

Completing ANSYS Load Process.

***** ANSYS COMMAND LINE ARGUMENTS *****

BATCH MODE REQUESTED = NOLIST
2 PARALLEL CPUS REQUESTED
DESIGNXPLORER REQUESTED
MEMORY REQUESTED (MB) = 82
START-UP FILE MODE = NOREAD
STOP FILE MODE = NOREAD
DATABASE SIZE REQUESTED (MB) = 32

*** WARNING *** CP = 0.188 TIME= 14:36:58
Use of the -M switch is no longer recommended for normal ANSYS use.
ANSYS now dynamically allocates memory as needed. Only use the -M
switch if you are certain that you need to do so.

PARAMETER STATUS- (1 PARAMETERS DEFINED)
(INCLUDING 1 INTERNAL PARAMETERS)

00405228 VERSION=INTEL NT RELEASE= 11.0SP1 UP20070830
CURRENT JOBNAME=file 14:36:58 DEC 23, 2009 CP= 0.188

PARAMETER_DS_PROGRESS = 999.0000000

/INPUT FILE= ds.dat LINE= 0

*GET _WALLSTRT FROM ACTI ITEM=TIME WALL VALUE= 14.6161111
--- Data in consistent NMM units.

MPA UNITS SPECIFIED FOR INTERNAL
LENGTH = MILLIMETERS (mm)
MASS = TONNE (Mg)
TIME = SECONDS (sec)
TEMPERATURE = CELSIUS (C)
TOFFSET = 273.0
FORCE = NEWTON (N)
HEAT = MILLIJOULES (mJ)

INPUT UNITS ARE ALSO SET TO MPA

*****TRACK MONITOR LEVEL= -1
TRACK PRINT LEVEL = 0
TRACK SUMMARY LEVEL= 0

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM RELEASE 11.0SP1 *****
ANSYS Academic Research
00405228 VERSION=INTEL NT 14:36:58 DEC 23, 2009 CP= 0.203

```
***** ANSYS ANALYSIS DEFINITION (PREP7) *****
***** Nodes for the whole assembly *****
***** Elements for Part 1 *****
***** Send Materials *****
***** Send Sheet Properties *****
***** Create Contact "Reibungsfrei - Schalenkörper bis Schalenkörper" ***
      Real Contact Set For Above Contact Is 9 & 8
***** Create Contact "Reibungsfrei - Schalenkörper bis Schalenkörper 2" *
      Real Contact Set For Above Contact Is 11 & 10
***** Fixed Supports *****
***** Frictionless Supports X *****
***** Constant Zero Displacement X *****
***** Construct Weak Springs, Prototype 1 *****
***** Construct Weak Springs, Prototype 2 *****
***** Construct Weak Springs, Prototype 3 *****
***** Construct Weak Springs, Prototype 4 *****
***** Construct Weak Springs, Prototype 5 *****
***** Construct Weak Springs, Prototype 6 *****
***** Construct Weak Springs, Prototype 7 *****
***** Set Reference Temperature *****
***** Send Displacement Tables and Functions *****
***** Send User Defined Coordinate System(s) *****
```

```
***** ROUTINE COMPLETED ***** CP = 0.266
```

```
--- Number of total nodes = 2558
--- Number of contact elements = 124
--- Number of spring elements = 56
--- Number of solid elements = 785
--- Number of total elements = 965
```

```
*GET _WALLBSOL FROM ACTI ITEM=TIME WALL VALUE= 14.6163889
*****
***** SOLUTION *****
*****
```

```
***** ANSYS SOLUTION ROUTINE *****
```

```
PERFORM A STATIC ANALYSIS
THIS WILL BE A NEW ANALYSIS
```

```
LARGE DEFORMATION ANALYSIS
```

```
NEW SOLUTION CONTROL OPTION IS ACTIVATED,
THE FOLLOWING COMMANDS ARE RESET TO NEW DEFAULTS:
AUTOTS, DELTIM, NSUB, CNVTOL, LNSRCH, PRED, NROPT,
TINTP, CUTCONTROL, OPNCONTROL, MONITOR, NEQIT, SSTIF, KBC.
```

```
CONTACT TIME PREDICTIONS ARE BASED ON ELEMENT KEYOPT(7) SPECIFIED
Avg ratio= 1, totalParts=1, thickParts=0, thickPcent= 0
```

```
USE PRECONDITIONED CONJUGATE GRADIENT SOLVER
CONVERGENCE TOLERANCE = 1.00000E-08
MAXIMUM ITERATION   = NumNode*DofPerNode* 1.0000

CALCULATE PRESTRESS EFFECTS FOR A SUBSEQUENT PRESTRESSED ANALYSIS

DO NOT SAVE ANY RESTART FILES AT ALL

CONTACT INFORMATION PRINTOUT LEVEL  1

NLDIAG: Nonlinear diagnostics CONT option is set to ON.
      Writing frequency : each ITERATION.
*****
***** SOLVE FOR LS 1 *****
*** Send Displacement Tables and Functions * Components ***
CMBLOCK read of NODE component _CM1304UY_YP completed

SELECT  COMPONENT _CM1304UY_YP

SPECIFIED CONSTRAINT UY FOR SELECTED NODES  1 TO 2558 BY  1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI1304YP

ALL SELECT  FOR ITEM=NODE COMPONENT=
IN RANGE  1 TO 2558 STEP  1

      2558 NODES (OF 2558 DEFINED) SELECTED BY NSEL COMMAND.

PRINTOUT RESUMED BY /GOP

USE AUTOMATIC TIME STEPPING THIS LOAD STEP

USE  5 SUBSTEPS INITIALLY THIS LOAD STEP FOR ALL DOFS
FOR AUTOMATIC TIME STEPPING:
USE  10 SUBSTEPS AS A MAXIMUM
USE  1 SUBSTEPS AS A MINIMUM

TIME= 1.0000

ERASE THE CURRENT DATABASE OUTPUT CONTROL TABLE.

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF NONE
FOR ALL APPLICABLE ENTITIES

WRITE NSOL ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES

WRITE RSOL ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES

WRITE NLOA ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES

WRITE STRS ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES
```

