



### Flat Washers - DIN 125A/ISO7089

Size : M1.6-M100

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 300 HV



### Flat Washers - DIN 125B/ISO 7090

Size : M3-M64

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 300 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M3	3.20	3.38	6.64	7.0	0.5	0.45	0.55	0.12
M3.5	3.70	3.88	7.64	8.0	0.5	0.45	0.55	0.16
M4	4.30	4.48	8.64	9.0	0.8	0.7	0.9	0.31
M5	5.30	5.48	9.64	10.0	1.0	0.9	1.1	0.44
M6	6.40	6.62	11.57	12.0	1.6	1.4	1.8	1.02
M7	7.40	7.62	13.57	14.0	1.6	1.4	1.8	1.39
M8	8.40	8.62	15.57	16.0	1.6	1.4	1.8	1.83
M10	10.50	10.77	19.48	20.0	2.0	1.8	2.2	3.57
M12	13.00	13.27	23.48	24.0	2.5	2.3	2.7	6.27
M14	15.00	15.27	27.48	28.0	2.5	2.3	2.7	8.62
M16	17.00	17.27	29.48	30.0	3.0	2.7	3.3	11.3
M18	19.00	19.33	33.38	34.0	3.0	2.7	3.3	14.7
M20	21.00	21.33	36.38	37.0	3.0	2.7	3.3	17.2
M22	23.00	23.33	38.38	39.0	3.0	2.7	3.3	18.3
M24	25.00	25.33	43.38	44.0	4.0	3.7	4.3	32.3
M26	27.00	27.33	49.38	50.0	4.0	3.7	4.3	43.7
M27	28.00	28.33	49.38	50.0	4.0	3.7	4.3	42.3
M28	29.00	29.33	49.38	50.0	4.0	3.7	4.3	40.9
M30	31.00	31.39	55.26	56.0	4.0	3.7	4.3	53.6
M32	33.00	33.62	58.8	60.0	5.0	4.4	5.6	72.6
M33	34.00	34.62	58.8	60.0	5.0	4.4	5.6	75.3
M35	36.00	36.62	64.8	66.0	5.0	4.4	5.6	94.3
M36	37.00	37.62	64.8	66.0	5.0	4.4	5.6	92.1
M38	39.00	39.62	70.8	72.0	6.0	5.4	6.6	136
M39	40.00	40.62	70.8	72.0	6.0	5.4	6.6	133
M40	41.00	41.62	70.8	72.0	6.0	5.4	6.6	130
M42	43.00	43.62	76.8	78.0	7.0	6.0	8.0	183
M45	46.00	46.62	83.6	85.0	7.0	6.0	8.0	220
M48	50.00	50.62	90.6	92.0	8.0	7.0	9.0	294
M50	52.00	52.74	90.6	92.0	8.0	7.0	9.0	284
M56	58.00	58.74	103.6	105.0	9.0	8.0	10.0	425
M58	60.00	60.74	108.6	110.0	9.0	8.0	10.0	472
M60	62.00	62.74	108.6	110.0	9.0	8.0	10.0	458
M64	66.00	66.74	113.6	115.0	9.0	8.0	10.0	492
M76	78.00	78.74	133.4	135.0	10.0	9.0	11.0	749
M80	82.00	82.87	138.4	140.0	12.0	10.8	13.2	953
M95	98.00	98.87	163.4	165.0	12.0	10.8	13.2	1300
M100	104.00	104.87	173.4	175.0	14.0	12.8	15.2	1710

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M3	3.2	3.38	6.64	7	0.5	0.45	0.55	0.12
M4	4.3	4.48	8.64	9	0.8	0.7	0.9	0.31
M5	5.3	5.48	9.64	10	1	0.9	1.1	0.44
M6	6.4	6.62	11.57	12	1.6	1.4	1.8	1.02
M7	7.4	7.62	13.57	14	1.6	1.4	1.8	1.39
M8	8.4	8.62	15.57	16	1.6	1.4	1.8	1.83
M10	10.5	10.77	19.48	20	2	1.8	2.2	3.57
M12	13	13.27	23.48	24	2.5	2.3	2.7	6.27
M14	15	15.27	27.48	28	2.5	2.3	2.7	8.62
M16	17	17.27	29.48	30	3	2.7	3.3	11.3
M18	19	19.33	33.38	34	3	2.7	3.3	14.7
M20	21	21.33	36.38	37	3	2.7	3.3	17.2
M22	23	23.33	38.38	39	3	2.7	3.3	18.3
M24	25	25.33	43.38	44	4	3.7	4.3	32.3
M27	28	28.33	49.38	50	4	3.7	4.3	42.3
M30	31	31.39	55.28	56	4	3.7	4.3	53.6
M33	34	34.62	58.8	60	5	4.4	5.6	75.3
M36	37	37.62	64.8	66	5	4.4	5.6	92.1
M39	40	40.82	70.8	72	6	5.4	6.6	133
M40	41	41.62	70.8	72	6	5.4	6.6	130
M42	45	45.62	76.8	78	8	7	9	183
M45	48	48.62	83.6	85	8	7	9	220
M48	52	52.74	90.6	92	8	7	9	294
M52	56	56.74	96.6	98	8	7	9	330
M56	62	62.74	103.6	105	10	9	11	425
M60	66	66.74	108.6	110	10	9	11	458
M64	70	70.74	113.6	115	10	9	11	492



### Flat Washers - DIN 126/ISO 7091

Size : M3-M100

Finish: Plain, Zinc, HDG

Hardness: 100 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M3	3.4	3.7	6.1	7	0.5	0.4	0.6	0.12
M4	4.5	4.8	8.1	9	0.8	0.6	1	0.3
M5	5.5	5.8	9.1	10	1	0.8	1.2	0.43
M6	6.6	6.96	10.9	12	1.6	1.3	1.9	0.99
M7	7.6	7.96	12.9	14	1.6	1.3	1.9	1.36
M8	9	9.36	14.9	16	1.6	1.3	1.9	1.72
M10	11	11.43	18.7	20	2	1.7	2.3	3.44
M12	13.5	13.93	22.7	24	2.5	2.2	2.8	6.07
M14	15.5	15.93	26.7	28	2.5	2.2	2.8	8.38
M16	17.5	17.93	28.7	30	3	2.4	3.6	10.98
M18	20	20.52	32.4	34	3	2.4	3.6	14
M20	22	22.52	35.4	37	3	2.4	3.6	16.36
M22	24	24.52	37.4	39	3	2.4	3.6	17.5
M24	26	26.52	42.4	44	4	3.4	4.6	31.06
M27	30	30.52	48.4	50	4	3.4	4.6	39.5
M30	33	33.62	54.1	56	4	3.4	4.6	50.46
M33	36	37	58.1	60	5	4	6	71
M36	39	40	64.1	66	5	4	6	87.35
M39	42	43	70.1	72	6	5	7	127
M42	45	46	76.1	78	7	5.8	8.2	173.22
M45	48	49	82.8	85	7	5.8	8.2	212.38
M48	52	53.2	89.8	92	8	6.8	9.2	283.96
M52	56	57.2	95.8	98	8	6.8	9.2	319.02
M56	62	63.2	102.8	105	9	7.8	10.2	442.51
M60	66	67.2	107.8	110	9	7.8	10.2	430
M64	70	71.2	112.8	115	9	7.8	10.2	462
M72	78	79.2	122.5	125	10	8.8	11.2	588
M80	86	87.4	137.5	140	12	10.4	13.6	903
M90	96	97.4	157.5	160	12	10.4	13.6	1210
M100	107	108.4	172.5	175	14	12.4	15.6	1660



