

















6 Installation / Assembly

6.1 Warnings



 DANGER		
	<p>DANGER TO LIFE!</p> <p>Danger of crushing from falling raised loads.</p> <ul style="list-style-type: none"> • Never stand under raised loads! • Keep a sufficient distance when transporting and lifting loads! • Wear a safety helmet! • Wear safety shoes! 	 

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of falling when using ladders, scaffolding and other climbing aids.</p> <ul style="list-style-type: none"> • Only use flawless and approved ladders, scaffoldings and other climbing aids! • Use a secured safety cage or safety harness when you are being raised by a forklift truck! • Wear a safety helmet! • Use a safety harness if necessary! 	 

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of crushing and shearing from work in the danger zone.</p> <ul style="list-style-type: none"> • Note the specified number of persons required! • Wear safety gloves! • Wear safety shoes! 	 

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Cutting and impact injuries from sharp corners and edges.</p> <ul style="list-style-type: none"> • Wear safety gloves! • Wear safety shoes! 	 

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of tripping and impact from pallets, packages and assembled parts at the construction site.</p> <ul style="list-style-type: none"> • Wear a safety helmet! • Wear safety shoes! 	 

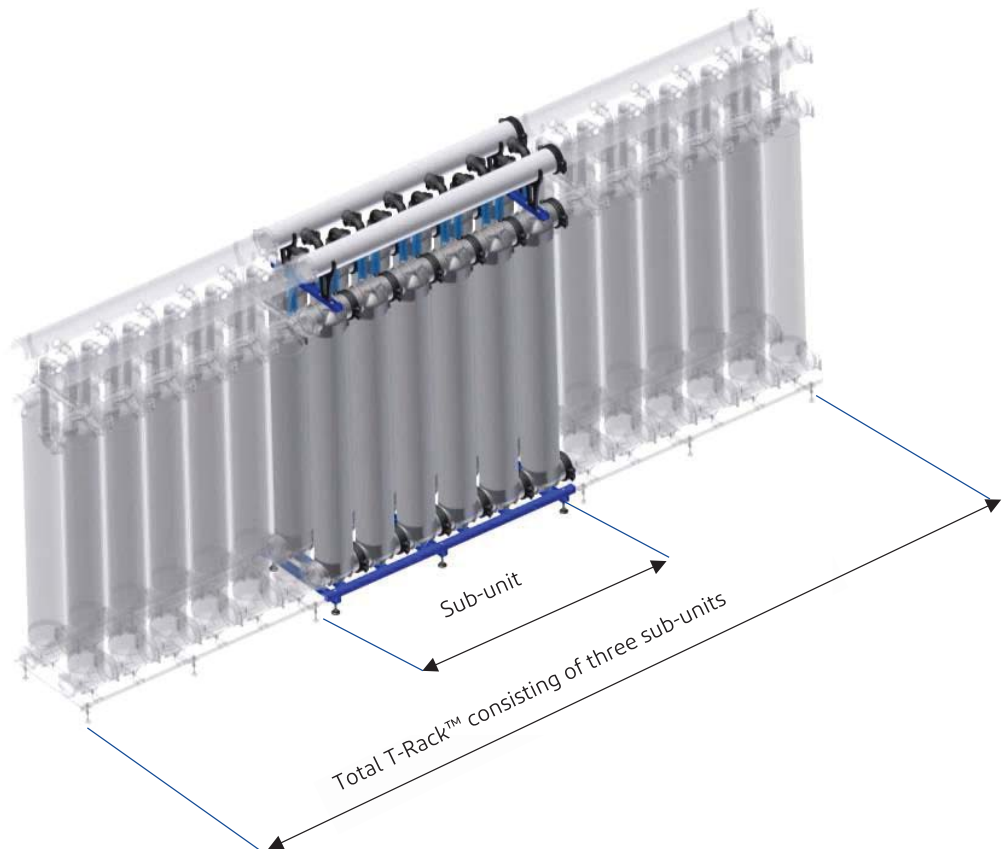
 CAUTION	
	<p>DANGER OF SLIPPING!</p> <p>Be careful when opening the modules, as residual liquid may still leak from the preservation.</p>

6.2 General Specifications

6.2.1 T-Rack™ and Sub-Units

A T-Rack™ consists of one or more sub-units, each with 4 to 68 modules in two or four module rows.

Example: T-Rack™ consisting of three sub-units, each with 12 modules in two rows:




These instructions describe the installation of a free-standing sub-unit of a T-Rack™ with a total of 12 modules in two rows. The procedures and steps similarly apply to variants with fewer modules in two rows.

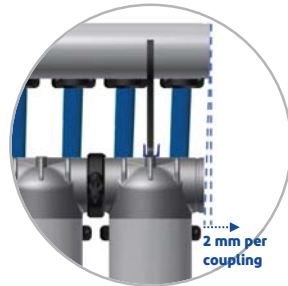
- In general, only DuPont™ original parts are approved for installation of the T-Rack™.
- The existing connecting pipework must be free of contaminants which can cause abrasion or fouling.
- All coated frame parts must be treated with care. If the coatings should become damaged, they must be resealed with a protective coating or exchanged.


Connecting of a sub-unit to an existing sub-unit is described in the next section:


→ [6.14.1 Assembly of Multiple Sub-Units to one T-Rack™](#)

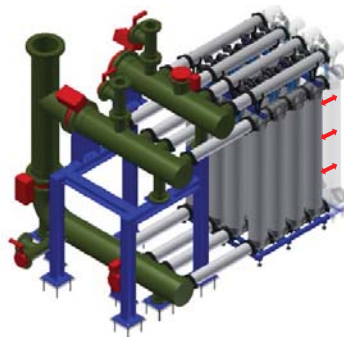
6.2.2 T-Rack™ Geometric Flexibility

<i>NOTE</i>	
	<p>The T-Rack™ is designed to allow expansion as well as contraction and is therefore flexible. This is necessary to allow differences in temperature and pressure. The maximum difference between the length of a T-Rack™ in 'as-built' condition to the length after pressurizing is about 2 mm per T-piece composite coupling.</p>





<i>NOTE</i>	
	<p>The T-Rack™ can contract further when the T-Rack™ is exposed to pressures below atmospheric (vacuum). The T-Rack™ is not designed for vacuum conditions.</p>

<i>NOTE</i>	
	<p>The T-Rack™ is designed with connection options on both sides. If it is required to connect the T-Rack™ with pipework on both sides, this pipework should be able to adjust to the full expansion and contraction possibility of the T-Rack™. In installations where both the bottom as well as the top feed headers of the T-Rack™ are connected to fixed pipework, a device for adjusting to expansion and contraction can be omitted as long as the feed pressure is below 3 bar.</p>



6.2.3 Calculation of Personnel Requirements

Personnel Requirements for mounting a module without a Crane

 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury due to physical strain.</p> <ul style="list-style-type: none"> • Determine the weight of the module in use! • Always note the locally applicable maximum permissible load of persons! • Note the specified number of persons required!

To mount the module without a crane, calculate the number of persons required as follows.

1. Determine the transport weight of a module you are using from the
→ [4.3 Technical Data](#)
2. Determine the maximum permissible load on a person from the locally applicable laws and safety regulations.
3. Calculate the required number of persons required to lift a module by dividing the module transport weight by the maximum permissible load per person.

Always use the calculated number of persons when a module needs to be lifted and placed on a connecting brace. In our example configuration, a total of 3 persons was determined and specified. Always replace this number by the number you actually determined yourself.

The total number of persons required is always one person more since when setting up modules 1 to 3, one person must hold the already installed modules vertical while the others lift and position another module.


Personnel Requirements for Other Tasks


Unless otherwise specified, all other tasks require one person.

If steps require two or more persons, this is specified in each case.

A maximum of 4 persons are needed.

6.2.4 Tools and Consumables

<i>NOTE</i>	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>If the tightening torques specified in these instructions are exceeded, the system parts may become damaged and leaks may occur during operation.</p> <ul style="list-style-type: none"> • Always adhere to the specified tightening torques!


<i>NOTE</i>	
	<p>The 2" and 6" composite couplings should be tightened until the contact surfaces of both coupling halves are flush and resting against each other without a gap. These types of couplings do not require a specific torque. The usual range of torque for the 2" coupling is 10-15 Nm, and 20-28 Nm for the 6" coupling.</p>

For the entire setup of T-Rack™ sub-units, only the following tools and devices are approved:

- Torque screwdriver (pneumatic or electric), provided that these can be used to reliably and verifiably set the required torque (size 24)
- Open-end wrench or box-end wrench (sizes 17, 19, 24)
- Torque wrench (size 17, 19, 24)
- Hex key (size 5, 6)
- Torx screwdriver T 20
- Spirit level 2000 mm
- Spirit level 600 mm
- Try square 90°
- Glycerin (>97%)


6.2.5 Preparation of gaskets and O-rings

Do not use silicone or any lubricants or sealants that contain silicone during assembly. Only glycerin may be used as a lubricant for gaskets, O-rings, couplings etc. (with a purity of > 99.7 %).

