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CREATING AUTODESK FABRICATION ITEMS

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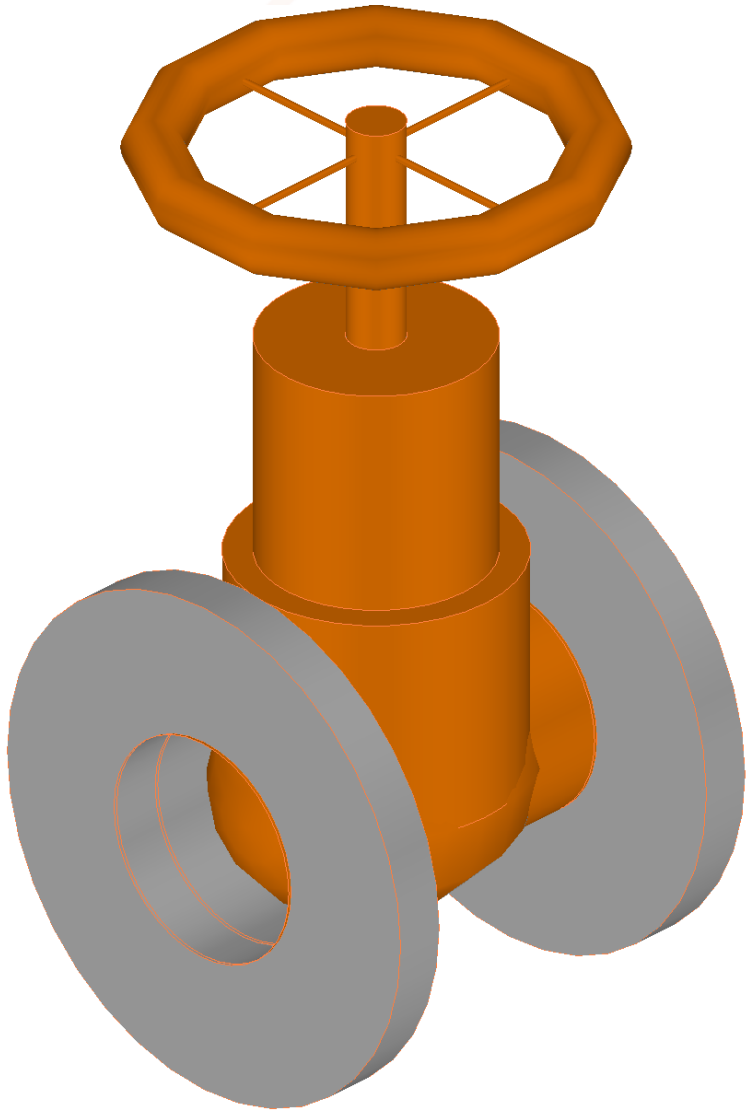
APPLIED SOFTWARE

CREATING FABRICATION ITEMS

In this session we are going to look at how to create a valve **ITM** from scratch. The goal is to give you a basic understanding of how a valve can be created and with the supporting documentation, give you a running start on creating your own custom valves.

