International Standard

ISO 18418-1

Gasoline engines — High pressure liquid fuel supply connections —

Part 1: 60° concave cone connectors

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

Partie 1: Raccords à cônes concave de 60°

Third edition
2026-01

Reference number
ISO 18418-1:2026(en)

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Published in Switzerland

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Foreword

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

This third edition cancels and replaces the second edition (ISO 18418-1:2016), which has been technically revised.

The main changes are as follows:

— another cone specification for 9 mm of tube outside diameter was added;

— title of the document was aligned with the rest of the series;

— language inclusivity was improved.

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 from a high-pressure fuel pump to a rail 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.

Connectors defined either in ISO 2974 or in this document can be used.

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 1:
60° concave cone connectors

1 Scope

This document specifies the dimensional requirements of high-pressure liquid fuel pipe end-connections for gasoline (spark ignition) engine fuel injection equipment.

It is applicable to externally threaded end-connections having a 60° concave cone (see Figure 1), as well as to the pipe end assemblies of high-pressure fuel injection pipes with outside diameters of up to and including 10 mm (see Table 1).

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 261, *ISO general purpose metric screw threads — General plan*

3 Terms and definitions

No terms and definitions are listed in this document.

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 Requirements

4.1 Dimensions and tolerances

Figure 1 indicates the basic requirements for the end-connection at the rail, at the high-pressure fuel pump to allow interchangeability for high-pressure liquid fuel pipe assemblies.

The 60° concave cone and its relationship to the external thread of the end-connection shall meet the requirements of Figure 1.

It is important that the dimensions and tolerances are valid after the final assembly (heat treating, brazing, welding) of the end-connection to the rail, the pump and prior to the assembly of the pipe.

Dimensions and tolerances are given in Table 1. Unspecified details are left to the manufacturer's choice.

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