



## Metric Weight Tolerances - ANSI/ASTM & NIST

The table below is a listing of the tolerances of various classes of masses. The weight value can deviate above or below the nominal value by the tolerance defined. To determine the tolerance of a mass, look at the denomination or nominal value of the weight and the appropriate class you need.

| Denomination<br>Metric | Troemner<br>UltraClass <sup>SM</sup><br>mg | ANSI/ASTM<br>E617 |       |       |       |        |        |        |        | NIST Handbooks |              |             |  | Denomination<br>Metric |
|------------------------|--|-------------------|-------|-------|-------|--------|--------|--------|--------|----------------|--------------|-------------|--|------------------------|
|                        |  | 0                 | 1     | 2     | 3     | 4      | 5      | 6      | 7      | 105-1**<br>F   | 44           |             |  |                        |
|                        |  | mg                | mg    | mg    | mg    | g & mg | g & mg | g & mg | g & mg | g & mg         | Accept<br>mg | Maint<br>mg |  |                        |
| 5000 kg                |  |                   |       |       |       | 100 g  | 250 g  | 500 g  | 750 g  | 500 g          |              |             |  | 5000 kg                |
| 3000 kg                |  |                   |       |       |       | 60     | 150    | 300    | 450    | 300            |              |             |  | 3000 kg                |
| 2000 kg                |  |                   |       |       |       | 40     | 100    | 200    | 300    | 200            |              |             |  | 2000 kg                |
| 1000 kg                |  |                   |       |       |       | 20     | 50     | 100    | 150    | 100            |              |             |  | 1000 kg                |
| 500 kg                 |  |                   |       |       |       | 10     | 25     | 50     | 75     | 50 g           |              |             |  | 500 kg                 |
| 300 kg                 |  |                   |       |       |       | 6.0    | 15     | 30     | 45     | 30             |              |             |  | 300 kg                 |
| 200 kg                 |  |                   |       |       |       | 4.0    | 10     | 20     | 30     | 20             |              |             |  | 200 kg                 |
| 100 kg                 |  |                   |       |       |       | 2.0    | 5      | 10     | 15     | 10             |              |             |  | 100 kg                 |
| 50 kg                  |  | 63                | 125   | 250   | 500   | 1.0    | 2.5    | 5      | 7.5    | 5.0            |              |             |  | 50 kg                  |
| 30 kg                  | 45   | 38                | 75    | 150   | 300   | 600 mg | 1.5    | 3      | 4.5    | 3.0            |              |             |  | 30 kg                  |
| 25 kg                  | 37   | 31                | 62    | 125   | 250   | 500    | 1.2    | 2.5    | 4.5    | 2.5            |              |             |  | 25 kg                  |
| 20 kg                  | 30   | 25                | 50    | 100   | 200   | 400    | 1.0    | 2      | 3.8    | 2.0            | 750          | 1500        |  | 20 kg                  |
| 10 kg                  | 15   | 13                | 25    | 50    | 100   | 200    | 500 mg | 1      | 2.2    | 1.0            | 500          | 1000        |  | 10 kg                  |
| 5 kg                   | 7  | 6                 | 12    | 25    | 50    | 100    | 250    | 500 mg | 1.4    | 0.50           | 400          | 800         |  | 5 kg                   |
| 3 kg                   | 4.5  | 3.8               | 7.5   | 15    | 30    | 60     | 150    | 300    | 1.0    | 0.30           | 250          | 500         |  | 3 kg                   |
| 2 kg                   | 3.0  | 2.5               | 5.0   | 10    | 20    | 40     | 100    | 200    | 750 mg | 0.20           | 200          | 400         |  | 2 kg                   |
| 1 kg                   | 1.5  | 1.3               | 2.5   | 5.0   | 10    | 20     | 50     | 100    | 470    | 0.10           | 125          | 250         |  | 1 kg                   |
| 500 g                  | 0.7  | 0.60              | 1.2   | 2.5   | 5.0   | 10     | 30     | 50     | 300    | 70 mg          | 88           | 175         |  | 500 g                  |
| 300 g                  | 0.45                                       | 0.38              | 0.75  | 1.5   | 3.0   | 6.0    | 20     | 30     | 210    | 60             | 75           | 150         |  | 300 g                  |
| 200 g                  | 0.30                                       | 0.25              | 0.50  | 1.0   | 2.0   | 4.0    | 15     | 20     | 160    | 40             | 50           | 100         |  | 200 g                  |
| 100 g                  | 0.15                                       | 0.13              | 0.25  | 0.50  | 1.0   | 2.0    | 9      | 10     | 100    | 20             | 35           | 70          |  | 100 g                  |
| 50 g                   | 0.07                                       | 0.060             | 0.12  | 0.25  | 0.60  | 1.2    | 5.6    | 7      | 62     | 10             | 20           | 40          |  | 50 g                   |
