

APPLICATION NOTE

Microrectif – Very High Precision Grinding



Founded in 1989, the Microrectif company is expert in very high precision machining and grinding. Specialized in one-off part and small series production, Microrectif has one of the most performing machinery equipment of the market and is therefore able to satisfy the most demanding requests.

In order to guarantee the quality of surface roughness with a nanometric precision, Microrectif has acquired a contactless measuring instrument : Trimos TR Scan.

Introduction

Microrectif philosophy is to offer first-class service in the fields of machining and very high precision grinding. Prestigious names of aeronautical, nuclear, medical industries and research laboratories are to be found among Microrectif customers.



Microrectif, High Precision Mechanics - Saint Etienne - Loire - Rhône Alpes - France
www.microrectif.com

So as to verify and guarantee a flawless quality of the machined surfaces, Microrectif metrology laboratory has been equipped with a Trimos TR Scan bench.

Issues

Conventional roughness measuring equipment by contact does not allow the characterization of all surface types. Indeed, an increasing number of applications do not authorize measurements by contact anymore, as those can damage the surfaces. These constraints brought Microrectif to find a non-destructive solution in order to measure rapidly and precisely polished surfaces whose Ra is close to 0.04 μm .

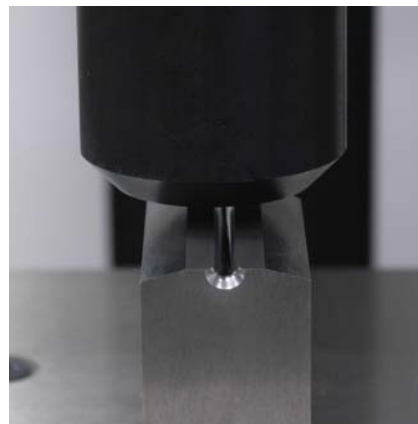
Proposed Solution

Therefore Microrectif has been looking for a supplier able to satisfy his needs for the measuring and analysis of the most difficult surfaces.

Finally, the persons in charge have been convinced by the solution proposed by Trimos : the TR Scan.

This instrument consists in 3 XYZ motorized axes. The Z axis can accommodate various measuring heads according to the type of surface to be measured. This parameter has been particularly decisive as the variety of forms, materials and machining types is very large :

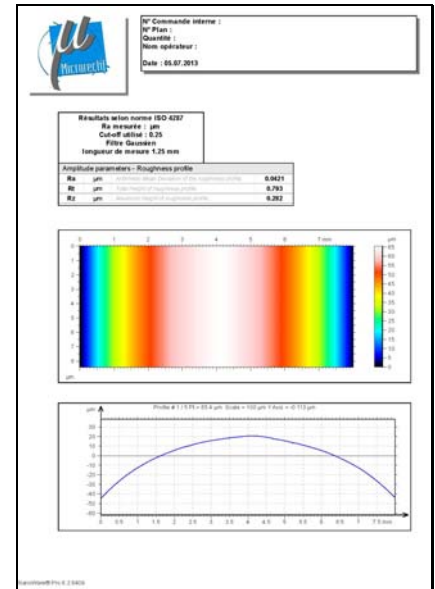
- DHM – Digital Holography:
For the measurement of finely polished and reflective surfaces.
- CCM - Chromatic Confocal:
For the measurement of more complex forms and textures.



Picture 1
Contactless measurement of surface roughness in a polished groove with CCM.

Customized Reports

All measurements made with DHM and CCM technologies are in compliance with ISO standards and allow a 1:1 comparison with classic instruments by contact.



Picture 2
Customized reports thanks to Nanaware Analyse software

Conclusion

The use of an optical profilometer has allowed Microrectif to ameliorate the quality control of his processings and to gain in credibility in new markets.

This company can therefore face the evolutions of standards in the matter of surface roughness with serenity.

Thierry Keist, Trimos SA

Instrument
Measuring Heads
Vertical Resolutions

TR Scan
 DHM S2 / CCM P1
 0.1 nm / 1 nm