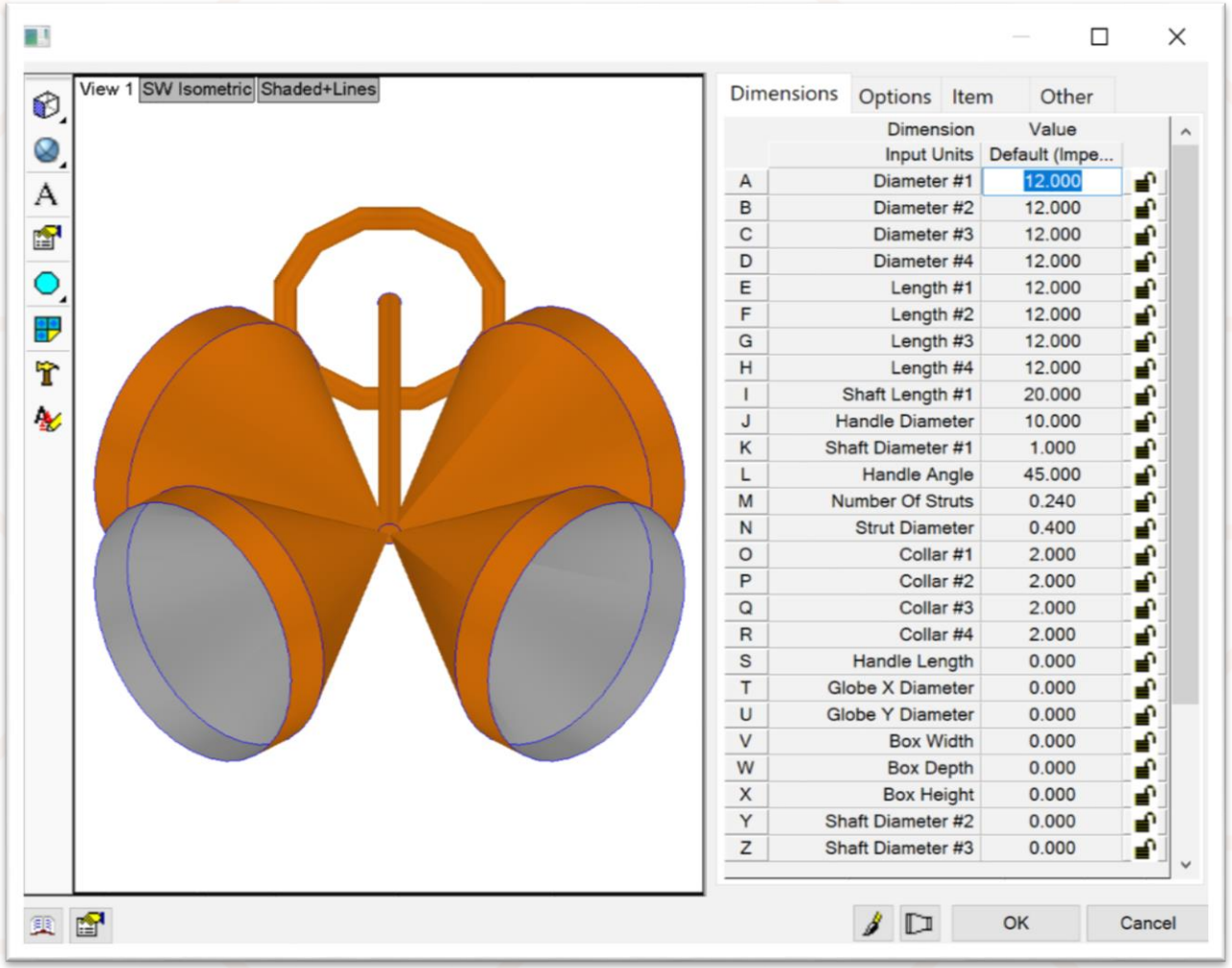


USING MAKEPAT

We will start off by using the **MAKEPAT** command to pull up the “raw” pattern that we will use to create our valve.

- To launch the **MAKEPAT** command in **CADmep** type in **MAKEPAT** in the command line and hit **Enter**. At the command prompt, type **868** and hit **Enter**.
- To launch the **MAKEPAT** command in **ESTmep** or **CAMduct**, hold down the **SHIFT key + CTRL + C** to bring up the **Console** window. In the **Console** window, type in **MAKEPAT** followed by a blank space, and then type **868** and hit **Enter**. For example, **(MAKEPAT 868).** Once the **Takeoff** dialog box comes up, close the **Console** window by clicking the **X** in the upper right corner of the **Console** window or hold down the **SHIFT key + CTRL + C**.

