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Road vehicles — Connection interface for pyrotechnic devices, two-way and three-way connections —

Part 1: Pocket interface definition

Véhicules routiers — Interface de raccordement pour dispositifs pyrotechniques, deux voies et trois voies —

Partie 1: Définition de l'interface du support allumeur

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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 documents 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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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

This second edition cancels and replaces the first edition (ISO 19072-1:2007), which has been technically revised.

ISO 19072 consists of the following parts, under the general title *Road vehicles — Connection interface for pyrotechnic devices, two way and three way connections*:

— *Part 1: Pocket interface definition*

— *Part 2: Test methods and general performance requirements*

— *Part 3: Pyrotechnic device and harness connector assembly - type 1*

— *Part 4: Pyrotechnic device and harness connector assembly - type 2*

Introduction

Road vehicles integrate an increasing number of pyrotechnic devices contributing to occupant safety in vehicles (for example, frontal and side air bag, safety belt pretensioner, etc.).

Various pocket definitions currently exist all over the world. This situation appears difficult to manage for the different equipment makers. The goal of this International Standard is to define a common specification.

A sealed option of the pyrotechnic device/initiator harness connector assembly is also defined. See Annex A.

A variant without retainer of the pyrotechnic device/initiator harness connector assembly is also defined. See Annex B.

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Road vehicles — Connection interface for pyrotechnic devices, two-way and three-way connections —

Part 1: Pocket interface definition

1 Scope

The purpose of this part of ISO 19072 is to define the minimum specification of the pyrotechnic device pocket interface.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ASTM B488: *Standard Specification for Electrodeposited Coatings of Gold for Engineering Uses*

ASTM B735: *Standard Test Method for Porosity in Gold Coatings on Metal Substrates by Nitric Acid Vapor*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
connector
assembly used to connect several conductors together or a single conductor to an appliance

Note 1 to entry: A male (female) connector is a housing containing male (female) contacts and accessory items. A male connector may be permanently fixed to a wiring harness or to an appliance [an electronic control unit (ECU) for example]. A female connector is generally permanently fixed to a wiring harness.

3.2
female contact
contact (including means for cable attachment) designed for electrical engagement on its inner surface, and to accept entry of a male contact, thus forming an electrical connection

[SOURCE: ISO 8092-2:2005, 3.6]

3.3
housing
connector without its contacts

3.4
initiator
part of the pyrotechnical device with two male contacts

3.5
male contact
contact (including means for cable attachment) designed for electrical engagement on its outer surface and to enter a female contact, thus forming an electrical connection

[SOURCE: ISO 8092-2:2005, 3.5]

3.6
pocket
squib holder inner interface including male contacts

3.7
retainer
ring holding an optional shorting clip (shunt) and providing coding and electrical insulation, generally made of plastic

Note 1 to entry: The shorting clip (shunt) may be omitted by decision between manufacturer and supplier.