WRITE EPFL ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES

WRITE EPPL ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES

***** ANSYS SOLVE COMMAND *****

*** NOTE *** CP = 0.266 TIME= 14:36:59

There is no title defined for this analysis.

*** WARNING *** CP = 0.266 TIME= 14:36:59

Element shape checking is currently inactive. Issue SHPP,ON or
SHPP,WARN to reactivate, if desired.

*** NOTE *** CP = 0.344 TIME= 14:37:00

The model data was checked and warning messages were found.

Please review output or errors file (C:\Dokumente und
Einstellungen\bodzei\Desktop\Test zur Elastomerberechnung\Teil Innen
Simulationsdateien\Statisch-mechanisch (7)\file.err) for these
warning messages.

*** SELECTION OF ELEMENT TECHNOLOGIES FOR APPLICABLE ELEMENTS ***

--- GIVE SUGGESTIONS AND RESET THE KEY OPTIONS ---

ELEMENT TYPE 1 IS PLANE183 WITH PLANE STRESS OPTION. NO SUGGESTION IS
AVAILABLE AND NO RESETTING IS NEEDED.

ELEMENT TYPE 2 IS PLANE183 WITH PLANE STRESS OPTION. NO SUGGESTION IS
AVAILABLE AND NO RESETTING IS NEEDED.

ELEMENT TYPE 3 IS PLANE183 WITH PLANE STRESS OPTION. NO SUGGESTION IS
AVAILABLE AND NO RESETTING IS NEEDED.

ELEMENT TYPE 4 IS PLANE183 WITH PLANE STRESS OPTION. NO SUGGESTION IS
AVAILABLE AND NO RESETTING IS NEEDED.

ELEMENT TYPE 5 IS PLANE183 WITH PLANE STRESS OPTION. NO SUGGESTION IS
AVAILABLE AND NO RESETTING IS NEEDED.

ELEMENT TYPE 6 IS PLANE183 WITH PLANE STRESS OPTION. NO SUGGESTION IS
AVAILABLE AND NO RESETTING IS NEEDED.

ELEMENT TYPE 7 IS PLANE183 WITH PLANE STRESS OPTION. NO SUGGESTION IS
AVAILABLE AND NO RESETTING IS NEEDED.

