

**Make sure to read and fully understand this manual, and its specific notes and warnings, prior to assembly and erection of the structure.**

# **PROLYTE S52 RIGGING TOWER MANUAL ASSEMBLY INSTRUCTIONS**

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- 2 Limitations of use
- 3 Scope of use
- 4 Identification, Parts
- 5 Dimensions & loading
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## **1. SYSTEM DESCRIPTION**

The Prolyte S52 Rigging Tower is a lifting tool where the load is constrained by a horizontal and vertical V-shaped truss frame. The S52 Rigging Tower has a loading capacity that is limited by the construction. In general rigging towers are used where the lifting of loads from a building structure is impossible, very expensive, or when traditional telescopic winch stands do not have a sufficient load capacity, or when the ST-Tower does not fit the purposes. This S52 rigging tower is used with a vertical mast of standardized S52 truss as compression absorbing elements (or S52V when wind scale is downgraded to 6), S52SV or S52V truss as outriggers and H30D truss as stabilizer brace.

## **2. LIMITATIONS OF USE**

The S52 Rigging Tower is to be used with Prolyte trusses only. Loads to the trusses and towers shall be vertical only, no side loading is allowed to the system, with an exception for wind loads. The system may be used up to wind force 8 maximum.

The S52 Rigging Tower is designed as temporary lifting structure for in- and outdoor use. When horizontal loading is applied, other than wind forces, appropriate measures, such as placing guy-wires (cable-stays) and ballast, have to be taken to ensure stability.

The S52 Rigging Tower is to be built by competent and trained persons only. For all other applications contact your local dealer or Prolyte.

## **3. SCOPE OF USE**

Prolyte S52 Rigging Towers are designed for the lifting of speaker clusters or audience lights over stages, dance floors, exhibition area's, public area's, parking lots, etc. This can either be a single (stand-alone) Tower, or a Goal post configuration (two towers with a single span).

S52 rigging towers are to be built to a maximum height of 12.8m (12 meter mast length).

### **WARNING**

**Prolyte S52 Rigging Towers are not designed to lift people!**

## 4. IDENTIFICATION

The S52 Rigging Tower (RT-S52SV) is composed of the following parts:

	Description	Code	weight	remarks
1, 2	Tower trusses	S52SV	15kg/m	Max. height 12 m
3	Square 52 3-way corner 60°	RT-S52V-C002	31 kg	V-shaped corner block
4	Layher spindle attachment	ACC-Spin-ATT-52	3,3 kg	Pipe with truss clamps to adapt Screw jacks
5	Layher spindle, 60cm long	ACC-Spin-LAY-60	3,7 kg	Hot dip zinc plated screw jack, 60cm adjustable
6	Hinge parts triangular truss	CCS6-H2	1,7 kg	Hinge parts for H30D truss
7	Hinge parts square truss	CCS7-H-60-	0,7 kg	Hinge parts for S52 truss
8	Topblock rigging tower S52	RT-009S	22 kg	Top section with removable 30mm spigot
9	Stabiliser attachment S52	RT-STAB-S52SV-TOP	15 kg	Top corner erecting frame, incl. pulleyhead
10	Stabiliser attachment S52	RT-STAB-S52SV-LOW/L	6 kg	stabiliser attachment low left
11	Stabiliser attachment S52	RT-STAB-S52SV-LOW/R	6 kg	stabiliser attachment low right
12	Turnbuckle	RT-TURNBUCKLE	4 kg	turnbuckle to fix the mast to the erection frame
13	Turnbuckle bracket	RT-LIFTING BRACKET	4 kg	fixes the turnbuckle to the mast
14	Stabiliser truss	H30D	4,7 kg	
15	Conical Coupler	CCS7-700	0.31kg	
16	Spigot	CCS7-703	0.12kg	
17	Safety R-spring	CCS7-705	0.01kg	
18	Conical Coupler	CCS6-600	0.15kg	
19	Spigot	CCS7-703	0.11kg	
20	Safety R-spring	CCS7-705	0.01kg	

The embossed ring on the ends of the conical coupler receivers, and stickers featuring the Prolyte logo can clearly identify the RT towers and truss.