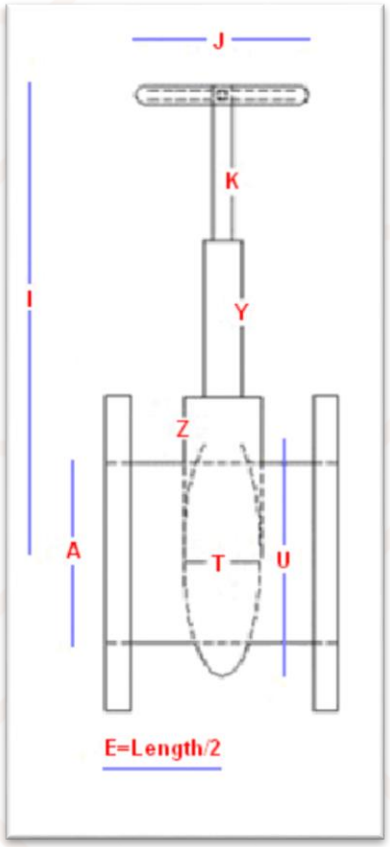
ITM CID PATTERNS



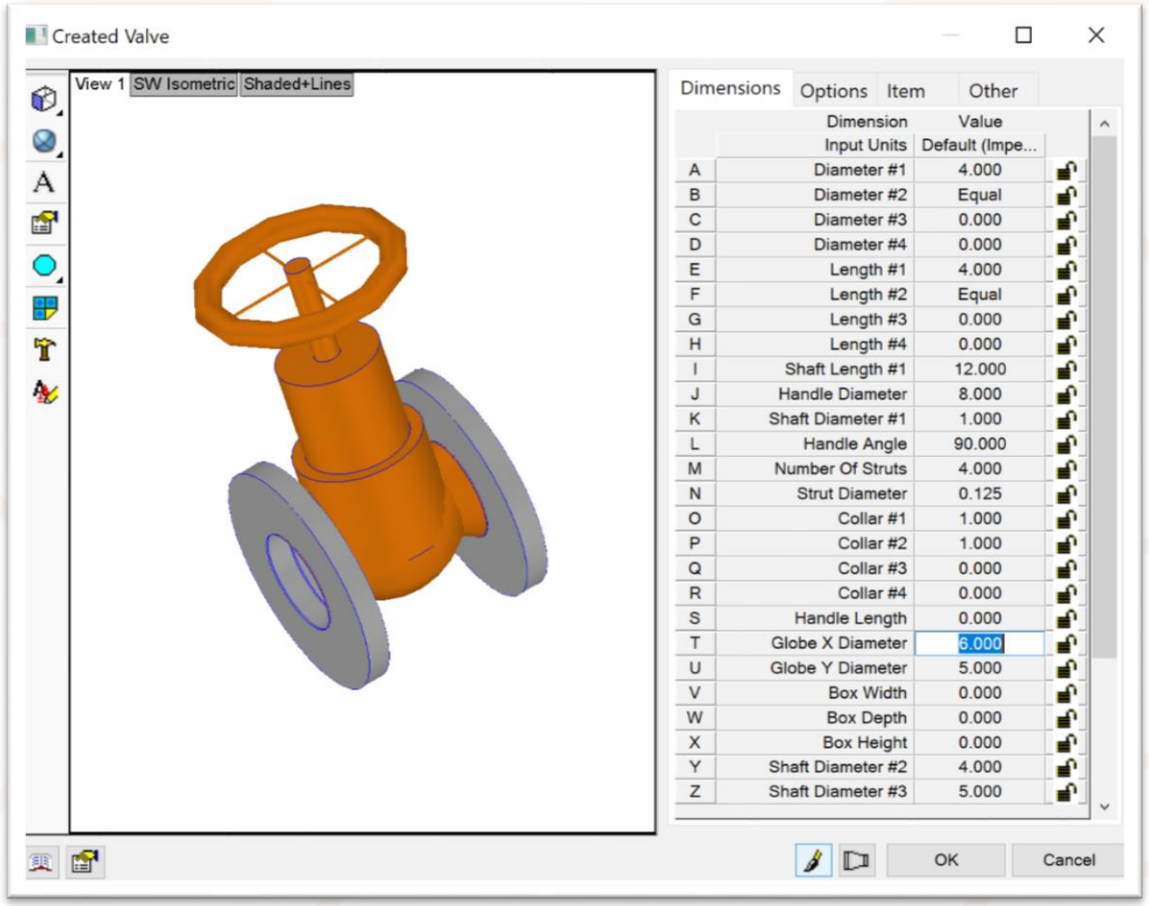
After the MAKEPAT command is used, this what we see. This is the base **Pattern 868.** By adjusting the options and settings available we will be able to create the finished valve shown on the first slide.

VALVE DIMENSIONS

Letter	Dimension	Notes
A B C D	Diameter # 1 - 4	Diameter of the connecting plate
E F G H	Length # 1 - 4	Shaft length to the outer edge
I	Shaft Length	The length of all shafts together from the center of the flange
J	Handle Diameter	Handle diameter
K	Shaft Diameter # 1	Thickness of the handle and shaft attached to the handle
L	Angle	Angle of the shaft on a valve
M	Number of Struts	Number of struts on the handle
N	Strut Diameter	Diameter of struts on the handle
O P Q R	Collar # 1 - 4	Depth of the collar at the end of the flange
S	Handle	Handle offset from shaft
T U	Global X - Y Diameter	Alters the X - Y diameter of the valve casing
V	Width	Only used when a box is present
W	Depth	Only used when a box is present
X	Height	Only used when a box is present
Y	Shaft Diameter # 2	Changes the upper shaft diameter
Z	Shaft Diameter # 3	Changes the lower shaft diameter



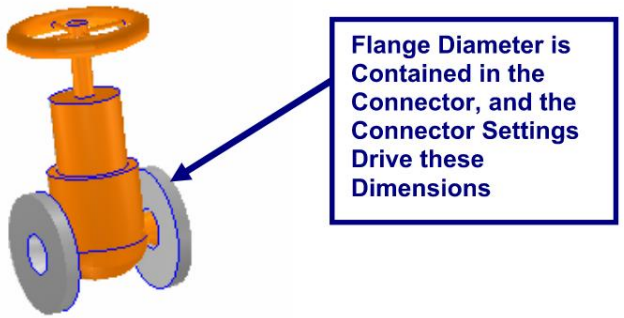
EDIT PROPERTIES BOX - DIMENSIONS



The letter codes (A, B, C, D, etc.) on the previous slide coincide with what you see on the first tab **“Dimensions”** when editing an item. The following slides will explain what each field means.