### Flat Washers - DIN 433/ISO7092

Size : M1-M36

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 300 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M1	1.1	1.24	2.25	2.5	0.3	0.25	0.35	0.01
M1.2	1.3	1.44	2.75	3	0.3	0.25	0.35	0.01
M1.4	1.5	1.64	2.75	3	0.3	0.25	0.35	0.01
M1.6	1.7	1.84	3.2	3.5	0.3	0.25	0.35	0.02
M1.8	2	2.14	3.7	4	0.3	0.25	0.35	0.02
M2	2.2	2.34	4.2	4.5	0.3	0.25	0.35	0.03
M2.5	2.7	2.84	4.7	5	0.5	0.45	0.55	0.06
M3	3.2	3.38	5.7	6	0.5	0.45	0.55	0.08
M3.5	3.7	3.88	6.64	7	0.5	0.45	0.55	0.11
M4	4.3	4.48	7.64	8	0.5	0.45	0.55	0.14
M5	5.3	5.48	8.64	9	1	0.9	1.1	0.33
M6	6.4	6.62	10.57	11	1.6	1.4	1.8	0.79
M8	8.4	8.62	14.57	15	1.6	1.4	1.8	1.52
M10	10.5	10.77	17.57	18	1.6	1.4	1.8	2.11
M12	13	13.27	19.48	20	2	1.8	2.2	2.85
M14	15	15.27	23.48	24	2.5	2.3	2.7	5.41
M16	17	17.27	27.48	28	2.5	2.3	2.7	7.63
M18	19	19.33	29.48	30	2.5	2.3	2.7	8.31
M20	21	21.33	33.38	34	3	2.7	3.3	13.2
M24	25	25.33	38.38	39	4	3.7	4.3	22.1
M30	31	31.39	49.38	50	4	3.7	4.3	38
M36	37	37.62	56.8	58	5	4.4	5.6	61.5

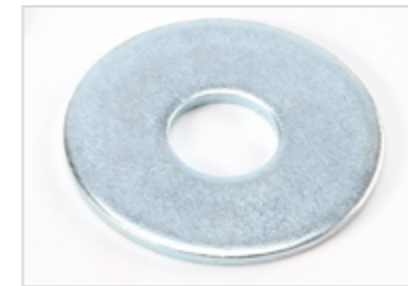


### Flat Washers - DIN 9021/ISO7093-1

Size : M2.5-M36

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 300 HV



### Flat Washers - DIN 440R/ISO 7094

Size : M4-M52

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 200 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M2.5	2.7	2.84	7.64	8	0.8	0.7	0.9	0.28
M3	3.2	3.38	8.64	9	0.8	0.7	0.9	0.35
M4	4.3	4.48	11.57	12	1	0.9	1.1	0.77
M5	5.3	5.48	14.57	15	1.2	1	1.4	1.46
M6	6.4	6.62	17.57	18	1.6	1.4	1.8	2.79
M7	7.4	7.62	21.48	22	2	1.8	2.2	5.29
M8	8.4	8.62	23.48	24	2	1.8	2.2	6.23
M10	10.5	10.77	29.48	30	2.5	2.3	2.7	12.2
M12	13	13.27	36.38	37	3	2.7	3.3	22.2
M14	15	15.27	43.38	44	3	2.7	3.3	31.6
M16	17	17.27	49.38	50	3	2.7	3.3	40.9
M18	20	20.52	54.1	56	4	3.4	4.6	67.4
M20	22	22.52	58.1	60	4	3.4	4.6	76.8
M22	24	24.52	64.1	66	4	3.4	4.6	89.8
M24	26	26.84	70.1	72	5	4	6	139
M27	30	30.84	79.1	81	5	4	6	175
M30	33	34	89.8	92	6	5	7	273
M33	36	37	98.8	101	6	5	7	329
M36	39	40	107.8	110	8	6.8	9.2	522

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M4	4	4.5	14	15	1.5	1.3	1.8	2
M5	5.5	5.8	16.9	18	2	1.7	2.3	3.62
M6	6.6	6.96	20.7	22	2	1.7	2.3	5.43
M8	9	9.36	26.7	28	3	2.4	3.6	13
M10	11	11.43	32.4	34	3	2.4	3.6	19.1
M12	13.5	13.93	42.4	44	4	3.4	4.6	43.3
M14	15.5	15.93	48.4	50	4	3.4	4.6	55.7
M16	17.5	18.2	54.1	56	5	4	6	87.2
M18	19.5	20.2	62.1	64	5	4	6	114.55
M20	22	22.84	70.1	72	6	5	7	174
M22	24	24.84	78.1	80	6	5	7	215
M24	26	26.84	82.8	85	6	5	7	242
M27	30	30.84	95.8	98	6	5	7	322
M30	33	34	102.8	105	6	5	7	368
M33	36	37	109.8	112	6	5	7	416
M36	39	40	122.5	125	8	6.8	9.2	696
M39	42	43	137.5	140	8	6.8	9.2	879
M42	45	46	147.5	150	8	6.8	9.2	1009
M45	48	49	157.5	160	8	6.8	9.2	1149
M48	52	53.2	167.5	170	10	8.8	11.2	1615
M52	56	57.2	177.5	180	10	8.8	11.2	1804



### Flat Washers - DIN 7989-1

Size : M10-M36

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 140 HV



### Flat Washers - DIN 6916

Size : M12-M64

Finish: Plain, Zinc, HDG

Hardness: 295 HV - 350 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M10	11	11.7	18.7	20	8	6.8	9.2	13.8
M12	13.5	14.2	22.7	24	8	6.8	9.2	19.4
M14	15.5	16.2	26.7	28	8	6.8	9.2	26
M16	17.5	18.2	28.7	30	8	6.8	9.2	28.4
M18	20	20.84	32.4	34	8	6.8	9.2	37.3
M20	22	22.84	35.4	37	8	6.8	9.2	43.7
M24	26	26.84	42.4	44	8	6.8	9.2	62.1
M27	30	30.84	48.4	50	8	6.8	9.2	78.9
M30	33	34	54.1	56	8	6.8	9.2	101
M33	36	37	58.1	60	8	6.8	9.2	113.6
M36	39	40	64.1	66	8	6.8	9.2	139.8

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M12	13	13.27	23.48	24	3	2.7	3.3	7.53
M14	15	15.27	27.48	28	3	2.7	3.3	10.34
M16	17	17.27	29.48	30	4	3.7	4.3	15.07
M18	19	19.33	33.38	34	4	3.7	4.3	19.61
M20	21	21.33	36.38	37	4	3.7	4.3	22.89
M22	23	23.33	38.38	39	4	3.7	4.3	24.46
M24	25	25.33	43.38	44	4	3.7	4.3	32.33
M27	28	28.52	49	50	5	4.4	5.6	52.9
M30	31	31.62	54.8	56	5	4.4	5.6	67.05
M33	34	34.62	58.8	60	6	5.4	6.6	90.41
M36	37	37.62	64.8	66	6	5.4	6.6	110.5
M39	40.4	41.02	70.8	72	6	5.4	6.6	131.39
M42	43.4	44.02	76.8	78	8	6.8	9.2	207.18
M45	46.4	47.02	83.4	85	8	6.8	9.2	250.17
M48	49.4	50.02	90.6	92	8	6.8	9.2	298.08
M56	58	58.74	103.6	105	10	8.8	11.2	472.3
M64	66	66.74	113.6	115	10	8.8	11.2	546.8



