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Road vehicles — Drawbar couplings and eyes for hinged drawbars — Strength tests

*Véhicules routiers — Pivots et anneaux pour barres d'attelage articulées —
Essais de résistance*



Reference number
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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 8718 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 15, *Interchangeability of components of commercial vehicles and buses*.

This second edition cancels and replaces the first edition (ISO 8718:1988), which has been technically revised.

Road vehicles — Drawbar couplings and eyes for hinged drawbars — Strength tests

1 Scope

This International Standard specifies strength test conditions and requirements for the 40 mm and 50 mm drawbar couplings and corresponding drawbar eyes for hinged drawbars.

NOTE See ISO 3584 ^[1] for couplings, and ISO 1102 ^[2] and ISO 8755 ^[3] for eyes.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 1176, *Road vehicles — Masses — Vocabulary and codes*

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 1176 apply.

4 General test requirements

4.1 The test shall be carried out with drawbar couplings and drawbar eyes having corresponding functional dimensions.

4.2 The strength tests specified in this International Standard are static and dynamic tests that shall be performed on a test bed.

4.3 The fixing arrangements for the drawbar coupling and the drawbar eye on the test bed shall be the same as those for their attachment to the vehicle, and shall be in accordance with the drawbar manufacturer's fitting instructions.

4.4 Drawbar couplings and drawbar eyes may be tested separately or together.

4.5 Couplings should preferably be tested in the original condition as designed for road use. At the discretion of the manufacturer and in agreement with the test laboratory, flexible components may be neutralized if this is necessary for the test procedure and if there is no concern about unrealistic influence on the test result.

4.6 Flexible components that appear to be overstressed due to this accelerated test procedure may be replaced during the dynamic test.

5 Determination of D -value

The D -value is a comparative value determined by calculation for the longitudinal forces occurring between the towing vehicle and the trailer. D , expressed in kilonewtons, shall be calculated using the following equation:

$$D = g \frac{m_T \cdot m_R}{m_T + m_R}$$

where

m_T is the maximum design total mass of the towing vehicle to which the drawbar coupling is to be attached, in tonnes;

m_R is the maximum design total mass of the trailer to be drawn with the drawbar coupling, in tonnes;

g is the acceleration due to gravity ($= 9,81 \text{ m/s}^2$).

m_T and m_R correspond to the symbols T and R according to Directive 94/20/EC of the European Parliament and the Council of the European Union, and United Nations Economic Commission for Europe regulation UNECE/R55.

6 Dynamic test

6.1 Application of test load

6.1.1 Apply the horizontal test load, F_t , simulating practical loads under driving conditions.

6.1.2 F_t shall be an alternating force applied in the location and direction shown in Figure 1. F_t shall be applied by means of a special slack-free trailer coupling ring.

6.1.3 F_t shall alternate between $+ 0,6 D$ and $- 0,6 D$.

6.2 Loading cycle

The dynamic test shall be carried out sinusoidally and the number of cycles shall be 2×10^6 .

6.3 Frequency

The selected frequency shall not exceed 25 Hz and shall not coincide with the natural frequency of the system.

7 Static test

With drawbar couplings, the closure and any locking devices shall also be tested by means of a static force of $0,25 D$ acting in the direction of opening.

A test force of $0,1 D$ is sufficient in the case of cylindrical coupling pins.

8 Strength criteria

The dynamic test specified in clause 6 shall not cause permanent deformation, breaks or cracks. The static test specified in clause 7 shall not cause the closure to open and shall not cause any damage.

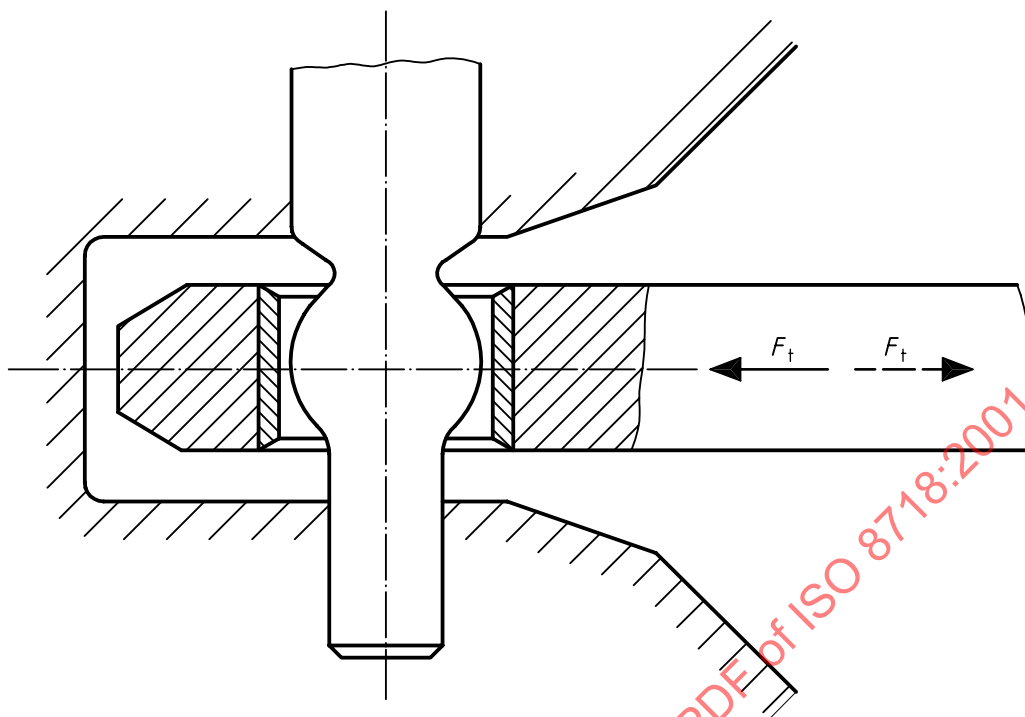


Figure 1 — Application of horizontal test load, F_t

Bibliography

- [1] ISO 3584, *Road vehicles — Drawbar couplings — Interchangeability*
- [2] ISO 1102, *Commercial road vehicles — 50 mm drawbar eye — Interchangeability*
- [3] ISO 8755, *Commercial road vehicles — 40 mm drawbar eye — Interchangeability*

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