Common End Connections for Ball Valves

NPT (THREADED) END

The valve is threaded into line with male threaded pipe going into the female threads of the valve. These come in 1-piece, 2-piece and 3-piece designs.

SANITARY (CLAMP) END

Sanitary, or “clamp” valves have a flat face, o-ring groove that is suitable for mating with another clamp (or “ferrule”) end. This is the most common type of end connection used with sanitary/food applications because it is easy to remove from line for cleaning or repair.

SOCKET (WELDED) END

The valve is welded in line to a mating piece of non-threaded pipe. Valves have to be 3-piece design because body section needs to be removed prior to welding. Socket weld ends nds are not as extended as with butt weld valve; valve ends have to be cut out if replaced with another manufacturer’s valve (not universal).

BUTT WELD (EXTENDED) END

Butt weld ends are used for actually welding the valve in line without having to remove the center section because the ends are extended. This is the 2nd most commonly used valve in sanitary applications and is used when the valve does not need to be regularly maintained or pulled out of line.

Common End Connections for Ball Valves

FLANGED END

ANSI flanged valves meet international standards so that end-to-end (face-to-face) dimensions and mating flanges are the same with every manufacturer. The most common type of flanged valve is “raised face.” BI-TORQ Valve Automation’s standard flange type is raised face ANSI 150# with a pressure rating of 275 PSI. ANSI 300# flanges are available as an option.

150# RF FLANGE DIMENSIONS

NOMINAL PIPE SIZE (INCHES)	DIAMETER OF FLANGE (INCHES)	# OF BOLTS	DIAMETER OF BOLTS (INCHES)	BOLT CIRCLE (INCHES)	VALVE FACE-TO-FACE
1/2”	3.500	4	0.500	2.250	4.25
3/4”	3.875	4	0.500	2.375	4.62
1”	4.250	4	0.500	3.125	5.00
1-1/4”	4.625	4	0.500	3.500	5.50
1-1/2”	5.000	4	0.500	3.875	6.50
2”	6.000	4	0.625	4.750	7.00
2-1/2”	7.000	4	0.625	5.500	7.50
3”	7.500	4	0.625	6.000	8.00
4”	9.000	8	0.625	7.500	9.00
5”	10.000	8	0.750	8.500	C/F
6”	11.000	8	0.750	9.500	15.50
8”	13.500	8	0.750	11.750	18.00
10”	16.000	12	0.875	14.250	C/F
12”	19.000	12	0.875	17.000	C/F

300# RF FLANGE DIMENSIONS

NOMINAL PIPE SIZE (INCHES)	DIAMETER OF FLANGE (INCHES)	# OF BOLTS	DIAMETER OF BOLTS (INCHES)	BOLT CIRCLE (INCHES)	VALVE FACE-TO-FACE
1/2”	3.750	4	0.500	2.250	5.50
3/4”	4.625	4	0.625	3.250	6.00
1”	4.875	4	0.625	3.500	6.50
1-1/4”	5.250	4	0.625	3.875	7.00
1-1/2”	6.125	4	0.750	4.500	7.50
2”	6.500	8	0.625	5.000	8.50
2-1/2”	7.500	8	0.750	5.875	9.50
3”	8.250	8	0.750	6.625	11.00
4”	10.000	8	0.750	7.875	12.00
5”	11.000	8	0.750	9.250	C/F
6”	12.500	12	0.875	10.625	12.00
8”	15.000	12	1.000	13.000	C/F
10”	17.500	16	1.125	15.250	C/F
12”	20.500	16	1.250	17.750	C/F

BI-TORQ VALVE AUTOMATION | AVK CARBO-BOND, INC. AUTOMATED VALVE MOUNTING KITS

END CONNECTION TYPES

Common End Connections for Butterfly Valves

LUG STYLE

Lug style butterfly valves have threaded inserts at both sides of the valve body. This allows them to be installed into a system using two sets of bolts and no nuts. The valve is installed between two flanges using a separate set of bolts for each flange. This setup permits either side of the piping system to be disconnected without disturbing the other side. There are two different types of flange connections: either ANSI standard (primarily used in US) or metric/DN flanges (European). Both versions are available from BI-TORQ Valve Automation.

WAFER STYLE

Wafer style butterfly valves have open (non-threaded) holes that allow a single bolt to go through each hole. The threaded bolts are then secured with a washer and nut to hold the valve between two flanges. There are two different types of flange connections: either ANSI standard (primarily used in US) or metric/DN flanges (European). Both versions are available from BI-TORQ Valve Automation.