



Challenge



Engineering Solution



Outcome

**Case study:** Machine Base Frame

# CONVERSION SOLUTION

## 17-PCS WELDMENT TO ONE-PIECE SAND CASTING

### Challenge

Interest for development of a stronger, lighter and more cost-efficient base frame component in alternative to the present 17 pieces welded component.

### BEFORE: WELDMENT



Fabrication weight: **88,1 kg/pcs**

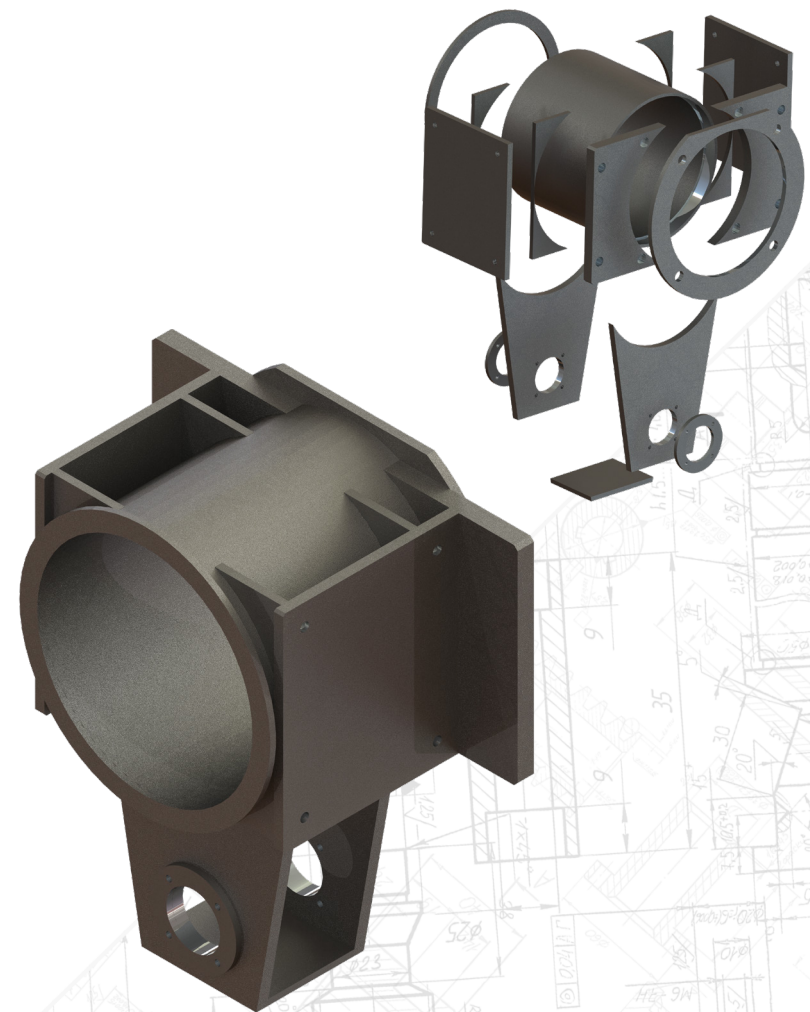
### Mechanical Properties for **S 420 MC**

