

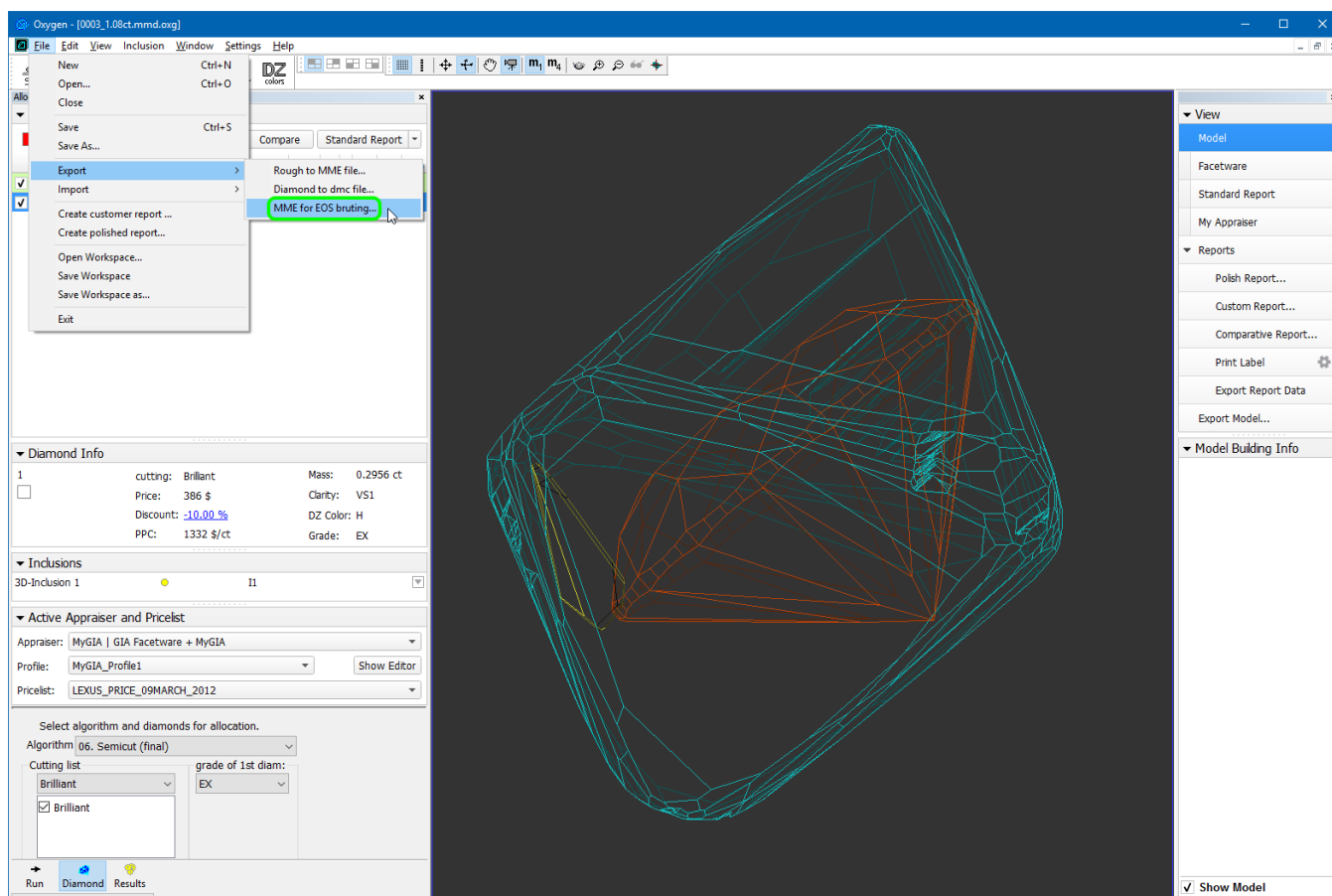
# 2017-04-10 - HPOxygen Server Beta 3.22.1

