FMC Technologies

Smith Meter™ Valves

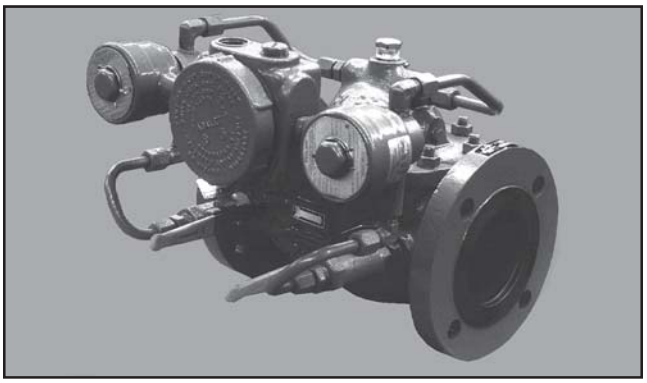
Valve Conversion to Model 210

Retro-Fit Instructions

Issue/Rev. 0.3 (8/97) Bulletin MN03011

The instructions contained herein are for converting an existing Smith Meter™ Set-Stop Valve, Models 296, 297, or 299 to a Model 210 Valve. For step-by-step instructions, see Page 4.

For ease of future maintenance and service to the main valve diaphragm, it is recommended that flexible conduit be used for connecting power to the junction box.



Kit A (For Use With Current Meters[1])

Kit contains items marked "X," other items should be reused from the existing valve.

	Existing Valves to be Modified			
	296		297 or 299	
Item	**3" and 4"**	**6"**	**3" and 4"**	**6"**
SS1 Controller and Calibrator Housing	X	X	X	X
Valve Junction Box	X	X	X	X
03A Ball Valve	X	X	X	X
09SC Strainer	—	—	X	X
30A Solenoid (Downstream)	—	—	X	X
30B Solenoid (Upstream)	—	X	X	X
Compound Spring	X (4" Only)	X	X (4" Only)	X
Junction Box Bracket	X	X	X	X

Kit B (For Use With Old Style Meters[2])

Kit contains items marked "X," other items should be reused from the existing valve.

	Existing Valves to be Modifed			
	296		297 or 299	
Item	**3" and 4"**	**6"**	**3" and 4"**	6"
SS1 Controller and Calibrator Housing	X	X	X	X
Valve Junction Box	X	X	X	X
03A Ball Valve	X	X	X	X
09SC Strainer	—	—	X	X
30A Solenoid (Downstream)	—	—	X	X
30B Solenoid (Upstream)	—	X	X	X
5/8" Spacer Ring	X	X	X	X
AM-5 Calibrator	X	X	X	X
Compound Spring	X (4" Only)	X	X (4" Only)	X
Junction Box Bracket	X	X	X	X

1 Current Meters: Models SC-13, SD-30, SC-13-DI, SD-30-DI, SD3-S1, C2, E3, E4, F4, G6, H8, JA10, JB10, K12, and M16.
2 Old Style Meters: Models AB, AS; or S-12, 13, 24, 28, 30, 35, 42, 45, 50, 60, 65, 70, 100, etc.

