

Thermal spray coats in cylinder bores of internal combustion engines are high-performance materials of the future. Energy efficient engines with low friction, reduced length and lower weight as well as lower production costs can be achieved due to the new process chain for the manufacture of cylinder bores. To this end, the process chain includes the following processes:

- Mechanical roughening
- Thermal coating
- Overspray jetting
- Honing

The objective of Nano honing

An overall result of this process chain is a marked reduction in friction, which considerably contributes to

reducing fuel and oil consumption. thereby makes a significant contribution for modern combustion engines with high energy efficiency, minimal emissions and high service life.

Principles of Nano honing

To achieve a high degree of adhesion when coating, mechanical roughening (pre-treatment) as a variant of precision boring is required. Mechanical roughening is realized through cutting processes and combined processes consisting of cutting and/or forming. The subsequent thermal coating works with an energy rich electric arc, in which the fed wire or powder is melted and sprayed on the cylinder track. This results in a hard, wear-resistant,

ductile and easy to hone cylinder liner coating.

After the thermal coating follows the overspraying jets in which overspray particles are removed from the casting surfaces below the coated cylinder bore by means of a jets of water. The crankcase cools off at the same time. Expensive masking is no longer required the process chain is thereby ready for production.

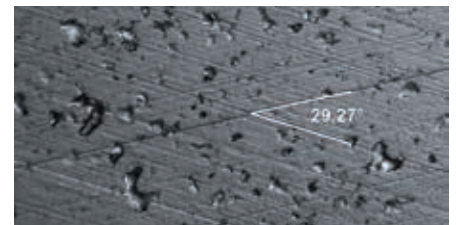
The subsequent honing, consisting of position honing or abrasion honing and the semi-finish and finish honing, creates the frictionless surface with a high degree of dimensional and form accuracy in the cylinder liner which is needed for the engine.



Mechanical roughening



Thermal Coating



Structure after honing

**Trust in the technology leader with many years' experience and global presence!
Innovative technology combined with an economical mindset sets us apart.**