

```

/CLEAR

E1= 208000
Nu = 0.3

forcay = -20000

/PREP7

ET,1,SHELL63
ET,2,BEAM4
R,1,25,25,25,25,,
R,2,1000000000,1000000000,100000000,1e-09,1e-09,0,
MP,EX,1,E1
MP,NUXY,1,Nu

K,1,0,0,0,
K,2,175,0,0,
K,3,325,0,70,
K,4,0,0,185,
K,5,325,0,185,
K,6,277,0,132.5,

K,7,0,1000,0,
K,8,175,1000,0,
K,9,325,1000,70,
K,10,0,1000,185,
K,11,325,1000,185,
K,12,277,1000,132.5,

K,13,277,500,132.5,
K,14,114.31,500,497.92,
K,15,-798,500,794.34,
K,16,-1023,500,794.34,
K,17,-1023,500,394.34,

A,1,2,3,5,4
A,7,8,9,11,10

wpro,,90.000000,
CYL4,277,132.5,30
WPCSYS,-1
wpoffs,,1000,,
wpro,,90.000000,
CYL4,277,132.5,30
WPCSYS,-1

ASBA,1,3
ASBA,2,4

/view,1,1,1,1

aplot

LESIZE,15,,4,, , , ,1
LESIZE,16,,4,, , , ,1
LESIZE,17,,4,, , , ,1
LESIZE,18,,4,, , , ,1

LESIZE,11,,4,, , , ,1
LESIZE,12,,4,, , , ,1
LESIZE,13,,4,, , , ,1
LESIZE,14,,4,, , , ,1

AESIZE,ALL,10,

```

MSHKEY,0

AMESH,a11

TYPE,2

REAL,2

NKPT,0,6

NKPT,0,12

NKPT,0,13

NKPT,0,14

NKPT,0,15

NKPT,0,16

NKPT,0,17

E,1143,671

E,1143,672

E,1143,673

E,1143,674

E,1143,675

E,1143,676

E,1143,677

E,1143,678

E,1143,679

E,1143,680

E,1143,681

E,1143,682

E,1143,683

E,1143,684

E,1143,685

E,1143,686

E,1144,100

E,1144,101

E,1144,102

E,1144,103

E,1144,104

E,1144,105

E,1144,106

E,1144,107

E,1144,108

E,1144,109

E,1144,110

E,1144,111

E,1144,112

E,1144,113

E,1144,114

E,1144,115

E,1143,1145

E,1144,1145

E,1145,1146

E,1146,1147

E,1147,1148

E,1148,1149

/SOL

DL,10, ,a11,0

DL,5, ,a11,0

F,1149,FY,forcay

SOLVE

FINISH

/POST1

PLNSOL, S,EQV, 2,1

```

/CLEAR

E1= 208000
Nu = 0.3

forcay = -10000

/PREP7

ET,1,SHELL63
ET,2,BEAM4
R,1,30,,,,,
R,2,20,,,,,
R,3,10000000000,10000000000,1000000000,1e-10,1e-10,0,
MP,EX,1,E1
MP,NUXY,1,Nu

K,1,0,0,0,
K,2,0,50,0
K,3,0,850,0
k,4,0,900,0

K,5,319.74,70,142.36
K,6,319.74,830,142.36

K,7,557.791,125,875
K,8,557.791,775,875

K,9,557.791,125,1475
K,10,557.791,775,1475

K,11,557.791,450,1300
K,12,247.791,450,1300

CIRCLE,1,40,2,,
lstr,1,2
lstr,2,3
lstr,3,4

FLST,2,4,4,ORDE,2
FITEM,2,1
FITEM,2,-4
ADRAG,P51X,, , , ,5

/VIEW,1,1,1,1

FLST,2,4,4,ORDE,4
FITEM,2,8
FITEM,2,11
FITEM,2,13
FITEM,2,15
ADRAG,P51X,, , , ,6

FLST,2,4,4,ORDE,4
FITEM,2,16
FITEM,2,19
FITEM,2,21
FITEM,2,23
ADRAG,P51X,, , , ,7

aplot

FLST,2,4,3
FITEM,2,21
FITEM,2,6
FITEM,2,5

```

```

FITEM,2,17
A,P51X

FLST,2,4,3
FITEM,2,8
FITEM,2,6
FITEM,2,5
FITEM,2,7
A,P51X

FLST,2,4,3
FITEM,2,10
FITEM,2,8
FITEM,2,7
FITEM,2,9
A,P51X

wpro,,,90.000000
wpoffs,,,557.791,
cy14,-1300,450,75
aplot
ASBA,15,16
WPCSYS,-1
aplot

asel,,,,1,,
aatt,,2,,
asel,,,,2,,
aatt,,2,,
asel,,,,3,,
aatt,,2,,
asel,,,,4,,
aatt,,2,,
asel,,,,5,,
aatt,,2,,
asel,,,,6,,
aatt,,2,,
asel,,,,7,,
aatt,,2,,
asel,,,,8,,
aatt,,2,,
asel,,,,9,,
aatt,,2,,
asel,,,,10,,
aatt,,2,,
asel,,,,11,,
aatt,,2,,
asel,,,,12,,
aatt,,2,,

asel,a11

ag1ue,a11

ESIZE,21,0,

LESIZE,41,,8,,1
LESIZE,42,,8,,1
LESIZE,43,,8,,1
LESIZE,44,,8,,1

MSHKEY,0
AMESH,a11

TYPE,2
REAL,3

NKPT,0,11

