AI-driven CNC machining optimisation software that eliminates chatter

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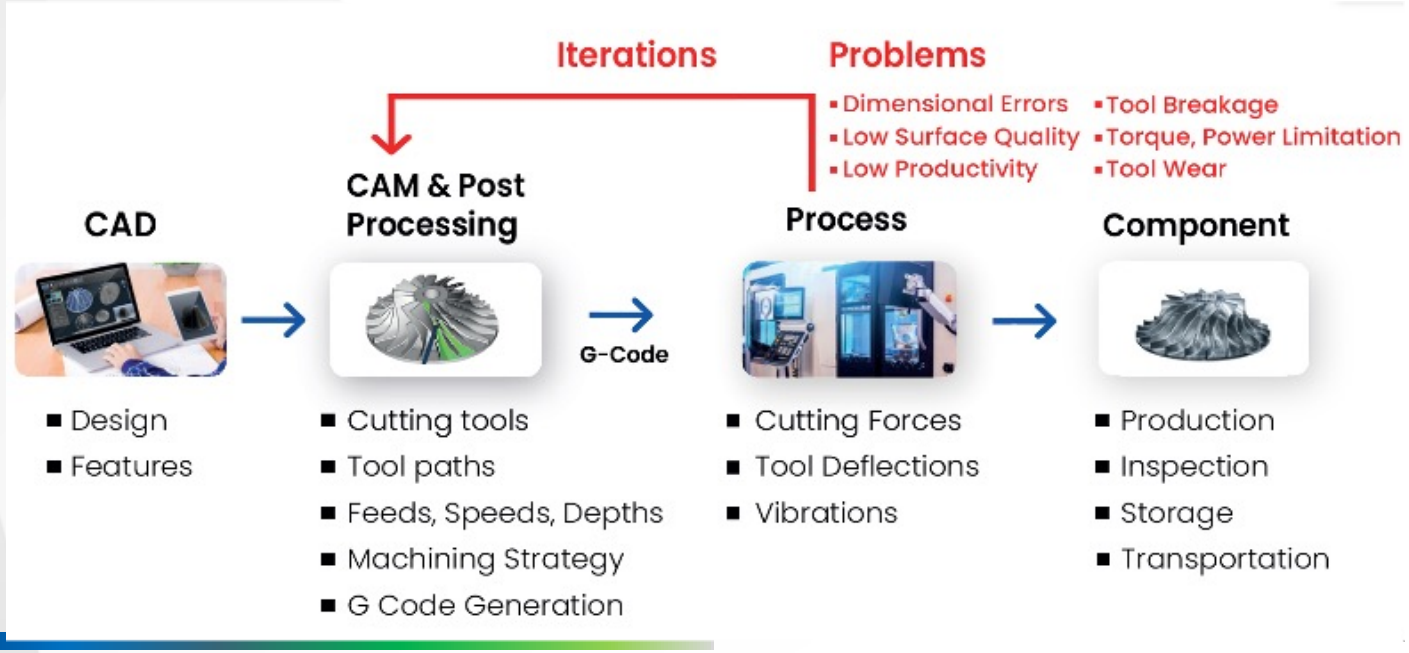
SIEMENS

Everyday reality of CAM programming

- Waste of resources due to trial and errors on machine tools
- Underutilisation of machine tool performance



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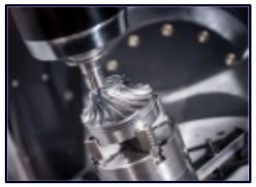
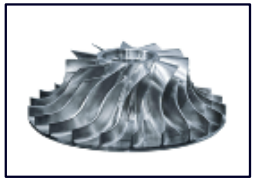
Solution: Eliminate problems during CAM

CAD

CAM & Post Processing



Machining Process



Finished Component

CAM operations

Optimized CAM operations

SenseNC™

Optimize Machine tool settings **for the whole toolpath using SenseNC™**

- Spindle speed
- Feed rate

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Solution: Eliminate problems during CAM

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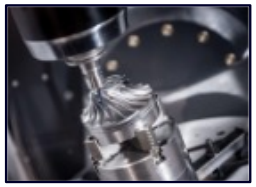
CAM & Post Processing



