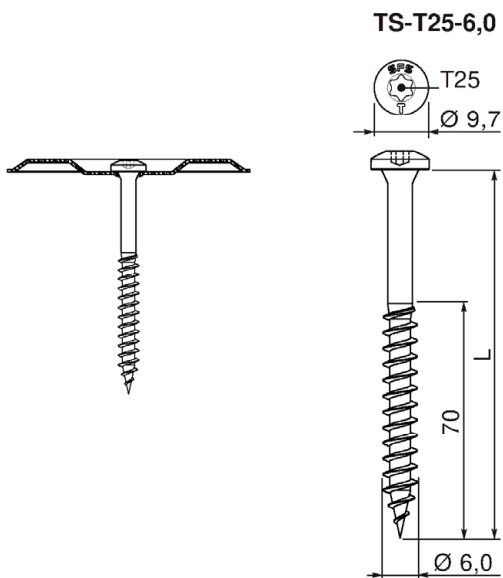
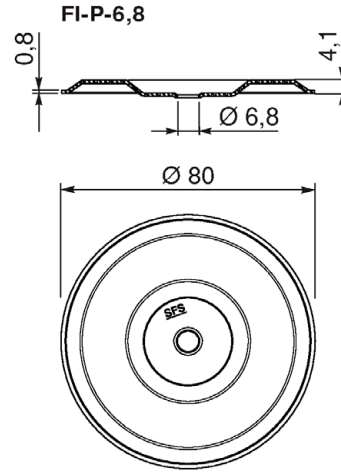
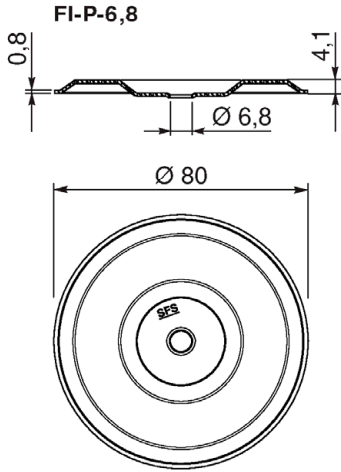


SFS Flat roof fasteners

Annex 43

Combination 44A  
TS-T25-6,0 / FI-P-6,8

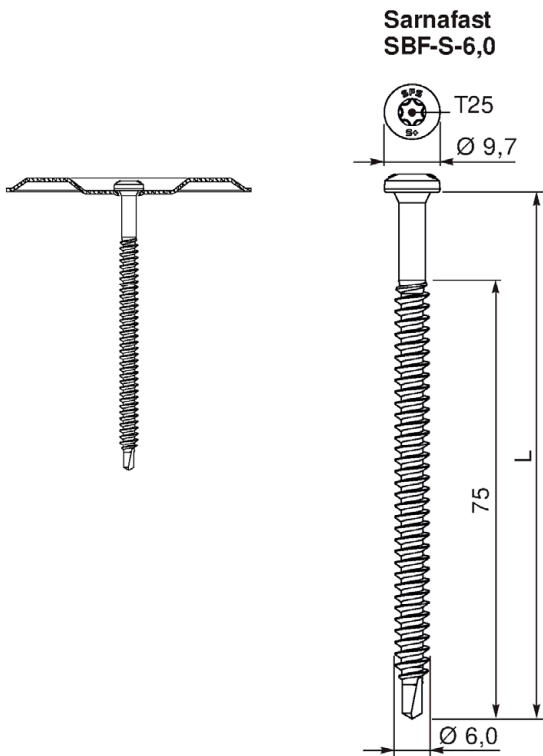
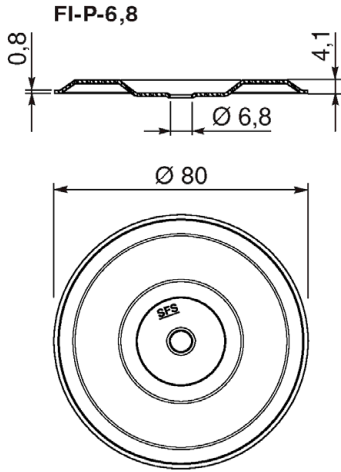
Combination 44B  
Sarnafast SBF-6,0 / FI-P-6,8



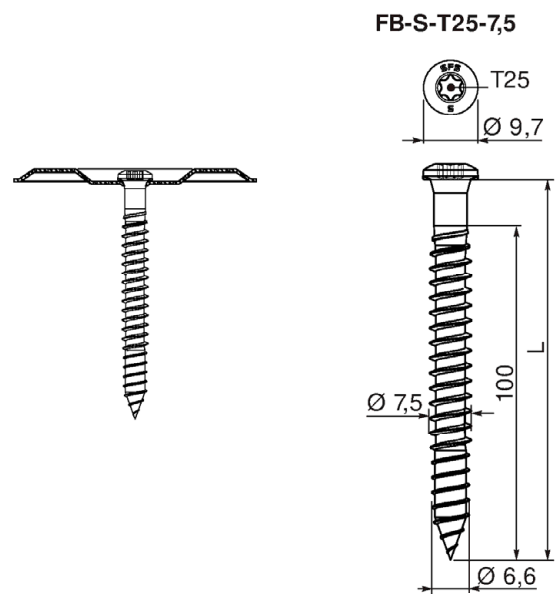
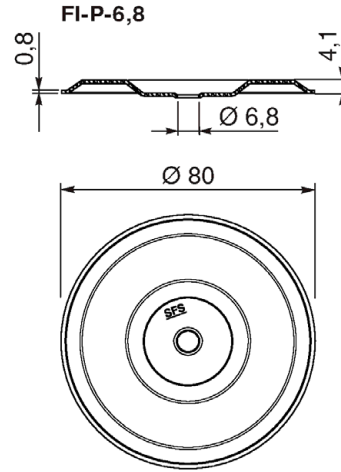
SFS Flat roof fasteners

Annex 44

Combination 45A  
Sarnafast SBF-S-6,0 / FI-P-6,8



Combination 45B  
FB-S-T25-7,5 / FI-P-6,8



SFS Flat roof fasteners

Annex 45

English translation prepared by DIBt

<p>Combination 46A BS-4,8 / FI-P-16,0 / FI-R-20</p>	<p>Combination 46B BS-S-4,8 / FI-P-16,0 / FI-R-20</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 46</p>

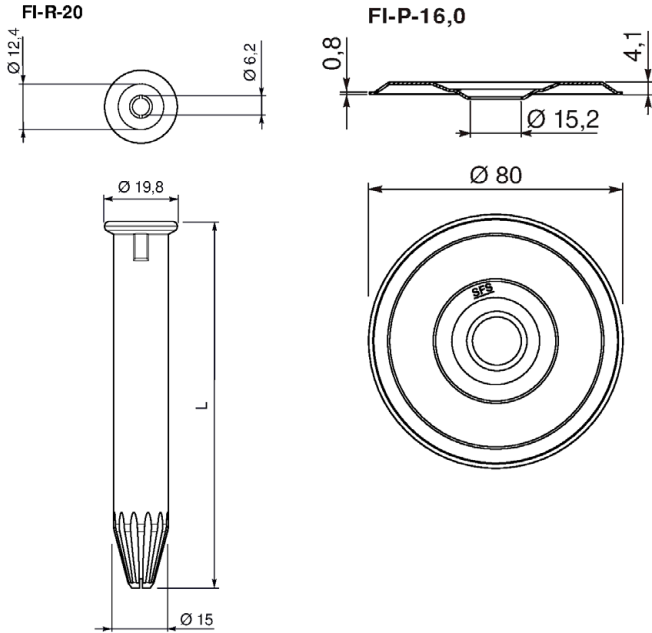
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<p>Combination 47A TI-T25-6,3 / FI-P-16,0 / FI-R-20</p>	<p>Combination 47B BS-6,1 / FI-P-16,0 / FI-R-20</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 47</p>

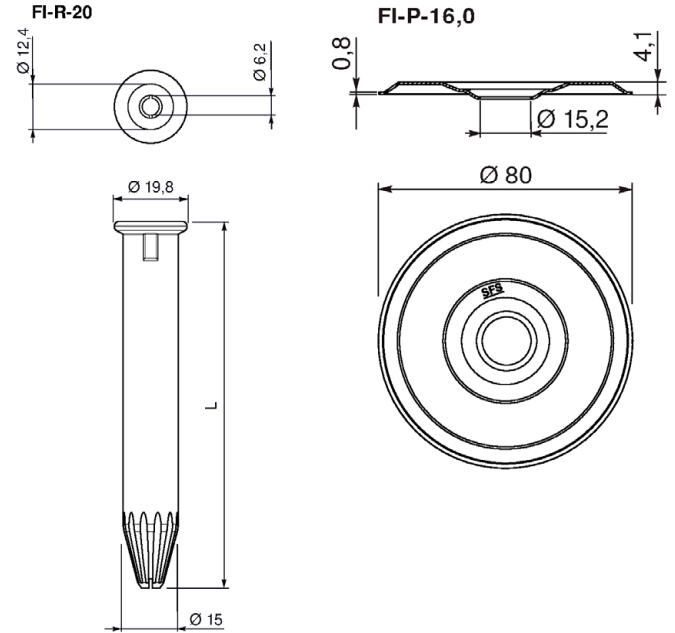


<p>Combination 48A DT-4,8 / FI-P-16,0 / FI-R-20</p>	<p>Combination 48B DT-S-4,8 / FI-P-16,0 / FI-R-20</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 48</p>

Combination 49A  
TS-T25-6,0 / FI-P-16,0 / FI-R-20



Combination 49B  
Sarnafast SBF-6,0 / FI-P-16,0 / FI-R-20



SFS Flat roof fasteners

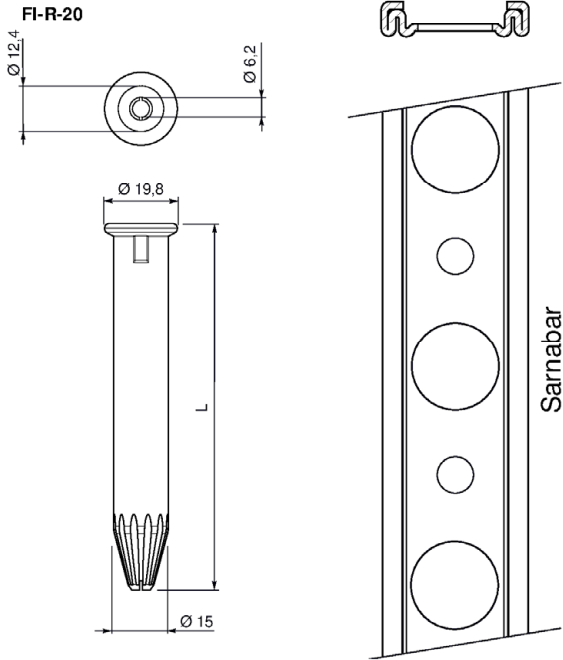
Annex 49

English translation prepared by DIBt

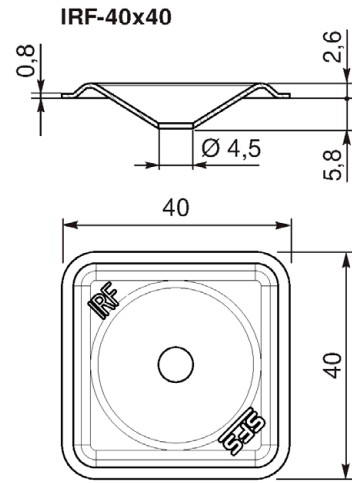
<p>Combination 50A Sarnafast SBF-S-6,0 / FI-P-16,0 / FI-R-20</p>	<p>Combination 50B TIA-T25-6,3 / FI-P-16,0 / FI-R-20</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 50</p>

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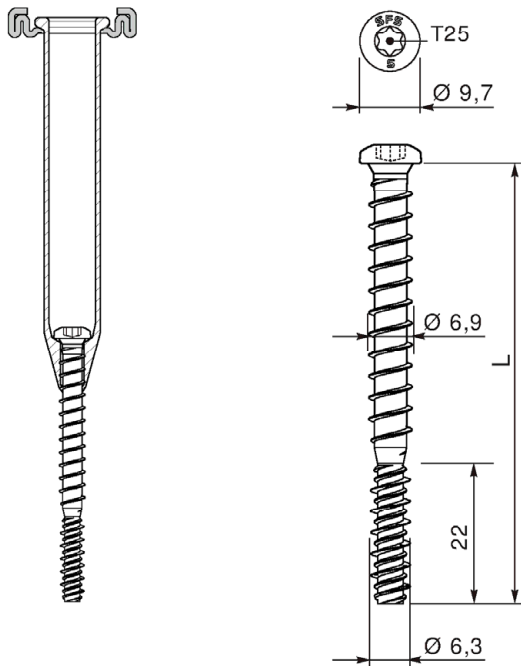
Combination 51A  
TIA-T25-6,3 / FI-R-20 / Sarnabar



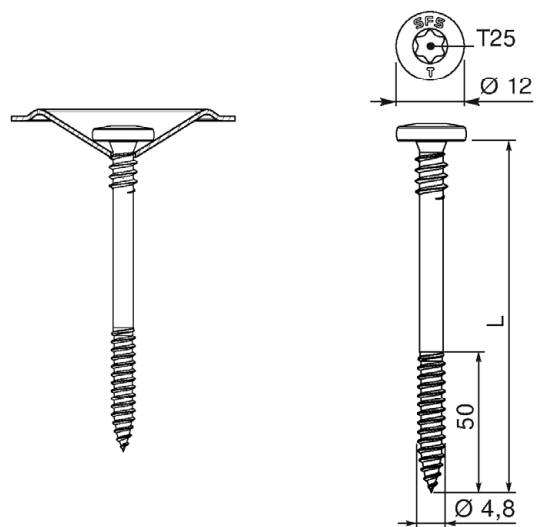
Combination 51B  
IRF-4,8 / IRF-40x40



TIA-T25-6,3



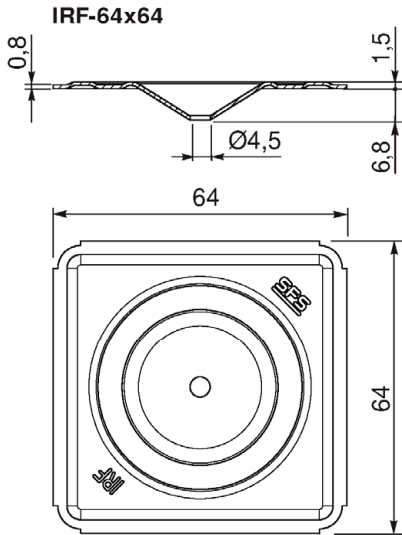
IRF-4,8



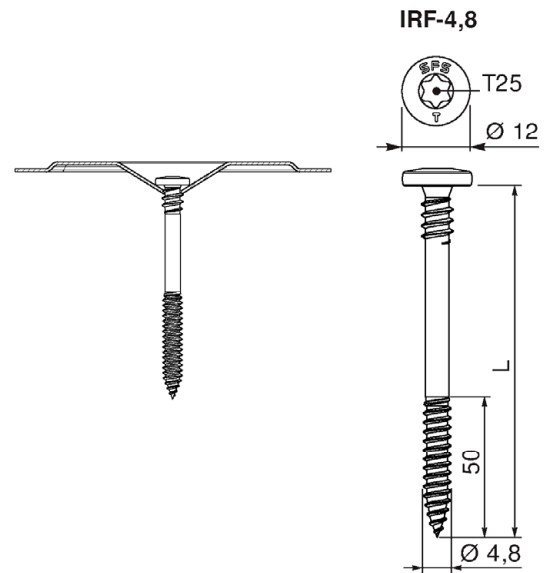
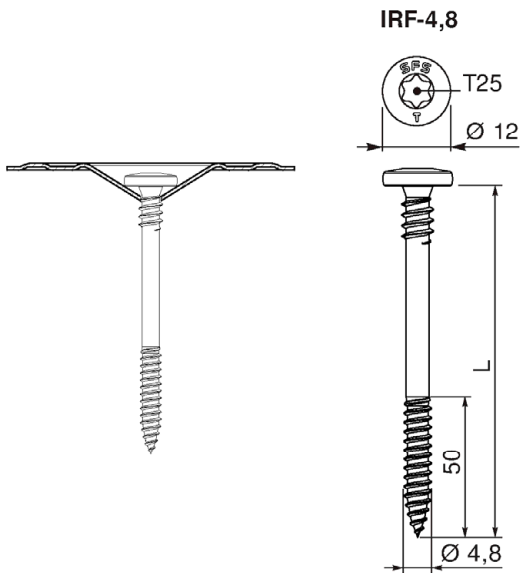
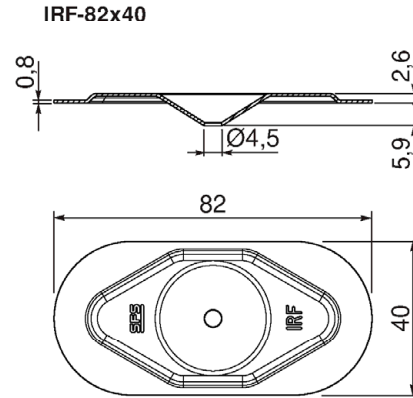
SFS Flat roof fasteners

Annex 51

Combination 52A  
IRF-4,8 / IRF-64x64



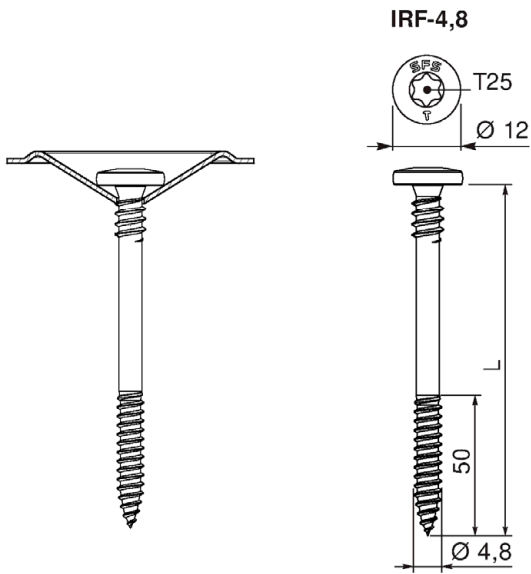
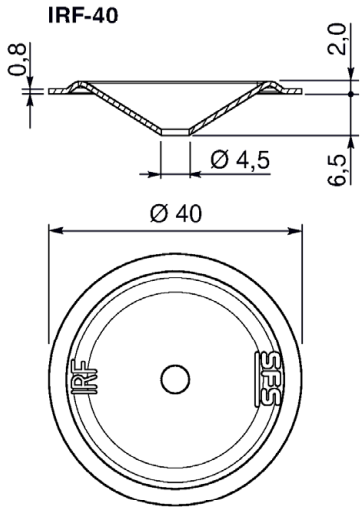
Combination 52B  
IRF-4,8 / IRF-82x40



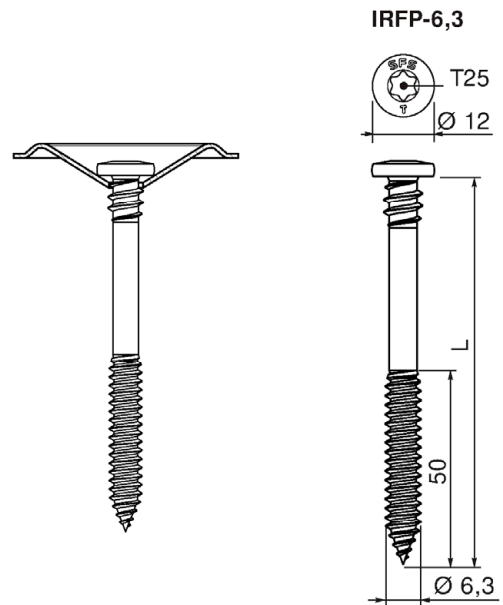
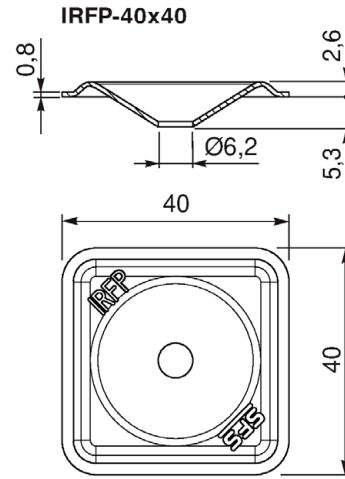
SFS Flat roof fasteners

Annex 52

Combination 53A  
IRF-4,8 / IRF-40



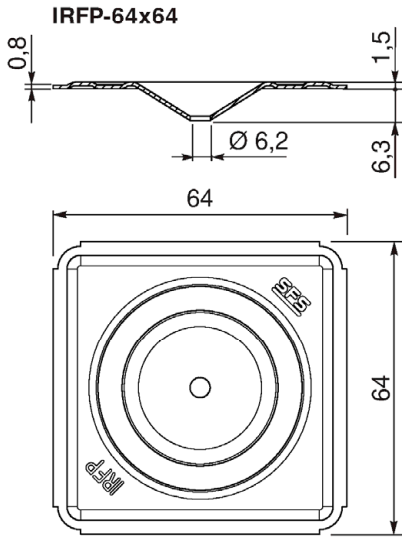
Combination 53B  
IRFP-6,3 / IRFP-40x40



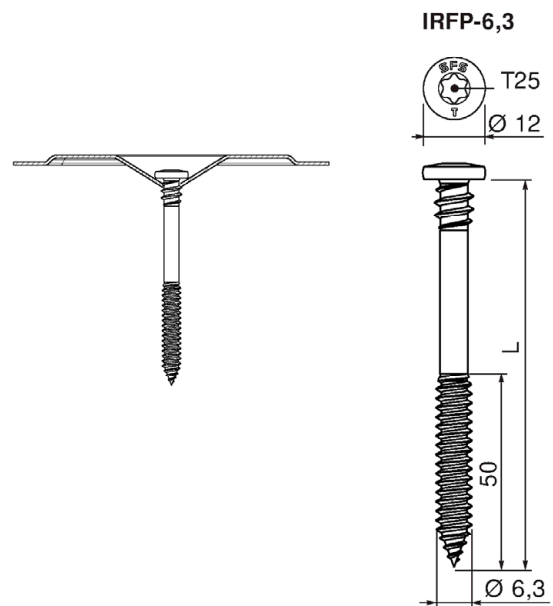
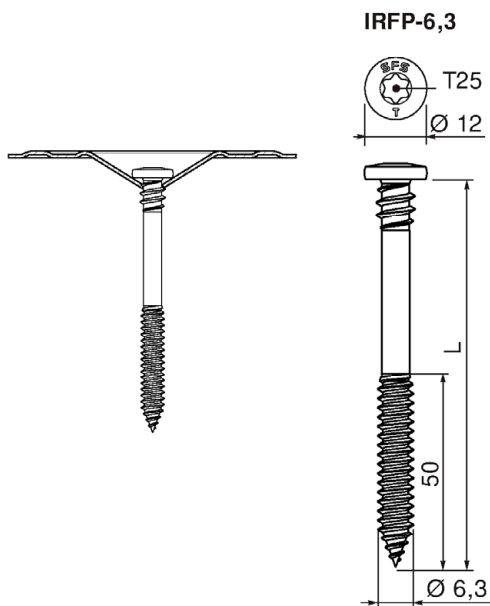
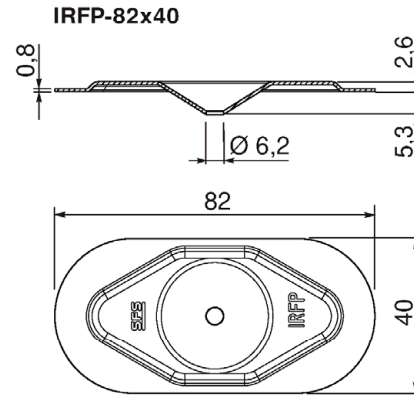
SFS Flat roof fasteners

Annex 53

Combination 54A  
IRFP-6,3 / IRFP-64x64



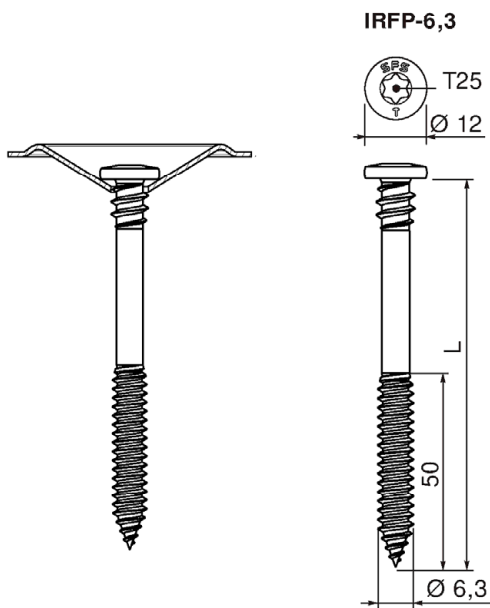
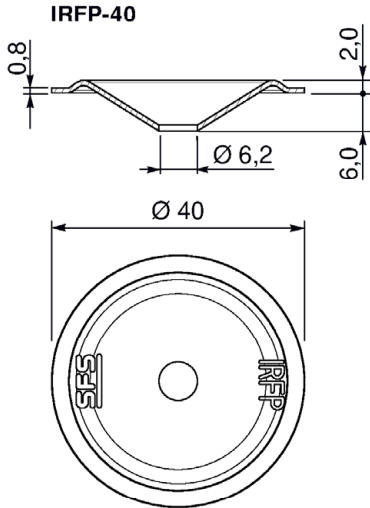
Combination 54B  
IRFP-6,3 / IRFP-82x40



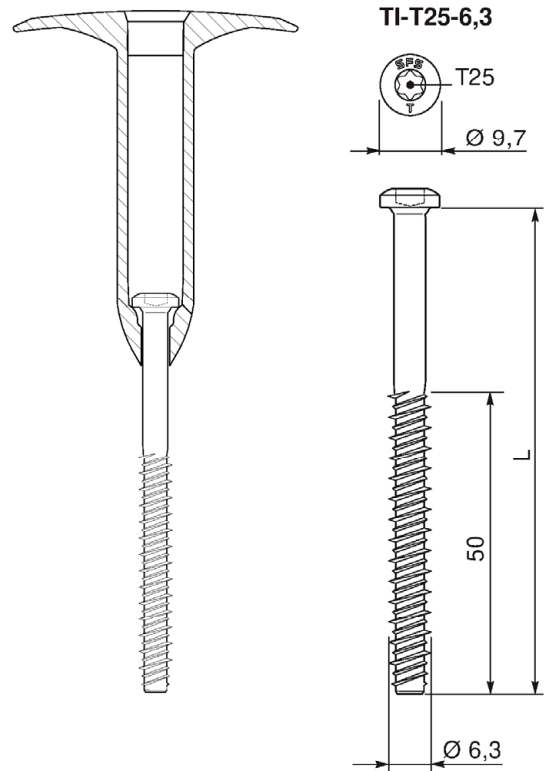
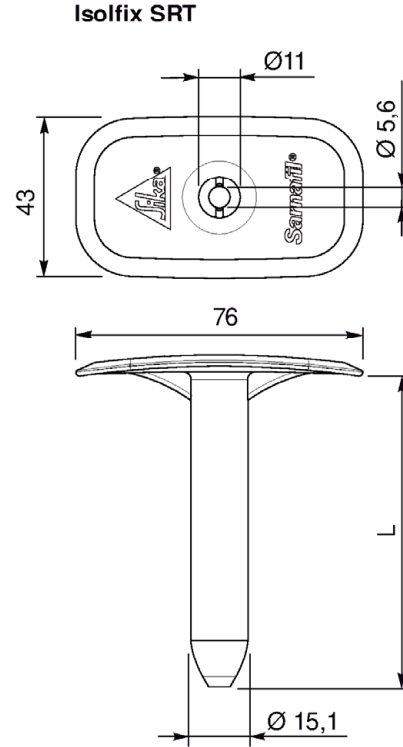
SFS Flat roof fasteners