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***** ANSYS - ENGINEERING ANALYSIS SYSTEM RELEASE 11.0SP1 *****

ANSYS Academic Research

00405228 VERSION=INTEL NT 14:37:00 DEC 23, 2009 CP= 0.344

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.2-D
DEGREES OF FREEDOM. UX UY
ANALYSIS TYPESTATIC (STEADY-STATE)
NONLINEAR GEOMETRIC EFFECTSON
PRESTRESS EFFECTS CALCULATED.....YES
EQUATION SOLVER OPTION.PCG
TOLERANCE.1.00000E-08
NEWTON-RAPHSON OPTIONPROGRAM CHOSEN
GLOBALLY ASSEMBLED MATRIXSYMMETRIC

*** WARNING *** CP = 0.344 TIME= 14:37:00
Material number 9 (used by element 786) should normally have at least one MP or one TB type command associated with it. Output of energy by material may not be available.

*** NOTE *** CP = 0.344 TIME= 14:37:00
The step data was checked and warning messages were found.
Please review output or errors file (C:\Dokumente und
Einstellungen\bodzei\Desktop\Test zur Elastomerberechnung\Teil Innen
Simulationsdateien\Statisch-mechanisch (7)\file.err) for these
warning messages.

*** NOTE *** CP = 0.344 TIME= 14:37:00
Nonlinear analysis, NROPT set to the FULL Newton-Raphson solution
procedure for ALL degrees of freedom.

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1
TIME AT END OF THE LOAD STEP. 1.0000
AUTOMATIC TIME STEPPING ON
INITIAL NUMBER OF SUBSTEPS. 5
MAXIMUM NUMBER OF SUBSTEPS 10
MINIMUM NUMBER OF SUBSTEPS 1
MAXIMUM NUMBER OF EQUILIBRIUM ITERATIONS. 15
STEP CHANGE BOUNDARY CONDITIONS NO
TERMINATE ANALYSIS IF NOT CONVERGEDYES (EXIT)
CONVERGENCE CONTROLS.USE DEFAULTS
PRINT OUTPUT CONTROLSNO PRINTOUT
DATABASE OUTPUT CONTROLS
ITEM FREQUENCY COMPONENT
ALL NONE
NSOL ALL
RSOL ALL
NLOA ALL
STRS ALL
EPEL ALL
EPPL ALL

SOLUTION MONITORING INFO IS WRITTEN TO FILE=
file.mntr

MAXIMUM NUMBER OF EQUILIBRIUM ITERATIONS HAS BEEN MODIFIED
TO BE, NEQIT = 26, BY SOLUTION CONTROL LOGIC.

*** WARNING *** CP = 0.469 TIME= 14:37:01

The default contact stiffness used for contact pair identified by real constant set 9 is affected by defined inelastic material properties, even if the material properties are inactive. You should confirm that the appropriate contact stiffness was used.

*** NOTE *** CP = 0.500 TIME= 14:37:01

Symmetric Deformable- deformable contact pair identified by real constant set 8 and contact element type 8 has been set up. The companion pair has real constant set ID 9. Both pairs should have the same behavior.

ANSYS will deactivate the current pair and keep its companion pair, resulting in asymmetric contact.

Contact algorithm: Penalty method

Contact detection at: Gauss integration point

Contact stiffness factor FKN 0.10000E-03

The resulting contact stiffness 0.26409E-02

Default penetration tolerance factor FTOLN 0.10000

The resulting penetration tolerance 0.93412E-01

Frictionless contact pair is defined

Update contact stiffness at each iteration

Average contact surface length 0.62500

Average contact pair depth 0.93412

User defined pinball region PINB 18.000

Auto contact offset used to close gap 10.226

Initial penetration is excluded.

*** NOTE *** CP = 0.500 TIME= 14:37:01

Min. Initial gap 10.1248428 was detected between contact element 795 and target element 834.

The gap is closed due to initial adjustment.

*** NOTE *** CP = 0.500 TIME= 14:37:01

Symmetric Deformable- deformable contact pair identified by real constant set 9 and contact element type 8 has been set up. The companion pair has real constant set ID 8. Both pairs should have the same behavior.

ANSYS will keep the current pair and deactivate its companion pair, resulting in asymmetric contact.

Contact algorithm: Penalty method

Contact detection at: Gauss integration point

Contact stiffness factor FKN 0.10000E-03

The resulting contact stiffness 0.26409E-02

Default penetration tolerance factor FTOLN 0.10000

The resulting penetration tolerance 0.67728E-01

Frictionless contact pair is defined

Update contact stiffness at each iteration

Average contact surface length 0.85476

Average contact pair depth 0.67728

User defined pinball region PINB 18.000

Auto contact offset used to close gap 10.226

Initial penetration is excluded.