### NOTE

Make sure the system is built only of genuine Prolyte components, which are clearly and positively identified as Prolyte products. Copies do exist, and even though they may appear to fit to Prolyte trusses, they do not have identical strength and safety characteristics.

## 5. DIMENSIONS & LOADING

The **maximum allowable height** of a complete S52SV Rigging Tower shall be no more than 12 m, including spindles and top-section.

The **maximum allowable load/amount of ballast that should be applied** to a S52SV rigging tower is:

		<b>Windforce 8</b>	<b>Windforce 6</b>	<b>Indoor</b>
<b>RT-S52SV-1,1T</b>	max. load	1100 kg	1100 kg	1100 kg
	Ballast/leg	250 kg	0 kg	0 kg
<b>RT-S52SV-1,6T</b>	max. load	1600 kg	1900 kg	1900 kg
	Ballast/leg	200 kg	0 kg	0 kg
<b>RT-S52SV-2,1T</b>	max. load	2100 kg	2100 kg	2100 kg
	Ballast/leg	150 kg	0 kg	0 kg

The max. load relates to the height of the tower. Please consult our engineering department if you want to deviate from the given values.

The necessary amount of ballast relates to the height of the tower, applied load and load surface. Please consult our engineering department if you want to deviate from the given values.

**When S52V truss is used, wind speeds may not exceed 6 (17,2 m/s, 61 km/h)**

### WARNING

Payloads are to be vertical only at all times. Side loads are NOT permitted.

**Loading dimensions:**

The total surface of the load may not exceed:

	<b>Wind surface front</b>	<b>wind surface side</b>	<b>dynamic load factor</b>
<b>RT-S52SV-1,1T</b>	5m	2.5m	1.4
<b>RT-S52SV-1,6T</b>	7.5m	3.75m	1.4
<b>RT-S52SV-2,1T</b>	10m	5m	1.4

When surfaces are equal, but loads are less, additional ballast should be added until the total summary of the max. load and ballast as mentioned in the tables is reached.

**The surface area per S52 rigging tower base** is approximate *5.95 x 6.26 m*.

**6. GENERAL INFORMATION**

**NOTE**

Make sure only one competent person is chosen to be responsible for and in charge of all coordinating actions and supervising the entire building, erecting and dismantling process.

**WARNING**

Even if local legislation might be lacking any demands on personal safety, it is strongly advised to use fall protection-equipment when climbing the system during building, particularly at over 2m high from ground level, when falling hazards are prominent.

- 1) First identify all separate components and types of **Prolyte** truss to be used, ensure that you are fully conversant with this manual before you start using any of these parts, components and trusses!
- 2) Never use trusses parts or vital components such as wire ropes (or chains), that show visual damage, deformation wear or have any other reason to doubt the safe functioning within the system. Make sure to check each item before each time of use.
- 3) Make sure that the system is built on solid ground. In situations where it has to be built on grass, sand or any unstable subsoil, under fill the screw jacks with plywood pads of 300x300x20mm (minimum size for each screw jack).

**NOTE**

The ground pressure on the screw jacks underneath a tower can easily be more than 3,5 ton with dead load, live load, wind load and full ballast imposed!  
 Never erect the tower when any doubt remains on the safety of the underlying ground.

