Oxford Analysis Consultants

Mapped meshing

23rd April 2014

Charles Simpson

C00-TESTS REF197 v1.0

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Document history

Version	Date	Summary changes	Author
1.0	23rd April 2014	New Document.	Charles Simpson

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Purpose

- Explore mapped meshes a bit.

Mapped meshes - C00-TESTS REF197-v1.0

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Contents/Summary results

- 'full chamfer'
  - » Easy with bricks
- 'part chamfer'
  - » As-is geometry - Mapped Autogem controls created but ignored
  - » Volume region used as work around and bricks worked
- 'full round'
  - » As-is geometry - Mapped Autogem controls cannot be created
  - » Volume region used as work around, meshed ok with bricks and wedges
- 'part round'
  - » As-is geometry – failed
  - » Single volume region – failed
  - » Multiple volume regions, various schemes - failed

- 'part round' – LEGACY Mechanica interface
  - » Too many downsides to going this route but …
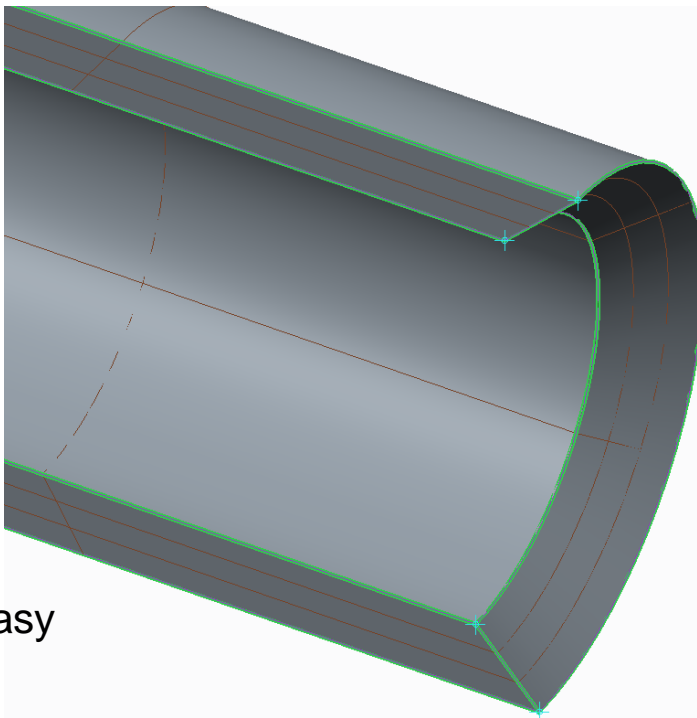 - » Revolved shells really very easy

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Other notes

- Couldn't select a volume.

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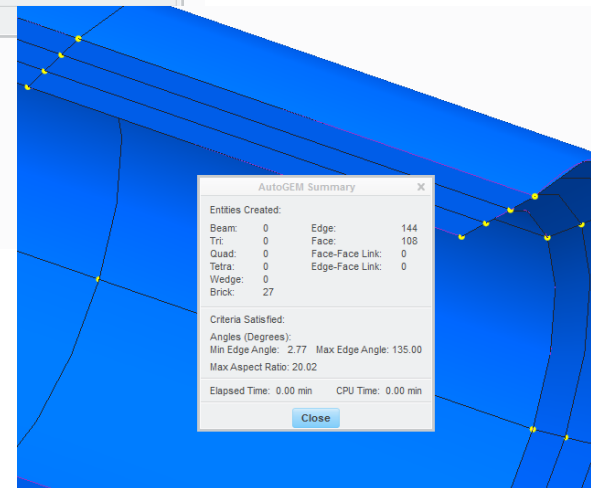Oxford Analysis
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Base geometry

- Single part
- Half tube with either a chamfer or round at one end on inside edge.
- The round/chamfer

