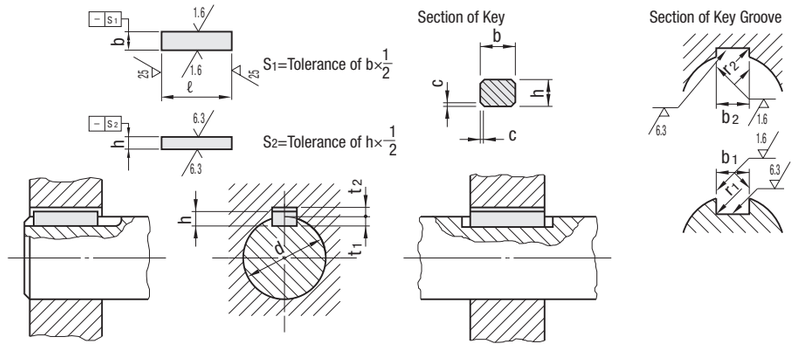
[Technical Data]
Machine Keys and Key Grooves

Excerpts from JIS B 1301 (1996)

1. Parallel Keys and Key Grooves



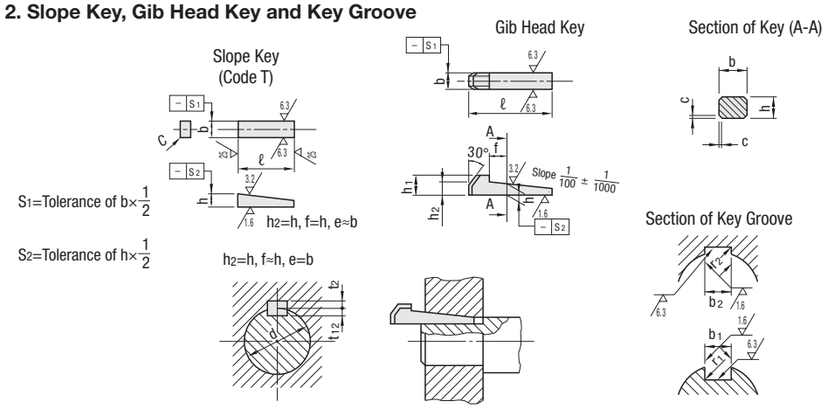
Unit: mm

Key Nominal Dimension b×h	Dimension of Key Groove										Reference
	Reference Dimension of b1, b2	(Sliding Type) b1 Tolerance (H9)	(Sliding Type) b2 Tolerance (D10)	Standard b1 Tolerance (N9)	Standard b2 Tolerance (Js9)	Precision Class b1 and b2 Tolerance (P9)	r1 and r2	Reference Dimension of t1	Reference Dimension of t2	Reference Dimension of t2, t1	Applicable Shaft Dia.(1) d
2×2	2	+0.025 0	+0.060 +0.020	−0.004 −0.029	±0.0125	−0.006 −0.031	0.08~0.16	1.2	1.0	+0.1 0	6~8
3×3	3							1.8	1.4		8~10
4×4	4	+0.030 0	+0.078 +0.030	0 −0.030	±0.0150	−0.012 −0.042	0.16~0.25	2.5	1.8		10~12
5×5	5							3.0	2.3		12~17
6×6	6							3.5	2.8		17~22
(7×7)	7	+0.036 0	+0.098 +0.040	0 −0.036	±0.0180	−0.015 −0.051		4.0	3.0	+0.2 0	20~25
8×7	8							4.0	3.3		22~30
10×8	10						0.25~0.40	5.0	3.3		30~38
12×8	12	+0.043 0	+0.120 +0.050	0 −0.043	±0.0215	−0.018 −0.061		5.0	3.3		38~44
14×9	14							5.5	3.8		44~50
(15×10)	15							5.0	5.0		50~55
16×10	16							6.0	4.3		50~58
18×11	18							7.0	4.4		58~65
20×12	20	+0.052 0	+0.149 +0.065	0 −0.052	±0.0260	−0.022 −0.074	0.40~0.60	7.5	4.9		65~75
22×14	22							9.0	5.4		75~85
(24×16)	24							8.0	8.0		80~90
25×14	25							9.0	5.4		85~95
28×16	28							10.0	6.4		95~110
32×18	32	+0.062 0	+0.180 +0.080	0 −0.062	±0.0310	−0.026 −0.088		11.0	7.4		110~130
(35×22)	35						0.70~1.00	11.0	11.0	+0.3 0	125~140
36×20	36							12.0	8.4		130~150
(38×24)	38							12.0	12.0		140~160
40×22	40							13.0	9.4		150~170
(42×26)	42							13.0	13.0		160~180
45×25	45							15.0	10.4		170~200
50×28	50							17.0	11.4		200~230
56×32	56	+0.074 0	+0.220 +0.100	0 −0.074	±0.0370	−0.032 −0.106	1.20~1.60	20.0	12.4		230~260
63×32	63							20.0	12.4		260~290
70×36	70							22.0	14.4		290~330
80×40	80	+0.087 0	+0.260 +0.120	0 −0.087	±0.0435	−0.037 −0.124	2.00~2.50	25.0	15.4		330~380
90×45	90							28.0	17.4		380~440
100×50	100							31.0	19.5		440~500

Note(1) The applicable shaft diameter is calculated from the torque corresponding to the strength of the key, for presentation as referential data for general-purpose use. When the key is of an appropriate size relative to the torque to be transmitted, a shaft thicker than the applicable shaft diameter may be used. In some cases, t_1 and t_2 should be adjusted so that a side of the key will come into uniform contact with the shaft and the hub. A shaft narrower than the applicable shaft diameter should not be used.

