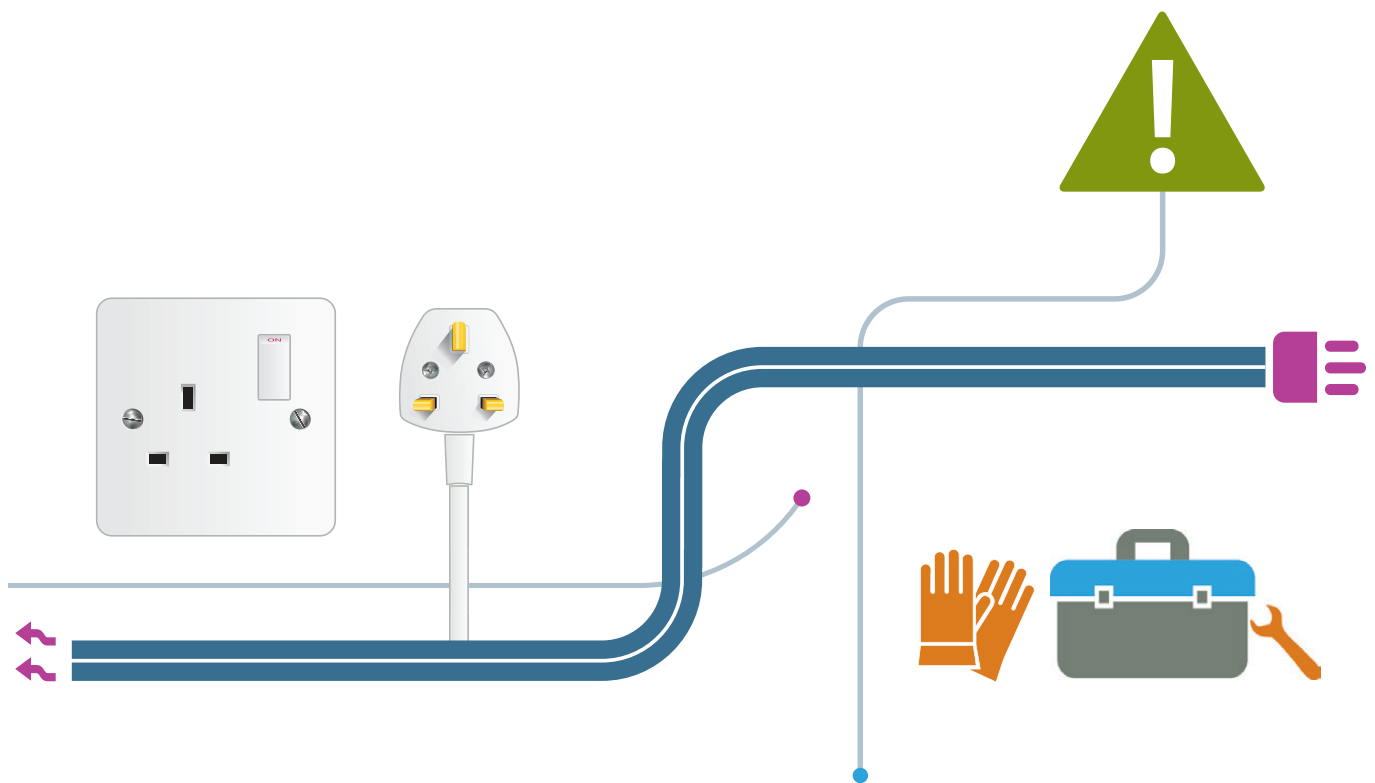


TECHNICAL BULLETIN

SELECTION OF BOXES FOR INSTALLING ELECTRICAL ACCESSORIES

(Socket-outlets, connection units, plate switches
and similar accessories)



ABOUT BEAMA

BEAMA is the UK manufacturing trade association for the electrotechnical sector, providing leadership, expertise and independent influence in the areas of product safety, performance, energy efficiency, digitalisation and sustainability. Our activities span a broad spectrum of technology groups, from energy networks through to electrical infrastructure and service technologies in the built environment.

