BRITISH STANDARD

BS 4235-1: 1972

Incorporating Amendments Nos. 1,2 and 3

CONFIRMED
JULY 1986

Specification for

Metric keys and keyways —

Part 1: Parallel and taper keys

Co-operating organizations

The Mechanical Engineering Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Associated Offices' Technical Committee
Association of Consulting Engineers
Association of Mining Electrical and Mechanical Engineers
British Chemical Plant Manufacturers' Association
British Compressed Air Society
British Electrical and Allied Manufactures' Association*
British Gear Manufactures' Association*
British Internal Combustion Engine Manufacturers' Association*
British Mechanical Engineering Confederation
British Pump Manufactures' Association
British Steel Industry*
Crown Agents for Oversea Governments and Administrations
Department of Employment (H.M. Factory Inspectorate)
Department of the Environment
Department of Trade and Industry*
Electricity Council, the Central Electricity Generating Board and the Area Boards in England and Wales
Engineering Equipment Users' Association*
Gas Council
Institution of Civil Engineers
Institution of Gas Engineers
Institution of Heating and Ventilating Engineers
Institution of Mechanical Engineers*
Institution of Mechanical Engineers (Automobile Division)
Institution of Plant Engineers
Institution of Production Engineers*
Locomotive and Allied Manufacturers' Association of Great Britain*
London Transport Executive
Machine Tool Trades Association
Ministry of Defence
Ministry of Defence, Army Department
National Coal Board
National Physical Laboratory (Department of Trade and Industry)
Royal Institute of British Architects.
Telecommunication Engineering and Manufacturing Association
Water Tube Boilermakers' Association.

The Government department and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Association of Correspondence Colleges
British Ship Research Association
Cycle and Motor Association
Gauge and Tool Makers' Association
Institution of Engineers and Shipbuilders in Scotland
Milling Cutter and Reamer Association
Ministry of Defence, Navy Department
Society of British Aerospace Companies
Steel Works Plant Association
Taper Pin Manufacturers' Association

This British Standard, having been approved by the Mechanical Engineering Industry Standards Committee, was published under the authority of the Executive Board on 22 February, 1972

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The following BSI reference relates to the work on this standard:
Committee references MEE/4

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Contents

Foreword

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 9 000, fully indexed and with a note of the contents of each, will be found in the BSI Catalogue which may be purchased from BSI Sales Department. The Catalogue may be consulted in many public libraries and similar institutions.

This standard makes reference to the following British Standards:

BS 46, *Keys and keyways and taper pins. Part 1. Keys and keyways.*

BS 970, *Wrought steels in the form of blooms, billets, bars and forgings. Part 1. Carbon and carbon manganese steels, including free cutting steels.*

BS 4500, *ISO limits and fits.*

BS 4500-1, *General, tolerances and deviations.*

This British Standard is the first of a series for metric keys and keyways and has been prepared under the authority of the Mechanical Engineering Industry Standards Committee.

The essential data for this standard have been extracted from ISO Recommendations R 773[1)] and R 774[2)].

Although similar in principle to BS 46-1, for inch keys and keyways, it provides for three classes of fit for square and rectangular parallel keys and keyways, namely, "free", "normal" and "close", and the provision of these three types of fit is in accordance with ISO practice.

In addition to the three classes of fit agreed by ISO as mentioned above, the United Kingdom has found it necessary to introduce an additional class, an interference fit. This is considered necessary to avoid the possibility of the rotation of the key which might occur in high torque, in reversing conditions, in applications where torsional vibration exists, or in precision applications.

The marked difference in dimensions between the inch and metric keys and keyways was, in the early days of metrication, the subject of considerable discussion and, quite naturally, fears were expressed that there would be problems due to the loading on the side faces of the key and keyway for any given shaft size.

These metric sections of keys have been in satisfactory use in most European countries for many years. It was, however, still desirable that there should be the satisfaction of more positive assurance that no design limitation exists in the application of the thinner metric key sections. At the request of technical committee MEE/4, the National Engineering Laboratory explored some of the questions which had been raised. The results of these investigations have been published and they demonstrate the effects of both static and dynamic tests, and include comparisons of the stresses and deformations of the two key forms at very high loadings. For the benefit of designers who are concerned with high static or dynamic torque loadings in keyed shafting systems, the reports are:

NEL Report No. 489	"Static torsion tests on shrink-fit and keyed components" by D M Macdonald
NEL Report No. 526	"A comparison of inch and metric keys in static torsion" by D M Macdonald

[1)] ISO Recommendation R 773, "Rectangular or square parallel keys and their corresponding keyways (dimensions in millimetres)".

[2)] ISO Recommendation R 774, "Taper keys and their corresponding keyways (with or without gib head) (dimensions in millimetres)".

NOTE The titles of the British Standards referred to in this standard are listed on page 2.

NEL Report No. 606 "Loaded key reaction and stresses" by D M Macdonald

NEL Report No. 635 "Key length and its effect on the static torsional strength of a keyed joint" by D M Macdonald

The above reports are obtainable from the Reports Unit, National Engineering Laboratory, East Kilbride, Glasgow, to which enquirers should apply direct.'

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 18 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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1 Scope

This British Standard relates to the following types of keys and keyways with dimensions in millimetres:

1) square parallel,

2) rectangular parallel,

3) square taper, gib-head and plain,

4) rectangular taper, gib-head and plain.

In addition, a fourth class of fit is provided in this British Standard to give an interference fit.

Three classes of fit are provided for the square and rectangular parallel keys and keyways, namely "free", "normal" and "close", and the dimensions and tolerances specified are in accordance with ISO Recommendations R 773[3] and R 774[4].

2 Fits

The three classes of fit dealt with in this standard are intended to meet varying requirements as follows:

1) *Free,* where the hub is required to slide over the key when in use.

2) *Normal,* where the key is to be inserted in the keyway with minimum fitting, as is required for mass production assembly.

3) *Close,* where an accurate fit of key is required. In this class, fitting will be required under maximum material conditions, and if it is required to obtain these conditions some selection of components may be necessary.

4) *Interference*, where a fit is required such that there is no possibility of play between the key and keyway in the shaft and hub. In this class of fit, hand fitting will be necessary.

NOTE This class of fit is described in ISO Recommendations R 773, "Rectangular or square parallel keys and their corresponding keyways (dimensions in millimetres)", and R 774, "Taper keys and their corresponding keyways (with or without gib head) (dimensions in millimetres)", as "fitted".

3 Material

Unless otherwise specified, keys complying with the requirements of this British Standard shall be manufactured from steel complying with BS 970 having a tensile strength of not less than 550 MN/m^2 in the finished condition. Keybar to the tolerances on width (b)and thickness (h) specified for the finished keys will not necessarily be commercially available.

