

4/1

GOST : 24071-80

Title : WOODRUFF KEYS

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USSR STATE STANDARD

Basic norms of Interchangeability

GOST 24071-80

KEY JOINTS WITH WOODRUFF KEYS

(CT C 9 B 047-77)

Dimensions of Keys and Keyways

This supersedes

Tolerances and Fits

GOST 8794-68 and

Reissued Nov. '84.

GOST 8795-68

Valid upto 01.01.1991.

1. The present standard relates to key joints with woodruff keys and establishes the dimensions and deviation limits of woodruff keys and the corresponding keyways in shafts and bushes.

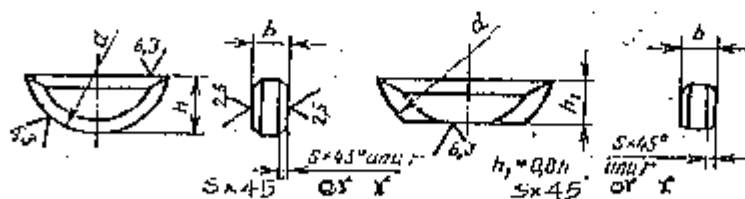
The standard fully conforms to CT C 9 B 647-77.

The standard conforms to international standard ^{ISO} 3912-77.

2. Dimensions of keys and their deviation limits should conform to those given in drg. 1 and Table 1.

Version 1

Version 2 ^{12,5} (✓) (✓)



Drg. 1

Note: Sharp corners may be rounded off with a chamfer or radius of upto 0.1b.

Dimensions in mm

Table 1

Width b (h9)	Height h (h11)	Diameter d (h12)	Chamfer $S \times 45^\circ$ or radius r		Theoretical weight of 1000 keys in kg
			Min.	Max.	
1.0	1.4	4			0.031
1.5	2.6	7			0.152
2.0	2.6	7			0.204
2.0	3.7	10	0.16	0.25	0.414
2.5	3.7	10			0.510
3.0	5.0	13			1.050
3.0	6.5	16			1.600
4.0	6.5	16			2.120
4.0	7.5	19			3.240
5.0	6.5	16			2.680
5.0	7.5	19	0.25	0.40	4.040
5.0	9.0	22			5.660
6.0	9.0	22			6.780
6.0	10.0	25			8.480
8.0	11.0	28	0.40	0.60	13.800
10.0	13.0	32			24.100

Example of conventional designation of key of version 1 having cross-section $b \times h = 5 \times 6.5$ mm:

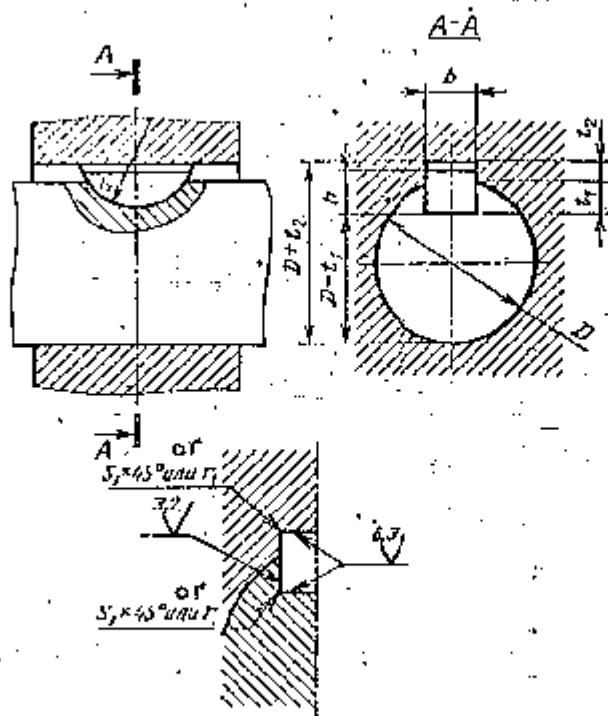
Key 5x6.5 GOST 24071-80.

