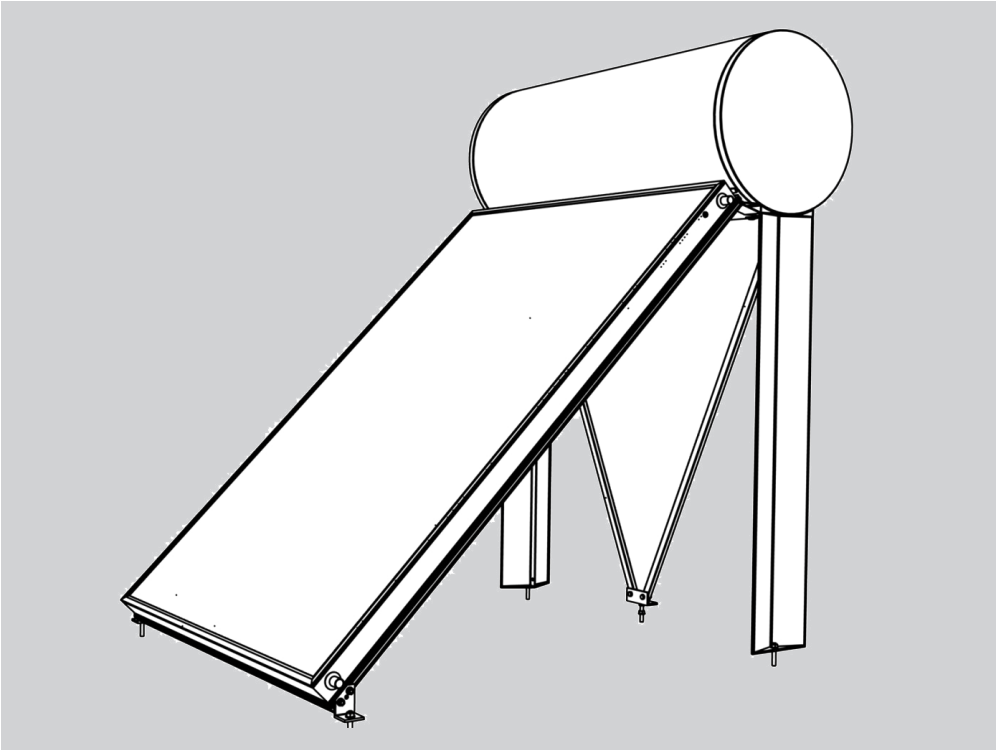
SOLAREVO NAT

SOLAREVO NAT 160L/2,1 - TP 45° - SOLAREVO NAT 160L/2,1 - TI
SOLAREVO NAT 200L/2,1 - TP 45° - SOLAREVO NAT 200L/2,1 - TI
SOLAREVO NAT 300L/5,2 - TP 45° - SOLAREVO NAT 300L/5,2 - TI
SOLAREVO NAT 300L/5,2 - TP 30°



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AVVERTENZE

	In caso di montaggio sul tetto costruire necessariamente prima dell'inizio dei lavori dispositivi anticaduta oppure di salvataggio a norma generici. Rispettare assolutamente le norme specifiche del relativo paese!		Non utilizzare scale danneggiate, ad es. scale in legno con corrimano e pioli spezzati, oppure scale di metallo piegate e deformate. Non rappezzare corrimano, staggio e pioli spezzati di scale di legno!
	Qualora per motivi tecnici di lavoro non esistessero dispositivi anticaduta e di salvataggio generici, vanno adottate imbracature di sicurezza!		Posizionare le scale da appoggio in modo sicuro. Rispettare il giusto angolo di appoggio (68 ° - 75 °). Assicurare le scale da appoggio dal pericolo di scivolamento, di caduta e di affossamento, ad es. ingrandendone i piedi, adottando piedi idonei alla superficie d'appoggio, usando dispositivi di aggancio.
	Adottare soltanto imbracature di sicurezza controllate e dotate di marchio rilasciato da enti ufficiali di controllo (cinture di sostegno e di salvataggio, funi/fasce di sicurezza, cinture smorzacaduta, accorciafuni).		Appoggiare le scale solo a punti di sostegno sicuri. In zone di traffico assicurare le scale mediante sbarramenti
	Qualora non esistano dispositivi anticaduta e di salvataggio, la mancata adozione di imbracature di sicurezza può essere causa di caduta da grandi altezze con conseguenti lesioni gravi o mortali!		Il contatto con linee elettriche scoperte in tensione, può avere conseguenze mortali.
	In caso di impiego di scale da appoggio possono verificarsi cadute pericolose qualora la scala si affossi, scivoli, o cada.		Durante i lavori di perforazione e maneggiando i collettori a tubo sottovuoto indossare gli occhiali protettivi (pericolo di esplosione)!
	È consentito lavorare nei pressi di linee elettriche scoperte solo se: - manca la tensione e questa condizione è garantita per tutta la durata dei lavori - le parti di conduzione della tensione sono protette mediante copertura oppure sbarramento - vengono rispettate le distanze di sicurezza: 1 m..... con tensione di 1000 Volt 3 m.....con tensione da 1000 a 11000 Volt 4 m..... con tensione da 11000 a 22000 Volt 5 m..... con tensione da 22000 a 38000 Volt > 5 m con tensione sconosciuta		Durante il montaggio indossare le scarpe di sicurezza!
			Durante il montaggio dei collettori e maneggiando i collettori a tubo sottovuoto indossare i guanti di sicurezza antitaglio (pericolo di esplosione)!
			Durante il montaggio indossare il casco di sicurezza!
	Usare esclusivamente il fluido termovettore prescritto!		Durante il montaggio, coprire il collettore (p. e. con un telone di copertura) e il materiale di montaggio, per proteggerli dalle alte temperature dovute alla radiazione solare.
	Se il collettore ed il materiale di montaggio sono rimasti esposti per lungo tempo all'irraggiamento solare, toccando queste parti sussiste il pericolo di scottature.		Se si effettua la PROVA di TENUTA del circuito solare con acqua pura non addizionata di antigelo (SCONSIGLIATO) avere cura di vuotare COMPLETAMENTE il circuito alla fine della prova, e di riempirlo immediatamente con soluzione addizionata di ANTIGELO o con fluido solare premiscelato idoneo (es. FERSOL LT o ULTRA LT). Si ricorda che ai fini del calcolo del livello di protezione al gelo per un impianto solare la regola è di considerare la TEMPERATURA MINIMA di progetto della località per gli impianti di riscaldamento (es. Legge 10/91) SOTTRAENDO ULTERIORI 7° C circa per effetto dei fenomi "windchill" (asportazione rapida di calore a causa degli effetti del vento) e "clearsky" (irraggiamento notturno verso il cielo terso) sul collettore posto sul tetto. Il costruttore non risponde di eventuali danni causati dal gelo qualora non si sia tenuto conto delle avvertenze TASSATIVE di cui sopra.
	Un'eventuale perdita del sistema di tenuta con OR, per montaggio errato, utilizzo di componenti non conformi o manomissione può causare l'irreparabile versamento di liquido dell'impianto all'interno del pannello. Questo può compromettere in modo irreversibile la funzionalità del pannello.		È assolutamente PROIBITO l'utilizzo di dispositivi di riempimento automatico del circuito solare direttamente collegati alla fornitura di acqua dall'acquedotto, in quanto questi non permettono il reintegro di eventuali microperdite (anche prolungate) con la corretta miscela addizionata di antigelo, diluendo il livello di protezione e mettendo a rischio l'integrità del collettore sia sugli attacchi (bocchettoni plastici) che nei casi più gravi sulle tubature interne. Eventuali dispositivi di reintegro del fluido solare specifico potranno essere previsti solo in presenza di acqua di rete di buona qualità (no presenza di fanghi, acque dure o salmastre) a seguito di una analisi chimico-fisica, e comunque prevedendo una specifica pompa dosatrice dell'antigelo in modo da immettere una miscela idonea, di qualità pari alla miscela solare del riempimento originale. Il costruttore non risponde di eventuali danni causati dal gelo qualora non si sia tenuto conto delle avvertenze TASSATIVE di cui sopra.
	Agganciare l'imbracatura di sicurezza possibilmente al di sopra dell'utente. Fissare l'imbracatura di sicurezza soltanto ad elementi o a punti di aggancio saldi!		

SOMMARIO

1. AVVERTENZE PER IL MONTAGGIO

Avvertenze per il montaggio e il trasporto

L'installazione deve essere effettuata soltanto da personale specializzato e di sicura qualificazione, ottemperando a tutte le istruzioni riportate nel presente manuale tecnico, alle disposizioni di legge vigenti, alle prescrizioni delle norme nazionali e locali e secondo le regole della buona tecnica. Il montaggio di uno o più collettori, costituisce un intervento tale da modificare la struttura preesistente del tetto. Le coperture dei tetti, come ad esempio tegole, scandole e ardesia, soprattutto in attici rifiniti e abitati o in caso in cui la pendenza minima del tetto sia inferiore ai valori ammessi (per le coperture), richiedono misure costruttive aggiuntive, come ad es. membrane impermeabilizzanti atte a impedire le infiltrazioni d'acqua dovute alla pressione del vento e della neve. Queste sottostrutture, con tutti i loro raccordi alla parte in muratura devono essere realizzate sul posto in base alla situazione locale contingente. La variante di fissagio mediante blocchi di zavorra in cemento e corde permette di installare i collettori senza perforare la copertura. I collettori vengono assemblati su blocchi di cemento. Per aumentare l'aderenza fra il tetto e i blocchi di cemento ed evitare danni alla copertura, si raccomanda l'impiego di tappettini di gomma. Il carico consentito per il tetto e i punti di attacco devono essere controllati sul posto da un esperto di statica. Per il trasporto del collettore si consiglia un'apposita cinghia. Il collettore non deve essere sollevato utilizzando gli attacchi. Evitate che il collettore subisca colpi oppure azioni meccaniche, proteggete soprattutto il vetro solare e gli attacchi per tubi.

Statica

Il montaggio deve avvenire soltanto su tetti o telai idonei sufficientemente resistenti. La capacità statica del tetto o del telaio deve essere assolutamente verificata sul posto prima del montaggio dei collettori. In particolare valutare l'idoneità del legno dell'intelaiatura riguardo alla tenuta dei collegamenti a vite predisposti per il fissaggio dei collettori. La verifica realizzata dal costruttore dell'intera intelaiatura in base alle norme vigenti del rispettivo paese, si richiede soprattutto in zone soggette a forti precipitazioni nevose o in regioni esposte a forti venti. In questi casi occorre tener conto di tutte le caratteristiche del luogo di montaggio (föhn, effetto gelo, formazione di vortici, ecc.), che possono comportare maggiori sollecitazioni. Icollettori devono essere assemblati in modo tale da impedere gli accumuli di neve mediante strutture di protezione. La distanza dai colmi/bordi del tetto deve essere almeno di 1 m.

Protezione antifulmine / Compensazione del potenziale dell'edificio
Di norma, non è necessario collegare i collettori alla protezione antifulmine dell'edificio (osservare le norme vigenti dei rispettivi paesi!). Nei montaggi su sottostrutture di metallo si raccomanda di consultare esperti autorizzati in materia di protezione antifulmine. Le condotte metalliche del circuito solare devono essere collegate mediante un conduttore (verde/giallo) di almeno 16 mm2 CU (H07 V-U o R) con la barra principale di equilibratura del potenziale. La messa a terra può essere eseguita con un filo di massa interrato. Il conduttore di terra deve essere posato all'esterno dell'edificio. Il dispersore deve essere inoltre collegato con la barra principale di compensazione del potenziale mediante una conduttura dello stesso diametro.

Controllare
- la completezza e l'integrità della fornitura.
- la disposizione ottimale dei collettori solari. Tenete conto dell'irradiazione solare (angolo d'inclinazione, orientamento verso sud). Evitate l'ombra di alberi alti o simili ed adattate il campo di collettori all'architettura dell'edificio (per es.: allineamento con finestre, porte, ecc.).

Collegamenti
I materiali utilizzati devono essere resistenti alle temperature (fino a 220 °C), al fluido termovettore e agli influssi atmosferici.

Fluido termico
Il fluido Nox è un fluido termico a base di glicole propilenico, non tossico per la pelle. Deve essere utilizzato diluito in acqua per garantire proprietà antigelo e anticorrosive. La percentuale consigliabile è il 33% del volume d'acqua. In caso di temperature ambientali molto basse, aumentare la percentuale di volume secondo la seguente tabella:

Temperatura (°C)	-10	-15	-20	-25	-30	-35
Percentuale nella soluzione acquosa (%)	23	31	37	43	48	53

2. ISTRUZIONI PER LA MESSA IN FUNZIONE

Risciacquo e riempimento
Per ragioni di sicurezza eseguire l'operazione di riempimento esclusivamente quando non splende il sole o dopo aver coperto i collettori.

Attenzione
Utilizzare solamente il liquido antigelo previsto (vedi listino).

È possibile che i collettori già riempiti non possano più essere svuotati completamente. Per questo, in caso di rischio di gelo i collettori devono essere riempiti con una soluzione di acqua e antigelo anche per prove di funzionamento e di pressione. In alternativa, la prova di pressione può essere eseguita con aria compressa e spray rivelatore di perdite.

Pressione d'esercizio
La pressione massima d'esercizio è di 10 bar.

Sfiato dell'aria

Lo sfiato dell'aria deve essere eseguito:

- al momento della messa in funzione (dopo il riempimento)
- 4 settimane dopo la messa in funzione
- all'occorrenza, ad es. in caso di guasti
-

AVVERTENZA: PERICOLO DI USTIONI PER CONTATTO CON VAPORE O IL LIQUIDO TERMOVETTORE!

AZIONARE LA VALVOLA SFIATO SOLTANTO SE LA TEMPERATURA DEL LIQUIDO TERMOVETTORE È DI < 60°C. QUANDO SI SVUOTA L'IMPIANTO I COLLETTORI DEVONO ESSERE FREDDI! COPRIRE I COLLETTORI E SVUOTARE L'IMPIANTO POSSIBILMENTE AL MATTINO.

Controllo del liquido termovettore

Controllare periodicamente (ogni 2 anni) le proprietà antigelo e il valore del pH del liquido termovettore.

Controllare l'antigelo con un indicatore di controllo e sostituirlo o reintegrarlo se necessario!

Controllare il valore di pH con uno strumento di misurazione (valore nominale del pH ca. 7,5): se scende sotto il valore limite di pH 7, sostituire il liquido termovettore.

Manutenzione del collettore

Controllare visivamente una volta all'anno i collettori in modo da accertare l'eventuale presenza di danni o sporcizia e verificarne la tenuta.

Si consiglia di effettuare anche un controllo ogni qualvolta i collettori subiscono sollecitazioni superiori all'ordinario (es. forti raffiche di vento, carichi gravosi dovuti a neve, ecc.).

3. POSIZIONAMENTO DEL SISTEMA

L'area di installazione dello scaldacqua solare deve soddisfare i seguenti requisiti:

- Lo scaldacqua solare deve essere rivolto verso SUD (o verso NORD nel caso in cui l'installazione avvenga nell'emisfero meridionale) e si raccomanda vivamente di utilizzare una bussola per garantire questa condizione. Differenze fino a 10-15° non influiscono in modo sostanziale sull'efficienza del sistema, ma differenze maggiori possono compromettere seriamente le prestazioni.
- Nei paesi situati a 40° di latitudine, i collettori devono essere installati con un angolo di 45° rispetto al piano orizzontale. I collettori devono essere generalmente posizionati con un angolo di 5° rispetto alla latitudine dell'area di installazione. Un angolo inferiore comporta una notevole riduzione del rendimento annuale dell'impianto solare termico.
- Gli impianti solari termici non devono in nessun caso essere collocati all'ombra, soprattutto in inverno, quando il sole è più basso. La distanza minima tra il sistema e qualsiasi elemento che generi ombra deve essere non inferiore al doppio dell'altezza dell'elemento.

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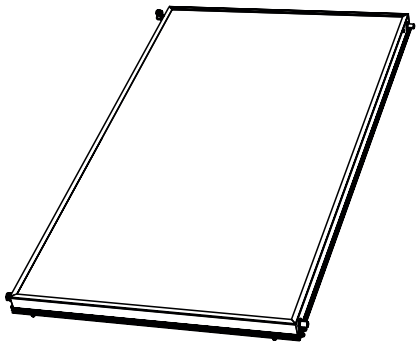
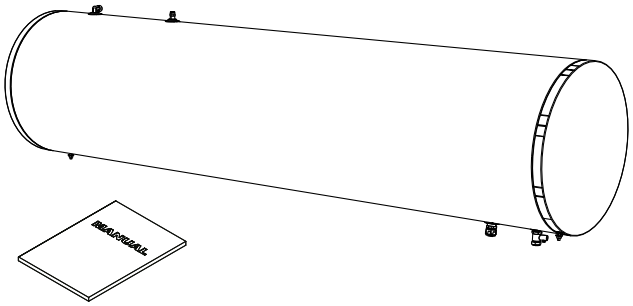
4. COMPOSIZIONE KIT PER TETTO PIANO

COMPOSIZIONE SISTEMA SOLAREVO NAT 160L/2,1 - TP (0XGN12XA) 45°

Cod. 0XGF1VWA SOLAREVO 2.1	Cod. 072181XA Bollitore 160 C
 1x	 1x 1x

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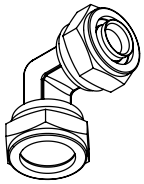
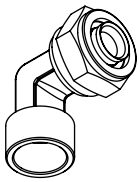
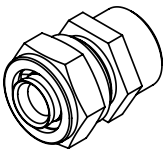
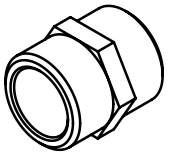
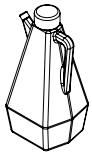
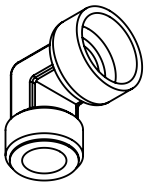
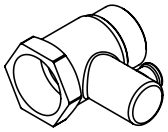
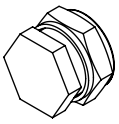
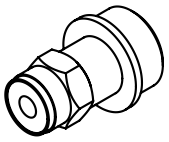
 Raccordo a gomito DN 16x22 2x	 Raccordo a gomito DN 16x3/4" 1x	 Nipplo DN 16x3/4" 1x	 Nipplo 1/2" 1x	 Fluido termico 2 LT 1x
 Raccordo a gomito M/F 1/2" 1x	 1/2" 10bar 1x	 Tappo Ø22 2x	 Valvola di sicurezza 1/2" 2,5 bar 1x	

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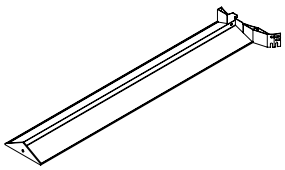
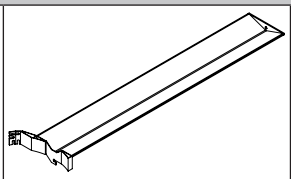
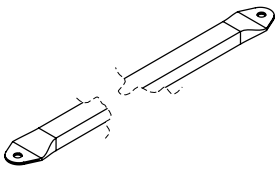
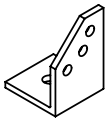
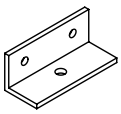
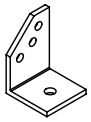
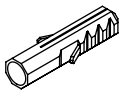
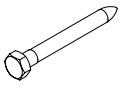
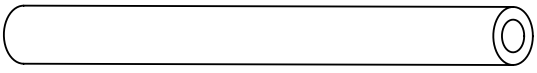
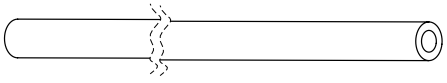
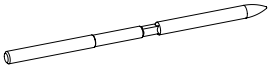
 Staffa di sostegno destra 1200 x 200 x 60 1x	 Staffa di sostegno sinistra 1200 x 200 x 60 1x	 Staffe di fissaggio 25x15x1237 2x	 Staffa di fissaggio sinistra a pavimento 1x	 Staffa ad angolo 40x40x90 1x	 Staffa di fissaggio destra a pavimento 1x
 Tassello 5x	 Bullone 4x	 Bullone esagonale M8x20 4x	 Dado esagonale di sicurezza M8 14x	 Rondella 4x	 Rondella 6x
 Isolante 9x22 900 1x	 Isolante 9x22 1800 1x	 Bullone M8x140 1x			
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COMPOSIZIONE SISTEMA SOLAREVO NAT 200L/2,1 - TP (0XGN13XA) 45°

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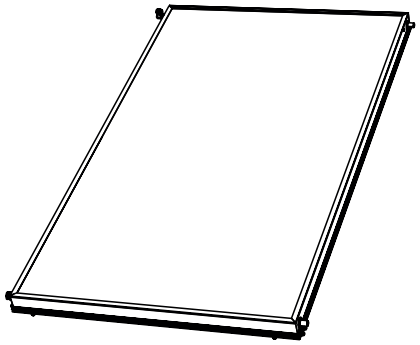
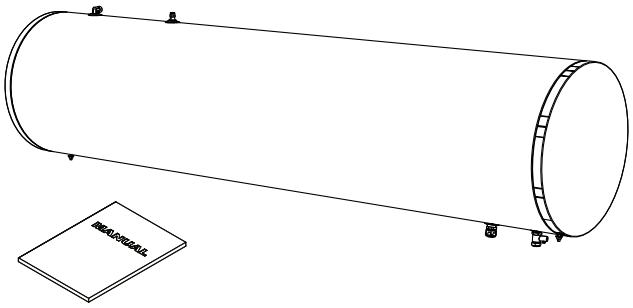
 1x	 1x 1x

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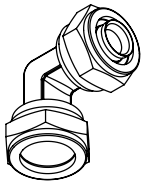
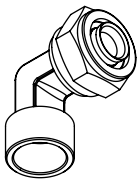
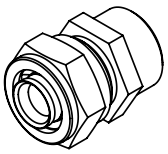
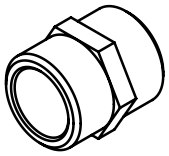
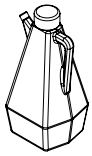
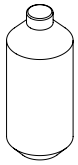
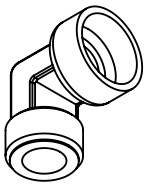
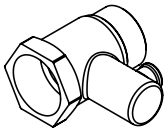
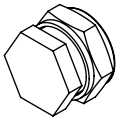
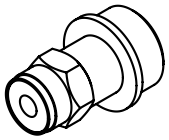
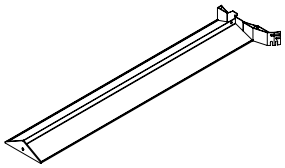
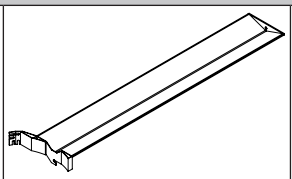
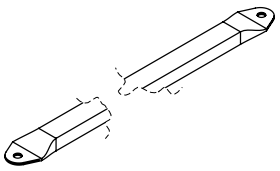
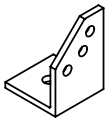
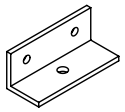
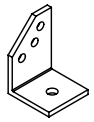
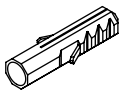
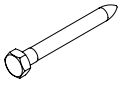
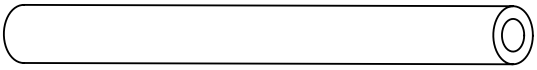
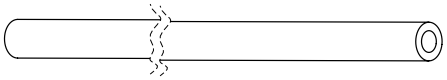
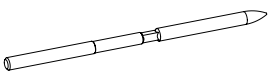
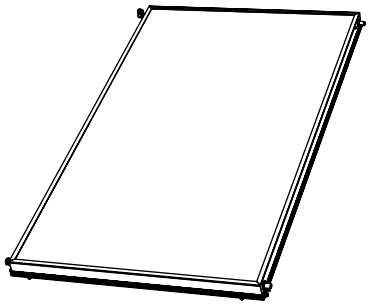
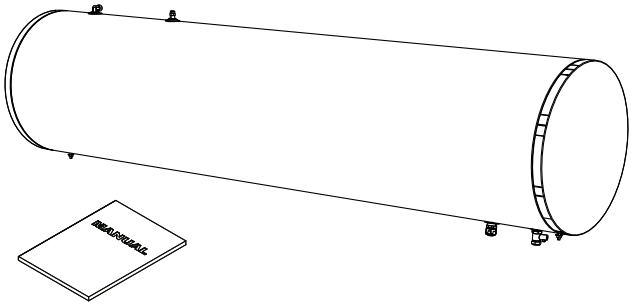
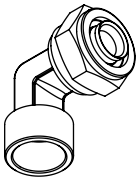
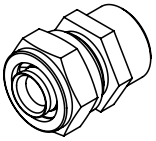
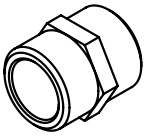
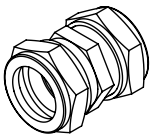
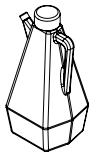
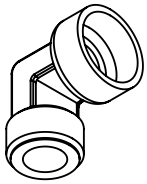
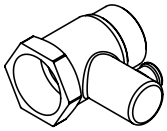
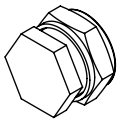
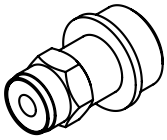
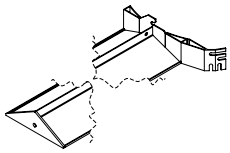
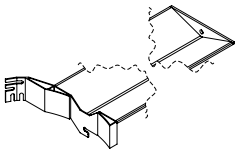
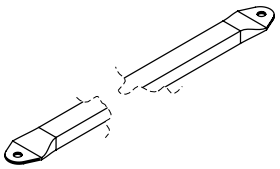
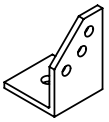
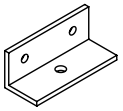
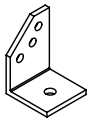
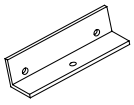
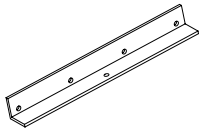
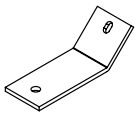
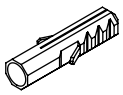
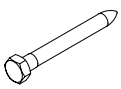
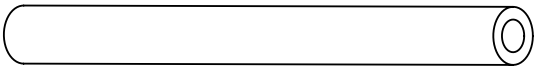
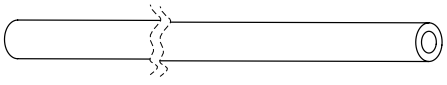
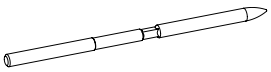
 Raccordo a gomito DN 16x22 2x	 Raccordo a gomito DN 16x3/4" 1x	 Nipplo DN 16x3/4" 1x	 Nipplo 1/2" 1x	 Fluido termico 2 LT 1x	 Fluido termico 1 LT 1x
 Raccordo a gomito M/F 1/2" 1x	 1/2" 10bar 1x	 Tappo Ø22 2x	 Valvola di sicurezza 1/2" 2,5 bar 1x		

Cod. 076159X0 Kit telaio 200L/2.1					
 Staffa di sostegno destra 1200 x 200 x 60 1x	 Staffa di sostegno sinistra 1200 x 200 x 60 1x	 Staffe di fissaggio 25x15x1237 2x	 Staffa di fissaggio sinistra a pavimento 1x	 Staffa ad angolo 40x40x90 1x	 Staffa di fissaggio destra a pavimento 1x
 Tassello 5x	 Bullone 4x	 Bullone esagonale M8x20 4x	 Dado esagonale di sicurezza M8 14x	 Rondella 4x	 Rondella 6x
 Isolante 9x22 1000 1x	 Isolante 9x22 1750 1x	 Bullone M8x140 1x			
 Tubo flessibile DIN 16 1000 1x	 Tubo flessibile DIN 16 1750 1x				

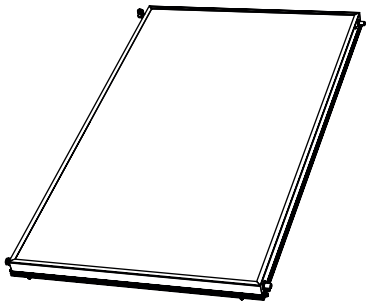
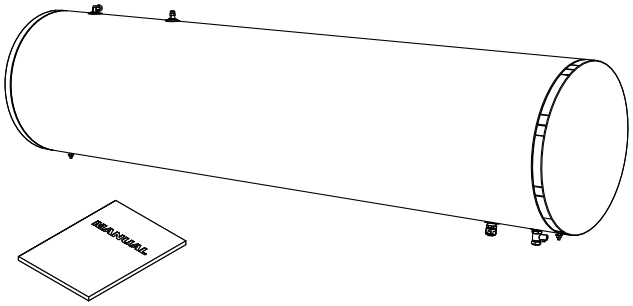
COMPOSIZIONE SISTEMA SOLAREVO NAT 300L/5,2 - TP (0XGN54XA) 45°

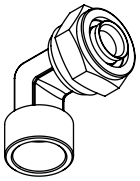
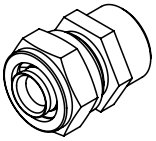
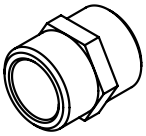
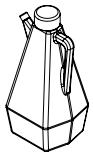
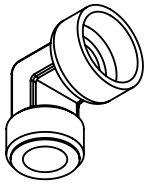
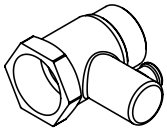
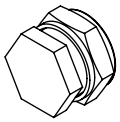
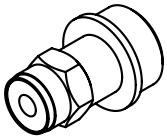
Cod. 0XGF2VWA SOLAREVO 2.6	Cod. 072183XA Bollitore 300 C
 2x	 1x 1x

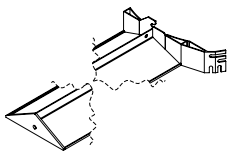
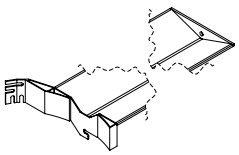
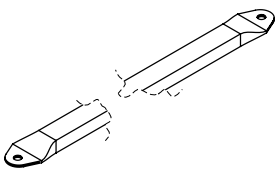
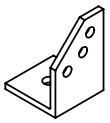
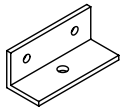
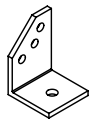
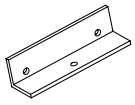
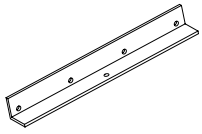
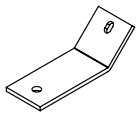
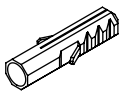
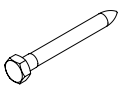
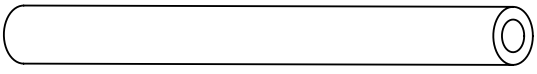
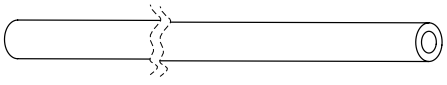
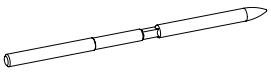
"Cod. 072296X0 Kit idraulico 300 L					
 Raccordo a gomito DN 16x22 2x	 Raccordo a gomito DN 16x3/4" 1x	 Nipplo DN 16x3/4" 1x	 Nipplo 1/2" 1x	 Connessione 22 x 22 2x	 Fluido termico 2 LT 2x
 Raccordo a gomito M/F 1/2" 1x	 1/2" 10bar 1x	 Tappo Ø22 2x	 Valvola di sicurezza 1/2" 2,5 bar 1x		

Cod. 076156X0 Kit telaio 300L/5.2					
 Staffa di sostegno destra 1490 x 200 x 60 1x	 Staffa di sostegno sinistra 1490 x 200 x 60 1x	 Staffe di fissaggio 25x15x1722 2x	 Staffa di fissaggio sinistra a pavimento 1x	 Staffa ad angolo 40x40x90 1x	 Staffa di fissaggio destra a pavimento 1x
 Staffa ad angolo 40x40x150 1x	 Staffa ad angolo 40x40x350 1x	 Staffa di fissaggio 40x4x150 1x			
 Tassello 6x	 Bullone 5x	 M8x20 4x	 Dado esagonale di sicurezza M8 22x	 Rondella 4x	 Rondella 6x
 Isolante 9x22 1000 1x	 Isolante 9x22 2350 1x	 Bullone M8x140 1x			
 Tubo flessibile DIN 16 1000 1x	 Tubo flessibile DIN 16 2350 1x				

COMPOSIZIONE SISTEMA SOLAREVO NAT 300L/5,2 - TP (0XGN58XA) 30°

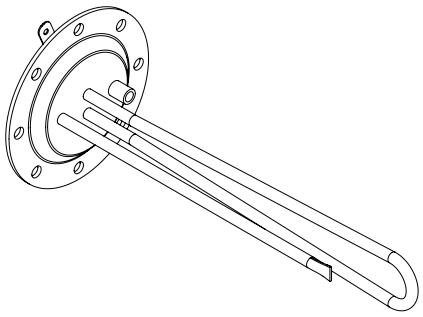
Cod. 0XGF2VWA SOLAREVO 2.6	Cod. 072183XA Bollitore 300 C
 2x	 1x 1x

"Cod. 072296X0 Kit idraulico 300 L					
 Raccordo a gomito DN 16x22 2x	 Raccordo a gomito DN 16x3/4" 1x	 Nipplo DN 16x3/4" 1x	 Nipplo 1/2" 1x	 Connessione 22 x 22 2x	 Fluido termico 2 LT 2x
 Raccordo a gomito M/F 1/2" 1x	 1/2" 10bar 1x	 Tappo Ø22 2x	 Valvola di sicurezza 1/2" 2,5 bar 1x		

Cod. 076191X0 Kit telaio 300L/5.2					
 Staffa di sostegno destra 1031 x 200 x 60 1x	 Staffa di sostegno sinistra 1031 x 200 x 60 1x	 Staffe di fissaggio 25 x 15 x 1360 2x	 Staffa di fissaggio sinistra a pavimento 1x	 Staffa ad angolo 40x40x90 1x	 Staffa di fissaggio destra a pavimento 1x
 Staffa ad angolo 40x40x150 1x	 Staffa ad angolo 40x40x350 1x	 Staffa di fissaggio 40x4x150 1x			
 Tassello 6x	 Bullone M8 x 60 5x	 M8x20 4x	 Dado esagonale di sicurezza M8 22x	 Rondella 4x	 Rondella 6x
 Isolante 9x22 1000 1x	 Isolante 9x22 2350 1x	 Bullone M8x140 1x			
 Tubo flessibile DIN 16 1000 1x	 Tubo flessibile DIN 16 2350 1x				

KIT OPZIONALI

Cod. 073109X0
Kit Resistenza 1,5 kW



1x

5. INSTALLAZIONE DEL SISTEMA SU TETTO PIANO - SINGOLO COLLETTORE

Fase 1

Installare i montanti di sostegno del bollitore alla distanza A secondo la Tabella A. Per facilitare l'installazione, forare il pavimento del tetto con un angolo di circa 10-15 gradi. Seguire le istruzioni per il posizionamento del sistema nel Capitolo 4.

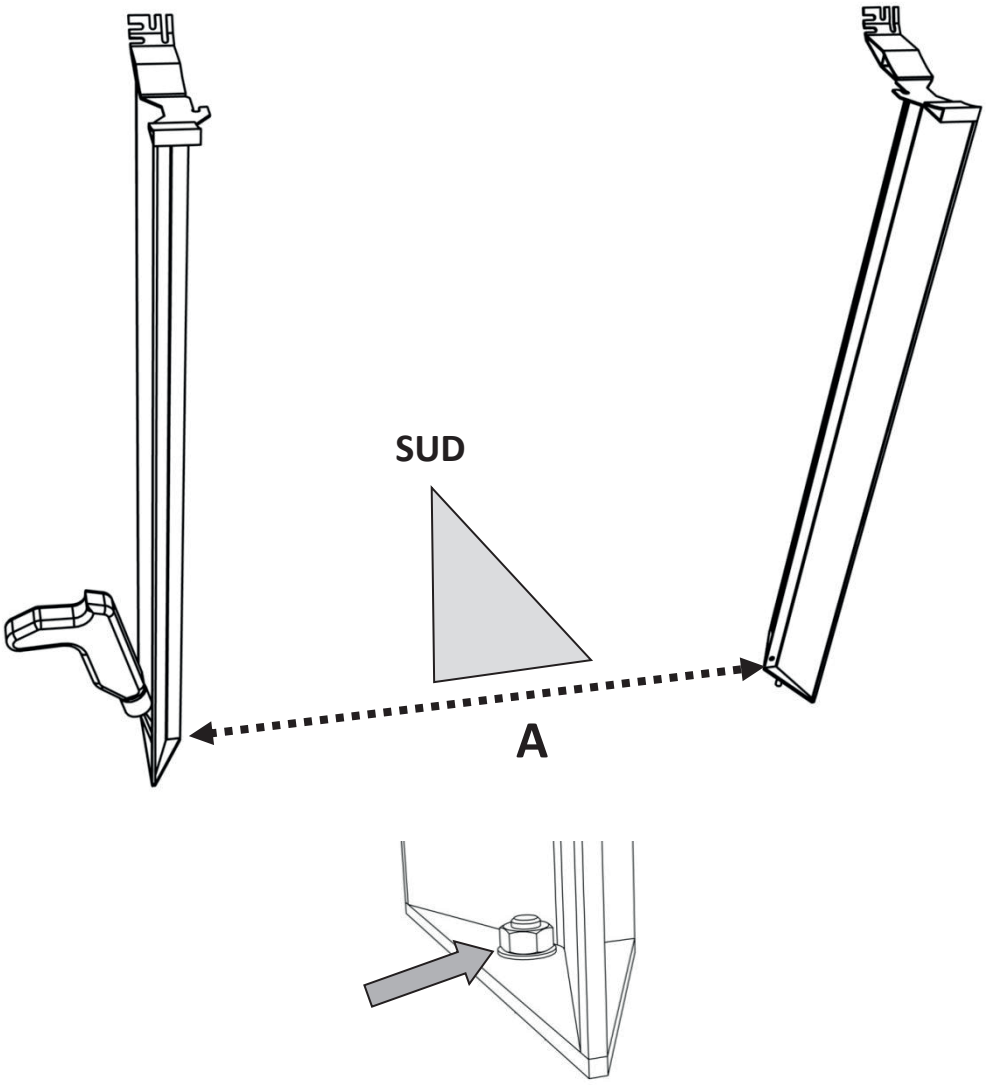


TABELLA A			
BOLLITORE	**160 L**	**200 L**	**300 L**
DISTANZA A [mm]	1192	1192	1944

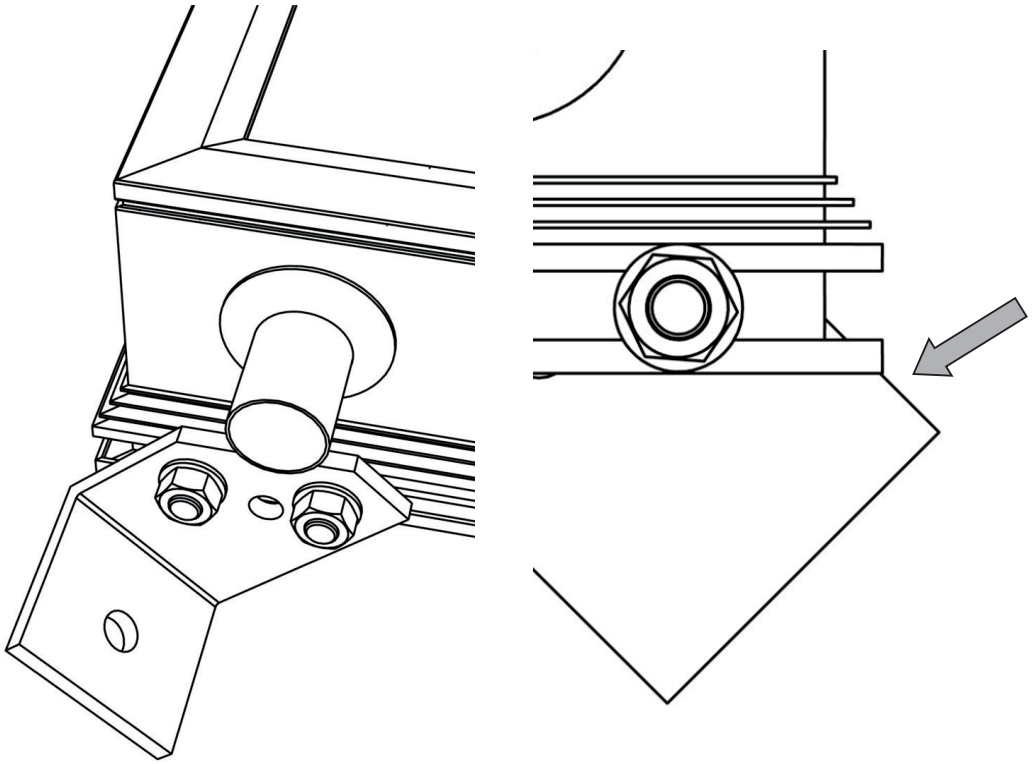
ATTENZIONE: il mancato fissaggio dei montanti al tetto può causare il cedimento della struttura di supporto in condizioni di carico estreme. L'ancoraggio del sistema al pavimento del tetto piano deve essere realizzato con dispositivi adeguati al materiale del pavimento.

Per evitare problemi di umidità o infiltrazioni d'acqua (pioggia/neve) nel tetto, le tubazioni che entrano nel tetto devono essere a tenuta stagna. Spetta all'ingegnere edile locale fornire indicazioni precise in base al tipo di costruzione del tetto e/o alle normative locali. Lo stesso vale per i punti di ancoraggio del sistema, indipendentemente dai dispositivi utilizzati per l'installazione.

Fase 2

Fissare i due piedini nella parte inferiore del collettore.

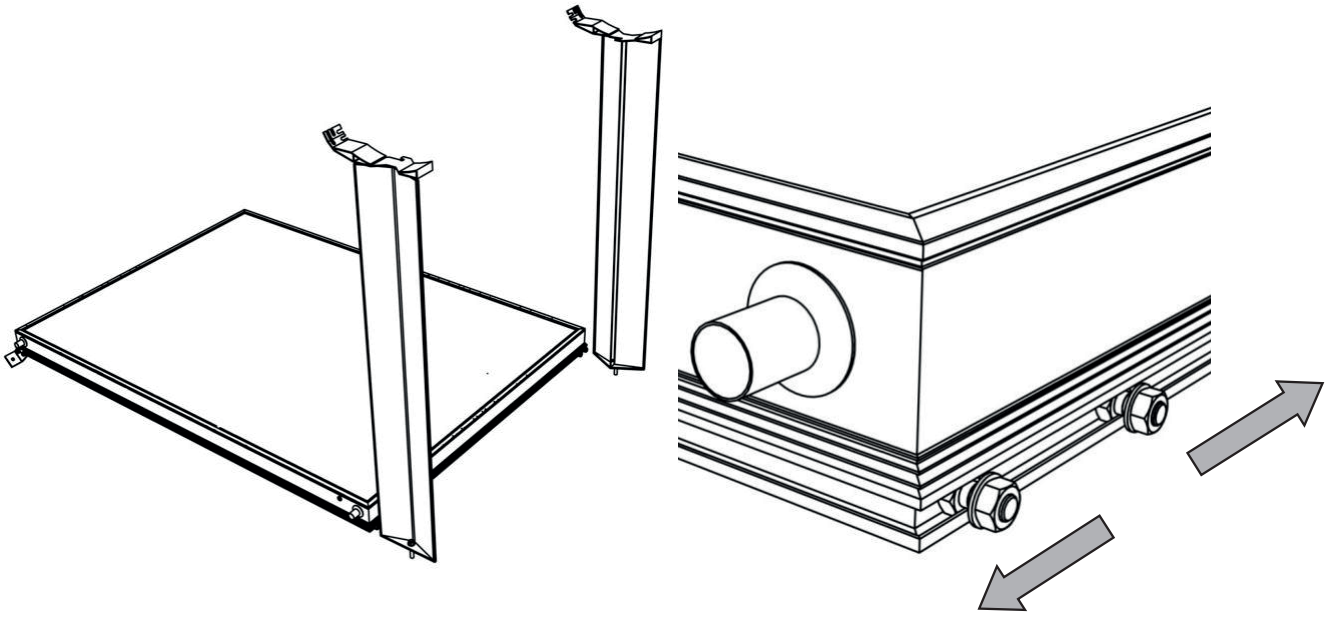
Consultare il disegno sotto riportato per il loro posizionamento rispetto al collettore, in quanto influisce sulla precisione dell'installazione.



IMPORTANTE: NON RIMUOVERE LA COPERTURA DEL COLLETTORE PRIMA DI AVER COLLEGATO IL SISTEMA!

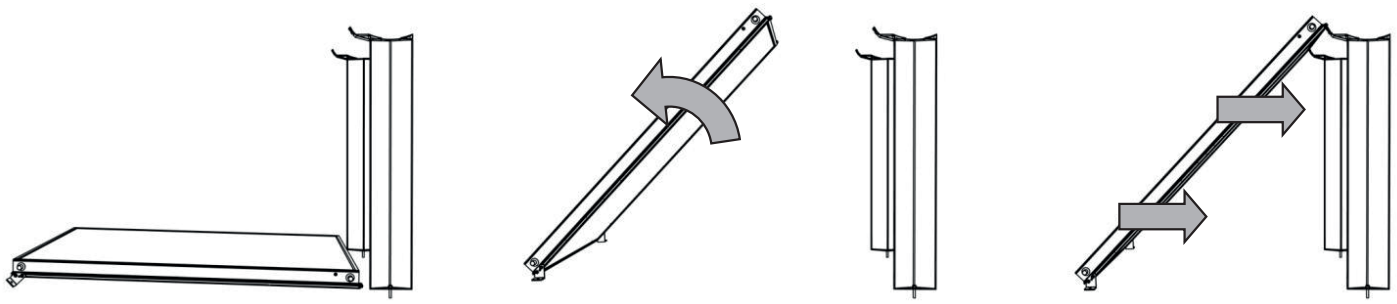
Fase 3

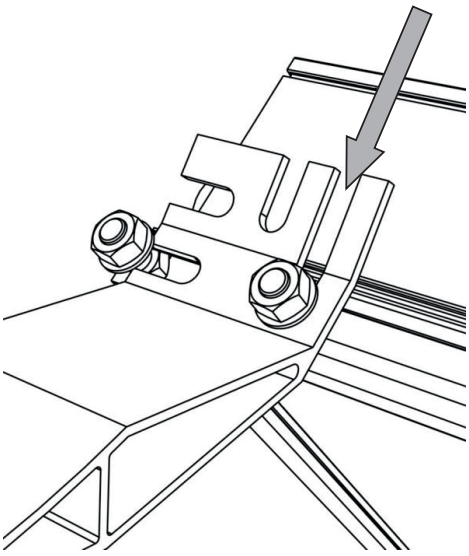
Posizionare il collettore sul pavimento del tetto davanti ai montanti. Per facilitare la fase successiva, far scorrere i bulloni di fissaggio del collettore in modo che siano approssimativamente in linea con le fessure sui montanti.



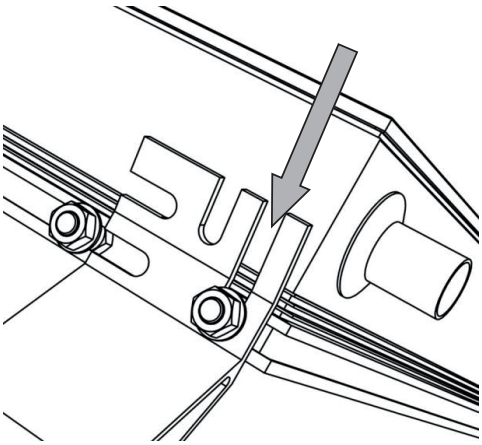
Fase 4

Sollevare il collettore dal lato vicino ai montanti con un angolo di circa 45 gradi. Spostare il collettore verso i montanti. Inserire i bulloni di fissaggio nelle fessure verticali dei montanti.