  1. The full thickness of the tube (full round/chamfer)
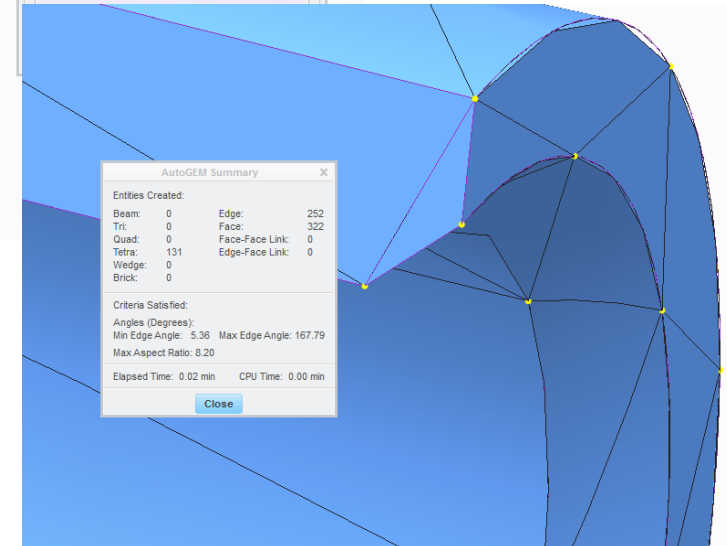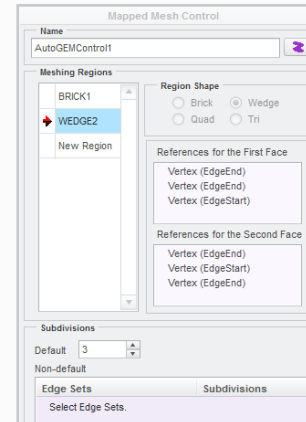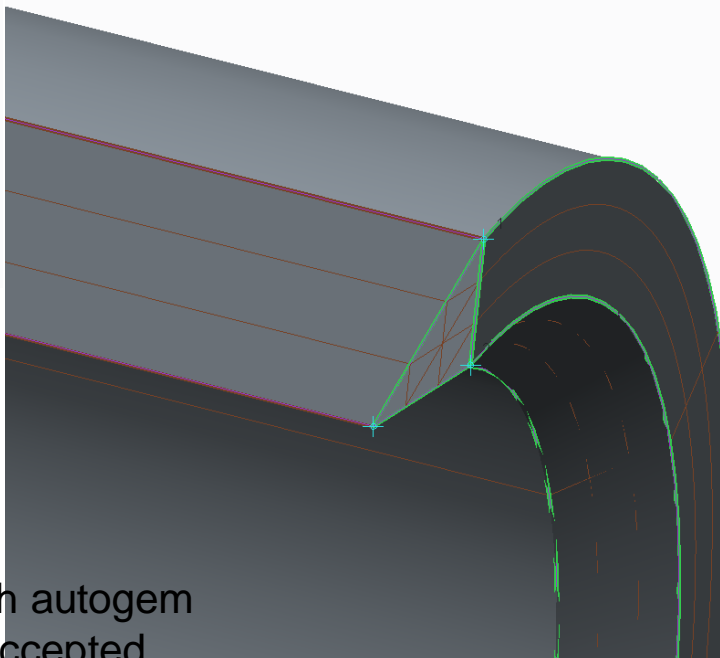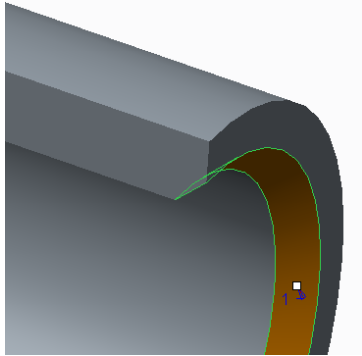 2. Part thickness of the tube (part round/chamfer)

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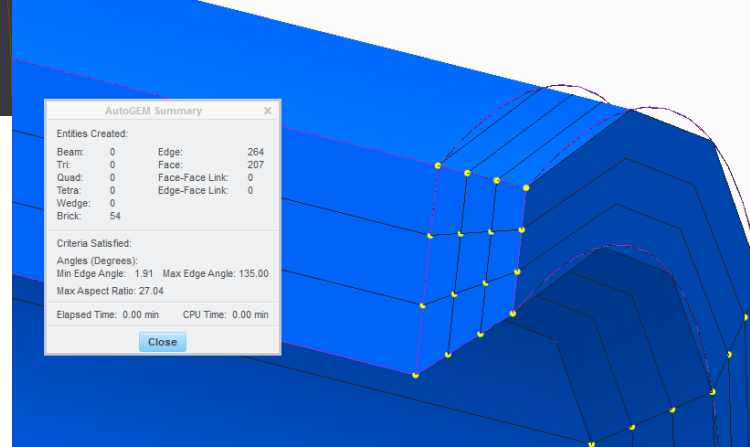
Full chamfer