```

NKPT,0,12

E,3581,2773
E,3581,2774
E,3581,2775
E,3581,2776
E,3581,2777
E,3581,2778
E,3581,2779
E,3581,2780
E,3581,2781
E,3581,2782
E,3581,2783
E,3581,2784
E,3581,2785
E,3581,2786
E,3581,2787
E,3581,2788
E,3581,2789
E,3581,2790
E,3581,2791
E,3581,2792
E,3581,2793
E,3581,2794
E,3581,2795
E,3581,2786
E,3581,2797
E,3581,2798
E,3581,2799
E,3581,2800
E,3581,2801
E,3581,2802
E,3581,2803
E,3581,2804

E,3581,3582

Finish

/SOL

FLST,2,4,4,ORDE,2
FITEM,2,1
FITEM,2,-4

DL,P51X, ,ALL,0

FLST,2,4,4,ORDE,4
FITEM,2,24
FITEM,2,27
FITEM,2,29
FITEM,2,31

DL,P51X, ,ALL,0

F,3582,FY,forcay

SOLVE

FINISH

/POST1

PLNSOL, S,EQV, 2,1

```

/CLEAR,NOSTART  !

*SET,E1, 208000
*SET,Nu , 0.3

p = 2.7

/PREP7
ET,1,PLANE42
ET,2,SOLID95
MP,EX,1,E1
MP,NUXY,1,Nu
!MP,DENS,1,7.87E-6,

K,1,0,992,0,
K,2,0,1030,0,
K,3,0,1050,0,
K,4,20,1060,0,
K,5,53.25,1060,0,
K,6,53.25,1035,0,
K,7,53.25,1030,0,
K,8,80,1022,0,
K,9,100,1022,0,
K,10,53.25,992,0,
K,11,80,1000,0,
K,12,100,1000,0,

K,13,125,1022,0,
K,14,125,1000,0,

K,15,329.13,893.51,0,
K,16,309.3,884,0,
K,17,532.34,0,0,
K,18,510.34,0,0,

K,19,125,795.6,0,
K,20,-1533.66,0,0,

K,21,497.42,75,0,
K,22,497.42,0,0,
K,23,630,75,0,
K,24,630,0,0,

K,1001,0,0,0,
K,1002,200,0,0,

LARC,13,15,19,226.4,
LARC,14,16,19,204.4,
LARC,15,17,20,2066,
LARC,16,18,20,2044,

LSTR,1,2
LSTR,2,3
LSTR,3,4
LSTR,4,5
LSTR,5,6
LSTR,6,7
LSTR,7,8
LSTR,8,9
LSTR,9,13
LSTR,12,14
LSTR,1,10
LSTR,10,11
LSTR,11,12
LSTR,9,12
LSTR,18,17
Lstr,2,7

```

LSTR,21,22
LSTR,21,23
LSTR,22,24
Lstr,23,24

lplot

FLST,2,8,4
FITEM,2,5
FITEM,2,20
FITEM,2,11
FITEM,2,12
FITEM,2,17
FITEM,2,16
FITEM,2,15
FITEM,2,18
AL,P51X

FLST,2,6,4
FITEM,2,20
FITEM,2,6
FITEM,2,7
FITEM,2,8
FITEM,2,9
FITEM,2,10
AL,P51X

FLST,2,8,4
FITEM,2,18
FITEM,2,13
FITEM,2,14
FITEM,2,2
FITEM,2,1
FITEM,2,3
FITEM,2,4
FITEM,2,19
AL,P51X

FLST,2,4,4
FITEM,2,21
FITEM,2,22
FITEM,2,24
FITEM,2,23
AL,P51X

AADD,3,4

AGLUE,a11

VROTAT,a11,,,,,1001,1002,90,24

/VIEW,1,1,1,1

FLST,2,12,6,ORDE,12
FITEM,2,5
FITEM,2,8
FITEM,2,17
FITEM,2,20
FITEM,2,29
FITEM,2,32
FITEM,2,41
FITEM,2,44
FITEM,2,53
FITEM,2,56
FITEM,2,65
FITEM,2,68
VDELE,P51X


```

ESIZE,12,0,
EXTOPT,VSWE,TETS,1
FLST,5,60,6,ORDE,26
FITEM,5,1
FITEM,5,-4
FITEM,5,6
FITEM,5,-7
FITEM,5,9
FITEM,5,-16
FITEM,5,18
FITEM,5,-19
FITEM,5,21
FITEM,5,-28
FITEM,5,30
FITEM,5,-31
FITEM,5,33
FITEM,5,-40
FITEM,5,42
FITEM,5,-43
FITEM,5,45
FITEM,5,-52
FITEM,5,54
FITEM,5,-55
FITEM,5,57
FITEM,5,-64
FITEM,5,66
FITEM,5,-67
FITEM,5,69
FITEM,5,-72
CM,_Y,VOLU
VSEL,, , ,P51X
CM,_Y1,VOLU
CHKMSH,'VOLU'
CMSEL,S,_Y

VSWEEP,_Y1

CMDELE,_Y
CMDELE,_Y1
CMDELE,_Y2
FINISH

/SOL

FLST,2,3,5,ORDE,3
FITEM,2,1
FITEM,2,-2
FITEM,2,5
DA,P51X,SYMM

FLST,2,3,5,ORDE,3
FITEM,2,610
FITEM,2,616
FITEM,2,627
DA,P51X,SYMM

/VIEW,1,1,1,1

!-----
FLST,2,24,5,ORDE,24
FITEM,2,19
FITEM,2,45
FITEM,2,71
FITEM,2,97