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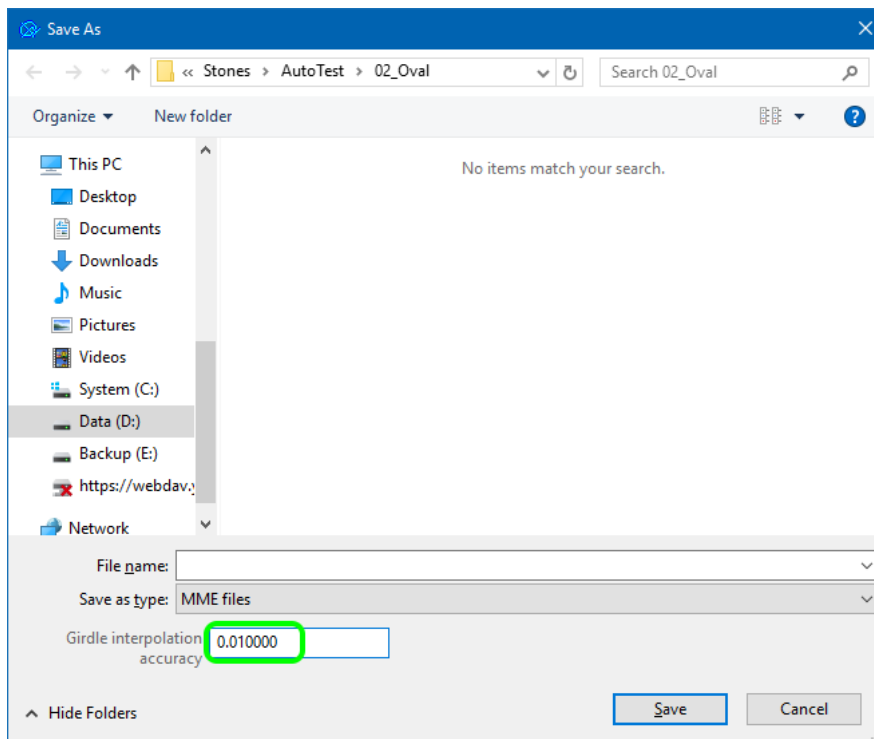
## Scanning

### Export of \*.mme for EOS brutung machines

Export of rough stones with recut solutions in \*.mme format for EOS brutung machines is enabled.

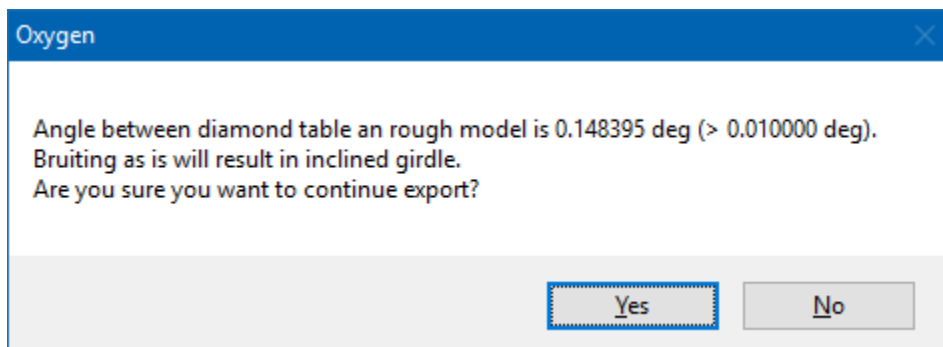


While exporting the \*.mme file, the user is prompted to specify the girdle interpolation accuracy in mm.



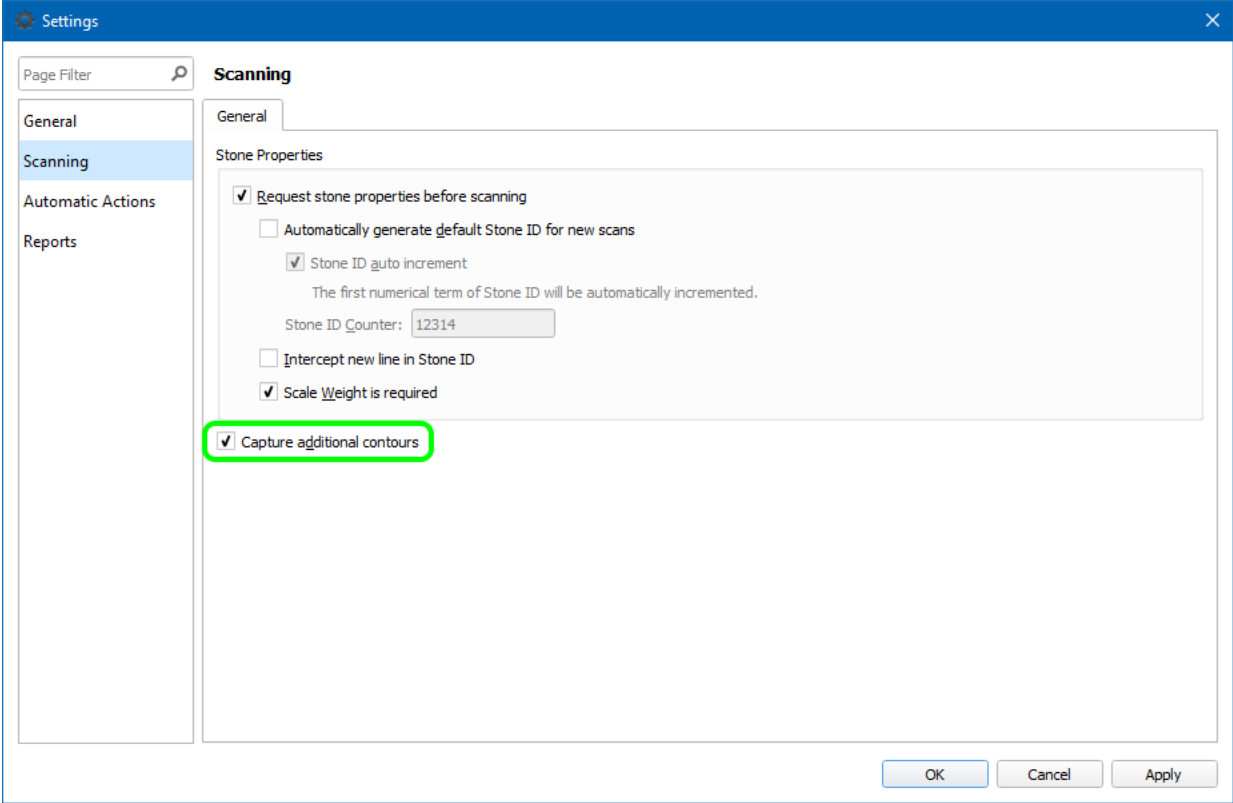
If the table of the rough stone can't be determined reliably, a warning message would pop up during export:

