

让Fusion CAM实践设计端与 制造的多层次衔接

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About the speaker

康仕旻 / Kang ,Shih-Min

创业初期利用废弃的建筑木料，设计与委托制造智能型手机之木制外壳。因为制造端无法突破良率与精准度，最后走向独立设计与制造的结合。另外，长期关注废弃木材与环保的议题，而创立数字化木工社团。

希望借由本次的分享，唤起大家对于废弃木材与环保议题的重视，进而推动传统木艺迈进数字化的时代。

章节

1 :FUSION 360加速我与团队之间的效率

- 毫无阻隔的云端沟通 (沟通，测量，回覆，分享)
- 设计与制造的过去是与现在式
- 设计与制造的联动只要三分钟

2 :掌握学习步骤，制造不在遥不可及

- 掌握三大方向，三大步骤
- 工作坐标系就是定义加工原点
- 毛胚设置的重要性
- 多元刀具库 (LOCAL,云端)
- 选择适合的切削数据
- 切削数据与工法的连接 (动画)

3 :分门别类的切削模块，适合不同的设计体

- 2D切削是藉由设计体的点、线、面进行计算 (动画)
- 3D切削是点、线、面与投影切削的演算 (动画)
- 坡段曲面适合3D切削工法 (动画)

4 :自适应铣削

- 自适应与传统工法的基础差异
- 自适应的优点
- 自适应创造更高的铣削效率

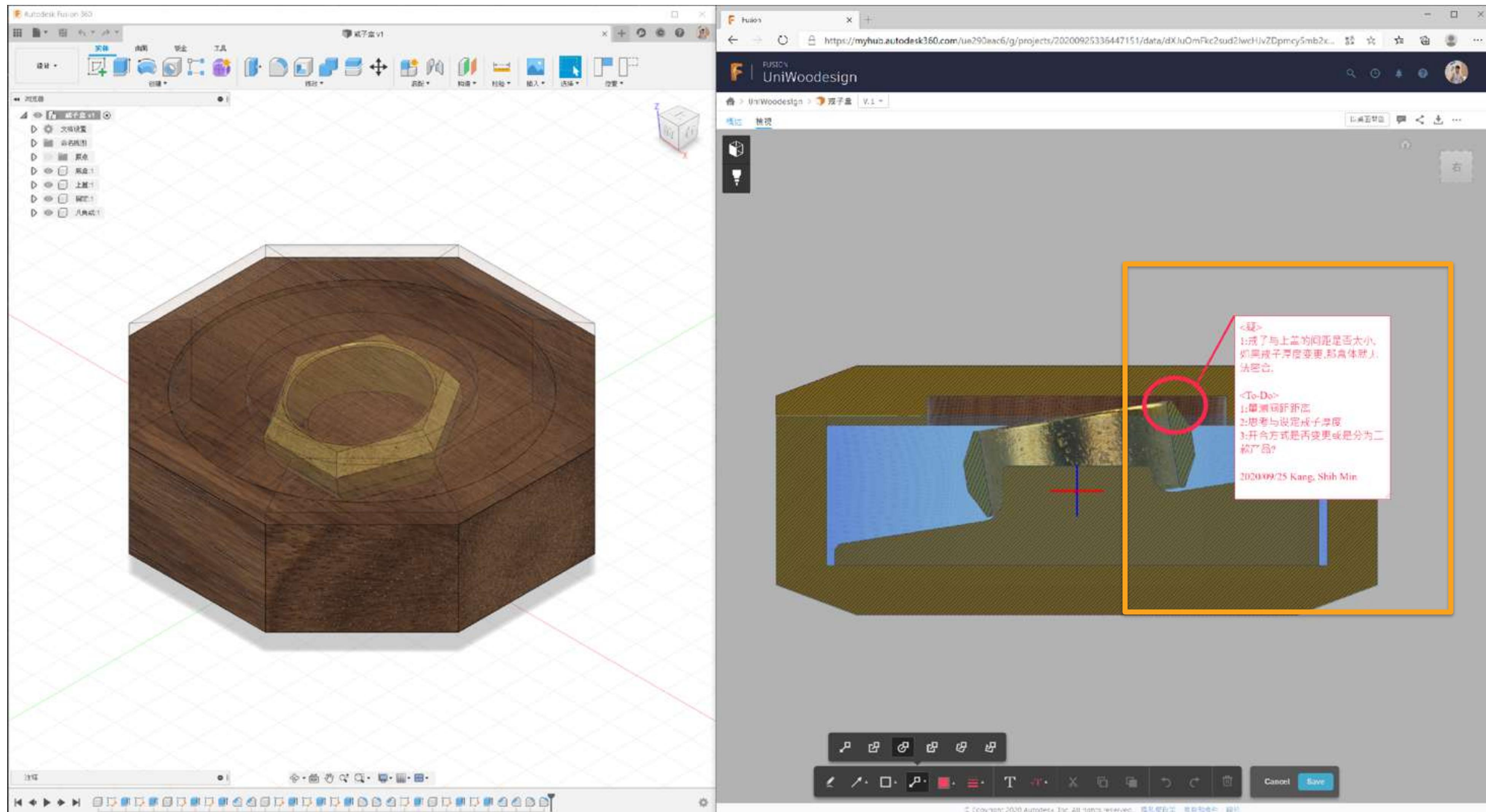
5: 多轴加工模块

- 环绕刀具路径 (3+1)
- 第四轴旋转加工概念
- 多轴加工模块 (3+2)

