

Frontwave

Entity / laboratory framework: We are a Portuguese company specialized in engineering project in natural stone. With focus on the stone, our test lab provides the reliable technical results needed to control the factory production process, helping to reduce product time-to-market. The credibility of the results helps our customers sell faster and increase the value of natural stone. Frontwave is ready to meet test requirements, meeting tight response times and always focusing on the needs of industry customers.

Our engineering team assesses how the stone meets the product quality requirements and the performance criteria for any application or system.

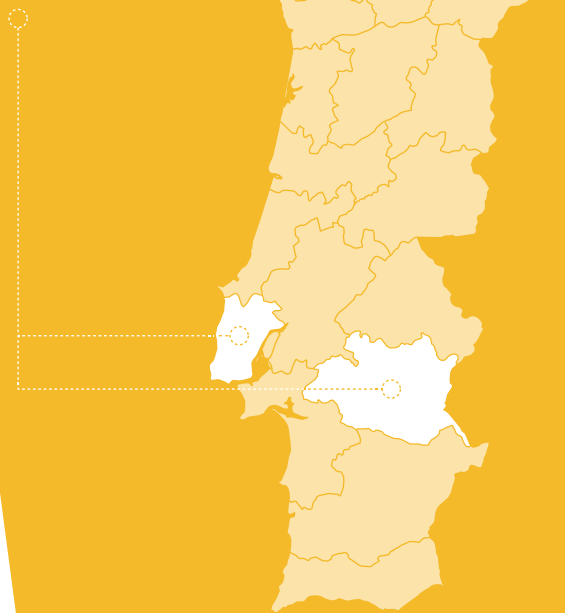
We make sure that your products are prepared to respond to the constant evolution of the market, with focus on the increasing regulation associated with the export of stone as a building material.

List of available services for the natural stone industry

- Natural Stone Testing (Materials and Products Laboratory)
- Implementation of CE Marking system and StonePT certification
- Support to Engineering Projects and Product Development
- Anomaly analysis and solution evaluation
- Project Development and Integration with STORK® Solution
- Tool Characterization
- Tool and Process Modeling
- Implementation of New Manufacturing Solutions - Robotic Integration and Vision
- STONESCAN® Manufacturing Projects
- Special artificial vision and natural stone scanning solutions
- Production management software
- Industrial Internet of Things (IIoT)









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List of available tests on natural stone



European Tests		Reference Standard
Frost Resistance - Technological Test (Test A)		EN 12371
Flexural Strength Under Constant Moment		EN 13161
Real Density and Apparent Density, and of Total and Open Porosity		EN 1936
Water Absorption at Atmospheric Pressure		EN 13755
Rupture Energy		EN 14158
Slip Resistance by Means of The Pendulum Tester		EN 14231
Resistance to Ageing by Thermal Shock		EN 14066
Breaking Load at Dowel Hole		EN 13364
Water Absorption Coefficient by Capillarity		EN 1925
Flexural Strength Under Concentrated Load		EN 12372
Uniaxial Compressive Strength		EN 1926

 Tests in the scope of accreditation

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ASTM Tests		Norma de Referência
Modulus of Rupture of Dimension Stone		ASTM C99
Flexural Strength of Dimension Stone		ASTM C880
Absorption and Bulk Specific Gravity of Dimension Stone		ASTM C97
Strength of Individual Stone Anchorages in Dimension Stone		ASTM C1354
Compressive Strength of Dimension Stone		ASTM C170

 Tests in the scope of accreditation

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