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CUT GRADE

Proportions | Polish | Symmetry

2022

CERTIFICATION | EDUCATION
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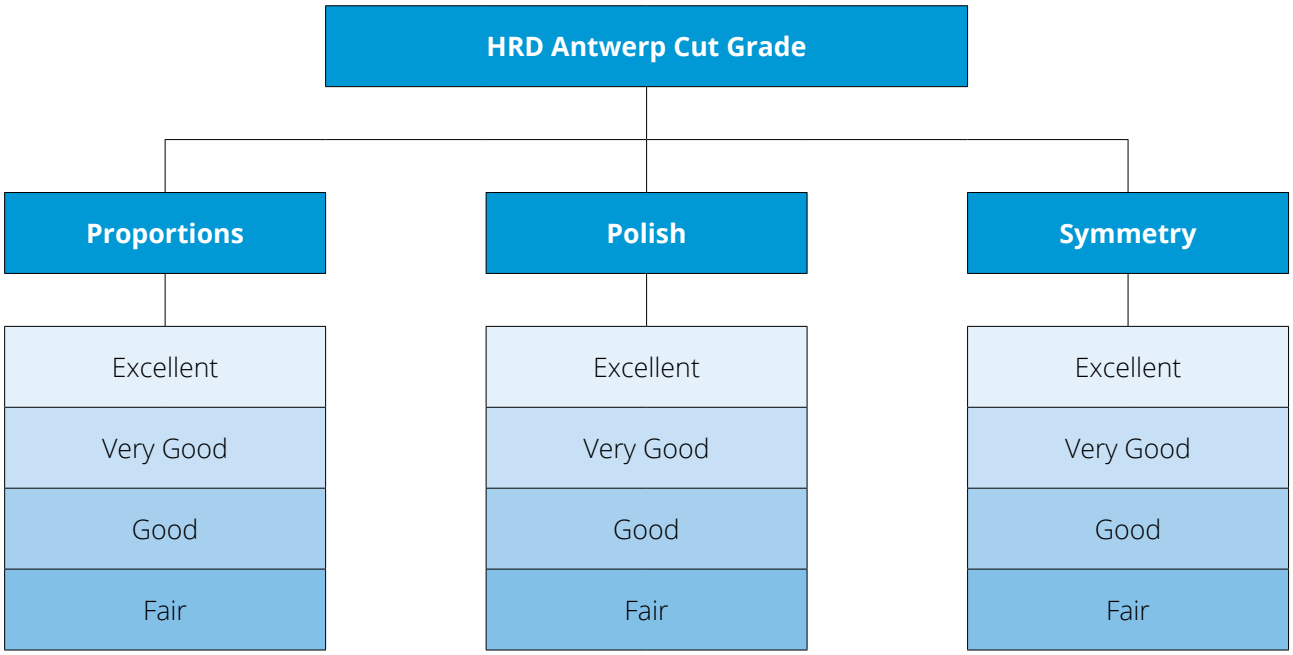
Definition of Cut Grade

The description of the Cut Grade on a grading report is subdivided into 3 grades: proportions, polish and symmetry. Each grade is divided into 4 categories: Excellent, Very Good, Good and Fair.

- The proportions are determinative for the brilliancy and the fire of the diamond.
- The polish describes the finish of the facets
- The symmetry describes the variations of the different parameters which define the proportions.



Proportions

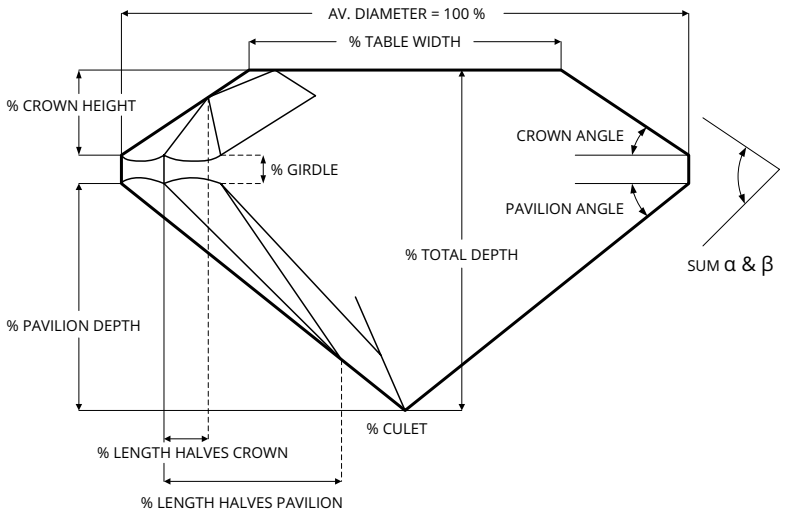
Determination of proportions

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.

