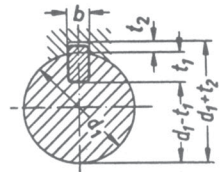
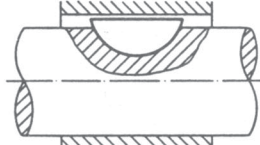
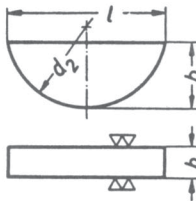


Drive Type Fastenings without Taper Action  
Woodruff Keys  
Dimensions and Application

DIN  
6888

Mitnehmerverbindungen ohne Anzug; Scheibenfedern, Abmessungen und Anwendung

Dimensions in mm



Breaking of corners  
(all-round)  
Chamfering Radiusing  
at manufacturer's choice

Radius at bottom of keyway  
in shaft and hub

Designation of a Woodruff key of width  
 $b = 4$  mm and height  $h = 5$  mm:

Woodruff key 4 x 5 DIN 6888



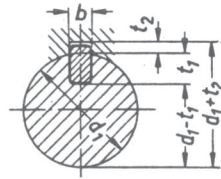
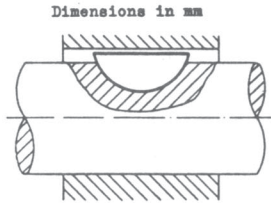
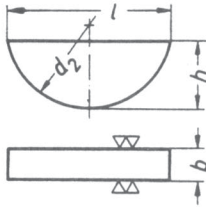
Cross-section of Woodruff key (Half-round steel according to DIN 6882)		Width b h9	1	1,5	2	2,5*	3			4				
		Height h h12	1,4	2,6	2,6	3,7	3,7	5	6,5	5	6,5	7,5		
Allocation <sup>1)</sup>	I	for shaft diameter $d_1$	above	3	4	6		8		10				
			up to	4	6	8		10		12				
II		for shaft diameter $d_1$	above	6	8	10		12		17				
			up to	8	10	12		17		22				
Diameter		$d_2$	4	7	7	10	10	10	13	16	13	16	19	
		Perm.var.	-0,1	-0,1	-0,1	-0,1		-0,1				-0,1		
Chamfering or radiusing		$r_1$	0,2	0,2	0,2	0,2		0,2			0,2			
		Perm.var.	+0,1	+0,1	+0,1	+0,1		+0,1			+0,1			
Length		$l \approx$	3,82	6,76	6,76	9,66	9,66	9,66	12,65	15,72	12,65	15,72	18,57	
Weight (7.85 kg/dm <sup>3</sup> )		kg/1000 pieces $\approx$	0,031	0,153	0,204	0,414	0,518	0,622	1,10	1,80	1,47	2,40	3,27	
Shaft keyway	Width $b^2)$	Tight fit P9		1	1,5	2	2,5	3			4			
		Sliding fit N9												
	Depth $t_1^3)$	Series A		1	2	1,8	2,9	2,9	2,5	3,8	5,3	3,5	5	6
		Series B		1	2	1,8	2,9	2,9	2,8	4,1	5,6	4,1	5,6	6,6
Perm.var. for A and B			+0,1	+0,1	+0,1	+0,1	+0,1	+0,1	+0,1	+0,1	+0,1	+0,1	+0,1	
Diameter $d_2 + 0,5$		4	7	7	10	10	10	13	16	13	16	19		
Hub keyway	Width $b^2)$	Tight fit P9		1	1,5	2	2,5	3			4			
		Sliding fit J9 6)												
	Depth $t_2^3)$	Series A <sup>4)</sup>		0,6	0,8	1	1		1,4			1,7		
		Series B <sup>5)</sup>		0,6	0,8	1	1		1,1			1,1		
Perm.var. for A and B			+0,1	+0,1	+0,1	+0,1		+0,1			+0,1			
Radius at bottom of keyway		$r_2$	0,2	0,2	0,2	0,2		0,2			0,2			
		Perm.var.	-0,1	-0,1	-0,1	-0,1		-0,1			-0,1			

\* Only for automotive applications

Material: St 60 (steel having a tensile strength of at least 60 kg/mm<sup>2</sup> in the finished condition), alternative materials to be specified in order

