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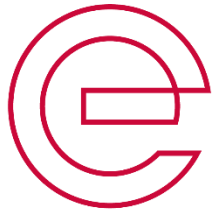

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FEA Model Build Cheat Sheet

MSC Apex and MSC Nastran

View, Transform & Geometry Create/Edit

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View Manipulation (Mouse)	
Drag MMB	*Rotates the model*
Drag RMB	*Pans the model*
Drag MMB +LMB together	*Regular zoom. Zooms the model from/to center of screen*
Scroll wheel	*Scroll wheel zoom. Zooms the model from/to cursor location*
Click LMB + RMB together	*Fit view. Fits the entire model contents into the viewport*
Hold down LMB + RMB together for 400 ms	*Fit isometric view. Fits the entire model contents into the viewport AND orients the model into the default isometric view*
Drag LMB + RMB together	*Window zoom. Lets you draw a rectangle to which you can zoom once you release your fingers from the mouse*
While dragging MMB if you click LMB or RMB	*Toggle pan/rotate. Lets you toggle between panning and rotating.*
RMB click	*This launches the context menu.*

Interactive Triad	
View normal to plane	*Click axis label*
Rotate about axis	*Click axis*
View isometric orientation	*Click ball*

Transform Tools	
Transform	*Move or copy selected geometric components of a model to a new location and orientation (translation, rotation or mirror).*

Geometry Primatives	
Box	*Creates a rectangular piece of solid geometry with specified length, width, and height in selected coordinate system.*
Cylinder	*Creates cylindrical primitive geometry.*
Sphere	*Creates spherical primitive geometry.*
Ellipsoid	*Creates elliptical primitive geometry.*

Geometry Create Tools	
Rectangle with 2 Points	*Creates a rectangle by selecting two opposite vertices.*
Polyline	*Creates a rectangle by selecting two opposite vertices.*
Center Point Cirlce	*Creates a circle sketch by specifying the center point and a point on its circumference.*
Ellipse	*Defines an ellipse by specifying a center point and points on two axes.*
Center Point Arc	*Sketches an arc by specifying a center point and end points.*
Fillet	*Sketches an arc by specifying a center point and end points.*
Trim	*Sketches an arc by specifying a center point and end points.*
Project	*Projects vertex, node, curve or surface entities onto the current sketch plane.*
Rectangle with 3 Points	*Creates a rectangle by selecting three vertices.*
Spline	*Creates a spline with continuous curvature through selected points.*
3 Points Circle	*Creates a circle by specifying three points on its circumference.*
3 Points Arc	*Creates an arc by specifying three points along the arc.*
Point	*Defines points by specifying their locations.*
Chamfer	*Creates a chamfer of a given length at a specified location.*
Split	*Splits a single sketch object into two objects at the selected point.*
Edit	*Edits dimensions of an existing sketch.*

Geometry Edit Tools	
Vertex/Edge Drag	*Edits curves or surfaces by dragging their vertices and edges.*
Filler	*Fills geometrical holes and gaps in geometry.*
Stitch Geometry	*Stitches curve bodies and/or edges of sheet bodies together by selecting the bodies you wish to connect.*
Push/Pull	*Modifies geometry by pushing and pulling solid faces, 2D surfaces, or the edges of solid bodies.*
Defeature	*The defeature tool removes holes, fillets, and chamfers from your model by clicking on the feature.*
Curves	*Creates curves using multiple creation methods.*
Geometry Cleanup	*Provides options to perform selected geometry cleanup operations with specific tolerance values.*
Boolean	*Merge, Subtract, or Intersect existing solid geometry to create new geometric entities.*
Geometry from Mesh	*Creates faceted geometry and optionally analytical and NURBS geometry from CAD-like mesh or STL imported as mesh*
Surface Loft	*Creates a surface through the selected curves or edges with start and end tangency matching existing geometry.*
Datum Plane	*Create a datum plane by the location on geometry, or 1-3 points, or a coordinate system axis.*
Split Surfaces	*Surface splitting tool providing three methods.*

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Geometry Edit, Meshing & FEM Edit