If the table of the rough stone is not parallel to that of the brilliant, another warning message would pop up:



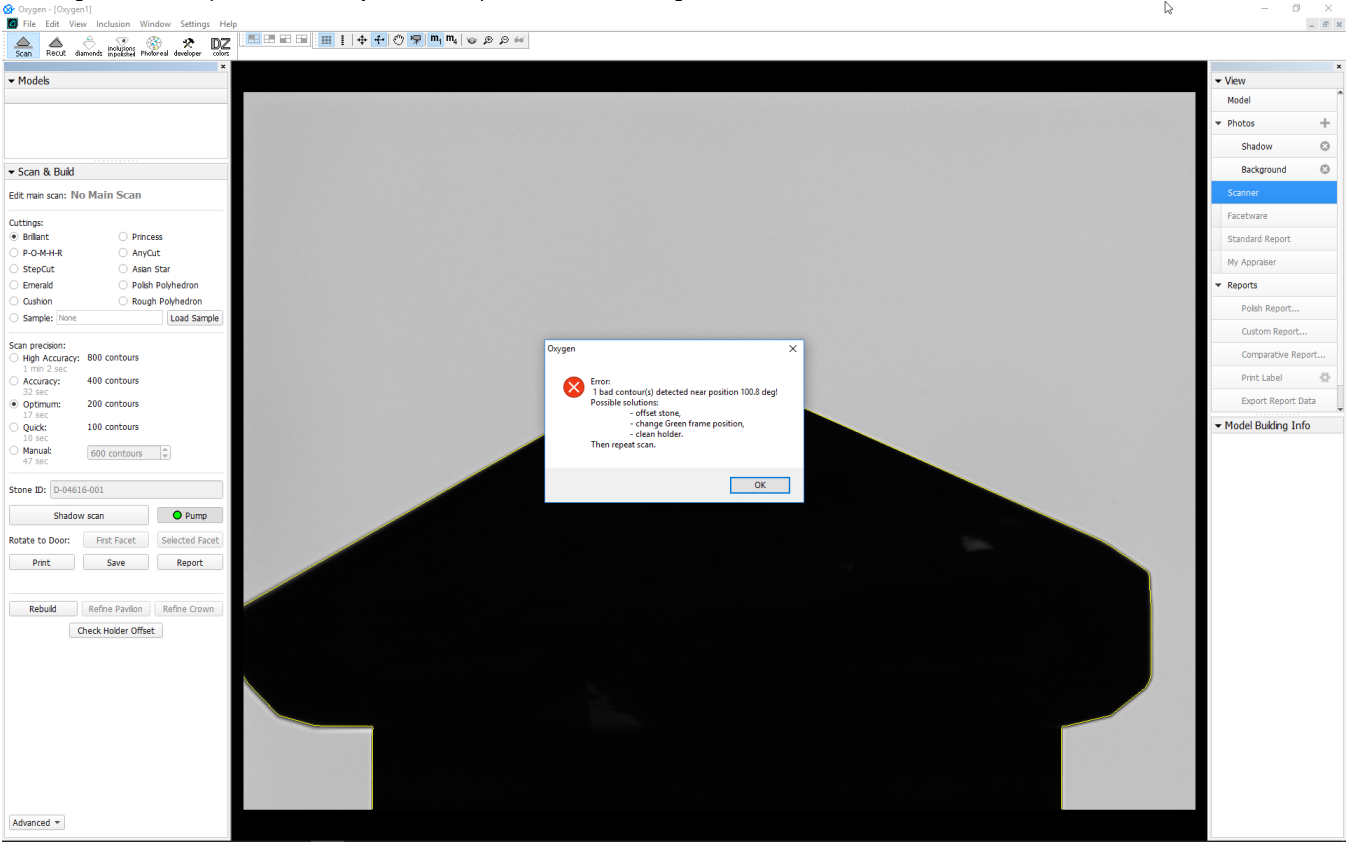
Additional contour disable option

Capturing of additional contours is made optional (enabled by default).  
If disabled, the scanning goes on without the additional contours, thus achieving acceleration at the cost of some precision.