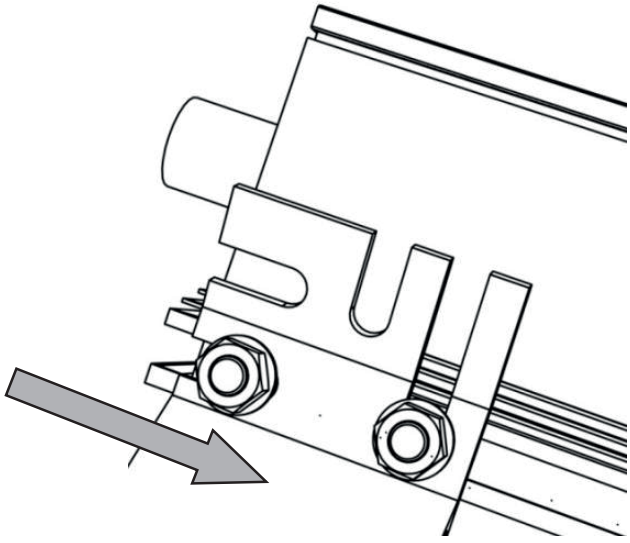
Lato superiore destro del collettore



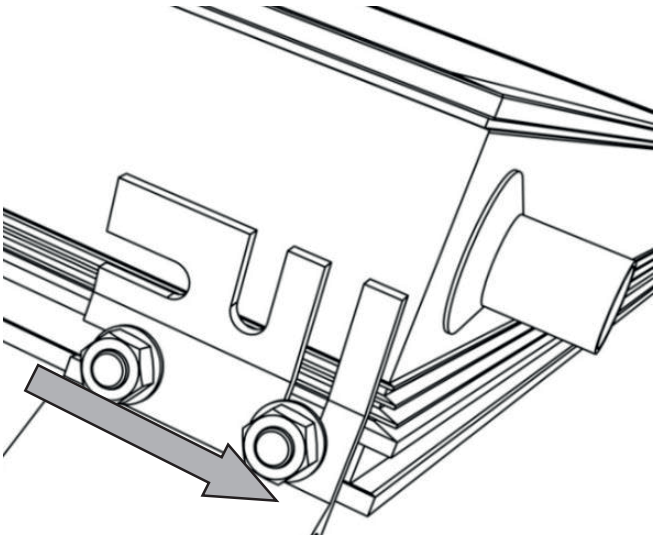
Lato superiore sinistro del collettore

Fase 5

Far scorrere i due bulloni di fissaggio rimanenti nelle fessure orizzontali dei montanti.



Lato superiore destro del collettore



Lato superiore sinistro del collettore

Fase 6

Assicurarsi che la distanza B tra i centri dei fori di supporto del bollitore sia conforme alla Tabella B. In caso di scostamento, è possibile apportare piccole modifiche assicurandosi che entrambi i montanti siano verticali e che il collettore sia centrato tra di essi.

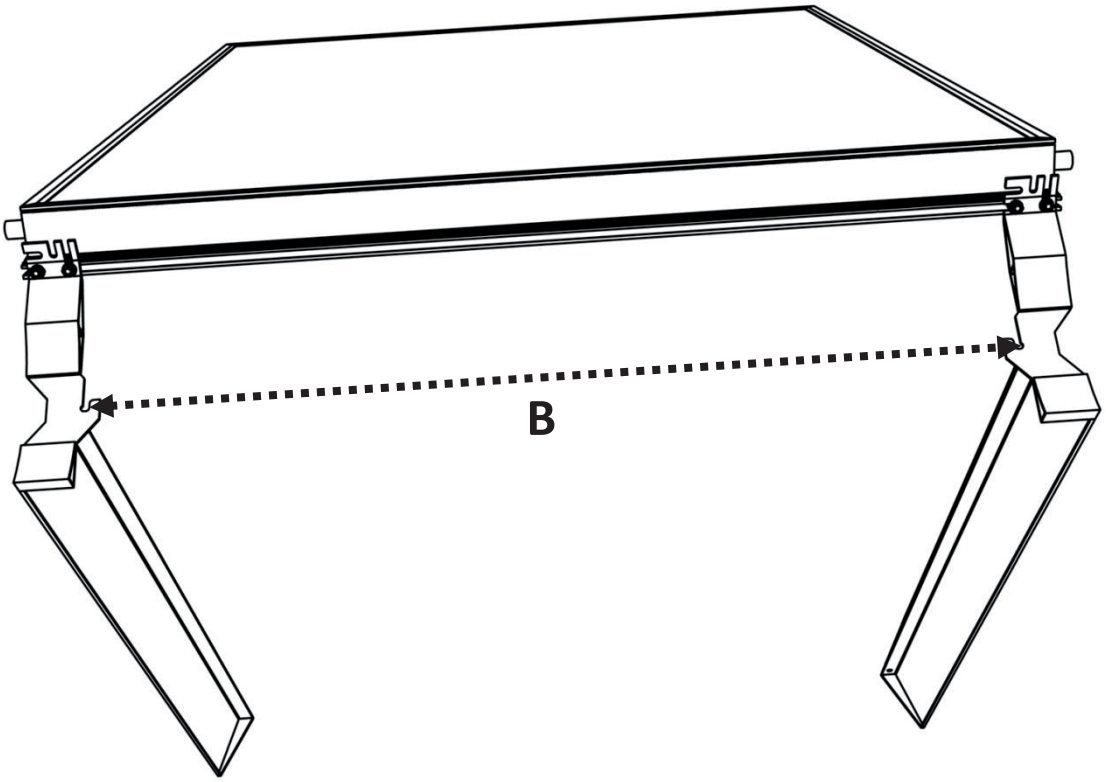


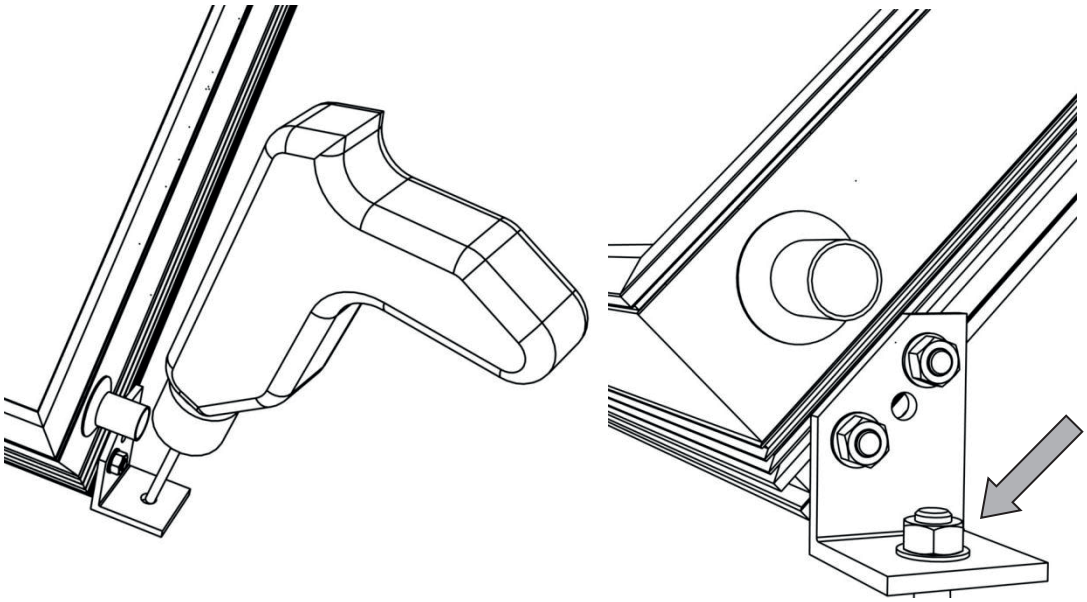
TABELLA B			
BOLLITORE	**125/160 L**	**200 L**	**300 L**
DISTANZA B [mm]	1090	1090	1842

Fase 7

Stringere i 4 bulloni di fissaggio del collettore.

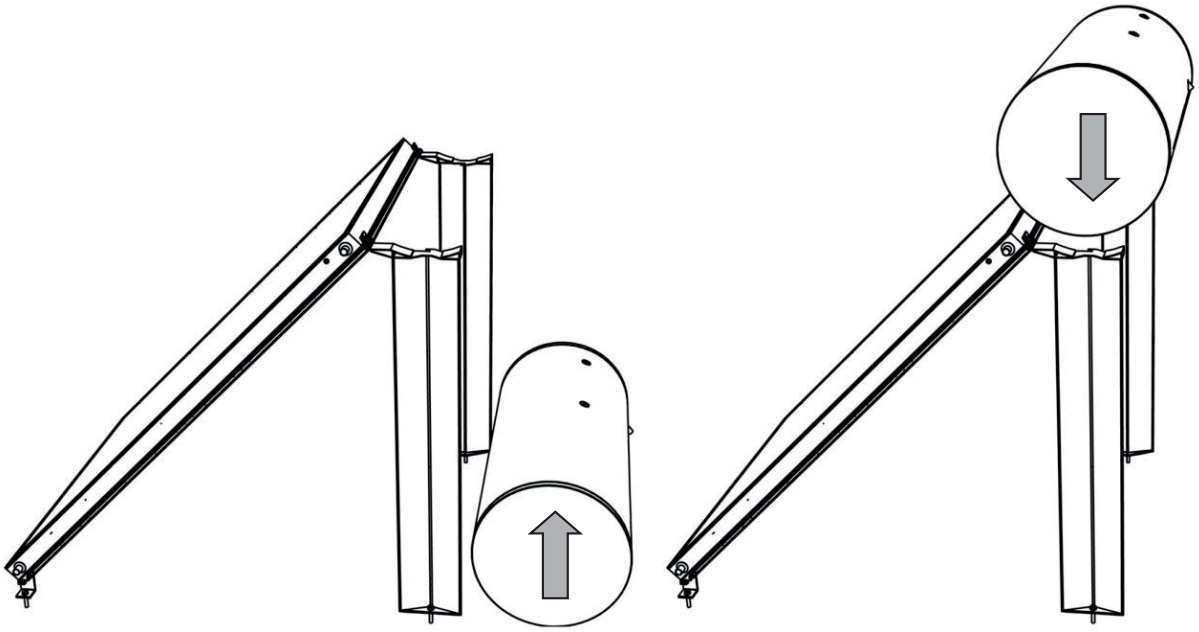
Fase 8

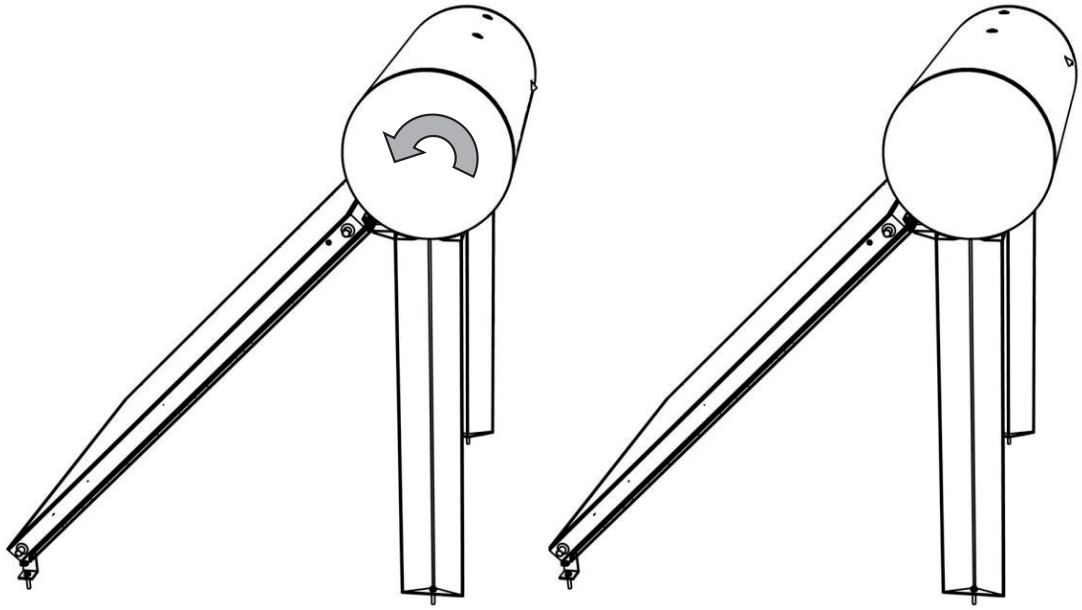
Utilizzando i fori dei piedini del collettore come guida, forare il pavimento del tetto e applicare i dispositivi di fissaggio appropriati per tenerli fermi. Utilizzare elementi di fissaggio di lunghezza e tipologia adeguate per garantire che i piedini del collettore siano fissati al rivestimento strutturale del tetto e non all'isolamento. Utilizzare un materiale sigillante appropriato per evitare la penetrazione di umidità nel materiale del tetto.

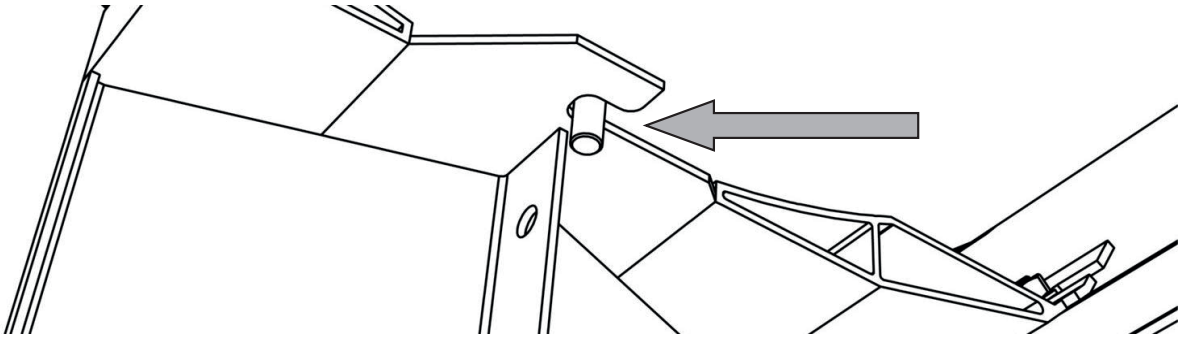


Fase 9

Posizionare il bollitore sul pavimento del tetto ruotandolo leggermente all'indietro. Assicurarsi che i bulloni di fissaggio del bollitore non tocchino il pavimento. Sollevare il bollitore e posizionarlo sulle sedi circolari sulla sommità dei montanti. Ruotare il bollitore in modo che i bulloni di fissaggio di quest'ultimo si inseriscano nelle fessure dei montanti.

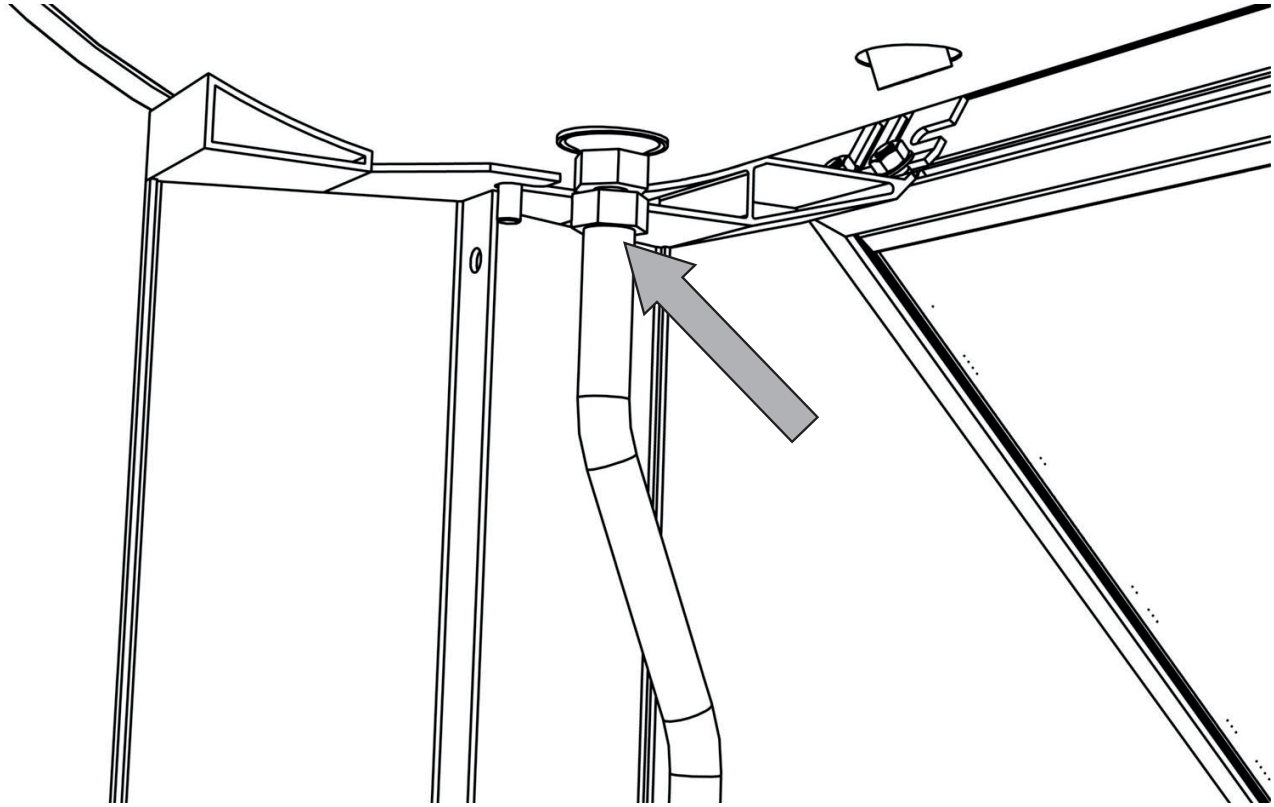






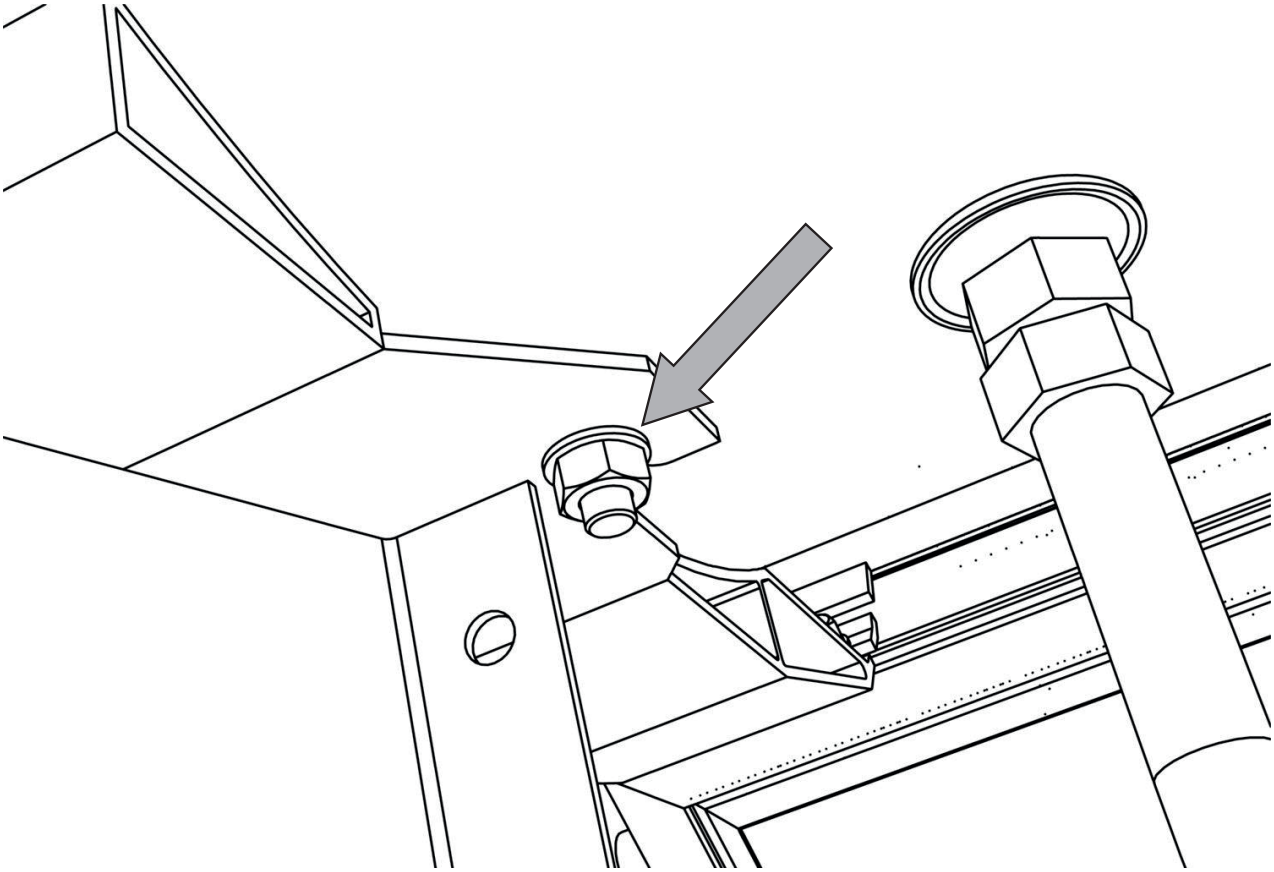
Fase 10

Per facilitare l'installazione, è possibile collegare il tubo di alimentazione dell'acqua fredda.



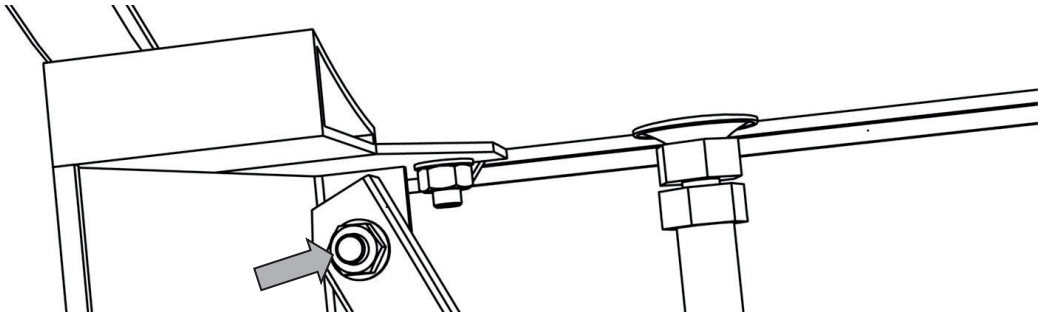
Fase 11

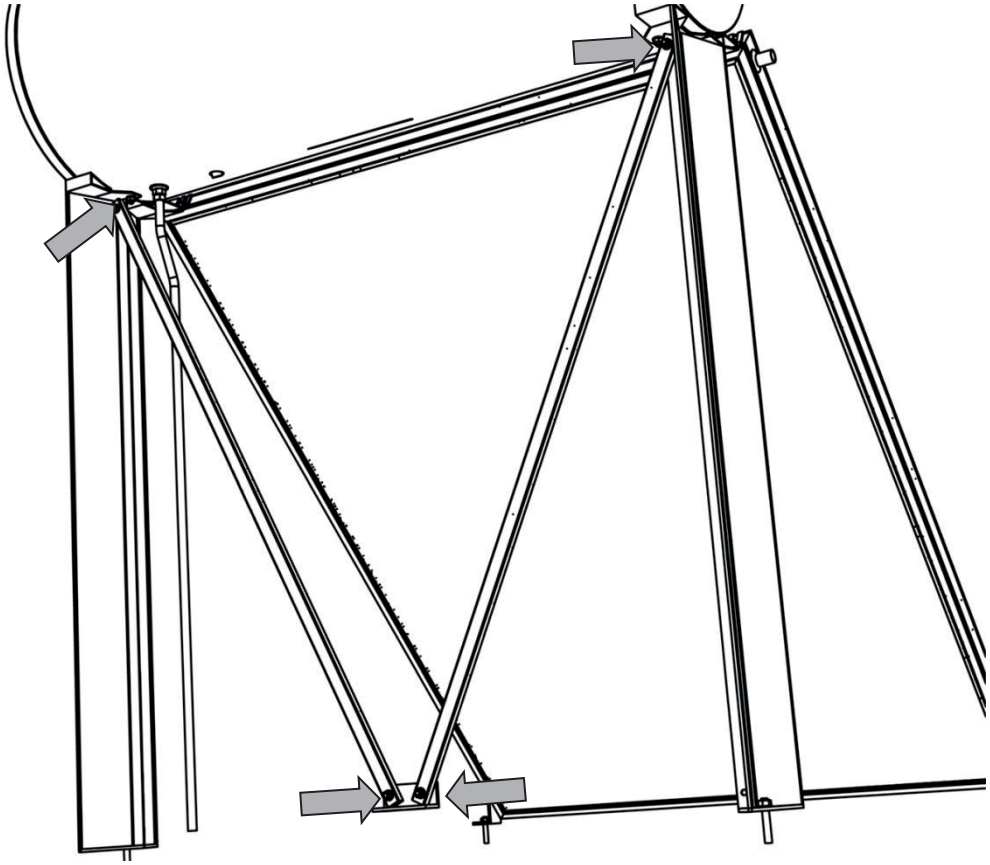
Installare le rondelle e i dadi sui bulloni di fissaggio del bollitore.



Fase 12

Collegare il sistema di tiranti ai montanti. Non serrare a fondo i bulloni, ma assicurarsi che non siano troppo allentati.

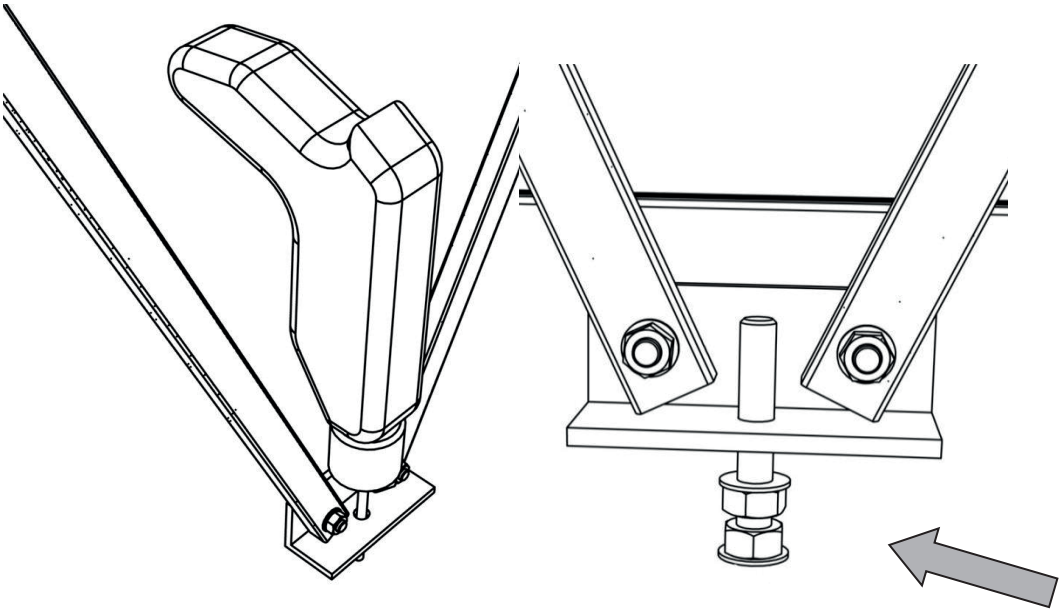




Fase 13

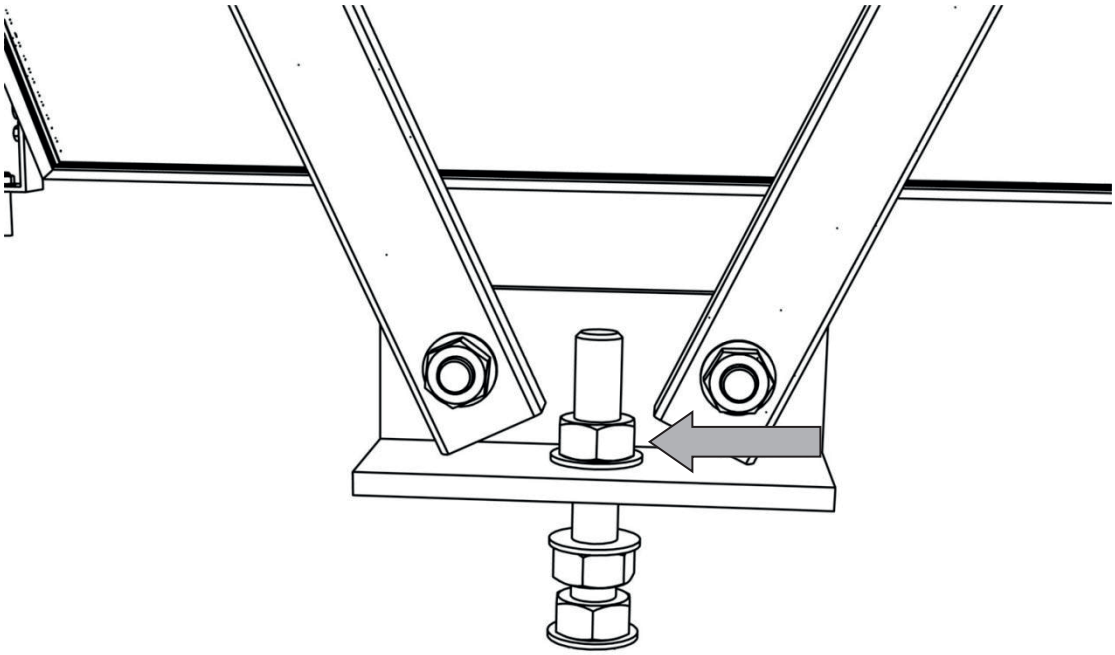
Utilizzando il foro della base del tirante come guida, forare il pavimento del tetto e installare il bullone di fissaggio della base del tirante stringendo il dado inferiore. Utilizzare elementi di fissaggio di lunghezza e tipologia adeguate per garantire che i piedini del collettore siano fissati al rivestimento strutturale del tetto e non all'isolamento.

L'elemento di fissaggio deve sporgere di 7 cm dal pavimento del tetto per consentire regolazioni.



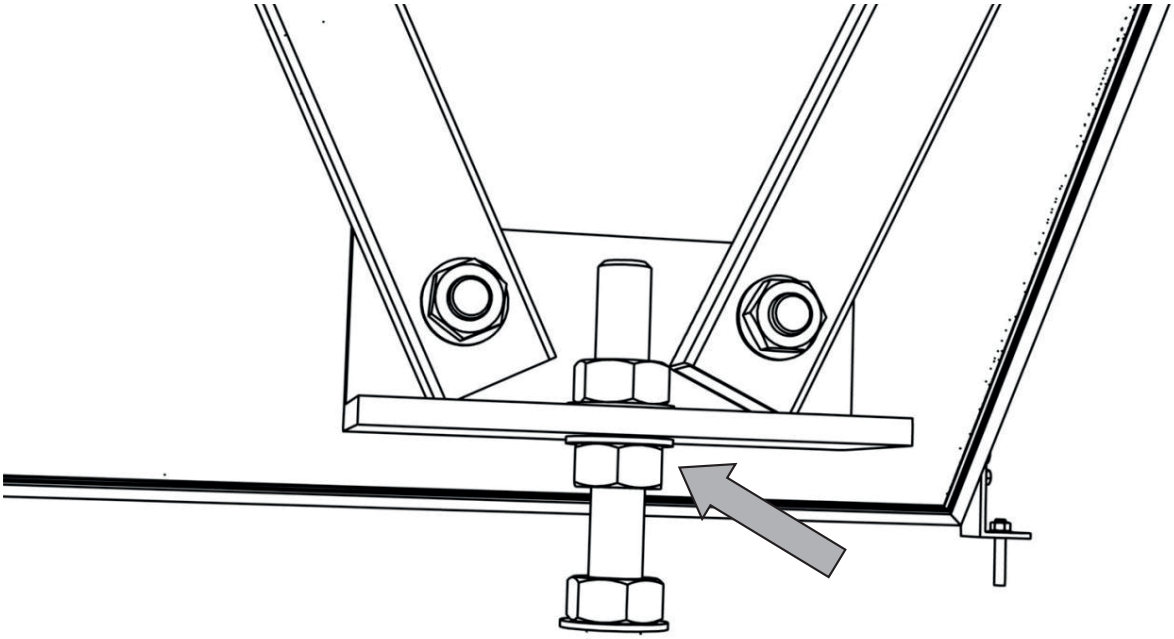
Fase 14

Installare la rondella superiore e il dado della base del tirante. Serrare fino a quando non è più allentata. Il dado centrale deve essere a contatto con la base del tirante.



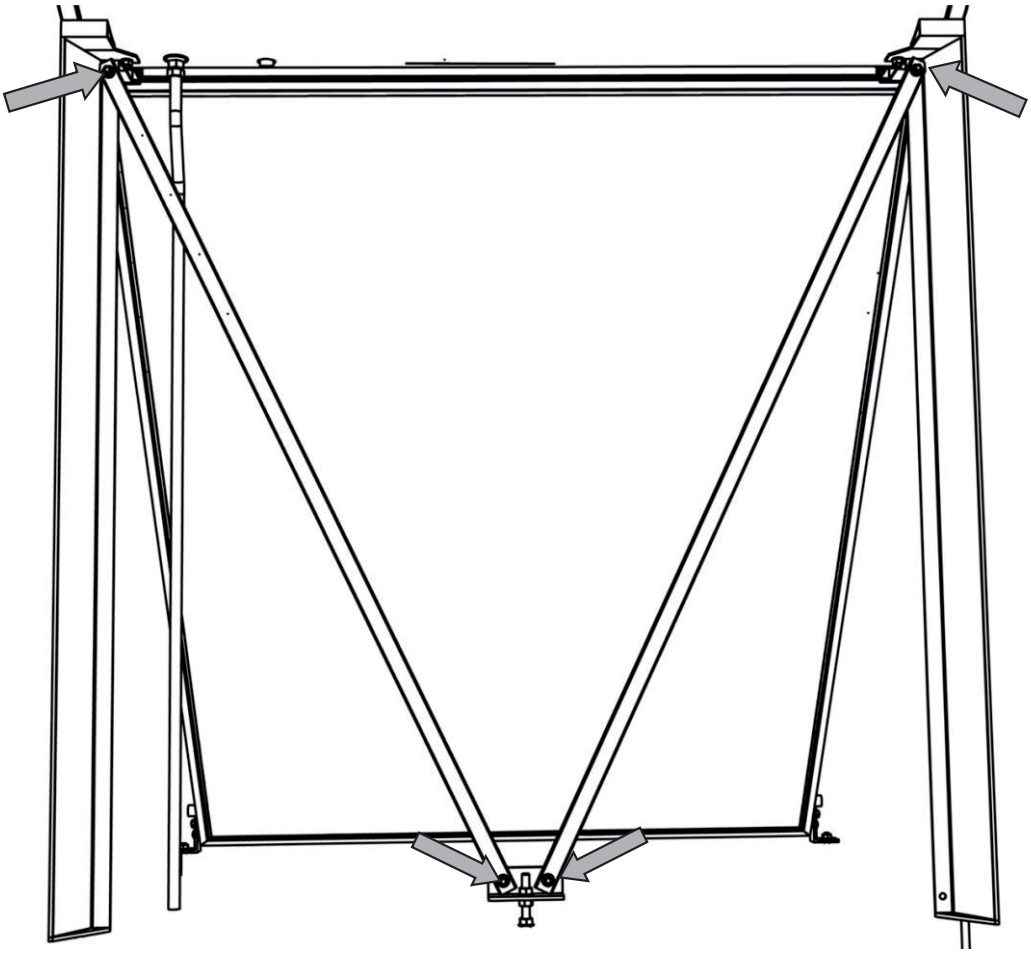
Fase 15

Serrare il bullone centrale contro la base del tirante.



Fase 16

Serrare i 4 bulloni dei tiranti di sostegno. Assicurarsi che tutti i bulloni siano ben serrati e che non si allentino sul sistema di base.



6. INSTALLAZIONE DEL SISTEMA SU TETTO PIANO - DOPPIO COLLETTORE

La procedura di installazione del modello 300/4.2 con due collettori è identica a quella del capitolo precedente, tranne che per la fase 2, che deve essere sostituita dalla seguente.

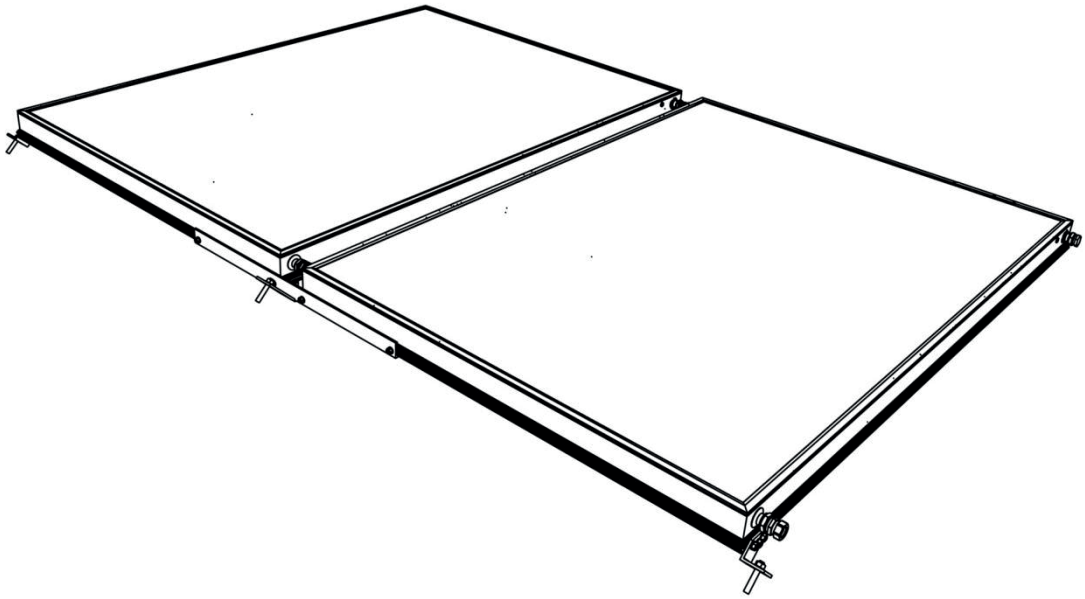


Figura 1: i due collettori pronti per l'installazione con i tiranti superiore e inferiore e i piedini installati.

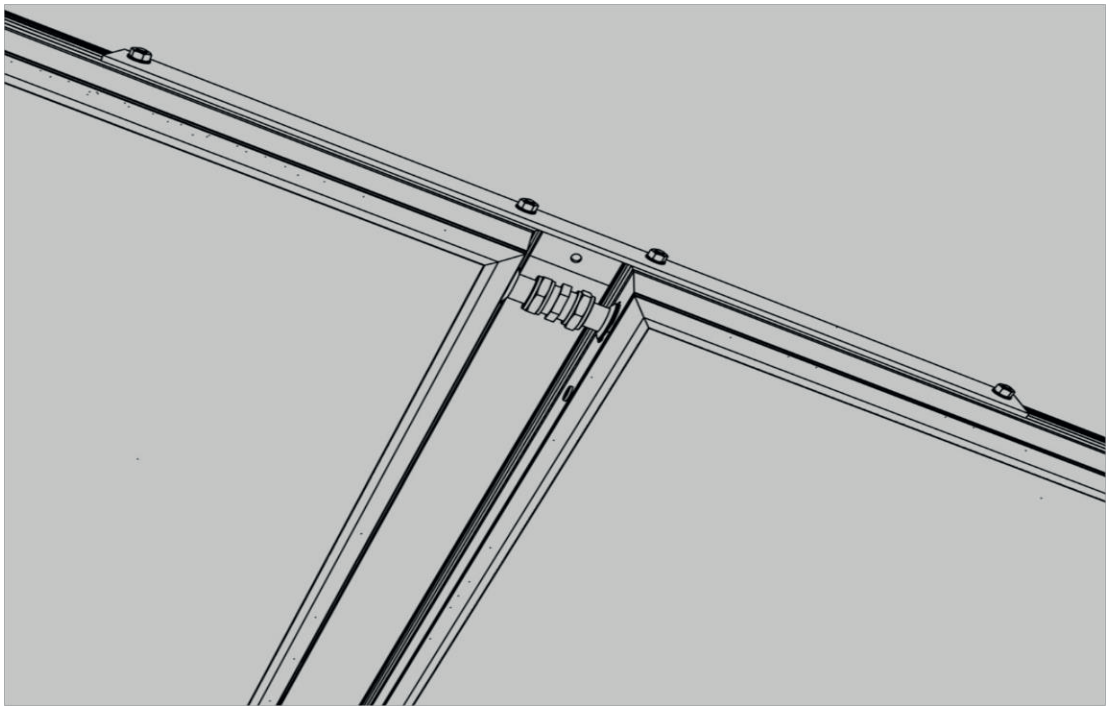


Figura 2: Tirante superiore e collegamento idraulico tra i collettori

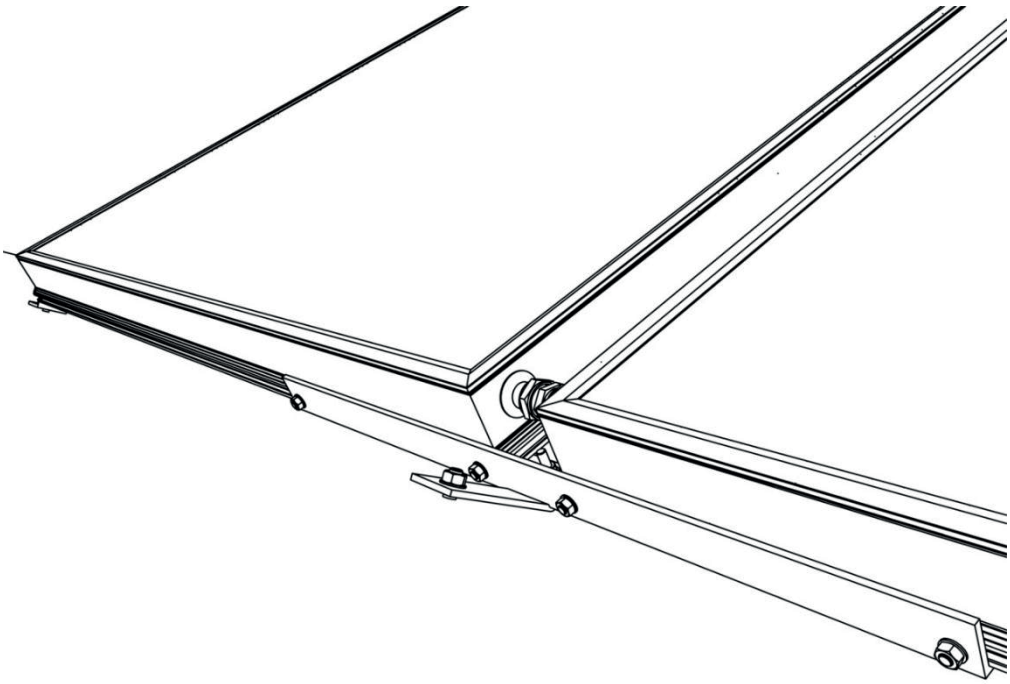


Figura 3. Tirante inferiore

Seguire le istruzioni della fase 1 del Capitolo IV per installare i montanti di supporto del bollitore con l'orientamento e la distanza corretti per il bollitore da 300L.

Posizionare i due collettori uno accanto all'altro sul pavimento del tetto.

IMPORTANTE: NON RIMUOVERE LA COPERTURA DEL COLLETTORE PRIMA DI AVER COLLEGATO IL SISTEMA!

Installare i tiranti superiori e inferiori tra i collettori. I bulloni devono essere sufficientemente stretti per evitare un gioco eccessivo, pur consentendo lo scorrimento dei collettori l'uno verso l'altro.

Collegare i tubi dell'assorbitore tra i collettori con gli appositi raccordi. Assicurarsi che i collettori siano paralleli e il più possibile vicini tra loro. Stringere i raccordi.

IMPORTANTE: NON SPOSTARE IL GRUPPO DEI DUE COLLETTORI PRIMA DI AVER SERRATO TUTTI I BULLONI DI FISSAGGIO. LA MANCATA OSSERVANZA DI QUESTA PRECAUZIONE PUÒ CAUSARE DANNI AGLI ASSORBITORI!

Centrare i tiranti superiori e inferiori e serrare i 4 bulloni di fissaggio.

Assicurarsi che il gruppo dei due collettori sia un corpo unico.

Installare i piedini del collettore come indicato nella fase 2 del Capitolo IV.

Seguire le istruzioni delle fasi 3-16 del Capitolo IV per completare l'installazione.

NOTE

1. L'ancoraggio del sistema al pavimento del tetto piano deve essere realizzato con dispositivi adeguati al materiale del pavimento.
2. Per evitare problemi di umidità o infiltrazioni d'acqua (pioggia/neve) nel tetto, le tubazioni che entrano nel tetto devono essere a tenuta stagna. Spetta all'ingegnere edile locale fornire indicazioni precise in base al tipo di costruzione del tetto e/o alle normative locali. Lo stesso vale per i punti di ancoraggio del sistema, indipendentemente dai dispositivi utilizzati per l'installazione.

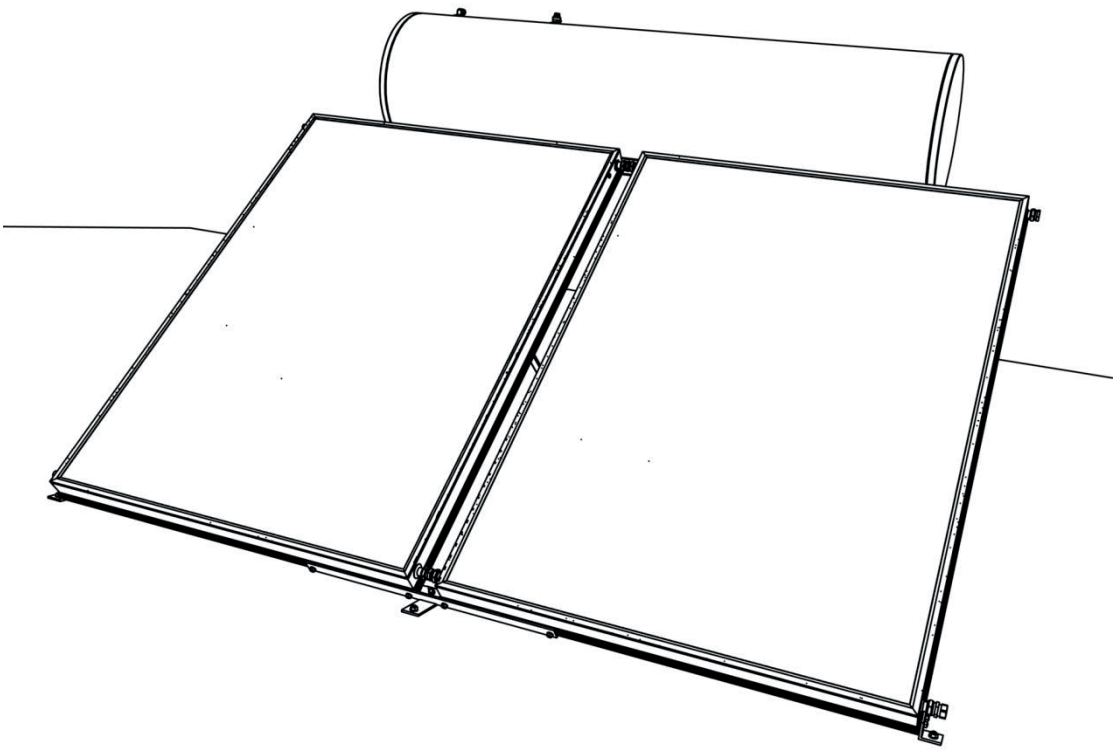


Figura 4. Vista frontale del sistema 300/4.2 installato.

