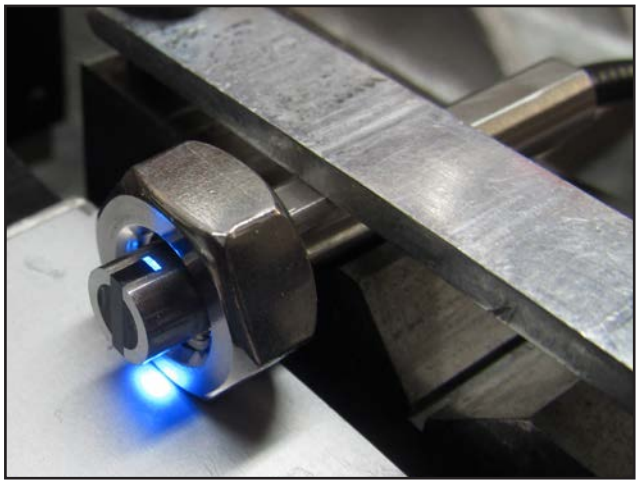
Philtec

Dec 2013

APPLICATION NOTE

PROBES FOR INTERNAL THREAD INSPECTION

- ***Non-Contact***
- ***High Speed***
- ***For All Materials Including Non-metals***
- ***Catches Missing, Shallow, Damaged Threads***



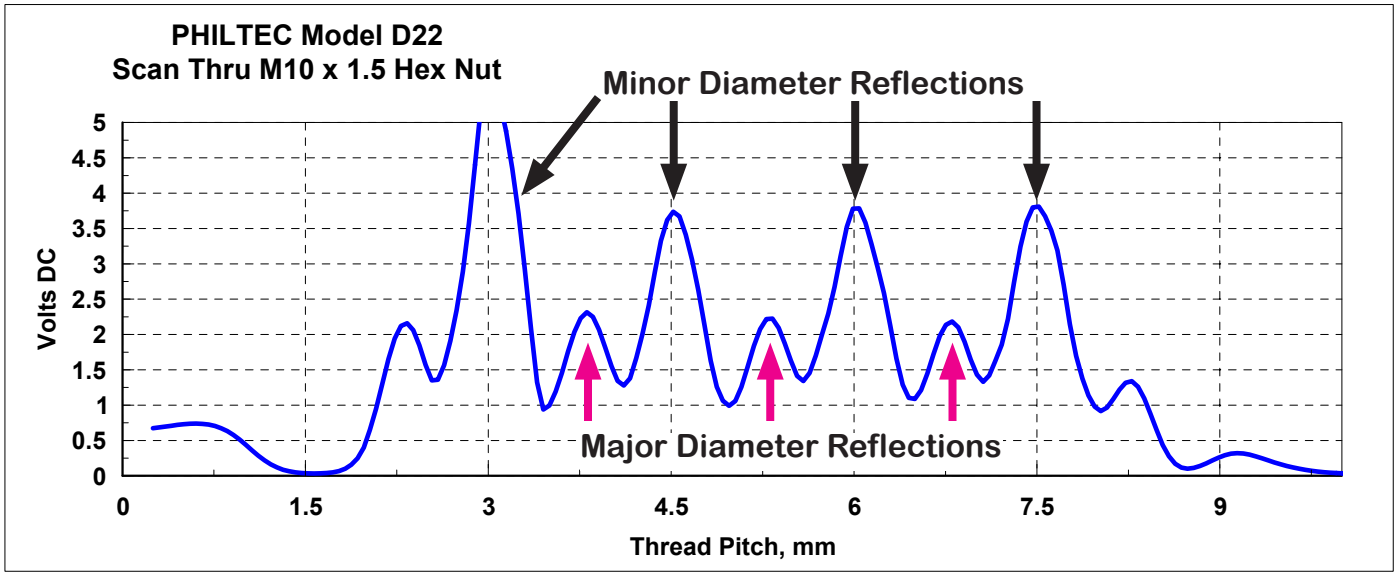
Principle of Operation

Fiberoptic probes having two diametrically opposed sensors scan the length of internally threaded holes as the probe is inserted. The probe is rotated 90° at the bottom of the hole and the thread is scanned once more as the probe is retracted, thereby providing complete thread inspection every 90°.

Plus and minus accept/reject tolerances can be set by comparing known good part voltages with known defective part voltages. Missing, shallow and/or damaged threads can be detected as they fall outside the accept/reject tolerance.

