**附件2：标准圆形钻石（Round Brilliant Cut）几何构型简介**

常见的标准圆形钻石一般有57-58个切割面，而58和57钻石切面的区别就在于底尖是否切磨成面。本次模型采用的是57个刻面模型。

图片包含 多边形

AI 生成的内容可能不正确。

钻石切面包括：

1个台面（八边形）

8个星刻面（三角形）

8个冠部主刻面（风筝面）

16个上腰刻面（近似三角形的扇形）

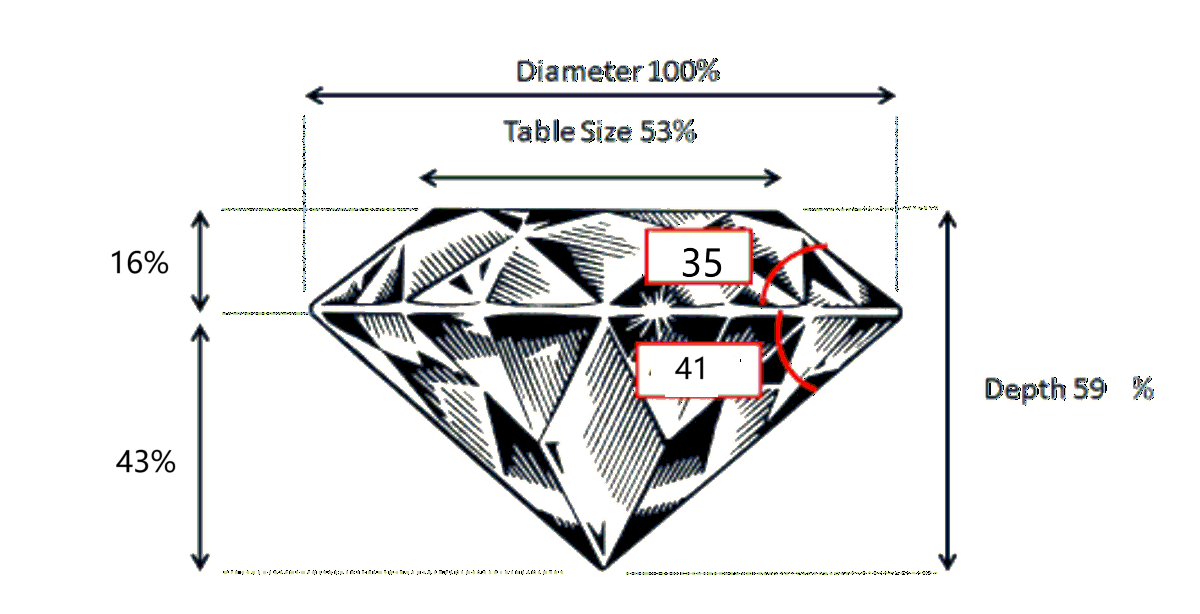
16个下腰刻面（近似三角形的长扇形）

8个亭部主刻面（三角形）

|  |  |  |  |
| --- | --- | --- | --- |
| 1个台面（八边形） | | | |
| 1 | 0.24482808 | 0.101411 | 0 |
| 1 | 0.10141111 | 0.244828 | 0 |
| 1 | -0.1014111 | 0.244828 | 0 |
| 1 | -0.2448281 | 0.101411 | 0 |
| 1 | -0.2448281 | -0.101411 | 0 |
| 1 | -0.1014111 | -0.244828 | 0 |
| 1 | 0.10141111 | -0.244828 | 0 |
| 1 | 0.24482808 | -0.101411 | 0 |
| 8个星刻面（三角形） | | | |
| 1 | 0.24482808 | 0.101411 | 0 |
| 1 | 0.10141111 | 0.244828 | 0 |
| 1 | 0.25986174 | 0.259862 | -0.08 |
| 2 | 0.10141111 | 0.244828 | 0 |
| 2 | -0.1014111 | 0.244828 | 0 |
| 2 | 0.00E+00 | 0.3675 | -0.08 |
| 3 | -0.1014111 | 0.244828 | 0 |
| 3 | -0.2448281 | 0.101411 | 0 |
| 3 | -2.60E-01 | 0.259862 | -0.08 |
| 4 | -0.2448281 | 0.101411 | 0 |
| 4 | -0.2448281 | -0.101411 | 0 |
| 4 | -3.68E-01 | 0 | -0.08 |
| 5 | -0.2448281 | -0.101411 | 0 |
| 5 | -0.1014111 | -0.244828 | 0 |
| 5 | -2.60E-01 | -0.259862 | -0.08 |
| 6 | -0.1014111 | -0.244828 | 0 |
| 6 | 0.10141111 | -0.244828 | 0 |
| 6 | 0.00E+00 | -0.3675 | -0.08 |
| 7 | 0.10141111 | -0.244828 | 0 |
| 7 | 0.24482808 | -0.101411 | 0 |
| 7 | 2.60E-01 | -0.259862 | -0.08 |
| 8 | 0.24482808 | -0.101411 | 0 |
| 8 | 0.24482808 | 0.101411 | 0 |
| 8 | 3.68E-01 | 0 | -0.08 |
| 8个冠部主刻面（风筝面） | | | |
| 1 | 0.24482808 | 0.101411 | 0 |
| 1 | 0.3675 | 0 | -0.08 |
| 1 | 4.62E-01 | 0.191342 | -0.16 |
| 1 | 0.25986174 | 0.259862 | -0.08 |
| 2 | 0.10141111 | 0.244828 | 0 |
| 2 | 0.25986174 | 0.259862 | -0.08 |
| 2 | 1.91E-01 | 0.46194 | -0.16 |
| 2 | 0 | 0.3675 | -0.08 |
| 3 | -0.1014111 | 0.244828 | 0 |
| 3 | 0 | 0.3675 | -0.08 |
| 3 | -1.91E-01 | 0.46194 | -0.16 |
| 3 | -0.2598617 | 0.259862 | -0.08 |
| 4 | -0.2448281 | 0.101411 | 0 |
| 4 | -0.2598617 | 0.259862 | -0.08 |
| 4 | -4.62E-01 | 0.191342 | -0.16 |
| 4 | -0.3675 | 0 | -0.08 |
| 5 | -0.2448281 | -0.101411 | 0 |
| 5 | -0.3675 | 0 | -0.08 |
| 5 | -4.62E-01 | -0.191342 | -0.16 |
| 5 | -0.2598617 | -0.259862 | -0.08 |
| 6 | -0.1014111 | -0.244828 | 0 |
| 6 | -0.2598617 | -0.259862 | -0.08 |
| 6 | -1.91E-01 | -0.46194 | -0.16 |
| 6 | 0 | -0.3675 | -0.08 |
| 7 | 0.10141111 | -0.244828 | 0 |
| 7 | 0 | -0.3675 | -0.08 |
| 7 | 1.91E-01 | -0.46194 | -0.16 |
| 7 | 0.25986174 | -0.259862 | -0.08 |
