

INTERNATIONAL STANDARD

ISO 8526-1

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Modular units for machine tools — Workholding pallets —

Part 1: Workholding pallets up to 800 mm nominal size

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Éléments standards pour machines-outils — Palettes —

Partie 1: Palettes porte-pièce de dimension nominale jusqu'à 800 mm

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Reference number
ISO 8526-1 : 1990 (E)

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.

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.

International Standard ISO 8526-1 was prepared by Technical Committee ISO/TC 39, *Machine tools*.

[ISO 8526-1:1990](#)

ISO 8526 consists of the following parts, under the general title *Modular units for machine tools — Workholding pallets*:

- *Part 1: Workholding pallets up to 800 mm nominal size*
- *Part 2: Workholding pallets of nominal size greater than 800 mm*

Annex A forms an integral part of this part of ISO 8526. Annex B is for information only.

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Introduction

This part of ISO 8526 has been drawn up to facilitate interchangeability of workholding pallets, including those from different manufacturers. It deals with square pallets and rectangular pallets of length-to-width ratio of 1,25 and of nominal size up to 800 mm.

If pallets with tighter tolerances than specified in this part of ISO 8526 are required, they shall be subject to agreement between the manufacturer and user.

This part of ISO 8526 does not specify the positioning accuracy of the pallets.

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Modular units for machine tools – Workholding pallets – Part 1: Workholding pallets up to 800 mm nominal size

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1 Scope

This part of ISO 8526 specifies the dimensions of workholding pallets for use with machine tools and in manufacturing systems.

It applies to the following nominal sizes of pallet:

320 mm, 400 mm, 500 mm, 630 mm and 800 mm

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8526. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8526 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 286-2: 1988, *ISO system of limits and fits – Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts.*

ISO 299: 1987, *Machine tool tables – T-slots and corresponding bolts.*

ISO 1101: 1983, *Technical drawings – Geometrical tolerancing – Tolerancing of form, orientation, location and run-out – Generalities, definitions, symbols, indications on drawings.*

ISO 2768-1: 1989, *General tolerances – Part 1: Tolerances for linear and angular dimensions without individual tolerance indications.*

3 Terminology

3.1 Nominal size

The nominal size is given by dimension a_1 (see figure 3).

3.2 General

The terms used for the purposes of this part of ISO 8526 are listed in table 1 and illustrated in figure 1.

Table 1 — Terminology

Reference number	Designation
1	Top surface of pallet
2	Centre hole
3	Location surface
4	Clamping surface
5	Transportation slide surface
6	Location hole
7	Edge locator (when fitted)
8	Alignment hole (when provided)
9	Fixing holes for latch mechanism
10	Resting surface

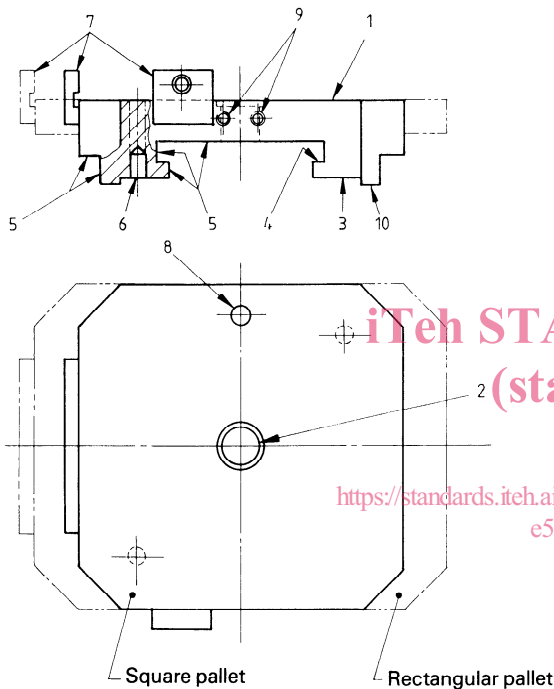


Figure 1 — Workholding pallet

4 Dimensions

Dimensions of pallets are given in table 2.

