* 1. PRESSURE REDUCING VALVE for FIRE-PROTECTION SERVICE

1. Supply a *insert size* Singer Model 106–PR-10159 Pressure Reducing Control Valve for Fire-Protection Service.
   1. Singer Valve schematic A-10159B.
2. Function: The valve shall be a pilot operated pressure reducing valve which will reduce a high inlet pressure to a low outlet pressure. The valve shall maintain a relatively constant downstream pressure regardless of fluctuations in supply pressure or flow rate.
3. Operation: The pilot shall be a normally open Singer Model 161PR Pressure Reducing Pilot that reacts to small changes in downstream pressure which acts to modulate the main valve bonnet pressure to hydraulically adjust the inner valve assembly position to maintain a constant downstream pressure.
4. Approvals: UL – Underwriters Laboratories AG , ULC – Underwriters Laboratories of Canada Listed, File: EX6955. Special System Water Control Valves, Pressure-Reducing and Pressure-Control Type. Control Number 4YG2.
   1. Quality Assurance
5. The control valve shall be tested prior to shipment. The standard test shall include a functional stroke, pressure and leak test of valve body, seat, fitted pilots and accessories.
6. 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.
7. 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
8. The main valve shall be a Singer 106-PG single chamber, diaphragm actuated full port model.
9. Main valves, 6” (150mm) and larger, shall provide smooth frictionless motion to ensure a low flow stability, achieved using SRD-Single Rolling Diaphragm technology.
10. The main valve, bonnet and removable stem cap shall be constructed of ASTM A536 (Grade 65/45/12) ductile iron.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. All internal and external ferrous components, including all mating surfaces, shall be coated with a fusion bonded epoxy to a minimum of 10 mils DFT-Dry Film Thickness.
17. The main valve elastomers shall be: Buna-N diaphragm and seals with EPDM resilient disc.
18. 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.
19. Valve shall have flanged or threaded end connections. Flanged connections shall be ANSI/ASME B16.42 Class 150# or 300# flange drilled, faced and rated. Threaded connections shall be NPT.
20. Valve shall be supplied with an identifier tag riveted to the main valve bearing the UL Listing mark, control number 4YG2, complete with serial number, model number, size and maximum pressure rating.
    1. Pilot Controls
21. The pressure reducing pilot shall be a Singer Model 161PR normally open pilot with a spring to adjust the pressure setting.
    1. The pilot trim, consisting of a seat ring, stem and yoke shall be constructed of AISI 316 stainless steel.
    2. The pilot elastomers shall be: Buna-N diaphragm and seals with EPDM inner valve.
    3. The adjustable pilot spring range shall be supplied with a spring range of 30 to 165psi. The pilot shall be factory preset at *specify setpoint* psi.
    4. The pilot body and spring casing shall be constructed of ASTM B62 bronze.
22. A fixed restriction shall be supplied as AISI 303 stainless steel with an orifice bore selected by the manufacturer based on the valve size and operation.
23. The adjustable flow stabilizer shall be a Singer Model 26 self-cleaning opening speed control, supplied as a stainless steel assembly.
24. The pilot fittings shall be supplied as ASTM B16 brass.
25. The pilot tubing shall be supplied ASTM B280 seamless copper.
26. For valves 4” (100mm) and larger, a pilot strainer shall be supplied as standard. Strainer material to be ASTM B16 brass 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.