Extrud-AL™
Die Inerting Technology
by Air Liquide

Extrud-AL die inerting technology ensures maximum productivity and quality in the aluminum industry. Through Air Liquide America’s innovation, metallurgical expertise and process solutions, extruders with Extrud-AL technology can increase die life and achieve faster extrusion rates.

Extrud-AL modifies and improves the current use of nitrogen-based die “cooling” technologies by strategically incorporating the proper gas, phase properties and analytical methods into the die inerting process.

**Features:**
- Simple delivery system (no recirculators)
- Bulk supply option allows for intermittent use (product tier option) and virtually no moving parts
- No special machining or reworking of die tooling required

**Benefits:**
- Improved productivity (extrusion rate increase of up to 30%)
- Die run life increased two-fold
- Improved surface finish (bright/anodized)
- Die clean-up reduced or eliminated
- Enhanced shape integrity

Extrud-AL inerts all of the critical areas of the extrusion press in order to maximize life and reduce product surface defects

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Method:
Extrud-AL technology utilizes high-purity argon or nitrogen (gaseous or liquid) to purge the atmosphere from the exit side of the die through the platen tunnel. Oxides, which normally appear on the surface of the extrudate, are the main source of surface imperfections such as hot tears and die lines. By inerting these areas with Extrud-AL, oxides are completely eliminated. In addition, exiting gases, both nitrogen or argon, provide convective cooling of the extrudate thus minimizing dimensional distortion on light, irregular shapes, as well as hollows.

Reference Data:

<table>
<thead>
<tr>
<th>Product</th>
<th>Gas Consumption (SCFH equivalent)</th>
<th>Extrusion Speeds</th>
<th>Die Run Life</th>
<th>Surface Quality</th>
<th>Die Condition After Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural Aluminum (6063)</td>
<td>500-1000</td>
<td>+30%</td>
<td>+60 Billets</td>
<td>50% Less</td>
<td>No Polishing Required</td>
</tr>
<tr>
<td>Structural Aluminum (6061)</td>
<td>600-800</td>
<td>+25%</td>
<td>+75 Billets</td>
<td>Bright - No Die Lines</td>
<td>No Polishing Required</td>
</tr>
</tbody>
</table>

Bottom Line Savings:
Extrud-AL impacts and improves all areas of the extrusion operation, from productivity and quality to process capability. As a result, users realize returns of 30 to 50 times the operational costs associated with the cutting-edge technology of Extrud-AL.

About Air Liquide:
Air Liquide is the world’s leading industrial gas company. We are a full-capability supplier with a broad product line, including argon, hydrogen, nitrogen, oxygen, carbon dioxide, ozone, high-purity specialty grades, controlled atmosphere systems, gas characterization and safety instrumentation.