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Road vehicles — Fifth wheels — Interchangeability

Véhicules routiers — Sellette d'attelage — Interchangeabilité

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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 2.

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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 3842 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 15, *Interchangeability of components of commercial vehicles and buses*.

This fourth edition cancels and replaces the third edition (ISO 3842:2001), which has been technically revised.

Road vehicles — Fifth wheels — Interchangeability

1 Scope

This International Standard lays down the dimensional characteristics necessary for mounting and interchangeability of the fifth wheel mounted on a mounting plate (standard fifth wheel, Clause 4) or directly on the frame (direct-mounted fifth wheel, Clause 5) of towing vehicles for semi-trailers. It applies to the fifth wheels intended to hitch on semi-trailers equipped with a:

— 50 coupling pin as defined in ISO 337;

— 90 coupling pin as defined in ISO 4086.

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

Test conditions and strength requirements to be met by 50 and 90 fifth wheel coupling are specified in ISO 8717.

2 Normative references

The following referenced documents are indispensable for the application 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 337, *Road vehicles — 50 semi-trailer fifth wheel coupling pin — Basic and mounting/interchangeability dimensions*

ISO 1726, *Road vehicles — Mechanical coupling between tractors and semi-trailers —Interchangeability*

ISO 4086, *Road vehicles — 90 semi-trailer fifth wheel kingpin — Interchangeability*

ISO 8717, *Commercial road vehicles — Fifth wheel couplings — Strength tests*

3 Designation

Fifth wheels meeting the requirements of this International Standard shall be identified by the following details in the order specified:

1) reference to this International Standard;

2) code FW 50 for 50 mm fifth wheels and FW 90 for 90 mm fifth wheels according to Clause 4;

3) or code DFW 50 for 50 mm direct-mounted fifth wheels according to Clause 5;

4) number of class of fifth wheel height H according to Tables 1 or 3;

5) class of transversal width (A or B) according to Table 2 for direct-mounted fifth wheels according to Clause 5.

EXAMPLES

— 50 mm fifth wheel coupling having a height within the range of class 1: Fifth wheel ISO 3842 FW 50-1;

— 90 mm fifth wheel coupling having a height within the range of class 4: Fifth wheel ISO 3842 FW 90-4;

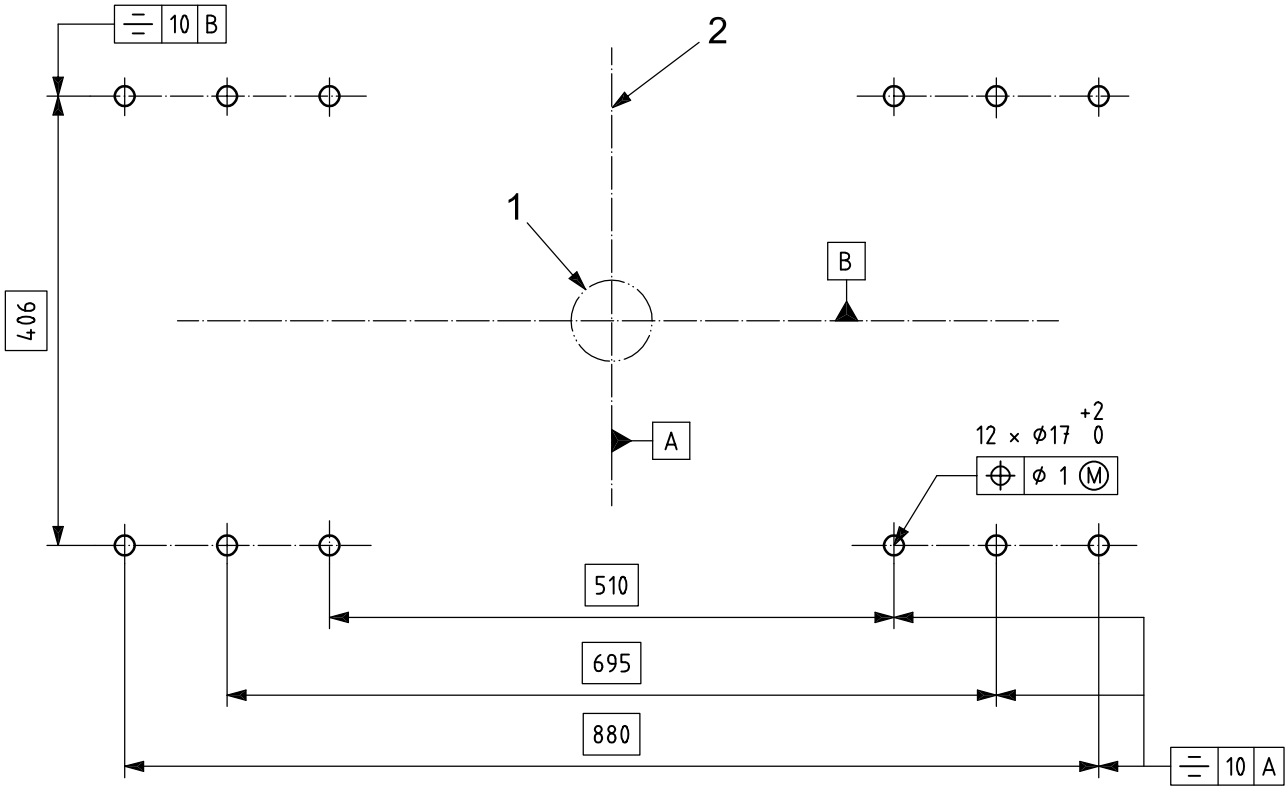
— 50 mm direct-mounted fifth wheel coupling having a width of Class A and a height within the range of class 1: Direct-mounted fifth wheel ISO 3842 DFW 50-1-A.