<i>NOTE</i>	
	<p>USE DISPOSABLE GLOVES!</p> <p>Use disposable gloves to apply lubricant to the couplings and gaskets.</p>

6.3 Preparing for Assembly

6.3.1 Checking the Available Space

<i>NOTE</i>	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Potential damage due to exposure to the weather or impermissible temperatures.</p>



Weather and Temperature Protection

At the location where you are planning to erect the T-Rack™ sub-unit, ensure the following:

- The unit is always protected by a roof
- Permanent protection against the weather is provided
- The temperatures are always within the permissible temperature range from 1°C to +40°C.

Space Conditions

- Check the space conditions around the assembly area.
- Ensure that there is enough space to allow the T-Rack™ to be installed, disassembled and operated safely. A maintenance space of 80 cm in front of the T-Rack is required.



 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury due to constricted space.</p> <ul style="list-style-type: none"> • Provide for sufficient space!

Comparison of Room Heights

- Compare the existing room height with the required assembly height.
- The maximum height of the system and the required clear room height is shown in the following table:

T-Rack™	Unit	System height	Clear room height
T-Rack™	mm	max. 2,695	min. 2,945
T-Rack™ S	mm	max. 2,363	min. 2,613

- Ensure that the necessary room height is available.

 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury due to inadequate room height.</p> <ul style="list-style-type: none"> • Provide for sufficient room height!



Floor Characteristics

Ensure that the floor characteristics meet the following minimum requirements

- Level, smooth surface with the necessary strength
- Recommendation: gullies and drainage channels ensure adequate water drainage, e.g. when emptying the T-Rack™.

Checking the Floor Load

- Ensure that the maximum permissible floor load of the planned system footprint is not exceeded. The maximum permissible floor load must be at least 2,500 kg/m².

 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury and system damage due to exceeding the maximum permissible floor load.</p> <ul style="list-style-type: none"> • Do not exceed the maximum permissible for load!

6.3.2 Protecting the Work Area

Structure of the Work Area

The work area consists of the following areas:



- The single parts of the sub-unit that are in storage, have been unpacked, are being tested and/or are being processed,
- The pre-assembled assembly groups,
- The sub-unit currently being processed,
- The final location of the sub-unit and the T-Rack™

and additionally on all routes:

- All required access routes to the areas specified above,
- All required walking and driving distance between the areas specified above,
- All escape routes from one of the area or routes specified above

Protecting the Work Area


- Protect the defined work area against access by persons who are not involved in the procedures for installing a sub-unit.
- Protect the defined work area against all machines or devices that are not required for the procedures for installing a sub-unit.

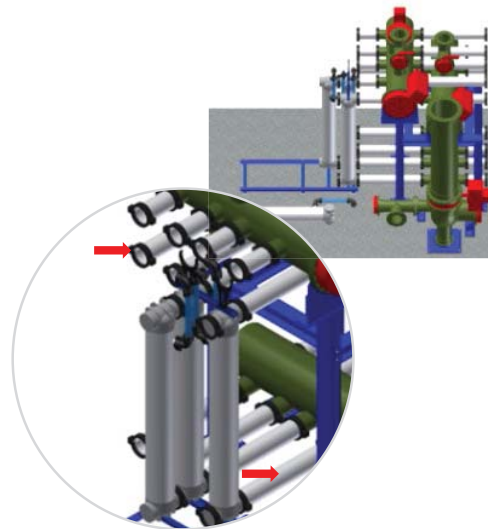
 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury to bystanders, machines and devices in the work area.</p> <ul style="list-style-type: none"> • Protect the work area against unauthorized access and against machines and devices that are not involved!

6.3.3 Assembly location and sequence

Mark the area for the planned system. The area can be determined from technical data in section 4.3 of the T-Rack™ variant being erected.

The erection location and orientation of the system can be found in the system plan of the system integrator.

<i>NOTE</i>	
	<p>ASSEMBLY SEQUENCE</p> <p>If premanufactured collector pipes are used, e.g. "T-Rack™ Manifolds" from DuPont™, it is necessary to first complete the connecting pipework and then mount the T-Rack™.</p> <p>→ 6.14.6 Connection to existing Connecting Pipework</p> <p>The Flexi Kit from DuPont™ can be used to compensate for small level differences. This Flexi Kit is not part of the standard scope of supply but can be ordered optionally.</p> <p>→ Attaching Compensation Pipes</p>



6.4 Checking the Delivery

6.4.1 Moving the Packages to the Work Area

Move all packages of the sub-unit being mounted to the vicinity of the work area using suitable transport equipment.

6.4.2 Checking for Damage



Step	Activity
1	Checking Packages and Parts <ol style="list-style-type: none"> Check all packages of the delivery for damage. Open all damaged packages. Check all models and/or parts it contains for damage.
2	Procedure for Damaged Modules or Parts <ol style="list-style-type: none"> Photograph the damage and the associated package label. Document all damage and the respective module serial numbers and associated package numbers in writing. Inform your contact at DuPont™ promptly about the damage. Damaged parts of a delivery are not permitted to be installed until a decision has been made by DuPont™. The decision regarding whether the damaged module or part must be returned or if it can be used is made by your contact at DuPont™. → 7.2.3 Return of Modules

Further Use of Parts


You are only permitted to continue to use and install the following modules and parts:

- All modules and parts without damage
- Damaged modules and parts with written approval from DuPont™ with a specific reference to the damaged module or part


DuPont™ decides on the procedure (approval or block) for all damaged modules or parts that have not been approved.


 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury during operation due to the installation and use of damaged parts.</p> <ul style="list-style-type: none"> • Only use undamaged parts or parts approved by DuPont™!

6.4.3 Checking the Delivery for Completeness


Step	Activity	Figure
1	Remove the packing list. You will find the packing list in a red pouch on the packaging.	
2	Check the completeness of the delivery against the packing list. All packages on the packing list must be present.	
3	Promptly inform your contact at DuPont™ if the number of pieces differs between the packing list and the existing packages.	


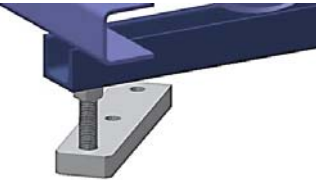
6.4.4 Unpacking the Parts

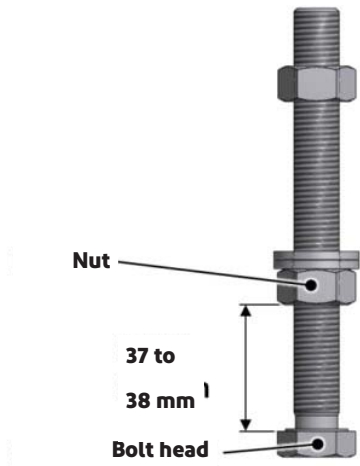
<i>NOTE</i>	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>In case of abrupt temperature changes.</p> <ul style="list-style-type: none"> Store the modules for at least two days at temperatures above freezing before opening the packaging carton.


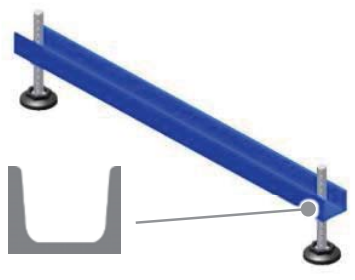
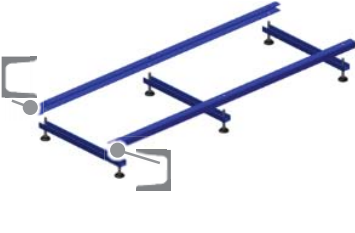


Step	Activity	Figure
1	<p>Unpacking the Packaging</p> <p>a) Remove the packaging and labeling.</p> <p>b) Remove the wooden boards of the modules on the outside by releasing the screws with a hex key (size 6).</p>	
2	<p>Unpacking the Component Crate</p> <p>a) Remove the cardboard cover.</p> <p>b) Remove the screws securing the cover plate using a Torx screwdriver T 20.</p> <p>c) Open the transparent plastic bags containing the small parts. Leave the nuts and washers on the bolt.</p>	

6.5 Mounting the Bottom Frame


<i>NOTE</i>	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Danger of system damage if the bolt head is not fully in place in the adjustable foot M16.</p> <ul style="list-style-type: none"> Insert the bolt head in the adjustable foot M16 so that the head is noticeably sunk into the adjustable foot M16 (see step 2)!




