

Cloud services for the seamless digital thread

Model based manufacturing

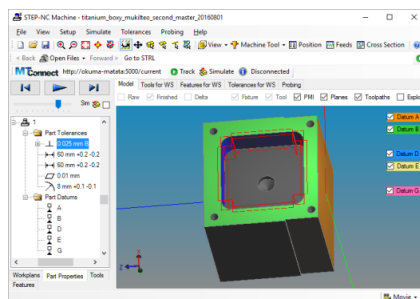
Model based metrology

A demonstration of cloud services for the Seamless Digital Thread will be given at the Future of Flight museum in Mukilteo, Washington on October 5th, 2016. These cloud services were developed under the sponsorship of the DMDII to reduce manufacturing costs by 15% or better and can be applied to all types of manufacturing activities.

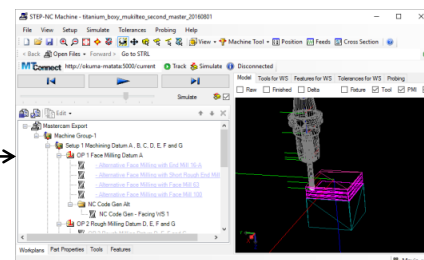
The new services use design requirements in the form of semantic GD&T to optimize and validate all stages of manufacturing. An NC generation service is used to make solutions for different machines and materials. A metrology service is used to validate planned and realized solutions. A tooling optimization service is used to minimize tool wear.

The services can be used with traditional machine tools and robots. They will be demonstrated on **live** remote CNC machining taking place at Boeing, Renton. Benefits include:

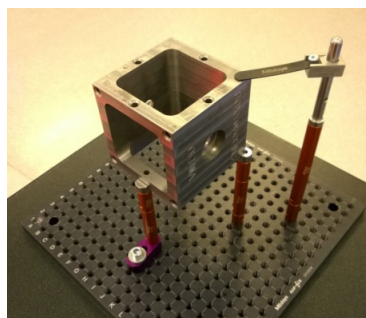
- Prevention of errors using just in time simulation
- Reduction in tool wear by keeping constant chip thickness
- Remote operation from tablets and smart phones
- Enhanced accuracy using integrated measurement
- Flexible **robotics** with automatically adjustable processes



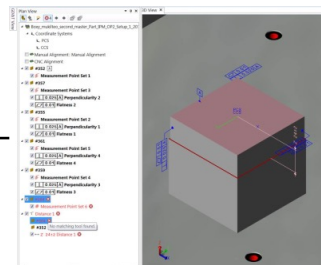
Part with
STEP
GD&T 1.



2. Real time mesh generation
from MTConnect



4. Real metrology as necessary
reported as QIF



3. Virtual metrology using CMM