



Standard Part

Hardened Steel Flat Washers — Metric — Preferred and Non-Preferred

STPF520**87028359**

Rev BG

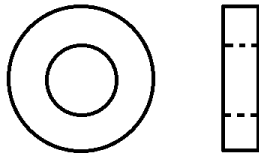
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REFERENCE DOCUMENTS

CNH STPA020	Fastener Finishes and Material Specifications
CNH MAT1017	Spec, Med Carbon And Alloy Steel Hot Rolled Plate
CNH MAT1027	Spec, High Carbon Steel, Cold Rolled Sheet
CNH MAT4050	Spec Quenching And Tempering
ISO 887	Plain washers for metric bolts, screws and nuts – General plan
ISO 7415	Plain washers for high strength structural bolting, hardened and tempered.
ISO 4759/3	Tolerances for fasteners – Part 3: washers for metric bolts, screws and nuts – Product grades A and C.

Typical part description for BOM's and CAD drawings entered by Standards.

WASHER, 14X27X3.1 MM HTS ZND



ISO 7415 Washer

Electroplated washers shall be baked or otherwise treated to provide hydrogen embrittlement relief.

Hardened steel washers (HTS) per CNH MAT1027 Grade A through harden and tempered per CNH MAT4050 to 36-42 HRC.

Alternate Material: CNH MAT1017 Grade A or Grade B through harden and tempered per CNH MAT4050 to 36-42 HRC.

For cross-reference listing of company part numbers, go to [PARTsolutions](#).

AUTHOR		APPROVED BY		ECO	PART NUMBER
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**Table 1. Metric Hardened Steel Flat Washers — PHC or ZND
Finished**

Preferred Dimensions per ISO 7415
Table 1. Metric Hardened Steel Flat Washers — PHC or ZND — Preferred

Bolt Dia	ID Min	Thick Nom	OD Max	Matl	Finish	Part Number
12	14	3.1	27	HTS	ZND	
					PHC	
16	18	3.1	34		ZND	
					PHC	
20	22	3.1	42		ZND	
					PHC	
24	26	3.4	50		ZND	
					PHC	
30	33	3.4	60		ZND	87318079
					PHC	
36	39	3.4	72		ZND	
					PHC	



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Table 2. Metric Hardened Steel Flat Washers — Non-Preferred
Dimensions per ISO 887

Bolt Dia	ID Nom Min	Thick Nom	OD Nom Max	Matl	Finish	Part Number
5	5.15	2	22	HTS	DAC	12624134
6	6.15	4	15	HTS	ZND	12648131
6	6.4	1.6	12.5	HTS	ZND	14496431
6	6.4	2	13	HTS	DAC	90334605
6	6.4	2	13	HTS	ZND	86639317
6	6.4	3	17	HTS	DAC	90334177
6	6.4	3	17	HTS	ZND	86592698
6	6.6	2	12.5	HTS	DAC	90334607
6	6.6	2	12.5	HTS	DOR	87529314
8	8.4	1.6	17	HTS	ZND	14496531
8	8.45	3	21	HTS	ZND	12645031
8	8.4	4	23	HTS	ZND	86592699
8	8.4	4	23	HTS	BGM	92797751
8	8.6	5	22	HTS	ZND	79011527
8	8.8	2	17.5	HTS	DAC	90334608
8	8.8	2	17.5	HTS	ZND	86624185
8	8.8	2.5	21.5	HTS	DAC	90334609
8	8.8	2.5	21.5	HTS	ZND	87015284
8	8.8	2.5	21.5	HTS	PHC	86639328
8	9	2	17	HTS	DAC	90334617
8	9	2	17	HTS	DOR	87529315
8	9	2.5	21	HTS	DAC	90334612
8	9	2.5	21	HTS	DOR	87529316
8	9	6	100	HTS	ZND	87328202
10	10.2	3	25	HTS	ZND	12626231
10	10.3	2.7	22.2	HTS	ZND	285072
10	10.5	2	21	HTS	ZND	14496631
10	10.5	4	28	HTS	ZND	86592700
10	10.5	4	28	HTS	DAC	92837674
10	10.5	4	30	HTS	ZND	83904166
10	10.6	2	18	HTS	ZND	12638631
10	10.6	2	18	HTS	DOR	51499637
10	10.6	5	25	HTS	ZND	79005244
10	10.6	6	25	HTS	DAC	90334622
10	10.8	2.5	21.5	HTS	DAC	90334896
10	10.8	2.5	21.5	HTS	PHC	86639320
10	10.8	2.5	21.5	HTS	ZND	86625252
10	10.8	3	24.5	HTS	DAC	90334623
10	10.8	3	24.5	HTS	ZND	86639325
10	10.8	3	50	HTS	BGM	92065225
10	10.8	3	50	HTS	ZND	87024930

