

# SONNENKRAFT®



(D) Handbuch

(GB) Manual

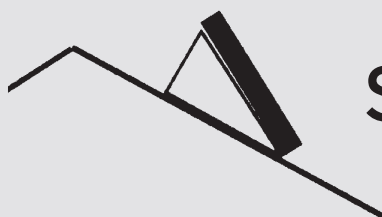
(I) Manuale

(F) Manuel

(E) Manual

(PT) Manual

(DK) Manual



**(SK/R500)**

## SSA20R/BDA20R





## Ihr Online-Fachhändler für:

- Kostenlose und individuelle Beratung
- Hochwertige Produkte
- Kostenloser und schneller Versand
- TOP Bewertungen
- Exzelerter Kundenservice
- Über 20 Jahre Erfahrung



**E-Mail: [info@unidomo.de](mailto:info@unidomo.de) | Tel.: 04621 - 30 60 89 0 | [www.unidomo.de](http://www.unidomo.de)**



***Bei waagrechter Anordnung der Kollektoren gilt die Anleitung sinngemäß!***

***For horizontal positioning of the collectors, the assembly instructions apply accordingly!***

***Nel caso in cui i collettori siano disposti orizzontalmente, seguite comunque le istruzioni di montaggio!***

***En cas de disposition horizontale des capteurs, les instructions de montage s'appliquent en conséquence!***

***Realice el montaje horizontal de los colectores según las instrucciones de montaje!***

***Executar montagem horizontal dos coletores de acordo com as instruções!***

***Monteringsvejledningen er også gældende for horisontal placering af solfangerne!***



## DE

|                                                     |    |
|-----------------------------------------------------|----|
| Materialübersicht . . . . .                         | 5  |
| Werkzeugübersicht . . . . .                         | 9  |
| Montage, SSA20R . . . . .                           | 10 |
| Montage Blechdachbefestigung, BDA20R . . . . .      | 21 |
| Empfehlung für Befestigungsebenen SKR500 . . . . .  | 22 |
| Empfehlung für Befestigungsebenen SKR500L . . . . . | 24 |
| Statische Einsatzgrenzen und Regeln . . . . .       | 26 |

## EN

|                                                       |    |
|-------------------------------------------------------|----|
| Overview of materials . . . . .                       | 5  |
| Overview of tools . . . . .                           | 9  |
| Mounting, SSA20R . . . . .                            | 10 |
| Tin roof mounting systems, BDA20R . . . . .           | 21 |
| Recommendation for fastening planes SKR500 . . . . .  | 22 |
| Recommendation for fastening planes SKR500L . . . . . | 24 |
| Static operating tolerances and rules . . . . .       | 26 |

## IT

|                                                             |    |
|-------------------------------------------------------------|----|
| Panoramica dei materiali . . . . .                          | 5  |
| Panoramica degli utensili . . . . .                         | 9  |
| Montaggio, SSA20R . . . . .                                 | 10 |
| Sistemi di fissaggio per tetto in lamiera, BDA20R . . . . . | 21 |
| Raccomandazione per i piani di fissaggio SKR500 . . . . .   | 22 |
| Raccomandazione per i piani di fissaggio SKR500L . . . . .  | 24 |
| Limiti statici di applicabilità e regole . . . . .          | 26 |

## FR

|                                                                   |    |
|-------------------------------------------------------------------|----|
| Vue d'ensemble du matériel . . . . .                              | 5  |
| Vue d'ensemble des outils . . . . .                               | 9  |
| Montage, SSA20R . . . . .                                         | 10 |
| Systèmes de fixations pour toit en tôle, BDA20R . . . . .         | 21 |
| Recommandation concernant les plans de fixation SKR500 . . . . .  | 22 |
| Recommandation concernant les plans de fixation SKR500L . . . . . | 24 |
| Limites d'utilisation statiques et règles . . . . .               | 26 |

## ES

|                                                                    |    |
|--------------------------------------------------------------------|----|
| Vista general de los materiales . . . . .                          | 5  |
| Vista general de las herramientas . . . . .                        | 9  |
| Montaje, SSA20R . . . . .                                          | 10 |
| Sistemas de fijación para tejado en lámina, BDA20R . . . . .       | 21 |
| Recomendaciones para las superficies de fijación SKR500 . . . . .  | 22 |
| Recomendaciones para las superficies de fijación SKR500L . . . . . | 24 |
| Límites estáticos de uso y reglas . . . . .                        | 26 |





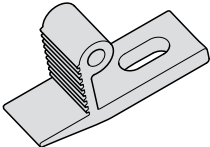
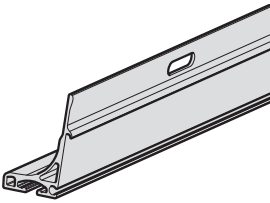
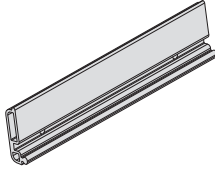
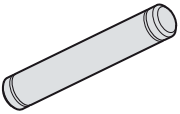
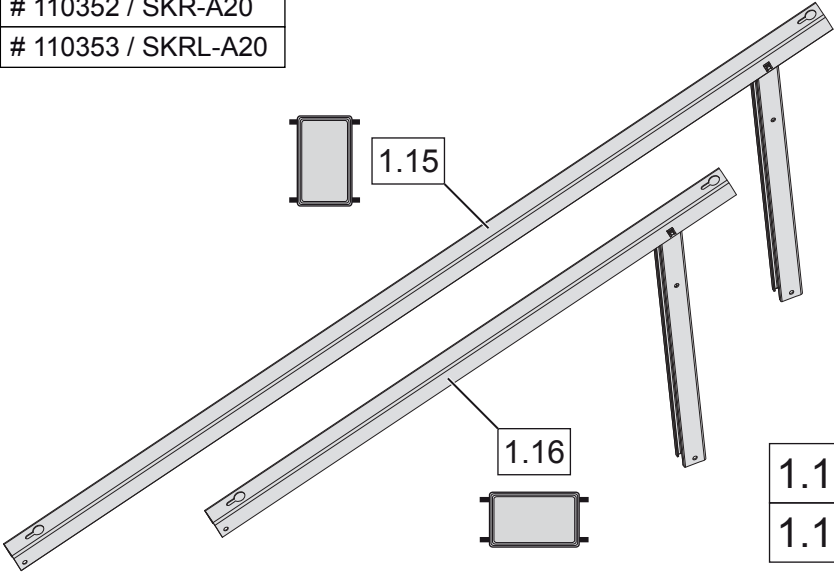
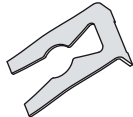
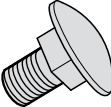
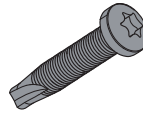
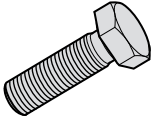
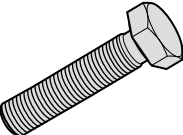
## PT

|                                                                 |    |
|-----------------------------------------------------------------|----|
| Vista geral do material. . . . .                                | 5  |
| Vista geral da ferramenta. . . . .                              | 9  |
| Montagem, SSA20R. . . . .                                       | 10 |
| Equipamento de montagem para telhado de metal, BDA20R . . . . . | 21 |
| Sugestão de plataformas de fixação SKR500 . . . . .             | 22 |
| Sugestão de plataformas de fixação SKR500L . . . . .            | 24 |
| Limites de aplicação estática e regras . . . . .                | 26 |

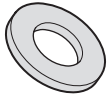
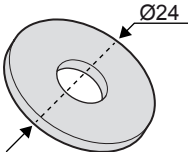
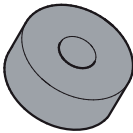
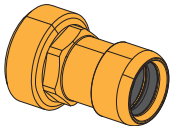
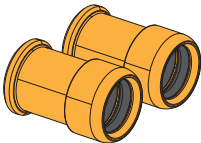
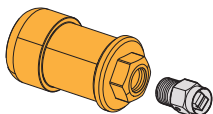
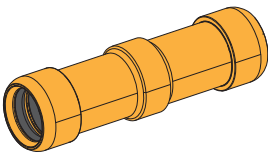
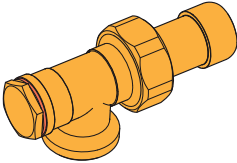
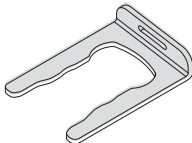
## DK

|                                                 |    |
|-------------------------------------------------|----|
| Materialeoversigt . . . . .                     | 5  |
| Værktøjsoversigt. . . . .                       | 9  |
| Montering, SSA20R . . . . .                     | 10 |
| Monteringssystem for metaltag, BDA20R . . . . . | 21 |
| Anbefalede fastgøringspunkter SKR500 . . . . .  | 22 |
| Anbefalede fastgøringspunkter SKR500L . . . . . | 24 |
| Statiske anvendelsesgrænser og regler . . . . . | 26 |



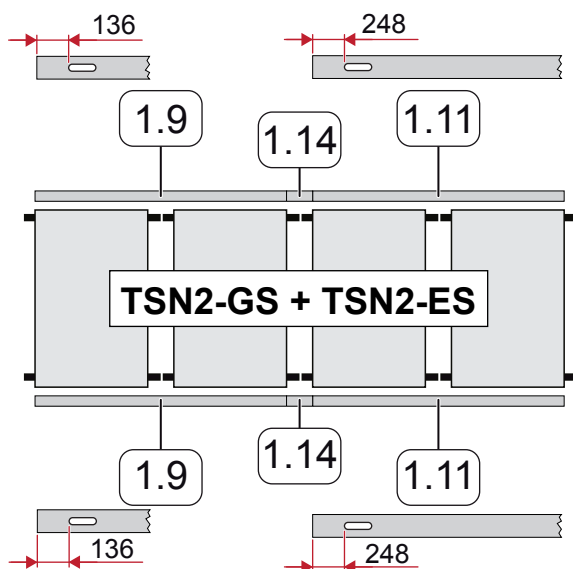
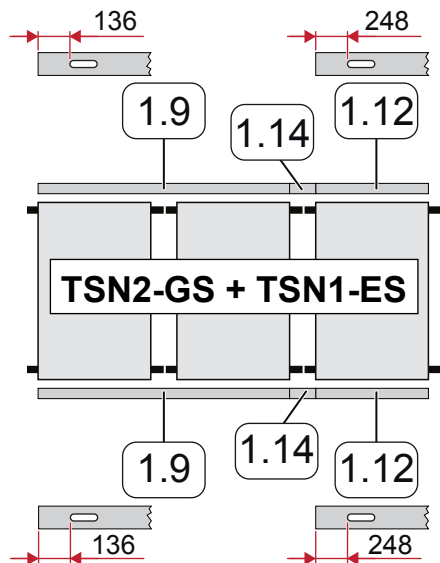
|                                                                                                                                       |                                                                                                                                                                                       |                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p># 110317 / AW-SSAR</p>  <p>1.2</p>                |  <p>*</p>                                                                                           | <p># 110342 / TSV-B</p>  <p>1.14</p>                                |
| <p># 110324 / SB-SKR</p>  <p>1.19</p>                | <p># 110352 / SKR-A20<br/># 110353 / SKRL-A20</p>  <p>1.15</p> <p>1.16</p> <p>1.15</p> <p>1.16</p> |                                                                                                                                                        |
| <p># 110323 / SSB-SKR</p>  <p>1.20</p>              | <p># 110401 / TBS818</p>  <p>M8x18</p> <p>2.3</p>                                                  | <p># 110411 / BS4,819B</p>  <p>M4,8x19</p> <p>Tx25</p> <p>2.6</p> |
| <p># 110407 / SKTS820</p>  <p>M8x20</p> <p>2.7</p> | <p># 110129 / SKTS830</p>  <p>M8x30</p> <p>2.9</p>                                                 | <p># 110329 / ZSM12</p>  <p>M12</p> <p>3.1</p>                    |
| <p># 110404 / ZSM8</p>  <p>M8</p> <p>3.2</p>       |                                                                                                                                                                                       |                                                                                                                                                        |



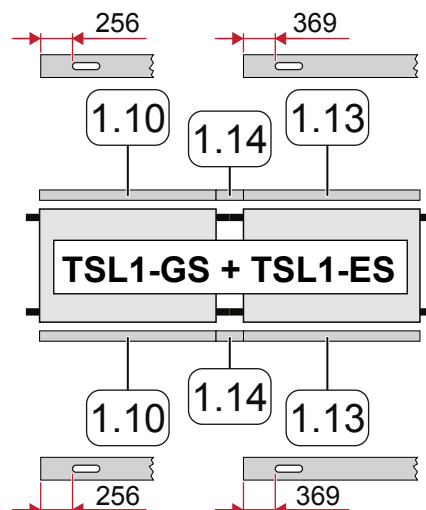
|                                                                                                                                    |                                                                                                                                    |                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <p># 110406 / UL DM16/8</p>  <p>M8</p> <p>3.3</p> | <p># 110139 / UL DM24/8</p>  <p>M8</p> <p>3.4</p> | <p># 110114 / SSDG12350</p>  <p>4.1</p> |
| <p># 110054 / SKR-SA</p>  <p>5.1</p>              | <p># 110055 / SKR-ES</p>  <p>5.2</p>              | <p># 110075 / SKR-EV</p>  <p>5.3</p>    |
| <p># 110050 / SKR-HV</p>  <p>5.4</p>             | <p># 110057 / SKR-WA</p>  <p>5.5</p>             | <p># 110084 / SKR-SS</p>  <p>5.6</p>   |

