

# Mixing Flanges in an AutoCAD Plant 3D Pipe Spec

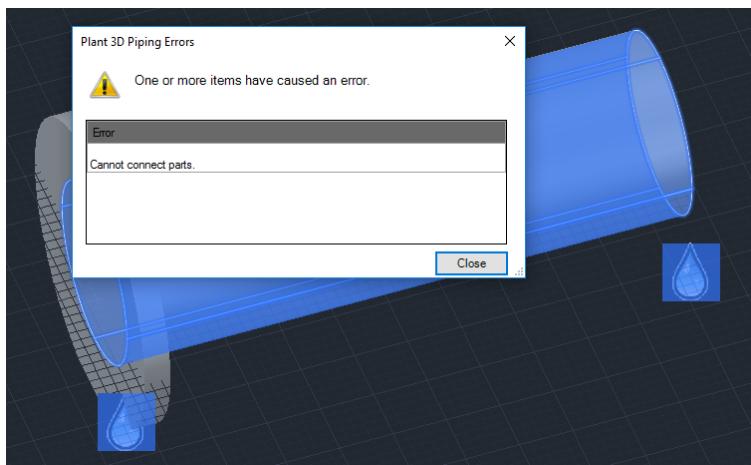
## AutoCAD Plant 3D 2017

There is sometimes a requirement to include both ANSI flanges and PN flanges in the same pipe spec in Plant 3D. You may need to do this if, for example, you are combining standard ANSI pipes and fittings and nozzles with metric valves with PN rated flanges. This is not a problem when creating the pipe spec. However, when modelling a pipe run in Plant 3D you may well run in to difficulty with the standard piping connection settings.

In this discussion, we will combine 150LB ANSI Slipon flanges and and PN16 EN 1092-1 Slipon flanges in the same pipe spec and assume that we have also included the corresponding boltsets and gaskets.

### Piping Connection Settings

When we first try to add a PN16 flange to a pipe, we may see the following error message:



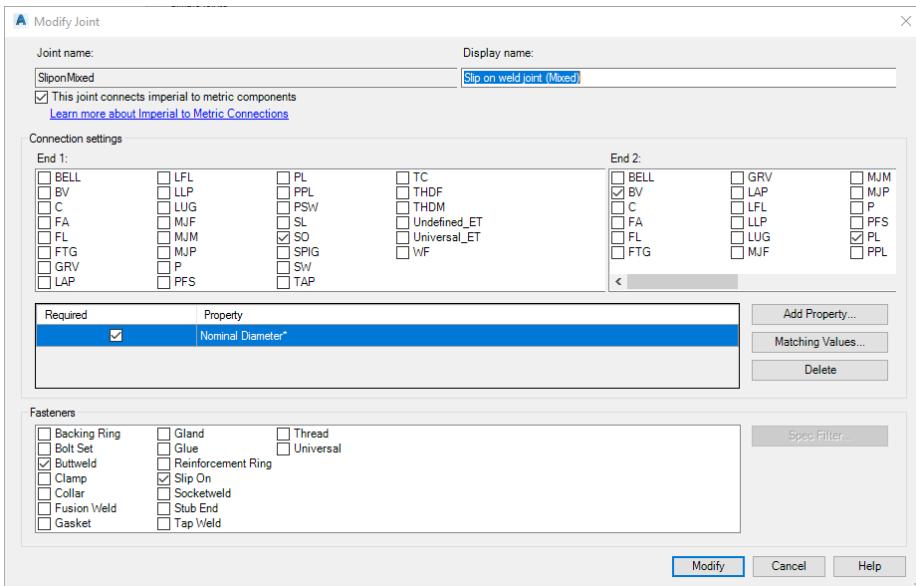
This error is displayed because there is no joint setting to enable the metric slipon connection on the flange (SO) to connect to the open end of the ANSI (or imperial) pipe (PL or BV).

To enable this, we need to add a mixed slipon joint into the **Simple Joints** table in the **Piping Connection Settings**. This is illustrated in the following screenshot. We are allowing an SO endtype to connect to a PL or BV endtype with two fasteners, a Buttweld and a Slip On (this will create two welds for this joint on any isometric drawing that we may create) where the units of nominal size are mixed e.g. 150mm flange connection to 6inch NB pipe.

