



EST- 1995

FINESHINE

LET THE DIAMOND SHINE!



DIAMOND

Education

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PHYSICAL PROPERTIES

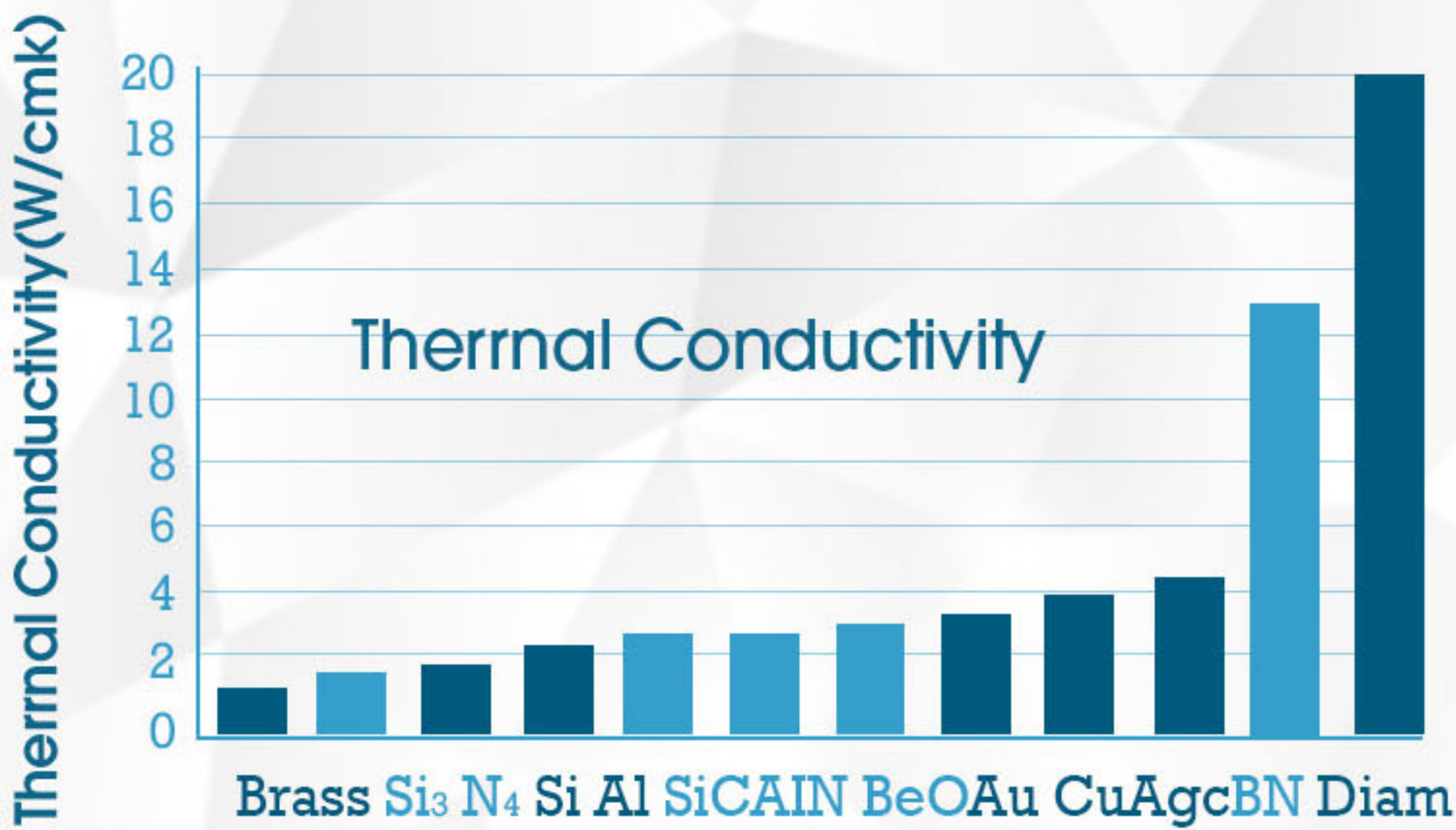
1.Hardness

Hardness can be defined by a mineral's resistance to being scratched. To measure this hardness we use the Mohs scale which **comprises 10 values**, from 1 to 10. The stones 1 and 2 are soft, those between 3 and 6 have an average hardness, those beyond 6 are known as hard. Diamond has a hardness of 10

				
Talc	Gypsum	Calcite	Flourite	Apatite
				
Feedspar	Quartz	Topaz	Corundum	Diamond

2.Toughness

Within the fields of metallurgy and materials science, the term "**TOUGHNESS**" describes the resistance of a given material to fracture when it is stressed or impacted. Although diamond is the "**HARDEST**," and therefore, most scratch resistant mineral on earth, with a Mohs scale rating of 10, its "toughness" rating is moderate, due to its ability to fracture along cleavage planes.



3.Thermal Conductivity

Thermal conductivity is the ability of a substance to pass heat from one area to another. Diamond has the **highest thermal conductivity** of any known substance because the closely packed crystal structure conducts heat very quickly.

4. Specific Gravity

The specific gravity of diamond is 3.52 (i.e its density is 3.52g/cm³). This means that diamond is a dense and relatively heavy material, more than three-and-a-half times heavier than the equivalent **Volume of water at 4 °C**. In diamond mines, this property is used to help separate rough diamonds from the accompanying rock.

OPTICAL PROPERTIES

1 Refractive Index

'Refractive index' (R.I.%) is a measure of well a substance can refract light. The R.I. of natural diamond is **2.417**.

3 Luster

This is the surface finish on a polished diamond facet, which to a large extent depends on the refractive index and quality of polish. Gemologists describe diamond's brilliant luster as adamantine: '**diamond-like**'.

Very few gemstones have this type of luster. Most well-know gemstones have a luster that is described in one of the following ways: '**sub-adamantine**' /'**vitreous**', or glassy, '**metallic**', '**waxy**', etc.

5 Scintillation

Scintillation is the play of light that happens when a faceted diamond, the light or the observer move.

7 The Critical Angle and Total Internal Reflection

At a certain angle of incidence, known as the critical angle the refracted ray will be at **90°** from the normal. No light is refracted. It is all reflected back into the higher refractive index material. This is known as total internal reflection. Critical angle for diamonds is **24.5 degrees**.

2 Brilliance

The brilliance of a polished diamond is regarded as the amount of light that is reflected back to the viewer.

4 Fire

This is the play of colors that can be seen from the **crown of a polished diamond**. As light enters the diamond it is refracted and broken up into the colors of the spectrum and reflected back. The resulting **rainbow –like colors flashes** are called 'fire'

6 Dispersion

What we call white light is made up of a variety of different colors which produce white by their superposition. It is to the splitting of white light into its components that are due a variety of beautiful phenomena like **the rainbow or the color of the soap bubble**. Dispersion value of diamond is .044.

8 Fluorescence

Fluorescence is a phenomenon which causes some diamonds to glow under long wave **ultra violet light (UV)**, which is abundant in natural daylight and some artificial lighting. All grading report denote the diamonds fluorescence as well as color. Strong fluorescence can cause a diamond to look hazy or less transparent, which diminishes its brilliance and gives it a sleepy, or greasy appearance, will cost less than one with **faint or no fluorescence**. If a diamond is lightly tinted and has faint to moderate fluorescence, it may face up whiter than another diamond of similar lightly tinted color possessing no fluorescence, and may actually cost more.



The following are the possible grades given to fluorescence:

None, Faint, Medium, Strong and Very Strong.



Same stones as seen with an ultraviolet lamp (top) and normal lighting (bottom).

Kimberly Process

- Certification scheme to control movement of diamonds across borders
- Runs on consensus only – unique, but fragile too (SA played strong role in creation)
- Conflict and illicit diamonds not the same - KP mandate is 'conflict diamonds'
- Several working groups making up the KP core; chaired annually by member states in rotation (Israel was the KP chair in 2010 and the current chair is the DRC)
- The Working Group of Diamond Experts (WGDE) represented by the South African Diamond and Precious Metals Regulator, with Mintek participation at their request
- WGDE often asked to review controversial parcels – current decisions based on shape / color / surfaces : risky and qualitative
- SADPMR-Mintek Diamond Provenance Laboratory aims to develop a forensically sound method for KP and SA.



Rough diamonds are the diamonds which found before it get cut and polished for sale. The big rough diamonds sometimes are cut into two diamonds such as the Cullinan one and the Cullniantwo . They were cut out of a diamond that weighed 3106 carats. Blood diamonds are not named for their color but rather the very real blood which is shed in order to mine them and more sinister, the arms for civil war for which they are used to pay for. If you wear a conflict or blood diamond on your hand, then you really do have blood on your hands!

SIEVING



Diamond Sieves are high **precision measuring instruments specially** manufactured to meet the strict requirements of the diamond industry. They offer a rapid and extremely accurate method of sizing. They are produced from stainless steel or nickel etched plate providing accurate apertures. Locally they are called as "CHARNI or CHALNI".

The process of separating diamonds into different groups on the basis of different sieve sizes is called sieving. Fixed plate sieves are available in stainless steel bodies and **start from sieve no.000, 00, 0, 1, 1.5, 2, 2.5 till. 20.**In a standard sieve box you would find total 42 sieve plates with differences of 0.5.For advanced purposes, we also get sieves with differences of .25 between every sieve.

Following information would be found on a standard sieve plate:

1. Sieve Number

It is the number inscribed on the sieve that indicates the sieve number starting **from 000, 00, 0, 1, 1.50....till 20** making the total to 42

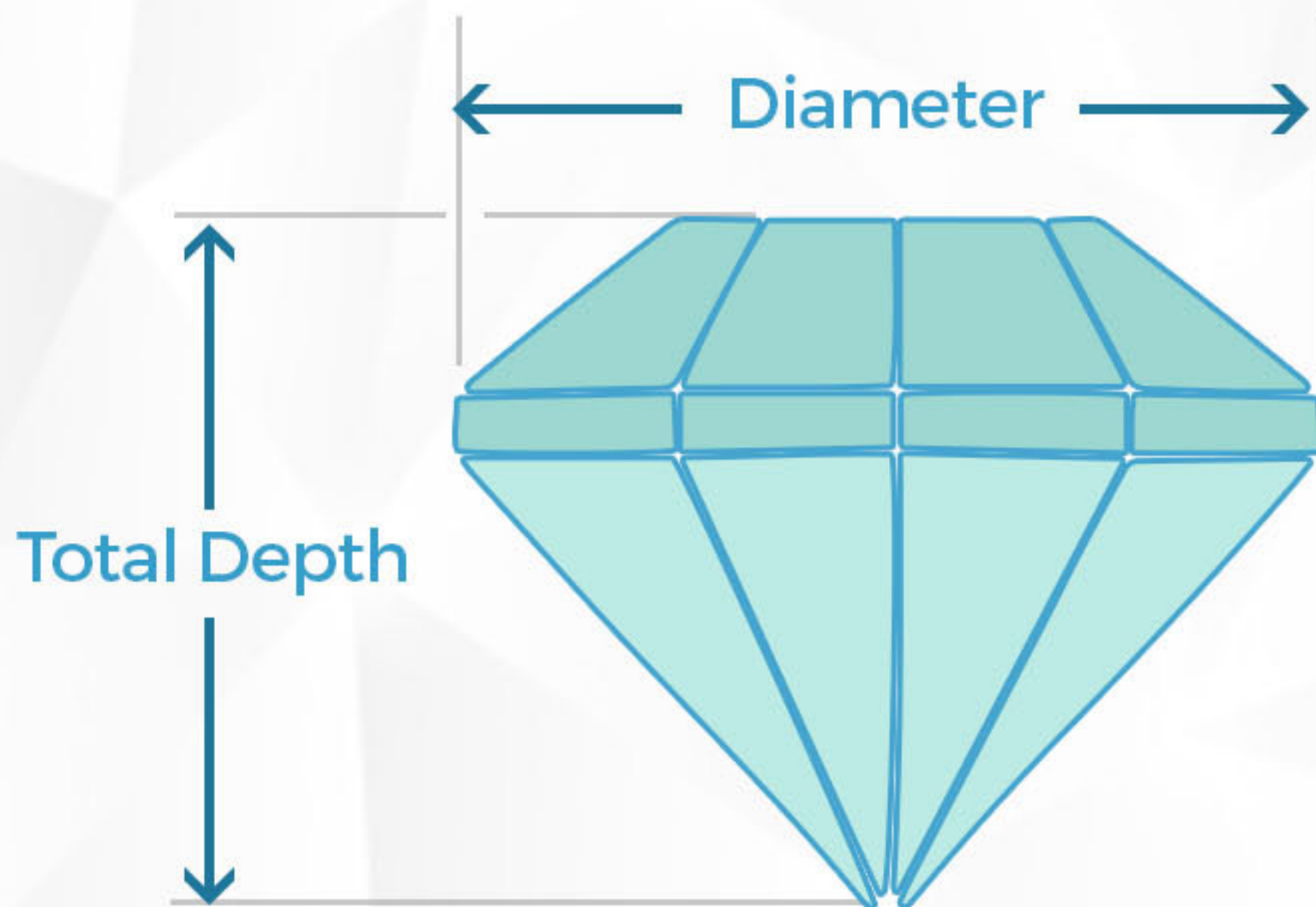
2. Sieve size in mm

Here, the diameter of the perforation is stamped in millimeters In the local wholesale market, diamonds are **mainly sold by sieve sizes**. A range of sieves are grouped into one category and so is the pricing. The groups under sieve ranges have specific names and weight ranges as given in the sieve chart below:

GROUP NAME	SIEVE SIZE	APPROX WEIGHT IN CARAT
-2	-2	<0.005
STARS	+2-6.5	0.006-0.02
MELEE	+6.5-11	0.021-0.07
+11	+11-14	0.08-0.13
+14	+14-15.5	0.14-0.17
1/5(One-Fifth)		0.18-0.22
1/4(Quarters)		0.23-0.029
30 Pointers		Above 30 Cents
40 Pointers		Above 40 Cents
50 Pointers		Above 50 Cents
Solitaires		1.00 carat and Above

MEASURING A DIAMOND

Although the value of the diamond is **measured in carats** rather than size, determining the size is crucial to obtaining a correct fit in a jewelry setting. Measuring a diamond in millimeters can be accomplished without purchasing expensive measurement tools. Diamonds can be measured either by a digital gauge or a **mechanical gauge**.



Digital Gauge/Mechanical Gauge

 0.02 Ct 1.7 mm	 0.03 Ct 2.0 mm	 0.04 Ct 2.2 mm	 0.05 Ct 2.4 mm	 0.10 Ct 3.0 mm	 0.15 Ct 3.4 mm
 0.20 Ct 3.8 mm	 0.25 Ct 4.1 mm	 0.33 Ct 4.4 mm	 0.50 Ct 5.0 mm	 0.60 Ct 5.3 mm	 0.75 Ct 5.7 mm
 0.90 Ct 6.2 mm	 1.00 Ct 6.4 mm	 1.25 Ct 6.9 mm	 1.50 Ct 7.3 mm	 1.75 Ct 7.7 mm	 2.00 Ct 8.1 mm
 2.25 Ct 8.5 mm	 2.5 Ct 8.8 mm	 2.75 Ct 9.1 mm	 3.00 Ct 9.4 mm	 3.50 Ct 10.0 mm	 4.00 Ct 10.4 mm
 4.50 Ct 10.8 mm	 5.00 Ct 11.0 mm	 5.50 Ct 11.3 mm	 6.00 Ct 11.7 mm	 7.00 Ct 12.4 mm	

