NEW CROSSARM INNOVATION

SHAKESPEARE MATRIX™ INSERT

Improved torque performance and unprecedented crush resistance for insulator angle turns and field drilling.

HIGHLIGHTS

- Enhances crossarm structural integrity for long-life performance
- Allows for easy field drilling along full length
- Supports base of insulator pins and post-type insulators
- Minimize risk of lineman overtightening hardware
- Can be custom configured to customer specifications
- Now standard in S-Series crossarms - consult factory for other profiles
- Patent pending solution is cost competitive
CONTINUOUS IMPROVEMENT

The Matrix™ Insert is an example of Shakespeare continuous improvement. These photos are of Shakespeare crossarms and poles that have been installed in excess of 20 years. The new Matrix™ design adds an extra level of structural integrity to an existing proven product.

<table>
<thead>
<tr>
<th>SHAKESPEARE S-SERIES CROSSARM</th>
<th>Torque Maximum (ft./lbs.)</th>
<th>Torque Initial Sound (ft./lbs.)</th>
<th>J-Type Pin Cantilever Load (lbs.)</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WITH INSERT</td>
<td>130</td>
<td>120</td>
<td>1080</td>
<td>No damage or deformation in the pin or torque test</td>
</tr>
<tr>
<td>W/O INSERT</td>
<td>25</td>
<td>20</td>
<td>700</td>
<td>Some surface deformation in pin and torque test</td>
</tr>
</tbody>
</table>

ADDITIONAL COMMENTS

• As a comparison, a standard vehicle torque recommendation for wheel lug nut is 80-120 ft. lbs.

• The Shakespeare crossarms with Matrix™ inserts performed much better with the standard hardware that is supplied with crossarm pins and did not require the addition of oversize washers.