<i>NOTE</i>	
	<p>The following description refers to mounting of the bottom frame on the adjustable foot M16.</p> <p>Optionally, instead of frame foot the bottom frame can be mounted on the anchor plates that are bolted onto the floor.</p> <div style="text-align: center;">  </div> <p>A description of how to mount the bottom frame onto the T-Rack™ anchor plates can be found in section</p> <p style="color: #00A087;">→ 6.14.4 Mounting the Bottom Frame on the T-Rack™ Anchoring Plates</p>

Step	Activity	Figure
1	<p>Prepare the bolts</p> <p>a) Screw the hexagon nut (DIN 934) M16 closer to the bolt head toward the bolt head until there is a space of 37 mm to 38 mm between the bolt head base and the nut.</p> <p>b) Repeat step a) for all other pre-assembled hexagon bolts (DIN 933) M16 x 150.</p>	
2	<p>Prepare the frame foot</p> <p>a) Place an adjustable foot M16 onto the floor with the opening facing up.</p>	

Step	Activity	Figure
	<p>b) Force the bolt head of a pre-assembled hex bolt into the opening of the adjustable foot M16. The bolt head must noticeably (by a few millimeters) be sunk into the hexagonal opening of the adjustment plate.</p> <p>Otherwise, there is a danger that it will sink down later and cause strain, leaks and pipe breakage.</p>	
<p>3</p>	<p>Mount the channel section (DIN 1026) (U profile 50 x 38)</p> <p>a) Remove the upper hexagon nuts (DIN 934) M16 and one of the two washers (DIN 433) A17 from each of the frame feet.</p> <p>b) Place the channel section (DIN 1026) (profile opening facing up) on two frame feet.</p> <p>c) Repeat procedure a) and b) for two further U profiles and four further frame feet.</p>	
<p>4</p>	<p>Mount the channel section (U profiles 50 x 50 x 4)</p> <p>a) Place the three channel sections (DIN 1026) at distances that correspond to the holes of the channel section.</p> <p>b) Position the two channel sections with the openings facing each other, in a position that is aligned with the protruding bolts of the channel section (DIN 1026).</p>	
<p>5</p>	<p>Hand-tighten the bottom frame</p> <p>a) Place the washers (DIN 433) A17 over the protruding bolts.</p> <p>b) Then screw on the hexagon nut (DIN 934) M16 by several turns.</p> <p>c) Repeat the procedure a) to b) for all protruding bolts.</p> <p>d) Hand-tighten the U profiles onto the frame feet at all positions.</p>	
<p>6</p>	<p>Insert the channel sections (DIN 1026) (U profiles 50 x 38 mm with four holes) in the channel section</p> <p>The described example configuration (12 modules, two rows) has 6 installed connecting braces.</p> <p>In other configurations, this number can vary from 2 to 5 braces.</p> <p>a) Insert the channel sections (DIN 1026) (profile opening facing down) into the U profiles of the channel sections parallel to the channel sections (DIN 1026).</p> <p>b) Distribute the channel sections (DIN 1026) along the frame length so that three are positioned in each half of the frame.</p> <p>The exact alignment will be made in a later step.</p>	




6.6 Positioning and aligning the Bottom Frame


<i>NOTE</i>	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Danger of damage in the system and leaks if the frame is not leveled precisely.</p> <ul style="list-style-type: none"> Level the frame in the longitudinal and transverse directions!

Step	Activity	Figure
1	<p>Position the bottom frame</p> <p>Number of persons: 2</p> <p>a) Position the frame at the correct location according to the system layout.</p>	
2	<p>Level the bottom frame</p> <p>a) Place two spirit levels at right angles to each other on the frame.</p> <p>b) Leave two front frame feet in their fixed position.</p> <p>c) Adjust the four other frame feet so that all feet rest firmly on the floor and the frame is level in all directions.</p> <p>d) If necessary, loosen the upper and lower nuts of the frame feet and retighten them by hand in suitable positions.</p> <p>e) Using a spirit level, check that the frame is level on both channel sections and all channel sections (DIN 1026) attached to the channel sections. (permissible deviation is 2 mm/m)</p>	
3	<p>Align the frame at right angles</p> <p>a) Position the channel sections (DIN 1026) at a distance from the corner of the frame so that there is space for a 90° try square.</p> <p>b) Position the try square against two connected U profiles and check that they are at right angles.</p> <p>c) Correct the position of the profiles relative to each other if necessary.</p>	
4	<p>Secure the frame feet bolts</p> <p>a) Hold the upper nut in position using an open-end wrench (size 24).</p> <p>b) Tighten the lower nut with a second open-end wrench (size 24). For indication purposes only: the necessary torque for secure assembly is 135 Nm.</p> <p>c) Repeat the procedure a) and b) for all frame feet bolts.</p>	

6.7 Mounting Module 1




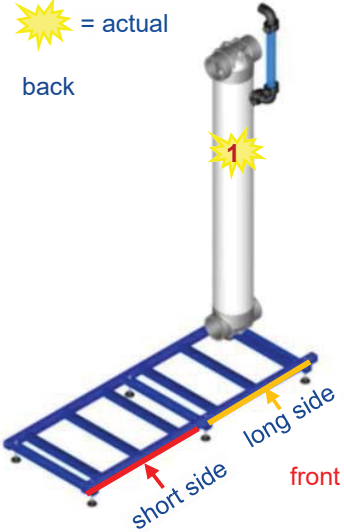
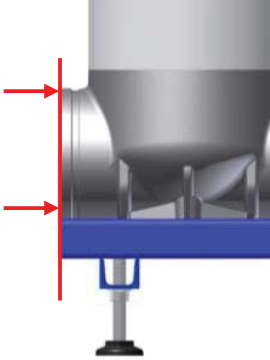


6.7.1 Assembling the Filtrate Pipe Assembly

Step	Activity	Figure
1	<p>Lubricate the gaskets with glycerin</p> <ul style="list-style-type: none"> a) Remove the gaskets of the flexible couplings 2”. b) Lubricate the gaskets with glycerin on the inside and outside. 	
2	<p>Mount the gaskets on the filtrate pipe</p> <ul style="list-style-type: none"> a) Mount one of the lubricated gaskets over one opening of the transparent filtrate pipe. b) Push the gasket onto the pipe so it is flush with the end of the pipe. c) Repeat the procedures a) and b) for the opposite opening. 	
3	<p>Mount the gasket on the filtrate port of the module</p> <ul style="list-style-type: none"> a) Remove the protective cap from the filtrate port of the module. b) Mount the third lubricated gasket over the opening of the filtrate port. c) Push the gasket onto the filtrate port so it is flush with the end. 	


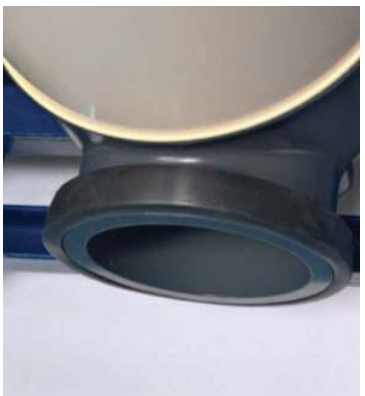
Step	Activity	Figure
4	<p>Mount the 90° elbow pieces PP 2" on the filtrate pipe</p> <p>a) Position the transparent filtrate pipe and one 90° elbow piece PP 2" with the openings facing each other.</p> <p>b) Pull the gasket of the filtrate pipe over the 90° elbow piece PP 2" so it is centered between the grooves of the two parts.</p> <p>c) Place a flexible coupling 2" half-shell around the gasket. Ensure that the contact surfaces of the coupling half-shells are resting in the provided grooves.</p> <p>d) Place the second flexible coupling 2" half-shell on the first and insert the bolts in the openings.</p> <p>e) Tighten the flexible coupling 2" with two nuts M10 and washers using an open-end or box wrench (size 17) until the contact surfaces of both coupling halves are flush and resting against each other without a gap. Ensure that the nuts are tightened evenly and alternately.</p> <p>f) Repeat procedures a) to e) for the other end of the transparent filtrate pipe. Ensure that the two 90° elbow pieces PP 2" are facing roughly in the same direction. The exact alignment will be made in a later step.</p>	

Step	Activity	Figure
5	<p>Mount the filtrate pipe assembly on the module</p> <p>a) Place module 1 on the floor so that the T-piece opening faces down, which will face the next module of the sub-unit just mounted.</p> <p>b) Position the opening of the 90° elbow piece PP 2" and the filtrate port so they are flush.</p> <p>c) Pull the gasket from the filtrate port over the 90° elbow piece PP 2" so that the gasket is centered on the connection surfaces of the port and 90° elbow piece PP 2".</p> <p>d) Position the flexible coupling 2" half-shell onto the filter port and 90° elbow piece PP 2" with the gasket from below. Ensure that the contact surfaces of the coupling half-shells are resting in the provided grooves.</p> <p>e) Place the second flexible coupling 2" half-shell on the first and insert the bolts in the threaded openings of the half-shell.</p> <p>f) Position the filtrate pipe assembly parallel to the longitudinal axis of the module.</p> <p>g) Tighten the flexible coupling 2" with two nuts M10 and washers using an open-end or box wrench (size 17) until the contact surfaces of both coupling halves are flush and resting against each other without a gap. Ensure that the nuts are tightened evenly and alternately.</p>	


