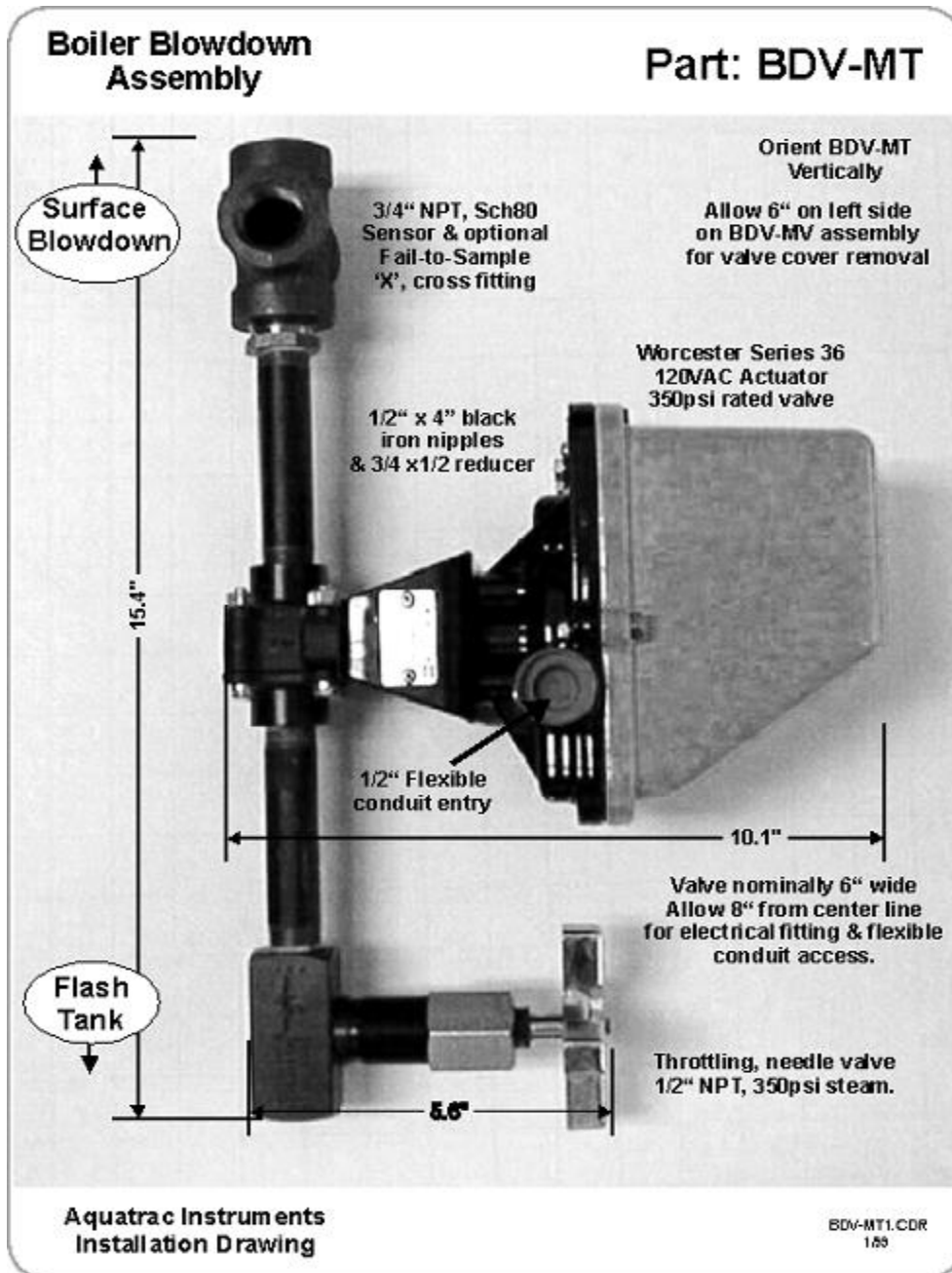


Pre-plumbed Blowdown Assembly – 1/2” Model 7760013

The pre-assembled blowdown configurations reduce installation time and component placement error. Each part of the assembly may also be ordered separately.

The 1/2", PN 7760217 motorized ball valve as well as the throttling needle valve, PN 7760006 are rated for 350 psi steam. The black pipe is rated for 300 psi steam.

Our standard 2 wire boiler conductivity sensor, 7760189 is rated 250 psi and our high temperature sensor, 7760005, is rated for 350 psi steam.



