```
/*---------------------------------------------------------------------------*¥
  =========                 |
  ¥¥      /  F ield         | OpenFOAM: The Open Source CFD Toolbox
   ¥¥    /   O peration     | Website:  https://openfoam.org
    ¥¥  /    A nd           | Version:  8
     ¥¥/     M anipulation  |
¥*---------------------------------------------------------------------------*/
Build  : 8-1c9b5879390b
Exec   : snappyHexMesh -overwrite
Date   : Aug 06 2021
Time   : 11:23:33
Host   : "OHDACHI-PC"
PID    : 1117
I/O    : uncollated
Case   : /home/kentaohdachi/CarModel
nProcs : 1
sigFpe : Enabling floating point exception trapping (FOAM_SIGFPE).
fileModificationChecking : Monitoring run-time modified files using
timeStampMaster (fileModificationSkew 10)
allowSystemOperations : Allowing user-supplied system call operations

// * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * //
Create time

Create mesh for time = 0

Read mesh in = 0 s

Overall mesh bounding box  : (-3.78 -5.04 -0.06) (26.22 4.96 9.94)
Relative tolerance         : 1e-06
Absolute matching distance : 3.31662e-05

Reading refinement surfaces.
Read refinement surfaces in = 1.04 s

Reading refinement shells.
Refinement level 4 for all cells inside refinementBox
Read refinement shells in = 0 s

Setting refinement level of surface to be consistent with shells.
Checked shell refinement in = 0 s

Reading features.
Read edgeMesh motorBike.eMesh
    points      : 5129
    edges       : 5218
    boundingBox : (-0.32675 -0.84 -0.06) (3.22276 0.76 0.795673)

Refinement level according to distance to "motorBike.eMesh" (5129 points, 5218
edges).
    level 7 for all cells within 0 metre.
Read features in = 0.02 s


Determining initial surface intersections
-----------------------------------------

Edge intersection testing:
```

```
    Number of edges             : 9700
    Number of edges to retest   : 9700
    Number of intersected edges : 28
Calculated surface intersections in = 0.55 s

Initial mesh : cells:3000  faces:9700  points:3751
Cells per refinement level:
    0   3000

Adding patches for surface regions
----------------------------------

Patch Type                Region
----- ----                ------
motorBike:

5     wall                motorBike

Added patches in = 0 s

Selecting decompositionMethod none
Layer thickness specified as final layer and expansion ratio.

Refinement phase
----------------

Found point (3.0001 3.0001 0.43) in cell 246 on processor 0

Feature refinement iteration 0
------------------------------

Marked for refinement due to explicit features             : 10 cells.
Determined cells to refine in = 0.03 s
Selected for feature refinement : 10 cells (out of 3000)
Edge intersection testing:
    Number of edges             : 9961
    Number of edges to retest   : 405
    Number of intersected edges : 107
Refined mesh in = 0 s
After refinement feature refinement iteration 0 : cells:3070  faces:9961
points:3880
Cells per refinement level:
    0   2990
    1   80

Feature refinement iteration 1
------------------------------

Marked for refinement due to explicit features             : 40 cells.
Determined cells to refine in = 0.01 s
Selected for feature refinement : 58 cells (out of 3070)
Edge intersection testing:
    Number of edges             : 11425
    Number of edges to retest   : 1978
    Number of intersected edges : 278
Refined mesh in = 0.02 s
After refinement feature refinement iteration 1 : cells:3476  faces:11425
points:4557
```

```
Cells per refinement level:
    0   2972
    1   184
    2   320

Feature refinement iteration 2
------------------------------

Marked for refinement due to explicit features             : 139 cells.
Determined cells to refine in = 0.01 s
Selected for feature refinement : 196 cells (out of 3476)
Edge intersection testing:
    Number of edges             : 16204
    Number of edges to retest   : 6666
    Number of intersected edges : 855
Refined mesh in = 0.02 s
After refinement feature refinement iteration 2 : cells:4848  faces:16204
points:6646
Cells per refinement level:
    0   2962
    1   215
    2   575
    3   1096

Feature refinement iteration 3
------------------------------

Marked for refinement due to explicit features             : 320 cells.
Determined cells to refine in = 0.03 s
Selected for feature refinement : 411 cells (out of 4848)
Edge intersection testing:
    Number of edges             : 26449
    Number of edges to retest   : 15423
    Number of intersected edges : 3100
Refined mesh in = 0.03 s
After refinement feature refinement iteration 3 : cells:7725  faces:26449
points:11316
Cells per refinement level:
    0   2958
    1   228
    2   651
    3   1392
    4   2496

Feature refinement iteration 4
------------------------------

Marked for refinement due to explicit features             : 713 cells.
Determined cells to refine in = 0.07 s
Selected for feature refinement : 1050 cells (out of 7725)
Edge intersection testing:
    Number of edges             : 52351
    Number of edges to retest   : 38237
    Number of intersected edges : 8164
Refined mesh in = 0.07 s
After refinement feature refinement iteration 4 : cells:15075  faces:52351
points:22897
Cells per refinement level:
```

```
    0   2958
    1   224
    2   644
    3   1390
    4   4315
    5   5544

Feature refinement iteration 5
------------------------------

Marked for refinement due to explicit features             : 1908 cells.
Determined cells to refine in = 0.11 s
Selected for feature refinement : 3422 cells (out of 15075)
Edge intersection testing:
    Number of edges             : 136870
    Number of edges to retest   : 120243
    Number of intersected edges : 21840
Refined mesh in = 0.22 s
After refinement feature refinement iteration 5 : cells:39029  faces:136870
points:60549
Cells per refinement level:
    0   2956
    1   231
    2   620
    3   1866
    4   5492
    5   12952
    6   14912

Feature refinement iteration 6
------------------------------

Marked for refinement due to explicit features             : 4015 cells.
Determined cells to refine in = 0.44 s
Selected for feature refinement : 7673 cells (out of 39029)
Edge intersection testing:
    Number of edges             : 326731
    Number of edges to retest   : 289677
    Number of intersected edges : 48400
Refined mesh in = 0.51 s
After refinement feature refinement iteration 6 : cells:92740  faces:326731
points:146254
Cells per refinement level:
    0   2956
    1   228
    2   618
    3   1965
    4   5638
    5   15825
    6   34518
    7   30992

Feature refinement iteration 7
------------------------------

Marked for refinement due to explicit features             : 265 cells.
Determined cells to refine in = 0.94 s
Selected for feature refinement : 408 cells (out of 92740)
```

```
Edge intersection testing:
    Number of edges             : 336757
    Number of edges to retest   : 22292
    Number of intersected edges : 49966
Refined mesh in = 0.31 s
After refinement feature refinement iteration 7 : cells:95596  faces:336757
points:150662
Cells per refinement level:
    0   2956
    1   228
    2   618
    3   1964
    4   5630
    5   15820
    6   35324
    7   33056

Feature refinement iteration 8
------------------------------

Marked for refinement due to explicit features             : 66 cells.
Determined cells to refine in = 0.96 s
Selected for feature refinement : 85 cells (out of 95596)
Edge intersection testing:
    Number of edges             : 338746
    Number of edges to retest   : 5461
    Number of intersected edges : 50279
Refined mesh in = 0.28 s
After refinement feature refinement iteration 8 : cells:96191  faces:338746
points:151472
Cells per refinement level:
    0   2956
    1   228
    2   618
    3   1964
    4   5629
    5   15810
    6   35402
    7   33584

Feature refinement iteration 9
------------------------------

Marked for refinement due to explicit features             : 12 cells.
Determined cells to refine in = 0.98 s
Selected for feature refinement : 18 cells (out of 96191)
Edge intersection testing:
    Number of edges             : 339148
    Number of edges to retest   : 1256
    Number of intersected edges : 50331
Refined mesh in = 0.27 s
After refinement feature refinement iteration 9 : cells:96317  faces:339148
points:151620
Cells per refinement level:
    0   2956
    1   228
    2   618
    3   1964
```

```
    4   5628
    5   15813
    6   35430
    7   33680

Feature refinement iteration 10
------------------------------

Marked for refinement due to explicit features             : 0 cells.
Determined cells to refine in = 0.98 s
Selected for feature refinement : 0 cells (out of 96317)
Stopping refining since too few cells selected.


Surface refinement iteration 0
------------------------------

Marked for refinement due to surface intersection          : 8696 cells.
Marked for refinement due to curvature/regions             : 10029 cells.
Determined cells to refine in = 0.11 s
Selected for refinement : 19720 cells (out of 96317)
Edge intersection testing:
    Number of edges             : 784582
    Number of edges to retest   : 687833
    Number of intersected edges : 100850
Refined mesh in = 1.24 s
After refinement surface refinement iteration 0 : cells:234357  faces:784582
points:319179
Cells per refinement level:
    0   2956
    1   216
    2   576
    3   2507
    4   7740
    5   28217
    6   78233
    7   113912

Surface refinement iteration 1
------------------------------

Marked for refinement due to surface intersection          : 11901 cells.
Marked for refinement due to curvature/regions             : 7072 cells.
Determined cells to refine in = 0.2 s
Selected for refinement : 19807 cells (out of 234357)
Edge intersection testing:
    Number of edges             : 1230460
    Number of edges to retest   : 698195
    Number of intersected edges : 150071
Refined mesh in = 1.51 s
After refinement surface refinement iteration 1 : cells:373006  faces:1230460
points:487562
Cells per refinement level:
    0   2956
    1   210
    2   552
    3   2326
    4   11588
```

```
    5   36189
    6   148697
    7   170488

Surface refinement iteration 2
------------------------------

Marked for refinement due to surface intersection          : 10336 cells.
Marked for refinement due to curvature/regions             : 8427 cells.
Determined cells to refine in = 0.31 s
Selected for refinement : 19765 cells (out of 373006)
Edge intersection testing:
    Number of edges              : 1682536
    Number of edges to retest    : 684122
    Number of intersected edges : 202438
Refined mesh in = 1.94 s
After refinement surface refinement iteration 2 : cells:511361  faces:1682536
points:663147
Cells per refinement level:
    0   2956
    1   208
    2   552
    3   2196
    4   10752
    5   51227
    6   205566
    7   237904

Surface refinement iteration 3
------------------------------

Marked for refinement due to surface intersection          : 10862 cells.
