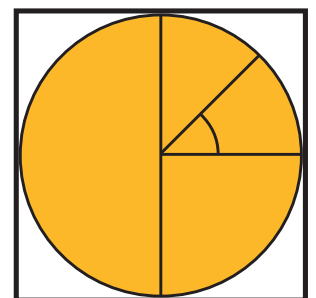
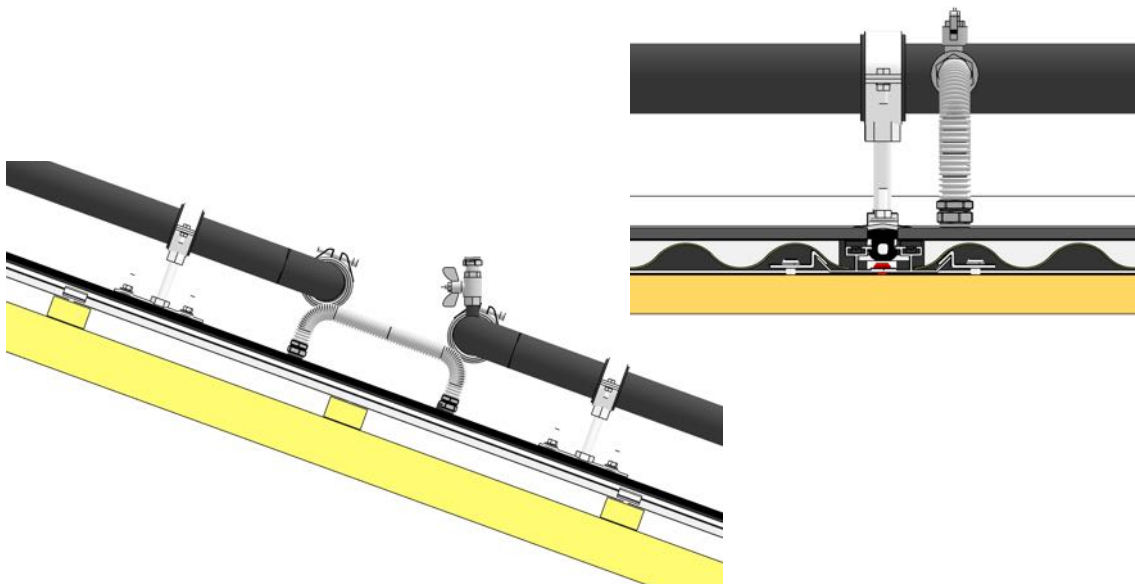
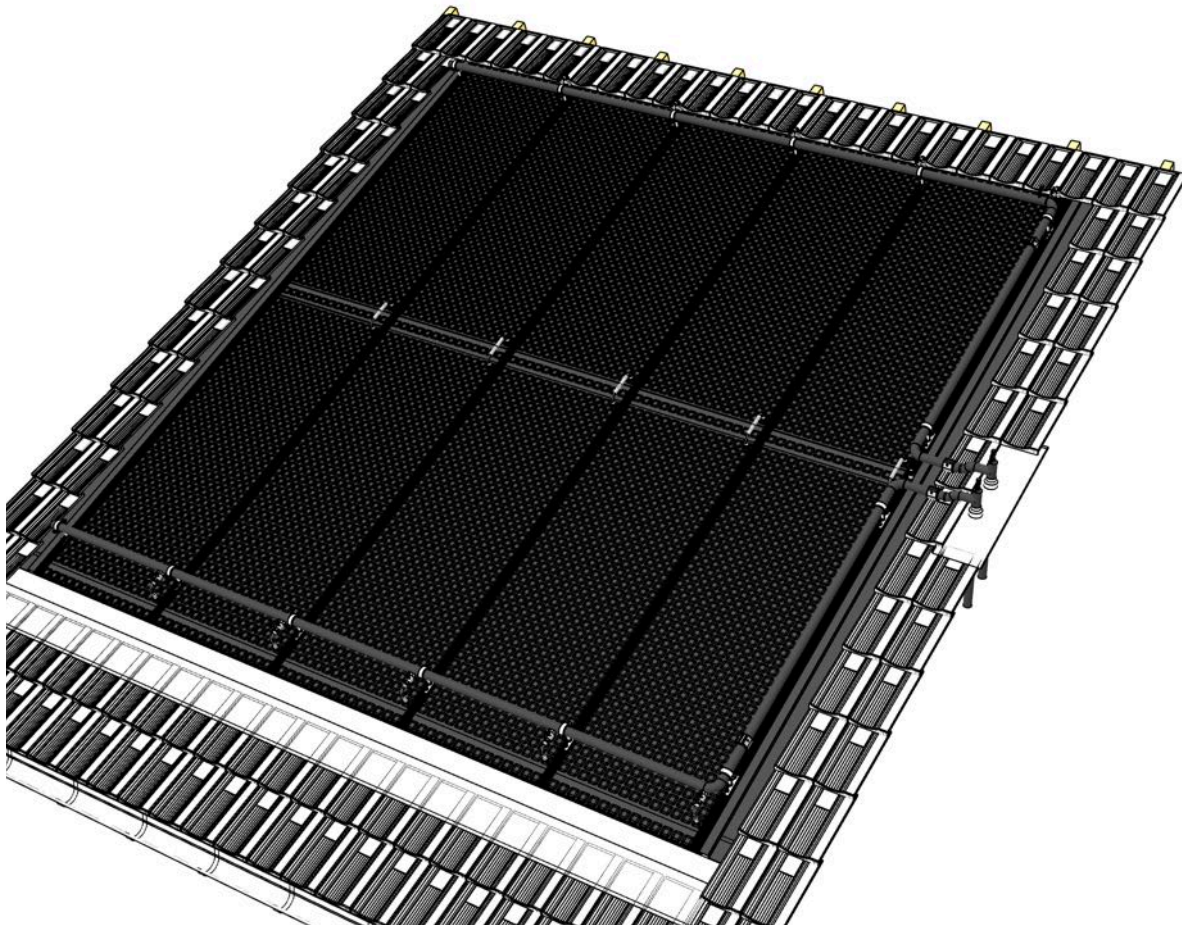


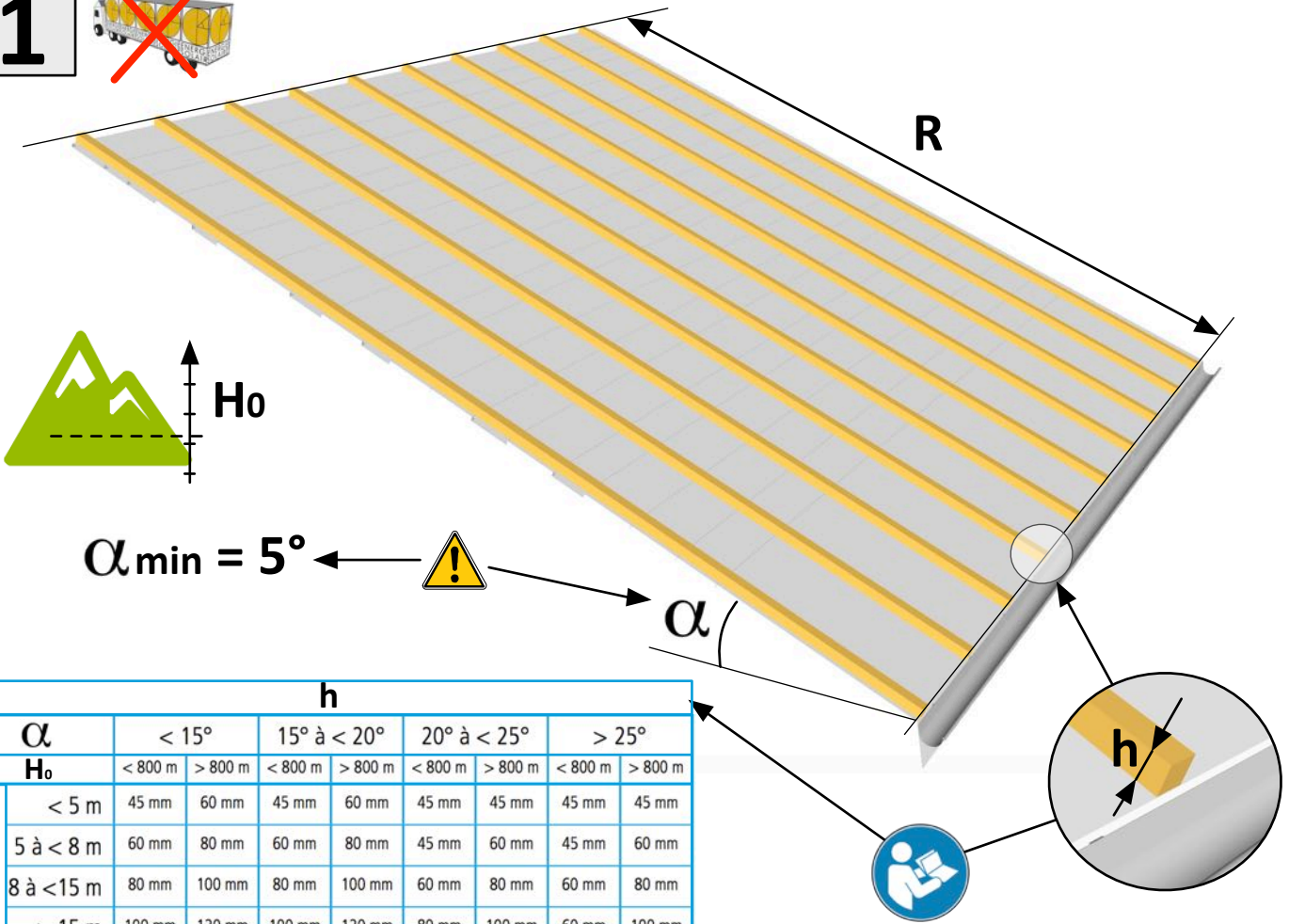
# Toiture AS Solardach AS



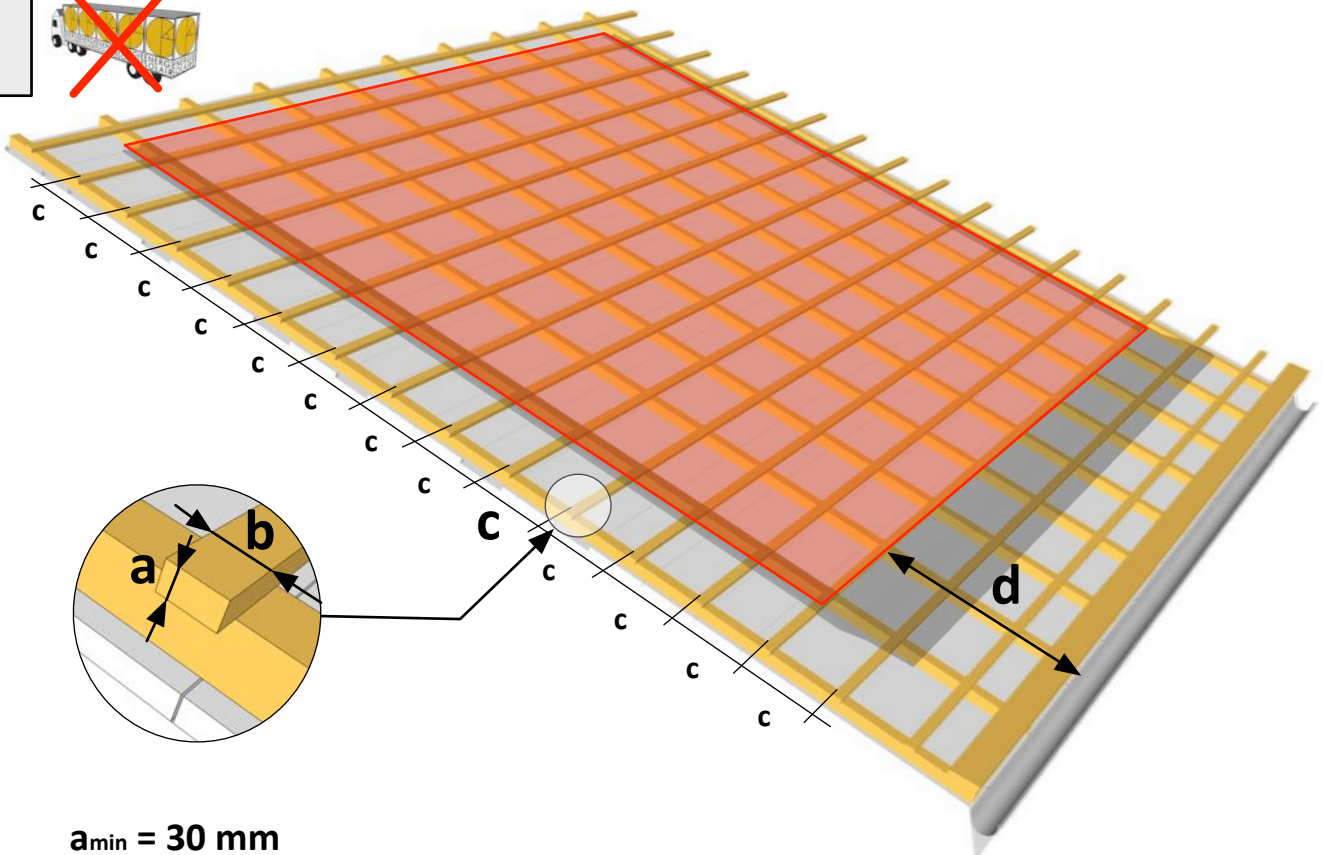
ENERGIE  
SOLAIRE

SWISS SOLAR ENERGY PRODUCTS SINCE 1973

9.10.2018 v1.3

**1**

		h							
		< 15°		15° à < 20°		20° à < 25°		> 25°	
$\alpha$		< 800 m		> 800 m		< 800 m		> 800 m	
$H_0$		< 800 m		> 800 m		< 800 m		> 800 m	
R	< 5 m	45 mm	60 mm	45 mm	60 mm	45 mm	45 mm	45 mm	45 mm
	5 à < 8 m	60 mm	80 mm	60 mm	80 mm	45 mm	60 mm	45 mm	60 mm
	8 à < 15 m	80 mm	100 mm	80 mm	100 mm	60 mm	80 mm	60 mm	80 mm
	> 15 m	100 mm	120 mm	100 mm	120 mm	80 mm	100 mm	60 mm	100 mm

