



- Ⓓ Handbuch
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**SK/R500**

**SSA35-50R**  
**BDA35-50R**



***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!***



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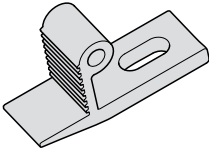
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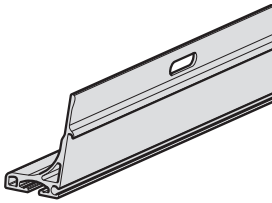
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# 110317 / AW-SSAR

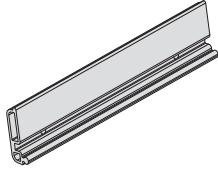


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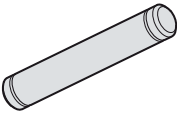
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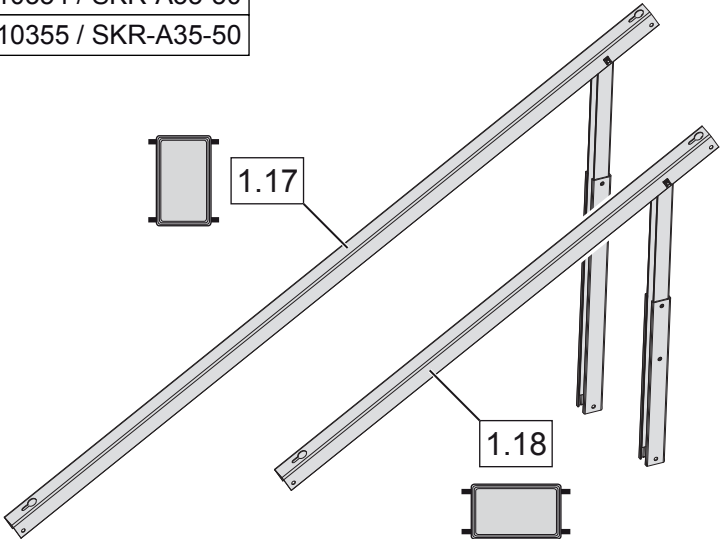
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# 110354 / SKR-A35-50  
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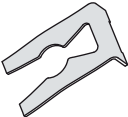
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1.18

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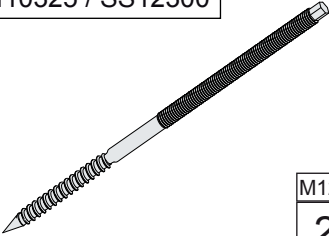
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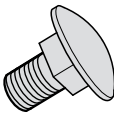
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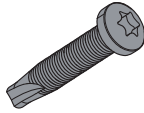
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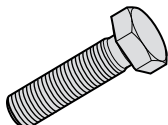


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Tx25

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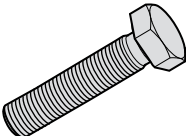
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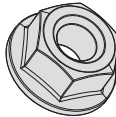
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# 110329 / ZSM12



M12

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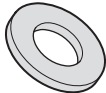
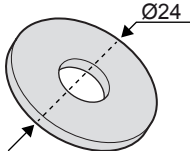
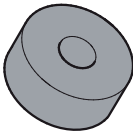
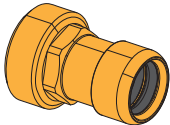
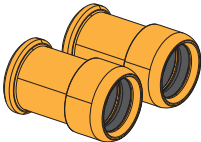
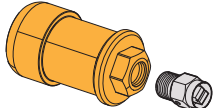
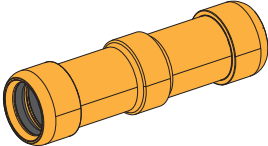
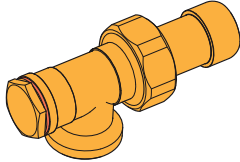
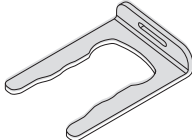
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M8

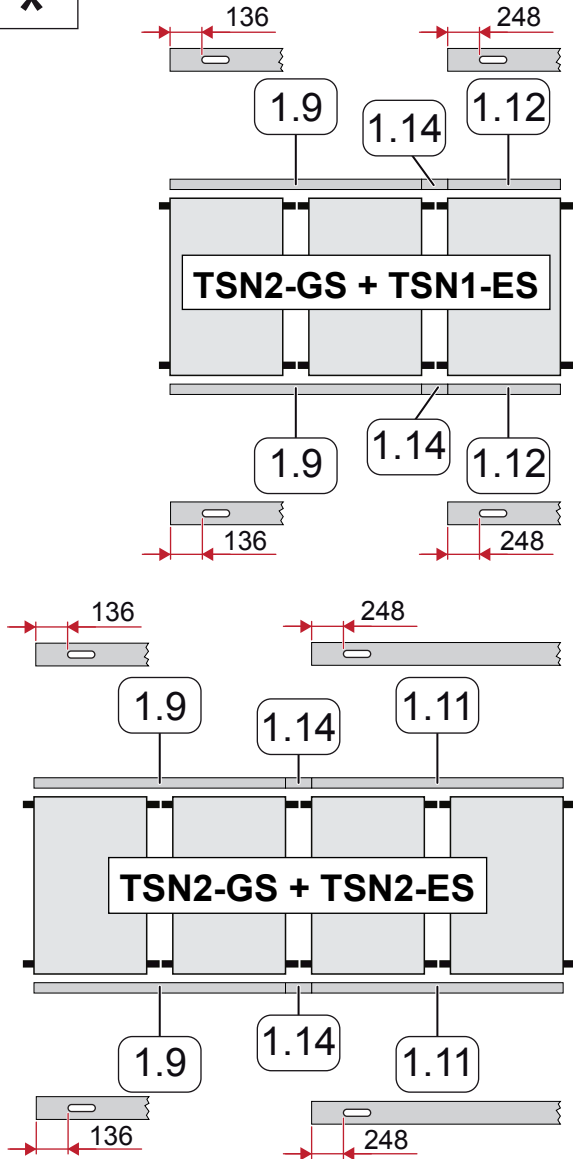
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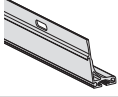





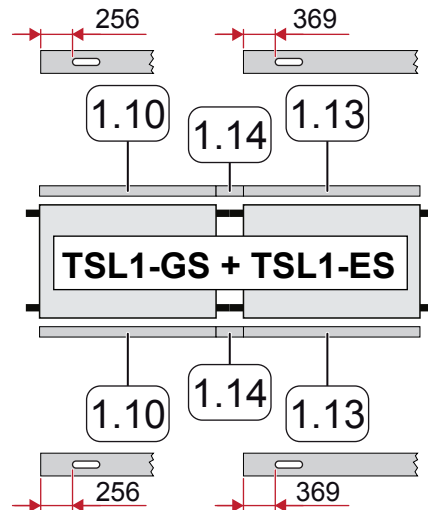
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<p># 110054 / SKR-SA</p>  <p>5.1</p>	<p># 110055 / SKR-ES</p>  <p>5.2</p>	<p># 110075 / SKR-EV</p>  <p>5.3</p>
<p># 110050 / SKR-HV</p>  <p>5.4</p>	<p># 110057 / SKR-WA</p>  <p>5.5</p>	<p># 110084 / SKR-SS</p>  <p>5.6</p>

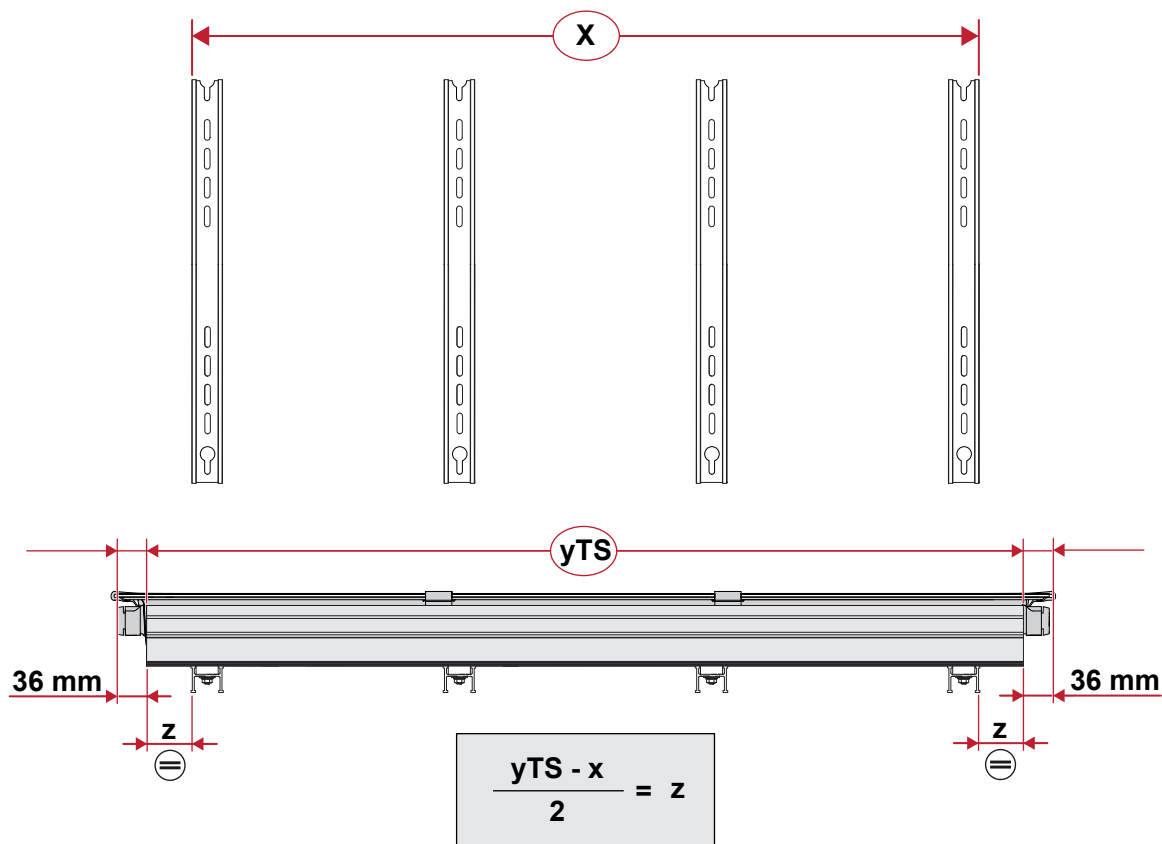


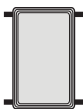
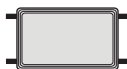
Les images suivantes représentent une sousconstruction uniquement symbolique.  
 Souvent le montage d'un champ de capteurs constitue un empiètement dans la construction du toit. Dans ce cas il faut respecter à chaque fois la globalité des règlements spécifiques à chaque pays concernant l'étanchéité pour la construction des toits (et surtout en présence d'une sous-toiture).



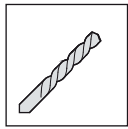
		
# 110336	TSN1-GS	L = 1168 mm
# 110338	TSN2-GS (1.9)	L = 2448 mm
# 110340	TSL1-GS (1.10)	L = 2007 mm
# 110339	TSN2-ES (1.11) 	L = 2560 mm
# 110337	TSN1-ES (1.12) 	L = 1280 mm
# 110341	TSL1-ES (1.13) 	L = 2119 mm
# 110342	TSV-B (1.14)	





y TS		
Kollektoren Collectors Collettori Capteurs Colectores Colectores Solfangere		
TS Länge [mm] - TS length - 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 Bohren/Vorbohren**  
 GB Drill/pre-drill  
 IT Forare/fissare  
 FR Perçage/pré-perçage  
 ES Taladrar/taladrar previamente  
 PT Furos/Furos prévios  
 DK Bor/forbor



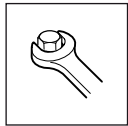
**DE Heiße Oberfläche!**  
 GB Hot surface!  
 IT Superficie calda!  
 FR surface chaude!  
 ES Superficie caliente!  
 PT Superfície quente!  
 DK Hot overfladiskhed!



