SlotlPolygonHousing

Xie Yu

1   介绍

SlotPolygonHousing用于建立带槽多边形轴套。

2   类结构

Object Structure
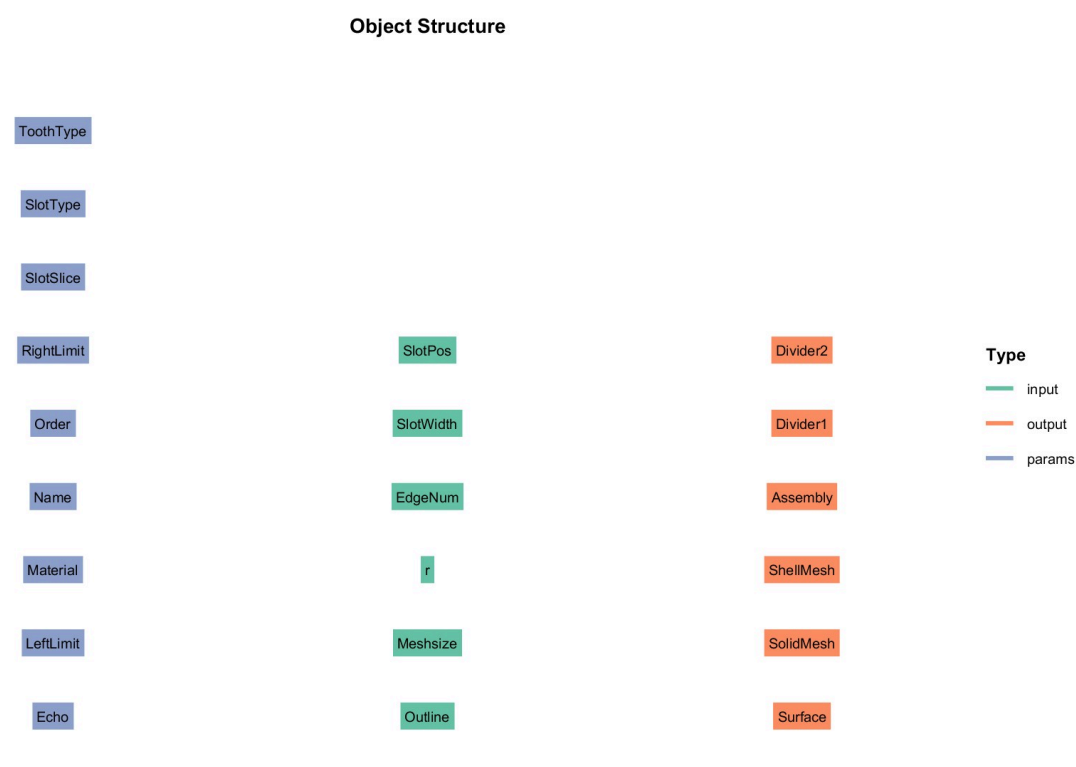
输入 input：

- SlotWidth：槽宽
- SlotPos：槽部开始位置
- SEdgeNum：边数量
- Meshsize：网格尺寸
- Outline：外轮廓Line2D
- r：多边形倒角

参数 params:

- Order： 单元阶数
- ToothType：齿类型
- SlotTyoe：槽类型
- SlotSlice：槽部网格数量
- Name：名称
- Material：材料