NOTE The following steels specified in BS 970-1, will meet the above requirement to the maximum sizes indicated:

	mm
070M20	25 × 14
070M26	36 × 20
080M30	90 × 45
080M40	100 × 50

4 Dimensions and tolerances

4.1 The dimensions and tolerances of metric keys and keyways shall be as given in Table 1 to Table 8.

The dimensions and tolerances of interference fit keys shall be given in Table 10 and Table 11.

Recommended standard lengths are given in Table 9.

4.2 The standard does not deal with misalignment or offset greater than can be accommodated within the dimensional tolerances. In heavily stressed applications, a check should be made to ensure that the cumulative effect of misalignment and/or offset does not prevent a good bearing on the key.

4.3 Keys, as supplied, are not normally chamfered or radiused but these operations may be carried out during manufacture by agreement between the purchaser and the manufacturer.

4.4 Taper keys fitted in a keyway with tolerance P9, providing there is no excessive side interference, will be regarded as complying with the requirements of this British Standard.

[3] ISO Recommendation R 773, "Rectangular or square parallel keys and their corresponding keyways (dimensions in millimetres)".

[4] ISO Recommendation R 774, "Taper keys and their corresponding keyways (with or without gib head) (dimensions in millimetres)".

Table 1 — Dimensions and tolerances of keyways for square parallel keys

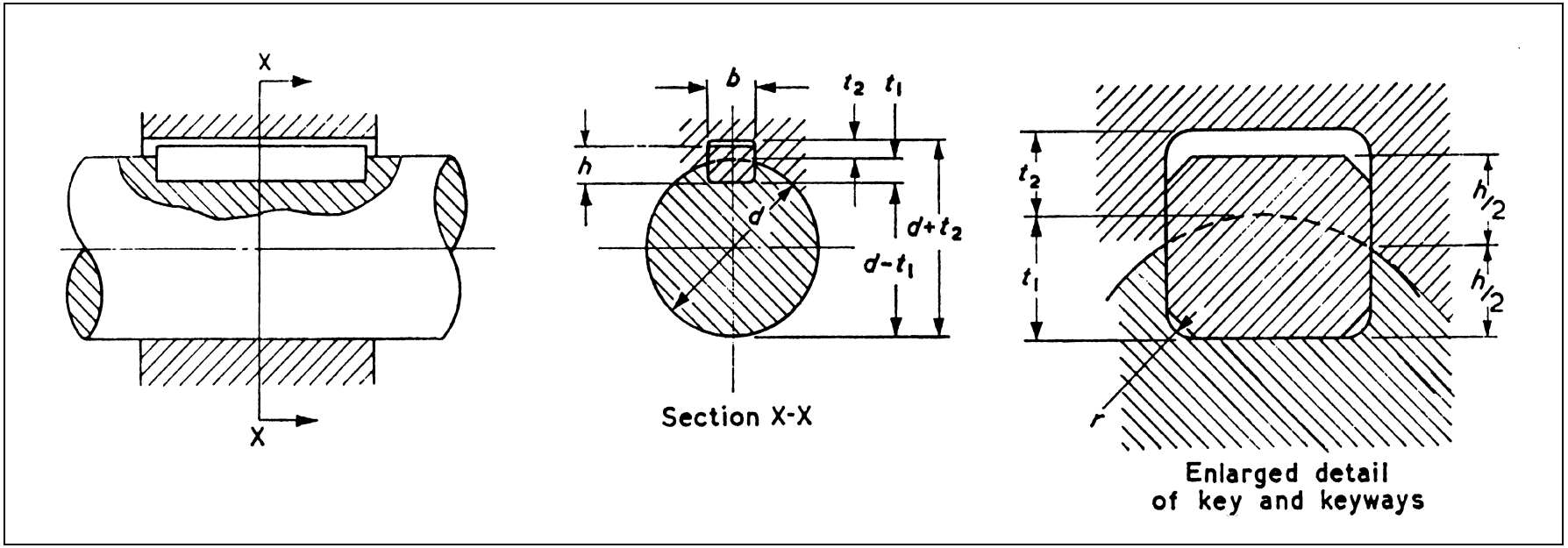


Table 1 — Dimensions and tolerances of keyways for square parallel keys

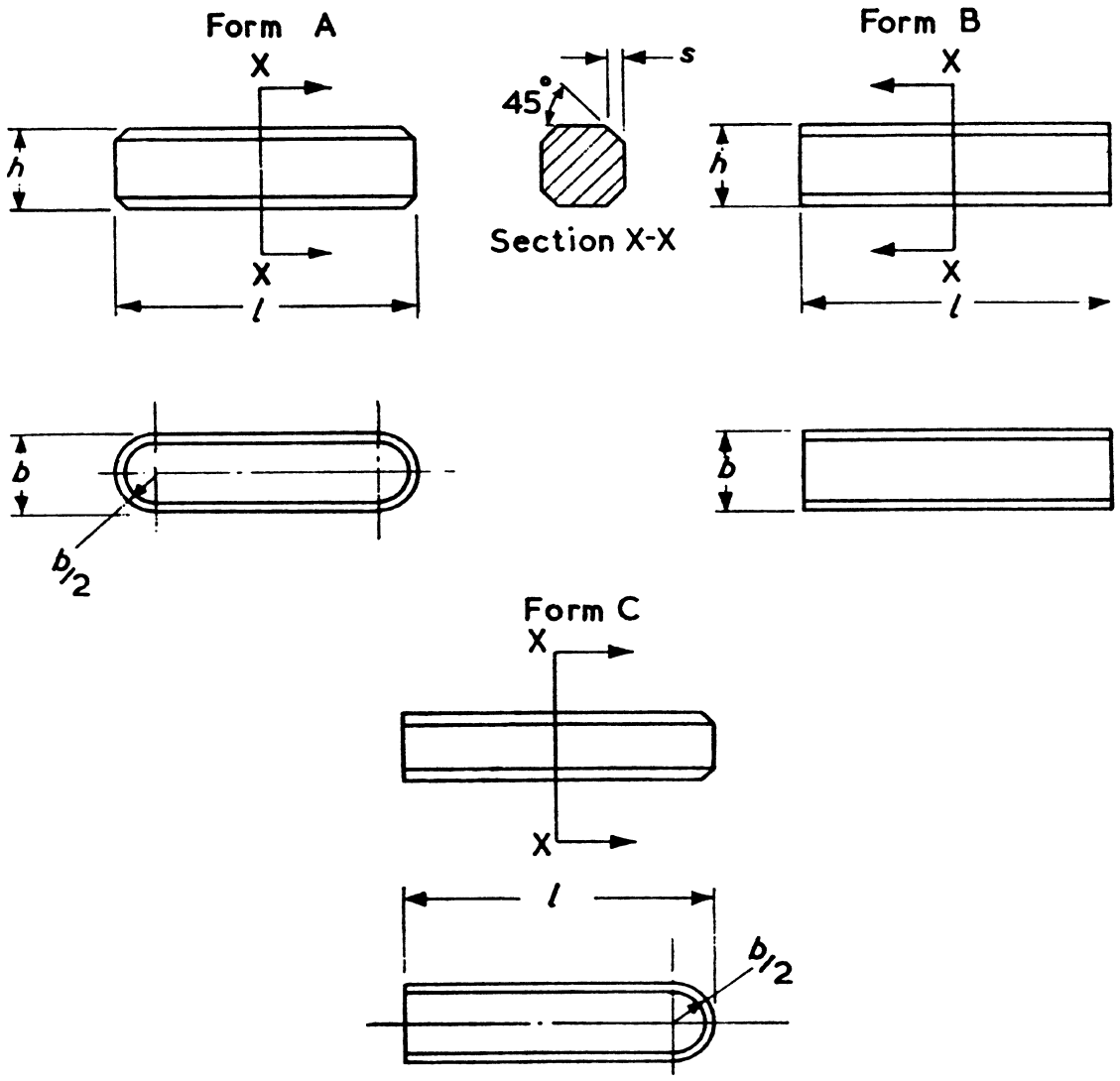
All dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Shaft		**Key (see Note)**	**Keyway**											
nominal diameter (see Note) *d*		**section *b* × *h* width × thickness**	**width *b***						**depth**				**radius *r***	
