IRREGULAR CONTRACTION

\[ T = \text{Theoretical size.} \]

All alloys, particularly ductile iron.

The degree of contraction is greatest for thick sections of the casting.

Possible Cause

For a given alloy, contraction may vary according to the microstructure formed which, in turn, depends upon more or less rapid cooling. This gives rise to the possibility of varying degrees of contraction among castings of different section thickness, between various parts of the same casting which cool at different rates, or even between castings poured into molds of different thermal conductivity.

Remedies

— Production parts:
  Modify the pattern on the basis of the actual contraction of the various sections of the typical casting, as produced under production molding conditions.

— Single parts:
  Various shrinkage allowances must be used, based upon previous experience with samples of the alloy cast in different section thicknesses, under typical conditions of shop molding and pouring practice.

EXCESSIVE RAPPING OF PATTERN

Only for manual sand molding.

Casting dimensions are too large in the direction of rapping of the pattern.

Recommended Remedies

— Rap the pattern carefully.
— Employ adequate draft.
— Insure correct placement of rapping plates.