

Purchase Specification	Technical Quality Sulzer Pumps	
Castings requiring certified material test reports type 3.1 and 100% PT of welds		Page: 1 of 2

1.0 Scope

This specification details the minimum inspection, testing and certification requirements for castings requiring certified material test reports type 3.1 of chemical composition, mechanical properties and heat treatment and 100% surface examination of welds using liquid penetrant methods.

Note: Sulzer procedures referred to in this specification can be down loaded from www.sulzerpumps.com/spukstds

2.0 Materials

Material type specification and grade shall be as stated in the Sulzer Purchase Order.

3.0 Manufactures Certification

3.1 The following documentation shall be provided as appropriate:

- Certified material test report (e.g. EN 10204 type 3.1)
- Heat treatment details including any post weld heat treatment
- NDE reports on completion of surface examinations
- Weld map including location and size of major repair excavations
- NDE reports of repair excavations
- NDE reports on completion of a weld repair

3.2 All documentation shall be in the English language, legible and suitable for reproduction.

4.0 Inspection

4.1 Examinations shall be carried out on completion of heat treatment.

4.2 Visual Examination:

- a) Test Procedure: Sulzer TP-0012
- b) All accessible surfaces of the casting shall be examined and shall be free of adhering sand, scale, cracks and hot tears. Other surface indications shall meet the requirements of MSS-SP55
- c) Hydraulic surfaces are to be clean and free from obtrusions with a surface roughness in the order of 25µm (N11) / SCATA A1.

4.3 Liquid Penetrant Examination:

- a) Test Procedure: Sulzer TP-0001
- b) Areas to be examined: 100% of welds
- c) Acceptance Criteria: ASME VIII, Div. 1, App. 8, Para. 8-4

4.4 Sulzer and/or their client's representatives shall be afforded access and assistance at all reasonable times to carry out inspections at the manufacturer's premises.

5.0 Repairs

5.1 Unacceptable surface imperfections shall be removed and blended into their surrounding surfaces to avoid any sharp contours.

5.2 Major weld repairs shall not be performed without Sulzer's written agreement.

5.3 Iron castings shall not be weld repaired without Sulzer's written agreement.

5.4 Whenever an imperfection is to be weld repaired, the excavation shall be examined by the liquid penetrant method (clause 4.4) to verify that the imperfection has been removed or reduced to an acceptable size.

5.5 No repair welding shall be carried out prior to Sulzer's review of the proposed weld repair procedures.

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- 5.6 All weld repairs shall be carried out using welding procedures and operators qualified in accordance with:
- a) ASTM A 488 respectively ASME IX
 - or
 - b) EN ISO 15614 respectively EN 287
- 5.7 When impact testing is required by the purchase order or material specification, then the welding procedure qualifications shall include impact testing to the same test criteria.
- 5.8 Definition of a major weld repair:
- a) Removal of more than 20% of the wall thickness or 25mm which ever is the smaller
 - or
 - b) Area of excavation exceeding 65cm²
- 5.9 On completion of welding, repaired areas shall be blended into their surrounding surfaces to avoid any sharp contours and be examined by the liquid penetrant method (clause 4.3). When subsequent heat treatment is required, examination of the repaired area shall be conducted after heat treatment.

6.0 Product Marking

To provide traceability between the material and the documentation, each piece of material/component shall be individually marked, at a prominent location with the following:

- a) Casting melt / heat number
- b) Material grade and class
- c) Sulzer Purchase Order number, line item number and material number

7.0 General Notes

- 7.1 All certification and delivery advice documentation shall include the Sulzer Purchase Order number, line item number and material number.
- 7.2 All documentation shall be provided on or prior to delivery of the material.
- 7.3 Acceptance of the material shall be on satisfactory compliance to the Purchase Order requirements.
- 7.4 All standards referenced shall be current issues unless stated otherwise.
- 7.5 Failure to comply with the above requirements could result in rejection or delayed payment of invoices.

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