**2**

$a_{\min} = 30 \text{ mm}$   
 $b_{\min} = 60 \text{ mm}$   
 $c_{\max} = 500 \text{ mm}$



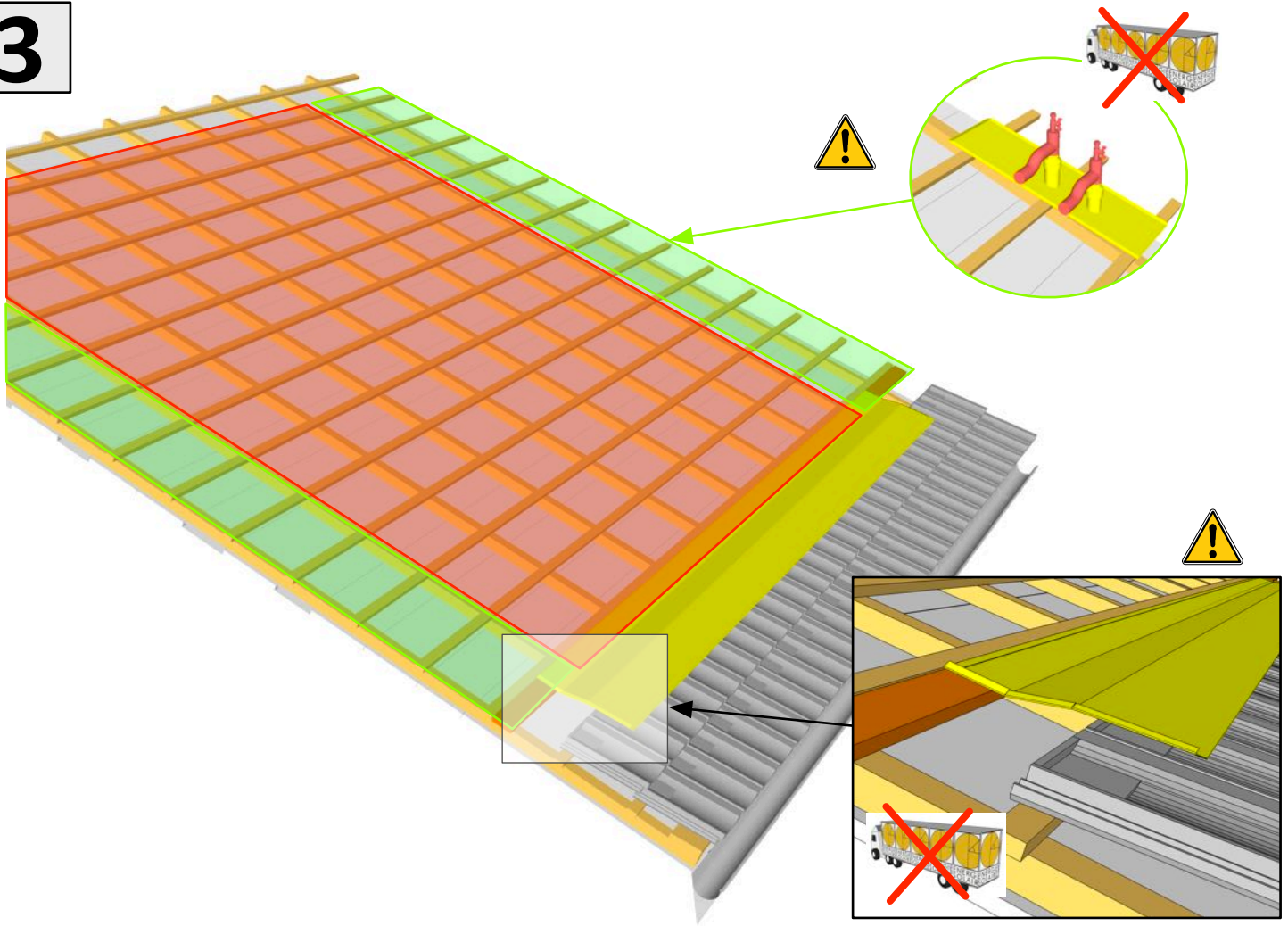
$d > 0 ?$  →

**3**

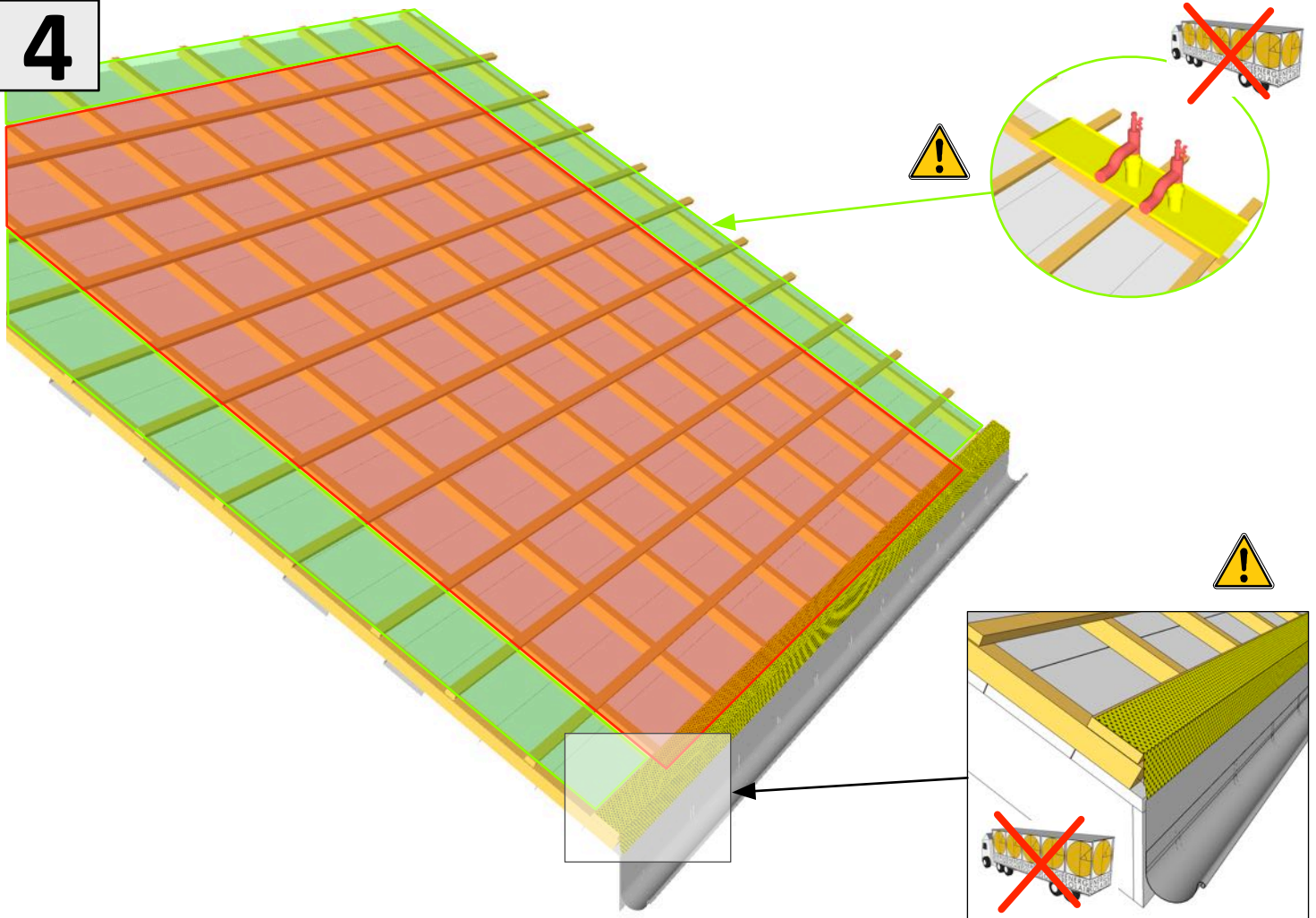
$d = 0 ?$  →

**4**

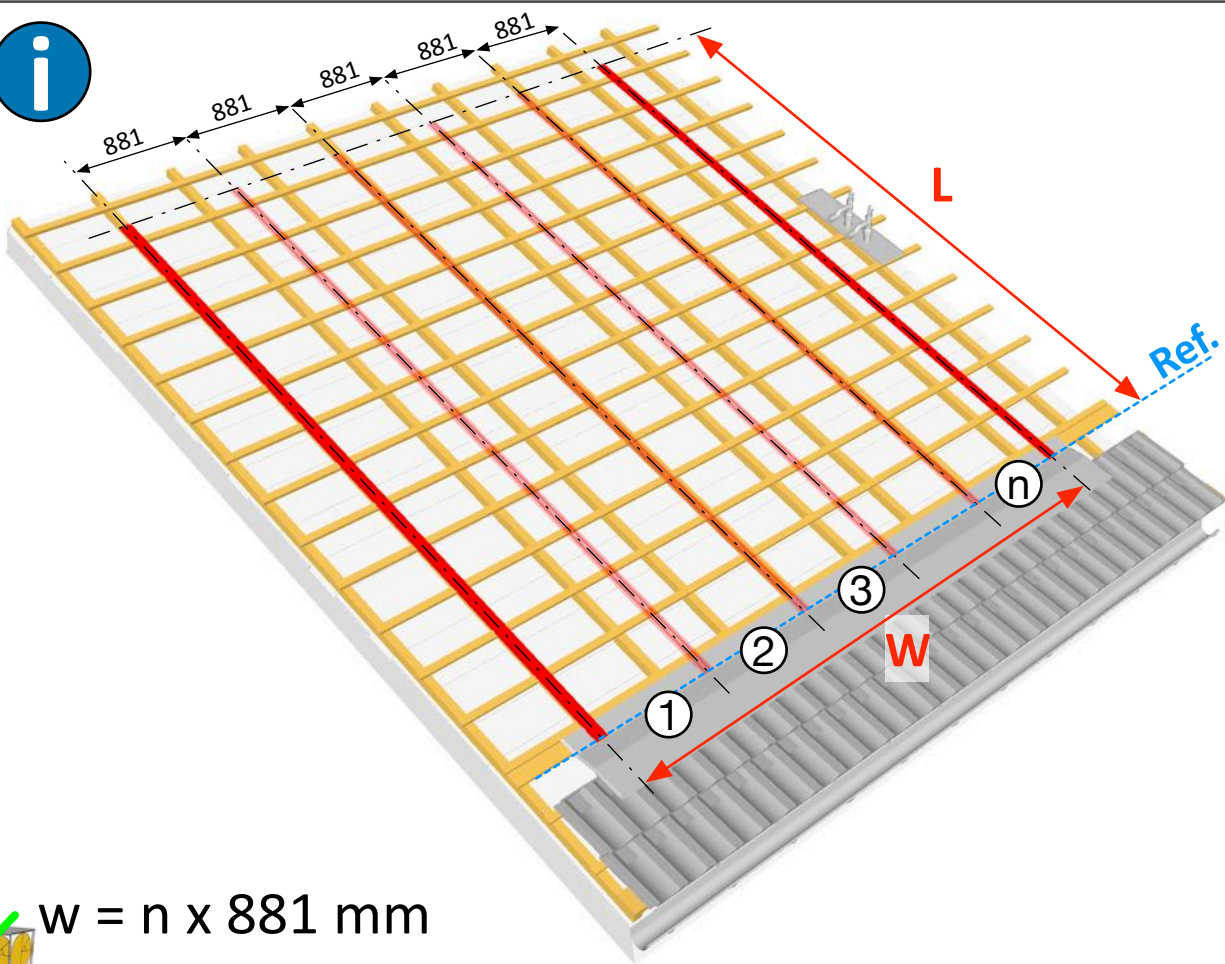
3



4

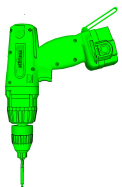


5



$w = n \times 881 \text{ mm}$

6



T25



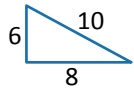
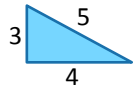
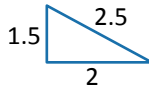