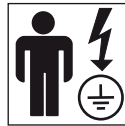
**DE Siehe Seite**  
 GB See page  
 IT Vedi pag.  
 FR Consulter la page  
 ES Ver la página  
 PT Consulte a página  
 DK Se side



**DE Wichtiger Hinweis**  
 GB Important note  
 IT Note importante  
 FR Remarque importante  
 ES Nota importante  
 PT Nota importante  
 DK Vigtig info



**DE Fest anziehen**  
 GB Tighten firmly  
 IT Serraggio con utensile  
 FR Resserrer fermement  
 ES Apretar fuertemente  
 PT Apertar bem  
 DK Stram fast



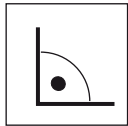
**DE Befugte Elektrofachkraft**  
 GB Qualified electrician  
 IT Tecnico elettrico autorizzato  
 FR Électricien spécialisé agréé  
 ES Técnico eléctrico autorizado  
 PT Electricista qualificado autorizado  
 DK Autoriseret elektriker



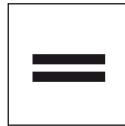
**DE Handfest**  
 GB Hand-tight  
 IT Serraggio manuale  
 FR Serrage manuel  
 ES Apretar a mano  
 PT Apertar bem  
 DK Håndspænd



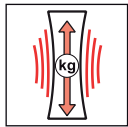
**DE Wiederkehrender Hinweis**  
 GB Recurring note  
 IT Nota ricorrente  
 FR Remarque récurrente  
 ES Indicación recurrente  
 PT Nota recorrente  
 DK Retur henvising



**DE Rechter Winkel**  
 GB Right angle  
 IT Angolo retto  
 FR Angle droit  
 ES Ángulo recto  
 PT Ângulo direito  
 DK Ret vinkel



**DE Gleicher Abstand**  
 GB Equally spaced  
 IT Distanza uguale  
 FR Distance identique  
 ES La misma distancia  
 PT Distância igual  
 DK Samme afstand

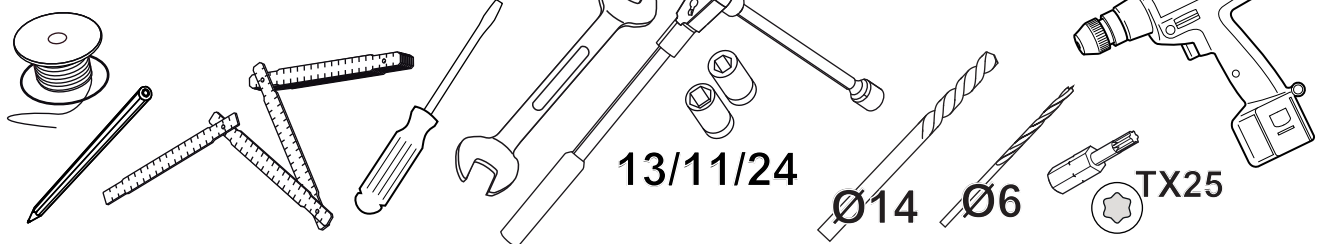


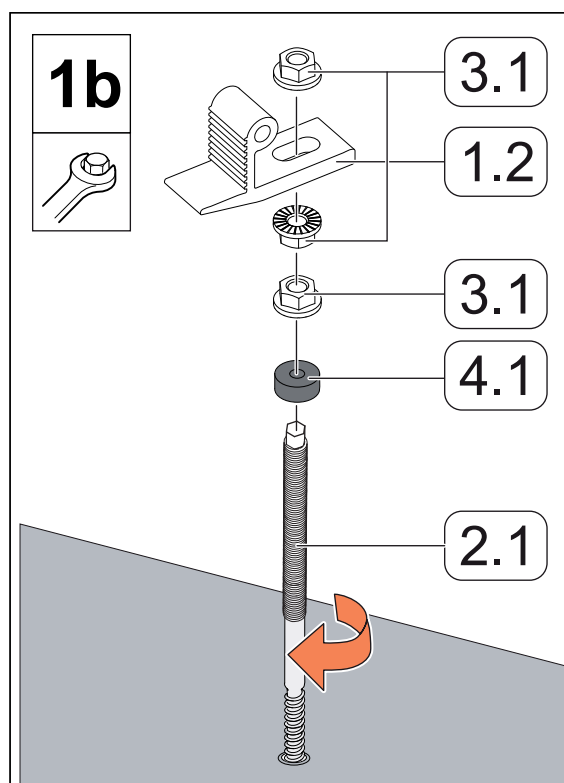
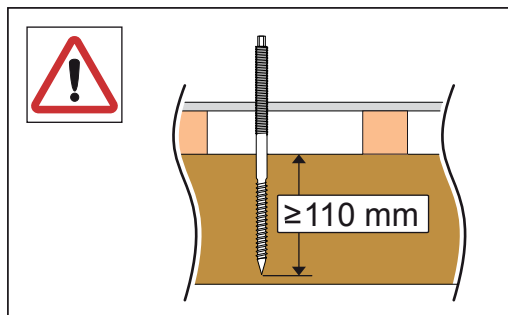
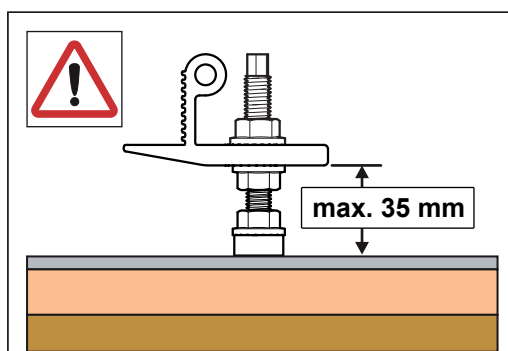
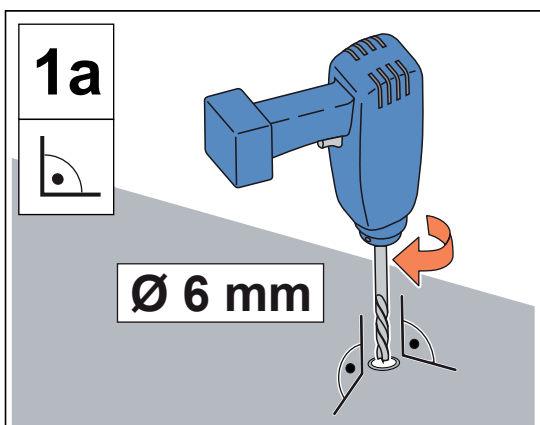
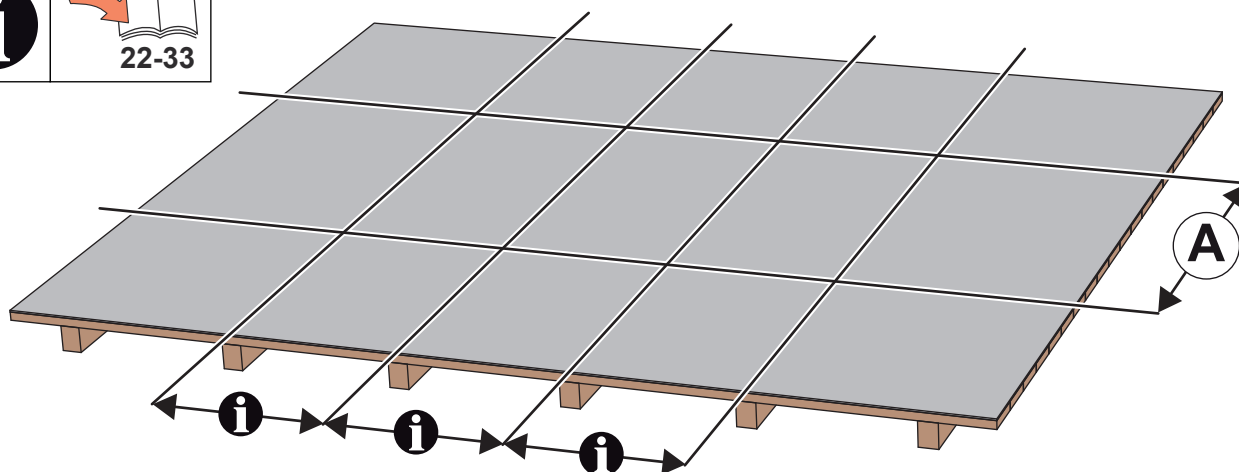
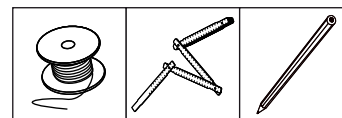
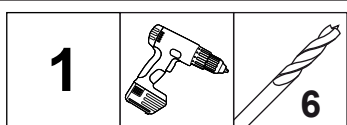
**DE Zugentlastung**  
 GB Strain relief  
 IT Serracavo  
 FR Relâchement de la traction  
 ES Liberación de tensión  
 PT Alívio de tensão  
 DK Trækafastning

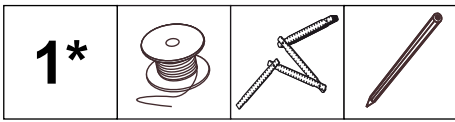


**DE Bauseits zu stellendes Material**  
 GB Materials to be provided by others  
 IT Materiale a cura del committente  
 FR Matériels à fournir pour la mise en œuvre  
 ES Material a suministrar en obra  
 PT Material a fornecer no local  
 DK Materiale, der skal stå til rådighed på anvendelsesstedet

**DE Erforderliches Werkzeug**  
 GB Tools required  
 IT Attrezzi necessari  
 FR Outils nécessaires  
 ES Herramientas necesarias  
 PT Ferramentas necessárias  
 DK Nødvendigt værktøj

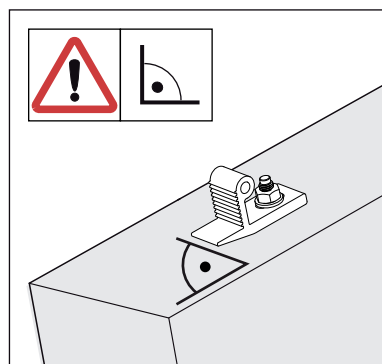
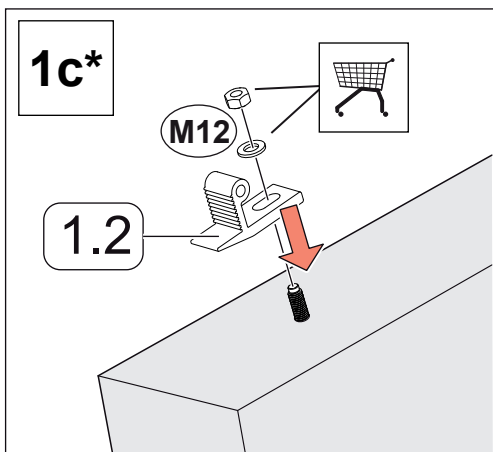
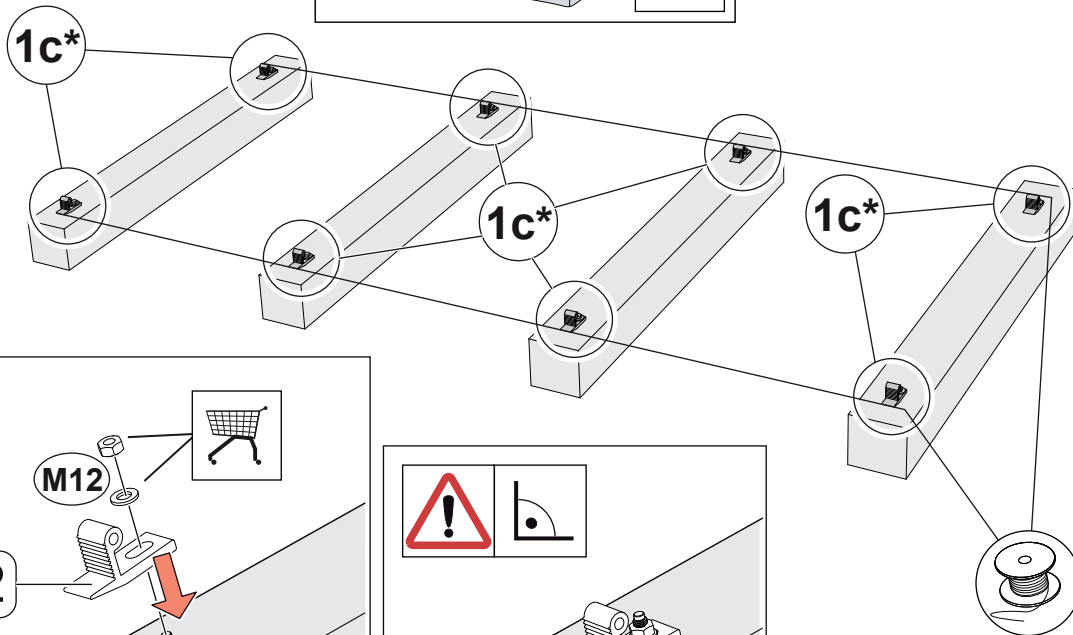
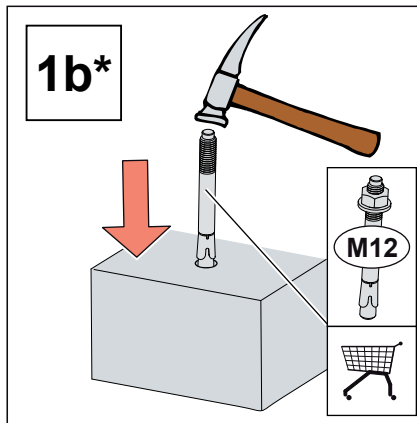
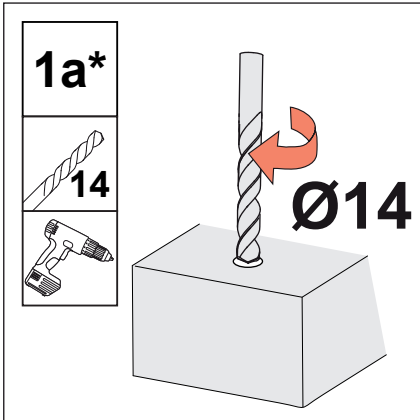
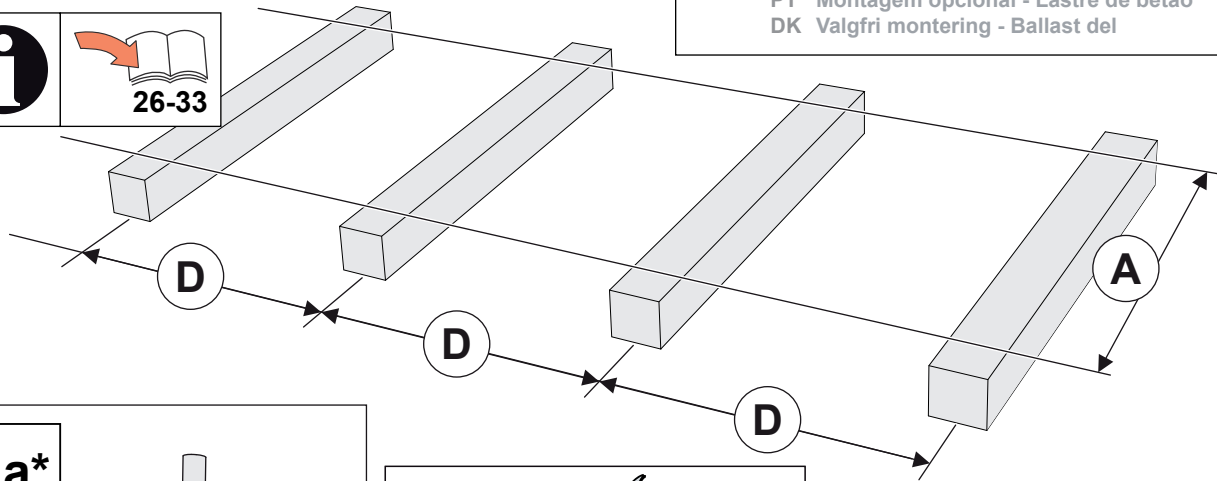
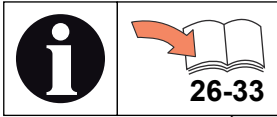






