



KEYCREATOR®

Tips & Tricks

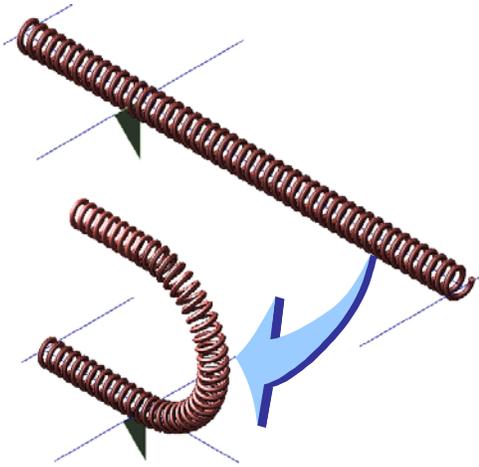
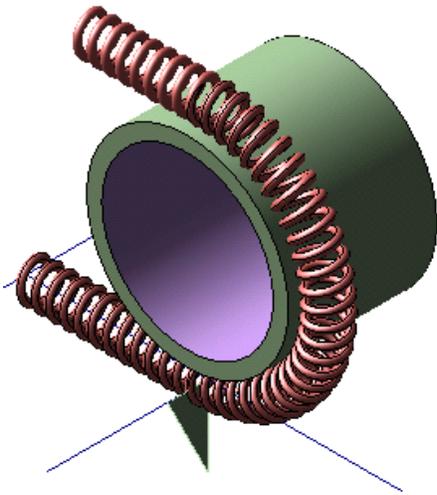


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Tips & Tricks #71 Bending a Spring

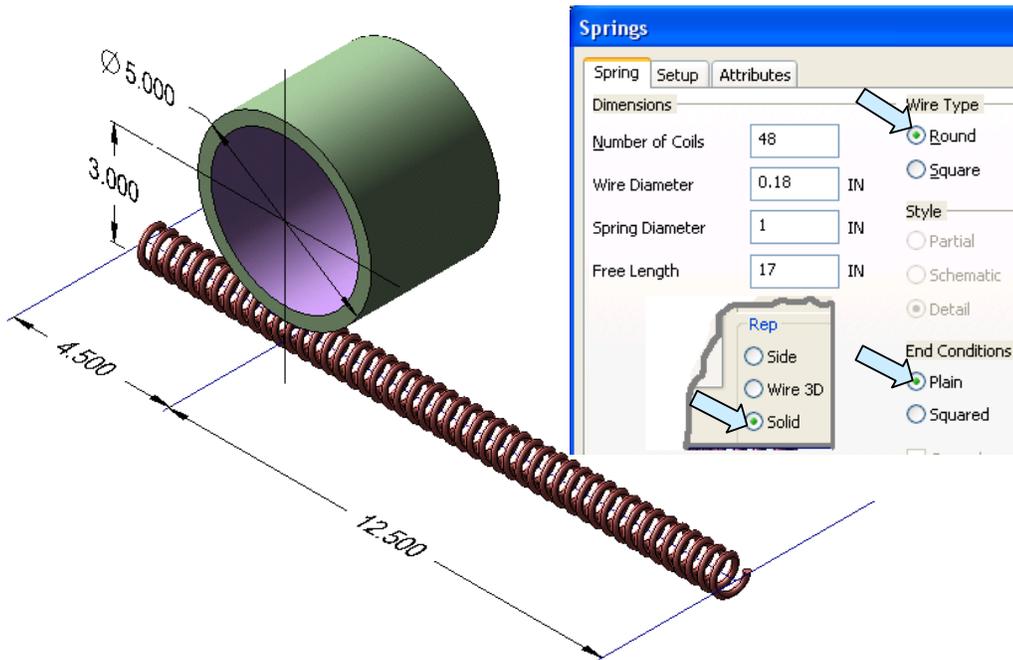
I've had several customers in the past few weeks independently ask if there was an easy way to model something like a spring that is wrapped around a form. For example, how would you model the coil spring shown to the right wrapped around a 5 inch diameter pipe 180 degrees so it heads back in the opposite direction.

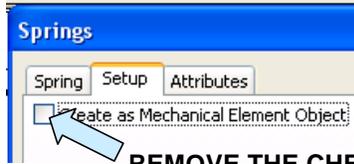


The finished model wrapped around the pipe would look like this:

This is really easy to do if you use our BEND A BODY Tool in the WARP Menu.