### Automatic contour clipping control

Scanning is now interrupted automatically if the stone protrudes outside the green frame.





The same error occurs if any outside object enters the camera view field during scanning.

## Acceleration control

Maximum acceleration is now controlled via the configuration file. This is essential for scanning large stones, which may shift if the holder rotates too fast. To obtain the necessary settings, contact your distributor.

## Manual interruption of scanning

Shadow scanning can now be immediately interrupted by pressing the **Cancel** button.

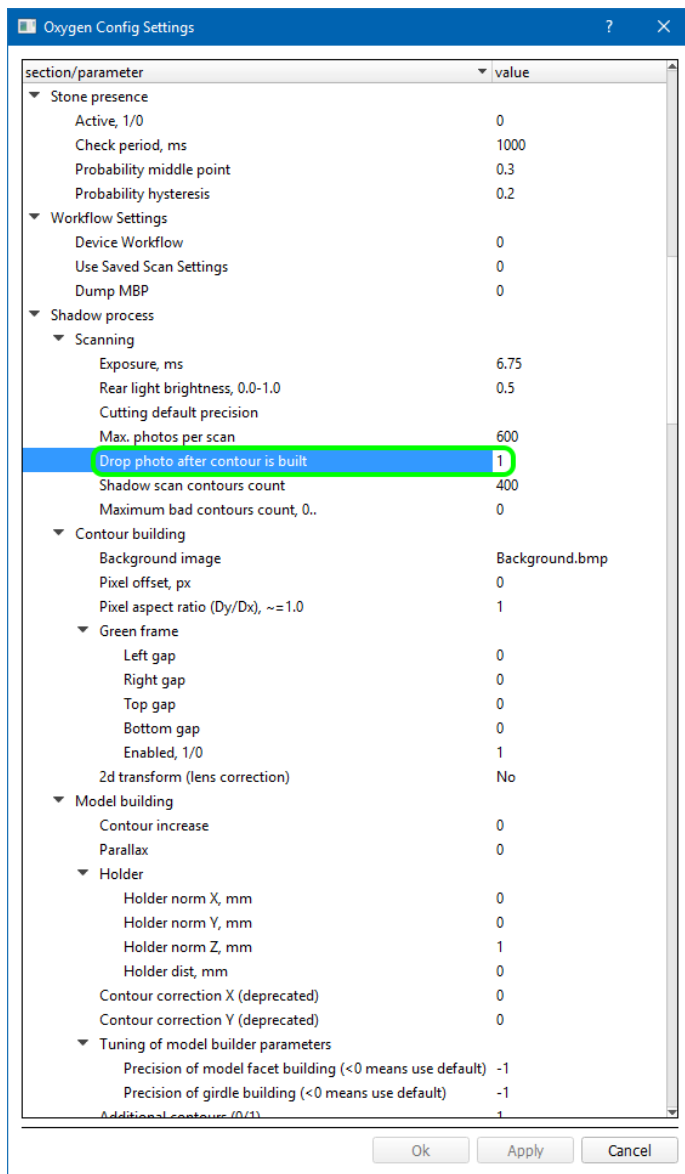
Previously the **Cancel** button only affected the additional contours, while the main contours were scanned regardless.

## Optional automatic discarding of photos

An option to delete photos is introduced (enabled by default).

If activated, the photos are removed on-the-fly, so as to save the memory. The viewing of problem edges from Model Build Info remains available, but the model and the contours are shown against the black background.

To save the photos for later viewing, disable this option. To do so, start HPOxygen with `/AlignmentMenu` command line option, go to **Settings Internal Configuration**, unfold **Shadow process Scanning**, locate the parameter called **Drop photo after contour is built**, and change its value to 0.



## Interface

### Clickable fields in Standard report

Fields with maximum/minimum values of certain parameters in the Standard report are made clickable.

Clicking on a field highlights the corresponding facet on the 3D model (either in Model or Photo view mode) so as to reveal the location where the selected value is reached.

Photo view mode	
-----------------	--

Standard Report

Settings

Print...

