Types of Mates

Standard Mates

Coincident:
Positions selected planes, edges, and faces on the same infinite plane. If two vertices are chosen then will position them so that they touch.

Parallel:
Keeps selected items at a constant distance from each other.

Perpendicular:
Places selected items at a 90 degree angle from each other.

Tangent:
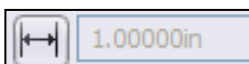Places a cylindrical, spherical, or conical face tangent with another component.

Concentric:
Places two cylindrical, spherical or conical faces of a part so that they share the same centerline.
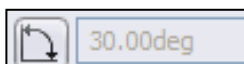
Lock:
Keeps two components at the same position and orientation.

Distance:
Specify a distance between two components planes, faces, or edges.

Angle:
Place components at a desired angle from another component. Can select an edge, face, or plane.

Mate alignment:	*Mate alignment:* Select the desired alignment for the components being mated. This will flip the components so that the face, edge, or plane is aligned correctly with its mating component.

Advanced Mates
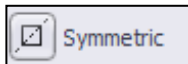
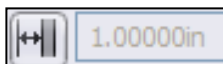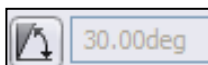|	
Symmetric	*Symmetric:* Make two similar entities be symmetric about a planar face or plane.
Width	*Width:* Centers a tab reference, a parallel planar face, a drafted face, or cylindrical face, within the width of a groove.
Path Mate	*Path Mate:* Constrains a single point or vertex to a component path. The user can define the pitch, yaw and roll of the component.
Linear/Linear Coupler	*Linear/Linear Coupler:* Establishes a relationship between the uniform movements of one component to another.
1.00000in	*Distance:* Add a limiting distance between components by giving it a maximum and minimum distance between components faces, edges, or planes.
30.00deg	*Angle:* Adds a limiting angle between component faces, edges, or planes by specifying a minimum and maximum angle.

Mechanical Mates
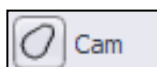
Cam	*Cam:* A type of tangent or coincident mate. Asks the user to select *all* of the cam face to which the follower will lie on and the face of the follower that will touch the cam.
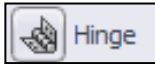
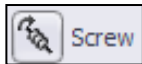|	
Hinge	**_Hinge:_** Constrain two components rotational degrees of freedom. Asks user to input two concentric sections, coincident faces, and the angle limit (how far the components can move from each other – identical to angle mate)
Gear	**_Gear:_** Mates two gears or cylindrical faces so that the two components rotate relative to one another about an axis. *Note: Select the inside bore hole of the gear or the axis, do not select the face of the gear.*
Rack Pinion	**_Rack Pinion:_** Similar to the gear mate except that the revolution of one component corresponds to the linear movement of the mating component. This mate does not require gear teeth.
Screw	**_Screw:_** Constrains two components with a concentric mate and defines a pitch relationship between the rotation of one component and the translation of another.
Universal Joint	**_Universal Joint:_** The rotation of a component about its axis is controlled by the rotation of the mating component about its axis.