

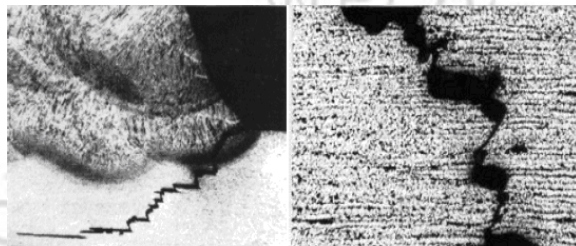
Cracks produced by welding in a previously rolled plate

The cracks produced by welding in a previously rolled plate result from the combination of a series of stresses highly localized.

► This process occurs due to :

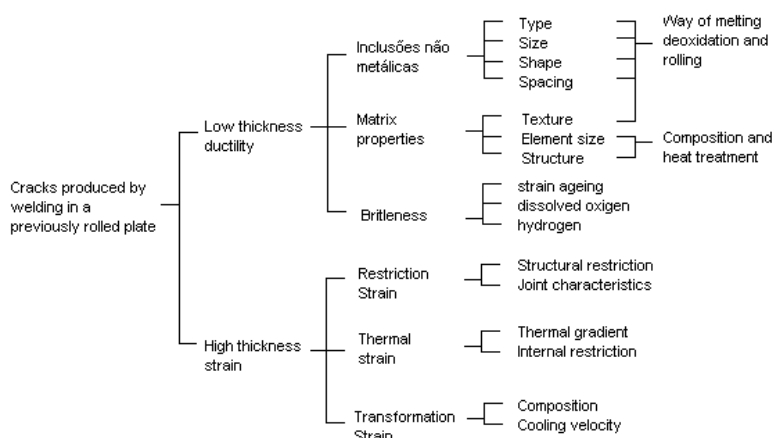
- Welding process ,
- A low ductile base material in the thickness direction.
- Presence of long and aligned non metal inclusions to the rolling direction.
- High thickness plates.

► Aspect of a sample material featuring cracks



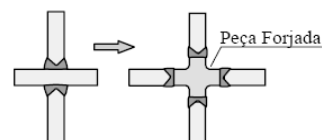
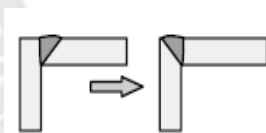
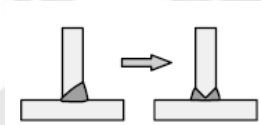
(a) Macroscopic and (b) microscopic aspect

► Factors that influence the process



How to avoid these type of cracks?

- Increasing the ductility of the material.
- Maintaining the steels amount of sulfur as low as possible (never above 0.01%)
- Change the welding cord



- Use of the technique “buttering”, that consists in machining the place in the base material that is going to be weld, by depositing there a ductile material (ex nickel alloys).

