

Additional Guidelines

NADCA

G-6-5-00

Guideline

5 Metal Extension (Flash) Removal

Metal Extension (Flash) Formation and Location

An extension of metal is formed on die castings at the parting line of the two die halves and where moving die components (also called moving die parts) operate (see illustration below of a die cast part, as-cast, and trimmed).

A seam of metal extension may also be formed where separate die parts cast a part feature.

Residual metal extension is also formed by the normal operation of ejector pins and is discussed on the previous page.

Simplifying Extension (Flash) Removal

Necessary casting metal extension removal costs can be reduced by consideration, in the design stages, of the amount of metal extension to be removed and the removal method to be employed.

Early consultation with the die caster can often result in production economies in the treatment of metal extension removal.

Guidelines to Extent of Removal

The table below provides a guide to the types of die casting metal extension (flash) which occurs in typical die castings and the amount of metal extension material which remains after (1) degating (removal of any gates and runners from the casting), and (2) commercial trimming of die casting metal extension.

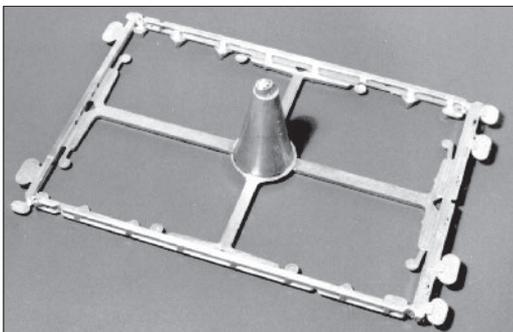
Note that in some instances, where special surface finish characteristics are not involved, the most economic method of degating and metal extension (flash) removal may include a tumbling or vibratory deburring operation.

The guidelines for removal of die casting metal extension (flash) presented here represent normal production practice at the most economic level. Precision flash trimming, closer than standard commercial trimming, or the complete removal of all extension involves additional operations and should be specified only when requirements justify the additional cost.

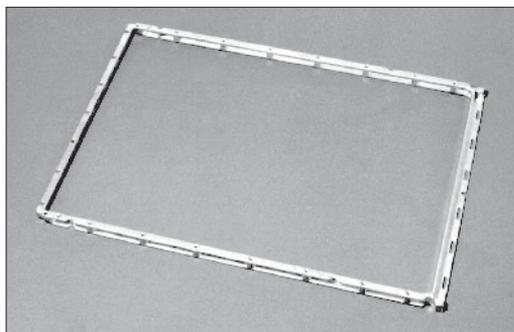
Guide to Nominal Metal Remaining by Type of Extension

Operation Description	Type of Metal Extension and Nominal Amount Remaining After Degating and Trimming				
	Thick Gates & Overflows > 0.12" (3.0 mm)	Thin Gates & Overflows ≤ 0.12" (3.0 mm)	Parting Line and Seam Line Metal Extension	Metal Extension in Cored Holes	Sharp Corners
After Degating Nominal Flash Remaining	Rough within 0.12" (3.0 mm)	Rough within 0.12" (0.3 mm)	Excess Only Broken Off	Not Removed	Not Removed
After Commercial Trimming* Nominal Extension Remaining	Within 0.06" (1.59 mm)	Within 0.03" (0.8 mm)	Within 0.015" (0.38 mm)	Removed within 0.010" (0.25 mm)	Not Removed

* "Commercially trimmed" does not include additional operations to remove loose material. For very heavy gates and overflows, consult your die caster.



Die cast frame, above, illustrates the appearance of a centergated die casting before trimming, showing gate, runners and overflow metal extension.



Shown above is the same die cast frame after receiving its die trimming operation.

The as-cast external surface finish classifications shown here illustrate variations in production practice. Surface finish requirements should be specified for production at the most economic level. Generally, extra steps in die design, die construction and casting production are required for the more exacting finishes, and additional cost may be involved. Selection of the lowest classification number, commensurate with the die cast part application, will yield the lowest cost.

NOTE:
As-cast surface finish classification does not apply to machined surfaces. Finished machined surface requirements shall be as agreed upon between the die caster and customer and separately identified on the engineering part drawing.

Additional Guidelines

6 Surface Finish, As-Cast

General Guidelines for As Cast Surface Finish on Die Cast Parts

The specification of external surface finish requirements is desirable for selected die casting applications and, in the case of some decorative parts, essential.

The purpose of the guidelines presented here is to classify as-cast surface finish for die castings into a series of grades so that the type of as-cast finish required may be addressed and defined in advance of die design.

These guidelines should be used for general type classification only, with final surface finish quality requirements specifically agreed upon between the die caster and the customer.

The first four classes listed relate to cosmetic surfaces. Class five relates to selected surface areas where specified surface finish limitations are required.

As-Cast Surface Finish Classifications and Final Finish or End Use

Class	As-Cast Finish	Final Finish or End Use
1 Utility Grade	No cosmetic requirements. Surface imperfections (cold shut, rubs, surface porosity, lubricant build-up, etc.) are acceptable	Used as-cast or with protective coatings; Anodize (non-decorative) Chromate
2 Functional Grade	Surface imperfections (cold shut, rubs, surface porosity, etc.), that can be removed by spot polishing or can be covered by heavy paint, are acceptable.	Decorative Coatings: Lacquers Enamels Plating (Al) Chemical Finish Polished Finish
3 Commercial Grade	Slight surface imperfections that can be removed by agreed upon means are acceptable.	Structural Parts (high stress areas) Plating (Zn) Electrostatic Painting Transparent Paints
4 Consumer Grade	No objectionable surface imperfections. Where surface waviness (flatness), noted by light reflection, is a reason for rejection special agreement should be reached with the die caster.	Special Decorative Parts
5 Superior Grade	Surface finish, applicable to limited areas of the casting and dependent on alloy selected, to have an average value in micro inches as specified on print.	O-Ring Seats or Gasket Areas