

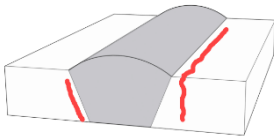
# WELDING TROUBLESHOOTING GUIDE

WELD-ON GET

## WELD CRACKING

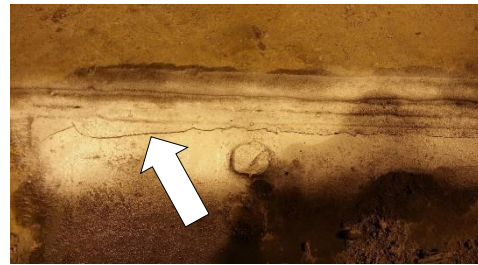
Cracks in a weld, or in the vicinity of a weld indicate that one or more problems exist that must be addressed.

### 1) Heat affected zone cracking in the casting - close to weld, on sides and under



Inadequate preheating can result in cold cracking in the heat affected zone adjacent to the weld joint.

- Causes:**
- Inadequate Pre-heat
  - High Hydrogen level in consumables
  - Moisture/Wet environment
  - Uneven and rapid post weld cooling

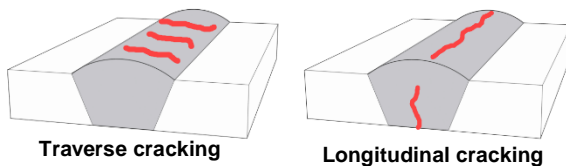


Example of heat affected zone cracking.

**Corrective measures:**

- Follow OEM preheat Inter-pass/Post-weld cooling instructions& Weld wire selection

### 2) Longitudinal or traverse cracking in the weld



Inadequate preheating, consumables or weld parameters can result in longitudinal or traverse cracking in the weld bead.

- Cause:**
- Incorrect consumables (low ductility wires)
  - Low depth to width ratio of the weld
  - Incorrect weld(electrical) parameters

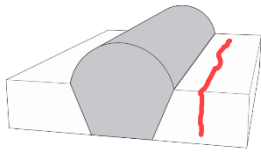


Example of longitudinal cracking.

**Corrective measures:**

- Follow OEM consumables recommendations.
- Follow correct depth to width ratio of the weld.

### 3) Stress cracking – close to weld



Over welding and inadequate preheating can result cracking from the edge of the casting and propagating through the rest of the part.

**Cause:**

- Over welding causing excessive heat & H2 content
- Inadequate preheating and post weld cooling resulting in lower hydrogen diffusion later causing H2 related cracks.



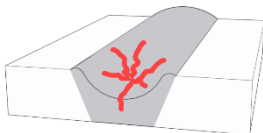
Example of stress cracking.

**Corrective Measure:**

Follow OEM instructions on H2 control, heating & cooling.

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### 4) Crater cracking at ends, flux core welding wire



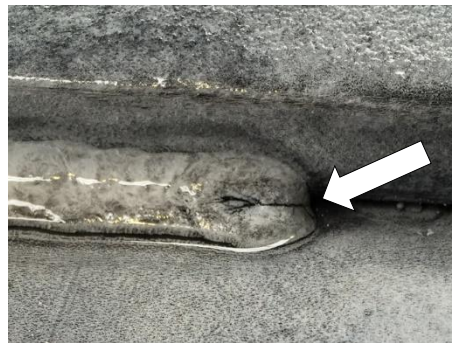
Flux core welding wire is prone to crater cracking at the start and end points.

**Cause:**

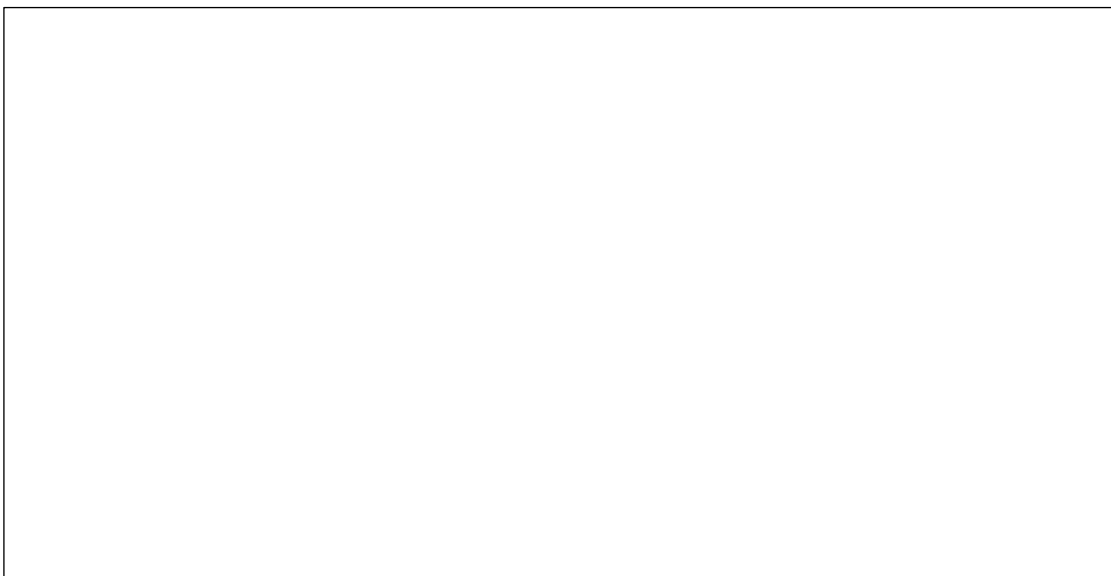
- Flux cored wire.

**Corrective measures:**

It is important to grind the crack out before laying the next weld layer to avoid the crack propagating through the weld.



Example of crater cracking.



Rev #	Notes	Prepared By	Checked By	Approved By	Date
0	Initial Release	R.Lauchlan	-	-	14.11.2021
1	Contests revised based on review comments from weld consutnat	J.Jose	Weld consultant	M.Javadi	21.02.2023