

DART and ATEL



DART Diver Attendant Recompression Chamber
ATEL Attachable Transportable Entrance Lock

IHC Hytech is the designer of a small lightweight decompression chamber – the DART. This type of transportable decompression chamber is large enough to accommodate two people (one patient and one attendant). Due to its special shape and size, the DART is spacious enough to allow extended transportation or treatment times if necessary. Compact and lightweight, the DART is ideal for transferring divers under pressure to a hyperbaric medical facility. It is fitted with a rotating STANAG male flange, which allows it to be connected to a large number of hyperbaric facilities. It is also possible to use adaption flanges to connect the DART to hyperbaric facilities using other connection flanges.

The ATEL is an additional chamber compartment, which can be used in combination with the DART, allowing the attendant entry to the DART. The ATEL is provided with a special STANAG female flange, which makes it possible to link the ATEL to the DART, creating a two-compartment chamber.

The DART & ATEL can be installed in an ISO standard container.





Specifications	DART	ATEL
Capacity	Maximum 2 persons, 1 attendant and 1 patient on the stretcher	1 person
Working pressure	5.13 bar = 50 msw (165 fsw)	
Test pressure	7.7 bar = 75 msw (247,5 fsw)	
Overall length in mm (inch)	± 2,300 (93.55)	± 975 (38.39)
Length including skid in mm (inch)		± 1,705 (67.13)
Maximum inner diameter in mm (inch)	± 1,190 (46.85)	± 1,200 (47.24)
Width in mm (inch)	± 1,342 (52.83)	± 1,360 (53.54)
Height in mm (inch)	± 1,410 (55.51)	± 1,580 (62.20)
Volume	± 1.15 m ³ (1,150 liter)	± 1 m ³ (1,000 liter)
Diameter of door in mm (inch)	± 660 (25.98)	
Free opening of STANAG flange in mm (inch)	± 660 (25.98)	
Diameter supply lock in mm (inch)	± 168 (6.61)	-
Internal length supply lock in mm (inch)	± 230 (9.06)	-
Viewport free diameter in mm (inch)	± 140 (5.51)	
Length of stretcher in mm (inch)	± 2,000 (78.74)	-
Weight without cylinders and options in kg (lbs)	± 350 (772)	
Weight max. including occupants in kg (lbs)	± 600 (1,322.78)	± 450 (992)
Design temperature	± 0 - 50°C	
Depth gauge	Direct drive, dual scale, 0.25 % accuracy	
Flange type	STANAG (male)	STANAG (female)
Breathing medium	Oxygen (product group 1)	
Chamber medium	Air (product group 2)	
Deflector caps	All exhausts lines and the safety valve on the inside	
Silencers	All supply lines on the inside and all exhausts on the outside	
Cabling	An interface power cable of 4 meter is supplied to connect the 24 VDC electrical system to a 24 VDC external power supply	
Material (standard)	Seawater resistant aluminum / AlMg4.5Mn	
Material (components)	AlMg4.5Mn, as well as Stainless Steel	
Approval	Lloyds Register, Germanischer Lloyds, TÜV, DNV	



The technology innovator.

Basic features of the DART/ATEL

- Stretcher for patient with securing straps (DART)
- Collapsible seat for attendant
- Internal lighting system
- Communication system
- BIBS (build in breathing system) with oxygen make-up and overboard dump system
- Supply lock with safety interlock device
- Control panel including: depth gauge, flow meter, communication unit.
- Rotating male (DART) or female (ATEL) STANAG flange for easy connection to other hyperbaric facilities (DART)
- Lifting eyes with slings
- View ports
- All controls for pressurisation (air inlet/outlet)
- Cylinder support
- Transport wheels with locking system
- Emergency communication knocking system
- Battery pack

Optional features of the DART/ATEL

- Canvas cover to protect against rain and other environmental effects
- BIBS masks
- CO₂ scrubber and sofnolime
- Oxygen/CO₂ analyser combined with relative humidity and temperature readout
- Data recording system
- Cooling system for the DART containing one small petrol driven electrical generator, cooling system (external cold water system and internal cooling exchange unit)
- Portable fire extinguisher
- High-pressure compressor
- Transportable high pressure cilinder packages (oxygen and air cilinder packages)
- First aid kits
- Dräger Accuro tube pump
- Caisson indicator
- Digital countdown timer
- Electrical penetrator for internal therapeutic data monitoring
- Laptop

O₂ make-up

Divers bodies use oxygen for their metabolism. This oxygen used by the occupants must be replaced. If the oxygen level in the chamber becomes too low, the operator can add oxygen to the atmosphere using the O₂ make-up valve.

Opening this valve will add oxygen to the chamber atmosphere. The air flow through the scrubber will ensure the added oxygen mixes quickly with the chamber atmosphere.



Control

The DART control panel includes:

Flow meter (chamber flushing flow rate and flow rate analyser), adjustment valve for the flow rate of the analyser, (digital) dept gauge, pressure gauge (air supply 1 & 2 and oxygen supply), communication set with headset, datalogger, temperature control, notebook and lifehammer (back-up communication system)



Air supply

There are four connections for the gas supply: air supply 1 & 2, oxygen and gate insulation valves

Air supply:
The DART can be used in combination with high or low pressure breathing air supply. The DART has two separated air supply systems, making it possible to exchange air supply bottles without having to interrupt air supply to the chamber.



Scrubber

During use of the chamber, oxygen (O₂) will be converted to Carbon Dioxide (CO₂). An atmosphere with a high level of CO₂ is harmful for the occupants.

By using a CO₂ scrubber the air consumption can be reduced to a very low level, which is a great advantage while transporting the DART.

The CO₂ scrubber has been mounted inside the chamber, under the stretcher.

