

Using this Specification Template for developing a specification to be used for requesting a quote or defining a job work description.

This document is a framework for creating a specification. It may contain more or it may contain less information than you need. Review the document and determine how to edit it by adding or deleting information to make it specific to the job you to which you want it to apply.

For example, under “Chemical Dosing Pumps, what GPD do you want? Is the pump on/off, pulsed, or modulated? Does it have stroke and frequency adjustments?

For additional assistance, you can contact Lakewood and ask for the Application Engineer.

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**Specification
for
COOLING WATER TREATMENT
Conductivity**

Sections

A. General description

Contractor shall install a complete water treatment system consisting of a Model 140 controller, sensor, plumbing and associated water meter, valves and chemical pumps as manufactured or supplied by Lakewood Instruments. The system shall have a two year warranty on electronics and one year warranty on sensors for defects in workmanship and consist of the following items as specified herein:

1. Model 140 Cooling Tower Water Treatment Controller with selective control features
2. Flow totalizer for either makeup or blowdown
3. Blowdown valve assembly
4. Chemical Dosing Pumps

B. Specifications

1.0 Conductivity control of blowdown shall include the Lakewood Instruments Model 140 Controller.

- 1.1 The blowdown valve shall open when conductivity exceeds a setpoint which may activate on above or below the setpoint.
- 1.2 The conductivity sensor shall be of two electrode design.
- 1.3 The controller will shut off all powered outputs on a no flow condition.
- 1.4 The controller will be UL/CSA/CE Listed
- 1.5 The enclosure shall be Nema 4X.
- 1.6 Front panel shall have six LED indicator lights
 - 1.6.1 One Green Power On Indicator
 - 1.6.2 One Red Alarm Indicator
 - 1.6.3 One Blue Flow indicator
 - 1.6.4 Three Amber Relay On/Off Indicators

2.0 Controller Functions and Features

- | | |
|--------------------------|-------------------------------------|
| 2.1 Sensor- Conductivity | |
| Two-electrode | Carbon tips |
| Temperature compensation | Automatic |
| Reading Accuracy | +/- 1% full range |
| Range | 0 to 10,000 uS |
| Body | PVC |
| Sensor removal | Twist lock ring. No tools required. |

2.2 Relay control shall be automatic or manual, menu selectable and include an automatic time-out feature in manual mode. Relay operation shall be user programmable and include the following at a minimum

- A. Relay One, Blowdown dedicated
 By set point
- B. All other relays

By set point
By Percent of Blowdown time
By Makeup or Blowdown totalized gallons
By percent of time
By schedule by Date and Time, with lockout and pre-bleed.
By Alarm condition

2.3 Setpoints and calibration shall be retained in the event of loss of power.

2.4 Flow meter totalizer shall display makeup or blowdown flow totals.

2.5 Biocide feed by use of Real Time Clock (RTC). Clock time and day shall be displayed for the schedule. Biocide shall feed on a programmed number of days cycle or by day of the week.

2.6 Keyboard and display

- Keypad 16 button, steel domed, tactile membrane type
- Display 16 Character by 2 lines LCD

2.7 Alarms A relay contact shall be selectable to either feed biocide or to use to alarm on the following conditions.

High/low conductivity
Time exceeded
No flow
Temperature compensation not working

2.8 Inputs:

- Conductivity, one
- Water meter, one - Watermeters input shall be user programmable and capable of using:
 - Dry contact water meters
 - Autotrol Turbine 1" or 2" Inputs
 - Paddle wheel with K factor
- Flow switch, one

2.9 Outputs:

2.9.1 Three relays rated at 115/220 VAC. Shipped with removable hanging outlets. Relay ratings, 3 AMP per relay, 10 amps total for the set of three relays. 1/5 HP motor max. The set of relays is fused by a common 10 AMP fuse.

2.9.2 A single 4-20mA signal that tracks conductivity. Operating range user configurable, manual stepped operation from menu. Calibration in field.

2.10 Integral flow switch, flow sight and back check valve shall be included in the plumbing assembly.

2.11 Power ratings 120/240 VAC 50/60 Hz.

3.0 Blowdown valve assembly.

(Specify the valve size, type and brand)

4.0 Flow meter to totalize makeup or blowdown

(Specify the meter size, type, and brand)

5.0 Chemical Dosing Pumps

(Specify the pump size, type, and brand)

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