

Dare to see inside



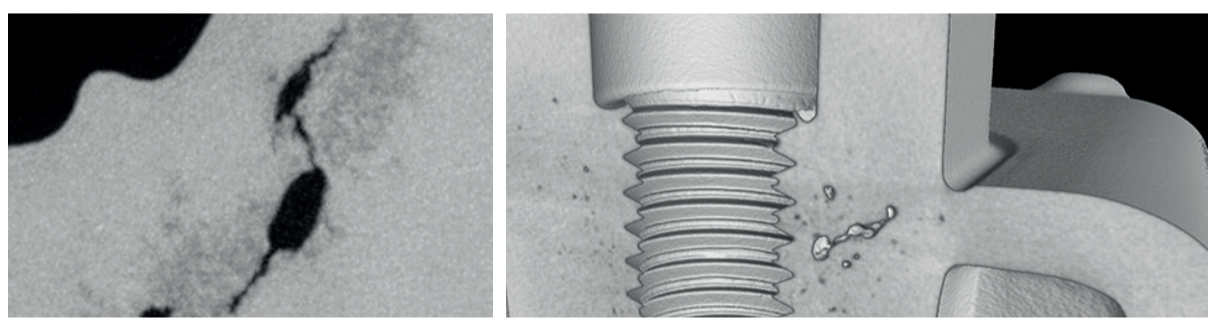
Seeing beyond

During the complex manufacturing process of castings, various defects can occur that are not only on the surface. Inside, they can sometimes have a major impact on the stability of the part. However, incorrect geometries also make casted parts useless for later assembly. This is why it is important to detect defects reliably and early enough. This is possible thanks to X-ray technology – with only one scan!

Possible defects inside or on the surface

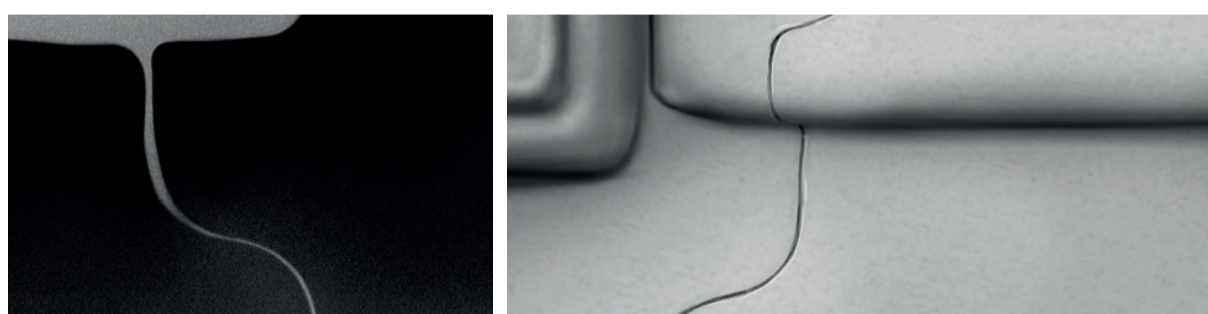
Shrinkage holes

Shrinkage holes are sharp-edged, gas-empty cavities that are often connected to each other. The reasons for this are e.g. too low holding pressure or suboptimal position of the gate.



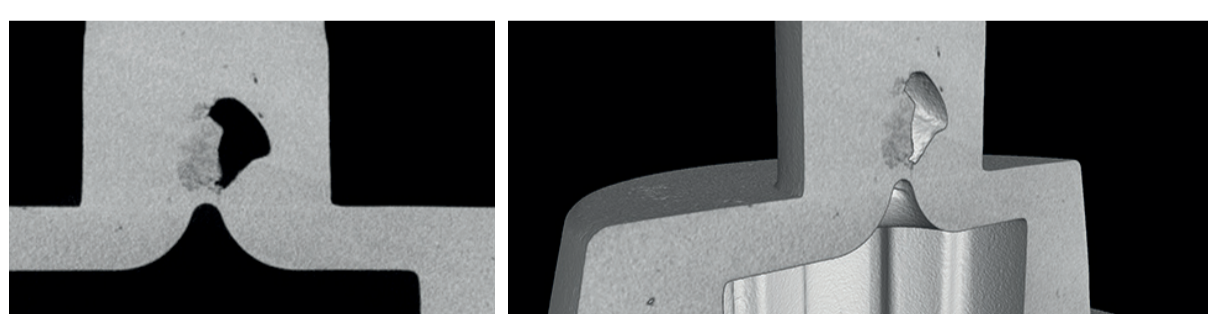
Flashes

Flashes are thin metal foils on the casting, caused for example by a too high gate velocity or an incorrectly adjusted clamping unit.



