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T System
Modular safety net system – pole mounted variant

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Contents

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1. Preparation

Before installing a **T System** module check all the components to ensure they are complete and in good technical condition. Fig. 1 shows a pole mounted T System module with a list of components.

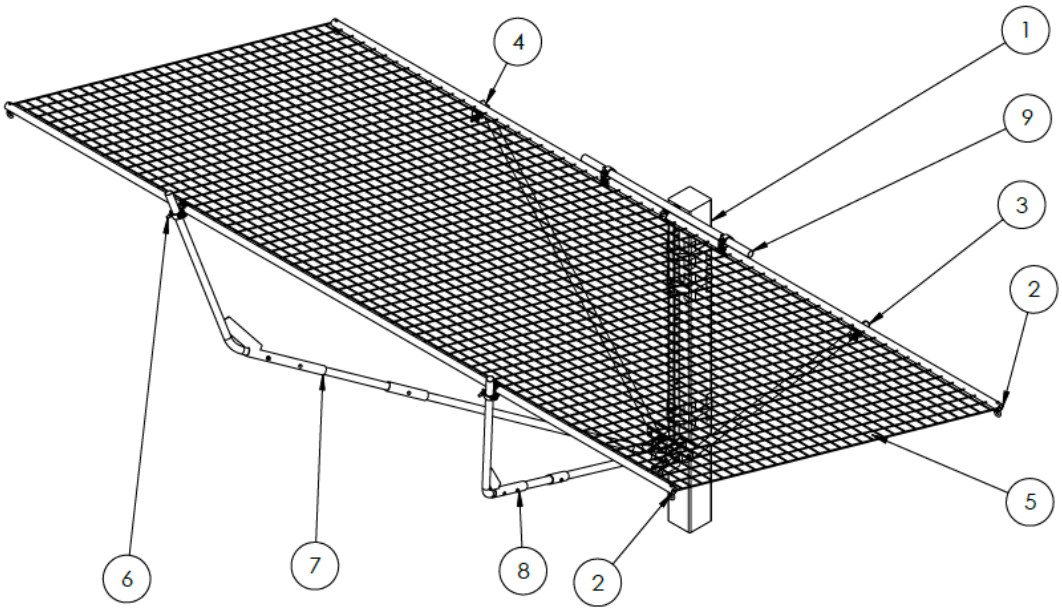

Fig. 1 *Pole mounted T System module (brackets refer to the list/table in section 2.) ; 1 – fastening straps, vertical assembly set* ***(1)****, 2 – inner* ***(2)*** *and outer* ***(5)*** *net support tube, 3 – Strut no. 1 - straight* ***(8)****, 4 – Strut no. 2 – straight* ***(8)****; safety net 3,2 m x 6 m* ***(20)****, 6 – cross joint EN 74 , 7 – Strut no. 1* ***(9)****, 8 – Strut no. 2* ***(9)****, 9 – Reinforcing tube for the inner net support tube* ***(7)***

2. Components and connectors for pole mounted T System

No.	Name		Material	Per module	Per 6 modules	unit
1	Vertical assembly set and pole mounting sockets		Steel profile structure; 1.1 + 1.2 + 1.3 + 1.4 + 1.5	1	6	pc.
	1.1	Vertical assembly set	Steel profile, closed, with openings and a bottom bracket	1	6	pc.
	1.2	Socket fastener for pole (upper tubular joint)	Profile piece & half-joint	1	6	pc.
	1.3	Fastening strap bracket	Profile piece & bracket	3	18	pc.
	1.4	Synthetic fibre fastening strap with buckle and ratchet	Strap: 50 mm wide, 3 m long	3	18	pc.
	1.5	Fastening strap protection	Plastic sleeve	12	72	pc.

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	1.6	Bottom strut socket	Flat bar structure	1	6	pc.
2	Interior net support tube (located closer to the pole)		Galvanised steel tube ø48,3 mm; 6 m long, marked at 133 cm from end and at half length	1	6	pc.
3	Rotating connector		Rotating connector EN 74	2	12	pc.
4	Half-joint		Half-joint EN 74	3	18	pc.
5	Exterior net support tube (located further away from the pole)		Galvanised steel tube ø48,3 mm; 6 m long, marked at 157 cm from end	1	6	pc.
6	Rotating connector		Rotating connector EN 74	2	12	pc.
7	Reinforcing tube for the inner net support tube		Galvanised steel tube ø48,3 mm; lgth 1,5 m	1	6	pc.
8	Vertical strut, straight, for the sides of the pole		Galvanised steel tube ø 8,3 mm; lgth 2,47 m. Half-joints placed in the opening near the edge, end marked red to be placed in the bottom tube socket	2	12	pc.
9	Strut		Galvanised steel tube ø48,3 mm;	2	12	pc.
	9.1	Angled tube,	Galvanised steel tube ø48,3 mm; straight segment length 2851 mm	2	12	pc.
	9.2	Angled tube with brace,	Galvanised steel tube ø48,3 mm; straight segment length 1167 mm	2	12	pc.
	9.3	Reinforcing flange	Galvanised steel tube ø60,3 mm, lgth 300 mm	2	12	pc.
	9.4	Connector flange	Galvanised steel tube ø60,3 mm, lgth 600 mm	2	12	pc.
10	Connecting tube for modules		Galvanised steel tube ø48,3 mm, lgth 4 m		10	pc.
11	Rotating joint		Rotating joint EN 74	4	20	pc.
13	Connector for attaching half-joints to the net support tube		Countersunk bolt M12 x 80 mm, cl. 8.8. (hex key no. 8)	2	12	pc.
14	Bottom tube socket for connecting tubes with the vertical assembly		Hexagonal bolt M12 x 80 mm, cl. 10.9	1	6	pc.
			Standard nut M12 cl. 10	1	6	pc.
			Spring washer M12	2	12	pc.

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15	Fastening strap bracket for the vertical profile with pole mounting sockets	Hexagonal bolt M12 x 80 mm, cl. 10.9	3	18	pc.
		Standard nut M12 cl. 10	3	18	pc.
		Spring washer M12	6	36	pc.
16	Connector for attaching tube half-joints to the vertical profile with pole mounting sockets	Hexagonal bolt M12 x 80 mm, cl. 10.9	1	6	pc.
		Standard nut M12 cl. 10	1	6	pc.
		Spring washer M12	2	12	pc.
17	Connector for strut tubes, side, with pole mounting sockets	Hexagonal bolt M12 x 100 mm, cl. 10.9	2	12	pc.
		Standard nut M12 cl. 10	2	12	pc.
		Spring washer M12	4	24	pc.
18	Connector for strut tubes, angled, with pole mounting sockets	Hexagonal bolt M12 x 90 mm, cl. 10.9	2	12	pc.
		Standard nut M12 cl. 10	2	12	pc.
		Spring washer M12	4	24	pc.
19	Length connector for strut tubes, angled	Hexagonal bolt M12 x 80 mm, cl. 10.9	6	36	pc.
		Standard nut M12 cl. 10	6	36	pc.
		Spring washer M12	12	72	pc.
20	Ring nut M12 for ends of net support tubes	NZO M12	4	24	pc.
		Hexagonal bolt M12 x 70 mm, cl. 10.9	4	24	pc.
		Spring washer M12	4	24	pc.
21	Safety net	Red safety net 6 x 3,2 m, white border rope + periodic inspection and approval certificate.		11	pc.
22	End rope with knots	Textile rope, 3 m, with figure-of-eight knots and rings	2	12	pc.
23	Auxiliary rope for net installation	Textile rope, 7 m	2	12	pc.

