Technical Specifications

Item	Specification	Statement of Compliance	Annex
[Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]			
1. WATER COOLED CHILLER			
1.1	**Cooling Capacity:** 422 TR (per unit minimum) **Maximum Unit Power Input:** 245 kW **Cooling Efficiency:** 0.55 kW/TR (maximum) **Refrigerant:** R-134a **Service Voltage:** 460 – 480V, 3phase, 60Hz ***Must submit brochures showing the above parameters (Cooling Efficiency must be validated via Factory Performance Testing prior acceptance)***		
1.2	**Compressor** (per chiller) **Type:** Vertical **or Horizontal** Screw Compressor **Quantity:** 2 ***Must submit brochures showing the above parameters***		
1.3	**Evaporator** **Type:** Shell and tube **Entering/Leaving Temperature:** 54ºF / 44ºF **Fouling Factor:** 0.0001 h. ft² ºF/Btu ***Must submit brochures showing the above parameters***		
1.4	**Condenser** **Type:** Shell and Tube **Entering/Leaving Temperature:** 85ºF / 95ºF **Fouling Factor:** 0.00025 h. ft² ºF/Btu ***Must submit brochures showing the above parameters***		
1.5	**AHRI Certification** ANSI/AHRI Standards 550/590 (I-P) and 551/591 (SI) for Performance Rating of Water-Chilling and Heat Pump Water-Heating Packages using Vapor Compression Cycle ***Must be verifiable online at www.ahridirectory.org***		
1.6	**AHRI Certified Chiller Testing Facility** Testing facility of chillers must have AHRI ***Certificate, verifiable at chillerscert@ahridirectory.org***		
2. PUMPS			
2.1	**Chilled Water Pumps** **Capacity:** 1075 gpm (minimum)		

	TDH: 141 ft. **Efficiency:** 75% (minimum) **Motor Rating:** 60HP **RPM:** 1,800 **Enclosure:** TEFC **Type:** Horizontal split-case pump **Service Voltage:** 460 - 480V, 3phase, 60Hz **Pump Material Specification:** **Casing:** Cast Iron, ASTM A48 **Impeller:** Bronze, ASTM B584 **Shaft:** Steel, AISI C1045 ***Must submit brochures showing the above parameters***		
2.2	**Condenser Water Pumps** **Capacity:** 1350 gpm (minimum) **TDH:** 112 ft. **Efficiency:** 80% (minimum) **Motor Rating:** 60HP **RPM:** 1,800 **Enclosure:** TEFC **Type: Horizontal split-case pump** **Service Voltage:** 460 - 480V, 3phase, 60Hz **Pump Material Specification:** **Casing:** Cast Iron, ASTM A48 **Impeller:** Bronze, ASTM B584 **Shaft:** Steel, AISI C1045 ***Must submit brochures showing the above parameters***		
3.0 PUMP CONTROLLER			
3.1	**Pump Controller** Variable Frequency Drive 60HP with Wye Delta Bypass Control Panel **VFD Specifications:** IP 20 Enclosure with RFI and Harmonics Filter Graphic Display, Energy Meter BMS Ready (BACNet or Modbus RTU) ***Must submit brochures showing the above parameters***		
4.0 CHILLER PLANT- BUILDING MANAGEMENT SYSTEM			
4.1	**DDC CONTROLLER SPECIFICATIONS** **Controller Type:** Direct Digital Controller **Input/Output:** Maximum 112 physical I/O's **Communication Protocols:** BACnet IP, BACnet MSTP, Modbus RTU, Modbus, Dali, KNX. (All Built-in) **Programming:** versatile protocols and interfaces and Graphic operation and energy optimizing control algorithms. **Additional Features:** trend data storage, Data logging capabilities, integrated security solution, emails and sms forwarding, innovative alarm management and expandable modules. **Ports:** 2 Ethernet Ports and IoT & Cloud -ready Certification: BTL (BACnet Testing laboratories) ***Must submit brochures showing the above parameters***		
4.2	**ULTRASONIC WATER FLOW AND**		

	TEMPERATURE METER (CLAMP TYPE) **Transducer for pipe sizes range:** (10mm to 2000 mm) **Transducer for temperature range:** -40 °F to +266 °F (-40 °C to 130 °C) **Volumetric flow rate accuracy/uncertainty:** ±1% MV ±0.02 ft/s (±1% v. MW ±0,005 m/s) **Temperature reading accuracy/uncertainty:** ±0,2 K (fluid temperature 32 to 86 °F / 0 °C to 30 °C) **Additional Features:** Built In Meter Verification for accurate reading **Power supply:** 90 to 250VAC Or 11VDC to 32VDC **Transducer degree of protection:** IP67 **Communication:** Modbus RTU/TCP, BACnet MSTP/IP M-Bus ***Must submit brochures showing the above parameters***		
4.3	**TEMPERATURE SENSOR** **Temp. Ranges:** -50°C to 50°C **Accuracy temperature** ±0.5°C @ 21°C [±0.9°F @ 70°F] **Power Supply**: AC/DC 24V **Degree of protection:** Sensor IP65/ Enclosure UL **Enclosure Type:** NEMA 4X ***Must submit brochures showing the above parameters***		
4.4	**PRESSURE SENSOR** **Pressure Range** 0-60bar **Accuracy:** 0.5% Full Scale @ 25ºC **Max. Over Pressure:** 200% of Measuring Range **Busting Pressure (diaphragm):** 300% of Measuring Range **Power supply:** AC/DC 24V **IP- Rating:** IP67 ***Must submit brochures showing the above parameters***		
4.5	**OUTDOOR HUMIDITY AND TEMPERATURE SENSOR WITH ACTIVE OUTPUTS** **Temp. Ranges:** -50°C to 50°C **Humidity Accuracy:** ± 2%, Full Scale **Temperature Accuracy:** ± 0.15K @ 0ºC **Power supply:** AC/DC 24V **IP- Rating:** IP65 to IEC60529 ***Must submit brochures showing the above parameters***		

Name: _____

Legal capacity:_____

Signature:_____

Duly authorized to sign the Bid for and behalf of: _____

Date: _____