Marked for refinement due to curvature/regions             : 3381 cells.
Determined cells to refine in = 0.41 s
Selected for refinement : 15376 cells (out of 511361)
Edge intersection testing:
    Number of edges              : 2036149
    Number of edges to retest    : 523401
    Number of intersected edges : 234407
Refined mesh in = 2.21 s
After refinement surface refinement iteration 3 : cells:618993  faces:2036149
points:802126
Cells per refinement level:
    0   2956
    1   208
    2   536
    3   2176
    4   10906
    5   48666
    6   288593
    7   264952

Surface refinement iteration 4
------------------------------

Marked for refinement due to surface intersection          : 1485 cells.
Marked for refinement due to curvature/regions             : 4768 cells.
Determined cells to refine in = 0.5 s
```

```
Selected for refinement : 6814 cells (out of 618993)
Edge intersection testing:
    Number of edges             : 2198215
    Number of edges to retest   : 261974
    Number of intersected edges : 252064
Refined mesh in = 2.23 s
After refinement surface refinement iteration 4 : cells:666691  faces:2198215
points:869886
Cells per refinement level:
    0   2956
    1   208
    2   534
    3   2172
    4   10898
    5   48154
    6   298673
    7   303096

Surface refinement iteration 5
------------------------------

Marked for refinement due to surface intersection          : 17 cells.
Marked for refinement due to curvature/regions             : 1107 cells.
Determined cells to refine in = 0.53 s
Selected for refinement : 1298 cells (out of 666691)
Edge intersection testing:
    Number of edges             : 2227756
    Number of edges to retest   : 67037
    Number of intersected edges : 254150
Refined mesh in = 2.2 s
After refinement surface refinement iteration 5 : cells:675777  faces:2227756
points:881245
Cells per refinement level:
    0   2956
    1   208
    2   534
    3   2168
    4   10896
    5   48273
    6   298790
    7   311952

Surface refinement iteration 6
------------------------------

Marked for refinement due to surface intersection          : 0 cells.
Marked for refinement due to curvature/regions             : 40 cells.
Determined cells to refine in = 0.52 s
Selected for refinement : 46 cells (out of 675777)
Edge intersection testing:
    Number of edges             : 2228809
    Number of edges to retest   : 3544
    Number of intersected edges : 254189
Refined mesh in = 2.06 s
After refinement surface refinement iteration 6 : cells:676099  faces:2228809
points:881650
Cells per refinement level:
    0   2956
```

```
    1   208
    2   534
    3   2168
    4   10896
    5   48267
    6   298798
    7   312272

Surface refinement iteration 7
------------------------------

Marked for refinement due to surface intersection          : 0 cells.
Marked for refinement due to curvature/regions             : 4 cells.
Determined cells to refine in = 0.5 s
Selected for refinement : 4 cells (out of 676099)
Stopping refining since too few cells selected.


Removing mesh beyond surface intersections
------------------------------------------

Found point (3.0001 3.0001 0.43) in global region 0 out of 7 regions.
Keeping all cells in region 0 containing point (3.0001 3.0001 0.43)
Selected for keeping : 553250 cells.
Edge intersection testing:
    Number of edges             : 1898227
    Number of edges to retest   : 175308
    Number of intersected edges : 254189

Shell refinement iteration 0
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 1810 cells.
Determined cells to refine in = 10.14 s
Selected for internal refinement : 66032 cells (out of 553250)
Edge intersection testing:
    Number of edges             : 3324382
    Number of edges to retest   : 2692389
    Number of intersected edges : 281339
Refined mesh in = 5.03 s
After refinement shell refinement iteration 0 : cells:1015474  faces:3324382
points:1291060
Cells per refinement level:
    0   2871
    1   724
    2   1476
    3   3584
    4   15450
    5   37599
    6   299063
    7   654707

Shell refinement iteration 1
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 3128 cells.
```

```
Determined cells to refine in = 0.92 s
Selected for internal refinement : 30811 cells (out of 1015474)
Edge intersection testing:
    Number of edges             : 3991714
    Number of edges to retest   : 1587135
    Number of intersected edges : 294735
Refined mesh in = 5.29 s
After refinement shell refinement iteration 1 : cells:1231151  faces:3991714
points:1526255
Cells per refinement level:
    0   2776
    1   1183
    2   3264
    3   5796
    4   35980
    5   45338
    6   308507
    7   828307

Shell refinement iteration 2
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 5280 cells.
Determined cells to refine in = 0.97 s
Selected for internal refinement : 11231 cells (out of 1231151)
Edge intersection testing:
    Number of edges             : 4230085
    Number of edges to retest   : 506782
    Number of intersected edges : 295816
Refined mesh in = 4.69 s
After refinement shell refinement iteration 2 : cells:1309768  faces:4230085
points:1607350
Cells per refinement level:
    0   2693
    1   1567
    2   3686
    3   16606
    4   65436
    5   46543
    6   322714
    7   850523

Shell refinement iteration 3
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 12544 cells.
Determined cells to refine in = 0.98 s
Selected for internal refinement : 15268 cells (out of 1309768)
Edge intersection testing:
    Number of edges             : 4554649
    Number of edges to retest   : 460449
    Number of intersected edges : 296576
Refined mesh in = 4.94 s
After refinement shell refinement iteration 3 : cells:1416644  faces:4554649
points:1718195
Cells per refinement level:
```

```
    0   2682
    1   1373
    2   5080
    3   10938
    4   165764
    5   47902
    6   322366
    7   860539

Shell refinement iteration 4
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.07 s
Selected for internal refinement : 696 cells (out of 1416644)
Edge intersection testing:
    Number of edges              : 4569325
    Number of edges to retest    : 44946
    Number of intersected edges : 296872
Refined mesh in = 5.01 s
After refinement shell refinement iteration 4 : cells:1421516  faces:4569325
points:1723100
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165762
    5   47818
    6   322636
    7   864779

Shell refinement iteration 5
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.08 s
Selected for internal refinement : 288 cells (out of 1421516)
Edge intersection testing:
    Number of edges              : 4575382
    Number of edges to retest    : 17789
    Number of intersected edges : 297149
Refined mesh in = 4.99 s
After refinement shell refinement iteration 5 : cells:1423532  faces:4575382
points:1725124
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47821
    6   322394
    7   867035

Shell refinement iteration 6
```

```
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.1 s
Selected for internal refinement : 69 cells (out of 1423532)
Edge intersection testing:
    Number of edges             : 4576855
    Number of edges to retest   : 4868
    Number of intersected edges : 297197
Refined mesh in = 5.09 s
After refinement shell refinement iteration 6 : cells:1424015  faces:4576855
points:1725632
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322415
    7   867507

Shell refinement iteration 7
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.09 s
Selected for internal refinement : 50 cells (out of 1424015)
Edge intersection testing:
    Number of edges             : 4577935
    Number of edges to retest   : 3158
    Number of intersected edges : 297233
Refined mesh in = 5.02 s
After refinement shell refinement iteration 7 : cells:1424365  faces:4577935
points:1726010
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322365
    7   867907

Shell refinement iteration 8
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.05 s
Selected for internal refinement : 38 cells (out of 1424365)
Edge intersection testing:
    Number of edges             : 4578757
    Number of edges to retest   : 2538
    Number of intersected edges : 297269
```

```
Refined mesh in = 4.97 s
After refinement shell refinement iteration 8 : cells:1424631  faces:4578757
points:1726300
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322327
    7   868211

Shell refinement iteration 9
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.08 s
Selected for internal refinement : 32 cells (out of 1424631)
Edge intersection testing:
    Number of edges             : 4579465
    Number of edges to retest   : 1928
    Number of intersected edges : 297305
Refined mesh in = 5.01 s
After refinement shell refinement iteration 9 : cells:1424855  faces:4579465
points:1726560
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322295
    7   868467

Shell refinement iteration 10
-----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.09 s
Selected for internal refinement : 30 cells (out of 1424855)
Edge intersection testing:
    Number of edges             : 4580131
    Number of edges to retest   : 1950
    Number of intersected edges : 297341
Refined mesh in = 4.98 s
After refinement shell refinement iteration 10 : cells:1425065  faces:4580131
points:1726806
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
```

```
    6   322265
    7   868707

Shell refinement iteration 11
------------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.1 s
Selected for internal refinement : 32 cells (out of 1425065)
Edge intersection testing:
    Number of edges             : 4580845
    Number of edges to retest   : 1924
    Number of intersected edges : 297377
Refined mesh in = 5.34 s
After refinement shell refinement iteration 11 : cells:1425289  faces:4580845
points:1727072
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322233
    7   868963

Shell refinement iteration 12
------------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.13 s
Selected for internal refinement : 30 cells (out of 1425289)
Edge intersection testing:
    Number of edges             : 4581523
    Number of edges to retest   : 1958
    Number of intersected edges : 297413
Refined mesh in = 5.37 s
After refinement shell refinement iteration 12 : cells:1425499  faces:4581523
points:1727330
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322203
    7   869203

Shell refinement iteration 13
------------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.18 s
Selected for internal refinement : 32 cells (out of 1425499)
```

```
Edge intersection testing:
    Number of edges             : 4582225
    Number of edges to retest   : 2052
    Number of intersected edges : 297449
Refined mesh in = 5.2 s
After refinement shell refinement iteration 13 : cells:1425723  faces:4582225
points:1727584
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322171
    7   869459

Shell refinement iteration 14
-----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.11 s
Selected for internal refinement : 32 cells (out of 1425723)
Edge intersection testing:
    Number of edges             : 4582933
    Number of edges to retest   : 1988
    Number of intersected edges : 297485
Refined mesh in = 5.11 s
After refinement shell refinement iteration 14 : cells:1425947  faces:4582933
points:1727844
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322139
    7   869715

Shell refinement iteration 15
-----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.08 s
Selected for internal refinement : 32 cells (out of 1425947)
Edge intersection testing:
    Number of edges             : 4583641
    Number of edges to retest   : 1982
    Number of intersected edges : 297521
Refined mesh in = 5.34 s
After refinement shell refinement iteration 15 : cells:1426171  faces:4583641
points:1728104
Cells per refinement level:
    0   2630
    1   1787
```

```
    2   5086
    3   11018
    4   165761
    5   47811