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	Geometry Edit Tools (Cont.)	
	Add/Remove Vertex	*Adds an additional vertex to selected geometry, or removes a topologically insignificant vertex by clicking on it.*
	Split Curves	*Splits curves at intersections with selected faces, curves, or points.*
	Revolve/Sweep	*Revolves geometry about an axis or sweeps it along a path to create higher order geometry.*
	Suppress/Unsuppress	*Suppresses or unsuppresses edges and vertices.*
	Points	*Creates a point nearest the cursor location on the selected curve or surface, or at an X-Y-Z position entered.*
	Extend Surfaces	*Extends surfaces to intersect with adjacent geometry.*
	Split Tool	*Splits existing geometry along an existing surface or plane.*
	Facet to NURBS	*Converts Imported STL or other organic shaped Facet bodies to NURBS.*
	MidSurface	*Tools to create midsurfaces from solid geometry.*

	Meshing Tools/Meshing Control Tools	
1D	Curve Mesh	*Creates a bar mesh on curves, edges, or other one-dimensional geometry.*
	MSC Nastran Keyword	***Entity: depends on specified properties (e.g. CBAR/CBEAM, linear/quadratic elements)***
	Surface Mesh	*Creates a mesh of quadrilateral or triangular elements on surfaces or the faces of solid geometry bodies*
	MSC Nastran Keyword	***Entity: depends on specified properties (e.g. CTRI/CQUAD, linear/quadratic elements)***
	Solid Mesh	*Meshes solid geometry with tetra, hex and/or pyramid elements.*
	MSC Nastran Keyword	***Entity: CTETRA/CHEXA/CPENTA/CPYRAM, linear/quadratic elements***
	Shrink Wrap Mesh	*Creates a watertight mesh from multiple disconnected bodies that are in close proximity of each other.*
	MSC Nastran Keyword	***Entity: CTRI/CQUAD, linear/quadratic elements***
	Node Create	*Creates a node at the cursor location, at a selected arc's center, or at an intersection of two selected curves.*
	MSC Nastran Keyword	***Entity: GRID***
	Seeding	*Defines the mesh density along a selected edge by specifying the size or number of elements to be created.*
	Mesh Control	*This tool allows you to define seed points and mesh control curves to control the mesh on a surface.*
	Feature Mesh Settings	*Defines meshing parameters for features, allowing control over the meshing of different auto-recognized regions of the model.*

	FEM Edit Tools/ID Management Tools	
	Node Move	*Moves nodes by dragging to adjust the mesh.*
	Node Merge	*Merges selected adjacent nodes within a tolerance distance of each other into a shared node to create a continuous mesh.*
	Node Align	*Distributes the selected nodes evenly along a path between the end points or along a specified curve.*
	Element Split	*Splits existing elements at selected geometry or along a path defined by nodes.*
	Element Orientation	*Reverses the element normal direction of the selected shell elements.*
	Element Separate	*Allows you to separate elements to rearrange the model structure to better match the need of users.*
1 2	Renumber Entities	*Renumbers nodes or elements for selected parts and/or assemblies by providing either a starting ID or an offset value.*

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Loads/Constraints

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Loads and Constraints/Initial Conditions	
Initial Temperature	*Defines constant initial temperature for selected entities.*
MSC Nastran Keyword	***Entity: TEMP, TEMPD, TEMPP1, TEMPN1***
Initial Strain	*Defines initial equivalent plastic strain values.*
MSC Nastran Keyword	***Entity: IPSTRAIN***
Initial Disp. and Velocity	*Defines Initial displacement and velocity for the selected entities.*
MSC Nastran Keyword	***Entity: TIC***
Initial Beam Temperature	*Defines Initial beam temperature for selected entities.*
MSC Nastran Keyword	***Entity: TEMPRB, TEMPB3***
Initial Stress	*Defines initial stress values.*
MSC Nastran Keyword	***Entity: ISTRESS***

Loads and Constraints/Constraints	
Constraint	*Constrains the selected locations in the specified degrees of freedom.*
MSC Nastran Keyword	***Entity: SPC, SPC1***
Exclude DOF AUTOSPC	*Defines a set of degrees of freedom that will be excluded from the AUTOSPC operation.*
MSC Nastran Keyword	***Entity: AUTOSPC (SPCOFF), AUTOSPC (SPCOFF1)***
Support	*Defines the reference degree of freedom for rigid body motion.*
MSC Nastran Keyword	***Entity: SUPORT, SUPORT1***
Constraint Combination	*Combine multiple constraints.*
MSC Nastran Keyword	***Entity: SPCADD***

