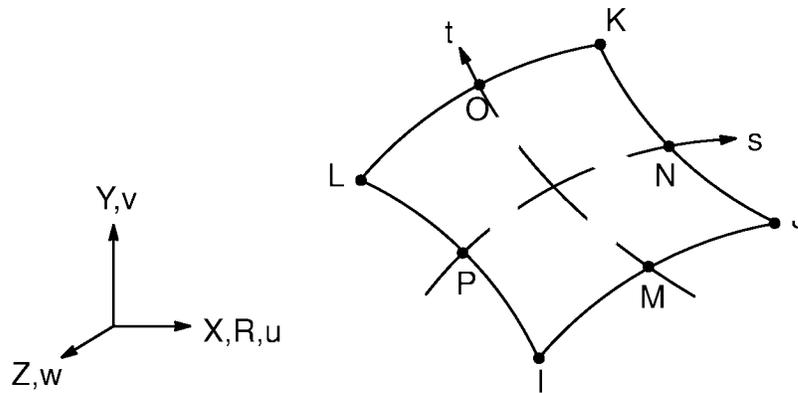


14.74 HYPER74 — 2-D 8-Node Mixed U-P Hyperelastic Solid



Matrix Or Vector	Geometry	Shape Functions	Integration Points
Stiffness Matrix	Quad	Equations (12.6.7-1), (12.6.7-2), and (12.6.7-3)	3 x 3
	Triangle	Equations (12.6.2-1), (12.6.2-2), and (12.6.2-3)	3
Mass Matrix	Same as stiffness matrix		Same as stiffness matrix
Thermal and Newton-Raphson Load Vector	Same as stiffness matrix		Same as stiffness matrix
Pressure Load Vector	Same as stiffness matrix, specialized to the face		2

Load Type	Distribution
Element Temperature	Same as shape functions across element, constant thru thickness or around circumference
Nodal Temperature	Same as element temperature distribution
Pressure	Linear along each face

References: Oden(123), Sussman(124)

14.74.1 Other Applicable Sections

For the basic formulation refer to Section 14.58. The hyperelastic material model (Mooney–Rivlin) is described in Section 4.5. Section 13.1 describes integration point locations.

14.74.2 Assumptions and Restrictions

A dropped midside node implies that the edge is and remains straight.