Cantilever beam bending

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1 Objective

Verify Coreform IGA for Abaqus support for the common Abaqus load and boundary-condition types on a single problem whose solution is known in closed form: a slender cantilever beam bent by gravity, body force, surface pressure (uniform and total-force), surface traction (including the follower and resultant variants), and a concentrated end moment. Each load case is checked against the corresponding Euler-Bernoulli beam solution, with pure-Abaqus body-fitted mesh-refinement sweeps retained as independent comparison points. The quantity of interest is the tip deflection; the deflection curve and the bending- and shear-stress distributions are also compared against the closed forms along line probes. The test artifact records the unit system as SI: m, kg, s, N, Pa; all dimensional inputs and results therefore use the SI consistent unit system.

2 Geometry

A square-section prismatic beam of width b, height h, and length L is shown in Figure 1, with its dimensions provided in Table 1. The cross-section is centered on the x/y origin and the beam axis runs along $z \in [0, L]$. Verification quantities are sampled along three line probes: the beam axis (u_y), the top fiber at $y = h/2$ (σ_{zz}), and the midspan section line at $z = L/2$ (σ_{zz} and τ_{zy}).

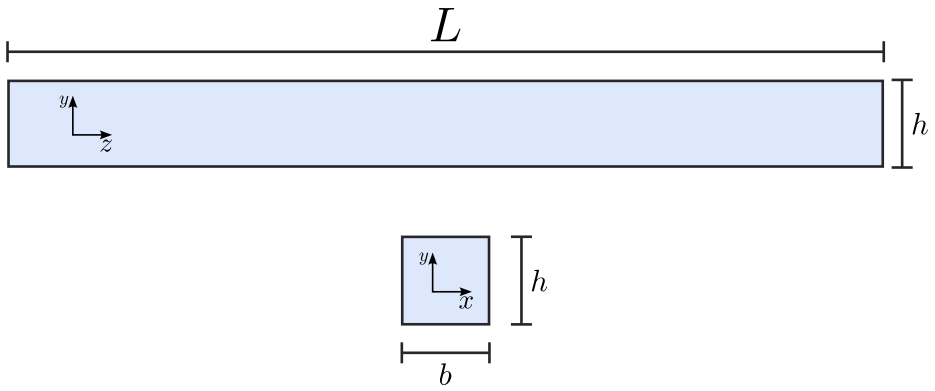

Figure 1: Beam dimensions and coordinate system.

Table 1: Geometric parameters.

Quantity	Symbol	Value
Section width	b	$0.1\ \mathrm{m}$
Section height	h	$0.1\ \mathrm{m}$
Length	L	$1\ \mathrm{m}$
Second moment of area	$I_x = bh^3/12$	$8.33 \times 10^{-6}\ \mathrm{m}^4$

3 Material

The beam is a homogeneous, isotropic, linear-elastic material (Table 2). Poisson's ratio is deliberately zero so the 3D solid matches the Euler-Bernoulli kinematics, which carry no Poisson effect.

Table 2: Material properties.

Property	Symbol	Value
Young's modulus	E	$200 \times 10^9\ Pa$
Poisson's ratio	ν	0
Mass density	ρ	$8.00 \times 10^3\ kg/m^{\,3}$

4 Loading & boundary conditions

The idealized beam is clamped at $z = 0$, as shown in Figure 2. In the three-dimensional solid models, this condition is imposed by pinning the $z = 0$ face (all translations fixed). Each load case below is applied in its own study; all other model inputs are identical across cases.

Figure 2: Idealized clamped boundary condition at $z = 0$.

4.1 Gravity

A gravity load of magnitude g acts in $-y$ on the whole body, as shown in Figure 3. The beam therefore carries its self-weight as the distributed line load $w = \rho g b h$.

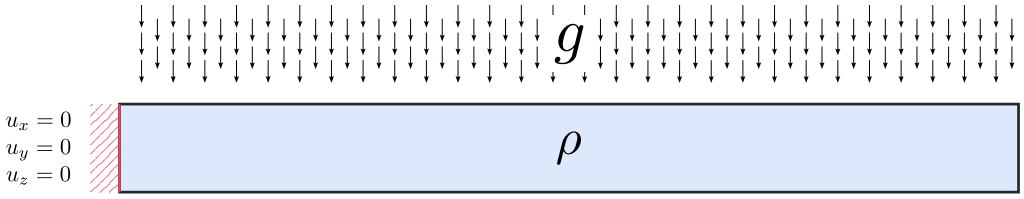

Figure 3: Gravity loading on a beam of density ρ.

4.2 Body force

A uniform body force per unit volume of magnitude $F = \rho g$ acts in $-y$, as shown in Figure 4. This load is statically identical to the gravity case but exercises the body-force load type rather than the gravity type.

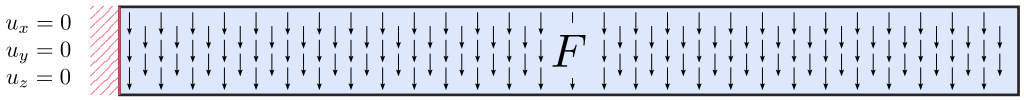

Figure 4: Uniform body-force loading in the $-y$ direction.

4.3 Pressure

A normal pressure is applied to the top face ($y = +h/2$), as shown in Figure 5. Two variants are exercised: **uniform**, where the magnitude is the pressure itself, and **total force**, where the magnitude is the total force distributed over the face. The magnitudes are chosen so both reduce to the same line load w.

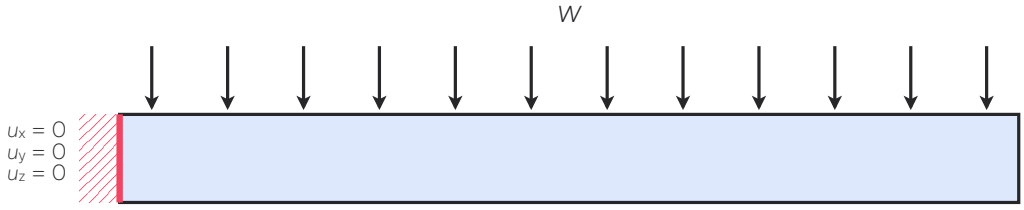

Figure 5: Top-face pressure loading represented by the equivalent line load w.

4.4 Surface traction

A uniform shear traction on the end face ($z = L$) acts in $-y$, giving the resultant tip load $P = t\,bh$ shown in Figure 6. Two additional coverage variants exercise the traction options: **follower** (`follower=ON`), for which the traction direction follows the deforming surface, and **resultant** (`resultant=ON`), for which Abaqus maintains a constant resultant by integrating the specified traction over the reference area. The `resultant` option does not reinterpret the entered traction magnitude as a total force; its magnitude retains pressure units. Because this is a small-displacement analysis, all three traction variants produce the same solution.

Figure 6: End-face shear traction represented by the resultant tip load P.

4.5 End moment

A concentrated moment M_0 about x is applied at the beam tip, as shown in Figure 7. In the three-dimensional solid models, it is applied to a reference point at the centroid of the end face and transmitted through a kinematic coupling to the whole face.

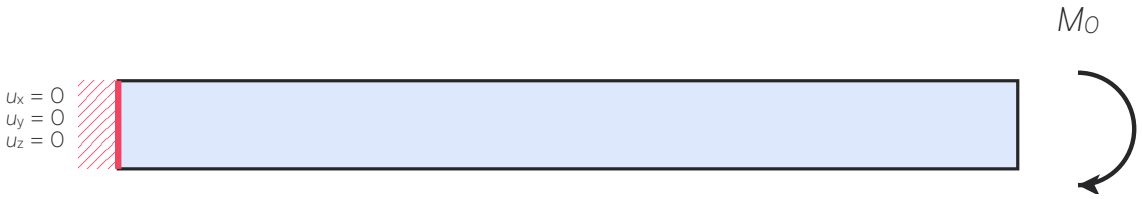

Figure 7: Concentrated end moment M_0 about the x axis.

Table 3: Applied load magnitudes.

Load case	Test case	Magnitude
Gravity	`gravity`	$9.81\ m/s^2$
Body force	`body_force`	$78.5 \times 10^3\ N/m^3$
Pressure (uniform)	`pressure_uniform`	$5.00 \times 10^3\ Pa$
Pressure (total force)	`pressure_total_force`	$500\ N$
Surface traction	`traction`	$500\ Pa$
End moment	`moment`	$5\ N \cdot m$

5 Mesh & discretization

Coreform IGA discretizes the beam with **immersed, trimmed U-splines**: a structured rectilinear background grid with p padding elements per side is trimmed to the beam. The background element sizes are $(0.1, 0.1, 0.25)/2^k$ in (x, y, z) for refinement levels $k = 0, ..., 4$, at the evidence-backed degrees $p = 1$, $p = 2$, $p = 3$ with maximum continuity C^{p-1}. Each primary load case runs on this same mesh sweep; the follower and resultant traction variants are single-level coverage cases. The meshes are therefore shown once — the tabs below render each refinement level from the gravity study's IGA results databases (trimmed Bezier element edges in carnation, CAD edges in black).

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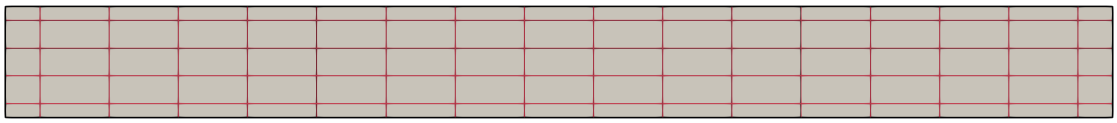
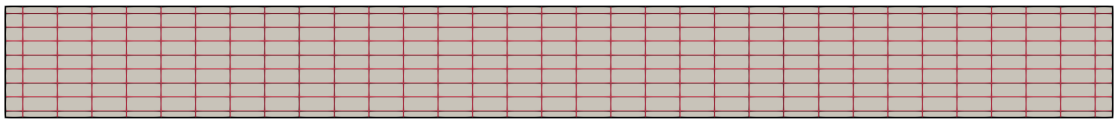
5.0.b h_z=0.125

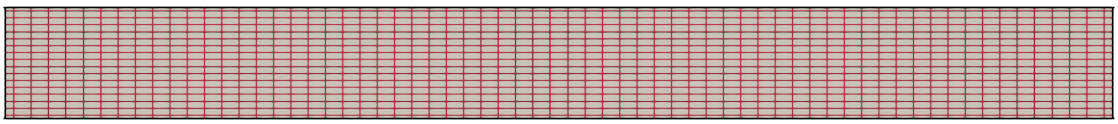
5.0.c h_z=0.0625



5.0.d h_z=0.03125



5.0.e h_z=0.015625



6 Reference & accepted solutions

The **accepted** solutions are the Euler-Bernoulli cantilever closed forms [1]. The distributed cases (gravity, body force, both pressures) reduce to a uniform line load w:

$$V(z) = w\,(L - z), \qquad M(z) = -\frac{w}{2}\,(L - z)^2, \qquad u_y(z) = -\frac{wz^2}{24EI_x}(6L^2 - 4Lz + z^2).$$

The traction cases reduce to a tip load P:

$$V(z) = P, \qquad M(z) = -P\,(L - z), \qquad u_y(z) = -\frac{Pz^2\,(3L - z)}{6EI_x},$$

and the end moment M_0 gives constant moment and zero shear:

$$V(z) = 0, \qquad M(z) = -M_0, \qquad u_y(z) = -\frac{M_0 z^2}{2EI_x}.$$

Stresses are recovered from the section resultants with $Q(y) = \frac{b}{2}\left(\frac{h^2}{4} - y^2\right)$:

$$\sigma_{zz}(y,z) = -\frac{M(z)\,y}{I_x}, \qquad \tau_{zy}(y,z) = \frac{V(z)\,Q(y)}{I_x\,b}.$$

Euler-Bernoulli is itself an approximation of the 3D solid — it neglects shear deformation, and the pinned end face is stiffer than the idealized support — so exact agreement is not expected, and the test gates each study on the tip deflection matching within 5% on the asymptotic refinement levels (relaxed to 10% for the slowest-converging studies; the pre-asymptotic coarse $p = 1$ meshes, which lock in bending, still solve and report but are not gated). To separate that modeling gap from discretization error, each load case also includes independent pure-Abaqus body-fitted refinement sweeps using C3D8 and C3D20 elements. The reference value reported in the accepted-solution and tip-deflection tables is specifically the finest-level C3D20 result. The contour galleries retain the full C3D8 and C3D20 sweeps so their discretization behavior remains visible. Coreform IGA and the body-fitted models discretize the same elasticity problem, so they should agree more closely with each other than either does with Euler-Bernoulli.

Table 4: Equivalent loads and tip deflections: Euler-Bernoulli closed form and the finest body-fitted C3D20 result.

Load case	Equivalent load	Euler-Bernoulli $u_y(L)$	Finest C3D20 $u_y(L)$
Gravity	$w = 785$ N/m	-58.9×10^{-6} m	-59.3×10^{-6} m
Body force	$w = 785$ N/m	-58.9×10^{-6} m	-59.3×10^{-6} m
Pressure (uniform)	$w = 500$ N/m	-37.5×10^{-6} m	-37.8×10^{-6} m
Pressure (total force)	$w = 500$ N/m	-37.5×10^{-6} m	-37.8×10^{-6} m
Surface traction	$P = 5$ N	-1.00×10^{-6} m	-1.01×10^{-6} m
End moment	$M_0 = 5$ N·m	-1.50×10^{-6} m	-1.50×10^{-6} m

7 Results

Each load case below reports the tip deflection against the Euler-Bernoulli value and the finest C3D20 reference result (rows are the h-sweep; one tab per degree, and the degree tabs switch together across load cases), the four verification profiles against Euler-Bernoulli (one figure per probe quantity, a subfigure per degree), full-span line-probe absolute L^2 self-convergence against the same-degree h_4 profile, and the axial-stress contours for every test

case. The contour plots show the Coreform IGA sweep and the full C3D8/C3D20 Abaqus sweeps as separate synchronized tab groups on a shared color scale capped at the Euler-Bernoulli peak.

7.1 Gravity

Euler-Bernoulli tip deflection: -58.9×10^{-6} m; finest C3D20 Abaqus reference: -59.3×10^{-6} m.

7.1.a p=1

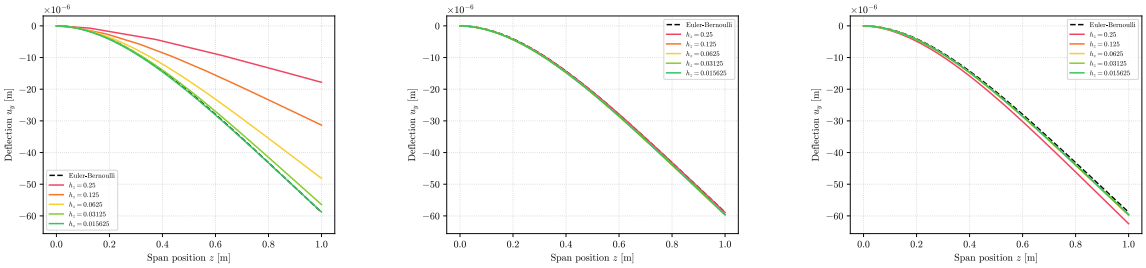
h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-17.8×10^{-6}	69.7%	70%
0.125	-31.3×10^{-6}	46.8%	47.2%
0.0625	-48.2×10^{-6}	18.2%	18.8%
0.03125	-56.4×10^{-6}	4.14%	4.9%
0.015625	-58.8×10^{-6}	0.119%	0.909%

7.1.b p=2

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-58.9×10^{-6}	0.112%	0.68%
0.125	-59.7×10^{-6}	1.38%	0.578%
0.0625	-59.6×10^{-6}	1.29%	0.491%
0.03125	-59.6×10^{-6}	1.24%	0.437%
0.015625	-59.6×10^{-6}	1.21%	0.411%

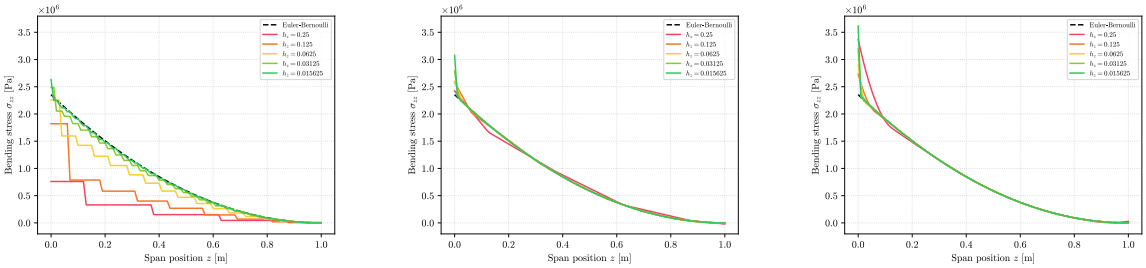
7.1.c p=3

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-62.5×10^{-6}	6.13%	5.29%
0.125	-59.8×10^{-6}	1.52%	0.721%
0.0625	-59.6×10^{-6}	1.33%	0.532%
0.03125	-59.6×10^{-6}	1.26%	0.455%
0.015625	-59.6×10^{-6}	1.22%	0.418%



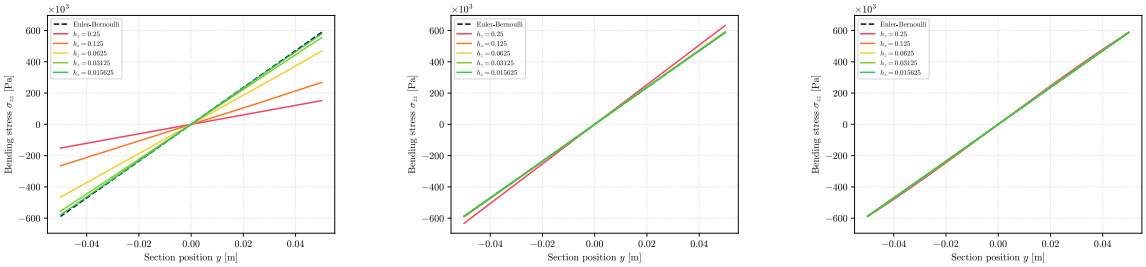
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 8: Gravity: deflection along the axis — coarse→fine sweep per degree vs Euler-Bernoulli.



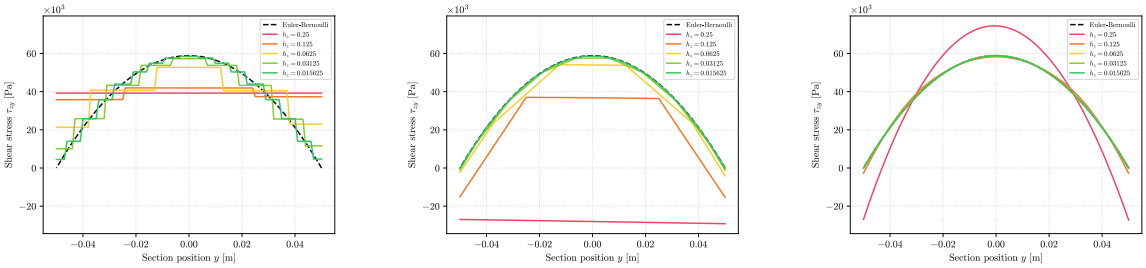
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 9: Gravity: bending stress along the top fiber — coarse→fine sweep per degree vs Euler-Bernoulli.



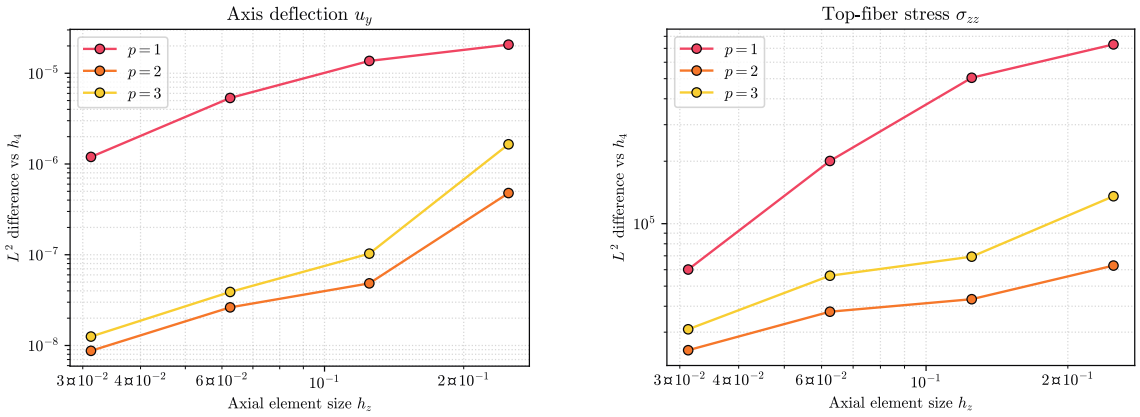
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 10: Gravity: bending stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.