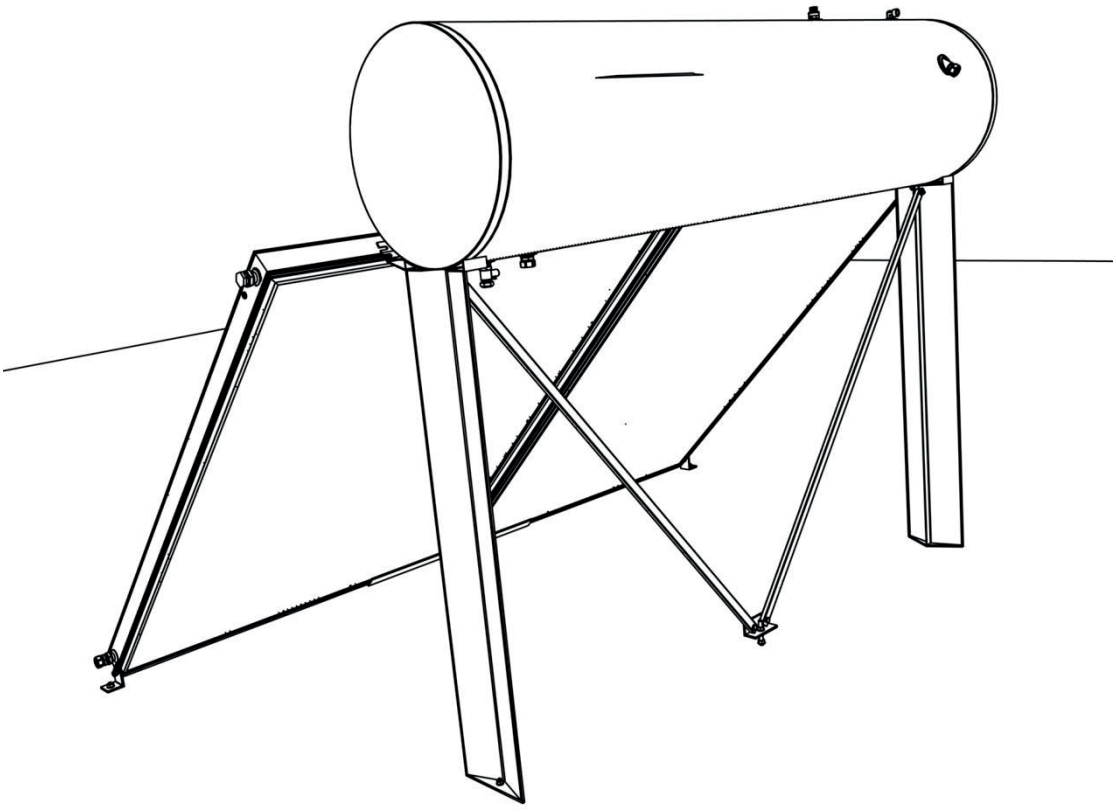


Figura 5. Vista posteriore del sistema 300/4.2 installato.

7. COMPOSIZIONE KIT PER TETTO INCLINATO

COMPOSIZIONE SISTEMA SOLAREVO NAT 160L/2,1 - TI (0XGN15XA)

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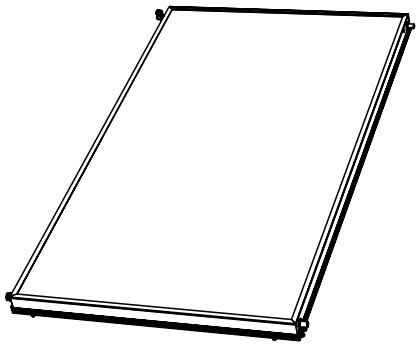
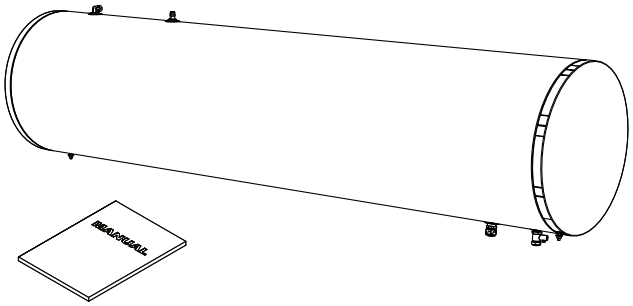
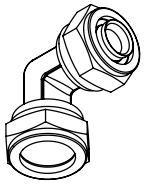
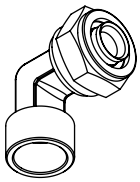
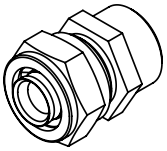
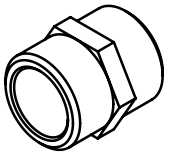
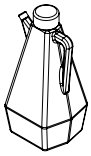
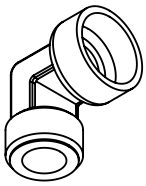
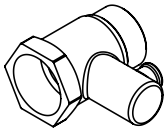
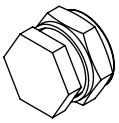
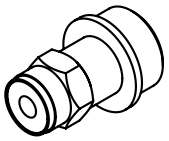
 1x	 1x 1x

“Cod. 072294X0 Kit idraulico 160 L				
 Raccordo a gomito DN 16x22 2x	 Raccordo a gomito DN 16x3/4” 1x	 Nipplo DN 16x3/4” 1x	 Nipplo 1/2” 1x	 Fluido termico 2 LT 1x
 Raccordo a gomito M/F 1/2” 1x	 1/2” 10bar 1x	 Tappo Ø22 2x	 Valvola di sicurezza 1/2” 2,5 bar 1x	

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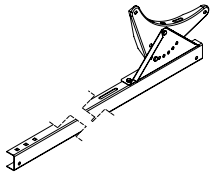
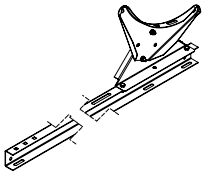
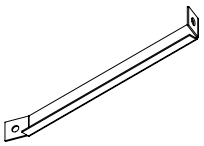
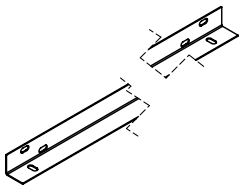
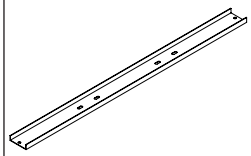
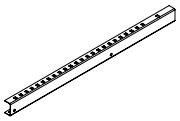
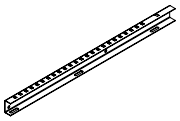
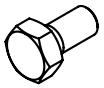
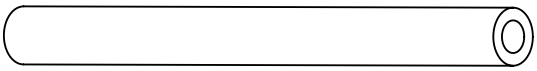
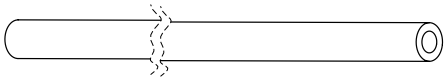
 1x	 1x	 2x	 1180mm 2x	 1115mm 1x	
 1x	 1x	 M8x20 16x	 M8x12 4x	 M8x20 6x	 M8 26x	 M8 4x	 M8 22x
 Isolante 9x22 1050 1x		 Isolante 9x22 2050 1x					
 Tubo flessibile DIN 16 1050 1x		 Tubo flessibile DIN 16 2050 1x					

COMPOSIZIONE SISTEMA SOLAREVO NAT 200L/2,1 - TI (0XGN16XA)

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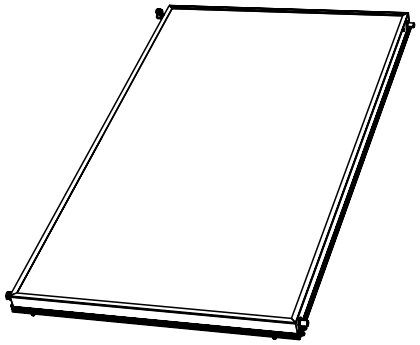
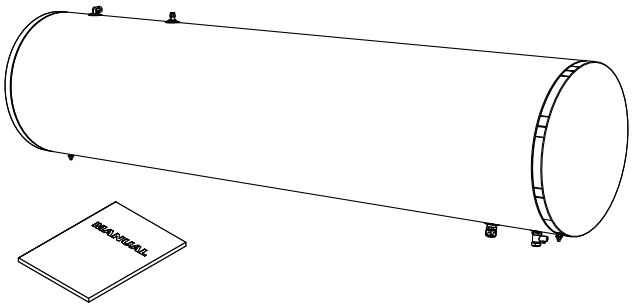
 1x	 1x 1x

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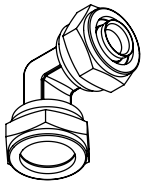
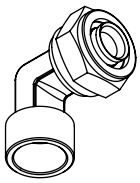
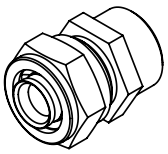
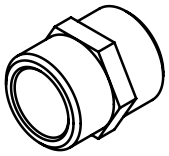
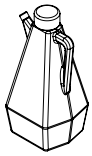
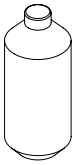
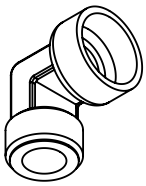
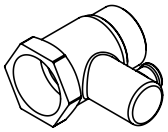
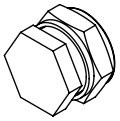
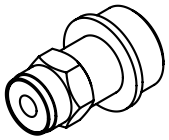
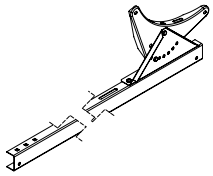
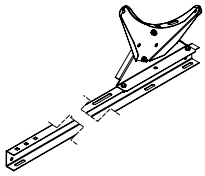
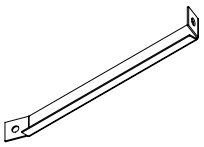
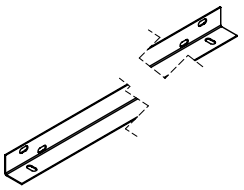
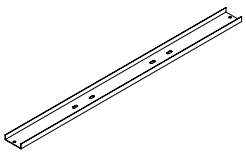
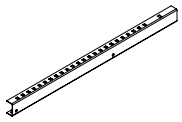
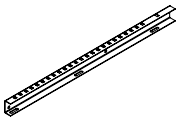
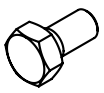
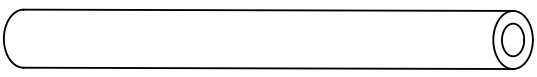
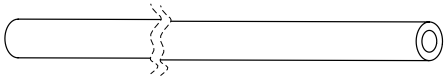
 Raccordo a gomito DN 16x22 2x	 Raccordo a gomito DN 16x3/4" 1x	 Nipplo DN 16x3/4" 1x	 Nipplo 1/2" 1x	 Fluido termico 2 LT 1x	 Fluido termico 1 LT 1x
 Raccordo a gomito M/F 1/2" 1x	 1/2" 10bar 1x	 Tappo Ø22 2x	 Valvola di sicurezza 1/2" 2,5 bar 1x		

Cod. 076190X0 Kit telaio 200L/2.1					
 1x	 1x	 2x	 1180mm 2x	 1115mm 1x	
 1x	 1x	 M8x20 16x	 M8x12 4x	 M8x20 6x	 M8 26x	 M8 4x	 M8 22x
 Isolante 9x22 1000 1x		 Isolante 9x22 2000 1x			
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COMPOSIZIONE SISTEMA SOLAREVO NAT 300L/5,2 - TI (0XGN57XA)

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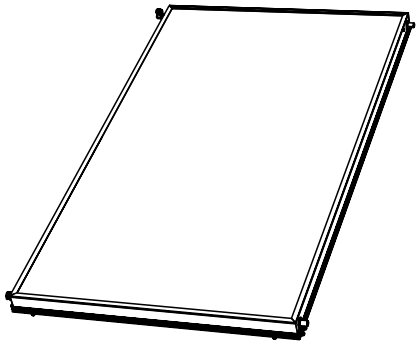
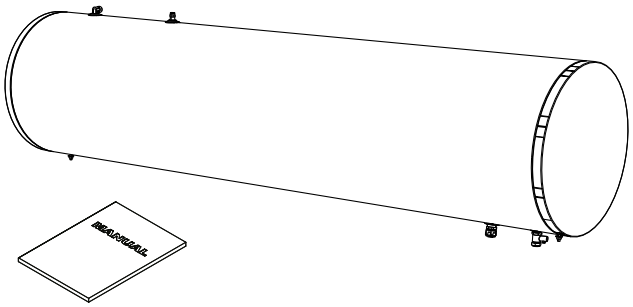
 2x	 1x 1x

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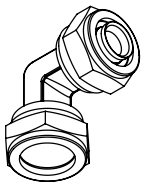
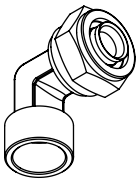
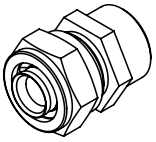
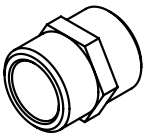
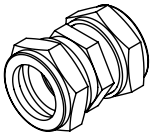
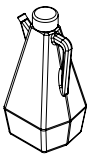
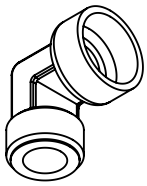
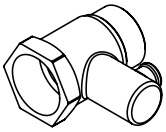
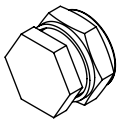
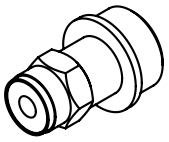
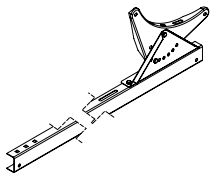
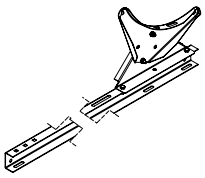
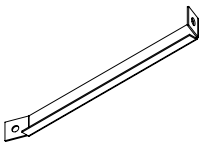
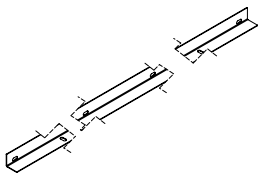
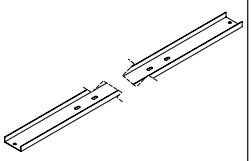
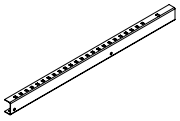
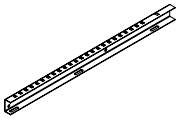
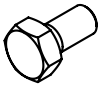
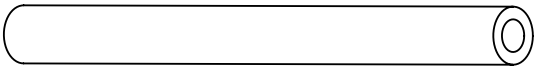
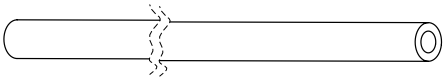
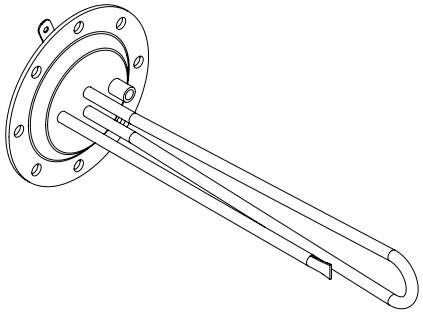
 Raccordo a gomito DN 16x22 2x	 Raccordo a gomito DN 16x3/4" 1x	 Nipplo DN 16x3/4" 1x	 Nipplo 1/2" 1x	 Connessione 22 x 22 2x	 Fluido termico 2 LT 2x
 Raccordo a gomito M/F 1/2" 1x	 1/2" 10bar 1x	 Tappo Ø22 2x	 Valvola di sicurezza 1/2" 2,5 bar 1x		

Cod. 076158X0 Kit telaio 300L/2.1						
 1x	 1x	 2x	 2420mm 2x		 2040mm 1x	
 1x	 1x	 M8x20 16x	 M8x20 6x	 M8 30x	 M8 8x	 M8 22x
 Isolante 9x22 1200 1x		 Isolante 9x22 2650 1x				
 Tubo flessibile DIN 16 1200 1x		 Tubo flessibile DIN 16 2650 1x				

KIT OPZIONALI

Cod. 073109X0 Kit Resistenza 1,5 kW
 1x

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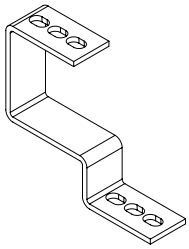
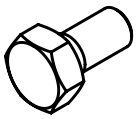
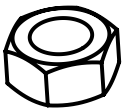
 Staffa di fissaggio 4x	 Bullone esagonale M8x20 4x	 Rondella M8 4x	 M8 4x

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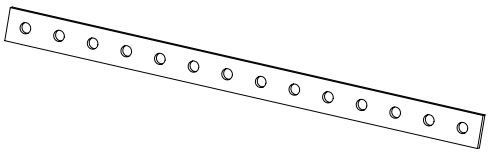
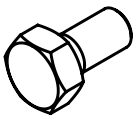
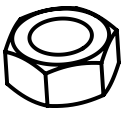
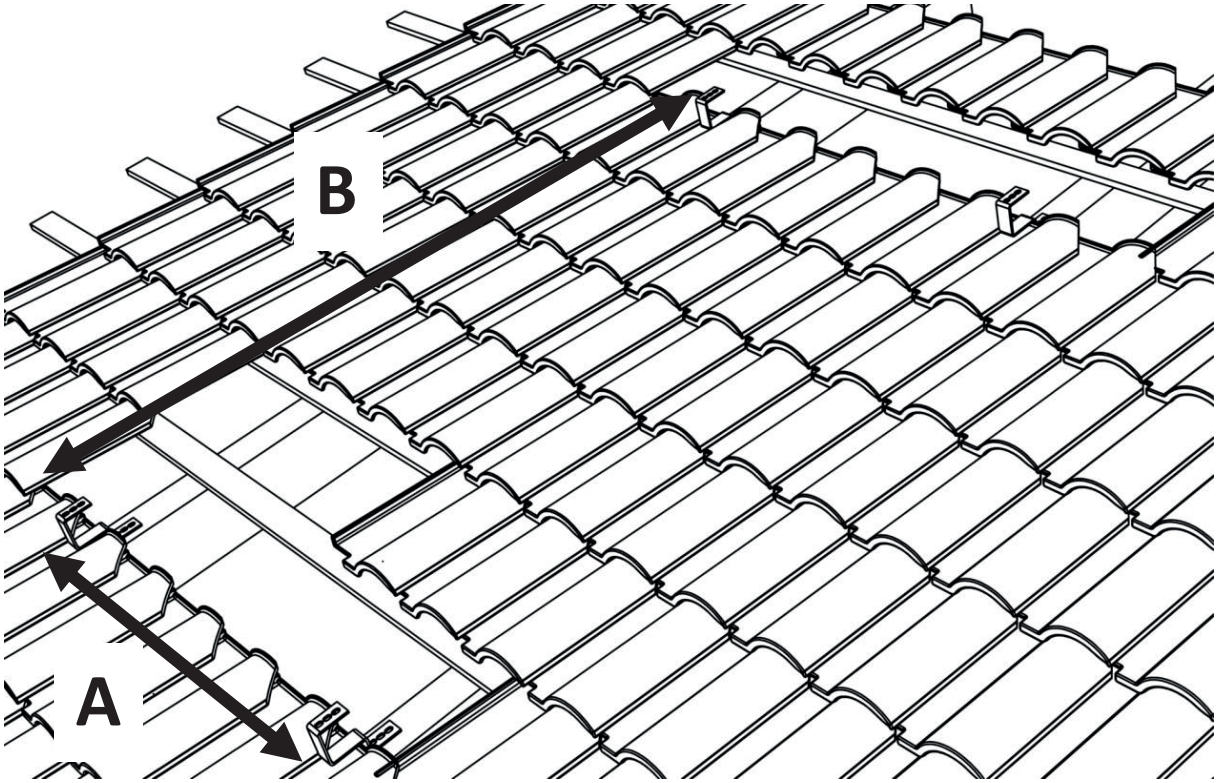
 Staffa di fissaggio 4x	 Bullone esagonale M8x20 4x	 Rondella M8 4x	 M8 4x

8. INSTALLAZIONE DEL SISTEMA SU TETTO INCLINATO - TUTTI I SISTEMI

ATTENZIONE: verificare la capacità della struttura del tetto di sopportare il carico del sistema solare termico con il costruttore dell'edificio o contattare le autorità locali.

Fase 1

Scoprire le tegole nella parte più bassa e in quella più alta dell'area in cui verrà installato il sistema a circolazione naturale. Installare le 4 staffe del **kit 076242X0** sulle travi verticali portanti con le viti appropriate, come indicato nel disegno sotto. Assicurarsi che le distanze A e B tra i fori superiori di ciascuna staffa siano impostate in base alla Tabella 1. Si può approfittare della presenza di 3 fori sulla parte superiore di ogni staffa per adattarle alle diverse dimensioni delle tegole.



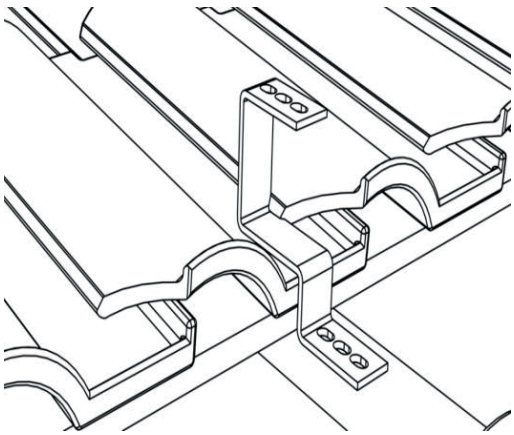
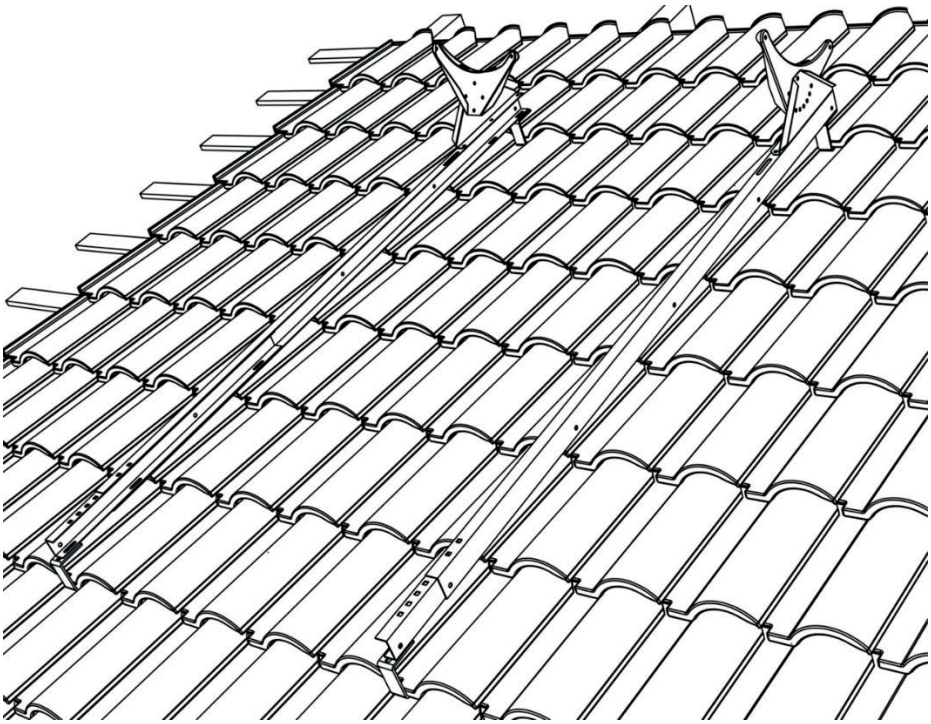


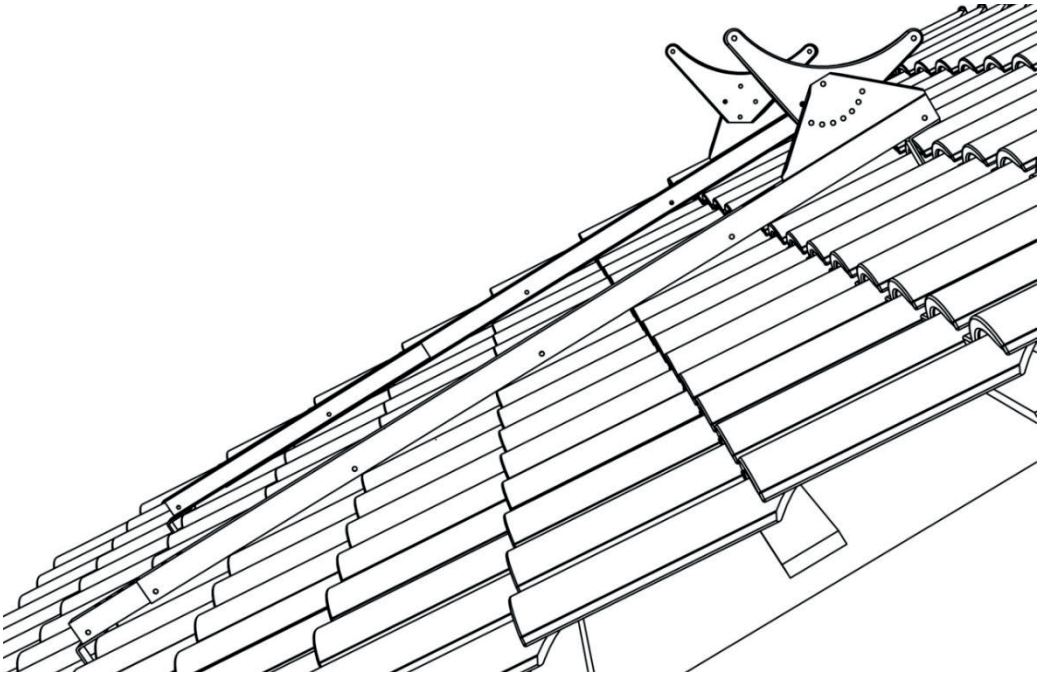
TABELLA 1

SISTEMA	160/2.1	200/2.1	300/5.2
DIMENSIONE A (mm)	1082	1370	1834
DIMENSIONE B (mm)	2120	2120	2475

Fase 2

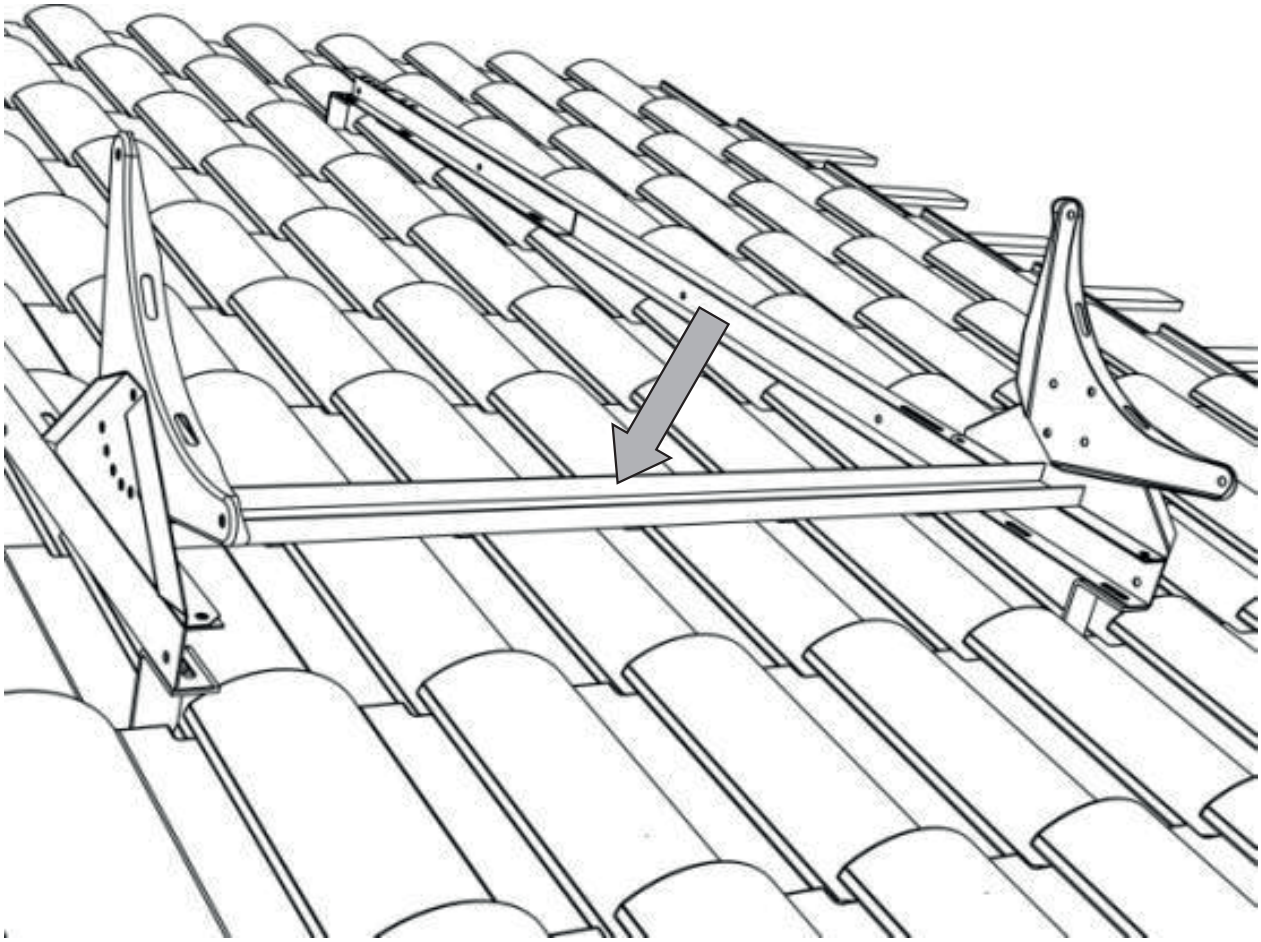
Riposizionare le tegole e installare le due sezioni di base longitudinali sulle staffe. Utilizzare la funzione telescopica delle sezioni per regolarle alla lunghezza appropriata.





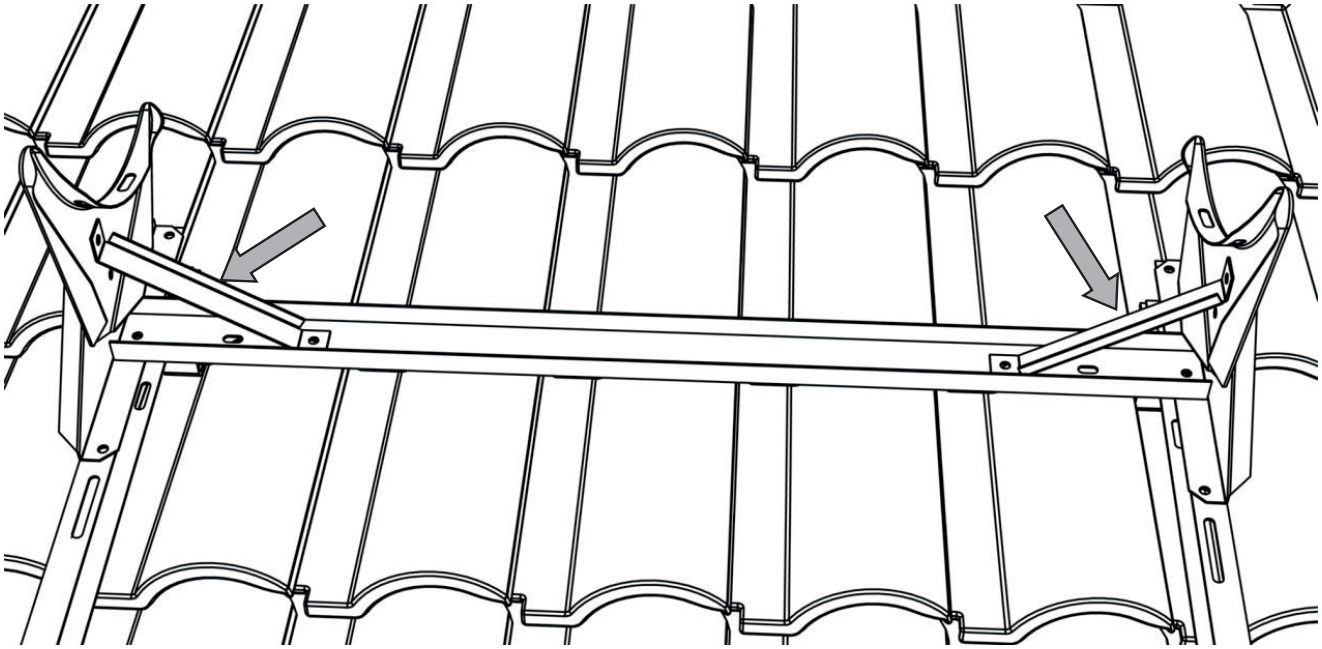
Fase 3

Installare la traversa che unisce le due sezioni longitudinali.



Fase 4

Installare i due bracci di supporto che collegano la traversa con le due sezioni longitudinali.



Fase 5

Installare le due barre a L che sostengono il collettore. La distanza C tra le facce di montaggio verticali delle due barre deve essere impostata secondo la Tabella 2 per adattarsi all'altezza del collettore. Fissare solo la barra inferiore e far scorrere la barra superiore verso l'alto per facilitare l'installazione del collettore.

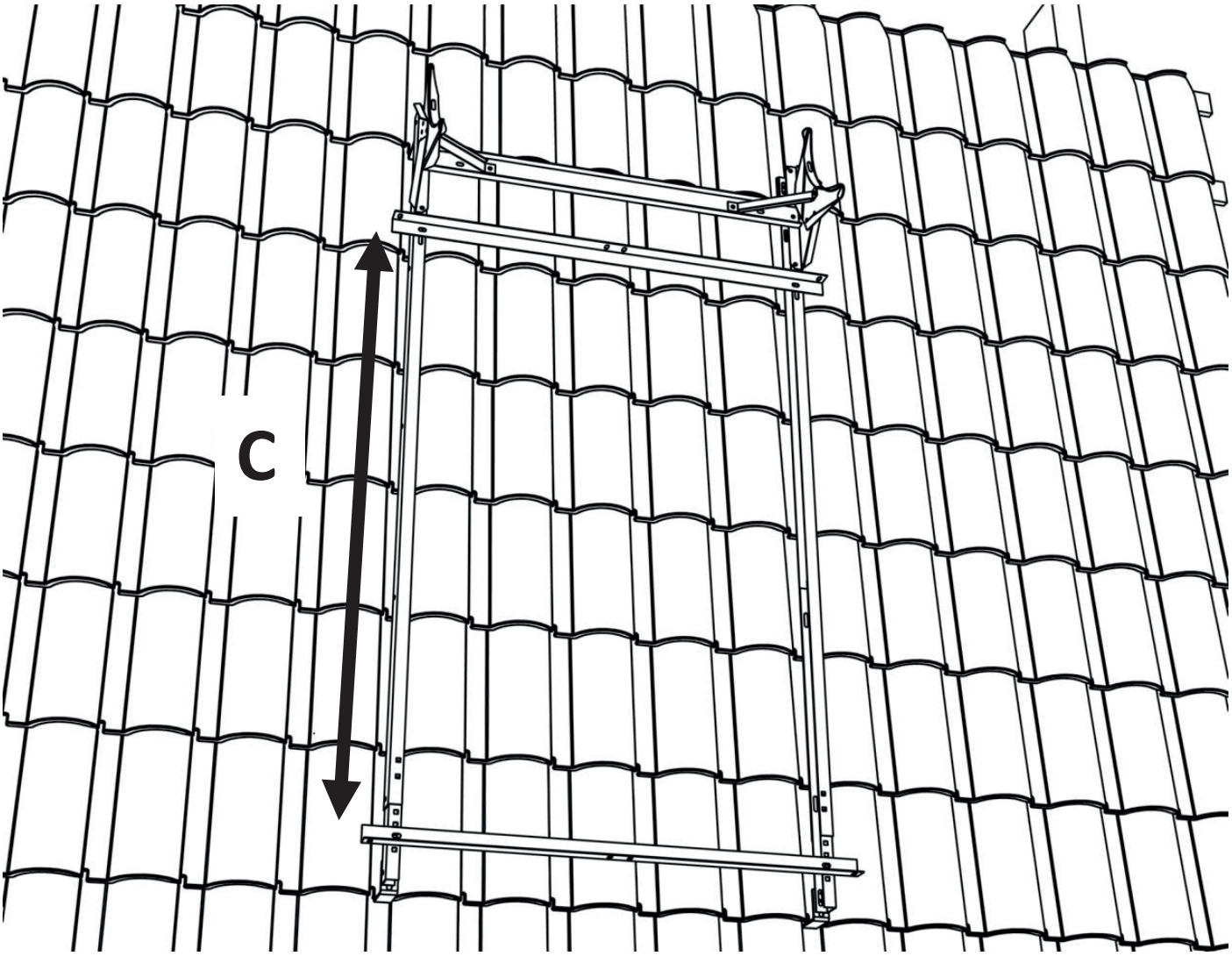


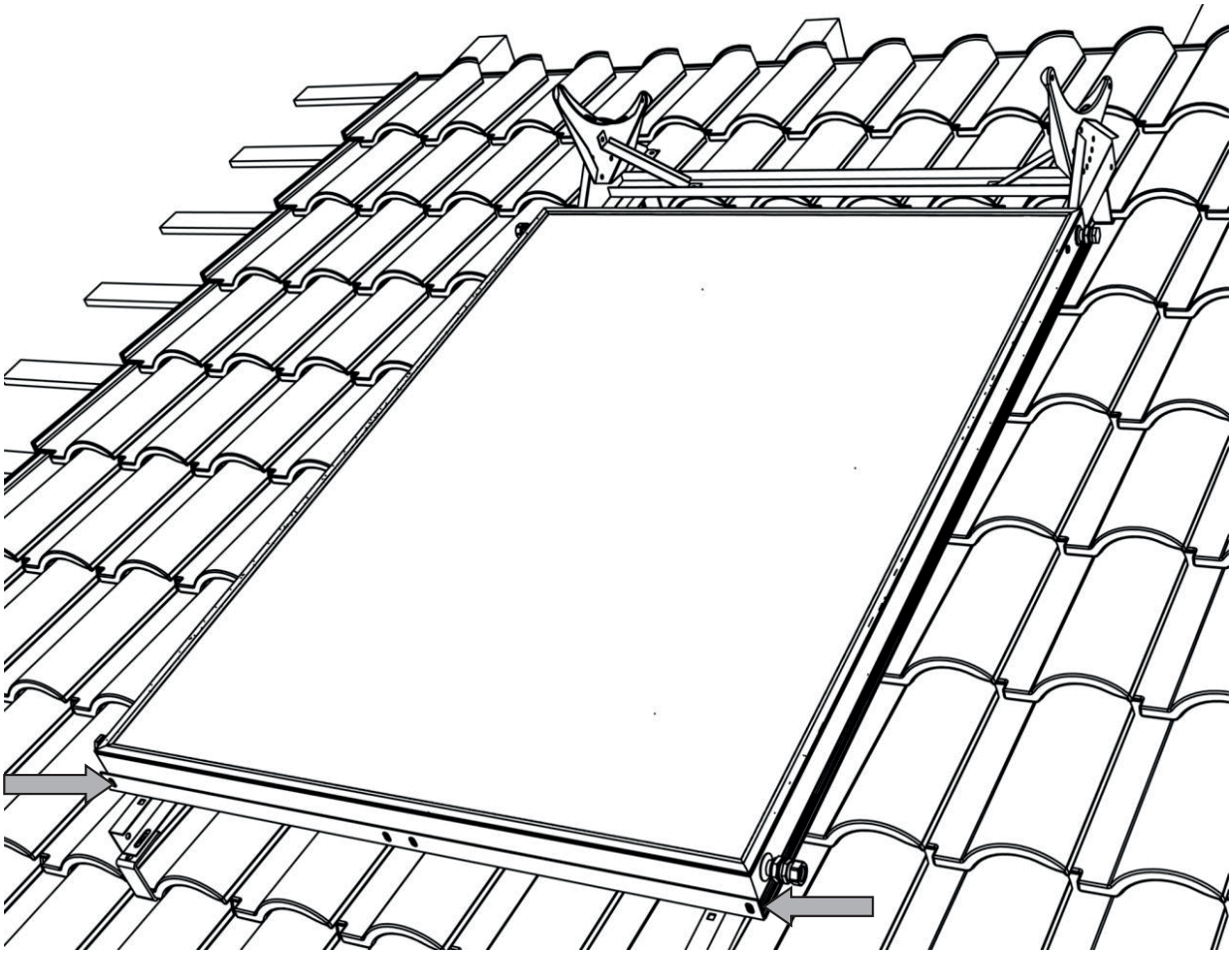
TABELLA 2

SISTEMA	160/2.1	200/2.1	300/5.2
DIMENSIONE C (mm)	1711	1711	2025

Cod. 3540000211 - Rev 00 - 07/2023

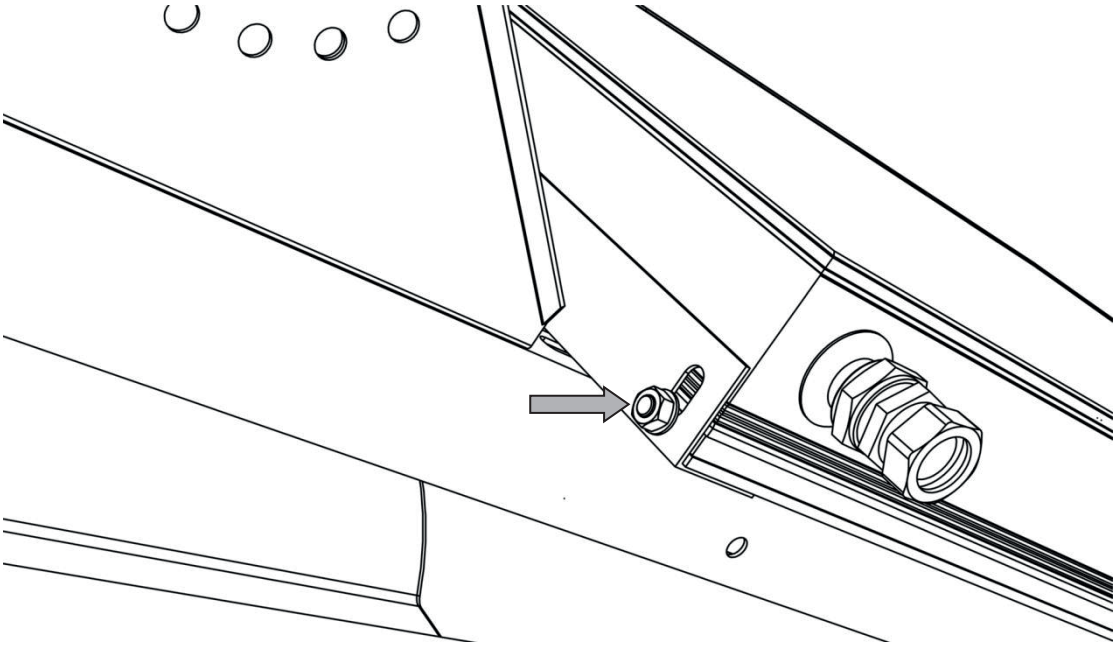
Fase 6

Posizionare i collettori sul gruppo base. Serrare i bulloni di fissaggio inferiori contro la barra di supporto inferiore.



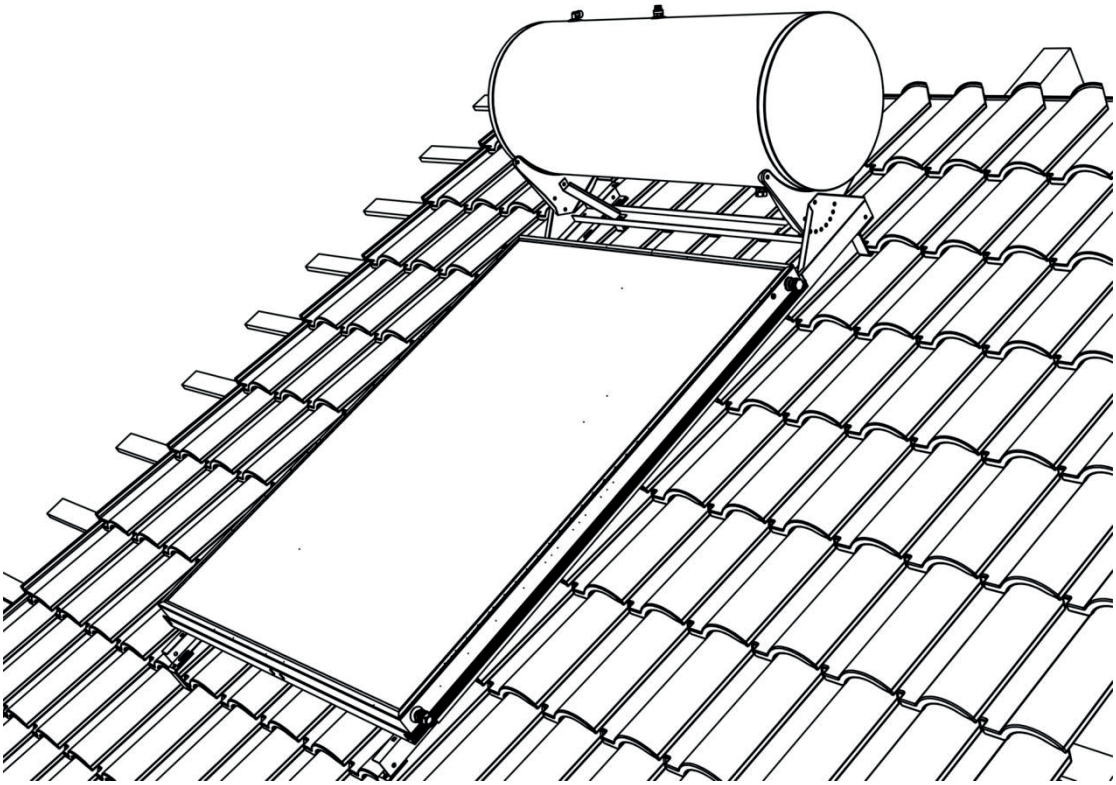
Fase 7

Far scorrere la barra di supporto superiore contro il collettore e serrare i bulloni di supporto. Serrare la barra di supporto sulle sezioni di base longitudinali.



Fase 8

Regolare il supporto del bollitore in posizione orizzontale e installare il bollitore.



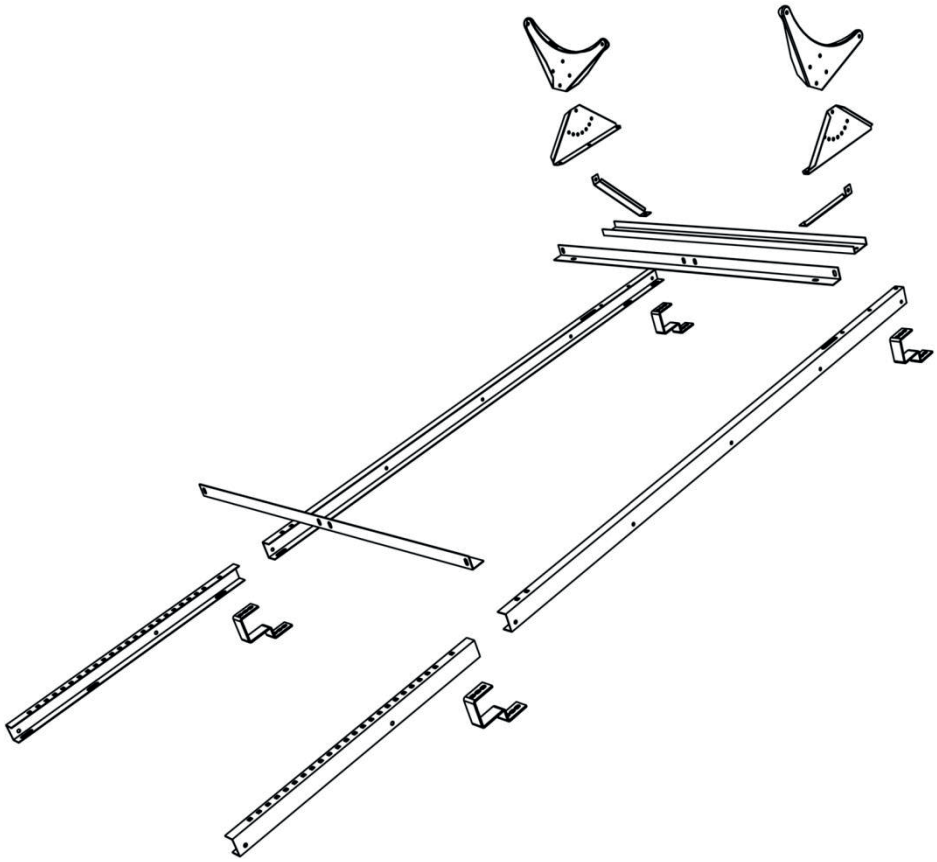


Figura 1: componenti del sistema di base per tetto inclinato.

