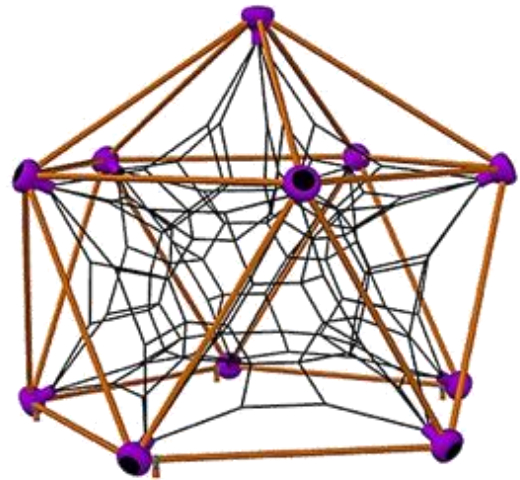


Mounting instruction

For Roplay VARIO S, M & L Icosahedron net structures



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Appendix Set of drawings and Parts list

Perspective
Top view.....
Front view
Safety Area
Foundation Plan.....
Plan Framework.....

Appendix Maintenance Instruction

1 Labor and Tools

1.1 Mounting personnel

A minimum of two specialists are required for the correct and professional mounting of this equipment. The mounting personnel must have the requisite knowledge of DIN EN 1176 and of the mounting of rope play equipment.

1.2 Tools

The following tools are required for the mounting:

- 1 lifting gears (e.g. pulley block, rope pulley)
- 2 Ladder: for type **S** abt. 2m long, for type **M** appr. 3m long, for type **L** appr. 4m long
- 3 ratchet with ½" square drive
4. Extension with ½" square drive, 70 mm long
5. Socket for wrenches with ½" square drive, wrench size 24
6. Box spanner wrench size 24 (included in delivery)
7. Hexagon socket wrench, wrench size 8
8. Hammer
9. Spade
10. Water level

If required tools can be purchased from Roplay.

1.3 Parts list

1 x complete ROPLAY VARIO consisting of:

- 1 System tubes
- 2 Balls, rubber caps and tensioning points
- 3 Foundation parts (slabs, tubes, clamps)
- 4 Space Net structure
- 5 Complete set of mounting materials (screws, nuts, washers)
- 6 Slide (if contained)
- 7 Access Net (if contained)

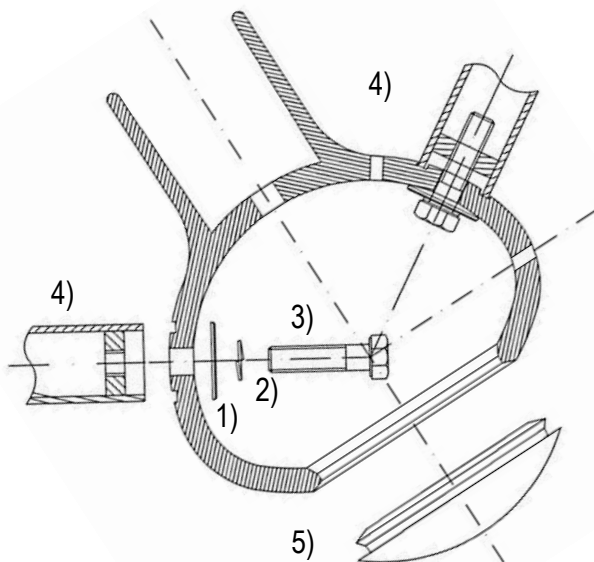
2 Foundation

2.1 Foundation works

A foundation plan is supplied, this plan shows the positions and size of the foundations. All specified dimensions (including overall heights) **MUST** be observed, as the end devices are manufactured based on the foundation plan.

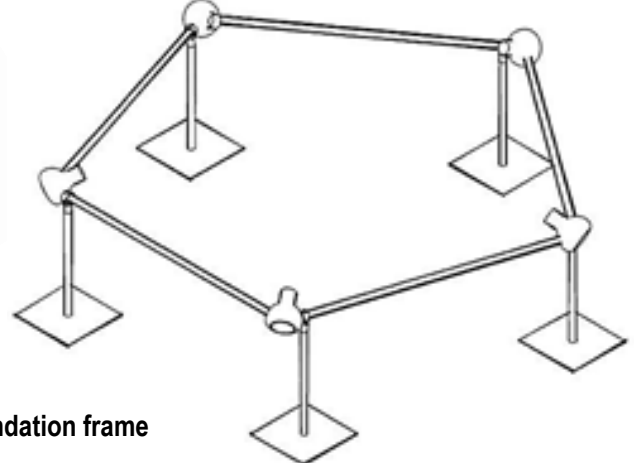
The following steps must be performed in order to create the foundations and the foundation frame:

- A. Approximately determine the foundation pits on site (according to the foundation plan)
- B. Do the excavations for every single foundation point.
- C. Compact the soil in the pits and align all pits so they are leveled and at the same depth (hydrostatic level)
- D. Assemble the foundation frame (refer to drawing).
 - The foundation frame consists of 5 structural pipes, 5 foundation pipes, 5 foundation plates, 5 clamps and 5 system balls.
 - Center the structural tubes at the 5 foundation balls. Then fix the structural tubes with hexagon socket head cap screws M 16 x 80, washers and spring washers from the inner side of the balls.
 - Then attach the foundation plates to the foundation pipes L=720mm. Glue the screws with the provided locking adhesive.



Systemball Type ICO48/L

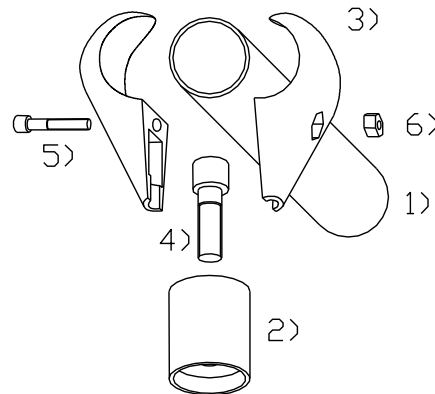
- 1) Plain washer M16 3D
- 2) Spring washer M16
- 3) Bolt M16x80
- 4) System tube
- 5) Rubber cap



Foundation frame

- D. When all bolts are fastened and the foundation frame is centered, the 5 foundation pipes have to be attached to the system pipes with the clamps (clamp should be places appr. 50mm from the end of the system pipe).

- 1) System pipe 48,3mm
- 2) Foundation pipe 60,3mm
- 3) Clamp 48,3mm
- 4) Pan head screw M16x70
- 5) Pan head screw M10x35
- 6) Hex-nut M10



- E. Compaction of ground beneath the foundation plates. The base of the ground hole must be leveled (parallel to ground level).
- F. Alignment of the foundation frame (see foundation plan)
As per the foundation plan the frame should be adjusted so that all the pipes are on the same level and the bottom of each foundation ball is concordant with the horizontal to-be-play level.
- G. Filling of holes and compacting of the soil above the foundation plate.

3 Framework

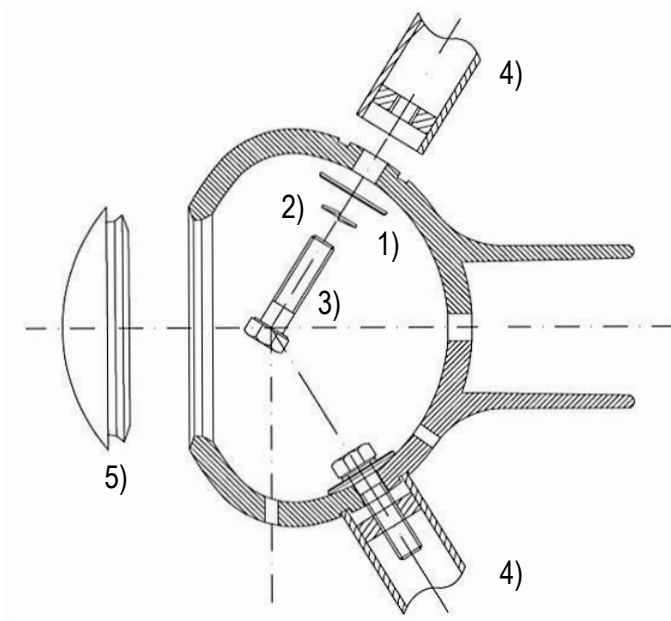
3.1 Assembly

Please note the following details for the assembly:

- The right position of structural tubes and balls is described in the framework plan.
- The framework will be assembled level by level.
- The markers for the ball types are at the edge of the assembly openings or at one of the connection rings.
- The system balls are in the right assembly position if the assembly opening is pointing outwards. The assembly opening is always opposite to the net tensioning points. Given this position also the points for the pipe attachments are already in the right place.
- At first just slightly fasten the bolts at the balls.
- After the complete assembly of the frame all connections must be tightened. Don't use other tools than the ones listed in chapter 1.2. to avoid too much prestress.