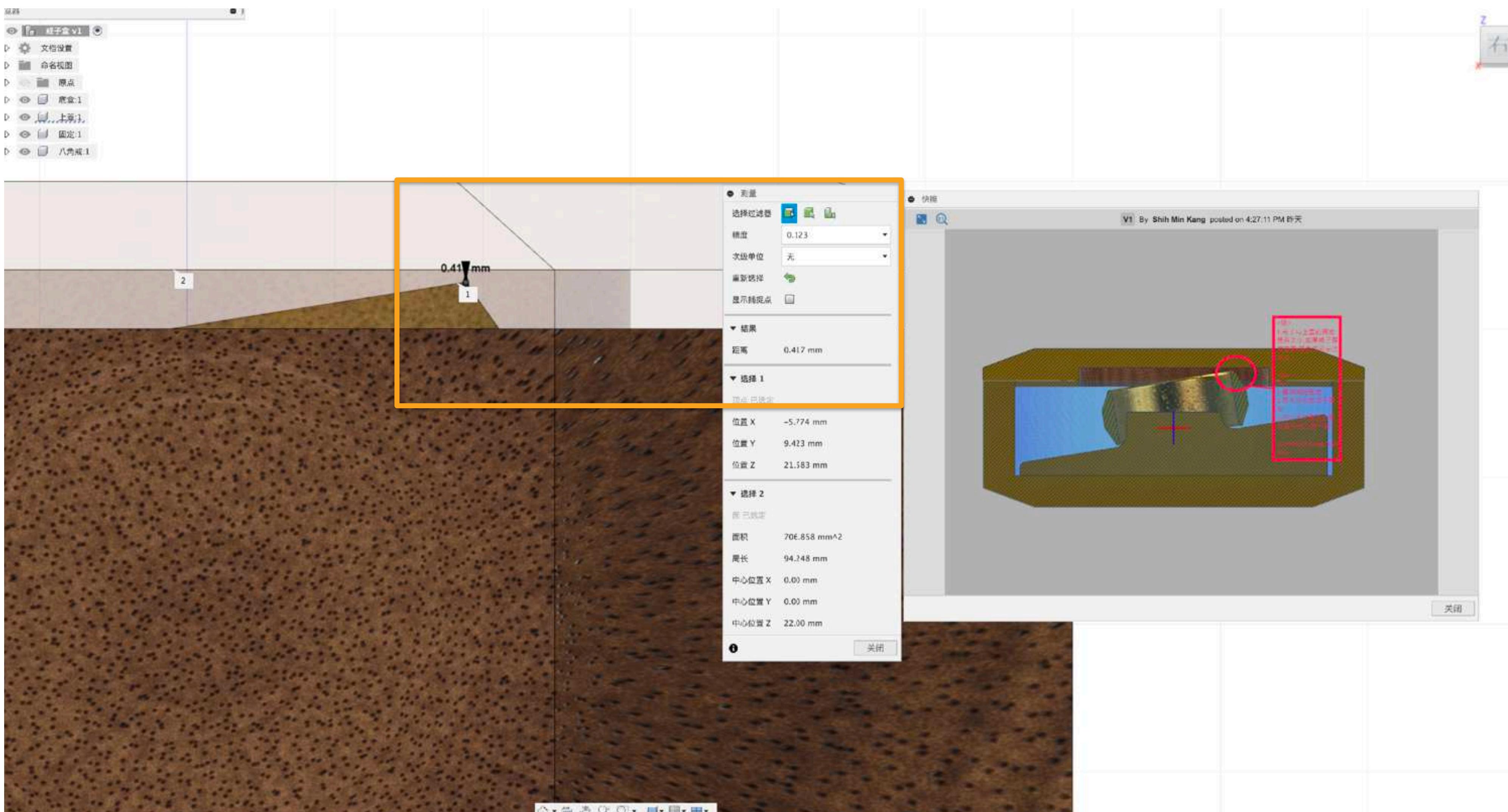
6 :各种提升效率的方式

- 指定刀具向下，改变斜插类型
- 各种工法的比较和编辑
- NC程序与机床WCS偏移
- NC程序与最小化换刀
- NC程序与后处理配置

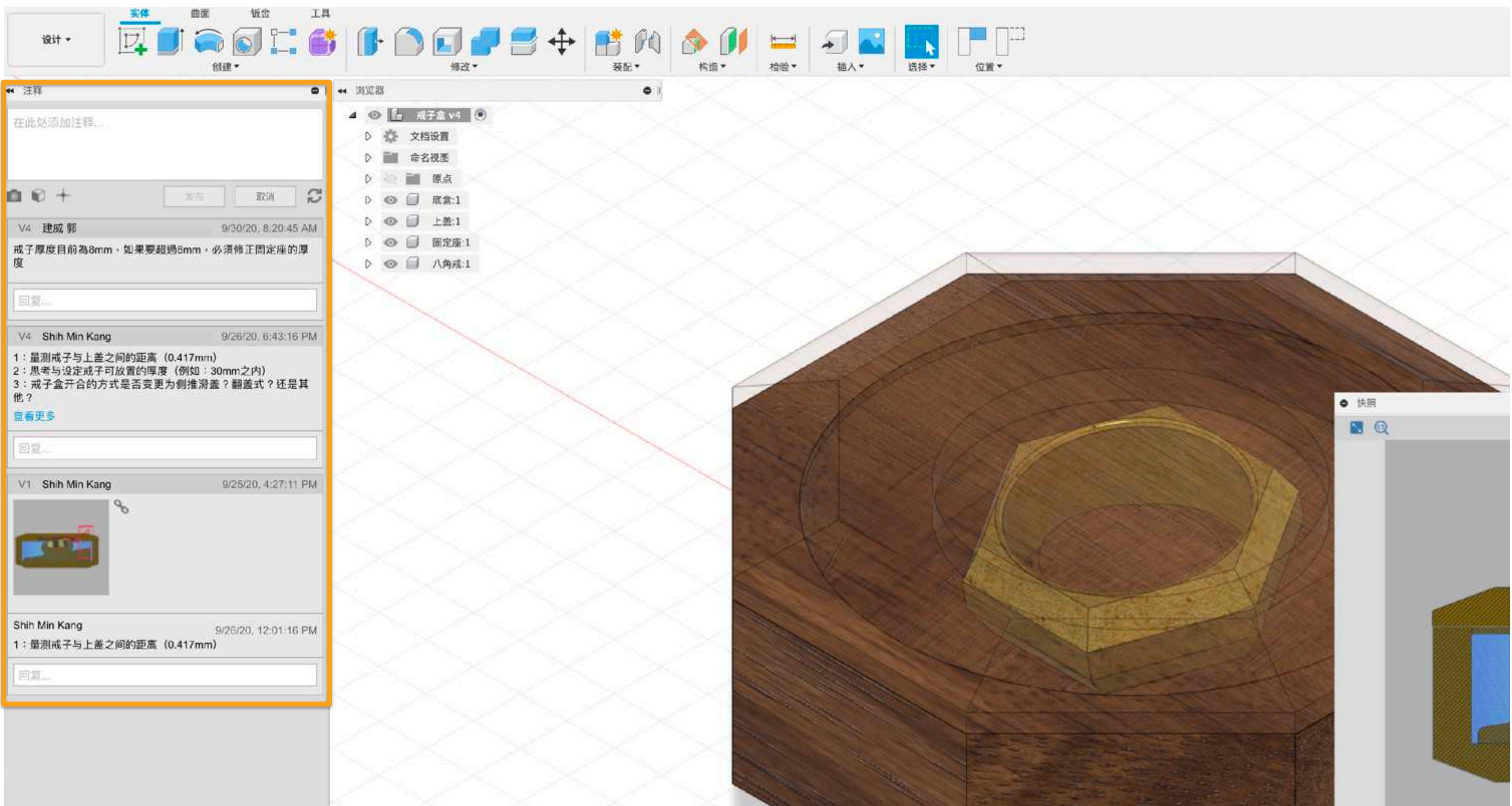
毫无阻隔的云端沟通（沟通）



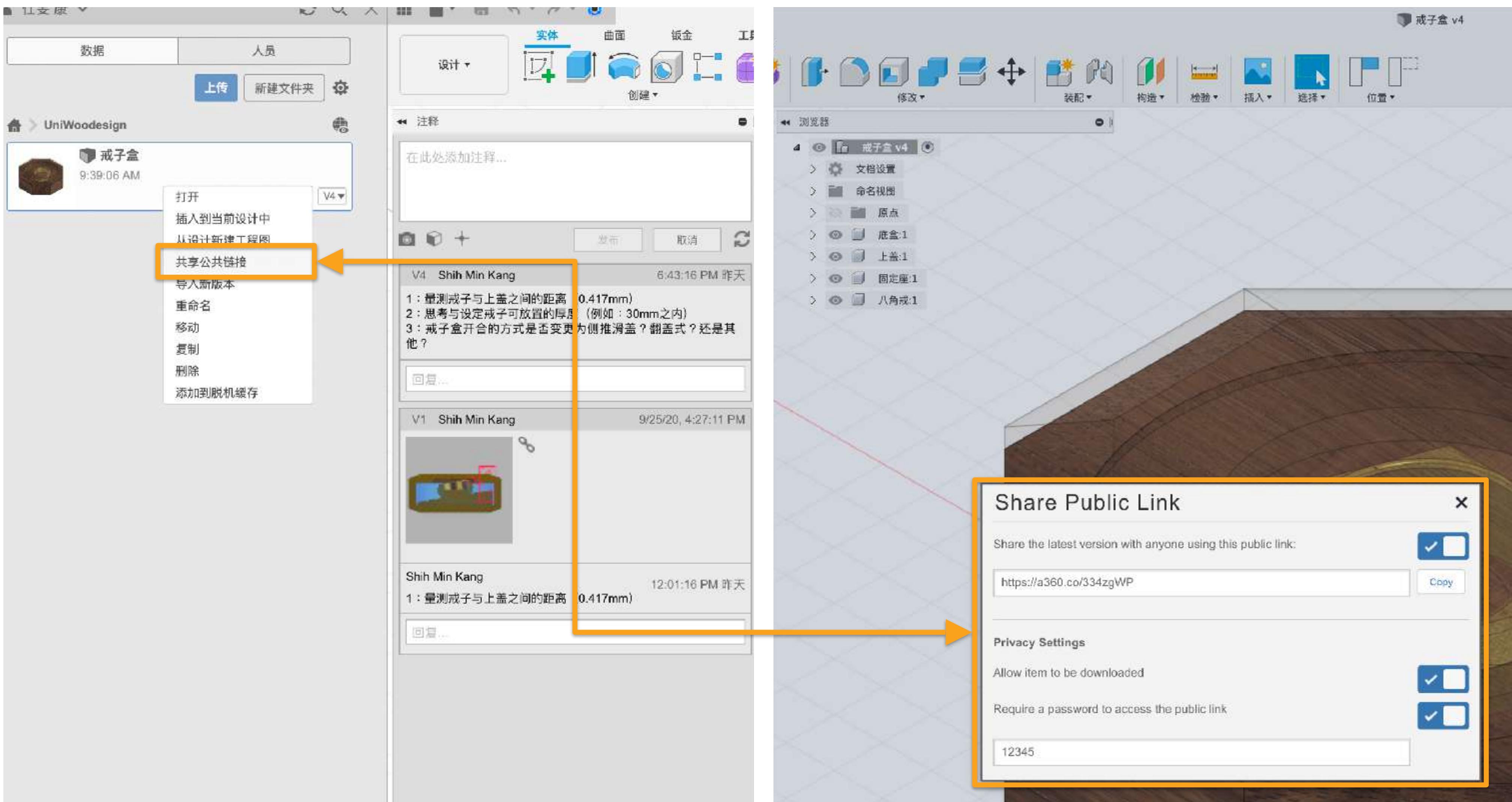
毫无阻隔的云端沟通（测量）



毫无阻隔的云端沟通（回覆）

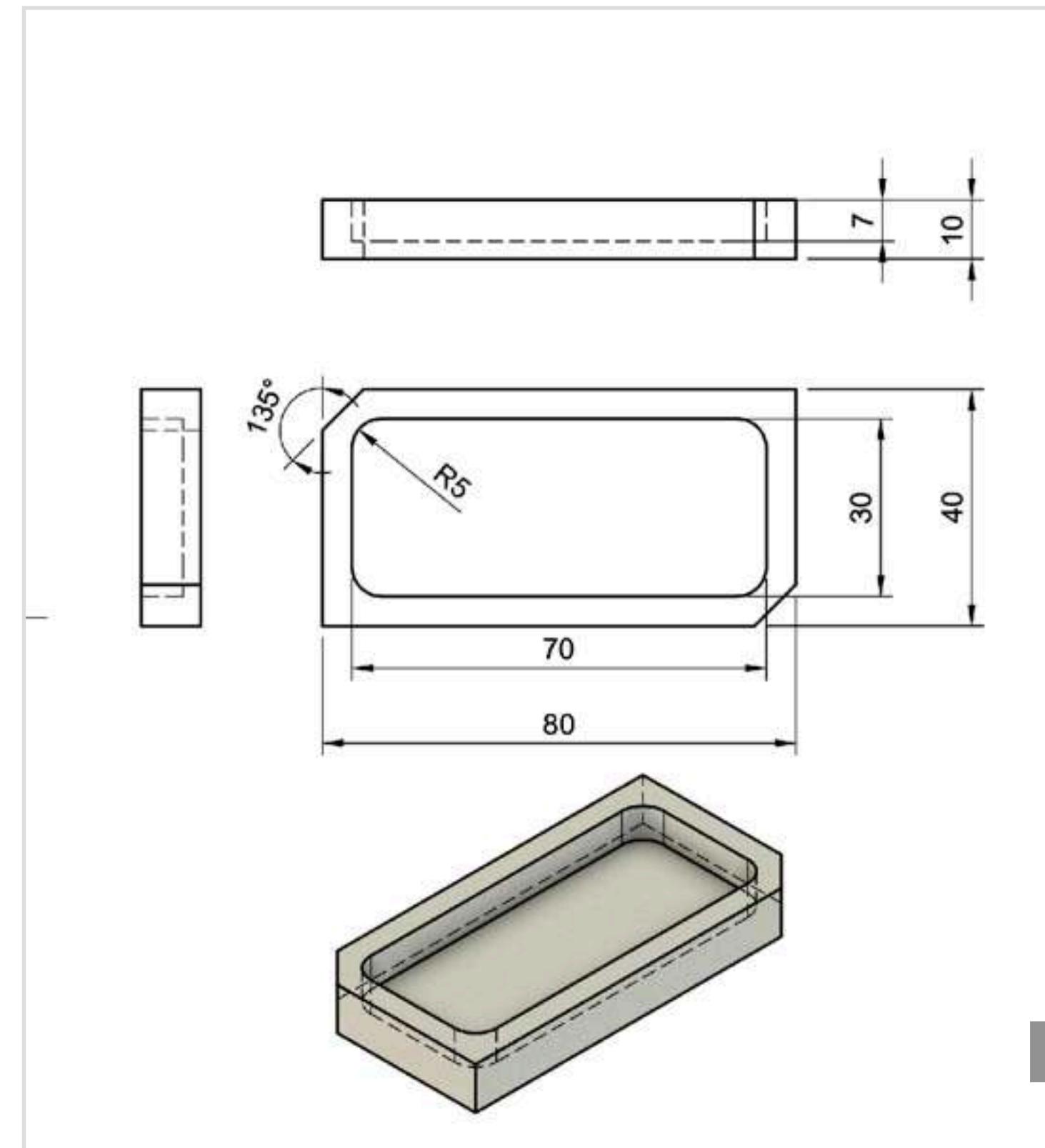


毫无阻隔的云端沟通（分享）

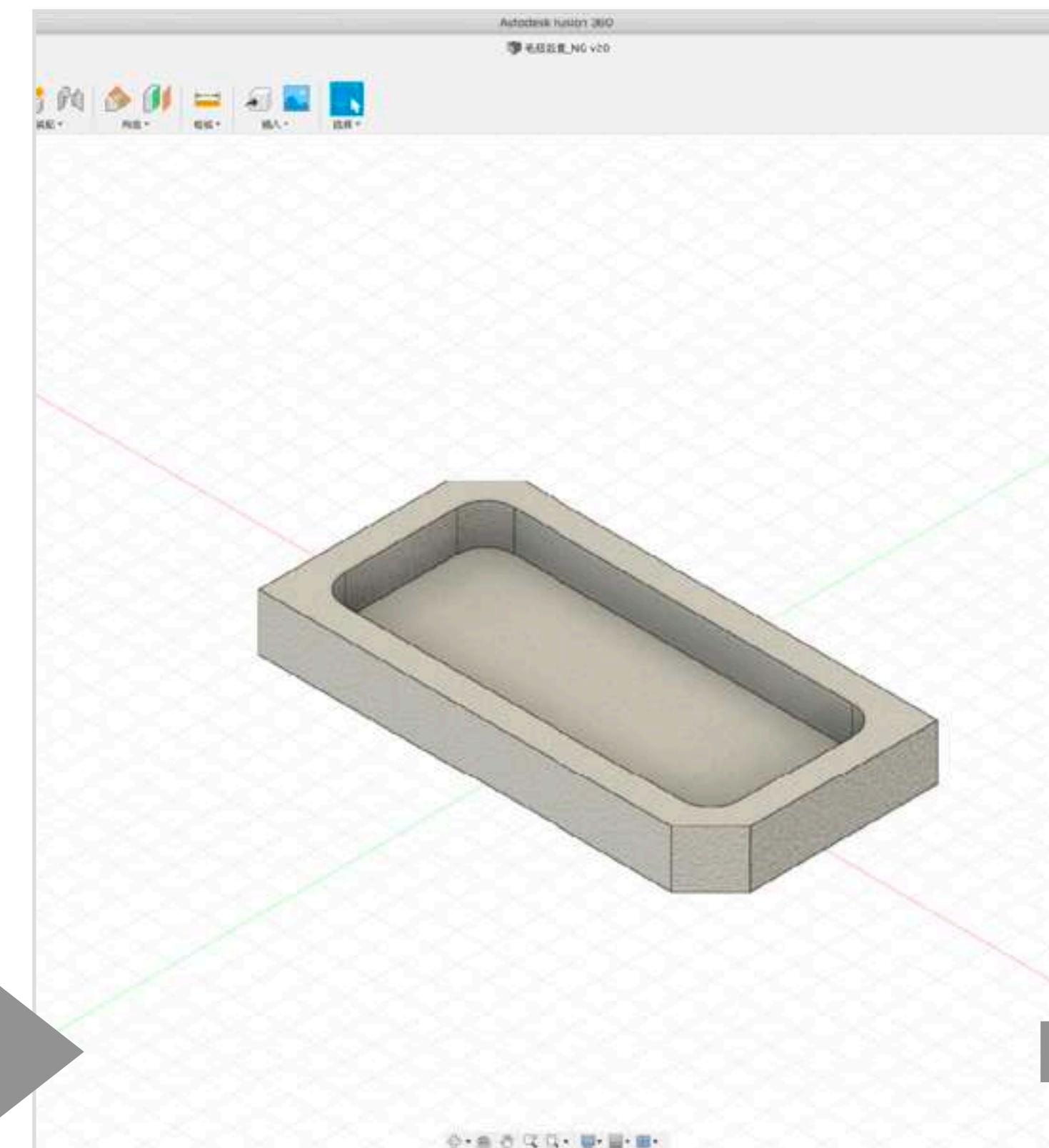


设计与制造的过去式

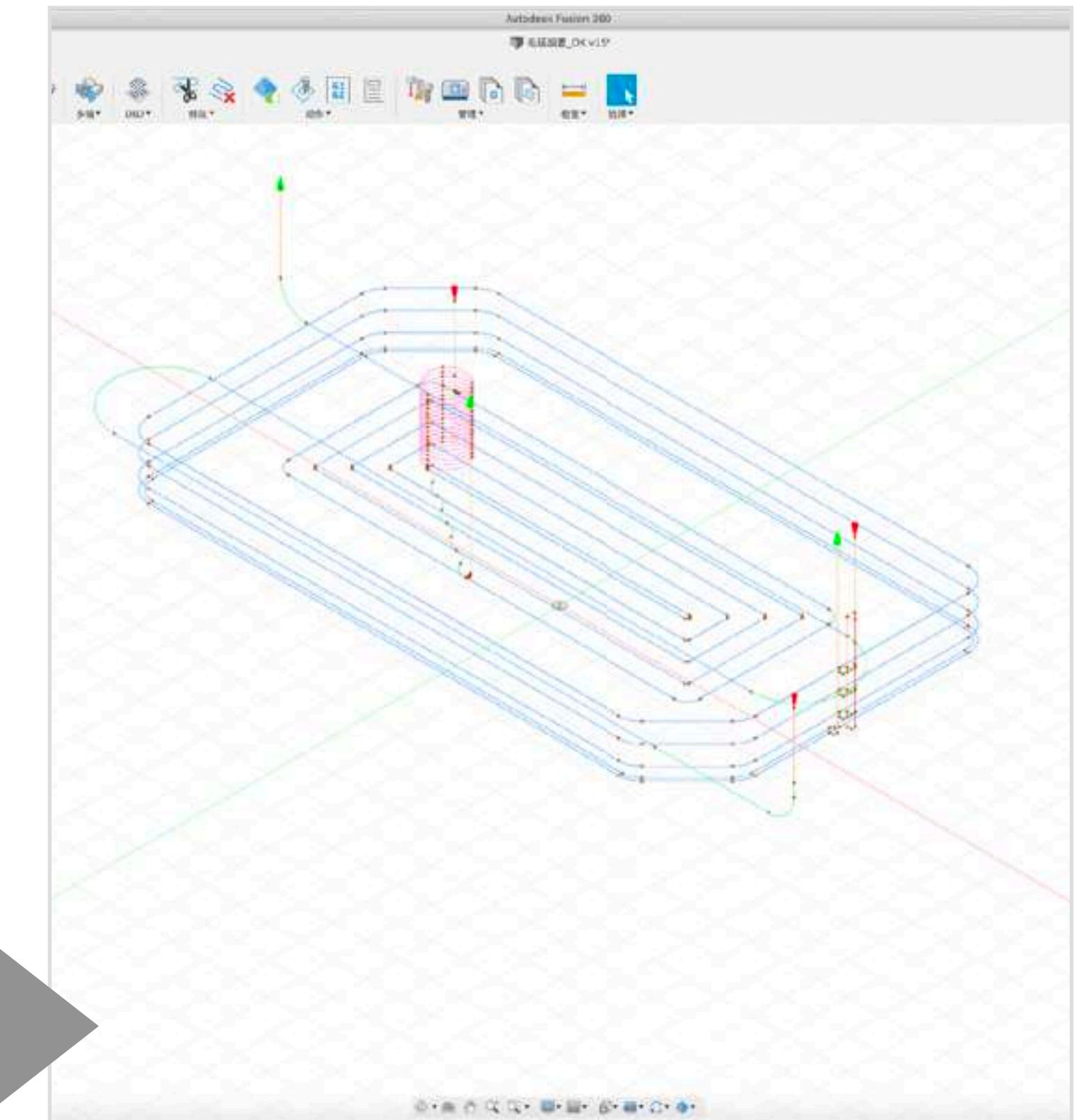
2D 工程图



2D工程图转为3D

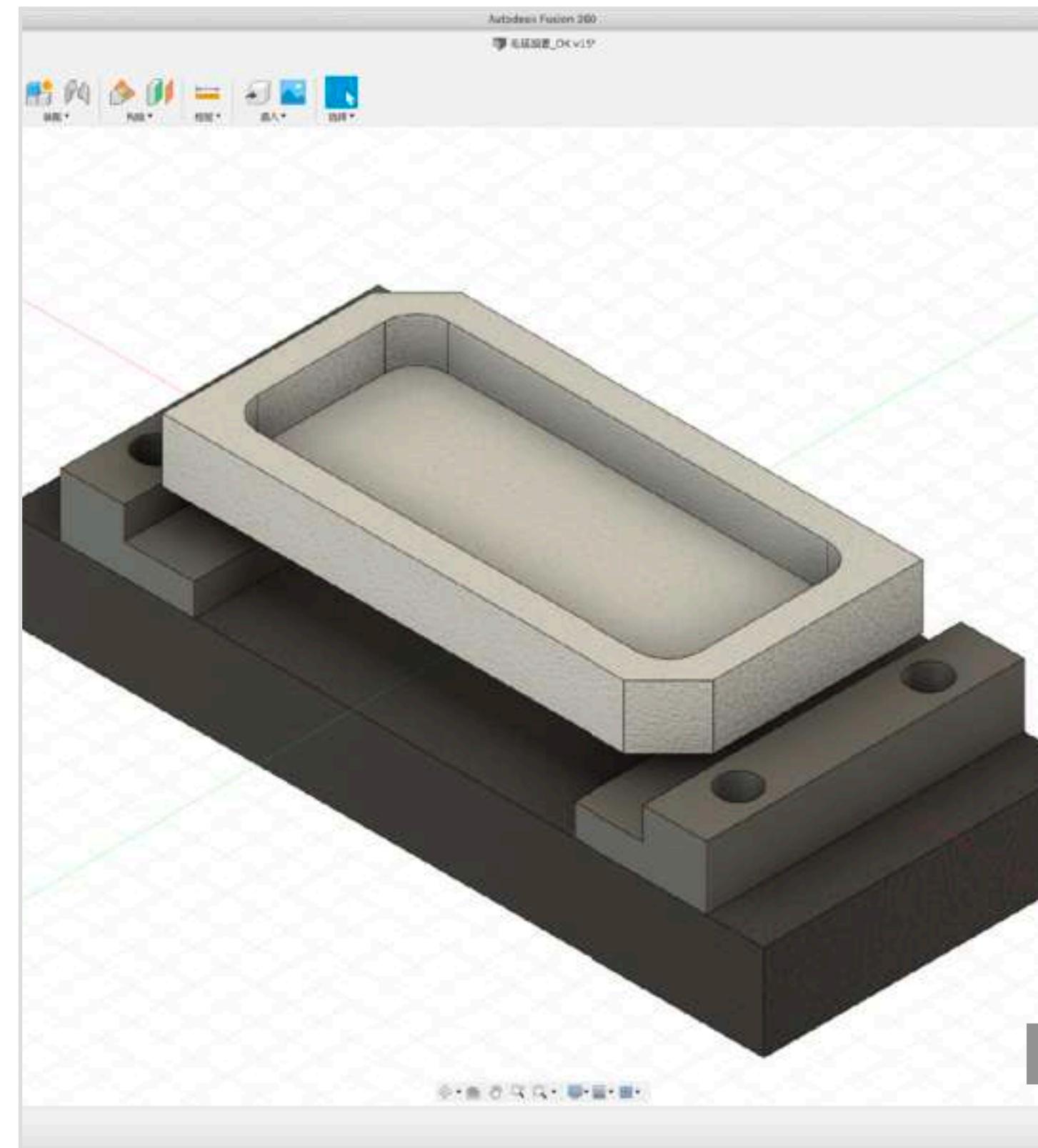


加工编程

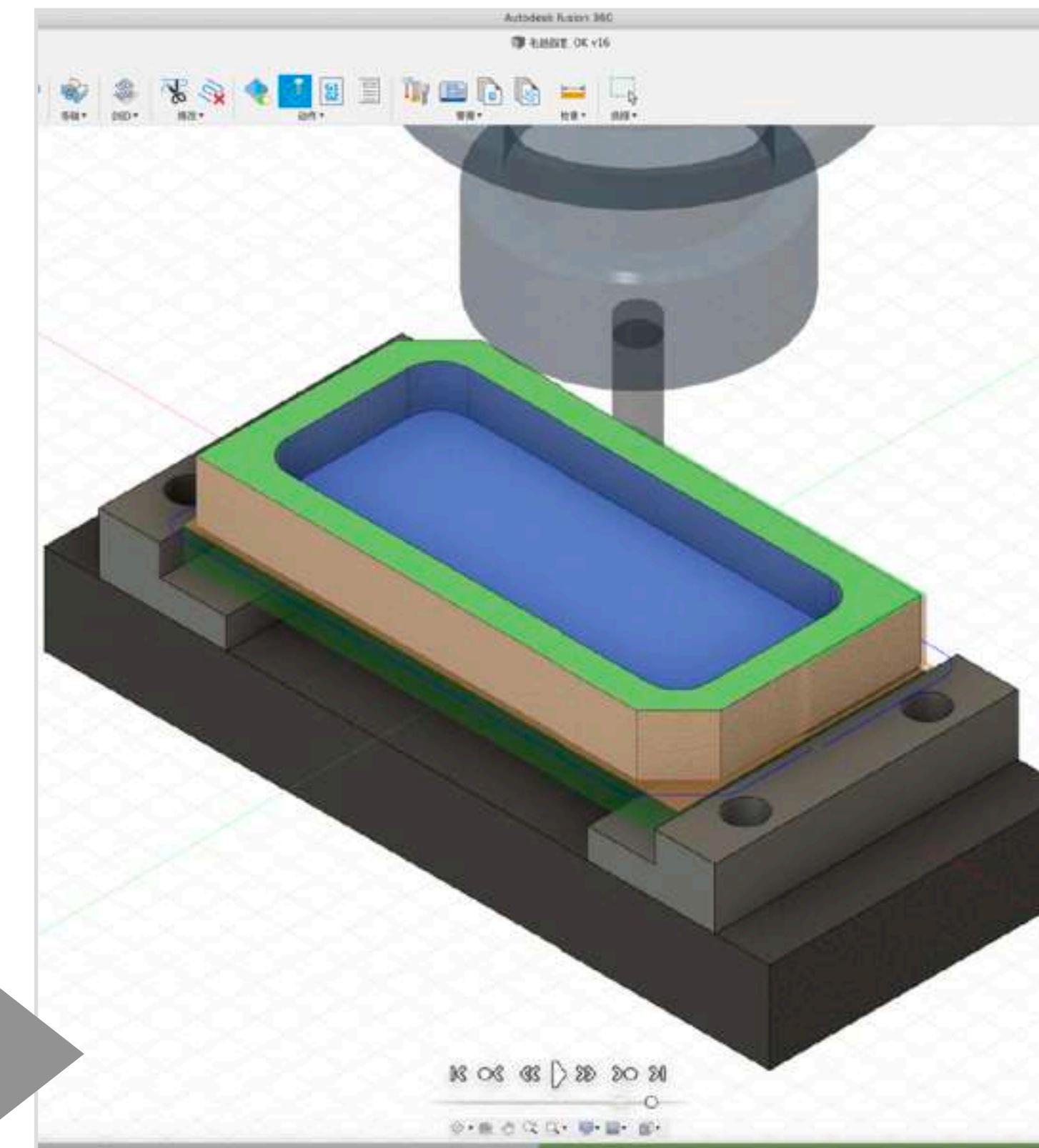


设计与制造的现在式

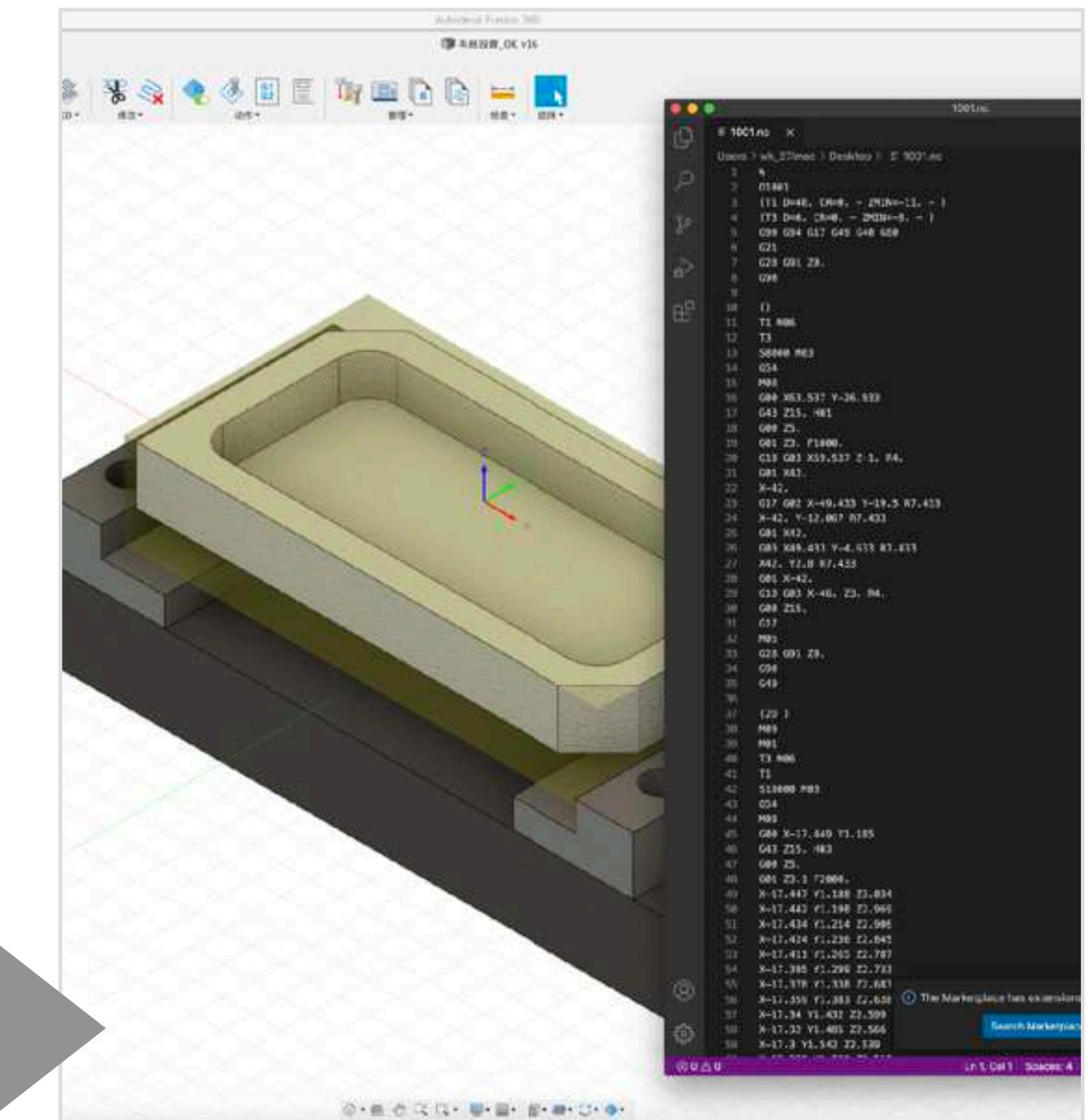
3D 实体设计



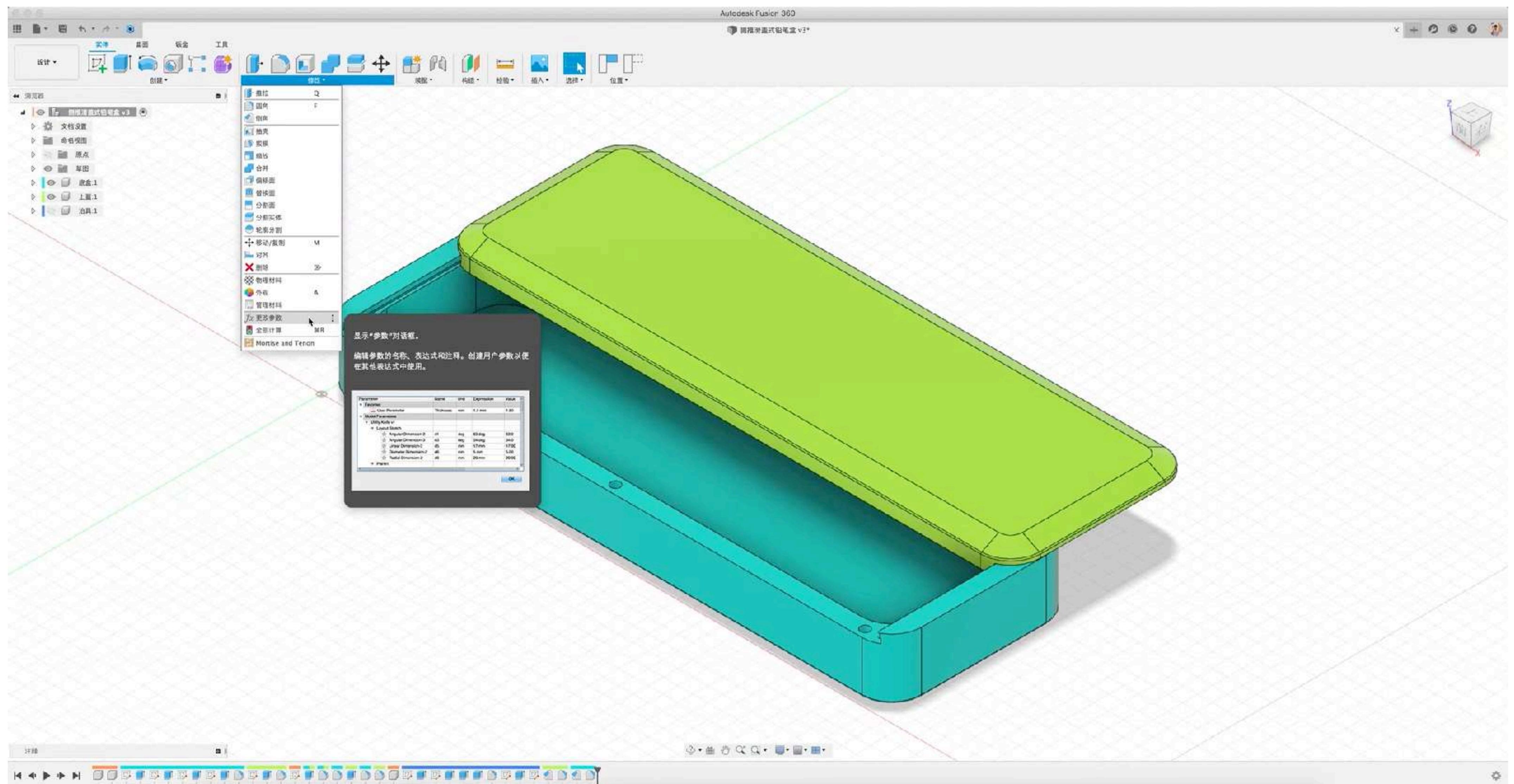
实体加工与仿真



后处理输出



设计变更与制造衔接只要三分钟 (3D)