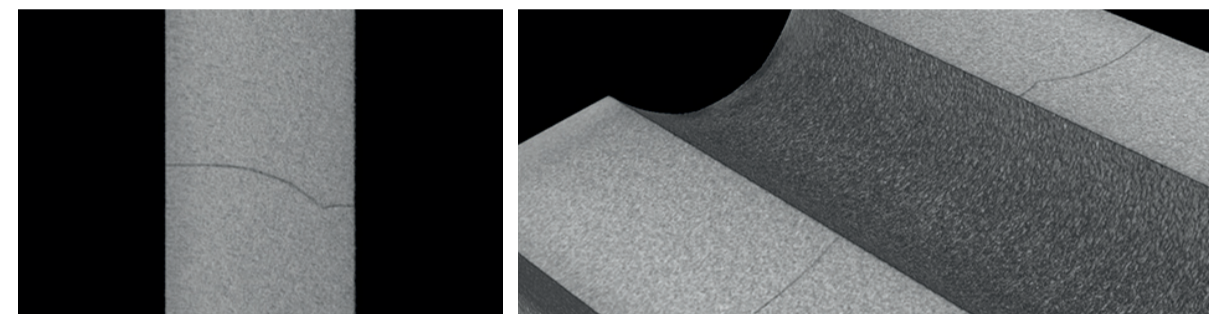
Incomplete filling

This defect describes areas of the casting that are not or not completely filled in, or whose contours are not clearly reproduced, for example due to insufficient plunger speed or insufficient holding pressure.



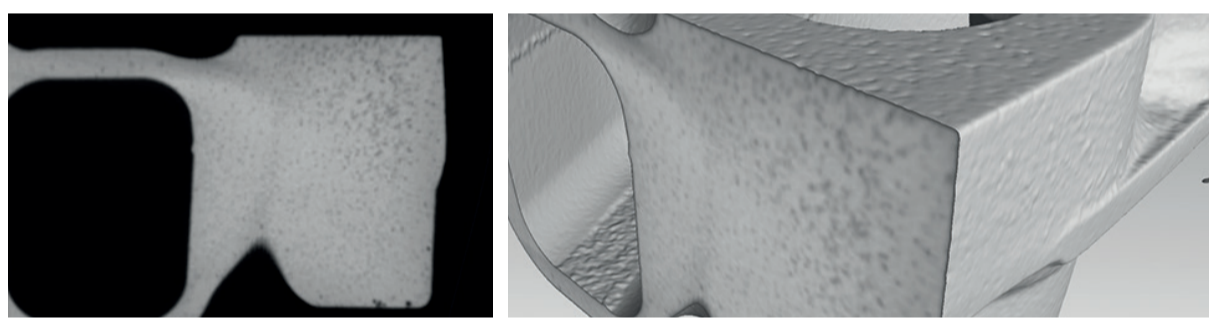
Cracks

Contaminations and an excessively high gate velocity can, for example, be reasons for the development of crack structures or thermal fatigue.



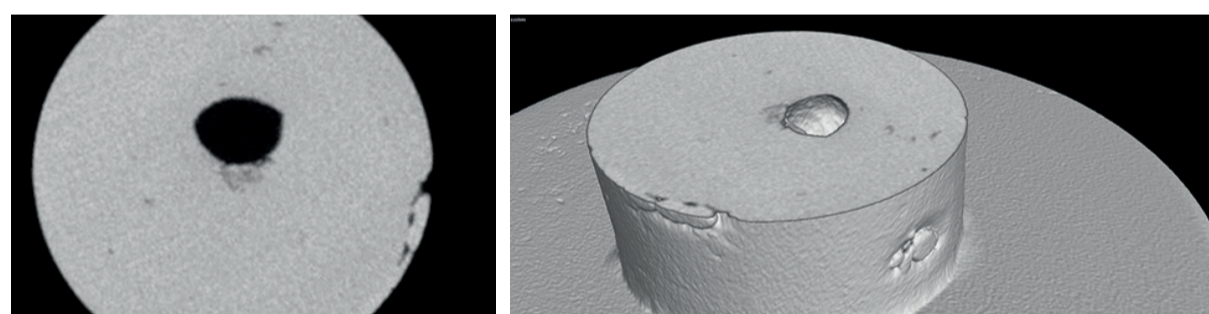
Pores & porosity

Pores describe spherical gas inclusions which are caused by the gasification of e.g. release agents or due to inadequate die venting.