- Very easy

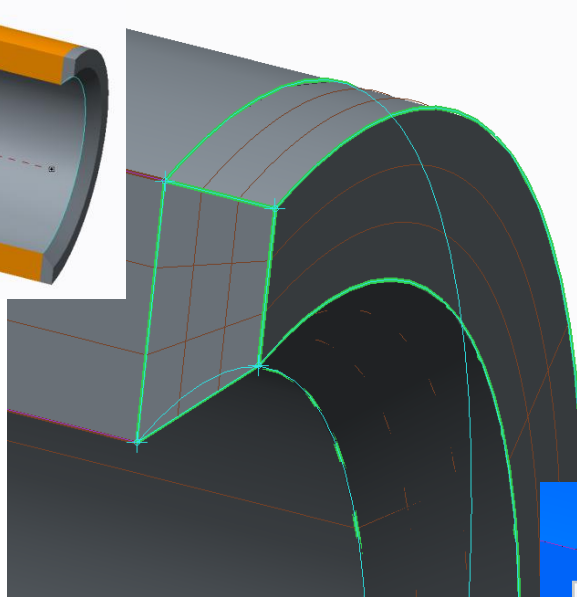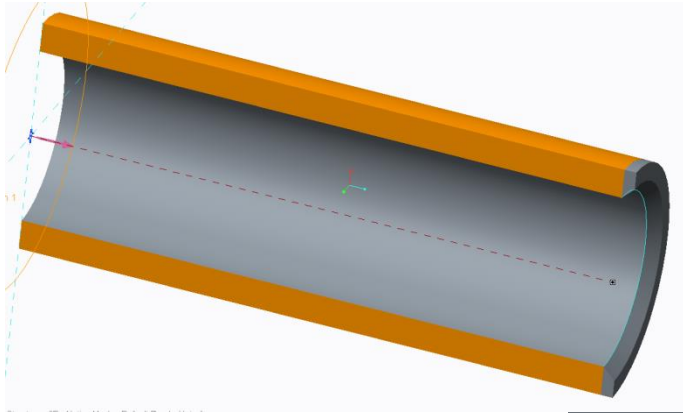Mapped meshes - C00-TESTS REF197-v1.0
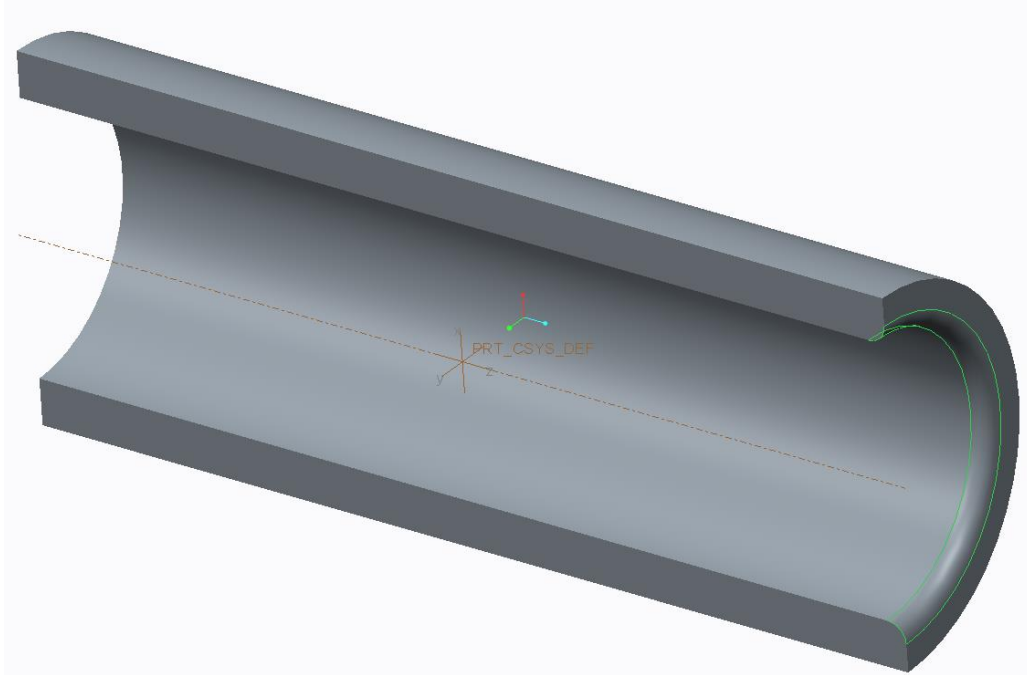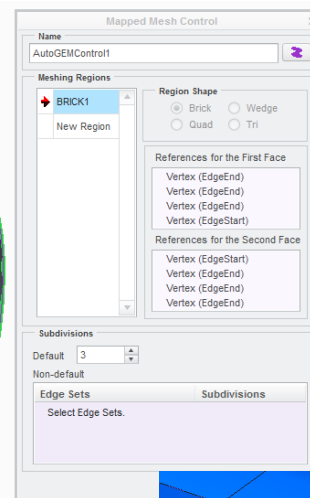
Part chamfer

- Mapped mesh autogem instructions accepted

- Autogem ignores mapped mesh controls and meshes with tets.

