3D EasyCAE

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ELEMENT PATH *myfempy.felib.*	ELEMENT KEY 'NAME+NUMNODE+VERSION'	ID	ELEMENT SHORT NAME	CORE	NODES LIST	DEGREES OF FREEDOM	ORDER	SHORT DESCRIPTION	DOCUMENTATION
> Structural Models									
>> Beam/ Frame									
struct.spring21	spring21	110	spring s2	scipy	i-j	ux	linear direct	spring/rod linear	
struct.truss21	truss21	120	truss2d t2	scipy	i-j	ux,uy	linear direct	plane rod linear	
struct.beam21	beam21	130	beam b2	scipy	i-j	uy,rz	linear direct	euler-bernoulli beam theory	
struct.beam31	beam31	131	beam b3ho	scipy	i-k-j	uy,rz	parabolic gauss	timoshenko beam theory hight order	
struct.frame21	frame21	140	frame2d f2	scipy	i-j	ux,uy,rz	linear direct	plane beam euler-bernoulli linear	
struct.frame22	frame22	141	frame3d f2	scipy	i-j	ux,uy,uz,rx,ry,rz	linear direct	space beam euler-bernoulli linear	
struct.frame31	frame31	142	frame3d f3ho	scipy	i-k-j	ux,uy,uz,rx,ry,rz	parabolic gauss	space beam euler-bernoulli hight order	
>> Plane/ Plate									
struct.plane31	plane31	210	plane t3	scipy	i-j-k	ux,uy	linear direct	plane stress 3 nodes linear	
struct.plane61	plane61	211	plane t6ho	scipy	i-j-k-l-m-n	ux,uy	parabolic gauss	plane stress 6 nodes hight order	
struct.plane41	plane41	220	plane q4	scipy	i-j-k-l	ux,uy	linear direct	plane stress isotropic 4 node isoparametric	
struct.plane81	plane81	221	plane q8ho	scipy	i-j-k-l-m-n-o-p	ux,uy	parabolic gauss	plane stress isotropic 8 node hight order isoparametric	
struct.plate82	plate82	230	plate q8ho	scipy	i-j-k-l-m-n-o-p	ux,uy,uz	parabolic gauss	kirchhoff-love plate theory	
struct.plate83	plate83	231	plate q8ho	scipy	i-j-k-l-m-n-o-p	ux,uy,uz	parabolic gauss	mindlin plate theory	
struct.shell91	shell91	240	shell q9ho	scipy	i-j-k-l-m-n-o-p	ux,uy,uz	parabolic gauss	shell plate	
>> Solid									
struct.solid41	solid41	310	solid tt4	scipy	i-j-k-l	ux,uy,uz	linear direct	tetrahedron solid 4 node linear	
struct.solid81	solid81	320	solid hx8	scipy	i-j-k-l-m-n-o-p	ux,uy,uz	linear direct	hexahedron solid 8 node linear	
struct.solid201	solid201	321	solid hx20ho	scipy	i-j-k-l-m-n-o-p...	ux,uy,uz	parabolic gauss	hexahedron solid 20 node hight order isotropic	
> Heat Transfer									
flow.heat31	heat31	610	heat t3		i-j-k	ux,uy,tx,ty	linear direct	description	
flow.heat41	heat41	620	heat q4		i-j-k	ux,uy,tx,ty	linear direct	description	
flow.heat81	heat81	621	heat q8ho		i-j-k-l-m-n-o-p	ux,uy,tx,ty	parabolic gauss	description	
> Fluid-Flow Models									
flow.fluid21	fluid21	810	fluid p2		i-j	ux,uy,px,py	linear direct	description	
flow.fluid31	fluid31	820	fluid t3		i-j-k	ux,uy,px,py	linear direct	description	
flow.fluid41	fluid41	830	fluid q4		i-j-k	ux,uy,px,py	linear direct	description	
flow.fluid81	fluid81	831	fluid q8ho		i-j-k-l-m-n-o-p	ux,uy,px,py	parabolic gauss	description	
> FSI Models									

