Aluminum extrusion is a process in which hot metal is forced to flow through a shaped opening in a die, creating a final form with specific design characteristics. Tight tolerances are required to ensure an accurate interface with other parts. The shape is engineered to distribute material at optimal locations to strengthen final parts. Aluminum extrusion cost effectively produces precision shapes and couples the inherent advantages of aluminum with the precision and high volume characteristics of extrusion. Benefits of this process include high strength to weight ratio, low cost, corrosion resistance, excellent machining, high conductivity and excellent thermal properties.

Features and benefits:
- Improves part quality by eliminating oxidation on dyes
- Lower cost by eliminating costly gas cylinders
- Compact - frees up floor space
- Hassle-free, easy to install, easy to operate
- Maintains consistent nitrogen production
- Eliminates defects
- Increases die life
- Reduces change outs

Contact Information:
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Filtration and Separation Division
242 Neck Road
Haverhill, MA 01835

phone 800 343 4048 or 978 858 0505
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www.parker.com/balston
Application:

During production, high temperatures often cause aluminum oxide to form on the surface of the dies, causing imperfections in the newly formed piece. This damage can cause increased tooling costs, higher maintenance costs and requirements, extended downtime and lost productivity. This damage can also leave the final part useless, due to weakness within the material or non-compliance to the original design specification. Using nitrogen to degas the aluminum during the extrusion process removes oxygen and assists die cooling, which improves consistency, yields less scrap and produces high quality finished products. A Parker Hannifin nitrogen generator is often the most cost effective way to provide nitrogen gas for this application.

Case Study:

When extruding aluminum parts, compressed air is often used to cool off the dies. However, this compressed air contains oxygen and water vapor that can damage the final part. Using compressed air to cool the die causes the formation of bubbled, oxidized metal, or “dross” to deposit on the die. These deposits compromise die life and produce areas of increased friction with the aluminum, causing die lines (scratches) which affect final product quality. Gordon Aluminum, located in Schofield, Wisconsin, is a full service aluminum extruder that was experiencing these exact issues. After suspecting they had an issue with metal oxidation during the extrusion process, Gordon Aluminum worked with Parker Hannifin to install a nitrogen generator. This unit continuously blanketed the dies with nitrogen at purities ranging from 98% to 99.5%. Using nitrogen supplied by a Parker Hannifin nitrogen generator resulted in improved product quality, longer die life and longer run times. Decreasing their run resets improved overall efficiency and helped them more easily meet customer lot demands. A Parker Hannifin nitrogen generator allowed Gordon Aluminum to solve their problems with substandard product quality, short die life and inefficient run time.

Specifications and Ordering Information:

<table>
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<th>Flow Rate (SCFH)</th>
<th>Model Number</th>
<th>DB-5, DB-10</th>
<th>DB-15, DB-20</th>
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<td>Feed Pressure</td>
<td>Temperature</td>
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Notes

1 Stand-by feature is unavailable for purities 99.995-99.999%

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