SHACKLE USE, CARE & INSPECTION

Improper use or care of shackles can result in bodily injury or property damage. Always observe the following guidelines when using shackles.

- Do not exceed the working load limit.
- Do not shock load.
- Do not side load – center line of load must coincide with the center line of the shackle. Shackles are designed and rated for in-line applied tension. You can attach multiple slings in the body of a shackle without reducing the capacity provided that the shackle is symmetrically loaded and the included angle does not exceed 120 degrees. (See Side Loading and Symmetrical Loading sections).
- Do not replace pin or bolt with other than original equipment.
- Inspect before use for wear, deformation and pin engagement as outlined in ASME B30.26. (See full inspection guidelines below).

Care should be exercised so that the shackle is not abused during use. When using shackles, it is important to:

- If necessary, use spacers on the shackle pin to assure that the shackle is not loaded at an angle. Load line of action should be through the center line of the shackle body and the middle of the shackle pin.
- The shackle should be protective coated with zinc plating or a galvanized finish if used in harsh environments.
- The shackle should not be subjected to high or low temperatures that could affect thermal treatment and the strength of the shackle. (Note: Per ASME B30.26 shackles are rated for temperatures between -40°F to 400°F).

SCREW PIN TIGHTENING

When tightening screw pins, it is important that shackle screw pin threads and the tapped threads in the shackle head are clean and free of burrs and damage. These conditions can cause an under-tightening of the shackle screw pin. The shackle screw pin should be tightly fitted into the shackle’s leg opening until the treads engage and the shoulder of the screw pin makes contact with shackle body.

SIDE LOADING

When side loading a shackle with a single sling, the rated WLL will be reduced in accordance with the manufacturer’s recommendation of a qualified person. ASME B30.26 also recommends reducing the capacity of a shackle when it is side loaded. (See figure below.) Note that only anchor shackles, like the one shown right, should be side loaded. Chain or “D” shape shackles should not be side loaded.

ALL SHACKLE STYLES SIZES 3/16” TO 3”

<table>
<thead>
<tr>
<th>Angles in Degrees</th>
<th>Working Load Limit Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>0’ to 10’</td>
<td>0%</td>
</tr>
<tr>
<td>11’ to 20’</td>
<td>15%</td>
</tr>
<tr>
<td>21’ to 30’</td>
<td>25%</td>
</tr>
<tr>
<td>31’ to 45’</td>
<td>30%</td>
</tr>
<tr>
<td>46’ to 55’</td>
<td>40%</td>
</tr>
<tr>
<td>56’ to 70’</td>
<td>45%</td>
</tr>
<tr>
<td>71’ to 90’</td>
<td>50%</td>
</tr>
</tbody>
</table>

SYMOMETRICAL LOADING

Shackles symmetrically loaded with two legs at a maximum included angle of 120° can be used to full working load limit. Side and symmetrical loading data applies to screw pin and bolt nut cotter anchor shackles as shown to the right.

SHACKLE INSPECTION

Shackles should be visually inspected before each use in line with ASME B30.26 regulations. Shackles should be discarded if any of the following conditions are apparent:

- Any parts are worn more than 10% of the original dimensions
- Load bearing components are bent, twisted, distorted, stretched, elongated, cracked or broken
- Excessive pitting, corrosion, nicks or gouges
- Indication of heat damage
- Missing or illegible manufacturer’s name or trademark, working load limit or size
- Load pins have bent or visibly damaged threads
- Cotter pins or hairpin retainers are damaged