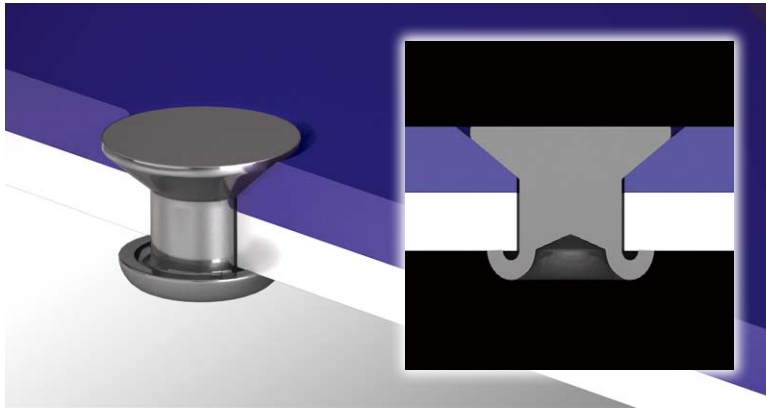
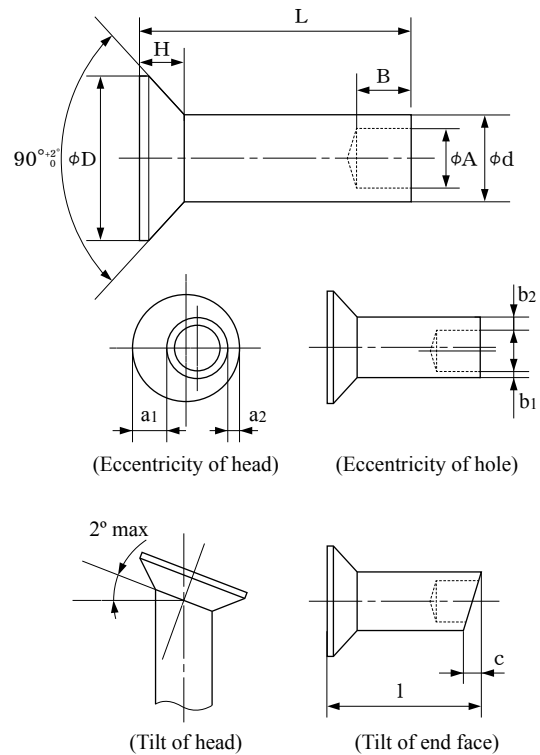


# Countersunk, Semi-Tubular Rivet



## Shape and symbols of standard dimensions



## Calculation of under-head shank length

Material thickness  $t$

$$L = \frac{\text{Shank diameter}(d) \times \text{Coefficient}(0.6) + \text{Material thickness}(t)}{1}$$

Shank diameter  $d$

Swaging margin  $K$

Under-head shank length  $L$

\*1. Shank diameter ( $d$ ) x 0.6 = swaging margin ( $K$ )  
 \*2. Use coefficient (0.5) as a guide for SUSXM7 (with hole diameter/depth between 0.75  $d$  and 0.77  $d$ )  
 \*3. The under-head shank length  $L$  should be less than 5 times the shank diameter or in the case of stainless steel less than double.

[When a length exceeding the specification is required, please ask us.]

The length obtained by this calculation shall be used as a guide.

