Functional features for design

- The usage of features is one way to come to more sophisticated CAD systems. Features for the design process appear to be most useful if they contain information related to functions and are thus able to support the design engineer in his functional considerations which are obviously of great importance within the design process. In the conception presented here features are used as “vehicles” to introduce functional aspects into CAD systems and CAD techniques. Thus these features might become the still missing link between design theory (design methodology) and CAD techniques. Moreover, the introduction of functional aspects into CAD systems could open up a new range of functionalities for the CAD systems themselves, because capacities like automatic classification or functional simulation can greatly profit from or even only be accomplished by processing functional information.

Defining feature points

On Face	Defines a feature point on a specific face.
By Vertex	Defines a feature point with respect to a vertex. When you select the point's location, Creo Elements/Direct Modeling automatically selects the nearest vertex as reference, and states its X,Y,Z offsets from the selected point. You can change these offsets, if necessary.
RefPlane	Defines a feature point with respect to a reference plane. Again, you can change the U,V offset of the point, and specify the plane by its normal and U direction.
By 2 Edges	Defines a feature point with reference to two edges. Offsets from the two selected edges can be given.
CenterPt	Defines a feature point with respect to the center point of an element.
3 Surfaces	Defines a feature point at the intersection of three planes (faces or workplanes).

Explicit functional features and functional feature points are otherwise created similarly to other custom process features.
When you export feature points to Creo Parametric,
• Feature points are exported as datum points. For more information, see Exporting feature points and references.
• Some types of feature points are not associative to geometric changes in Creo Parametric, as shown in the following table:

Type of feature point in Creo Elements/Direct Modeling	Comment	Type in Creo Parametric
On Face	Reference is not associative in Creo Parametric.	Datum Point
By Vertex	Reference is not associative in Creo Parametric.	Datum Point
Ref Plane	Reference is not associative in Creo Parametric.	Datum Point
By 2 Edges with zero offset	Dimension reference is associative to the intersection of the 2 edges.	Linear dimension reference (datum point is not referenced)
By 2 Edges with non-zero offset	Reference is not associative in Creo Parametric.	Datum Point
CenterPt	Dimensions referenced to the midpoint of any 3D edge are associative in Creo Parametric.	Linear dimension reference (datum point is not referenced)
3 Surfaces	Reference is not associative in Creo Parametric.	Datum Point