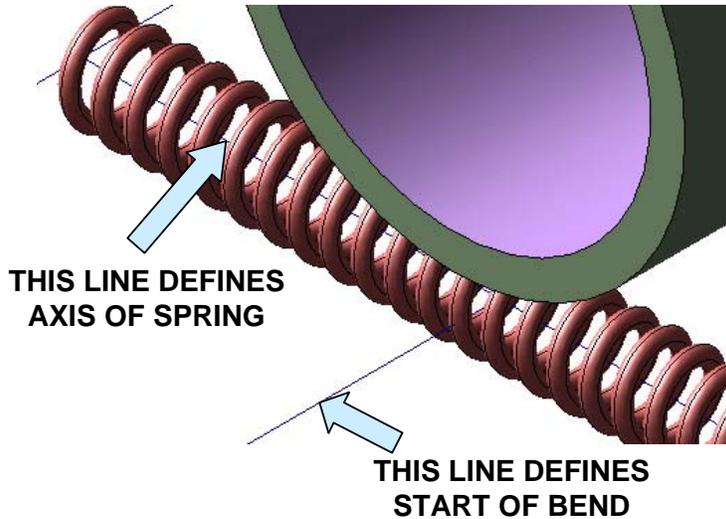
The file "BentSpring1.ckd" is available for download as part of this exercise. Or you can create your own spring and lines on the screen using the information below.





You want to make sure you remove the check from “Create As a Mechanical Element Object” in the Setup Tab. Otherwise, you won’t be able to bend the spring.

If you forget to remove the check, you can click on the GENERIC BURST Icon and then ONCE on the spring to remove the protection.



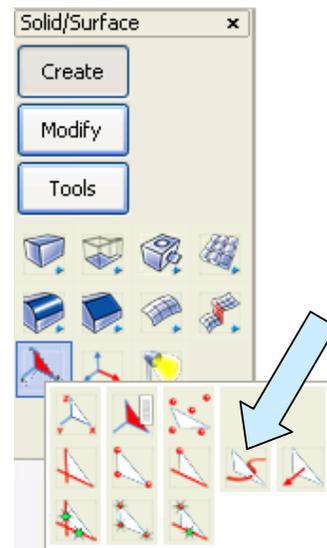
When I bend a solid object like this spring, I first create a reference line that defines the longitudinal axis of the part.

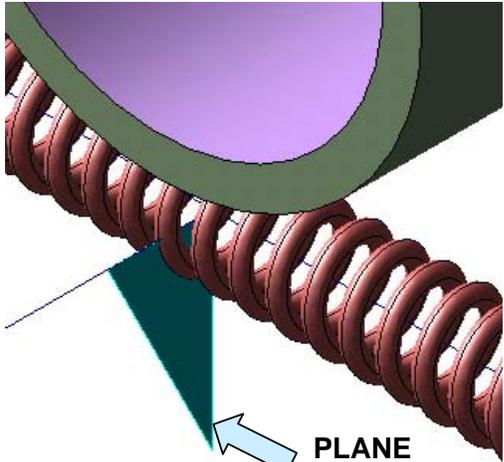
I then construct a line perpendicular to it that defines the start of the bend that I want to make. (These lines are included in the download file. If you are making your own model, create them also.)

Bending the Spring

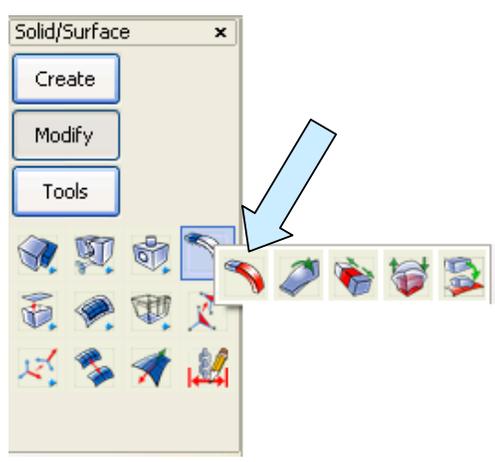
Bending the spring is really quite simple. First, let’s click on the PLANE NORMAL TO A CURVE Icon.

Select the Exist Pt Option on the Conversation Bar. Click on the line that defines the axis of the spring and then using the Intrsect Option on the Conversation Bar, click on the same line again and then on the line that defines the start of the bend.