## Specification table

| Nominal diameter               |           | 2              | 2.5        | 3          | 4          | 5          | 6          | 8          |
|--------------------------------|-----------|----------------|------------|------------|------------|------------|------------|------------|
| d                              | Standard  | 2              | 2.5        | 3          | 4          | 5          | 6          | 8          |
|                                | Tolerance | +0.02<br>-0.05 | 0<br>-0.08 |            | 0<br>-0.10 |            | 0<br>-0.12 | 0<br>-0.15 |
| D                              | Standard  | 4              | 5          | 6          | 8          | 10         | 12         | 16         |
|                                | Tolerance | 0<br>-0.4      |            | 0<br>-0.5  |            | 0<br>-0.6  | 0<br>-0.7  |            |
| H                              | Approx.   | 1              | 1.3        | 1.5        | 2          | 2.5        | 3          | 4          |
| A                              | Standard  | 1.3            | 1.7        | 2.1        | 2.8        | 3.5        | 4.2        | 5.6        |
|                                | Tolerance | $\pm 0.05$     |            | $\pm 0.07$ |            | $\pm 0.10$ |            |            |
| B                              | Standard  | 1.8            | 2.3        | 2.7        | 3.6        | 4.5        | 5.4        | 7.2        |
|                                | Tolerance | $\pm 0.15$     |            | $\pm 0.2$  |            | $\pm 0.25$ | $\pm 0.3$  |            |
| a1-a2                          | Max       | 0.2            |            |            | 0.3        |            | 0.4        |            |
| b1-b2                          | Max       | 0.1            | 0.15       |            |            | 0.2        |            |            |
| c                              | Max       | 0.2            | 0.3        |            | 0.4        |            | 0.5        |            |
| L                              | Min       | 4              | 5          | 6          | 8          | 10         | 12         | 16         |
|                                | Max       | 14             | 20         | 22         | 28         | 36         | 42         | 56         |
| Recommended work hole diameter | Standard  | 2.1            | 2.65       | 3.15       | 4.2        | 5.3        | 6.4        | 8.5        |
|                                | Tolerance | +0.05<br>0     |            | $\pm 0.05$ |            |            |            | $\pm 0.10$ |

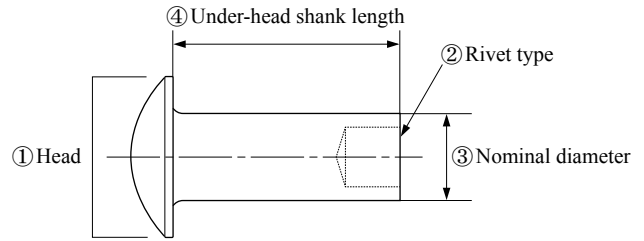
## Tolerance of length L

| Nominal diameter |               | 2          | 2.5        | 3 | 4          | 5 | 6 | 8 |
|------------------|---------------|------------|------------|---|------------|---|---|---|
| Length L         | 4 or below    | $\pm 0.1$  | $\pm 0.15$ |   | —          |   |   |   |
|                  | Over 4 to 10  | $\pm 0.15$ | $\pm 0.2$  |   | $\pm 0.25$ |   |   |   |
|                  | Over 10 to 20 | $\pm 0.2$  | $\pm 0.25$ |   | $\pm 0.3$  |   |   |   |
|                  | Over 20 to 40 | —          | $\pm 0.3$  |   | $\pm 0.4$  |   |   |   |
|                  | Over 40       | —          | —          |   | $\pm 0.5$  |   |   |   |

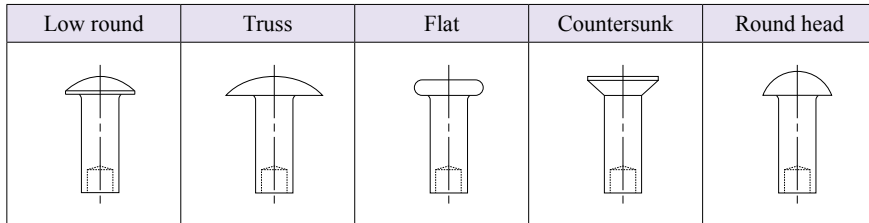
## Name

# Low round Semi-tubular 3 × 5

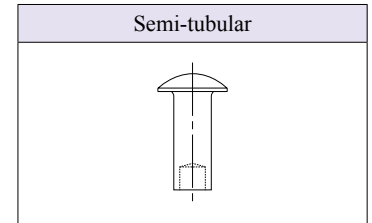
- ① Type of head (Low round, truss, flat, countersunk and round)  
 ② Rivet type (Semi-tubular)  
 ③ Nominal diameter (See the specification table.)  
 ④ Under-head shank length (See the specification table.)