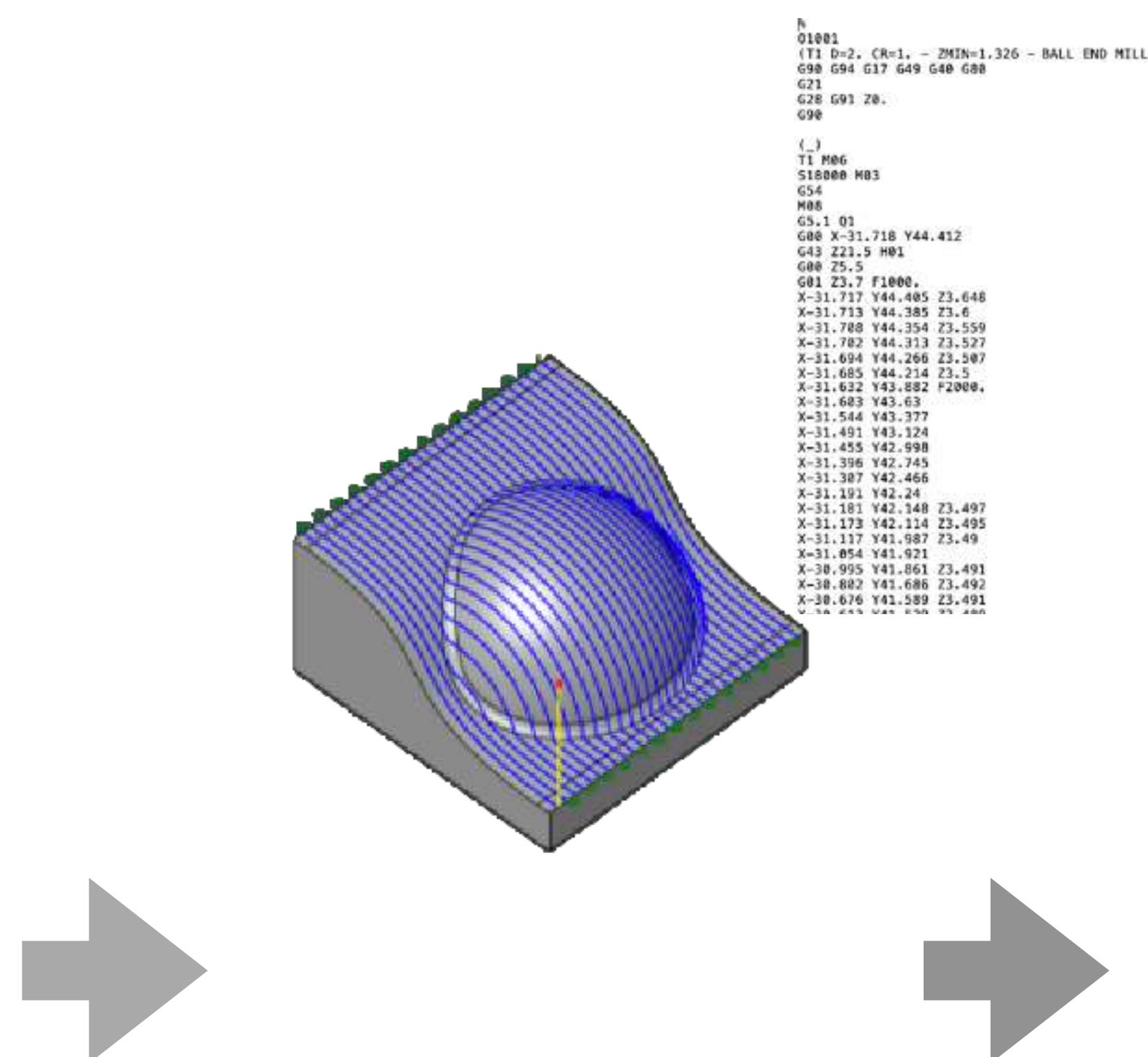


掌握三大方向

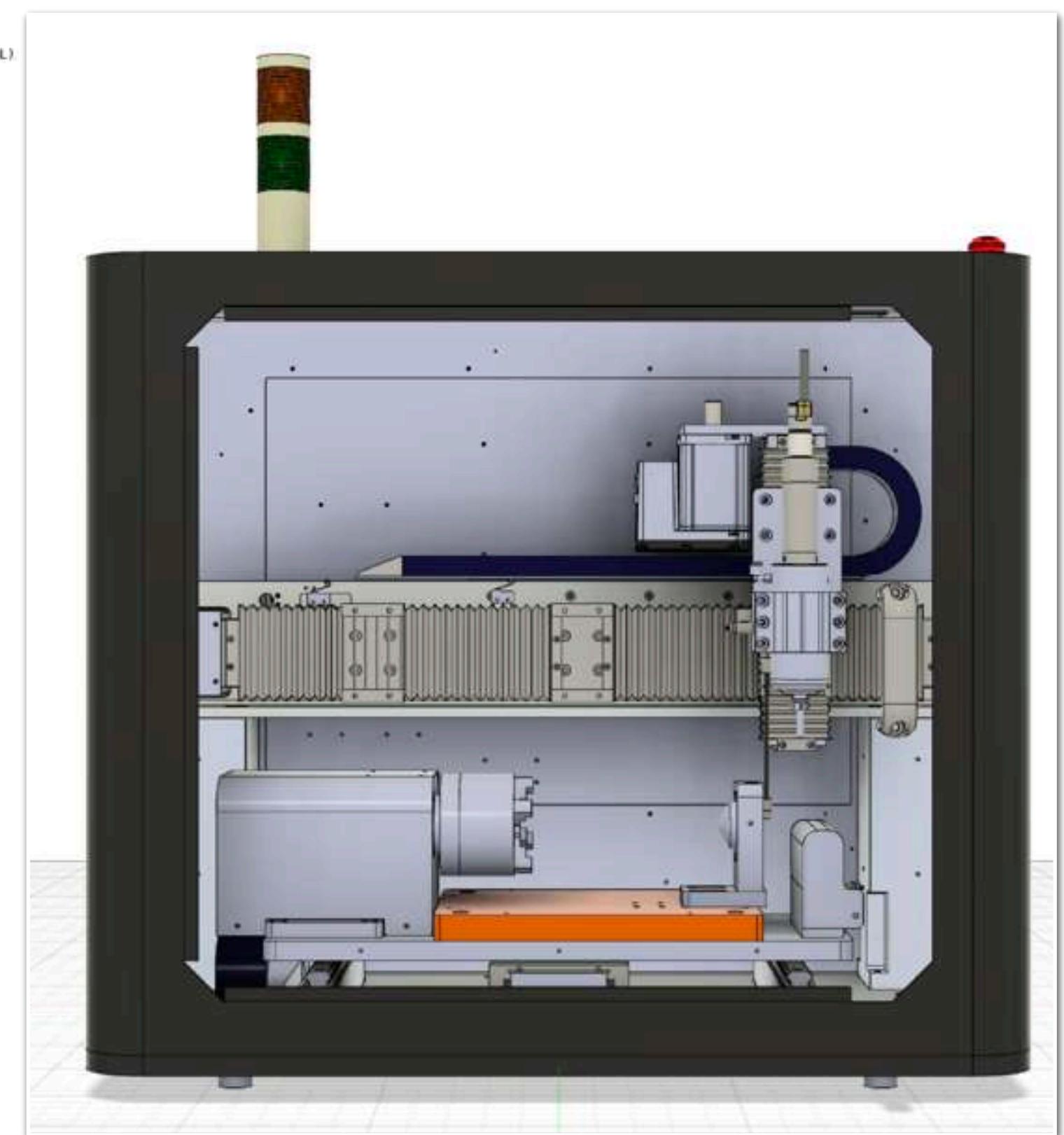
Computer Aided Design
(CAD，电脑辅助设计)



Computer Aided Manufacturing
(CAM，电脑辅助制造)

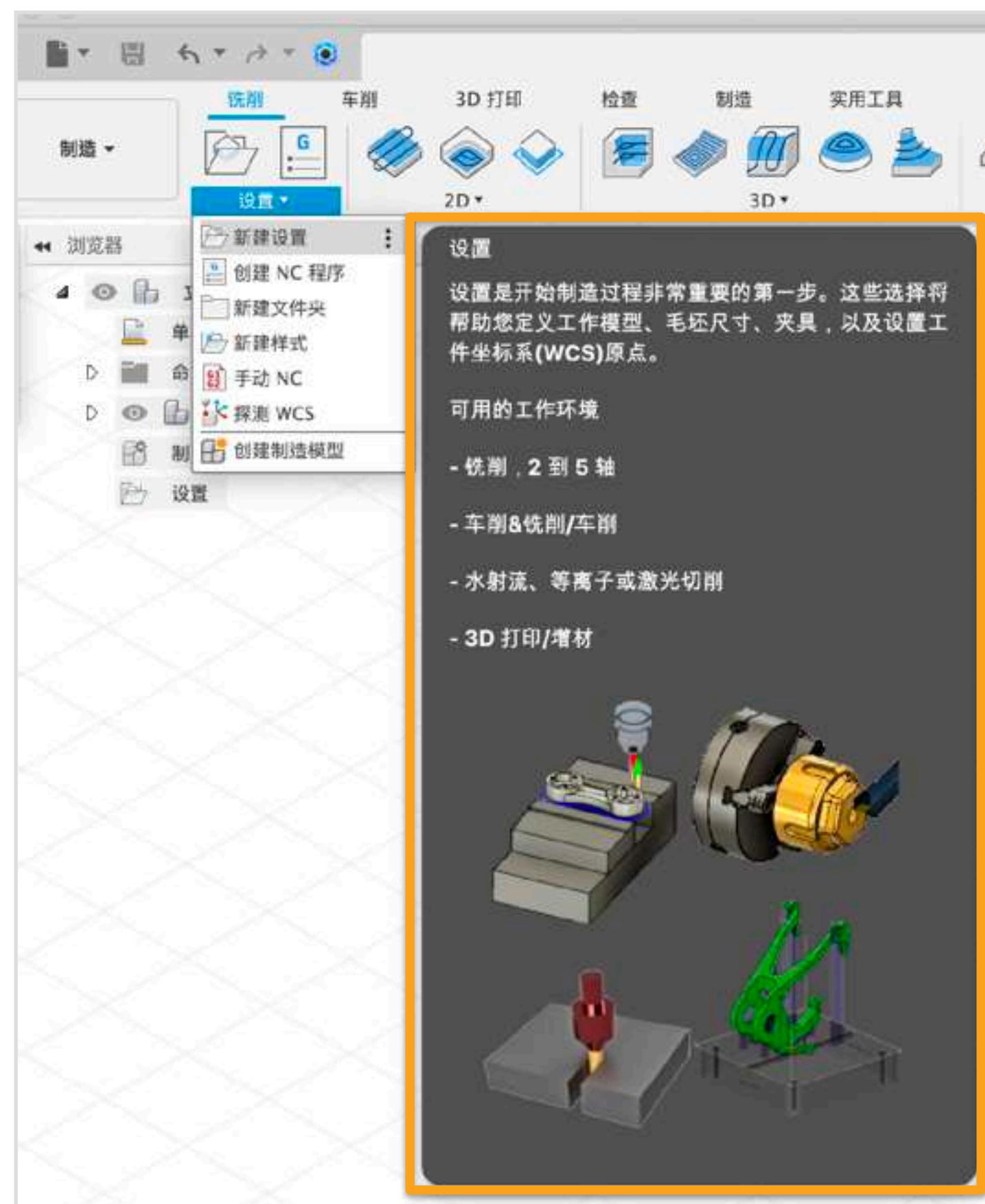


Computerized Numerical Control
(CNC，数控控制工具机)

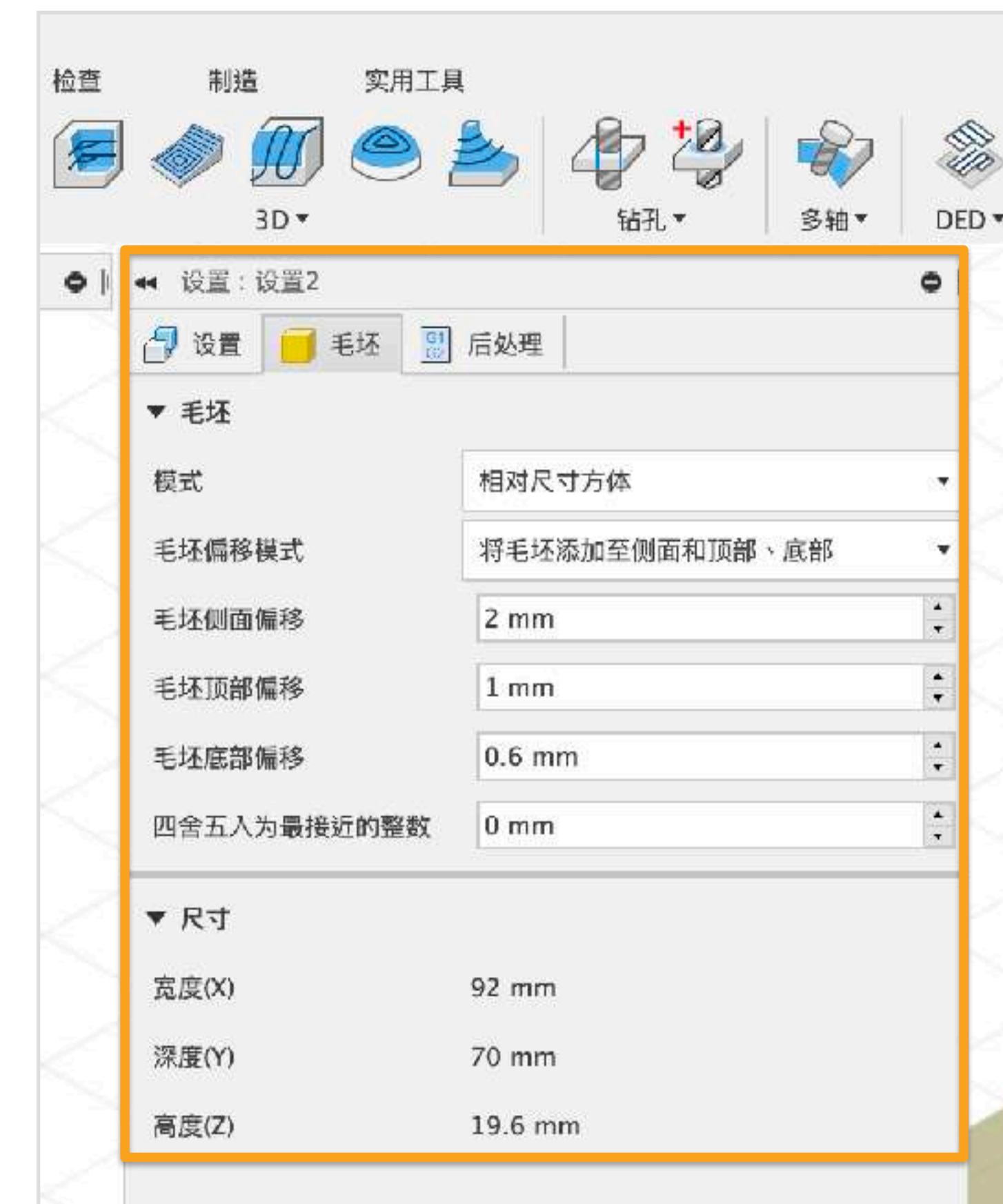


设置三大步骤(工作坐标系,毛胚与刀具库)

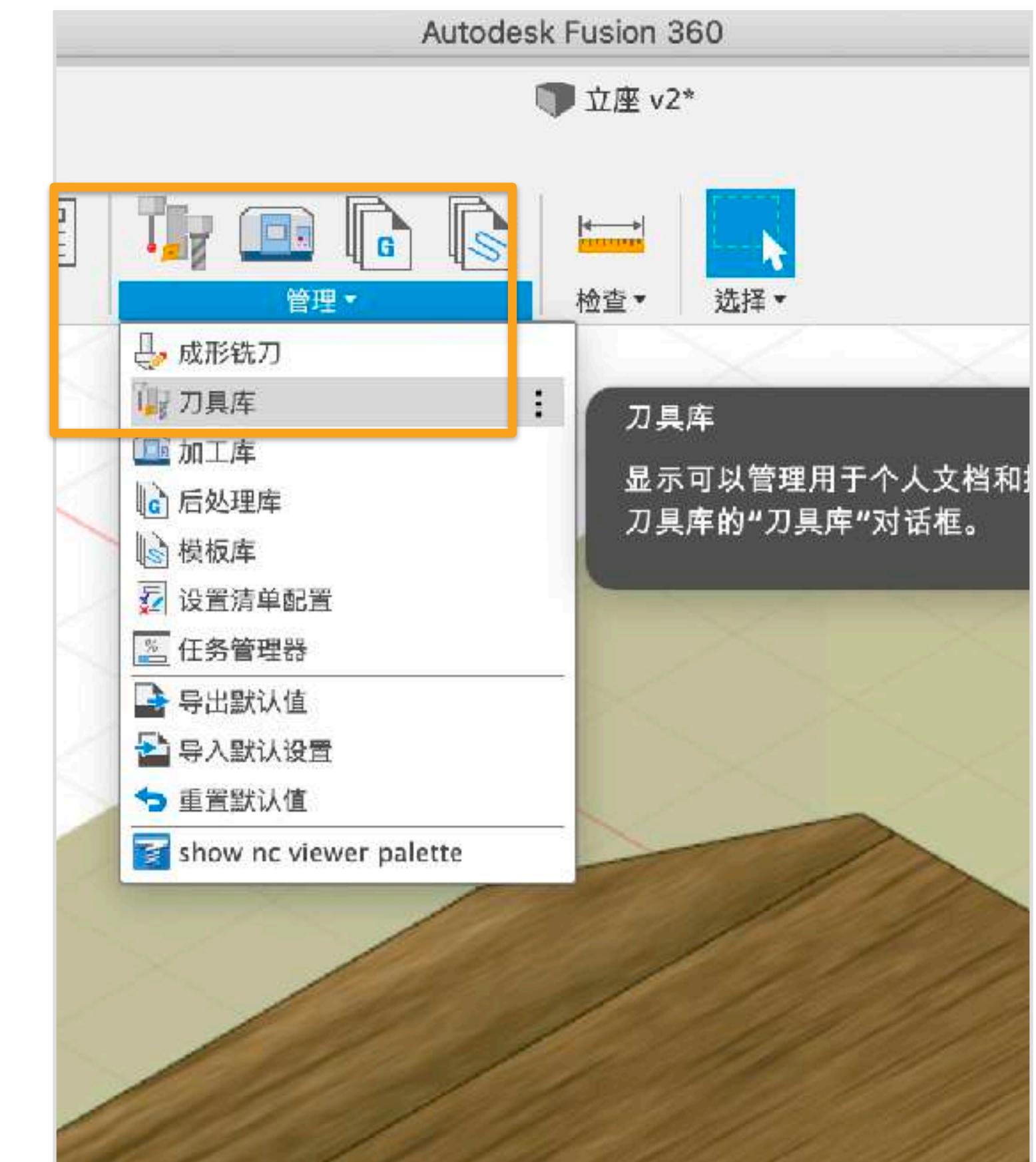
设置工作坐标系 (WCS)



