

Methods for

Evaluation of prefabrication primers

Part 1. Rating and weldability tests

ICS 25.160.40

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Committees responsible for this British Standard

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- British Coatings Federation Ltd.
- British Constructional Steelwork Association Ltd.
- British Iron and Steel Producers' Association
- British Maritime Technology
- Co-opted experts
- Lloyd's Register of Shipping
- Ministry of Defence
- Railway Industry Association
- Welding Institute
- Welding Manufacturers' Association (BEAMA Ltd.)

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Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
Section 1. General	
1.1 Scope	1
1.2 References	1
1.3 Definitions	1
Section 2. Rating test	
2.1 Principle	3
2.2 Preparation of test piece	3
2.3 Procedure	4
2.4 Determination of porosity	4
2.5 Test report	4
Section 3. Weldability test	
3.1 Principle	6
3.2 Preparation of test piece	6
3.3 Procedure	6
3.4 Weld evaluation	9
3.5 Test report	9
Annex	
A (informative) Recommendations for weld evaluation criteria	11
Tables	
1 Rating test welding parameters	4
A.1 Quality level limits for imperfections when welding over primers	12
A.1 Quality level limits for imperfections when welding over primers (continued)	13
A.1 Quality level limits for imperfections when welding over primers (continued)	14
A.1 Quality level limits for imperfections when welding over primers (continued)	15
Figures	
1 Methods of indicating dimensions for fillet welds	2
2 Arrangement of test pieces in rating test	3
3 Breaking of the test weld	5
4 Positions at which pressure is applied	7
5 Typical pressure application method	7
6 Positions of tack welds	8
7 Test piece for weldability test	8
8 Weld evaluation	10

Foreword

This Part of this British Standard has been prepared by Technical Committee WEE/42 and supersedes BS 6084 : 1981, which is withdrawn.

BS 6084 consists of the following Parts:

Part 1: *Rating and weldability tests*

Part 2: *Mechanical tests*¹⁾

Prefabrication primers applied to steelwork can cause porosity in subsequent butt and fillet welds. The amount of porosity depends on many factors, including the type of primer, the primer thickness, the type and fit-up of joint being welded, the welding process and the welding parameters.

This standard describes tests that may be carried out to assess the weldability of prefabrication primers. However, the final choice of primer will also depend on such factors as corrosion protection and resistance to burn through. Some of the constituents necessary to give these properties may produce hazardous fumes and reference should be made to the relevant legislation, e.g. the Health and Safety at Work etc. Act 1974.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 16, an inside back cover and a back cover.

¹⁾ In preparation.

Section 1. General

1.1 Scope

This Part of BS 6084 describes tests for assessing weldable primers. The following tests are detailed.

a) *Rating test*

This screening test provides a method of assessing the relative weldability of primers of a specified thickness by making a standard weld over a range of primers and subsequently evaluating the severity of the resulting porosity.

b) *Weldability test*

This test describes a method for evaluating the weldability of welding consumables and prefabrication primer combinations, using various arc welding processes. A standard size fillet is produced that enables comparisons to be made. An overall assessment of the quality of the resultant weld is made.

1.2 References

1.2.1 Normative references

This standard incorporates, by dated or undated reference, provisions from other publications. These normative references are made at the appropriate places in the text and the cited publications are listed on the inside back cover. For dated references, only the edition cited applies; any subsequent amendments to or revisions of the cited publications apply to this British Standard only when incorporated in the reference by amendment or revision. For undated references, the latest edition of the cited publication applies, together with any amendments.

1.2.2 Informative references

This standard refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on the inside back cover, but reference should be made to the latest editions.

1.3 Definitions

For the purposes of this British Standard, the definitions given in BS 499 : Part 1 : 1991 and BS EN 25817 : 1992 apply, together with the following.

1.3.1 prefabrication primer

Material applied as a thin film to a metal surface after cleaning, for example by a blast cleaning process, to give protection until the final paint scheme is applied.

1.3.2 weldability of primer

Tendency of primer to influence the quality level of a weld.

