


# Reflect Scan

 To use this feature, you must have the appropriate hardware: **Helium Crown Reflect** and **Helium Pavilion Reflect** scanners.

*Reflect Scan* is a technology that uses reflection imaging to achieve greater precision than the one provided by the [Shadow Scan](#). Reflect scanning requires two separate hardware pieces and two stages of operation:


On this page:


1 Pavilion Scanning

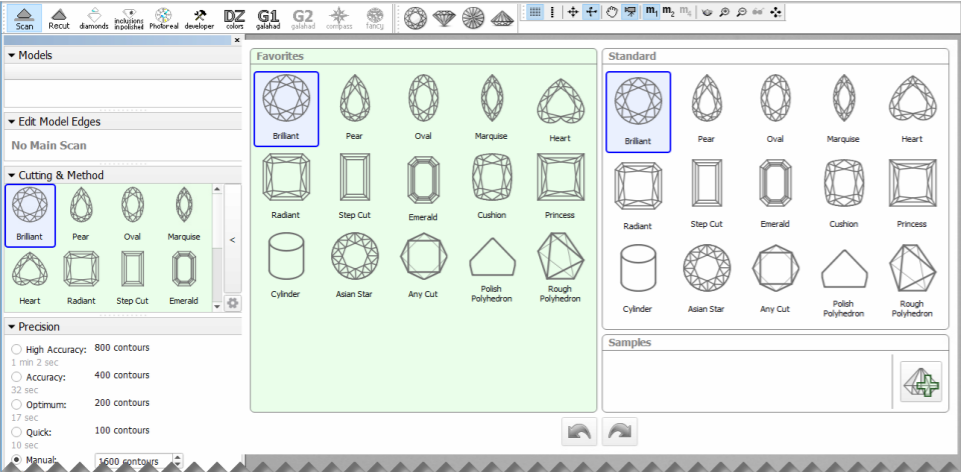
2 Crown Scanning


## Pavilion Scanning

To run the shadow scanning of the whole stone and the reflect scanning of the pavilion, perform the following steps:

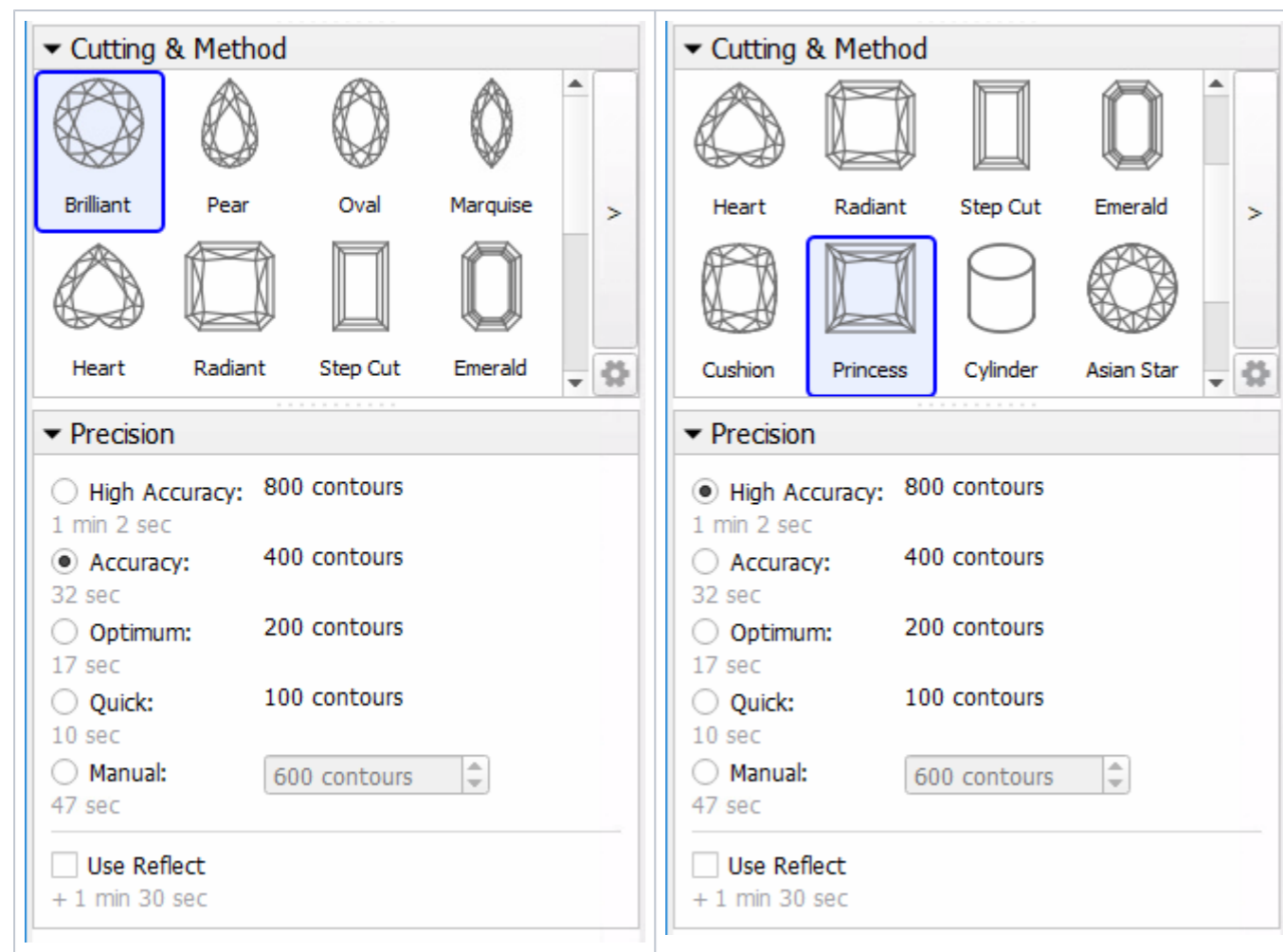
1. Mount the stone in the **Helium Pavilion Reflect** scanner.
2. Start **HP Oxygen**.
3. Use the  mode.
4. On the left panel, in the **Cutting & Method** section, do one of the following:

- a. select the appropriate cutting type from the predefined list
- b. expand the list, then, use of the samples from the **Samples** section or click  to load a new sample



 A sample can be loaded from a file ( \* .dmc, \* .mmc, or \* .gem). Once loaded, it remains in your list of models (see [Models management](#) ) under the name **Sample**.

5. Under **Precision**, select the desired precision.  
HPOxygen stores the most recent precision setting for each particular cutting type separately. The stored precision setting is applied automatically whenever the cutting type selection is changed. In a typical workflow, it is recommended to scan round brilliants with 400 contours and Princess cuts with 800 contours since the latter cutting contains more facets with a nearly similar orientation which requires higher precision to resolve.



Note that you may also enter a custom number of contours. This requires switching the panel to **Advanced** mode with the dropdown switch down below:

▼ Cutting & Method

Brilliant Pear Oval Marquise

Heart Radiant Step Cut Emerald

▼ Precision

☐ High Accuracy: 800 contours  
1 min 2 sec

☐ Accuracy: 400 contours  
32 sec

☐ Optimum: 200 contours  
17 sec

☐ Quick: 100 contours  
10 sec

☒ Manual: 1600 contours  
2 min 2 sec

☐ Use Reflect  
+ 1 min 30 sec

▼ Scan & Build

Stone ID:

Shadow scan Pavilion Reflect Scan

Check Holder Offset

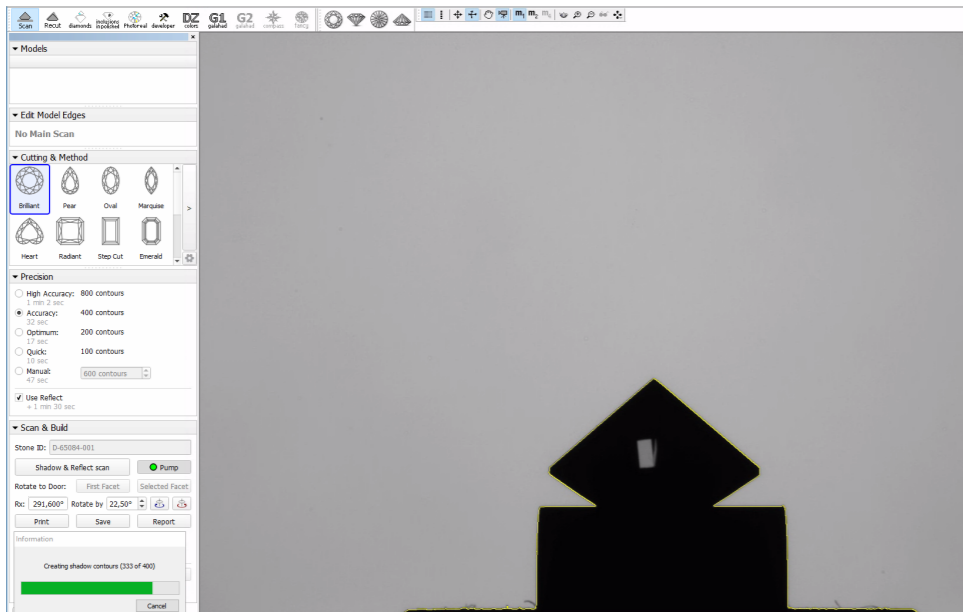
Advanced

6. To perform shadow and reflect scanning sequentially, check **Use Reflect**.

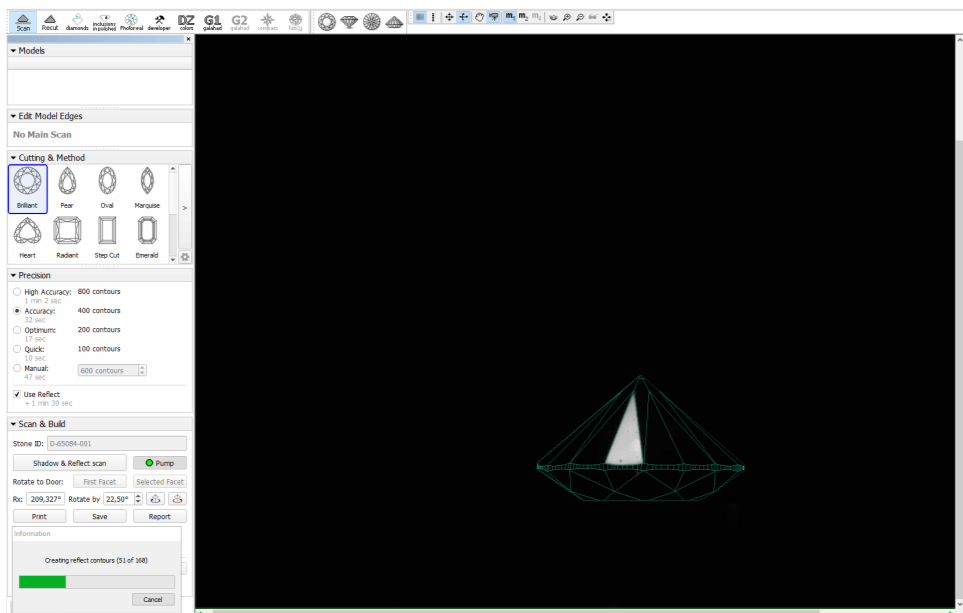
✓ Alternatively, you can perform shadow and reflect scanning separately: uncheck **Use Reflect**, then use the **Shadow scan**, then **Pavilion Reflect Scan** buttons separately.

7. Click **Shadow & Reflect scan** to start scanning. You may or may not be prompted to enter the Stone ID and Measured weight, depending on the settings (see [Entering Stone ID and Measured Weight](#) for more details).  
The following operations will proceed automatically:

- As the shadow scan progresses, the shadow photos of the model in different orientations are taken and displayed on the screen, together with overlaid contours and a progress bar.



- b. After the shadow scan is completed, the model is built based on the scanned contours.
- c. The next step is pavilion reflect scanning. The stone is lighted from above and oriented so that a reflection from one particular facet may be observed. Then a few photos are made at slightly different orientations. This is done with each pavilion facet in turn. As the scanning progresses, new photos are displayed on the screen, together with the complete model (built from shadow contours) and a progress bar. The photos of the reflect scan are saved and can be reviewed later.



- d. After the reflect scan is completed, the model is refined based on the reflection data. Both shadow and reflect models appear in the list (see [Models management](#) for more details on working with multiple models).

8. Save the model (optionally, together with the photosets).

Some post-scan operations may be initiated via the **Scan & Build** section. Switch between **Basic** and **Advanced** set of operations using the button at the bottom of the section. Operations are the same as for Shadow Scan (see the [Post Scan Operations](#) section there).

▼ Scan & Build

Stone ID:

Shadow scan

☐ Pump

Rotate to Door: 

First Facet

Selected Facet

Rx:  Rotate by 

↕

↻

↻

Print

Save

Report

Pavilion Reflect Scan

Rebuild

Refine Pavilion

Refine Crown

Check Holder Offset

Advanced ▼

Some of the actions can also be set up to be performed automatically after scanning (see [Automatic Actions](#)).

