










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 fork lift 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 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.

6.2.2 Tools

<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" 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.</p>

Only the following tools and devices are approved for the installation of PES-UF Modules:

- Open-end or box wrench (size 17)
- Torque wrench for hexagon socket (size 8)
- Spirit level 2000 mm
- Spirit level 600 mm


6.2.3 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 PES-UF Modules, 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 PES-UF Modules to be installed, disassembled and operated safely.

 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!

Floor Characteristics

Ensure that the floor characteristics meet the following minimum requirements

- Level, smooth surface with the necessary strength
- Recommendation: positioning of gullies and drainage channels ensures adequate water drainage, e.g. when emptying the PES-UF Modules.

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 PES-UF Modules that are in storage, have been unpacked, are being tested and/or are being processed
- The currently processed PES-UF Modules
- The final location of the PES-UF Modules

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 the PES-UF Modules
- Protect the defined work area against all machines or devices that are not required for the procedures for installing the PES-UF Modules

 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!

6.4 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 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™. → 7.3 Returning 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
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.


Remove the packaging and labeling




6.5 Installation of PES-UF Modules on Conventional Module Racks

<i>NOTE</i>	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Sufficient stability and building-side attachment of the PES-UF Modules must be guaranteed. The brackets must connect the module to the module rack tightly, tension-free and vibration-free.</p>

<i>NOTE</i>	
	<p>For proper installation of the PES-UF Module on conventional membrane racks, heed correct orientation of the module connections.</p> <p>The DuPont™ Ultra S 250 coupling is subject to a torque specification of 40 Nm. If the coupling is re-installed, this must be adhered to.</p>



Step	Activity	Figure
1	<p>Prepare the module</p> <p>a) Check the position of the module connections.</p>	
	<p>b) Remove the protective caps on the connections</p>	

Step	Activity	Figure
2	<p>Placing the module</p> <p>a) Place the module vertically on the appropriate connection point on the module rack.</p> <ul style="list-style-type: none"> • Make sure that the connections on the module are flush with the connections on the module rack. <p>b) Hold the module in position and fasten it to the module rack with two brackets (on the top and bottom third of the module).</p> <ul style="list-style-type: none"> • Make sure that the connection is tight, stress-free and vibration-free. 	
3	<p>Lubricate the gaskets with glycerin</p> <p>a) Remove the gasket rings of the 2" composite coupling set.</p> <p>b) Lubricate the gaskets with glycerin on the inside and outside.</p> <p>c) Place a lubricated gasket ring over a connection on the module.</p> <p>d) Push the gasket ring onto the connection so that it is flush with the connection.</p> <p>e) Repeat procedures a) to d) for all further connections on the module.</p>	

Step	Activity	Figure
4	Installing the intermediate piece PP 2" length 94 mm on connection points	
	<p>a) Position the intermediate piece PP 2" length 94 mm on the module's connector.</p> <p>b) Pull the gasket ring from the connector over the intermediate piece PP 2" length 94 mm so far that it is placed in the middle between the grooves of both parts.</p>	
	<p>c) Place a flexible coupling 2" halfshell around the gasket. <ul style="list-style-type: none"> Ensure that the contact surfaces of the coupling halfshells are resting in the provided grooves. </p> <p>d) Place the second flexible coupling 2" halfshell 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. <ul style="list-style-type: none"> Ensure that the nuts are tightened evenly and alternately. </p> <p>f) Repeat steps a) to e) for all three connections of the module.</p>	
5	Hand-tighten the bottom frame	
	<p>a) Repeat steps 3a) to 3e) on the module rack.</p>	
	<p>b) <ul style="list-style-type: none"> Repeat steps 4b) to 4f). </p>	

6.5.1 Mounting PES-UF Modules with a Crane

Mounting with a Crane

Step	Activity	Figure
1	Attach the module using a mounting strap (min. load capacity of 60 kg) directly under the filtrate port and place the loop into the crane hook.	
2	Carefully lift the module using the crane.	
3	Hold the module at the top connection and stabilize it throughout the transport procedure.	
4	Move the module to the installation position with a crane.	
5	Lower the module so that the module connections are arranged across from the connections on the module rack.	
6	Keep the mounting strap taut so that the module cannot tip.	
7	Mount the module using the procedure described in section: → 6.5 Installation of PES-UF Modules on Conventional Module Racks	
8	Slacken the mounting strap with the crane and release it from the crane hook and the module.	