## Types of heads



## Rivet type



## Types of materials and relevant JIS

| Materials       |                           |           | Relevant JIS                                 |
|-----------------|---------------------------|-----------|--|
| Description     | Code                      |           |  |
| Iron            | Carbon steel wire         | SWCH      | JIS G 3507 "Carbon steels for cold heading"  |
| Brass           | Brass wire                | C2700W    | JIS H 3260 "Copper and copper alloy wires"   |
| Copper          | Tough pitch copper wire   | C1100W    |  |
| Aluminum        | Aluminum drawn wire       | A1070W    | JIS H 4040 "Aluminum or aluminum alloy wire" |
|                 |                           | A1200W    |  |
|                 | Aluminum alloy drawn wire | A5052W    |  |
|                 |                           | A5056W    |  |
| Stainless steel | Stainless steel wire      | SUS430-WR | JIS G 4308 "Stainless steel wire"            |
|                 |                           | SUSXM7-WR |  |

## Strength test results by material and shank diameter

| Nominal diameter |         | φ1.2    | φ1.6 | φ2   | φ2.5 | φ3   | φ4   | φ5   | φ6   | φ8    | Unit (kN) |
|------------------|---------|---------|------|------|------|------|------|------|------|-------|-----------|
| Material         | SWCH10A | Tensile | 0.29 | 0.49 | 0.85 | 1.23 | 1.69 | 3.00 | 4.69 | 6.76  | 12.02     |
|                  |         | Shear   | 0.34 | 0.61 | 0.96 | 1.50 | 2.17 | 3.86 | 6.03 | 8.68  | 15.43     |
|                  | SUS430  | Tensile | 0.39 | 0.66 | 1.14 | 1.66 | 2.27 | 4.03 | 6.31 | 9.08  | 16.15     |
|                  |         | Shear   | 0.45 | 0.80 | 1.26 | 1.97 | 2.84 | 5.05 | 7.89 | 11.36 | 20.20     |
|                  | SUSXM7  | Tensile | 0.48 | 0.81 | 1.39 | 2.03 | 2.77 | 4.93 | 7.71 | 11.10 | 19.74     |
|                  |         | Shear   | 0.51 | 0.91 | 1.42 | 2.23 | 3.21 | 5.71 | 8.93 | 12.86 | 22.86     |
|                  | C2700W  | Tensile | 0.28 | 0.47 | 0.81 | 1.18 | 1.62 | 2.88 | 4.50 | 6.48  | 11.53     |
|                  |         | Shear   | 0.31 | 0.55 | 0.86 | 1.35 | 1.95 | 3.47 | 5.42 | 7.81  | 13.89     |
|                  | C1100W  | Tensile | 0.17 | 0.29 | 0.50 | 0.73 | 0.99 | 1.77 | 2.77 | 3.99  | 7.09      |
|                  |         | Shear   | 0.20 | 0.37 | 0.58 | 0.90 | 1.30 | 2.32 | 3.63 | 5.23  | 9.30      |
|                  | A1070W  | Tensile | 0.07 | 0.12 | 0.20 | 0.28 | 0.40 | 0.71 | 1.16 | 1.76  | 2.85      |
|                  |         | Shear   | 0.10 | 0.18 | 0.27 | 0.44 | 0.60 | 1.07 | 1.61 | 2.25  | 4.12      |
|                  | A1200W  | Tensile | 0.07 | 0.13 | 0.20 | 0.28 | 0.40 | 0.71 | 1.18 | 1.79  | 2.88      |
|                  |         | Shear   | 0.11 | 0.18 | 0.31 | 0.46 | 0.60 | 1.13 | 1.74 | 2.33  | 4.26      |
|                  | A5052W  | Tensile | 0.13 | 0.23 | 0.39 | 0.54 | 0.74 | 1.34 | 2.18 | 3.15  | 5.43      |
|                  |         | Shear   | 0.20 | 0.35 | 0.56 | 0.91 | 1.18 | 2.21 | 3.40 | 4.56  | 8.32      |
| A5056W           | Tensile | 0.17    | 0.29 | 0.47 | 0.60 | 0.94 | 1.46 | 2.61 | 3.78 | 6.73  |           |
|                  | Shear   | 0.23    | 0.40 | 0.62 | 1.00 | 1.30 | 2.46 | 3.80 | 5.20 | 9.25  |           |

Note) Each of the results above is the measured strength of a rivet alone.