INTERNATIONAL STANDARD

ISO 22883

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Castors and wheels — Requirements for applications up to 1,1 m/s (4 km/h)

Roues et roulettes — Exigences pour des applications jusqu'à 1,1 m/s (4 km/h)

Reference number
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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.

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 22883 was prepared by Technical Committee ISO/TC 110, *Industrial trucks*, Subcommittee SC 3, *Castors and wheels*.

This first edition of ISO 22883 cancels and replaces

— ISO 2175:1981, *Industrial wheels for non-powered equipment — Dimensions and nominal load capacities,*

— ISO 2184-1:1972, *Industrial castors — Dimensions of top-plates — Part 1: Oblong top-plates with 4 bolt holes,*

— ISO 3101:1981, *Wheels and castors — Triangular top plates with three fixing holes,*

— ISO 3102:1981, *Wheels and castors for non-powered equipment — Off-set for swivel castors,*

of which it constitutes a technical revision.

Castors and wheels — Requirements for applications up to 1,1 m/s (4 km/h)

1 Scope

This International Standard specifies the technical requirements, the appropriate dimensions and the requirements for testing of castors and wheels (which may include accessories) for manually propelled or power-towed industrial applications up to 1,1 m/s (4 km/h). It is not applicable to castors and wheels for furniture, swivel chairs, equipment for institutional applications, hospital beds or driven applications. Castors for specialized applications may also need to conform to other specific standards.

NOTE Castors and wheels for furniture, swivel chairs, equipment for institutional applications, hospital beds and driven applications are covered respectively by ISO 22879, ISO 22880, ISO 22881, ISO 22882 and ISO 22884.

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 22877, *Castors and wheels — Vocabulary, symbols and multilingual terminology*

ISO 22878:2004, *Castors and wheels — Test methods and apparatus*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22877 apply. Symbols are given in ISO 22878:2004, Annex A.

4 Dimensions and classification

4.1 Characteristics

The characteristics of a castor are

— fixing system,

— offset,

— wheel, and

— load capacity.

4.2 Fixing system

4.2.1 General

The fixing system includes the top plate, solid stem and single bolt fixing.

4.2.2 Top plates

4.2.2.1 General

Top plates are identified by classification, and include triangular top plates with three fixing holes and rectangular top plates with four fixing holes.

4.2.2.2 Types of top plates

4.2.2.2.1 Triangular top plate with three fixing holes

The design of the outer profile is left to the manufacturer, provided that it is inscribed in a square of maximum size $d \times d$ as shown in Figure 1 and indicated in Table 1.

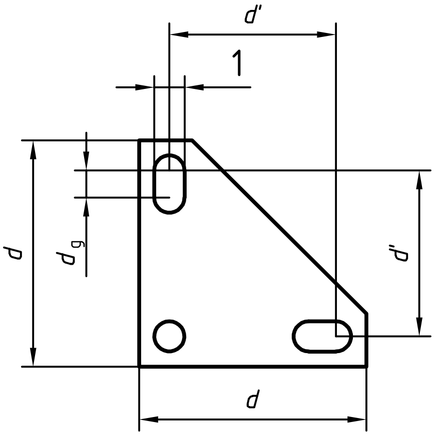
The fixing holes are located at the corners of a triangle inscribed in the outer profile. The holes may be oblong and form slots, provided the width of the slot is suitable for a bolt of diameter (D_{G1}) as in Table 1. Table 1 lists the standardized dimensions of the different classes of top plates, showing for each the corresponding wheel diameter (D) where it is applicable.

4.2.2.2.2 Rectangular top plate with four fixing holes

The design of the outer profile is left to the manufacturer, provided that it is inscribed in a rectangle of maximum size $l \times b$ as shown in Figure 2 and indicated in Table 2.

The fixing holes are located at the corners of a rectangle inscribed in the outer profile. The holes may be oblong and form slots, provided the width of the slot is suitable for bolts of diameter (D_{G1}) as in Table 2.

Table 2 lists the standardized dimensions of the different classes of top plates, showing for each the corresponding wheel diameter (D) where it is applicable.



Key

1 adapted to D_{G1}

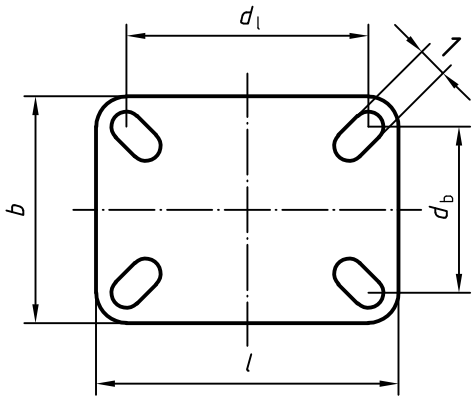
NOTE The symbols $A \times A$ (top plate outer dimensions) and $a \times a$ (bolt hole spacing) may be used in place of the recommended symbols stated above as these are of common use within the trade.