Loads and Constraints/Structural Loads	
Force	*Applies a force load to the model at the selected locations.*
MSC Nastran Keyword	***Entity: FORCE, FORCE1, FORCE2***
Pressure	*Applies a pressure to a selected face in the model.*
MSC Nastran Keyword	***Entity: PLOAD, PLOAD2, PLOAD4***
Load Scale Factor	*Applies a load scale factor to the model at the selected locations.*
MSC Nastran Keyword	***Entity: DAREA***
Beam Dist. Load	*Applies a beam distributed load to the model at the selected locations.*
MSC Nastran Keyword	***Entity: PLOAD1, PLOADB3***
Lug Load	*Creates a lug load where a force is distributed over a curved surface.*
MSC Nastran Keyword	***Entity: PLOAD4***
Moment	*Applies a moment load to the model at the selected locations.*
MSC Nastran Keyword	***Entity: MOMENT, MOMENT1, MOMENT2***
Enforced Motion	*Applies enforced motion to a point in your model.*
MSC Nastran Keyword	***Entity: SPCD, SPCR***
Load Combination	*Combine multiple loads.*
MSC Nastran Keyword	***Entity: LOAD, DLOAD***

1D Axial Deformation	*Defines enforced axial deformation for one-dimensional elements.*
MSC Nastran Keyword	***Entity: DEFORM***
Bolt Preload	*Defines properties for Bolt Preload.*
MSC Nastran Keyword	***Entity: FORCE***

Loads and Constraints/Gravity, Rot. Force and Acceleration	
Gravity Load	*Applies gravitational acceleration with a specified magnitude and direction.*
MSC Nastran Keyword	***Entity: GRAV***
Rotational Force	*Applies a rotational force to the model at the selected locations.*
MSC Nastran Keyword	***Entity: RFORCE***
Acceleration Load	*Defines static acceleration loads.*
MSC Nastran Keyword	***Entity: ACCEL, ACCEL1***

Loads and Constraints/Dynamic Loads	
Dynamic Load	*Applies a dynamic load to the model by selecting the excitation loads.*
MSC Nastran Keyword	***Entity: RLOAD1, RLOAD2, TLOAD1, TLOAD2, ACSRCE***

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Loads/Constraints, Attribution, Interactions & Misc.

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Loads and Constraints/Thermal Loads	
Temperature	*Applies a constant or spatially varying temperature to the selected entities as a thermal load.*
MSC Nastran Keyword	***Entity: TEMP, TEMPD, TEMPP1, TEMPN1***
Beam Temperature	*Applies a temperature to the beam elements for determination of thermal loading.*
MSC Nastran Keyword	***Entity: TEMPRB, TEMPB3***

Attribution Tools/Properties	
Auto-Thickness	*Uses original solid geometry to automatically define thickness and offset section properties for midsurface elements.*
Thickness and Offset Field	*Applies thickness and offset field values to selected entities in the model.*
Material Orient. Field	*Applies material orientation to selected entities in the model.*
Interface	*Defines an interface with associated degrees of freedom for MNF Export.*
MSC Nastran Keyword	***Entity: ASET1, SET3***
Nonstructural Mass	*Applies mass per area or length to selected entities in the model.*
MSC Nastran Keyword	***Entity: NSM1, NSML1***
Point Mass	*Applies the specified mass and inertia properties at the location specified, connected to one or more existing nodes.*
MSC Nastran Keyword	***Entity: CONM2***
Panels	*Defines composite panels by arranging plies of specific materials with specified othickness and orientation.*
MSC Nastran Keyword	***Entity: MAT8, PCOMPG***

Interactions/Interactions and Ties	
Interaction	*Defines interaction, such as glued, touching and self-contact, between multiple parts independent of their existing mesh.*
MSC Nastran Keyword	***Entity: BCBODY1, BCONECT, BCONPRG, BCONPRP, BCONTACT, BCPARA, BCTABL1, BSURF***
Discrete Tie	*Creates a rigid or compliant tie between multiple points and a single point.*
MSC Nastran Keyword	***Entity: RBE2, RBE3***
Mesh Dependent Tie	*Defines a relationship between edges and faces of seperate parts to ensure a congruent connected mesh between them.*
MSC Nastran Keyword	***Entity: N.A. (Model Build Concept-Only)***

Interactions/Discrete Connectors	
Connector	*Creates a connector, based on multiple types, between entites in your model.*
MSC Nastran Keyword	***Entity: CELAS2, CDAMP2, CBUSH1D, CBUSH, RBAR, CBAR, CGAP, CFAST***
Joint	*Creates joints with specific degrees of freedom based on the selected joint type and orientation.*
MSC Nastran Keyword	***Entity: RBE2, RBE3***

