ELMT02
(2d/3d Linear Frame Element)

For each element property set (ndm = dimension of problem):

MATE, ElmtID	
USER, 2	
Igeom	
E,G	
A, Iz, Iy, J, Sz, Sy	
yOption,yOrient(1),…,yOrient(3)	only relevant in 3d problem
REZOption,REZone(1), ..., REZone(2*ndm)	
ρ, Imass	
α, β	
blank line at end of each element specification	

Definitions:

ElmtID	Element property ID
Igeom	1: linear geometry 2: nonlinear geometry (presently not implemented)
E	Young' s elastic modulus
G	Shear modulus
A	Cross section area
Iz	Moment of inertia about local z-axis (see below for definition)
Iy	Moment of inertia about local y-axis (see below for definition)
J	Torsional inertia
Sz	Shear stiffness factor for bending about local z-axis
Sy	Shear stiffness factor for bending about local y-axis
yOption	Option for orientation of local reference system relative to global system: 1 : vector specification of local y-axis in global reference system 2 : coordinates of node k such that nodes i, j and k define local x-y plane
yOrient(1:3)	X, Y, Z projection of local y-axis, or, X, Y, Z coordinate of node k
REZOption	Option for rigid end zone offsets 1 : rigid end zone offsets in global reference system 2 : rigid end zone offsets in local reference system
REZone(1:2*ndm)	Rigid end zone offsets at element nodes i and j in global or local reference system REZone(1),.., REZone(ndm): X, Y, (Z) value of offset at node i REZone(ndm+1), …,REZone(2*ndm): X, Y, (Z) value of offset at node j **Note:** for local reference system specification only two x-values are read, i.e. ndm=1
ρ	Mass density per unit volume
Imass	Switch for lumped or consistent mass matrix 0 = lumped 1 = consistent
α, β	Rayleigh damping factors; the element damping matrix is $C=\alpha M+\beta K_0$