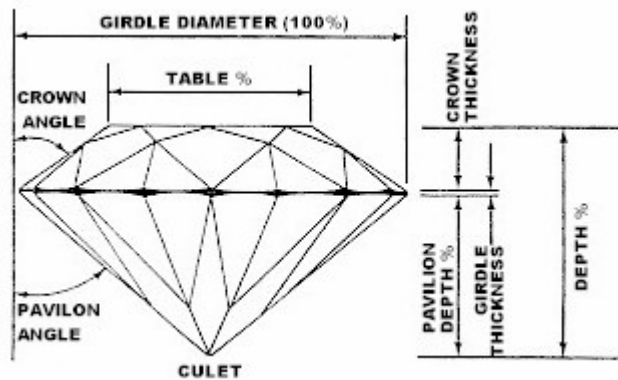
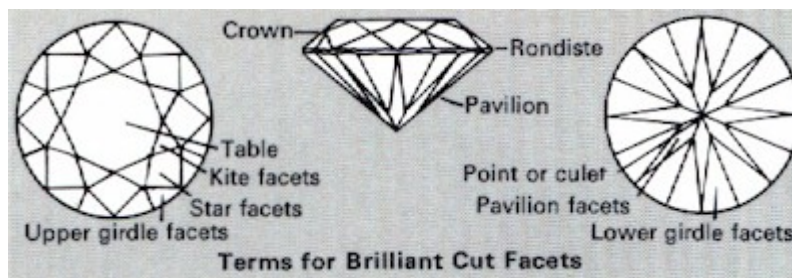


The Third “C” – CUT



The cut or “shape and make” of a diamond can be considered the most important of the “C”s because the quality of the cut is what gives the diamond its brilliance and beauty and strongly contributes to the diamond’s value. The cut of the diamond is fashioned by human hands and is the only “C” that is not determined in nature. Diamond cutters cut and polish diamond rough by hand into objects of beauty. It requires a master cutter to fashion an ideally cut diamond. Facets are the tiny planes on the diamond’s surface, which give it sparkle and fire. The manner in which the facets are angled to each other and the diamond’s proportions determine the brilliance (reflection of light from inside the diamond), dispersion (color refraction-the twinkling of colors) and scintillation (reflection of light from the surfaces of its facets), or more simply, its light refraction, display of spectral colors and their movement, respectively.



In order to maximize this brilliance, the diamond cutter must place each of the diamond’s facets, which act as light-dispersing mirrors, in exact geometric relation to one another. On a classic Round Brilliant cut diamond, fifty-eight facets must be precisely aligned. Few diamonds are cut to exacting standards

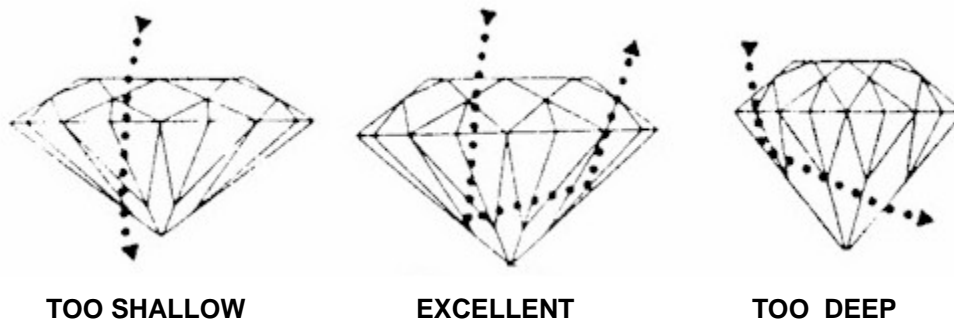
since diamond cutters try to maximize their returns on the raw material by leaving the stone as large as possible with minimum waste. As a result, the proportions, symmetry and perfection of the cut and shape may be delegated to play a secondary role. The result is usually a compromise between profit (e.g., size) and beauty (perfection of cut, proportions and shape).

When the diamond is well proportioned the path of a beam of light is returned directly back to the eye instead of escaping through the bottom or sides of the cut diamond, as a result the diamond will be more lively and brilliant.

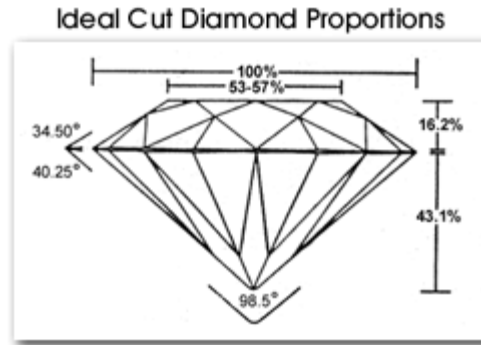
A shallow cut diamond with a large table looks shallow and has poor dispersion not to mention a predisposition to cleavage (breakage).

Well made diamonds have a superior polish with no drag marks, surface waviness or other surface blemishes.

If the diamond is cut too deep and with a thick girdle and small table for added weight you have a dull lifeless stone.



I will endeavor to give you a basic knowledge of what the best standard in the diamond trade is. For a diamond to be considered ideal cut all the components (facets, table, crown, pavilion, etc.) must be cut to specific tolerances (angles and percentages). If not, brilliance and dispersion will suffer.