6.7.2 Mounting the Module on the Channel Section (DIN 1026)


Step	Activity	Figure
1	<p>Screw the threaded pins (DIN 913) M10 x 50 into the bottom T-piece</p> <p>Using a hex key (size 5), screw the two threaded pins (DIN 913) M10 x 50 all the way into the two threaded holes of the middle rib.</p>	
2	<p>Position and mount the module on the channel section (DIN 1026)</p> <p>Number of persons: 3</p> <div data-bbox="402 911 1032 1098" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center; font-weight: bold; font-style: italic;">ATTENTION</p> <div style="display: flex; align-items: center;">  <p>Always start with the first module on the longer side of the frame.</p> </div> </div> <ol style="list-style-type: none"> a) Remove the protective caps from the T-pieces at the top and bottom. b) Now lift the module vertically over the first bottom connecting brace of the frame. c) Lower the module until both threaded pins (DIN 913) M10 x 50 on the lower T-piece are inserted in the two holes in the channel section (DIN 1026). The front edge of the T piece and the front edge of the frame must be flush. d) Continue to hold the module in position and screw the washers (DIN 125) A10.5 and the nuts (DIN 934) V4A M10 onto the two threaded pins (DIN 913) M10 x 50 with a torque of 5 Nm. Loosen the nut again by ¼ turn while simultaneously holding the set screw (DIN 913) with a hexagon wrench (size 5). 	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 20px;">  = actual back </div>  <div style="display: flex; align-items: center; margin-bottom: 20px;">  </div> <div style="display: flex; justify-content: space-around; width: 100%;">   </div> </div>
3	<p>Document the module serial number and the corresponding T-Rack™ position from now on.</p>	






6.7.3 Mounting the Gaskets on the T-Pieces


Step	Activity	Figure
1	<p>Lubricate the gaskets with glycerin</p> <ul style="list-style-type: none"> a) Remove the gaskets of the flexible composite couplings 6". b) Lubricate the gaskets with glycerin on the inside and outside. 	
2	<p>Mount the gaskets on the filtrate pipe</p> <p>Number of persons: 2</p> <ul style="list-style-type: none"> a) Continue holding the module in position to prevent tipping. b) Mount one of the lubricated gaskets over the opening of the lower T-piece, which will face the following module of the T-Rack™. c) Push the gasket onto the T-piece so it is flush with the end. d) Repeat procedures b) and c) for the upper T-piece. 	

6.8 Mounting Module 2



<i>NOTE</i>	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Danger of damage to the system and leaks if the top T-pieces are connected before the bottom T-pieces.</p> <ul style="list-style-type: none"> Always first connect the bottom and then the top T-pieces!


Step	Activity	Figure
1	<p>Mount module 2</p> <p>Number of persons: 4</p> <p>a) Continue holding module 1 in position to prevent tipping.</p> <p>b) Mount module 2 using the procedure described in section: → 6.7 Mounting Module 1</p>	

Step	Activity	Figure
2	Connect the lower T-pieces of modules 1 and 2	
	Number of persons: 2	
	a) Continue holding modules 1 and 2 in position to prevent tipping. b) At the connection of module 1, pull the gasket over the connection of module 2 so that it is centered between the grooves of both connections.	
	c) Place a flexible coupling 6" half-shell around the gasket. Ensure that the contact surfaces of the coupling half-shells are resting in the provided grooves.	
	d) Place the second flexible coupling 6" half-shell on the first and insert the bolts in the openings.	
	<i>cut-trough section showing the gap between two T-pieces after mounting the composite coupling</i>	
	e) Tighten the flexible coupling 6" with two nuts M12 and washers using an open-end or box wrench (size 19) until the contact surfaces of both coupling halves are flush and resting against each other without a gap. Ensure that the nuts are tightened evenly and alternately. Ensure that the square screw neck of each screw is correctly positioned in each threaded hole.	
	f) Continue holding the two attached modules 1 and 2 in position to prevent tipping.	

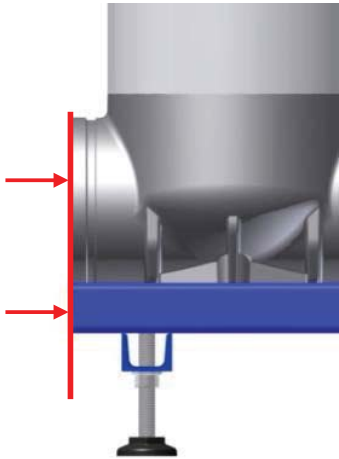
Step	Activity	Figure
3	<p>Connect the upper T-pieces of modules 1 and 2</p> <p>Number of persons: 3</p> <ul style="list-style-type: none"> a) Continue holding modules 1 and 2 in position to prevent tipping. b) Carefully move module 2 to module 1. c) At the connection of module 1, pull the gasket over the connection of module 2 so that it is centered between the grooves of both connections. d) Place a flexible coupling 6" half-shell around the gasket. Ensure that the contact surfaces of the coupling half-shells are resting in the provided grooves. e) Place the second flexible coupling 6" half-shell on the first and insert the two bolts in the openings. f) Tighten the flexible coupling 6" with two nuts M12 and washers using an open-end or box wrench (size 19) until the contact surfaces of both coupling halves are flush and resting against each other without a gap. Ensure that the nuts are tightened evenly and alternately. Ensure that the square screw neck of each screw is correctly positioned in each threaded hole. 	

6.9 Mounting Module 3

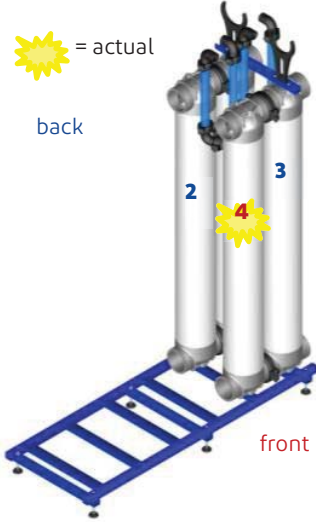
Step	Activity	Figure
1	<p>Mount module 3</p> <p>Number of persons: 4</p> <p>a) Continue holding modules 1 and 2 in position to prevent tipping.</p> <p>b) Mount module 3 using the procedure described in section: → 6.7 Mounting Module 1</p> <p>The filtrate pipe assembly faces module 1.</p>	 <p>= actual</p> <p>back</p> <p>front</p>
2	<p>Screw the threaded pins (DIN 913) M10 x 50 into the upper T-pieces</p> <p>Number of persons: 2</p> <p>a) Continue holding modules 1, 2 and 3 in position to prevent tipping.</p> <p>b) On the T piece of module 1, screw in two threaded pins (DIN 913) M10 x 50 using a hex key (size 5). The pins should protrude by 30 to 31 mm.</p> <p>c) Repeat step b) for module 3.</p>	 <p>30 - 31 mm</p>

Step	Activity	Figure
3	<p>Mount the channel section (DIN 1026) (U profile 50x38 mm with four holes) and mounting clamp PE</p> <p>Number of persons: 2</p> <p>a) Continue holding modules 1, 2 and 3 in position to prevent tipping.</p> <p>b) Hold the other connecting brace (profile opening facing up).</p> <p>c) Position the channel section (DIN 1026) (profile opening facing up) on the T-pieces of modules 1 and 3 so that the threaded pins (DIN 913) M10 x 50 extend through the four drilled holes.</p> <p>d) Place one mounting clamp PE on the threaded pins (DIN 913) M10 x 50 of module 1 and one mounting clamp PE on the threaded pins (DIN 913) M10 x 50 of module 3.</p> <p>e) Place a washer (DIN 125) A10.5 on each threaded pin (DIN 913) M10 x 50.</p> <p>f) Screw a hexagon nut (DIN 934) M10 hand-tight onto each threaded pin (DIN 913) M10 x 50.</p> <p>Steps 2 and 3 must be repeated for the end modules (modules 11 and 12 in this description) in order to mount the filtrate collector</p>	

→ [6.12.1 Mounting the first Filtrate Header](#)

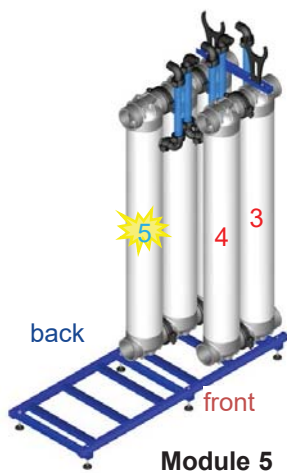
Step	Activity	Figure
4	<p>Align the modules</p> <p>By attaching modules 1, 2 and 3 with each other via couplings and the channel sections (DIN 1026), these are now positioned on the bottom frame on three contact points and with no danger of tipping.</p> <p>a) Align the modules 1 to 3 flush with the channel section of the frame.</p>	

