

LABORATORY: CNR ISPC Stone LAB

NAME OF THE INSTRUMENT

Drilling resistance measuring system (DRMS Cordless Sint technology)

GENERAL DESCRIPTION:

The DRMS Cordless Drilling Resistance Measurement System (DRMS) tool is an automatic system that measures the force required to drill a material by keeping the rotational and penetration speeds of the drill bit constant throughout the drilling process.

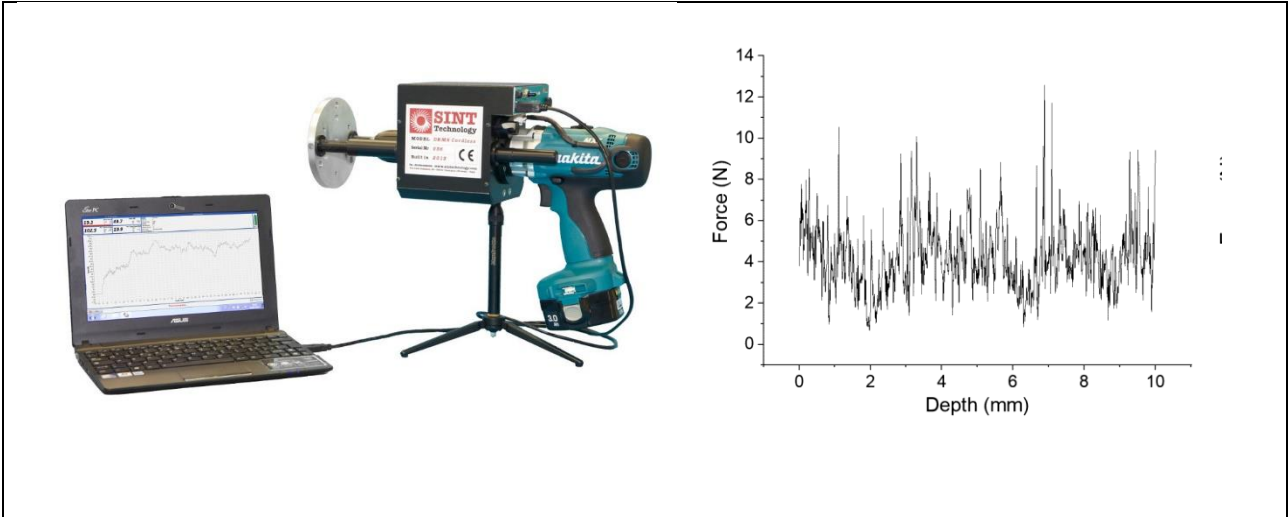
The instrument allows the measurement of the drilling resistance of materials. It records the force opposed by the material as the drill advances through the entire thickness of the hole. Through appropriate processing of the results, it is possible to have information on the physical/mechanical characteristics of the material. Therefore, it is possible to compare the response of different materials, evaluate the effect of consolidating treatments, verify the presence of salts within the material, and assess the extent of degradation processes.

TECHNICAL DESCRIPTION:

- Rotational speed between 20 and 1000 RPM
- Penetration rate between 1 and 80 mm /min
- Analysis depth (and instrument travel) up to 50mm from the surface
- Special diamond tips, with diameters between 3 and 10mm

FURTHER INFORMATION:

- Vasanelli, E., & Quarta, G. (2023). DRMS for the mechanical characterization of lime mortars: Influence of user-controlled variables on the correlations between UCS and drilling results. *Construction and Building Materials*, 384, 131492.
- Vasanelli, E., Di Fusco, G., Quarta, G., & Calia, A. (2022). The use of drilling test to investigate the salt distribution in air lime mortars. *Journal of Cultural Heritage*, 58, 49-56.
- Vasanelli, E., Calia, A., Masieri, M., & Quarta, G. (2022). New insights into the use of drilling test for the characterization of soft lime mortars. *Construction and Building Materials*, 316, 125894



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