



Armstrong® Hot Water Generation – Steam/Water

Digital-Flo® Semi-Instantaneous Heat Exchanger

Digital Recirculating

Model DFS5050BS & DFS50DW50BS



A complete pre-piped heat exchanger and DRV50. Available with single wall or double wall (DW) tube bundles. Can be configured for constant steam pressure for positive condensate management, or with optional modulating steam pressure to support scale-reduction efforts.

Digital technology provides precise water temperature control, enhanced user safety, and versatile Building Automation System (BS) connectivity options all in a single-source assembly.

SAGE® (BS) available with specific ProtoCessor cards for BAS connectivity to systems which operate on Modbus, BACnet™, or LonWorks™ protocols.

Mobile connectivity features smart hot water system dashboard monitoring, secure remote programming, multi-location view, temperature and system diagnostic alerts, with unlimited digital documentation and automated report generation. Mobile connectivity may be enabled by a customer activated subscription.

Operational Specifications

- +/-2°F DRV water temperature control at peak, moderate or zero fixture demand on hot water system designed for continuous recirculation
- 1°F minimum recirculating water temperature differential
- LCD display which indicates: set point, delivered temperature, error codes and alarm conditions capable of BAS and mobile connectivity
- Programmable set point range of 81-158°F (27-70°C) capable of BAS or mobile monitoring and adjustment
- Programmable thermal disinfection range of 158-185°F (70-85°C)
- Programmable 1st level hi/lo temp alarm display capable of BAS or mobile alerting
- Automatic safe closure of hot water inlet in response to: inlet supply failure, 120V power failure, or programmable high temperature error
- Automatic safe closure of hot water inlet powered by a replaceable lithium battery monitored for low-level alerting
- Automatic safe closure response relayed to secondary safety shutoff valve

Technical Specifications

- Maximum steam pressure: 15 PSIG
- Maximum water pressure: 150 PSIG
- Minimum recirculation flow: 10 GPM per DRV
- Design conditions: Domestic - 73 GPM at 7.5 ft/sec velocity, 15 PSIG steam at 3,065 lbs/hr, DRV setpoint of 120°F
- Complete assembly lead free compliant
- Pre-piped isolation valves, strainers, check valves, relief valves, steam trap, thermometers and pressure gauges
- DRV conforms to ASSE 1017, CSA B125.3-11, UL E357437, and CE
- Single wall heat exchanger tubes shall be U-bend 3/4" copper expanded into 304 stainless steel tube sheets
- Double wall heat exchanger tubes shall be U-bend 1/2" copper inner tube with 5/8" copper outer tube expanded into steel (steam side) and 304 stainless steel (water side) tube sheets
- 120 volt power supply required
- SAGE® (BS) for BAS and Mobile Connectivity
- Integral MODBUS RTU

Standard Materials of Construction

- Shell: Duplex 2205 Stainless Steel
- Water pipe: Type L copper
- Fittings: Lead free brass/bronze
- Single wall tube bundle: Copper
- Double wall tube bundle: Copper
- Steam Trap Model A F+T VB 30A8: Cast Iron
- Insulation: Removable Jacket
- Vacuum Breaker: Brass
- Pressure Relief Valve: Stainless Steel
- Digital Mixing Valve: 316L Stainless Steel
- Fabricated carbon steel frame with machine grade enamel paint



**DFS5050BS
Single Wall**



**DFS50DW50BS
Double Wall**