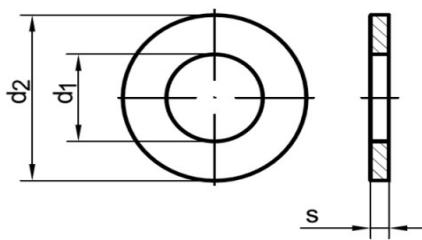


DIN 125 / ISO 7089

Nominal size	FOR THREAD size	Dimension (d1)		Outside Diameter (d2)		Thickness (h)		
		Min.	Max.	Min.	Max.	Nominal size	Min.	Max.
1.6	M1.6	1.70	1.84	3.70	4.00	0.30	0.25	0.35
2	M2	2.20	2.34	4.70	5.00	0.30	0.25	0.35
2.5	M2.5	2.70	2.84	5.70	6.00	0.50	0.45	0.55
3	M3	3.20	3.38	6.64	7.00	0.50	0.45	0.55
3.5	M3.5	3.70	3.88	7.64	8.00	0.50	0.45	0.55
4	M4	4.30	4.48	8.64	9.00	0.80	0.70	0.90
5	M5	5.30	5.48	9.64	10.00	1.00	0.90	1.10
6	M6	6.40	6.62	11.57	12.00	1.60	1.40	1.80
7	M7	7.40	7.62	13.57	14.00	1.60	1.40	1.80
8	M8	8.40	8.62	15.57	16.00	1.60	1.40	1.80
10	M10	10.50	10.77	19.48	20.00	2.00	1.80	2.20
12	M12	13.0	13.27	23.48	24.00	2.50	2.30	2.70
14	M14	15.0	15.27	27.48	28.00	2.50	2.30	2.70
16	M16	17.0	17.27	29.48	30.00	3.00	2.70	3.30
18	M18	19.0	19.33	33.38	34.00	3.00	2.70	3.30
20	M20	21.0	21.33	36.38	37.00	3.00	2.70	3.30
22	M22	23.0	23.33	38.38	39.00	3.00	2.70	3.30
24	M24	25.0	25.33	43.38	44.00	4.00	3.70	4.30
27	M27	28.0	28.33	49.38	50.00	4.00	3.70	4.30
30	M30	31.0	31.39	55.26	56.00	4.00	3.70	4.30
33	M33	34.0	34.62	58.80	60.00	5.00	4.40	5.60
36	M36	37.0	37.62	64.80	66.00	5.00	4.40	5.60
39	M39	40.0	40.62	70.08	72.00	6.00	5.40	6.60
42	M42	43.0	43.62	76.80	78.00	7.00	6.00	8.00
45	M45	46.0	46.62	83.60	85.00	7.00	6.00	8.00
48	M48	50.0	50.62	90.60	92.00	8.00	7.00	9.00
50	M50	52.0	52.74	90.60	92.00	8.00	7.00	9.00
52	M52	54.0	54.74	96.0	98.00	8.00	7.00	9.00



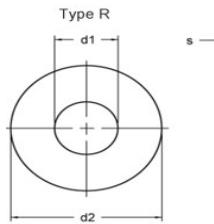
DIN 9021 / ISO 7093

Nominal size	FOR THREAD size	Dimension (d1)		Outside Diameter (d2)		Thikness (h)		
		Min.	Max.	Min.	Max.	Nominal size	Min.	Max.
2.5	M2	2.70	2.84	7.64	8.00	0.8	0.70	0.90
3	M3	3.20	3.38	8.64	9.00	0.8	0.70	0.90
3.5	M3.5	3.70	3.88	10.57	11.00	1	0.70	0.90
4	M4	4.30	4.48	11.57	12.00	1.2	0.90	1.10
5	M5	5.30	5.48	14.57	15.00	1.6	1.00	1.40
6	M6	6.40	6.62	17.57	18.00	2	1.40	1.80
7	M7	7.40	7.62	21.48	22.00	2	1.80	2.20
8	M8	8.40	8.62	23.48	24.00	2.5	1.80	2.20
10	M10	10.50	10.77	29.48	30.00	3	2.30	2.70
12	M12	13.00	13.27	36.38	37.00	3	2.70	3.30
14	M14	15.00	15.27	43.38	44.00	3	2.70	3.30
16	M16	17.00	17.27	49.38	50.00	4	2.70	3.30
18	M18	20.00	20.52	54.10	56.00	4	3.40	4.60
20	M20	22.00	22.52	58.10	60.00	5	3.40	4.60
22	M22	23.00	23.52	64.80	66.00	5	4.40	5.60
24	M24	26.00	26.84	70.10	72.00	6	4.00	6.00
27	M27	30.0	30.52	83.60	85.00	6	5.40	6.60
30	M30	33.00	34.00	89.80	92.00	6	5.00	7.00
36	M36	39.00	40.00	107.80	110.00	8	6.80	9.20



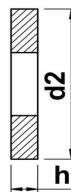
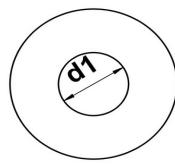
DIN 433 / ISO 7092

Nominal size	FOR THREAD size	Dimension (d1)		Outside Diameter (d2)		Thikness (h)		
		Min.	Max.	Min.	Max.	Nominal size	Min.	Max.
1	M1	1.10	1.24	2.25	2.50	0.30	0.25	0.35
1.2	M1.2	1.30	1.44	2.75	3.00	0.30	0.25	0.35
1.4	M1.4	1.50	1.64	2.75	3.00	0.30	0.25	0.35
1.6	M1.6	1.70	1.84	3.20	3.50	0.28	0.25	0.30
1.8	M1.8	2.00	2.14	3.70	4.00	0.30	0.25	0.35
2	M2	2.20	2.34	4.20	4.50	0.30	0.25	0.35
2.5	M2.5	2.70	2.84	4.70	5.00	0.50	0.45	0.55
3	M3	3.20	3.38	5.70	6.00	0.50	0.45	0.55
3.5	M3.5	3.70	3.88	6.64	7.00	0.50	0.45	0.55
4	M4	4.30	4.48	7.64	8.00	0.50	0.45	0.55
5	M5	5.30	5.48	8.64	9.00	1.00	0.90	1.10
6	M6	6.40	6.62	10.57	11.00	1.60	1.40	1.80
8	M8	8.40	8.62	14.57	15.00	1.60	1.40	1.80
10	M10	10.50	10.77	17.57	18.00	1.60	1.40	1.80
12	M12	13.00	13.27	19.48	20.00	2.00	1.80	2.20
14	M14	15.00	15.27	23.48	24.00	2.50	2.30	2.70
16	M16	17.00	17.27	27.48	28.00	2.50	2.30	2.70
18	M18	19.00	19.33	29.48	30.00	2.50	2.30	2.70
20	M20	21.00	21.33	33.38	34.00	3.00	2.70	3.30
24	M24	25.00	25.33	38.38	39.00	4.00	3.70	4.3
30	M30	31.00	31.39	49.38	50.00	4.00	3.70	4.30
36	M36	37.00	37.62	56.80	58.00	5.00	4.40	5.60



DIN 440 R / ISO 7094

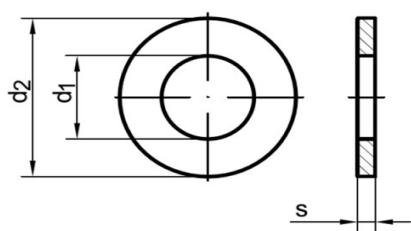
Nominal size	FOR THREAD size	Dimension (d1)		Outside Diameter (d2)		Thickness s(h)		
		Min.	Max.	Min.	Max.	Nominal size	Min.	Max.
5	M5	5.50	5.80	16.90	18.00	2.00	1.70	2.30
6	M6	6.60	6.96	20.70	22.00	2.00	1.70	2.30
8	M8	9.00	9.36	26.70	28.00	3.00	2.40	3.60
10	M10	11.00	11.43	32.40	34.00	3.00	2.40	3.60
12	M12	14.00	14.43	42.40	44.00	4.00	3.40	4.60
16	M16	18.00	18.70	54.10	56.00	5.00	4.00	6.00
20	M20	22.00	22.84	70.10	72.00	6.00	5.00	7.00
22	M22	24.00	24.84	78.10	80.00	6.00	5.00	7.00



DIN 7349-A

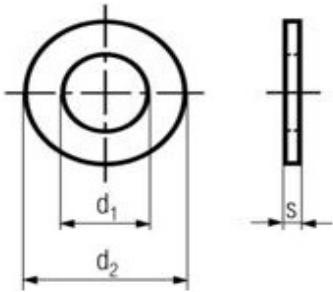
Nominal size	FOR THREAD size	Dimension (d1)		Outside Diameter (d2)		Thickness (h)		
		Min.	Max.	Min.	Max.	Nominal size	Min.	Max.
3	M3	3.20	3.38	8.64	9.00	1.00	0.90	1.10
4	M4	4.30	4.48	11.57	12.00	1.60	1.40	1.80
5	M5	5.30	5.48	14.57	15.00	2.00	1.80	2.20
6	M6	6.40	6.62	16.57	17.00	3.00	2.70	3.30
8	M8	8.40	8.62	20.48	21.00	4.00	3.70	4.30
10	M10	10.50	10.77	24.48	25.00	4.00	3.70	4.30
12	M12	13.0	13.43	29.16	30.00	6.00	5.40	6.60
14	M14	15.0	15.43	35.00	36.00	6.00	5.40	6.60
16	M16	17.0	17.43	39.00	40.00	6.00	5.40	6.60
18	M18	19.0	19.52	43.00	44.00	8.00	7.00	9.00
20	M20	21.0	21.52	43.00	44.00	8.00	7.00	9.00
22	M22	23.0	23.52	49.00	50.00	8.00	7.00	9.00
24	M24	25.0	25.52	49.00	50.00	10.00	9.00	11.00
27	M27	28.0	28.52	58.80	60.00	10.00	9.00	11.00
30	M30	31.00	31.62	66.80	68.00	10.00	9.00	11.00





