



2 to 10 Tons - Single Circuit - DX Air / Water / Glycol Free Cooling / Alternate Water Source Precision Air Conditioners Utilizing EC Fan Technology (60 Hz Data)



STULZ Air Technology Systems Inc.



Our Mission:

Driving innovation in our industry, providing highest quality environmental control products, superior technology, customer solutions and exceptional customer service while

being a socially and environmentally responsible and ethical company.

STULZ-ATS is dedicated to providing innovative solutions for critical temperature and humidity control needs. STULZ-ATS designs and manufactures specialized, energy efficient, environmental control equipment. STULZ-ATS serves a diverse marketplace; our customers represent a variety of industries including telecommunications, information technology, medical, financial, educational, industrial process and government. Our world-class "island" manufacturing processes takes place in a modern, 150,000 ft² facility located in Frederick, MD USA. STULZ-ATS combines a global network of sales and service companies with an extensive factory engineering staff and highly flexible manufacturing resources dedicated to providing world-class quality, innovation and customer service.

This commitment to excellence, along with a standard two year warranty, fast lead times, and outstanding customer service, make STULZ-ATS the perfect choice for all your environmental control needs.

Solutions that help you reach your goals.

- Precision Air Conditioning Ceiling & Floor Mounted from 1-100 tons Air, Water, Glycol, Chilled Water Free Cooling Alternate Water Source
- Ultrasonic Humidifiers

 Duct, AHU, Wall Mounted & Stand-alone
 Clean, Energy Efficient
 Adiabatic Cooling

ISO-9001 Quality Registered

STULZ-ATS is committed to satisfying customer expectations by meeting and exceeding requirements. Our Quality Policy ensures that every employee is committed to Customer Satisfaction, Teamwork and utilizing Continuous Process Improvement methods in order to deliver an exceptional product. We will continually measure our performance to improve the effectiveness of our quality management system.

STULZ-ATS CyberONE-EC, vertical, floor mounted air conditioning units provide precision temperature and/or humidity control for computer rooms and other critical areas where continuous 24 hrs/day, 365 days/yr operation is required. Designed for front only access, CyberONE-EC systems require minimal floor space. The units are designed with a wide range of options to handle both precision and comfort cooling applications.

INDUSTRIES:

- Internet / Web Hosting
- Telecommunications
- Financial / Banking
- Insurance
- Airlines / Mass Transit
- Legal Services
- Entertainment
- Government
- Colleges / Universities

oals. APPLICATIONS:

- Data Centers
- Computer / LAN Rooms
- Telecommunications Rooms
- Co-location Centers
- ISP (Internet Service Providers)
- ASP (Applications Service Providers)
- Hospital Operating & Isolation Rooms
- Laboratories



Table of Contents

Introduction to SATS	. 1
Table of Contents	. 1

CyberONE-EC Systems

Outstanding Advantages	.4
User Oriented Features & Options	. 5
Model Nomenclature Chart	. 6
Model Nomenclature Specificaitons	. 7

Guide Specifications

Standard Features Index	8
Standard Features Guide Specifications	
Optional Features Index	11
Optional Features Guide Specificaitons	12/16

Performance Data

DX - Air Cooled Systems	
DX - Water Cooled Systems	20
DX - Glycol Cooled Systems	21
Free Cooling & Alternate Water Source Systems	

Electrical Data

DX - Air Cooled Systems	29
DX - Water Cooled Systems	29
DX - Glycol Cooled Systems	29
Free Cooling & Alternate Water Source Systems	29

Dimensional Data / Installation Drawings

Standard CyberONE-EC "COS" Systems	
2 to 5 ton, Up-Flow Systems	31
2 to 5 ton, Down-Flow Systems	32
8 to 10 ton, Up-Flow Systems	.33
8 to 10 ton, Down-Flow Systems	. 34



CyberONE-EC-EC System Advantages

CyberONE-EC™ systems are designed to provide precision temperature and humidity control 24 hrs/day, 365 days/yr. A wide variety of cabinet configurations and options make STULZ-ATS products the most flexible precision air conditioning line available in the industry.

CyberONE-EC[™] systems require only front service access and are easily installed sideby-side, tucked into a corner or between cabinets. The **CyberONE-EC[™]** Series units are especially adaptable to raised floors and are available in both down-flow and up-flow air pattern configurations.



CyberONE-EC Systems Offer Outstanding Advantages

Flexibility

A wide variety of cooling methods are available to meet your unique requirements.

- DX Air Cooled
- DX Water Cooled
- DX Glycol Cooled (w/ Remote Drycoolers & Pump Packages
- DX Air Handling Units
- DX with Free Cooling
- DX with Alternate Water Source Cooling

Versatility

- Plenum Box Spot Cooling & Ducted systems
- Self-Contained & Split systems

100% Front Service Access

Designed for 100% Front Only Access, **CyberONE-EC™** systems require minimal floor space and can be installed side-by-side, tucked into a corner or between cabinets.

Wide Size Range

DX systems from 2 to 10 tons, **CyberONE-EC™** systems are designed for 100% front service access. The compact design requires minimal floor space and are easily tucked into a corner, between cabinetry or side-by-side.

Non-Proprietary Parts

CyberONE-EC™ systems incorporate nonproprietary components where possible. Most major HVAC, refrigeration and electrical distributors stock an exact model cross reference or an alternate to most factory provided components.

Microprocessor Controls

Precision temperature and/or humidity control with unrivaled, user-friendly, microprocessor controls, offer a wide range of functions and alarms.

Complete Temperature & Humidity Control

- Electrode Canister Steam Humidification
- Dehumidification Mode with:
 - Electric Reheat/Heat
 - Optional Hot Gas Reheat (Energy \$aver)
 - Optional Hot Water & Steam Reheat/Heat

Capacity Modulation Options

- Hot Gas Bypass Systems
- Multi-stage Reheat/Heat

Code (UL / CSA) Conformance

- NYC MEA Approved (MEA-163-88-E)
- CSA Compliance
- MET-C Recognized by Standards Council of Canada



4

User Oriented Features

Scroll Compressors

CyberONE-EC™ DX A/C's incorporate Scroll Compressor Technology. Scroll Compressors provide higher efficiency, higher reliability and lower sound power than other compressor technologies.

24/7 Year Round Operation

Option offerings available with **CyberONE-EC™** air conditioners allow for year-round, 24 hours-a-day system operation in any environment in the world:

Low Ambient Control (DX - Air Cooled)

- -0°F Fan Cycling / Fan Speed
- -20°F Variable Fan Speed / EC
- -30°F Flooded Head Pressure (external receiver)

100% Front Service Access



CyberONE-EC

Modular Motor Controllers



CyberONE-EC™ systems incorporate modular motor controllers with motor circuit breakers in lieu of inconvenient replaceable fuses.

Quiet Operation

Low sound power scroll compressors coupled with EC plug fans, acoustically lined cabinets and low velocity grilles provide the optimum in quiet operation.

Warranty

- 2 Year Parts Standard
- Optional 5 Year Compressor

Selected Standard Features:

- Main Power Non-Fused Disconnect Switch
- EC Motor Controllers (w/ motor circuit breakers)
- Acoustical / Thermal Insulation
- Aluminum Fin / Copper Tube Coils
- Thermal Expansion Valves
- Refrigerant Sight Glasses
- Refrigerant Filter / Drier Strainers
- Liquid Refrigerant Reclaim Valves
- Non-Corroding Stainless Steel Drain Pan
- High / Low Refrigerant Pressure Switches

Other Available Options:

- 2 & 3-way Grilled Plenum Boxes
- Floor Stands
- Condensate Pumps
- Smoke Detectors
- Firestats
- Water Leak Detectors
- Special High Efficiency Filtration
- Free-Cooling & Alternate Water Source Units
- Drycoolers & Pump Packages
- Many more options available



Model Nomenclature

CyberONE-EC - Single Circuit DX Floor Mounted Precision Air Conditioners



* STULZ-ATS Pump Packages and Drycoolers can be

found in our "Glycol Systems" engineering manual



6

Model Nomenclature Specifications

Model Nomenclature Guide Specifications

DX - EVAPORATOR SECTIONS

Air Cooled Remote Evaporator

(Models COS-()-AR)

The system shall be a remote (split) air cooled, floor mounted precision air conditioner evaporator. The evaporator section shall house, as a minimum, the evaporator coil, expansion valve, compressor, evaporator blower/motor and associated electrical and refrigeration components.

The COS-()-AR evaporator section shall be located at some distance from its corresponding STULZ-ATS model HES-()-CAA indoor or SCS-()-() outdoor air cooled condenser.

The evaporator system shall require only a single point main power supply connection; and the system shall ship from the STULZ-ATS factory with a dry nitrogen holding charge ready for field refrigerant charging.

DX - AIR HANDLING UNITS

Air Handling Unit

(Models COS-()-AHU) 2-5 tons only

The system shall be a floor mounted, precision DX-Air Handling Evaporator. The air handling section shall house, as a minimum, the evaporator coil, expansion valve, evaporator blower/motor and associated electrical and refrigeration components.

The COS-()-AHU evaporator section shall be located at some distance from its corresponding STULZ-ATS model OHS-()-RCU-() indoor or outdoor remote air cooled condensing unit. The system's compressor(s) shall be located with the remote condensing section.

The air handling unit shall require only single point main power supply connection; and the system shall ship from the STULZ-ATS factory with a dry nitrogen holding charge ready for field refrigerant charging.

DX - WATER COOLED SYSTEMS

Integral Self-Contained (Models COS-()-W)

The system shall be a self-contained, floor mounted precision air conditioner to include integral water cooled, platefin condenser with factory installed head pressure water regulating control valve(s). Condenser (source) water shall be provided by a cooling tower or some other remote water source.

The system shall require only single point supply power connection and shall ship from the STULZ-ATS factory with a full operating refrigerant charge.

Water Regulating Valves:

Head pressure shall be automatically controlled by factory installed 2-way water regulating valves rated for 600 psig w.w.p.

(Note: 3-way valves are available options)

DX - GLYCOL COOLED SYSTEMS

Integral Self-Contained (Models COS-()-G)

The system shall be a self-contained, floor mounted precision air conditioner to include integral glycol cooled, plate-fin condenser with factory installed head pressure glycol regulating control valve(s). Condenser (source) glycol solution shall be provided via a STULZ-ATS model GPS-()-()/F()S-() remote glycol pump package and drycooler system.

The system shall require only a single point supply power connection and shall ship from the STULZ-ATS factory with a full operating refrigerant charge.

Glycol Regulating Valves:

Head pressure shall be automatically controlled by factory installed 2-way water regulating valves rated for 600 psig w.w.p.

(Note: 3-way valves are available options)

DX COOLING with "Assist-Mode" FREE-COOLING SYTEMS

Water/Glycol Economizer Coil (Models COS-()-W/G-FC)

The system shall be a self-contained, floor mounted precision air conditioner to include a combination integral compressor, DX Water/Glycol Cooled refrigeration cycle and Free-Cooling economizer cycle. The Free-Cooling cycle shall be provided to take advantage of low ambient air temperature conditions to provide compressor-less cooling.

Condenser (source) and free-cooling coil glycol solution shall be provided via a CyberAiR model GPS-()-() / F()S-()-() remote glycol pump package and drycooler system. During free-cooling mode, the drycooler capacity shall be increased by reversing the typical drycooler fan(s) cycling sequence of operation to provide maximum cooling effect for the glycol coolant solution.

The evaporator system shall require only single point main power supply connection, and the system shall ship from the STULZ-ATS factory with a full operating refrigerant charge.

ALTERNATE WATER SOURCE

Chilled Water by "Day" and DX-Backup by "Night"

(Models COS-()-AR, W, G-AWS)

The system shall be a single compressor, floor mounted precision air conditioner to include a combination DX refrigeration cycle and Alternate Water Source cooling cycle. The Alternate Water Source cooling cycle shall be provided to utilize building chilled water supply, when available, as the primary cooling cycle with DX refrigerant cooling as a backup.