3. Pole mounted T System – connectors for 6 modules

No.	Part	Amount	Unit
1	Hexagonal bolt M12 x 100 mm, cl. 10.9	12	pc.
2	Hexagonal bolt M12 x 90 mm, cl. 10.9	12	pc.

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3	Hexagonal bolt M12 x 80 mm, cl. 10.9	66	pc.
4	Countersunk bolt M12 x 80 mm, cl. 8.8	18	pc.
5	Hexagonal bolt M12 x 70 mm, cl. 10.9	24	pc.
6	Standard nut M12 cl. 10 (no nuts at joints)	90	pc.
7	Spring washer M12 (no nuts at joints)	204	pc.
8	NZO M12	24	pc.

4. Installing a T System module

4.1 Threading the safety net onto net support tubes

For convenience and to avoid the nets becoming entangled, arrange the 6 m long net support tubes parallel on supports, e.g. trestles.

Determine where the longer sides of the safety net are (matching the net tubes in length) and start threading tubes through their outermost meshes (with or without border rope) – first on one side, then on the other.

The following method is optimal for threading:
- Interweave the edge meshes of the net alternately above and below the tube
- Wrap the white edge (boundary) two or three times along the length of the tube
- Thread the end rope through the edge meshes of the shorter sides of the safety net in the same way. Use 3 m long textile rope sections and NZO rings
- Fasten the rings to the tubes of the inner and outer net using M12 x 70 mm hexagonal screws, cl. 10.9 and washers - joint 20 as shown in the table in section 2.

4.2 Installing the outer net support tube and deflected struts

Arrange the deflected struts No. 1 and No. 2 near the installation site, with shorter sections with cross joints mounted on them to the outside at wide spacing. Place the longer sections of the struts in such a way that they face each other, i.e. their angled ends (20°) fit into the internal fixings in the socket of the vertical assembly.

Place the outer net support tube in the rotating joint sockets of the deflected struts.

Determine the location of the connection by matching the sockets of the rotating joints to the marks on the outer net support tube, located at a distance of 157 cm from the edge of the tube.

Tighten the connections, but do not apply maximum force.

Use a clove hitch to tie the end of the auxiliary rope (7 m long) near the ends of the outer net support tube next to (inside relative to) the rings. Leave the other end of the rope free.

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Install the 1.5 m long reinforcing tube in the middle of the inner net support tube, using the determined position of its centre; use two rotating joints.

4.3 Installing the inner net support tube and straight struts

Place the inner net support tube with the net threaded over it, parallel to the outer net support tube connected to the deflection struts.

Now, in that order, place the straight strut No. 1 with a rotating cross joint next to the inner net support tube, followed by straight strut No. 2, also equipped with a rotating cross joint.

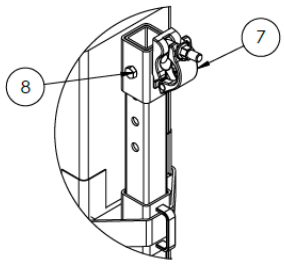
Fasten the cross joints of both struts to the inner net support tube at a similar distance from the ends of the tube as the joints previously installed on the outer net support tube.

Tighten the connections, but do not apply maximum force.

4.4 Installing the pole connection components of the vertical assembly

Slide the components one by one onto the vertical assembly profile, and close the following connections after placing them in position according to Figure 2:
- Bottom tube socket – item 14 as shown in the table in section 2
- Fastening strap brackets (3 pcs.) – item 15, as shown in the table in section 2
- Connector for pole mounting sockets – item 16, as shown in the table in section 2

Slide the protective sleeves over the fastening straps (this is different to Fig. 2, where pole covers are shown). There must be four protective sleeves on each fastening strap.



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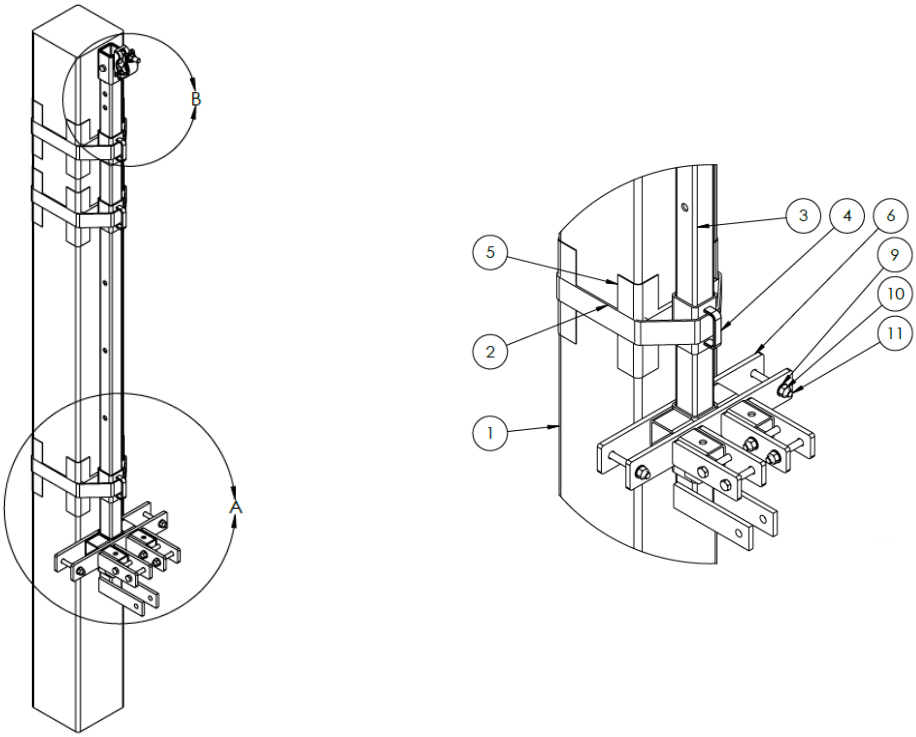

Figure 2: Vertical assembly set for pole mounting; 1 – pole, 2 – synthetic fibre strap, 3 - vertical assembly set , 4 - strap clamp, 5 - protective mat replaced by sleeve, 6 – bottom strut socket, 7 - upper tube joint, 8 - M12x80 hexagonal bolt, 9 - spring washer for M12 bolt, 10 - M12 nut, 11 - M12x100 hexagonal bolt

Lay out the vertical assembly set on the previously prepared inner and outer tube structure.

