STATE OF NORTH CAROLINA
DEPARTMENT OF ADMINISTRATION
DIVISION OF PURCHASE AND CONTRACT

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SPECIFICATION FOR COOLERS, WATER, MECHANICALLY REFRIGERATED, SELF-CONTAINED

(This specification is released for procurement purposes until revised or rescinded.)

SCOPE

This specification establishes requirements for self-contained, mechanically refrigerated drinking water coolers. These requirements define the minimum quality level acceptable to the State of North Carolina. It may not include all types and sizes, which may be commercially available, but only those generally used by state agencies and public schools.

I. CLASSIFICATION

Water coolers shall be classified by type, style, and size as follows:

Types and Styles:

Type PB - Bubbler-Type Pressure Water Cooler

Style FS - Free standing, floor mounted
Style FW - Flush-to-the-wall, floor mounted
Style WH - Standard wall hung
Style WC - Wall hung, wheelchair accessible

Type RT - Remote-Type Water Cooler (Requires Fountain)

Style CM - Column mounted
Style WH - Wall Hung
Style WI - Inside Wall

Type BT - Bottle-Type Water Cooler

Sizes:

Water Coolers shall be classified by size according to the standard rating capacity (SRC). Capacity ratings shall be based on the standard rating conditions as set forth in ARI Standard 1010 latest revision.

Type BT water coolers shall be of two sizes with minimum SRCs of 0.6 gallons per hour (2.3 liters per hour) and 1.0 gallon per hour (3.8 liters per hour).

Type PB, Styles FS, FW, and WH water coolers shall be of seven sizes with minimum SRC in accordance with Table 1. Style WC water coolers (wheelchair accessible) shall be of two sizes with minimum SRC in accordance with Table 2. Type RT water coolers shall be of four sizes with minimum SRC in accordance with Table 3.

TABLE 1

SIZE & COOLING CAPACITY DESIGNATIONS
For
TYPE PB WATER COOLERS
(STYLES FS, FW, AND WH)

Size	1	2	3	4	5	6	7
Cooling Capacity (Gallons/Hour)	3.0	5.0	8.0	10.0	13.5	16.0	19.0

TABLE 2

SIZE& COOLING CAPACITY DESIGNATIONS
For
TYPE PB WATER COOLERS
(STYLE WC - WHEELCHAIR ACCESSIBLE)

Size	1	2
Cooling Capacity (Gallons/Hour)	4.0	7.5

TABLE 3
SIZE & COOLING CAPACITY DESIGNATIONS*
For
TYPE RT WATER COOLERS

Size	1	2	3	4
Cooling Capacity (Gallons/Hour)	8.0	9.5	13.5	19.0

*NOTE: Capacity refers to the capacity of the (separate) cooling unit and not to each individual fountain.

II. APPLICABLE STANDARDS

The following documents of issue in effect on the date of the Invitation for Bids shall form a part of this specification to the extent described in requirements.

American National Standards Institute, 1430 Broadway, New York, NY10018

ARI 1010 (Latest issue) - Standard for Drinking-Fountains and Self-Contained, Mechanically-Refrigerated Drinking-Water Coolers.

ANSI/UL 399 (Latest issue) - Standard for Drinking-Water Coolers.

Air-Conditioning and Refrigeration Institute, 1501 Wilson Boulevard, Suite 600, Arlington, VA 22209

Directory of Certified Drinking Water Coolers (Current issue).

III. REQUIREMENTS

A. GENERAL

Water coolers shall be the manufacturer's new and current production model except for such deviations as may be required by this specification. Units shall be free of all imperfections, defects, and hazards which might affect appearance, normal life, serviceability, or user safety. Units shall be shipped complete, fully assembled, charged with refrigerant and oil, and ready for immediate

unpacking and installation. All materials and components shall be inherently corrosion resistant, or shall be suitably treated to resist corrosion. Parts and components not specifically mentioned in this specification, but which are required to provide a complete operating unit which are standard for the model bid, shall be included as part of the equipment furnished. Details not specifically defined herein shall be in accordance with the manufacturer's standard commercial practice for products of this type.

B. DESIGN REQUIREMENTS

1. Water coolers shall consist of water circulation, refrigeration, storage, dispensing, and disposal components, a frame or chassis (or integral frame unit), a cabinet, and all required wiring, tubing, controls, safety devices, plumbing connections, and installation hardware to provide a completely self-contained, fully functional unit. Units shall be designed for easy access to all components which may require inspection, maintenance, or service without disconnecting service lines or drain connections.