- Using degenerates for wedge region makes no difference.
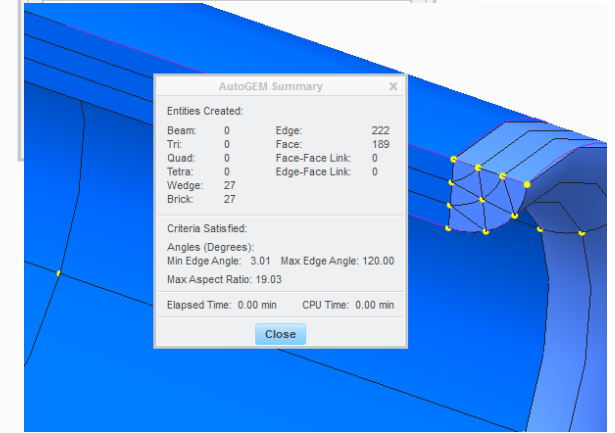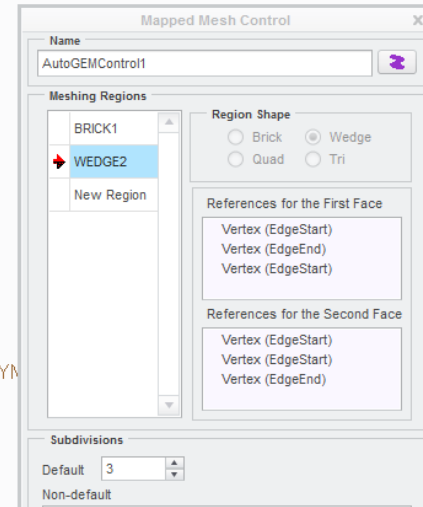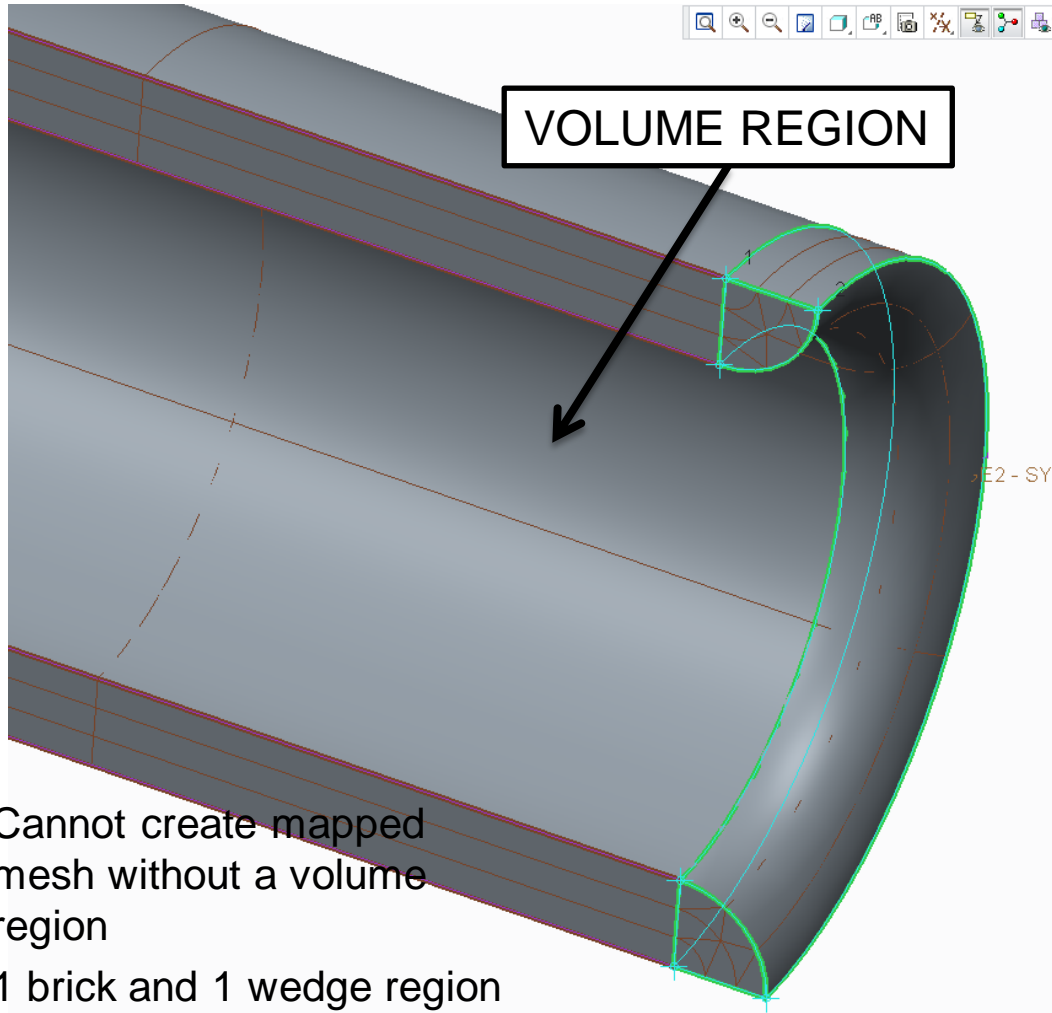
Part chamfer + volume region - bricks
