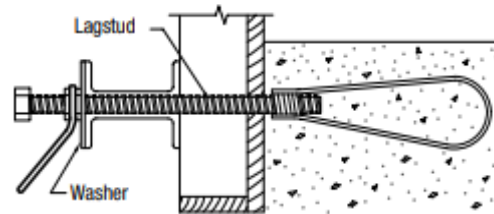
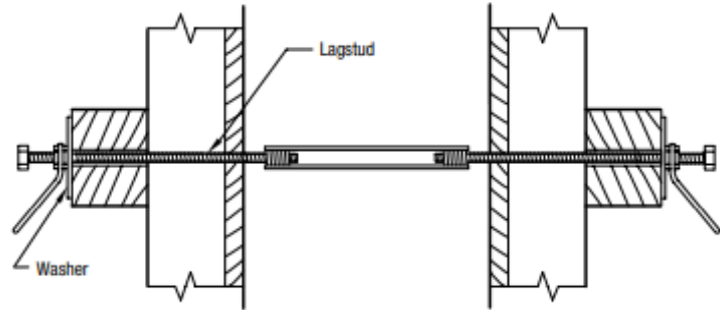
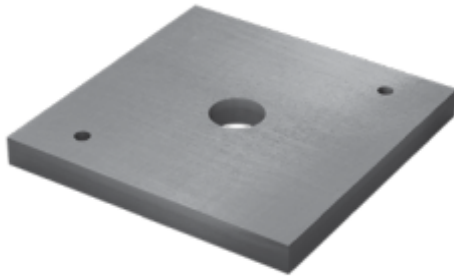


# Flat Washer

AR Flat Washers are made from flat steel plate. For optimization, AR Washers are square. For best results the washer should be placed so that its length runs parallel to the walers and the gap or space spanned by the washer should not exceed the physical bolt diameter plus 1/4" (6 mm).



| Bolt Diameter<br>in (mm) | Plate Size                                   |                  | Hole Size<br>in (mm) |
|--------------------------|--|------------------|----------------------|
|                          | in   | (mm)             |                      |
| 1/2 (13)                 | 3 3/4 x 3 3/4 x 1/4                          | (95 x 95 x 6)    | 9/16" (14 mm)        |
| 3/4 (20)                 | 5 x 5 x 1/8                                  | (125 x 125 x 10) | 9/16" (21 mm)        |
| 3/4 (20)                 | 6 x 6 x 1/2                                  | (150 x 150 x 13) | 9/16" (21 mm)        |
| 1 (25)                   | 5 x 5 x 3/8                                  | (150 x 150 x 10) | 1 1/16" (27 mm)      |
| 1 (25)                   | 6 x 6 x 1/2                                  | (150 x 150 x 13) | 1 1/16" (27 mm)      |
| 1 1/4 (32)               | 6 x 6 x 1/2                                  | (150 x 150 x 13) | 1 3/8" (35 mm)       |
| 1 1/4 (32)               | 8 x 8 x 3/4                                  | (200 x 200 x 19) | 1 3/8" (35 mm)       |
| 1 1/2 (38)               | Contact AR Technical Department for details. |                  |                      |

| Bolt Dia. | Plate Size                                   | DISTANCE BETWEEN WALER |            |            |             |             |            |            |            |            |            |
|-----------|--|------------------------|------------|------------|-------------|-------------|------------|------------|------------|------------|------------|
|           |  | 1"                     | 1 1/4"     | 1 1/2"     | 1 3/4"      | 2"          | 2 1/4"     | 2 1/2"     | 2 3/4"     | 3"         | 3 1/4"     |
| (1/2")    | (3 3/4" x 3 3/4" x 1/4")                     | 6,750 lbs              | 3,750 lbs  | 2,500 lbs  | 1,900 lbs   | 1,600 lbs   |            |            |            |            |            |
| (3/4")    | (5" x 5" x 1/8")                             |                        | 25,000 lbs | 14,000 lbs | 9,000 lbs   | 7,000 lbs   | 5,600 lbs  | 1,100 lbs  |            |            |            |
| (3/4")    | (6" x 6" x 1/2")                             |                        | 60,000 lbs | 33,000 lbs | 22,000 lbs  | 16,000 lbs  | 13,500 lbs |            | 4,000 lbs  |            |            |
| (1")      | (5" x 5" x 3/8")                             |                        |            | 38,000 lbs | 38,000 lbs  | 24,000 lbs  | 18,000 lbs | 14,000 lbs |            | 10,000 lbs |            |
| (1")      | (6" x 6" x 1/2")                             |                        |            | 38,000 lbs | 38,000 lbs  | 24,000 lbs  | 18,000 lbs | 14,000 lbs |            | 10,000 lbs |            |
| (1 1/4")  | (6" x 6" x 1/2")                             |                        |            |            | 37,000 lbs  | 37,000 lbs  | 27,000 lbs | 19,000 lbs | 15,000 lbs |            | 10,000 lbs |
| (1 1/4")  | (8" x 8" x 3/4")                             |                        |            |            | 125,000 lbs | 125,000 lbs | 91,000 lbs | 65,000 lbs | 50,000 lbs |            | 35,000 lbs |
| (1 1/2")  | Contact AR Technical Department for details. |                        |            |            |             |             |            |            |            |            |            |

| Bolt Size | Plate Diameter (mm)                          | DISTANCE BETWEEN WALER |        |        |        |        |        |        |        |       |        |
|-----------|--|------------------------|--------|--------|--------|--------|--------|--------|--------|-------|--------|
|           |  | 25 mm                  | 32 mm  | 35 mm  | 45 mm  | 50 mm  | 57 mm  | 63 mm  | 70 mm  | 75 mm | 82 mm  |
| 13        | 95 x 95 x 6                                  | 30 kN                  | 16 kN  | 11 kN  | 8.5 kN | 7.1 kN |        |        |        |       |        |
| 20        | 125 x 125 x 10                               |                        | 111 kN | 62 kN  | 40 kN  | 31 kN  | 25 kN  |        | 18 kN  |       |        |
| 20        | 150 x 150 x 13                               |                        | 266 kN | 146 kN | 98 kN  | 71 kN  | 60 kN  |        | 43 kN  |       |        |
| 25        | 125 x 125 x 10                               |                        |        | 169 kN | 169 kN | 106 kN | 80 kN  | 62 kN  |        | 45 kN |        |
| 25        | 150 x 150 x 13                               |                        |        | 169 kN | 169 kN | 106 kN | 80 kN  | 62 kN  |        | 45 kN |        |
| 32        | 150 x 150 x 13                               |                        |        |        | 165 kN | 165 kN | 120 kN | 85 kN  | 66 kN  |       | 45 kN  |
| 32        | 200 x 200 x 19                               |                        |        |        | 555 kN | 555 kN | 405 kN | 290 kN | 220 kN |       | 155 kN |
| 38        | Contact AR Technical Department for details. |                        |        |        |        |        |        |        |        |       |        |

System load reduction from increased waler spacing.