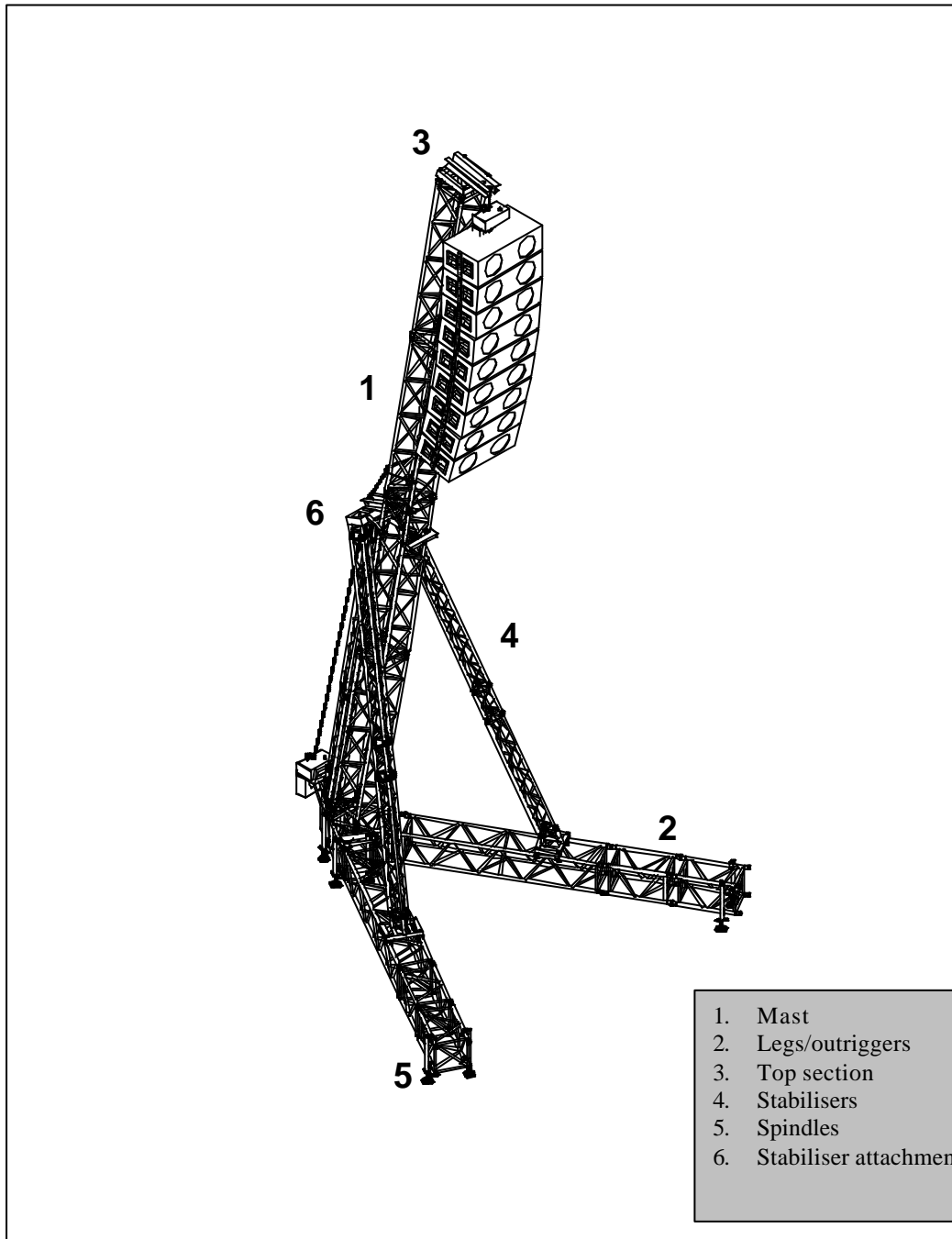
- 4) Check the building site for obvious hazardous objects such as power lines. Keep a safe distance of at least 24m from those in any possible direction of sway in the wind, or the distance as specified in the national or local codes or regulations for safe operation of mobile cranes. Always check the planned tower-building activity with the power-company.
- 5) Check the building site for obstacles such as lamp-posts, trees or tree-tops, overhead piping, in house constructions, or any other higher objects that might hamper erection of the towers or might endanger it when swaying in the wind or so.
- 6) Check local authorities for possible risks in subsoil, such as low stability peat or bog fillings, sewer or large drainage pipes, waterlogged soils in slopes etc.
- 7) Measure the area where the tower needs to be and make sure there is enough room for all components including the outriggers with the plywood padding (the free and cleared building site for each tower, needs to be app. 6.25m wide, 13m deep and 13m high).<sup>(1)</sup>

<sup>1</sup> Except in the situations of hazardous objects or obstacles as mentioned above.

- 8) The complete tower should be totally level when built. If the tower is not exactly level this may result in constructive weakness of the system.
- 9) Avoid dynamic loads. Do not turn the hoist on and off when hoisting the load in place. Lift the load as steady as possible.
- 10) Make sure the load can not turn once hoisted in place. Use tag-lines if needed.
- 11) Make sure the screw jack bracing attachments are placed correctly in alignment to the geometry of the truss sections.

