

## Technical Information – Ben Nevis

Installation instructions  
Maintenance instructions

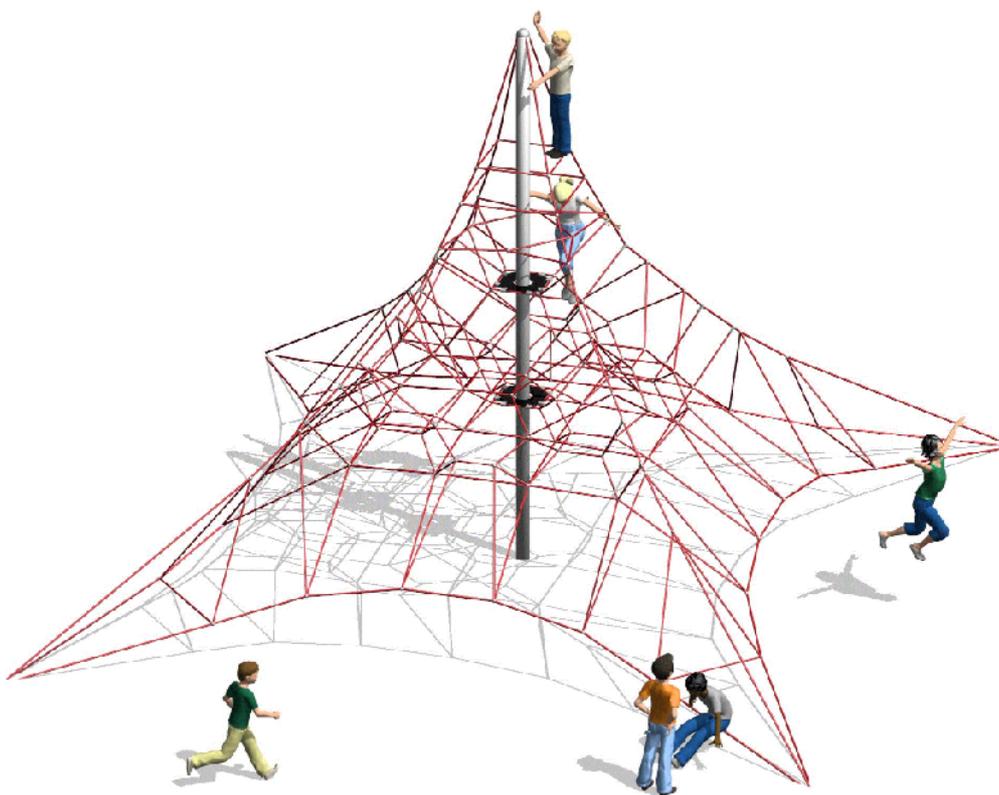
EN 1176-1  
EN 1176-1

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**Figure 1 Ben Nevis**

No. 1162042

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## 1 General

The operations described are to be carried out by a specialist.

The rope netting pyramid should be fixed on foundations in accordance with the Technical Information.

### Dimensions

Effective space	8.20 x 8.20 m
Drop	1.50 m
Minimum space	11.20 x 11.20 m
Height	5.80 m

### Age group

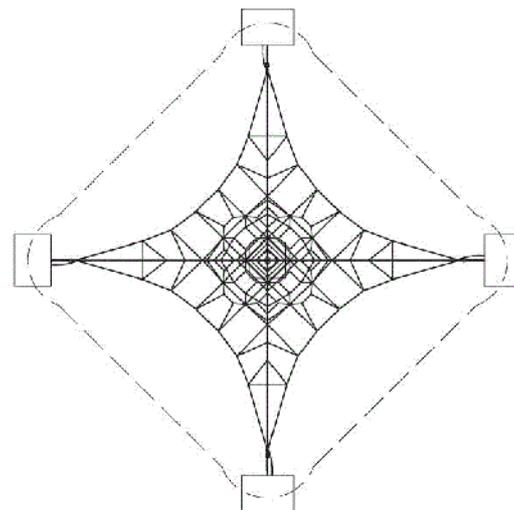
5 years upwards

### Number of users

46 children

### Maximum free drop height

2,40 m



**Figure 2 View from above with safety area**

### Ground quality

With regard to the type of ground in the play area, please refer to EN 1176-1. According to this, sand, wood chips, gravel and HIC-tested synthetic protective surfaces are permitted. We recommend a covering of gravel at least 400 mm thick (grain size 2–8 mm) or sand (grain size 0.2–2 mm). If you use a synthetic protective surfaces it must be sure that all relevant parts for the maintenance (see maintenance instruction on page 6 and 7) are every time accessibly. If necessary consult smb.

