

CALYPSO
CALYPSO basic cnc

Operating Instructions



- CALYPSO shows that a datum must be completed by datum targets.

- 1 Open the definition template of the feature (e.g. of a plane).
- 2 Define the datum via point recall from the extracted corresponding datum targets.

NOTE

You also can perform the completion of the datum later on. As long as the datum has not been completed, a warning appears in the default report.

Datums for characteristics

Setting datums for characteristics

Geometrical features

You must assign one or two features in its definition template. The characteristic is determined on these features and the compliance with the tolerance is checked.

Datums

For many characteristics, it is also necessary to specify features as datums, e.g. for the Position. Datums allow you to define what has to be checked. Depending on the characteristic, you require one to three datums. CALYPSO uses the datums to calculate a datum reference frame with one origin point.

Selection of datums

Datums are selected on the basis of the following criteria:

- A primary datum should constrain the following degrees of freedom:
 - two rotational degrees of freedom for the calculation of the geometrical feature
 - one or two translational degrees of freedom

The primary datum must be set by a three-dimensional feature: a plane, a 3D line, a cylinder or a cone.

- The secondary datum constrains usually the remaining rotational degree of freedom.

The secondary datum must be set by the following features: a plane, a 2D line or a 3D line, a cylinder or a cone.

- A single additional feature provides the remaining one or two translational degrees of freedom.

NOTE

The designations primary, secondary and tertiary datum do not refer to the order in which they were entered in the definition template as primary, secondary and tertiary datum. For example, you can also enter the tertiary datum as primary datum.

Calculation of the datum reference frame

On the **Form Datum** notebook page in the **System Settings (Measurement Methods)** you can define for all measurement plans whether the calculation of the datums is to be carried out according to the CALYPSO standard or according to ISO 5459.

NOTE

For the calculation according to ISO 5459, only the "Outer tangential feature" evaluation method is useful. Moreover, the datums must be measured with a large number of points.

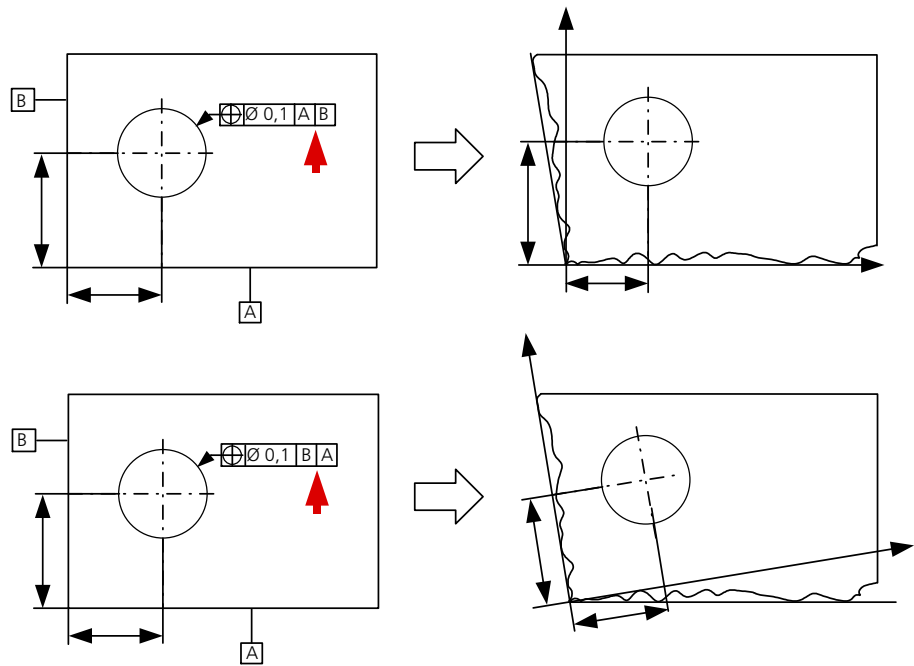
Both methods produce a datum reference frame with the same orientation. However, the systems have different origins.

NOTE

The **Ref. Calculation as per ISO 5459** setting is not considered if the compatibility mode **Calculate Alignment as Base Alignment** is set to "On".

CALYPSO standard

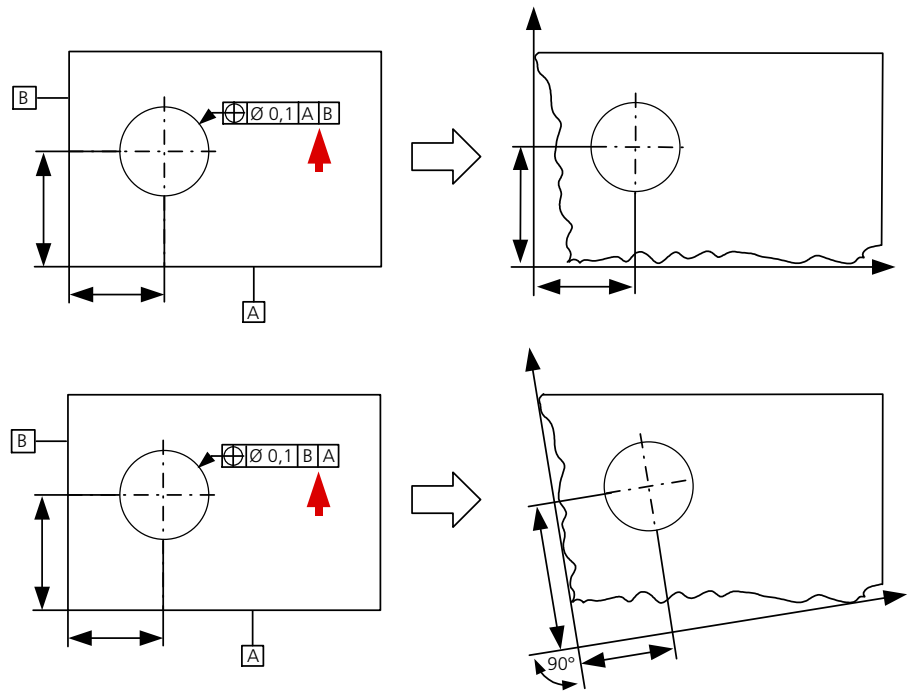
According to the CALYPSO standard, a feature (a plane in the example) is calculated from the primary datum by means of the Gaussian best fit. A feature (a plane in the example) is also computed from the secondary datum. The origin of the datum reference frame to be created lies on the intersection line of both features. The second feature is not necessarily perpendicular to the first feature. Therefore, the plane perpendicular to the first plane is used as the coordinate plane of the datum reference frame. Proceed in the same way for the tertiary datum.



Datums according to Calypso

ISO 5459

The ISO 5459 standard requires that the origin of the datum reference frame is defined as the intersection point of perpendicular planes. Consequently, the secondary datum cannot be calculated as an associated feature from the specified feature. It is created as the outer tangential feature with restriction of constraints, whereby the direction of the coordinate plane is predetermined by the required perpendicularity relative to the first coordinate plane. Proceed in the same way for the tertiary datum.



Datums according to DIN ISO 5459