Aluminum Extruded Custom Shapes[1]
(Sub-Set of ASTM B 221[2])

DAYCO offers a wide range of products, which meet the requirements set forth by specification ASTM B 221. This document covers Aluminum Extruded Custom Shapes, which do not fall within what are considered typical industry standard profiles.

Example: *A machine shop is machining from Billet (a block of 6061 alloy) to attain a finished shape, there goal is to produce a large number of these items. With review of the finished item, DAYCO can reduce the amount of machine work and metal scrap needed to attain the final profile by the production of an extrusion profile.*

A "Near-Net" shape extrusion can be developed to eliminate the majority of the machining of an aluminum part or fabrication from bar, billet or plate, meaning less metal on the shop floor and less cycle time in the machining process. Extrusion die costs are far more econom ical then that of an Investment Casting / Impact Casting Tooling. Extrusion profiles do not suffer the ill effects of porosity and rough surface finish that may develop from the casting process. The result being an improved finished machined product and fiscal benefits.

Custom shapes are proprietary to our clients designs and are not considered "Open Dies", a term given to shapes available to the general public.

Ordering Information

When providing an Engineering drawing, the following additional information will aid DAYCO in providing a workable shape to meet your specific requirements.

- Notation of Specification ASTM B 221 and application to be used for, a drawing or drawings of the end product [3].
- Quantity in pieces, pounds or feet.
- Alloy & Temper[4] : Standard alloys and their tempers for use in Extrusions to be used as machined or Finished components are: (*Alloy & Temper designations are in accordance with ANSI H35.1)*

Non-Heat Treatable Alloys

(Soft)

UNS Numbers	A91100	A93003
@ Tempers	O, H112	O, H112

(Hard)

UNS Numbers	A95083	A95086	A95154	A95454
@ Tempers	O, H111, H112	O, H111, H112	O, H112	O, H111, H112

Profile shown with additional punched holes

Heat Treatable Alloys

(Soft)

UNS Numbers	A96005	A96061	A96063	A96066
@ Tempers	T1, T5	O, T1, T4, T4510, T4511	O, T1, T4, T42, T5, T52 T6, T62	O, T4, T4511, T4511, T42, T6, T6510, T6511, T62

[1] DAYCO Does not provide design analysis to a clients components, it is assumed the client is providing a properly thought-out design and performed all necessary Engineering evaluations to attain the desired finished product.

[2] Because the range of product types covered by ASTM B 221 is so varied, each having unique characteristics. DAYCO has broken out these product types into 3 sub-sets, the first being "Architectural Extrusions, the next one being "Standard Extrusion Shapes" and then "Custom Extrusion Shapes". Please seek them out if you wish to inquire about them specifically.

[3] DAYCO will sign a non-disclosure agreement, providing a client piece of mind as to the proprietary nature of their works.

[4] For further information on temper designations please reference the sheet "*Aluminum Alloy and Temper Designations 101*" found on our web site.

Dayco Industries, LLC • 10215 San Sevaine Way • Mira Loma, CA 91752
Call Toll Free: (800) 893-8355 • Local: (951) 360-5900 • Fax: (951) 360-5999
E-mail: sales@daycoindustries.com

UNS Numbers	A96070	A96105	A96262	A96351	A96464
@ Tempers	T6, T62	T1, T5	T6, T62, T6510, T6511	T1, T4, T5, T51, T54, T6	T1, T5, T6. T62

(Hard)

UNS Numbers	A92014	A92024	A92219	A97005	A97050
@ Tempers	O, T4, T4510, T4511, T42, T6, T6510, T6511, T62	O, T3, T3510, T3511, T42, T81, T8510, T8511	O, T31, T3510, T3511, T62, T81, T8510, T8511	T53	T73510, T73511, T74510, T74511, T76510, T76511

UNS Numbers	A97075	A97178	A97475
@ Tempers	O, T6, T62, T6510, T6511, T73, T73510, T73511, T76, T76510, T76511	O, T6, T6510, T6511, T62, T76, T76510, T76511	T62

- Finish:
  The alloy and temper of the material will play a key role in how the finish will appear.
  - Commercial, MIL-Standard and Hard Anodizing options are available.
  - Painted (Thermosetting polyesters, backing enamels & acrylics, Architectural 1 step & 2 step paint processes), and others, please inquire with DAYCO Sales agent)

- Fabrication: DAYCO also provides fabrication capabilities as noted but not limited to those below:
  Precision CNC cutting, Miter angels, notching, drilling, taping, de-burring, and assembly.

- Mating Part Notation is required to provide assurance during the extrusion process, that all other mating components are assured to fit the product during the client's assembly process.

- Certification of material and or Mechanical / Chemical Test reporting of the material produced, if required.

- Dimensional tolerances for extrusions are in accordance with ANSI H35.2 (H35.2M) section 11, for Profiles. Custom or specific tolerances, which are tighter than though noted in section 11 of ANSI H35.2, must be agreed upon by both DAYCO, and the client prior to production.

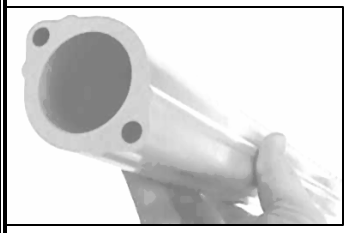
Other Considerations for a Custom Aluminum Profile

- DAYCO offers Just-In-Time stocking programs, which allows our clientele to pay for only the inventory that is drawn into
  their production cycle while DAYCO stabilizes their raw material flow and eliminates potential stock-outs and material shortages.

- Each purchasing cycle, metal can increase in cost, which makes it difficult to maintain a quoted selling price without affecting the bottom line. With DAYCO, you gain our raw material buying power of volume purchasing, which can bring
  the metal costs down and fix it's value for a longer cycle period.

- The extrusion tooling (extrusion die) is a one-time cost and is maintained through-out the life cycle of the product, without additional cost the our clients. Because it is maintained, a consistent quality will be provided with each production cycle. Unlike the procurement of raw bar or billet which could come from differing sources and bring risk of how each supplier maintains their stock and the tooling which produces it.

- Some machined features which are in-themselves simple, but where the design engineer has placed the feature, sometimes makes it impossible to machine by conventional means. As long as the feature in linear in nature, it may be incorporated into an extrusion profile.



Profiles with cavities (known as "Hollows") can be produced to eliminate milling. If the current raw material "Blank" is made from plate stock and then milled or laser cut (or even water cut) to achieve and interior and or exterior shape. An extrusion can be produced to eliminate the requirement of milling the interior and exterior, one only needs to CNC cut the desired thickness from the linear extruded profile to obtain the product.

- Extrusion die costs may be rebated provided the volume of material required is of sufficient quantity within a specified period of time.

When not to transfer to an Extrusion Profile

- When tolerances are beyond the clients requirements.

- When dealing with small quantities, mill minimums of from 100 pounds to 2,000 pounds or higher, depending on the size, shape, alloy and complexity of the profile, will eliminate the possibility of moving to an extrusion profile.

- When the profile's design life-cycle is to short to amortize the cost of an Extrusion Die. Which can range from $400 to $3,500 or more depending on the size, shape and complexity of the profile.