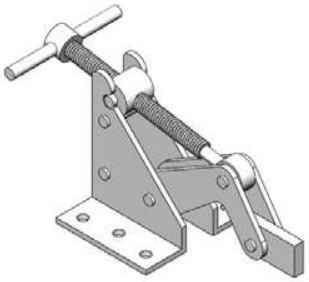
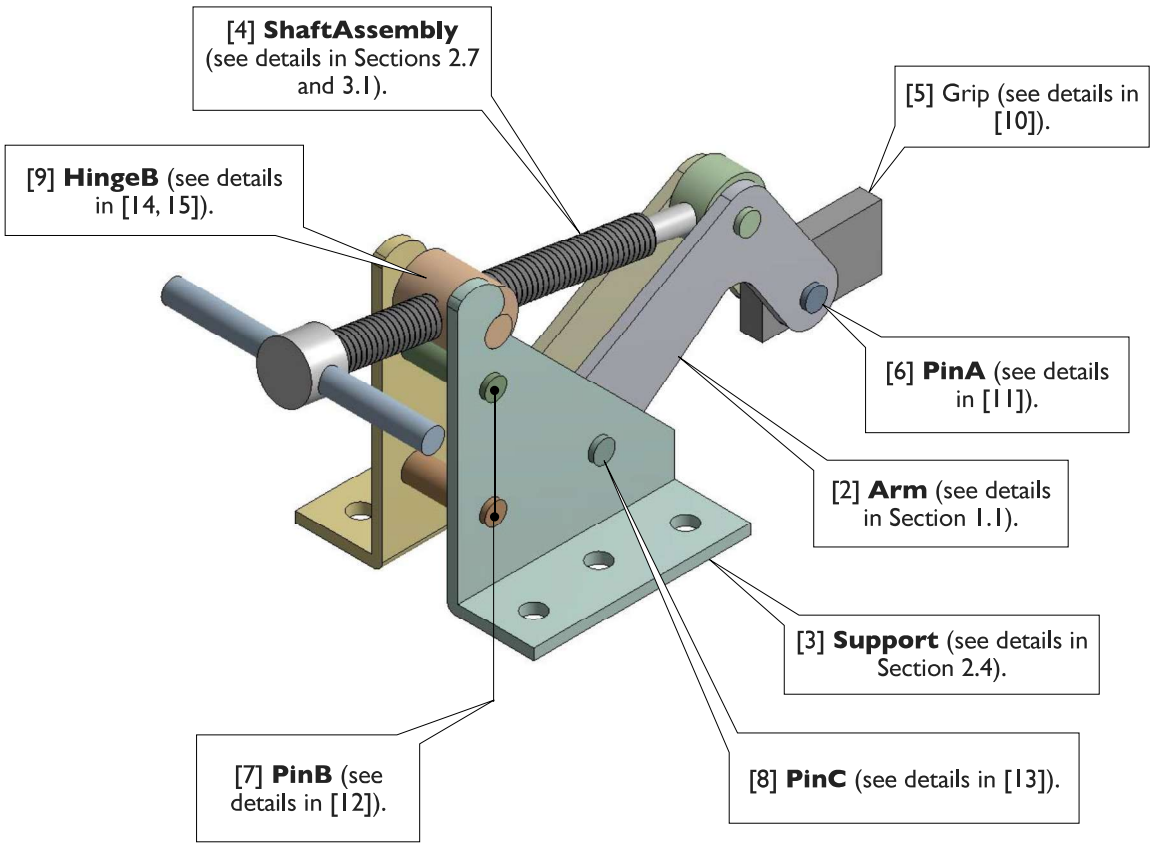
Section 3.3

Clamp

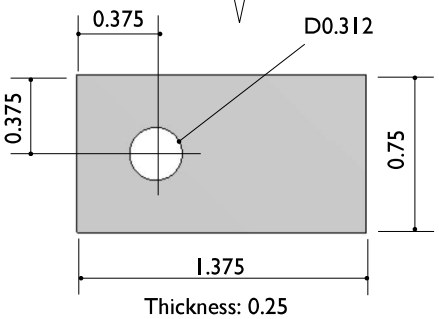


3.3-1 Introduction

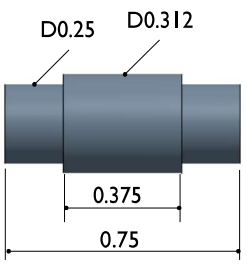
[1] In this section, we'll create a **clamping mechanism** mentioned in Sections 1.1, 2.4, 2.7, and 3.1. The assembly consists of 8 kinds of components [2-9], of which the **Arm** [2] was created in Section 1.1, the **Support** [3] was created in Section 2.4, and the **ShaftAssembly** [4] was created in Sections 2.7 and 3.1. Details of other components are shown in [10-15].



[10] Details of **Grip**.

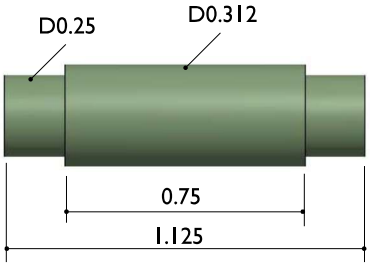


[11] Details of **PinA**.

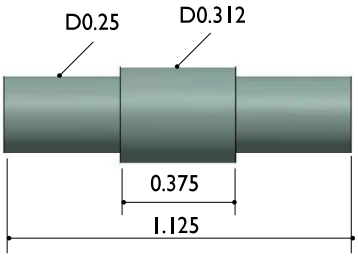


Unit: in.

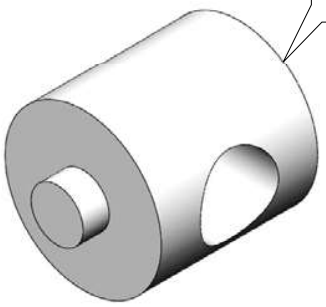
[12] Details of **PinB**.



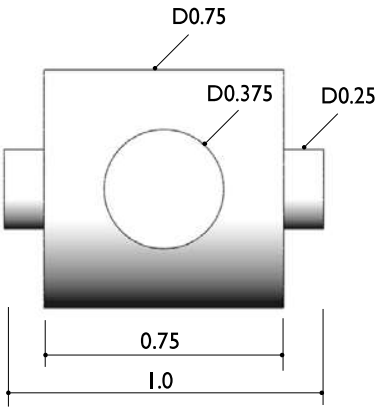
[13] Details of **PinC**.



