UDC 669.14-422.4 : 621.886.6

April 1975

Bright steel for key bars
Dimensions, limit deviations, mass

DIN 6880

Blanker Keilstahl; Maße, zulässige Abweichungen, Gewichte

Dimensions in mm

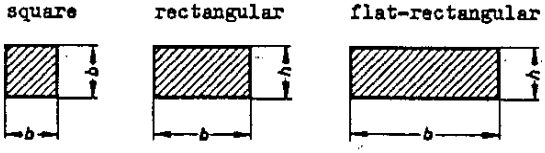
1. Scope

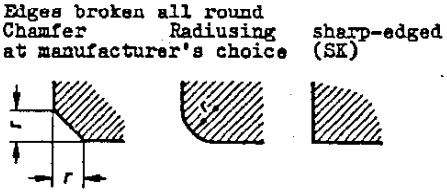
This Standard applies to bright key steel in bars of square, rectangular or flat-rectangular cross-section in the nominal dimensions indicated in Tables 1 and 2 and in the steel specified in Section 6.

This Standard does not apply to bright flat steel (see DIN 174) and bright square steel (see DIN 178).

2. Definition

Bright key steel is descaled and uncut cold formed steel and has a comparatively smooth, bright surface and an appropriately high grade of accuracy; it is intended for making taper keys and parallel keys.





3. Designation

Designation of a key steel with edges broken all round of width b = 18 mm and thickness h = 11 mm in steel C 45 K:

Key steel 18 x 11 DIN 6880

Designation of a sharp-edged key steel (SK) of width b = 56 mm and thickness h = 32 mm in steel C 45 K:

Key steel SK 56 x 32 DIN 6880

Table 1. Square key steel

Type	Nominal dimension b x b 1)	Permissible variation on b according to ISO tolerance zone h9 0 ...	r min.	r max.	Weight kg/m ≈	Suitable for: Gib-head parallel keys according to DIN 6884	Parallel keys and taper keys according to DIN 6885 DIN 6886	Gib-head keys according to DIN 6887	Gib-head saddle keys according to DIN 6889
square	(2 x 2)	− 0,025	0,16	0,25	0,0314		2 x 2		
	(3 x 3)				0,0707		3 x 3		
	(4 x 4)	− 0,030			0,126		4 x 4		
	5 x 5		0,25	0,4	0,196		5 x 5		
	6 x 6				0,283		6 x 6		
	7 x 7	− 0,036			0,385	2)	2)	2)	2)
	8 x 8				0,503	8 x 5			8 x 3,5
	10 x 10		0,4	0,6	0,785	10 x 6			
	12 x 12	− 0,043			1,13	12 x 6		12 x 8	
	14 x 14				1,54	14 x 6		14 x 9	
	16 x 16				2,01	16 x 7		16 x 10	16 x 5
	18 x 18				2,54			18 x 11	
	20 x 20	− 0,052	0,6	0,8	3,14			20 x 12	20 x 6
	22 x 22				3,80			22 x 14	22 x 7

1) The dimensions in brackets can only be made from the standard rolled steel dimensions by repeated drawing.
2) Used only for parallel keys for tools according to DIN 138.

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Table 2. Rectangular and flat-rectangular key steel

