

## THE 4C's

The 4 C's have been used for over 100 years as a basic system of grading the quality of diamonds.

They were formally introduced in the late 1930's by the Gemological Institute of America ( GIA ) to help educate both jewellers and the general public in understanding how to judge and to appreciate the quality of diamonds.

The 4 C's are still used today and are recognised universally as the four principal characteristics by which both the quality and the ultimate value of a Diamond are determined.

They are presented here in the order they appear in a standard Diamond Grading Certificate.

## THE 4C's

CARAT



COLOUR



CLARITY



CUT

## CARAT

CARAT is the first of the 4 C's and refers to the size or Carat Weight of a finished polished Diamond.

In nature, larger diamond crystals are relatively rare. Consequently, as the size or Carat Weight of a diamond increases so does its Value.

As the Carat Weight increases the 'per carat value' is increased in relation to fixed categories of weight.

Of the 4 C's, Carat Weight is considered to be one of the most significant factors in determining the Value of a Diamond.

## CARAT

The word CARAT is derived from the ancient words 'Keration' ( Greek ) and 'Qirrat' ( Arabic ), both of which were names given to the seeds of the Locust or Carob Tree. Due to their relatively consistent size and weight, dried Carob Seeds were once widely used by merchants as counterweights, for weighing Gold, Diamonds, Gemstones and Pearls.

Later, in more recent history, the weight of the Carat, like many other units of weight, was based on the Grain. The Grain having been defined as " the weight of a designated number of dry wheat or other edible grain kernels ( oats, barley, rice etc. ) taken from the middle of the ear of the plant ".

However, as different types of grain varied in size and weight from country to country, so too did the weight of the Carat. So much so that prior to 1913 there were over 20 different weights for the Carat, varying by as much as 10%, being used in trading centres around the world.

In 1913, after many attempts to standardise the weight of the Carat, the United States, United Kingdom and Europe adopted the use of the Metric Carat which has become the standard unit of weight used throughout the Diamond and Gemstone Industry today.

### THE METRIC CARAT

◆ CARAT : 1 CARAT = 1/5 of a gram ( 0.2 Grams or 200 Milligrams )

◆ POINT : The CARAT is further divided into POINTS, a unit of weight used only for Diamonds.

1 POINT = 1/100 ( 0.01 ) CARAT

◆ GRAIN : The GRAIN is a traditional unit of weight used by Diamantaires.

1 GRAIN = 1/4 ( 0.25 ) CARAT.

The term used is 'Grainer', prefixed by the number of Grains.

Eg : A 'One-Grainer' is a 1/4 Carat Diamond



























































































A 'Four-Grainer' is a 1 Carat Diamond

### SIZE & CARAT WEIGHT

The size of a finished polished Diamond is directly related to its Carat Weight. However, the actual dimensions are entirely dependent upon its proportions :

On average, a well proportioned, 1 Carat Round, Brilliant Cut Diamond has a diameter of approximately 6.5 mm. In comparison, a shallow or 'spread' cut Diamond of the same weight may be anything up to 20% larger in diameter, whereas a deep or 'heavy' cut Diamond of the same weight may be as much as 20% smaller in diameter.

## AVERAGE SIZES & CARAT WEIGHTS

Carats	0.25	0.50	1.00	1.50	2.00	2.50	3.00	4.00	5.00
<b>Round</b>	4.1mm 	5.2mm 	6.5mm 	7.4mm 	8.2mm 	8.8mm 	9.4mm 	10.3mm 	11.2mm 
<b>Oval</b>	5.0 x 3.5 	6.3 x 4.3 	7.5 x 5.5 	8.5 x 6.3 	9.5 x 7.0 	10.0 x 7.5 	10.7 x 7.9 	11.8 x 8.7 	12.7 x 9.4 
<b>Marquise</b>	6.0 x 3.0 	8.0 x 4.0 	10.0 x 5.0 	11.2 x 5.6 	12.4 x 6.2 	13.6 x 6.8 	14.4 x 7.2 	15.8 x 7.9 	17.0 x 8.5 
<b>Pear</b>	5.0 x 3.5 	6.5 x 4.5 	8.0 x 5.5 	8.8 x 6.5 	9.6 x 7.1 	10.5 x 7.5 	11.0 x 8.0 	12.5 x 9.0 	13.5 x 10.0 
<b>Heart</b>	4.0 x 4.0 	5.0 x 5.0 	6.5 x 6.5 	7.3 x 7.3 	8.0 x 8.0 	8.6 x 8.6 	9.2 x 9.2 	10.1 x 10.1 	11.0 x 11.0 
<b>Trillion</b>	4.0 x 4.0 	5.0 x 5.0 	6.5 x 6.5 	7.3 x 7.3 	8.0 x 8.0 	8.6 x 8.6 	9.2 x 9.2 	10.1 x 10.1 	11.0 x 11.0 
<b>Cushion</b>	3.7 x 3.7 	4.7 x 4.7 	5.7 x 5.7 	6.5 x 6.5 	7.2 x 7.2 	7.8 x 7.8 	8.3 x 8.3 	9.2 x 9.2 	10.0 x 10.0 
<b>Square Princess</b>	3.5 x 3.5 	4.5 x 4.5 	5.7 x 5.7 	6.5 x 6.5 	7.1 x 7.1 	7.7 x 7.7 	8.2 x 8.2 	9.0 x 9.0 	9.7 x 9.7 
<b>Square Emerald</b>	3.6 x 3.6 	4.6 x 4.6 	5.8 x 5.8 	6.6 x 6.6 	7.3 x 7.3 	7.9 x 7.9 	8.4 x 8.4 	9.2 x 9.2 	10.0 x 10.0 
<b>Emerald</b>	5.0 x 3.0 	6.0 x 4.0 	7.0 x 5.0 	7.8 x 5.6 	8.6 x 6.2 	9.4 x 6.7 	10.0 x 7.2 	11.0 x 7.8 	12.0 x 8.5 