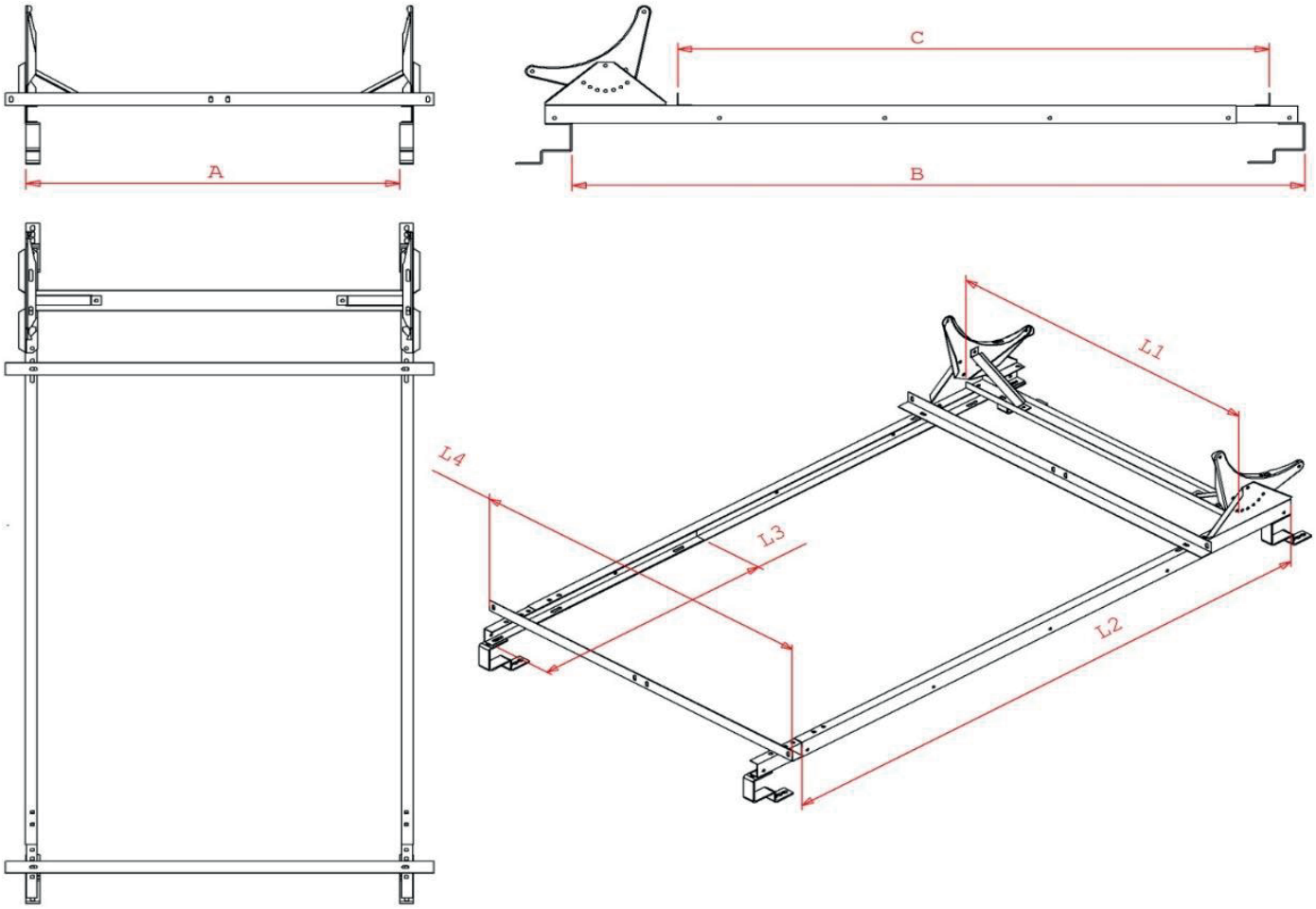
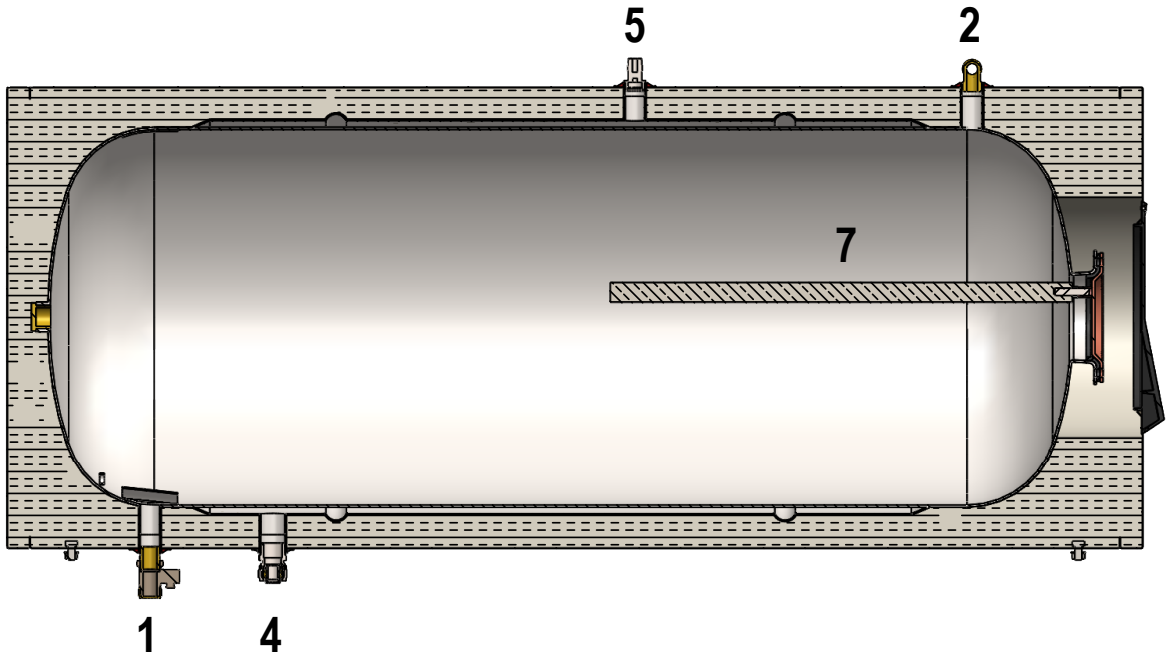


Figura 2: dimensioni di installazione e del sistema di base.

	DIMENSIONI DI INSTALLAZIONE			
SISTEMA	**A**	**B**	**C**	
160/2.1	1082	2120	1711	
200/2.1	1370	2120	1711	
300/5.2	1834	2475	2025	
	DIMENSIONI BASE			
SISTEMA	**L1**	**L2**	**L3**	**L4**
160/2.1	1116	1600	866	1240
200/2.1	1404	2000	866	1240
300/5.2	1868	2000	866	2000

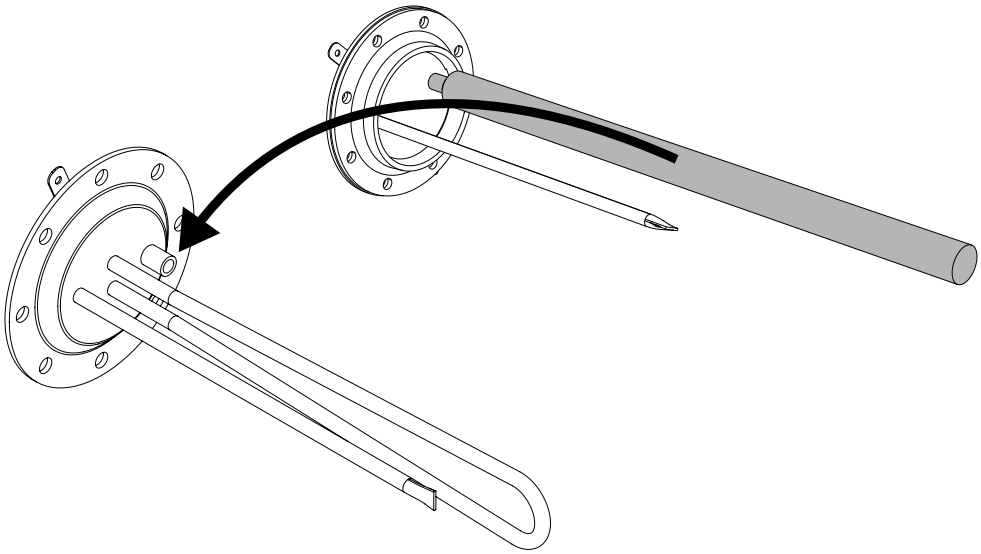
9. COLLEGAMENTO IDRAULICO DEL SISTEMA - TUTTI I SISTEMI

Attacchi bollitore



1 Alimentazione acqua fredda sanitaria, valvola di sicurezza 10 bar + valvola di non ritorno
2 Uscita acqua calda sanitaria
4 Uscita circuito solare
5 Valvola di sicurezza 2,5 bar
7 Anodo

Nel caso si volesse installare il kit resistenza (cod. 073109X0), è necessario svitare l'anodo e posizionarlo nella flangia della resistenza.



Schema del sistema completo

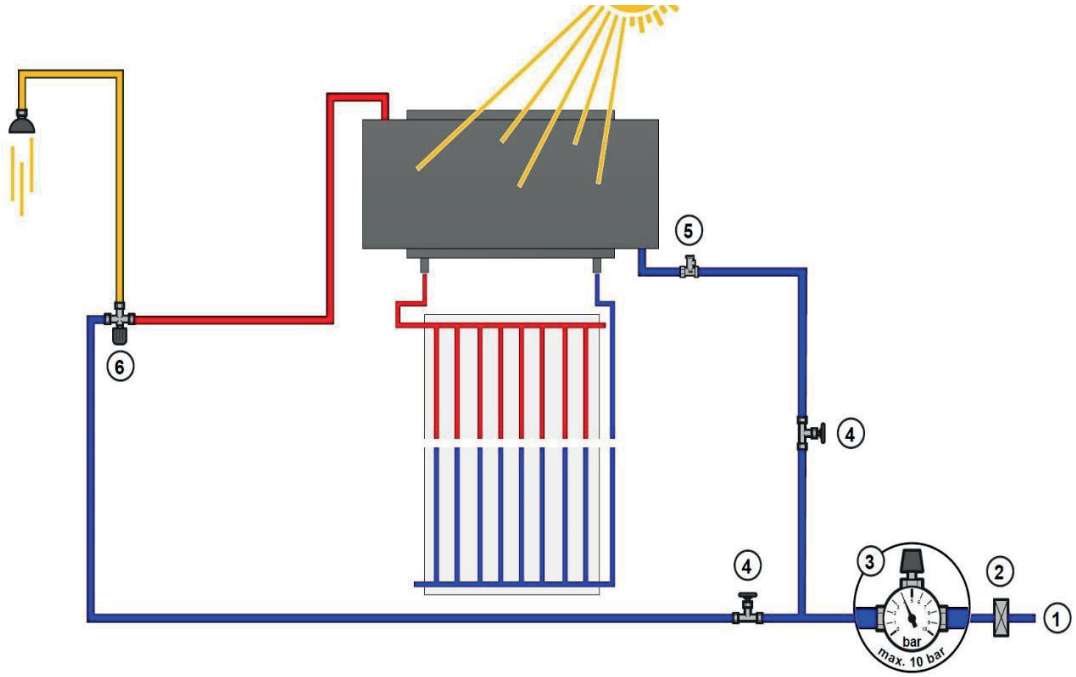


Figura 3: [1] Alimentazione dell'acqua fredda sanitaria a norma DIN EN 806 o secondo le norme nazionali specifiche. [2] Filtro dell'acqua. [3] Valvola riduttrice di pressione MAX 10 bar. [4] Valvola di intercettazione. [5] Valvola di non ritorno + valvola di sicurezza 10 bar. [6] Miscelatore freddo/caldo per acqua calda sanitaria, ad es. doccia.

Schema del sistema a circolazione naturale e dei collegamenti

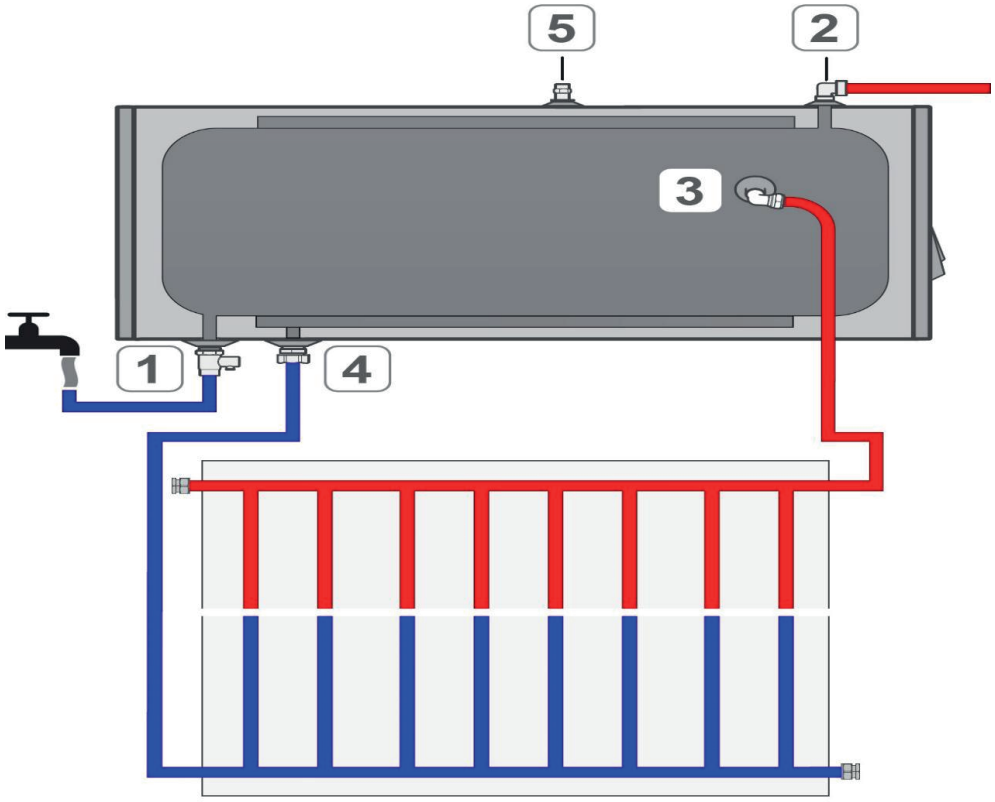


Figura 4: [1] Alimentazione acqua fredda sanitaria, valvola di sicurezza 10 bar + valvola di non ritorno. [2] Uscita acqua calda sanitaria. [3] Ingresso Circuito solare. [4] Uscita circuito solare. [5] Valvola di sicurezza 2,5 bar.

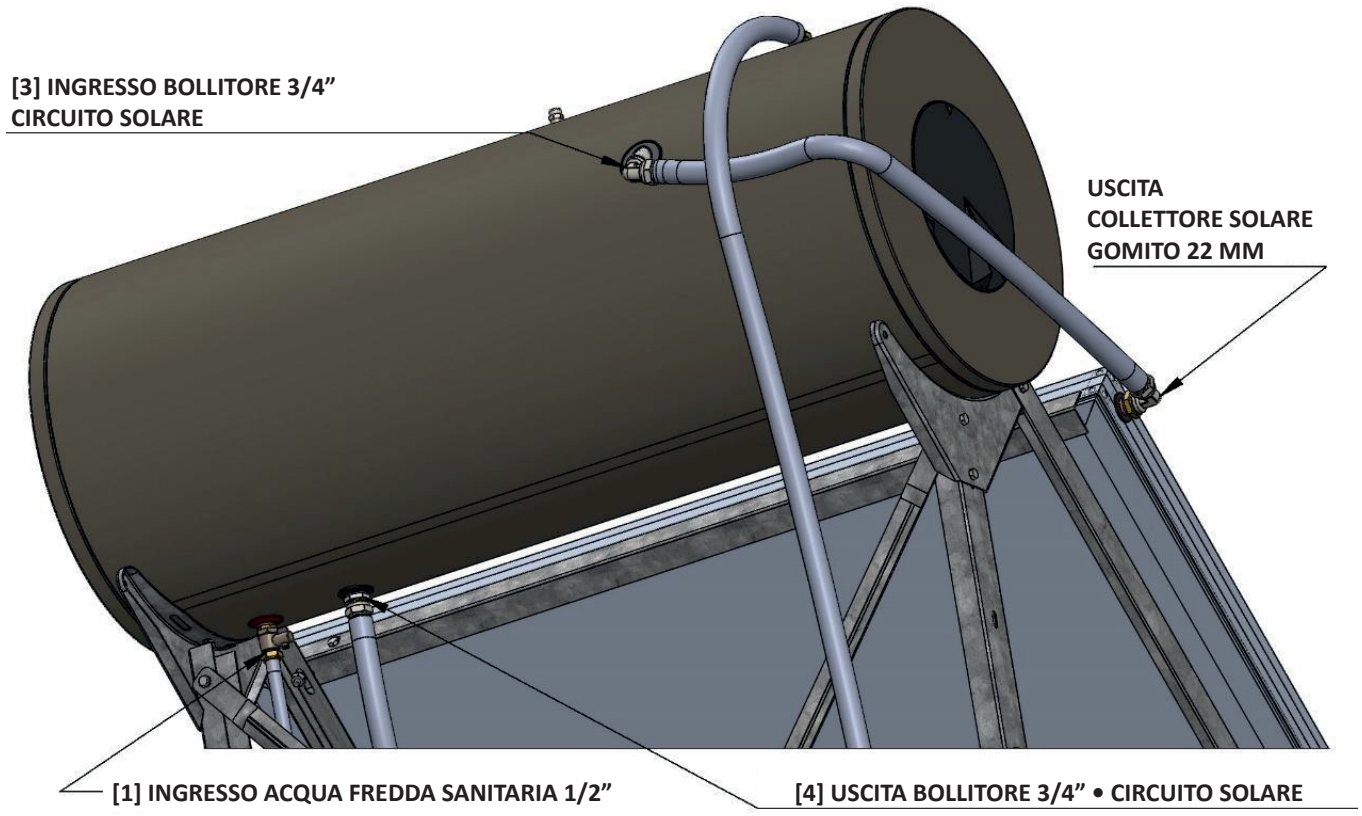


Figura 5: dimensioni dei collegamenti del sistema a circolazione naturale.

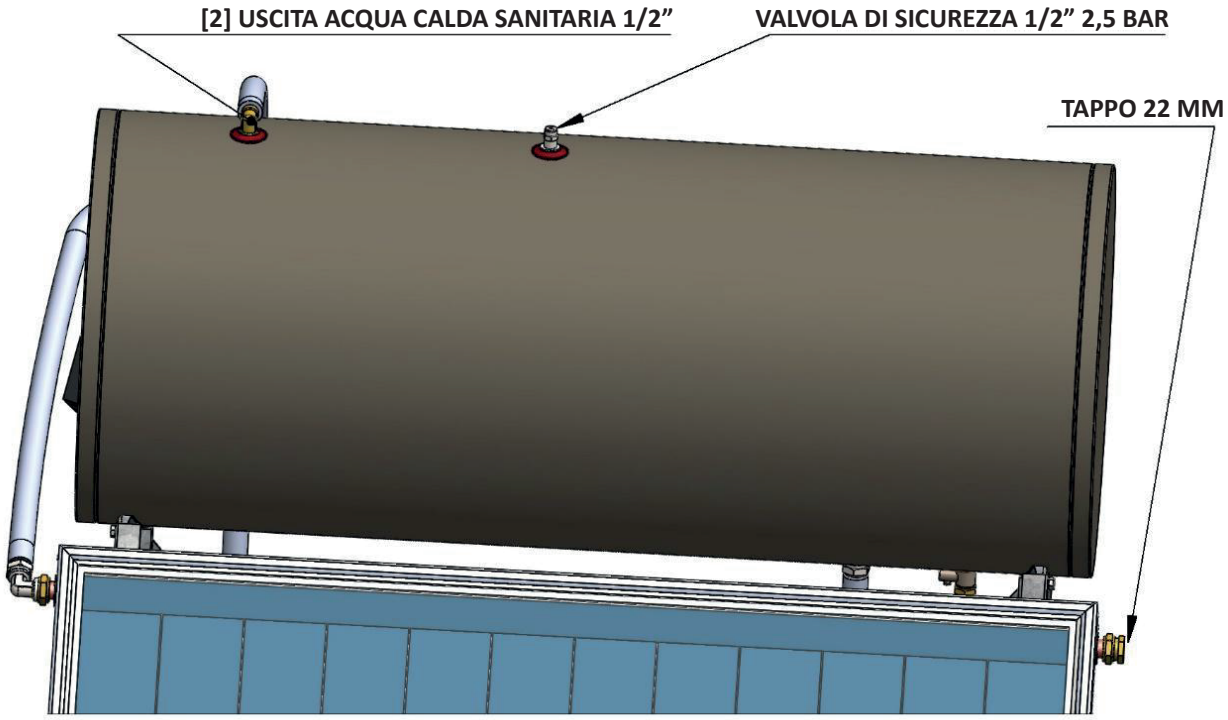
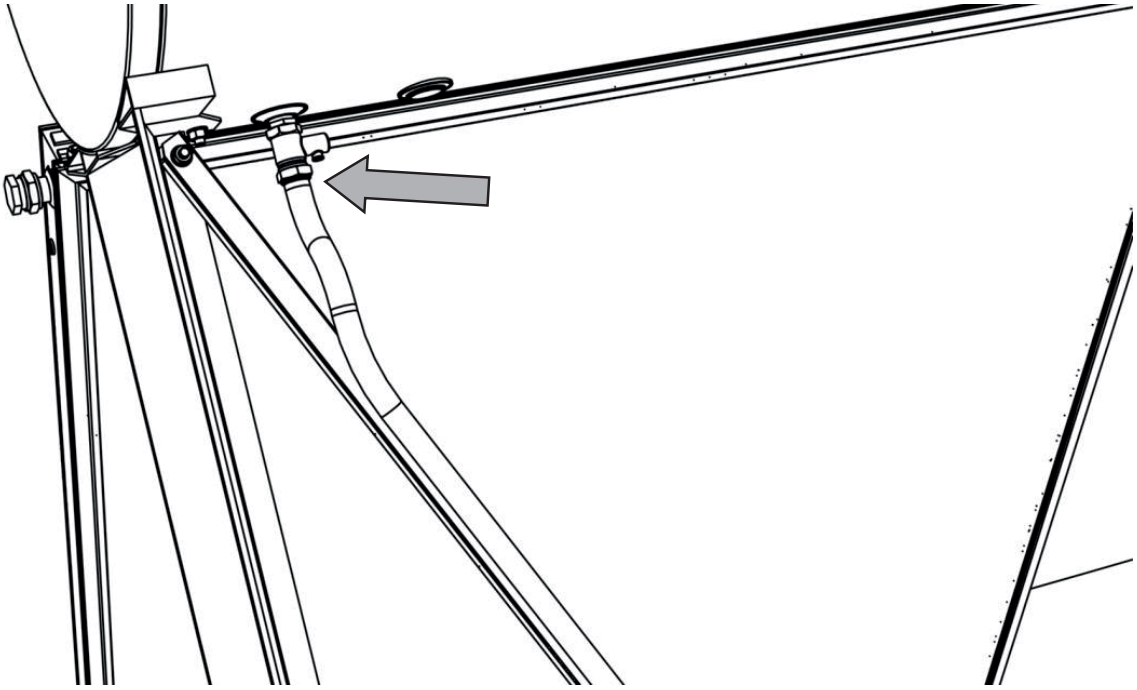


Figura 6: dimensioni dei collegamenti del sistema a circolazione naturale.

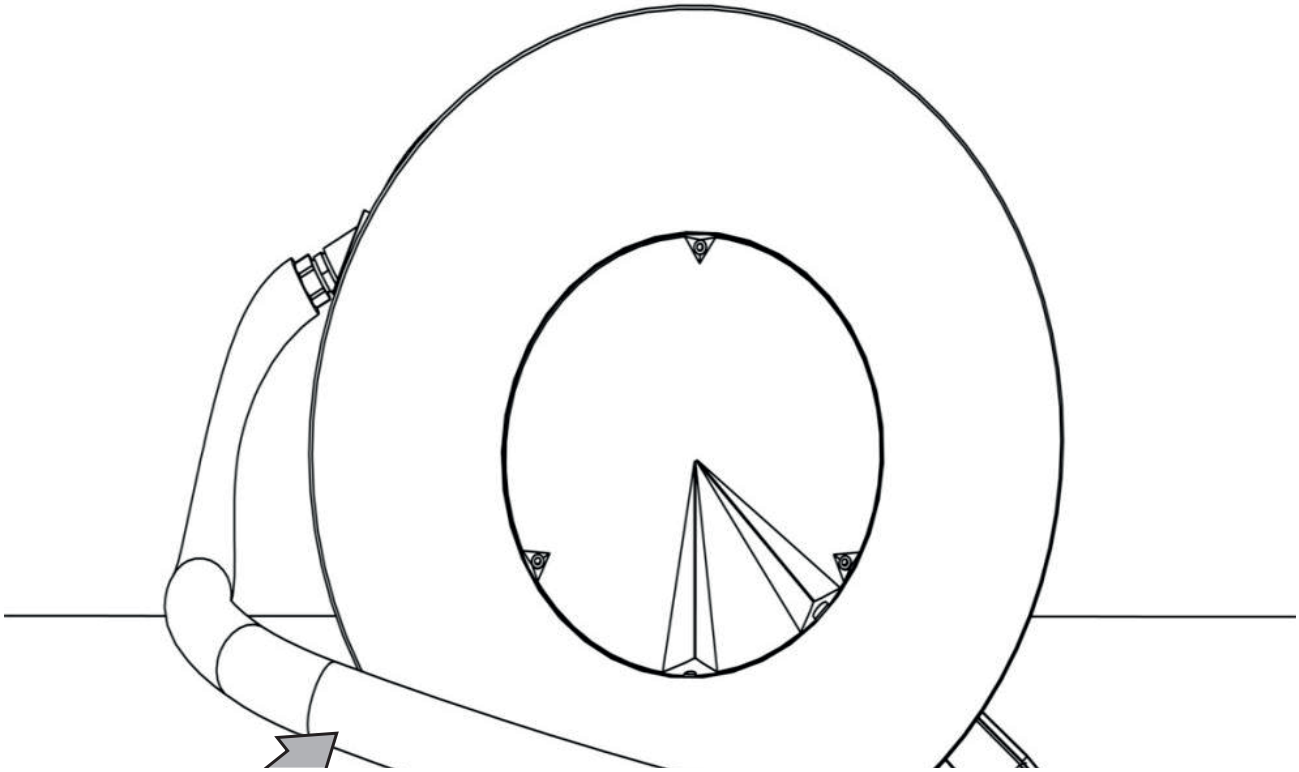
Fase 1

Collegare il tubo di alimentazione dell'acqua fredda e la valvola di sicurezza e di non ritorno al bollitore. Per risparmiare tempo, si può iniziare a riempire il bollitore a questo punto. Quando l'acqua inizia a traboccare dall'uscita del circuito aperto dell'acqua calda, chiudere l'alimentazione dell'acqua.



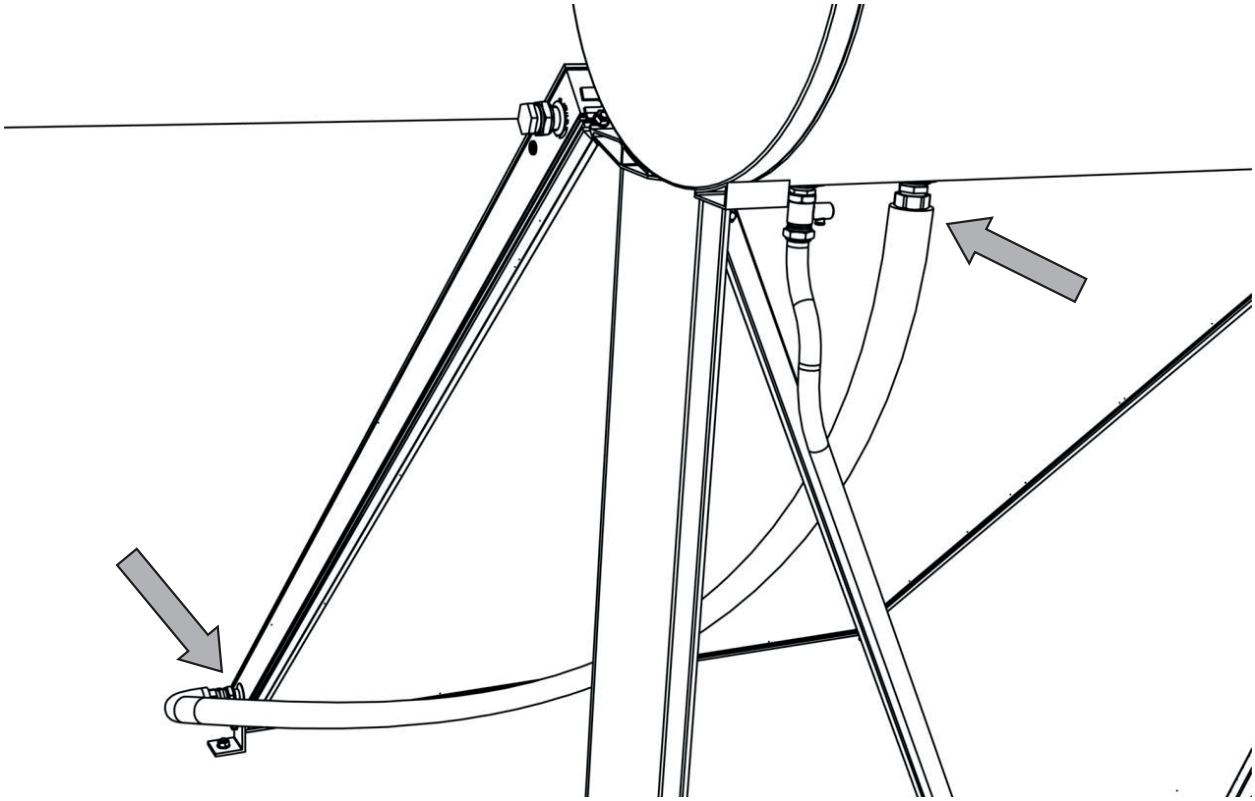
Fase 2

Collegare il tubo del circuito chiuso dell'acqua calda tra il collettore e il bollitore. Assicurarsi che il tubo segua un percorso ascendente verso il bollitore. Quando si stringono i raccordi sull'uscita del collettore, assicurarsi di utilizzare 2 chiavi, 1 per stringere e 1 di contrasto, per evitare di danneggiare l'assorbitore.



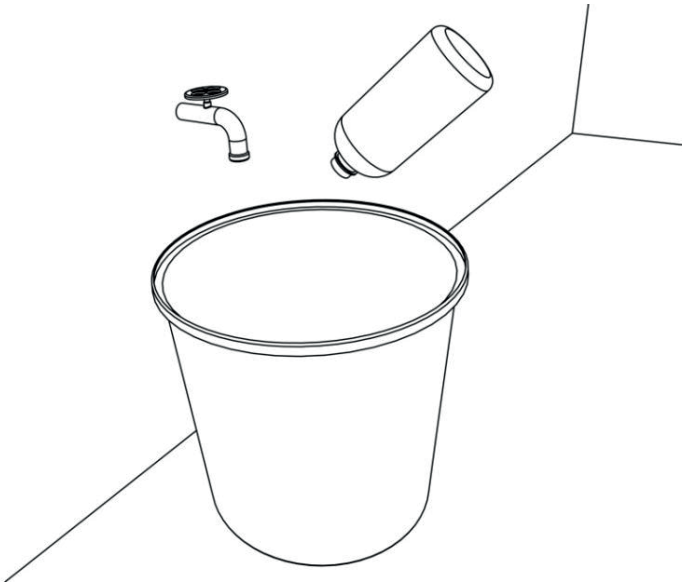
Fase 3

Collegare il tubo del circuito chiuso dell'acqua fredda tra il collettore e il bollitore. Assicurarsi che il tubo segua un percorso ascendente verso il bollitore. Quando si stringono i raccordi sull'ingresso del collettore, assicurarsi di utilizzare 2 chiavi, 1 per stringere e 1 di contrasto, per evitare di danneggiare l'assorbitore. Assicurarsi che la lunghezza e la forma del tubo siano adeguate. Non stringere il tubo sul lato del bollitore.



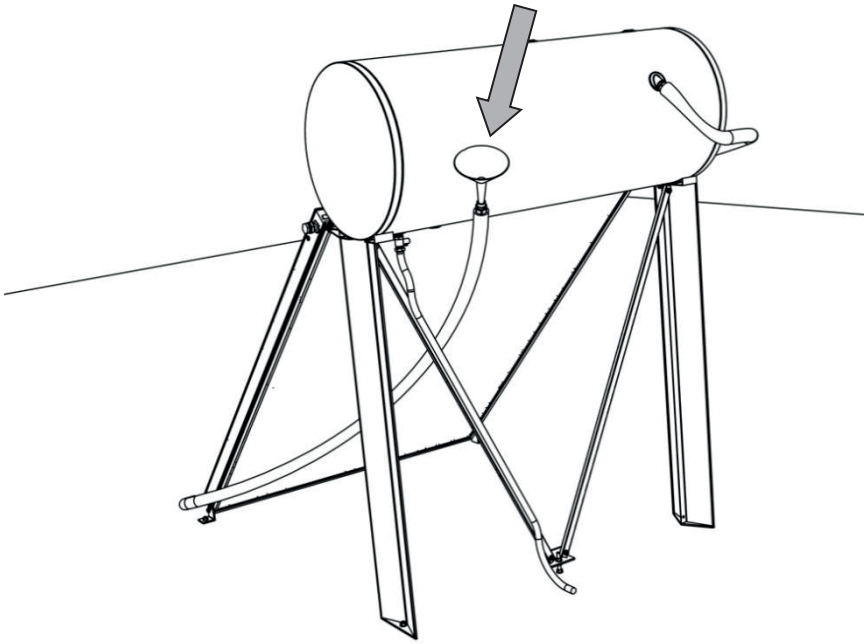
Fase 4

Miscelare l'acqua e il fluido NOX in un secchio secondo la tabella riportata nel paragrafo "Fluido termico" a pag. 5.



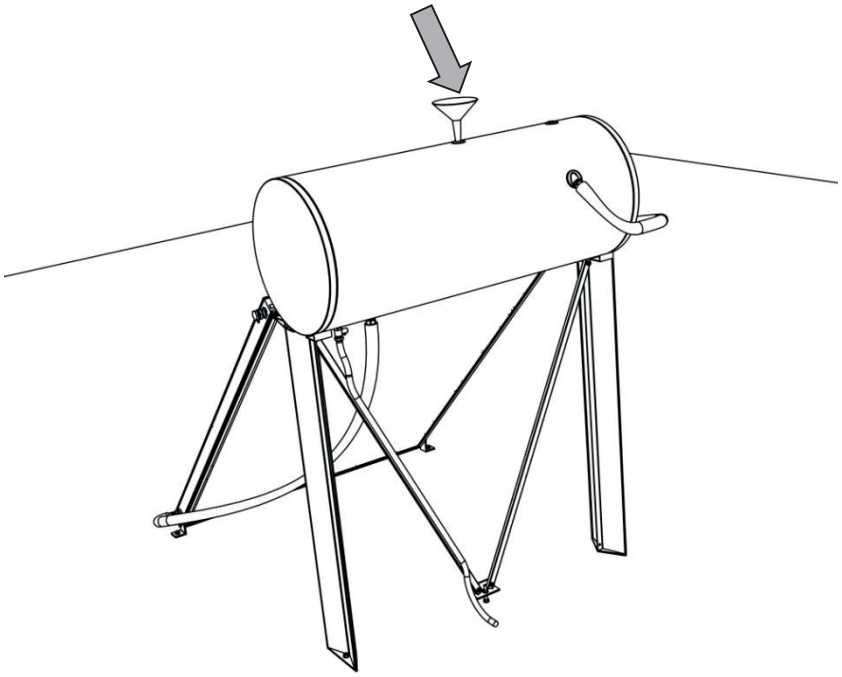
Fase 5

Staccare il tubo del circuito chiuso dell'acqua fredda dal bollitore. Versare lentamente la soluzione nel tubo in modo da riempire il collettore. Lasciare che il liquido trabocchi dall'uscita del bollitore fintanto che non escono bolle d'aria, quindi collegare e serrare il raccordo del fluido freddo al bollitore. Potrebbe essere necessario collegare un tubo ausiliario al tubo del circuito chiuso dell'acqua fredda in modo da versare la soluzione da un punto più alto rispetto all'ingresso del circuito chiuso dell'acqua calda del bollitore.



Fase 6

Terminare di riempire il circuito chiuso con la soluzione dall'uscita della valvola di sicurezza nella parte superiore del bollitore.



Fase 7

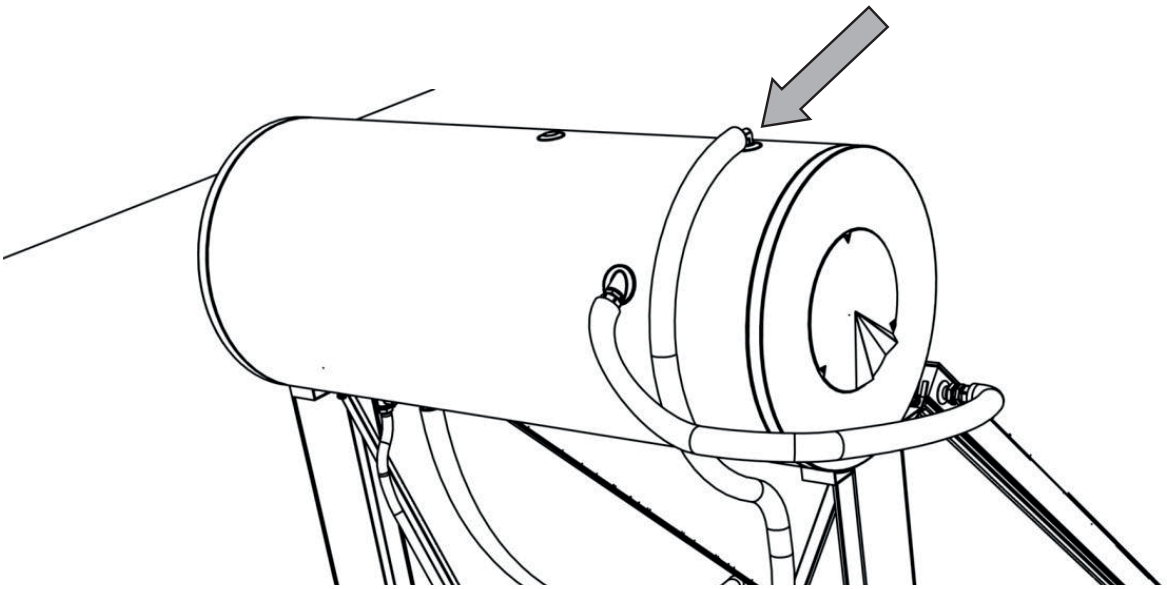
Se il bollitore è pieno d'acqua e il circuito chiuso è pieno di soluzione, è possibile rimuovere la copertura dal collettore. Se la giornata è soleggiata, la soluzione inizierà a traboccare dall'uscita della valvola di sicurezza nella parte superiore del bollitore man mano che si riscalda. Se non fuoriesce, controllare che:

1. il circuito chiuso sia pieno,
2. non ci sia aria nel circuito chiuso,
3. i collegamenti del circuito chiuso non abbiano perdite.

Adottare le misure appropriate fino a quando non si verifica una fuoriuscita.

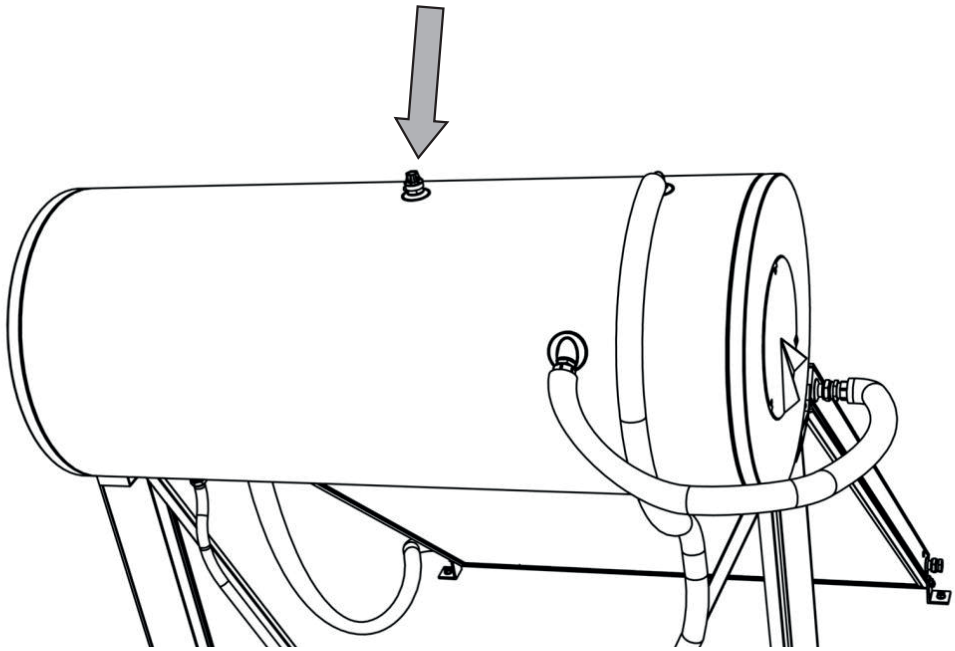
Fase 8

Collegare il tubo dell'acqua calda sanitaria. Aprire l'alimentazione dell'acqua fredda sanitaria e verificare l'assenza di perdite. La pressione dell'acqua sanitaria deve far traboccare la soluzione nel circuito chiuso dall'uscita della valvola di sicurezza nella parte superiore del bollitore. Se non trabocca, eseguire i test diagnostici della fase 7.



Fase 9

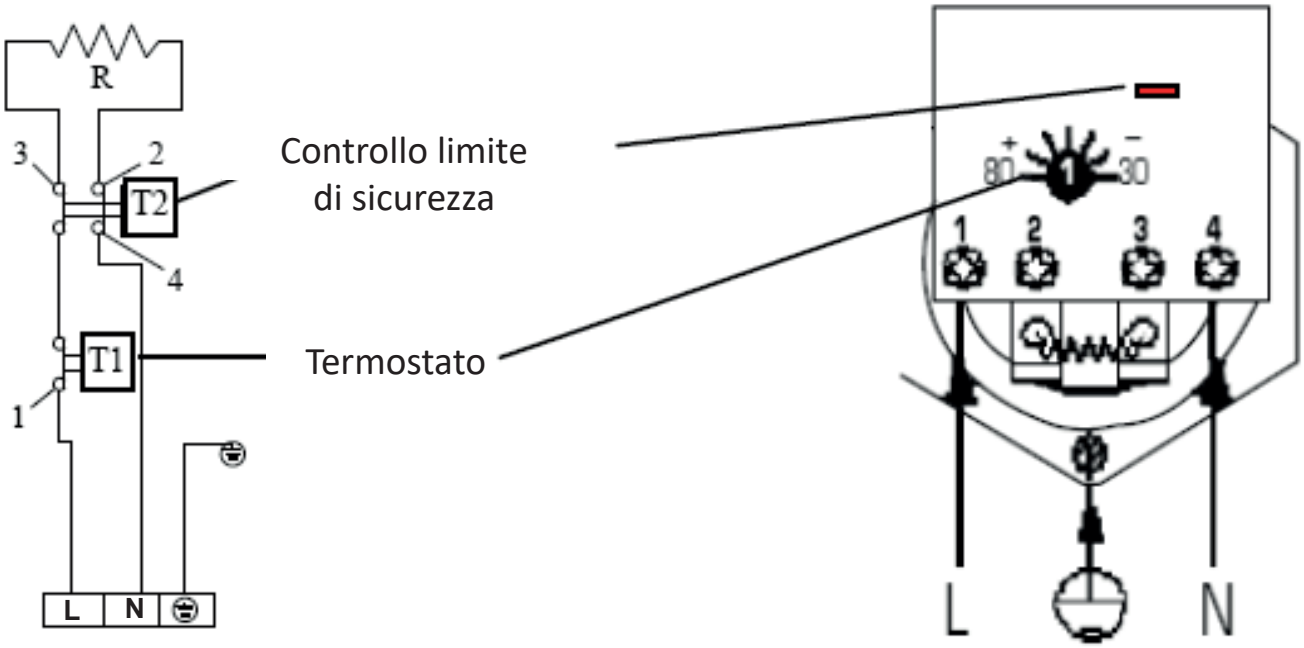
Dopo circa 20 minuti è possibile installare la valvola di sicurezza del circuito chiuso nella parte superiore del bollitore.

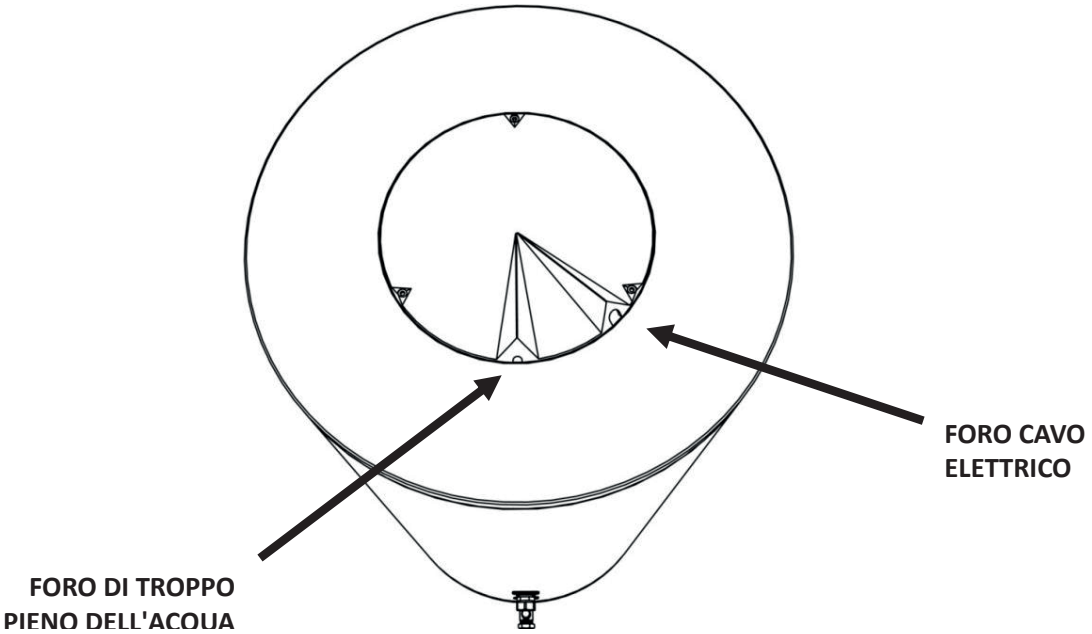


CONTROLLI PRIMA DELLA MESSA IN FUNZIONE			
NUMERO	**AZIONE**	**SÌ**	**NO**
1	Il sistema a circolazione naturale è rivolto a sud per l'emisfero settentrionale e a nord per l'emisfero meridionale?		
2	È stato verificato che il sistema a circolazione naturale non si trovi all'ombra tutto l'anno?		
3	Il collettore è stato installato con un angolo di montaggio compreso tra 15° e 45°?		
4	Il sistema a circolazione naturale è installato ad almeno 1 m di distanza dalle pareti o dall'estremità del tetto?		
5	Durante l'installazione è stato utilizzato il manuale fornito?		
6	La pressione massima di esercizio è di 10 bar?		
7	Se la pressione dell'acqua fredda è superiore a 10 bar, è stato installato un riduttore di pressione?		
8	È stata considerata la statica?		
9	Sono state adottate le misure necessarie per evitare la penetrazione di acqua? Si è provveduto a un'adeguata chiusura a tenuta?		
10	Tutte le tubazioni sono state isolate in base alle condizioni climatiche locali per evitare il congelamento e i danni da raggi UV?		
11	Sono stati collegati tutti i raccordi?		
12	Tutti i collegamenti idraulici sono privi di carichi pesanti?		
13	È stata verificata l'assenza di perdite?		
14	È stato utilizzato il glicole originale per la protezione antigelo?		
15	È stato verificato che tutte le valvole funzionino correttamente?		
16	È stato controllato che il sistema di supporto non presenti danni visibili?		
17	Il riscaldatore elettrico originale è stato installato da un elettricista autorizzato?		
18	Il sistema è stato installato secondo le istruzioni?		
19	Tutti i collegamenti sono stati eseguiti correttamente (le viti sono serrate, ecc.).		
20	Il bollitore è stato fissato correttamente?		
21	Il sistema è stato messo in funzione secondo le istruzioni?		
22	È stato eseguito un controllo funzionale 30 minuti dopo l'installazione?		

10. COLLEGAMENTI ELETTRICI

I collegamenti elettrici devono essere conformi alle normative vigenti nel Paese di installazione e devono essere sempre realizzati da un elettricista certificato. Di seguito è riportato uno schema del collegamento dell'alimentazione alla resistenza elettrica attraverso il termostato.