PROPERTIES OF DIAMOND

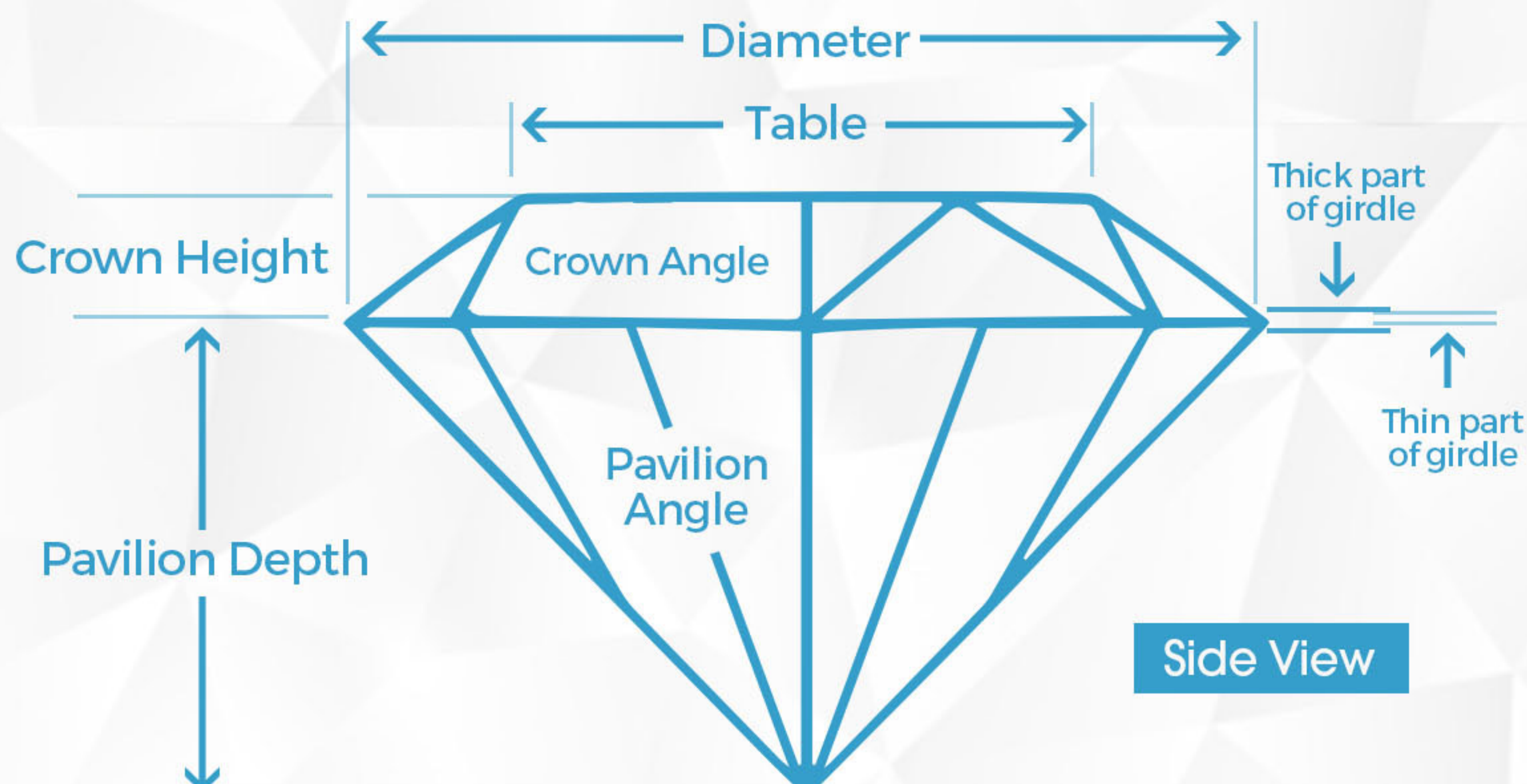
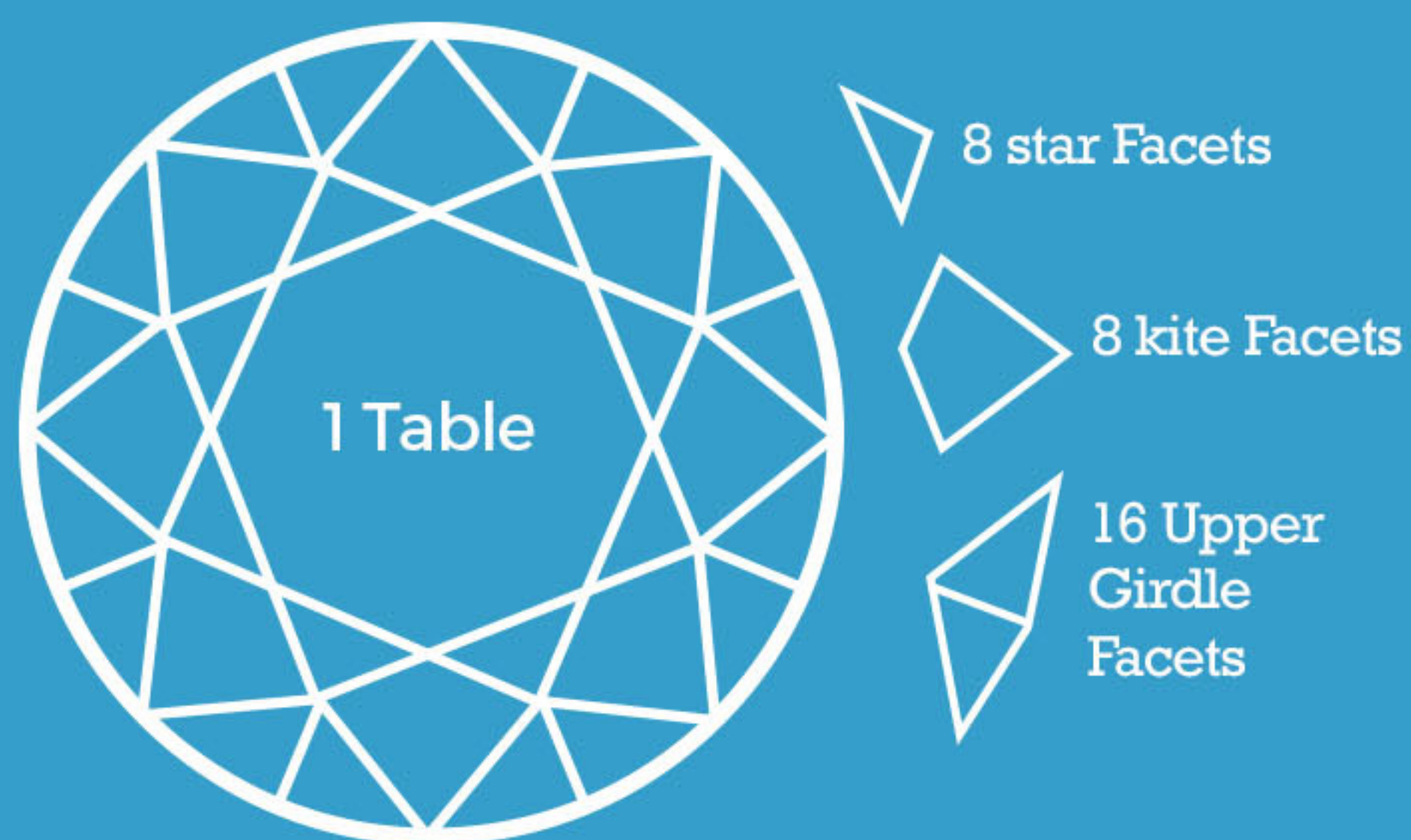
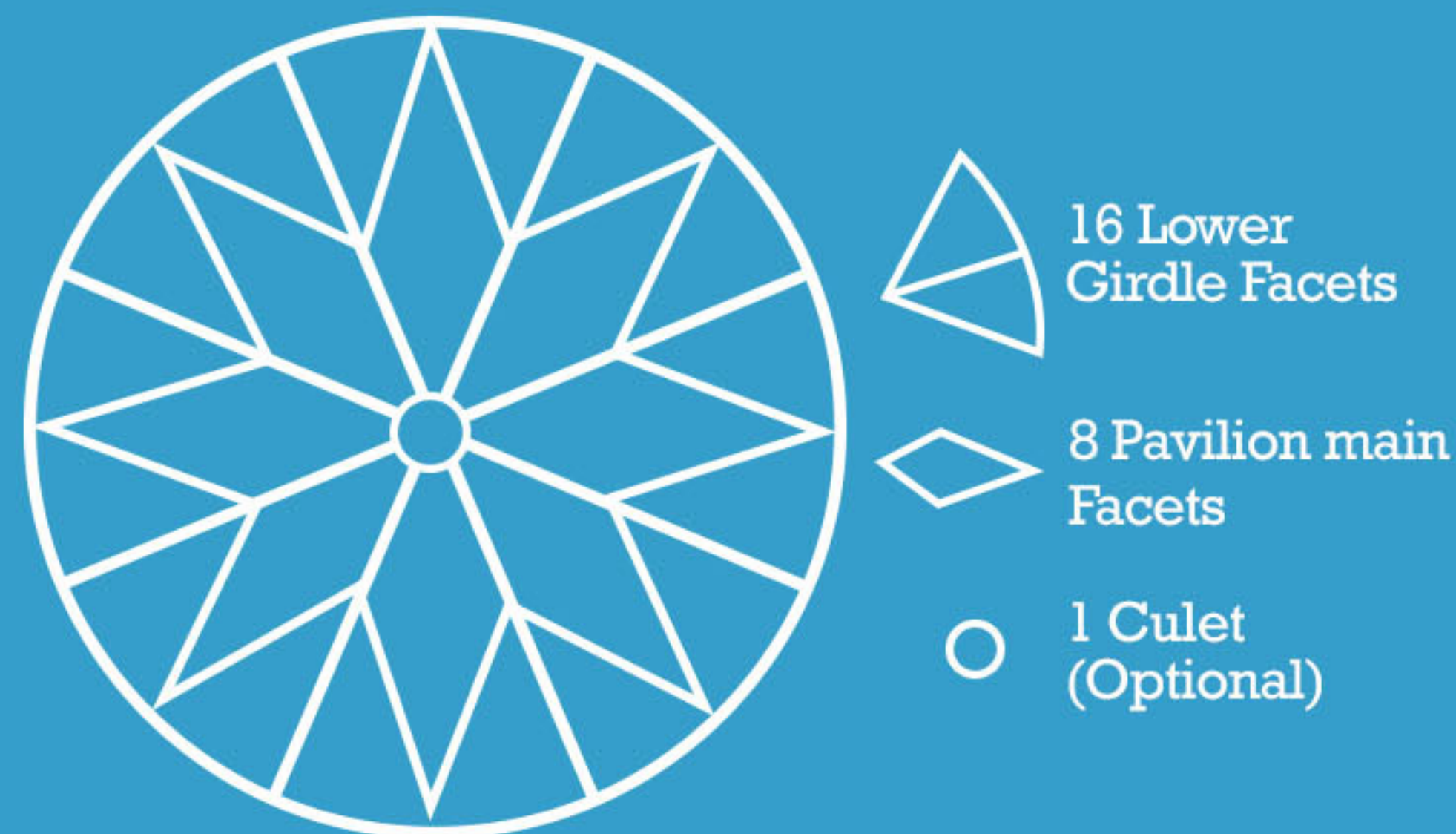


Figure 1: Diamond Proportions

TOP VIEW



BOTTOM VIEW



The standard round brilliant cut diamond has **58 facets including the culet**. The anatomy of a standard round brilliant cut diamond can be described as below:

Star Facets

The triangular facets that extend from the table edge down toward the girdle.

Bezel Facets

These are the kite shaped facets between the table and the girdle.

Upper Girdle Facets

The facets that extend from the girdle edge up toward the table. These are also known as .upper halves.

Pavilion

The lower part of a faceted diamond, below the girdle.

Culet

This is a very small facet pointed part at the bottom of a diamond where the pavilion main facets meet.

It is the facet that usually found on the top of the diamond it is the at the top of the crown of a faceted diamond and is usually the largest and the biggest facet in octagon shaped it is most visible facet of a diamond.

Table

The upper part of a faceted polished diamond, above the girdle.

Crown

The narrow edge which acts as the boundary between the crown and the pavilion of a faceted diamond.

Girdle

The facets that extend from the girdle edge down toward the culet. These are also known as the .lower halves.

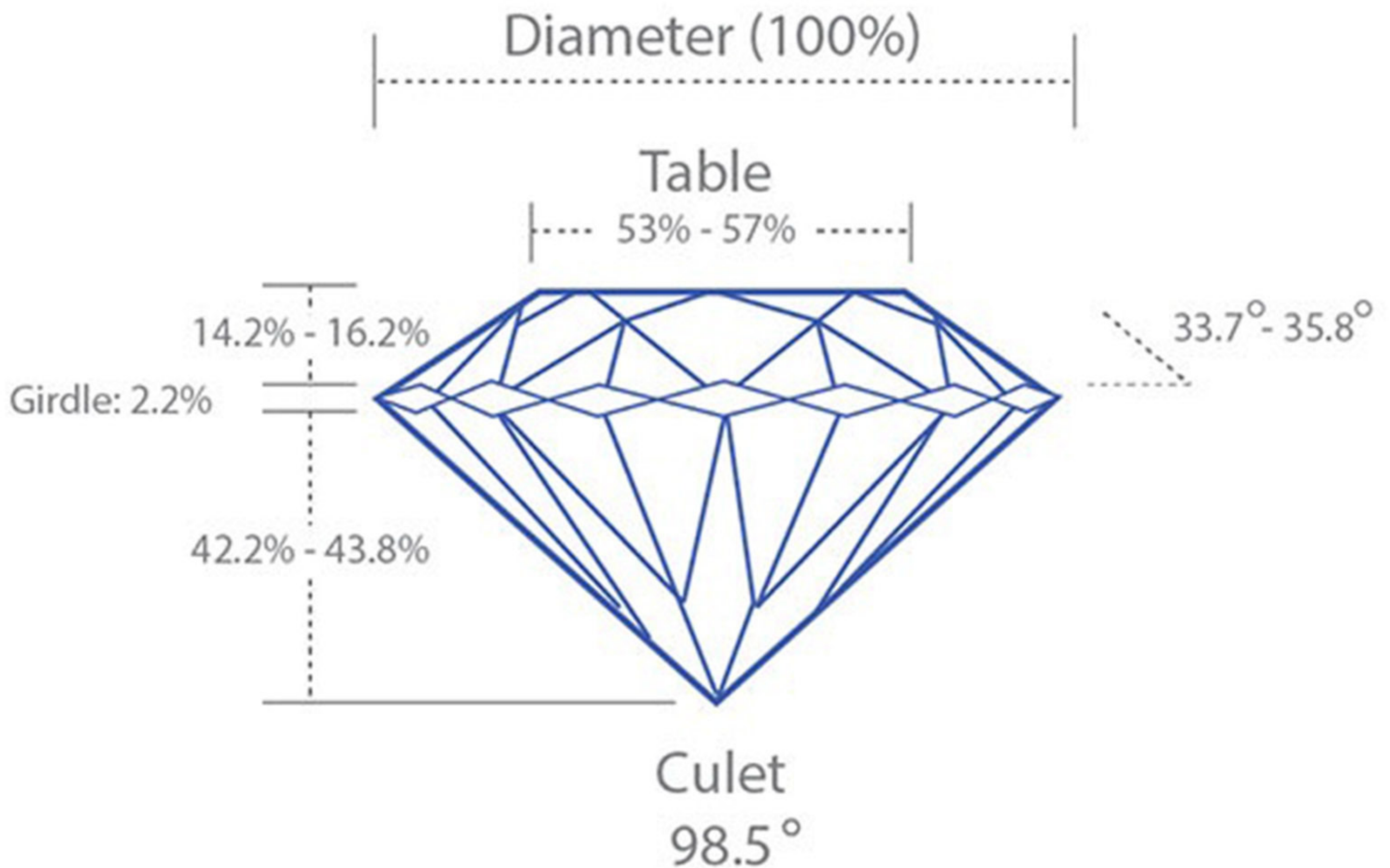
Lower Girdle Facets

These are the arrow shaped facets between the girdle and culet. It is also known as arrow facet.

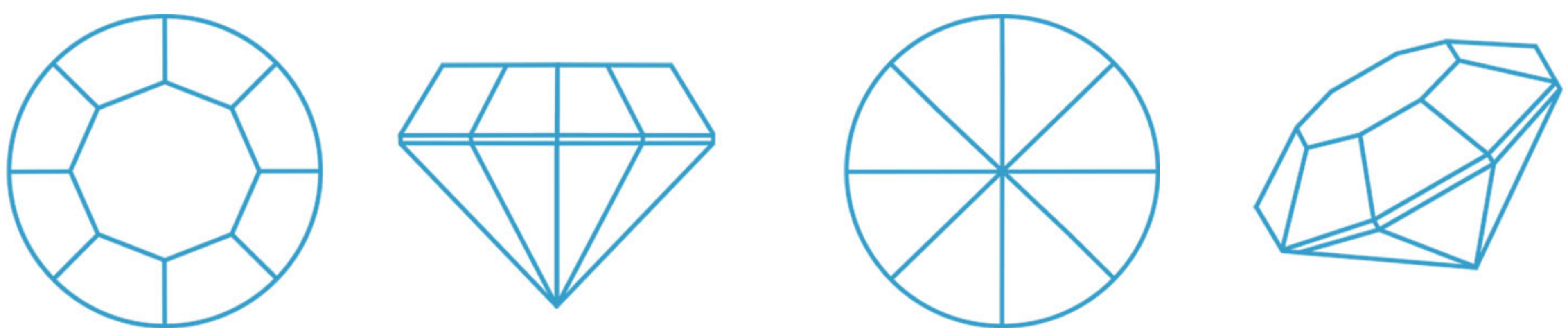
Pavilion Main Facets

IDEAL CUT ANATOMY

Proportions of the ideal Round Brilliant Cut Diamond



SINGLE CUT



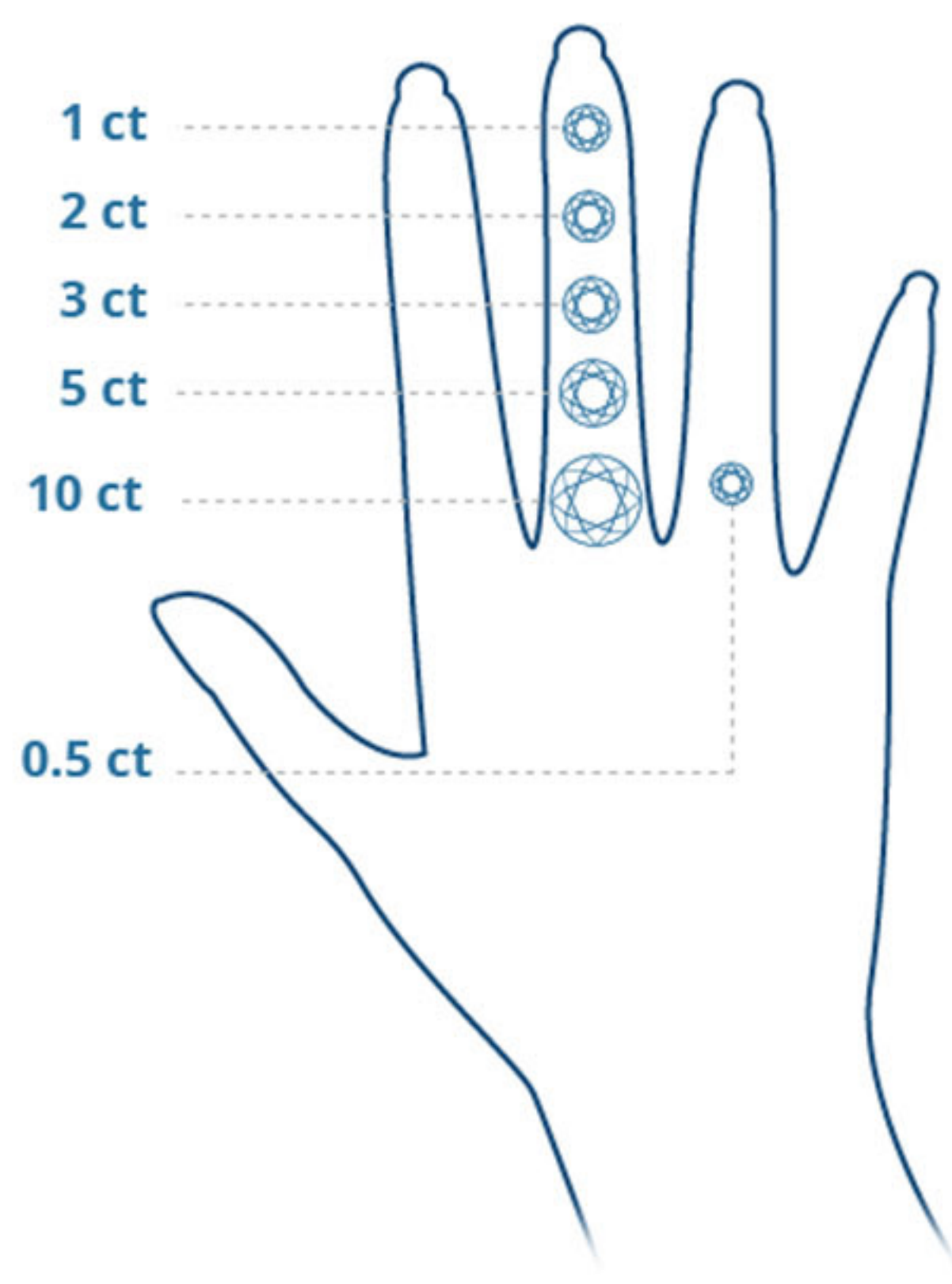
CARAT

The history of carat weight is one that is tied intimately the history of trade as well as the metric system. The Word "**carat**" is etymologically derived from different language' Word for "**carob**," a Mediterranean seed played an important role in trade centuries ago. The carob seed themselves were inedible, but they were observed to have a very uniform size and weight. The seeds were then used to balance a scale when weighing precious gemstones and a higher of seeds indicated a heavier and therefore more valuable stone.

CARAT

Is the weight and size of a diamond

1 CARAT = 200 MILLIGRAMS



Carat **DOES NOT** indicate quality and should be the last thing you consider when looking for a diamond.

The most popular engagement ring size is .75 carat.

One carat is defined as one- fifth of a gram or **200 milligrams**, roughly the weight of a single dollar bill. In 1913 the United States accepted the carat as the gemstone measurement, and **in 1914 the United Kingdom** followed suit. By the 1930s, the majority of countries involved in the diamond and gemstone had agreed to the standard measurement.

CARAT

1 carat = 100 cents/points

1 grain = 25 points 1

Carat = .200 grams or 200 milligrams

Diamond weight is so precise that polished diamond are weighed to a thousandth of a carat and them rounded off to the third decimal.