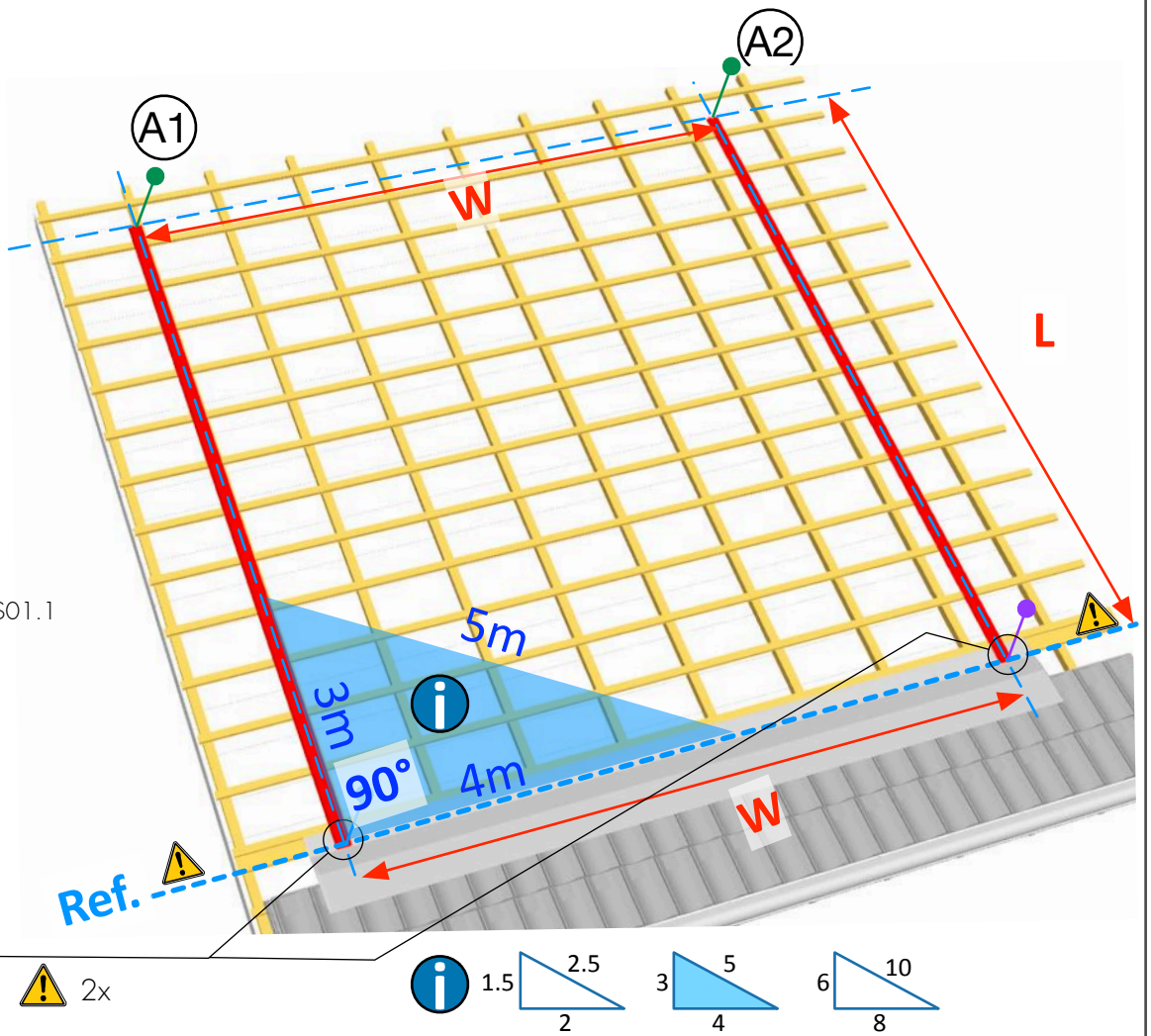
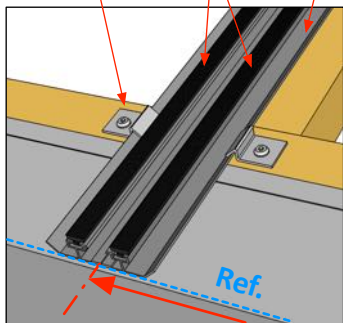
16.FN446.6X30.TS



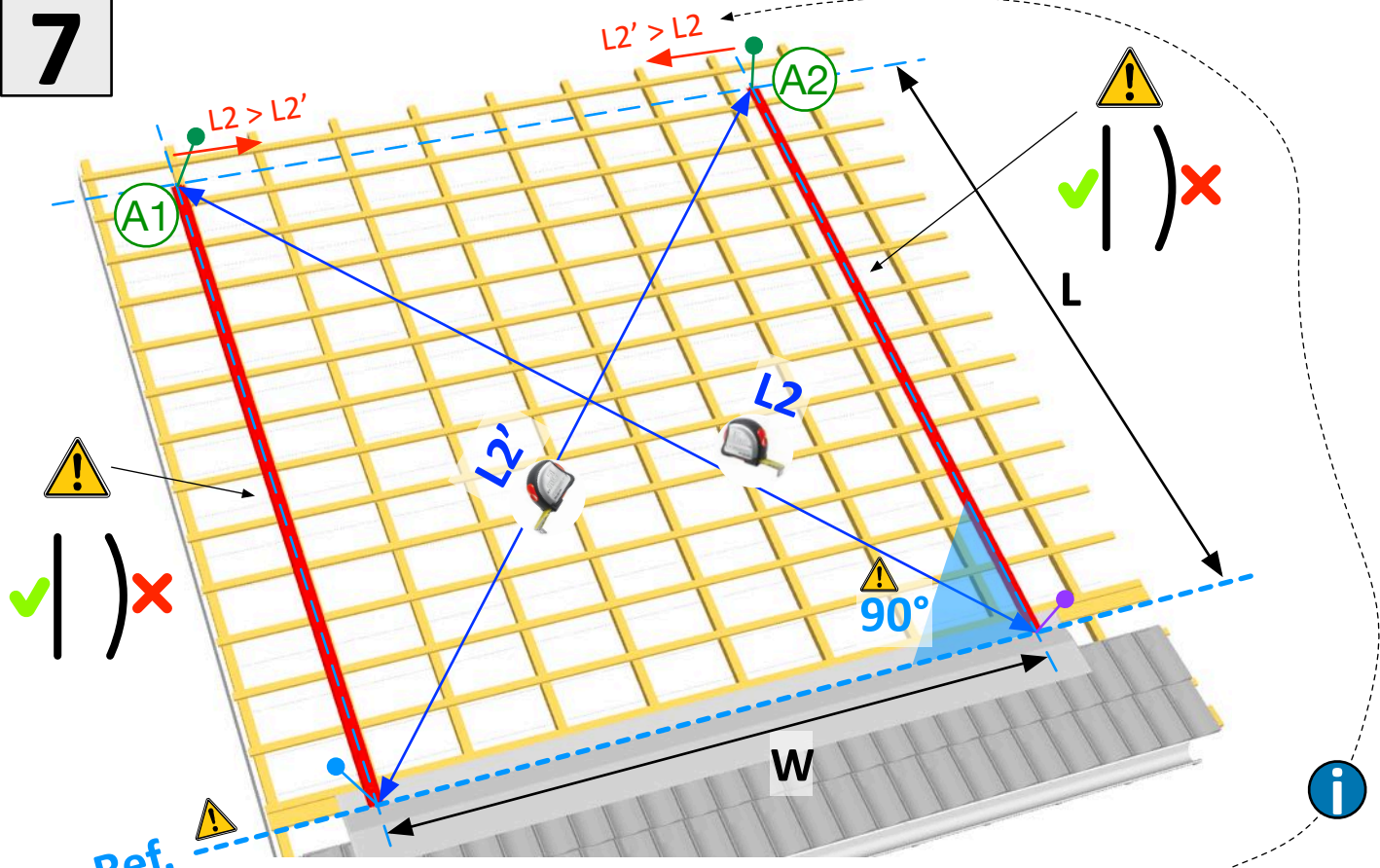
01.04.TS01.3

01.04.TS01.1

01.04.TS01.2

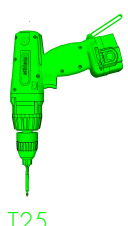


7



**!**  $L2' = L2 \pm 15\text{mm} ?$  **X**  $\rightarrow$  **7** **✓**  $\rightarrow$  **8**

8



16.FN446.6X30.TS

01.04.TS06.3

16.FN446.6X30.TS

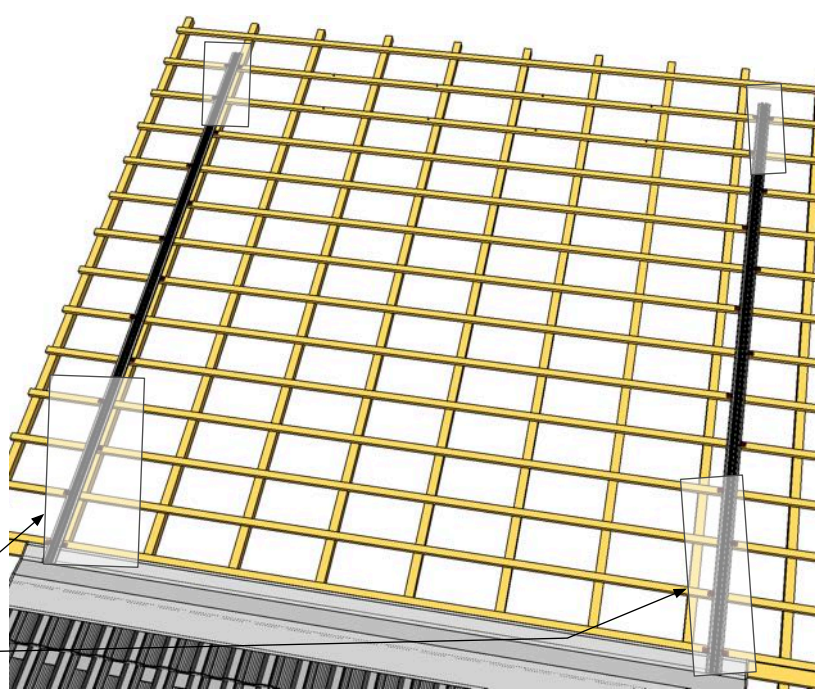
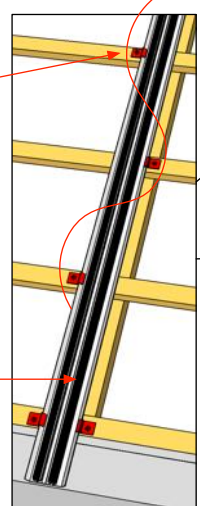
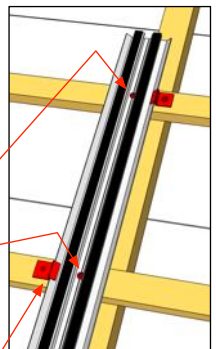
01.04.TS01.3