The association has a strong history in the development and implementation of standards to promote safety and product performance for the benefit of manufacturers and their customers.

This publication provides information to assist contractors, installers and specifiers in selecting an appropriate back box for electrical accessories taking into consideration legislative and product standard requirements.

This publication has been produced by BEAMA's Building Electrical Systems Sector and specifically by BEAMA's Accessories Technical Committee.

Details of other BEAMA publications can be found on the BEAMA website www.beama.org.uk

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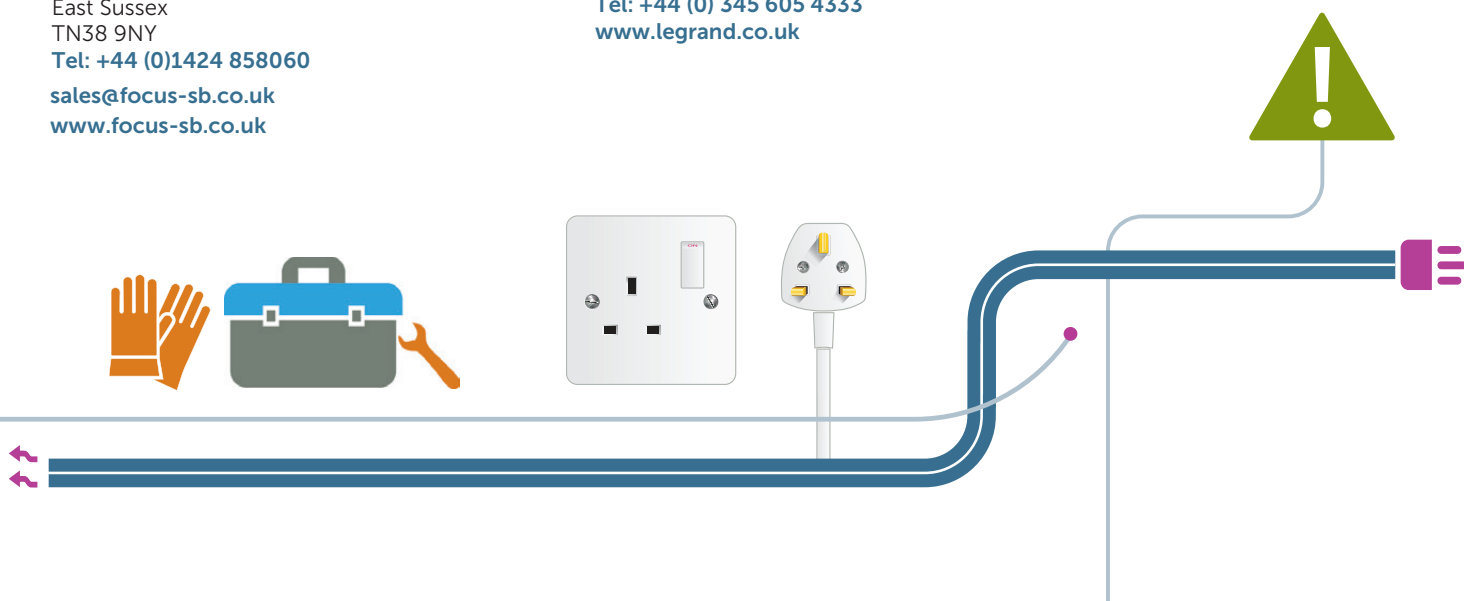
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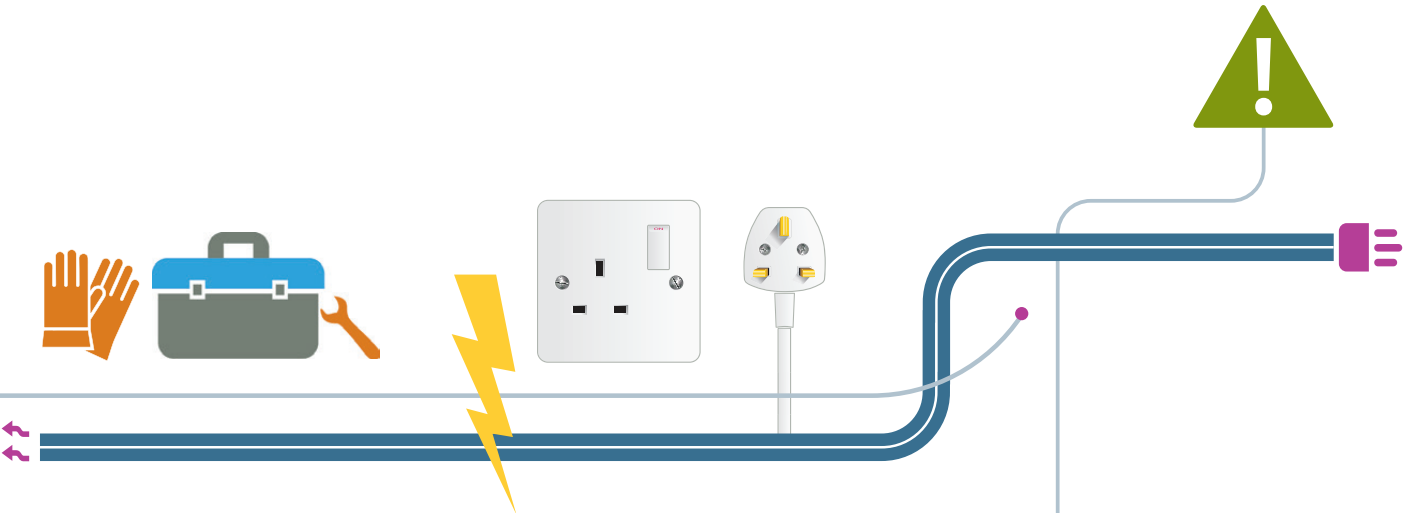
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1. Introduction

