

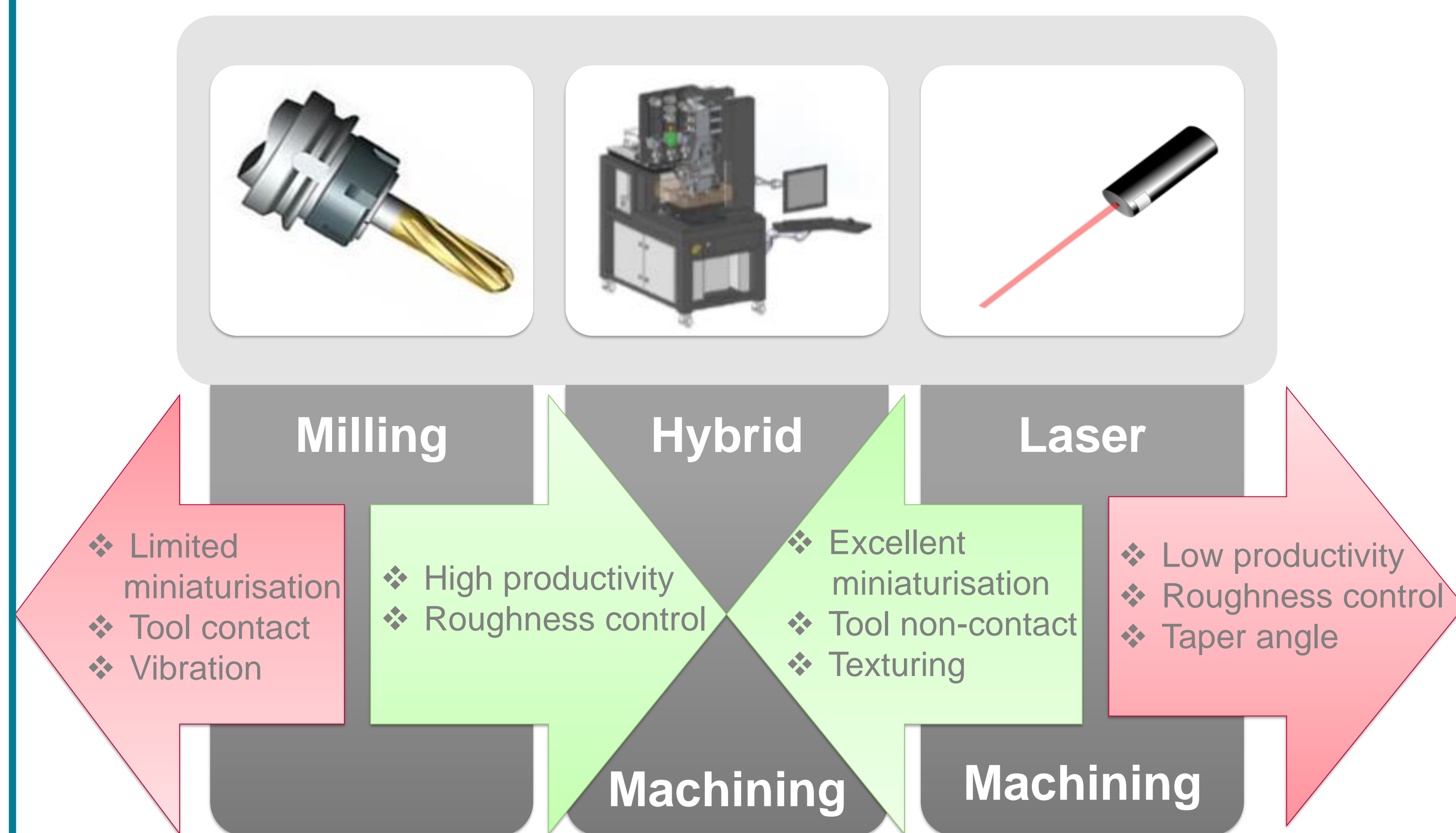


Hybrid machining on the Y-TZP ceramic Combination of the milling and the laser machining