Quick Print

Cutting type

Brilliant

Model

Shadow scan

Spread

0.00 ct, -0.31 %

Scale weight, ct

Extra Facet Grille / Nat

No

Corrected mass, ct

0.54, 0.5483

Cut appraiser

Lexus\_Cut\_12FE82011

Cut grade

Symmetry appraiser

Symmetry

Sym grade

GD

Model building info

The model has small errors

Final grade

N/A

Parameter	Avg	GIA Rounded	Min	Max	Dev	Cut	Sym
Diameter, mm	5.299	To Do	5.280	5.299	0.37 %	GD	EX
Table, %	54.34	To Do	54.00	54.64	0.58	VG	EX
Crown angle, °	33.99	To Do	33.43	34.15	0.71	EX	VG
Pavilion angle, °	40.60	To Do	40.47	40.70	0.23	EX	EX
Star length, %	49.58	To Do	47.86	50.77	2.91	EX	VG
Lower grille length, %	80.45	To Do	78.35	81.60	3.24	—	EX
Grille bezel, %	3.14	To Do	2.89	3.37	0.48	EX	EX
Grille valley minimum, %	1.26	To Do	—	—	—	N/A	—
Grille valley maximum, %	2.81	To Do	—	—	—	N/A	—
Grille bone, %	3.35	To Do	3.01	3.75	0.74	—	VG
Culet, %	2.83	To Do	2.28	3.41	1.13	—	VG
Crown painting, °	1.07	To Do	—	3.36	4.86	N/A	EX
Pavilion painting, °	-0.48	To Do	—	-3.77	4.81	N/A	EX
Sum painting, °	0.59	To Do	—	—	—	N/A	EX
Crown height, %	15.38	To Do	15.07	15.71	0.65	VG	EX
Pavilion height, %	42.48	To Do	41.95	42.88	0.93	VG	—
Total height, %	61.00	To Do	—	—	—	EX	—
Total height, mm	3.227	To Do	—	—	—	—	—
Table offset, %	0.48	To Do	—	—	—	—	N/A
Culet offset, %	0.87	To Do	—	—	—	—	N/A
Table-culet offset, %	0.86	To Do	—	—	—	—	N/A
Star angle, °	21.90	To Do	21.28	22.20	0.92	—	EX
Upper grille angle, °	39.54	To Do	38.18	40.78	2.60	—	GD
Lower grille angle, °	41.79	To Do	41.50	42.34	0.84	—	EX
Facet twist, °	0.73	To Do	0.16	1.46	1.30	—	VG
Junction bezel twist, °	0.12	To Do	-0.06	0.85	1.81	—	—
Junction bone twist, °	-0.87	To Do	-0.40	0.22	0.62	—	—
Misalignment (ALA), °	0.96	To Do	—	—	—	—	N/A
2°radius roundness, %	—	To Do	—	—	—	—	EX
15°	0.38	To Do	—	—	—	—	EX
22.5°	0.43	To Do	—	—	—	—	EX
30°	0.44	To Do	—	—	—	—	EX
45°	0.49	To Do	—	—	—	—	EX
90°	0.58	To Do	—	—	—	—	EX
Model table edge, %	20.76	To Do	19.86	21.50	1.64	—	—
Table edge (TEV), %	20.80	To Do	20.02	21.50	1.47	—	N/A
Table edge junction, %	-0.21	To Do	-0.93	0.29	1.22	—	—
Table angle, °	135.9	To Do	133.9	136.1	2.2	—	—
Bezel width, %	28.57	To Do	27.89	29.25	1.36	—	—

Standard Report

Settings

Print...

Quick P

Cutting type

Spread

Extra Facet Grille / Nat

Cut appraiser

Symmetry appraiser

Model building info

Parameter	Avg	GIA Rounded	Min	Max	Dev	Cut	Sym
Diameter, mm							
Table, %							
Crown angle, °							
Pavilion angle, °							
Star length, %							
Lower grille length, %							
Grille bezel, %							
Grille valley minimum, %							
Grille valley maximum, %							
Grille bone, %							
Culet, %							
Crown painting, °							
Pavilion painting, °							
Sum painting, °							
Crown height, %							
Pavilion height, %							
Total height, %							
Total height, mm							
Table offset, %							
Culet offset, %							
Table-culet offset, %							
Star angle, °							
Upper grille angle, °							
Lower grille angle, °							
Facet twist, °							
Junction bezel twist, °							
Junction bone twist, °							
Misalignment (ALA), °							
2°radius roundness, %							
15°							
22.5°							
30°							
45°							
90°							
Model table edge, %							
Table edge (TEV), %							
Table edge junction, %							
Table angle, °							
Bezel width, %							



This feature is currently available only in the reports for Round brilliant and Any cut.

## Rotating selected facet to door

Selected facet may be rotated to the door. To select a facet, use the clickable fields in the Standard report (see above).

Stone ID: D-21474-001

Shadow scan

☒ Pump

Rotate to Door:

First Facet

Selected Facet

Print

Save

Report

## Configurable shortcuts

Shortcuts are made configurable.

[blocked URL](#)






## Explanatory tooltips

Parameters in MyAppraiser are now accompanied with illustrated definitions which are shown in a tooltip upon demand.