## CARAT WEIGHT AND VALUE

Diamonds are valued according to size based on standard categories of Carat Weight, each of which is applied within a fixed weight range. For each step in weight category the 'per-carat value' is increased by a certain percentage. Diamonds over 1.0 Carat, are generally subject to varying percentage premiums as the size approaches the next weight category.

### CARAT WEIGHT CATEGORIES

WEIGHT CATEGORY	WEIGHT RANGE
1/100 Carat	0.01 - 0.03 Ct
1/25 Carat	0.04 - 0.07 Ct
1/10 Carat	0.08 - 0.14 Ct
1/6 Carat	0.15 - 0.17 Ct
1/5 Carat	0.18 - 0.22 Ct
1/4 Carat	0.23 - 0.29 Ct
1/3 Carat	0.30 - 0.39 Ct
Light 1/2 carat	0.40 - 0.49 Ct
1/2 Carat	0.50 - 0.69 Ct
3/4 Carat	0.70 - 0.89 Ct
Light 1 Carat	0.90 - 0.99 Ct
1 Carat	1.00 - 1.49 Ct
1.5 Carat	1.50 - 1.99 Ct
2 Carat	2.00 - 2.99 Ct
3 Carat	3.00 - 3.99 Ct
4 Carat	4.00 - 4.99 Ct
5 Carat	5.00 Ct +

## COLOUR

COLOUR is the second of the 4 C's to be considered in terms of rarity and value.

The colour of a diamond can range from totally colourless through a progression of tinted and lighter colours to totally saturated Fancy Colours.
























Colourless diamonds are valued for their ability to reflect and refract white light to a greater degree than any other natural, colourless gemstone. The less colour or tint the higher the value, with totally colourless diamonds commanding the highest premiums.

When the degree of colour in a diamond becomes sufficiently noticeable, beyond the slightly tinted range, it is considered a Coloured Diamond. Once the degree of colour reaches a certain level of intensity it is classed as a Fancy Colour.

Coloured diamonds are prized for the beauty of their individual colours. Some fancy colours are extremely rare and command prices many times the value of those of the finest colourless diamonds.

## COLOUR GRADING

Colour is graded using various internationally recognized systems, the most widely used being that of the Gemological Institute of America (GIA). In this system the Yellow or 'Cape' series is used as the basic colour reference. 'Colourless' Diamonds are graded, highest to lowest, from 'D' to around 'L' or 'M' on the scale shown below.

AGS	CIBJO	GIA		GAGTL	SCAN DN
0	Exceptional White +	Colourless	 D	Finest White	River
1	Exceptional White		 E		
2	Rare White +		 F	Fine White	Top Wesselton
3	Rare White	 G			
4	White	Near Colourless	 H	White	Wesselton
5	Slightly Tinted White		 I	Commercial White	Top Crystal
			 J	Top Silver Cape	Crystal
6	Tinted White	Faint Yellow	 K	Silver Cape	Top Cape
			 L		
7	Tinted Colour 1		 M	Cape	Cape
			 N		
8	Tinted Colour 2	Very Light Yellow	 O	Light Yellow	Light Yellow
			 P		
			 Q		
			 R		
9	Tinted Colour 3	Light Yellow	 S	Yellow	Yellow
			 T		
			 U		
			 V		
			 W		
10	Tinted Colour 4	Light Fancy Yellow	 X	Fancy Yellow to Fancy Vivid Yellow	Fancy Colour
			 Y		
			 Z		

## COLOURED DIAMONDS

Diamonds can occur in virtually all colours of the spectrum, as well as Milky-White, Black and Grey. The two most commonly occurring colours, or hues, in diamonds are Yellow and Brown with Yellow being by far the most prevalent. Some colours are very rare, the rarest and most highly prized colour of all being that of Red.