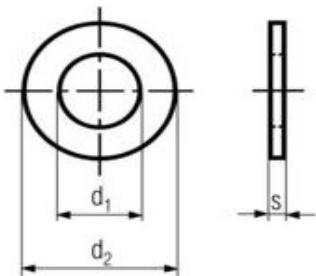
DIN 7989

Nominal size	FOR THREAD size	Dimension (d1)		Outside Diameter (d2)		Thikness s (h)		
		Min.	Max.	Min.	Max.	Nominal size	Min.	Max.
10	M10	11.00	11.70	18.70	20.00	8	6.80	9.20
12	M12	13.50	14.20	22.70	24.00	8	6.80	9.20
16	M16	17.50	18.20	28.70	30.00	8	6.80	9.20
20	M20	22.00	22.84	35.40	37.00	8	6.80	9.20
22	M22	24.00	24.84	39.40	39.00	8	6.80	9.20
24	M24	26.00	26.84	42.40	44.00	8	6.80	9.20
27	M27	30.00	30.84	48.40	50.00	8	6.80	9.20
30	M30	33.00	34.00	54.10	56.00	8	6.80	9.20



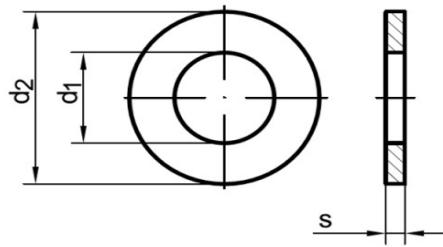
DIN 1440 / ISO 8738

Nominal size	FOR THREAD size	Dimension (d1)		Outside Diameter (d2)		Thickness s (h)		
		Min.	Max.	Min.	Max.	Nominal size	Min.	Max.
3	M3	3.0	3.06	5.70	6.00	0.80	0.70	0.90
4	M4	4.0	4.08	7.64	8.00	0.80	0.70	0.90
5	M5	5.0	5.08	9.64	10.0	0.80	0.70	0.90
6	M6	6.0	6.08	11.58	12.0	1.60	1.40	1.80
7	M7	7.0	7.09	13.58	14.0	1.60	1.40	1.80
8	M8	8.0	8.09	15.58	16.0	2.00	1.80	2.20
10	M10	10.0	10.09	19.48	20.0	2.50	2.30	2.70
12	M12	12.0	12.11	24.48	25.0	3.00	2.70	3.30
13	M13	13.00	13.11	24.48	25.00	3.00	2.70	3.30
14	M14	14.0	14.11	27.48	28.0	3.00	2.70	3.30
16	M16	16.0	16.11	27.48	28.0	3.00	2.70	3.30
18	M18	18.0	18.11	29.48	30.0	4.00	3.70	4.30
20	M20	20.0	20.13	31.38	32.0	4.00	3.70	4.30
22	M22	22.0	22.13	33.38	34.0	4.00	3.70	4.30
24	M24	24.0	24.13	37.38	38.0	4.00	3.70	4.30
25	M25	25.0	25.13	39.38	40.0	4.00	3.70	4.30
26	M26	26.0	26.13	39.0	40.0	5.00	4.40	5.60
27	M27	27.0	27.13	39.0	40.0	5.00	4.40	5.60
28	M28	28.0	28.13	41.0	42.0	5.00	4.40	5.60
30	M30	30.0	30.13	44.0	45.0	5.00	4.40	5.60
36	M36	36.00	36.62	50.80	52.00	6.00	5.40	6.60
40	M40	40.00	40.15	57.40	58.00	6.00	5.40	6.60



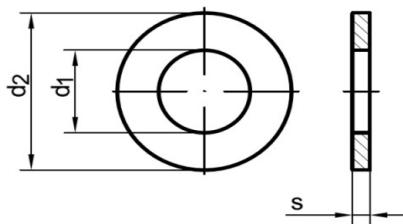
DIN 1441

Nominal size	FOR THREAD size	Dimension (d1)		Outside Diameter (d2)		Thickness s (h)		
		Min.	Max.	Min.	Max.	Nominal size	Min.	Max.
5	M5	5.50	5.68	9.64	10.0	0.80	0.75	0.85
6	M6	7.00	7.22	11.57	12.0	1.60	1.40	1.80
7	M7	8.0	8.22	13.57	14.0	1.60	1.40	1.80
8	M8	9.0	9.22	15.57	16.0	2.00	1.80	2.20
10	M10	11.0	11.27	19.48	20.0	2.50	2.30	2.70
12	M12	13.0	13.27	24.48	25.0	3.00	2.70	3.30
13	M13	14.0	14.27	24.48	25.0	3.00	2.70	3.30
14	M14	15.0	15.27	27.48	28.0	3.00	2.70	3.30
16	M16	17.0	17.27	27.48	28.0	3.00	2.70	3.30
18	M18	19.0	19.33	29.48	30.0	4.00	3.70	4.30
20	M20	21.0	21.33	31.38	32.0	4.00	3.70	4.30
22	M22	23.0	23.33	33.38	34.0	4.00	3.70	4.30
23	M23	24.0	24.33	35.38	36.0	4.00	3.70	4.30
24	M24	25.0	25.33	37.38	38.0	4.00	3.70	4.30
25	M25	26.0	26.33	39.38	40.0	4.00	3.70	4.30
26	M26	27.0	27.33	39.38	40.0	5.00	4.40	5.60
27	M27	28.0	28.33	39.38	40.0	5.00	4.40	5.60
28	M28	29.0	29.33	41.38	42.0	5.00	4.40	5.60
30	M30	31.0	31.39	44.38	45.0	5.00	4.40	5.60



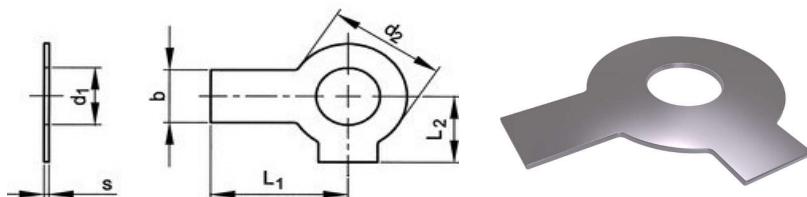
DIN 1052

Nominal size	FOR THREAD	Dimension (d1)		Outside Diameter (d2)		Thikness s (h)		
		size	Min.	Max.	Min.	Max.	Nominal size	Min.
12	M12	14.00	14.27	57.26	58.00	6.00	5.40	6.60
16	M16	18.00	18.40	67.10	68.00	6.00	5.50	6.50
20	M20	23.00	23.52	78.80	80.00	8.00	6.80	9.20
22	M22	25.00	25.52	90.60	92.00	8.00	7.00	9.00
24	M24	27.00	27.84	102.70	105.00	8.00	7.00	9.00



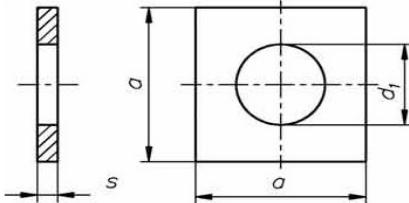
KARO

Nominal size	FOR THREAD size	Dimension (d1)		Outside Diameter (d2)		Thikness s(h)		
		Min.	Max.	Min.	Max.	Nominal size	Min.	Max.
15X4.3X1.5	KARO 15X4.3X1.5	4.30	4.48	14.57	15.00	1.50	1.40	1.60
20X5.3X1.5	KARO 20X5.3X1.5	5.30	5.48	19.48	20.00	1.50	1.40	1.60
20X6.4X1.5	KARO 20X6.4X1.5	6.40	6.62	19.48	20.00	1.50	1.40	1.60
20X8.4X1.5	KARO 20X8.4X1.5	8.40	8.62	19.48	20.00	1.50	1.40	1.60
25X4.3X1.5	KARO 25X4.3X1.5	4.30	4.48	24.48	25.00	1.50	1.40	1.60
25X5.3X1.5	KARO 25X5.3X1.5	5.30	5.48	24.48	25.00	1.50	1.40	1.60
25X6.4X1.5	KARO 25X6.4X1.5	6.40	6.62	24.48	25.00	1.50	1.40	1.60
25X8.4X1.5	KARO 25X8.4X1.5	8.40	8.62	24.48	25.00	1.50	1.40	1.60
30X5.3X1.5	KARO 30X5.3X1.5	5.30	5.48	29.48	30.00	1.50	1.40	1.60
30X6.4X1.5	KARO 30X6.4X1.5	6.40	6.62	29.48	30.00	1.50	1.40	1.60
30X8.4X1.5	KARO 30X8.4X1.5	8.40	8.62	29.48	30.00	1.50	1.40	1.60
30X10.5X1.5	KARO 30X10.5X1.5	10.50	10.77	29.48	30.00	1.50	1.40	1.60
30X12.5X1.5	KARO 30X12.5X1.5	12.50	12.77	29.48	30.00	1.50	1.40	1.60
35X8.4X1.5	KARO 35X8.4X1.5	8.40	8.62	34.48	35.00	1.50	1.40	1.60
35X10.5X1.5	KARO 35X10.5X1.5	10.50	10.77	34.38	35.00	1.50	1.40	1.60
35X12.5X1.5	KARO 35X12.5X1.5	12.50	12.77	34.38	35.00	1.50	1.40	1.60
40X6.4X1.5	KARO 40X6.4X1.5	6.40	6.62	39.38	40.00	1.50	1.40	1.60
40X8.4X1.5	KARO 40X8.4X1.5	8.40	8.62	39.38	40.00	1.50	1.40	1.60
40X12.5X1.5	KARO 40X12.5X1.5	12.50	12.77	39.38	40.00	1.50	1.40	1.60
45X10.5X1.5	KARO 45X10.5X1.5	10.50	10.77	44.38	45.00	1.50	1.40	1.60
6.5 x 30 x 1.25	KARO 6.5 x 30 x 1.25	6.50	6.72	29.48	30.00	1.25	1.05	1.45