Type	Nominal dimension $b \times h$ [1]	Perm. variation on b acc. to ISO tolerance zone h9 0 ...	Perm. variation on h acc. to ISO tolerance zone h9 0 ...	Perm. variation on h acc. to ISO tolerance zone h11 0 ...	r min.	r max.	Weight kg/m ≈	Suitable for: Saddle keys acc. to DIN 6881	Parallel keys acc. to DIN 6883	Gib-head parallel keys acc. to DIN 6884	Parallel keys and taper keys acc. to DIN 6885 DIN 6886	Gib-head keys acc. to DIN 6887	Gib-head saddle keys acc. to DIN 6889
rectangular	(8 x 7)	−0,036	—	−0,090	0,25	0,4	0,440				8 x 7		
	(10 x 8)						0,628				10 x 8		10 x 4
	12 x 8		−0,036	—			0,754				12 x 8	8 x 7	12 x 4
	(12 x 10)				0,4	0,6	0,943					10 x 8	
	14 x 9	−0,043		−0,090			0,989				14 x 9		14 x 4,5
	16 x 10						1,26				16 x 10		
	18 x 11						1,55			18 x 7	18 x 11		18 x 5
	20 x 12			−0,110			1,88			20 x 8	20 x 12		
	22 x 14						2,42			22 x 9	22 x 14		
	25 x 14	−0,052					2,75			25 x 9	25 x 14		
	(25 x 22)			−0,130	0,6	0,8	4,32					25 x 14	25 x 7
	28 x 16)			−0,110			3,52			28 x 10	28 x 16		
	(28 x 25)			−0,130			5,50					28 x 16	28 x 7,5
	32 x 18			−0,110			4,52			32 x 11	32 x 18		
	(32 x 30)			−0,130			7,54					32 x 18	32 x 8,5
	36 x 20				1	1,2	5,65			36 x 12	36 x 20		
	(36 x 34)		—	−0,160			9,61					36 x 20	36 x 9
	40 x 22			−0,130			6,91			40 x 14	40 x 22		
	(40 x 38)	−0,062		−0,160			11,9					40 x 22	
	(45 x 25)			−0,130			8,83		45 x 16	45 x 16	45 x 25		
	(45 x 43)			−0,160			15,2					45 x 25	
	(50 x 28)			−0,130			11,0		50 x 18	50 x 18	50 x 28		
	(50 x 48)			−0,160			18,8					50 x 28	
	(56 x 32)				1,6	2	14,1				56 x 32		
	(63 x 32)	−0,074					15,8				63 x 32		
	(70 x 36)						19,8				70 x 36		
	(80 x 40)				2,5	3	25,1				80 x 40		
	90 x 45 [2]	−0,087					31,8				90 x 45		
	(100 x 50)						39,3				100 x 50		
flat-rectangular	(5 x 3)	−0,030	—	−0,060	0,25	0,4	0,118				5 x 3		
	(6 x 4)			−0,075			0,188				6 x 4		
	7 x 4						0,220					4 x 4	
	8 x 5	−0,036	−0,030	—			0,314	8 x 3,5	8 x 5		8 x 5	5 x 5	
	10 x 6				0,4	0,6	0,471	10 x 4	10 x 6		10 x 6	6 x 6	
	12 x 6			−0,075			0,565	12 x 4	12 x 6		12 x 6		
	14 x 6	−0,043					0,659	14 x 4,5	14 x 6		14 x 6		
	16 x 7						0,879	16 x 5	16 x 7		16 x 7		
	18 x 7			−0,090			0,989	18 x 5	18 x 7		18 x 7		
	20 x 8		—		0,6	0,8	1,26	20 x 6	20 x 8		20 x 8		
	22 x 9	−0,052					1,55	22 x 7	22 x 9		22 x 9		
	25 x 9						1,77	25 x 7	25 x 9		25 x 9		
	28 x 10						2,20	28 x 7,5	28 x 10		28 x 10		
	32 x 11						2,76	32 x 8,5	32 x 11		32 x 11		
	36 x 12	−0,062		−0,110	1	1,2	3,39	36 x 9	36 x 12		36 x 12		
	(40 x 14)						4,40		40 x 14				

[1] The dimensions in brackets can only be made from the standard rolled steel dimensions by repeated drawing.
[2] No primary stock in standard dimensions is available for this nominal dimension.

4. Dimensions and permissible dimension and form variations

4.1. Thickness, width, chamfer and radiusing

The preferred dimensions in which bright key steel is supplied and the permissible variations on these dimensions are contained in Tables 1 and 2.

4.2. Straightness

The bars are supplied straightened by eye; any special requirements in regard to straightness shall be subject to agreement.

5. Weight

The weight indicated in the Tables has been calculated from the cross-section on the basis of a density of 7.85 kg/dm^3.

6. Material

Steel C 45 K is made according to DIN 1652, other steel grades subject to agreement.

7. Finish

Key steel according to this Standard is normally supplied with edges broken all round; dimensions above 40 mm x 22 mm, however, are supplied with sharp edges. Any variation from this rule shall be specially agreed when ordering. If sharp-edged steel is required, the code letters SK shall be prefixed to the code designation.

8. Mode of delivery

Key steel is supplied in stock lengths of 3000 to 4000 mm; alternative lengths, e.g., fixed lengths or exact lengths, and the length variations permitted on these, shall be subject to agreement.

9. Testing for accuracy to size

9.1. Extent of test

The number of bars on which accuracy to size shall be checked on dispatch from the manufacturer shall be subject to agreement.

9.2. Testing procedure

In the case of stock lengths the width and thickness shall be checked at a distance of 150 mm from the end of the bar. If fixed lengths or exact lengths are supplied subject to special agreement, the thickness and width may be checked at a distance of 10 mm from the end of the bar.

Explanations

In the present issue of DIN 6880, the values for breaking of edges or radiusing r have, as compared with the November 1964 issue, been modified in order to achieve conformity with the provisions of standards DIN 6884 to DIN 6889 applicable to parallel keys and taper keys. The interchangeability of old and new taper keys and parallel keys is not prejudiced thereby.

In addition, for gib-head parallel keys, modifications were to a certain extent necessary in regard to correlation with key steels, seeing that corrections to the gib head heights had been made in DIN 6884 in the light of decisions taken by ISO/TC 16.

With the consent of all concerned, grade C 45 K according to DIN 1652, was taken as the normal material for key steel, replacing the St 50 K and ST 60-2 K steels previously specified. When ordering products made from this normal material, it continues to be unnecessary to quote the steel grade in the designation, as C 45 K in any case possesses the minimum strength required of St 50 K and St 60-2 K steels, and substitution of materials would not be to the disadvantage of the user.