Reference The nominal sizes given in ( ) do not conform to the relevant international standard and must not be used in new design.

2. Slope Key, Gib Head Key and Key Groove



Unit: mm

Key Nominal Dimension b×h	Dimension of Key Groove b Reference Dimension	b Tolerance (h9)	h Reference Dimension	h Tolerance		h1	c	ℓ(1)	Dimension of Key Groove b1 and b2 Reference Dimension	b1 and b2 Tolerance (D10)	r1 and r2	Reference Dimension of t1	Reference Dimension of t2	Reference Dimension of t2, t1	Reference Applicable Shaft Dia.(2) d
2×2	2	0 −0.025	2	0 −0.025	h9	–	0.16 ~0.25	6~30	2	+0.060 +0.020	0.08 ~0.16	1.2	0.5	+0.05 0	6~8
3×3	3		3			–		6~36	3			1.8	0.9		8~10
4×4	4	0 −0.030	4	0 −0.030		7		8~45	4	+0.078 +0.030		2.5	1.2	+0.1 0	10~12
5×5	5		5			8	0.25 ~0.40	10~56	5		0.16 ~0.25	3.0	1.7		12~17
6×6	6		6			10		14~70	6			3.5	2.2		17~22
(7×7)	7	0 −0.036	7.2	0 −0.036		10		16~80	7	+0.098 +0.040		4.0	3.0		20~25
8×7	8		7	0 −0.090	h11	11		18~90	8			4.0	2.4	+0.2 0	22~30
10×8	10		8			12	0.40 ~0.60	22~110	10		0.25 ~0.40	5.0	2.4		30~38
12×8	12	0 −0.043	8			12		28~140	12	+0.120 +0.050		5.0	2.4		38~44
14×9	14		9			14		36~160	14			5.5	2.9		44~50
(15×10)	15		10.2	0 −0.070	h10	15		40~180	15			5.0	5.0	+0.1 0	50~55
16×10	16		10	0 −0.090	h11	16		45~180	16			6.0	3.4	+0.2 0	50~58
18×11	18		11			18		50~200	18			7.0	3.4		58~65
20×12	20	0 −0.052	12	0 −0.110		20	0.60 ~0.80	56~220	20	+0.149 +0.065	0.40 ~0.60	7.5	3.9		65~75
22×14	22		14			22		63~250	22			9.0	4.4		75~85
(24×16)	24		16.2	0 −0.070	h10	24		70~280	24			8.0	8.0	+0.1 0	80~90
25×14	25		14	0 −0.110	h11	22		70~280	25			9.0	4.4	+0.2 0	85~95
28×16	28		16			25		80~320	28			10.0	5.4		95~110
32×18	32	0 −0.062	18			28		90~360	32	+0.180 +0.080		11.0	6.4		110~130
(35×22)	35		22.3	0 −0.084	h10	32	1.00 ~1.20	100~400	35		0.70 ~1.00	11.0	11.0	+0.15 0	125~140
36×20	36		20	0 −0.130	h11			–	36			12.0	7.1	+0.3 0	130~150
(38×24)	38		24.3	0 −0.084	h10	36		–	38			12.0	12.0	+0.15 0	140~160
40×22	40		22	0 −0.130	h11	36		–	40			13.0	8.1	+0.3 0	150~170
(42×26)	42		26.3	0 −0.084	h10	40		–	42			13.0	13.0	+0.15 0	160~180
45×25	45		25	0 −0.130	h11	40		–	45			15.0	9.1		170~200
50×28	50		28			45		–	50			17.0	10.1		200~230
56×32	56	0 −0.074	32	0 −0.160		50	1.60 ~2.00	–	56	+0.220 +0.100	1.20 ~1.60	20.0	11.1	+0.3 0	230~260
63×32	63		32			50		–	63			20.0	11.1		260~290
70×36	70		36			56		–	70			22.0	13.1		290~330
80×40	80		40			63	2.50 ~3.00	–	80		2.00 ~2.50	25.0	14.1		330~380
90×45	90	0 −0.087	45			70		–	90	+0.260 +0.120		28.0	16.1		380~440
100×50	100		50			80		–	100			31.0	18.1		440~500

Note(1): From the values for ℓ given below, which are in the appropriate range in the table, one should be selected.
The tolerance for l should be h12 under JIS B0401 (dimension tolerance and fitting), in principle.
6,8,10,12,14,16,18,20,22,25,28,32,36,40,45,50,56,63,70,80,90,100,110,125,140,160,180,200,220,250,280,320,360,400

Note(2): The appropriate shaft diameter should be matched with the torque corresponding to the strength of the key.

Reference: The nominal sizes given in ( ) should not be used unless they are absolutely necessary.
The groove for the boss should be slanted to 1/100, in principle.