▼ Models

	Model	Mass	m	Gr	Cut	Sym
✓	Imported model	0.5083		GD	GD	VG

▼ Scan & Build

Edit main scan:     

Cuttings:  

☒ Brilliant

☐ P-O-M-H-R

☐ StepCut

☐ Emerald

☐ Cushion

☐ Sample:

☐ Princess

☐ AnyCut

☐ Asian Star


☐ Polish Polyhedron

☐ Rough Polyhedron

Stone ID:

Hardware not connected

GIA Facetware + MyGIA

Profile: MyGIA\_Profile1 

Cut

Symmetry

Parameter	Value	[ FR ]	[ GD ]	[ VG ]	[ EX ]	[ EX ]	[ VG ]	[ GD ]	[ FR ]
Table	61.575	10	46.5	49.5	51.5	62.5	66.5	69.5	99
CrownAngle	32.925	10	21.75	26.25	31.25	36.75	38.75	40.25	90
PavilionAngle	41.386	10	38.7	39.7	40.5	41.9	42.5	43.1	90
StarLength	49.797	10	32.5	37.5	42.5	67.5	72.5	77.5	90
LowerGirdleLength	77.748	50	57.5	62.5	67.5	87.5	92.5	97.5	99
GirdleBezel	5.598	0	1.25	1.75	2.25	4.75	5.75	7.25	20
GirdleValley	3.611	0	0	0	0.75	2.94	4.14	6.14	20
CrownHeight	12.523	5	10.5	12	12.3	15.5	17.5	18.5	40
TotalHeight	61.67	10	54	57	58	62.5	64	66	90
Culet	0.563	0	0	0	0	1	1.5	2	20
CrownPainting	0.407	-9	-6	-3	-2.5	2.5	5	7	20
PavilionPainting	0.143	-9	-5	-3	-2.5	2.5	4	6	20
SumPainting	0.55	-9	-6	-5	-3.5	5	8	10	20
GirdleAngleMax	4.181	0	0	0	0	2	4	6	20

Scanner mode made default

HPOxygen is set to switch to Scanner view mode automatically, if started on a project without model and with hardware available.

# Smart Recut

## Smart Recut for Oval

Smart Recut can now perform optimization of two cutting types: Round brilliant and Oval.

Each cutting type must be used with the dedicated appraiser: MyRound (formerly MyGIA) and MyOval, correspondingly.

To use SmartRecut with Oval as a target, follow these steps:

- 1. Select the appraiser called **MyOvalOpt | MyOval**:

A screenshot of a software interface showing a dropdown menu for selecting an appraiser. The menu is open, displaying a list of options. The option 'MyOvalOpt | MyOval' is highlighted with a blue background and a green rectangular border. Other visible options include 'HRD + Fancy | HRD + Fancy', 'HRD + Fancy(OctoNus) | HRD + Fancy(OctoNus)', 'HRD | HRD', 'HRD\_010109 | HRD\_010109', 'HRD\_H&A\_Boundaries | HRD\_H&A', 'IGI\_JAN09 | IGI\_JAN09', 'LEXUS\_All\_In\_One\_Boundaries | All\_In\_One', 'LEXUS\_SPEED\_03MAY07 | LEXUS\_SPEED\_03MAY07', and 'Lexus\_Opt\_12FEB2011 | Lexus\_Opt\_12FEB2011'. Below the dropdown, the 'Appraiser:' field shows 'MyOvalOpt | MyOval', the 'Profile:' field shows 'MyRound | GIA Facetware + MyRound', and the 'Pricelist:' field shows 'LEXUS\_PRICE\_09MARCH\_2012'.

- 2. Run the ordinary Recut with cutting type set to Oval (specifically, Oval\_WBT\_C32\_G64\_P24):

A screenshot of a dialog box titled 'Select algorithm and diamonds for allocation.' The 'Algorithm' dropdown is set to '13. Single-M'. The 'Cutting list' dropdown is open, showing a list of options: 'Oval', 'Manual selection', 'Main list', 'White list', 'Brilliant', and 'Oval'. The 'Oval' option at the bottom is highlighted with a blue background and a green rectangular border. To the right of the 'Cutting list' dropdown is a 'grade of 1st diam:' dropdown set to 'EX'. At the bottom of the dialog, there are three buttons: 'Run', 'Diamond', and 'Results'. The 'Run' button is highlighted with a green rectangular border.

A screenshot of the 'Cutting list' dropdown menu. The dropdown is open, showing a list of options. The option 'Oval\_WBT\_C32\_G64\_P24' is checked with a green checkmark and highlighted with a green rectangular border. Other visible options include 'Oval', 'Manual selection', 'Main list', 'White list', and 'Brilliant'.



3. Select the obtained solution and switch to the algorithm **13. SmartRecut (Brilliant, Oval)**:

Select algorithm and diamonds for allocation.

