

<b>KLM Technology Group</b>  Project Engineering Standard	  <a href="http://www.klmtechgroup.com">www.klmtechgroup.com</a>	Page : 1 of 39
		Rev: 01
		April 2011
KLM Technology Group #03-12 Block Aronia, Jalan Sri Perkasa 2 Taman Tampoi Utama 81200 Johor Bahru Malaysia	<b>SHOP INSPECTION</b>  <b>(PROJECT STANDARDS AND SPECIFICATIONS)</b>	

## TABLE OF CONTENT

<b>SCOPE</b>	<b>2</b>
<b>DEFINITIONS AND TERMINOLOGY</b>	<b>2</b>
<b>INSPECTION PLAN</b>	<b>2</b>
<b>INSPECTION REQUIREMENT</b>	<b>3</b>
<b>THIRD PARTY INSPECTION</b>	<b>3</b>
<b>INSPECTION AND TEST RECORD</b>	<b>4</b>
<b>APPENDIX A</b>	<b>5</b>
<b>VESSEL &amp; HEAT EXCHANGER</b>	<b>6</b>
<b>INSTRUMENT EQUIPMENT</b>	<b>10</b>
<b>MACHINE AND PACKAGE EQUIPMENT</b>	<b>18</b>
<b>MECHANICAL AND PACKAGE EQUIPMENT</b>	<b>29</b>
<b>MECHANICAL PACKAGE EQUIPMENT</b>	<b>30</b>
<b>MACHINES AND PACKAGE EQUIPMENT</b>	<b>31</b>
<b>PIPING &amp; OTHERS</b>	<b>37</b>
<b>GEARBOXES</b>	<b>38</b>
<b>PIPING &amp; OTHER</b>	<b>39</b>

<b>KLM Technology Group</b> Project Engineering Standard	<b>SHOP INSPECTION</b> <b>(PROJECT STANDARDS AND SPECIFICATIONS)</b>	Page 2 of 39
		Rev: 01
		April 2011

## SCOPE

This Project Standard and Specification covers the minimum requirements of inspection and tests to be carried out by contractor.

## DEFINITIONS AND TERMINOLOGY

**Inspection** - Inspection is defined as the process of measuring, examining, testing, gauging or otherwise comparing the items with the applicable requirements.

**Required** - Required means that the contractor shall be notified by the vendor of the timing of the inspection or test; however, the inspection or test shall be performed as scheduled, and if the contractor or his representative do not present, the vendor shall proceed to the next step.

**Source** - This normally means vendor's works where the goods are manufactured and where surveillance is carried out.

**Surveillance** - Surveillance comprises all contractor activities performed to verify that goods meet the specified requirements, including audit, design review, and inspection.

**Vendor** - Means the person, firm, or Company with whom contractor has placed the Purchase Order.

**Witness** - Witness means that a hold shall be applied to the production schedule and that the inspection or test shall be carried out with Contractor in attendance.

## INSPECTION PLAN

Each purchased item shall be inspected per related equipment specifications as minimum requirements.

Where the application of any item in this engineering specification is considered impractical or insufficient, the Contractor shall, prior to order and/or fabrication of equipment, prepare in detail an alternative/additional inspection requirement.

Vendor shall operate a Quality System that satisfies the requirements of ISO 9001.

<b>KLM Technology Group</b>  Project Engineering Standard	<b>SHOP INSPECTION</b>  <b>(PROJECT STANDARDS AND SPECIFICATIONS)</b>	Page 3 of 39
		Rev: 01
		April 2011

Vendors shall be requested by the contractor to submit their detailed Inspection Plan for their equipment. The contractor shall review and ensure that the Vendor's inspection Plan meets this Project Standard and Specification.

Vendor Inspection Plan shall show the planned activities, resources and events serving to implement and record the implementation of Vendor Quality system relevant to the goods in accordance with ISO 9001.

The Inspection Plan shall list documentation/design reviews and for each item of equipment, major assembly or sub-Vendor item, the principal manufacturing steps, type of inspection/test, the Controlling Procedure, and the acceptance standard. The Inspection Plan shall identify inspection, Witness/Required points and whether the inspection will be by Contractor or Third Party. Vendor shall indicate on the Inspection Plan all surveillance that Vendor will carry out of sub-Vendor's goods.

Vendor's Inspection Plan shall form a part of Final Document hand over.

#### **INSPECTION REQUIREMENT**

Inspection and test shall be carried out based on equipment specification, applicable Engineering Standard and International testing and Inspection standard including all applicable Thai Acts and Regulations.

Compliance with this Standard does not relieve the contractor of the responsibility for furnishing equipment of proper design and construction that shall be fully suitable for all specified operating conditions.

Witness (hereinafter referred to as Contractor's inspector) shall mean inspectors of Contractor, his designated representative and/or a third party.

Inspectors shall have free entry to the VENDOR'S shop while work on the equipment is being performed.

The contractor shall, at the time of witnessing, give inspectors a copy of the records of his own prior inspection and tests. This copy shall be in addition to the number specified in Contractor's requisition sheets.

Witnessing by inspectors shall in no way relieve the contractor of his responsibility to fulfill the requirement in the contract.

<b>KLM Technology Group</b>  Project Engineering Standard	<b>SHOP INSPECTION</b>  <b>(PROJECT STANDARDS AND SPECIFICATIONS)</b>	Page 4 of 39
		Rev: 01
		April 2011

The contractor shall at his own expense correct any non-conformances to the equipment specification and applicable Engineering Standards. However, if correction of a non-conformance would prevent the contractor from meeting his schedule obligations, the contractor shall propose appropriate actions to address via Concession Request.

### **THIRD PARTY INSPECTION**

Third Party Inspection shall be arranged, where required, by the contractor. The requirement for Third Party Inspection has been identified in the project specification. The following conditions shall be complied with/confirmed by the contractor where Third Party Inspection required prior to place order.

- The extent of the Third Party Inspection shall be submitted.
- Third Party Inspector shall attend the Pre Production Meeting.
- Third Party Inspection Stages shall be included on the contractor/vendor Inspection Plan.
- Third Party Inspector shall confirm that all parts and materials conform to the requirements of the equipment specification and applicable Engineering Standard.
- Third Party Inspector shall issue inspection report.
- Third Party Inspector shall attend a minimum of 80% inspections that have been identified by the Third Party as witness points before the contractor Purchase Order may be considered as complete.

### **INSPECTION AND TEST RECORD**

The certificate to verify that all inspection and tests as required have been completed shall be attached to the records of inspection and tests. This certificate, which shall be in compliance with the contractor specific form, shall be signed by all involved parties after the completion of the inspection and tests.