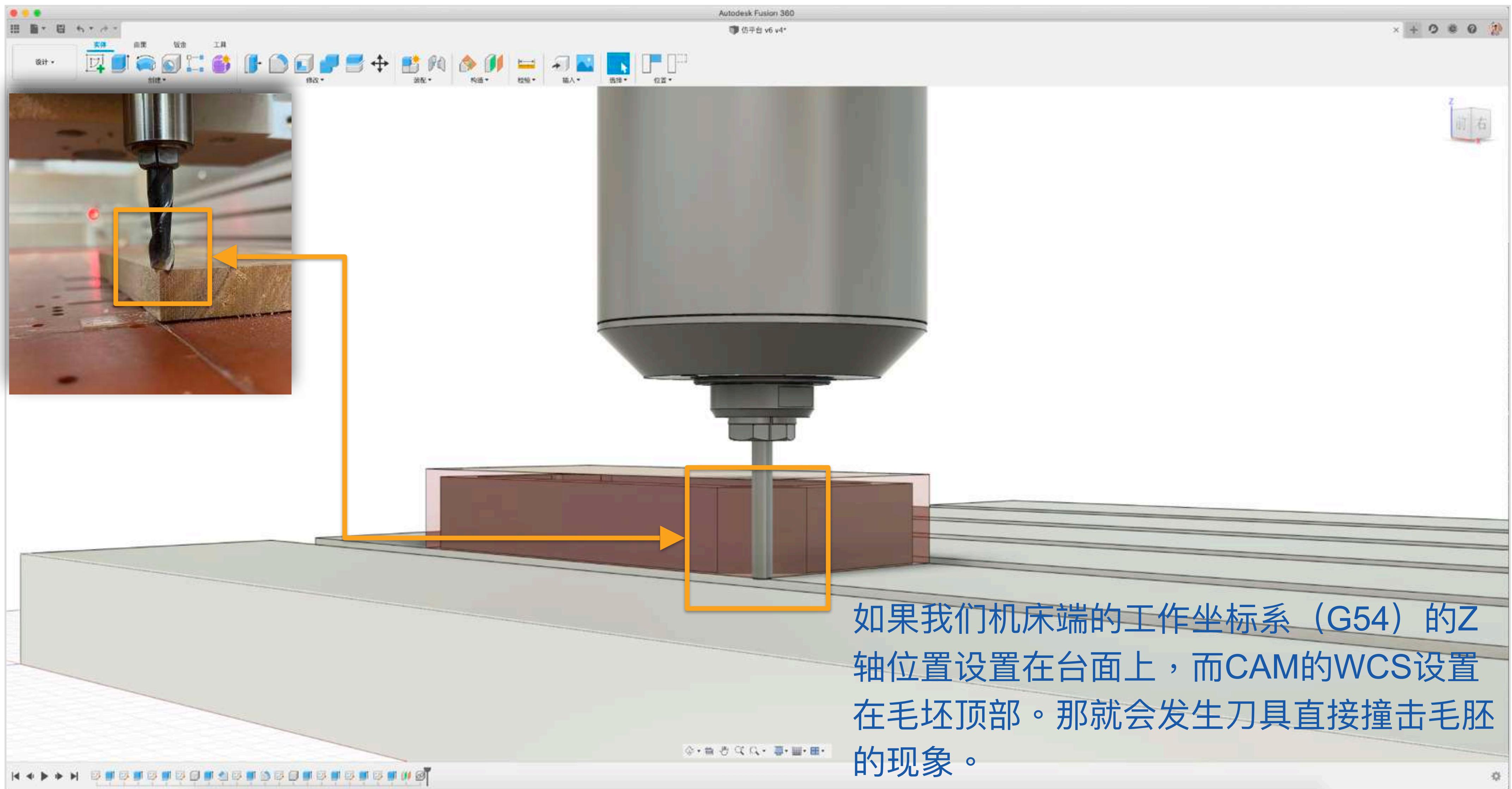
确认毛胚尺寸



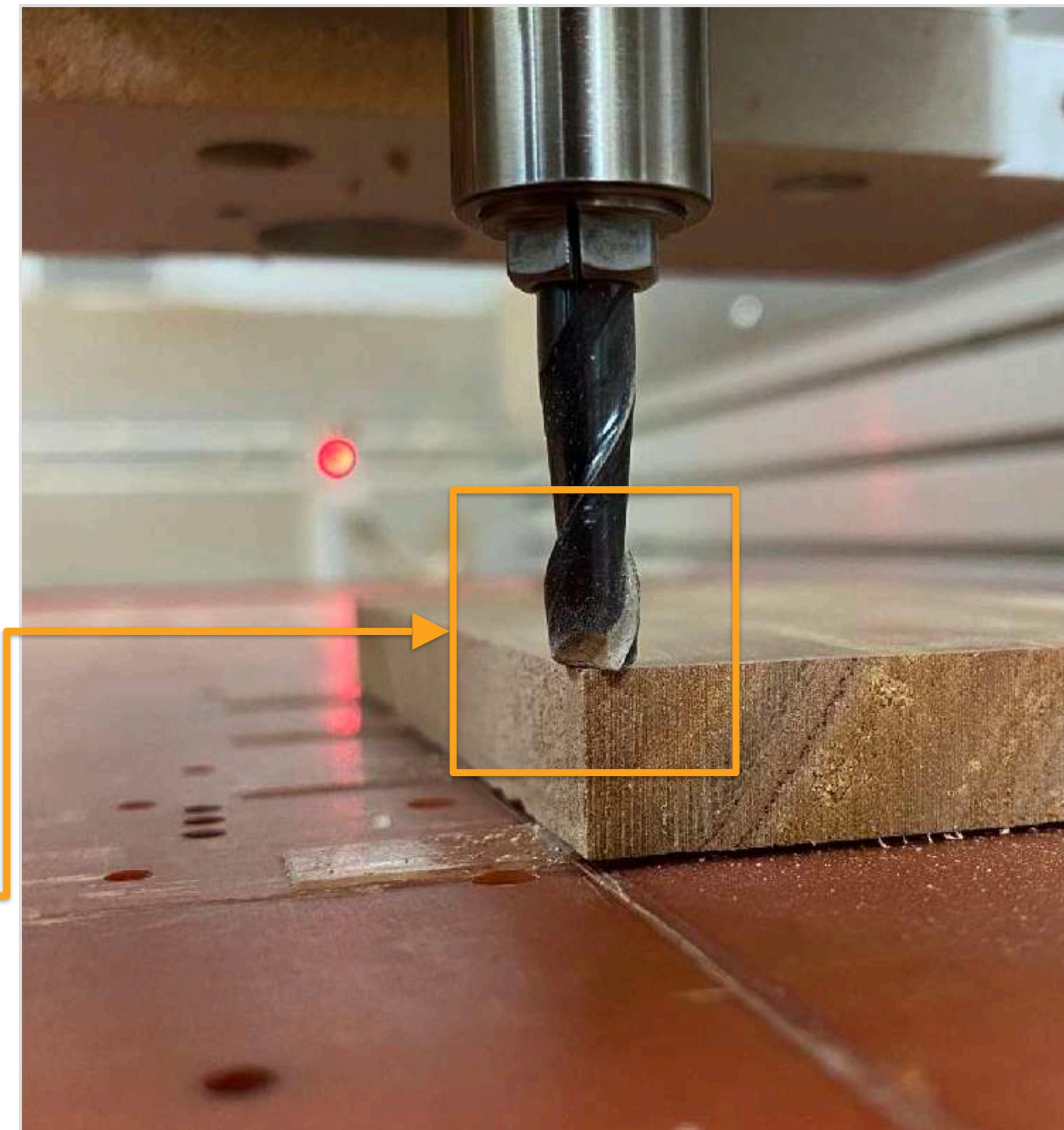
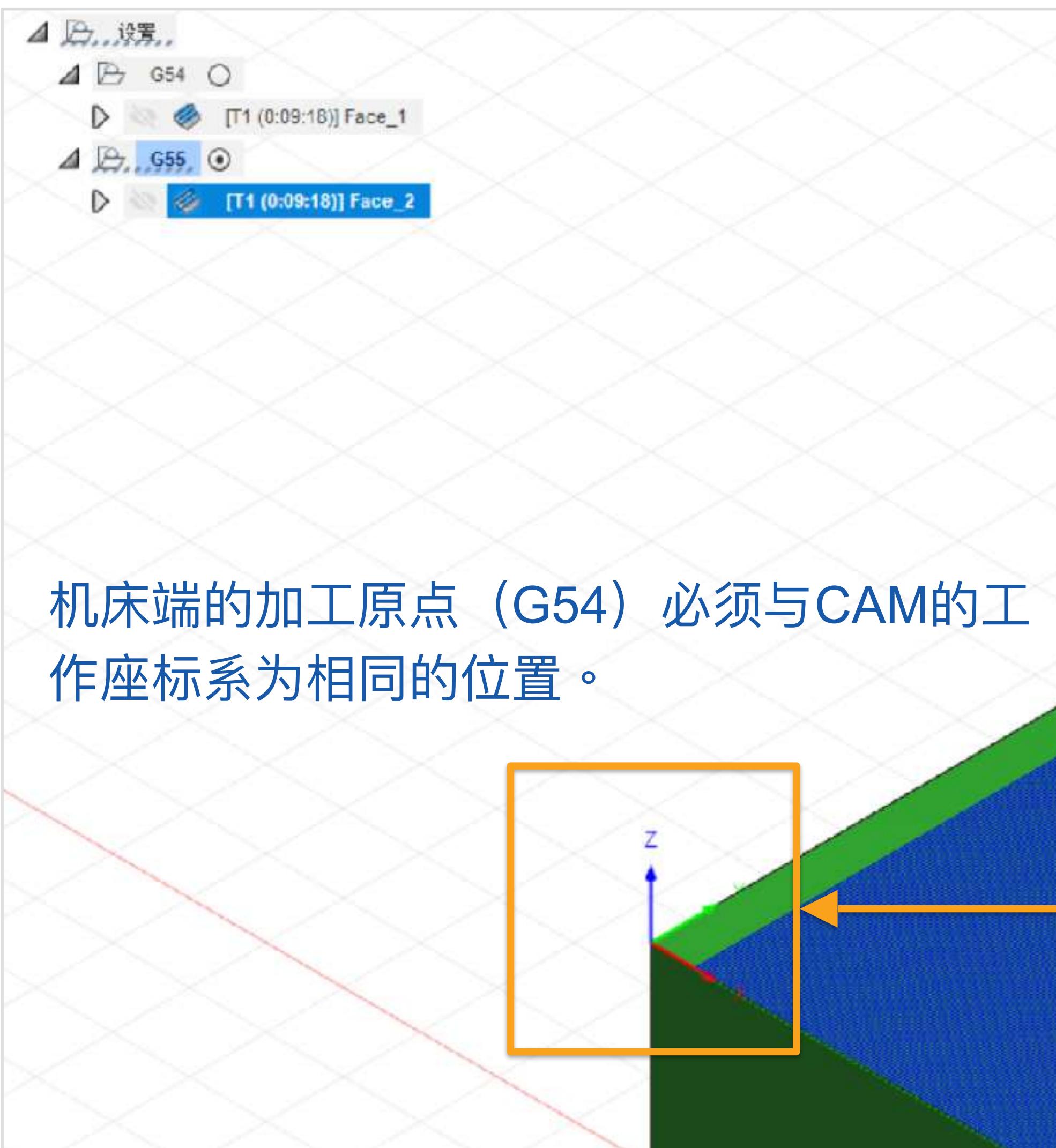
新增刀具库



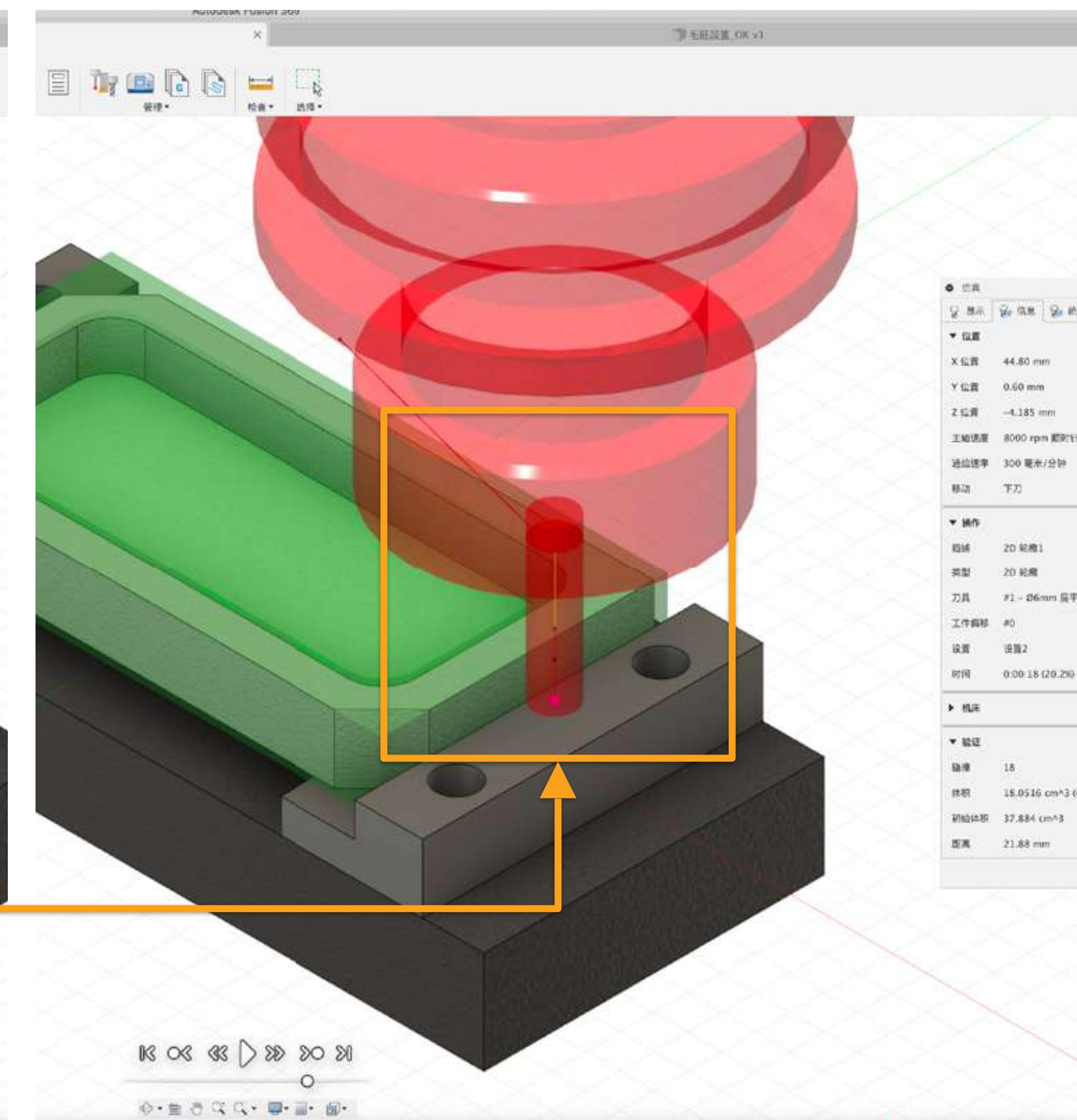
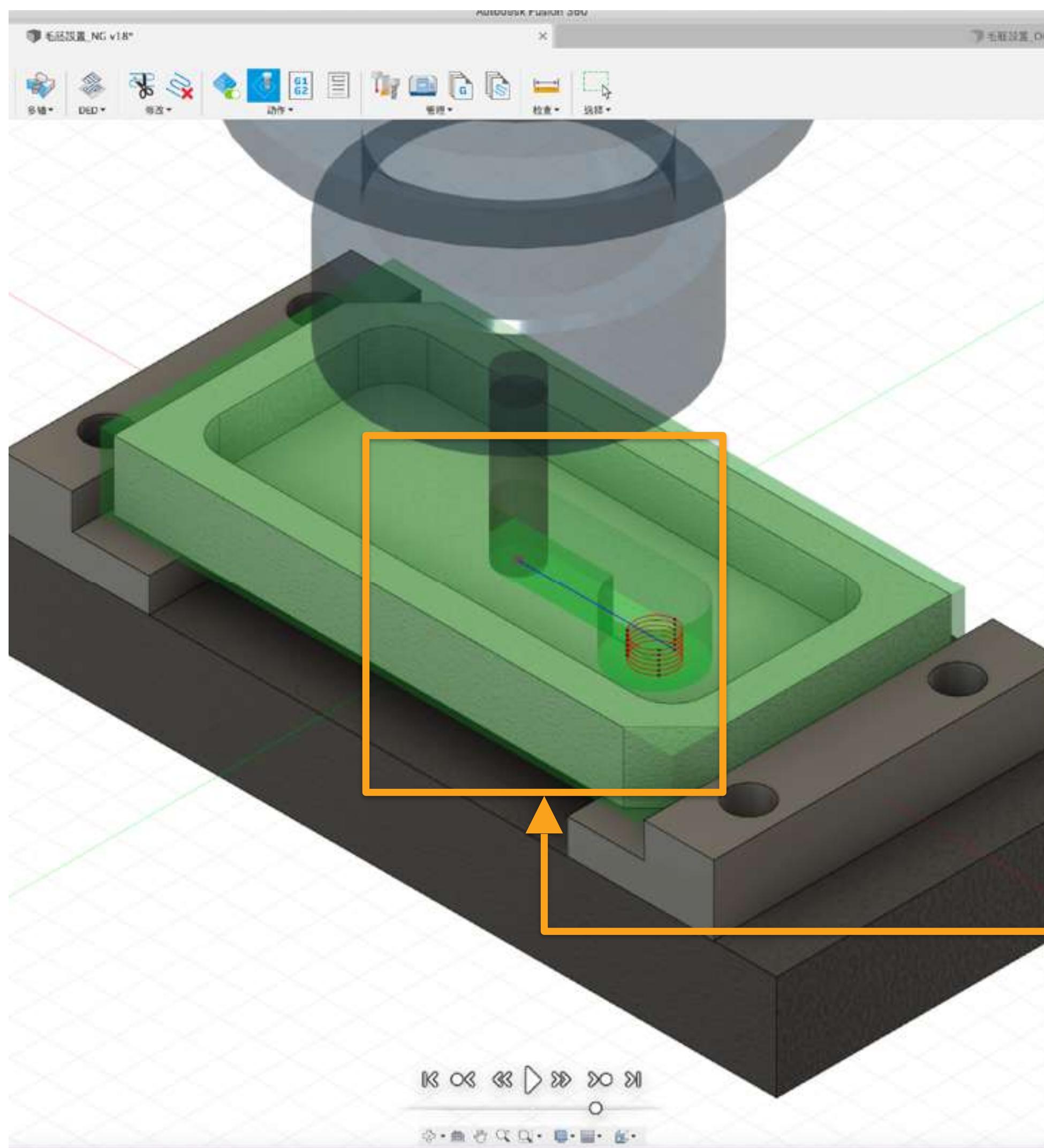
设置工作坐标系就是定义加工原点（错误）