```

FITEM,2,123
FITEM,2,149
FITEM,2,175
FITEM,2,201
FITEM,2,227
FITEM,2,253
FITEM,2,279
FITEM,2,305
FITEM,2,331
FITEM,2,357
FITEM,2,383
FITEM,2,409
FITEM,2,435
FITEM,2,461
FITEM,2,487
FITEM,2,513
FITEM,2,539
FITEM,2,565
FITEM,2,591
FITEM,2,617
DA,P51X,UY,0

FLST,2,24,5,ORDE,24
FITEM,2,19
FITEM,2,45
FITEM,2,71
FITEM,2,97
FITEM,2,123
FITEM,2,149
FITEM,2,175
FITEM,2,201
FITEM,2,227
FITEM,2,253
FITEM,2,279
FITEM,2,305
FITEM,2,331
FITEM,2,357
FITEM,2,383
FITEM,2,409
FITEM,2,435
FITEM,2,461
FITEM,2,487
FITEM,2,513
FITEM,2,539
FITEM,2,565
FITEM,2,591
FITEM,2,617
DA,P51X,UZ,0

FLST,2,12,5,ORDE,12
FITEM,2,14
FITEM,2,92
FITEM,2,118
FITEM,2,196
FITEM,2,222
FITEM,2,300
FITEM,2,326
FITEM,2,404
FITEM,2,430
FITEM,2,508
FITEM,2,534
FITEM,2,612
DA,P51X,UX,0

FLST,2,144,5,ORDE,96
FITEM,2,9
FITEM,2,-11
FITEM,2,24

FITEM,2,-26
FITEM,2,35
FITEM,2,-37
FITEM,2,50
FITEM,2,-52
FITEM,2,61
FITEM,2,-63
FITEM,2,76
FITEM,2,-78
FITEM,2,87
FITEM,2,-89
FITEM,2,102
FITEM,2,-104
FITEM,2,113
FITEM,2,-115
FITEM,2,128
FITEM,2,-130
FITEM,2,139
FITEM,2,-141
FITEM,2,154
FITEM,2,-156
FITEM,2,165
FITEM,2,-167
FITEM,2,180
FITEM,2,-182
FITEM,2,191
FITEM,2,-193
FITEM,2,206
FITEM,2,-208
FITEM,2,217
FITEM,2,-219
FITEM,2,232
FITEM,2,-234
FITEM,2,243
FITEM,2,-245
FITEM,2,258
FITEM,2,-260
FITEM,2,269
FITEM,2,-271
FITEM,2,284
FITEM,2,-286
FITEM,2,295
FITEM,2,-297
FITEM,2,310
FITEM,2,-312
FITEM,2,321
FITEM,2,-323
FITEM,2,336
FITEM,2,-338
FITEM,2,347
FITEM,2,-349
FITEM,2,362
FITEM,2,-364
FITEM,2,373
FITEM,2,-375
FITEM,2,388
FITEM,2,-390
FITEM,2,399
FITEM,2,-401
FITEM,2,414
FITEM,2,-416
FITEM,2,425
FITEM,2,-427
FITEM,2,440
FITEM,2,-442
FITEM,2,451
FITEM,2,-453
FITEM,2,466

FITEM,2,-468
FITEM,2,477
FITEM,2,-479
FITEM,2,492
FITEM,2,-494
FITEM,2,503
FITEM,2,-505
FITEM,2,518
FITEM,2,-520
FITEM,2,529
FITEM,2,-531
FITEM,2,544
FITEM,2,-546
FITEM,2,555
FITEM,2,-557
FITEM,2,570
FITEM,2,-572
FITEM,2,581
FITEM,2,-583
FITEM,2,596
FITEM,2,-598
FITEM,2,607
FITEM,2,-609
FITEM,2,622
FITEM,2,-624
SFA,P51X,1,PRES,p

FLST,2,48,5,ORDE,48
FITEM,2,27
FITEM,2,-28
FITEM,2,53
FITEM,2,-54
FITEM,2,79
FITEM,2,-80
FITEM,2,105
FITEM,2,-106
FITEM,2,131
FITEM,2,-132
FITEM,2,157
FITEM,2,-158
FITEM,2,183
FITEM,2,-184
FITEM,2,209
FITEM,2,-210
FITEM,2,235
FITEM,2,-236
FITEM,2,261
FITEM,2,-262
FITEM,2,287
FITEM,2,-288
FITEM,2,313
FITEM,2,-314
FITEM,2,339
FITEM,2,-340
FITEM,2,365
FITEM,2,-366
FITEM,2,391
FITEM,2,-392
FITEM,2,417
FITEM,2,-418
FITEM,2,443
FITEM,2,-444
FITEM,2,469
FITEM,2,-470
FITEM,2,495
FITEM,2,-496
FITEM,2,521
FITEM,2,-522

```
FITEM,2,547  
FITEM,2,-548  
FITEM,2,573  
FITEM,2,-574  
FITEM,2,599  
FITEM,2,-600  
FITEM,2,625  
FITEM,2,-626
```

```
SFA,P51X,1,PRES,p
```

```
!ACEL,0,9.8,0,
```

```
/VIEW,1,1,1,1
```

```
SOLVE  
FINISH
```

```
/POST1
```

```
PLNSOL, S,EQV, 2,1.0
```

```
/VIEW,1,1,1,1
```

! Presión de prueba y modelo light pero definitivo

/CLEAR,NOSTART !

