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| DOC NUMBER: 569-DB07-MEC-825-002 | | CLIENT NUMBER: PRD-MEC-MTR-005 | |
| CLIENT: TAKEDA/BAXALTA | | | |
| PROJECT BURITI EPCMV | | | |

MATERIAL REQUISITION – HOT WATER GENERATION SYSTEMS

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| 0 | 30JUL2021 | ISSUED FOR CONSTRUCTION | ASO | LFF | RSP |
| B | 28JUN2021 | 90% DD ISSUE | ASO | LFF | RSP |
| A | 12FEB2021 | 30% DD ISSUE | ASO | LFF | MAJ |
| REV | DATE | DESCRIPTION | EXEC | CHECK | APPROV. |





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REVISION HISTORY

| Rev | Reason For Change |
|-----|---|
| A | Issued for Review |
| B | Item 1.3 - Included itens 2, 4 and 5 |
| | Item 2.1.2 - Included plate heat exchanger and pressurized expansion tanks. |
| | Item 3 - Updated reference documents |
| 0 | ISSUED FOR CONSTRUCTION |

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1. OBJECTIVE

- 1.1** This Technical Requisition covers the minimum requirements for the supply of two (02) hot water generation skids, specified below and in all the attached documents for Buriti Project, in the city of Goiana, Pernambuco, Brazil.
- 1.2** Vendor's proposal shall include, but not be limited to equipment, materials and work specified in list of scope of supply (Item 2) below.
- 1.3** Vendor's proposal for equipment, service and/or materials shall be in strict accordance with conditions stated in this requisition and any attached document. Deviations and alternatives will be valid only if clearly described in a "deviation list" by vendor and approved by owner's engineering.

| Supply object | | | |
|----------------|---------|--|---|
| Applicable to: | | <input checked="" type="checkbox"/> Proposal | <input type="checkbox"/> Purchase order |
| Item | Tag | Qty | Description |
| 1 | HX-7A-1 | 1 | Hot Water Skid |
| 2 | TK-7A-5 | 1 | Expansion Tank (pressurized) |
| 3 | HX-7B-1 | 1 | Hot Water Skid |
| 4 | TK-7B-5 | 1 | Expansion Tank (pressurized) |
| 5 | HX-7B-2 | 1 | Plate Heat Exchanger |

2. SCOPE OF SUPPLY





- 2.1** The scope includes at least the following items:

2.1.1 Design

- ☒ Material selection
- ☒ Mechanical design
- ☒ Fabrication design
- ☒ Submittal of ALL documentation for approval

2.1.2 General Items and accessories

- ☒ Hot Water Generation Skids;
- ☒ Expansion tanks (pressurized);
- ☒ Plate Heat Exchanger;
- ☒ All mechanical and electrical components necessary for appropriated operation of equipment supplied by vendor;
- ☒ All drivers and electrical motors necessary for appropriated operation of equipment supplied by vendor;
- ☒ All instruments necessary for appropriated operation of equipment supplied by vendor;
- ☒ The required piping, wiring and cabling within package limits;
- ☒ Electrical control and power panel (Including motor starter, heater, other auxiliaries branches, control circuits, etc.)
- ☒ PLC with HMI

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- ☒ Takeda/Baxalta will provide vendor with only one 3 Phase+N+PE, 380V, 60 Hz supply feeder per each hot water skid. Vendor shall distribute the AC power to all auxiliaries and branch circuits by his own electric distribution panel. All required voltage levels should be derived from that feeder by vendor.
- ☒ Sealing and lubrication systems
- ☒ Nameplate and support in stainless steel AISI 304;
- ☒ First fill of lubricants;
- ☒ Inspection and tests according to item 7.9 of the document PRD-MEC-TSP-009 Technical Specification – Hot Water Generation Skids;
- ☒ Technical documents and drawings according to item 8.5 of the document PRD-MEC-TSP-009 Technical Specification – Hot Water Generation Skids;
- ☒ Quality Guarantee System;
- ☒ Earthing lugs;
- ☒ Coupling and coupling guard;
- ☒ Primer and final painting;
- ☒ Anticorrosive protection for storage;
- ☒ Packing and preparation for transport;
- ☒ Transport (*);
- ☒ Field erection supervision (*);
- ☒ Training (*);
- ☒ Data Book with manuals in Portuguese and English.
- ☒ Lifting Lugs;
- ☒ Noise Insulation.

* These items shall be presented with separated price in Commercial Proposal.

2.2 Exclusions from the scope of supply

- ☒ Civil works;
- ☒ Foundation;
- ☒ Field erection;
- ☒ Anchor bolts;

2.3 Spare Parts





- ☒ Spare parts for erection, commissioning and start-up (*);
- ☒ Spare parts for 1 year (*);

* These items shall be presented with separated price in Commercial Proposal.

