

# User Manual 4.0 Plates

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### Definition

The plates are rectangles defined in a 3D space by their centre and a local orthogonal frame (U, V, W).

The normalized U vector defines the "length" direction, the normalized V vector defines the "width" direction.

The four corners are named C1, C2, C3 and C4 in the following order :



### Implementation

The Plate object implements the [SolidShape interface](#). Please refer to the [Plate javadoc](#) for a complete list of public methods.

### Instantiation

The plate object is built from a centre (Vector3D), two vectors (Vector3D) to describe its orientation, and two dimensions :

```
Vector3D center = new Vector3D(1.0, 1.0, 1.0);
Vector3D uVector = new Vector3D(1.0, 1.0, 0.0);
Vector3D inputvVector = new Vector3D(-5.0, 1.0, 0.0);
Plate plate = new Plate(center, uVector, inputvVector, 4.0, 2.0);
```

The local frame of the plate is built from the two orientation vector :

- U is the first once normalized (uVector)
- V is the vector normal to U in plane define by the two given vectors, in the direction of the second one (positive dot product with "input vVector")

### Usage

Please refer to the [MAT\_GEO\_Home#HInteractions Interactions with other geometrical objects section] for methods inherited from the Shape interface.

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