*SET,E1, 208000
*SET,Nu , 0.3
/PREP7
ET,1,PLANE42
ET,2,SOLID45
MP,EX,1,E1
MP,NUXY,1,Nu
MP,DENS,1,,7.87E-6

K,1,0,1000,0,
K,2,0,1014,0,
K,3,15,1014,0,
K,4,15,1029,0,
K,5,30,1029,0,
K,6,30,1125,0,
K,7,200,1125,0,
K,8,200,1070,0,
!K,9,143.25,1065,0,
K,10,143.25,1070,0,

!K,11,141,1070,0,
!K,12,94,1070,0,

K,13,90,1070,0,
K,14,90,1021.5,0,
K,15,65,1021.5,0,
K,16,65,1010,0,
K,17,90,1010,0,
K,18,90,1000,0,
K,19,143.25,1060,0,
K,20,143.25,1035,0,
K,23,-400,1000,0,
K,24,-400,1014,0,
!K,25,166,1068,0,
!K,26,124,1068,0,
K,27,190,1035,0,
K,28,200,1045,0,
K,1001,0,0,0,
K,1002,200,0,0,

LARC,3,5,4,15,
LSTR, 23, 24
LSTR, 24, 2
LSTR, 23, 1
LSTR, 1, 2
LSTR, 2, 3
LSTR, 5, 6
LSTR, 6, 7
LSTR, 7, 8
LSTR, 8, 10
LSTR, 1, 18
LSTR, 18, 17
LSTR, 17, 16
LSTR, 16, 15
LSTR, 15, 14
LSTR, 14, 13
LSTR, 13, 10

!plot

LSTR, 19, 10
LSTR, 19, 20
LSTR, 20, 27
LSTR, 27, 28

LSTR, 28, 8

FLST,2,14,4
FITEM,2,11
FITEM,2,6
FITEM,2,5
FITEM,2,1
FITEM,2,7
FITEM,2,8
FITEM,2,9
FITEM,2,10
FITEM,2,17
FITEM,2,16
FITEM,2,15
FITEM,2,14
FITEM,2,13
FITEM,2,12
AL,P51X

FLST,2,6,4
FITEM,2,21
FITEM,2,22
FITEM,2,10
FITEM,2,18
FITEM,2,19
FITEM,2,20
AL,P51X

FLST,2,4,4
FITEM,2,3
FITEM,2,4
FITEM,2,5
FITEM,2,2
AL,P51X

aplot

AGLUE,all

FLST,2,3,5,ORDE,2
FITEM,2,1
FITEM,2,-3
FLST,8,2,3
FITEM,8,1001
FITEM,8,1002
VROTAT,P51X, , , , ,P51X, ,90,24,
/VIEW,1,1,1,1

FLST,2,12,6,ORDE,12
FITEM,2,5
FITEM,2,8
FITEM,2,17
FITEM,2,20
FITEM,2,29
FITEM,2,32
FITEM,2,41
FITEM,2,44
FITEM,2,53
FITEM,2,56
FITEM,2,65
FITEM,2,68
VDELE,P51X

ESIZE,10,0,

FLST,5,60,6,ORDE,26
FITEM,5,1

```
FITEM,5,-4
FITEM,5,6
FITEM,5,-7
FITEM,5,9
FITEM,5,-16
FITEM,5,18
FITEM,5,-19
FITEM,5,21
FITEM,5,-28
FITEM,5,30
FITEM,5,-31
FITEM,5,33
FITEM,5,-40
FITEM,5,42
FITEM,5,-43
FITEM,5,45
FITEM,5,-52
FITEM,5,54
FITEM,5,-55
FITEM,5,57
FITEM,5,-64
FITEM,5,66
FITEM,5,-67
FITEM,5,69
FITEM,5,-72
CM,_Y,VOLU
VSEL, , , ,P51X
CM,_Y1,VOLU
CHKMSH,'VOLU'
CMSEL,S,_Y
VSWEEP,_Y1
CMDELE,_Y
CMDELE,_Y1
CMDELE,_Y2
```

FINISH

/SOL

```
FLST,2,6,5,ORDE,5
FITEM,2,1
FITEM,2,-3
FITEM,2,593
FITEM,2,599
FITEM,2,603
DA,P51X,SYMM
```

```
FLST,2,24,5,ORDE,24
FITEM,2,27
FITEM,2,52
FITEM,2,77
FITEM,2,102
FITEM,2,127
FITEM,2,152
FITEM,2,177
FITEM,2,202
FITEM,2,227
FITEM,2,252
FITEM,2,277
FITEM,2,302
FITEM,2,327
FITEM,2,352
FITEM,2,377
FITEM,2,402
FITEM,2,427
FITEM,2,452
FITEM,2,477
```


FITEM,2,502
FITEM,2,527
FITEM,2,552
FITEM,2,577
FITEM,2,602
DA,P51X,UX,0

FLST,2,48,5,ORDE,48
FITEM,2,4
FITEM,2,26
FITEM,2,29
FITEM,2,51
FITEM,2,54
FITEM,2,76
FITEM,2,79
FITEM,2,101
FITEM,2,104
FITEM,2,126
FITEM,2,129
FITEM,2,151
FITEM,2,154
FITEM,2,176
FITEM,2,179
FITEM,2,201
FITEM,2,204
FITEM,2,226
FITEM,2,229
FITEM,2,251
FITEM,2,254
FITEM,2,276
FITEM,2,279
FITEM,2,301
FITEM,2,304
FITEM,2,326
FITEM,2,329
FITEM,2,351
FITEM,2,354
FITEM,2,376
FITEM,2,379
FITEM,2,401
FITEM,2,404
FITEM,2,426
FITEM,2,429
FITEM,2,451
FITEM,2,454
FITEM,2,476
FITEM,2,479
FITEM,2,501
FITEM,2,504
FITEM,2,526
FITEM,2,529
FITEM,2,551
FITEM,2,554
FITEM,2,576
FITEM,2,579
FITEM,2,601
SFA,P51X,1,PRES,2.7