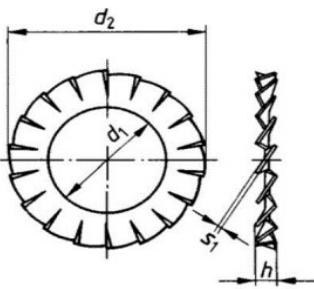
DIN 463

Nominal size	For Thread size	Dimension (ID)		Outside Diameter (od)		Outside Diameter (od)		Thickness S (h)		
		min.	max.	min.	max.	min.	max.	Nominal Size	min.	max.
3.2	M3	3.20	3.38	3.80	4.00	6.64	7.00	0.36	0.33	0.38
3.7	M3.5	3.70	3.88	3.80	4.00	8.64	8.00	0.36	0.33	0.38
4.3	M4	4.30	4.48	4.80	5.00	9.64	9.00	0.36	0.33	0.38
5.3	M5	5.30	5.48	5.80	6.00	10.64	10.00	0.50	0.45	0.55
6.4	M6	6.40	6.62	6.64	7.00	12.07	12.50	0.50	0.45	0.55
7.4	M7	7.40	7.62	6.64	7.00	13.57	14.00	0.50	0.45	0.55
8.4	M8	8.40	8.62	7.64	8.00	16.57	17.00	0.75	0.65	0.85
10.5	M10	10.50	10.77	9.64	10.00	20.48	21.00	0.75	0.65	0.85
13	M12	13.00	13.27	11.57	12.00	23.48	24.00	1.00	0.90	1.10
15	M14	15.00	15.27	11.57	12.00	27.48	28.00	1.00	0.90	1.10
17	M16	17.00	17.27	14.57	15.00	29.48	30.00	1.00	0.90	1.10
19	M18	19.00	19.33	17.57	18.00	33.38	34.00	1.00	0.90	1.10
21	M20	21.00	21.33	17.57	18.00	36.38	37.00	1.00	0.90	1.10
23	M22	23.00	23.33	19.48	20.00	38.38	39.00	1.00	0.90	1.10
25	M24	25.00	25.33	19.48	20.00	43.38	44.00	1.00	0.90	1.10
28	M27	28.00	28.33	22.48	23.00	49.38	50.00	1.60	1.40	1.80
31	M30	31.00	31.39	25.48	26.00	55.26	56.00	1.60	1.40	1.80
34	M32	34.00	34.39	27.48	28.00	59.26	60.00	1.60	1.40	1.80
37	M36	37.00	37.39	29.48	30.00	65.26	66.00	1.60	1.40	1.80
40	M38	40.00	40.39	31.38	32.00	71.26	72.00	1.60	1.40	1.80
43	M42	43.00	43.39	34.38	35.00	77.26	78.00	1.60	1.40	1.80
46	M44	46.00	46.39	37.38	38.00	84.13	85.00	1.60	1.40	1.80
50	M48	50.00	50.39	39.38	40.00	91.13	92.00	1.60	1.40	1.80
54	M52	54.00	54.46	43.38	44.00	97.13	98.00	1.60	1.40	1.80



DIN 436

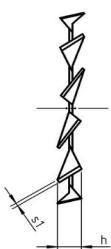
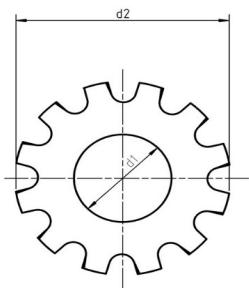
Nominal size	FOR THREAD size	Dimension (ID)		Outside Diameter (OD)		Thickness s (h)		
		Min.	Max.	Min.	Max.	Nominal size	Min.	Max.
30X29X9X2	30X29X9X2	9.00	9.20	28.80	29.00	2	2.00	2.30
30X29X9X2	30X29X9X2	9.00	9.20	29.80	30.00	2	2.00	2.30
30X29X11X3	30X29X11X3	11.00	11.43	28.80	29.00	2	2.00	2.30
30X29X11X3	30X29X11X3	11.00	11.43	29.80	30.00	2	2.00	2.30
10	M10	11.00	11.43	28.70	30.00	3	2.40	3.60
12	M12	13.50	13.93	38.40	40.00	4	3.40	4.60
16	M16	17.50	18.20	48.40	50.00	5	4.00	6.00
20	M20	22.00	22.84	58.10	60.00	5	4.00	6.00
22	M22	24.00	24.84	68.10	70.00	6	5.00	7.00
24	M24	26.00	26.84	78.10	80.00	6	5.00	7.00
27	M27	30.00	30.84	87.80	90.00	6	5.00	7.00
30	M30	33.00	34.00	92.80	95.00	6	5.00	7.00
33	M33	36.00	37.00	97.80	100.00	6	5.00	7.00
36	M36	39.00	40.00	107.80	110.00	8	6.80	9.20
39	M39	42.00	43.00	122.50	125.00	8	6.80	9.20
42	M42	45.00	46.00	132.50	135.00	8	6.80	9.20
45	M45	48.00	49.00	137.50	140.00	8	6.80	9.20
48	M48	52.00	53.20	147.50	150.00	10	8.80	11.20
52	M52	56.00	57.20	157.50	160.00	10	8.80	11.20



DIN 6798-A

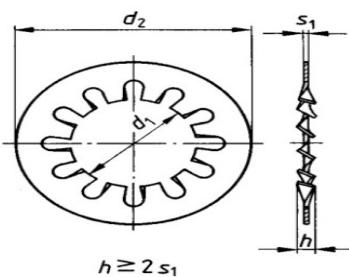
Type A, with external teeth →→
dimensions in mm

FOR THREAD	d1		d2		s1	Teeth	weight kg/1000 pcs	For thread
	Nominal size min.	max.	Nominal size Max.	Min.				
1,7	1,7	1,84	3,6	3,3	0,3	6	0,01	M1,6
2,2	2,2	2,34	4,5	4,2	0,3	6	0,025	M2
2,7	2,7	2,84	5,5	5,2	0,4	6	0,04	M2,5
3,2	3,2	3,38	6	5,7	0,4	6	0,045	M3
3,7	3	3,88	7	6,64	0,5	6	0,075	M3,5
4,3	4,3	4,48	8	7,64	0,5	8	0,095	M4
5,3	5,3	5,48	10	9,64	0,6	8	0,18	M5
6,4	6,4	6,62	11	10,57	0,7	8	0,22	M6
7,4	7,4	7,62	12,5	12,07	0,8	8	0,3	M7
8,4	8,4	8,62	15	14,57	0,8	8	0,45	M8
10,5	10,5	10,77	18	17,57	0,9	9	0,8	M10
13	13	13,27	20,5	19,98	1	10	1	M12
15	15	15,27	24	23,48	1	10	1,6	M14
17	17	17,27	26	25,48	1,2	12	2	M16
19	19	19,33	30	29,48	1,4	12	3,5	M18
21	21	21,33	33	32,38	1,4	12	3,8	M20
23	23	23,33	36	35,38	1,5	14	5	M22
25	25	25,33	38	37,38	1,5	14	6	M24
38	38	28,33	44	43,38	1,6	14	8	M27
31	31	31,39	48	47,38	1,6	14	9	M30



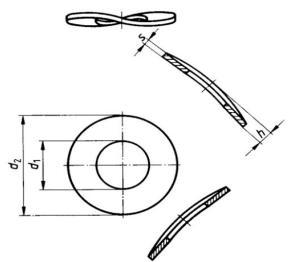
DIN 6797-A

FOR THREAD	d1		d2		s1	Teeth	weight kg/1000 pcs	For thread
	Nominal size min.	max.	Nominal size Max.	Min.				
M1,6	1,7	1,7	1,84	3,6	3,3	0,3	6	0,01
M2	2,2	2,2	2,34	4,5	4,2	0,3	6	0,025
M2,5	2,7	2,7	2,84	5,5	5,2	0,4	6	0,04
M3	3,2	3,2	3,38	6	5,7	0,4	6	0,045
M3,5	3,7	3	3,88	7	6,64	0,5	6	0,075
M4	4,3	4,3	4,48	8	7,64	0,5	8	0,095
M5	5,3	5,3	5,48	10	9,64	0,6	8	0,18
M6	6,4	6,4	6,62	11	10,57	0,7	8	0,22
M7	7,4	7,4	7,62	12,5	12,07	0,8	8	0,3
M8	8,4	8,4	8,62	15	14,57	0,8	8	0,45
M10	10,5	10,5	10,77	18	17,57	0,9	9	0,8
M12	13	13	13,27	20,5	19,98	1	10	1
M14	15	15	15,27	24	23,48	1	10	1,6
M16	17	17	17,27	26	25,48	1,2	12	2
M18	19	19	19,33	30	29,48	1,4	12	3,5
M20	21	21	21,33	33	32,38	1,4	12	3,8
M22	23	23	23,33	36	35,38	1,5	14	5
M24	25	25	25,33	38	37,38	1,5	14	6
M27	38	38	28,33	44	43,38	1,6	14	8
M30	31	31	31,39	48	47,38	1,6	14	9

Form J

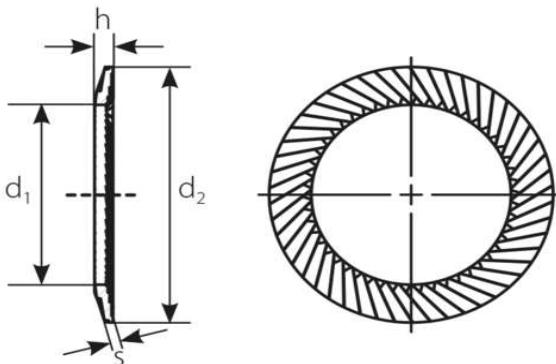
DIN 6797-J

FOR THREAD	d1		d2		s1	Teeth	weight kg/1000 pcs	For thread
	Nominal size min.	max.	Nominal size Max.	Min.				
M2	2,2	2,2	2,34	4,5	4,2	0,3	6	0,04
M2,5	2,7	2,7	2,84	5,5	5,2	0,4	6	0,045
M3	3,2	3,2	3,38	6	5,7	0,4	6	0,045
M3,5	3,7	3	3,88	7	6,64	0,5	6	0,085
M4	4,3	4,3	4,48	8	7,64	0,5	8	0,1
M5	5,3	5,3	5,48	10	9,64	0,6	8	0,2
M6	6,4	6,4	6,62	11	10,57	0,7	8	0,25
M7	7,4	7,4	7,62	12,5	12,07	0,8	8	0,35
M8	8,4	8,4	8,62	15	14,57	0,8	8	0,55
M10	10,5	10,5	10,77	18	17,57	0,9	9	0,9
M12	13	13	13,27	20,5	19,98	1	10	1,2
M14	15	15	15,27	24	23,48	1	10	1,9
M16	17	17	17,27	26	25,48	1,2	12	2,4
M18	19	19	19,33	30	29,48	1,4	12	3,7
M20	21	21	21,33	33	32,38	1,4	12	4,1
M22	23	23	23,33	36	35,38	1,5	14	6
M24	25	25	25,33	38	37,38	1,5	14	6,5
M27	38	38	28,33	44	43,38	1,6	14	8,5
M30	31	31	31,39	48	47,38	1,6	14	9,5