*** NOTE *** CP = 0.500 TIME= 14:37:01
Min. Initial gap 10.1248428 was detected between contact element 815
and target element 786.
The gap is closed due to initial adjustment.

*** NOTE *** CP = 0.500 TIME= 14:37:01
Symmetric Deformable- deformable contact pair identified by real
constant set 10 and contact element type 10 has been set up. The
companion pair has real constant set ID 11. Both pairs should have
the same behavior.
ANSYS will deactivate the current pair and keep its companion pair,
resulting in asymmetric contact.
Contact algorithm: Penalty method
Contact detection at: Gauss integration point
Contact stiffness factor FKN 0.10000E-01
The resulting contact stiffness 0.26409
Default penetration tolerance factor FTOLN 0.10000
The resulting penetration tolerance 0.67728E-01
Frictionless contact pair is defined
Update contact stiffness at each iteration
Average contact surface length 0.85476
Average contact pair depth 0.67728
User defined pinball region PINB 11.000
Auto contact offset used to close gap 0.68087
Initial penetration is excluded.

*** NOTE *** CP = 0.500 TIME= 14:37:01
Min. Initial gap 0.674127274 was detected between contact element 859
and target element 909.
The gap is closed due to initial adjustment.

*** NOTE *** CP = 0.500 TIME= 14:37:01
Symmetric Deformable- deformable contact pair identified by real
constant set 11 and contact element type 10 has been set up. The
companion pair has real constant set ID 10. Both pairs should have
the same behavior.
ANSYS will keep the current pair and deactivate its companion pair,
resulting in asymmetric contact.
Contact algorithm: Penalty method
Contact detection at: Gauss integration point
Contact stiffness factor FKN 0.10000E-01
The resulting contact stiffness 0.26409
Default penetration tolerance factor FTOLN 0.10000
The resulting penetration tolerance 0.33874E-01
Frictionless contact pair is defined
Update contact stiffness at each iteration
Average contact surface length 0.90029
Average contact pair depth 0.33874
User defined pinball region PINB 11.000
Auto contact offset used to close gap 0.81276

Initial penetration is excluded.

*** NOTE *** CP = 0.500 TIME= 14:37:01
Min. Initial gap 0.804711526 was detected between contact element 893 and target element 841.
The gap is closed due to initial adjustment.

*** NOTE *** CP = 0.516 TIME= 14:37:02
The PCG solver has automatically set the level of difficulty for this model to 4.

Range of element maximum matrix coefficients in global coordinates
Maximum= 329074.85 at element 118.
Minimum= 3.031953205E-40 at element 922.

*** WARNING *** CP = 0.688 TIME= 14:37:02
Coefficient ratio exceeds 1.0e8 - Check results.

*** ELEMENT MATRIX FORMULATION TIMES
TYPE NUMBER ENAME TOTAL CP AVE CP

1	60	PLANE183	0.031	0.000521
2	3	PLANE183	0.000	0.000000
3	60	PLANE183	0.000	0.000000
4	57	PLANE183	0.000	0.000000
5	168	PLANE183	0.062	0.000372
6	57	PLANE183	0.000	0.000000
7	380	PLANE183	0.156	0.000411
8	27	CONTA172	0.000	0.000000
9	27	TARGE169	0.000	0.000000
10	35	CONTA172	0.000	0.000000
11	35	TARGE169	0.000	0.000000
12	56	COMBIN14	0.062	0.001116

Time at end of element matrix formulation CP= 0.6875.
FORCE CONVERGENCE VALUE = 0.4038E+07 CRITERION= 0.2060E+05

PRECONDITIONED SOLVER CP TIME = 0.125
PRECONDITIONED SOLVER ELAPSED TIME = 0.396
EQUIL ITER 1 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -5.000

*** WARNING *** CP = 0.922 TIME= 14:37:03
Contact element 820 (real ID 9) has too much penetration 4.97761602 related to target element 793.
LINE SEARCH PARAMETER = 1.000 SCALED MAX DOF INC = -5.000
FORCE CONVERGENCE VALUE = 1.436 CRITERION= 0.4211E-01
EQUIL ITER 2 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 8.641

*** ERROR *** CP = 1.328 TIME= 14:37:04
One or more elements have become highly distorted. Excessive distortion of elements is usually a symptom indicating the need for corrective action elsewhere. Try incrementing the load more slowly (increase the number of substeps or decrease the time step size). You may need to improve your mesh to obtain elements with better aspect

ratios. Also consider the behavior of materials, contact pairs, and/or constraint equations. If this message appears in the first iteration of first substep, be sure to perform element shape checking.