FLST,2,12,5,ORDE,12
FITEM,2,22
FITEM,2,97
FITEM,2,122
FITEM,2,197
FITEM,2,222
FITEM,2,297
FITEM,2,322

```
FITEM,2,397  
FITEM,2,422  
FITEM,2,497  
FITEM,2,522  
FITEM,2,597  
SFA,P51X,1,PRES,106
```

```
ACEL,0,9.8,0,
```

```
/VIEW,1,1,1,1
```

```
SOLVE  
FINISH
```

```
/POST1  
/EFACET,1  
PLNSOL,S,EQV,2,1.0  
/VIEW,1,1,1,1
```

```

/CLEAR

E1= 208000
Nu = 0.3

p = 2.7
forcax = -100000
forcaz = 30000

/PREP7

ET,1,SHELL63
ET,2,BEAM4
R,1,4,4,4,4, , ,
R,2,14,14,14,14, , ,
R,3,24,24,24,24, , ,
R,4,1000000,1000000,1000000,1e-006,1e-006,0,
MP,EX,1,E1
MP,NUXY,1,Nu
K,1,0,0,0,
K,2,0,0,300,
K,3,1489.84,0,0,
K,4,1489.84,0,300,
K,5,0,0,150,
K,6,1489.84,0,150,
K,7,-275.1,1026.69,150,
K,8,1764.94,1026.69,150,
K,9,30.92,0,0,
K,10,30.92,0,300,
K,11,30.92,1026.69,0,
K,12,30.92,1026.69,300,
K,13,387.92,0,0,
K,14,387.92,0,300,
K,15,387.92,1026.69,0,
K,16,387.92,1026.69,300,
K,17,744.92,0,0,
K,18,744.92,0,300,
K,19,744.92,1026.69,0,
K,20,744.92,1026.69,300,
K,21,1101.92,0,0,
K,22,1101.92,0,300,
K,23,1101.92,1026.69,0,
K,24,1101.92,1026.69,300,
K,25,1458.92,0,0,
K,26,1458.92,0,300,
K,27,1458.92,1026.69,0,
K,28,1458.92,1026.69,300,

K,29,744.92,1318.95,0,
K,30,744.92,1318.95,300,
K,31,1780.17,1264.77,0,
K,32,1780.17,1264.77,300,

K,33,85,0,250,
K,34,85,0,50,
K,35,1404.84,0,250,
K,36,1404.84,0,50,

!K,37,450,0,250,
!K,38,450,0,50,
!K,39,1039.84,0,250,
!K,40,1039.84,0,50,

K,41,744.92,1318.95,-100,
K,42,744.92,1318.95,400,
K,43,744.92,1318.95,-300,
K,44,744.92,1318.95,600,

```

K,2010,-55.08,0,250,
K,2020,-55.08,0,50,
K,3010,1544.92,0,250,
K,3020,1544.92,0,50,

K,2000,-105.08,0,300,
K,3000,1594.92,0,0,

A,1,2,4,3
A,5,6,8,7
A,9,10,12,11
A,13,14,16,15
A,17,18,20,19
A,21,22,24,23
A,25,26,28,27
LSTR,31,32
AROTAT,29,,,,,30,29,174,1,
AROTAT,29,,,,,29,30,3,1,
AROTAT,30,,,,,30,29,3,1,
LSTR,30,42
LSTR,41,29
LSTR,44,42
LSTR,41,43
LSTR,3,3000
LSTR,2,2000
aplot

/view,1,1,1,1

WPOFFS,, ,150
ASBW,all,,keep A2
WPCSYS,-1

APTN,all

ADELE, 82
ADELE, 84
ADELE, 39
ADELE, 29
ADELE, 40
ADELE, 67
ADELE, 45
ADELE, 46
ADELE, 68
ADELE, 51
ADELE, 52
ADELE, 69
ADELE, 57
ADELE, 58
ADELE, 70
ADELE, 61
ADELE, 62
ADELE, 81
ADELE, 30
ADELE, 83

ADRAG, 87, , , , , 115
ADRAG, 87, , , , , 111
ADRAG, 193, , , , , 79
ADRAG, 193, , , , , 76
ADRAG, 91, , , , , 167
ADRAG, 91, , , , , 165
ADRAG, 191, , , , , 75
ADRAG, 191, , , , , 78
ADRAG, 38, , , , , 39
ADRAG, 9, , , , , 39

