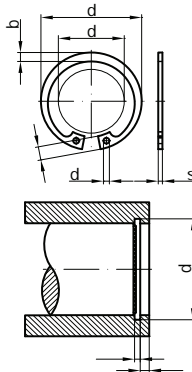




Dimensions for washers and rings

Retaining/lock washers and rings

DIN	Dimensions	8	9	10	11	12	13	14	15	16	17	18
	s	0.8	0.8	1	1	1	1	1	1	1	1	1
	d ₃	8.7	9.8	10.8	11.8	13	14.1	15.1	16.2	17.3	18.3	19.5
	a	2.4	2.5	3.2	3.3	3.4	3.6	3.7	3.7	3.8	3.9	4.1
	b	1.1	1.3	1.4	1.5	1.7	1.8	1.9	2	2	2.1	2.2
	d ₅	1	1	1.2	1.2	1.5	1.5	1.7	1.7	1.7	1.7	2
	d ₂	8.4	9.4	10.4	11.4	12.5	13.6	14.6	15.7	16.8	17.8	19
	m	0.9	0.9	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	n	0.6	0.6	0.6	0.6	0.8	0.9	0.9	1.1	1.2	1.2	1.5
	d ₄	3	3.7	3.3	4.1	4.9	5.4	6.2	7.2	8	8.8	9.4
Dimensions	19	20	21	22	23 *	24	25	26	27 *	28	29 *	
	s	1	1	1	1	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	d ₃	20.5	21.5	22.5	23.5	24.6	25.9	26.9	27.9	29.1	30.1	31.1
	a	4.1	4.2	4.2	4.2	4.2	4.4	4.5	4.7	4.7	4.8	4.8
	b	2.2	2.3	2.4	2.5	2.5	2.6	2.7	2.8	2.9	2.9	3
	d ₅	2	2	2	2	2	2	2	2	2	2	2
	d ₂	20	21	22	23	24.1	25.2	26.2	27.2	28.4	29.4	30.4
	m	1.1	1.1	1.1	1.1	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	n	1.5	1.5	1.5	1.5	1.7	1.8	1.8	1.8	2.1	2.1	2.1
	d ₄	10.4	11.2	12.2	13.2	-	14.8	15.5	16.1	-	17.9	-
Dimensions	30	31	32	33 *	34	35	36	37	38	39 *	40	
	s	1.2	1.2	1.2	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.75
	d ₃	32.1	33.4	34.4	35.5	36.5	37.8	38.8	39.8	40.8	42	43.5
	a	4.8	5.2	5.4	5.4	5.4	5.4	5.4	5.5	5.5	5.6	5.8
	b	3	3.2	3.2	3.3	3.3	3.4	3.5	3.6	3.7	3.8	3.9
	d ₅	2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	d ₂	31.4	32.7	33.7	34.7	35.7	37	38	39	40	41	42.5
	m	1.3	1.3	1.3	1.3	1.6	1.6	1.6	1.6	1.6	1.6	1.85
	n	2.1	2.6	2.6	2.6	2.6	3	3	3	3	3	3.8
	d ₄	19.9	20	20.6	-	22.6	23.6	24.6	25.4	26.4	-	27.8
Dimensions	41 *	42	44 *	45	46 *	47	48	50	51 *	52	53 *	
	s	1.75	1.75	1.75	1.75	1.75	1.75	2	2	2	2	
	d ₃	44.5	45.5	47.5	48.5	49.5	50.5	51.5	54.2	55.2	56.2	57.2
	a	5.9	5.9	6	6.2	6.3	6.4	6.4	6.5	6.5	6.7	6.7
	b	4	4.1	4.2	4.3	4.4	4.4	4.5	4.6	4.7	4.7	4.9
	d ₅	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	d ₂	43.5	44.5	46.5	47.5	48.5	49.5	50.5	53	54	55	56
	m	1.85	1.85	1.85	1.85	1.85	1.85	1.85	2.15	2.15	2.15	2.15
	n	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.5	4.5	4.5	4.5
	d ₄	-	29.6	-	32	-	33.5	34.5	36.3	-	37.9	-
Dimensions	54 *	55	56	57 *	58	60	62	63	64 *	65	67 *	
	s	2	2	2	2	2	2	2	2	2.5	2.5	
	d ₃	58.2	59.2	60.2	61.2	62.2	64.2	66.2	67.2	68.2	69.2	71.5
	a	6.7	6.8	6.8	6.8	6.9	7.3	7.3	7.3	7.4	7.6	7.7
	b	5	5	5.1	5.1	5.2	5.4	5.5	5.6	5.7	5.8	6
	d ₅	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3	3
	d ₂	57	58	59	60	61	63	65	66	67	68	70
	m	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.65	2.65
	n	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	d ₄	-	40.7	41.7	-	43.5	44.7	46.7	47.7	-	49	-
Dimensions	68	70	72	75	77 *	78	80	82	85	88	90	
	s	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3	3	3	
	d ₃	72.5	74.5	76.5	79.5	82.5	82.5	85.5	87.5	90.5	93.5	95.5
	a	7.8	7.8	7.8	7.8	8.5	8.5	8.5	8.5	8.6	8.6	8.6
	b	6.1	6.2	6.4	6.6	6.8	6.8	7	7	7.2	7.4	7.6
	d ₅	3	3	3	3	3	3	3	3.5	3.5	3.5	
	d ₂	71	73	75	78	80	81	83.5	85.5	88.5	91.5	93.5
	m	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	3.15	3.15	3.15
	n	4.5	4.5	4.5	4.5	4.5	4.5	5.3	5.3	5.3	5.3	5.3
	d ₄	51.6	53.6	55.6	58.6	-	60.1	62.1	64.1	66.9	69.9	71.9
Dimensions	92	95	97 *	98	100	102	105	108	110	112	115	
	s	3	3	3	3	3	4	4	4	4	4	
	d ₃	97.5	100.5	103.5	103.5	105.5	108	112	115	117	119	122
	a	8.7	8.8	9	9	9.2	9.5	9.5	9.5	10.4	10.5	10.5
	b	7.8	8.1	8.3	8.3	8.4	8.5	8.7	8.9	9	9.1	9.3
	d ₅	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	d ₂	95.5	98.5	100.5	101.5	103.5	106	109	112	114	116	119
	m	3.15	3.15	3.15	3.15	3.15	4.15	4.15	4.15	4.15	4.15	4.15
	n	5.3	5.3	5.3	5.3	5.3	6	6	6	6	6	6
	d ₄	73.7	76.5	-	79	80.6	82	85	88	88.2	90	93



472 normal type

nominal size = bore Ø
 * intermediate sizes not included in the standard

Continued → TI-60