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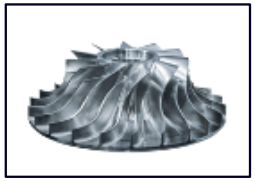

Finished Component

CAM operations

Optimized CAM operations

SenseNC™

Integrated **with Siemens NX CAM** and **Mastercam**. (Other CAM integrations are on the way)
Deployed on an on-premise server or on a cloud-based server, fast computation

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Main benefits of SenseNC™ for the manufacturers

Reduced lead times

Reduced costs

Increased production capacity

Reduced waste

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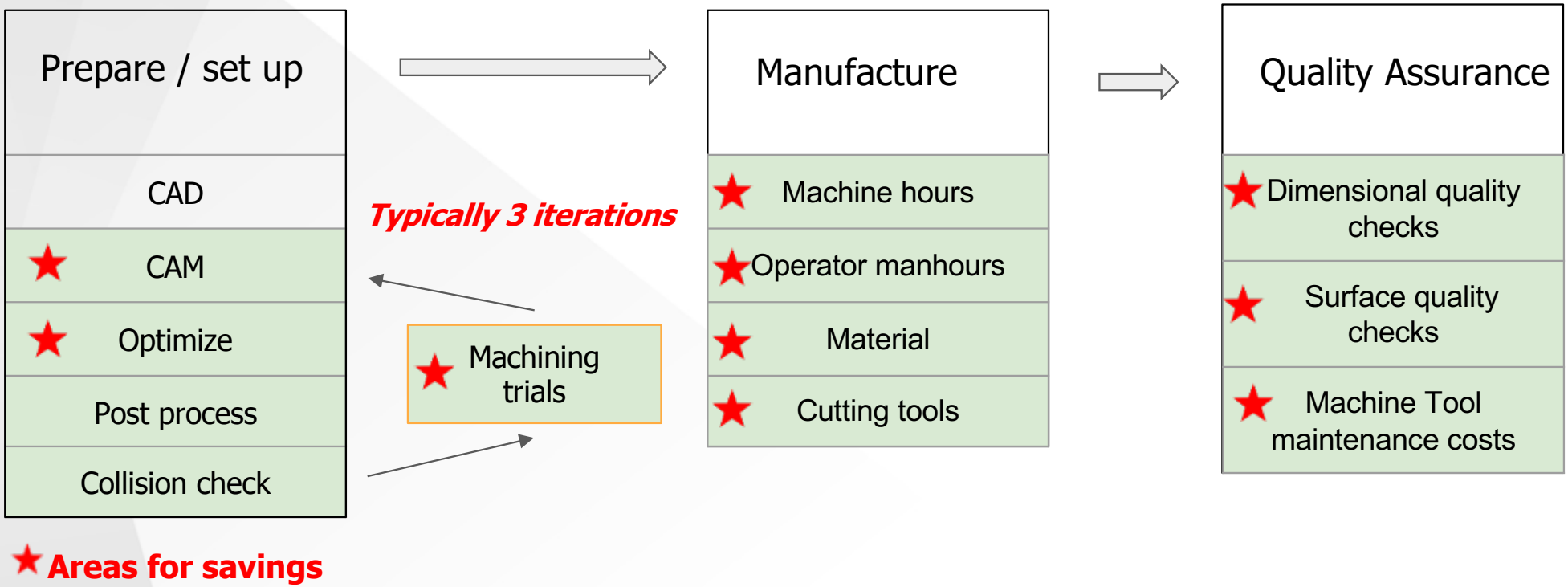
Cost Impact: £30k-£100k saving per machine tool per year



★ **Areas for savings**

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SenseNC™ platform

Feeds

Optimizes feed rates considering physical loading on the tools

Benefits:

- increased productivity
- avoid tool breakages
- eliminating trial and error iterations

Finesse

Eliminates chatter vibrations and optimizes both spindle speeds and feed rates.