ADRAG,	1,	,	,	,	,	39
ADRAG,	184,	,	,	,	,	39
ADRAG,	185,	,	,	,	,	39
ADRAG,	186,	,	,	,	,	39
ADRAG,	187,	,	,	,	,	39
ADRAG,	15,	,	,	,	,	39
ADRAG,	24,	,	,	,	,	39
ADRAG,	35,	,	,	,	,	39
ADRAG,	37,	,	,	,	,	40
ADRAG,	12,	,	,	,	,	40
ADRAG,	4,	,	,	,	,	40
ADRAG,	180,	,	,	,	,	40
ADRAG,	181,	,	,	,	,	40
ADRAG,	182,	,	,	,	,	40
ADRAG,	183,	,	,	,	,	40
ADRAG,	18,	,	,	,	,	40
ADRAG,	21,	,	,	,	,	40
ADRAG,	34,	,	,	,	,	40
ADRAG,	67,	,	,	,	,	42
ADRAG,	70,	,	,	,	,	42
ADRAG,	73,	,	,	,	,	42
ADRAG,	196,	,	,	,	,	42
ADRAG,	199,	,	,	,	,	42
ADRAG,	202,	,	,	,	,	42
ADRAG,	205,	,	,	,	,	42
ADRAG,	208,	,	,	,	,	42
ADRAG,	211,	,	,	,	,	42
ADRAG,	214,	,	,	,	,	42
ADRAG,	27,	,	,	,	,	41
ADRAG,	30,	,	,	,	,	41
ADRAG,	33,	,	,	,	,	41
ADRAG,	46,	,	,	,	,	41
ADRAG,	49,	,	,	,	,	41
ADRAG,	52,	,	,	,	,	41
ADRAG,	55,	,	,	,	,	41
ADRAG,	58,	,	,	,	,	41
ADRAG,	61,	,	,	,	,	41
ADRAG,	64,	,	,	,	,	41
ADRAG,	99,	,	,	,	,	43
ADRAG,	103,	,	,	,	,	43
ADRAG,	96,	,	,	,	,	44
ADRAG,	92,	,	,	,	,	44

wpro,,90.000000,

CYL4,-55.08,250,10
 CYL4,-55.08,50,10
 CYL4,1544.92,250,10
 CYL4,1544.92,50,10
 CYL4,85,250,10
 CYL4,85,50,10
 CYL4,1404.84,250,10
 CYL4,1404.84,50,10

ASBA,	92,	94
ASBA,	91,	93
ASBA,	35,	98
ASBA,	37,	97
ASBA,	89,	96
ASBA,	55,	99
ASBA,	53,	100
ASBA,	90,	95

WPCSYS,-1

aglue,all

asel,all
aatt,,2,,,

asel,,,,80,,
aatt,,1,,
asel,,,,94,,
aatt,,1,,
asel,,,,63,,
aatt,,1,,
asel,,,,44,,
aatt,,1,,
asel,,,,64,,
aatt,,1,,
asel,,,,50,,
aatt,,1,,
asel,,,,65,,
aatt,,1,,
asel,,,,56,,
aatt,,1,,
asel,,,,66,,
aatt,,1,,
asel,,,,105,,
aatt,,1,,
asel,,,,79,,
aatt,,1,,
asel,,,,109,,
aatt,,1,,
asel,,,,54,,
aatt,,1,,
asel,,,,48,,
aatt,,1,,
asel,,,,42,,
aatt,,1,,
asel,,,,98,,
aatt,,1,,

asel,,,,1,,
aatt,,3,,
asel,,,,2,,
aatt,,3,,
asel,,,,97,,
aatt,,3,,
asel,,,,93,,
aatt,,3,,
asel,,,,96,,
aatt,,3,,
asel,,,,95,,
aatt,,3,,
asel,,,,90,,
aatt,,3,,
asel,,,,110,,
aatt,,3,,
asel,,,,99,,
aatt,,3,,
asel,,,,5,,
aatt,,3,,
asel,,,,6,,
aatt,,3,,
asel,,,,103,,
aatt,,3,,
asel,,,,146,,
aatt,,3,,
asel,,,,107,,

```
aatt,,3,,  
asel,,,104,,  
aatt,,3,,  
asel,,,121,,  
aatt,,3,,  
asel,,,122,,  
aatt,,3,,  
asel,,,106,,  
aatt,,3,,  
asel,,,115,,  
aatt,,3,,  
asel,,,114,,  
aatt,,3,,  
asel,,,116,,  
aatt,,3,,  
asel,,,73,,  
aatt,,3,,  
asel,,,77,,  
aatt,,3,,  
asel,,,123,,  
aatt,,3,,  
asel,,,117,,  
aatt,,3,,  
asel,,,76,,  
aatt,,3,,  
asel,,,72,,  
aatt,,3,,  
asel,,,125,,  
aatt,,3,,  
asel,,,108,,  
aatt,,3,,  
asel,,,124,,  
aatt,,3,,  
asel,,,118,,  
aatt,,3,,  
asel,,,145,,  
aatt,,3,,
```

```
asel,a11
```

```
LSEL,s,LENGTH,,1000,1200,,0  
LESIZE,a11,,,34,,,,,1
```

```
LSEL,s,LENGTH,,250,1000,,0  
LESIZE,a11,,,15,,,,,1
```

```
LSEL,s,LENGTH,,101,250,,0  
LESIZE,a11,,,8,,,,,1
```

```
LSEL,s,LENGTH,,1,100,,0  
LESIZE,a11,,,3,,,,,1
```

```
LSEL,a11
```

```
AESIZE,79,16,
```

```
AESIZE,80,16,
```

```
MSHKEY,0
```

```
AMESH,a11
```

```
TYPE,2
```

```
REAL,4
```

NKPT,0,33
NKPT,0,34
NKPT,0,35
NKPT,0,36
NKPT,0,2010
NKPT,0,2020
NKPT,0,3010
NKPT,0,3020

E,8188,4295
E,8188,4296
E,8188,4297
E,8188,4298
E,8188,4299
E,8188,4300
E,8188,4301
E,8188,4302
E,8188,4303
E,8188,4304
E,8188,4305
E,8188,4306

