

## Laboratory Weights Sets & Weights

Class M<sub>1</sub> - Economical weights for general laboratory, industrial, commercial, technical and educational use.

We manufacture Stainless Steel Bullion and Laboratory Weights Sets & Weights in Accuracy Class of OIML R 111-1 Edition 2004(E): M<sub>1</sub>, Capacity Range from 1 mg to 50 kg

We manufacture Brass Bullion and Laboratory Weights Sets & Weights in Accuracy Class of OIML R 111-1 Edition 2004(E): M<sub>1</sub>, Capacity Range from 1 mg to 20 kg

### Model No.:

SB-WT & SL-WT : Stainless Steel Weights

BB-WT & BL-WT : Brass Weights

### Specification :

OIML R 111-1 Edition 2004(E) and the Standards of Weights & Measures (General) Rules, 1987 IS: 1056-1993

### Construction :

50 kg & 20 kg – Two Pieces having the Adjusting Cavity from top

10 kg to 20 g – Single Piece having the Adjusting Cavity from top

10 g to 1 g – Solid Single Piece

### Material :

50 kg to 50 mg – Stainless Steel & Brass

20 mg to 1 mg – Aluminum

### Shapes :

50 kg & 20 kg – Cylindrical with handle weights

20 kg to 1 g – Cylindrical with knob weights

500-50-5 mg – Pentagon Leaf weights

200-20-2 mg – Square Leaf weights

100-10-1 mg – Triangle Leaf weights

### Presentation :

Weights Sets are supplied in

Self-Locking Sturdy Plastic Box along with the matching accessories like Forceps for lifting the fractional and smaller weights. Individual Weights are supplied "LOOSE WEIGHTS"

### Optional:

Weights Sets are supplied in Fine Polished Steam Beach Handmade Strong Wooden Cases lined with velvet along with the matching accessories like Forceps for lifting the fractional and smaller weights. Individual Weights are also supplied in Fine Polished Steam Beach Handmade Strong Wooden Cases lined with velvet





## High Precision Laboratory Weights Sets & Weights

**Class E<sub>1</sub>** – Used as primary reference standard for calibrating other reference standard and weights where the stability of the environment and careful handling are assured. Although very stable, one-piece construction Class E<sub>1</sub> weights have no method of adjustment and are not suitable for general laboratory use

**Class E<sub>2</sub>** – Used as reference standard for calibrating other weights and is appropriate for calibrating high precision analytical balances with readability as low as 0.1 mg to 0.01 mg. Class E<sub>2</sub> weights can also be used to calibrate Class F<sub>1</sub> weights

We manufacture Stainless Steel High Precision Laboratory Weights Sets & Weights in Accuracy Class of OIML R 111-1 Edition 2004(E): E<sub>1</sub> & E<sub>2</sub>, Capacity Range from 1 mg to 20 kg

**Model No.** : AS-I-WT for E<sub>1</sub> Class

: AS-II-WT for E<sub>2</sub> Class

**Specification** : OIML R 111-1 Edition 2004 (E)

**Construction** : Solid Single Piece

**Material** : Stainless Steel

**Shapes:**

20 kg to 1 g – Cylindrical Knob Weights

500-50-5 mg – Pentagon Wire Milligram Weights

200-20-2 mg – Square Wire Milligram Weights

100-10-1 mg – Triangle Wire Milligram Weights



**Presentation** : Weights Sets are supplied in Fine Polished Steam Beach Handmade Strong Wooden Cases lined with velvet along with the matching accessories like forceps for lifting the fractional and smaller weights, brushes and Piece of Chamois Leather for cleaning the weights, gloves for not to touch weights with naked hands. Individual Weights are supplied in Fine Polished Steam Beach Handmade Strong Wooden Cases lined with velvet.