### Assembly tools

#### Tools supplied:

1 piece size 46 open-jawed spanner with extension

#### Additional tools required:

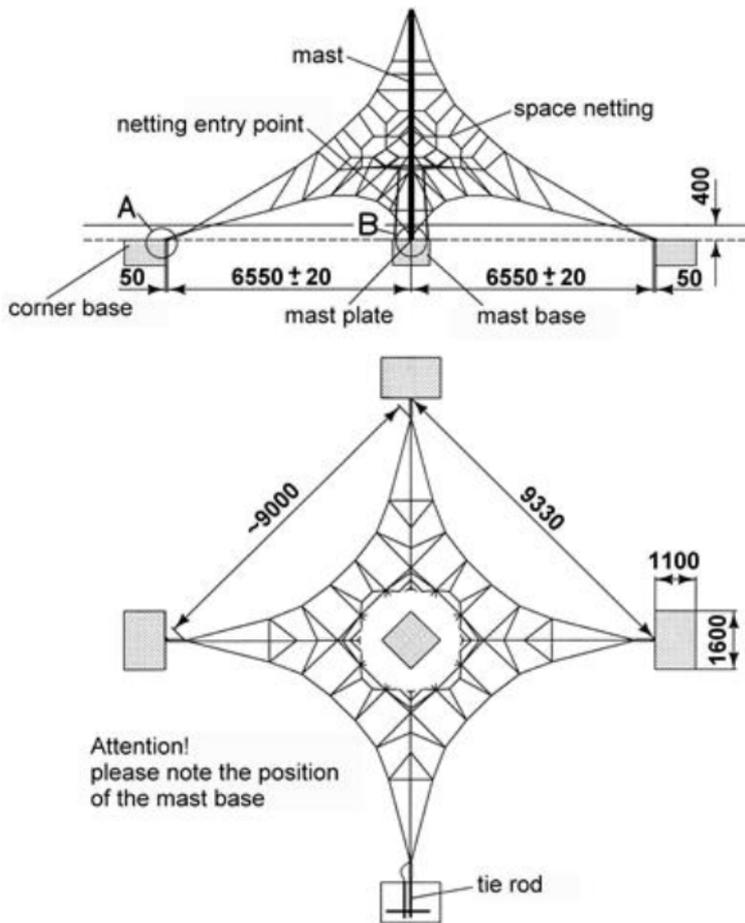
1 piece	cable pulley (10 kN tensile force)
1 piece	hemp rope, minimum D = 20 mm, length according to requirements
1 piece	crowbar
	usual tools (hammer, pliers, screwdriver etc.)