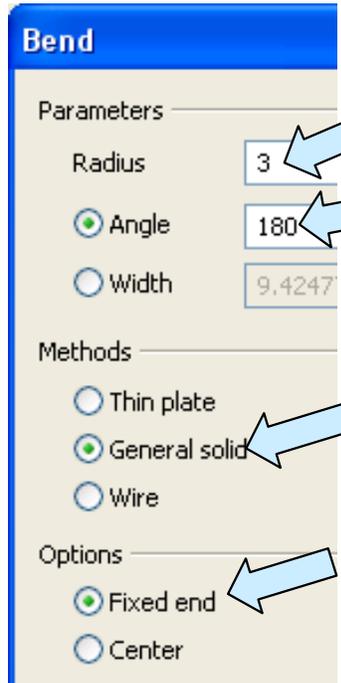




A Plane Marker will appear perpendicular to the longitudinal axis line at the intersection position.



Now, click on the BEND A BODY Icon.



A Dialog Box appears.

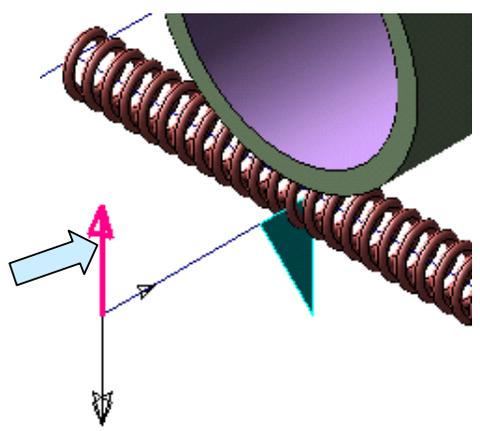
Type 3 for the Radius and 180 for the Angle.

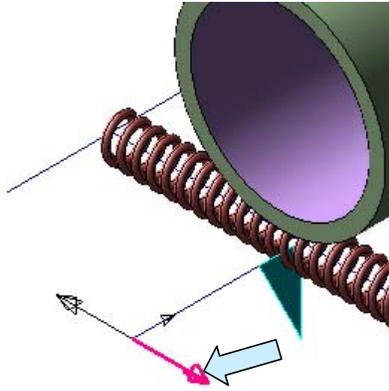
Select the General Solid Method and the Fixed End Option. Then, click on OK.

Select the spring and then click on the Plane marker when you are prompted to define the Bend Axis Plane.

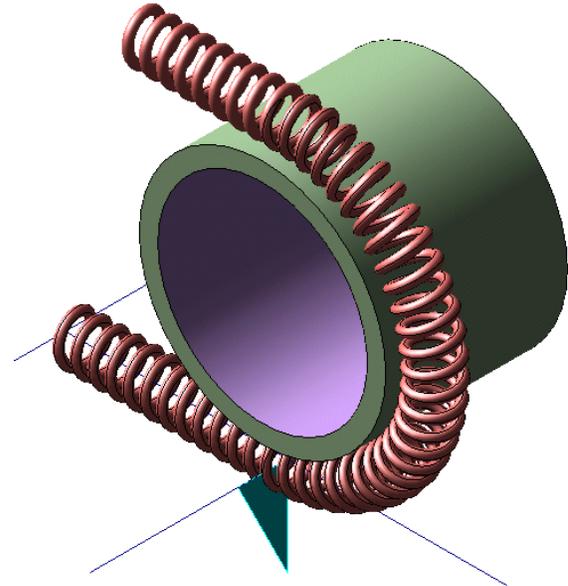
You are then prompted to select the Bend Axis Vector. Click on the line that defines the start of the bend.

Vectors appear coming off the line. Click on the upward-facing vector.

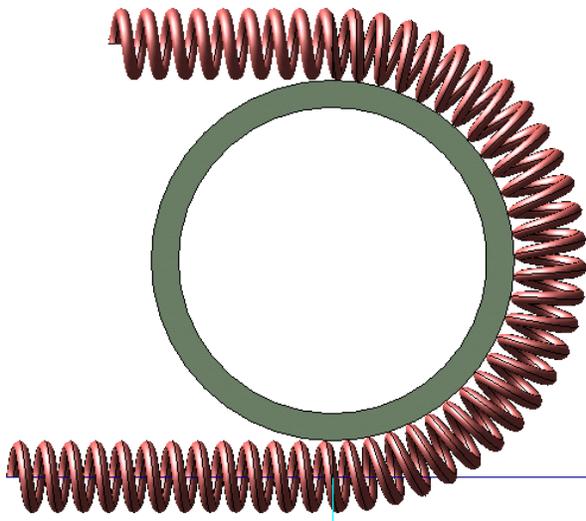




Next, you are asked to indicate which side to bend. Click on the right-facing vector.



The spring wraps itself perfectly around the pipe!



Note: I used a spring in this example. You can bend almost any type of long solid part around a radius using this same approach!