Fit the upper tube joint to the marked centre of the inner net support tube.

Fit the marked ends of the straight side supports to the bottom support socket (for the tubes) – connect the necessary components as per item 17 in the table in section 2.

Fit the deflected ends of angled struts to the bottom support socket (for tubes) and connect the necessary components, as per item 18 in the table in section 2

4.4.1 General recommendation in regard to the system:
It is recommended that the vertical assembly sets be fully put together for transport. This significantly reduces the required installation time.

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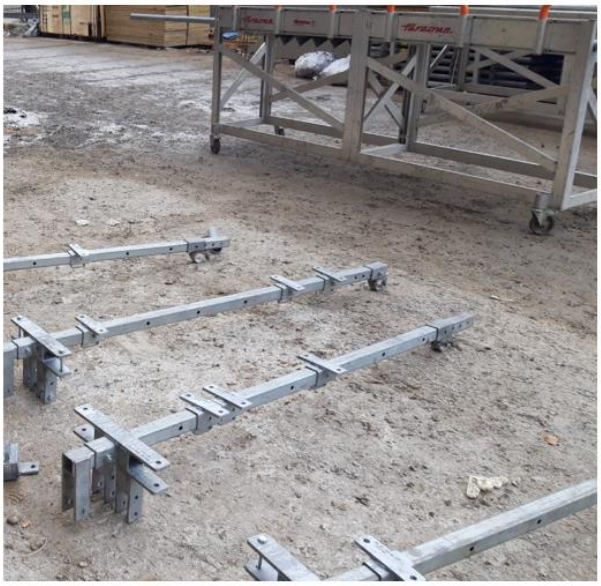

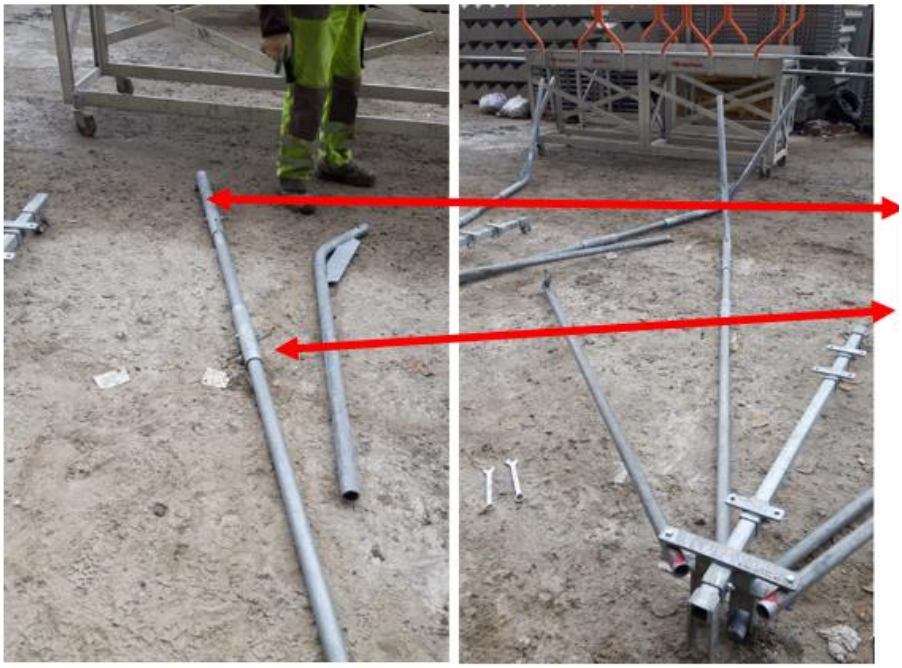

It is recommended that the tubes be delivered with reinforcing flanges installed

4.5 Determining the position of the module components

After joining the tubes and the vertical pole mounting assembly, check the geometry of the entire module, and, if necessary, adjust the position of the rotating cross joints.

Net support tubes are to be aligned parallel to each other. The vertical assembly set is to be placed at the centre of the length of the net support tubes and arranged perpendicular to them. This position, combined with that forced by the bent ends of the struts in the vertical assembly socket, will determine the position of the rotating cross sockets connecting the struts and net support tubes.

4.6 Connecting the net support tube ends

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To connect the ends of the outer net support tube and the inner net support tube, use textile ropes threaded along the short sides of the net (as described in section 4.1.) with rings bolted to the holes at the ends of the net support tubes.

Such a connection not only stabilizes the position of the ends of the net tubes, but also tensions the safety net when the module is unfolded.

IMPORTANT!

When folding the module and assembling it, be sure to maintain the proper position of the rings located at the ends of the net support tubes.

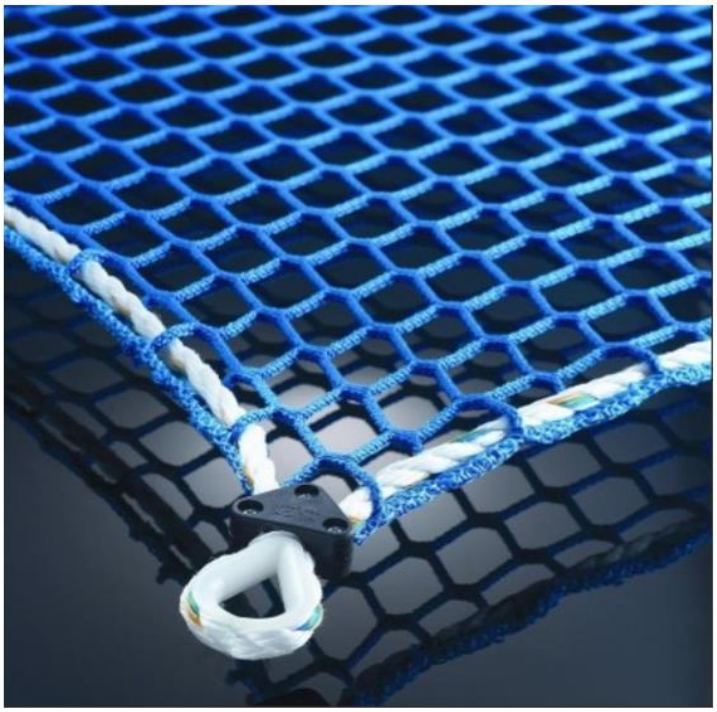
Their position can be determined only by rotating the net support tubes.

The rings located at the ends of the inner net support tube should be oriented horizontally, perpendicular to the vertical pole mounting assembly. Before unfolding the module, the rings located at the ends of the outer net support tube should face downward, parallel to the vertical pole mounting assembly.

Only now should the previously placed rotating joints be tightened permanently

4.6.1 General recommendation in regard to the system:

It is recommended that nets are delivered with ropes already threaded through the mesh. This significantly reduces the required installation time.