## 7. ASSEMBLY INSTRUCTIONS

### Assembly of a S52 Rigging Tower



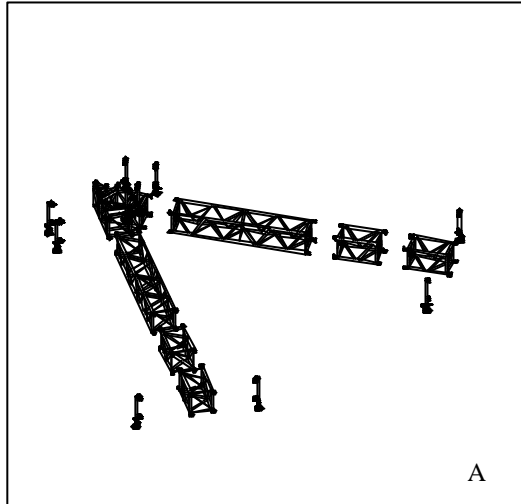
**B**

Inspect all components before using them on visual wear & tear, deformation, damage or any other shortcomings. NEVER use parts or component that are not visually correct or you suspect have been subject to other damage.

**1**

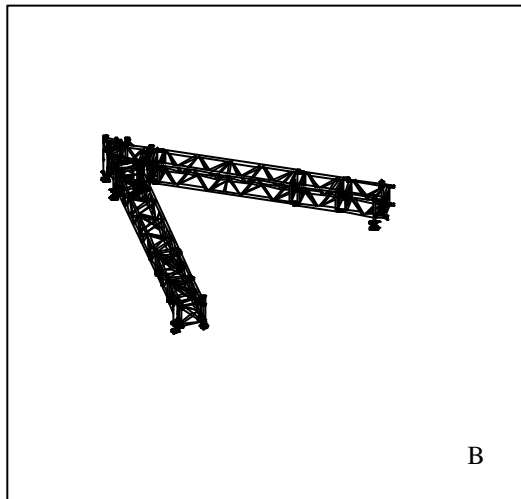
Assemble and connect the corner and the legs of the base.

**2**



Level the V-shaped base, starting with the corner. Adjust the screw jacks as far as necessary, work from left to right.

**3**



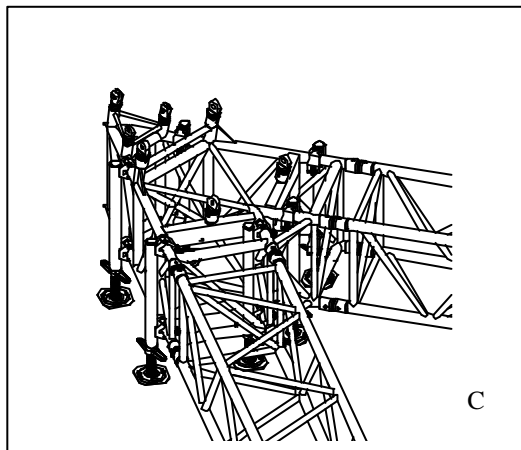
Then level the complete base by adjusting the screw jacks at the end of the legs. Work from front to rear side.

**4**

Unscrew the intermediate screw jacks until their footplates rest on the ground.

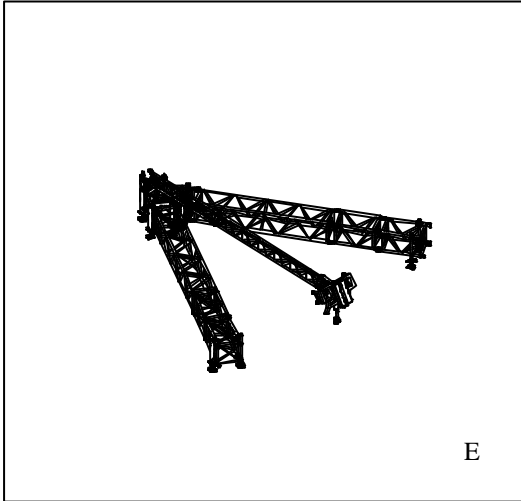
Place the hinge-parts as shown on the drawing, to facilitate the erection of the mast. Mount the other hinge-parts in a similar way to the bottom end of the mast.