Selected Standard Features

SELECTED STANDARD FEATURES: TEMPERATURE CONTROL 1:Sage Colling Mode Standard Standard 1:Sage Colling Mode Standard Standard 1:Sage Colling Mode Optional Optional HUMIDITY CONTROL Peptrotional Bictrode Canter Steam Humiditier Standard Standard Dehunditication Modewith 1:Stage Electric Reheat Standard Standard Standard CONTROLS Advanced Microprocessor w/ Alarms Standard Standard Standard Control Stand Gabarneol Steel Temulated Standard Standard Standard Standard Provider Coat Painted Gabarneol Steel Standard Standard Standard Standard Provider Coat Painted Gabarneol Steel Temulated Standard Standard Standard Standard 21: Derity Thermal & Stondard Insultation Optional Optional Distonal Distonal 21: 30: Design Electric Reheauses Standard Standard Standard Standard 21: 30: Stand Kidglicable, turning ware optional Coptional Distonal Distonal 21: 30:	COS Model	024/060-()	096/120-()
TEMPERATURE CONTROL 1-Stage Cooling Mode Standard Standard 1-Stage Excite Reharing/Netting Standard Standard 1-Stage Excite Reharing/Netting Standard Standard Proportional Excode Canitaer Steam Humidifier Standard Standard Dehumiditation Mode with I-Stage Electric Reheat Standard Standard CONTROL Control Standard Standard Dehumiditation Mode with I-Stage Electric Reheat Standard Standard CABINET Excite Release Standard Standard Provider Cas Brinted Gabanneal Steel Standard Standard Standard Insulated Standensate Drain Parn Standard Standard Standard 2 foor Stand (Aquatable, turning wares optional) Optional Optional Optional FLITERSPLENUMS 2: 37-80-DottS Standard Standard Standard Standard 2 nor Sang (Aquatable, turning wares optional) Standard Standard Standard 1 Constrant (Aquatable, turning wares optional) Standard Standard Standard 1 Const	SELECTED STANDARD FEATURES:		·
1-Stage Cooling Mode Standard Standard 1-Stage Eachir, Reheating/Only No Humidity Control) Optional Optional HUMIDITY CONTROL Proportional Electrode Canistre Standard Standard Proportional Electrode Canistre Stane Humidifier Standard Standard Control Control Control Canistre Standard Standard Standard Powder Cont Painted Stavanned Steel Instandard Standard Powder Cont Painted Stavanned Steel Standard Standard Powder Cont Painted Stavanned Steel Standard Standard Powder Cont Painted Stavanned Steel Standard Standard 21 Destript Termal & Standard Standard Standard 21 Standard Steel Filters Standard Standard 21 - 2002 Relingerant Standard Standard Standard Standard Standard Standard DX-REFRIGERATION CIRCUT Hitter Standard Standard LFC: F407 Relingerant Standard <td>TEMPERATURE CONTROL</td> <td></td> <td></td>	TEMPERATURE CONTROL		
1-Stage Decry: Reheating-frequing Standard Standard 1-Stage Decry: Reheating-Only No Humidity Control) Optional Optional Proportional Electrode Canates Steam Humiditier Standard Standard Dehumidification Mode with 1-Stage Decry: Reheat Standard Standard CONTROL Advanced Microprocessor wir Alarms Standard Standard Provider Cant Painted Galvanneal Steel Standard Standard Provider Cant Painted Galvanneal Steel Standard Standard Foor Stand (Adjuntable, turing vanes optional) Optional Optional Powder Cant Painted Galvanneal Steel Standard Standard 1: Derosity Thread & Sourd Insulation Standard Standard FILTERSPLENUMS Optional Optional 2: Of Xway Pierum Box (Up-Flow Units) Optional Optional D-X-REPRIGERATION CIRCUIT Hittersplead Standard High Efficiency, Aluminum In / Copper Tube Colis Standard Standard Bingerant Stynd Riseas & Filter/Direr Stainers Standard Standard Bingerant Stynd Riseas & Filter/Direr Stainers Standard Standard Refigerant Stynd Riseas & Filter/Direr Stainers Standard Standard Bing Concept, Stynd Riseas & Filter/Direr Stainers Standard Standar	1-Stage Cooling Mode	Standard	Standard
Cooling &/or Heating Coly (Wa Humidity Cantrol) Optional Optional HUMIDITY CONTROL Standard Standard Detwindifation Mode with 1-Stage Electric Reheat Standard Standard CONTROLS Advanced Microprocessor w/ Alarms Standard Standard Cabinet Microprocessor w/ Alarms Standard Standard Standard Cabinet Microprocessor w/ Alarms Standard Standard Standard Cabinet Microprocessor w/ Alarms Standard Standard Standard Powder Coat Painted Stawanneal Steel Istandard Standard Standard Cost Stant Adjusche, turning vanes optional Optional Optional Optional Cost Stant Adjusche, turning vanes optional Optional Optional Optional Cost Stant Adjusche, turning vanes optional Optional Optional Optional Cost Stant Adjusche, turning vanes optional Optional Optional Optional DX-REFRIGERATION CIRCUIT IterC-Ady 7: Refrigerant Standard Standard Standard Standard Standard Standard Standard	1-Stage Electric Reheating/Heating	Standard	Standard
HUMIDITY CONTROL Standard Standard Proportional Electrode Caniter Steam Humiditier Standard Standard Standard Dehumiditication Mode with 1-Sage Electric Rehest Standard Standard Standard Advanced Microprocessor w/ Alarms Standard Standard Standard CARINET Powder Cost Fainted Gahannel Steel Standard Standard Standard Ib Density Thermal & Sound Inculation Standard Standard Standard Standard 21. Density Thermal & Sound Inculation Standard Standard Standard Standard 22. or 3way Plenum Rax (Up-Rise Lifeties Standard Standard Standard Standard 21. or 3way Plenum Rax (Up-Rise Lifeties Standard Standard Standard Standard 21. or 3way Plenum Rax (Up-Rise Lifeties Standard Standard Standard Standard 22. or 3way Plenum Rax (Up-Rise Lifeties Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard	Cooling &/or Heating Only (No Humidity Control)	Optional	Optional
Proportional Electrode Canister Steam Humidilier Standard Standard Standard Dehumidification Mode with 1-Stage Electric Reheat Standard Standard Standard CONTROLS Standard Standard Standard CAbineed Microprocessor w/ Alarms Standard Standard Standard Provider Cost Fainted Galvanneal Steel Standard Standard Standard 2 Ib Density Thermal & Sound Insulation Standard Standard Optional FLITERSPLENUMS 27, 30% Dust Spot Eff. Pleated Filters 2 ar 3-way Plenum Box (Up-How Units) Optional Optional DX-REFNICERATION CIRCUIT HCFC: 5407C Refrigerant Standard Standard Standard Scoll Compressors Standard Standard Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard Standard Burgerint Sight Glasses & Filter/Drier Strainers Standard Standard Standard Befrigerant Sight Glasses & Filter/Drier Strainers Stand	HUMIDITY CONTROL		
Dehumidification Mode with 1-Stage Electric Reheat Standard Standard CONTOLS Advanced Microgroposes or W Alarms Standard Standard Advanced Microgroposes or W Alarms Standard Standard Standard Poweler Coat Painted Galvanneal Steel Standard Standard Standard Insulated Standies Steel Condensate Drain Pain Standard Standard Standard 2 Ib Density Thermal & Sound Insulation Standard Standard Standard 2 To 30% Dust Spot Eff. Pleated Filters Standard Standard Standard 2 or 3-way Pienum Box (Up-Flow Units) Optional Optional Optional DX-REFRIGEERATION CIRCUIT Iterast Pleater Filters Standard Standard 16/CF 1407C Refrigerant Standard Standard Standard Standard Standard Standard Standard Standard High Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Standard High Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Standard Electrincall Standard Stand	Proportional Electrode Canister Steam Humidifier	Standard	Standard
CONTROLS Standard Standard Advanced Meroprocessor w/ Alarms Standard Standard CABINET Standard Standard Prowder Cost Painted Galanneal Steel Standard Standard Insulated Standess Steel Condensate Drain Pan Standard Standard 2 Doensity Themal & Sound Insulation Standard Optional Floor Stand (Adjustable, turning vanes optional) Optional Optional PLTERS/PLENUMS 2: 0.3% bLt Spot Eff. Pleated Filters Standard Standard 2: 0.3% DLT Spot Eff. Pleated Filters Standard Standard Standard DX-REFRIGERATION CIRCUIT HCFC: M407C Refrigerant Standard Standard Standard Scoil Compressors Standard Standard Standard Standard Firingerant Service Values Standard Standard Standard Refrigerant Service Values Standard Standard <td>Dehumidification Mode with 1-Stage Electric Reheat</td> <td>Standard</td> <td>Standard</td>	Dehumidification Mode with 1-Stage Electric Reheat	Standard	Standard
Advanced Microprocessor w/ Alarms Standard Standard CABINET Standard Standard Powder Coxt Painted Galvanneal Steel Standard Standard 1sulated Stainless Steel Condensate Drain Pan Standard Standard 2 Ib Density Thermal & Sound Insulation Optional Optional FILTERS/PLENUMS 21, Johnskusble, turing vanes optional) Optional Optional 27, 30% Duxi Spot Eff. Pleated Filters Standard Standard 27, 30% Duxi Spot Eff. Pleated Filters Standard Standard 27, 30% Duxi Spot Eff. Pleated Filters Standard Standard 27, 30% Duxi Spot Eff. Pleated Filters Standard Standard 27, 30% Duxi Spot Eff. Pleated Filters Standard Standard Discret Drive Bactrical Kalor Science Standard Standard High Efficiency, Aluminum Fin / Copper Tube Colis Standard Standard High Efficiency, Aluminum Fin / Copper Tube Colis Standard Standard BLOWERS / MOTORS Direct Drive Istandard Standard Standard BLOWERS / MOTORS Direct Drive Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Modular Motor Control Istandard Modular Motor Control Text Swith Integral Circuit Breakers Standard Standard <	CONTROLS	•	
CABINET Standard Standard Powder Cost Paintes Steel Condensate Drain Pan Standard Standard 2 Ib Density Thermal & Sound Insulation Standard Standard 7 Stand (Adjustable, turning vanes optional) Optional Optional 1 Ib Density Thermal & Sound Insulation Standard Standard 2 or 3-way Plenum Box (Up-Row Units) Optional Optional DX-REFRIGERATION CIRCUIT HCC: 4A07C. Refrigerant Standard Standard Scroll Compressors Standard Standard Standard Stroll Compressors Standard Standard Standard Stroll Compressors Standard Standard Standard Stroll Compressors Standard Standard Standard Refrigerant Service Valves Standard Standard Standard BLOWERS / WOTORS Unit Voltage Control Transformer (24V Class 2) Standard Standard Nulti-Voltage Control Transformer (24V Class 2) Standard Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard Standard Standard Standard S	Advanced Microprocessor w/ Alarms	Standard	Standard
Powder Cost Painted Galvanneal Steel Standard Standard Insulated Stainless Steel Condensite Drain Pan Standard Standard Standard 2 Ib Density Themail & Sound Insulation Standard Standard Standard Flore Stand (Adjustable, turning vanes optional) Optional Optional Optional C 2, 30% DUS Stoff IP. Reated Filters Standard Standard Standard 2 or 3-way Plenum Box (Up-Flow Units) Optional Optional Optional DX-REFRIGERATION CIRCUIT HCFC- R407C Refrigerant Standard Standard Standard Standard Standard Standard Refrigerant Sprice Valves Standard Standard Standard Bernard Synche Valves Standard Standard Standard BLOWERS / MOTORS D D D D Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard Standard Standard Standard Standard Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard	CABINET	•	•
Insulated Stainless Steel Condensate Drain Pan Standard Standard Standard I bensity Thermal & Sound Insulation Optional Optional Optional Optional Optional Optional Optional Optional Standard	Powder Coat Painted Galvanneal Steel	Standard	Standard
2 Ib Density Thermal & Sound insulation Standard Standard Floor Stand (Adjustable, turning vanes optional) Optional Optional FILTERS/PLENUMS 2 7. 30% Dust Spot Eff. Pleated Filters Standard Standard 2 or 3-way Plenum Box (Up-Flow Units) Optional Optional Optional DX-REFRIGERATION CIRCUIT HCCC- RaOr Refrigerant Standard Standard Standard LFCC- RAOr Refrigerant Standard Standard Standard Standard Stond Compressors Standard Standard Standard Standard Heigh Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Standard Refrigerant Sight Glasses & Filter/Driver Strainers Standard Standard Standard BLOWERS / MOTORS Direct Drive Electrically Commutated (EC) Plug Fan Electrical Tables Section 5 See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Multi-Voltage Control Transformer (24V Class 2) Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard	Insulated Stainless Steel Condensate Drain Pan	Standard	Standard
Floor Stand (Adjustable, turning vanes optional) Optional Optional FILTERSPLENUMS 2*, 30% Dust Spot Eff. Plated Filters Standard Standard 2*, 30% Dust Spot Eff. Plated Filters Standard Optional Optional DX-REFRIGERATION CIRCUIT	2 lb Density Thermal & Sound Insulation	Standard	Standard
FILTERS/PLENUMS 2*, 30% Dust Spot Eff. Pleated Filters Standard Standard 2 or 3-way Plenum Box (Up-Flow Units) Optional Optional DX-REFRIGERATION CIRCUIT HCFC- R407C Refrigerant Standard Standard High Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Standard High Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Standard Thermal Epsansion Valves Standard Standard Standard Refrigerant Service Valves Standard Standard Standard BLOWERS / MOTORS Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard Ja-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard Standard Standard Standard Standard Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard Standard Standard Standard Standard Standard Standard Motor Ove	Floor Stand (Adjustable, turning vanes optional)	Optional	Optional
2*, 30% Dust Spot Eff. Pleated Filters Standard Standard 2 or 3-way Pfenum Box (Up-Flow Units) Optional Optional DX-REFRIGERATION CIRCUIT HCFC- R407 Refrigerant Standard Standard Scoill Compressors Standard Standard High Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Thermal Expansion Valves Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard BLOWERS / MOTORS Standard Direct Drive Electrically Commutated (EC) Plug Fan Estertional Standard Standard Standard Standard Standard J-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard SAFETY FEATURES Audible/Nsual Local & Remote Alarms Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard M	FILTERS/PLENUMS		•
2 or 3-way Plenum Box (Up-Flow Units) Optional Optional DX-REFRIGERATION CIRCUIT HCFC- R407C Refrigerant Standard Standard HCFC- R407C Refrigerant Standard Standard Standard Storoll Compressors Standard Standard Standard High Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard Standard BLOWERS / MOTORS Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard ELECTRICAL 3 See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard SAFETY FEATURES Audible/Nsual Local & Remote Alarms Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard	2", 30% Dust Spot Eff. Pleated Filters	Standard	Standard
DX-REFRIGERATION CIRCUIT HCFC- R407C Refrigerant Standard Standard Scroll Compressors Standard Standard Stroll Compressors Standard Standard High Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Thermal Expansion Valves Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard BLOWERS / MOTORS Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard ELECTRICAL 3-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard Standard Audible/Visual Local & Remote Alarms Standard Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard Standard Audible/Visual Local & Remote Alarms Standard Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard	2 or 3-way Plenum Box (Up-Flow Units)	Optional	Optional
HCFC- R407C Refrigerant Standard Standard Scroll Compressors Standard Standard High Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Thermal Expansion Valves Standard Standard Refrigerant Service Valves Standard Standard BLOWERS / MOTORS Standard Standard Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard ELECTRICAL Standard Standard Standard 3-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard Standard SALETY FEATURES Audible/Visual Local & Remote Alarms Standard Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard Standard Motor Overload Protection Standard Standard Standard Standard Standard Standard Standard	DX-REFRIGERATION CIRCUIT	•	•
