
**Road vehicles — Clevis couplings —
Interchangeability**

Véhicules routiers — Chapes d'attelages - Interchangeabilité

STANDARDSISO.COM : Click to view the full PDF of ISO 3584:2020



STANDARDSISO.COM : Click to view the full PDF of ISO 3584:2020



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

| | |
|--|-----------|
| Foreword | iv |
| 1 Scope | 1 |
| 2 Normative references | 1 |
| 3 Terms and definitions | 1 |
| 4 Designation | 1 |
| 5 Mounting categories | 2 |
| 5.1 Categories of drilling pattern | 2 |
| 5.2 Dimensional requirements on frame for mounting clevis coupling | 3 |
| 6 Clevis Couplings | 4 |
| 6.1 General..... | 4 |
| 6.2 Load requirements..... | 4 |
| 6.3 Dimensional requirements..... | 4 |
| 6.4 Articulation angles..... | 5 |
| 6.5 Additional requirements..... | 6 |
| 6.5.1 C 40 clevis couplings | 6 |
| 6.5.2 C 50 clevis couplings | 6 |
| 6.5.3 Classified C 40 and C 50 clevis couplings | 7 |
| Bibliography | 9 |

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 40, *Specific aspects for light and heavy commercial vehicles, busses and trailers*.

This third edition cancels and replaces the second edition (ISO 3584:2001), which has been technically revised. The main changes compared to the previous edition are as follows:

- Editorial modifications related to changes of “drawbar” to “clevis”.

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.

Road vehicles — Clevis couplings — Interchangeability

1 Scope

This document specifies the characteristics necessary for the mounting and interchangeability of clevis couplings on the frame (cross member, drawbeam or mounting bracket) of towing vehicles for trailers.

This document is applicable to clevis couplings intended for connection to trailers equipped with a drawbar eye on the drawbar of the trailer.

Characteristics not specified are left to the discretion of the component manufacturer.

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 1102, *Commercial road vehicles — 50 mm drawbar eye — Interchangeability*

ISO 8718, *Road vehicles — Drawbar couplings and eyes for hinged drawbars — Strength tests*

ISO 8755, *Commercial road vehicles — 40 mm drawbar eye — Interchangeability*

ISO 12357, *Commercial road vehicles — Drawbar couplings and eyes for rigid drawbars*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Designation

4.1 Reference may be made to this document both for clevis coupling mounting dimensions on the frame and for the separate clevis coupling.

4.2 Frames in conformance with this document shall be identified by the following information, in the order given:

- a) reference to this document;
- b) number of the category according to [Table 1](#).

EXAMPLE Frames with mounting dimensions according to category 3:

Crossmember (or drawbeam or mounting bracket) **ISO 3584 — Category 3**

4.3 Clevis couplings meeting the requirements of this document shall be identified by the following information, in the order given:

- a) reference to this document;
- b) code C 40 for 40 mm clevis couplings and C 50 for 50 mm clevis couplings, as applicable;
- c) number of the category according to [Table 1](#) or number of class according to [Table 4](#).

EXAMPLE 1 40 mm clevis coupling according to category 3:

Clevis coupling **ISO 3584 C 40 — Category 3**

EXAMPLE 2 50 mm clevis coupling according to class 3:

Clevis coupling **ISO 3584 C 50 — Class 3**

EXAMPLE 3 Clevis coupling according to category 4:

Clevis coupling **ISO 3584 — Category 4**

5 Mounting categories

5.1 Categories of drilling pattern

The dimensions for the categories of drilling pattern (see [Figure 1](#)) shall be as given in [Table 1](#).

Table 1 — Categories of drilling pattern

Dimensions in millimetres

| Dimension | Category | | | | |
|-----------|----------|------|-----|-----|--------|
| | 1 | 2 | 3 | 4 | 5 to 7 |
| E_1 | 83 | 83 | 120 | 140 | 160 |
| E_2 | 56 | 56 | 55 | 80 | 100 |
| D_1 | — | 55 | 75 | 85 | 95 |
| D_2 | 10,5 | 10,5 | 15 | 17 | 21 |

