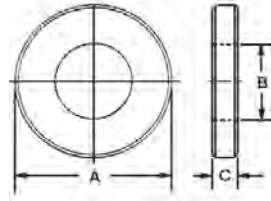


Flat Washers



- Material: Cold Rolled Low Carbon Steel, 303 Stainless
- Finish: Black Oxide
- Heat Treat: Carbon Nitride to 60
- Flat and parallel within .005" (0.13mm)

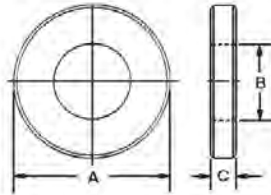
| Part Number | A | B | C | Bolt Size | Wt. (lbs) 10 Pcs. |
|-------------|-------|--------|------|-----------|-------------------|
| 31901 | 1/2 | 13/64 | 3/32 | 3/16 | .04 |
| 31902* | 5/8 | 9/32 | 1/8 | 1/4 | .05 |
| 31903* | 3/4 | 11/32 | 1/8 | 5/16 | .10 |
| 31904* | 7/8 | 13/32 | 1/8 | 3/8 | .21 |
| 31905* | 1 1/8 | 17/32 | 1/8 | 1/2 | .42 |
| 31906* | 1 3/8 | 21/32 | 1/8 | 5/8 | .63 |
| 31907* | 1 5/8 | 25/32 | 5/32 | 3/4 | 1.10 |
| 31908* | 1 3/4 | 29/32 | 5/32 | 7/8 | 1.20 |
| 31909* | 2 | 1 1/32 | 3/16 | 1 | 1.70 |
| 31910 | 2 1/2 | 1 9/32 | 9/32 | 1 1/4 | 2.20 |

*Conforms to TCMA

Stainless Steel

| Part Number | A | B | C | Bolt Size |
|-------------|-------|-------|------|-----------|
| 32001 | 7/16 | .196 | 5/64 | 3/16 |
| 32002 | 5/8 | 17/64 | 3/32 | 1/4 |
| 32003 | 11/16 | 11/32 | 1/8 | 5/16 |
| 32004 | 7/8 | 25/64 | 1/8 | 3/8 |
| 32005 | 1 1/8 | 17/32 | 1/8 | 1/2 |
| 32006 | 1 1/4 | 21/32 | 1/8 | 5/8 |
| 32007 | 1 1/2 | 25/32 | 5/32 | 3/4 |

Heavy Duty Flat Washers



Jergens Feature:

Made from high-carbon through-hardened steel which makes them up to 50% stronger than standard heavy duty washers. Also more fracture resistant under heavy loads.

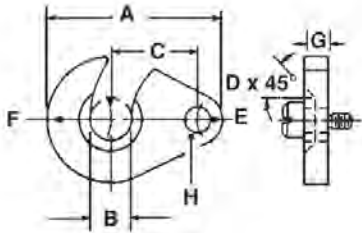
- Material: High Carbon Steel
- Finish: Black Oxide
- Heat Treat: Rc 40-45 (Through Hardened)
- Flat & Parallel within .005" (.01mm)

| Part Number | A | B | C | Bolt Size | Wt. (lbs) 10 Pcs. |
|-------------|-------|--------|------|-----------|-------------------|
| 31967 | 5/8 | 9/32 | 3/16 | 1/4 | 0.72 |
| 31968 | 3/4 | 11/32 | 3/16 | 5/16 | 0.79 |
| 31969 | 7/8 | 13/32 | 3/16 | 3/8 | 0.87 |
| 31960 | 1 1/2 | 17/32 | 7/32 | 1/2 | 1.00 |
| 31961 | 1 1/2 | 21/32 | 7/32 | 5/8 | 0.88 |
| 31962 | 1 7/8 | 25/32 | 1/4 | 3/4 | 1.61 |
| 31963 | 2 1/8 | 29/32 | 1/4 | 7/8 | 2.31 |
| 31964 | 2 1/2 | 1 1/16 | 1/4 | 1 | 3.56 |
| 31965 | 2 1/2 | 1 5/16 | 1/4 | 1 1/4 | 3.98 |
| 31966 | 2 3/4 | 1 9/16 | 1/4 | 1 1/2 | 4.20 |