Annex 54

Combination 55A  
IRFP-6,3 / IRFP-40



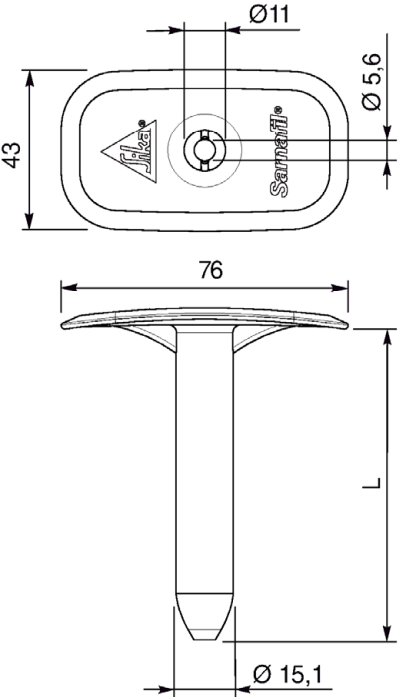
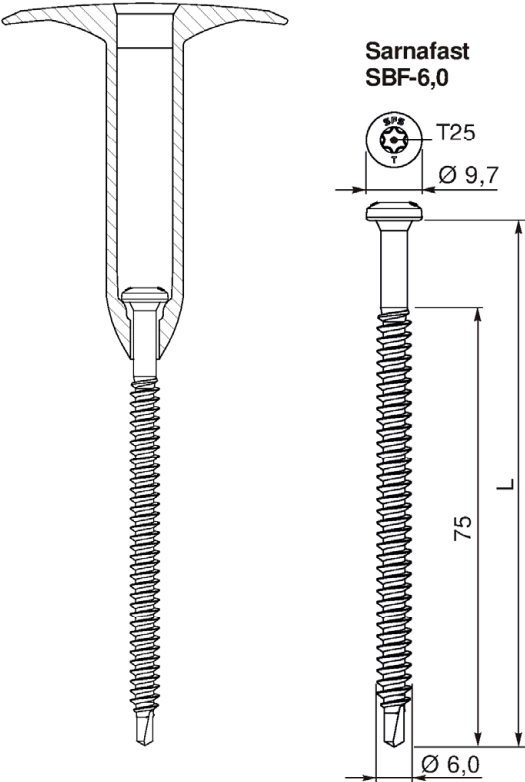
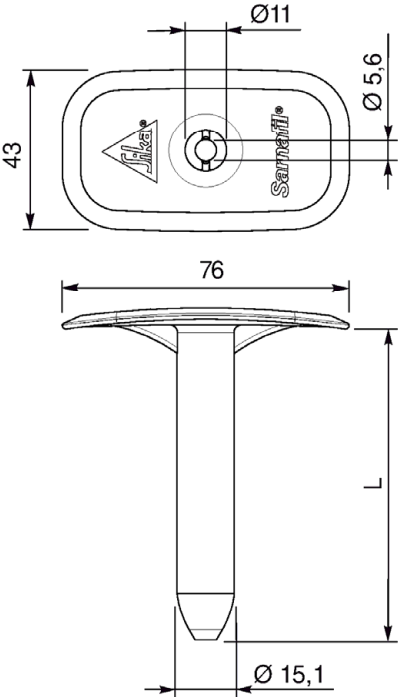
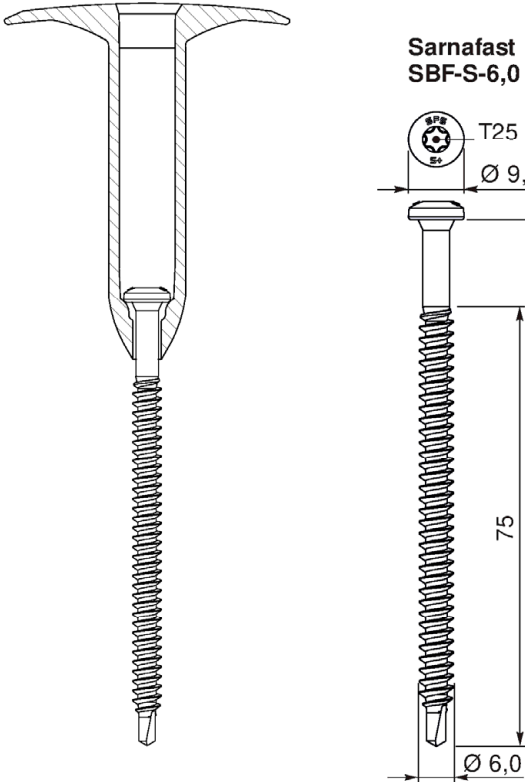
Combination 55B  
TI-T25-6,3 / Isolfix SRT



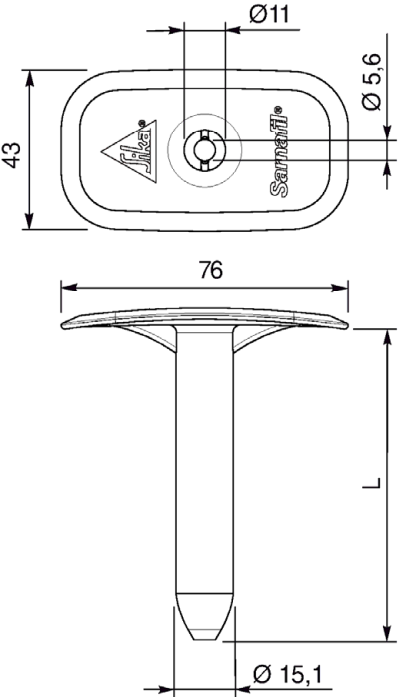
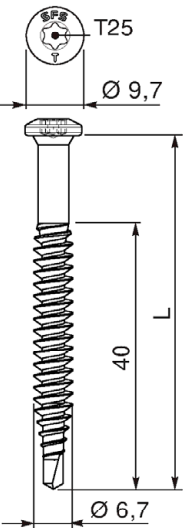
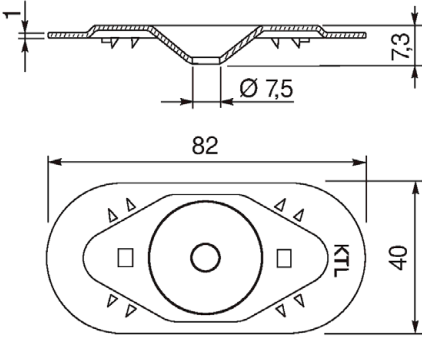
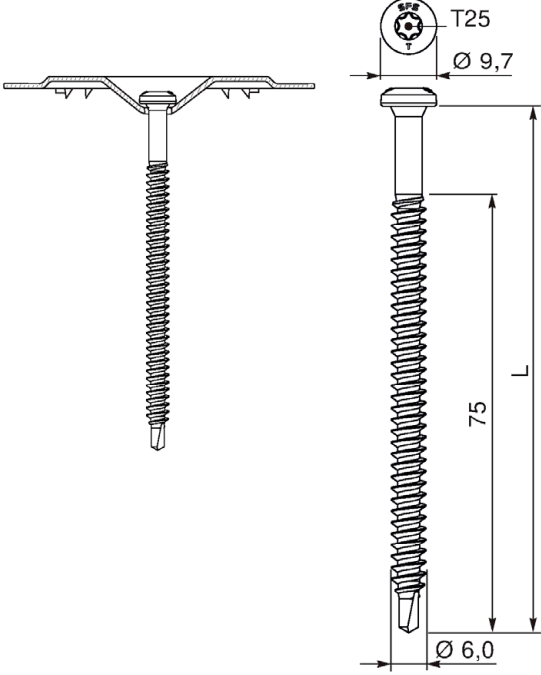
SFS Flat roof fasteners

Annex 55



<p>Combination 56A Sarnafast SBF-6,0 / Isolfix SRT</p>	<p>Combination 56B Sarnafast SBF-S-6,0 / Isolfix SRT</p>
<p style="text-align: center;"><b>Isolfix SRT</b></p>  <p style="text-align: center;"><b>Sarnafast SBF-6,0</b></p> 	<p style="text-align: center;"><b>Isolfix SRT</b></p>  <p style="text-align: center;"><b>Sarnafast SBF-S-6,0</b></p> 
<p>SFS Flat roof fasteners</p>	<p>Annex 56</p>

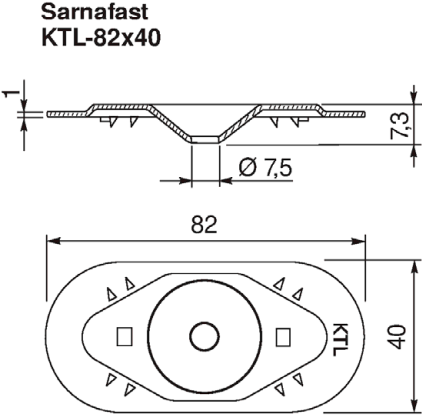
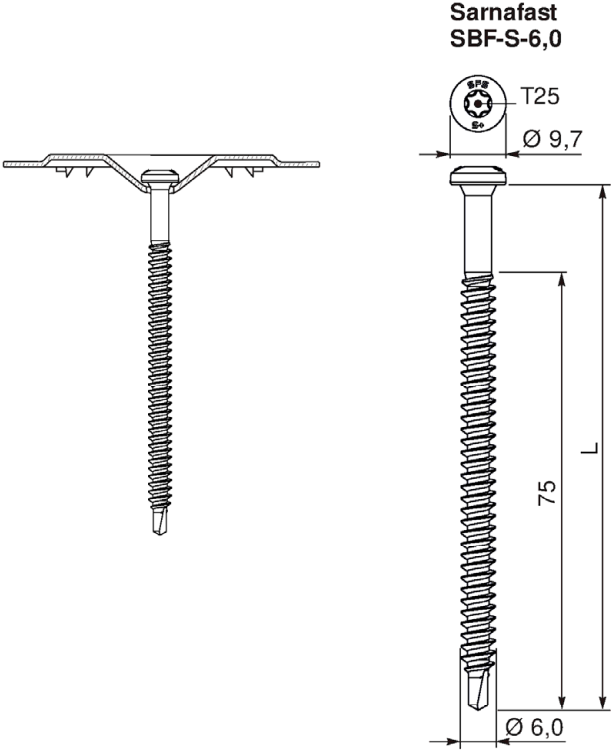
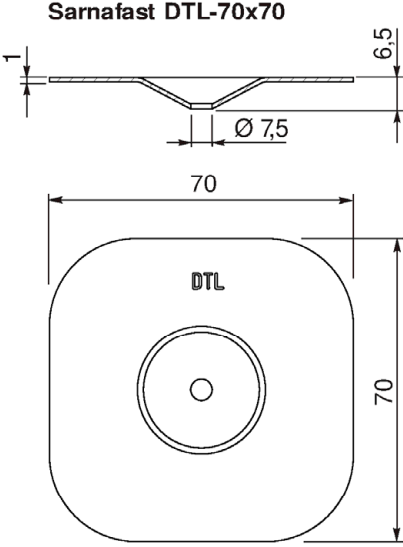
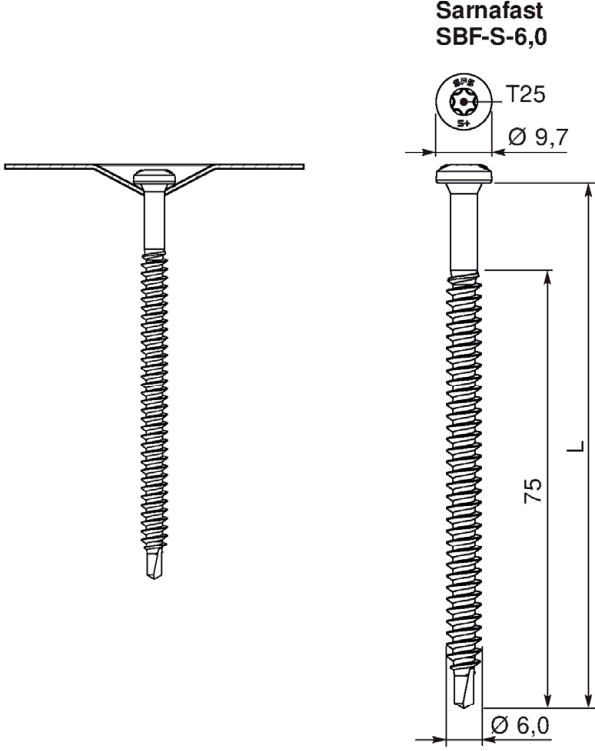
English translation prepared by DIBt

<p>Combination 57A BS-6,7 / Isolfix SRT</p>	<p>Combination 57B Sarnafast SBF-6,0 / Sarnafast KTL-82x40</p>
<p><b>Isolfix SRT</b></p>  <p><b>BS-6,7</b></p> 	<p><b>Sarnafast KTL-82x40</b></p>  <p><b>Sarnafast SBF-6,0</b></p> 
<p>SFS Flat roof fasteners</p>	<p>Annex 57</p>

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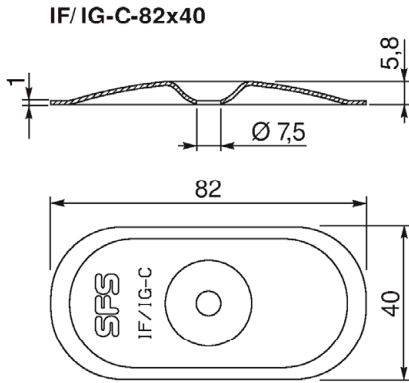
<p>Combination 58A Sarnafast SBF-6,0 / Sarnafast DTL-70x70</p>	<p>Combination 58B Sarnafast SBF-6,0 / IF/IG-C-82x40</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 58</p>

English translation prepared by DIBt

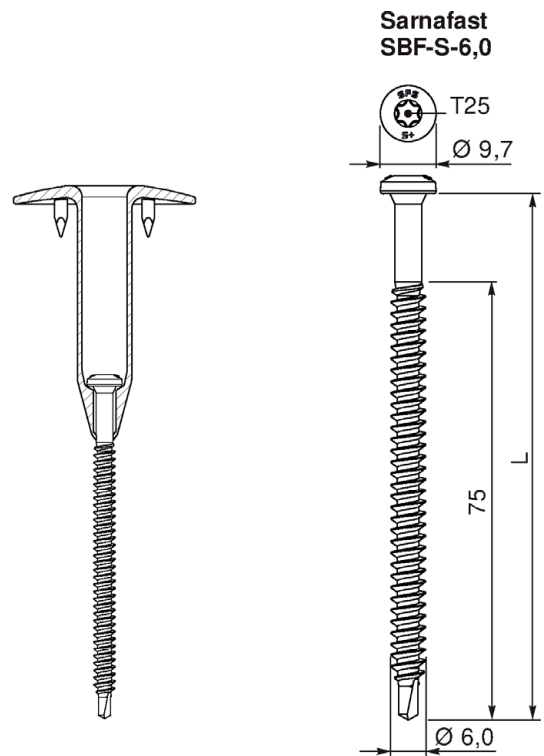
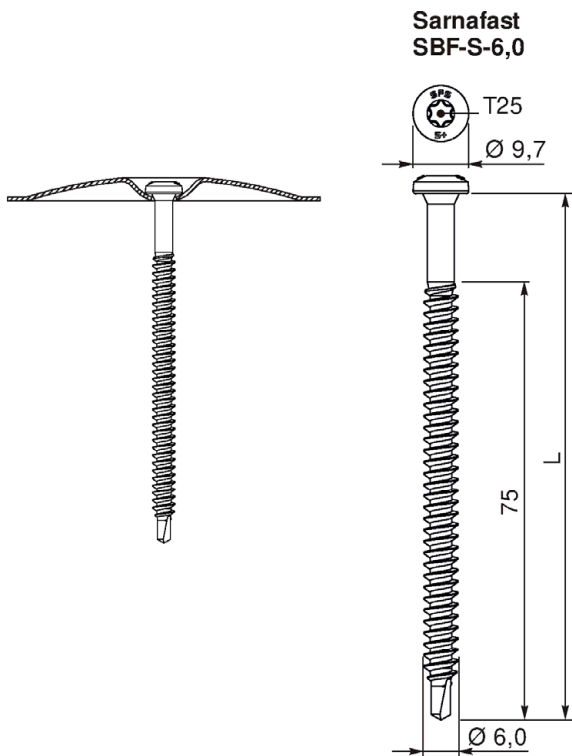
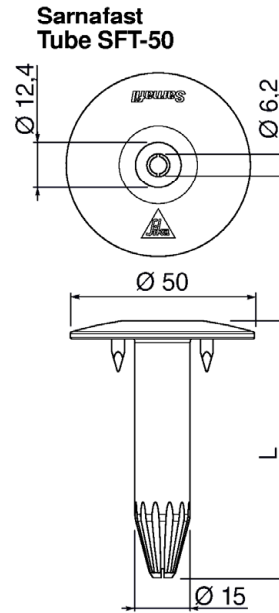
<p>Combination 59A Sarnafast SBF-S-6,0 / Sarnafast KTL-82x40</p>	<p>Combination 59B Sarnafast SBF-S-6,0 / Sarnafast DTL-70x70</p>
<p><b>Sarnafast KTL-82x40</b></p>  	<p><b>Sarnafast DTL-70x70</b></p>  
<p>SFS Flat roof fasteners</p>	<p>Annex 59</p>

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Combination 60A  
Sarnafast SBF-S-6,0 / IF/IG-C-82x40



Combination 60B  
Sarnafast SBF-S-6,0 / Sarnafast Tube SFT-50

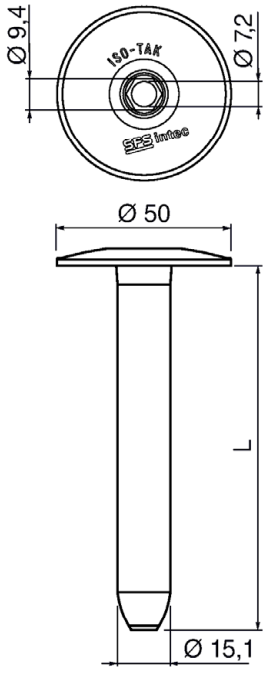
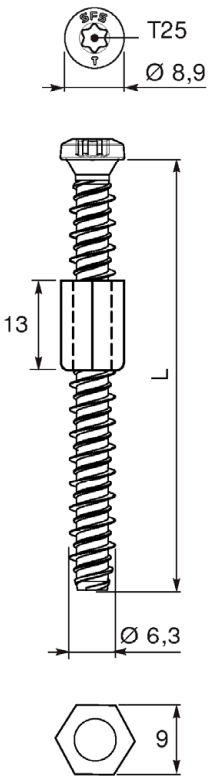

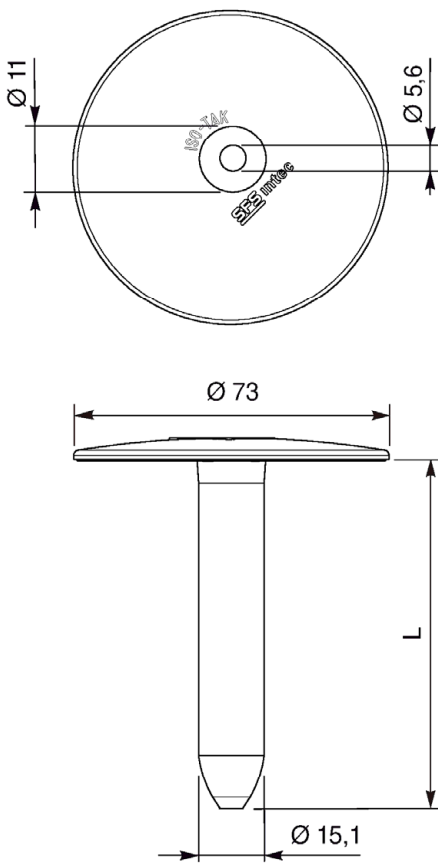
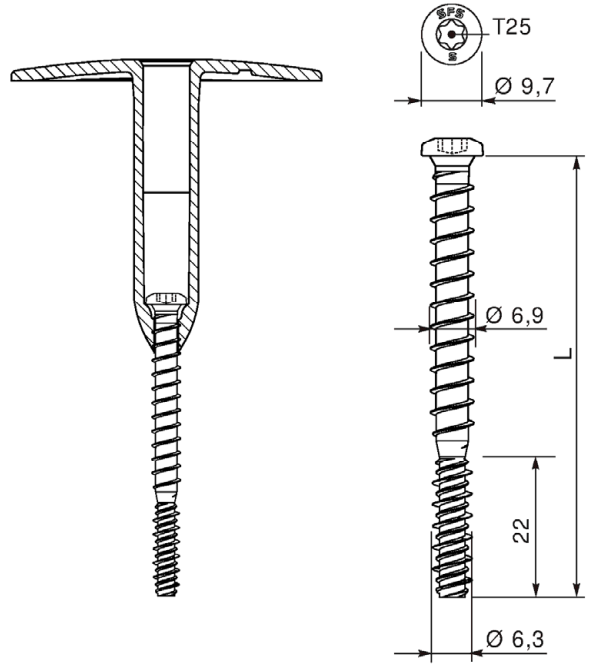


SFS Flat roof fasteners

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<p>Combination 61A Sarnafast SBF-S-6,0 / Sarnabar Tube SBT-20 / Sarnabar</p>	<p>Combination 61B Sarnafast SBF-6,0 / SBIW-70x70 / Sarnabar Tube SBT-20</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 61</p>

English translation prepared by DIBt

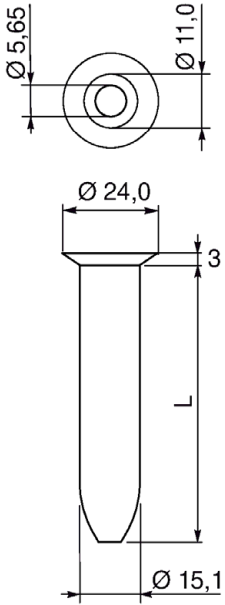
<p>Combination 62A TIF-N-6,3 / RH50</p>	<p>Combination 62B TIA-T25-6,3 / R75</p>
<p><b>RH50</b></p>  <p><b>TIF-N-6,3</b></p>  	<p><b>R75</b></p>  <p><b>TIA-T25-6,3</b></p> 
<p>SFS Flat roof fasteners</p>	<p>Annex 62</p>

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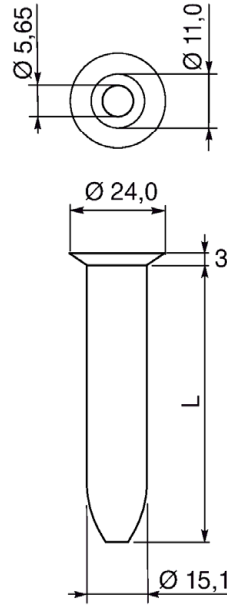
Combination 63A  
TIA-T25-6,3 / ST-25

Combination 63B  
BS-4,8 / ST-25

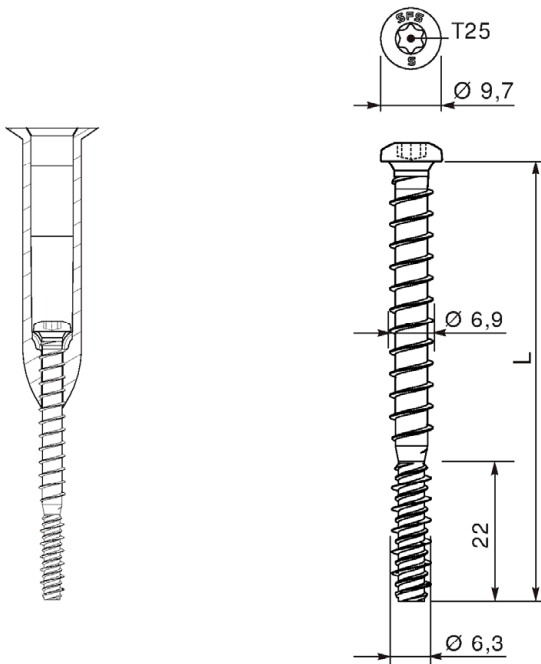
ST-25



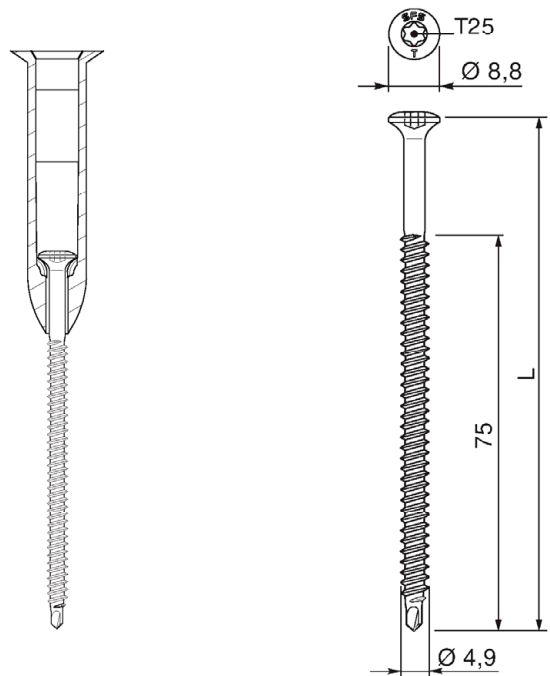
ST-25



TIA-T25-6,3



BS-4,8

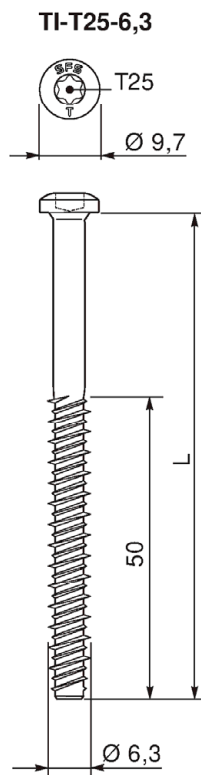
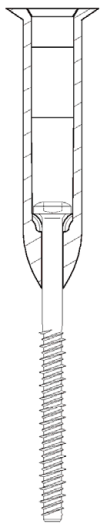
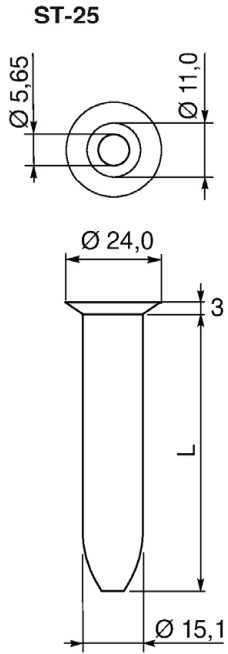


SFS Flat roof fasteners

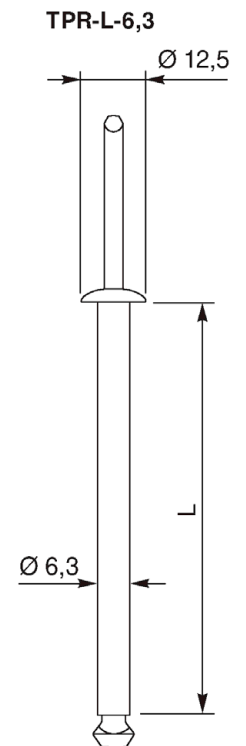
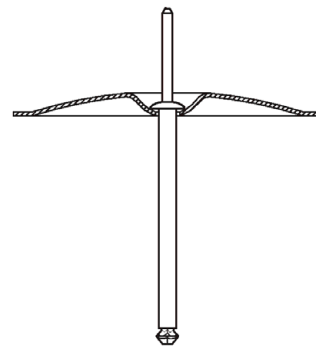
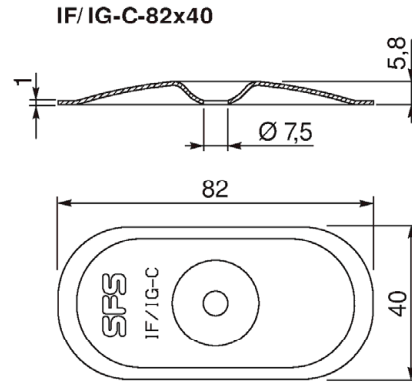
Annex 63