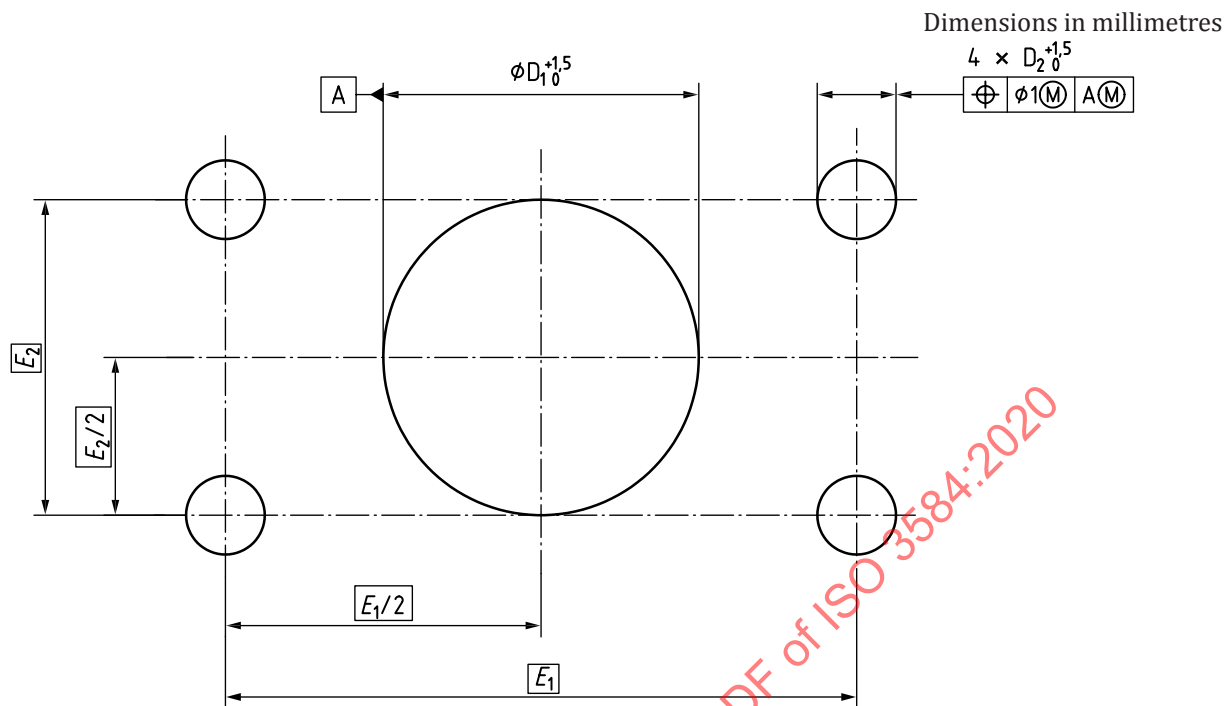


Figure 1 — Drilling pattern

5.2 Dimensional requirements on frame for mounting clevis coupling

Dimensions on the frame required for mounting of the clevis coupling (see Figure 2), such as the minimum flat surface defined by dimensions F and G , shall be as given in Table 2. Tolerances on drilling pattern dimensions shall be as shown in Figure 1.

Table 2 — Dimensional requirements for frames

Dimensions in millimetres

| Dimension | Category | | | | |
|------------|----------|-----|-----|-----|--------|
| | 1 | 2 | 3 | 4 | 5 to 7 |
| F max. | 120 | 120 | 165 | 190 | 210 |
| G min. | 95 | 95 | 100 | 130 | 150 |
| T max. | — | 15 | 20 | 35 | 35 |
| L_1 min. | — | 200 | 300 | 400 | 400 |

