

ANSYS 12 - Beam - Step 4

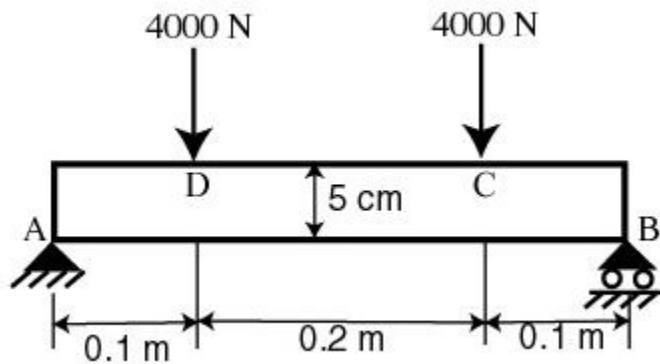
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Problem Specification

1. Pre-Analysis & Start-Up
2. Geometry
3. Mesh
4. Setup (Physics)
5. Solution
6. Results
7. Verification & Validation

Step 4: Setup (Physics)

We need to specify point BC's at A, B, C and D.



Let's start with setting up boundary condition at A.

Outline > Static Structural (A5) > Insert > Remote Displacement

Select point A in the **Graphics** window and click **Apply** next to Geometry under **Details of "Remote Displacement"**. Enter 0 for all UX, UY, UZ, ROTX and ROTY except for ROTZ. Let ROTZ to be free.

Details of "Remote Displacement"	
Scope	
Scoping Method	Geometry Selection
Geometry	1 Vertex
Coordinate System	Global Coordinate System
<input type="checkbox"/> X Coordinate	0. m
<input type="checkbox"/> Y Coordinate	0. m
<input type="checkbox"/> Z Coordinate	0. m
Location	Click to Change
Definition	
Type	Remote Displacement
<input type="checkbox"/> X Component	0. m (ramped)
<input type="checkbox"/> Y Component	0. m (ramped)
<input type="checkbox"/> Z Component	0. m (ramped)
<input type="checkbox"/> Rotation X	0. ° (ramped)
<input type="checkbox"/> Rotation Y	0. ° (ramped)
Rotation Z	Free
Suppressed	No

Let's move on to setting up boundary condition B.

Outline > Static Structural (A5) > Insert > Remote Displacement

Select point B in the *Graphics* window and click *Apply* next to Geometry under *Details of "Displacement 2"*. Enter 0 for all UY, UZ, ROTX and ROTY except for ROTZ. Let UX and ROTZ to be free.

Details of "Remote Displacement 2"	
Scope	
Scoping Method	Geometry Selection
Geometry	1 Vertex
Coordinate System	Global Coordinate System
<input type="checkbox"/> X Coordinate	0.4 m
<input type="checkbox"/> Y Coordinate	0. m
<input type="checkbox"/> Z Coordinate	0. m
Location	Click to Change
Definition	
Type	Remote Displacement
X Component	Free
<input type="checkbox"/> Y Component	0. m (ramped)
<input type="checkbox"/> Z Component	0. m (ramped)
<input type="checkbox"/> Rotation X	0. ° (ramped)
<input type="checkbox"/> Rotation Y	0. ° (ramped)
Rotation Z	Free
Suppressed	No

We can move on to setting up point force at point C and D.

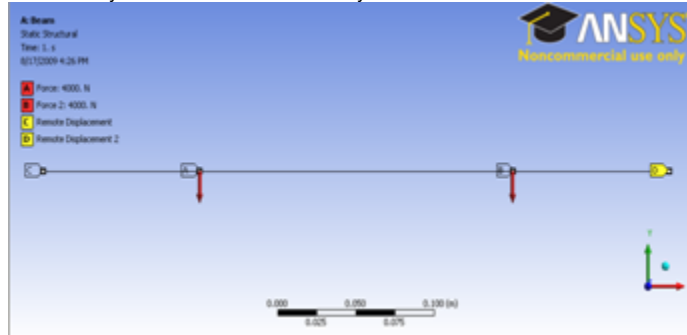
Outline > Static Structural (A5) > Insert > Force

Select point C in the **Graphics** window and click **Apply** next to Geometry under **Details of "Force"**. Next to **Define By**, change **Vector** to **Components**. Enter -4000 for **Y Component**.

Details of "Force"	
Scope	
Scoping Method	Geometry Selection
Geometry	1 Vertex
Definition	
Type	Force
Define By	Components
Coordinate System	Global Coordinate System
<input type="checkbox"/> X Component	0. N (ramped)
<input checked="" type="checkbox"/> Y Component	-4000. N (ramped)
Suppressed	No

Do the same for point D.

Check that you have for all the boundary conditions. Click on **Static Structural (A5)** to view this in Graphics window.



[Higher Resolution Image](#)

Go to Step 5: Solution

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