Combination 64A  
TI-T25-6,3 / ST-25

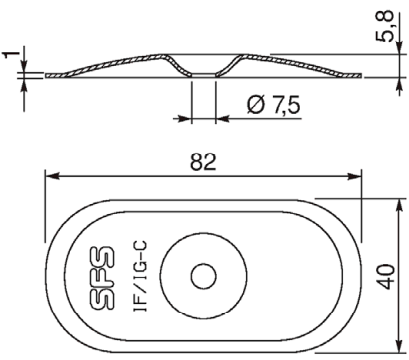
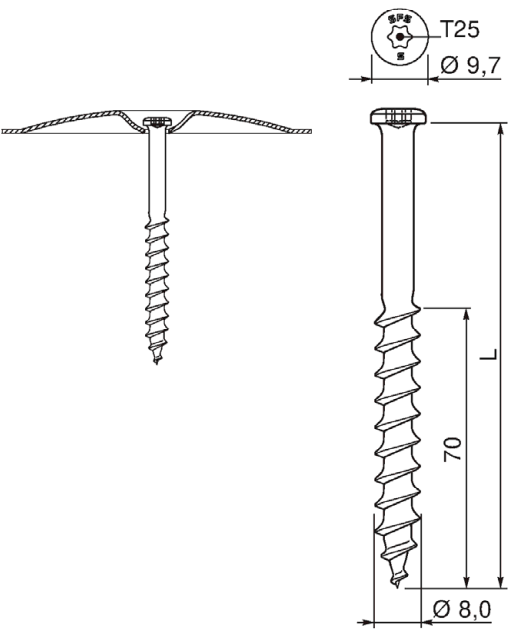
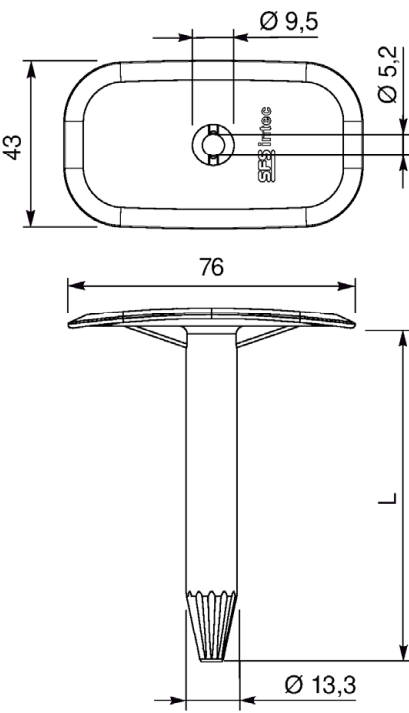
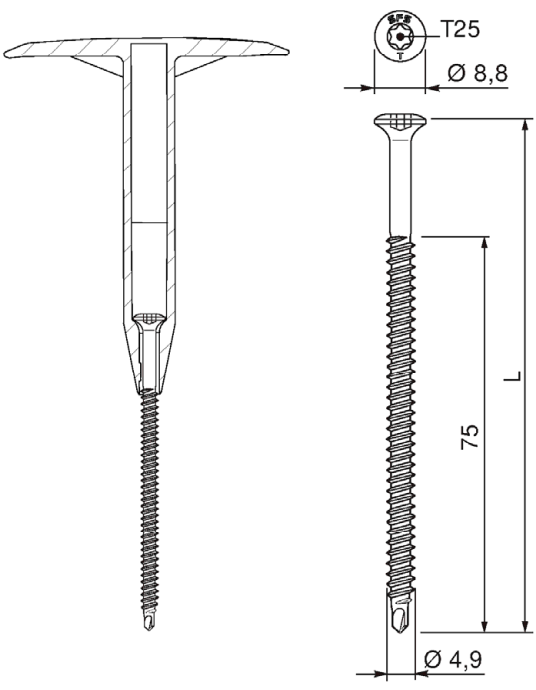


Combination 64B  
TPR-L-6,3 / IF/IG-C-82x40



SFS Flat roof fasteners

Annex 64

<p>Combination 65A LBS-S-T25-8,0 / IF/IG-C-82x40</p>	<p>Combination 65B BS-4,8 / NPP</p>
<p><b>IF/IG-C-82x40</b></p>  <p><b>LBS-S-T25-8,0</b></p> 	<p><b>NPP</b></p>  <p><b>BS-4,8</b></p> 
<p>SFS Flat roof fasteners</p>	<p>Annex 65</p>

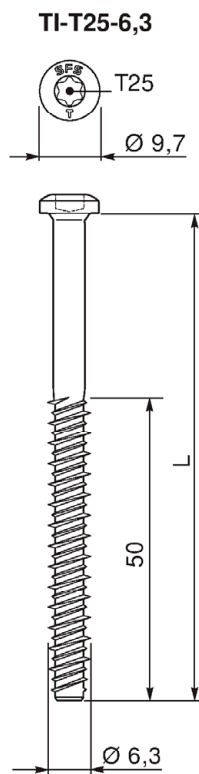
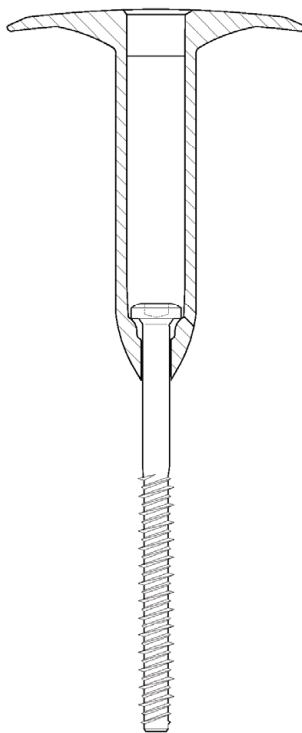
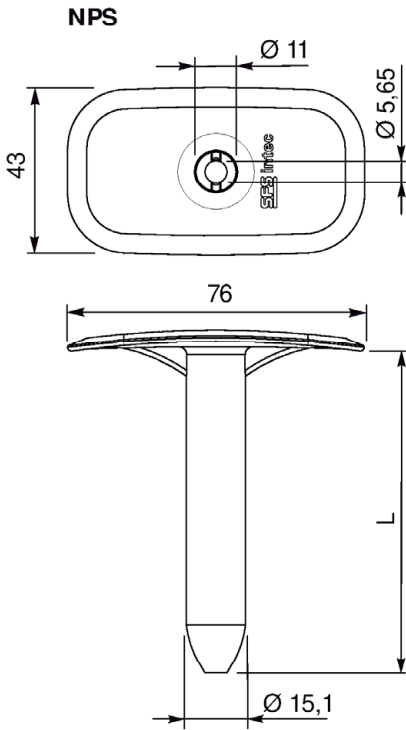
English translation prepared by DIBt

<p>Combination 66A BS-S-4,8 / NPP</p>	<p>Combination 66B BS-4,8 / NPS</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 66</p>

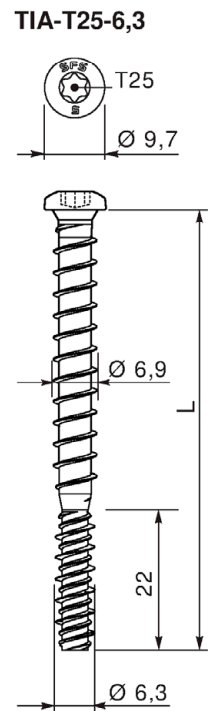
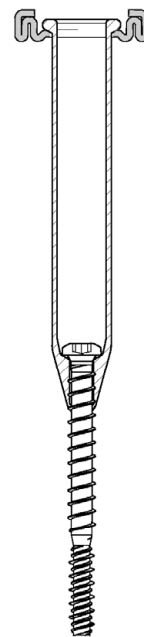
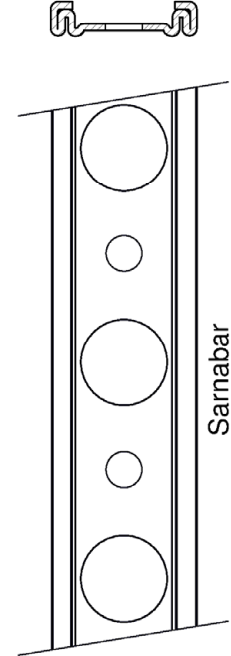
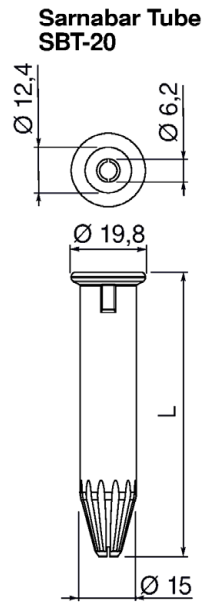
Electronic copy of the ETA by DIBt: ETA-08/0262

<p>Combination 67A BS-6,7 / NPS</p>	<p>Combination 67B BS-S-6,7 / NPS</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 67</p>

Combination 68A  
TI-T25-6,3 / NPS



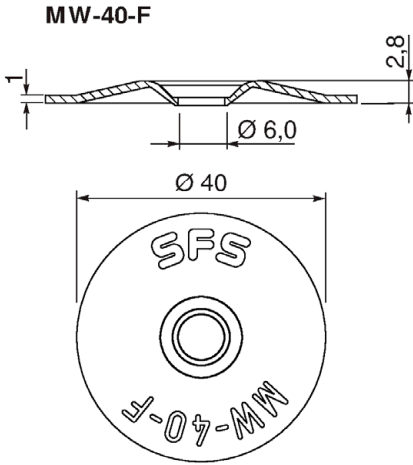
Combination 68B  
TIA-T25-6,3 / Sarnabar Tube SBT-20 / Sarnabar



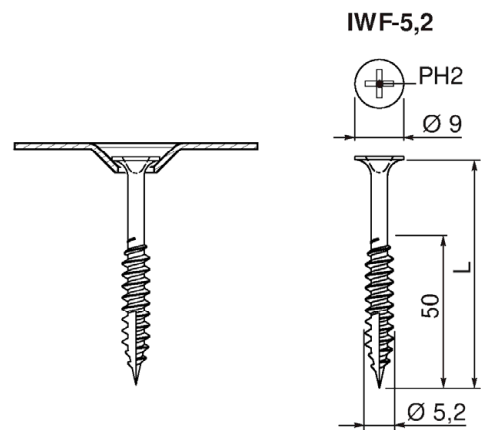
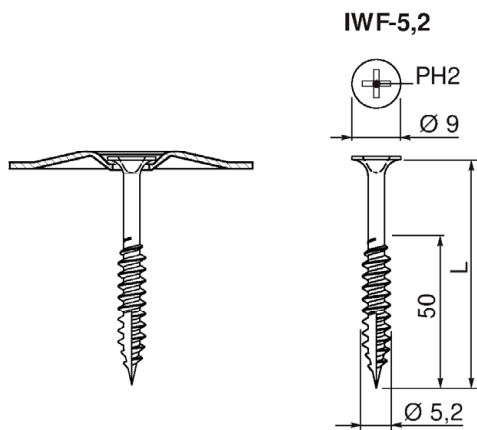
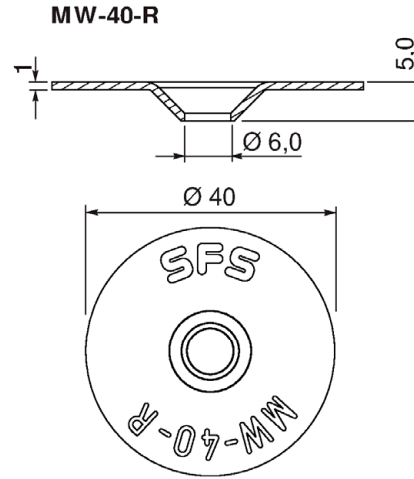
SFS Flat roof fasteners

Annex 68

Combination 69A  
IWF-5,2 / MW-40-F



Combination 69B  
IWF-5,2 / MW-40-R



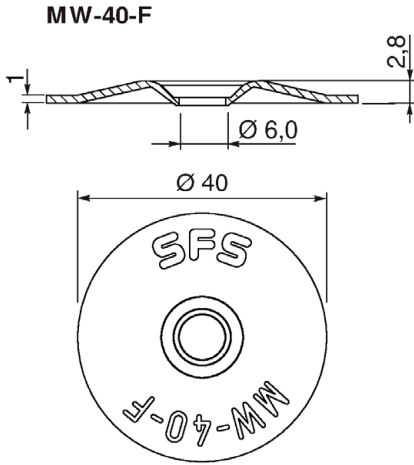
SFS Flat roof fasteners

Annex 69

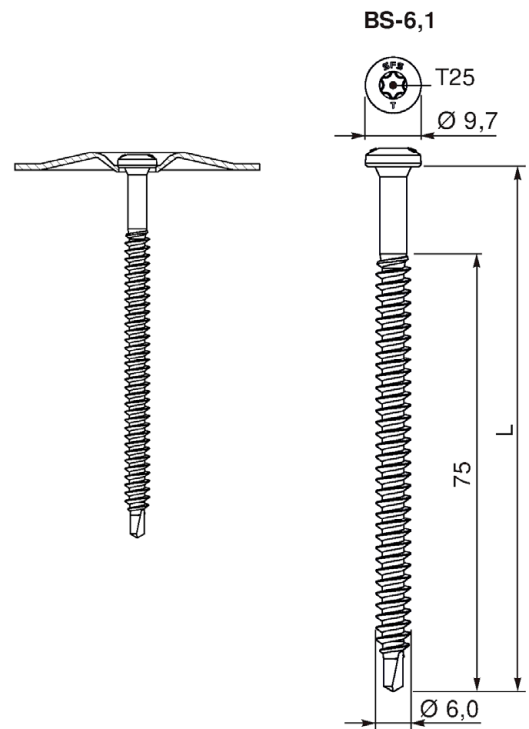
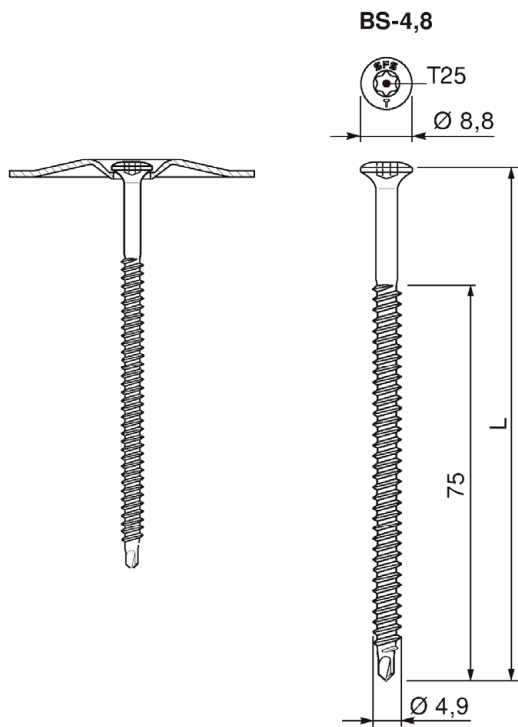
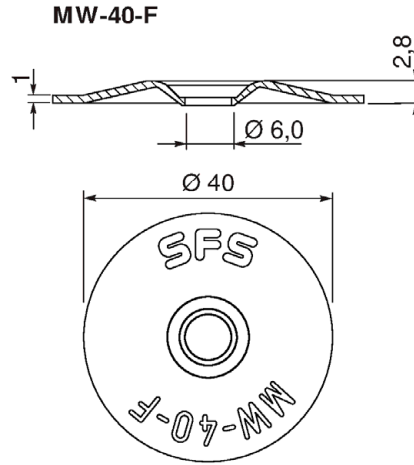
English translation prepared by DIBt

<p>Combination 70A Sarnafast SBF-6,0 / R75</p>	<p>Combination 70B BS3-4,8 / RP48</p>
<p><b>R75</b></p> <p><b>Sarnafast SBF-6,0</b></p> <p>T25 Ø 9,7</p> <p>75</p> <p>Ø 6,0</p>	<p><b>RP48</b></p> <p>Ø 9,5</p> <p>Ø 5,2</p> <p>Ø 48</p> <p>L</p> <p>Ø 13,6</p> <p><b>BS3-4,8</b></p> <p>T25 Ø 8,8</p> <p>75</p> <p>Ø 4,8</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 70</p>

Combination 71A  
BS-4,8 / MW-40-F



Combination 71B  
BS-6,1 / MW-40-F

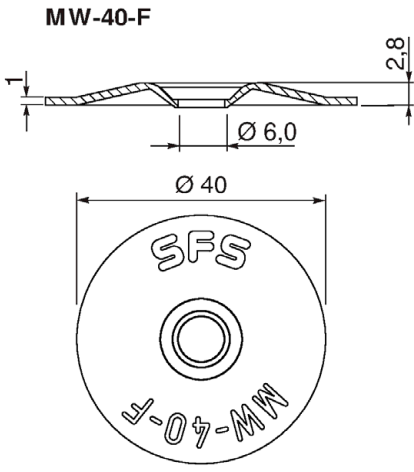
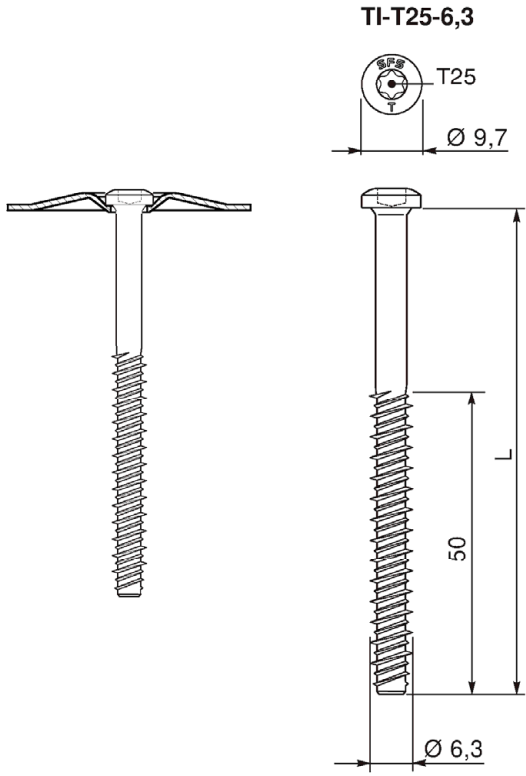
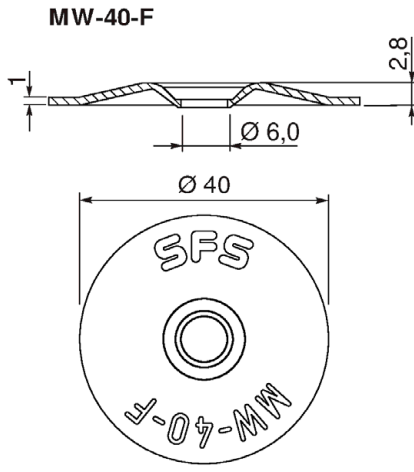
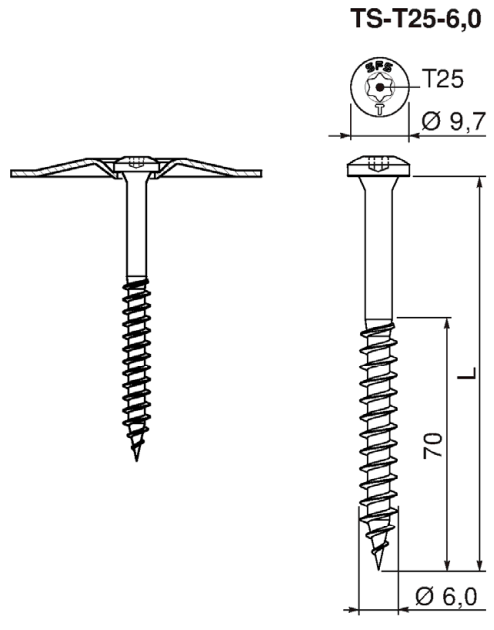


SFS Flat roof fasteners

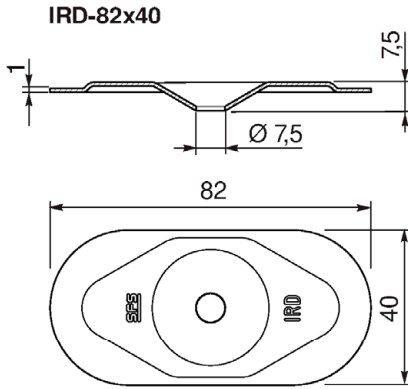
Annex 71



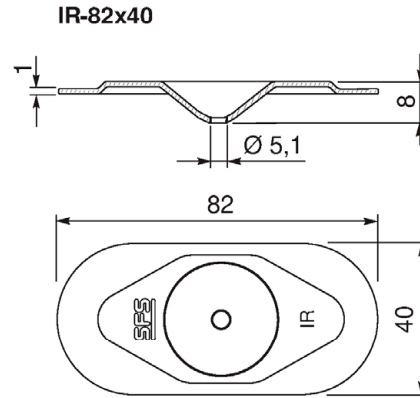
<p>Combination 72A BS-4,8 / IR-82x40</p>	<p>Combination 72B BS-6,1 / IRD-82x40</p>
<div style="display: flex; justify-content: space-around;"> <div data-bbox="183 398 558 795"> <p><b>IR-82x40</b></p> </div> <div data-bbox="885 398 1252 795"> <p><b>IRD-82x40</b></p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div data-bbox="183 1265 502 1937"> <p><b>BS-4,8</b></p> </div> <div data-bbox="582 1265 774 2004"> <p><b>BS-6,1</b></p> </div> </div>	<div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div data-bbox="885 1265 1204 1792"> <p><b>BS-4,8</b></p> </div> <div data-bbox="1236 1265 1436 1993"> <p><b>BS-6,1</b></p> </div> </div>
<p>SFS Flat roof fasteners</p>	<p>Annex 72</p>

<p>Combination 73A TI-T25-6,3 / MW-40-F</p>  <p><b>MW-40-F</b></p>  <p><b>TI-T25-6,3</b></p>	<p>Combination 73B TS-T25-6,0 / MW-40-F</p>  <p><b>MW-40-F</b></p>  <p><b>TS-T25-6,0</b></p>
<p>SFS Flat roof fasteners</p>	<p>Annex 73</p>

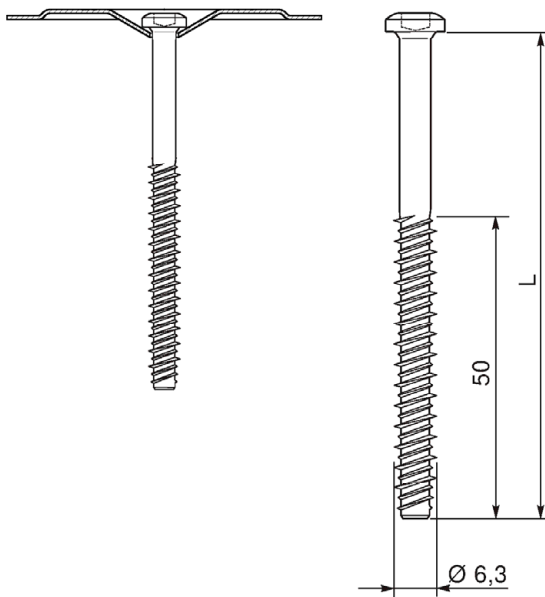
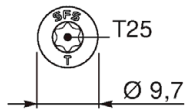
Combination 74A  
TI-T25-6,3 / IRD-82x40



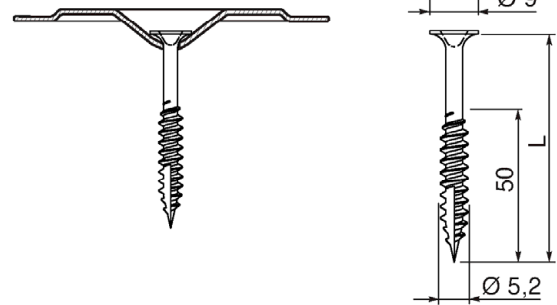
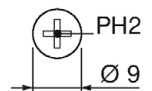
Combination 74B  
IWF-5,2 / IR-82x40



TI-T25-6,3



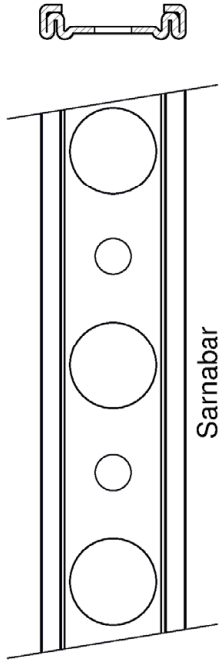
IWF-5,2



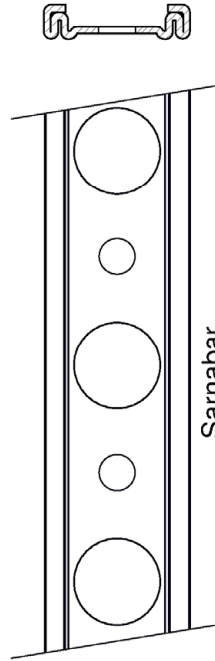
SFS Flat roof fasteners

Annex 74

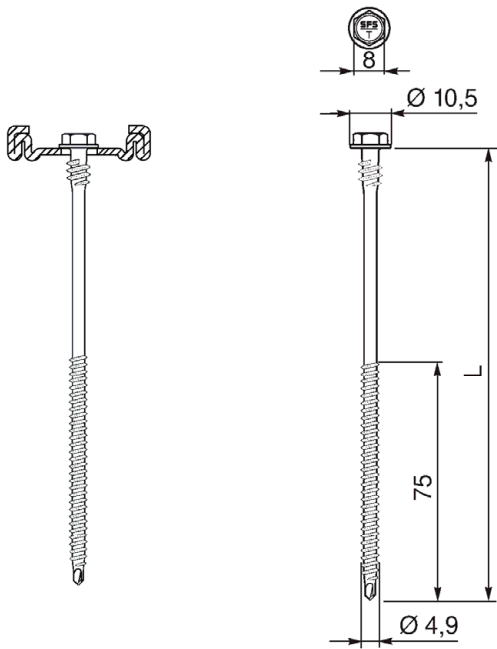
Combination 75A  
Sarnafast SF-4,8 / Sarnabar



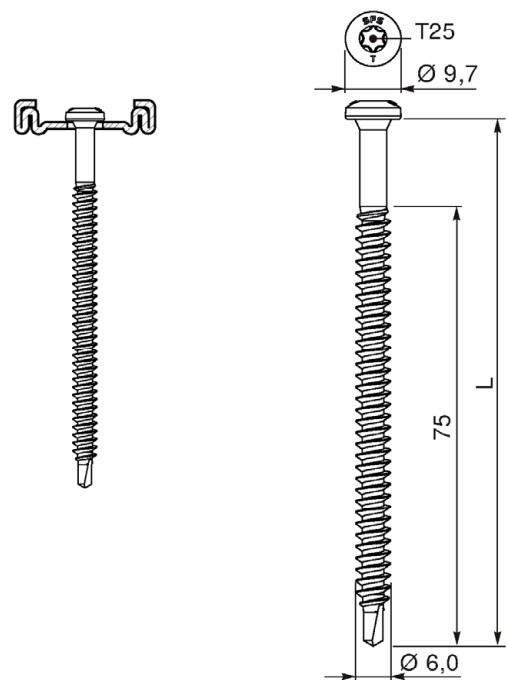
Combination 75B  
Sarnafast SBF-6,0 / Sarnabar