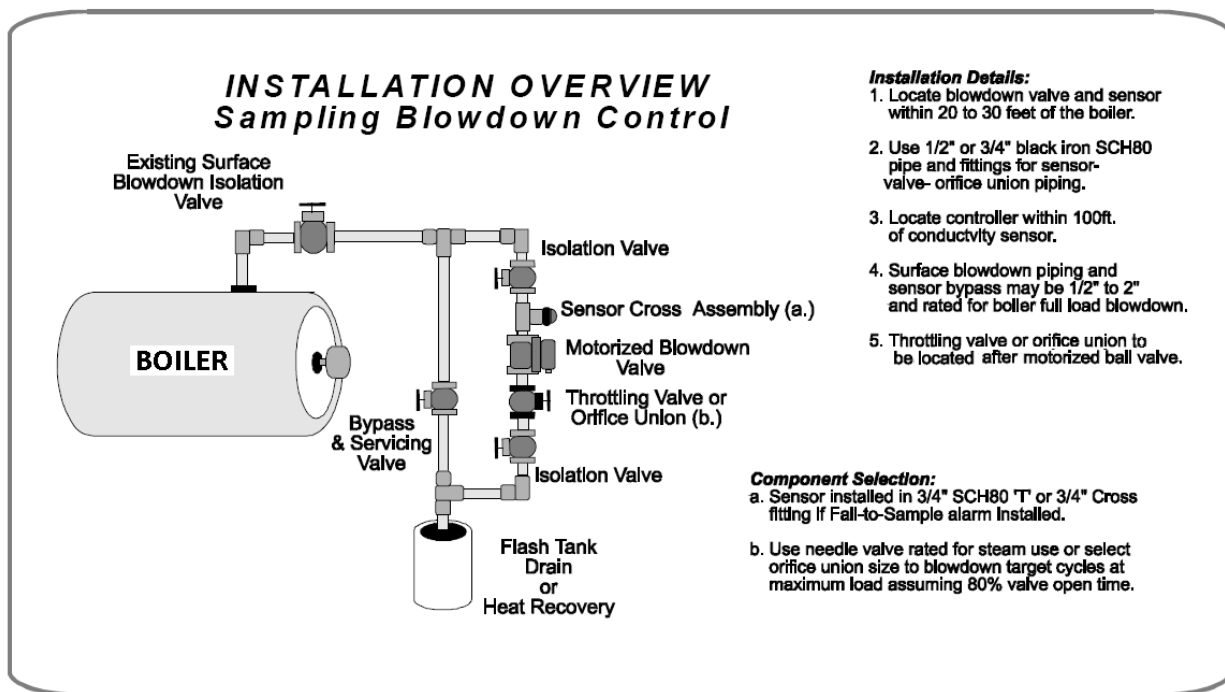
SPECIFICATION/INSTALLATION

Sampling Blowdown

Most boiler blowdown automation at sites operating at pressures of 7 to 250 pst steam, use Sampling Boiler Blowdown, a technique which eliminates the errors due to flashing and thermal lag on temperature compensation.

Sampling boiler blowdown is a four step operation:

- **Sampling Time**, typically 30 seconds, it's the time the controller opens the valve to obtain a boiler sample.
- **Wait-to-measure**, typically 60 seconds, it's the time between valve closure and measurement of conductivity. Re-calibration is required any time you change this time.
- **Blowdown Time**, typically 60-240 seconds, it the time the valve is open on high conductivity before the controller re-checks the boiler conductivity.
- **Re-Sample Time**, anywhere from 5 minutes to 600 minutes, typically 15-60 minutes, it's the time between samples. Small, lightly loaded boilers may be hours between samples. Large loaded boilers may Re-Sample every 15 minutes.



Sampling Blowdown Valve Installation

The preferred installation is as shown in the following graphic with the blowdown valve vertically so that piping heat is not connected to the valve.