1.3.3 fitness-for-purpose

The ability of a product to function satisfactorily in service during its stipulated lifetime.

NOTE. A product may deteriorate in service, but not to such a degree that fracture and subsequent failure can occur. Products may, of course, be misused or overloaded; it is presumed that the conditions during service correspond to the intended conditions, including statistical variations, e.g. live loads.

1.3.4 nominal throat thickness *a*

The height of the largest isosceles triangle that can be inscribed in the weld section (see figure 1).

NOTE. If the leg length *z* (see figure 1) is used as the dimension of a fillet weld, the limits of imperfections may be reformulated so that they refer to the leg length.

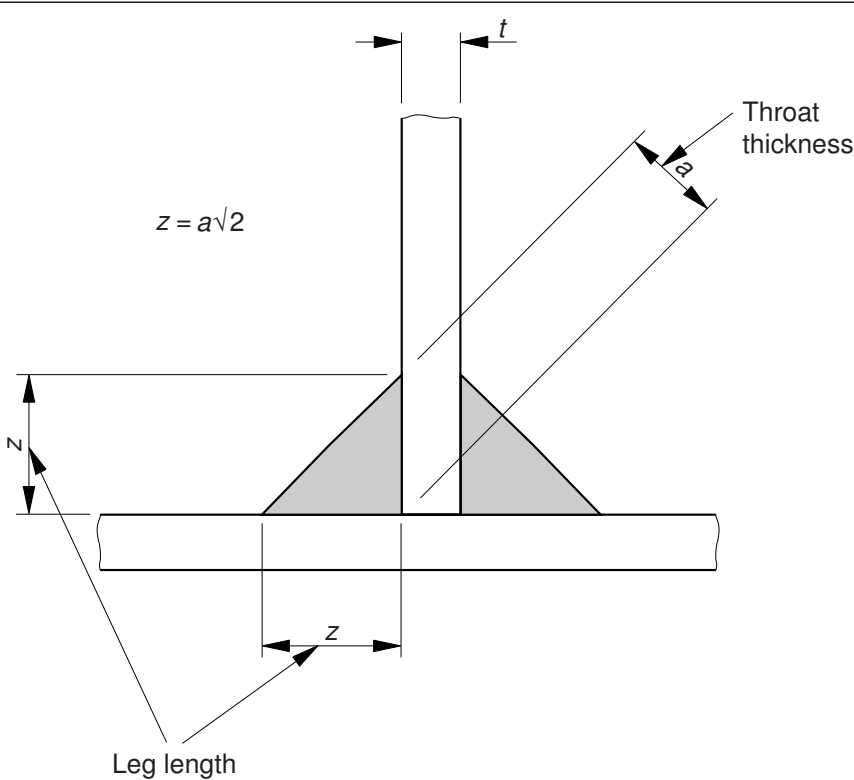


Figure 1. Methods of indicating dimensions for fillet welds

Section 2. Rating test

2.1 Principle

This test provides a method of assessing the relative weldability of primers of a specified thickness by making a standard weld over a range of primers and subsequently evaluating the severity of the resulting porosity.

The joint configuration and close fit-up are designed to give significant levels of porosity for reasons of differentiation and reproducibility. It is expected that in practical applications the levels of porosity will be lower. Limits for acceptability are not specified as these depend on the joint and design criteria.

2.2 Preparation of test piece

Three test pieces shall be prepared for each primer. Each piece shall consist of two bright drawn mild steel plates conforming to any grade of BS 970 : Part 3 :

1991, with dimensions of 20 mm × 80 mm × 200 mm and 12 mm × 50 mm × 200 mm. Both components shall be degreased and the larger component shall be coated on one side with primer prior to testing. The thickness of primer shall be in accordance with the manufacturer's recommendations. When no agreed procedure is specified, method 6Ab) of BS 3900 : Part C5 : 1992 shall apply. After priming, the steel plates shall be stored for a minimum period of 7 days, in conditions recommended by the manufacturer, to allow the primer to cure before welding.

The parts shall have smooth, flat, undamaged surfaces, and any burrs on the edges shall be removed to ensure a good fit-up.

