
INTERNATIONAL STANDARD



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Welding – Factors to be considered when assessing firms using welding as a prime means of fabrication

Soudure – Facteurs à prendre en considération pour l'appréciation des entreprises utilisant le soudage comme moyen principal de fabrication

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3834 was developed by Technical Committee ISO/TC 44, *Welding*, and was circulated to the member bodies in January 1976.

It has been approved by the member bodies of the following countries:

| | | |
|----------|----------------|-----------------------|
| Austria | India | Poland |
| Belgium | Ireland | Romania |
| Brazil | Israel | South Africa, Rep. of |
| Bulgaria | Italy | Spain |
| Chile | Japan | Sweden |
| France | Korea, Rep. of | Turkey |
| Germany | Mexico | U.S.A. |

The member bodies of the following countries expressed disapproval of the document on technical grounds:

Australia
Portugal
United Kingdom

Welding — Factors to be considered when assessing firms using welding as a prime means of fabrication

0 INTRODUCTION

The list given below covers the most common factors which should be taken into account in the assessment of a firm to meet certain requirements for manufacture.

For some types of fabrication certain of the items may not be relevant, while for others there may be additional factors to be considered. For example, the lack of production experience of certain welded items may mean that more extensive testing, which in certain cases may even extend to the fabrication of prototypes which would be tested, will be required for a new manufacturer or a contractor entering a new field of manufacture in order to satisfy a prospective purchaser of his capability.

Each case, therefore, should be assessed in relation to the particular application and the requirements of any relevant regulations and specifications or inspecting authority.

The information and technical criteria listed may be used as a guide for the establishment of a questionnaire to serve in the assessment of a manufacturer's capability to carry out a particular fabrication.

1 SCOPE

This International Standard is intended as a guide for the assessment of the capability of a firm to carry out a particular fabrication. In order to achieve this aim it lists the information and technical criteria to be taken into consideration.

2 FIELD OF APPLICATION

This International Standard applies to firms using welding of metals and alloys as a prime means of fabrication.

3 INFORMATION TO BE SUPPLIED

3.1 Name of firm, division, works, department and location

Under this heading, enough information must be given to identify adequately the location and department responsible for the welding work which will be carried out.

3.2 Organization chart (where applicable)

This shows the departmental structure of the firm or division (including names and responsibilities) as far as it is necessary for completion of the welded product (design, manufacturing and testing, etc.).

3.3 References to be supplied

3.3.1 Work completed

This lists the major fabrications completed together with dates, and possibly the supervising engineer.

3.3.2 Approvals

When competence is approved by an independent body such as an inspection or insurance organization or a classification society, all relevant details should be provided of such approval.

4 TECHNICAL FACTORS

4.1 Nature of work

This concerns :

- the field of manufacture, for example pressure vessels, tanks, ships, pipelines, structural steelwork, heavy electrical equipment;
- the category of work in the field in which experience has been obtained, for example work which has been completed in conformity with national regulations, standards or specifications;
- the work already completed, whether large or small.

4.2 Shop and/or site fabrication capability

Some companies carry out pre-fabrication in the works and assembly on site. Others are concerned solely with shop work or site work. Verification of the relevant experience is necessary because it can have an influence on quality. This item should include details of the possibilities offered by working areas and availability of handling and manipulating equipment taking account of safety measures in respect of the capacity of the equipment and size of fabrication that can be accommodated. Firms might obtain particular equipment in time for a specific contract or sub-contract.

4.3 Materials for which fabrication experience exists, including types of metal and alloys, and thickness range covered for each metal

This includes the material types in broad terms, such as ferritic steels, low alloy steels, alloy steels, non-ferrous metals and their alloys etc., in which fabrication experience exists, but special experience, such as clad vessels or dissimilar metal welding, should also be included.

4.4 Welding processes and allied processes available for each metal or alloy

Both general and special (for example submerged arc strip cladding) processes available should be listed, but not the detailed capacity of each item of plant. Firms might obtain particular equipment in time for a specific contract or sub-contract.

4.5 Heat treatment capability

This should include the type and capacity of the equipment, whether it is used in the shop or on site, the temperature range, the method of measuring temperature and the control of temperature, the suitability for different types of heat treatment, including pre-heating and post-heating.

4.6 Qualification of welders (manual, semi-automatic and automatic)

Taking into account the equipment which the firm possesses, this covers the availability and number of the

welders employed, together with the nature of works undertaken and the welding tests which they have passed.

4.7 Research and development

For those applications where they are important, the arrangements for research and development¹⁾ including design studies carried out by the firm should be taken into account.

4.8 Quality assurance facilities, including arrangements for the welding inspection procedure or a supervisor or welding supervision and use and assessment of sub-contractors

The existence or otherwise of a laboratory and metallurgist(s) as well as mechanical testing facilities, and of a non-destructive testing department, and qualified personnel to ensure the efficient functioning of these departments should be mentioned. The particular non-destructive testing methods available should be included, together with details of routine quality control procedure. If the firm itself does not have the necessary facilities, the arrangements for using outside bodies should be described, for example test houses, inspecting organizations.

The extent to which use is made of sub-contractors, and the measures the manufacturer takes to check their competence, should be stated.

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1) This may be taken to include equipment available and number of personnel involved.