

Low Water Cut-Offs – Mechanical For Steam Boilers

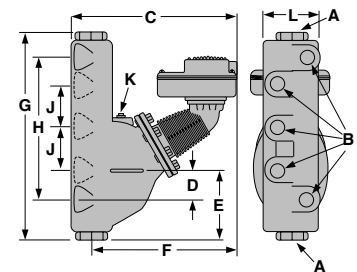
Series 157S

Low Water Cut-Off/Pump Controllers

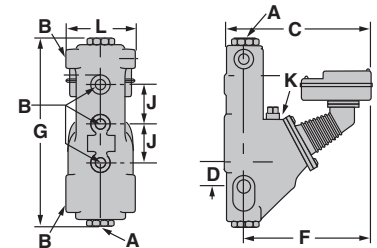
- For residential, commercial and industrial low or high pressure boiler applications
- For boilers of any steaming capacity
- Monel bellows provides corrosion resistance
- Float chamber with integral water column provided
- Snap action for high temperature service
 - 1 Single pole, single throw switch for pump control
 - 1 Single pole, double throw switch for low water cut-off and alarm actuation
- Optional features
 - Manual reset
 - Integral conductance probes for additional levels and greater operating differential-Model 157S-RBP-MD
 - 1" or 1 1/4" NPT equalizing tappings
 - 1/2" or 3/4" NPT tappings for gauge glass/tri-cock installations
 - BSPT threads
- Maximum pressure 150 psi (10.5 kg/cm²)



Series 157S



Model 157S-R



Model 157S-MD

Maximum differential operation

- Prevents nuisance burner shutdowns in **low pressure** applications operating less than 50 psi (3.5 kg/cm²)
- For additional information see page 46

Electrical Ratings

| Voltage | Cut-off and Pump Circuits Rating (Amperes) | | Pilot Duty |
|---------|--|--------------|-----------------------------|
| | Full Load | Locked Rotor | |
| 120 VAC | 7.4 | 44.4 | 345 VA at 120 or 240 VAC |
| 240 VAC | 3.7 | 22.2 | |

| Alarm Circuit Rating (Amperes) | |
|--------------------------------|------|
| Voltage | Amps |
| 120 VAC | 1 |
| 240 VAC | 1/2 |

Dimensions, in. (mm)

| Model | A NPT | B NPT | C | D | E | F | G | H | J | K NPT | L |
|---------|----------|----------|--------------|-------------|---------------|--------------|----------|--------------|------------|----------|-------------|
| 157S | 1 | 1/2 | 13 3/8 (339) | 2 5/16 (59) | 4 15/16 (125) | 11 3/4 (298) | 16 (406) | 11 1/2 (292) | 3 1/2 (89) | 3/4 | 5 7/8 (149) |
| 157S-A | 1 1/4 | 3/4 | 13 3/8 (339) | 2 5/16 (59) | 4 15/16 (125) | 11 3/4 (298) | 16 (406) | 11 1/2 (292) | 3 1/2 (89) | 3/4 | 5 7/8 (149) |
| 157S-R | 1 | 1/2 | 13 3/8 (339) | 2 1/4 (57) | 5 7/8 (149) | 11 3/4 (298) | 17 (432) | 11 1/2 (292) | 3 1/2 (89) | 3/4 | 6 1/4 (159) |
| 157S-RL | 1 1/4 | 1/2 | 13 3/8 (345) | 3 1/2 (89) | 5 7/8 (149) | 11 3/4 (298) | 17 (432) | 12 3/4 (324) | 3 1/2 (89) | 3/4 | 6 1/4 (159) |

Ordering Information

| Model Number | Part Number | Description | Weight lbs. (kg) |
|--------------------|---------------|---|--------------------|
| 157S | 173502 | 150S low water cut-off w/water column | 39.7 (18.0) |
| 157S-MD | 173603 | 157S w/maximum differential | 39.7 (18.0) |
| 157S-A | 173702 | 157S w/alternate tappings | 39.5 (17.9) |
| 157S-A-M | 172811 | 157S-A w/manual reset | 39.5 (17.9) |
| 157S-M | 172812 | 157S w/manual reset | 39.7 (18.0) |
| 157S-M-MD | 172813 | 157S-M w/maximum differential | 39.7 (18.0) |
| 157S-R | 176220 | 157S w/alternate tappings | 42.0 (19.0) |
| 157S-R-M | 172817 | 157S-R w/manual reset | 42.0 (19.0) |
| 157S-RBP-MD | 176503 | 157S w/2 integral conductance probes | 51.0 (23.1) |
| 157S-RL | 176902 | 157S w/alternate tappings | 42.0 (19.0) |
| 157S-RL-M | 172815 | 157S-RL w/manual reset | 42.0 (19.0) |

MD Model Setpoints

The bellows on the 150 units are sensitive to pressure. At higher pressures the bellows is stiffer requiring more force to move it. At lower pressures the bellows is more pliable (less stiff) requiring less force to move it. Consequently, the on/off points tend to narrow at lower pressures. (Less distance between on and off).

Early versions of the 150 units with mercury bulb switches were able to be adjusted. These units had knurled adjustment screws that could be used to raise, lower or widen the setpoints. Although the available adjustment was small (usually $\frac{1}{16}$ " to $\frac{1}{8}$ " total), it was enough to compensate in the field for lower pressure systems.

Later versions of the 150 with mercury bulb switches and all snap switch units are not adjustable in the field. The 'MD' models were created to provide a 150 control with factory settings to compensate for the narrowing of setpoints on new and existing installations.

On 'MD' models the distance between pump off and burner off is increased by approximately $\frac{7}{16}$ ". Note that the pump on/off differential on both standard and 'MD' models is set at $\frac{3}{4}$ "

This larger differential is accomplished by lowering the burner off setpoint $\frac{3}{8}$ " below the casting line on 'MD' models when setting the burner on/off points at 150 psi. This compensates for the narrowing of the setpoints at lower operating pressures because the burner off point will move upward (closer to the casting line) at lower pressures.

Operating Levels
Series 150/157 & Series 150S/157S

