Stop Pins
Press-Fit Type, Urethane

**Features:** Accurate stop positions can be obtained easily. The new configurable type is suitable in space saving applications and height adjusting applications.

**Press-Fit Type**

- Fixed Type
- Configurable Type

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Material</th>
<th>Hardness</th>
<th>Surface Treatment</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>STMH</td>
<td>SS</td>
<td>40~45HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
<tr>
<td>USTMH</td>
<td>SS</td>
<td>50~55HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
</tbody>
</table>

**Features:** Urethane absorbs shock.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Material</th>
<th>Hardness</th>
<th>Surface Treatment</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSTMH</td>
<td>SS</td>
<td>40~45HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
<tr>
<td>USSTMH</td>
<td>SS</td>
<td>50~55HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
</tbody>
</table>

**Screw with Urethane Type**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Material</th>
<th>Hardness</th>
<th>Surface Treatment</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>STSMH</td>
<td>SS</td>
<td>40~45HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
<tr>
<td>USSTSMH</td>
<td>SS</td>
<td>50~55HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
</tbody>
</table>

Stop Pins
Screw Type, Wrench Hole Type

**Features:** Accuracy in Stop Positions is easily obtainable. Select Flat or Sphere Type according to the object shape.

**Screw Flat Type**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Material</th>
<th>Hardness</th>
<th>Surface Treatment</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSMH</td>
<td>SS</td>
<td>40~45HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
<tr>
<td>BSTMH</td>
<td>SS</td>
<td>50~55HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
</tbody>
</table>

**Screw Spherical Type**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Material</th>
<th>Hardness</th>
<th>Surface Treatment</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSTMH</td>
<td>SS</td>
<td>40~45HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
<tr>
<td>SBSTMH</td>
<td>SS</td>
<td>50~55HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
</tbody>
</table>

**Wrench Hole Type**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Material</th>
<th>Hardness</th>
<th>Surface Treatment</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>STENW</td>
<td>SS</td>
<td>40~45HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
<tr>
<td>BSTENW</td>
<td>SS</td>
<td>50~55HRC</td>
<td>Electroless Nickel Plating</td>
<td></td>
</tr>
</tbody>
</table>

**Features:** Can be used in limited spaces.
### Stopper Blocks

**Features:** Hole types are selectable.

#### Straight Type

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A Selection</th>
<th>H Visual Increment</th>
<th>T</th>
<th>X</th>
<th>dr</th>
<th>d1</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>40HRC~ Black Oxide</td>
<td>40HRC~ Electroless Nickel Plating</td>
</tr>
<tr>
<td>SBUB</td>
<td>SBUM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>40HRC~ Black Oxide</td>
<td>40HRC~ Electroless Nickel Plating</td>
</tr>
</tbody>
</table>

#### Tapped Hole Type

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A Selection</th>
<th>H Visual Increment</th>
<th>T</th>
<th>X</th>
<th>dr</th>
<th>d1</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBUB</td>
<td>SBUM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>40HRC~ Black Oxide</td>
<td>40HRC~ Electroless Nickel Plating</td>
</tr>
<tr>
<td>SBUB</td>
<td>SBUM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>40HRC~ Black Oxide</td>
<td>40HRC~ Electroless Nickel Plating</td>
</tr>
</tbody>
</table>

#### Plate Type

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A Selection</th>
<th>H Visual Increment</th>
<th>T</th>
<th>X</th>
<th>dr</th>
<th>d1</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBFB</td>
<td>SBFM</td>
<td>SBFB</td>
<td>SBFB</td>
<td>SBFB</td>
<td>SBFB</td>
<td>40HRC~ Black Oxide</td>
<td>40HRC~ Electroless Nickel Plating</td>
</tr>
</tbody>
</table>