Marcel Tolkowsky, a family member of Belgian diamond cutters, is credited with calculating in 1919 the ideal proportions and facet angles that create maximum 'balanced' brilliance, scintillation and fire. Tolkowsky published *Diamond Design*, the first recorded analysis of round brilliant diamond proportions. This work was based on theories of light behavior and his opinion of proportions resulted in the best balance of brilliance and dispersion. These calculations formed the basis on which the American Gem Society (AGS) uses in grading diamonds for proportions.

AGS CUT GRADES

	Class	Grade
Excellent	1	0 - 3
Good	2	4 - 5
Fair	3	6 - 7
Poor	4	8 - 9 - 10

Unfortunately the "ideal cut" results in smaller weight yield from the rough diamond crystal and is rarely practiced. Most cutters today slightly compromise Tolkowsky's "ideal cut" in what has come to be known as the "American Brilliant Cut" or "Modern American (brilliant) Cut". The slightly modified cut still creates impressive results.

The most important criteria of the Cut is the ratio of the depth to its diameter (i.e. Depth/Diameter whereby the diameter is that of the girdle's. In fancy shapes it is the girdle's shortest diameter). In order for the diamond to be considered within the "Ideal" tolerance bracket the ratio should be between 58/100 and 62.9/100 or, "58%" and "62.9%" respectively. "Table" diameter percentage (see illustrations for definitions of the names of the different diamond facets), "Crown" angles and

"Girdle" thickness & symmetry are also important. Each of these proportion criteria has its tolerance range which, however, are less crucial when violated than deviations from the above Depth/Diameter ratio ("Percentage"). These tolerance ranges, loosely speaking, are those manifested in the "American Brilliant Cut". Thus, acceptable table proportion tolerance range for the practical equivalent of the ideal cut ("The Modern American Cut") is larger than the allowed deviation range for its depth: tables are allowed the proportion range of approx. 52% to 62% or 63%.

A well proportioned, finely made (polish) diamond can command a 40 to 50% premium (or more) over an "off make" or a lackluster poorly polished, misproportioned stone (color, clarity, and weight parameters being the same specs). Typical cutting & polishing time on a 3/4 carat round brilliant diamond is less than 4 hours. The same size and shape diamond cut to "ideal cut" (AGS "0" cut) proportions is 3 to 4 days not to mention more loss of rough during cutting. This difference in labor cost is why very fine cut diamonds command a premium in price. Ideal cuts should have an accompanying AGS certificate.

IDEAL PROPORTIONS

RANGE OF GENERALLY ACCEPTABLE PROPORTIONS

53.0 to 57.0%	Table Diameter	53.0 to 66.0%
59.0 to 61.0%	Total Depth	57.0 to 63.0%
43.0 to 43.5%	Pavilion Depth	41.5 to 45.0%
34.0 to 35.0°	Crown Angle	30.5 to 37.5°
40.0°	Pavilion Angle	39.0 to 42.0°
14.8 to 15.5%	Crown Height	11.0 to 16.2
medium to slightly thick	Girdle	thin to thick

In fancy cut diamonds (Princess Cut, Emerald, Marquise, Oval, Pear etc.) proportions are measured in relation to the diamond's width—the girdle's cross section narrowest diameter and tend to be considerably larger (in the high 60's and 70's). Remember, however, that if they were close to the ideal cut standards, those proportions would be too low in the longer directions of the diamond (unless the culet was sufficiently stretched as well).

In girdles, even though girdle thickness of "very thick" does not affect a diamond's brilliance it does, however, render the diamond's appearance somewhat smaller as the bulk of its weight is concentrated in the girdle area. Extremely thin girdles, on the other hand, should be avoided due to their fragility in the setting process and after (if exposed).

So, what's the difference between AGS-0, AGS-000, Ideal Cut Diamonds, Tolkowsky, Hearts & Arrows, etc.? Unless you have special laser optics, not very much. Side by side all things being equal, i.e. size, color and clarity you would need a microscope and a well trained eye to tell the difference. Simply put, these diamonds all reflect back 96 plus percent of the light that enters the stone (AGS-0=96% reflection, Hearts & Arrows=98% where as an AGS-4 (Good) or GIA (N,G,G,N) cut has a reflection rate of 70% or so. Face up without advanced optical equipment you cannot tell the difference between the ideal cut diamonds. If the diamonds are mounted you can't tell period.

Ideal cut diamonds are really a hot item now. Dealers who "romance the stone" insist that this is the only way to go. I am not trying to put down ideal cut stones. We appreciate them for their beauty. We also know that they are in great demand (thanks to all the hype they are getting in the trade). The big thing now is "ideal cut". Well, what is all the hullabaloo about? Basically, ideal cut diamonds are diamonds of a superior make that are cut to display optimum brilliance and dispersion. Are ideal cut diamonds so superior that customers should not consider purchasing another diamond? The short answer is a big resounding NO! Take a trip to the local mall and shop around for a diamond. Whose ideal cut standards are the sales clerks trying to confuse you with? AGS, EGL, GIA, Hearts and Arrows, European Ideal, Tolkowsky, zero cut, triple zero cut? There are many differing standards and ranges. Oh, did someone at the mall forget to tell you that "ideal" is a range? And you thought "ideal" was specific. Confused? Darn those sales clerks! For our purposes the best standard is what AGS (American Gem Society) uses in grading diamonds for ideal cut proportions. All others to the back of the line please.