			tolerance for class of fit						**shaft t_1**		**hub t_2**			
				free		**normal**		**close and interference**						
over	**incl.**		**nom.**	**shaft (H9)**	**hub (D10)**	**shaft (N9)**	**hub (J_s9)[a]**	**shaft and hub (P9)**	**nom.**	**tol.**	**nom.**	**tol.**	**max.**	**min.**
6	8	2 × 2	2	+ 0.025	+ 0.060	– 0.004	+ 0.012	– 0.006	1.2		1		0.16	0.08
8	10	3 × 3	3	0	+ 0.020	– 0.029	– 0.012	– 0.031	1.8		1.4		0.16	0.08
10	12	4 × 4	4						2.5	+ 0.1 0	1.8	+ 0.1 0	0.16	0.08
12	17	5 × 5	5	+ 0.030 0	+ 0.078 + 0.030	0 – 0.030	+ 0.015 – 0.015	– 0.012 – 0.042	3		2.3		0.25	0.16
17	22	6 × 6	6						3.5		2.8		0.25	0.16

NOTE The relations between shaft diameter and key section given above are for general applications. The use of smaller key sections is permitted if suitable for the torque transmitted. In cases such as stepped shafts when larger diameters are required, for example to resist bending, and when fans, gears and impellers are fitted with a smaller key than normal, an unequal disposition of key in shaft with relation to the hub results. Therefore, dimensions $d - t_1$ and $d + t_2$ should be recalculated to maintain the $h/2$ relationship. The use of larger key sections which are special to any particular application is outside the scope of this standard.

[a] The limits for tolerance J_s9 are quoted from BS 4500, "ISO limits and fits", to three significant figures.

Table 2 — Dimensions and tolerances of square parallel keys



All dimensions in millimetres

1	2	3	4	5	6	7	8
Width *b*		**Thickness** *h*		**Chamfer** *s*		**Range of lengths** *l*[a]	
nom.	**tol. (h9)**	**nom.**	**tol. (h9)**	**min.**	**max.**	**from**	**incl.**
2	0 − 0.025	2	0 − 0.025	0.16	0.25	6	20
3		3		0.16	0.25	6	36
4	0 − 0.030	4	0 − 0.030	0.16	0.25	8	45
5		5		0.25	0.40	10	56
6		6		0.25	0.40	14	70

[a] See Table 9 for preferred lengths of keys.