4.7 Installing the module lifting rope

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Attach a length of textile rope longer than the net support tubes to the connected ends of the outer and inner net support tubes. When grabbed in the middle with a crane, this allows for the T System module to be lifted.
The previously installed auxiliary ropes can be used to tie the module together for transporting it to the installation site. After the T System module has been mounted to the pole at the construction site, these can be used to open the module and unfold the safety net.

4.8 Lifting the T System module and mounting to the pole

Using a crane or winch and the previously attached lifting rope, lift the T System module and move it to the designated location.

Set the lifted T System module at the desired height, in such a way that the profile of the vertical pole mounting assembly adheres to the front surface of the pole in the vertical along its entire length.

Fasten the module in the desired spot, using the provided straps with buckles and ratchets.
NOTE: Where the textile straps touch the corners of the pole, protective mats (textile, rubber or plastic) should be used. In this particular case, protective sleeves slipped over the fastening straps were used.
Tighten the straps, stabilizing the vertical assembly in place.

Disconnect the lifting rope from the crane.

Using the auxiliary ropes, unfold the safety net by carefully loosening the connections. This will cause the outer net support tube to move together with the struts and away from the pole.

After unfolding the safety net, secure the ends of the auxiliary ropes.

4.8.1. General recommendation in regard to the system:
Textile straps should always be selected according to the size of the pole structure.

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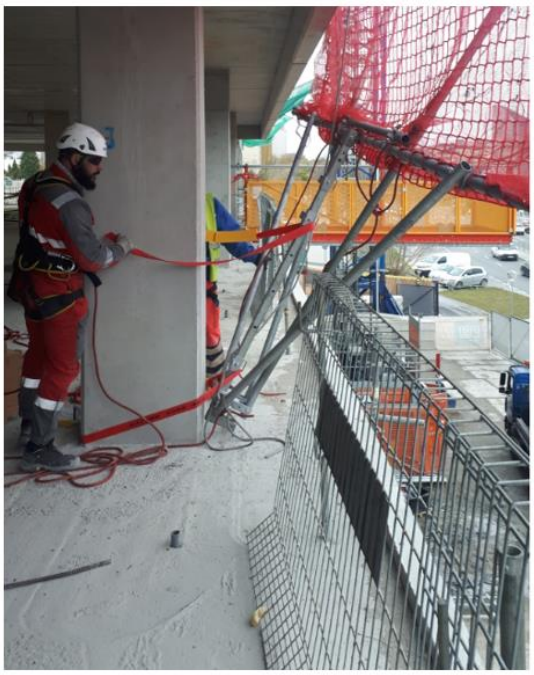

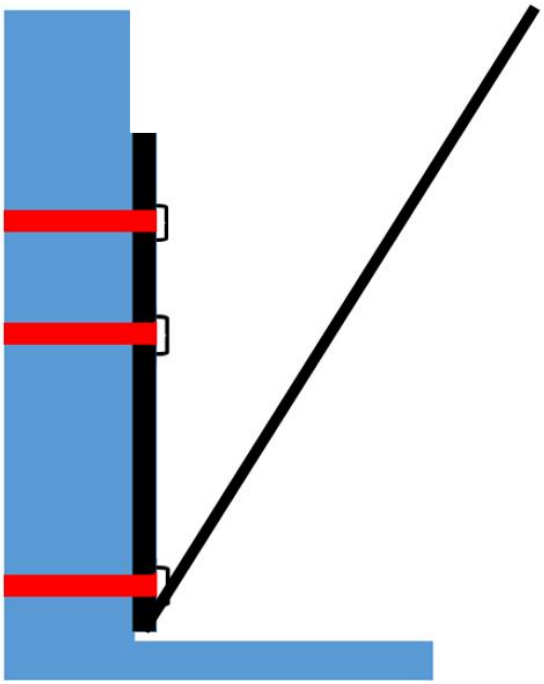

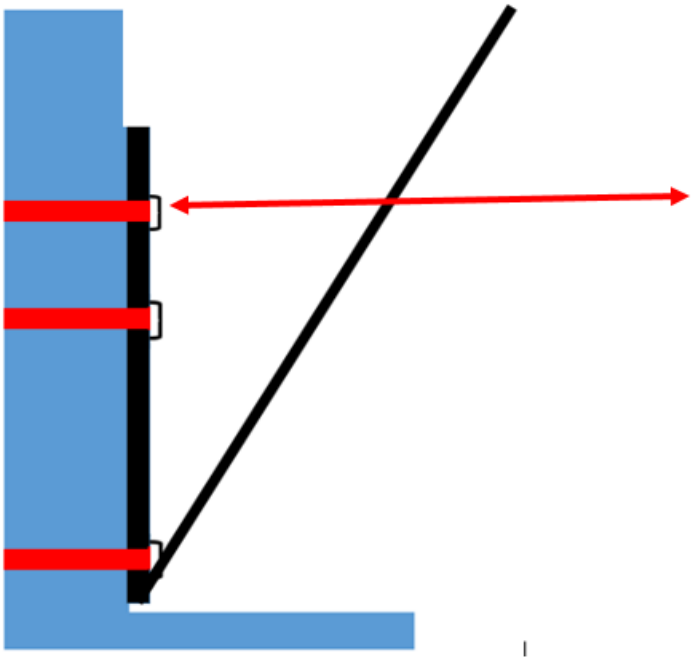

The strap clamp is too narrow to accommodate the straps together with the textile protector. The use of a wider clamp or spacers as edge protectors are recommended

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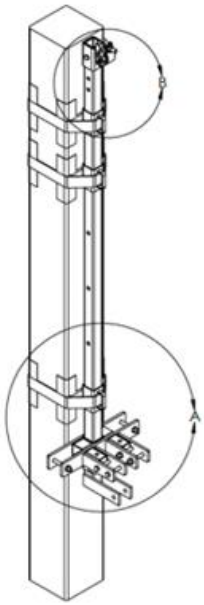
Textile protector **Protective pads**



4.9 Disassembling the T System module.

To disassemble the T System module, follow the steps outlined above in reverse order.

- Close the module by folding the safety net.
- Secure the closed module.
- Attach a lifting rope to the ends of the connected net support tubes.
- Using a crane or winch, lift a single module of the system and detach the straps connecting the System T module to the pole.
- Lower the disconnected System T module and lay it on the ground.
- Disassemble the connections between the individual components.

5. Pole mounted multi-module T System

The modules of the pole-mounted System T can be installed on consecutive, adjacent reinforced concrete columns of a building, keeping a standard spacing of 8 meters. Since the length of the T System pole mounted module is limited by the size of the safety net used (6 meters), the ends of the net support tubes are located at a distance of 3 meters, on each of the two sides of the column. The net support tubes, together with the stretched safety net from modules installed on neighbouring posts, also extend to a distance of 3 meters from the post, resulting in a gap of 2 meters between the modules.

