

Specification Steel Construction



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1. Purpose, objective

This specification describes demands on manufacturers, products, designs and proofs.

If in the order or drawing no other parameters are described the content of this specification always prevails (as minimum requirement).

2. Field of application

This specification applies to manufacturers of welding parts and steel work of HAZEMAG & EPR GmbH / HAZEMAG Systems GmbH GmbH / allmineral GmbH und Co. KG. (HAZEMAG).

3. Terms

NDT	=	Non-destructive test
WPS	=	Welding procedure specification
NDT	=	Non-destructive test of fusion-welded joints
VT	=	Visual test
MT	=	Magnaflux test
PT	=	Liquid penetration test
ITP	=	Inspection and Testing Plan (quality control plan)

4. Demands on manufacturers of welding parts and steel work

Further applicable standards and guidelines:

- DIN EN ISO 3834 part 3 as minimum requirement (standard quality requirement); In addition the parts -1, -5, and -6 of the standard apply alternatively: DIN 18800-7, min. class C or EN 1090 – EXC2.
- DIN EN ISO 5817 – minimum requirement: assessment group C (irregularities on welding seams). In particular cases higher demands may also apply. Spatters are generally to be removed.
- DIN EN 287-1 / ISO 9606-1 for steel
- DIN EN ISO 9692 -1, -2 and -4 weld preparation
- DIN EN 10204 inspection certificate 3.1 for all steels with a yield strength of ≥ 355 N/mm² and wear resistant steels. Other steels with test report 2.2.
- Documents regarding admitted welding filler metals (e.g. DB-data sheets, TÜV-certificate data sheets)
- EN 473 (DIN EN ISO 9712) qualification and certification of staff of non-destructive testing
- DIN EN ISO 17637 visual inspection of fusion welded joints

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- DIN EN 1011-1 (ISO TR 17671-1) recommendations for welding metal-based materials
- Standardized tolerances – DIN EN ISO 13920 – BF
- Quality of the flame cut edges ISO 9013 – 442.
- Prior to welding grease, slag, rust and scale have to be removed.
- Welding procedure 1910 – 100.

The manufacturer has to ensure the following:

- For the seams to be welded the corresponding welding instructions (WPS and WPQR according to DIN ISO 15607) are available.
- If on the drawing the information on welding procedure are not sufficiently specified (e.g. design throat thickness, etc.), HAZEMAG have to be contacted and the execution of the welding seams has to be determined and approved.
- ND - tests, such as VT, PT, MT have to be carried out to the following extent :
 - **VT - tests** are to be carried out to the full extent (100 %).
 - **PT - or MT – test** may be demanded in particular cases. In this case there are specifications on the drawing and/or order text.

5. Quality documentation

The manufacturer ensures that the forms made available by HAZEMAG shall be used. The forms have to be filled in and signed.

Note: HAZEMAG reserves the right to coordinate the features to be tested (from drawings, ITP, dimension sheets etc.) with the supplier and/or to check them.

The following documents are to be included in the delivery of the goods:

- Copy of the „manufacturer’s welding qualification“ (certification for welding).
- Records referring to the dimensional check (form 01FO1005/Allmin 2011 “test record dimension sheet” ordered by assembly groups and/or part numbers per component;
- Listing of the welders who were engaged in the manufacture (form 01FO1013/ Allmin 2014 “list of authorized welders), per order. The welding certificates have to be submitted on demand.
- Records of the ND tests (form 01FO1010/Allmin 2012 „test record non-destructive test”) per component
- Listing of the testers (form 01FO1016/Allmin 2013 „list of authorized ND testers”) per order; HAZEMAG reserve the right to request at any time a copy of the NDT certificates.

Note on the visual inspection: if there is no ND tester, an inspection of the components may be carried out by the welding supervisor.

- The full traceability of the raw materials has to be ensured. HAZEMAG reserve the right to request at any time a copy of the material certificates. Any deviations thereof are regulated in the order text and/or the drawing.
- If annealing is required, the corresponding records (annealing records);
- One packing list each (item, quantity, drawing number, order number) has to be included per packing piece.

Prior to their dispatch the documents are to be sent by e-mail the purchasing dept. to zeugnisverwaltung@hazemag.de (HAZEMAG & EPR GmbH), assorted by assembly groups and components respectively, including the HAZEMAG order number, part number and drawing number.

1. Further applicable documents

Enlisted forms