ITEM DIMENSION PROPERTIES

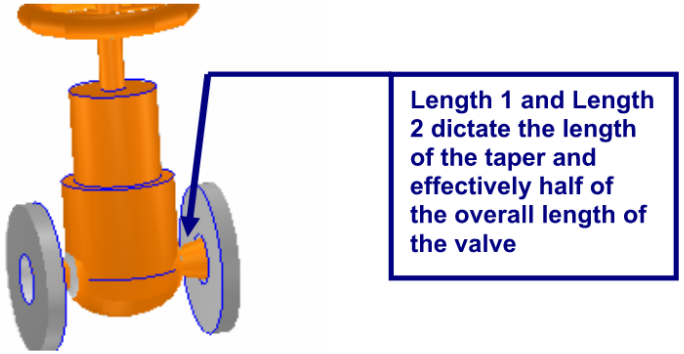
A B C D: Diameter of the connecting plate



- This will be your size in or out. If this is going to be a 4-inch valve, this setting would be 4. Normally diameter #1 and #2 are Equal.

ITEM DIMENSION PROPERTIES

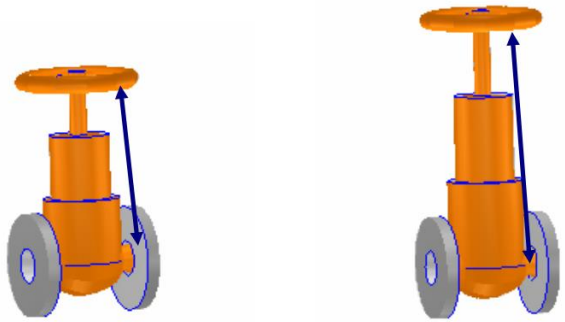
E F G H: Shaft length to the outer edge



- This is the length from the center of the valve out. Adding E & F together will give you the length of the valve.

ITEM DIMENSION PROPERTIES

I: The length of all shafts together from the center of the flange



- This is the height of the handle from the center of the valve.

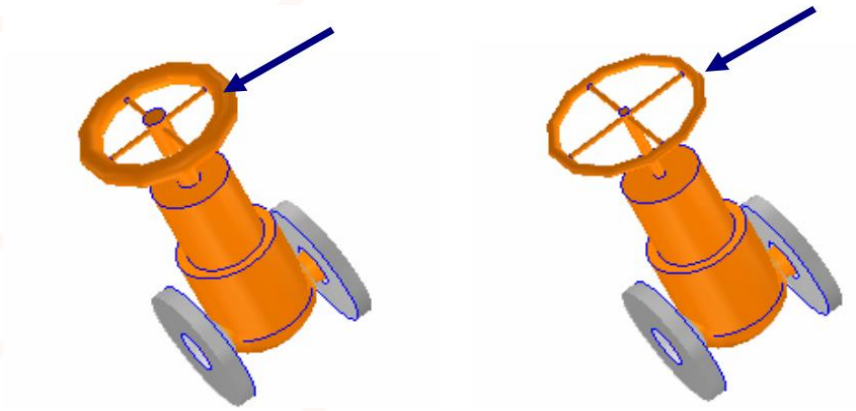
ITEM DIMENSION PROPERTIES

J: Handle diameter

- This changes the diameter of the handle.

ITEM DIMENSION PROPERTIES

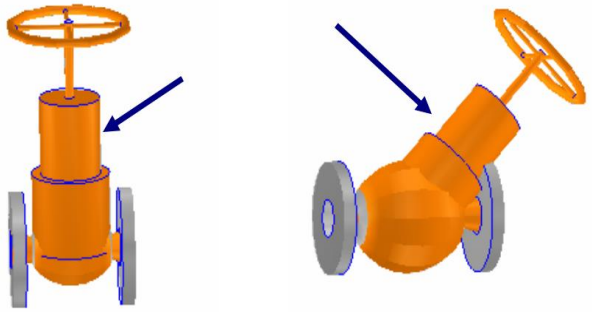
K: Thickness of the handle and shaft attached to the handle



- This adjusts the thickness of the handle and the shaft connected to the handle.