Sarnafast  
SF-4,8

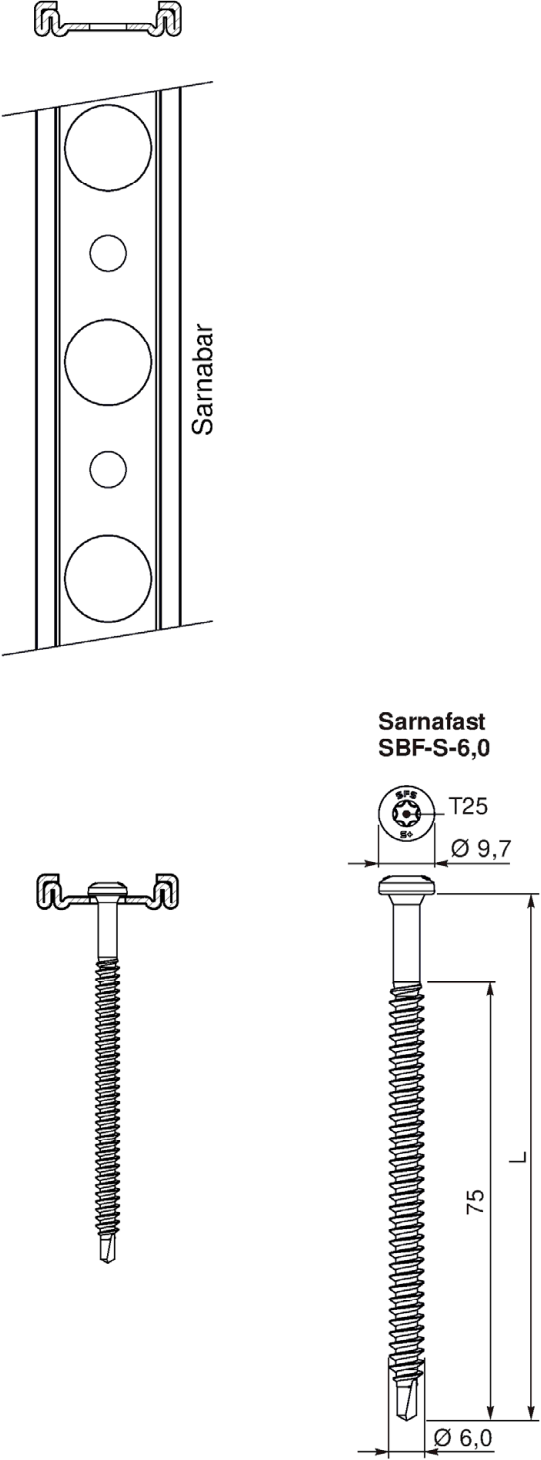
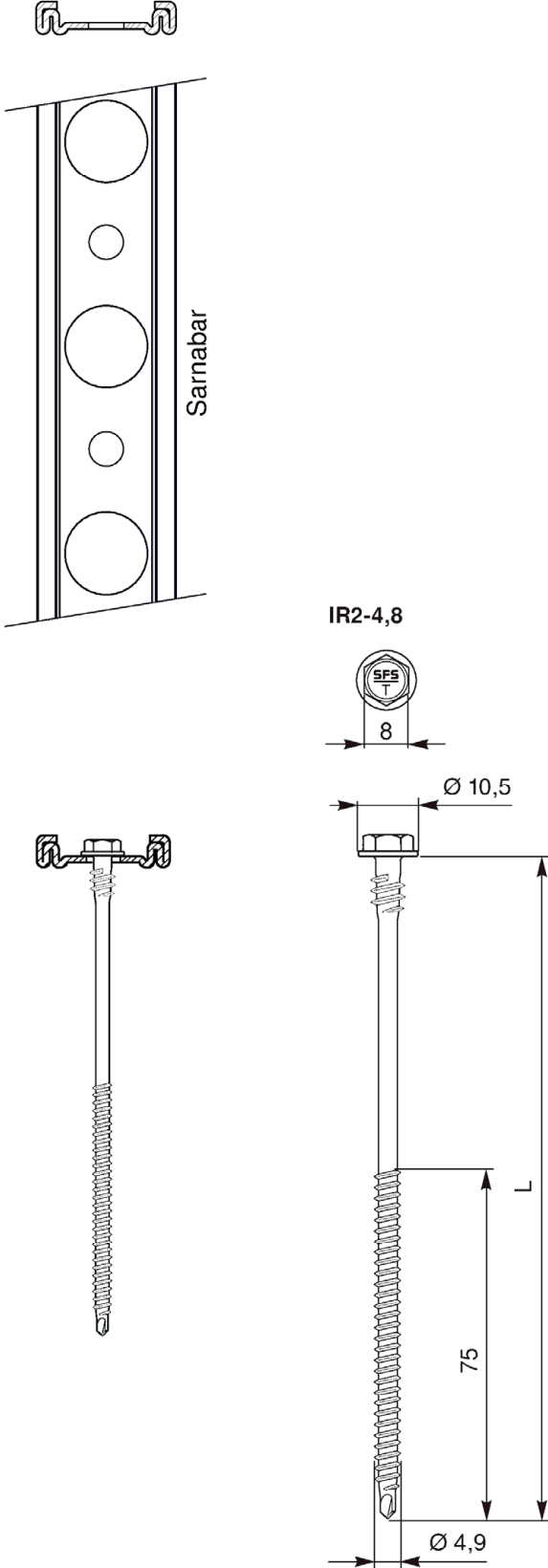


Sarnafast  
SBF-6,0

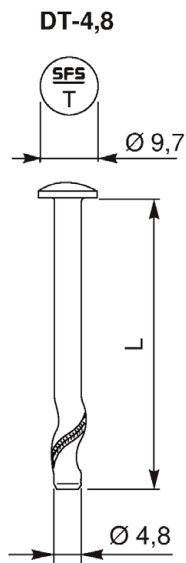
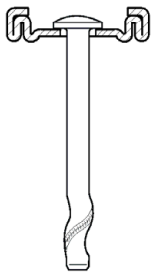
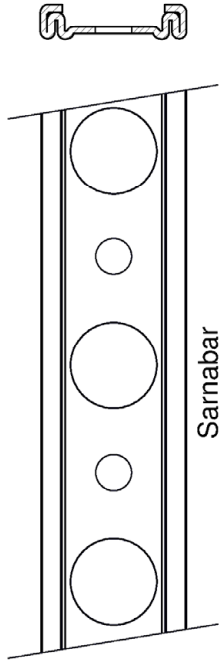


SFS Flat roof fasteners

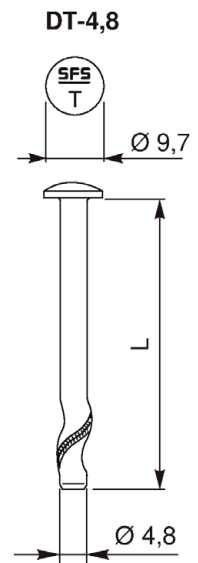
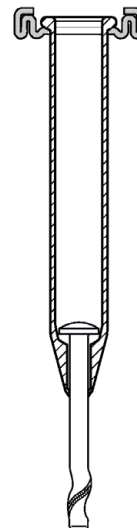
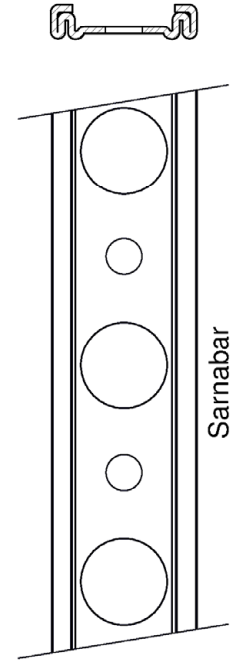
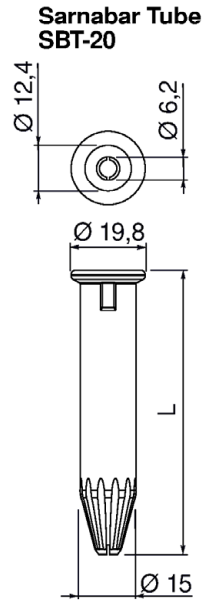
Annex 75

<p>Combination 76A Sarnafast SBF-S-6,0 / Sarnabar</p>	<p>Combination 76B IR2-4,8 / Sarnabar</p>
 <p>Sarnafast SBF-S-6,0</p> <p>T25 Ø 9,7</p> <p>75</p> <p>L</p> <p>Ø 6,0</p>	 <p>IR2-4,8</p> <p>8</p> <p>Ø 10,5</p> <p>75</p> <p>L</p> <p>Ø 4,9</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 76</p>

Combination 77A  
DT-4,8 / Sarnabar

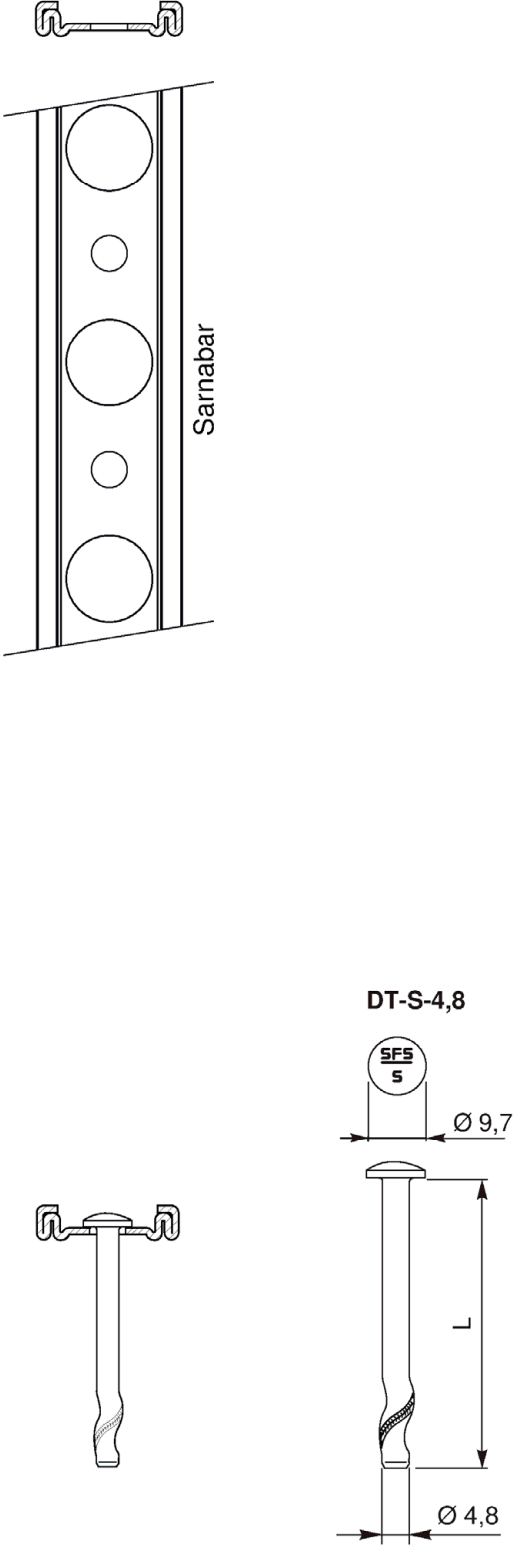
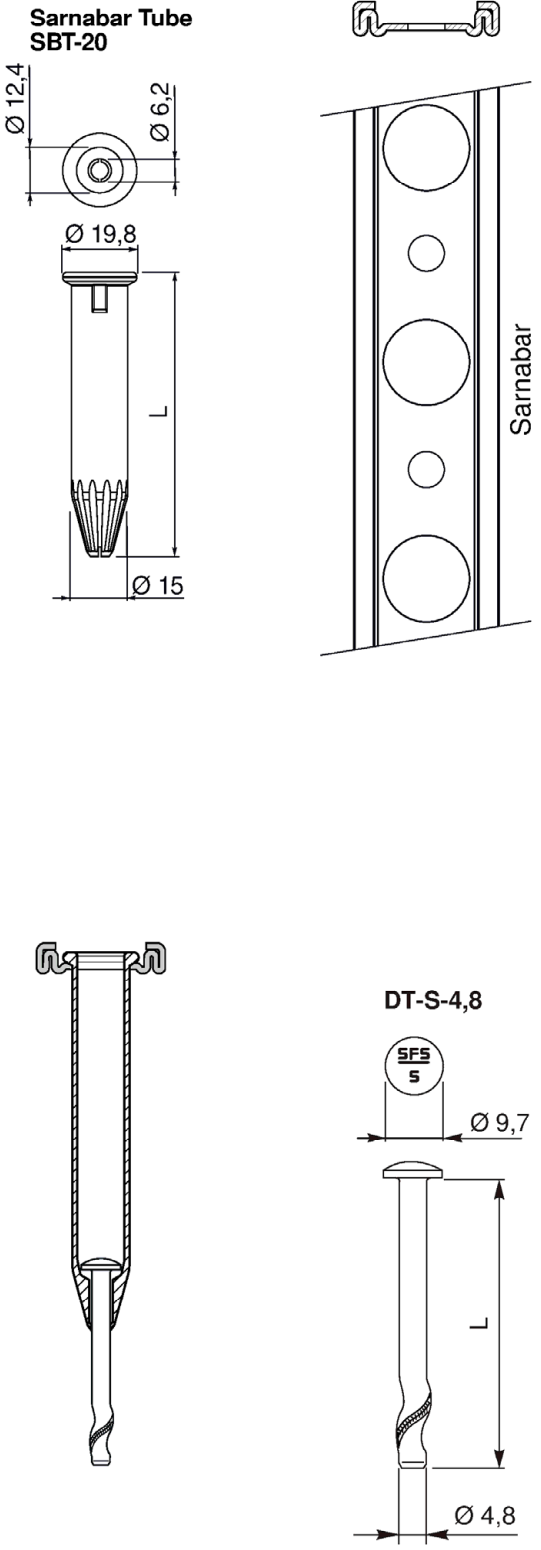


Combination 77B  
DT-4,8 / Sarnabar Tube SBT-20 / Sarnabar



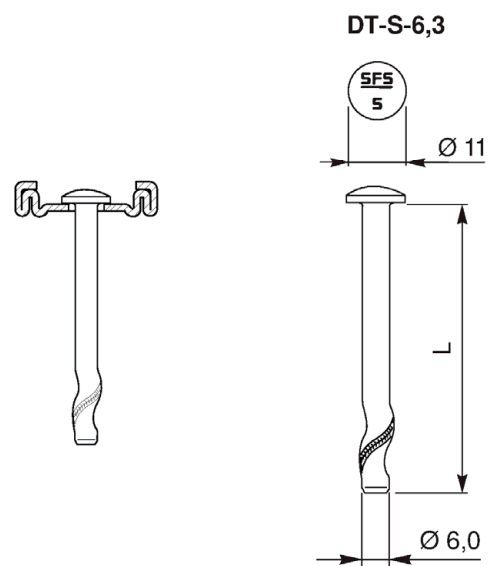
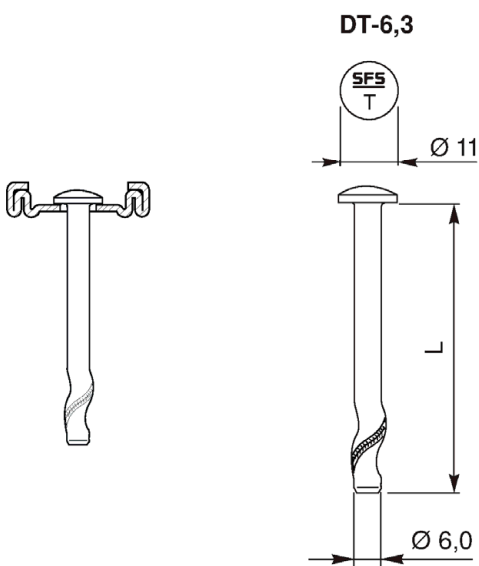
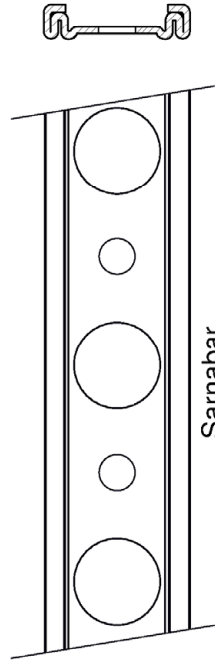
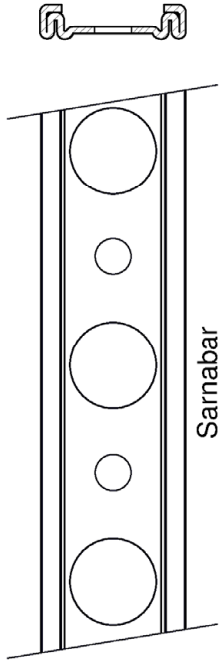
SFS Flat roof fasteners

Annex 77

<p>Combination 78A DT-S-4,8 / Sarnabar</p>	<p>Combination 78B DT-S-4,8 / Sarnabar Tube SBT-20 / Sarnabar</p>
	
<p>SFS Flat roof fasteners</p>	<p>Annex 78</p>

Combination 79A  
DT-6,3 / Sarnabar

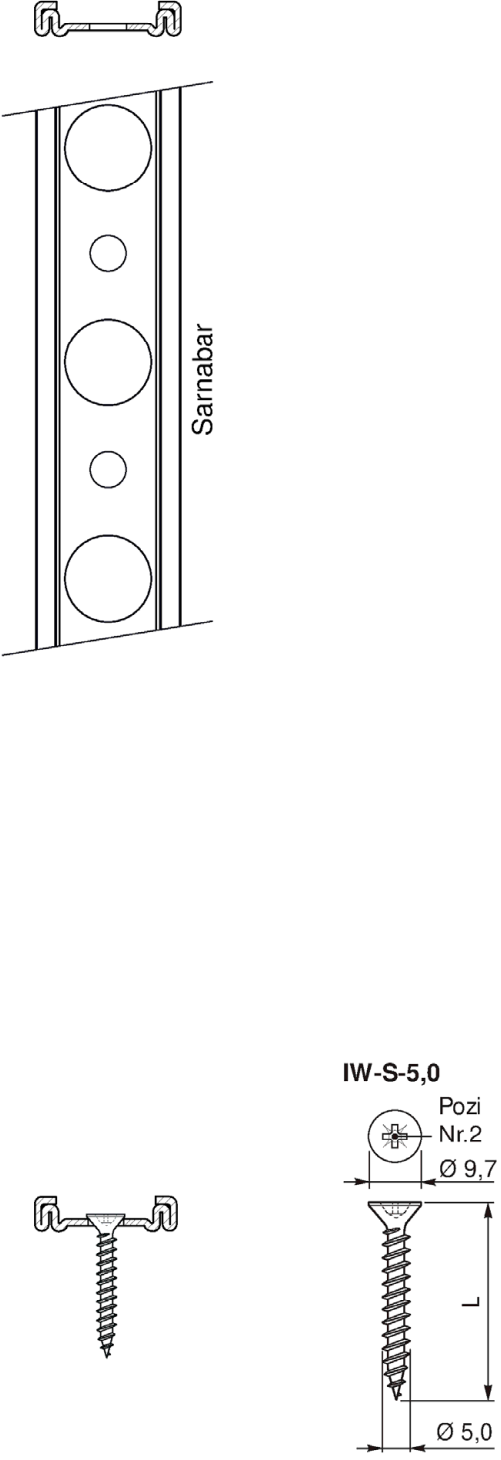
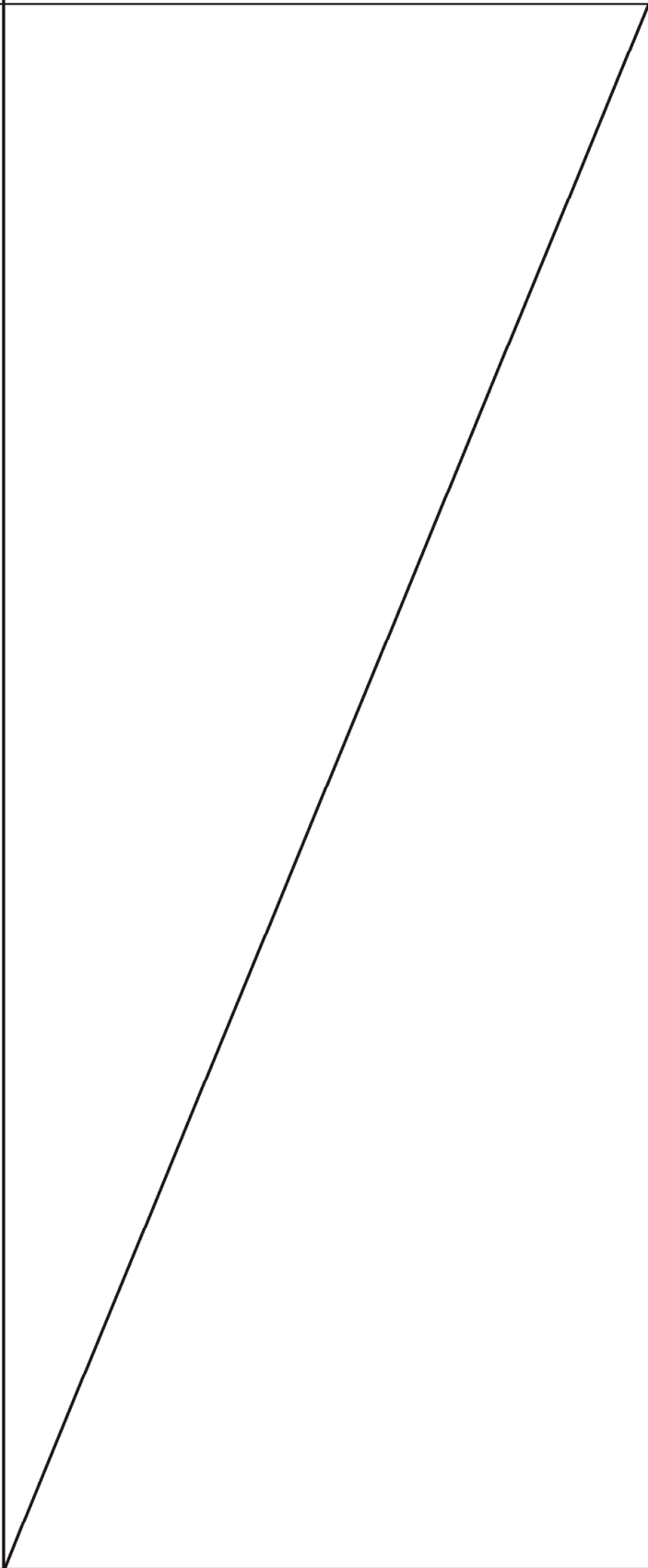
Combination 79B  
DT-S-6,3 / Sarnabar



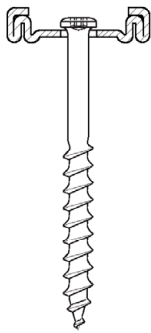
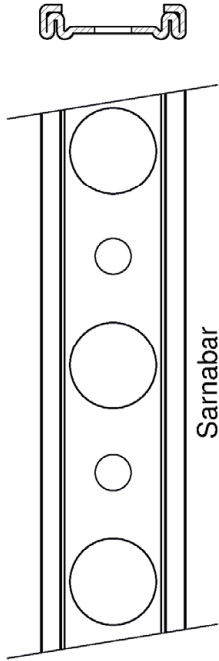
SFS Flat roof fasteners

Annex 79

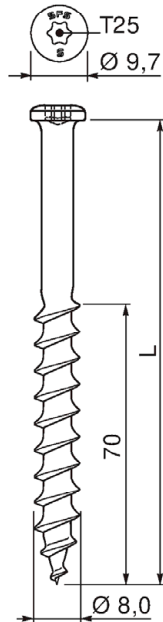


<p>Combination 80A IW-S-5,0 / Sarnabar</p>	<p>Combination 80B No longer in product range</p>
	
<p>SFS Flat roof fasteners</p>	<p>Annex 80</p>

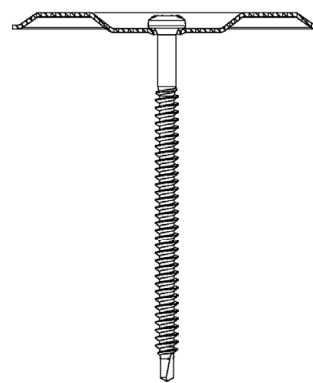
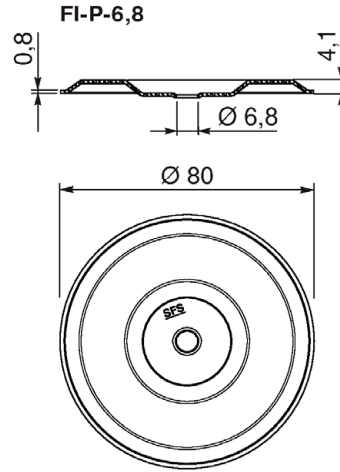
Combination 81A  
LBS-S-T25-8,0 / Sarnabar



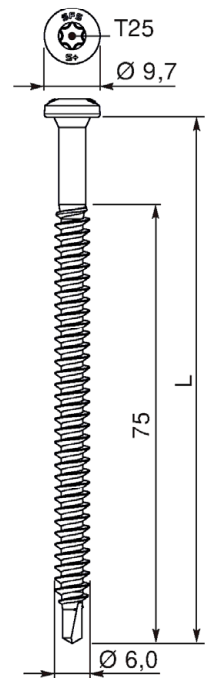
LBS-S-T25-8,0



Combination 81B  
BS-S-6,1 / FI-P-6,8



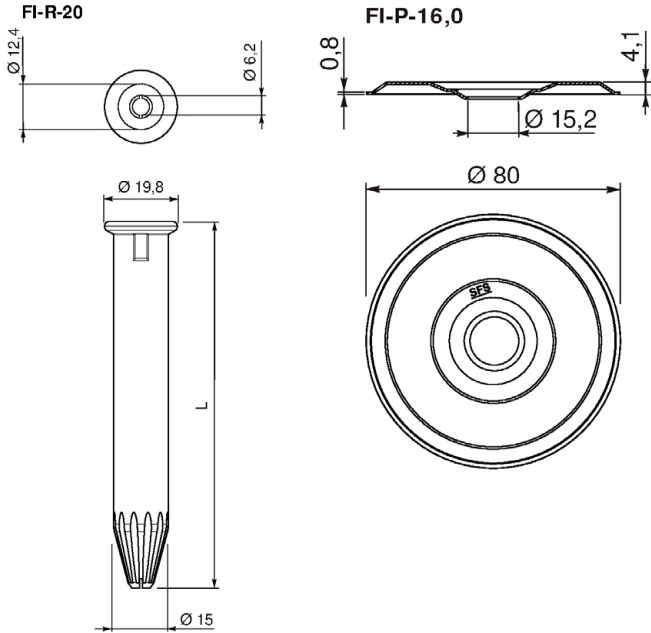
BS-S-6,1



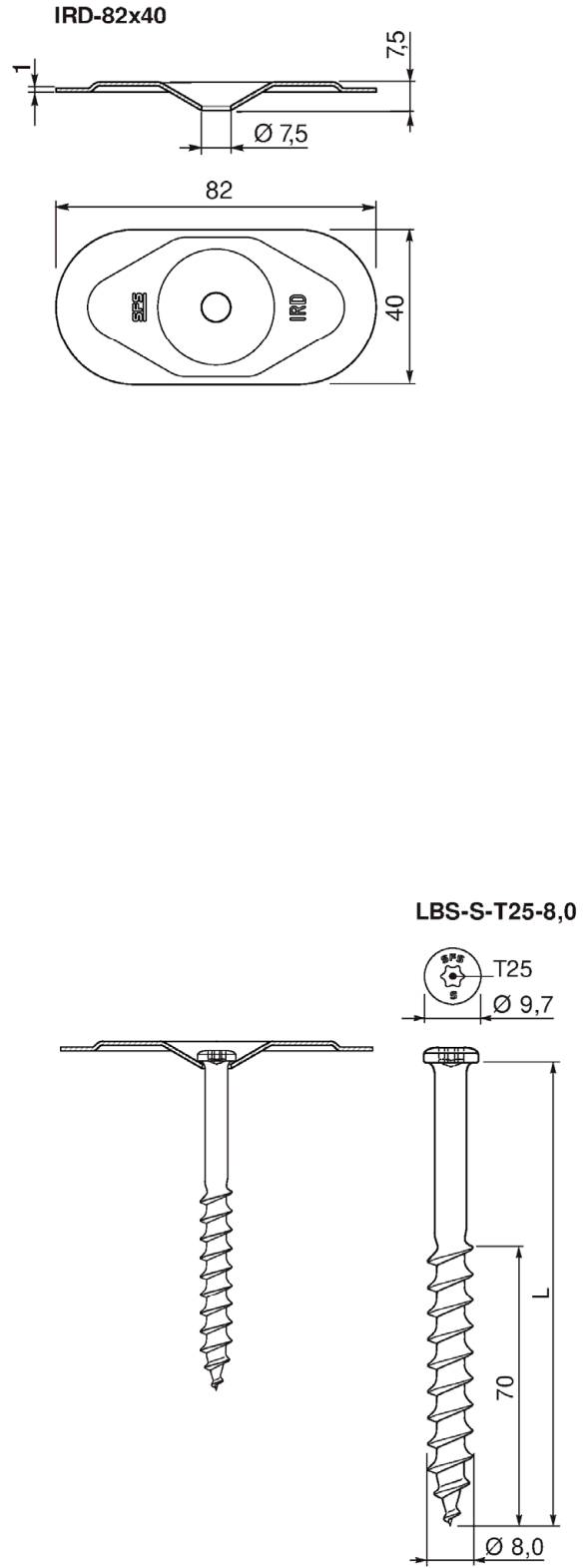
SFS Flat roof fasteners

Annex 81

Combination 82A  
BS-S-6,1 / FI-P-16,0 / FI-R-20



Combination 82B  
LBS-S-T25-8,0 / IRD-82x40



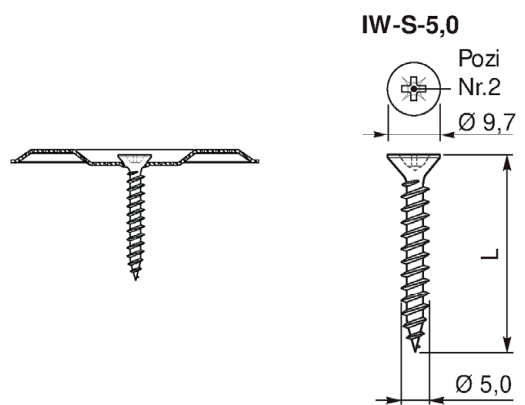
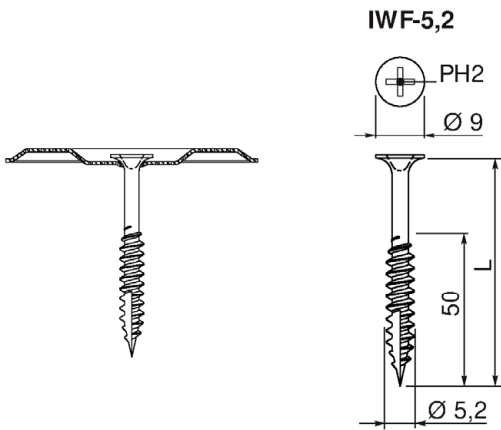
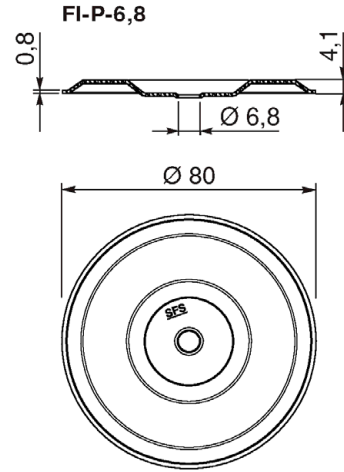
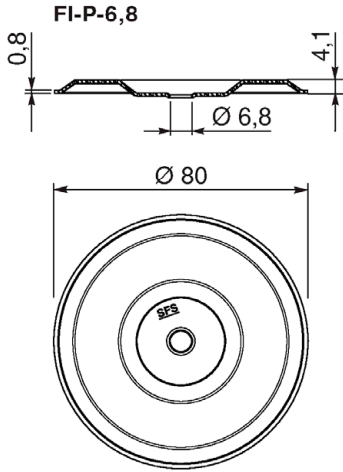
SFS Flat roof fasteners