---

### Stopper Blocks with Urethane

**Features:** Best suited for easily scratched workpieces.

#### Stopper Blocks with Urethane

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A Selection</th>
<th>H Selection</th>
<th>T</th>
<th>X</th>
<th>d1</th>
<th>d2</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBUB</td>
<td>SBUM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>SBHM</td>
<td>40HRC~ Black Oxide</td>
<td>40HRC~ Electroless Nickel Plating</td>
</tr>
</tbody>
</table>

#### Plate Type

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A Selection</th>
<th>H Visual Increment</th>
<th>T</th>
<th>X</th>
<th>dr</th>
<th>d1</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBFB</td>
<td>SBFM</td>
<td>SBFB</td>
<td>SBFB</td>
<td>SBFB</td>
<td>SBFB</td>
<td>40HRC~ Black Oxide</td>
<td>40HRC~ Electroless Nickel Plating</td>
</tr>
</tbody>
</table>

---

**Urethane**

- Urethane is baked.
- Surface treatment of verge part between core block and urethane may be peeled off about 2 ~ 3mm from edge.

**Material**

- EN 1.1191
- Black Oxide
- Electroless Nickel Plating

**Features:** Best suited for easily scratched workpieces.
Round Stoppers / Shims for Round Stoppers Standard Type
Counterbored Holes, Tapped Holes

Features:
- Use at stop point of equipments and workpieces. Selectable from Standard/Free Type according to the applications.

Standard
- Round Stoppers - Counterbored Holes
  - Type: ASTNF

Configurable
- Part Number
  - D: 3, 4, 5, 6
  - H: 3, 4, 5, 6
  - d: Tapped (M3.5), Countersink (M3.5)

Standard
- Round Stoppers - Tapped Holes
  - Type:ASTM

Configurable
- Part Number
  - D: 3, 4, 5, 6
  - H: 3, 4, 5, 6
  - d: Tapped (M3.5), Countersink (M3.5)

For Configurable Type Shims, see P.157

Shims for Round Stoppers Standard Type
- Type: ASTC

Features:
- For orders of 100 or more pieces, please request a quotation.

Flat Stoppers / Shims for Flat Stoppers Standard Type

Flat Stoppers / Hole Selectable
- Part Number
  - D: 1, 2, 3, 4
  - H: 1, 2, 3, 4

Hole Selectable: One-Hole
- Part Number
  - D: 1, 2, 3, 4
  - H: 1, 2, 3, 4

Hole Selectable: Two-Hole
- Part Number
  - D: 1, 2, 3, 4
  - H: 1, 2, 3, 4

Counterbore Dimensions
- D: 1, 2, 3, 4
- H: 1, 2, 3, 4
- X: 1, 2

Material: EN 1.1191 (Standard), EN 1.0330 (Counterbored)

Hardness: 40~45 HRC

For Shims for T and L Configurable Flat Stoppers, see P.161
### Shock Absorption Stoppers

#### Bolts with Hex Socket Head Cap Screws with Low Elastic Rubber Head

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>LWH7</td>
<td>UNST</td>
<td>1.25</td>
</tr>
</tbody>
</table>

#### Hex Socket Head Cap Screws with Low Elastic Rubber Head

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>LWH7</td>
<td>UNST</td>
<td>1.25</td>
</tr>
</tbody>
</table>

### Properties

- **Material with Excellent Shock Absorption**
  
  Low Elastic Rubber

  It is used as cushioning material for pallet dampers, conveyor machines, precision instruments etc. because of its good elongation and shock absorption. Also it is used as vibration absorption materials of various precision instruments because of its excellent vibration absorption.

