cool – cooler – coolgrind

Grinding systems of the future in practice

It becomes really interesting when someone emerges from an ocean of monotony and sameness with new ideas. In the field of grinding Mr. Gerhard Schrottner clearly succeeded in that. He has been following his vision of an inner cooled grinding wheel for quite some time. The basic idea was easy: "Fun with grinding – Grinding with fun!"

For more than 20 years Mr. Gerhard Schrottner has focused on optimizing the process of grinding and has always met with the same problem: The development of heat. Machine manufacturers have tried to solve this problem using higher flushing pressure and optimizing the supply of coolant.

In the fight against the development of heat Mr. Gerhard Schrottner is working in a totally different direction. His idea is simple: the jet of coolant is aimed at the side of the grinding wheel using the existing pipes. The force of the rotation pushes the grinding medium into a well-thought-out turbine-like labyrinth inside of the grinding wheel and exits with the right velocity through the grinding layer. Thus the grinding layer stays cool and clean.

In the field of tool grinding the coolgrind grinding wheel has been successfully used for a fairly long time. The list of success is long:

- shorter working times
- better surfaces
- higher process safety when loading
- less wheel dressing
- significantly lower temperatures of the work piece and of the grinding wheel
- superior stability of the edges
- better machine cleanness

Even in the field of flat glass grinding the coolgrind system has already been successfully used and was able to significantly increase productivity: instead of the usual 60 km of flat glass per grinding wheel, 120 km of flat glass could be produced using one coolgrind grinding wheel.

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The new project: Flat grinding with coolgrind

The Austrian company H-Tec Präzisionstechnik GmbH is a well appreciated partner concerning high precision. In the ongoing search for possibilities to optimize the process of grinding they came across the coolgrind system. Diverse precision parts are being flat grinded on a Favretto MR 7U – 120. All participants were astonished by the first test with a coolgrind grinding wheel with the dimensions 450 mm diameter, 50 mm wide, 6 mm layer height and grain size CBN 91.

Goals of the test run:

- achieving the required Ra- and Rz-Values
- low wear of the grinding wheel
- increasing the infeed rate

Test machine:

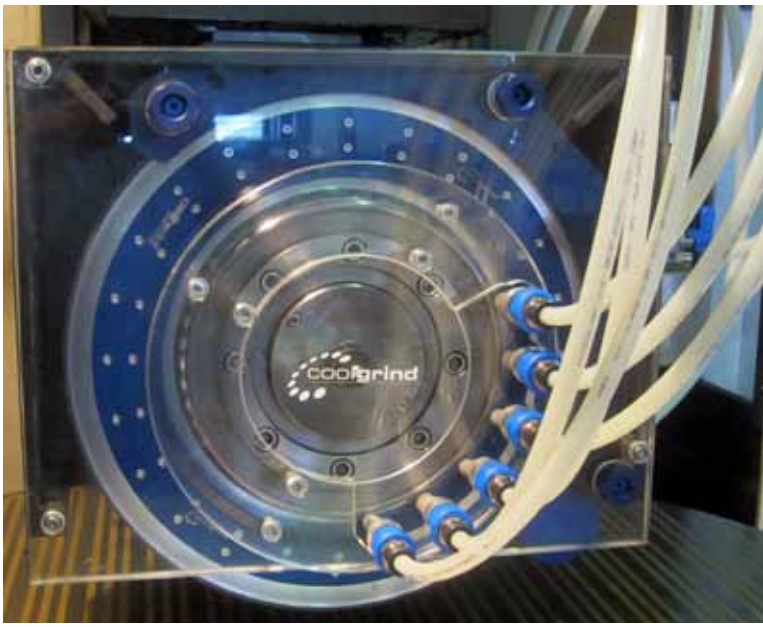
Favretto MR 7U -120

Favretto MR 7U -120 (picture 1)

Work piece:

Dimensions: 1050mm x 1050mm
Material: GG30

The Setup:



coolgrind grinding wheel (picture 2)

Test procedure:

- A grinding wheel with a diameter of 450 mm, a width of 50 mm, a height of 6 mm and a CBN grain size of B91 is used and reference is taken.
- The grinding wheel is dismounted again.
- The same grinding wheel was remodeled to a coolgrind overnight and is mounted and used on the same machine.

Detailed view: coolgrind-grinding wheel before and after the alteration (picture 3)

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Achieved results:

- The infeed rate could be increased by at least 50 %
- No obvious wear of the grinding wheel
- The surface has become slightly rougher
- The coolgrind has got much better self-cleaning properties
- The grinding layer does not clog and therefore keeps its good cutting properties
- The risk of overheating and burning was significantly decreased
- The thermal load of the grinding wheel and work piece is eliminated
- High pressure pumps are not necessary
- Lower loading on the wheel spindle

M. Lausegger / H. Müller / R. Wormuth (picture 4)

DR. KAISER präzision durch diamant

The company DR. KAISER DIAMANTWERKZEUGE GmbH & Co. KG in Celle, Germany, kindly provided the grinding layer for the trials in the field of flat grinding.
www.drkaiser.de

H-TEC Präzisionstechnik GmbH

Mr. Ing. Kaupe, Managing Director of the company H-Tec Präzisionstechnik GmbH, in Grambach/Graz, Austria, made the test run possible.
www.h-tec.at

coolgrind

In the field of tool grinding the company oelheld GmbH successfully distributes the coolgrind system worldwide.
www.oelheld.de

gerhard schrottner

The coolgrind system was developed by TB Schrottner located in Krottendorf, Austria.
www.tb-schrottner.at

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