01.04.TS01.1

+2x 01.04.TS01.2

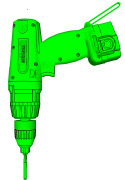
**!** 2x

Ø 6mm



# 9

2x 01.04.TS15.3



T25

16.FN446.6X30.TS

01.04.TS06.3

16.FN446.6X30.TS

01.04.TS01.3

01.04.TS01.1

+2x 01.04.TS01.2

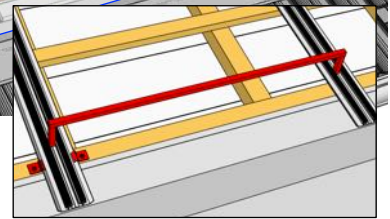
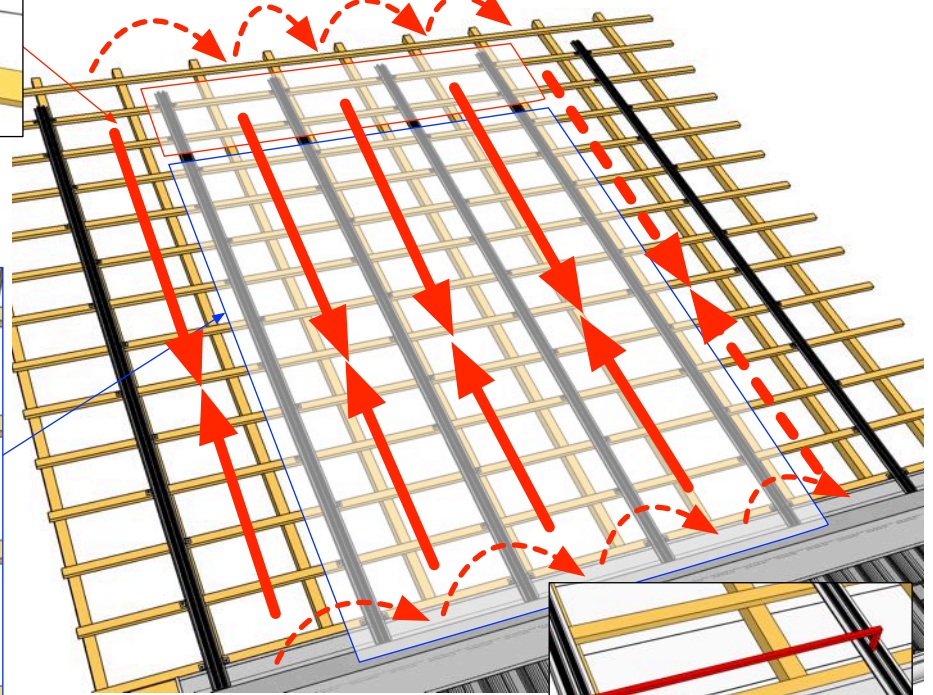
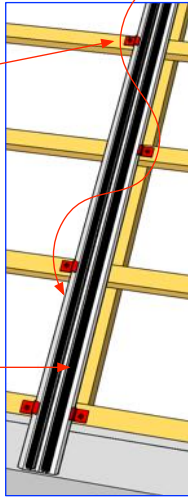
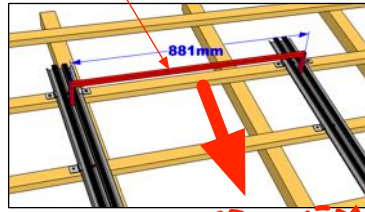
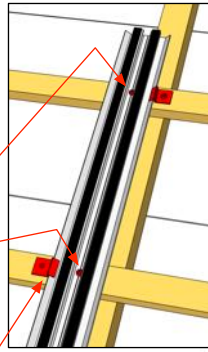
2x

Ø 6mm

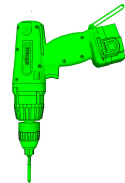
Ø 6mm

Ø 6mm

881mm



# 10



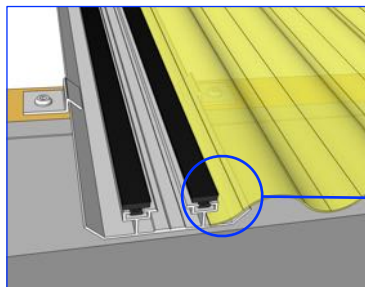
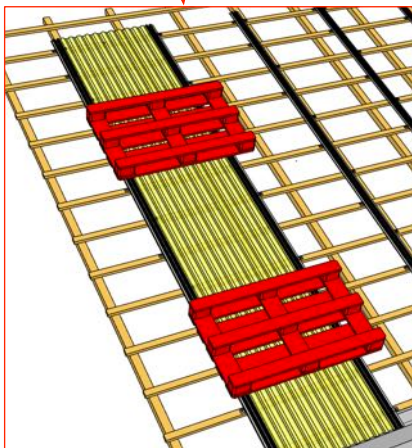
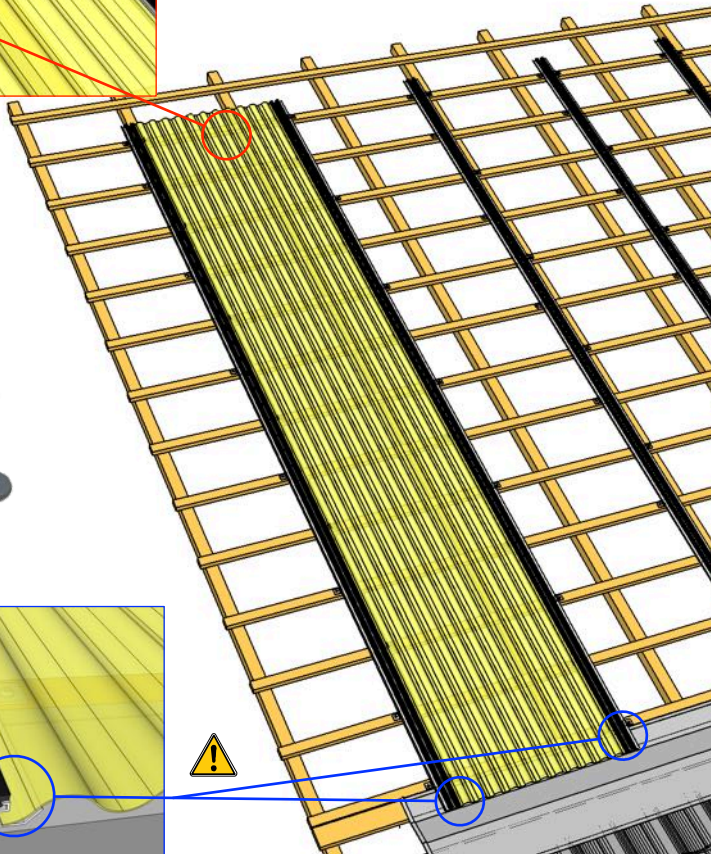
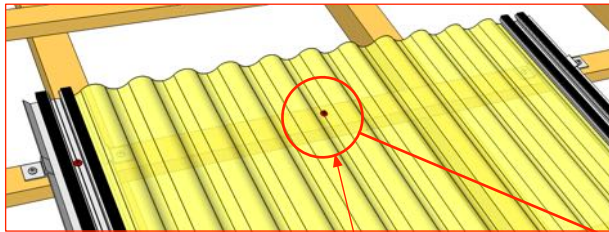
T25

16.FN446.6X30.TS

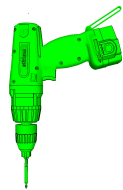
01.04.TS06.3

Ø 6mm

Ø 6mm

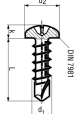


# 11

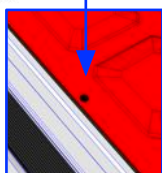


PZ2

16.BN14727.3.5X16



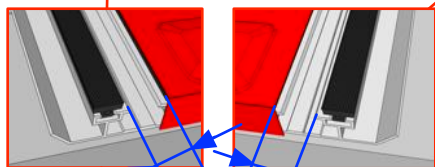
2x



~150mm



1



Protection film

Protection film

Protection film

Protection film

# 12

= IceSol ?



01.04.TS04

≠ IceSol ?



Gyso Polyflex 444



01.04.TS11



3

Protection film

Protection film

Protection film

Protection film

Protection film



1

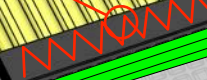
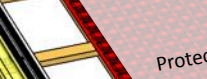
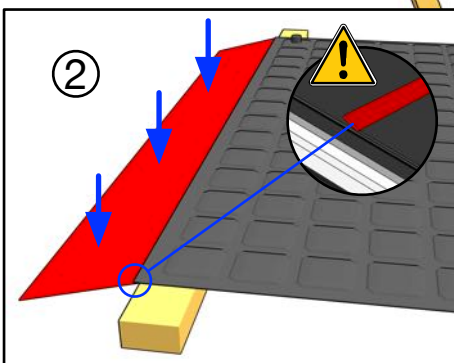
~150mm

4

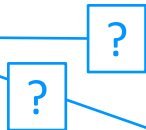
2

Protection film

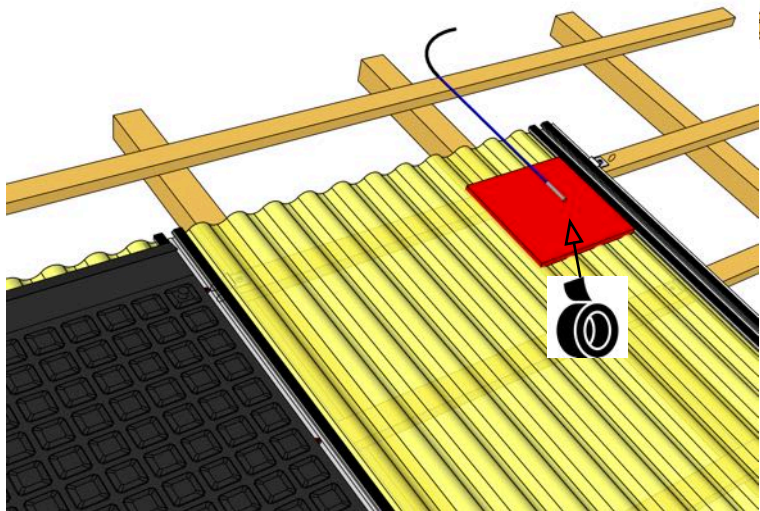
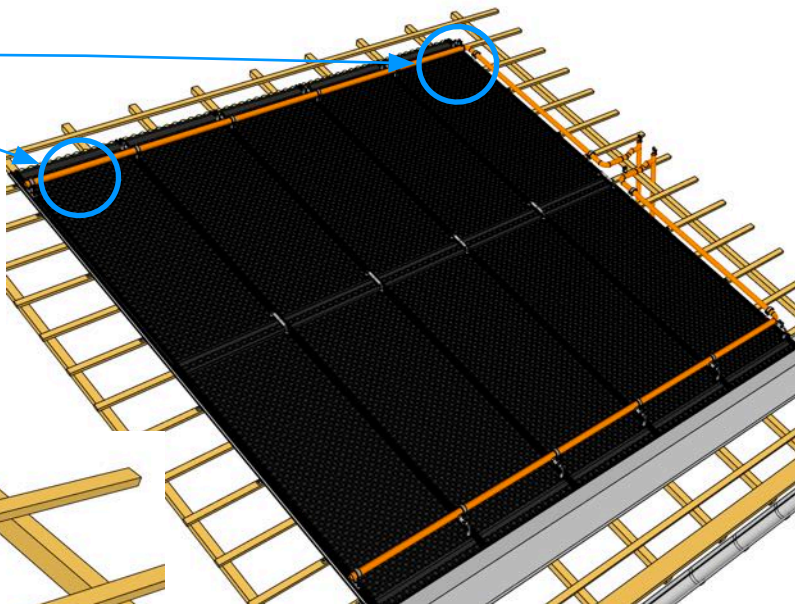
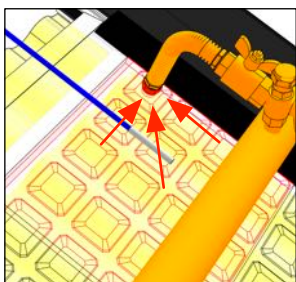
2



