Technical Information

The One-Shot Casting Process

How, When & Why to Use It:
1) To produce precision and premium quality aluminum, zinc and magnesium castings.
2) Prototyping - to assist engineering in debugging design before committing to any tooling.
3) For very low-volume applications, including field replacements and lost tooling.
4) For parts with complex or unusual shapes.
5) For castings with thin walls or where weight is critical.
6) To simulate die castings for prototype evaluation.
7) To enable multiple design iterations (no tooling to change).
8) To reduce "time to market" on new programs and evaluate market potential.
9) To reduce time for machining and secondary operations.
10) To assist and reduce time for U.L. approval.

Design & Technical Information

SIZE
No limitation but best range within 2 in. cube to 18 in. cube.

FINISH
153 micro-inch.

SHAPE
Considerable design freedom for unusual and complex shapes, including deep undercuts.

WALL THICKNESS
Thin wall: 0.030 in. - 0.060 in.
Average: 0.080 in. - 0.120 in.
Thick wall: 0.180 in. - 0.500 in.

GENERAL TOLERANCES
0 - 2 in.: +/- 0.005 in.
>2 in.: +/- 0.005 in. plus +/- 0.0015 in. for each inch over 2.

LIMITATIONS
The process is limited to non-ferrous metals with pouring temperatures below 2,000 °F - this includes aluminum, zinc and magnesium casting alloys and some copper-based alloys.

HOLES
Economical to cast small diameter holes to eliminate secondary drilling operations.

Alloys
Aluminum, zinc, magnesium and some copper-based casting alloys to the commercial and military specifications. See separate technical sheet.

DRAFT/RADII
No draft is needed. Corner radii and fillets as required. 0.025 in. minimum recommended.

MECHANICAL PROPERTIES
Tensile - Yield - Elongation - as per the appropriate commercial and military specifications. See separate technical sheet.

DELIVERY
1 - 2 weeks.

TYPICAL APPLICATIONS
Castings for telecommunications, business machines, medical equipment, computers, automotive, aerospace, electronics and robotics.