Abstract [1]

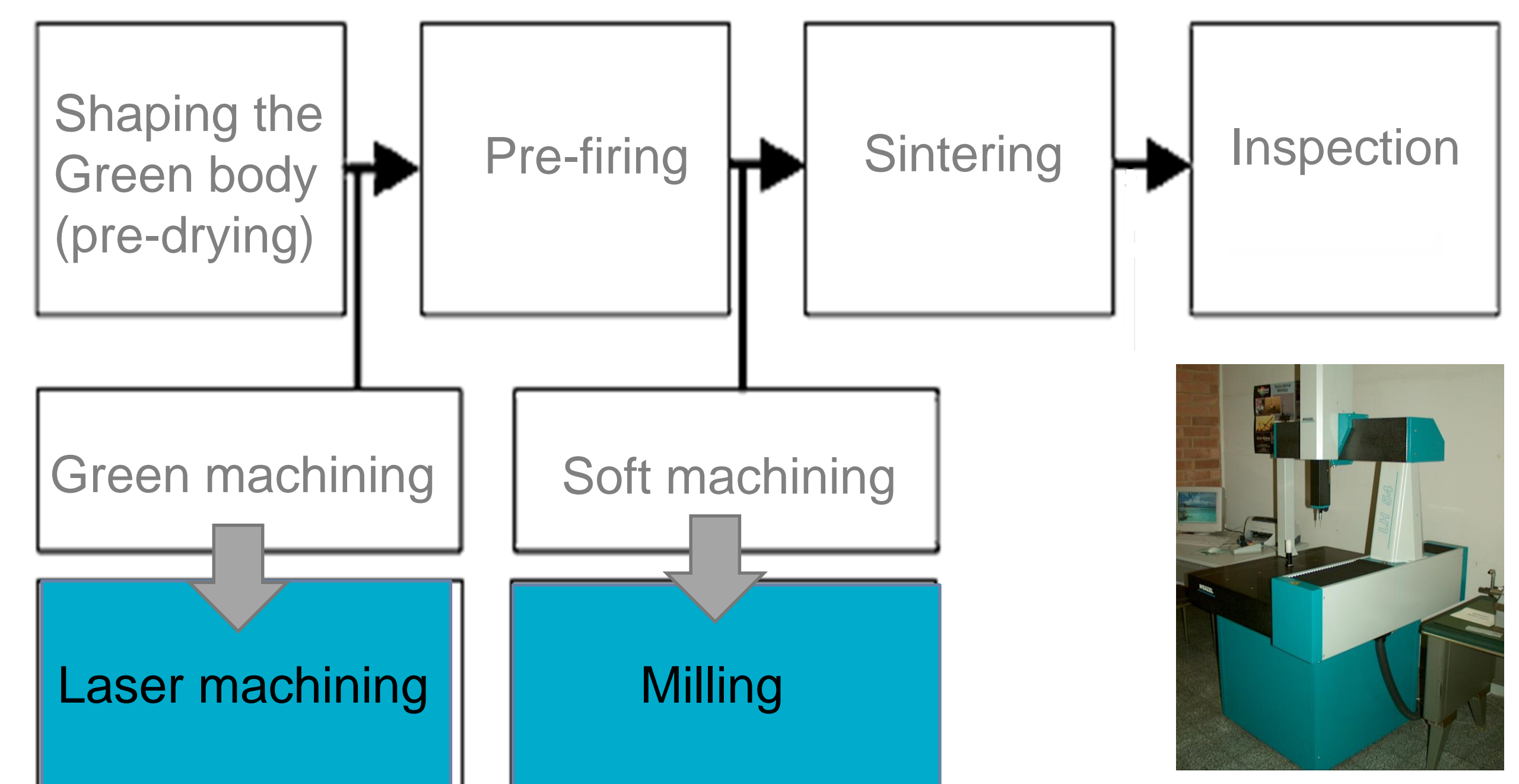
The demand of micro products has increased significantly in recent years. The traditional stand-alone machine tools were optimized to market demands. These processes still remains a big issue in the repeatability, predictability and the productivity of manufacturing. Today, the machine tools are combined to increase the productivity of manufacturing. The sequential hybrid is the combination of the minimum of two technologies in the same structure. The different processes must be mastered before the combination. The sequential hybrid process is subtractive-subtractive it combines the laser μ -machining and the μ -milling.