In order to fill the resulting gap, an additional, third safety net must be installed at this point, using rotating joints (two pieces per tube), along with the two tubes supporting it, the so-called net arms.

Depending on the planned layout of the interconnected modules of the multi-module, pole mounted T System, two variants are provided for the implementation of the connection of individual modules.

The pole mounted modules of the multi-module T-System, connected in a single line, along the wall of the building, can be unfolded/opened in two ways – as a wall, moving all the connected modules at the same time, or by the wave method, in which the connected modules are opened in sequence, starting from the

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outermost module, and adjusting the position of the modules to be unfolded next to the preceding, already unfolded ones.
For multi-module pole mounted T-Systems unfolded simultaneously (wall type), an auxiliary net with dimensions smaller than the dimensions of the safety nets of each of the modules is used as a connection. The 2 x 3 m safety net is threaded onto the net arms made of pipes, along its shorter two-meter long sides. In this particular case, we are using a 3.2 x 6 m safety net.
In multi-module pole mounted T-System installations where modules are laid out in succession, an auxiliary net is also used to fill the gap between the modules, but in this case it has the same dimensions as the safety nets used for the modules being joined – 3.2 x 6 m. The auxiliary net is also supported by additional tubular arms, however not along its entire length, but only in the middle part of the supporting arms, at a length corresponding to the size of the gap between the modules. The redundant parts of the safety net on the sides of the modules to be joined are placed on the module nets, forming overlaps.

5.1 Types of pole mounted multi-module T System.
As mentioned before, two variants of pole mounted multi-module T System have been developed. They differ not only in the way the structure is unfolded to achieve its working state, but also in regard to the solution used to connect the modules.
Regardless of the solution adopted, the installation of additional elements, which connect the modules and fill the empty space between them, begins after the installation of individual modules of the pole mounted System T. Each module is attached as described in the section "Installation of the System T module" and left in the folded / closed position.
The individual modules of System T are attached to standardized columns along the walls of the building under construction, one storey below from the storey to be secured. Corner triangular safety nets are used at the intersections of the pole mounted System T module segments, at the corners of the Building, to maintain continuity of protection.

In this particular case, additional pipes of the specified diameter, steel, galvanized, but with a length of 4 m are used.

As the additional net to connect the modules, a net of 3.2 x 6 m is used.

Thread it by the method described earlier in the central 2-meter zone of the additional pipes connecting the modules.

The rest of the net should be laid outside, so that it lays lengthwise on the adjacent pole mounted modules.

Secure the ends of the net, at its corners, with tie-wraps fastened to the pipes.

5.1.1 Pole mounted multi-module "wall" type T System
To fill each gap between the modules of the pole mounted T System, prepare a set consisting of two net arms, made of standard scaffolding pipes with a diameter of ø48.3 mm, with a length of 4000 mm each. The length of the net arms was selected to complete the section between the module safety net support tubes, with a length of 2 meters (2000 mm). For the remaining length, the net arms are to overlap the net support

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tubes coming from the modules to be joined, for a section of 1000 mm on each side, allowing the installation of rotating cross joints and connecting the tubes to each other.
Arrange the net arms in parallel on supports, such as trestles. Unfold the auxiliary net and thread the longer (6 m) sides of it on the net arms, in such a way that, when stretched, the centres of both shorter sides of the auxiliary net are in the middle of the length of the net arms.
Place two rotating tubular joints at the ends of the six-meter-long tubes of the net supporting the safety nets of the modules.
The rotating cross joints are placed on the inner and outer net support tubes. This operation is carried out when the module is already installed on the pole, and the tubes and safety net are locked in the folded/closed position. It is not recommended to install rotating tubular joints before assembling the System T pole mounted module, when the safety net is threaded on the support tubes but said tubes are on the ground or supports. It won't be possible to properly determine the position of the joints!
Rotating tubular joints are installed on the end sections of the 1000 mm long net support tubes, over which the arms of the secondary net will overlap. On each of those, two, evenly spaced rotating cross joints should be placed, following the indicators, or measuring distances. In the absence of markers, the position of the joints should be determined by measuring 200 mm and 550 mm from the end of the net support tube respectively.
The first rotating joint should be placed at 200 mm, so that the joint is adjacent to it from the end of the pipe. The second rotating joint should be placed at 550 mm, on the opposite side, so that it sits between the safety net and the end of the 550 mm section.
Attach the rotating tubular joints to the inner (adjacent to the poles) and outer tubes of the net of the modules to be connected.
When fixing the rotating joints to the tubes of the assembled pole mounted System T module, it is easy to determine their final position to quickly and safely embed in them the arms supporting the auxiliary net during the next stages of the system assembly.
In order to be able to embed the arms of the auxiliary net in the rotating joints, they must be positioned correctly. The hollow half-joints attached to the inner net support tubes, close to the pole and stationary, are to be oriented vertically upwards, while those intended for the net arms attached to the outer net support tubes (away from the pole and movable) must also be oriented upwards, but at an angle of about 45° toward the inner part of the structure. In this way, the half-joints will all point upwards when the modules are fully unfolded.
After the position has been determined and the cross joints have been placed but with the modules still folded / closed, place the previously prepared set of secondary netting in the empty half cross joints mounted on the net support tubes. First determine which of the arms holding the auxiliary net will be the outside one and lift it to place its ends one after the other in the half-joints of the outer net support tube of the first and then the second of the modules to be connected.
The ends of the outer arm of the auxiliary safety net should extend 200 mm beyond the half joints in which they have been embedded, and the shorter side of the auxiliary safety net, when correctly positioned on the outer arm, should be located between the safety nets of the modules to be connected.
Tighten the screws of the half joints until resistance is perceived; then it will be possible to determine the position of the additional net arm which will connect the outer tubes of the safety net.
If necessary, the position of the outer arm of the auxiliary safety net should be adjusted by moving it in the semi-tightened cross half joints.

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After the position of the outer arm of the auxiliary safety net is determined, tighten the screws of the half cross joints.
Use the same method to install the inner arm of the auxiliary net.
Place the inner arm tube in the half joints of the inner tubes of the modules to be connected and pre-tighten the screws of the half joints.
Adjust the position of the inner arm of the auxiliary net in the horizontal, so that its ends protrude beyond the final cross half-joints by 200 mm, and the shorter side of the auxiliary net threaded onto the inner arm is positioned evenly in the space between the modules of the pole mounted T System.
Having made sure that the arms of the auxiliary net are in the correct position, tighten the screws of the half cross joints.
Place the auxiliary net in such a way that it hangs freely between the outer and inner support arms, and its longer, loose sides are located near the shorter sides of the safety nets of the T-System modules.
The auxiliary net should be connected to the nets of the pole mounted modules of System T. This is done by placing the longer sides of the auxiliary net next to the corresponding shorter sides of the safety nets on the modules.
The face-to-face edges of the nets are roped together by threading a textile rope sequentially through the mesh of the auxiliary net and the module net.
By connecting the arms of the auxiliary net to the net support tubes of the adjacent modules, and tying the longer sides of the auxiliary net to the shorter sides of the module nets the process of connecting two modules of the pole mounted T System is completed.
When installing a pole mounted T System consisting of multiple modules along a building wall, the folded/closed pole mounted modules should all be connected together in the way described above.

