

# ADVANCED MANUFACTURING



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TITLE: **TECHNICAL DATA SHEET**

**Description:** Magnetic Particle Examination      **Date:** See Signature block

## Technical Data Sheet for the supply of: Magnetic Particle Examination

	Name	Signature	Date
Prepared	TP Choeu QC Manager		2025/01/28
Reviewed	MM Mathada NDE Technician		2025/01/28
Reviewed	CIK Corbitt QA Manager		2025/01/28
Approved	MD van Heerden MO Manager		2025/01/28

### REVISION HISTORY

Rev	Date	Description of changes
1.0	Data	First issue

#### 1 SCOPE

1.1 Magnetic Particle Examination (MT) shall be performed to detect surface and near-surface discontinuities in ferromagnetic materials. Examination shall conform to the applicable requirements of:

1.1.1 ASME BPVC SECTION V Non-Destructive Examination 2007 ED,2008 ADD

1.1.2 SE-709, Standard Guide for Magnetic Particle

1.1.3 Article 7 Magnetic Particle Examination

1.1.4 And this TDS.

#### 2 APPLICABLE DOCUMENTS

2.1 The documents listed in this section are applicable to and required for the use of this TDS because the applicable information in them is not necessarily repeated in this TDS.

[1] ASME BPVC SECTION V Non Destructive Examination, 2007 ED,2008add

[2] ASME V Article 7 Magnetic Particle Examination

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- [3] ASME BPV Code Section III, Division 1, Subsection NC – Class 2 Components, 2007 Edition 2008 ADD
- [4] ASME BPV Code Section III, Division 1, Subsection ND – Class 3 Components, 2007 Edition 2008 ADD
- [5] ASME B31.1: Power Piping, 2020 Edition.
- [6] ANSI MSS-SP-58: Pipe Hangers and Supports.
- [7] ASNT SNT-TC-1A or ISO 9712
- [8] Doc No: AM-QAP4-QAR-0009 Rev 10. Quality Assurance Requirements for Testing Services.

### 3 BASIC REQUIREMENTS

#### 3.1 Basic Information:

3.1.1 Material Specification:	Carbon steel pipes, fittings and supports
3.1.2 Material Type:	Variety
3.1.3 Test Temperature:	Ambient
3.1.4 Test Orientation:	As per Technique
3.1.5 Acceptance Criteria:	AS per applicable code
3.1.6 Test Results:	Test Certificates as per Section 14 of this TDS

#### 3.1 Units of Measurement:

- 3.1.1 SI units of measurement shall be used.
- 3.1.2 Where measurements of any parameter are taken, they shall be recorded directly on the data sheet in the units of the measuring instrument.
- 3.1.3 The units of measurements shall be specified for every value in all documentation and certificates.

#### 3.2 All documents shall be provided in the English language.

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3.3 Notification and Hold Points shall be confirmed before start of testing.

3.4 No Code Cases are allowed.

## 4 PROCEDURE REQUIREMENTS

4.1 Magnetic Particle Examination shall be performed in accordance with a written procedure, which shall, as a minimum, contain the requirements listed in Table T-721. The written procedure shall establish a single value, or range of values, for each requirement Surfaces shall be clean and free of contaminants that may interfere with examination.

4.2 Surface temperature and lighting conditions shall comply with **ASME Section V, Article 7** requirements.

4.3 Unless otherwise specified, MT shall cover:

4.3.1 Full weld length including start/stop areas.

4.3.2 Heat-affected zones.

4.3.3 Adjacent base material for a minimum of 25 mm on each side of the weld

## 5 EQUIPMENT

5.1 Apparatus shall meet the requirements of T-730

### 5.2 CALIBRATION

5.2.1 The material from which the block is fabricated shall be All MT equipment shall be suitable for the intended application and in good working condition.

5.2.2 Magnetizing equipment, meters, UV lamps (where applicable), and field indicators shall be **calibrated and verified** in accordance with **ASME Section V, Article 7** and the approved procedure.

5.2.3 Calibration records shall be available upon request.

## 6 Record of discontinuities

Recording of discontinuities shall be meet the requirements of the referencing code.

## 7 Evaluation and Acceptance

7.1 Evaluation and acceptance shall be done in accordance with the referencing code.

## 8 EXAMINATION RECORDS

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8.1 The following information shall be recorded:

8.1.1 Component and weld identification

8.1.2 Applicable code, edition, addenda, and acceptance criteria

8.1.3 MT procedure number and revision

8.1.4 Examination technique and equipment identification

8.1.5 Description, size, orientation, and location of indications

8.1.6 Examination result (Accept / Reject)

8.1.7 **Name, certification level, and signature of the technician.**

8.1.8 Date of examination

8.1.9 Surface(s) from which examination was conducted, including surface condition.

8.1.10 Map or record of rejectable indications detected or areas cleared.

8.1.11 Areas of restricted access or inaccessible areas (If applicable)

## 9 NON-CONFORMANCES

9.1 Non-Conformances shall be treated as specified in ref.[8]

## 10 Demagnetisation

10.1 When residual magnetism in the part could interfere with subsequent processing or usage, the part shall be demagnetized any time after completion of the examination.

## 11 INSPECTIONS

11.1 The Supplier shall provide the Purchaser's QC Inspector access to its facilities and records to enable the QC Inspector to monitor the preparation of specimens and the performing of tests as specified in the request form.

## 12 IDENTIFICATION AND STATUS

12.1 Test specimens shall be identified and always controlled.

## 13 RIGHT OF ACCESS

13.1 Access to the Supplier's and its Sub tier Supplier's facilities shall be provided to the Purchaser, Authorized Inspector or others authorized by the Purchaser including his customer and end user for surveillance, inspection, or audit.

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## 14 DOCUMENTATION TO BE PROVIDED BY THE SUPPLIER

14.1 Statement of compliance to:

14.1.1 This TDS

14.1.2 Necsa Purchase Order.

14.2 The following information shall also be supplied:

14.2.1 Full description of material tested (as applicable specification number, grade, class or type, size, Weld number as applicable).

14.2.2 Test procedure number and revision.

14.2.3 Date of test

14.2.4 Tester data record (Name, Signature, and Date of Signature)

14.2.5 Type of test and test conditions

14.2.6 Actions taken in connection with any deviations noted. If applicable reference the non-conformance report number.

14.2.7 Person evaluating the tests results (Name, Signature, and Date of Signature)

14.2.8 Calibration reports and number of measuring and test equipment used for testing.

14.2.9 Test equipment description and identification number.

14.2.10 Results of tests and test acceptability

14.2.11 **Sketch**

A **clear sketch or marked diagram** shall be included showing component orientation, examination areas, and the precise location of any relevant indications.

14.2.12

14.3 All characteristics required to be reported by the Purchase Order and TDS shall be verified and the results recoded. Records shall be traceable to the documents and revision to which a test was performed.

## 15 HANDLING OF COMPONENTS

All products and chemicals in contact with the material must meet the following requirements:

15.1. Total halogens (chlorine + fluorine + bromine) < 200 ppm

15.2 Total sulphur < 200 ppm

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15.3. Other prohibited materials not allowed as a known constituent of the product: lead, zinc, copper, aluminium, cadmium, tin, mercury, antimony, bismuth, silver, cobalt, arsenic, rare earths, gallium, indium, ferric iron salts, low melting point alloys in general and their compounds.

## **16 QUALITY ASSURANCE REQUIREMENTS**

16.1 All general and specific Quality Assurance requirements shown in the Purchase Order and ref. shall be met.