Hybrid concept [2-3]

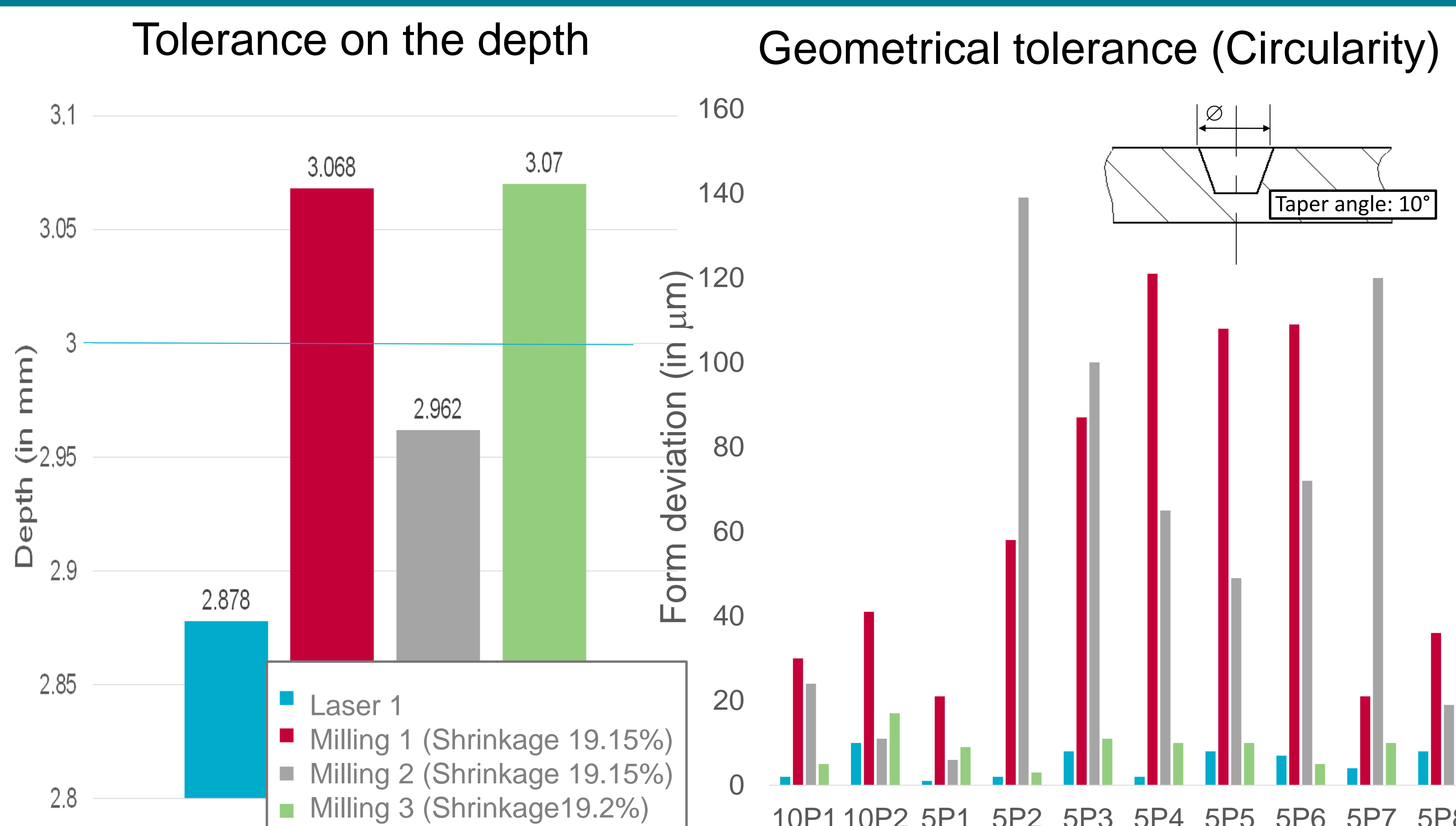