**5**



Build the stabiliser mast from the parts as shown on the drawing. Other lengths may be used. Mount the erection frame to the stabiliser mast.

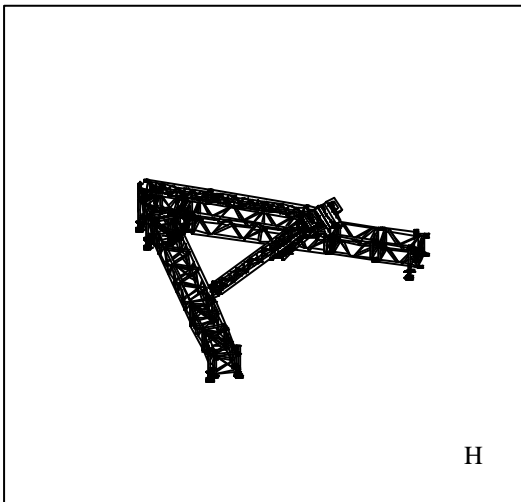
**6**



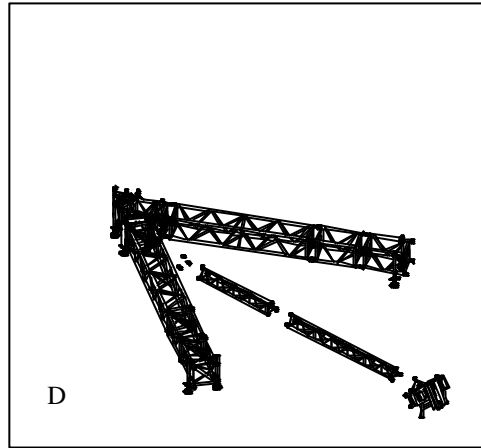
E

Make sure the erection frame with the turnbuckle is connected correctly. The turnbuckle is used to attach the erection frame to the mast of the rigging tower

**8**



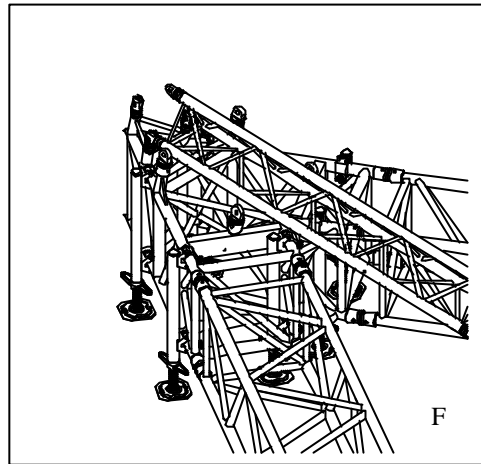
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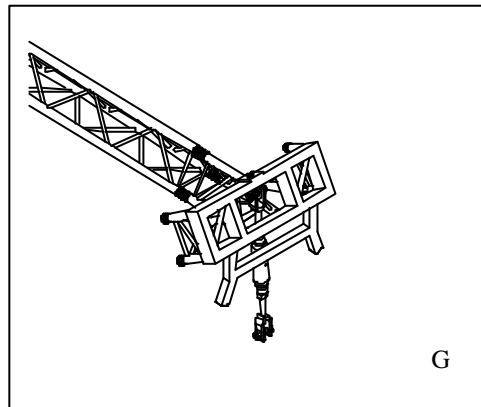
D

Attach the stabiliser mast to the outer hinges on the base.