Annex 82

<p>Combination 83A LBS-T25-8,0 / IRD-82x40</p>	<p>Combination 83B LBS-T25-8,0 / IF/IG-C-82x40</p>
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>IRD-82x40</b></p> </div> <div style="text-align: center;"> <p><b>LBS-T25-8,0</b></p> </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>IF/IG-C-82x40</b></p> </div> <div style="text-align: center;"> <p><b>LBS-T25-8,0</b></p> </div> </div>
<p>SFS Flat roof fasteners</p>	<p>Annex 83</p>

Combination 84A  
IWF-5,2 / FI-P-6,8

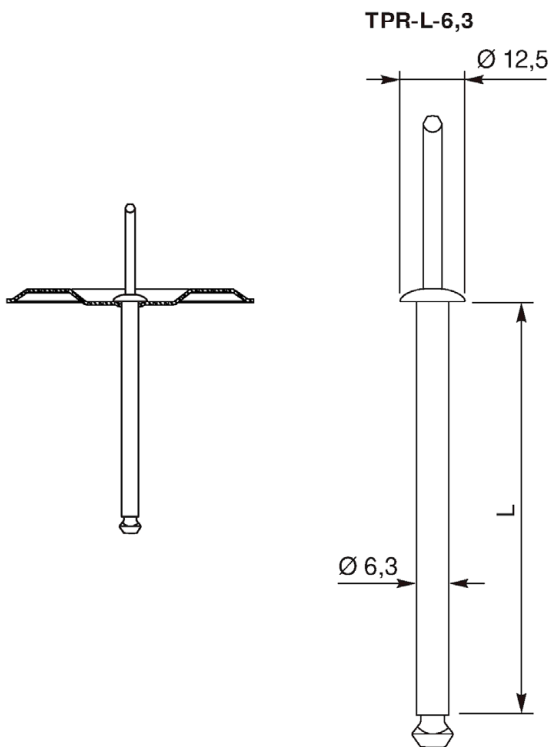
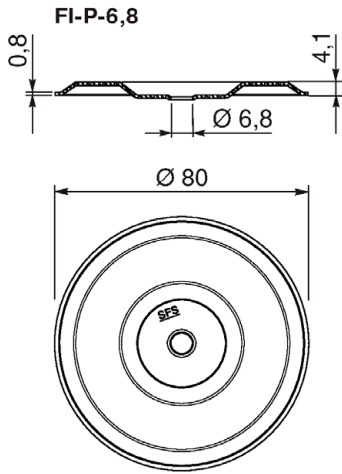
Combination 84B  
IW-S-5,0 / FI-P-6,8



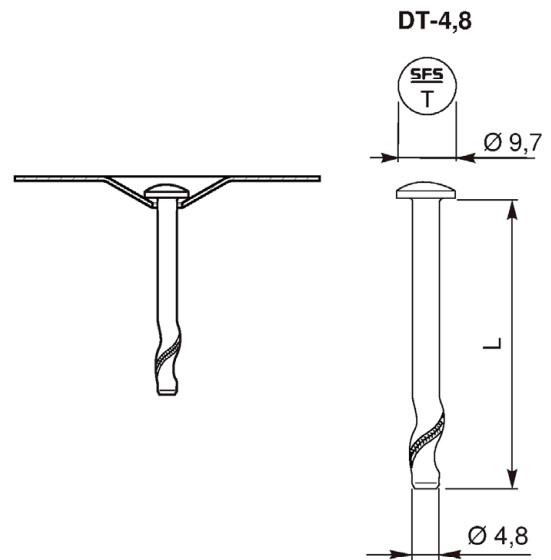
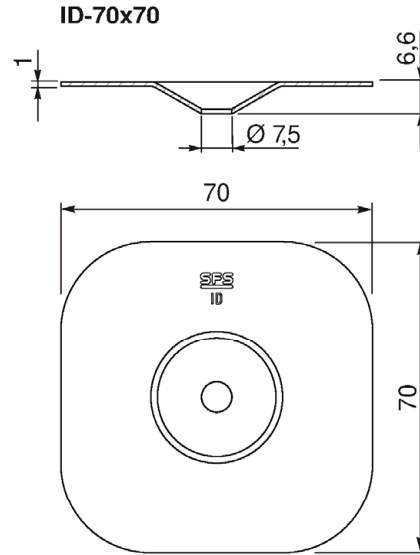
SFS Flat roof fasteners

Annex 84

Combination 85A  
TPR-L-6,3 / FI-P-6,8



Combination 85B  
DT-4,8 / ID-70x70



SFS Flat roof fasteners

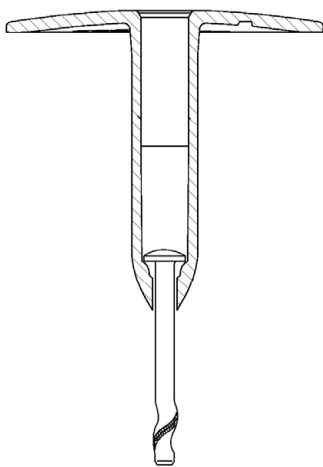
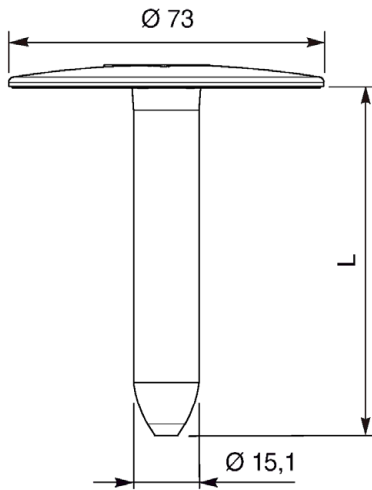
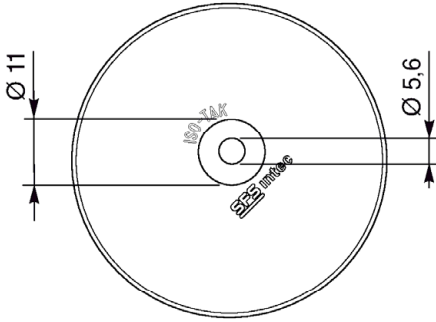
Annex 85

<p>Combination 86A DT-6,3 / ID-70x70</p>	<p>Combination 86B DT-4,8 / R75</p>
<p>SFS Flat roof fasteners</p>	
<p>Annex</p>	<p>86</p>

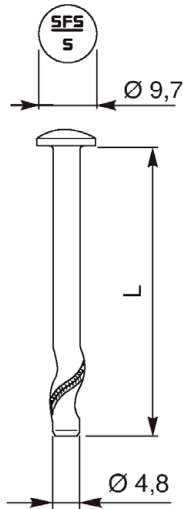
Combination 87A  
DT-S-4,8 / R75

Combination 87B  
TPR-L-6,3 / IL-C-82x40

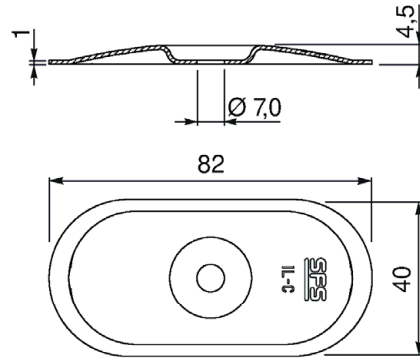
R75



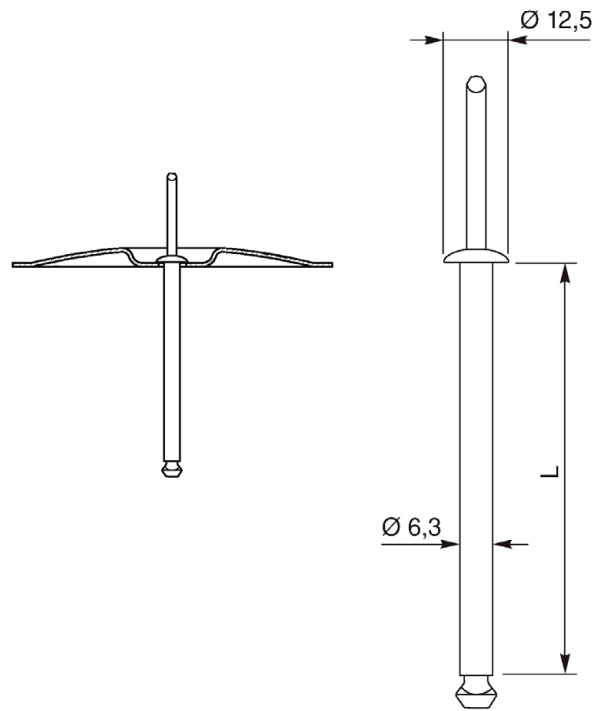
DT-S-4,8



IL-C-82x40



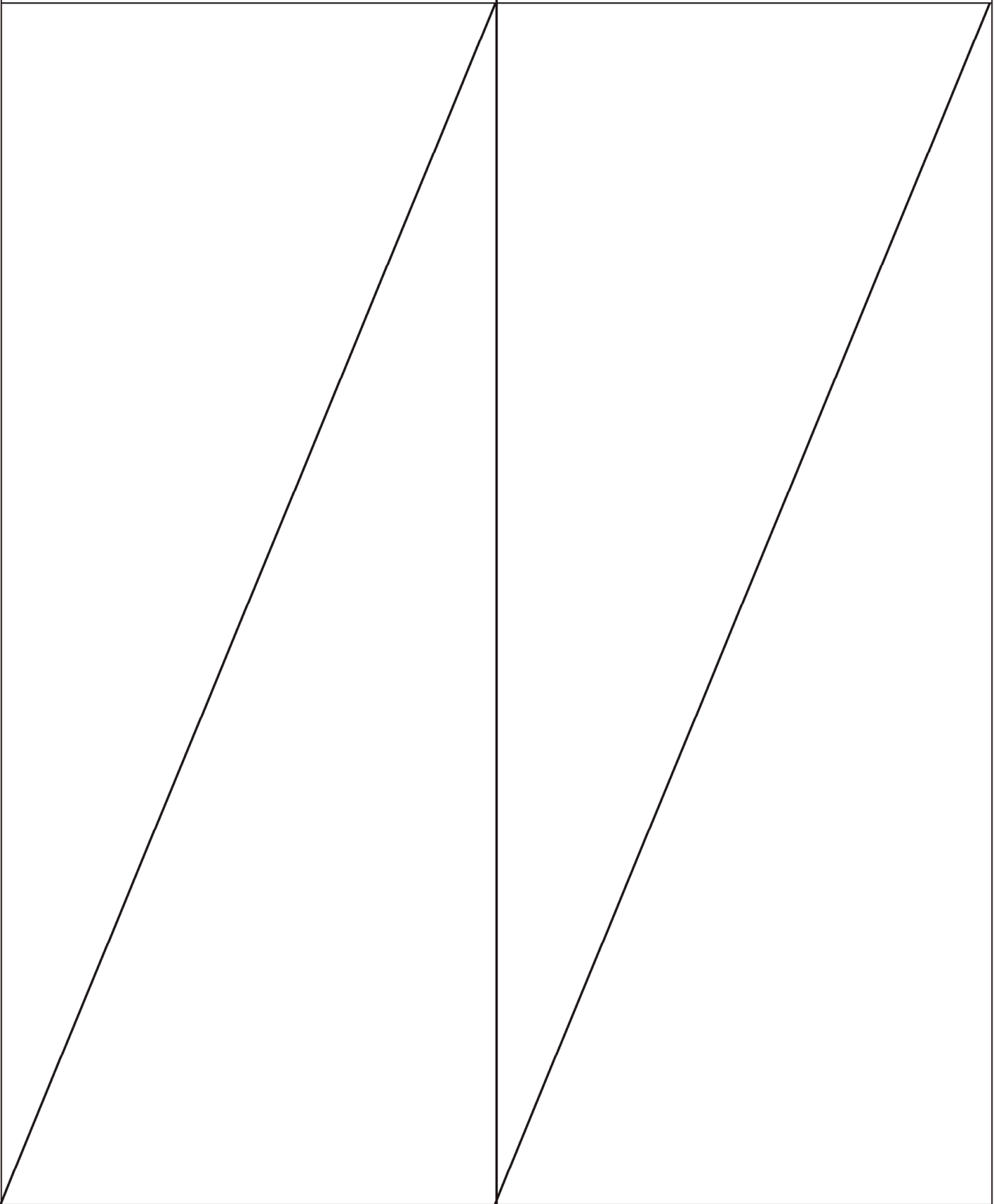
TPR-L-6,3



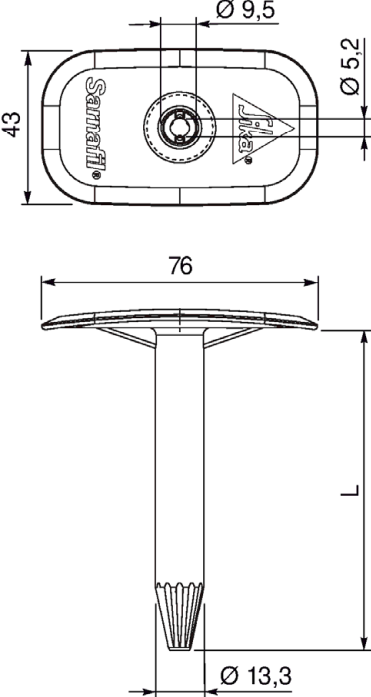
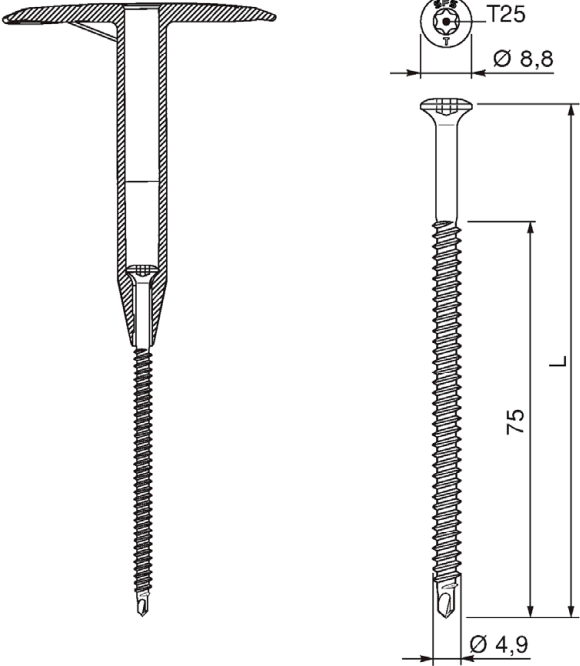
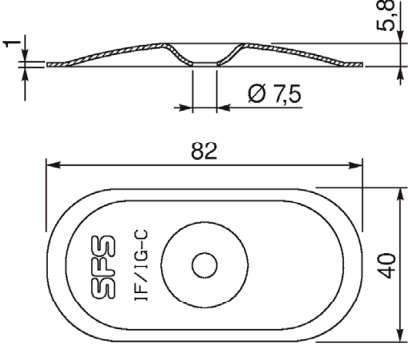
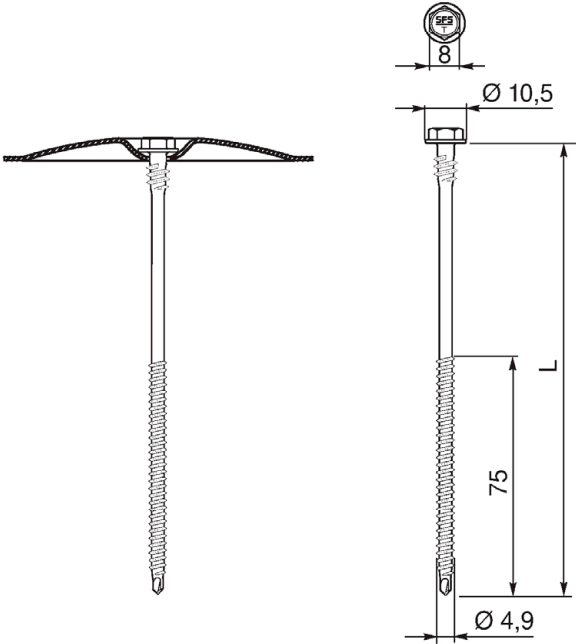
SFS Flat roof fasteners

Annex 87

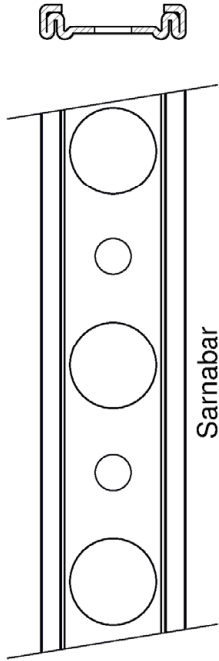


Combination 88A No longer in product range	Combination 88B No longer in product range
	
SFS Flat roof fasteners	Annex 88

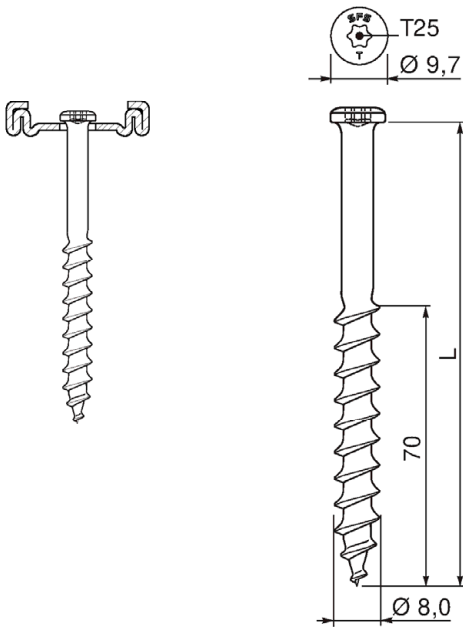
Electronic copy of the ETA by DIBt: ETA-08/0262

<p>Combination 89A BS-4,8 / Isolfast SQT</p>	<p>Combination 89B Sarnafast SF-4,8 / IF/IG-C-82x40</p>
<p><b>Isolfast SQT</b></p>  <p><b>BS-4,8</b></p> 	<p><b>IF/IG-C-82x40</b></p>  <p><b>Sarnafast SF-4,8</b></p> 
<p>SFS Flat roof fasteners</p>	<p>Annex 89</p>

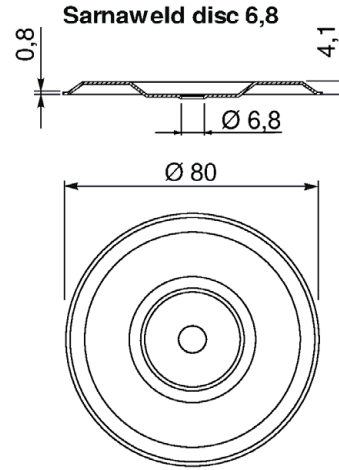
Combination 90A  
LBS-T25-8,0 / Sarnabar



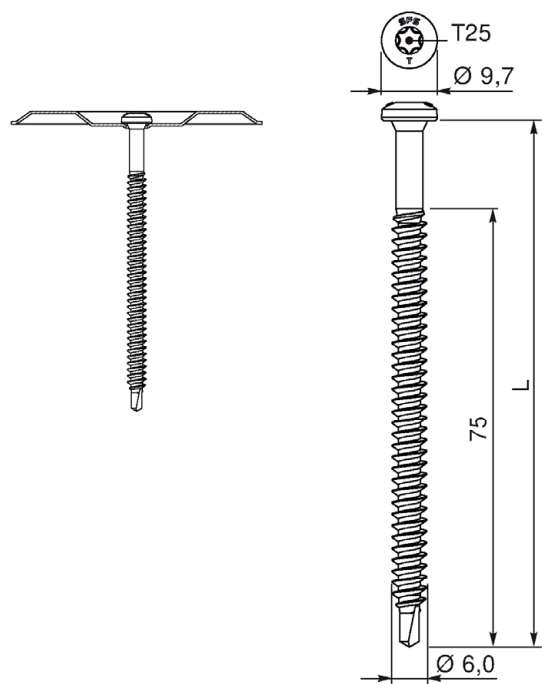
LBS-T25-8,0



Combination 90B  
Sarnafast SBF-6,0 / Sarnaweld disc 6,8



Sarnafast  
SBF-6,0



SFS Flat roof fasteners

Annex 90

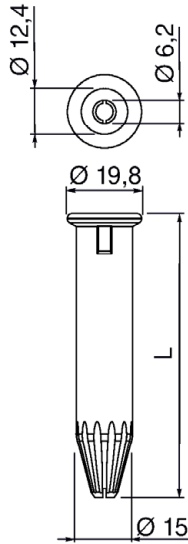
English translation prepared by DIBt

<p>Combination 91A Sarnafast SBF-6,0 / Sarnaweld disc 16 / Sarnabar Tube SBT-20</p>	<p>Combination 91B Sarnafast SBF-S-6,0 / Sarnaweld disc 6,8</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 91</p>

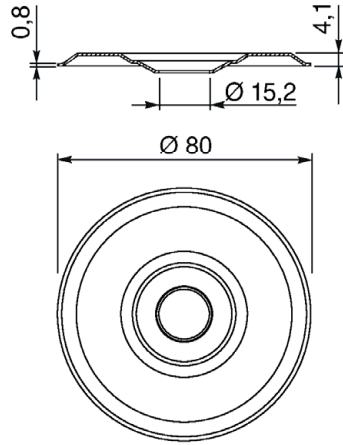
Electronic copy of the ETA by DIBt: ETA-08/0262

Combination 92A  
Sarnafast SBF-S-6,0 / Sarnaweld disc 16 /  
Sarnabar Tube SBT-20