5 Top surface

5.1 Corners

Corners shall be removed from pallets (see dimension c in table 2).

5.2 T-slots and threaded holes

Either T-slots or threaded holes may be provided in the top surface. Pitches of threaded holes and T-slots and T-slot dimensions shall comply with ISO 299. Dimensions and pitches of T-slots and threaded holes are given in table 2.

NOTES

- The top surface may be left plain, if desired, for special applications.
- Radial slots may be used for special applications. Their dimensions are given in annex A, tables A.1 and A.2.

5.3 Types of top surface

The different types of top surface are as follows:

- type 1: surface with threaded holes [see figure 2a)];
- type 2: surface with T-slots [see figure 2b)];
- type 3: surface with T-slots and cross-tenons [see figure 2c)];
- type 4: plain surface (see figure 5);
- type 5: surface with radial T-slots (see figure A.1);
- type 6: surface with twin radial T-slots (see figure A.2).

5.4 Centre hole

A centre hole shall be provided and may be used as a reference hole for work positioning on the pallet and/or as a reference hole for pallet manufacturing (see figure 1).

The depth of the counterbore, d_4 , if present, shall always be greater than the depth of the central tenon slot of the pallet.

5.5 Alignment hole

An alignment hole, d_6 , may be provided for use in positioning the workpiece or fixture on the pallet and/or as a reference hole for pallet manufacturing purposes (see figure 1).

NOTE — It is necessary to provide means of preventing ingress of swarf and coolant to the bottom surface.

6 Location of workpiece

Workpieces or fixtures shall be located on the top surface by one of the following methods:

- a) by means of edge locators (see figure 4 and table 3);
- NOTE — For type 2 and type 3 top surfaces, the mounting holes for the edge locators are at the discretion of the manufacturer. The positions of the fixing holes for the fixture should be the same as those shown in figure 4.
- b) by means of a centre hole and an associated alignment hole (where the top surface of the pallet has threaded holes) [see figure 2a)];
 - c) by means of a centre hole and a reference slot (where the top surface of the pallet has T-slots) [see figure 2b)];
 - d) by means of two perpendicular tenon (crossed-tenon) slots [see figure 2c)];
 - e) by means of two straight-through location holes, d_3 or d_{10} (see figure 3, sections X-X and Z-Z).

NOTES

- It is necessary to provide means of preventing ingress of swarf and coolant to the bottom surface.
- The straight-through feature is optional.

7 Bottom surface

7.1 Location of pallet on the receiver (on the machine tool)

Location of the pallet on the receiver shall be by means of one of the following methods (see figure 3):

- a) by two cylindrical holes on the pallet (see figure 3, section X-X) and two cylindrical pins on the receiver;
- b) by two tapered holes on the pallet (see figure 3, section Z-Z) and two tapered pins on the receiver.

7.2 Shape and dimensions

The shape and dimensions of the bottom surface are given in figure 3 and table 2.

8 Designation of pallets

The designation of a pallet is given by

- the number of this part of ISO 8526;
- its nominal size and length, $a_1 \times a_1$ or $a_1 \times a_2$;
- its top surface type (see 5.3);

- the pitch of its T-slots or threaded holes;
- the method of workpiece location [see clause 6, a) to e)];
- the method of locating the pallet on the receiver [see 7.1, a) and b)].