Coloured Diamonds are graded according to their properties of Hue ( spectral colour ), tone ( lightness or darkness ) and saturation ( intensity ). In all cases, for any given hue, the greater the saturation the higher the value. The GIA, recognized as the foremost authority on the grading of Coloured Diamonds, currently grades colour in nine different categories with the first, Faintly Coloured, falling within the K to N range on the chart opposite.

- |                          |                       |                         |
|--------------------------|-----------------------|-------------------------|
| 1. Faintly Coloured      | 4. Light Fancy Colour | 7. Fancy Intense Colour |
| 2. Very Lightly Coloured | 5. Fancy Colour       | 8. Fancy Deep Colour    |
| 3. Lightly Coloured      | 6. Fancy Dark Colour  | 9. Fancy Vivid Colour   |

Argyle Pink Diamonds and Argyle Champagne and Cognac Diamonds are graded according to a proprietary, in-house system developed by Argyle Diamond Mines of Australia.

Purplish Pink								
	PP1	PP2	PP3	PP4	PP5	PP6	PP7	PP8
Pink								
	P1	P2	P3	P4	P5	P6	P7	P8
Brownish Pink								
	BP1	BP2	BP3	BP4	BP5	BP6	BP7	BP8
Pink Champagne								
	PC1	PC2	PC3					
	Light Champagne		Medium Champagne		Dark Champagne		Cognac	
Champagne & Cognac								
	C1	C2	C3	C4	C5	C6	C7	

## FLUORESCENCE

Fluorescence, otherwise referred to as Photo-Luminescence, is the visible emission of light which occurs when a Diamond is exposed to Long Wave Ultraviolet Light. It is a natural characteristic, observed in nearly one-third of all gem-grade Diamonds, resulting from the presence of trace amounts of Nitrogen, a common impurity in Diamonds.

Fluorescence occurs when a diamond is illuminated by Long Wave Ultraviolet Light either from a UV Lamp or from direct or indirect, natural daylight. Although other colours, such as yellow, white, green and, very rarely, orange and red are possible, the most common fluorescent colour observed in diamonds is that of Blue.

Without  
LWUV Light



With  
LWUV Light



### GRADING OF FLUORESCENCE

Diamonds are examined face-down, under Long Wave Ultra Violet Light ( Black Light ). The fluorescence is then graded in five categories from None through to Very Strong or Intense :



### EFFECTS OF FLUORESCENCE

Fluorescence can have either a positive or a negative effect on the colour and overall look of colourless Diamonds when viewed in natural daylight.

Colourless Diamonds with high colour gradings of D, E or F, exhibiting medium to strong fluorescence, can often look somewhat hazy or 'oily' in direct sunlight. Those with relatively low colour gradings, around I or J, particularly those with a yellowish tint, usually appear one to two grades better in colour due to the masking effect of blue fluorescence.

### FLUORESCENCE & VALUE

The effect of fluorescence on the value of a colourless Diamond depends entirely upon its strength and colour. The stronger the fluorescence the greater the negative effect can be on the value of higher colour grades and, conversely, the greater the positive effect on the value of lower colour grades. The value of higher colour grades can be discounted by as much as 5 to 10% and the value of lower colour grades can be increased by a similar amount. Weak or faint fluorescence tends to have little or no effect on value.

## CLARITY

CLARITY refers to the Optical Quality or Purity of a Diamond and is determined according to the presence, or lack, of any internal or external imperfections.

The Clarity of a Diamond can range from Totally Flawless ( most optically pure ) to Imperfect ( least optically pure ). The more optically pure, the more highly a Diamond is valued.

Clarity is of the utmost importance when considering Colourless Diamonds due to its effect on light entering and reflecting within a Diamond. The higher the Clarity, the more freely and efficiently light can travel, resulting in a more optimal Light Performance.

Clarity is less important when considering Coloured Diamonds. As the intensity of the Colour increases, particularly within the Fancy Colour range, Clarity becomes even less important.