    6   322107
    7   869971

Shell refinement iteration 16
------------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.17 s
Selected for internal refinement : 32 cells (out of 1426171)
Edge intersection testing:
    Number of edges             : 4584349
    Number of edges to retest   : 1994
    Number of intersected edges : 297557
Refined mesh in = 5.17 s
After refinement shell refinement iteration 16 : cells:1426395  faces:4584349
points:1728364
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322075
    7   870227

Shell refinement iteration 17
------------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.1 s
Selected for internal refinement : 32 cells (out of 1426395)
Edge intersection testing:
    Number of edges             : 4585057
    Number of edges to retest   : 1928
    Number of intersected edges : 297593
Refined mesh in = 5.02 s
After refinement shell refinement iteration 17 : cells:1426619  faces:4585057
points:1728624
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322043
    7   870483

Shell refinement iteration 18
------------------------------
```

```
Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.1 s
Selected for internal refinement : 30 cells (out of 1426619)
Edge intersection testing:
    Number of edges             : 4585723
    Number of edges to retest   : 1950
    Number of intersected edges : 297629
Refined mesh in = 5.02 s
After refinement shell refinement iteration 18 : cells:1426829  faces:4585723
points:1728870
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   322013
    7   870723

Shell refinement iteration 19
-----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.11 s
Selected for internal refinement : 32 cells (out of 1426829)
Edge intersection testing:
    Number of edges             : 4586437
    Number of edges to retest   : 1924
    Number of intersected edges : 297665
Refined mesh in = 4.98 s
After refinement shell refinement iteration 19 : cells:1427053  faces:4586437
points:1729136
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321981
    7   870979

Shell refinement iteration 20
-----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.08 s
Selected for internal refinement : 30 cells (out of 1427053)
Edge intersection testing:
    Number of edges             : 4587115
    Number of edges to retest   : 1958
    Number of intersected edges : 297701
Refined mesh in = 5.01 s
After refinement shell refinement iteration 20 : cells:1427263  faces:4587115
```

```
points:1729394
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321951
    7   871219

Shell refinement iteration 21
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.04 s
Selected for internal refinement : 32 cells (out of 1427263)
Edge intersection testing:
    Number of edges             : 4587817
    Number of edges to retest   : 2052
    Number of intersected edges : 297737
Refined mesh in = 4.82 s
After refinement shell refinement iteration 21 : cells:1427487  faces:4587817
points:1729648
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321919
    7   871475

Shell refinement iteration 22
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.11 s
Selected for internal refinement : 32 cells (out of 1427487)
Edge intersection testing:
    Number of edges             : 4588525
    Number of edges to retest   : 1994
    Number of intersected edges : 297773
Refined mesh in = 5 s
After refinement shell refinement iteration 22 : cells:1427711  faces:4588525
points:1729908
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321887
    7   871731
```

```
Shell refinement iteration 23
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.07 s
Selected for internal refinement : 30 cells (out of 1427711)
Edge intersection testing:
    Number of edges             : 4589191
    Number of edges to retest   : 1844
    Number of intersected edges : 297809
Refined mesh in = 4.84 s
After refinement shell refinement iteration 23 : cells:1427921  faces:4589191
points:1730154
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321857
    7   871971

Shell refinement iteration 24
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.06 s
Selected for internal refinement : 34 cells (out of 1427921)
Edge intersection testing:
    Number of edges             : 4589947
    Number of edges to retest   : 2082
    Number of intersected edges : 297845
Refined mesh in = 4.86 s
After refinement shell refinement iteration 24 : cells:1428159  faces:4589947
points:1730434
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321823
    7   872243

Shell refinement iteration 25
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.09 s
Selected for internal refinement : 30 cells (out of 1428159)
Edge intersection testing:
    Number of edges             : 4590613
```

```
    Number of edges to retest   : 1854
    Number of intersected edges : 297881
Refined mesh in = 4.99 s
After refinement shell refinement iteration 25 : cells:1428369  faces:4590613
points:1730680
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321793
    7   872483

Shell refinement iteration 26
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.08 s
Selected for internal refinement : 30 cells (out of 1428369)
Edge intersection testing:
    Number of edges             : 4591279
    Number of edges to retest   : 1950
    Number of intersected edges : 297917
Refined mesh in = 4.95 s
After refinement shell refinement iteration 26 : cells:1428579  faces:4591279
points:1730926
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321763
    7   872723

Shell refinement iteration 27
----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.1 s
Selected for internal refinement : 32 cells (out of 1428579)
Edge intersection testing:
    Number of edges             : 4591993
    Number of edges to retest   : 1924
    Number of intersected edges : 297953
Refined mesh in = 5.01 s
After refinement shell refinement iteration 27 : cells:1428803  faces:4591993
points:1731192
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
```

```
    4   165761
    5   47811
    6   321731
    7   872979

Shell refinement iteration 28
------------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.14 s
Selected for internal refinement : 30 cells (out of 1428803)
Edge intersection testing:
    Number of edges             : 4592671
    Number of edges to retest   : 1948
    Number of intersected edges : 297989
Refined mesh in = 5.03 s
After refinement shell refinement iteration 28 : cells:1429013  faces:4592671
points:1731450
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321701
    7   873219

Shell refinement iteration 29
------------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.1 s
Selected for internal refinement : 32 cells (out of 1429013)
Edge intersection testing:
    Number of edges             : 4593343
    Number of edges to retest   : 1889
    Number of intersected edges : 298007
Refined mesh in = 5.01 s
After refinement shell refinement iteration 29 : cells:1429237  faces:4593343
points:1731667
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321669
    7   873475

Shell refinement iteration 30
------------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
```

```
Determined cells to refine in = 1.07 s
Selected for internal refinement : 12 cells (out of 1429237)
Edge intersection testing:
    Number of edges             : 4593571
    Number of edges to retest   : 983
    Number of intersected edges : 298007
Refined mesh in = 5.12 s
After refinement shell refinement iteration 30 : cells:1429321  faces:4593571
points:1731728
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165761
    5   47811
    6   321657
    7   873571

Shell refinement iteration 31
-----------------------------

Marked for refinement due to distance to explicit features : 0 cells.
Marked for refinement due to refinement shells             : 0 cells.
Determined cells to refine in = 1.17 s
Selected for internal refinement : 0 cells (out of 1429321)
Stopping refining since too few cells selected.


Dangling coarse cells refinement iteration 0
--------------------------------------------

Determined cells to refine in = 0.04 s
Selected for refinement : 116 cells (out of 1429321)
Edge intersection testing:
    Number of edges             : 4595311
    Number of edges to retest   : 13948
    Number of intersected edges : 298007
Refined mesh in = 5.04 s
After refinement coarse cell refinement iteration 0 : cells:1430133
faces:4595311  points:1731960
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165754
    5   47843
    6   321764
    7   874251

Dangling coarse cells refinement iteration 1
--------------------------------------------

Determined cells to refine in = 0.07 s
Selected for refinement : 2 cells (out of 1430133)
Stopping refining since too few cells selected.
```

```
Dangling coarse cells refinement iteration 0
--------------------------------------------

Determined cells to refine in = 0.04 s
Selected for refinement : 8 cells (out of 1430133)
Edge intersection testing:
    Number of edges             : 4595407
    Number of edges to retest   : 1056
    Number of intersected edges : 298007
Refined mesh in = 5.22 s
After refinement coarse cell refinement iteration 0 : cells:1430189
faces:4595407  points:1731968
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165754
    5   47839
    6   321792
    7   874283

Dangling coarse cells refinement iteration 1
--------------------------------------------

Determined cells to refine in = 0.06 s
Selected for refinement : 0 cells (out of 1430189)
Stopping refining since too few cells selected.


Splitting mesh at surface intersections
---------------------------------------

Introducing baffles for 298007 faces that are intersected by the surface.

Edge intersection testing:
    Number of edges             : 4892586
    Number of edges to retest   : 1928959
    Number of intersected edges : 590135
Created baffles in = 5.91 s


After introducing baffles : cells:1430189  faces:4892586  points:1731968
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165754
    5   47839
    6   321792
    7   874283

Introducing baffles to block off problem cells
----------------------------------------------

markFacesOnProblemCells : marked 354176 additional internal faces to be
```

```
converted into baffles.
Analyzed problem cells in = 3.35 s


Introducing baffles to delete problem cells.

Edge intersection testing:
    Number of edges             : 5246762
    Number of edges to retest   : 1269676
    Number of intersected edges : 590312
Created baffles in = 5.67 s


After introducing baffles : cells:1430189  faces:5246762  points:1731968
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165754
    5   47839
    6   321792
    7   874283

Remove unreachable sections of mesh
-----------------------------------

Keeping all cells in region 0 containing point (3.0001 3.0001 0.43)
Selected for keeping : 1055700 cells.
Edge intersection testing:
    Number of edges             : 3470443
    Number of edges to retest   : 0
    Number of intersected edges : 282628
Split mesh in = 22.42 s


After subsetting : cells:1055700  faces:3470443  points:1356138
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165754
    5   47839
    6   265280
    7   556306

Handling cells with snap problems
---------------------------------

Introducing baffles for 282628 faces that are intersected by the surface.

Edge intersection testing:
    Number of edges             : 3470443
    Number of edges to retest   : 946676
    Number of intersected edges : 282628
Created baffles in = 3.5 s
```

```
After introducing baffles : cells:1055700  faces:3470443  points:1356138
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165754
    5   47839
    6   265280
    7   556306

Introducing baffles to block off problem cells
----------------------------------------------

markFacesOnProblemCells : marked 150 additional internal faces to be converted
into baffles.