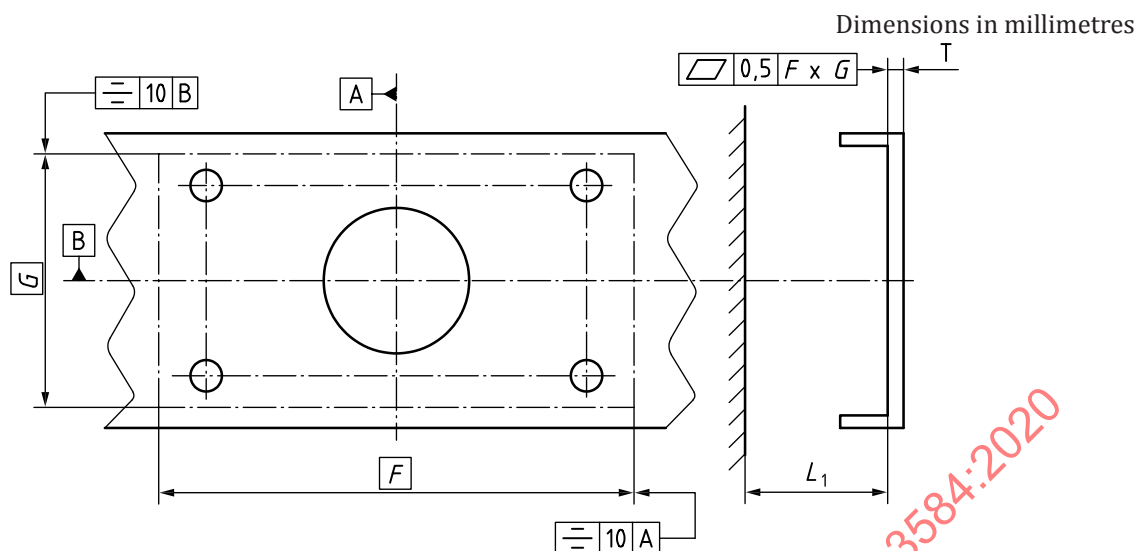


Figure 2 — Dimensional characteristics of frame

6 Clevis Couplings

6.1 General

The requirements of 6.2 to 6.4 are applicable to all clevis couplings. Additional requirements applicable to C 40, C 50 and classified clevis couplings of both dimensions are given in 6.5.

6.2 Load requirements

The clevis coupling shall satisfy the tests specified in ISO 8718 or ISO 12357 or both.

6.3 Dimensional requirements

The maximum outer dimensions of all components of the clevis coupling shall be within the envelope box defined in Table 3 (see Figure 3).

In order to permit safer operation of the clevis coupling, there shall be adequate free space around actuating devices. Dimensions needed to ensure operating clearance for actuating devices are also shown in Figure 3.

Table 3 — Dimensions of clevis coupling envelope box

Dimensions in millimetres

| Dimension | Category | | | | |
|--------------------------------------|----------|-----|-----|-----|--------|
| | 1 | 2 | 3 | 4 | 5 to 7 |
| <i>M</i> | 95 | 95 | 100 | 130 | 150 |
| <i>N</i> | 120 | 120 | 165 | 190 | 210 |
| <i>P</i> | — | 180 | 280 | 330 | 330 |
| <i>Q</i> | 150 | 300 | 330 | 330 | 330 |
| <i>R</i> | 95 | 130 | 145 | 145 | 145 |
| <i>S</i> | 250 | 250 | 250 | 250 | 250 |
| <i>J</i> | 265 | 365 | 465 | 465 | 465 |
| <i>K</i> ₋₆₅ ⁰ | 165 | 215 | 265 | 265 | 265 |

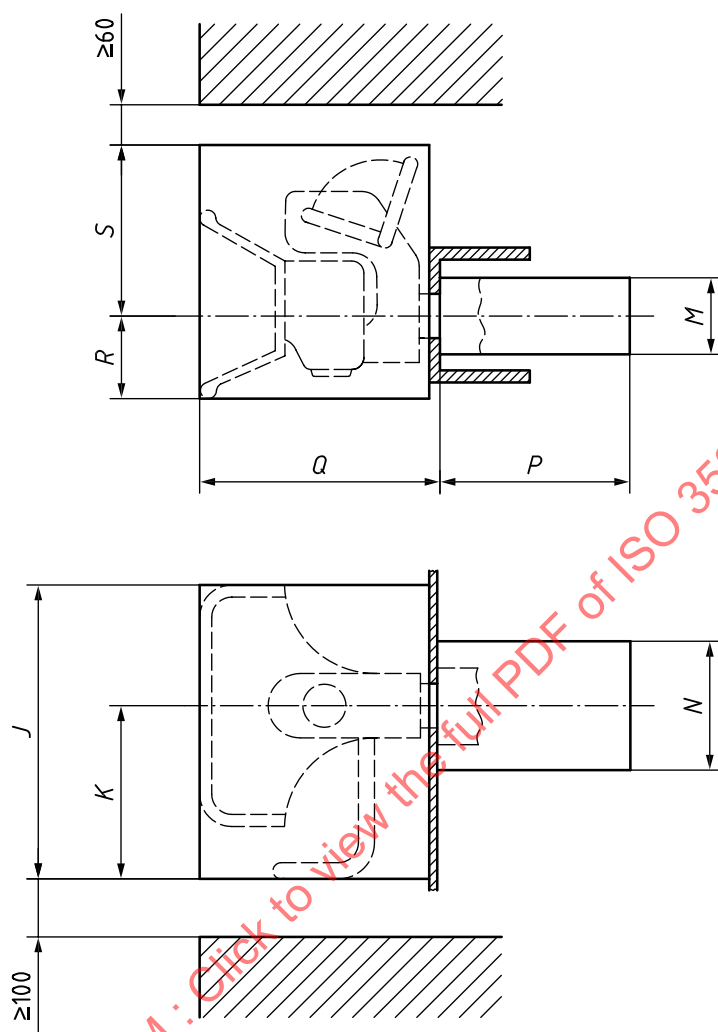


Figure 3 — Clevis coupling envelope box and operating clearance for actuating devices