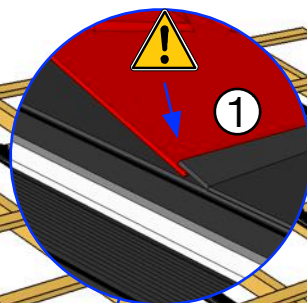
# 13



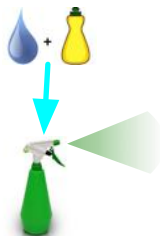
Pt1000



# 14



③



③

②

③



③

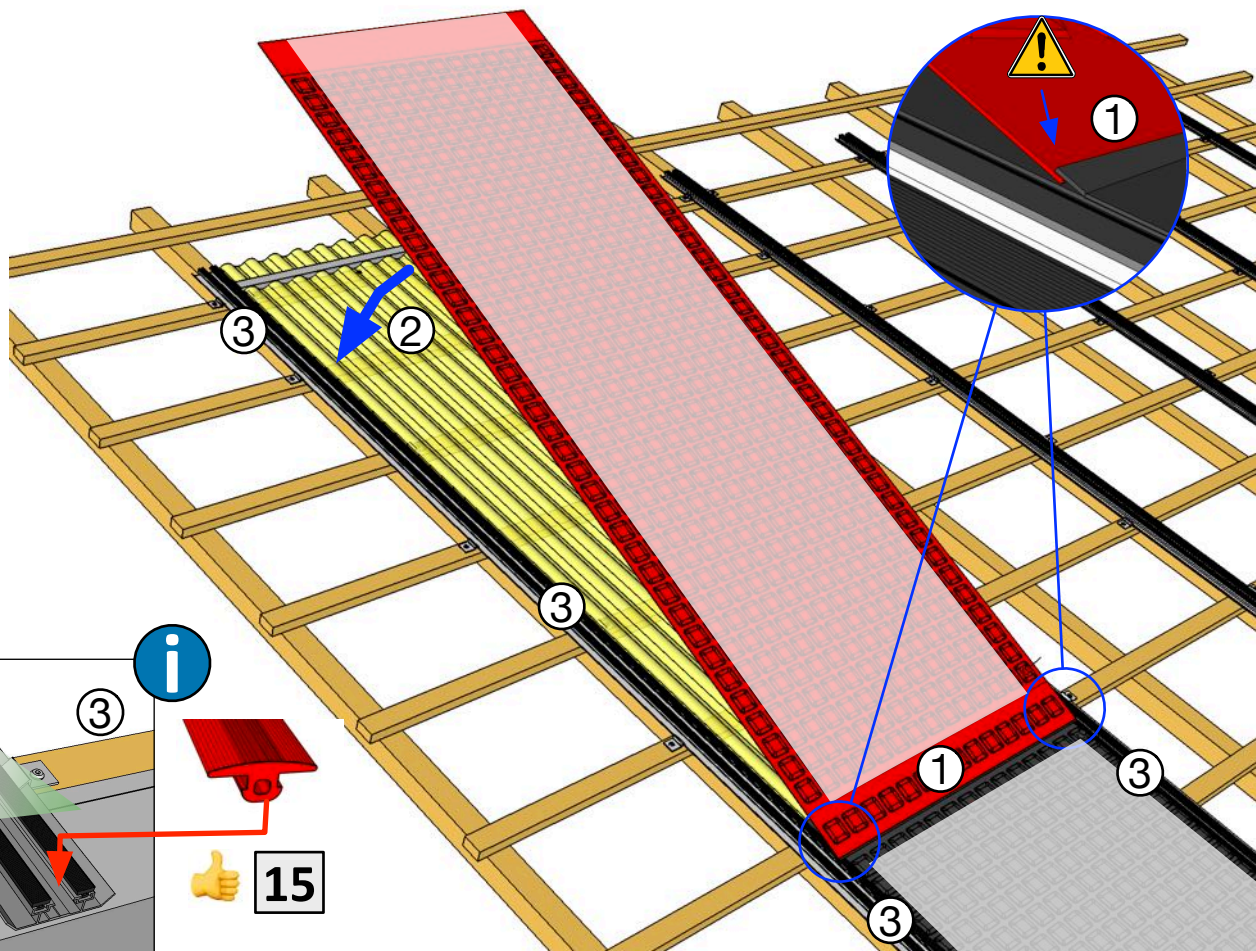
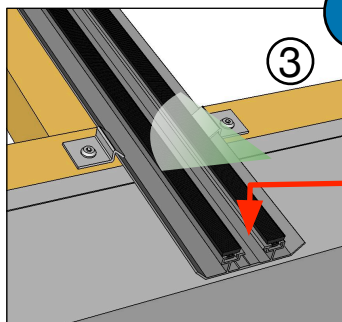


