

1. Background and Rationale

- 1.1. This policy and guidance document specifies how to select, check, and use Go-No-Go gauges that are used to check the dimensions of the openings of sieves.

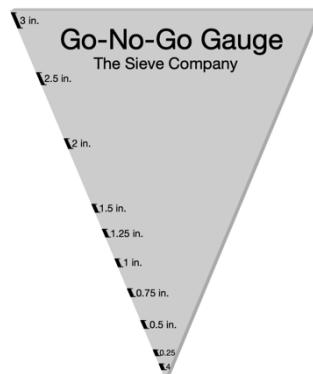
2. Terminology

- 2.1. *Test Uncertainty Ratio (TUR)*, n – the comparison between the tolerance requirement of the test method and the estimated calibration uncertainty of the reference equipment.
- 2.2. *Standardization*, n – the process of comparing the measured values of a caliper to the value(s) assigned to the reference equipment.
- 2.3. *Calibration*, n – the process of determining the estimated measurement uncertainty and comparing the measured value of a sieve opening to the value(s) assigned to the reference equipment.

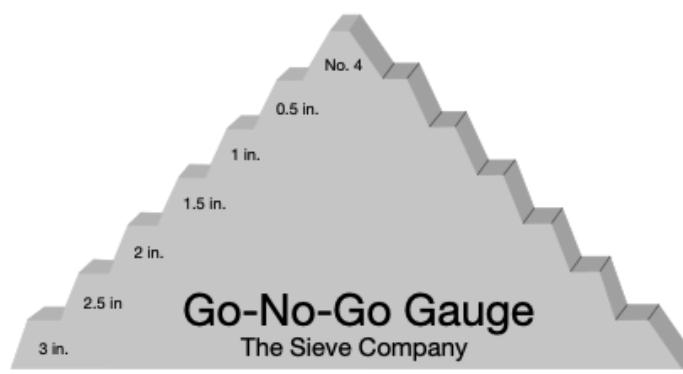
3. Requirements of the Go-No-Go Gauge

- 3.1. Gauges can be of any shape or design (for example: conical, cube- or rectangular-shaped, or flat) that meet the following requirements:
 - 3.1.1. The minimum and maximum allowable diameter values for each sieve size shall be either clearly marked on the gauge, or a part of the physical design of the device.
 - 3.1.2. In certain cases, it may be acceptable for the laboratory to mark the minimum and maximum allowable diameter values on the Go-No-Go Gauge. This will be accepted by the AASHTO Accreditation Program on a case-by-case basis.

Examples of possible Go-No-Go gauge designs include, but are not limited to the following designs (NOTE – the gauges pictured below are for visual purposes only, and are not drawn to scale):



Flat Go-No-Go Gauge



Stepped Go-No-Go Gauge

4. Checking the Go-No-Go Gauge

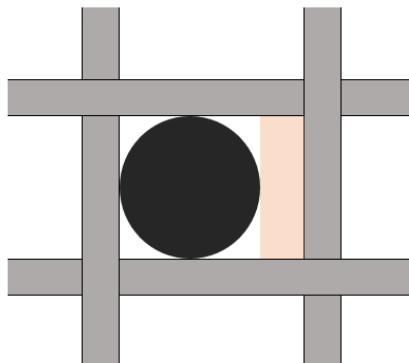
- 4.1. The laboratory must check the minimum and maximum diameter allowable values of the Go-No-Go Gauge at each nominal sieve size using calibrated or standardized calipers to ensure that the gauge meets the tolerances in ASTM E11, Table 1, Column 5 (*Maximum Variation for Opening*). Go-No-Go Gauges that fail to meet the tolerances specified shall be found not fit for purpose.
- 4.2. A record of checking the minimum and maximum allowable diameter values of the Go-No-Go Gauge shall be created. The record shall include all of the information required in AASHTO R18 Section 6.5, *Equipment Records* and shall be kept by the laboratory for a period of no less than five years. A manufacturer's certificate shall be accepted if it complies with AASHTO R18 Section 6.5, *Equipment Records*.
- 4.3. Go-No-Go Gauges shall be re-checked at an interval of twenty-four (24) months.
- 4.4. If the laboratory standardizes their calipers in-house:
 - 4.4.1. The calipers used to check the Go-No-Go Gauge shall be standardized using gauge blocks that have been calibrated by an ISO/IEC 17025 accredited agency. The records for the gauge blocks shall include the estimated measurement uncertainty for the gauge blocks.
 - 4.4.2. The estimated measurement uncertainty of the gauge blocks shall have a test uncertainty ratio (TUR) of 4:1.

Example: In order to use the Go-No-Go Gauge to check the No. 4 sieve, which has a maximum variation of opening of 0.37 mm, the estimated measurement uncertainty of the gauge blocks must be a quarter of that value, 0.09 mm (0.004 in), or better.

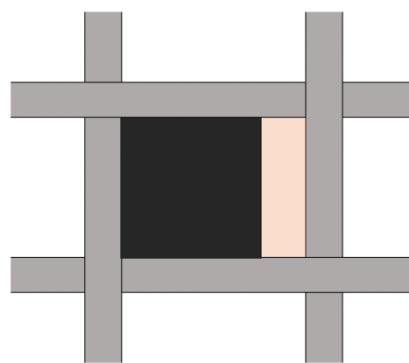
5. Using the Go-No-Go Gauge

- 5.1. The laboratory shall have a written procedure for checking sieves using the Go-No-Go Gauge. The written procedure shall comply with AASHTO R18 Section 6.3, *Procedures for Individual Pieces of Equipment*.
- 5.2. Records for sieves must conform to the requirements in AASHTO R18 Section 6.5, *Equipment Records*. In lieu of recorded measurements (as required in AASHTO R18 Section 6.5.1.1), an indication of pass/fail is acceptable.
 - 5.2.1. If the Go-No-Go is a three-dimensional shape (like a cube- or rectangular-shaped gauge or a conical gauge), then both measurements in the x- and y-directions must pass. If one direction fails, then the measured opening will be considered to fail.

Example:



A **conical** gauge that does not fit both the x- and y-direction.



A **cube**-shaped gauge that does not fit both the x- and y-direction.