ENGINEERING DEPARTMENT



QUALITY ASSURANCE

**QUOTE PREREQUISITES**

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| ***Checker:*** *HSEQ Dpt.* | **Panagopoulou, Helene** |
| ***Approver:*** *Admin Dpt.* | **Maroudas, Georgios** |

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**Brief History**

**Marex Subsea Welds Ltd** is engaged in Underwater Coded Wet & Dry Hyperbaric Welding Operations in the areas of in Naval, Civil & Mechanical Engineering, with experience of over 20 years globally.

The workforce consists of H.S.E. Divers-Technicians, specialized in Hyperbaric Dry & Wet Welding and qualified Engineers entrusted with the Design, Planning and Management of each project.

The Company has a wide spectrum of Surface Supply Containerized Diving, Welding and NDT Equipment. Depending on the project’s demands, a build-in water tank at Marex facilities serves the Client’s needs for an In-Water Demonstration and the development of Welding Method Statement (pWPS, PQR, WPS etc.), project-based, if deemed necessary.

The Company primarily complies with and operates under H.S.E. “Diving at Work Regulations 1997”, IMCA Regulations and/or OGP Rules 411.

Regarding enforcement procedures for Hyperbaric Welding, Company follows **EN 15618-1 & AWS D3.6M** standards. In addition, Company has "Certified Divers Welders for Hyperbaric Wet-Welding in accordance with **EN 15618-1 Class I Type of Welds B, C & D such as AWS D3.6M Class A & B of Welds"**

Marex Subsea Welds Ltd uses exclusively as a Welding Consultant **Mr. David Keats** under the trademark of **WeldCraft-Pro**.

Marex Subsea Welds Ltd received its **ISO 9001:2015** certificate for its Quality Management System between others on the fields of **Coded Hyperbaric Welding (Dry & Wet) Services, Development and Approval of Welding Procedures**.

Marex Subsea Welds Ltd **is an approved Diver-Welder** **Training Center by ABS Maritime Training**.

# Glossary of Terms

Several specialized terms are used in this document. It is assumed that readers are familiar with most of them. However, many of them, although in use for many years, could be misunderstood. These terms are defined below to ensure that readers understand what is meant by them in this document.

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| **ALST** | Assistant life support technician |
| **Certification** | A document that confirms that a particular test or examination has been carried out or witnessed at an identified time on a specific piece of equipment or system by a competent person |
| **Classification** | A diving system built in accordance with a classification society’s own rules, can, at the owner’s request, be assigned a class |
| **Company medical adviser** | A nominated diving medical specialist appointed by a diving contractor to provide specialist advice |
| **Competent** | Having sufficient training or experience (or a combination of both) to be capable of carrying out a task safely and efficiently |
| **DCI** | Decompression illness |
| **Deck decompression chamber (DDC)** | A pressure vessel for human occupancy which does not go under water and may be used as a living chamber during saturation diving, diver decompression or treatment of decompression illness. Also called compression chamber, recompression chamber, deck chamber or surface compression chamber |
| **Dive plan** | A plan prepared for each dive or series of dives to brief the diver(s) about the work to be undertaken including the necessary safety precautions to be taken |
| **Diving project plan** | Documents and information available on-site at a diving project and should include mobilisation and demobilisation plans, the diving technique/procedures to be used, step-by-step diver work procedures, identification of hazards and control and contingency procedures for any foreseeable emergency |
| **Diving system** | The whole plant and equipment for the conduct of diving operations |
| **Diving bell** | A pressure vessel for human occupancy which is used to transport divers under pressure either to or from the underwater work site. Also called closed diving bell or submersible decompression chamber |
| **Diving medical specialist** | A doctor who is competent to manage the treatment of diving accidents, including, where appropriate, mixed gas and saturation diving accidents. Such a doctor will have undergone specialized training and have demonstrated experience in this field |
| **DMAC** | Diving Medical Advisory Committee |
| **DP** | See Dynamic Positioning |
| **DPO** | DP operator. This is an individual who operates the dynamic positioning system |
| **DSV** | A diving support vessel (DSV) whose primary role is the support of diving operations |
| **Dynamic positioning (DP)** | A system that automatically controls a vessel’s position and heading bymeans of thrusters. A typical DP system consists of a control system (including power management and position control), reference systems (such as position, heading and environmental references) and power systems (including power generation, distribution and consumption) |
| **Fixed diving system** | A diving system installed permanently on a vessel or fixed/floating structure |
| **FMEA** | Failure modes and effect analysis. This is a methodology used to identify potential failure modes, determine their effects and identify actions to mitigate the failures |
| **Habitat** | An underwater structure inside which diver can carry out dry welding and which is fitted out with life support facilities |
| **HAZID** | Hazard identification |
| **HAZOP** | Hazard and operability study |
| **HES** | Hyperbaric evacuation system |
| **HIRA** | Hazard identification and risk assessment |
| **HRC** | Hyperbaric rescue chamber |
| **HRV** | Hyperbaric rescue vessel (hyperbaric lifeboat) |
| **JSA** | Job safety analysis. Also called SJA (safe job analysis), JHA (job hazard analysis), TRA (task risk assessment) |
| **Lift Bag** | A bag which is filled with air or gas to provide uplift to an underwater object. Often used for lifting purposes by divers |
| **Lock-off time** | The time at which a diving bell under pressure is disconnected from the compression chamber(s) on deck |
| **Lock-on time** | The time at which a diving bell under pressure is reconnected to the compression chamber(s) on deck |
| **LSP** | Life support package. A portable package with gas and facilities for life support and/or decompression of saturation divers in an emergency |
| **LSS** | Life support supervisor |
| **LST** | Life support technician |
| **MOC** | Management of change. This is a process that needs to take place to revise an existing approved design/fabrication or work/installation procedure |
| **Medical examiner of divers** | A doctor who is trained and competent to perform the annualassessment of fitness to dive for divers. Medical examiners of divers may not possess knowledge of the treatment of diving accidents |
| **NDT** | Non-destructive testing |
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| **Risk assessment** | The process by which every perceived risk is evaluated and assessed. As part of the process control measures to be established to prevent harm before an operation commences should be identified. The findings and actions will be documented. A risk assessment is part of the risk management process |
| **ROV** | Remotely operated vehicle |
| **Standby diver** | A diver other than the working diver(s) who is dressed and with equipment immediately available to provide assistance to the working diver(s) in an emergency |
| **SWL** | Safe working load |
| **Toolbox talk** | A meeting held at the start of each shift or prior to any high-risk operation, where the diving supervisor and/or the diving supervisor’s delegate and shift personnel discuss the forthcoming tasks or jobs and the potential risks and necessary precautions to be taken |
| **Wet bell** | A basket with a closed top section which is capable of containing a dry gaseous atmosphere to provide a refuge for the divers. It is not a pressure vessel. A supply of spare gas will be carried on the wet bell. Also called an open bottom bell |