- LeftLimit：左端位置限制
- RightLimit：右端位置限制

输出 output：

- Assembly：实体单元装配
- Divider1：分割线1
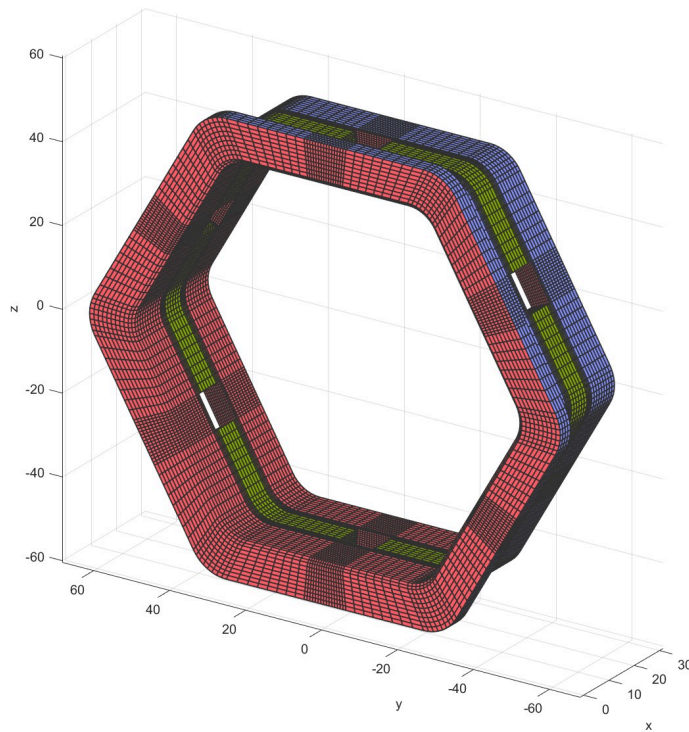- Divider2：分割线2
- ShellMesh：壳网格
- SolidMesh：实体网格
- Surface：截面

3 案例

3.1 Create SlotPolygonHousing (Flag=1)

```
a=Point2D('Point Ass1');
a=AddPoint(a,[0;4],[110/2;110/2]);
a=AddPoint(a,[4;4],[110/2;100/2]);
a=AddPoint(a,[4;30],[100/2;100/2]);
a=AddPoint(a,[30;30],[100/2;90/2]);
a=AddPoint(a,[30;1],[90/2;90/2]);
a=AddPoint(a,[1;0],[90/2;92/2]);
a=AddPoint(a,[0;0],[92/2;110/2]);

b=Line2D('Line Ass1');
for i=1:7
  b=AddCurve(b,a,i);
end

inputHousing.Outline= b;
inputHousing.EdgeNum= 6;
inputHousing.r= 10;
inputHousing.Meshsize= 1;
inputHousing.SlotWidth= 10;
inputHousing.SlotPos= [12,20];

paramsHousing.SlotSlice=15;

obj1=housing.SlotPolygonHousing(paramsHousing, inputHousing);
obj1=obj1.solve();
Plot2D(obj1);
Plot3D(obj1);
```
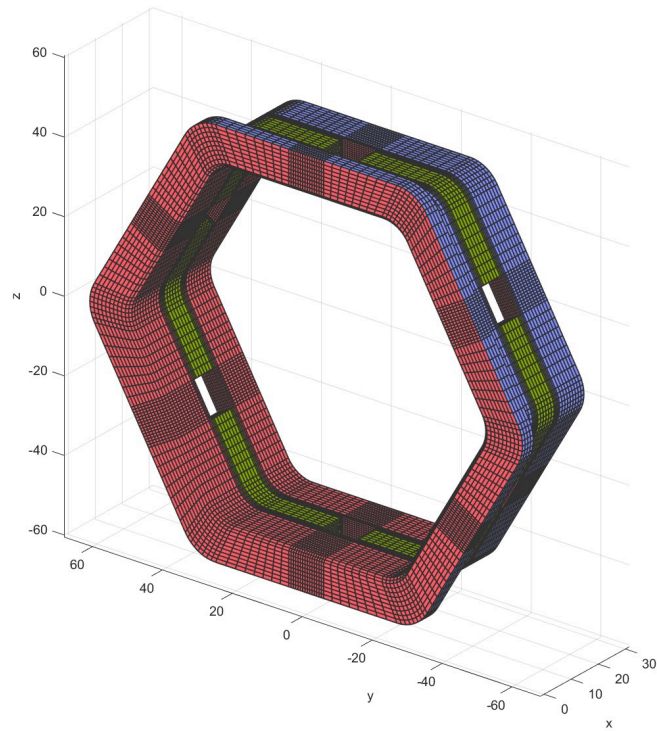
3.2 Change tooth type (Flag=2)

```
1   a=Point2D('Point Ass1');
2   a=AddPoint(a,[0;4],[110/2;110/2]);
3   a=AddPoint(a,[4;4],[110/2;100/2]);
4   a=AddPoint(a,[4;30],[100/2;100/2]);
5   a=AddPoint(a,[30;30],[100/2;90/2]);
6   a=AddPoint(a,[30;1],[90/2;90/2]);
7   a=AddPoint(a,[1;0],[90/2;92/2]);
8   a=AddPoint(a,[0;0],[92/2;110/2]);
9
10  b=Line2D('Line Ass1');
11  for i=1:7
12     b=AddCurve(b,a,i);
13  end
14
15  inputHousing.Outline= b;
16  inputHousing.EdgeNum= 6;
17  inputHousing.r= 10;
18  inputHousing.Meshsize= 1;
19  inputHousing.SlotWidth= 10;
20  inputHousing.SlotPos= [12,20];
21
22  paramsHousing.SlotSlice=15;
23  paramsHousing.ToothType=2;
24
25  obj1=housing.SlotPolygonHousing(paramsHousing, inputHousing);
26  obj1=obj1.solve();
27  Plot2D(obj1);
```
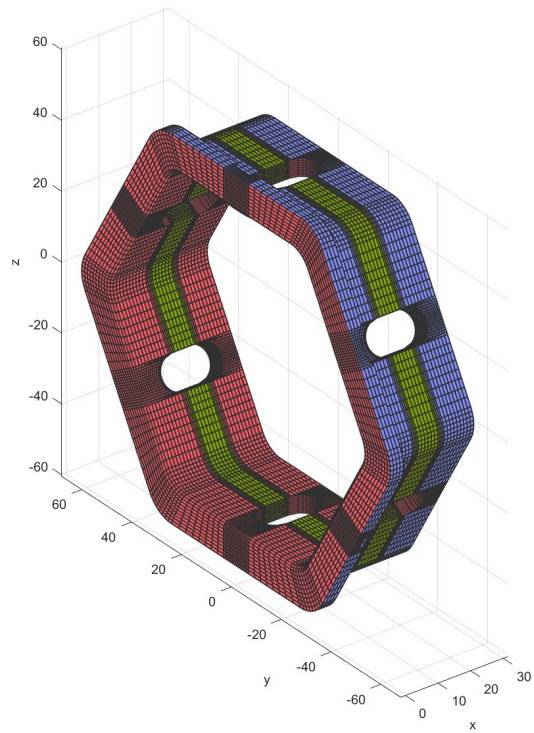
```
28    Plot3D(obj1);
```