Interactions/Bolts	
3D Bolt	*Defines properties for 3D bolt.*
MSC Nastran Keyword	***Entity: BOLT1***
Bolt Preload	*Defines properties for Bolt Preload.*
MSC Nastran Keyword	***Entity: FORCE***

Sensors and Instrumentation	
Point Sensor	*Monitors output of specific degre of freedom channels at a specified location.*
X-Section Force Sensor	*Defines a cross section location for a cross section force sensor to demonstrate transmitted loads in post processing.*

Coordinate System	
Coordinate System	*Allows you to create a user defined rectangular, cylindrical, or spherical coordinate system with location and orientation.*
MSC Nastran Keyword	***Entity: CORD2C, CORD2R, CORD2S***
Assign Coord. System	*Specifies an existing coordinate system to be used as the analysis coordinate system for specific entities.*

Group	
Group	*Creates a group for arbitrary entities.*

Design Exploration	
Design Variable	*The Design Variables are named entities that can define a single value, a continuous range of value or a discrete set of values.*

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Properties, Damping and Parameters

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Beams

Type	MSC Nastran Keyword	Description
Shape - Numeric Bar	**PBAR**	*Defines The Properties Of A Bar Element By Numerical Values.*
Shape - Numeric Beam	**PBEAM**	*Defines The Properties Of A Beam Element By Numerical Values.*
Shape - Standard	**PBEAML**	*Defines The Properties Of A Beam Element By Cross-Sectional Dimensions.*
Shape - Numeric Bar	**PROD**	*Defines The Properties Of A Rod Element By Numerical Values.*

2D Element Properties

Type	MSC Nastran Keyword	Description
Nonlinear Plane	**PLPLANE**	*Nonlinear Properties For A Plane Strain/Stress Or Axisymmetric Element.*
Shear Panel	**PSHEAR**	*Properties Of A Shear Panel.*
Nonlinear Shear Panel	**PSHEARN**	*Nonlinear Properties Of A Shear Panel.*
Shell	**PSHELL**	*Membrane, Bending, Transverse Shear, And Coupling Properties Of Thin Shell Elements.*
Nonlinear Shell	**PSHLN1**	*Additional Nonlinear Properties For Shell Elements.*
Nonlinear Plane Ext.	**PSHLN2**	*Additional Nonlinear Properties For A Plane Strain/Stress Or Axisymmetric Element.*

3D Element Properties

Type	MSC Nastran Keyword	Description
Interface Cohesive Zone	**PCOHE**	*Nonlinear Element Used To Simulate Delamination.*
Nonlinear Hyperelastic	**PLSOLID**	*Nonlinear Hyperelastic Solid Element.*
Nonlinear Solid	**PSLDN1**	*Additional Nonlinear Properties Of Solid Elements.*
Solid	**PSOLID**	*Properties Of Solid Elements.*

Sheets/Stacks

Type	MSC Nastran Keyword	Description
Sheet	**MAT8**	*Orthotropic material for isoparametric shell elements.*
Stack	**PCOMPG**	*Defines global ply IDs and properties for a composite material laminate.*

Modal Damping

Type	MSC Nastran Keyword	Description
Crit. Damping Fraction	**TABDMP1 (TYPE='CRIT')**	*Defines modal damping as a tabular function of natural frequency.*
Equiv. Viscous Damping	**TABDMP1 (TYPE='G')**	*Defines modal damping as a tabular function of natural frequency.*
Quality Factor	**TABDMP1 (TYPE='Q')**	*Defines modal damping as a tabular function of natural frequency.*

Parameters and System Cells

Type	MSC Nastran Keyword	Description
Parameters, Bulk Data	*Numerous*	*Refer To Documentation*
Parameters, Case Control	*Numerous*	*Refer To Documentation*
System Cells	*Numerous*	*Refer To Documentation*

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Materials & Material Dependency

