Sketch Relation Glyphs

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| **Relation** | **Entities to select** | **Resulting relations** |
| **Horizontal or Vertical** | One or more lines or two or more points. | The lines become horizontal or vertical (as defined by the current sketch space). Points are aligned horizontally or vertically. |
| **Collinear** | Two or more lines. | The items lie on the same infinite line. |
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| **Perpendicular** | Two lines. | The two items are perpendicular to each other. |
| **Parallel** | Two or more lines.  A line and a plane (or a planar face) in a 3D sketch. | The items are parallel to each other.  The line is parallel to the selected plane. |
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| Relations to the global axes are called **AlongX**, **AlongY**, and **AlongZ**. Relations that are local to a plane are called **Horizontal**, **Vertical**, and **Normal**. | | |
| **Tangent** | An arc, ellipse, or spline, and a line or arc. | The two items remain tangent. |
| **Concentric** | Two or more arcs, or a point and an arc. | The arcs share the same centerpoint. |
| **Midpoint** | Two lines or a point and a line. | The point remains at the midpoint of the line. |
| **Intersection** | Two lines and one point. | The point remains at the intersection of the lines. |
| **Coincident** | A point and a line, arc, or ellipse. | The point lies on the line, arc, or ellipse. |
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| **Fix** | Any entity. | The entity’s size and location are fixed. However, the end points of a fixed line are free to move along the infinite line that underlies it. Also, the endpoints of an arc or elliptical segment are free to move along the underlying full circle or ellipse. |
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| **Merge Points** | Two sketch points or endpoints. | The two points are merged into a single point. |
| **Relation** | Entities to select | Resulting relations |
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Advanced Sketch Relation Glyphs

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| **Relation** | **Entities to select** | **Resulting relations** |
| **Horizontal or Vertical** | One or more lines or two or more points. | The lines become horizontal or vertical (as defined by the current sketch space). Points are aligned horizontally or vertically. |
| **Collinear** | Two or more lines. | The items lie on the same infinite line. |
| **Coradial** | Two or more arcs. | The items share the same centerpoint and radius. |
| **Perpendicular** | Two lines. | The two items are perpendicular to each other. |
| **Parallel** | Two or more lines.  A line and a plane (or a planar face) in a 3D sketch. | The items are parallel to each other.  The line is parallel to the selected plane. |
| **ParallelYZ** | A line and a plane (or a planar face) in a 3D sketch. | The line is parallel to the YZ plane with respect to the selected plane. |
| **ParallelZX** | A line and a plane (or a planar face) in a 3D sketch. | The line is parallel to the ZX plane with respect to the selected plane. |
| **AlongZ** | A line and a plane (or a planar face) in a 3D sketch. | The line is normal to the face of the selected plane. |
| Relations to the global axes are called **AlongX**, **AlongY**, and **AlongZ**. Relations that are local to a plane are called **Horizontal**, **Vertical**, and **Normal**. | | |
| **Tangent** | An arc, ellipse, or spline, and a line or arc. | The two items remain tangent. |
| **Concentric** | Two or more arcs, or a point and an arc. | The arcs share the same centerpoint. |
| **Midpoint** | Two lines or a point and a line. | The point remains at the midpoint of the line. |
| **Intersection** | Two lines and one point. | The point remains at the intersection of the lines. |
| **Coincident** | A point and a line, arc, or ellipse. | The point lies on the line, arc, or ellipse. |
| **Equal** | Two or more lines or two or more arcs. | The line lengths or radii remain equal. |
| **Equal Curvature** | Two splines | The [**radius of curvature**](javascript:BSSCPopup('Curvature_Continuous_Splines.htm');)and the vector (direction) matches between the two splines. |
| **Symmetric** | A centerline and two points, lines, arcs, or ellipses. | The items remain equidistant from the centerline, on a line perpendicular to the centerline. |
| **Fix** | Any entity. | The entity’s size and location are fixed. However, the end points of a fixed line are free to move along the infinite line that underlies it. Also, the endpoints of an arc or elliptical segment are free to move along the underlying full circle or ellipse. |
| **Pierce** | A sketch point and an axis, edge, line, or spline. | The sketch point is coincident to where the axis, edge, or curve pierces the sketch plane. The pierce relation is used in [**Sweeps with Guide Curves**](mk:@MSITStore:C:\Program%20Files\SolidWorks%20Corp\SolidWorks\lang\english\sldworks.chm::/Features/Recommendations_for_Sweeps_with_Guide_Curves.htm). |
| **Merge Points** | Two sketch points or endpoints. | The two points are merged into a single point. |