

STANDARD TEST METHOD 6

SHAPE & CUTTING STYLE, PROPORTION AND FINISH GRADING OF DIAMOND

1.1 SCOPE

This Standard describes the method of shape & cutting style, proportion and finish grading of diamond of the “colourless to yellow and brown series”.

1.2 APPLICATION

The item submitted shall be unmounted and polished.

Prior to grading, the test item submitted shall be confirmed as being a Type Ia diamond by the Authenticity Identification.

1.3 DEFINITIONS

Shape & cutting style: The outline of the diamond combined with the facet arrangement.

Proportions: The relationships between the various parts of a diamond and the girdle diameter.

Finish: The quality of the surface condition of a diamond, the exactness of its shape and the arrangement of the facets.

The Definitions stated in the section “Terms and Definitions” or in other parts of this standard apply to this test method.

1.4 APPARATUS

The following apparatus is required:

1. Diamond loupe: An achromatic and aplanatic, triple type, 10x magnifying lens with a neutral coloured frame.

Note: A binocular microscope with a magnification of 10X may be used as an alternative.

2. An artificial light source: Ranging from D55 to D65 of the International Commission on Illumination (CIE) standard illuminant.
3. Sarin (or equivalent scanning device): An electronic scanning device to estimate the diamond's proportions.

1.5 TEST ITEM

The shape & cutting style, proportion and finish grading of diamond is a single unit test for a whole piece of test item in its entirety. Sampling of a number of test items to represent a batch of diamond

products shall not be permitted.

1.6 PROCEDURES

1.6.1 Shape & cutting style

1. Clean the test diamond scrupulously with a lint-free cloth.
2. Using a diamond loupe, identify the shape & cutting style with reference to table A which lists the common diamond shapes & cutting styles.

Note

A variety of other shapes & cutting style may exist. Laboratories may use terms to describe diamond shape & cutting style that differ from those listed in table A. However, approval from the GAHK /accreditation body is required before these terms can be used in a report.

The term “brilliant” without any additional description shall only be applied to round brilliant cut diamonds with 57 or 58 facets.

1.6.2 Proportions:

With the use of a Sarin (or equivalent scanning device), measure and record the diamond's proportion following these steps:

1. Clean the test diamond scrupulously with a lint-free cloth.
2. Open the cover.
3. Place the test diamond centrally on the detecting stage and close the cover.
4. Choose the according shape and cutting style.
5. Start the measurement.
6. Confirm the validity of results by checking the followings:

- The estimated weight shall not be over 0.05 carat of the measured weight.
- The measured girdle thickness and culet size shall be matched with the one viewed under a loupe or microscope.

The results are valid only if both the above conditions are met otherwise repeat steps 1-6.

7. Record the following measurements.
 - i. Girdle diameter:
The girdle diameter shall be the average of the maximum and minimum diameter measurement of the girdle diameter at different points for round diamonds, and shall be the width for fancy shapes. The girdle diameter shall be expressed in millimeter to 2 decimal places.

ii. Table size (Percentage):

The table size shall be the measurement of the table facet, expressed as a percentage of the average girdle diameter.

For round stones, table size measurements shall be taken from opposite corner-to-opposite-corner and expressed as an average of the four possible measurements.

For fancy shapes, table size measurements shall be taken when viewing the profile of the diamond along its length.

iii. Crown height (percentage) and/or crown angle (degrees):

For round stones:

The crown height shall be the average of eight measurements reflecting the distance from the upper girdle level to the level of the table facet, measured where the bezel/upper main facets and upper girdle level meet, and expressed as a percentage of the girdle diameter.

The crown angle shall be the average angle formed where the bezel/upper main facets and upper girdle plane meet.

For fancy shapes the crown height and angle measurements shall be taken when viewing the profile of the diamond along its length.

iv. Pavilion depth (percentage) and/or pavilion angle (degrees):

For round stones:

The pavilion depth shall be the average of eight measurements reflecting the distance from the lower girdle level to the level of the culet, measured where the pavilion/lower main facets meet the lower girdle level, and expressed as a percentage of the girdle diameter.

The pavilion angle shall be the average angle formed where the pavilion/lower main facets and lower girdle plane meet.

For fancy shapes the pavilion depth and angle measurements shall be taken when viewing the profile of the diamond along its length.

v. Total depth/height

The total depth shall be the distance between the table facet and the culet, expressed as a

percentage of the girdle diameter.

vi. Girdle thickness (percentage)

The thickness of the girdle shall be the average of 16 measurements reflecting the distance between the levels where the related lower and upper main facets meet the girdle and shall be expressed as a percentage of the girdle diameter, noting the minimum and maximum and/or the average percentage.

For fancy shapes, the girdle thickness measurements shall be taken when viewing the profile of the diamond along its length.

vii. Girdle thickness description

The girdle thickness description shall be examined where the upper and lower girdles facets meet under a 10X loupe and recorded the maximum and minimum thickness as follows:

Description	Guidelines
Extremely thin (ETN)	A sharp edge at 10X magnification, called a knife-edge
Very thin (VTN)	A Very thin line at 10X magnification
Thin (THN)	A think line at 10X magnification
Medium (MED)	A distinct line at 10X magnification
Slightly thick (STK)	Obvious at 10 X magnification
Thick (THK)	Very obvious at 10 X magnification
Very thick (VTK)	Distracting at 10X magnification
Extremely thick (ETK)	Very Distracting at 10X magnification

viii. Girdle condition

The nature of the girdle shall be recorded after examining the girdle with a 10X loupe and determining its classification as follows:

- Faceted, or
- Polished, or
- Bruted

ix. Culet size description and/ or measurement:

The culet size description shall be recorded after examining the culet using a 10X loupe and determining its classification as follows:

Description	Guidelines
None (NON)	Absent, or a white abraded or chipped point with no polished surface at 10X magnification
Very Small (VSM)	Barely distinguishable at 10 X magnification
Small (SML)	Difficult to see at 10X magnification
Medium (MED)	Distinct at 10X magnification
Slightly large (SLG)	Obvious at 10X magnification
Large (LRG)	Very obvious at 10X magnification
Very large (VLG)	Distracting at 10X magnification
Extremely large (ELG)	Very distracting at 10X magnification

The culet size shall be the culet diameter for round stones or the culet width for fancy shapes.

