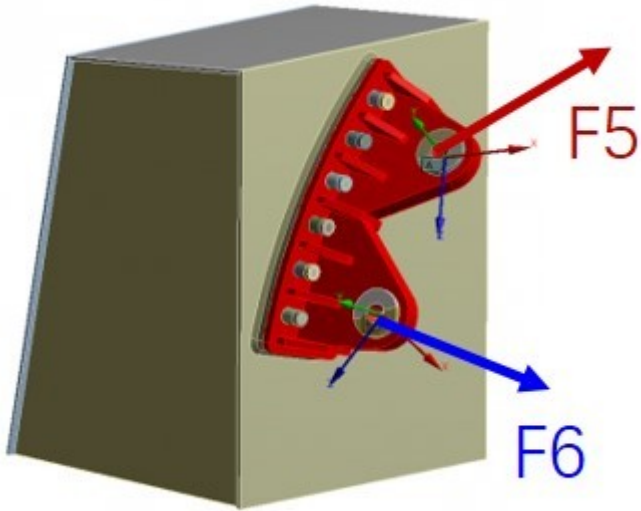


4.

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Fatigue

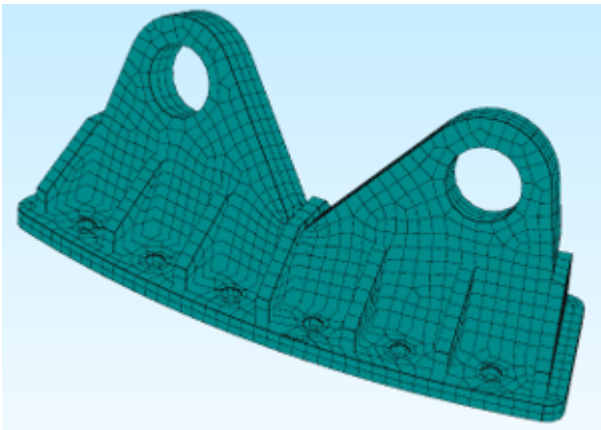


□4.1 □□□□□□

4.1

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Fatigue example/boltedFatigue-model.ext 4.2 ANS



□4.2 □□□□□□□□□□

Fatigue

```
ash read model fem-model.txt -style ansys -surface 3d
ash write model fem-model.tet -style tetgen
```

ANSYS FatigueModel.txt

TETGEN fem-model.tet Moleshow

4.2

example/bolted-joint/load-cases.json

```
"A": {
  "repeats": 750000.0,
  "components": {
    "Pret": {
      "scale": 1.0,
      "data": [ ... ],
      "unit": "x143kN",
      "offset": 0.0
    },
    "F5": {
      "scale": 1.0,
      "data": [ ... ],
      "unit": "x100kN",
      "offset": 0.0
    },
    "F6": {
      "scale": 1.0,
      "data": [ ... ],
      "unit": "x100kN",
      "offset": 0.0
    },
    "Time": {
      "scale": 1.0,
      "data": [ ... ],
      "unit": "s",
      "offset": 0.0
    }
  }
},
"B": {
  "repeats": 750000.0,
```

```

    "components": {
      "Pret": {
        "scale": 1.0,
        "data": [ ... ],
        "unit": "x143kN",
        "offset": 0.0
      },
      .....
    },
    .....

```

4 A B C D 4 4 4

4 A repeats A 750000.0 A -

A 4 Pret F5 F6 Time Time 3 Pret

Fatigue

```
loads read cases load-cases.json -style json
```

JSON

4.3

(Pretension) F5 F6

example/bolted-joint/stress-Pretension.fes

F5 F6 F5 F6 100 kN F5 -100kN.fes stress-F6-100kN.fes

igue

```

loads read stress sPret 1d-linear Pret 1.0 stress-Pretension.fes -style ansys
loads read stress sF5 1d-bilinear F5 -1.0 stress-F5-100kN.fes -style ansys
loads read stress sF5 1d-bilinear F5 1.0 stress-F5+100kN.fes -style ansys
loads read stress sF6 1d-bilinear F6 -1.0 stress-F6-100kN.fes -style ansys
loads read stress sF6 1d-bilinear F6 1.0 stress-F6+100kN.fes -style ansys

```

ANSYS stress-Pretension.fes "Pret" sPret 1d-linear

ANSYS stress-F5-100kN.fes "F5" 1d-bilinear -:

4.4 SN

SNexample/bolted-joint/sn-steel0.jsFatigue3.5SN

```
after read steel0 sn-steel0.json
```

sn-steel0.jsonsteel0

4.5

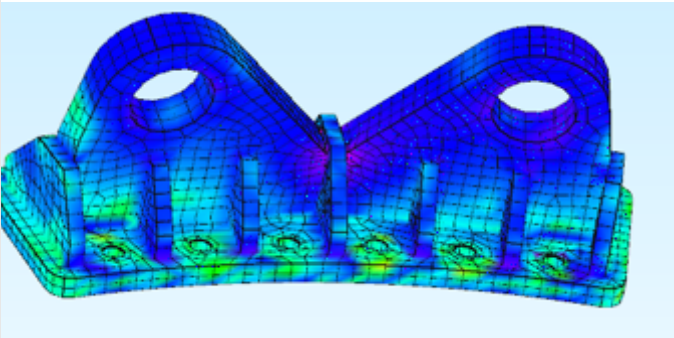
```
life set surface -mat steel0 -smode pnmax -cmode rainflow
life run -report 10
life export result.txt -style text
```

surfacesteel0SNpnmaxrainflow

10

TEXTresults.txt

3Molshow



3

4.6

example/bolted-joint/script-run.scp