**7**



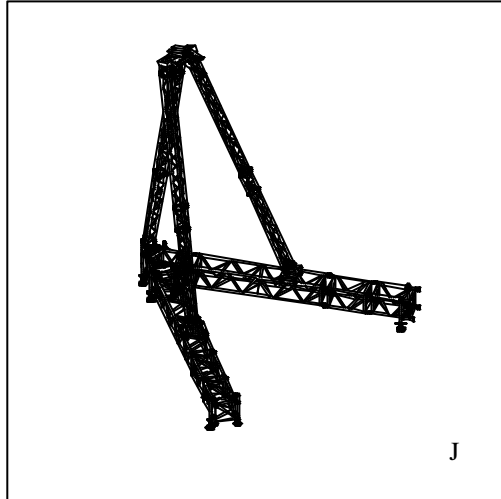
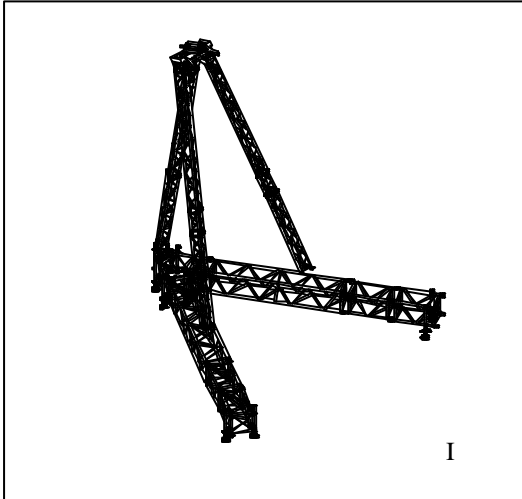
F



G

Assemble the stabiliser right and left leg and attach them to the erection frame.

**9**



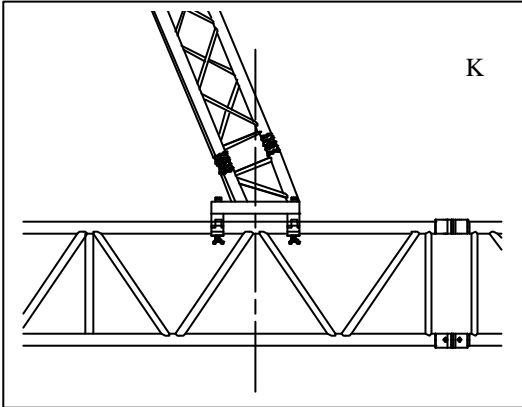
Use two people to push the stabiliser legs in place. A third person should be ready to mount the hinge spigots once the stabiliser mast is completely erect. Mount the stabiliser attachments to the trusses in the legs and fasten them.

**10**

Make sure the stabiliser attachments are mounted correctly. The stabiliser attachments should be mounted in the middle of a node point of the S52 trusses of the legs.

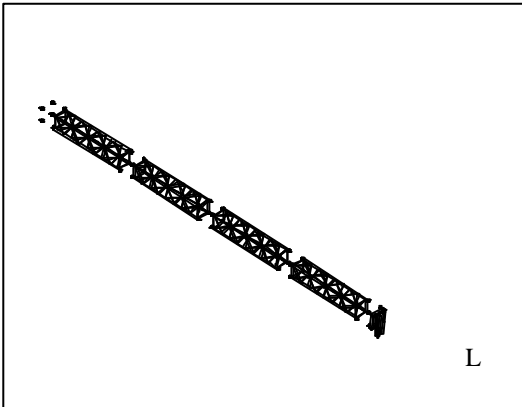
All bolts and clamps should be tightened with the aid of a torque wrench. The used torque should be no more or less than 50 N/mm.

**11**



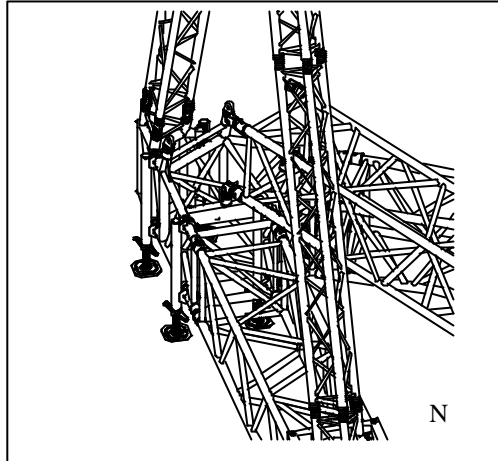
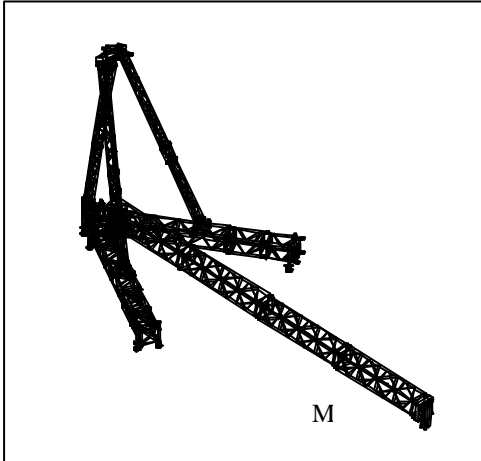
Assemble the mast of the RT-S52 tower. Other lengths may be used.