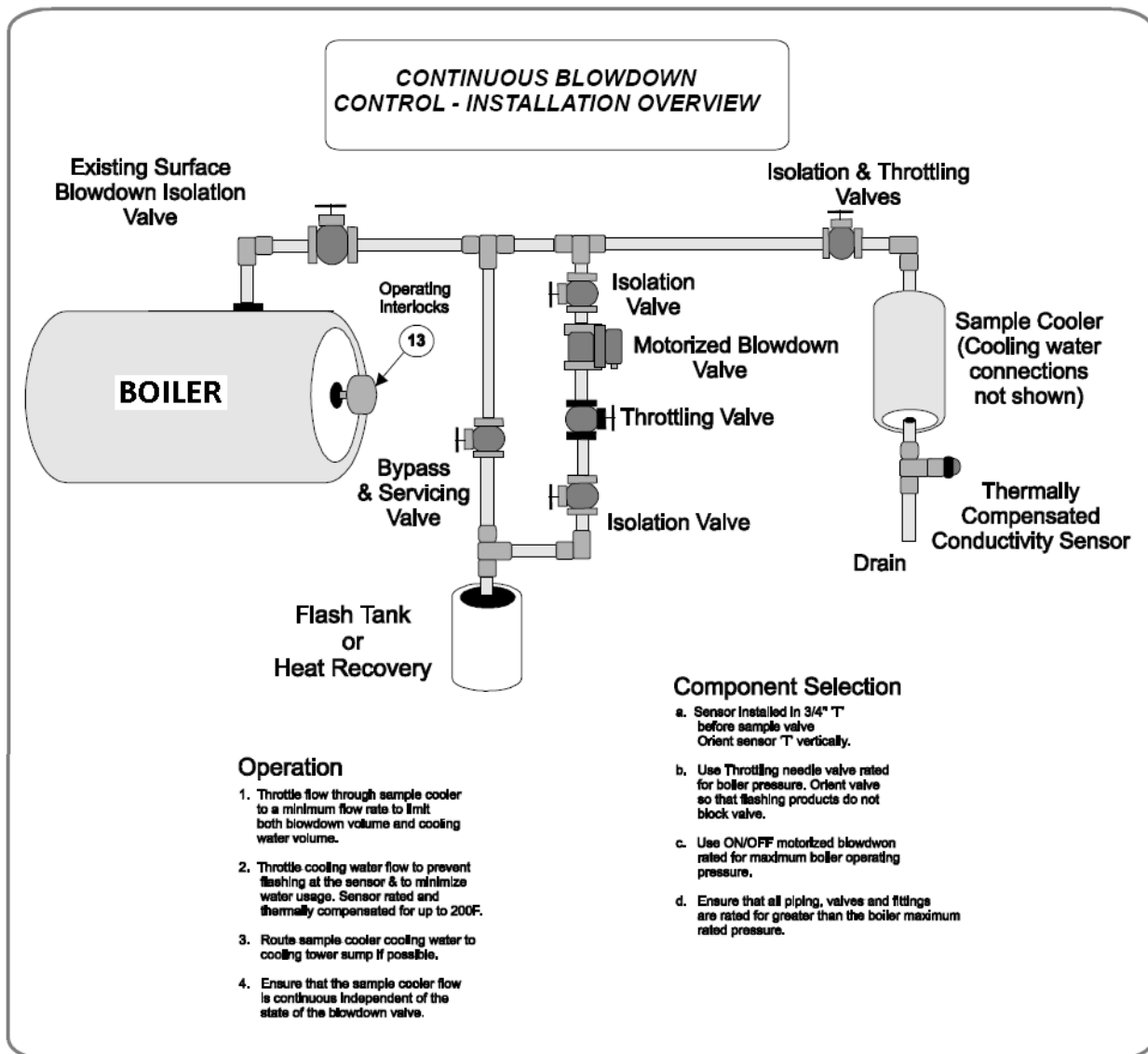
The conductivity sensor, blowdown valve and throttling valve may be oriented vertically or horizontally.

Very low pressure boilers, 10psi, are more sensitive to air blocking the sensors. Ensure that the sensor is installed in a ¾" 'T' and not in the top of a 1" 'T' with a 1" x ¾" reducer.

Continuous Blowdown Installation

Continuous boiler blowdown is used to blowdown boilers operating at pressure over 250 psi steam or at sites where a continuous blowdown is required for heat recovery. The conductivity sensors are usually installed downstream of a sample cooler with a continuous flow through the cooler. The sensor is not sensitive to flow rate. Low rate streams may be used to limit boiler water loss.

Continuous boiler blowdown controllers read the conductivity continuously, opening and closing the blowdown valve as the conductivity rises above & falls below the controller setpoints. Continuous blowdown sensor is 7760191.