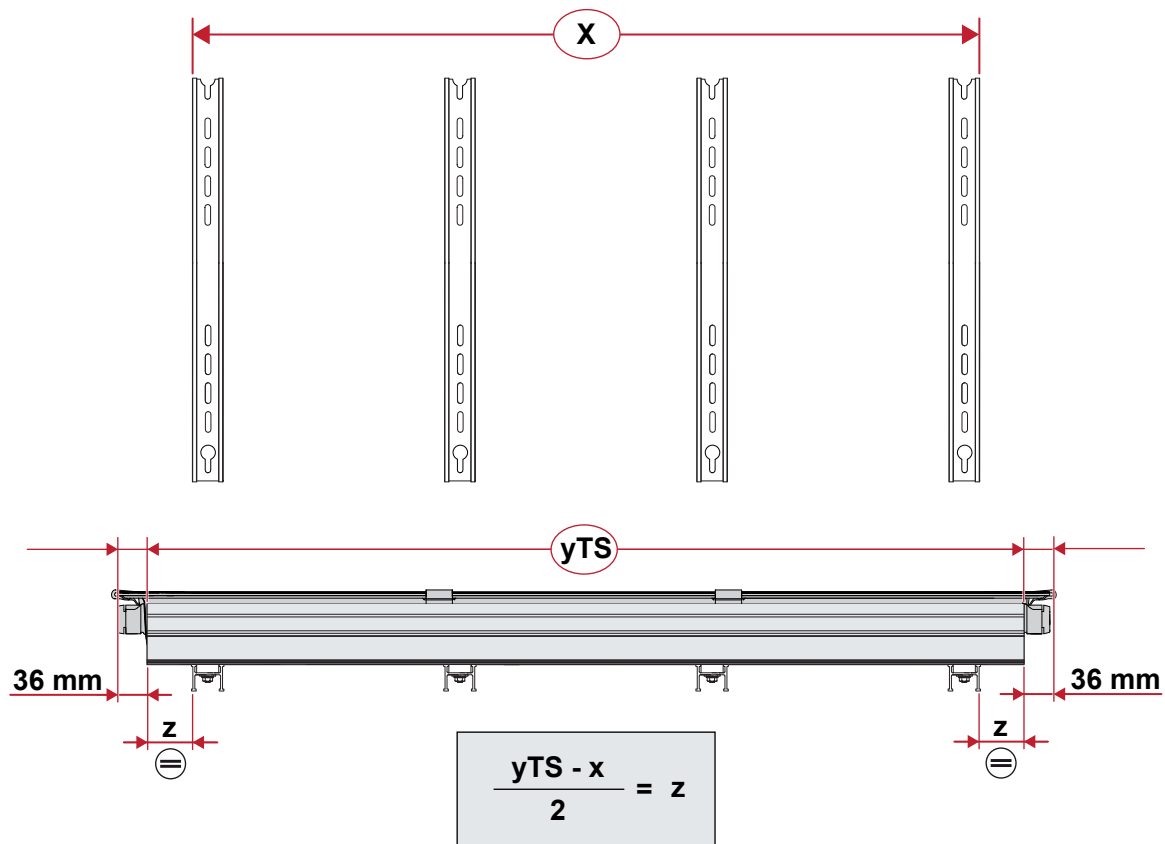


\*

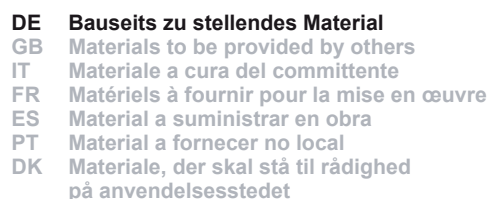
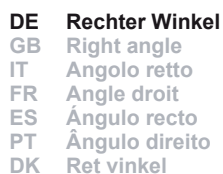
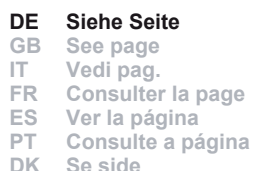
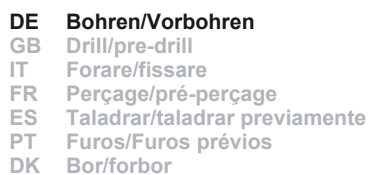
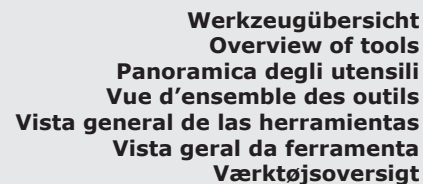


|          |              |             |
|----------|--------------|-------------|
|          |              |             |
| # 110336 | TSN1-GS      | L = 1168 mm |
| # 110338 | TSN2-GS 1.9  | L = 2448 mm |
| # 110340 | TSL1-GS 1.10 | L = 2007 mm |
| # 110339 | TSN2-ES 1.11 | L = 2560 mm |
| # 110337 | TSN1-ES 1.12 | L = 1280 mm |
| # 110341 | TSL1-ES 1.13 | L = 2119 mm |
| # 110342 | TSV-B 1.14   |             |

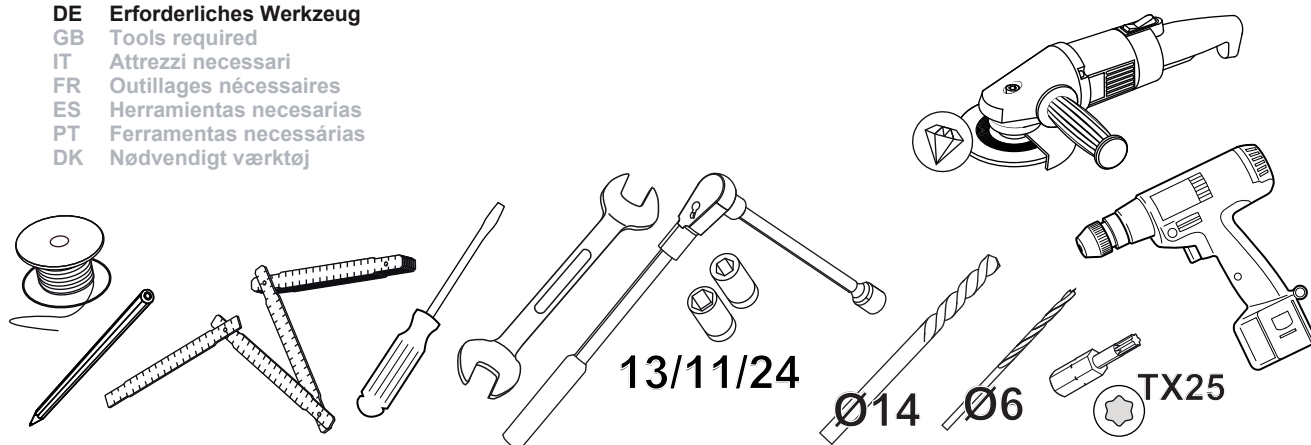


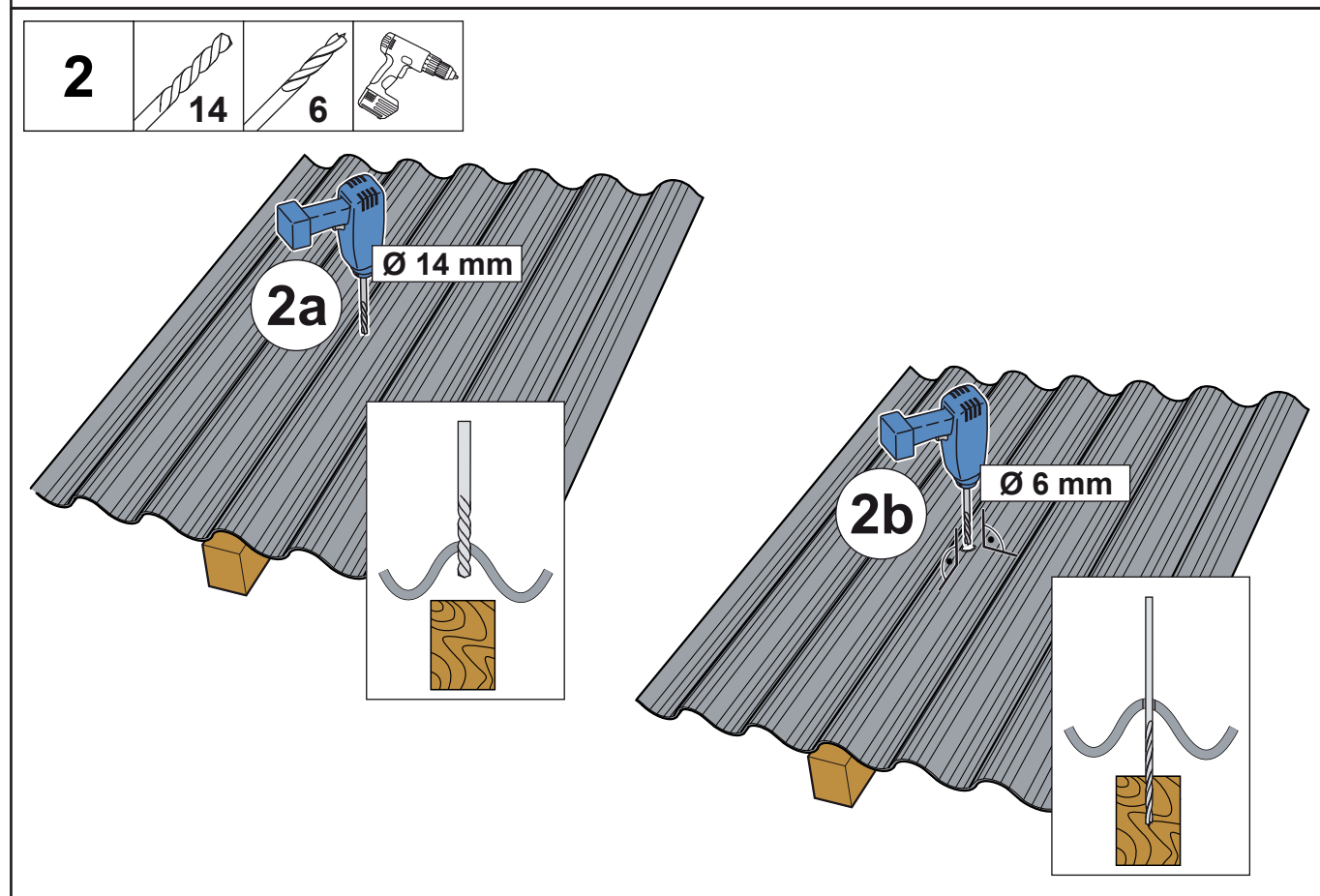
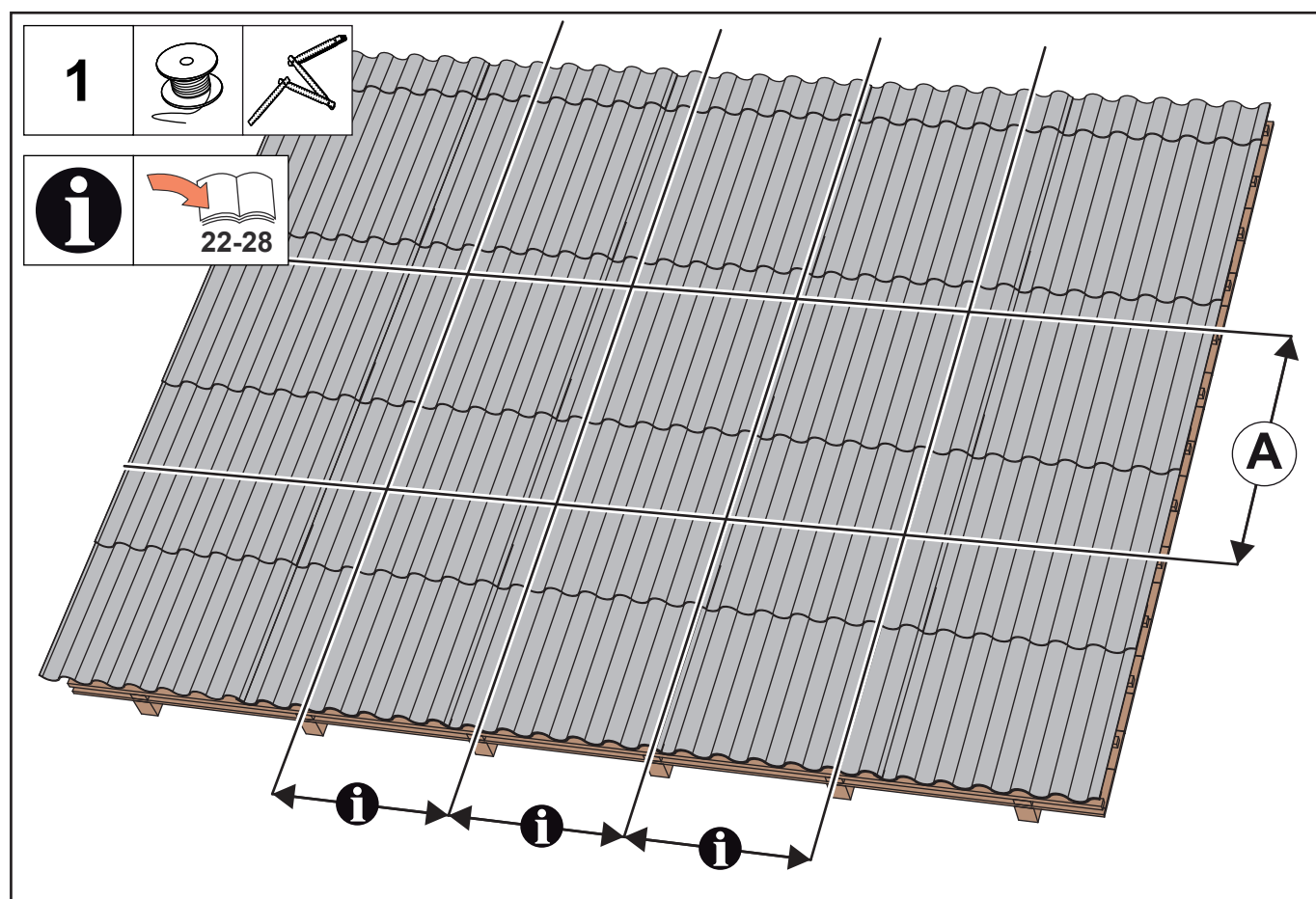


| y TS                                                                                          |                                                                              |       |
|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-------|
| Kollektoren<br>Collectors<br>Collettori<br>Capteurs<br>Colectores<br>Colectores<br>Solfangere |                                                                              |       |
|                                                                                               | TS Länge [mm] - TS lenght - TS lungo - TS longueur - TS longitud - TS længde |       |
| 1                                                                                             | 1168                                                                         | 2007  |
| 2                                                                                             | 2448                                                                         | 4126  |
| 3                                                                                             | 3728                                                                         | 6245  |
| 4                                                                                             | 5009                                                                         | 8365  |
| 5                                                                                             | 6289                                                                         | 10484 |
| 6                                                                                             | 7569                                                                         | 12603 |
| 7                                                                                             | 8849                                                                         | 14722 |
| 8                                                                                             | 10129                                                                        | 16841 |
| 9                                                                                             | 11410                                                                        | 18961 |
| 10                                                                                            | 12690                                                                        | 21080 |
| 11                                                                                            | 13970                                                                        | -     |
| 12                                                                                            | 15250                                                                        | -     |



|    |                                |
|----|--------------------------------|
| DE | <b>Erforderliches Werkzeug</b> |
| GB | Tools required                 |
| IT | Attrezzi necessari             |
| FR | Outils nécessaires             |
| ES | Herramientas necesarias        |
| PT | Ferramentas necessárias        |
| DK | Nødvendigt værktøj             |



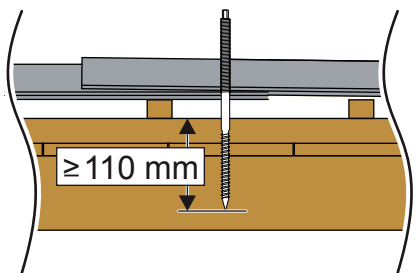
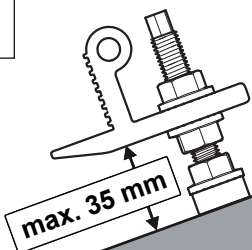