### Flat Washers - DIN 6340

Size : M6-M48

Finish: Plain, Zinc, HDG

Hardness: 350 HV - 430 HV



### Flat Washers - DIN 436

Size : M8-M52

Finish: Plain, Zinc, HDG

Hardness: 100 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M6	6.40	6.62	16.57	17.0	3.0	2.7	3.3	4.59
M8	8.40	8.62	22.48	23.0	4.0	3.7	4.3	11.31
M10	10.50	10.77	27.48	28.0	4.0	3.7	4.3	16.62
M12	13.00	13.43	34	35.0	5.0	4.4	5.6	32.55
M14	15.00	15.43	39	40.0	5.0	4.4	5.6	42.39
M16	17.00	17.43	44	45.0	6.0	5.4	6.6	64.22
M18	19.00	19.52	44	45.0	6.0	5.4	6.6	61.55
M20	21.00	21.52	49	50.0	6.0	5.4	6.6	76.16
M22	23.00	23.52	49	50.0	6.0	5.4	6.6	72.91
M24	25.00	25.52	58.8	60.0	8.0	7.0	9.0	146.73
M27	28.00	28.52	58.8	60.0	8.0	7.0	9.0	138.89
M30	31.00	31.62	66.8	68.0	10.0	9.0	11.0	225.83
M36	38.00	38.62	78.8	80.0	12.0	10.8	13.2	
M42	44.00	44.62	98.6	100.0	15.0	13.8	16.2	
M48	50.00	50.62	98.6	100.0	15.0	13.8	16.2	

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M8	9.40	9.62	28.7	30.0	3.0	2.4	3.6	21.0
M10	11	11.43	28.7	30	3	2.4	3.6	20.0
M12	13.5	13.93	38.4	40	4	3.4	4.6	45.7
M14	15.50	16	42.4	44.0	4.0	3.4	4.6	43.7
M16	17.5	18.2	48.4	50	5	4	6	88.7
M20	22	22.84	58.1	60	5	4	6	126.0
M22	24	24.84	68.1	70	6	5	7	209.0
M24	26	26.84	78.1	80	6	5	7	275.0
M27	30	30.84	87.8	90	6	5	7	348.0
M30	33	34	92.8	95	6	5	7	385.0
M33	36	37	97.8	100	6	5	7	423.0
M36	39	40	107.8	110	8	6.8	9.2	685.0
M39	42	43	122.5	125	8	6.8	9.2	895.0
M42	45	46	132.5	135	8	6.8	9.2	1050.0
M45	48	49	137.5	140	8	6.8	9.2	1120.0
M48	52	53.2	147.5	150	10	8.8	11.2	1600.0
M52	56	57.2	157.5	160	10	8.8	11.2	1820.0



### Flat Washers - DIN 7349

Size : M3-M30

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 200 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M3	3.2	3.38	8.64	9	1	0.9	1.1	0.44
M4	4.3	4.48	11.57	12	1.6	1.4	1.8	1.24
M5	5.3	5.48	14.57	15	2	1.8	2.2	2.43
M6	6.4	6.62	16.57	17	3	2.7	3.3	4.59
M8	8.4	8.76	20.16	21	4	3.7	4.3	9.15
M10	10.5	10.93	24.16	25	4	3.7	4.3	12.7
M12	13	13.43	29.16	30	6	5.4	6.6	27.1
M14	15	15.43	35	36	6	5.4	6.6	39.6
M16	17	17.43	39	40	6	5.4	6.6	48.5
M18	19	19.52	43	44	8	7	9	77.4
M20	21	21.52	43	44	8	7	9	73.4
M22	23	23.52	49	50	8	7	9	97.1
M24	25	25.52	49	50	10	9	11	116
M27	28	28.52	58.8	60	10	9	11	174
M30	31	31.62	66.8	68	10	9	11	226



### Flat Washers - DIN 134

Size : M3-M20

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 200 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M3	3.2	3.38	7.64	8	0.5	0.45	0.55	0.17
M4	4.3	4.48	9.64	10	0.8	0.7	0.9	0.4
M5	5.3	5.48	11.57	12	1	0.9	1.1	0.72
M6	6.4	6.62	13.57	14	1.6	1.4	1.8	1.53
M8	8.4	8.62	17.57	18	2	1.8	2.2	3.12
M10	10.5	10.77	21.48	22	2.5	2.3	2.7	5.76
M12	13	13.27	27.48	28	3	2.7	3.3	11.38
M14	15	15.27	27.48	28	3	2.7	3.3	10.34
M16	17	17.27	33.38	34	3	2.7	3.3	16.04
M18	19	19.33	39.38	40	4	3.7	4.3	30.56
M20	21	21.33	39.38	40	4	3.7	4.3	28.58



### Flat Washers - DIN 1052

Size : M12-M24

Finish: Plain, Zinc, HDG

Hardness: 100 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M12	14	14.7	58	56.1	6	5	7	108.51
M16	18	18.7	68	66.1	6	5	7	148.8
M20	22	22.84	80	78.1	8	6.8	9.2	275.33
M22	25	25.84	92	89.8	8	6.8	9.2	365.08
M24	27	27.84	105	102.8	8	6.8	9.2	483.37



### Flat Washers - DIN 1440

Size : M3-M100

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 140 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M3	3	3.06	5.4	6	0.8	0.6	1	0.09
M4	4	4.06	7.25	8	0.8	0.6	1	0.16
M5	5	5.06	9.25	10	0.8	0.6	1	0.27
M6	6	6.075	11.25	12	1.6	1.3	1.9	0.84
M7	7	7.075	13.1	14	1.6	1.3	1.9	1.13
M8	8	8.075	15.1	16	2	1.7	2.3	1.9
M10	10	10.09	19.1	20	2.5	2.2	2.8	3.9
M12	12	12.11	23.9	25	3	2.4	3.6	7.59
M13	13	13.11	23.9	25	3	2.4	3.6	7.1
M14	14	14.11	26.9	28	3	2.4	3.6	9.39
M16	16	16.11	26.9	28	3	2.4	3.6	8.23
M18	18	18.11	28.9	30	4	3.4	4.6	11.98
M20	20	20.13	30.7	32	4	3.4	4.6	12.54
M22	22	22.13	32.7	34	4	3.4	4.6	13.52
M23	23	23.13	34.7	36	4	3.4	4.6	15.69
M24	24	24.13	36.7	38	4	3.4	4.6	18.01
M25	25	25.13	38.7	40	4	3.4	4.6	20.48
M26	26	26.13	38.7	40	5	4	6	23.98
M27	27	27.13	38.7	40	5	4	6	22.29
M28	28	28.13	40.7	42	5	4	6	25.44
M30	30	30.13	43.7	45	5	4	6	29.57
M32	32	32.16	48.4	50	5	4	6	38.67
M33	33	33.16	48.4	50	5	4	6	36.6
M35	35	35.16	50.4	52	6	5	7	46.06
M36	36	36.16	50.4	52	6	5	7	43.36
M40	40	40.16	56.4	58	6	5	7	55.53
M45	45	45.16	60.4	62	7	5.8	8.2	66.17
M50	50	50.16	66.4	68	8	6.8	9.2	89.24
M55	55	55.19	73.1	75	9	7.8	10.2	121.34
M60	60	60.19	78.1	80	9	7.8	10.2	130.73
M65	65	65.19	88.1	90	9	7.8	10.2	187.64
M70	70	70.19	93.1	95	10	8.8	11.2	222.01
M75	75	75.19	98.1	100	10	8.8	11.2	235.52
M80	80	80.19	108.1	110	12	10.4	13.6	377.02
M85	85	85.22	107.8	110	12	10.4	13.6	307.7
M90	90	90.22	112.8	115	12	10.4	13.6	323.55
M95	95	95.22	117.8	120	12	10.4	13.6	339.39
M100	100	100.22	122.8	125	12	12.4	15.6	355.24

