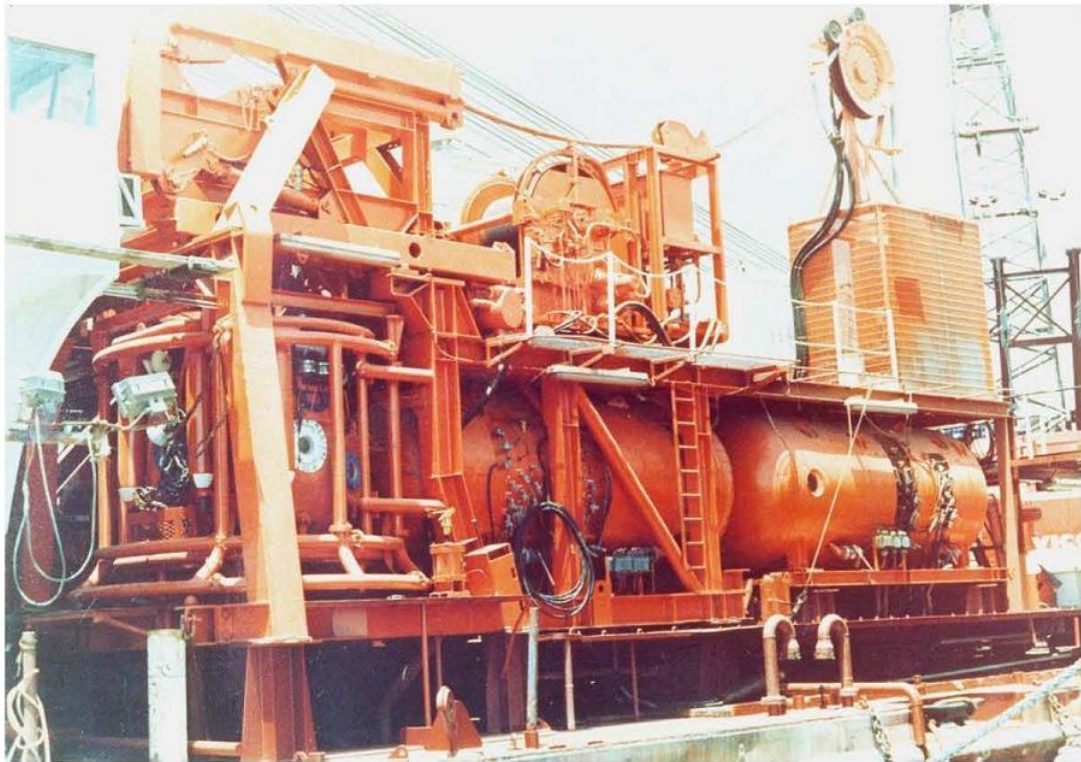




# UNITED DIVERS PVT. LTD.



## Specifications of SA - 600 (Portable 6 Man Saturation Diving System)

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## **1. INTRODUCTION**

This document describes the UDPL owned Six (6) Man Saturation, 2 Man Bell Diving System after its September 09 refurbishment to bring it in line with all International Marine Contractor's Association (IMCA) standards.

It is the responsibility of the Asset Manager to keep this document updated.

## **2. GENERAL**

The lightweight, 200m deep diving system named "SA 600 6 – Man Saturation Diving System" is designed to enable 2 divers to work at depths of 150-200m in Saturation Dive Technique.

The equipment includes a 4 Man living chamber, a closed diving bell, a gantry launching frame and lifting winch, two constant tension winches, two machinery vans containing two gas regeneration units and a dual divers hot water unit and a diving /Life Support control cabin. The system also includes a Hyperbaric Rescue Chamber, which also doubles up as a two man living chamber and a Hyperbaric Rescue Chamber Control Van. The "6-Man Saturation Diving System (SA 600)" system, due to its compactness can be very easily and rapidly installed on board ships or rigs.

## **3. SPECIFICATIONS**

### **3.1 MAIN PARTICULARS AND FEATURES**

Name	:	SA 600
Owner	:	United Divers Pvt. Ltd.
Certification	:	Various, a Combination of ABS and Lloyds
Location	:	Singapore
<b>Saturation Diving System</b>	:	
Configuration	:	2 Main Modules + Sundry items
Design Rating	:	200 MSW
Depth Rating	:	200 MSW
Manning Level	:	6 Divers
Chamber Complex	:	2 x Living Chambers
	:	2 x Transfer Chambers
Diver Rescue	:	8 Man Hyperbaric Rescue Chamber
Diving Bell (Side Mating)	:	2.8 Cu Mtr 2 Man Diving Bell
System Floodable Volume (aprox)	:	26 Cu Mtr
Bell Deployment Frame	:	Fully articulated, Suitable for Moonpool or Over the Side
Bell Handling System	:	Electro Hydraulic
Emergency Bell Handling	:	Hydraulic
Diver Heating	:	Electrically Powered (Calorifier)
Diver Gas Recovery	:	Yes
ECU Systems	:	External

