# CASE STUDY

## Confidential/Switzerland

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SYNOVA S.A.
Route de Genolier 13
1266 Duillier
Switzerland
www.synova.ch

### PRODUCT

## Industrial Gas Turbine blades

The customer produces Siemens type gas turbines equipped with coated blades (TBC). A turbine blade is the individual component which makes up the turbine section of a gas turbine. The blades are responsible for extracting energy from the high temperature, high pressure gas produced by the combustor.

LMJ used for:
- Drilling
- Shaping

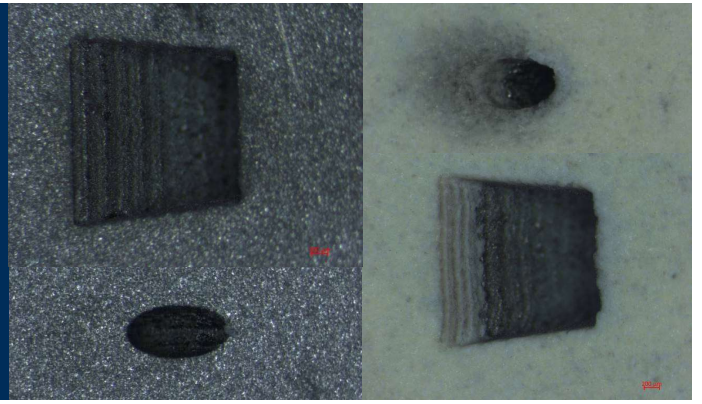
### CHALLENGE

## Surpass the quality issues of dry laser drilling

**The challenge was to avoid the heat related problems of dry laser drilling, maintaining high productivity**

Main processing criteria:
- No micro cracks
- No chipping of the coating
- Low recast
- Low roughness
- Drilling though the thermal coating
- Narrow tolerances
- No back strike

Machining technologies able to reach these criteria:
- Dry laser
- Laser MicroJet (LMJ) - water jet guided laser



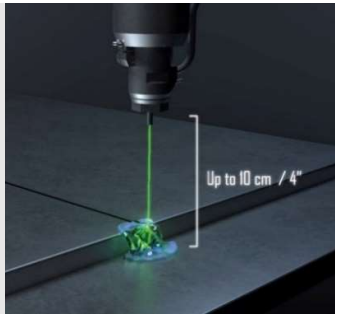
### SOLUTION

## Significantly higher quality

LMJ advantages versus dry laser:
- No thermal damages
- Very little recast layer
- No damage on the coating
- Shaped holes
- Back strike control

Installed machine type:
- 1 x MCS 300
- 200 W green laser

MCS 300




Sources: websites, Synova