

Resistance welding water-cooled transformers of the press-package and portable types —

Part 2: Specification for portable transformers

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- Association of Supervisory and Executive Engineers
- British Non-ferrous Metals Federation
- British Steel Industry
- British Telecommunications plc
- Copper Development Association
- Electricity Supply Industry in England and Wales
- Health and Safety Executive
- Society of British Aerospace Companies Limited
- Society of Motor Manufacturers and Traders Limited
- Welding Institute
- Welding Manufacturers' Association (BEAMA Ltd.)
- Coopted members

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Foreword

This revision of BS 4819 has been prepared under the direction of the Welding Standards Policy Committee. It forms one of a series of standards dealing with resistance welding equipment. It supersedes BS 4819:1972, which is withdrawn.

In this edition BS 4819 has been divided into two Parts dealing with press package transformers and with portable transformers respectively. This was done so that subsequent revisions could be made to one part without affecting the other, particularly in view of the international input into the requirements on press package transformers.

This Part has been prepared to meet the needs of manufacturers and users for standardizing the dimensional requirements and method of rating transformers for portable spot welding guns.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 4819 specifies the requirements, methods of test, service conditions and rating of single-phase, mains frequency resistance welding water-cooled transformers of the portable type having a primary voltage of 660 V or less.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard the following definitions apply. For other relevant terms the definitions in BS 499-1 apply.

2.1

duty cycle

the time that the load is applied, expressed as a percentage of the integrating period

NOTE 1 The terms “duty factor” and “duty cycle” are synonymous.

NOTE 2 In this standard the word “load” should be considered in a restricted manner. It refers to a constant electrical load without periods of pre-heat, post-heat and slope-control.

2.2

integrating period

the sum of one load period and one no-load period

2.3

thermal rating

the maximum electrical input, in kVA, at a duty cycle of 50 % with a 1 min integrating period, without exceeding the specified temperature

NOTE For the thermal rating at other duty cycles, see Appendix A.

2.4

portable transformer

a transportable water-cooled transformer consisting of a primary and secondary winding, electrically isolated from each other, used to supply welding current to, but remote from, a portable spot welding gun or guns

2.5

rated secondary current

the current, calculated by dividing the thermal rating by the maximum open circuit secondary voltage, obtainable by series connection of the secondary windings

2.6

rated primary current

the current calculated by dividing the thermal rating by the rated primary voltage

2.7

rated primary voltage

the voltage applied directly to the transformer primary winding

NOTE This voltage is not necessarily the same as the supply voltage.

3 Service conditions

3.1 General

This British Standard is applicable when transformers are used under the conditions given in 3.2 and 3.3.

3.2 Altitude

The height above sea level at which the transformer is intended to work in ordinary service shall not exceed 1 000 m.

3.3 Temperature of the cooling media

The temperature of the cooling water flowing shall be less than 30 °C at the inlet and the ambient air temperature shall be less than 40 °C.

4 Design and construction

4.1 General

The transformer shall be of the double wound type, the primary winding being electrically isolated from the secondary winding by means of reinforced insulation in accordance with BS 2754. Live parts shall be so insulated or supported that they do not come into electrical contact with one another or with any earthing conductor or metal parts exposed to personal contact. Live parts shall be so enclosed that no person can inadvertently come into contact with any live part that can normally attain a potential in excess of 55 V above earth potential. Covers for the guarding of live parts shall be effectively secured in position in such a way that their removal requires the use of a tool.

All exposed conductive parts, with the exception of the secondary winding, shall have a common electrical connection for earthing purposes.

4.2 Rating

4.2.1 The thermal rating shall be not less than that stated on the nameplate. The standard rating shall be 75, 100, 150 or 200 kVA at the highest secondary voltage. The maximum observable temperature rise used to determine the thermal rating shall not exceed that given in Table 1.