3



3b



3a

3.1

1.2

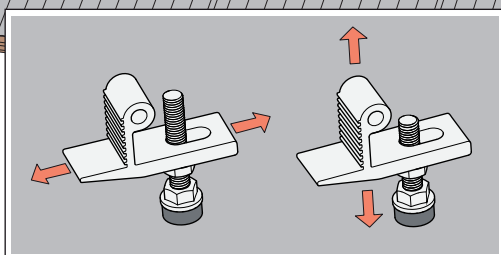
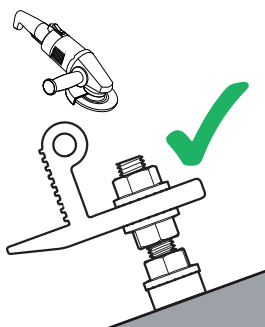
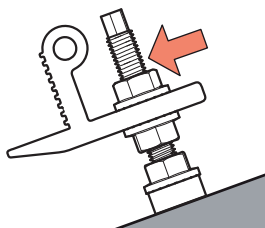
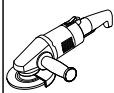
3.1

3.1

4.1

2.1

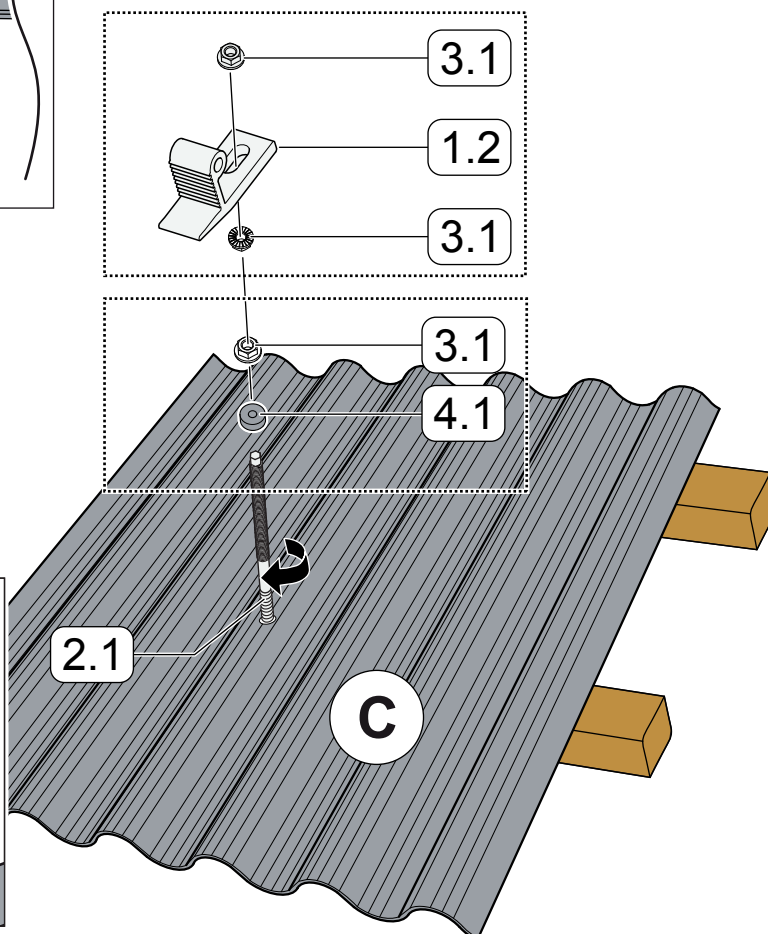
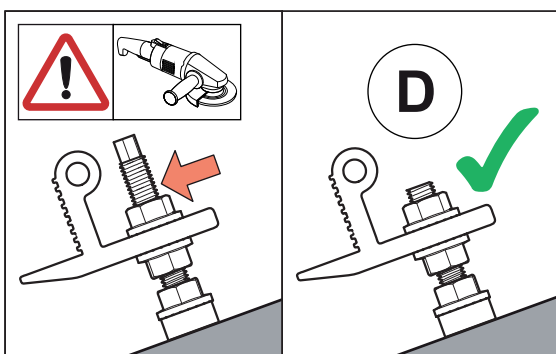
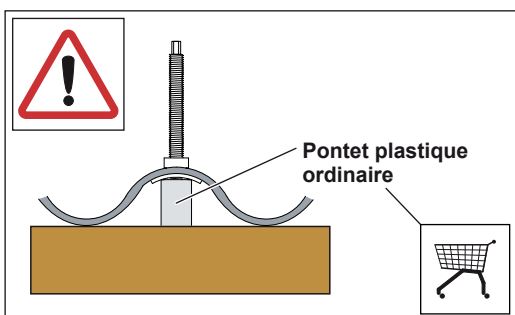
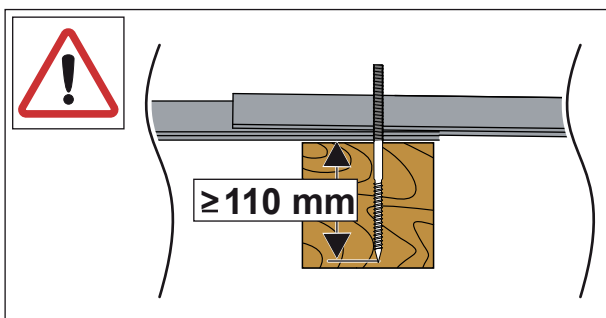
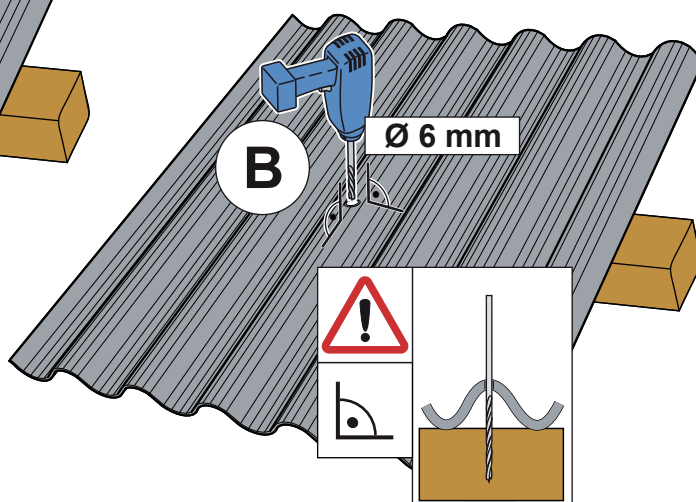
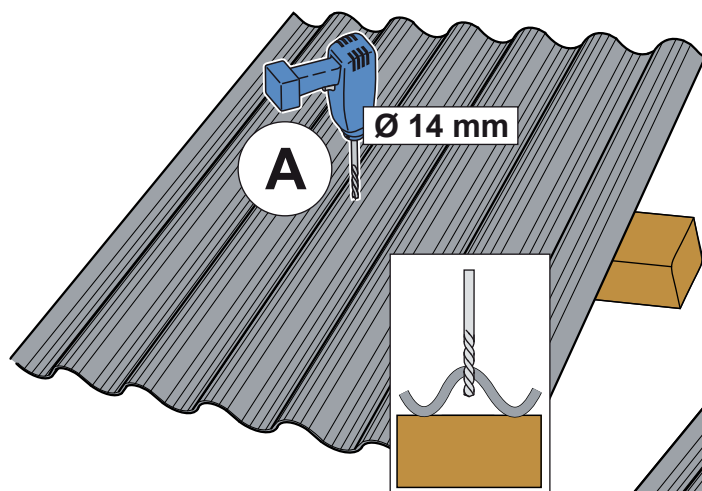
3





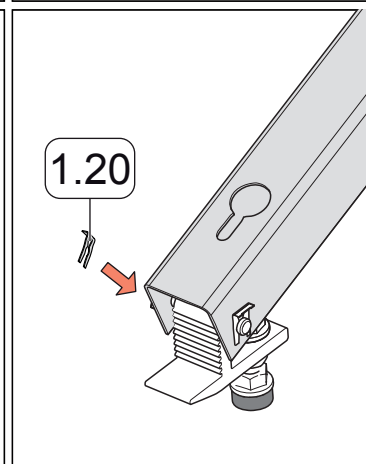
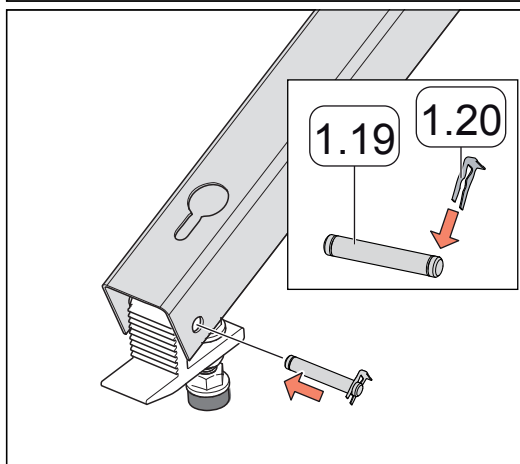
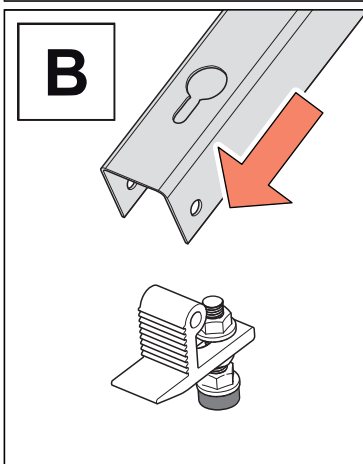
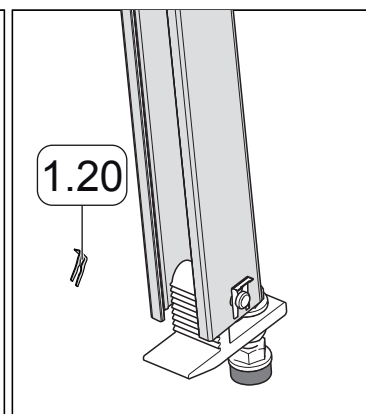
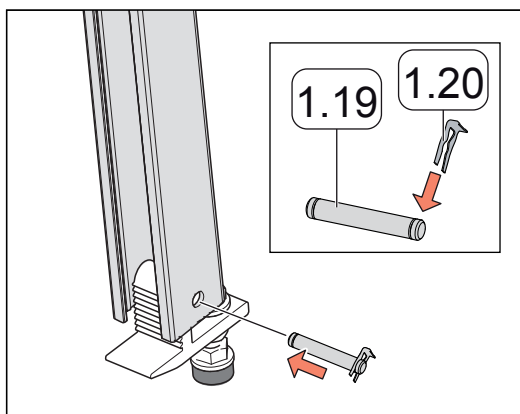
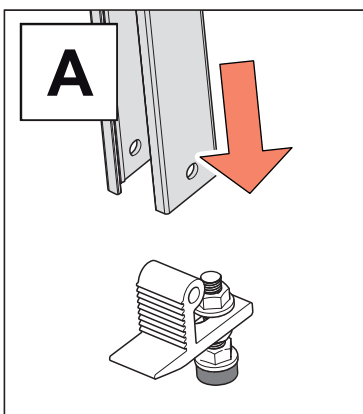
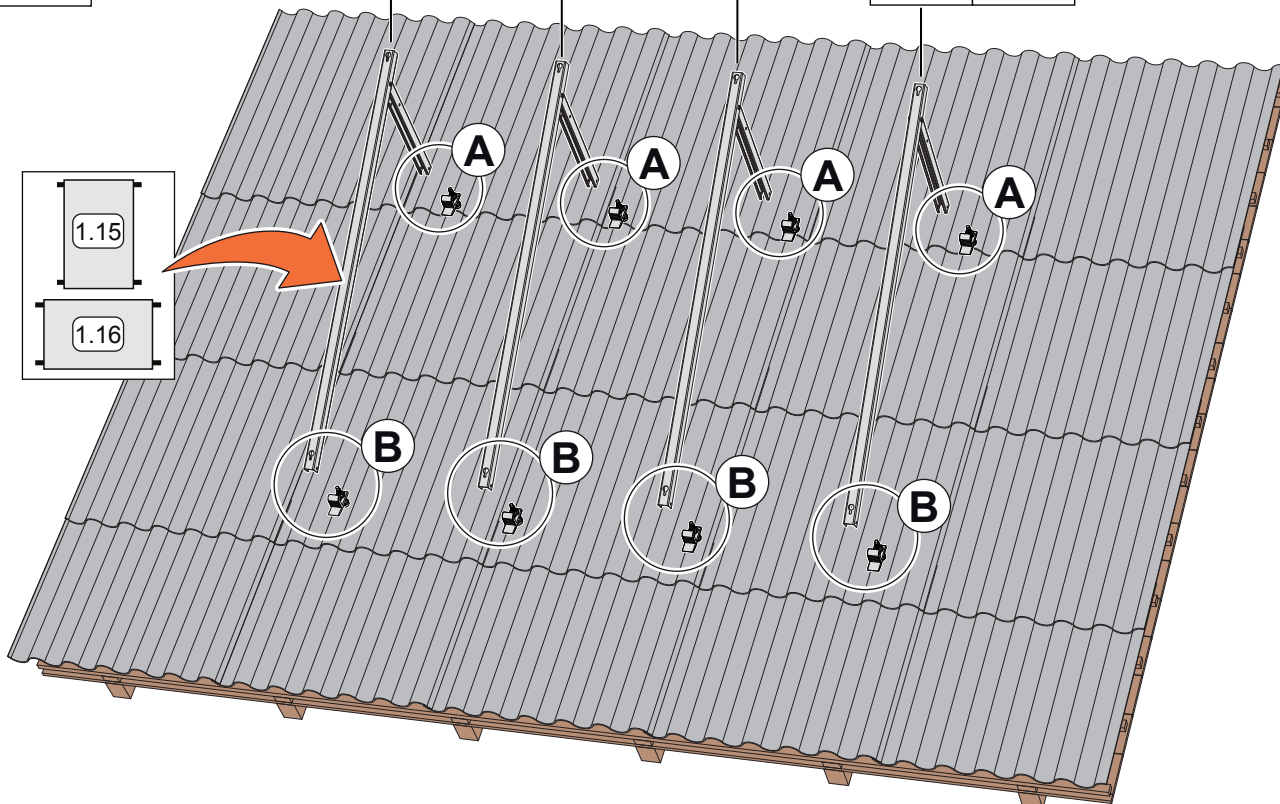


En France, la mise en oeuvre des constructions de toits en tôle ondulée se fait de façon traditionnelle comme réalisé dans les représentations A/B/C.