- Where corresponding dimensions are involved, particularly for shaft extensions, allocation of the Woodruff key cross-sections appropriate to the shaft diameters concerned must be observed. Allocation I applies in all cases where the Woodruff key is used in the role of a feather key, i.e. to transmit the whole of the torque. Allocation II applies in all cases where the Woodruff key is used solely for locating the driving element, other elements, e.g. cotters or tapers being employed to transmit the torque.
- The listed permissible variations for keyway widths are intended for guidance only. It is recommended that for the widths of broached keyways ISA Class IT 8 be observed instead of IT 9 (similarly P8 instead of P9, N8 instead of N9 and J8 instead of J9).
- In workshop drawings the dimensions  $t_1$  and  $(d_1 - t_1)$ , also  $t_2$  and  $(d_1 + t_2)$  may appear side by side; however, in many cases the dimensions  $t_1$  and  $(d_1 + t_2)$  will suffice. In this connection it may be necessary to allow for permissible variations and machining allowances on the shaft and hub bore.
- Preference should be given to Series A (deep hub keyway); this conforms to DIN 6885 Sheet 1 ( $t_2$  with back clearance).
- Series B (shallow hub keyway) for machine tools; this conforms to DIN 6885 Sheet 2.
- When the relationship between the Woodruff key and the shaft diameter is based on Allocation II it is permissible to use tolerance zone D 10 also.

Continued on page 2



**Breaking of corners**  
(all-round)  
Chamfering RADIUSING  
at manufacturer's choice

**Radius at bottom of keyway**  
in shaft and hub

Designation of a Woodruff key of width  $b = 8$  mm and height  $h = 11$  mm:  
Woodruff key 8 x 11 DIN 6888



Cross-section of Woodruff key (Half-round steel according to DIN 6882)		5		6				8			10			
Width $b$ h9		6,5	7,5	9	7,5	9	(10)	11	9	11	13	11	13	16
Allocation <sup>1)</sup>	I for shaft diameter $d_1$ above up to	12	—	—	17	—	—	—	22	—	—	30	—	—
	II for shaft diameter $d_1$ above up to	17	—	—	22	—	—	—	30	—	—	38	—	—
		22		30				38			38			
		30		38				—			—			
Diameter	$d_2$	16	19	22	19	22	25	28	22	28	32	28	32	45
	Perm.var.	-0,1		-0,1		-0,2		-0,1	-0,2		-0,2			
Chamfering or radiusing	$r$	0,2		0,4				0,4			0,4			
	Perm.var.	+0,1		+0,2				+0,2			+0,2			
Length	$l \approx$	15,72	18,57	21,63	18,57	21,63	24,49	27,35	21,63	27,35	31,43	27,35	31,43	43,08
Weight	(7,85 kg/dm <sup>3</sup> ) kg/1000 p. $\approx$	3,01	4,09	5,73	4,91	6,88	8,64	10,6	9,17	14,1	19,3	17,6	24,1	39,9
Shaft keyway	Width $b^2$	5			6				8			10		
		Tight fit P9												
		Sliding fit M9												
	Depth $t_1^3$	Series A	4,5	5,5	7	5,1	6,6	7,6	8,6	6,2	8,2	10,2	7,8	9,8
	Series B	5,4	6,4	7,9	6	7,5	8,5	9,5	7,5	9,5	11,5	9,1	11,1	14,1
	Perm.var. for A and B	+0,1		+0,2		+0,1		+0,2		+0,2			+0,2	
Diameter	$d_2 + 0,5$	16	19	22	19	22	25	28	22	28	32	28	32	45
Hub keyway	Width $b^2$	5			6				8			10		
		Tight fit P9												
		Sliding fit J9 6)												
	Depth $t_2^3$	Series A <sup>4)</sup>	2,2		2,6				3			3,4		
		Series B <sup>5)</sup>	1,3		1,7				1,7			2,1		
	Perm.var. for B	+0,1		+0,1				+0,1			+0,1			
Radius at bottom of keyway	$r_2$	0,2		0,4				0,4			0,4			
	Perm.var.	-0,1		-0,2				-0,2			-0,2			

Bracketed values should be avoided as far as possible.

**Material:** St 60 (steel having a tensile strength of at least 60 kg/mm<sup>2</sup> in the finished condition), alternative materials to be specified in order

- Where corresponding dimensions are involved, particularly for shaft extensions, allocation of the Woodruff key cross-sections appropriate to the shaft diameters concerned must be observed. Allocation I applies in all cases where the Woodruff key is used in the role of a feather key, i.e. to transmit the whole of the torque. Allocation II applies in all cases where the Woodruff key is used solely for locating the driving element, other elements, e.g. cotters or tapers being employed to transmit the torque.
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