//



### Flat Washers - DIN 1441

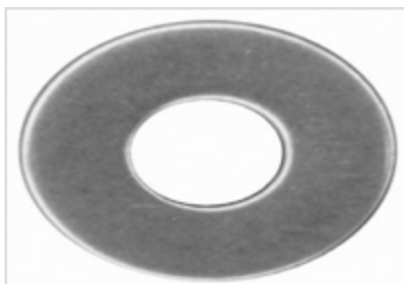
Size : M5-M100

Finish: Plain, Zinc, HDG

Hardness: 100 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M5	5.5	5.8	9.25	10	0.8	0.6	1	0.34
M6	7	7.36	10.9	12	1.6	1.3	1.9	0.94
M7	8	8.36	12.9	14	1.6	1.3	1.9	1.3
M8	9	9.36	14.9	16	2	1.7	2.3	2.16
M10	11	11.43	18.7	20	2.5	2.2	2.8	4.3
M12	13	13.43	23.7	25	3	2.4	3.6	8.43
M13	14	14.43	23.7	25	3	2.4	3.6	7.94
M14	15	15.43	26.7	28	3	2.4	3.6	10.3
M16	17	17.43	26.7	28	3	2.4	3.6	9.16
M18	19	19.84	28.7	30	4	3.4	4.6	13.3
M20	21	21.84	30.4	32	4	3.4	4.6	14.4
M22	23	23.84	32.4	34	4	3.4	4.6	15.5
M23	24	24.84	34.4	36	4	3.4	4.6	17.8
M24	25	25.84	36.4	38	4	3.4	4.6	20
M25	26	26.84	38.4	40	4	3.4	4.6	22.8
M26	27	27.84	38.4	40	5	4	6	26.9
M27	28	28.84	38.4	40	5	4	6	25
M28	29	29.84	40.4	42	5	4	6	28.5
M30	31	32	43.4	45	5	4	6	32.8
M32	34	35	48.4	50	5	4	6	43.5
M33	34	35	48.4	50	5	4	6	43.5
M35	37	38	50.1	52	6	5	7	49.4
M36	37	38	50.1	52	6	5	7	49.4
M40	41	42	56.1	58	6	5	7	59.2
M45	46	47	60.1	62	7	5.8	8.2	70.6
M50	51	52.2	66.1	68	8	6.8	9.2	94.7
M55	56	57.2	73.1	75	9	7.8	10.2	138
M60	62	63.2	78.1	80	9	7.8	10.2	142
M65	68	69.2	87.8	90	9	7.8	10.2	193
M70	72	73.2	92.8	95	10	8.8	11.2	237
M75	78	79.2	97.8	100	10	8.8	11.2	241
M80	82	83.4	107.8	110	12	10.4	13.6	398
M85	86	87.4	107.8	110	12	10.4	13.6	348
M90	92	93.4	112.8	115	12	10.4	13.6	352
M95	98	99.4	117.8	120	12	10.4	13.6	355
M100	102	103.4	122.5	125	14	12.4	15.6	451

//



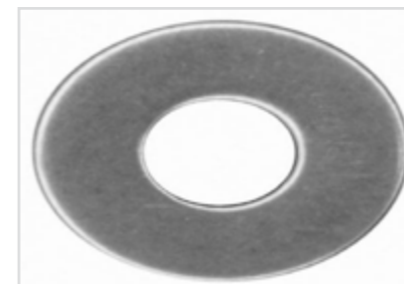
### Flat Washers - NFE 25513-Z

Size : M3-M30

Finish: Plain, Zinc, HDG

Hardness: 100 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M3	3.2	3.38	5.7	6	0.8	0.72	0.88	0.13
M4	4.3	4.48	7.64	8	0.8	0.72	0.88	0.22
M5	5.3	5.48	9.64	10	1	0.9	1.1	0.44
M6	6.4	6.62	11.57	12	1.2	1.08	1.32	0.76
M7	7.4	7.62	13.57	14	1.5	1.35	1.65	1.3
M8	8.4	8.62	15.57	16	1.5	1.35	1.65	1.71
M10	10.5	10.77	19.48	20	2	1.8	2.2	3.57
M12	13	13.27	23.48	24	2.5	2.25	2.75	6.27
M14	15	15.27	26.48	27	2.5	2.25	2.75	7.76
M16	17	17.27	29.48	30	3	2.7	3.3	11.3
M18	19	19.33	31.38	32	3	2.7	3.3	12.2
M20	21	21.33	35.38	36	3	2.7	3.3	15.8
M22	23	23.33	39.38	40	3	2.7	3.3	19.8
M24	25	25.33	44.38	45	4	3.6	4.4	34.5
M27	28	28.33	47.38	48	4	3.6	4.4	37.5
M30	31	31.39	51.26	52	4	3.6	4.4	43



### Flat Washers - NFE 25513-M

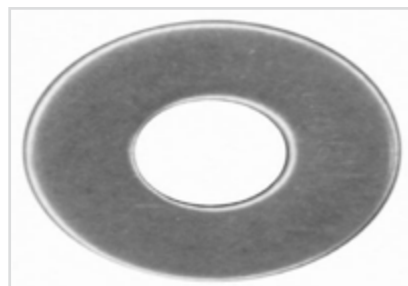
Size : M3-M52

Finish: Plain, Zinc, HDG

Hardness: 100 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M3	3.2	3.38	7.64	8	0.8	0.72	0.88	0.26
M4	4.3	4.48	9.64	10	0.8	0.72	0.88	0.4
M5	5.3	5.48	11.57	12	1	0.9	1.1	0.71
M6	6.4	6.62	13.57	14	1.2	1.08	1.32	1.15
M7	7.4	7.62	15.57	16	1.5	1.35	1.65	1.86
M8	8.4	8.62	17.57	18	1.5	1.35	1.65	2.34
M10	10.5	10.77	21.48	22	2	1.8	2.2	4.6
M12	13	13.27	26.48	27	2.5	2.25	2.75	8.63
M14	15	15.27	29.48	30	2.5	2.25	2.75	10.4
M16	17	17.27	31.38	32	3	2.7	3.3	13.5
M18	19	19.33	35.38	36	3	2.7	3.3	17.3
M20	21	21.33	39.38	40	3	2.7	3.3	21.4
M22	23	23.33	44.38	45	3	2.7	3.3	27.7
M24	25	25.33	49.38	50	4	3.6	4.4	46.2
M27	28	28.33	54.26	55	4	3.6	4.4	55.3
M30	31	31.39	59.26	60	4	3.6	4.4	65
M33	34	34.62	63.8	65	5	4.5	5.5	94.6
M36	37	37.62	68.8	70	5	4.5	5.5	108.8
M39	40	40.62	73.8	75	6	5.4	6.6	148.9
M42	43	43.62	78.8	80	6	5.4	6.6	168.4
M45	46	46.62	83.6	85	7	6.3	7.7	220.5
M48	50	50.62	88.6	90	7	6.3	7.7	241.7
M52	54	54.62	98.6	100	8	7.2	8.8	349.4