DIN 137-B

Nominal Diameter	d		dc			h			H		per 1000 units ≈ kg	
	H14		js16			Nominal Size	max	min	max	min		
	min	max	Nomin al Size	max	min							
3	3.2	3.5	8	8.45	7.55	0.5	0.55	0.5	1.6	0.8	0.166	
3.5	3.7	4	8	8.45	7.55	0.5	0.55	0.5	1.8	0.9	0.154	
4	4.3	4.6	9	9.45	8.55	0.5	0.55	0.5	2	1	0.193	
5	5.3	5.6	11	11.6	10.5	0.5	0.55	0.5	2.2	1.1	0.286	
6	6.4	6.76	12	12.6	11.5	0.5	0.55	0.5	2.6	1.3	0.318	
7	7.4	7.76	14	14.6	13.5	0.8	0.86	0.7	3	1.5	0.7	
8	8.4	8.76	15	15.6	14.5	0.8	0.86	0.7	3	1.5	0.762	
10	11	10.9	21	21.7	20.4	1	1.07	0.9	4.2	2.1	2.04	
12	13	13.4	24	24.7	23.4	1.2	1.27	1.1	5	2.5	3.01	
14	15	15.4	28	28.7	27.4	1.6	1.68	1.5	6	3	5.51	
16	17	17.4	30	30.7	29.4	1.6	1.68	1.5	6.4	3.2	6.03	
18	19	19.5	34	34.8	33.2	1.6	1.68	1.5	6.6	3.3	7.84	
20	21	21.5	36	36.8	35.2	1.6	1.68	1.5	7.4	3.7	8.43	
22	23	23.5	40	40.8	39.2	1.8	1.9	1.7	7.8	3.9	11.9	
24	25	25.5	44	44.8	43.2	1.8	1.9	1.7	8.2	4.1	14.5	
27	28	28.5	50	50.8	49.2	2	2.1	1.9	9.4	4.7	21.1	
30	31	31.6	56	57	55.1	2.2	2.3	2.1	10	5	29.5	
33	34	34.6	60	61	59.1	2.2	2.3	2.1	10.6	5.3	33.1	
36	37	37.6	68	69	67.1	2.5	2.65	2.4	11.6	5.8	50.2	
39	40	40.6	72	73	71.1	2.8	2.95	2.7	6.4	13	61.8	
42	43	43.6	78	79	77.1	3	3.2	2.8	6.8	14	78.3	
45	46	46.6	85	86.1	83.9	3	3.2	2.8	7.1	14	94.5	
48	50	50.6	92	93.1	90.9	3.5	3.7	3.3	7.8	16	129	
52	54	54.7	98	99.1	96.9	3.5	3.7	3.3	8.2	16	144	



SAFETY WASHER

TYPE "S"

SIZE	d1	d2	h
3.2	3.20 -3.50	5.50 -5.20	0.40 -0.50
3.7	3.70 -4.00	6.00 -5.70	0.40 -0.50
4.3	4.30 -4.60	7.00 -6.64	0.45 -0.55
5.3	5.30 -5.60	9.00 -8.64	0.55 -0.65
6.4	6.40 -6.76	10.00 -9.64	0.65 -0.75
6.7	6.70 -7.06	9.50 -9.14	0.65 -0.75
7.4	7.40 -7.76	12.00 -11.57	0.64 -0.76
8.4	8.40 -8.76	13.00 -12.57	0.74 -0.86

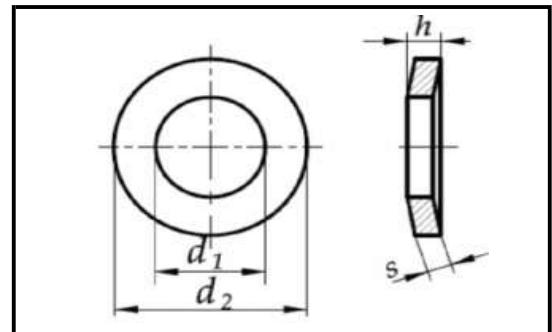
Available upto 38



DIN 6796

SIZE	d1	d2	h
4.3	4.30 -4.60	9.00 -8.64	1.00(+/-0.035)
5.3	5.30 -5.60	11.00 -10.57	1.20(+/-0.04)
6.4	6.40 -6.76	14.00 -13.57	1.50(+/-0.04)
7.4	7.40 -7.76	17.00 -16.57	1.75(+/-0.5)
8.4	8.40 -8.76	18.00 -17.57	2.00(+/-0.05)
10.5	10.50 -10.93	23.00 -22.48	2.50(+/-0.05)
13	13.00 -13.43	29.00 -28.48	3.00(+/-0.06)
15	15.00 -15.43	35.00 -34.38	3.50(+/-0.06)

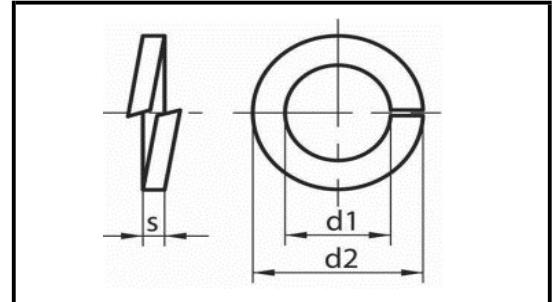
Available upto 31



DIN 7980

SIZE	d1	d2	h
M4	4.10 -4.40	7.00	12.0 (± 0.10)
M5	5.10 -5.40	8.80	1.60 (± 0.10)
M6	6.10 -6.50	9.90	1.60 (± 0.10)
M8	8.10 -8.50	12.70	2.00 (± 0.10)
M10	10.20 -10.70	16.00	2.50 (± 0.10)
M12	12.20 -12.70	18.00	2.50 (± 0.15)
M14	14.20 -14.70	21.10	3.00 (± 0.20)
M16	16.20 -17.00	24.40	3.50 (± 0.20)

Available upto M-24

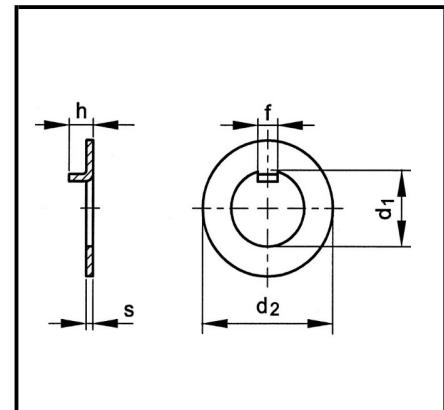




DIN 432

SIZE	d1	d2	s
5.3	5.30 -5.48	16.57 -17.00	0.65 -0.85
6.4	6.40 -6.62	18.48 -19.00	0.65 -0.85
7.4	7.40 -7.62	18.48 -19.00	0.65 -0.85
8.4	8.40 -8.62	21.48 -22.00	0.90 -1.10
10.5	10.50 -10.77	25.48 -26.00	0.90 -1.10
13	13.00 -13.27	29.48 -30.00	1.00 -1.40
15	15.00 -15.27	32.38 -33.00	1.00 -1.40
17	17.00 -17.27	35.38 -36.00	1.00 -1.40

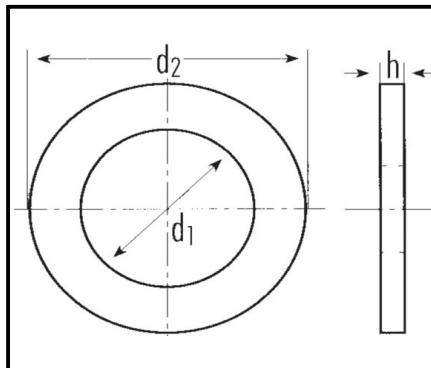
Available upto 54



DIN 9240

SIZE	d1	d2	h
4.3x12x1.0	4.30	12.00	0.95 -1.05
4.3x15x1.0	4.30	15.00	0.95 -1.05
4.3x20x1.2	4.30	20.00	1.1 -1.3
4.3x25x1.5	4.30	25.00	1.4 -1.6
5.3x15x1.5	5.30	15.00	1.4 -1.6
5.3x20x1.5	5.30	20.00	1.4 -1.6
5.3x25x1.5	5.30	25.00	1.4 -1.6
5.3x30x1.5	5.30	30.00	1.4 -1.6

Available upto 12.5x40x1.5

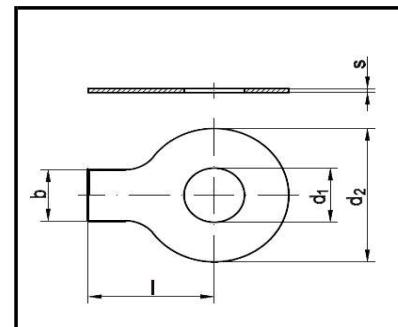




DIN 93

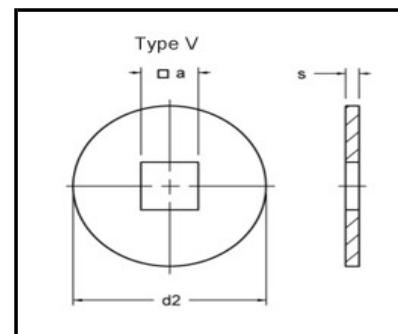
SIZE	d1	b	d2	s(h)
3.2	3.20 -3.38	3.80 -4.00	11.57 -12.00	0.33 -0.38
3.7	3.70 -3.88	3.80 -4.00	11.57 -12.00	0.33 -0.38
4.3	4.30 -4.48	4.80 -5.00	13.57 -14.00	0.33 -0.38
5.3	5.30 -5.48	5.80 -6.00	16.57 -17.00	0.45 -0.55
6.4	6.40 -6.62	6.64 -7.00	18.48 -19.00	0.45 -0.55
7.4	7.40 -7.62	6.64 -7.00	18.48 -19.00	0.45 -0.55
8.4	8.40 -8.62	7.64 -8.00	21.48 -22.00	0.65 -0.85
10.5	10.50 -10.77	9.64 -10.00	25.48 -26.00	0.65 -0.85

Available upto 54



DIN 440 SQUARE HOLE TYPE "V"

SIZE	d1	b	d2	s(h)
M5	5.50 -5.80	16.90 -18.00	1.70 -2.30	1.70 -2.30
M6	6.60 -6.96	20.70 -22.00	1.70 -2.30	1.70 -2.30
M8	9.00 -9.36	26.70 -28.00	2.40 -3.60	2.40 -3.60
M10	11.00 -11.43	32.40 -34.00	2.40 -3.60	2.40 -3.60
M12	14.00 -14.43	42.40 -44.00	3.40 -4.60	3.40 -4.60
M16	18.00 -18.70	54.10 -56.00	4.00 -6.00	4.00 -6.00
M20	22.00 -22.84	70.10 -72.00	5.00 -7.00	5.00 -7.00
M22	24.00 -24.84	78.10 -80.00	5.00 -7.00	5.00 -7.00