Algorithm **13. SmartRecut (Brilliant, Oval)** ▼

☐ Allow

☐ Fix G

13. Single-M

08. Single.Flex

08. Single

06. Single

06. Semicut

06. Semicut (final)

**13. SmartRecut (Brilliant, Oval)**


All presets ▼

symmetry:

EX ▼

If the appraiser doesn't match the cutting type of the starting solution, a warning message will pop up:

Oxygen ×

 Please activate solution with Oval parametric diamond as start form for SmartRecut.

OK

4. Click **Run**. A series of eight solutions will be produced, according to presets.

Smart Recut for Oval relies on its own presets, which have the same overall meaning as those for Brilliant, but use a different set of parameters.

Cut	Symmetry										
Parameter	Grade	Value	[ FR ]	[ GD ]	[ VG ]	[ EX ]	EX ]	VG ]	GD ]	FR ]	
GirdleRatio	EX	1.396	1.1	1.25	1.28	1.3	1.4	1.45	1.5	2.25	
SquareDeviation	EX	2.991	-10	-5	-3	-1.5	3	6	9	14	
Table	EX	57.113	50	52	52	54	63.5	65	67	70	
CrownAngle	EX	35.996	28	30	31	32	36	38	40	45	
CrownHeight	EX	15.963	8	10	11	12	16	17	18	20	
PavilionAngle	EX	41.995	35	39	40	40.5	42	43	44	48	
PavilionHeight	EX	43.929	34	40.4	41.7	42.5	45	46.6	48.3	55.5	
GirdleBezel	EX	4.422	1.6	1.8	2	2.2	4.5	5.5	6.5	9	
LowerGirdleLength	EX	77.008	50	65	70	77	82	85	90	99	
TotalHeight	EX	64.313	50	55	56.5	58	64.5	67	69.5	75	
Culet	EX	1.056	0	0	0	0	1.2	2	2.5	3.5	

Smart Recut for Oval is currently incompatible with the options of Extra Facet (see below) and Fixed Girdle.

## Smart Recut with Extra Facets

SmartRecut with Extra Facets is now available.  
To allow the solutions having this feature, check **Allow Girdle Extra Facets** on the Recut panel before running Smart Recut:

Select algorithm and diamonds for allocation.

Algorithm **13. SmartRecut (Brilliant, Oval)** All presets


☒ **Allow Girdle Extra Facets**

☐ Fix Girdle

☐ Fix Crown

☐ Fix Pavilion

grade of 1st diam: EX symmetry: EX

 Note that extra facets are incompatible with the option of fixed parts (Fixed Girdle, etc.)

The number of extra facets and their maximum height are introduced as parameters in MyAppraiser.

GirdleAngleMax	EX	0	0	0	0	0	2	4	6	20
HeightGirdleExtraFacet	EX	0	0	0	0	0	5	6	7	20
GirdleCrownExtraFacets	EX	0	0	0	0	0	0	2	4	20
GirdlePavilionExtraFacets	EX	0	0	0	0	0	1	2	6	20
GirdleExtraFacets	EX	0	0	0	0	0	2	4	8	20

## Smart Recut in multi-diamond solutions

Smart Recut in multi-diamond solutions is improved.

## Reports

### Label reports

Label report processing is updated. Custom label reports from previous versions of HPOxygen, if any, may be displayed incorrectly.

Correct

Print Label Settings

Printer: Send To OneNote 2013 Online

Cutting: Brilliant

Template: CUSTOM\_LABEL\_REPORT.HTML

Enhanced precision: 0 digits Hide Preview Print Report

OK Cancel

Parameter	Avg	Min	Max	Dev
Diameter	5.062	5.056	5.069	0.013
Crn angle	32.93	32.82	33.09	0.27
Crn hgt	12.52	12.17	12.96	0.78
Star, %	49.80	48.81	51.12	2.31
Pav angle	41.39	41.00	41.76	0.76
Pav dpth	43.56	43.16	43.89	0.72
Pav halv, %	77.75	74.69	79.98	5.29
Girdle, %	5.60	5.08	6.24	1.16
Table, %	61.58	61.55	61.62	0.07
Star ang	18.92	18.71	19.15	0.44

Culet, %	0.56
Tot. hgt, %	61.68
Tot. hgt, mm	3.122
Weight, ct	0.50
G-C off, %	0.35 ± 0.14
G-T off, %	0.46 ± 0.11
T-C off, %	0.32 ± 0.15

Brilliant diamond\_00005  
10.04.2017 18:22

Print Label Settings

Printer: HP 1600N (HP LaserJet Professional P1606dn) Online

Cutting: Brilliant

Template: CUSTOM\_LABEL\_REPORT.HTML

Enhanced precision: 0 digits Hide Preview Print Report

OK Cancel

## Precision controls

Standard report is enabled with a precision control that allows producing reports with enhanced precision of up to 3 extra decimal digits.

Standard Report

Settings | Print... | Quick Print

Cutting: Oval

Template: Standard Report for rounded fancies

Enhanced precision: 0 digits

Label report is also enhanced with a similar control.

