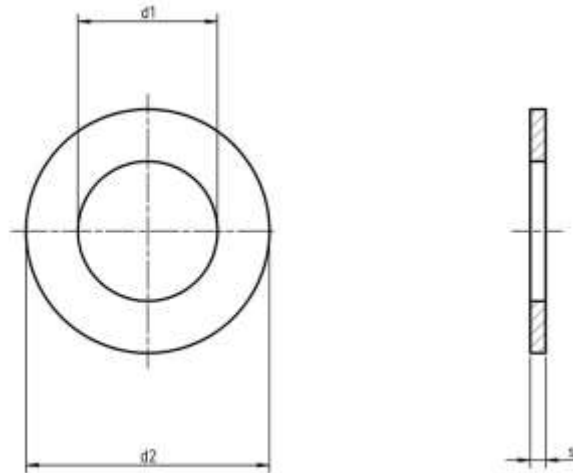


Metric DIN 1441 Coarse Flat Washer

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Dimensions of Metric DIN 1441 Coarse Flat Washer

d1	For thread	d2	s	Weight kg/1000pcs
5,5	M5	10	0,8	0,34
7	M6	12	1,6	0,94
8	M7	14	1,6	1,3
9	M8	16	2	2,16
11	M10	20	2,5	4,3
13	M12	25	3	8,43
14	M13	25	3	7,94
15	M14	28	3	10,3

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d1	For thread	d2	s	Weight kg/1000pcs
17	M16	28	3	9,16
19	M18	30	4	13,3
21	M20	32	4	14,4
23	M22	34	4	15,5
24	M23	36	4	17,8
25	M24	38	4	20
26	M25	40	4	22,8
27	M26	40	5	26,9
28	M27	40	5	25
29	M28	42	5	28,5
31	M30	45	5	32,8
34	M32	50	5	43,5
34	M33	50	5	43,5
37	M35	52	6	49,4
37	M36	52	6	49,4
41	M40	58	6	59,2
46	M45	62	7	70,6
51	M50	68	8	94,7
56	M55	75	9	138
62	M60	80	9	142
68	M65	90	9	193

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d1	For thread	d2	s	Weight kg/1000pcs
72	M70	95	10	237
78	M75	100	10	241
82	M80	110	12	398
86	M85	110	12	348
92	M90	115	12	352
98	M95	120	12	355
102	M100	125	14	451

Metric DIN 1441 (ISO 8738) flat washers are known as shaft washers or washer for clevis pin. The DIN 1441 flat washers have slightly larger outside diameters and thicknesses than standard washers, specifically sized to be used on clevis pins. Aspen Fasteners offers one of the most complete ranges of metric washers and other inch and metric industrial fasteners for immediate delivery from stock. The following sizes of metric DIN 1441 coarse flat washer are available for immediate shipping from stock: Diameters ranging from M3 to M40 in A2 and marine grade A4 stainless steel. View parts by clicking on the following link: [DIN 1441 flat washers](#)

DIN (**D**eutsches **I**nstitut für **N**ormung - German Institute for Standardization) standards are issued for a variety of components including industrial fasteners as Metric DIN 1441 Coarse Flat Washer. The DIN standards remain common in Germany, Europe and globally even though the transition to ISO standards is taking place. DIN standards continue to be used for parts which do not have ISO equivalents or for which there is no need for standardization. In this case the ISO equivalency is ISO 8738

1) Mechanical properties of stainless steel for metric DIN 1441 Coarse Flat Washer

Stainless steels can be divided into three groups of steel - austenitic, ferritic and martensitic. Austenitic steel is by far the most common type (>90% of commercial fasteners). The steel groups and strength classes are designated by a four-digit sequence of letters and numbers (eg A2-70) as shown in the following table. DIN EN ISO 3506 governs screws and nuts made from stainless steel.

