

	TECHNICAL SPECIFICATION					Nº: I-ET-3010.1M-5122-580-P4X-001			
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	JOB: REFERENCE BASIC DESIGN					1001056398 0010			
	AREA: BÚZIOS								
DP&T-SRGE	TITLE: FRESH WATER MAKER FOR OIL DILUTION					NP-1			
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PRELIMINARY

1 INTRODUCTION

This specification covers the minimum requirements for design, engineering, materials, fabrication, inspection, testing, commissioning and pre-commissioning of 2 x 100% **FRESH WATER MAKER FOR OIL DILUTION UD-5122002A/B** (Reverse Osmosis Type).

2 NORMATIVE REFERENCES

All equipment shall comply with the requirements of this technical specification and references stated below.

2.1 CLASSIFICATION

PACKAGER/ MANUFACTURER shall perform the work in accordance with the requirements of Classification Society.

PACKAGER/ MANUFACTURER is responsible for submitting to the Classification Society all documentation in compliance with stated Rules.

2.2 CODES AND STANDARDS

The latest editions of the following codes and standards shall be used as guidelines for design:

AISC ASD	Manual for Steel Construction
API 14 RP C	Recommended Practice for Analysis, Design, Installation, and Testing of Safety Systems for Offshore Production Facilities
API 610	Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries
API 614	Lubrication, Shaft-sealing and Oil-control Systems and Auxiliaries
API 671	Special-Purpose Couplings for Petroleum, Chemical and Gas Industry Services
ASME B16.5	Pipe Flanges and Flanged Fittings
ASME B31.3	Process Piping
ASME B73.1	Specification for Horizontal End Suction Centrifugal Pumps for Chemical Process
ASME BPVC VIII	Rules for Construction of Pressure Vessels
AWS D1.1	Structural Welding Code - Steel
IEC 60092-502	Electrical Installation in Ships – Tankers – Special Features.
IEC 61892-6	Mobile and Fixed Offshore Units – Electrical Installations – Installation
IEC 61892-7	Mobile and Fixed Offshore Units – Electrical Installations – Hazardous Area

2.3 GOVERNMENTAL REGULATION

NR-10	<i>Segurança em Instalações e Serviços em Eletricidade</i> (Safety in Electrical Facilities and Services/ Brazilian Labor Ministry Rules)
NR-13	Caldeiras, Vasos de Pressão e Tubulações (Boilers, Pressure Vessels and Piping/ Brazilian Labor Ministry Rules)
NR-26	Sinalização de Segurança (Safety Signaling/ Brazilian Labor Ministry Rules)
NR-37	Saúde e Segurança em Plataformas de Petróleo (Health and Safety on Oil Platforms / Brazilian Labor Ministry Rules)

Brazilian Government regulations are mandatory and shall prevail, if more stringent, over the requirements of this specification and other references herein.

