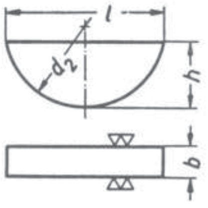
UDC 621.886.6 August 1956

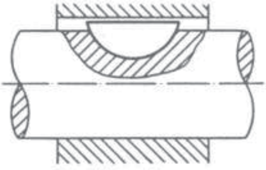
Drive Type Fastenings without Taper Action
Woodruff Keys
Dimensions and Application

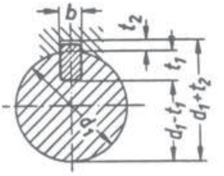
DIN 6888

Mitnehmerverbindungen ohne Anzug; Scheibenfedern, Abmessungen und Anwendung

Dimensions in mm





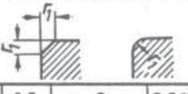


Breaking of corners (all-round)
Chamfering Radiusing
at manufacturer's choice

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 × 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	3,7	5	6,5	5	6,5	7,5
Allocation[1] I for shaft diameter d_1	above	3	4	6		8			–	10		–
	up to	4	6	8		10			–	12		–
Allocation[1] 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/dm³) kg/1000 pieces ≈		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 / Sliding fit N9	1	1,5	2		2,5	3			4		
Shaft keyway: 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		
Shaft keyway: Diameter d_2 + 0.5		4	7	7	10	10	10	13	16	13	16	19
Hub keyway: Width b[2]	Tight fit P9 / Sliding fit J9[6]	1	1,5	2		2,5	3			4		
Hub keyway: Depth t_2[3]	Series A[4]	0,6	0,8	1		1	1,4			1,7		
	Series B[5]	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/mm² in the finished condition), alternative materials to be specified in order

1) 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.

2) 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).

3) 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.

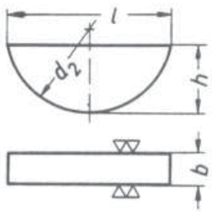
4) Preference should be given to Series A (deep hub keyway); this conforms to DIN 6885 Sheet 1 (t_2 with back clearance).

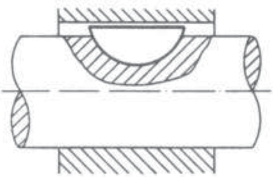
5) Series B (shallow hub keyway) for machine tools; this conforms to DIN 6885 Sheet 2.

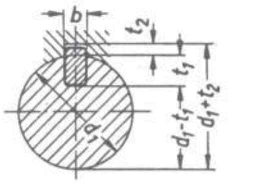
6) When the relationship between the Woodruff key and the shaft diameter is based on Allocation II it is permissible to use tolerance zone D 10 also.

Continued on page 2

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 = 8 mm and height h = 11 mm:

Woodruff key 8 × 11 DIN 6888

Cross-section of Woodruff key (Half-round steel according to DIN 6882) — Width b h9	5			6				8			10		
Height h h12	6,5	7,5	9	7,5	9	(10)	11	9	11	13	11	13	16
Allocation[1]) I for shaft diameter d_1 above	12		–	17			–	22		–	30		–
Allocation[1]) I for shaft diameter d_1 up to	17		–	22			–	30		–	38		–
Allocation[1]) II for shaft diameter d_1 above	22			30				38					
Allocation[1]) II for shaft diameter d_1 up to	30			38				–					
Diameter d_2	16	19	22	19	22	25	28	22	28	32	28	32	45
Diameter Perm.var.	– 0,1			– 0,1		– 0,2		– 0,1	– 0,2		– 0,2		
Chamfering or radiusing r_1	0,2			0,4				0,4			0,4		
Chamfering or radiusing 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/dm³) kg/1000 p. ≈	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]) Tight fit P9 / Sliding fit N9	5			6				8			10		
Shaft keyway — 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	12,8
Shaft keyway — Depth t_1[3]) 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
Shaft keyway — Depth t_1[3]) Perm.var. for A and B	+ 0,1		+ 0,2	+ 0,1		+ 0,2		+ 0,2			+ 0,2		
Shaft keyway — Diameter d_2 + 0.5	16	19	22	19	22	25	28	22	28	32	28	32	45
Hub keyway — Width b[2]) Tight fit P9 / Sliding fit J9[6])	5			6				8			10		
Hub keyway — Depth t_2[3]) Series A[4])	2,2			2,6				3			3,4		
Hub keyway — Depth t_2[3]) Perm.var. for A	+ 0,1			+ 0,1				+ 0,1			+ 0,2		
Hub keyway — Depth t_2[3]) Series B[5])	1,3			1,7				1,7			2,1		
Hub keyway — Depth t_2[3]) 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		
Radius at bottom of keyway Perm.var.	– 0,1			– 0,2				– 0,2			– 0,2		

Bracketed values should be avoided as far as possible.

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