Parameters that can characterize the proportions for the round brilliant

- The crown angle (β)
- The pavilion angle (α)
- The proportion of the table width to the diameter (% t)
- The proportion of the crown height to the diameter (% hc)
- The proportion of the pavilion depth to the diameter (% hp)
- The proportion of the girdle thickness to the diameter (% a)
- The culet size (% culet)
- The proportion of the total depth to the diameter (% td)
- The sum of the crown- and pavilion angle (α+β)
- The half length of the upper girdle facets
- The half length of the lower girdle facets
- The fish eye effect
- The effect culet visible in the bezels

Profile of a diamond and the different parameters



Proportions

Overview of the different parameters per category

	Fair	Good	Very Good	Excellent	Very Good	Good	Fair
Crown angle (β)	up to 25.9°	26.0 to 27.9°	28.0 to 31.2°	31.3 to 36.7°	36.8 to 38.2°	38.3 to 40.0°	40.1° and up
Pavilion angle (α)	up to 38.4°	38.5 to 39.5°	39.6 to 40.5°	40.6 to 41.8°	41.9 to 42.1°	42.2 to 43.1°	43.2° and up
Table width	up to 47 %	48 to 49 %	50 to 51 %	52 to 62 %	63 to 66 %	67 to 70 %	71 % and up
Crown height	up to 8.5 %	9.0 to 10.5 %	11.0 to 11.5 %	12.0 to 17.0 %	17.5 to 18.0 %	18.5 to 19.5 %	20.0 % and up
Pavilion depth	up to 39.5 %	40.0 to 41.0 %	41.5 to 42.5 %	43.0 to 44.5 %	45.0 %	45.5 to 46.5 %	47.0 % and up
Girdle	up to 0.5 %	1.0 to 1.5 %	2.0 %	2.5 to 4.5 %	5.0 to 5.5 %	6.0 to 7.5 %	8.0 % and up
Culet size				0.0 to 0.9 %	1.0 to 1.9 %	2.0 to 3.9 %	4.0 % and up
Total depth	up to 52.9 %	53.0 to 55.4 %	55.5 to 58.4 %	58.5 to 63.5 %	63.6 to 64.4 %	64.5 to 66.9 %	67.0 % and up
Sum α and β	up to 67.9°	68.0 to 69.9°	70.0 to 72.4°	72.5 to 77.7°	77.8 to 79.4°	79.5 to 80.4°	80.5° and up
Half crown	up to 25 %	30 %		35 to 55 %	60 %	65 %	70 % and up
Half pavilion	up to 55 %	60 %	65 %	70 to 85 %		90 %	95 % and up
Fish-eye effect				Excellent		Good	Fair
Culet in bezels				Excellent		Good	Fair

If the measurement results are classified in two different categories, the lowest proportion grade is considered to be the overall reading.

Effects that can be perceived when observing the stone perpendicular to the table

- **Fish Eye:** The reflection of the girdle is partially or completely visible in the table (small pavilion angle and a large table width).

- **Culet visible in the bezels:** The diamond shows an abnormal amount of scintillation, due to the culet and the surrounding facets being visible through the bezels (a large total depth and crown angle).

Proportions

Description of the girdle and influence on the proportions

Description of the girdle	Measured value	Proportion Grade
Extremely thin	0.0 – 0.5 %	Fair
Very thin	1.0 – 1.5 %	Good
Thin	2.0 %	Very Good
	2.5 %	Excellent
Medium	3.0 – 4.5 %	
	5.0 %	Very Good
Thick	5.5 %	
	6.0 %	Good
Very thick	6.5 – 7.5 %	
Extremely thick	8.0 % and up	Fair

The influence of the culet size on the proportions

Description of the culet	Culet Size	Proportion Grade
Pointed	0.0 % (< 0.033 mm)	Excellent
	0.1 % (0.033 mm) – 0.9 %	
	1.0 – 1.9 %	Very Good
	2.0 – 3.9 %	Good
Large	4.0 % and up	Fair

Polish

Polish defines all external characteristics of the diamond. These characteristics are mostly the result of polishing the diamond.