2.4 DESIGN SPECIFICATIONS

DR-ENGP-I-1.15	COLOR CODING
DR-ENGP-M-I-1.3	SAFETY ENGINEERING

I-DE-3010.1M-5400-94A-P4X-001	AREA CLASSIFICATION – GENERAL
I-ET-3010.00-1200-251-P4X-001	BOLT MATERIALS
I-ET-3010.00-1200-540-P4X-001	REQUIREMENTS FOR PRESSURE VESSELS DESIGN
I-ET-3010.00-1200-540-P4X-002	REQUIREMENTS FOR PRESSURE VESSELS FABRICATION
I-ET-3010.00-1200-800-P4X-002	AUTOMATION, CONTROL AND INSTRUMENTATION ON PACKAGED UNITS
I-ET-3010.00-1200-955-P4X-002	REQUIREMENTS FOR WELDING INSPECTION
I-ET-3010.00-1200-956-P4X-002	GENERAL PAINTING
I-ET-3010.00-5140-700-P4X-002	SPECIFICATION FOR ELECTRICAL MATERIAL AND EQUIPMENT FOR OFFSHORE UNITS
I-ET-3010.00-5140-700-P4X-003	ELECTRICAL REQUIREMENTS FOR PACKAGES FOR OFFSHORE UNITS
I-ET-3010.00-5140-712-P4X-001	LOW-VOLTAGE INDUCTION MOTORS FOR OFFSHORE UNITS
I-ET-3010.00-5400-947-P4X-002	SAFETY SIGNALLING
I-ET-3010.1M-1200-300-P4X-001	NOISE CONTROL REQUIREMENTS FOR TOPSIDE
I-ET-3010.1M-1200-800-P4X-014	AUTOMATION INTERFACE OF PACKAGED UNITS
I-ET-3010.1M-1200-940-P4X-002	CORROSION MONITORING SYSTEM
I-ET-3A36.00-1000-941-PPC-001_D	METOCEAN DATA
I-FD-3010.1M-5122-560-P4X-001	FRESH WATER MAKER FOR OIL DILUTION (UD-5122002A/B) - M-15
I-RL-3010.1M-1200-940-P4X-001	GENERAL SPECIFICATION FOR AVAILABLE UTILITIES
I-RL-3010.1M-1200-940-P4X-003	DRAINAGE SYSTEM GUIDELINES
I-RL-3010.1M-1350-960-P4X-009	MOTION ANALYSIS

2.5 CONFLICTING REQUIREMENTS

As a general guideline, in case of conflicting requirements between this technical specification and other cited references, the most stringent shall prevail. If necessary the PACKAGER/MANUFACTURER may revert to PETROBRAS for clarification.

3 DEFINITIONS AND ABBREVIATIONS

3.1 DEFINITIONS

Can: Can requirements are conditional and indicate a possibility open to the user of the standard.

May: May indicates a course of action that is permissible within the limits of the standard (a permission).

Shall: Shall is an absolute requirement which shall be followed strictly in order to conform to the standard.

Unit: is defined as the FPSO (Floating Production Storage and Offloading), FSO (Floating Storage and Offloading), SS (Semi-Submersible) or Fixed Offshore Unit.

Package Unit or Package: is defined as an assembly of equipment supplied interconnected, tested and operating, requiring only the available utilities from the Unit for the Package operation.

Packager: is defined as the responsible for project, assembly, construction, fabrication, test and furnishing of the Package.

Manufacturer: is defined as the responsible by fabrication of equipment or components internal to the Package.

Module: is defined as the metallic structure suitable for lift and transport, where Packages and equipment will be installed, being supplied completely mounted and pre-commissioned.

3.2 ABBREVIATIONS

CS:	Classification Society
FAT	Factory Acceptance Test
FPSO:	Floating Production, Storage and Offloading
FRP	Fibre Reinforced Plastic
ITP:	Inspection and Test Plan
NDT:	Non-Destructive Testing
PHA:	Preliminary Hazard Analysis
SS	Stainless Steel
UCP:	Unit Control Panel

4 GENERAL FUNCTIONAL REQUIREMENTS

4.1 TECHNICAL REQUIREMENTS

Packager shall guarantee no scale formation in all components; a chemical pre-treatment system shall be provided to avoid corrosion.

The membrane cartridges shall be enclosed in pressure housings, one cartridge per housing. Housing design shall enable removal of the membrane cartridge without disturbing the operation. The housings shall be arranged in series/parallel configurations, as determined by the PACKAGER, in order to produce the specified quantity and quality of fresh water and maintain proper minimum brine flows throughout the system. The membrane package shall be designed and built so that the fresh water maker system can operate at partial capacity with one (or more) membrane cartridges removed.

The Package shall include, as a minimum, the components mentioned in I-FD-3010.1M-5122-560-P4X-001 – FRESH WATER MAKER FOR OIL DILUTION (UD-5122002A/B) – M-15.

4.2 INFORMATION TO BE PROVIDED BY PACKAGER

- Material and Energy Balance of the desalted water and effluent.
- Chemical products requirements:
 - Normal and maximum consumption;
 - Types and concentrations;
 - Frequency of use and operating procedures;
 - Handling issues.
- Utility consumption including electrical power and instrument air.
- Piping and Instrument Diagrams;
- Equipment dimensions, weights and center of gravity;
- Operating and design conditions;
- Instrumentation, nozzle diameters of the skid, pipes, valves, interlocks, alarms, controllers;
- Equipment data sheets of the Unit and its auxiliaries;
- Description of the Unit operation and its interlocks.

