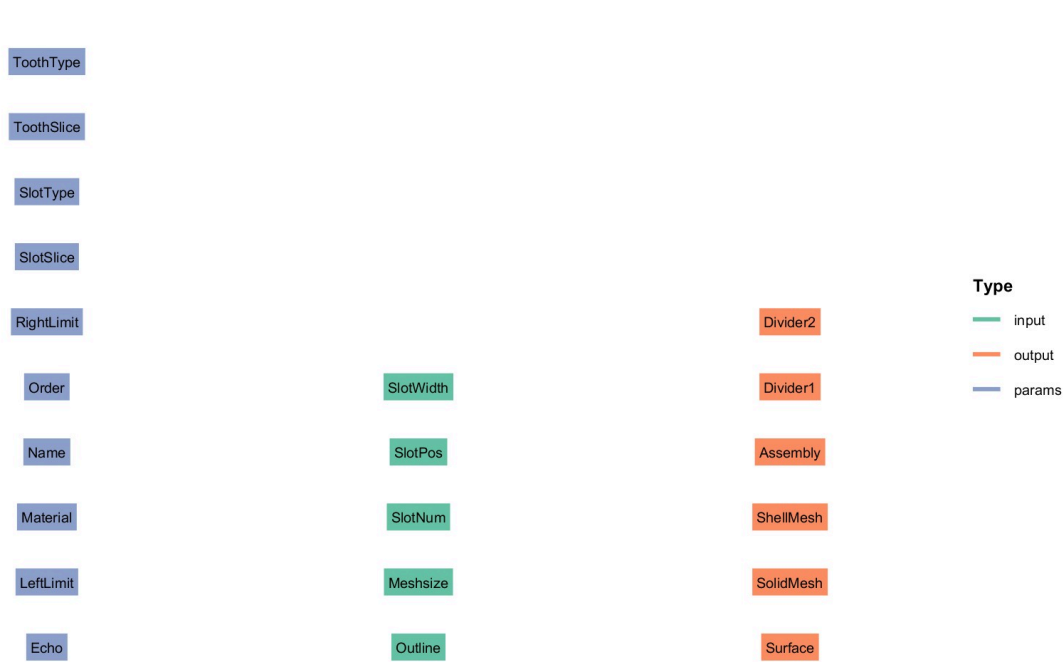# SlotlHousing

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1 介绍

SlotHousing用于建立带槽的轴套。

2 类结构

Object Structure

输入 input：

- SlotWidth：槽宽
- SlotPos：槽部开始位置
- SlotNum：齿槽数量
- Meshsize：网格尺寸
- Outline：外轮廓Line2D

