IDC-RULES
FOR GRADING POLISHED DIAMONDS

The International Diamond Council

October 1995

THE INTERNATIONAL DIAMOND COUNCIL
representing:

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Introduction to the 1979 edition

At the International Congress of the World Federation of Diamond Bourses and the International Diamond Manufacturers Association, held in Amsterdam in May '75, a joint committee, recently renamed the International Diamond Council, was appointed with a mandate to establish unity in the normalization of the grading of polished diamonds.
The International Diamond Council decided to start from the following principles:

- A set of internationally recognized standards should be developed, applicable in the same way all over the world.
- Working methods for applying these standards should be normalized too. This is necessary in order to arrive at uniform certificates.
- Internationally recognized institutes, which will apply the accepted standards and methods, have to be set up.

As a result of several meetings and discussions of the International Diamond Council in 1975, 1976 and 1977, a first document on the standards as well as on the working methods was drafted in July '77, namely the "Proposal for Normalizing the Description of Diamonds".

In March of the same year, an international series of colour masterstones and corresponding denominations were accepted in agreement with the CIBJO.

In May '78 the basic principles of the standards, called the "International Rules for Grading Polished Diamonds", were proposed for ratification at the 19th Congress of the World Federation of Diamond Bourses and the International Diamond Manufacturers Association in Israel. They were unanimously approved.

The present document is a completed version of the rules, with amendments based on the remarks and suggestions of the several organizations. All rules approved at the World Congress in Israel are marked "IR May '78" (international rule May '78).

Note: In the 1995 edition the markings "IR May 78' have been deleted, since they were of historical interest only.

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I. DIAMOND GRADING

1.1. Definition and use of the denomination "diamond"

A diamond is a natural mineral of crystallized carbon in cubic structure.

The denomination "diamond" may only be used as such when a natural diamond is referred to.
The denomination "diamond" should not be used as such to indicate items consisting of diamond, such as doublets.

1.2. Treatments: definition and grading

All diamonds which have been subjected to treatment, other than cutting, polishing, laser drilling and cleaning, intended to change the diamond's appearance, such as filling, coating, irradiation or any other physical or chemical treatment, must be disclosed as "treated diamond".

"Treated diamonds" cannot be graded.

1.3. Laser drilling

Diamonds subjected to laser drilling can be graded as such but must always be characterized as "laser drilled".

1.4. Diamond grading reports

A usual grading report of a diamond includes mention of the four main characteristics, namely the weight, the clarity grade, the colour grade and the cut.

1.4.1. Contents of a Diamond Grading Report

A complete grading report of a diamond, as it should appear on a certificate, includes the following data:

- the statement that the diamond has been identified as a natural diamond
- reference number
- weight
- shape and measurements
- clarity grade
- colour and fluorescence grade
- cut: proportions and finish-grade
- comments and identification marks, if applicable
- plot
- place of issue
- date of issue
- reference to IDC

1.4.2. Conditions regarding the state in which diamonds must be presented for grading

Diamonds must be presented for grading unmounted and free of any obstacles including dirt.

II. CLARITY

2.1. Determination of Clarity Grades

The clarity grades are obtained by establishing the relevant internal and external characteristics.

2.2. Relevant Internal and External characteristics

2.2.1. Internal characteristics

As a definition all characteristics, which are internally or partly internally perceptible, belong to the internal characteristics.

To be more precise, they are:

- the inclusions:
  e.g. crystalline inclusions, carbon inclusions, pinpoints, clouds,
- fractures
- cleavages (feathers, bearding, fissures)
- some kinds of structure phenomena (ref. 2.3.4.2.)
- poor transparency of the diamond
- remaining parts of the rough diamond: indented naturals, nicks
- laser drill holes

2.2.2. External characteristics

The following belong to the external characteristics:

- externally located faults caused during polishing, such as polishing lines, rough edges, burn marks and slightly bearded girdle
- externally located damages, such as scratches, abraded culet and point-shaped damages
- some kinds of structure phenomena (ref. 2.3.4.2.)