4.3 BRINE METERING

The brine disposal metering shall comply with IBAMA regulations. The flow meter shall be installed in the brine discharge line (downstream membranes). One total flow transmitter shall be supplied, and the signal shall be taken to the control panel. Total flow value shall be available at the control panel to be sent to Topsides Supervision and Operation System HMI by fast Ethernet communication network.

Packager shall design and install a suitable draining system, according to I-RL-3010.1M-1200-940-P4X-003 – DRAINAGE SYSTEM GUIDELINES.

4.4 OPERATION ENVIRONMENT

Equipment shall be suitable for the specified environment and range of ambient conditions, including atmospheric pressure, relative humidity, rainfall, air temperature (dry bulb, see note below), characteristic monthly values and wind motions defined in I-ET-3A36.00-1000-941-PPC-001_D – METOCEAN DATA.

Note: For air temperature (dry bulb) of electrical equipment, use the most critical conditions, among those defined by Classification Society and specific equipment documentation.

4.5 MOTION REQUIREMENTS

Refer to I-RL-3010.1M-1350-960-P4X-009 MOTION ANALYSIS.

PURCHASER shall provide MANUFACTURER/ PACKAGER any available data from the model tests, which might deviate from the specified data. Any action on the revised data will be subject to agreement with the PURCHASER.

4.6 EQUIPMENT LOCATION

The Fresh Water Maker for Oil Dilution will be installed on the FPSO Topsides open area, exposed to the marine environment.

The whole package shall be suitable for continuous operation in an area classification as specified in I-DE-3010.1M-5400-94A-P4X-001 – AREA CLASSIFICATION – GENERAL.

4.7 DESIGN LOADS

In addition to Code-described loads and loads due to FPSO motions defined in I-RL-3010.1M-1350-960-P4X-009 - MOTION ANALYSIS, the following loads shall be considered where relevant:

- Transportation and erection loads;
- Nozzle loads;
- Thermal loads;
- Wind loads;
- Weight loads.

4.8 DESIGN LIFETIME

The Fresh Water Maker for Oil Dilution package shall be designed and fabricated for a minimum service life of 25 years.

4.9 NOISE

Noise control analysis is a mandatory item to be carried out. Refer to I-ET-3010.1M-1200-300-P4X-001 – NOISE CONTROL REQUIREMENTS FOR TOPSIDE.

MANUFACTURER/ PACKAGER shall fill in the attached Forms I and II and submit them to PETROBRAS approval.

4.10 CORROSION MONITORING

Refer to I-ET-3010.1M-1200-940-P4X-002 – CORROSION MONITORING SYSTEM.

PACKAGER/ MANUFACTURER shall verify the need for corrosion monitoring while designing the package, and submit design to PETROBRAS for approval.

5 PACKAGE SPECIFICATION

5.1 MANUFACTURER/ PACKAGER SCOPE OF SUPPLY

MANUFACTURER/ PACKAGER shall be responsible for the overall package design and for supplying a complete and fully operating system in accordance with the requirements of this specification, its attachments and the standards referenced therein.

MANUFACTURER/ PACKAGER shall be responsible for the co-ordination and collection of all details, drawings and data to achieve optimum design and full submission of the requested documents.

Packager shall consider stand by equipment as necessary to ensure continuous operation of the system.

MANUFACTURER/ PACKAGER shall design and construct a single skid to accommodate the whole package within the scope of supply.

The package shall be provided with handling devices such as lifting lugs etc., to allow easy handling during installation and maintenance without the need for welding any additional attachment.

5.2 DESIGN REQUIREMENTS

5.2.1 Field Proven Design

All package components, including sub-orders, shall be of proven design and fully within the manufacturer's actual experience.

For PETROBRAS "field proven" equipment is defined as having a Reference List with at least 3 (three) operating packages of similar capacity, installed on offshore production units.