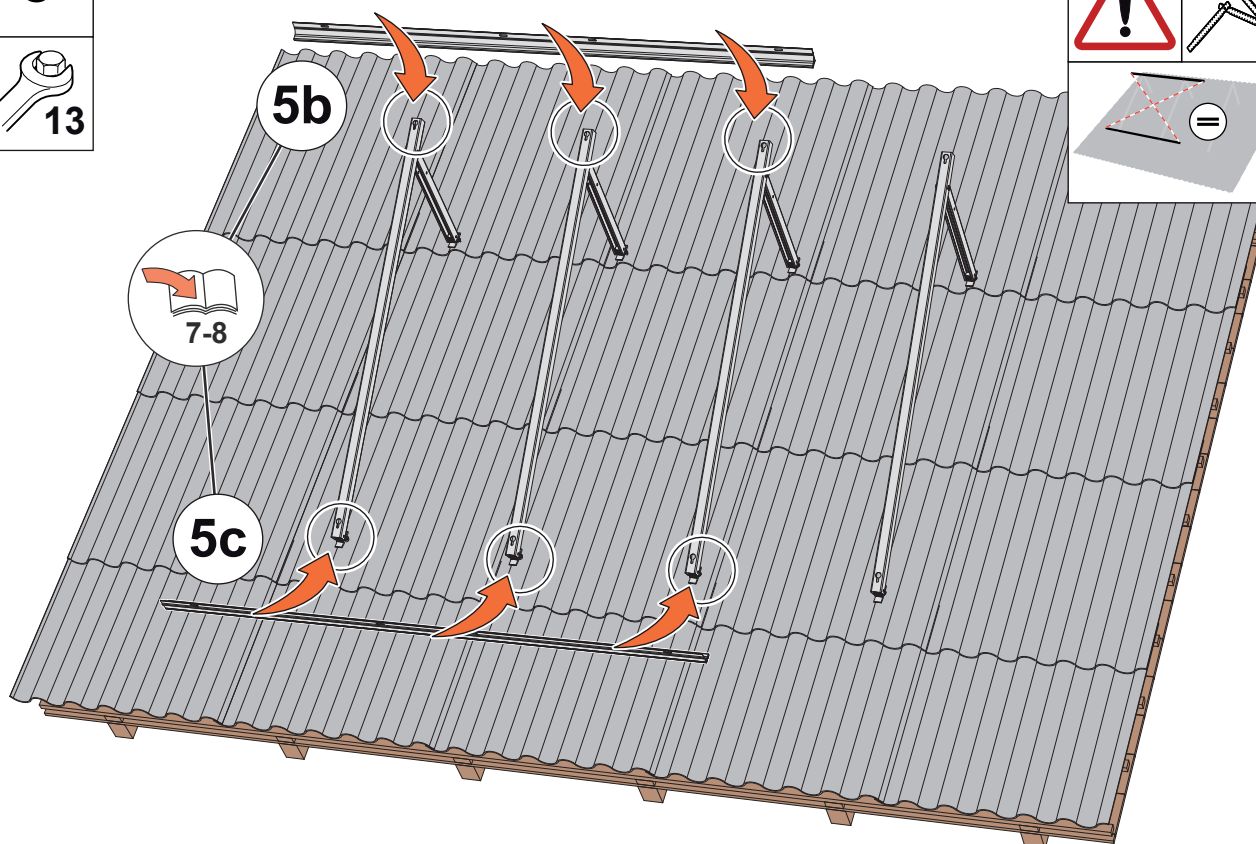
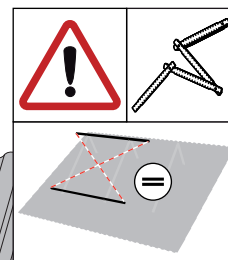


4





**5**



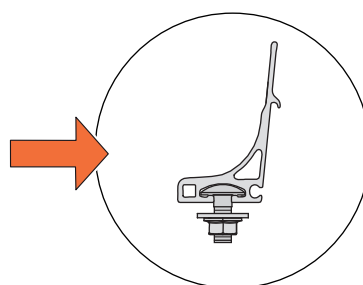
**5a**



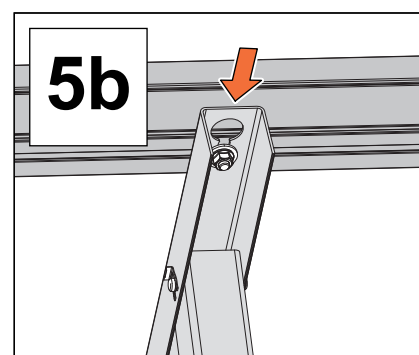
2.3

3.4

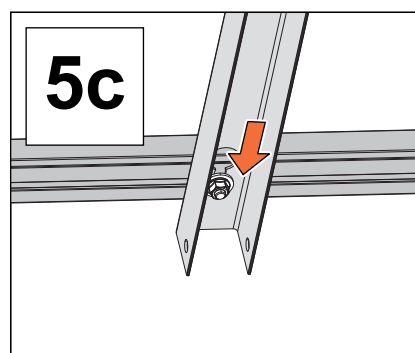
3.2



**5b**

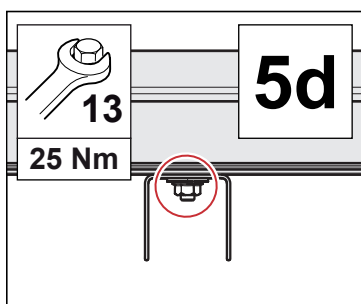


**5c**



25 Nm

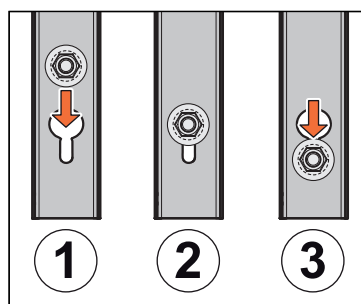
**5d**



**1**

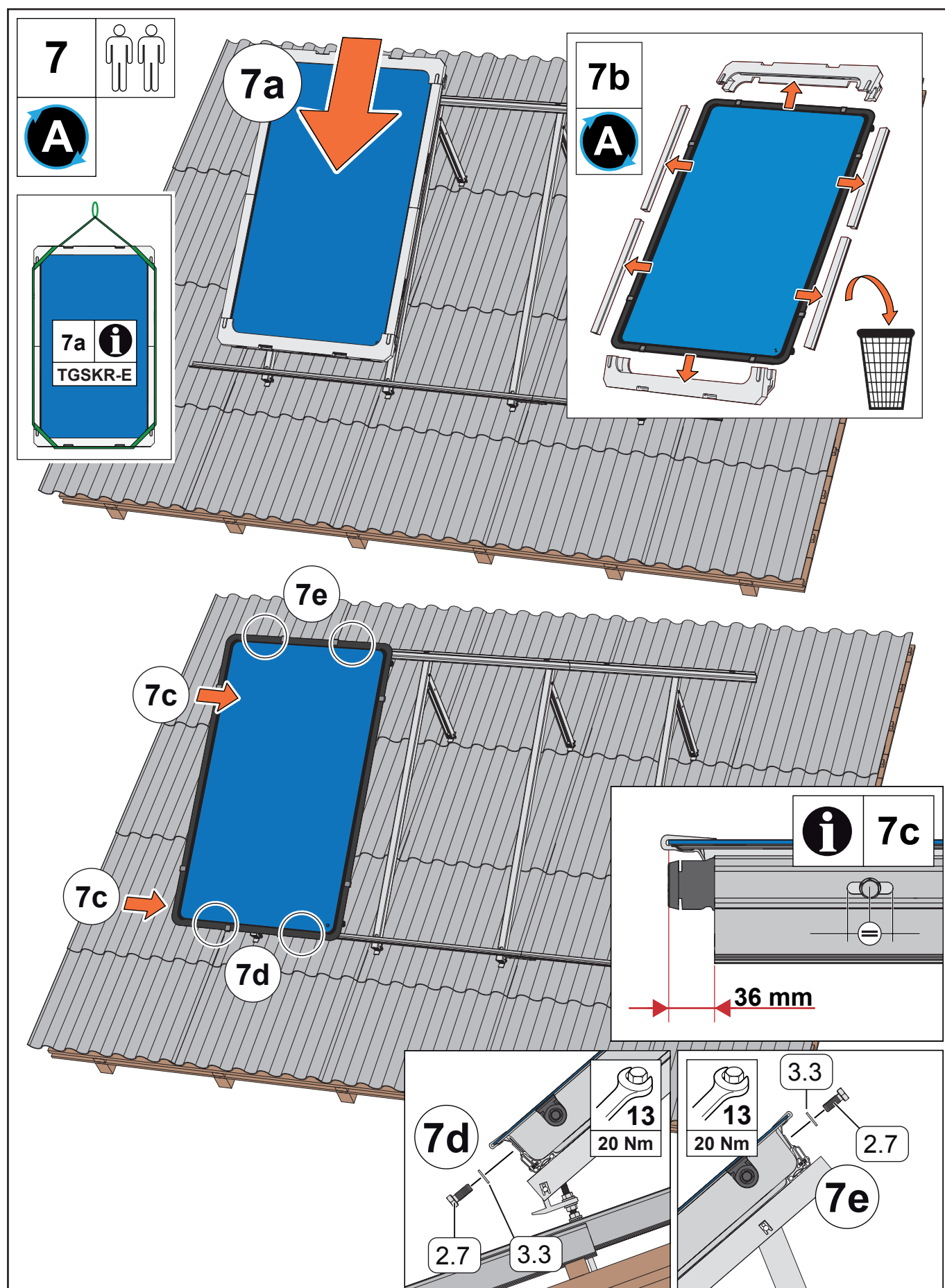
**2**

**3**



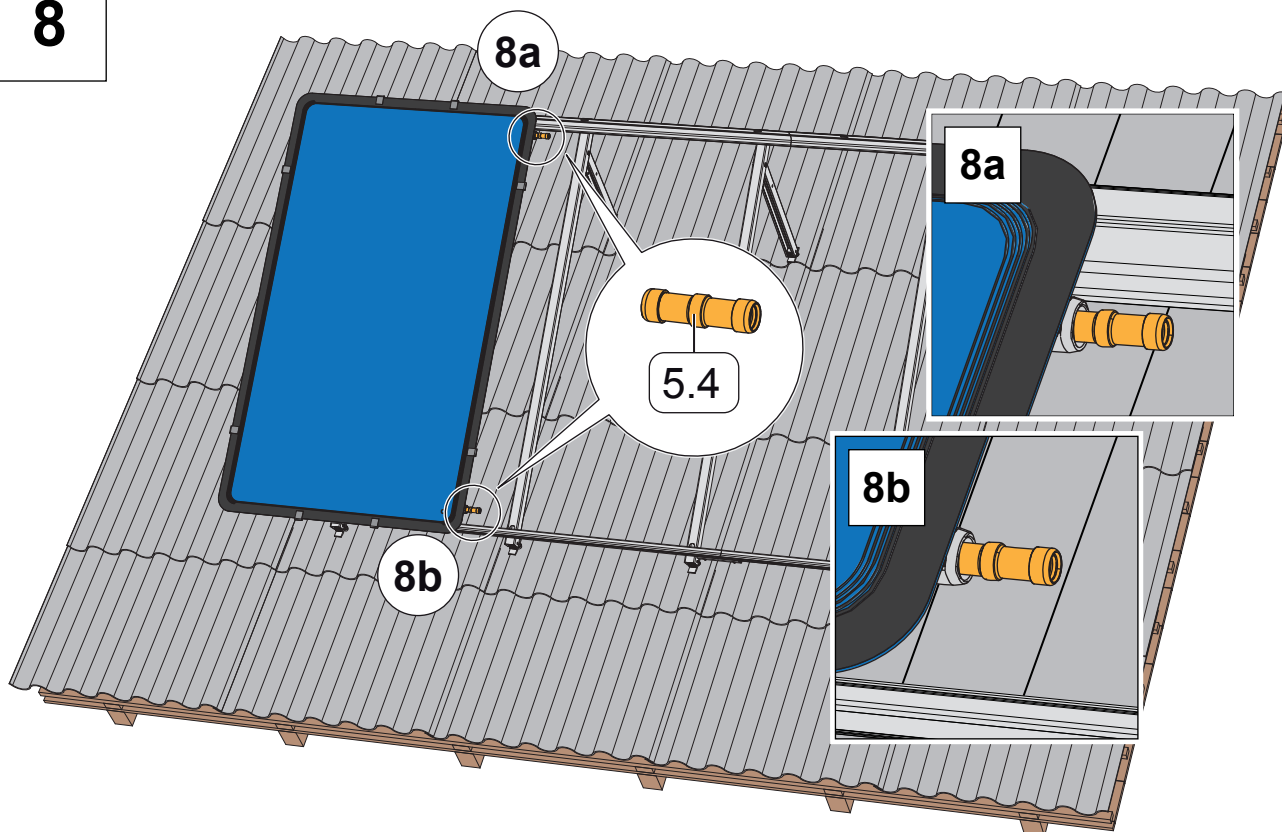




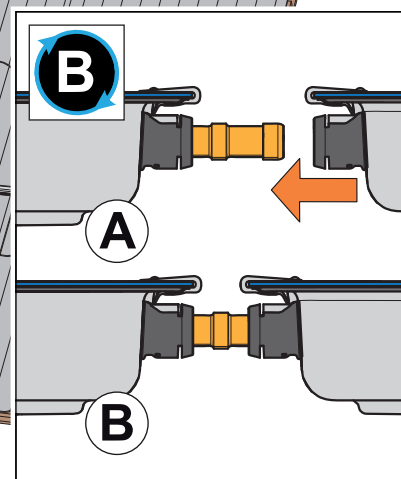
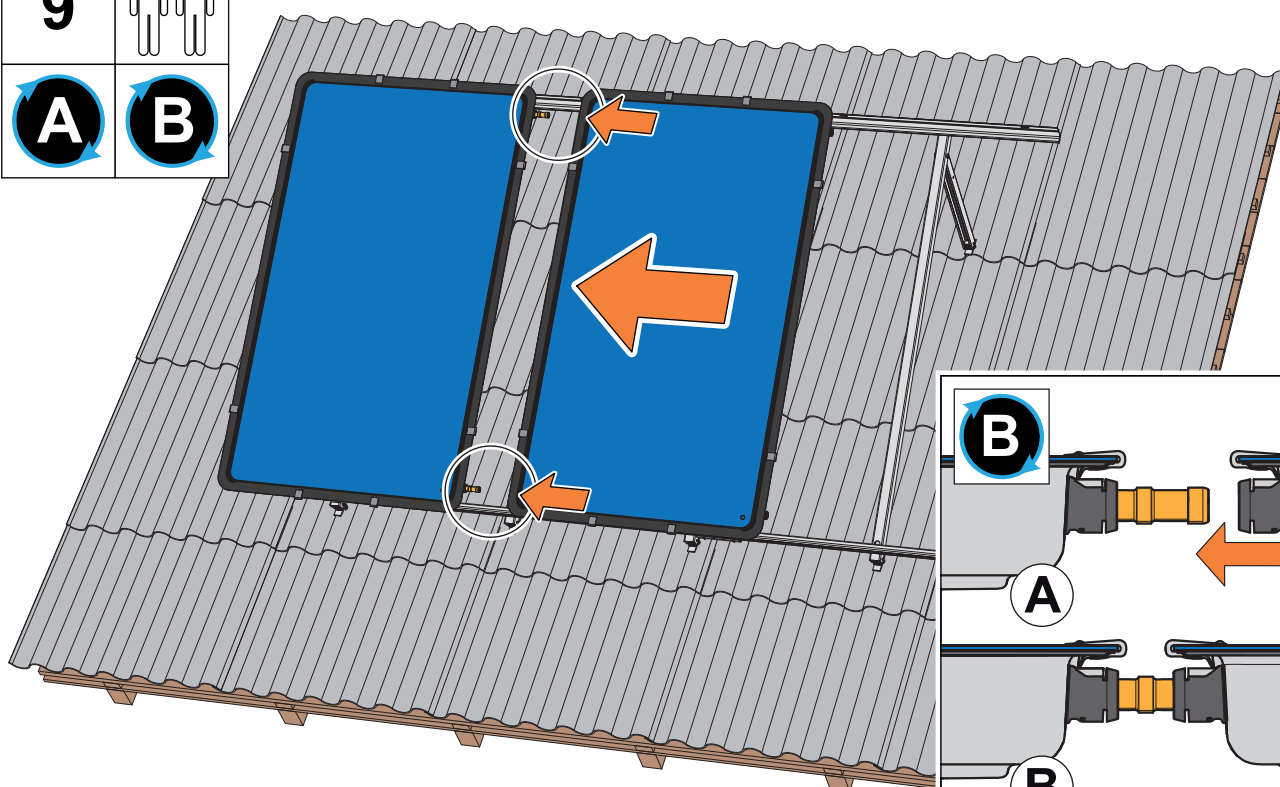
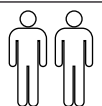