Additional Benefits:

- more productivity increase
- improved surface quality
- reduced workshop noise

Tap test measurement is needed

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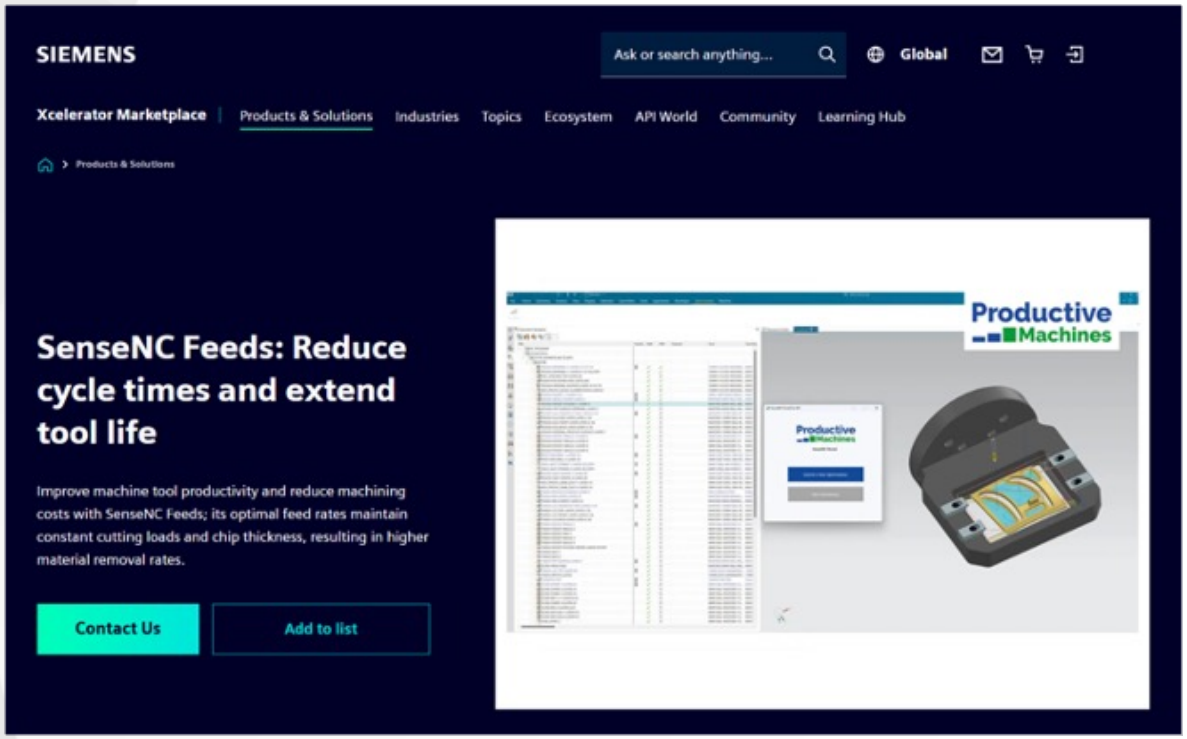
SenseNC™ Feeds at Siemens Marketplace



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Effect of SenseNC™ Finesse on the workshop

Original

Spindle Speed: 5968 RPM
Feed Rate: 822 mm/min

Optimized

Spindle Speed: 10200 RPM
Feed Rate: 2576 mm/min

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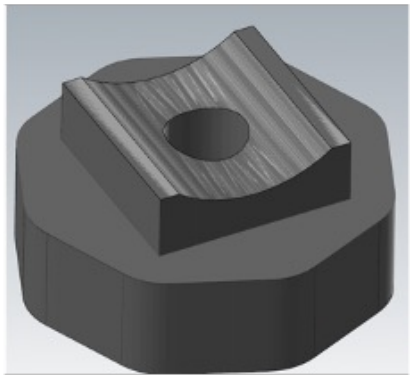
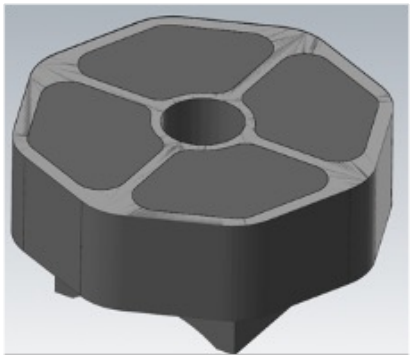
Case study