2.4 Battery Limits

The limits of the scope of supply are indicated in the following documents:

- ☒ 7A-M-0-5-47 - P&I DIAGRAM - DRUG PRODUCT - HEATING HOT WATER SYSTEM
- ☒ 7B-M-0-5-46 – P&ID - DRUG SUBSTANCE - HEATING HOT WATER SYSTEM (HVAC)
- ☒ 7B-M-0-5-53 - P&ID - DRUG SUBSTANCE – CHILLED WATER DISTRIBUTION SYSTEM (3/4)

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3. REFERENCE DOCUMENTS AND ATTACHMENTS

| Item | Number | REV | Title |
|------|-----------------|-----|---|
| 01 | 7A-M-3-3-10 | 0 | DRUG PRODUCT - MECHANICAL EQUIPMENT PLAN - SECOND FLOOR |
| 02 | 7A-M-0-5-47 | 0 | P&ID - DRUG PRODUCT - HEATING HOT WATER SYSTEM (HVAC) |
| 03 | 7B-M-3-3-10 | 0 | DRUG SUBSTANCE - MECHANICAL EQUIPMENT PLAN - SECOND FLOOR |
| 04 | 7B-M-0-5-46 | 0 | P&ID - DRUG SUBSTANCE - HEATING HOT WATER SYSTEM (HVAC) |
| 05 | 7B-M-0-5-53 | 0 | P&ID - DRUG SUBSTANCE – CHILLED WATER DISTRIBUTION SYSTEM (3/4) |
| 06 | PRD-MEC-LIS-007 | 0 | EQUIPMENT LIST |
| 07 | PRD-MEC-TSP-006 | 0 | TECHNICAL SPECIFICATION – PRESSURE VESSELS |
| 08 | PRD-PIP-TSP-501 | 0 | PIPE CLASS AND SPECIFICATIONS |
| 09 | PRD-PIP-TSP-504 | 0 | TECHNICAL SPECIFICATION - GENERAL INSULATION CLASS |
| 10 | PRD-ELE-TSP-503 | 0 | TECHNICAL SPECIFICATION - LV ELECTRICAL DISTRIBUTION PANELS |
| 11 | PRD-ELE-TSP-506 | 0 | TECHNICAL SPECIFICATION - VFD |
| 12 | PRD-ELE-CRT-513 | 0 | ELECTRICAL – DESIGN CRITERIA |
| 13 | PRD-MEC-CRT-001 | 0 | DESIGN CRITERIA - MECHANICAL |
| 14 | PRD-AIC-TSP-014 | 0 | TECHNICAL SPECIFICATION - BMS SYSTEM AND COMPONENTS |
| 15 | 7A-I-0-7-04 | 0 | DRUG PRODUCT - BMS NETWORK ARCHITECTURE |
| 16 | 7B-I-0-7-04 | 0 | DRUG SUBSTANCE - BMS NETWORK ARCHITECTURE |
| 17 | PRD-MEC-DSH-012 | 0 | DATA SHEET - HOT WATER SKID - HX-7A-1 |
| 18 | PRD-MEC-DSH-023 | 0 | DATA SHEET - HOT WATER SKID - HX-7B-1 |
| 19 | PRD-MEC-DSH-023 | 0 | DATA SHEET – PLATE HEAT EXCHANGE - HX-7B-2 |
| 20 | PRD-MEC-TSP-009 | 0 | TECHNICAL SPECIFICATION – HOT WATER GENERATION SYSTEM |
| 21 | PRD-PRO-MDE-003 | 0 | CHILLED GLYCOL SYSTEM (PROCESS) - DESCRIPTION REPORT |
| 22 | PRD-PRO-MDE-004 | 0 | HEATING HOT WATER SYSTEM (HVAC) - DESCRIPTION REPORT |
| 23 | PRD-PRO-MDE-005 | 0 | HEATING HOT WATER SYSTEM (HVAC) - DESCRIPTION REPORT |

4. DEVIATIONS

- 4.1** Any deviation to this Requisition and its attachments shall be indicated in a Deviation List. Otherwise, no deviations will be accepted for this supply.

5. INSPECTION AND TESTS

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- 5.1** The fabrication of the equipment at the manufacture's shop or at sub-suppliers shops will be followed by inspection by the purchaser or his representative inspector.
- 5.2** Client reserves the right to witness all tests and inspect all components during raw material receipt, application and storage; such as audit and expedite, at any time, Quality and Manufacturing Control Process at Supplier's and sub-supplier's shop.
- 5.3** Inspection will include, as minimum:
- 5.3.1** Verification material certificates
 - 5.3.2** Verification of destructive and non-destructive examinations
 - 5.3.3** Verification of welding procedures
 - 5.3.4** Welding visual inspection
 - 5.3.5** Qualification of welding procedures and welders
 - 5.3.6** Tolerances inspection during assembly
 - 5.3.7** Visual inspection
 - 5.3.8** Dimensional Inspection
 - 5.3.9** Run & operation test
 - 5.3.10** Noisy and vibration test