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Materials

Type	MSC Nastran Keyword	Description
Shape Memory	**MASTSMA**	*Material Properties For Shape Memory Materials.*
Isotropic	**MAT1**	*Material Properties For Linear Isotropic Materials.*
Fluid	**MAT10**	*Material Properties For Fluid Elements In Coupled Fluid-Structural Analysis.*
Shell Anisotropic	**MAT2**	*Material Properties For Linear Anisotropic Materials For Two-Dimensional Elements.*
Planar Orthotropic	**MAT3**	*Material Properties For Linear Orthotropic Materials Used By The Ctriax6 Element Entry.*
Isotropic Thermal	**MAT4**	*Constant Or Temperature-Dependent Thermal Material Properties For Thermal Analyses.*
Anisotropic Heat Transfer	**MAT5**	*Thermal Material Properties For Anisotropic Materials.*
Shell Orthotropic	**MAT8**	*Orthotropic Material For Isoparametric Shell Elements.*
General Anisotropic	**MAT9**	*Linear, Temp-Independent, Anisotropic Material Properties For Solid Isoparametric Elements*
Digimat Composite	**MATDIGI**	*Defines Material Data For Advanced Composites With Digimat.*
Gasket	**MATG**	*Material Properties For Gaskets.*
Hyperelastic	**MATHE**	*Specifies Hyperelastic Material Props For Nonlinear (Large Strain/Rotation) Analysis.*
5th Order Mooney Rivlin	**MATHP**	*Material Properties For Nonlinear Hyperelastic Analysis Of Rubber-Like Materials.*
3D Orthotropic	**MATORT**	*3D Orthotropic Material Properties.*
Isotropic Poroelastic	**MATPE1**	*Material Properties For An Isotropic Poroelastic Material.*
Hypoelastic User Sub	**MATUSR**	*Specifies User-Defined, Generic Material Properties For Hypoelastic Material Models.*
Cohesive zone properties	**MCOHE**	*Material Cohesive Properties For A Fully Nonlinear Element Used To Simulate Delamination.*

Material Dependency

Type	MSC Nastran Keyword	Description
Fluid	**MAT10F**	*Frequency-Dependent Material Properties.*
Isotropic Freq. Dep.	**MAT1F**	*Frequency-Dependent Material Properties.*
Freq. Dep. Shell Aniso.	**MAT2F**	*Frequency-Dependent Material Properties.*
Freq. Dep. Shell Ortho.	**MAT8F**	*Frequency-Dependent Material Properties.*
Freq. Dep. Solid Aniso.	**MAT9F**	*Frequency-Dependent Material Properties.*
Elasto-Plastic	**MATEP**	*Elasto-Plastic Material Properties.*
Failure Models	**MATF**	*Failure Model Properties For Linear Elastic Materials.*
Iso Poroelastic Freq. Dep.	**MATF1**	*Frequency Dependent Properties For Isotropic Poroelastic Materials.*
Fatigue Properties	**MATFTG**	*Fatigue Material Properties For Time Domain-Based Analysis.*
Material Stress Dep.	**MATS1**	*Stress-Dependent Properties For Nonlinear Materials.*
NL Elastic Ortho. Axisym.	**MATS3**	*Advanced Orthotropic, Nonlinear Elastic Materials For Axisymmetric Elements.*
NL Elastic Shell Ortho.	**MATS8**	*Advanced Orthotropic, Nonlinear Elastic Material For Shell Elements.*
NL Elastis Ortho. Shell	**MATSORT**	*Advanced Orthotropic, Nonlinear Elastic Material for Shell Elements.*
Isotropic Temp Dep.	**MATT1**	*Temperature-Dependent Material Properties.*
Temp. Dep. Shell Aniso.	**MATT2**	*Anisotropic Material Temperature Dependence.*
Temp. Dep. Planar Ortho.	**MATT3**	*MAT3 Material Temperature Dependence.*
Temp. Dep. Isotrop. Thrm.	**MATT4**	*Thermal Material Temperature Dependence*
Temp. Dep. Aniso. Therm.	**MATT5**	*Thermal Anisotropic Material Temperature Dependence*
Temp. Dep. Shell Ortho.	**MATT8**	*Shell Orthotropic Material Temperature Dependence*
Temp. Dep. Solid Aniso.	**MATT9**	*Solid Element Anisotropic Material Temperature Dependence*
Thermo Elasto-Plastic	**MATTEP**	*Temperature-Dependent Elasto-Plastic Material Properties.*
Failure Time Dep.	**MATTF**	*Temperature, Strain Rate, Or Other Type Of Variation Of Material Failure Properties.*
Temp. Dep. Gasket	**MATTG**	*Temperature Variation of Interlaminar Materials*
Temp. Dep. Hyperelastic	**MATTHE**	*Hyperelastic Material - Temperature Dependence*
Thermo-Elastic Ortho.	**MATTTORT**	*Thermoelastic Orthotropic Material*
Table User-Def. Mat.	**MATTUSR**	*Specifies Table Variation of User Defined Generic Materials*
Viscoplastic or Creep	**MATVP**	*Viscoplastic Or Creep Material Properties.*