EXAMPLE

Designation of a square pallet, of nominal size and length 500×500 , with top surface type 2, with 100 mm pitch of T-slots, with workpiece location by means of centre hole and reference slot c), and pallet location on the receiver by means of cylindrical holes a):

ISO 8526-1 - 500 × 500-2-100-c-a

EXAMPLE

Designation of a rectangular pallet, of nominal size and length 500×630 , with top surface type 2, with 100 mm pitch of T-slots, with workpiece location by means of centre hole and reference slot c), and pallet location on the receiver by means of tapered holes b):

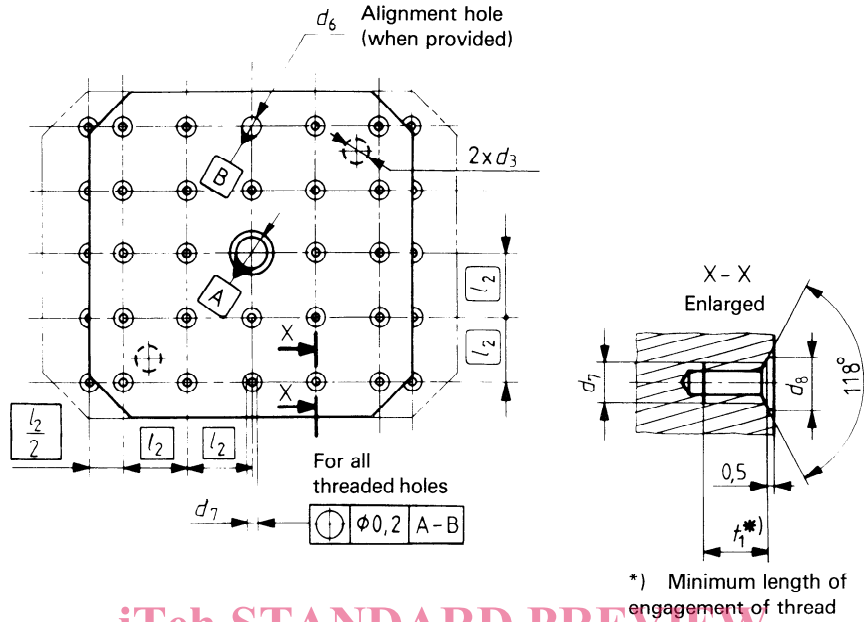
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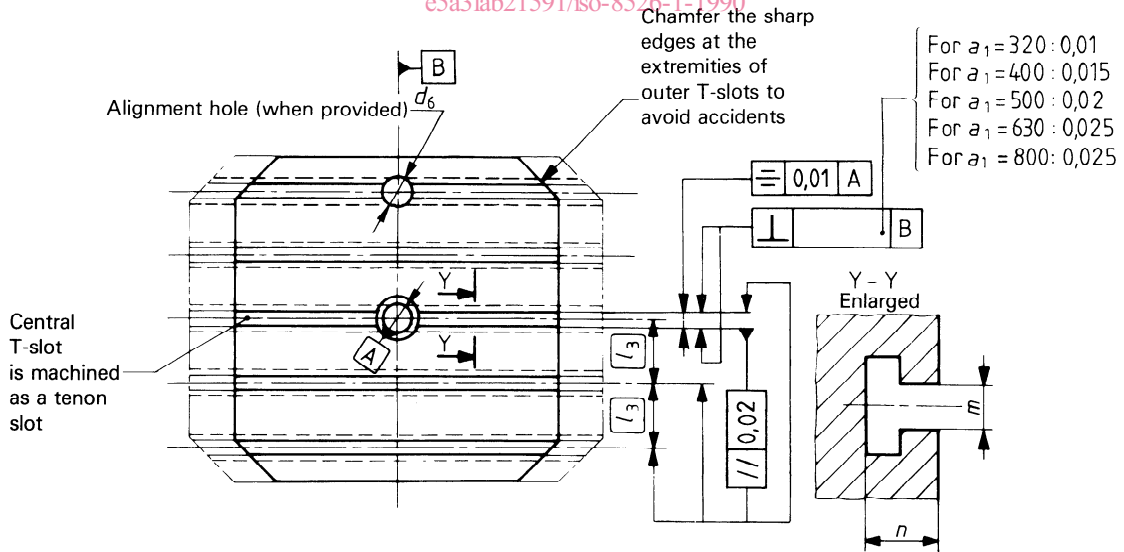
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Dimensions and tolerances of location and orientation in millimetres



