Marking

Anneal Marking on Cast Iron

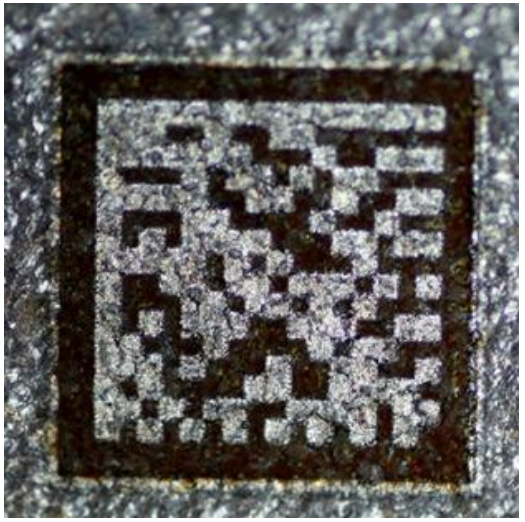
Anneal marks are created on cast iron by heating the work piece with a laser beam to form an oxide layer at the surface, which creates a colour change to the surface of the work piece. A common use for marking cast iron is to produce QR codes or data matrices for traceability.

In the anneal marking process the material surface is not melted so no material is removed and the mark is achieved through the solid state growth of an oxidised layer.

The challenge is to produce a permanent mark which can be easily read on various surfaces and that the marking process is repeatable and reliable. SPI's G4 40W HS-H Fiber Laser can produce a very high quality black mark. By creating a white background behind the area to be marked gives the anneal mark greater contrast and visibility, while also increasing the angles the mark can be observed from.

The HS-H type laser is mainly used for applications which require fast processing of large areas. This is because the higher M^2 value of the HS-H type laser produces a broader and uniform energy distribution and therefore does not have a hot-spot like most single mode lasers.

This type of mark can also be produced on a few types of steel, but the result is very dependent on the grade of material. To produce a 8mm² mark takes around 20 seconds, depending on the volume of marking required in that area.



Application Parameters

Type	G4 40W HS-H
Power	40W
M^2	2.5-3.5
Beam Ø	7.5mm
Scanner/Lens	>8mm / 163mm FL
Energy	Depends on colours and material