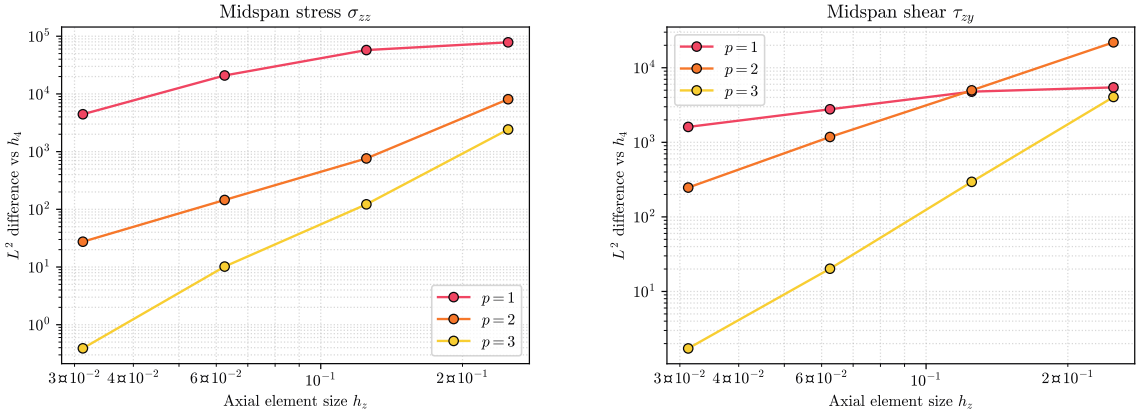


(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 11: Gravity: shear stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.



(a) Axis deflection u_y (b) Top-fiber stress σ_{zz}

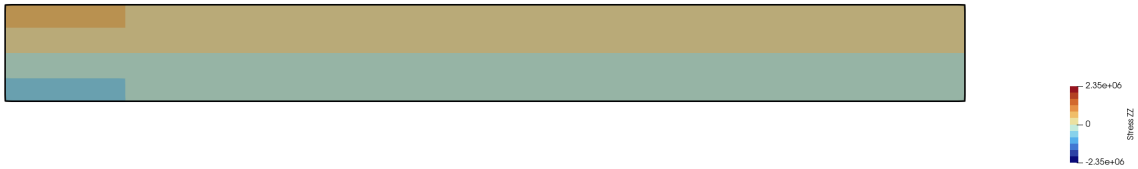


(c) Midspan stress σ_{zz} (d) Midspan shear τ_{zy}

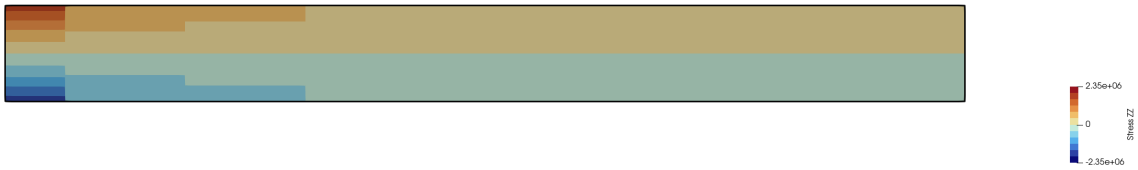
Figure 12: Gravity: full-span line-probe absolute L2 self-convergence. Each degree is compared against its own h4 profile; the h4 point is omitted because its self-error is zero.

7.1.d Contour plots

7.1.e h0p1



7.1.f h1p1



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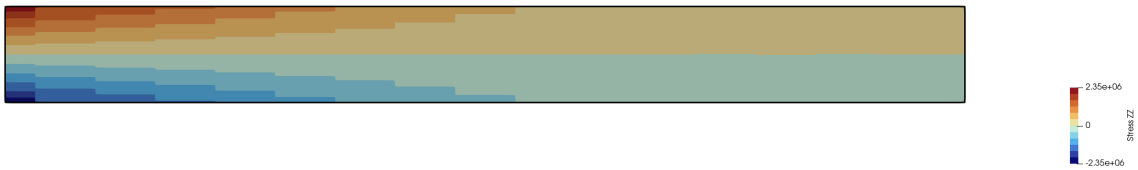

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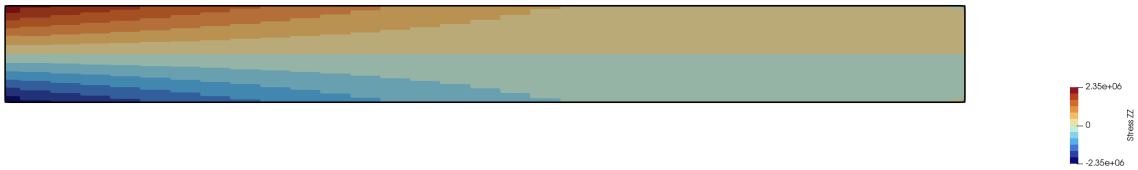

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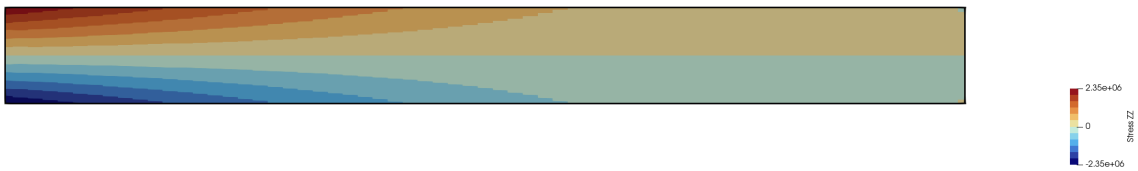

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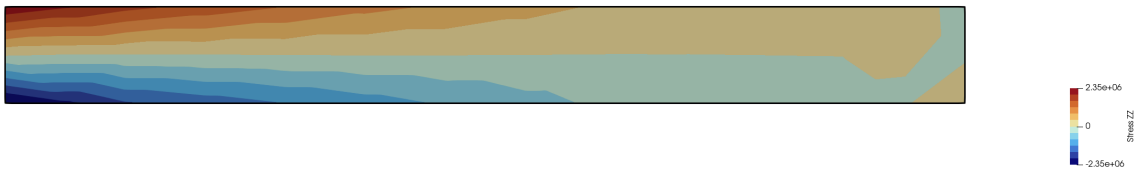

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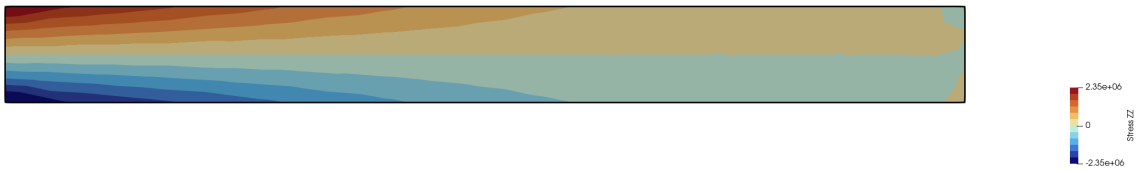

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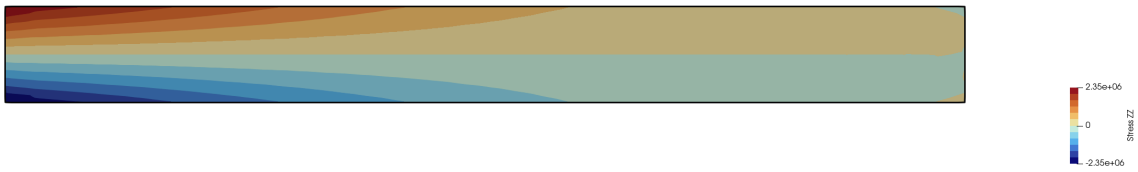

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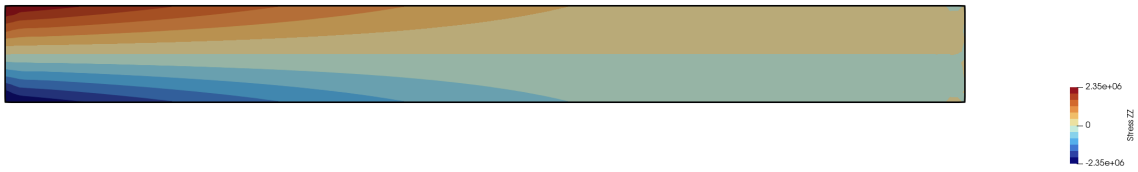

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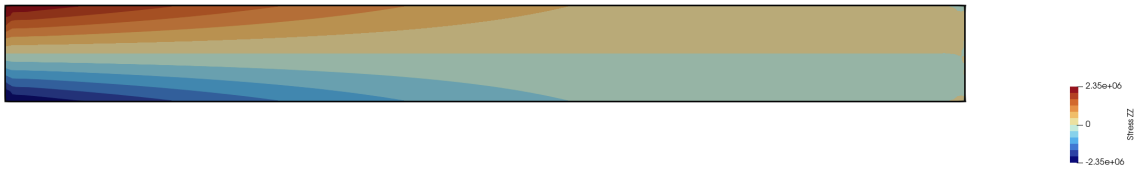
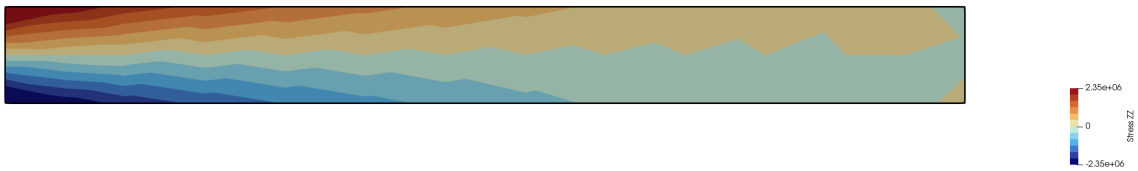


7.1.o h0p3



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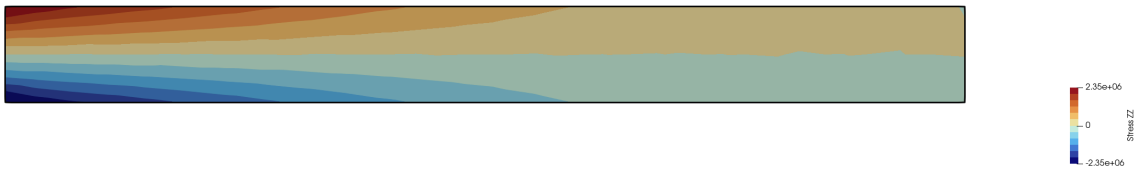

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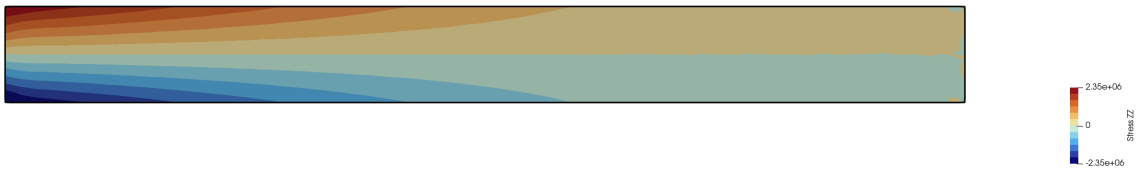

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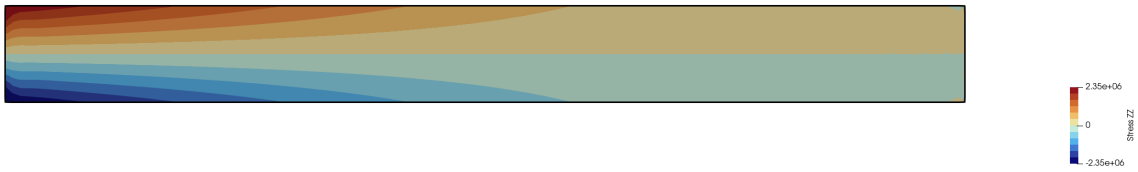
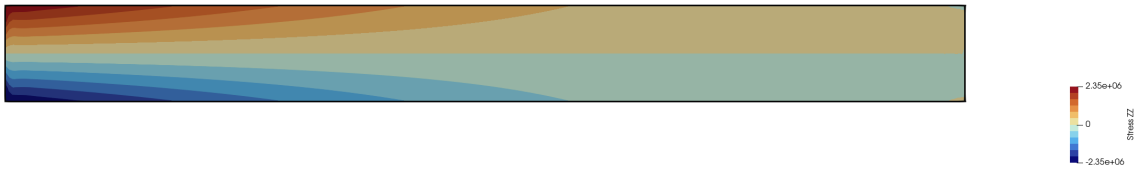


7.1.s h4p3



Abaqus reference

7.1.t h0p1

7.1.u h1p1

7.1.v h2p1

7.1.w h3p1

7.1.x h4p1

7.1.y h0p2

7.1.z h1p2

7.1.aa h2p2

7.1.ab h3p2

7.1.ac h4p2

7.2 Body force

Euler-Bernoulli tip deflection: -58.9×10^{-6} m; finest C3D20 Abaqus reference: -59.3×10^{-6} m.

7.2.a p=1

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-17.8×10^{-6}	69.7%	70%
0.125	-31.3×10^{-6}	46.8%	47.2%
0.0625	-48.2×10^{-6}	18.2%	18.8%
0.03125	-56.4×10^{-6}	4.14%	4.9%
0.015625	-58.8×10^{-6}	0.119%	0.909%

7.2.b p=2

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-58.9×10^{-6}	0.112%	0.68%
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7.2.c p=3

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-62.5×10^{-6}	6.13%	5.29%
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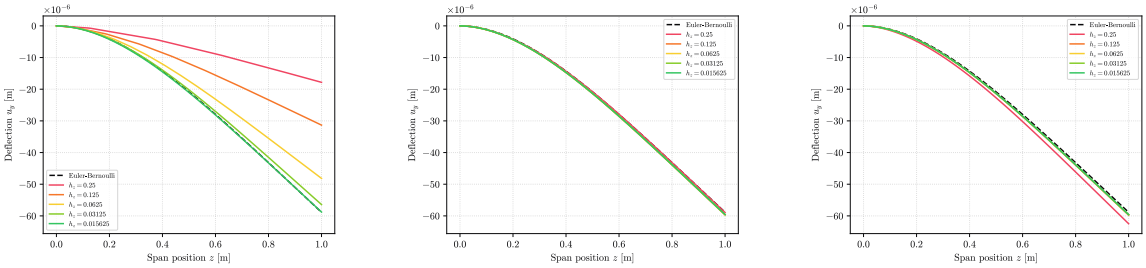
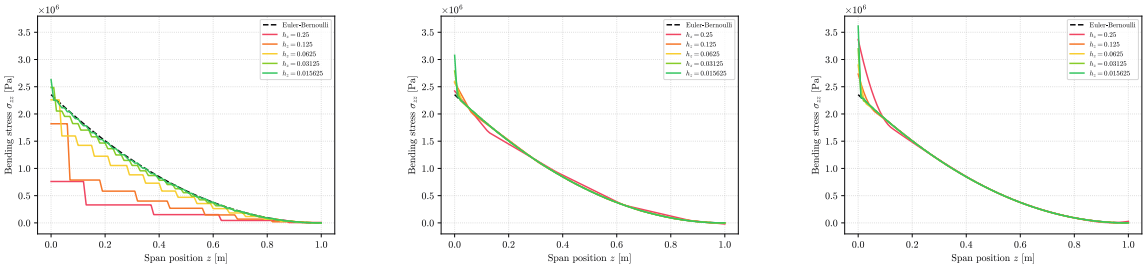
0.03125	-59.6×10^{-6}	1.26%	0.455%
0.015625	-59.6×10^{-6}	1.22%	0.418%



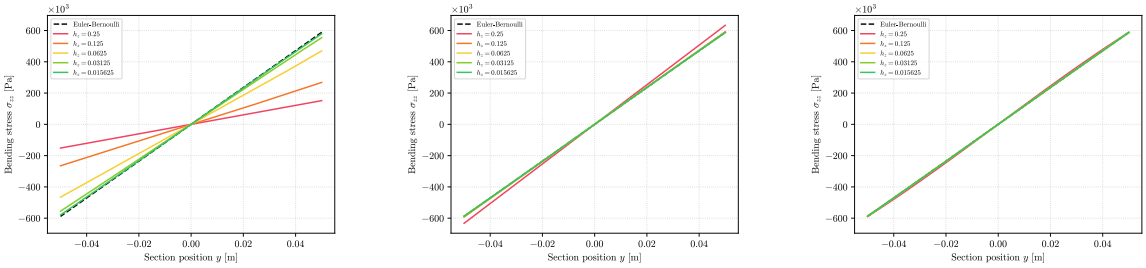
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 13: Body force: deflection along the axis — coarse→fine sweep per degree vs Euler-Bernoulli.



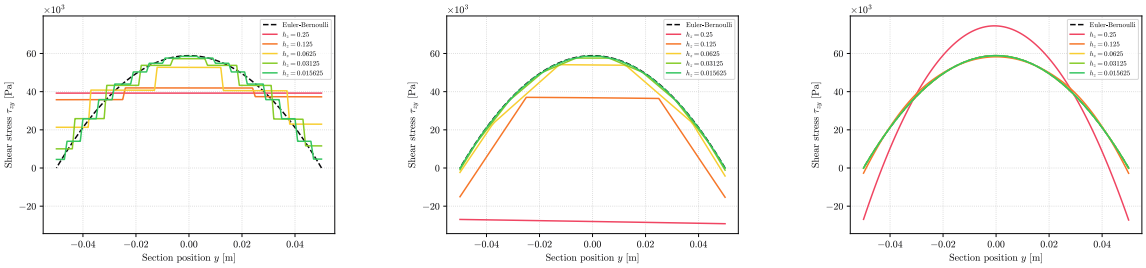
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 14: Body force: bending stress along the top fiber — coarse→fine sweep per degree vs Euler-Bernoulli.



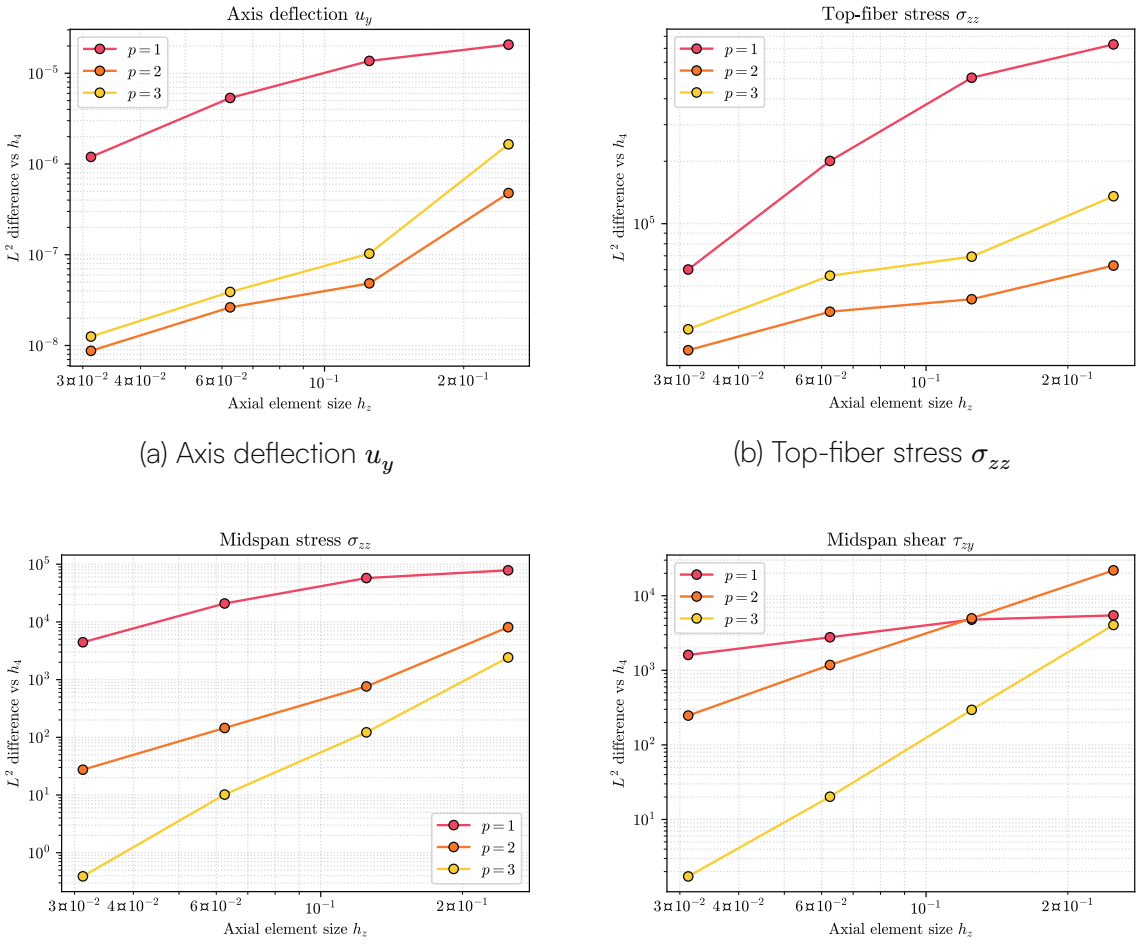
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 15: Body force: bending stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.