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Steel group	Steel grade	Strength class	Screws, Nuts and Bolts			
			Tensile strength N/mm ²	Tensile strength PSI	Dia range	Nut Load N/mm ²
Austenitic	A2 and A4	50	500	70,000	<=M39	500
		70	700	100,000	<=M20	700
		80	800	118,000	<=M20	800

The tensile stress is calculated with reference to the tensile stress area (see DIN EN ISO 3506-1979). Nuts to be paired with same grade of stainless steel screws

Steel group	Property Strength class	Made From	Characteristics
Austenitic	50	A1, A2	Soft; cold worked, turned and soft pressed fasteners
	70	A2, A4	Cold worked, normal strength formed fasteners
	80	A2, A4	Extreme cold worked, high strength, special applications

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2) Chemical composition of stainless steel metric DIN 1441 Coarse Flat Washer

Grade	USA Grade	Material designation	Material no.	C %	Si ≤ %	Mn ≤ %	Cr %	Mo %	Ni %
A 2	304	X 5Cr Ni 1810	1.4301	≤ 0.07	1.0	2.0	17.5 to 19.5	-	8.0 to 10.5
		X 2 Cr Ni 1811	1.4306	≤ 0.03	1.0	2.0	18.0 to 20.0	-	10 to 12.0
		X 8 Cr Ni 19/10	1.4303	≤ 0.07	1.0	2.0	17.0 to 19.0	-	11.0 to 13.0
A 4	316	X 5 Cr Ni Mo 1712	1.4401	≤ 0.07	1.0	2.0	16.5 to 18.5	2.0 to 2.5	10.0 to 13.0
		X 2 Cr Ni Mo 1712	1.4404	≤ 0.03	1.0	2.0	16.5 to 18.5	2.0 to 2.5	10 to 13

3) Chemical composition of steel metric DIN 1441 Coarse Flat Washer

PROPERTY CLASS	MATERIAL AND TREATMENT	CHEMICAL COMPOSITION LIMITS %				TEMPERING TEMP °C MIN.
		C		P	S	
		min.	max.	max.	max.	
4.6, 4.8, 5.8, 6.8	Low or medium carbon steel	-	0.55	0.05	0.06	-
8.8	Medium carbon steel quenched, tempered	0.25	0.55	0.04	0.05	425
9.8	Medium carbon steel quenched, tempered	0.25	0.55	0.04	0.05	425
10.9	Medium carbon steel additives e.g. boron, Mn, Cr or Alloy steel - quenched, tempered	0.20	0.55	0.04	0.05	425
12.9	Alloy steel - quenched, tempered	0.20	0.50	0.035	0.035	380

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4) Mechanical properties of steel for metric DIN 1441 Coarse Flat Washer

MECHANICAL PROPERTY		PROPERTY CLASS								
		4.8	5.6	5.8	6.8	8.8		9.8	10.9	12.9
						Up to M 16	Over M 16			
Tensile Strength (Rm, N/mm ²)	nom.	400	500		600	800		900	1000	1200
	min.	420	500	520	600	800	830	900	1040	1220
Vickers Hardness	min.	130	155	160	190	250	255	290	320	385
	max.	250				320	336	360	380	435
Brinell Hardness	min.	124	147	152	181	319	242	266	295	353
	max.	238				385	319	342	363	412
Rockwell Hardness	min. HR	71	79	82	89	-				
	HRC	-	-	-	-	20	23	28	32	39
	HR	95			99	-				
	max. HRC	-	-	-	-	32	34	37	39	44
Yield Stress ReL. N/mm ²	nom.	320	300	400	480	-				
	min.	340	300	420	480	-				
Stress at permanent set limit N/mm ²	nom.	-				640		720	900	1080
	min.	-				640	660	720	940	1100

Disclaimer

Dimensional data and technical information for Metric DIN 1441 Coarse Flat Washer was obtained from publicly available sources and not acquired through standards agencies. It has been completed and compiled for reference purposes only; where discrepancies are found they are subject to change without notice. Aspen Fasteners makes no warranties or representations regarding the accuracy and validity of the compiled information and data. Contact the relevant standards authorities for accurate and detailed information.

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