## Crown Scanning

To run the reflect scanning of the crown, perform the following steps:

1. Mount the stone in the **Helium Crown Reflect** scanner.
2. Transfer the saved project to the computer controlling the **Helium Crown Reflect** scanner.
3. Start **Helium Polish Oxygen** and open the project.

Scan

Recut

diamonds

inclusions  
inpolished

Photoreal

developer

DZ  
colors

▼ Models

|                                     | Model                   | Mass   | illo | Sym-O | G   |
|-------------------------------------|-------------------------|--------|------|-------|-----|
| <input type="checkbox"/>            | Shadow scan             | 0.5449 |      | +6.69 | VG- |
| <input checked="" type="checkbox"/> | Pavilion Reflect scan 2 | 0.5445 |      | +6.75 | VG  |

▼ Edit Model Edges

✖

+

🔒

+

🔗

↺

↻

↻

► Precision: 400 contours (32 sec)

▼ Scan & Build

Load model...

Stone ID:

Crown Reflect scan

Print

Save

Report

Capture background

Rebuild

Refine Pavilion

Refine Crown

Advanced ▼

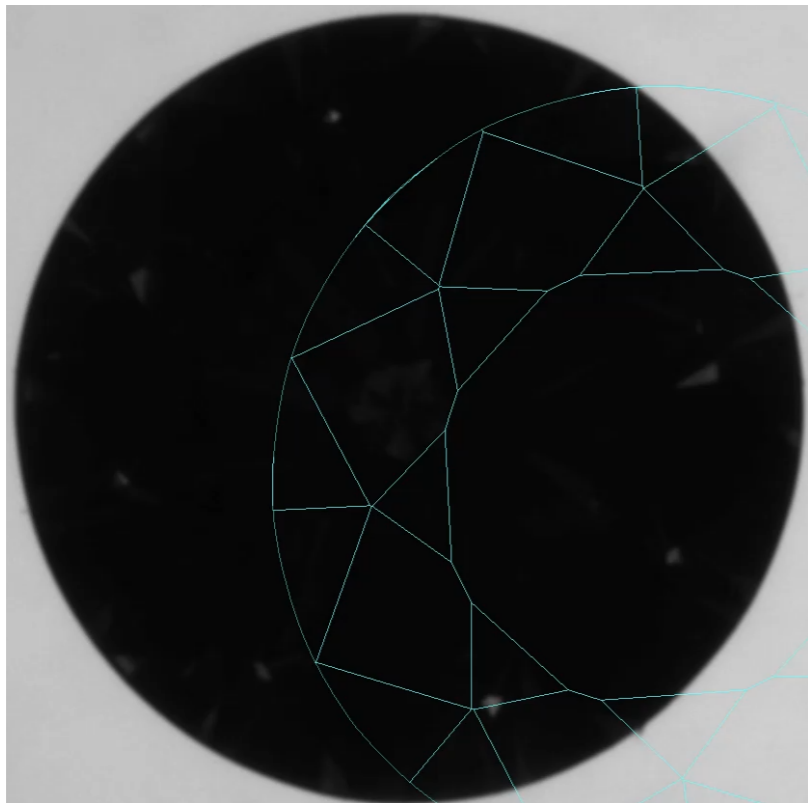


#### Notes

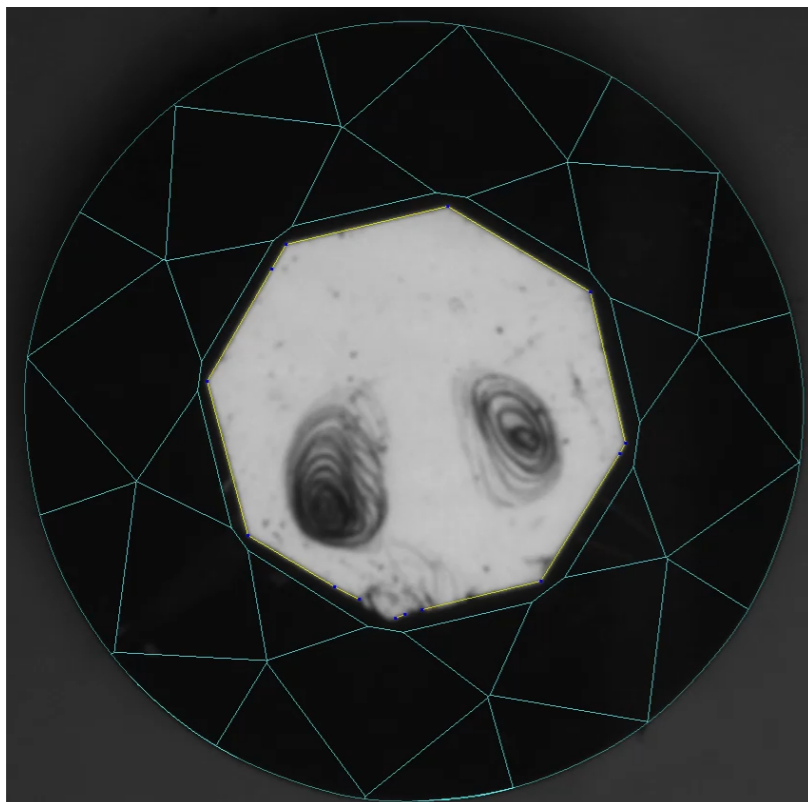
- Pay your attention to the absence of cutting type selection. Crown reflect scanning is solely intended to refine an existing model, and not to proceed from scratch.
- In your project, the current Main Scan will be used as the basis for lighting and building the improved model.