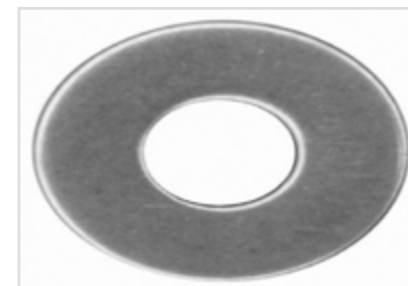


### Flat Washers - NFE25513-L

Size : M3-M30

Finish: Plain, Zinc, HDG

Hardness: 100 HV



### Flat Washers - NFE 25513-LL

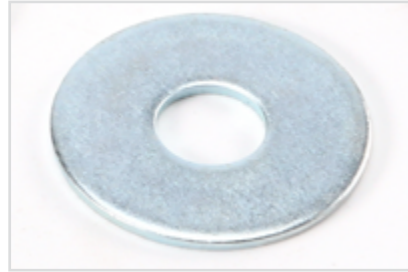
Size : M3-M30

Finish: Plain, Zinc, HDG

Hardness: 100 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M3	3.2	3.38	11.57	12	0.8	0.72	0.88	0.7
M4	4.3	4.48	13.57	14	0.8	0.72	0.88	0.9
M5	5.3	5.48	15.57	16	1	0.9	1.1	1.4
M6	6.4	6.62	17.57	18	1.2	1.08	1.32	2.1
M7	7.4	7.62	19.48	20	1.5	1.35	1.65	3.2
M8	8.4	8.62	21.48	22	1.5	1.35	1.65	3.8
M10	10.5	10.77	26.48	27	2	1.8	2.2	7.6
M12	13	13.27	31.38	32	2.5	2.25	2.75	13.2
M14	15	15.27	35.38	36	2.5	2.25	2.75	16.5
M16	17	17.27	39.38	40	3	2.7	3.3	24.2
M18	19	19.33	44.38	45	3	2.7	3.3	30.8
M20	21	21.33	49.38	50	3	2.7	3.3	38.1
M22	23	23.33	54.26	55	3	2.7	3.3	46.2
M24	25	25.33	59.26	60	4	3.6	4.4	73.37
M27	28	28.33	64.26	65	4	3.6	4.4	84.9
M30	31	31.39	69.26	70	4	3.6	4.4	97.1

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M3	3.2	3.38	13.57	14	0.8	0.72	0.88	0.9
M4	4.3	4.48	15.57	16	0.8	0.72	0.88	1.2
M5	5.3	5.48	19.48	20	1	0.9	1.1	2.3
M6	6.4	6.62	23.48	24	1.2	1.08	1.32	4
M7	7.4	7.62	26.48	27	1.5	1.35	1.65	6.2
M8	8.4	8.62	29.48	30	1.5	1.35	1.65	7.7
M10	10.5	10.77	35.38	36	2	1.8	2.2	14.6
M12	13	13.27	39.38	40	2.5	2.25	2.75	22.1
M14	15	15.27	44.38	45	2.5	2.25	2.75	27.7
M16	17	17.27	49.38	50	3	2.7	3.3	40.9
M18	19	19.33	54.26	55	3	2.7	3.3	49.3
M20	21	21.33	59.26	60	3	2.7	3.3	58.4
M22	23	23.33	64.14	65	3	2.7	3.3	68.4
M24	25	25.33	69.14	70	4	3.6	4.4	105.4
M27	28	28.33	74.02	75	4	3.6	4.4	119.4
M30	31	31.39	79.02	80	4	3.6	4.4	134.1



### Flat Washers - USS

Size : #8-3"  
 Finish: Plain, Zinc, HDG  
 Hardness: 100 HV - 200 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
#8	4.65	4.98	11.0	11.5	1.283	0.91	1.65	0.88
#10	5.43	5.76	12.12	12.63	1.283	0.91	1.65	1.03
3/16"	6.23	6.73	14.15	14.65	1.2	0.92	1.65	1.39
1/4"	7.8	8.3	18.47	19.02	1.6	1.3	2.03	3.09
5/16"	9.4	9.9	22.05	22.98	2	1.63	2.64	5.79
3/8"	11	11.5	25.23	26.16	2	1.63	2.64	7.41
7/16"	12.58	13.08	31.58	32.51	2	1.63	2.64	11.8
1/2"	14.15	14.65	34.75	35.68	2.8	2.19	3.35	18.3
9/16"	15.75	16.25	37.14	38.07	2.8	2.19	3.35	20.5
5/8"	17.3	18.23	44.28	45.21	3.5	2.75	4.06	36.6
3/4"	20.45	21.38	50.63	51.56	3.5	3.1	4.49	52.4
7/8"	23.65	24.58	56.98	57.91	4	3.46	4.87	71.8
1"	26.8	27.73	63.33	64.26	4	3.46	4.87	87.6
1-1/8"	31.58	32.51	69.68	70.61	4	3.46	4.87	102.4
1-1/4"	34.75	35.68	76.03	76.96	4	3.46	4.87	120
1-3/8"	37.85	39.24	82.3	83.69	4.5	3.89	5.41	159.7
1 1/2"	41.03	42.41	88.65	90.04	4.5	3.89	5.41	184.2
1-5/8"	44.2	45.59	95	96.39	4.5	3.89	5.41	210.4
1-3/4"	47.38	48.76	101.35	102.74	4.5	3.89	5.41	238.3
1-7/8"	50.55	51.94	107.7	109.09	4.5	3.89	5.41	267.9
2"	53.73	55.11	114.05	115.44	4.5	3.89	5.41	299.3
2-1/4"	60.08	61.46	120.4	121.79	5.5	4.91	6.29	387.5
2-1/2"	66.43	67.81	126.75	128.14	6	5.34	7.11	460.8
2-3/4"	72.78	74.67	133.1	135	6.5	5.8	7.87	544.8
3"	79.13	81.02	139.45	141.35	7	6.33	8.3	618.7



### Flat Washers - SAE

Size : #2-1-1/2"  
 Finish: Plain, Zinc, HDG  
 Hardness: 100 HV - 200 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
#2	2.26	2.38	6.22	6.35	0.5	0.4	0.635	0.11
#3	2.64	2.97	6.22	6.55	0.8	0.63	1.01	0.18
#4	3.05	3.37	7.8	8.12	0.8	0.63	1.01	0.28
#5	3.55	3.88	7.14	7.46	0.8	0.63	1.01	0.21
#6	3.84	4.16	9.4	9.9	1.2	0.92	1.65	0.66
5/32" (8#)	4.65	4.98	11	11.5	1.2	0.92	1.65	0.85
#10	5.44	5.76	12.58	13.08	1.2	0.92	1.65	1.09
#12	6.23	6.73	14.15	14.65	1.6	1.3	2.03	1.8
1/4"	7.02	7.51	15.75	16.25	1.6	1.3	2.03	2.2
5/16"	8.62	9.11	17.3	17.85	1.6	1.3	2.03	2.5
3/8"	10.19	10.69	20.45	21	1.6	1.3	2.03	3.5
7/16"	11.79	12.29	23.25	23.79	1.6	1.3	2.03	4.4
1/2"	13.37	13.86	26.8	27.73	2.2	1.88	3.07	9
9/16"	14.97	15.46	29.19	30.12	2.2	1.88	3.07	10.4
5/8"	16.49	17.42	33.15	34.08	2.2	1.88	3.07	13.6
3/4"	20.45	21.38	37.14	38.07	3	2.75	4.06	21.6
7/8"	23.65	24.58	44.28	45.21	3	2.75	4.06	31.2
1"	26.8	27.73	50.63	51.56	3	2.75	4.06	40.7
1-1/8"	31.58	32.51	56.98	57.91	3	2.75	4.06	48.12
1-1/4"	34.75	35.68	63.33	64.26	4	3.46	4.87	73.29
1-3/8"	37.93	38.86	69.68	70.61	4	3.46	4.87	89.21
1-1/2"	41.1	42.03	76.03	76.96	4	3.46	4.87	106.65



