Faro 4 and 8 Foot Platinum Portable CMM Arms

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Incorporating the portable faro arms with our existing equipment has proven to be a beneficial addition to SLAC’s Alignment Engineering Group (AEG). With the faro platinum arms we eliminate the need to level and get parallel to the components saving time in the field. Although traditional optical tooling will never be totally abandoned, faro platinum arms allow us to assign coordinates to beam line components quickly and without regard to gravity.

Comparing the Faro arms to SLAC’s CMM
The Faro arms were taken to the Quality Control Group where two side by side tests were conducted with the Brown and Sharpe manual CMM and the 4 and 8 foot Faro arms. The results of the test show a standard deviation of 25µm and 27µm for the 4 foot arm and 20µm on both tests for the 8 foot arm.

SPEAR3 Magnets
Measuring 5 planes on the SPEAR3 magnets, a coordinate system was constructed allowing us to assign tooling ball values. After the values were given, we were able to do the prescribed moves.

Quality control of the Q5 PEP II chamber
The faro arm was used to test for straightness and flatness in between the different welding processes. This provided the customer knowledge of the position of the chamber along with flange angles in regards to the chamber.

Cam 2 measure X software desktop
In this example a origin point was constructed by intersecting three planes. Tooling balls were measured and distances calculated.

Monitoring Movements
The Faro arm provides the ability to inspect any movement of fixtures and components.

Quality Control
The AEG at SLAC use a variety of offset fixtures for measuring and mapping. With the faro arm we are able to verify actual calibrations on our tooling balls, offset arms, and other fixtures.