Deviations from the above defined "field proven design" requirement may be accepted only for equipment which is part of research or development programs. In this case, their use shall be formally approved by PETROBRAS program coordinator.

5.2.2 Process Design

MANUFACTURER/ PACKAGER shall design the package for the full range of process conditions specified in I-FD-3010.1M-5122-560-P4X-001 – FRESH WATER MAKER FOR OIL DILUTION (UD-5122002A/B) – M-15.

Provisions shall be made for cleaning of the unit when it is not in operation.

Available Utilities: the design conditions of heating medium, instrument air and seawater systems are defined in I-RL-3010.1M-1200-940-P4X-001 – GENERAL SPECIFICATION FOR AVAILABLE UTILITIES.

5.2.3 Mechanical and Piping

All seawater piping lines shall be made of FRP. In case of requirement of metallic material, Cu-Ni or FBE coated carbon steel shall be used. For FBE coating refer to I-ET-3010.00-1200-956-P4X-002-GENERAL PAINTING for requirements

Pump materials shall be as follows:

- For sea water: Duplex according to API 610 table H, class D2.

Pump shall be supplied in accordance with ASME B73.1, API 610 shall be used for material reference only.

All interconnecting piping shall comply with the requirements of ASME B31.3.

All piping within the skid limits shall be fabricated and terminated at the baseplate edge by means of valves and/ or flanges and blind flanges according to ASME B16.5.

Bolts, nuts and washers shall follow I-ET-3010.00-1200-251-P4X-001 – BOLT MATERIALS.

5.2.4 Skid Design

MANUFACTURER/ PACKAGER shall design and construct a steel structural skid to accommodate the equipment within the MANUFACTURER/ PACKAGER scope of supply.

MANUFACTURER/ PACKAGER shall arrange the equipment and piping on the skid in such a manner that the center of gravity of the complete units coincides approximately with the geometrical center of the skid.

Equipment shall be arranged on the skid in order to allow safe and good personnel access for all operations and maintenance.

Bolts, nuts and washers for use in structural constructions shall follow I-ET-3010.00-1200-251-P4X-001 – BOLT MATERIALS.

The skid shall be designed:

- To withstand the maximum dry weight of the equipment including self weight of the skid, packaging and temporary supports during lifting.
- To resist all sling forces, including both horizontal and vertical components of the applied sling angle (sling angles shall be between 50° and 90° with the horizontal plane).
- With lifting facilities to permit the entire package to be lifted by crane as a single point lift for transportation and installation.
- So that it is self-draining and after installation, fluid shall not collect between the skid beams unless designed to be a drip tray.
- With main beams braced as required, to ensure rigidity and be designed to withstand the anticipated forces produced by the operating equipment and the stresses created by the ship motions.
- With the floor made of plate material with a raised non-slip tread, where applicable.
- With welds underneath skid beams ground flush.
- With 2 diagonally opposed earthing bosses.

5.2.5 Pressure Vessels Design and Fabrication

Pressure vessels within the package shall comply with I-ET-3010.00-1200-540-P4X-001 – REQUIREMENTS FOR PRESSURE VESSELS DESIGN and I-ET-3010.00-1200-540-P4X-002 – REQUIREMENTS FOR PRESSURE VESSELS FABRICATION, whenever applicable.

5.2.6 Painting

The Coating and Painting shall be in accordance with I-ET-3010.00-1200-956-P4X-002-GENERAL PAINTING. For color requirements the DR-ENGP-I-1.15 - COLOR CODING shall be followed.

5.2.7 Instrumentation

The Fresh Water Maker for Oil Dilution is classified in document I-ET-3010.1M-1200-800-P4X-014 - AUTOMATION INTERFACE OF PACKAGED UNITS. The package requirements are according to I-ET-3010.00-1200-800-P4X-002 - AUTOMATION, CONTROL AND INSTRUMENTATION ON PACKAGED UNITS.

The equipment shall be provided with all instruments required to ensure safe, continuous and optimal operation in a tropical marine environment.

All skid mounted local instruments shall be provided with process isolation valves, and vent and drain valves if applicable.