After connecting all modules of the pole mounted T System, along one wall with auxiliary nets, the modules can be unfolded one by one.

In the case of a "wall" type T System it might be necessary to simultaneously lower the external perimeter tubes and unfold the safety nets.

It is recommended that one person operates each of the auxiliary ropes anchored to the ends of the perimeter tubes of the module nets.

In addition, it is recommended that a person be appointed to direct and coordinate the disassembling of the multi-module pole mounted T System.

Disassembling the multi-module pole mounted "wall" type T System

To disassemble such a system, the same steps must be performed as for the assembly, but in reverse order:

- Close/fold all the connected modules of the T System at the same time and secure them, using auxiliary ropes to tie them to structural parts of the building.
- Untie nets where they have been laced together.
- Remove the auxiliary safety nets by unscrewing first the inner and then the outer support arm from the cross half joints.

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- Remove the auxiliary nets, along with the net arms supporting them, from between the remaining modules of the pole mounted T System.
- One by one, remove all modules from the columns, following the proper procedure.
- Using a crane or winch, lift a single module of the system and detach the vertical assembly from the pole by unfastening and loosening the plastic fiber mounting straps.
- Lower the detached module to the ground and dismantle the tubes and safety net.
- Prepare the parts for storage or transport. If necessary, clean them.

5.1.2 Pole mounted multi-module "wave" type T System

The empty space between two modules of the pole mounted T System can also be filled with a structure that will allow the modules of the system to be individually folded or unfolded to achieve their working position, resulting in a wavelike sequence.

As in the case of the multi-module pole mounted T System, a set of auxiliary netting with supporting arms should be prepared to fill the gaps between the modules.

A safety net of the same size as the safety nets installed on the modules to be connected is used for connecting modules in a pole mounted "wave" type T System. The auxiliary net is supported by arms adapted to its size; these are made of standard scaffolding tubes with a diameter of ø48.3 mm and a length of 6 m each.

After the single modules have been placed in a row along one of the building walls, the connecting auxiliary sets can also be introduced to the system.

Install rotating cross joints on the outer and inner net support tubes of each individual folded module.

At the ends of the inner net support tube, install two complete cross joints each, at a distance of 500 mm and 1500 mm measuring from the end of the net support tube.

Depending on the construction conditions, determine the direction in which the wave formed by the connected modules of the pole mounted System T will spread and fold. This is important to determine the way the outer arm of the auxiliary net will be attached. Each module of the "wave" is connected to the outer arm of the auxiliary net on one side only, using two cross joints. This design, which connects the pole mounted System T module to the additional connecting element, makes it possible to fold and unfold the pole mounted System T modules individually, in an overlapping manner. The overlapping bridges the gap between the System T modules and overlaps the next module by 2 meters (2000 mm). The outer arm of the auxiliary net which forms the overlap, is connected with the next module to be unfolded and unfolds together with it. The unconnected outer arm and auxiliary net rest on the main net and the outer tube of the previous module.

To form a complete multi-module pole mounted T-System along a given section, eg. along a wall of a building, lay out all modules sequentially, starting from the outermost module and moving in the direction determined by the design of the modules connected to the complementing auxiliary sets.

Dismantling the multi-span pole mounted "wave" type T System

To dismantle a pole mounted "wall" type T System repeat the assembly steps in reverse order:

- Using auxiliary textile ropes and pulling towards the building, assemble/close all modules in sequence, together with the auxiliary nets. Begin with the outermost module and fold the next

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modules in succession, proceeding in the direction opposite to the one adopted during the installation process.

- Secure the folded/closed modules, using auxiliary ropes to tie them to structural parts of the building.
- Dismantle the auxiliary nets one by one, together with the arms supporting them. First, disconnect the cross joints holding the outer, less stable, arm of the auxiliary net, remove the arm together with the auxiliary net stretched over it. Place the outer arm connected to the auxiliary net on the ground between the poles, parallel to the inner arm of the auxiliary net, which, at this point, is still connected to the adjacent modules of the T System.
- Proceed to dismantle the inner arm of the auxiliary net. Disconnect the cross half-joints holding the inner arm of the auxiliary safety net, starting from the inner joints, then undo the joints located at the end of the arm.
- Lay the disassembled inner arm of the auxiliary net, connected via the safety net to the outer arm, on the ground parallel to it.
- Lay out the auxiliary net on the parallel arms of the safety net. Secure the safety net and move the entire set to the storage area.
- After dismantling all the sets connecting the modules, you can proceed to dismantle the individual modules of the pole mounted T System.
- Following the outlined steps, dismantle all modules one by one.
- Using a crane or winch, lift a single module of the system and detach the vertical assembly from the pole by unfastening and loosening the plastic fiber mounting straps.
- Lower the detached module to the ground and dismantle the tubes and the safety net.
- Prepare the parts for storage or transport. If necessary, clean them.

5.2 Installing a multi-module pole mounted T-System

The middle part of the safety net placed between the modules is, before installation, threaded onto the arms of the net connecting the individual modules.

Connection between modules is established between adjacent modules of the pole mounted T System, where safety nets are folded and the ends of the support tubes of the inner and outer net are connected to one another.

Apply the arms of the auxiliary net which connect the modules, to the joined tubes of the inner and outer net and fasten with rotating cross joints.

After attaching the net arms and the middle section of the secondary net, use textile ropes to lace the remaining sections of the middle safety net lengthwise to the outer and inner support tubes of the modules being joined together. Complete the process by tying figure-eight loop knots.

Secure the two connected modules in the folded position, using textile ropes anchored to the building structure.

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Continue in this way, securing each module of the pole mounted T System of the sequence.

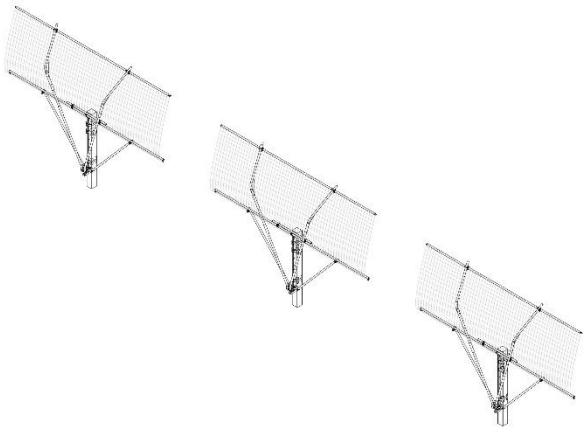
5.2.1 Spreading out the nets of a multi-span pole mounted T-System

The nets of a multi-span pole mounted T System are to be unfolded when all the individual modules along the designated section are connected to each other by arms and auxiliary nets.