Metric Dimensions

| Part Number | A | B | C | Bolt Size | Wt. (kg) 10 Pcs. |
|-------------|----|----|-----|-----------|------------------|
| 31961 | 38 | 17 | 5.5 | 16 | 0.40 |
| 31962 | 48 | 20 | 6.5 | 18 | 0.73 |
| 31963 | 54 | 23 | 6.5 | 20 | 1.05 |
| 31964 | 64 | 27 | 6.5 | 24 | 1.62 |

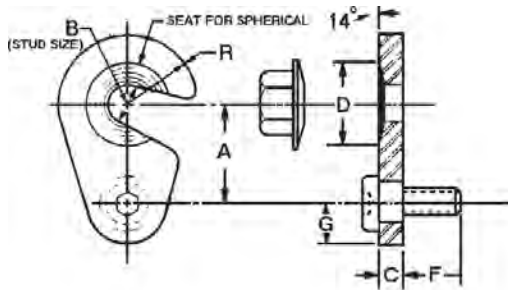
Equalizing Swing “C” Washer Stainless Steel



| Part Number | A | B | C | D | Radius | | +.0000 -.0015 G | +.0005 -.0000 H |
|-------------|-------|-------|------|------|--------|------|-----------------------|-----------------------|
| | | | | | E | F | | |
| 12341 | 1 1/8 | 13/64 | 9/16 | 5/64 | 3/16 | 3/8 | .1870 | .1875 |
| 12342 | 1 1/4 | 17/64 | 5/8 | 3/32 | 3/16 | 7/16 | .1870 | .1875 |
| 12343 | 1 1/2 | 21/64 | 3/4 | 1/8 | 1/4 | 1/2 | .2495 | .250 |
| 12344 | 1 3/4 | 25/64 | 7/8 | 1/8 | 1/4 | 5/8 | .2495 | .250 |

• Material: 303 Stainless

Washers Swing “C” Washer Assembly



The Swing “C” Washer has a concave center for self-locating around the stud, which prevents creeping while tightening, and allows acceptance of the mating spherical flange nuts. The Spherical Flange Nut assures that the washer cannot back out either during clamping or due to vibration during the operation. The shoulder screw has a nylon lock to prevent loosening of the screw during operation.

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened

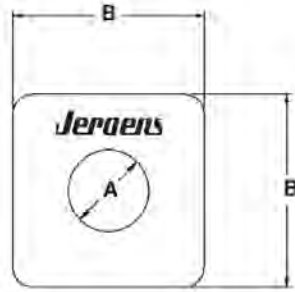
| Part Number | A | Stud Size B | C | D | E | F | G | R | Part Number | Wt. (lbs) |
|-------------|-------|-------------|-----|--------|---------|-----|------|-------|----------------------|-----------|
| | | | | | | | | | Spherical Flange Nut | |
| 37301* | 1 | 3/8 | 1/4 | 13/16 | 5/16-18 | 1/2 | 3/8 | 3/4 | 39704 | .12 |
| 37302 | 1 1/4 | 1/2 | 3/8 | 1 1/8 | 5/16-18 | 1/2 | 1/2 | 1 | 39705 | .30 |
| 37303* | 1 1/2 | 5/8 | 3/8 | 1 5/16 | 3/8-16 | 5/8 | 9/16 | 1 1/8 | 39706 | .39 |
| 37304* | 1 3/4 | 3/4 | 1/2 | 1 9/16 | 3/8-16 | 5/8 | 5/8 | 1 1/4 | 39707 | .72 |