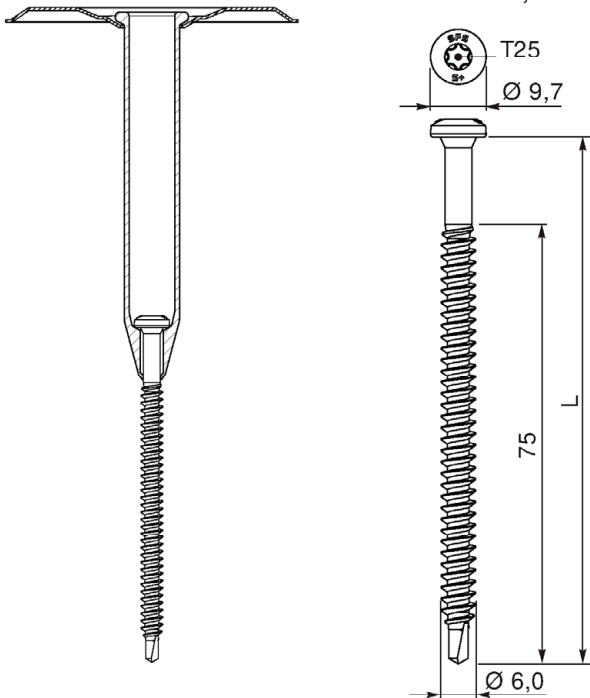
Sarnabar Tube  
SBT-20



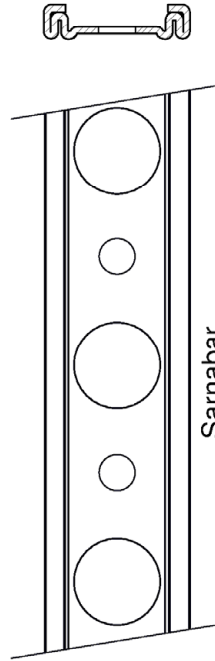
Sarnaweld disc 16



Sarnafast  
SBF-S-6,0

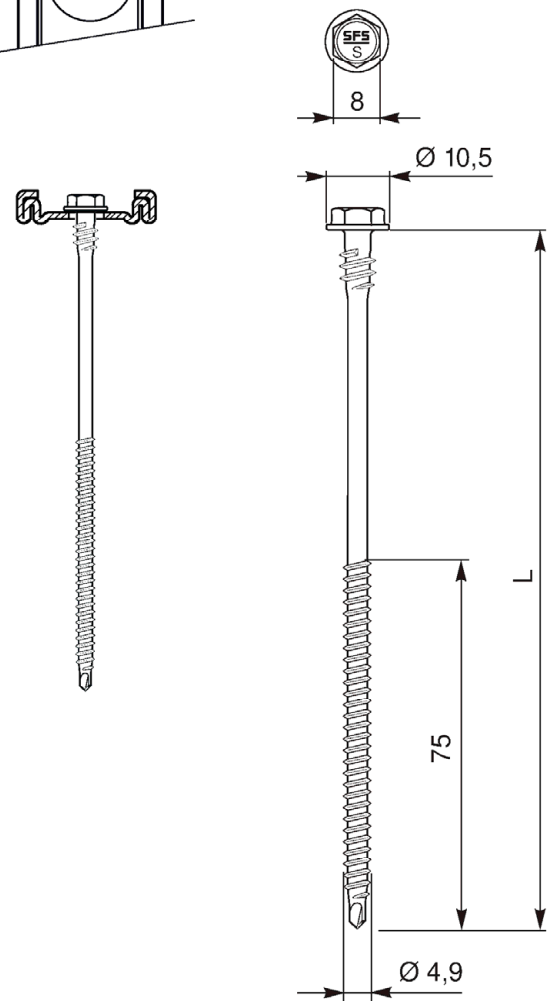


Combination 92B  
IR2-S-4,8 / Sarnabar



Sarnabar

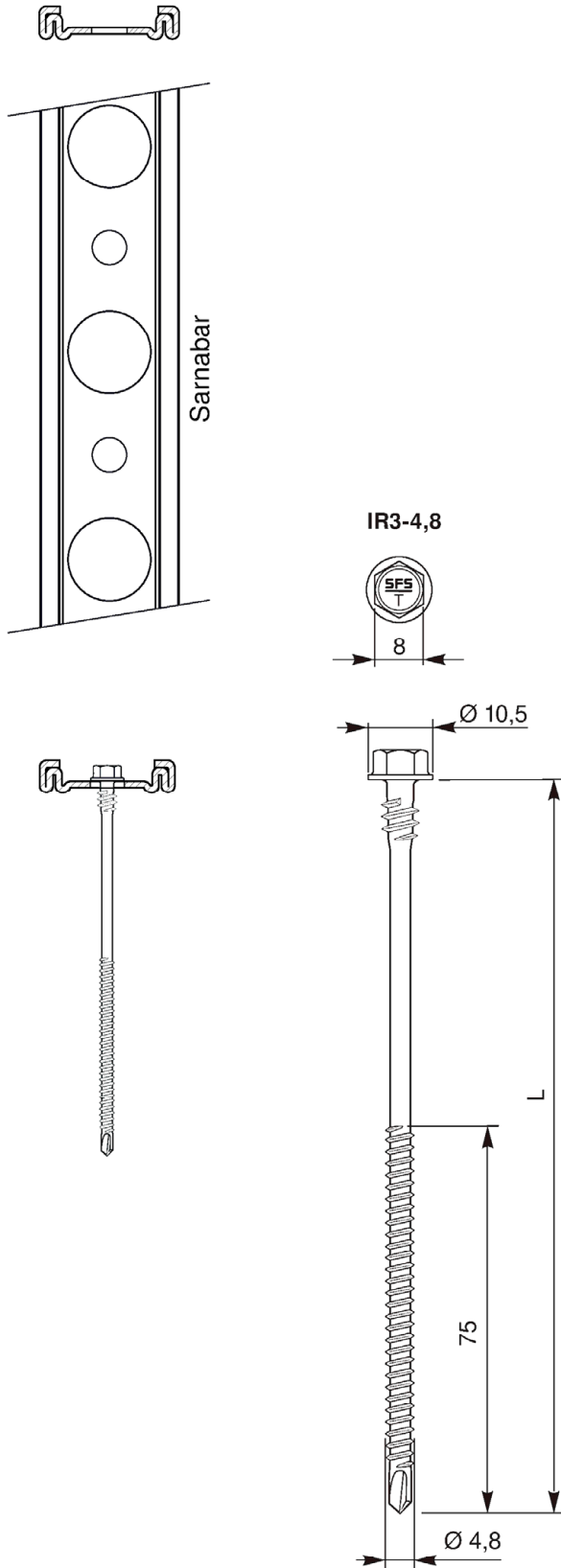
IR2-S-4,8



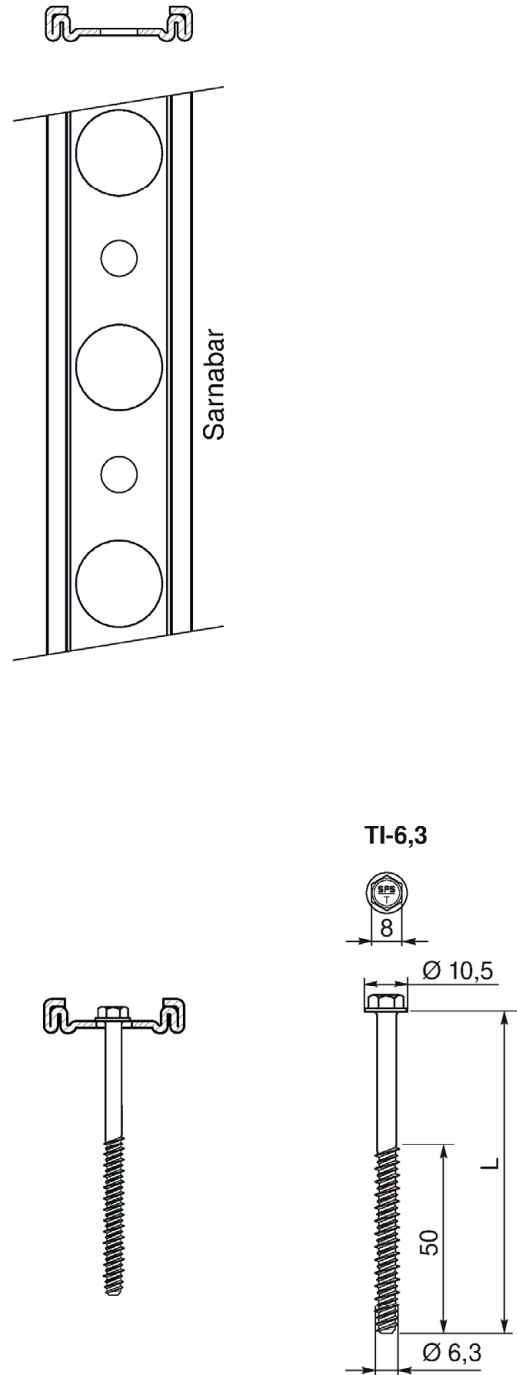
SFS Flat roof fasteners

Annex 92

Combination 93A  
IR3-4,8 / Sarnabar



Combination 93B  
TI-6,3 / Sarnabar



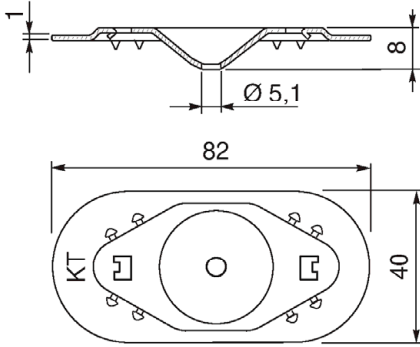
SFS Flat roof fasteners

Annex 93

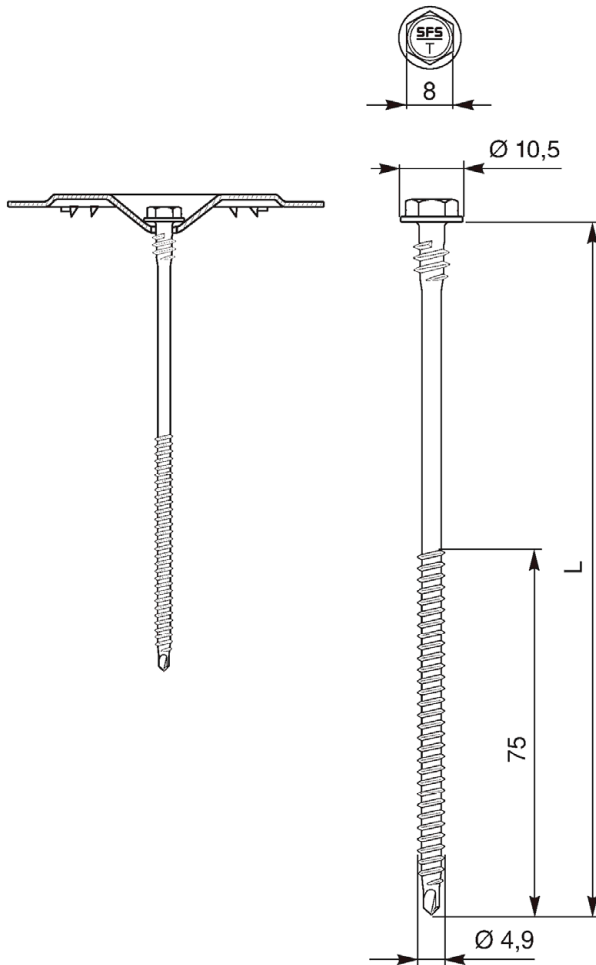
Combination 94A  
IR2-4,8 / Sarnafast KT-82x40

Combination 94B  
No longer in product range

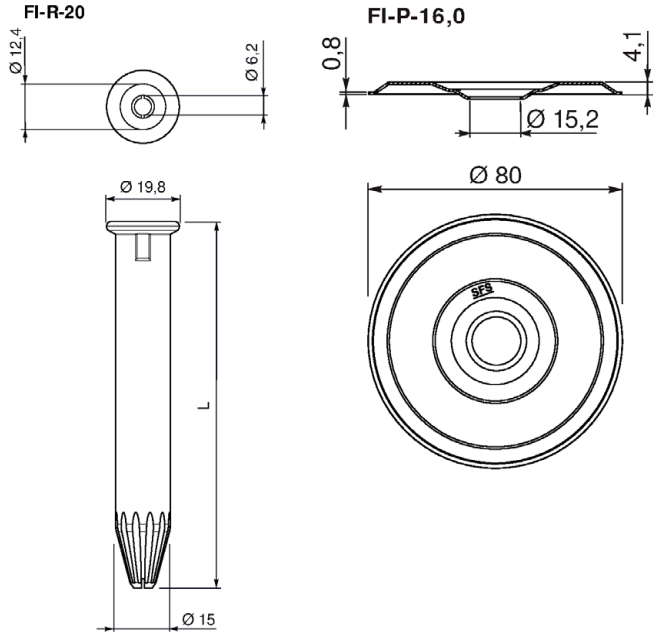
Sarnafast  
KT-82x40



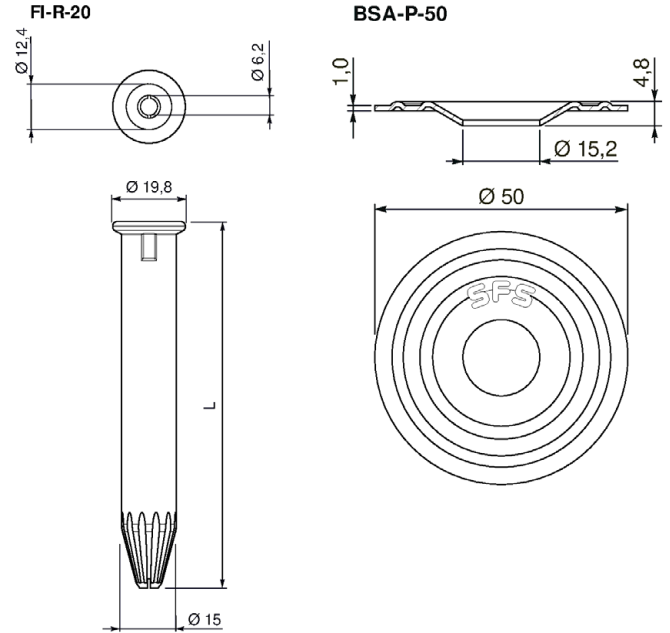
IR2-4,8



Combination 95A  
BSA-N-4,8 / FI-P-16,0 / FI-R-20



Combination 95B  
BSA-N-4,8 / BSA-P-50 / FI-R-20

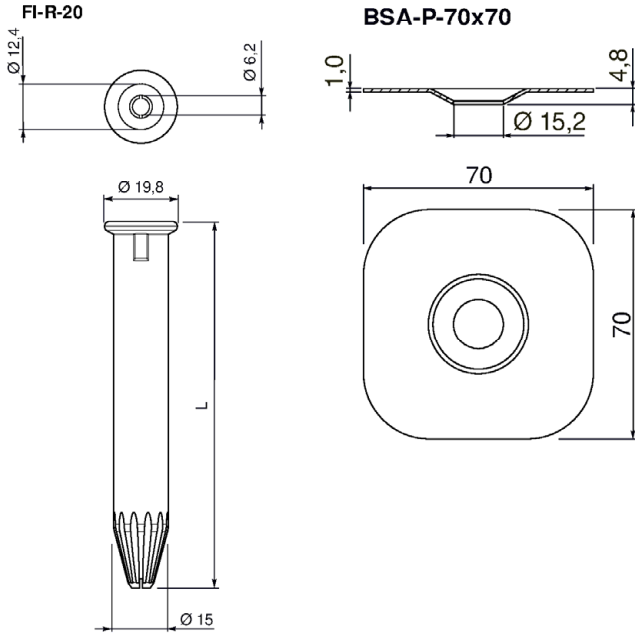


SFS Flat roof fasteners

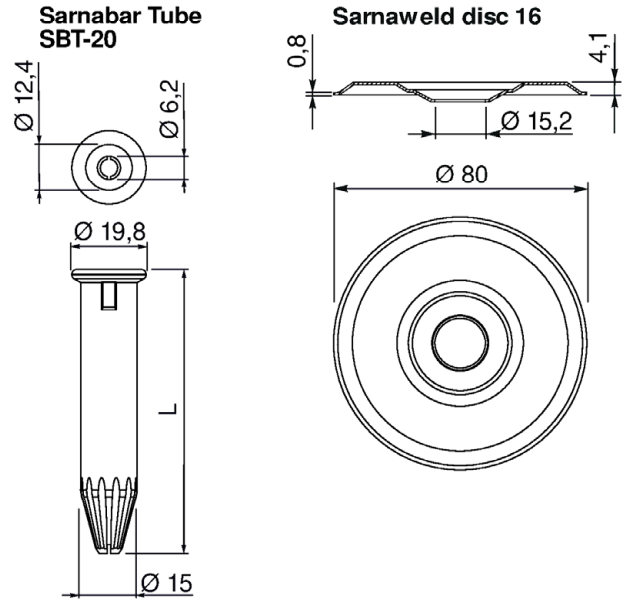
Annex 95



Combination 96A  
BSA-N-4,8 / BSA-P-70x70 / FI-R-20



Combination 96B  
BSA-N-4,8 / Sarnaweld disc 16 / Sarnabar Tube SBT-20

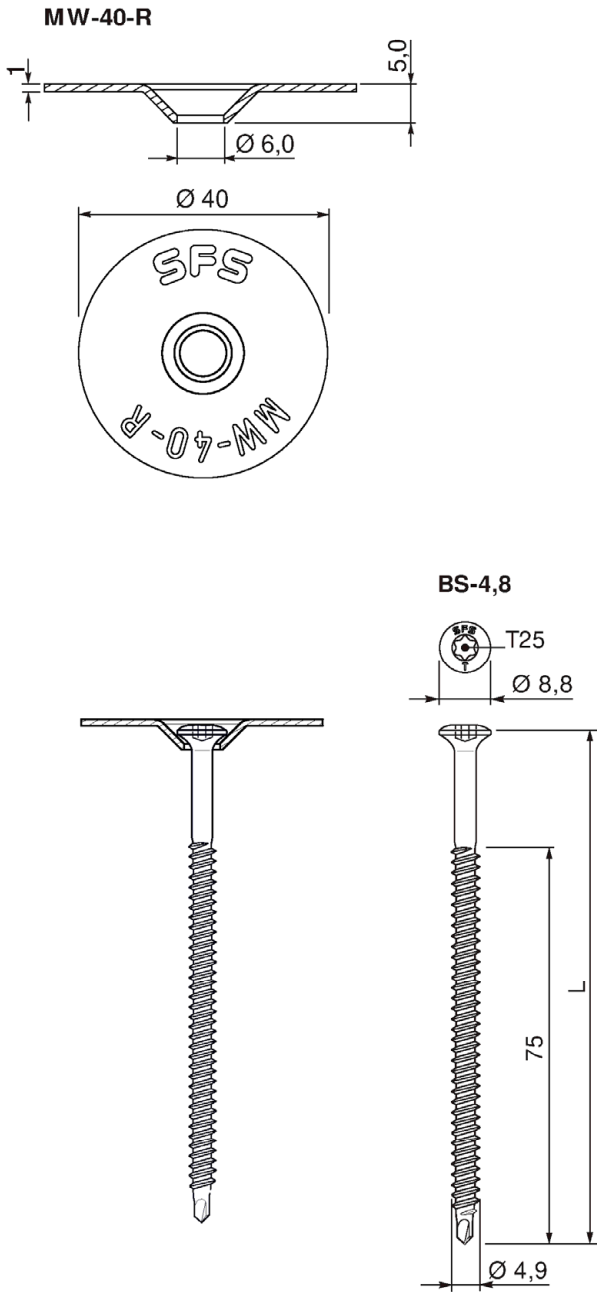
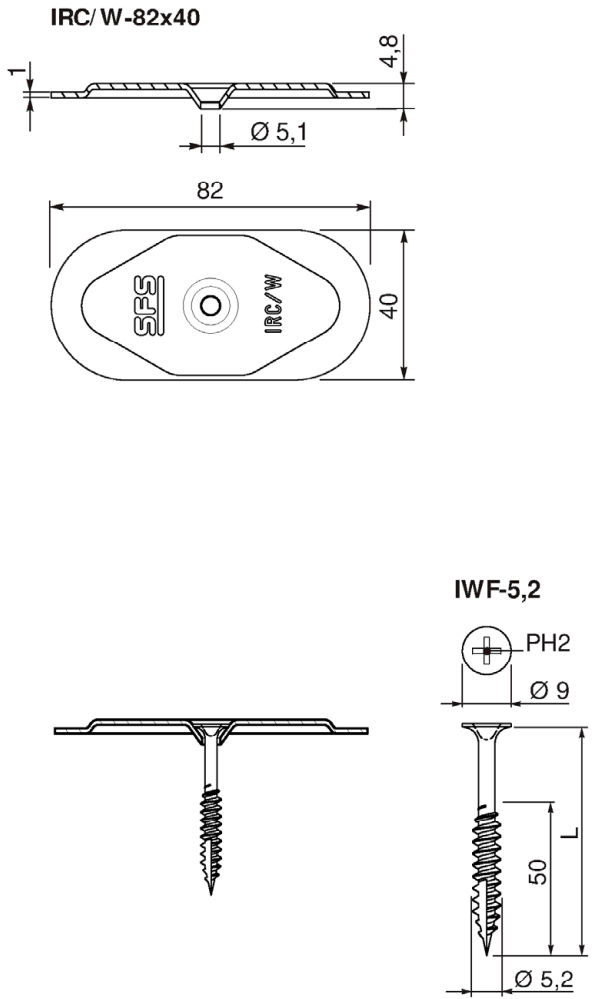


SFS Flat roof fasteners

Annex 96

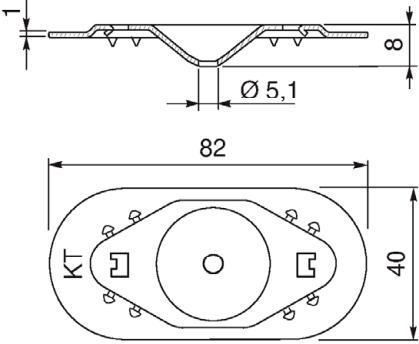
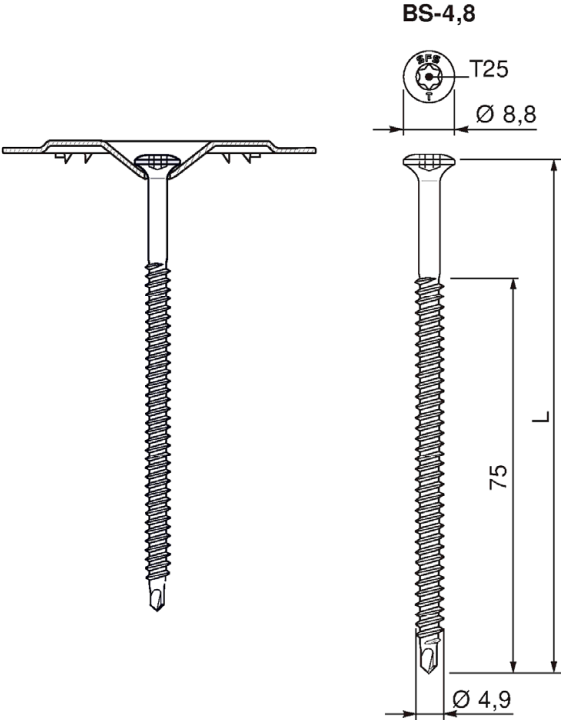
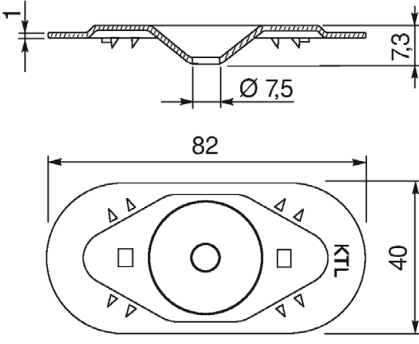
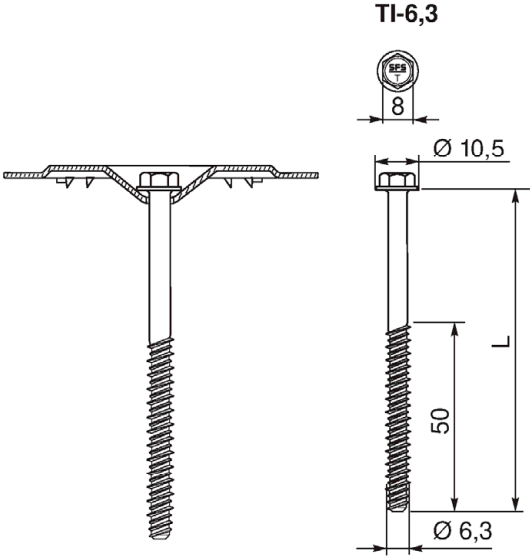
<p>Combination 97A BSA-N-4,8 / BSA-P-50 / Sarnabar Tube SBT-20</p>	<p>Combination 97B BSA-N-4,8 / Sarnafast Tube SFT-50</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 97</p>

English translation prepared by DIBt

<p>Combination 98A BS-4,8 / MW-40-R</p> 	<p>Combination 98B IWF-5,2 / IRC/W-82x40</p> 
<p>SFS Flat roof fasteners</p>	<p>Annex 98</p>

Electronic copy of the ETA by DIBt: ETA-08/0262

English translation prepared by DIBt

<p>Combination 99A BS-4,8 / Sarnafast KT-82x40</p>	<p>Combination 99B TI-6,3 / Sarnafast KTL-82x40</p>
<p><b>Sarnafast KT-82x40</b></p>  <p><b>BS-4,8</b></p> 	<p><b>Sarnafast KTL-82x40</b></p>  <p><b>TI-6,3</b></p> 
<p>SFS Flat roof fasteners</p>	<p>Annex 99</p>

Electronic copy of the ETA by DIBt: ETA-08/0262

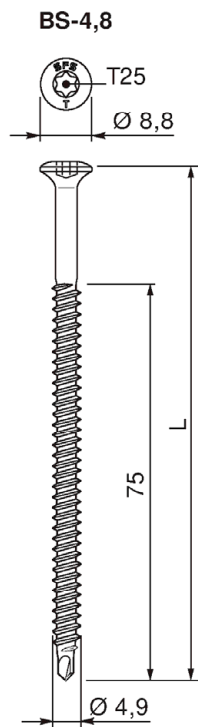
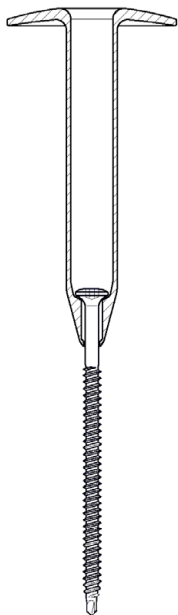
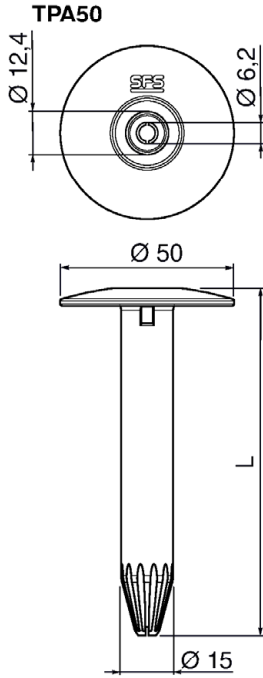
<p>Combination 100A LBS-T25-8,0 / RG50</p>	<p>Combination 100B LBS-S-T25-8,0 / RG50</p>
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>RG50</b></p> </div> <div style="text-align: center;"> <p><b>LBS-T25-8,0</b></p> </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>RG50</b></p> </div> <div style="text-align: center;"> <p><b>LBS-S-T25-8,0</b></p> </div> </div>
<p>SFS Flat roof fasteners</p>	<p>Annex 100</p>

English translation prepared by DIBt

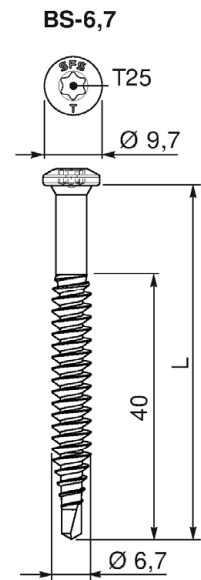
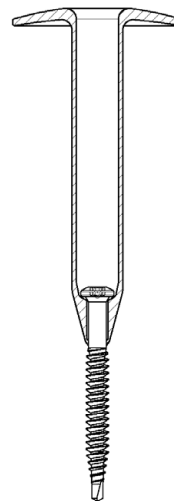
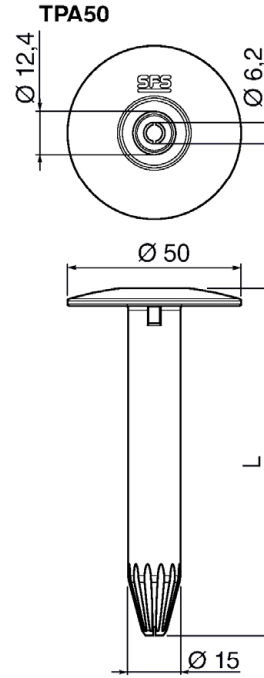
<p>Combination 101A FB-S-T25-7,5 / RG50</p>	<p>Combination 101B BSA-N-4,8 / TPA50</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 101</p>

Electronic copy of the ETA by DIBt: ETA-08/0262

Combination 102A  
BS-4,8 / TPA50



Combination 102B  
BS-6,7 / TPA50

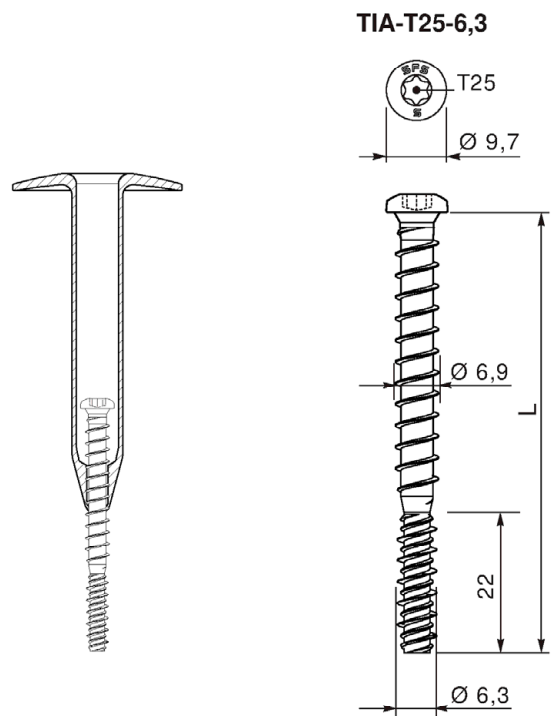
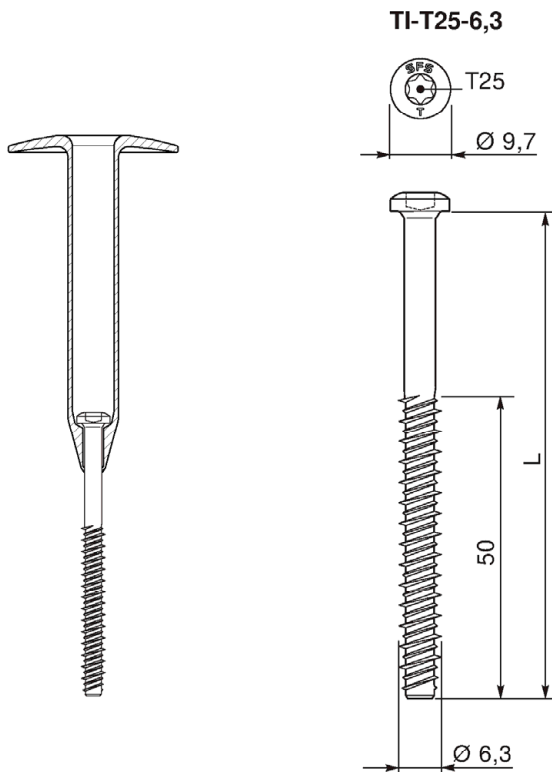
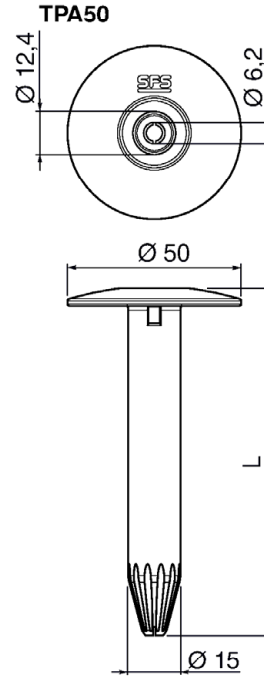
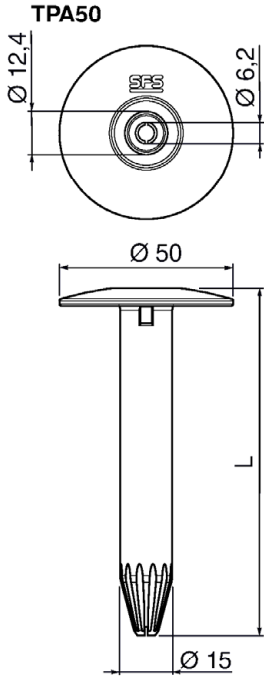