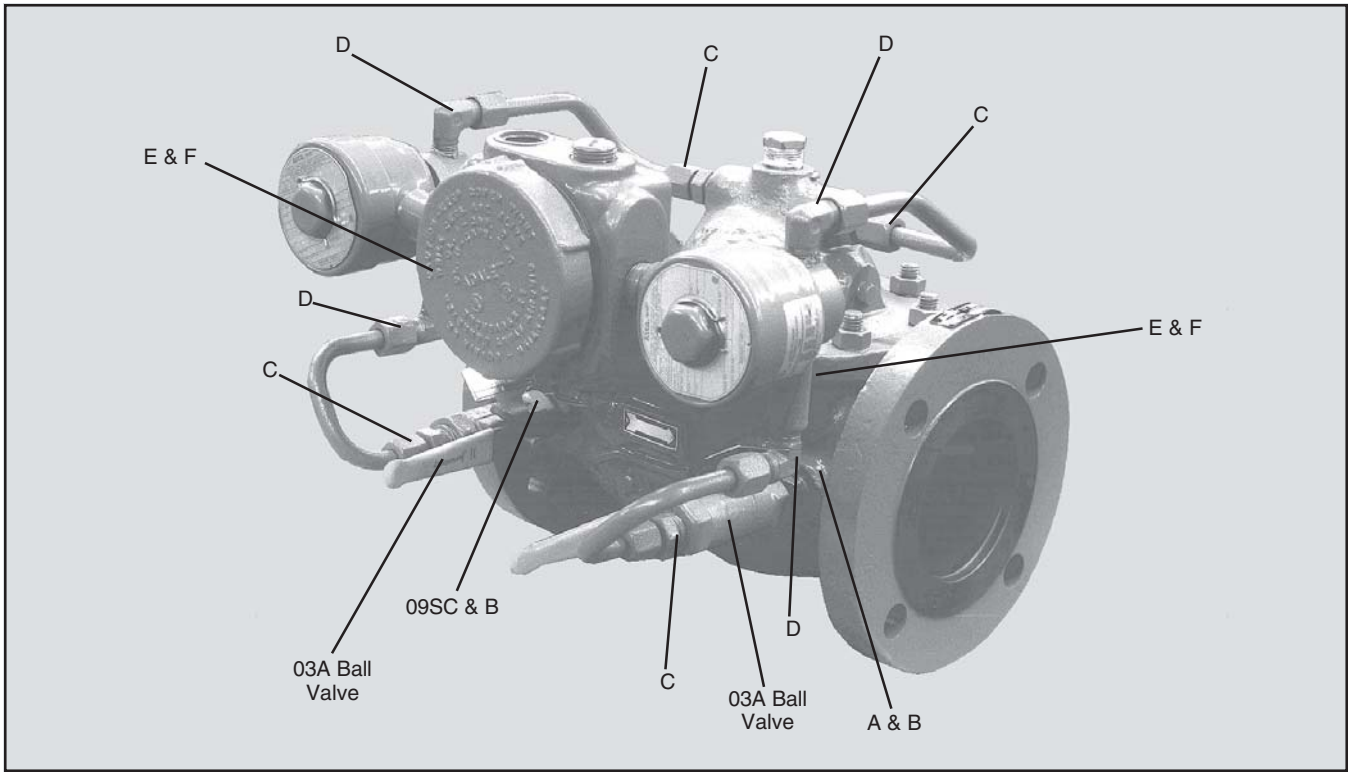


Figure 1 — Valve Conversion to Model 210 - Sizes 3" and 4"

Materials Required: A - Kit A or B as listed on Page 1, B - Material as listed below.

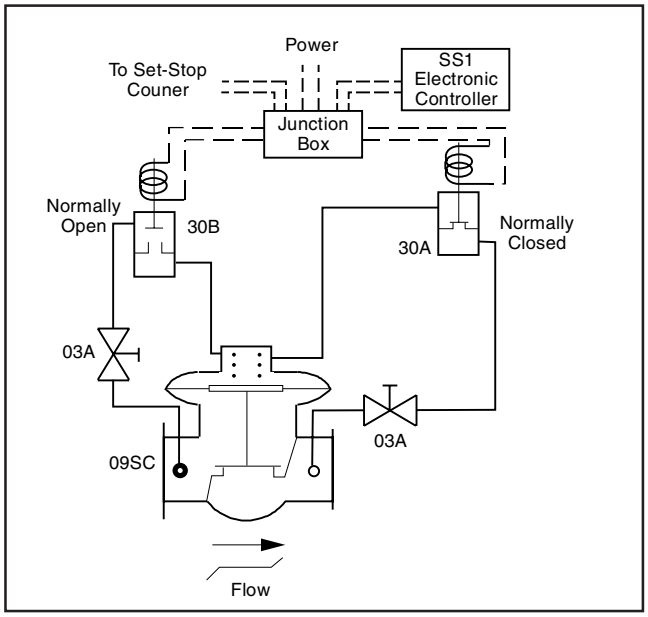


Figure 2

Material List (Customer Supplied)

Item	Description	Valve Size 3" and 4"	Qty.
A	Reducer Bushing	1/2" MNPT x 3/8" FNPT	1
B	Nipple, Pipe	3/8" MNPT x 1-1/2" Long	2
C	Tube Fitting (Straight)	3/8" T x 3/8" MNPT	4
D	Tube Fitting (90°)	3/8" T x 1/4" MNPT	4
—	Tubing	3/8"	5 ft
E	Coupling	1/4" FNPT	2
F	Nipple, Pipe	1/4" MNPT x 7/8" Long	2

