IMPROPER SHRINKAGE ALLOWANCE

All casting dimensions are inexact but are in the same proportion to the actual dimensions desired.

Cause
The shrink rule used in making the pattern was incorrect and differed from the actual shrinkage of the alloy used.

Remedy
Remake or modify the pattern, basing its dimensions upon correct shrinkage allowances if known, or upon preliminary direct measurements from the casting.

HINDERED CONTRACTION

Dimensions are too great in one direction, where the mold, cores or armatures cause abnormally high resistance to contraction of the casting during cooling.

Possible Causes
— Unusually high density of mold or cores.
— Sand too high in clay.
— Excessive binder in the cores.
— Too many, or improperly placed, armatures.
— For thin castings, too coarse a sand may cause restraint to contraction.

Remedies
— Avoid excessive ramming of green sand molds, or reduce binder or clay contents in cores or dry sand molds.
— Improve the collapsibility of baked or hardened molds and cores by the addition of appropriate additives.
— Insert material within the mass of sand which is capable of crushing under the forces of contraction; coke, straw, polystyrene or simply empty spaces.
— Use care in positioning armatures, gaggers or other reinforcements.
— Where necessary and possible, request a design change by the customer.