(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 16: Body force: shear stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.



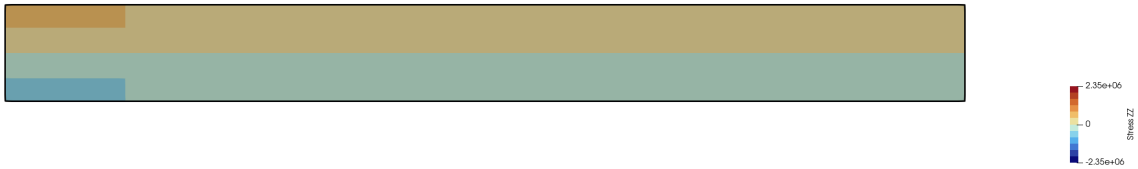
(a) Axis deflection u_y (b) Top-fiber stress σ_{zz}

(c) Midspan stress σ_{zz} (d) Midspan shear τ_{zy}

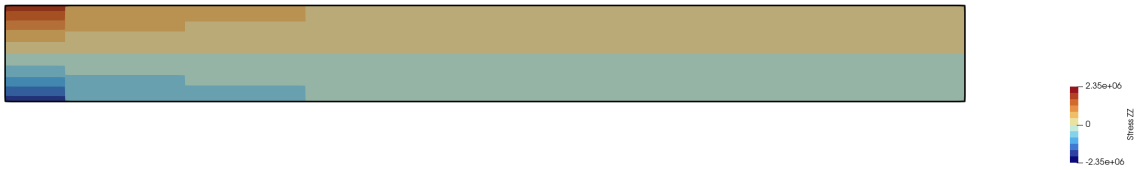
Figure 17: Body force: full-span line-probe absolute L2 self-convergence. Each degree is compared against its own h4 profile; the h4 point is omitted because its self-error is zero.

7.2.d Contour plots

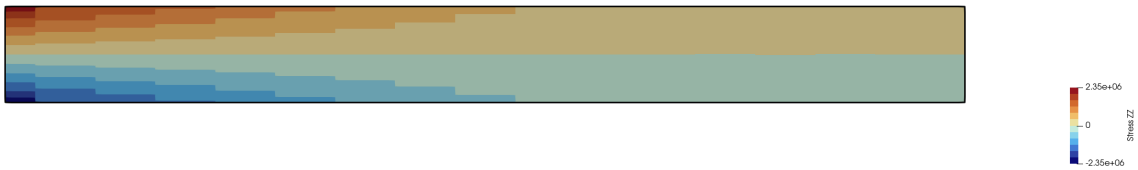
7.2.e h0p1



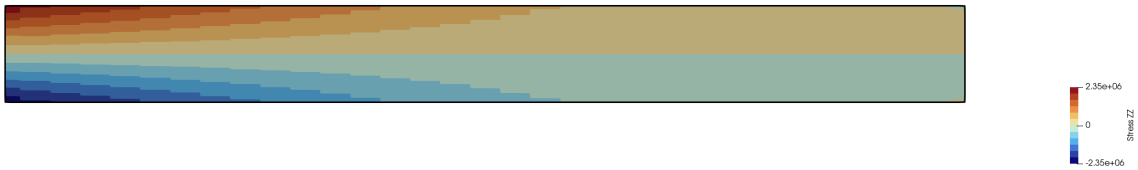
7.2.f h1p1



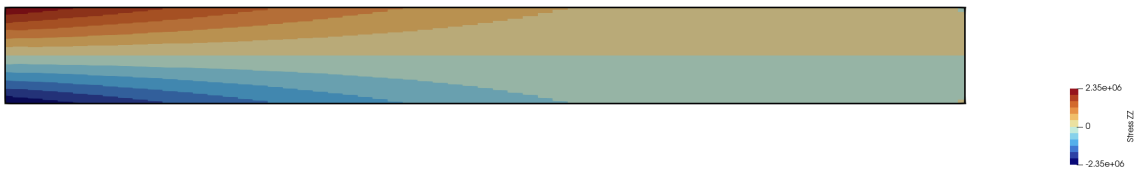
7.2.g h2p1



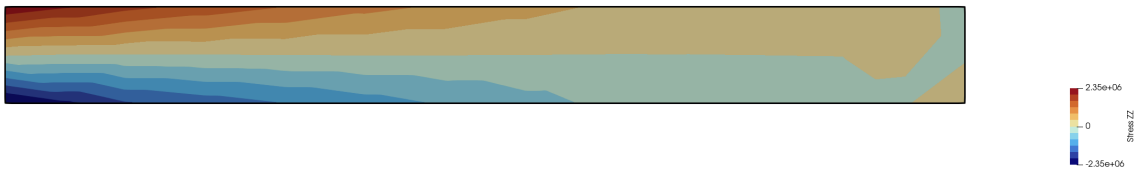
7.2.h h3p1



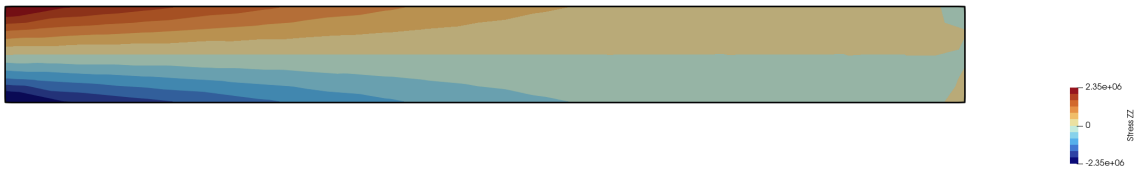
7.2.i h4p1



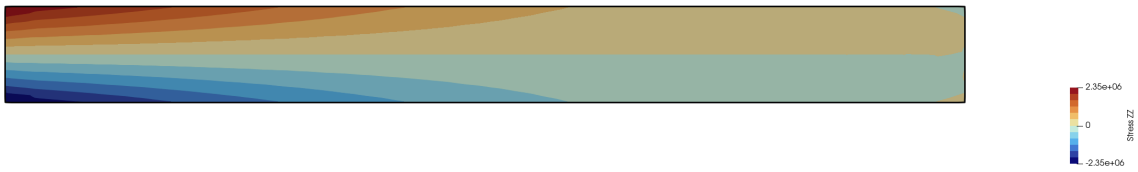
7.2.j h0p2



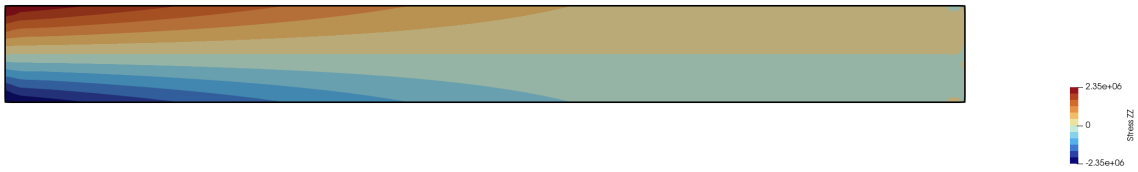
7.2.k h1p2



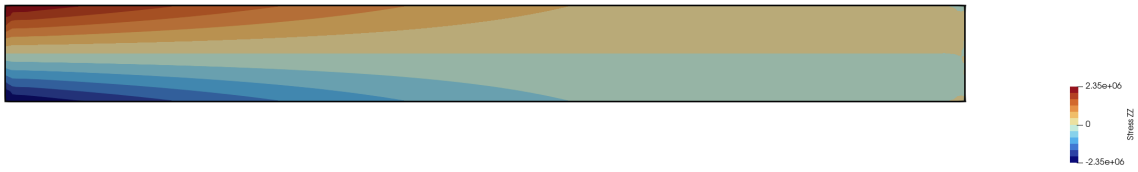
7.2.l h2p2



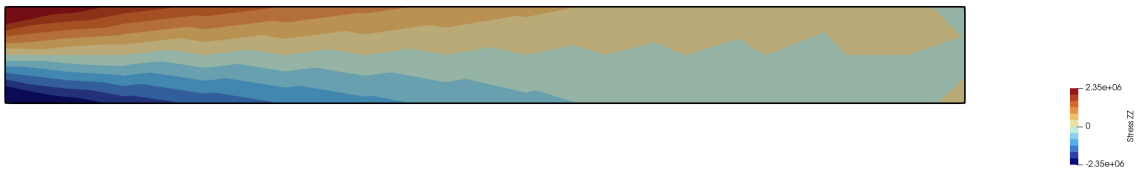
7.2.m h3p2



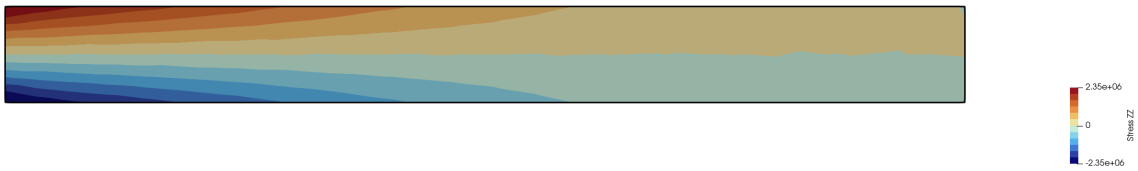
7.2.n h4p2



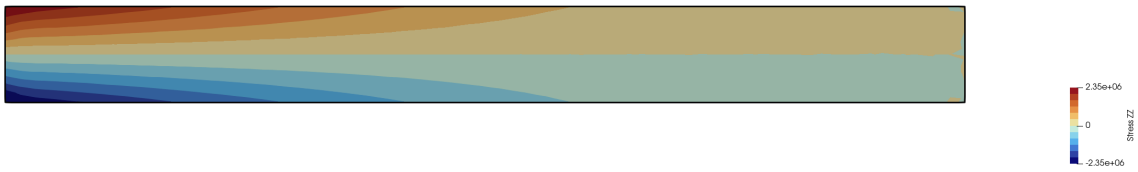
7.2.o h0p3



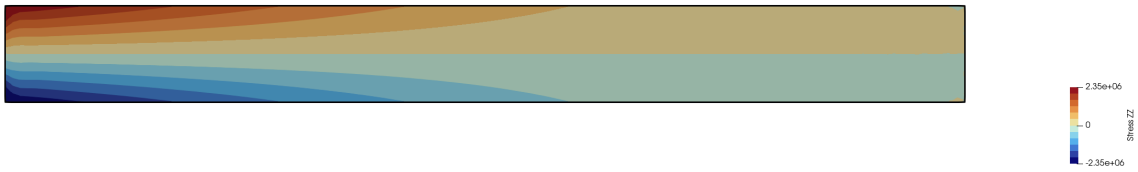
7.2.p h1p3



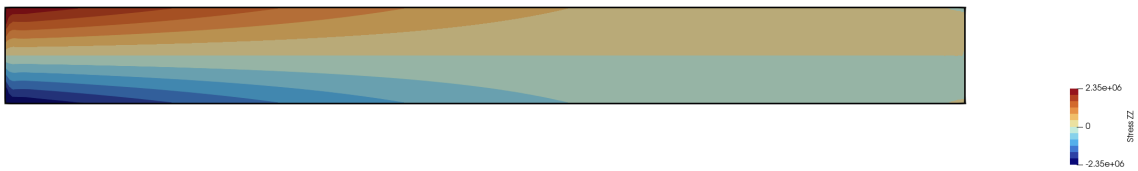
7.2.q h2p3



7.2.r h3p3



7.2.s h4p3



Abaqus reference

7.2.t h0p1

7.2.u h1p1

7.2.v h2p1

7.2.w h3p1

7.2.x h4p1

7.2.y h0p2

7.2.z h1p2

7.2.aa h2p2

7.2.ab h3p2

7.2.ac h4p2

7.3 Pressure (uniform)

Euler-Bernoulli tip deflection: -37.5×10^{-6} m; finest C3D20 Abaqus reference: -37.8×10^{-6} m.

7.3.a p=1

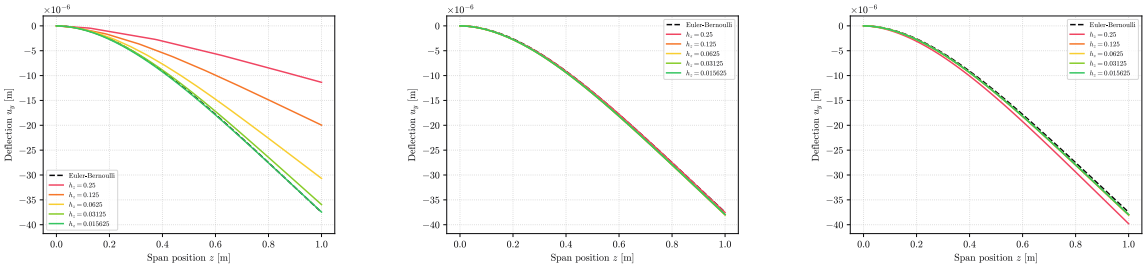
h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-11.4×10^{-6}	69.7%	70%
0.125	-20.0×10^{-6}	46.8%	47.2%
0.0625	-30.7×10^{-6}	18.2%	18.8%
0.03125	-35.9×10^{-6}	4.14%	4.9%
0.015625	-37.5×10^{-6}	0.12%	0.909%

7.3.b p=2

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-37.5×10^{-6}	0.111%	0.681%
0.125	-38.0×10^{-6}	1.38%	0.578%
0.0625	-38.0×10^{-6}	1.29%	0.491%
0.03125	-38.0×10^{-6}	1.24%	0.437%
0.015625	-38.0×10^{-6}	1.21%	0.411%

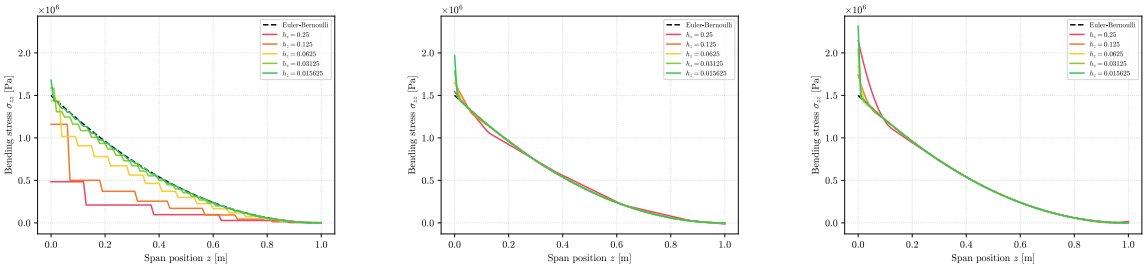
7.3.c p=3

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-39.8×10^{-6}	6.13%	5.29%
0.125	-38.1×10^{-6}	1.52%	0.721%
0.0625	-38.0×10^{-6}	1.33%	0.532%
0.03125	-38.0×10^{-6}	1.26%	0.455%
0.015625	-38.0×10^{-6}	1.22%	0.418%



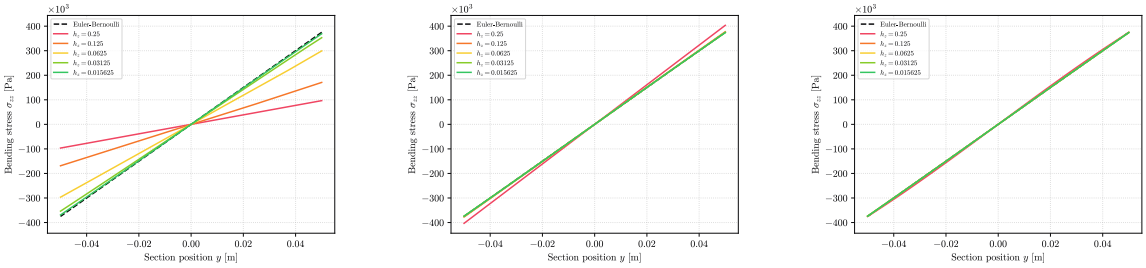
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 18: Uniform pressure: deflection along the axis — coarse→fine sweep per degree vs Euler-Bernoulli.



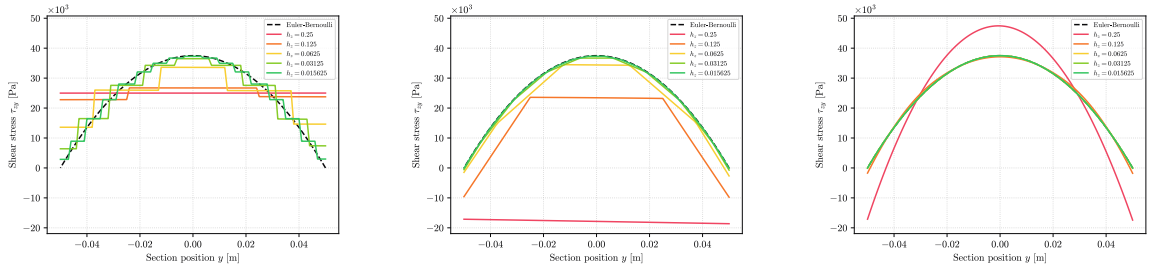
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 19: Uniform pressure: bending stress along the top fiber — coarse→fine sweep per degree vs Euler-Bernoulli.



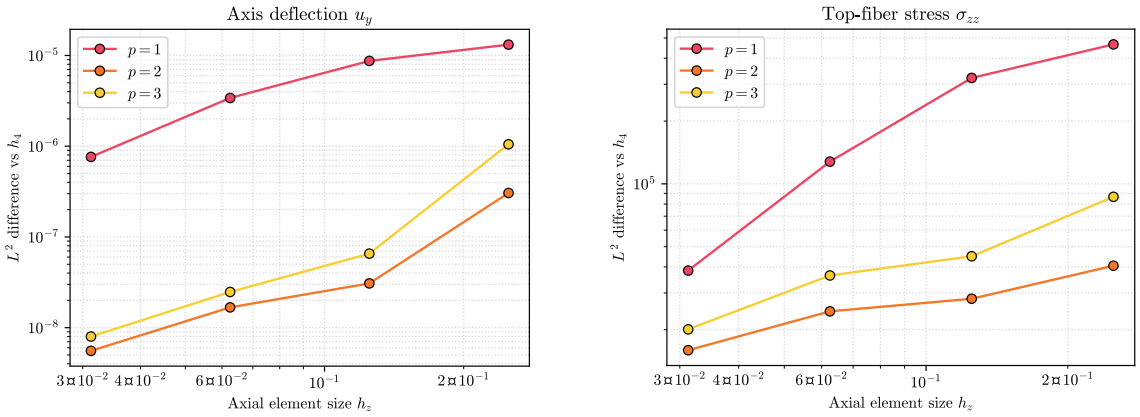
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 20: Uniform pressure: bending stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.



(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 21: Uniform pressure: shear stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.



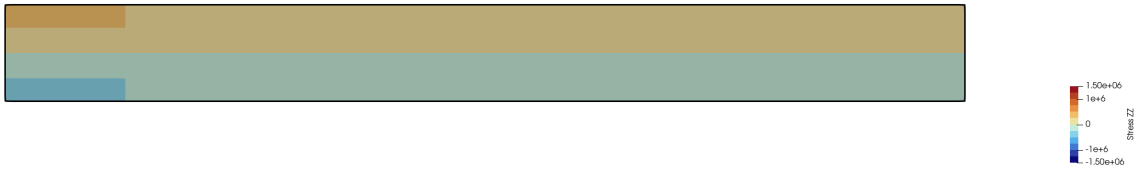
(a) Axis deflection u_y (b) Top-fiber stress σ_{zz}

(c) Midspan stress σ_{zz} (d) Midspan shear τ_{zy}

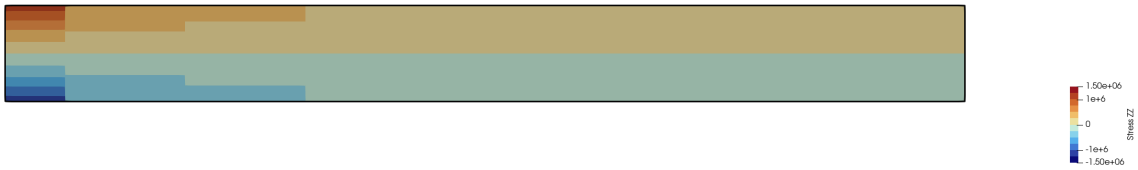
Figure 22: Uniform pressure: full-span line-probe absolute L2 self-convergence. Each degree is compared against its own h4 profile; the h4 point is omitted because its self-error is zero.