*Conforms to TCMA

Heavy Duty Square Washers



- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened



| Part Number | ±.010 A | ±.010 B | Bolt Size | Thickness |
|-------------|---------|---------|-----------|-----------|
| 31920 | 11/32 | 1 3/8 | 5/16 | 3/16 |
| 31921 | 13/32 | 1 3/8 | 3/8 | 3/16 |
| 31932 | 17/32 | 1 3/8 | 1/2 | 1/4 |
| 31933 | 17/32 | 2 | 1/2 | 1/4 |
| 31934 | 21/32 | 2 | 5/8 | 1/4 |
| 31935 | 13/16 | 2 | 3/4 | 1/4 |
| 31922 | 15/16 | 2 | 7/8 | 1/4 |
| 31936 | 13/16 | 2 1/2 | 3/4 | 1/4 |
| 31923 | 15/16 | 2 1/2 | 7/8 | 1/4 |
| 31937 | 1 1/16 | 2 1/2 | 1 | 1/4 |
| 31924 | 13/16 | 3 | 3/4 | 5/16 |
| 31925 | 15/16 | 3 | 7/8 | 5/16 |
| 31926 | 1 1/16 | 3 | 1 | 5/16 |
| 31927 | 1 1/16 | 3 | 1 | 3/8 |
| 31928 | 1 5/16 | 3 | 1 1/4 | 3/8 |
| 31929 | 1 9/16 | 3 | 1 1/2 | 3/8 |

Washers

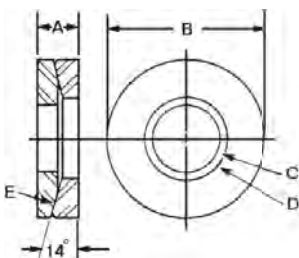
Self Aligning Washers (Two-Piece)

Upper



Lower

These washers are ideally suited for joining machine sections which are out of parallel. They adjust themselves for a positive, firm base. With radius "E" and the angular 14° combination, line contact is formed around the two mating washer surfaces, allowing the two washers the ability to seek misalignment in the companion clamping members. The heat treated I.D. of the bottom concave piece is larger than the I.D. of the top convex section for free action. It is precision ground and the sharp edges are removed.



- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened

| Part Number | A | B | C | D | E | Bolt Size | Wt. (lbs) |
|-------------|-------|-------|---------|---------|-------|-----------|-----------|
| 41101 | 3/16 | 1/2 | 13/64 | 15/64 | 3/4 | 3/16 | .01 |
| 41102 | 3/16 | 5/8 | 17/64 | 19/64 | 1 | 1/4 | .01 |
| 41103 | 7/32 | 3/4 | 11/32 | 23/64 | 1 | 5/16 | .01 |
| 41104 | 7/32 | 7/8 | 13/32 | 15/32 | 1 1/2 | 3/8 | .03 |
| 41105 | 9/32 | 1 1/8 | 17/32 | 19/32 | 2 | 1/2 | .08 |
| 41106 | 3/8 | 1 3/8 | 21/32 | 23/32 | 2 1/4 | 5/8 | .13 |
| 41107 | 13/32 | 1 5/8 | 25/32 | 27/32 | 2 1/2 | 3/4 | .20 |
| 41108 | 17/32 | 1 3/4 | 29/32 | 31/32 | 2 1/2 | 7/8 | .33 |
| 41109 | 9/16 | 2 | 1 1/32 | 1 3/32 | 3 1/2 | 1 | .41 |
| 41110 | 5/8 | 2 1/4 | 1 5/32 | 1 7/32 | 3 1/2 | 1 1/8 | .77 |
| 41111 | 5/8 | 2 1/4 | 1 9/32 | 1 11/32 | 4 | 1 1/4 | .62 |
| 41112 | 11/16 | 2 3/4 | 1 17/32 | 1 19/32 | 4 1/2 | 1 1/2 | .85 |

| Part Number | |
|-------------|-------|
| Upper | Lower |
| 41501 | 41301 |
| 41502 | 41302 |
| 41503 | 41303 |
| 41504 | 41304 |
| 41505 | 41305 |
| 41506 | 41306 |
| 41507 | 41307 |
| 41508 | 41308 |
| 41509 | 41309 |
| 41510 | 41310 |
| 41511 | 41311 |
| 41512 | 41312 |