2. The Refrigeration and Storage System shall include a hermetically sealed motor-compressor, evaporator, condenser, pre-cooler (if used), storage system (Type RT), and all required tubing. All components containing gas or liquid refrigerant shall be permanently sealed in such a manner that the system cannot be opened without cutting or melting. Mechanical joints shall not be used for joining refrigerant- containing parts. The refrigerant used shall meet the requirements of ANSI/UL 399 (latest issue) and shall be readily available from Commercial Vendors.

    a) The motor-compressor shall be designed to meet the rated capacity of the water cooler and shall be equipped with an automatic reset thermal overload protector. It shall be permanently sealed in oil, shall require no additional lubrication, and shall be suitably mounted within the cabinet to provide vibration isolation and quiet operation.

    b) The evaporator shall be of a tube-on-tube, a tube-on-tank, or a tube-in-tank design. If a tube-in-tank design is used, two walls of metal shall separate the liquid in the evaporator from the potable water.

    c) The condenser shall be air or liquid cooled.

    d) The pre-cooler (if used) shall have two walls of metal separating the portable water from the waste water. The potable water tube or pipe shall always be on the outside of the waste water pipe.

    e) An automatic temperature control device shall be provided with the system. The device shall be adjustable to provide a range of drinking water temperature from 45°F (7.2°C) to 55°F (12.8°C).

    f) A cold water storage system or reservoir shall be provided for the Type RT water cooler. The storage reservoir shall be a stainless steel or copper tank or the storage system shall be of the copper tube type. This cold water storage system or reservoir shall have a capacity of at least one quart for sizes 3 and 4 and minimum of 2 gallons for sizes 5 and 7.

    g) Type BT water coolers shall be designed for use with a five-gallon water bottle (not included), and shall be equipped with a dispensing faucet and a drain tray. The dispensing faucet and the drain tray shall be mounted on front panel of the cabinet. The drain tray shall be designed to catch and drain spilled water into an easily accessible, removable receptacle of at least 1.0 liquid quart (0.95 liter) capacity.

    h) Type PB water coolers shall have a one-piece, polished stainless steel basin top designed to catch, prevent splashing of, and drain spilled water from the drinking water stream. The basin top shall have solid, rounded corners and shall overlap the water cooler cabinet. It shall be equipped with an integral drain, a strainer, and a bubbler. The

basin top of water coolers designed for installation in contact with a wall shall be designed to prevent overflow water from spilling onto the wall.

i) Type PB, Style WC units shall be designed so that the distance from the front edge of the basin to the wall is not greater than 19.0" (48.3 cm).

j) Type RT, Style WI water coolers or chiller shall have a grille of either stainless steel or corrosion-resistant steel, at the option of the manufacturer, unless otherwise specified in the Invitation for Bids. (NOTE: Type RT water coolers are not furnished with fountains; these must be ordered separately if required.)

3. All water coolers except Type BT coolers, shall be equipped with a dispensing device and a self-closing valve.

a) Type BT water coolers shall be equipped with a push-button or lever operated dispensing faucet mounted on the front panel of the water cooler cabinet.

b) Type PB water coolers shall be equipped with a hand-operated bubbler mounted on the basin top near the front of the unit. Exposed surfaces of the bubbler and control valve assembly shall be polished stainless steel or chromium-plated brass. Type PB water coolers shall be equipped with an automatic flow regulator. The regulator shall be designed to prevent spurting when the unit is operated and to maintain a steady stream of drinking water at supply line pressures from 20 psig to 90 psig.

c) Type PB, Style WC water coolers shall be equipped with bubblers that provide a flow of water at least 4.0" (10.2 cm) high at 35 psig and in a trajectory that is parallel, or nearly parallel, to the front of the unit. Style D water coolers shall also be equipped with operating controls which permit operation of the unit with either hand. The controls may be levers mounted near the front of each side, front-mounted dual push buttons, or an essentially full-width front-mounted push bar which can be operated from either end or the middle. The force required to operate the controls on Type PB, Style WC wheelchair accessible water coolers shall not exceed 5.0 lbf.

4. All threaded plumbing connections shall be NPT standard taper threads. All potable water tanks, containers, piping, tubing, and fittings shall be in conformance with the applicable sections of ARI 1010 and ANSI/UL 399 and shall not impart objectionable odors or tastes to the water. Metal piping, tubing, and fittings shall be nonferrous metal or stainless steel. All piping, tubing, and fittings to which external connections are to be made shall be rigidly secured to prevent damage when the connections are made. Lead solder is prohibited on any water flow connection and all units must meet NSF/ANSI 61 minimum water quality standard.

5. The evaporator, water storage chamber, water and refrigerant piping, and any other component which might produce condensed moisture shall be insulated.

6. Electric Service - Unless otherwise specified in the Invitation for Bids, water coolers shall be designed for plug connection to a 115 volt (nominal), 60 Hz alternating current power source and shall be equipped with a factory wired, UL-approved three-wire (grounding type) cord and plug.