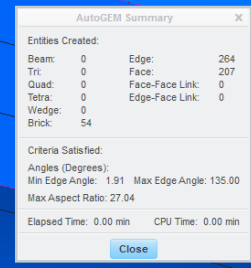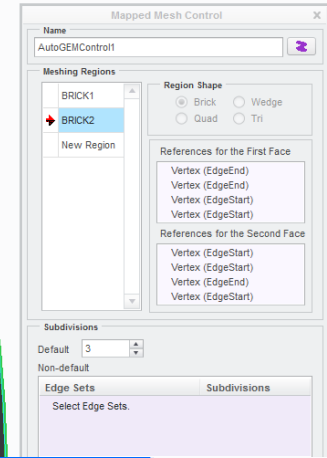
- Use volume region to overcome previous issue. (extra prep)
- Works with bricks ok
- Contact problems have additional surfaces to consider.
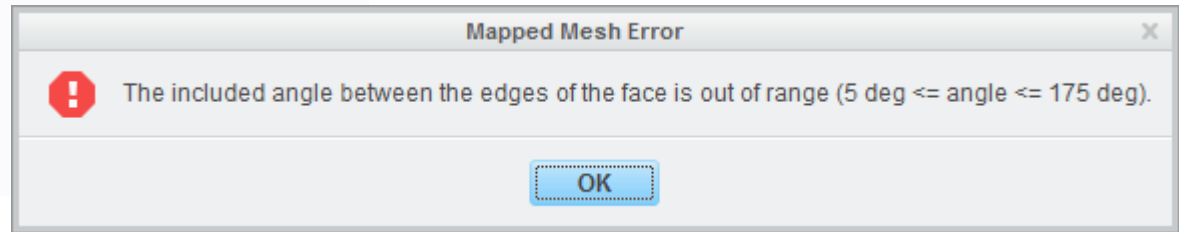