Snap-Fit Joints in Plastics

Lanxess HK
Semi-Crystalline Product
Asia Pacific
Content

• Introduction to Snap-Fit Joints in Plastics

• Snap-Fit Joint Types

• Design Factors for Snap-Fit Joint

• FEM Demonstration
Introduction to Snap-Fit Joints in Plastics
Plastic Joining Techniques

- Bonding
- Welding
- Mechanical Joining

- Rivets
- Screws
- Inserts
- Molded Threads
- Press Fits
- Snap Fits
Snap-Fit Joint Benefits

- Simple
- Economical
- Rapid
- Separable / Inseparable
### Snap Fit vs. Press Fit

<table>
<thead>
<tr>
<th>Snap Fit</th>
<th>Press Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pullout Force &gt; Insertion Force</td>
<td>Pullout Force @ Insertion Force</td>
</tr>
<tr>
<td>Constant strength</td>
<td>Relaxation / Creep-failure</td>
</tr>
<tr>
<td>Requires undercut</td>
<td>More demanding tolerances</td>
</tr>
<tr>
<td>Snap Fit</td>
<td>Screws</td>
</tr>
<tr>
<td>------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Vibration Resistant</td>
<td>May Loosen Under Vibration</td>
</tr>
<tr>
<td>Less Energy Required</td>
<td>Requires Tightening Operation</td>
</tr>
<tr>
<td>No Additional Parts Needed</td>
<td>Requires Fastener Components</td>
</tr>
</tbody>
</table>
### Snap Fit vs. Welding

<table>
<thead>
<tr>
<th>Dissimilar Materials</th>
<th>Compatible Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>Integrally Molded</td>
<td>Special Welding</td>
</tr>
<tr>
<td>✓</td>
<td>Equipment</td>
</tr>
<tr>
<td>Hermetic Seal</td>
<td>Hermetic Seal</td>
</tr>
<tr>
<td>✗</td>
<td>Easy</td>
</tr>
</tbody>
</table>
Snap-Fit Joint Type
Snap-Fit Joint Types

- Cantilever
- Annular
- Torsional
Cantilever Snap Joint
Annular Snap Joint
Annular Snap Joint (cont.)
Torsional Snap Joint
U-Shaped Snap Joint
Discontinuous Annular Snap Joint
Hollow Cylinder Snap Joint
Distortion Snap Joint
Cantilever Variation Snap Joint

Plan View

Section View
Snap Assembly Methods

Snap On

Snap In
No Undercut Method
Typical Applications