

Mechanical anchoring

General information

This document explains how to anchor a Coby system. Always verify the positioning of the Coby! Verify if no floor heating is used! In case floor heating is used, verify the maximum drilling depth.

Pictures used in this document are for illustration purposes only. Always verify the on-site documentation for correct use.

The Coby systems are anchored with only four anchor bolts.

1

Use following tools



Figure 1.1. Tape measure



Figure 1.2. Chalk line

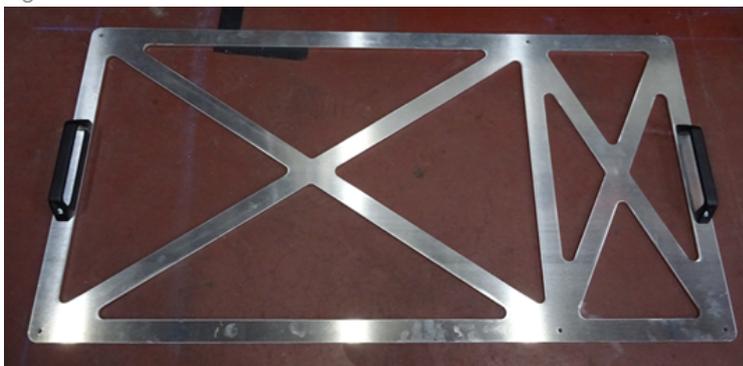


Figure 1.3. Drill calibre



Figure 1.4. Concrete drill machine SDS max



Figure 1.5. Concrete drill machine SDS plus



Figure 1.6. Concrete drill bits $\text{\O}8\text{mm}$, $\text{\O}15\text{mm}$, $\text{\O}35\text{mm}$



Figure 1.7. Industrial vacuum cleaner



Figure 1.8. Steel brush



Figure 1.9. Chemical anchor resin + associated caulking gun



Figure 1.10. Universal grease (recommended SKF LGMT 2/18)



Figure 1.11. Conical anchor set (4x)

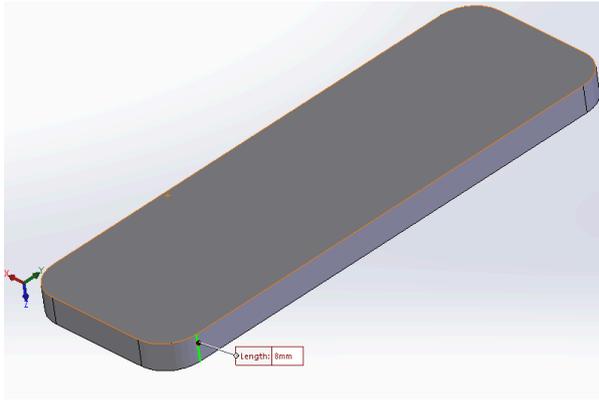


Figure 1.12. 8mm Level plate



Figure 1.13. Hammer and chisel



Figure 1.14. Open end wrenches



Figure 1.15. Pallettruck or forklift

2

Summary of the procedure

1. Indicate the drill calibre reference lines on the floor according to the installation drawing
2. Mark the anchor holes
3. Predrill the anchor holes
4. Finish drilling and clean the holes
5. Lift the system with a pallet truck or forklift, and mount the anchors on to the chassis.
6. Verify that the system goes into the drilled holes, smoothly. (Do not use chemical glue yet!)
7. Lift up the system again and grease in the floor and the chassis so that the chassis will not be glued on the floor later on. Do not grease in the cylindrical side of the anchors.
8. Fill the drilled holes approximately $\frac{3}{4}$ with chemical anchor.
9. Put the system on the level plates, and don't move the robot and the system until the hardening time of the chemical anchors is reached.
10. Loose the anchor-screws, and remove the system with a pallet truck
11. Clean the hardened resin with hammer and chisel
12. Put the Turn assist back on the conical receivers and tighten the anchor bolts (tightening torque +- 85Nm)

3

Procedure

3.1. Step 1: Indicate the drill calibre reference lines on the floor according to the installation drawing, use chalk line for accurate results.

The picture below is for illustration purposes only, and is an extraction out of the implementation drawing. Always verify the on-site documentation for correct use.