Scroll Compressors Standard Standard High Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Thermal Expansion Valves Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard BLOWERS / MOTORS Standard Standard Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard ELECTRICAL 3-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard Multi-Voltage Controllers with Integral Circuit Breakers Standard Standard Standard Disconnect, unit mounted Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard Motor Overload Protection Standard Standard Standard Standard Standard Main Power Non-Fused Disconnect, unit mounted Standa	HCFC- R407C Refrigerant	Standard	Standard
High Efficiency, Aluminum Fin / Copper Tube Coils Standard Standard Thermal Expansion Valves Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard Refrigerant Service Valves Standard Standard BLOWERS / MOTORS Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard ELECTRICAL 3-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard SAFETY FEATURES Audible/Nisual Local & Remote Alarms Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard SPECIFIC MODEL STANDARD FEATURES: Alar Standard Standard Low Ambient Head Pressure Control Three types 0°F, -20°F or -30°F Remote Alar Cooled Condenser Standard Standard 2-way, 600 psig Water/Glycol Regulating Valves Optional Optional Standard 3-way 600 psig Water	Scroll Compressors	Standard	Standard
Thermal Expansion Valves Standard Standard Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard Refrigerant Service Valves Standard Standard BLOWERS / MOTORS Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard BLECTRICAL See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard SAFETY FEATURES Audible/Visual Local & Remote Alarms Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard Standard Stenderd Disconnect, unit mounted Standard Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard Motor Could Standard Standard Standard Standard Standard Standard Motor Overload Protection Standard Standard	High Efficiency, Aluminum Fin / Copper Tube Coils	Standard	Standard
Refrigerant Sight Glasses & Filter/Drier Strainers Standard Standard Refrigerant Service Valves Standard Standard BLOWERS / MOTORS Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard ELECTRICAL 3-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard Audible/Visual Local & Remote Alarms Standard Standard Main Power Non-Fueed Disconnect, unit mounted Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard SteclFIC MODEL STANDARD FEATURES:	Thermal Expansion Valves	Standard	Standard
Refrigerant Service Valves Standard Standard BLOWERS / MOTORS Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard ELECTRICAL 3-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard SAFETY FEATURES Audible/Visual Local & Remote Alarms Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard Standard Motor Overload Protection Standard Standard Standard SterCIFIC MODEL STANDARD FEATURES: AIR COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard Standard Standard WATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard 2-way, 600 psig Water/Glycol Regulating Valves Standard Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional Standard	Refrigerant Sight Glasses & Filter/Drier Strainers	Standard	Standard
BLOWERS / MOTORS Direct Drive Electrically Commutated (EC) Plug Fan Standard ELECTRICAL 3-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Modular Motor Controllers with Integral Circuit Breakers SAFETY FEATURES Audible/Visual Local & Remote Alarms Main Power Non-Fused Disconnect, unit mounted High / Low Refrigerant Pressure Switches (DX units) Standard	Refrigerant Service Valves	Standard	Standard
Direct Drive Electrically Commutated (EC) Plug Fan Standard Standard ELECTRICAL See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard SAFETY FEATURES Audible/Visual Local & Remote Alarms Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard Standard Motor Overload Protection Standard Standard Standard SPECIFIC MODEL STANDARD FEATURES: AIR COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard Standard VATER/GLYCOL COOLED 2-way, 600 psig Water/Glycol Regulating Valves Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Standard Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Standard Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional Standard Standard Standard Standard Sta	BLOWERS / MOTORS	•	•
ELECTRICAL 3-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Modular Motor Controllers with Integral Circuit Breakers Standard SAFETY FEATURES Standard Audible/Visual Local & Remote Alarms Standard Main Power Non-Fused Disconnect, unit mounted Standard High / Low Refrigerant Pressure Switches (DX units) Standard Motor Overload Protection Standard SPECIFIC MODEL STANDARD FEATURES: Alardard Alr COOLED Three types 0°F, -20°F or -30°F Low Ambient Head Pressure Control Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard VATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F 2-way, 600 psig Water/Glycol Regulating Valves Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional 3-way 600 psig Water/Glycol Regulating Valves Optional Optional 4LL SPLIET DX SYSTEMS Liquid Line Solenoid Valve to Prevent Liquid Slugging Standard KIL Conformance Compliance to UL 1995 Standard Standard Standard NRTL Conformanc	Direct Drive Electrically Commutated (EC) Plug Fan	Standard	Standard
3-Phase Power Supply See Electrical Tables Section 5 Multi-Voltage Control Transformer (24V Class 2) Standard Modular Motor Controllers with Integral Circuit Breakers Standard SAFETY FEATURES Standard Audible/Visual Local & Remote Alarms Standard Main Power Non-Fused Disconnect, unit mounted Standard High / Low Refrigerant Pressure Switches (DX units) Standard Motor Overload Protection Standard SPECIFIC MODEL STANDARD FEATURES: Alr COOLED Low Ambient Head Pressure Control Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard VATER/GLYCOL COOLED 2-way, 600 psig Water/Glycol Regulating Valves 2-way, 600 psig Water/Glycol Regulating Valves Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Standard Standard	ELECTRICAL		•
Multi-Voltage Control Transformer (24V Class 2) Standard Standard Modular Motor Controllers with Integral Circuit Breakers Standard Standard SAFETY FEATURES	3-Phase Power Supply	See Electrical T	ables Section 5
Modular Motor Controllers with Integral Circuit Breakers Standard Standard SAFETY FEATURES Audible/Visual Local & Remote Alarms Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard Standard Motor Overload Protection Standard Standard Standard SPECIFIC MODEL STANDARD FEATURES: AIR COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard Standard WATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F 2-way, 600 psig Water/Glycol Regulating Valves Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional Stainless Steel Brazed Plate Heat Exchanger Standard Standard Liquid Line Solenoid Valve to Prevent Liquid Slugging Standard Standard NRTL Conformance Compliance to UL 1995 Standard Standard Standard NRTL Conformance Compliance to UL 1995 Standard Standard Standard	Multi-Voltage Control Transformer (24V Class 2)	Standard	Standard
SAFETY FEATURES Audible/Visual Local & Remote Alarms Standard Main Power Non-Fused Disconnect, unit mounted Standard High / Low Refrigerant Pressure Switches (DX units) Standard Motor Overload Protection Standard SPECIFIC MODEL STANDARD FEATURES: Standard AIR COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard WATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard Vwater/Glycol Regulating Valves Standard 3-way 600 psig Water/Glycol Regulating Valves Standard 3-way 600 psig Water/Glycol Regulating Valves Standard Stainless Steel Brazed Plate Heat Exchanger Standard ALL SPLIT DX SYSTEMS	Modular Motor Controllers with Integral Circuit Breakers	Standard	Standard
Audible/Visual Local & Remote Alarms Standard Standard Main Power Non-Fused Disconnect, unit mounted Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard Motor Overload Protection Standard Standard SPECIFIC MODEL STANDARD FEATURES: Standard Standard AIR COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard WATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard 2-way, 600 psig Water/Glycol Regulating Valves Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional 3-way 600 psig Water/Glycol Regulating Valves Standard Standard ALL SPLIT DX SYSTEMS Iciquid Line Solenoid Valve to Prevent Liquid Slugging Standard Standard Iciquid Line Solenoid Valve to Prevent Liquid Slugging Standard Standard Standard NRTL Conformance Compliance to UL 1995 Standard Standard Standard Standard CODE CONFORMANCE Indard Standard Standard Standard	SAFETY FEATURES		
Main Power Non-Fused Disconnect, unit mounted Standard Standard High / Low Refrigerant Pressure Switches (DX units) Standard Standard Motor Overload Protection Standard Standard SPECIFIC MODEL STANDARD FEATURES: Standard Standard AIR COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard WATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard 2-way, 600 psig Water/Glycol Regulating Valves Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional 3-way 600 psig Water/Glycol Regulating Valves Standard Standard ALL SPLIT DX SYSTEMS Iciquid Line Solenoid Valve to Prevent Liquid Slugging Standard Standard CODE CONFORMANCE NRTL Conformance Compliance to UL 1995 Standard Standard Standard Standard NRTL Conformance Compliance to UL 1995 Standard Standard Standard Standard	Audible/Visual Local & Remote Alarms	Standard	Standard
High / Low Refrigerant Pressure Switches (DX units) Standard Standard Motor Overload Protection Standard Standard SPECIFIC MODEL STANDARD FEATURES: Image: Standard Standard AIR COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard WATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard 2-way, 600 psig Water/Glycol Regulating Valves Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional 3-way 600 psig Water/Glycol Regulating Valves Standard Standard Stainless Steel Brazed Plate Heat Exchanger Standard Standard ALL SPLIT DX SYSTEMS Iiquid Line Solenoid Valve to Prevent Liquid Slugging Standard Standard CODE CONFORMANCE NRTL Conformance Compliance to UL 1995 Standard Standard Standard NRTL Conformance Compliance to UL 1995 Standard Standard Standard Standard	Main Power Non-Eused Disconnect, unit mounted	Standard	Standard
Motor Overload Protection Standard Standard SPECIFIC MODEL STANDARD FEATURES: AIR COOLED Low Ambient Head Pressure Control Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard Standard WATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard 2-way, 600 psig Water/Glycol Regulating Valves Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional 3-way 600 psig Water/Glycol Regulating Valves Standard Standard Stainless Steel Brazed Plate Heat Exchanger Standard Standard ALL SPLIT DX SYSTEMS Liquid Line Solenoid Valve to Prevent Liquid Slugging Standard Standard CODE CONFORMANCE NRTL Conformance Compliance to UL 1995 Standard Standard Standard Standard NRTL Conformance Compliance to UL 1995 Standard Standard Standard Standard	High / Low Refrigerant Pressure Switches (DX units)	Standard	Standard
SPECIFIC MODEL STANDARD FEATURES: AIR COOLED Low Ambient Head Pressure Control Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard WATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F 2-way, 600 psig Water/Glycol Regulating Valves Standard 3-way 600 psig Water/Glycol Regulating Valves Optional 2-way, 600 psig Water/Glycol Regulating Valves Optional 3-way 600 psig Water/Glycol Regulating Valves Optional Stainless Steel Brazed Plate Heat Exchanger Standard ALL SPLIT DX SYSTEMS	Motor Overload Protection	Standard	Standard
AIR COOLED Low Ambient Head Pressure Control Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard WATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F 2-way, 600 psig Water/Glycol Regulating Valves Standard 3-way 600 psig Water/Glycol Regulating Valves Optional 3-way 600 psig Water/Glycol Regulating Valves Optional 3-way 600 psig Water/Glycol Regulating Valves Standard Stainless Steel Brazed Plate Heat Exchanger Standard ALL SPLIT DX SYSTEMS	SPECIFIC MODEL STANDARD FEATURES:		
Low Ambient Head Pressure Control Three types 0°F, -20°F or -30°F Remote Air Cooled Condenser Standard WATER/GLYCOL COOLED Three types 0°F, -20°F or -30°F 2-way, 600 psig Water/Glycol Regulating Valves Standard 3-way 600 psig Water/Glycol Regulating Valves Standard 3-way 600 psig Water/Glycol Regulating Valves Optional 3-way 600 psig Water/Glycol Regulating Valves Optional Stainless Steel Brazed Plate Heat Exchanger Standard ALL SPLIT DX SYSTEMS			
Remote Air Cooled Condenser Standard Standard WATER/GLYCOL COOLED 2-way, 600 psig Water/Glycol Regulating Valves Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional 3-way 600 psig Water/Glycol Regulating Valves Optional Optional Stainless Steel Brazed Plate Heat Exchanger Standard Standard ALL SPLIT DX SYSTEMS Iquid Line Solenoid Valve to Prevent Liquid Slugging Standard Standard CODE CONFORMANCE NRTL Conformance Compliance to UL 1995 Standard Standard Standard Standard Invest Conformance Compliance to UL 1995 Standard Standard Standard Standard	Low Ambient Head Pressure Control	Three types 0°F	-20°E or -30°E
WATER/GLYCOL COOLED Standard Standard 2-way, 600 psig Water/Glycol Regulating Valves Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional Stainless Steel Brazed Plate Heat Exchanger Standard Standard ALL SPLIT DX SYSTEMS Iliquid Line Solenoid Valve to Prevent Liquid Slugging Standard Standard CODE CONFORMANCE NRTL Conformance Compliance to UL 1995 Standard Standard Standard NRTL Conformance Compliance to UL 1995 Standard Standard Standard Standard	Remote Air Cooled Condenser	Standard	Standard
2-way, 600 psig Water/Glycol Regulating Valves Standard Standard 3-way 600 psig Water/Glycol Regulating Valves Optional Optional Stainless Steel Brazed Plate Heat Exchanger Standard Standard ALL SPLIT DX SYSTEMS Itiquid Line Solenoid Valve to Prevent Liquid Slugging Standard Standard CODE CONFORMANCE NRTL Conformance Compliance to UL 1995 Standard Standard Standard NRTL Conformance Compliance to UL 1995 Standard Standard Standard		Standard	Standard
2-way, 600 psig water/Glycol Regulating values Standard Standard 3-way 600 psig Water/Glycol Regulating Values Optional Optional Stainless Steel Brazed Plate Heat Exchanger Standard Standard ALL SPLIT DX SYSTEMS Liquid Line Solenoid Value to Prevent Liquid Slugging Standard Standard CODE CONFORMANCE NRTL Conformance Compliance to UL 1995 Standard Standard Standard CSA / NYC MEA-163-88-E Standard Standard Standard	2 way 600 prin Water/Churcel Regulating Values	Standard	Standard
Stainless Steel Brazed Plate Heat Exchanger Standard Standard ALL SPLIT DX SYSTEMS Liquid Line Solenoid Valve to Prevent Liquid Slugging Standard Standard CODE CONFORMANCE NRTL Conformance Compliance to UL 1995 Standard Standard Standard NRTL Conformance Compliance to UL 1995 Standard Standard Standard Standard	2-way, 600 psig Water/Glycol Regulating Valves	Ontional	Ontional
Standard Standard ALL SPLIT DX SYSTEMS Liquid Line Solenoid Valve to Prevent Liquid Slugging Standard CODE CONFORMANCE NRTL Conformance Compliance to UL 1995 Standard Standard Standard Standard Standard Standard	Staiplass Staal Prazad Plata Haat Evsbanger	Standard	Standard
Liquid Line Solenoid Valve to Prevent Liquid Slugging Standard CODE CONFORMANCE NRTL Conformance Compliance to UL 1995 Standard Standard CSA / NYC MEA-163-88-E Standard		Stanuaru	Stariuaru
Endpaire Endpoint Value of Trevent Endpoint Standard Standard Standard CODE CONFORMANCE	Liquid Line Sclenoid Value to Prevent Liquid Slugging	Standard	Standard
NRTL Conformance Compliance to UL 1995 Standard Standard Standard CSA / NVC MEA-163-88-E Standard Standard		Stanuaru	Stanualu
INTE CONTINUATE CONTINUATE CONTINUATE CONTINUATE CONTINUATE CONTINUATE CONTINUATE CONTINUATION Standard Standard Standard Standard	NPTL Conformance Compliance to LIL 1005 Standard	Standard	Standard
· Contract · Crowth		StanUdiu	StanUdiu



