In[ ]:=

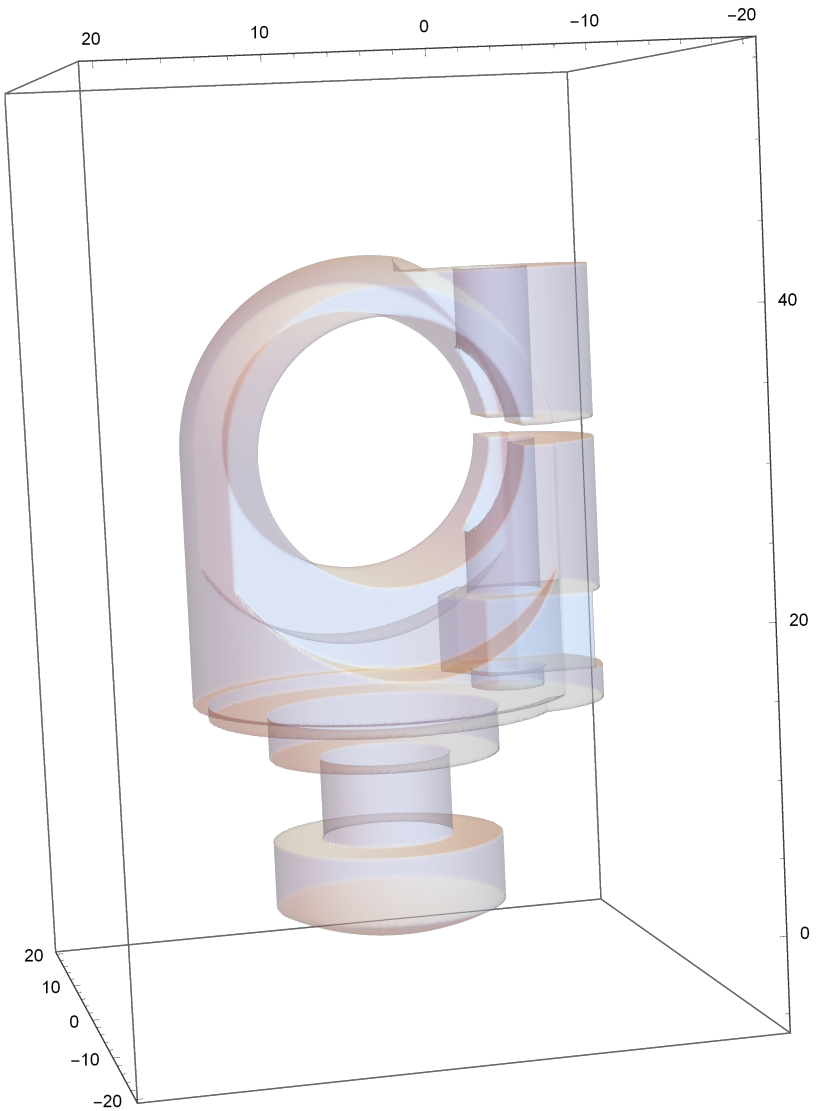
```
(*unit:   millimeters*)
d0 = 15.6; h0 = 4.5;  (*云台凸部*)
d1 = 8.8; h1 = 5.6;
d2 = d0; h2 = 3;
H = h0 + h1 + h2 + 30.7; (*总高度*)  DoH = 25.5;(*云台凸部以上*)
D0 = 17.7; H0 = 13.4;(*主轴凹部*)
ZoD0 = H - DoH / 2;(*凹部中心坐标  (0,0,ZoD0)*)
doD0 = (DoH - D0) / 2;(*凹部外圈厚度*)
yoS = -D0 / 2;(*螺丝y坐标*)
doS = 5;(*螺丝孔直径*)
dRoS = 4;(*螺丝孔外厚度*)
H4 = H - 1.2;(*螺丝孔入口处高度*)
coS = 1.3;(*缺口高度*)
LoS = 22;(*螺丝孔深*)
Lon = 5.2;(*螺母厚度*)
don = 8.1;(*螺母宽度*)
```

In[ ]:=

```
modle = RegionPlot3D[
  ((x^2 + y^2 ≤ (d0 / 2)^2 && h0 + h1 + h2 + 2 - √((2 + h0 + h1 + h2 + 2)^2 - x^2 - y^2) ≤
        z ≤ h0) || (x^2 + y^2 ≤ (d1 / 2)^2 && 0 ≤ z - h0 ≤ h1) ||
     (x^2 + y^2 ≤ (d0 / 2)^2 && 0 ≤ z - h0 - h1 ≤ h2) (*云台凸部*)
     || (x^2 + y^2 ≤ (DoH / 2 - 1)^2 && 0 ≤ z - (h0 + h1 + h2) ≤ 1) ||
     ((x^2 + y^2 ≤ (DoH / 2)^2 && h0 + h1 + h2 + 1 ≤ z ≤ Sqrt[(DoH / 2)^2 - x^2 - y^2] + ZoD0
         (*云台凸部以上 大块*)
          || (x^2 + (y - yoS)^2 <= (doS / 2 + dRoS)^2 && h0 + h1 + h2 <= z ≤ H4  )
         (*螺丝孔壁*) ) && y^2 + (z - ZoD0)^2 ≥ (D0 / 2)^2 (*挖去主轴凹部*) &&
       ! (Abs[x] > H0 / 2 && z - (ZoD0 - 1.5) ≥ -Sqrt[(DoH / 2)^2 - y^2])
       (*挖去凹部两侧*) && ! (x^2 + (y - yoS)^2 <= (doS / 2 + dRoS)^2 && z > H4) ) )
   && ! ( x^2 + (y - yoS)^2 < (doS / 2)^2 && z > H4 - LoS - Lon - 1.3) (*挖去螺丝孔内*)
   && ! (Abs[z - (H4 - LoS / 2)] < coS / 2 && y < 0) (*挖走C型 缺口*)
   && ! (y - (yoS + don / √3) < -x / √3 && y - (yoS + don / √3) < x / √3 &&
      Abs[x] < don / 2 && H4 - LoS - Lon < z < H4 - LoS) (*挖走螺母孔内*)


  , {x, -20, 20}, {y, -20, 20}, {z, -5, 55},
  PlotPoints → 300, (*精度*)
  PlotStyle → Directive[LightBlue, Opacity[0.3]],
  Mesh → None, ImageSize → Medium, BoxRatios → {40, 40, 60}]
```

Out[ ]=



In[ ]:= **Printout3D[modle, "D:\\model3D.stl", TargetUnits → "Millimeters"]**

Out[ ]=

Status	Successful
Image	
Size	26.6 mm × 29.3 mm × 47.7 mm
FileName	File[D:\model3D.stl »]
Report	…