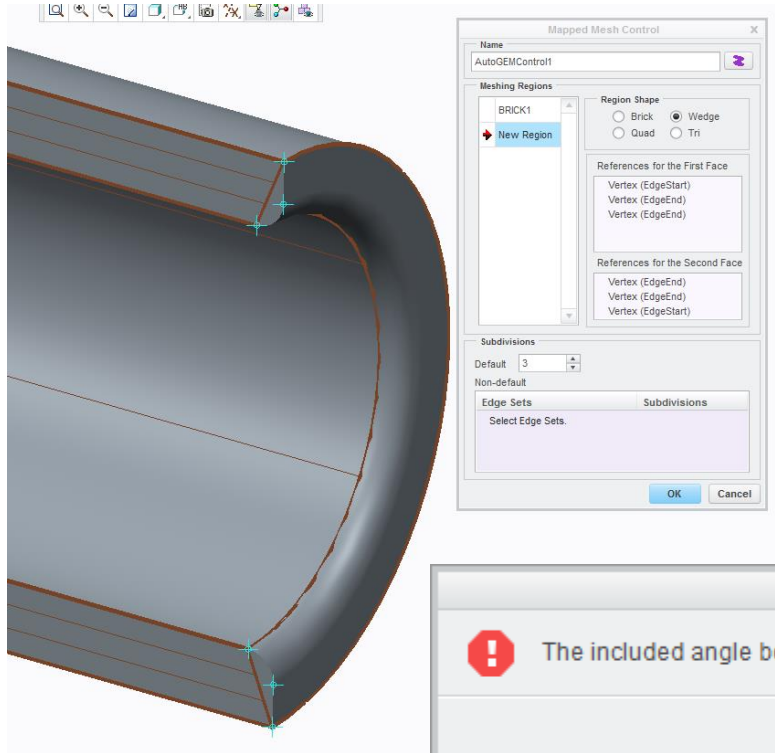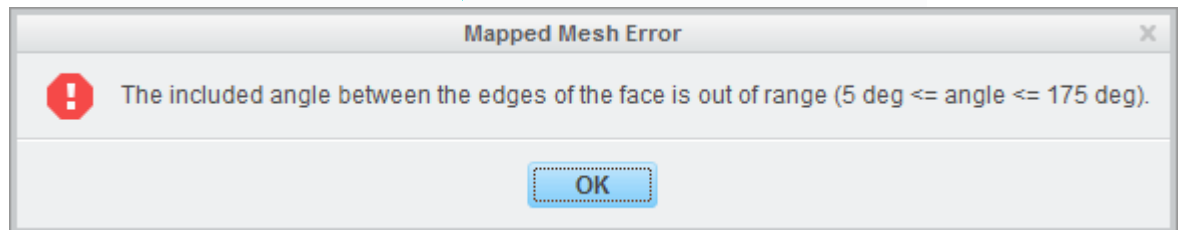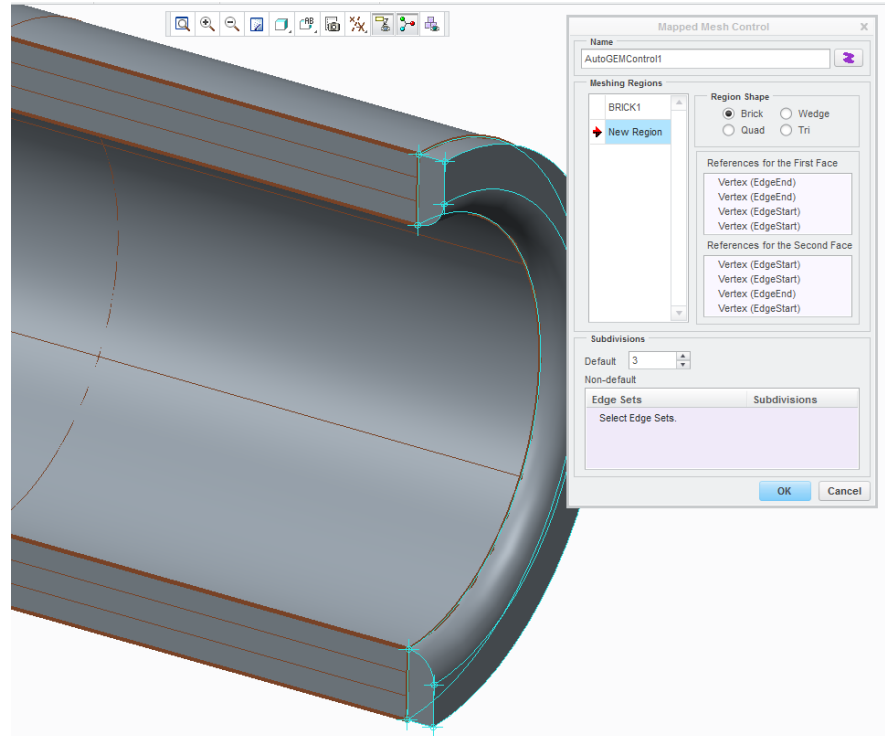
Mapped meshes - C00-TESTS REF197-v1.0
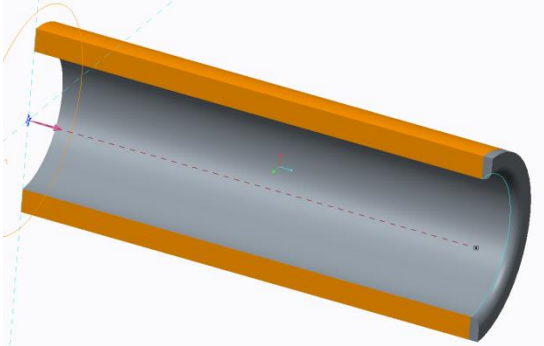
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Full round