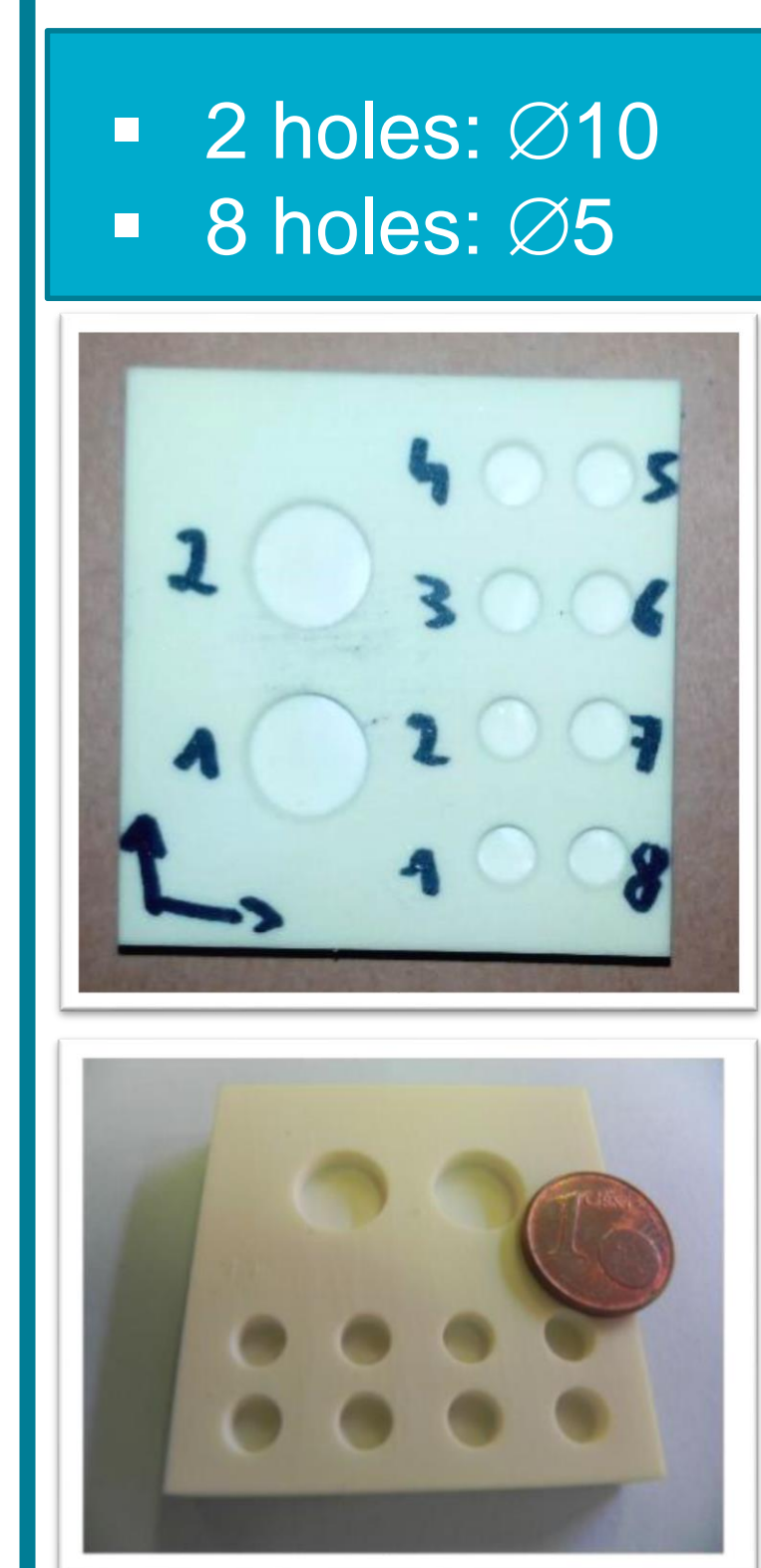