Since the price of diamond is based upon rarity, the larger the stone the rarer diamond and the higher the price per carat. **A one-carat stone** is much rarer than two half-carat stones, and is therefore considerably more expensive.

COLOR

The GIA describes color as follows:

It is worth noting that two diamonds with identical **GIA color grades** will probably not face up the same to the naked eye because each unique diamond shows color and brilliance a little differently.

Also interesting is that the same diamond submitted to the GIA for color grading more than once will not **necessarily receive the same grade** each time.

Color is graded on a spectrum and determining a specific grade is inevitably subjective [within limits]. It is therefore understandable for a color grade to be seen slightly differently at different times.

Diamonds from D to H color do not show any yellow tint; I to K colors show just a hint of color and when cut perfectly often provide extraordinary value.

GIA COLOR GRADING SCALE

																							
D		H		L		P		Z															
D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
Colorless			Near Colorless				Faint Yellow				Very Light Yellow				Light Yellow								

CLARITY CHARACTERISTICS

Inclusions can become part of a diamond during formation or **result from crystal structure**. They might also from damage to the stone or be introduced during cutting or treatment. Blemishes can result from conditions during setting or wear. Be introduced by the cutting process or result from the diamond's own crystal structure. The effects they have on a diamond's clarity grade depend on their visibility at **10X magnification**.

Totally enclosed inclusions

Crystal (Xtl)

A mineral crystal contained in a diamond.

Pinpoint (Pp):

A very small crystal that looks like a tiny dot.



Needle (Ndl)

A thin, elongated crystal that looks like a tine rod.

Cloud (Cd):

Tightly grouped pin- points that might be too small to distinguish individually but together have a hazy appearance.

Totally Enclosed Inclusions resulting from crystal Structure:

Internal Graining (Ingra): Lines angles, or curves that might appear Sh whitish, colored, or reflective; caused by irregularities in crystal growth.

Twinning Wisp(W): A series of pinpoints, clouds or crystals that forms in a diamond's growth plane; associated with crystal distortion and twinning planes.

Inclusions caused by Treatment:

Laser Drill-Hole(LDH): A tiny, surface reaching tunnel produced by a laser light beam.

Inclusions extending into the stone from surface:

Bearded Girdle (BG): Very small feathers that extend from the girdle surface into the stone; can result from the cutting process.

Cavity (CV): An angular opening created when part of a feather breaks away or when a surface —reaching crystal drops out or a forced out during polishing.

Chip (Ch): A shallow opening caused by damaged to the stone's surface; typically occurs at a girdle edge or culet.

Feather (FTR): General trade term for a break in a gemstone, often white and feathery in appearance.

Indented Natural (INDN): A portion of the rough's original surface, or skin, that dips between below the polished diamonds surface.

Knot (K): A Group of all crack usually found near to surface.

Blemishes introduced in the cutting process

Extra facet (EF): A facet that's not required by the cutting style, placed without regard for the diamond's symmetry, most often near the girdle. Usually heavy to make to avoid weight loss.

Lizard Skin: Wavy or bumpy area on the surface of a polished diamond.

PIT (Pit): A small opening that looks like a tiny white dot.

Polish Lines (PL): Fine parallel grooves and a ridges left by polishing, can occur on any facet but do not cross facet junctions; transparent or white.

Nick[NK]: A Small touch on 10X, usually along the girdle edge or the cu let.

Scratch (S): A thin, dull, white line across the diamond's surface; shows no apparent depth

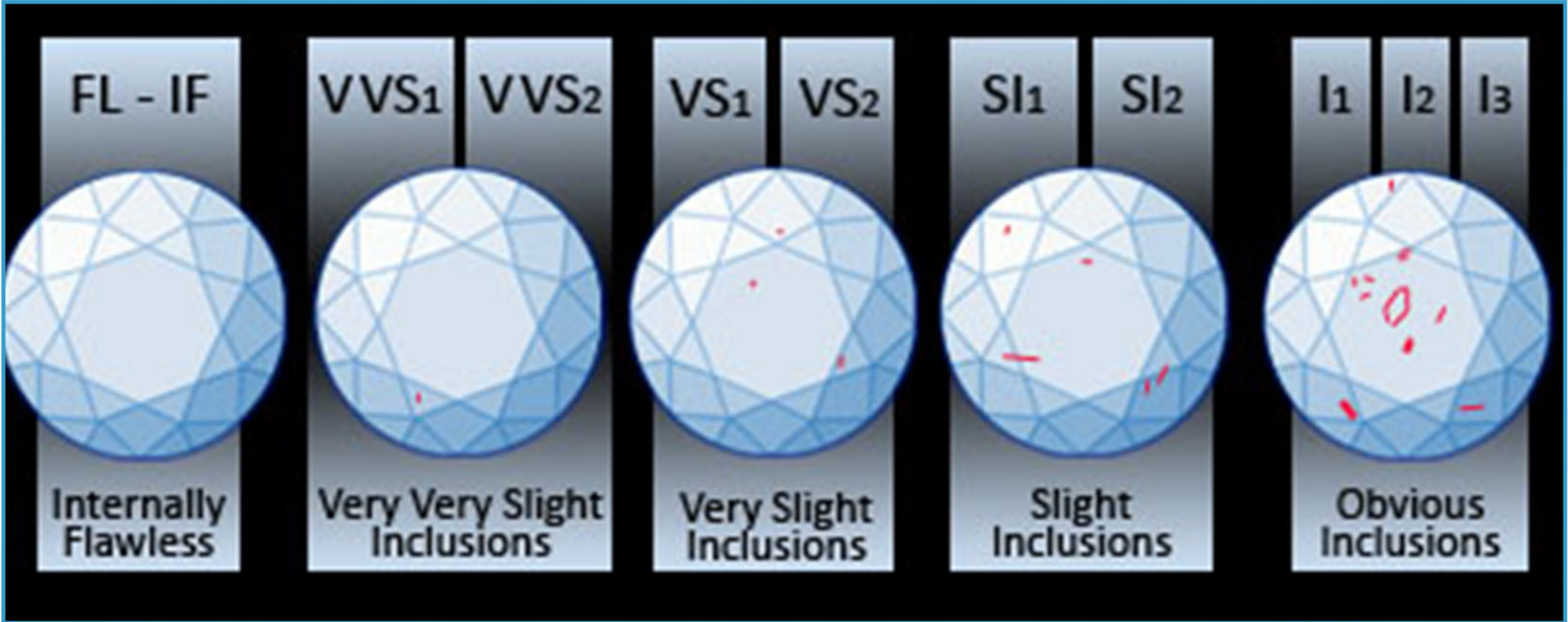
Abrasion (ABR): A series of minute nicks along the facet junctions of a fashioned diamond; gape between & Facet gives the edges a white or fuzzy appearance.

CLARITY GRADING FACTORS

There are Five factors determine the overall effect of characteristics on a clarity grade. ost of the have to do with readily you can see the characteristics. The five factors are:

Size of the inclusion	Size influences the effect of a characteristic on a diamond's clarity grade .This diamond contains some fairly large crystals. (30X)
Number of the inclusion	The number of inclusions makes a difference in the clarity grade. This diamond has general. (20X)
Position of the inclusion	The position of the feather under the crown facet was a factor in this diamond's clarity grade. A diamond with the same type of feather under its table would get a lower clarity grade.(30X)
Nature of the inclusion	The type of nature of an inclusion in an important diamond clarity grading factor. This diamond's very large white feather might threaten its durability, so it resulted in a lowered clarity grade.(10X)
Relief (Color or Colorless inclusion)	'Relief' describes an inclusion visibility .These crystals are easy to see because of the color. If they were colorless, the diamond would receive a higher grade.(30X)

The effect of size is obvious: Large inclusions affect clarity more than small ones. **The number of inclusions is also important.** but it's not just a matter of counting inclusions. A stone can have many tiny inclusions and still be high on the clarity scale. One or two of the largest inclusions usually set the grade. An inclusion's position affects its visibility. Cutters call a area right under the table the **"HEART"** of the stone. Inclusions are much more visible there than they are under the bezel facets or near the girdle. An inclusion might be small and in an inconspicuous place.



INTERNATIONAL CLARITY GRADING

Flawless (FL)	IF Determining Factors No Inclusions or Blemishes are visible under microscope.
Internally Flawless(IF)	No Inclusions are visible under microscope, only very minute blemishes on the surface of diamond.
Very Very Slightly Included (VVS-1)	VVS-1, is also very clear diamonds, inclusions are very minute and difficult to see under 10 X magnifications.
Very Very Slightly Included (VVS-2)	VVS-1, is also very clear diamonds, inclusions are very minute and difficult to see under 10 X magnifications.
Very Slightly Included (VS-1)	VVS-2 denotes lower clarity than VVS-1. But pinpoints or needles sets the clarity grade
Slightly Included (SI-1)	These are the inclusions which are visible very easily at first look under 10 x magnifications.
Slightly Included (SI-2)	This is lower grade than SI-1, and inclusions are very frequently seen.
Included (I-1)	Inclusion can be seen easily without lens, with some efforts.
Included (I-2)	Inclusions are visible from naked eye easily, without any effort. Included 1-3 inclusions affect the brilliance of diamond and threaten the structure of diamond.

Clarity Grades Explained

1

Flawless

Flawless diamonds show no inclusions or blemishes of any kind when examined under 10X magnification by a skilled grader. Exceptions:

- Extra facets not visible in the face-up view.
- Naturals confined entirely to the girdle, as long as they don't thicken the girdle or distort its outline.
- Internal graining that's not reflective.
- Non penetrating surface Inscriptions when viewed at 10X.

2

Internally Flawless

An IF diamond shows only insignificant blemishes and no inclusions when examined by a skilled grade under 10X magnification. Exceptions:

- Surface graining and blemishes that can be removed by minor polishing.

3

Very Very Slightly Included (VVS1 and VVS2)

VVS diamonds contain minute inclusions that range from extremely difficult (VVS1) to very difficult (VVS2) for a skilled grader to see under 10X magnification.

Typical VVS inclusions: Internal graining, minute pinpoints, minor bruise, bearded girdle, etc

4

Very Slightly Included (VS1 and VS2)

VS stones contain minor inclusions that range from difficult (VS1) to somewhat easy (VS2) for a trained grader to see under 10X magnification.

Typical VS inclusions: Clouds, small crystals or feathers.

5

Slightly Included (SI1 and SI2)

SI stones contain noticeable inclusions that are easy (SI 1) or very easy (SI2) for a trained grader to see under 10X.

Typical SI inclusions: Feathers, clouds and crystals.

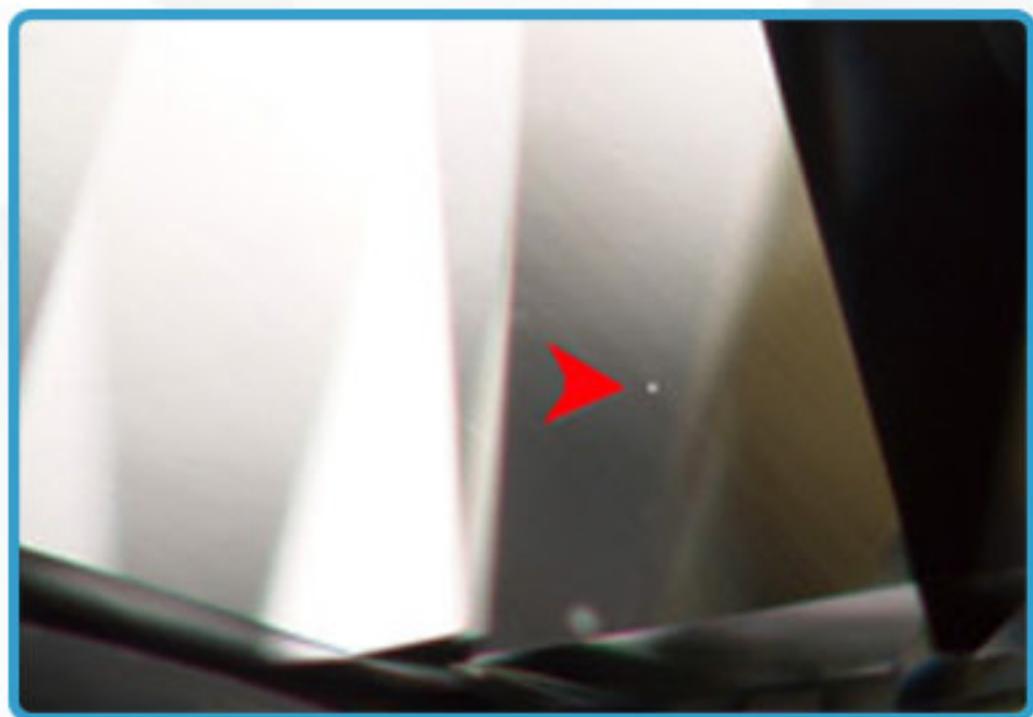
6

Included (I1, I2, and I3)

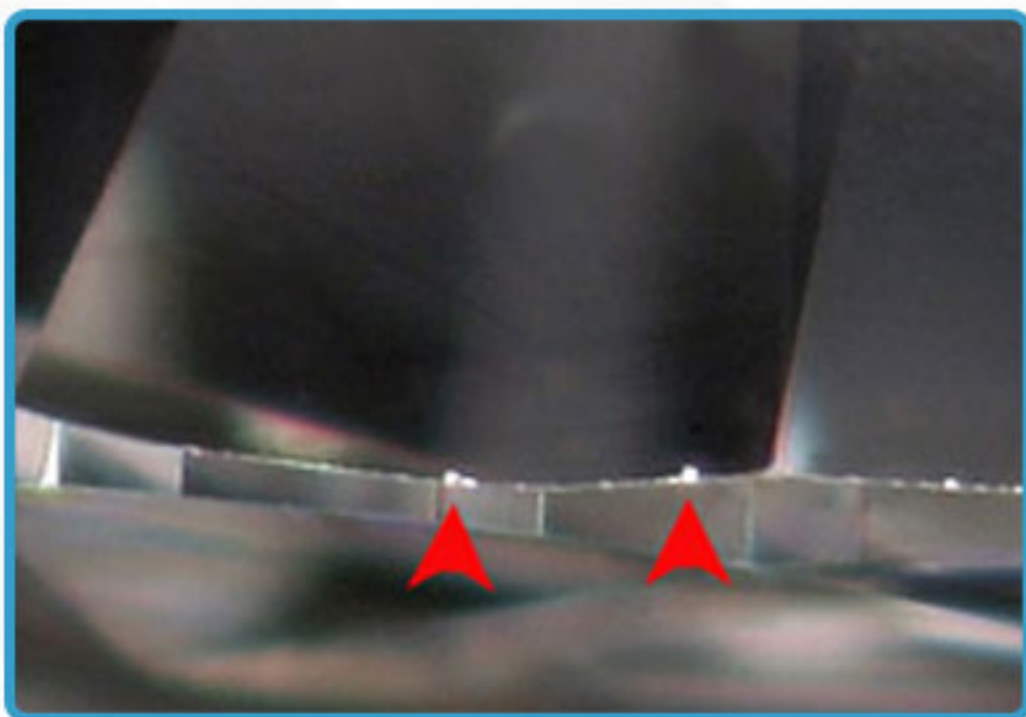
Diamonds that fall in the "I" range contain inclusions that are obvious to a trained grader under 10X magnification. Typical to these Inclusions: Inclusions can be seen face-up without magnification They seriously affect the stone's durability They're so large or numerous that they affect transparency and brightness.

POLISH GRADING

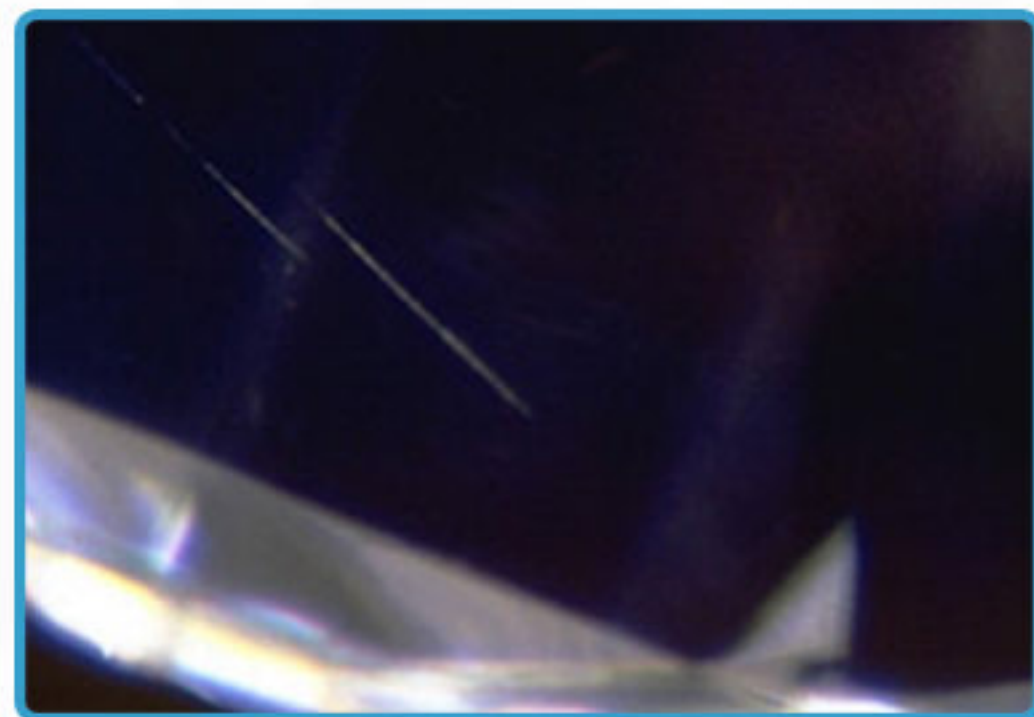
Polish Features



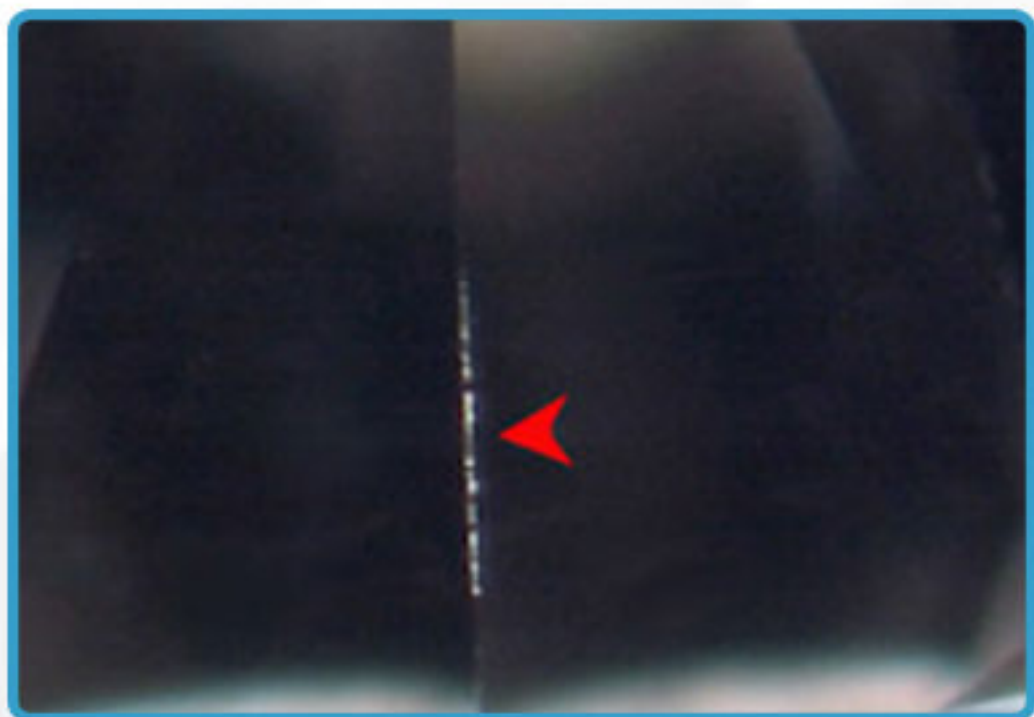
Pit: Tiny opening appearing as a white dot



