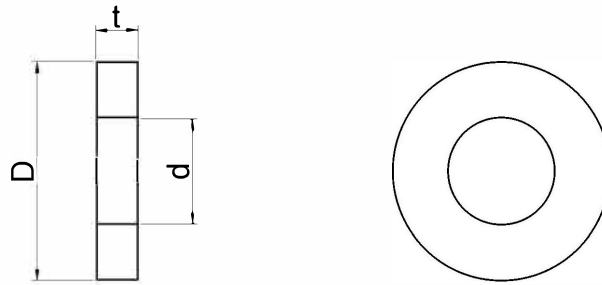


## HIGH STRENGTH WASHER



### PLAIN WASHER (KS B1010, JIS B1186)

(UNIT : mm)

| Designation of Washer | d     |           | D     |           | t     |           |
|-----------------------|-------|-----------|-------|-----------|-------|-----------|
|                       | Basic | Tolerance | Basic | Tolerance | Basic | Tolerance |
| M12                   | 13    | +0.7 0    | 26    | 0 -0.8    | 3.2   | ±0.4      |
| M16                   | 17    |           | 32    |           |       |           |
| M20                   | 21    | +0.8 0    | 40    | 0 -1      | 4.5   | ±0.5      |
| M22                   | 23    |           | 44    |           |       |           |
| M24                   | 25    |           | 48    |           |       |           |
| M27                   | 28    | +1.0 0    | 56    | 0 -1.2    | 6     | ±0.7      |
| M30                   | 31    |           | 60    |           |       |           |

### HARDENED PLAIN WASHER(ASTM F436)

(UNIT : Inch)

| Diameter | d     | D     | t     |       |
|----------|-------|-------|-------|-------|
|          |       |       | Max.  | Min.  |
| 1/2      | 0.531 | 1.062 | 0.177 | 0.097 |
| 5/8      | 0.688 | 1.312 | 0.177 | 0.122 |
| 3/4      | 0.812 | 1.469 | 0.177 | 0.122 |
| 7/8      | 0.938 | 1.750 | 0.177 | 0.136 |
| 1        | 1.125 | 2.000 | 0.177 | 0.136 |
| 1.1/8    | 1.250 | 2.250 | 0.177 | 0.136 |
| 1.1/4    | 1.375 | 2.500 | 0.177 | 0.136 |
| 1.3/8    | 1.500 | 2.750 | 0.177 | 0.136 |
| 1.1/2    | 1.625 | 3.000 | 0.177 | 0.136 |

### MECHANICAL PROPERTIES OF HIGH STRENGTH HEX. BOLT ( KS B1010, JIS B1186)

| Grade | Tensile Stress(kgf) |       |       |       |       |       |       | Hardness HRC |
|-------|---------------------|-------|-------|-------|-------|-------|-------|--------------|
|       | M12                 | M16   | M20   | M22   | M24   | M27   | M30   |              |
| F8T   | 6934                | 12848 | 19987 | 24779 | 28858 | 37526 | 45785 | 18-31        |
| F10T  | 8668                | 16010 | 24983 | 30898 | 35996 | 46805 | 57206 | 27-38        |
| F11T  | 9483                | 17641 | 27532 | 34059 | 39667 | 51496 | 63019 | 30-40        |