

IMPROVED ACCURACY

THE ADVANTAGE OF PREDEFINED OBJECT INFORMATION

Task

All measurement systems have limitations with regard to resolution and accuracy. But if a system is applied to a limited range of applications the description of these limitations can be invoked as predefined information. In general this greatly helps improve the data quality beyond the basic capability of the measurement system itself, and is the key to the success of many advanced measurement systems. In order to fully explore the capability of a measurement system it is necessary to understand and control this information.

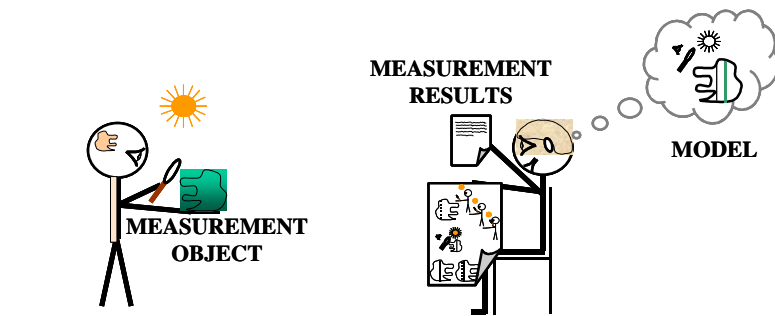
Solution

Conopticas optical measurement systems contain simple solutions to the use of predefined (a priori) information. A key idea behind the Conoptica concept is that a measurement object **Model** also governs measurement strategies. Some Models have been predefined from factory and other important information can be recorded as an integral part of new Models. The basic limitation of optical systems is the level of calibration, and the limited spatial transversal (view) and longitudinal (depth) resolution. In order to improve the measurement quality beyond these limitations the Conoptica Models include advanced calibration schemes, and can be configured to: avoid unresolved sharp view corners, average view data, average depth data, compensate for unresolved depth geometry (Grazing Details), and interpolate depth geometry.

Benefit

Through this solution, where the measurement instructions are included in the Model, advanced measurements can easily be performed efficiently and consistently. Just by selecting the correct Model the operator has full control of the predefined information to be used. Each Model has its unique name. For example for round dies Conoptica delivers 3 predefined Models: Drawing Die, Rough Drawing Die, and Cylindrical Drawing Die. Models of any other complicated shape can be made and maintained. **Note that as a consequence different Models will result in different measurement results, and that the better the Model is the better the accuracy will be!**

We use the best model!



Step by Step

In order to control predefined information you only need to select the correct Model. Properly created this model should have taken the following into account:

- The region of interest is properly magnified to enable meaningful Calipers to be made.
- The Caliper geometry is laid out to avoid problem areas, such as unresolved corners, etc.
- The length of the Caliper segments are chosen to match the Parameters Of Interest (POI).
- The Grazing Details are defined to reflect the shape, length, and material of the area where the light is grazing tangential to the surface (in some measurement panels also called the bearing or cylinder length).
- The depth data interpolations is (inscribed, parable, circumscribed) set according to the expected depth geometry.