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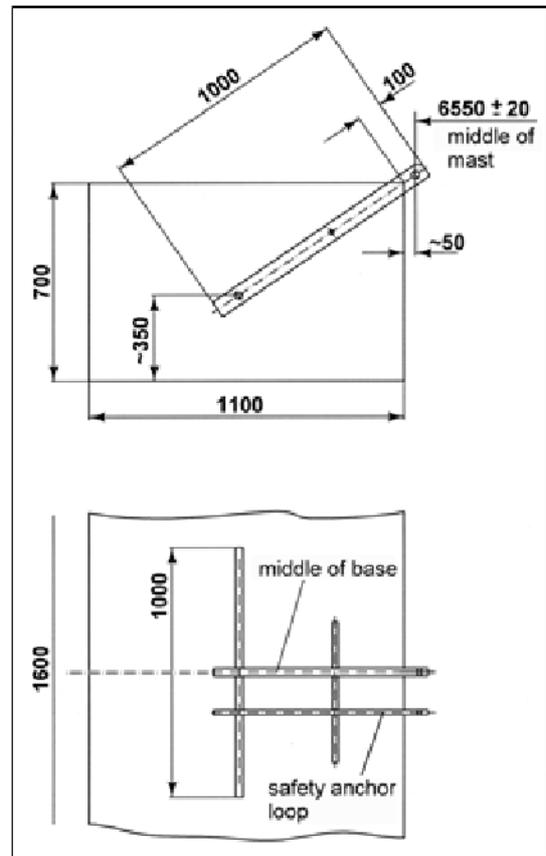
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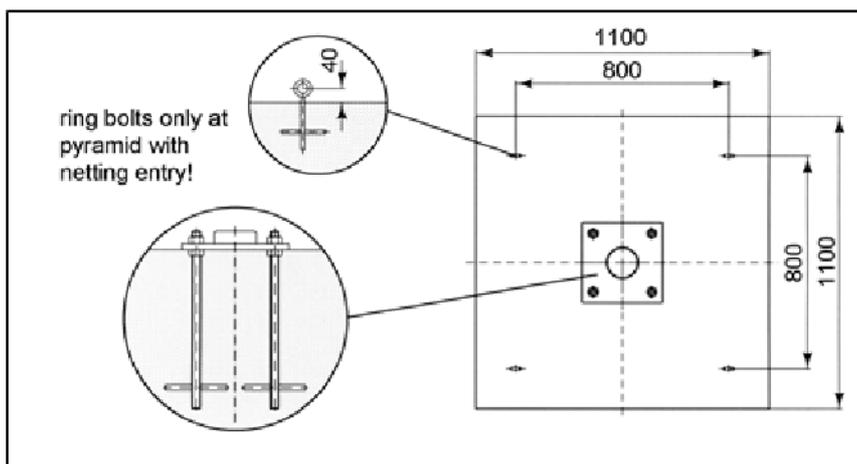
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**Figure 4 foundation plan**



**Figure 3 foundation anchorage**



**Figure 5 mast plate foundation** (Position of the eye bolts and the mast plate)

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Minimum concrete quality for the foundations:	<b>C20/25 (B25)</b>
Setting time:	<b>at least 8 days</b>
Amount of concrete required:	<b>approx. 5.8 m<sup>3</sup></b>

We assume that the foundation soil is organic soil. Otherwise advice should be taken on possibly altering the size of the foundations.

## 2 Assembly

### General advice

The rope netting has been knotting by a hercules rope (an steel wire rope, which is coated with chemical fibre). This coating could become damaged, if you move the rope over the ground. Please work carefully.

### Spread out rope netting

The rope netting has been folded up following knotting in the factory. Take the netting out of the container in accordance with the folds. The netting should be spread out in a triangular shape with the base of the triangle lying in the diagonals of the foundations. The tip of the netting can be recognised by the aluminium mast cap and should be lined up with foundation 3 (see schematic diagram **Figure 6 raising the mast**). The connection with foundations 1 and 2 should now be created, using the tension jacks to connect the netting to the tension rods of the foundations.

### Insert the mast into the netting

Push the mast through the netting to the tip of the net. A hemp rope is attached to the netting as a guide when threading through. Once the mast has been threaded through, place the mast cap in the mast, raise the mast slightly by lifting it and support it temporarily on the tip. In this position, it should be ensured that the mast supports itself on the round plate of the mast plate.

### Raising the mast

When raising the mast it is essential to ensure that you pull the mast, not the net. To raise the mast, use a cable pull (10 KN tensile force). The mast, including the netting, should be raised carefully. In particular, it should be ensured that the mast plate is in the mast tube and is not pulled out and that the foot of the mast is pulled onto the round plate. Once the mast has been raised higher than 45°, the connection between the netting and foundation 3 is created. The mast should be raised higher until it is in a vertical position. The final connection with foundation 4 is now created. Pulling the netting to the tension rods is made easier with the aid of a crowbar, which should be placed in the curved clevis, as a result of the lever action. Do not pull the mast with the cable pull over and above the vertical in the direction of the tension rods (see **Figure 7**).