Implementation

The probe shown here was designed for the M10 x 1.5 thread. Philtec designs and provides the probes specific to a single thread size. The customer provides the probe fixturing apparatus and data analysis software.



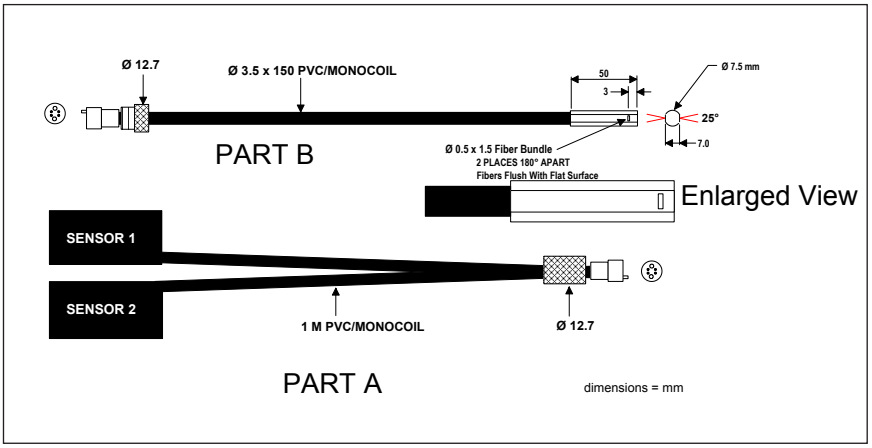
Philtec

Dec 2013

APPLICATION NOTE

PROBES FOR INTERNAL THREAD INSPECTION

Hardware

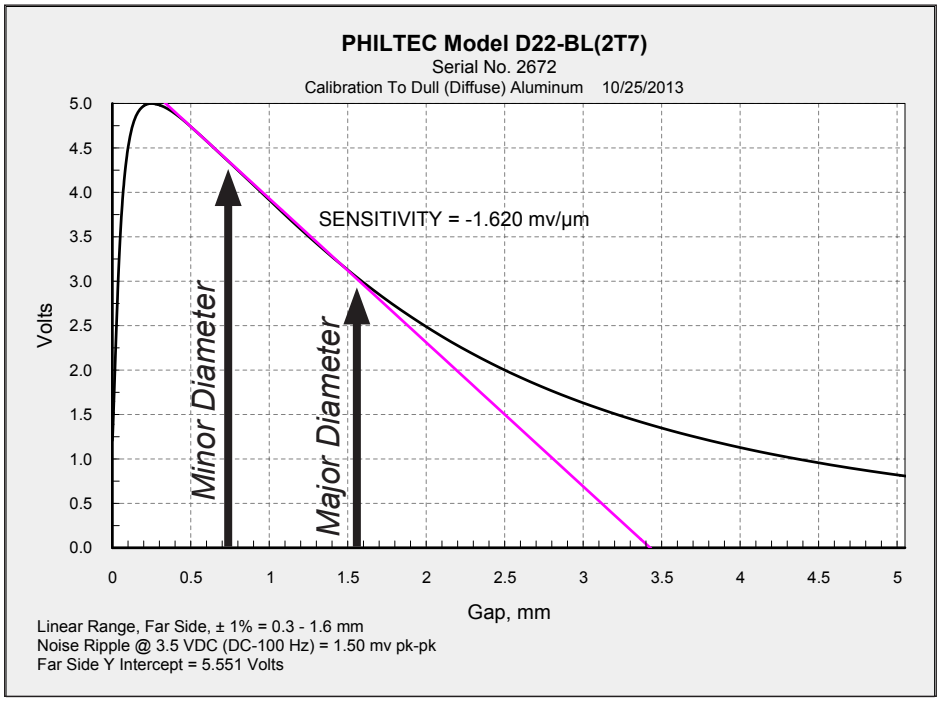


Design Gaps

When the model D22 probe is used to measure to a M10 x 1.5 thread, the gaps from the face of the fiberoptics to the threads are:

- Sensor Gap = 0.75 mm to the 8.5 mm minor diameter
- Sensor Gap = 1.6 mm to the 10.2 mm major diameter

The calibration chart shows those gaps fall into the sensors linear range, which is the the region of highest sensitivity, aka, the 'sweet spot' of the sensor.



ALAVA INGENIEROS

PHILTEC

www.philtec.com