### Flat Washers - F436

Size : 1/4"-4"

Finish: Plain, Zinc, HDG

Hardness: 38 - 45 HRC

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
1/4"	7.14	7.93	15.05	16.67	1.6	1.3	2.03	2.33
5/16"	8.73	9.55	16.67	18.28	1.6	1.3	2.03	2.64
3/8"	10.32	11.11	19.85	21.46	1.6	1.3	2.03	3.62
7/16"	11.91	12.7	22.63	24.21	1.6	1.3	2.03	4.56
1/2"	13.49	14.28	26.2	27.78	3	2.47	4.5	12.7
9/16"	15.88	16.68	29.37	30.98	3.5	3.1	4.5	17.1
5/8"	17.48	18.27	32.55	34.14	3.5	3.1	4.5	20.14
3/4"	20.64	21.46	36.52	38.1	3.5	3.1	4.5	24.02
7/8"	23.81	24.63	43.66	45.24	4	3.45	4.5	36.25
1"	27	28.6	49.2	52.4	4	3.45	4.5	45.19
1-1/8"	30.2	31.77	55.55	58.75	4	3.45	4.5	54.9
1-1/4"	35	36.52	61.9	65.1	4	3.45	4.5	71.36
1-3/8"	38.1	39.7	68.25	71.45	4	3.45	4.5	86.67
1-1/2"	41.28	42.88	74.6	77.8	4	3.45	4.5	101.9
1-5/8"	44.45	46.05	80.98	84.15	6	4.52	7.11	125.87
1-3/4"	47.63	49.23	84.12	87.31	6	4.52	7.11	192
1-7/8"	49.2	50.8	86.49	89.69	6	4.52	7.11	222.1
2"	53.98	55.56	93.65	96.83	6	4.52	7.11	231.7
2-1/4"	60.33	61.91	100.02	103.18	7	6.1	8.64	318.4
2-1/2"	66.68	68.26	112.72	115.88	7	6.1	8.64	408.1
2-3/4"	73.03	74.61	125.42	128.58	7	6.1	8.64	508.9
3"	79.38	80.96	138.12	141.28	7	6.1	8.64	620.6
3-1/4"	85.73	88.9	149.23	155.57	7	6.1	8.64	765.8
3-1/2"	92.08	95.25	161.93	168.27	7	6.1	8.64	901.3
3-3/4"	98.43	101.6	174.63	180.97	7	6.1	8.64	1047.9
4"	104.78	107.95	187.33	193.67	7	6.1	8.64	1205.5



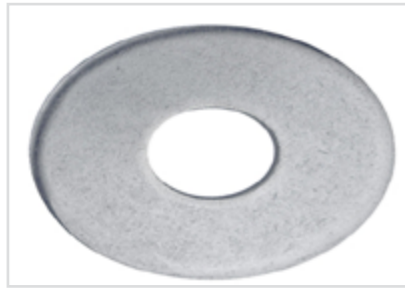
### Flat Washers - F436M

Size : M12-M100

Finish: Plain, Zinc, HDG

Hardness: 38 - 45 HRC

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M12	14	14.4	25.7	27	3.85	3.1	4.6	12.7
M14	16	16.4	28.7	30	3.85	3.1	4.6	15.3
M16	18	18.4	32.4	34	3.85	3.1	4.6	19.7
M20	22	22.5	40.4	42	3.85	3.1	4.6	30.4
M22	24	24.5	42.4	44	4	3.4	4.6	33.5
M24	26	26.5	48.4	50	4	3.4	4.6	45
M27	30	30.5	54.1	56	4	3.4	4.6	55.1
M30	33	33.6	58.1	60	4	3.4	4.6	61.9
M36	39	39.6	70.1	72	4	3.4	4.6	90.3
M42	45	45.6	81.8	84	5.9	4.6	7.2	183
M48	52	52.7	92.8	95	5.9	4.6	7.2	229.9
M56	62	62.7	104.8	107	7.4	6.1	8.7	347
M64	70	70.7	115.8	118	7.4	6.1	8.7	411.7
M72	78	78.7	127.5	130	7.4	6.1	8.7	493.5
M80	86	86.9	139.5	142	7.4	6.1	8.7	582.5
M90	96	96.9	156.5	159	7.4	6.1	8.7	732.9
M100	107	107.9	173.5	176	7.4	6.1	8.7	890.9



### Flat Washers - Fender

Size : #8-1/2"

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 140 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
1/8" x 5/8"	3.81	4.32	15.67	16.6	1.6	1.29	2.0	2.53
1/8" x 3/4"	3.81	4.32	18.85	19.8	1.6	1.29	2.0	3.59
#10 x 3/4"	5.41	5.92	18.85	19.8	1.6	1.29	2.0	3.45
#10 x 1"	5.41	5.92	25.2	26.13	1.6	1.29	2.0	6.37
#10 x 1-1/4"	5.41	5.92	31.5	32.5	1.6	1.29	2.0	9.8
#10 x 1-1/2"	5.41	5.92	37.9	38.83	1.6	1.29	2.0	14.32
1/4" x 3/4"	6.98	7.5	18.85	19.8	1.6	1.29	2.0	3.27
1/4" x 1"	6.98	7.5	25.2	26.1	1.6	1.29	2.0	6.19
1/4" x 1-1/4"	6.98	7.5	31.5	32.5	1.6	1.29	2.0	9.62
1/4" x 1-1/2"	6.98	7.5	37.9	38.8	1.6	1.29	2.0	14.14
1/4" x 1-3/4"	6.98	7.5	44.24	45.2	1.6	1.29	2.0	19.49
1/4" x 2"	6.98	7.5	50.6	51.5	1.6	1.29	2.0	25.68
5/16" x 1"	8.58	9.1	25.2	26.13	1.6	1.29	2.0	5.96
5/16" x 1-1/4"	8.58	9.1	31.5	32.5	1.6	1.29	2.0	9.39
5/16" x 1-1/2"	8.58	9.1	37.9	38.8	1.6	1.29	2.0	13.91
5/16" x 1-3/4"	8.58	9.1	44.24	45.2	1.6	1.29	2.0	19.26
5/16" x 2"	8.58	9.1	50.6	51.5	1.6	1.29	2.0	25.45
3/8" x 1"	10.16	10.66	25.2	26.1	1.6	1.29	2.0	5.68
3/8" x 1-1/4"	10.16	10.66	31.5	32.5	1.6	1.29	2.0	9.12
3/8" x 1-1/2"	10.16	10.66	37.9	38.8	1.6	1.29	2.0	13.64
3/8" x 1-3/4"	10.16	10.66	44.24	45.2	1.6	1.29	2.0	18.99
3/8" x 1-5/8"	10.16	10.66	41.07	42.0	1.6	1.29	2.0	16.42
3/8" x 2"	10.16	10.66	50.6	51.5	1.6	1.29	2.0	25.18
1/2" x 1-1/4"	13.33	13.85	31.5	32.5	1.6	1.29	2.0	8.3
1/2" x 1-1/2"	13.33	13.85	37.9	38.8	1.6	1.29	2.0	12.82
1/2" x 1-3/4"	13.33	13.85	44.24	45.2	1.6	1.29	2.0	18.18
1/2" x 2"	13.33	13.85	50.6	51.5	1.6	1.29	2.0	24.37
1/2" x 2-1/2"	13.33	13.85	63.3	64.2	1.6	1.29	2.0	38.61