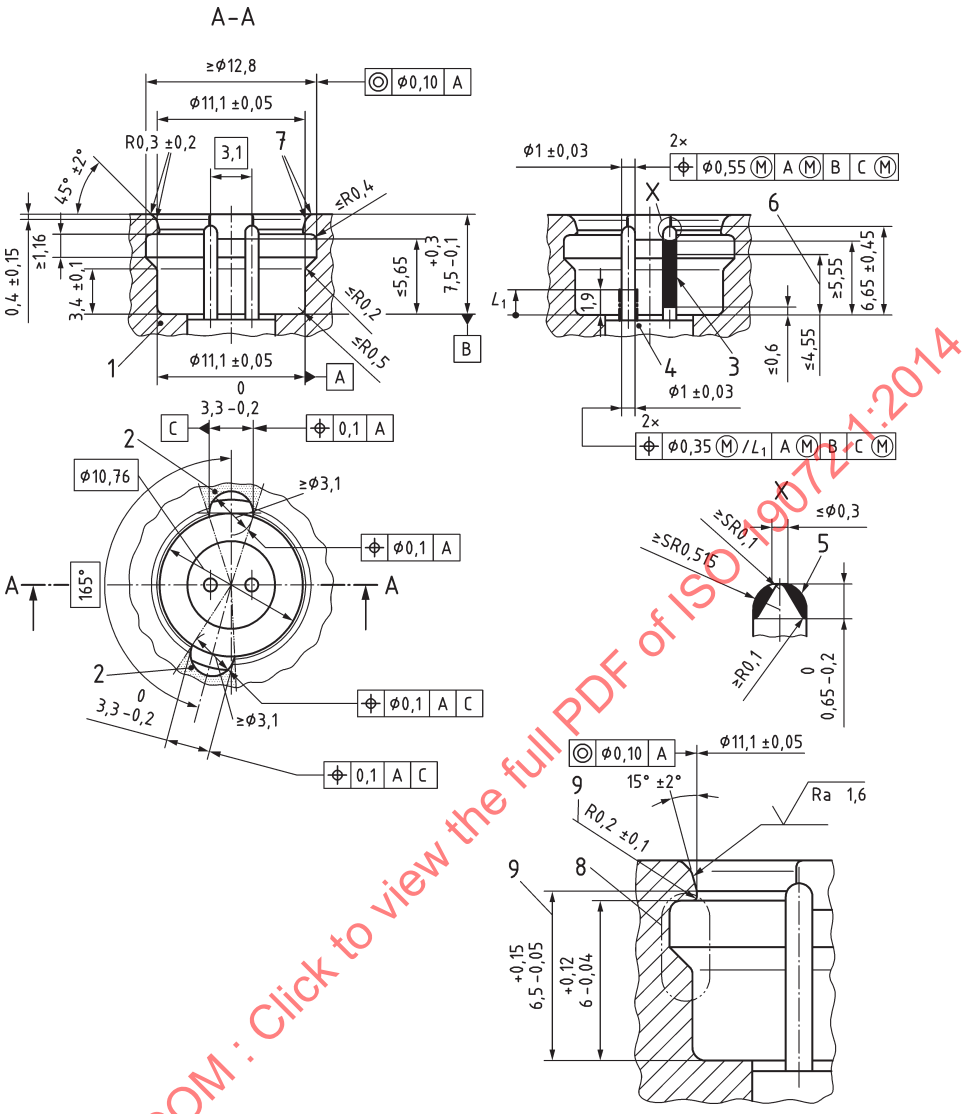
3.8
shorting clip (shunt)
metallic bar of the retainer providing the electrical connection between two male contacts

3.9
squib holder
part of the pyrotechnic device, holding the initiator and the retainer

4 Dimensional features — Squib holder interface including male contacts

The contact and short-circuit areas when male and female connectors are mated shall comply with Figure 1.

Dimensions in millimetres



Key

1 squib holder

2 area in which any shape is acceptable

3 minimum plating contact and short-circuit areas according to 5.2; plating shall extend to the tip of the pin

4 any shape accepted; surface of initiator shall be flush with or below datum B but shall meet the connector / retainer function requirement

5 any convex or straight shape inside shaded area accepted at top of pin shall be smooth and burr free

6 maximum contact point; the female contact shall guarantee a minimum overlap of 1 mm in the contact area

7 rounded and burr free

8 undercut geometry required to hold the connector and retainer inside the squib holder; the undercut surface does not need to be a continuous 360° surface and shall meet the specified connector and retainer retention requirements and dimensions regardless of material

9 for existing tools to produce plastic pockets, the following values are also allowed: R $0{,}15^{\ 0}_{-0{,}1}$ – H $6{,}35^{\ 0{,}15}_{-0{,}05}$

NOTE Datum C depending on the style of the polarization area (hole or slot).

Figure 1 — Squib holder interface with male contacts

5 Material characteristics

5.1 Material specifications for male contacts

The male contacts shall be manufactured of solid material (not folded or hollow).

5.2 Contacts and short circuit areas of the male contacts specifications

Male contact plating shall comply with the following characteristics:

— ASTM B488, type (coating purity) and class (coating thickness) to be agreed between the customer and the supplier but not less than class 0,5;

— ASTM B735, porosity max. 2 pores/mm^2;

— under layer material : nickel ≥1 µm.

