



International Standard

ISO 3677

Filler metal for brazing - Designation

Métaux d'apport de brasage fort — Désignation

**Fourth edition
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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 13, *Brazing materials and processes*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 3677:2016), which has been technically revised.

The main changes are as follows:

- Since soldering is covered by ISO/TC 44/SC 12, *Soldering materials*, and the corresponding designations in ISO 9453, all soldering designations have been deleted from this document.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html. Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

Filler metal for brazing - Designation

1 Scope

This document specifies designations for filler materials for brazing on the basis of their chemical composition. The designation includes their solidus/liquidus temperatures. This document applies to the metallic part of filler materials used in brazing products, for example foils, wires, rods, pastes, flux-coated rods or wires and flux-cored rods or wires.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Symbols and requirements

4.1 General

The designation is divided into three parts. In each case, the parts are separated by a dash.

4.2 First part

The first part shall consist of the letter "B".

4.3 Second part

4.3.1 The second part consists of a group of symbols, in accordance with the classification given in [4.3.2](#) to [4.3.5](#), indicating the various metals or metalloids making up the filler metal.

4.3.2 The chemical symbol of the major element in the filler metal is placed first. This is followed by the nominal mass percentage of the element concerned. This value shall be expressed as a whole number with an accuracy of ± 1 .

When a range is specified for an element in the alloy, the nominal value to be used in the designation should be the mean of the range, rounded to the nearest whole number, or rounded to the nearest even number if the mean is halfway between two whole numbers. When only a minimum value is specified, however, the rounded-off minimum percentage should be used as the nominal value in the designation.

4.3.3 The chemical symbols of the other metals or metalloids specified in the alloy are given in decreasing order of their nominal percentage. If two or more elements have the same nominal mass percentage, they shall be classified in order of decreasing atomic number.

4.3.4 Metals or metalloids with a nominal specified value (see 4.3.2) less than 1 % by mass shall not be indicated in the designation unless these elements are functional components of the alloy, in which case they shall be indicated by their chemical symbols enclosed in parentheses.

4.3.5 Only the chemical symbols of the first six constituents shall be indicated.

4.4 Third part

The third part indicates the temperatures, expressed in degrees Celsius, at the beginning and end of solidification. The solidus temperature shall be placed first, followed by the liquidus temperature. The temperatures shall be separated by an oblique stroke (slash).

5 Examples

5.1 A binary eutectic filler metal with mass fractions of 72 % silver and 28 % copper, with a melting temperature of 780 °C, shall be designated as follows:

B-Ag72Cu-780

A similar alloy, but containing lithium (mass fraction of less than 1 %) as a functional element, shall be designated as follows:

B-Ag72Cu(Li)-780

5.2 A nickel-base filler metal (mass fraction of 63 % nickel) with mass fractions of 16 % tungsten, 10 % chromium, 3,8 % iron, 3,2 % silicon, 2,5 % boron, 0,5 % carbon, 0,6 % phosphorus, 0,1 % manganese and 0,2 % cobalt, with a solidus/liquidus temperature of S 970 °C–L 1 105 °C, shall be designated as follows:

B-Ni63WCrFeSiB-970/1 105

5.3 A copper-base alloy (mass fraction of 59 % copper) with mass fractions of 40 % zinc, 0,5 % tin, 0,2 % silicon, 0,2 % manganese and 0,1 % nickel, with a solidus/liquidus temperature of S 850 °C–L 885 °C, shall be designated as follows:

B-Cu59Zn-850/885