4. Click **Crown Reflect scan** to start scanning. The following operations will proceed automatically:

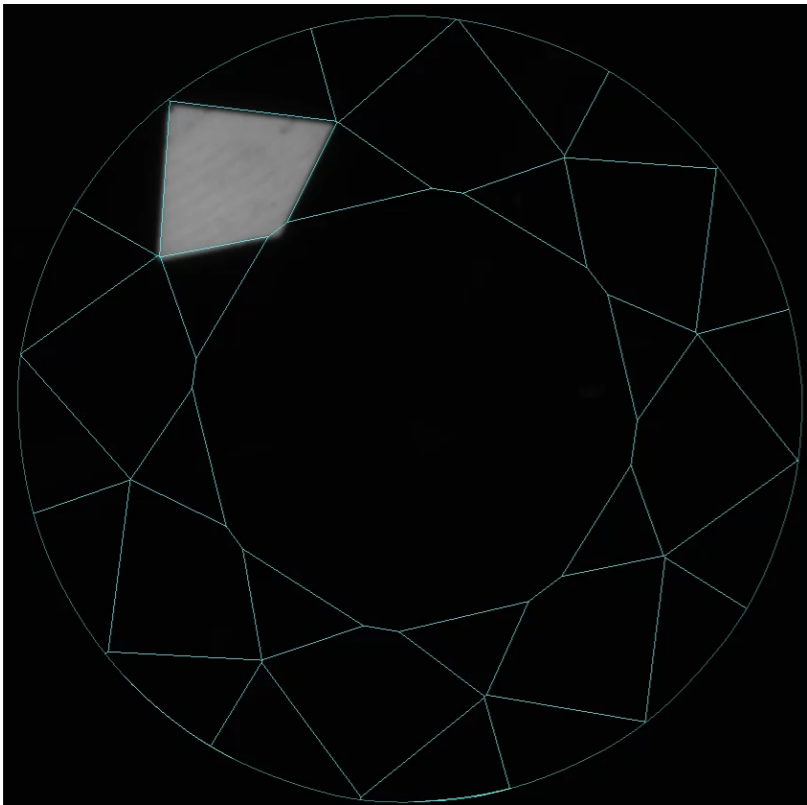
a. A shadow photo is taken in order to determine the orientation of the stone.



b. A reflection photo of the table is taken to further adjust the orientation.



c. The stone is lighted from below at different angles so as to observe a reflection from each particular facet in turn. The photos of the crown reflect scan are saved and can be reviewed later.



 Crown reflect scanner is capable of highlighting the facets with slope < 40°.

d. After the crown reflect scan is completed, the model is refined based on the new reflection data. Now the list will contain a shadow model and two reflect models (see [Models management](#) for more details on working with multiple models).

2. In case if the scanning failed to resolve edges between some nearly coplanar facets, or, conversely, produced some artificial edges, edit the model manually by adding or removing edges (see [Model Adjustment](#) for more details on the procedure).

Some post-scan operations may be initiated via the **Scan & Build** section. Switch between **Basic** and **Advanced** set of operations using the button at the bottom of the section. The Crown Reflect scan shares available operations with the Shadow Scan (see the [Post Scan Operations](#) section there).

▼ Scan & Build

Load model...

Stone ID: D-65084-001

Crown Reflect scan

Print

Save

Report

Capture background

Rebuild

Refine Pavilion

Refine Crown

Advanced ▼