The UCP (Fresh Water for Oil Dilution Unit Control Panel PN-UD-5122002A/B) shall be installed in the Automation & Electrical Panels Room (M-17), which is a non-hazardous area.

5.2.8 Electrical

All electrical equipment shall be in accordance with I-ET-3010.00-5140-700-P4X-002 – SPECIFICATION FOR ELECTRICAL MATERIAL AND EQUIPMENT FOR OFFSHORE UNITS and I-ET-3010.00-5140-700-P4X-003 – ELECTRICAL REQUIREMENTS FOR PACKAGES FOR OFFSHORE UNITS.

All electrical motors shall be provided in accordance with the specification I-ET-3010.00-5140-712-P4X-001 – LOW-VOLTAGE INDUCTION MOTORS FOR OFFSHORE UNITS and technical data sheets.

Electrical equipment installed in hazardous areas or external safe areas which must operate during ESD shall be certified for installation in Zone 1, complying with INMETRO resolutions 179, May 18th, 2010 and its annexes, and 270, Jun 21st, 2011.

5.3 MANUFACTURER/ PACKAGER RESPONSIBILITY

MANUFACTURER/ PACKAGER shall assume sole contractual and total engineering responsibility for the items supplied.

MANUFACTURER/ PACKAGER responsibility shall also include but not limited to:

- Resolving all engineering questions and/or problems relating to design and manufacture.
- Providing details as requested of any-vendors relating to design and manufacturing.
- In all cases of conflict between this specification and applicable documents listed herein, the more stringent requirements shall prevail. In such cases, MANUFACTURER/ PACKAGER shall inform PURCHASER of the conflict and seek clarification.
- Installation at site by others, however, presence of supervision will be required.
- MANUFACTURER's/PACKAGER's responsibility shall also include Commissioning & Training for operation.

Compliance by the MANUFACTURER/ PACKAGER with the provisions of this specification does not relieve the MANUFACTURER/ PACKAGER of his responsibility to furnish equipment and accessories of a proper mechanical design suited to meet the specified service conditions.

6 NAMEPLATES

MANUFACTURER/ PACKAGER shall attach corrosion resistant SS 316 nameplates on each item of equipment in an accessible location, fastened with corrosion resistant pins.

The nameplate shall include, as a minimum, the following information (in Portuguese):

- Petróleo Brasileiro S.A. – PETROBRAS;
- Purchase order number;
- Manufacturer and building year;
- Tag number;
- Service;
- Serial number;
- Main data for design, operation and testing (Power, Pressure, Volume, Temperature, Rotation, Flow rate), where applicable;
- Specific requirements;
- Installation identification;
- Driver power rating and speed, where applicable;
- Design code;
- Empty, Operation and Test Weight.

7 TAGGING

Tagging of all instrumentation, electrical, mechanical, and piping items, including valves, shall be carried out according to I-ET-3000.00-1200-940-P4X-001 - TAGGING PROCEDURE FOR PRODUCTION UNITS DESIGN. The main items shall have individual tag numbers as dictated by PETROBRAS. Tags shall be supplied with the number and description in English, unless otherwise stated in the project data sheets.

All tags shall be made in 316 stainless steel.

8 SAFETY SIGNALLING

All safety signs shall be in Portuguese.

Safety signs shall follow I-ET-3010.00-5400-947-P4X-002- SAFETY SIGNALLING requirements.

9 SPARE PARTS AND UNUSUAL TOOLS

9.1 SPARE PARTS

MANUFACTURER/ PACKAGER shall include in the scope of supply all spare parts required for commissioning, pre-operation and start-up, as well as the spare parts recommended by Classification Society and those ones required for NR-13 tests.

A spare part list recommended for operation shall be provided, including price and delivery time of each part, layout and sectional drawings indicating the part location and TAG/ reference identification (for Petrobras approval).

All spares shall be separately packed with clear identification and delivered with the main equipment in packing suitable for long term storage.

9.2 UNUSUAL TOOLS

All unusual tools necessary for the installation, operation or maintenance of the equipment shall be supplied together with the delivered equipment. These shall be separately quoted together with the package quotation.