-Do+ of version 2 having cross section $b \times h_1 = 5 \times 5.2$ mm:

Key 2-5x5.2 GOST 24071-80.

3. Material for keys is finish drawn steel for woodruff keys as per GOST 8786-68. Other steel with ultimate tensile strength not less than 590 MH/m² (60 kgf/mm²) may be used.

4. Dimensions of cross-sections of keyways and deviation limits of their depth in shafts and bushes should conform to those given in drg.2 and Table 2.



Note: Depending upon the accepted datum for machining and measurement, one dimension for shaft t_1 (preferably) or $D-t_1$, and for bush $D+t_2$ should be indicated on the working drawing.

Table 2

mm

Shaft diameter D		Dimensions of key b x h x d	Width b	Keyway			
Purpose of key				Depth		Chamfer $S_1 \times 45^\circ$ or radius r_1	
Transmission of torque	Locking the elements			Shaft t_1	Bush t_2	Minimum	Maximum
				Nominal	Deviation limit		
From 3 to 4	From 3 to 4	1x1.4x1	1.0	1.0	0.6		
Over 4 to 5	Over 4 to 6	1.5x2.6x7	1.5	2.0	0.8		
Over 5 to 6	Over 6 to 8	2x2.6x7	2.0	1.8	+0.1	+0.1	0.08
Over 6 to 7	Over 8 to 10	2x3.7x10	2.5	2.9	0	0	0.16
Over 7 to 8	Over 10 to 12	2.5x3.7x10	2.5	2.7	1.0	1.2	

Table 2 Contd.

mm

Shaft diameter D		Purpose of key	Dimensions of key b x h x d	Keyway					
				Width b	Depth		Chamfer S ₁ x 45° or radius T ₁		
Transmission of torque	Locking the elements				Nominal	Deviation limit	Nominal	Deviation limit	Minimum
				Shaft t ₁	Bush t ₂	Minimum	Maximum		
Over 8 to 10	Over 12 to 15	3x5x13	3.0	3.9		1.4		0.08	0.16
Over 10 to 12	Over 15 to 18	3x6.5x16		5.3		1.4			
Over 12 to 14	Over 18 to 20	4x6.5x16	4.0	5.0	+0.2 0	1.8			
Over 14 to 16	Over 20 to 22	4x7.5x19		6.0		1.8			
Over 16 to 18	Over 22 to 25	5x6.5x16	5.0	4.5		2.3	+0.1 0	0.16	0.25
Over 18 to 20	Over 25 to 28	5x7.5x19		5.5		2.3			
Over 20 to 22	Over 28 to 32	5x9x22	+6.0	7.0	+0.3 0	2.3			
Over 22 to 25	Over 32 to 36	6x9x22		6.5		2.8			
Over 25 to 28	Over 36 to 40	6x10x25	8.0	7.5		2.8			
Over 28 to 32	Over 40	8x11x28		8.0		3.3			
Over 32 to 38	Over 40	10x13x32	10.0	10.0		3.3			

Note: In technically justifiable cases, (in case of hollow and stepped shafts, transmission of lower torques etc.) keys of lesser dimensions of cross-sections may be used on large diameter shafts except at their output ends.

5. Deviation limits on width of keyway b should conform to tolerance zones given in Table 3.

Table 3

Type of joint	Tolerance zone of width of keyway	
	Shaft	Bush
Normal	N9	J9
Tight	P9	

Note: 1. Any combination of tolerance zones given in Table 3 may be used for the width of keyway in shaft and bush.

2. Deviation limits on width of keyway in shafts and bushes corresponding to tolerance zone H11 and D10 respectively are allowed for heat treated parts.

3. In vital key joints, key way bottom is matched with lateral sides along the radius whose value and deviation limits should be indicated in the working drawing.