



Transfer Under Pressure

Dive system



Ordering information

Transfer Under Pressure (TUP) dive system

Please contact IHC Hytech for more information

Transfer under pressure (TUP) is an intervention method used in non-saturation diving shallower than 50 msw, where the divers are transferred from their working depth to a surface decompression chamber in a closed bell maintaining pressure greater of equal to the first decompression stop.

By removing in-water decompression stops, surface intervals and recompression, TUP is generally considered as a healthier, safer and more efficient alternative to traditional surface oriented air/nitrox diving techniques (in-water decompression-stops).

The IHC Hytech TUP dive system is intended to be used as an air/mixed gas/heliox diving system for two divers, of which one is the bell man, using a closed diving bell. The TUP bell is used to deploy both divers to the working depth whilst the divers are inside the closed bell.

When at depth the bell hatch can be opened and diver one can exit the bell to perform the required work. Following completion of the dive, diver one enters the TUP dive bell pressure compartment, following this the divers close the pressure compartment using the pressure tight hatch.

The TUP dive bell is raised to the surface using the TUP dive system a-frame handling system. The TUP dive bell is docked onto the TUP wet pod (by interaction with the handling system), the interlocking clamping mechanism is activated and then the divers can enter the system TUP wet pod. From there on they can enter the main chambers of the decompression chamber system or the additional decompression chamber system.

The diving depth of the bell, the wet pod and the complete decompression chamber system are rated to 80 msw.

Contents of a typical TUP dive system

TUP dive bell

- Vertical single lock pressure chamber with hemispherical heads.
- Fitted with pressure compartment of ca. \varnothing 1.750 mm x 2.500 mm @ 4,75 m³.
- Fitted with bottom entry door \varnothing 800 mm c/w pressure tight castellated hatch.
- Fitted with bell protection frame and clump weight wire guide arrangements.
- Fitted with breathing gas emergency supply cylinders, 5 bottles 50 litres @ 200 bar.
- Fitted with O₂ make-up supply cylinder, one bottle of 50 litres @ 200 bar with small make-up bottle.
- Fitted with other equipment, like view ports, in-chamber BIBS-system, communication system, battery emergency power supply, diver umbilical's, gas supply and distribution system, CO₂ scrubber system, heater system, hot water distribution system, lighting and camera system

TUP dive bell A-frame handling system with winch skid

- Fitted with main TUP dive bell lift winch, SWL ca. 9.250 kg with 100 meters wire capacity.
- Fitted with clump weight lift winch, SWL ca. 2.250 kg (total) with 200 meters wire capacity.
- Clump winch capable of emergency lift of TUP dive bell, SWL ca. 11.500 kg (total).
- TUP dive bell lifting speeds are up to ca. 15 m/min in water with main winch.

TUP bell docking trunk and clamping system

- Docking trunk, connecting the TUP dive bell pressure compartment with the TUP wet pod of the complete decompression chamber system, bolted.
- Diameter of the trunk is \varnothing 800 mm.
- Fitted with clamping system to connect trunk with the TUP dive bell.



Complete decompression chamber

- Horizontal quadruple lock decompression chamber with flat wall heads, fitted with:
 - o TUP wet pod lock: Pressure compartment of ca. \varnothing 2.000 mm x 2.100 mm @ 6.6 m³. Designed for two persons.
 - o Main chamber lock A: Pressure compartment of ca. \varnothing 2.000 mm x 2.200 mm @ 6.9 m³. Designed for two persons.
 - o Main chamber lock B: Pressure compartment of ca. \varnothing 2.000 mm x 2.200 mm @ 6.9 m³. Designed for two persons.
 - o Entrance lock: Pressure compartment of ca. \varnothing 2.000 mm x 900 mm @ 2.8 m³

Decompression chamber system support frame

- Consists of a rectangular steel beam / hollow section structure with lifting lugs.
- General dimensions are ca. 9.000 mm x 3.500 mm x 3.500 mm.
- Structure is fitted with container corner blocks at applicable positions to enable fixture to the barge or fixture/connections of other system components.

Additional decompression chamber

- Horizontal single lock decompression chamber with flat wall heads, fitted with:
 - o TUP wet pod lock. Pressure compartment (as part of complete additional chamber) of ca. \varnothing 2.000 mm x 1.300 mm @ 4.0 m³. Designed for two persons.
 - o Main chamber lock C. Pressure compartment (as part of complete additional chamber) of ca. \varnothing 2.000 mm x 2.200 mm @ 6.9 m³. Designed for two persons.