Method [4-5]

Coordinate measuring machine is used to compare each process



Results



Conclusion

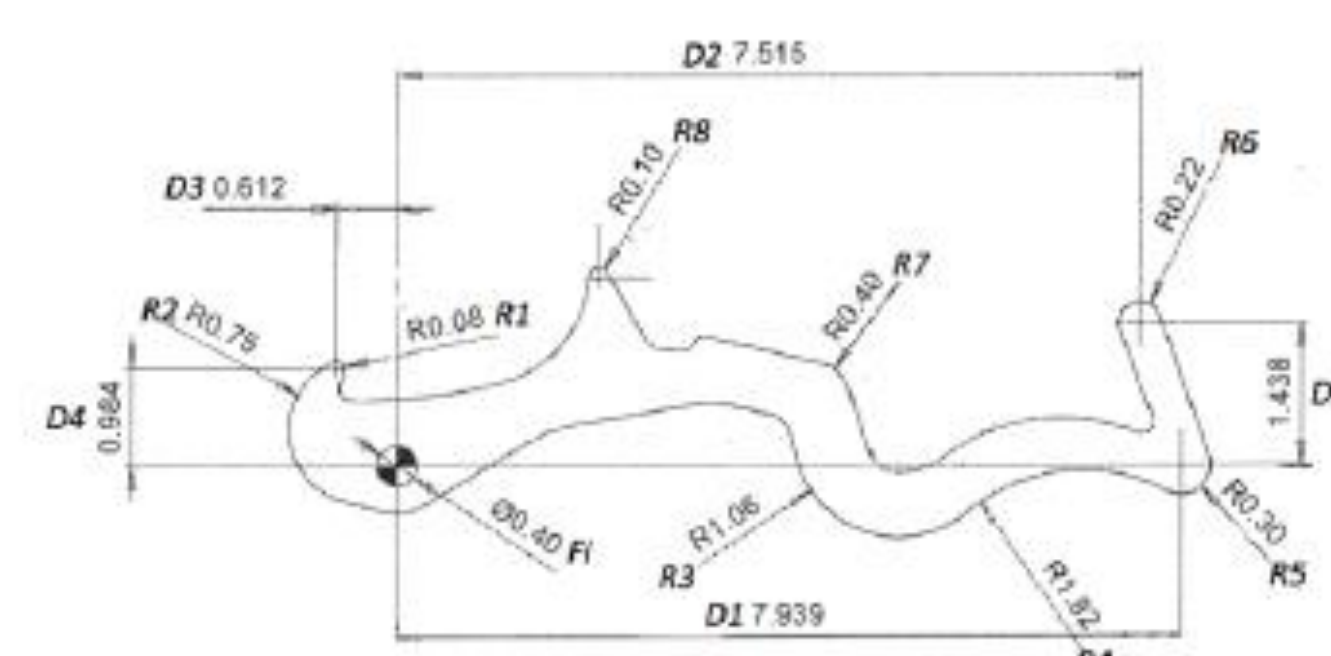
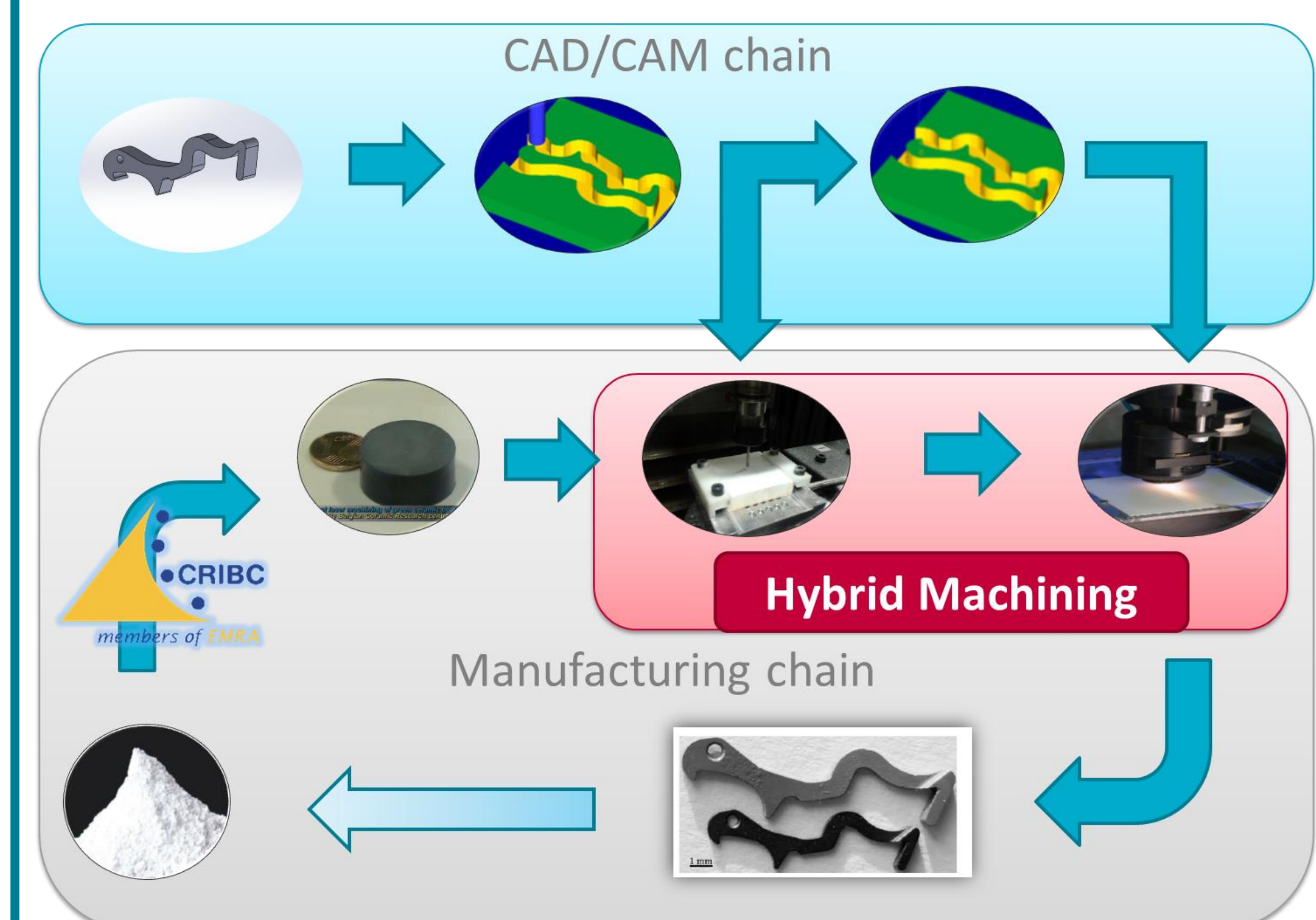
- Control to removal material
 - + Milling
 - Laser machining
- Tool-material contact
 - + Laser machining
 - Milling
- Taper angle
 - Laser machining

Acknowledgment

The research was conducted in cooperation with CRIBC member of EMRA



Perspectives [6]



Development of the hybrid machining:

- Control of the tool position
- Origin tool
- Optimizing sequential combination
- Trajectories strategy

Bibliography

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