**1\***

DE Optionale Montage - Ballastkörper  
 GB Optional mounting on - Ballast item  
 IT Installazione opzionale - Zavorra del corpo  
 FR Montage optionnel - Bloc de lestage  
 ES Montaje opcional - Cuerpo de carga  
 PT Montagem opcional - Lastre de betão  
 DK Valgfri monterings - Ballast del





2

18

2b

3

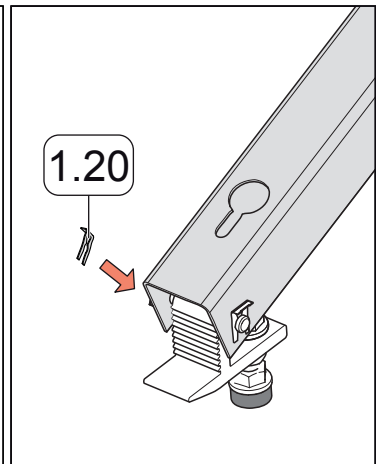
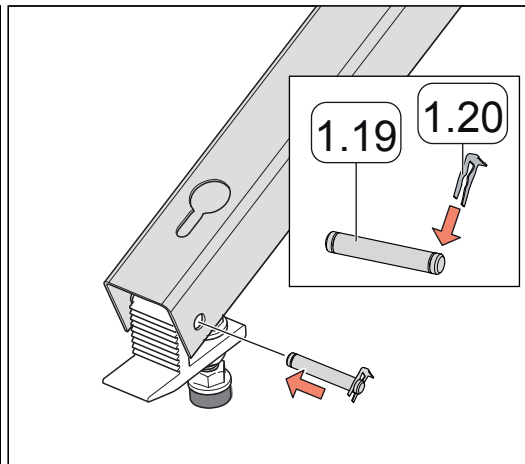
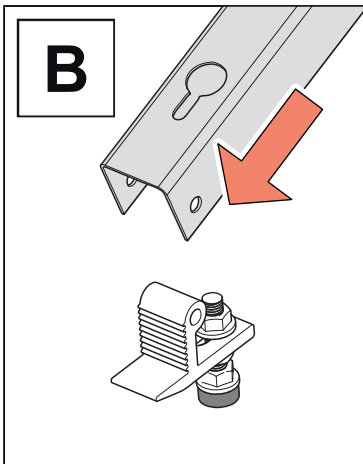
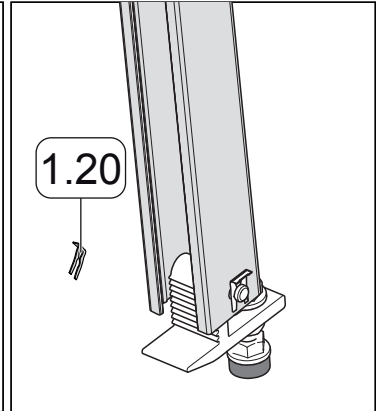
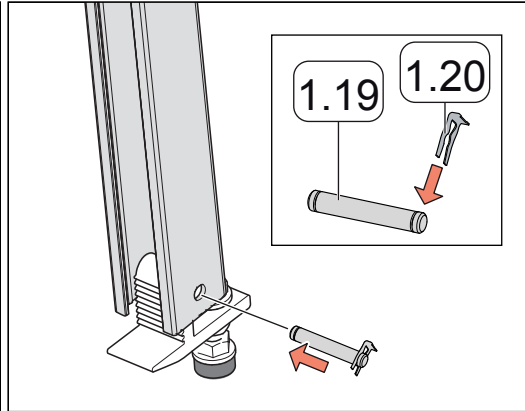
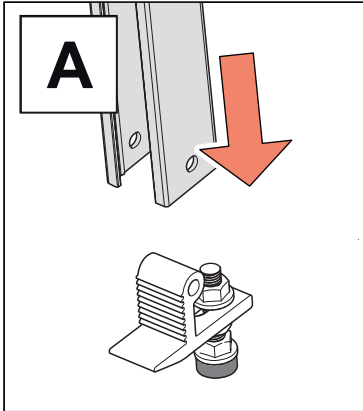
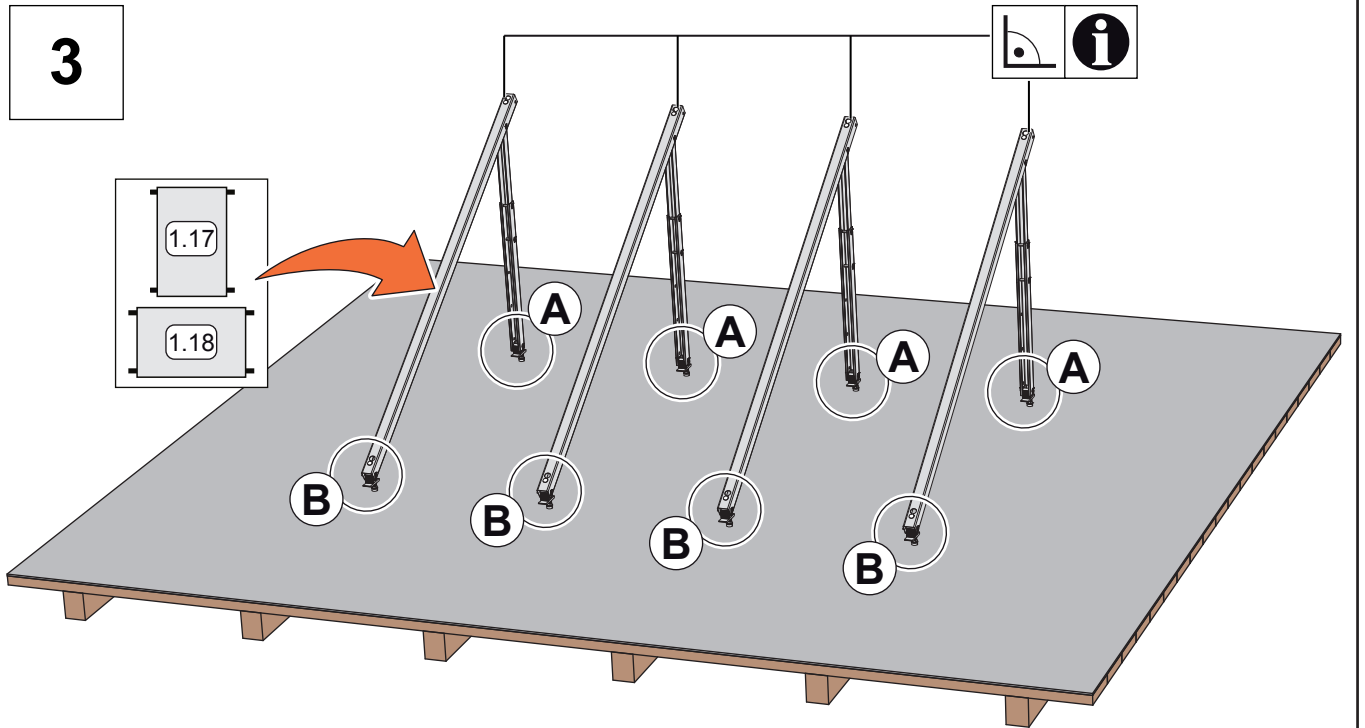
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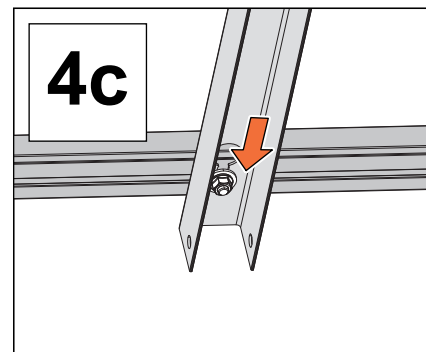
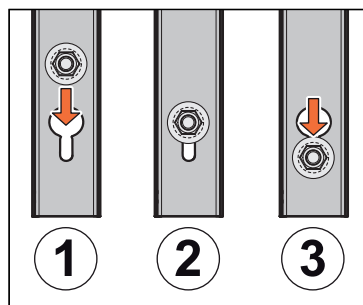
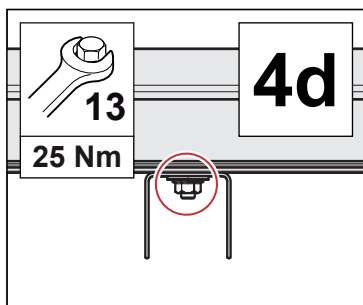
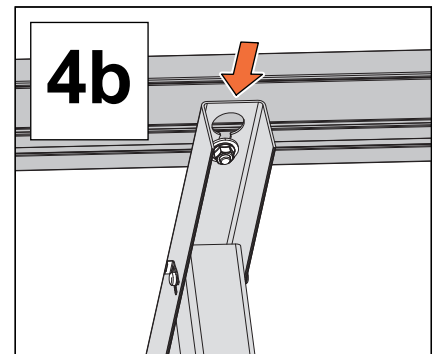
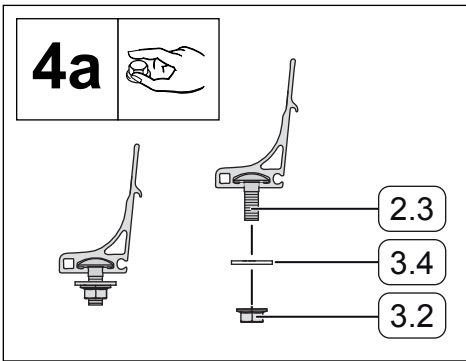
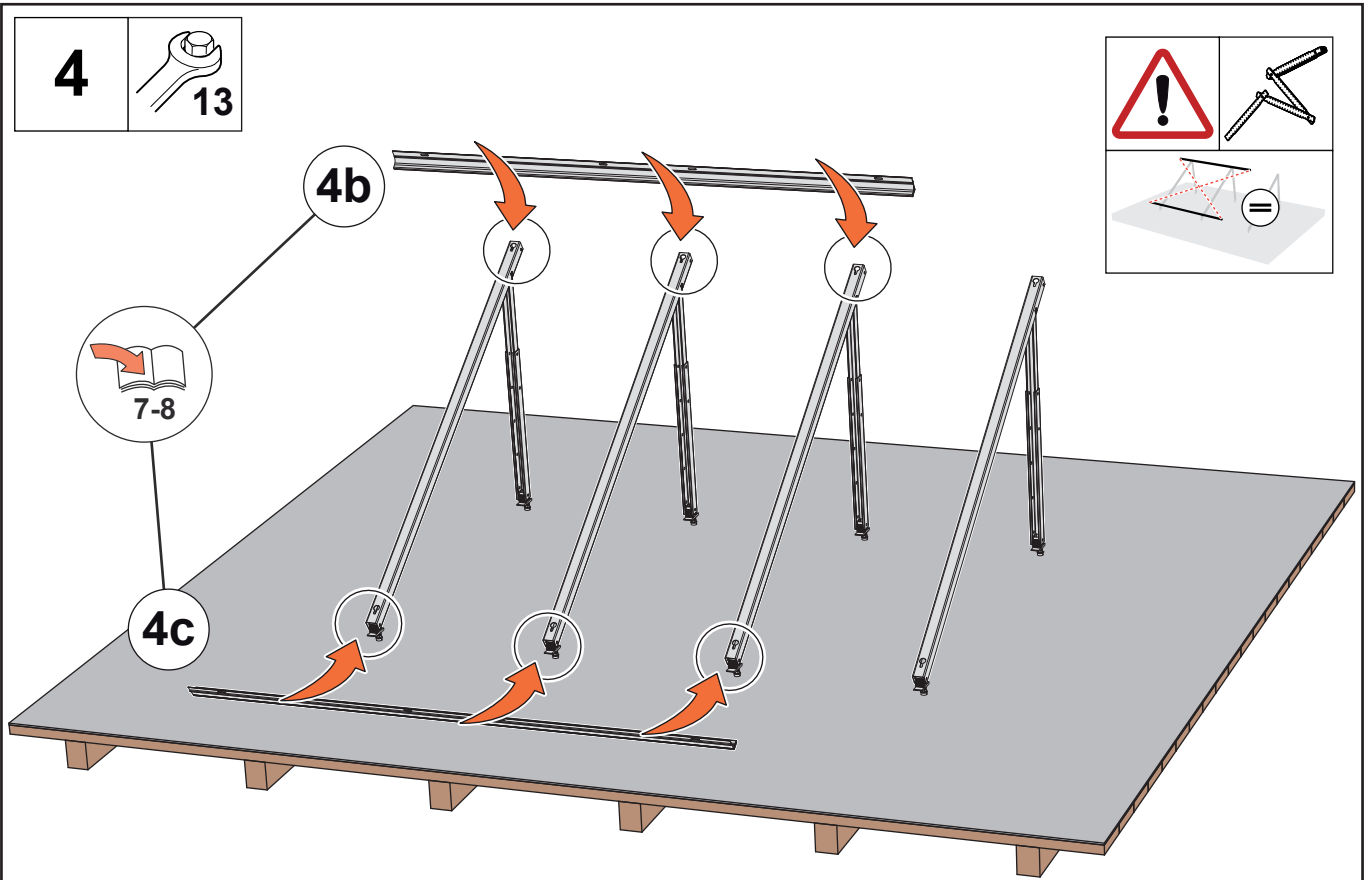
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➔