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Life Support Package (LSP)	:	Containerised, c/w Heating, Cooling, Gas Management etc.
Gas Management System	:	N/A
In Built Gas Storage	:	N/A

### **3.2 TECHNICAL CHARACTERISTICS**

This main module groups together on the same platform consisting of a 30 bar decompression chamber, a 300 meter diving-bell (presently downrated to 200 meters) and its handling and lifting systems. It also contains a second two man living chamber which also doubles up as an eight man HRC for diver rescue in times of emergencies. It also includes all ancillary equipment to safely carry out extended saturation diving operations.

#### **3.2.1 Diver Transport**

The SDC is a 200 meter diving-bell with an internal and external working pressure of 20 bars. The bell mates onto the chamber by horizontal hub, divers' exit via vertical hub. Electrical supply and communications are provided by means of the Electro mechanical cable in the main bell umbilical. Gas is supplied by means of the main bell umbilical with back up gas supplied from 8 onboard gas cylinders mounted on the outside of the diving-bell. Hot water can be supplied from the surface for divers hot water suits Electrical heating of the divers' suits.

#### **3.2.2 Hyperbaric Rescue Chamber and Control Van**

The system includes a Hyperbaric Rescue Chamber and a separate Control Van which is embarked on a separate standby vessel or on land if close enough. The HRC CV provides the facility to manage the HRC when it has been deployed. It contains the necessary panels, communications and analysis equipment to be able to monitor and control the decompression of divers and to control the environment inside the HRC. It also contains the hoses and interconnect cables required to mate with the HRC. The system also requires that sufficient gas is stored with the HRC CV to enable treatment and decompression of the divers.

The HRC is monitored in normal operations through the Saturation CV and can be deployed by a number of means including a gravity deployment system if the height is not too great or by crane.

#### **3.2.3 Compression and decompression**

Internal working pressure of chamber is 30 bar. Internal diameter 1,800mm x length 3,800mm. Main chamber contains four beds. The decompression chamber is equipped with two separate control panels (one for the main chamber and one for the lock) for the gas, power and communications systems. The mating of the diving-bell to the decompression chamber is carried out by a manual clamp with a pneumatic safety interlock that prevents accidental removal of the clamp and depressurization of the bell and or chamber hydraulic clamp.

The second living chamber consists of two bunks. The mating of the first chamber to second chamber is carried out with a clamp in a similar manner as stated above.

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### **3.2.4 Handling System**

The diving-bell is transferred from the decompression chamber to the dive position by means of a Gantry launching system. The gantry double folds by two pair of hydraulic cylinders to launch and and recover the bell. The hydraulic lifting winch of 7 T has a speed of 20m/min. The diving-bell is guided by guide lines maintained in constant tension by pneumatic winches.

### **3.2.5 Standard Equipment**

The system comes complete with a colour video system with video overlay, full analysis capability, a complete array of helium unscrambler radios for diving and life support functions as well as a full range of tools and spares for the system equipment.

### **3.2.6 Support Service Requirements**

Main Power : 440v x 50 / 60 Hz x 350 kVA  
 Emgy Power : 440v x 50 Hz x 250 kVA:  
 Utility Air : 500 CFM @ 6 Bar:  
 Salt Water : 60 ltrs/Min @ 3 Bar Min:  
 Potable Water: 25 ltrs/min for short periods through the day  
 Hook up to Vessel: Phone, PA, Vessel Alarms Etc:

### **3.2.7 Principle Dimensions**

Main Module:	6.65m L x 2.5m W x 3.8m H x 21 tonnes
Second Living Chamber / HRC:	4.5m L x 2.5m W x 2.8m H x 11 tonnes
Control Van:	6.4m L x 2.4m W x 2.4m H x 5 tonnes
Machinery Van 1: (Regeneration Units)	6.4m L x 2.4m W x 2.4m H x 11 tonnes
Machinery Van 1: (Hotwater Units, chiller units And Diver Gas Reclaim Unit)	6.4m L x 2.4m W x 2.4m H x 5 tonnes

## **4. SPECIFICATIONS**

- Road transportable
- 200mtr Capability
- Facilities for 6 divers
- 2 x Living Chambers
- 2 x Transfer Chambers
- 8 man Hyperbaric Rescue Chamber
- 2 Man diving Bell
- Electro Hydraulic Bell Handling System
- Pneumatic Emergency Bell Handling System
- Diver Heating Electric Calorifier
- Diver Gas Recovery. Air Powered Gas Reclaim System
- Power and Services Required

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## 5. BASIC LAYOUT OF THE SYSTEM

