



Q753 Use of Significant Digits in Test Data to Determine Conformance with Specifications (Rev 05/20/20)

Unless otherwise specified by the Technical Data Package (TDP), for purposes of determining conformance with these specifications, all specified (dimensional tolerance as defined within the Hydra TDP) limits are absolute limits, as defined in ASTM Practice E29, for Using Significant Digits in Test Data to Determine Conformance with Specifications. When the ITE has a resolution greater than the TDP requirement, the result shall be reported at least one digit beyond the number of significant digits defined by the TDP. When guard banding is applied the result shall be reported to the number of significant digits defined by the TDP at minimum and one digit beyond if the ITE has a resolution greater than the TDP requirement.

Reading ITE: If a TDP diameter is specified as 3.0 ± 0.1 inch (absolute method), and measured with ITE with a resolution to the nearest 0.001 inch, then at the lower specification limit a measured value of 2.900 is (barely) passing and 2.899 would be considered failing and at the upper specification limit a measured value of 3.100 is (barely) passing and 3.101 would be considered failing. Under the absolute method, the ITE shall be read and evaluated to the full resolution of the gage regardless of the stated number of TDP significant digits.

Reporting reading: For purposes of reporting the result in the example above without guard banding, if a passing measurement was read the result of 2.90 would be recorded and if a failing measurement was read a result of 2.89 would be recorded. If guard banded, a passing measurement of 2.90 would be recorded and a failing measurement of 2.89 would be recorded if the ITE has a resolution greater than the TDP requirement. The exception to the above reporting reading rules is if the first digit beyond the TDP requirement ends in a zero and the ITE reports a non-zero value at any place beyond. In that case all ITE significant digits shall be reported to reflect the failing result. For example in the case noted above, the failing result of 3.101 would be reported.