E,8189,8025
E,8189,8026
E,8189,8027
E,8189,8028
E,8189,8029
E,8189,8030
E,8189,8031
E,8189,8032
E,8189,8033
E,8189,8034
E,8189,8035
E,8189,8036

E,8185,4184
E,8185,4185
E,8185,4186
E,8185,4187
E,8185,4188
E,8185,4189
E,8185,4190
E,8185,4191
E,8185,4192
E,8185,4193
E,8185,4194
E,8185,4195

E,8184,718
E,8184,719
E,8184,720
E,8184,721
E,8184,722
E,8184,723
E,8184,724
E,8184,725
E,8184,726
E,8184,727
E,8184,728
E,8184,729

E,8186,4021
E,8186,4022
E,8186,4023
E,8186,4024
E,8186,4025
E,8186,4026

E,8186,4027
E,8186,4028
E,8186,4029
E,8186,4030
E,8186,4031
E,8186,4032

E,8187,2162
E,8187,2163
E,8187,2164
E,8187,2165
E,8187,2166
E,8187,2167
E,8187,2168
E,8187,2169
E,8187,2170
E,8187,2171
E,8187,2172
E,8187,2173

E,8190,8113
E,8190,8114
E,8190,8115
E,8190,8116
E,8190,8117
E,8190,8118
E,8190,8119
E,8190,8120
E,8190,8121
E,8190,8122
E,8190,8123
E,8190,8124

E,8191,858
E,8191,859
E,8191,860
E,8191,861
E,8191,862
E,8191,863
E,8191,864
E,8191,865
E,8191,866
E,8191,867
E,8191,868
E,8191,869

/SOL

D,8188,,0,,,ALL,,,,,
D,8189,,0,,,ALL,,,,,
D,8185,,0,,,ALL,,,,,
D,8187,,0,,,ALL,,,,,
D,8184,,0,,,ALL,,,,,
D,8186,,0,,,ALL,,,,,
D,8190,,0,,,ALL,,,,,
D,8191,,0,,,ALL,,,,,

DL,69,,SYMM
DL,29,,SYMM
DL,85,,SYMM
DL,219,,SYMM
DL,249,,SYMM
DL,83,,SYMM

DL,276,,SYMM

DL,246,,SYMM
DL,80,,SYMM
DL,82,,SYMM
DL,66,,SYMM
DL,216,,SYMM

DL,217,,UZ,0
DL,362,,UZ,0
DL,363,,UZ,0
DL,364,,UZ,0
DL,365,,UZ,0
DL,366,,UZ,0
DL,367,,UZ,0
DL,368,,UZ,0
DL,369,,UZ,0
DL,370,,UZ,0

DL,380,,UZ,0
DL,373,,UZ,0
DL,372,,UZ,0
DL,374,,UZ,0
DL,375,,UZ,0
DL,376,,UZ,0
DL,377,,UZ,0
DL,378,,UZ,0
DL,379,,UZ,0
DL,247,,UZ,0

nse1,a11

SFA,69,1,PRES,-p
SFA,113,1,PRES,-p
SFA,100,1,PRES,-p
SFA,102,1,PRES,-p
SFA,120,1,PRES,p
SFA,45,1,PRES,p

SFA,127,1,PRES,-p
SFA,146,1,PRES,-p
SFA,97,1,PRES,-p
SFA,93,1,PRES,p
SFA,145,1,PRES,p
SFA,136,1,PRES,p

SFA,137,1,PRES,p
SFA,90,1,PRES,p
SFA,1,1,PRES,p
SFA,2,1,PRES,-p
SFA,96,1,PRES,-p
SFA,128,1,PRES,-p

SFA,138,1,PRES,p
SFA,114,1,PRES,p
SFA,95,1,PRES,-p
SFA,99,1,PRES,-p
SFA,121,1,PRES,-p
SFA,129,1,PRES,-p

SFA,139,1,PRES,p
SFA,115,1,PRES,p
SFA,76,1,PRES,-p
SFA,72,1,PRES,-p
SFA,122,1,PRES,-p
SFA,130,1,PRES,-p

SFA,131,1,PRES,-p
SFA,123,1,PRES,-p
SFA,73,1,PRES,-p
SFA,77,1,PRES,-p
SFA,116,1,PRES,p
SFA,140,1,PRES,p

SFA,132,1,PRES,-p
SFA,124,1,PRES,-p
SFA,110,1,PRES,-p
SFA,106,1,PRES,-p
SFA,117,1,PRES,p
SFA,141,1,PRES,p

SFA,133,1,PRES,p
SFA,107,1,PRES,p
SFA,6,1,PRES,p
SFA,103,1,PRES,-p
SFA,142,1,PRES,-p
SFA,5,1,PRES,-p

SFA,134,1,PRES,p
SFA,125,1,PRES,p
SFA,108,1,PRES,p
SFA,104,1,PRES,-p
SFA,118,1,PRES,-p
SFA,143,1,PRES,-p

SFA,135,1,PRES,-p
SFA,126,1,PRES,-p
SFA,111,1,PRES,p
SFA,112,1,PRES,p
SFA,119,1,PRES,p
SFA,144,1,PRES,p

NSEL,S,LOC,Z,150
F,all,FY,(forcay/(1304))

