

Kinergetics Chamber Conditioning Unit

(CCU-07)



Introduction

The Divex Chamber Conditioning Units, CCU-07 has been designed for use in hyperbaric environments, both air and heliox, for temperature and humidity control. It is rated to depths of 500msw and forms part of the extensive range of Divex hyperbaric environment conditioning equipment. The CCU-07 has been designed for heating and atmosphere sweetening (odour removal).

The unit may be mounted in any convenient space within the chamber where an even flow of circulating gas can be ensured, usually below chamber bunks. Flexible ducting may be added to the blower outlet to ensure adequate circulation or to direct circulation into the required areas. Interconnecting fluid supply pipework, shell stop valves, chamber temperature/humidity monitoring equipment and fluid temperature control systems are not specified as these will tend to be unique for each application. The end-user should ensure these items are provided and installed to acceptable standards.

Required Services and Consumables

For the CCU-07, heated fluid, electrical power and activated carbon granules are required.

Main Components

Components contained in the Chamber Conditioning Units include:

Coil Assembly

Heating and cooling coils fitted to common end plates forming a single coil assembly, mounted inside the heat exchanger box. Chamber atmosphere first passes through the cooling coil and then through the heating coil.

Heat Exchanger Box

Encloses Heat Exchanger Assembly. Mounted onto Plenum or Duct Assembly.

Plenum or Air Duct Assembly

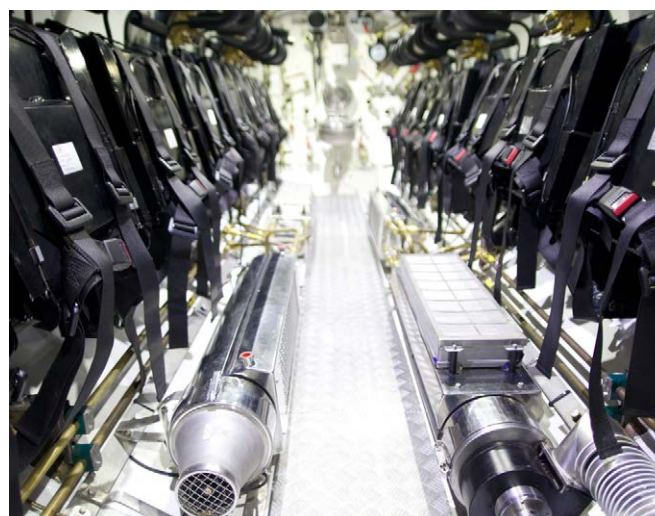
Positioned between the Heat Exchanger Assembly and the Blower Assembly and includes Mounting Brackets.

Blower Assembly

Produces the flow of breathing gas and includes electric motor.

Carbon Filter Assembly

Provided with fine wire mesh screen in top and bottom halves of assembly to house activated carbon granules. Is secured onto the front of the Heat Exchanger Box on the CCU-07.





Heating

When heating is required, fluid, usually heated to $\pm 60^{\circ}\text{C}$, is directed through the CCU Heater Coil. When heated fluid passes through the heater coil, heat is transferred to the breathing gas as it flows through the Heat Exchanger. Additionally, breathing gas that has been cooled to remove humidity can be re-heated to the required temperature as it passes through the heater coil. Again, hot and cold fluid flow rates must be controlled to achieve this and this control may be automatic or manual.

Environmental Control for CCU-07 Heating

During installation the two coils within the CCU-07 must be connected to create a single coil circuit and, depending on space and the adjacent equipment, any of the ports may be used for this joint.

When heating is required, fluid, usually heated to $\pm 60^{\circ}\text{C}$, is directed through the coil. When heated fluid passes through the coil, heat is transferred to the breathing gas as it flows through the heat exchanger. The hot fluid flow rate must be controlled to achieve the required heating inside the chamber and this flow control may be manual or automatic.

Breathing Gas Flow

Breathing gas enters the CCU-07 through the carbon filter assembly, moves through the heating coil, through the blower and is then circulated back to the chamber.

Specification

General	
Electrical Requirements	24 VDC, $\pm 7.8\text{A}$
Air Volume Moved	Up to $10\text{m}^3/\text{min}$
Heating Capacity* (with both coils connected in series)	625W @ 0msw 5000W @ 100msw 9600W @ 300msw Heliox
Heating Liquid Requirements	25 ltrs/min @ 60°C
Coil Construction	Copper fins, Stainless Steel tubes and end plates
Housing & Blower Assembly	Gr. 316 Stainless Steel
Heating Fluid Ports	n/a $1/2"$ NPT (F)
Coil External Pressure Test	65 bar (Hydro)
Assembly Leak Test	50 bar (Helium)
Required Mounting	Can be mounted in any orientation
Suggested Scrubber	Activated carbon granules
Sweetner for Carbon Filter	Divex p/n CM001 (10kg drum)

* These are calculated values that need to be verified by testing in hyperbaric environments.



Order Codes

Kinergetics Chamber Conditioning Unit
(CCU-07)
KI40054

KI-MDS-571 R1