*** NOTE *** CP = 1.328 TIME= 14:37:04
One or more elements have become highly distorted. Excessive distortion of elements is usually a symptom indicating the need for corrective action elsewhere. Try incrementing the load more slowly (increase the number of substeps or decrease the time step size). You may need to improve your mesh to obtain elements with better aspect ratios. Also consider the behavior of materials, contact pairs, and/or constraint equations. If this message appears in the first iteration of first substep, be sure to perform element shape checking.

*** LOAD STEP 1 SUBSTEP 1 NOT COMPLETED. CUM ITER = 3
*** BEGIN BISECTION NUMBER 1 NEW TIME INCREMENT= 0.10000

Range of element maximum matrix coefficients in global coordinates
Maximum= 329074.85 at element 118.
Minimum= 3.031953205E-40 at element 922.

*** WARNING *** CP = 1.500 TIME= 14:37:04
Coefficient ratio exceeds 1.0e8 - Check results.
FORCE CONVERGENCE VALUE = 0.2019E+07 CRITERION= 0.1030E+05
EQUIL ITER 1 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -2.500

*** WARNING *** CP = 1.688 TIME= 14:37:04
Contact element 820 (real ID 9) has too much penetration 2.49774994 related to target element 793.
LINE SEARCH PARAMETER = 1.000 SCALED MAX DOF INC = -2.500
FORCE CONVERGENCE VALUE = 0.2940 CRITERION= 0.2094E-01
EQUIL ITER 2 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.1075
LINE SEARCH PARAMETER = 0.9490 SCALED MAX DOF INC = 0.1020
FORCE CONVERGENCE VALUE = 0.3397E-01 CRITERION= 0.2220E-01
EQUIL ITER 3 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -0.1189E-01
LINE SEARCH PARAMETER = 1.000 SCALED MAX DOF INC = -0.1189E-01
FORCE CONVERGENCE VALUE = 0.5186E-02 CRITERION= 0.2268E-01 <<< CONVERGED
>>> SOLUTION CONVERGED AFTER EQUILIBRIUM ITERATION 3

*** ELEMENT RESULT CALCULATION TIMES

TYPE NUMBER ENAME TOTAL CP AVE CP

1	60	PLANE183	0.000	0.000000
2	3	PLANE183	0.000	0.000000
3	60	PLANE183	0.000	0.000000
4	57	PLANE183	0.000	0.000000
5	168	PLANE183	0.000	0.000000
6	57	PLANE183	0.031	0.000548
7	380	PLANE183	0.125	0.000329
8	27	CONTA172	0.000	0.000000
9	27	TARGE169	0.000	0.000000
10	35	CONTA172	0.000	0.000000

11 35 TARGE169 0.000 0.000000
12 56 COMBIN14 0.031 0.000558

*** NODAL LOAD CALCULATION TIMES

TYPE NUMBER ENAME TOTAL CP AVE CP

1 60 PLANE183 0.000 0.000000
2 3 PLANE183 0.000 0.000000
3 60 PLANE183 0.000 0.000000
4 57 PLANE183 0.000 0.000000
5 168 PLANE183 0.000 0.000000
6 57 PLANE183 0.000 0.000000
7 380 PLANE183 0.000 0.000000
8 27 CONTA172 0.000 0.000000
9 27 TARGE169 0.000 0.000000
10 35 CONTA172 0.000 0.000000
11 35 TARGE169 0.000 0.000000
12 56 COMBIN14 0.000 0.000000

*** LOAD STEP 1 SUBSTEP 1 COMPLETED. CUM ITER = 5

*** TIME = 0.100000 TIME INC = 0.100000

*** AUTO STEP TIME: NEXT TIME INC = 0.10000 UNCHANGED

*** **WARNING** *** CP = 3.141 TIME= 14:37:05

Contact element 820 (real ID 9) has too much penetration 4.99611077 related to target element 793.