**Precaution** : Handling of these weights with naked hands are prohibited and marking is not allowed.

## Precision Laboratory Weights Sets & Weights

**Class F<sub>1</sub>** – Used for calibrating high precision top loading balances with a readability as low as 0.01 g to 0.001 g. Class F<sub>1</sub> weights can also be used to calibrate Class F<sub>2</sub> weights

**Class F<sub>2</sub>** – Used for calibrating semi analytical balances and for student use. Class F<sub>2</sub> Weights can also be used to calibrate weighing instruments for important commercial transaction like gold and precious stones. Class F<sub>2</sub> weights can also be used to calibrate Class M<sub>1</sub> weights

We manufacture Stainless Steel Precision Laboratory Weights Sets & Weights in Accuracy Class of OIML R 111-1 Edition 2004(E): F<sub>1</sub> & F<sub>2</sub>, Capacity Range from 1 mg to 50 kg

**Model No.** : AS-III-WT for F<sub>1</sub> Class

AS-IV-WT for F<sub>2</sub> Class

**Specification** : OIML R 111-1 Edition 2004 (E)

**Construction** : 50 kg to 20 g - Two Pieces having screw type Adjusting Cavity

10 g to 1 g - Solid Single Piece

**Material** : 50 kg to 50 mg - Stainless Steel

20 mg to 1 mg - Aluminum

**Shapes:**

50 kg & 20 kg – Cylindrical Handle Weights

20 kg to 1 g – Cylindrical Knob Weights

500-50-5 mg – Pentagon Leaf Weights

200-20-2 mg – Square Leaf Weights

100-10-1 mg – Triangle Leaf Weights



**Presentation** : Weights Sets are supplied in Fine Polished Steam Beach Handmade Strong Wooden Cases lined with velvet along with the matching accessories like forceps for lifting the fractional and smaller weights, brushes and Piece of Chamois Leather for cleaning the weights, gloves for not to touch weights with naked hands. Individual Weights are supplied in Fine Polished Steam Beach Handmade Strong Wooden Cases lined with velvet

**Precaution** : Handling of these weights with naked hands are prohibited



## TABLE OF TOLERANCES

NABL Accredited Laboratory : Weightronics Mass Calibration Laboratory (WMCL)

TABLE 1 - Maximum Permissible Errors for Weights ( $\pm$  in mg) as per OIML R111 - 1 Edition 2004 (E)

NOMINAL VALUE	CLASS - E <sub>1</sub>	CLASS - E <sub>2</sub>	CLASS - F <sub>1</sub>	CLASS - F <sub>2</sub>	CLASS - M <sub>1</sub>	CLASS - M <sub>2</sub>	CLASS - M <sub>3</sub>
1 mg	0.003	0.006	0.02	0.06	0.2	-	-
2 mg	0.003	0.006	0.02	0.06	0.2	-	-
5 mg	0.003	0.006	0.02	0.06	0.2	-	-
10 mg	0.003	0.008	0.025	0.08	0.25	-	-
20 mg	0.003	0.01	0.03	0.1	0.3	-	-
50 mg	0.004	0.012	0.04	0.12	0.4	-	-
100 mg	0.005	0.016	0.05	0.16	0.5	-	-
200 mg	0.006	0.02	0.06	0.2	0.6	-	-
500 mg	0.008	0.025	0.08	0.25	0.8	-	-
1 g	0.01	0.03	0.1	0.3	1	-	-
2 g	0.012	0.04	0.12	0.4	1.2	-	-
5 g	0.016	0.05	0.16	0.5	1.6	-	-
10 g	0.02	0.06	0.2	0.6	2	-	-
20 g	0.025	0.08	0.25	0.8	2.5	-	-
50 g	0.03	0.1	0.3	1	3	10	30
100 g	0.05	0.16	0.5	1.6	5	16	50
200 g	0.1	0.3	1	3	10	30	100
500 g	0.25	0.8	2.5	8	25	80	250
1 kg	0.5	1.6	5	16	50	160	500
2 kg	1	3	10	30	100	300	1000
5 kg	2.5	8	25	80	250	800	2500
10 kg	5	16	50	160	500	1600	5000
20 kg	10	30	100	300	1000	3000	10000
50 kg	25	80	250	800	2500	8000	25000
100 kg	-	160	500	1600	5000	16000	50000
200 kg	-	300	1000	3000	10000	30000	100000
500 kg	-	800	2500	8000	25000	80000	250000
1000 kg	-	1600	5000	16000	50000	160000	500000