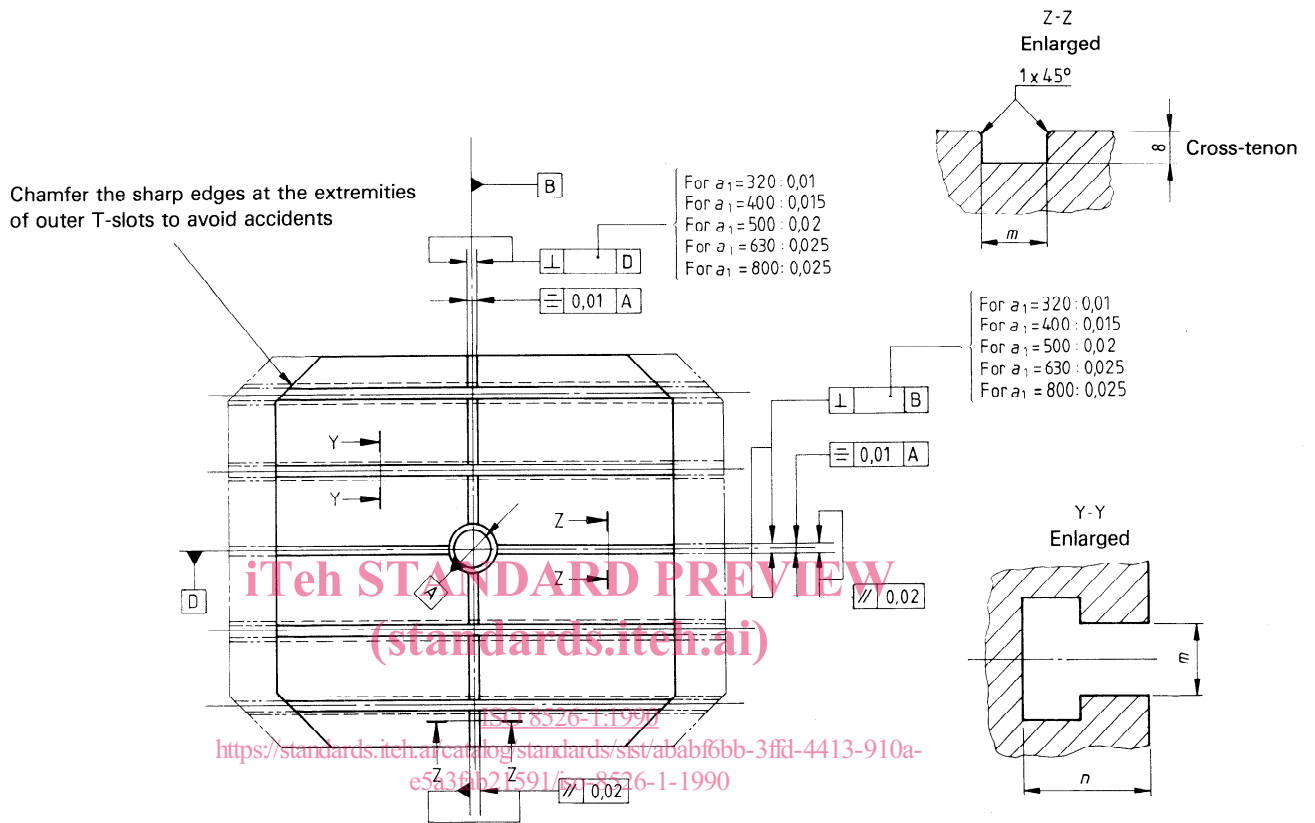
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a) top surface, type 1 – with threaded fixing holes

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b) top surface, type 2 – with T-slots