[14] **HingeB**. The internal threads are neglected here.

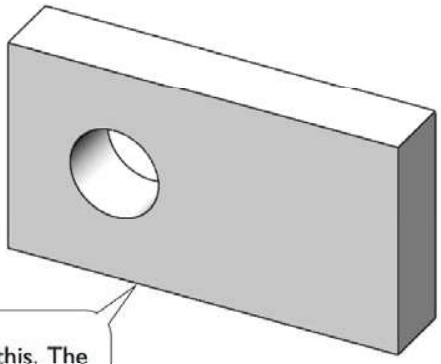


[15] Details of **HingeB**.



3.3-2 Create **Grip**

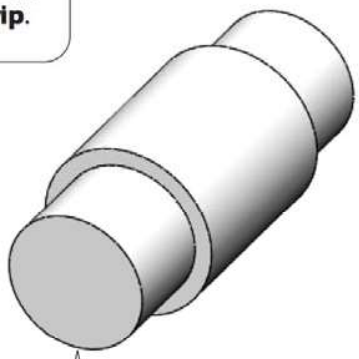
[1] Launch **SolidWorks**. Click **New** to create a new part. Set up **IPS** unit system with 3 decimal places for the length unit.



[2] Create a 3D model like this. The details are shown in 3.3-1[10]. Use any coordinate system as you like. Save the part with the file name **Grip**.

3.3-3 Create **PinA**

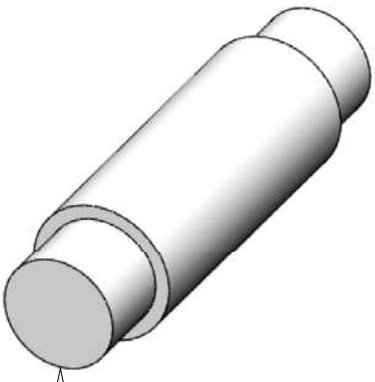
[1] Click **New** to create a new part. Set up **IPS** unit system with 3 decimal places for the length unit.



[2] Create a 3D model like this. The details are shown in 3.3-1[11]. Use any coordinate system as you like. Save the part with the file name **PinA**.

3.3-4 Create **PinB**

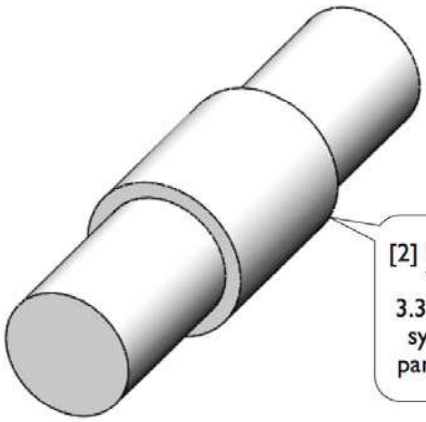
[1] Click **New** to create a new part. Set up **IPS** unit system with 3 decimal places for the length unit.



[2] Create a 3D model like this. The details are shown in 3.3-1[12]. Use any coordinate system as you like. Save the part with the file name **PinB**.

3.3-5 Create **PinC**

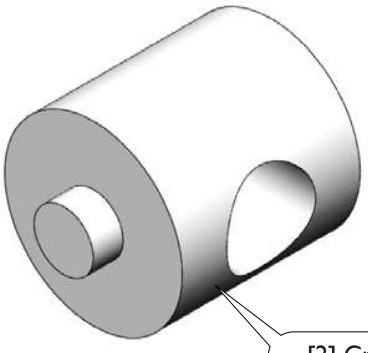
[1] Click **New** to create a new part. Set up **IPS** unit system with 3 decimal places for the length unit.



[2] Create a 3D model like this. The details are shown in 3.3-1[13]. Use any coordinate system as you like. Save the part with the file name **PinC**.