6.10 Mounting Module 4

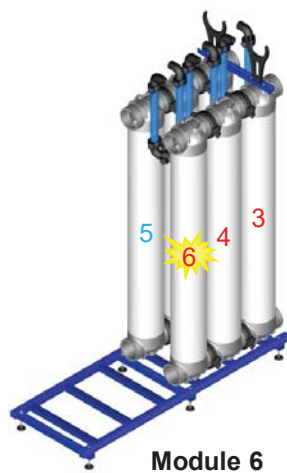
Step	Activity	Figure
1	<p>Mount module 4</p> <p>Number of persons: 4</p> <p>a) Mount module 4 using the procedure described in section: → 6.7 Mounting Module 1 The filtrate pipe assembly faces module 2.</p>	 <p>The diagram shows three vertical cylindrical modules mounted on a blue metal frame. The modules are labeled 2, 3, and 4 from left to right. Module 4 is highlighted with a yellow starburst icon. A legend indicates that the starburst icon represents the 'actual' state. The word 'back' is written in blue text to the left of the modules, and 'front' is written in red text to the right. The modules are connected to a blue pipe assembly at the top.</p>

6.11 Mounting Modules 5 to 12

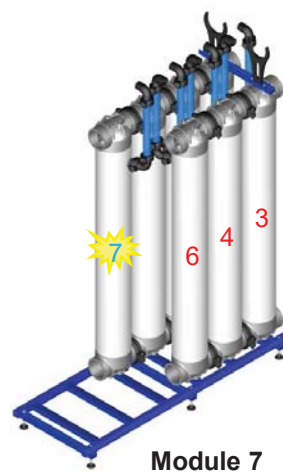
Step	Activity
1	<p>Mount modules 5 to 12</p> <p>Number of persons: 2 – 4</p> <p>a) Mount all further modules according to the procedure described in sections: → 6.7 Mounting Module 1 to → 6.10 Mounting Module 4</p> <p>b) Mount the channel section (DIN 1026) between the modules 11 and 12 according to the procedure described in section: → 6.9 Mounting Module 3</p>



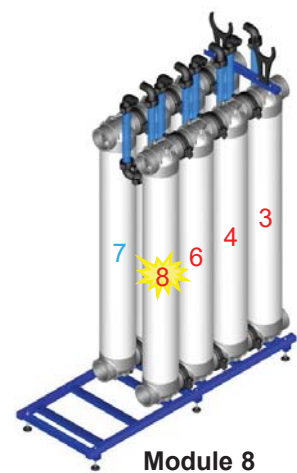
Module 5



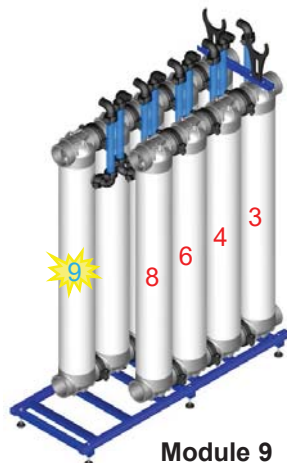
Module 6



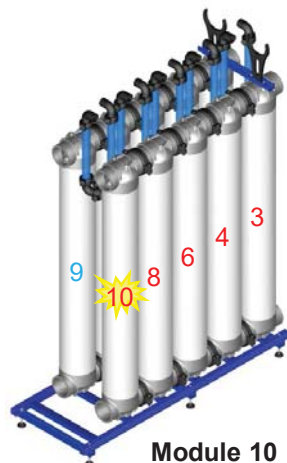
Module 7



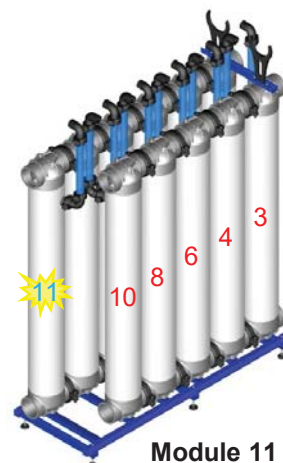
Module 8



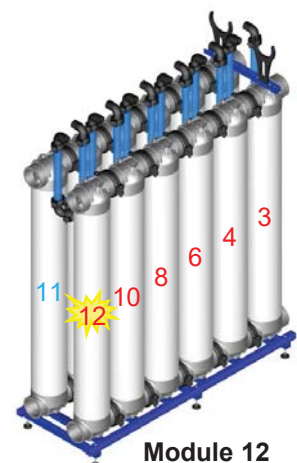
Module 9



Module 10





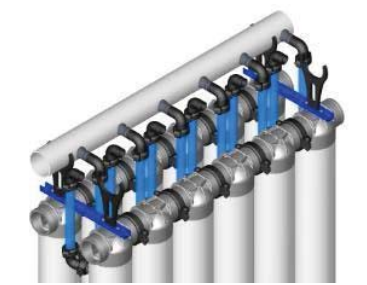
Module 11



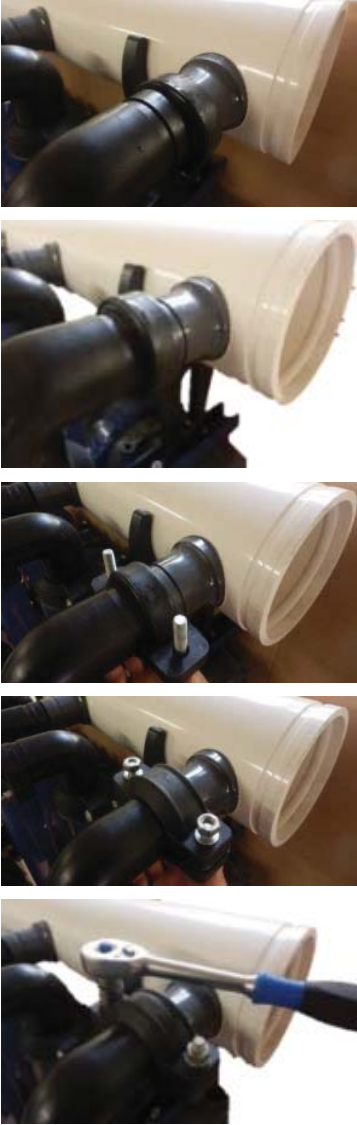
Module 12

6.12 Mounting the Filtrate Header


6.12.1 Mounting the first Filtrate Header


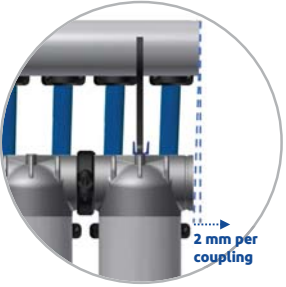
Step	Activity	Figure
1	<p>Lubricate the gaskets with glycerin</p> <p>a) Remove the gaskets of the flexible couplings 2".</p> <p>b) Lubricate the gaskets with glycerin on the inside and outside.</p>	
2	<p>Prepare the filtrate header</p> <p>a) Mount a lubricated gasket on the filtrate port.</p> <p>b) Push the gasket onto the filtrate port so it is flush with the end.</p> <p>c) Repeat procedures a) to c) for all further filtrate ports.</p>	
3	<p>Position the filtrate header</p> <p>Position the filtrate header on the mounting clamp PE of modules 1 and 11.</p> <p>The end of the pipe with the smallest distance to the first connection must come to rest above module 1.</p>	

6.12.2 Connecting the Modules to the Filtrate Header


Step	Activity	Figure
1	<p>Connect the modules of the first row to the filtrate header</p> <p>a) Position the openings of the 90° elbow piece PP 2" (filtrate pipe assembly) of module 1 and the filtrate port on the filtrate header so they are flush.</p> <p>b) Pull the gasket from the filtrate port over the 90° elbow piece PP 2" so that the gasket is centered on the connection surfaces of the port and 90° elbow piece PP 2".</p> <p>c) Place a flexible coupling 2" half-shell around the gasket that connects the filtrate port and the 90° elbow piece PP 2". Ensure that the contact surfaces of the coupling half-shells are resting in the provided grooves.</p> <p>d) Place the second flexible composite couplings 2" half-shell on the first and insert the two bolts in the openings of the half-shell.</p> <p>e) Tighten the flexible couplings 2" with two nuts M10 and washers using an open-end or box wrench (size 17) until the contact surfaces of both coupling halves are flush and resting against each other without a gap. Ensure that the nuts are tightened evenly and alternately.</p> <p>f) Repeat the procedure as described from a) to e) for modules 2, 5, 7, 9 and 11.</p>	

6.12.3 Mounting the Second Filtrate Header

Step	Activity	Figure
1	<p>Mounting the filtrate header</p> <p>a) Mount the second filtrate header on the mounting clamp PE of modules 3 and 12 according to the procedure as described in sections:</p> <ul style="list-style-type: none"> → 6.12.1 Mounting the first Filtrate Header → 6.12.2 Connecting the Modules to the Filtrate Header 	