INSERT EXAMPLE OF DRILLING CALIBRE POSITIONING

Figure 3.1. Installation drilling example

3.2. Step 2: Mark the anchor holes

Position the drill calibre on the reference lines and mark the 4 corner holes of the drill calibre on the floor with an Ø8mm drill approximately 2-3 cm deep. Be sure the drill calibre doesn't move!

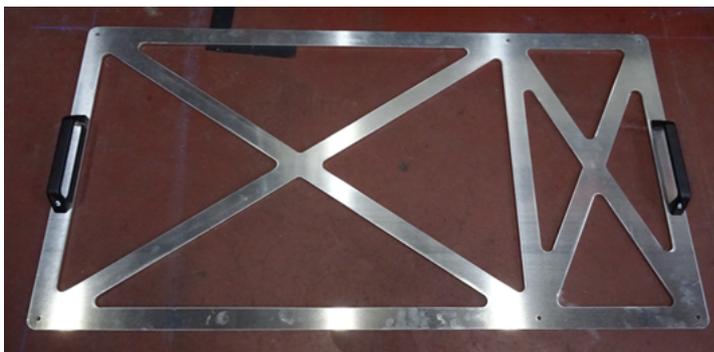


Figure 3.2. Drill calibre

3.3. Step 3: Predrill the anchor holes

Remove the drill calibre and predrill the holes with a 15 mm drill approximately 10cm deep into the floor.

Pay attention that the drill machine is facing straight downwards. (Verify that no floor heating is used, to be sure not damaging the floor heating tubes).



Figure 3.3. Concrete drilling

3.4. Step 4: Finish drilling and clean the holes

Finish drilling with a Ø35mm drill, again approximately 10cm deep, and clean the holes with a steel brush and

vacuum cleaner. Verify that the anchors go in smoothly and deep enough.



Figure 3.4. Cleaning drilled holes

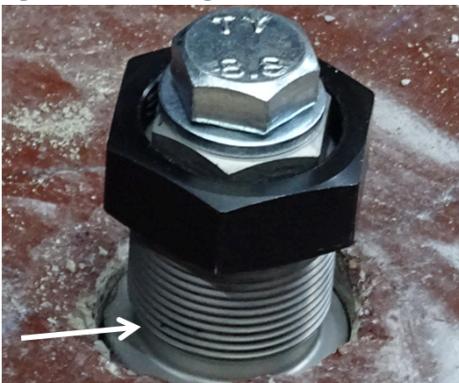


Figure 3.5. Testing anchor depth

The anchor is deep enough when the first starting thread of the anchor is at the same level als the floor.

3.5. Step 5: Lift the system with a pallet truck or forklift, and mount the anchors on to the chassis.

Grease in the conical faces as well on the receptor as the receiver side.



Figure 3.6. Grease in the conical anchors

The system must be lifted up at least 10cm above the floor level for the anchors to become free of the floor.

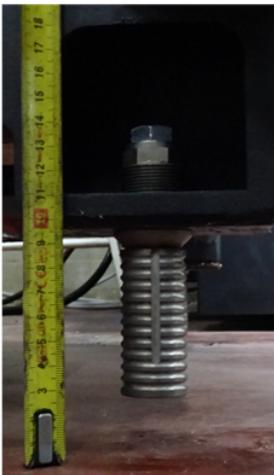


Figure 3.7. Lifting height for installation

First hold the DIN 933 on place before screwing in the conical receptor. The screw cannot be inserted afterwards!