Type1和Type2是两种不同的齿槽，Type1齿部的边界延长线都指向圆心，Type2的边界线为平行线。

3.3   Circle groove slot type (Flag=3)

```
1    a=Point2D('Point Ass1');
2    a=AddPoint(a,[0;4],[110/2;110/2]);
3    a=AddPoint(a,[4;4],[110/2;100/2]);
4    a=AddPoint(a,[4;30],[100/2;100/2]);
5    a=AddPoint(a,[30;30],[100/2;90/2]);
6    a=AddPoint(a,[30;1],[90/2;90/2]);
7    a=AddPoint(a,[1;0],[90/2;92/2]);
8    a=AddPoint(a,[0;0],[92/2;110/2]);
9
10   b=Line2D('Line Ass1');
11   for i=1:7
12     b=AddCurve(b,a,i);
13   end
14
15   inputHousing.Outline= b;
16   inputHousing.EdgeNum= 6;
17   inputHousing.r= 10;
18   inputHousing.Meshsize= 1;
19   inputHousing.SlotWidth= 10;
20   inputHousing.SlotPos= [12,20];
21
22   paramsHousing.SlotSlice=15;
23   paramsHousing.ToothType=2;
24   paramsHousing.SlotType=2;
25
26   obj1=housing.SlotPolygonHousing(paramsHousing, inputHousing);
```

```
27  obj1=obj1.solve();
28  Plot2D(obj1);
29  Plot3D(obj1);
```


4   参考文献