**12**



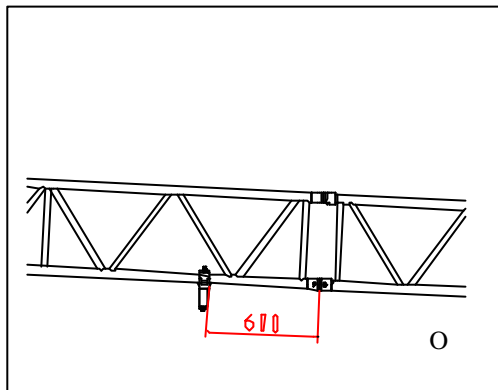
Mount the hinge parts to the lower end of the mast and the top section to the upper end of the mast. Check of the top section is mounted correctly, facing in the right direction. Then mount the mast to the inner hinge parts on the base frame.

**13**



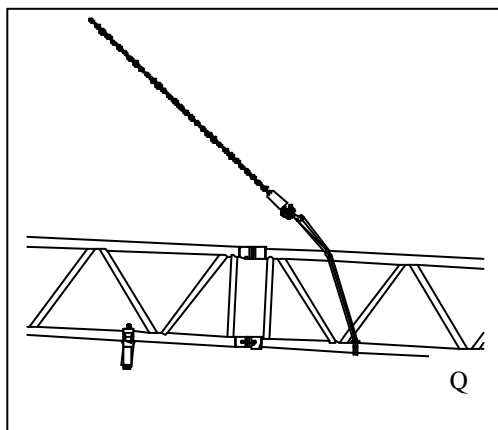
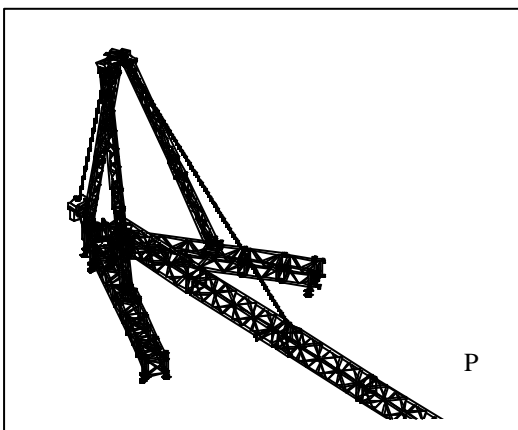
Mount the bracket, used for the fixation of the turnbuckle in the erection frame, to the mast at the position as shown in the drawing. Mount the bracket no more than 60 cm from the connection parts.

**14**



Mount the motor attachment to the back of the stabiliser mast and attach the lower hook of the hoist to it. The chain of the hoist must be guided along the erection frame pulley head to the mast and fastened as shown in the drawing, using a sling on both sides of the truss

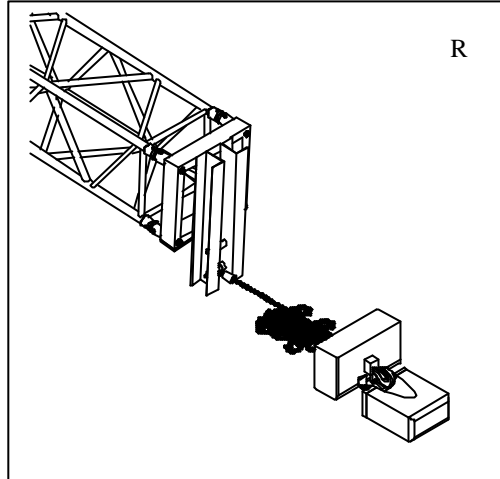
**15**



Attach the top hook of the hoist, used for hoisting the load in place, to the top section on top of the mast of the tower. Make sure your chain has its full working length.