IMPORTANTE: il coperchio in plastica dei collegamenti elettrici sul lato del bollitore dell'acqua deve essere installato come indicato nel disegno qui sopra. Il foro più piccolo serve per il trabocco dell'acqua che fuoriesce dalla cavità dell'impianto elettrico e deve essere posizionato nel punto più basso del coperchio. Il foro per il cavo elettrico è più grande per adattarsi al diametro del cavo e della guaina protettiva.

ATTENZIONE: se **NON** si collega la resistenza elettrica al quadro elettrico domestico, è necessario collegare l'anodo al sistema di messa a terra.

11. DATI TECNICI

Modello		160/2.1	200/2.1	300/5.2
Dimensioni (inclinazione)	Lunghezza (mm) A	1230	1520	2553
	Profondità (mm) B	1684 (45°)	1684 (45°)	1973 (45°) / 2247 (30°)
	Altezza (mm) C	1700 (45°)	1700 (45°)	1989 (45°) / 1531 (30°)
Peso del sistema vuoto (kg)		92,5	107,5	178,4
Peso del sistema pieno (kg)		245,1	301,1	477
Resistenza elettrica opzionale (kW)		1.5		
Contenuto fluido circuito solare (Collettore + Bollitore + Tubazioni)		10.6 L	14.1 L	19.6 L

Bollitore	Volume del bollitore (l)	151	192	295
	Peso del bollitore vuoto (kg)	58	73	96
	Peso del bollitore pieno (kg)	209	265	391
	Lunghezza (mm)	1230	1520	1980
	Diametro (mm)	500		

Modello		SOLAREVO 2.1		SOLAREVO 2.6
Collettori	Dimensioni del collettore (mm)	1230x1696x86		1230x2111x86
	Numero di collettori	1	1	2
	Superficie lorda per collettore (m²)	2,09	2,09	2,60
	Peso per collettore vuoto (kg)	34,5	34,5	41,2
	Massima temp. di eserc.	175,7°C		
	Massima pressione di esercizio del circuito del collettore	2 MPa		

DATI TECNICI		
Tipo	SOLAREVO 2.1	SOLAREVO 2.6
Superficie lorda (Ag)	2,09 m^2	2,60 m^2
Superficie assorbente	1,99 m^2	2,48 m^2
Superficie di apertura (Aa)	1,96 m^2	2,44 m^2
Rendimento ottico (η_o) riferito ad Ag	79,5 %	
Coefficiente di dispersione termica lineare (a1) riferito ad Ag	3,75 W/(m^2K)	
Coefficiente di dispersione termica quadratica (a2) riferito ad Ag	0,016 W/(m^2K^2)	
Fattore di assorbimento	95 ±2 %	
Fattore di emissione	4 ±2 %	
L x P x A	1230 x 1696 x 86 mm	1230 x 2111 x 86 mm
Peso	34,5 kg	41,2 kg
Capacità assorbitore	1,6 l	1,8 l
Alloggiamento	Telaio in alluminio	
Assorbitore	Alluminio selettivo	
Numero di tubi	12	
Diametro tubo assorbitore	8 mm	
Vetro	Temperato da 3,2 mm	
Trasmittanza del vetro	>0,90 %	
Isolamento	Lana di roccia da 40 mm, densità 50 kg/m^3	
Temperatura di ristagno a 1000 W/m^2 e 30 °C	175,7 °C	
Massima pressione di esercizio	10 bar	

12. ETICHETTATURA AMBIENTALE IMBALLAGGI ITALIA

Ai sensi del decreto legislativo 3 settembre 2020, n. 116 e della decisione 97/129/CE, il materiale che compone l'imballaggio dell'apparecchio, và gestito nel modo corretto, al fine di *facilitarne la raccolta, il riutilizzo, il recupero ed il riciclaggio ove questo sia possibile*.

Per la corretta gestione della raccolta dell'imballaggio, il consumatore finale deve seguire la tabella riportata nella quale ci sono tutte le indicazioni necessarie.

Descrizione	Codifica materiale	Simbolo	Indicazione per la raccolta
GABBIA IN LEGNO PALLET IN LEGNO	LEGNO **FOR 50**		Raccolta **DIFFERENZIATA** **LEGNO** Verifica col tuo Comune come conferire questo imballaggio all'isola ecologica
SCATOLA IN CARTONE ANGOLARE IN CARTONE FOGLIO CARTONE	CARTONE ONDULATO **PAP 20**		Raccolta **DIFFERENZIATA** **CARTA** Verifica le disposizioni del tuo Comune
BUSTA ACCESSORI FOGLIO DI PROTEZIONE ETICHETTE	POLIETILENE **LD PE 04**		Raccolta **DIFFERENZIATA** **PLASTICA** Verifica le disposizioni del tuo Comune
POLISTIROLO	POLISTIROLO **PS 6**		Raccolta **DIFFERENZIATA** **PLASTICA** Verifica le disposizioni del tuo Comune
REGGIA NASTRO ADESIVO	POLIPROPILENE **PP 5**		Raccolta **DIFFERENZIATA** **PLASTICA** Verifica le disposizioni del tuo Comune
GRAFFE PER REGGIA	FERRO **FE 40**		Raccolta **DIFFERENZIATA** **METALLO** Verifica le disposizioni del tuo Comune

Certificato di Garanzia

La presente garanzia convenzionale è valida per gli apparecchi
destinati alla commercializzazione, venduti ed installati solo sul territorio italiano

La Direttiva Europea 99/44/CE e successive modifiche regolamenta taluni aspetti della vendita e delle garanzie dei beni di consumo e regolamenta il rapporto tra venditore finale e consumatore. La direttiva in oggetto prevede che in caso di difetto di conformità del prodotto, il consumatore ha diritto a rivalersi nei confronti del venditore finale per ottenerne il ripristino senza spese, per non conformità manifestatesi entro un periodo di 24 mesi dalla data di consegna del prodotto.
Ferroli S.p.A., in qualità di Azienda produttrice e come tale richiamata nei successivi capitoli, pur non essendo venditore finale nei confronti del consumatore, intende comunque supportare le responsabilità del venditore finale con una propria Garanzia Convenzionale, fornita in Italia tramite la propria Rete di Servizi Assistenza Autorizzata alle condizioni riportate di seguito.

Oggetto della Garanzia e Durata

L'oggetto della presente garanzia convenzionale consiste nell'impegno del ripristino della conformità del bene senza spese per il consumatore, alle condizioni qui di seguito specificate. L'Azienda produttrice offre una garanzia convenzionale per i difetti di fabbricazione e di funzionamento degli apparecchi venduti ai consumatori, a partire dalla data di consegna, purché avvenuta entro 3 anni dalla data di fabbricazione del prodotto e documentata attraverso regolare documento di acquisto, per un periodo pari a:

- 5 anni sui collettori solari
- 5 anni su accumuli o bollitori solari
- 2 anni su tutti gli altri componenti, sugli accessori e sulle parti elettriche (pompe, elettronica, ecc...).

La messa in servizio del prodotto deve essere effettuata a cura della società installatrice.

Modalità per far valere la presente Garanzia

In caso di guasto, il cliente deve richiedere entro il termine di decadenza di 30 giorni l'intervento del Centro di Assistenza di zona, autorizzato Ferroli S.p.A.. I nominativi dei Centri di Assistenza autorizzati Ferroli S.p.A. sono reperibili:

- attraverso il sito internet www.ferroli.com
- attraverso il numero Servizio Clienti: 800 59 60 40

I Centri di Assistenza e/o l'Azienda produttrice potranno richiedere di visionare il documento fiscale di acquisto: conservare pertanto con cura tali documenti per tutta la durata della garanzia. I costi di intervento sono a carico dell'azienda produttrice, fatte salve le esclusioni previste e riportate nel presente Certificato, Gli interventi in garanzia non modificano la data di decorrenza della Garanzia e non prolungano la durata della stessa.

Esclusioni

Sono esclusi dalla presente garanzia i difetti di conformità causati da:

- trasporto non effettuato a cura dell'azienda produttrice;
- anormalità o anomalie di qualsiasi genere nell'alimentazione degli impianti idraulici, elettrici e scarichi;
- calcare, inadeguati trattamenti dell'acqua e/o trattamenti disincrostanti erroneamente effettuati; corrosioni causate da condensa o aggressività dell'acqua;
- gelo, correnti vaganti e/o effetti dannosi di scariche atmosferiche;
- mancanza di dispositivi di protezione contro le scariche atmosferiche;
- trascuratezza, incapacità d'uso o manomissioni/modifiche effettuate da personale non autorizzato;
- cause di forza maggiore indipendenti dalla volontà e dal controllo dell'azienda produttrice

È esclusa qualsiasi responsabilità dell'Azienda produttrice per danni diretti e/o indiretti, causati dal mancato rispetto delle prescrizioni riportate nel libretto di installazione, manutenzione ed uso che accompagna il prodotto, e dalla inosservanza della vigente normativa in tema di installazione e manutenzione dei prodotti.

La presente Garanzia Convenzionale non sarà applicabile nel caso di:

- assenza del documento fiscale d'acquisto;
- inosservanza delle istruzioni e delle avvertenze previste dall'azienda produttrice e riportate sui manuali di utilizzo a corredo del prodotto;
- errata installazione o inosservanza delle prescrizioni di installazione, previste dall'Azienda produttrice e riportate sui manuali di installazione a corredo del prodotto;
- inosservanza di norme e/o disposizioni previste da leggi e/o regolamenti vigenti, in particolare per assenza o difetto di manutenzione periodica;
- interventi tecnici su parti guaste effettuati da soggetti estranei alla Rete di Assistenza Autorizzata dall'Azienda produttrice;
- impiego di parti di ricambio di qualità inferiore alle originali

Non rientrano nella presente Garanzia Convenzionale la sostituzione delle parti soggette a normale usura di impiego (anodi, guarnizioni, manopole, lampade spia, resistenze elettriche, ecc ...), le operazioni di pulizia e manutenzione ordinaria e le eventuali attività o operazioni per accedere al prodotto (smontaggio mobili o coperture, allestimento ponteggi, noleggio gru/cestelli, ecc.).

Responsabilità

Il personale autorizzato dalla azienda produttrice interviene a titolo di assistenza tecnica nei confronti del Cliente; l'installatore resta comunque l'unico responsabile dell'installazione che deve rispettare le prescrizioni di legge e le prescrizioni tecniche riportate sui manuali di installazione a corredo del prodotto. Le condizioni di garanzia convenzionale qui elencate sono le uniche offerte dall'Azienda produttrice. Nessun terzo è autorizzato a modificare i termini della presente garanzia né a rilasciarne altri verbali o scritti.

Diritti di legge

La presente Garanzia Convenzionale si aggiunge e non pregiudica i diritti del consumatore previsti dalla direttiva 99/44/CEE (e successive modifiche) e dal relativo decreto nazionale di attuazione D.Lgs. 06/09/2005 n.206 (e successive modifiche). Qualsiasi controversia relativa alla presente garanzia sarà devoluta alla competenza esclusiva del Tribunale di Verona.

FERROLI S.p.A. - Via Ritonda 78/a - 37047 San Bonifacio (Verona) Italy - tel. +39.045.6139411 - fax. +39.045.6100933 - www.ferroli.com

IMPORTANT

	In case of roof installation, before starting the work, prepare fall arrest or generic life-saving devices in conformity with the regulations. Respect the specific regulations in the country!
	If for technical reasons there are no generic fall arrest and life-saving devices, safety harnesses must be used!
	Only use safety harnesses that have been checked and bear the mark issued by official inspection bodies (support and life-saving belts, safety ropes/slings, fall-absorber belts, rope shorteners).
	If there are no fall arrest and life-saving devices, failure to use safety harnesses may result in a fall from great heights with consequent serious injury or death!
	If using lean-to ladders, dangerous falls may occur if the ladder sinks, slips or falls.
	Working near exposed power lines is permitted only if: - there is no voltage and this condition is ensured for the entire duration of the work - live parts are protected by a covering or barrier - safety distances are respected: 1 m .....with 1000 Volts 3 m .....with 1000 to 11000 Volts 4 m .....with 11000 to 22000 Volts 5 m .....with 22000 to 38000 Volts > 5 m with unknown voltage
	Only use the prescribed heat transfer fluid!
	If the collector and the assembly material have remained in the sun for a long time there is risk of burns if touched.
	Any leaking of the O-ring sealing system, due to incorrect installation, use non-compliant parts or tampering, can cause irreparable leakage of system liquid inside the panel. This can permanently compromise panel functionality.
	If possible, hook the safety harness above the user. Only attach the safety harness to secure hooking points or elements!

	Do not use damaged ladders, e.g. wooden ladders with broken handrails and rungs, or bent and deformed metal ladders. Do not patch up broken handrails, bars and rungs of wooden ladders!
	Position ladders in a secure way. Respect the correct lean angle (68°-75°). Make sure ladders cannot slide, fall over or sink, for example by enlarging the feet, using feet suitable for the support surface, and using hooking devices.
	Only lean ladders on secure support places. In traffic zones, protect ladders by means of barriers
	Contact with exposed live power lines can have fatal consequences.
	Wear protective goggles during drilling work and when handling vacuum tube collectors (risk of explosion)!
	Wear safety shoes during installation!
	Wear cut-resistant safety gloves when installing the collectors and handling vacuum tube collectors (danger of explosion)!
	Wear a safety helmet during installation!
	During installation cover the collector (e.g. with a tarpaulin) and the assembly material to protect them from the heat due to the sun.
	If the solar circuit TIGHTNESS TEST is done with pure water without added antifreeze (INADVISABLE), make sure to empty the circuit COMPLETELY at the end of the test and immediately fill it with a solution containing ANTIFREEZE or a suitable premixed solar fluid (e.g. FERSOL LT or ULTRA LT). The rule for calculating the frost protection level for a solar system is to consider the MINIMUM DESIGN TEMPERATURE of the place for heating systems (e.g. Law 10/91) SUBTRACTING ANOTHER 7° for "windchill" (rapid heat loss due to wind) and the "clearsky" effect (night radiance with clear sky) on the collector installed on the roof. The manufacturer is not liable in case of damage caused by freezing if the above MANDATORY warnings have not been taken into account.
	NEVER use solar circuit automatic filling devices directly connected to the mains water, as these do not allow the replenishing of any small leaks (even prolonged) with the correct added mixture of antifreeze, diluting the level of protection and putting at risk the integrity of the collector at the connections (plastic unions) and, in serious cases, the internal piping. Any devices for replenishing the specific fluid solar can be used only in the presence of good quality mains water (absence of sludge, hard or brackish water) after a chemical-physical analysis, and in any case providing for a specific antifreeze dosing pump to add a suitable mixture of quality equal to the solar mixture of the original filling. The manufacturer is not liable in case of damage caused by freezing if the above MANDATORY warnings have not been taken into account.

SUMMARY

1. INSTALLATION INSTRUCTIONS

Instructions for installation and transport

Installation must only be carried out by qualified personnel, in compliance with all the instructions given in this technical manual, the provisions of current law, the prescriptions of the national and local regulations and the rules of proper workmanship. The installation of one or more collectors is an operation that modifies the roof's existing structure. The coverings of roofs, e.g. tiles, shingles and slate, especially in attics and inhabited lofts, or if the minimum roof slope is less than the permissible values (for coverings), require additional constructional measures, such as waterproofing membranes to prevent water entering due to the pressure of wind or snow. These substructures, with their connections to the part in masonry, must be prepared on the spot according to the local situation. Securing by means of concrete ballast blocks and ropes enables collector installation without making holes in the covering. The collectors are assembled on concrete blocks. Use rubber mats in order to increase the adherence between the roof and the concrete blocks and prevent damage to the covering. The permissible load for the roof and the attachment points must be checked on site by a statics expert. It is advisable to use a suitable belt to carry the collector. Do not lift the collector by the connections. Make sure the collector does not get knocked or undergo mechanical actions; above all, protect the solar glass and pipe connections.

Statics

Installation must only be carried out on roofs or frames that are suitable and strong enough. The static capacity of the roof or frame must be checked on the spot before installing the collectors. In particular, check the suitability of the framework wood regarding the hold of the screw connections arranged for securing the collectors. The check done by the constructor of the entire framework in compliance with the current regulations in the country, is required above all in areas subject to heavy snowfall or in regions exposed to strong winds. In such cases, all the characteristics of the installation site (Foehn, frost effect, vortices, etc.) which can involve higher stresses must be taken into account. The collectors must be assembled in such a way as to prevent accumulation of snow by means of protection structures. The distance from the ridges/edges of the roof must be at least 1 m.

Lightning protection / Building potential equalization
As a rule, the collectors do not have to be connected to the building's lightning protection (observe the regulations in force in the country!). When installing on metal substructures, make sure to consult authorized experts in lightning protection. The metal pipes of the solar circuit must be connected by means of a conductor (green/yellow) of at least 16 mm2 CU (H07 V-U or R) to the main potential equalizer bar. Grounding can be done with a buried ground wire. The ground conductor must be laid outside the building. The ground plate must also be connected to the main potential equalizer bar by means of a line of the same diameter.

Check
- the completeness and integrity of the supply.
- the optimum arrangement of the solar collectors. Take in account the solar radiation (angle of inclination, south orientation). Avoid the shade of tall trees or similar and adapt the range of the collectors to the building's architecture (e.g. alignment with windows, doors, etc.).

Connections
The materials used must be resistant to temperatures (up to 220 °C), the heat transfer fluid and weather conditions.

Thermal fluid
Nox fluid is a propylene glycol-based thermal fluid, non-toxic to the skin. It must be used diluted in water to ensure antifreeze and anticorrosive properties. The recommended percentage is 33% of the water volume. In case of very low ambient temperatures, increase the volume percentage according to the following table:

Temperature (°C)	-10	-15	-20	-25	-30	-35
Percentage in water solution (%)	23	31	37	43	48	53

2. COMMISSIONING INSTRUCTIONS

Flushing and filling
For safety reasons, only carry out filling when the sun is not out or after covering the collectors.

Attention
Only use the foreseen antifreeze liquid (see list).

It may no longer be possible to completely empty collectors that are already filled. For this, in case of risk of frost, the collectors must be filled with a water and antifreeze solution also for operation and pressure tests. Alternatively, the pressure test can be done with compressed air and leak detection spray.

Operating pressure
The maximum operating pressure is 10 bar.

Air venting

The air must be vented:

- at the time of commissioning (after filling)
- 4 weeks after commissioning
- when necessary, e.g. in case of faults
-

WARNING: DANGER OF SCALDING FROM STEAM OR HEAT TRANSFER FLUID!

OPERATE THE VENT VALVE IF THE TEMPERATURE OF THE HEAT TRANSFER FLUID IS < 60°C. WHEN EMPTYING THE SYSTEM, THE COLLECTORS MUST BE COLD! COVER THE COLLECTORS AND, IF POSSIBLE, EMPTY THE SYSTEM IN THE MORNING.

Heat transfer fluid check

Periodically (every 2 years) check the antifreeze properties and the pH value of the heat transfer fluid.

Check the antifreeze with a tester and change or replenish it if necessary!

Check the pH value with a measuring instrument (nominal value of pH 7.5 approx.): if it drops below the limit value of pH 7, change the heat transfer fluid.

Collector maintenance

Once a year, visually check the collectors for any damage, dirt or leaks.

It is also advisable to do a check whenever the collectors undergo higher than normal stresses (e.g. strong wind gusts, heavy loads due to snow, etc.).

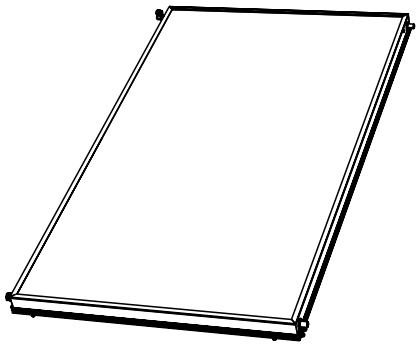
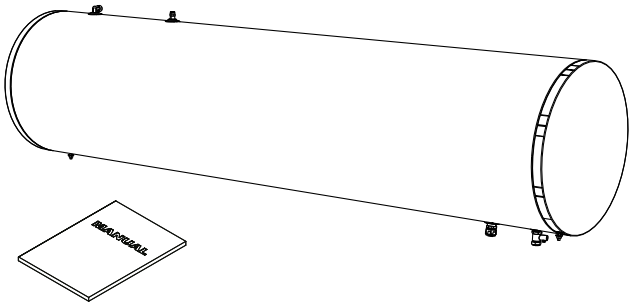
3. SYSTEM PLACEMENT

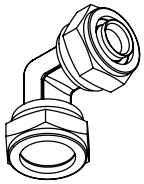
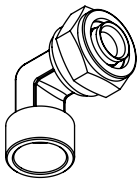
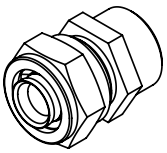
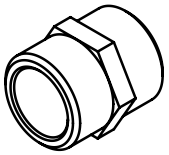
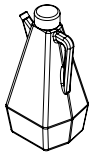
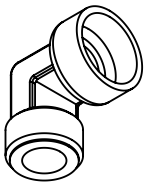
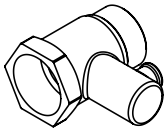
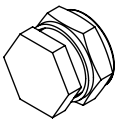
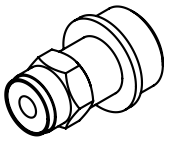
The solar water heater installation area must meet the following requirements:

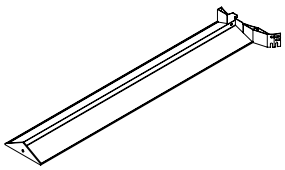
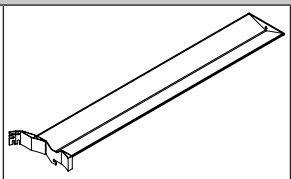
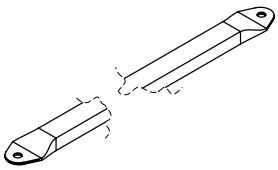
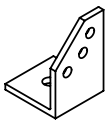
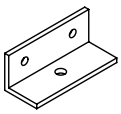
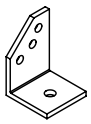
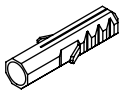
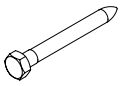
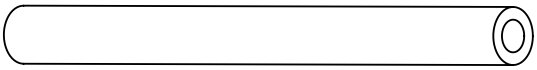
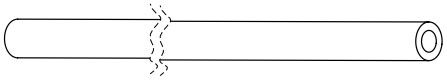
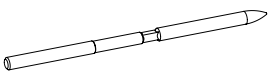
- The solar water heater must face SOUTH (or NORTH if installed in the southern hemisphere) and it is strongly recommended that a compass be used to ensure this condition. Differences of up to 10-15° do not substantially affect the efficiency of the system, but greater differences can seriously compromise performance.
- In countries located at 40° latitude, the collectors must be installed at an angle of 45° to the horizontal plane. The collectors should generally be positioned at an angle of 5° with respect to the latitude of the installation area. A lower angle involves a considerable reduction in the annual efficiency of the solar thermal system.
- Solar thermal systems must never be placed in the shade, especially in winter, when the sun is lower. The minimum distance between the system and any element generating shade must be not less than twice the height of the element.

4. KIT COMPOSITION FOR FLAT ROOF

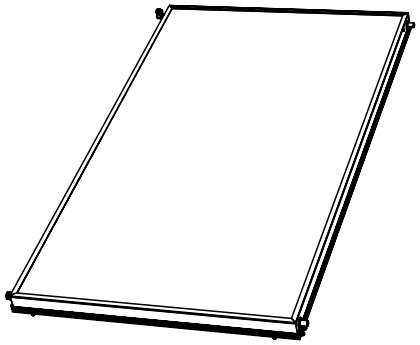
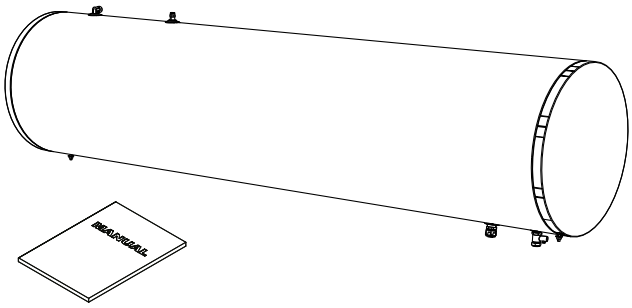
COMPOSITION OF SYSTEM SOLAREVO NAT 160L/2,1 - TP (0XGN12XA) 45°

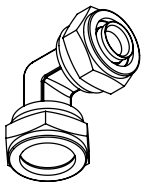
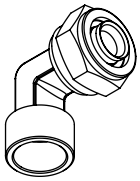
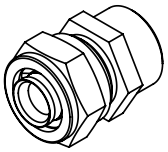
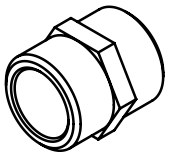
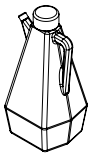
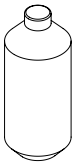
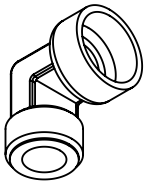
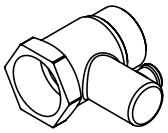
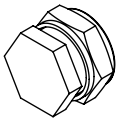
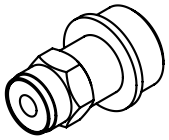
Code 0XGF1VWA SOLAREVO 2.1	Code 072181XA Storage tank 160 C
 1x	 1x 1x

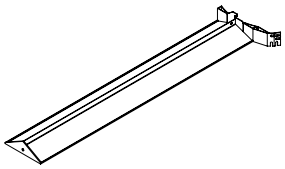
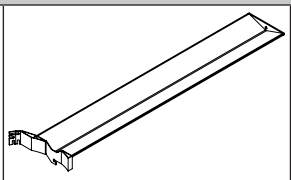
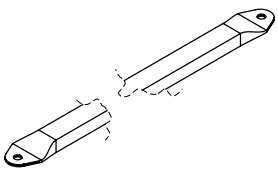
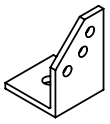
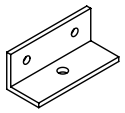
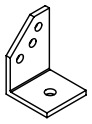
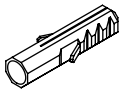
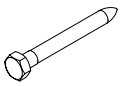
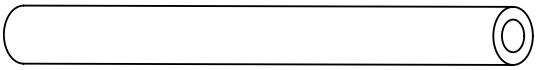
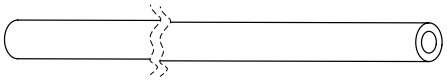
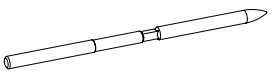
"Code 072294X0 Hydraulic kit 160 L				
 Elbow fitting DN 16x22 2x	 Elbow fitting DN 16x3/4" 1x	 Nipple DN 16x3/4" 1x	 Nipple 1/2" 1x	 Thermal fluid 2 LT 1x
 Elbow fitting M/F 1/2" 1x	 1/2" 10bar 1x	 Plug Ø22 2x	 Safety valve 1/2" 2.5 bar 1x	

Code 076155X0 Frame kit 160L/2.1					
 Right support bracket 1200 x 200 x 60 1x	 Left support bracket 1200 x 200 x 60 1x	 Mounting brackets 25x15x1237 2x	 Left floor mounting bracket 1x	 Angle bracket 40x40x90 1x	 Right floor mounting bracket 1x
 Plug 5x	 Bolt 4x	 Hex bolt M8x20 4x	 Hex locknut M8 14x	 Washer 4x	 Washer 6x
 Insulation 9x22 900 1x		 Insulation 9x22 1800 1x		 Bolt M8x140 1x	
 Flexible pipe DIN 16 900 1x		 Flexible pipe DIN 16 1800 1x			

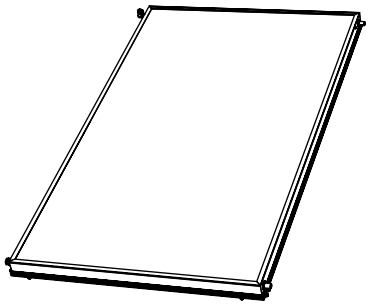
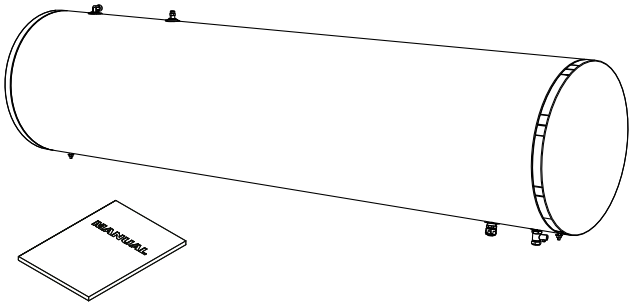
COMPOSITION OF SYSTEM SOLAREVO NAT 200L/2,1 - TP (0XGN13XA) 45°

Code 0XGF1VWA SOLAREVO 2.1	Code 072182XA Storage tank 200 C
 1x	 1x 1x

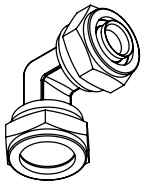
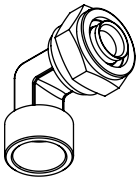
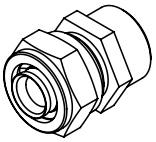
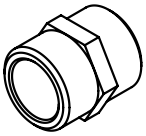
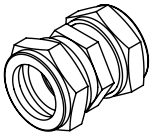
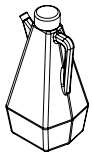
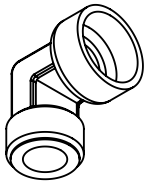
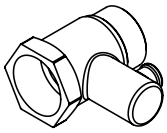
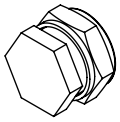
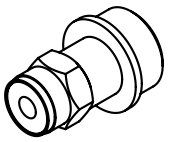
"Code 072295X0 Hydraulic kit 200 L					
 Elbow fitting DN 16x22 2x	 Elbow fitting DN 16x3/4" 1x	 Nipple DN 16x3/4" 1x	 Nipple 1/2" 1x	 Thermal fluid 2 LT 1x	 Thermal fluid 1 LT 1x
 Elbow fitting M/F 1/2" 1x	 1/2" 10bar 1x	 Plug Ø22 2x	 Safety valve 1/2" 2.5 bar 1x		

Code 076159X0 Frame kit 200L/2.1					
 Right support bracket 1200 x 200 x 60 1x	 Left support bracket 1200 x 200 x 60 1x	 Mounting brackets 25x15x1237 2x	 Left floor mounting bracket 1x	 Angle bracket 40x40x90 1x	 Right floor mounting bracket 1x
 Plug 5x	 Bolt 4x	 Hex bolt M8x20 4x	 Hex locknut M8 14x	 Washer 4x	 Washer 6x
 Insulation 9x22 1000 1x	 Insulation 9x22 1750 1x	 Bolt M8x140 1x			
 Flexible pipe DIN 16 1000 1x	 Flexible pipe DIN 16 1750 1x				

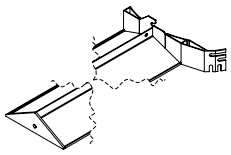
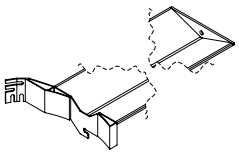
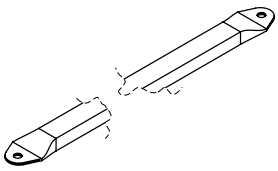
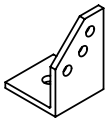
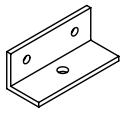
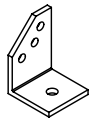
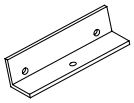
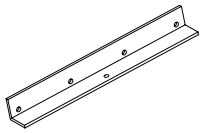
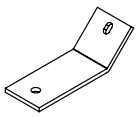
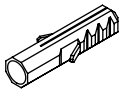
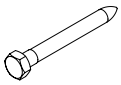
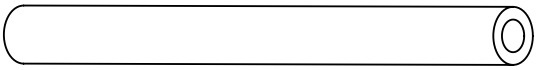
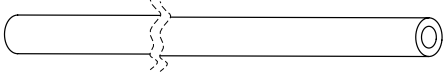
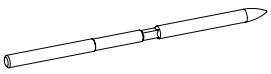
COMPOSITION OF SYSTEM SOLAREVO NAT 300L/5,2 - TP (0XGN54XA) 45°

Code 0XGF2VWA SOLAREVO 2.6	Code 072183XA Storage tank 300 C
 2x	 1x 1x

"Code 072296X0
Hydraulic kit 300 L

 Elbow fitting DN 16x22 2x	 Elbow fitting DN 16x3/4" 1x	 Nipple DN 16x3/4" 1x	 Nipple 1/2" 1x	 Connection 22 x 22 2x	 Thermal fluid 2 LT 2x
 Elbow fitting M/F 1/2" 1x	 1/2" 10bar 1x	 Plug Ø22 2x	 Safety valve 1/2" 2.5 bar 1x		

Code 076156X0
Frame kit 300L/5.2

 Right support bracket 1490 x 200 x 60 1x	 Left support bracket 1490 x 200 x 60 1x	 Mounting brackets 25x15x1722 2x	 Left floor mounting bracket 1x	 Angle bracket 40x40x90 1x	 Right floor mounting bracket 1x
 Angle bracket 40x40x150 1x	 Angle bracket 40x40x350 1x	 Mounting bracket 40x4x150 1x			
 Plug 6x	 Bolt 5x	 M8x20 4x	 Hex locknut M8 22x	 Washer 4x	 Washer 6x
 Insulation 9x22 1000 1x	 Insulation 9x22 2350 1x	 Bolt M8x140 1x			
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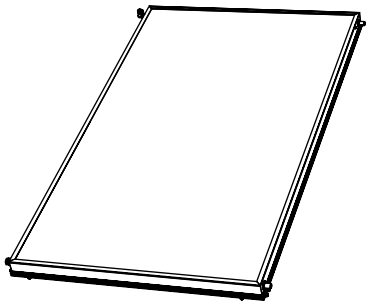
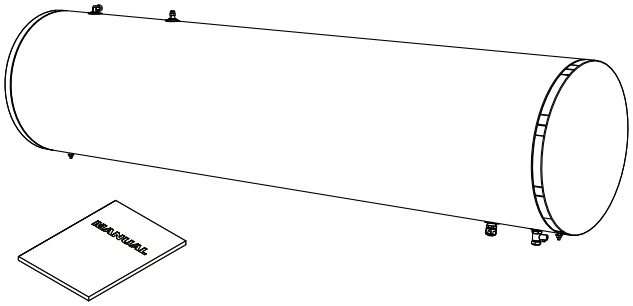
COMPOSITION OF SYSTEM SOLAREVO NAT 300L/5,2 - TP (0XGN58XA) 30°

Code 0XGF2VWA SOLAREVO 2.6	Code 072183XA Storage tank 300 C
 2x	 1x 1x

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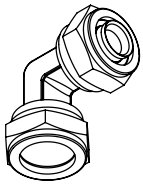
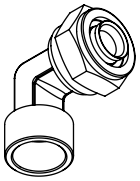
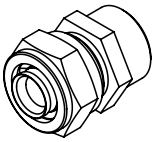
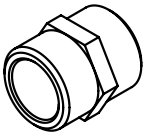
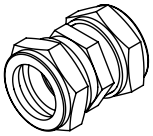
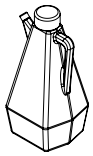
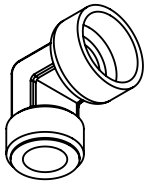
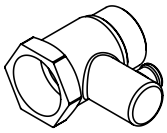
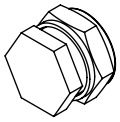
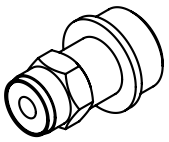
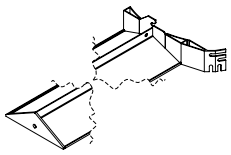
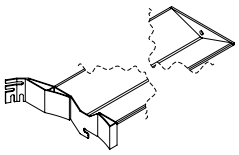
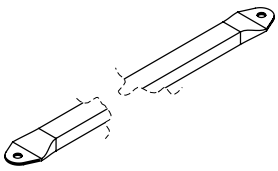
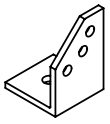
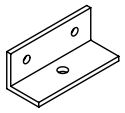
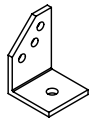
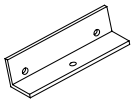
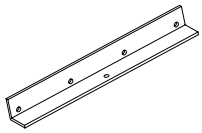
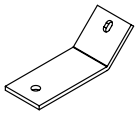
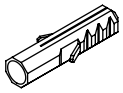
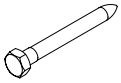
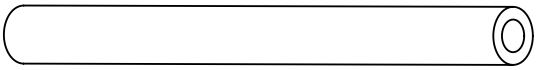
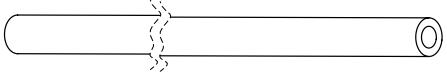
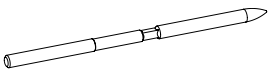
 Elbow fitting DN 16x22 2x	 Elbow fitting DN 16x3/4" 1x	 Nipple DN 16x3/4" 1x	 Nipple 1/2" 1x	 Connection 22 x 22 2x	 Thermal fluid 2 LT 2x
 Elbow fitting M/F 1/2" 1x	 1/2" 10bar 1x	 Plug Ø22 2x	 Safety valve 1/2" 2.5 bar 1x		

Code 076191X0 Frame kit 300L/5.2					
 Right support bracket 1031 x 200 x 60 1x	 Left support bracket 1031 x 200 x 60 1x	 Mounting brackets 25 x 15 x 1360 2x	 Left floor mounting bracket 1x	 Angle bracket 40x40x90 1x	 Right floor mounting bracket 1x
 Angle bracket 40x40x150 1x	 Angle bracket 40x40x350 1x	 Mounting bracket 40x4x150 1x			
 Plug 6x	 Bolt M8 x 60 5x	 M8x20 4x	 Hex locknut M8 22x	 Washer 4x	 Washer 6x
 Insulation 9x22 1000 1x	 Insulation 9x22 2350 1x	 Bolt M8x140 1x			
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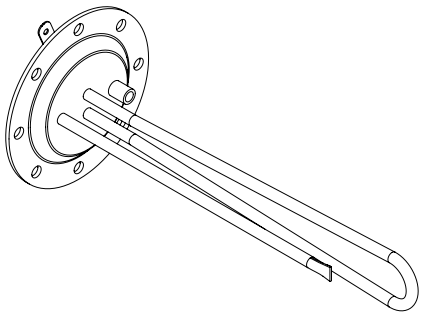
OPTIONAL KITS

Code 073109X0 Heating element kit 1.5 kW
 1x

5. FLAT ROOF SYSTEM INSTALLATION - SINGLE COLLECTOR

Step 1

Install the storage tank support uprights at distance A according to Table A. To facilitate installation, drill the roof floor at an angle of about 10-15 degrees. Follow the system placement instructions in Chap. 4.

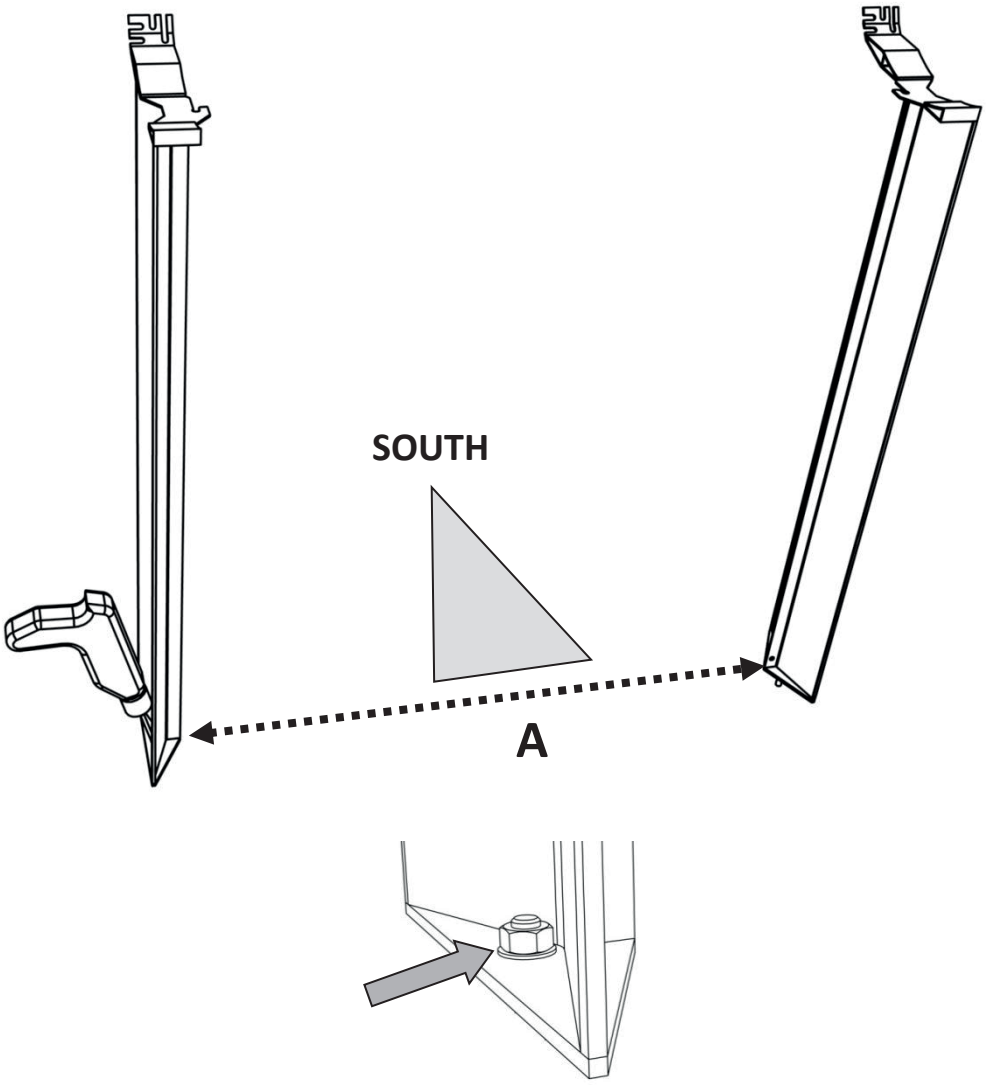


TABLE A			
STORAGE TANK	**160 L**	**200 L**	**300 L**
DISTANCE A [mm]	1192	1192	1944

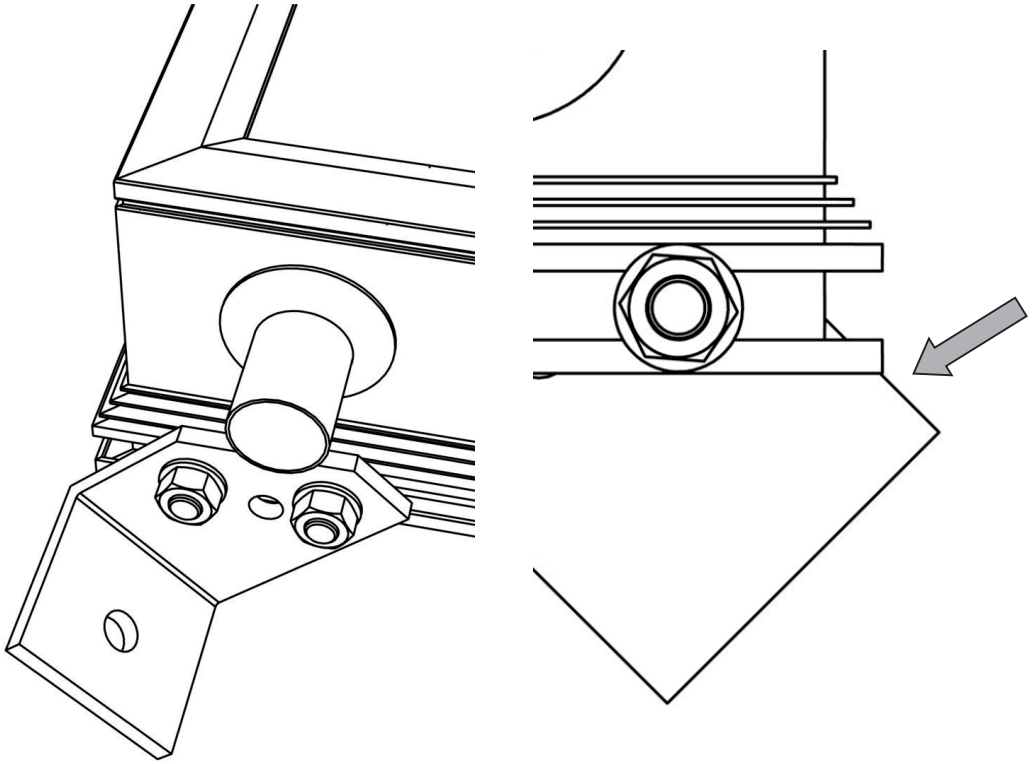
ATTENTION: Failure to secure the uprights to the roof can cause the support structure to fail under extreme load conditions. Anchoring of the system to the flat roof floor must be done with devices suitable for the material of the floor.

To avoid problems of damp or water infiltration (rain/snow) in the roof, the pipes entering the roof must be watertight. It is up to the local construction engineer to provide precise indications according to the type of roof construction and/or local regulations. The same applies to the system anchor points, regardless of the devices used for installation.

Step 2

Secure the two feet to the bottom of the collector.

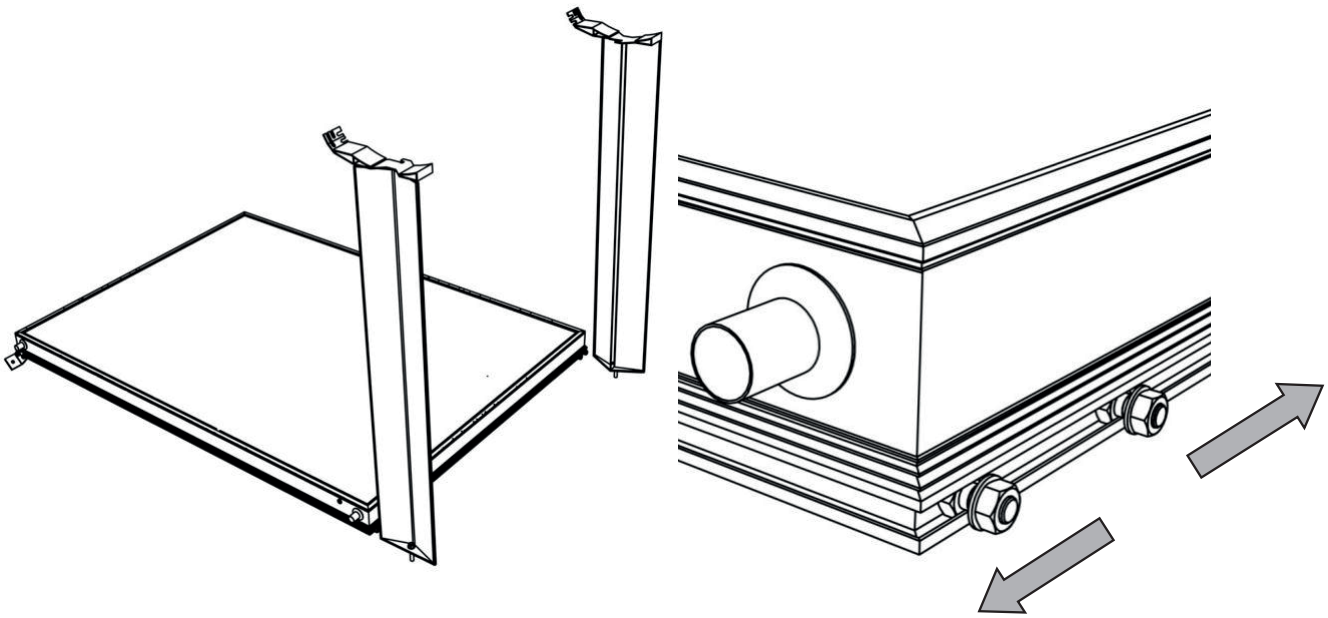
Consult the drawing below for their positioning in relation to the collector, as it affects the accuracy of installation.



IMPORTANT: DO NOT REMOVE THE COLLECTOR COVERING BEFORE THE SYSTEM HAS BEEN CONNECTED!