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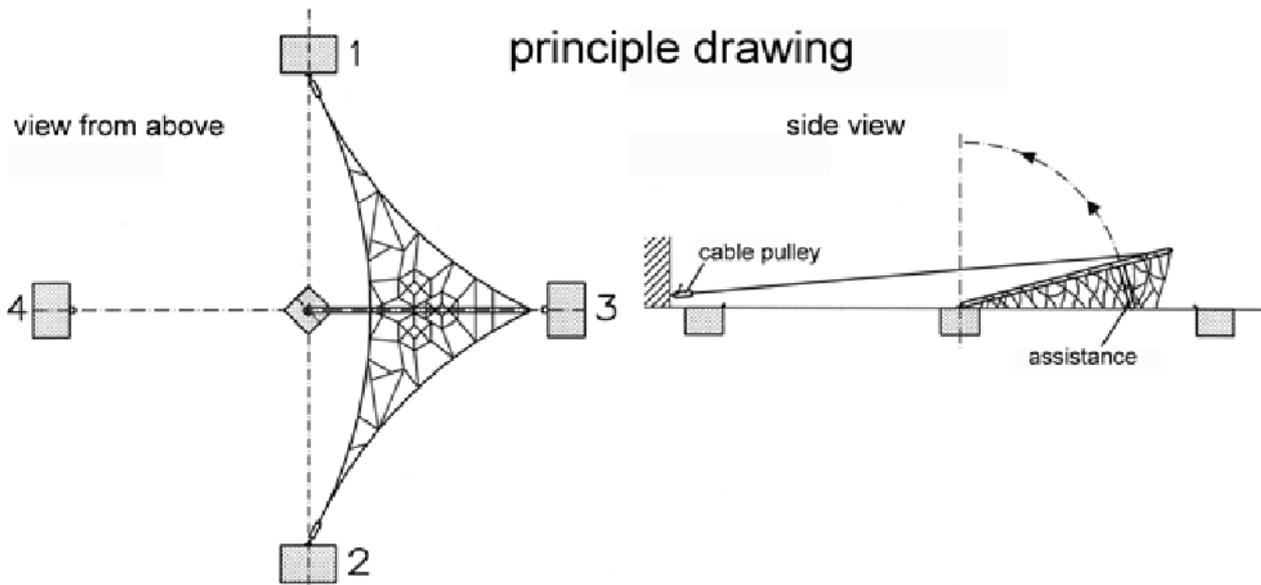


Figure 6 raising the mast

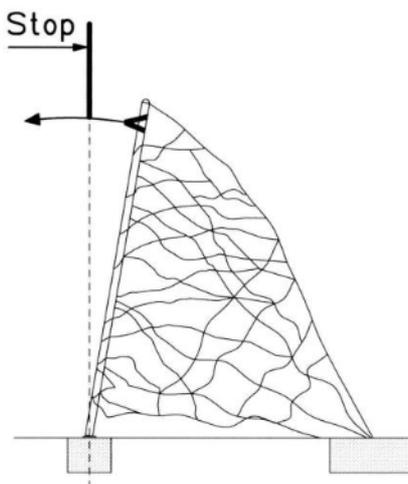


Figure 7

**Caution:**

When putting the mast up and when stretching the space network make sure absolutely that the mast is not pulled beyond the vertical (**Figure 7**)!

Pull only at the mast, not at the space net (**Figure 7**)!

**Fitting netting entry points**

The entry ladders (if ordered) should be fitted on the space netting at the press connections marked (if not already done in the works) and on the middle base on the eye bolts (**Figure 5 mast plate foundation**).

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### 3 Tensioning the netting

Tensioning (tensioning tools are supplied) is carried out with the tube tensioning jacks and should be performed uniformly and crossways. Alternating at each turnbuckle in each case a short piece must become strained till the final initial tension is achieved. Ensure that the mast is in a vertical position. Apply noticeable preliminary tension to the rope netting. After tensioning, the lock nut should be securely tightened. Finally, the safety ropes should be connected to the safety anchor loop via the clevises.

#### **The first re-tensioning of the space netting**

!!! Initial re-tensioning should be carried out after one to two weeks of use  
(reference operational inspection for more details) !!!

### 4 Maintenance instructions EN 1176-1

#### **Visual routine inspection**

Frequency will be based on local conditions (high/low use, vandalism, air pollution, effects of weather). The inspection must be carried out by an expert or specialist company.

