

**Document Title: Procedure for Inspection (and Rejection)**

**1.0 SCOPE**

This procedure outlines the process(es) of,

- a) **INWARD** Inspection for Raw Materials (i.e. Pipes, Plates, Bars, Forgings, etc.) and Consumables (Electrodes, Filler Wires, etc),
- b) **IN-PROCESS** Inspection of Semi-Finished Products and
- c) **FINAL** Inspection of Finished Products

and ensures that all the Materials comply with stated requirements.

**2.0 POLICY**

Inspection remains a critical process to ensure QUALITY and that you get what you ordered and in turn the client gets what he orders. Proper checks avoid any surprises or rejections later (during manufacturing or at site).



**Internal Inspection**

**3.0 METHOD**

All Raw Materials and Consumables are purchased from Approved Vendors ONLY.

A] **In case of Raw Materials (RM)**; Stores Department receives the materials as per Purchase Order and Challan.

B] **In case of Raw Materials, Semi-Finished Products or Finished Products**; QC Engineer inspects the materials against the stated Purchase Order, Challan, Job Card, Inspection Memo, RMTC, etc. for Visual, Dimensional checks, Quantity Check. Accompanying Certificates, Test Reports are reviewed for compliance.

Sample(s) may be drawn (for RMs) as per the Standard QAP and sent to NABL Accredited lab for required tests.

Sample(s) shall be drawn after Final Heat Treatment / Final Processing (Product Testing) as per the Standard QAP and sent to NABL Accredited lab for required tests.

**PMI Check** is carried out for ALL Alloy-Steel and Stainless-Steel materials, across Raw Materials, Semi-Finished and Finished Products. Records of PMI check on Finished Products are maintained. PMI Machine accuracy is verified before start of examination, preferably using PMI Test Blocks of EQUIVALENT material.

**On Acceptance**, the material is stored at Stock Yard for further use or Dispatched.

In case of Raw Materials, GRN is generated by the QC Engineer and materials are entered in 'Inward Inspection Register'.

Inspection Reports for ALL Inspections are maintained.

**On Rejection**, the material is stored at 'Rejected Area' and marked to prevent inadvertent use.

'Corrective Action Register (CAPA)' is duly filled for rejections in Fittings, Flanges, etc. and maintained. It covers all aspects of non-conforming work like product deterioration, product rejection, not following proper method, rejected purchased material, etc

**MATERIAL PROCESS TRACEABILITY:**



In case of Raw Materials, **Semi-Finished Products and Finished Products**, traceability is maintained with Heat Number only (preferably Low Stress), **before any cutting**. This number will be ensured on all technical documents (RM Inspection Records, Production Records, Heat Treatment Records, Lab Test Certificates, Manufacturing Test Certificates, etc).

**USE OF NABL ACCREDITED LABS for Testing(s) and Calibration(s):**

Only Labs appearing on the Approved List of Subcontractors, may be used.

All testing shall be carried out at NABL Accredited labs only. Received Lab Reports shall be reviewed by QC Engineer before acceptance.

All calibrations (where possible) should be preferred at NABL Accredited labs. A copy of calibration certificates of master equipment shall be maintained (If calibration laboratory is NABL accredited i.e. ISO/IEC 17025, a copy of their master equipment traceability is not necessary).

Relevant data on Equipment description, Range, Make, Equipment Sr. No., Date and Due date of calibration, etc., shall



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*(Signature)*



*(Signature)*

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be recorded on 'List of Inspection and Test Equipment' and maintained along with the calibration certificates. Inspection and Test Equipment received after calibration shall be verified for identification detail tags (stickers) and the certificate and copy of Master calibration equipment, if required, shall be reviewed for the adequacy. Only calibrated Inspection and Test Equipment shall be used to demonstrate the conformance of product to the specific requirement. Re-Calibration intervals are recorded on the 'List of Inspection and Test Equipment'. Based on the criticality of use, the calibration interval shall be revised and recorded. The general interval may be 12 months. The user of Inspection and Test Equipment shall ensure that the equipment is handled, preserved and stored carefully to avoid any damage or deterioration. Any physical damages to the Inspection and test equipment during in process inspection or testing shall be quarantined and recalibration shall be organized prior to reuse.

**COLOUR CODING:**

Material is to be colour coded as given below to better identify the material, avoid any mix-up and reduce errors during storage, selection and dispatch.

Colour Coding is generally carried out for Raw Materials. Colour Coding may also be carried out for Semi-Finished / Finished Products, if required. Materials other than those below will be indicated with material grade on product itself. Colour Coding is carried out by marking a 1" thick strip (of each colour) along the entire length of the item. Other Colour Coding(s) may supersede this process based on PO or Contractual requirements.

All IBR (CS & AS) - Red	Stainless Steel 321 - Yellow	Stainless Steel 347 - Brown
Stainless Steel 304 - Green	Stainless Steel 304L - Green+White	Stainless Steel 304H - Green+Yellow
Stainless Steel 316 - Red	Stainless Steel 316L - Red+White	Stainless Steel 316H - Red+Yellow
Alloy Steel P5 - Blue	Alloy Steel P9 - Blue+White	LTCS 333/350/420 - White
Alloy Steel P22 - Blue+Brown	Alloy Steel P91 - Blue+Yellow	Alloy Steel P11 - Blue+Green

**BREAKDOWN & MAINTENANCE OF MACHINES/EQUIPMENT:**

All machines are to be properly maintained by the Machine Operator(s). Regular maintenance is being carried out and repairs are done if required.

Details of all Machines / Equipment are maintained in 'Details of Plant and Machinery'.

'BreakDown Register' is maintained for every Machine / Equipment to record details of maintenance, repairs, breakdown, etc.

**REJECTED MATERIALS DISPOSAL:**

Rejected Material which is lying in the rejected area can be destroyed OR sold as scrap (by Store Head) after instruction from QC / Unit Head.

All collected and generated scrap is disposed of by authorized scrap agent through HR/Account/Purchase departments.

**SAFETY:**

All required safety precautions shall be ensured (Safety Shoes, Safety Helmet, Safety Gloves, Safety Goggles, etc).

**4.0 PROCESS VALIDATION**

Visual and Dimensional Inspections have resulted in compliances with the Standards.  
Material Testing have resulted in compliances with the Standards.

**5.0 RESPONSIBILITY**

This procedure is the responsibility of the QC Engineer.

**6.0 REFERENCES**

Measuring Equipment Manufacturer's Manual  
Dimensional Standards – ASME, MSS SP



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