The characteristics being graded

- Scratches
- Percussion figures
- Beard
- Polishing lines
- Abraded facet edges
- Pit
- Burn marks
- Laser marks

Description of the polish

Polish	Observation with loupe 10x
Excellent	Characteristics, not or very difficult to find with a loupe 10x
Very Good	Characteristics, difficult to find with a loupe 10x
Good	Characteristics, easy to find with a loupe 10x
Fair	Characteristics, very easy to find with a loupe 10x

Symmetry

Determination of symmetry

The symmetry describes the variations of the different parameters which define the proportions.

Measurable deviations

Symmetry-deviations	Excellent	Very Good	Good	Fair
Unroundness	< 1.0 %	< 2.0 %	< 4.0 %	4.0 % and up
Variation in crown height	< 1.0 %	< 2.0 %	< 5.0 %	5.0 % and up
Variation in pavilion depth	< 2.0 %	< 3.0 %	< 6.0 %	6.0 % and up
Table out of centre	< 1.0 %	< 2.0 %	< 5.0 %	5.0 % and up
Culet out of centre	< 1.0 %	< 2.0 %	< 5.0 %	5.0 % and up
Table and culet out of centre	< 1.0 %	< 2.0 %	< 5.0 %	5.0 % and up
Variation on the table width	< 2.0 %	< 4.0 %	< 8.0 %	8.0 % and up
Single cut effect	< 0.8 %	< 2.0 %	< 4.0 %	4.0 % and up
Deviation on the crown angles	< 2.0°	< 4.0°	< 8.0°	8.0° and up
Deviation on the pavilion angles	< 1.0°	< 2.0°	< 4.0°	4.0° and up
Deviation on the angles of the lower girdle facets	< 1.0°	< 2.0°	< 4.0°	4.0° and up

Not measurable deviations

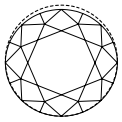
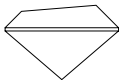
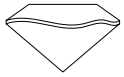
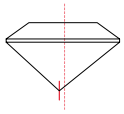
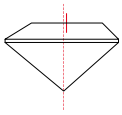
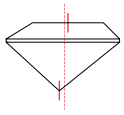
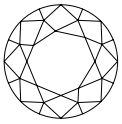
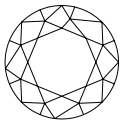
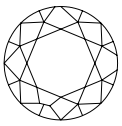
Visual deviations	Deviation of the bezels
	Deviation of the pavilions
	Cone-shaped girdle
	Misalignment
	Girdle partly faceted
	Bow tie effect
	Deviation on the girdle thickness (on max & min)
	Deviation on the angles of the upper girdle facets
	Naturals
	Extra facets

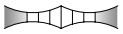
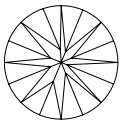
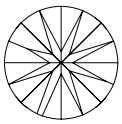
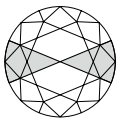
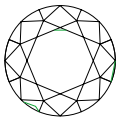
Information about the effects

Single Cut effect: The diamond looks as if it has less facets than are really present. A single cut effect is caused by the angles of the bezels / pavilions and the halves of the bezels / pavilions side.

Bow tie effect: Through the crown side, two dark zones in the shape of a bow tie can be seen.

Symmetry deviations

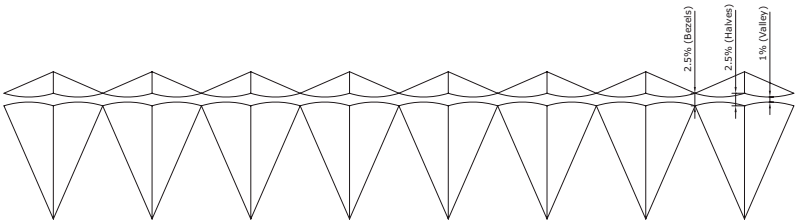
1. Girdle outline not circular	
2. Slanting table	
3. Sloping girdle	
4. Culet out of centre	
5. Table out of centre	
6. Table and culet out of centre in opposite direction	
7. Table and/or star facets not symmetrical	
10. Bezels not symmetrical	
12. Crown facets not pointing up	
13. Varying girdle thickness	
14. Single cut effect (due to alternating girdle thickness)	

15. Crown side not aligned to pavilion side	
16. Cone-shaped girdle	
17. Girdle partly faceted	
20. Pavilion facets not symmetrical	
22. Pavilion facets not pointing up	
23. Deviation on the bezel angles	
24. Deviation on the pavilion angles	
25. Deviation on the angles of the upper girdle facets	
26. Deviation on the angles of the lower girdle facets	
27 Bow-tie	
28 Naturals Extra facets	