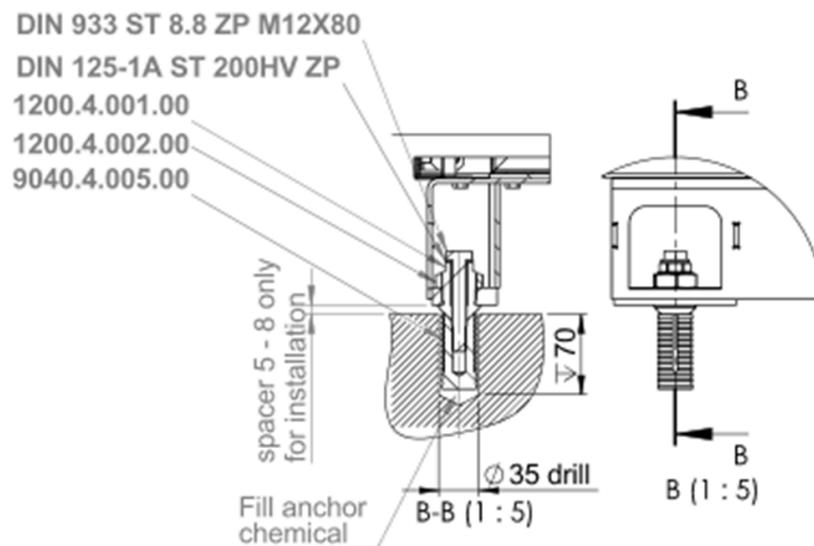


Figure 3.8. Section view of the conical anchors

3.6. Step 6 : Verify that the system goes into the drilled holes, smoothly. (Do not use chemical glue yet!)

In case the system doesn't go in smoothly, drilling has not been done accurately. And drilling holes must be enlarged.



Figure 3.9. Verify the drilled holes through prepositioning

3.7. Step 7: Lift up the system again, grease in the floor and the chassis so that the chassis will not be glued on the floor later on. Do not grease in the cylindrical side of the anchors.

It's very important to put grease on the blue indicated faces (illustrated below) before assemble the anchor set, do not grease other surfaces! This is necessary to remove the system afterwards and to avoid problems with dismounting, because chemical resin, can come out of the drilling holes. Avoid that grease can come on the white indicated surface of the anchor! Also grease in the floor around the drilled holes.

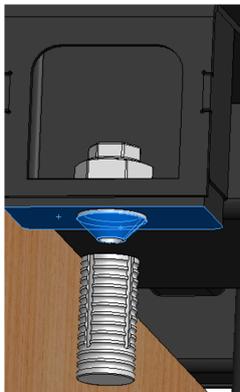


Figure 3.10. Grease in the conical anchors



Figure 3.11. Grease in the floor and chassis

3.8. Step 8: Fill the drilled holes approximately $\frac{3}{4}$ with chemical anchor.



Figure 3.12. Fill the holes with chemical resin



Figure 3.13. Chemical resin in drilled holes

3.9. Step 9: Put the system on the level plates, and don't move the robot and the system until the hardening time of the chemical anchors is reached.

During the hardening time of the chemical resin, one can continue the installation (for example parametrisation). It's only important to NOT MOVE the robot while the hardening time is not yet completed.

The reason for this 8mm level plates, is to be sure the anchor will be hold in place when the system is mounted on the floor later on, and to be independent from small inaccuracy of the floor parallelism. This will become clear with following pictures.

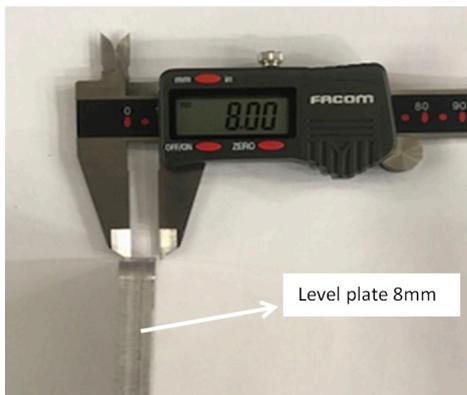


Figure 3.14. 8mm level plate



Figure 3.15. 8mm cone height



Figure 3.16. Position of the 8mm level plates



Figure 3.17. Position of the 8mm level plates

3.10. Step 10: Loose the anchor-screws, and remove the system with a pallet truck

After the chemical anchor has hardened loosen the bolts holding the system in place.



Figure 3.18. Loose the anchor screws

3.11. Step 11: Clean the hardened resin with hammer and chisel

Clean the floor and the bottom side of the system. Make sure no more chemical anchoring residue is left on the system.



Figure 3.19. Cleaning with hammer and chisel

3.12. Step 12: Put the Turn assist back on the conical receivers and tighten the anchor bolts (tightening torque +/- 85Nm)

No additional information required.