CENTURIA SM-G

Diamond grinding tools for surface grinding of aluminium and bimetallic engine blocks and cylinder heads

Premium grinding tools since 1919
www.tyrolit.com
CENTURIA SM-G

With the CENTURIA SM-G product line, TYROLIT offers an economical grinding solution for end-face machining of engine blocks and cylinder heads.

The big challenge is achieving a stable surface quality over the entire lifetime of the tool and thereby minimising the scrap rate. Conventional milling tools can cause problems with chip transport as well as surface flaws in the soft aluminium base alloy. With bimetallic blocks, the problem is further exacerbated by the much harder alloy of the cylinder liner. CENTURIA SM-G tools significantly reduce set-up costs due to the elimination of time-consuming assembly work on the milling tool (cutting inserts). They can also be replated multiple times, making them an economical alternative to conventional milling tools.

+ **Stable process:** The patented design of the grinding tool guarantees a stable process, which significantly reduces scrap due to surface flaws. Internal cooling as well as cooling slots in the grinding layer ensure an optimum grinding result.

+ **Increased quality:** Using CENTURIA SM-G tools increases the quality of the end face with respect to microporosity. Smear up the pores optimises the porosity and increases the sealing characteristic of the end face.

+ **Flexibility:** CENTURIA SM-G tools can be used on all common machining centres. The dimensions, weight and mounting (HSK, SK, CAPTO, etc.) can be tailored to the customer’s requirements.

+ **Wide range of specifications:** In order to achieve an optimum machining result, the specification is tailored to the customer’s requirement. Different diamond qualities in grit sizes from 91 µm to 301 µm, specially tailored to aluminium applications, are available for this tool.

**Application example**

Face grinding of a 4-cylinder car engine block

**Tool:** CENTURIA SM-G  
**Material:** Engine block AlSi₈Cu₃ T6 with cast iron cylinder liners  
**Machine:** MAG Specht 600  

**Surface finish:** Ra < 0.5µm  
**Evenness:** < 10µm  
**Lifetime:** 3,000 to 4,000 Engines

Scrap rate due to surface flaws reduced from 2% to 0.1%

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<tr>
<th>CENTURIA SM-G</th>
<th>COMPETITOR/ MILLING PROCESS</th>
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