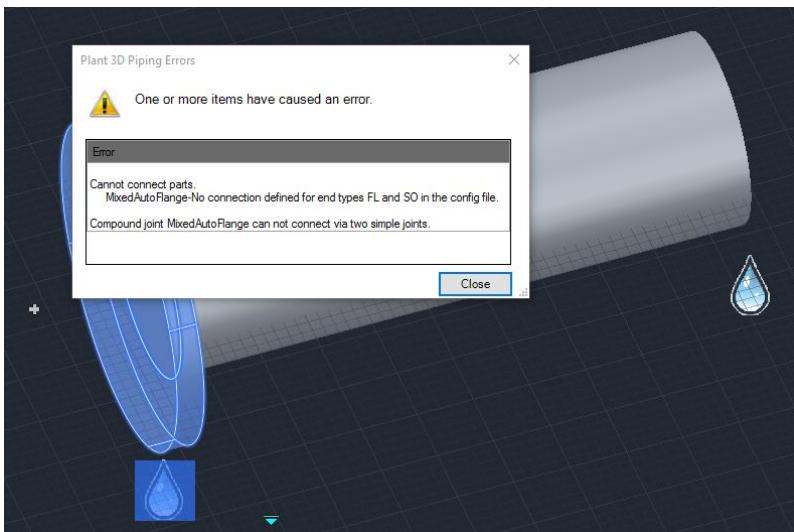
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We can now place the flange onto the pipe. However, when we try to continue pipe routing, Plant 3D fails to find a mating flange in the pipe spec and returns the following error message:

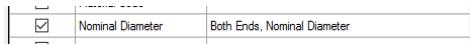


This time, the problem lies with the default settings for the MixedAutoFlange Compound joint, below.

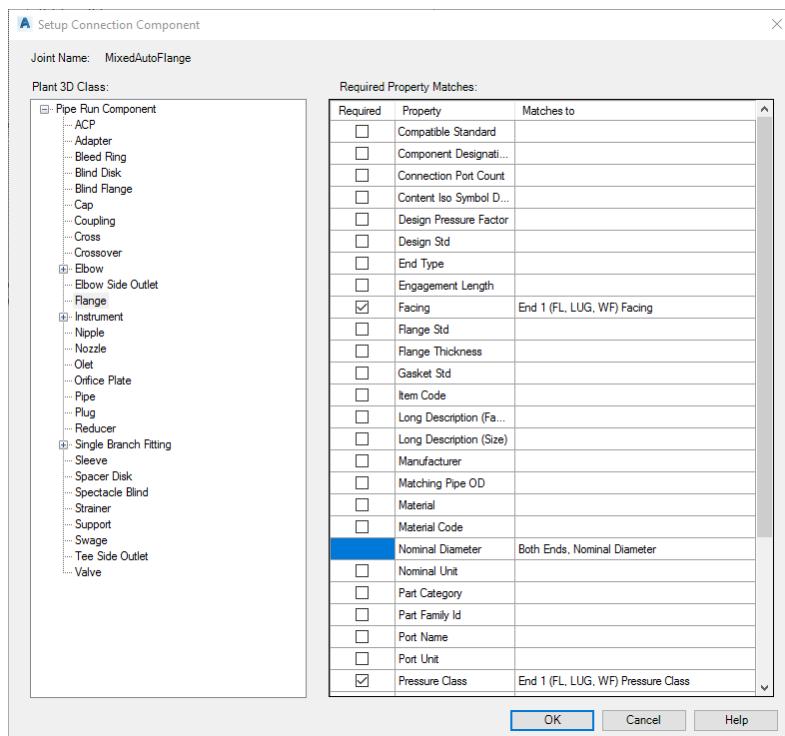
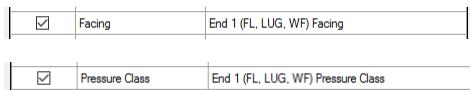
Compound joints				
Name	End 1	End 2	Connection Part	Imperial to Metric Connection
Auto flange joint	FL, WF, LUG	BV, PL, Universal_ET	Flange	<input type="checkbox"/>
Auto flange imperial to metric joint	FL, LUG, WF	BV, PL, Universal_ET	Flange	<input checked="" type="checkbox"/>
Auto sleeve joint	MJM	MJM, MJP, PL	Sleeve	<input type="checkbox"/>
Auto thread joint	THDM	THDM, PL	Coupling	<input type="checkbox"/>
Auto female joint	TC	PI, PV	Coupling	<input type="checkbox"/>



