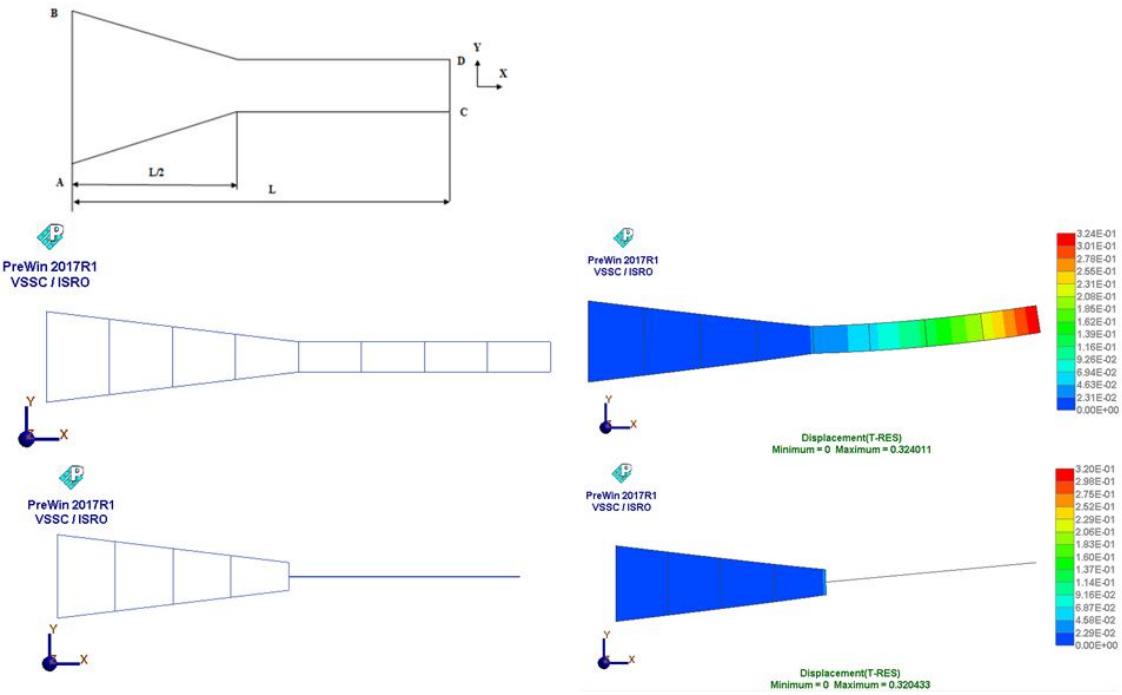
Static analysis of tapered cantilever



Load	:	A moment of 12000 *Nmm* at the tip applied as two equal and opposite point loads of 1000 *N* in the *x* direction at C and D
Boundary condition	:	Along AB , $U_x=U_y=U_z=R_x=R_y=R_z=0$
Material property	:	E = 200 *GPa*, ν = 0.3
Geometric property	:	Depth at AB = 36 *mm*, depth at CD = 12 *mm* , length = 200 *mm*, width = 10 *mm*, hole radius = 10 *mm*
Element type	:	8-node plane stress elements
Load cases	:	1. Carry-out the analysis using the above specifications. 2. Replace the parallel section of continuum elements with single beam elements. connect the beam to extreme right mid-side node of tapered section and re-run the analysis

Finite element statistics		Number of elements	Number of nodes	Degrees of freedom
	Case 1 :	7	25	80
	Case 2 :	8	43	46

Cases	**Tip displacements (*mm*)**		
	NAFEMS	**FEAST^{SMT}**	**NASTRAN®**
1	0.3086	0.3226	0.3240
2		0.3204	0.3220