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STANDARD

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2016-11-01

**Counterbores with Morse taper
shanks and detachable pilots**

Outils à lamer à queue cône Morse et pilote amovible

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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.

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).

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For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 29, *Small tools*, Subcommittee SC 2, *Holding tools, adaptive items and interfaces*.

This second edition cancels and replaces the first edition (ISO 4207:1977), of which it constitutes a minor revision, notably with the addition of [Annex A](#), which gives the relationship between the designations of this International Standard and the ISO 13399 series.

Counterbores with Morse taper shanks and detachable pilots

1 Scope

This International Standard specifies the dimensions of counterbores with Morse taper shanks and detachable pilots for general use.

NOTE [Figure 1](#) is diagrammatic only and is not intended to indicate details of design.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 296, *Machine tools — Self-holding tapers for tool shanks*

3 Dimensions

The dimensions for the counterbores, Morse taper shanks and detachable pilots are given in [Table 1](#) and shown in [Figure 1](#). It specifies dimensions in metric units only, these being regarded as the only recommended dimensions in the future.

4 Tolerances

The tolerances relating to the counterbores, Morse taper shanks and detachable pilots are as follows:

- cutting diameter d_1 : z9;
- pilot diameter d_2 : e8;
- pilot hole diameter d_3 : h8;
- Morse taper: according to ISO 296.

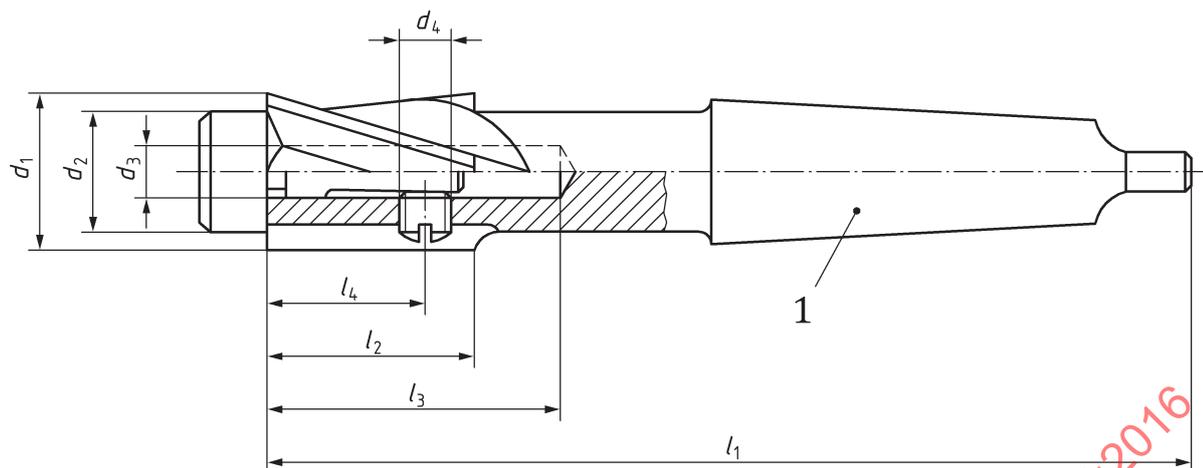


Figure 1

Table 1

Dimensions in millimetres

Cutting diameter		Pilot diameter		d_3 (h8)	Set screw d_4	l_1	l_2	l_3	l_4	Morse taper shank no.
d_1 (z9) over	to	d_2 (e8) over	to							
12,5	16	6,3	14	4	M3	132	22	30	16	2
16	20	6,3	18	5	M4	140	25	38	19	
20	25	8	22,4	6	M5	150	30	46	23	
25	31,5	10	28	8	M6	180	35	54	27	3
31,5	40	12,5	35,5	10	M8	190	40	64	32	
40	50	16	45	12	M8	236	50	76	42	4
50	63	20	56	16	M10	250	63	88	53	

Annex A (informative)

Relationship between designations in this International Standard and ISO 13399 (all parts)

For relationship between designations in this International Standard and preferred symbols according to ISO 13399 (all parts), see [Table A.1](#).

**Table A.1 — Relationship between designations in this International Standard
and ISO 13399 (all parts)**

Symbol in ISO 4207	Reference in ISO 4207	Property name in ISO 13399 (all parts)	Symbol in ISO 13399 (all parts)	Reference in ISO 13399 (all parts)
d_1	Figure 1 Table 1	cutting diameter	DC	71D084653E57F
d_2	Figure 1 Table 1	guide pilot diameter	GPD	71ED6A7A6E6A2
d_3	Figure 1 Table 1	connection diameter workpiece side	DCONWS	7272379A5F325
l_1	Figure 1 Table 1	overall length	OAL	71D078EB7C086
d_3 h8	Table 1	tolerance class connection diameter workpiece side	TCDCONWS	727ED91B5AA66

Bibliography

- [1] ISO 4204, *Countersinks, 90°, with Morse taper shanks and detachable pilots*
- [2] ISO 4208, *Detachables pilots for use with counterbores and 90 degrees countersinks — Dimensions*
- [3] ISO 13399 (all parts), *Cutting tool data representation and exchange*

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