<i>NOTE</i>		
	<p>The filtrate headers will now be longer than the row of modules (top and bottom). This difference can be up to approximately 2 mm per T-piece composite coupling.</p> <p>After completion of the installation and subsequent pressurizing with water, this difference will significantly reduce or disappear depending on the applied pressure during filtration and/or backwash.</p>	 <p style="text-align: right;">2 mm per coupling</p>

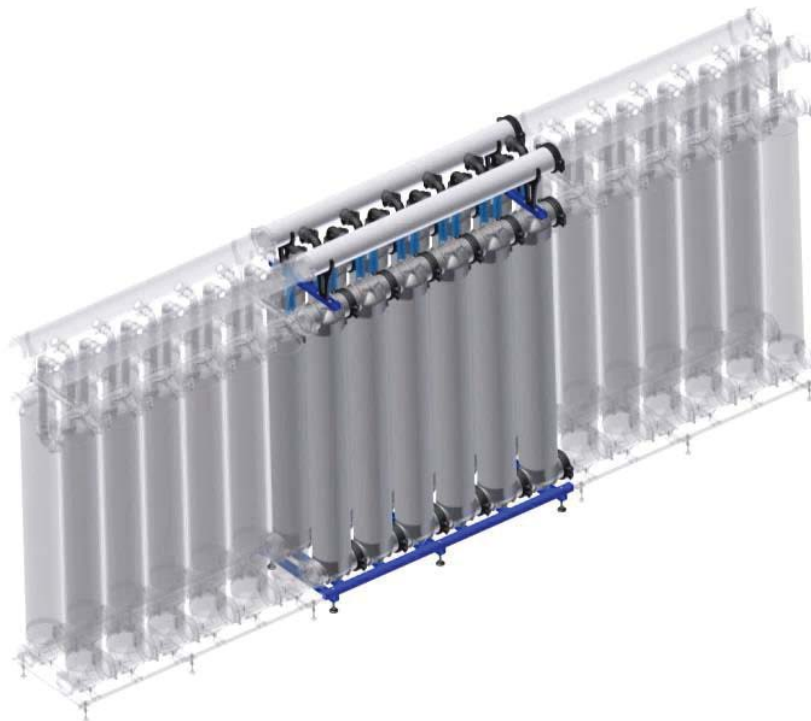
6.13 Tightly screwing together the Channel Sections (DIN 1026)

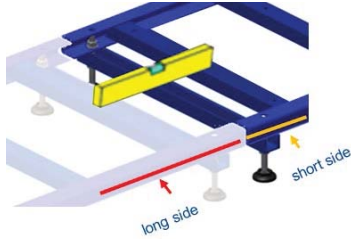
Step	Activity	Figure
1	<p data-bbox="337 342 542 363">Secure the modules</p> <p data-bbox="337 384 1027 436">a) Before screwing the modules tight, check that they are at right angles to each other and correct this if necessary.</p> <p data-bbox="337 464 1008 516">b) Fasten all 12 modules of both rows with the channel sections (DIN 1026), using a torque key (size 17) and a torque of 5 Nm.</p> <p data-bbox="337 701 1052 783">c) Fasten the channel sections (DIN 1026) to the mounting clamp PE between modules 1 and 3 and modules 11 and 12 using a torque key (size 17) and a torque of 5 Nm.</p>	

6.14 Optional Assembly Variants

6.14.1 Assembly of Multiple Sub-Units to one T-Rack™

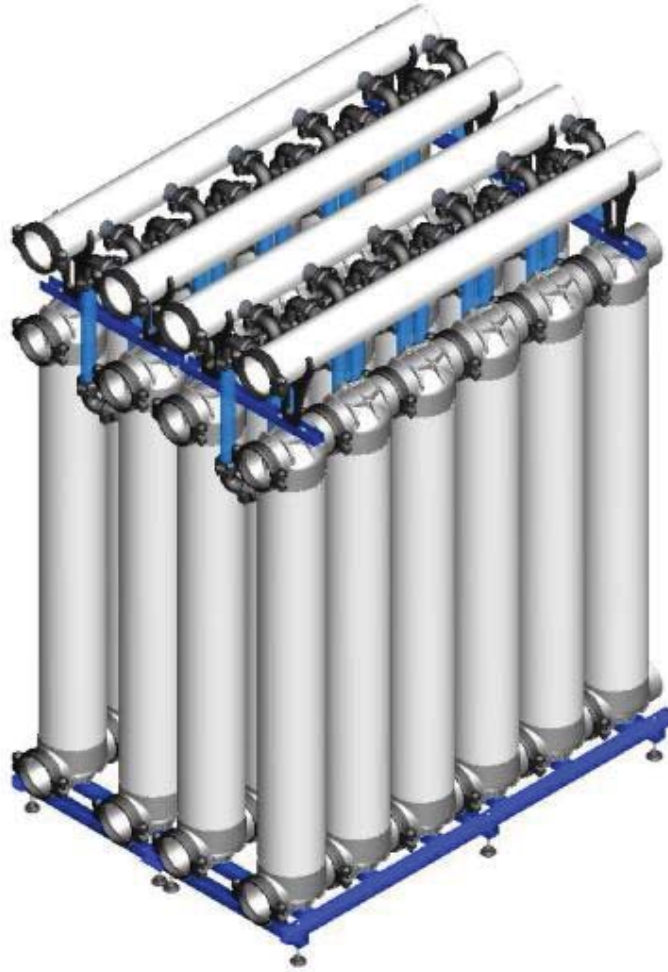
<i>NOTE</i>	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Danger of damage to the system and leaks if the frame is not leveled precisely.</p> <ul style="list-style-type: none"> • Level the frame in the longitudinal and transverse directions! • There is no direct connection between the bottom frames of the sub-units.



Step	Activity	Figure
1	<p>Mount the bottom frame of the second sub-unit</p> <p>Mount the bottom frame as described in section: → 6.5 Mounting the Bottom Frame</p>	
2	<p>Adjust the bottom frame to the existing sub-unit</p> <p>Number of persons: 2</p> <p>a) Position the frame at the correct location according to the system layout.</p> <p>b) Place the spirit level on the channel section (DIN 1026) that is closest to the existing sub-unit.</p> <p>c) Loosen the nuts on both connection-side frame feet of the new bottom frame.</p> <p>d) Move the new bottom frame to the height of the existing sub-unit using the spirit level.</p> <p>e) Secure the two connection-side frame feet of the new bottom frame by hand-tightening the nuts.</p> <p>f) Align the new bottom frame as described in section: → 6.6 Positioning and aligning the Bottom Frame</p>	
3	<p>Mount the new sub-unit</p> <p>Mount the modules and the filtrate headers as described in sections: → 6.7 Mounting Module 1 to → Tightly screwing together the Channel Sections (DIN 1026)</p>	

6.14.2 Assembly of Four-Row T-Rack™




- To assemble four-row T-Rack™, two two-row T-Rack™ are set up next to each other.
- There is no direct connection between the two-row T-Rack™ (screw connection or similar).



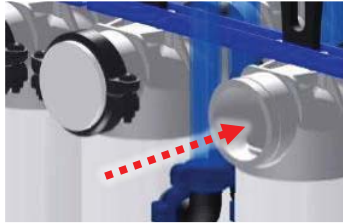
The two-row T-Rack™ must be positioned side-by-side without a gap.


6.14.3 Attaching Connectors

Options

Option	Article no.	Article designation	Purpose
	KT-0162	Flange Adapter Cap DN 150 x 6" for connection from 6" grooved coupling systems	Connection of 6" grooved coupling system to flange with connection dimensions according to ISO 7005 PN 10, ANSI Class 150
	KT-0163	Blind Cap 6" for grooved coupling systems	Closing of feed and filtrate headers
	KT-0164	Blind Cap 6" with G2" Thread for grooved coupling systems	Connection of equipment for venting, measuring, etc., G2" female thread according to DIN ISO 228 BSPP

The connectors are attached using original flexible composite couplings 6" from DuPont™.