2.3. Clarity Grading Scale

The subdivision and denominations of the clarity grades are as follows:

LOUPE-CLEAN
VVS1
VVS2
VS1
VS2
SI1
SI2
P1 (I1)
P2 (I2)
P3 (I3)

2.3.1. Definition of "loupe-clean"

No diamond can be referred to as being really clean. In all diamonds inclusions will occur. They belong to the essential character of the precious stone. Therefore, the first clarity grade does not refer to diamonds being absolutely clean, but to diamonds being "loupe-clean", i.e. clean in so far as the diamonds are examined under a magnification of a loupe 10X. In particular, the definition generally accepted in the diamond business assumes that:

A diamond is called "loupe-clean" if, after an examination by an experienced grader with a loupe 10X (corrected for spherical and chromatic aberration), it has been found free of internal characteristics.
It is recommended that the characteristics of the artificial light source used, approximate the C.I.E.-standard illuminant D65 (C.I.E. = Commission Internationale de l'Eclairage / International Commission on Illumination).

The recommended method is to make a direct comparison, using a loupe 10X, with a reference diamond, accepted by the IDC, containing an inclusion marking the limit of the loupe-clean-grade. In any case, whatever means of examination are used; the final decision must be made with a loupe 10X.

2.3.2. Grading of internal characteristics

The **internal characteristics** are graded as described in the following definitions, which are valid for use by an experienced grader.

loupe-clean	ref. 2.3.1.
VVS : VVS1 VVS2	Very very small internal characteristic(s), which can be found from very hardly to hardly with a loupe 10x. The size, position, number and brightness of the internal characteristics determine the distinction between vvs1 and vvs2.
VS : VS1 VS2	Very small internal characteristic(s), which can be found from fairly hardly to easily with a loupe 10x. The size, position, number and brightness of the internal characteristics determine the distinction between vs1 and vs2.
SI : SI1 SI2	Small internal characteristic(s), very easy to find with a loupe 10x. The size, position, number and brightness of the internal characteristics determine the distinction between si1 and si2.
P1 or I1	Pique 1 or Included 1 Internal characteristic(s), which can hardly be found with the naked eye through the crown side of the diamond.
P2or I2	Pique 2 or Included 2 Large and/or frequent internal characteristic(s), easily visible to the naked eye through the crown side and which reduce(s) the brilliancy of the diamond slightly.
P3 or I3	Pique 3 or Included 3 Very large and/or frequent internal characteristic(s), very easy to be seen with the naked eye through the crown side and which reduce(s) the brilliancy of the diamond.

2.3.3. Grading of external characteristics

External characteristics are graded as described in the following definitions, which are valid for use by an experienced grader.

type of external characteristics	**grading of the external characteristics**	
polishing faults or damages	for diamonds without internal characteristics: the clarity grade becomes loupe-clean and the external characteristics are mentioned as :	for diamonds with internal characteristics: the external characteristics may influence the clarity grading
not to find or very hard to find with a loupe 10X	not to be mentioned	no influence
fairly hard to find with a loupe 10X	mentioned as: negligible external characteristics	no influence
easy to find with a loupe 10X	mentioned as: external characteristics	may influence the clarity grading
very easy to find with a loupe 10X	separate description under "Comments " (example: important burning marks on crown side)	may influence the clarity grading

Major external characteristics, visible from the crown side, may influence the clarity grading.

When a diamond does not have any internal, but only external characteristics, it is referred to as being "loupe-clean" and a mention is made about the external characteristics. In case of diamonds with internal characteristics, the external characteristics can diminish the clarity grade.

2.3.4. Grading of structure phenomena

2.3.4.1.
The growth lines, the graining effects and the different forms of "knots", such as the twinning seams, knot lines and knot planes, are considered as "structure phenomena". The meaning of these terms is explained in the addendum "Types of structure phenomena in diamonds".

2.3.4.2.
The different kinds of structure phenomena can be divided into the following groups:

A. Structure phenomena that are only externally visible (e.g. surface grain lines, twinning lines, knot lines).

B. Structure phenomena that are internally visible, but are not causing any colour effects or white reflections (e.g. growth lines and some kinds of graining)

C. Structure phenomena that are internally visible and are causing colour effect or white reflections (e.g. brownish coloured zones, reflective grain planes and some kinds of graining).

The rules for grading the structure phenomena of groups A and B are as follows:

visibility of the structure phenomena	diamonds without internal characteristics	diamonds with internal characteristics
not to find or very hard to find with a loupe 10X	- clarity grade : "loupe-clean" - no remarks	no influence on the grading of the internal characteristics
hard to find with a loupe 10X	- clarity grade : "loupe-clean" - description under "Identification Marks" - minor surface grain lines - minor graining	no influence on the grading of the internal characteristics
fairly easy to find with a loupe 10X	- clarity grade : "loupe-clean" - description under "Comments" - surface grain lines - graining	no influence on the grading of the internal characteristics
easy to find with a loupe 10X	the structure phenomena influence the clarity grading	the structure phenomena may influence the clarity grading