7.3.d Contour plots

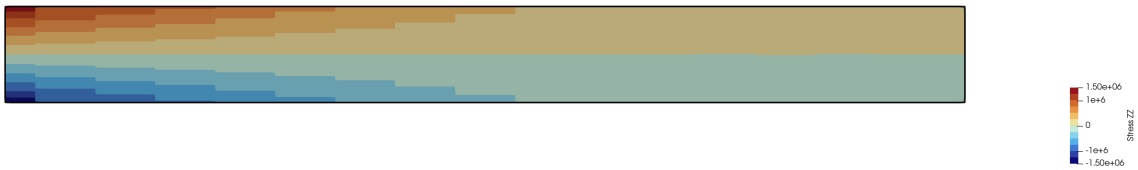
7.3.e h0p1



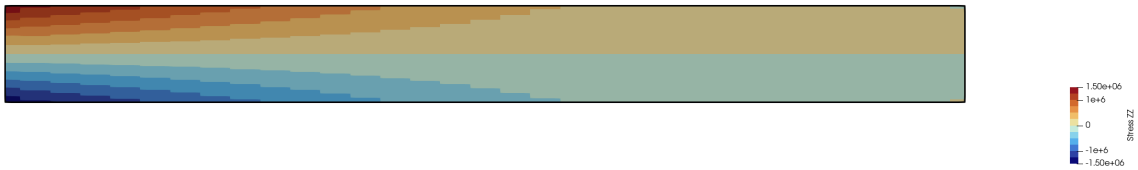
7.3.f h1p1



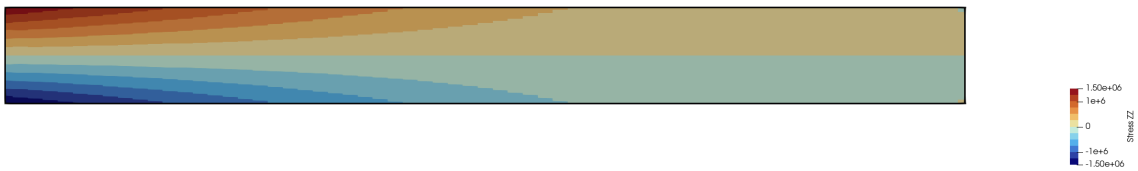
7.3.g h2p1



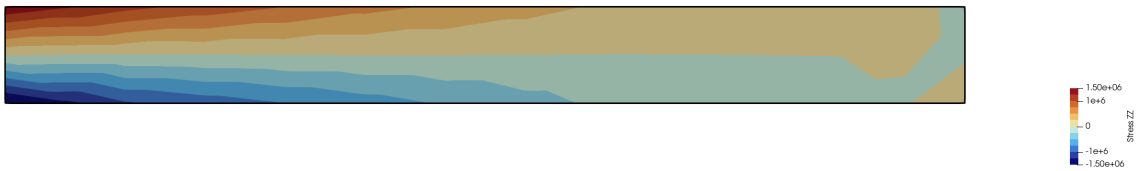
7.3.h h3p1



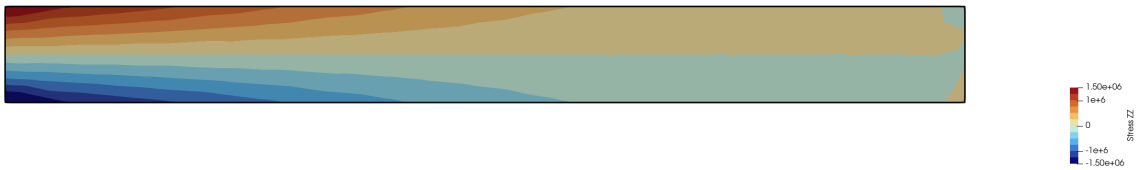
7.3.i h4p1



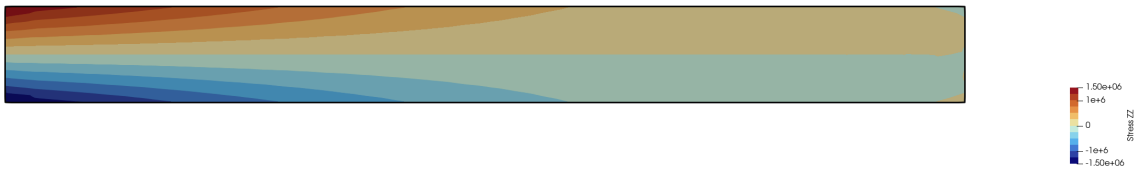
7.3.j h0p2



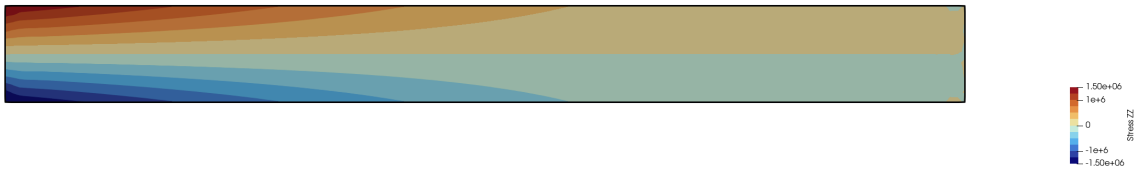
7.3.k h1p2



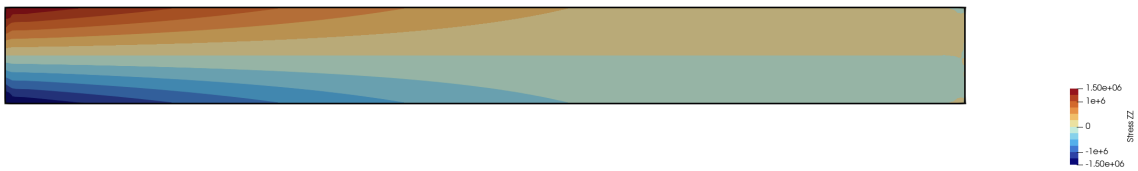
7.3.l h2p2



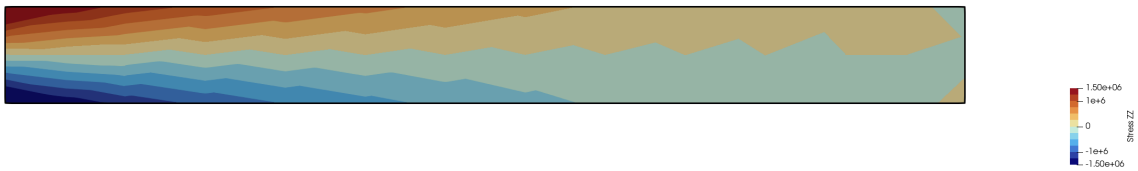
7.3.m h3p2



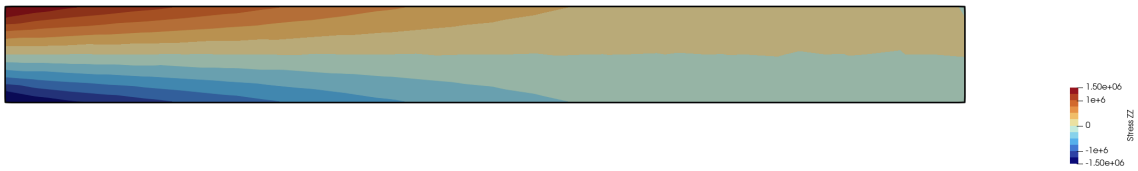
7.3.n h4p2



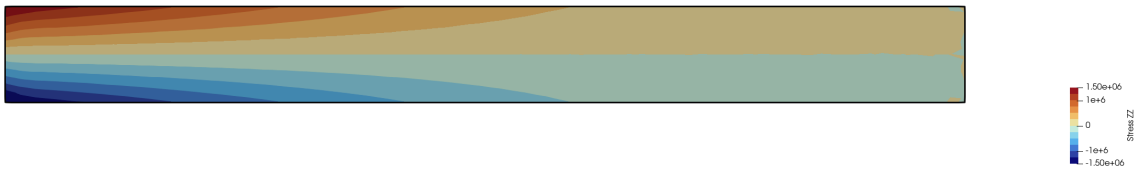
7.3.o h0p3



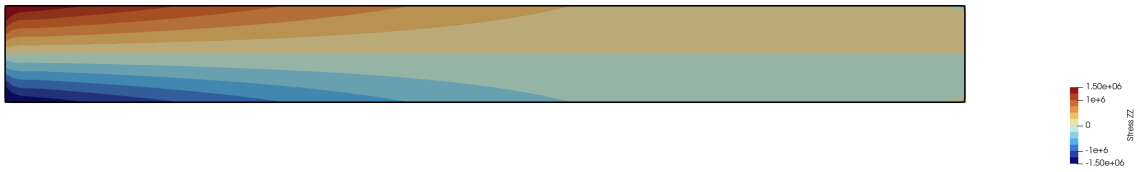
7.3.p h1p3



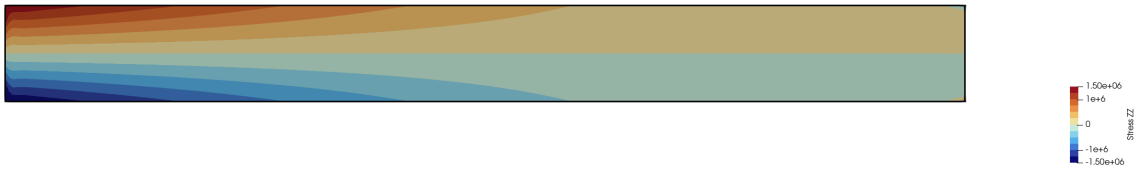
7.3.q h2p3



7.3.r h3p3



7.3.s h4p3



Abaqus reference

7.3.t h0p1

7.3.u h1p1

7.3.v h2p1

7.3.w h3p1

7.3.x h4p1

7.3.y h0p2

7.3.z h1p2

7.3.aa h2p2

7.3.ab h3p2

7.3.ac h4p2

7.4 Pressure (total force)

Euler-Bernoulli tip deflection: -37.5×10^{-6} m; finest C3D20 Abaqus reference: -37.8×10^{-6} m.

7.4.a p=1

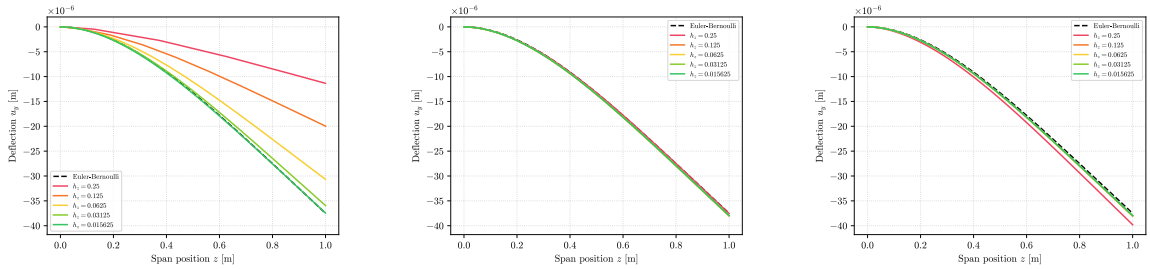
h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-11.4×10^{-6}	69.7%	70%
0.125	-20.0×10^{-6}	46.8%	47.2%
0.0625	-30.7×10^{-6}	18.2%	18.8%
0.03125	-35.9×10^{-6}	4.14%	4.9%
0.015625	-37.5×10^{-6}	0.12%	0.909%

7.4.b p=2

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-37.5×10^{-6}	0.111%	0.681%
0.125	-38.0×10^{-6}	1.38%	0.578%
0.0625	-38.0×10^{-6}	1.29%	0.491%
0.03125	-38.0×10^{-6}	1.24%	0.437%
0.015625	-38.0×10^{-6}	1.21%	0.411%

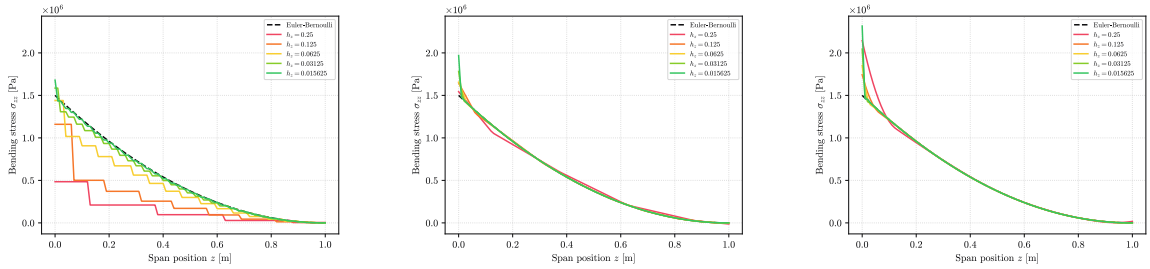
7.4.c p=3

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-39.8×10^{-6}	6.13%	5.29%
0.125	-38.1×10^{-6}	1.52%	0.721%
0.0625	-38.0×10^{-6}	1.33%	0.532%
0.03125	-38.0×10^{-6}	1.26%	0.455%
0.015625	-38.0×10^{-6}	1.22%	0.418%



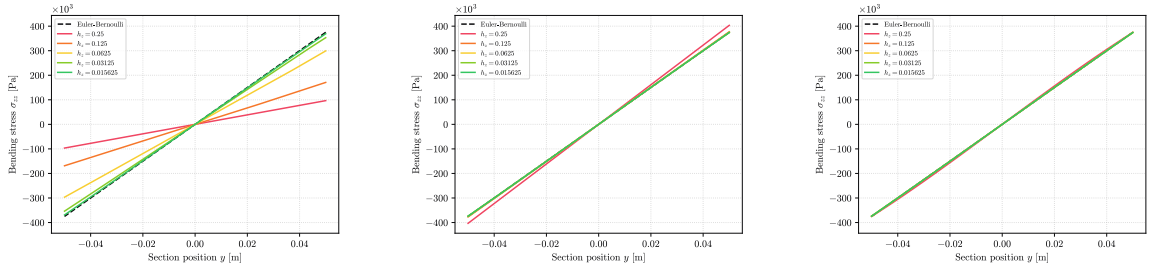
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 23: Total-force pressure: deflection along the axis — coarse→fine sweep per degree vs Euler-Bernoulli.



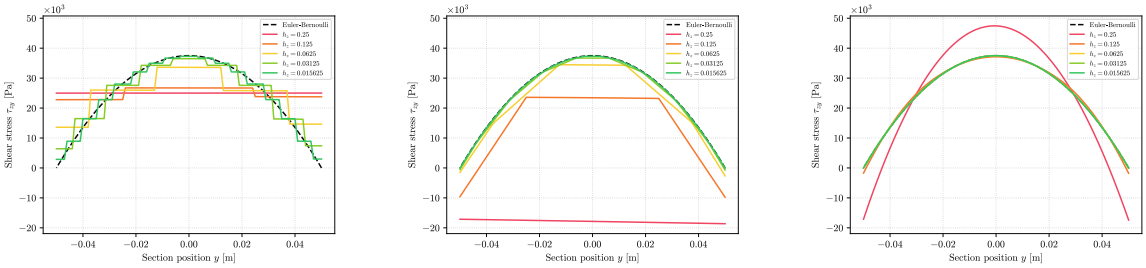
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 24: Total-force pressure: bending stress along the top fiber — coarse→fine sweep per degree vs Euler-Bernoulli.



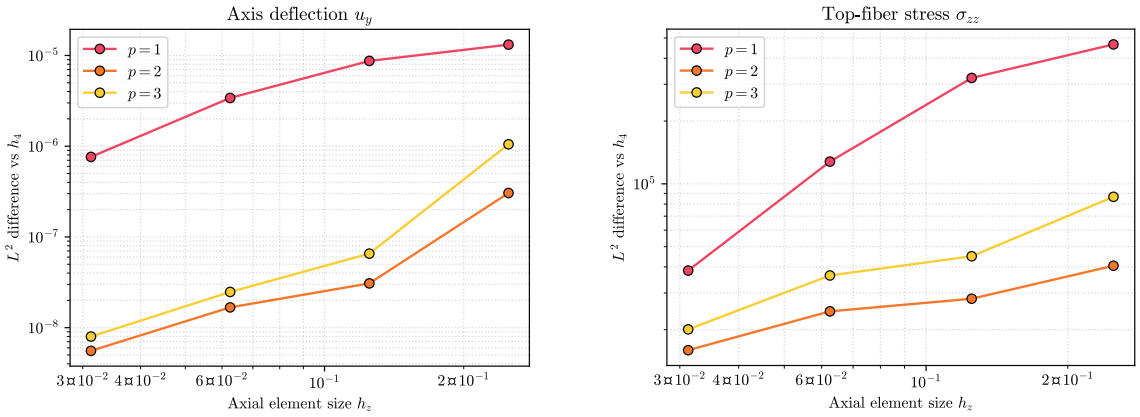
(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 25: Total-force pressure: bending stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.

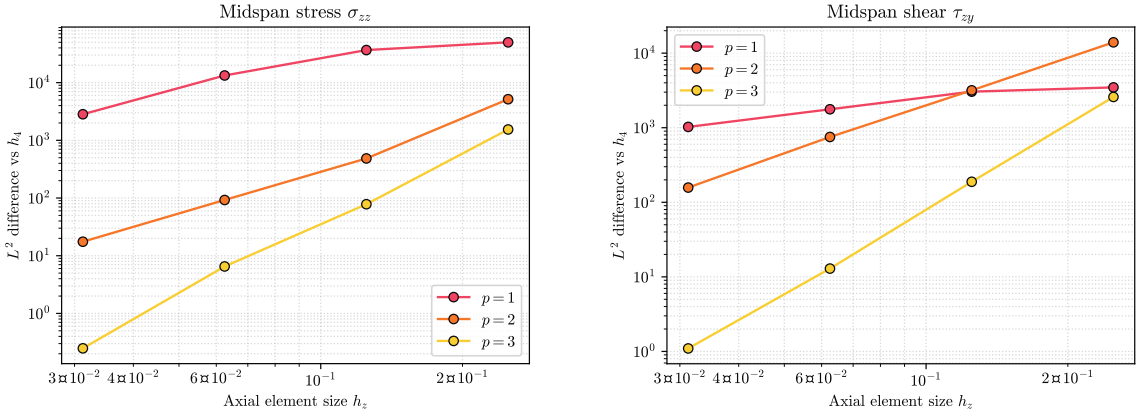


(a) $p = 1$ (b) $p = 2$ (c) $p = 3$

Figure 26: Total-force pressure: shear stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.



a(a) Axis deflection u_y a(b) Top-fiber stress σ_{zz}

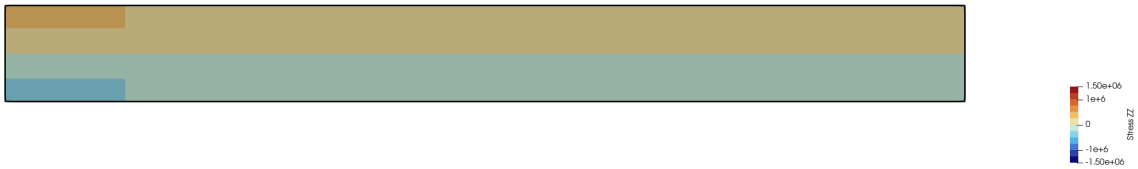


a(c) Midspan stress σ_{zz} a(d) Midspan shear τ_{zy}

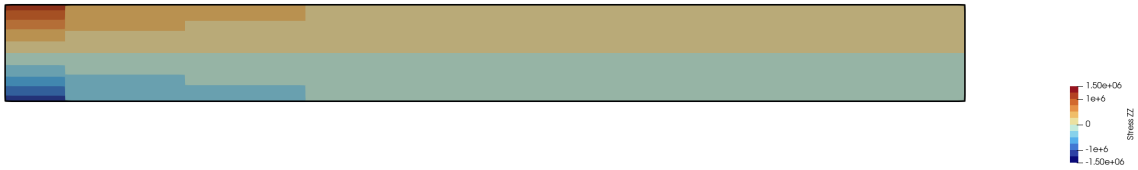
Figure 27: Total-force pressure: full-span line-probe absolute L2 self-convergence. Each degree is compared against its own h4 profile; the h4 point is omitted because its self-error is zero.