One set of certified mechanical handling equipment shall be provided by MANUFACTURER/ PACKAGER, including all necessary devices to facilitate removal of components up to the package limits.

10 CERTIFICATION REQUIREMENTS

10.1 CLASSIFICATION SOCIETY CERTIFICATION

A CS certificate shall be supplied, suitable for the Unit class.

10.2 GENERAL CERTIFICATION

MANUFACTURER/ PACKAGER shall be responsible for obtaining all necessary certification of the equipment. MANUFACTURER/ PACKAGER, through the independent certifying authority, shall supply all certificates related to materials, inspections, tests and qualification activities detailed in the approved Quality Plan.

All castings shall have the material designation embossed and engraved on each part.

10.3 MATERIAL CERTIFICATION

In order to ensure that the materials of construction are in accordance with the data sheet, the requirements for certification of the material test data are stipulated below and shall be adhered to.

All certificates shall contain the following information:

- Manufacturer's Name
- Purchase order number and date of issue
- Identification number of certificate and its issue
- Material specification(s)
- Material charge number, batch number or heat number
- Mechanical properties recorded from test results
- NDT method and results
- Heat treatment procedure, if applicable.

11 INSPECTION AND TESTING

11.1 INSPECTION

MANUFACTURER/ PACKAGER shall submit an ITP with his bid.

PURCHASER shall identify all the required witnessed inspections on a marked up copy of the ITP.

MANUFACTURER/ PACKAGER shall ensure that all the witnessed inspection requirements by the classification authority are fully accommodated and the due notice requirements are satisfied.

PURCHASER shall have the right to inspect the package at any time during fabrication to ensure that material and workmanship are in accordance with this specification.

The notification period for such inspections shall be mutually agreed during the kick-off meeting.

All system components shall be shop-tested and checked.

All piping, pump and pressure vessels shall be hydrostatically pressure tested.

11.2 MECHANICAL COMPLETION

Term used to indicate satisfactory completion of fabrication scope of work, including basic inspection and checks carried-out to demonstrate that the equipment has been fabricated correctly and according to the PURCHASER requirements. MANUFACTURER/ PACKAGER shall provide relevant documentation to prove that these inspections and checks have been satisfactorily completed.

11.3 FACTORY ACCEPTANCE TEST (FAT)

The following tests shall be included in MANUFACTURER/ PACKAGER scope:

- Pumps running tests;
- Hydrotest of all vessels pipes and pumps;
- Electrical continuity checks on all wiring and earthing;
- Functional checks on all instruments and valves;

MANUFACTURER/ PACKAGER shall prepare an FAT procedure for the package and submit it for PURCHASER approval. The FAT will be witnessed by PETROBRAS and PACKAGER shall invite CS representatives.

11.4 ASSEMBLY ASSISTANCE AND COMMISSIONING REQUIREMENTS

MANUFACTURER/ PACKAGER is responsible for assembly supervision of the equipment, including assembly of components to be delivered loose (for example, some components of pumps, like stuffing box; some vessels internals, etc).

MANUFACTURER/ PACKAGER shall be responsible for pre-commissioning and commissioning supervision of the equipment/ system supplied. Final acceptance will be on satisfactory completion of commissioning tests as specified by the PURCHASER.

12 GUARANTEE

12.1 PERFORMANCE

MANUFACTURER/ PACKAGER shall guarantee satisfactory continuous operation at any point over the full operation range. The package performance shall be guaranteed at the normal operating point. At this point no negative tolerance is permitted.

12.2 WARRANTIES AND GUARANTEES

MANUFACTURER/ PACKAGER agreement and compliance with the project specifications and inquiry documents shall not exempt him from the responsibility of supplying equipment and components suitable for the specific operating conditions.