Analyzed problem cells in = 2.33 s


Introducing baffles to delete problem cells.

Edge intersection testing:
    Number of edges             : 3470593
    Number of edges to retest   : 766
    Number of intersected edges : 282628
Created baffles in = 3.09 s


After introducing baffles : cells:1055700  faces:3470593  points:1356138
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165754
    5   47839
    6   265280
    7   556306

Remove unreachable sections of mesh
-----------------------------------

Keeping all cells in region 0 containing point (3.0001 3.0001 0.43)
Selected for keeping : 1055636 cells.
Edge intersection testing:
    Number of edges             : 3470209
    Number of edges to retest   : 0
    Number of intersected edges : 282532
Split mesh in = 16.85 s


After subsetting : cells:1055636  faces:3470209  points:1356038
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
```

```
    4   165754
    5   47839
    6   265280
    7   556242

Merge free-standing baffles
---------------------------

freeStandingBaffles : detected 994 free-standing baffles out of 5608

freeStandingBaffles : detected 4 planar (within 30 degrees) free-standing
baffles out of 994

Detected free-standing baffles : 4
Edge intersection testing:
    Number of edges             : 3470205
    Number of edges to retest   : 4
    Number of intersected edges : 282528

Introducing baffles to block off problem cells
----------------------------------------------

markFacesOnProblemCells : marked 150 additional internal faces to be converted
into baffles.
Analyzed problem cells in = 5.64 s


Introducing baffles to delete problem cells.

Edge intersection testing:
    Number of edges             : 3470355
    Number of edges to retest   : 766
    Number of intersected edges : 282528
Created baffles in = 2.84 s


After introducing baffles : cells:1055636  faces:3470355  points:1356038
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165754
    5   47839
    6   265280
    7   556242
Merged free-standing baffles in = 0 s


dupNonManifoldPoints : Found : 6910 non-manifold points (out of 1356038)
Edge intersection testing:
    Number of edges             : 3470355
    Number of edges to retest   : 0
    Number of intersected edges : 282528
Detected unsplittable baffles : 0

Merge refined boundary faces
----------------------------
```

```
Merging 966 sets of faces.

Edge intersection testing:
    Number of edges             : 3469029
    Number of edges to retest   : 7437
    Number of intersected edges : 281215

Undo iteration 0
----------------
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Merging all points on surface that
- are used by only two boundary faces and
- make an angle with a cosine of more than 0.707107.

Removing 1134 straight edge points ...

Edge intersection testing:
    Number of edges             : 3469029
    Number of edges to retest   : 8969
    Number of intersected edges : 281215

Undo iteration 0
----------------
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Refined mesh : cells:1055636  faces:3469029  points:1361830
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165754
    5   47839
    6   265280
    7   556242
Writing mesh to time constant
Wrote mesh in = 16.25 s.
Mesh refined in = 321.05 s.
```

```
Morphing phase
--------------


Snapping to features in 10 iterations ...
Constructing mesh displacer ...
Using mesh parameters
{
    maxNonOrtho     65;
    maxBoundarySkewness 20;
    maxInternalSkewness 4;
    maxConcave      80;
    minVol          1e-13;
    minTetQuality   1e-15;
    minArea         -1;
    minTwist        0.02;
    minDeterminant  0.001;
    minFaceWeight   0.02;
    minVolRatio     0.01;
    minTriangleTwist -1;
    nSmoothScale    4;
    errorReduction  0.75;
}


Checking initial mesh ...
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 0
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
Detected 0 illegal faces (concave, zero area or negative cell pyramid volume)
Checked initial mesh in = 4.15 s


Smoothing patch points ...
Smoothing iteration 0
Found 14016 non-manifold point(s).

Scaling iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 0
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
Successfully moved mesh
```

```
Smoothing iteration 1
Found 0 non-manifold point(s).

Scaling iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 2
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Scaling iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 2
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Scaling iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Successfully moved mesh

Smoothing iteration 2
Found 0 non-manifold point(s).

Scaling iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 5
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
```

```
Scaling iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 2
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Scaling iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 2
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Scaling iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 2
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Scaling iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 2
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Scaling iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
```

```
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 2
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0

Scaling iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                       : 0
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 0
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0
Successfully moved mesh

Smoothing iteration 3
Found 0 non-manifold point(s).

Scaling iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                       : 0
    faces with face pyramid volume < 1e-13                : 192
    faces with face-decomposition tet quality < 1e-15     : 9
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0

Scaling iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                       : 0
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 6
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0

Scaling iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                       : 0
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 6
```

```
    faces with concavity > 80  degrees                        : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0

Scaling iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 5
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0

Scaling iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 5
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0

Scaling iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 3
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0

Scaling iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 0
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
```

```
    faces on cells with determinant < 0.001                : 0
Successfully moved mesh

Smoothing iteration 4
Found 0 non-manifold point(s).

Scaling iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 384
    faces with face-decomposition tet quality < 1e-15      : 9
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Scaling iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 384
    faces with face-decomposition tet quality < 1e-15      : 9
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Scaling iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 384
    faces with face-decomposition tet quality < 1e-15      : 9
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Scaling iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 384
    faces with face-decomposition tet quality < 1e-15      : 9
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
```

```
Scaling iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 192
    faces with face-decomposition tet quality < 1e-15        : 9
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Scaling iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 192
    faces with face-decomposition tet quality < 1e-15        : 9
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Scaling iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Successfully moved mesh

Patch points smoothed in = 53.2 s



Morph iteration 0
-----------------
Calculating patchDisplacement as distance to nearest surface point ...
Wanted displacement : average:0.00236864 min:4.18353e-09 max:0.0107131
Calculated surface displacement in = 0.38 s


Detecting near surfaces ...
Overriding nearest with intersection of close gaps at 5138 out of 290484 points.
Overriding displacement on features :
   implicit features    : false
   explicit features    : true
   multi-patch features : false
```

```
Detected 868 baffle edges out of 576279 edges.
Initially selected 19453 points out of 290484 for reverse attraction.
Selected 49944 points out of 290484 for reverse attraction.
Stringing feature edges : changed 440 points
Stringing feature edges : changed 36 points
Stringing feature edges : changed 7 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 0 points
Attraction:
     linear   : max:(0 -2.22045e-16 0.0107131) avg:(6.71981e-05 -8.05673e-07
0.000203657)
     feature  : max:(6.50947e-05 0.00818444 -0.00856318) avg:(1.29354e-06
-3.50933e-09 7.54481e-07)
Feature analysis : total master points:290484 attraction to :
    feature point   : 92
    feature edge    : 8074
    nearest surface : 0
    rest            : 282318

--> FOAM Warning : Displacement (1.39345e-05 -8.01437e-06 -3.00612e-05) at mesh
point 124025 coord (2.47753 -0.567967 0.47891) points through the surrounding
patch faces
Smoothing displacement ...
Iteration 0
Iteration 10
Iteration 20
Displacement smoothed in = 5.35 s


Moving mesh ...

Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 64
    faces with face-decomposition tet quality < 1e-15       : 2
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0

Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 28
    faces with face-decomposition tet quality < 1e-15       : 2
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
```

```
Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 2
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 2
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 2
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 2
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0

Iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
```

```
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
Successfully moved mesh
Moved mesh in = 12.74 s



Morph iteration 1
-----------------
Calculating patchDisplacement as distance to nearest surface point ...
Wanted displacement : average:0.0021645 min:5.74695e-09 max:0.00975301
Calculated surface displacement in = 0.38 s


Detecting near surfaces ...
Overriding nearest with intersection of close gaps at 5782 out of 290484 points.
Overriding displacement on features :
   implicit features    : false
   explicit features    : true
   multi-patch features : false

Detected 1034 baffle edges out of 576279 edges.
Initially selected 19235 points out of 290484 for reverse attraction.
Selected 49811 points out of 290484 for reverse attraction.
Stringing feature edges : changed 488 points
Stringing feature edges : changed 47 points
Stringing feature edges : changed 11 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 0 points
Attraction:
     linear   : max:(0 2.08167e-17 0.00975301) avg:(6.1171e-05 -7.08739e-07
0.000183898)
     feature  : max:(0.00524903 -0.00946662 -0.00316241) avg:(1.86186e-06
-1.61902e-07 -4.47535e-07)
Feature analysis : total master points:290484 attraction to :
    feature point   : 92
    feature edge    : 8149
    nearest surface : 0
    rest            : 282243

--> FOAM Warning : Displacement (9.48451e-06 -3.13335e-05 -4.4367e-05) at mesh
point 124025 coord (2.47754 -0.567975 0.47888) points through the surrounding
patch faces
Smoothing displacement ...
Iteration 0
Iteration 10
Iteration 20
Displacement smoothed in = 5.32 s


Moving mesh ...

Iteration 0
```

```
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 134
    faces with face-decomposition tet quality < 1e-15        : 85
    faces with concavity > 80  degrees                       : 2
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 1
    faces on cells with determinant < 0.001                  : 0

Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 115
    faces with face-decomposition tet quality < 1e-15        : 83
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 2
    faces on cells with determinant < 0.001                  : 0

Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 103
    faces with face-decomposition tet quality < 1e-15        : 67
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 1
    faces on cells with determinant < 0.001                  : 0

Iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 82
    faces with face-decomposition tet quality < 1e-15        : 33
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 1
    faces on cells with determinant < 0.001                  : 0

Iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 61
    faces with face-decomposition tet quality < 1e-15        : 13
    faces with concavity > 80  degrees                       : 0
```

```
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 51
    faces with face-decomposition tet quality < 1e-15      : 5
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
Successfully moved mesh
Moved mesh in = 12.89 s



Morph iteration 2
-----------------
Calculating patchDisplacement as distance to nearest surface point ...
Wanted displacement : average:0.00179298 min:2.03694e-08 max:0.00916539
Calculated surface displacement in = 0.36 s


Detecting near surfaces ...
Overriding nearest with intersection of close gaps at 7904 out of 290484 points.