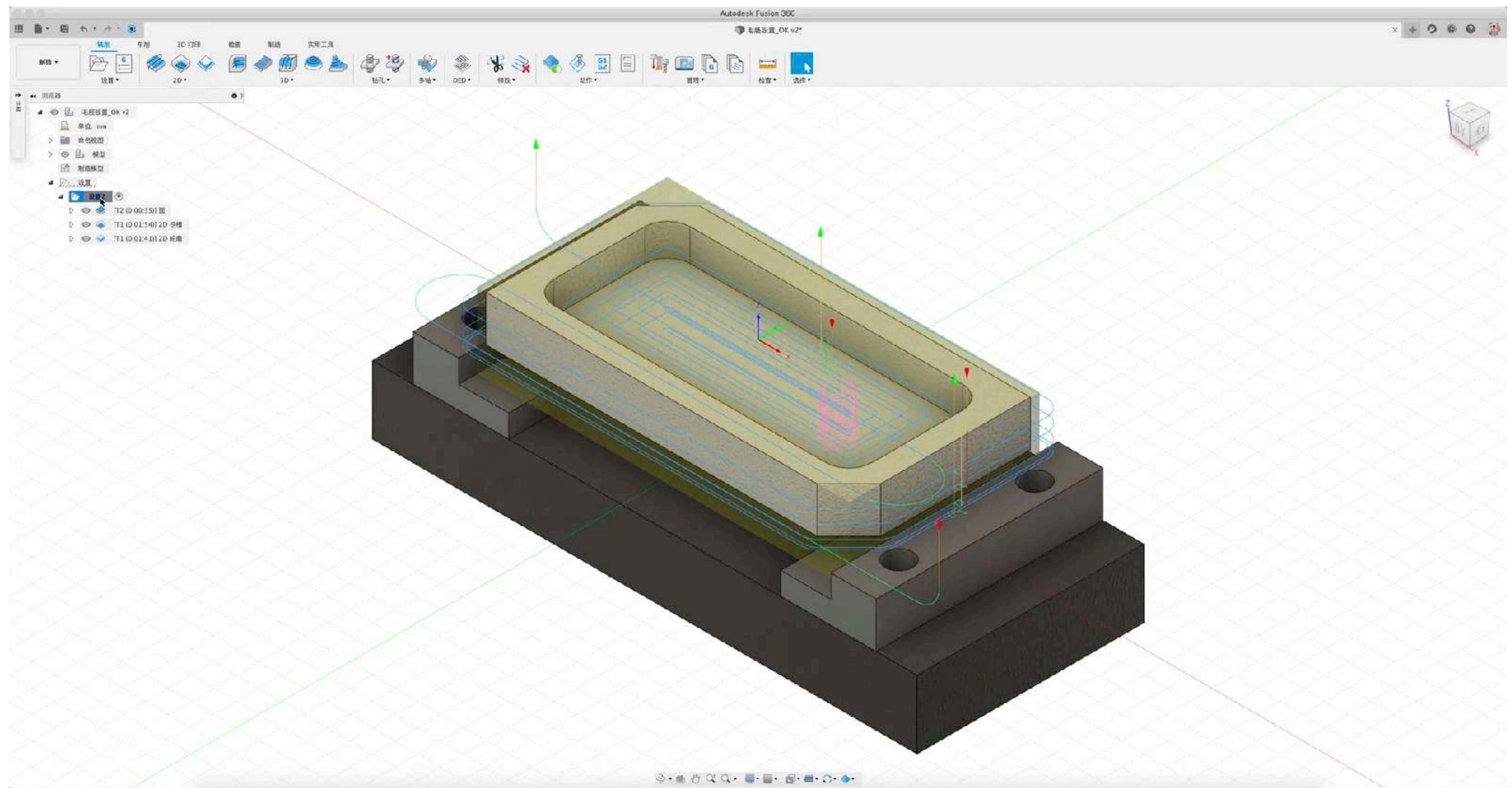
设置工作坐标系就是定义加工原点（正确）



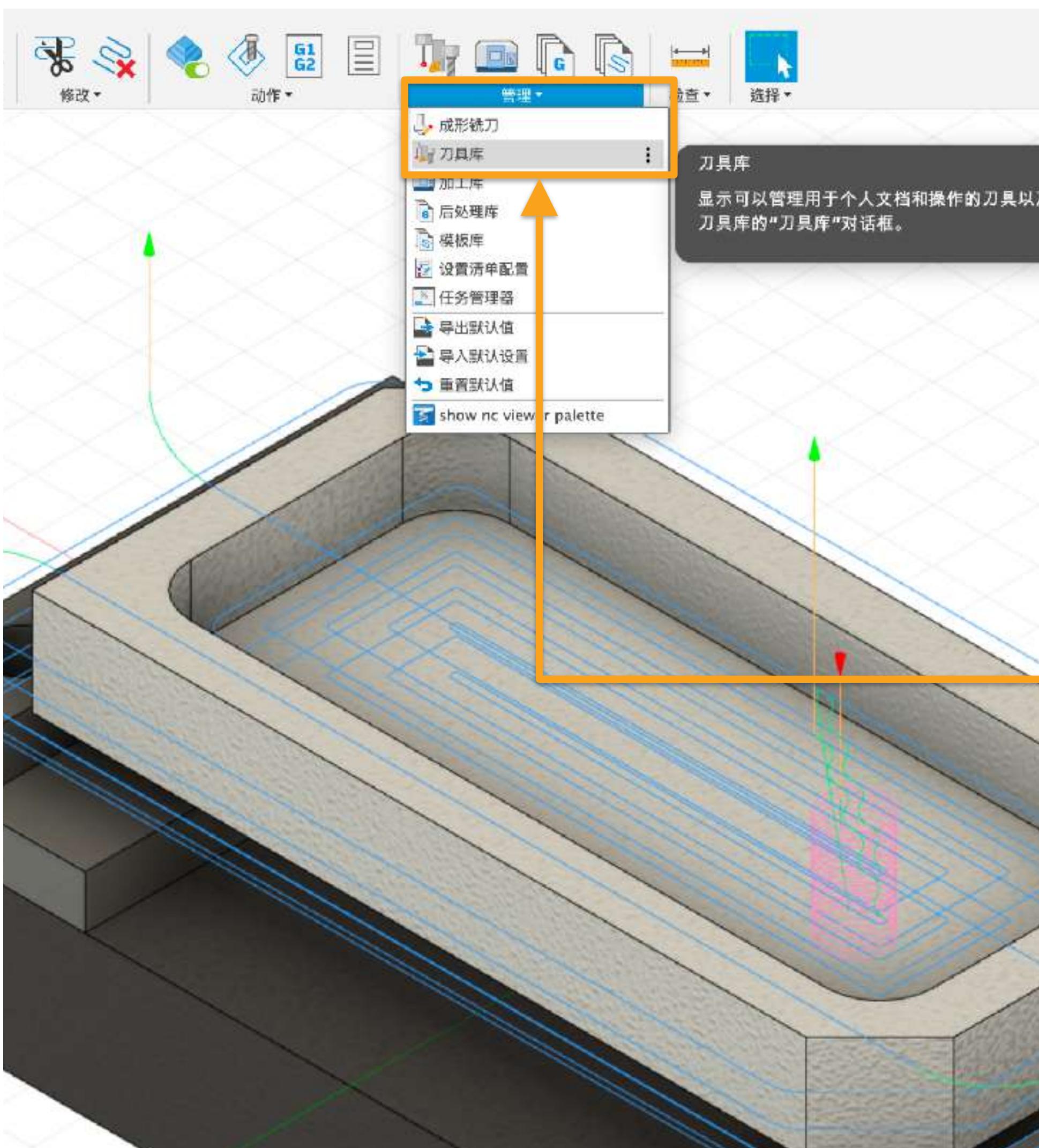
毛胚设置的重要性（错误）



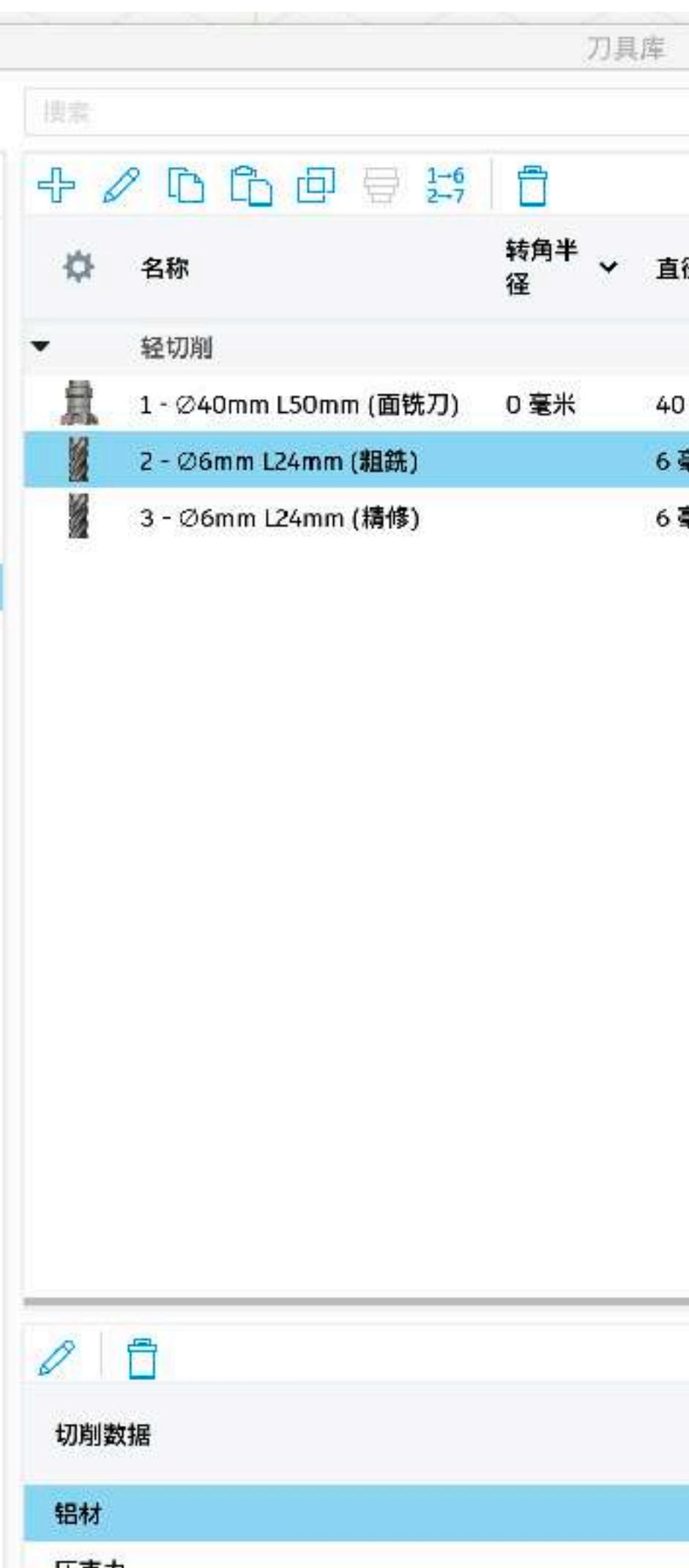
毛胚设置的重要性（正确）



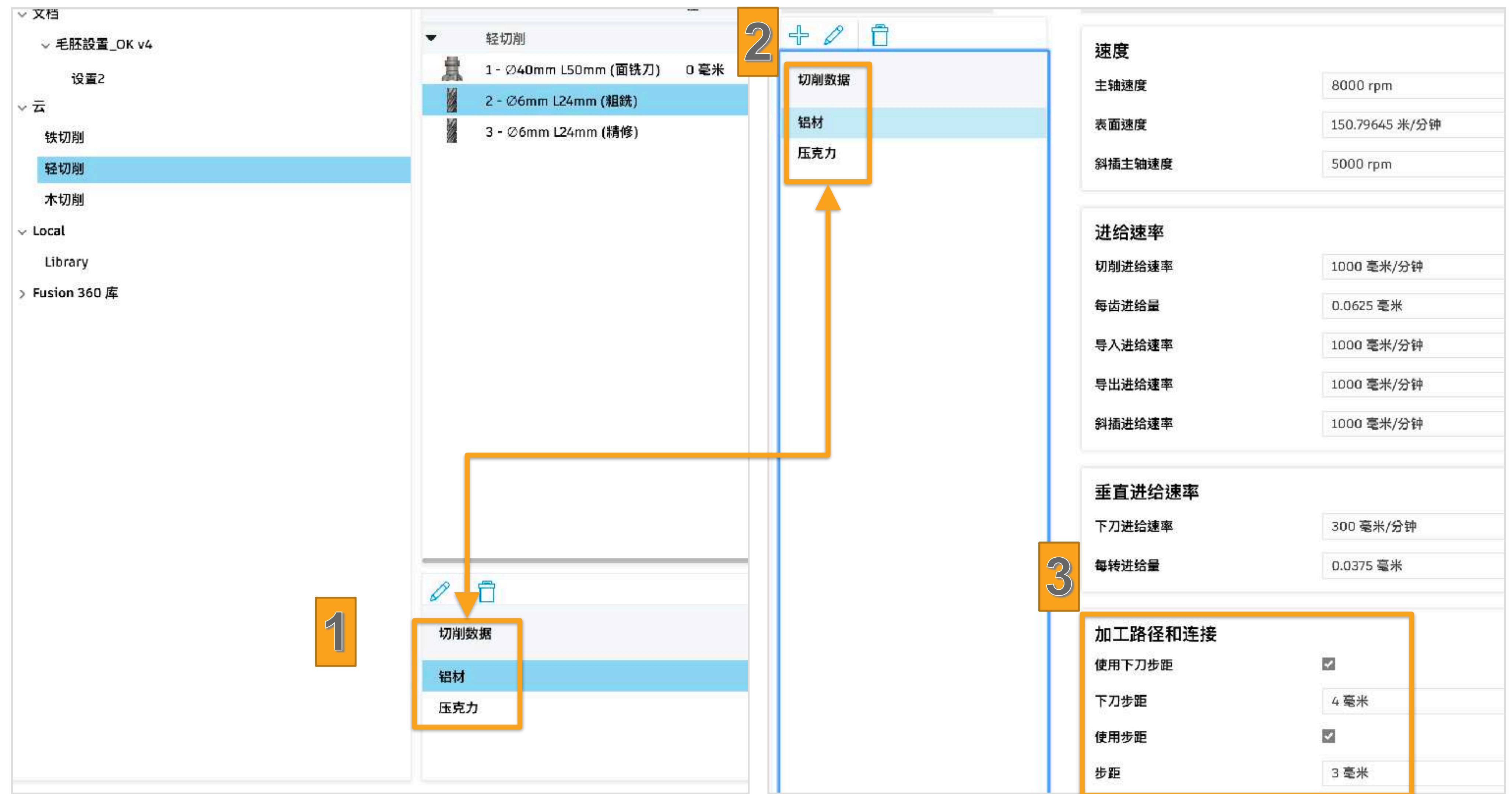
多元刀具库 (Local , 云端)