It can be difficult to decide which box to use when installing electrical wiring accessories such as socket-outlets, switches and connection units, especially when in addition to the standard BS 4662 boxes, alternative boxes such as those designed for European accessories are available in the UK. Can these non-UK boxes be installed in the UK? What does legislation require?

2. Legislation

2.1 BS 7671:2018+A3:2024 IET Wiring Regulations 18th Edition

Regulation **530.4.2** states “Unenclosed equipment shall be mounted in a suitable mounting box or enclosure in compliance with the relevant part of BS EN 60670, BS EN 62208 or other relevant standards such as BS EN 61439 series. **Socket-outlets, connection units, plate switches and similar accessories shall be fitted to a mounting box complying with BS 4662 or BS 5733 and with the relevant part of BS EN 60670.**”

This publication only considers accessories falling under the scope of the second sentence of Regulation 530.4.2.

2.2 Plugs and Sockets etc. (Safety) Regulations 1994

The Plugs and Socket etc. (Safety) Regulations 1994 are complementary to the Electrical Equipment (Safety) Regulations. The Plugs and Socket etc. (Safety) Regulations require socket-outlets with which standard plugs are to be engaged to conform to BS 1363-2.

Subclause 13.16 of BS 1363-2:2016+A1:2018 requires flush or semi-flush mounted socket-outlets to have provision for two M3.5 mounting screws at fixing centres in accordance with BS 4662:2006+A1:2009.

3. Product Standards

3.1 BS 4662:2006+A1:2009 Boxes for flush mounting of electrical accessories. Requirements, test methods and dimensions

BS 4662 specifies dimensional and other requirements for boxes for flush mounting of electrical accessories in a wall, or other flat surfaced structure to ensure interoperability. This standard specifies requirements for boxes made from metal and for boxes made from non-metallic materials. This standard also specifies dimensional and other requirements for mounting lugs necessary for mounting the electrical accessory in the box and the fixing holes necessary for fixing the box to the surface to which it is to be attached. This includes the position and numbers of accessory fixing lugs, requirements for M3.5 threaded fixing holes for the mounting of electrical accessories and provisions for lugs allowing angular adjustment of the accessory with threaded M3.5 holes for accessory fixing.