NFE 25 514-LL

SIZE	p(d1)	D(d2)	s (h)
M3	3.20 -3.38	13.57 -14.00	0.72 -0.88
M4	4.30 -4.48	15.57 - 16.00	0.72 -0.88
M5	5.30 -5.48	19.48 -20.00	0.90 -1.10
M6	6.40 -6.62	23.48 -24.00	1.08 -1.32
M7	7.40 -7.62	26.48 -27.00	1.35 -1.65
M8	8.40 -8.62	29.48 -30.00	1.35 -1.65
M10	10.50 -10.77	35.38 -36.00	1.80 -2.20
M12	13.00 -13.27	39.38 -40.00	2.25 -2.75



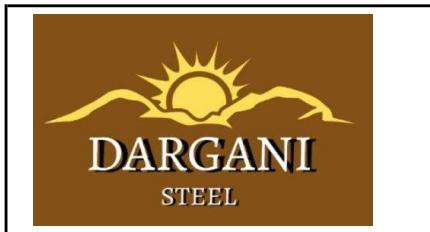
FLAT WASHERS - STAINLESS STEEL 18-8 AND 316

Size	#12	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	1-3/4	2
O.D.	9/16	5/8	3/4	7/8	1-1/8	1-1/4	1-3/8	1-1/2	1-7/8	2	2	2-1/2	2-3/4	3-1/4	3-1/4	3-1/2	4
I.D.	0.250	0.281	0.343	0.406	0.500	0.551	0.525	0.687	0.818	0.937	1.062	1.187	1.312	1.500	1.502	1.812	2.125
Thickness	0.050	0.050	0.050	0.050	0.052	0.052	0.078	0.078	0.109	0.109	0.125	0.125	0.125	0.140	0.140	0.140	0.187

FENDER WASHERS

	OD	ID	Thickness
#6	5/8	0.149	0.031
#8	3/4	0.174	0.040
#10	11-16	0.203	0.040
#10	3/4	0.203	0.040
#10	1	0.203	0.040
1/4	11/16	0.281	0.050
1/4	1	0.281	0.050
1/4	1-1/4	0.281	0.050
1/4	1-1/2	0.281	0.062
1/4	2	0.281	0.062
5/10	1	0.343	0.050
5/10	1-1/4	0.343	0.050
5/16	1-1/2	0.343	0.062
5/16	2	0.343	0.062
3/8	1	0.406	0.050
3/8	1-1/4	0.406	0.050
3/8	1-1/2	0.406	0.062
3/8	2	0.406	0.062
1/2	1-1/2	0.531	0.062
1/2	2	0.531	0.062
3/4	1-3/4	0.812	0.109





NAS Stainless

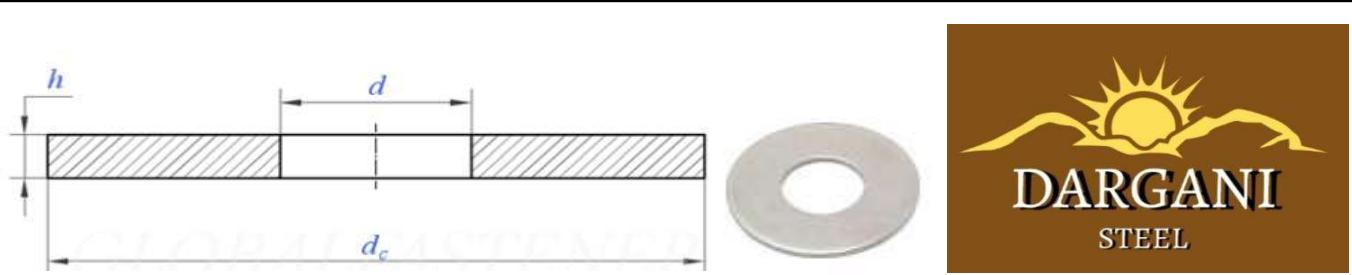
Size	0	2	3	3L	4	4L	5	5L	6	6L	8	8L	10	10L	416	416L
O.D.	0.99	0.149	0.180	0.180	0.209	0.209	0.238	0.238	0.267	0.267	0.304	0.304	0.354	0.354	0.468	0.468
I.D.	0.063	0.089	0.102	0.102	0.115	0.115	0.128	0.125	0.143	0.143	0.169	0.169	0.196	0.196	0.255	0.255
Thickness	0.016	0.016	0.032	0.016	0.032	0.016	0.032	0.016	0.032	0.016	0.032	0.16	0.63	0.32	0.063	0.032

316 FLAT WASHERS SMALL SIZES			
Size	4	6	8
O.D.	0.312	0.312	0.375
I.D.	0.125	0.156	0.174
Thickness	0.031	0.031	0.031



MATRIC - INCH CONVERSION CHART

Metric MM	2	2.5	3	4	5	6	8	10	12	14	16	18	20	22
Approx. Inch	5/64"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"	9/16"	5/8"	11/16"	3/4"	7/6"
Metric MM	25	30	35	40	45	50	55	60	70	80	90	100	140	160
Approx. Inch	1"	1- 3/16"	1- 3/8"	1- 3/16"	1-3/4"	2"	2-3/8"	2- 3/4"	3- 3/16"	3-1/2"	4"	4-3/4"	5- 1/2"	6- 1/4"



NF E 25 - 513 PLAIN WASHERS - LL STYLE

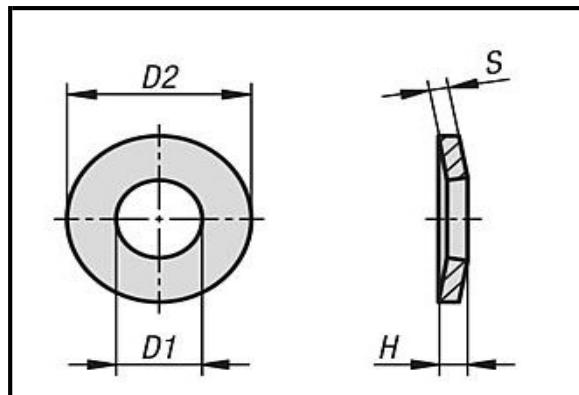
Unit: mm		Φ3	Φ4	Φ5	Φ6	Φ7	Φ8	Φ10	Φ12	Φ14	Φ16	Φ18
d	Max	3.38	4.48	5.48	6.62	7.62	8.62	10.77	13.27	15.27	17.27	19.33
	Min	3.20	4.30	5.30	6.40	7.40	8.40	10.50	13.00	15.00	17.00	19.00
dc	Max	14	16	20	24	27	30	36	40	45	50	55
	Min	13.57	15.57	19.48	23.48	26.48	29.48	35.38	39.38	44.38	49.38	54.26
h	Nominal Size	0.80	0.80	1.00	1.20	1.50	1.50	2.00	2.50	2.50	3.0	3.00
	Max	0.88	0.88	1.10	1.32	1.65	1.65	2.20	2.75	2.75	3.30	3.30
	Min	0.72	0.72	0.90	1.08	1.35	1.35	1.80	2.25	2.25	2.70	2.70
Per 100 units = kg		0.916	1.171	2.29	3.95	6.23	7.67	14.6	22	27.7	40.8	49.2



DIN 6796

SIZE	D1	D2	H
4.3	4.30-4.60	9.00-8.64	1.00(+/-0.035)
5.3	5.30-5.60	11.00-10.57	1.20(+/-0.04)
6.4	6.40-6.76	14.00-13.57	1.50(+/-0.04)
7.4	7.40-7.76	17.00-16.57	1.75(+/-0.05)
8.4	8.40-8.76	18.00-17.57	2.00(+/-0.05)
10.5	10.50-10.93	23.00-22.48	2.50(+/-0.05)
13	13.00-13.43	29.00-28.48	3.00(+/-0.06)
15	15.00-15.43	35.00-34.38	3.50(+/-0.06)

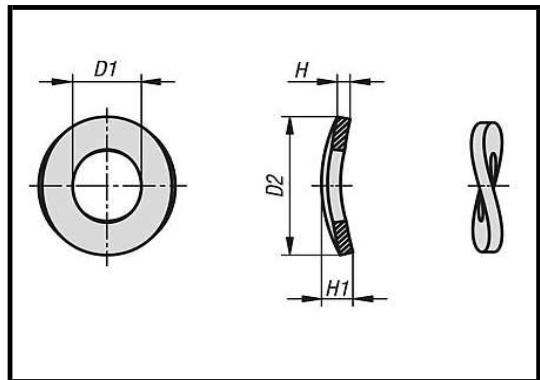
AVAILABLE UPTO 31





DIN 137 -A

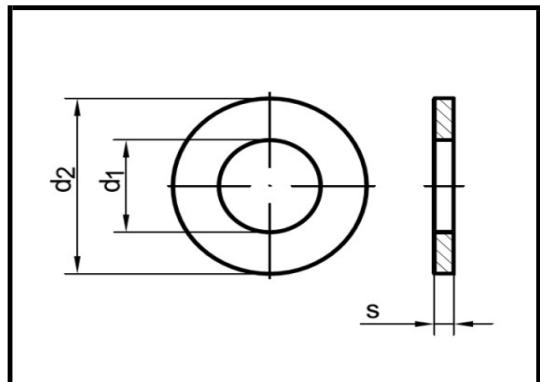
SIZE	D1	D2	H
M4	4.10-4.40	7.60	0.90(± 0.10)
M5	5.10-5.40	9.20	1.20(± 0.10)
M6	6.10-6.50	11.80	1.60(± 0.10)
M7	7.10-7.50	12.80	1.60(± 0.10)
M8	8.10-8.50	14.80	2.00(± 0.10)
M10	10.20-10.70	18.10	2.20(± 0.15)
M12	12.20-12.70	21.10	2.50(± 0.15)
M14	14.20-14.70	24.10	3.00(± 0.15)