ReH Yield strength (MPa): 420 N/mm<sup>2</sup>

Rm Tensile strength (MPa): 500 N/mm<sup>2</sup>

### Weldment

Material Alloy Grade: S420 MC acc. to EN 10149





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# ENGINEERING SOLUTION

ADI - (AUSTEMPERED DUCTILE IRON) CASTING

**AFTER: CASTING**



Casting weight: **73,8 kg/pcs**

## Mechanical Properties for ADI / JS/900-8

ReH Yield strength (MPa): 600 N/mm<sup>2</sup>

Rm Tensile strength (MPa): 900 N/mm<sup>2</sup>

## Castings Alloy

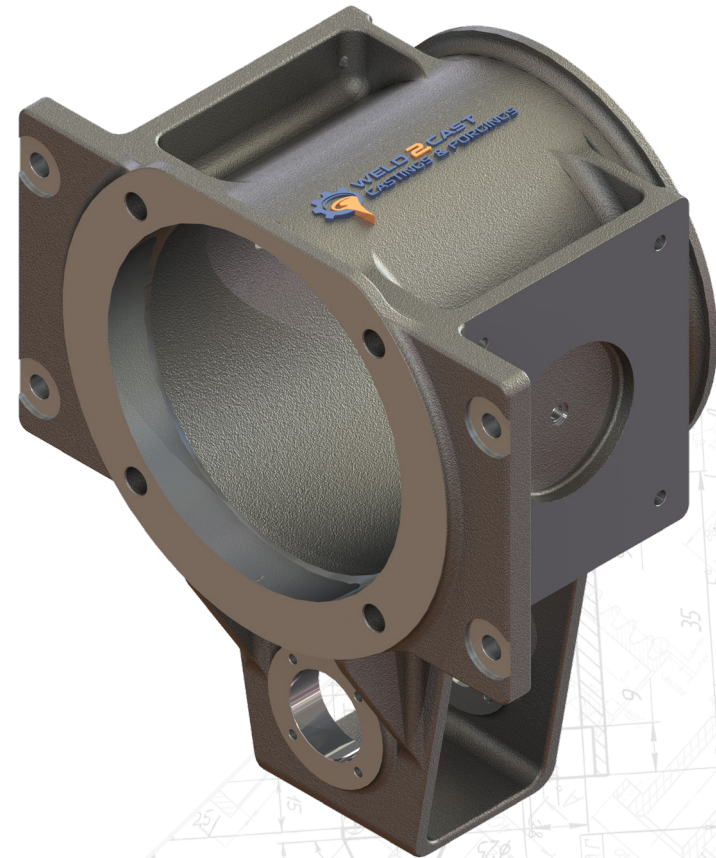
ADI/JS/900-8 Acc to standard ISO 17804

## Casting Method

Sand Casting (Semi-automatic Moulding)

## Add Value

Finish machining





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# ENGINEERING OUTCOME

## RESULT OF THE CONVERSION



- 17%

### Weight Optimization

From 88,1 kg/pcs in Fabrication to 73,8 kg in Iron - (Austempered ductile iron) Casting.



- 53%

### Total Cost Reduction

Saving cost by redesign of shape, material & weight.



min. + 30%

### Strength Optimization

Improve material strength by changing the Steel Fabrication Alloy S420 MC to an Iron - (Austempered ductile iron) Casting, ADI / JS / 900-8.

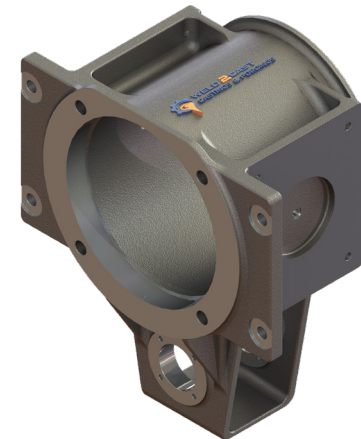


min. + 60%

### Product Efficiency

WELD2CAST transformed a 17-pieces part into a one-piece Casting. The redesign simplified the assembly process for our client and reduced internal labour, manufacturing, inventory and overhead cost.

Combine Your Castings & Forgings with Our ADD-VALUE Services

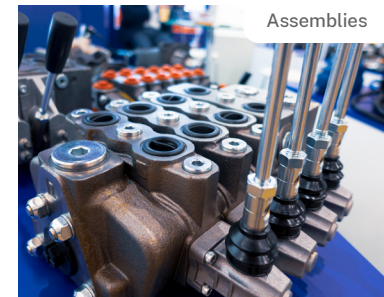


### Need assistance...

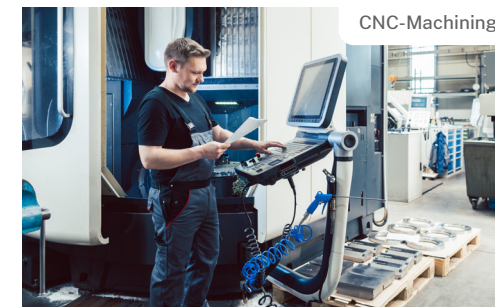
in determining if your welded part is a good candidate for a conversion to casting?



Surface Finishing



Assemblies



CNC-Machining



Stock Keeping