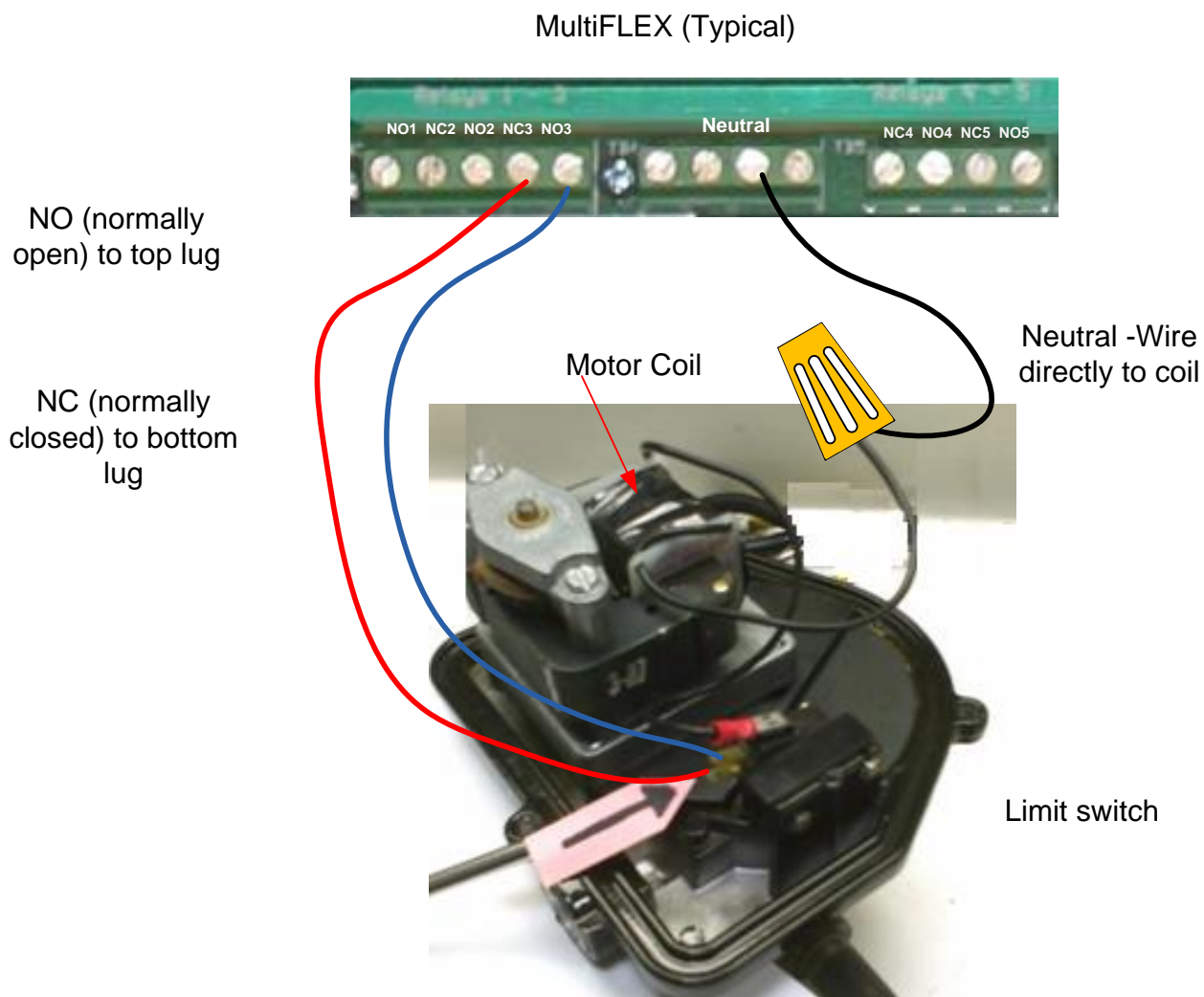
Wiring Motorized Blowdown Valves

Motorized blowdown valves require four 120VAC wires, Power OPEN, Power CLOSED, Neutral and Ground. The following graphic shows field wiring for the Worcester Series 36 Actuator; the valve with the yellow cover that Aquatrac supplies with its' blowdowns an assemblies. Wiring detail will vary with other valve vendors.

Fail safe sites may use spring return blowdown ball valves which are wired like solenoids.

Sites using continuous blowdown may use proportional valves controlled by a 4-20mA level.

CAUTION: Do not wire Valve 120VAC power in the same conduit as conductivity sensors.



CABLING RULES

Sensor and AC power cables must be installed in separate conduits.

Mixing sensor, valve and pump cables in one conduit will cause intermittent controller operating problems, false and unstable conductivity and pH measurements and overstated water meter readings.

Extending Sensor, Flowswitch and Water Meter Cables

All sensor, watermeter and interlock extension cables are twisted pair AWG16 to AWG24, shielded cable with the shields terminated to the enclosure grounding screws at the bottom, left of the enclosure. Shields are not grounded or terminated at the sensor end.

Extending Conductivity Sensor Cables

Conductivity sensor cables measuring conductivities up to 5,000uS may be extended up to 200 ft using AWG22 gauge twisted pair, shielded cable. Conductivities above 5,000uS and below 10,000uS require AWG18 gauge cable at 200 ft.

CAUTION ELECTRICAL SHOCK HAZARD
Unplug the controller before opening the controller enclosure
and installing or changing any wiring or cabling

120VAC CABLING

Do not connect AWG14 & heavier seven stranded cable directly to the controller terminal blocks. Controller are fused for AWG18 allowing you to butt splice AWG12-14 field wiring to AWG 18-16 before connecting to the terminal blocks.

FRACTIONAL HORSEPOWER PUMPS

External motor starter rated relays are required for fractional horsepower chemical feed pumps. Connecting fractional horsepower pumps directly to the controller will fail the controller fuse and may fuse the power relay contacts closed.

The 120VAC coils of the starter relays are powered by the controller relays.

DONOT power fractional horsepower pumps from the same AC circuit breaker that feeds the controller.