Effect
Down Gauging by R rigidity Improvement and Strength Improvement (Cost Reduction)

Points

1. Improving the Rigidity of Shallow Drawing Panels
   Example of Improving Torsional Rigidity by Adding Roughness to the Surface
   - Example of Giving Shape (Vertical Lattice)
   - Rigidity Improvement
     - Down Gauging

2. Stress concentration on the notch is mitigated
   Study example of notch shapes
   - Stress Mitigation
   - Flange Expanded
   - Stress is mitigated by devising the shape Down Gauging

3. Improving Pushing Strength of Tap Screw
   Example of down gauging by increasing the burring height and raising the tension
   - Maximum Pushing Strength ∝ H * TS * t

Table:
<table>
<thead>
<tr>
<th>No Shape Given</th>
<th>Vertical Lattice</th>
<th>Slanting Lattice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torsion Rigidity [%]</td>
<td>200</td>
<td>150</td>
</tr>
<tr>
<td>Rigidity Improvement of 62%</td>
<td>Rigidity Improvement of 17%</td>
<td>Rigidity Improvement of 17%</td>
</tr>
</tbody>
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