Guide Specifications

QUALITY ASSURANCE (ISO-9001:2001 Registered)

STULZ-ATS operates in an ISO-9001:2001 registered quality control environment. Each STULZ-ATS employee is committed to satisfying his or her customer expectations with the highest level of consistent, measurable and continuous quality improvement.

GENERAL GUIDE SPECIFICATION

General Description

The system shall be a floor mounted air conditioner designed and built to provide precision temperature and humidity control. The system shall be complete and factory run-tested before shipment. The system shall be Intertek Laboratory (an NRTL) listed and labeled in compliance with UL 1995 and CSA C22.2 No. 236.

The system shall be manufactured by STULZ Air Technology Systems, Inc. in Frederick, Maryland, USA.

100% Front Access

The air conditioner shall require front only access for all routinely maintenanced components. No allowance for side service access shall be required, however, removable side access shall be provided for additional access.

Cabinet Construction

The cabinet and access panels shall be fabricated from heavy gauge galvannealed steel and powder-coat paint processed for decor matching and corrosion protection. The panels shall be lined with 2 lb high density sound and thermal insulation and sealed with self-extinguishing gasketing conforming to NFPA 90A and 90B.

Electrical System

The system shall incorporate modular motor controllers utilizing motor start protectors and circuit breakers eliminating the need for fusing, as well as providing:

- Motor branch circuit short circuit protection
- Motor load switching controllers (contactors)
- Motor overload protection

The system shall incorporate overcurrent and overload protection in accordance with UL 1995 requirements. Each blower motor, compressor, electric heater stage and humidifier (if applicable) shall be provided with a factory mounted and wired starter/ contactor.

The control circuit shall be a 24 VAC Class 2 low voltage circuit including a circuit breaker for protection. Low voltage, high voltage and grounding wires shall be color coded and shall be individually numbered at each end for ease of service tracing. All wiring shall be in accordance with the National Electric Code (NEC).

Main Power - Electric Non-Fused Service Switch



As a factory standard, a unit-mounted main power service switch shall be provided. The service switch shall be a dust-proof, non-fused type with lockable handle.

Evaporator Coils

Evaporator systems shall be configured for a draw-thru air pattern to provide uniform air distribution over the evaporator coil face. The coils shall be seamless drawn copper tubes, mechanically bonded to tempered aluminum fins with fin pattern designed for maximum heat transfer. Coil end plates shall be hot dipped galvanized.

The evaporator coil shall be mounted in a stainless steel condensate drain pan.

DX-Refrigeration System

All refrigeration piping shall be refrigerant grade tubing. The refrigerant circuit shall include, as a minimum, refrigerant drier/strainer, sight glass with moisture detector, thermal expansion valve with rapid bleed port feature and external equalizer, evaporator coil, compressor, high pressure switch with manual reset and a low pressure switch with automatic reset.

Split/Remote systems shall have a liquid line solenoid for refrigerant isolation to prevent liquid slugging. All high pressure joints shall be brazed and the entire system shall be pressure tested at the factory with dry nitrogen, evacuated to at least 50 microns and fully charged with refrigerant.

Note: All split/remote DX systems ship with a dry nitrogen holding charge. All self-contained DX systems ship with a full refrigerant operating charge.

Scroll Compressors

Each compressor shall be a high efficiency, high reliability and low sound Scroll Compressor.

The compressor shall be complete with charging and service schrader



Guide Specifications

ports, internal vibration isolation, internal thermal overloads, internal pressure relief valve, internal discharge gas vibration eliminator and external vibration mounting isolation.

Blowers/Motors



The blower shall be direct driven, single inlet, two-fold backward curved radial fan with an electronically commutated motor for maintenance free operation. The motor shall include: integrated electronic control board, soft-starting capabilities, RS-485 BUS connection, and integrated current limitations. The fan shall be low noise, low vibration manufactured with an anti-corrosive aluminum impeller. The fan impeller shall be dynamically and statically balanced in two planes to minimize vibration during operation.

Evaporator Air Patterns

UP-FLOW: (COS-()-()-U)

The air conditioner shall be configured for an up-flow air pattern with free evaporator return air through front filtered grille and conditioned supply air through the top of the unit.

(A top 1" flanged duct connection shall be provided as a standard. 2 & 3-way top discharge plenum boxes are available options)

DOWN-FLOW: (COS-()-()-D)

The air conditioner shall be configured for a down-flow air pattern with free evaporator return air to the top and conditioned supply air discharge through bottom of the A/C into the raised floor. (Floor Stands are optionally available, page 3-10.)

(A top 1" flanged return air duct connection is optionally available.)

Air Filtration

The A/C shall have slide out, 2" deep, class 2 (per U.L. Standard 900) filters. The filters shall be easily accessed through a front access door. The filters shall have an efficiency rating of at least, 30% average as measured by ASHRAE Standard 52-76 test method.

DX - Heat Rejection

Water/Glycol Cooled Condensers

SS Brazed-Plated:

Each evaporator refrigerant circuit shall be provided with a factory installed single pass, counterflow configured brazed plate heat exchanger, with integral subcooler, constructed of type 316 stainless steel; designed and tested for a 450 psig. w.w.p.

2-Way, 600 psig Regulating Valve (Standard on all COS-()-W/G)

Each refrigerant circuit's head pressure shall be controlled by a factory installed 2-way water / glycol regulating valve rated for 600 psig. w.w.p.



Optional Features

OPTIONpage

Humidity Control Options

• Dehumidification Cycle

- Electric Reheat / Heat (standard)	
- Hot Gas Reheat	
- Hot Water Reheat / Heat	12
- Steam Reheat / Heat	12
- Electric SCR-Fired Reheat / Heat	12

High Efficiency Filtration (IAQ)

•	IAQ High	Efficiency	Filters				.12
---	----------	------------	---------	--	--	--	-----

Head Pressure Control Options

Air Cooled - Low Ambient Control

•	0°F Ambient	12
•	-20°F Ambient	13
•	-30°F Ambient	13

Water/Glycol Cooled - Regulating Valves

•	2-way, 60)0 psig (standard)1	3
•	3-way, 60)0 psig1	3

Free Cooling - Valve Combinations

- 3-way, 600 psig, DX Condenser Valves	13

-	3-way,	600 psig,	FC	Coil	Valve	13	
---	--------	-----------	----	------	-------	----	--

DX - Capacity Modulation

•	Snap-Acting,	Hot G	as Bypass	13	
---	--------------	-------	-----------	----	--

Accessories

Floor Stands

- Turning Vanes	13
2 or 3-Way Plenum Discharge Box	13
Condensate Pump	13
Smoke Detector	14
Firestat	14
Remote Water Detector:	
Oty One Shot Type	14
- Qty. One, spot type	
- Qty. Two, Spot Type	14
 Qty. One, spot type Qty. Two, Spot Type 25 Ft Strip/Cable Type 	14 14
 Qty. One, spot type Qty. Two, Spot Type 25 Ft Strip/Cable Type Water Detector Auxiliary Contact 	14 14 14

Energy \$aving Cooling Options

•	Free-Cooling Cycle1	4
•	Alternate Water Source Cycle1	5



SELECTED OPTIONS

CyberONE[™] floor systems includes a Microprocessor Controller, Electrode Canister Steam Humidifier and Dehumidification Mode with Electric Reheat/Heat for total temperature and humidity control, as a standard.

However, these standard features can be deleted and/or substituted with alternate features to allow you the flexibility to select the configuration best suited for your unique application.

Humidity Control

Canister Steam Humidification: (standard)

The humidifier shall be a proportional electrode steam canister type and shall have an adjustable humidity output setting



from 25 to 100% of the full rated humidifier capacity. The humidifier shall incorporate an automatic flush cycle that senses the current consumption of the humidifier and controls mineral concentration of the water. A "Change Cylinder" light shall notify service personnel when the humidification output is below rated requirements and when maintenance is due.

Dehumidification Cycle: (standard)

The floor A/C shall be provided with a

refrigeration based dehumidification mode. Moisture is condensed on the cooling coil and discharged through the condensate drain. Reheat (electric, hot gas, steam or hot water) shall be provided to offset sensible cooling during the dehumidification cycle.

Electric Heat/Reheat: (standard)

A factory-mounted and wired electric resistance heater shall be included to provide automatic sensible reheating mode during the dehumidification cycle and automatic heating mode as required. Electric heaters shall be provided with thermal/magnetic circuit breakers which shall protect each conductor. Included shall be one automatic resetting and one manual resettable, over-temperature safety device (pilot duty).

Heater elements shall be of a safe low-watt density, plated fin-tubular design.

Reheat Options

Hot Gas Reheat:

(Models CO-()-AR, W & G only)



A factory installed copper tube, aluminum fin hot gas reheat coil and valve shall be provided for automatic sensible reheating mode during dehumidification cycle. Hot compressor discharge gas shall be diverted from the condenser to the hot gas reheat coil providing energy free sensible reheating.

Note: Hot Gas Reheat is not available on systems incorporating Free-Cooling or Alternate Water Source, because no method of reheat would be available during non-compressorized FC or AWS operation.



Hot Water Reheat/Heat

A factory-installed, copper tube, aluminum fin heat/reheat coil and 2-way control valve shall be provided to control the flow of hot water for automatic sensible reheating mode during the dehumidification cycle and automatic heating mode as required.

SCR Fired Reheat/Heat

The electric heat/reheat shall be controlled through a "Zero Firing" Silicon Controlled Rectifier (SCR) with an extruded aluminum heat sink and solid state logic system to provide close dry bulb temperature control of the leaving conditioned air temperature.

Proportional (0-10 Vdc) microprocessor controls shall be provided with the SCR Fired Electric Reheat option.

Filtration

CyberONE[™] vertical floor A/C's are available with the following standard and optional high efficiency IAQ conscious filtration:

2", 30% Eff. Filters - Standard 2", 60% Eff. Filters - Optional

Filter ratings are based on dust spot efficiency ratings per ASHRAE Test Standard 52-76.

Head Pressure Control

AIR COOLED - Low Ambient 0°F, Pressure Fan Cycling

The air cooled system shall incorporate a lfan cycling control for year-found air conditioning system operation down to 0°F DB minimum ambient air temperature.

-20°F, Variable Fan Speed Control

The air cooled system shall incorporate a low ambient variable speed fan head pressure control for year-round

air conditioning system operation down to -20°F DB minimum ambient air temperature.

-30°F, Flooded Control

The air cooled system shall incorporate a low ambient flooded head pressure control for year-round system operation down to -30°F DB minimum ambient air temperature.

The refrigerant circuit shall include factory-installed crankcase heaters, and cold-start relays. Liquid refrigerant receivers with receiver liquid-level sight glass and head pressure regulator valves for flooded condenser operation shall be included (not factory installed).

WATER/GLYCOL COOLED

DX Water Cooled and Glycol Cooled systems are available with 2-way 600 psig standard or optional 3-way 600 psig head pressure control valves.

Each refrigerant circuit's head pressure shall be controlled by a factory installed ____way water / glycol regulating valve rated for 600 psig. w.w.p.