4 Standard fifth wheels

4.1 Fixing holes

The position of the fixing holes on the mounting plate shall be as shown in Figure 1. The position of the fixing holes on the fifth wheel coupling shall be as shown in Figure 2.

Dimensions in millimetres



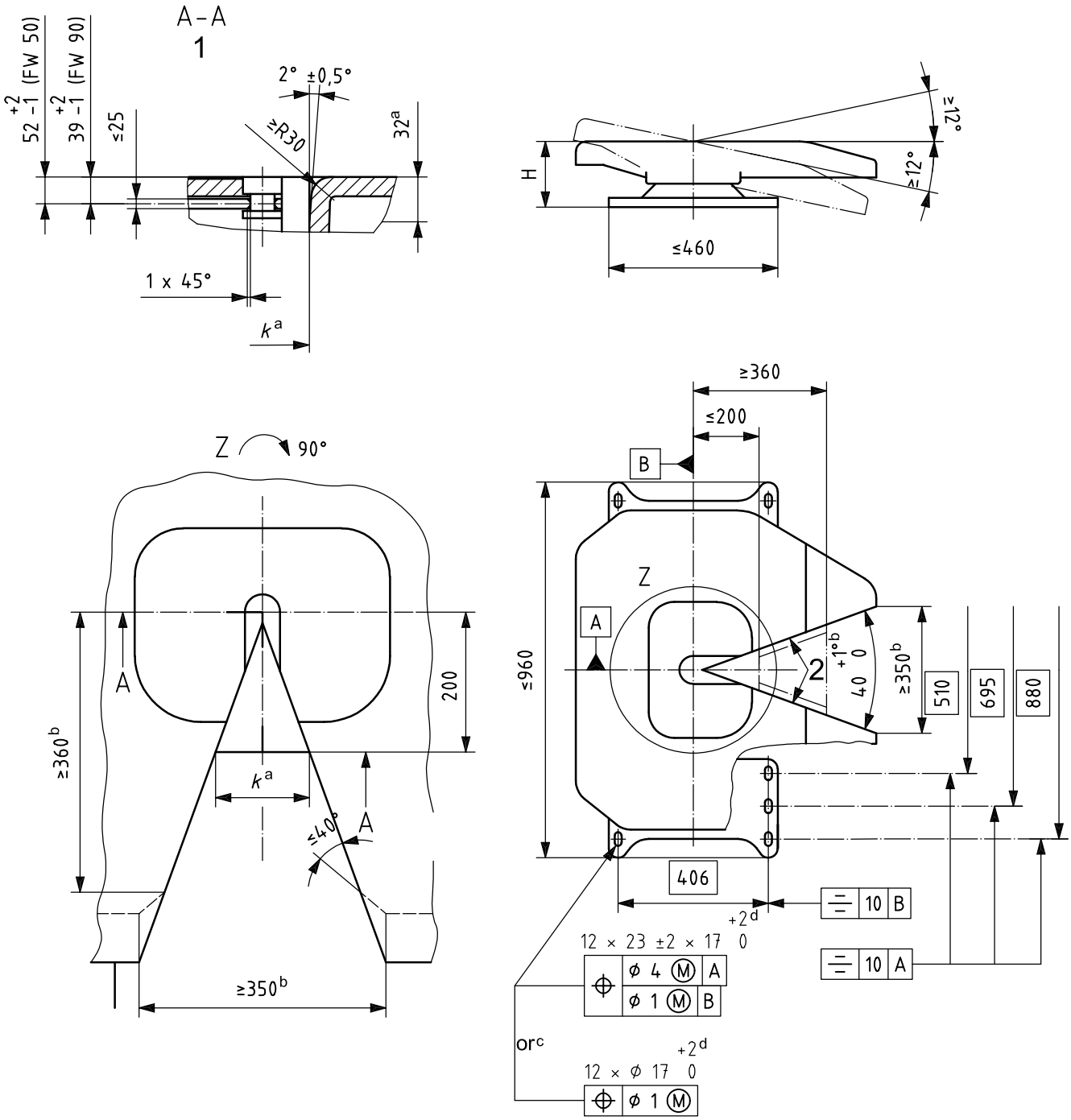
Key

1 coupling pin 1 (in accordance with ISO 337 or ISO 4086)

2 longitudinal axis of towing vehicle

Figure 1 — Dimensions and location of fixing holes on the mounting plate

Dimensions in millimetres



Key

1 section with coupling pin

2 bearing surface for steering wedge

a To provide for the use of steering wedges, measure the reference dimension, $k = 137 \pm 3$ mm, 32 mm below the topface at a distance of 200 mm.

b The angle 40 + 1° must be realized at least for the length 360 mm. The entry width ⩾ 350 mm may alternatively be executed according to the dotted contour.

c Instead of elongated holes 23 ± 2 × 17 + 2 mm, holes with ∅ 17 + 2 mm are also allowed.

d When using elongated holes or holes > ∅ 18 mm, washers ∅ 40 mm × 6 mm thick or means of equal strength (e.g. flat steel plate) shall be used.

Figure 2 — Dimensions of fifth wheels

4.2 Mounting

Mounting of 50 mm fifth wheels (FW 50) is adequate with minimum 8 bolts, size M16, minimum property class 8.8, placed symmetrically with respect to the longitudinal and transverse axes of the fifth wheel. 90 mm fifth wheels (FW 90) shall be bolted with 12 bolts, size M16, minimum property class 8.8.

4.3 Inclination angles

Longitudinal inclination of the fifth wheel not installed on the vehicle (but bolts or nuts at mounting brackets considered) shall be ± 12° minimum as shown in Figure 2.

A lateral angle of maximum ± 3° is permissible (see ISO 1726) for fifth wheels complying with this International Standard.

4.4 Height

The height H of the fifth wheel coupling shall be within one of the classes specified in Table 1.

Table 1 — Classes of standard fifth wheel height

Dimensions in millimetres

FW	class 1	class 2	class 3	class 4	class 5	class 6
H ± 5	150	170	185	205	225	250

4.5 Dimensions of standard fifth wheels

Standard fifth wheels shall have dimensions as shown in Figure 2.