The rules for grading the structure phenomena of group C are as follows:

visibility of the structure phenomena	**diamonds without internal characteristics**	**diamonds with internal characteristics**
not to find with a loupe 10X	- clarity grade : "loupe-clean" - no remarks	no influence on the grading of the internal characteristics
very hard to find with a loupe 10X	- clarity grade : "loupe-clean" - description under "Identification Marks" - minor graining	no influence on the grading of the internal characteristics
hard to find with a loupe 10X	- clarity grade : "loupe-clean" - description under "Comments" - graining	no influence on the grading of the internal characteristics
fairly easy to find with a loupe 10X	the structure phenomena influence the clarity grading	the structure phenomena may influence the clarity grading

III. COLOUR

3.1. Determination of colour grades

The diamond colours can be divided in two main groups:

- colourless to light yellow diamonds (or equivalent)
  diamonds with a yellow hue, possibly with a faint brownish, grayish or greenish deviation

- colour diamonds
  all diamonds darker than light yellow (or equivalent) and
  all diamonds with another colour hue

3.1.1. Colourless to light yellow diamonds (or equivalent)

3.1.1.1
These colours are subdivided into 8 colour grades, called the "International Colour Grading Scale" (see colour comparison table 3.1.1.2.).

3.1.1.2. International Colour Grading Scale

International Colour Grading Scale			
exceptional white +	blanc exceptionnel +	hochfeines Weiss +	D
exceptional white	blanc exceptionnel	hochfeines Weiss	E
rare white +	blanc extra +	feines Weiss +	F
rare white	blanc extra	feines Weiss	G
white	blanc	Weiss	H
slightly tinted white	blanc nuancé	leicht getöntes Weiss	I-J
tinted white	légèrement teinté	getöntes Weiss	K-L
tinted colour	couleur teintée	getönt	M-Z

3.1.1.3.
The colours must be determined by comparison with masterstones. Measuring instruments can only provide indicative values.

3.1.1.4.
The colour grades are fixed by a series of masterstones, which, as a definition, fix the lower limit of each colour grade. An international reference-series has been composed by representatives of the WFDB, the IDMA and CIBJO.

3.1.1.5.
A series of valid masterstones must be selected by direct comparison with the international reference series.

The masterstones must comply with the following requirements:
- brilliant-shapes only
- weight: larger than 0.70 ct
- proportions:
  - table diameter: 60 to 66%
  - crown height: 11 to 14%
  - girdle thickness: smaller than 3%
  - pavilion depth: 42 to 45%
- clarity: si2 or better, free of colored or black inclusions and structure phenomena causing colour effects
- bruted girdles only
- fluorescence nil or slight
- colour: yellow hues only

3.1.1.6.
The colour comparison with masterstones is performed under normalized artificial light, equivalent to northern daylight.

The masterstones and the diamond to be graded are placed on a V-shaped white support (e.g. a folded white paper) and observed from a direction, perpendicular to the pavilion facets.

3.1.1.7.
The comparison with the masterstones is made as follows: if no difference in colour is observed between the diamond to be graded and a specific reference-diamond, then the colour of the latter is conclusive.
If the colour of the diamond to be graded lies between those of two reference-diamonds, then the colour of the darkest one is conclusive.

3.1.1.8.
Diamonds of equivalent colour are compared with the same masterstones and in the same manner as diamonds with light-yellow colour.
In case of a clearly visible distinction, this has to be mentioned together with the colour grade.

3.1.2. Colour diamonds

3.1.2.1.
The colour determination is performed by comparison with colour standards.

3.1.2.2.
The following characteristics are described:
- colour hue
- colour saturation and lightness
- colour origin

3.1.2.3.
Depending on the above mentioned characteristics of the colour, the term "fancy" may precede the colour description.

3.2. Fluorescence

3.2.1. Determination of fluorescence
In the same way as for the colour grades, the fluorescence grade is assessed by comparison to fluorescence-reference-diamonds. This is done under a lighting of UV-rays, wavelength 366 nm.

3.2.2. Grading of fluorescence
The fluorescence grades are:

nil - **slight** - **medium** - **strong**

The colour of the fluorescence is not mentioned on a certificate.

IV. CUT

4.1. Cut: definition and description

4.1.1. Definition of "Cut"

"Cut" refers to the overall description of the **proportions** on the one hand and the **finish** of the diamond on the other hand. The proportions are determinative for the brilliancy and the fire of the diamond, while the finish represents the extent to which deviations occur from the symmetry and other characteristics of the cut.