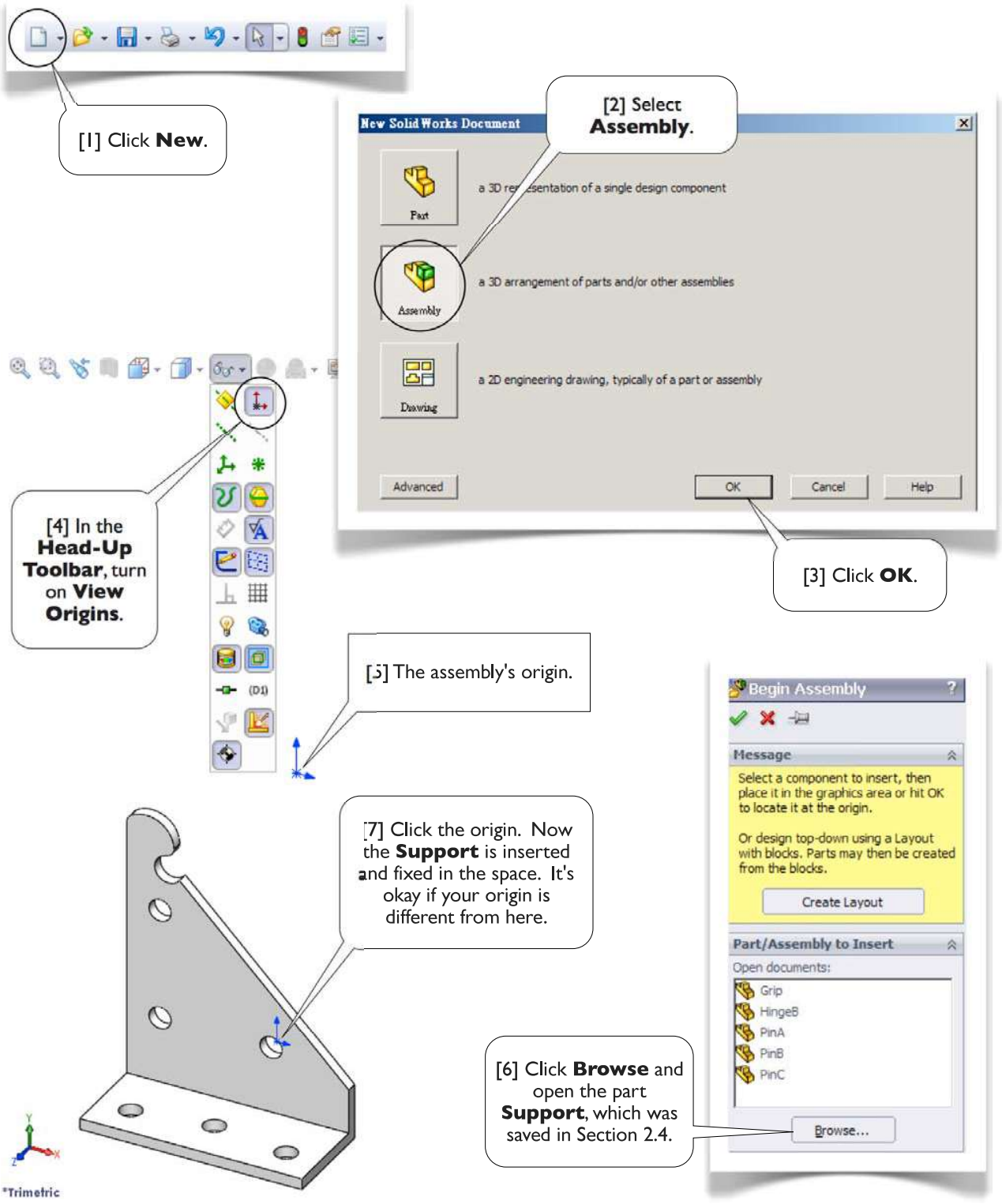
3.3-6 Create **HingeB**

[1] Click **New** to create a new part. Set up **IPS** unit system with 3 decimal places for the length unit.

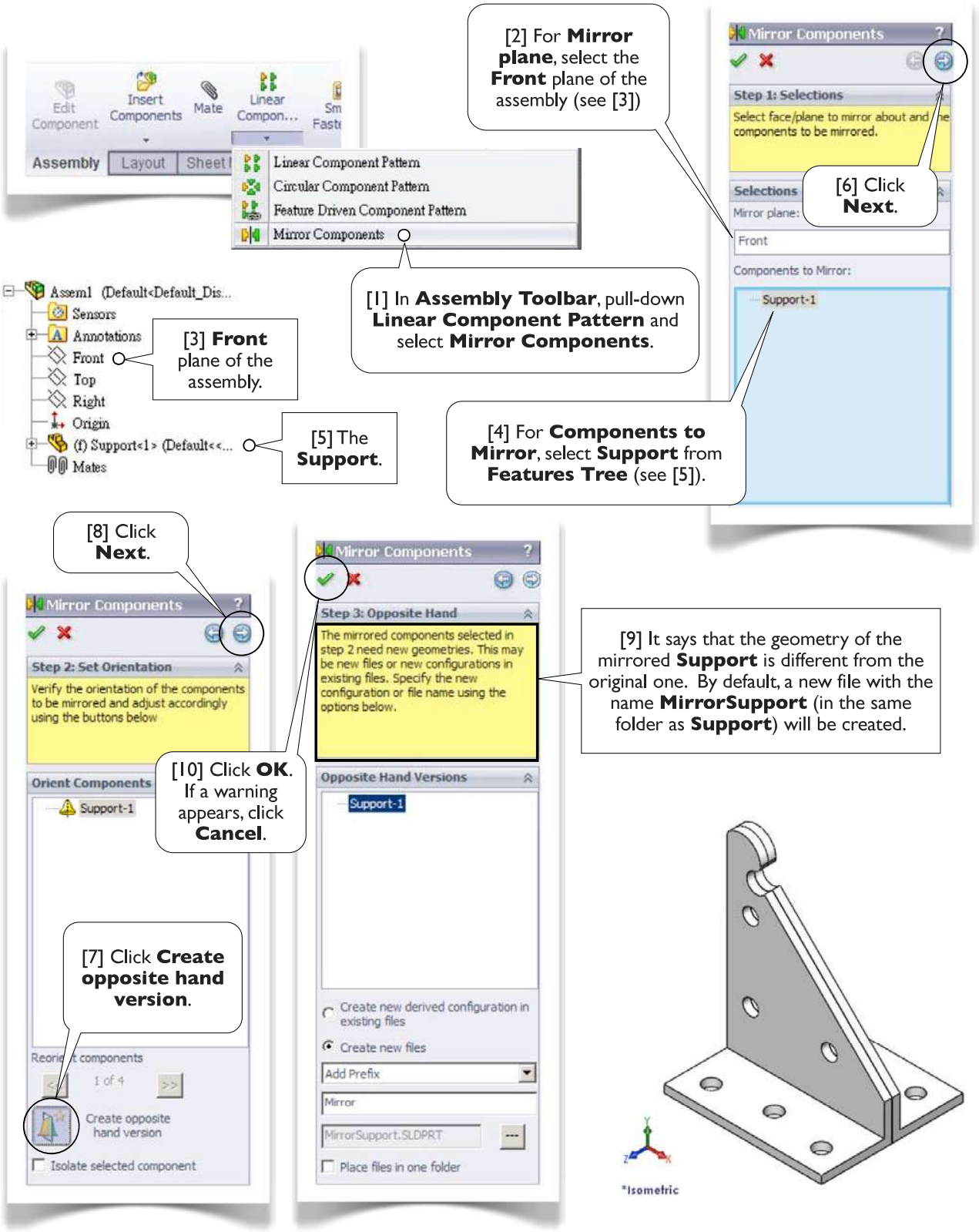


[2] Create a 3D model like this. The details are shown in 3.3-1[14, 15]. Use any coordinate system as you like. Save the part with the file name **HingeB**.