1.6.3 Finish

Finish includes the polish and symmetry of the diamond.

i. Polish

Polish refers to the quality of the surface condition of the facet and shall be graded under a 10X loupe following the Polish rating guidelines in Table B.

ii. Symmetry

Symmetry refers to the exactness of the shape of a diamond and the arrangement of the facets and shall be graded using a 10X loupe following the Symmetry rating guidelines in Table C.

For a diamond over 1.0 carat, the finish grading of diamonds shall be graded by two Diamond Graders recognized by the GAHK, with at least one of them being a GAHK Certified Gemmologist (Diamond). The results of the grading shall be consistent between the two graders; otherwise the grading process shall be repeated until consistency of the grading results can be obtained.

1.7 TEST REPORT

The report shall affirm that the test was carried out in accordance with this Standard. The shape & cutting style, proportion and finish grading should be reported as far as possible in conjunction with other test results such as authenticity identification, weight measurement, colour, fluorescence, clarity, and cut grading. In general, the test report shall include but not be limited to the following:

- (a) Identification number of the diamond.
- (b) Date of test.
- (c) Standard method of shape & cutting style, proportion and finish grading of diamond.
- (d) Reporting of the following Results:
 1. Description of Shape & Cutting style
 2. Proportion(s)
 - i. Girdle diameter
 - ii. Table size (percentage)
 - iii. Crown height (percentage) and/or crown angle (degrees)
 - iv. Pavilion depth (percentage) and/ or Pavilion angle (degrees)
 - v. Total depth/height
 - vi. Girdle thickness (percentage) (optional)
 - vii. Girdle thickness description
 - viii. Girdle condition
 - ix. Culet size description and/or culet size measurement
 3. Finish
 - i. Grading of Polish
 - ii. Grading of Symmetry
- (e) Name and signature of person responsible for testing.

Table B – Polish rating guidelines:

Category	Description	Possible Features (face-up at 10X magnification)
Excellent (Ex)	Ranges from a complete lack of polish features to a few minute features that can be located with difficulty face-up at 10X magnification	A few pits or nicks Small area with faint Transparent Polish lines (TP) Negligible scratches or abrasion
Very good (VG)	A few minor features seen face-up at 10X magnification	Several nicks or pits TP to limited number of moderate TP Small area of faint White Polish Lines (Wht) Few small areas of abrasion Several faint scratches or a few heavy white scratches Faint Lizard Skin Small Area showing very faint Burn mark (Brn)
Good (G)	Areas of noticeable features seen face-up at 10X magnification. Might affect the degree of lustre seen with unaided eye.	Abrasion Moderate to heavy TP Wht Many heavy scratches Lizard skin Brn
Fair (F)	Areas of obvious, heavy features readily seen face-up at 10X magnification. Affects the degree of lustre seen with unaided eye.	Heavy Brn or heavy Wht over most of the crown or pavilion
Poor (P)	Areas of prominent, heavy features seen face-up at 10X magnification. Significantly affects degree of lustre seen with the unaided eye.	Heavy Brn or heavy Wht over most of the diamond

Table C – Symmetry rating guidelines:

Category	Description	Possible Features (face-up at 10X magnification)
Excellent (Ex)	Ranges from no symmetry variations to minute symmetry variations that can be viewed with difficulty at 10X magnification	iii. Minute, barely visible misalignment, non-pointing, misshapen facets or extra facets
Very good (VG)	Minor symmetry variations seen face-up at 10X magnification	Slight table or culet off-centre or table-culet alignment Outline slightly off-round Minor misalignment, non-pointing, misshapen facet, or extra facets
Good (G)	Noticeable symmetry variations seen face-up at 10X magnification. The diamond's overall appearance might be affected when viewed with the unaided eye.	Any noticeable proportion variation, such as off-round, culet off-centre, table off-centre, table-culet alignment, wavy girdle, girdle thickness variation, crown angle variation, pavilion angle variation, table and girdle not parallel Many noticeable misaligned, non-pointed, misshapen, or extra facets Table not a regular octagon Missing facet(s), depending on size and location
Fair (F)	Obvious symmetry variations seen face-up at 10X magnification. The diamond's overall appearance is often affected when viewed with the unaided eyes	Any obvious proportion variation, such as out-of-round, culet off-centre, table off-centre, table-culet alignment, wavy girdle, girdle thickness variation, crown angle variation, pavilion angle variation, table and girdle not parallel Many obvious, misshapen or extra facets Misalignment or non-pointing on most facets An obvious missing facet, such as a missing bezel or main
Poor (P)	Prominent symmetry variations seen face-up at 10X magnification. The diamond's overall appearance is significantly affected when viewed with the unaided eye.	Any prominent proportion variation, such as off-round, culet off-centre, table off-centre, table-culet alignment, wavy girdle, girdle thickness variation, crown angle variation, pavilion angle variation, table and girdle not parallel Prominent facet distortion