Table 3 — Dimensions and tolerances of keyways for rectangular parallel keys

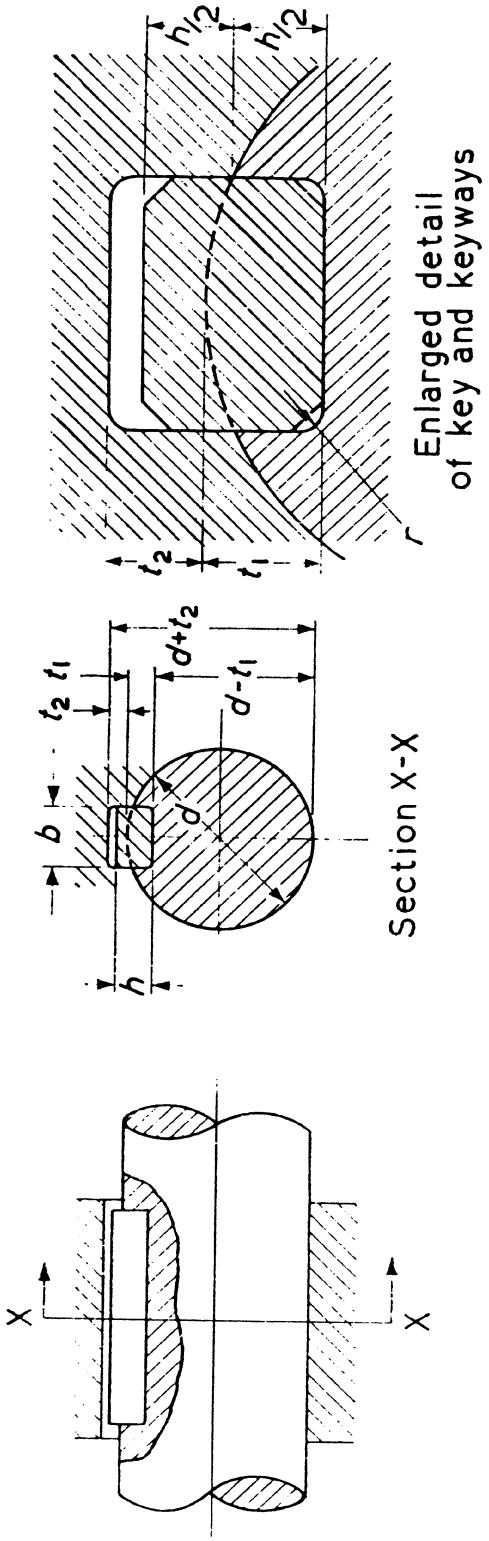


Table 3 — Dimensions and tolerances of keyways for rectangular parallel keys

All dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Shaft		**Key (see Note)**	**Keyway**											
nominal diameter (see Note) *d*		**section *b* × *h* width × thickness**	**width *b***						**depth**					
			tolerance for class of fit						**shaft t_1**		**hub t_2**		**radius *r***	
				free		**normal**		**close and interference**						
over	**incl.**		**nom.**	**shaft (H9)**	**hub (D10)**	**shaft (N9)**	**hub (J_s9)***	**shaft and hub (P9)**	**nom.**	**tol.**	**nom.**	**tol.**	**max.**	**min.**
22	30	8 × 7	8	+ 0.036	+ 0.098	0	+ 0.018	– 0.015	4		3.3		0.25	0.16
30	38	10 × 8	10	0	+ 0.040	– 0.036	– 0.018	– 0.051	5		3.3		0.40	0.25
38	44	12 × 8	12						5		3.3		0.40	0.25
44	50	14 × 9	14	+ 0.043	+ 0.120	0	+ 0.021	– 0.018	5.5		3.8		0.40	0.25
50	58	16 × 10	16	0	+ 0.050	– 0.043	– 0.021	– 0.061	6	+ 0.2	4.3	+ 0.2	0.40	0.25
58	65	18 × 11	18						7	0	4.4	0	0.40	0.25
65	75	20 × 12	20						7.5		4.9		0.60	0.40
75	85	22 × 14	22	+ 0.052	+ 0.149	0	+ 0.026	– 0.022	9		5.4		0.60	0.40
85	95	25 × 14	25	0	+ 0.065	– 0.052	– 0.026	– 0.074	9		5.4		0.60	0.40
95	110	28 × 16	28						10		6.4		0.60	0.40
110	130	32 × 18	32						11		7.4		0.60	0.40
130	150	36 × 20	36						12		8.4		1.00	0.70
150	170	40 × 22	40	+ 0.062	+ 0.180	0	+ 0.031	– 0.026	13		9.4		1.00	0.70
170	200	45 × 25	45	0	+ 0.080	– 0.062	– 0.031	– 0.088	15		10.4		1.00	0.70
200	230	50 × 28	50						17		11.4		1.00	0.70
230	260	56 × 32	56						20	+ 0.3	12.4	+ 0.3	1.60	1.20
260	290	63 × 32	63	+ 0.074	+ 0.220	0	+ 0.037	– 0.032	20	0	12.4	0	1.60	1.20
290	330	70 × 36	70	0	+ 0.100	– 0.074	– 0.037	– 0.106	22		14.4		1.60	1.20
330	380	80 × 40	80						25		15.4		2.50	2.00
380	440	90 × 45	90	+ 0.087	+ 0.260	0	+ 0.043	– 0.037	28		17.4		2.50	2.00
440	500	100 × 50	100	0	+ 0.120	– 0.087	– 0.043	– 0.124	31		19.5		2.50	2.00

NOTE The relations between shaft diameter and key section given above are for general applications. The use of smaller key sections is permitted if suitable for the torque transmitted. In cases such as stepped shafts when larger diameters are required, for example to resist bending, and when fans, gears and impellers are fitted with a smaller key than normal, an unequal disposition of key in shaft with relation to the hub results. Therefore, dimensions $d - t_1$ and $d + t_2$ should be recalculated to maintain the $h/2$ relationship.

The use of larger key sections which are special to any particular application is outside the scope of this standard.

[a] The limits for tolerance J_s9 are quoted from BS 4500, "ISO limits and fits", to three significant figures.