# Introduction

## General

## Scope

## Scope of Inquiry

# Prerequisites

## General

### Project Owner

*Please fill in with details*

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### Project Area, Location, Work Site etc.

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### Third Party

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### Classification Society

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### Structure/Vessel/Platform

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### Contractor

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### Diving Contractor

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### Diving Rules (OGP, IMCA etc.)

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### Welding Standard and Class of Welds

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## Project Requirements

### Working Depth

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### Water Type (Sea water/fresh water)

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### Parent Metal Specification (Thickness, steel certificate, chemical composition etc.)

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### Doubler Metal Specification (Thickness, steel certificate, chemical composition etc.)

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### Welding Position

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### Butt/Groove Weld – Fillet Weld (T Joint, Lap Joint, Corner Joint)

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### Is there a Welding Method Statement (WMS) available?

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### Is there a Welding Procedure Specification (WPS) available?

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### Is there a Welding Drawing available?

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### Description of Welding Scope

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## Diving

### Is there an existing Diving Project Plan?

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### Is there an existing HAZID?

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### Is there an existing Task Risk Assessment?

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### Is there an existing HSEQ?

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## MSSW can offer the following services

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| **PREPARATORY WORKS AND WELDING SERVICES*** Issuing of Preliminary Welding Procedure Specification (pWPS)
* Demonstration of the Welding Procedure (PWQR) witnessed by Third Party (ABS Register) and/or client’s representative. Demonstration will take place at Marex in-door Water Tank and will be performed by Certified Diver-Coded Wet Welder, Class I, Type B of Welds in accordance with EN ISO 15618-1:2016 and/or Class A, Type A of Welds in accordance with AWS D3.6M:2017
* Laboratory tests will be made under an accredited/certified Laboratory
* Issuing of Welding Specification Procedure (WPS)
* Welding Services On-Site

**DIVING PROJECT PLAN – METHOD OF STATEMENT & RISK ASSESSMENT*** Client Brief & Task Information
* Important Diving Summary
* Project Plan (as per Inland/Inshore ACoP)
* Method Statement
* Risk Assessment
* Emergency Arrangements
* Site Induction, Briefing & Pre-dive Checklist
* Management of Change Record
* List Personnel, Site Personnel and DPP Acceptance

**U/W WELDING PROCEDURE – HAZARD IDENTIFICATION & RISK ASSESSMENT REPORT*** Purpose
* Scope
* Introduction
* Operational Summary
* Abbreviations
* Hazard Identification & Risk Assessment Framework
* Definitions
* Identification of Hazards & Risk Assessment Methodology
* Risk Assessment
* Mobilization / Demobilization Activities
* Air Diving Intervention Activities
* Underwater Welding Activities

**QUALITY ASSURANCE & QUALITY CONTROL*** Management & Personnel
* Design
* Welding Procedures & Specifications
* Inspection & Testing Methods/Working Instructions
* Document plans and control
* Welding Inspection & Weld Data Record
* Calibration/system checks of inspection equipment
* Checking conformity/Suitability of Consumables
* **Issuing of a Welding Method Statement**

*(A full detailed procedure, methodology and drawings of weld profile, including Arc Energy, Heat Input, traveling speed; Volts, Amps and Wet Welding Techniques – part of the procedure – as well as the fitting procedure and methodology will be submitted upon contract awarded)* |