The performance and safety requirements for products conforming to this standard are specified in BS EN 60670 1.

Clause 16 of BS 4662 requires boxes to be marked with BS 4662 and the name and/or trademark of the manufacturer or responsible vendor.



Figure 1. Example of a flush back box marked with BS 4662

3.2 BS 5733:2010+A1:2014 General requirements for electrical accessories. Specification

BS 5733 specifies requirements and tests to check the safety in normal use of electrical accessories which are not covered by other specific British Standards. Such accessories are intended for use in household, commercial and light industrial premises where the nominal supply voltage does not exceed 250 V AC or 250 V DC and the rated current of the accessory does not exceed 63 A.

Subclause 8.1 of BS 5733 requires accessories to be marked with BS 5733 and the name and/or trademark of the manufacturer or responsible vendor.

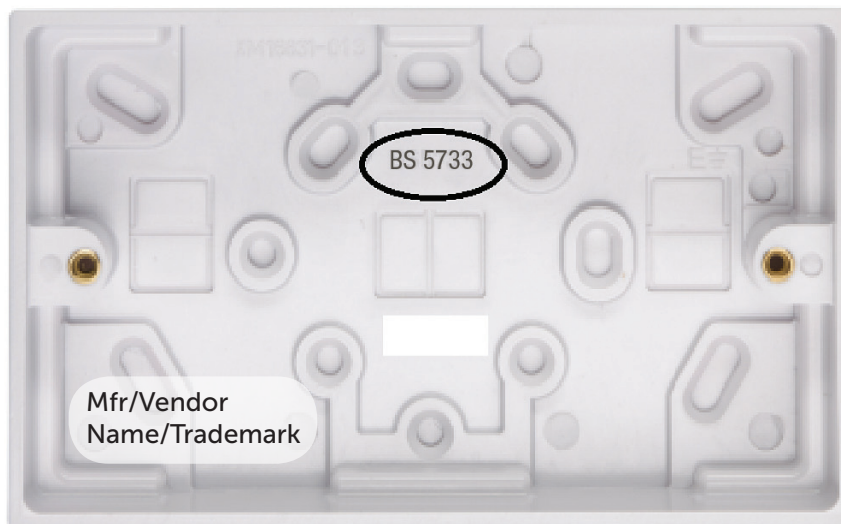


Figure 2. Example of a surface box marked with BS 5733

3.3 BS EN IEC 60670-1:2021+A11:2021 Boxes and enclosures for electrical accessories for household and similar fixed electrical installations - General requirements

BS EN IEC 60670-1 is the UK adoption of the harmonised European standard which applies to boxes and enclosures for electrical accessories with a rated voltage not exceeding 1000 V AC and 1500 V DC intended for household or similar fixed electrical installations. BS EN IEC 60670-1 includes **requirements particularly applicable to the UK.**

Subclause 12.10 requires boxes to be provided with metal threads to ensure safety and **thread forming or thread-cutting screws are not permitted.**

Clause 9 requires boxes intended to accommodate socket-outlets or connection units conforming to BS 1363 to have provision for two M3.5 fixing screws at the fixing centres in accordance with BS 4662.

A box conforming to BS EN IEC 60670-1 but not having provision for two M3.5 fixing screws at the fixing centres in accordance with BS 4662 cannot be used to accommodate socket-outlets or connection units in the UK.

A box conforming to BS EN IEC 60670-1 provided or intended to be used with thread forming or thread-cutting screws are not permitted in the UK.