### Flat Washers - DIN 127B

Size : M2-M100

Finish: Plain, Zinc, HDG

Hardness: 470 HV - 570 HV

Size	Inner Diameter		Outer Diameter	Thickness			Weight (KGS/M)
	min	max	max	mid	min	max	
M2	2.10	2.4	4.4	0.5	0.4	0.6	0.03
M2.2	2.30	2.6	4.8	0.6	0.5	0.7	0.05
M2.5	2.60	2.9	5.1	0.6	0.5	0.7	0.05
M3	3.1	3.4	6.2	0.8	0.7	0.9	0.11
M3.5	3.6	3.9	6.7	0.8	0.7	0.9	0.12
M4	4.1	4.4	7.6	0.9	0.8	1.0	0.18
M5	5.1	5.4	9.2	1.2	1.1	1.3	0.36
M6	6.1	6.5	11.8	1.6	1.5	1.7	0.83
M7	7.1	7.5	12.8	1.6	1.5	1.7	0.93
M8	8.1	8.5	14.8	2.0	1.9	2.1	1.6
M10	10.2	10.7	18.1	2.2	2.1	2.4	2.53
M12	12.2	12.7	21.1	2.5	2.4	2.7	3.82
M14	14.2	14.7	24.1	3.0	2.9	3.2	6.01
M16	16.2	17	27.4	3.5	3.3	3.7	8.91
M18	18.2	19	29.4	3.5	3.3	3.7	9.73
M20	20.20	21.2	33.6	4.0	3.8	4.2	15.2
M22	22.5	23.5	35.9	4.0	3.8	4.2	16.5
M24	24.5	25.5	40.0	5.0	4.8	5.2	26.2
M27	27.5	28.5	43.0	5.0	4.8	5.2	28.7
M30	30.5	31.7	48.2	6.0	5.8	6.2	44.3
M33	33.5	34.7	55.2	6.0	5.8	6.2	48.6
M36	36.5	37.7	58.2	6.0	5.8	6.2	67.3
M39	39.5	40.7	61.2	6.0	5.8	6.2	71.7
M42	42.5	43.7	68.2	7.0	6.8	7.3	111
M45	45.5	46.7	71.2	7.0	6.8	7.3	117
M48	49	50.5	75.0	7.0	6.8	7.3	123
M52	53.00	54.5	83.0	8.0	7.8	8.3	182
M56	57	58.5	87.0	8.0	7.8	8.3	193
M60	61	62.5	91.0	8.0	7.8	8.3	203
M64	65	66.5	95.0	8.0	7.8	8.3	218
M68	69	70.5	99.0	8.0	7.8	8.3	228
M72	73	74.5	103.0	8.0	7.8	8.3	240
M80	81.00	82.5	111.0	8.0	7.8	8.3	262
M90	91	92.5	121.0	8.0	7.8	8.3	290
M100	101	102.5	131.0	8.0	7.8	8.3	318



### Flat Washers - BS4320-A

Size : M1-M39

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 140 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M 1.0	1.1	1.25	2.3	2.5	0.3	0.2	0.4	0.01
M 1.2	1.3	1.45	2.8	3	0.3	0.2	0.4	0.01
M 1.4	1.5	1.65	2.8	3	0.3	0.2	0.4	0.01
M 1.6	1.7	1.85	3.7	4	0.3	0.2	0.4	0.02
M 2.0	2.2	2.35	4.7	5	0.3	0.2	0.4	0.03
M 2.2	2.4	2.55	4.7	5	0.5	0.4	0.6	0.05
M 2.5	2.7	2.85	6.2	6.5	0.5	0.4	0.6	0.1
M 3	3.2	3.4	6.7	7	0.5	0.4	0.6	0.11
M 3.5	3.7	3.9	6.7	7	0.5	0.4	0.6	0.1
M 4	4.3	4.5	8.7	9	0.8	0.7	0.9	0.28
M 4.5	4.8	5	8.7	9	0.8	0.7	0.9	0.26
M 5	5.3	5.5	9.7	10	1	0.9	1.1	0.41
M 6	6.4	6.7	12.1	12.5	1.6	1.4	1.8	1.04
M 7	7.4	7.7	13.6	14	1.6	1.4	1.8	1.29
M 8	8.4	8.7	16.6	17	1.6	1.4	1.8	2.02
M 10	10.5	10.9	20.5	21	2	1.8	2.2	3.83
M 12	13	13.4	23.5	24	2.5	2.3	2.7	5.91
M 14	15	15.4	27.5	28	2.5	2.3	2.7	8.19
M 16	17	17.4	29.5	30	3	2.7	3.3	10.76
M 18	19	19.5	33.2	34	3	2.7	3.3	13.72
M 20	21	21.5	36.2	37	3	2.7	3.3	16.09
M 22	23	23.5	38.2	39	3	2.7	3.3	17.22
M 24	25	25.5	43.2	44	4	3.7	4.3	30.63
M 27	28	28.5	49.2	50	4	3.7	4.3	40.39
M 30	31	31.6	55	56	4	3.7	4.3	50.94
M 33	34	34.6	59	60	5	4.4	5.6	71.73
M 36	37	37.6	65	66	5	4.4	5.6	88.11
M 39	40	40.6	71	72	6	5.4	6.6	127.39



### Flat Washers - BS4320-B

Size : M6-M39

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 140 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M 6	6.4	6.7	12.1	12.5	0.8	0.7	0.9	0.52
M 7	7.4	7.7	13.6	14	0.8	0.7	0.9	0.64
M 8	8.4	8.7	16.6	17	1	0.9	1.1	1.26
M 10	10.5	10.9	20.5	21	1.25	1.05	1.45	2.39
M 12	13	13.4	23.5	24	1.6	1.4	1.8	3.78
M 14	15	15.4	27.5	28	1.6	1.4	1.8	5.24
M 16	17	17.4	29.5	30	2	1.8	2.2	7.17
M 18	19	19.5	33.2	34	2	1.8	2.2	9.15
M 20	21	21.5	36.2	37	2	1.8	2.2	10.73
M 22	23	23.5	38.2	39	2	1.8	2.2	11.48
M 24	25	25.5	43.2	44	2.5	2.3	2.7	19.15
M 27	28	28.5	49.2	50	2.5	2.3	2.7	25.25
M 30	31	31.6	55	56	2.5	2.3	2.7	31.84
M 33	34	34.6	59	60	3	2.7	3.3	43.04
M 36	37	37.6	65	66	3	2.7	3.3	52.86
M 39	40	40.6	71	72	3	2.7	3.3	63.69



### Flat Washers - BS4320-C

Size : M4-M39

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 140 HV



### Flat Washers - BS4320-D

Size : M6-M39

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 140 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M 4	4.3	4.5	9.7	10	0.8	0.7	0.9	0.37
M 5	5.3	5.5	12.1	12.5	1	0.9	1.1	0.73
M 6	6.4	6.7	13.6	14	1.6	1.4	1.8	1.42
M 8	8.4	8.7	20.5	21	1.6	1.4	1.8	3.45
M 10	10.5	10.9	23.5	24	2	1.8	2.2	5.45
M 12	13	13.4	27.5	28	2.5	2.3	2.7	9.06
M 14	15	15.4	29.5	30	2.5	2.3	2.7	9.95
M 16	17	17.4	33.2	34	3	2.7	3.3	15.05
M 18	19	19.5	36.2	37	3	2.7	3.3	17.57
M 20	21	21.5	38.2	39	3	2.7	3.3	18.85
M 22	23	23.5	43.2	44	3	2.7	3.3	24.75
M 24	25	25.5	49.2	50	4	3.7	4.3	44.32
M 27	28	28.5	55	56	4	3.7	4.3	55.31
M 30	31	31.6	59	60	4	3.7	4.3	62.19
M 33	34	34.6	65	66	5	4.4	5.6	94.68
M 36	37	37.6	71	72	5	4.4	5.6	113.28
M 39	40	40.6	76	77	6	5.4	6.6	154.6

