

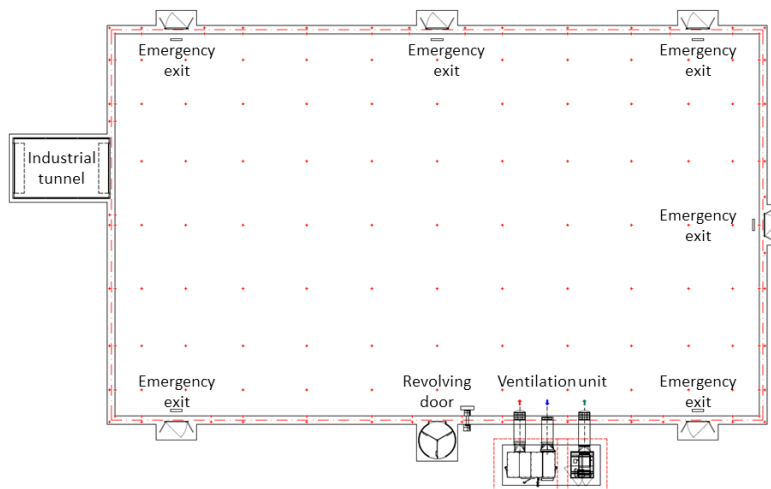
# Guidelines and Instructions for using DTU ASTA

## Information on the air dome structure

The DTU ASTA facility is an air-supported structure (air dome) made of PVC-coated polyester fabric, anchored to a foundation. Air is continuously supplied by a fan to maintain a slight overpressure (150-250 Pascal), which keeps the dome stable. The doors are designed to allow entry and exit while minimizing air loss.

The air dome is flexible and may move in strong wind. To protect the dome membrane, all structures inside must be placed at a **minimum distance of 100 cm** away and any sharp edges must be properly covered.

## Entrances



*DTU ASTA entrances*

### Main entrance

The main entrance of DTU ASTA is the revolving door on the side of the ventilation unit. This requires an access card to be unlocked.

### Industrial tunnel

The industrial tunnel can be used to bring in vehicles and large equipment. There is a sectional door (sliding upwards) at each end of the tunnel. The size of the doors is 3m width and 2,5m height and tunnel length is ~6m.

The tunnel is designed to **never have both doors open** at the same time to avoid a drastic change in the dome's air pressure.

The sectional doors can only be opened from the inside. The tunnel can be accessed through a door on its side, which also requires card access.

### Emergency exits

There are six emergency exits, shown in the figure above. These are outward-opening doors with transparent portholes and a closing mechanism. Each exit is marked by an emergency light above the door.

Emergency exits should **only be used in case of an emergency**. Opening them can cause a sudden drop in air pressure. There is a lot of pressure on these doors, so anyone opening them should **prepare to be pulled forward**. Two persons are needed to close an emergency exit door.

### Ventilation Units

The air dome is equipped with air generators that supply the required airflow. The main ventilation unit runs on electricity.

In addition, there is a diesel-powered emergency unit that starts automatically if the main unit fails, during strong winds, or if the air pressure inside the dome drops.



## Entering and leaving the facility

When entering the facility, use the revolving door whenever possible. Large equipment can be brought in through the industrial tunnel. If the facility is locked, use the provided access cards to enter.

The doors do not lock automatically. When leaving DTU ASTA, **lock the doors** with the access cards if no one else is inside.

If you are locked inside (the revolving door is locked), you can exit through the industrial tunnel.

## Cleaning

To maintain a good working environment inside DTU ASTA, please **return all tools and equipment to their proper places** and **remove any waste** before leaving the facility.

If you are using the facility for several consecutive days, please **keep your work area tidy**. Any **equipment left in the work area must be labeled** with your name and the period during which it will be used.

## Motion Capture System

The Motion Capture System inside DTU ASTA consists of 16 OptiTrack cameras, model Prime 17W, which are mounted on an aluminium truss structure occupying 16m x 12m x 8m.

There are various areas of application for Motion Capture Systems. Our main area of interest is in robotics. OptiTrack provides low latency, precision 6DoF real-time tracking for ground and aerial robotics. Several robots can be tracked at the same time, allowing for experiments with collaborative robots.

The software available for using with the camera system is Motive:Tracker 3.X. This is used to track and capture the motion of small retroreflective markers attached to objects and delivers real-time motion data with high accuracy.

Additional information and instructions on how to use the OptiTrack system can be provided as part of the initial instructions.

## Pool

Inside the volume occupied by the Motion Capture System, there is a pool of size 6m x 3m x 3m depth.

The pool is **unheated and is not meant for recreational swimming**. It is meant for experiments using underwater robots or surface vessels.

A counter current unit is available, which can pump a powerful stream of water into the swimming pool. The generated flow allows for more complex testing of water vehicles, more similar to real-life conditions.

Additional information and instructions on how to use the pool can be provided as part of the initial instructions.

## Emergency evacuation

In case an emergency evacuation is needed, please follow these steps:

1. Stay calm and alert.
2. Locate the nearest emergency exit. Follow emergency signs or lights that will guide you to the nearest exit.
3. If the nearest exit is blocked or unsafe to use, move to another exit. Be aware that parts of the dome may have deflated or collapsed, which could obstruct exits or create new hazards.
4. If you encounter smoke or fire, do not unlatch the exit. Move to a different exit if possible.
5. Once you reach a safe exit, unlatch the door and evacuate in an orderly manner. There is a lot of air pressure on the doors. **Prepare to be pulled forward.**
6. If there is no safe exit available or if you cannot exit due to physical limitations, move to a safe area in the dome and alert security personnel (**DTU Vagt: +45 45 25 33 55, dtu.vagt@securitas.dk**).
7. Help others evacuate if you can do so safely. Do not put yourself in danger.
8. Once outside, move to a safe distance from the dome and wait for instructions from security personnel (**DTU Vagt: +45 45 25 33 55, dtu.vagt@securitas.dk**).
9. If you hear a loud popping or hissing sound, or if you notice the dome collapsing/deflating, evacuate immediately through the nearest exit. Do not try to collapse the dome yourself.