Table 4 — Dimensions and tolerances of rectangular parallel keys

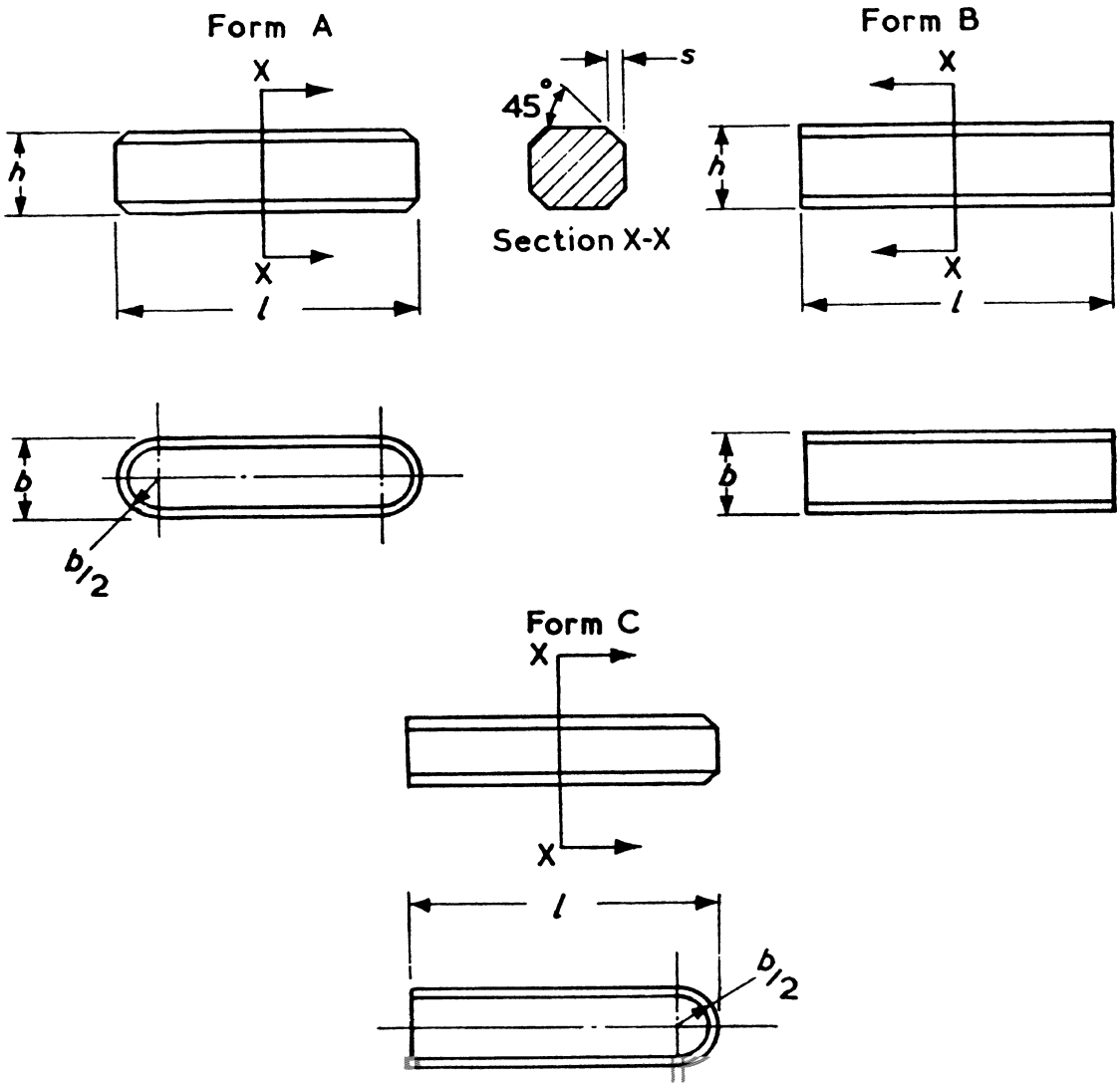


Table 4 — Dimensions and tolerances of rectangular parallel keys

All dimensions in millimetres

1	2	3	4	5	6	7	8
Width ***b***		**Thickness** ***h***		**Chamfer** ***s***		**Range of lengths** ***l*** [a]	
nom.	**tol. (h9)**	**nom.**	**tol. (h11)**	**min.**	**max.**	**from**	**incl.**
8	0	7		0.25	0.40	18	90
10	− 0.036	8	0	0.40	0.60	22	110
12		8	− 0.090	0.40	0.60	28	140
14	0	9		0.40	0.60	36	160
16	− 0.043	10		0.40	0.60	45	180
18		11		0.40	0.60	50	200
20		12		0.60	0.80	56	220
22	0	14	0	0.60	0.80	63	250
25	− 0.052	14	− 0.110	0.60	0.80	70	280
28		16		0.60	0.80	80	320
32		18		0.60	0.80	90	360
36	0	20		1.00	1.20	100	400
40	− 0.062	22	0	1.00	1.20	—	—
45		25	− 0.130	1.00	1.20	—	—
50		28		1.00	1.20	—	—
56		32		1.60	2.00	—	—
63	0	32		1.60	2.00	—	—
70	− 0.074	36	0	1.60	2.00	—	—
80		40	− 0.160	2.50	3.00	—	—
90	0	45		2.50	3.00	—	—
100	− 0.087	50		2.50	3.00	—	—

[a] See Table 9 for preferred lengths of keys.