The default settings specify that Plant 3D can select any flange from the current pipe spec with the same nominal diameter as the current flange to make a connection to the current flange:



Because we have a mix of PN16 flanges and 150LB flanges in the pipe spec, this one setting does not guarantee that a matching flange will be selected. To ensure that the correct flange is selected, we need also to consider the pressure class and facing values. Therefore, we will add the following settings:

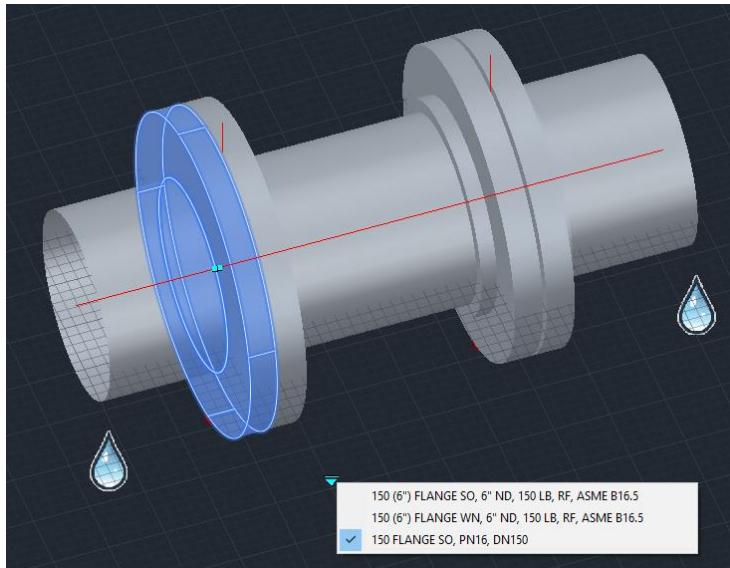


Now we can add either a PN16 flange or a 150LB flange to a pipe and Plant 3D will automatically select the correct mating flange for us.

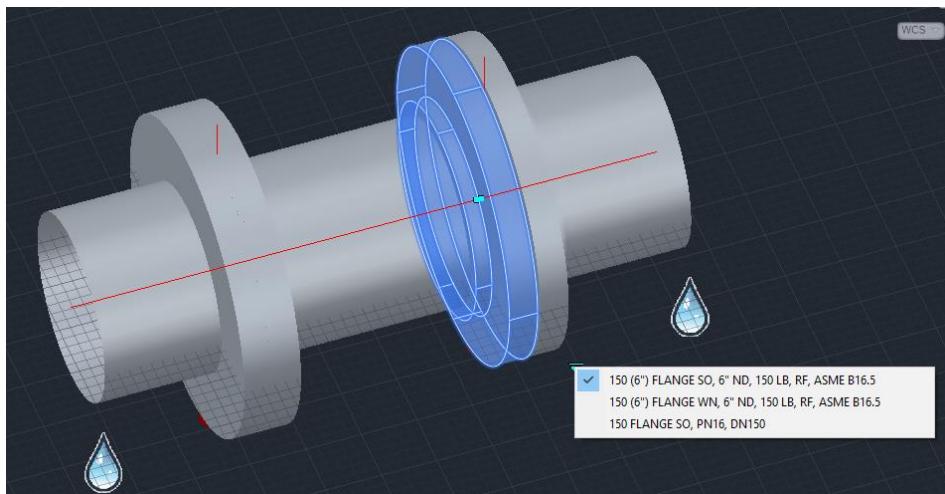

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Above, mating PN16 flanges in 6" ANSI pipe.



Above, mating 150LB flanges in the same 6" ANSI pipe as mating PN16 flanges.