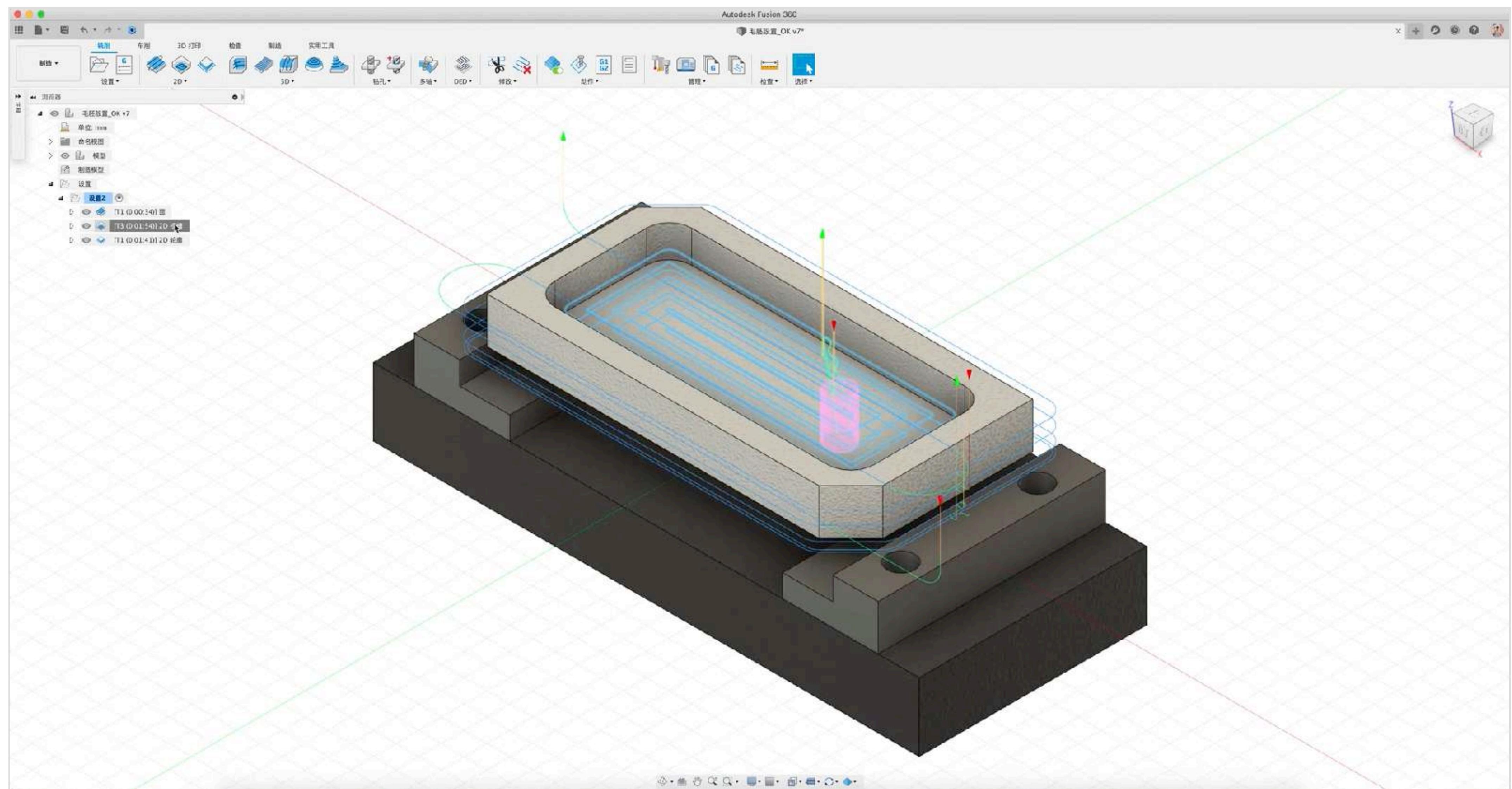
- 1：跟随文档的刀具库
- 2：放置云端的刀具库
- 3：放置本地端的刀具库



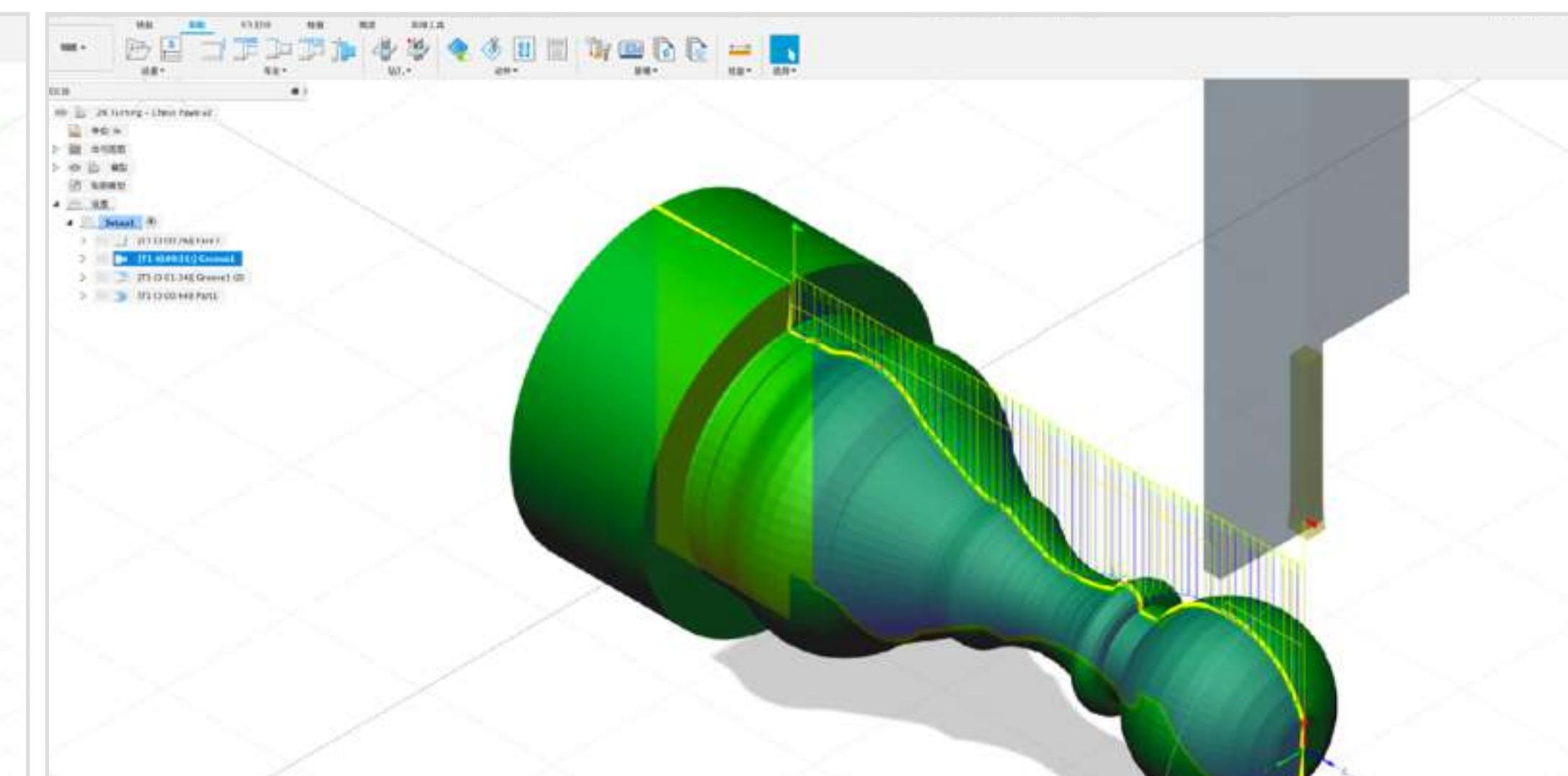
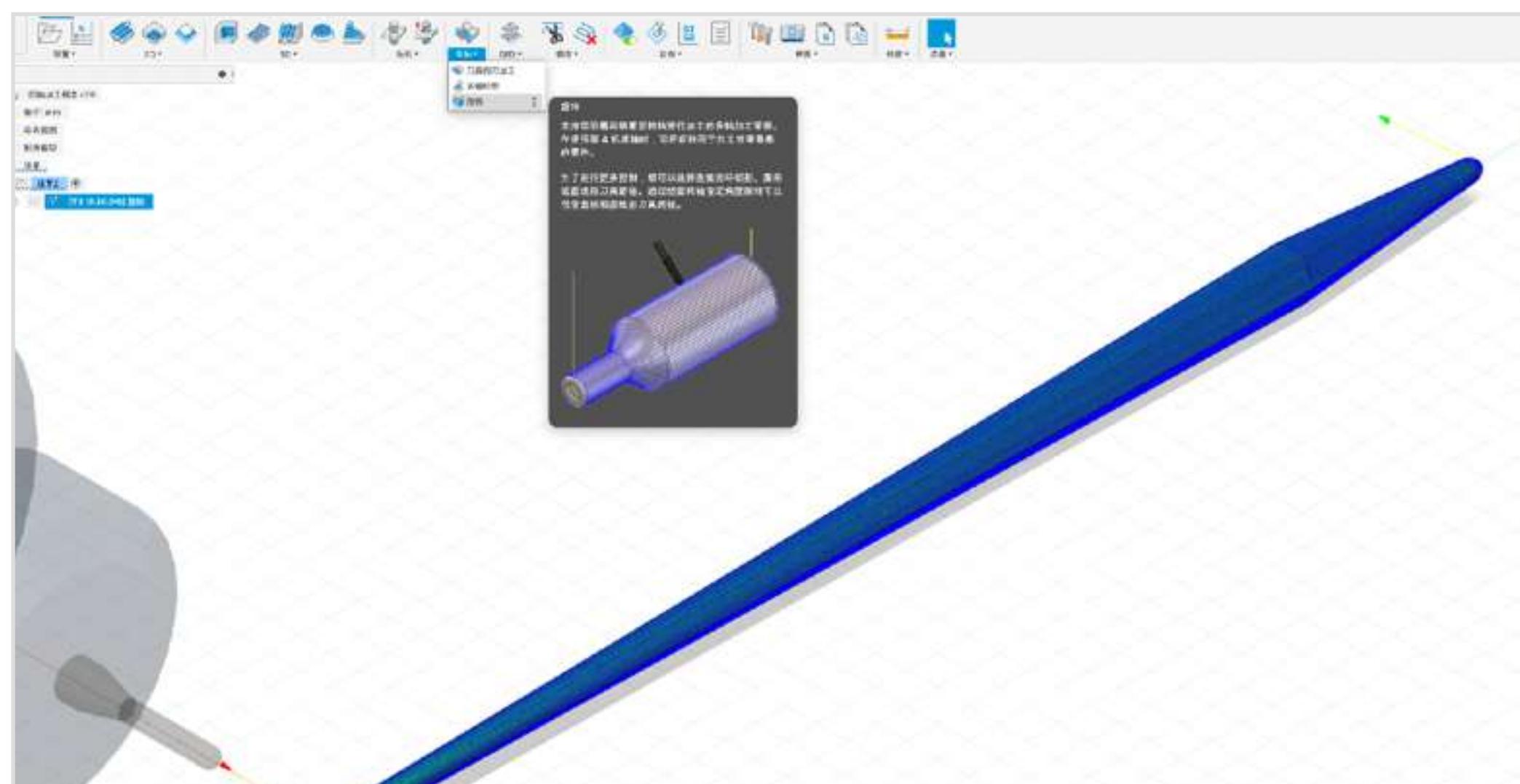
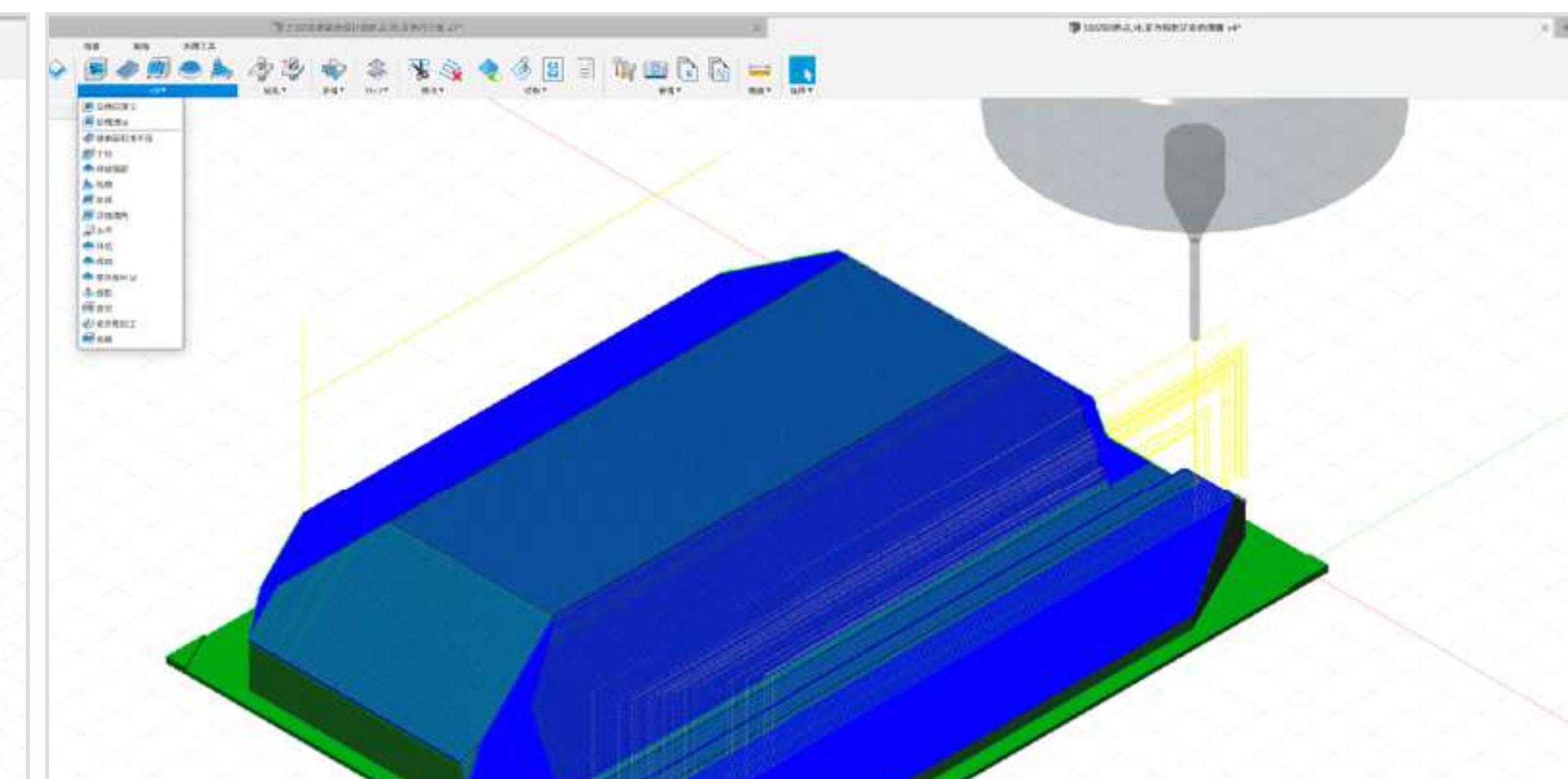
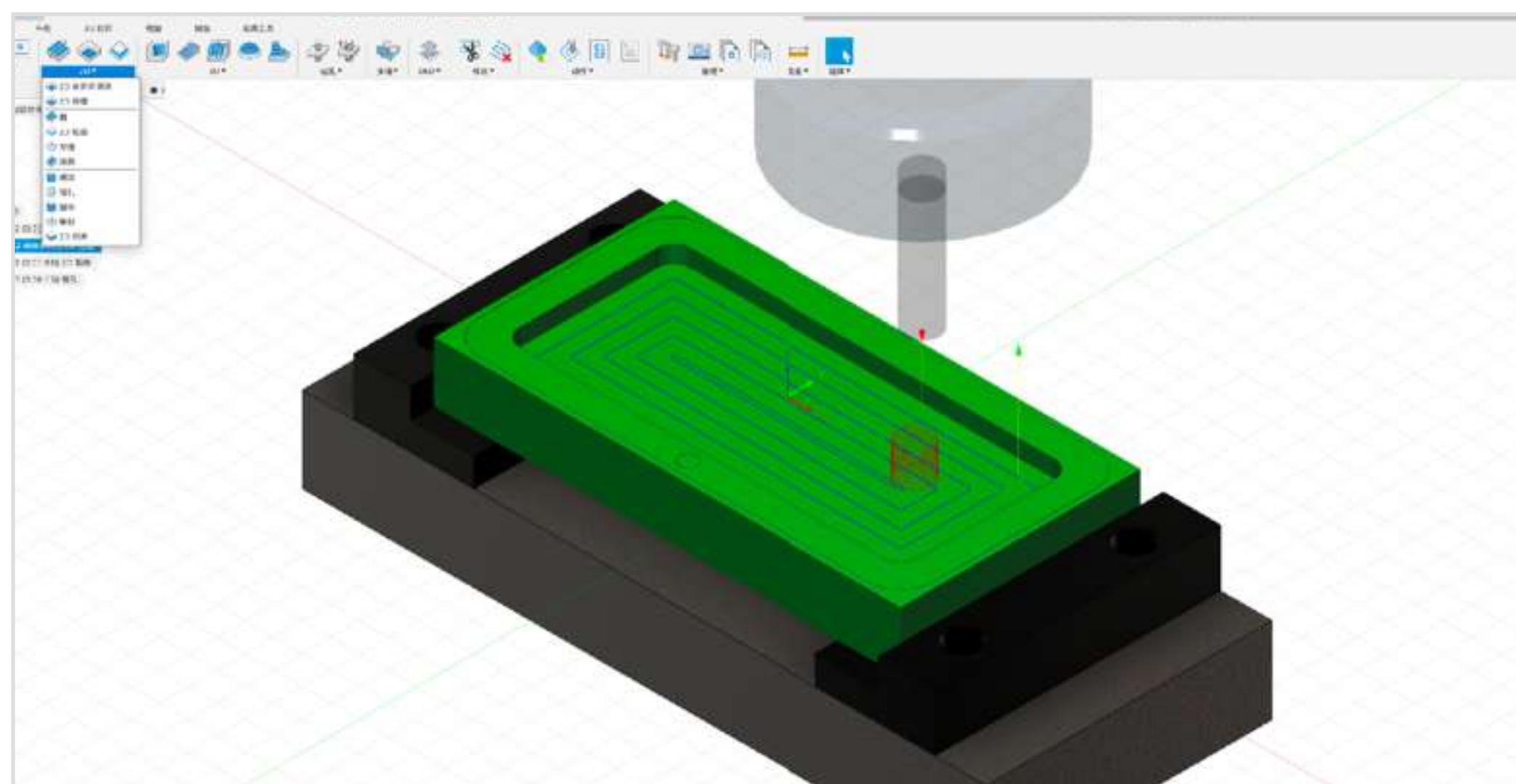
选择适合的切削数据