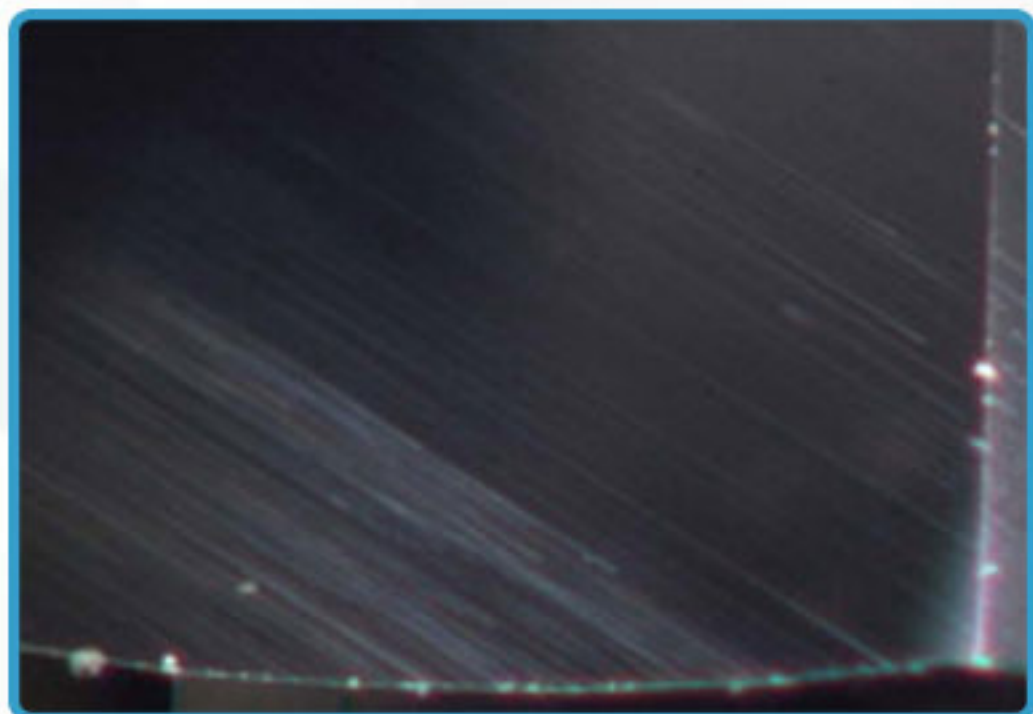
Nick: TSmall notch on a facet junction, usually along the girdle or culet; minute chip with no visible depth at 10X magnification.



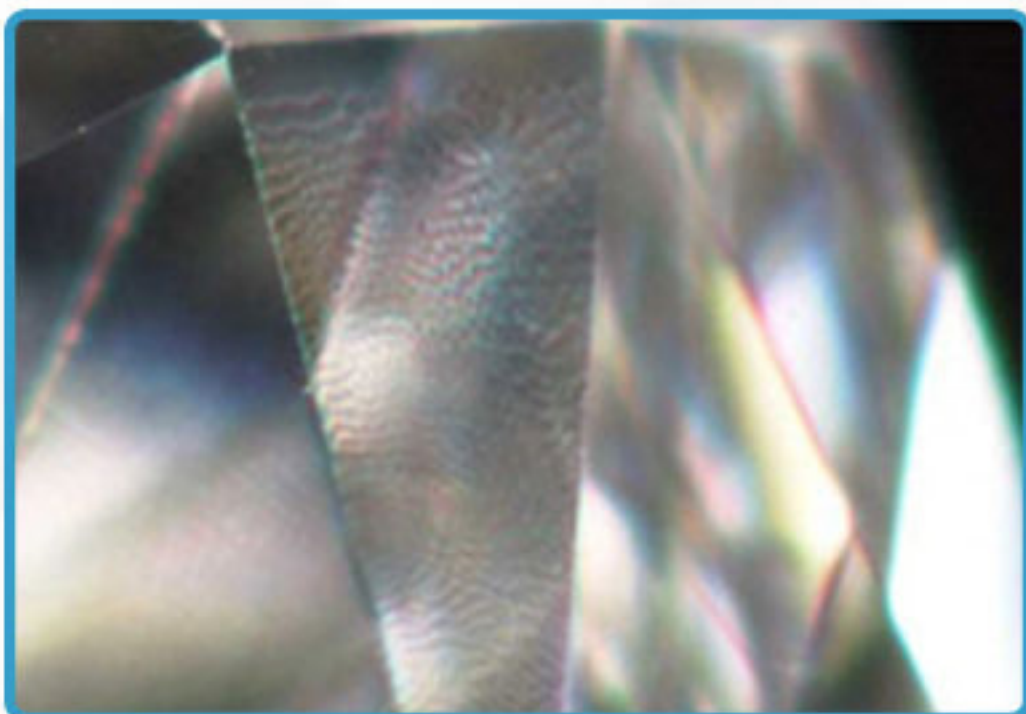
Scratch: Surface mark normally seen as a fine white line, curved or straight.



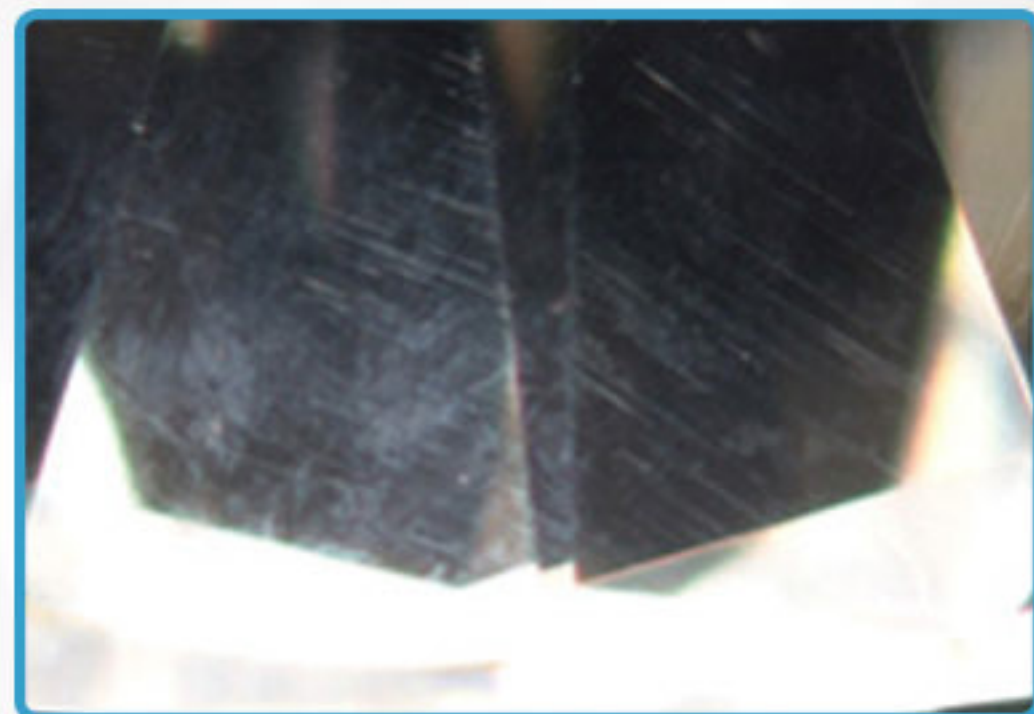
Abrasion: Area of minute scratches or pits along a facet edge producing a fuzzy white line instead of a sharp facet junction.



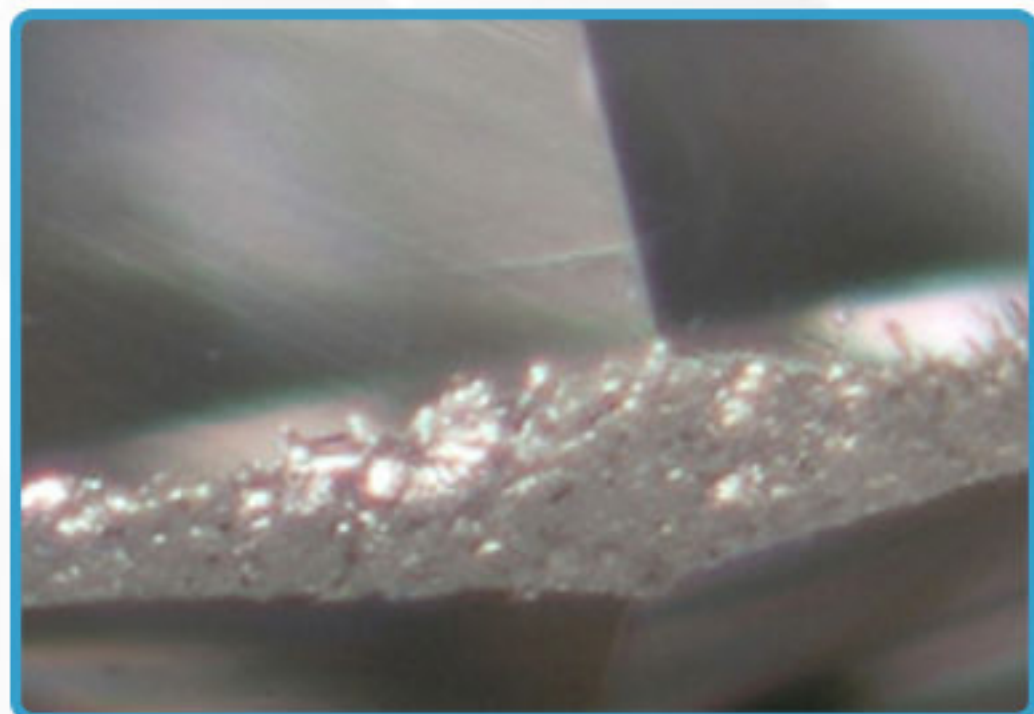
Polish lines: Parallel lines left by the polishing process; may appear white or transparent



Lizard skin: Transparent uneven texture confined to one facet; caused by polishing a facet off-grain, at the hardest direction near a cleavage plane.



Burn mark or burned facet: Whitish haze across a facet or on a concentrated area caused by excessive heat during polishing or occasionally by a jeweler's torch.



Rough girdle: Irregular pitted or granular surface of a bruted girdle due to pits and nicks.

POLISH GRADE CATEGORIES

EXCELLENT: Ranges from no polish features to a few minute features that can be viewed with difficulty face-up at 10X magnification. Some typical features that would establish an excellent category include a few pits or nicks, a small area with faint transparent polish lines or negligible scratches or abrasion.

VERY GOOD: Minor polish features are seen face-up at 10X magnification.

Some typical features that would establish a very good category include several pits or nicks, a few small areas of abrasion, a limited extent of moderate transparent polish lines, a small area with faint white polish lines, several faint scratches or a few heavier white scratches, a faint lizard skin or a small area of very faint burn.

GOOD: Noticeable polish features are seen face-up at 10X magnification. The luster of the diamond may be affected when viewed with the unaided eye.

Some typical features that would establish a good category include moderate to heavy transparent polish lines, white polish lines, many heavy scratches, lizard skin or burn.

FAIR: Obvious heavy polish features are seen face-up at 10X magnification. The luster of the diamond is affected when viewed with the unaided eye.

Some typical features that would establish a fair category include heavy white polish lines or burnt facets over most of the crown or pavilion.

POOR: Prominent heavy polish features are seen face-up at 10X magnification. The luster of the diamond is significantly affected when viewed with the unaided eye.

Some typical features that would establish a poor category include heavy white polish lines or burnt facets over most of the crown and pavilion.

CUT – Cut is Always King!

The Diamond's Light Performance

In fact, a well cut diamond will reflect more light and appear larger than it actually is. It can also make the face-up color look brighter, and at the same time, mask or camouflage inclusions. This is because a well cut diamond has greater brilliance, fire, and scintillation that can easily conceal flaws.

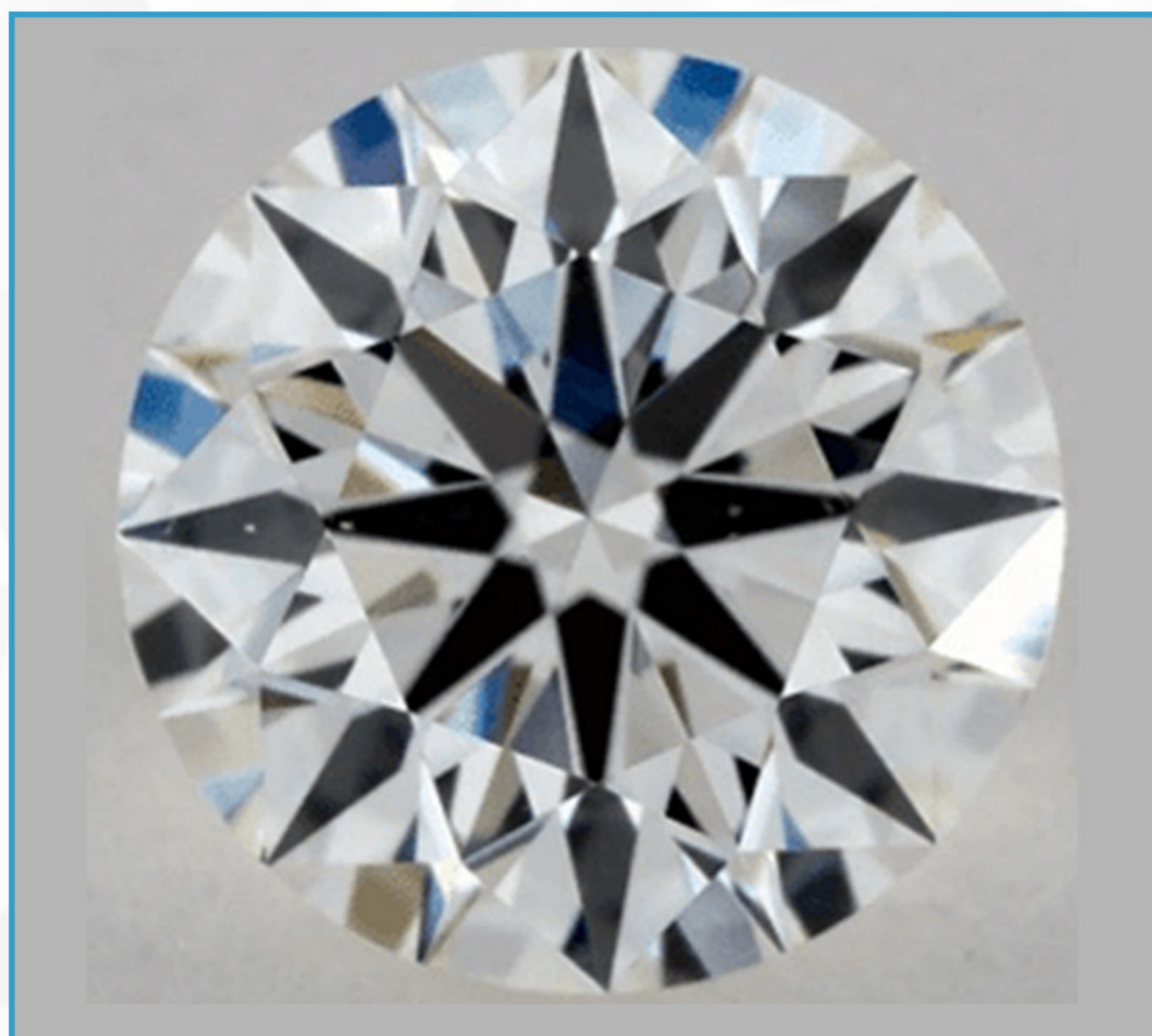
FIRE: The light dispersion that appears as flashes of rainbow colors. It's beautifully seen on darker environments like at a candlelit dinner.

BRILLIANCE: The light reflected in and out of the diamond. Having perfect proportions will prevent light leakage and thus, make the gem appear brighter.

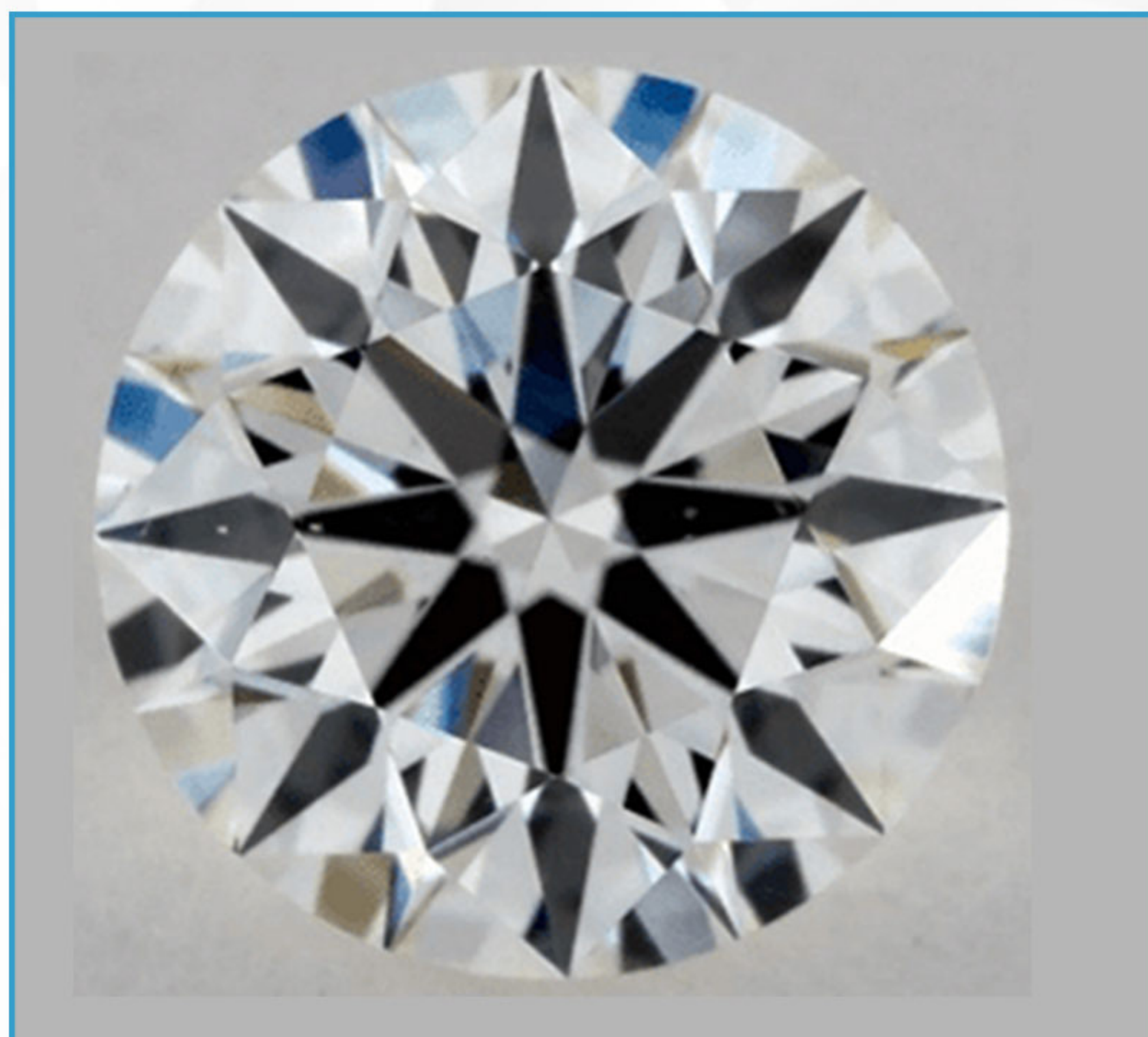
SCINTILLATION: The pattern of dark and light facets that intensely sparkles when the diamond is moved. It's usually seen in office lighting environments – opposite of where fire can be seen.