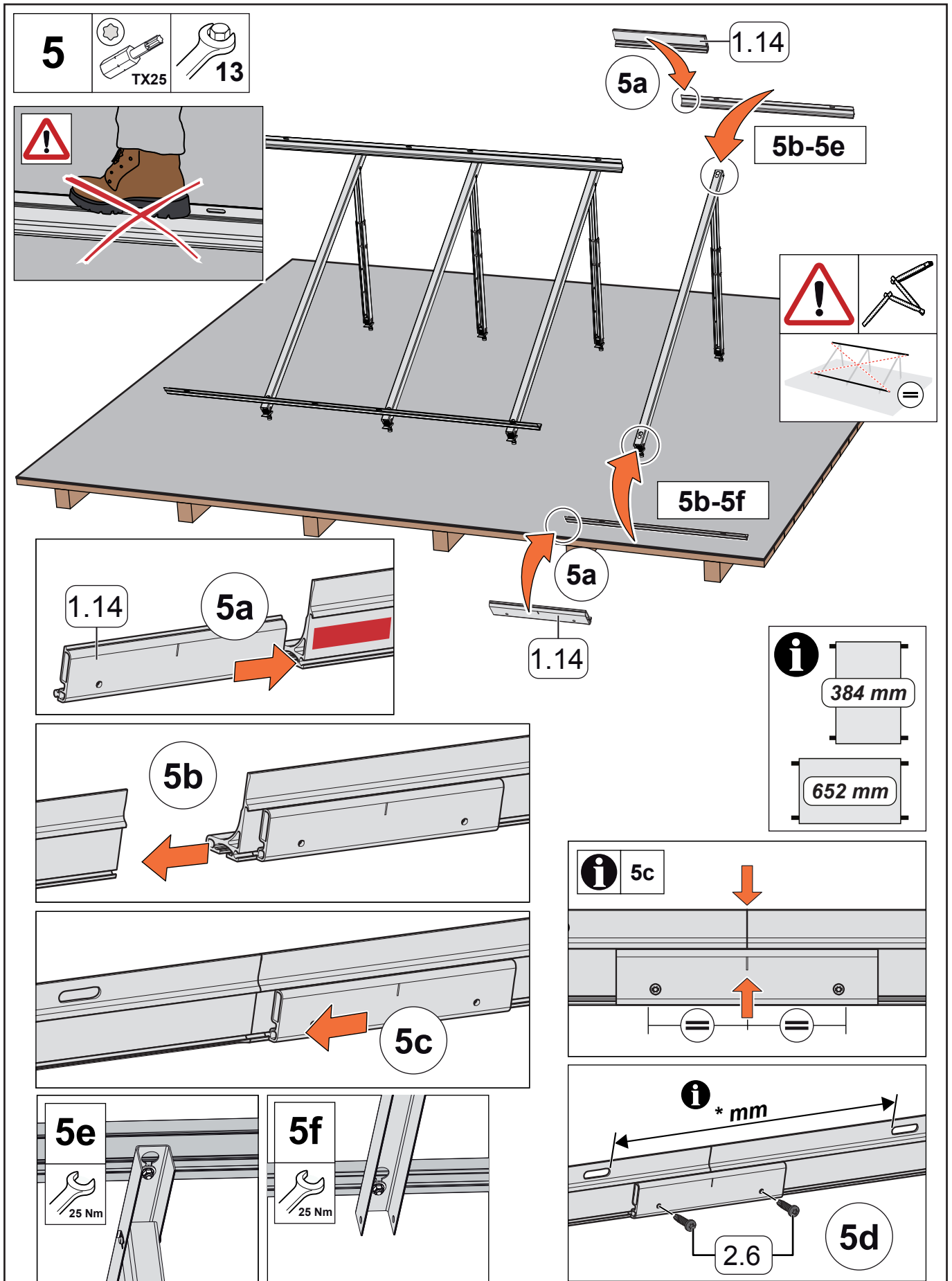
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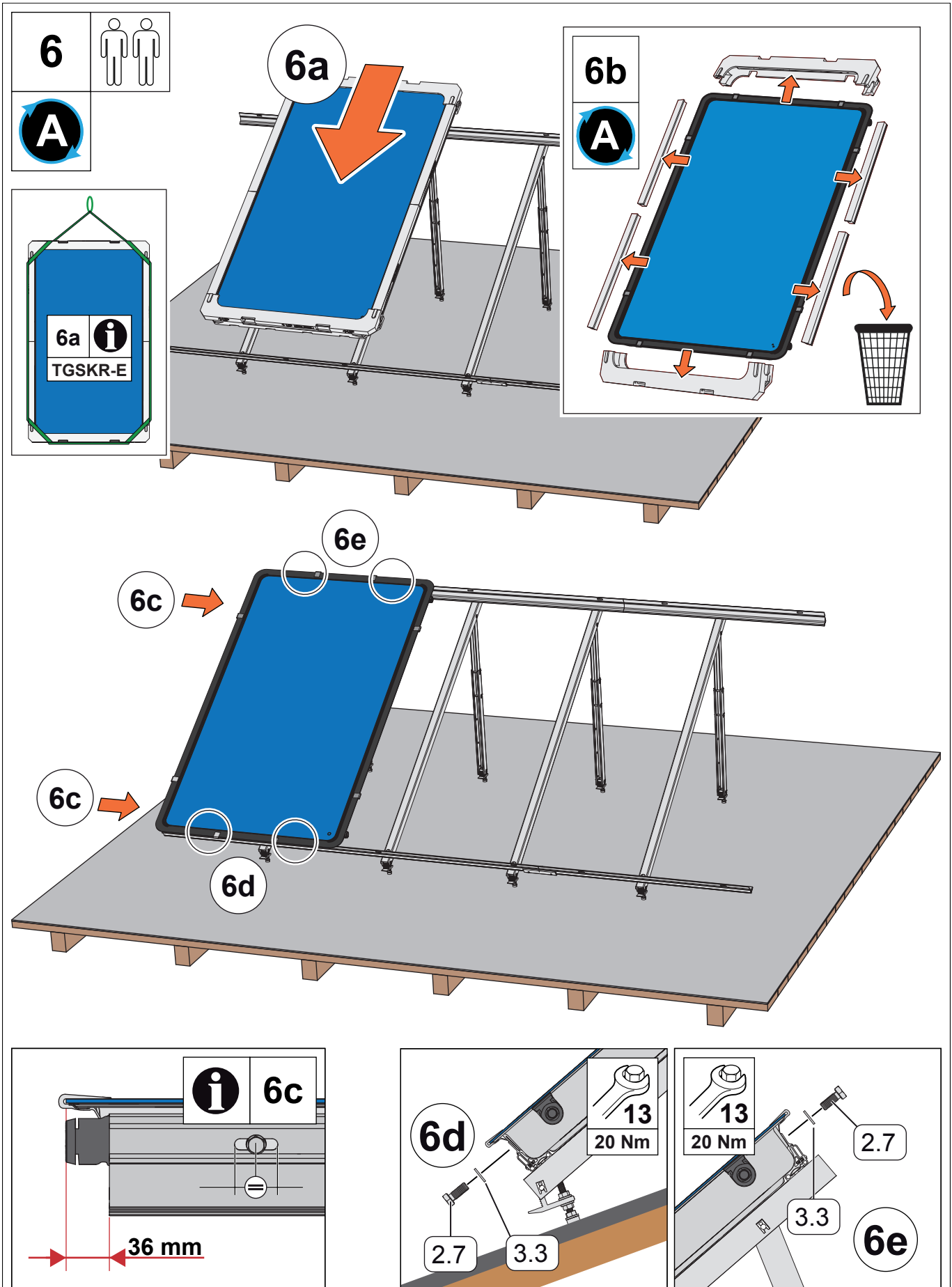






Montage, SSA35-50R  
Mounting, SSA35-50R  
Montaggio, SSA35-50R  
Montage, SSA35-50R  
Montaje, SSA35-50R  
Montagem, SSA35-50R  
Montering, SSA35-50R

