PLASTIC RIVET

No heating is required. Plastic rivet with an anti-loosening structure.

Features

Fastening at normal temperature without heating
It is a plastic semi-tubular rivet that can be fastened at normal temperature.

Spring back structure for anti-loosening
The spring back structures of the head and the back-tail prevent loosening of a fastened rivet, common to plastic rivets.

Various colors
The rivet is made of polyacetal (POM) and it comes in a wide selection of colors.

Suitable for eco-friendly products
Using this rivet instead of a metal fastener, a manufacturer can develop a product that is environmentally friendly and requires no waste sorting, such as an all-plastic office product.

Fastening process

1. Insert the pilot pin into the workpieces.
2. The stem descends, pressing the rivet head.
3. At the same time, the catcher descends, holding the rivet.
4. Guided by the pilot pin, the rivet goes through the workpieces and fastening is complete.

Operating precautions

If the rivet is installed in the situations below, it may result in improper fastening.

1. The workpieces are tilted.
2. There is a gap between the workpieces.
3. The pilot pin is not fully out, interfered by the workpieces.
4. The curling set is worn.

Calculation of under-head shank length

- L = Shank diameter (d) × Coefficient (1) × Material thickness (t)

Note: 1. Shank diameter (d) x 1 = swaging margin (K)
2. The length obtained by this calculation shall be used as a guide.

Specifiﬁcation table

<table>
<thead>
<tr>
<th>Nominal diameter (mm)</th>
<th>3.5</th>
<th>4</th>
<th>4.5</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>d</td>
<td>3.5</td>
<td>4</td>
<td>4.5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Tolerance</td>
<td>±0.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>8.0</td>
<td>7.6</td>
<td>8.6</td>
<td>9.6</td>
<td>11.5</td>
</tr>
<tr>
<td>Tolerance</td>
<td>±0.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>1.3</td>
<td>1.7</td>
<td>1.9</td>
<td>2.1</td>
<td>2.5</td>
</tr>
<tr>
<td>Tolerance</td>
<td>±0.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Min</td>
<td>15.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>25.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tolerance</td>
<td>±0.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended work hole diameter</td>
<td>3.7</td>
<td>4.2</td>
<td>4.7</td>
<td>5.3</td>
<td>6.3</td>
</tr>
<tr>
<td>Tolerance</td>
<td>±0.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks

A selection of materials, such as POM, PP and PA, are available to suit various purposes.

Chemical properties of polyacetal (POM)

(1) Combustibility

<table>
<thead>
<tr>
<th>Material</th>
<th>Flash point</th>
<th>Ignitability point</th>
<th>Ignition time</th>
<th>Burning speed</th>
<th>Burning rate</th>
<th>Smoke</th>
<th>CO</th>
<th>CO2</th>
<th>O2</th>
</tr>
</thead>
<tbody>
<tr>
<td>POM</td>
<td>320°C</td>
<td>110°C</td>
<td>98.9%</td>
<td>3.5 g/min</td>
<td>0.005g</td>
<td>0.25%</td>
<td>0.191%</td>
<td>0.001%</td>
<td>0.25%</td>
</tr>
</tbody>
</table>

Remarks: POM is plastic made up of carbon (C), hydrogen (H) and oxygen (O). The composition ratio stands at C:48%, H:5% and O:53%.

(2) Chemical resistance

Compatibility:

- ◎: Fully compatible
- •: With reservations, ◯: Only at normal temperature with no stress, ×: Not compatible

<table>
<thead>
<tr>
<th>Material</th>
<th>Methanol</th>
<th>Ethanol</th>
<th>Toluene</th>
<th>Gasoline</th>
<th>Gas oil</th>
<th>EG oil</th>
<th>Acetic acid</th>
<th>Sulfuric acid</th>
<th>Hydrochloric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>POM</td>
<td>◎</td>
<td>◎</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
</tr>
</tbody>
</table>

Remarks: The rivet has high resistance to chemicals except for strong acids, such as hydrochloric acid and sulfuric acid.

Roll-up Rivet

Shape and symbols of standard dimensions

Calculation of under-head shank length

The spring back structure of both the head and the curl prevent loosening of a fastened rivet. (Patent No. 3028602)

Strength table

<table>
<thead>
<tr>
<th>Nominal diameter (mm)</th>
<th>3.5</th>
<th>4</th>
<th>4.5</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength (kN)</td>
<td>0.11</td>
<td>0.16</td>
<td>0.20</td>
<td>0.26</td>
<td>0.40</td>
</tr>
<tr>
<td>Shear strength (kN)</td>
<td>0.31</td>
<td>0.42</td>
<td>0.46</td>
<td>0.61</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Note: The strength may be reduced when the rivet is fastened with a low ambient temperature or when it is used for some purposes. Please ask us.

Compatibilit: PAT 3028602
**Specifications**

**Model**
- **RS512**
- **RS620**
- **RS305**

**Source voltage**
- Single-phase 100 V AC
- Three-phase 200 V AC
- Three-phase 200 V AC

**Drive system**
- Pressurizing by cam
- Pressurizing by cam
- Pressurizing by flywheel

**Takt time (S)**
- 50Hz: 0.5, 0.6, 0.4
- 60Hz: 0.4, 0.5, 0.3

**Allowable pressurization load (kN)**
- 7
- 15
- 15

**Machine dimensions**
- Dimensions (mm) W350 x D590 x H750
- W600 x D800 x H1720
- W600 x D870 x H1550

**Arm length (mm)**
- 200 (300 or 400)
- 320 (400)
- 320 (400)

**Work height (mm)**
- 280
- 967
- 967

**Weight (kg)**
- 109
- 300
- 310

**Applicable rivet size**
- **Semi-tubular**
  - SW or BS Shank
  - SW or BS Shank
  - SW or BS Shank
- **Self-piercing**
  - SW Shank
  - Standard size Shank
  - Standard size Shank

**Workpiece holder**
- Lockup curling set
- Two-hand control button switch
- Shutter-type safety device
- Photoelectric safety device

**Calculation of under-head shank length**
- \[ L = \text{Shank diameter (d)} \times \text{Coefficient (0.6)} + \text{Material thickness (t)} \]

**Fastening using spring back**
- The effect of the plug and the head spring back structure prevents loosening of the fastened joint.

**Strength table**
- **Nominal diameter (mm)**
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
- **Tensile strength (kN)**
  - 0.24
  - 0.31
  - 0.49
  - 0.71
  - 0.79
  - 0.95
- **Shear strength (kN)**
  - 0.27
  - 0.38
  - 0.58
  - 0.79
  - 0.95
  - 1.18

**Remarks**
- The standard specification of our rivet setter is based on the JIS B 1215 low round head rivet fastening. When the standardized JIS B 1215 rivet has the head other than low round or the dimensions partially different from the specification (e.g., hole diameter), it shall be handled as optional specification.
- All the safety devices above are optional extras.