FORCE CONVERGENCE VALUE = 0.6874 CRITERION= 0.4270E-01
EQUIL ITER 1 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.2314
LINE SEARCH PARAMETER = 0.7988 SCALED MAX DOF INC = 0.1849
FORCE CONVERGENCE VALUE = 0.2440 CRITERION= 0.4439E-01
EQUIL ITER 2 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.8188E-01
LINE SEARCH PARAMETER = 0.9276 SCALED MAX DOF INC = 0.7595E-01
FORCE CONVERGENCE VALUE = 0.1309 CRITERION= 0.4547E-01
EQUIL ITER 3 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -0.9835E-01
LINE SEARCH PARAMETER = 0.8134 SCALED MAX DOF INC = -0.8000E-01
FORCE CONVERGENCE VALUE = 0.5843E-01 CRITERION= 0.4631E-01
EQUIL ITER 4 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.3866E-01
LINE SEARCH PARAMETER = 1.000 SCALED MAX DOF INC = 0.3866E-01
FORCE CONVERGENCE VALUE = 0.4221E-01 CRITERION= 0.4726E-01 <<< CONVERGED
>>> SOLUTION CONVERGED AFTER EQUILIBRIUM ITERATION 4

*** LOAD STEP 1 SUBSTEP 2 COMPLETED. CUM ITER = 9

*** TIME = 0.200000 TIME INC = 0.100000

*** AUTO TIME STEP: NEXT TIME INC = 0.15000 INCREASED (FACTOR = 1.5000)

*** **WARNING** *** CP = 5.453 TIME= 14:37:07

Contact element 820 (real ID 9) has too much penetration 8.73414955 related to target element 793.

FORCE CONVERGENCE VALUE = 3.059 CRITERION= 0.7697E-01
EQUIL ITER 1 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.9197

*** **ERROR** *** CP = 5.812 TIME= 14:37:08

One or more elements have become highly distorted. Excessive distortion of elements is usually a symptom indicating the need for corrective action elsewhere. Try incrementing the load more slowly (increase the number of substeps or decrease the time step size). You

may need to improve your mesh to obtain elements with better aspect ratios. Also consider the behavior of materials, contact pairs, and/or constraint equations. If this message appears in the first iteration of first substep, be sure to perform element shape checking.

*** NOTE *** CP = 5.812 TIME= 14:37:08

One or more elements have become highly distorted. Excessive distortion of elements is usually a symptom indicating the need for corrective action elsewhere. Try incrementing the load more slowly (increase the number of substeps or decrease the time step size). You may need to improve your mesh to obtain elements with better aspect ratios. Also consider the behavior of materials, contact pairs, and/or constraint equations. If this message appears in the first iteration of first substep, be sure to perform element shape checking.

*** LOAD STEP 1 SUBSTEP 3 NOT COMPLETED. CUM ITER = 11
*** BEGIN BISECTION NUMBER 1 NEW TIME INCREMENT= 0.10000

*** WARNING *** CP = 5.875 TIME= 14:37:08

Contact element 820 (real ID 9) has too much penetration 7.48693072 related to target element 793.

FORCE CONVERGENCE VALUE = 1.208 CRITERION= 0.6584E-01
EQUIL ITER 1 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.4527
LINE SEARCH PARAMETER = 0.9301 SCALED MAX DOF INC = 0.4210
FORCE CONVERGENCE VALUE = 0.3136 CRITERION= 0.6799E-01
EQUIL ITER 2 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -0.3576
LINE SEARCH PARAMETER = 0.1581 SCALED MAX DOF INC = -0.5655E-01
FORCE CONVERGENCE VALUE = 0.2289 CRITERION= 0.6936E-01
EQUIL ITER 3 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -0.2415
LINE SEARCH PARAMETER = 0.4280 SCALED MAX DOF INC = -0.1033
FORCE CONVERGENCE VALUE = 0.1586 CRITERION= 0.7081E-01
EQUIL ITER 4 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.5271E-01
LINE SEARCH PARAMETER = 0.7683 SCALED MAX DOF INC = 0.4049E-01
FORCE CONVERGENCE VALUE = 0.1254 CRITERION= 0.7236E-01
EQUIL ITER 5 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -0.6044E-01
LINE SEARCH PARAMETER = 0.9789 SCALED MAX DOF INC = -0.5916E-01
FORCE CONVERGENCE VALUE = 0.6453E-01 CRITERION= 0.7386E-01 <<< CONVERGED
EQUIL ITER 6 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.5225E-01
LINE SEARCH PARAMETER = 1.000 SCALED MAX DOF INC = 0.5225E-01
>>> SOLUTION CONVERGED AFTER EQUILIBRIUM ITERATION 6

*** LOAD STEP 1 SUBSTEP 3 COMPLETED. CUM ITER = 16
*** TIME = 0.300000 TIME INC = 0.100000
*** AUTO STEP TIME: NEXT TIME INC = 0.10000 UNCHANGED

*** WARNING *** CP = 9.578 TIME= 14:37:11

Contact element 820 (real ID 9) has too much penetration 9.97390858 related to target element 793.