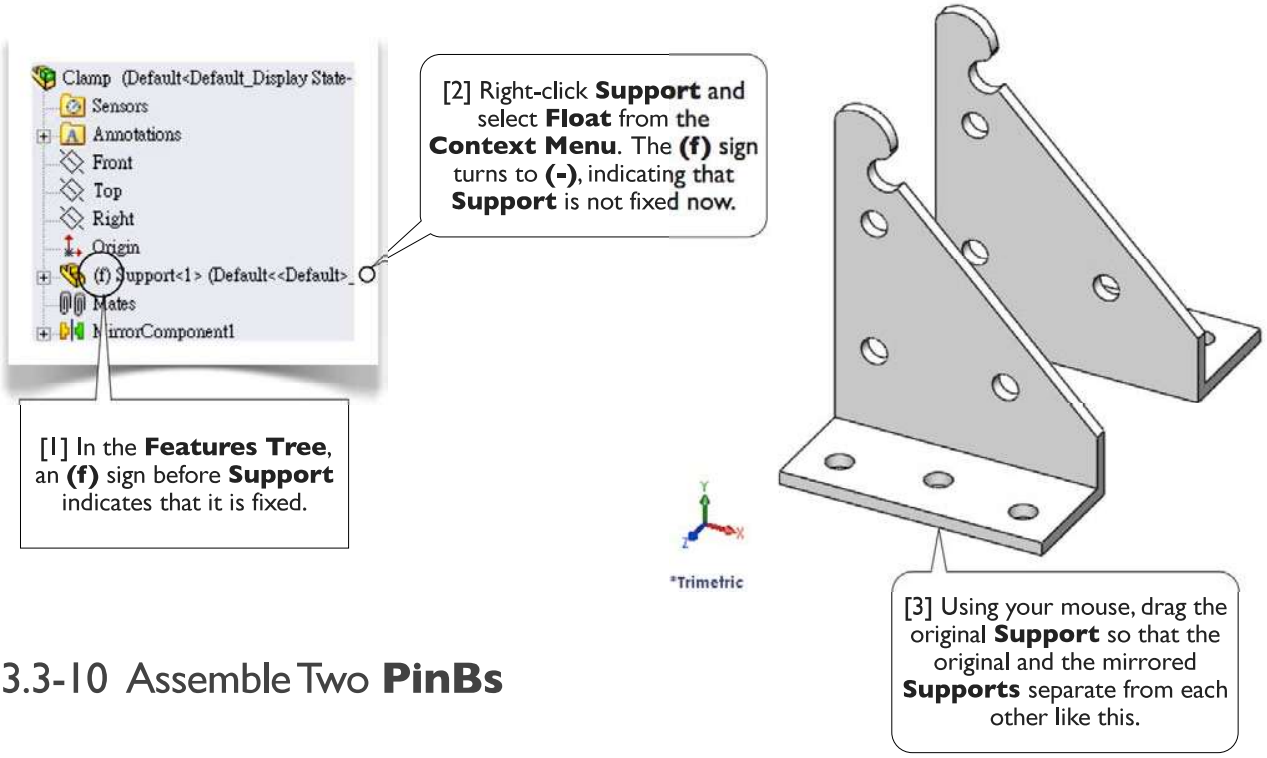
3.3-7 Create a New Assembly and Insert a **Support**