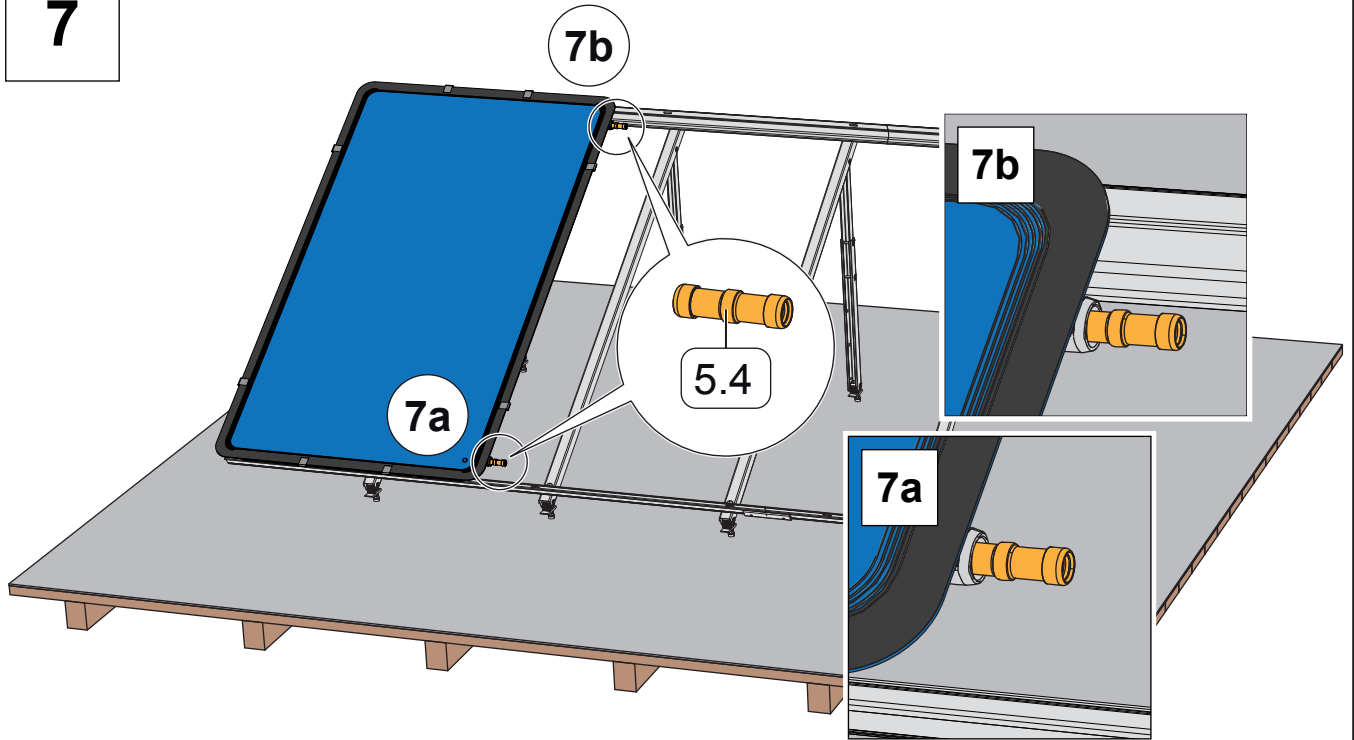




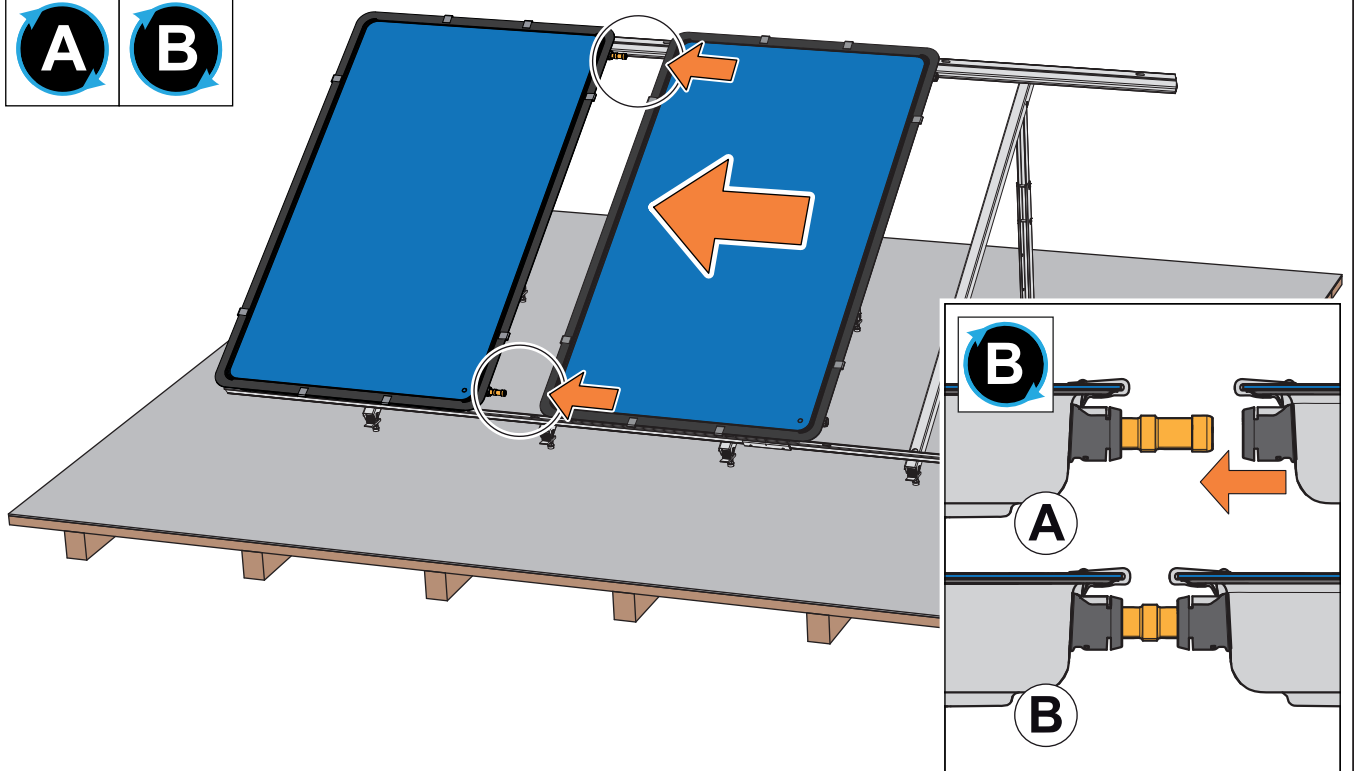


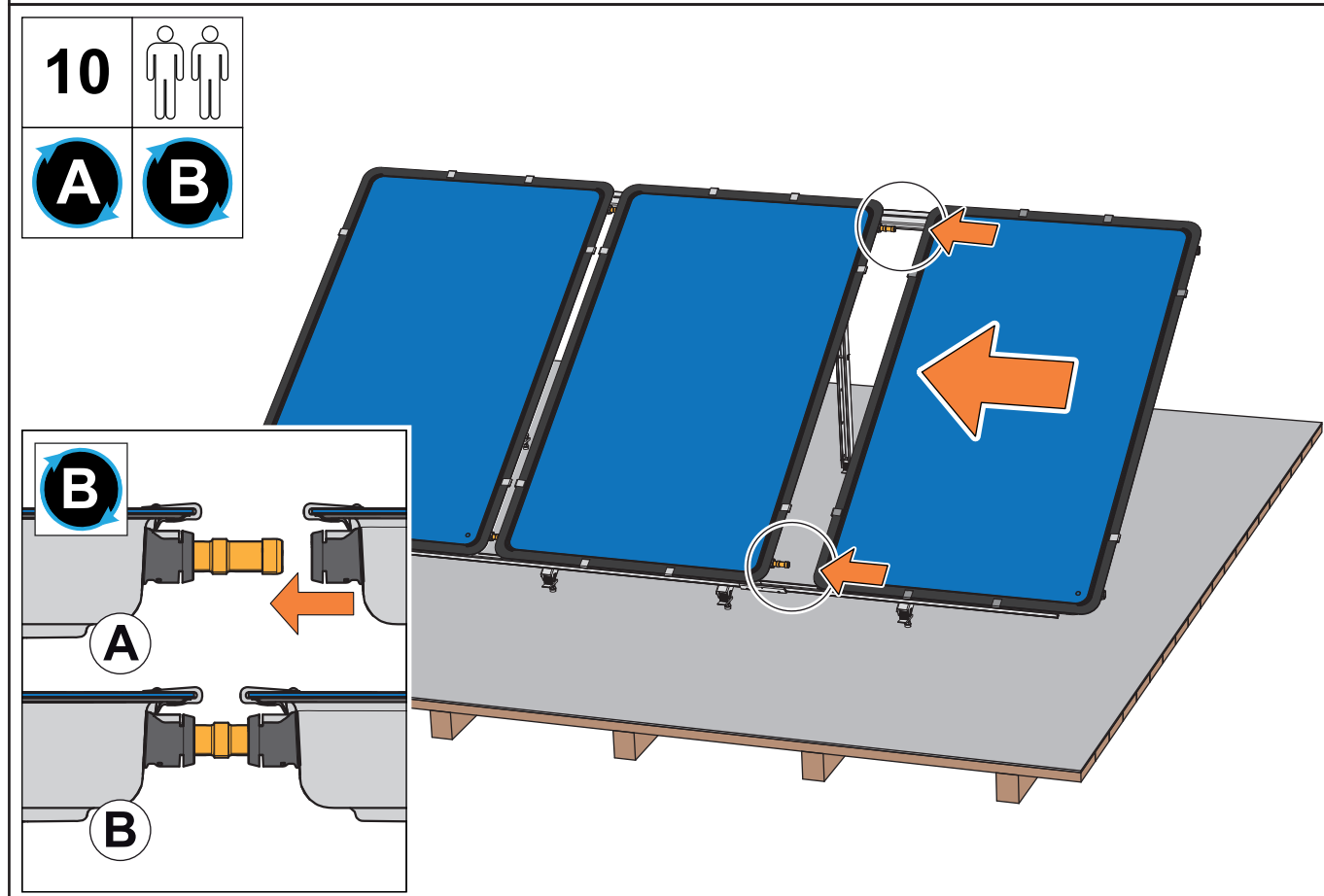
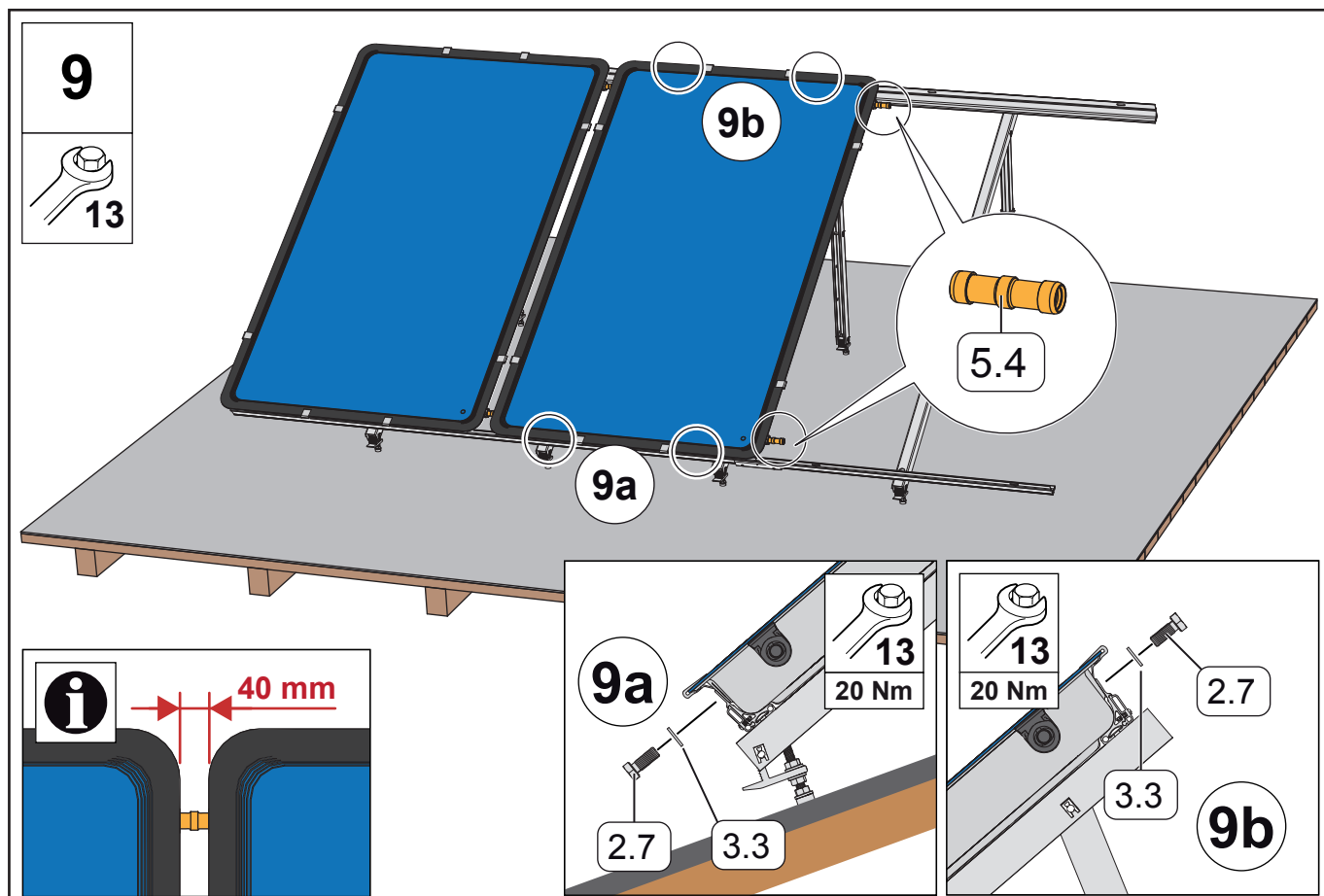