See the difference between a perfect cut and an inferior cut in action by comparing these gems:

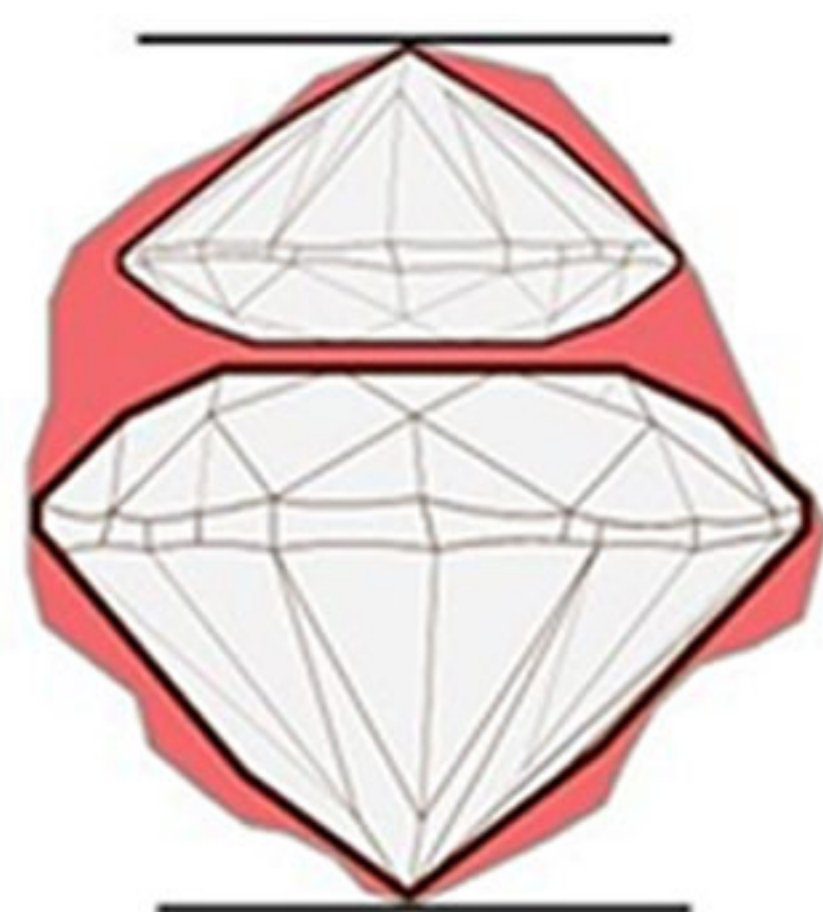
TRUE HEARTS IDEAL – 1 carat g-vs2



GOOD CUT – 1 carat g-vs2 round



Cost Effective



Average Performance
Larger Finished Weight

High Quality



Better Performance
Smaller Finished Weight

So, Why Do Poor CUT DIAMONDS EXIST?

You would think that people wouldn't be interested in buying poor cut diamonds where fire, brilliance, and scintillation hardly exist. After all, this is what we buy diamonds for!

But in reality, poor cuts exist for various reasons:

Obviously, people will pay the most attention to the **carat weight** as it's usually the first thing you'll be asked about upon being engaged.

Thus, the prices sharply increase for bigger carat weight than for a better cut. For this reason, many diamond cutters are intent on preserving as much weight **during the cutting process**.

If a cutter produces a deeply cut gem, more weight will be hidden in the diamond. And it will drive the carat weight and the **price higher!** Yes, the cut grade will go down, but in most cases, it pays more for the cutter to opt for a bigger carat.

Furthermore, it also happens very often that [diamond cutters](#) would want to eliminate a striking inclusion. They do so by cutting it out. But since they also want to preserve more weight, they would risk the diamond cut quality being reduced.

DIAMOND CUT



Poor Quality: Deep Cut Stone

Allows light to escape through the sides and bottom of the stone



Fair Quality: Deep Cut Stone

Allows some light to escape through the sides and bottom of the stone



Good Quality:

Allows a small amount of light to leak out the sides of the stone



Very Good Quality:

Very good light reflection, brilliance and fire



Excellent Quality:

Ideal Cut Stone
Maximum amount of light reflection, brilliance and fire



Very Good Quality:

Very good light reflection, brilliance and fire



Good Quality:

Allows a small amount of light to leak out the bottom of the stone



Fair Quality:

Shallow Cut Stone
Allows light to escape through the bottom of the stone, affecting its fire and brilliance



Poor Quality:

Shallow Cut Stone
Allows much of the light to escape through the bottom of the stone, minimizing brilliance and fire

SYMMETRY

Symmetry refers to variations in the symmetry of a diamond's arrangement of facets. The small variations can include misalignment of facets or facets that fail to point correctly to the girdle (this misalignment is completely undetectable to the naked eye). Symmetry is regarded as an indicator of the quality of a diamond's cut; it is graded as Ideal, Excellent, Very Good, Good, Fair or Poor.

Symmetry grading guidelines

EXCELLENT: No symmetry variations to minute symmetry variations that can be viewed with difficulty. Minute, barely visible misalignment, non-pointing, misshapen facets or extra facets.

VERY GOOD: Minor symmetry variations seen face-up. Slight Table-culet alignment out-of-round outline. Misalignment, non-pointing, misshapen facets or extra facets.

GOOD: Noticeable symmetry variations face-up. Noticeable variations such as Out of round shape, culet/table off-center, wavy girdle, girdle thickness variation, crown angle variation, pavilion angle variation, table and girdle not parallel. Misshapen or extra facets. Misalignment or non-pointing on most facets. Missing facet, like a missing bezel or main.

FAIR: Obvious symmetry variations seen face-up. Obvious proportion variations in symmetry features mentioned above.

POOR: Prominent symmetry variations seen face-up at 10X. The diamond's overall appearance is significantly affected when viewed with the unaided eye. Very obvious/prominent proportion variations in symmetry features mentioned above.

SYMMETRY GRADE

Proportion-Related Symmetry Features

Out-of-round: deviation from the circular shape of a round diamond; a flattened area such as that created by a natural or extra facet also constitutes out-of-round. Comparison of the minimum and maximum diameters can help assess roundness.

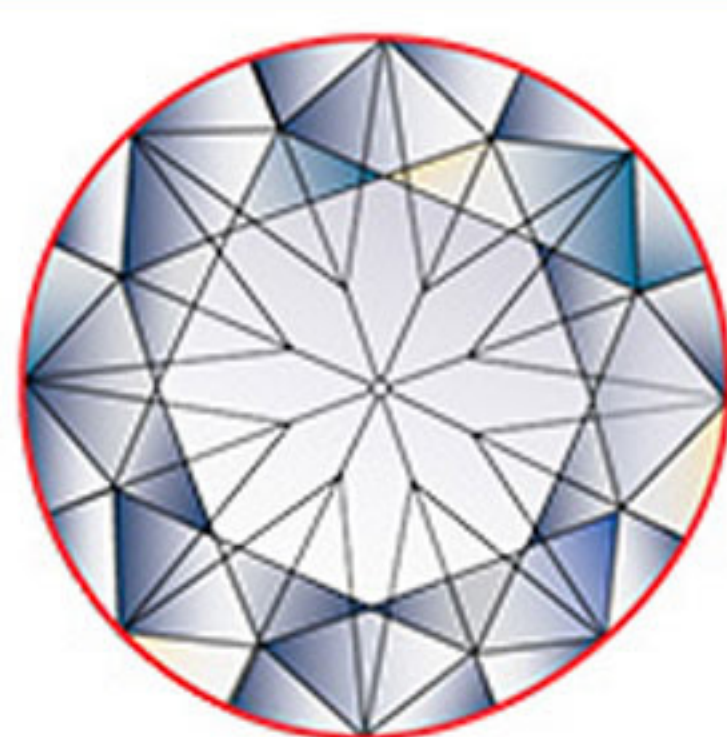
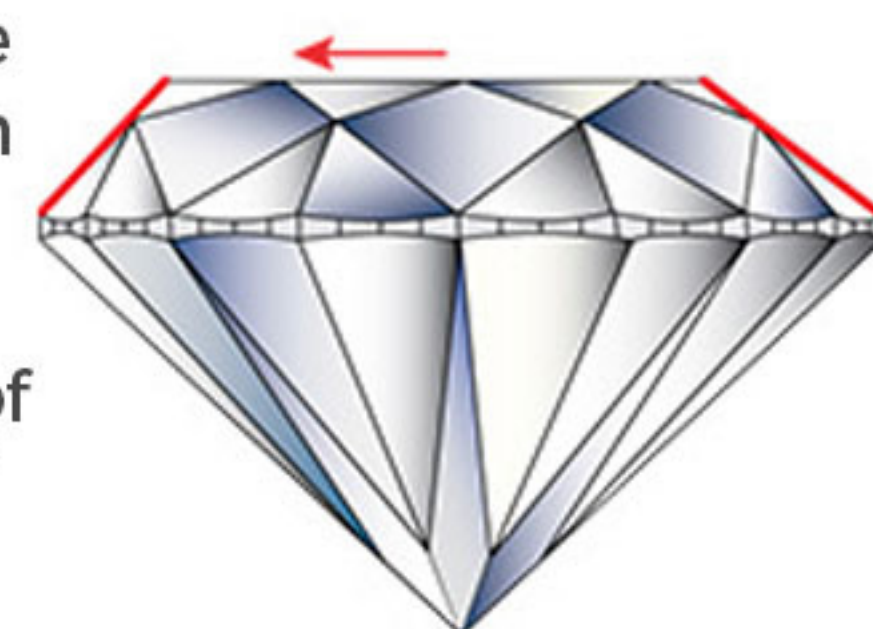
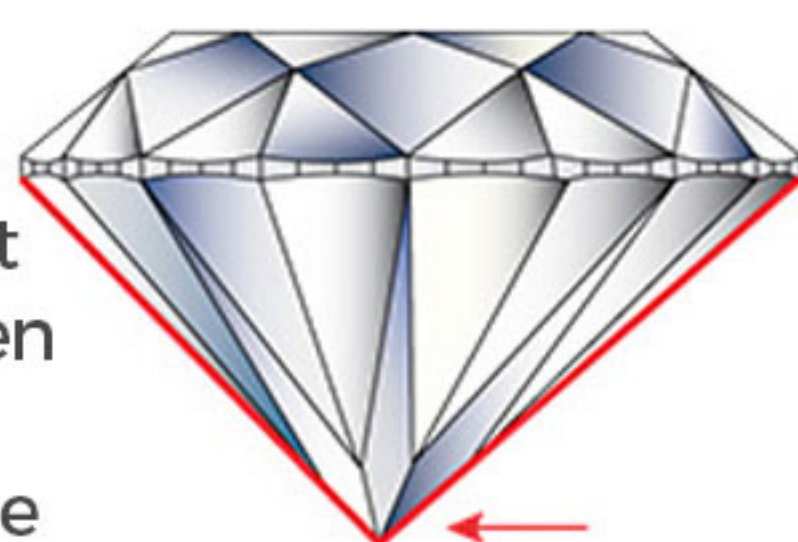


Table off-center: deviation of the table from the central position on the crown; results in opposing bezels of differing sizes. When viewed through the table, more of the pavilion is seen to one side of the culet than the other.



Culet off-center: deviation of the culet from the central position on the pavilion; results in the cross-line formed by lower half facet junctions to be bowed or bent. When viewed through the table, more of the pavilion is seen to one side of the culet than the other.



Table/culet alignment: displacement of the table facet and culet in opposite directions.

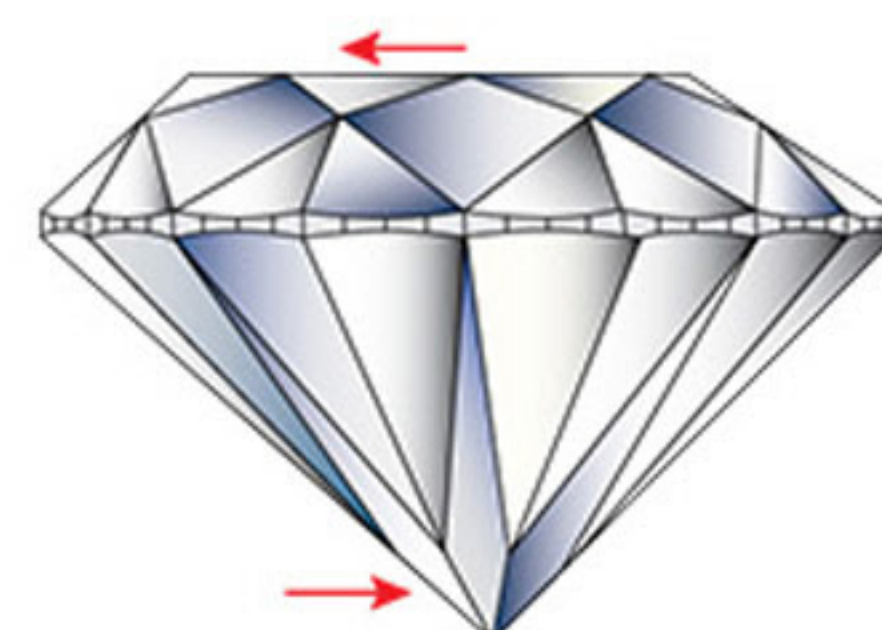
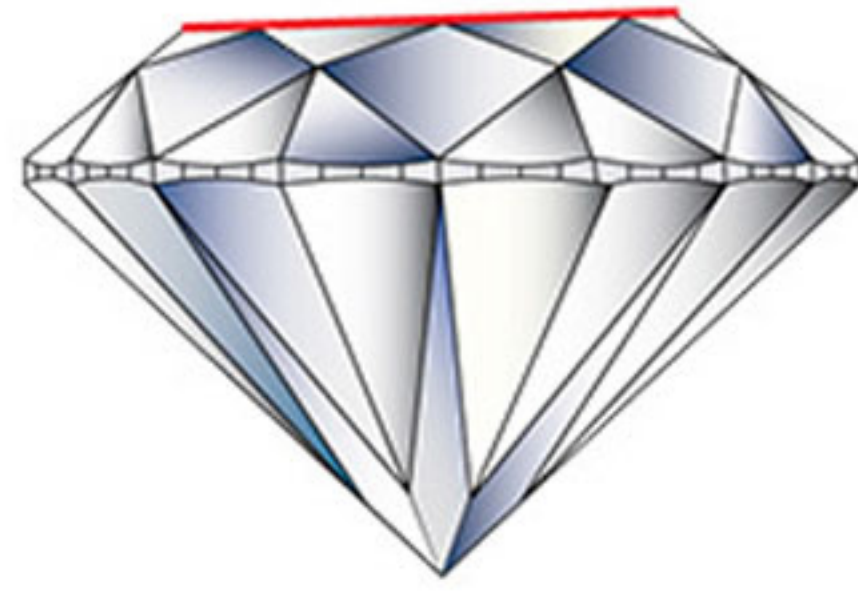
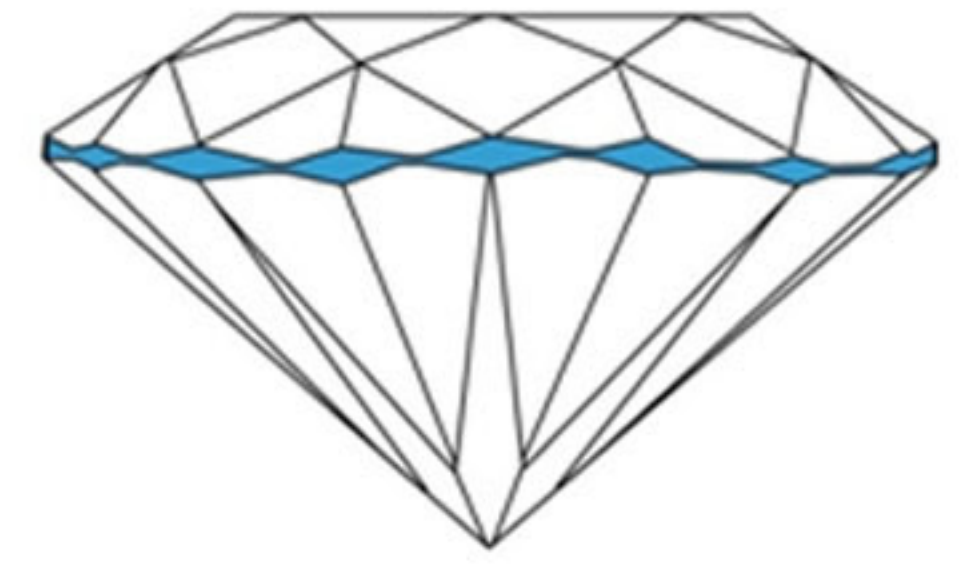


Table and girdle not parallel:
The girdle plane is not parallel to the table.



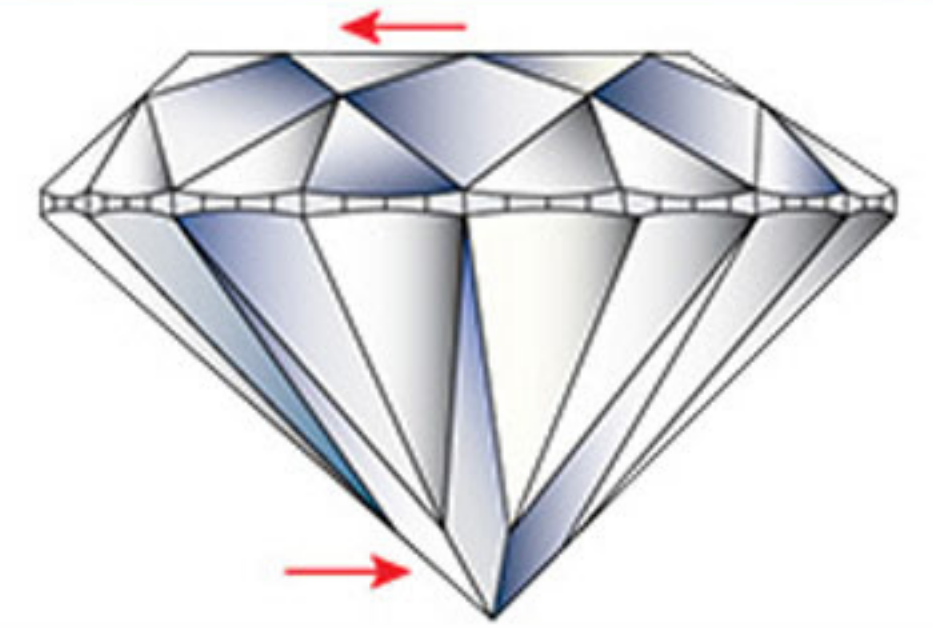
Wavy girdle:
undulating girdle.



