

Bulletin No. 44

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## Aircraft Fuelling Hose Specifications and User Information

JIG Guidelines require that aircraft fuelling hoses shall be of one continuous length, smooth bore synthetic rubber construction qualified to the requirements of the latest issue of EI 1529 and/or EN 1361 Type C (semi conductive). There is also an ISO specification, ISO 1825:2010 which has recently been updated so that its content is essentially identical to EN 1361. The intention is that EN 1361 shall now be withdrawn. The purpose of this technical bulletin is to make users aware of the different specifications and also to highlight some user information. These details will be included in JIG Guidelines Issue 11 which will be published later this year.

### Aircraft Fuelling Hose Specifications

Aircraft fuelling hoses shall be qualified to one or more of the following specifications and all new aircraft fuelling hoses shall be manufactured in accordance with the requirements of EI 1529:

#### **EN 1361:2004 Rubber hoses and hose assemblies for aviation fuel handling: Specification**

This specification was first published in 1997 and superseded BS 3158. EN 1361 will be withdrawn in the near future. Hoses currently in service conforming to EN 1361: 2004 may continue to be used provided that they meet the JIG maximum life and routine inspection criteria.

#### **ISO 1825:2010 Rubber hoses and hose assemblies for aircraft ground fuelling and defueling - Specification**

This specification will replace EN 1361 with which it is essentially identical.

#### **EI 1529 Aviation fuelling hose and hose assemblies standard Sixth Edition 2005**

This standard is due for revision and reaffirmation in 2011. Hoses currently in service conforming to EI 1529 Sixth Edition 2005 may continue to be used provided that they meet the JIG maximum life and routine inspection criteria. Note that there are some unique requirements in EI 1529 as follows:

- Cold Temperature (CT) hose.
- Cyclic surge testing of first article end attachments.
- Grade 1 hose (lower pressure rating).

### User Information

#### **Hose couplings (end attachments)**

Hydrant Servicer inlet hose couplings should preferably be factory fitted. However, these and discharge/delivery hose couplings may be of the re-attachable type if agreed to by all Participants.

When purchasing hoses they should be ordered with the fittings installed and with a certificate confirming security of coupling attachment. Where permitted by the Participants, the attachment of couplings at airport locations shall only be carried out by trained staff certified by the hose manufacturer or their authorised distributor.

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Only the hose couplings recommended by the manufacturer shall be used on a particular hose. Hoses from different manufacturers can have different wall thicknesses and the internal diameter can also vary depending upon whether the hose was made on a metric or imperial mandrel. For example, a 2" hose made on a metric mandrel will have an internal diameter of 50mm whereas one manufactured on an imperial mandrel will be 50.8mm.

### Typical hose applications

- Type C (semi-conductive) – delivery hoses and hydrant inlet hoses.
- Type E (conductive) and F (semi-conductive) – riser (swing) hoses between fixed piping and elevating fuelling decks and trailer connection hoses.
- Type F (semi conductive) – regular high flow rate defuelling.

Type E hoses shall not be used for into-plane delivery or hydrant servicer inlet hoses. Connections to aircraft or hydrant systems shall only be made with Type C or Type F hoses.

Type	Construction
C	A Type C hose is a non-electrically bonded hose incorporating a semi-conductive cover compound having an electrical resistance between $1 \times 10^3$ and $1 \times 10^6$ ohms/metre.
E	A Type E hose is an electrically conducting hose incorporating at least one metallic conducting helical support bonded to the couplings and a conductive cover.
F	A Type F hose is a non-electrically bonded hose that incorporates a non-metallic helix reinforcement and has a semi-conductive cover compound having an electrical resistance between $1 \times 10^3$ and $1 \times 10^6$ ohms/metre.

### Maximum hose life in storage and in service

The maximum period of time an aviation hose shall be kept in storage before entering service is two years from its date of manufacture. This is a specification requirement reflecting the gradual deterioration of the hose liner when not immersed in fuel.

The maximum overall service life is limited to ten years from the date of manufacture (not the assembly date when the couplings are fitted). An extension in hose life up to a maximum of 15 years from the date of manufacture is acceptable for hoses that do not require routine hydrostatic pressure testing (eg hoses which are subjected to pump pressures of less than or equal to 5.5 bar) and which continue to be visually in good condition.

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