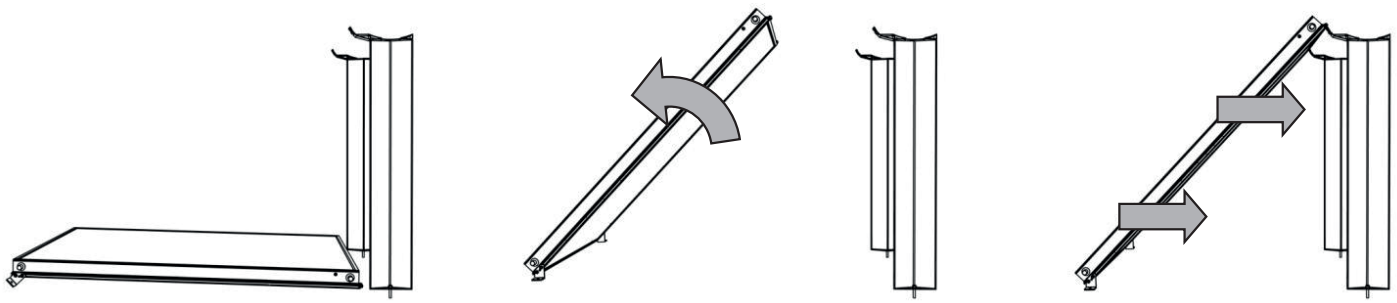
Step 3

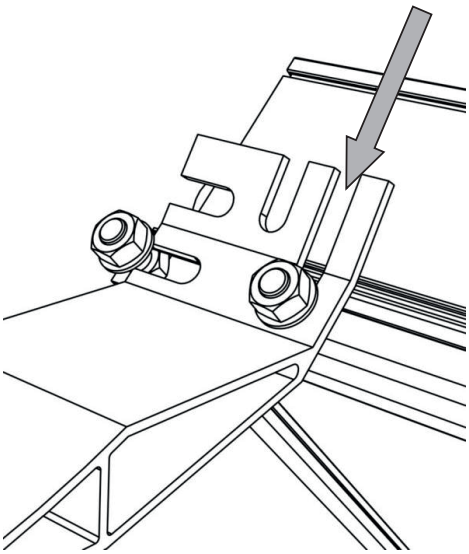
Position the collector on the roof floor in front of the uprights. To facilitate the next step, slide the collector fastening bolts so they are roughly in line with the slots in the uprights.



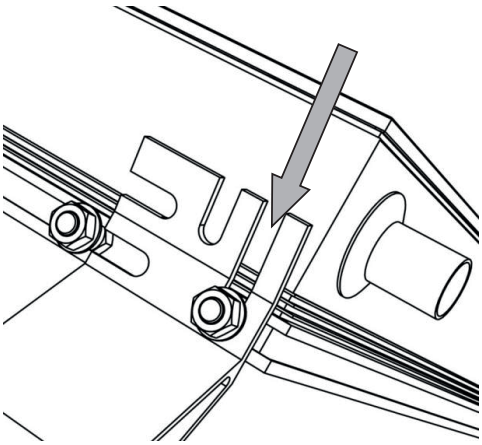
Step 4

Lift the collector from the side near the uprights at about a 45 degree angle. Move the collector towards the uprights. Insert the fastening bolts in the vertical slots in the uprights.





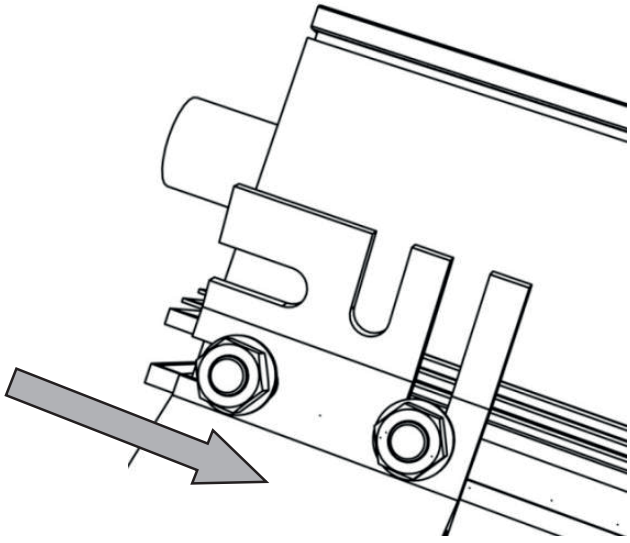
Top right of collector



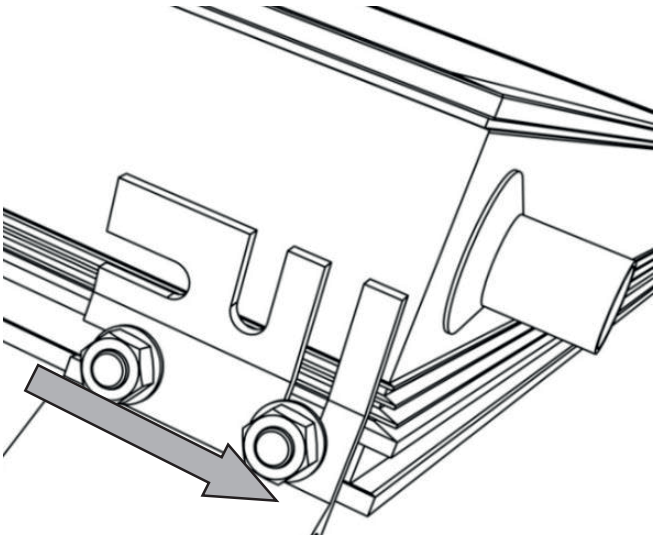
Top left of collector

Step 5

Slide the two remaining bolts into the horizontal slots in the uprights.



Top right of collector



Top left of collector

Step 6

Make sure the distance B between the centers of the storage tank support holes agrees with Table B. Otherwise, small adjustments can be made ensuring that both uprights are vertical and that the collector is centered between them.

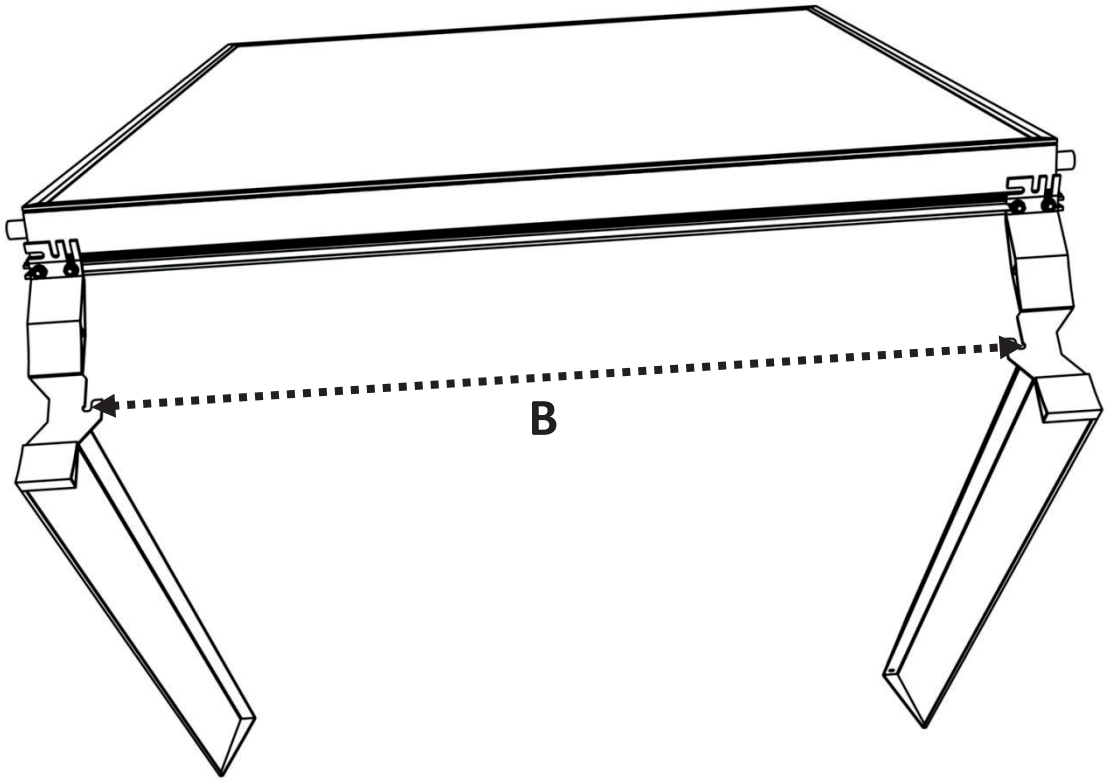


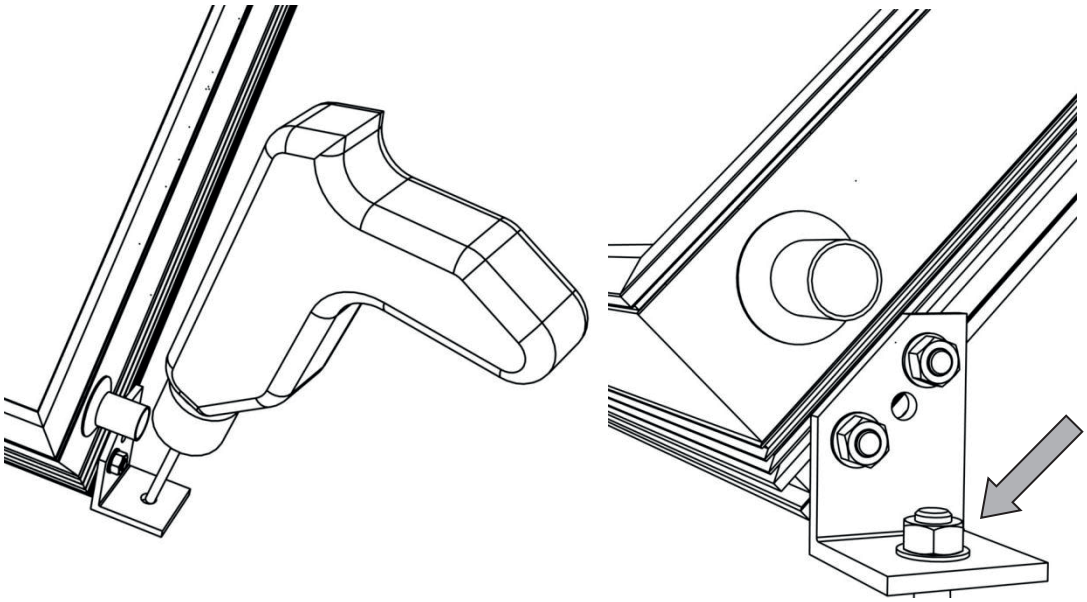
TABLE B			
STORAGE TANK	**125/160 L**	**200 L**	**300 L**
DISTANCE B [mm]	1090	1090	1842

Step 7

Tighten the 4 collector fastening bolts.

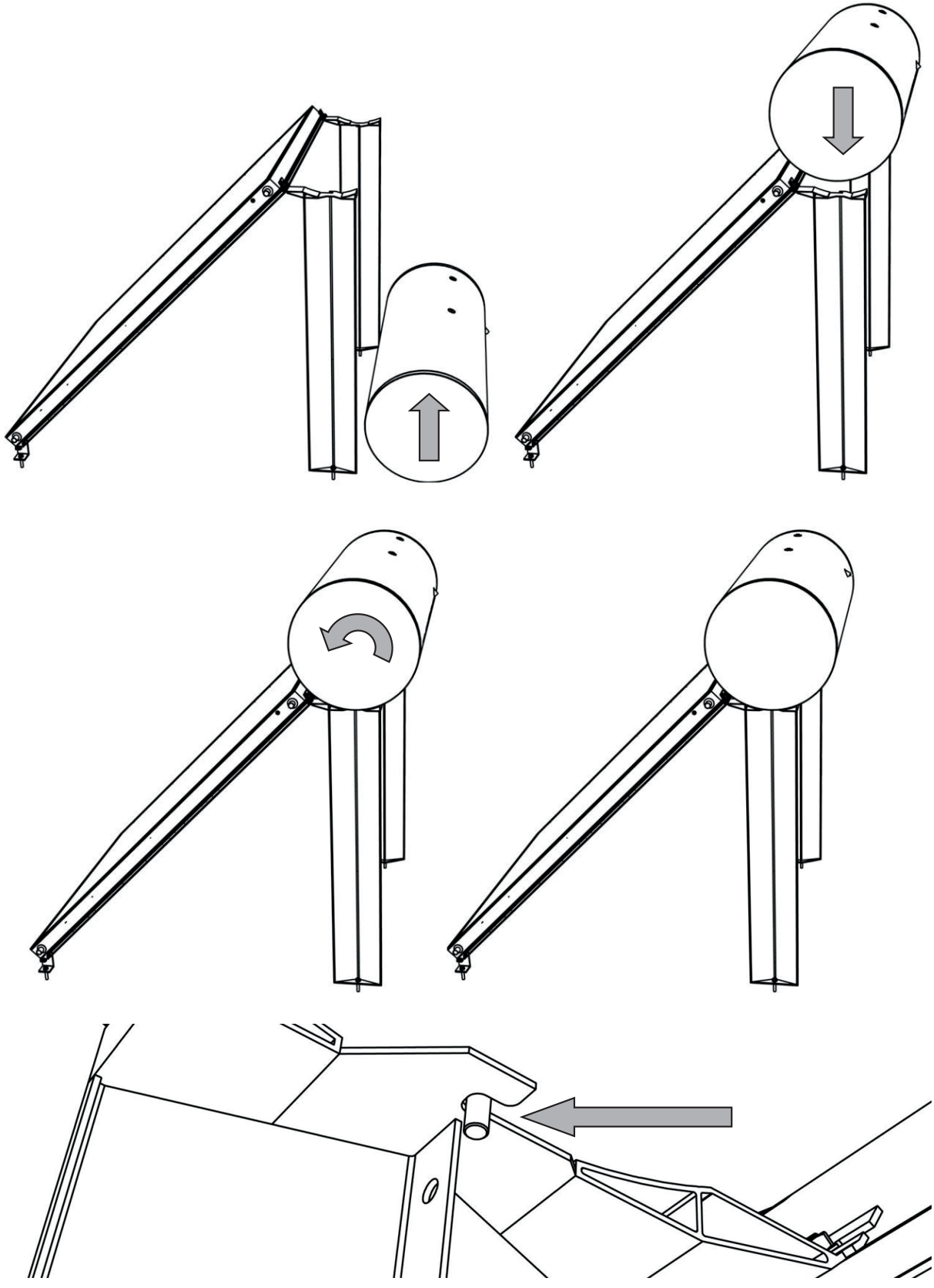
Step 8

Using the collector feet holes as a guide, drill the roof floor and apply the appropriate fasteners to hold them in place. Use fasteners of adequate length and type to ensure that the collector feet are secured to the structural roof covering and not to the insulation. Use an appropriate sealing material to prevent the penetration of damp into the roofing material.



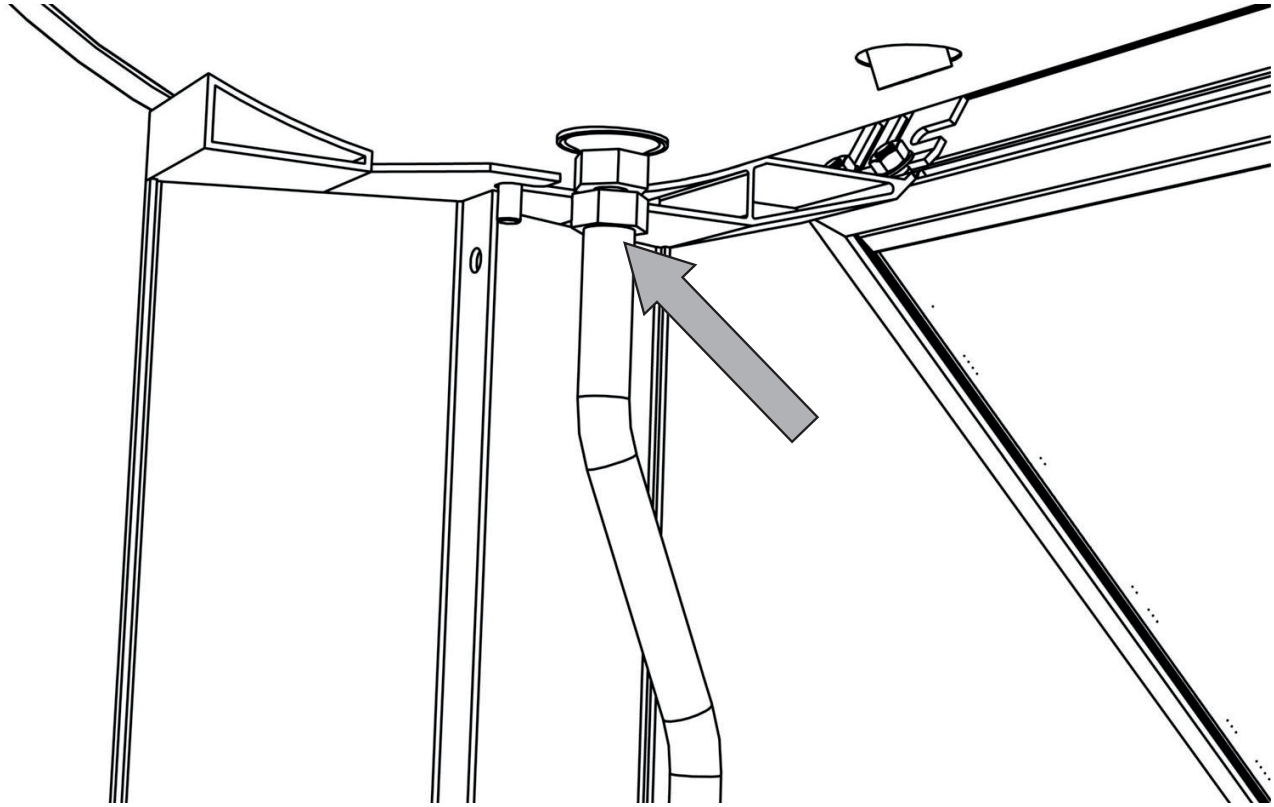
Step 9

Place the storage tank on the roof floor by turning it slightly backwards. Make sure the storage tank fastening bolts do not touch the floor. Lift the storage tank and position it on the circular seats on top of the uprights. Rotate the storage tank so that its fastening bolts fit into the slots in the uprights.



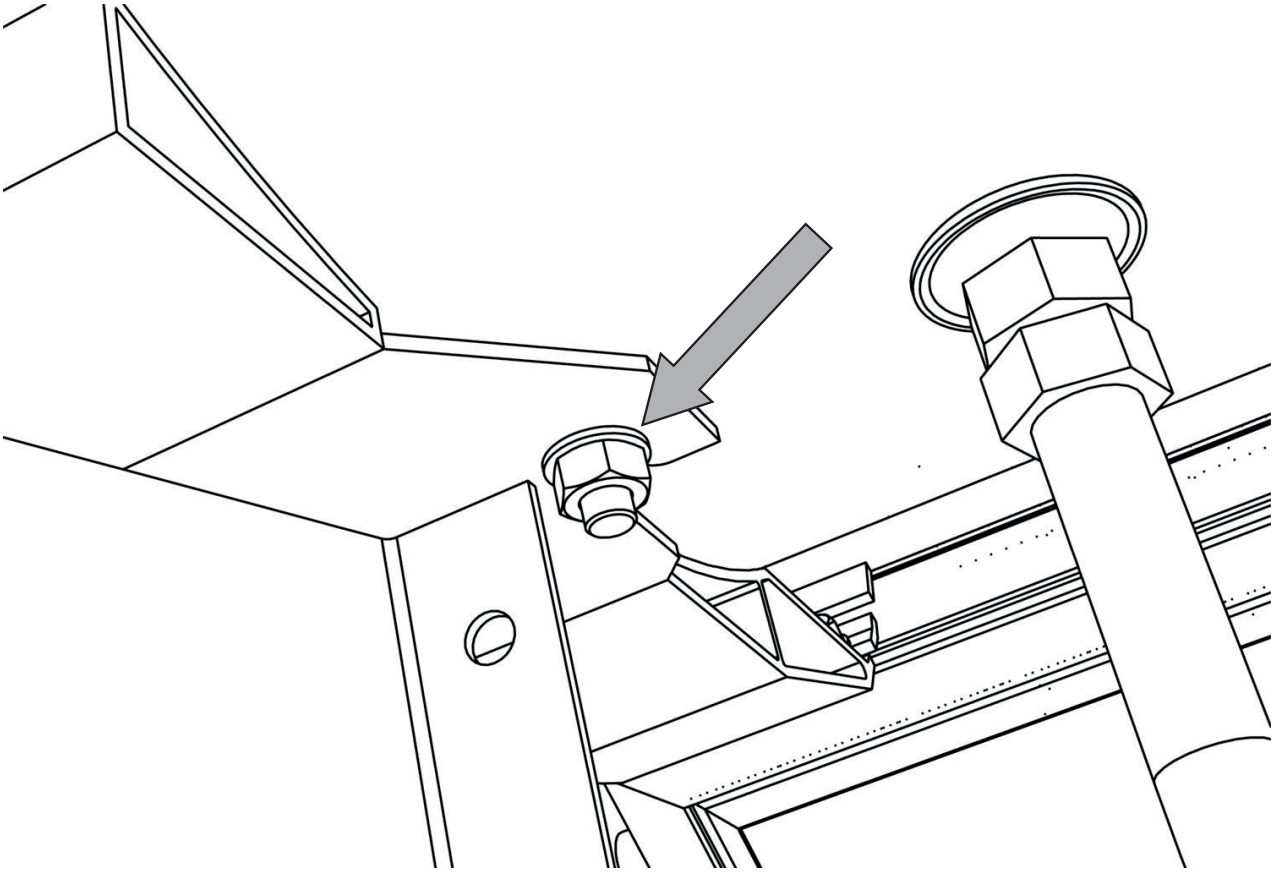
Step 10

To facilitate installation, the cold water supply pipe can be connected.



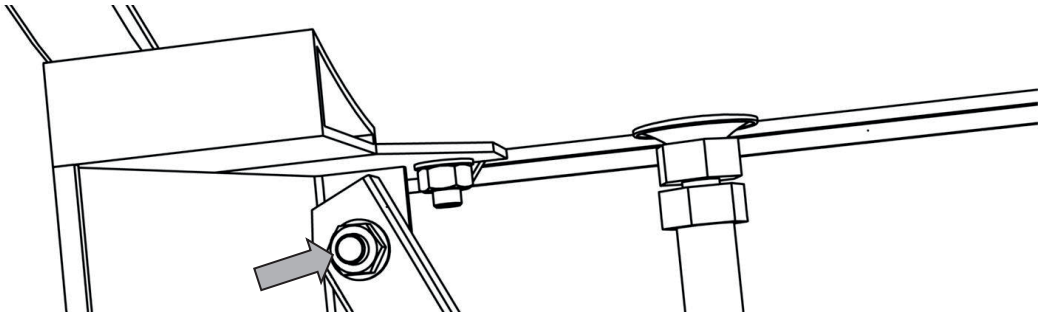
Step 11

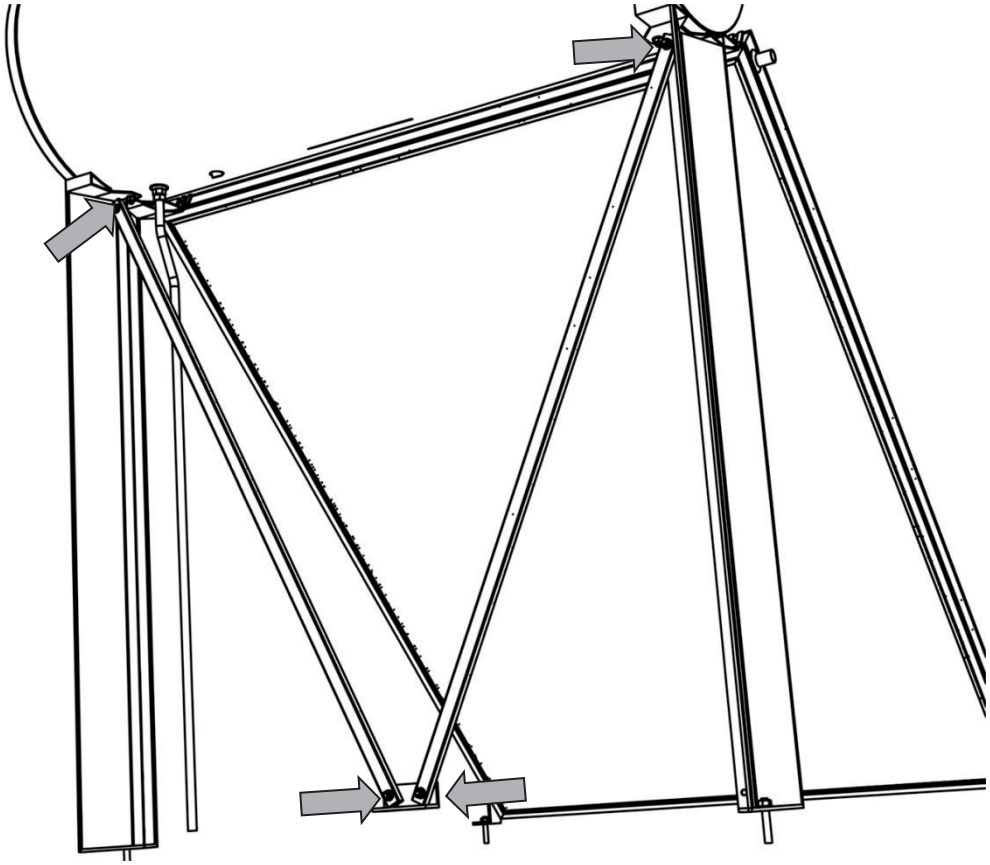
Fit the washers and nuts on the storage tank fastening bolts.



Step 12

Connect the tie-rod system to the uprights. Do not tighten down the bolts, but make sure they are not too loose.

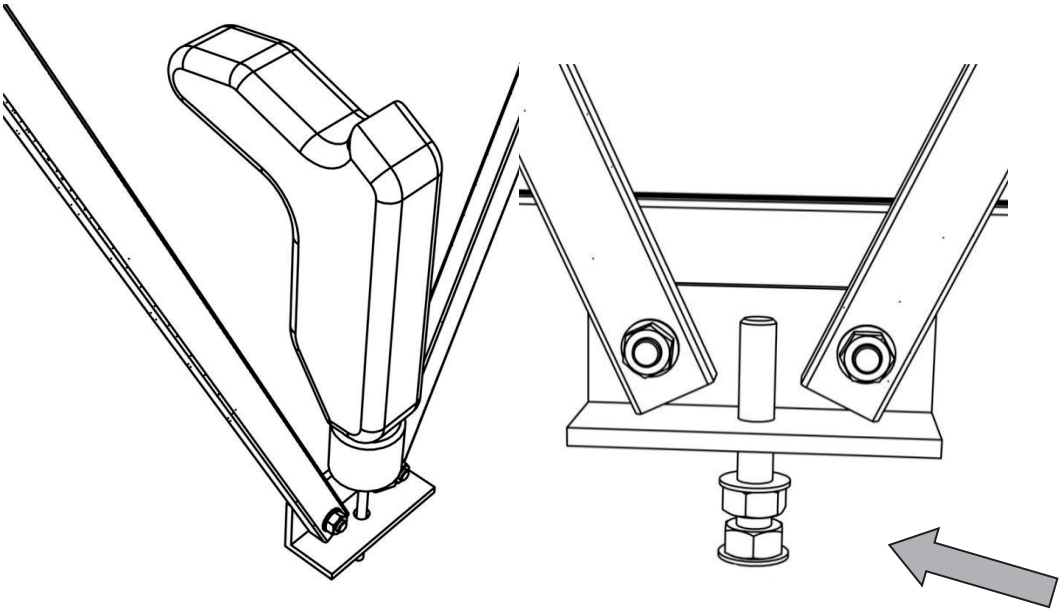




Step 13

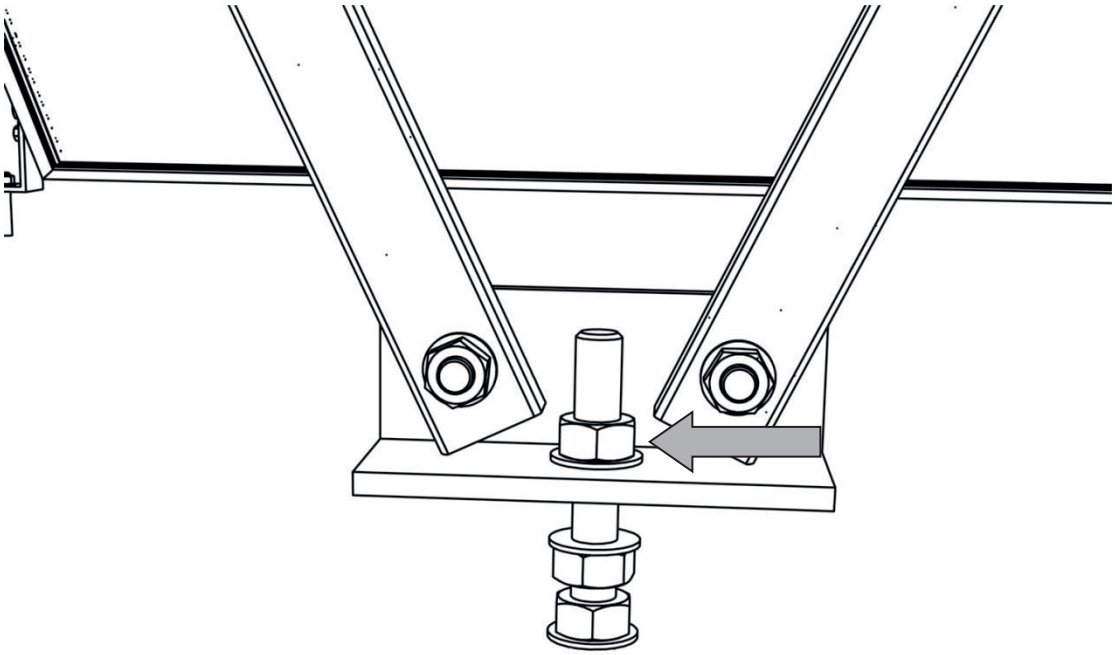
Using the hole in the tie-rod base as a guide, drill the roof floor and fit the tie-rod base fastening bolt tightening the bottom nut. Use fasteners of adequate length and type to ensure that the collector feet are secured to the structural roof covering and not to the insulation.

The fastener must protrude 7 cm from the roof floor to allow for adjustments.



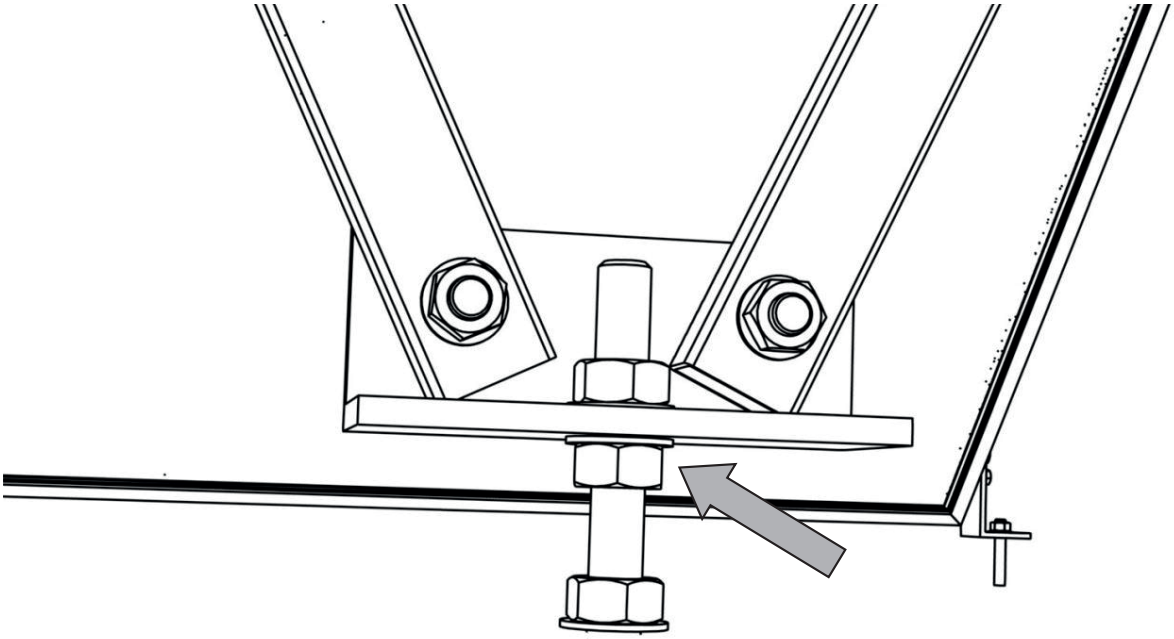
Step 14

Fit the upper tie-rod base washer and nut. Tighten until no longer loose. The center nut must be in contact with the base of the tie-rod.



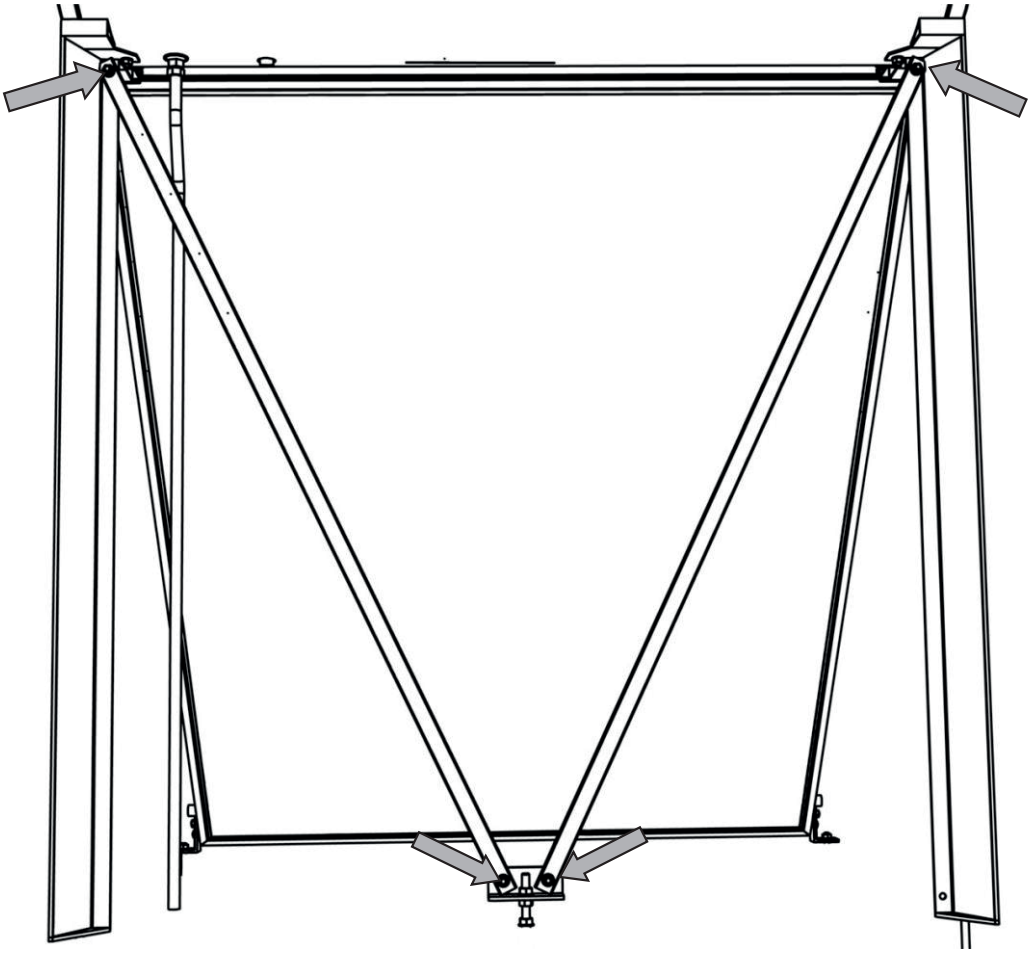
Step 15

Tighten the center bolt against the tie-rod base.



Step 16

Tighten the 4 support tie-rod bolts. Make sure all bolts are tight and do not come loose on the base system.



Cod. 3540000211 - Rev 00 - 07/2023

6. SYSTEM INSTALLATION ON FLAT ROOF - DOUBLE COLLECTOR

The installation procedure for the 300/4.2 model with two collectors is identical to that of the previous chapter, except for step 2, which must be replaced by the following.

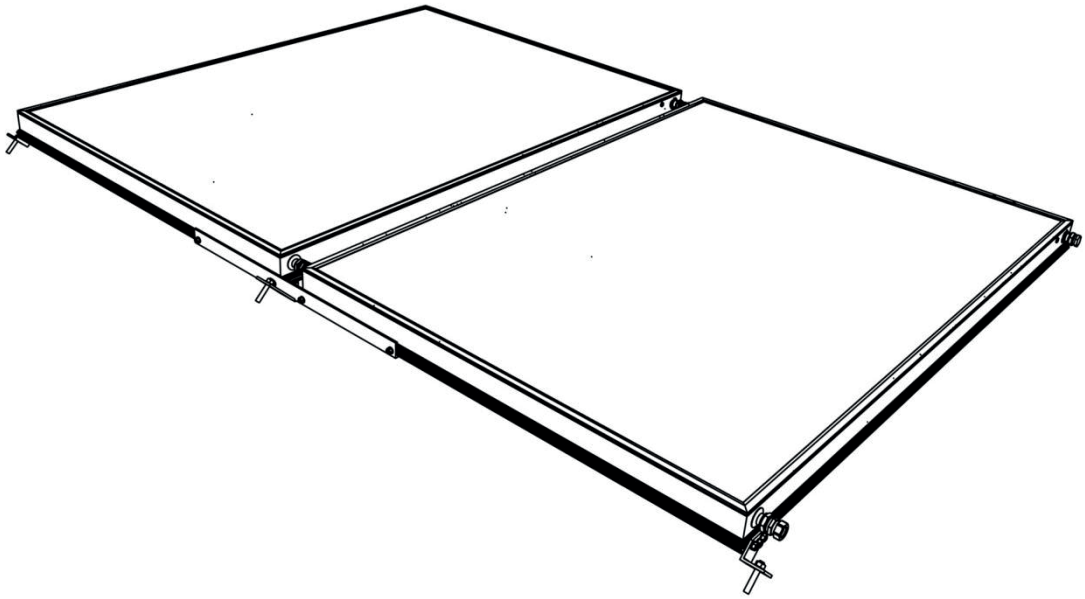


Figure 1: the two collectors ready for installation with upper and lower tie-rods and feet installed.

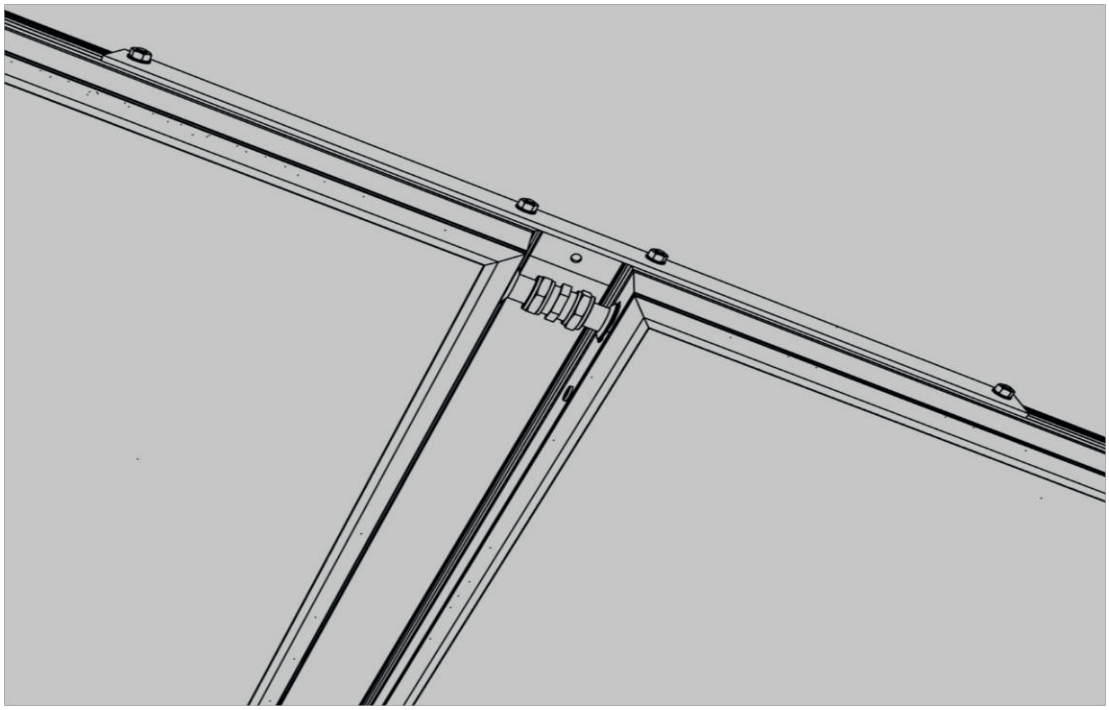


Figure 2: Upper tie-rod and hydraulic connection between the collectors

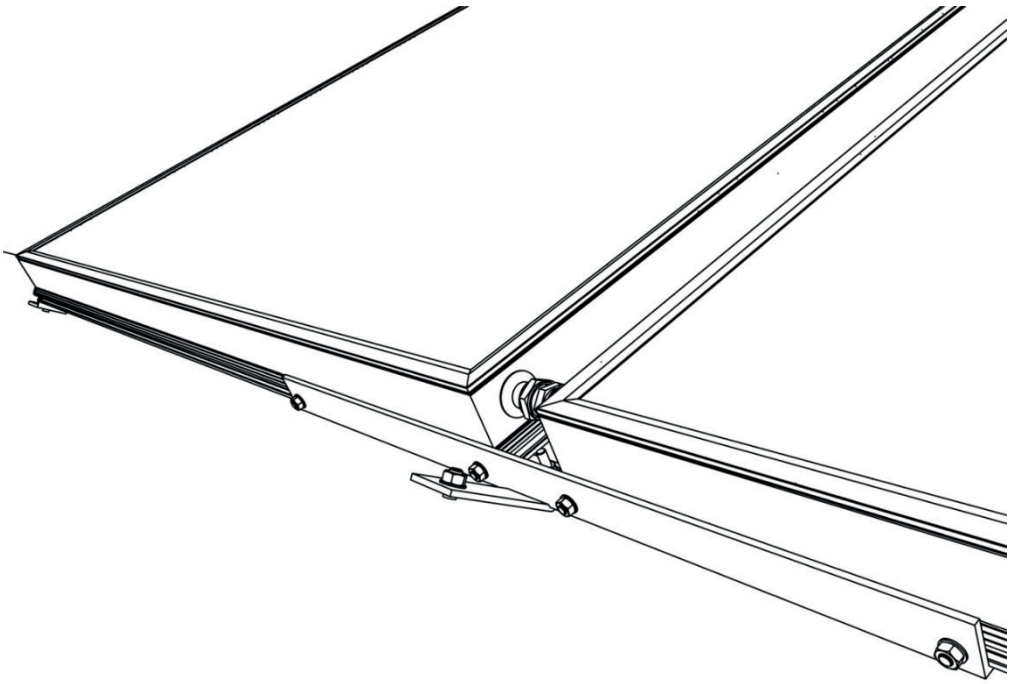


Figure 3. Lower tie-rod

Follow the instructions of step 1 Chap. IV to install the storage tank support uprights with the correct orientation and distance for the 300L storage tank.

Position the two collectors side by side on the roof floor.

IMPORTANT: DO NOT REMOVE THE COLLECTOR COVERING BEFORE THE SYSTEM HAS BEEN CONNECTED!

Install the upper and lower tie-rods between the collectors. The bolts must be tight enough to prevent excessive play while still allowing the collectors to slide towards each other.

Connect the absorber pipes between the collectors with the appropriate fittings. Make sure the collectors are parallel and as close together as possible. Tighten the connections.

IMPORTANT: DO NOT MOVE THE GROUP OF TWO COLLECTORS UNTIL ALL FASTENING BOLTS HAVE BEEN TIGHTENED. FAILURE TO OBSERVE THIS PRECAUTION MAY CAUSE DAMAGE TO THE ABSORBERS!

Center the upper and lower tie-rods and tighten the 4 fastening bolts.

Make sure the group of two collectors is a single body.

Install the collector feet as indicated in step 2 Chap. IV.

Follow the instructions in steps 3-16 Chap. IV to complete the installation.

NOTES

1. Anchoring of the system to the flat roof floor must be done with devices suitable for the material of the floor.
2. To avoid problems of damp or water infiltration (rain/snow) in the roof, the pipes entering the roof must be watertight. It is up to the local construction engineer to provide precise indications according to the type of roof construction and/or local regulations. The same applies to the system anchor points, regardless of the devices used for installation.

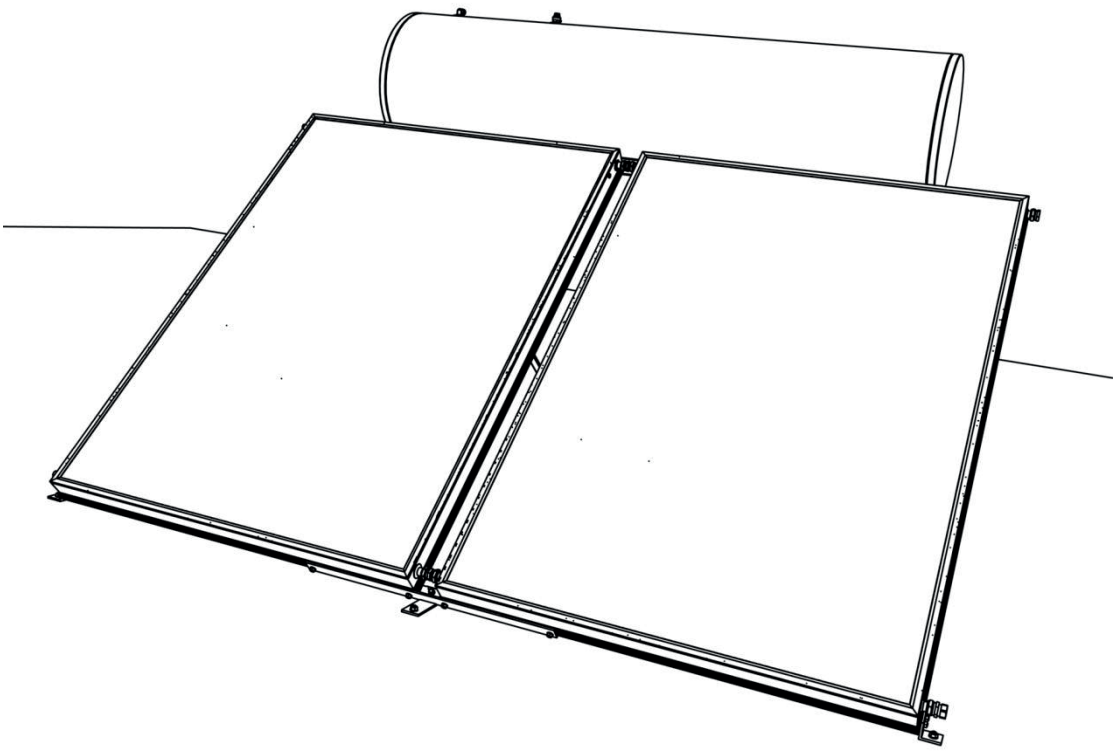


Figure 4. Front view of system 300/4.2 installed.