| 8 | 0.24482808 | -0.101411 | 0 |
| 8 | 0.25986174 | -0.259862 | -0.08 |
| 8 | 4.62E-01 | -0.191342 | -0.16 |
| 8 | 0.3675 | 0 | -0.08 |
| 16个上腰刻面（近似三角形） | | | |
| 1 | 0.3675 | 0 | -0.08 |
| 1 | 0.46193977 | -0.191342 | -0.16 |
| 1 | 5.00E-01 | 0 | -0.16 |
| 2 | 0.3675 | 0 | -0.08 |
| 2 | 0.5 | 0 | -0.16 |
| 2 | 0.46193977 | 0.191342 | -0.16 |
| 3 | 2.60E-01 | 0.259862 | -0.08 |
| 3 | 0.46193977 | 0.191342 | -0.16 |
| 3 | 0.35355339 | 0.353553 | -0.16 |
| 4 | 2.60E-01 | 0.259862 | -0.08 |
| 4 | 0.35355339 | 0.353553 | -0.16 |
| 4 | 0.19134172 | 0.46194 | -0.16 |
| 5 | 0.00E+00 | 0.3675 | -0.08 |
| 5 | 0.19134172 | 0.46194 | -0.16 |
| 5 | 0 | 0.5 | -0.16 |
| 6 | 0.00E+00 | 0.3675 | -0.08 |
| 6 | 0 | 0.5 | -0.16 |
| 6 | -0.1913417 | 0.46194 | -0.16 |
| 7 | -2.60E-01 | 0.259862 | -0.08 |
| 7 | -0.1913417 | 0.46194 | -0.16 |
| 7 | -0.3535534 | 0.353553 | -0.16 |
| 8 | -2.60E-01 | 0.259862 | -0.08 |
| 8 | -0.3535534 | 0.353553 | -0.16 |
| 8 | -0.4619398 | 0.191342 | -0.16 |
| 9 | -3.68E-01 | 0 | -0.08 |
| 9 | -0.4619398 | 0.191342 | -0.16 |
| 9 | -0.5 | 0 | -0.16 |
| 10 | -3.68E-01 | 0 | -0.08 |
| 10 | -0.5 | 0 | -0.16 |
| 10 | -0.4619398 | -0.191342 | -0.16 |
| 11 | -2.60E-01 | -0.259862 | -0.08 |
| 11 | -0.4619398 | -0.191342 | -0.16 |
| 11 | -0.3535534 | -0.353553 | -0.16 |
| 12 | -0.2598617 | -0.259862 | -0.08 |
| 12 | -0.3535534 | -0.353553 | -0.16 |
| 12 | -0.1913417 | -0.46194 | -0.16 |
| 13 | 0.00E+00 | -0.3675 | -0.08 |
| 13 | -0.1913417 | -0.46194 | -0.16 |
| 13 | 0 | -0.5 | -0.16 |
| 14 | 0.00E+00 | -0.3675 | -0.08 |
| 14 | 0 | -0.5 | -0.16 |
| 14 | 0.19134172 | -0.46194 | -0.16 |
| 15 | 2.60E-01 | -0.259862 | -0.08 |
| 15 | 0.19134172 | -0.46194 | -0.16 |
| 15 | 0.35355339 | -0.353553 | -0.16 |
| 16 | -0.2598617 | -0.259862 | -0.08 |
| 16 | 0.35355339 | -0.353553 | -0.16 |
| 16 | 0.46193977 | -0.191342 | -0.16 |
| 16个下腰刻面（近似三角形） | | | |
| 1 | 0.46193977 | -0.191342 | -0.16 |
| 1 | 0.5 | 0 | -0.16 |
| 1 | 0.16666667 | 0 | -0.446667 |
| 2 | 0.5 | 0 | -0.16 |
| 2 | 0.46193977 | 0.191342 | -0.16 |
| 2 | 0.16666667 | 0 | -0.446667 |
| 3 | 0.5 | 0 | -0.16 |
| 3 | 0.46193977 | 0.191342 | -0.16 |
| 3 | 0.16666667 | 0 | -0.446667 |
| 4 | 0.35355339 | 0.353553 | -0.16 |
| 4 | 0.19134172 | 0.46194 | -0.16 |
| 4 | 0.11785113 | 0.117851 | -0.446667 |
| 5 | 0.35355339 | 0.353553 | -0.16 |
| 5 | 0.19134172 | 0.46194 | -0.16 |
| 5 | 0.11785113 | 0.117851 | -0.446667 |
| 6 | 3.0616E-17 | 0.5 | -0.16 |
