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<b>REVIEW INDEX</b>
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REV.	DESCRIPTION AND/OR MODIFIED PAGES
0 A B	Original Emission Insert critical and strategic equipments Insert ITP

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DATE	10/12/2018	15/03/2019	14/06/2019						
PROJECT	QUALIDADE	QUALIDADE	QUALIDADE						
EXECUTION	ETLP	CTNR	CTNR						
VERIFICATION	CJNI	UPKG	UPKG						
APPROVAL	CTNR	UTE9	UTE9						

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## 1. OBJECTIVE

This Technical Specification establishes the additional minimum quality requirements for providing MACHINES for petrochemical, gas and oil industries, to be met in direct or indirect purchases, intended for installation in PETROBRAS industrial, exploration and production, surface units and PETROBRAS subsidiaries.

The requirements set out here are complementary to the I-ET-0000.00-0000-972-1AL-001 – General Quality Requirement.

This document applies to the families of materials with Technical Qualification Requirement (RQT) in PETROBRAS REGISTRATION.

The requirements set forth herein apply to the following material families:


FAMILY	FAMILY SCOPE
98009814	NFPA20 Fire-Fighting Pump
98010176	ASME B73.1 Centrifugal pump
98010177	ASME B73.2 Centrifugal pump
98010178	API 7K, RP7L Reciprocating pump
98010179	API 685 Centrifugal pump
98010180	Twin-screw rotary pump for multiphase fluids
98010182	API 610 Centrifugal pump
98010214	Centrifugal Pump for Naval Systems (ballast or load)
98010216	API 674 Reciprocating pump
98010586	API 613 Gear box
98010766	Screw compessor
98010805	Reciprocating compressor
98011254	API 672 Centrifugal compressor
98011255	API 617 Centrifugal compressor
98011496	Aeroderivative gas turbine
98011498	API 611 Steam turbine
98011499	API 612 Steam turbine
98011504	Industrial gas turbine (Heavy Duty)

## 2. REFERENCE

I-ET-0000.00-0000-972-1AL-001 – General Quality Requirement.

I-ET-0000.00-0000-972-1AL-002 – Complementary Quality Requirement for Steelwork Equipments, Pipes, Flanges and Fittings.

I-ET-0000.00-0000-972-1AL-023 – Complementary Quality Requirement for Valves.

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### 3. DEFINITION

The definitions adopted in this document are presented in I-ET-0000.00-0000-972-1AL-001 and ABNT NBR 16278. In addition, the following term is used in this document:

- **Auditing Point – PA (*Ponto de Auditoria*)**

Critical event in the manufacturing cycle where an audit by PETROBRAS is required during the execution of the respective activity. It is not characterized as a Hold Point. The supplier shall notify PETROBRAS Quality Department in advance of 10 (ten) calendar days for national contracts and 30 (thirty) consecutive days for international contracts. The notification shall be made by e-mail. Preferably, the definition of the audit points will be communicated by PETROBRAS. The Auditing Point can be defined by PETROBRAS during the PMM.

The Complete Unit Test shall be defined as PA for PETROBRAS when this test is part of the scope of supply.

### 4. MANUFACTURING INSPECTION PLANNING

#### 4.1. Hold and Witnessed Points


The determinations defined in item 4.1 are applicable to the Supplier and Sub-supplier.

The events to be witnessed and observed by the Responsible for Manufacturing Inspection shall be according with the specified in the contractual documents (Material Requisition, Data Sheet, Technical Specification, List of Clarifications, etc). When the contractual documents do not specify the events to be witnessed and observed, the RIF shall monitor the events as specified in ANNEX I.

When the scope of delivery includes accessory equipment (drivers, valves, fittings, piping, pressure vessels, etc.), the Responsible for Manufacturing Inspection shall accompany the events provided for in the General Quality Requirement or Complementary Quality Requirement for accessory equipment as defined in TABLE 1.

The Datasheets and General Assembly Drawings shall be in the approved status by PETROBRAS prior to the monitoring of witnessed and observed events.

Expected events such as HP or WP shall only be followed after approval of the ITP and its procedures.

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All testing procedures, such as HP or WP, shall be approved by the Responsible for Manufacturing Inspection.

Data Book (Section 3) and Final Inspection events shall be defined as Hold Point (HP) by the Responsible for Manufacturing Inspection.

#### **4.2. Inspection and Test Plan (ITP) and Test Procedures**

The ITP shall contemplate the activities indicated in the contractual documents (Standards, Material Requisition, Data Sheet, Technical Specification, List of Clarifications, etc). ANNEX I contemplates the minimum activities for the ITP of machines.

When ANNEX I does not contemplate the equipment, the SUPPLIER shall use it as a guide for the elaboration of the ITP.

The ITP shall be in the approved status by the Responsible for Manufacturing Inspection before the beginning of the respective equipment manufacture.


When the scope of delivery includes accessory equipment (engines, valves, connections, piping, pressure vessels, etc.), the ITP shall include the minimum activities provided for in the General Quality Requirement or Complementary Quality Requirement for accessory equipment as defined in TABLE 1.

If the SUPPLIER carries out activities beyond those provided in the contractual requirements, the SUPPLIER shall include these activities in the ITP.

The SUPPLIER shall issue the ITP for approval of the Responsible for the Manufacturing Inspection.

The SUPPLIER shall identify at ITP the extent of its follow-up at inspection events at SUB-SUPPLIERS.

The SUPPLIER shall provide an ITP for the other equipment in addition to the main equipment when a package is being supplied. (Eg electric panel, driver, sealing system, lubrication system, etc.). These ITP shall be approved by the Responsible for Manufacturing Inspection. The supplier may provide a single ITP covering all the scope of supply equipment.

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Tests performed on SUB-SUPPLIER, when provided in the contractual documents (Technical Specification, Data Sheet, etc.), shall be hold point (HP) or observed (WP) as established in the contractual requirements, by the RIF. The respective test procedure and ITP shall be approved by the RIF before the test.

TABLE 1 – APPLICABLE REQUIREMENTS FOR ACCESSORY EQUIPMENT

Equipments	RGQ	RCQ
Valves	APPLICABLE FOR ALL EQUIPMENTS	ET-0000.00-0000-972-1AL-023
Steelwork Equipments, Pipes, Flanges and Fittings		ET-0000.00-0000-972-1AL-002
Instrumentation		NOT APPLICABLE
Electric Panel		
Electric Motors		

#### 4.3. Data Book

SUPPLIER shall provide Data Book (Section 3) containing all the documents defined in ITP (procedures approved by the RIF, certificates and issued reports).


Calibration certificates for supply instruments shall be included in Data Book.

Calibration certificates for shop instruments shall not be included in Data Book.

#### 5. IMPLEMENTATION OF INSPECTION

The SUPPLIER shall make available the ITP and the Procedures, duly approved by the Responsible for Manufacturing Inspection for the execution of the inspections.

The SUPPLIER shall make available all applicable standards for consultation during inspections.

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The SUPPLIER shall make available all properly calibrated instrumentation and calibration certificates of any test or measurement instrument for conducting the inspections.

## 6. HANDLING, PRESERVATION, STORAGE AND SHIPMENT

The minimum requirements for preservation, storage and shipment must meet in the contractual requirements.



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**ANNEX I - MINIMUM REQUIREMENTS FOR MACHINERY ITP**