15

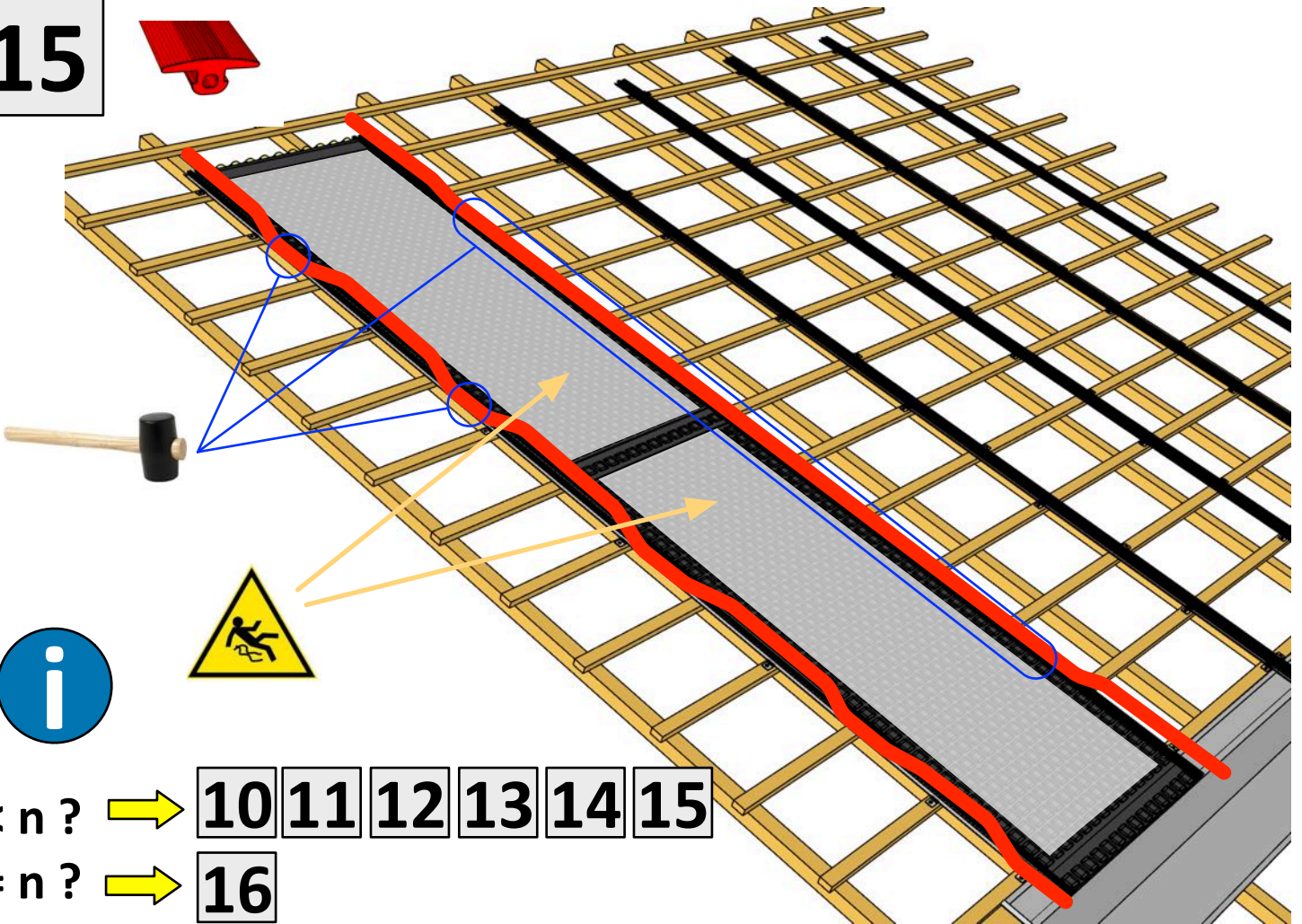
①

③

③

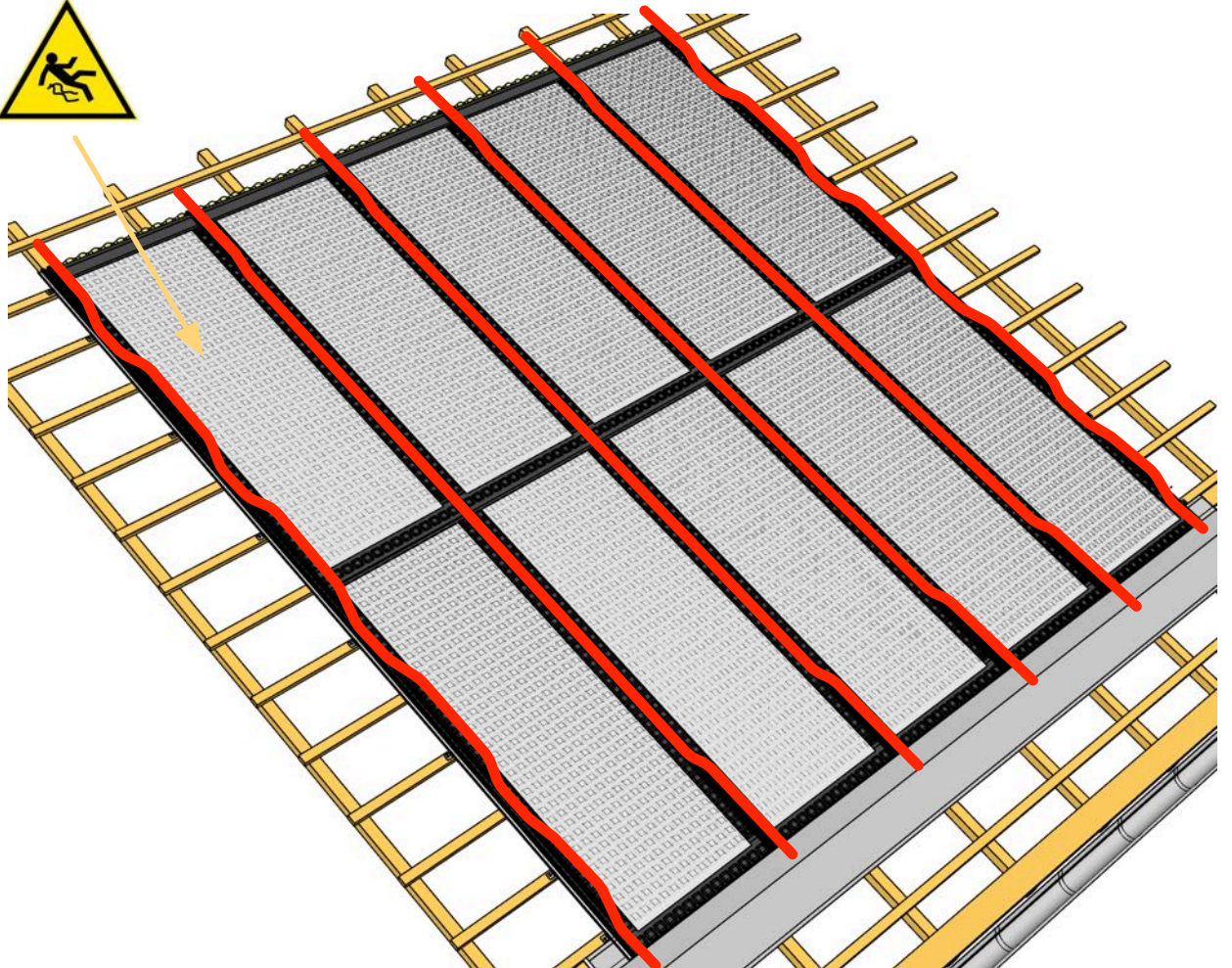


15



< n ? → 10 11 12 13 14 15  
= n ? → 16

16



# 17

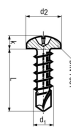


## Option

①

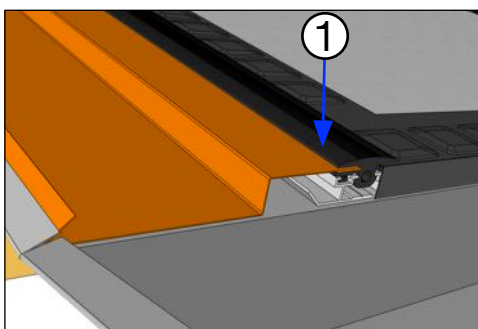
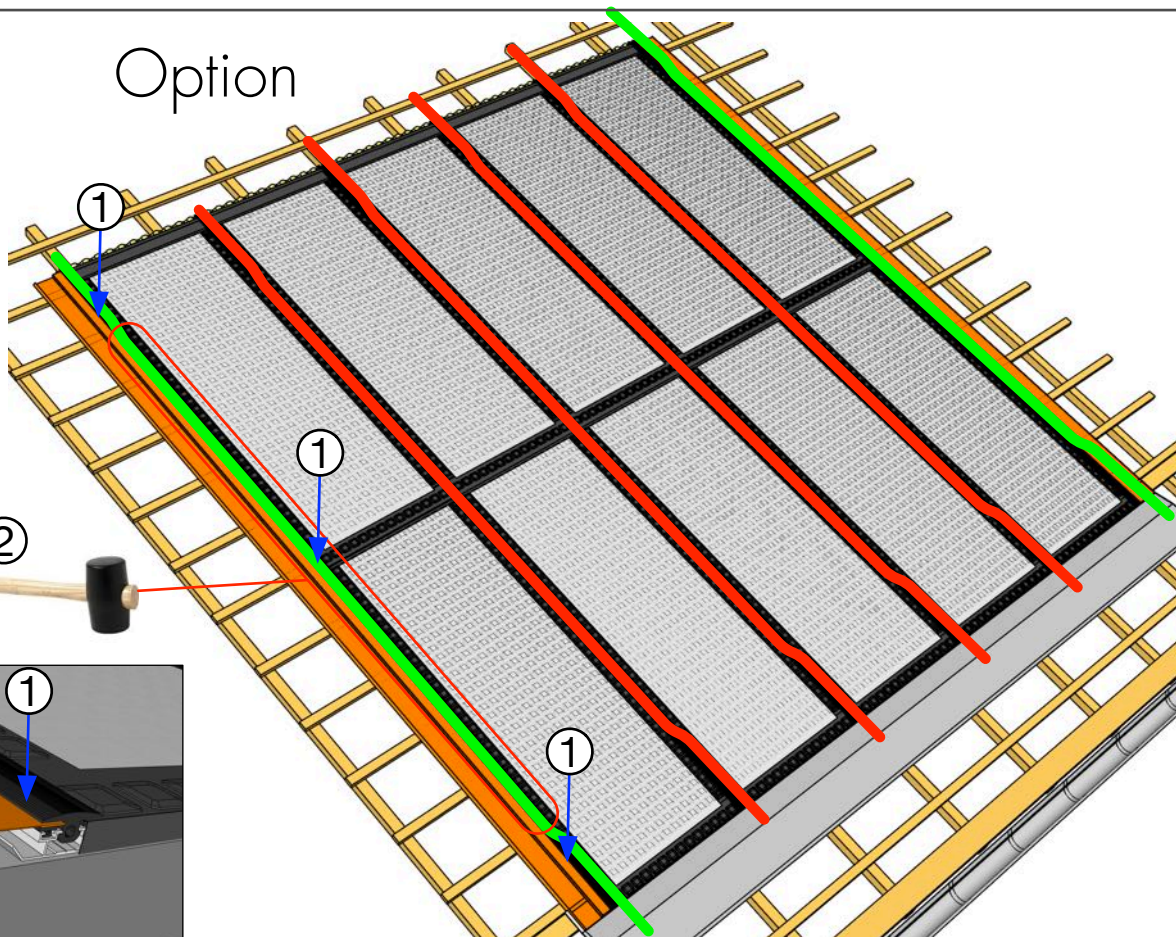


PZ2

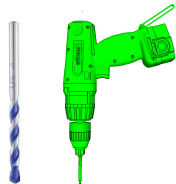


16.BN14727.3.5X16

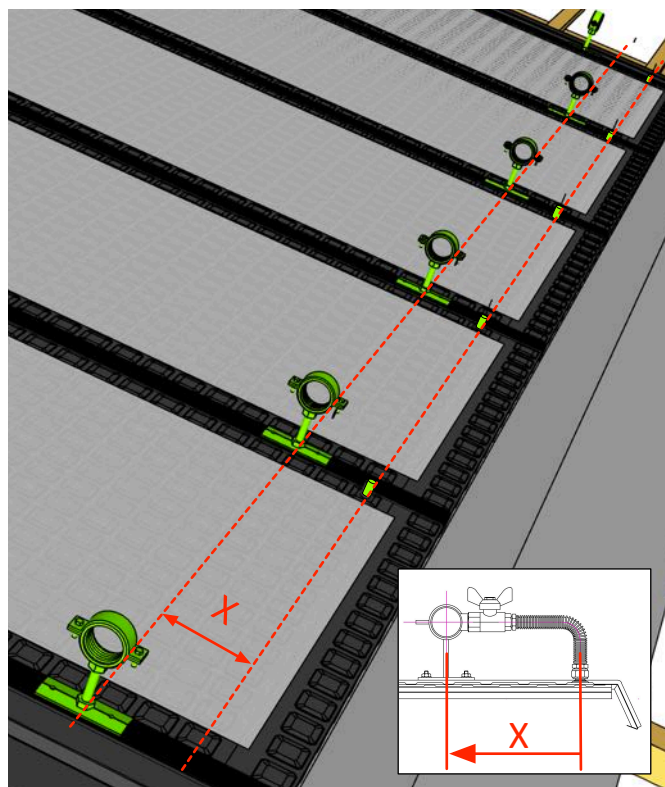
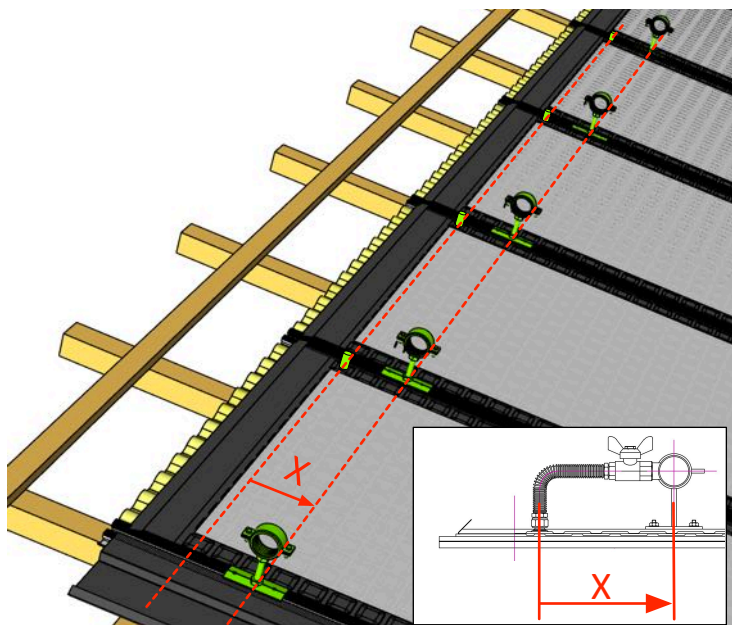
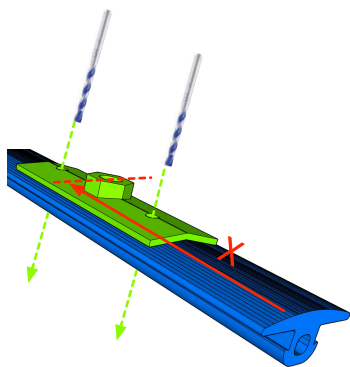
②



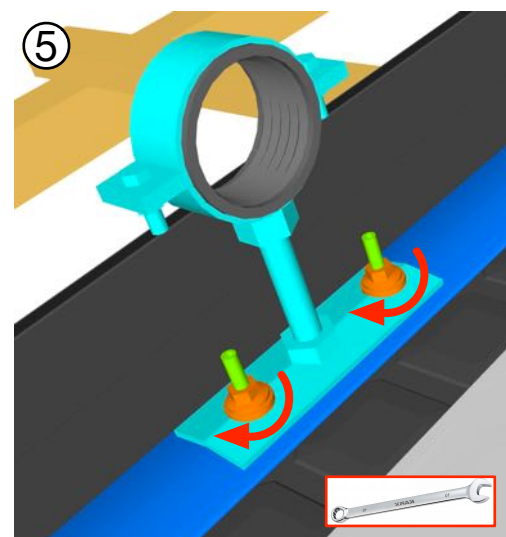
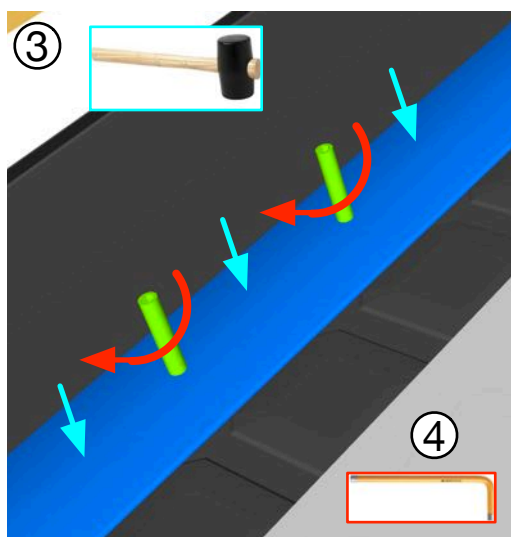
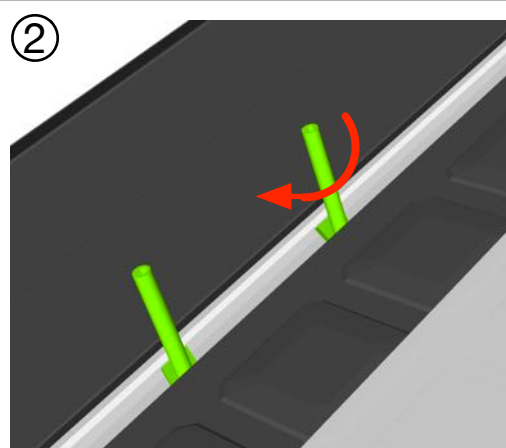
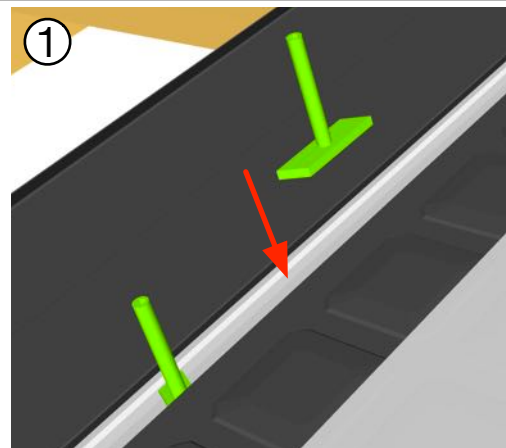
# 18