FREE-COOLING SYSTEMS

DX Water/Glycol Cooled systems with Free-Cooling are provided with the following standard DX head pressure and Free-Cooling valve combination:

600 psig Rated System: (standard)

- DX Valves = 3-way, 600 psig
- FC Valve = 3-way, 600 psig

ALTERNATE WATER SOURCE SYSTEMS

Alternate Water Source cooling shall be controlled by the following standard and optional control valves:

2-way, 600 psig (standard) 3-way, 600 psig (optional) A ______ A way modulating AWS cooling control valve rated for a maximum 600 psig w.w.p. shall be factory installed. Precision cooling control shall be accomplished via an analog control signal to the proportionally actuating control valve.

DX - Capacity Modulation/ Freeze Protecion

SNAP-ACTING, Hot Gas Bypass (Models COS-()-AR, W & G only)



The CyberONE-EC[™] floor A/C shall incorporate a snap acting hot gas bypass system to provide modulation of the unit's cooling capacity and evaporator coil freeze protection under low load conditions.

AWS Control Valves

Alternate Water Source cooling shall be controlled by the following standard and optional control valves:

3-way, 600 psig (standard) 2-way, 600 psig (optional)

Standard Valve Control:

A _____-way modulating AWS cooling control valve rated for a maximum 600 psig w.w.p. shall be factory installed. Precision cooling control shall be accomplished via a control signal to the proportionally actuating control valve.

ACCESSORIES

Adjustable Floor Stand

A _____ " high adjustable floor stand shall be provided to allow for ease of installation of the CyberONE-EC[™] A/C onto a raised floor. The floor stand shall be field installed.

Additional Floor Stand Options:

Seismic Zone-4 Rate:

The adjustable floor stand shall be certified rated for seismic zone-4 installation.

Turning Vanes:

Turning vanes shall be factory provided for field installation to each unit's floor stand.

Top Discharge Plenum Box (Up-Flow units only)

A 2 or 3-way (please specify) plenum discharge box shall be provided. The plenum box shall include double-deflecting, adjustable grilles. The plenum box shall ship separately for rigging purposes.

Condensate Pump

A condensate pump shall be factory- installed within the CyberONE-EC[™] system for automatic removal of condensate and humidifier flush water (if applicable).

The condensate pump shall include an internal overflow safety float switch which, when wired to the A/C's remote stop/start terminals, shall open the A/C's control circuit, thereby shutting the A/C down in the event of a condensate overflow.

The condensate pump shall be specifically designed to operate with the higher condensate temperatures caused by the flush and drain cycle of the electrode canister humidifiers.



The condensate pump shall be rated for 145 GPH at 40 ft. of head with a shut-off at 50 ft. of head.

Smoke Detector



A photo-electric smoke detector shall be factory-installed in the CyberONE-EC[™] evaporator section on the suction side of the evaporator blower.

The smoke detector shall be rated for high air velocity applications, and shall shut down the air conditioner upon sensing smoke in the return air stream.

Optional Auxiliary Contact:

An auxiliary dry-contact (n/o) terminal connection shall be provided for remote notification of a smoke detection alarm.

Firestat

The air conditioner shall be provided with a factory wired and mounted firestat. The firestat shall shut down the air conditioner upon sensing a high return air temperature.

Remote Water Detectors

Single (one) - Spot Type Detector:

Quantity 1-(one) remote spot type water/leak detector per A/C unit shall be factory provided for remote field installation. Upon sensing a water leak, the normally closed water detector control circuit shall open, thereby shutting down the air conditioner's water producing operations. Dual (two) - Spot Type Detectors:

Quantity 2-(two) remote spot type water/leak detectors per A/C unit shall be factory provided for remote field installation. Upon sensing a water leak, the normally closed water detector control circuit shall open, thereby shutting down the air conditioner's water producing operations.

25 Ft. - Strip/Cable Type Detector:



A 25 Ft. in length remote strip/cable type water/leak detector shall be factory provided for remote field installation. Upon sensing a water leak, the normally closed water detector control circuit shall open, thereby shutting down the air conditioner's water producing operations.

Optional Auxiliary Contact:

An auxiliary dry-contact (n/o) terminal connection shall be provided for remote notification of a water detection alarm.

Compressor Sound Jackets (COS-()-W/G-() Only!)



The compressor shall be provided with a factory installed acoustical sound jacket. Each sound jacket shall have a snap closure system for ease of removing and reinstallation during maintenance. Each sound jacket shall have a Noise Reduction Coefficient NRC of 85 per ASTM C-423 and a Sound Transmission Loss STC of 11 per ASTM E-90.

Low Entering Condenser Water Kit

For Water/Glycol systems that require entering condenser water temperatures from 65°F to 45°F, the system shall be provided with a factory installed in-line liquid refrigerant receiver to help reduce the negative effect the low condenser source can have on the evaporator. A compressor crankcase heater shall also be provided standard with this option. (Compressor Sound Jackets are not available with this option due to the crankcase heater).

Free-Cooling "Assist-Mode" Option (Water/Glycol Economizer Coil)

A Free-Cooling economizer cycle shall be provided to take advantage of low ambient air temperature conditions to provide compressor-less cooling.

100% Free-Cooling Mode:

When outdoor air temperatures are below approximately 35°F and space cooling is required, source coolant shall be diverted from the DX - Water / Glycol Cooled refrigerant condenser to a chilled water/glycol coil (free-cooling coil & control valve). To maximize the cooling effect for the coolant solution during the free-cooling mode, the drycooler capacity shall be increased by reversing the typical drycooler fan(s) cycling sequence of operation.

The free-cooling coil shall be closely sized to match the DX mode sensible cooling capacity to increase the number of hours that the system can operate in the free-cooling mode, thereby increasing the operating savings of the installation.

Alternate Water Source

An Alternate Water Source cooling cycle shall be provided to utilize building chilled water supply when available as



the primary cooling cycle, with compressor, cooling as a backup.

The air conditioner shall have two cooling systems:

Primary Mode:

The primary mode of cooling shall be a chilled water / glycol circuit with alternate water source cooling coil and 3-way modulating (0-10 Vdc) control valve rated for 600 psig. w.w.p.

Secondary / Backup Mode:

The controller microprocessor's Alternate Water Source program algorithm shall analyze input data from factory provided water inlet temperature, and return room air temperature, and relative humidity sensors. Based on this data, the controller shall automatically control the sequencing of the primary AWS chilled water to and from the secondary/backup compressor DX mode of operation.

If chilled water is available, the system shall operate like a chilled water unit, without the compressor operating. When the water temperature is too high, or the water flow rate is not sufficient, the air conditioner shall automatically switch to the compressor, DX refrigerant cycle.

Note: DX Air Cooled with AWS cooling is shown on page 16 for illustration purposes only. DX Water and Glycol Cooled with AWS cooling are also available.









Performance/Capacity Specifications

Index

MODEL TYPEpage

Air Cooled

• /	Air Cooled Systems	
-	- COS-024/120-AR-EC	18
-	-COS-024/060-AHU-EC	19

Water Cooled

•	Water Cooled Sytems	
	- COS-024/120-W-EC	20
	- Water Cooled Condenser Data	20

Glycol Cooled

Glycol Cooled Sytems	
- COS-024/120-G-EC	. 21
- Glycol Cooled Condenser Data	. 21

DX Free Cooling

•	DX Water Cooled w/ Free Cooling	
	- COS-024/060-W-FC-EC	
	- Water Cooled Condenser Data	
•	DX Glycol Cooled w/ Free Cooling	
	- COS-024/060-G-FC-EC	23
	- Glycol Cooled Condenser Data	23

DX Alternate Water Source Cooling

•	DX Air/Water/Glyco	l w/ Alternate	e Water Source	
	- COS-024/060-AR-A	WS-EC		7



Air Cooled - 2 to 10 Ton "COS"

"COS" Model	COS-024-AR-EC	COS-042-AR-EC	COS-060-AR-EC	COS-096-AR-EC	COS-120-AR-EC
NET DX COOLING CAPACITY	- BTU/H, (includes sta	ndard DX evaporator	motor heat @ std CFM	& e.s.p. ratings)	
75°FDB/62.5°FWB, 50% RH					
Total	23,537	43,843	57,583	90,537	113,915
Sensible	20,059	39,565	50,938	82,801	94,319
72°FDB/60.1°FWB, 50% RH			· · · · · · · · · · · · · · · · · · ·		
Total	22,307	41,574	54,125	85,818	107,918
Sensible	19.648	38.620	49.692	80.747	92.538
70°FDB/58.4°FWB, 50% RH					,
Total	21.608	40.238	52.111	83.037	104.403
Sensible	19,187	37,630	48,322	78,613	90,173
75°FDB/61.1°FWB, 45% RH					
Total	22,821	42,752	55,568	88,292	110,069
Sensible	21,007	41,102	53,670	85,673	102,136
72°FDB/58.7°FWB, 45% RH			· ·		
Total	21.704	40.702	52.583	84.053	104.300
Sensible	20,593	39,586	51.289	82.391	99,819
70°FDB/57.1°FWB, 45% RH					
Total	23.273	39.433	50,709	81.408	100.992
Sensible	21.483	38.472	49.617	80.021	97.410
Reheat/Heat - Performance	Capacities Do Not Incl	ude Motor Heat		,	,
ELECTRIC REHEAT / HEAT - Fit	aned Tubular Heaters (St	andard)			
Htr Kw Rating (No. of Stages)	6 Kw (1-sta)	9 Kw (1-sta)	9 Kw (1-sta)	9 Kw (1-sta)	9 Kw (1-sta)
HOT GAS REHEAT - with 3-wa	v Heat Reclaim Valve (C	ntional)	s kur (r skg/	5 KW (1 Stg)	5 ktt (1 stg)
BTU/H	6 971	12 665	17 173	26.620	35 144
HOT WATER REHEAT / HEAT	- Reheat rated @ 180°	F Entering Water Tem	perature FAT = 72°F DF	(Optional)	55,111
BTU/H	27 849	41 581	48 802	94 257	98.833
GPM	28	4 3	5.0	9.6	10.1
Pressure Drop. Coil ft wa	0.5	1.0	1.4	5.3	5.8
Pressure Drop, Unit ft wa	5.7	4 7	5.6	5.3	5.0
Valve Cv	2.2	4	4	8	8
Control Valve		2-way	1 300 psig. Modulating (0-	10 Vdc)	
Humidification - Electrode	Steam Canister Humidi	fier (Standard)			
Steam Output Ths/Hour	2-5 lbs/hr	4-10 lbs/hr	4-10 lbs/hr	4-15 lbs/hr	4-15 lbs/hr
Power Input	1.7 Kw	3.4 Kw	3.4 Kw	5 1 Kw	5 1 Kw
Std Control	Modulating	Modulating	Modulating	Modulating	Modulating
Evaporator Blower / Motor	- Backward Curved Di	rect-Drive EC Plug Far	Initialiating	modulating	modulating
Horsepower	3.6 Hp (1)	3.6 Hp (1)	3.6 Hp (1)	4.1 Hp. (1)	4.1 Hp. (1)
CEM @ ext_st_press	1 000 @ 0 5"	2 000 @ 0 5"	2 700 @ 0 5"	4 400 @ 0 5"	4 800 @ 0 5"
Drive Method	Direct Driven	Direct Driven	Direct Driven	Direct Driven	Direct Driven
Oty of Fans	1	1	1	1	1
Evaporator Coil - Aluminur	n Fin Copper Tube	<u> </u>	<u> </u>	!	<u> </u>
Rows/Eace Area (ft2)	3/5 5	4/5 5	4/5 5	4/9 75	4/9 75
Face Velocity from	182	364	/91	451	/92
Compressors - Heat nump (uty rated Scroll - R-40	70		-51	452
Type (Oty)	Scroll (1)	Scroll (1)	Scroll (1)	Scroll (1)	Scroll (1)
Watts Input	2 0/3	3 712	5.033	7 802	10 300
Tot Host of Roi (RTU/H)	2,045	50.780	80.179	125 464	159.043
Connection Sizes - Conner	(Please refer to Cyber	ONE IOM Manual for r		refrigerant line sizing	133,043
Refrigerant:				renigerant line sizing.	
Liquid Line (Otv)	3/8" (1)	1/2" OD (1)	1/2" OD (1)	7/8″ OD (1)	7/8″ (1)
Hot Gas Line (Oty)	5/8" OD (1)	7/8" (1)	7/8" (1)	7/8" OD (1)	1-1/8" OD (1)
Condensate Drain (w/ nump)					
Humidifier Inlet	1/// 00	1// " 00	1// 00	1// " ^	
Filters - 2" doop 20% "Dur	L 1/4 UD		1/4 00	1/4 00	1/4 00
Nom Size (in) (Otv)	28.5 x 26 (1)	28 5 x 26 (1)	28 5 x 26 (1)	31 5 x 21 39 (2)	31 5 y 21 38 (2)
Footprint	20.3 × 20 (1)	20.3 x 20 (1)	20.3 x 20 (1)	(2) 06.12 × 0.12	(2) 06.12 A C.1C
Approx Weight	405 lbc	E20 lbc	E20 lbc	800 lbs	810 lbs



Air Cooled AHU - 2 to 5 Ton "COS"