- Machine tool: DMU 60
- Tool holder: Sandvik Coromant CoroChuck 930 with Capto C5 backend
- Tools: Sandvik Coromant
  - 1P260-1600-XA 1620
  - 1B230-1200-XA 1630
  - 1P260-1000-XA 1620
- Workpiece material: Aluminium AL6061
- Clamping: Standard vice
- CAM software: Mastercam

Setup 1



Setup 2



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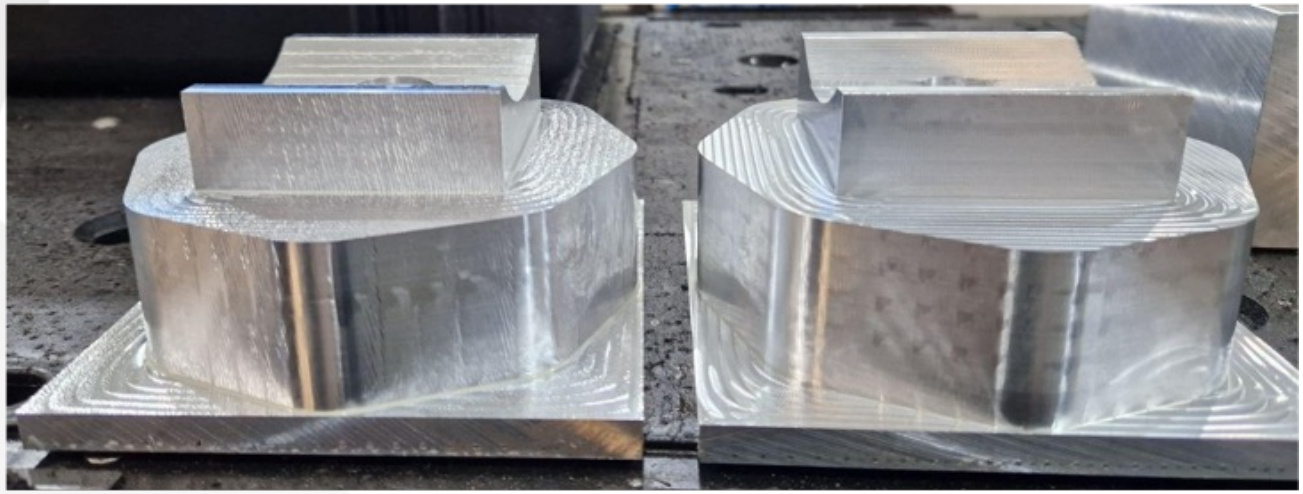
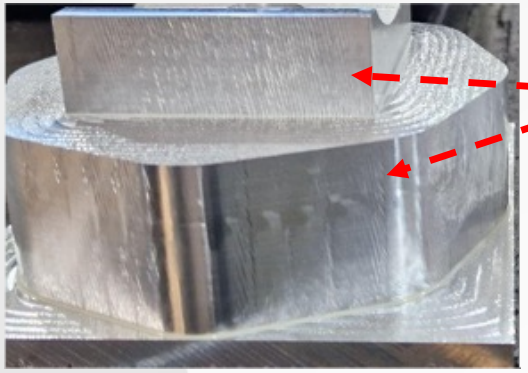
Case study