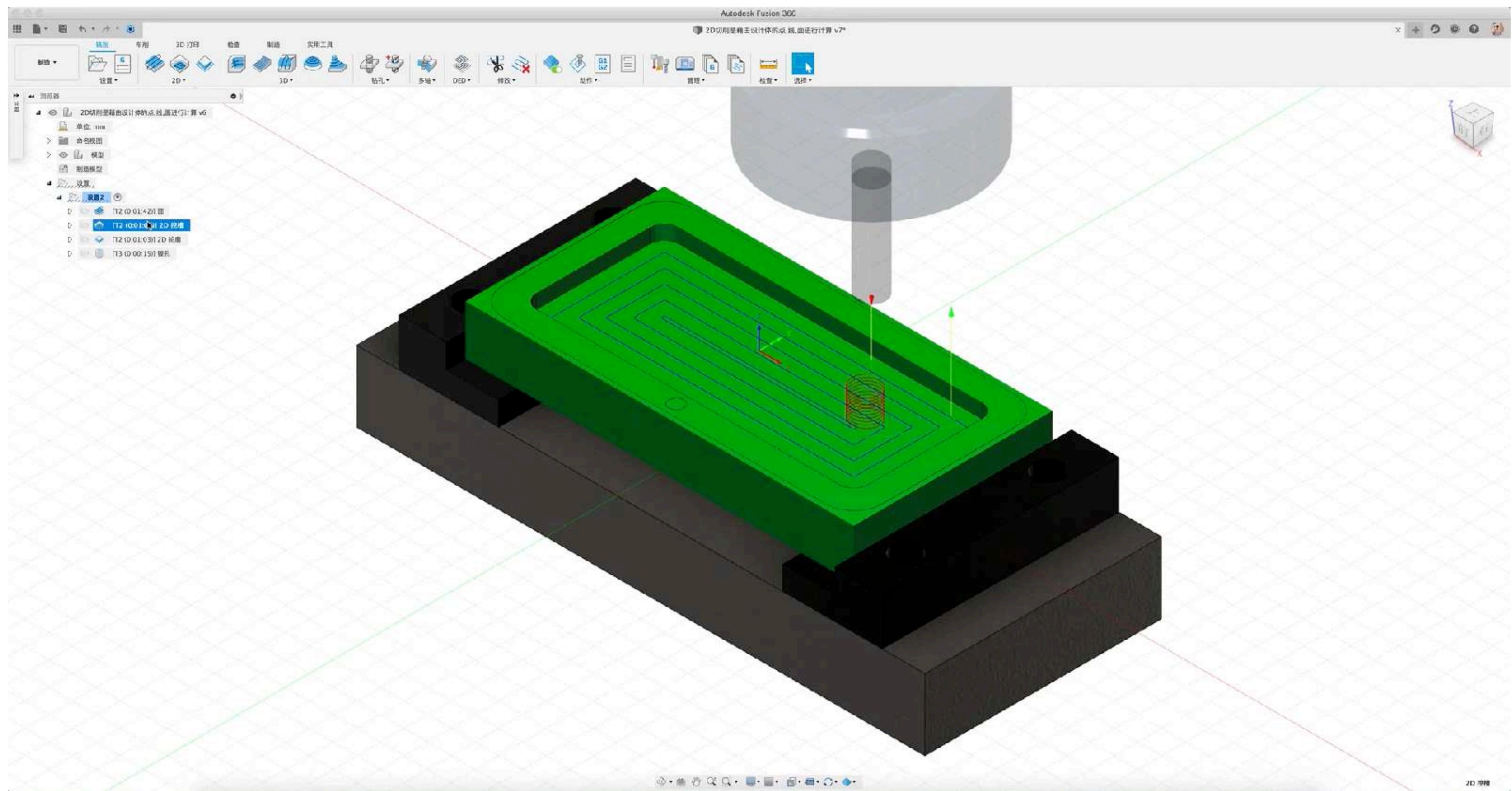
切削数据与工法的连接



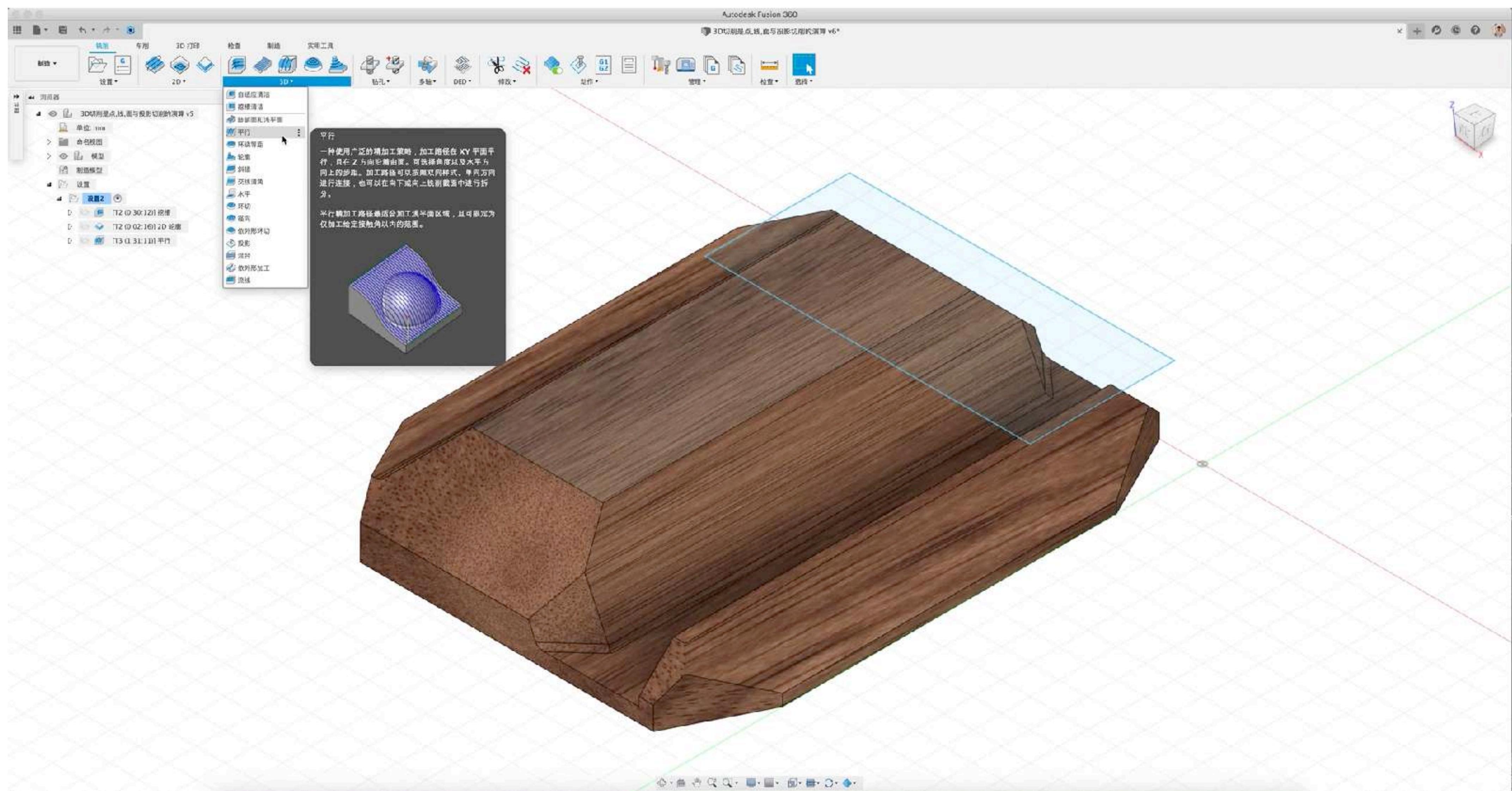
分门别类的切削模块,适合不同的设计体



2D切削是藉由设计体的点,线,面进行计算



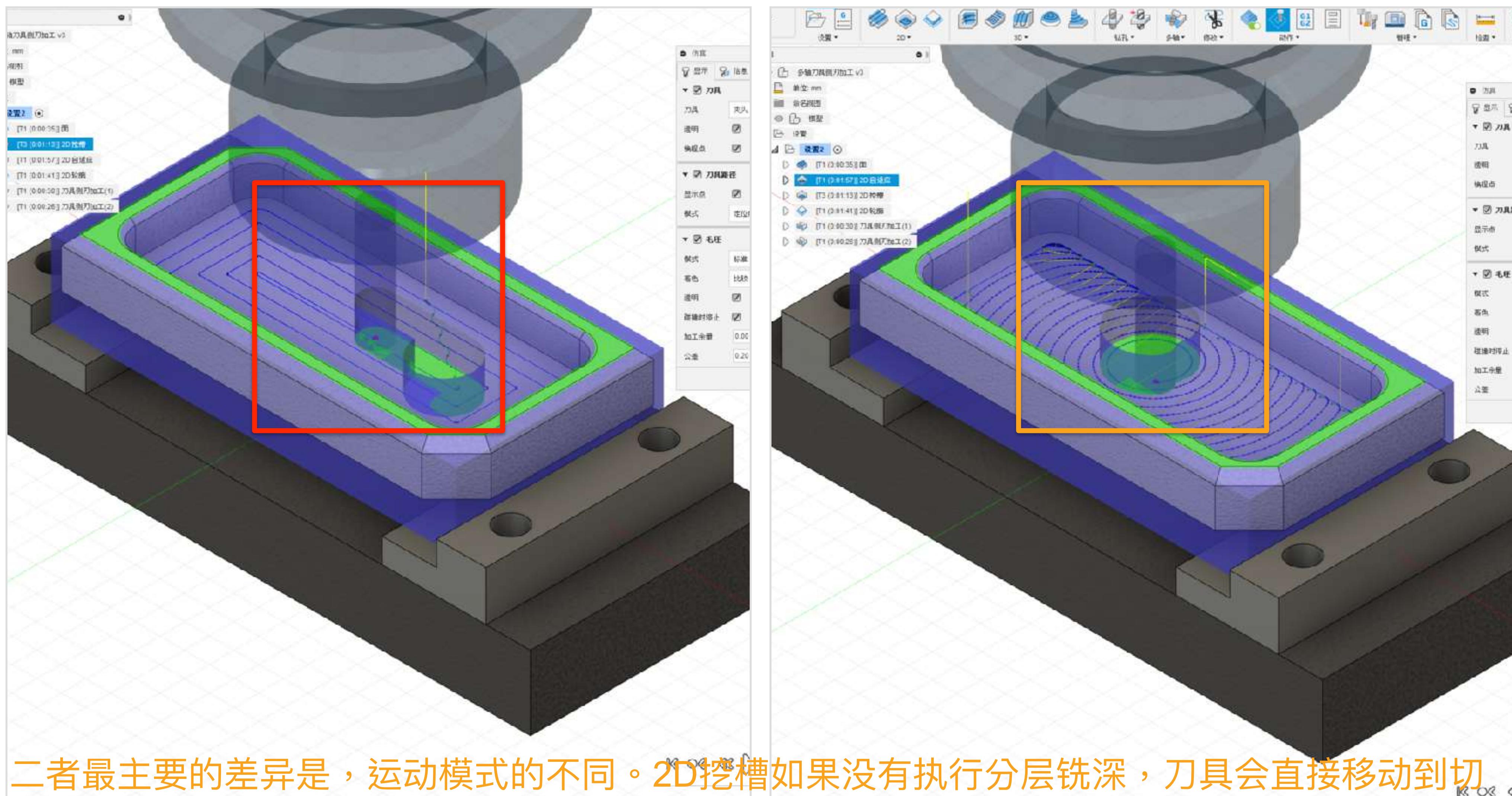
3D切削是点,线,面与投影切削的演算



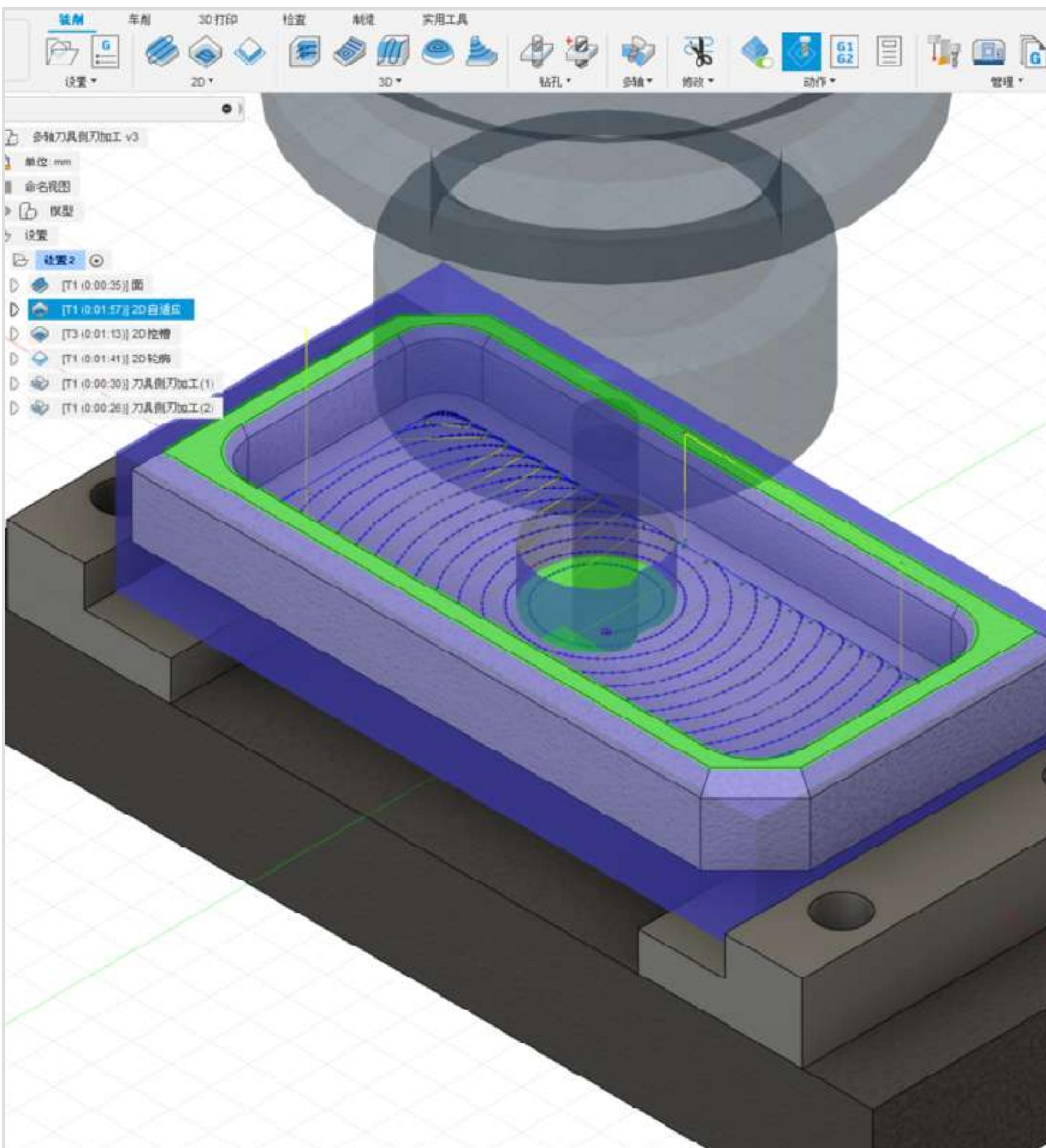
坡段曲面适合3D切削工法



自适应与传统工法的基础差异

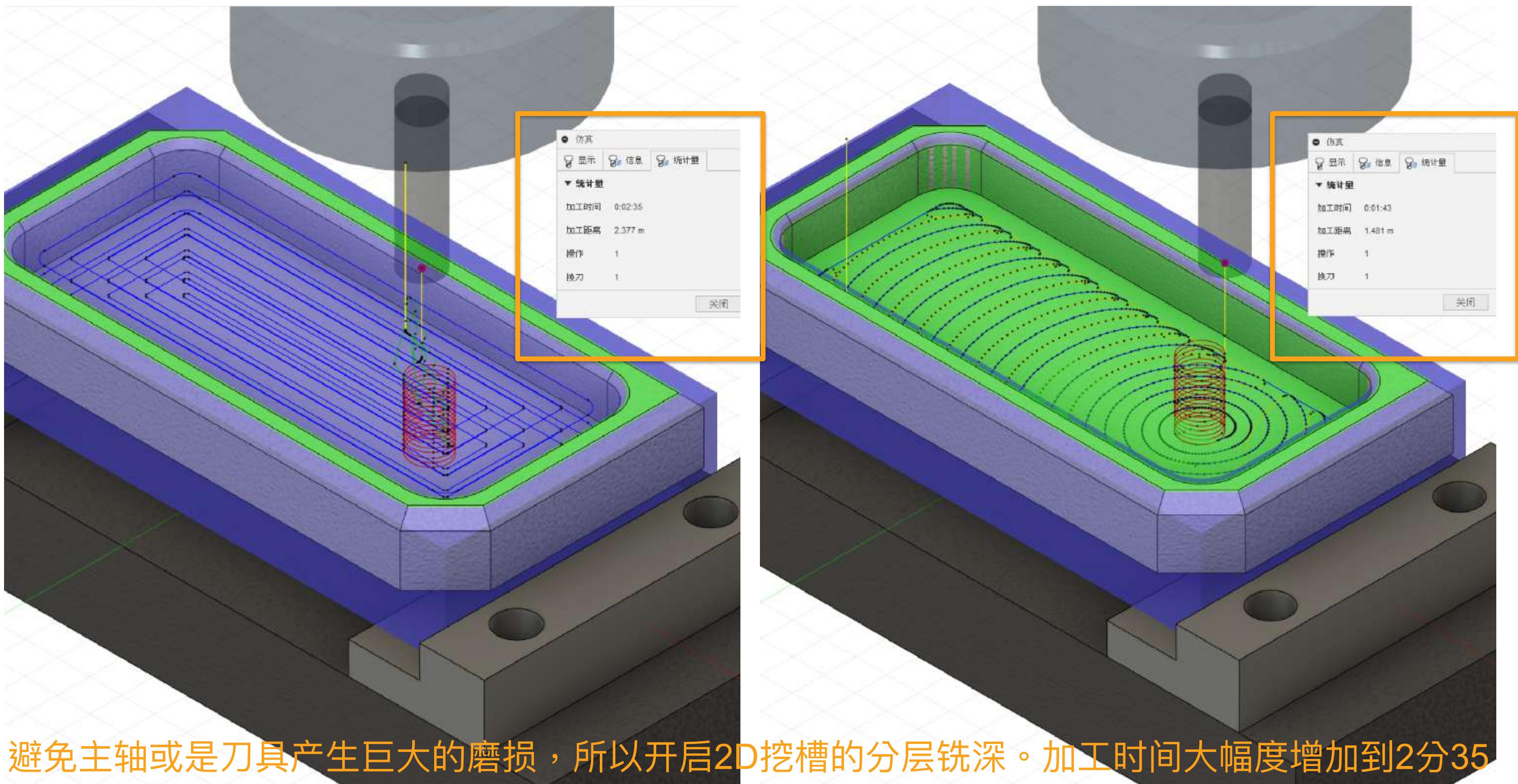


自适应的优点

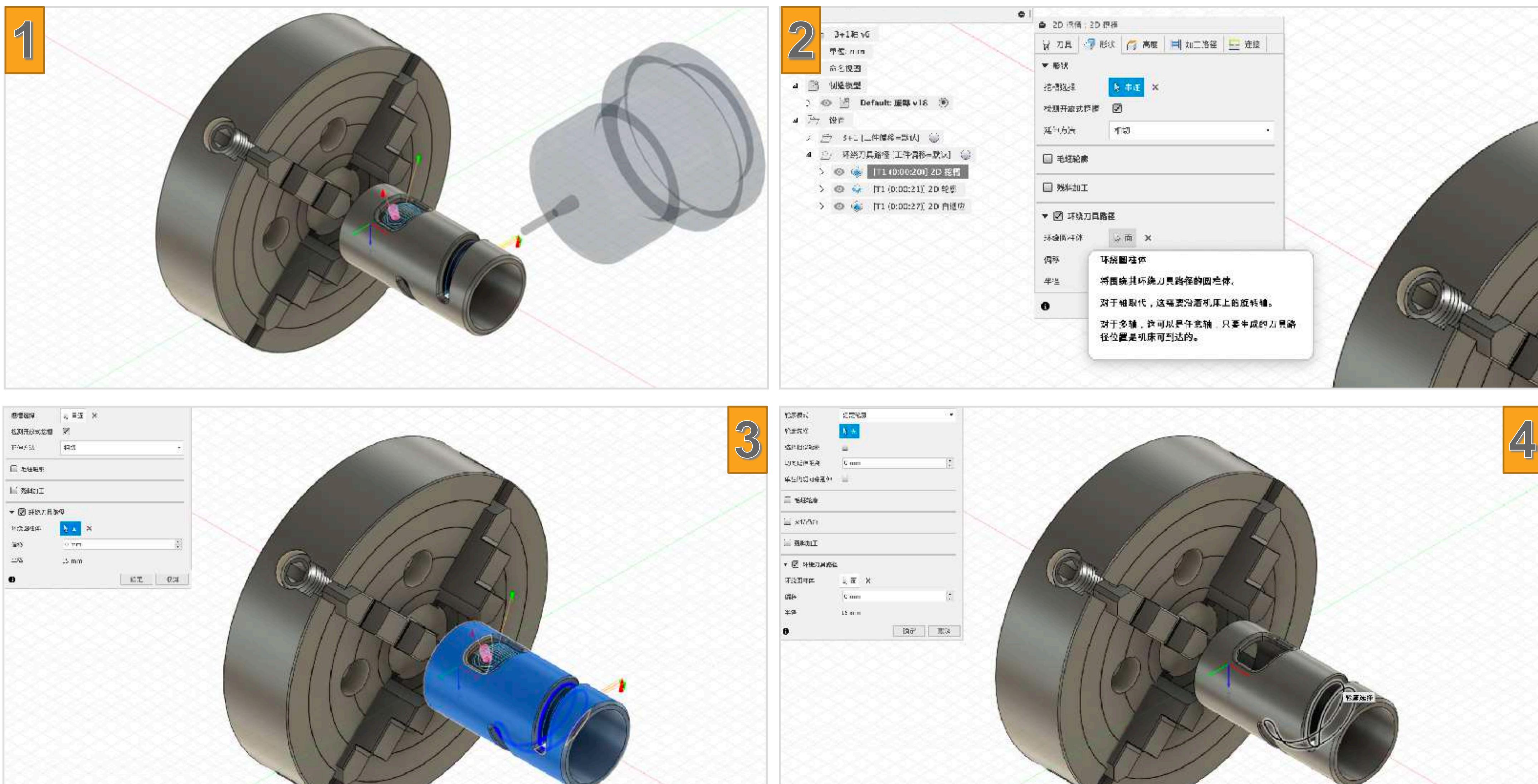


- 2D自适应采用 (High Speed Machining) 的刀具路径策略，将会有以下几点的优点：
 1. 减少主轴载荷
 2. 减少刀具载荷
 3. 更好的刀具利用率
 4. 更平滑的机床运动
 5. 减少机床磨损
 6. 更快的材料去除率
 7. 缩短周期

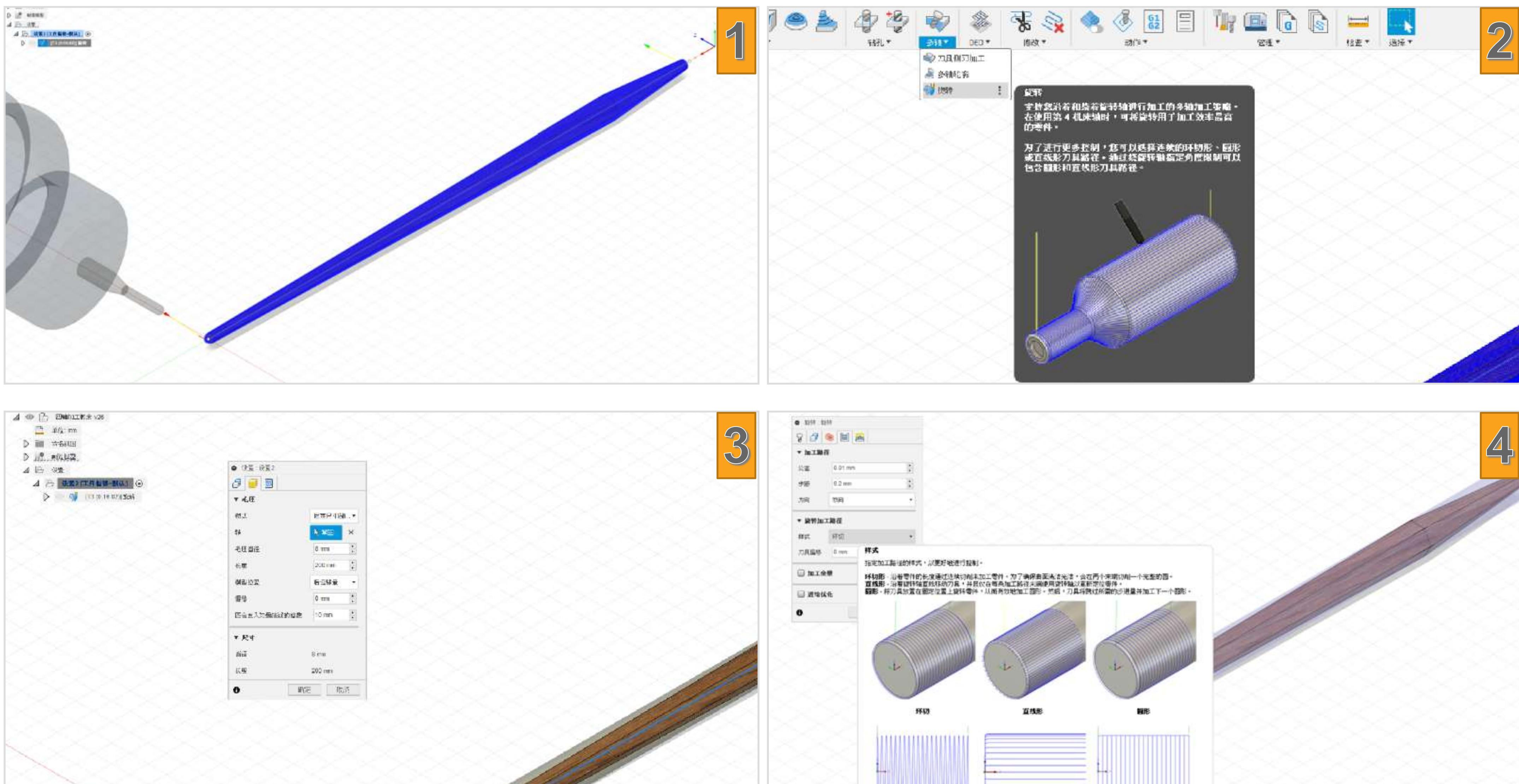
自适应创造更高的铣削效率



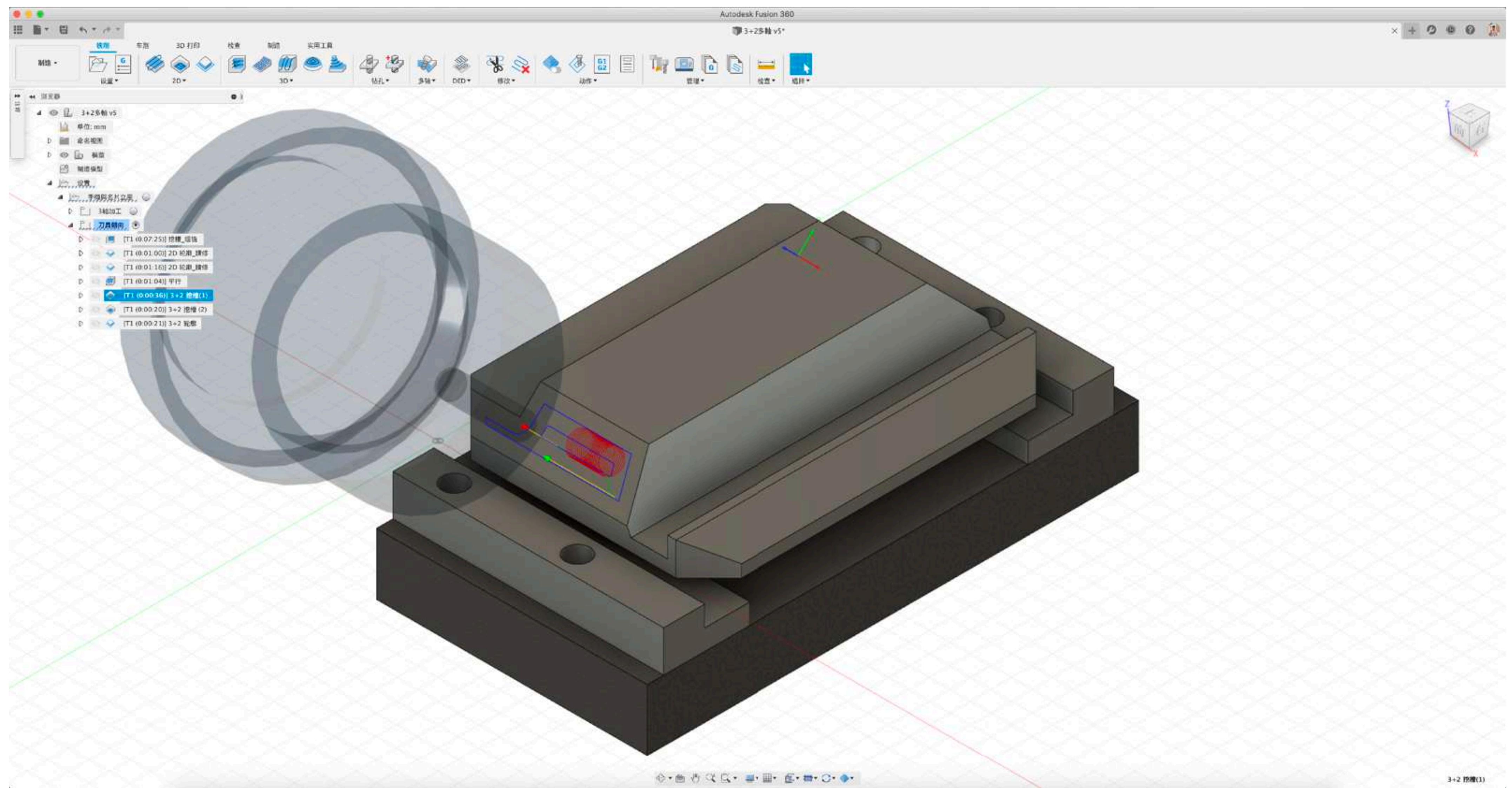
多轴加工模块，环绕刀具路径 (3+1)



