5.00 MODULATING FLOAT CONTROL VALVE

1. Supply a *insert size* Singer Model *specify model as 106/S106/206/S206* – F-Type 4 Modulating Float Control Valve.
   1. The valve shall be equipped with the following available options:
      1. *specify*
      2. *specify*
      3. *specify.*
   2. Singer Valve schematic *specify*.
2. Function: The valve shall be a pilot operated float control valve which will modulate to maintain reservoir level by modulating flow either into or out of the reservoir. The valve shall close at maximum reservoir level.
3. Operation: The pilot shall be a remotely mounted Singer Model R400 Float Pilot, mounted at the maximum reservoir level. The R400 pilot reacts to small changes in reservoir level, to open or close the R400 pilot restriction. The R400 pilot, when connected to the main valve, with appropriately sized pilot tubing, is balanced with the main valve by way of a non-adjustable stem valve to proportionally modulate the main valve bonnet pressure to hydraulically adjust the inner valve assembly position, to maintain a maximum reservoir level. For controlled flow into the reservoir; as the reservoir level drops, the main valve will proportionally open to increase the filling rate to maintain maximum reservoir level. For controlled flow out of the reservoir; as the reservoir level drops, the main valve will proportionally close to limit flow rate leaving the reservoir. No adjustment to flow or speed controls shall be required.
   1. Quality Assurance
4. The control valve shall be tested prior to shipment. The standard test shall include a functional stroke test and pressure and leak test of valve body, seat, fitted pilots and accessories.
5. The control valve shall be covered by a minimum three (3) year warranty against defects in materials and workmanship. The AISI 316 stainless steel seat ring shall be covered by a lifetime guarantee.
6. All control valve maintenance and repairs shall be possible without removing the main valve body from the line, when installed in accordance with manufacturer’s recommendations.
   1. Main Valve
7. The main valve shall be a Singer *specify main valve model number (106/S106/206/S206)* -PG single chamber, diaphragm actuated *specify (full/reduced)* port model.
8. Main valves, 6” (150mm) and larger, shall provide smooth frictionless motion to ensure a low flow stability to *specify minimum USGPM or L/s*, achieved using SRD-Single Rolling Diaphragm technology.
9. The main valve, bonnet and removable stem cap shall be constructed of ASTM A536 (Grade 65/45/12) ductile iron.
10. Main valves of 2.5” (65mm) and larger shall have a removable stem cap for access to the main valve stem for alignment check, spring installation and ease of service and assembly.
11. The main valve bonnet shall be located using two or more locating guide pins to maintain the inner valve assembly alignment and for ease of maintenance.
12. The main valve trim, consisting of seat ring and stem shall be constructed of AISI 316 stainless steel. The valve stem shall have wrench flats for ease of maintenance.
13. The main valve shall provide a drip-tight seal using a mechanically retained resilient disc, having a rectangular cross section, against the stationary AISI 316 stainless steel seat ring.
14. The stationary AISI 316 stainless steel seat ring of main valves 2.5” (65mm) and larger shall be held in place using Spiralock® self locking screws and seat ring retainers.
15. All internal and external ferrous components, including all mating surfaces, shall be coated with an NSF-61 approved fusion bonded epoxy to a minimum of 10 mils DFT-Dry Film Thickness.
16. The main valve elastomers: diaphragm, resilient disc and seals, shall be of EPDM or Buna-N.
17. All main valve fasteners (bolts, nuts, studs, cap screws) shall be supplied as AISI 18-8 or 304 stainless steel. All bonnet bolts shall be fitted with stainless steel washers to prevent damage to the bonnet coating.
18. Valve shall have flanged, threaded or grooved end connections. Flanged connections shall be *specify ANSI/ASME B16.42 Class 150#/300# or ISO 7005-2 PN10/16/25/40* flange drilled, faced and rated. Threaded connections shall be *specify NPT or BSPT*.
19. Due to the potential for noise, vibration and erosion damage from cavitation, the valve manufacturer shall provide, upon request, a computerized sizing and cavitation analysis, using independent third party software. Cavitation analysis shall provide the status of cavitation based on customer supplied parameters as to valve size, flow rate requirements and pressure conditions. The cavitation analysis shall also provide information as to Cv factor, percent of valve lift, cavitation index and noise level.
20. The valve manufacturer shall be able to supply cavitation control trim which shall be engineered to be optimized to the actual operating parameters of the control valve application and warranted to perform correctly and prevent main valve cavitation damage under the stated conditions. Orifice plates or other non-engineered cavitation control devices shall not be used to prevent or minimize valve cavitation.
    1. Pilot Controls
21. The modulating float control pilot shall be a Singer Model R400. The pilot shall be supplied with a 10” (250mm) *specify material (B62 brass or 316 stainless steel)* float rod and a 5” (127mm) diameter *specify material (polypropylene or stainless steel)* float. The pilot body shall be of Lead Free Compliant ASTM B62 bronze with Buna-N seals.
22. The pilot fittings shall be supplied as *specify material (ASTM B16 brass or AISI 316 stainless steel)*.
23. The pilot tubing shall be supplied as *specify material (ASTM B280 seamless copper or AISI 316 stainless steel or PTFE lined flexible braided stainless steel)*. Pilot tubing between main valve and remote mounted R400 pilot is BY OTHERS.
24. (2) pilot isolation ball valves shall be supplied as standard. Pilot isolation ball valve(s) shall be constructed of *specify material (B16 brass or 316 stainless steel)* with stainless steel handle operator.
25. A pilot strainer shall be supplied as standard. Strainer material to be ASTM A351 CF8M stainless steel with a 40-mesh or 80-mesh 316 stainless steel screen. The external pilot strainer shall have a removable plug for easy maintenance access to the pilot screen and have provision for installation of a ball valve for pilot screen flushing.
    1. Control Valve Components – Available Options
26. *specify.*