# GRADUATED CYLINDERS

Graduated cylinders are calibrated either “to contain” or “to deliver” the indicated amount of liquid, and marked “TC” or “TD” accordingly. Formerly the tolerances for “to contain” and “to deliver” cylinders differed - now they are the same. The international symbols “EX” and “IN” may be used instead of “TD” and “TC” respectively.

Style

**Style I** graduated cylinders have a beaded lip and a pour spout. Both “to contain” and “to deliver” models are made.

**Style II.** The top has a tapered joint, to take a standard tapered stopper. Made in “to contain” only, although sections 4.1 and 4.6 of the ASTM standard seem to differ on this point.

**Style III.** Like style I, but a heavy bead circles the cylinder near its top. Made in “to contain” only.

Class

A, B or Student Grade. The tolerances for class A are half those for class B. Class A cylinders are marked with an “A”. No mark is required on class B cylinders.

| Capacity milliliters | Graduations | | | Taper stopper number (Style 2 only) | Tolerance, Class A, milliliters (Class B tolerance is twice this number.) |
|---|---|---|---|---|---|
| | Main | Inter-mediate | Least (Style 2 only) | | |
| **5** | 1.0 | 0.5 | 0.1 | 9 | ±0.05 |
| **10** | 1.0 | 0.5 | 0.1 | 9 | ±0.10 |
| **10** | 1.0 | — | 0.2 | 13 | ±0.10 |
| **25** | 2.0 | 1.0 | 0.2 | 13 | ±0.17 |
| **25** | 5.0 | 1.0 | 0.5 | 13 | ±0.17 |
| **50** | 5.0 | — | 1.0 | 16 | ±0.25 |
| **50** | 10.0 | 5.0 | 1.0 | 16 | ±0.25 |
| **133** | 10.0 | 5.0 | 1.0 | 16 or 22 | ±0.50 |

| | | | | | |
|---|---|---|---|---|---|
| **250** | 20.0 | 10.0 | 2.0 | 22 or 27 | ±1.00 |
| **500** | 50.0 | 25.0 | 5.0 | 27 or 32 | ±2.00 |
| **1000** | 100.0 | 50.0 | 10.0 | 32 | ±3.00 |
| **2000** | 200.0 | 100.0 | 20.0 | 38 | ±6.00 |
| **4000** | 500.0 | 250.0 | 50.0 | — | ±14.50 |

References:


ASTM E 1272-02. Standard Specification for Laboratory Glass Graduated Cylinders. For ASTM standards, access www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

ISO 384:1978. Principles of design and construction of volumetric glassware.

ISO 4788:2005. Laboratory Glassware – Graduated Measuring Cylinders.

http://sizes.com/tools/graduated_cylinders.htm