| 30 g                   | 0.044                                      | 0.037             | 0.074 | 0.15  | 0.45  | 0.90   | 4.0    | 5      | 44     | 6.0            | 15           | 30          |  | 30 g                   |
| 20 g                   | 0.044                                      | 0.037             | 0.074 | 0.10  | 0.35  | 0.70   | 3.0    | 3      | 33     | 4.0            | 10           | 20          |  | 20 g                   |
| 10 g                   | 0.030                                      | 0.025             | 0.050 | 0.074 | 0.25  | 0.50   | 2.0    | 2      | 21     | 2.0            | 8            | 15          |  | 10 g                   |
| 5 g                    | 0.020                                      | 0.017             | 0.034 | 0.054 | 0.18  | 0.36   | 1.3    | 2      | 13     | 1.5            | 5            | 10          |  | 5 g                    |
| 3 g                    | 0.020                                      | 0.017             | 0.034 | 0.054 | 0.15  | 0.30   | 0.95   | 2.0    | 9.4    | 1.3            | 4            | 8           |  | 3 g                    |
| 2 g                    | 0.020                                      | 0.017             | 0.034 | 0.054 | 0.13  | 0.26   | 0.75   | 2.0    | 7.0    | 1.1            | 3            | 6           |  | 2 g                    |
| 1 g                    | 0.020                                      | 0.017             | 0.034 | 0.054 | 0.10  | 0.20   | 0.50   | 2.0    | 4.5    | 0.90           | 2            | 4           |  | 1 g                    |
| 500 mg                 | 0.005                                      | 0.005             | 0.010 | 0.025 | 0.080 | 0.16   | 0.38   | 1.0    | 3.0    | 0.72           | 1.5          | 3.0         |  | 500 mg                 |
| 300 mg                 | 0.005                                      | 0.005             | 0.010 | 0.025 | 0.070 | 0.14   | 0.30   | 1.0    | 2.2    | 0.61           | 1.0          | 2.0         |  | 300 mg                 |
| 200 mg                 | 0.005                                      | 0.005             | 0.010 | 0.025 | 0.060 | 0.12   | 0.26   | 1.0    | 1.8    | 0.54           | 0.8          | 1.5         |  | 200 mg                 |
| 100 mg                 | 0.005                                      | 0.005             | 0.010 | 0.025 | 0.050 | 0.10   | 0.20   | 1.0    | 1.2    | 0.43           | 0.5          | 1.0         |  | 100 mg                 |
| 50 mg                  | 0.005                                      | 0.005             | 0.010 | 0.014 | 0.042 | 0.085  | 0.16   | 0.50   | 0.88   | 0.35           | 0.4          | 0.8         |  | 50 mg                  |
| 30 mg                  | 0.005                                      | 0.005             | 0.010 | 0.014 | 0.038 | 0.075  | 0.14   | 0.50   | 0.68   | 0.30           | 0.3          | 0.6         |  | 30 mg                  |
| 20 mg                  | 0.005                                      | 0.005             | 0.010 | 0.014 | 0.035 | 0.070  | 0.12   | 0.50   | 0.56   | 0.26           | 0.2          | 0.4         |  | 20 mg                  |
| 10 mg                  | 0.005                                      | 0.005             | 0.010 | 0.014 | 0.030 | 0.060  | 0.10   | 0.50   | 0.4    | 0.21           | 0.15         | 0.3         |  | 10 mg                  |
| 5 mg                   | 0.005                                      | 0.005             | 0.010 | 0.014 | 0.028 | 0.055  | 0.080  | 0.20   |        | 0.17           | 0.05         | 0.1         |  | 5 mg                   |
| 3 mg                   | 0.005                                      | 0.005             | 0.010 | 0.014 | 0.026 | 0.052  | 0.070  | 0.20   |        | 0.14           | 0.05         | 0.1         |  | 3 mg                   |
| 2 mg                   | 0.005                                      | 0.005             | 0.010 | 0.014 | 0.025 | 0.050  | 0.060  | 0.20   |        | 0.12           | 0.05         | 0.1         |  | 2 mg                   |
| 1 mg                   | 0.005                                      | 0.005             | 0.010 | 0.014 | 0.025 | 0.050  | 0.050  | 0.10   |        | 0.10           | 0.05         | 0.1         |  | 1 mg                   |
| 0.5 mg                 |  |                   |       |       |       |        |        |        |        |                |              |             |  | 0.5 mg                 |
| 0.3 mg                 |  |                   |       |       |       |        |        |        |        |                |              |             |  | 0.3 mg                 |
| 0.2 mg                 |  |                   |       |       |       |        |        |        |        |                |              |             |  | 0.2 mg                 |
| 0.1 mg                 |  |                   |       |       |       |        |        |        |        |                |              |             |  | 0.1 mg                 |
| 0.05 mg                |  |                   |       |       |       |        |        |        |        |                |              |             |  | 0.05 mg                |

\*\* NIST 105-1 Class F tolerances are rounded to two significant figures