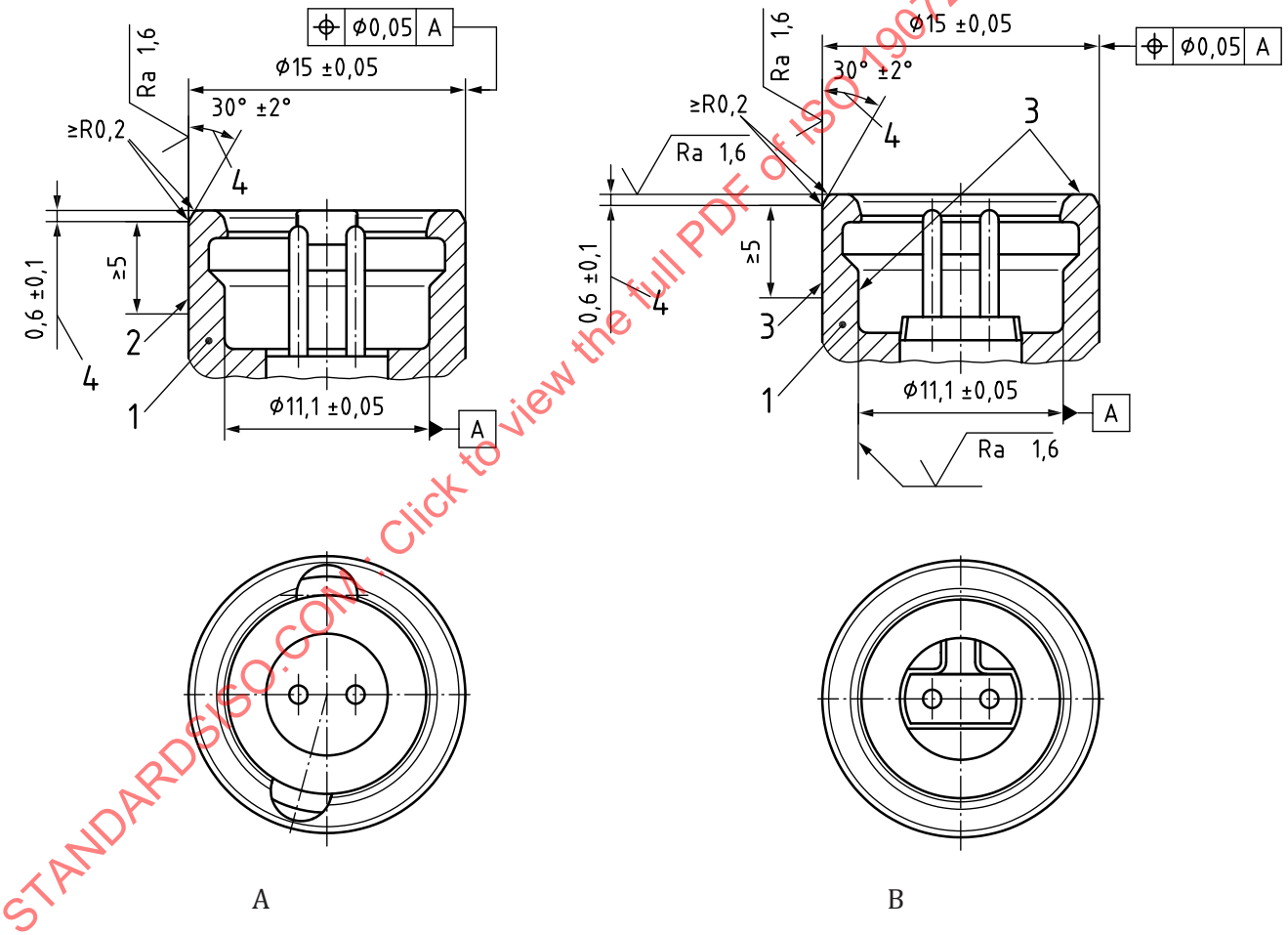
Annex A
(normative)

Sealed variant

All contents of the main document are applicable for the sealed design, except key 2 of Figure 1 (see also Figure A.1).

For sealed connectors, a seal is inserted between the squib holder and the connector. The space to be left free for the seal shall comply with Figure A.1.

Dimensions in millimetres



A B

Key

A with retainer
B without retainer (see Annex B)
1 all shapes accepted
2 surface reserved for sealing as option
3 possible sealing surfaces, selection has to be agreed between customer and supplier
4 alternative 45° ± 2° and 0,5 ± 0,1

Figure A.1 — Sealing