TABLE 2 - A Possible Selection Table of Weights for Calibration of Weighing Balances

Capacity	10 g	1 g	100 mg	10 mg	1 mg	0.1 mg	<0.1 mg
Upto 50 g	-	-	-	M1	F2	E2	E1
Upto 100 g	-	-	-	M1	F1	E1	E1
Upto 500 g	-	-	M1	F2	E2	-	-
Upto 1 kg	-	M1	M1	F1	E1	-	-
Upto 5 kg	-	M1	F2	E2	-	-	-
Upto 10 kg	-	M1	F1	E1	-	-	-
Upto 50 kg	M1	F2	E2	-	-	-	-
Upto 100 kg	M1	F1	-	-	-	-	-



## CAST IRON STANDARD WEIGHTS



**Specification :** The Standard Weights & Measures (General) Rules 1987  
**Model No. :** CI-WT-EQ, Accuracy Class of OIML R 111-1 Edition 2004 (E): M<sub>2</sub> (Export Quality)

**Denomination :** 50 kg 20 kg 10 kg 5 kg 2 kg 1 kg 500 g 200 g 100 g 50 g  
**Max. Tolerance :** 8000 3000 1600 800 300 160 80 30 16 10 mg

**Model No. :** CI-WT-SQ, Accuracy Class of OIML R 111-1 Edition 2004 (E): M<sub>3</sub> (Super Quality)

**Denomination :** 50 kg 20 kg 10 kg 5 kg 2 kg 1 kg 500 g 200 g 100 g 50 g  
**Max. Tolerance :** 25000 10000 5000 2500 1000 500 250 100 50 30 mg

**Material :** Cast Iron in Body & Mild Steel in handle from 50 kg to 5 kg

**Shape :** Hexagonal with all the sides conically tapered from 50 kg to 5 kg, towards top and the remaining towards bottom

**Adjusting Cavity :** At the bottom of the Weight



OIML recommended the above vide R-52 Edition 2004(E), for normal use in Trade and Commerce, Cast Iron Hexagonal Standard Weights from 50 g, 100 g, 200 g, 500 g, 1 kg, 2 kg, 5 kg, 10 kg, 20 kg and 50 kg. These can be stacked conventionally and re-verified or re-adjusted periodically. The control mark as required by law is placed on the lead cast in the adjusting cavity. 2 kg to 50 g with nesting arrangement and 50 kg to 5 kg having the handle & a wide circular clear hole for easy lifting.



**Specification :** The Standard Weight & Measures (General) Second Amendment Rules, 2004  
**Model No. :** CI-WT-EQ, Accuracy Class of OIML R 111- 1 Edition 2004 (E) : M<sub>2</sub> (Export Quality)

**Denomination :** 1000 kg 500 kg 200 kg 100 kg  
 160 g 80 g 30 g 16 g

**Model No. :** CI-WT-SQ, Accuracy Class of OIML R111-1 Edition 2004 (E) : M<sub>3</sub> (Super Quality)

**Denomination :** 1000 kg 500 kg 200 kg 100 kg  
 500 g 250 g 100 g 50 g

**Material :** Cast Iron in Body & Mild Steel in Handle

**Shape :** Rectangular in shape with no sharp edge on corners

**Adjusting Cavity :** At the side of the Weight

OIML recommended the above vide R-47 Edition 1979(E), for calibration and testing the accuracy of high capacity weighing scales and truck weigh bridges. Cast Iron Rectangular Standard Weights from 100 kg, 200 kg, 500 kg, 1000 kg, 2000 kg, and 5000 kg. These can be stacked conventionally and re-verified or re-adjusted periodically. The control mark as required by law is placed by the seal after adjustment of the weight at the adjusting cavity. All the weights have the handle on the top for easy lifting.



Model 10 U  
 Model 20 U  
 Model 30 U

U-type for loads kept between legs