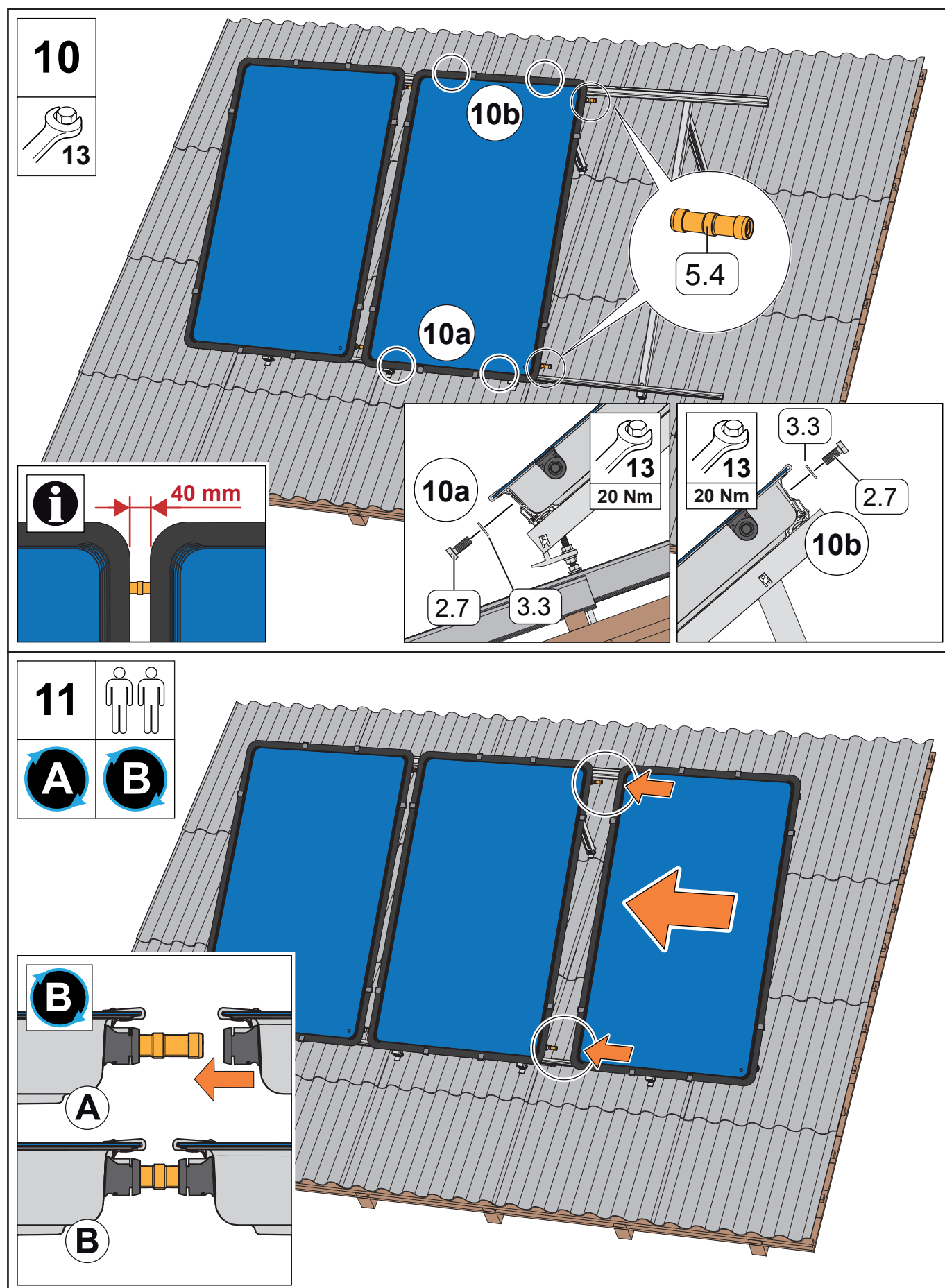


8



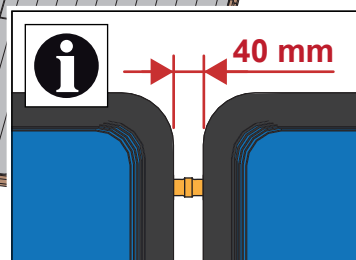
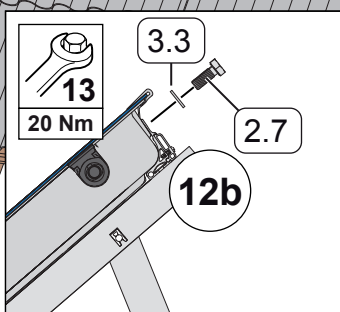
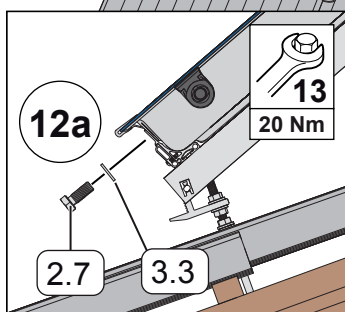
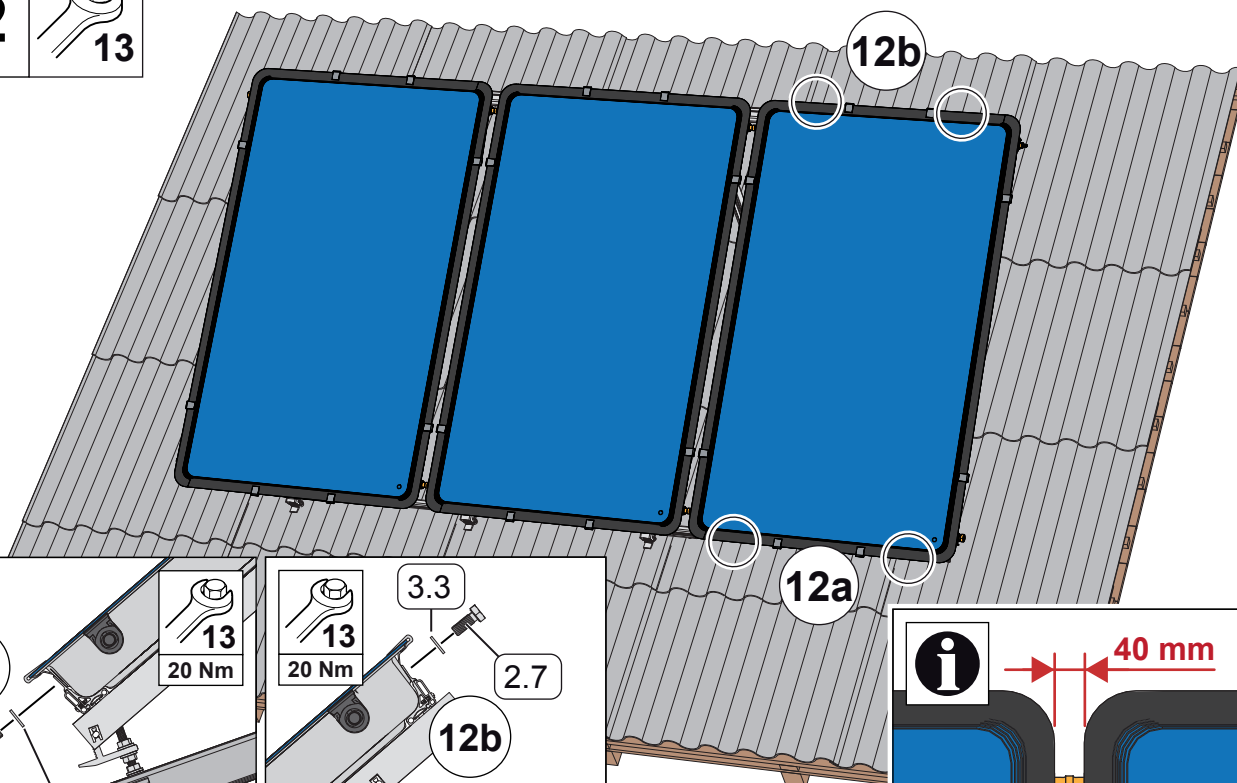
9



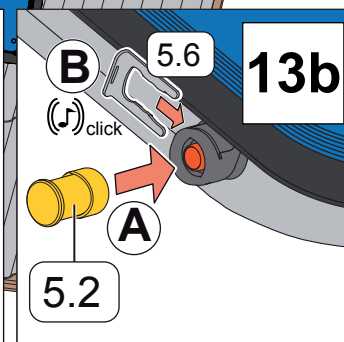
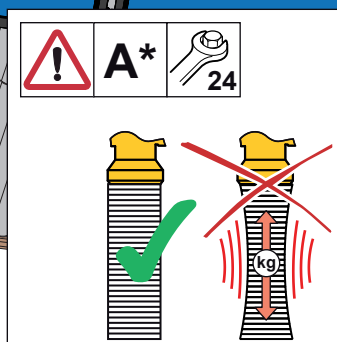
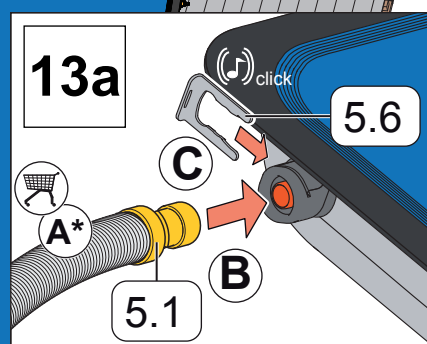
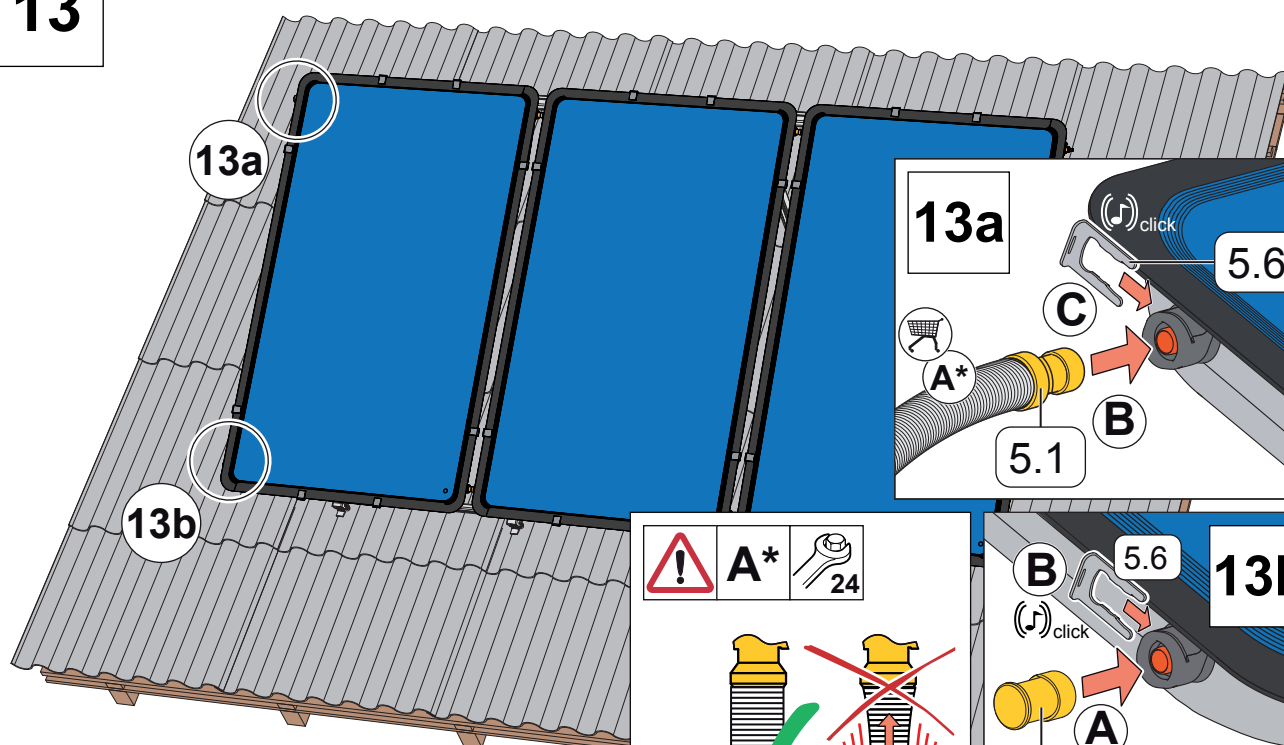