6.4 Articulation angles

The clevis coupling shall be designed so as to permit the drawbar eye, when coupled but not fitted to a vehicle, to reach the following non-simultaneous degrees of articulation:

- $\pm 90^\circ$ horizontally about the vertical axis from the longitudinal axis of the vehicle (see [Figure 4](#));
- $\pm 20^\circ$ vertically about the transverse axis from the horizontal plane of the vehicle (see [Figure 5](#));
- $\pm 25^\circ$ axial rotation about the longitudinal axis from the horizontal plane of the vehicle (see [Figure 6](#)).

NOTE Dimensions for ensuring operating clearance between towing vehicles and trailers are given in ISO 11406^[1] and ISO 11407^[2].

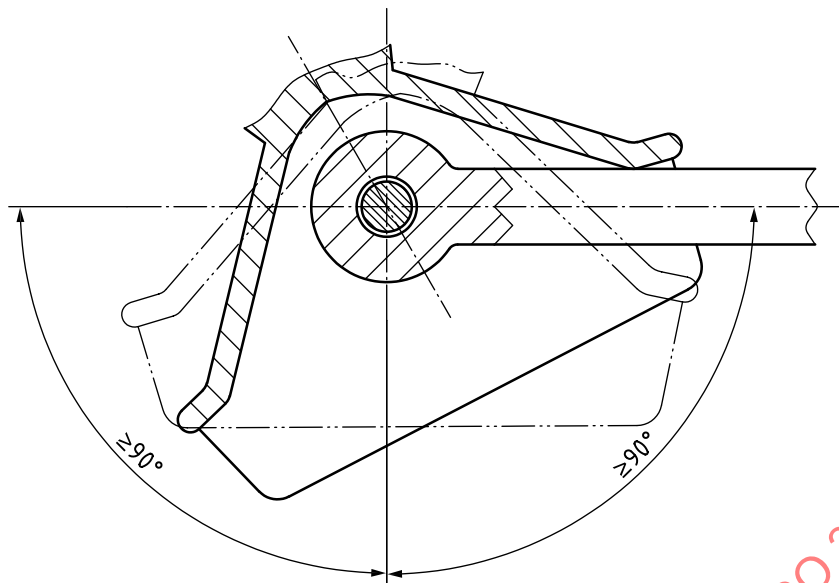


Figure 4 — Horizontal angle

6.5 Additional requirements

6.5.1 C 40 clevis couplings

C 40 clevis couplings shall be designed so as to permit the articulation angles described in 6.4 with drawbar eyes according to ISO 8755.

6.5.2 C 50 clevis couplings

C 50 clevis couplings shall be designed so as to permit the articulation angles described in 6.4 with drawbar eyes according to ISO 1102.