ISO 7093 200 HV

SIZE	D1	D2	s (H)
3.2	3.20-3.50	8.45-7.55	0.35-0.45
3.7	3.70-4.00	8.45-7.55	0.35-0.45
4.3	4.30-4.60	9.45-8.55	0.45-0.55
5.3	5.30-5.60	11.55-10.45	0.45-0.55
6.4	6.40-6.760	12.55-11.45	0.45-0.55
7.4	7.40-7.760	14.55-13.45	0.45-0.55
8.4	8.40-8.760	15.55-14.45	0.45-0.55
10.5	10.50-10.93	21.65-20.35	0.74-0.86

AVAILABLE UPTO 20





DIN 127 (TYPE-B)

SIZE	D(D1)	D(D2)	s (H)
4	4.30-4.48	11.57-12.00	0.90-1.10
5	5.30-5.48	14.57-15.00	0.90-1.10
6	6.40-6.62	17.57-18.00	1.40-1.80
8	8.40-8.62	23.48-24.00	1.80-2.20
10	10.50-10.77	29.48-30.00	2.30-2.70
12	13.00-13.27	36.38-37.00	2.70-3.30
14	15.00-15.27	43.38-44.00	2.70-3.30
16	17.00-17.27	49.38-50.00	2.70-3.30

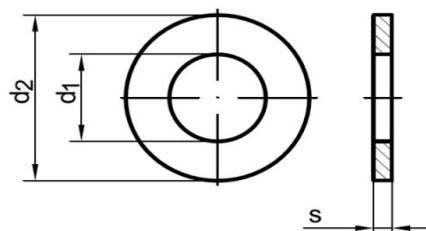
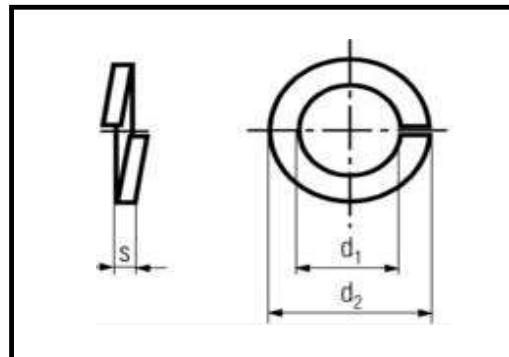
AVAILABLE UPTO M-24



NFE 25 514 -LL

SIZE	D(D1)	D(D2)	S
M3	3.20-3.38	13.57-14.00	0.72-0.88
M4	4.30-4.48	15.57-16.00	0.72-0.88
M5	5.30-5.48	19.48-20.00	0.90-1.10
M6	6.40-6.62	23.48-24.00	1.08-1.32
M7	7.40-7.62	26.48-27.00	1.35-1.65
M8	8.40-8.62	29.48-30.00	1.35-1.65
M10	10.50-10.77	35.38-36.00	1.80-2.20
M12	13.00-13.27	39.38-40.00	2.25-2.75

AVAILABLE UPTO M-20

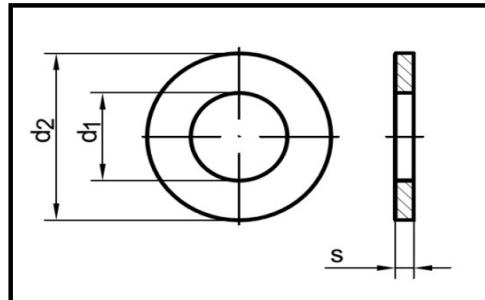




ISO 7089 200 HV

SIZE	d1	d2	s (h)
5	5.30-5.48	9.64-10.00	0.90-1.10
6	6.40-6.62	11.57-12.00	1.40-1.80
8	8.40-8.62	15.57-16.00	1.40-1.80
10	10.50-10.77	19.48-20.00	1.80-2.20
12	13.00-13.27	23.48-24.00	2.30-2.70
14	15.00-15.27	27.48-28.00	2.30-2.70
16	17.00-17.27	29.48-30.00	2.70-3.30
18	19.00-19.33	33.38-34.00	2.70-3.30

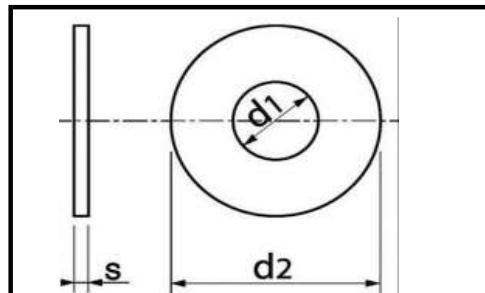
AVAILABLE UPTO 30



NFE 25 514-M

SIZE	d1	d2	s (h)
M3	3.20-3.38	7.64-8.00	0.73-0.87
M4	4.30-4.48	9.64-10.00	0.73-0.87
M5	5.30-5.48	11.57-12.00	0.93-1.07
M6	6.40-6.62	13.57-14.00	1.13-1.27
M7	7.40-7.62	15.57-16.00	1.43-1.57
M8	8.40-8.62	17.57-18.00	1.43-1.57
M10	10.50-10.77	21.48-22.00	1.88-2.12
M12	13.00-13.27	26.48-27.00	2.38-2.62

AVAILABLE UPTO 30

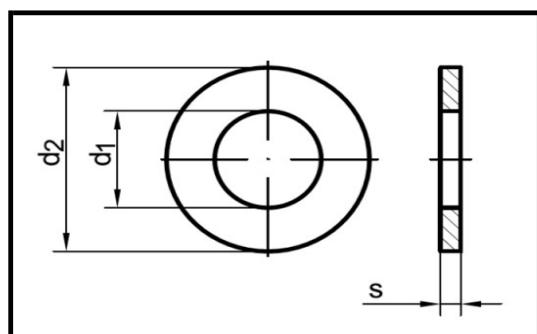




NFE 25 514-L

SIZE	P(D1)	D(D2)	S(H)
M3	3.20-3.38	11.57-12.00	0.73-0.87
M4	4.30-4.48	13.57-14.00	0.73-0.87
M5	5.30-5.48	15.57-16.00	0.93-1.07
M6	6.40-6.62	17.57-18.00	1.13-1.27
M7	7.40-7.62	19.48-20.00	1.43-1.57
M8	8.40-8.62	21.48-22.00	1.43-1.57
M10	10.50-10.77	26.48-27.00	1.88-2.12
M12	13.00-13.27	31.38-32.00	2.38-2.62

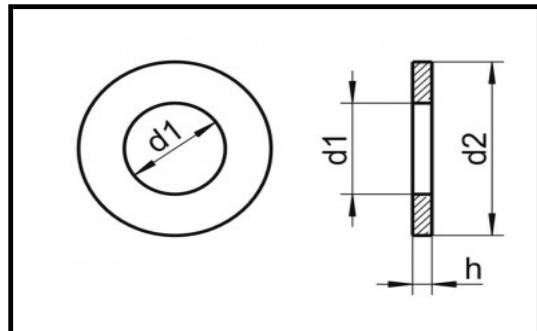
AVAILABLE UPTO 30



BS 4320 C

SIZE	D1	D2	S(H)
M6	6.40-6.70	13.60-14.00	1.40-1.80
M8	8.40-8.70	20.50-21.00	1.40-1.80
M10	10.50-10.90	23.50-24.00	1.80-2.20
M12	13.00-13.40	27.50-28.00	2.30-2.70
M14	15.00-15.40	29.50-30.00	2.30-2.70
M16	17.00-17.40	33.20-34.00	2.70-3.30
M18	19.00-19.50	36.20-37.00	2.70-3.30
M20	21.00-21.50	38.20-39.00	2.70-3.30

AVAILABLE UPTO 39

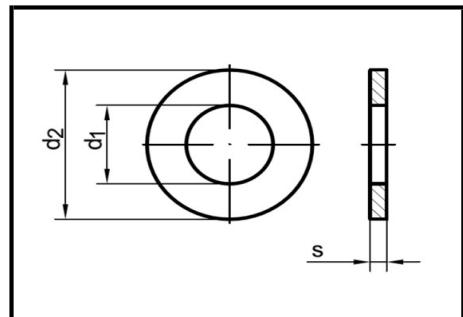




NFE 25 514-Z

SIZE	d1	d2	s
M3	3.20 -3.38	5.70 -6.00	0.73 -0.87
M4	4.30 -4.38	7.64 -8.00	0.73 -0.87
M5	5.30 -5.48	9.64 -10.00	0.93 -1.07
M6	6.40 -6.62	11.57 -12.00	1.13 -1.27
M7	7.40 -7.62	13.57 -14.00	1.43 -1.57
M8	8.40 -8.62	15.57 -16.00	1.43 -1.57
M9	10.50 -10.77	19.48 -20.00	1.88 -2.12
M10	13.00 -13.27	23.48 -24.00	2.38 -2.62

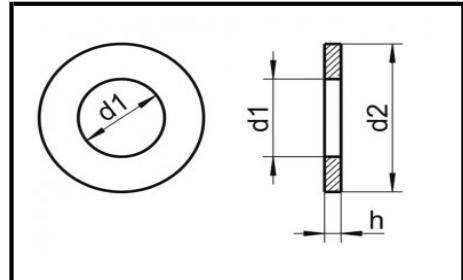
Available upto M-30



DIN 4320 B

SIZE	d1	d2	h
M6	6.40 -6.70	12.10 -12.50	0.70 -0.90
M8	8.40 -8.70	16.60 -17.00	0.90 -1.10
M10	10.50 -10.90	20.50 -21.00	1.05 -1.45
M12	13.00 -13.40	23.50 -24.00	1.40 -1.80
M14	15.00 -15.40	27.50 -28.00	1.40 -1.80
M16	17.00 -17.40	29.50 -30.00	1.80 -2.20
M18	19.00 -19.50	33.20 -34.00	1.80 -2.20
M20	21.00 -21.50	36.20 -37.00	1.80 -2.20

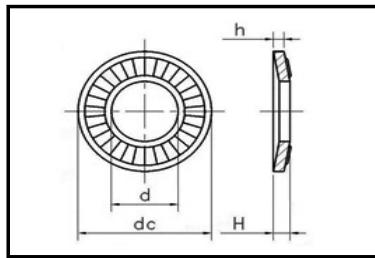
Available upto M-39





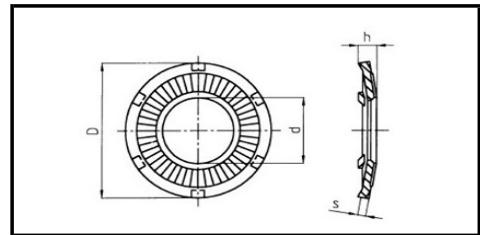
NFE 25 511 (TYPE L)