- **Impact Resilience Variation by Temperature of Low Elastic Rubber**

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Impact Resilience (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>70</td>
</tr>
<tr>
<td>-20</td>
<td>60</td>
</tr>
<tr>
<td>-10</td>
<td>50</td>
</tr>
<tr>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
</tr>
</tbody>
</table>

- **Shock Absorption of Low Elastic Rubber**

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Shock Absorption (kgf cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.025</td>
</tr>
<tr>
<td>-20</td>
<td>0.020</td>
</tr>
<tr>
<td>-10</td>
<td>0.015</td>
</tr>
<tr>
<td>0</td>
<td>0.010</td>
</tr>
<tr>
<td>20</td>
<td>0.005</td>
</tr>
<tr>
<td>30</td>
<td>0.003</td>
</tr>
</tbody>
</table>

### Washers, Stoppers with Plates

#### Urethane Type, Low Elastic Rubber Type

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPWH</td>
<td>UNST</td>
<td>2.5</td>
</tr>
</tbody>
</table>

#### Urethane Type Urethane Stoppers with Washers

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPWH</td>
<td>UNST</td>
<td>2.5</td>
</tr>
</tbody>
</table>

#### Urethane Type Urethane Stoppers with Plates

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>USWH</td>
<td>UNST</td>
<td>2.5</td>
</tr>
</tbody>
</table>

#### Low Elastic Rubber Type Low Elastic Rubber Stoppers with Washers

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUPWH</td>
<td>UNST</td>
<td>2.5</td>
</tr>
</tbody>
</table>

#### Low Elastic Rubber Type Low Elastic Rubber Stoppers with Plates

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUPPL</td>
<td>UNST</td>
<td>2.5</td>
</tr>
</tbody>
</table>

### Notes

- *Use low head bolts.*
- *For features of the Low Elastic Rubber, see GP-60L (Shore A57) and GP-60L (Shore A90) type, photo.*
- *For features of the Urethane, see EN 1.4301 Equiv. plate.*
- *Urethane is baked on a EN 1.4301 Equiv. plate.*
- *Urethane Type is a registered trademark of Naigai Rubber Industry Co., Ltd.*
- *Low Elastic Rubber Type is a registered trademark of Naigai Rubber Industry Co., Ltd.*
- *Low Elastic Rubber is baked on a EN 1.4301 Equiv. plate.*

---

### Shock Absorption Comparison

- **Drop Comparison of Rubber Ball and Low Elastic Rubber Ball**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Drop Height (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Low Elastic Rubber</td>
<td>10</td>
</tr>
<tr>
<td>Without Low Elastic Rubber</td>
<td>10</td>
</tr>
</tbody>
</table>

- **Impact Resilience**

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Impact Resilience (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>70</td>
</tr>
<tr>
<td>-10</td>
<td>50</td>
</tr>
<tr>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
</tr>
</tbody>
</table>

---

### Additional Information

- **Specific Gravity**
  - 1.35

- **Compression Set**
  - 70°C x 22hr (%):
  - Low Elastic Rubber: 0.05
  - Urethane: 0.10

- **Impact Resilience (%)**
  - Low Elastic Rubber: 2
  - Urethane: 3

- **Elongation (%)**
  - Low Elastic Rubber: 810
  - Urethane: 500

- **Sample Dimensions (mm):**
  - UNSTH: 1 T-20, T-30
**Roller Pushers / Point Pads**

**Low Dust Generation Type**

**Features:** Can be used for alignment adjustment for thin workpieces such as glass plates. Low dust generation bearings are used.

**Roller Pushers**

- **Low Particle Generation Type**
- **Suction Hole Type**
- **Flat Type**

**Point Pads**

- **Spherical Type**
- **Suction Hole Type**
- **Flat Type**
- **Tapped Type**

**Suitable for**

- Can be used for vacuum pickup of objects such as glass plates.
- Can be used for screw fastening.
- Can be used for conveying products directly.

**Material**

- PTFE Resin
- Ceramic (Al2O3/Alumina 99)

**Specifications**

- **Spherical Type**
  - **L** 1mm Increment
  - **H**
  - **D**
  - **C**
  - **t**
  - **h**
  - **d**
  - **B**
  - **M**
  - **Unit Price**

**Lift Pins**

**Features:** Usable for lifting work objects that require isolation from metal contacts. A 50% more economical length selectable type is introduced.