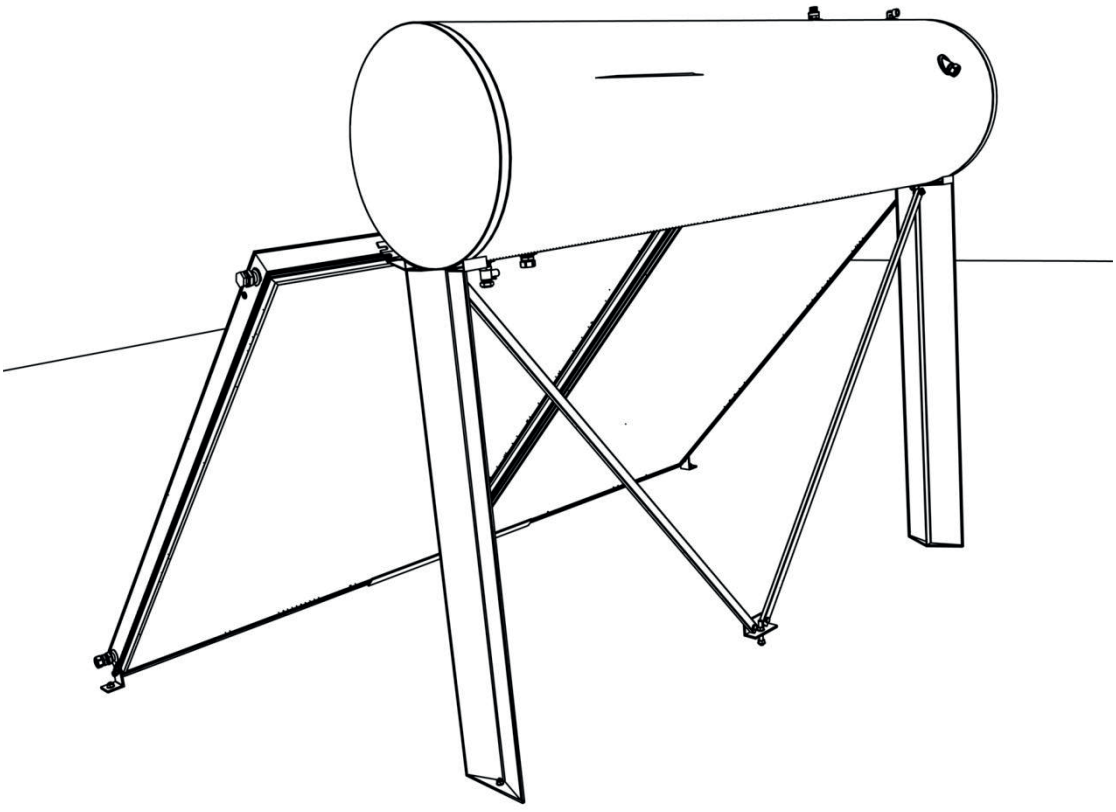
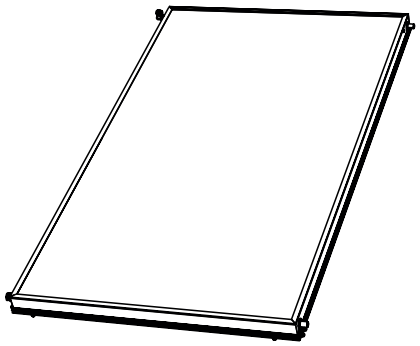
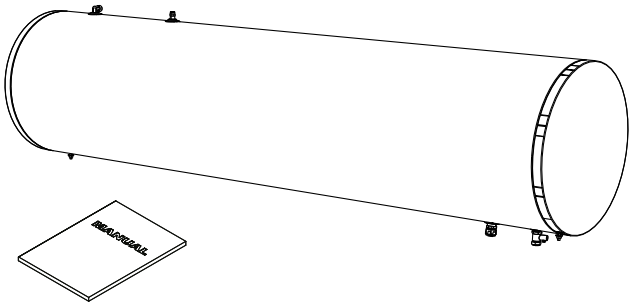
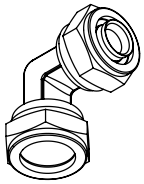
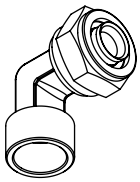
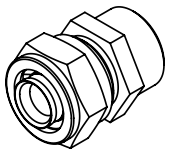
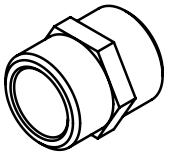
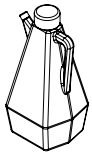
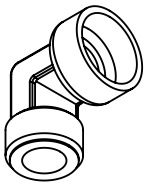
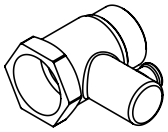
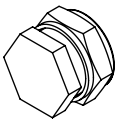
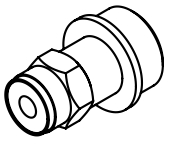


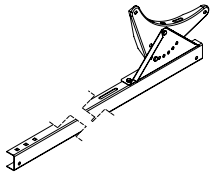
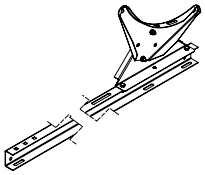
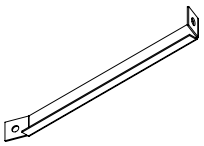
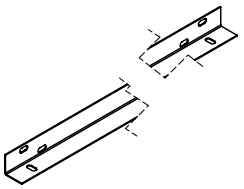
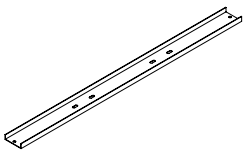
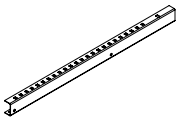
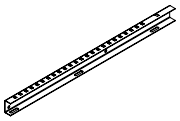
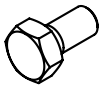
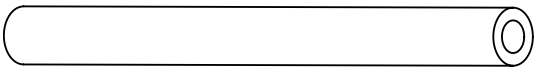
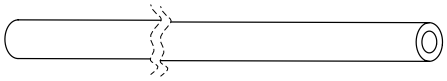
Figure 5. Rear view of system 300/4.2 installed.

7. SLOPING ROOF KIT COMPOSITION

COMPOSITION OF SYSTEM SOLAREVO NAT 160L/2,1 - TI (0XGN15XA)

Code 0XGF1VWA SOLAREVO 2.1	Code 072181XA Storage tank 160 C
 1x	 1x 1x

"Code 072294X0 Hydraulic kit 160 L				
 Elbow fitting DN 16x22 2x	 Elbow fitting DN 16x3/4" 1x	 Nipple DN 16x3/4" 1x	 Nipple 1/2" 1x	 Thermal fluid 2 LT 1x
 Elbow fitting M/F 1/2" 1x	 1/2" 10bar 1x	 Plug Ø22 2x	 Safety valve 1/2" 2.5 bar 1x	

Code 076157X0 Frame kit 160L/2.1					
 1x	 1x	 2x	 1180mm 2x	 1115mm 1x	
 1x	 1x	 M8x20 16x	 M8x12 4x	 M8x20 6x	 M8 26x	 M8 4x	 M8 22x
 Insulation 9x22 1050 1x		 Insulation 9x22 2050 1x					
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COMPOSITION OF SYSTEM SOLAREVO NAT 200L/2,1 - TI (0XGN16XA)

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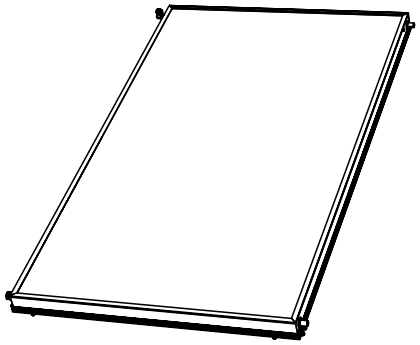
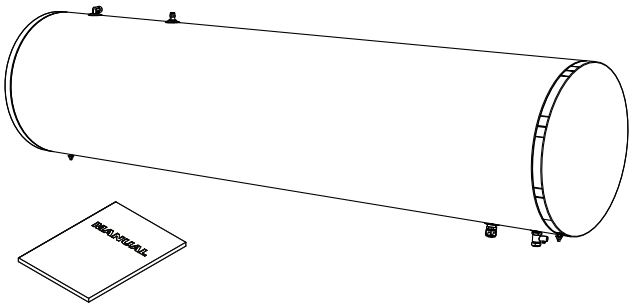
 1x	 1x 1x

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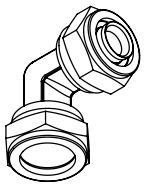
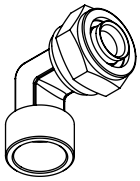
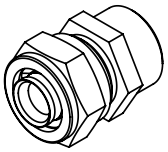
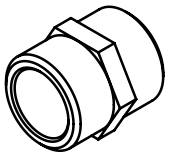
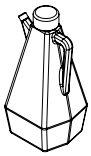
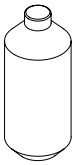
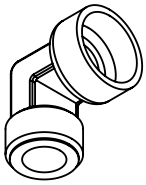
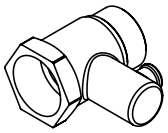
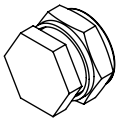
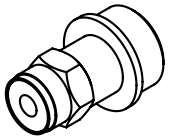
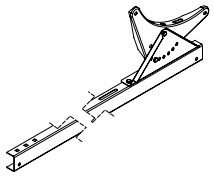
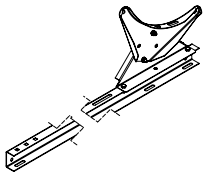
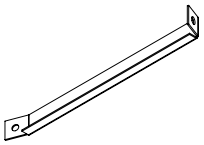
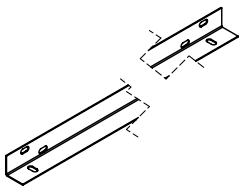
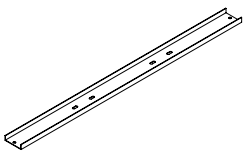
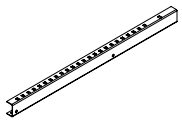
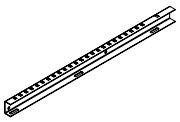
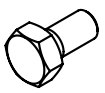
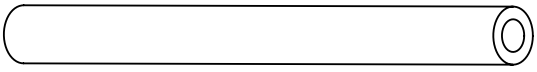
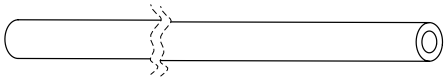
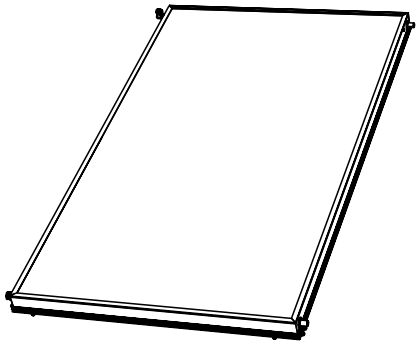
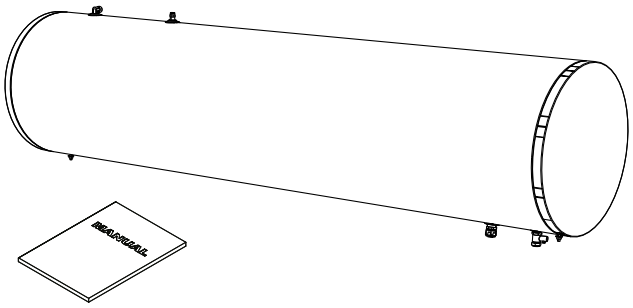
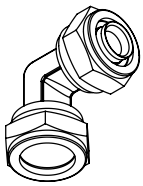
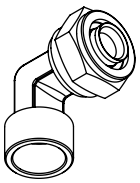
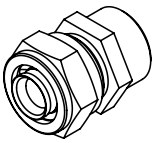
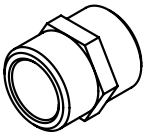
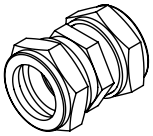
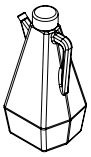
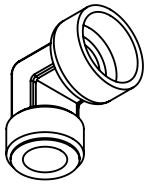
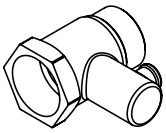
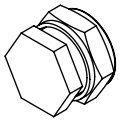
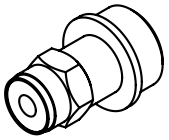
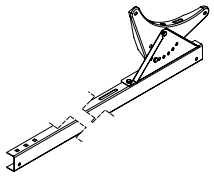
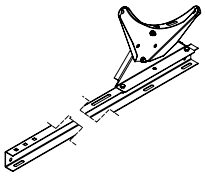
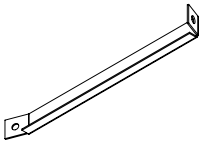
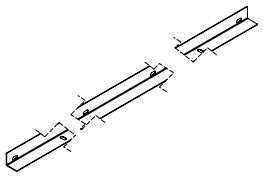
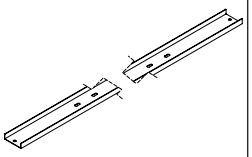
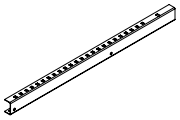
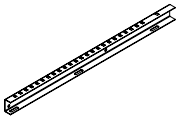
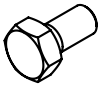
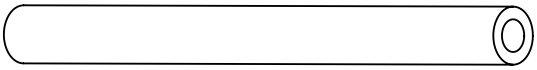
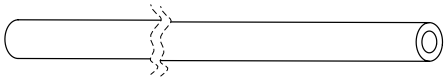
 Elbow fitting DN 16x22 2x	 Elbow fitting DN 16x3/4" 1x	 Nipple DN 16x3/4" 1x	 Nipple 1/2" 1x	 Thermal fluid 2 LT 1x	 Thermal fluid 1 LT 1x
 Elbow fitting M/F 1/2" 1x	 1/2" 10bar 1x	 Plug Ø22 2x	 Safety valve 1/2" 2.5 bar 1x		

Code 076190X0 Frame kit 200L/2.1					
 1x	 1x	 2x	 1180mm 2x	 1115mm 1x	
 1x	 1x	 M8x20 16x	 M8x12 4x	 M8x20 6x	 M8 26x	 M8 4x	 M8 22x
 Insulation 9x22 1000 1x	 Insulation 9x22 2000 1x				
 Flexible pipe DIN 16 1000 1x	 Flexible pipe DIN 16 2000 1x				

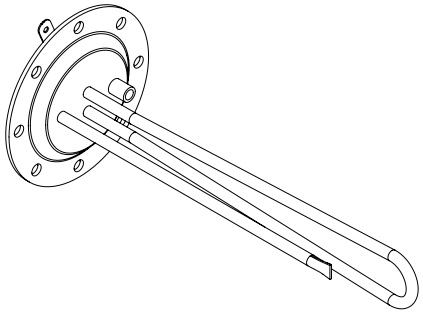
COMPOSITION OF SYSTEM SOLAREVO NAT 300L/5,2 - TI (0XGN57XA)

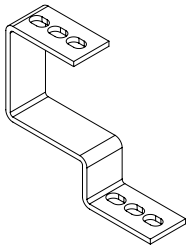
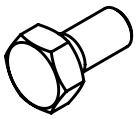
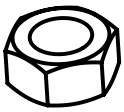
Code 0XGF2VWA SOLAREVO 2.6	Code 072183XA Storage tank 300 C
 2x	 1x 1x

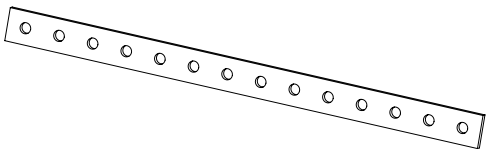
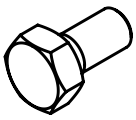
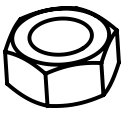
"Code 072296X0 Hydraulic kit 300 L					
 Elbow fitting DN 16x22 2x	 Elbow fitting DN 16x3/4" 1x	 Nipple DN 16x3/4" 1x	 Nipple 1/2" 1x	 Connection 22 x 22 2x	 Thermal fluid 2 LT 2x
 Elbow fitting M/F 1/2" 1x	 1/2" 10bar 1x	 Plug Ø22 2x	 Safety valve 1/2" 2.5 bar 1x		

Code 076158X0 Frame kit 300L/2.1					
 1x	 1x	 2x	 2420mm 2x	 2040mm 1x	
 1x	 1x	 M8x20 16x	 M8x20 6x	 M8 30x	 M8 8x  M8 22x
 Insulation 9x22 1200 1x		 Insulation 9x22 2650 1x			
 Flexible pipe DIN 16 1200 1x		 Flexible pipe DIN 16 2650 1x			

OPTIONAL KITS

Code 073109X0 Heating element kit 1.5 kW

1x

“Code 076242X0” - Brackets for roof tiles/shingles			
			
Mounting bracket 4x	Hex bolt M8x20 4x	Washer M8 4x	M8 4x

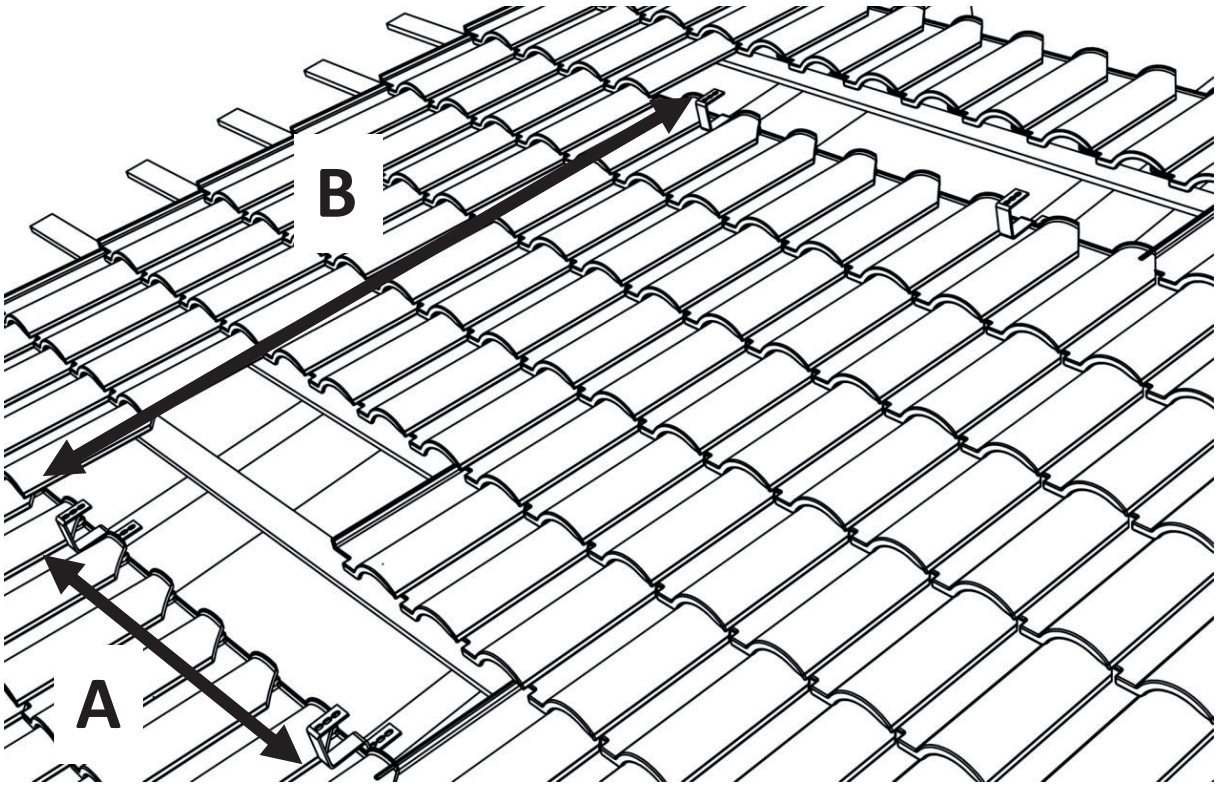
“Code 076241X0” - Universal brackets			
			
Mounting bracket 4x	Hex bolt M8x20 4x	Washer M8 4x	M8 4x

8. SLOPING ROOF SYSTEM INSTALLATION - ALL SYSTEMS

ATTENTION: Check the roof structure's capacity to take the load of the solar thermal system with the building contractor or contact the local authorities.

Step 1

Uncover the roof tiles at the bottom and top of the area where the natural circulation system will be installed. Install the 4 brackets of **kit 076242X0** on the vertical load-bearing beams with the appropriate screws, as indicated in the diagram below. Make sure the distances A and B between the top holes of each bracket are set according to Table 1. The 3 holes on the top of each bracket allow them to be adapted to different tile sizes.



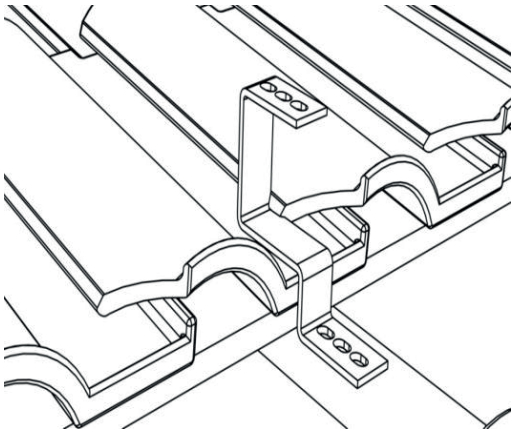
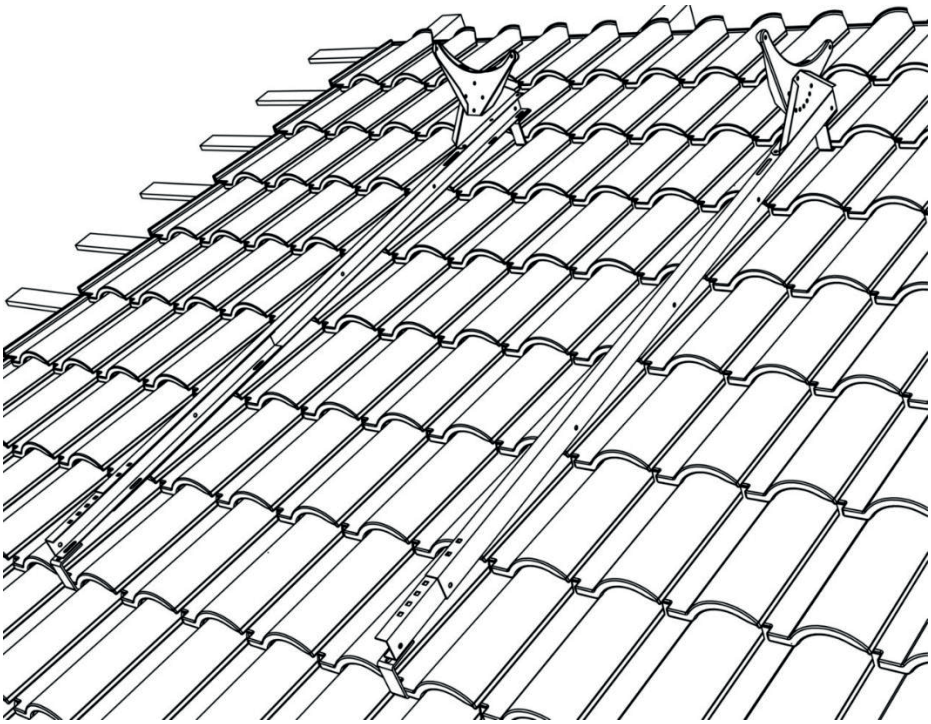


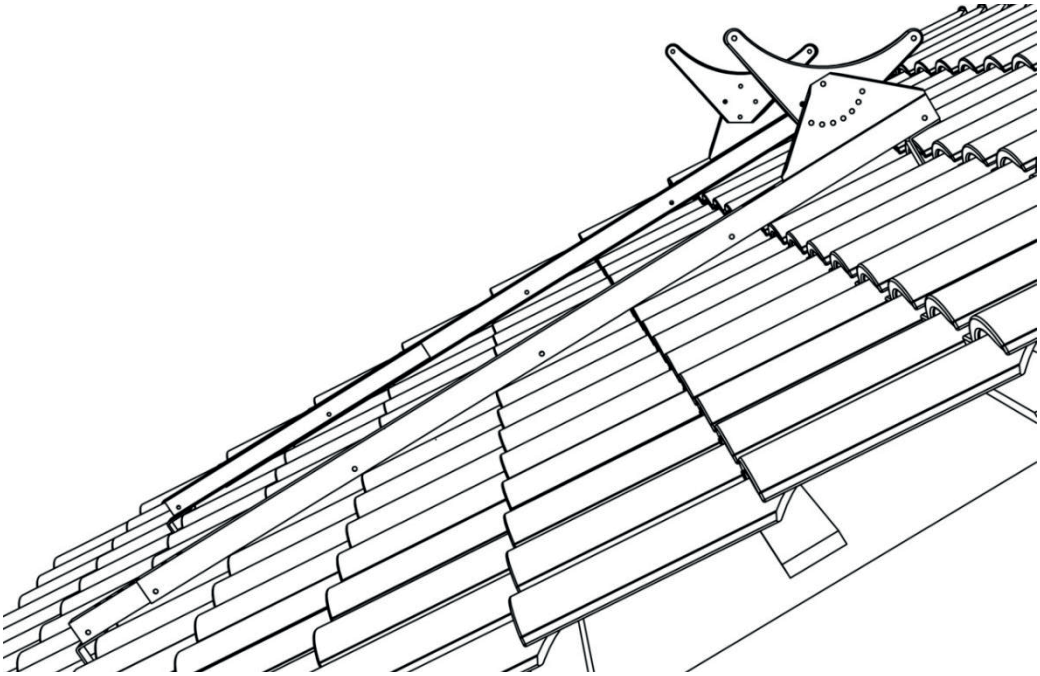
TABLE 1

SYSTEM	160/2.1	200/2.1	300/5.2
DIMENSION A (mm)	1082	1370	1834
DIMENSION B (mm)	2120	2120	2475

Step 2

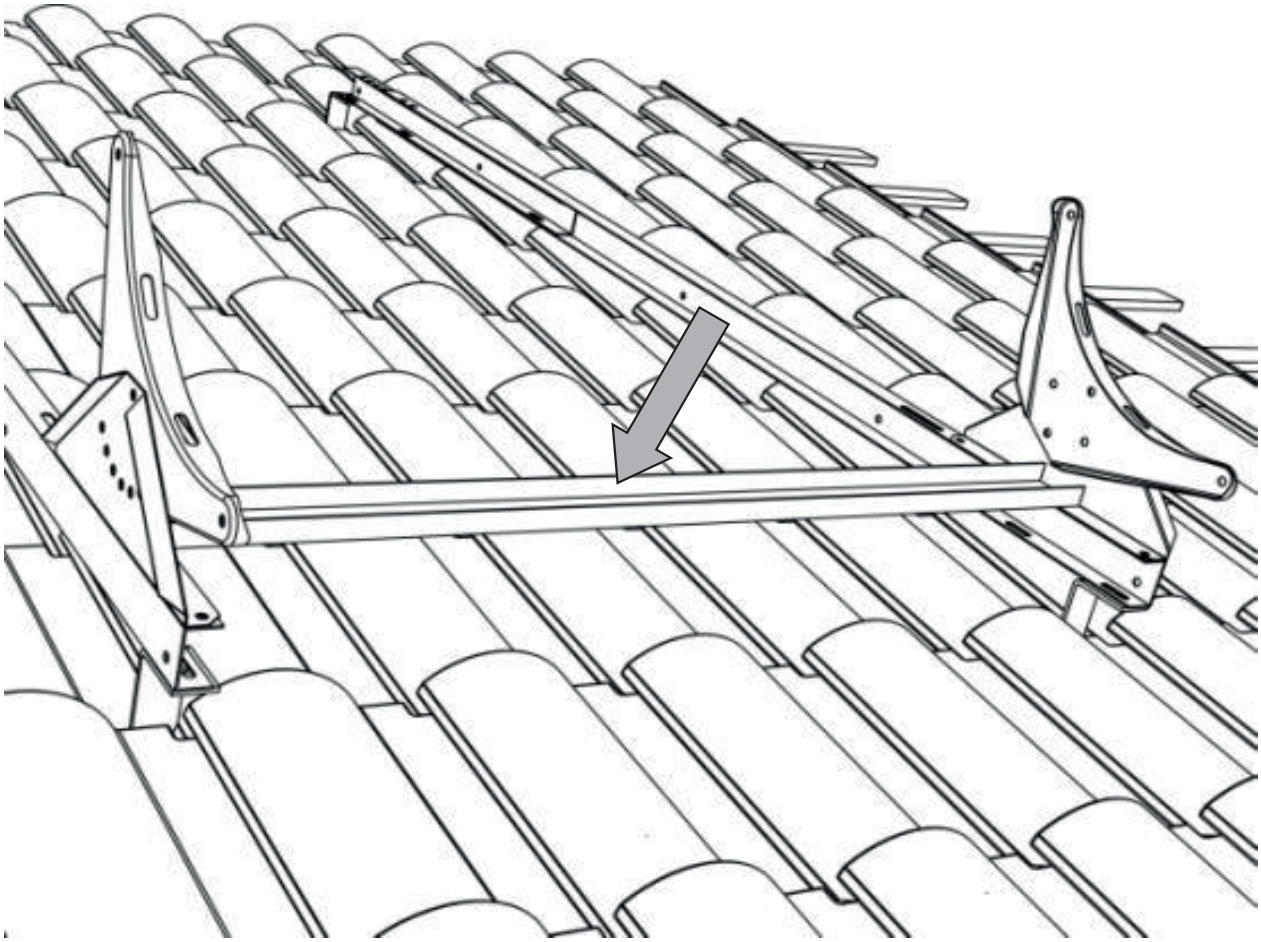
Replace the tiles and install the two longitudinal base sections on the brackets. Use the telescopic function of the sections to adjust them to the appropriate length.





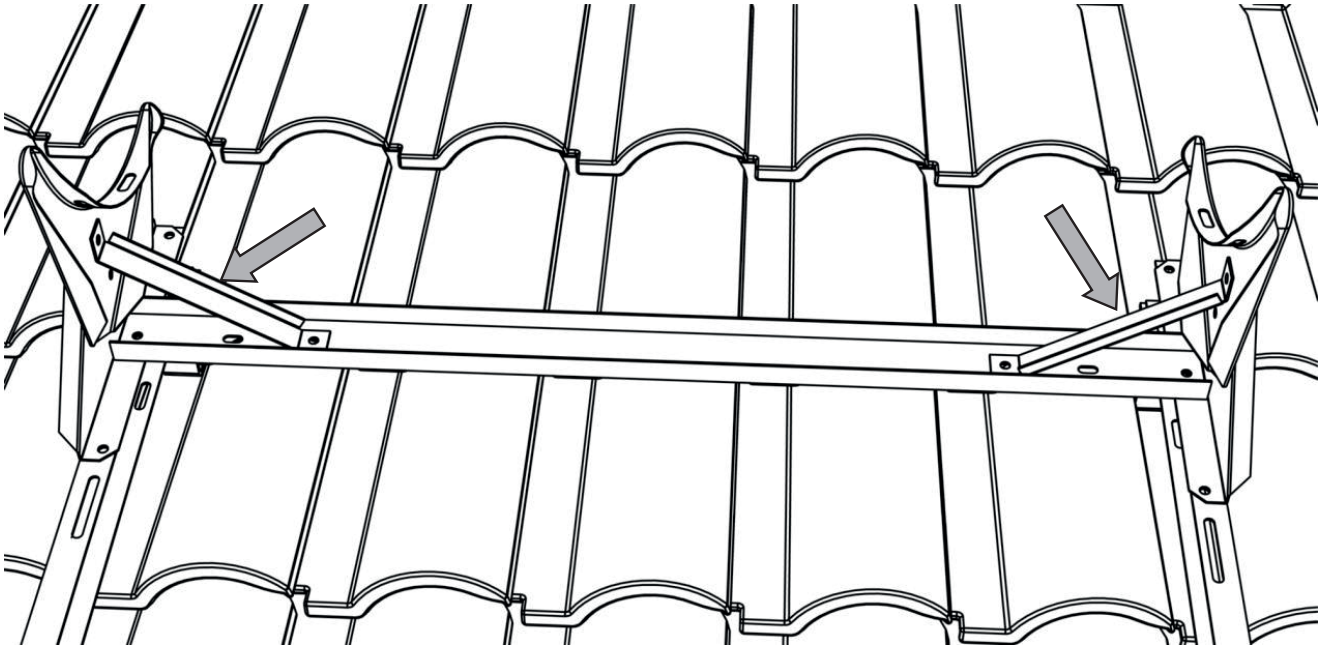
Step 3

Install the cross member joining the two longitudinal sections.



Step 4

Install the two support arms connecting the cross member with the two longitudinal sections.



Step 5

Install the two L-bars holding the collector. The distance C between the vertical mounting faces of the two bars must be set according to Table 2 to suit the height of the collector. Secure the bottom bar only and slide the top bar up to facilitate installing the collector.

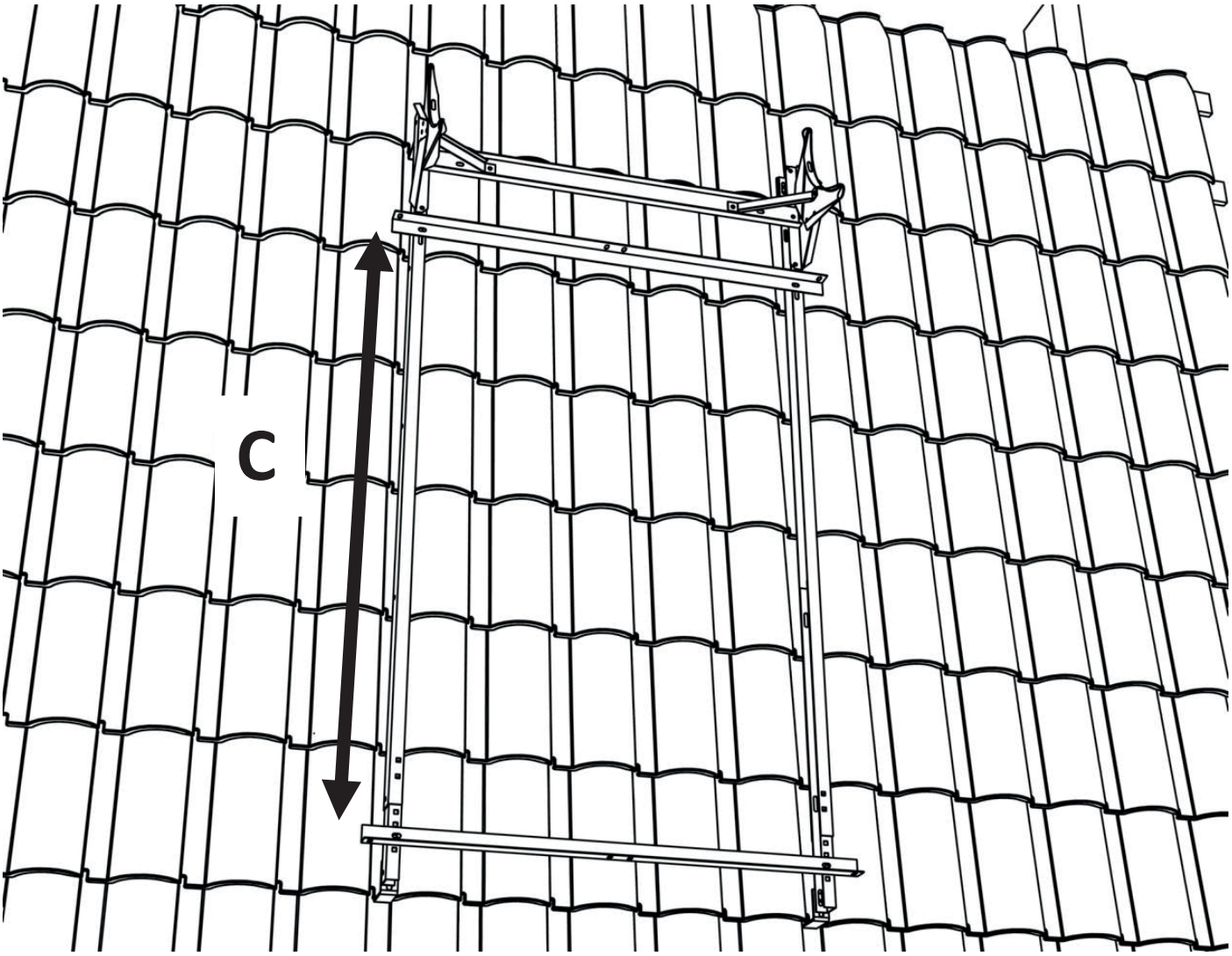
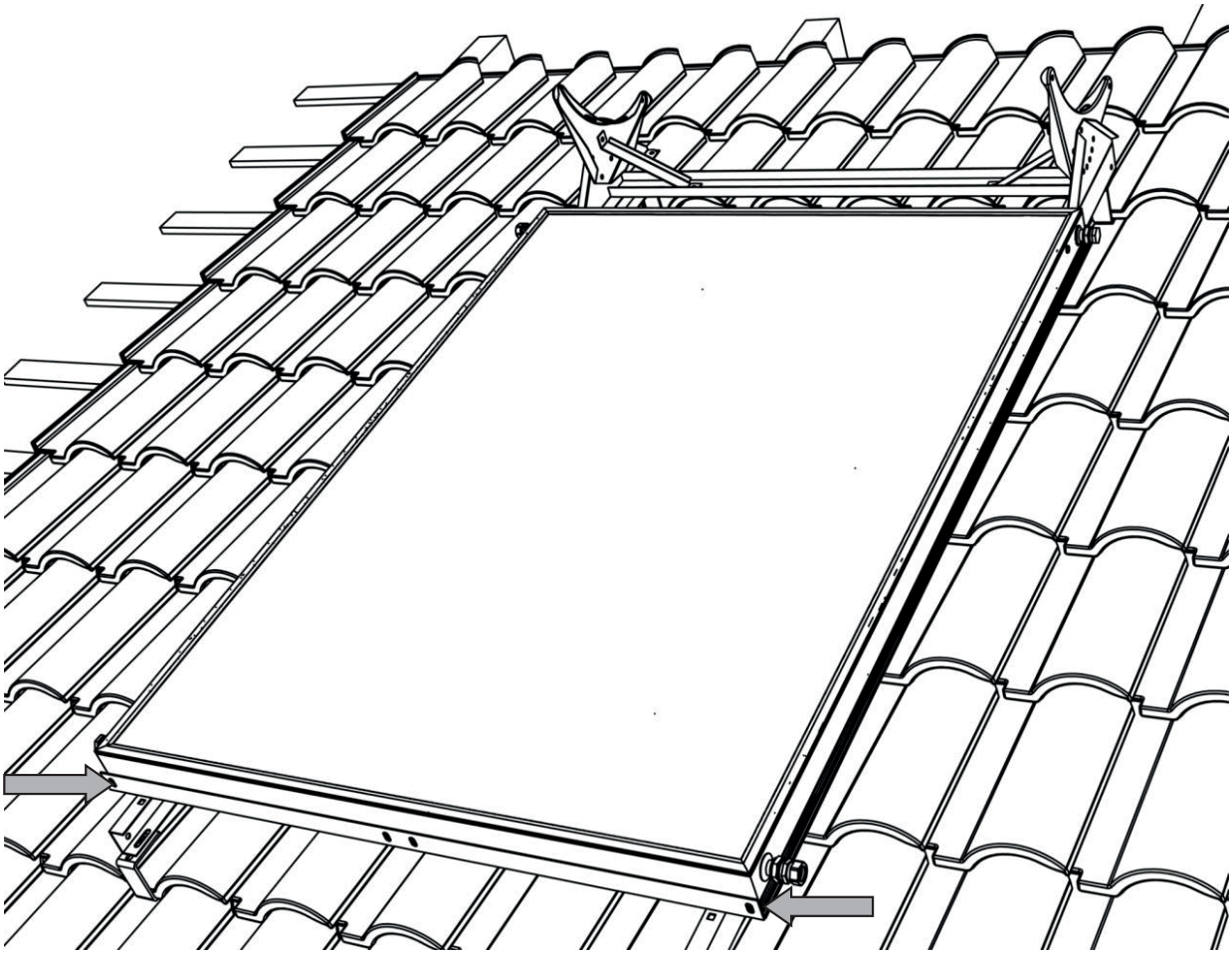


TABLE 2

SYSTEM	160/2.1	200/2.1	300/5.2
DIMENSION C (mm)	1711	1711	2025

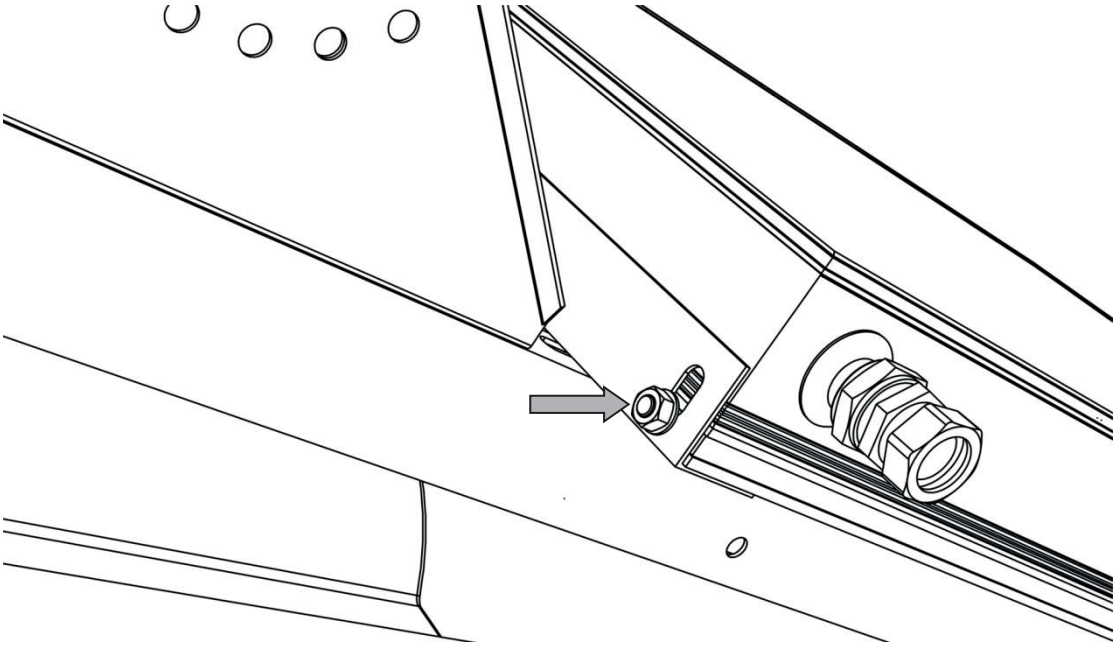
Step 6

Position the collectors on the base assembly. Tighten the lower fastening bolts against the lower support bar.



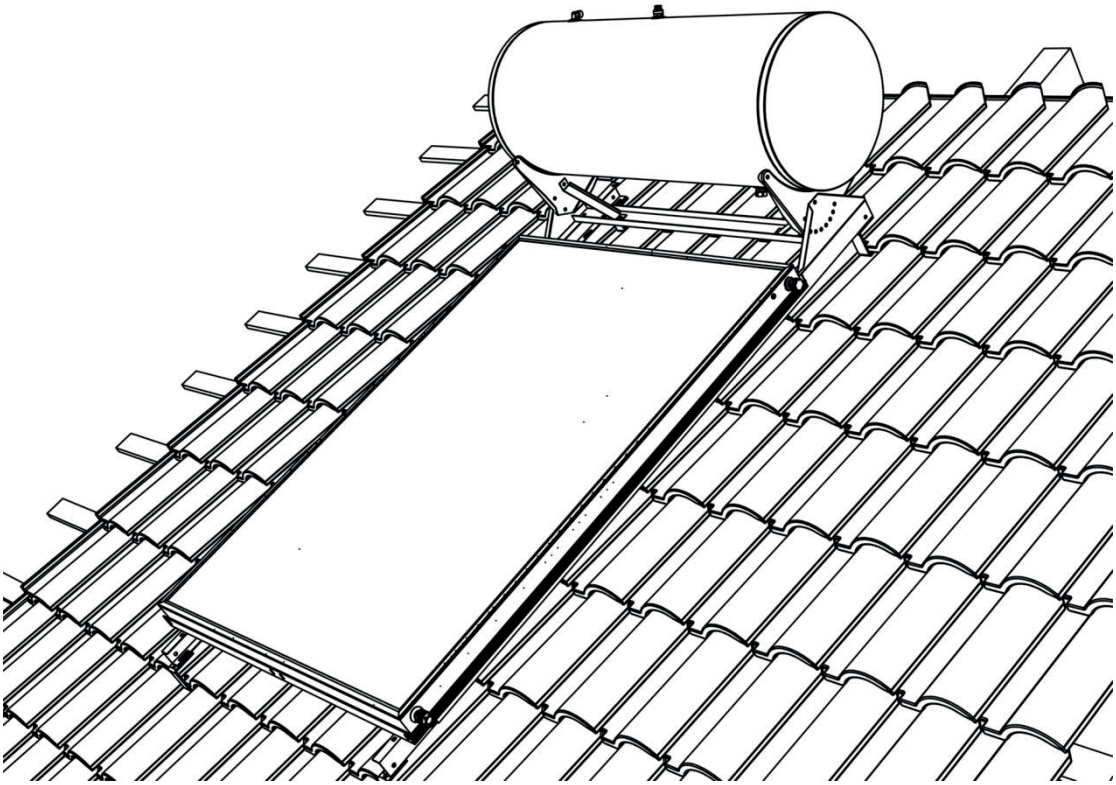
Step 7

Slide the upper support bar against the collector and tighten the support bolts. Tighten the support bar on the longitudinal base sections.



Step 8

Adjust the storage tank support horizontally and install the storage tank.



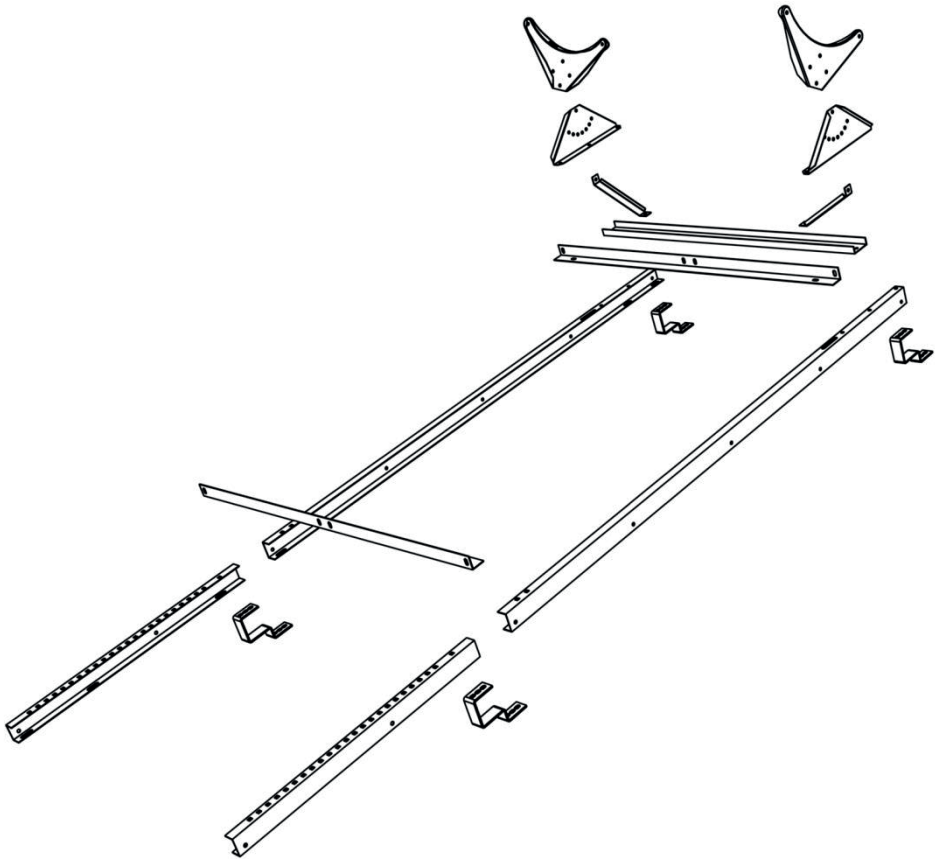


Figure 1: sloping roof basic system components.