7.4.d Contour plots
Coreform IGA for Abaqus

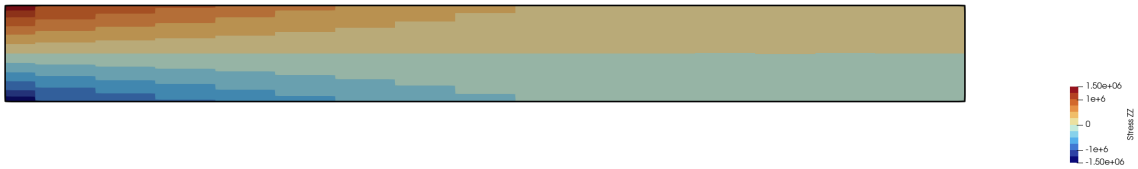
7.4.e h0p1



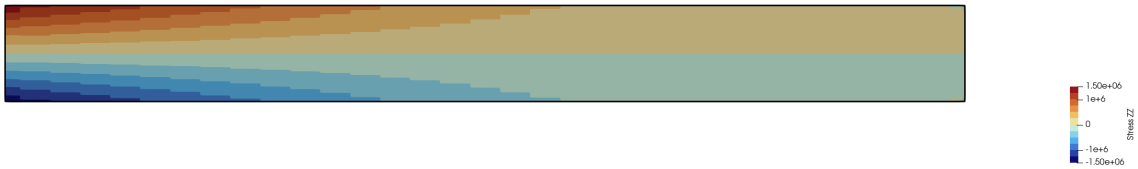
7.4.f h1p1



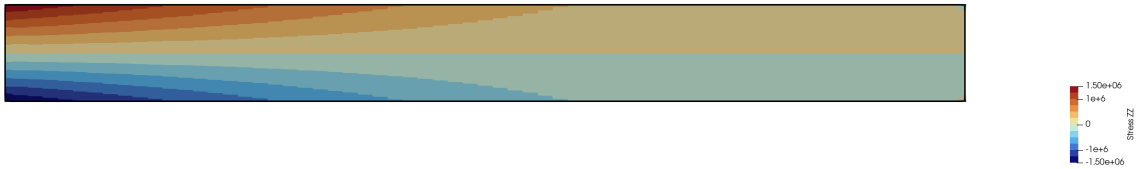
7.4.g h2p1



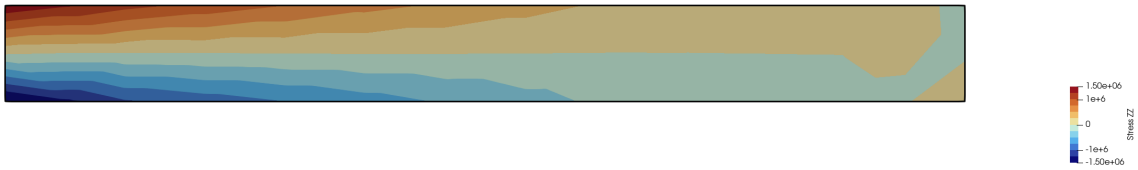
7.4.h h3p1



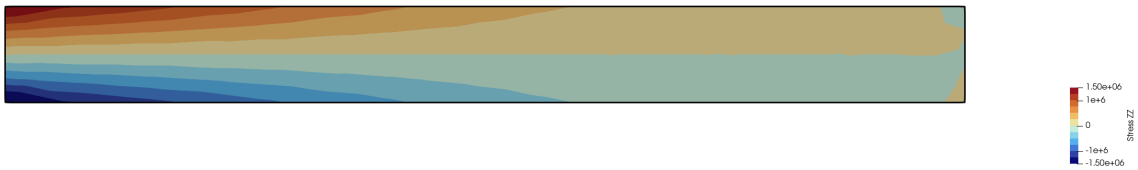
7.4.i h4p1



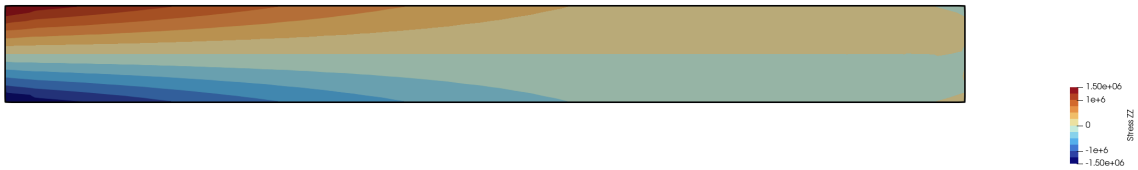
7.4.j h0p2



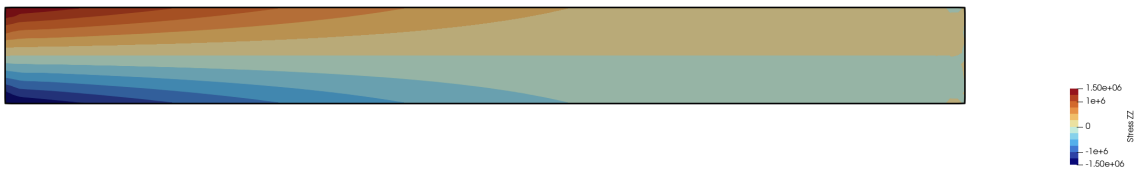
7.4.k h1p2



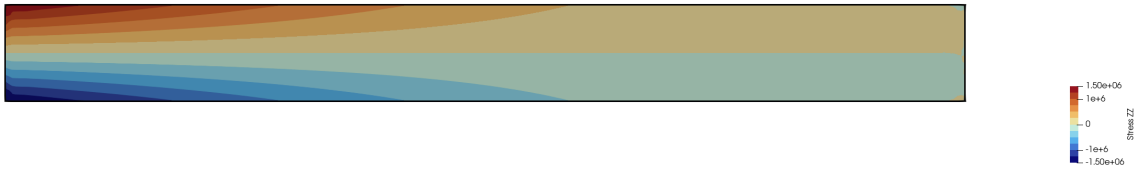
7.4.l h2p2



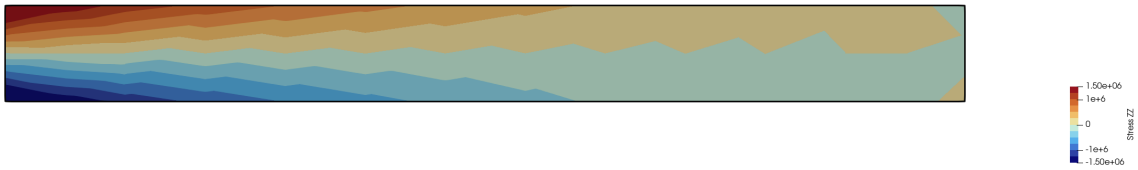
7.4.m h3p2



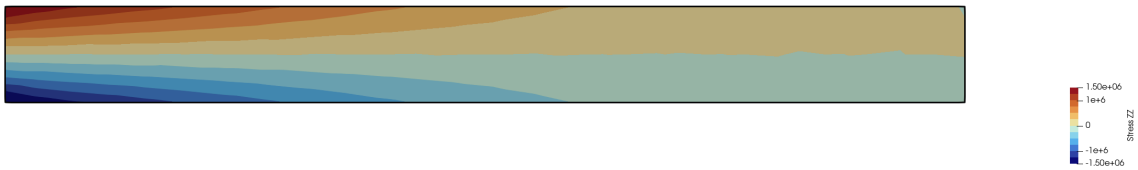
7.4.n h4p2



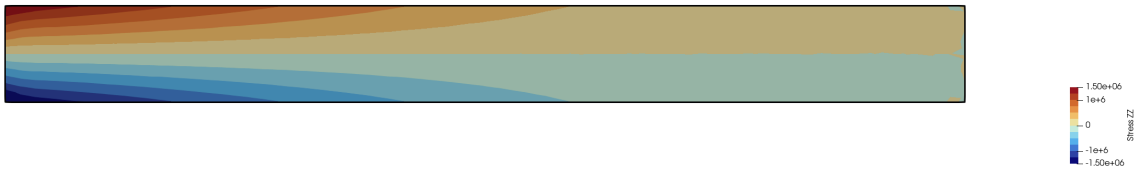
7.4.o h0p3



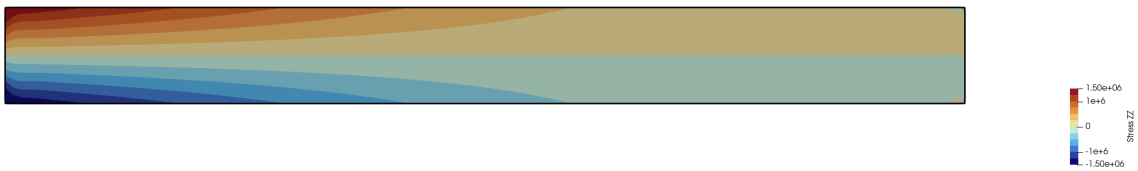
7.4.p h1p3



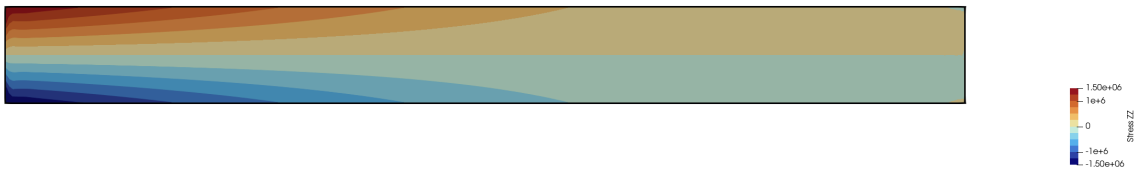
7.4.q h2p3



7.4.r h3p3



7.4.s h4p3



Abaqus reference

7.4.t h0p1

7.4.u h1p1

7.4.v h2p1

7.4.w h3p1

7.4.x h4p1

7.4.y h0p2

7.4.z h1p2

7.4.aa h2p2

7.4.ab h3p2

7.4.ac h4p2

7.5 Surface traction

Euler-Bernoulli tip deflection: -1.00×10^{-6} m; finest C3D20 Abaqus reference: -1.01×10^{-6} m.

7.5.a p=1

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-287×10^{-9}	71.3%	71.5%
0.125	-509×10^{-9}	49.1%	49.4%
0.0625	-810×10^{-9}	19%	19.4%
0.03125	-955×10^{-9}	4.52%	5.08%
0.015625	-996×10^{-9}	0.431%	1.02%

7.5.b p=2

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-1.00×10^{-6}	0.0877%	0.505%
0.125	-1.01×10^{-6}	1.04%	0.439%
0.0625	-1.01×10^{-6}	0.968%	0.37%
0.03125	-1.01×10^{-6}	0.926%	0.328%
0.015625	-1.01×10^{-6}	0.907%	0.309%

7.5.c p=3

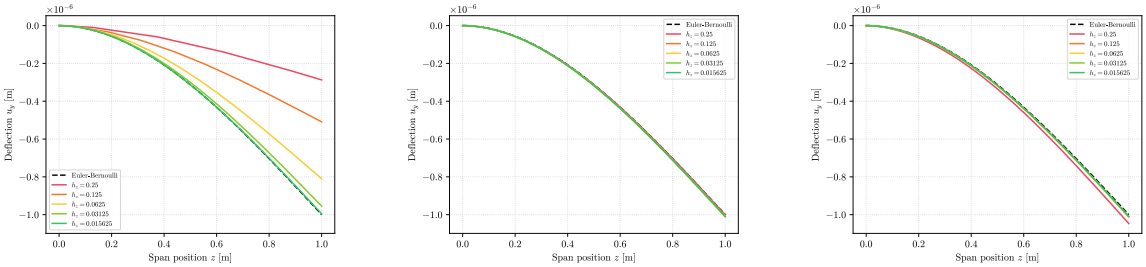
h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-1.05×10^{-6}	4.68%	4.06%
0.125	-1.01×10^{-6}	1.14%	0.546%

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.0625	-1.01×10^{-6}	0.998%	0.4%
0.03125	-1.01×10^{-6}	0.939%	0.341%
0.015625	-1.01×10^{-6}	0.912%	0.314%

The follower and resultant variants run as single-level coverage cases; in this small-displacement analysis they must reproduce the base traction solution (Table 5).

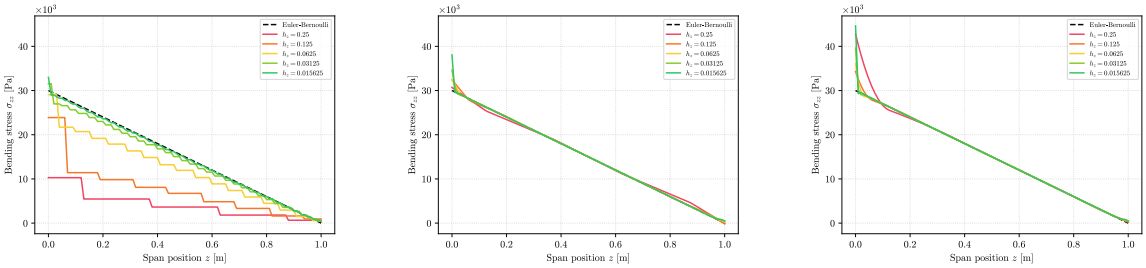
Table 5: Traction variants at the coarsest level.

Test case	Variant	u_y tip ($k = 0$, $p = 2$)	rel. err
`traction`	base	-1.00×10^{-6}	0.0877%
`traction_follower`	follower	-1.00×10^{-6}	0.0877%
`traction_resultant`	resultant	-1.00×10^{-6}	0.0877%



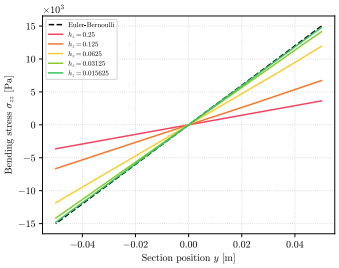
b(a) $p = 1$ b(b) $p = 2$ b(c) $p = 3$

Figure 28: Surface traction: deflection along the axis — coarse→fine sweep per degree vs Euler-Bernoulli.

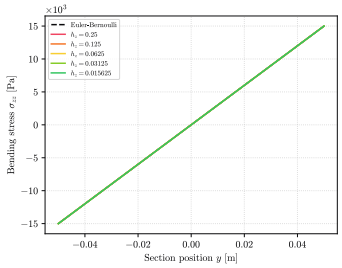


c(a) $p = 1$ c(b) $p = 2$ c(c) $p = 3$

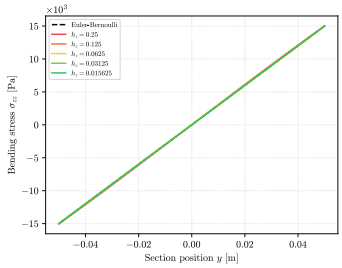
Figure 29: Surface traction: bending stress along the top fiber — coarse→fine sweep per degree vs Euler-Bernoulli.



d(a) $p = 1$

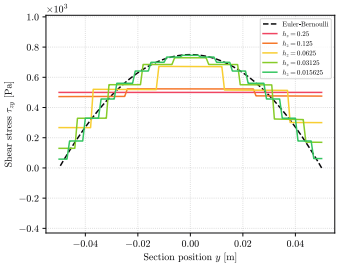


d(b) $p = 2$

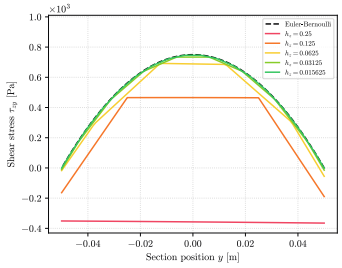


d(c) $p = 3$

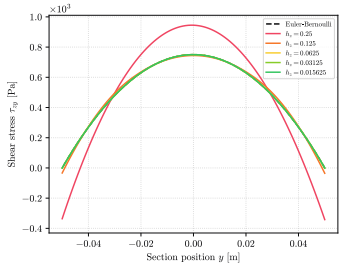
Figure 30: Surface traction: bending stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.



e(a) $p = 1$

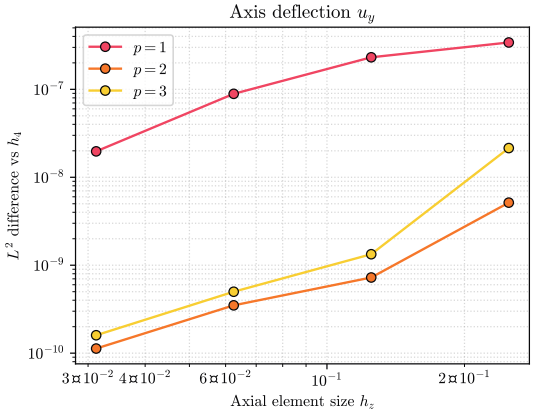


e(b) $p = 2$

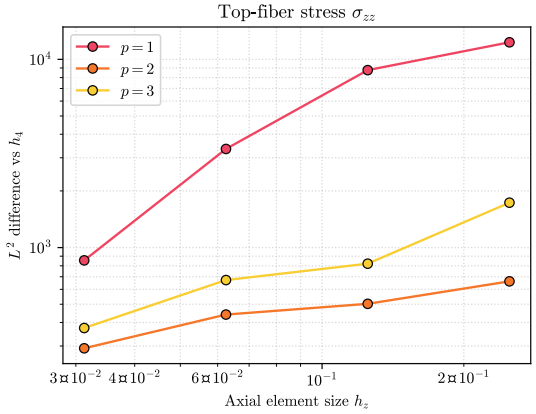


e(c) $p = 3$

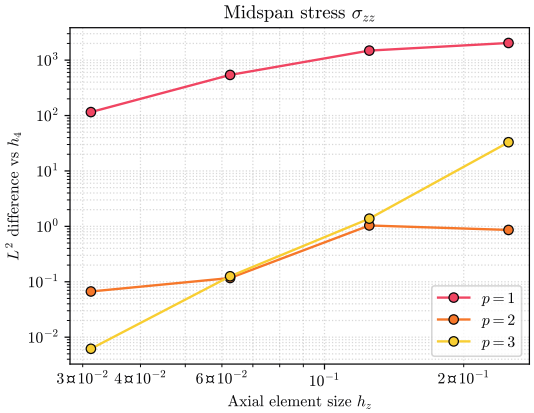
Figure 31: Surface traction: shear stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.



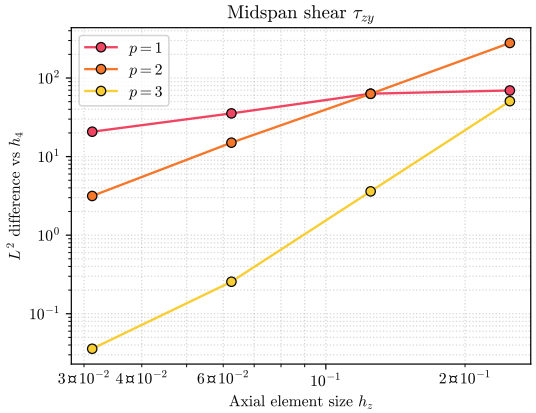
f(a) Axis deflection u_y



f(b) Top-fiber stress σ_{zz}



f(c) Midspan stress σ_{zz}



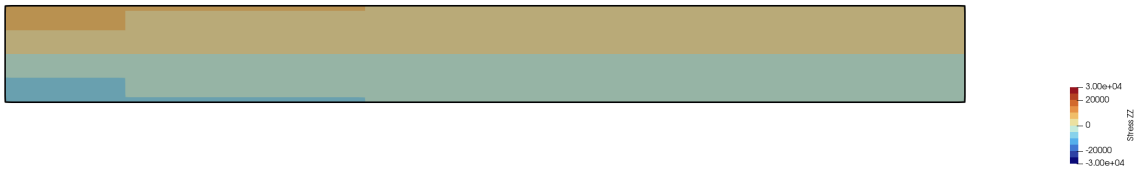
f(d) Midspan shear τ_{zy}

Figure 32: Surface traction: full-span line-probe absolute L2 self-convergence. Each degree is compared against its own h4 profile; the h4 point is omitted because its self-error is zero.

