LOCIALIZED HARD SPOTS OR CHILLED AREAS

Pearlitic gray and malleable irons.

Thin, very hard martensitic areas on the surface of the casting.

Remedies
- Reduce pressure during grinding.
- Grind malleable iron castings before annealing.
- Locate areas which require grinding (gates, riser pads) at positions on the casting which do not have to be machined.
- Assure good electrode contact with the casting during magnetic particle testing.
- Apply the current only after the test casting has been thoroughly wetted by the liquid suspension of magnetic particles.
- Localized chill spots can easily be eliminated by tempering for 1 to 2 hours at 450-650°C (840-1200°F).

Possible Causes
Localized overheating of the surface followed by rapid cooling due to heat transmission by the cold mass of the casting and by the surrounding air.

Results from:
- overheating during grinding,
- arcing due to poor electrode contact with the casting during magnetic particle inspection.