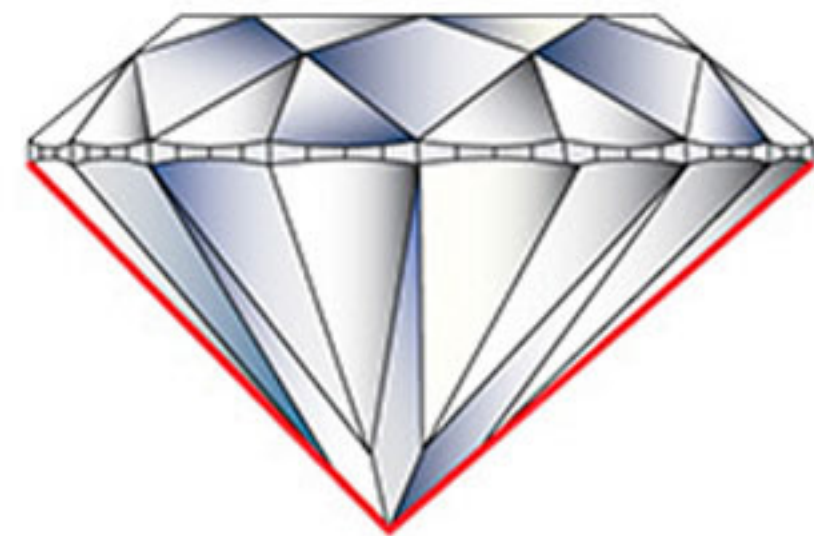
Girdle thickness variation:
variation of the girdle thickness at "valley" positions.



Crown angle variation:
all eight crown angles are not equal; typically related to table off-center.

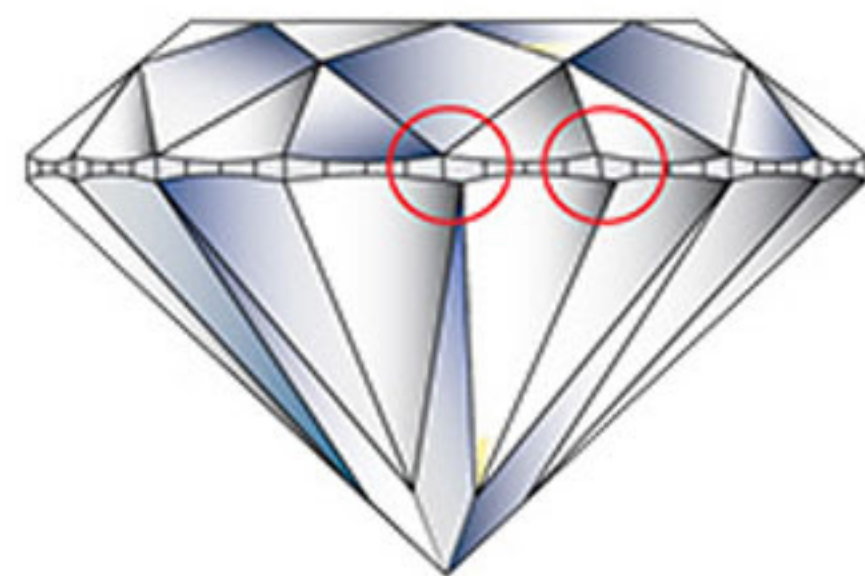


Pavilion angle variation:
all eight pavilion angles are not equal; typically related to cu let off-center.

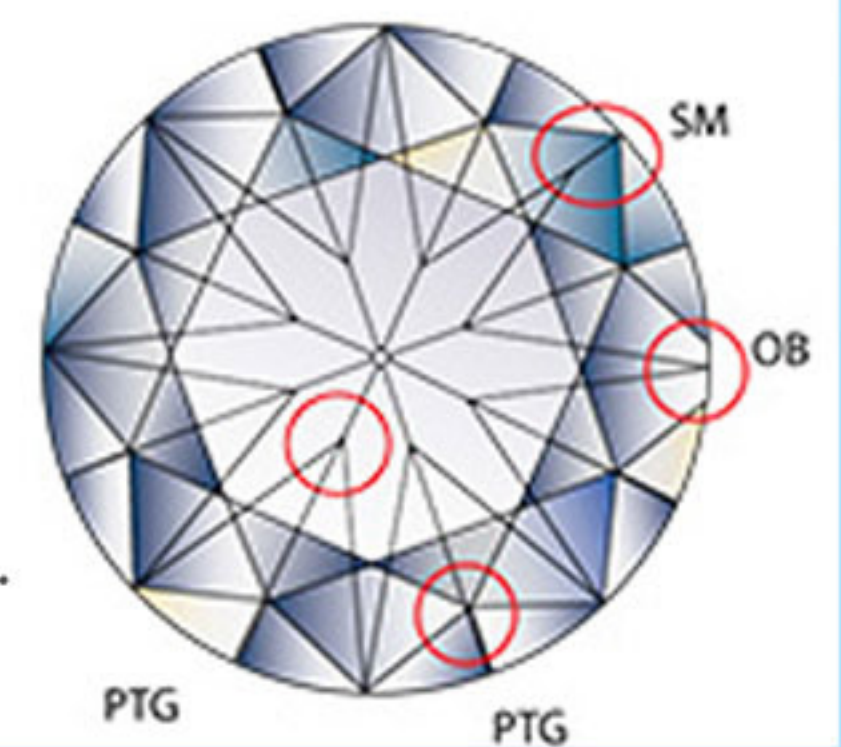


FACET -Related Symmetry Features

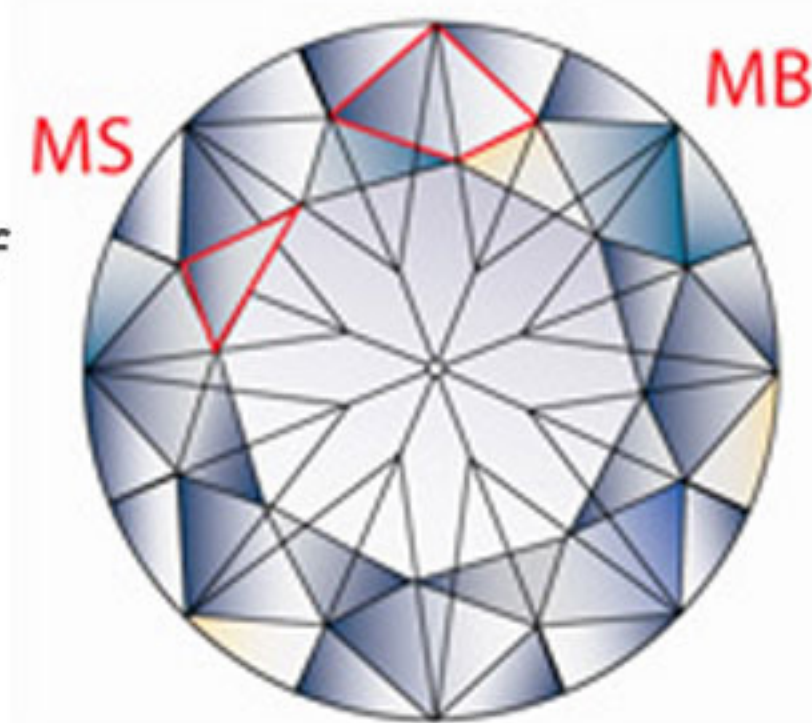
Misalignment:
displacement of the crown and pavilion facets in relation to each other.



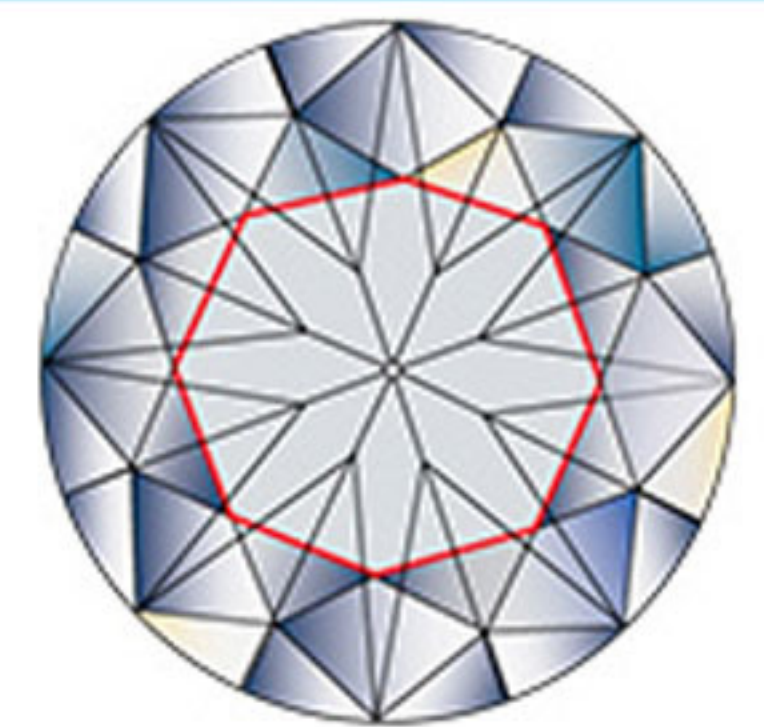
Non-pointing:
Fully formed facet that does not reach its prescribed location (short facet) or is incompletely finished (open facet), resulting in adjoining facets not meeting at precise points.



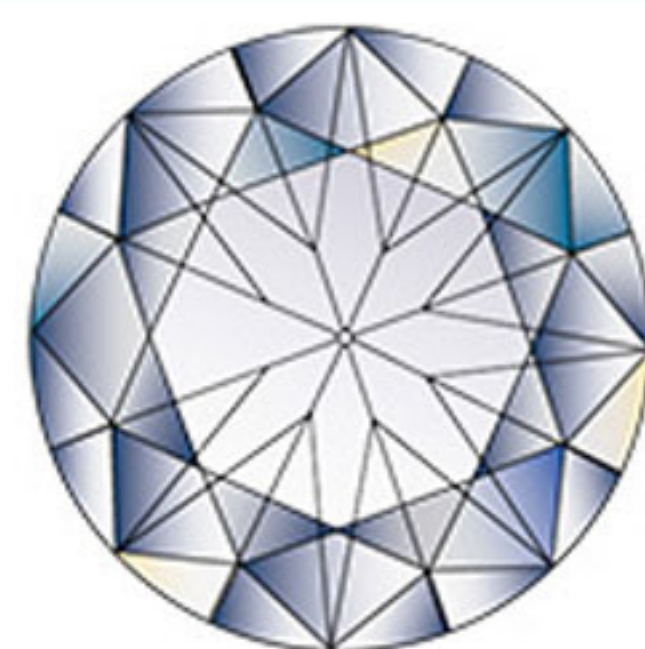
Misshapen facet:
Difference in shape or size between one facet and another of the same type; or distortion of a given facet.



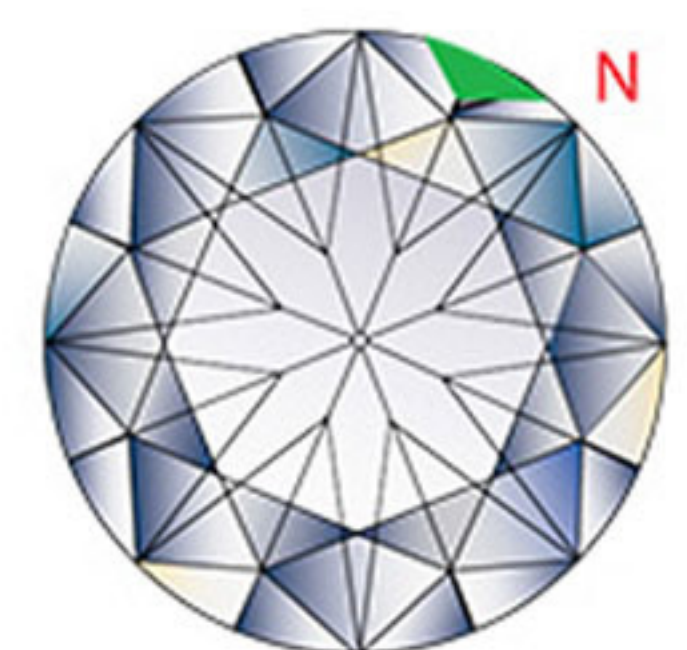
Non-octagonal table:
The table is not a regular octagon; results in misshapen star and bezel facets.



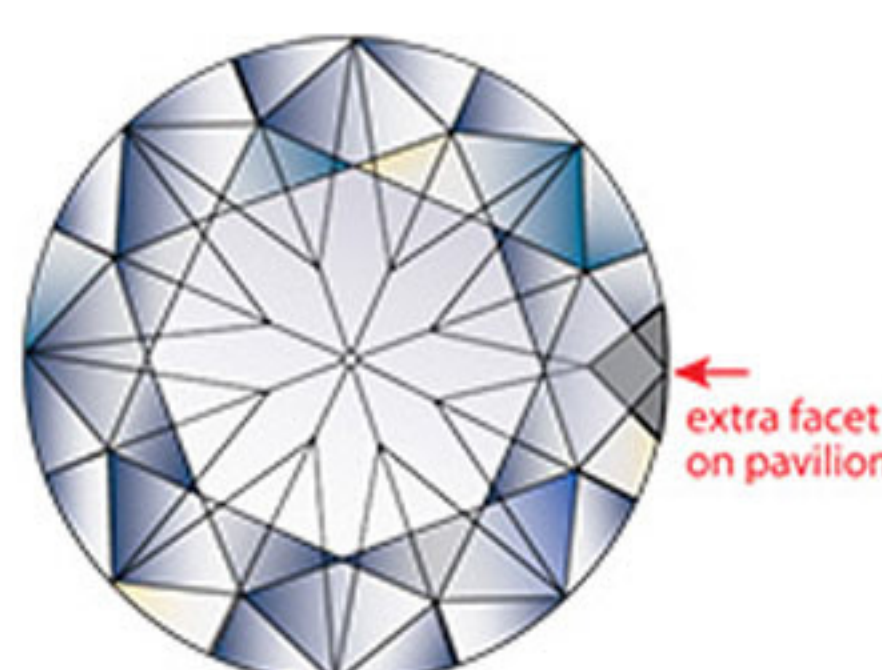
Missing facet:
A symmetrically missing or deleted facet.



Natural:
Part of the original rough diamond's surface that remains on the polished diamond; typically causes an out-of-round girdle outline, short facets or misshapen facets.



Extra facet:
additional facet placed without regard for symmetry and not part of the standard cutting style; typically causes an out-of round outline, short facets or misshapen facets.



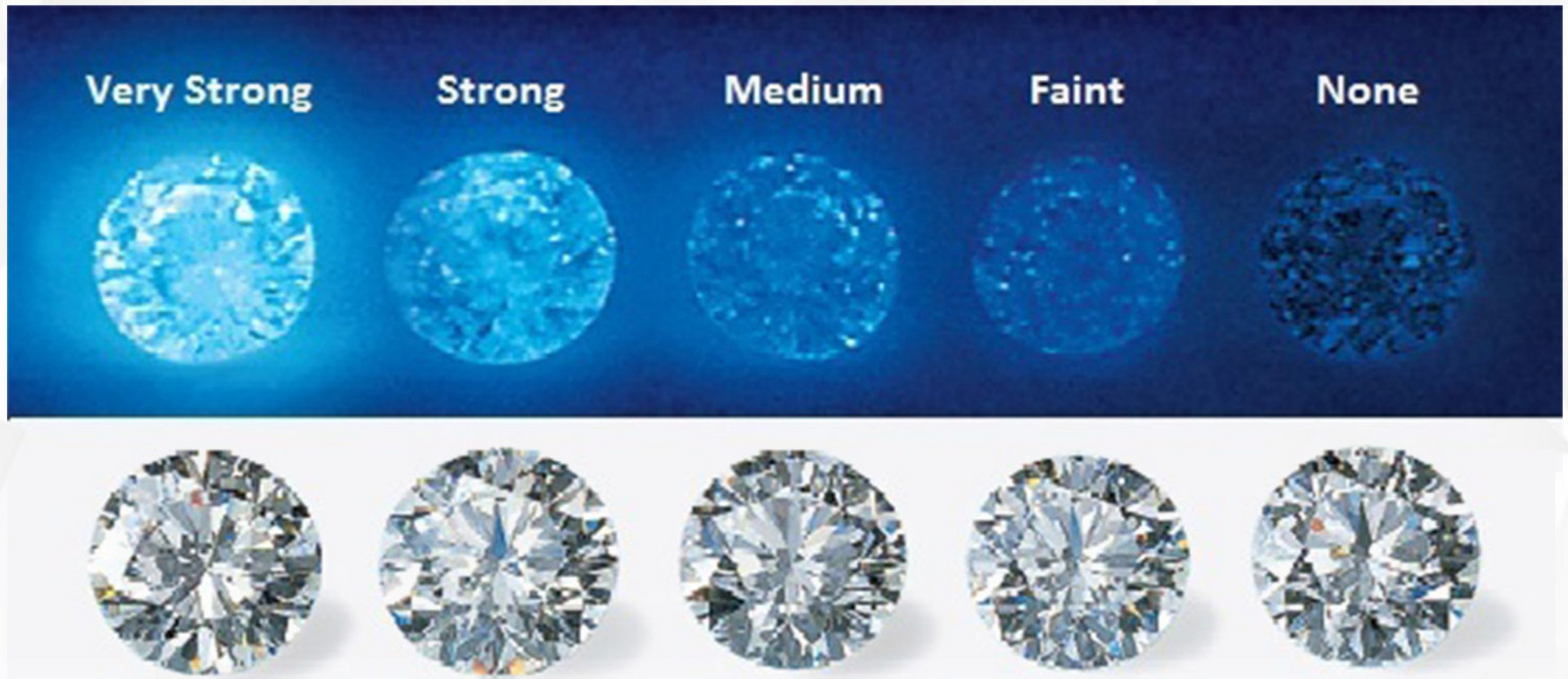
SYMMETRY GRADE CATEGORIES

Some features were enlarged for the purpose of illustration; it is the appearance at 10X magnification that is considered during evaluation.

Note, too, that each finish category encompasses a range of appearances and the selected examples do not represent the highest or lowest point of that category.