SIZE	d	dc	H
M6	6.1-6.4	18.35-17.65	1.36-1.44
M8	8.2-8.56	22.42-21.58	1.55-1.65
M10	10.2-10.56	27.42-26.58	1.75-1.85
M12	12.4-12.83	32.5-31.5	1.95-2.05



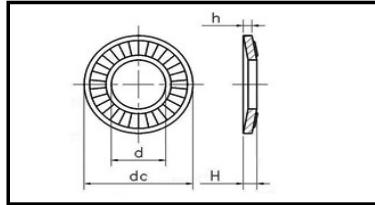
NFE 25 511 (TYPE S)

SIZE	d	D	s (h)
M6	6.10-6.40	12.35-11.65	1.16-1.24
M8	8.20-8.56	16.35-15.65	1.36-1.44
M10	10.20-10.56	20.42-19.58	1.55-1.65
M12	12.40-12.83	24.42-23.58	1.75-1.85



NFE 25 511 (TYPE M)

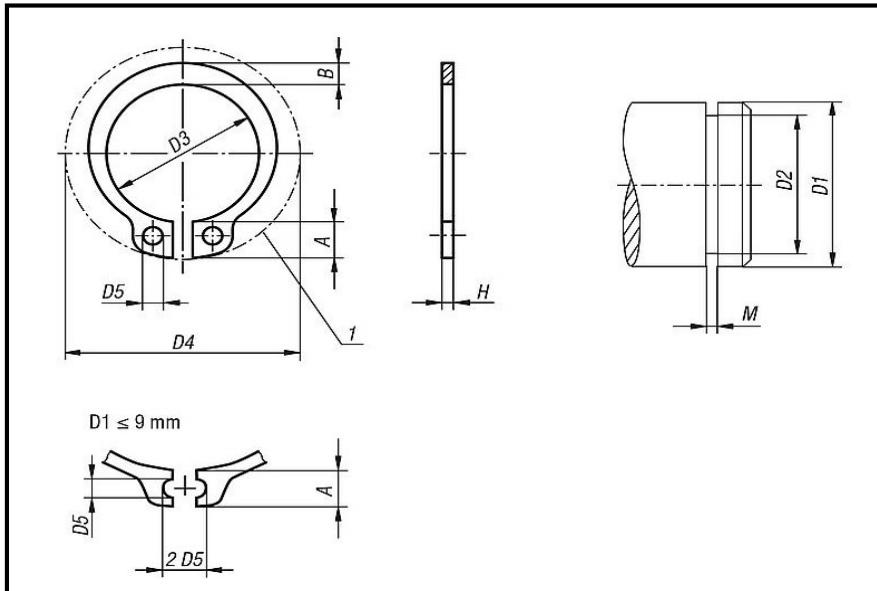
SIZE	d	dc	h
M6	6.10-6.40	14.35-13.65	1.26-1.34
M8	8.20-8.56	18.35-17.65	1.36-1.44
M10	10.20-10.56	22.42-21.58	1.55-1.65
M12	12.40-12.83	27.42-26.58	1.75-1.85
M14	14.40-14.83	30.42-29.58	2.34-2.46
M16	16.40-16.83	32.50-31.50	2.74-2.86
M20	20.50-21.02	40.50-39.50	3.14-3.26





DIN 471 (NORMAL TYPE)

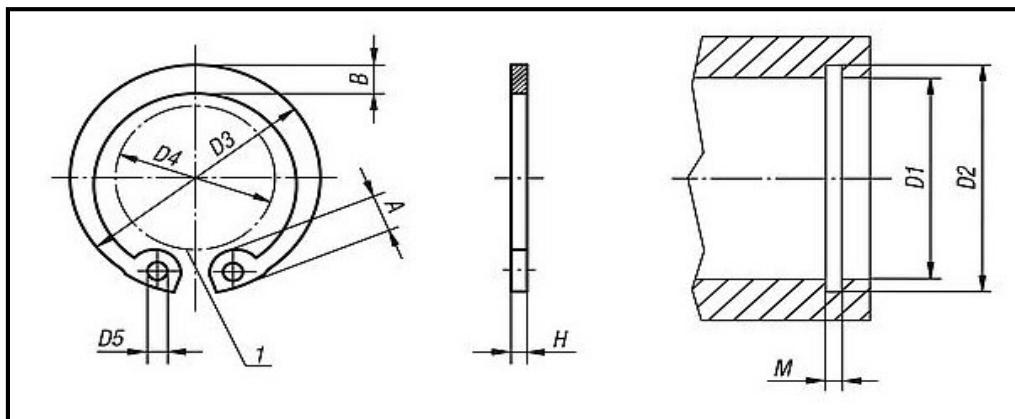
SHAFT DIA	S		D3		A MAX	B =	D5		D2		D4
	NOM	PERM DEV	NOM	PERM DEV			MIN	NOM.	PERM DEV		
3	0.4	0.-0.05	2.7	+0.04 -0.15	1.9	0.8	1	2.8	0-0.04	7	
4	0.4	0-0.05	3.7	+0.04 -0.15	2.2	0.9	1	3.8	0-0.05	8.6	
5	0.6	0.-0.05	4.7	+0.04 -0.15	2.5	1.1	1	4.8	0-0.05	10.3	
6	0.7	0-0.05	5.6	+0.04 -0.15	2.7	1.3	1.2	5.7	0-0.05	11.7	
7	0.8	0-0.05	6.5	+0.06 -0.18	3.1	1.4	1.2	6.7	0-0.06	13.5	
8	0.8	0-0.05	7.4	+0.06 -0.18	3.2	1.5	1.2	7.6	0-0.06	14.7	
9	1	0-0.06	8.4	+0.06 -0.18	3.3	1.7	1.2	8.6	0-0.11	16	
10	1	0-0.06	9.3	+0.10 -0.36	3.3	1.8	1.5	9.6	0-0.011	17	





DIN 472 (NORMAL TYPE)

SHAFT DIA .	S		D3		MAX	B =	D5		D2		D4
	NOM.	PERM DEV	NOM.	PERM DEV			MIN	NOM.	PERM DEV		
8	0.8	0-0.05	8.7	+0.36 -0.06	2.4	1.1	1	8.4	+0.09 0	3	
9	0.8	0-0.05	9.8	+0.36 -0.06	2.5	1.3	1	9.4	+0.09 0	3.7	
10	1	0-0.06	10.8	+0.36 -0.06	3.2	1.4	1.2	10.4	+0.11 0	3.3	
11	1	0-0.06	11.8	+0.36 -0.06	3.3	1.5	1.2	11.4	+0.11 0	4.1	
12	1	0-0.06	13	+0.36 -0.06	3.4	1.7	1.5	12.5	+0.11 0	4.9	
13	1	0-0.06	14.1	+0.36 -0.06	3.6	1.8	1.5	13.6	+0.11 0	5.4	
14	1	0-0.06	15.1	+0.36 -0.06	3.7	1.9	1.7	14.6	+0.11 0	6.2	
15	1	0-0.06	16.2	+0.36 -0.06	3.7	2	1.7	15.7	+0.11 0	7.2	

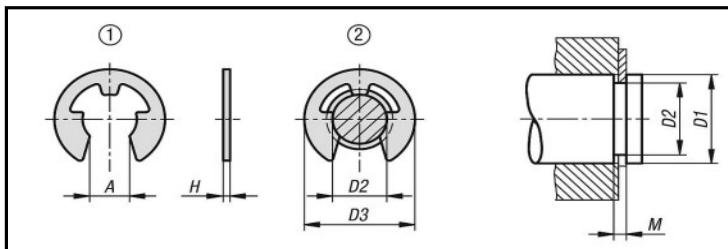




DIN 6799

SHAFT DIAMETER R D1 NOMINAL SIZE	GROOVE DIAMETER		THICKNESS		GROOVE DIAMETER		DIAMETER
	D2		S		D2		D3 [MAX]
	[NOM]	PERM DEV	[NOM]	PERM DEV	[NOM]	PERM DEV	
6 ≤ D1 ≤ 8	5	0 -0.075	0.7	±0.02	4.11	±0.048	11.3
7 ≤ D1 ≤ 9	6	0 -0.075	0.7	±0.02	5.26	±0.048	12.3
8 ≤ D1 ≤ 11	7	0 -0.09	0.9	±0.02	5.84	±0.048	14.3
9 ≤ D1 ≤ 12	8	0 -0.09	1	±0.03	6.52	±0.058	16.3
10 ≤ D1 ≤ 14	9	0 -0.09	1.1	±0.03	7.63	±0.058	18.8
11 ≤ D1 ≤ 15	10	0 -0.09	1.2	±0.03	8.32	±0.058	20.4

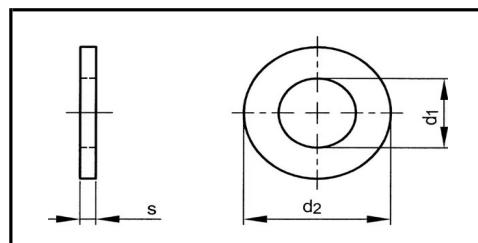
Available upto $32 \leq d_1 \leq 42$



BS 3410 TABLE 3 HEAVY

SIZE	D1	D2	H
1/4	6.86	14.22	0.80-1.00
5/16	8.38	15.80	0.90-1.10
3/8	10.01	19.05	1.10-1.30
7/16	11.56	22.15	1.12-1.27
1/2	13.21	25.40	1.40-1.60
9/16	14.99	28.45	1.40-1.60
5/8	16.64	31.62	1.70-1.90
3/4	19.81	38.10	1.70-1.90

AVAILABLE UPTO 2

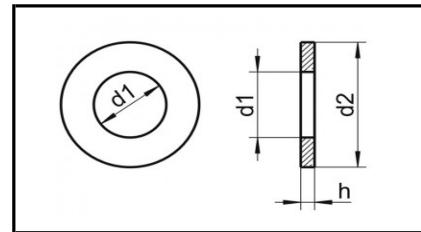




BS 3410 TABLE 4 LGHT

SIZE	D1	D2	H
1/4	6.86	15.75	0.92-1.12
5/16	8.38	19.05	1.12-1.32
3/8	10.01	22.23	1.12-1.32
7/16	11.56	25.40	1.30-1.50
1/2	13.21	28.45	1.30-1.50
9/16	14.99	31.62	1.30-1.50
5/8	16.64	34.80	1.73-1.93
3/4	19.81	41.15	1.73-1.93