ITEM DIMENSION PROPERTIES

L: Angle of the shaft on a valve



- This changes the degree of the shaft to the main body.

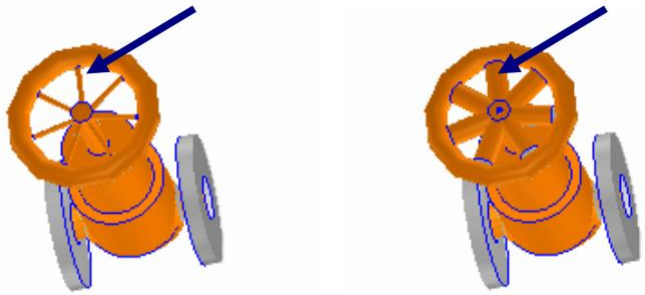
ITEM DIMENSION PROPERTIES

M: Number of struts on the handle

- This controls how many struts will show inside the handle.

ITEM DIMENSION PROPERTIES

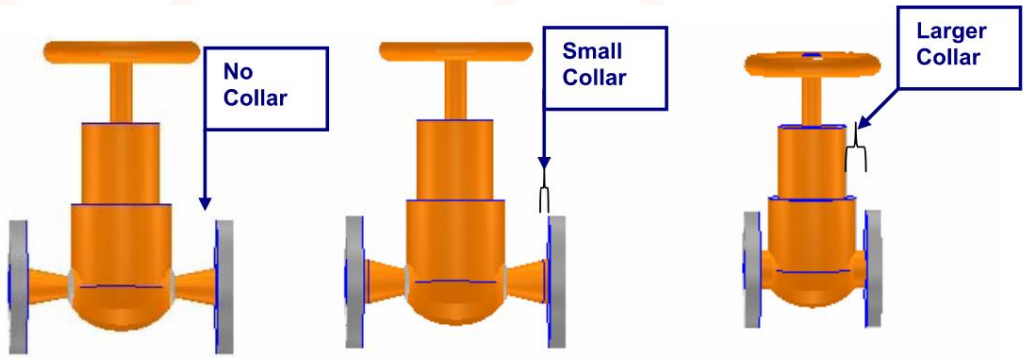
N: Diameter of struts on the handle



- Changes the thickness of the handle struts.

ITEM DIMENSION PROPERTIES

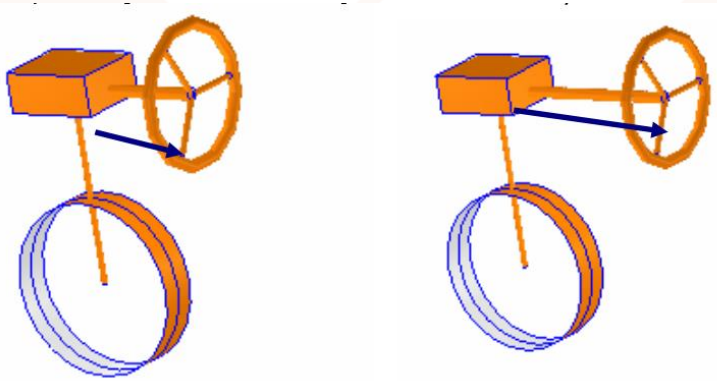
O P Q R: Depth of the collar at the end of the flange



- This adds straights from the outside of the connector towards the center of the valve.

ITEM DIMENSION PROPERTIES

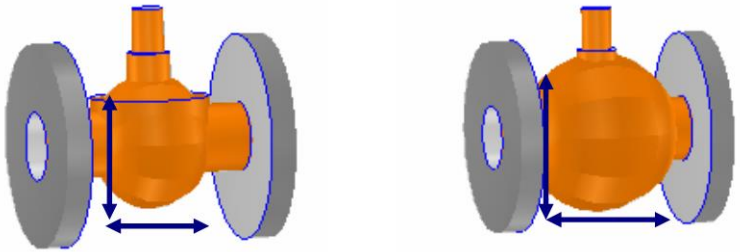
S: Handle offset from shaft



- This is the length of the handle off a box if shown.