12



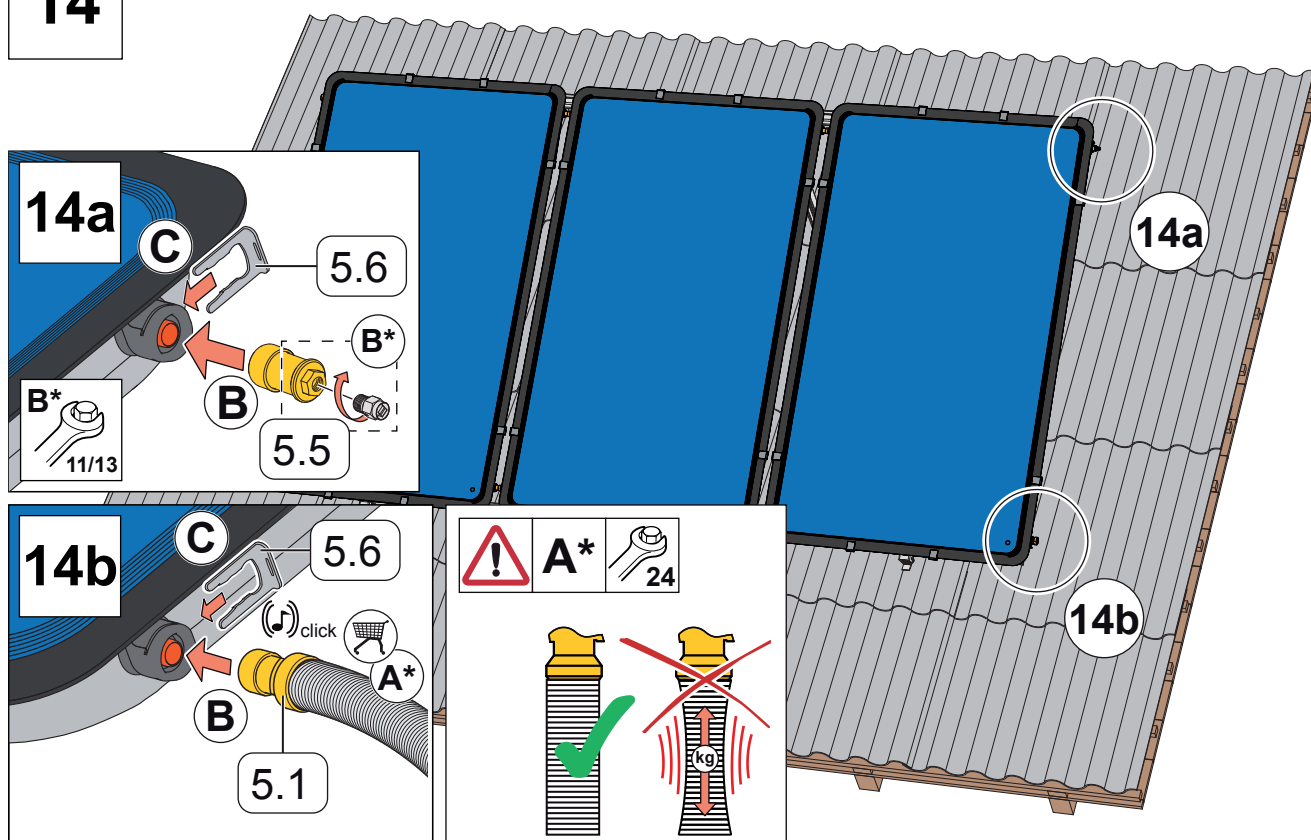
13



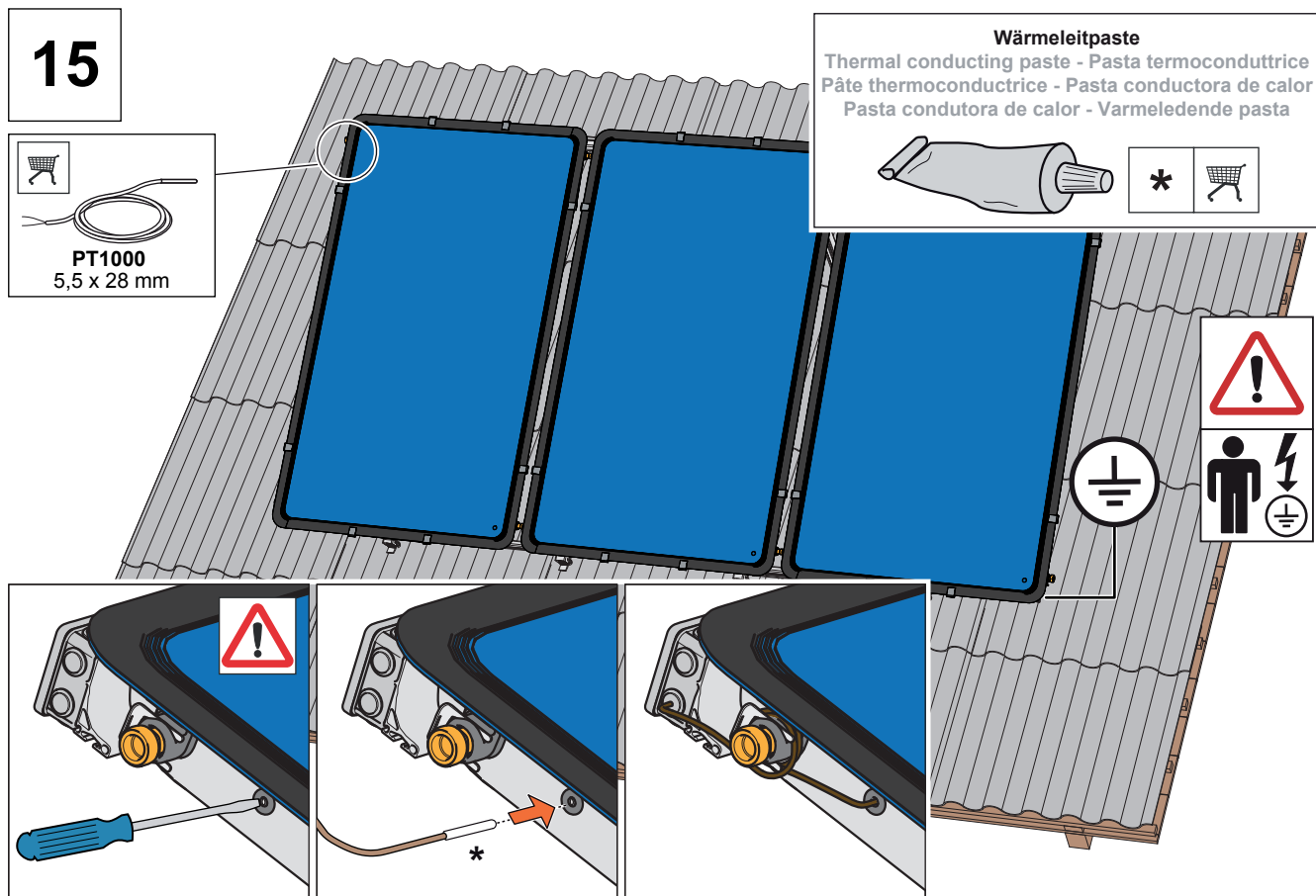




14



15





DE Trägerplatte  
GB Support plate  
IT Piastra portante  
FR Plaque de support  
ES Placa de soporte  
PT Peça de suporte  
DK Bæreplade

DE Ausschnitt  
GB Cut-out  
IT Ritaglio  
FR Découpe  
ES Sección  
PT Secção  
DK Sektion

A2

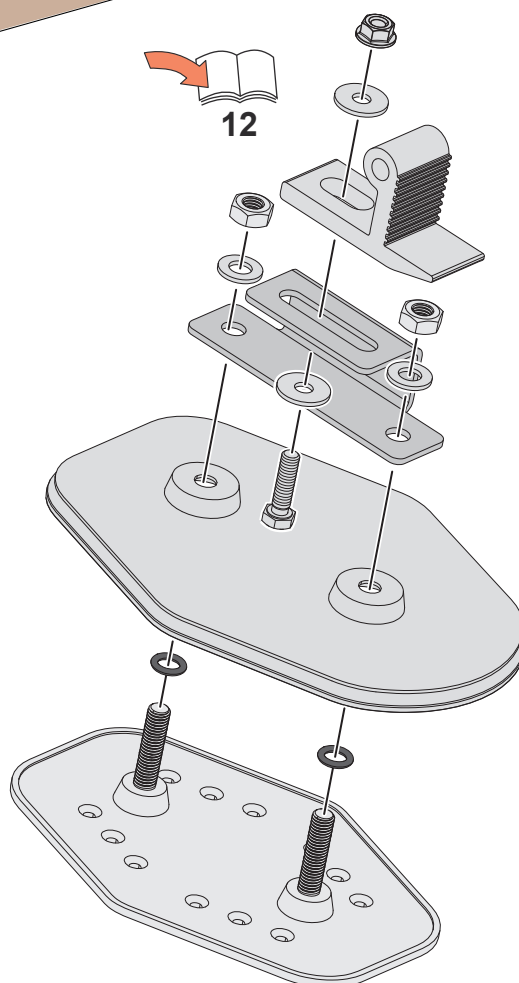
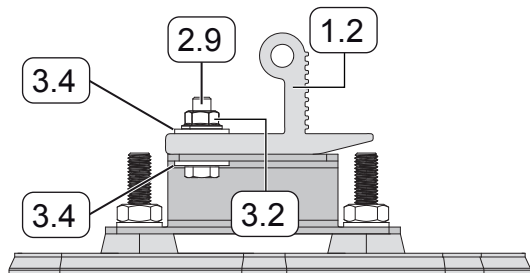
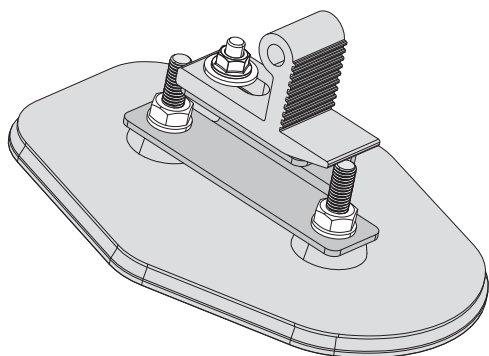


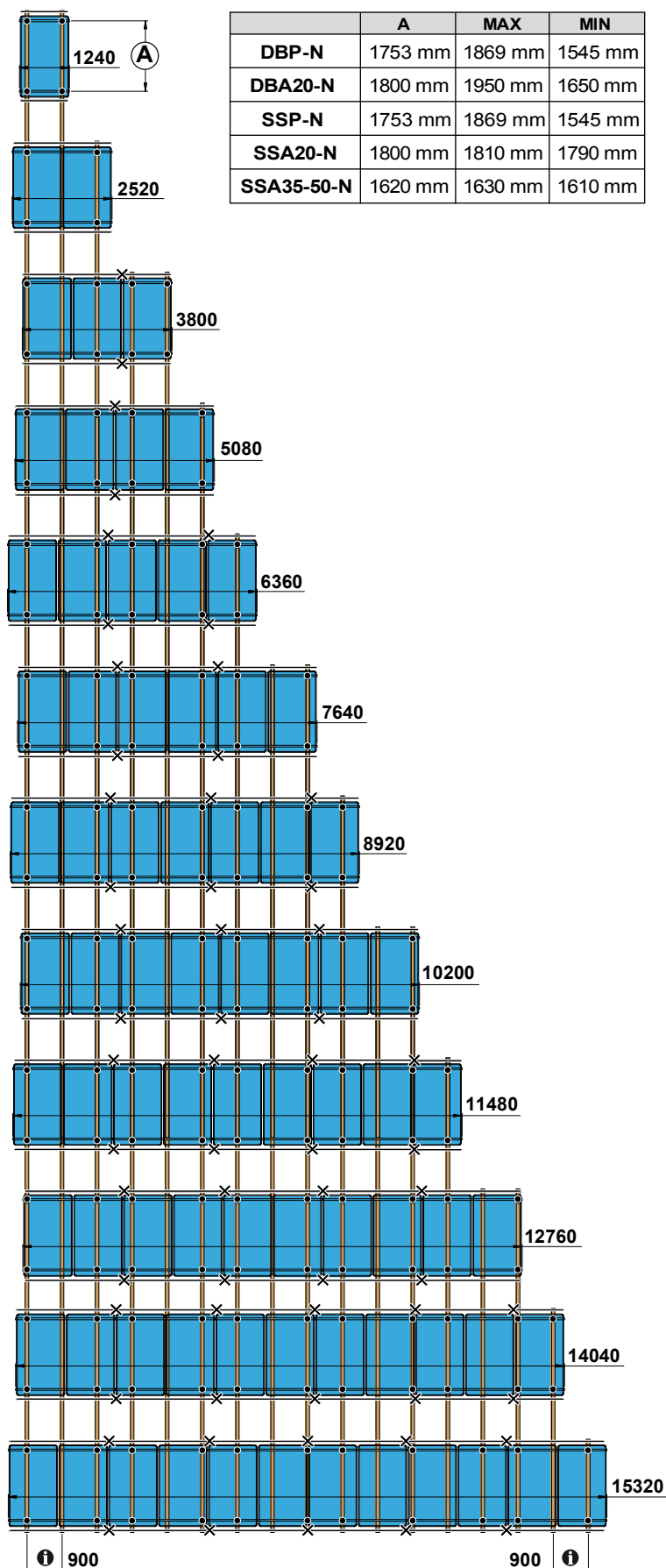
16x5\*60

DE Al-Abdeckplatte  
GB Al cover plate  
IT Piastra di copertura in alluminio  
FR Al-Plaque de recouvrement  
ES Placa de cubierta Al  
PT Placa para cobrir em alumínio  
DK Aluminium dækplade

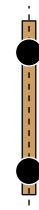
DE EPDM-Gummidichtung  
GB EPDM rubber seal  
IT Guarnizione in gomma EPDM  
FR Joint en caoutchouc EPDM  
ES Junta de goma EPDM  
PT Junta de vedação em EPDM  
DK EPDM-gummipakning

DE Holzschalung (> 25 - 30 mm), Blechdach  
GB Planking (> 25 - 30mm), tin roof  
IT Cassaforma in legno (> 25 - 30 mm), tetto in lamiera  
FR Lambrissage du toit (> 25 - 30 mm) en tôle  
ES Encofrado de madera (> 25 - 30 mm), tejado de chapa  
PT Placas de madeira (> 25 - 30 mm), telhado de chapa  
DK Træforskalling (>25 - 30mm), metaltag





## SKR500



**DE Befestigungsebene**  
**GB Fastening planes**  
**IT Piani di fissaggio**  
**FR Plans de fixation**  
**ES Superficies de fijación**  
**PT Plataformas de fixação**  
**DK Fastgøringspunkt**



**DE TSV Verbinder**  
**GB TSV connectors**  
**IT Collegamento TSV**  
**FR Connecteur TSV**  
**ES Elemento de unión TSV**  
**PT Conector TSV**  
**DK TSV forbinder**



**[S<sub>K</sub>]**  
**DE Schneelast**  
**GB Snow load**  
**IT Carico di neve**  
**FR Charge de neige**  
**ES Carga de nieve**  
**PT Carga de neve**  
**DK Snebelastning**  
**kN/m<sup>2</sup>**



**I1**  
**DE Winddruck**  
**GB Wind pressure**  
**IT Pressione del vento**  
**FR Pression du vent**  
**ES Presión del viento**  
**PT Pressão do vento**  
**DK Vindtryk**  
**kPa**

**we (ρ = 1,25 kg/m<sup>3</sup>)**



**I2**  
**DE max. Böengeschwindigkeit**  
**GB max. gust speed**  
**IT max. velocità di raffica**  
**FR vitesse de rafales maxi**  
**ES max. velocidad de ráfagas**  
**PT max. velocidade de rajadas**  
**DK max. vindstødshastighed**  
**km/h**