参数 params：

- Order： 单元阶数
- ToothType：齿类型
- SlotTyoe：槽类型
- ToothSlice：齿部网格数量
- 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 SlotHousing (Flag=1)

```
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.SlotPos= [12,20];
17  inputHousing.SlotNum= 12;
18  inputHousing.SlotWidth= 10;
19  % inputHOusing.SlotWidth= 16;
20  % inputHousing.SlotWidth= 22;
21  inputHousing.Meshsize= 1;
22
23  paramsHousing.SlotSlice= 15;
24  paramsHousing.ToothSlice= 8;
25
26  obj1=housing.SlotHousing(paramsHousing, inputHousing);
27  obj1=obj1.solve();
28  Plot2D(obj1);
29  Plot3D(obj1);
```
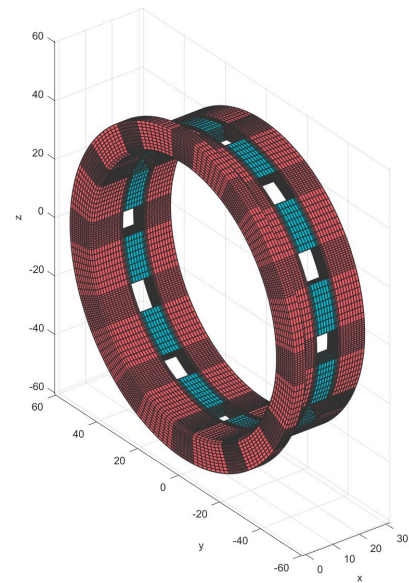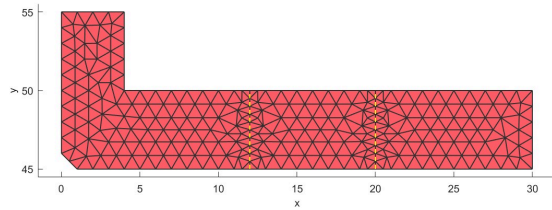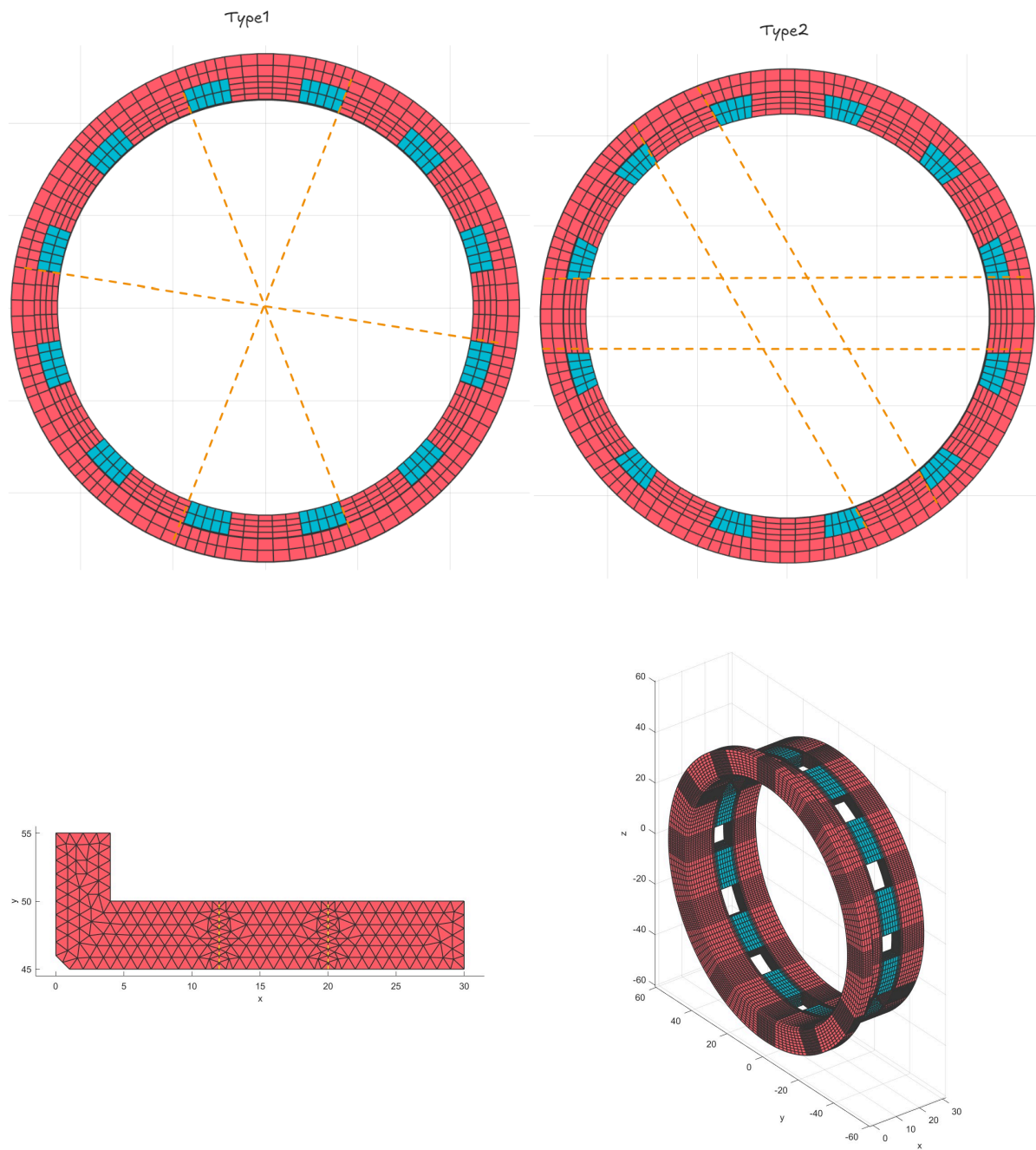
3.2   Change tooth type (Flag=2)

```
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]);

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

15  inputHousing.Outline= b;
16  inputHousing.SlotPos= [12,20];
17  inputHousing.SlotNum= 12;
18  inputHousing.SlotWidth= 10;