Table 5 — Dimensions and tolerances of keyways for square taper keys

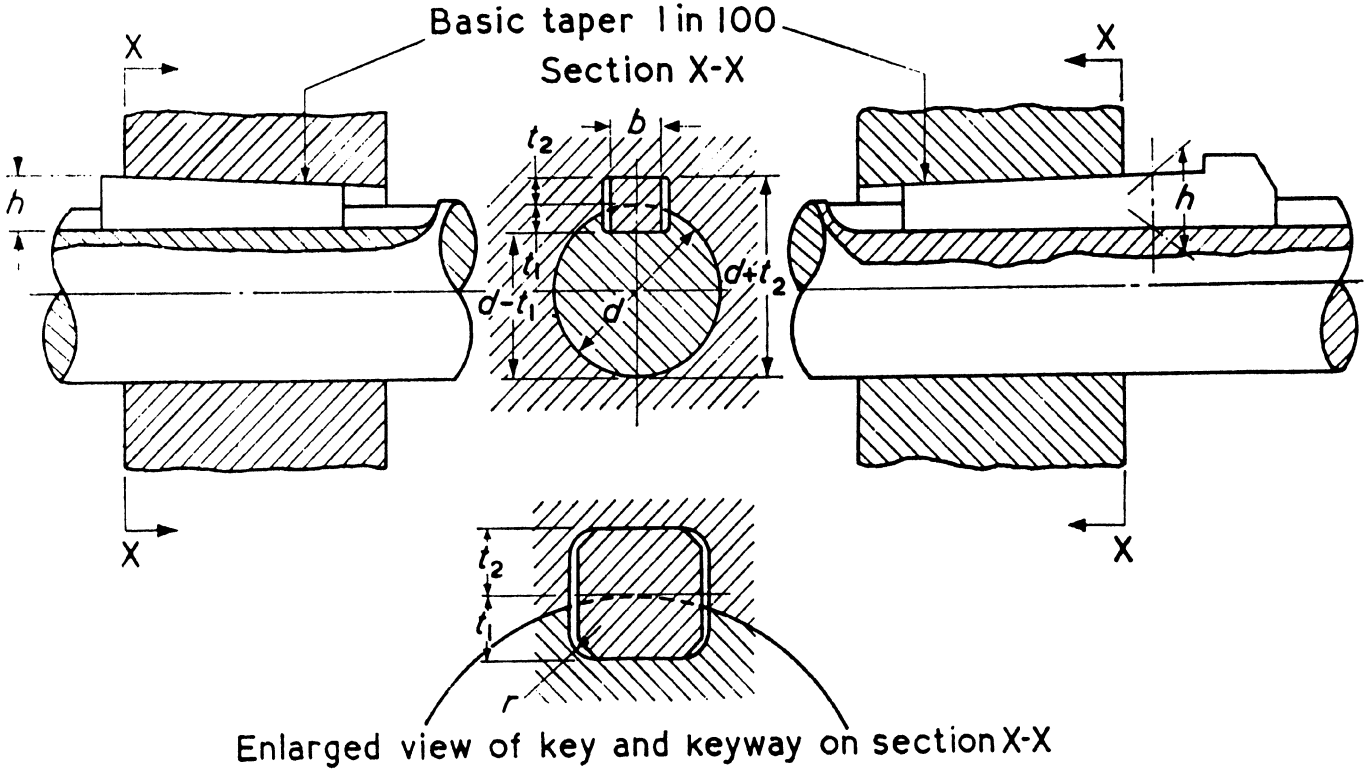


Table 5 — Dimensions and tolerances of keyways for square taper keys

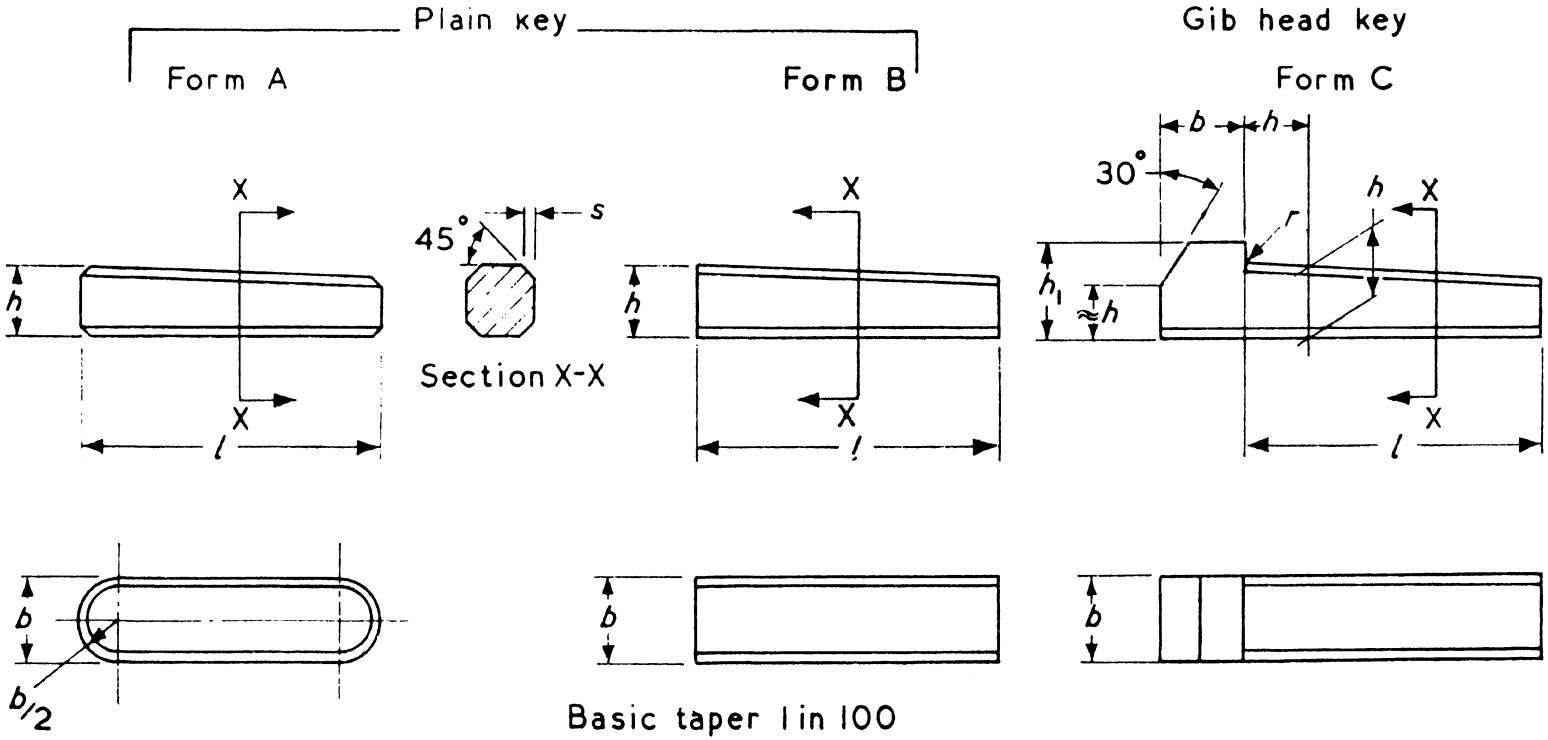
All dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11
Shaft (see Note 1)		**Key (see Note 1)**	**Keyway**							
nominal diameter *d*		**section *b* × *h* width × thickness**	**width *b* shaft and hub**		**depth**				**radius *r***	
					shaft t_1		**hub t_2**			
over	**incl.**		**nom.**	**tol. (D10)**	**nom.**	**tol.**	**nom.**	**tol.**	**max.**	**min.**
6	8	2 × 2	2	+ 0.060 + 0.020	1.2		0.5		0.16	0.08
8	10	3 × 3	3		1.8		0.9		0.16	0.08
10	12	4 × 4	4	+ 0.078 + 0.030	2.5	+ 0.1 0	1.2	+ 0.1 0	0.16	0.08
12	17	5 × 5	5		3		1.7		0.25	0.16
17	22	6 × 6	6		3.5		2.2		0.25	0.16

NOTE 1 The relations between shaft diameter and key section given above are for general applications. The use of smaller key sections is permitted if suitable for the torque transmitted. In cases such a stepped shafts when larger diameters are required, for example to resist bending, and when fans, gears and impellers are fitted with a smaller key than normal, an unequal disposition of key in shaft with relation to the hub results. Therefore, dimensions $d - t_1$ and $d + t_2$ should be recalculated to maintain the $h/2$ relationship. The use of larger key sections is not permitted.

NOTE 2 The assembly of a taper key requires that the taper of the key be fitted to the keyway. The dimensions and tolerances above and in Table 6 have been determined so that this is possible in all cases.

Table 6 — Dimensions and tolerances of square taper keys



All dimensions in millimetres

1	2	3	4	5	6	7	8	9	10
Width *b*		Thickness *h*		Chamfer *s*		Length *l*[a]		Gib head h_1	Radius *r*
nom.	tol. (h9)[b]	nom.	tol. (h9)[b]	min.	max.	from	incl.	nom.	nom.
2	0 −0.025	2	0 −0.025	0.16	0.25	6	20	—	—
3		3		0.16	0.25	6	36	—	—
4		4		0.16	0.25	8	45	7	0.25
5	0 −0.030	5	0 −0.030	0.25	0.40	10	56	8	0.25
6		6		0.25	0.40	14	70	10	0.25

[a] See Table 9 for preferred lengths of keys.
[b] These tolerances do not apply to gib head dimensions.