Bolt Dia	ID Nom Min	Thick Nom	OD Nom Max	Matl	Finish	Part Number
10	11	2.5	30	HTS	DAC	90334911
10	11	2.5	30	HTS	ZND	47439713
10	11	3	24	HTS	DAC	90334901
10	11	3	24	HTS	DOR	87529312
10	11	3.5	18	HTS	DOR	90479203
12	12.8	3	50	HTS	ZND	87026355
12	12.2	4	28	HTS	ZND	12648531
12	12.6	7	28	HTS	ZND	79005242
12	13	1.36	25.4	HTS	PLN	47401495
12	13	5	28	HTS	ZND	87376144
12	13	5	35	HTS	DAC	90334918
12	13	5	35	HTS	ZND	86592701
12	13.3	3	24.5	HTS	BZN	86639330
12	13.3	3	24.5	HTS	DAC	90334931
12	13.3	3	24.5	HTS	DOR	86981496
12	13.3	3	24.5	HTS	ZND	86625255
12	13.3	3	24.5	HTS	PHC	87016609
12	13.3	4	28.5	HTS	DOR	86981676
12	13.5	4	28	HTS	DAC	90334950
12	13.5	4	28	HTS	DOR	87529310
12	13.3	4	28.5	HTS	DAC	90334925
12	13.3	4	28.5	HTS	ZND	86625256
12	13.3	4	28.5	HTS	PHC	87016612
12	15.3	3	28.5	HTS	ZND	87016615
12	15.3	3	28.5	HTS	PHC	86639322
12	15.3	6	28.5	HTS	ZND	87564723
14	14.4	4	32	HTS	ZND	12644931
14	14.8	7	32	HTS	ZND	79005238
14	15	2.5	22	HTS	DAC	47628800
14	15	2.5	28	HTS	DAC	14496824
14	15	2.5	28	HTS	ZND	14496831
14	15	2.6	23.4	HTS	DAC	90402575
14	15	2.6	23.4	HTS	DOR	87680388
14	15	6	45	HTS	ZND	84146884
16	16.8	8	36	HTS	ZND	79005240
16	17	2	30	HTS	PHC	47600651
16	17	3	30	HTS	ZND	14496931
16	17	6	45	HTS	ZND	86592702
16	17	6	70	HTS	ZND	47477571
16	17	8	45	HTS	ZND	90487345
16	17	10	45	HTS	ZND	90488978

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Table 2. Metric Hardened Steel Flat Washers — Non-Preferred (Continued)
Dimensions per ISO 887

Bolt Dia	ID Nom Min	Thick Nom	OD Nom Max	Matl	Finish	Part Number
16	17.3	4	25.8	HTS	ZND	87563152
16	17.3	5	34.5	HTS	DAC	90335015
16	17.3	5	34.5	HTS	ZND	86639326
16	17.3	6.2	51	HTS	ZND	87742857
16	17.5	4	30	HTS	DAC	90335017
16	17.5	4	30	HTS	DOR	87529306
16	17.5	4	30	HTS	PHC	86639323
16	17.5	4	30	HTS	ZND	86625266
16	17.5	5	34	HTS	PHC	86625258
16	17.5	8	50	HTS	DOR	86981497
16	18	4	45	HTS	DAC	90370644
16	18	4	45	HTS	ZND	87317689
18	18.5	2	35	HTS	BGM	90358856
18	18.5	2	35	HTS	ZND	84151586
18	18.8	8	41	HTS	ZND	79005239
18	19	3	34	HTS	ZND	90362241
18	19	3	34	HTS	DAC	91701184
18	19.8	5	41.5	HTS	ZND	86629891
20	21	3	37	HTS	BGM	92298389
20	21	3	37	HTS	DAC	90335021
20	21	3	37	HTS	ZND	14497131
20	21	4	40	HTS	ZND	394632
20	21	6	50	HTS	ZND	86592703
20	21	8	40	HTS	ZND	48048122
20	21.8	4	37.5	HTS	DAC	90335025
20	21.8	4	37.5	HTS	ZND	86625260
20	21.8	4	37.5	HTS	PHC	86642319
20	21.8	5	44.5	HTS	DAC	90335043
20	21.8	5	44.5	HTS	ZND	86639847
20	21.8	5	44.5	HTS	PHC	86639329
20	21.8	8	50.5	HTS	DOR	86981498
20	22	4	37	HTS	DAC	90335068
20	22	4	37	HTS	DOR	87529307

Bolt Dia	ID Nom Min	Thick Nom	OD Nom Max	Matl	Finish	Part Number
20	22.4	9	50	HTS	ZND	79081332
22	24	4	44	HTS	DOR	87529313
24	25	4	44	HTS	ZND	14497331
24	25.8	5	44.5	HTS	DAC	90335076
24	25.8	5	44.5	HTS	ZND	87016608
24	25.8	5	44.5	HTS	PHC	87016610
24	25.8	6	56.5	HTS	PHC	87016613
24	25.8	6	56.5	HTS	DOR	51645259
24	25.8	6	56.5	HTS	ZND	92646632
24	26	5	44	HTS	DOR	87529311
24	26	8	44	HTS	DAC	92271832
27	27.4	9	60	HTS	ZND	79081333
27	28	4	50	HTS	ZND	14497431
27	28.5	4	45	HTS	ZND	562108
30	30.6	10	65	HTS	ZND	79007534
30	31	4	56	HTS	ZND	14497531
30	32.8	5	56.5	HTS	PHC	87016611
30	32.8	5	56.5	HTS	ZND	87542957
30	32.8	6	66.5	HTS	ZND	87036956
30	33	3.4	60	HTS	DAC	90335070
30	33	5	56	HTS	DAC	90372272
30	33	5	56	HTS	DOR	87529309
36	37	4	78	HTS	ZND	84559733
36	37	5	66	HTS	ZND	47414165
36	38.7	7.93	58	HTS	PLN	82980606
36	38.8	7	78.5	HTS	PHC	87016614
36	38.8	7	78.5	HTS	ZND	84370840
36	39	5	60	HTS	ZND	87545079
42	45	8	78	HTS	ZND	87016616
45	46.5	6	76	HTS	PHC	84361278