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Gasoline engines — High pressure liquid fuel supply connections —

Part 2: Pipe assemblies

Moteurs à essence — Connexions pour des lignes de combustible liquide à haute pression —

Partie 2: Lignes assemblées

Reference number
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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 34, *Propulsion, powertrain and powertrain fluids.*

This second edition cancels and replaces the first edition (ISO 18418-2:2014), which has been technically revised.

The main changes are as follows:

— high-strength steel tubes are required as fuel pressure increases;

— additional specification of tubes, already in use worldwide, are added.

A list of all parts in the ISO 18418 series can be found on the ISO website.

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.

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Introduction

Some spark ignition (SI) engines use direct injection (DI) fuel systems which supply gasoline under pressure to a rail and to the injectors via pipe assemblies with a 60° concave cone connector. Such components are similar to ISO 2974 and ISO 13296 for the diesel injection systems except for the relationship between the outside and inside diameters of the pipes due to the lower pressure range.

GDI fuel systems typically operate in a pressure range of around 35 MPa and are labelled “high pressure”. In the context of all injections systems, including diesel, this same pressure range is considered as medium pressure, as diesel injection operates at much higher pressures, however the term “high pressure” is used in this document.

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Gasoline engines — High pressure liquid fuel supply connections —

Part 2: Pipe assemblies

1 Scope

This document specifies dimensions and requirements for high-pressure fuel pipe assemblies and assembled pipe sets made of seamless stainless steel or surface-treated steel tubing to be used with 60°concave cone connectors on gasoline (spark-ignition) engines.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7876-4, *Fuel injection equipment — Vocabulary — Part 4: High-pressure pipes and end-connections*

ISO 8535-1:2016, *Diesel engines — Steel tubes for high-pressure fuel injection pipes — Part 1: Requirements for seamless cold-drawn single-wall tubes*

ISO 9329-4:1997, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 4: Austenitic stainless steels*

ISO 15510:2014, *Stainless steels — Chemical composition*

ISO 19724, *Gasoline engines with direct injection — Cleanliness assessment of fuel injection equipment*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7876-4 apply.

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 Material properties

Material properties of stainless-steel tubing are specified in ISO 9329-4:1997, Table 1 or ISO 15510:2014, Table 1.

Material properties of surface-treated steel tube are specified in ISO 8535-1:2016, Table 3.

5 Dimensions and tolerances

The requirement and configuration drawing for a pipe assembly shall include at least the following:

a) an indication of compliance with this document;

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