BS EN IEC 60670-1 does not require the product to be marked with the number of the standard, but the name and/or trademark of the manufacturer or responsible vendor is required to be marked. The number of the standard must be stated in the manufacturer's declaration of conformity and is also usually stated in the manufacturer's catalogues and other documentation.

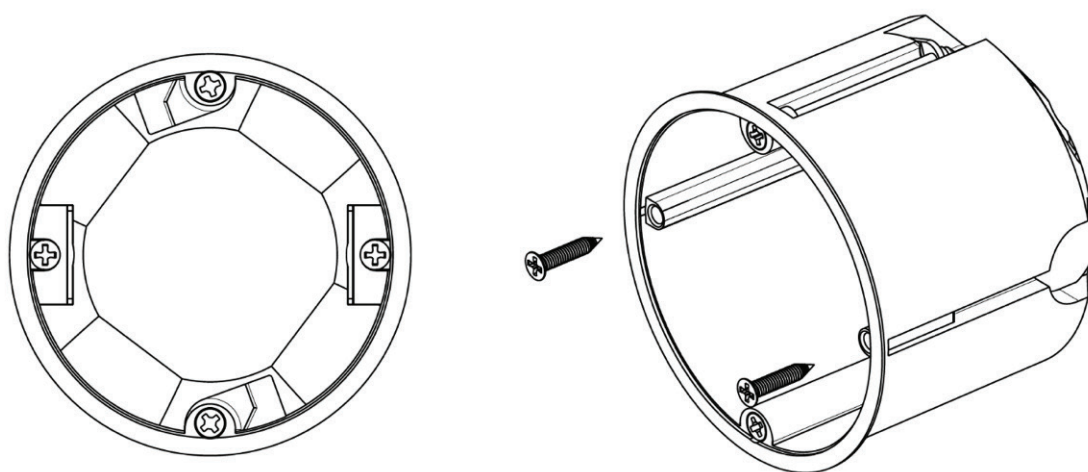


Figure 3. Example of a European style back box with thread-cutting screws

4. Safety concerns

- Boxes such as those designed for European accessories often use self-tapping screws into plastic. Self-tapping screws tend to be pointed thus can easily pierce or otherwise damage cable insulation.
- Threads in plastic are more likely to strip or become cross threaded therefore allowing the accessory to become insecure.
- European boxes tend to be smaller than those conforming to BS 4662 or BS 5733 and therefore an accessory designed for and tested with a BS 4662 or BS 5733 box may not have sufficient wiring space even if the accessory physically fits into the box. If the volume of the European box is less than that of a BS 4662 or BS 5733 box, the accessory may not meet temperature rise requirements.
- A BS 1363-2 socket-outlet must be tested in a BS 4662 box. If a socket-outlet has been designed to fit any other box, the socket-outlet cannot meet the full requirements of BS 1363-2.

5. Conclusion

- 5.1** Installing and/or specifying boxes, intended to accommodate socket-outlets, connection units, plate switches and similar accessories, which do not conform to BS 4662 or BS 5733, will not meet the requirements of BS 7671:2018+A3:2024 IET Wiring Regulations 18th Edition.
- 5.2** Installing and/or specifying boxes conforming to BS EN IEC 60670-1 intended to accommodate socket-outlets or connection units but not having provision for two M3.5 fixing screws at the fixing centres in accordance with BS 4662 will not meet the requirements of BS 7671:2018+A3:2024 IET Wiring Regulations 18th Edition.
- 5.3** Installing and/or specifying boxes conforming to BS EN IEC 60670-1 which are provided or intended to be used with thread forming or thread-cutting screws will not meet the requirements of BS 7671:2018+A3:2024 IET Wiring Regulations 18th Edition.
- 5.4** Installing and/or specifying boxes conforming to BS EN IEC 60670-1 intended to accommodate BS 1363-2 socket-outlets not having provision for two M3.5 fixing screws at the fixing centres in accordance with BS 4662 will not meet the requirement of The Plugs and Socket etc (Safety) Regulations.



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