C. PERFORMANCE REQUIREMENTS

Water coolers shall meet the rating and performance requirements of ANSI/ARI 1010 (Latest issue). All measurements and ratings shall be made at the rating conditions specified in the standard.

D. CERTIFICATION AND LISTING REQUIREMENTS

Water coolers shall be certified in accordance with ARI 1010 (Latest issue) and ANSI/UL 399 (Latest issue). Units shall be listed in the ARI Directory of Certified Drinking Water Coolers (Current issue)

and the appropriate product listing directory approved by the State of North Carolina Insurance Department.

E. LABELING REQUIREMENTS

Water coolers shall be labeled as specified below:

1. Nameplate - Units shall bear a permanent nameplate in accordance with ANSI/UL 399 (Latest issue). The nameplate shall show the following information:

   a) The manufacturer's or private labeler's name, trademark, or identifying symbol.
   b) The distinctive type or model designation of the unit. The designation shall be such that only the manufacturer's or private labeler's name and the designation number shall be required to order replacement parts for the unit.
   c) The electrical rating.
   d) The kind and amount of refrigerant in pounds-mass (kg x 2.2) and/or ounces (kg x 35.3).
   e) The factory test pressure for the high and low pressure sides.
   f) The date of manufacture (which may be in code).

2. Certification Marks - Units shall bear the ARI certification seal and the appropriate listing agency mark.

3. Wiring Diagram - Units intended for permanent connection to the power source shall be labeled with a wiring diagram.

4. Caution and Danger - Hazardous moving parts, uninsulated high voltage live parts, and hot parts shall be labeled in accordance with ANSI/UL 399 (Latest issue).

F. OPTIONS

When so specified in the Invitation for Bids, water coolers shall be furnished with one or more of the following options:

1. Glass Filler - Type PB water coolers shall be furnished with a stainless steel or chromium-plated brass glass filler, at the manufacturer's option, unless otherwise specified in the Invitation for Bids. The glass filler shall be equipped with a self-closing push button, push-back, or push-down control, whichever is specified in the Invitation for Bids.

2. Foot Control - Floor-mounted Type PB water coolers shall be equipped with a foot-operated bubbler control rather than a hand control when so specified in the Invitation for Bids.

3. Hand and Foot Control - Floor-mounted Type PB water coolers shall be furnished with both hand- and foot-operated bubbler controls when so specified in the Invitation for Bids.

4. Auxiliary Bubbler - When so specified in the Invitation for Bids, Type PB water coolers shall be equipped with an auxiliary bubbler and drain to provide a dual-height installation suitable for serving children and adults (Styles FS, FW, and WH) or wheelchairs and adults (Style WC).

5. 5-Gallon Bottle - Type BT water coolers shall include a five-gallon water bottle when so specified in the Invitation for Bids.

6. Optional water filters of type NSF 42 or NSF 53 where available.

IV. WARRANTY

Water coolers furnished under this specification shall be guaranteed against defects in materials, workmanship, and performance in accordance with the manufacturer's standard warranty, except that in no event shall such coverage be for less than five years on the sealed refrigeration system, including the compressor, condenser, evaporator, and interconnecting tubing, nor for less than one year on all other parts and components. Warranty coverage shall begin on the date of delivery to the ordering agency. Warranty

service shall be available at service locations within the State of North Carolina, and defective units shall be repaired or replaced during the warranty period at no cost to the owner or his representative.

V. SERVICE, PARTS, AND MANUALS

The contractor shall furnish complete instructions for installation, operation, and maintenance including complete lists of replacement parts or assemblies, indicating manufacturer and manufacturer's part number.

VI. ACCEPTANCE INSPECTION

After the bid results are tabulated, the State reserves the right to require samples of selected units for inspection and evaluation.

VII. DELIVERY AND PAYMENT

Delivery of and payment for water coolers under this specification shall be in accordance with the terms and conditions of the Invitation for Bids. The contractor shall be responsible for any packaging, or protection required to insure delivery in an undamaged condition.

VIII. ORDERING DATA

Purchasers should exercise any desired options offered herein, and should specify the following in the requisition and Invitation for Bids:

1. Title, number, and date of this specification.
2. Type, style, and size unit desired.
3. Electrical requirements (if other than 115 volt, single phase, 60 cycle operation).
4. Specify either stainless steel or corrosion-resistant metal grilles for inside wall style remote units, unless manufacturer's standard is acceptable (see Section III.B.2.(A)).
5. Options required (see Section III.F). (NOTE: For Option 1., type of control must be specified and specify either stainless steel or chromium-plated brass glass filler, unless manufacturer's standard is acceptable.)
6. Water filter meeting NSF 42 or NSF 53 where available.