FORCE CONVERGENCE VALUE = 3.189 CRITERION= 0.8973E-01
EQUIL ITER 1 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.8944
LINE SEARCH PARAMETER = 0.9822 SCALED MAX DOF INC = 0.8785
FORCE CONVERGENCE VALUE = 0.5197 CRITERION= 0.9522E-01

EQUIL ITER 2 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -0.3686
LINE SEARCH PARAMETER = 0.2735 SCALED MAX DOF INC = -0.1008
FORCE CONVERGENCE VALUE = 0.3217 CRITERION= 0.9725E-01
EQUIL ITER 3 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.2331
LINE SEARCH PARAMETER = 0.3007 SCALED MAX DOF INC = 0.7008E-01
FORCE CONVERGENCE VALUE = 0.2919 CRITERION= 0.9933E-01
EQUIL ITER 4 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -0.4243
LINE SEARCH PARAMETER = 0.2007 SCALED MAX DOF INC = -0.8514E-01
FORCE CONVERGENCE VALUE = 0.2644 CRITERION= 0.1013
EQUIL ITER 5 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -0.8288
LINE SEARCH PARAMETER = 1.000 SCALED MAX DOF INC = -0.8288
FORCE CONVERGENCE VALUE = 100.3 CRITERION= 0.1037

*** ERROR *** CP = 13.422 TIME= 14:37:14
Preconditioned conjugate gradient solver error level 1. Possibly, the
model is unconstrained or additional iterations may be needed. Try
running with a multiplier MULT > 1 in EQSLV command (3 > MULT > 1).

SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 8

*** NOTE *** CP = 13.438 TIME= 14:37:14
Contact pair is inactive.

SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 9
Max. Penetration of -9.98454765 has been detected between contact
element 815 and target element 786.
For total 19 contact elements, there are 6 elements are in contact.
Max. Total sliding distance 0.115142714.
Max. Pinball distance 18.
Max. Pressure/force 3.261931668E-02.
Max. Normal stiffness 3.26697992E-03.
Min. Normal stiffness 3.26697992E-03.

SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 10

*** NOTE *** CP = 13.438 TIME= 14:37:14
Contact pair is inactive.

SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 11
Max. Penetration of -0.610057967 has been detected between contact
element 893 and target element 840.

Max. Closed gap 0.768535562 has been detected between contact element
878 and target element 851.
For total 16 contact elements, there are 14 elements are in contact.
Contact element 893 has the highest chattering level 3.
Max. Total sliding distance 1.41959253.
Max. Pinball distance 11.
Max. Pressure/force 5.46038673.
Max. Normal stiffness 8.95060309.
Min. Normal stiffness 8.95060309.

*** WARNING *** CP = 13.438 TIME= 14:37:14
The unconverged solution (identified as time 1 substep 999999) is
output for analysis debug purposes. Results should not be used for
any other purpose.

RESTART INFORMATION

REASON FOR TERMINATION.NEGATIVE PIVOT
FILES NEEDED FOR RESTARTING
file.osav

file.emat

file.db

TIME OF LAST SOLUTION 0.30000
TIME AT START OF THE LOAD STEP 0.0000
TIME AT END OF THE LOAD STEP 1.0000

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= file.db
FOR POSSIBLE RESUME FROM THIS POINT

NUMBER OF WARNING MESSAGES ENCOUNTERED= 13
NUMBER OF ERROR MESSAGES ENCOUNTERED= 3

***** PROBLEM TERMINATED BY INDICATED ERROR(S) OR BY END OF INPUT DATA *****

CPU TIME SPENT FOR CONTACT DATABASE	0.031
CONTACT SEARCH	0.062
CONTACT ELEMENTS	0.500
OTHER ELEMENTS	6.906
EQUATION SOLVER	5.812
TOTAL SYSTEM	13.281

```

*-----*
|               |
|   ANSYS RUN COMPLETED   |
|               |
|-----|
|               |

```