"COS" Model	COS-024-AHU-EC	COS-042-AHU-EC	COS-060-AHU-EC		
NET DX COOLING CAPACITY - BTU/H, (includes standard DX evaporator motor heat @ std CFM & e.s.p. ratings)					
75°FDB/62.5°FWB, 50% RH					
Total	23,537	43,843	57,583		
Sensible	20,059	39,565	50,938		
72°FDB/60°FWB, 50% RH					
Total	22,307	41,574	54,125		
Sensible	19,648	38,620	49,692		
70°FDB/58.5°FWB, 50% RH					
Total	21,608	40,238	52,111		
Sensible	19,187	37,630	48,322		
75°FDB/61°FWB, 45% RH					
Total	22,821	42,752	55,568		
Sensible	21,007	41,102	53,670		
72°FDB/58.5°FWB, 45% RH					
Total	21,704	40,702	52,583		
Sensible	20,593	39,586	51,289		
70°FDB/57°FWB, 45% RH					
Total	23,273	39,433	50,709		
Sensible	21,483	38,472	49,617		
Reheat/Heat - Performance Cap	acities Do Not Include Motor Hea	t			
ELECTRIC REHEAT / HEAT - Finned	Tubular Heaters, (Standard)				
Htr Kw Rating (No. of Stages)	6 Kw (1-stg)	9 Kw (1-stq)	9 Kw (1-stg)		
HOT GAS REHEAT - with 3-way He	at Reclaim Valve, (Optional)				
BTU/H	6,971	12,665	17,173		
HOT WATER REHEAT / HEAT - Rehe	at rated @ 180°F Entering Water Ten	nperature, EAT = 72°F DB, (Optional)	· · ·		
BTU/H	27,849	41,581	48,802		
GPM	2.8	4.3	5.0		
Pressure Drop, Coil ft.wg	0.5	1.0	1.4		
Pressure Drop, Unit ft.wg	5.7	4.7	5.6		
Valve Cv	2.2	4.0	4.0		
Control Valve	2	-way, 300 psig, Modulating (0-10 Vd	c)		
Humidification - Electrode Stea	m Canister Humidifier, (Standard)			
Steam Output, Lbs/Hour	2-5 lbs/hr	4-10 lbs/hr	4-10 lbs/hr		
Power Input	1.7 Kw	3.4 Kw	3.4 Kw		
Std Control	Modulating	Modulating	Modulating		
Evaporator Blower / Motor - Ba	ckward Curved, Direct-Drive, EC P	lug Fan			
Horsepower	3.6 Hp, (1)	3.6 Hp, (1)	3.6 Hp, (1)		
CFM @ ext. st. press.	1,000 @ 0.5"	2,000 @ 0.5"	2,700 @ 0.5″		
Drive Method	Direct Driven	Direct Driven	Direct Driven		
Qty. of Fans	1	1	1		
Evaporator Coil - Aluminum Fin	, Copper Tube				
Rows/Face Area (ft2)	3/5.5	4/5.5	4/5.5		
Face Velocity, fpm	182	364	491		
Connection Sizes - Copper, (Ple	ase refer to CyberONE IOM Manu	al for proper interconnecting refr	igerant line sizing.)		
Refrigerant:					
Suction Line, (Qty.)	3/4" OD, (1)	7/8" OD, (1)	7/8" OD, (1)		
Liquid Line, (Qty.)	3/8" OD, (1)	1/2" OD, (1)	1/2" OD, (1)		
Condensate Drain, (w/ pump)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)		
Humidifier Inlet	1/4" OD	1/4" OD	1/4" OD		
Filters - 2" deep, 30% "Dust-Sp	ot" Efficient Pleated Throwaway				
Nom. Size (in.), (Qty.)	28.5 x 26 (1)	28.5 x 26 (1)	28.5 x 26 (1)		
Approx. Weight	385 lbs	390 lbs	400 lbs		





Water Cooled - 2 to 10 Ton "COS"

COS Model	COS-024-W-EC	COS-042-W-EC	COS-060-W-EC	COS-096-W-EC	COS-120-W-EC
NET DX COOLING CAPACITY	- BTU/H (includes sta	ndard DX evaporator	motor heat @ std CFM	& esp ratings)	
75°EDB/62 5°EWB 50% BH				a chip: rachigs,	
Total	26 152	49 125	62.955	100 590	126 422
Cassible	20,155	48,125	53,833	00,380	120,423
	20,886	40,980	53,049	80,188	98,966
72 FDB/60 FVVB, 50% KH	24.020	15.640	50.455	05.470	440.055
lotal	24,828	45,643	60,166	95,473	119,865
Sensible	20,565	40,215	51,914	84,572	97,018
70°FDB/58.5°FWB, 50% RH	r		1	r	r
Total	24,073	44,183	58,018	92,508	116,072
Sensible	20,116	39,295	50,606	82,574	94,807
75°FDB/61°FWB, 45% RH					
Total	25,240	46,772	61,645	97,624	121,224
Sensible	22,598	44,120	57,272	92,913	106,648
72°FDB/58.5°FWB, 45% RH					
Total	23,956	44,451	58,153	92,579	115,810
Sensible	22,077	42,852	55,789	89,412	104,729
70°FDB/57°FWB, 45% RH			•		°
Total	23,273	43,013	56,072	89,816	112,134
Sensible	21,483	41,340	54,321	86,985	102,523
Reheat/Heat - Performance	Capacities Do Not Incl	ude Motor Heat	•		
ELECTRIC REHEAT / HEAT - Fir	ned Tubular Heaters (St	andard)			
Htr Kw Rating (No. of Stages)	6 Kw (1-sta)	9 Kw (1-sta)	9 Kw (1-sta)	9 Kw (1-sta)	9 Kw (1-sta)
HOT GAS REHEAT - with 3-wa	v Heat Reclaim Valve (C	ntional)	s itti (i stg)	5 ((1 Stg)	s itti (i stg)
	5 242	0.656	12.065	21.025	27 720
	J, J4J	5,050	13,003	21,055	27,725
		41 F91	e, EAT = 72 F DB, (Optio	04.257	08.822
BIU/H	27,849	41,581	48,802	94,257	98,833
GPM	2.8	4.3	5.0	9.6	10.1
Pressure Drop, Coil ft.wg	0.5	1.0	1.4	5.3	5.8
Pressure Drop, Unit ft.wg	5.7	4.7	5.6	5.3	5.7
Valve Cv	2.2	4.0	4.0	8.0	8.0
Control Valve		2-way,	300 psig, Modulating (0-	10 Vdc)	
Humidification - Electrode	Steam Canister Humidi	fier, (Standard)	r	r	
Steam Output, Lbs/Hour	2-5 lbs/hr	4-10 lbs/hr	4-10 lbs/hr	4-15 lbs/hr	4-15 lbs/hr
Power Input	1.7 Kw	3.4 Kw	3.4 Kw	5.1 Kw	5.1 Kw
Std Control	Modulating	Modulating	Modulating	Modulating	Modulating
Evaporator Blower / Motor	Backward Curved, Di	rect-Drive, EC Plug Fan	1		
Horsepower	3.6 Hp, (1)	3.6 Hp, (1)	3.6 Hp, (1)	4.1 Hp, (1)	4.1 Hp, (1)
CFM @ ext. st. press.	1,000 @ 0.5"	2,000 @ 0.5"	2,700 @ 0.5"	4,400 @ 0.5"	4,800 @ 0.5"
Drive Method	Direct Driven	Direct Driven	Direct Driven	Direct Driven	Direct Driven
Qty. of Fans	1	1	1	1	1
Evaporator Coil - Aluminun	n Fin, Copper Tube		·	с	^
Rows/Face Area (ft2)	3/5.5	4/5.5	4/5.5	4/9.75	4/9.75
Face Velocity, fpm	182	364	491	451	492
Compressors - Heat pump c	uty rated Scroll - R-40	7C	•		•
Type, (Qty.)	Scroll, (1)	Scroll, (1)	Scroll, (1)	Scroll, (1)	Scroll, (1)
Watts Input	1,566	2,830	3,829	6,165	8,127
Water Cooled Condenser Da	ta - Based on 0% Glv	col Solution			
Tot. Heat of Rei. (BTU/H)	32,499	61.065	82,299	129.896	164.362
GPM @ 85°F FW/T/95°F IW/T	65	12 3	16.5	26.1	33
Linit Press Drop (ft wa)	7.06	R 85	13.5	10.69	15.75
Condensor Tra-	Rrazod Plato	Brazod Plata	Brazod Plata	Brazod Plata	Brazod Plato
Head Pressure Control	Diazed-Fidle	biazed-Fidle	Diazed-Fidle	Diazed-Fidle	Diazed-Fidte
Chandrad Control		2	Motor Resultation Mol	(factory install - 1)	
Standard Control		2-way, 600 psig	vvater Regulating Valves	, (lactory installed)	
Optional Control		3-way, 600 psig	vvater Regulating Valves	, (Tactory Installed)	· · · · · · · · · · · · · · · · · · ·
Connection Sizes - Copper					
Condensate Drain, (w/ pump)	//8" OD, (1/2"OD)	//8" OD, (1/2"OD)	//8" OD, (1/2"OD)	//8" OD, (1/2"OD)	//8" OD, (1/2"OD)
Humidifier Inlet	1/4" OD	1/4" OD	1/4" OD	1/4" OD	1/4" OD
Condenser In/Out	7/8″ OD	1-1/8" OD	1-1/8" OD	1-3/8 " OD	1-3/8 " OD
Filters - 2" deep, 30% "Dus	t-Spot" Efficient Pleate	ed Throwaway			
Nom. Size (in.), (Qty.)	28.5 x 26 (1)	28.5 x 26 (1)	28.5 x 26 (1)	31.5 x 21.38 (2)	31.5 x 21.38 (2)
Approx. Weight	465 lbs	490 lbs	490 lbs	720 lbs	730 lbs



Glycol Cooled - 2 to 10 Ton "COS"

COS Model	COS-024-G-EC	COS-042-G-EC	COS-060-G-EC	COS-096-G-EC	COS-120-G-EC
NET DX COOLING CAPACITY -	BTU/H (includes stand	dard DX evaporator mo	otor heat @ std CFM &	esp ratings)	
75°EDB/62 5°EW/B 50% BH				cisipi ratings,	
Total	22.810	42 500	55 700	97 721	110 524
	10,800	42,333	55,733	81,721	02.220
	19,809	59,009	50,547	01,005	95,220
72 FDB/60 FVVB, 50% RH	24.647	40.000	52.422	02.445	404.000
Iotai	21,617	40,398	52,422	83,115	104,690
Sensible	19,357	38,001	48,968	/9,242	91,442
70°FDB/58.5°FWB, 50% RH					
Total	20,932	39,091	50,446	80,342	101,333
Sensible	18,881	36,961	47,560	77,026	89,256
75°FDB/61°FWB, 45% RH			· · · · · · · · · · · · · · · · · · ·		
Total	22,166	41,639	54,058	85,791	106,847
Sensible	20,600	40,230	52,402	83,639	100,794
72°FDB/58.5°FWB, 45% RH					
Total	21,046	39,624	51,100	81,616	101,323
Sensible	20,238	38,714	50,032	80,360	98,117
70°FDB/57°FWB, 45% RH					
Total	20,427	38,372	49,239	79,013	97,854
Sensible	19,683	37,604	48,366	77,989	94,731
Reheat/Heat - Performance C	apacities Do Not Incluc	le Motor Heat			
ELECTRIC REHEAT / HEAT - Finn	ed Tubular Heaters, (Stan	idard)			
Htr Kw Rating (No. of Stages)	6 Kw (1-stg)	9 Kw (1-stg)	9 Kw (1-stg)	9 Kw (1-stg)	9 Kw (1-stg)
HOT GAS REHEAT - with 3-way I	Heat Reclaim Valve, (Opt	ional)			
BTU/H	7,452	13,559	18,421	28,303	37,341
HOT WATER REHEAT / HEAT - Re	heat rated @ 180°F Ente	ring Water Temperature,	EAT = 72°F DB, (Optiona	l)	
BTU/H	27,849	41,581	48,802	94,257	98,833
GPM	2.8	4.3	5.0	9.6	10.1
Pressure Drop, Coil ft.wa	0.5	1.0	1.4	5.3	5.8
Pressure Drop, Unit ft wa	5.7	47	5.6	53	57
Valve Cv	2.7	4.0	4.0	8.0	8.0
Control Valve	2.2	2	300 psig. Modulating (0-	10 Vdc)	0.0
Humidification Electrode St	aam Canistar Humidifi	er (Standard)	500 psig, modulating (0-	10 Vuc)	
Steam Output Lbs/Hour	2.5 lbc/br		4.10 lbs/br	4 15 lbc/br	4.15 lbc/br
Deves lesve	2-5 105/11	2.4 Km	2.4 Km	4-13 lbs/lli	4-13 I03/11
Fower input	1.7 KW	3.4 KW	3.4 KW	D. I KW	D. I KW
Std Control	Iviodulating	the Drive SC Blue Fee	wodulating	wodulating	iviodulating
Evaporator Blower / Motor -	2 C Un (1)	Ct-Drive, EC Plug Fan	2 (1)	4.1.1. (1)	4.1.11= (1)
Horsepower	3.6 Hp, (1)	3.6 Hp, (1)	3.6 Hp, (1)	4.1 Hp, (1)	4.1 Hp, (1)
CFM @ ext. st. press.	1,000 @ 0.5"	2,000 @ 0.5"	2,700@0.5"	4,400 @ 0.5"	4,800 @ 0.5"
Drive Method	Direct Driven	Direct Driven	Direct Driven	Direct Driven	Direct Driven
Qty. of Fans	1	1	1	1	1
Evaporator Coil - Aluminum R	in, Copper Tube				
Rows/Face Area (ft2)	3/5.5	4/5.5	4/5.5	4/9.75	4/9.75
Face Velocity, fpm	182	364	491	451	492
Compressors - Heat pump du	ty rated Scroll - R-407C		r		
Type, (Qty.)	Scroll, (1)	Scroll, (1)	Scroll, (1)	Scroll, (1)	Scroll, (1)
Watts Input	2,184	3,974	5,399	8,295	10,944
Water Cooled Condenser Data	- Based on 40% Glyc	ol Solution			
Tot. Heat of Rej. (BTU/H)	31,267	59,414	79,646	124,271	157,839
GPM @ 110°F EGT	7	13.3	17.9	27.9	35.4
Unit Press. Drop (ft.wg)	8.14	10.23	15.64	12.03	18.16
Condenser Type	Brazed-Plate	Brazed-Plate	Brazed-Plate	Brazed-Plate	Brazed-Plate
Head Pressure Control					
Standard Control		2-way, 600 psig	Water Regulating Valves	, (factory installed)	
Optional Control		3-way, 600 psig	Water Regulating Valves	, (factory installed)	
Connection Sizes - Copper					
Condensate Drain, (w/ pump)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)	7/8" OD, (1/2" OD)
Humidifier Inlet	1/4" OD	1/4" OD	1/4" OD	1/4" OD	1/4" OD
Condenser In/Out	7/8″ OD	1-1/8" OD	1-1/8" OD	1-3/8 " OD	1-3/8 " OD
Filters - 2" deep, 30% "Dust-	Spot" Efficient Pleated	Throwaway			
Nom. Size (in.), (Qty.)	28.5 x 26 (1)	28.5 x 26 (1)	28.5 x 26 (1)	31.5 x 21.38 (2)	31.5 x 21.38 (2)
Approx. Weight	465 lbs	490 lbs	490 lbs	720 lbs	730 lbs