19  % inputHOusing.SlotWidth= 16;
20  % inputHousing.SlotWidth= 22;
21  inputHousing.Meshsize= 1;

23  paramsHousing.SlotSlice= 15;
24  paramsHousing.ToothSlice= 8;
25  paramsHousing.ToothType= 2;

27  obj1=housing.SlotHousing(paramsHousing, inputHousing);
28  obj1=obj1.solve();
29  Plot2D(obj1);
30  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。

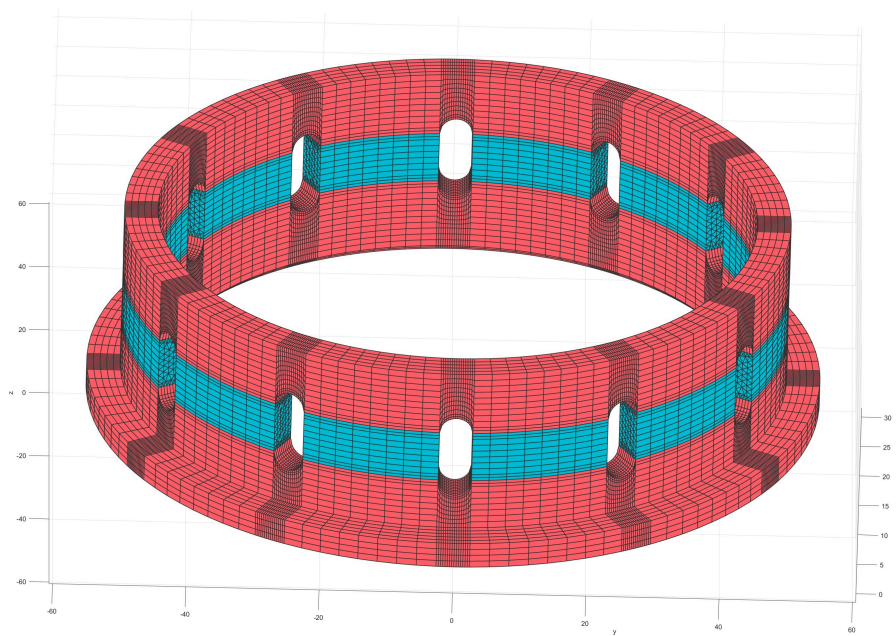## 3.3   Circle groove slot type (Flag=3)

```
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.SlotPos= [12,20];
17   inputHousing.SlotNum= 12;
18   inputHousing.SlotWidth= 5;
19   inputHousing.Meshsize= 1;
20
21   paramsHousing.LeftLimit=4;
22   paramsHousing.SlotSlice= 15;
23   paramsHousing.ToothSlice= 8;
24   % paramsHousing.ToothType= 1;
25   paramsHousing.ToothType= 2;
26   paramsHousing.SlotType= 2;
27
28   obj1=housing.SlotHousing(paramsHousing, inputHousing);
29   obj1=obj1.solve();
30   Plot2D(obj1);
31   Plot3D(obj1);
32
```


4 参考文献