NSEL,S,LOC,X,744.92

NSEL,R,LOC,Y,282.95
F,all,Fz,(forcaz/(39))

nse1,all
nplot

SOLVE

FINISH

/POST1

PLNSOL,S,EQV,2,1

Seqv = 0

*DO,i,1,8183,1
*get,Seqvmax,NODE,i,S,EQV
Seqvmax_nodei = Seqv

*IF,Seqvmax,GT,Seqvmax_nodei,then
Seqv = Seqvmax

*ELSE
Seqv = Seqvmax_nodei

*endif

*ENDDO

FINISH

Tensió_maxEQV = Seqv

Resistencia_material = 345
material

! Resistencia del

C = Resistencia_material/Tensió_maxEQV
seguretat

! Calcula el factor de

FINISH

!-----

```

/CLEAR,NOSTART

E1= 208000
Nu = 0.3
dens = 7.87E-6
mat1 = 3
mat2 = 10
mat3 = 20

/PREP7

MP,EX,1,E1
MP,NUXY,1,Nu
MP,DENS,1,dens,

ET,1,SHELL63
R,1,mat1,, , , ,
R,2,mat2,, , , ,
R,3,mat3,, , , ,

K,1,0,0,0,
K,2,0,0,3650
K,200,1500,0,0
K,2000,-1500,0,0

CIRCLE,1,775,,,,
lstr,1,2
lstr,1,200
lstr,1,2000

ADRAG,1,2,3,4,,,5,,,,,

wpoffs,0,0,10
ASBW,all,,
WPCSYS,-1

wpoffs,0,0,862.5
ASBW,all,,
WPCSYS,-1

wpoffs,0,0,922.5
ASBW,all,,
WPCSYS,-1

wpoffs,0,0,1775
ASBW,all,,
WPCSYS,-1

wpoffs,0,0,1835
ASBW,all,,
WPCSYS,-1

wpoffs,0,0,2687.5
ASBW,all,,
WPCSYS,-1

wpoffs,0,0,2747.5
ASBW,all,,
WPCSYS,-1

wpoffs,0,0,3590
ASBW,all,,
WPCSYS,-1

!-----
!-----

```

```
wpoffs,0,-356.75,0
wpro,,-90.000000,
FLST,2,8,5,ORDE,8
FITEM,2,15
FITEM,2,-16
FITEM,2,23
FITEM,2,-24
FITEM,2,31
FITEM,2,-32
FITEM,2,39
FITEM,2,-40
ASBW,P51X
WPCSYS,-1
```

```
wpoffs,0,-548.01,0
wpro,,-90.000000,
FLST,2,8,5,ORDE,8
FITEM,2,12
FITEM,2,25
FITEM,2,43
FITEM,2,-44
FITEM,2,47
FITEM,2,-48
FITEM,2,51
FITEM,2,-52
ASBW,P51X
WPCSYS,-1
```

```
wpro,90,90,
BLC4,0,2775,200,725,0
BLC4,0,2830,575,240,0
WPCSYS,-1
```

```
VDRAG,25,,,,,7,,,,,
VDRAG,12,,,,,6,,,,,
```

```
ASBV, 37, 2
ASBV, 38, 1
aplot
```

```
/VIEW,1,1,1,1
```

```
ag]ue,a]l]
aplot
```

```
!-----
```

```
FLST,5,20,5,ORDE,9
FITEM,5,1
FITEM,5,-8
FITEM,5,11
FITEM,5,17
FITEM,5,-20
FITEM,5,26
FITEM,5,-28
FITEM,5,33
FITEM,5,-36
CM,_Y,AREA
ASEL, , , ,P51X
CM,_Y1,AREA
CMSEL,S,_Y
CMSEL,S,_Y1
AATT, 1, 2, 1, 0,
CMSEL,S,_Y
CMDELE,_Y
CMDELE,_Y1
```

```
aplot
```

```
FLST,5,4,5,ORDE,2
FITEM,5,5
FITEM,5,-8
CM,_Y,AREA
ASEL,, , ,P51X
CM,_Y1,AREA
CMSEL,S,_Y
CMSEL,S,_Y1
AATT, 1, 3, 1, 0,
CMSEL,S,_Y
CMDELE,_Y
CMDELE,_Y1
```

```
/VIEW,1,1,1,1
!-----
```

```
ESIZE,10,0,
MSHKEY,0
AMESH,a11
```

```
/SOL
/VIEW,1,1,1,1
```

```
FLST,2,16,4,ORDE,16
FITEM,2,30
FITEM,2,41
FITEM,2,53
FITEM,2,-54
FITEM,2,63
FITEM,2,85
FITEM,2,92
FITEM,2,95
FITEM,2,102
FITEM,2,105
FITEM,2,112
FITEM,2,115
FITEM,2,120
FITEM,2,123
FITEM,2,126
FITEM,2,129
DL,P51X, ,UY,0
```

```
FLST,2,8,4,ORDE,8
FITEM,2,30
FITEM,2,41
FITEM,2,54
FITEM,2,63
FITEM,2,120
FITEM,2,123
FITEM,2,126
FITEM,2,129
DL,P51X, ,UX,0
```

```
FLST,2,16,4,ORDE,16
FITEM,2,30
FITEM,2,41
FITEM,2,53
FITEM,2,-54
FITEM,2,63
FITEM,2,85
FITEM,2,92
FITEM,2,95
FITEM,2,102
```

```
FITEM,2,105  
FITEM,2,112  
FITEM,2,115  
FITEM,2,120  
FITEM,2,123  
FITEM,2,126  
FITEM,2,129  
DL,P51X, ,UZ,0
```

```
/VIEW,1,1,1,1
```

```
ACEL,0,9.8,0,
```

```
SOLVE  
FINISH
```

```
/Post1  
PLNSOL, S,EQV, 2,1.0
```