Ø8mm



# 19



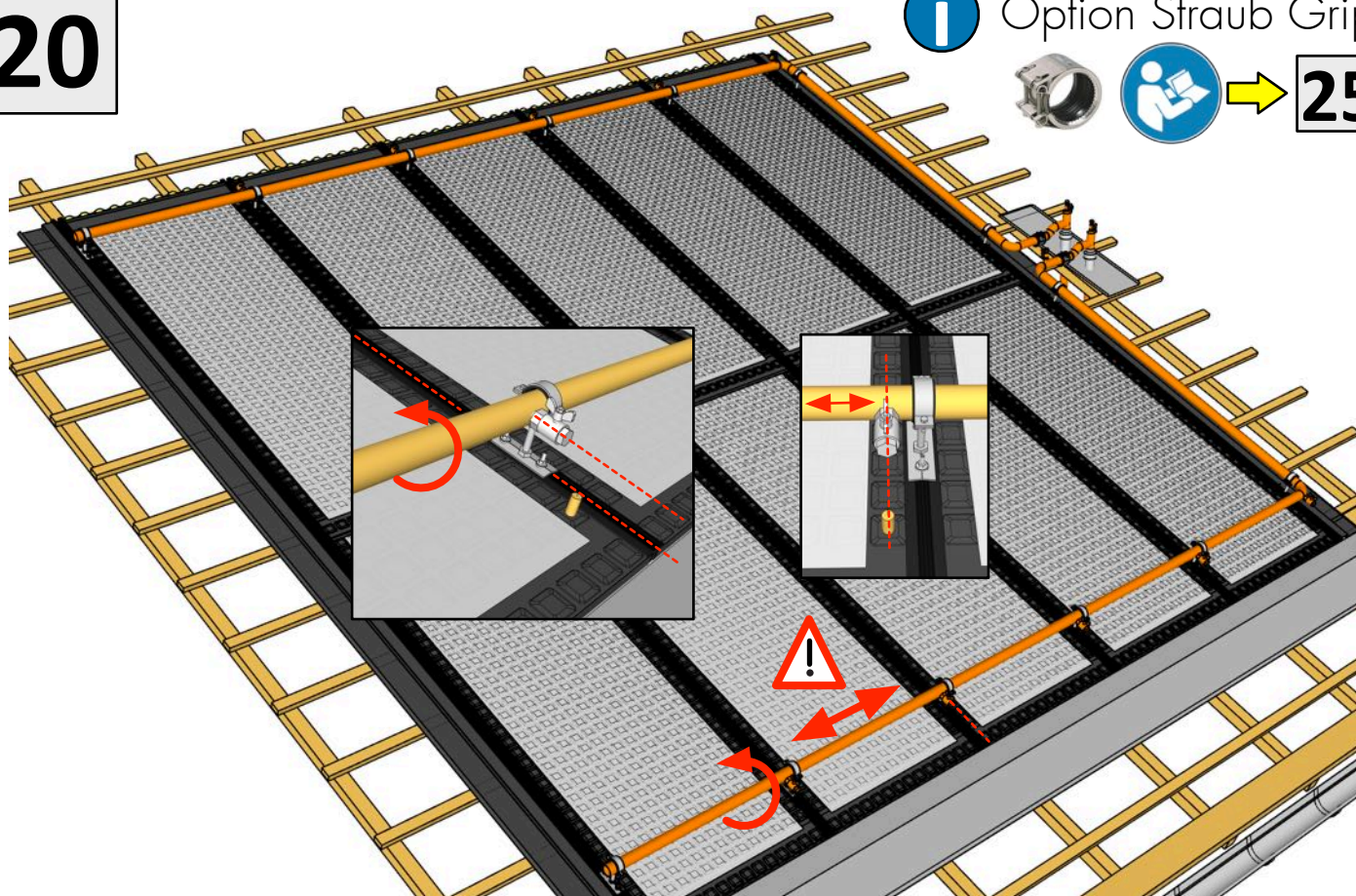
# 20



Option Straub Grip-L



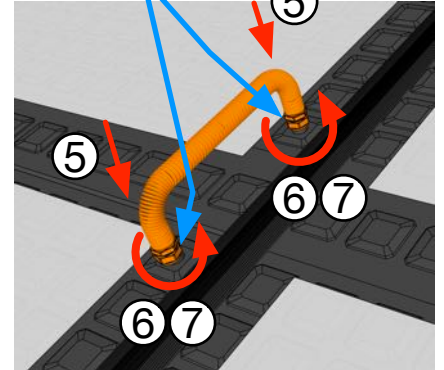
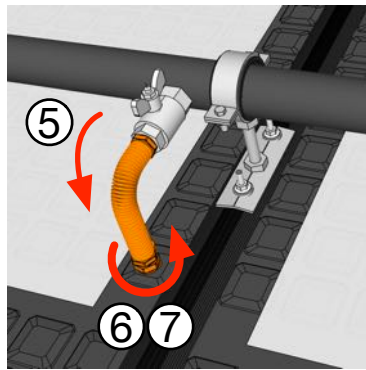
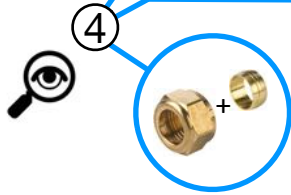
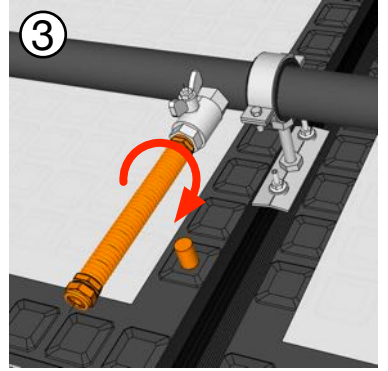
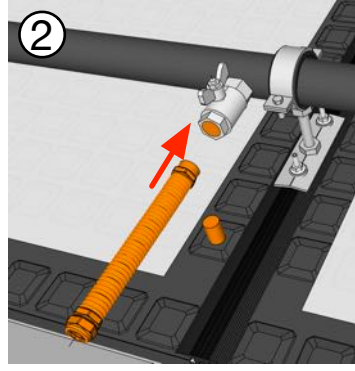
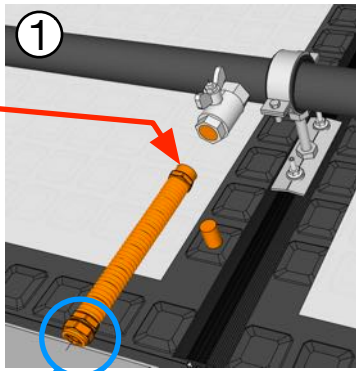
# 25



# 21



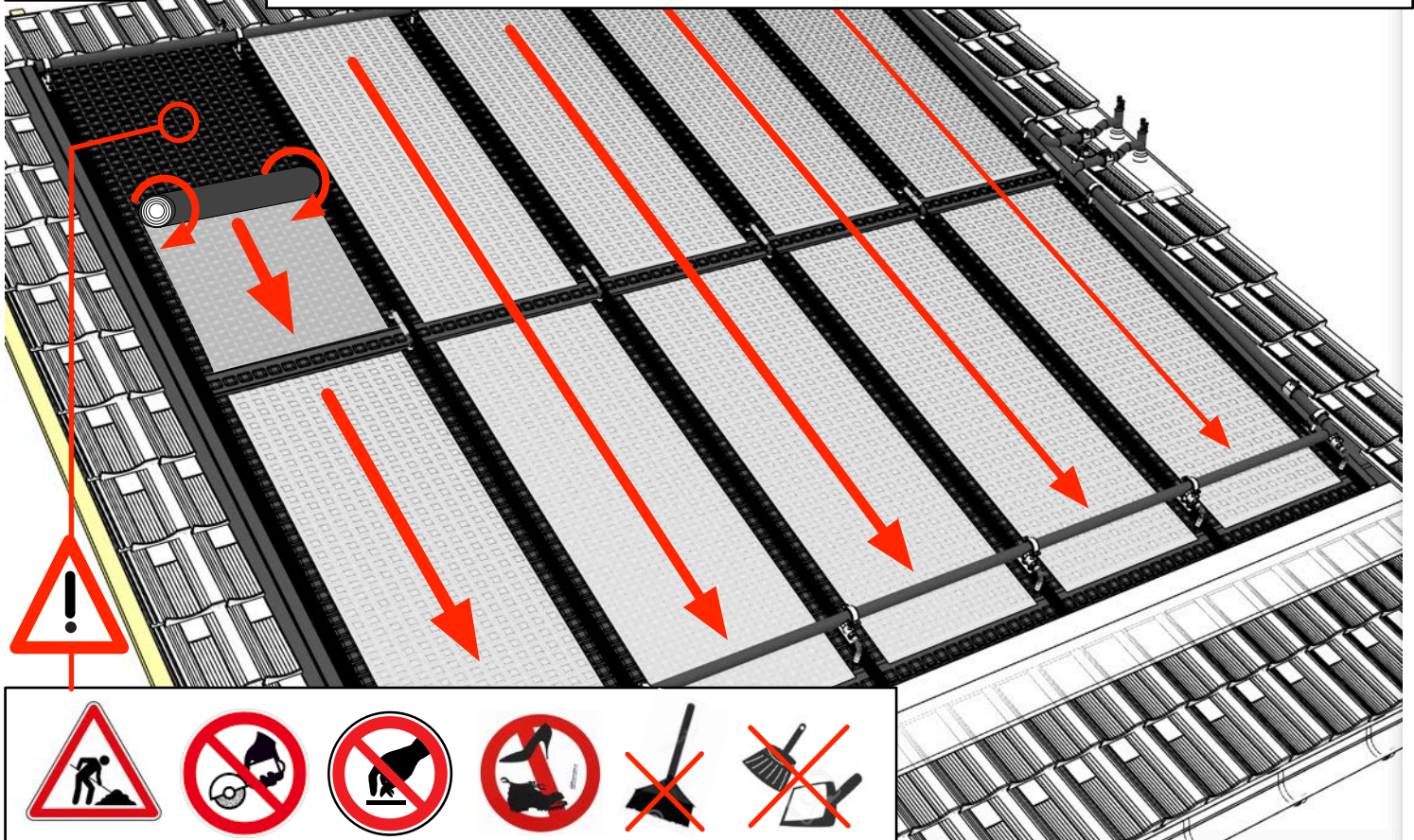
LOCTITE 648



# 22



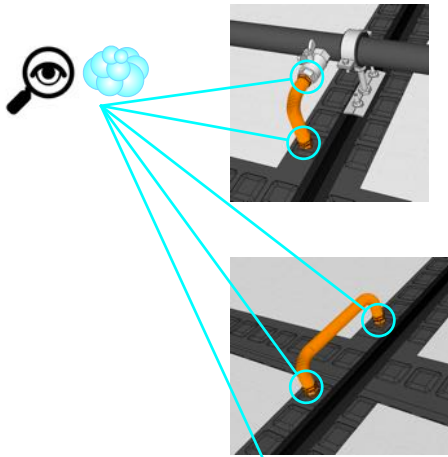
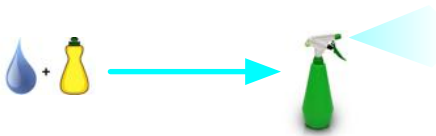
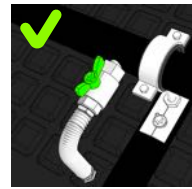
Entfernen Sie den Schutzfilm sofort nach der Montage der Solarkollektoren  
Retirer le film de protection immédiatement après le montage des capteurs solaires  
Remove the protective film immediately after mounting the solar collectors



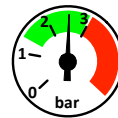
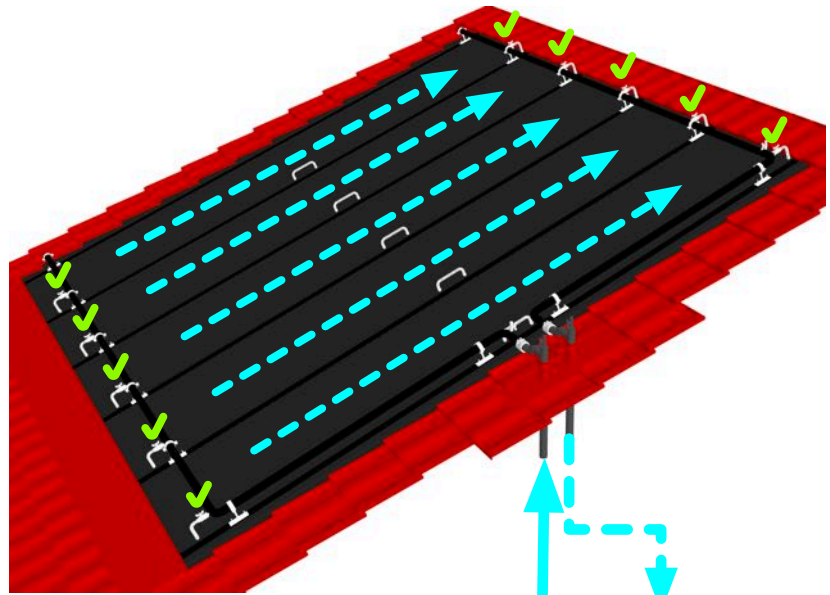
# 23



## Max 3 bar



Option Straub Grip-L



## Max 3 bar



# 24



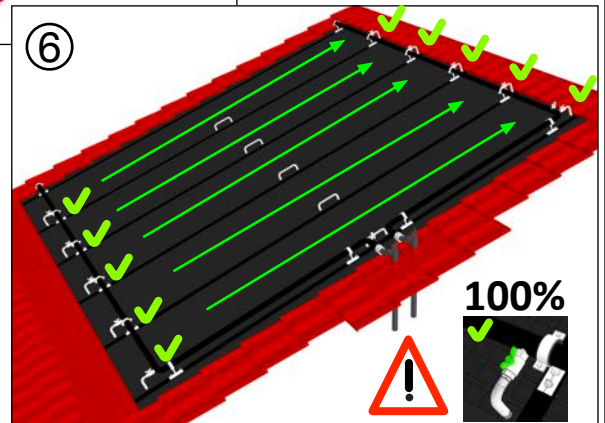
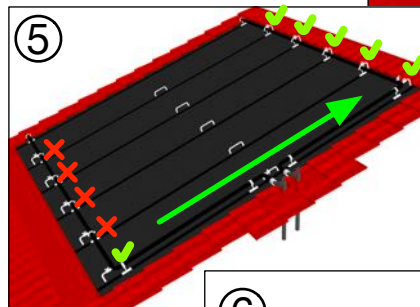
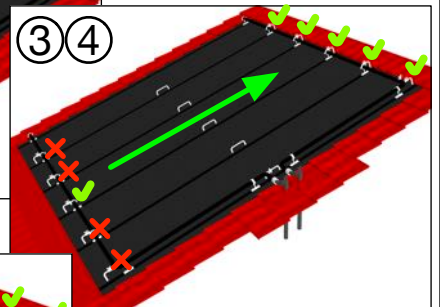
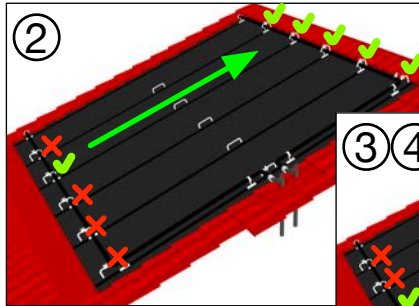
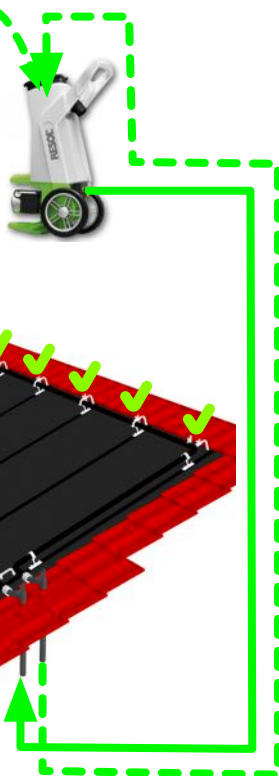
## Max 3 bar