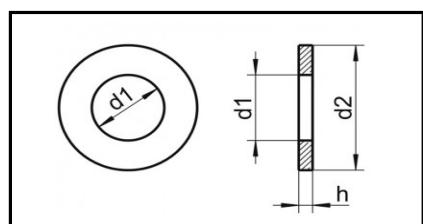
AVAILABLE UPTO 2



BS 3410 TABLE 4 HEAVY

SIZE	D1	D2	H
1/4	6.86	15.75	1.3-1.5
5/16	8.38	19.05	1.7-1.9
3/8	10.01	22.23	1.7-1.9
7/16	11.56	25.40	2.25-3.45
1/2	13.21	28.45	2.25-3.45
9/16	14.99	31.62	2.55-2.75
5/8	16.64	34.80	2.85-3.02
3/4	19.81	41.15	2.85-3.02

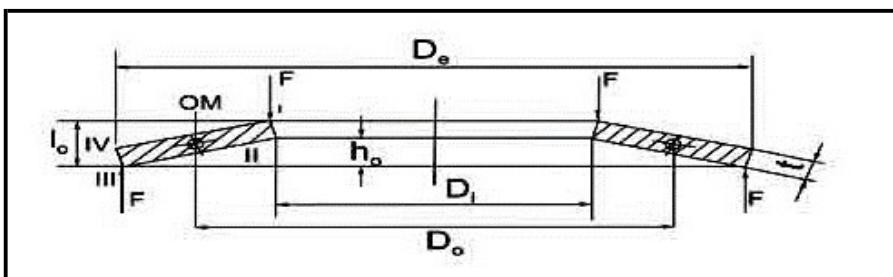
AVAILABLE UPTO 2





DIM 2093 A

GROUP	DE	DE	TOR (T)	HO	IO	F	S	IO-S	AOM	All
	H12	H12				N		N/MM2	AIII	N/MM2
(WHERE S=0.75 HO)										
1	8	4.2	0.2	0.25	0.45	39	0.19	0.26	-762	1040
	10	5.2	0.25	0.3	0.55	58	0.23	0.32	-734	980
	12.5	6.2	0.35	0.45	0.8	152	0.34	0.46	-944	1280
	14	7.2	0.35	0.45	0.8	123	0.34	0.46	-769	1060
	16	8.2	0.4	0.5	0.9	155	0.38	0.52	-751	1020
	18	9.2	0.45	0.6	1.05	214	0.45	0.6	-789	1110
	20	10.2	0.5	0.65	1.15	254	0.49	0.66	-772	1070
	22.5	11.2	0.6	0.8	1.4	425	0.6	0.8	-883	1230
	25	12.2	0.7	0.9	1.6	601	0.68	0.92	-936	1270
	28	14.2	0.8	1	1.8	801	0.75	1.05	-961	1300
	31.5	16.3	0.8	1.05	1.85	687	0.79	1.06	-810	1130
	35.5	18.3	0.9	1.15	2.05	831	0.86	1.19	-779	1080
	40	20.4	1	1.3	2.3	1020	0.98	1.32	-772	1070
2	45	22.4	1.25	1.6	2.85	1890	1.2	1.65	-920	1250
	50	25.4	1.25	1.6	2.85	1550	1.2	1.65	-754	1040
	56	28.5	1.5	1.95	3.45	2620	1.46	1.99	-879	1220
	63	31	1.8	2.35	4.15	4240	1.76	2.39	-985	1350
	71	36	2	2.6	4.6	5140	1.95	2.65	-971	1340
	80	41	2.25	2.95	5.2	6610	2.21	2.99	-982	1370
	90	46	2.5	3.2	5.7	7680	2.4	3.3	-935	1290
	100	51	2.7	3.5	6.2	8610	2.63	3.57	-895	1240
	112	57	3	3.9	6.9	10500	2.93	3.97	-882	1220
	125	64	3.5	4.5	8	15400	3.38	4.62	-956	1320
	140	72	3.8	4.9	8.7	17200	3.68	5.02	-904	1250
	160	82	4.3	5.6	9.9	21800	4.2	5.7	-892	1240
	180	92	4.8	6.2	11	26400	4.65	6.35	-869	1200
	200	102	5.5	7	12.5	36100	5.25	7.25	-910	1250

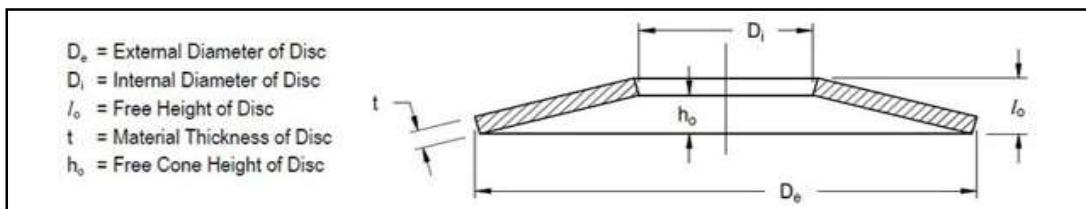




DIM 2093 B

	8	4.2	0.3	0.25	0.55	119	0.19	0.36	-1140	1330
	10	5.2	0.4	0.3	0.7	213	0.23	0.47	-1170	1300
	12.5	6.2	0.5	0.35	0.85	291	0.26	0.59	-1000	1110
	14	7.2	0.5	0.4	0.9	279	0.3	0.6	-970	1100
1	16	8.2	0.6	0.45	1.05	412	0.34	0.71	-1010	1120
	18	9.2	0.7	0.5	1.2	572	0.38	0.82	-1040	1130
	20	10.2	0.8	0.55	1.35	745	0.41	0.94	-1030	1110
	22.5	11.2	0.8	0.65	1.45	710	0.49	0.96	-962	1080
	25	12.2	0.9	0.7	1.6	868	0.53	1.07	-938	1030
	28	14.2	1	0.8	1.8	1110	0.6	1.2	-961	1090
	31.5	16.3	1.25	0.9	2.15	1920	0.68	1.47	-1090	1190
	35.5	18.3	1.25	1	2.25	1700	0.75	1.5	-944	1070
	40	20.4	1.5	1.15	2.65	2620	0.86	1.79	-1020	1130
	45	22.4	1.75	1.3	3.05	3660	0.98	2.07	-1050	1150
	50	25.4	2	1.4	3.4	4760	1.05	2.35	-1060	1140
	56	28.5	2	1.6	3.6	4440	1.2	2.4	-963	1090
	63	31	2.5	1.75	4.25	7180	1.31	2.94	-1020	1090
2	71	36	2.5	2	4.5	6730	1.5	3	-934	1060
	80	41	3	2.3	5.3	10500	1.73	3.57	-1030	1140
	90	46	3.5	2.5	6	14200	1.88	4.12	-1030	1120
	100	51	3.5	2.8	6.3	13100	2.1	4.2	-926	1050
	112	57	4	3.2	7.2	17800	2.4	4.8	-963	1090
	125	64	5	3.5	8.5	30000	2.63	5.87	-1060	1150
	140	72	5	4	9	27900	3	6	-970	1110
	160	82	6	4.5	10.5	41100	3.38	7.12	-1000	1110
	180	92	6	5.1	11.1	37500	3.83	7.27	-895	1040
	200	102	8(7.5)	5.6	13.6	76400	4.2	9.4	-1060	1250
3	225	112	8(7.5)	6.5	14.5	70800	4.88	9.62	-951	1180
	250	127	10(9.4)	7	17	119000	5.25	11.75	-1050	1240

Conical disc springs of series of c (whith $de/t = 40$: $ho/t=1.3$ $e=206000 \text{ N/mm}^2$ and $u=0.3$)





DIN 2093 C

GROUP	DE	DI	T OR (T)	HO	IO	F N	S	IO-S	AOM	AII
	H12	H12					(WHERE S=0.75 HO)	N/MM2	N/MM2	AIII
1	8	4.2	0.4	0.2	0.6	210	0.15	0.45	-1200	1220
	10	5.2	0.5	0.25	0.75	329	0.19	0.56	-1210	1240
	12.5	6.2	0.7	0.3	1	673	0.23	0.77	-1280	1420
	14	7.2	0.8	0.3	1.1	813	0.23	0.87	-1190	1340
	16	8.2	0.9	0.35	1.25	1000	0.26	0.99	-1160	1290
	18	9.2	1	0.4	1.4	1250	0.3	1.1	-1170	1300
	20	10.2	1.1	0.45	1.55	1530	0.34	1.21	-1180	1300
2	22.5	11.2	1.25	0.5	1.75	1950	0.38	1.37	-1170	1320
	25	12.2	1.5	0.55	2.05	2910	0.41	1.64	-1210	1410
	28	14.2	1.5	0.65	2.15	2850	0.49	1.66	-1180	1280
	31.5	16.3	1.75	0.7	2.45	3900	0.53	1.92	-1190	1310
	35.5	18.3	2	0.8	2.8	5190	0.6	2.2	-1210	1330
	40	20.4	2.25	0.9	3.15	6540	0.68	2.47	-1210	1340
	45	22.4	2.5	1	3.5	7720	0.75	2.75	-1150	1300
	50	25.4	3	1.1	4.1	12000	0.83	3.27	-1250	1430
	56	28.5	3	1.3	4.3	11400	0.98	3.32	-1180	1280
	63	31	3.5	1.4	4.9	15000	1.05	3.85	-1140	1300
	71	36	4	1.6	5.6	20500	1.2	4.4	-1200	1330
	80	41	5	1.7	6.7	33700	1.28	5.42	-1260	1460
	90	46	5	2	7	31400	1.5	5.5	-1170	1300
	100	51	6	2.2	8.2	48000	1.65	6.55	-1250	1420
	112	57	6	2.5	8.5	43800	1.88	6.62	-1130	1240
3	125	64	8(7.5)	2.6	10.6	85900	1.95	8.65	-1280	1330
	140	72	8(7.5)	3.2	11.2	85300	2.4	8.8	-1260	1280
	160	82	10(9.4)	3.5	13.5	139000	2.63	10.87	-1320	1340
	180	92	10(9.4)	4	14	125000	3	11	-1180	1200
	200	102	12(11.25)	4.2	16.2	183000	3.15	13.05	-1210	1230*
	225	112	12(11.25)	5	17	171000	3.75	13.25	-1120	1140
	250	127	14(13.1)	5.6	19.6	249000	4.2	15.4	-1200	1220

