E 121 - Copper Alloy, Permanent Mold

Permanent molded brass valve body, 120 mm (4.8 in.) high. Casting is incomplete. A misrun occurred but sections remote from the gate show no evidence of pouring too cold (E 111).

During pouring, the top flange of the casting filled with liquid metal prior to the walls. The entrapped air could not escape, causing a misrun. The defect was eliminated by enlarging the sprues.

E 121 - Aluminum Alloy, Permanent Mold

Aluminum alloy permanent mold casting 60 mm (2.4 in.) in diameter (handwheel) showing misrun. Shorten the cycle between pourings in order to maintain adequate mold temperature.

POURED SHORT

The upper portion of the casting is missing. The edges adjacent to the missing section are slightly rounded; all other contours conform to the pattern. The sprue, risers and lateral vents are filled only to the same height above the parting line as is the casting (contrary to what is observed in the case of defect E 121).

Possible Causes

- Insufficient quantity of liquid metal in the ladle.
- Premature interruption of pouring due to workman's error (assumption mold is filled due to rapid filling and overflow of choked sprue).

Note: Do not confuse with defects E 121 and E 123.

Remedies

- Have sufficient metal in the ladle to fill the mold.
- Check the gating system.
- Instruct pouring crew and suprave pouring practice.

(Examples follow)
E 122 - Cast Iron, Green Sand
Gray iron castings with attached riser and runner system.

Above: Good castings
Below: Castings have been poured short due to insufficient metal remaining in the ladle (castings and riser at same level).

A portion of the casting is missing. The cope surface is usually concave and the sidewalls may extend upwards as fins which more or less follow the edges of the mold.

The missing portion, especially in the case of thick parts, may be localized within the interior of the casting, which appears to have been drained.

Do not confuse with E 121 (misrun) and E 122 (poured short).

Possible Causes
- Poorly-sealed mold or insufficient strength of mold walls or cores (esp. for thick castings); the walls break under high metallurgical pressure.
- Negligence in sealing holes used for mold or core assembly.
- Poorly-sealed core vents.
- Surfaces of cope and drag pattern plates do not match (warped). In hand molding - poorly-sealed mold joint; in machine molding - warped plates.
- Insufficient mold weights or clamping force (see also defect A 121).
- Premature shakeout (casting not solidified).

Note: In the case of an improperly weighted or clamped mold, this defect occurs in conjunction with defect A 121 (raised mold).

Remedy
Correct the possible causes listed above.

(Examples, following page)