CASTING DISTORTION

The casting shows overall or local distortion in comparison with the drawing, the pattern and the mold. Such distortions may repeat themselves more or less regularly, especially in areas where changes in section thickness occur.

Possible Causes
- Restrained contraction:
  • due to casting design,
  • caused by the gating or risering system,
  • arising from mold or core construction or arrangement.
- Poor gating and pouring technique.
- Irregular contraction caused by premature shakeout.

Remedies
- Modify casting design if necessary to permit corrective measures by the foundry.
- Select a gating and pouring technique which will provide maximum uniformity of temperature throughout the casting. Establish proper pouring time and temperature. Provide overflows.
- Eliminate mold restraints around risers and runners after pouring.
- Make use of voids, collapsible materials or devices (Dutchmen) to reduce mold constraints during freezing.
- Allow the casting to cool sufficiently in the mold.

Mold illustrating the use of collapsible material to avoid casting distortion due to constrained contraction.

F 233 - Cast Steel, Dry Sand
Cast steel wheel showing distortion at the rim caused by resistance to contraction afforded by the risers (see sketch below).