| 6 | -0.1913417 | 0.46194 | -0.16 |
| 6 | 1.0205E-17 | 0.166667 | -0.446667 |
| 7 | -0.1913417 | 0.46194 | -0.16 |
| 7 | -0.3535534 | 0.353553 | -0.16 |
| 7 | -0.1178511 | 0.117851 | -0.446667 |
| 8 | -0.3535534 | 0.353553 | -0.16 |
| 8 | -0.4619398 | 0.191342 | -0.16 |
| 8 | -0.1178511 | 0.117851 | -0.446667 |
| 9 | -0.4619398 | 0.191342 | -0.16 |
| 9 | -0.5 | 2.83E-16 | -0.16 |
| 9 | -0.1666667 | 2.04E-17 | -0.446667 |
| 10 | -0.5 | 2.83E-16 | -0.16 |
| 10 | -0.4619398 | -0.191342 | -0.16 |
| 10 | -0.1666667 | 2.04E-17 | -0.446667 |
| 11 | -0.4619398 | -0.191342 | -0.16 |
| 11 | -0.3535534 | -0.353553 | -0.16 |
| 11 | -0.1178511 | -0.117851 | -0.446667 |
| 12 | -0.3535534 | -0.353553 | -0.16 |
| 12 | -0.1913417 | -0.46194 | -0.16 |
| 12 | -0.1178511 | -0.117851 | -0.446667 |
| 13 | -0.1913417 | -0.46194 | -0.16 |
| 13 | -9.185E-17 | -0.5 | -0.16 |
| 13 | -3.062E-17 | -0.166667 | -0.446667 |
| 14 | -9.185E-17 | -0.5 | -0.16 |
| 14 | 0.19134172 | -0.46194 | -0.16 |
| 14 | -3.062E-17 | -0.166667 | -0.446667 |
| 15 | 0.19134172 | -0.46194 | -0.16 |
| 15 | 0.35355339 | -0.353553 | -0.16 |
| 15 | 0.11785113 | -0.117851 | -0.446667 |
| 16 | 0.35355339 | -0.353553 | -0.16 |
| 16 | 0.46193977 | -0.191342 | -0.16 |
| 16 | 0.11785113 | -0.117851 | -0.446667 |
| 8个亭部主刻面（近似四边形） | | | |
| 1 | 0.46193977 | 0.191342 | -0.16 |
| 1 | 0.11785113 | 0.117851 | -0.446667 |
| 1 | 0 | 0 | -0.59 |
| 1 | 0.16666667 | 0 | -0.446667 |
| 2 | 0.19134172 | 0.46194 | -0.16 |
| 2 | 1.0205E-17 | 0.166667 | -0.446667 |
| 2 | 0 | 0 | -0.59 |
| 2 | 0.11785113 | 0.117851 | -0.446667 |
| 3 | -0.1913417 | 0.46194 | -0.16 |
| 3 | -0.1178511 | 0.117851 | -0.446667 |
| 3 | 0 | 0 | -0.59 |
| 3 | 1.0205E-17 | 0.166667 | -0.446667 |
| 4 | -0.4619398 | 0.191342 | -0.16 |
| 4 | -0.1666667 | 2.04E-17 | -0.446667 |
| 4 | 0 | 0 | -0.59 |
| 4 | -0.1178511 | 0.117851 | -0.446667 |
| 5 | -0.4619398 | -0.191342 | -0.16 |
| 5 | -0.1178511 | -0.117851 | -0.446667 |
| 5 | 0 | 0 | -0.59 |
| 5 | -0.1666667 | 2.04E-17 | -0.446667 |
| 6 | -0.1913417 | -0.46194 | -0.16 |
| 6 | -3.062E-17 | -0.166667 | -0.446667 |
| 6 | 0 | 0 | -0.59 |
| 6 | -0.1178511 | -0.117851 | -0.446667 |
| 7 | 0.19134172 | -0.46194 | -0.16 |
| 7 | 0.11785113 | -0.117851 | -0.446667 |
| 7 | 0 | 0 | -0.59 |
| 7 | -3.062E-17 | -0.166667 | -0.446667 |
| 8 | 0.46193977 | -0.191342 | -0.16 |
| 8 | 0.16666667 | 0 | -0.446667 |
| 8 | 0 | 0 | -0.59 |
| 8 | 0.11785113 | -0.117851 | -0.446667 |