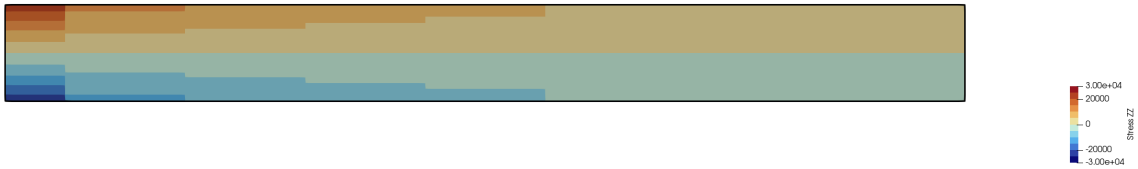
7.5.d Contour plots

Coreform IGA for Abaqus

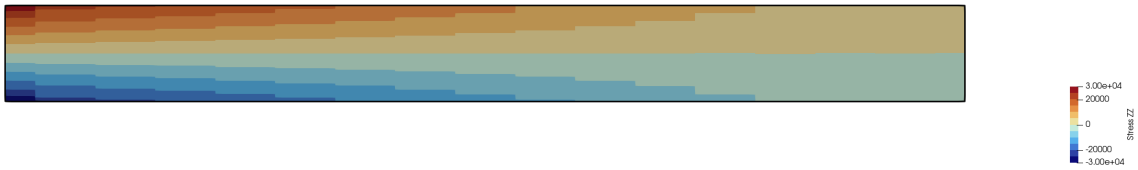
7.5.e h0p1



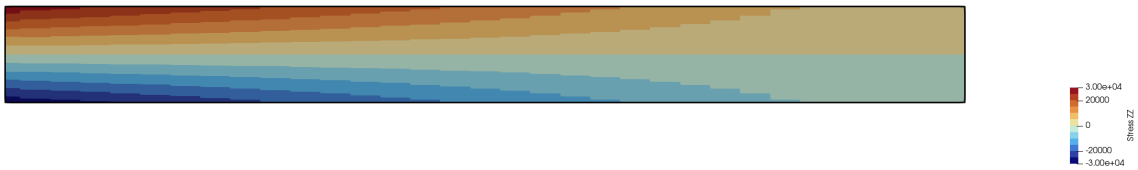
7.5.f h1p1



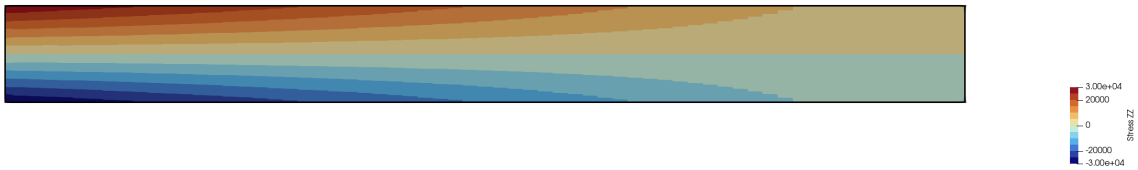
7.5.g h2p1



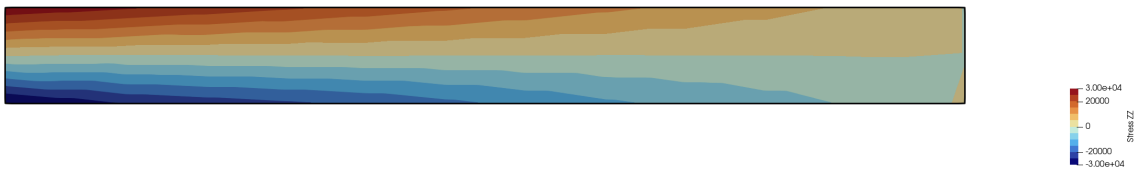
7.5.h h3p1



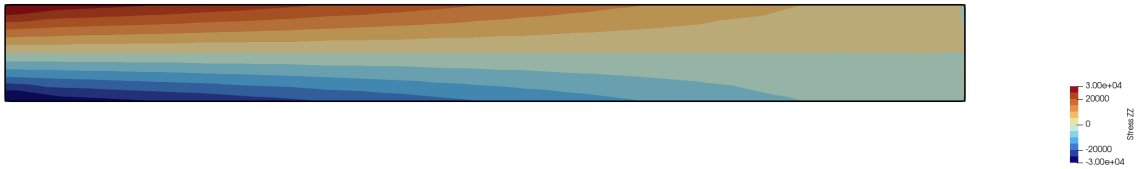
7.5.i h4p1



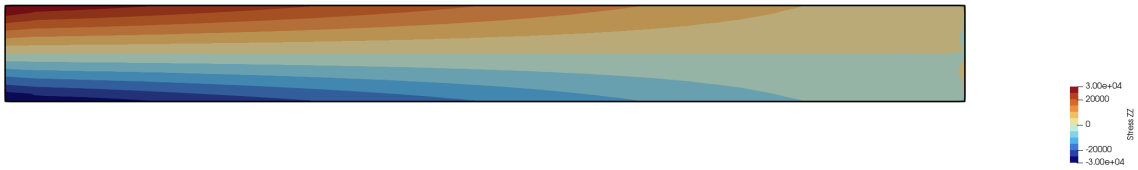
7.5.j h0p2



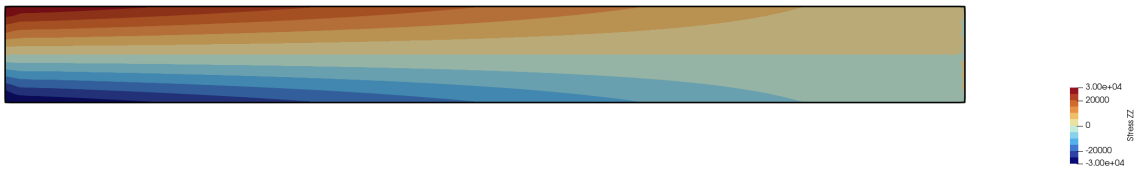
7.5.k h1p2



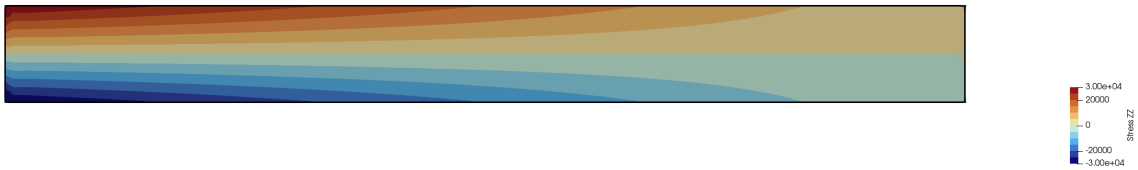
7.5.l h2p2



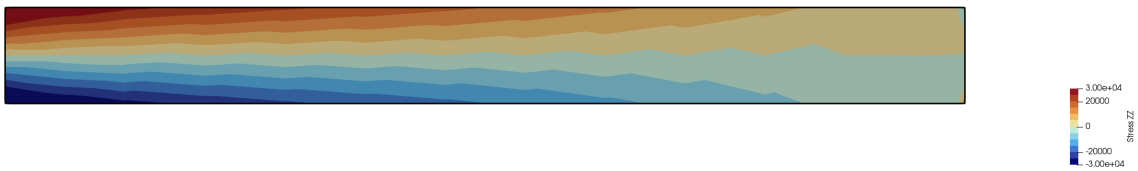
7.5.m h3p2



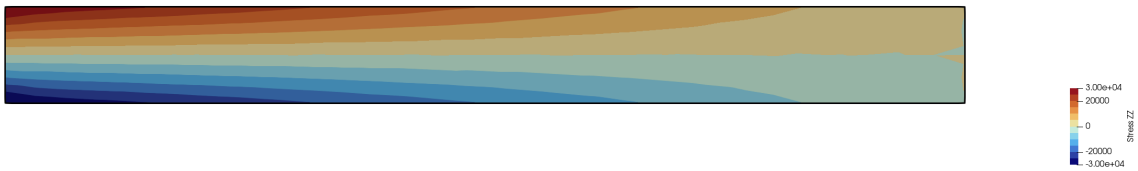
7.5.n h4p2



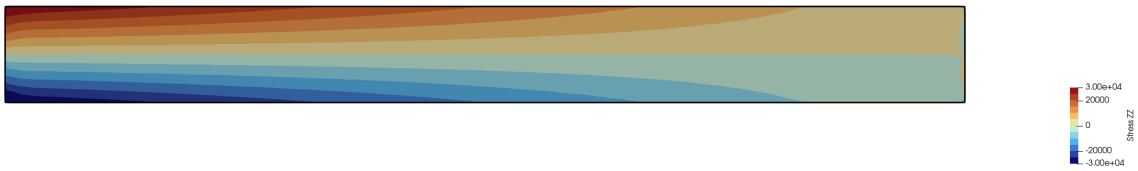
7.5.o h0p3



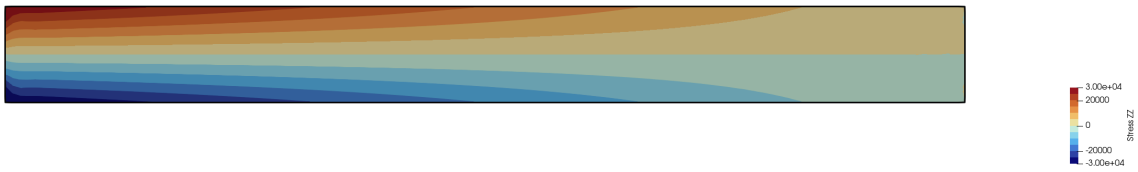
7.5.p h1p3



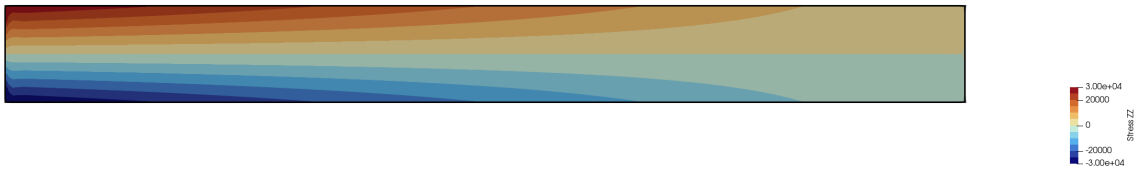
7.5.q h2p3



7.5.r h3p3



7.5.s h4p3



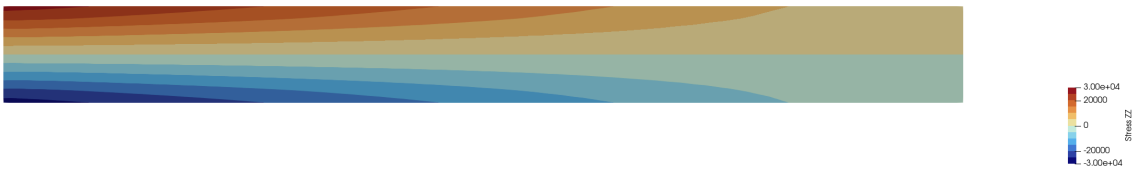
Abaqus reference

7.5.t h0p1

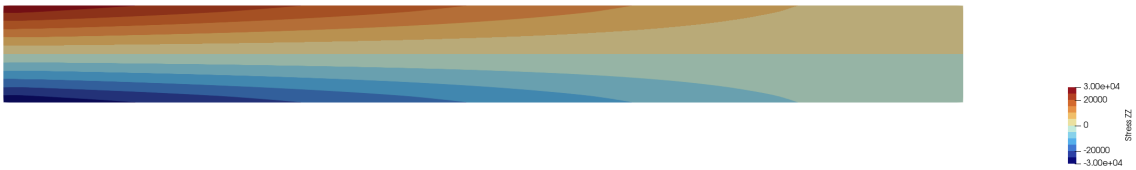
7.5.u h1p1

7.5.v h2p1

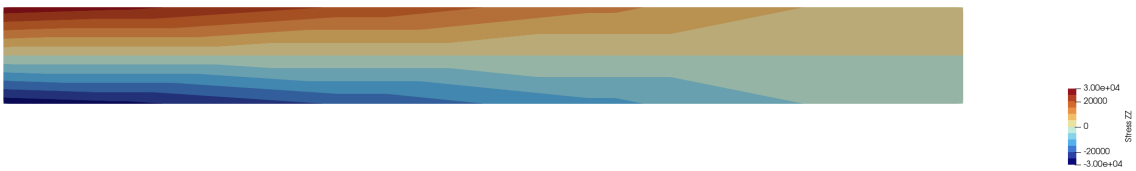
7.5.w h3p1



7.5.x h4p1



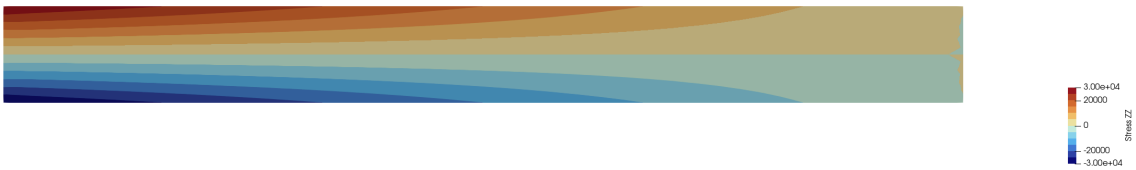
7.5.y h0p2



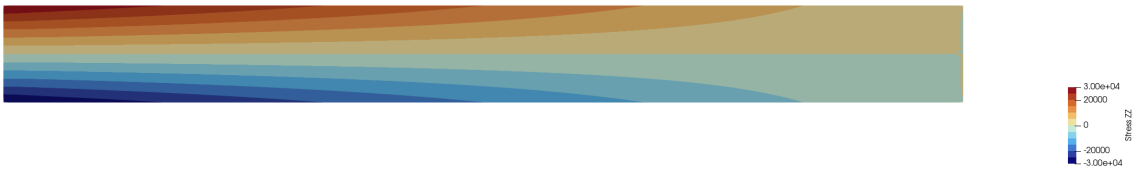
7.5.z h1p2

7.5.aa h2p2

7.5.ab h3p2



7.5.ac h4p2



7.6 End moment

Euler-Bernoulli tip deflection: -1.50×10^{-6} m; finest C3D20 Abaqus reference: -1.50×10^{-6} m.

7.6.a p=1

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-411×10^{-9}	72.6%	72.6%

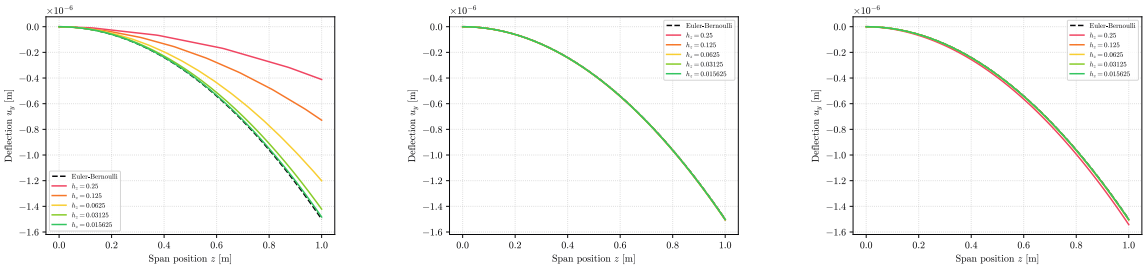
h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.125	-729×10^{-9}	51.4%	51.4%
0.0625	-1.20×10^{-6}	20%	20%
0.03125	-1.42×10^{-6}	5.23%	5.23%
0.015625	-1.48×10^{-6}	1.12%	1.12%

7.6.b p=2

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-1.50×10^{-6}	0.249%	0.249%
0.125	-1.51×10^{-6}	0.349%	0.349%
0.0625	-1.50×10^{-6}	0.253%	0.253%
0.03125	-1.50×10^{-6}	0.221%	0.221%
0.015625	-1.50×10^{-6}	0.207%	0.207%

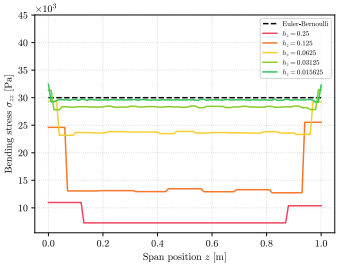
7.6.c p=3

h_z	u_y tip [m]	vs Euler-Bernoulli	vs finest C3D20 reference
0.25	-1.54×10^{-6}	2.83%	2.83%
0.125	-1.51×10^{-6}	0.371%	0.371%
0.0625	-1.50×10^{-6}	0.269%	0.269%
0.03125	-1.50×10^{-6}	0.229%	0.229%
0.015625	-1.50×10^{-6}	0.21%	0.21%

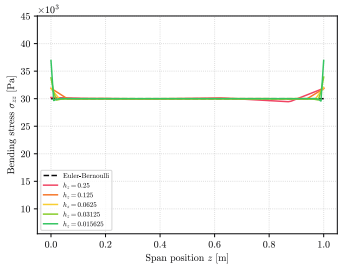


g(a) $p = 1$ g(b) $p = 2$ g(c) $p = 3$

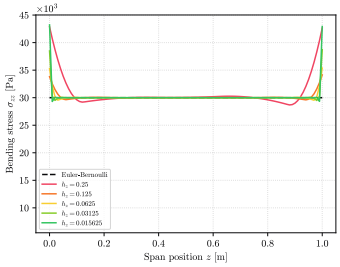
Figure 33: End moment: deflection along the axis — coarse→fine sweep per degree vs Euler-Bernoulli.



h(a) $p = 1$

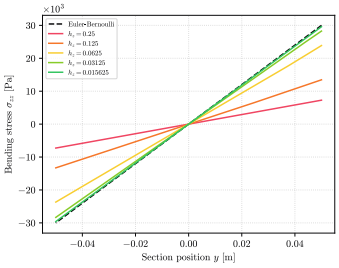


h(b) $p = 2$

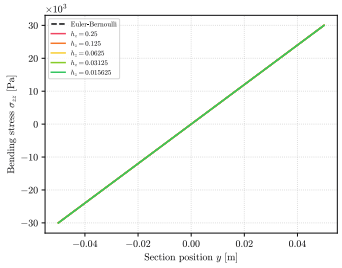


h(c) $p = 3$

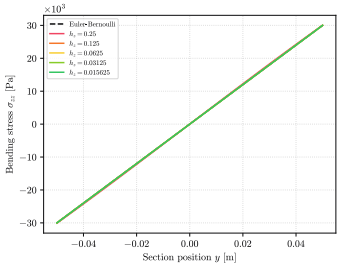
Figure 34: End moment: bending stress along the top fiber — coarse→fine sweep per degree vs Euler-Bernoulli.



i(a) $p = 1$

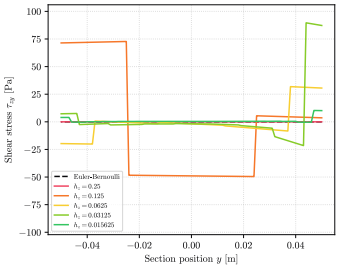


i(b) $p = 2$

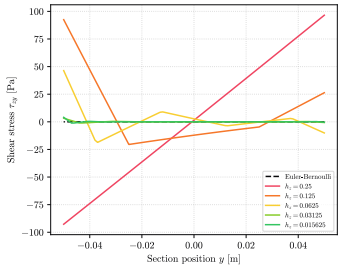


i(c) $p = 3$

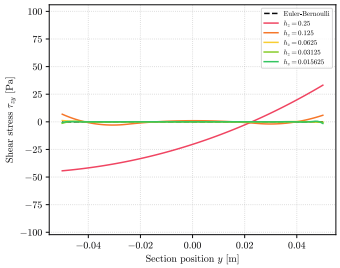
Figure 35: End moment: bending stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.



j(a) $p = 1$

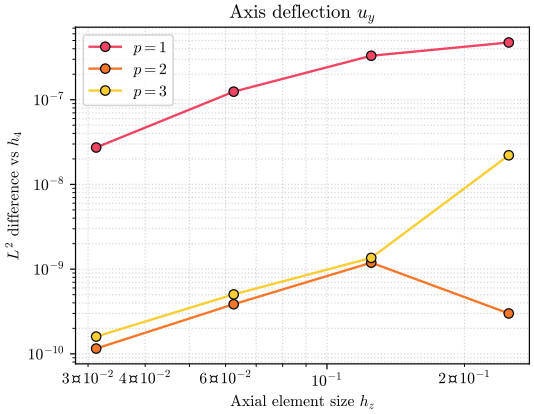


j(b) $p = 2$

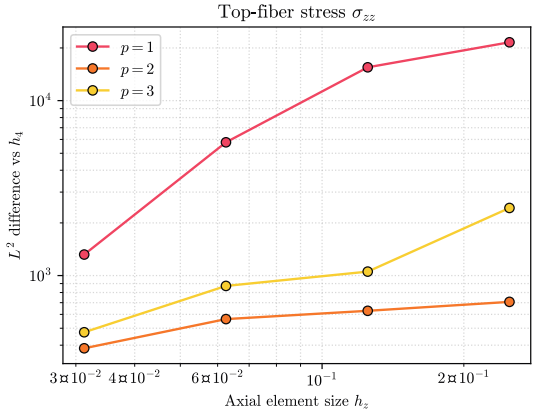


j(c) $p = 3$

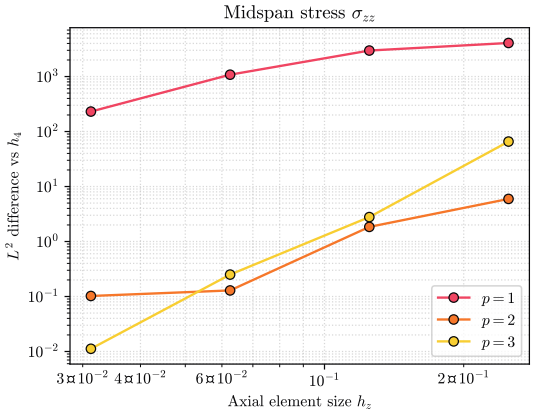
Figure 36: End moment: shear stress through the midspan section — coarse→fine sweep per degree vs Euler-Bernoulli.



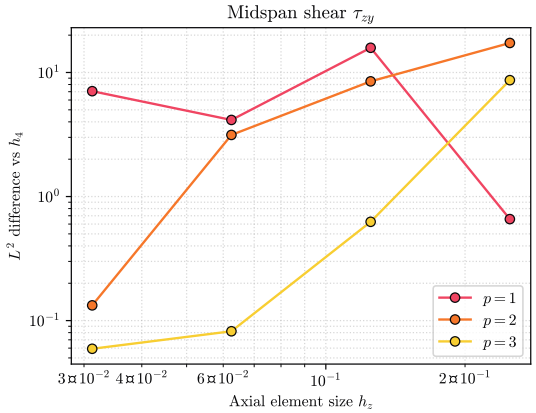
k(a) Axis deflection u_y



k(b) Top-fiber stress σ_{zz}



k(c) Midspan stress σ_{zz}



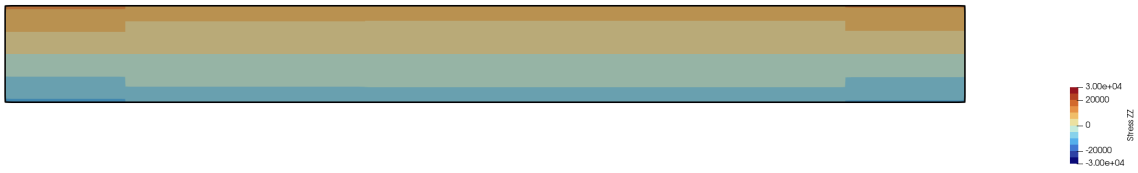
k(d) Midspan shear τ_{zy}

Figure 37: End moment: full-span line-probe absolute L2 self-convergence. Each degree is compared against its own h4 profile; the h4 point is omitted because its self-error is zero.