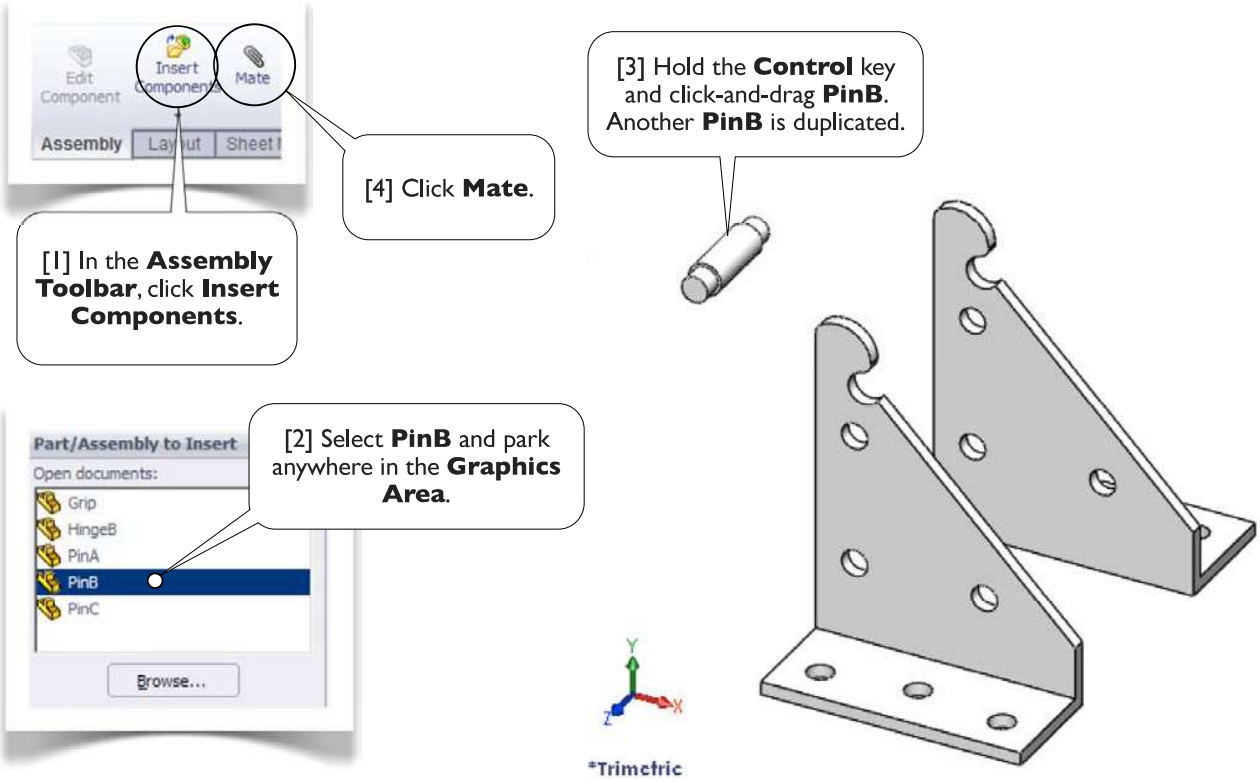
3.3-8 Mirror the **Support**

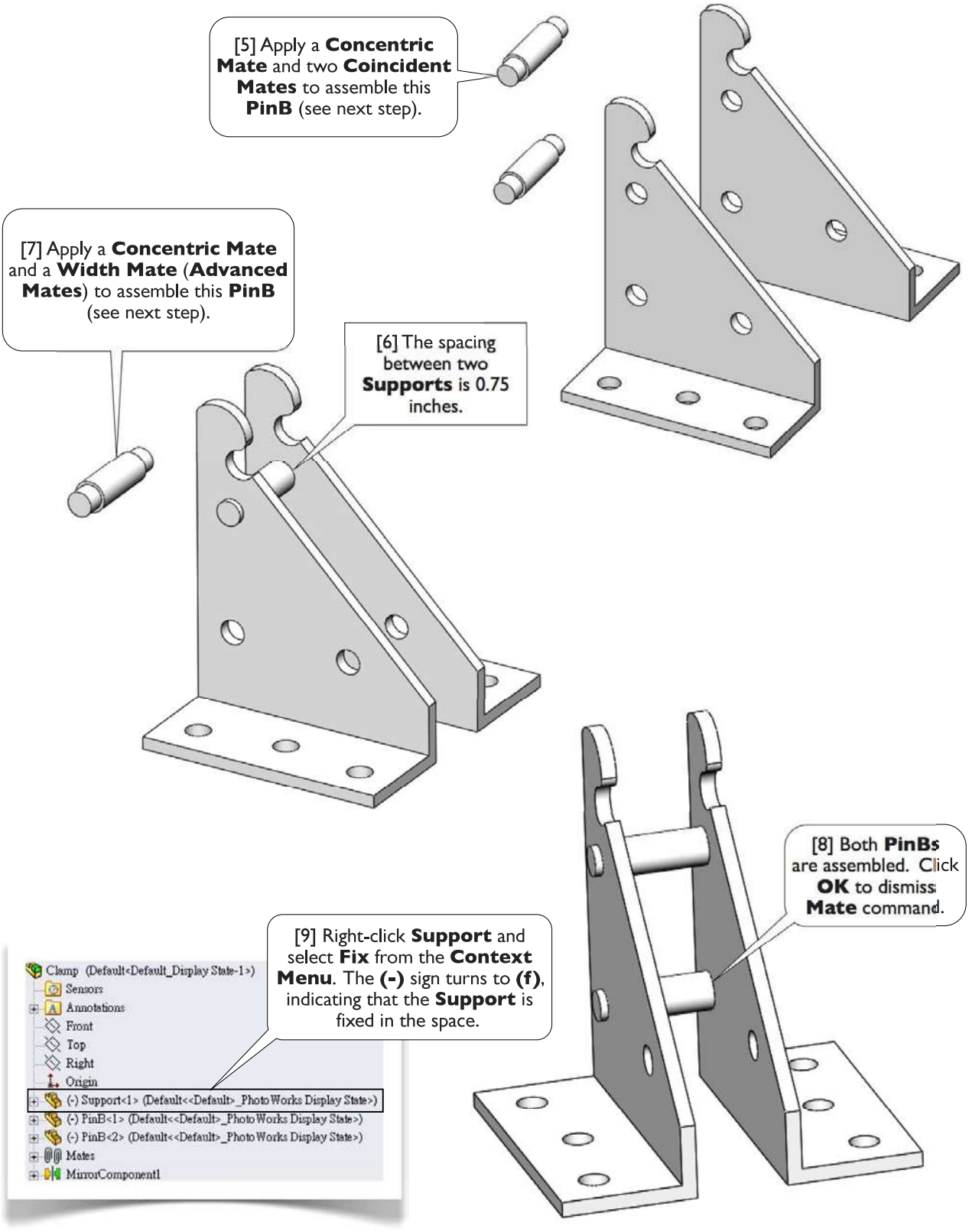


3.3-9 Unfix the **Supports**

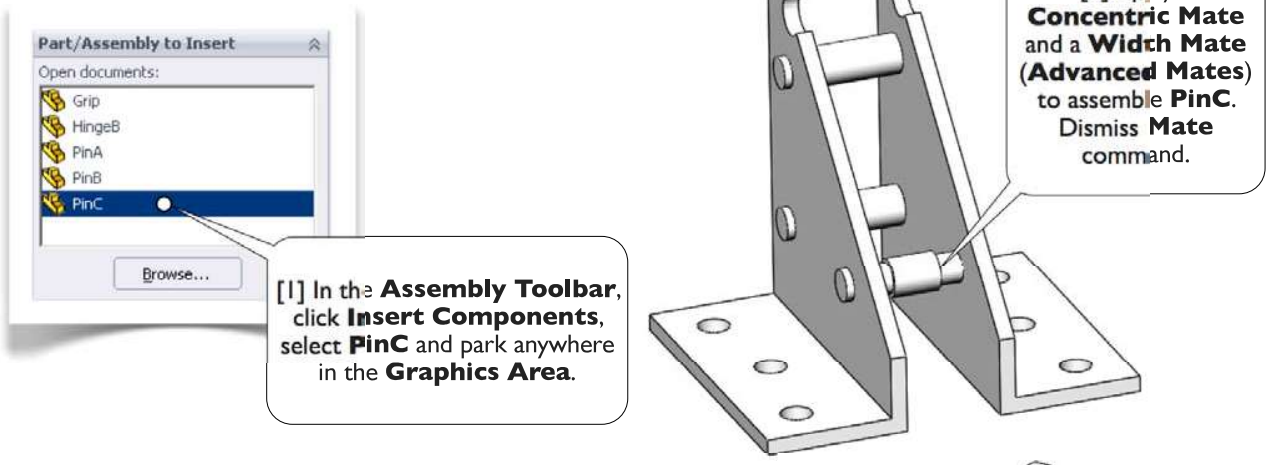


3.3-10 Assemble Two **PinBs**

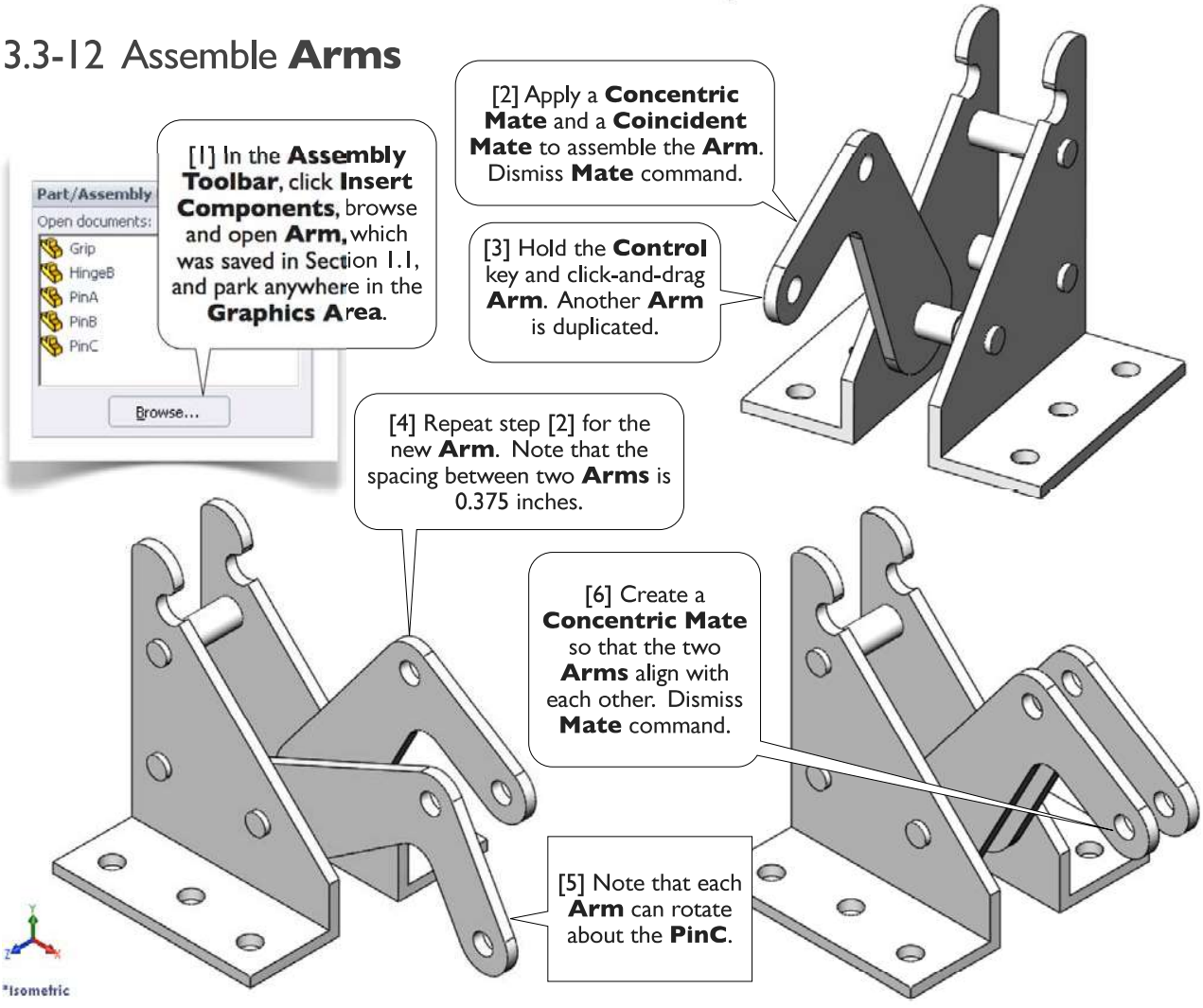



[5] Apply a **Concentric Mate** and two **Coincident Mates** to assemble this **PinB** (see next step).
[7] Apply a **Concentric Mate** and a **Width Mate** (**Advanced Mates**) to assemble this **PinB** (see next step).
[6] The spacing between two **Supports** is 0.75 inches.
[8] Both **PinBs** are assembled. Click **OK** to dismiss **Mate** command.
[9] Right-click **Support** and select **Fix** from the **Context Menu**. The **(-)** sign turns to **(f)**, indicating that the **Support** is fixed in the space.
Clamp (Default<Default_Display State-1>)
Sensors
Annotations
Front
Top
Right
Origin
(-) Support<1> (Default<<Default>_PhotoWorks Display State>)
(-) PinB<1> (Default<<Default>_PhotoWorks Display State>)
(-) PinB<2> (Default<<Default>_PhotoWorks Display State>)
Mates
MirrorComponent1