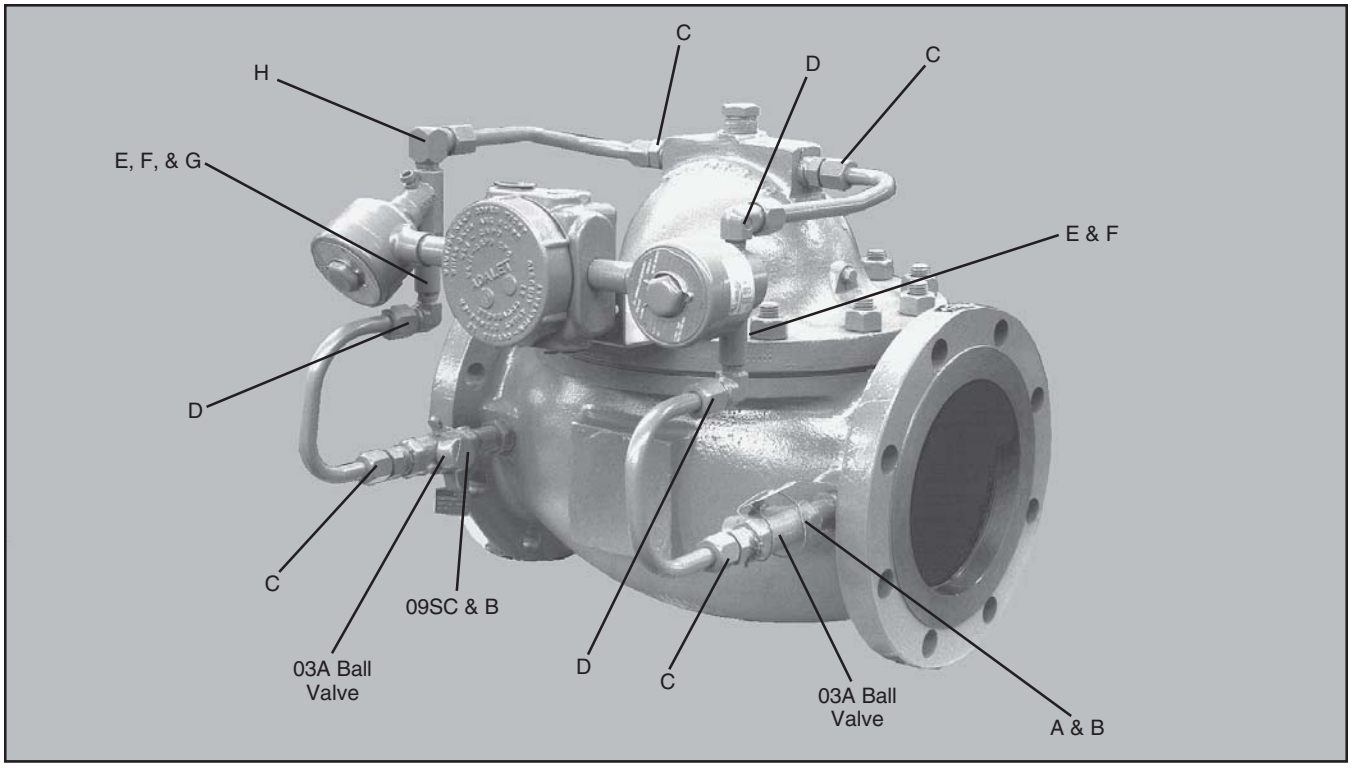


Figure 3 — Valve Conversion to Model 210 - Size 6"

Materials Required: Kit A or B as listed on Page 1. Tube and fittings listed below.

Material List (Customer Supplied)

Item	Description	Valve Size 6"	Qty.
A	Reducer Bushing	3/4" MNPT x 1/2" FNPT	1
B	Nipple, Pipe	1/2" MNPT x 2" Long	2
C	Tube Fitting (Straight)	1/2" NNPT x 1/2" T	4
D	Tube Fitting (90°)	1/4" MNPT x 1/2" T	3
E	Coupling	1/4" FNPT	2
F	Nipple, Pipe	1/4" MNPT x 1" Long	2
G	Reducer Bushing	3/8" MNPT x 1/4" FNPT	1
H	Tube Fitting (90°)	3/8" MNPT x 1/2" T	1
—	Tubing	1/2"	5 ft

Conversion Instructions

1. Identify the MODEL and the size valve you have and the meter style, current or old.
2. Select the appropriate conversion kit.
3. Remove all of the tubing, fittings, pilots, stainers, orifice plate, brackets, switch package, and indicators from the 200 series valve.
4. Remove the cover from the 200 series valve. Remove the poppet assembly and inspect the overall condition of the valve. Replace any worn or damaged parts.
5. Return the poppet assembly into the valve. Place the spring(s), provided with the conversion kit, on top of the valve poppet assembly.

   Note: *Depending on the valve size and conversion kit there may be one or two springs.*
6. Assemble the cover to the body of the valve.

   Note: *Be sure to tuck the diaphragm outside edge up under the cover lip so as not to pinch the diaphragm.*
7. Secure the cover and the junction box bracket to the body with the nuts. See Figures 1 and 3.

Note: *Application of thread sealant, such as Loctite PST or equivalent, is recommended when assembling threaded pipe connections.*

8. Assemble the proper fittings to the solenoids. See Figures 1 and 3 and the material lists.
9. Connect the solenoids to the junction box with the nipples supplied in the conversion kit.

   Note: *Be sure to engage the threaded conduit connections not less than five full threads.*

   Note: *Position the solenoid valves with respect to the junction box as shown in Figures 1 and 3.*
10. Connect the junction box with the solenoids and fittings to the bracket on the valve.
11. Attach the remaining strainer, fittings, and ball valves to the valve. See Figures 1 and 3 and material lists.
12. Cut and bend the tubing to fit the plumbing arrangement. See Figures 1 and 3.
13. Install pipe plugs in all the remaining unused openings in the valve cover and body.
14. All the cavities of the valve and plumbing should be hydrostatically tested to 413 PSIG, for not less than five minutes, to prove that there are no external leaks.
15. Refer to Smith Meter Bulletin MN03010 for Installation/Operation of the Model 210 valve for initial settings.
16. When the valve is reinstalled, make the electrical connections observing the local codes and secure the junction box cover and plug the unused conduit openings.

    Note: *Be sure to engage the threaded conduit connections not less than five full threads.*
17. Follow the start up procedures in Bulletin MN03010 to check for leaks again as the valve is initially filled with product.

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