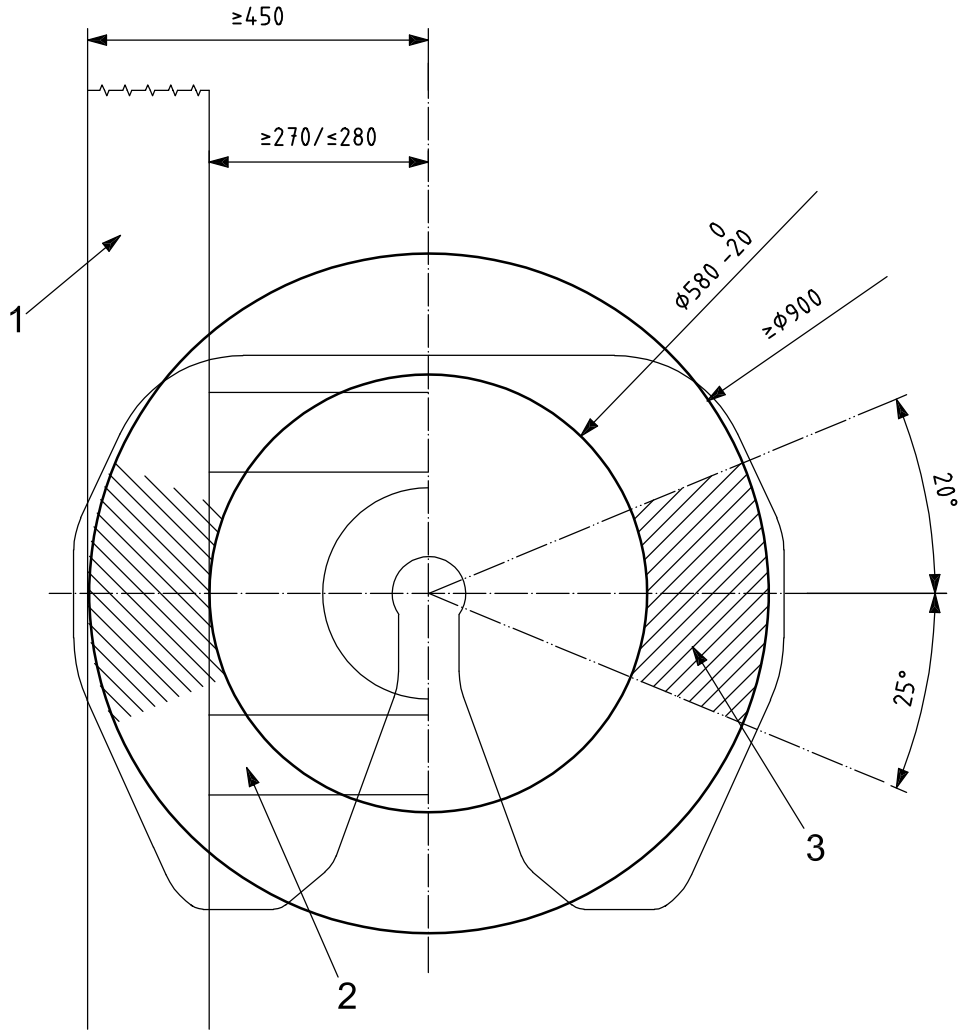
4.6 Minimum force introduction area

A minimum force introduction area at the top of the fifth wheel plate is defined as shown in Figure 3 in order to show the area in which the trailer plate forces shall be introduced (grease grooves on the surface of the fifth wheel top plate are allowed in this area).

Within this outer diameter (D = 870 mm), no holes or sharp edges are allowed on the trailer plate.

The trailer plate shall be designed with adequate longitudinal and lateral reinforcement in the areas defined in Figure 3 in order to ensure optimal force introduction appropriate to the design of the fifth wheel.

Dimensions in millimetres



Key

1 longitudinal support of the trailer chassis
2 cross bar of the trailer chassis
3 area of force introduction