Additional decompression chamber system support container

- Standard 20 ft container fitted with lifting lugs.
- Fitted with the remote complete decompression chamber system controls.
- Fitted with chamber local control console.
- Fitted with a division wall between control and equipment section.
- Fitted with an electrical distribution and control cabinet.

Interconnecting chamber trunk

- Trunk interconnecting the space between the complete decompression chamber system and the additional decompression chamber system.
- Internal diameter \varnothing 700 mm, length approximately 1.250 mm.

Decompression chamber control container

- Standard 20 ft container fitted with lifting lugs. Fitted with the remote complete decompression chamber system controls.
- Fitted with a window for daylight entrance, window also functions as an escape hatch.
- Fitted with chamber control consoles.
- Fitted with a division wall between control and equipment section.
- Fitted with an electrical distribution and control cabinet.
- Fitted with decompression chamber internal heating/cooling supply equipment.
- Fitted with domestic water supply units.

TUP bell dive control container

- Standard 20 ft container fitted with lifting lugs.
- Fitted with the TUP dive control.
- Fitted with the TUP dive bell a-frame handling system controls.
- Fitted with a gas distribution manifold.
- Fitted with an electrical distribution and control cabinet.
- Fitted with divers hot water machines (2 pcs.) and distribution manifold.

General specifications

System ambient design temperature:

+5°C - +35°C

System deployment system additional criteria:

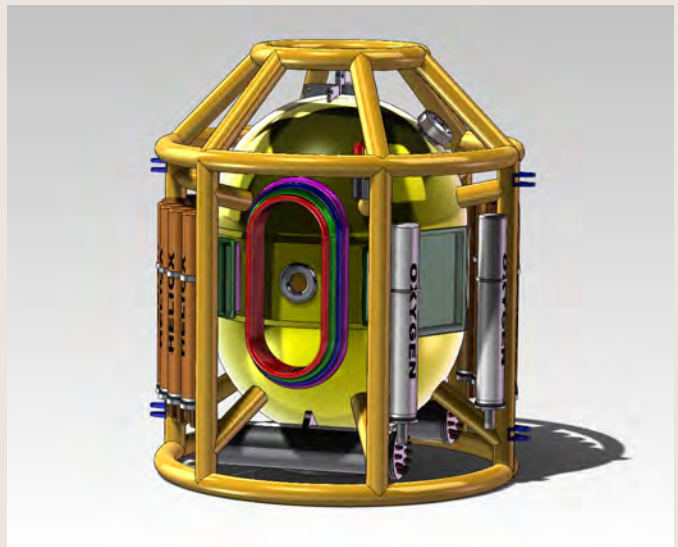
Significant wave height = 1,6 meter

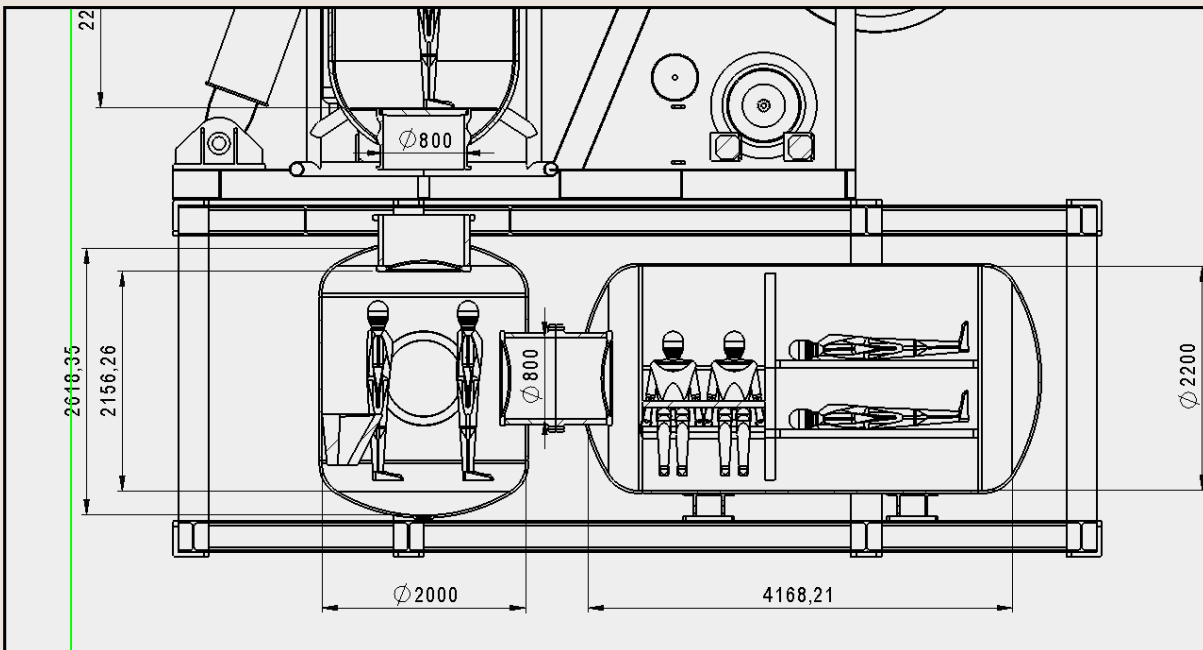
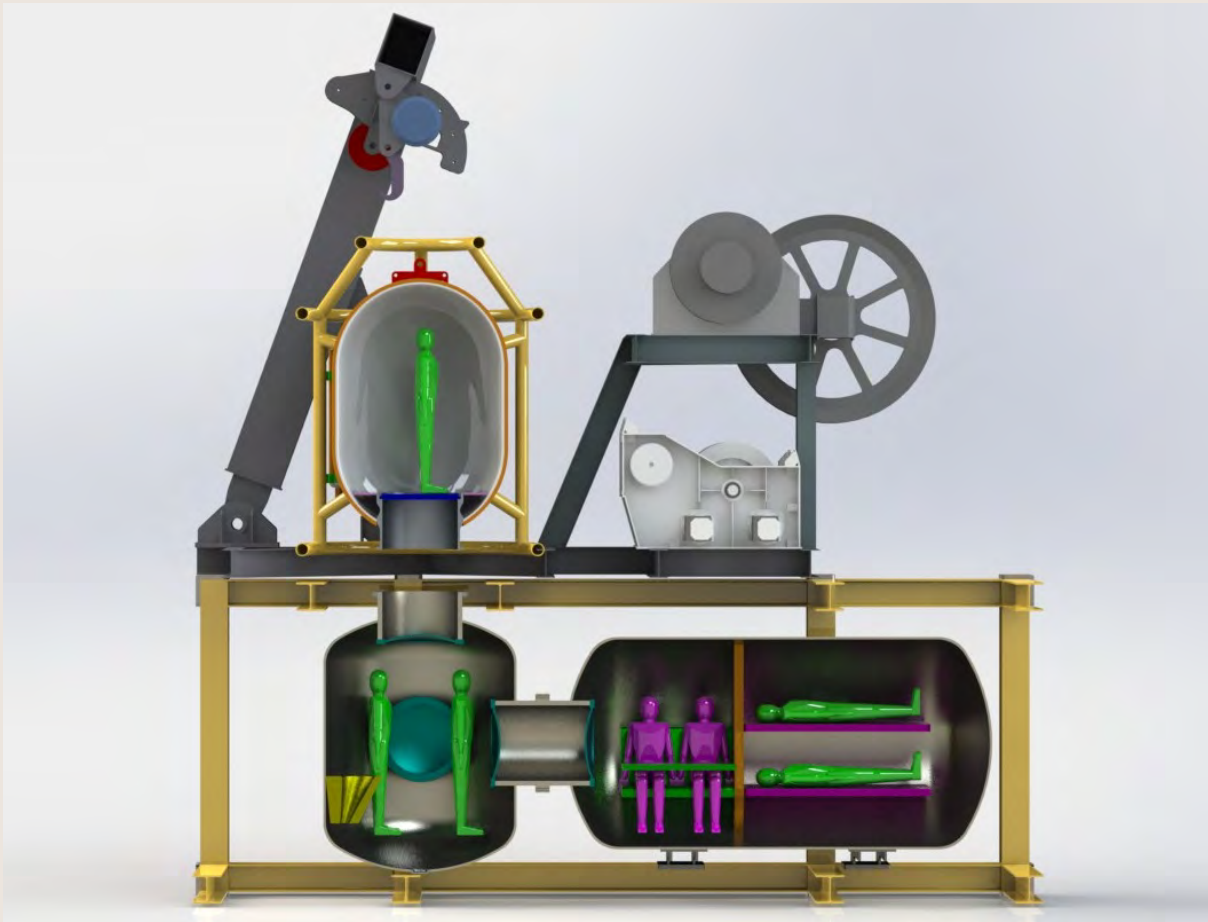
Sea state 3 (Beaufort 4)

System power supply:

440 VAC @ 60 Hz

230 VAC @ 60 Hz





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