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## DAT instruments Soil Investigation Datalogger Saves Time, Money for Lebanon's Crystal Towers Project

*Soil Investigation Accuracy Critical For Foundation Preparation and Structural Integrity*



Crystal Towers, an innovative Sayfco Holding's project located in Dbayeh, Lebanon, is an architectural masterpiece, consisting of a 30-floor residential tower, a 20-floor commercial building and multiple elevated commercial spaces. Envisioned and promoted as one of the safest towers ever built, the aggressive structural integrity goals would literally rest on the building's foundation. With project engineering teams relying on comprehensive and accurate soil readings for foundation planning and construction, the team turned to DAT instruments and the [JET 4000 AME / J](#) Soil Investigation Datalogger for real-time measuring data of the soil composition and characteristics of different stratigraphic levels.

*"We use DAT instruments instrumentation and software to see the penetration rate through the different levels, monitor torque pressure and feed force and recording these data to know the presence of cavities, the depth of the rocks and, generally, the different levels" said Maha Saleh, engineer for SATCON, an engineering company engaged with the Crystal Towers project. "With the detailed and comprehensive information provided by the JET 4000 AME / J, the project*



*engineering team was able to optimize piles, resulting not only in foundation stability and integrity but also in significant cost savings for the entire project."*

To visualize the rocky substrate and perform the working plan of the deep foundation piles, the geotechnical survey was divided into boreholes sections, all monitored by the data recording system. This process allowed the project team to see the depth of rock and its penetration rate accurately in advance of construction, which not only assisted in planning structural integrity but also led to significant project cost reduction and unprecedented efficiency that enabled tighter project deadlines.

The value and reliability of DAT instruments equipment has precedent with other significant engineering projects in Lebanon. *"We also used DAT instruments dataloggers with the Al Hoda residential complex, three middle-height blocks built on a slope, in Saida,"* added Saleh. *"The foundation piles with that project were subject to considerable stress and the Italian dataloggers were strategic in defining the initial depth of the piles and delivering the views needed to optimize the execution of the entire project."*

[DAT instruments](#) is an Italian company that specializes in the design and production of instruments and software used in special foundation jobs such as piling, jet grouting, CFA, diaphragm walls, drilling, grout injection, soil mixing and vibroflotation. Founded in 2001, DAT instruments currently serve customers in more than 20 countries on 5 continents with a range of products, both standard and custom, that assist in the planning, construction and maintenance of multi-site operations.

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## Dataloggers for geotechnics and special foundations:

- Jet grouting - Grouting - Cement injection - TAM grouting - Drilling - MWD -
- CFA - Deep mixing - Soil mixing - Vibroflotation - Diaphragm walls -
- Hydromill - Lugeon test - Mineral investigation -