DX Water Cooled w/ Free-Cooling

COS Model	COS-024-W-FC-EC	COS-042-W-FC-EC	COS-060-W-FC-EC	COS-096-W-FC-EC	COS-120-W-FC-EC
NET DX COOLING CAPACITY	- BTU/H, (includes st	andard DX evaporato	r motor heat @ std CF	M & e.s.p. ratings)	
75°FDB/62.5°FWB, 50% RH					
Total	26,153	48,125	63,855	100,580	126,423
Sensible	20,886	40,980	53,049	86,188	98,966
72°FDB/60°FWB, 50% RH					
Total	24,828	45,643	60,166	95,473	119,865
Sensible	20,565	40,215	51,914	84,572	97,018
70°FDB/58.5°FWB, 50% RH					
Total	24,073	44,183	58,018	92,508	116,072
Sensible	20,116	39,295	50,606	82,574	94,807
75°FDB/61°FWB, 45% RH					
Total	25,240	46,772	61,645	97,624	121,224
Sensible	22,598	44,120	57,272	92,913	106,648
72°FDB/58.5°FWB, 45% RH					
Total	23,956	44,451	58,153	92,579	115,810
Sensible	22,077	42,852	55,789	89,412	104,729
70°FDB/57°FWB, 45% RH					
Total	23,273	43,013	56,072	89,816	112,134
Sensible	21,483	41,340	54,321	86,985	102,523
NET FC COOLING CAPACITY	- BTU/H, (includes sta	andard DX evaporator	motor heat @ std CFN	𝗛 e.s.p. ratings)	
75°FDB/62.5°FWB, 50% RH					
Total	27,223	47,627	58,364	101,101	112,799
Sensible	21,862	41,732	53,395	90,168	99,026
72°FDB/60.1°FWB, 50% RH					
Total	22,731	39,547	47,733	83,294	91,923
Sensible	19,968	38,269	47,733	83,294	90,114
70°FDB/58.4°FWB, 50% RH					
Total	19,663	34,014	40,376	70,990	77,346
Sensible	18,720	34,014	40,376	70,990	77,346
75°FDB/61.1°FWB, 45% RH					
Total	24,336	42,134	50,403	88,164	96,606
Sensible	22,344	42,134	50,403	88,164	96,606
72°FDB/58.7°FWB, 45% RH					
Total	20,062	34,449	40,446	71,063	74,316
Sensible	20,062	34,449	40,446	71,063	74,316
70°FDB/57.1°FWB, 45% RH					
Total	17,389	30,804	37,477	64,233	68,923
Sensible	17,389	30,804	37,477	64,233	68,923
Flow Rates, Free Cooling Coi					
Flow Rate (GPM)	6.5	12.3	16.5	26.1	33
Coil Pressure Drop	8.6	5.1	8.6	9.8	14.7
Unit Pressure Drop	19.6	19.4	31.9	26.6	40.3





DX Water Cooled w/ Free-Cooling

COS Model	COS-024-W-FC-EC	COS-042-W-FC-EC	COS-060-W-FC-EC	COS-096-W-FC-EC	COS-120-W-FC-EC
Reheat/Heat - Performance	Capacities Do Not Ind	lude Motor Heat			·
ELECTRIC REHEAT / HEAT - Fir	nned Tubular Heaters, (S	tandard)			
Htr Kw Rating (No. of Stages)	6 Kw (1-stg)	9 Kw (1-stg)	9 Kw (1-stg)	9 Kw (1-stg)	9 Kw (1-stg)
HOT GAS REHEAT - with 3-wa	y Heat Reclaim Valve, (Optional)			·
BTU/H	5,343	9,656	13,065	21,035	27,729
HOT WATER REHEAT / HEAT -	Reheat rated @ 180°F E	ntering Water Temperat	ure, EAT = 72°F DB, (Op	otional)	
BTU/H	27,849	41,581	48,802	94,257	98,833
GPM	2.8	4.3	5.0	9.6	10.1
Pressure Drop, Coil ft.wg	0.5	1.0	1.4	5.3	5.8
Pressure Drop, Unit ft.wg	5.7	4.7	5.6	5.3	5.7
Valve Cv	2.2	4.0	4.0	8.0	8.0
Control Valve		2-way, 3	300 psig, Modulating (0	-10 Vdc)	
Humidification - Electrode	Steam Canister Humic	lifier with Adjustable	Output, (Standard)		
Steam Output, Lbs/Hour	2-5 lbs/hr	4-10 lbs/hr	4-10 lbs/hr	4-15 lbs/hr	4-15 lbs/hr
Power Input	1.7 Kw	3.4 Kw	3.4 Kw	5.1 Kw	5.1 Kw
Std Control	Modulating	Modulating	Modulating	Modulating	Modulating
Evaporator Blower / Motor	- Backward Curved, D	irect-Drive, EC Plug Fa	an		
Horsepower	3.6 Hp, (1)	3.6 Hp, (1)	3.6 Hp, (1)	4.1 Hp, (1))	4.1 Hp, (1)
CFM @ ext. st. press.	1,000 @ 0.5"	2,000 @ 0.5"	2,700 @ 0.5"	4,400 @ 0.5"	4,800 @ 0.5"
Drive Method	Direct Driven	Direct Driven	Direct Driven	Direct Driven	Direct Driven
Qty. of Fans	1	1	1	1	1
Evaporator Coil, (Both DX &	Free-Cooling Respect	ively) - Aluminum Fir	n, Copper Tube		
DX					
Rows/Face Area (ft2)	3/5.5	4/5.5	4/5.5	4/9.75	4/9.75
Face Velocity, fpm	182	364	491	451	492
Free Cooling					
Rows/Face Area (ft2)	3/5.5	4/5.5	4/5.5	4/9.75	4/9.75
Face Velocity, fpm	182	364	491	451	492
Compressors - Heat pump of	duty rated Scroll - R-40)7C			
Type, (Qty.)	Scroll, (1)	Scroll, (1)	Scroll, (1)	Scroll, (1)	Scroll, (1)
Watts Input	1,566	2,830	3,829	6,165	8,127
Water Cooled Condenser Da	ta - Based on 0% G	ycol Solution	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
Tot. Heat of Rej. (BTU/H)	32,499	61,065	82,299	129,896	164,362
Condenser Type	Plate-Finned	Plate-Finned	Plate-Finned	Plate-Finned	Plate-Finned
Head Pressure & Free Coolin	g Control				
DX - Head Pressure Valve		3-w	ay, 600 psig (factory ins	stalled)	
FC - Valve Size		3-w	ay, 600 psig (factory ins	stalled)	
CV	5	8	8	16	16
Connection Sizes - Copper	•				
Condensate Drain, (w/ pump)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)
Humidifier Inlet	1/4" OD	1/4" OD	1/4" OD	1/4" OD	1/4" OD
Source Water In/Out	7/8" OD	1-1/8" OD	1-1/8" OD	1-3/8 " OD	1-3/8 " OD
Filters - 2" deep, 30% "Dus	t-Spot" Efficient Plea	ted Throwaway			
Nom. Size (in.), (Qty.)	28.5 x 26 (1)	28.5 x 26 (1)	28.5 x 26 (1)	31.5 x 21.38 (2)	31.5 x 21.38 (2)
Approx. Weight	465 lbs	490 lbs	490 lbs	720 lbs	730 lbs



DX Glycol Cooled w/ Free-Cooling

COS Model	COS-024-G-FC-EC	COS-042-G-FC-EC	COS-060-G-FC-EC	COS-096-G-FC-EC	COS-120-G-FC-EC
NET DX COOLING CAPACIT	Y - BTU/H, (includes	standard DX evaporat	or motor heat @ std (CFM & e.s.p. ratings)	•
75°FDB/62.5°FWB, 50% RH					
Total	22,810	42,599	55,799	87,721	110,524
Sensible	19,809	39,069	50,347	81,663	93,220
72°FDB/60°FWB, 50% RH					
Total	21,617	40,398	52,422	83,115	104,690
Sensible	19,357	38,001	48,968	79,242	91,442
70°FDB/58.5°FWB, 50% RH		·	^	•	
Total	20,932	39,091	50,446	80,342	101,333
Sensible	18,881	36,961	47,560	77,026	89,256
75°FDB/61°FWB, 45% RH					
Total	22,166	41,639	54,058	85,791	106,847
Sensible	20,600	40,230	52,402	83,639	100,794
72°FDB/58.5°FWB, 45% RH					
Total	21,046	39,624	51,100	81,616	101,323
Sensible	20,238	38,714	50,032	80,360	98,117
70°FDB/57°FWB, 45% RH					
Total	20,427	38,372	49,239	79,013	97,854
Sensible	19,683	37,604	48,366	77,989	94,731
NET FC COOLING CAPACITY	7 - BTU/H, (includes s	tandard DX evaporate	or motor heat @ std C	FM & e.s.p. ratings)	
75°FDB/62.5°FWB, 50% RH					
Total	20,315	31,793	40,494	70,549	82,777
Sensible	19,043	31,793	40,494	70,549	82,777
72°FDB/60.1°FWB, 50% RH					
Total	17,157	27,549	35,069	60,000	68,383
Sensible	17,157	27,549	35,069	60,000	68,833
70°FDB/58.4°FWB, 50% RH					
Total	15,083	25,466	32,461	55,573	62,012
Sensible	15,083	25,466	32,461	55,573	62,012
75°FDB/61.1°FWB, 45% RH					
Total	18,619	30,686	39,015	66,665	74,281
Sensible	18,619	30,686	39,015	66,665	74,281
72°FDB/58.7°FWB, 45% RH		v	u		2
Total	15,914	27,570	35,103	60,045	66,963
Sensible	15,914	27,570	35,103	60,045	66,963
70°FDB/57.1°FWB, 45% RH					
Total	14,694	25,484	32,483	55,610	62,056
Sensible	14,694	25,484	32,483	55,610	62,056
Flow Rates, Free Cooling Coil					
Flow Rate (GPM)	7	13.3	17.9	27.9	35.4
Coil Pressure Drop	14	8.5	14.3	15.7	23.9
Unit Pressure Drop	26.7	25.1	41.5	34.8	53.4





