

CASE – ECOJET

At the DAMRC Technology Center the **Hermle C22U 5 Axis milling machine** was an important part of solving the challenge of machining a hole in an Inconel 718 turbine in the ECOJET project.

DAMRC is participating as an Research and Technological Development partner in this FP7 EU project. The project required a deep research as well as the employment of innovative technologies to solve the challenge of machining a $\varnothing 35 \times 50$ mm roughing hole in Inconel 718.



As this is a very hard to machine material, drilling was ruled out as an option. A circular ramping was used instead, where a spiral movement of the tool enables to machine this hard material. Moreover, it was also found, that ceramic tools offer a much higher productivity than conventional (carbide) tools.

Sandvik offers the necessary tool-holders and inserts to take advantage of the ceramic machining.

The machining was done in the **Hermle C22U 5 axis-milling machine**, which provides the stability that is of special importance for ceramic tools. After various tests, the results were:

Traditional tools:	1260 seconds (21 minutes)
Ceramic tools:	27 seconds = 42 times faster
Price reduction:	factor 6.6 cheaper milling with ceramic tools than traditional tools.



Projectname: ECOJET
 Partners: 9 international partners
 Budget: €1.6 MILL (≈ 12 Mill DKK)
 Time: 2 years

The aim of the ECOJET project is to design and develop an engine – based on an innovative radial gas turbine with an integrated electric generator.



The ECOJET project is addressing a major market opportunity through the optimization and deployment of a proprietary 10KWe micro gas turbine power generator into an innovative system solution - tailored for environmentally friendly micro CHP (Combined Heat and Power) applications for the residential sector. It is estimated, that micro CHP can help a consumer save close to 60% of their electricity bills.

For further information on working with DAMRC: www.damrc.com or call DAMRC Mobile +45 2154 5054