Start by releasing the safety ropes tying the modules. Proceed carefully and slowly, folding the nets of all the modules at the same time.

Make sure to control the movement of the rope leaving the extreme ends of the outer net support tubes while unfolding the safety nets and carefully establish the location of the outer support tubes of the next modules in the sequence.

Illustrations below show the phases of assembly and unfolding of a multi-module pole mounted T System.



Individual modules of a pole mounted T system installed on structural columns.

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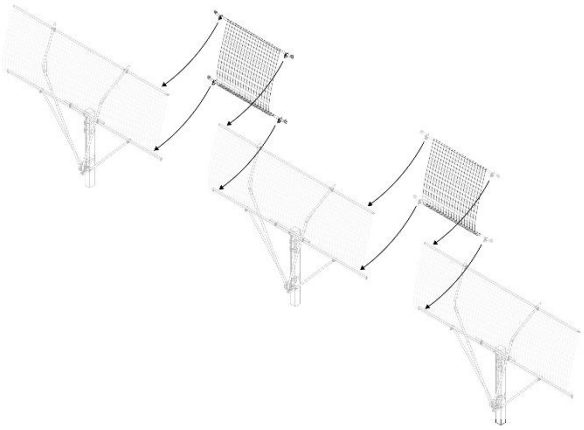
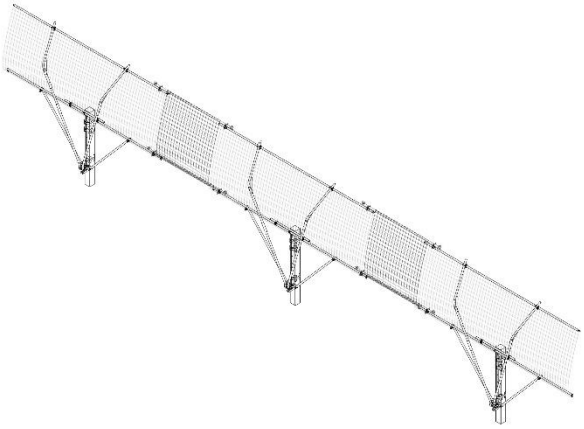
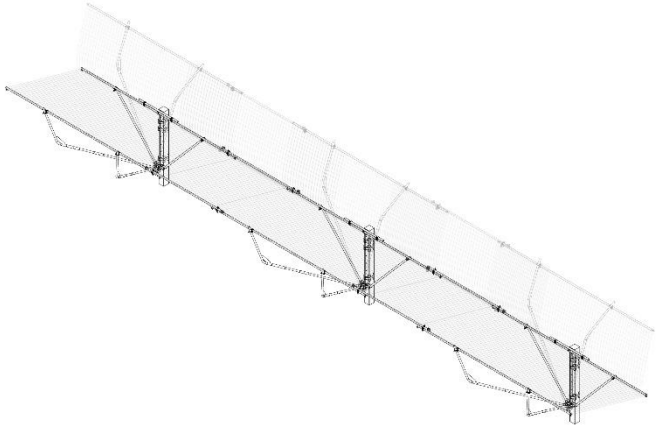


Placing additional and auxiliary parts - tubes/arms of auxiliary nets, which connect and provide stability to the individual T system modules.



A complete pole-mounted multi-module T system – closed (folded).



Unfolding (spreading out) the safety nets of a multi-module, pole mounted T system.

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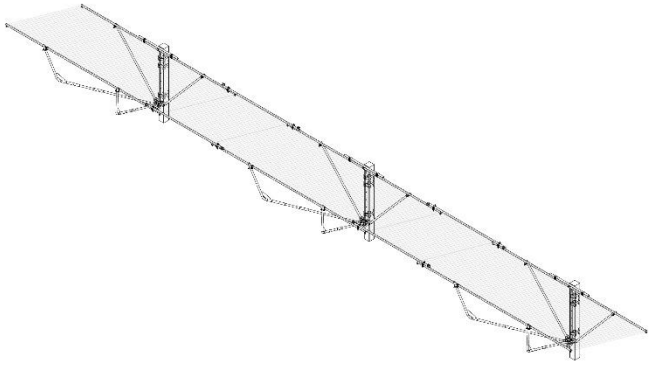

A complete pole-mounted multi-module T system – open (unfolded).

Placing additional and auxiliary parts – tubes/arms of auxiliary nets, which connect and provide stability to the individual T system modules – a detailed analysis of the assembly procedure is shown below:

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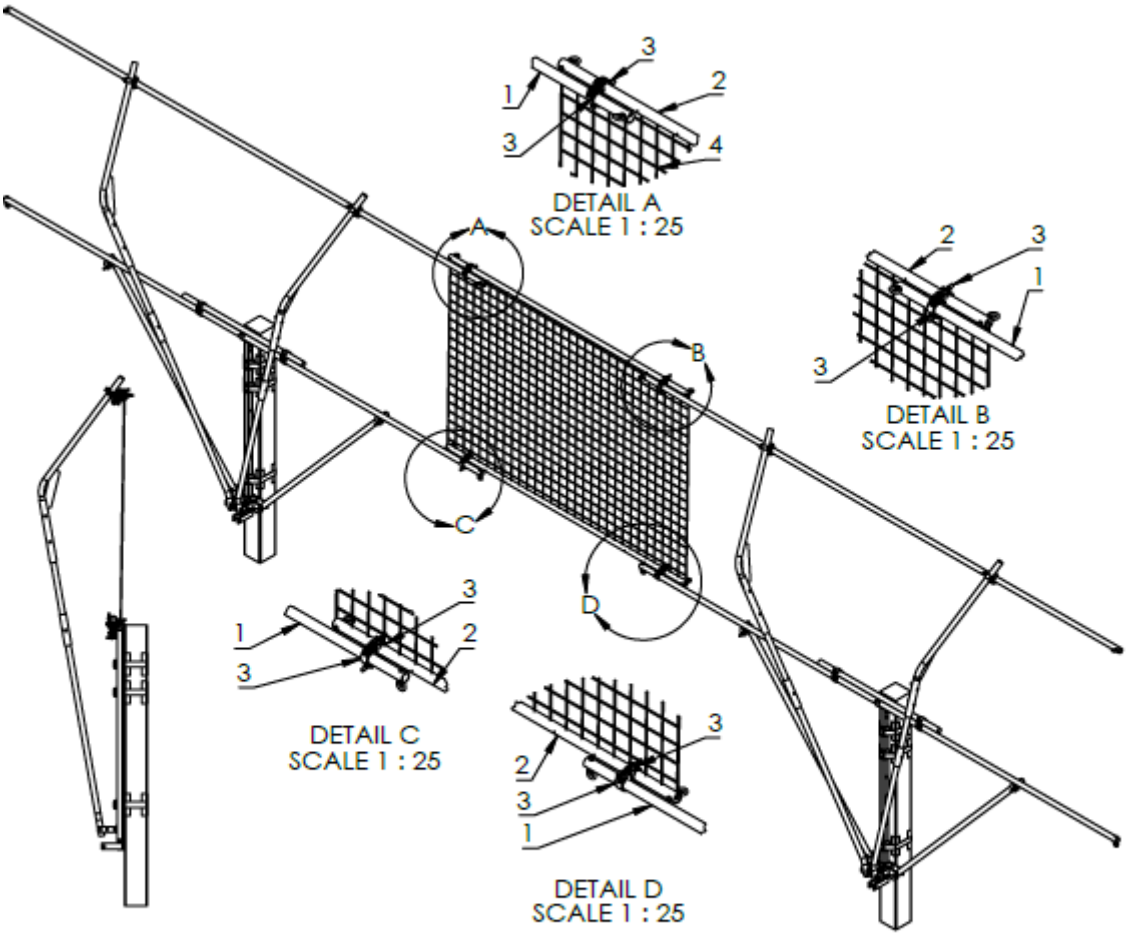