Overriding displacement on features :
   implicit features    : false
   explicit features    : true
   multi-patch features : false

Detected 1046 baffle edges out of 576279 edges.
Initially selected 19360 points out of 290484 for reverse attraction.
Selected 49945 points out of 290484 for reverse attraction.
Stringing feature edges : changed 452 points
Stringing feature edges : changed 37 points
Stringing feature edges : changed 7 points
Stringing feature edges : changed 2 points
```

```
Stringing feature edges : changed 0 points
Attraction:
     linear    : max:(0.00220632 0 0.00889588) avg:(5.05836e-05 -5.75028e-07
0.000147912)
     feature   : max:(0.00524903 -0.00946662 -0.00316241) avg:(1.82211e-06
8.15483e-09 -6.56655e-07)
Feature analysis : total master points:290484 attraction to :
    feature point   : 92
    feature edge    : 8137
    nearest surface : 0
    rest            : 282255

--> FOAM Warning : Displacement (2.04411e-05 -8.40092e-05 -5.10831e-05) at mesh
point 124025 coord (2.47755 -0.568007 0.478836) points through the surrounding
patch faces
Smoothing displacement ...
Iteration 0
Iteration 10
Iteration 20
Displacement smoothed in = 5.35 s


Moving mesh ...

Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 196
    faces with face-decomposition tet quality < 1e-15        : 95
    faces with concavity > 80  degrees                       : 2
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 4
    faces on cells with determinant < 0.001                  : 28

Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 168
    faces with face-decomposition tet quality < 1e-15        : 76
    faces with concavity > 80  degrees                       : 8
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 20

Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 127
    faces with face-decomposition tet quality < 1e-15        : 105
    faces with concavity > 80  degrees                       : 2
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
```

```
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 115
    faces with face-decomposition tet quality < 1e-15      : 107
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 114
    faces with face-decomposition tet quality < 1e-15      : 89
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 107
    faces with face-decomposition tet quality < 1e-15      : 60
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
Successfully moved mesh
```

```
Moved mesh in = 13.16 s



Morph iteration 3
-----------------
Calculating patchDisplacement as distance to nearest surface point ...
Wanted displacement : average:0.00133718 min:4.18294e-09 max:0.0090305
Calculated surface displacement in = 0.34 s


Detecting near surfaces ...
Overriding nearest with intersection of close gaps at 15492 out of 290484
points.
Overriding displacement on features :
   implicit features    : false
   explicit features    : true
   multi-patch features : false

Detected 1294 baffle edges out of 576279 edges.
Initially selected 19467 points out of 290484 for reverse attraction.
Selected 50129 points out of 290484 for reverse attraction.
Stringing feature edges : changed 402 points
Stringing feature edges : changed 28 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 0 points
Attraction:
     linear   : max:(0.00217385 0 0.00876494) avg:(3.69426e-05 -4.6299e-07
0.000104388)
     feature  : max:(0.000853807 -0.00017516 -0.0110996) avg:(1.66067e-06
-2.46792e-09 -1.23063e-06)
Feature analysis : total master points:290484 attraction to :
    feature point   : 90
    feature edge    : 8231
    nearest surface : 0
    rest            : 282163

--> FOAM Warning : Displacement (-6.25068e-05 -9.76487e-05 3.91176e-06) at mesh
point 124025 coord (2.47757 -0.568091 0.478785) points through the surrounding
patch faces
Smoothing displacement ...
Iteration 0
Iteration 10
Iteration 20
Displacement smoothed in = 5.39 s


Moving mesh ...

Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 287
    faces with face-decomposition tet quality < 1e-15        : 60
    faces with concavity > 80  degrees                       : 5
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
```

```
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 2
    faces on cells with determinant < 0.001                : 0

Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 255
    faces with face-decomposition tet quality < 1e-15      : 74
    faces with concavity > 80  degrees                     : 4
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 1
    faces on cells with determinant < 0.001                : 6

Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 201
    faces with face-decomposition tet quality < 1e-15      : 96
    faces with concavity > 80  degrees                     : 2
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 2
    faces on cells with determinant < 0.001                : 32

Iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 175
    faces with face-decomposition tet quality < 1e-15      : 79
    faces with concavity > 80  degrees                     : 4
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 2
    faces on cells with determinant < 0.001                : 24

Iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 132
    faces with face-decomposition tet quality < 1e-15      : 102
    faces with concavity > 80  degrees                     : 2
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Iteration 5
```

```
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 113
    faces with face-decomposition tet quality < 1e-15        : 106
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 2
    faces on cells with determinant < 0.001                  : 0

Iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Successfully moved mesh
Moved mesh in = 13.72 s



Morph iteration 4
-----------------
Calculating patchDisplacement as distance to nearest surface point ...
Wanted displacement : average:0.000894701 min:2.11884e-09 max:0.0088315
Calculated surface displacement in = 0.33 s


Detecting near surfaces ...
Overriding nearest with intersection of close gaps at 18874 out of 290484
points.
Overriding displacement on features :
   implicit features    : false
   explicit features    : true
   multi-patch features : false

Detected 1599 baffle edges out of 576279 edges.
Initially selected 19351 points out of 290484 for reverse attraction.
Selected 49869 points out of 290484 for reverse attraction.
Stringing feature edges : changed 418 points
Stringing feature edges : changed 18 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 5 points
Stringing feature edges : changed 0 points
Attraction:
     linear   : max:(0.00212594 1.22125e-15 0.0085718) avg:(2.27547e-05
-3.01755e-07 6.32575e-05)
     feature  : max:(0.00487789 -0.00946917 -0.00246586) avg:(1.26283e-06
```

```
-3.48571e-08 -1.57331e-06)
Feature analysis : total master points:290484 attraction to :
    feature point   : 92
    feature edge    : 8272
    nearest surface : 0
    rest            : 282120

--> FOAM Warning : Displacement (3.06558e-06 -0.000142884 -7.43244e-06) at mesh
point 124025 coord (2.47751 -0.568188 0.478789) points through the surrounding
patch faces
Smoothing displacement ...
Iteration 0
Iteration 10
Iteration 20
Displacement smoothed in = 5.83 s


Moving mesh ...

Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 274
    faces with face-decomposition tet quality < 1e-15       : 75
    faces with concavity > 80  degrees                      : 4
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 4
    faces on cells with determinant < 0.001                 : 0

Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 282
    faces with face-decomposition tet quality < 1e-15       : 69
    faces with concavity > 80  degrees                      : 3
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 2
    faces on cells with determinant < 0.001                 : 0

Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 282
    faces with face-decomposition tet quality < 1e-15       : 66
    faces with concavity > 80  degrees                      : 6
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 2
    faces on cells with determinant < 0.001                 : 0
```

```
Iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 248
    faces with face-decomposition tet quality < 1e-15        : 67
    faces with concavity > 80  degrees                       : 2
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 3
    faces on cells with determinant < 0.001                  : 22

Iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 206
    faces with face-decomposition tet quality < 1e-15        : 92
    faces with concavity > 80  degrees                       : 2
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 1
    faces on cells with determinant < 0.001                  : 38

Iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 168
    faces with face-decomposition tet quality < 1e-15        : 81
    faces with concavity > 80  degrees                       : 6
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 6
    faces on cells with determinant < 0.001                  : 12

Iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Successfully moved mesh
Moved mesh in = 13.38 s



Morph iteration 5
```

```
-----------------
Calculating patchDisplacement as distance to nearest surface point ...
Wanted displacement : average:0.000535126 min:3.09995e-09 max:0.00855004
Calculated surface displacement in = 0.3 s


Detecting near surfaces ...
Overriding nearest with intersection of close gaps at 19370 out of 290484
points.
Overriding displacement on features :
   implicit features    : false
   explicit features    : true
   multi-patch features : false

Detected 1721 baffle edges out of 576279 edges.
Initially selected 19539 points out of 290484 for reverse attraction.
Selected 49547 points out of 290484 for reverse attraction.
Stringing feature edges : changed 446 points
Stringing feature edges : changed 33 points
Stringing feature edges : changed 10 points
Stringing feature edges : changed 6 points
Stringing feature edges : changed 5 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 4 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 0 points
Attraction:
     linear   : max:(0.00205819 0 0.00829862) avg:(1.22115e-05 -1.70665e-07
3.21929e-05)
     feature  : max:(0.00487789 -0.00946917 -0.00246586) avg:(1.03471e-06
3.05239e-08 -1.4265e-06)
Feature analysis : total master points:290484 attraction to :
    feature point   : 98
    feature edge    : 8346
    nearest surface : 0
    rest            : 282040

--> FOAM Warning : Displacement (-0.000112763 -0.000125941 3.60701e-05) at mesh
point 124025 coord (2.47751 -0.568331 0.478781) points through the surrounding
patch faces
Smoothing displacement ...
Iteration 0
Iteration 10
Iteration 20
Displacement smoothed in = 5.38 s


Moving mesh ...

Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 256
    faces with face-decomposition tet quality < 1e-15        : 95
    faces with concavity > 80  degrees                       : 1
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
```

```
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 3
    faces on cells with determinant < 0.001                : 0

Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 273
    faces with face-decomposition tet quality < 1e-15      : 74
    faces with concavity > 80  degrees                     : 3
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 6
    faces on cells with determinant < 0.001                : 0

Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 286
    faces with face-decomposition tet quality < 1e-15      : 69
    faces with concavity > 80  degrees                     : 3
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 290
    faces with face-decomposition tet quality < 1e-15      : 54
    faces with concavity > 80  degrees                     : 4
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0

Iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 266
    faces with face-decomposition tet quality < 1e-15      : 63
    faces with concavity > 80  degrees                     : 4
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 2
    faces on cells with determinant < 0.001                : 14

Iteration 5
```

```
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 212
    faces with face-decomposition tet quality < 1e-15        : 79
    faces with concavity > 80  degrees                       : 4
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 1
    faces on cells with determinant < 0.001                  : 36

Iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Successfully moved mesh
Moved mesh in = 13.3 s



Morph iteration 6
-----------------
Calculating patchDisplacement as distance to nearest surface point ...