SFS Flat roof fasteners

Annex 102

Combination 103A  
TI-T25-6,3 / TPA50

Combination 103B  
TIA-T25-6,3 / TPA50

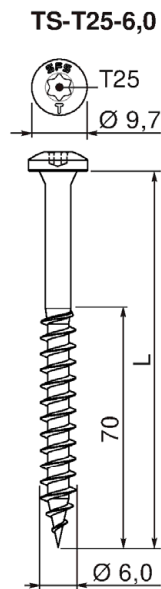
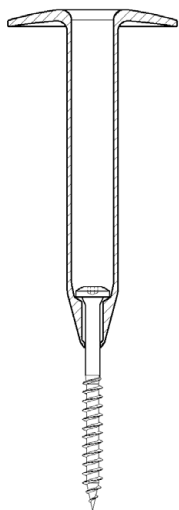
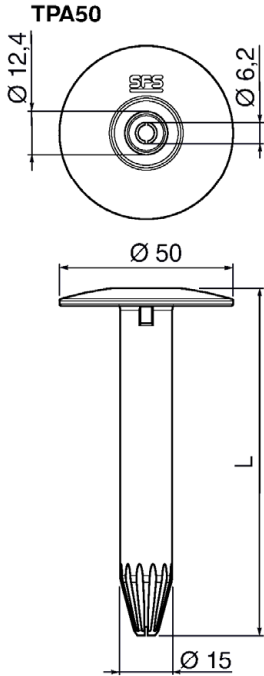


SFS Flat roof fasteners

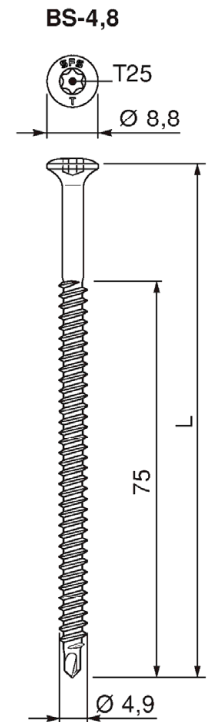
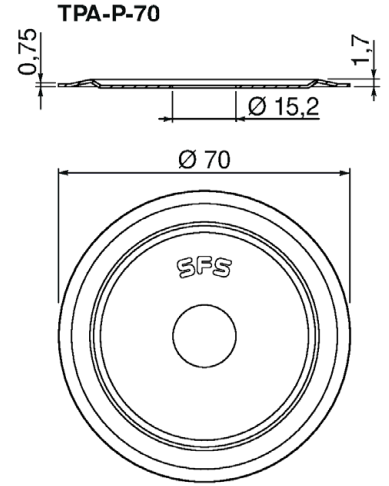
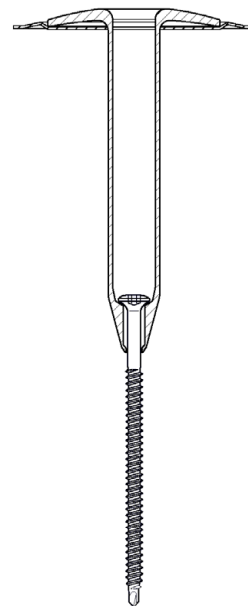
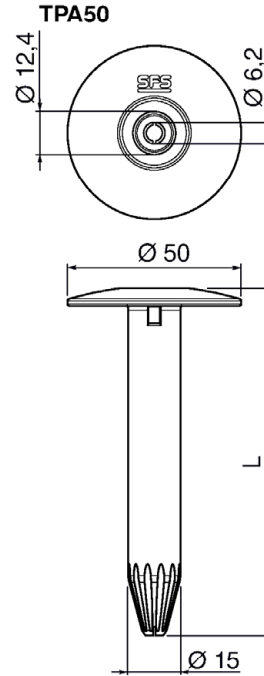
Annex 103



Combination 104A  
TS-T25-6,0 / TPA50



Combination 104B  
BS-4,8 / TPA-P-70 / TPA50



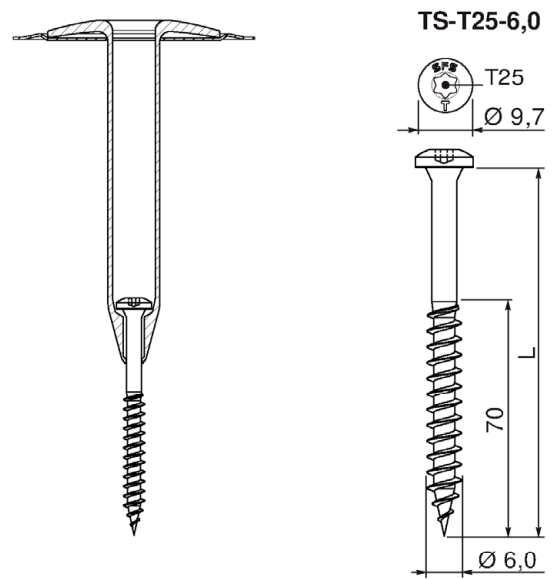
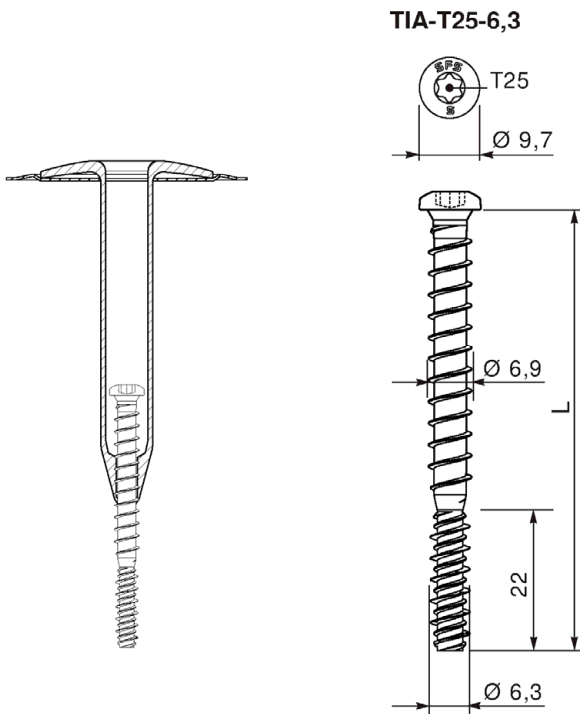
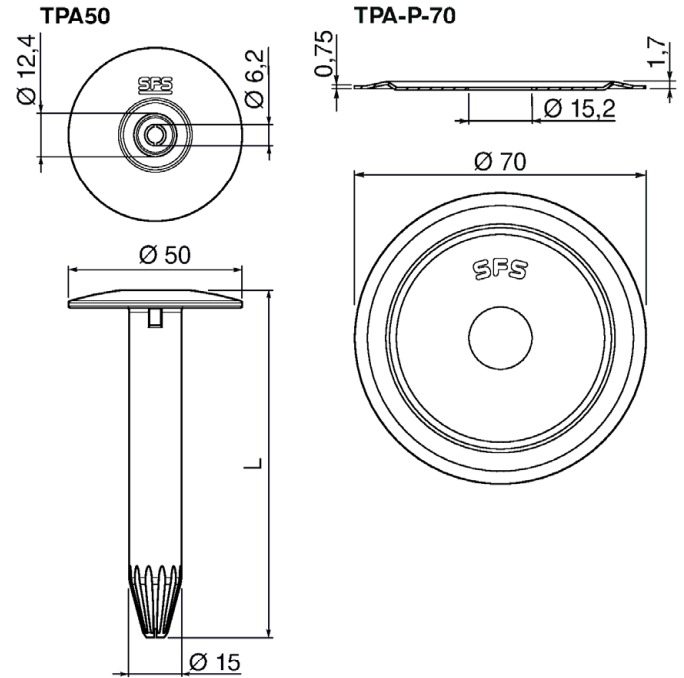
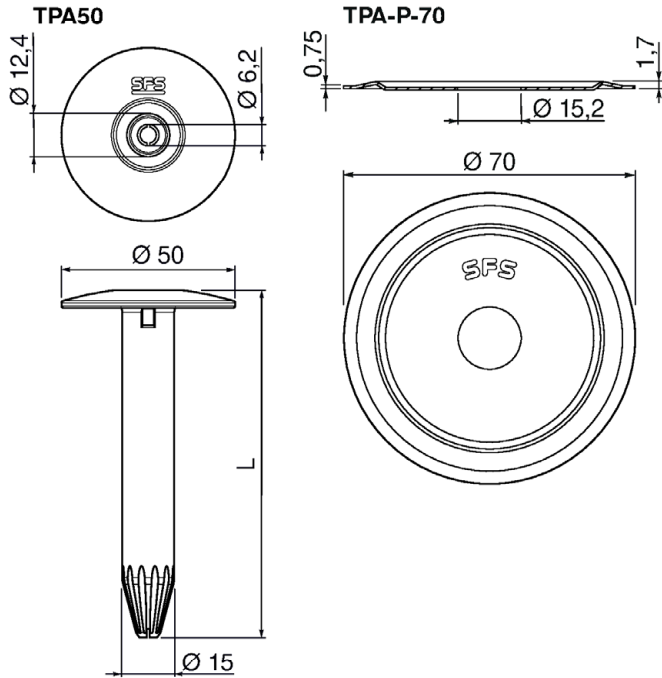
SFS Flat roof fasteners

Annex 104

<p>Combination 105A BS-6,7 / TPA-P-70 / TPA50</p>	<p>Combination 105B TI-T25-6,3 / TPA-P-70 / TPA50</p>
<p>SFS Flat roof fasteners</p>	<p>Annex 105</p>

Combination 106A  
TIA-T25-6,3 / TPA-P-70 / TPA50

Combination 106B  
TS-T25-6,0 / TPA-P-70 / TPA50



SFS Flat roof fasteners

Annex 106

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for metallic substructures																			
			Steel sheet acc. to EN 10346																	Alu <sup>3)</sup>		
	Fastener	Stress Plate / Sleeve / Bar	S320GD <sup>1)</sup>																		S350GD	S420GD
			Sheet thickness $t \geq$ [mm]																			
		0,50	0,60	0,63	0,70	0,75	0,80	0,88	1,00	1,25	1,50	0,60	0,70	1,00	0,60	0,65	0,75	0,75	0,60			
1A	IR2-4,8	IR-82x40	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-		
1B	IR2-4,8	IF-70x70	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-		
2A	IR2-S-4,8	IR-82x40	-	1,04	1,04	1,31	1,5	1,63	1,84	2,16	-	-	-	-	-	-	-	-	-	-		
2B	IR3-4,8	IR-82x40	-	-	-	-	-	-	-	1,26	2,00	2,63	-	-	-	-	-	-	-	-		
3A	IR2-C-4,8	IRC/W-82x40	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	2,83	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-		
3B	BS-4,8	RP50	-	1,03	1,09	1,23	1,23	1,23	1,23	1,23	1,23	-	1,23	1,23	1,23	1,23	1,23	1,23	-	-		
4A	BS-4,8	R50	-	1,03	1,09	1,34	1,38	1,38	1,38	1,38	1,38	-	1,32	1,38	1,38	1,38	1,38	1,38	-	-		
4B	BS-4,8	R75	-	1,03	1,09	1,34	1,38	1,38	1,38	1,38	1,38	-	1,32	1,38	1,38	1,38	1,38	1,38	-	-		
5A	BS-4,8	RP75	-	1,03	1,09	1,23	1,23	1,23	1,23	1,23	1,23	-	1,23	1,23	1,23	1,23	1,23	1,23	-	-		
6B	BS-4,8	R48	-	1,03	1,09	1,34	1,38	1,38	1,38	1,38	1,38	-	1,32	1,38	1,38	1,38	1,38	1,38	-	-		
7A	BS-4,8	RP48	-	1,03	1,09	1,23	1,23	1,23	1,23	1,23	1,23	-	1,23	1,23	1,23	1,23	1,23	1,23	-	-		
7B	BS-4,8	SH-18/65 / Protan steelbar	-	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	-	1,03	1,03	1,03	1,03	1,03	1,03	-	-		
8A	BS-S-4,8	RP50	-	1,04	1,04	1,23	1,23	1,23	1,23	1,23	-	-	-	-	-	-	-	-	-	-		
9A	BS3-4,8	RP50	-	-	-	-	-	-	-	1,23	1,23	1,23	-	-	-	-	-	-	-	-		
9B	BS-6,1	R50	0,97	1,17	1,17	1,38	1,42	1,42	1,42	1,42	1,42	-	1,42	1,42	1,42	1,42	1,42	1,42	-	0,50		
10A	IIP2-6,7	IRP-82x40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,87	-		
10B	BS-6,7	R50	1,42	1,42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,87	0,54		
11A	BS-6,7	R75	1,42	1,42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,87	0,54		
12A	BS-S-6,7	R50	1,42	1,42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,87	0,54		
12B	BS-S-6,7	R75	1,42	1,42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,87	0,54		
13B	TPR-L-6,3 <sup>4)</sup>	IRD-82x40	0,99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,69		

1) For steel sheet of S280GD the values have to be reduced to 92%  
 2) Perforated steel sheet of S320GD (EN 10346), triangular array of holes, hole diameter 5,0mm, distance of holes 12,5mm  
 3) Aluminium sheet,  $R_m \geq 195N/mm^2$   
 4) Pre-drill diameter = 7,0mm

SFS Flat roof fasteners

Annex 107

Z51792.22

8.04.02-23/22

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for metallic substructures																			
			Steel sheet acc. to EN 10346																	Alu <sup>3)</sup>		
	Fastener	Stress Plate / Sleeve / Bar	S320GD <sup>1)</sup>																		S350GD	S420GD
			Sheet thickness $t \geq$ [mm]																			
		0,50	0,60	0,63	0,70	0,75	0,80	0,88	1,00	1,25	1,50	0,60	0,70	1,00	0,60	0,65	0,75	0,75	0,60			
28B	BS-4,8	Sarnafast Tube SFT-50	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,08	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-		
29A	BS-4,8	Sarnabar Tube SBT-20 / Sarnabar	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,00	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-		
29B	BS-S-4,8	Sarnafast Tube SFT-50	-	1,04	1,04	1,31	1,50	1,63	1,84	2,16	-	-	-	-	-	-	-	-	-	-		
30A	BS-S-4,8	Sarnabar Tube SBT-20 / Sarnabar	-	1,04	1,04	1,31	1,50	1,63	1,84	2,16	-	-	-	-	-	-	-	-	-	-		
30B	Sarnafast SF-4,8	Sarnafast KT-82x40	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-		
31A	Sarnafast SF-4,8	Sarnafast DT-70x70	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-		
31B	Sarnafast SBF-6,0	Sarnafast Tube SFT-50	0,97	1,17	1,17	1,38	1,53	1,63	1,8	2,04	2,91	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50		
32A	Sarnafast SBF-6,0	Sarnabar Tube SBT-20 / Sarnabar	0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,91	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50		
35A	IF2-6,1	IRD-82x40	-	-	1,11	-	-	-	-	1,16	-	-	-	-	-	-	-	-	-	-		
35B	IF2-6,1	ID-70x70	-	-	1,11	-	-	-	-	1,16	-	-	-	-	-	-	-	-	-	-		
39A	BS-4,8	FI-P-6,8	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	2,29	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-		
39B	BS-S-4,8	FI-P-6,8	-	1,04	1,04	1,31	1,50	1,63	1,84	2,16	-	-	-	-	-	-	-	-	-	-		
40B	BS-6,1	FI-P-6,8	0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,83	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50		
44B	Sarnafast SBF-6,0	FI-P-6,8	0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,83	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50		
45A	Sarnafast SBF-S-6,0	FI-P-6,8	1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	-	0,50		
46A	BS-4,8	FI-P-16,0 / FI-R-20	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,00	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-		
46B	BS-S-4,8	FI-P-16,0 / FI-R-20	-	1,04	1,04	1,31	1,50	1,63	1,84	2,16	-	-	-	-	-	-	-	-	-	-		
47B	BS-6,1	FI-P-16,0 / FI-R-20	0,97	1,17	1,17	1,38	1,53	1,63	1,8	2,04	2,91	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50		
49B	Sarnafast SBF-6,0	FI-P-16,0 / FI-R-20	0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,91	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50		
50A	Sarnafast SBF-S-6,0	FI-P-16,0 / FI-R-20	1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	-	0,50		

1) For steel sheet of S280GD the values have to be reduced to 92%  
 2) Perforated steel sheet of S320GD (EN 10346), triangular array of holes, hole diameter 5,0mm, distance of holes 12,5mm  
 3) Aluminium sheet,  $R_m \geq 195N/mm^2$

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for metallic substructures																	
			Steel sheet acc. to EN 10346																	Alu <sup>3)</sup>
			S320GD <sup>1)</sup>						S350GD			S420GD			Perf <sup>2)</sup>					
			Fastener	Stress Plate / Sleeve / Bar	Sheet thickness $t \geq$ [mm]															
0,50	0,60	0,63			0,70	0,75	0,80	0,88	1,00	1,25	1,50	0,60	0,70	1,00	0,60	0,65	0,75	0,75	0,60	
51B	IRF-4,8	IRF-40x40	-	-	-	-	1,30	1,31	1,33	1,35	-	-	-	-	-	-	-	-	-	
52A	IRF-4,8	IRF-64x64	-	-	-	-	1,30	1,31	1,33	1,35	-	-	-	-	-	-	-	-	-	
52B	IRF-4,8	IRF-82x40	-	-	-	-	1,30	1,31	1,33	1,35	-	-	-	-	-	-	-	-	-	
53A	IRF-4,8	IRF-40	-	-	-	-	1,30	1,31	1,33	1,35	-	-	-	-	-	-	-	-	-	
53B	IRFP-6,3	IRFP-40x40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,91	-	
54A	IRFP-6,3	IRFP-64x64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,91	-	
54B	IRFP-6,3	IRFP-82x40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,91	-	
55A	IRFP-6,3	IRFP-40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,91	-	
56A	Sarnafast SBF-6,0	Isolfix SRT	0,97	1,17	1,17	1,38	1,42	1,42	1,42	1,42	1,42	-	1,42	1,42	1,42	1,42	1,42	-	0,50	
56B	Sarnafast SBF-S-6,0	Isolfix SRT	1,00	1,21	1,21	1,42	1,42	1,42	1,42	1,42	-	-	-	-	-	-	-	-	0,50	
57A	BS-6,7	Isolfix SRT	1,42	1,42	-	-	-	-	-	-	-	-	-	-	-	-	-	0,87	0,54	
57B	Sarnafast SBF-6,0	Sarnafast KTL-82x40	0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,56	-	1,44	1,58	2,19	1,44	1,57	1,92	0,50	
58A	Sarnafast SBF-6,0	Sarnafast DTL-70x70	0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,56	-	1,44	1,58	2,19	1,44	1,57	1,92	0,50	
58B	Sarnafast SBF-6,0	IF/IG-C-82x40	0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,68	-	1,44	1,58	2,19	1,44	1,57	1,92	0,50	
59A	Sarnafast SBF-S-6,0	Sarnafast KTL-82x40	1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	0,50	
59B	Sarnafast SBF-S-6,0	Sarnafast DTL-70x70	1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	0,50	
60A	Sarnafast SBF-S-6,0	IF/IG-C-82x40	1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	0,50	
60B	Sarnafast SBF-S-6,0	Sarnafast Tube SFT-50	1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	0,50	
61A	Sarnafast SBF-S-6,0	Sarnabar Tube SBT-20 / Sarnabar	1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	0,50	
61B	Sarnafast SBF-6,0	SBIW-70x70 / Sarnabar Tube SBT-20	0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,91	-	1,44	1,58	2,19	1,44	1,57	1,92	0,50	

1) For steel sheet of S280GD the values have to be reduced to 92%  
 2) Perforated steel sheet of S320GD (EN 10346), triangular array of holes, hole diameter 5,0mm, distance of holes 12,5mm  
 3) Aluminium sheet,  $R_m \geq 195N/mm^2$

SFS Flat roof fasteners

Annex 109

Z51792.22

8.04.02-23/22

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for metallic substructures																					
			Steel sheet acc. to EN 10346																	Alu <sup>3)</sup>				
	Fastener		Stress Plate / Sleeve / Bar		S320GD <sup>1)</sup>																S350GD		S420GD	
					Sheet thickness $t \geq$ [mm]																			
				0,50	0,60	0,63	0,70	0,75	0,80	0,88	1,00	1,25	1,50	0,60	0,70	1,00	0,60	0,65	0,75	0,75	0,60			
63B	BS-4,8	ST-25		-	1,03	1,09	1,34	1,38	1,38	1,38	1,38	1,38	1,38	-	1,32	1,38	1,38	1,38	1,38	1,38	-	-		
64B	TPR-L-6,3 <sup>4)</sup>	IF/IG-C-82x40		0,99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,69		
65B	BS-4,8	NPP		-	1,03	1,09	1,34	1,45	1,45	1,45	1,45	1,45	-	1,32	1,44	1,45	1,44	1,44	1,44	1,45	-	-		
66A	BS-S-4,8	NPP		-	1,04	1,04	1,31	1,45	1,45	1,45	1,45	-	-	-	-	-	-	-	-	-	-	-		
66B	BS-4,8	NPS		-	1,03	1,09	1,34	1,38	1,38	1,38	1,38	1,38	-	1,32	1,38	1,38	1,38	1,38	1,38	1,38	-	-		
67A	BS-6,7	NPS		1,42	1,42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,87	0,54		
67B	BS-S-6,7	NPS		1,42	1,42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,87	0,54		
70A	Sarnafast SBF-6,0	R75		0,97	1,17	1,17	1,38	1,42	1,42	1,42	1,42	1,42	-	1,42	1,42	1,42	1,42	1,42	1,42	1,42	-	0,50		
70B	BS3-4,8	RP48		-	-	-	-	-	-	-	1,23	1,23	1,23	-	-	-	-	-	-	-	-	-		
71A	BS-4,8	MW-40-F		-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	2,60	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-	-		
71B	BS-6,1	MW-40-F		0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,91	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50	-		
72A	BS-4,8	IR-82x40		-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-	-		
72B	BS-6,1	IRD-82x40		0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,56	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50	-		
75A	Sarnafast SF-4,8	Sarnabar		-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-	-		
75B	Sarnafast SBF-6,0	Sarnabar		0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,91	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50	-		
76A	Sarnafast SBF-S-6,0	Sarnabar		1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	-	-	0,50		
76B	IR2-4,8	Sarnabar		-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-	-		
81B	BS-S-6,1	FI-P-6,8		1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	-	-	0,50		
82A	BS-S-6,1	FI-P-16,0 / FI-R-20		1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	-	-	0,50		
85A	TPR-L-6,3 <sup>4)</sup>	FI-P-6,8		0,99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,69		
87B	TPR-L-6,3 <sup>4)</sup>	IL-C-82x40		0,99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,69		

1) For steel sheet of S280GD the values have to be reduced to 92%

2) Perforated steel sheet of S320GD (EN 10346), triangular array of holes, hole diameter 5,0mm, distance of holes 12,5mm

3) Aluminium sheet,  $R_m \geq 195N/mm^2$  4) Pre-drill diameter = 7,0mm

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for metallic substructures																		
			Steel sheet acc. to EN 10346																		Alu <sup>3)</sup>
			S320GD <sup>1)</sup>						S350GD			S420GD			Perf <sup>2)</sup>						
			Fastener	Stress Plate / Sleeve / Bar	Sheet thickness $t \geq$ [mm]																
0,50	0,60	0,63			0,70	0,75	0,80	0,88	1,00	1,25	1,50	0,60	0,70	1,00	0,60	0,65	0,75	0,75	0,60		
89A	BS-4,8	Isofast SQT	-	1,03	1,09	1,34	1,45	1,45	1,45	1,45	1,45	-	1,32	1,44	1,45	1,44	1,44	1,45	-	-	
89B	Sarnafast SF-4,8	IF/IG-C-82x40	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-	
90B	Sarnafast SBF-6,0	Sarnaweld disc 6,8	0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,83	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50	
91A	Sarnafast SBF-6,0	Sarnaweld disc 16 / Sarnabar Tube SBT-20	0,97	1,17	1,17	1,38	1,53	1,63	1,80	2,04	2,91	-	1,44	1,58	2,19	1,44	1,57	1,92	-	0,50	
91B	Sarnafast SBF-S-6,0	Sarnaweld disc 6,8	1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	-	0,50	
92A	Sarnafast SBF-S-6,0	Sarnaweld disc 16 / Sarnabar Tube SBT-20	1,00	1,21	1,21	1,47	1,66	1,81	2,04	2,39	-	-	-	-	-	-	-	-	-	0,50	
92B	IR2-S-4,8	Sarnabar	-	1,04	1,04	1,31	1,50	1,63	1,84	2,16	-	-	-	-	-	-	-	-	-	-	
93A	IR3-4,8	Sarnabar	-	-	-	-	-	-	-	1,26	2,00	2,63	-	-	-	-	-	-	-	-	
94A	IR2-4,8	Sarnafast KT-82x40	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-	
95A	BSA-N-4,8	FI-P-16,0 / FI-R-20	-	0,89	0,89	1,08	1,22	1,29	1,40	1,57	2,04	-	-	-	-	-	-	-	-	-	
95B	BSA-N-4,8	BSA-P-50 / FI-R-20	-	0,89	0,89	1,08	1,22	1,29	1,40	1,57	2,04	-	-	-	-	-	-	-	-	-	
96A	BSA-N-4,8	BSA-P-70x70 / FI-R-20	-	0,89	0,89	1,08	1,22	1,29	1,40	1,57	2,04	-	-	-	-	-	-	-	-	-	
96B	BSA-N-4,8	Sarnaweld disc 16 / Sarnabar Tube SBT-20	-	0,89	0,89	1,08	1,22	1,29	1,40	1,57	2,04	-	-	-	-	-	-	-	-	-	
97A	BSA-N-4,8	BSA-P-50 / Sarnabar Tube SBT-20	-	0,89	0,89	1,08	1,22	1,29	1,40	1,57	2,04	-	-	-	-	-	-	-	-	-	
97B	BSA-N-4,8	Sarnabar Tube SFT-50	-	0,89	0,89	1,08	1,22	1,29	1,40	1,57	2,04	-	-	-	-	-	-	-	-	-	
98A	BS-4,8	MW-40-R	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-	
99A	BS-4,8	Sarnafast KT-82x40	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,15	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-	
101B	BSA-N-4,8	TPA50	-	0,89	0,89	1,08	1,22	1,29	1,40	1,57	2,04	-	-	-	-	-	-	-	-	-	
102A	BS-4,8	TPA50	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,08	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-	
102B	BS-6,7	TPA50	1,47	1,47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,87	0,54	
104B	BS-4,8	TPA-P-70 / TPA50	-	1,03	1,09	1,34	1,52	1,67	1,91	2,27	3,08	-	1,32	1,44	2,27	1,44	1,44	1,74	-	-	
105A	BS-6,7	TPA-P-70 / TPA50	1,47	1,47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,87	0,54	

1) For steel sheet of S280GD the values have to be reduced to 92%

2) Perforated steel sheet of S320GD (EN 10346), triangular array of holes, hole diameter 5,0mm, distance of holes 12,5mm