Table 7 — Dimensions and tolerances of keyways for rectangular taper keys

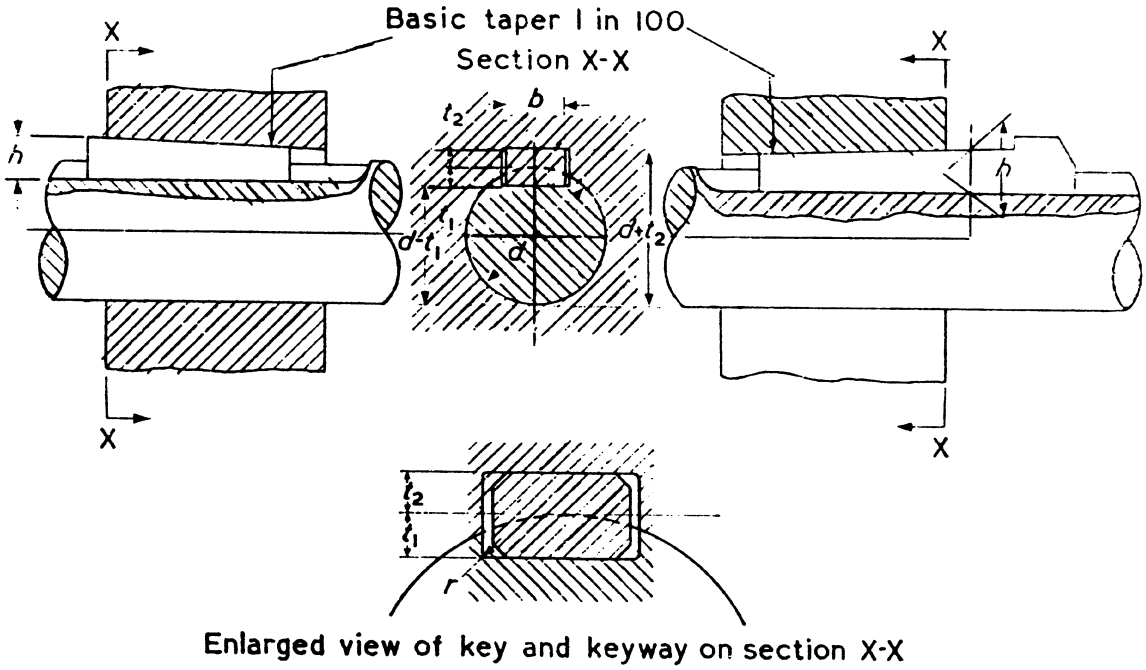


Table 7 —Dimensions and tolerances of keyways for rectangular taper keys

All dimensions in millimetres

1	2	3	4	5	6	7	8	9	10	11
Shaft		**Key (see Note 1)**	**Keyway**							
nominal diameter (see Note 1) *d*		**section *b* × *h* width × thickness**	**width *b* shaft and hub**		**depth**				**radius *r***	
					Shaft t_1		**hub t_2**			
over	**incl.**		**nom.**	**tol. (D10)**	**nom.**	**tol.**	**nom.**	**tol.**	**max.**	**min.**
22	30	8 × 7	8	+ 0.098 + 0.040	4		2.4		0.25	0.16
30	38	10 × 8	10		5		2.4		0.40	0.25
38	44	12 × 8	12		5		2.4		0.40	0.25
44	50	14 × 9	14	+ 0.120	5.5		2.9		0.40	0.25
50	58	16 × 10	16	+ 0.050	6		3.4		0.40	0.25
58	65	18 × 11	18		7	+ 0.2 0	3.4	+ 0.2 0	0.40	0.25
65	75	20 × 12	20		7.5		3.9		0.60	0.40
75	85	22 × 14	22	+ 0.149	9		4.4		0.60	0.40
85	95	25 × 14	25	+ 0.065	9		4.4		0.60	0.40
95	110	28 × 16	28		10		5.4		0.60	0.40
110	130	32 × 18	32		11		6.4		0.60	0.40
130	150	36 × 20	36	+ 0.180 + 0.180	12		7.1		1.00	0.70
150	170	40 × 22	40		13		8.1		1.00	0.70
170	200	45 × 25	45		15		9.1		1.00	0.70
200	230	50 × 28	50		17		10.1		1.00	0.70
230	260	56 × 32	56		20	+ 0.3 0	11.1	+ 0.3 0	1.60	1.20
260	290	63 × 32	63		20		11.1		1.60	1.20
290	330	70 × 36	70	+ 0.220 + 0.120	22		13.1		1.60	1.20
330	380	80 × 40	80		25		14.1		2.50	2.00
380	440	90 × 45	90	+ 0.260 + 0.120	28		16.1		2.50	2.00
440	500	100 × 50	100		31		18.1		2.50	2.00

NOTE 1 The relations between shaft diameter and key section given above are for general applications. The use of smaller key sections is permitted if suitable for the torque transmitted. In cases such as stepped shafts when larger diameters are required, for example to resist bending, and when fans, gears and impellers are fitted with a smaller key than normal, an unequal disposition of key in shaft with relation to the hub results. Therefore, dimensions $d - t_1$ and $d + t_2$ should be recalculated to maintain the $h/2$ relationship.

The use of larger key sections is not permitted.

NOTE 2 The assembly of a taper key requires that the taper of the key be fitted to the keyway. The dimensions and tolerances above and in Table 8 have been determined so that this is possible in all cases.