## CLARITY GRADING

Clarity is determined based on the size, number and position of any inclusions or external features, according to a standard Clarity Grading system. Clarity Grading is carried out by trained specialists using industry standard, 10X 'fully-corrected', Loupe, except for the lowest 'Pique' or 'Imperfect' grades which are determined without the aid of magnification.

FL



Internally & Externally Flawless  
( @ 10X Magnification )

IF



Internally Flawless  
( @ 10X Magnification )

VVS1



Very Very Small Inclusions  
( Very difficult to see @ 10X Magnification )

VVS2



VS1



Very Small Inclusions  
( Difficult to see @ 10X Magnification )

VS2



SI1



SI2



SI3



Small Inclusions  
( Easily seen @ 10X Magnification )

P1 or I1



P2 or I2



P3 or I3



Piqué or Imperfect - Larger Inclusions  
( Visible without Magnification )

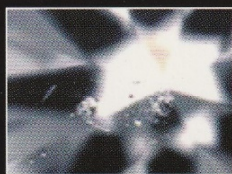
## CLARITY FEATURES



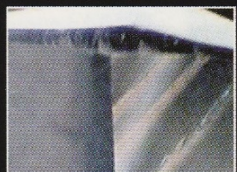
Abrasions



Bearding



Clouds



External Graining



Feather



Fracture



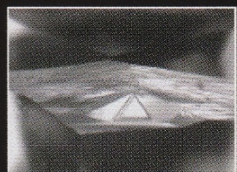
Included Crystal



Internal Graining



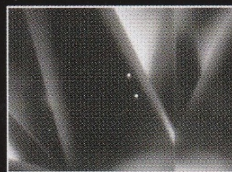
Irradiation Stain



Natural



Nick



Pinpoints



Reflector



Scratch



Twinning Wisp

## CLARITY TERMS

### ABRASIONS

Minute nicks along facet edges, often caused by contact with other Diamonds in parcel papers.

### BEARDING

Tiny feathers extending into the stone from the girdle, caused by heavy or excessive bruting.

### BLEMISH

A clarity grading term for any external or surface feature, such as an abrasion, nick, scratch etc.

### BURN MARK

Surface clouding, caused by excessive heat generated during polishing.

### CAVITY

A small hole or indentation in the surface, caused by a surface reaching feather or a negative crystal.

### CHIP

A shallow fracture at a facet junction or on the girdle edge, larger or deeper than a nick.

### CLEAVAGE CRACK

An internal fracture which follows the direction of a cleavage plane.

### CLOUD

A hazy or milky area visible within a diamond, caused by myriad, tiny pinpoints.

### EXTRA FACET

A small facet, often added after polishing to remove blemishes, such as abrasions, nicks etc.

### EYE CLEAN

A clarity-grading term for a diamond in which no blemishes or inclusions are visible to the unaided eye.

### EYE VISIBLE

A clarity-grading term for a diamond in which blemishes or inclusions are visible without the aid of 10X magnification.

### FEATHER

A cleavage crack which appears white and feather-like when seen at right angles to the crack.

### FISSURE

An elongated cavity in the surface of a polished diamond, caused by a surface reaching crack.

### FRACTURE

A chip or break on a diamond along a direction other than a cleavage plane.

### GRAINING

Shadow-like lines, caused by twinning or minute irregularities in the crystal structure.

### INCLUDED CRYSTAL

A diamond or other mineral crystal enclosed within a diamond during its growth.

### INCLUSION

A clarity grading term for any internal feature, such as a cavity, fracture, included crystal etc.

### LOUPE CLEAN

A term used in various clarity grading systems for high-clarity diamonds corresponding to IF ( Internally Flawless ).

### NATURAL

A portion of the original surface or skin of a rough diamond, left on the Girdle, of a polished diamond.

### NICK

A very small chip on a facet junction, or girdle edge of a polished diamond.

### PINPOINT

A small, whitish, rounded crystal not large enough to be identified as an included crystal.

### PIT

A very small hole or indentation in the surface of a polished diamond.

### POLISHING LINE

Thin parallel grooves left on the surface of a diamond, by the surface of the polishing machine.

### REFLECTOR

Multiple reflections of the same internal feature, visible through the crown.

### SCRATCH

A thin, shallow abrasion on the surface of a diamond which appears as a white line.

## CUT

The Cut of a Diamond refers not only to its shape and cut style but also, more importantly, to its Cut Quality.

Cut Quality or 'make' as it is often called, refers to the quality of the cutting of a Diamond in relation to its Proportions, Symmetry and Polish and the resultant Light Performance.

Generally speaking, lower or standard quality cuts are produced in order to maximize the finished weight or 'yield' from the original rough material, often resulting in reduced Light Performance.