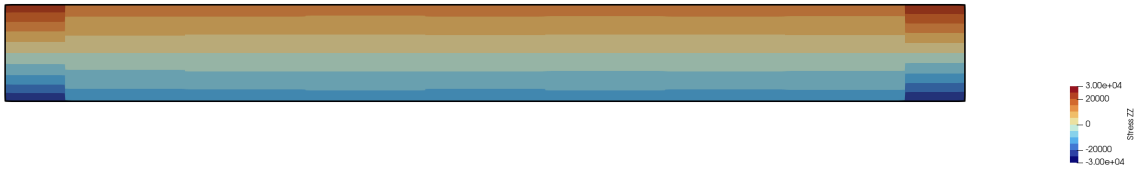
7.6.d Contour plots

Coreform IGA for Abaqus

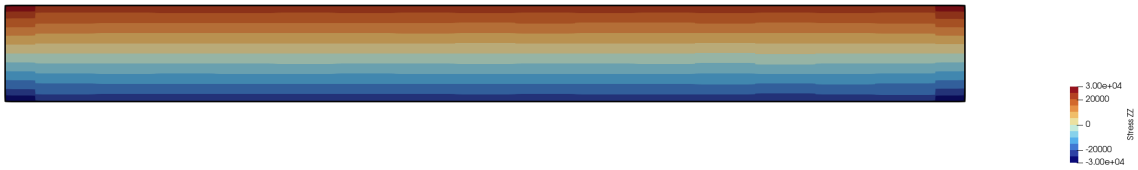
7.6.e h0p1



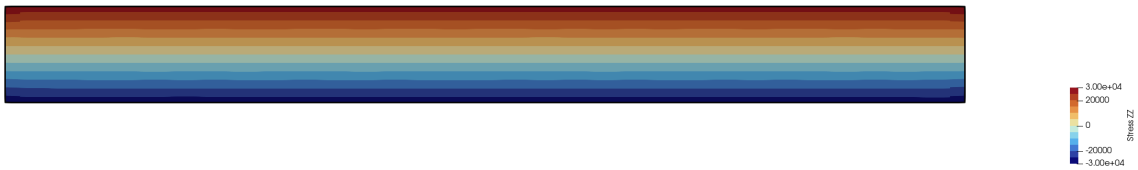
7.6.f h1p1



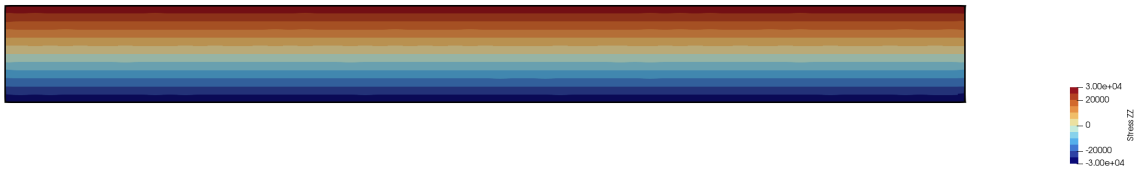
7.6.g h2p1



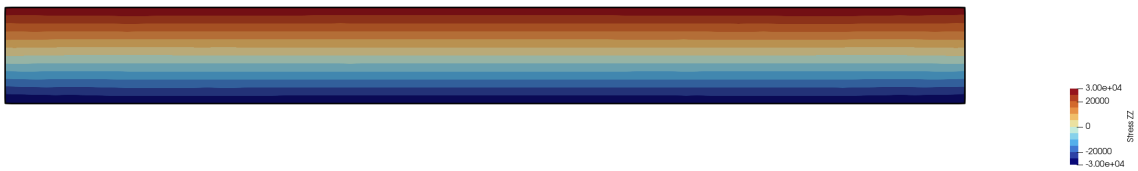
7.6.h h3p1



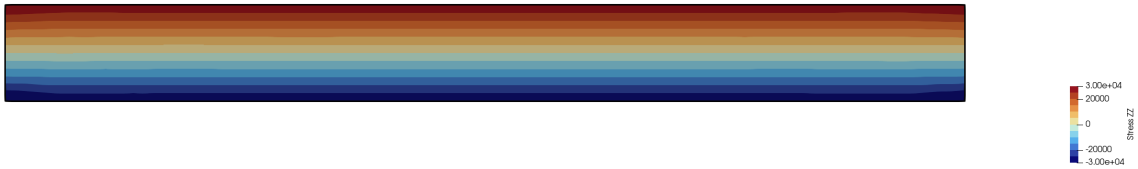
7.6.i h4p1



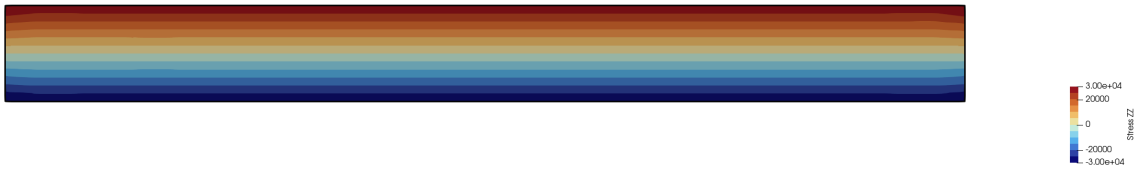
7.6.j h0p2



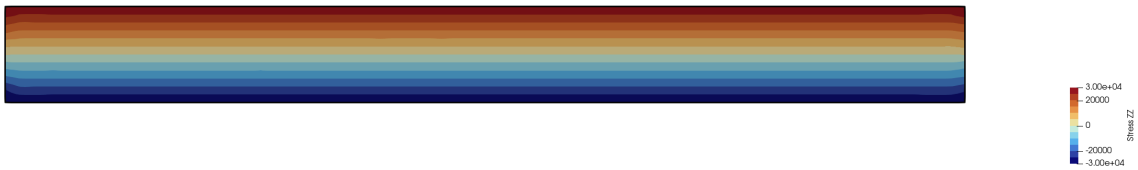
7.6.k h1p2



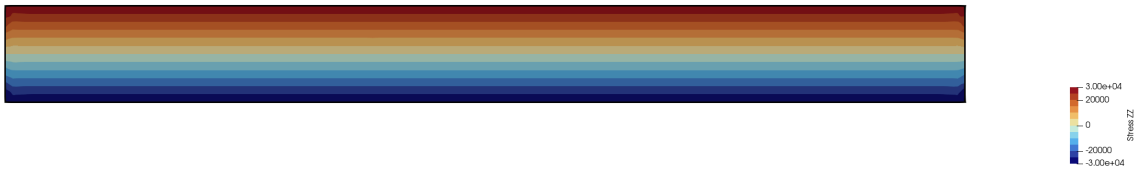
7.6.l h2p2



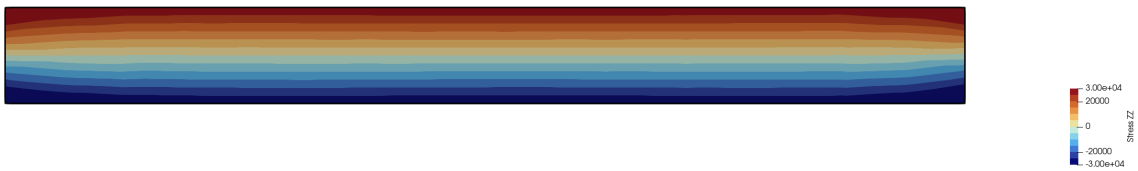
7.6.m h3p2



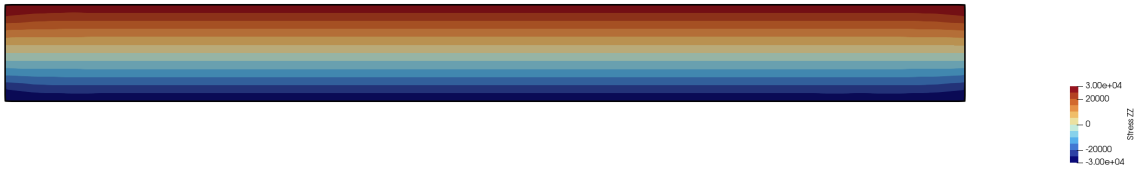
7.6.n h4p2



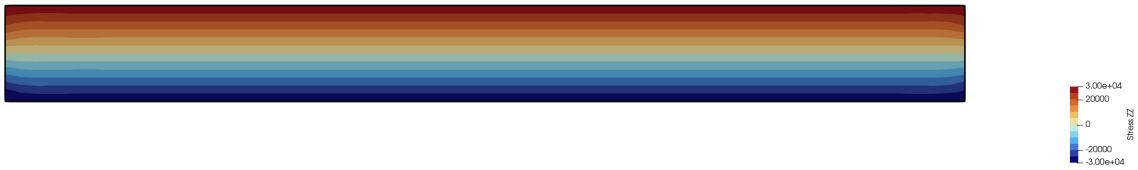
7.6.o h0p3



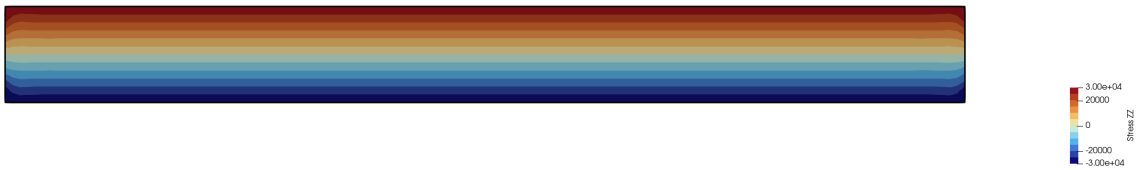
7.6.p h1p3



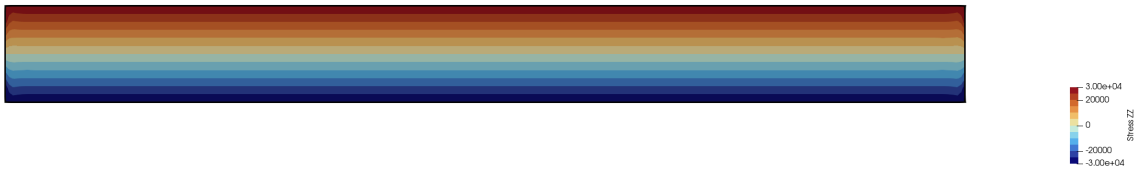
7.6.q h2p3



7.6.r h3p3



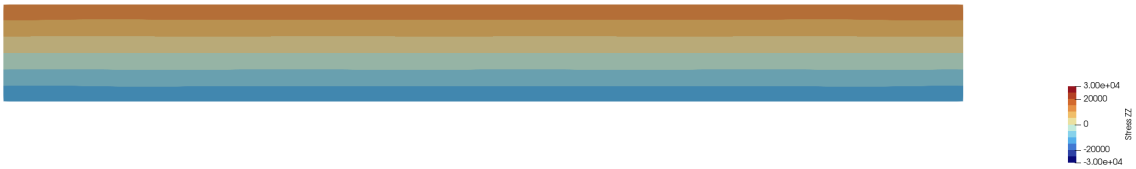
7.6.s h4p3



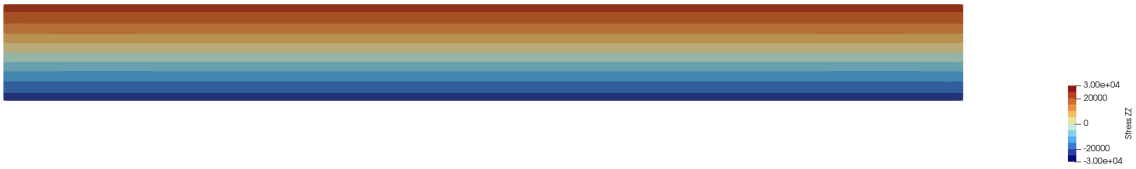
Abaqus reference

7.6.t h0p1

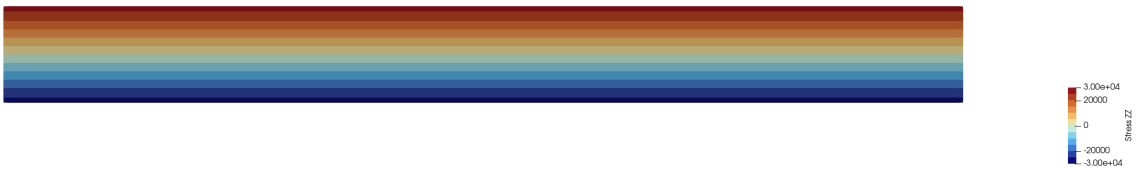
7.6.u h1p1



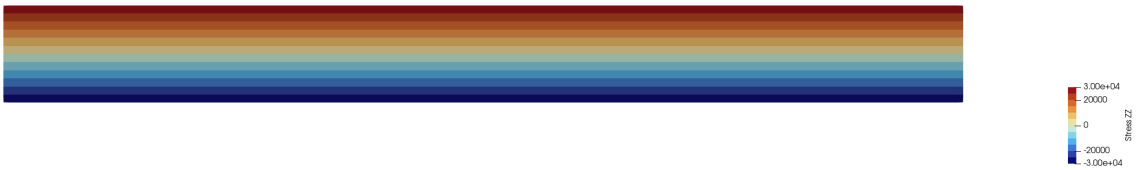
7.6.v h2p1



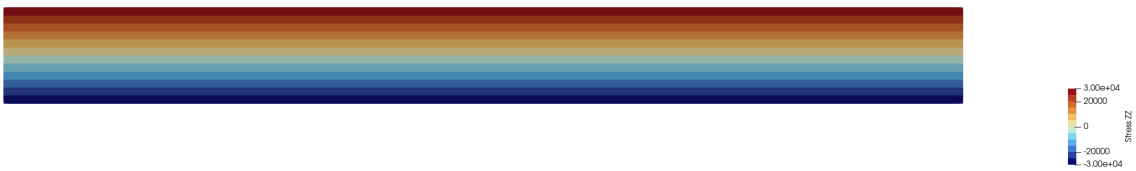
7.6.w h3p1



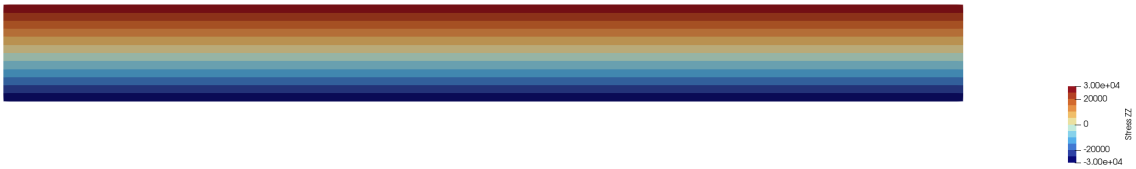
7.6.x h4p1



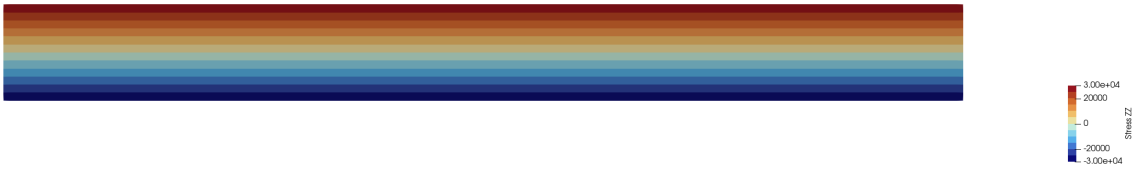
7.6.y h0p2



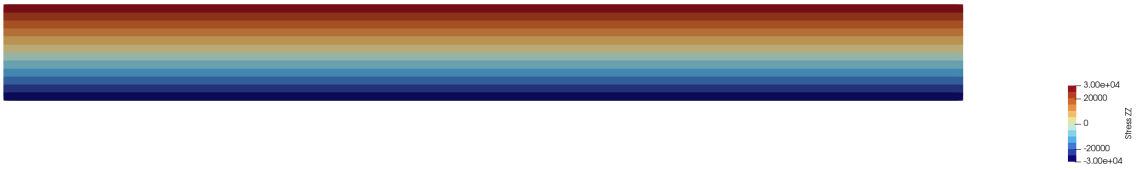
7.6.z h1p2



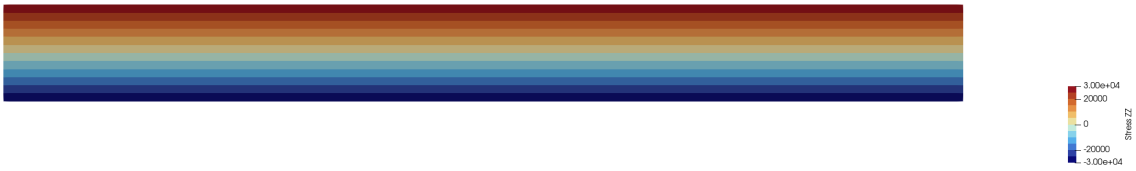
7.6.aa h2p2



7.6.ab h3p2



7.6.ac h4p2



8 Performance

Performance is reported separately for the two stages of each immersed IGA analysis: **trimming** (building the trimmed U-spline basis on the immersing grid) and the **Abaqus solve**. Each load case uses the same mesh sweep, but timings are reported per load case because each study was executed independently.

8.1 Gravity

Coreform IGA Mesh

8.1.a $p = 1$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	63	5	2	1	1.1
0.125	275	81	74	2	2.8
0.0625	931	425	290	4	7.3
0.03125	4,235	2,673	1,154	8	26.4
0.015625	24,187	18,785	4,610	16	106.3

8.1.b $p = 2$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	225	5	2	1	1.1
0.125	637	81	74	2	2.7
0.0625	1,701	425	290	4	8.6
0.03125	6,253	2,673	1,154	8	28.1
0.015625	30,429	18,785	4,610	16	131.1

8.1.c $p = 3$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	539	5	2	1	1.4
0.125	1,215	81	74	2	3.0
0.0625	2,783	425	290	4	8.3
0.03125	8,775	2,673	1,154	8	38.0
0.015625	37,559	18,785	4,610	16	137.4

Coreform IGA for Abaqus solve

8.1.d $p = 1$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	76	228	1	0
0.125	327	321	963	2	1
0.0625	1,363	1,191	3,573	4	1
0.03125	6,339	5,379	16,137	8	2
0.015625	33,283	28,923	86,769	16	5

8.1.e $p = 2$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	115	345	1	1
0.125	327	436	1,308	2	1
0.0625	1,363	1,474	4,422	4	1
0.03125	6,339	6,214	18,642	8	2
0.015625	33,283	31,726	95,178	16	12

8.1.f $p = 3$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	67	184	552	1	2
0.125	457	667	2,001	2	1
0.0625	1,745	2,029	6,087	4	2
0.03125	7,609	7,825	23,475	8	8
0.015625	37,865	37,081	111,243	16	40

8.2 Body force

Coreform IGA Mesh

8.2.a $p = 1$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	63	5	2	1	1.1
0.125	275	81	74	2	2.7
0.0625	931	425	290	4	7.0
0.03125	4,235	2,673	1,154	8	31.9
0.015625	24,187	18,785	4,610	16	128.4

8.2.b $p = 2$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	225	5	2	1	1.1
0.125	637	81	74	2	2.6
0.0625	1,701	425	290	4	7.0
0.03125	6,253	2,673	1,154	8	28.2

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.015625	30,429	18,785	4,610	16	109.0

8.2.c $p = 3$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	539	5	2	1	1.5
0.125	1,215	81	74	2	3.0
0.0625	2,783	425	290	4	8.2
0.03125	8,775	2,673	1,154	8	28.1
0.015625	37,559	18,785	4,610	16	136.7

Coreform IGA for Abaqus solve

8.2.d $p = 1$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	76	228	1	0
0.125	327	321	963	2	2
0.0625	1,363	1,191	3,573	4	2
0.03125	6,339	5,379	16,137	8	3
0.015625	33,283	28,923	86,769	16	5

8.2.e $p = 2$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	115	345	1	0
0.125	327	436	1,308	2	1
0.0625	1,363	1,474	4,422	4	2
0.03125	6,339	6,214	18,642	8	4
0.015625	33,283	31,726	95,178	16	10

8.2.f $p = 3$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	67	184	552	1	1
0.125	457	667	2,001	2	1

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.0625	1,745	2,029	6,087	4	4
0.03125	7,609	7,825	23,475	8	8
0.015625	37,865	37,081	111,243	16	41

8.3 Pressure (uniform)

Coreform IGA Mesh

8.3.a $p = 1$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	63	5	2	1	1.0
0.125	275	81	74	2	2.8
0.0625	931	425	290	4	7.6
0.03125	4,235	2,673	1,154	8	28.8
0.015625	24,187	18,785	4,610	16	138.5

8.3.b $p = 2$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	225	5	2	1	1.1
0.125	637	81	74	2	2.5
0.0625	1,701	425	290	4	8.7
0.03125	6,253	2,673	1,154	8	25.9
0.015625	30,429	18,785	4,610	16	106.7