Please do the assembly in the following order:

- A. For the arrangement and the positions of the system balls and –pipes please refer to the plan of the framework.
- B. At first center the system pipes at the system balls and fasten from the inside of the balls with washers, spring washers and hexagon bolt M16x80.
- C. Proceed with the assembly of balls and pipes level wise.



- 1) Washer for M16 3D
- 2) Spring washer for M16
- 3) Hexagon bolt M16x80mm
- 4) System pipe 48,3mm
- 5) Rubber cap

- D. When the assembly is completed all fastenings must be tightened. Don't use additional extensions for that.

4 Spacenet

4.1 Hang On

Please note the following details:

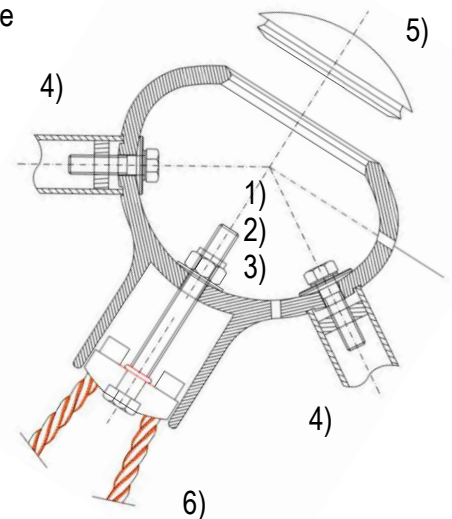
- All the tensioners are pre-assembled to the spacenet, as well as the tension devices M16.
- At first just hand-screw the pre-assembled tensioners with the self-locking nuts M16.
- **It is important to make sure that no rope ends are crossing.**



Please install the net in the following order:

- Pull the top marked tensioner to the upper ball utilizing a suitable lifting gear (f.e. a pulley).
- Put the bolt of the tensioner through the exposed borehole $\varnothing 17\text{mm}$ at the bottom side of the upper ball and fix it with washer M16 and self-locking nut M16.
- Attach the other tensioners to the balls at the foundation level accordingly.
- Finally do the same procedure at the middle level.

- 1) Washer M16 3D
- 2) Spring washer M16
- 3) Hexagon screw M16x80mm
- 4) System pipe 48,3mm
- 5) Rubber cap
- 6) Tensioner M16



4.2 Tensioning

Please tension the net as follows:

- A. Before the tensioning it is recommendable to check the right position for all the cloverleaf rings at the rope crossover points in the nets and if necessary to adjust them. Also double-check that no rope ends are crossing.
- B. When everything is found correct in step A now tension the tensioners at the lower balls. With the box spanner SW24 all the nuts M16 are to be fastened until the tensioning points look like in the picture shown below



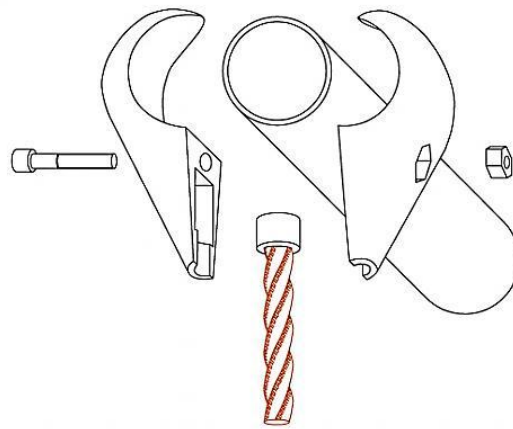
- C. Depending on the play frequency the net has to be re-tensioned after 1-2 weeks.

5 Additional components

For the VARIO structures are additional components (slide & access net) available. These components can be mounted during the framework installation and also at a later stage.

5.1 Access net

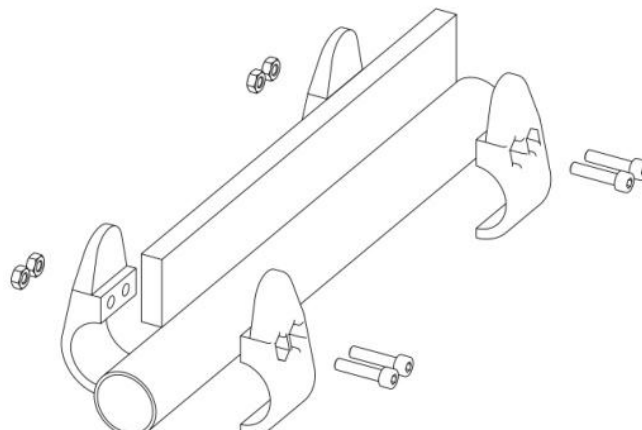
Use the tube clamps to fix the access net to the horizontal tube of the framework. The lower end of the net will be anchored by foundation plates 600mm below the playground level. The angle between the net and the playground level should be approximately 45°.



