**LEAP open shrouds processing by LMJ**

High pressure turbine shrouds for the CFM International’s LEAP Engine

LMJ used for:
- Ceramic Matrix Composite (CMC) shrouds processing: new material generation (lighter, stronger, generating less consumption)

**Gentle, precise, and high-volume processing for an exigent aero application**

Small blades, up to 5.6mm thickness
0.4mm diameter holes (1:14 drilling ratio)

Main processing criteria:
- Low/no HAZ & very low/no recast
- High throughput requisite
- Low consumable costs
- No burrs
- Minimized taper

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

**No HAZ, production-proven, better ROI**

LMJ advantages versus EDM:
- 24% faster
- Low consumables costs
- Production-proven (36k shrouds in 2020)

Installed machine type:
- 1 x MCS 500-5
- 200 W green laser
- Robot interface