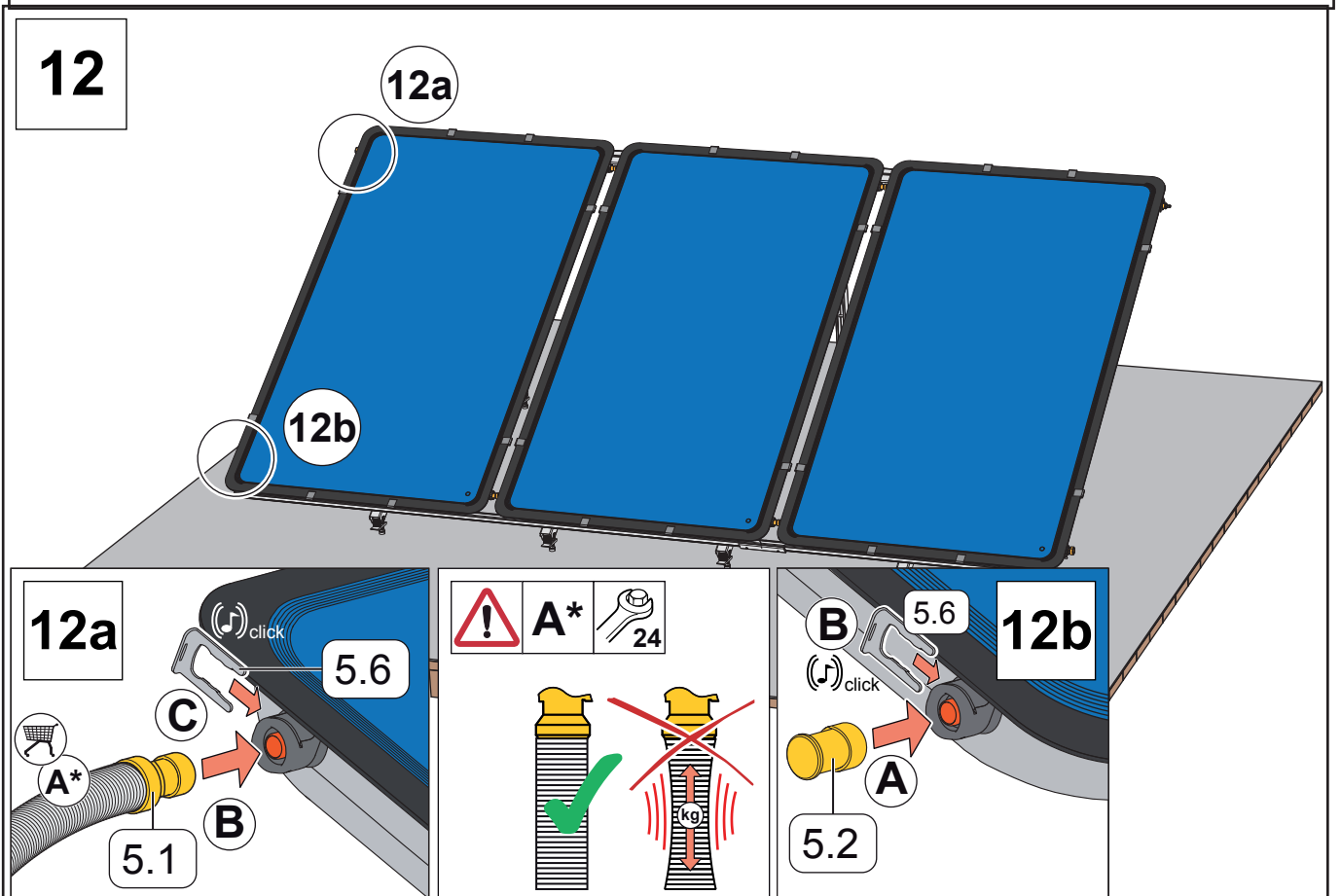
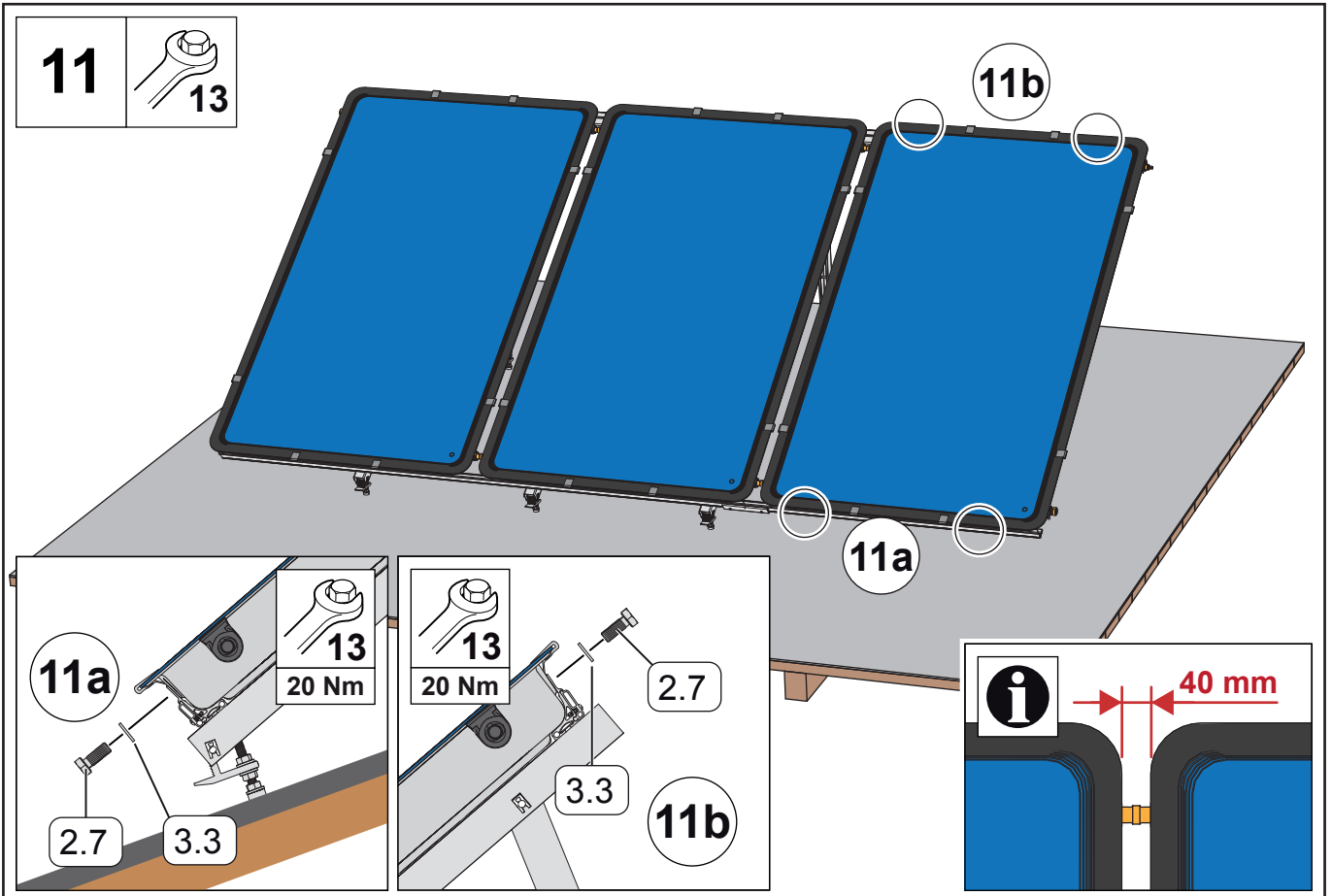
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8









# 13

**13a** click  
 C 5.6  
 B\* 5.5  
 B\* 11/13

**13b** C 5.6  
 B 5.1  
 A\* 24

Warning icon: exclamation mark in a triangle.

Shopping cart icon.

kg icon.

# 14

**PT1000**  
 5,5 x 28 mm

Shopping cart icon.

**Wärmeleitpaste**  
 Thermal conducting paste - Pasta termoconduttrice  
 Pâte thermoconductrice - Pasta conductora de calor  
 Pasta conductora de calor - Varmeledende pasta

\* Shopping cart icon.

Warning icon: exclamation mark in a triangle.

Grounding symbol: a circle with a horizontal line and three vertical lines below it.

Warning icon: exclamation mark in a triangle.

Warning icon: lightning bolt and a person with a lightning bolt.

Grounding symbol: a circle with a horizontal line and three vertical lines below it.



**Montage Blechdachbefestigung, BDA35-50R**  
**Tin roof mounting systems, BDA35-50R**  
**Sistemi di fissaggio per tetto in lamiera, BDA35-50R**  
**Systèmes de fixations pour toit en tôle, BDA35-50R**  
**Sistemas de fijación para tejado en lámina, BDA35-50R**  
**Equipamento de montagem para telhado de metal, BDA35-50R**  
**Monteringsystem for metaltag, BDA35-50R**

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

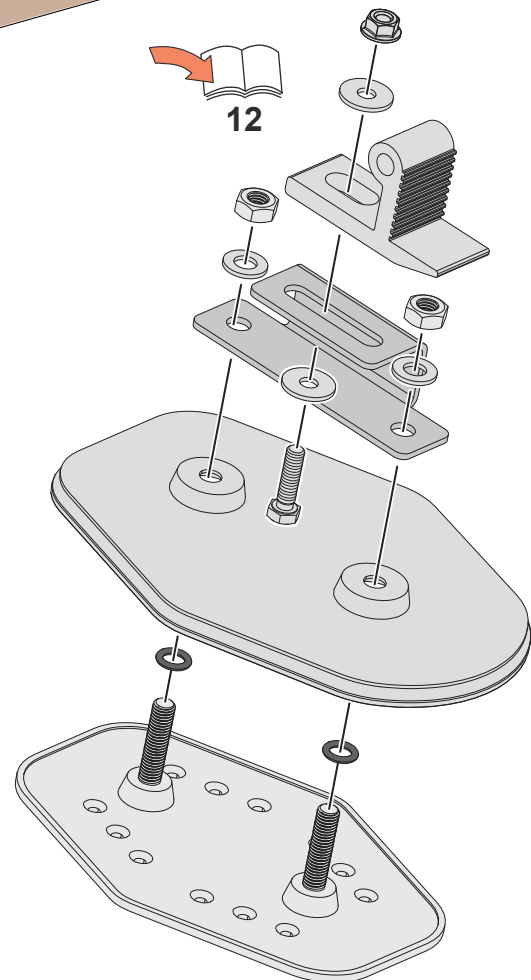
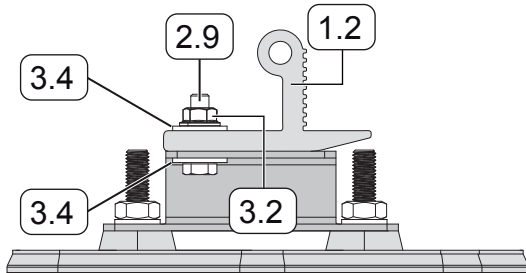
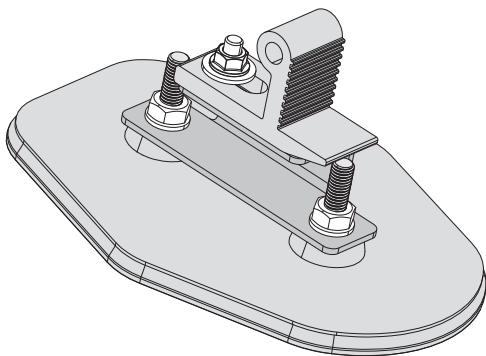
- DE Ausschnitt**  
 GB Cut-out  
 IT Ritaglio  
 FR Découpe  
 ES Sección  
 PT Secção  
 DK Sektion

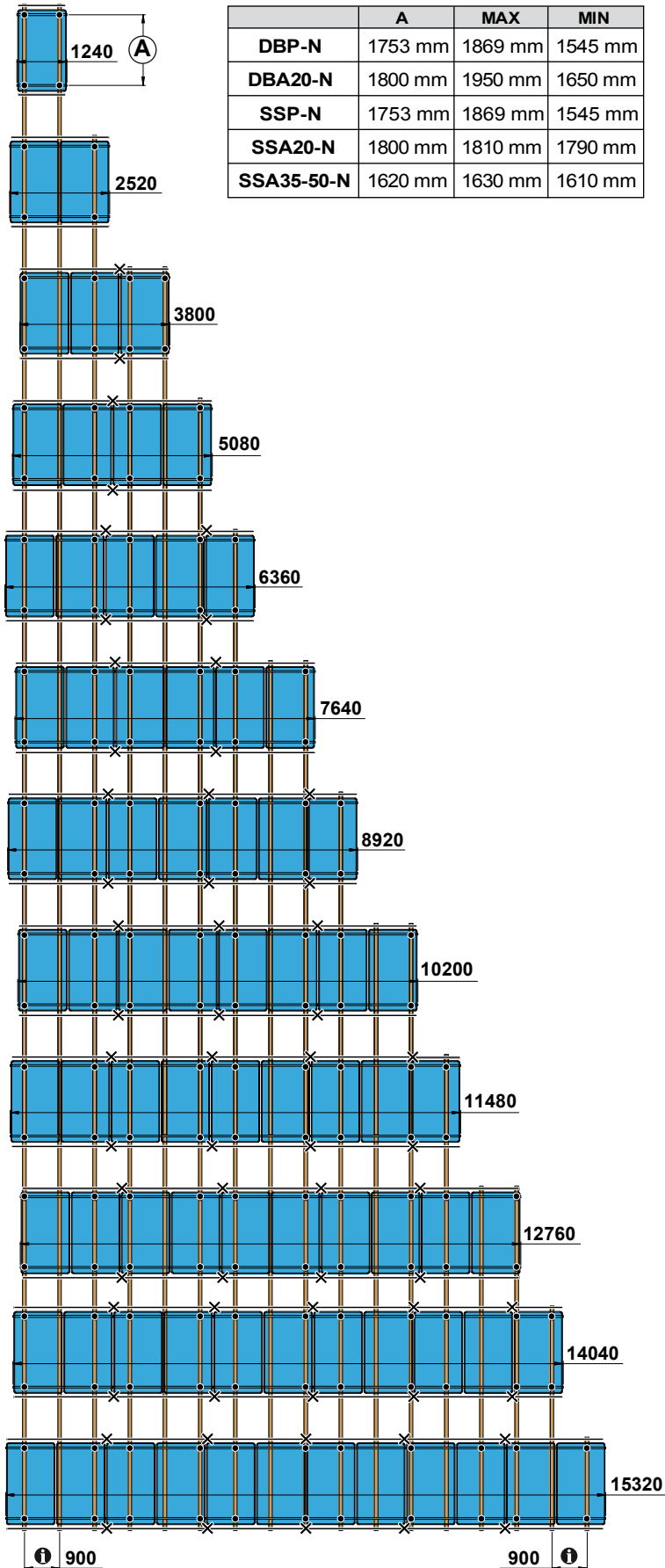


- DE Al-Abdeckplatte**  
 GB Al cover plate  
 IT Piastra di copertura in alluminio  
 FR Al-Plaque de recouvrement  
 ES Placa de cubierta Al  
 PT Placa para cobrir em alumínio  
 DK Aluminium dækplade

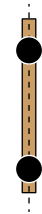
- DE EPDM-Gummidichtung**  
 GB EPDM rubber seal  
 IT Guarnizione in gomma EPDM  
 FR Joint en caoutchouc EPDM  
 ES Junta de goma EPDM  
 PT Junta de vedação em EPDM  
 DK EPDM-gummipakning

- 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>]



kN/m<sup>2</sup>

**DE Schneelast**  
**GB Snow load**  
**IT Carico di neve**  
**FR Charge de neige**  
**ES Carga de nieve**  
**PT Carga de neve**  
**DK Snebelastning**