Figure 3 — Minimum force introduction area

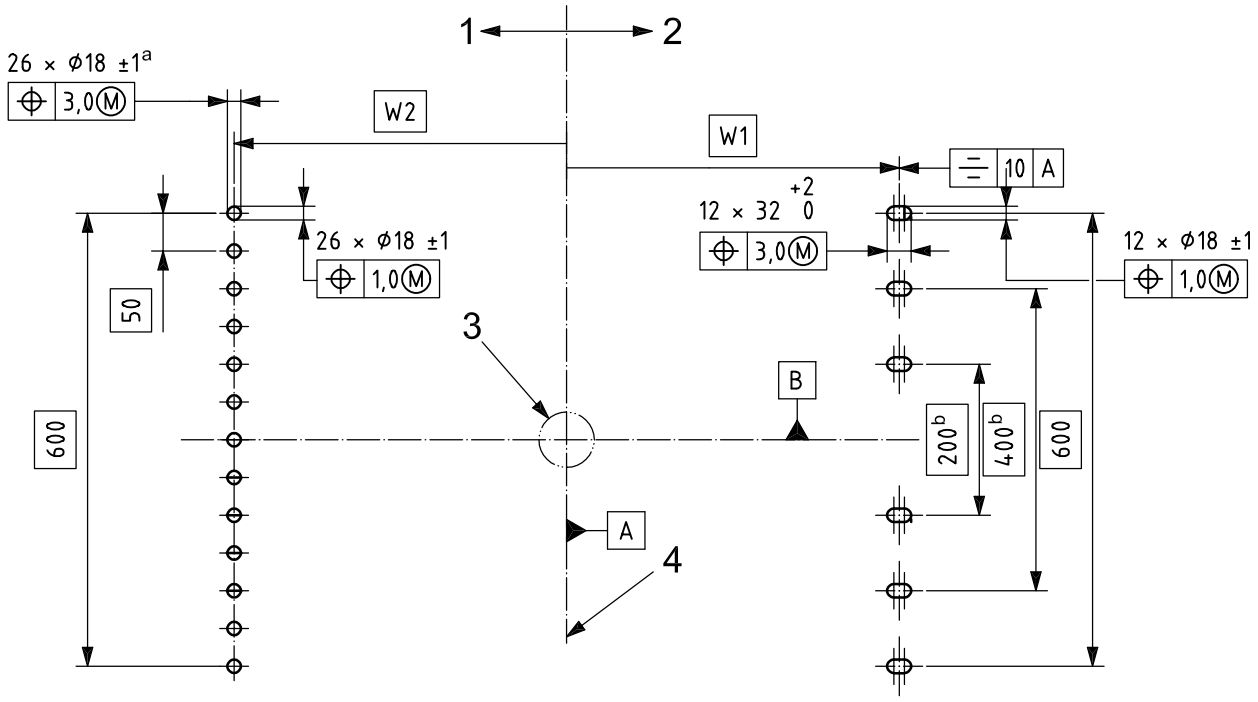
5 Direct-mounted fifth wheels

5.1 Fixing holes

The position of the fixing holes on the subframe and on the fifth wheel coupling shall be as shown in the respective view in Figure 4.

The transversal width of the fixing holes on the subframe and on the fifth wheel coupling shall be within one of the classes specified in Table 2.

Dimensions in millimetres



Key

1 tractor frame

2 fifth wheel

3 coupling pin (in accordance with ISO 337 or ISO 4086)

4 longitudinal axis of towing vehicle

a A minimum of 13 holes per side are required. A higher number of holes is recommended to give the possibility of moving the direct-mounted fifth wheel on the frame. The combination of elongated holes both on the fifth wheel and on the frame is not covered by this International Standard.

b Alternative dimensions (spacing 100 mm or multiples thereof) may be used.

Figure 4 — Dimensions and location of fixing holes on the tractor subframe and on the fifth wheel

Table 2 — Classes of transversal width

Dimensions in millimetres

	Class A	Class B
W1 (direct-mounted fifth wheel)	870	950
W2 (tractor subframe)	860 – 880	940 – 960

5.2 Mounting

Mounting of direct-mounted fifth wheels (DFW 50) is adequate with minimum 12 bolts, size M16, minimum property class 8.8, placed symmetrically with respect to the longitudinal and transverse axes of the fifth wheel. Original Equipment Manufacturer (OEM) approval is required for all direct-mounted fifth wheel installations.

5.3 Inclination angles

Longitudinal inclination of the fifth wheel not installed on the vehicle, bolts or nuts at mounting brackets shall be minimum ± 12°, as shown in Figure 2, for height classes 2 to 6 and minimum ± 10° for height class 1.

A lateral angle of maximum ± 3° is permissible (see ISO 1726) for fifth wheels complying with this International Standard.

5.4 Height

The height H of the fifth wheel coupling shall be within one of the classes specified in Table 3.

NOTE For direct-mounted fifth wheels, H is the distance from the mounting face of the subframe to the top of the fifth wheel.

Table 3 — Classes of direct-mounted fifth wheel height

Dimensions in millimetres

DFW	class 1	class 2	class 3	class 4	class 5	class 6
H ± 5	150	160	175	190	225	250

5.5 Dimensions of direct-mounted fifth wheels

Direct-mounted fifth wheels shall have dimensions, excluding those related to fixing holes (see 5.1), as shown in Figure 2.

5.6 Minimum force introduction area

Provisions given in 4.6 shall apply.

ICS 43.040.70

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