






2.3.1.3.15 VISCIOUS DAMPER

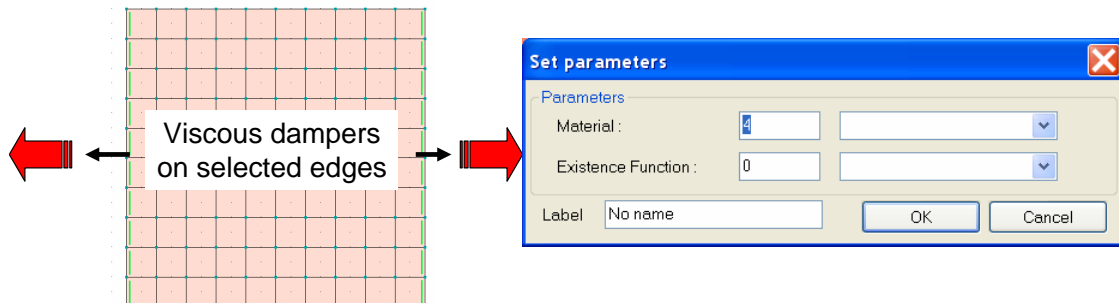
Window 2-485: Options in menu Convection

Option	Method	Toolbar	Description
Create	2 nodes	—	Window 2-487
	On edge(s)	—	Window 2-486
	3 nodes	—	Window 2-489
	4 nodes	—	Window 2-489
	On face(s)	—	Window 2-488
Outline	All	—	Window 2-490
	Box with 2 nodes		Window 2-312
	With material	—	Window 2-491
	With existence function	—	Window 2-491
	With label	—	Window 2-491
	On selected edges (2D)	—	Window 2-492
	On selected faces (3D)	—	Window 2-493
	In zoom box		Window 2-313
In zoom circle		Window 2-314	
Inside contour		Window 2-315	
Delete	Delete		Window 2-316
Update	Parameters	—	Window 2-494

Window 2-485

Window 2-486: Viscous damper:On edges

New 2D viscous dampers are created by selecting continuum element edges in the existing real mesh.



Remarks:

1. Viscous damper elements are meaningful for Deformation and Deformation+Flow transient dynamic analyses
2. Viscous dampers can be generated on continuum element edges (2D)/faces (3D)
3. Viscous dampers are usually added on boundaries that are usually fixed for static drivers (during Initial state for instance); hence all fixities, in transient dynamic analyses, along the boundaries occupied by dampers must be released by setting proper existence function and unloading function (equal to 1.0 for any time instance); this way the nodal reactions/fluxes will be reapplied as external forces/fluxes to preserve the static equilibrium/flow continuity
4. These elements are used to cancel wave reflections from domain boundaries
5. If viscous dampers are conforming with the adjacent continuum elements then mesh refinement in the continuum will cause their refinement automatically
6. For detailed explanation on how to set parameters describing viscous damper elements see Window [2-494](#)
7. All details concerning modelling transient dynamic problems can be found in the dedicated report on transient dynamics for single- and two-phase media

Window 2-486

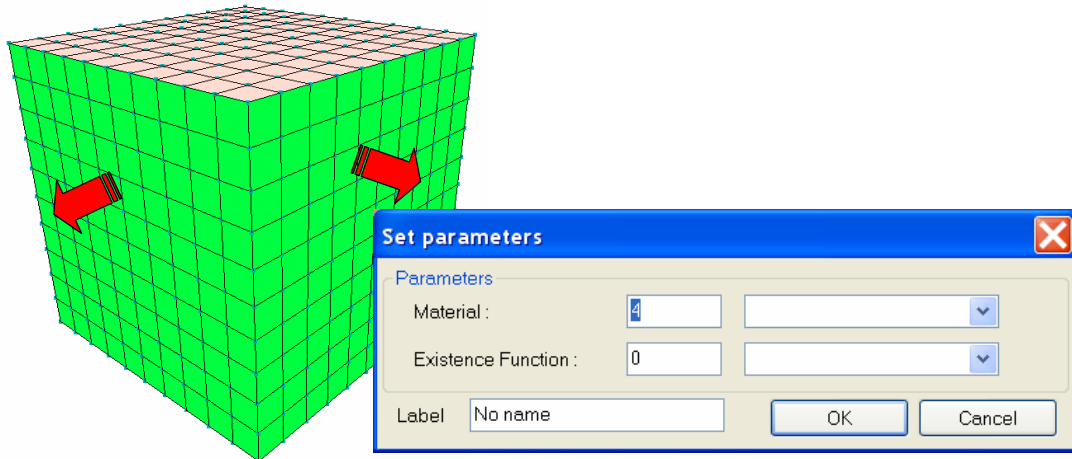
Window 2-487: Viscous damper:2 nodes

New 2D viscous damper elements are created along edges belonging to the line segment defined by the 2 picked nodes in the existing real mesh. This option, except the definition, is equivalent to the one described in Window [2-486](#).

Window 2-487

Window 2-488: Viscous damper:On faces

New 3D viscous damper elements are created by selecting continuum element faces in the existing real mesh (see example below). See also remarks given in Window 2-486.



Viscous damper elements
on selected faces

Window 2-488

Window 2-489: Viscous damper:3 nodes, 4 nodes

New 3D viscous damper elements are created on faces which belong to the 3D surface defined by the 3 or 4 picked nodes in the existing real mesh (see example). Once faces are detected the generation procedure follows the steps described in Window 2-488.

Window 2-489

Window 2-490: Viscous damper:Outline:All

Using this option user may select all visible viscous damper elements.

Window 2-490

Window 2-491: Viscous damper:Outline:With material, existence f., label

Using this option user may select viscous damper elements with a given material or existence function ID or a given label. In case of a label one may select a single item from combo-box.

Window 2-491

Window 2-492: Viscous damper:Outline:On selected edges

Using this option user may select 2D viscous damper elements which are overlapping with selected edges.

Window 2-492