 EXCELLENT	ranges from no symmetry features to misalignment minute symmetry features that can be viewed with difficulty face-up at 10X magnification. Some typical features that would establish an excellent category include misaligned, misshapen, non-pointed, or extra facets that are barely visible.
 VERY GOOD	minor symmetry features are seen face-up at 10X magnification. Some typical features that would establish a very good category include slight table or culet off-center, a slightly out-of-round outline, and/or minor misshapen, non-pointed or extra facets.
 GOOD	noticeable symmetry features are seen face-up at 10X magnification. The diamond's overall appearance may be affected when viewed with the unaided eye. Typical features that would establish good category include any proportion feature that is noticeable – such as table or culet off-center, out-of-round outline, wavy girdle, table and girdle not parallel, girdle thickness variation or crown or pavilion angle variation –and/or many noticeable misshapen, misaligned, non-pointed or extra facets.
 FAIR	obvious symmetry features are seen face-up at 10X magnification. The diamond's overall appearance is often affected when viewed with the unaided eye. . Typical features that would establish a fair category include any proportion feature that is obvious – such as table or culet off-center, out-of-round outline, wavy girdle, girdle thickness variation, crown or pavilion angle variation – many obvious misshapen or extra facets misalignment or non-pointing on most of the facets and/or an obvious missing facet such as a bezel or main.
 POOR	prominent symmetry features are seen face-up at 10X magnification. The diamond's overall appearance is significantly affected when viewed with the unaided eye. Typical features that would establish a poor category include any proportion feature that is prominent such as table or culet off-center, out-of-round outline, wavy girdle, girdle thickness variation, crown or pavilion angle variation – or prominent faceting distortion.

DIAMOND FLOURESCENCE



Same stones as seen with an ultraviolet lamp (top) and normal lighting (bottom).

- Fluorescence is the effect of a diamond to give off light when exposed to **ultraviolet light**. Some diamonds give off light when exposed to ultraviolet light and some do not. Under normal lighting conditions, this effect is not discernable to the eye. The **GIA and IGI laboratory certificate** will indicate if a diamond has fluorescence
- There are usually four grades for fluorescence which are; **Slight, Medium, Strong, Very Strong**.
- **Approximately 1/3 (35%)** of all diamonds have a tendency to fluoresce when exposed to **ultra-violet (UV)** light. When diamonds are viewed under a UV light-source, they tend to fluoresce as blue. This fluorescent effect can be beneficial to a diamond that has a yellow tint, as the blue fluorescence will cancel out some of the yellow, making the diamond appear "**colorless**," but the diamond will have a dull, murky appearance when compared to a non-fluorescing diamond. Ultra-violet light is a component of natural sunlight and artificial **4800k to 5000k** color-proofing light, so this effect will be more apparent under natural daylight than under artificial incandescent light.

FANCY CUT

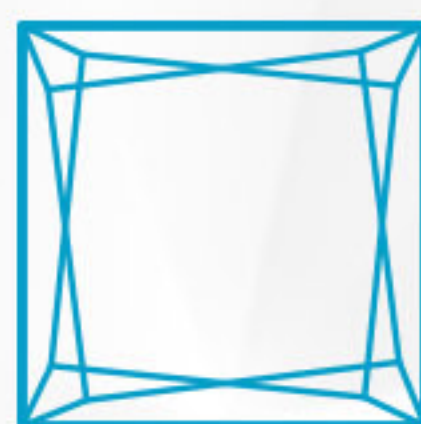
Any shape of a gemstone apart from round can be termed as fancy cut.



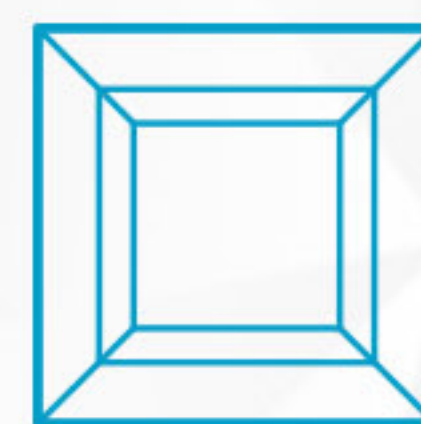
Round



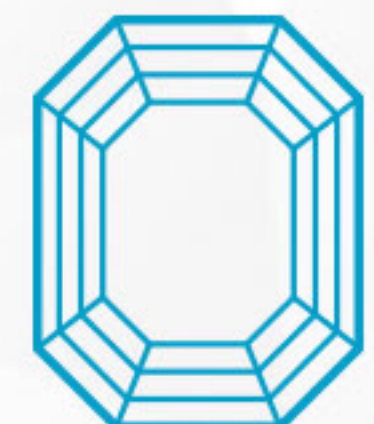
Oval



Princess



Radiant



Emerald



Asscher



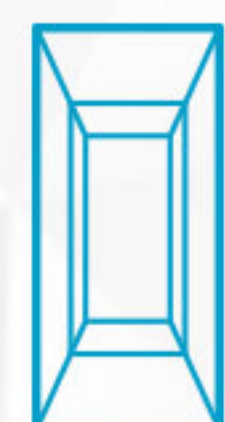
Marquise



Pear



Heart



Cushion

Basic Terms for Fancy Shapes

BOW TIE: A darkened area that runs across the center width of elongated brilliant cuts, resembling a bow tie. Bow ties are relatively common in excessively deep or very shallow diamonds. Ovals, Marquises, Hearts, and Pear cuts will often show bow ties of varying degrees. A bow tie will become more obvious when the difference between the stones length to width extends, and pavilion angle variations increase. Bow ties show as light return that is blocked by the head of the viewer aka head obstruction. Think of it as light return going in the wrong direction. As the head obstructs the light supply, the viewer sees a darkened area running across the width of the elongated shape.



BRILLIANT CUT: Type of cut that features kite and triangular shaped facets. Examples: Oval Cut and Cushion Cut

STEP CUT: Type of cut with straight facets on the crown and pavilion that run parallel to the girdle. Example: Emerald Cut and Asscher cut

MIXED CUT: Type of cut that features both brilliant and step cut faceting. Example: Radiant Cut

LENGTH TO WIDTH RATIO : Compares the relationship between the length and width of Fancy _ Shapes by numerically illustrating how long or wide the stone appears from the face up view. Length Width
Example: An oval diamond has a length of 9mm and a **width of 6mm** $9 \div 6 = 1.50:1$

Basic Parts of Fancy Shapes Brilliant Cuts

1. PRINCESS CUT

Princess cuts are square or rectangular brilliant cuts that display exceptional brilliance when cut to certain proportions. Princess cuts are a great choice for individuals who appreciate the qualities of round brilliants, but prefer a square or rectangular shape.

"Chevrons" Make a Difference

The number of facets on the bottom of a princess cut influences the character of its performance. Between **24 and 48 facets** (sometimes more) may be present depending on the number of "chevrons." This influences the character of performance in the same way a traditional **57-facet round performs** differently than a 66 or 88 facet round of same size.





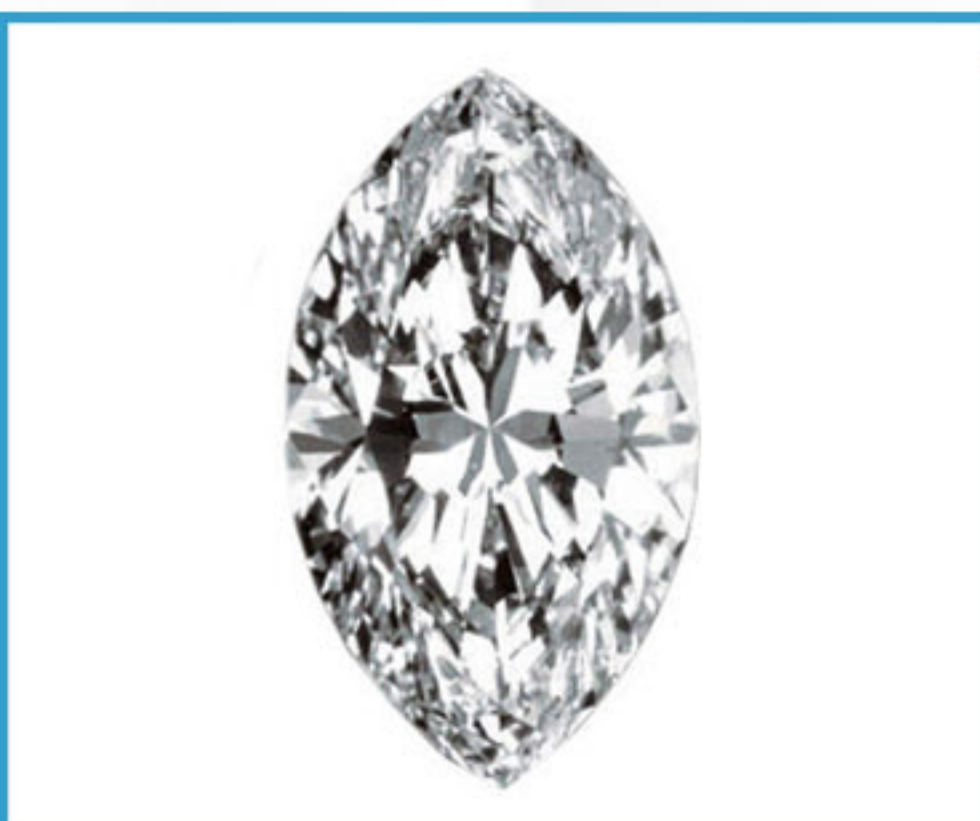
2. CUSHION CUT

Cushion cuts are square or rectangular cuts with rounded corners and curved sides, a pillow-like shape. There are several types of cushion cuts on the market including modern, antique, and many branded cushions. Cushion cuts can be found with a wide variety of facet patterns that are known as "Cushion Brilliant" or "Modified Cushion Brilliant" on lab reports.

3. OVAL CUT

An Oval cut is an elliptical brilliant cut. When well proportioned, oval diamonds can elongate the finger while exhibiting a brilliance between that of a Round and a Marquise. Recommended length to width ratio for Ovals is **between 1.33 to 1.66**.

Like other fancy shapes, Oval cuts cannot be judged solely by the numbers. It is best to see the stones in person or view vendor photos. Look out for prominent bow ties. **Well proportioned Oval cuts** should have a minimal bow tie effect. A bow tie is a dark area across the center width of many fancy shapes—a result of varying pavilion angles. Bow ties show as light return that is blocked by the head of the viewer. Fancy shapes like Oval, Marquises, Hearts, and Pears will have bow ties of varying degrees, and it is best to avoid excessively deep or shallow stones. Look for pleasing, graceful, and symmetrically shaped Oval cuts.



4. MARQUISE CUT

The Marquise cut is a boat shaped brilliant cut with pointed ends. They are also called as "Navette" a Latin word meaning boat.

5. PEAR SHAPE

Pear cuts are known for their brilliance and timeless elegance. Variations of the Round Brilliant, pears are rounded on one end with a tapering point on the other, like a teardrop. Similar to **Ovals and Marquises**, Pears can elongate the finger when set in a ring. The shape also works well in pendants and earrings. A general length to width ratio guideline for **Pear cuts 1.5 to 1.75**.



6. HEART SHAPE

The Heart shape is a symbol of love for many. The **Heart is a brilliant cut** with curved lobes that stem from a centered cleft. The lobes slope down to form a point. The preferred length to width ratio for Hearts is 1:1.

7. TRIANGULAR BRILLIANT CUT

Triangular Brilliants, also known as Trillions and Trilliants, are mixed cuts with three equally straight or **slightly curved sides**. They are typically and are often cut from flattened, triangular rough called macles. Triangular Brilliants are often seen as side stones for other fancy shapes, but when well proportioned, one can also be a stunning centerpiece in an engagement ring. The optimal length to width ratio for Triangular cuts is 1:1



MIXED CUTS



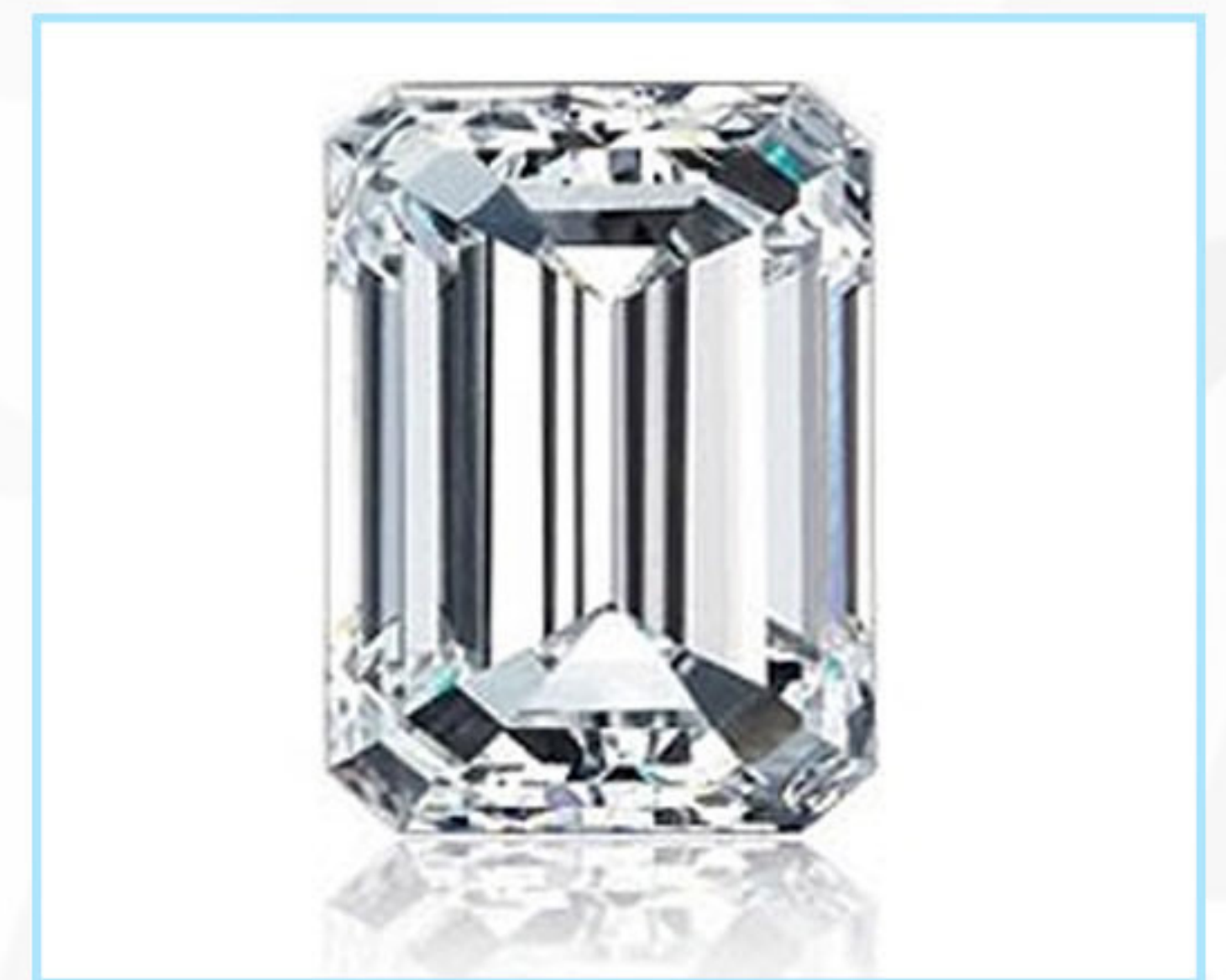
1. Square or Rectangular Cut Cornered Modified Brilliant

Radiant cuts are square or rectangular mixed cuts with angled corners. Henry Grossbard patented the Radiant cut in the [late 1970s](#), as a brilliant alternative to the Emerald cut. Radiant cuts are often utilized to maximize color in fancy colored diamonds. The nature of this cut aids in the concentration of color, and will sometimes push a light yellow [diamond in the S-Z range](#) into the fancy yellow category. Radiants are categorized as Cut Cornered Modified Brilliant cuts by major diamond grading labs.

STEP CUTS

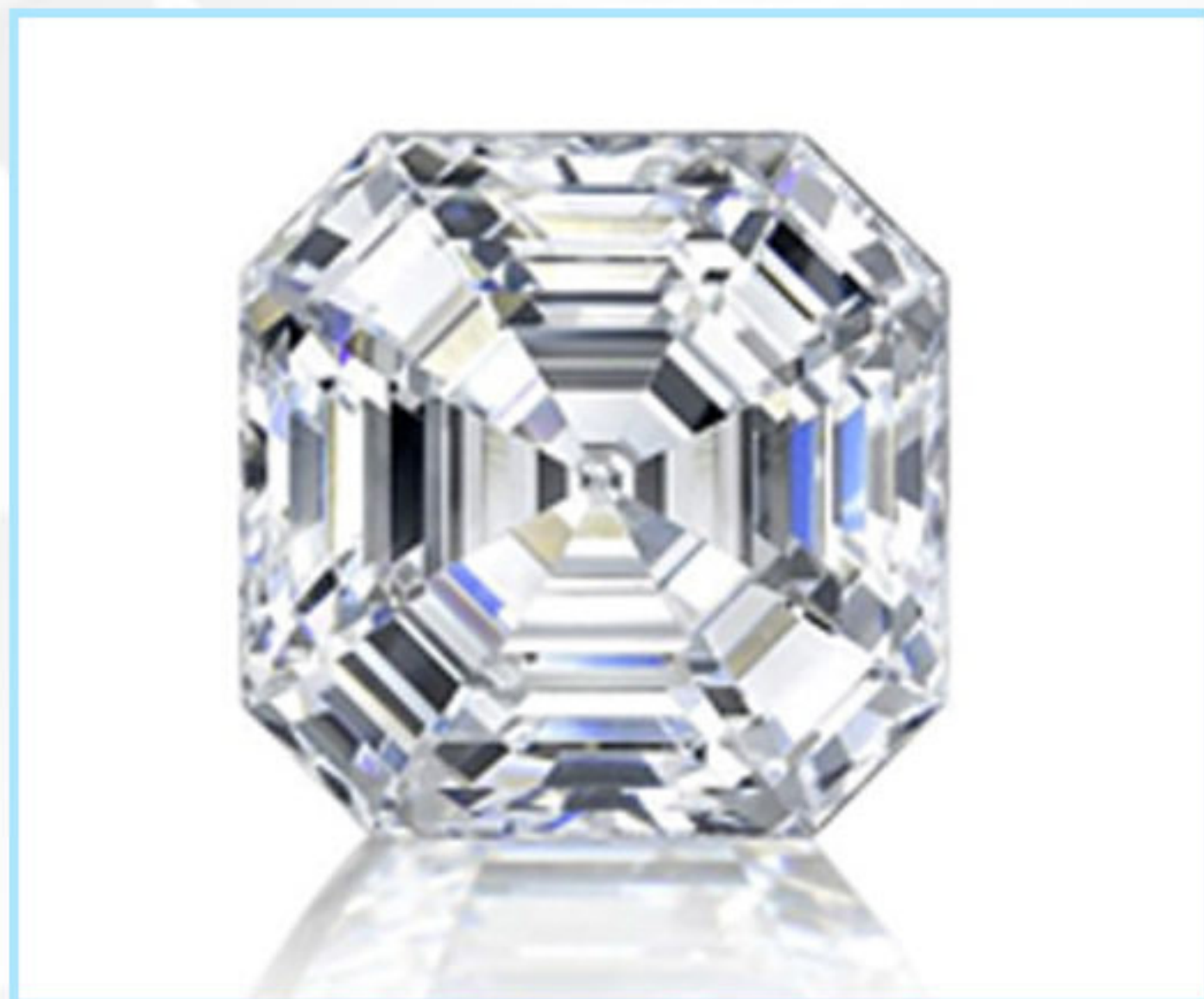
1. Emerald Cut

The Emerald cut is a step with angled corners and rows of pavilion and crown facets that run parallel to the girdle. The traditional Emerald cut is rectangular in shape. Recommended length to width ratio for [Emerald cuts is 1.50-1.75](#). Emerald cuts are known for their understated elegance. Special Characteristics of Emerald cut shapes: It is easier to see inclusions in Emerald cuts vs. brilliant cuts. Optimally, a balanced and symmetrical stone with a table % that is smaller than the total [depth % is recommended](#). There are a myriad of combinations that can make for beautiful stones, but guided parameters are now available.