ITEM DIMENSION PROPERTIES

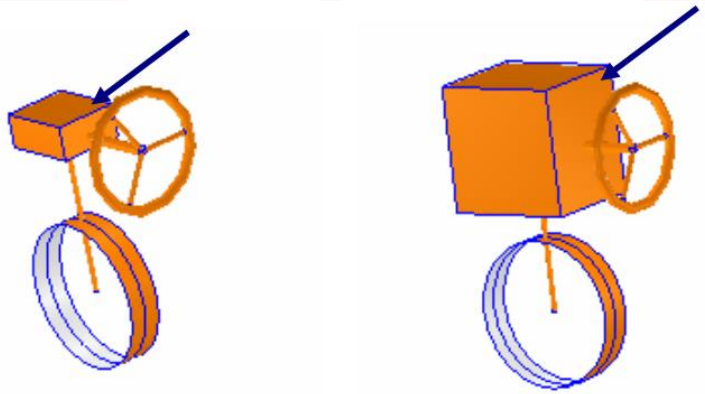
T U: Alters the X - Y diameter of the valve casing



- This changes the width and depth of the globe in the center of the valve.

ITEM DIMENSION PROPERTIES

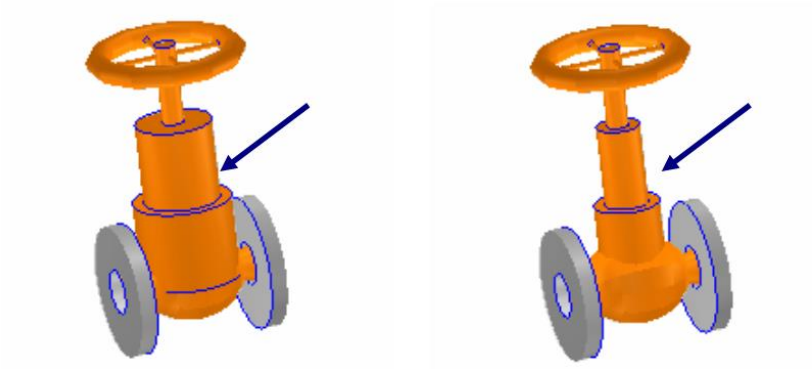
V W X: Width-Height-Depth of a box. (Only used when a box is shown.)



- Determines the size of the box if shown.