Higher quality cuts, on the other hand, are produced specifically to maximize Light Performance, taking far more time to produce, requiring greater skills and resulting in much lower finished weights.

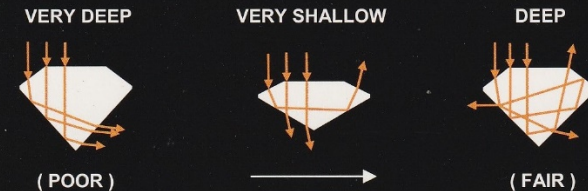
Putting it simply, the better the Cut, the higher the finished cost and therefore the higher the Value.

## CUT PROPORTIONS & LIGHT RETURN

The amount of light returned from the top of a Diamond is essentially determined by the proportions of the cut. The terms used in the grading of this particular property are more or less synonymous with those used to describe the degree of Light Return and fall into five basic categories of Ideal or Excellent, Very Good, Good, Fair and Poor.

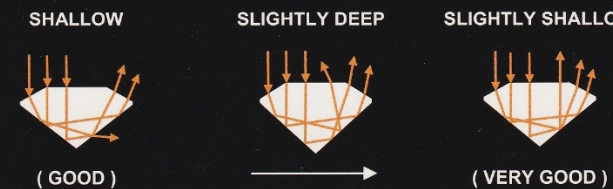
### STANDARD CUT

A Standard Round Brilliant Cut is fashioned to achieve the maximum possible finished weight, from the original rough diamond. Proportions are generally not considered and can vary widely, usually resulting in poor light return.



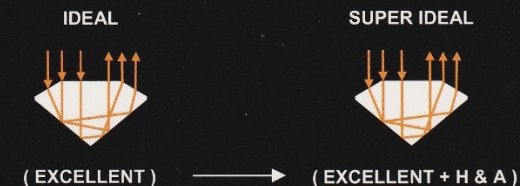
### WELL MADE

Often a compromise is struck between maximising the finished weight and producing a diamond with superior light performance. Very well made cuts which fall just below the standard required to be classed as Ideal are sometimes referred to as Near Ideal.



### IDEAL CUT

Ideal Cuts are made with Proportions which fall within an accepted Ideal range. Cut Quality takes priority over finished weight, giving maximum Light Return. Super Ideal (Hearts & Arrows) Cuts are made with no consideration for final weight. Ideal Proportions plus Super Symmetry and Perfect Finish result in Diamonds which display Optimum Light Performance.





## LIGHT PERFORMANCE

The Light Performance or 'Life' of a finished, polished Diamond is described as the overall, face-up appearance, produced by a combination of the three optical effects of Brilliance, Fire and Scintillation. Light performance analysis is used today by leading laboratories as an integral component in the grading of Cut Quality.

### BRILLIANCE

Brilliance is the term generally used to describe the combined internal and external reflections of unaltered, 'White' Light returned from the Crown of a Diamond.

### FIRE

Fire is the name used for Light which has been 'dispersed' into its individual spectral colours, by a 'prism-effect' which occurs when Light, after being internally reflected, returns through the angled facets of the Bezel.

### SCINTILLATION

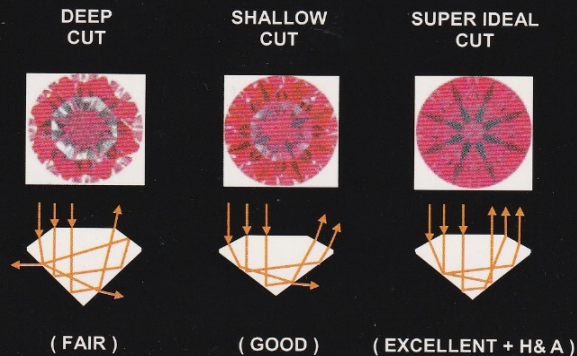
Scintillation or 'Sparkle' is the name given to the alternating, on-off, flashes of Brilliance and Fire created when either the Diamond, the light source or the observer is in motion.

### LIGHT PATTERN

The light returning from within a Diamond, forms a distinct pattern created by the contrasting light and dark areas of reflected light and light extinction.

A light pattern, in effect, presents a virtual map of the reflective surfaces of the facets and can be used simultaneously to gauge proportions - by comparing the position and degree of light return ( light returned through the crown ), to that of light leakage ( light lost through the pavilion ) - and to determine the degree of internal or optical symmetry of a Diamond.

Light Patterns are also referred to as symmetry Images and are observed and analysed with the aid of special magnifying, 'reflective imaging' or 'symmetry' viewers.



## MODERN 'CLASSIC' DIAMOND CUTS