上述离散模型是基于以下参数生成：

|  |  |
| --- | --- |
| 台面尺寸-Table size % | 0.53 |
| 冠部深度比例 crown\_height % | 0.43 |
| 亭部深度比例 pavilion\_depth % | 0.16 |
| 冠角度 | 35° |
| 亭角度 | 41° |
| 腰带厚度 | 无 |
| 底部刻面 | 无 |



**提示：** 在软件MATLAB中绘制三角形或者多边形表面的常见命令有trisurf和patch，其具体用法如下：

* trisurf(T,x,y,z) 绘制由向量 x、y 和 z 中的点以及三角连接矩阵 T 定义的三维三角曲面。T是个ne\*3的矩阵，x,y,z是np\*1的向量，这里np表示的点个数，ne表示三角面片个数。

示例：

|  |
| --- |
| % 定义空间中的点  xyz = [0, 0, 0; % (x1, y1, z1)  1, 0, 0; % (x2, y2, z2)  1, 1, 0; % (x3, y3, z3)  0, 1, 0; % (x4, y4, z4)  0.5, 0.5, 1]; % (x5, y5, z5)  % 定义三角形面片  tris = [1, 2, 3;  1, 3, 4;  1, 4, 5;  2, 3, 5;  3, 4, 5;  1, 2, 5];  % 绘制三角形曲面  figure;  trisurf(tris,xyz(:,1),xyz(:,2),xyz(:,3)) |

* patch(xyz, faces) 绘制一个由xyz表示坐标，faces表示多边形面片的三维曲面。

示例：

|  |
| --- |
| %三棱柱的绘制  %所有的顶点  xyz=[0, 0, 0; % 顶点1  1, 0, 0; % 顶点2  0.5, 0.5, 0; % 顶点3  0, 0, 1; % 顶点4  1, 0, 1; % 顶点5  0.5, 0.5, 1]; % 顶点6  %两个顶面和底面  face1=[1, 2, 3;  4, 5, 6]  %三个侧面  face2 = [1, 2, 5, 4;  2, 3, 6, 5;  3, 1, 4, 6];  % 绘制多面体  figure;  hold on;  % 绘制底面  patch('Vertices', xyz, 'Faces', face1, 'FaceColor', 'cyan');  %绘制侧面  patch('Vertices', xyz, 'Faces', face2, 'FaceColor', 'green'); |