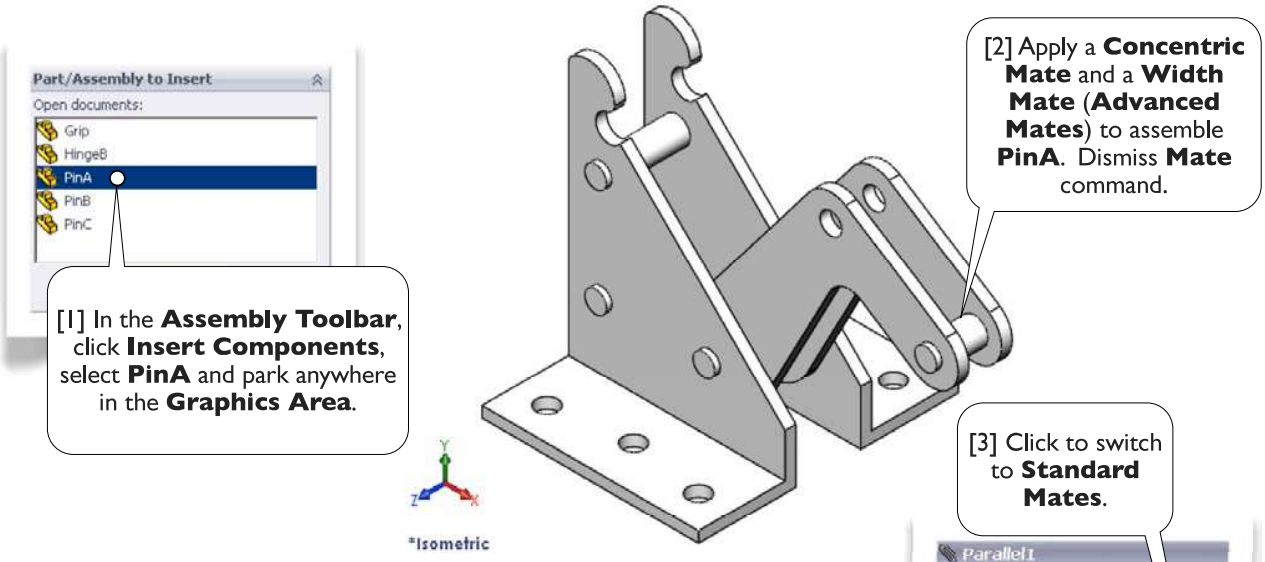
3.3-11 Assemble **PinC**



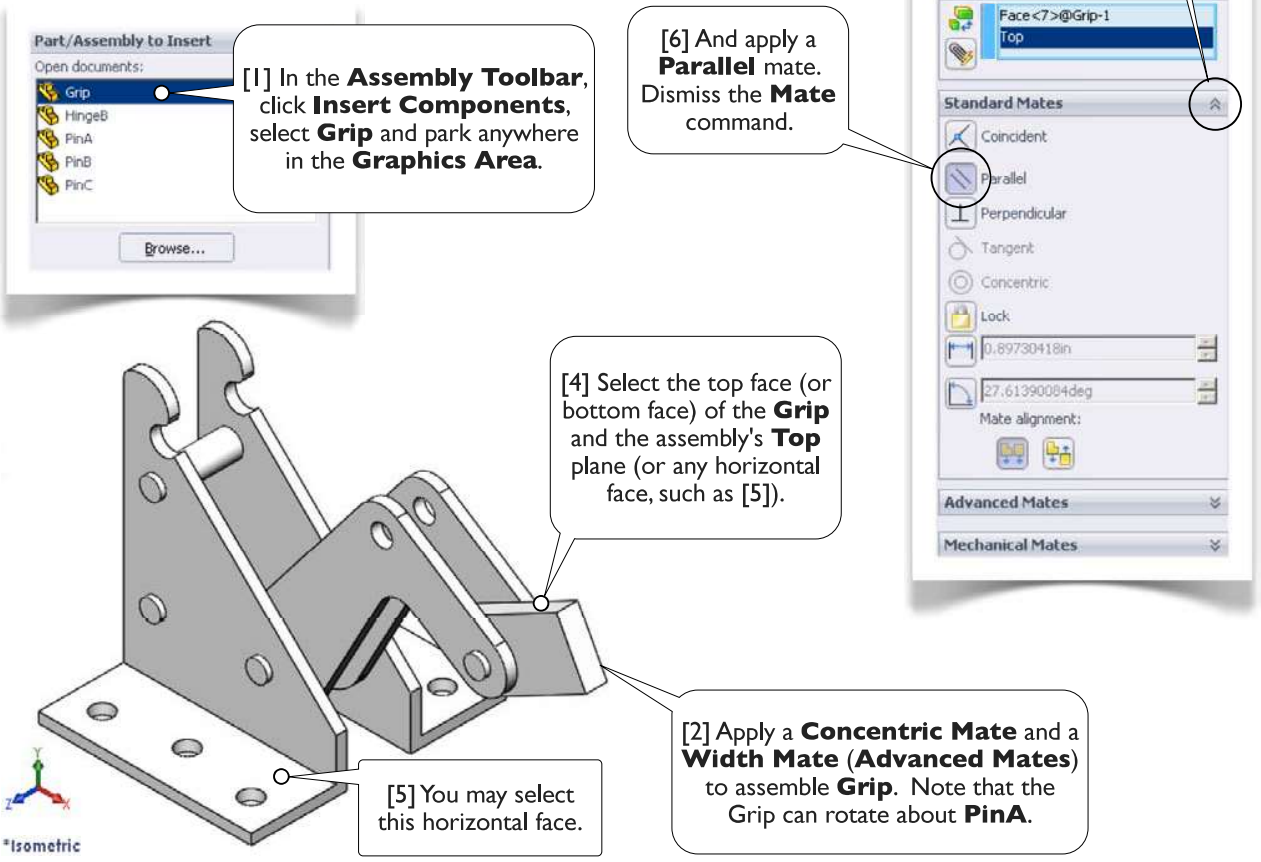
3.3-12 Assemble **Arms**

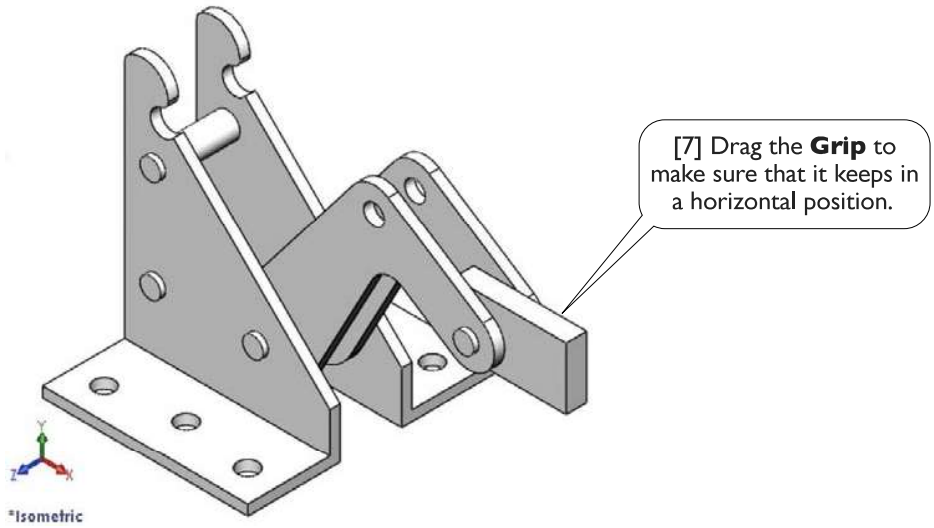


3.3-13 Assemble **PinA**

