

The Gem-A Estimation Loupe

Weight in ct, measurements in mm.

• DIAMONDS

From the diameter of a round brilliant cut diamond the approximate weight can be estimated:

Diameter	Approx. Weight	Diameter	Approx. Weight
1.4	0.01	7.4	1.50
2.4	0.05	8.1	2.00
3.0	0.10	8.7	2.50
4.0	0.25	9.2	3.00
5.1	0.50	9.8	3.50
5.8	0.75	10.2	4.00
6.4	1.00	10.8	4.50

For a more accurate weight estimation the width (W), length (L) and depth (D) are required:

Round brilliant	$\text{Weight} = (\text{average diameter})^2 \times D \times 0.0061$
Oval	$\text{Weight} = \left(\frac{L + W}{2} \right)^2 \times D \times 0.0062$
Heart shaped	$\text{Weight} = L \times W \times D \times 0.0059$
Baguette-cut	$\text{Weight} = L \times W \times D \times 0.00915$

For emerald-cut, marquise brilliant and pear-shaped brilliant-cut diamonds, the length-to-width ratio for the stone will alter the adjustment factor used.

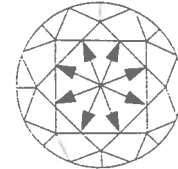
Adjustment Factors

Length to Width Ratio	Marquise	Pear	Emerald
1.0 : 1.0	0.0057	0.0062	0.008
1.5 : 1.0	0.0058	0.0060	0.009
2.0 : 1.0	0.0059	0.0059	0.010
2.5 : 1.0	0.0060	0.0058	0.011

$$\text{Weight} = L \times W \times D \times \text{Adjustment Factor}$$

• TABLE SIZE FOR DIAMONDS

This estimation loupe can also be used to find the table size of a diamond. On a microscope this can be done by unscrewing the bottom plate with the printed scale. Using the mm measurements on the bottom of the scale, measurements (to two decimal points) are taken from point to point as shown below; the largest table measurement is then used to calculate the table size.



The maximum table measurement is then calculated as a percentage of the average girdle diameter:

$$\text{Table size} = \frac{\text{Largest table measurement}}{\text{Girdle diameter}} \times 100$$

When looking at the table of a fancy-cut stone the table percentage is taken according to the width of the table relative to the girdle width (not the length).

• COLOURED STONES

Round	$\text{Weight} = (\text{average diameter})^2 \times D \times \text{SG} \times 0.0018$
Oval	$\text{Weight} = \left(\frac{L + W}{2} \right)^2 \times D \times \text{SG} \times 0.0020$
Marquise	$\text{Weight} = L \times W \times D \times \text{SG} \times 0.0019$
Pear	$\text{Weight} = L \times W \times D \times \text{SG} \times 0.0020$
Heart	$\text{Weight} = L \times W \times D \times \text{SG} \times 0.0019$
Step cut	$\text{Weight} = L \times W \times D \times \text{SG} \times 0.0030$
Emerald cut	$\text{Weight} = L \times W \times D \times \text{SG} \times 0.0027$
Cabochon cut	$\text{Weight} = L \times W \times D \times \text{SG} \times 0.0026$ (If very shallow use a correction figure of 0.0029)

SG (specific gravity) of some gem materials:

Material	Approx. SG	Material	Approx. SG
Quartz, crystalline	2.65	Peridot	3.34
Beryl varieties	2.70	Topaz	3.55
Tourmaline	3.05	Corundum varieties	4.00
Tanzanite	3.26		