5.2 Slide

The concrete foundation for the slide are not determined and created until it is about to be attached, as the length dimensions can vary slightly (due to manufacturing tolerances). After the position of the foundation is determined, a concrete foundation is to be made. This foundation in the size of 800mm x 300mm x 500mm (surface 400mm below the playground level) must be made out of C20/25 concrete quality.

Use the plate clamps to fix the slide net to the horizontal tube of the framework so it is hand-tight.



Align the slide with the aid of the spirit level and mark the bore holes on the concrete foundation.

The holes are drilled according to Chapter 5.3

Once all the holes have been drilled, the connection anchors have set and the slide has been positioned correctly, the slide can be fixed in place permanently

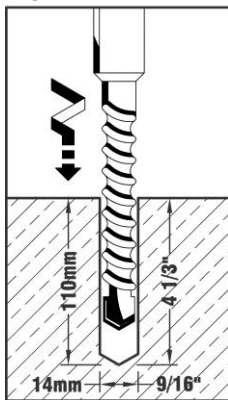
5.3 Installing the connection anchors r

The diameters and depths of the bore holes are to be observed, as are the setting times. Prior to application, make sure that the resin flows like honey from a cartridge that is warm to the touch. Do not use damaged cartridges. Store cartridges in a cool place in the original packaging and protect against direct exposure to sunlight. Brush or blow out the bore holes. Drive the anchor rod to the bottom of the bore by turning and hammering it (with a drill hammer). Any mortar coming out of the bore hole is to be subsequently removed. Installation has been performed correctly when the setting mark of the anchor rod is flush with the edge of the bore hole and the ring gap has been completely filled with mortar.

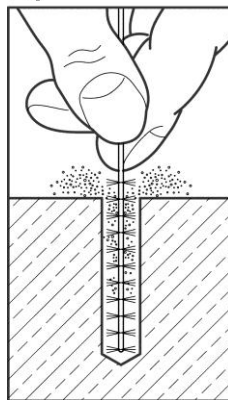
Setting times:

Temperature in the ground (°C)	Setting time (min) with dry concrete	Setting time (min) with wet concrete
Over +20°	10 min	20 min
+11° to +20°	20 min	40 min
+5° to +10°	60 min	120 min
-5° to +4°	300 min (=5h)	600 min (=10h)

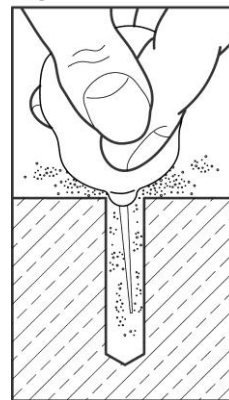
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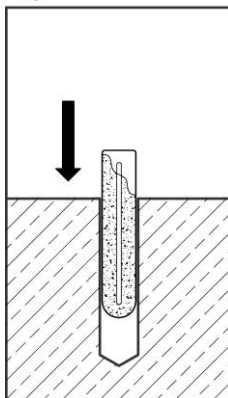
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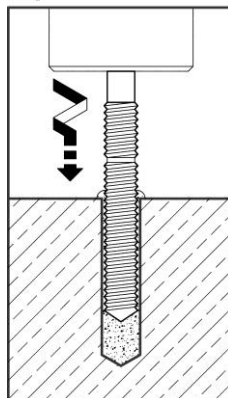
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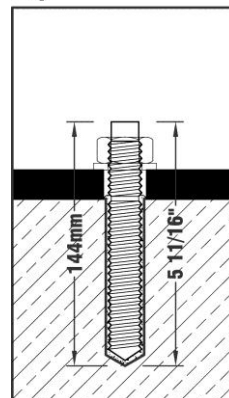
4.)



5.)



6.)



6 Closing works

To the end it is recommendable to double-check all the fastenings.

Restore the ground level.

Close all the assembly openings at the frame balls by plugging in the rubber caps with a hammer.

Important: Depending on the play frequency the net has to be re-tensioned after 1-2 weeks.