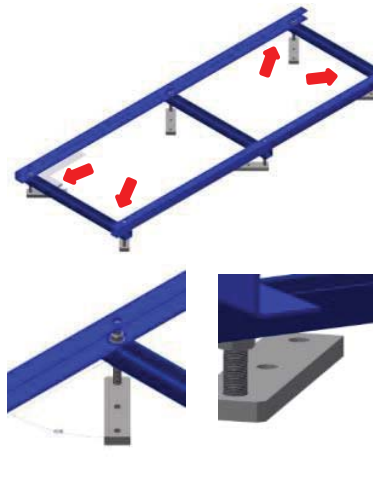
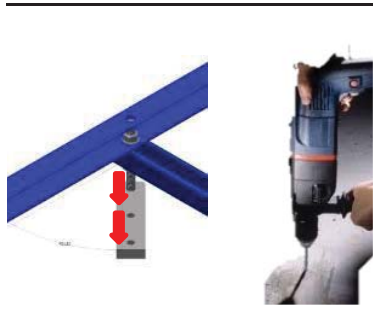
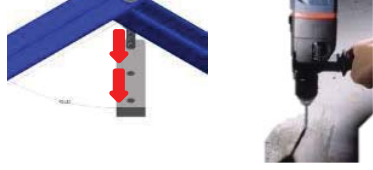
Step	Activity	Figure
1	<p>Lubricate the gaskets with glycerin</p> <ul style="list-style-type: none"> a) Remove the gaskets of the flexible composite couplings 6". b) Lubricate the gaskets with glycerin on the inside and outside. 	
2	<p>Mount the gasket on the end pipe</p> <ul style="list-style-type: none"> a) Remove the protective cap from the corresponding pipe. b) Mount one of the lubricated gaskets over the opening of the corresponding end pipe. c) Push the gasket onto the corresponding pipe so it is flush with the end of the pipe. 	

Step	Activity	Figure
3	<p>Attach the connectors</p> <p>a) Position the connector on the corresponding pipe end. Pull the gasket from the pipe over the connector so that the gasket is centered on the connection surfaces of the pipe and connector.</p> <p>b) Place a flexible coupling 6" half-shell around the gasket. Ensure that the contact surfaces of the coupling half-shells are resting in the provided grooves.</p> <p>c) Place the second flexible coupling 6" half-shell on the first and insert the two bolts in the openings.</p> <p>d) Tighten the flexible coupling 6" with two nuts M12 and washers using an open-end or box wrench (size 19) until the contact surfaces of both coupling halves are flush and resting against each other without a gap. Ensure that the nuts are tightened evenly and alternately. Ensure that the square screw neck of each screw is correctly positioned in each threaded hole.</p>	

6.14.4 Mounting the Bottom Frame on the T-Rack™ Anchoring Plates

Optionally, the subunits can be fixed to the floor with anchoring plates. These anchor plates are not included in the standard scope of supply but can be ordered as an additional option.

Step	Activity	Figure
1	<p>Prepare the anchoring plates</p> <p>a) Insert the hexagon bolts (DIN 933) M16 x 150 into the anchoring plates.</p> <p>b) Screw on the hexagon nut (DIN 934) M16 with the washer (DIN 433) A17, maintaining the distance to the screw head as described in section: → 6.5 Mounting the Bottom Frame</p>	
2	<p>Mount the channel section (DIN 1026) (U profile 50 x 38)</p> <p>a) Place the channel section (DIN 1026) (profile opening facing up) on two anchor plates.</p> <p>b) Repeat the procedure a) for two further U profiles.</p>	
3	<p>Continue the procedure as described in sections:</p> <p>→ 6.5 Mounting the Bottom Frame</p> <p>→ 6.6 Positioning and aligning the Bottom Frame</p>	

Step	Activity	Figure
4	<p>Align the anchoring plates</p> <p>Position the anchoring plates inward at an angle of 45°.</p>	
5	<p>Drill the holes for the floor attachment</p> <p>Drill holes for the concrete anchors Ø12 mm.</p> <p>You can use the anchoring plate as the drilling template.</p>	
6	<p>Attach the anchoring plates to the floor</p> <p>Attach the anchoring plates using Ø12 mm concrete anchors and suitable industrial bolts or stud anchors, depending on the seismic or structural requirements.</p>	

6.14.5 Mounting the Module with a Crane

Requirement







Before **beginning** the procedure to mount the module with a crane, the threaded pins (DIN 913) M10 x 50 must be mounted at the bottom T-piece and the filtrate pipe assembly must be mounted on the module.

See sections:

- 6.7.1 Assembling the Filtrate Pipe Assembly
- 6.7.2 Mounting the Module on the Channel Section (DIN 1026)


Mounting with a Crane

Number of persons: 2

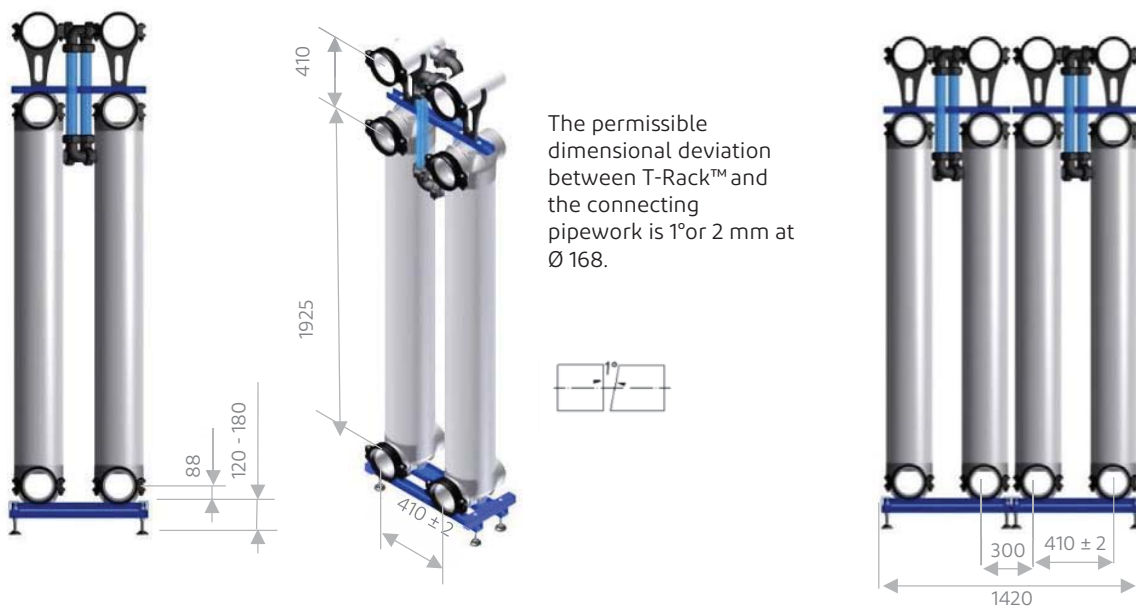
Step	Activity	Figure
1	Attach the module using a mounting strap (min. load capacity of 60 kg) directly under the upper T-piece and place the loop into the crane hook. The connection of the T-piece must face up. The mounted filtrate pipe assembly is located on the side.	
2	Carefully lift the module using the crane.	
3	Hold the module at the T-piece and stabilize it throughout the transport procedure.	
4	Move the module to the installation position with a crane.	
5	Lower the module until both threaded pins (DIN 913) M10 x 50 are inserted in the two holes in the channel section (DIN 1026).	
6	Keep the mounting strap taut so that the module cannot tip.	

Step	Activity	Figure
7	Mount the module using the procedure described in section: 6.7.2 Mounting the Module on the Channel Section (DIN 1026) → Mounting the Module on the Channel Section (DIN 1026)	
8	Slacken the mounting strap with the crane and release it from the crane hook and the module.	

6.14.6 Connection to existing Connecting Pipework

<i>NOTE</i>	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>If the existing system and the connecting pipework are in an unstable position or if the connection dimensions are incorrect.</p> <ul style="list-style-type: none"> • Ensure that the system is stabilized and in the correct position! • Ensure that the connecting pipework is properly fixed and correctly positioned! • Always adhere to the specified connection dimension tolerances regarding pipe distances, length offsets and angular offsets! <p>Always ensure that the connection is established tension-free at any time!</p>

Connection Dimensions



Requirements

The T-Rack™ being mounted must be directly connected to an existing connection pipework that:

- ends toward the T-Rack™ with pipes whose ends feature a groove for the coupling connection
- ends toward the T-Rack™ with flange surfaces

If premanufactured collector pipes are used, e.g. "T-Rack™ Manifolds" from DuPont™, it is necessary to first complete the connection pipework and then mount the T-Rack™.

The FlexiKit from DuPont™ can be used to compensate for small level differences. This FlexiKit is not part of the standard scope of supply but can be ordered optionally.

