

# **REQUEST FOR QUOTATION**

## **RFQ # EST-2602-08 - Flooding & Air Vent Heads**

**Project:** Subsea Desalination Plant Installation Project, Med / Red Sea

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# 1. PROJECT OVERVIEW

## 1.1 Project Description

Installation of subsea desalination plant and associated infrastructure in the Med / Red Sea region. The project involves deployment of a 238.65 tonne manifold (per GWM-P13395-RP-002) using wet handshake methodology, installation of 231.8mm power umbilical 2×3100m with shore pull-in (per GWM-P13395-RP-003), and HDPE flowline installation using float and sink method (per GWM-P13395-RP-001).

## 1.2 Key Project Parameters

Parameter	Value
Water Depth	~600 meters
Manifold Weight	238.65 tonnes (in air)
Manifold Dimensions (L×B×H)	32.30m × 17.70m × 6.80m
Deployment Method	Wet handshake
Umbilical Type	Power umbilical
Shore Pull-In	Required
HDPE Flowline	710mm OD × 64.5mm WT, SDR11 PE100, 2857m length
Location	Med / Red Sea
Environmental	High temperature, high salinity marine

## 1.3 Scope of Supply

This RFQ covers Purchase of Flooding & Air Vent Heads required for the installation campaign.

# 2. TECHNICAL DESIGN BASIS

## 2.1 Applicable Standards

Standard	Description
DNV-ST-0378	Offshore and Platform Lifting Appliances
DNV-RP-H103	Modelling and Analysis of Marine Operations
DNV-RP-0360	Subsea Power Cables in Shallow Water
ISO 2408	Steel Wire Ropes for General Purposes
ISO 10425	Steel Wire Ropes - Characteristics and Specifications
ISO 16625	Sheaves - Design and Construction
EN 10025	Structural Steel Products
EN ISO 15614	Welding Procedure Qualification
AWS D1.1	Structural Welding Code - Steel

Norsok M-501	Surface Preparation and Protective Coating
IMCA M 187	Guidance on Safety During Subsea Operations
GWM-P13395-RP-002	Manifold Installation Analysis (Great Waters Maritime)
GWM-P13395-RP-001	HDPE Pipeline Float and Sink Installation Analysis (Great Waters Maritime)
GWM-P13395-RP-003	Umbilical Installation Analysis (Great Waters Maritime)

## 2.2 Design Factors

Factor	Value
Wire Rope Safety Factor (Lifting)	5:1 minimum
Wire Rope Safety Factor (Pulling)	3:1 minimum
Dynamic Amplification Factor (600m)	1.33 minimum
Brake Holding Capacity	150% of rated load minimum
Proof Load Test	125% of SWL
Structural Safety Factor (Yield)	1.5 minimum
Structural Safety Factor (Ultimate)	2.0 minimum
Sheave D/d Ratio (Heavy Lifts)	25:1 minimum for RR rope, 30:1 preferred

## 2.3 Environmental Conditions

Parameter	Value
Operating Temperature	-5°C to +55°C
Storage Temperature	-20°C to +70°C
Relative Humidity	Up to 100%
Atmosphere	Marine, high salinity, salt spray
UV Exposure	High (Red Sea latitude)
IP Rating (Electrical)	IP56 minimum
Coating System	Norsok M-501 Category 1 or equivalent

# 3. HDPE FLOODING AND VENT HEADS

## 3.1 General Requirements

Parameter	Specification
Description	Flooding and venting equipment for HDPE pipeline commissioning
Pipe Diameter	710mm OD HDPE, SDR11 PE100, 64.5mm WT
Function	Controlled flooding of pipeline and air venting
Pressure Rating	10 bar minimum (confirm with design)

<b>Quantity</b>	<b>1 set (flooding head + vent head)</b>
Procurement	Project-specific fabrication
Design Standard	DNV-ST-F101, project specifications

### 3.2 Flooding Head Specifications

Parameter	Specification
Type	Flanged flooding head with isolation valve
Connection	Compatible with HDPE flange or transition spool
Inlet Size	6" or 8" for flooding pump connection
Flow Rate	Sized for target flooding rate (confirm m <sup>3</sup> /hr)
Pressure Rating	10 bar minimum
Isolation Valve	Ball valve for positive shutoff
Pig Launcher	Optional pig launching capability
Material	Carbon steel, epoxy-coated or stainless steel

### 3.3 Vent Head Specifications

Parameter	Specification
Type	Flanged vent head with controlled air release
Connection	Compatible with HDPE flange or transition spool
Vent Size	4" or 6" vent outlet
Air Release	Automatic air release valve + manual vent
Pressure Rating	10 bar minimum
Isolation Valve	Ball valve for positive shutoff
Pig Receiver	Optional pig receiving capability
Material	Carbon steel, epoxy-coated or stainless steel