SEAMS OR SCARS

Grooves resembling crease marks on the casting surface, extending in a series of wavy lines, but of no great depth. The casting surface may be smooth and shiny. Contrary to defect D 132 (rat tail), the two edges of these grooves are at the same level.

The defect is encountered on horizontal or convex surfaces of thin castings.

With hypereutectic gray irons the defect may appear in conjunction with the presence of kish graphite, especially in heavy sections. The wrinkles may be adjacent to cold shut defects (C 311).

Possible Causes

- Because of the superficial surface freezing of a metal which is too viscous or too cold, the fold marks formed by oxide skins are not levelled by the pressure of the liquid metal.
- If clays (bentonites) of poor refractory quality are used as binders when casting steel (or, less often, cast iron) the sand surface may undergo softening and deformation from the force of the liquid metal. Sand expansion, in this case. is not the cause and this defect must not be confused with D 132 (rat tail), characterized by non-symmetrical edges.

Remedies

- Use charge materials which are low in oxygen and sulfur.
- Raise pouring temperature; also reduce pouring time by increasing gate areas.
- Avoid pouring into permanent molds which are too cold.
- For cast steel, use a more refractory binder material.
- See also defect D 132.

D 113 - Cast Iron, Dry Sand

Gray cast iron cover, 250 mm (10 in.) in length, showing seams caused by an iron too high in sulfur and by pouring too cold.

D 113 - Copper Alloy, Permanent Mold

Bicycle bracket of 90-10 cupro-aluminum, cast in a permanent mold; shows defect D 113 (seams) and also the presence of oxide skins.

Remedy: Increase the mold temperature by speeding up the casting cycle (see D 114, second example).