**Selectible Type**

- **L** 1mm Increment
- **B**
  - **Fixed**
  - **Unit Price**

**Confiugurable Type**

- **L** 1mm Increment
- **B**
  - **Fixed**
  - **Unit Price**

**B Configurable Type**

- **L** 1mm Increment
- **B**
  - **Fixed**
  - **Unit Price**

**EQUIVALENT**

- **Part Number**
- **L**
- **B**
- **Material**

**Workpiece**

- Suitable for lifting high temperature objects and objects that are not to come in contact with metal.
Blocks for Shim Adjustment of Welding Fixtures / Shim Sets

**Straight, L-Shaped**

### Shim Sets For Straight Blocks

**CMAJ**

- **Part Number**: CMAJ
- **Material**: EN 1.1191 Equiv.
- **Shape**: A
- **Dimensions**: L 5 6 8 9 40 62 9

**CMAJW**

- **Part Number**: CMAJW
- **Material**: EN 1.1191 Equiv.
- **Shape**: A/2
- **Dimensions**: L 5 6 7 28 20 50 7

**Shim Sets For L-Shaped Blocks**

**CMAJC**

- **Part Number**: CMAJC
- **Material**: EN 1.1191 Equiv.
- **Shape**: A
- **Dimensions**: L 5 6 7 30 80 102 7

**CMAJWC**

- **Part Number**: CMAJWC
- **Material**: EN 1.1191 Equiv.
- **Shape**: A/2
- **Dimensions**: L 5 6 7 - 30 52 7

### L-Shaped Type

**CMAJL**

- **Part Number**: CMAJL
- **Material**: EN 1.1191 Equiv.
- **Shape**: A/2
- **Dimensions**: L 5 6 - 20 12 10 2 35 12

**CMAJLC**

- **Part Number**: CMAJLC
- **Material**: EN 1.1191 Equiv.
- **Shape**: A/2
- **Dimensions**: L 5 6 - 20 12 10 2 35 12

**Thin Sets for L-Shaped Blocks**

**CMAJLC**

- **Part Number**: CMAJLC
- **Material**: EN 1.1191 Equiv.
- **Shape**: A/2
- **Dimensions**: L 5 6 - 20 12 10 2 35 12

---

**Workpiece Detection System / Detection Pins for Weld Nuts**

**Detection Pinos for Weld Nuts**

- **Part Number**: NUTK, BNUTK
- **Material**: EN 1.1191 Equiv.
- **Shape**: A/2
- **Dimensions**: L 5 6 - 20 12 10 2 35 12

**Detection Pins for Weld Nuts (Shape A)**

- **Part Number**: NUTK, BNUTK
- **Material**: EN 1.1191 Equiv.
- **Shape**: A/2
- **Dimensions**: L 5 6 - 20 12 10 2 35 12

---

**Detectors for Weld Nuts**

- **Part Number**: PCPNA
- **Material**: EN 1.1191 Equiv.
- **Shape**: A/2
- **Dimensions**: L 5 6 - 20 12 10 2 35 12

---

**Surface Treatment**

- **Material**: EN 1.1191 Equiv.
- **Surface Treatment**: Black Oxide

---

**Material Equivalents**

- **EN AW-6061 Equiv.**: A
- **EN AW-6061 Equiv.**: A/2

---

**Price Information**

- **Unit Price**: CMAJ, CMAJW, CMAJC, CMAJWC

---

**Volume Discount Rate**

- **Volume Discount Rate**: 2-D
  - **Unit Price**: CMAJ, CMAJW, CMAJC, CMAJWC

---

**Additional Notes**

- **For orders larger than indicated quantity, please check with WOS.**
- **Detection Pins for Weld Nuts**: Suitable to confirm existence of workpiece when proximity sensor can be placed near target objects.
- **Combination of Workpiece Detecting Unit and Cylinder is available.**