Table 8 — Dimensions and tolerances of rectangular taper keys

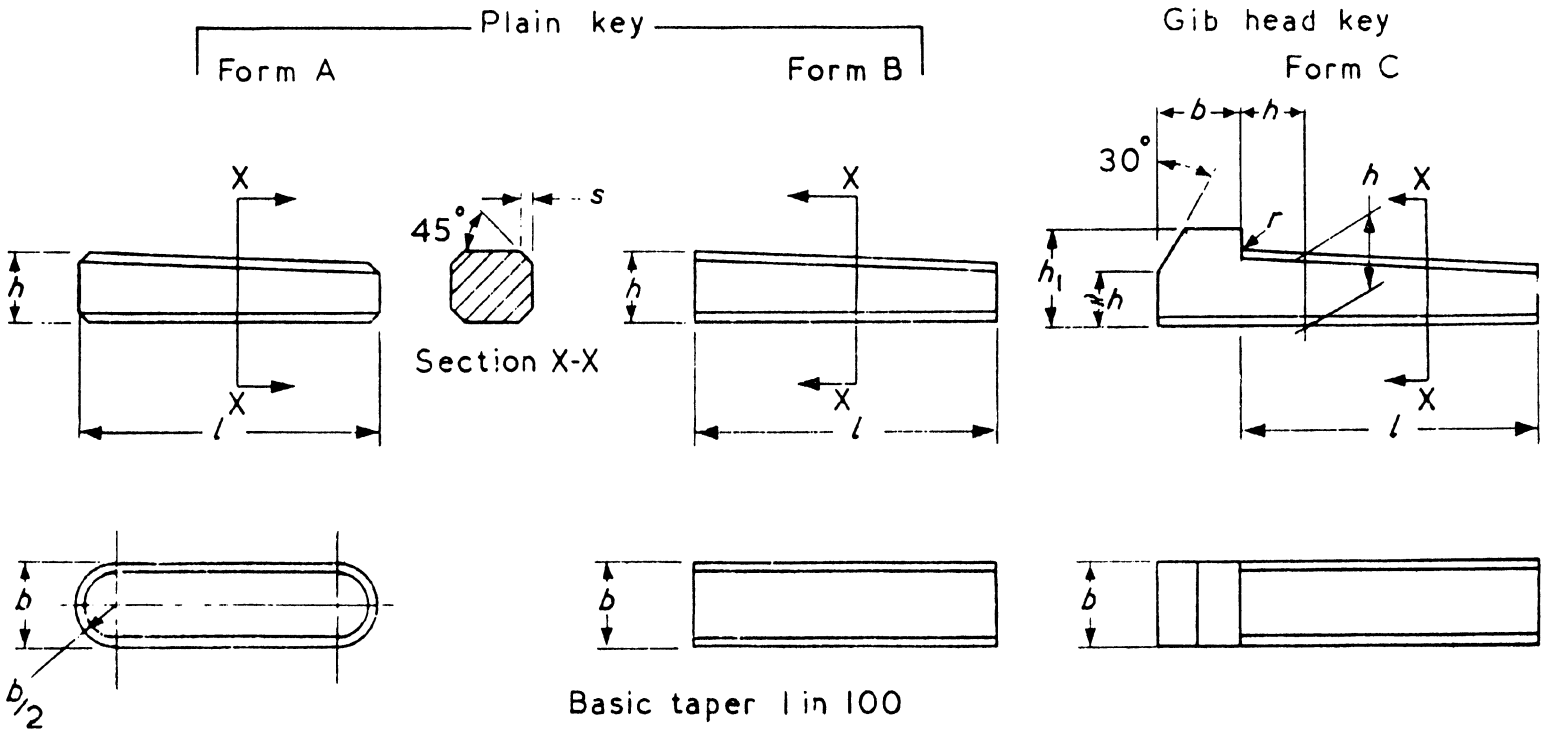


Table 8 — Dimensions and tolerances of rectangular taper keys

All dimensions in millimetres

1	2	3	4	5	6	7	8	9	10
Width ***b***		**Thickness** ***h***		**Chamfer** ***s***		***Length*** ***l***[a]		**Gib head** h_1	**Radius** ***r***
nom.	**tol. (h9)**[b]	**nom.**	**tol. (h11)**[b]	**min.**	**max.**	**from**	**incl.**	**nom.**	**nom.**
8	0 – 0.036	7	0 – 0.090	0.25	0.40	18	90	11	1.5
10		8		0.40	0.60	22	110	12	1.5
12	0 – 0.043	8		0.40	0.60	28	140	12	1.5
14		9		0.40	0.60	36	160	14	1.5
16		10		0.40	0.60	45	180	16	1.5
18		11	0 – 0.110	0.40	0.60	50	200	18	1.5
20	0 – 0.052	12		0.60	0.80	56	220	20	1.5
22		14		0.60	0.80	63	250	22	1.5
25		14		0.60	0.80	70	280	22	1.5
28		16		0.60	0.80	80	320	25	1.5
32		18		0.60	0.80	90	360	28	1.5
36	0 – 0.062	20	0 – 0.130	1.00	1.20	100	400	32	1.5
40		22		1.00	1.20	—	—	36	1.5
45		25		1.00	1.20	—	—	40	1.5
50		28		1.00	1.20	—	—	45	1.5
56	0 – 0.074	32	0 – 0.160	1.60	2.00	—	—	50	1.5
63		32		1.60	2.00	—	—	50	1.5
70		36		1.60	2.00	—	—	56	1.5
80		40		2.50	3.00	—	—	63	1.5
90	0 – 0.087	45		2.50	3.00	—	—	70	1.5
100		50		2.50	3.00	—	—	80	1.5

[a] See Table 9 for preferred lengths of keys.
[b] These tolerances do not apply to gib head dimensions.

Table 9 — Preferred lengths of keys

1	2	3	4	5
Length	**Type of key**			
	square	**rectangular**	**square taper**	**rectangular taper**
mm				
6	x	—	x	—
8	x	—	x	—
10	x	—	x	—
12	x	—	x	—
14	x	—	x	—
16	x	—	x	—
18	x	x	x	x
20	x	x	x	x
22	x	x	x	x
25	x	x	x	x
28	x	x	x	x
32	x	x	x	x
36	x	x	x	x
40	x	x	x	x
45	x	x	x	x
50	x	x	x	x
56	x	x	x	x
63	x	x	x	x
70	x	x	x	x
80	—	x	—	x
90	—	x	—	x
100	—	x	—	x
110	—	x	—	x
125	—	x	—	x
140	—	x	—	x
160	—	x	—	x
180	—	x	—	x
200	—	x	—	x
220	—	x	—	x
250	—	x	—	x
280	—	x	—	x
320	—	x	—	x
360	—	x	—	x
400	—	x	—	x

NOTE The demand for metric keys is not yet sufficient to enable standard ranges of lengths to be established. The lengths given in Column 1 are those shown as standard in ISO Recommendations R 773, "Rectangular or square parallel keys and their corresponding keyways (dimensions in millimetres)", and R 774, "Taper keys and their corresponding keyways (with or without gib head) (dimensions in millimetres)".

The values in bold type are those which correspond most nearly with the preferred lengths given in Tables 9 and 10 of BS 46-1.

Table 10 — Tolerance of interference fit square parallel keys

All dimensions are in millimetres

1	2	3	4	5	6	7	8
Width ***b***		**Thickness** ***h***		**Chamfer** ***s***		**Range of lengths** ***l***[a]	
nom.	**tol. (k9)**	**nom.**	**tol. (h9)**	**min.**	**max.**	**from**	**incl.**
2	+ 0.025 0	2	0 – 0.025	0.16	0.25	6	20
3		3		0.16	0.25	6	36
4	+ 0.030 0	4	0 – 0.030	0.16	0.25	8	45
5		5		0.25	0.40	10	56
6		6		0.25	0.40	14	70

[a] See Table 9 for preferred lengths of keys.

Table 11 — Tolerances of interference fit rectangular parallel keys

All dimensions are in millimetres

1	2	3	4	5	6	7	8
Width *b*		Thickness *h*		chamfer *s*		range of length *l*[a]	
nom.	tol. (k9)	nom.	tol. (h11)	min.	max.	from	incl.
8	+ 0.036 0	7	0 − 0.090	0.25	0.40	18	90
10		8		0.40	0.60	22	110
12	+ 0.043 0	8		0.40	0.60	28	140
14		9		0.40	0.60	36	160
16		10		0.40	0.60	45	180
18		11		0.40	0.60	50	200
20	+ 0.052 0	12	0 − 0.110	0.06	0.80	56	220
22		14		0.60	0.80	63	250
25		14		0.60	0.80	70	280
28		16		0.60	0.80	80	320
32	+ 0.062 0	18		0.60	0.80	90	360
36		20	0 − 0.130	1.00	1.20	100	400
40		22		1.00	1.20	—	—
45		25		1.00	1.20	—	—
50		28		1.00	1.20	—	—
56	+ 0.074 0	32	0 − 0.160	1.60	2.00	—	—
63		32		1.60	2.00	—	—
70		36		1.60	2.00	—	—
80		40		2.50	3.00	—	—
90	+ 0.087 0	45		2.50	3.00	—	—
100		50		2.50	3.00	—	—

[a] See Table 9 for preferred lengths of keys.

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