Dimensions and tolerances of location and orientation in millimetres

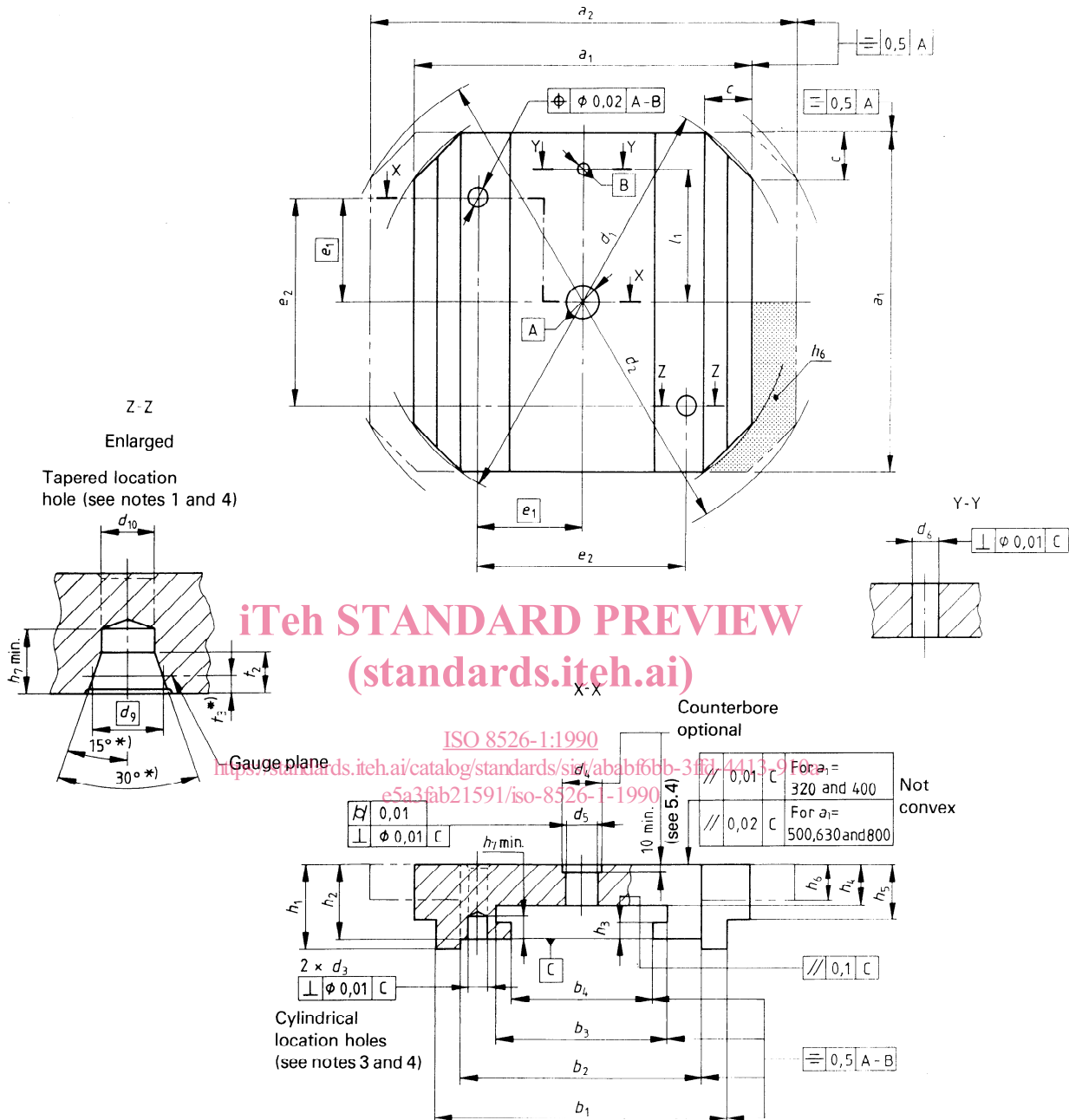


c) top surface, type 3 – with T-slots and cross-tenons

NOTE — For the tolerancing of location and orientation, see ISO 1101.

Figure 2 — Types of top surface

Dimensions and tolerances of form, orientation and location in millimetres



*) The tolerances on t_3 , 15° and 30° are as specified by the manufacturer.