MANUFACTURER/ PACKAGER and Sub-suppliers shall guarantee and agree upon the following clauses:

**TECHNICAL SPECIFICATION**

Nº:

I-ET-3010.0F-5122-580-PPC-001

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SHEET

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TITLE:

**FRESH WATER MAKER FOR OIL DILUTION
(UD-5122001)**

NP-1

ESUP

- Equipment performance according to operating conditions as stated on the data sheets and specifications;
- All equipment and materials shall be new. Refurbished equipment or parts thereof are not acceptable;
- All equipment and component parts shall be guaranteed by the MANUFACTURER/ PACKAGER against fault in design, defective or improper materials, poor workmanship and failure from normal usage for a period stated on the Contract ("warranty period"). If any defects or low performance occur during such Contract period, the MANUFACTURER/ PACKAGER shall make all necessary or desirable modifications, repairs and replacements, free of charge, including transportation and field labor (disassembly/assembly) services.

Unless otherwise stated/ defined on the Contract between PURCHASER and MANUFACTURER/ PACKAGER, the warranty period shall comprise 1 (one) year from operation start or 3 (three) years after delivery, whichever comes first.

MANUFACTURER/ PACKAGER shall send a separate quotation to perform periodic inspections of the equipment at PURCHASER's site in order to verify the correct application of the MANUFACTURER's/ PACKAGER's preservation procedure.

PRELIMINARY

13 WEIGHT CONTROL

PACKAGER shall fill in the following forms and submit to PURCHASER.

1	APPLICABLE TO:	<input checked="" type="checkbox"/> PROPOSAL	<input type="checkbox"/> PURCHASE	<input type="checkbox"/> AS BUILT
2	FOR:	_____	UNIT / MODULE:	_____
3	SITE:	_____	SERVICE:	_____
4	No REQ / TAG:	_____	MANUFACTURER:	_____
5	MODEL:	_____	VENDOR:	_____
6	SIZE / TYPE:	_____	MAIN EQUIPMENT:	_____
7	SERIAL No.	_____	MANUFACTURER No:	_____

WEIGHT DATA

9	DATA STATUS:	<input type="checkbox"/> ESTIMATED	<input type="checkbox"/> CALCULATED	<input type="checkbox"/> WEIGHTED
10	EQUIPMENT WEIGHT:			ACCURACY: _____
11	DRY:	_____ kg	± _____ %	REMARKS: _____ _____ _____
12	OPERATING (NORMAL):	_____ kg	± _____ %	
13	OPERATING (MAXIMUM):	_____ kg	± _____ %	
14	TEST:	_____ kg	± _____ %	
15	MAX MAINTENANCE	_____ kg	± _____ %	
16	_____	_____ kg	± _____ %	

DIMENSIONS DATA

19	DATA STATUS:	<input type="checkbox"/> ESTIMATED	<input type="checkbox"/> CALCULATED	<input type="checkbox"/> MEASURED
20	SKETCH:			
21				
22				
23				
24				
25				
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27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37	OVERALL DIMENSIONS:	DRY DIMENSIONS:	OPERATING DIMENSIONS:	MAINTENANCE DIMENSIONS:
38	A: _____ mm	X: _____ mm	X: _____ mm	_____ : _____ mm
39	B: _____ mm	Y: _____ mm	Y: _____ mm	_____ : _____ mm
40	C: _____ mm	Z: _____ mm	Z: _____ mm	_____ : _____ mm
41				

NOTES

General:

- Vendor shall fill in all blank spaces in the weight control data sheet (fields and check boxes). All missing information will be considered as not applicable or not according to vendor's proposal.
- Vendor shall fill in data sheets for main and auxiliary equipment, furnished separately or on different skids. If necessary, manufacturer shall produce additional copies of the weight control data sheet.

Weight data:

- Accuracy of weight figures shall be ± 10% in the proposal phase. After placing of the purchase order, the accuracy shall be refined to ± 3%.

Dimensional data:

- Manufacturer shall indicate equipment orientation.
- Any variation in center of gravity from dry to operating mode shall be noted.
- Manufacturer shall indicate with dashed lines on sketch and respective dimensions on the information table all maintenance areas required for assembly and disassembly of equipment.
- Accuracy of dimensions shall be ± 10% in the proposal phase. After placing of the purchase order, the accuracy shall be refined to ± 3%.