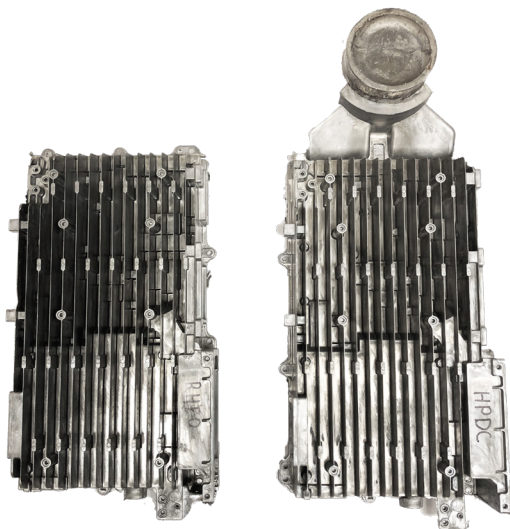


# Cost reduction based on flow length

The major design driver for chassis and large, complex components is to achieve even larger components to a lower cost. Since low costs basically is yield and wall thickness in this case, the design team at Comptech has made a study on real parts to put some light on the filling behavior of HPDC versus Rheocasting to support our automotive customers.

## How we made the study

A very complex component was chosen to get data for similar components. This is a challenge similar to more advanced chassis components which you can see below.



Weight: 4250g.

Fin height: 40 mm.

Average wall thickness: 3,5 mm.

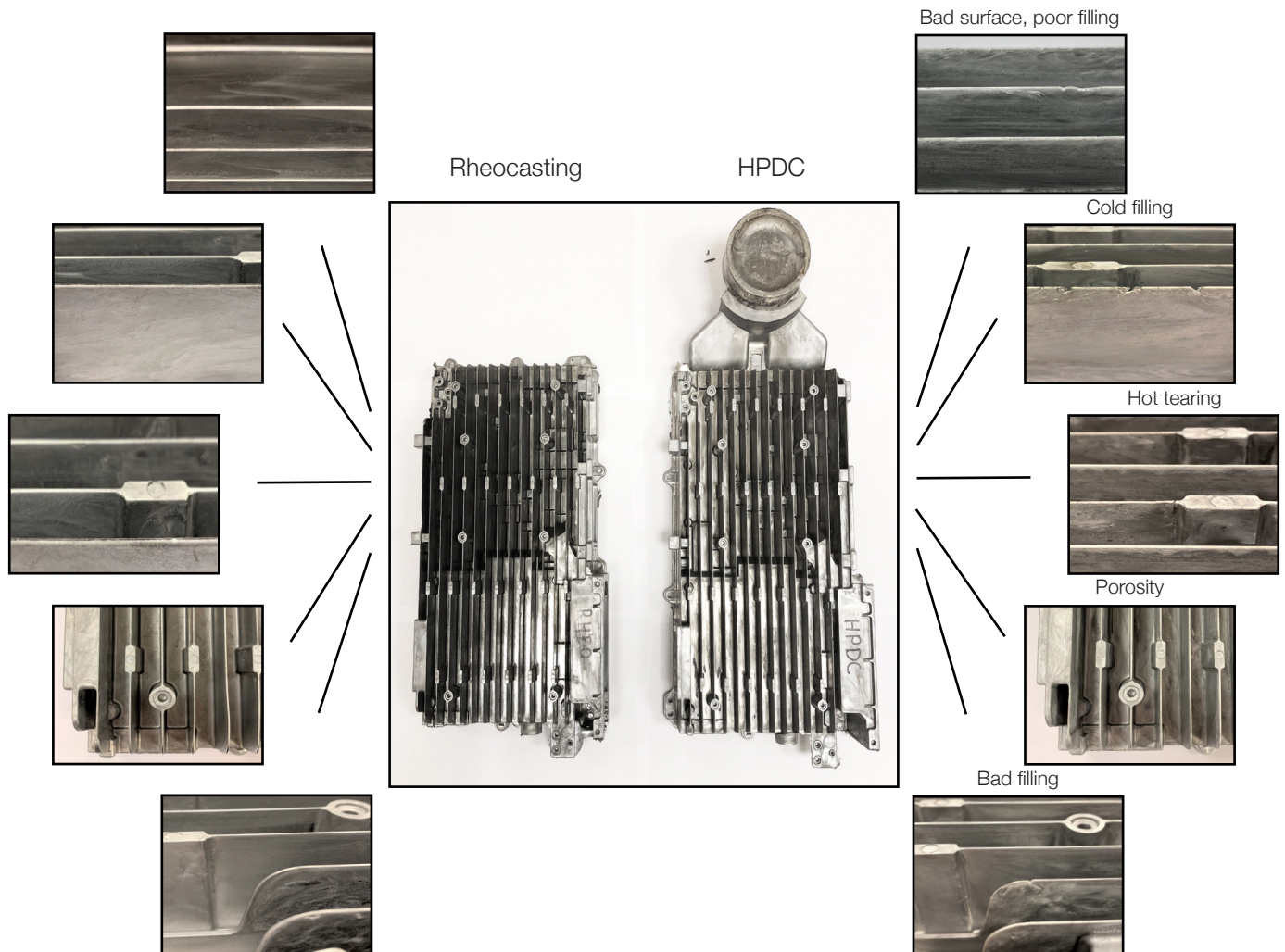
Casting machine: 840 ton Buhler.

The production was based on the following parameters:

Factor/Process	Rheocasting	HPDC
W/mK	160-180 W/mK	125 W/mK
Tool life length	+180 shots	100k shots

## The results

With our customer we concluded that the Rheocasting provided both the form filling due to better flow length and very attractive mechanical properties.



## Mechanical properties

With Rheocasting we achieved 15% average elongation, 120 MPa in yield strength and 250 MPa in rupture strength. With these results and given the complexity of the component we assume that this opens new design opportunities for chassis designers.

## Future opportunities

The big question is how much longer the flow length is with Rheocasting and a research project has started to make a theoretical model for flow length that we later will verify with practical experiments.

- *Welding would be interesting as the Rheocasted components has a very low porosity level giving a better weld seam quality and hence allows the use of thinner walls and yet with a reliable weld.*
- *Wall thickness is yet to be analyzed as better mechanical data gives the opportunity to reduce the wall thickness, hence a reduced weight and the limit will be found by practical trials.*

## 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, high heat dissipation, high elongation, high strength and pressure tight parts. 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](http://www.comptech.se)