VOLUME REGION

- Cannot create mapped mesh without a volume region
- 1 brick and 1 wedge region required then mapped controls work.

Part round – attempt 1

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Part round + volume region – attempt 2

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Part round + 2 volume regions attempts 3&4

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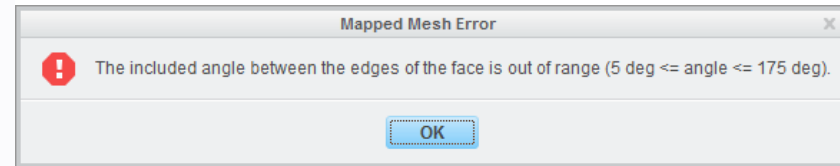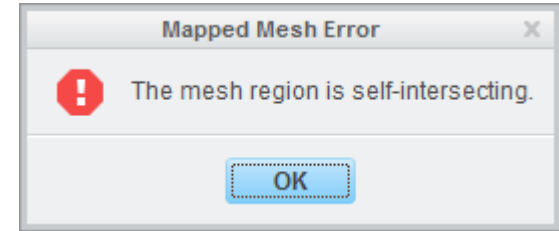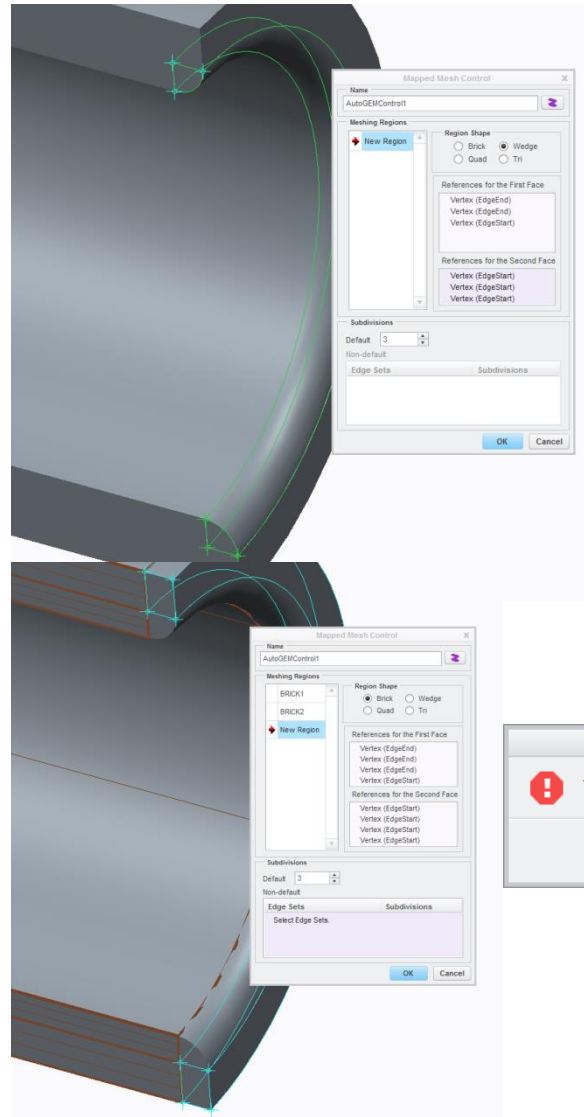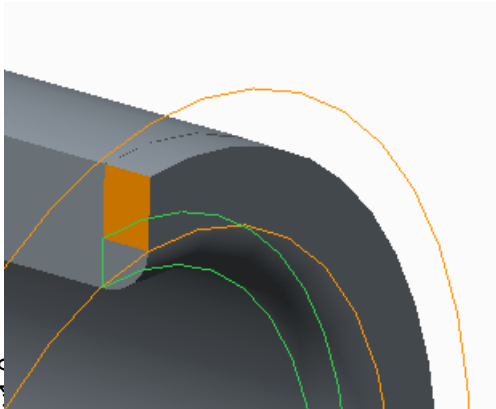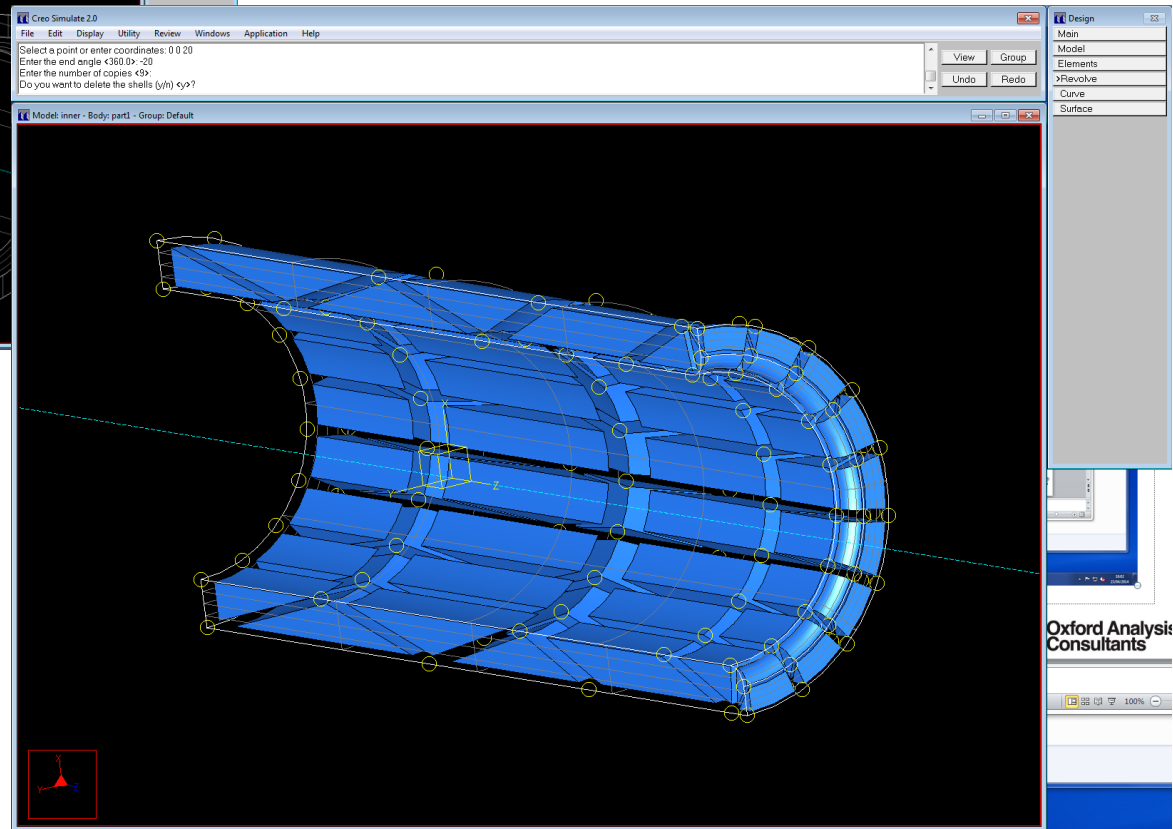
Mapped meshes - C00-TESTS REF197-1-0