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Keyboard Shortcuts

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Keyboard Shortcuts		
Tool	**Shortcut**	**Functionality**
On mesh objects	**Double clicking**	*This launches the properties panel.*
Model Browser	**A**	*Toggles between showing and hiding the Model Browser.*
Model browser individual color button	**Double clicking**	*This launches the render panel and leaves it up.*
Meshing & Seeding pop up copy button	**Double clicking**	*Double clicking on the copy button keeps you in paste mode until you press ESCAPE.*
Transform Tool	**U**	*Unlocks manipulator so you can reposition or reorient it, then relock it by pressing U again.*
Transform Tool	**T**	*Switch to Axes Manipulators.*
Transform Tool	**R**	*Switch to Rings Manipulators.*
Transform Tool	**T**	*Alternate between Manipulator Axes.*
Transform Tool	**R**	*Alternate between Manipulator Rings.*
Transform Tool	**SPACEBAR**	*Bring up the transform pop up.*
Transform Tool	**CTRL**	*Holding CTRL while transforming copies and moves the object.*
Picking	**L**	*Switches between inclusive and exclusive mode for rectangular picking to select entities that are either entirely within the picking box or touched by it.*
Picking	**O**	*When you are preselecting, you can press 'O', and it will cycle through entities that the aperture is touching.*
Picking	**H**	*When you are preselecting over a face, you press 'H' and it will hide that face.*
Picking	**SHIFT + H**	*This unhides the faces that were hidden by the 'H' key.*
Picking	**ESCAPE + H**	*Unhides all faces that were hidden by the 'H' key.*
Picking	**P**	*Switch between allowing ability to pick occluded edges & vertices AND disallowing the ability to pick occluded edges & vertices.*
Picking	**Alt + Double Click**	*Selects entities that are contiguous with the point, curve, or surface picked.*
Sketcher	**F**	*Bring sketch grid parallel to the screen.*
Push Pull	**F**	*Tab through options in COPs.*
Push Pull	**ALT**	*As you push pull and you hold ALT down, it will snap up to targets.*
Push pull	**X**	*When you select a face you want to push pull through a solid to cut it, pressing 'X' will automatically cut through the solid.*
Vertex Drag	**SHIFT**	*When dragging, pressing SHIFT down will force the adjacent edges attached to the dragged vertex or edge to be straight.*
Selection	**CTRL**	*Toggle Accumulation multi selection.*
Selection	**SHIFT**	*Pure accumulation multi selection.*
Selection	**SHIFT + CTRL**	*Pure removal multi selection.*
Surface split	**SHIFT + MMB**	*In Manual model, clicking MMB will advance to the next selection stage, therefore SHIFT + MMB will reverse transition to the previous selection stage.*
Surface split by path	**SHIFT**	*During path creation, holding down forces the path straight instead of spline.*
Picking	**Up and down arrows**	*Traverse model hierarchy.*
Picking	**Left and Right**	*Traverse entity dimensionality.*
Snap box	**Z**	*Increases the size of the snap box.*
Snap box	**C**	*Decreases the size of the snap box.*
Seeding & meshing tools	**SPACEBAR**	*Launches the pop up with mesh & seeding properties.*
Application	**F11**	*Fullscreen mode.*
Application	**CTRL + N**	*New Model.*
Application	**CTRL + O**	*Open Model.*
Application	**CTRL + I**	*Import Geometry Files.*
Application	**CTRL + F**	*Import FEM Files.*
Application	**CTRL + G**	*Import Generative Design Results.*
Application	**CTRL + S**	*Save.*
Application	**CTRL + W**	*Close Model.*
Application	**CTRL + Q**	*Exit Application.*
General for all tools	**ESCAPE**	*Reverts to initial state of tool. Also clears selections.*
Curve tool	**SHIFT**	*Makes splines straight lines while holding SHIFT down and creating curves.*
Undo	**CTRL+Z**	*Does a general undo, up to a maximum of 50 steps.*
Redo	**CTRL+Y**	*Does a general redo.*

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