8.3.c $p = 3$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	539	5	2	1	1.5
0.125	1,215	81	74	2	3.0
0.0625	2,783	425	290	4	8.8
0.03125	8,775	2,673	1,154	8	29.2
0.015625	37,559	18,785	4,610	16	117.8

Coreform IGA for Abaqus solve

8.3.d $p = 1$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	76	228	1	1
0.125	327	321	963	2	1
0.0625	1,363	1,191	3,573	4	1
0.03125	6,339	5,379	16,137	8	1
0.015625	33,283	28,923	86,769	16	5

8.3.e $p = 2$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	115	345	1	0
0.125	327	436	1,308	2	0
0.0625	1,363	1,474	4,422	4	1
0.03125	6,339	6,214	18,642	8	2
0.015625	33,283	31,726	95,178	16	10

8.3.f $p = 3$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	67	184	552	1	1
0.125	457	667	2,001	2	1
0.0625	1,745	2,029	6,087	4	2
0.03125	7,609	7,825	23,475	8	8
0.015625	37,865	37,081	111,243	16	52

8.4 Pressure (total force)

Coreform IGA Mesh

8.4.a $p = 1$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	63	5	2	1	1.0
0.125	275	81	74	2	2.7
0.0625	931	425	290	4	7.3
0.03125	4,235	2,673	1,154	8	30.6

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.015625	24,187	18,785	4,610	16	113.7

8.4.b $p = 2$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	225	5	2	1	1.2
0.125	637	81	74	2	2.8
0.0625	1,701	425	290	4	7.3
0.03125	6,253	2,673	1,154	8	27.7
0.015625	30,429	18,785	4,610	16	130.7

8.4.c $p = 3$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	539	5	2	1	1.4
0.125	1,215	81	74	2	3.1
0.0625	2,783	425	290	4	8.4
0.03125	8,775	2,673	1,154	8	36.2
0.015625	37,559	18,785	4,610	16	118.9

Coreform IGA for Abaqus solve

8.4.d $p = 1$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	76	228	1	1
0.125	327	321	963	2	2
0.0625	1,363	1,191	3,573	4	2
0.03125	6,339	5,379	16,137	8	1
0.015625	33,283	28,923	86,769	16	6

8.4.e $p = 2$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	115	345	1	1
0.125	327	436	1,308	2	1

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.0625	1,363	1,474	4,422	4	1
0.03125	6,339	6,214	18,642	8	4
0.015625	33,283	31,726	95,178	16	10

8.4.f $p = 3$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	67	184	552	1	0
0.125	457	667	2,001	2	1
0.0625	1,745	2,029	6,087	4	2
0.03125	7,609	7,825	23,475	8	8
0.015625	37,865	37,081	111,243	16	40

8.5 Surface traction

Coreform IGA Mesh

8.5.a $p = 1$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	63	5	2	1	1.0
0.125	275	81	74	2	2.5
0.0625	931	425	290	4	8.5
0.03125	4,235	2,673	1,154	8	31.3
0.015625	24,187	18,785	4,610	16	97.9

8.5.b $p = 2$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	225	5	2	1	1.1
0.125	637	81	74	2	2.7
0.0625	1,701	425	290	4	7.5
0.03125	6,253	2,673	1,154	8	27.3
0.015625	30,429	18,785	4,610	16	130.1

8.5.c $p = 3$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	539	5	2	1	1.5
0.125	1,215	81	74	2	2.9
0.0625	2,783	425	290	4	8.6
0.03125	8,775	2,673	1,154	8	37.3
0.015625	37,559	18,785	4,610	16	142.6

Coreform IGA for Abaqus solve

8.5.d $p = 1$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	76	228	1	1
0.125	327	321	963	2	0
0.0625	1,363	1,191	3,573	4	0
0.03125	6,339	5,379	16,137	8	1
0.015625	33,283	28,923	86,769	16	6

8.5.e $p = 2$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	115	345	1	1
0.125	327	436	1,308	2	1
0.0625	1,363	1,474	4,422	4	1
0.03125	6,339	6,214	18,642	8	4
0.015625	33,283	31,726	95,178	16	10

8.5.f $p = 3$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	67	184	552	1	1
0.125	457	667	2,001	2	1
0.0625	1,745	2,029	6,087	4	4
0.03125	7,609	7,825	23,475	8	9
0.015625	37,865	37,081	111,243	16	39

8.6 End moment

Coreform IGA Mesh

8.6.a $p = 1$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	63	5	2	1	1.0
0.125	275	81	74	2	2.4
0.0625	931	425	290	4	8.3
0.03125	4,235	2,673	1,154	8	27.0
0.015625	24,187	18,785	4,610	16	128.5

8.6.b $p = 2$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	225	5	2	1	1.0
0.125	637	81	74	2	2.7
0.0625	1,701	425	290	4	7.7
0.03125	6,253	2,673	1,154	8	32.8
0.015625	30,429	18,785	4,610	16	110.5

8.6.c $p = 3$

h_z	Background	Active	Trimmed	CPUs	Wall-time [s]
0.25	539	5	2	1	1.4
0.125	1,215	81	74	2	2.8
0.0625	2,783	425	290	4	8.7
0.03125	8,775	2,673	1,154	8	26.4
0.015625	37,559	18,785	4,610	16	140.8

Coreform IGA for Abaqus solve

8.6.d $p = 1$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	77	261	1	2
0.125	327	322	1,044	2	1
0.0625	1,363	1,192	3,822	4	1

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.03125	6,339	5,380	17,010	8	1
0.015625	33,283	28,924	90,042	16	5

8.6.e $p = 2$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	69	116	378	1	0
0.125	327	437	1,389	2	0
0.0625	1,363	1,475	4,671	4	2
0.03125	6,339	6,215	19,515	8	2
0.015625	33,283	31,727	98,451	16	10

8.6.f $p = 3$

h_z	Elements	Nodes	DOFs	Threads	Wall-time [s]
0.25	67	185	597	1	1
0.125	457	668	2,154	2	3
0.0625	1,745	2,030	6,516	4	4
0.03125	7,609	7,826	24,888	8	8
0.015625	37,865	37,082	116,352	16	39

9 Discussion

Each primary load-case sweep converges under mesh refinement. On the finer meshes, the tip deflection satisfies the verification tolerance and all four sampled profiles approach the closed-form solutions.

The remaining difference from Euler—Bernoulli theory does not vanish with refinement because it arises from differences between the models, not from the discretization. Euler—Bernoulli theory neglects transverse shear deformation, whereas the solid model includes it; the pinned solid end face is also stiffer than the idealized beam support. For this reason, line-probe convergence is measured against the finest same-degree Coreform IGA profile, h_4, rather than treating either the beam theory or the Abaqus reference solution as exact. The finest C3D20 Abaqus result is retained as an independent finite-element comparison for the tip quantities, while the body-fitted sweeps provide qualitative context in the contour galleries.

The load-equivalence checks compare cases intended to represent the same physical loading. Gravity and body force both produce a line load of $\gravityLineLoad\,\mathrm{N\,m^{-1}}$. Uniform pressure and total-force pressure both produce a line load of $\pressureLineLoad\,

\mathrm{N\,m^{-1}}$. Agreement within each pair verifies the corresponding Coreform IGA load translation. The pairs need not agree with one another because their line loads differ.

For this small-displacement analysis, the follower and resultant traction variants also reproduce the base traction result.

References

[1] S. P. Timoshenko, *Strength of materials, part i: Elementary theory and problems*, 2nd ed. New York: D. Van Nostrand Company, 1940.

Appendix

9.1 Capabilities exercised

The table is generated from current passing simulation and study artifacts. Each row must satisfy the linked capability card's evidence contract; declaring a capability in a test does not, by itself, create evidence.

Table 6: Capabilities exercised by the current verification artifacts.

Capability	Evidence level
Linear static analysis	Numerically validated
Static stress analysis	Numerically validated
Boundary conditions and constraints	Numerically validated
Pinned boundary condition	Numerically validated
Kinematic coupling constraints	Numerically validated
Threaded Abaqus/Standard execution	Numerically validated
Parallel Coreform IGA mesh generation	Numerically validated
Parallel execution	Numerically validated
Body-force loading	Numerically validated
Gravity loading	Numerically validated
Moment loading	Numerically validated
Pressure loading	Numerically validated
Pressure specified by total force	Numerically validated
Uniform pressure loading	Numerically validated
Surface traction loading	Numerically validated
Follower surface traction	Exercised
Resultant surface traction	Exercised
Mechanical loads	Numerically validated
Material density	Numerically validated
Linear elastic material behavior	Numerically validated
Materials and section assignments	Numerically validated
Meshing	Numerically validated
Linear C0 spline basis	Exercised
Quadratic C1 spline basis	Numerically validated
Cubic C2 spline basis	Numerically validated
Immersed rectilinear meshes	Numerically validated
Spline basis degree and continuity	Numerically validated
Explicit field-output selection	Numerically validated
Field output requests	Numerically validated
Stress field output (S)	Exercised
[illegible]	Numerically validated

9.2 Download artifacts

Download artifacts are available from the HTML version of this page.

9.2.a Geometry CAD files

No separate CAD file is required for this problem; the geometry is fully defined in the Abaqus/CAE journal files.

9.2.b Abaqus/CAE journal files

Individual journal downloads are available from the HTML version of this page.

9.3 Supported Abaqus keywords

The decks below are reproduced from the verification tests' Abaqus input files with comments stripped and instance-specific names (sets, materials, files) redacted to `<placeholders>`.

Gravity - beam_bending_h0.inp outline

```
*Heading
*Preprint, echo=NO, model=NO, history=NO, contact=NO
*Include, input=<iga-mesh-inp>
*System
*Material, name=<material>
*Density
8000.,
*Elastic
 2e+11,0.
*User Output Variables
1,
*Boundary
<node-set>, PINNED
*Step, name=<step>, nlgeom=NO
*Static
1., 1., 1e-05, 1.
*Dload
<element-set>, U994, 0
<element-set>, U995, -9.8100000000000005
<element-set>, U996, 0
*Restart, write, frequency=0
*Output, field
*Node Output
U,
*Element Output, position=AVERAGED AT NODES, directions=YES
S,
*Output, history, variable=PRESELECT
*End Step
```

Body force - beam_bending_h0.inp outline

```
*Heading
*Preprint, echo=NO, model=NO, history=NO, contact=NO
*Include, input=<iga-mesh-inp>
*System
*Material, name=<material>
*Density
8000.,
*Elastic
 2e+11,0.
*User Output Variables
1,
*Boundary
<node-set>, PINNED
*Step, name=<step>, nlgeom=NO
*Static
1., 1., 1e-05, 1.
*Dload
<element-set>, U997, 0.
<element-set>, U998, -78480.
<element-set>, U999, 0.
*Restart, write, frequency=0
*Output, field
*Node Output
U,
*Element Output, position=AVERAGED AT NODES, directions=YES
S,
*Output, history, variable=PRESELECT
*End Step
```

Pressure (uniform) - beam_bending_h0.inp outline

```
*Heading
*Preprint, echo=NO, model=NO, history=NO, contact=NO
*Include, input=<iga-mesh-inp>
*System
*Material, name=<material>
*Density
8000.,
*Elastic
 2e+11,0.
*User Output Variables
1,
*Boundary
<node-set>, PINNED
*Step, name=<step>, nlgeom=NO
*Static
1., 1., 1e-05, 1.
*Restart, write, frequency=0
*Output, field
*Node Output
U,
*Element Output, position=AVERAGED AT NODES, directions=YES
S,
*Output, history, variable=PRESELECT
*End Step
```

Pressure (total force) - beam_bending_h0.inp outline

```
*Heading
*Preprint, echo=NO, model=NO, history=NO, contact=NO
*Include, input=<iga-mesh-inp>
*System
*Material, name=<material>
*Density
8000.,
*Elastic
 2e+11,0.
*User Output Variables
1,
*Boundary
<node-set>, PINNED
*Step, name=<step>, nlgeom=NO
*Static
1., 1., 1e-05, 1.
*Restart, write, frequency=0
*Output, field
*Node Output
U,
*Element Output, position=AVERAGED AT NODES, directions=YES
S,
*Output, history, variable=PRESELECT
*End Step
```

Surface traction - beam_bending_h0.inp outline

```
*Heading
*Preprint, echo=NO, model=NO, history=NO, contact=NO
*Include, input=<iga-mesh-inp>
*System
*Material, name=<material>
*Density
8000.,
*Elastic
 2e+11,0.
*User Output Variables
1,
*Boundary
<node-set>, PINNED
*Step, name=<step>, nlgeom=NO
*Static
1., 1., 1e-05, 1.
*Restart, write, frequency=0
*Output, field
*Node Output
U,
*Element Output, position=AVERAGED AT NODES, directions=YES
S,
*Output, history, variable=PRESELECT
*End Step
```

End moment - beam_bending_h0.inp outline

```
*Heading
*Preprint, echo=NO, model=NO, history=NO, contact=NO
*Include, input=<iga-mesh-inp>
*System
*Node
      1,           0.,           0.,           1.
*Nset, nset=<node-set>
 1,
*Coupling,     constraint     name=moment_ref_pt_to_zmax_coupling,     ref
node=moment_ref_pt, surface=<surface>
*Kinematic
*Material, name=<material>
*Density
8000.,
*Elastic
 2e+11,0.
*User Output Variables
1,
*Boundary
<node-set>, PINNED
*Step, name=<step>, nlgeom=NO
*Static
1., 1., 1e-05, 1.
*Cload
<node-set>, 4, 5.
*Restart, write, frequency=0
*Output, field
*Node Output
U,
*Element Output, position=AVERAGED AT NODES, directions=YES
S,
*Output, history, variable=PRESELECT
*End Step
```

9.4 Provenance

The records below identify the execution environment and verification basis for every CTest artifact reported on this page.

Test_abaqus_verification_beam_bending_abaqus_h0p1_body_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:15:11
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p1_body_force

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:13:45
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

ℹ Test_abaqus_verification_beam_bending_abaqus_h1p1_body_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:25:54
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

ℹ Test_abaqus_verification_beam_bending_immersed_h1p1_body_force

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:13:58
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p1_body_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:30:11
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p1_body_force

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:14:07
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p1_body_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:43:10
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p1_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:53
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p1_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:23:50
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p1_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:17:57
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p2_body_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:15:48
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p2_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:20
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p2_body_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:30:17
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p2_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:15:13
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p2_body_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:31:32
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p2_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:16:02
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p2_body_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:44:39
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p2_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:27:10
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p2_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:25:45
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p2_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:44:08
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p3_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:21
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p3_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:15:25
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p3_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:16:20
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p3_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:28:54
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p3_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:47:16
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p1_gravity

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:15:09
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p1_gravity

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:13:45
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p1_gravity

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:25:40
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p1_gravity

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:13:47
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p1_gravity

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:29:58
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p1_gravity

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:13:52
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p1_gravity

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:35:25
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p1_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:12
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p1_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:23:35
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p1_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:15:36
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p2_gravity

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:15:47
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p2_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:12
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p2_gravity

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:30:04
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p2_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:50
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p2_gravity

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:31:19
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p2_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:15:28
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p2_gravity

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:44:19
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p2_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:25:06
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p2_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:25:20
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p2_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:35:20
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p3_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:12
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p3_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:15:02
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p3_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:15:46
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p3_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:26:31
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p3_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:38:29
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p1_moment

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:15:36
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p1_moment

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:14:03
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p1_moment

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:29:51
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p1_moment

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:14:40
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p1_moment

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:31:05
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p1_moment

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:15:11
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p1_moment

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:44:05
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p1_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:21:26
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p1_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:24:54
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p1_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:32:50
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p2_moment

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:16:13
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p2_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:56
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p2_moment

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:31:11
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p2_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:21:44
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p2_moment

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:32:26
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p2_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:26:24
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p2_moment

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 12:06:09
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p2_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:34:29
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p2_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:27:25
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p2_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:20:07
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p3_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:58
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p3_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:24:56
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p3_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:26:43
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p3_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:35:12
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p3_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:23:19
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p1_pressure_total_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:15:23
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p1_pressure_total_force

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:13:54
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p1_pressure_total_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:26:22
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p1_pressure_total_force

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:14:19
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p1_pressure_total_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:30:38
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p1_pressure_total_force

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:14:38
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p1_pressure_total_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:43:38
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

ℹ Test_abaqus_verification_beam_bending_immersed_h3p1_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:16:10
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

ℹ Test_abaqus_verification_beam_bending_abaqus_h4p1_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:24:22
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p1_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:27:37
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p2_pressure_total_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:16:00
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p2_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:30
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p2_pressure_total_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:30:44
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p2_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:15:46
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p2_pressure_total_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:32:00
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p2_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:21:53
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p2_pressure_total_force

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 12:04:40
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p2_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:30:38
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p2_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:26:35
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

ℹ Test_abaqus_verification_beam_bending_immersed_h4p2_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:06:24
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

ℹ Test_abaqus_verification_beam_bending_immersed_h0p3_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:39
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

ℹ Test_abaqus_verification_beam_bending_immersed_h1p3_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:16:10
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

ℹ Test_abaqus_verification_beam_bending_immersed_h2p3_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:25:31
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p3_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:32:16
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p3_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:12:14
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p1_pressure_uniform

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:15:22
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p1_pressure_uniform

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:13:54
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p1_pressure_uniform

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:26:08
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p1_pressure_uniform

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:14:08
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p1_pressure_uniform

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:30:25
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p1_pressure_uniform

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:14:23
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p1_pressure_uniform

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:43:24
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p1_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:15:30
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p1_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:24:07
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p1_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:25:30
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p2_pressure_uniform

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:15:59
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p2_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:29
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p2_pressure_uniform

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:30:31
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p2_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:15:36
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p2_pressure_uniform

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:31:46
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p2_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:17:07
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p2_pressure_uniform

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:44:54
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p2_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:30:00
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p2_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:26:10
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p2_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:01:23
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p3_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:39
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p3_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:15:58
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p3_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:24:42
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p3_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:31:23
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p3_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:09:24
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p1_traction

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:15:34
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p1_traction

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:14:03
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p1_traction

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:26:36
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p1_traction

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:14:29
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p1_traction

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:30:51
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p1_traction

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 11:14:55
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p1_traction

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:43:51
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p1_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:16:50
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p1_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:24:38
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p1_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:30:28
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h0p2_traction

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:16:11
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p2_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:48
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h1p2_traction

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:30:58
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p2_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:16:21
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h2p2_traction

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 11:32:13
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p2_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:25:48
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h3p2_traction

Parameter	Value
Evidence type	Execution test
CTest result	Passed (Release)
Verification result	Not assessed — no structured numerical criteria
Test date	26-Aug-2026 12:05:55
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p2_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:32:53
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_abaqus_h4p2_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:27:00
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p2_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:14:44
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p3_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:14:49
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h1p3_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:17:02
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h2p3_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:26:07
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h3p3_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:33:47
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h4p3_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 12:17:57
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p2_traction_follower

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:33:25
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_beam_bending_immersed_h0p2_traction_resultant

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 11:33:30
Operating system	Ubuntu 26.04 LTS
Coreform IGA version	`2026.8-dev+tewk_1787764370`
Source revision	`bb2d69b00831`
Abaqus version	`Abaqus 6.26-4`

Test_abaqus_verification_study_beam_bending_abaqus_p1_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_abaqus_p1_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_abaqus_p1_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_abaqus_p1_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_abaqus_p1_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_abaqus_p1_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

ℹ Test_abaqus_verification_study_beam_bending_abaqus_p2_body_force

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

ℹ Test_abaqus_verification_study_beam_bending_abaqus_p2_gravity

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

ℹ Test_abaqus_verification_study_beam_bending_abaqus_p2_moment

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

ℹ Test_abaqus_verification_study_beam_bending_abaqus_p2_pressure_total_force

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

ℹ Test_abaqus_verification_study_beam_bending_abaqus_p2_pressure_uniform

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

ℹ Test_abaqus_verification_study_beam_bending_abaqus_p2_traction

Parameter	Value
Evidence type	Record-only diagnostic
CTest result	Passed (Release)
Verification result	Not asserted — 1 record-only check (0 positive)
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p1_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p1_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p1_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p1_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p1_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p1_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

ℹ Test_abaqus_verification_study_beam_bending_immersed_p2_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

ℹ Test_abaqus_verification_study_beam_bending_immersed_p2_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p2_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p2_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p2_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p2_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p3_body_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p3_gravity

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

i Test_abaqus_verification_study_beam_bending_immersed_p3_moment

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

i Test_abaqus_verification_study_beam_bending_immersed_p3_pressure_total_force

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p3_pressure_uniform

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest

Test_abaqus_verification_study_beam_bending_immersed_p3_traction

Parameter	Value
Evidence type	Numerical verification
CTest result	Passed (Release)
Verification result	Passed — 1/1 enforced criterion passed
Test date	26-Aug-2026 19:29:55 UTC
Operating system	—
Coreform IGA version	Not applicable — postprocessing-only CTest
Source revision	`bb2d69b00831`
Abaqus version	Not applicable — postprocessing-only CTest