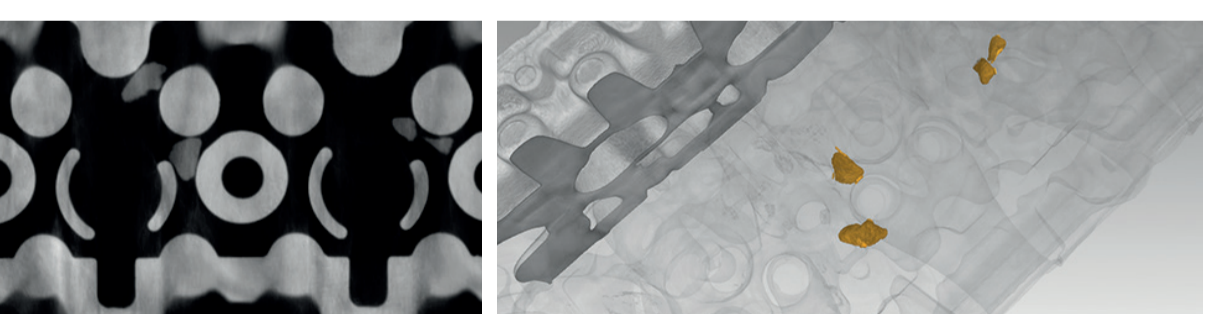
Joint & cold shot

This defect describes lines or grooves which are caused by a too low molding or melting temperature, sometimes also by a too long mold filling time.



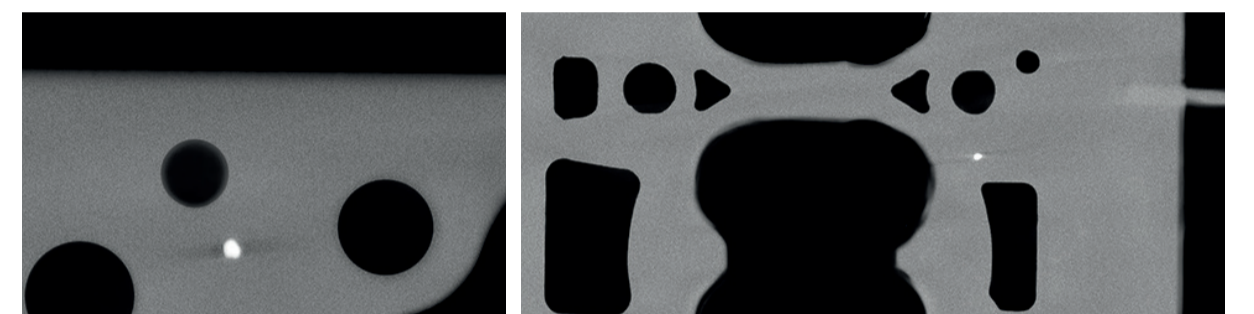
Sand or salt residuals

Often moulding sand or salt remains inside the casting after decoring. With X-ray, this becomes visible and the part can be cleaned and then further processed.



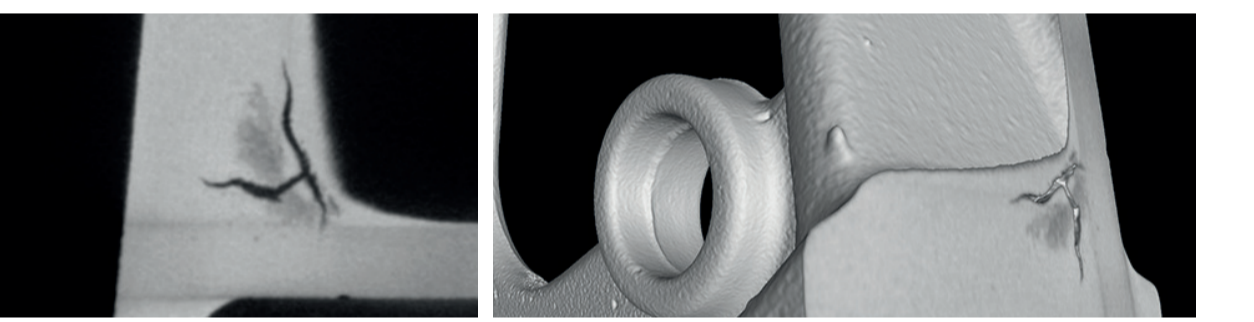
Inclusions

Inclusions are material components that are usually harder than the base material. They are caused, for example, by contaminated casting material.