For detailed information, see

[DuPont™ IntegraTec™ PES-UF In-Out FlexiKit for T-Rack™ Product Data Sheet](#)
(Form No. 45-D02565-en) and

→ [6.14.7 Attaching Compensation Pipes](#)





Connecting Pipework with Coupling Connection

Step	Activity
1	<p>Check the connection pipework</p> <p>a) Ensure that all pipes of the connecting pipework are secured in a stable and form-fitting manner. There must be no change in position and angle between the connection points and the T-Rack™s during operation.</p> <p>b) Check all specified connection dimensions for pipe distances, length offsets and angular offsets. If the specified connection dimensions are not met, stop the mounting procedure of the T-Rack™ and adjust the connecting pipework. Mounting may continue after the specified connection dimension tolerances have been met.</p>
2	<p>Lubricate the gaskets with glycerin</p> <p>a) Remove the gaskets of the flexible composite couplings 6".</p> <p>b) Lubricate the gaskets with glycerin on the inside and outside.</p>
3	<p>Mount the gasket on the pipe end</p> <p>a) Remove the protective caps from the T-Rack™ connection and connecting pipework.</p> <p>b) Mount one of the lubricated gaskets over the opening of the T-Rack™ connection.</p> <p>c) Push the gasket onto the T-Rack™ until it is flush with the end of the pipe.</p>
4	<p>Align both connections with each other</p> <p>Number of persons: 2</p> <p>Position the two connections (T-Rack™ connection and connection pipe) with respect to each other.</p>
5	<p>Connect the two connections</p> <p>a) Pull the gasket over the connection pipe so it is centered between the grooves of both connections.</p> <p>b) Place a flexible coupling 6" half-shell around the gasket. Ensure that the contact surfaces of the coupling half-shells are resting in the provided grooves.</p> <p>c) Place the second flexible coupling 6" half-shell on the first and insert the bolts in the openings.</p> <p>d) Tighten the flexible coupling 6" with two nuts M12 and washers using an open-end or box wrench (size 19) until the contact surfaces of both coupling halves are flush and resting against each other without a gap. Ensure that the nuts are tightened evenly and alternately. Ensure that the square screw neck of each screw is correctly positioned in each threaded hole.</p>

Connecting pipework with Flange Connection

Step	Activity
1	<p>Check the connecting pipework</p> <p>a) Ensure that all pipes of the connecting pipework are secured in a stable and form-fitting manner. There must be no change in position and angle between the connection points and the T-Rack™s during operation.</p> <p>b) Check all specified connection dimensions for pipe distances, length offsets and angular offsets.</p> <p>If the specified connection dimensions are not met, stop the mounting procedure of the T-Rack™ and have the connecting pipework adjusted.</p> <p>Mounting may continue after the specified connection dimension tolerances have been met.</p>
2	<p>Prepare the flange bolts</p> <p>See the scope of supply of the system integrator.</p>
3	<p>Align both connections with each other</p> <p>Number of persons: 2</p> <p>Position the two connections T-Rack™ connection and connection pipe) with respect to each other.</p>
4	<p>Insert the flange gasket</p> <p>Flange gaskets are not included in the scope of supply from DuPont™.</p> <p>Inserts the flange gasket (profiled flat ring DN 150 made of EPDM) in the grooves of both flange surfaces (T-Rack™ connection and connection pipe).</p>
5	<p>Screw the flange together</p> <p>a) Insert the prepared flange bolts into the drill holes of both flanges from the side of the connecting pipework.</p> <p>b) Hand-tighten the nuts by several turns.</p> <p>c) Tighten the first bolt head with an open-end or box wrench (size 30).</p> <p>d) Repeat procedure c) for the directly opposite bolt head.</p> <p>e) Repeat procedure c) for all other bolt heads.</p> <p>f) Tighten all bolt heads with a torque of 35 Nm. Tighten the bolts /nuts in a criss-cross pattern.</p>
6	<p>Screw all of the connection pipes together</p> <p>Repeat steps 1-5 for all other connection pipes.</p>

6.14.7 Attaching Compensation Pipes

Options	Article no.	Article designation	Purpose
 <p>6 pieces</p>	EP-0112	T-Rack™ FlexiKit – 2-rowed	FlexiKit for T-Rack™ neutralizing up to 3.5 mm of level differences for T-Rack™s with 2 rows and single-sided link to connecting pipework
 <p>12 pieces</p>	EP-0113	T-Rack™ FlexiKit – 4-rowed	FlexiKit for T-Rack™ neutralizing up to 3.5 mm of level differences for T-Rack™s with 4 rows and single-sided link to connecting pipework


The compensation pipes are assembled using flexible 6" composite couplings from DuPont™.




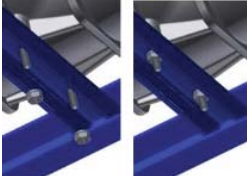






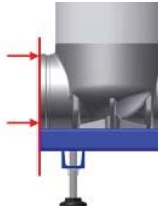


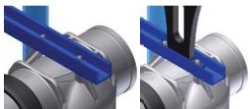

Step	Activity
1	<p>Lubricate the gaskets with glycerin</p> <p>a) Remove the gaskets of the flexible composite couplings 6".</p> <p>b) Lubricate the gaskets with glycerin on the inside and outside.</p>
2	<p>Mount the gasket on the end pipe</p> <p>a) Remove the protective cap from the corresponding pipe.</p> <p>b) Mount one of the lubricated gaskets over the opening of the corresponding end pipe.</p> <p>c) Push the gasket onto the corresponding pipe so it is flush with the end of the pipe.</p>
3	<p>Attach the compensating pipe</p> <p>a) Position the compensating pipe on the corresponding pipe end.</p> <p>b) Place a flexible coupling 6" half-shell around the gasket. Ensure that the contact surfaces of the coupling half-shells are resting in the provided grooves.</p> <p>c) Place the second flexible coupling 6" half-shell on the first and insert the two bolts in the openings.</p> <p>d) Tighten the flexible coupling 6" with two nuts M12 and washers using an open-end or box wrench (size 19) until the contact surfaces of both coupling halves are flush and resting against each other without a gap.</p> <ul style="list-style-type: none"> • Ensure that the nuts are tightened evenly and alternately. • Ensure that the square screw neck of each screw is correctly positioned in each threaded hole.

6.15 Prevention of Possible Assembling Failures

Assembly failures should be avoided by carefully following the assembly manual. In addition, we mention below some typical failures and how to prevent them.

<i>NOTE</i>	
	<p>Pictures in this document are for illustration purposes only.</p> <p>Actual color, appearance and size may vary.</p>

Parts	Components	Failure	Possible problems	Failure prevention
Bottom Frame				
	Adjustable feet (M16x150mm)	Adjustable bolt head not completely inserted into floor disc	<ul style="list-style-type: none"> eventual compression due to weight of T-Rack™ failure frame alignment 	Proper assembly of adjustable foot's bolt head into floor disc
	Longitudinal-U-Channel	Insufficient leveling of length and width	<ul style="list-style-type: none"> strain on module connectors leakages PVC rupture 	Use a spirit level (> 1.5m) to horizontality position the frame in all axes
	Lower U-Channel	Channel opening facing downwards	<ul style="list-style-type: none"> no accessibility to mounting nut for adjustment/alignment 	Channel opening to face upwards → accessibility mounting nut
	U-Channel (Mounting of modules)	Channel opening facing upwards	<ul style="list-style-type: none"> No accessibility for mounting of threaded pins M10x50 	Channel opening facing downwards allowing accessibility to the threaded pins
Module Preparation				
	Threaded pins (Feed Bottom)	Missing pins (2) M10 x 50 installed at the bottom face of the module	<ul style="list-style-type: none"> difficult access for rework additional labor required potentially missing mounting hardware 	Proper preassembly → faster installation → solid rack construction
	Composite Couplings (2"/6" gaskets)	Gaskets were not treated with glycerin	<ul style="list-style-type: none"> pinching of gaskets leakages increased friction 	Prepare coupling gaskets for installation using sufficient glycerin
	Transparent filtrate connector (Preassembly on the module)	Preassembly did not take place	<ul style="list-style-type: none"> difficult accessibility once module is mounted potential disassembly required 	Proper preassembly → faster installation

Parts	Components	Failure	Possible problems	Failure prevention
Module Assembly				
	Transparent filtrate connector (Tilting)	Tilting of the filtrate connector downwards	<ul style="list-style-type: none"> disassembly of all inner filtrate connectors difficult accessibility 	Tilting of the filtrate connector upwards → faster installation
	Alignment First (2) module rows to the frame	> 2 module rows are increasingly hard to align (↑required forcing)	<ul style="list-style-type: none"> strain on couplings and connectors connections to peripheral piping 	Align first two installed rows with the frame's outer edge
	Composite Couplings (Mounting)	Couplings not properly seated in grooves	<ul style="list-style-type: none"> leakages slipping of the couplings PVC rupture 	The grooves must be visible with installed gasket; proper mounting position of couplings must be validated by slightly spinning the loose coupling
	Composite Couplings (Mounting)	Wrong mounting sequence of couplings	<ul style="list-style-type: none"> strain inside the T-Rack™ 	Mount both couplings after installing each module: Bottom → Top
	Mounting filtrate clamp	Upper U-Channel (structural support from top) missing	<ul style="list-style-type: none"> module not structurally supported level Filtrate collector 	Initially, mount filtrate clamp in first and last position of the T-Rack™
	Filtrate collector (Mounting)	Wrong position first filtrate outlet → Collector orientation rotated 180°	<ul style="list-style-type: none"> missing alignment of filtrate collector to T-Rack™ connections to peripheral piping 	Filtrate collector outlet must be aligned to T-Rack™ module outlets on the side of the first 2 modules