

Case Study 27: Cambridge Insitu Limited

Tungum® tubing has been used since the 1980's at Cambridge Insitu Limited in their pressuremeter instruments.

Cambridge Insitu Limited design, develop, make and use on site all over the world, instruments for measuring the strength and the stiffness of soils and rocks. The instruments are called pressuremeters to go down boreholes.



Once at the correct depth, they are expanded by carefully controlled internal pressure so enlarging a cavity in the ground. The cavity size is measured by internal transducers reading to better than one micron. If the instrument is long enough in relation to its diameter, meaning about six times, it turns out that the expansion can be mathematically analysed to give the parameters above.

Control of the pressure is crucial as it greatly affects the results. The device may look simple but it represents many years of development and experience. It controls gas pressure up to 350 bar and has effectively transformed the measurement process. This product has replaced a much more complicated instrument designed in the 1970s which required complex electronics to do what this equipment can do in a far more simple and accurate way with an experienced operator, valves, controlled leaks and pipework.

How Tungum played its part

Mr J C P Dalton, Director

“For Cambridge Insitu the attraction of using Tungum tubing is that it has a high strength ratio, it is easy to work with and does not corrode. The downhole instruments also incorporate Tungum though usually in short lengths. However, for one special-purpose machine being designed for the oilfields in Alberta the fatigue resistance of Tungum is very important. The instrument is some eleven metres long, contains its own reservoir at 350 bar pressure and has to be assembled and broken apart during its operating life.”



(Photographs courtesy of Cambridge Insitu)



For more information on Cambridge Insitu Limited – visit their website: www.cambridge-insitu.com