4.1.2. Description of "Cut"

The description of the cut on a certificate must be split into a separate description of the proportions and of the finish.

4.2. Proportions

4.2.1. Determination of proportions

For a diamond to show an optimal combination of brilliancy and fire, it has to be polished with due attention to the angles of inclination and proportional relations between the various parts of the stone. If the angles and proportions are not optimal, this can lead to the appearance of one or more specific effects in the stone, which are detrimental to its beauty. When grading the proportions of a polished diamond, the main issue is therefore to evaluate if, and if so to what extent, these effects occur.

The most important effects that can be perceived when observing the stone perpendicular to the table are:

fish eye:	the reflection of the girdle is visible through the table
black table reflection:	the reflection of the table is so large that the table appears to be almost completely black
culet visible in bezels:	the stone shows an abnormal amount of scintillation, due to the culet and the surrounding facets being visible through the bezels
window:	the light falls through the stone and leaves it at the bottom without any reflection
single cut:	the diamond looks as if it has less facets than it actually has, because the difference in the angle of inclination between the facets is too small (no sharp edges)

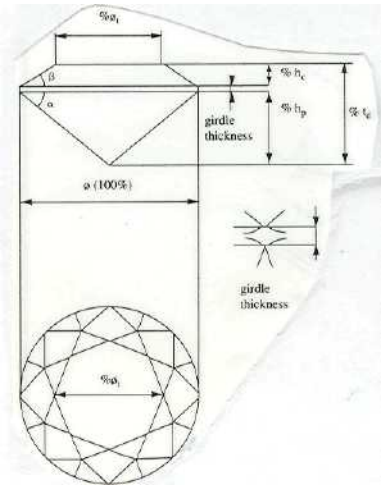
The list of effects above is not exhaustive; there are other proportions-related phenomena which are considered to be undesirable, for instance the diameter being too small in proportion to the total depth, making the stone appear smaller than its actual weight.

4.2.2. Basic parameters of the cut

The basic parameters that can characterize the cut are for the brilliant-shape:

* the crown angle (β)
* the pavilion angle (α)
* the proportion of the crown height to the diameter of the brilliant-shape (% h_c)
* the proportion of the pavilion depth to the diameter of the brilliant-shape (% h_p]
* the proportion of the table width to the diameter of the brilliant-shape (%θ_t)
* the proportion of the total depth to the diameter of the brilliant shape (%t_d)
* the girdle thickness
* the culet size

For the other shapes, basically the same parameters are involved, but then compared to the width of the diamond.



4.2.3. Grading of proportions

For the brilliant-shapes, next to the actual values an appreciation can be given. The denominations are:

very good - good - unusual (medium to poor)

The measurements of the different parts of the stone can be a useful aid in determining the proportions grade, since there exists an obvious relation between these data and the appearance of the visual effects discussed in 4.2.1.

Criteria	unusual	good	very good	good	unusual
crown angle (β) pavilion angle (a)	up to 26.9° up to 38.4°	27.0° to 30.6° 38.5° to 39.5°	30.7° to 37.7° 39.6° to 42.2°	37,8° to 40.6° 42,3° to 43.1°	40.7° and up 43.2° and up
table width (% θ_t)	71 and up	70 to 67	66 to 53	52 to 51	50 and down
crown height (% h_c)	up to 8.5	9 to 10.5	11 to 16	16.5 to 18	18.5 and up
girdle thickness (%)	0 to 0.5 %	1 to 1.5%	2 to 4.5%	5 to 7.5%	8% and up
pavilion depth (% h_p) (for pointed culet)	up to 39.5	40 to 41	41.5 to 45	45.5 to 46.5	47 and up
culet size (%)	—	—	pointed to 1.9%	2% to 3.9%	4% and up
total depth (% t_d)	up to 52.9	53.0 to 55.4	55.5 to 63.9	64.0 to 66.9	67.0 and up

If the readings for a stone are situated in different categories, the lowest grade is considered to be the overall reading. In addition to the proportional measurements mentioned above, there are others which can have a negative influence on the final grade if they are not within certain limits, such as for example the height of the halves on the crown and on the pavilion.

