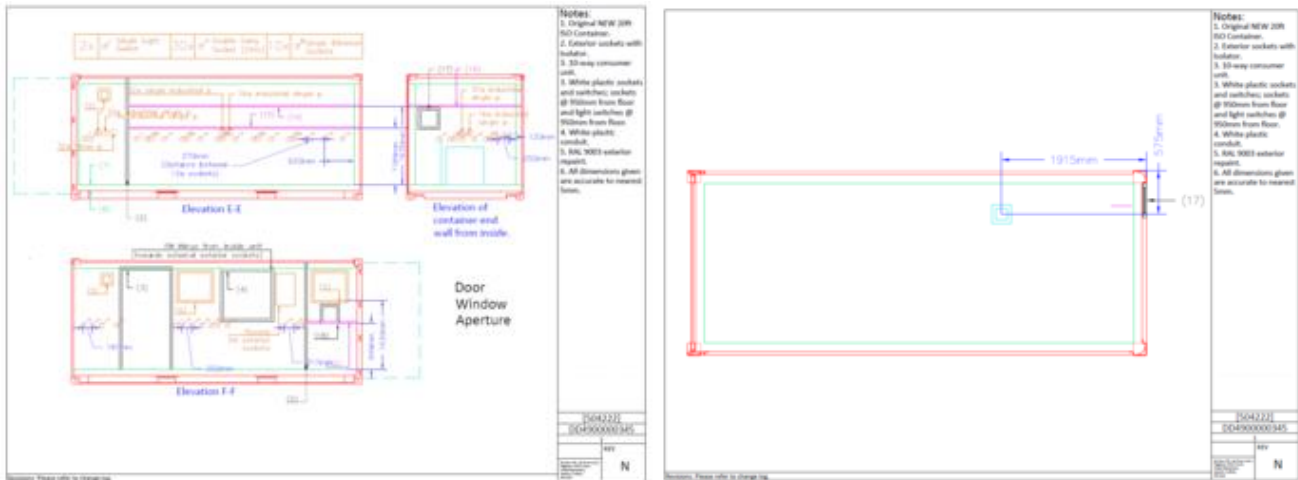


# IcePod - Specifications and Schematics



1. Anti-rust steel standard ISO 20' shipping container with external dimensions: 20ft long x 8ft wide x 8.5ft high. Exterior of container painted white with durable marine specification paint. Double doors fitted on one end (width: 2300 mm). Doors fitted with high security lock box (Padlock Enclosure).
2. Steel bulkhead fitted inside the container, featuring double doors with viewing panels in each door. Doors securable when shut. Door total width 1900mm wide (6' 3"). The bulkhead will create a vestibule space 914 mm in length.
3. A single steel man egress door with 10 point locking system and emergency pushbar is fitted to the inside wall of container to marine specifications.
4. UVPC tilt and turn window (1000x1000 mm) complete with a steel security shutter in container wall.
5. Temperature control: The container is designed to maintain internal climate control when subjected to a wide range of external temperatures (from -20°C to +35°C). Fixed Dantherm® high efficiency air conditioning unit(s)- heating or cooling with thermostatic inverter controls are fitted. The container interior is kept at 20 ±2°C. Air conditioning is provided at both sides of bulkhead. Air conditioning units can be moved into the container, so that they don't protrude during shipping.
6. Ventilation: Air ventilation ducts to meet code requirements for occupied spaces are fitted
7. Interior of container insulated with melamine insulation. The interior is finished in a wipe clean hard wearing surface.
8. The floor is raised and insulated (to meet the temperature control requirements). Marine plywood flooring internally (anti-rot) is also fitted. Container floor can withstand individual equipment loads of up to 2000 kg.
9. Wooden floor is overlayed with black, wipe clean floor covering.
10. Centre of container roof capable of withstanding loads of up to 300 kg.
11. Pipe/cable tray support running the along the length of both long walls and one short wall. This is for attaching and supporting pipework and cables. It is 30 cm tall at a height of 1.5 m.
12. Pipework entry port in bulkhead at 1.3 m in left hand side when facing the entrance. L x H of 50 mm.
13. A two gas cylinder (L-sized) rack holder (BOC part no. 871002) is securely attached to the steel body of the container. Sited in the vestibule on the wall to the right (facing the main entrance to the container). An entry port for pipework connecting to cylinders is placed in the bulkhead at a height of 1.3 m.
14. Wall mounted cargo load track and tracking rings on the two long walls and one short wall. Two sets, one at 80 cm height and the other at 190 cm height.
15. 12 spring loaded lashing rings recessed in to floor for securing above loads whilst container in transit.
16. Aperture in container roof (350 x 350 mm) to allow for aerosol sampling inlet.

17. Recessed gland plate (up to approx. 350mm x 350mm) at the back of the container is fitted for an additional aerosol inlet pipe. Removable weatherproof cover plate for shipping/when not in use.
18. Recessed gland plate in vestibule for pump exhaust. This pipework is removed during shipping. Removable weatherproof cover plate for shipping/when not in use.
19. NICEIC certified electrics fitted. Container is capable of using either 3-phase or single phase external supplies. The total distribution capacity is 180A (3-phase external supply) or 60A (Single Phase external supply).

The electrics comprise three internal ring mains (sockets specified below) each with RCBO protection. A 12-way 3-phase distribution board is fitted. Rotary isolator switches are also fitted.

1. Current and voltage monitoring on each phase is provided.
2. Surge suppression on incoming supply is provided for all ring mains.
3. Sockets fitted include: 3 x 32A Industrial Sockets + 3 x 16A industrial Sockets + 1 x 32A/phase three phase industrial socket. 30 x double-gang power sockets are also placed in Dado trunking evenly spaced around the outside of the container interior.
4. Ethernet wiring with 10 connection points to 100 Mbit hubs with uplink capability are placed in Dado trunking evenly spaced around the outside of the container interior. Weatherproof cable entry ports fitted.
5. 4 x Twin 5 foot Lights with energy saving bulbs. Emergency lighting also provided, incorporated into normal lighting fixtures using emergency battery ballast.
6. 5 KVA APC Uninterruptible power supply (APC Smart-UPS SRT 5000VA 230V).
7. Container is CSC certified for international shipping.

#### **Core Equipment for Aerosol and Ice Nucleating Particle Profiling**

1. PM10 inlet head fitted (URG Corp., flow rate = 32 LPM)
2. Subsampling pipework isokinetically splits main aerosol inlet to four separate lines
3. Flow rate control provided by automated mass flow control system (MKS inc.)
4. Scanning Mobility Particle with non-radioactive neutralizer Sizer (TSI SMPS, model 3938) to provide aerosol size distributions from 10 – 1000 nm.
5. Aerodynamic Particle Sizer (TSI Model 3321) to provide high resolution, real time particle size distributions from 0.5 – 20 microns.
6. Microlitre Nucleation by Immersed Particle Instrument ( $\mu$ L NIPI) for quantification of ice nucleating properties of sampled aerosols
7. Laminar flow cabinet to allow for clean handling of filters.