I1



kPa

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

**we (ρ = 1,25 kg/m<sup>3</sup>)**

I2



km/h

**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**



**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**

SSA35-50-N / STANDARD LOAD (SL)							
		700 mm		800 mm		900 mm	
		 kPa   km/h	 kN/m <sup>2</sup>	 kPa   km/h	 kN/m <sup>2</sup>	 kPa   km/h	 kN/m <sup>2</sup>
		1,05 / 125	0,92	0,92 / 117	0,81	0,81 / 110	0,72
		1,20 / 125	0,92	1,06 / 117	0,81	0,93 / 110	0,72
<p><b>DE Befestigungsebene</b>            GB Fastening planes            IT Piani di fissaggio            FR Plans de fixation            ES Superficies de fijación            PT Plataformas de fixação            DK Fastgøringspunkt</p>	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	

SSA35-50-N / HIGH LOAD (HL)							
		700 mm		800 mm		900 mm	
		 kPa   km/h	 kN/m <sup>2</sup>	 kPa   km/h	 kN/m <sup>2</sup>	 kPa   km/h	 kN/m <sup>2</sup>
		1,39 / 143	1,20	1,19 / 133	1,05	1,06 / 126	0,93
		1,58 / 143	1,20	1,36 / 133	1,05	1,22 / 126	0,93
<p><b>DE Befestigungsebene</b>            GB Fastening planes            IT Piani di fissaggio            FR Plans de fixation            ES Superficies de fijación            PT Plataformas de fixação            DK Fastgøringspunkt</p>	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

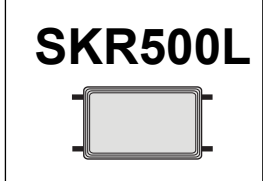
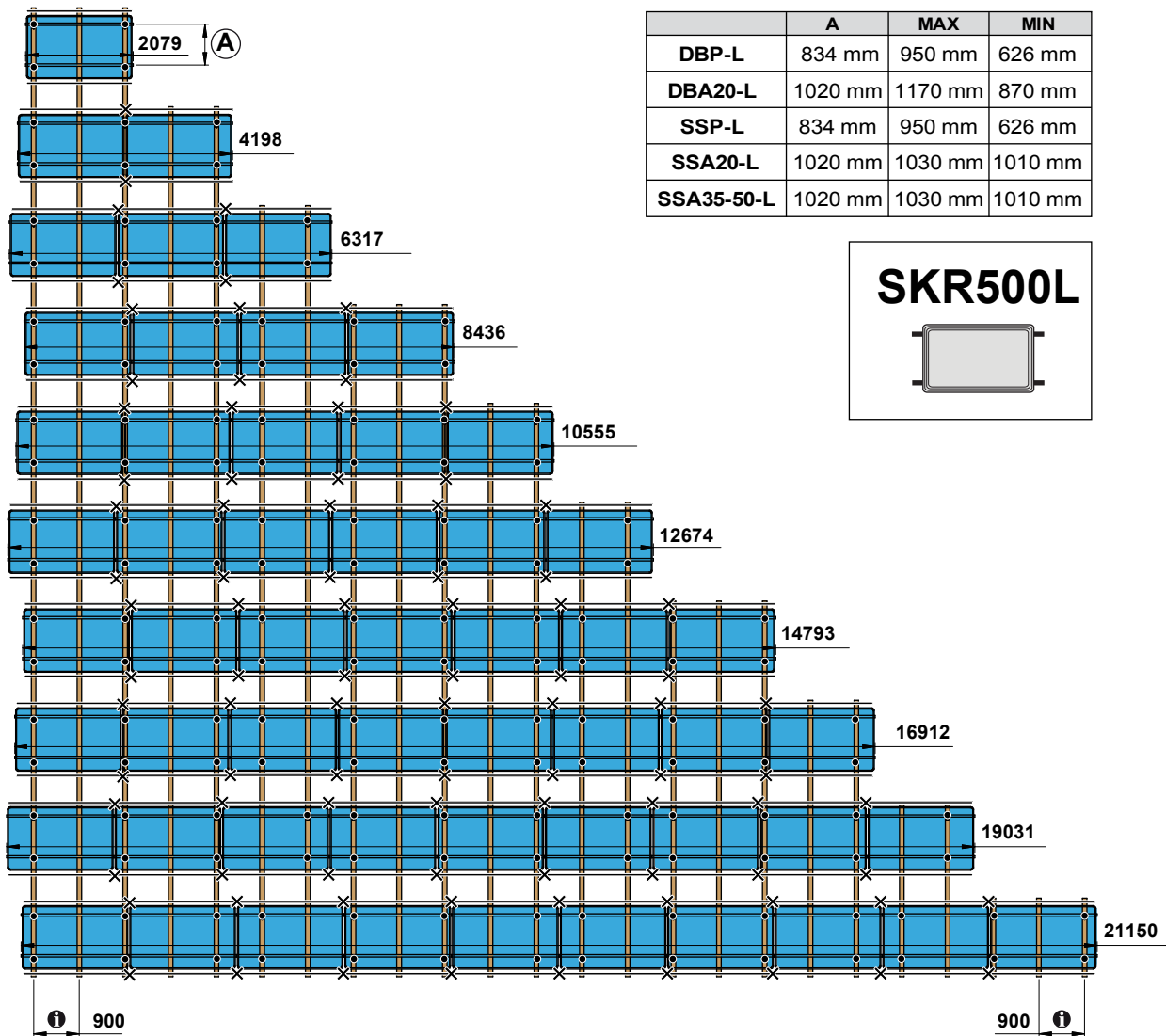
Linear interpolation between 30° and 45°  
 Interpolazione lineare tra 30° e 45°  
 Interpolation linéaire entre 30° et 45°  
 Interpolación lineal para valores entre 30° y 45°  
 A interpolação linear para valores entre 30° e 45°  
 Hældning kan udføres i 30° til 45°

| 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



	<b>DE Befestigungsebene</b> GB Fastening planes IT Piani di fissaggio FR Plans de fixation ES Superficies de fijación PT Plataformas de fixação DK Fastgøringspunkt	<b>I1</b> 	<b>DE Winddruck</b> GB Wind pressure IT Pressione del vento FR Pression du vent ES Presión del viento PT Pressão do vento DK Vindtryk kPa
<b>[S<sub>k</sub>]</b> 	<b>DE Schneelast</b> 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>	<b>we (ρ = 1,25 kg/m<sup>3</sup>)</b>	
	<b>DE TSV Verbinder</b> GB TSV connectors IT Collegamento TSV FR Connecteur TSV ES Elemento de unión TSV PT Conector TSV DK TSV forbinder	<b>I2</b> 	<b>DE max. Böengeschwindigkeit</b> 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 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**

<b>SSA35-50-L / STANDARD LOAD (SL)</b>							
		700 mm		800 mm		900 mm	
		 kPa   km/h	 kN/m <sup>2</sup>	 kPa   km/h	 kN/m <sup>2</sup>	 kPa   km/h	 kN/m <sup>2</sup>
 35-40°		1,47 / 148	1,29	1,29 / 138	1,13	1,16 / 131	1,00
		 45-50°		1,68 / 148	1,29	1,47 / 138	1,13
 <b>DE Befestigungsebene</b> GB Fastening planes IT Piani di fissaggio FR Plans de fixation ES Superficies de fijación PT Plataformas de fixação DK Fastgøringspunkt		1	2	2	2	2	2
		2	4	4	4	3	3
		3	6	5	5	4	4
		4	8	7	7	6	6
		5	10	8	8	7	7
		6	12	10	10	8	8
		7	14	12	12	10	10
		8	16	14	14	11	11
		9	18	15	15	12	12
		10	20	17	17	14	14

<b>SSA35-50-L / HIGH LOAD (HL)</b>							
		700 mm		800 mm		900 mm	
		 kPa   km/h	 kN/m <sup>2</sup>	 kPa   km/h	 kN/m <sup>2</sup>	 kPa   km/h	 kN/m <sup>2</sup>
 35-40°		1,53 / 150	1,72	1,53 / 150	1,51	1,53 / 150	1,30
		 45-50°		1,74 / 150	1,72	1,74 / 150	1,51
 <b>DE Befestigungsebene</b> GB Fastening planes IT Piani di fissaggio FR Plans de fixation ES Superficies de fijación PT Plataformas de fixação DK Fastgøringspunkt		1	3	3	3	3	3
		2	6	6	6	5	5
		3	9	8	8	7	7
		4	12	11	11	10	10
		5	15	14	14	12	12
		6	18	16	16	15	15
		7	21	19	19	17	17
		8	24	22	22	19	19
		9	27	24	24	22	22
		10	30	27	27	24	24

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

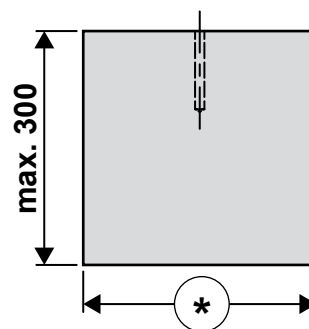
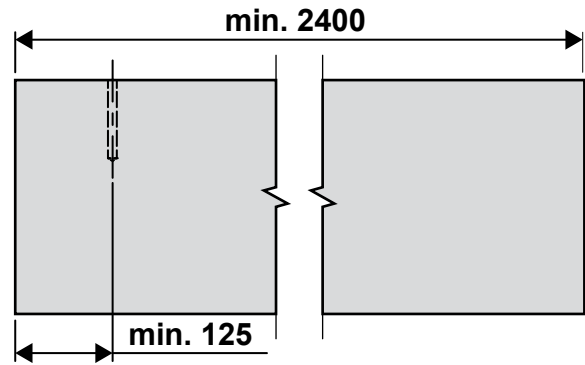
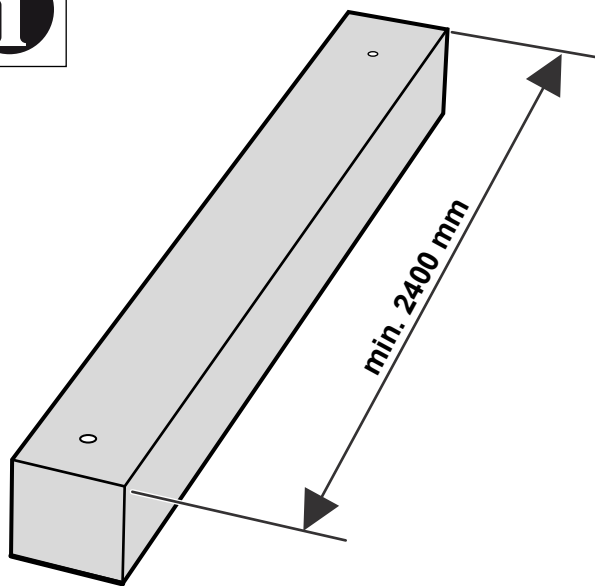
Linear interpolation between 30° and 45°  
 Interpolazione lineare tra 30° e 45°  
 Interpolation linéaire entre 30° et 45°  
 Interpolación lineal para valores entre 30° y 45°  
 A interpolação linear para valores entre 30° e 45°  
 Hældning kan udføres i 30° til 45°

| 1 | ..... Winddruck we (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



\* DE variabel  
 GB variable  
 IT variabile  
 FR variable  
 ES variable  
 PT variável  
 DK variable



Lors de l'utilisation de blocs de béton de lestage en France, veuillez considérer les dispositions en vigueur, conformément au DTU43.1 (§9.1).

DE

**Erforderliche Gewichte der Betonballastkörper zur Sicherung gegen Kippen, Gleiten und Abheben entnehmen Sie den nachstehenden Tabellen. Die Gewichtsangaben der Betonblöcke gelten unter der Annahme eines Reibungskoeffizienten 0,8 (Beton auf Gummi im trockenen Zustand).**

EN

Imperative ballast to avoid tilting, sliding, lifting. The specified weight of the concrete blocks applies subject to a coefficient of friction 0.8 (concrete on rubber in a dry state).

IT

Pesi richiesti per la protezione contro il ribaltamento, scorrimento e decollare. Le indicazioni dei pesi dei blocchi di cemento sono valide presupponendo un coefficiente di attrito 0,8 (cemento su gomma allo stato asciutto).

FR

Poids nécessaire par sécurité contre, renversement, glissement, soulèvement. Les indications de poids des blocs de béton supposent que le coefficient de friction 0,8 (béton sur caoutchouc à l'état sec).

ES

Pesos necesarios para asegurar contra vuelco, deslizamiento y levantamiento. Las indicaciones de peso de los bloques de hormigón son válidas en el supuesto de un coeficiente de fricción 0,8 (hormigón sobre goma en estado seco).