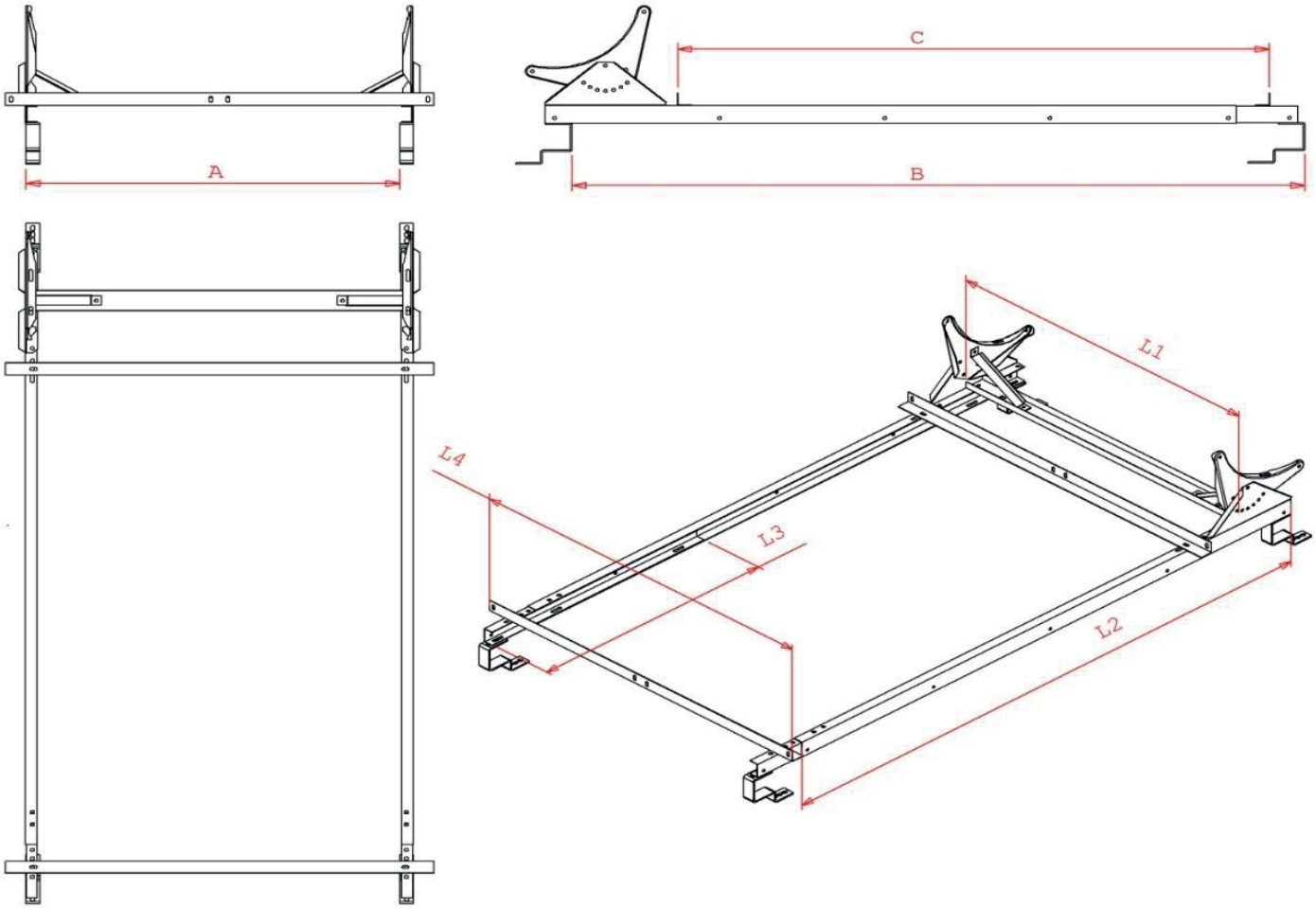
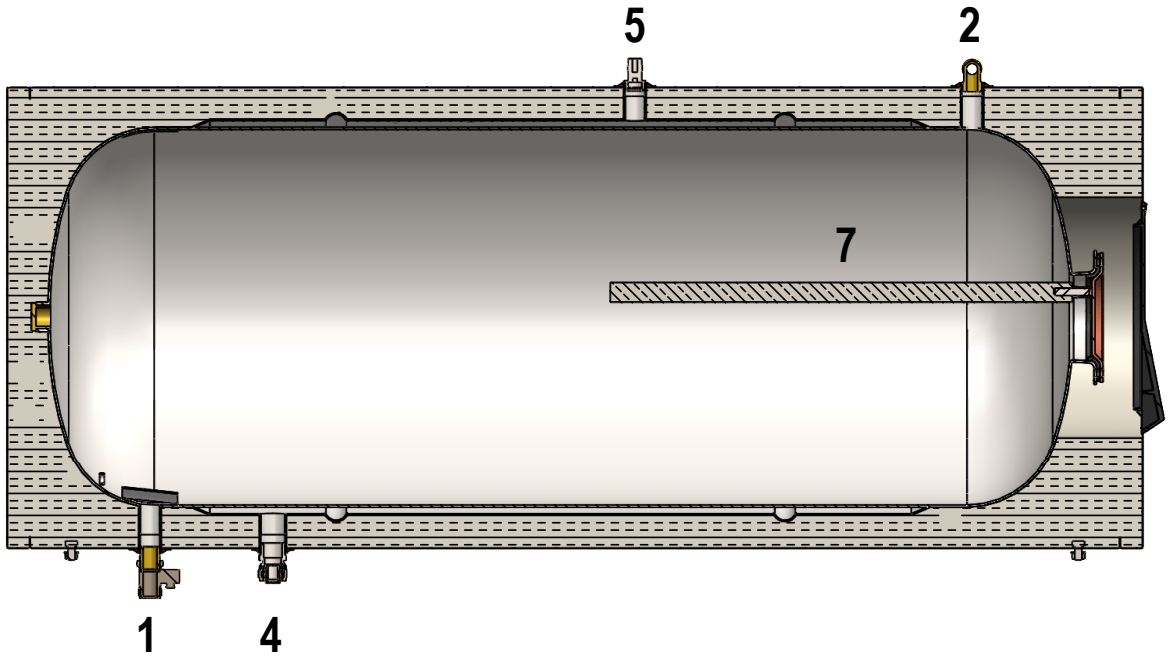


Figure 2: basic installation and system dimensions.

	INSTALLATION DIMENSIONS			
SYSTEM	**A**	**B**	**C**	
160/2.1	1082	2120	1711	
200/2.1	1370	2120	1711	
300/5.2	1834	2475	2025	
	BASE DIMENSIONS			
SYSTEM	**L1**	**L2**	**L3**	**L4**
160/2.1	1116	1600	866	1240
200/2.1	1404	2000	866	1240
300/5.2	1868	2000	866	2000

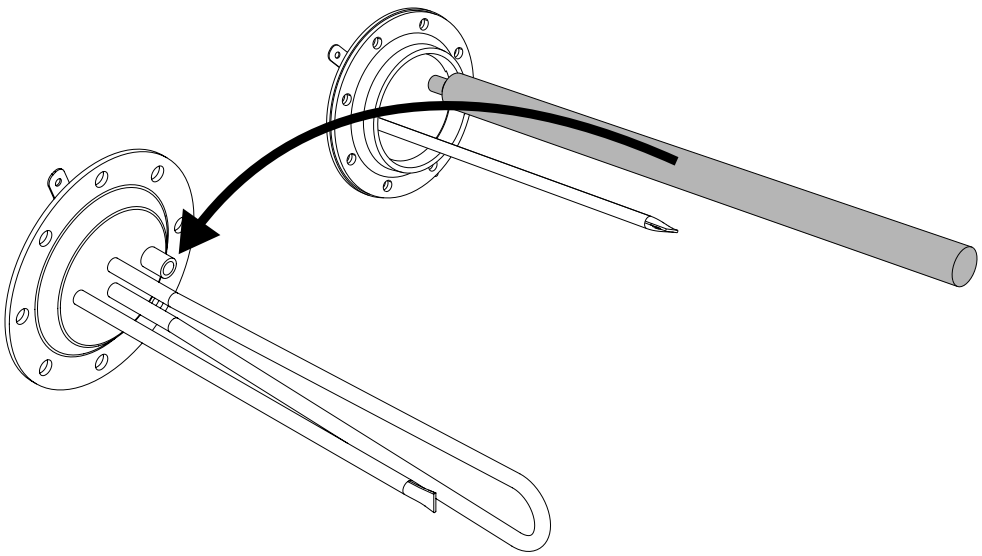
9. SYSTEM HYDRAULIC CONNECTION - ALL SYSTEMS

Boiler connections



1 Domestic cold water supply, 10 bar safety valve + non-return valve
2 DHW outlet
4 Solar circuit outlet
5 Safety valve 2.5 bar
7 Anode

If you want to install the resistance kit (code 073109X0), it is necessary to unscrew the anode and position it in the resistance flange.



Complete system diagram

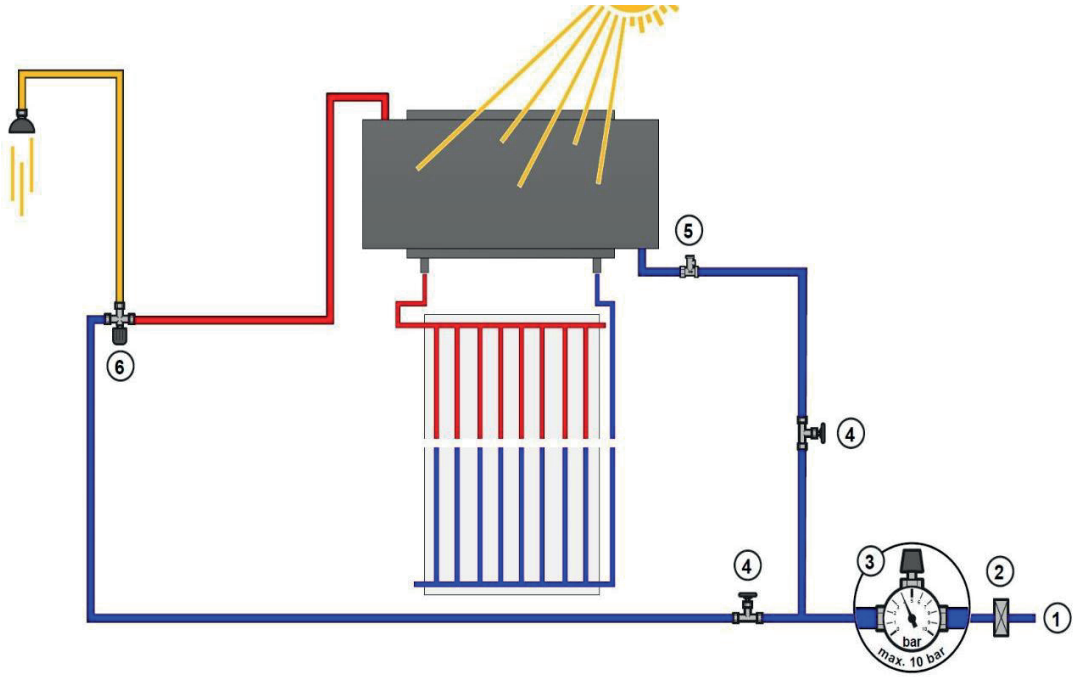


Figure 3: [1] Domestic cold water supply to DIN EN 806 or according to specific national standards. [2] Water filter. [3] Pressure reducing valve MAX 10 bar. [4] Shut-off valve. [5] Non-return valve + 10 bar safety valve. [6] Cold/hot mixer for domestic hot water, e.g. shower.

Diagram of natural circulation system and connections

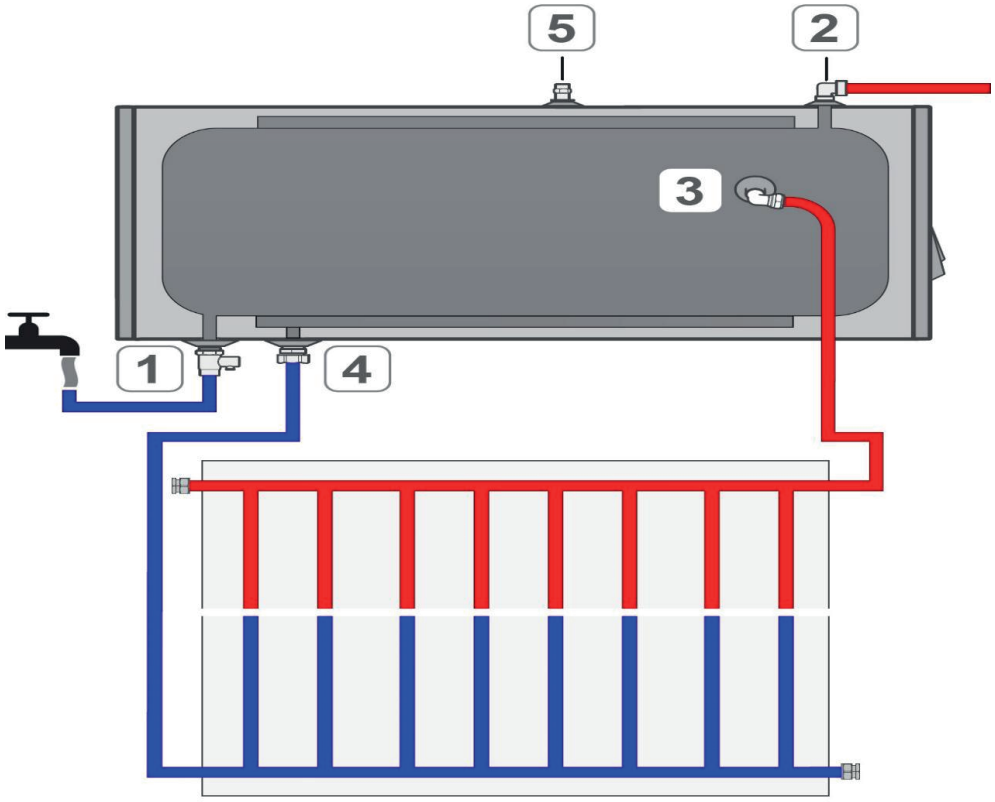


Figure 4: [1] Domestic cold water supply, 10 bar safety valve + non-return valve. [2] DHW outlet. [3] Solar circuit inlet. [4] Solar circuit outlet. [5] Safety valve 2.5 bar.

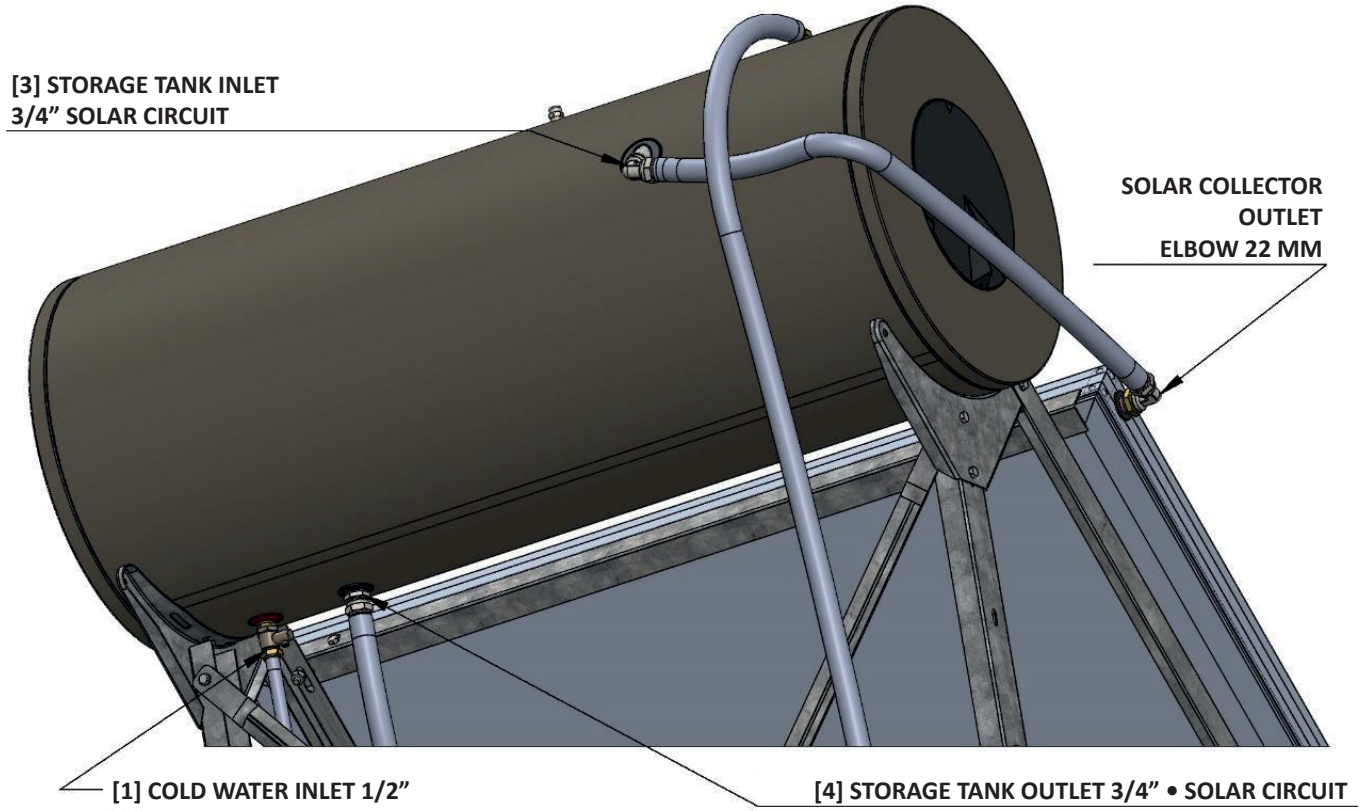


Figure 5: sizes of natural circulation system connections.

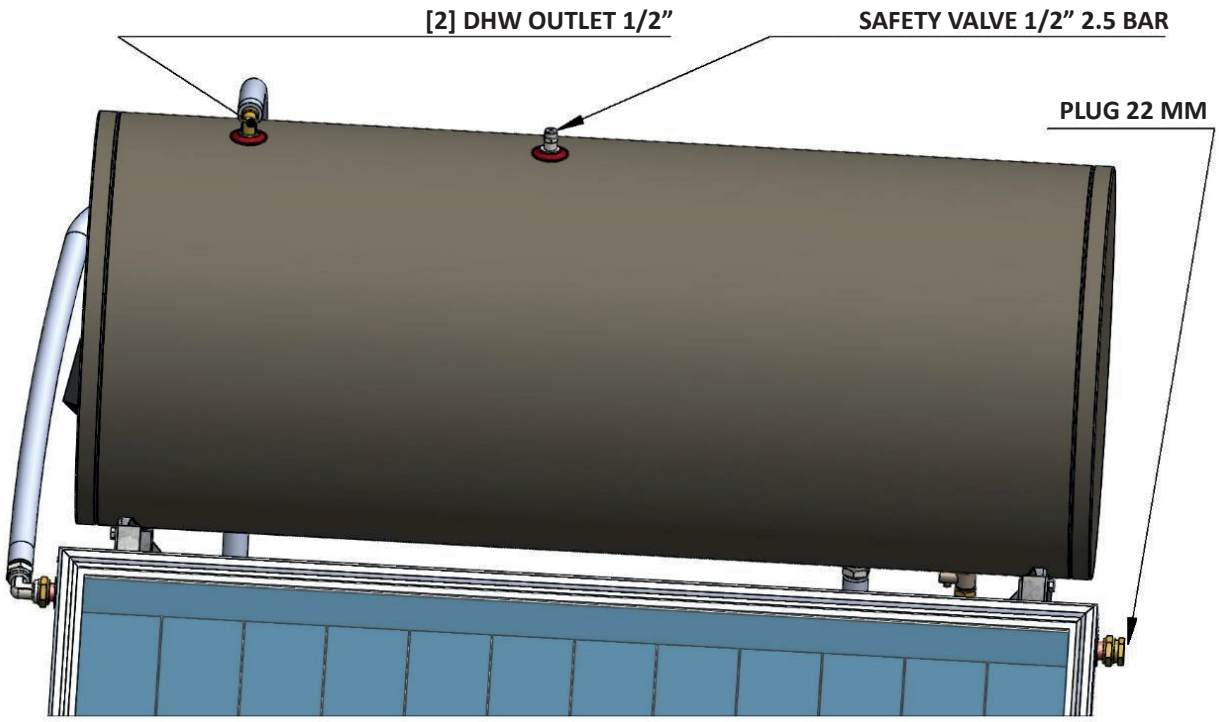
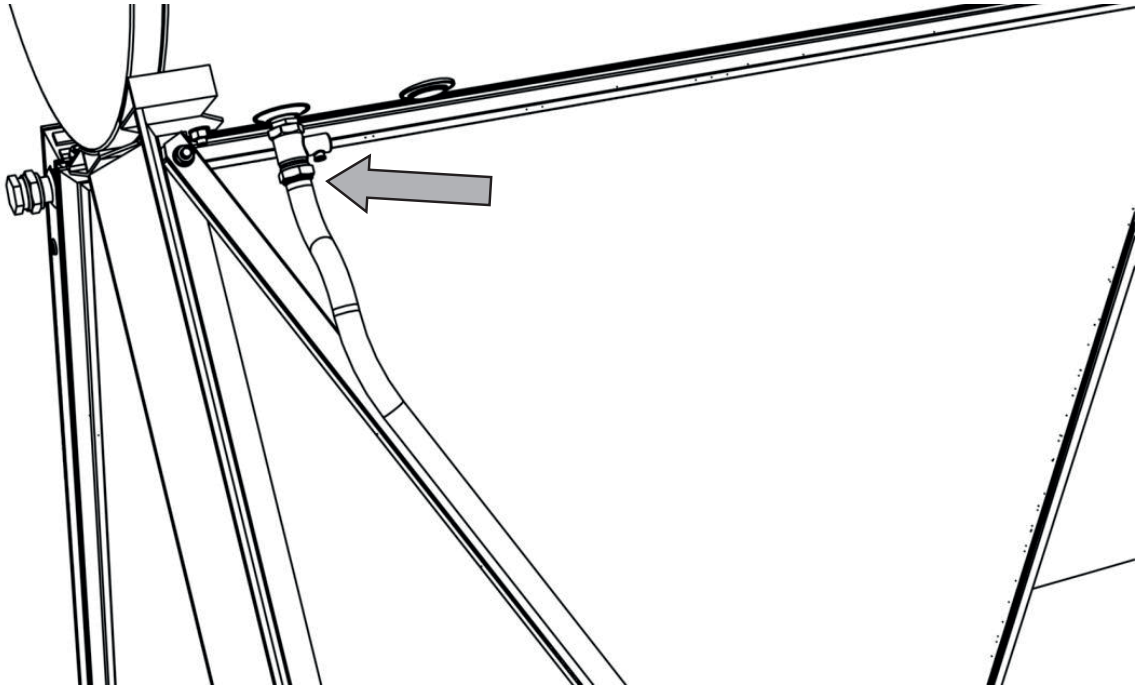


Figure 6: sizes of natural circulation system connections.

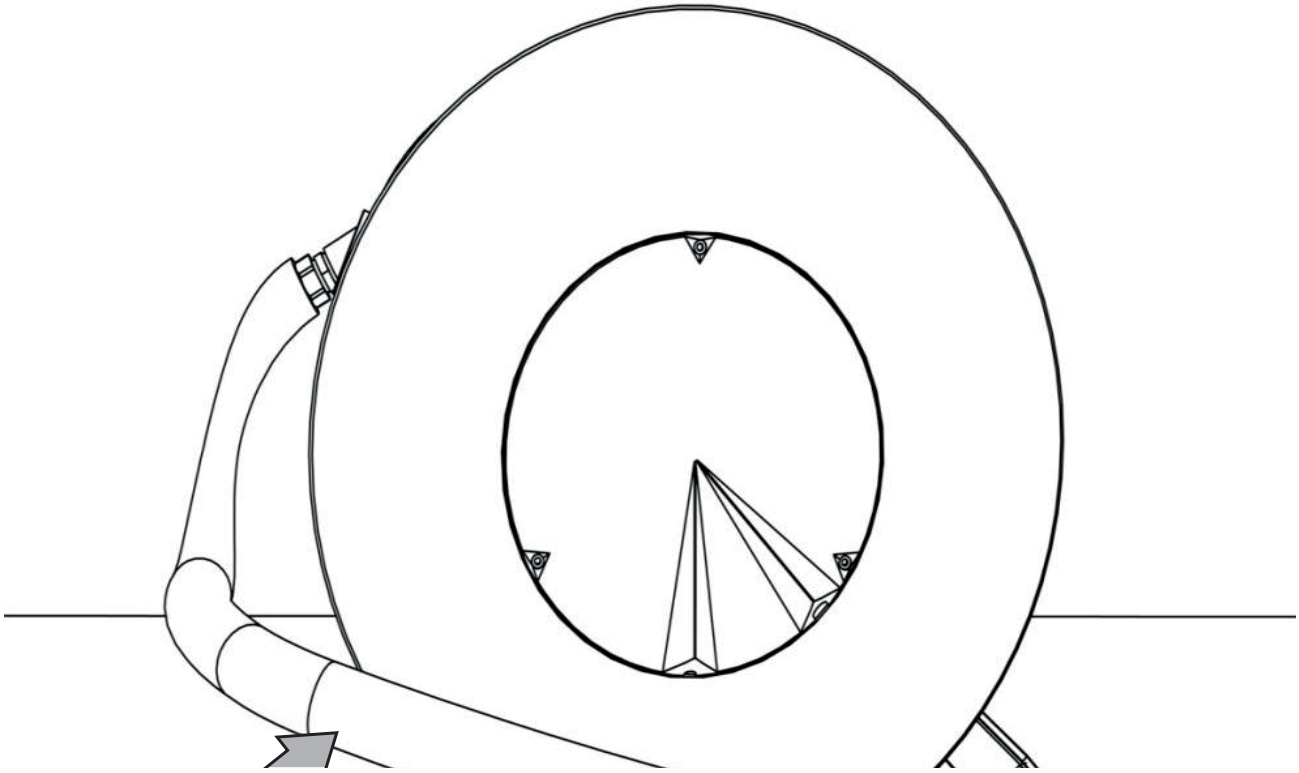
Step 1

Connect the cold water pipe and the safety and non-return valve to the storage tank. To save time, it is now possible to start filling the storage tank. When water starts to overflow from the hot water open circuit outlet, turn off the water.



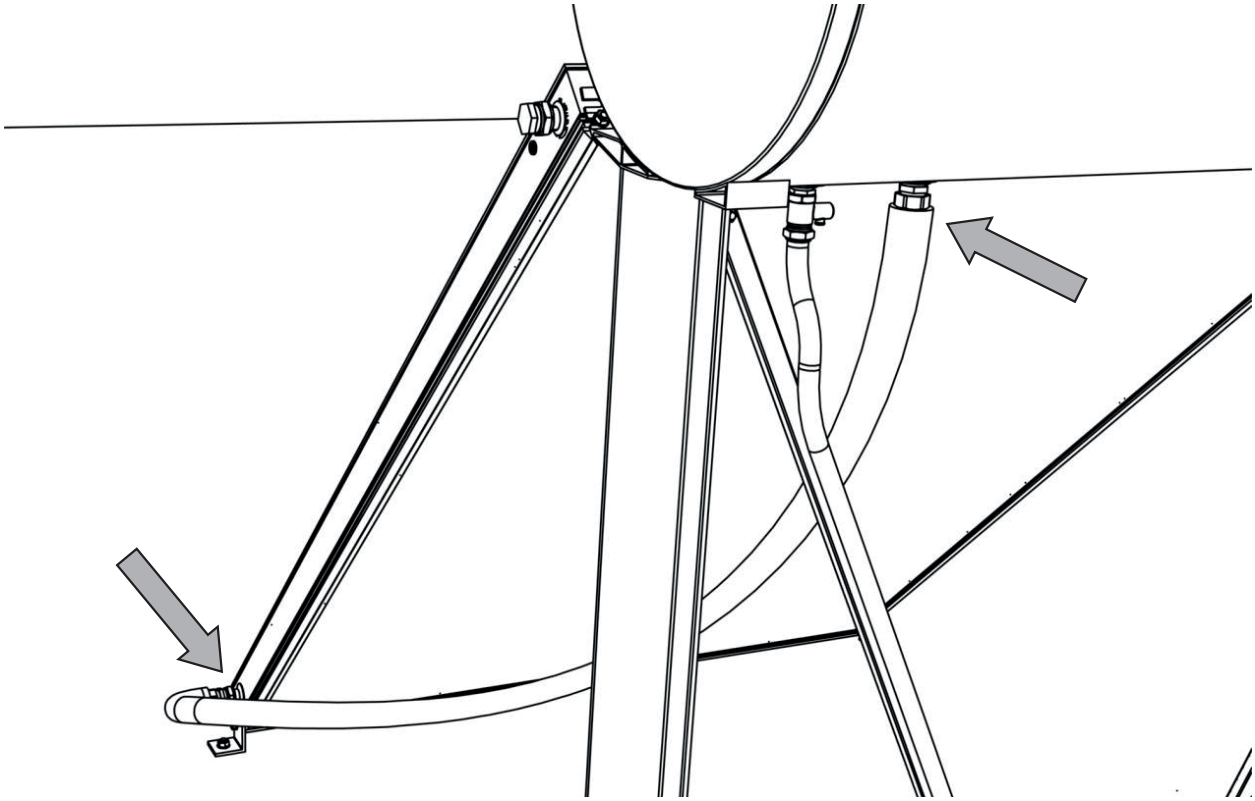
Step 2

Connect the hot water closed circuit pipe between the collector and the storage tank. Make sure the pipe follows an upward path towards the storage tank. When tightening the collector outlet connections, make sure to use 2 wrenches, 1 to tighten and 1 to hold steady, to avoid damaging the absorber.



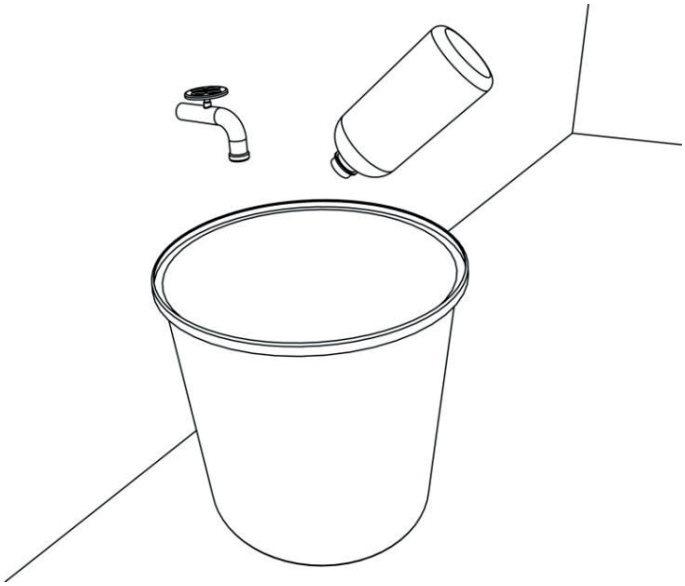
Step 3

Connect the cold water closed circuit pipe between the collector and the storage tank. Make sure the pipe follows an upward path towards the storage tank. When tightening the collector inlet connections, make sure to use 2 wrenches, 1 to tighten and 1 to hold steady, to avoid damaging the absorber. Make sure the length and shape of the pipe are suitable. Do not squash the pipe on the storage tank side.



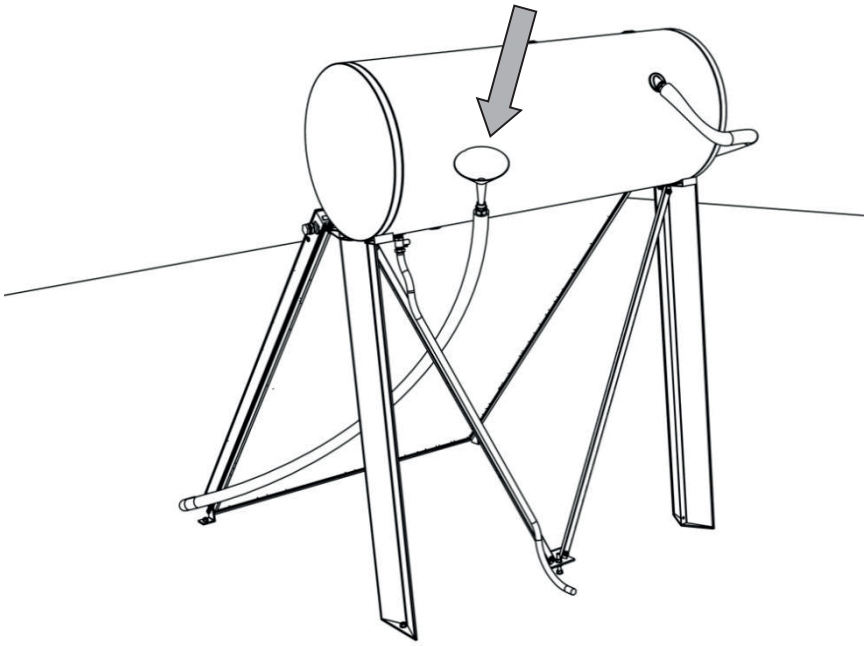
Step 4

Mix the water and the NOX fluid in a bucket according to the table in par. “Thermal fluid” on page 50.



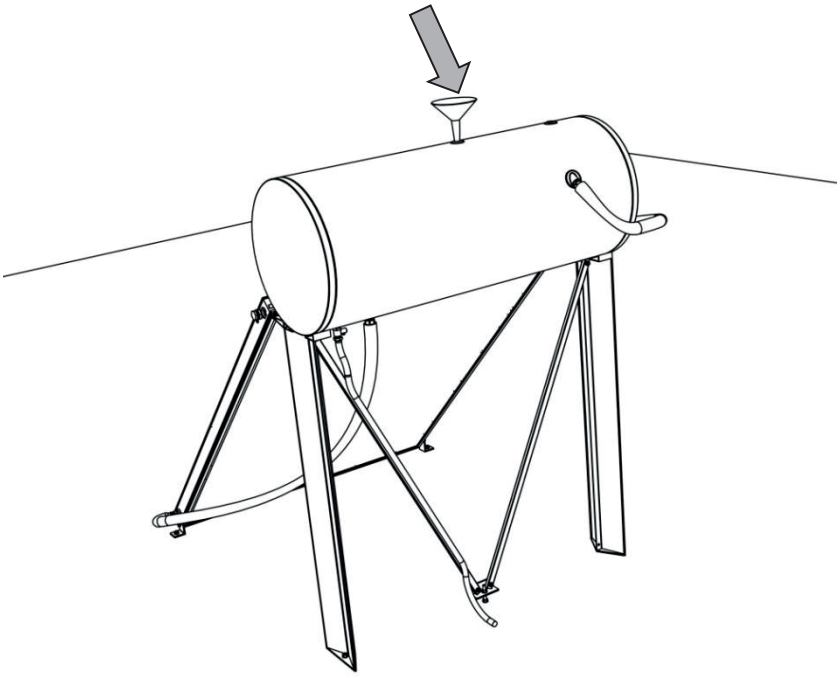
Step 5

Detach the cold water closed circuit pipe from the storage tank. Slowly pour the solution in the pipe to fill the storage tank. Allow the liquid to spill from the storage tank outlet until no air bubbles come out, then connect and tighten the cold fluid connection to the storage tank. It may be necessary to connect an auxiliary pipe to the cold water closed circuit pipe in order to pour the solution from a higher point than the hot water closed circuit inlet of the storage tank.



Step 6

Finish filling the closed circuit with the solution from the outlet of the safety valve at the top of the storage tank.



Step 7

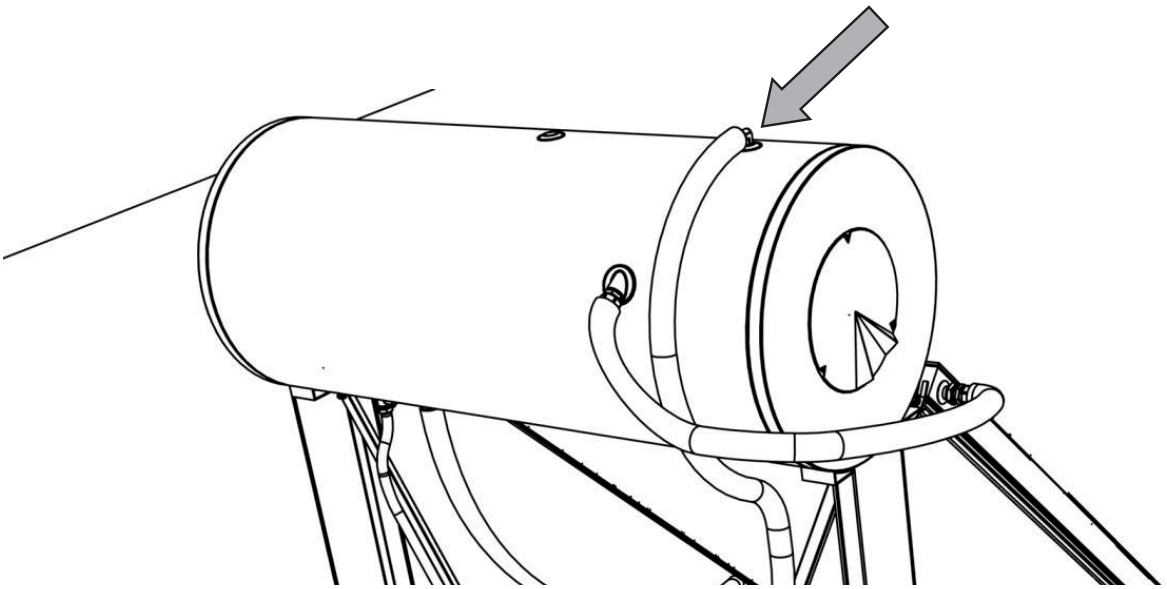
If the storage tank is full of water and the closed circuit is full of solution, the cover can be removed from the collector. If the day is sunny, the solution will start to spill from the safety valve outlet at the top of the storage tank as it heats up. If it does not come out, check that:

1. the closed circuit is full,
2. there is no air in the closed circuit,
3. there are no leaks in the closed circuit connections.

Take appropriate measures until overflow occurs.

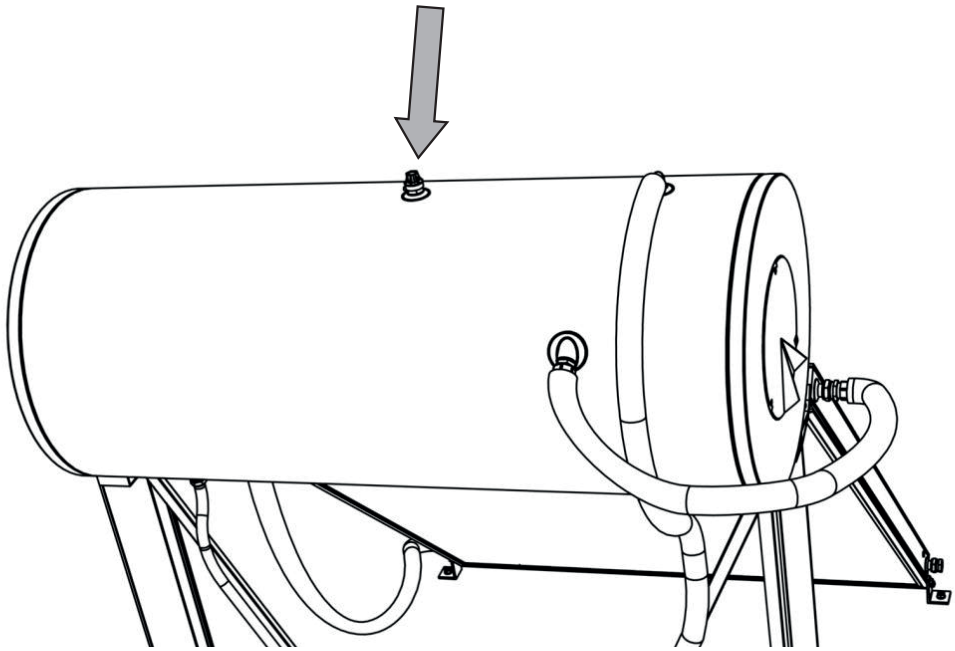
Step 8

Connect the DHW pipe. Turn on the cold water supply and check for leaks. The domestic water pressure must cause the solution to overflow into the closed circuit from the outlet of the safety valve at the top of the storage tank. If it does not overflow, do the step 7 diagnostic tests.



Step 9

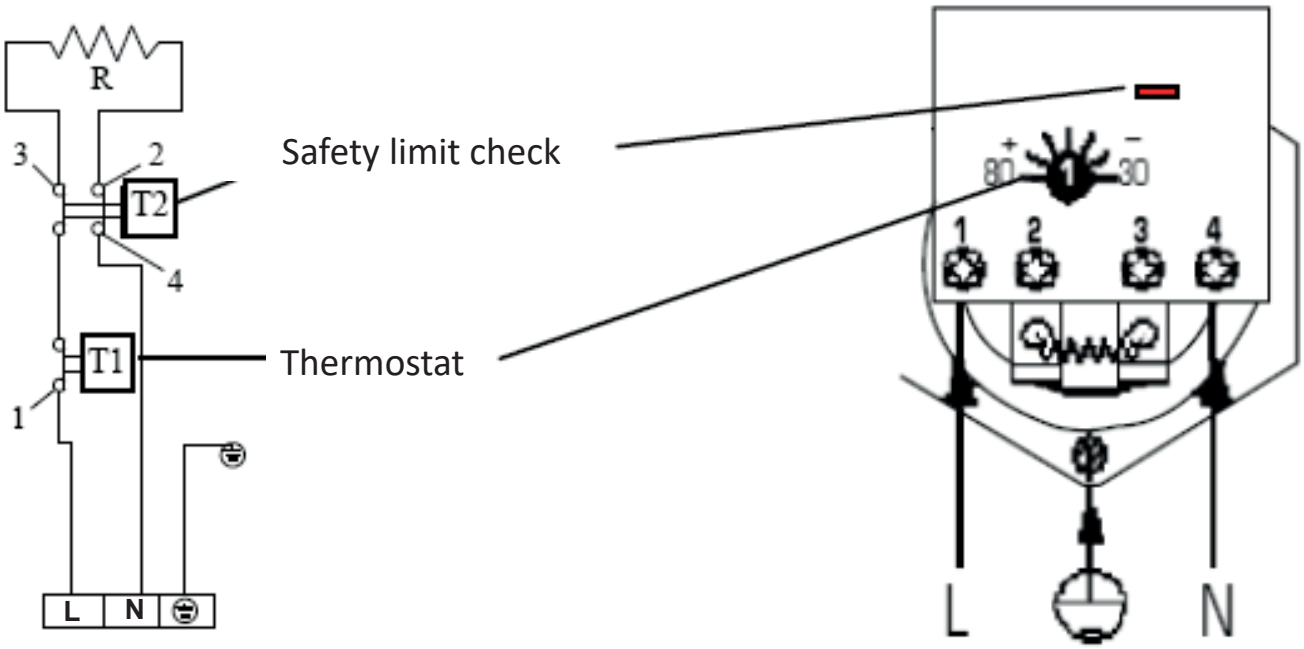
After about 20 minutes, the closed circuit safety valve can be installed at the top of the storage tank.

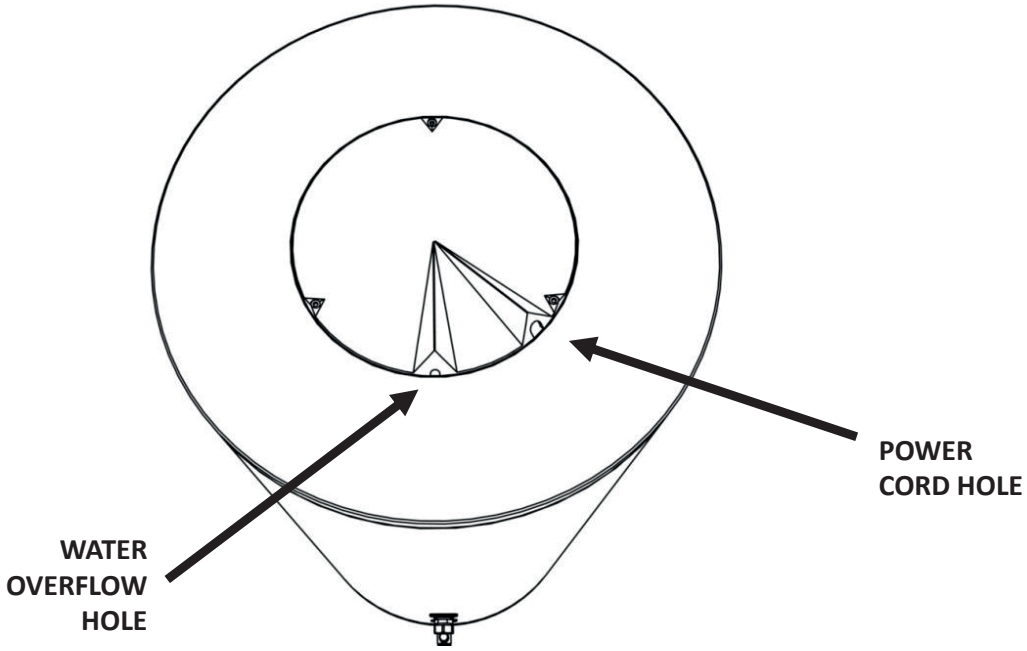


CHECKS BEFORE STARTUP			
NUMBER	**ACTION**	**YES**	**NO**
1	Does the natural circulation system face south for the Northern Hemisphere and north for the Southern Hemisphere?		
2	Has it been ascertained that the natural circulation system is not in the shade all year round?		
3	Was the collector installed at an angle between 15° and 45°?		
4	Is the natural circulation system installed at least 1m away from the walls or roof edge?		
5	Was the supplied manual used during installation?		
6	Is the maximum working pressure 10 bar?		
7	If the cold water pressure is higher than 10 bar, has a pressure reducer been installed?		
8	Has statics been considered?		
9	Have the necessary measures been taken to prevent the ingress of water? Has an adequate sealing been provided?		
10	Has all the piping been insulated according to local climatic conditions to prevent freezing and UV damage?		
11	Have all fittings been connected?		
12	Are all hydraulic connections free of heavy loads?		
13	Has the absence of leaks been checked?		
14	Has the original glycol been used for the frost protection?		
15	Has it been ascertained that all valves work properly?		
16	Has the support system been checked for visible damage??		
17	Has the original electric heater been installed by an authorized electrician?		
18	Has the system been installed according to the instructions?		
19	All connections have been made correctly (screws are tightened, etc.).		
20	Has the storage tank been correctly secured?		
21	Was the system put into operation according to the instructions?		
22	Was a functional check performed 30 minutes after installation?		

10. ELECTRICAL CONNECTIONS

The electrical connections must comply with the regulations in force in the country of installation and must always be made by a certified electrician. Given below is a diagram of the supply connection to the heating element via the thermostat.





IMPORTANT: The plastic cover of the electrical connections on the side of the water storage tank must be installed as shown in the diagram above. The smaller hole is for the overflow of water from the cavity of the electrical system and must be positioned in the lowest point of the cover. The hole for the power cord is larger to fit the diameter of the cable and the protective sleeve.

ATTENTION: If the heating element is **NOT** connected to the domestic electric panel, it is necessary to ground the anode.

11. TECHNICAL DATA

Model		160/2.1	200/2.1	300/5.2
Dimensions (slope)	Length (mm) A	1230	1520	2553
	Depth (mm) B	1684 (45°)	1684 (45°)	1973 (45°) / 2247 (30°)
	Height (mm) C	1700 (45°)	1700 (45°)	1989 (45°) / 1531 (30°)
System weight empty (kg)		92,5	107,5	178,4
System weight full (kg)		245,1	301,1	477
Optional heating element (kW)		1.5		
Solar circuit fluid content (Collector + Storage tank + Piping)		10.6 L	14.1 L	19.6 L
Storage tank	Storage tank volume (l)	151	192	295
	Storage tank weight empty (kg)	58	73	96
	Storage tank weight full (kg)	209	265	391
	Length (mm)	1230	1520	1980
	Diameter (mm)	500		

Model		SOLAREVO 2.1		SOLAREVO 2.6
Collectors	Collector dimensions (mm)	1230x1696x86	1230x1696x86	1230x2111x86
	Number of collectors	1	1	2
	Collector gross area (m²)	2.09	2.09	2.60
	Collector weight empty (kg)	34.5	34.5	41.2
	Max. operating temp.	175.7°C		
	Collector circuit max. operating pressure	2 MPa		

Type	SOLAREVO 2.1	SOLAREVO 2.6
Gross area (Ag)	2.09 m^2	2.60 m^2
Absorbent area	1.99 m^2	2.48 m^2
Opening area (Aa)	1.96 m^2	2.44 m^2
Optical efficiency (η_0) referred to Ag	79,5 %	
Linear heat lost coefficient (a1) referred to Ag	3,75 W/(m^2K)	
Quadratic heat lost coefficient (a2) referred to Ag	0,016 W/(m^2K^2)	
Absorption factor	95 ±2 %	
Emission factor	4 ±2 %	
L x D x H	1230 x 1696 x 86 mm	1230 x 2111 x 86 mm
Weight	34,5 kg	41,2 kg
Absorber capacity	1,6 l	1,8 l
Housing	Aluminum frame	
Absorber	Selective aluminum	
Number of pipes	12	
Absorber pipe diameter	8 mm	
Glass	tempered 3,2 mm	
Glass transmittance	>0.90 %	
Insulation	40 mm rock wool, density 50 kg/m^3	
Stagnation temperature at 1000 W/m^2 and 30 °C	175.7 °C	
Max. operating pressure	10 bar	

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