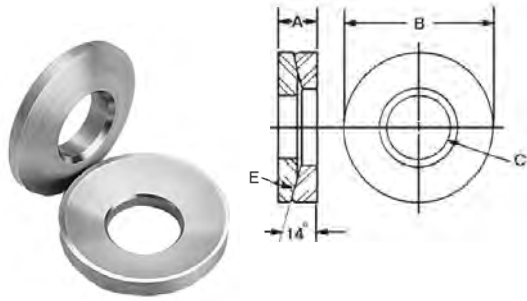
Metric Two-Piece Assemblies

| Part Number | A | B | C | D | E | Bolt Size | Wt. (lbs) |
|-------------|------|----|------|------|------|-----------|-----------|
| 41102 | 5 | 16 | 6.5 | 7.5 | 25 | M6 | .01 |
| 41103 | 5.5 | 19 | 8.5 | 9 | 25 | M8 | .01 |
| 41104 | 5.5 | 22 | 10.5 | 12 | 38 | M10 | .01 |
| 41105 | 7 | 28 | 13.5 | 15 | 51 | M12 | .03 |
| 41106 | 9.5 | 35 | 17 | 18 | 57 | M16 | .06 |
| 41157 | 10.5 | 41 | 21 | 21.5 | 63.5 | M20 | .09 |

Single Units

| Part Number | |
|-------------|-------|
| Upper | Lower |
| 41502 | 41302 |
| 41503 | 41303 |
| 41504 | 41304 |
| 41505 | 41305 |
| 41506 | 41306 |
| 41557 | 41357 |

Self Aligning Washers (Two-Piece) Stainless Steel



• Material: 303 Stainless

| Part Number | A | B | C | E | Bolt Size | Wt. (lbs) |
|-------------|------|-------|-------|-------|-----------|-----------|
| 41202 | 3/16 | 5/8 | 9/32 | 3/4 | 1/4 | .01 |
| 41203 | 1/4 | 3/4 | 11/32 | 1 | 5/16 | .01 |
| 41204 | 1/4 | 7/8 | 13/32 | 1 1/4 | 3/8 | .03 |
| 41205 | 5/16 | 1 1/8 | 17/32 | 1 1/2 | 1/2 | .08 |
| 41206 | 5/16 | 1 3/8 | 21/32 | 1 3/4 | 5/8 | .13 |
| 41207 | 3/8 | 1 5/8 | 25/32 | 2 1/4 | 3/4 | .20 |

USAE™ Heavy Duty Flat Washers



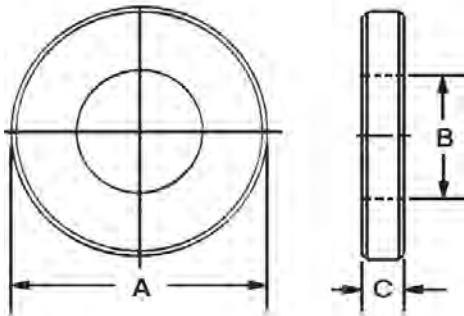
USS + SAE = USAE™

What is a USAE™ Washer?

- It is a simple but effective idea that is long overdue.
- The Outside Diameter conforms to USS standards. This provides a washer that is up to 36% larger than standard hardened washers.

More Contact Area = More Holding Power

- The Inside Diameter conforms to SAE standards. The small ID provides a more precise fit on bolts, studs, etc.
- USAE Washers are also up to 37% thicker than standard hardened washers for greater strength.
- Washers are made from mild steel. They are case hardened to 60 HRC and have a black oxide finish.
- Bolt size is stamped on each washer for easy identification.



USAE™ Heavy Duty Flat Washers

| Part Number | Bolt Size | A (OD) | B (ID) | C (Thickness) |
|-------------|-----------|--------|--------|---------------|
| FW00001 | 1/4 | 3/4 | 9/32 | 9/64 |
| FW00002 | 5/16 | 7/8 | 11/32 | 9/64 |
| FW00003 | 3/8 | 1 | 13/32 | 9/64 |
| FW00004 | 1/2 | 1-3/8 | 17/32 | 5/32 |
| FW00005 | 5/8 | 1-3/4 | 21/32 | 5/32 |
| FW00006 | 3/4 | 2 | 13/16 | 1/4 |
| FW00007 | 1 | 2-1/2 | 1-1/16 | 1/4 |

*Tolerances for all dimensions are +/- .010"