Wanted displacement : average:0.000291373 min:7.81748e-10 max:0.00816057
Calculated surface displacement in = 0.31 s


Detecting near surfaces ...
Overriding nearest with intersection of close gaps at 19671 out of 290484
points.
Overriding displacement on features :
   implicit features    : false
   explicit features    : true
   multi-patch features : false

Detected 2021 baffle edges out of 576279 edges.
Initially selected 19816 points out of 290484 for reverse attraction.
Selected 50192 points out of 290484 for reverse attraction.
Stringing feature edges : changed 473 points
Stringing feature edges : changed 31 points
Stringing feature edges : changed 9 points
Stringing feature edges : changed 5 points
Stringing feature edges : changed 4 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 4 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 0 points
```

```
Attraction:
     linear    : max:(0.00196443 0 0.0079206) avg:(5.21443e-06 -1.36915e-07
1.40869e-05)
     feature   : max:(0.00487789 -0.00946917 -0.00246586) avg:(6.31993e-07
-7.66219e-09 -2.49676e-06)
Feature analysis : total master points:290484 attraction to :
    feature point   : 96
    feature edge    : 8594
    nearest surface : 0
    rest            : 281794

--> FOAM Warning : Displacement (-0.000110989 -0.000130108 2.39527e-05) at mesh
point 124025 coord (2.4774 -0.568457 0.478817) points through the surrounding
patch faces
Smoothing displacement ...
Iteration 0
Iteration 10
Iteration 20
Displacement smoothed in = 5.48 s


Moving mesh ...

Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 242
    faces with face-decomposition tet quality < 1e-15        : 155
    faces with concavity > 80  degrees                       : 1
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 55
    faces on cells with determinant < 0.001                  : 0

Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 258
    faces with face-decomposition tet quality < 1e-15        : 128
    faces with concavity > 80  degrees                       : 1
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 21
    faces on cells with determinant < 0.001                  : 0

Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 274
    faces with face-decomposition tet quality < 1e-15        : 97
    faces with concavity > 80  degrees                       : 5
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
```

```
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 17
    faces on cells with determinant < 0.001                : 0

Iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 286
    faces with face-decomposition tet quality < 1e-15      : 81
    faces with concavity > 80  degrees                     : 3
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 16
    faces on cells with determinant < 0.001                : 0

Iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 290
    faces with face-decomposition tet quality < 1e-15      : 60
    faces with concavity > 80  degrees                     : 4
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 21
    faces on cells with determinant < 0.001                : 0

Iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 275
    faces with face-decomposition tet quality < 1e-15      : 58
    faces with concavity > 80  degrees                     : 4
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 16
    faces on cells with determinant < 0.001                : 10

Iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
Successfully moved mesh
Moved mesh in = 13.92 s
```

```
Morph iteration 7
-----------------
Calculating patchDisplacement as distance to nearest surface point ...
Wanted displacement : average:0.000153435 min:1.97844e-09 max:0.00764032
Calculated surface displacement in = 0.3 s


Detecting near surfaces ...
Overriding nearest with intersection of close gaps at 19697 out of 290484
points.
Overriding displacement on features :
   implicit features    : false
   explicit features    : true
   multi-patch features : false

Detected 2184 baffle edges out of 576279 edges.
Initially selected 19880 points out of 290484 for reverse attraction.
Selected 50236 points out of 290484 for reverse attraction.
Stringing feature edges : changed 431 points
Stringing feature edges : changed 31 points
Stringing feature edges : changed 12 points
Stringing feature edges : changed 6 points
Stringing feature edges : changed 9 points
Stringing feature edges : changed 4 points
Stringing feature edges : changed 5 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
```

```
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
```

```
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 4 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
```

```
Stringing feature edges : changed 2 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 0 points
Attraction:
     linear   : max:(0.0018392 0 0.00741565) avg:(2.13716e-06 -3.75757e-08
5.66362e-06)
     feature  : max:(0.00487789 -0.00946917 -0.00246586) avg:(3.63094e-07
-4.19082e-07 -1.90924e-06)
Feature analysis : total master points:290484 attraction to :
    feature point   : 94
    feature edge    : 8903
    nearest surface : 0
    rest            : 281487

--> FOAM Warning : Displacement (-0.000106334 -0.000124325 2.38362e-05) at mesh
point 124025 coord (2.47729 -0.568587 0.478841) points through the surrounding
patch faces
Smoothing displacement ...
Iteration 0
Iteration 10
Iteration 20
Displacement smoothed in = 5.65 s


Moving mesh ...

Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 249
    faces with face-decomposition tet quality < 1e-15       : 298
    faces with concavity > 80  degrees                      : 3
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 67
    faces on cells with determinant < 0.001                 : 0

Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 247
    faces with face-decomposition tet quality < 1e-15       : 251
    faces with concavity > 80  degrees                      : 3
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 79
    faces on cells with determinant < 0.001                 : 0

Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
```

```
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 259
    faces with face-decomposition tet quality < 1e-15        : 212
    faces with concavity > 80  degrees                       : 1
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 75
    faces on cells with determinant < 0.001                  : 0

Iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 276
    faces with face-decomposition tet quality < 1e-15        : 154
    faces with concavity > 80  degrees                       : 3
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 73
    faces on cells with determinant < 0.001                  : 0

Iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 288
    faces with face-decomposition tet quality < 1e-15        : 125
    faces with concavity > 80  degrees                       : 4
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 73
    faces on cells with determinant < 0.001                  : 0

Iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 287
    faces with face-decomposition tet quality < 1e-15        : 97
    faces with concavity > 80  degrees                       : 4
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 80
    faces on cells with determinant < 0.001                  : 0

Iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
```

```
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
Successfully moved mesh
Moved mesh in = 14.99 s



Morph iteration 8
-----------------
Calculating patchDisplacement as distance to nearest surface point ...
Wanted displacement : average:8.09033e-05 min:4.94565e-12 max:0.00738176
Calculated surface displacement in = 0.28 s


Detecting near surfaces ...
Overriding nearest with intersection of close gaps at 19857 out of 290484
points.
Overriding displacement on features :
   implicit features    : false
   explicit features    : true
   multi-patch features : false

Detected 2247 baffle edges out of 576279 edges.
Initially selected 20069 points out of 290484 for reverse attraction.
Selected 50714 points out of 290484 for reverse attraction.
Stringing feature edges : changed 311 points
Stringing feature edges : changed 23 points
Stringing feature edges : changed 9 points
Stringing feature edges : changed 5 points
Stringing feature edges : changed 4 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 4 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 2 points
Stringing feature edges : changed 0 points
Attraction:
     linear   : max:(-0.00285927 -1.19299e-06 0.00680551) avg:(1.2278e-06
4.37935e-08 3.32396e-06)
     feature  : max:(0.00487789 -0.00946917 -0.00246586) avg:(2.70631e-07
-6.86989e-08 -1.04235e-06)
Feature analysis : total master points:290484 attraction to :
    feature point   : 94
    feature edge    : 8674
    nearest surface : 0
    rest            : 281716

--> FOAM Warning : Displacement (-8.98208e-05 -0.000101289 3.86121e-05) at mesh
point 124025 coord (2.47718 -0.568712 0.478865) points through the surrounding
patch faces
Smoothing displacement ...
Iteration 0
Iteration 10
Iteration 20
Displacement smoothed in = 5.46 s
```

```
Moving mesh ...

Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
    faces with face pyramid volume < 1e-13                   : 280
    faces with face-decomposition tet quality < 1e-15        : 364
    faces with concavity > 80  degrees                       : 4
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 64
    faces on cells with determinant < 0.001                  : 0

Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
    faces with face pyramid volume < 1e-13                   : 258
    faces with face-decomposition tet quality < 1e-15        : 344
    faces with concavity > 80  degrees                       : 6
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 57
    faces on cells with determinant < 0.001                  : 0

Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
    faces with face pyramid volume < 1e-13                   : 258
    faces with face-decomposition tet quality < 1e-15        : 287
    faces with concavity > 80  degrees                       : 5
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 92
    faces on cells with determinant < 0.001                  : 0

Iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
    faces with face pyramid volume < 1e-13                   : 261
    faces with face-decomposition tet quality < 1e-15        : 244
    faces with concavity > 80  degrees                       : 4
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 105
    faces on cells with determinant < 0.001                  : 0

Iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
```

```
    faces with face pyramid volume < 1e-13                 : 284
    faces with face-decomposition tet quality < 1e-15      : 178
    faces with concavity > 80  degrees                     : 6
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 122
    faces on cells with determinant < 0.001                : 0

Iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 2
    faces with face pyramid volume < 1e-13                 : 283
    faces with face-decomposition tet quality < 1e-15      : 155
    faces with concavity > 80  degrees                     : 4
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 141
    faces on cells with determinant < 0.001                : 0

Iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 2
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 2
    faces on cells with determinant < 0.001                : 0

Iteration 7
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
Successfully moved mesh
Moved mesh in = 17.32 s



Morph iteration 9
-----------------
Calculating patchDisplacement as distance to nearest surface point ...
Wanted displacement : average:4.36165e-05 min:1.10389e-12 max:0.00730599
Calculated surface displacement in = 0.28 s
```

```
Detecting near surfaces ...
Overriding nearest with intersection of close gaps at 19798 out of 290484
points.
Overriding displacement on features :
   implicit features    : false
   explicit features    : true
   multi-patch features : false

Detected 2319 baffle edges out of 576279 edges.
Initially selected 20127 points out of 290484 for reverse attraction.
Selected 50788 points out of 290484 for reverse attraction.
