

Non-Controllable Fittings – Elbows

Field = Required **Field** = Not or Rarely Populated

In the Non-Controllable Fittings feature, elbows are defined by “SubType = Elbow”.

Inlet Diameter
Outlet Diameter

Inlet Wall Thickness
Outlet Wall Thickness

Branch Diameter – no branch on elbows

Wall Thickness – Only Required if not a reducing elbow

Style: 3-R, 5-R, Long Radius, Short Radius, Unknown

Heat Number: If you have the MTR, the Heat Number from the MTR should be put here. For those with no MTR's, unknown is good.

Angle: If a segmented elbow, put cut angle here. Otherwise, it is 45 or 90.

Radius: 3-D, 3-R, 5-R, 7-R, LR, SR; Please enter as shown. Do not add spaces, etc.

Roll Angle – A “rolled” elbow occurs when the elbow is not in a straight line with the pipe. When looking at a plan view (looking down from the top), the elbow would be the turning point on the pipe. It is “rolled” left, right, up, or down. These are also called “combo” elbows. It means that they are both a left or right elbow as well as a down or up.

Orientation: Up, Down, Left, Right, Ahead

Length – should be filled out. If you are calculating pipe lengths for as-building, this should be filled in. Length is in FEET. One other note - - if the VTC on your line will be yes, this should be filled in correctly.

Specification: We have choices that are all over the place right now. Here are some guidelines:

<u>Pipe</u>	<u>Valves</u>	<u>Fittings</u>	<u>Invalid</u>
API 5L	API 6D	ASME B 16.5 – Flanges	ASTM A3816
ASTM A-53	MSS SP 70	ASME SA350 - Flanges	ASTM D25L3
ASTM A-106		ASTM A-105	CS A234 (use ASTM A-234)
ASTM A-135		ASTM A-234	EYS
ASTM A-333		ASTM A-537 – Pressure Vessel	WPHY-52
ASTM A-672		ASTM A-537 – Pressure Vessel	WPHY-56
ASTM A-691		ASTM A-572 – Pressure Vessel	WPHY-65
ASTM D2513-12		ASTM D2513-12	F-42 (is not a GRADE)
GR3PSL		ASTM A-860	X-52 (is not a GRADE)
PSL1		ASTM A1018	F-52 (is not a GRADE)
PSL2		MSS SP 44 – Flanges	X-60 (is a GRADE)
		MSS SP 60 – Flanges	
		MSS SP 75	
		MSS SP 97	
		SA105N – Flanges but should use ASTM A-105	

Grade: Gr. A, Gr. B, Unknown, WPB, WPHY-, X-, Y-, HDPE, MDPE, WPL6, 316L

WPHY and Y are sometimes used interchangeably. Best practice is to use the Grade shown on the MTR (if it says WPHY, use that instead of Y). WPHY means Wrought Pipe High Yield. Any time you see “WP”, it means “Wrought Pipe”, so WPB is just Wrought Pipe Grade B.

As a rule right now:

Interstate uses “Unknown”, “WPB” or “WPHY” designations

Intrastate uses all “Y” designations. Any MTR or material list, etc with a WPHY should be treated as “Y”

Liquids uses “Unknown”, “WPB” or “WPHY” designations

Comment – format is CL (OD) (Style) Ell (or Elbow) (degree w/orientation)

Interstate: CL 16” 45^ Left OR CL 10” 53^ Right - - Do not use Radius and do not abbreviate orientation

Intrastate: CL 24in Elbow. All other details – Style, Angle Radius – will be field notes.

Liquids: CL 24” 3-R Ell 90^ Rt.

RoutelD, Status, Measure, Material, Installation Date, In Service Date, Work Order and Project Number are all things that you know must be filled out.

Details

ANSI B16 or ASME B16 or both?

Many suppliers and manufacturers talk about ANSI fittings, ANSI flanges, etc. Just do a search on any standards providers website for ANSI B16.5, ANSI B16.9, etc. You will not find those standards because they do not exist. Many years ago, there was an ANSI B16.5 standard. In 1998, it became ANSI/ASTM B16.5 and in 1996 it became ASME B16.5. However, there are still many suppliers and manufacturers that refer to ANSI or ANSI/ASME. It is not necessarily correct.

What is the MSS standard?

The MSS SP standards are a set of standards developed by the Manufacturers Standardization Society of the Valve and Fitting Industry.

What is the difference between 5D and 3D bend ?

A 3D bend is a bend in which the radius of the curve is equal to 3 times the diameter of the pipe. It is a smoother bend than a 1.5D bend, which looks almost like a regular 90-degree right angle, but it is a sharper bend than a 5D bend, which looks like a smooth arc between two perpendicular pieces.

A 5D bend allows for a bend radius that is equal to five times the amount of the pipe's diameter. This is one of the greatest bends there are and goes beyond a 3D or 4D bend.

If you have a 10” diameter pipe, the radius of the centerline of the bend would be 50 inches.

In our database, some domains are shared. First you must know that there are “domains” for many of other fields. For instance, the ‘Outside Diameter’ field is shared by many features. That field is on Pipes, Fittings, Casing, etc. The “domain” is the list you see when you click on the drop-down arrow next to Outside Diameter.

I mention this because the “Specification” domain has values for a few different features. You can see that some of the selections apply to different features. Even though you are working on/in the Non-controllable Fittings table/feature, there ARE selections that do not apply. That is because it is shared. The Pipes, Non-Controllable Fittings and Controllable Fittings all use the same domain for “Specification”.