PART 1 – GENERAL

1.1 DESIGN AND PERFORMANCE CRITERIA

A. Ultra Low Temperature Freezer manufactured to operate in a temperature range of -10C to -40C. Must be available in 115V/60 Hz or 208-230V/60 Hz. (Except 3 cu ft which is only 115 volt, 60 Hz)

B. The freezer must be constructed of 5” non-CFC foamed-in-place polyurethane insulation; 2” in the lid

C. Door Gasket – four sided gasket provides thermal barrier to keep warm air out and cold air in and minimizes frost build-up on the inner sub-lids.

D. Freezer shall have stainless steel interior and exterior will be painted with high-impact, scratch resistant powder coat finished to ensure long term viability

E. Ergonomic handle allows easy opening and closing of the lid. Lid must include door key lock for added security.

F. Freezer shall have internal sub-lid(s) to reduce air loss and improve temperature recovery

G. Freezer shall have a 1 inch access ports as standard

H. Freezer shall have a RS485 output, Dry Contacts and 4-20mA output for remote monitoring Purposes.

I. Freezer lid must open at least 90 degrees for easy sample access.

1.2 SUBMITTALS

A. Submit complete submittal package of product literature, manual, and drawings. Incomplete submittals are not acceptable, will be considered non-responsive, and will be returned without review.

1.3 QUALITY ASSURANCE

A. ULT freezer must be built to, and contain the registration mark for, UL, cUL, (60 Hz models) and CE (50 Hz models) standards for safety and performance.

1.4 QUALIFICATION
A. Manufacturer – Company must have 10 years documented experience in the construction of ULT freezers.

B. ULT Freezer – Shall be registered for UL, cUL, (60 Hz models) and CE (50 Hz models) standards.

1.5 WARRANTY

A. Manufacturer’s warranty against defects in material and workmanship covering parts must be available for a period of 2 years covering parts and labor, with an additional 2 year warranty on the compressor (parts only).
B. Standard exceptions for air filters, batteries, and gaskets shall apply.
C. Extended manufacturer’s warranty options should be available at additional charge if required

PART 2 – PRODUCT

2.1 MANUFACTURERS

A. Thermo Scientific

2.2 Forma 8600 Series ULT Chest Freezer Capacity

A. Model 703CA – 3 cu ft capacity: 63 – 2” boxes
B. Model 713CA – 12.7 cu ft capacity: 252 – 2” boxes
C. Model 717CA – 17 cu ft capacity: 348 – 2” boxes
D. Model 720CA – 20 cu ft capacity: 396 – 2” boxes

2.3 Forma 8600 Series ULT Chest Freezer Capacity

1. Exterior Dimensions (H x W x D)

A. Model 703CA – 43.8” x 28.5” x 29.9”
B. Model 713CA – 40.5” x 72” x 33.4”
C. Model 717CA – 40.5” x 87.6” x 33.4”
D. Model 720CA – 40.5” x 96” x 33.4”

2. Interior Dimensions (H x W x D)

A. Model 703CA – 16.5” x 18.5” x 18.5”
B. Model 713CA – 28” x 42.5” x 18.5”
C. Model 717CA – 28” x 58.8” x 18.5”
D. Model 720CA – 28” x 66.5” x 18.5”

2.3 Forma 8600 Series Control Requirements

A. Microprocessor controller must monitor in one degree C increments, with the digital display
B. The information center is located on top of chest side-car for “At-a-glance” monitoring and ease of setting controls (except for 3 cu ft, which is in the base)

C. Must have high and low temperature alarms, door ajar alarm, power fail alarm, low battery alarm, and hot condenser alarm

D. Battery back-up for temperature alarm monitoring system

2.4 – OPTIONS AND ACCESSORIES

A. Options
   a. CO2 or LN2 back-up system
   b. Inkless or ink chart recorder
   c. Water-cooled condenser (not available for 3 cu ft)

B. Accessories
   a. Racks
   b. Chart paper
   c. Replacement air filters
   d. Replacement battery
   e. Cryo Gloves
   f. Alarm delay module
   g. Remote alarms

PART 3 – EXECUTION

1.01 INSTALLATION

A. Install equipment level and plumb, according to manufacturer’s written instructions.
   1. Verify utility services are in required locations and are ready for use before installation of equipment.
   2. Install equipment with access and maintenance clearances that comply with manufacturer’s written installation instructions and requirements of authorities having jurisdiction.
   3. Complete equipment assembly where field assembly is required.
   4. Connect equipment to utilities.
   5. Remove all packing materials from the site.