Stringing feature edges : changed 191 points
Stringing feature edges : changed 26 points
Stringing feature edges : changed 5 points
Stringing feature edges : changed 6 points
Stringing feature edges : changed 5 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 4 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 1 points
Stringing feature edges : changed 3 points
Stringing feature edges : changed 0 points
Attraction:
     linear   : max:(0.00329364 -5.55112e-17 -0.00652146) avg:(1.34805e-06
-3.43857e-08 3.1047e-06)
     feature  : max:(0.00487789 -0.00946917 -0.00246586) avg:(-1.64676e-07
-2.41326e-08 -2.31579e-07)
Feature analysis : total master points:290484 attraction to :
    feature point   : 96
    feature edge    : 8735
    nearest surface : 0
    rest            : 281653

--> FOAM Warning : Displacement (0.000582373 0 -0.000966563) at mesh point
199570 coord (2.47909 -0.565812 0.472135) points through the surrounding patch
faces
Smoothing displacement ...
Iteration 0
Iteration 10
Iteration 20
Displacement smoothed in = 4.55 s


Moving mesh ...

Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 4
    faces with face pyramid volume < 1e-13                  : 322
    faces with face-decomposition tet quality < 1e-15       : 518
    faces with concavity > 80  degrees                      : 3
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 57
```

```
    faces on cells with determinant < 0.001                : 2

Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 4
    faces with face pyramid volume < 1e-13                 : 308
    faces with face-decomposition tet quality < 1e-15      : 329
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 98
    faces on cells with determinant < 0.001                : 6

Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 4
    faces with face pyramid volume < 1e-13                 : 259
    faces with face-decomposition tet quality < 1e-15      : 292
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 102
    faces on cells with determinant < 0.001                : 0

Iteration 3
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 4
    faces with face pyramid volume < 1e-13                 : 153
    faces with face-decomposition tet quality < 1e-15      : 259
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 113
    faces on cells with determinant < 0.001                : 0

Iteration 4
Moving mesh using displacement scaling : min:0.316406  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 4
    faces with face pyramid volume < 1e-13                 : 81
    faces with face-decomposition tet quality < 1e-15      : 231
    faces with concavity > 80  degrees                     : 1
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 134
    faces on cells with determinant < 0.001                : 0

Iteration 5
Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.237305  max:1
Checking faces in error :
```

```
    non-orthogonality > 65  degrees                          : 4
    faces with face pyramid volume < 1e-13                   : 53
    faces with face-decomposition tet quality < 1e-15        : 197
    faces with concavity > 80  degrees                       : 2
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 136
    faces on cells with determinant < 0.001                  : 0

Iteration 6
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 2
    faces on cells with determinant < 0.001                  : 0

Iteration 7
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Successfully moved mesh
Moved mesh in = 18.03 s


Repatching faces according to nearest surface ...
Repatched 0 faces in = 0.95 s


Edge intersection testing:
    Number of edges             : 3469029
    Number of edges to retest   : 1062423
    Number of intersected edges : 284041
Merging 55348 sets of faces.

Edge intersection testing:
    Number of edges             : 3407742
    Number of edges to retest   : 224395
    Number of intersected edges : 222587

Undo iteration 0
----------------
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
```

```
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 19
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0
Masters that need to be restored:34
Edge intersection testing:
    Number of edges             : 3407802
    Number of edges to retest   : 251
    Number of intersected edges : 222649


Undo iteration 1
----------------
Checking faces in error :
    non-orthogonality > 65  degrees                       : 0
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 0
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0

Merging all points on surface that
- are used by only two boundary faces and
- make an angle with a cosine of more than 0.866025.

Removing 49061 straight edge points ...

Edge intersection testing:
    Number of edges             : 3407802
    Number of edges to retest   : 213998
    Number of intersected edges : 221978

Undo iteration 0
----------------
Checking faces in error :
    non-orthogonality > 65  degrees                       : 6
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 8
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0
Detected 0 error faces on boundaries that have been merged. These will be
restored to their original faces.

Detected 14 error faces in mesh. Restoring neighbours of faces in error.

Edge intersection testing:
    Number of edges             : 3407802
```

```
    Number of edges to retest   : 436
    Number of intersected edges : 221978
Snapped mesh : cells:1055636  faces:3407802  points:1306882
Cells per refinement level:
    0   2630
    1   1787
    2   5086
    3   11018
    4   165754
    5   47839
    6   265280
    7   556242
Writing mesh to time constant
Wrote mesh in = 26.41 s.
Mesh snapped in = 285.18 s.

Shrinking and layer addition phase
----------------------------------

Using mesh parameters
{
    maxNonOrtho     65;
    maxBoundarySkewness 20;
    maxInternalSkewness 4;
    maxConcave      80;
    minVol          1e-13;
    minTetQuality   1e-15;
    minArea         -1;
    minTwist        0.02;
    minDeterminant  0.001;
    minFaceWeight   0.02;
    minVolRatio     0.01;
    minTriangleTwist -1;
    nSmoothScale    4;
    errorReduction  0.75;
}



Merging all faces of a cell
---------------------------
    - which are on the same patch
    - which make an angle < 60 degrees
      (cos:0.5)
    - as long as the resulting face doesn't become concave by more than 90
degrees
      (0=straight, 180=fully concave)

Merging 2960 sets of faces.

Edge intersection testing:
    Number of edges             : 3404461
    Number of edges to retest   : 13912
    Number of intersected edges : 218089

Undo iteration 0
----------------
Checking faces in error :
```

```
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 31
    faces with concavity > 80  degrees                      : 2
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
Masters that need to be restored:46
Edge intersection testing:
    Number of edges             : 3404535
    Number of edges to retest   : 326
    Number of intersected edges : 218163


Undo iteration 1
----------------
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 0
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0

Merging all points on surface that
- are used by only two boundary faces and
- make an angle with a cosine of more than 0.5.

Removing 3347 straight edge points ...

Edge intersection testing:
    Number of edges             : 3404535
    Number of edges to retest   : 18502
    Number of intersected edges : 217785

Undo iteration 0
----------------
Checking faces in error :
    non-orthogonality > 65  degrees                         : 6
    faces with face pyramid volume < 1e-13                  : 26
    faces with face-decomposition tet quality < 1e-15       : 156
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
Detected 28 error faces on boundaries that have been merged. These will be
restored to their original faces.

Edge intersection testing:
    Number of edges             : 3404535
    Number of edges to retest   : 94
```

```
    Number of intersected edges : 217785

Undo iteration 1
----------------
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 156
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Detected 0 error faces on boundaries that have been merged. These will be
restored to their original faces.

Detected 156 error faces in mesh. Restoring neighbours of faces in error.

Edge intersection testing:
    Number of edges             : 3404535
    Number of edges to retest   : 5426
    Number of intersected edges : 217792

Checking mesh manifoldness ...

Checking initial mesh ...
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Detected 0 illegal faces (concave, zero area or negative cell pyramid volume)

Adding in total 0 inter-processor patches to handle extrusion of non-manifold
processor boundaries.

Handling points with inconsistent layer specification ...

Handling non-manifold points ...

Checking patch manifoldness ...
Outside of local patch is multiply connected across edges or points at 0 points.
Set displacement to zero for all 0 non-manifold points

Handling feature edges ...

Handling cells with warped patch faces ...
Set displacement to zero on 106 warped faces since layer would be > 0.5 of the
size of the bounding box.

patch     faces    layers avg thickness[m]
                          near-wall overall
```

```
-----     -----    ------ --------- -------
lowerWall 24714    1      0.0116    0.0116
motorBike 221401   1      0.00277   0.00277

Selecting externalDisplacementMeshMover displacementMedialAxis
displacementMedialAxis : Calculating distance to Medial Axis ...
displacementMedialAxis : Smoothing normals ...
    Iteration 0   residual 0.0355983
displacementMedialAxis : Inserting points on patch frontAndBack if angle to
nearest layer patch > 30 degrees.
displacementMedialAxis : Inserting points on patch inlet if angle to nearest
layer patch > 30 degrees.
displacementMedialAxis : Inserting points on patch outlet if angle to nearest
layer patch > 30 degrees.
displacementMedialAxis : Inserting points on patch upperWall if angle to nearest
layer patch > 30 degrees.
displacementMedialAxis : Smoothing normals in interior ...
    Iteration 0   residual 0.0865677

Layer addition iteration 0
--------------------------

Determining displacement for added points according to pointNormal ...
Detected 346 points with point normal pointing through faces.
Reset displacement at 346 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2406 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 8956
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 2.80964e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 132
    faces with face pyramid volume < 1e-13                   : 26
    faces with face-decomposition tet quality < 1e-15        : 58
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 2
    faces on cells with determinant < 0.001                  : 28
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 50
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 34
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 16
```

```
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 28
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 31
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 8
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 22
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 27
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 2
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 6 faces due to stringed edges with
inconsistent extrusion.
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                          : 110
    faces with face pyramid volume < 1e-13                   : 18
    faces with face-decomposition tet quality < 1e-15        : 1141
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 44
    faces with interpolation weights (0..1)  < 0.02          : 0
```

```
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 96
    faces on cells with determinant < 0.001                : 8
Detected 1417 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 240538 out of 246115 faces (97.734%). Removed extrusion at 1247 faces.
Added 241912 out of 246115 cells (98.2923%).


Layer addition iteration 1
--------------------------

Determining displacement for added points according to pointNormal ...
Detected 8 points with point normal pointing through faces.
Reset displacement at 8 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2083 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 4762
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.67057e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 2
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 32
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 22
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 22
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
```

```
    faces on cells with determinant < 0.001               : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                       : 0
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 22
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                       : 0
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 0
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 2 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 18 faces due to stringed edges with
inconsistent extrusion.
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                       : 48
    faces with face pyramid volume < 1e-13                : 14
    faces with face-decomposition tet quality < 1e-15     : 1087
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 84
    faces on cells with determinant < 0.001               : 0
Detected 1233 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 237739 out of 246115 faces (96.5967%). Removed extrusion at 984 faces.
Added 238828 out of 246115 cells (97.0392%).


Layer addition iteration 2
--------------------------
```

```
Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2079 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 683
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.77294e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 16
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
```

```
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                        : 20
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 297
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 52
    faces on cells with determinant < 0.001                : 0
Detected 369 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236972 out of 246115 faces (96.2851%). Removed extrusion at 337 faces.
Added 237331 out of 246115 cells (96.4309%).


