Rev. A (lgs/md/prod-dev/1575spec.doc)

Specification
for
COOLING WATER TREATMENT
Conductivity

Sections

A. General Description

Contractor shall install a complete water treatment control panel and chemical feed system consisting of Model 25-1575 as manufactured by Osmonics - Lakewood Instruments™ of Phoenix, AZ, phone (623) 931-7332. 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. Stainless steel/polyethylene assembly for mounting the chemical pumps and the controller
2. Model 1575 with selective control features
3. Three each LPP-1 chemical pumps for:
   a. Chemical inhibitor
   b. Two biocides
4. Blowdown valve assembly
5. Flow meter to totalize makeup
6. Flow meter to totalize blowdown
7. Corrosion coupon holder
8. Shot feeders for the closed chill and/or hot water systems

B. Specifications

1. A factory prefabricated assembly including controller, chemical pumps, pump shelf and wall-mounting frame shall be supplied.

Wall-mounting panel	316SS
Chemical pump shelf	Polyethylene
Safety protection	Hinged Plexiglas shield over the chemical pumps
Prewired	All connections inside the enclosure completed
All injection plumbing	¾-inch PVC Sch80
Chemical pumps	Three each LPP-1 by Lakewood Instruments Corrosion inhibitor, 24 gpd Two Microbiocide feeds, 24 gpd each

2. Conductivity control of blowdown shall include the Lakewood Instruments Model 1575 controller that will open the blowdown valve when conductivity exceeds a setpoint. The conductivity sensor shall be two-electrode design. The controller will shut off all power outputs on a no-flow condition.

2.1 Sensor

Two electrode	Carbon tips
Temperature compensation	Automatic
Reading accuracy	± 1% full range
Range	0 to 5,000 µS
Body	PVC
Sensor removal	Twist lock ring; no tools required

2.2 Relay control and/or chemical feed methods available

A. Relay one, blowdown dedicated
- By percent of blowdown time after blowdown
- By setpoint
- By makeup totalized gallons
- By percent of time

B. All other relays
- By set point
- By makeup totalized gallons
- By blowdown totalized gallons
- By percent of time
- By schedule (time and date)

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

2.4 Flow meter totalizer shall display both makeup and blowdown flow totals to enable the user to calculate actual cooling tower evaporation.

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
- Keyboard (need specification)
- Display

2.7 Alarms—A relay contact shall be selectable to either feed biocide or to to use alarm on the following conditions.
- High/low conductivity
- Clean sensor alarm
- Blowdown time exceeded
- No flow
- Temperature compensation not working
- Drum levels, one and two

2.8 Inputs:
- Conductivity, one
- Water meter, two
- Flow switch, one
- Drum switch, two

2.9 Outputs:

2.9.1 Four relays rated at 115 VAC.
- Relay ratings, 3 amp per relay, 10 amps total for the set of four relays. 1/5 HP motor max. The set of relays is fused by a common 10 amp fuse.
- 4-20mA signal that tracks conductivity.

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.

2.12 The controller will have a security code to prevent unathorized program changes.

3.0 Chemical pumps. Solenoid-driven chemical pumps, Lakewood LPP-1 type, shall be provided. Both stroke and frequency shall be adjustable. Specifications:

Capacity	24 gpd
Head	Polypropylene
Diaphragm	TFE coated
O-rings	Viton*
Injector	PVC

Anti-siphon and pressure release features shall be provided.

4.0 Blowdown valve assembly. A slow closing pilot operated diaphragm valve with adjustable flow rate shall be used in the assembly. A strainer with ball valve clean out and manual by-pass shall also be part of the completed assembly.

TONS	VALVE SIZE
150	¾ inch fixed
300	1 inch
600	1 ½ inch
1500	2 inch
3000	3 inch

5.0 Flow meter to totalize makeup.

MAKEUP LINE SIZE	FLOWMETER PART
1 inch	MR-1 or AUTR 1
1 ½ inch	MR-1 ½
2 inch	WP-2 or AUTR 2
3 inch	IP115S
4 inch	IP115S
6 inch	IP115S

Over 2 inch size, a paddle wheel style flow meter through a retractable assembly with shutoff valve from Osmonics - Lakewood Instruments products to interface with the controller.

6.0 Flow meter to totalize blowdown. Use same size FLOW METER as the line size up to 2 inches. Over 2 inch size use the paddle-wheel style FLOW METER.

BLOWDOWN LINE	FLOW METER PART
¾ inch	MR-¾
1 inch	MR-1 or AUTR 1
1 ½ inch	MR-1 ½
2 inch	WP-2 or AUTR 2
3 inch	IP115
4 inch	IP115S

7.0 Corrosion coupon rack. A PVC, 4-station corrosion coupon rack shall be used installed upstream from the controller assembly. Coupons to be specified and supplied by the water treatment service specialist.

8.0 Shot feeders for chill and hot water systems. Two each 5-gallon, quick-opening, shot-feeder Model VTF-5 shall be used on the chill and hot water systems.

For additional information about specifications and Lakewood Instruments, contact:
Osmonics, 4953 W. Missouri Avenue, Glendale, AZ USA 85301-6100, Phone (623) 971-7332; or Fax (623) 931-7727.

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