LEGEND

u - displacement
r - rotation
t - temperature
p - pressure

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SOLVER PATH *myfempy.solver.*	ALGO	CORE	ANALYSIS TYPE	SHORT DESCRIPTION	DOCUMENTATION
static.linear	alglinear	scipy	Strucutural Steady State	Linear Stress/ Strain: Displacement, Stress Average, Stress Mises Criterion,	
static.linear	conjgrad	scipy	Strucutural Steady State	Linear Stress/ Strain: Displacement, Stress Average, Stress Mises Criterion,	
static.nonlinear	newtonraphson	scipy	Strucutural Steady State	NonLinear Stress/ Strain: Displacement, Stress Average, Stress Mises Criterion,	
dyna.vibration	eig	scipy	Strucutural Dynamic	Eigenvalue and Eigenvectors (moode shape)	
dyna.vibration	frf	scipy	Strucutural Dynamic	Undamped Harmonic Forced Vibration	
dyna.inttime	implicit	scipy	Strucutural Dynamic	Integration Dynamics, DCM	
dyna.inttime	explicit	scipy	Strucutural Dynamic	Integration Dynamics, NWM	
heatfx.steadysta	steadysta	scipy	Heat in Solids	MECHANICAL TERM	
heatfx.transient	transient	scipy	Heat in Solids	MECHANICAL TERM	
acusmd.eigenval	eigenval	scipy	Acustic Modal	ACOUSTIC MODAL	
fluifw.flow2d	flow2d	scipy	Fluid Flow incompressible	INCOMPRESSIBLE 2D FLOW	
fluifw.fsi	fsi	scipy	Fluid Structure Interaction	FSI 2D INCOMPRESSÍVEL	

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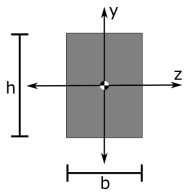
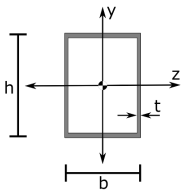
SECTION NAME	ORIENTATION	PROP SECT.	FORMULATION
VARIABLES => b, h, t, d			
>> BASIC SECTIONS			
R rectangle	--> x	A	b*h
R rectangle	--> x	Iyy	(1/12)*h*b^3
R rectangle	--> x	Izz	(1/12)*b*h^3
R rectangle	--> x	Jxx	(1/12)*b*h*(b^2 + h^2)
Rt rectangle tube	--> x	A	
Rt rectangle tube	--> x	Iyy	
Rt rectangle tube	--> x	Izz	
Rt rectangle tube	--> x	Jxx	
Ci circle	--> x	A	(1/4)*pi*d^2
Ci circle	--> x	Iyy	(1/64)*pi*d^4
Ci circle	--> x	Izz	(1/64)*pi*d^4
Ci circle	--> x	Jxx	(1/32)*pi*d^4
Ct circular tube	--> x	A	pi*t*d
Ct circular tube	--> x	Iyy	(1/8)*pi*t*d^3
Ct circular tube	--> x	Izz	(1/8)*pi*t*d^3
Ct circular tube	--> x	Jxx	(1/4)*pi*t*d^3
>> AISC SECTIONS			
I section	--> x	A	2*b*d+t*(2*d-h)
I section	--> x	Iyy	((h-2*d)*t**3)/12 + 2*(d*b**3)/12
I section	--> x	Izz	(b*h**3)/12 - ((b-t)*(h-2*d)**3)/12
I section	--> x	Jxx	Iyy + Izz

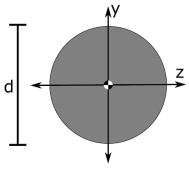
R rectangle



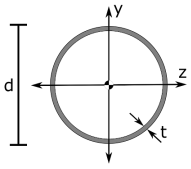
Rt rectangle tube



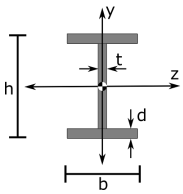
Ci circle



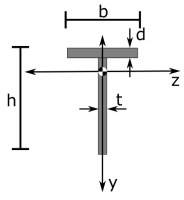
Ct circular tube



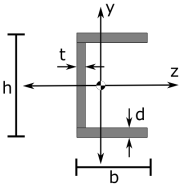
I section



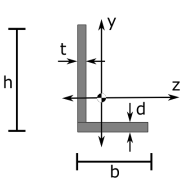
T section



C section



L section



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TITLE	VERSION	LICENCE	RELEASE	ADD FEATURES
myfempy alpha	1.dev7	GPL 4.0	mar. 2022	
myfempy alpha	1.dev6	GPL 4.0	fev. 2022	
myfempy alpha	1.dev5	GPL 4.0	dez. 2021	
myfempy alpha	1.dev4	GPL 4.0	aug 2021	
myfempy alpha	1.dev3	GPL 4.0	jul. 2021	
myfempy alpha	1.dev2	GPL 4.0	jan. 2021	
myfempy alpha	1.dev1	GPL 4.0	out. 2020	linear static solution in beam, plane and solid models