

Labwork MMT/MB/WING: Experimental and simulative investigations of turning a steel material

M. Sc. Mechanical Engineering (Module MB-9701 Fachlabor Maschinenbau)

M. Sc. Manufacturing Technology (MMT-3 Laboratory Work)

M.Sc. Industrial Engineering (Modul MB-9703: Fachlabor Wirtschaftsingenieur)

As part of the lab, the machining of steel material is investigated. In this context, the students have the opportunity to

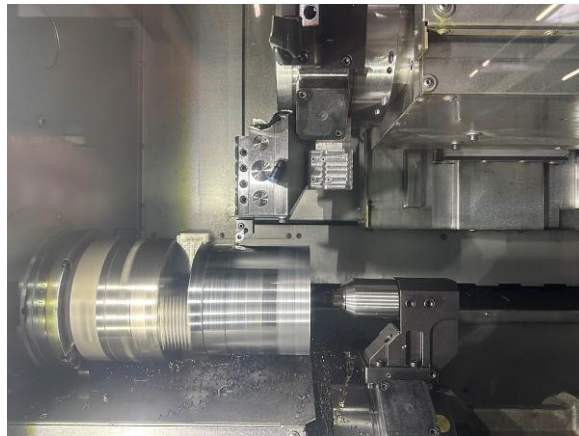
- ... gain **experience in the use of a machine tool**
- ... develop a deeper **understanding of chip formation, process behavior and the influence of cutting parameters**
- ... learn to **identify and analyze causes of process errors**
- ... connect **real experiments with finite element simulation**

In the **experimental part**, turning experiments are conducted by varying the cutting speed, feed rate and depth of cut. In the second section, which is carried out digitally, the influence of the **cutting insert** is investigated. In the third part, the machining process is modelled in **DEFORM 2**, allowing the students to gain practical experience in **finite element (FE)** based chip formation simulation.

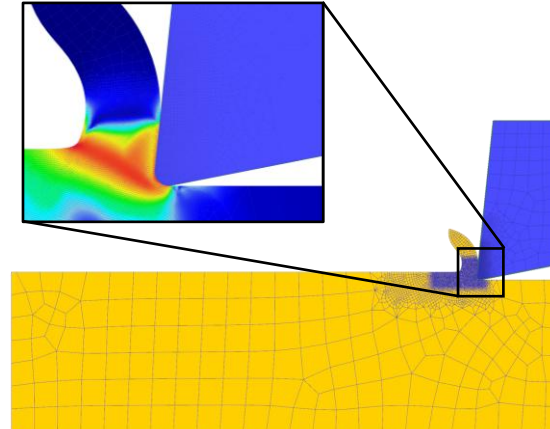
Machining tool Index ABC65



Experimental setup

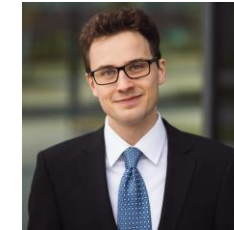


Chip formation simulation



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