Figure 1 — Triangular top plate

Table 1

Dimensions in millimetres

Class	Top plate outer dimensions $d \times d$	Bolt hole spacing $d' \times d'$	Fixing bolt diameter D_{G1}	Distance of slotted bolt hole centres d_g	Corresponding wheel diameter D
T41	75 × 75	55	6	⩾ 5	50 63 75/80 100
T42	115 × 115	80	8	⩾ 11	50 63 75/80 100 125
T43	145 × 145	105	8	⩾ 11	63 75/80 100 125 150/160 200
T44	145 × 145	105	10	⩾ 9	63 75/80 100 125 150/160 200
T45	175 × 175	140	10	⩾ 17	125 150/160 200 250 300
T46	175 × 175	140	12	⩾ 14	125 150/160 200 250 300



Key

1 adapted D_{G1}

NOTE The symbols $A \times B$ (top plate outer dimensions) and $a \times b$ bolt hole spacing) may be used in place of the recommended symbols stated above as these are of common use within the trade.

Figure 2 — Platines rectangulaires

Table 2

Dimensions in millimetres

Class	Top plate outer dimensions $l \times b$	Bolt hole spacing $d_l \times d_b$	Fixing bolt diameter D_{G1}	Corresponding wheel diameter D
R41	75 × 60	55 × 40	6	50 63
R42	115 × 85	80 × 60	8	50 63 75/80 100 125 150/160
R43	145 × 110	105 × 80	10 ou 12	75/80 100 125 150/160 200 250
R44	175 × 140	140 × 105	10 ou 12	125 150/160 200 250 300
R45	200 × 160	160 × 120	12 ou 14	200 250 300 350 400
R46	255 × 205	210 × 160	14 ou 16	200 250 300 350 400 500

4.2.3 Solid stem

Table 3 specifies the solid stem diameters corresponding to the wheel diameter. The length of the solid stem shall be at least 1,5 times its diameter.

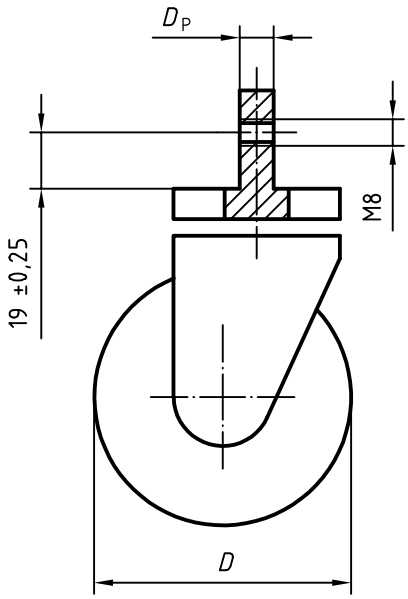
In those cases where the solid stem is supplied with a cross hole for fixing to a tubular structure, the axis of such a hole shall be at a $(19 \pm 0{,}25)$ mm (distance measured from the collar of the stem) threaded to M8 [as in Figure 3 a)] or bored to $8\ ^{+0,3}_{0}$ mm [as in Figure 3 b)].

Table 3

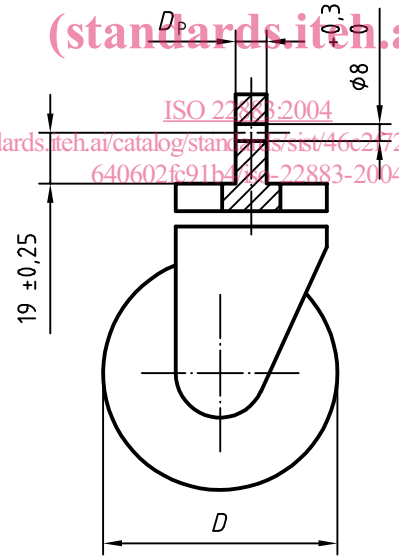
Dimensions in millimetres

Wheel diameter	Stem dimensions	
	Diameter	Tolerance
D	D_P	
50	20	$^{0}_{-0,3}$
	22	
63	20	
	22	
75/80	20	
	22	
100	20	
	22	
125	22	
	27	
150/160	22	
	27	
200	27	
250	27	
300	27	

Dimensions in millimetres



a) Solid stem castor with threaded fixing hole



b) Solid stem castor with plain fixing hole

Figure 3 — Solid stem castor

4.2.4 Single fixing bolt

Table 4 specifies the single fixing bolt diameters (D_{G2}) corresponding to the wheel diameter (D).

Table 4

Dimensions in millimetres

Wheel diameter D	Single fixing bolt diameter D_{G2}
50	8 10
63	8 10
75/80	10 12
100	10 12
125	10 12
150/160	12 16 20
200	12 16 20
250	16 20
300	20