**Empfehlung für Befestigungsebenen SKR500**  
**Recommendation for fastening planes SKR500**  
**Raccomandazione per i piani di fissaggio SKR500**  
**Recommandation concernant les plans de fixation SKR500**  
**Recomendaciones para las superficies de fijación SKR500**  
**Sugestão de plataformas de fixação SKR500**  
**Anbefalede fastgøringspunkter SKR500**

| SSA20-N / STANDARD LOAD (SL)                                                                                                                                                              |    |            |                   |                   |            |                   |                   |            |                   |                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------|-------------------|-------------------|------------|-------------------|-------------------|------------|-------------------|-------------------|
|                                                                                                                                                                                           |    | 700 mm     |                   |                   | 800 mm     |                   |                   | 900 mm     |                   |                   |
|                                                                                                                                                                                           |    |            |                   |                   |            |                   |                   |            |                   |                   |
|                                                                                                                                                                                           |    |            |                   |                   |            |                   |                   |            |                   |                   |
|                                                                                                                                                                                           |    | kPa   km/h | kN/m <sup>2</sup> | kN/m <sup>2</sup> | kPa   km/h | kN/m <sup>2</sup> | kN/m <sup>2</sup> | kPa   km/h | kN/m <sup>2</sup> | kN/m <sup>2</sup> |
|                                                                                                                                                                                           |    | 0,83 / 125 | 1,58              | 2,82              | 0,73 / 117 | 1,39              | 2,47              | 0,64 / 110 | 1,23              | 2,19              |
| <br><b>DE Befestigungsebene</b><br>GB Fastening planes<br>IT Piani di fissaggio<br>FR Plans de fixation<br>ES Superficies de fijación<br>PT Plataformas de fixação<br>DK Fastgøringspunkt | 1  | 2          |                   |                   | 2          |                   |                   | 2          |                   |                   |
|                                                                                                                                                                                           | 2  | 3          |                   |                   | 2          |                   |                   | 2          |                   |                   |
|                                                                                                                                                                                           | 3  | 4          |                   |                   | 3          |                   |                   | 4          |                   |                   |
|                                                                                                                                                                                           | 4  | 4          |                   |                   | 4          |                   |                   | 4          |                   |                   |
|                                                                                                                                                                                           | 5  | 6          |                   |                   | 5          |                   |                   | 5          |                   |                   |
|                                                                                                                                                                                           | 6  | 6          |                   |                   | 6          |                   |                   | 6          |                   |                   |
|                                                                                                                                                                                           | 7  | 8          |                   |                   | 8          |                   |                   | 7          |                   |                   |
|                                                                                                                                                                                           | 8  | 8          |                   |                   | 8          |                   |                   | 8          |                   |                   |
|                                                                                                                                                                                           | 9  | 10         |                   |                   | 10         |                   |                   | 9          |                   |                   |
|                                                                                                                                                                                           | 10 | 10         |                   |                   | 10         |                   |                   | 10         |                   |                   |
|                                                                                                                                                                                           | 11 | 11         |                   |                   | 12         |                   |                   | 11         |                   |                   |
|                                                                                                                                                                                           | 12 | 12         |                   |                   | 12         |                   |                   | 11         |                   |                   |

| SSA20-N / HIGH LOAD (HL)                                                                                                                                                                  |    |            |                   |                   |            |                   |                   |            |                   |                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------|-------------------|-------------------|------------|-------------------|-------------------|------------|-------------------|-------------------|
|                                                                                                                                                                                           |    | 700 mm     |                   |                   | 800 mm     |                   |                   | 900 mm     |                   |                   |
|                                                                                                                                                                                           |    |            |                   |                   |            |                   |                   |            |                   |                   |
|                                                                                                                                                                                           |    |            |                   |                   |            |                   |                   |            |                   |                   |
|                                                                                                                                                                                           |    | kPa   km/h | kN/m <sup>2</sup> | kN/m <sup>2</sup> | kPa   km/h | kN/m <sup>2</sup> | kN/m <sup>2</sup> | kPa   km/h | kN/m <sup>2</sup> | kN/m <sup>2</sup> |
|                                                                                                                                                                                           |    | 1,09 / 143 | 2,06              | 3,67              | 0,94 / 133 | 1,80              | 3,21              | 0,84 / 126 | 1,60              | 2,85              |
| <br><b>DE Befestigungsebene</b><br>GB Fastening planes<br>IT Piani di fissaggio<br>FR Plans de fixation<br>ES Superficies de fijación<br>PT Plataformas de fixação<br>DK Fastgøringspunkt | 1  | 2          |                   |                   | 2          |                   |                   | 2          |                   |                   |
|                                                                                                                                                                                           | 2  | 4          |                   |                   | 4          |                   |                   | 3          |                   |                   |
|                                                                                                                                                                                           | 3  | 6          |                   |                   | 5          |                   |                   | 5          |                   |                   |
|                                                                                                                                                                                           | 4  | 8          |                   |                   | 7          |                   |                   | 6          |                   |                   |
|                                                                                                                                                                                           | 5  | 9          |                   |                   | 8          |                   |                   | 8          |                   |                   |
|                                                                                                                                                                                           | 6  | 11         |                   |                   | 10         |                   |                   | 9          |                   |                   |
|                                                                                                                                                                                           | 7  | 13         |                   |                   | 12         |                   |                   | 10         |                   |                   |
|                                                                                                                                                                                           | 8  | 15         |                   |                   | 13         |                   |                   | 12         |                   |                   |
|                                                                                                                                                                                           | 9  | 17         |                   |                   | 15         |                   |                   | 13         |                   |                   |
|                                                                                                                                                                                           | 10 | 19         |                   |                   | 16         |                   |                   | 15         |                   |                   |
|                                                                                                                                                                                           | 11 | 20         |                   |                   | 18         |                   |                   | 16         |                   |                   |
|                                                                                                                                                                                           | 12 | 22         |                   |                   | 20         |                   |                   | 17         |                   |                   |

| \* | ..... 30° bis 45° kann Linear Interpoliert werden

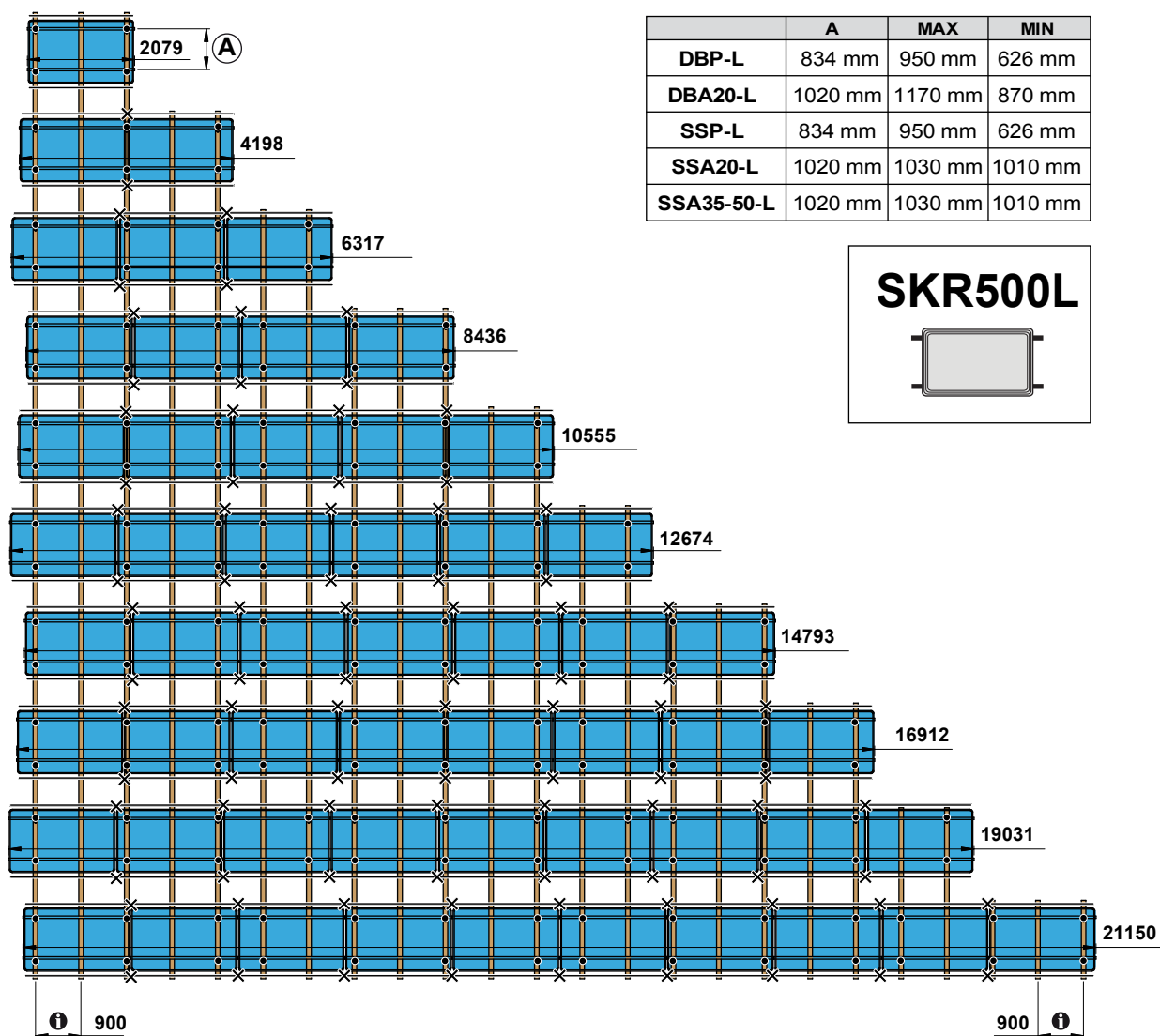
Linear interpolation between 30° and 45°  
 Interpolazione lineare tra 30° e 45°  
 Interpolation linéaire entre 30° et 45°  
 Interpolación lineal para valores entre 30° y 45°  
 A interpolação linear para valores entre 30° e 45°  
 Hældning kan udføres i 30° til 45°

| 1 | ..... Winddruck we (ρ = 1,25 kg/m<sup>3</sup>)

Wind pressure we (ρ = 1,25 kg/m<sup>3</sup>)  
 Pressione del vento we (ρ = 1,25 kg/m<sup>3</sup>)  
 Pression du vent we (ρ = 1,25 kg/m<sup>3</sup>)  
 Presión del viento we (ρ = 1,25 kg/m<sup>3</sup>)  
 Pressão do vento we (ρ = 1,25 kg/m<sup>3</sup>)  
 Vindtryk we (ρ = 1,25 kg/m<sup>3</sup>)

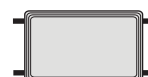
| 2 | ..... max. Böengeschwindigkeit

max. gust of wind  
 max. velocità di raffica  
 vitesse de rafales maxi  
 max. velocidad de ráfagas  
 max. velocidade de rajadas  
 max. vindstødshastighed



|            | A       | MAX     | MIN     |
|------------|---------|---------|---------|
| DBP-L      | 834 mm  | 950 mm  | 626 mm  |
| DBA20-L    | 1020 mm | 1170 mm | 870 mm  |
| SSP-L      | 834 mm  | 950 mm  | 626 mm  |
| SSA20-L    | 1020 mm | 1030 mm | 1010 mm |
| SSA35-50-L | 1020 mm | 1030 mm | 1010 mm |

**SKR500L**



|                                                   |                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                   | <p><b>DE Befestigungsebene</b><br/> <b>GB Fastening planes</b><br/> <b>IT Piani di fissaggio</b><br/> <b>FR Plans de fixation</b><br/> <b>ES Superficies de fijación</b><br/> <b>PT Plataformas de fixação</b><br/> <b>DK Fastgøringspunkt</b></p> | <p><b>I1</b> <b>DE Winddruck</b><br/> <b>GB Wind pressure</b><br/> <b>IT Pressione del vento</b><br/> <b>FR Pression du vent</b><br/> <b>ES Presión del viento</b><br/> <b>PT Pressão do vento</b><br/> <b>DK Vindtryk</b></p> <p><b>kPa</b></p>                                                               |
| <p><b>[S<sub>K</sub>]</b></p> <p><b>kN/m²</b></p> | <p><b>DE Schneelast</b><br/> <b>GB Snow load</b><br/> <b>IT Carico di neve</b><br/> <b>FR Charge de neige</b><br/> <b>ES Carga de nieve</b><br/> <b>PT Carga de neve</b><br/> <b>DK Snebelastning</b></p>                                          | <p><b>we (ρ = 1,25 kg/m³)</b></p>                                                                                                                                                                                                                                                                              |
|                                                   | <p><b>DE TSV Verbinder</b><br/> <b>GB TSV connectors</b><br/> <b>IT Collegamento TSV</b><br/> <b>FR Connecteur TSV</b><br/> <b>ES Elemento de unión TSV</b><br/> <b>PT Conector TSV</b><br/> <b>DK TSV forbinder</b></p>                           | <p><b>I2</b> <b>DE max. Böengeschwindigkeit</b><br/> <b>GB max. gust speed</b><br/> <b>IT max. velocità di raffica</b><br/> <b>FR vitesse de rafales maxi</b><br/> <b>ES max. velocidad de ráfagas</b><br/> <b>PT max. velocidade de rajadas</b><br/> <b>DK max. vindstødshastighed</b></p> <p><b>km/h</b></p> |