PT

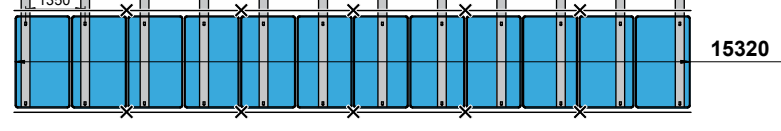
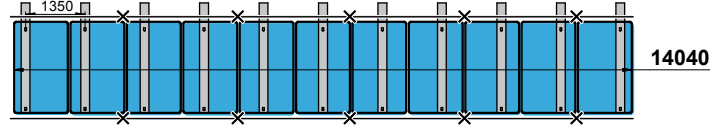
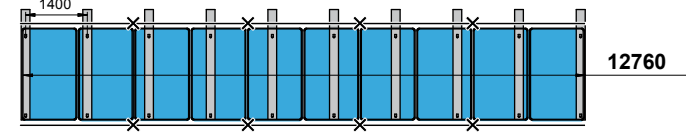
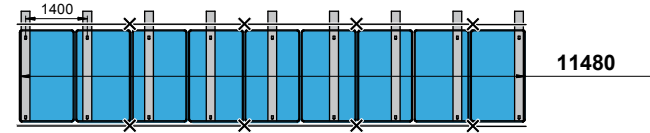
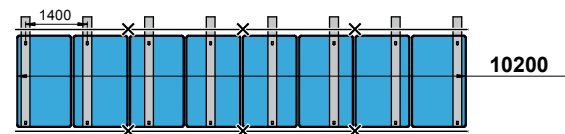
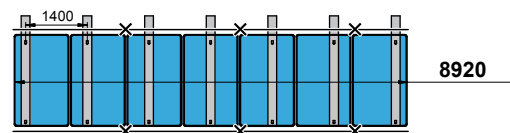
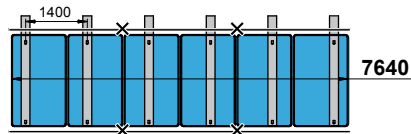
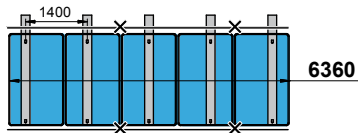
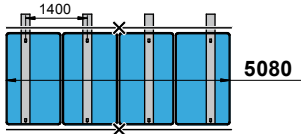
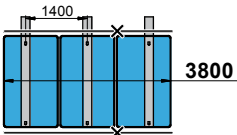
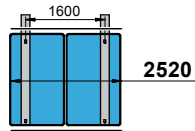
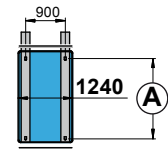
Poids nécessaire pour protection contre renversement, glissement et soulèvement. Les indications de poids des blocs de béton sont valables pour un coefficient de friction de 0,8 (béton sur caoutchouc à l'état sec).

DK

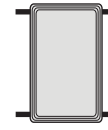
Ekstra vægt for sikring imod: vippe, forskydning, løft. Den angivne vægt for betonblokkene gælder under antagelse af en friktionskoefficient 0,8 (beton på gummi i tør tilstand).



Empfehlung für Befestigungsebenen / Ballastkörper SKR500  
 Recommendation for fastening planes / Ballast item SKR500  
 Raccomandazione per i piani di fissaggio / Zavorra del corpo SKR500  
 Recommendation concerning the plans de fixation / Bloc de lestage SKR500  
 Recomendaciones para las superficies de fijación / Lastre de carga SKR500  
 Sugestão de plataformas de fixação / Lastre de betão SKR500  
 Anbefalede fastgøringspunkter / Ballast del SKR500



	A	MAX	MIN
DBP-N	1753 mm	1869 mm	1545 mm
DBA20-N	1800 mm	1950 mm	1650 mm
SSP-N	1753 mm	1869 mm	1545 mm
SSA20-N	1800 mm	1810 mm	1790 mm
SSA35-50-N	1620 mm	1630 mm	1610 mm
BBAL35-50-N	1620 mm	1630 mm	1610 mm
WA45-60-N	1800 mm	1810 mm	1790 mm



## SKR500



DE Ballastkörper  
 GB Ballast item  
 IT Zavorra del corpo  
 FR Corps de charge  
 ES Lastre de carga  
 PT Lastre de betão  
 DK Ballast del



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>]



kN/m<sup>2</sup>

DE Schneelast  
 GB Snow load  
 IT Carico di neve  
 FR Charge de neige  
 ES Carga de nieve  
 PT Carga de neve  
 DK Snebelastning

I11



kPa

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

we (ρ = 1,25 kg/m<sup>3</sup>)

I21






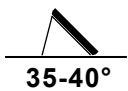














km/h

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

Empfehlung für Befestigungsebenen / Ballastkörper SKR500  
 Recommendation for fastening planes / Ballast item SKR500  
 Raccomandazione per i piani di fissaggio / Zavorra del corpo SKR500  
 Recommendation concernant les plans de fixation / Bloc de lestage SKR500  
 Recomendaciones para las superficies de fijación / Lastre de carga SKR500  
 Sugestão de plataformas de fixação / Lastre de betão SKR500  
 Anbefalede fastgøringspunkter / Ballast del SKR500

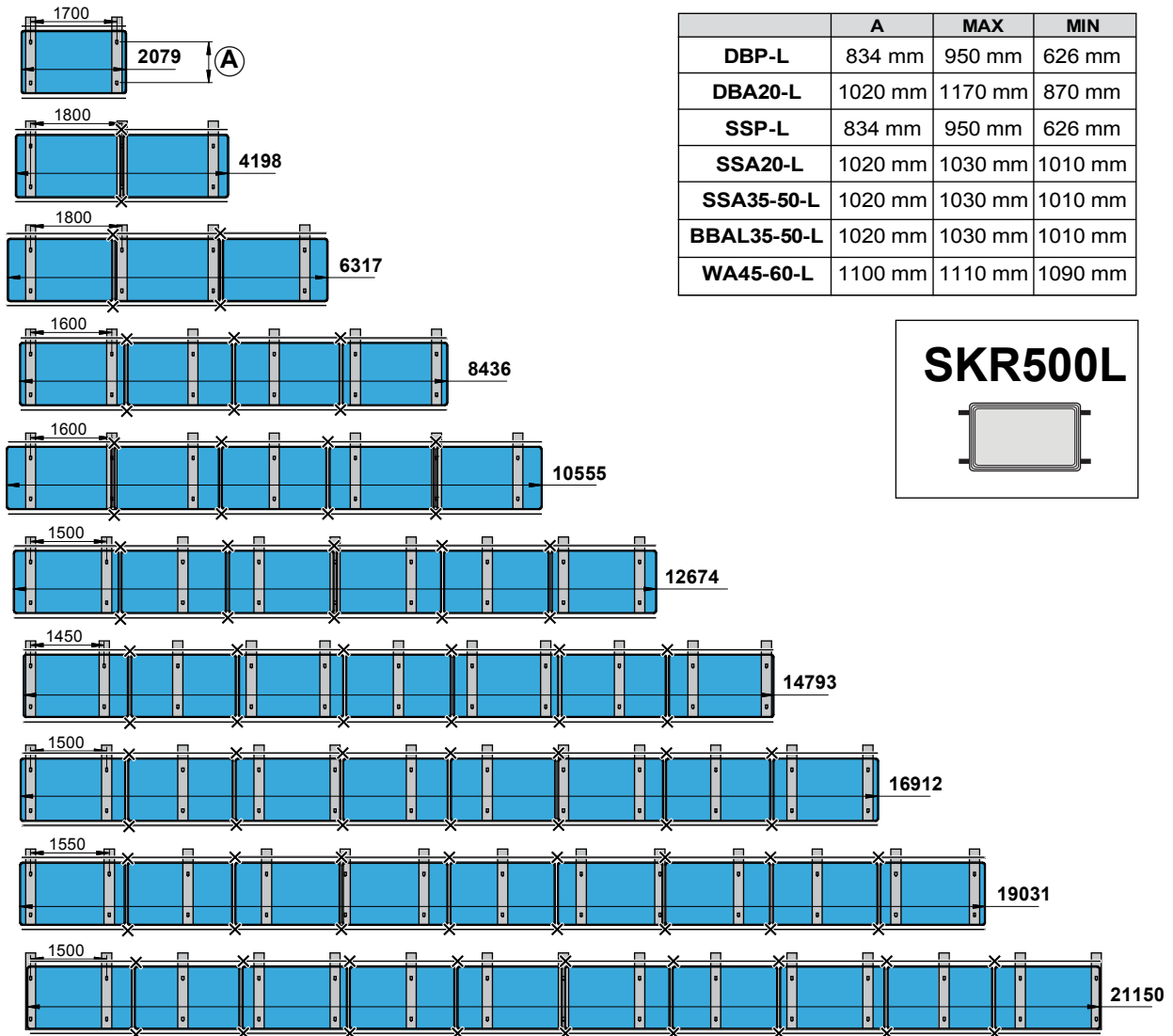


BBAL35-50-N / STANDARD LOAD (SL)												
	 kPa	 km/h	 kg	 ** kN/m <sup>2</sup>								
 35-40°	0,42	79	215	3,51								
	0,56	91	302									
	0,70	102	388									
	0,84	112	473									
	0,98	120	559									
	1,12	129	646									
	1,26	137	732									
	1,34	141	783									
 45-50°	0,48	79	261	3,51								
	0,64	91	362									
	0,80	102	462									
	0,96	112	563									
	1,12	120	665									
	1,28	129	766									
	1,44	137	866									
	1,54	141	928									
	1	2	3	4	5	6	7	8	9	10	11	12
	2	2	3	4	5	6	7	8	9	10	11	12

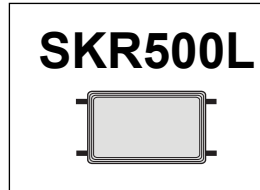
BBAL35-50-N / HIGH LOAD (HL)												
	 kPa	 km/h	 kg	 ** kN/m <sup>2</sup>								
 35-40°	0,42	79	185	3,90								
	0,56	91	259									
	0,70	102	332									
	0,84	112	406									
	0,98	120	480									
	1,12	129	554									
	1,26	137	627									
	1,34	141	671									
 45-50°	0,48	79	224	3,90								
	0,64	91	310									
	0,80	102	397									
	0,96	112	483									
	1,12	120	570									
	1,28	129	656									
	1,44	137	743									
	1,54	141	796									
	1	2	3	4	5	6	7	8	9	10	11	12
	2	3	4	5	6	7	8	9	10	12	13	14



Empfehlung für Befestigungsebenen / Ballastkörper SKR500L  
 Recommendation for fastening planes / Ballast item SKR500L  
 Raccomandazione per i piani di fissaggio / Zavorra del corpo SKR500L  
 Recommendation concernant les plans de fixation / Bloc de lestage SKR500L  
 Recomendaciones para las superficies de fijación / Lastre de carga SKR500L  
 Sugestão de plataformas de fixação / Lastre de betão SKR500L  
 Anbefalede fastgøringspunkter / Ballast del SKR500L












	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
BBAL35-50-L	1020 mm	1030 mm	1010 mm
WA45-60-L	1100 mm	1110 mm	1090 mm



	<b>DE Ballastkörper</b> <b>GB Ballast item</b> <b>IT Zavorra del corpo</b> <b>FR Corps de charge</b> <b>ES Lastre de carga</b> <b>PT Lastre de betão</b> <b>DK Ballast del</b>		<b>DE Winddruck</b> <b>GB Wind pressure</b> <b>IT Pressione del vento</b> <b>FR Pression du vent</b> <b>ES Presión del viento</b> <b>PT Pressão do vento</b> <b>DK Vindtryk</b>
	<b>[S<sub>k</sub>]</b> <b>DE Schneelast</b> <b>GB Snow load</b> <b>IT Carico di neve</b> <b>FR Charge de neige</b> <b>ES Carga de nieve</b> <b>PT Carga de neve</b> <b>DK Snebelastning</b>	<b>we (ρ = 1,25 kg/m<sup>3</sup>)</b>	
	<b>DE TSV Verbinder</b> <b>GB TSV connectors</b> <b>IT Collegamento TSV</b> <b>FR Connecteur TSV</b> <b>ES Elemento de unión TSV</b> <b>PT Conector TSV</b> <b>DK TSV forbinder</b>		<b>DE max. Böengeschwindigkeit</b> <b>GB max. gust speed</b> <b>IT max. velocità di raffica</b> <b>FR vitesse de rafales maxi</b> <b>ES max. velocidad de ráfagas</b> <b>PT max. velocidade de rajadas</b> <b>DK max. vindstødshastighed</b>

**Empfehlung für Befestigungsebenen / Ballastkörper SKR500L**  
**Recommendation for fastening planes / Ballast item SKR500L**  
**Raccomandazione per i piani di fissaggio / Zavorra del corpo SKR500L**  
**Recommandation concernant les plans de fixation / Bloc de lestage SKR500L**  
**Recomendaciones para las superficies de fijación / Lastre de carga SKR500L**  
**Sugestão de plataformas de fixação / Lastre de betão SKR500L**  
**Anbefalede fastgøringspunkter / Ballast del SKR500L**



BBAL35-50-L / STANDARD LOAD (SL)										
	 kPa	 km/h	 kg	 ** kN/m <sup>2</sup>						
 <b>35-40°</b>	0,42	79	146	4,00						
	0,56	91	206							
	0,70	102	265							
	0,84	112	323							
	0,98	120	381							
	1,12	129	440							
	1,26	137	499							
	1,34	141	533							
 <b>45-50°</b>	0,48	79	178	4,00						
	0,64	91	247							
	0,80	102	316							
	0,96	112	385							
	1,12	120	452							
	1,28	129	522							
	1,44	137	591							
	1,54	141	632							
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
	2	3	4	6	7	9	11	12	13	15



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**

### **Límites 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 spærerne på mellem 700 mm og 900mm.
- Ved standardfastgøringen op til en snebelastning (SL) ifølge tabel må der maks. holdes 1 spær fri mellem fastgøringspunkterne. Ved fastgøring med ekstra støtter op snebelastning (HL) ifølge tabel må der ikke være nogen frie spær mellem fastgøringspunkterne.
- Udhæng for bæreskinen over det yderste fastgøringspunkt ved SL N/L montering maks. 525 mm, og maks. 425 mm for HL N/L installation.







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