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# Cost reduction for large telecom components with Rheoweld

# Background

In Telcom and other industries the components are becoming larger and more complex why the requirements of machine size are growing day by day. When meeting such a challenge Comptech went the other way by using two opportunities given by Rheocasting: the use of smaller machine due to metal pressure and the weld seam quality based on extremely low porosity level. The result was a surprise as the total cost was decreased but also the part weight.

# The component and its design challenges

When analyzing the design drivers, it was clear from the beginning that the thermal conductivity called for an alloy with 190 W/mK and this not castable with HPDC. Further the flow length was giving wall thicknesses that increased the weight as well as the fins of +110 mm required very low draft angles. Further details are presented in the picture below.



## The result

The tech team at Comptech worked with two parallel projects and the results are compared as below:

Factor/ Version	HPDC large machine	Rheo and welding	Remark
Total cost level	198 EUR complete	172 EUR complete	Welding cost included
Machine size	4500 - 5500 tons	3 parts: 1000 tons machine	If using HPDC - 1600 tons would be required
Wall thickness (base plate)	6-8 mm	3,5-4,5	Pressure distribution advantage in Rheocasting
Weight reduction	NA	- 8-10 %	The weight saving can be more optimized
Yield and quality	Problematic	Normal	Much shorter flow length

### Future opportunities

We have not analyzed some of the important cost drivers in our project, such as:

- Thermal conductivity as a design driver has not been used and with results showing 190 W/mK there might be some design advantages to use lower fins to further decrease the weight.
- Yield, that will be decreased as the longer the fin length the higher risk of quality issues as mice bites, por tool filling and cold flows.
- Tool cost, as very large tools are more complex to handle why tool wear, maintenance and others are probably driving cost very much. It is also a shorter lead time for the two or three tool design to be considered.

### About Comptech AB

Comptech AB is a research and development driven foundry that sell equipment for Rheocasting. We have a large R&D portfolio that has resulted in processes and alloys for: thin walls (0,4 mm thick), high heat dissipation (200 W/mK), high elongation, high strength (380 MPa Yield stress) and pressure tight parts (up to 150 bar). We work with universities and customers to reach these results and welcome new potential customers to take advantage of our findings. For more information, visit www.comptech.se