Layer addition iteration 3
--------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 189
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.79644e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
```

```
    non-orthogonality > 65  degrees                         : 2
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 16
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 6
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 6
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 6
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 0
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
```

```
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                         : 12
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 102
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 11
    faces on cells with determinant < 0.001                 : 0
Detected 125 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236735 out of 246115 faces (96.1888%). Removed extrusion at 119 faces.
Added 236856 out of 246115 cells (96.2379%).


Layer addition iteration 4
--------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 143
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.81588e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 2
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 16
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 6
```

```
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 6
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 6
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 0
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                         : 2
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 29
    faces with concavity > 80  degrees                      : 0
```

```
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 6
    faces on cells with determinant < 0.001                : 0
Detected 37 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236643 out of 246115 faces (96.1514%). Removed extrusion at 35 faces.
Added 236678 out of 246115 cells (96.1656%).


Layer addition iteration 5
--------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 144
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.83458e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 2
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 16
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
```

```
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                        : 2
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 15
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 2
    faces on cells with determinant < 0.001                : 0
Detected 19 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236568 out of 246115 faces (96.1209%). Removed extrusion at 15 faces.
Added 236583 out of 246115 cells (96.127%).


Layer addition iteration 6
--------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
```

```
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 72
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.84563e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 16
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
```

```
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 10
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 2
    faces on cells with determinant < 0.001                : 0
Detected 12 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236534 out of 246115 faces (96.1071%). Removed extrusion at 10 faces.
Added 236544 out of 246115 cells (96.1112%).


Layer addition iteration 7
--------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 64
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.85501e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 2
    faces with face pyramid volume < 1e-13                 : 0
```

```
    faces with face-decomposition tet quality < 1e-15      : 16
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
```

```
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 6
    faces on cells with determinant < 0.001                  : 0
Detected 14 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236498 out of 246115 faces (96.0925%). Removed extrusion at 12 faces.
Added 236510 out of 246115 cells (96.0974%).


Layer addition iteration 8
--------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 150
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.87422e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 16
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
```

```
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                        : 2
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 10
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
```

```
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
Detected 12 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236428 out of 246115 faces (96.064%). Removed extrusion at 12 faces.
Added 236440 out of 246115 cells (96.0689%).


Layer addition iteration 9
--------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 134
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.89295e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 2
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 16
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
```

```
    faces on cells with determinant < 0.001               : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                       : 0
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 6
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                       : 0
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 0
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 0
    faces on cells with determinant < 0.001               : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                       : 0
    faces with face pyramid volume < 1e-13                : 0
    faces with face-decomposition tet quality < 1e-15     : 12
    faces with concavity > 80  degrees                    : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02       : 0
    faces with volume ratio of neighbour cells < 0.01     : 0
    faces with face twist < 0.02                          : 2
    faces on cells with determinant < 0.001               : 0
Detected 14 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236364 out of 246115 faces (96.038%). Removed extrusion at 14 faces.
Added 236378 out of 246115 cells (96.0437%).


Layer addition iteration 10
---------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.
```

```
displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 102
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.90619e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 16
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 4
```

```
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 8
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Detected 8 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236320 out of 246115 faces (96.0202%). Removed extrusion at 8 faces.
Added 236328 out of 246115 cells (96.0234%).


Layer addition iteration 11
---------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 38
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.91268e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 2
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 16
    faces with concavity > 80  degrees                       : 0
```

```
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 0
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
```

```
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 4
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
Detected 4 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236308 out of 246115 faces (96.0153%). Removed extrusion at 4 faces.
Added 236312 out of 246115 cells (96.0169%).


Layer addition iteration 12
---------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 40
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.91861e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 2
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 16
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
    faces with face twist < 0.02                            : 0
    faces on cells with determinant < 0.001                 : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                         : 0
    faces with face pyramid volume < 1e-13                  : 0
    faces with face-decomposition tet quality < 1e-15       : 6
    faces with concavity > 80  degrees                      : 0
    faces with skewness > 4   (internal) or 20  (boundary)  : 0
    faces with interpolation weights (0..1)  < 0.02         : 0
    faces with volume ratio of neighbour cells < 0.01       : 0
```

```
    faces with face twist < 0.02                              : 0
    faces on cells with determinant < 0.001                   : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                           : 0
    faces with face pyramid volume < 1e-13                    : 0
    faces with face-decomposition tet quality < 1e-15         : 6
    faces with concavity > 80  degrees                        : 0
    faces with skewness > 4   (internal) or 20  (boundary)    : 0
    faces with interpolation weights (0..1)  < 0.02           : 0
    faces with volume ratio of neighbour cells < 0.01         : 0
    faces with face twist < 0.02                              : 0
    faces on cells with determinant < 0.001                   : 0
displacementMedialAxis : Iteration 3
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                           : 0
    faces with face pyramid volume < 1e-13                    : 0
    faces with face-decomposition tet quality < 1e-15         : 6
    faces with concavity > 80  degrees                        : 0
    faces with skewness > 4   (internal) or 20  (boundary)    : 0
    faces with interpolation weights (0..1)  < 0.02           : 0
    faces with volume ratio of neighbour cells < 0.01         : 0
    faces with face twist < 0.02                              : 0
    faces on cells with determinant < 0.001                   : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                           : 0
    faces with face pyramid volume < 1e-13                    : 0
    faces with face-decomposition tet quality < 1e-15         : 0
    faces with concavity > 80  degrees                        : 0
    faces with skewness > 4   (internal) or 20  (boundary)    : 0
    faces with interpolation weights (0..1)  < 0.02           : 0
    faces with volume ratio of neighbour cells < 0.01         : 0
    faces with face twist < 0.02                              : 0
    faces on cells with determinant < 0.001                   : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                           : 0
    faces with face pyramid volume < 1e-13                    : 0
    faces with face-decomposition tet quality < 1e-15         : 2
    faces with concavity > 80  degrees                        : 0
    faces with skewness > 4   (internal) or 20  (boundary)    : 0
    faces with interpolation weights (0..1)  < 0.02           : 0
    faces with volume ratio of neighbour cells < 0.01         : 0
    faces with face twist < 0.02                              : 2
```

```
    faces on cells with determinant < 0.001                : 0
Detected 4 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236296 out of 246115 faces (96.0104%). Removed extrusion at 4 faces.
Added 236300 out of 246115 cells (96.012%).


Layer addition iteration 13
---------------------------

Determining displacement for added points according to pointNormal ...
Detected 0 points with point normal pointing through faces.
Reset displacement at 0 points to average of surrounding points.

displacementMedialAxis : Smoothing using Medial Axis ...
displacementMedialAxis : Reducing layer thickness at 2076 nodes where thickness
to medial axis distance is large
displacementMedialAxis : Removing isolated regions ...
displacementMedialAxis : Number of isolated points extrusion stopped : 34
displacementMedialAxis : Smoothing field ...
    Iteration 0   residual 3.92364e-05
displacementMedialAxis : Moving mesh ...
displacementMedialAxis : Iteration 0
Moving mesh using displacement scaling : min:1  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 2
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 16
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 1
Moving mesh using displacement scaling : min:0.75  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 2
Moving mesh using displacement scaling : min:0.5625  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                        : 0
    faces with face pyramid volume < 1e-13                 : 0
    faces with face-decomposition tet quality < 1e-15      : 6
    faces with concavity > 80  degrees                     : 0
    faces with skewness > 4   (internal) or 20  (boundary) : 0
    faces with interpolation weights (0..1)  < 0.02        : 0
    faces with volume ratio of neighbour cells < 0.01      : 0
    faces with face twist < 0.02                           : 0
    faces on cells with determinant < 0.001                : 0
displacementMedialAxis : Iteration 3
```

```
displacementMedialAxis : Displacement scaling for error reduction set to 0.
Moving mesh using displacement scaling : min:0.421875  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 6
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Iteration 4
Moving mesh using displacement scaling : min:0  max:1
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
displacementMedialAxis : Successfully moved mesh
displacementMedialAxis : Finished moving mesh ...
truncateDisplacement : Unextruded 0 faces due to non-consecutive vertices being
extruded.
truncateDisplacement : Unextruded 0 faces due to stringed edges with
inconsistent extrusion.

Setting up information for layer truncation ...

Checking mesh with layer ...
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Detected 0 illegal faces (concave, zero area or negative cell pyramid volume)
Extruding 236284 out of 246115 faces (96.0055%). Removed extrusion at 0 faces.
Added 236284 out of 246115 cells (96.0055%).
Edge intersection testing:
    Number of edges             : 4112914
    Number of edges to retest   : 0
    Number of intersected edges : 428612
Writing 236284 added cells to cellSet addedCells
Writing 0 faces inside added layer to faceSet layerFaces

Writing fields with layer information:
    nSurfaceLayers    : actual number of layers
    thickness         : overall layer thickness
    thicknessFraction : overall layer thickness (fraction of desired thickness)
```

```
patch     faces    layers   overall thickness
                            [m]       [%]
-----     -----    ------   ---       ---
lowerWall 24714    0.995    0.0103    94.5
motorBike 221401   0.956    0.00232   81.8

Layer mesh : cells:1291920  faces:4112914  points:1539245
Cells per refinement level:
    0   2848
    1   1939
    2   5376
    3   11460
    4   168872
    5   50573
    6   325538
    7   725314
Writing mesh to time constant
Wrote mesh in = 340.33 s.
Layers added in = 340.33 s.
Checking final mesh ...
Checking faces in error :
    non-orthogonality > 65  degrees                          : 0
    faces with face pyramid volume < 1e-13                   : 0
    faces with face-decomposition tet quality < 1e-15        : 0
    faces with concavity > 80  degrees                       : 0
    faces with skewness > 4   (internal) or 20  (boundary)   : 0
    faces with interpolation weights (0..1)  < 0.02          : 0
    faces with volume ratio of neighbour cells < 0.01        : 0
    faces with face twist < 0.02                             : 0
    faces on cells with determinant < 0.001                  : 0
Finished meshing without any errors
Finished meshing in = 951.75 s.
End
```