Reducing process tooling weight

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additive manufacturing
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Sector: Metalworking
Challenge: To reduce the weight of the tool used to tighten a longitudinal steel-cutting shaft. The aim was to reduce the weight by 50%.

Solution: Material was hollowed and removed to improve the ergonomics of a tool that, in this case, is handled manually.

CHALLENGE

This is a hydraulic nut that applies a tightening pressure of 100 bar on the blade shaft of a longitudinal cutting line of flat steel coils.

The multiple changes in process specifications require handling this 9.5 kg nut approximately 20 times per shift, resulting in operator fatigue, slowing down tooling changes and increasing staff rotation at this workstation.

9,5 Kgs

- 50 % Kgs

SOLUTION

Additive technology is used to optimise the design and use the material necessary for manufacture. This ensures part functionality and improves ergonomics of a tool that is handled manually.

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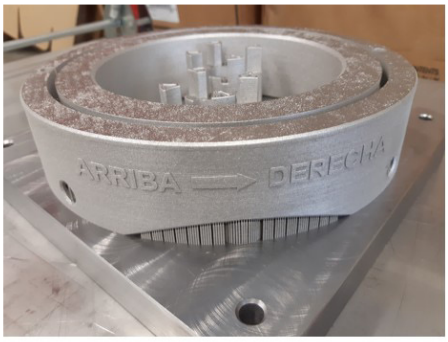

Final Machining

ADVANTAGES

Advantages obtained:

- A reduction in the weight of the M160 nut by 54%. Final weight: 4.36 Kg.
- Improvement of handling ergonomics for the operator.
- Staff rotation at this workstation is reduced and team experience is increased.
- Reduction in blade changing times.
- Customisation of the nut to prevent incorrect use due to confusion.