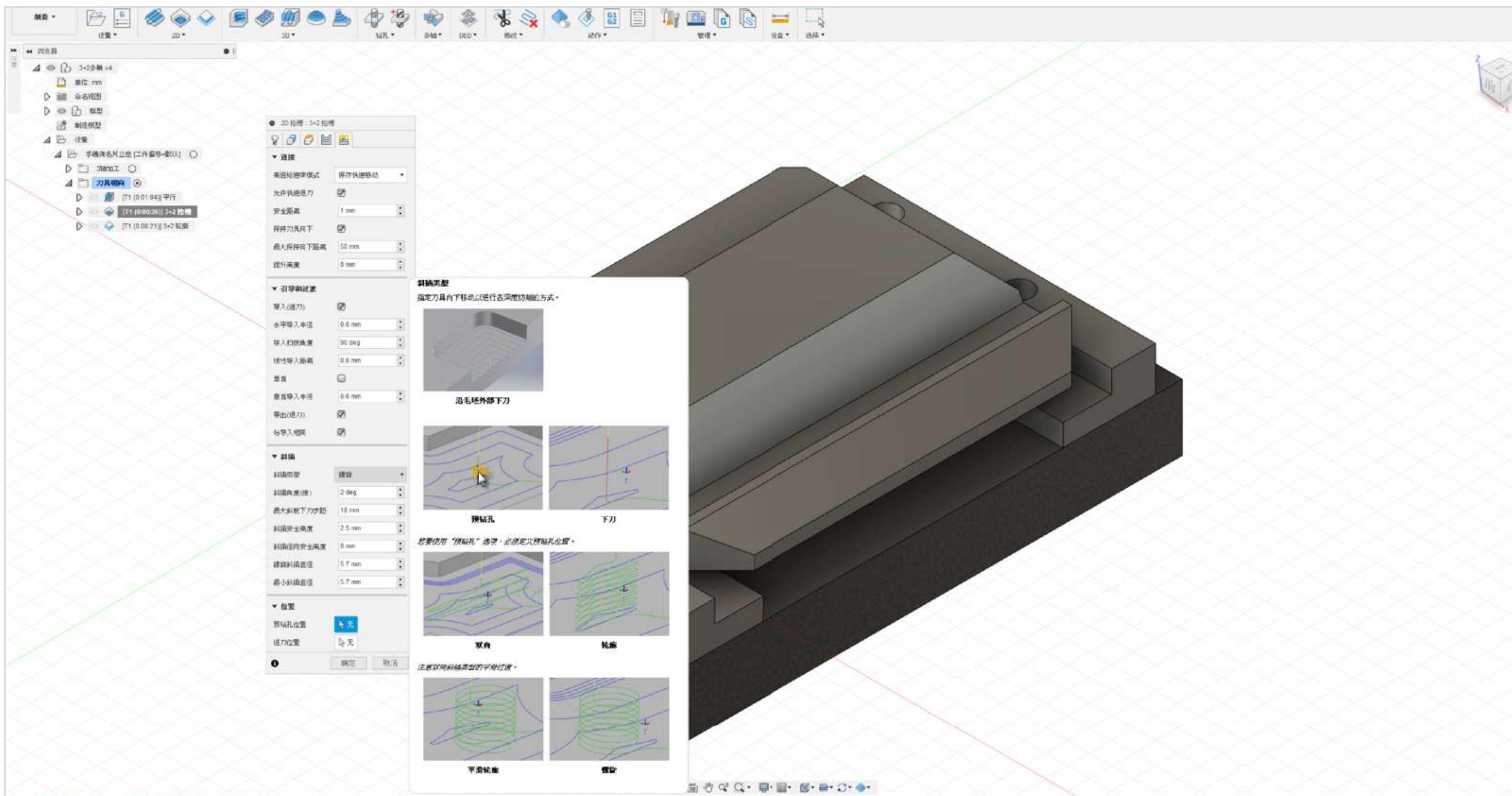
第四轴旋转加工概念



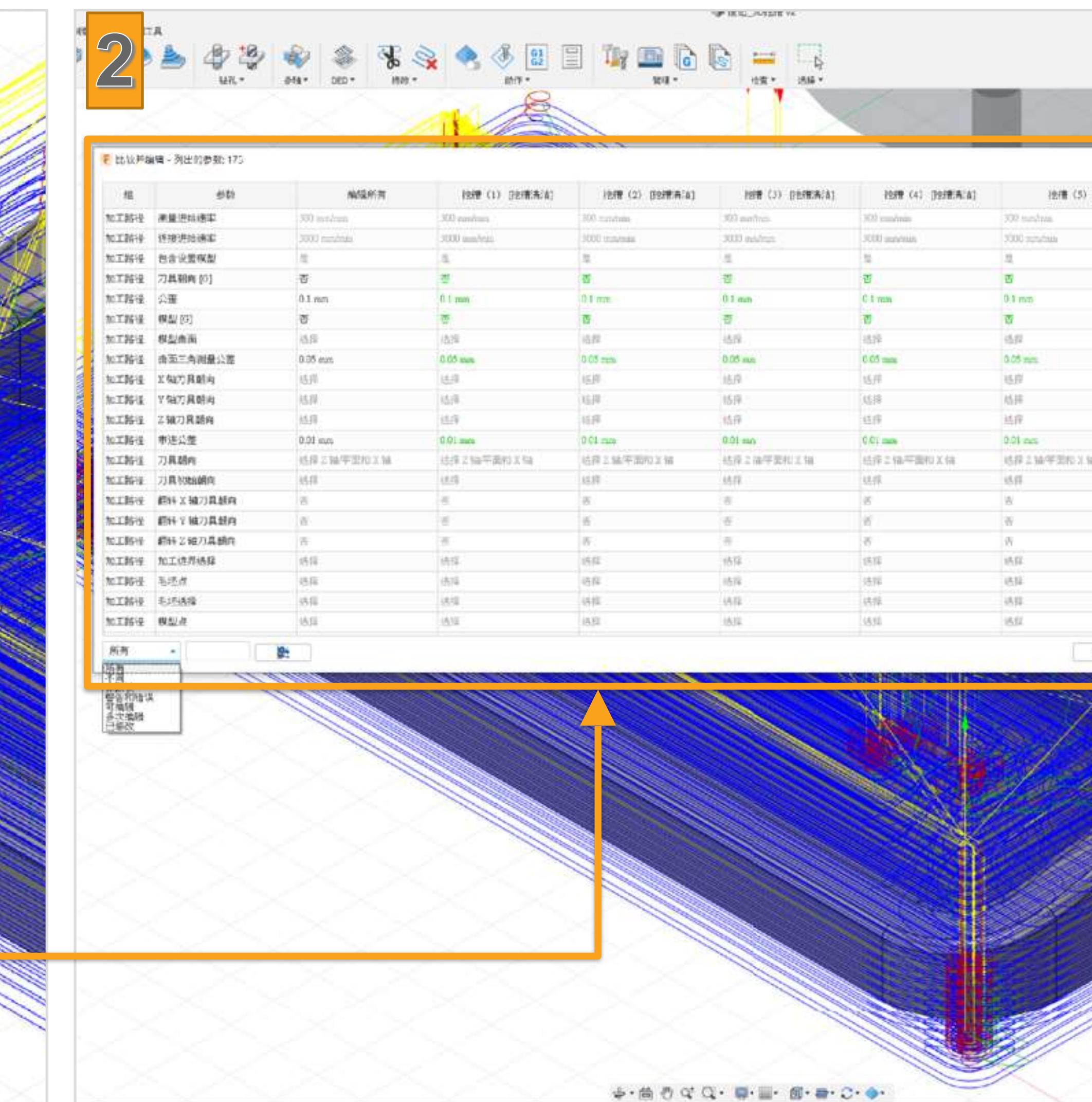
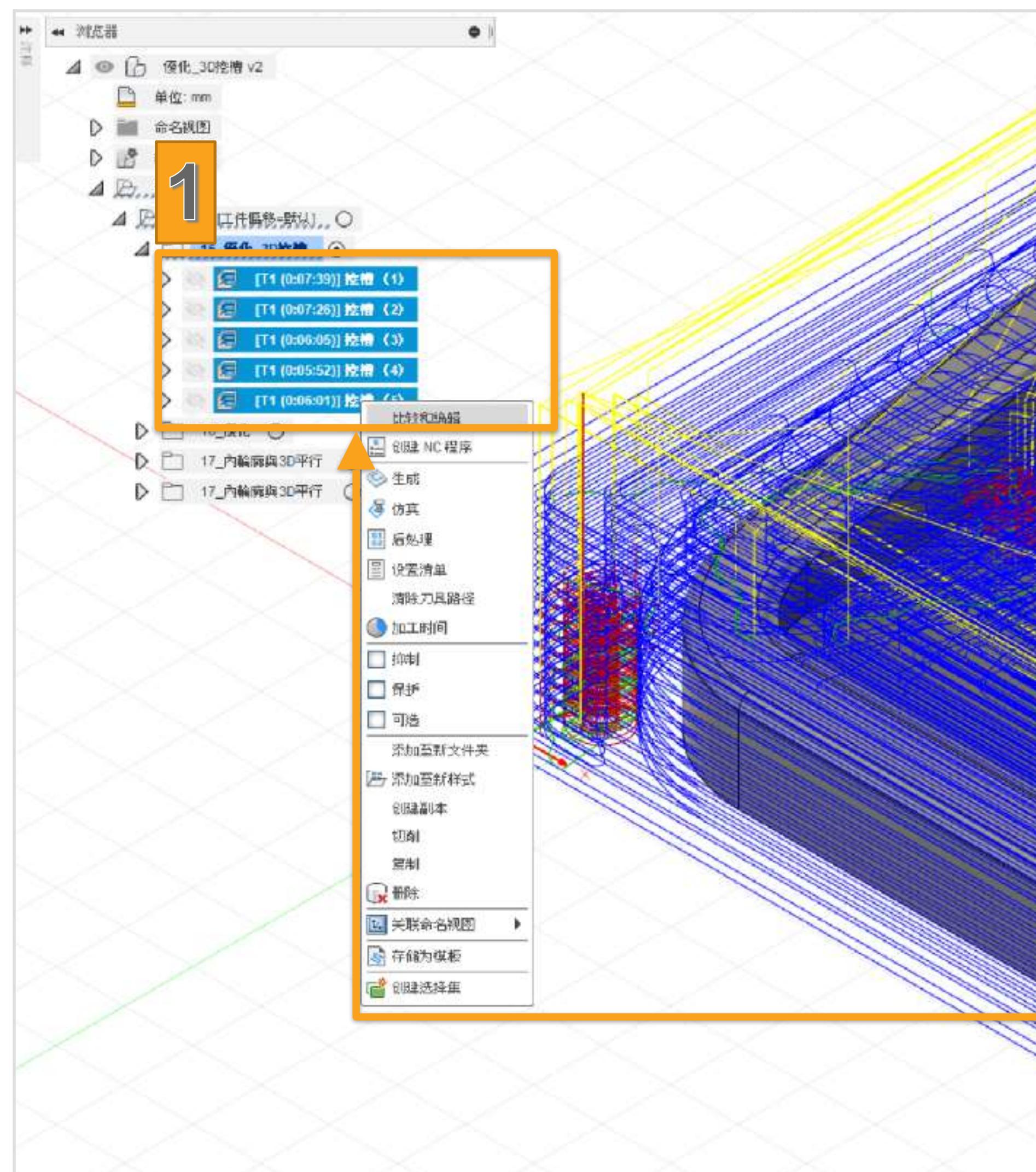
多轴加工模块（3+2）



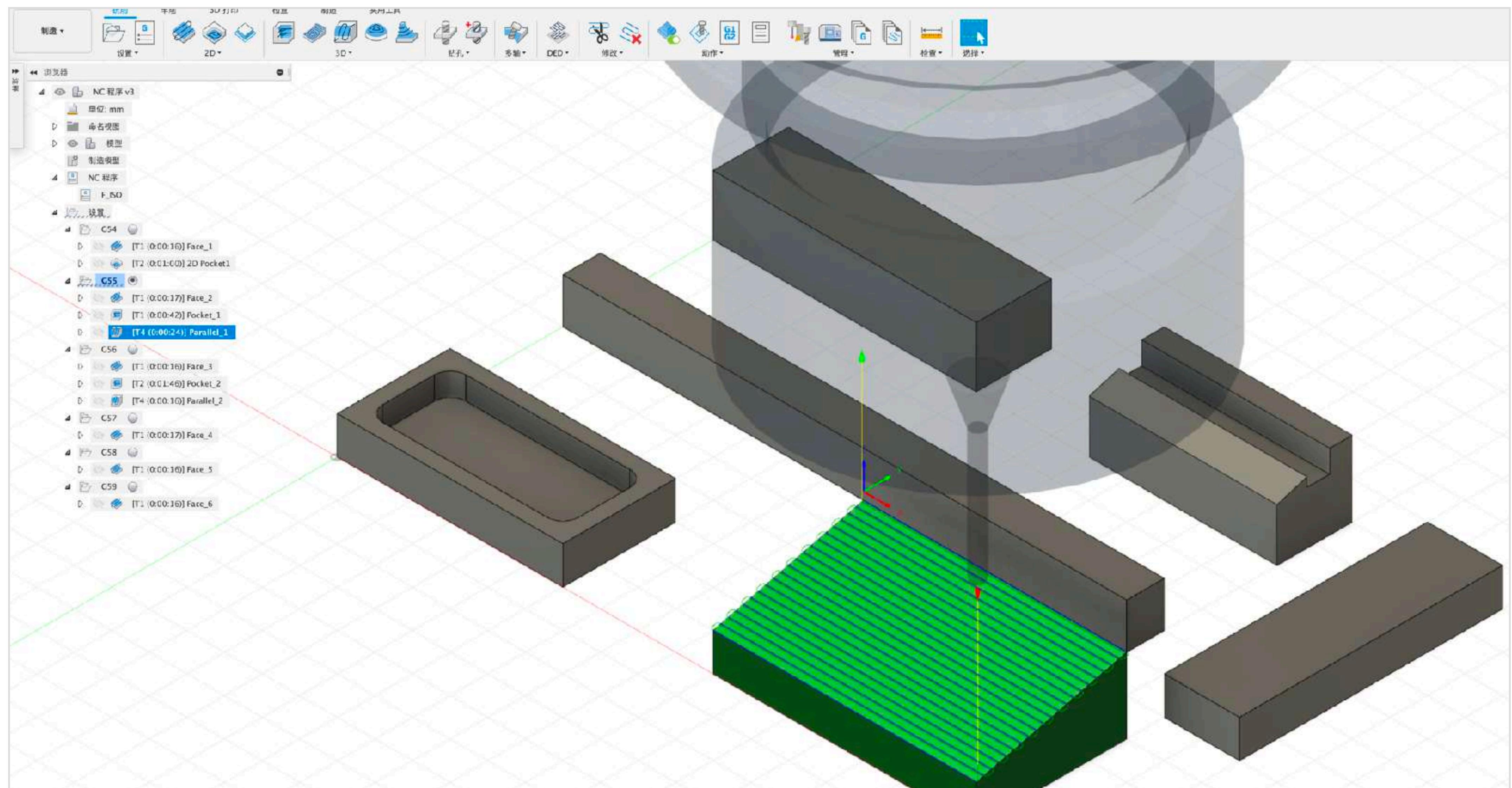
指定刀具向下，改变斜插类型



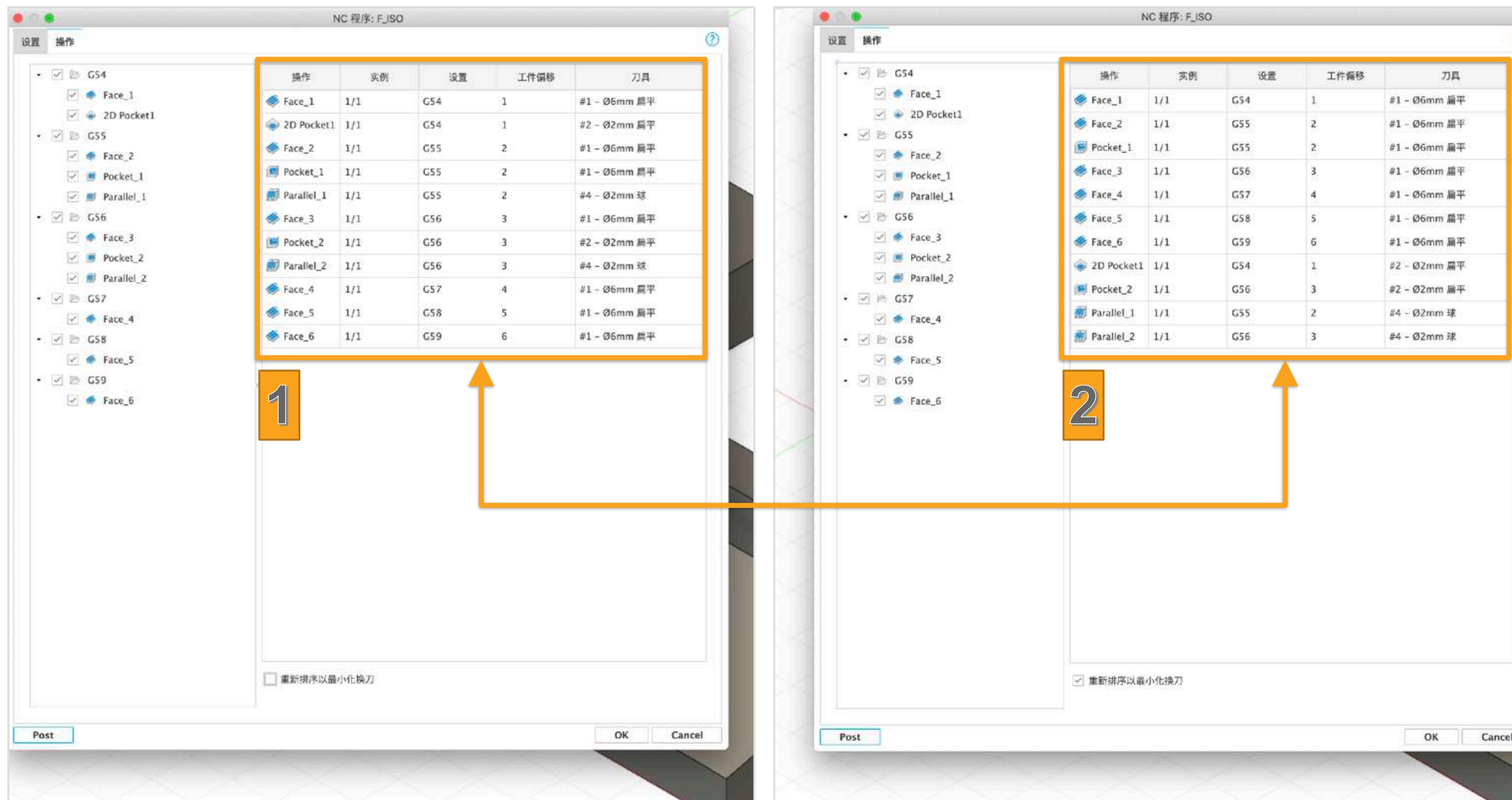
各种工法的比较和编辑



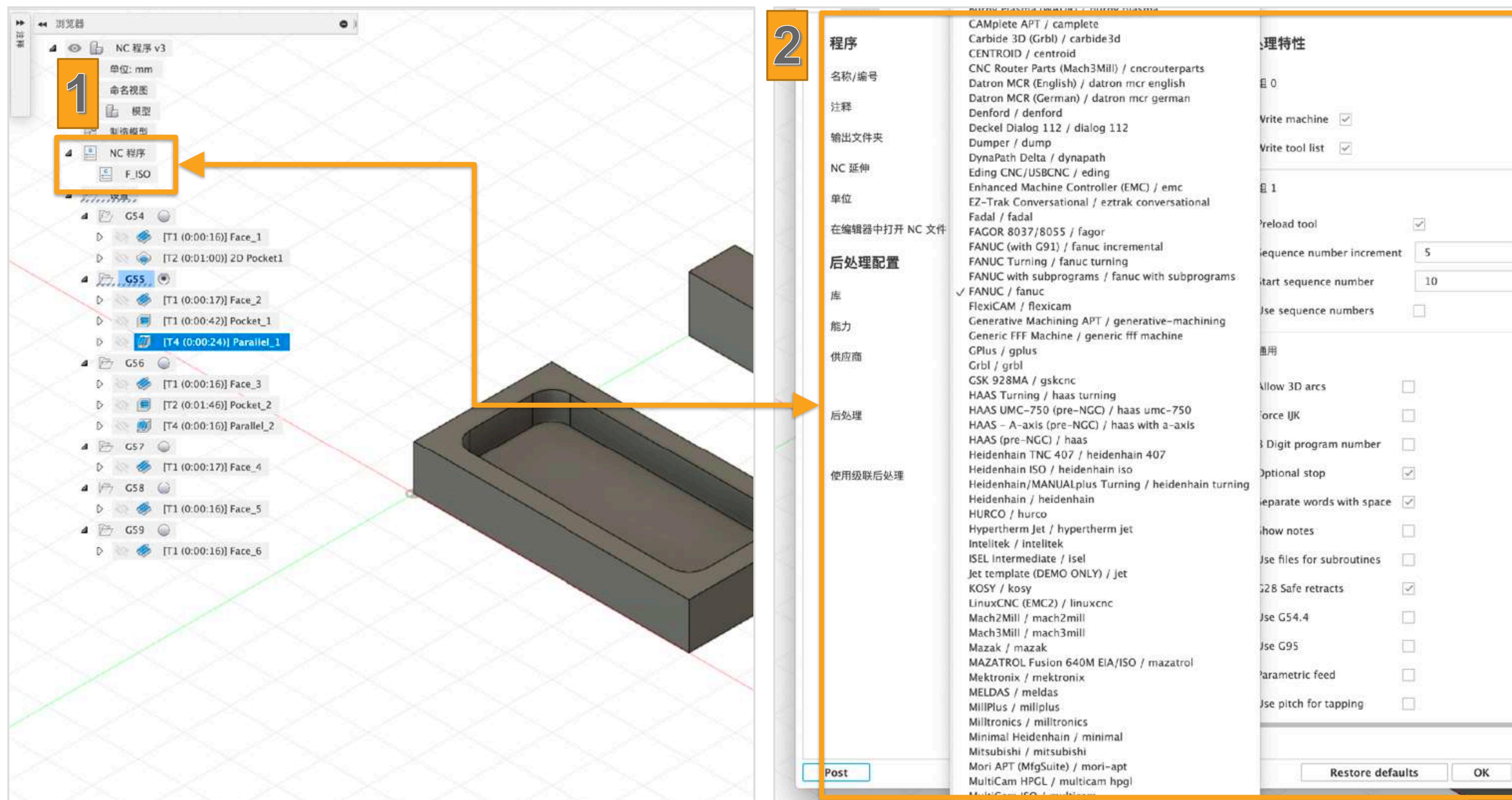
NC程序与机床WCS偏移



NC程序与最小化换刀



NC程序与后处理配置





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