3) Aluminium sheet,  $R_m \geq 195N/mm^2$



Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for non-metallic substructures																	
			Timber			Concrete (EN 206-1)						Aerated Concrete (DIN 4223-1)				Pumice Panel (EN 1520)				
			OSB3 <sup>1)</sup>	C24 <sup>2)</sup>	Ply <sup>3)</sup>	C12/15	C25/30	$sd_1^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]	C12/15	C25/30	$sd_2^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]	P3.3 density $\geq 0,45$	P4.4 density $\geq 0,55$	$sd^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]	LAC 6 D 1,0	$sd^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]
1A	IR2-4,8	IR-82×40	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1B	IR2-4,8	IF-70×70	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2A	IR2-S-4,8	IR-82×40	1,12	1,90	1,88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3A	IR2-C-4,8	IRC/W-82×40	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3B	BS-4,8	RP50	1,23	1,23	1,23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4A	BS-4,8	R50	1,38	1,32	1,38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4B	BS-4,8	R75	1,38	1,32	1,38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5A	BS-4,8	RP75	1,23	1,23	1,23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6B	BS-4,8	R48	1,38	1,32	1,38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7A	BS-4,8	RP48	1,23	1,23	1,23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7B	BS-4,8	SH-18/65 / Protan steelbar	1,03	1,03	1,03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8A	BS-S-4,8	RP50	1,12	1,23	1,23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9B	BS-6,1	R50	1,32	1,42	1,42	0,72	1,42	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
14A	IG-6,0	IRD-82×40	1,31	1,43	2,49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14B	TS-T25-6,0	R50	1,31	1,42	1,42	0,44	0,89	32	5,0	1,42	1,42	50	5,0	1,07	1,42	75	-	-	-	-
15A	IWF-5,2	MW-40-FH	1,35	1,74	1,74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16A	IW-S-5,0	IRC/W-82×40	1,08	1,12	2,04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16B	LBS-S-T25-8,0	R50	-	-	-	-	-	-	-	-	-	-	-	0,93	1,43	60	-	-	-	-
17A	LBS-T25-8,0	MW-40-LBS	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-
17B	LBS-T25-8,0	R50	-	-	-	-	-	-	-	-	-	-	-	0,93	1,43	60	-	-	-	-
18A	LB45		-	-	-	-	-	-	-	-	-	-	-	1,44	1,44	65	15,0	-	-	-
18B	FB-S-T25-7,5	R50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,59	50	4,8

- 1) OSB3 (EN 300),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density =  $550\text{kg/m}^3$   
2) C24/Structural Timber (EN 338),  $t \geq 22\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 22\text{mm}$ , minimum density =  $350\text{kg/m}^3$   
3) Plywood (EN 636),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density =  $400\text{kg/m}^3$   
4)  $sd$  = setting depth  
5)  $pdd$  = pre-drill diameter

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for non-metallic substructures																	
			Timber			Concrete (EN 206-1)						Aerated Concrete (DIN 4223-1)				Pumice Panel (EN 1520)				
			OSB3 <sup>1)</sup>	C24 <sup>2)</sup>	Ply <sup>3)</sup>	C12/15	C25/30	$sd_1^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]	C12/15	C25/30	$sd_2^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]	P3.3 density $\geq 0,45$	P4.4 density $\geq 0,55$	$sd^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]	LAC 6 D 1,0	$sd^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]
19A	DT-4,8	IRD-82x40	-	-	-	2,40	2,56	25	4,8	-	-	-	-	-	-	-	-	-	-	-
19B	DT-4,8	IF/IG-C-82x40	-	-	-	2,40	2,68	25	4,8	-	-	-	-	-	-	-	-	-	-	-
20A	DT-4,8	IW-82x40	-	-	-	2,40	3,34	25	4,8	-	-	-	-	-	-	-	-	-	-	-
20B	DT-4,8	R50	-	-	-	1,39	1,39	25	4,8	-	-	-	-	-	-	-	-	-	-	-
21A	DT-S-4,8	IRD-82x40	-	-	-	2,56	2,56	25	4,8	-	-	-	-	-	-	-	-	-	-	-
21B	DT-S-4,8	IF/IG-C-82x40	-	-	-	2,65	2,68	25	4,8	-	-	-	-	-	-	-	-	-	-	-
22A	DT-S-4,8	R50	-	-	-	1,39	1,39	25	4,8	-	-	-	-	-	-	-	-	-	-	-
22B	DT-6,3	IRD-82x40	-	-	-	2,93	3,68	32	6,3	-	-	-	-	-	-	-	-	-	-	-
23A	DT-6,3	IF/IG-C-82x40	-	-	-	2,93	4,07	32	6,3	-	-	-	-	-	-	-	-	-	-	-
23B	DT-S-6,3	IRD-82x40	-	-	-	2,23	3,10	32	6,3	-	-	-	-	-	-	-	-	-	-	-
24A	DT-S-6,3	IF/IG-C-82x40	-	-	-	2,23	3,10	32	6,3	-	-	-	-	-	-	-	-	-	-	-
24B	TI-6,3	IRD-82x40	-	-	-	1,83	1,83	20	5,0	2,56	2,56	30	5,0	-	-	-	-	-	-	-
25A	TI-6,3	IF/IG-C-82x40	-	-	-	1,83	1,83	20	5,0	2,73	3,79	30	5,0	-	-	-	-	-	-	-
25B	TI-6,3	ID-70x70	-	-	-	1,83	1,83	20	5,0	2,73	3,79	30	5,0	-	-	-	-	-	-	-
26A	TI-T25-6,3	R75	-	-	-	1,42	1,42	20	5,0	-	-	-	-	-	-	-	-	-	-	-
27A	TI-T25-6,3	R48	-	-	-	1,42	1,42	20	5,0	-	-	-	-	-	-	-	-	-	-	-
27B	TI-T25-6,3	R50	-	-	-	1,42	1,42	20	5,0	-	-	-	-	-	-	-	-	-	-	-
28A	TIA-T25-6,3	R50	-	-	-	1,42	1,42	20	5,0	-	-	-	-	-	-	-	-	-	-	-
28B	BS-4,8	Sarnafast Tube SFT-50	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29A	BS-4,8	Sarnabar Tube SBT-20 / Sarnabar	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29B	BS-S-4,8	Sarnafast Tube SFT-50	1,12	1,90	1,88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30A	BS-S-4,8	Sarnabar Tube SBT-20 / Sarnabar	1,12	1,90	1,88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1) OSB3 (EN 300),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density = 550kg/m<sup>3</sup>  
 2) C24/Structural Timber (EN 338),  $t \geq 22\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 22\text{mm}$ , minimum density = 350kg/m<sup>3</sup>  
 3) Plywood (EN 636),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density = 400kg/m<sup>3</sup>  
 4)  $sd$  = setting depth  
 5)  $pdd$  = pre-drill diameter

SFS Flat roof fasteners

Annex 113

Z51793.22

8.04.02-2322

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for non-metallic substructures																	
			Timber			Concrete (EN 206-1)						Aerated Concrete (DIN 4223-1)				Pumice Panel (EN 1520)				
			OSB3 <sup>1)</sup>	C24 <sup>2)</sup>	Ply <sup>3)</sup>	C12/15	C25/30	$sd_1^{4)}$ ≥ [mm]	$pdd^{5)}$ [mm]	C12/15	C25/30	$sd_2^{4)}$ ≥ [mm]	$pdd^{5)}$ [mm]	P3.3 density ≥ 0,45	P4.4 density ≥ 0,55	$sd^{4)}$ ≥ [mm]	$pdd^{5)}$ [mm]	LAC 6 D 1,0	$sd^{4)}$ ≥ [mm]	$pdd^{5)}$ [mm]
30B	Sarnafast SF-4,8	Sarnafast KT-82x40	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31A	Sarnafast SF-4,8	Sarnafast DT-70x70	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31B	Sarnafast SBF-6,0	Sarnafast Tube SFT-50	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
32A	Sarnafast SBF-6,0	Sarnabar Tube SBT-20 / Sarnabar	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
32B	TI-6,3	Sarnafast DTL-70x70	-	-	-	1,83	1,83	20	5,0	2,56	2,56	30	5,0	-	-	-	-	-	-	-
33A	TI-T25-6,3	Sarnafast Tube SFT-50	-	-	-	1,83	1,83	20	5,0	2,73	3,08	30	5,0	-	-	-	-	-	-	-
33B	TI-T25-6,3	Sarnabar Tube SBT-20 / Sarnabar	-	-	-	1,83	1,83	20	5,0	2,73	3,00	30	5,0	-	-	-	-	-	-	-
34A	TI-S-Z10-6,3	R50	-	-	-	0,53	1,05	20	5,0	-	-	-	-	-	-	-	-	-	-	-
34B	TI-S-Z10-6,3	R75	-	-	-	0,53	1,05	20	5,0	-	-	-	-	-	-	-	-	-	-	-
35A	IF2-6,1	IRD-82x40	1,07	2,04	2,40	1,56	2,56	32	5,0	-	-	-	-	1,27	2,11	75	-	-	-	-
35B	IF2-6,1	ID-70x70	1,07	2,04	2,40	1,56	3,12	32	5,0	-	-	-	-	1,27	2,11	75	-	-	-	-
36A	FB-S-T25-7,5	IRD-82x40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,59	50	4,8
36B	FB-S-T25-7,5	IF/IG-C-82x40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,59	50	4,8
37A	FB-S-T25-7,5	R75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,59	50	4,8
37B	IW-S-5,0	IW-82x40	1,08	1,12	2,04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38B	IWF-5,2	IW-82x40	1,35	1,94	2,20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39A	BS-4,8	FI-P-6,8	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39B	BS-S-4,8	FI-P-6,8	1,12	1,90	1,88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40A	TI-T25-6,3	FI-P-6,8	-	-	-	1,83	1,83	20	5,0	2,73	2,83	30	5,0	-	-	-	-	-	-	-
40B	BS-6,1	FI-P-6,8	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
41A	DT-4,8	FI-P-6,8	-	-	-	2,40	2,83	25	4,8	-	-	-	-	-	-	-	-	-	-	-
41B	DT-S-4,8	FI-P-6,8	-	-	-	2,65	2,83	25	4,8	-	-	-	-	-	-	-	-	-	-	-

- 1) OSB3 (EN 300),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density =  $550\text{kg/m}^3$   
2) C24/Structural Timber (EN 338),  $t \geq 22\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 22\text{mm}$ , minimum density =  $350\text{kg/m}^3$   
3) Plywood (EN 636),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density =  $400\text{kg/m}^3$   
4)  $sd$  = setting depth  
5)  $pdd$  = pre-drill diameter

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for non-metallic substructures																	
			Timber			Concrete (EN 206-1)						Aerated Concrete (DIN 4223-1)				Pumice Panel (EN 1520)				
			OSB3 <sup>1)</sup>	C24 <sup>2)</sup>	Ply <sup>3)</sup>	C12/15	C25/30	$sd_1^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]	C12/15	C25/30	$sd_2^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]	P3.3 density $\geq 0,45$	P4.4 density $\geq 0,55$	$sd^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]	LAC 6 D 1,0	$sd^{4)} \geq$ [mm]	pdd <sup>5)</sup> [mm]
42A	DT-6,3	FI-P-6,8	-	-	-	2,93	3,82	32	6,3	-	-	-	-	-	-	-	-	-	-	-
42B	DT-S-6,3	FI-P-6,8	-	-	-	2,23	3,10	32	6,3	-	-	-	-	-	-	-	-	-	-	-
43A	LBS-T25-8,0	FI-P-6,8	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-
43B	LBS-S-T25-8,0	FI-P-6,8	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-
44A	TS-T25-6,0	FI-P-6,8	1,31	1,43	2,30	0,44	0,89	32	5,0	2,83	2,83	50	5,0	1,07	1,78	75	-	-	-	-
44B	Sarnafast SBF-6,0	FI-P-6,8	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
45A	Sarnafast SBF-S-6,0	FI-P-6,8	1,25	2,02	2,22	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-
45B	FB-S-T25-7,5	FI-P-6,8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,59	50	4,8	-
46A	BS-4,8	FI-P-16,0 / FI-R-20	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46B	BS-S-4,8	FI-P-16,0 / FI-R-20	1,12	1,90	1,88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47A	TI-T25-6,3	FI-P-16,0 / FI-R-20	-	-	-	1,83	1,83	20	5,0	2,73	3,00	30	5,0	-	-	-	-	-	-	-
47B	BS-6,1	FI-P-16,0 / FI-R-20	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
48A	DT-4,8	FI-P-16,0 / FI-R-20	-	-	-	2,40	3,00	25	4,8	-	-	-	-	-	-	-	-	-	-	-
48B	DT-S-4,8	FI-P-16,0 / FI-R-20	-	-	-	2,65	3,00	25	4,8	-	-	-	-	-	-	-	-	-	-	-
49A	TS-T25-6,0	FI-P-16,0 / FI-R-20	1,31	1,43	2,30	0,44	0,89	32	5,0	3,00	3,00	50	5,0	1,07	1,78	75	-	-	-	-
49B	Sarnafast SBF-6,0	FI-P-16,0 / FI-R-20	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
50A	Sarnafast SBF-S-6,0	FI-P-16,0 / FI-R-20	1,25	2,02	2,22	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-
50B	TIA-T25-6,3	FI-P-16,0 / FI-R-20	-	-	-	1,83	1,83	20	5,0	-	-	-	-	-	-	-	-	-	-	-
51A	TIA-T25-6,3	FI-R-20 / Sarnabar	-	-	-	1,83	1,83	20	5,0	-	-	-	-	-	-	-	-	-	-	-
55B	TI-T25-6,3	Isolfix SRT	-	-	-	1,42	1,42	20	5,0	-	-	-	-	-	-	-	-	-	-	-

1) OSB3 (EN 300),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density = 550kg/m<sup>3</sup>  
 2) C24/Structural Timber (EN 338),  $t \geq 22\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 22\text{mm}$ , minimum density = 350kg/m<sup>3</sup>  
 3) Plywood (EN 636),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density = 400kg/m<sup>3</sup>  
 4)  $sd$  = setting depth  
 5)  $pdd$  = pre-drill diameter

SFS Flat roof fasteners

Annex

115

Z51793.22

8.04.02-23/22

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for non-metallic substructures																	
			Timber			Concrete (EN 206-1)						Aerated Concrete (DIN 4223-1)				Pumice Panel (EN 1520)				
	Fastener	Stress Plate / Sleeve / Bar	OSB3 <sup>1)</sup>	C24 <sup>2)</sup>	Ply <sup>3)</sup>	C12/15	C25/30	$sd_1^{4)}$ ≥ [mm]	$pdd^{5)}$ [mm]	C12/15	C25/30	$sd_2^{4)}$ ≥ [mm]	$pdd^{5)}$ [mm]	P3.3 density ≥ 0,45	P4.4 density ≥ 0,55	$sd^{4)}$ ≥ [mm]	$pdd^{5)}$ [mm]	LAC 6 D 1,0	$sd^{4)}$ ≥ [mm]	$pdd^{5)}$ [mm]
56A	Sarnafast SBF-6,0	Isofix SRT	1,32	1,42	1,42	0,72	1,42	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
56B	Sarnafast SBF-S-6,0	Isofix SRT	1,25	1,42	1,42	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-
57B	Sarnafast SBF-6,0	Sarnafast KTL-82x40	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
58A	Sarnafast SBF-6,0	Sarnafast DTL-70x70	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
58B	Sarnafast SBF-6,0	IF/IG-C-82x40	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
59A	Sarnafast SBF-S-6,0	Sarnafast KTL-82x40	1,25	2,02	2,22	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-
59B	Sarnafast SBF-S-6,0	Sarnafast DTL-70x70	1,25	2,02	2,22	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-
60A	Sarnafast SBF-S-6,0	IF/IG-C-82x40	1,25	2,02	2,22	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-
60B	Sarnafast SBF-S-6,0	Sarnafast Tube SFT-50	1,25	2,02	2,22	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-
61A	Sarnafast SBF-S-6,0	Sarnabar Tube SBT-20 / Sarnabar	1,25	2,02	2,22	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-
61B	Sarnafast SBF-6,0	SBIW-70x70 / Sarnabar Tube SBT-20	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
62A	TIF-N-6,3	RH50	-	-	-	1,54	1,54	20	5,0	-	-	-	-	-	-	-	-	-	-	-
62B	TIA-T25-6,3	R75	-	-	-	1,42	1,42	20	5,0	-	-	-	-	-	-	-	-	-	-	-
63A	TIA-T25-6,3	ST-25	-	-	-	1,42	1,42	20	5,0	-	-	-	-	-	-	-	-	-	-	-
63B	BS-4,8	ST-25	1,38	1,32	1,38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64A	TI-T25-6,3	ST-25	-	-	-	1,42	1,42	20	5,0	-	-	-	-	-	-	-	-	-	-	-
65A	LBS-S-T25-8,0	IF/IG-C-82x40	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-
65B	BS-4,8	NPP	1,45	1,32	1,45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66A	BS-S-4,8	NPP	1,12	1,45	1,45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66B	BS-4,8	NPS	1,38	1,32	1,38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68A	TI-T25-6,3	NPS	-	-	-	1,42	1,42	20	5,0	-	-	-	-	-	-	-	-	-	-	-
68B	TIA-T25-6,3	Sarnabar Tube SBT-20 / Sarnabar	-	-	-	1,83	1,83	20	5,0	-	-	-	-	-	-	-	-	-	-	-

1) OSB3 (EN 300),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density =  $550\text{kg/m}^3$   
 2) C24/Structural Timber (EN 338),  $t \geq 22\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 22\text{mm}$ , minimum density =  $350\text{kg/m}^3$   
 3) Plywood (EN 636),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density =  $400\text{kg/m}^3$   
 4)  $sd$  = setting depth  
 5)  $pdd$  = pre-drill diameter

SFS Flat roof fasteners

Annex 116

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance N <sub>Rk</sub> [kN] for non-metallic substructures																	
			Timber			Concrete (EN 206-1)						Aerated Concrete (DIN 4223-1)				Pumice Panel (EN 1520)				
			OSB3 <sup>1)</sup>	C24 <sup>2)</sup>	Ply <sup>3)</sup>	C12/15	C25/30	sd <sub>1</sub> <sup>4)</sup> ≥ [mm]	pdd <sup>5)</sup> [mm]	C12/15	C25/30	sd <sub>2</sub> <sup>4)</sup> ≥ [mm]	pdd <sup>5)</sup> [mm]	P3.3 density ≥ 0,45	P4.4 density ≥ 0,55	sd <sup>4)</sup> ≥ [mm]	pdd <sup>5)</sup> [mm]	LAC 6 D 1,0	sd <sup>4)</sup> ≥ [mm]	pdd <sup>5)</sup> [mm]
69A	IWF-5,2	MW-40-F	1,35	1,94	2,20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69B	IWF-5,2	MW-40-R	1,35	1,94	2,20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70A	Sarnafast SBF-6,0	R75	1,32	1,42	1,42	0,72	1,42	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
71A	BS-4,8	MW-40-F	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71B	BS-6,1	MW-40-F	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
72A	BS-4,8	IR-82x40	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72B	BS-6,1	IRD-82x40	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
73A	TI-T25-6,3	MW-40-F	-	-	-	1,83	1,83	20	5,0	2,73	3,34	30	5,0	-	-	-	-	-	-	-
73B	TS-T25-6,0	MW-40-F	1,31	1,43	2,30	0,44	0,89	32	5,0	3,07	3,34	50	5,0	1,07	1,78	75	-	-	-	-
74A	TI-T25-6,3	IRD-82x40	-	-	-	1,83	1,83	20	5,0	2,56	2,56	30	5,0	-	-	-	-	-	-	-
74B	IWF-5,2	IR-82x40	1,35	1,94	2,20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75A	Sarnafast SF-4,8	Sarnabar	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75B	Sarnafast SBF-6,0	Sarnabar	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-
76A	Sarnafast SBF-S-6,0	Sarnabar	1,25	2,02	2,22	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-
76B	IR2-4,8	Sarnabar	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77A	DT-4,8	Sarnabar	-	-	-	2,40	3,34	25	4,8	-	-	-	-	-	-	-	-	-	-	-
77B	DT-4,8	Sarnabar Tube SBT-20 / Sarnabar	-	-	-	2,40	3,00	25	4,8	-	-	-	-	-	-	-	-	-	-	-
78A	DT-S-4,8	Sarnabar	-	-	-	2,65	3,69	25	4,8	-	-	-	-	-	-	-	-	-	-	-
78B	DT-S-4,8	Sarnabar Tube SBT-20 / Sarnabar	-	-	-	2,65	3,00	25	4,8	-	-	-	-	-	-	-	-	-	-	-
79A	DT-6,3	Sarnabar	-	-	-	2,93	4,07	32	6,3	-	-	-	-	-	-	-	-	-	-	-
79B	DT-S-6,3	Sarnabar	-	-	-	2,23	3,10	32	6,3	-	-	-	-	-	-	-	-	-	-	-

1) OSB3 (EN 300), t ≥ 18mm, effective setting depth (penetration length of threaded part) ≥ 18mm, minimum density = 550kg/m<sup>3</sup>  
 2) C24/Structural Timber (EN 338), t ≥ 22mm, effective setting depth (penetration length of threaded part) ≥ 22mm, minimum density = 350kg/m<sup>3</sup>  
 3) Plywood (EN 636), t ≥ 18mm, effective setting depth (penetration length of threaded part) ≥ 18mm, minimum density = 400kg/m<sup>3</sup>  
 4) sd = setting depth  
 5) pdd = pre-drill diameter

SFS Flat roof fasteners

Annex

117

Z51793.22

8.04.02-23/22

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance $N_{Rk}$ [kN] for non-metallic substructures																		
			Timber			Concrete (EN 206-1)						Aerated Concrete (DIN 4223-1)				Pumice Panel (EN 1520)					
	Fastener	Stress Plate / Sleeve / Bar	OSB3 <sup>1)</sup>	C24 <sup>2)</sup>	Ply <sup>3)</sup>	C12/15	C25/30	$sd_1^{4)} \geq$ [mm]	$pdd^{5)}$ [mm]	C12/15	C25/30	$sd_2^{4)} \geq$ [mm]	$pdd^{5)}$ [mm]	P3.3 density $\geq 0,45$	P4.4 density $\geq 0,55$	$sd^{4)} \geq$ [mm]	$pdd^{5)}$ [mm]	LAC 6 D 1,0	$sd^{4)} \geq$ [mm]	$pdd^{5)}$ [mm]	
80A	IW-S-5,0	Sarnabar	1,08	1,12	2,04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
81A	LBS-S-T25-8,0	Sarnabar	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-	-
81B	BS-S-6,1	FI-P-6,8	1,25	2,02	2,22	-	-	-	-	-	-	-	-	0,82	1,37	75	-	-	-	-	-
82A	BS-S-6,1	FI-P-16,0 / FI-R-20	1,25	2,02	2,22	-	-	-	-	-	-	-	-	0,82	1,37	75	-	-	-	-	-
82B	LBS-S-T25-8,0	IRD-82x40	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-	-
83A	LBS-T25-8,0	IRD-82x40	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-	-
83B	LBS-T25-8,0	IF/IG-C-82x40	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-	-
84A	IWF-5,2	FI-P-6,8	1,35	1,94	2,20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84B	IW-S-5,0	FI-P-6,8	1,08	1,12	2,04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
85B	DT-4,8	ID-70x70	-	-	-	2,40	2,56	25	4,8	-	-	-	-	-	-	-	-	-	-	-	-
86A	DT-6,3	ID-70x70	-	-	-	2,93	3,68	32	6,3	-	-	-	-	-	-	-	-	-	-	-	-
86B	DT-4,8	R75	-	-	-	1,39	1,39	25	4,8	-	-	-	-	-	-	-	-	-	-	-	-
87A	DT-S-4,8	R75	-	-	-	1,39	1,39	25	4,8	-	-	-	-	-	-	-	-	-	-	-	-
89A	BS-4,8	Isolfast SQT	1,45	1,32	1,45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
89B	Samafast SF-4,8	IF/IG-C-82x40	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90A	LBS-T25-8,0	Sarnabar	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-	-
90B	Samafast SBF-6,0	Sarnaweld disc 6,8	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-	-
91A	Samafast SBF-6,0	Sarnaweld disc 16 / Sarnabar Tube SBT-20	1,32	2,16	2,11	0,72	1,45	32	5,0	-	-	-	-	0,35	0,58	75	-	-	-	-	-
91B	Samafast SBF-S-6,0	Sarnaweld disc 6,8	1,25	2,02	2,22	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-	-
92A	Samafast SBF-S-6,0	Sarnaweld disc 16 / Sarnabar Tube SBT-20	1,25	2,02	2,22	0,42	0,84	32	5,0	-	-	-	-	0,82	1,37	75	-	-	-	-	-
92B	IR2-S-4,8	Sarnabar	1,12	1,90	1,88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
93B	TI-6,3	Sarnabar	-	-	-	1,83	1,83	20	5,0	2,73	3,79	30	5,0	-	-	-	-	-	-	-	-

1) OSB3 (EN 300),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density = 550kg/m<sup>3</sup>  
 2) C24/Structural Timber (EN 338),  $t \geq 22\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 22\text{mm}$ , minimum density = 350kg/m<sup>3</sup>  
 3) Plywood (EN 636),  $t \geq 18\text{mm}$ , effective setting depth (penetration length of threaded part)  $\geq 18\text{mm}$ , minimum density = 400kg/m<sup>3</sup>  
 4)  $sd$  = setting depth  
 5)  $pdd$  = pre-drill diameter

SFS Flat roof fasteners

Annex

118

Z51793.22

8.04.02-23/22

Combination	SFS Flat roof fasteners		Characteristic axial loading resistance N <sub>Rk</sub> [kN] for non-metallic substructures																		
			Timber			Concrete (EN 206-1)						Aerated Concrete (DIN 4223-1)				Pumice Panel (EN 1520)					
	Fastener	Stress Plate / Sleeve / Bar	OSB3 <sup>1)</sup>	C24 <sup>2)</sup>	Ply <sup>3)</sup>	C12/15	C25/30	sd <sub>1</sub> <sup>4)</sup> ≥ [mm]	pdd <sup>5)</sup> [mm]	C12/15	C25/30	sd <sub>2</sub> <sup>4)</sup> ≥ [mm]	pdd <sup>5)</sup> [mm]	P3.3 density ≥ 0,45	P4.4 density ≥ 0,55	sd <sup>4)</sup> ≥ [mm]	pdd <sup>5)</sup> [mm]	LAC 6 D 1,0	sd <sup>4)</sup> ≥ [mm]	pdd <sup>5)</sup> [mm]	
94A	IR2-4,8	Sarnafast KT-82x40	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98A	BS-4,8	MW-40-R	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98B	IWF-5,2	IRC/W-82x40	1,35	1,94	2,20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99A	BS-4,8	Sarnafast KT-82x40	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99B	TI-6,3	Sarnafast KTL-82x40	-	-	-	1,83	1,83	20	5,0	2,56	2,56	30	5,0	-	-	-	-	-	-	-	-
100A	LBS-T25-8,0	RG50	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-	-
100B	LBS-S-T25-8,0	RG50	-	-	-	-	-	-	-	-	-	-	-	0,93	1,44	60	-	-	-	-	-
101A	FB-S-T25-7,5	RG50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,59	50	4,8	-
102A	BS-4,8	TPA50	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103A	TI-T25-6,3	TPA50	-	-	-	1,83	1,83	20	5,0	2,73	3,08	30	5,0	-	-	-	-	-	-	-	-
103B	TIA-T25-6,3	TPA50	-	-	-	1,83	1,83	20	5,0	-	-	-	-	-	-	-	-	-	-	-	-
104A	TS-T25-6,0	TPA50	1,31	1,43	2,30	0,44	0,89	32	5,0	3,07	3,08	50	5,0	1,07	1,78	75	-	-	-	-	-
104B	BS-4,8	TPA-P-70 / TPA50	1,45	1,32	2,18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
105B	TI-T25-6,3	TPA-P-70 / TPA50	-	-	-	1,83	1,83	20	5,0	2,73	3,08	30	5,0	-	-	-	-	-	-	-	-
106A	TIA-T25-6,3	TPA-P-70 / TPA50	-	-	-	1,83	1,83	20	5,0	-	-	-	-	-	-	-	-	-	-	-	-
106B	TS-T25-6,0	TPA-P-70 / TPA50	1,31	1,43	2,30	0,44	0,89	32	5,0	3,07	3,08	50	5,0	1,07	1,78	75	-	-	-	-	-

1) OSB3 (EN 300), t ≥ 18mm, effective setting depth (penetration length of threaded part) ≥ 18mm, minimum density = 550kg/m<sup>3</sup>  
 2) C24/Structural Timber (EN 338), t ≥ 22mm, effective setting depth (penetration length of threaded part) ≥ 22mm, minimum density = 350kg/m<sup>3</sup>  
 3) Plywood (EN 636), t ≥ 18mm, effective setting depth (penetration length of threaded part) ≥ 18mm, minimum density = 400kg/m<sup>3</sup>  
 4) sd = setting depth  
 5) pdd = pre-drill diameter

SFS Flat roof fasteners

Annex 119

Z5179322

8.04.02-2322