SICC BT 102 01



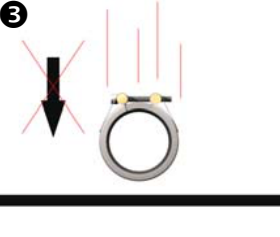
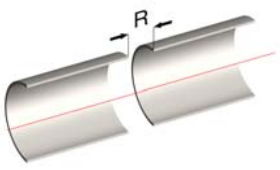





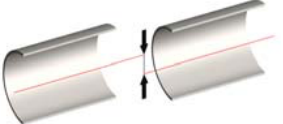
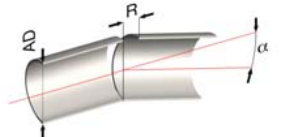
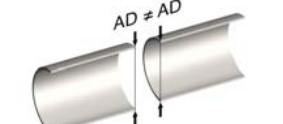





VDI 2035



100%



A	VORBEREITUNG	PRÉPARATION	PREPARATION
<p><b>1</b></p> 	<p>Rohrenden <b>entgraten</b> und Oberfläche von Farbe und Beschichtung reinigen.</p> <p>Keine Schmutzpartikel unter den Dichtlippen.</p>	<p><b>Ebavurer</b> les extrémités. Nettoyer la surface. Oter la peinture, le revêtement PEHD ou l'isolant.</p> <p>Aucune particule sous les lèvres d'étanchéité.</p>	<p><b>De-burr</b> and remove sharp edges from pipe ends. Clean the pipe surface from impurities (bad coating)</p> <p>No dirt under sealing lips.</p>
<p><b>2</b></p> 	<p>Halbe Kupplungsbreite auf beiden Rohrenden <b>markieren</b>.</p>	<p><b>Marquer</b> la demi-largeur du raccord symétriquement sur chaque extrémité du tube.</p>	<p>Center coupling over gap between pipe ends.</p>
<p><b>3</b></p> 	<p>Falls vorhanden, Kupplung <b>auf-schieben</b> und Transportsicherung entfernen.</p> <p>Die Kupplung nicht zerlegen.</p> <p>Kupplung nicht fallenlassen.</p>	<p><b>Glisser</b> le raccord sur le tube. Enlever les bandes plastiques (Protection de transport) et</p> <p>Ne pas démonter le raccord.</p> <p>Ne pas laisser tomber le raccord.</p>	<p><b>Fit</b> the pipe joint over the pipe end and Remove plastic packing straps.</p> <p>Do not disassemble the pipe joint.</p> <p>Do not drop the pipe joint.</p>
B	AUSRICHTEN DER ROHRE	ALIGNER LES TUBES	PIPE ALIGNMENT
<p><b>4</b></p> 	<p><b>Rohrendenabstand R</b></p> <p>Rohr-AD              Tube AD              Pipe AD              Ø (mm)</p> <p><b>GRIP-L / GRIP-L</b>              26.9 - 33.7              38.0 - 48.3              54.0 - 60.3 / 84 / 100.6 - 104.8              73.0 / 76.1 / 88.9 / 108 / 114.3              154.0              127.0 - 141.3 / 159.0 - 609.6</p> <p><b>METAL-GRIP</b>              30.0 - 54.0              57.0 - 114.3              133 / 139.7 / 159 / 168.3              129 / 154 / 219.1 - 609.6</p>	<p><b>Écart entre les extrémités R</b></p> <p>ohne Bandeinlage <sup>R<sub>max.</sub> (mm)</sup>              sans feuillard              without strip insert</p>  <p>5 5 10 10 10 10</p>	<p><b>Distance between pipe ends R</b></p> <p>mit Bandeinlage              avec feuillard              with strip insert</p>  <p>5 10 15 25 30 35</p>
	<p><b>Bandeinlagen</b> einsetzen bei:</p> <ul style="list-style-type: none"> <li>♦ grossen Rohrendenabständen (Pkt. 4)</li> <li>♦ Gummi-Quellung</li> <li>♦ Vakuum</li> <li>♦ äusserem Überdruck</li> <li>♦ hohen Temperaturen</li> </ul> <p>Bandeinlagen sind Sonderzubehör und müssen separat bestellt werden.              (Werk anfragen)</p>	<p><b>Feuillards</b> à employer en cas de:</p> <ul style="list-style-type: none"> <li>♦ grands écarts entre les embouts (point 4)</li> <li>♦ gonflement des liquides débités</li> <li>♦ des conduites sous vide</li> <li>♦ suppression de l'extérieur</li> <li>♦ haute température</li> </ul> <p>Feuillards sont des extra et doivent être commandés particulièrement.              (Contacter l'entreprise)</p>	<p><b>Strip inserts</b> are used in case of:</p> <ul style="list-style-type: none"> <li>♦ large distance between pipe ends (point 4)</li> <li>♦ swelling due to aggressive liquids</li> <li>♦ vacuum</li> <li>♦ under outside pressure</li> <li>♦ high temperature</li> </ul> <p>Strip inserts are extras and must be ordered seperately.              (Contact factory)</p>

<p><b>5</b></p> 	<p><b>Achsversatz</b> 1 % vom Rohraussendurchmesser (max. 3 mm). Grösseren Achsversatz in Auswinkelung abändern (Kardan).</p>	<p><b>Désalignement</b> 1 % du diamètre extérieur (max. 3 mm). Un désalignement plus grand est à rectifier par une déviation angulaire (cardan).</p>	<p><b>Linear misalignment</b> 1 % of outer diameter (max. 3 mm) is admissible. Larger misalignment must be rectified into angular deflection (cardan).</p>
<p><b>6</b></p> 	<p><b>Auswinkelung <math>\alpha</math></b> bis <math>\varnothing</math> 60.3 mm <math>\Rightarrow</math> 5° ab <math>\varnothing</math> 76.1 mm <math>\Rightarrow</math> 4° ab <math>\varnothing</math> 219.1 mm <math>\Rightarrow</math> 2° Rohrendenabstand R Punkt 4 berücksichtigen.</p>	<p><b>Déviations angulaire <math>\alpha</math></b> jusqu'à <math>\varnothing</math> 60.3 mm <math>\Rightarrow</math> 5° dès <math>\varnothing</math> 76.1 mm <math>\Rightarrow</math> 4° dès <math>\varnothing</math> 219.1 mm <math>\Rightarrow</math> 2° Écart entre les extrémités R voir point 4</p>	<p><b>Angular deflection <math>\alpha</math></b> up to <math>\varnothing</math> 60.3 mm <math>\Rightarrow</math> 5° from <math>\varnothing</math> 76.1 mm <math>\Rightarrow</math> 4° from <math>\varnothing</math> 219.1 mm <math>\Rightarrow</math> 2° Distance between pipe ends R see point 4</p>
<p><b>7</b></p> 	<p><b>Aussendurchmesser-differenzen</b> bis <math>\varnothing</math> 100 mm <math>\Rightarrow</math> 2 mm ab <math>\varnothing</math> 100 mm <math>\Rightarrow</math> 2 % ab <math>\varnothing</math> 300 mm <math>\Rightarrow</math> 6 mm</p>	<p><b>Différence de diamètre extérieur du tube</b> jusqu'à <math>\varnothing</math> 100 mm <math>\Rightarrow</math> 2 mm dès <math>\varnothing</math> 100 mm <math>\Rightarrow</math> 2 % dès <math>\varnothing</math> 300 mm <math>\Rightarrow</math> 6 mm</p>	<p><b>Allowable outer diameter difference</b> up to <math>\varnothing</math> 100 mm <math>\Rightarrow</math> 2 mm from <math>\varnothing</math> 100 mm <math>\Rightarrow</math> 2 % from <math>\varnothing</math> 300 mm <math>\Rightarrow</math> 6 mm</p>
	<p>Die unter den Punkten 4 - 7 aufgeführten. Limiten <b>nicht</b> überschreiten und summieren. Sie beziehen sich auf <b>statische</b> Belastung und radial steife Rohre. Für dynamische Belastung wie Druckschläge, Schub usw. ist ein Sicherheitsfaktor mit einzubeziehen. (Werk anfragen)</p>	<p>Les limites indiquées aux points 4 - 7 ne doivent jamais être dépassées ni cumulées. Elles ont trait aux charges <b>statiques</b> et des tubes rigides. Pour les effets dynamiques tels que pics de pression, cisaillement, etc. il y a lieu de prévoir un facteur de sécurité. (Contacter l'entreprise)</p>	<p>Do not work above limits 4 - 7 or cumulative. Limits for <b>static</b> loads and radial rigid pipes only. For dynamic forces like pressure surges and thrust apply safety factor. (Contact factory)</p>
<b>C</b>	<b>VERSPANNEN</b>	<b>SERRER</b>	<b>BOLTING</b>
<p><b>8</b></p> 	<p>Kupplung ausrichten und <b>Schrauben</b> wechselweise mit Ratschenschlüssel oder Schrauber <b>leicht anziehen</b>.  Max. Drehzahl der Schrauben 120rpm</p>	<p>Ajuster le raccord et <b>serrer les vis</b> alternativement avec la clé à cliquet ou serrer <b>avec peu de force</b> avec la visseuse.  Max. vitesse des vis 120rpm</p>	<p>Adjust pipe joint then <b>tighten bolts lightly</b> and alternately with a ratched spanner or screwing machine.  Max. driving speed of the bolts 120rpm</p>
<p><b>9</b></p> 	<p>Die Kupplung auf dem Rohr nicht mehr drehen, wenn die Zähne bereits im Eingriff sind.</p>	<p>Ne pas tourner le raccord sur le tube si les dents sont en prise.</p>	<p>Do not rotate pipe joint on the pipe once teeth are engaged.</p>
<p><b>10</b></p> 	<p>Mit Drehmomentschlüssel Schrauben definitiv festziehen. Auf der Kupplung angegebenes Drehmoment und Angaben beachten.</p>	<p>Serrer les vis définitivement avec la clé dynamométrique. Noter le couple de serrage et les autres informations prescrits sur le raccord et la clé.</p>	<p>Tighten the locking bolts with a torque wrench to the final prescribed torque rate engraved on the pipe joint's outer surface. The torque wrench must be set to the value accordingly.</p>
	<p><b>Fehlvermeidung</b> Verschlusschrauben nie über das Drehmoment anziehen.  <b>Fehlerbehebung</b> Bei Undichtheiten Kupplung lösen. Rohroberfläche und Dichtlippen reinigen und neu verspannen.</p>	<p><b>Incidents à éviter</b> Ne jamais serrer les vis au delà du couple nominal préconisé.  <b>En cas de fuite</b> Desserrer le joint. Nettoyer la surface du tube et des lèvres d'étanchéité et remonter à nouveau.</p>	<p><b>Failure prevention</b> Straub couplings must be torqued to the specified value as printed on each coupling, Failure to do so can result in injury or death.  <b>Failure shooting</b> In case of leakage clean pipe and sealing lips surface before installing pipe joint again.</p>



Contact :

Energie Solaire SA  
ZI Ile Falcon  
Rue des Sablons 8  
Case postale 353  
CH-3960 Sierre

Tél.: +41 27 451 13 20

Fax: +41 27 451 13 29

[info@energie-solaire.com](mailto:info@energie-solaire.com)

[www.energie-solaire.com](http://www.energie-solaire.com)