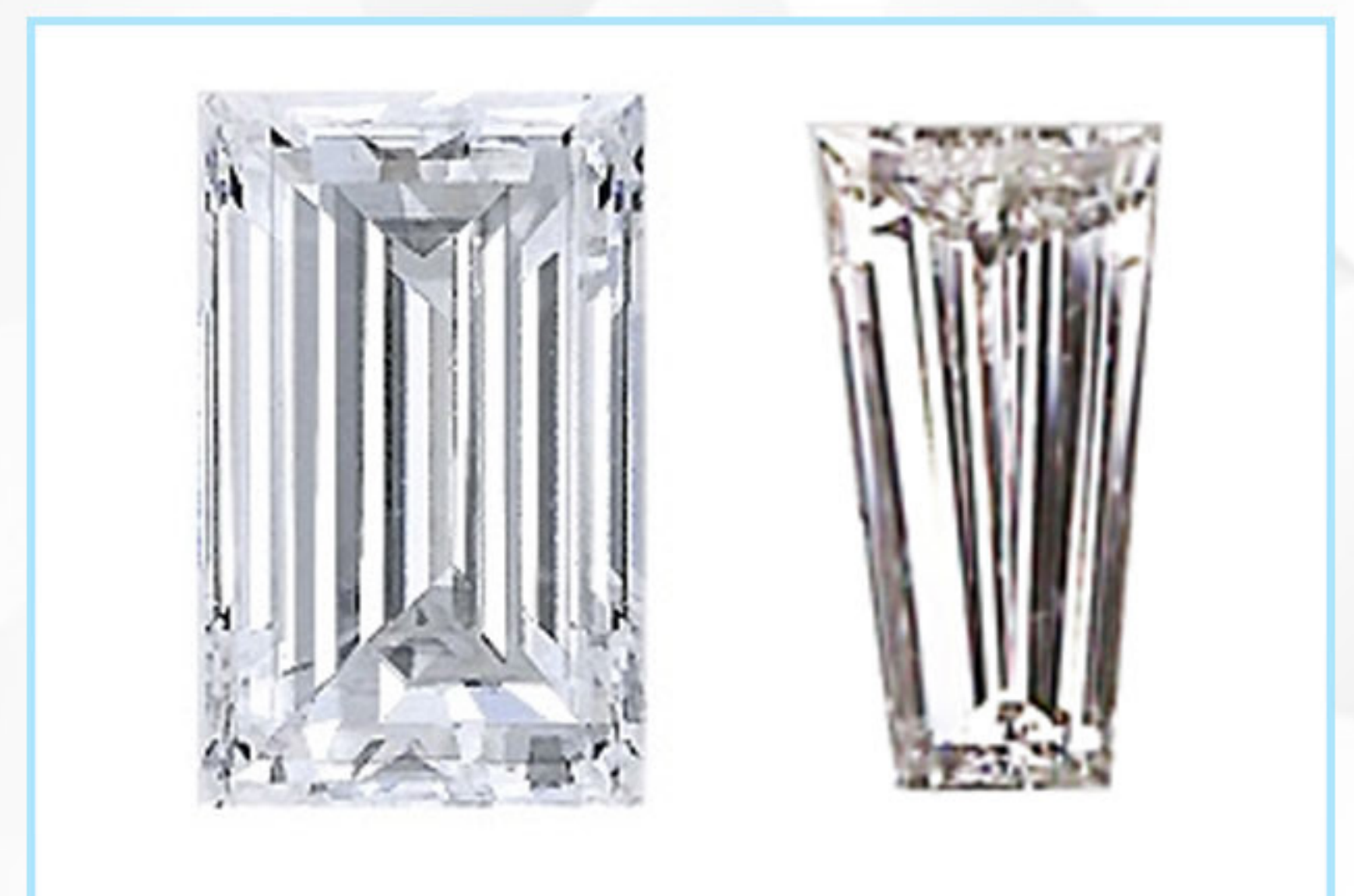
2. Asscher Cut

A Square Emerald cut is a step cut with angled corners and rows of pavilion and crown facets that run parallel to the girdle. "[Asscher](#)" is a term often used in the marketplace to describe these square Emerald cuts. The term is derived from the Asscher family name. The Royal Asscher Diamond Company currently produces the "[Royal Asscher](#)" cut, which is a patented square step cut with an extra row of facets on top and bottom, a notable high crown, and 74 total facets. Optimal length to width ratio for Square Emerald cuts is [.95 to 1.05](#).



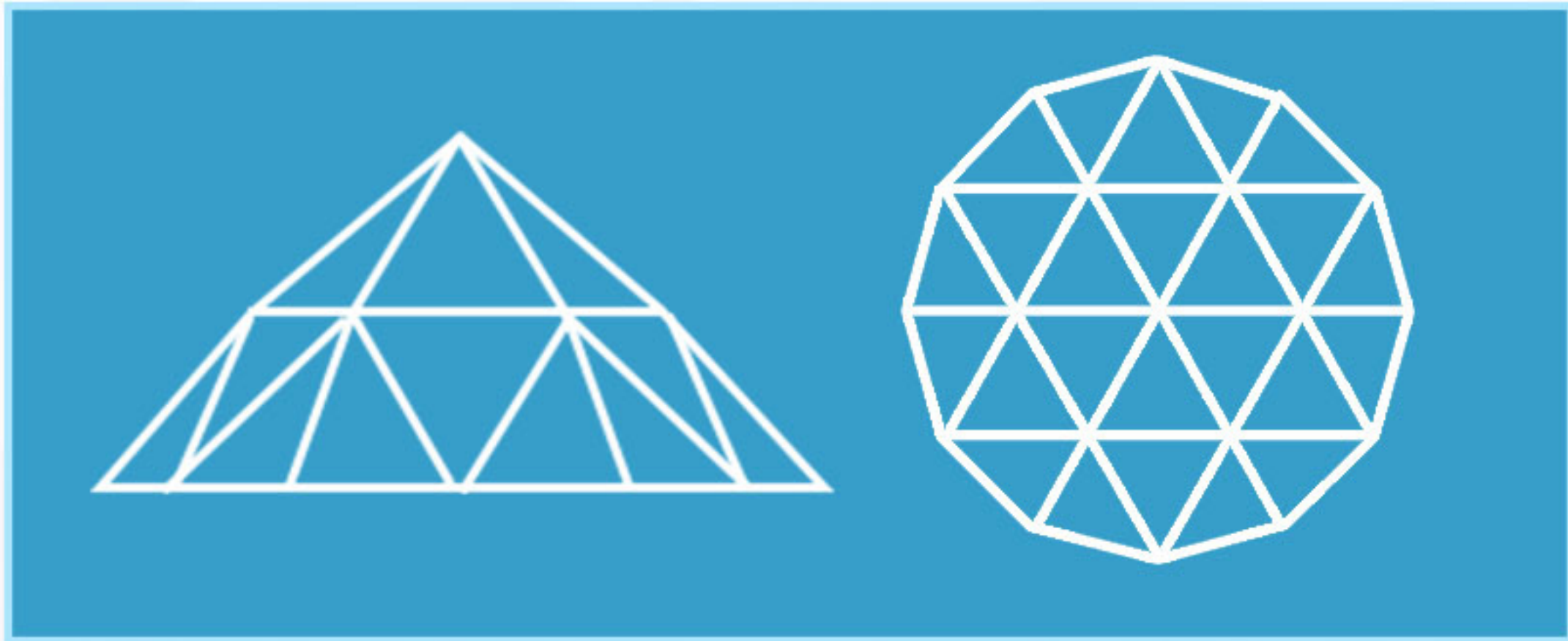
3. Baguette and Tapered Baguette

The baguette cut is named due to its long, rectangular shape after the French word baguette, for "[long rod](#)", coming down from the Latin baculum, meaning "a stick". This cut came out of the [1920s and 1930s](#) as a fashion reaction to the functionality and geometric form preferred in design and architecture of the time, such as the Bauhaus movement. Used primarily as a side stone, the baguette cut shape is a step cut diamond that is similar to other square to rectangular shaped step cuts, such as the emerald cut.



ANTIQUÉ DIAMOND CUTS

When judging diamonds in antique jewelry, one must be careful not to judge antique diamonds by modern standards. Antique diamonds were cut to maximize carat weight, not "fire". That's why the proportions of old diamonds are quite different from their modern counterparts.

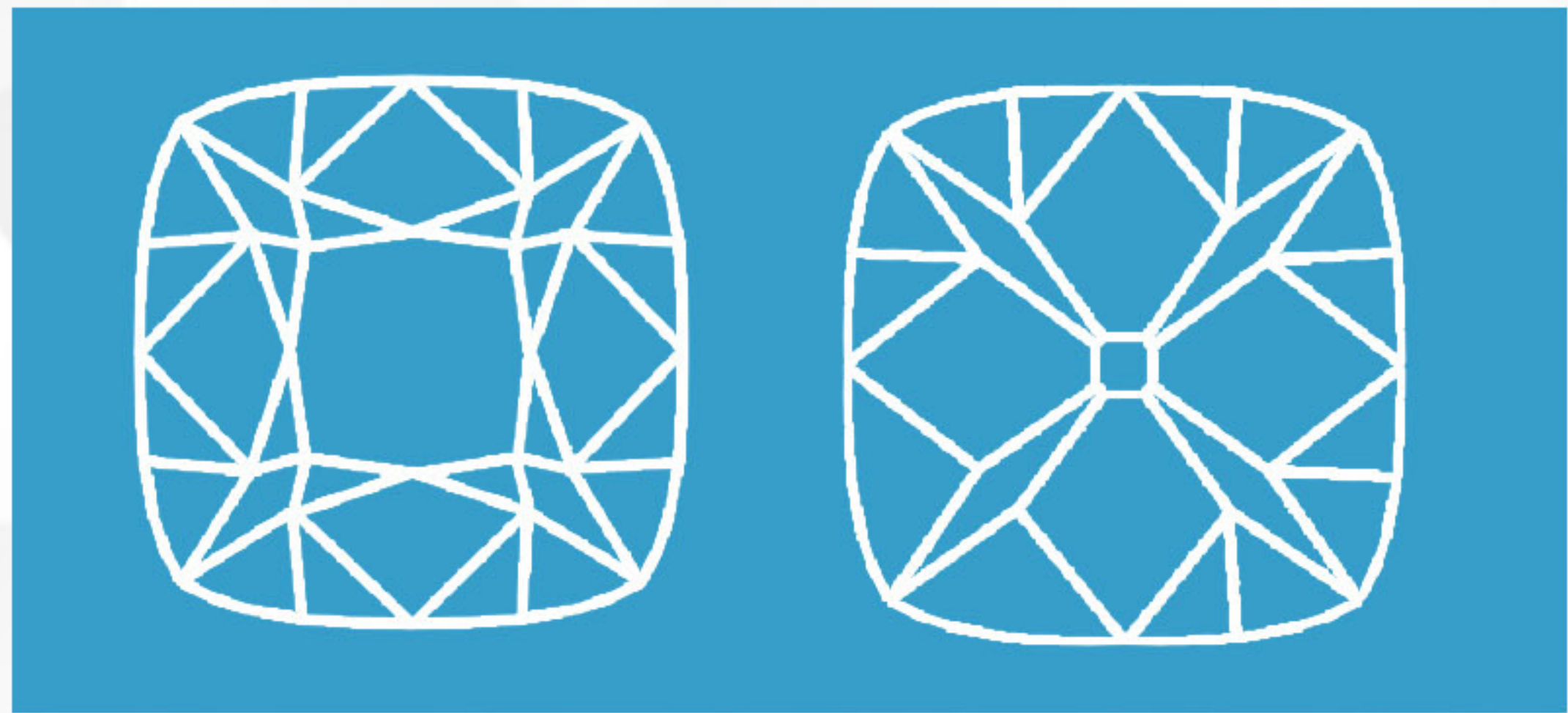
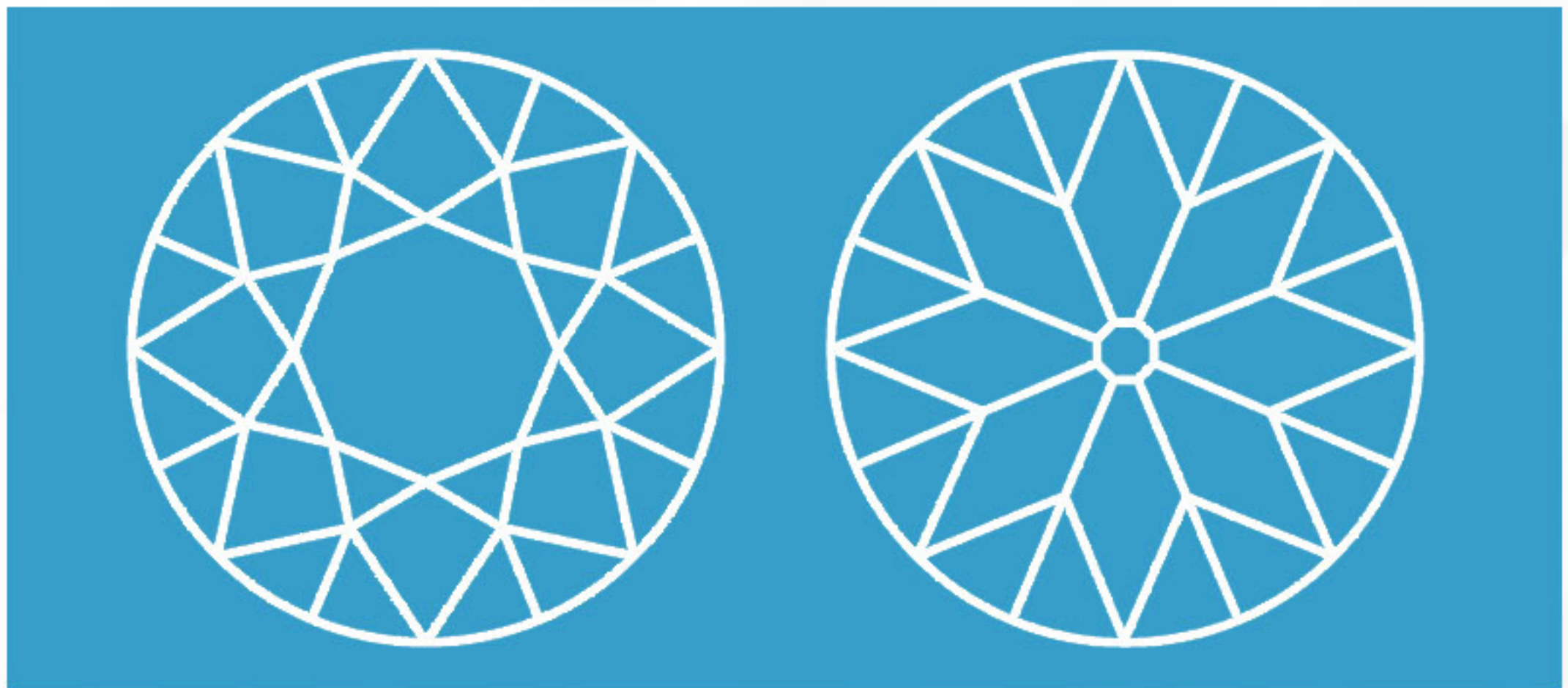


1. Rose Cut

Rose cut diamonds were introduced as early as the 1500's and were popular until the early 1900's. The shape of a rose cut diamond_ resembles the petals of a rose bud. The bottom is flat. The crown is domed shaped and the facets meet in a point in the center. The number of facets varies from 3,6,12,18, to 24 facets.

2. Old Mine

The old mine cut diamond is the earliest form of the modern brilliant cut. Also called the "cushion cut", it has a cushioned shaped girdle. This cut of diamond is characterized by a high crown, small table, deep pavilion and large culet. Other names for this cut are: old miner, Peruzzi cut, and triple cut brilliant.

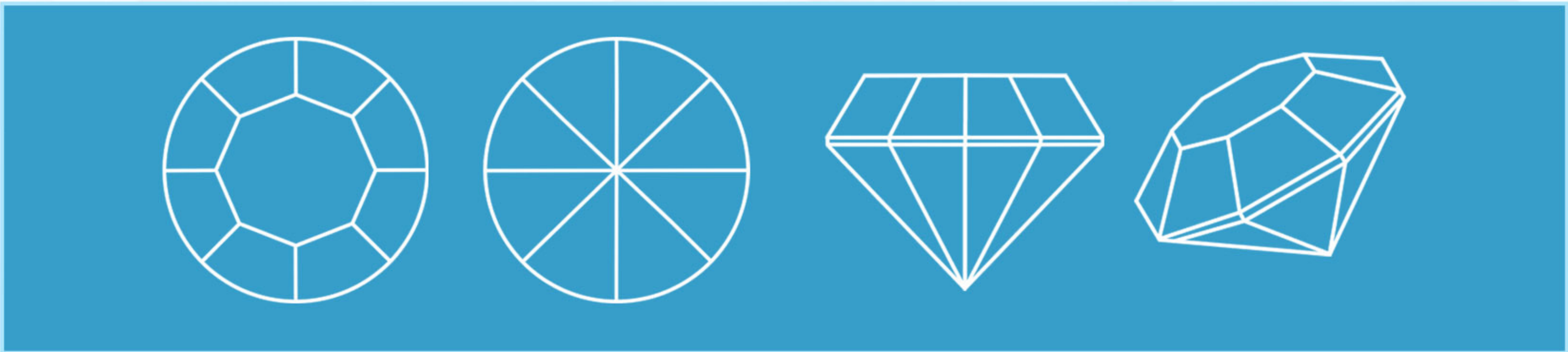


3. Old European

The old European diamond has a very small table, a heavy crown, and great overall depth. This diamond cut was the fore-runner of the modern brilliant cut. Like the modern round brilliant, the old European diamond has a circular girdle.

4. Single Cut

The single cut diamond has an octagonal girdle, a table, eight bezel (or crown) facets, and 8 pavilion facets. It may or may not have a culet.





5.Briolette

The Briolette Cut is a drop-shaped stone with triangular or diamond – shaped facets all the way around. There is no **table, crown or pavilion**. The more facets, the more brilliant the stone appears. The facets on a Briolette are all triangular in shape entirely covering the circular cross section of the stone.