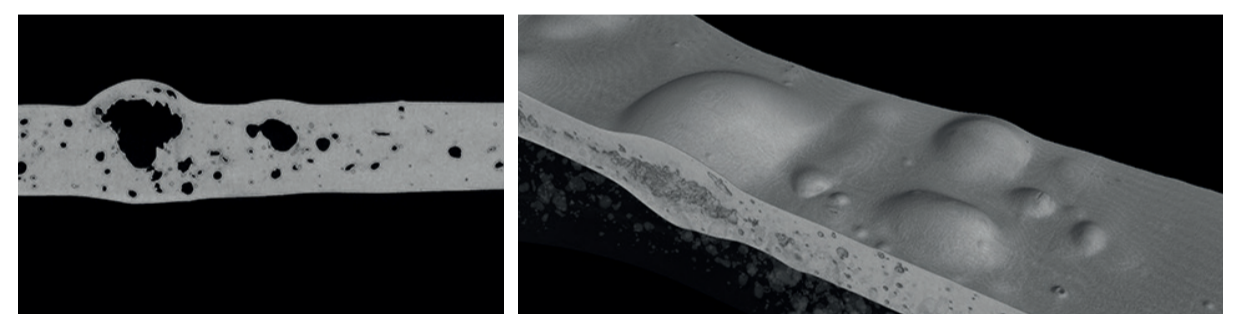
Spongy areas

Spongy areas are accumulations of small pores or shrinkage holes which can severely impair the stability of the casting.



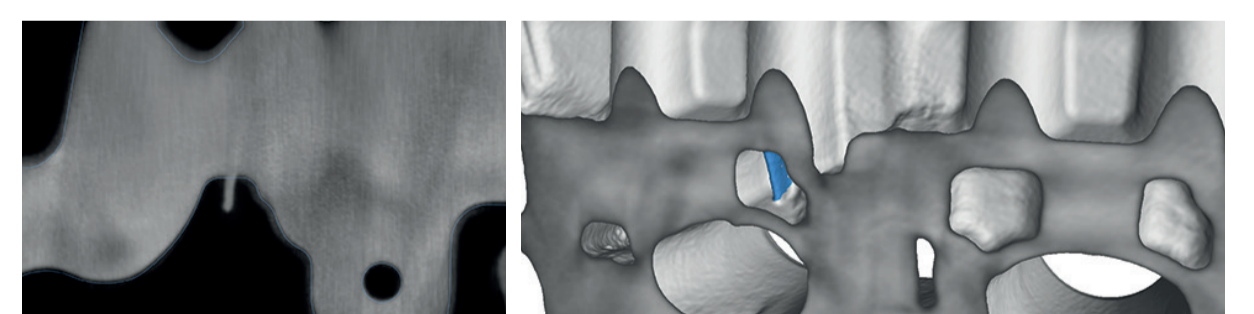
Blisters

The reason for bulging in the form of blisters on the casting surface is, for example, too high a casting temperature or plunger speed in the second phase.



Broken core

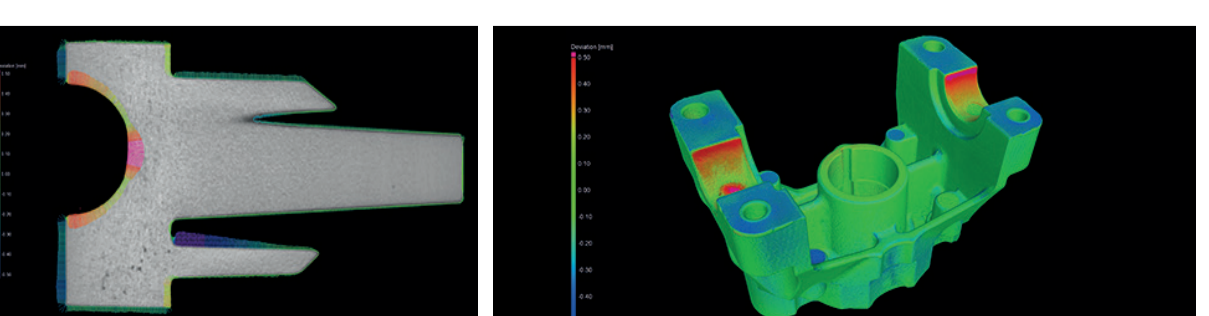
The breakage or disintegration of a core can be caused e.g. by non-optimal mold material composition or excessive thermal stress on the casting material. This changes the structure of the mold, so that the casted part has incorrect geometries.



Possible defects in terms of geometric deviations

Deformations

Particularly in the case of long, heavy castings, deformation may occur during further transport, if the material has not yet completely cooled down. These deformations become visible in a target/actual comparison, for example.



Displaced sand or salt core

If mistakes are made when positioning the core in the mold before casting, the geometries of the casting no longer match the CAD model. The component is, thus, no longer usable for assembly.