**Empfehlung für Befestigungsebenen SKR500L**  
**Recommendation for fastening planes SKR500L**  
**Raccomandazione per i piani di fissaggio SKR500L**  
**Recommandation concernant les plans de fixation SKR500L**  
**Recomendaciones para las superficies de fijación SKR500L**  
**Sugestão de plataformas de fixação SKR500L**  
**Anbefalede fastgøringspunkter SKR500L**

| SSA20-L / STANDARD LOAD (SL)                                                                                                                                                              |    |            |      |      |            |      |      |            |      |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------|------|------|------------|------|------|------------|------|------|
|                                                                                                                                                                                           |    | 700 mm     |      |      | 800 mm     |      |      | 900 mm     |      |      |
|                                                                                                                                                                                           |    |            |      |      |            |      |      |            |      |      |
|                                                                                                                                                                                           |    |            |      |      |            |      |      |            |      |      |
|                                                                                                                                                                                           |    | 1,16 / 148 | 2,22 | 4,00 | 1,01 / 138 | 1,94 | 4,00 | 0,91 / 131 | 1,73 | 4,00 |
| <br><b>DE Befestigungsebene</b><br>GB Fastening planes<br>IT Piani di fissaggio<br>FR Plans de fixation<br>ES Superficies de fijación<br>PT Plataformas de fixação<br>DK Fastgøringspunkt | 1  | 2          |      |      | 2          |      |      | 2          |      |      |
|                                                                                                                                                                                           | 2  | 4          |      |      | 4          |      |      | 3          |      |      |
|                                                                                                                                                                                           | 3  | 6          |      |      | 5          |      |      | 4          |      |      |
|                                                                                                                                                                                           | 4  | 8          |      |      | 7          |      |      | 6          |      |      |
|                                                                                                                                                                                           | 5  | 10         |      |      | 8          |      |      | 7          |      |      |
|                                                                                                                                                                                           | 6  | 12         |      |      | 10         |      |      | 8          |      |      |
|                                                                                                                                                                                           | 7  | 14         |      |      | 12         |      |      | 10         |      |      |
|                                                                                                                                                                                           | 8  | 16         |      |      | 14         |      |      | 11         |      |      |
|                                                                                                                                                                                           | 9  | 18         |      |      | 15         |      |      | 12         |      |      |
|                                                                                                                                                                                           | 10 | 20         |      |      | 17         |      |      | 14         |      |      |

| SSA20-L / HIGH LOAD (HL)                                                                                                                                                                  |    |            |      |      |            |      |      |            |      |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------|------|------|------------|------|------|------------|------|------|
|                                                                                                                                                                                           |    | 700 mm     |      |      | 800 mm     |      |      | 900 mm     |      |      |
|                                                                                                                                                                                           |    |            |      |      |            |      |      |            |      |      |
|                                                                                                                                                                                           |    |            |      |      |            |      |      |            |      |      |
|                                                                                                                                                                                           |    | 1,20 / 150 | 2,93 | 4,00 | 1,20 / 150 | 2,56 | 4,00 | 1,20 / 150 | 2,24 | 4,00 |
| <br><b>DE Befestigungsebene</b><br>GB Fastening planes<br>IT Piani di fissaggio<br>FR Plans de fixation<br>ES Superficies de fijación<br>PT Plataformas de fixação<br>DK Fastgøringspunkt | 1  | 3          |      |      | 3          |      |      | 3          |      |      |
|                                                                                                                                                                                           | 2  | 6          |      |      | 6          |      |      | 5          |      |      |
|                                                                                                                                                                                           | 3  | 9          |      |      | 8          |      |      | 7          |      |      |
|                                                                                                                                                                                           | 4  | 12         |      |      | 11         |      |      | 10         |      |      |
|                                                                                                                                                                                           | 5  | 15         |      |      | 14         |      |      | 12         |      |      |
|                                                                                                                                                                                           | 6  | 18         |      |      | 16         |      |      | 15         |      |      |
|                                                                                                                                                                                           | 7  | 21         |      |      | 19         |      |      | 17         |      |      |
|                                                                                                                                                                                           | 8  | 24         |      |      | 22         |      |      | 19         |      |      |
|                                                                                                                                                                                           | 9  | 27         |      |      | 24         |      |      | 22         |      |      |
|                                                                                                                                                                                           | 10 | 30         |      |      | 27         |      |      | 24         |      |      |

| \* | ..... 30° bis 45° kann Linear Interpoliert werden

Linear interpolation between 30° and 45°  
 Interpolazione lineare tra 30° e 45°  
 Interpolation linéaire entre 30° et 45°  
 Interpolación lineal para valores entre 30° y 45°  
 A interpolação linear para valores entre 30° e 45°  
 Hældning kan udføres i 30° til 45°

| 1 | ..... Winddruck we (p = 1,25 kg/m³)

Wind pressure we (p = 1,25 kg/m³)  
 Pressione del vento we (p = 1,25 kg/m³)  
 Pression du vent we (p = 1,25 kg/m³)  
 Presión del viento we (p = 1,25 kg/m³)  
 Pressão do vento we (p = 1,25 kg/m³)  
 Vindtryk we (p = 1,25 kg/m³)

| 2 | ..... max. Böengeschwindigkeit

max. gust of wind  
 max. velocità di raffica  
 vitesse de rafales maxi  
 max. velocidad de ráfagas  
 max. velocidade de rajadas  
 max. vindstødshastighed





DE

### **Statische Einsatzgrenzen, Regeln zum Positionieren von Befestigungspunkten im Bereich von TSV - Schienenverbinder:**

- Die Kollektoren und Befestigung sind für eine maximale Böengeschwindigkeit von siehe Tabelle ausgelegt.
- Die Kollektoren und Befestigung sind für eine max. charakteristische Schneelast von siehe Tabelle (SL) ausgelegt. Bei Befestigungen mit zusätzlichen Stützen sind charakteristische Schneelasten bis siehe Tabelle (HL) zulässig (Die charakteristische Schneelast ist nach EN 1991 NA definiert).
- Befindet sich der Schienenverbinder zwischen zwei Sparren (und ist weniger als 400 mm vom nächstgelegenen Sparren entfernt), so muss auf diesem Sparren ein Befestigungspunkt gesetzt werden.
- Befindet sich der Schienenverbinder zwischen zwei Sparren (und ist mehr als 400 mm vom nächstgelegenen Sparren entfernt) so muss auf beiden Sparren links und rechts vom Verbinder ein Befestigungspunkt gesetzt werden.
- Befindet sich der Schienenverbinder auf einen Sparren, so muss auf dem betroffenen Sparren ein Befestigungspunkt gesetzt werden.
- Die oben genannten Regeln sind für übliche Sparrenabstände von 700 mm bis 900 mm gültig.
- Bei der Standardbefestigung bis siehe Tabelle Schneelast (SL) darf zwischen den Befestigungspunkten max. 1 Sparren freigelassen werden. Bei der Befestigung mit zusätzlichen Stützen bis siehe Tabelle Schneelast (HL) darf zwischen den Befestigungspunkten kein Sparren freigelassen werden.
- Überstand der Trageschiene über den äußersten Befestigungspunkt bei SL N/L Montage max. 525 mm, bei HL N/L Montage max. 425 mm.

EN

### **Static operating tolerances, rules for positioning mounting points in the vicinity of the TSV - support profile connector:**

- The collectors and fastener are designed for a maximum gust speed according table.
- The collectors and fastener are designed for a maximum characteristic snow load according table.(SL) In the case of mountings with additional supports, characteristic snow loads according table (HL) are permissible. (The characteristic snow load is defined in accordance with EN 1991 NA).
- If the connector rail is located between two spars (and is situated less than 400mm from the nearest rafter), a mounting point needs to be fitted on this rafter.
- If the connector rail is located between two rafters (and is situated more than 400mm from the nearest rafter), a mounting point needs to be fitted on both rafters to the left and right of the connector.
- If the support profile connector is located on a rafter, a mounting point needs to be fitted on the rafter in question.
- The aforementioned rules are valid for characteristic distances between rafters of between 700mm and 900mm.
- In the case of the standard mounting up to a snow load (SL) according table no more than 1 rafter may be omitted between mounting points. In the case of a mounting with additional supports up to a snow load according table (HL) it is not permitted to omit any rafter between mounting points.
- Protrusion of the support rail beyond the furthest mounting point is max. 525mm for SL N/L installation and max. 425mm in the case of HL N/L installation.

IT

### **Limiti statici di applicabilità, regole per il posizionamento dei punti di fissaggio in corrispondenza dei collegamenti delle guide TSV:**

- I collettori e i fissaggi sono ideati per una velocità di raffica massima indicata in tabella.
- I collettori e i fissaggi sono ideati per un carico di neve caratteristico massimo come da tabella per carichi standard (SL). In presenza di fissaggi con supporti addizionali i carichi di neve caratteristici ammessi raggiungono i valori riportati nella tabella per carichi elevati (HL) (il carico di neve caratteristico è definito dalla norma EN 1991 NA).
- Se la giunzione tra le guide si trova fra due travetti (e dista dal travetto successivo meno di 400 mm), su questo travetto deve essere collocato un punto di fissaggio.
- Se la giunzione tra le guide si trova fra due travetti (e dista dal travetto successivo più di 400 mm), deve essere collocato un punto di fissaggio a sinistra e a destra della giunzione tra le due guide.
- Se la giunzione tra due guide cade su un travetto, sul travetto interessato deve essere collocato un punto di fissaggio.
- Le regole di cui sopra sono valide per distanze fra travetti comprese fra 700 mm e 900 mm.
- Con un fissaggio standard per un carico di neve fino al pertinente valore indicato dalla tabella carichi standard (SL), fra due punti di fissaggio deve essere lasciato libero al massimo 1 travetto. Nel caso si intenda realizzare un sistema atto a sopportare un carico neve fino ai valori indicati nella tabella per carichi elevati (HL), occorre posizionare un fissaggio su ogni travetto.
- Sporgenza della guida di supporto oltre i punti di fissaggio più esterni: con montaggio SL (tabella carichi standard) max. 525 mm, con montaggio HL (tabella carichi elevati) max. 425 mm.



FR

### Limites d'utilisation statiques, règles de positionnement des points de fixation dans la zone du connecteur de rails TSV:

- Les capteurs et leur fixation sont conçus pour une vitesse de rafales de vent maximale selon tableau.
- Les capteurs et leur fixation sont conçus pour une charge de neige spécifique maximale selon tableau (SL). Pour les fixations dotées de supports supplémentaires, les charges de neige spécifiques du tableau (HL) sont autorisées (la charge de neige spécifique est définie conformément à EN 1991 NA).
- Si le coupleur de profilés se situe entre deux chevrons (et se trouve à moins de 400 mm du chevron le plus proche), un point de fixation doit être placé sur ce chevron.
- Si le coupleur de profilés se situe entre deux chevrons (et se trouve à plus de 400 mm du chevron le plus proche), un point de fixation doit être placé sur les deux chevrons à droite et à gauche du coupleur.
- Si le coupleur de profilés se situe sur un chevron, un point de fixation doit être placé sur le chevron concerné.
- Les règles ci-dessus s'appliquent aux distances ordinaires entre chevrons de 700 mm à 900 mm.
- En cas de fixation standard jusqu'à une charge de neige selon tableau (SL), 1 chevron au maximum peut être laissé libre entre les points de fixation. En cas de fixation au moyen de supports supplémentaires jusqu'à une charge de neige selon tableau (HL), aucun chevron ne doit être laissé libre entre les points de fixation.
- Porte-à-faux du profilé de support par rapport au point de fixation le plus extérieur en cas de montage SL N/L maxi 525 mm, en cas de montage HL N/L maxi 425 mm.

ES

### Límites estáticos de uso, reglas para posicionar puntos de fijación en la zona del elemento de unión de carriles TSV:

- Los colectores y la fijación han sido diseñados para ráfagas de viento máximas según la tabla.
- Los colectores y la fijación han sido diseñados para una carga de nieve máxima característica según la tabla (SL). En el caso de instalar soportes adicionales, se permiten cargas de nieve características de acuerdo con la tabla (HL) (la carga de nieve característica está definida por EN 1991 NA).
- Si el elemento de unión de los carriles se encuentra entre dos vigas (y está a menos de 400 mm de la más cercana), deberá instalarse un punto de fijación en dicha viga.
- Si el elemento de unión de los carriles se encuentra entre dos vigas (y está a más de 400 mm de la más cercana), deberán instalarse puntos de fijación en ambas vigas a la derecha y a la izquierda del elemento de unión.
- Si el elemento de unión de los carriles se encuentra en una viga, deberá instalarse un punto de fijación en dicha viga.
- Las reglas mencionadas son válidas para distancias entre vigas habituales de 700 y 900 mm.
- Con la fijación estándar para carga de nieve normal (SL) según la tabla, se puede dejar como máximo 1 viga libre entre los puntos de fijación. En caso de fijación con soportes adicionales para una alta carga de nieve (HL) según la tabla, no está permitido dejar ninguna viga libre entre los puntos de fijación.
- Saliente del carril portador sobre el punto más externo de fijación: en montaje SL N/L máx. 525 mm; en montaje HL N/L máx. 425 mm.

PT

### Limites de aplicação estática, regras para posicionar os pontos de fixação na área de TSV - ligação das calhas:

- Coletor e fixação são projetados para rajadas de vento forte na tabela.
- Os coletores e fixação são projetados para uma carga máxima de neve característica tabela (SL). No caso da instalação de suportes adicionais, características de carga de neve de acordo com a tabela (HL) são permitidos (característica de carga de neve é definida pela EN 1991 NA).
- Caso a ligação de perfis se encontre entre dois caibros (e esteja situada a menos de 400 mm do caibro mais próximo), terá que ser colocada no caibro um ponto de fixação
- Caso a ligação de perfis se encontre entre dois caibros (e esteja situada a mais de 400 mm do caibro mais próximo), terá que ser colocado um ponto de fixação em ambos os caibros à esquerda e direita da ligação.
- Caso a ligação das calhas se encontre num caibro, terá que ser colocado no dado caibro um ponto de fixação.
- As regras acima referidas são válidas para as distâncias entre caibros habituais de 700 mm a 900 mm.
- Com montagem padrão para carga de neve normal (SL) por tabela, você pode deixar no máximo 1 feixe livre entre os pontos de fixação. Se suportes de fixação adicionais para carga de neve elevado (HL) por tabela não é permitido deixar qualquer feixe livre entre os pontos de fixação
- Saída do canal portador no ponto de fixação externa: na montagem SL N / L máx. 525 mm, com montagem HL N / L max. 425 milímetros.

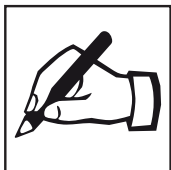


DK

### Statiske anvendelsesgrænser, regler for positionering af fastgøringspunkter inden for TSV - skinneforbindernes område:

- Solfangerne og fastgøringen er konstrueret til en maksimal vindstødshastighed ifølge tabel.
- Solfangerne og fastgøringen er konstrueret til en maks. karakteristisk snebelastning ifølge tabel (SL). Ved fastgøring med ekstra støtter er karakteristiske ifølge tabellen (HL) tilladt (Den karakteristiske snebelastning er defineret efter EN 1991 NA).
- Hvis skinneforbindelsen befinder sig mellem to spær (og er beliggende mindre end 400 mm fra de nærmeste spær), skal der sættes et fastgøringspunkt på dette spær.
- Hvis skinneforbindelsen befinder sig mellem to spær (og er beliggende mere end 400 mm fra de nærmeste spær), skal der sættes et fastgøringspunkt på begge spær til venstre og højre for forbinderen.
- Hvis skinneforbindelsen er på et spær, skal der sættes et fastgøringspunkt på det pågældende spær.
- De ovennævnte regler gælder for karakteristiske afstande mellem spærene på mellem 700 mm og 900 mm.
- Ved standardfastgøringen op til en snebelastning (SL) ifølge tabel må der maks. holdes 1 spær fri mellem fastgøringspunkterne. Ved fastgøring med ekstra støtter op til snebelastning (HL) ifølge tabel må der ikke være nogen frie spær mellem fastgøringspunkterne.
- Udhæng for bæreskinnen over det yderste fastgøringspunkt ved SL N/L montering maks. 525 mm, og maks. 425 mm for HL N/L installation.











## Ihr Online-Fachhändler für:

- Kostenlose und individuelle Beratung
- Hochwertige Produkte
- Kostenloser und schneller Versand
- TOP Bewertungen
- Exzelerter Kundenservice
- Über 20 Jahre Erfahrung



**E-Mail: [info@unidomo.de](mailto:info@unidomo.de) | Tel.: 04621 - 30 60 89 0 | [www.unidomo.de](http://www.unidomo.de)**