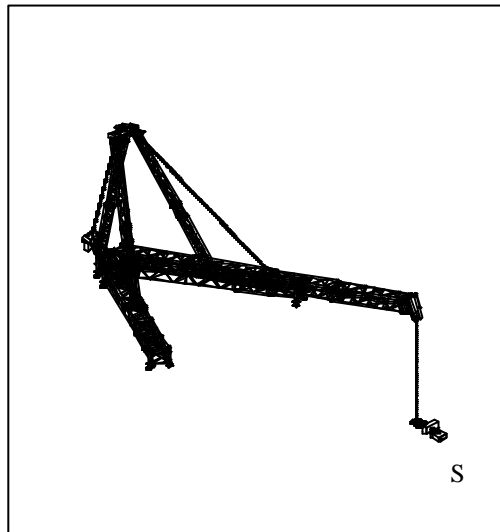
Note: The rigging tower is not designed to accommodate double reeved chains.

**16**



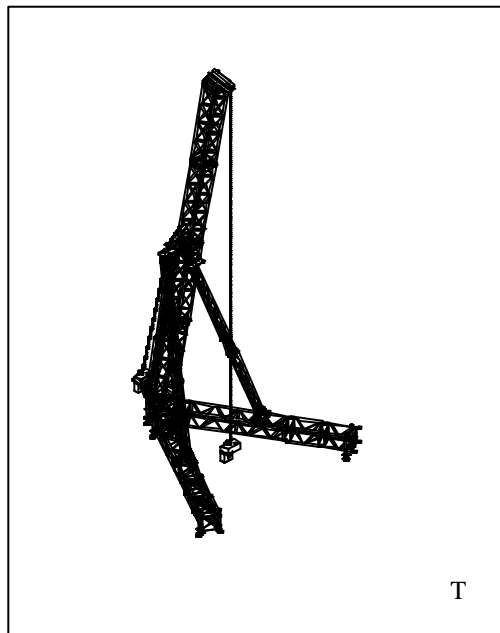
Start lifting the mast in place, using the hoist on the stabiliser frame. Make sure the hoist movement is even and without interruptions. Avoid dynamic loads if possible.

**17**



When the mast is hoisted in place fix the hinge parts at the base with a spigot and after that the bracket to the turnbuckle. Adjust the turnbuckle as far as needed to achieve a rigid connection.

**18**



Before the load is raised check the vertical position of the tower and proper surface contact of the screw jack dishes. Adjust the screw jacks if necessary.

Determine the weight of the load before lifting.

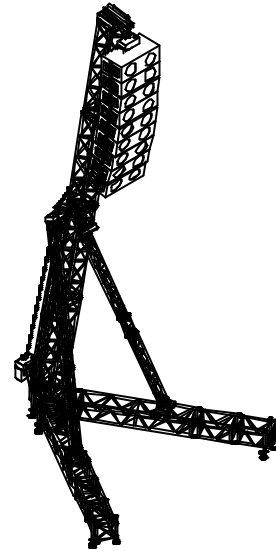
Run the system up to trim height, and secure it in this position by means of a secondary independent support such as a clutch chain or wire rope.

Check if the tower is in an exact vertical position, using a level with a plumb-position-eye. Correct any angles in tightening or releasing the screw jacks of the base outriggers

Apply the prescribed amount of ballast to the legs of the tower.

Disconnect the power of the hoist at the stabilizer frame. Leave the hoist in place if wanted. If you want to remove this hoist, disconnect the chain before hoisting the load in place.

**19**



U

Make sure that the hook of the hoist chain is slinged exactly in the middle of the shaft of the top section, in such way that an even distribution of the load to both sides of the top section is achieved. To provide the hook from sliding along the shaft, the best slinging method would be a choke hitch.

**20**

Always make sure that the floor or subsoil is sufficiently capable of carrying the load of the tower as it is transferred through the screw jack dishes. Use plywood panels or similar material to increase bearing capacity if needed. When in doubt, check with a competent person.

**21**

### **WARNING**

Neglecting the addition of the appropriate amount of ballast and/or not applying part of the guy wires is dangerous. Under influence of wind this can result in failure of the complete structure.

**WARNING:  
NOT FOLLOWING THE GUIDELINES IN THIS  
MANUAL MAY CAUSE DANGER, PROPERTY  
DAMAGE, INJURIES OR EVEN DEATH.**

**8. SYSTEM DIMENSIONS**