Print Label Settings

Printer: Send To OneNote 2013  
Online

Cutting: Oval

Template:

LABEL\_REPORT\_FOR\_ROUNDED\_FANCIES.HTML

LABEL\_REPORT\_FOR\_ANY\_CUT.HTML

LABEL\_REPORT\_FOR\_OVAL\_MARQUISE.HTML

Enhanced precision: 0 digits

Hide Preview Print Report

OK Cancel

## Lower Facet Length for Cushion

Lower Facet Length parameter is added for Cushion cuts.


It is defined as the projected distance from the junction of the main pavilion facets to the corresponding side of the girdle, and reported separately for all four sides.

Reported in	Section	Values	Units	Bookmarks
Full Report for Cushion	Main Parameters	Avg, Min, Max, Dev at each direction	Both % (diameter) and mm	LOWER_FACET_LENGTH_0_AVG, LOWER_FACET_LENGTH_0_MIN, LOWER_FACET_LENGTH_0_MAX, LOWER_FACET_LENGTH_0_DEV, LOWER_FACET_LENGTH_90_AVG, LOWER_FACET_LENGTH_90_MIN, LOWER_FACET_LENGTH_90_MAX, LOWER_FACET_LENGTH_90_DEV, LOWER_FACET_LENGTH_180_AVG, LOWER_FACET_LENGTH_180_MIN, LOWER_FACET_LENGTH_180_MAX, LOWER_FACET_LENGTH_180_DEV, LOWER_FACET_LENGTH_270_AVG, LOWER_FACET_LENGTH_270_MIN, LOWER_FACET_LENGTH_270_MAX, LOWER_FACET_LENGTH_270_DEV
	Detailed Parameters	Individual values (2 at each direction)	Both % (diameter) and mm	LOWER_FACET_LENGTH_0_1, LOWER_FACET_LENGTH_0_2, LOWER_FACET_LENGTH_90_1, LOWER_FACET_LENGTH_90_2, LOWER_FACET_LENGTH_180_1, LOWER_FACET_LENGTH_180_2, LOWER_FACET_LENGTH_270_1, LOWER_FACET_LENGTH_270_2

## Crown Main Width and Crown Main Length facets for Cushion

For a non-standard Cushion cut having four Crown Main Width and four Crown Main Length facets, all four individual measurements for their slopes, azimuths, and heights are now reported.

Reported in	Section	Values	Units	Bookmarks
Full Report for Cushion	Detailed Parameters	Individual values #3, 4	°	CRN_MAIN_WIDTH_ANGLE_DEG_3, CRN_MAIN_WIDTH_ANGLE_DEG_4, CRN_MAIN_WIDTH_AZIMUTH_DEG_3, CRN_MAIN_WIDTH_AZIMUTH_DEG_4, CRN_MAIN_WIDTH_HEIGHT_PC_3, CRN_MAIN_WIDTH_HEIGHT_PC_4, CRN_MAIN_WIDTH_HEIGHT_MM_3, CRN_MAIN_WIDTH_HEIGHT_MM_4, CRN_MAIN_LENGTH_ANGLE_DEG_3, CRN_MAIN_LENGTH_ANGLE_DEG_4, CRN_MAIN_LENGTH_AZIMUTH_DEG_3, CRN_MAIN_LENGTH_AZIMUTH_DEG_4, CRN_MAIN_LENGTH_HEIGHT_PC_3, CRN_MAIN_LENGTH_HEIGHT_PC_4, CRN_MAIN_LENGTH_HEIGHT_MM_3, CRN_MAIN_LENGTH_HEIGHT_MM_4


 Note that the Avg, Min, Max, and Dev values for these parameters were already calculated correctly before this change. All four individual measurements were taken into account. Also, the missing measurements were correctly displayed on the pictures.

## Miscellaneous

- 1. Tolerance thresholds (modelEps, girdleEps) are now correctly interpreted during import of models from \*.nmd files.  
Usage of non-default values of these thresholds in HP Pacor could lead to different model built from the same contours, as compared to HPOxygen.
- 2. Inclusion clarity can now be set in HPO.

## Bugfixes

- 1. Memory leaks are fixed and memory consumption improved.
- 2. HASP messages after the Demo license ends are fixed.
- 3. Erroneous discount for fancy cuts is fixed.
- 4. Capture of focus upon hovering mouse cursor over a 3D scene is fixed.
- 5. Bug that prevented the usage of Smart Recut with fixed parts (Fixed Girdle, etc.) is resolved.

 Note that Smart Recut with fixed parts can't be used in multi-diamond solutions.

- 6. Bug that occasionally prevented SmartRecut from working in multi-diamond solutions is fixed.
- 7. Erroneous estimation of camera FPS is fixed.
- 8. Failure to refine models with acute angle between adjacent facets is fixed.
- 9. Bug that caused occasional false positives in stone shift check for large stones having facets with low slopes is fixed.