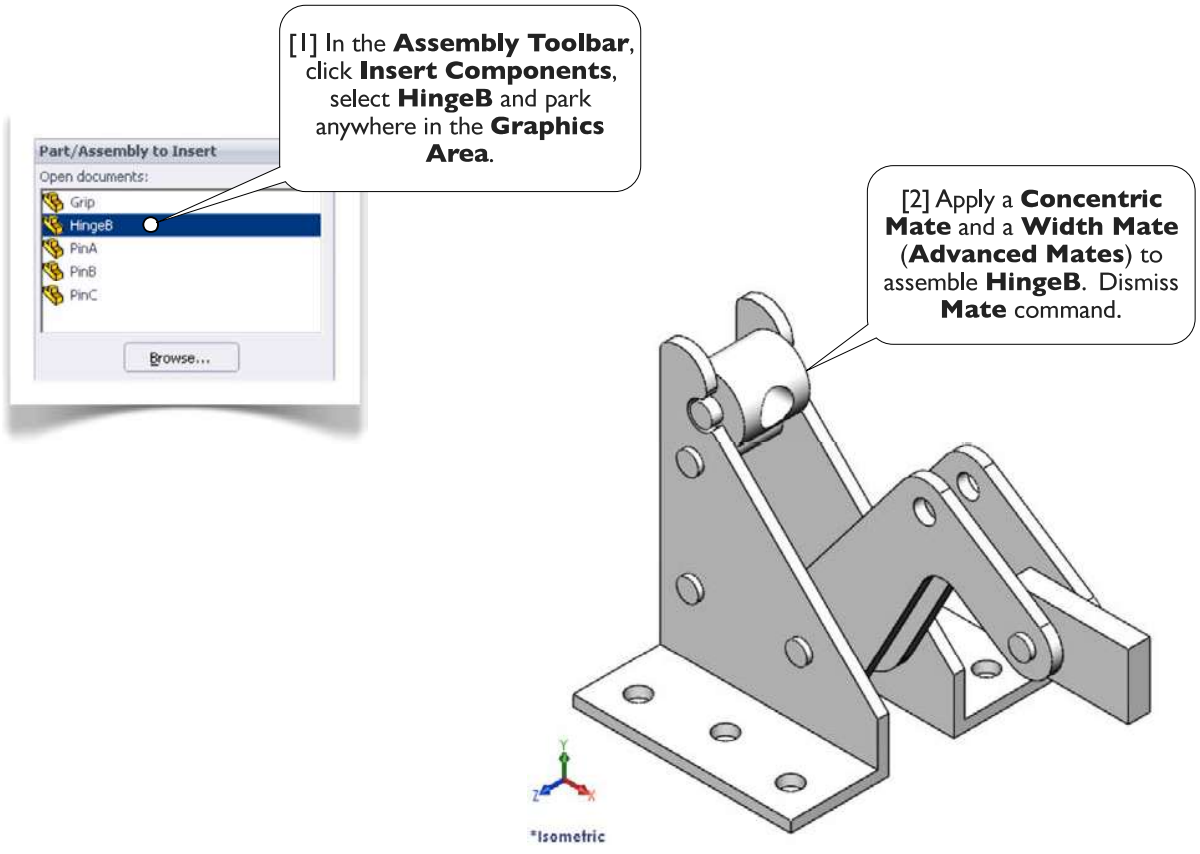


3.3-14 Assemble **Grip**

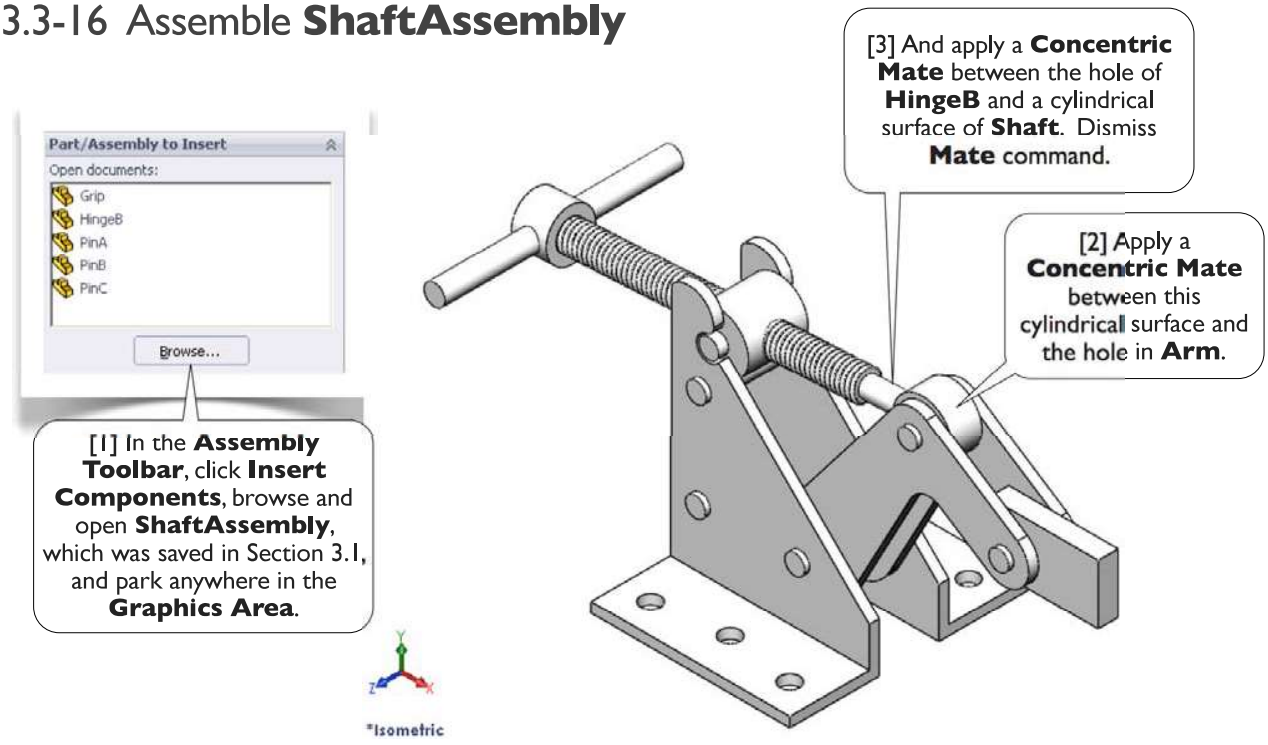




3.3-15 Assemble **HingeB**



3.3-16 Assemble **ShaftAssembly**



3.3-17 Test the Clamping Mechanism