NOTES

- 1 The positions of the two tapered holes are the same as those specified for the two cylindrical location holes. The type of location required should be stated when ordering pallets.
- 2 For the tolerancing of form, orientation and location, see ISO 1101.
- 3 Bushes of minimum depth equal to $1\frac{1}{4}$ times their diameter may be inserted at either end of d_3 , if preferred.
- 4 Where d_3 or d_{10} is straight through, the centre portion of the bore of d_3 or d_{10} may be relieved to a maximum length of $h_2 - 2,5 \times d_3$ or $h_2 - 2,5 \times d_{10}$ respectively, if desired.

Figure 3 – Principal dimensions of workholding pallets

Table 2 — Dimensions of workholding pallets¹⁾ (see figures 2 and 3)

Dimensions in millimetres

Dimension	Nominal size and length										
	$a_1 \times a_1$ 320 × 320	$a_1 \times a_2$ 320 × 400	$a_1 \times a_1$ 400 × 400	$a_1 \times a_2$ 400 × 500	$a_1 \times a_1$ 500 × 500	$a_1 \times a_2$ 500 × 630	$a_1 \times a_1$ 630 × 630	$a_1 \times a_2$ 630 × 800	$a_1 \times a_1$ 800 × 800	$a_1 \times a_2$ 800 × 1 000	
$b_1 \begin{smallmatrix} 0 \\ -0,5 \end{smallmatrix}$	290		340		430		540		670		
$b_2 \begin{smallmatrix} +0,5 \\ 0 \end{smallmatrix}$	272		300		380		480		600		
b_3	200 $\begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$		200 $\begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$		260 $\begin{smallmatrix} +1,6 \\ 0 \end{smallmatrix}$		340 $\begin{smallmatrix} +1,6 \\ 0 \end{smallmatrix}$		420 $\begin{smallmatrix} +1,6 \\ 0 \end{smallmatrix}$		
$b_4 \begin{smallmatrix} +0,5 \\ 0 \end{smallmatrix}$	160		160		220		300		380		
$c^{2)}$	40		50		60		70		100		
$d_1 \begin{smallmatrix} 0 \\ -5 \end{smallmatrix}$	400		500		630		800		1 000		
$d_2 \begin{smallmatrix} 0 \\ -5 \end{smallmatrix}$	—	466,5	—	583	—	736	—	938	—	1 166	
$d_3 \begin{smallmatrix} +0,013 \\ 0 \end{smallmatrix}$	25		25		25		30		35		
d_4 (optional)	55		55		55		55		55		
d_5 H6 ^{3), 4)}	50		50		50		50		50		
d_6 H7 ^{3), 5)}	20		20		20		25		25		
$d_7^{6)}$	M10		M12		M12		M16		M16		
$d_8^{6)}$	11		13,5		13,5		17,5		17,5		
d_9	29		29		29		40		40		
$d_{10}^{7)}$	25		25		25		30		35		
e_1	120		125		160		200		250		
$e_2 \pm 0,01$	240		250		320		400		500		
$h_1 \pm 0,5$	95		115		125		150		170		
$h_2 \pm 0,02$	90		105		115		140		160		
$h_3 \begin{smallmatrix} 0 \\ -0,25 \end{smallmatrix}$	20		25		25		30		30		
$h_4 \begin{smallmatrix} 0 \\ -0,25 \end{smallmatrix}$	45		50		60		75		95		
$h_5 \begin{smallmatrix} 0 \\ -0,25 \end{smallmatrix}$	65		70		80		95		115		
h_6	—	44	—	49	—	59	—	74	—	94	
h_7 min.	20		25		25		30		30		
$l_1 \pm 0,013^{8), 9)}$	AP	100		150		200		200		300	
	GP	126		160		200		250		320	
$l_2^{8), 9)}$	AP	50		50		100		100		100	
	GP	63		80		100		125		160	
$l_3^{8), 9)}$	AP	50		50		100		100		100	
	GP	63		80		100		125		160	