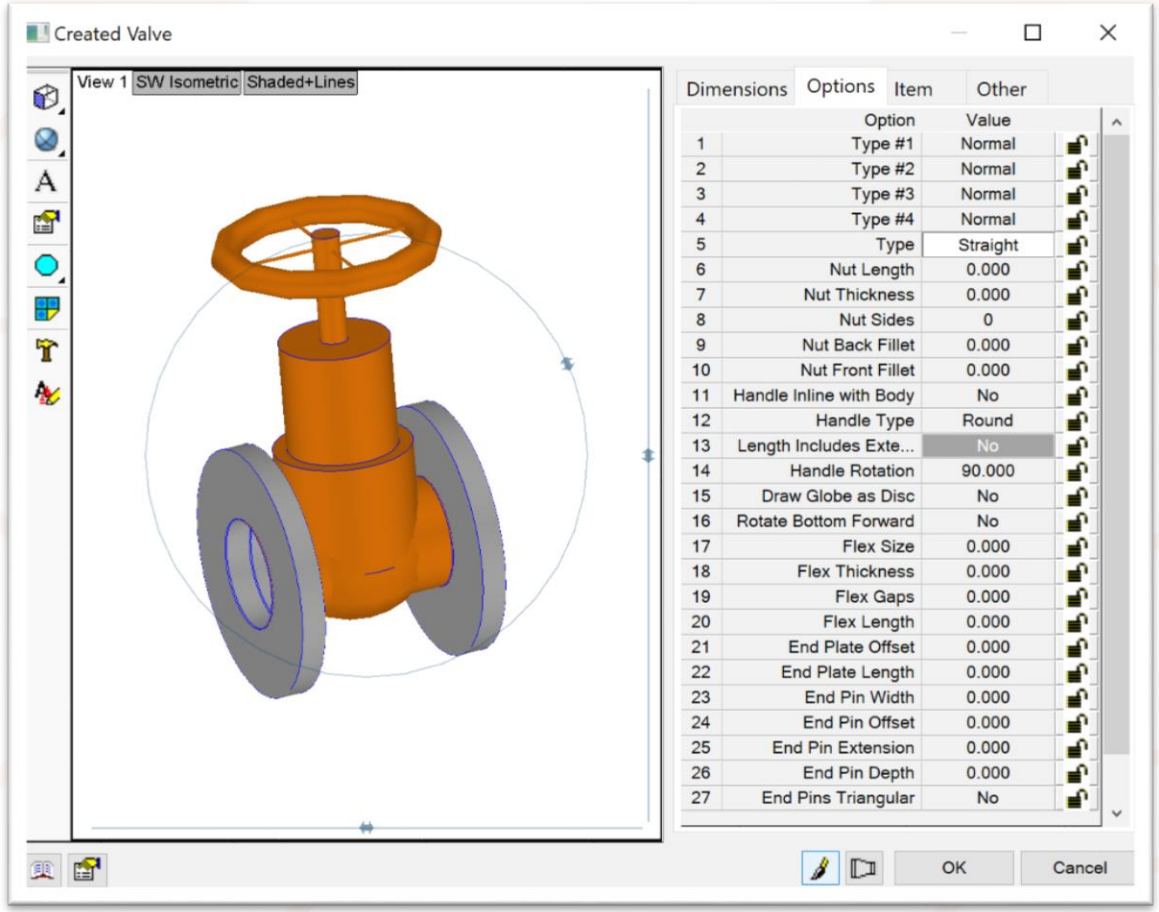
ITEM DIMENSION PROPERTIES

Y Z: Changes the upper and lower shaft diameters



- This changes the diameter of the upper and lower shafts.

EDIT PROPERTIES BOX - OPTIONS



This is the **Options** tab of the **Edit Properties** box.

The settings in this tab will be explained in the following slides.

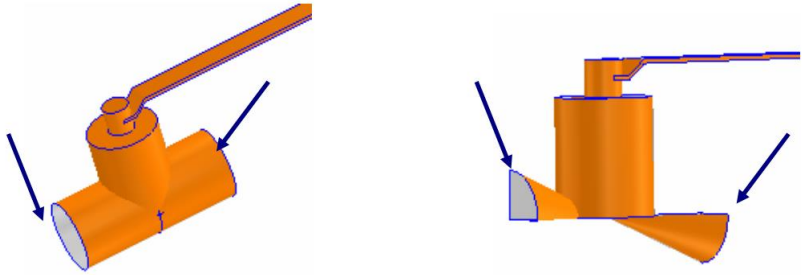
EDIT PROPERTIES BOX - OPTIONS

Number	Dimension	Notes
1 2 3 4	Type#1 - 4	Changes flanges 1 - 4 from Normal to Non-Return.
5	Type	Changes the type of pipe to Round, Straight or Normal.
6	Nut Length	Changes the length of the hex nut.
7	Nut Height	Changes the length of the hex nut.
8	Number of Sides	Changes how many sides the hex nut will have.
9	Back Fillet	Rounds out the nut to the outside.
10	Front Fillet	Rounds out the nut to the inside.

The following slides will explain the meaning of each field.

ITEM OPTIONS PROPERTIES

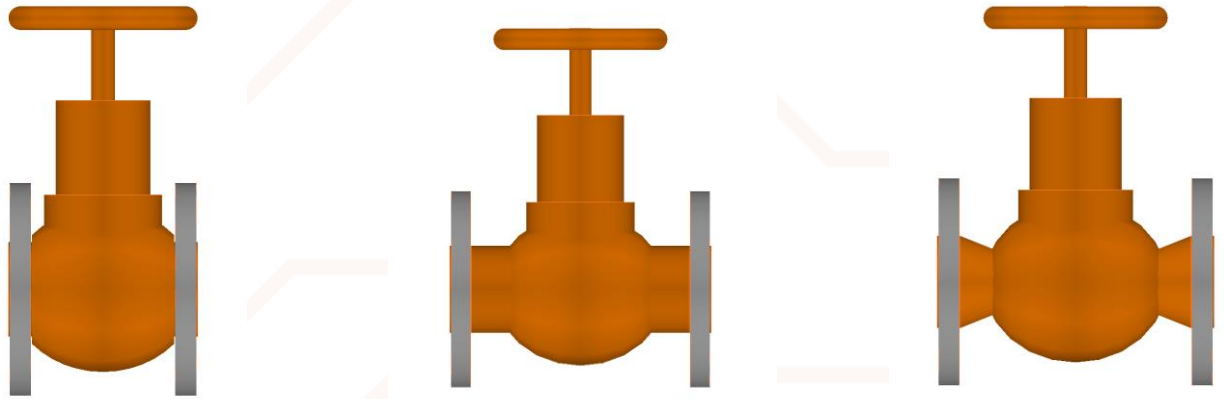
1 2 3 4: Changes flanges 1 - 4 from Normal to Non-Return



- Changing these settings will vary the valve type from normal to a symbolic non-return.