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M 6	6.4	6.7	13.6	14	0.8	0.7	0.9	0.71
M 8	8.4	8.7	20.5	21	1	0.9	1.1	2.16
M 10	10.5	10.9	23.5	24	1.25	1.05	1.45	3.41
M 12	13	13.4	27.5	28	1.6	1.4	1.8	5.8
M 14	15	15.4	29.5	30	1.6	1.4	1.8	6.37
M 16	17	17.4	33.2	34	2	1.8	2.2	10.04
M 18	19	19.5	36.2	37	2	1.8	2.2	11.72
M 20	21	21.5	38.2	39	2	1.8	2.2	12.57
M 22	23	23.5	43.2	44	2	1.8	2.2	16.5
M 24	25	25.5	49.2	50	2.5	2.3	2.7	27.7
M 27	28	28.5	55	56	2.5	2.3	2.7	34.57
M 30	31	31.6	59	60	2.5	2.3	2.7	38.87
M 33	34	34.6	65	66	3	2.7	3.3	56.81
M 36	37	37.6	71	72	3	2.7	3.3	67.97
M 39	40	40.6	76	77	3	2.7	3.3	77.3



### Flat Washers - BS4320-E

Size : M5-M68

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 140 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M 5	5.5	5.8	9.2	10	1	0.8	1.2	0.27
M 6	6.6	7	11.7	12.5	1.6	1.3	1.9	0.75
M 7	7.6	8	13.2	14	1.6	1.3	1.9	0.93
M 8	9	9.4	16.2	17	1.6	1.3	1.9	1.46
M 10	11	11.5	20.2	21	2	1.7	2.3	3.01
M 12	14	14.5	23.2	24	2.5	2.2	2.8	4.65
M 14	16	16.5	27.2	28	2.5	2.2	2.8	6.57
M 16	18	18.5	29.2	30	3	2.4	3.6	7.83
M 18	20	20.6	32.8	34	3	2.4	3.6	10.01
M 20	22	22.6	35.8	37	3	2.4	3.6	11.81
M 22	24	24.6	37.8	39	3	2.4	3.6	12.63
M 24	26	26.6	42.8	44	4	3.4	4.6	24.25
M 27	30	30.6	48.8	50	4	3.4	4.6	31.08
M 30	33	33.8	54.5	56	4	3.4	4.6	39.46
M 33	36	36.8	58.5	60	5	4	6	52.48
M 36	39	39.8	64.5	66	5	4	6	65.14
M 39	42	42.8	70.5	72	6	5	7	98.91
M 42	45	45.8	76.5	78	7	5.8	8.2	136.96
M 45	48	48.8	83	85	7	5.8	8.2	164.08
M 48	52	53	90	92	8	6.8	9.2	226.39
M 52	56	57	96	98	8	6.8	9.2	255.09
M 56	62	63	103	105	9	7.8	10.2	325.57
M 60	66	67	108	110	9	7.8	10.2	351.7
M 64	70	71	113	115	9	7.8	10.2	378.7
M 68	74	75	118	120	10	8.8	11.2	458.69



### Flat Washers - BS4320-F

Size : M8-M39

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 140 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M 8	9	9.4	20.2	21	1.6	1.3	1.9	3.23
M 10	11	11.5	23.2	24	2	1.7	2.3	5.15
M 12	14	14.5	27.2	28	2.5	2.2	2.8	8.39
M 14	16	16.5	29.2	30	2.5	2.2	2.8	9.2
M 16	18	18.5	32.8	34	3	2.4	3.6	13.92
M 18	20	20.6	35.8	37	3	2.4	3.6	16.32
M 20	22	22.6	37.8	39	3	2.4	3.6	17.49
M 22	24	24.6	42.8	44	3	2.4	3.6	23.25
M 24	26	26.6	48.8	50	4	3.4	4.6	42.09
M 27	30	30.6	54.5	56	4	3.4	4.6	51.09
M 30	33	33.8	58.5	60	4	3.4	4.6	57.58
M 33	36	36.8	64.5	66	5	4	6	88.36
M 36	39	39.8	70.5	72	5	4	6	106.41
M 39	42	42.8	75.5	77	6	5	7	145.72



### Flat Washers - BS4320-G

Size : M5-M39

Finish: Plain, Zinc, HDG

Hardness: 100 HV - 140 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M 5	5.5	5.8	14.2	15	1.6	1.3	1.9	1.69
M 6	6.6	7	17.2	18	2	1.7	2.3	3.11
M 7	7.6	8	20.2	21	2	1.7	2.3	4.32
M 8	9	9.4	23.2	24	2	1.7	2.3	5.64
M 10	11	11.5	29.2	30	2.5	2.2	2.8	11.29
M 12	14	14.5	34.8	36	3	2.4	3.6	18.79
M 14	16	16.5	40.8	42	3	2.4	3.6	26.07
M 16	18	18.5	46.8	48	4	3.4	4.6	46.06
M 18	20	20.6	52.5	54	4	3.4	4.6	58.15
M 20	22	22.6	58.5	60	5	4	6	90.65
M 22	24	24.6	64.5	66	5	4	6	110.57
M 24	26	26.6	70.5	72	6	5	7	158.97
M 27	30	30.6	79	81	6	5	7	197.72
M 30	33	33.8	88	90	8	6.8	9.2	328.49
M 33	36	36.8	97	99	8	6.8	9.2	400.46
M 36	39	39.8	106	108	10	8.8	11.2	599.42
M 39	42	42.8	115	117	10	8.8	11.2	707.14



### Flat Washers - EN14399-6

Size : M12-M48

Finish: Plain, Zinc, HDG

Hardness: 300 HV - 370 HV

Size	Inner Diameter		Outer Diameter		Thickness			Weight (KGS/M)
	min	max	min	max	mid	min	max	
M12	13	13.27	23.48	24	3	2.7	3.3	7.53
M14	15	15.27	27.48	28	3	2.7	3.3	10.34
M16	17	17.27	29.48	30	4	3.7	4.3	15.07
M18	19	19.33	33.38	34	4	3.7	4.3	19.61
M20	21	21.33	36.38	37	4	3.7	4.3	22.89
M22	23	23.33	38.38	39	4	3.7	4.3	24.46
M24	25	25.33	43.38	44	4	3.7	4.3	32.33
M27	28	28.52	49	50	5	4.4	5.6	52.9
M30	31	31.62	54.8	56	5	4.4	5.6	67.05
M33	34	34.62	58.8	60	6	5.4	6.6	90.41
M36	37	37.62	64.8	66	6	5.4	6.6	110.5
M39	40.4	41.02	70.8	72	6	5.4	6.6	131.39
M42	43.4	44	76.8	78	8	6.8	9.2	207.18
M45	46.4	47	83.4	85	8	6.8	9.2	250.17
M48	49.2	50	90.6	92	8	6.8	9.2	298.08