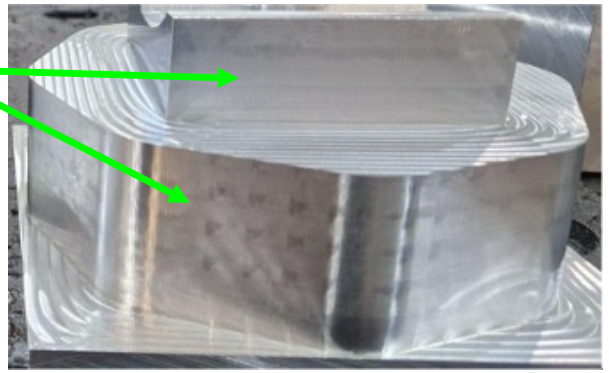
Reference part

SenseNC Finesse optimised part



Chatter marks

No chatter marks



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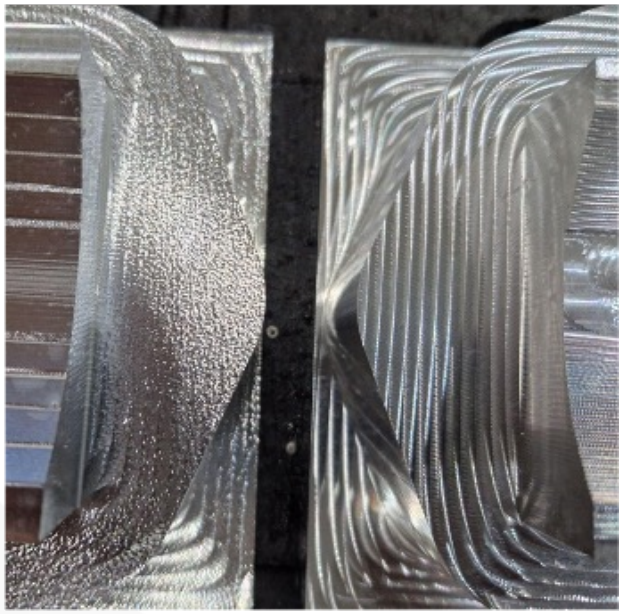
Case study



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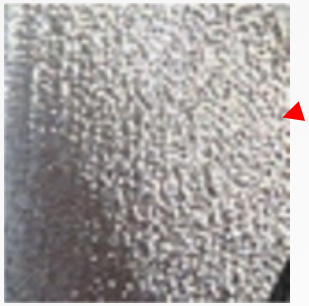

Rough finish

Smooth finish

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Example Production Impact

Aerospace company in Turkiye applied SenseNC Finesse in production of a structural part in aerospace

18-37% cycle time reduction translating to a considerable production capacity increase

Impact on production of a structural part in aerospace

Applied to 330 parts saving 330 hours production capacity in a few months

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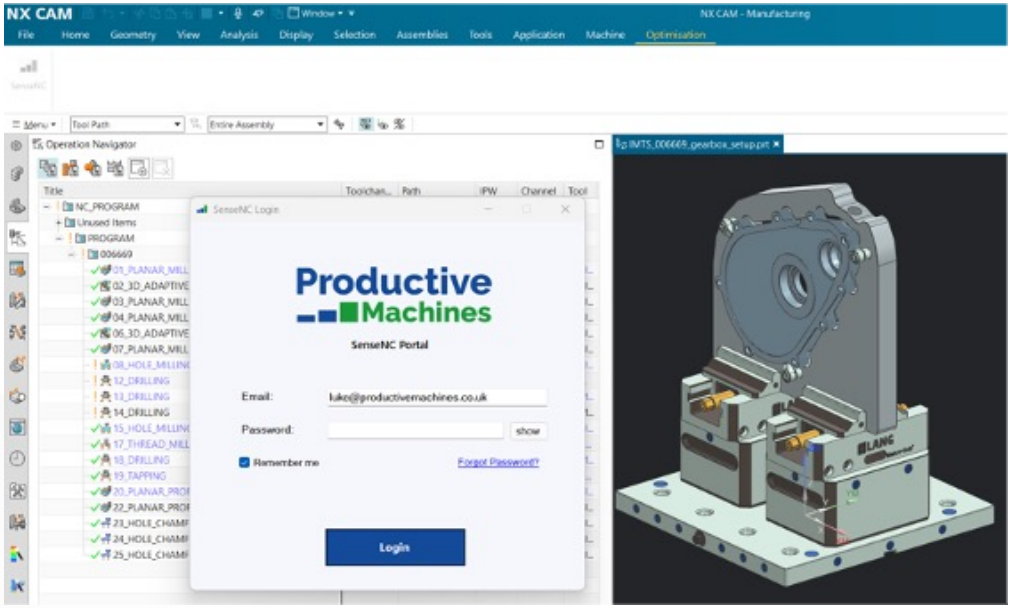
SenseNC™,Autonomous Milling Optimization in NX CAM

Reduce your lead times by eliminating iterations on the machine tools

Reduce your machining costs by using optimum feeds and speeds

Increase production capacity by using maximum potential of your machine tool system

Improve part quality by mitigating process physics related problems at the CAM stage



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Thank you for your attention!

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