ITEM OPTIONS PROPERTIES

5: Changes the type of pipe to Round, Straight or Normal

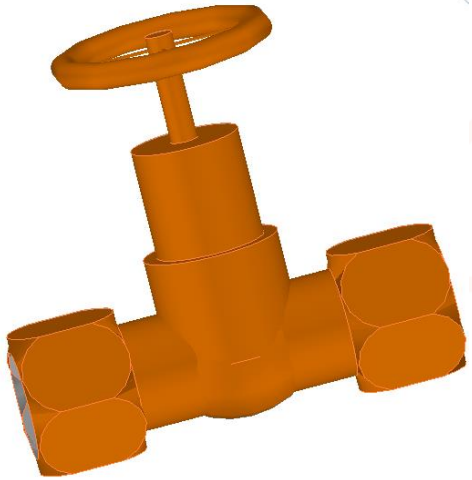


Round Straight Normal

- This setting will change the center type of the valve body. **Straight** is the recommended setting, but **Normal** can be used for flanged valves.

ITEM OPTIONS PROPERTIES

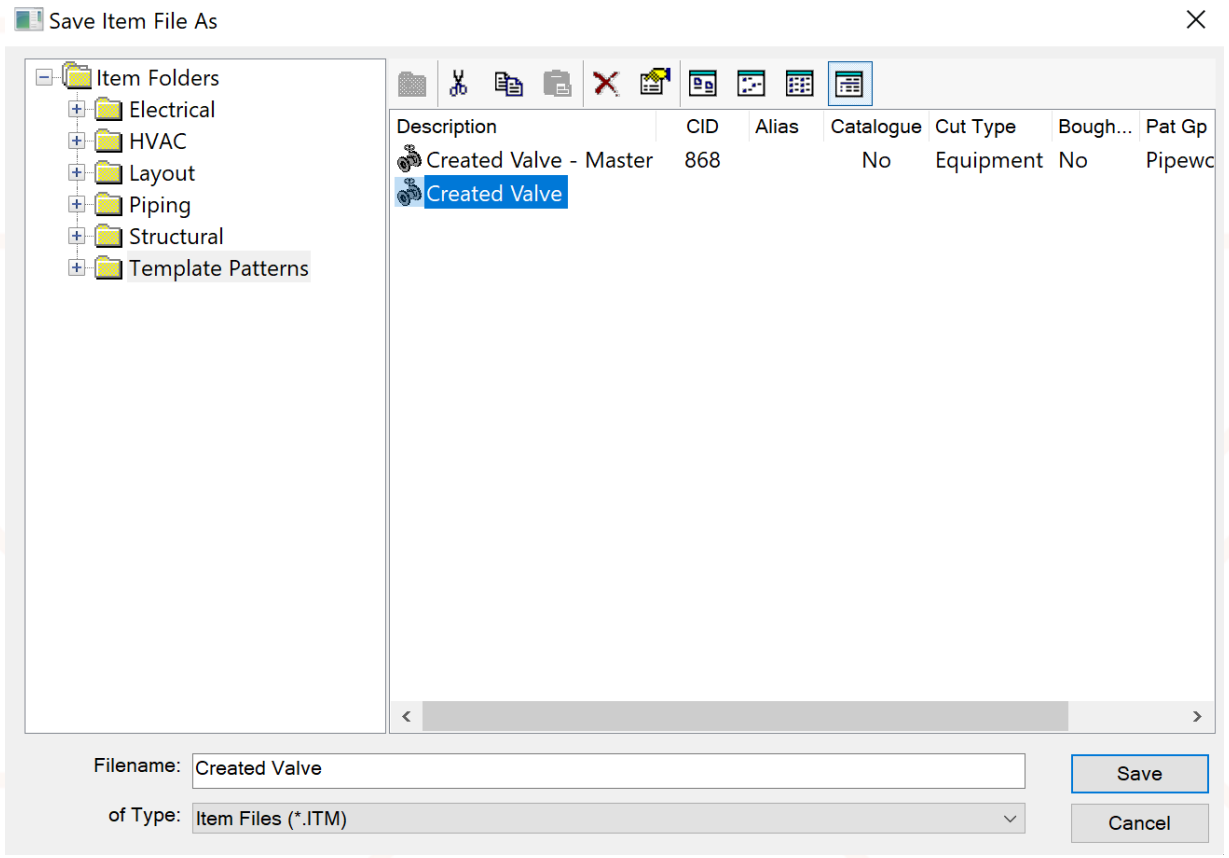
6 7 8 9 10: Nut Length & Height / Number of sides on the nut/ Nut rounding



- Changing these dimensions, will create the representation of a nut. Leaving these settings off will allow the **Connector Definitions** to define these nuts and is recommended.

CREATING FABRICATION ITEMS

Now follow along as I create a valve using the information presented above. Once this is done, we will save the valve as an .ITM file and will have it available for use in future projects.



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