- Check Space Net for general damage, wear and tear and damage resulting from vandalism
- Check ground quality (layer of sand = protection from a fall; contamination of sand = protection from injury)

#### **Operational inspection (twice-yearly)**

- The entire Space Net should be checked for damage, particularly for breaks in the wires
- On the mast cap, it should be checked that the central markings on the mast rope are between the rope shackles
- All the anchoring cables should be checked:
  - The lock nuts should be tightened securely to the tension jacks!
  - The safety ropes should be connected to the thinner traction anchor loop via the clevis connection.
- Die Vorspannung des Raumnetzes prüfen und gegebenenfalls nachspannen.

#### **Adjusting tension (see picture Figure 8)**

- Uncover the tension lock and clean the threaded parts
- Remove the lock nut
- Adjust tension with the tensioning spanner SW 46 supplied. Tensioning should be carried out until it is no longer possible to tighten the tensioning spanner manually without any great strain. When tensioning, the direction of rotation for tensioning should be counteracted so that the inclined tension cables do not become twisted. It should be ensured that the mast is vertical.
- Fasten the lock nut again securely

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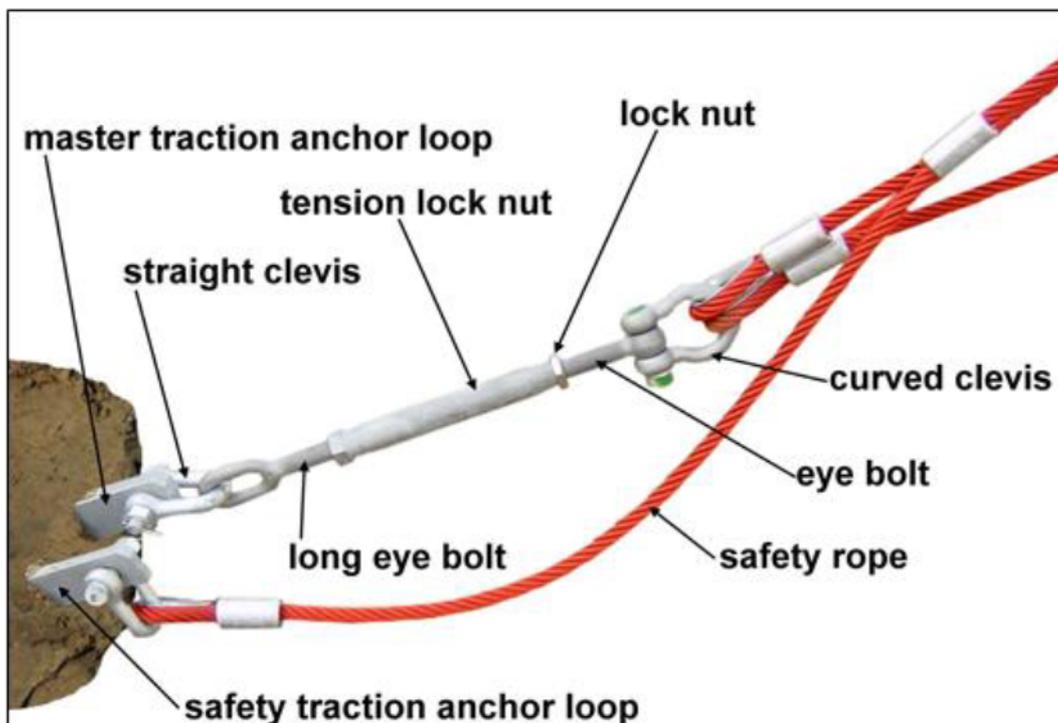


Figure 8

### Main inspection (annually)

In addition to the checks in the visual and operational inspection:

- Check the clevis connections: curved clevis on the inclined tension cable, straight clevis on the tension anchor loop.
- Check the safety cable for damage
- Check the tension anchor in the foundations for signs of corrosion
- Check that the mast plate is positioned stably on the foundation and check for signs of corrosion
- Check the foundations for possible cracks in the concrete. To do this, the foundations should be exposed in the area of the tensioning anchors.

**Please note:** The swaying of the mast tube is a static necessity and is therefore intentional.

In order to guarantee enjoyment when playing and a long life, the rope Space Net should be kept under tension. The first tension adjustment should be carried out approximately one week after the first use. Further tension adjustments will be necessary at longer intervals, depending on the loss of elasticity of the ropes, until the natural stretch capacity of the rope has been exhausted.

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