Symmetry deviations

Different symmetry deviations of the girdle

Perfect symmetry



average (H) = 2.5%

average (B) = 2.5%

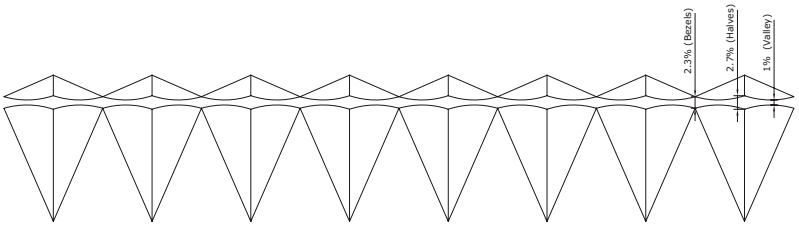
variation girdle height (B & H) = max (B&H) – min (B&H) = 2.5 – 2.5 = 0%

variation girdle height (V) = max (V) – min (V) = 1 – 1 = 0%

variation girdle height = max [variation girdle height (B & H) & variation girdle height (V)] = 0%

single cut = average (H) – average (B) = 2.5 – 2.5 = 0% (<0.8%) => Exc

Single cut effect



average (H) = 2.7%

average (B) = 2.3%

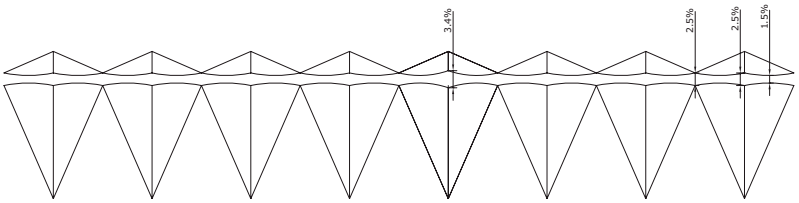
variation girdle height (B & H) = max (B&H) – min (B&H) = 2.7 – 2.3 = 0.4%

variation girdle height (V) = max (V) – min (V) = 1 – 1 = 0%

variation girdle height = max [variation girdle height (B & H) & variation girdle height (V)] = 0.4%

single cut = average (H) – average (B) = 2.7 – 2.3 = 0.4% (<0.8%) => Exc

Variation girdle height



average (H) = 2.6%

average (B) = 2.5%

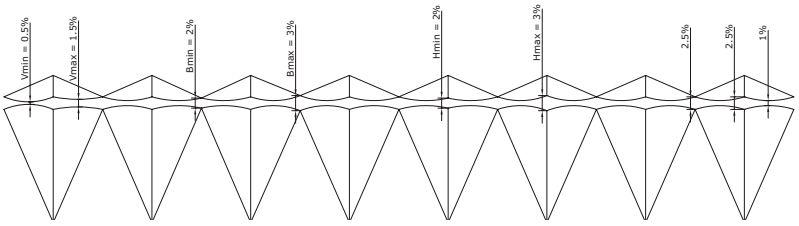
variation girdle height (B & H) = max (B&H) – min (B&H) = 3.4 – 2.5 = 0.9%

variation girdle height (V) = max (V) – min (V) = 1.5 – 1.5 = 0%

variation girdle height = max [variation girdle height (B & H) & variation girdle height (V)] = 0.9%

single cut = average (H) – average (B) = 2.6 – 2.5 = 0.1% (<0.8%) => Exc

Variation girdle height



average (H) = 2.5%

average (B) = 2.5%

variation girdle height (B & H) = max (B&H) – min (B&H) = 3 – 2 = 1%

variation girdle height (V) = max (V) – min (V) = 1.5 – 0.5 = 1%

variation girdle height = max [variation girdle height (B & H) & variation girdle height (V)] = 1%

single cut = average (H) – average (B) = 2.5 – 2.5 = 0% (<0.8%) => Exc

Illustrations: WTOCD

Conclusion

The proportion grade is based on the average of the measured values. If there is a large deviation on one or more values, the beauty of the diamond can be influenced. The table below shows the influence of symmetry and/or polish on the final proportion grade.

Pol. / Sym. / Proportions	**Excellent**	**Very Good**	**Good**	**Fair**
Excellent	Excellent	Excellent	Very Good	Good
Very Good	Very Good	Very Good	Very Good	Good
Good	Good	Good	Good	Good
Fair	Fair	Fair	Fair	Fair

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