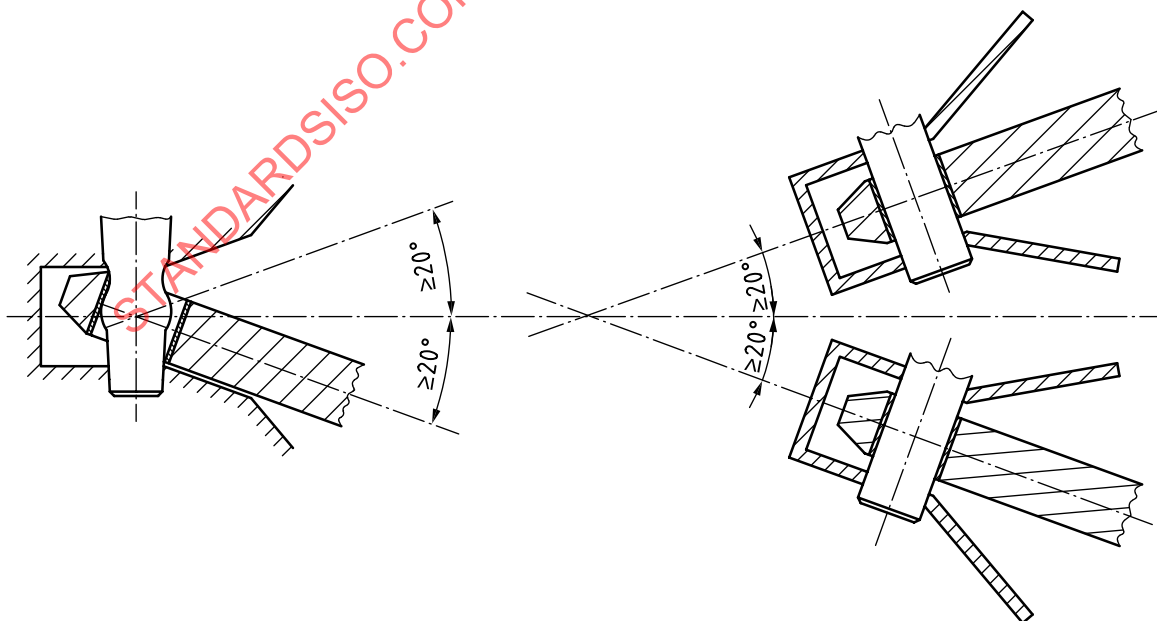


Figure 5 — Vertical angle

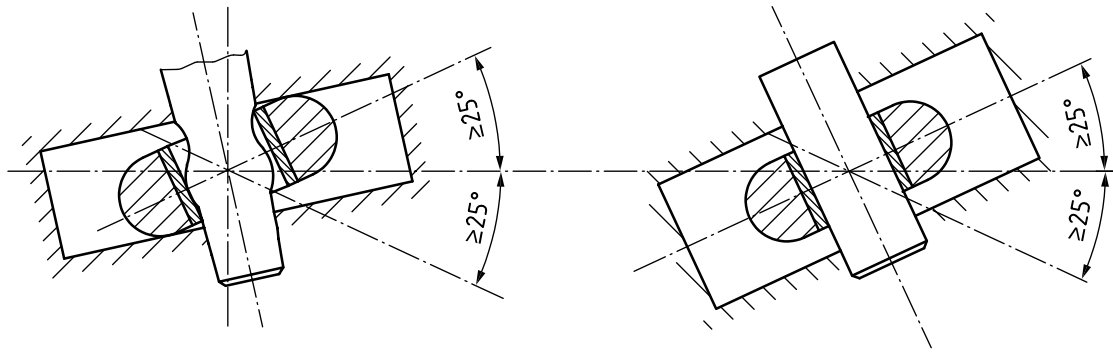


Figure 6 — Rotation angle

6.5.3 Classified C 40 and C 50 clevis couplings

Dimensions of classified 40 mm and 50 mm clevis couplings (see Figure 7) shall be as given in Table 4.

The couplings shall be suitable and tested for the minimum characteristic values given in Tables 5 and 6.

Table 4 — Dimensions of classified clevis couplings

Dimensions in millimetres

| Dimension | | Class | | | | | | |
|-----------|------------|-------|------|-----|-----|-----|-----|-----|
| | | C-1 | C-2 | C-3 | C-4 | C-5 | C-6 | C-7 |
| e_1 | $\pm 0,5$ | 83 | 83 | 120 | 140 | 160 | | |
| e_2 | $\pm 0,5$ | 56 | 56 | 55 | 80 | 100 | | |
| d_1 | max. | — | 54 | 74 | 84 | 94 | | |
| d_2 | H13 | 10,5 | 10,5 | 15 | 17 | 21 | | |
| f | $^{+6}_0$ | 110 | 110 | 155 | 180 | 200 | | |
| g | ± 3 | 85 | 85 | 90 | 120 | 140 | | |
| a | $^{+20}_0$ | 100 | 170 | 200 | 200 | 200 | | |
| b | $^{+20}_0$ | 150 | 280 | 360 | 360 | 360 | | |
| c | max. | 20 | 20 | 24 | 30 | 30 | | |
| h | max. | 150 | 190 | 265 | 265 | 265 | | |
| l_1 | max. | — | 150 | 250 | 300 | 300 | | |
| l_2 | max. | 150 | 300 | 330 | 330 | 330 | | |
| l_3 | $\pm 20,0$ | 100 | 160 | 180 | 180 | 180 | | |
| T | max. | — | 15 | 20 | 35 | 35 | | |

Table 5 — Characteristic values for classified C 40 clevis couplings

| Characteristic value | | Class | | | | |
|----------------------|----|-------|-------|-------|-------|-------|
| | | C40-1 | C40-2 | C40-3 | C40-4 | C40-5 |
| D value | kN | 18 | 25 | 70 | 100 | 130 |
| D_c value | kN | 18 | 25 | 50 | 70 | 90 |
| Static load S | kg | 200 | 250 | 650 | 900 | 1 000 |
| V value | kN | 12 | 10 | 18 | 25 | 35 |