4.2.4. Girdle Thickness

The girdle thickness is described in the following terms:

extremely thin - very thin - thin - medium - thick - very thick - extremely thick

The nature of the girdle can be described in the following terms:

faceted - **polished** - **bruted**

Description	thickness in %
extremely thick	8% and up
very thick	6.5 - 7.5 %
thick	5 - 6 %
medium (slightly thick)	3 - 4.5 %
thin	2- 2.5 %
very thin	1-1.5 %
extremely thin	0-0.5 %

4.2.5. Description of the culet

The culet is described in the following terms:

pointed - linear - polished - natural

The culet is called "pointed" when the culet diameter is ≤ 0.032 mm. When the culet is described as "polished" or "natural", an additional description of the culet size can be given, expressed by means of the terms "small" -"medium"- "large", and/or by noting the proportional size of the culet as compared to the diameter of the diamond.

Description	thickness
pointed	≤ 0.032 mm
small	0.033 mm to 1.9 %
medium	2.0 % to 3.9 %
large	≥4%

4.3. Finish

4.3.1. Determination of Finish

When determining the finish grade, the symmetry-characteristics of the shape and the distribution of facets are taken into account, as well as extra facets and naturals.

The four main symmetry-deviations are:
- variation on the average diameter (for brilliant-shapes)
- variation on the average crown height
- deviation from the central position of the table
- deviation from the central position of the culet

4.3.2. Finish Grades

The Finish grades are:

very good - good - medium - poor

V. WEIGHT, DIAMOND SHAPES

5.1. Weight

The weight of a diamond is always expressed in carats (ct), up to two decimals at least.
Is the weight expressed up to two decimals only, then it is rounded off downwards, as long as the third decimal is smaller than 9. When the third decimal is 9, the weight is rounded off upwards.

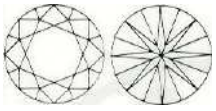
5.2. Diamond shapes

5.2.1. Common shapes

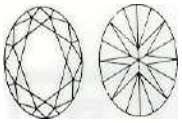
- brilliant shape
- marquise-shape
- pear-shape
- heart-shape
- oval-shape
- emerald cut

These denominations are valid for the shapes, presented here in both top and bottom view.

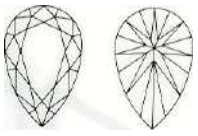
BRILLIANT-shape



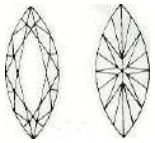
OVAL-shape



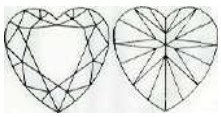
PEAR-shape



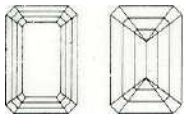
MARQUISE-shape



HEART-shape



EMERALD-cut



In case of deviations of these shapes or when similar shapes have an uncommon number of facets, they are given the additional mention "variation".

5.2.2. Measurements

The three measurements of the shapes refer to the minimum diameter, the maximum diameter and the height (brilliant-shapes) or the length, width and height (other shapes).

Addendum to Rule 2.3.4.

Types of structure phenomena in diamonds

Speaking in terms of crystallography, the structure phenomena of diamonds can be divided into two groups:

a) structure phenomena in mono-crystals

Mono-crystals are, per definition, crystals having a crystal structure in one piece. This means that a mono-crystal is, in each of its points, oriented in the same way. In the case of a diamond, this has the effect that no change of grain direction occurs in a mono-crystal. Sawable goods are very typical examples of mono-crystals.

Generally speaking, mono-crystals can contain different kinds of structure phenomena. In diamonds, there are two typical phenomena which are encountered regularly. First, there are the so-called growth lines. These are fine-shaped zones in diamonds, difficult to find and generally seen in directions between 90° angles.

A second kind of structure phenomena in diamond mono-crystals is a grain disturbance, occurring in planes and mostly identifiable by externally visible (parallel) lines, usually over several facets of the polished diamond. These lines are called surface grain lines. The internally located planes may cause either colour effects (brownish colored zones) or white light reflections (reflective grain planes).

b) poly-crystals and their structure phenomena

A diamond can crystallize in such a way that the rough diamond is composed of two or more parts, the crystal structures of which are differently oriented. The transition between these various parts are called seams ("knots").
When such diamonds are polished, the seams are usually still identifiable in the form of internally visible seam planes and/or externally visible seam lines (knot lines).

A special form of poly-crystals are the twinning crystals, called "macles" in the trade. Macles are diamonds composed of two parts in whose respective crystal orientation there is a consistent correspondence. For the one part it is the reflected image of the other, the reflecting plane being located in a cleaving direction of the diamond. In the same way for the other poly-crystals the transition between both parts of the made is visible in the polished diamond as a plane, called twinning plane and/or as a line crossing the whole diamond, called twinning line.