Side view

Isometric projection: installing a pole mounted safety net by overlapping and connecting two T System modules

The above figure shows the installation of the overlapping pole mounted safety net, connecting two modules of the T system. Position: closed (folded). The net near the modules is omitted on purpose, to improve readability of the drawing.

In the case of protruding ceilings (set back columns), the modules should be connected with overlap. For this purpose, on the next module, connecting net is used to join the modules (stabilizing them) and using fixed joints in the upper and lower parts. This should still be carried out on ground level, so that the assembled net module overlaps with the previously installed module onsite. A properly assembled module should be placed on top of the preceding module. Then, use two scaffolding joints placed at the bottom to secure the module.

The support tube of the T System [1], standard length: 6 m, is connected to the intermediate net support tube [2], creating an overlap. The length of the intermediate tube connecting these two modules is 3 m. The net support tubes are connected to each other at top and bottom by 4 cross and rotating joints [3] conforming to EN 74-1:2006.

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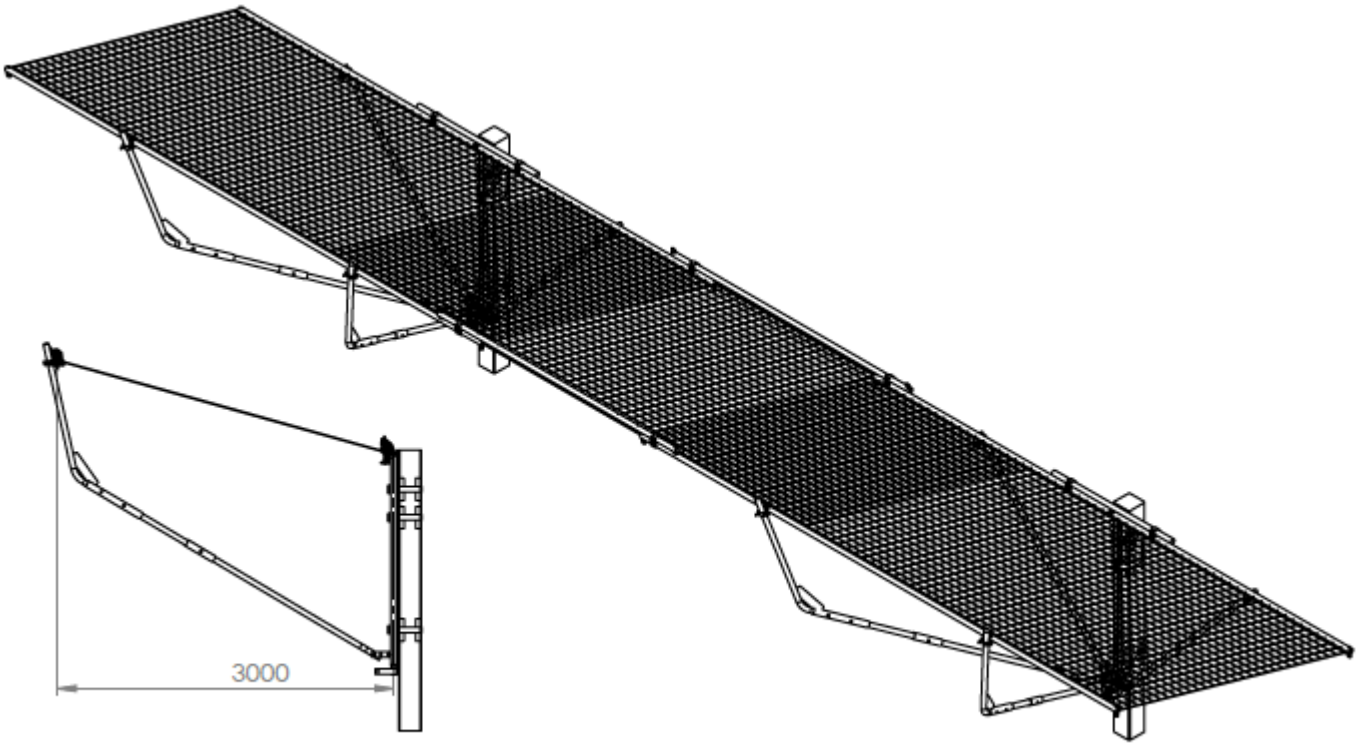

Side view

Isometric projection

The figure above shows an unfolded, multi-module pole mounted T-System in working position.

5.2.2 Folding the multi-module pole mounted T System

To fold and disassemble a multi-module pole mounted T System, follow the assembly steps described above but in reverse order:

- Pull the textile safety ropes out and simultaneously fold all the modules of the setup.
- After pulling each module in, connect the inner and outer net support tubes one by one, using the safety ropes, and attach them to the building structure.
- Secure the remaining modules of the pole mounted T System one by one until the last one.
- After assembling and securing all the modules, dismantle the connecting elements. To do this, untie the auxiliary net from the net support tubes of the modules, and then disconnect the rotating cross joint and dismantle the net arms connecting the net support tubes of adjacent modules to each other.
- Separate the safety net arms connecting adjacent modules from the structure and move them inside the building.
- Dismantle all the modules of the pole mounted T System one by one.

6. General recommendations in regard to the system:

1. It is recommended that the vertical assembly sets be fully put together for transport. This significantly reduces the required installation time.
2. It is recommended that the tubes be delivered with reinforcing flanges installed.

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3. Textile straps should always be selected according to the size of the pole structure. This remark is added in section 4.8.
4. The strap clamp is too narrow to accommodate the straps together with the textile protector. The use of a wider clamp or spacers as edge protectors are recommended.
5. It is recommended that nets are delivered with ropes already threaded through the mesh. This significantly reduces the required installation time.
6. Adding additional tubes – arms of auxiliary nets, connecting and stabilizing individual modules of the T System are described in 5.2.1.

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