### LOW HEAD AND ULTRA-LOW HEAD HEXAGON SOCKET HEAD CAP SCREWS

- **CBS** (Low head hexagon socket head cap screw)  
- **CBSST** (Stainless steel low head hexagon socket head cap screw)  
- **CBSST Type M** (Full thread)

### NORD-LOCK LOOSENING PREVENTION WASHERS

- **NLDP**
- **NLDP - B**

### Features
- **Low head hexagon socket head cap screws**
  - Can be used without modification in locations where the heads of conventional hexagon socket head cap screws would cause an obstruction.
  - ULTRA-low head hexagon socket head cap screws
  - Developed in order to reduce the space required for the height of the screw head.
  - Utilizes fast head screws, counter-sinking of the appendix material is not required.

### Specifications

#### CBSST Type M

<table>
<thead>
<tr>
<th>Size (mm)</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
<th>M6</th>
<th>M8</th>
<th>M10</th>
<th>M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>10</td>
<td>12</td>
<td>16</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>Weight</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>10</td>
</tr>
</tbody>
</table>

#### Strength class

- 10.9: Heat treatment strength class (M10 ~ M12)  
- 8.8: Thread strength class

### Loosening prevention washer

- **Bolt**: M8
- **NLDP - B**: 200 pairs

### Principles of washers for loosening prevention

- Washers for loosening prevention have wedge-shaped cams on the inside and radial ribs on the outside, 2 or 3 of these washers form a single pair.
- This cam angle (α) is set larger than the thread lead angle (β).
- When a screw is to loosen, the bolt, the cam angle of the washer press the same of the other washer up and away, however due to the wedge effect the washers do not separate by more than the thread pitch.

### Installing correctly

- 2 washers are defined as a single pair, with adhesives already applied.
- Before installing the washers, check that the raised parts have not been crushed and that there is no warping. Then use in accordance with the correct installation method shown in the figure at right.

### Precautions for repeated use

- NLDP can be used repeatedly up to three times, but some care is required to lubricate the surface.

### Allowable temperature limit

- The maximum allowable temperature for NLDP is 200°C. Do not contact these washers at temperatures above this limit.

### Graph of vibration test results [reference]

- Sealed under type: vibration tester
- Setting: protection prevention washer: NLDPP
- Amplitude: 5.5mm
- Bolt used: M8 (strength class 12.9)
- Frequency: 60 Hz

### Components

- NLDP
- 2 of these products form a single pair for use.

### Contact Data

- Tel: +81-490-12-3456

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**Table**: Recommended bolt tightening torque and tightening force when loosening prevention washers are used

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
<th>M6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque (N·m)</td>
<td>0.3</td>
<td>0.5</td>
<td>0.8</td>
<td>1.2</td>
</tr>
<tr>
<td>Tightening Force (kN)</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

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**Graph**: Results of vibration tests with and without NLDP washers

- (Fig) Results of vibration tests with and without NLDP washers

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**Order**: Catalog No. | Days to Ship | Quotation

- **NLDP**
- **NLDP - B**