Part round – legacy revolve
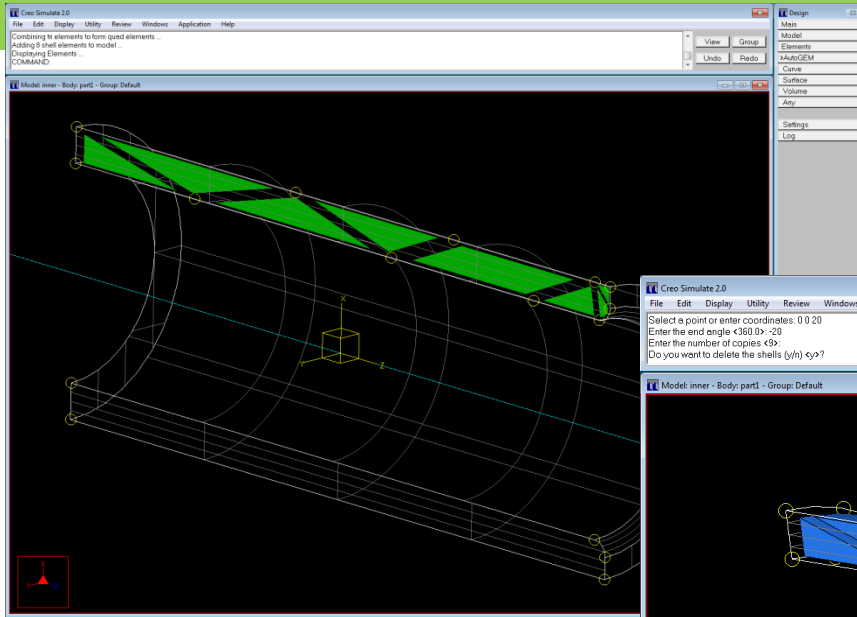
- Very easy
- Manual meshing with shells possible before revolve (if one desires)

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Final slide

End of presentation

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