DX Glycol Cooled w/ Free-Cooling

COS Model	COS-024-G-FC-EC	COS-042-G-FC-EC	COS-060-G-FC-EC	COS-096-G-FC-EC	COS-120-G-FC-EC
Reheat/Heat - Performanc	e Capacities Do Not Ir	nclude Motor Heat			
ELECTRIC REHEAT / HEAT -	Finned Tubular Heat	ers, (Standard)			
Htr Kw Rating	6 Kw	9 Kw	9 Kw	9 Kw	9 Kw
(NO. OF Stages)	(I-STG)	(I-stg)	(1-stg)	(1-stg)	(T-stg)
RTU/H	7 452		18/121	28 303	37 3/1
HOT WATER REHEAT / HEA	, , , , , , , , , , , , , , , , , , , 	0°F Entering Water Te	mperature, FAT = 72°	F DB. (Optional)	57,541
BTU/H	27.849	41.581	48.802	94.257	98.833
GPM	2.8	4.3	5.0	9.6	10.1
Pressure Drop. Coil ft.wa	0.5	1.0	1.4	5.3	5.8
Pressure Drop, Unit ft.wa	5.7	4.7	5.6	5.3	5.7
Valve Cv	2.2	4.0	4.0	8.0	8.0
Control Valve	2.2	2-wav 3	 200 psig. Modulating (0-	10 Vdc)	0.0
Humidification - Electrode	e Steam Canister Hum	idifier. (Standard)			
Steam Output, Lbs/Hour	2-5 lbs/hr	4-10 lbs/hr	4-10 lbs/hr	4-15 lbs/hr	4-15 lbs/hr
Power Input	1.7 Kw	3.4 Kw	3.4 Kw	5.1 Kw	5.1 Kw
Std Control	Modulating	Modulating	Modulating	Modulating	Modulating
Optional Control			Modulating (0-10 Vdc)		
Evaporator Blower / Motor	- Backward Curved,	Direct-Drive, EC Plug	Fan		
Horsepower	3.6 Hp, (1)	3.6 Hp, (1)	3.6 Hp, (1)	4.1 Hp, (1)	4.1 Hp, (1)
CFM @ ext. st. press.	1,000 @ 0.5"	2,000 @ 0.5"	2,700 @ 0.5"	4,400 @ 0.5"	4,800 @ 0.5"
Drive Method	Direct Driven	Direct Driven	Direct Driven	Direct Driven	Direct Driven
Oty. of Fans	1	1	1	1	1
Evaporator Coil, (Both DX &	& Free-Cooling Respec	tively) - Aluminum F	in, Copper Tube		
DX	5 1				
Rows/Face Area (ft2)	3/5.5	4/5.5	4/5.5	4/9.75	4/9.75
Face Velocity, fpm	182	364	491	451	492
Free Cooling					
Rows/Face Area (ft2)	3/5.5	4/5.5	4/5.5	4/9.75	4/9.75
Face Velocity, fpm	182	364	491	451	492
Compressors - Heat pump	duty rated Scroll - R-4	107C			
Type, (Qty.)	Scroll, (1)	Scroll, (1)	Scroll, (1)	Scroll, (1)	Scroll, (1)
Watts Input	2,184	3,974	5,399	8,295	10,944
Glycol Cooled Condenser D	ata - Based on 40%	Glycol Solution			
Tot. Heat of Rej. (BTU/H)	31,267	59,414	79,646	124,271	157,839
Condenser Type	Plate-Finned	Plate-Finned	Plate-Finned	Plate-Finned	Plate-Finned
Head Pressure & Free Cooli	ng Control				
DX - Head Pressure Valve		3-wa	ay, 600 psig (factory ins	talled)	
FC - Valve Size		3-wa	ay, 600 psig (factory ins	talled)	
CV	5	8	8	16	16
Connection Sizes - Copper	•				
Condensate Drain, (w/ pump)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)	7/8" OD, (1/2"OD)
Humidifier Inlet	1/4" OD	1/4" OD	1/4" OD	1/4" OD	1/4" OD
Source Glycol In/Out	7/8" OD	1-1/8" OD	1-1/8" OD	1-3/8 " OD	1-3/8 " OD
Filters - 2" deep, 30% "Du	st-Spot" Efficient Plea	ated Throwaway			
Nom. Size (in.), (Qty.)	28.5 x 26 (1)	28.5 x 26 (1)	28.5 x 26 (1)	31.5 x 21.38 (2)	31.5 x 21.38 (2)
Approx. Weight	465 lbs	490 lbs	490 lbs	720 lbs	730 lbs



DX AR/W/G w/ Alternate Water Source

"COS" Model		024-()-AWS-FC	042-()-AWS-EC	060-()-AWS-EC	096-()-AWS-EC	120-()-AWS-EC
		5°E EW/T 0% Glycol Solution	(includes motor heat @ std		050-()-AW5-LC	120-()-AW3-LC
AWS COULING CA	a Aroa (ft2)	2/5 5		0.5 e.s.p.) - Avvs Coll	4/0 75	4/0 75
Eaco Volocity, frm	e Aled (Itz)	3/3.5	4/5.5	4/5.5	4/9.75	4/9.75
		102	304	491	451	492
	E00/ BU	ļ.	2.	way, 600 psig (factory filsta		
75 FDB/62.5 FVVB	, 50% KH	20.080	48.102	E2 740	08.022	100.030
	iotai Cuuditta	30,080	48,192	52,740	98,933	100,030
	Sensible	23,012	42,339	52,740	88,687	92,781
High Flow (8°F ATM)	GPIVI	0.2	9.9	11	20	20.8
(0 1 111)	PD FT	7.9	3.5	4.2	0.1	0.5
	Unit PD FI	13.5	9.0	10.6	11.7	12.4
		25.964	0 20 655	8 41.639	70.649	01 00
	Foncible	25,604	20,000	41,030	79,048	80,399
	CDM	21,000	67	41,030	13.0	14.2
Med. Flow (10°E ATM)	GPIVI DD FT	4.4	0.7	7.8	13.8	14.2
(101 2111)	FD FI	4.5	1.0 E 4	2.5	5.2	5.5
	Unit PD FI	8.1 F	5.4	0.5	0.9	7.1
		22.222	0	0	64 156	64.270
	IOLdi	22,222	30,964	33,164	64,156	64,379
	Sensible	20,381	30,964	33,164	64,156	64,379
Low Flow (12°F ATW)	GPM	3.3	5	5.9	10.4	10.9
(12 1 Δ100)	PD FI	2.2	1	1.4	1.9	2.1
	Unit PD FI	5.2	3.9	4./	4.9	5.2
	Valve Cv	5	8	8	16	16
72°FDB/60.1°FWB	, 50% RH					
	lotal	22,608	34,565	36,762	68,431	69,789
	Sensible	20,465	34,565	36,762	68,431	69,789
High Flow	GPM	4.8	/.8	9.8	18.2	18.4
(o f Δ1W)	PD FI	5	2.3	3.4	5.2	5.3
	Unit PD FI	9.1	6.5	8.9	10.2	10.4
	Valve Cv	5	8	8	16	16
	lotal	19,422	27,721	31,156	55,799	56,967
	Sensible	19,141	27,721	31,156	55,799	56,967
Med. Flow	GPM	3.5	5.6	6.7	12	12.3
(10 F Δ1W)	PD FI	2.8	1.3	1.8	2.5	2.6
	Unit PD FI	5.9	4.4	5.4	5.8	6.0
	Valve Cv	5	8	8	16	16
	Total	16,566	23,455	26,882	48,572	49,878
	Sensible	16,566	23,455	26,882	48,572	49,878
Low Flow	GPM	2.6	4.1	4.9	8.7	9.1
(12 F Δ1W)	PD FT	1.7	0.7	1	1.4	1.5
	Unit PD FI	4.3	3.3	3.9	4.1	4.2
	Valve Cv	5	8	8	16	16
70°FDB/58.4°FWB	, 50% RH					
	Total	18,305	27,149	31,059	54,733	56,199
	Sensible	18,305	27,149	31,059	54,733	56,199
High Flow	GPM	4.1	7	8.3	14.6	15.2
(δ°F ΔIW)	PD FT	3.8	1.9	2.6	3.5	3.8
	Unit PD FT	7.4	5.7	7.1	7.4	7.9
	Valve Cv	5	8	8	16	16
	Total	15,778	23,857	27,060	48,669	49,977
	Sensible	15,778	23,857	27,060	48,669	49,977
Med. Flow	GPM	3.1	5	5.9	10.5	11
(10°F ΔĪw)	PD FT	2.3	1.1	1.4	2	1.9
	Unit PD FT	5.2	4.0	4.7	5.0	5.0
	Valve Cv	5	8	8	16	16
	Total	13,448	19,488	22,410	40,968	42,137
	Sensible	13,448	19,488	22,410	40,968	42,137
Low Flow	GPM	2.3	3.5	4.2	7.5	7.9
(12°F ΔTw)	PD FT	1.4	0.5	0.8	1.1	1.2
	Unit PD FT	3.9	2.9	3.4	3.6	3.8
	Valve Cv	5	8	8	16	16



DX AR/W/G w/ Alternate Water Source

"COS" Model		024-()-AWS-EC	042-()-AWS-EC	060-()-AWS-EC	096-()-AWS-EC	120-()-AWS-EC
AWS COOLING CA	APACITY - BTU/H @	45°F EWT, 0% Glycol Solu	tion (includes motor heat	@ std 0.5" e.s.p.)		
AWS Coil Row /Fac	e Area (ft2)	3/5.5	4/5.5	4/5.5	4/9.75	4/9.75
Face Velocity, fpm		182	364	491	451	492
AWS Valve Size			2-	way, 600 psig (factory instal	led)	
75°FDB/61.1°FWB	, 45% RH					
	Total	25,187	39,272	42,079	78,235	79,378
	Sensible	23,337	39,272	42,079	78,235	79,378
High Flow	GPM	6.2	9.9	11	20	20.8
(8°F ΔTw)	PD FT	7.9	3.5	4.2	6.1	6.5
	Unit PD FT	13.5	9.0	10.6	11.7	12.4
	Valve Cv	5	8	8	16	16
	Total	22,146	32,932	36,996	66,287	67,213
	Sensible	22,074	32,932	36,996	66,287	67,213
Med. Flow	GPM	4.4	6.7	7.8	13.8	14.2
(10°F ΔIW)	PD FT	4.3	1.8	2.3	3.2	3.3
	Unit PD FI	8.1	5.4	6.5	6.9	7.1
	Valve Cv	5	8	8	16	16
	lotal	19,474	28,885	33,188	59,222	61,060
	Sensible	19,474	28,885	33,188	59,222	61,060
Low Flow		3.3	5	5.9	10.4	10.9
(121 2100)	PD FI	Z.Z E 2	3.0	1.4	1.9	2.1
	Valvo Cv	5.2	5.9	4.7	4.9	16
72°EDB/60 1°EW/B	50% RH		0	0	10	10
12125,0011115	Total	19.236	30.427	36.947	70.833	69,789
	Sensible	19,236	30,427	36,947	70,833	69,789
High Flow	GPM	4.8	7.8	9.8	18.2	18.4
(8°F ΔTw)	PD FT	5	2.3	3.4	5.2	5.3
	Unit PD FT	9.1	6.5	8.9	10.2	10.4
	Valve Cv	5	8	8	16	16
	Total	17,125	27,214	31,156	56,621	56,967
	Sensible	17,125	27,214	31,156	56,621	60,117
Med. Flow	GPM	3.5	5.6	6.7	12	12.3
(10°F ΔTw)	PD FT	2.8	1.3	1.8	2.5	2.6
	Unit PD FT	5.9	4.4	5.4	5.8	6.0
	Valve Cv	5	8	8	16	16
	Total	15,294	23,469	26,882	48,570	49,878
	Sensible	15,294	23,469	26,882	48,570	49,878
Low Flow	GPM	2.6	4.1	4.9	8.7	9.1
(12°F ΔIW)	PD FT	1.7	0.7	1	1.4	1.5
	Unit PD FI	4.3	3.3	3.9	4.1	4.2
	50% PL	2	8	8	10	10
70108/38.41008	, 50 % KH	16 263	27 1/19	30.936	54 733	56 199
	Sensible	16,263	27,149	30,936	54,733	56,199
High Flow	GPM	4.1	7	8.3	14.6	15.2
(8°F ΔTw)	PD FT	3.8	1.9	2.6	3.5	3.8
	Unit PD FT	7.4	5.7	7.1	7.4	7.9
	Valve Cv	5	8	8	16	16
	Total	14,958	23,857	27,059	48,669	49,977
	Sensible	14,958	23,857	27,059	48,669	49,977
Med. Flow	GPM	3.1	5	5.9	10.5	11
(10°F ΔTw)	PD FT	2.3	1.1	1.4	2	1.9
	Unit PD FT	5.2	4.0	4.7	5.0	5.0
	Valve Cv	5	8	8	16	16
	Total	13,346	19,488	22,409	46,218	47,526
	Sensible	13,346	19,488	22,409	46,218	47,526
Low Flow	GPM	2.3	3.5	4.2	7.5	7.9
(12°F ∆Tw)	PD FT	1.4	0.5	0.8	1.1	1.2
	Unit PD FT	3.9	2.9	3.4	3.6	3.8
	Valve Cv	5	8	8	16	16



Electrical Data - Index

CyberONE™ Floor AC's FLA / MCA / MFS

MODEL TYPEpage

DX - Compressorized Systems

Single Compressor Systems:

• COS-024/120 - AR, W, & G......29

Free-Cooling & Alternate Water Source

Alternate Water Source Systems:

Free-Cooling Systems:

DX - Air Handling Units

<< Electrical Data Notes >>

1) Electrical Data is based on standard performance and component selection of this brochure. Please consult your local Sales Representative for "special" equipment electrical data.



Electrical Data

	COS-024-AR, W, G-FC/AWS			AWS	COS-042-AR, W, G-FC/AWS				COS-060-AR, W, G-FC/AWS						
Model	FLA	(OEM ra	ated)		MES	FLA	(OEM ra	ated)	MCA	MES	FLA	(OEM ra	ated)		MES
	AR	W	G	IVICA	IVIES	AR	W	G	IVICA	1011.3	AR	W	G	IVICA	IVIES
COOLING and ELE	CTRIC R	EHEAT	HEAT a	nd HUN	AIDIFIE	R									
208/3/60	29.8	28.6	30.3	36.5	40	41.8	40.0	42.3	54.7	60	47.6	44.3	48.6	59.3	70
460/3/60	15.1	14.5	15.3	19	20	21.7	20.6	22	28.2	30	23.5	22.1	23.9	30.2	35
575/3/60			N/A			17.6	16.7	17.8	22	25	19	17.9	19.4	25.1	30
COOLING and ELECTRIC REHEAT/HEAT only, (No Humidifier)															
208/3/60	29.8	28.6	30.3	26.5	40	41.8	40	42.3	54.7	60	52.2	48.9	53.2	65.1	70
460/3/60	15.1	14.5	15.3	19	20	21.7	20.6	22	28.2	30	23.5	22.1	23.9	30.2	35
575/3/60	N/A	N/A	N/A	N/A	N/A	17.6	16.7	17.8	22	25	19	17.9	19.4	25.2	30
COOLING w/HUMID	DIFICATIO	DN (No I	Electric I	Heat/Reh	neat)										
208/3/60	24.4	23.2	24.9	27.6	35	37.7	35.9	38.2	45.5	60	43.5	40.2	44.5	50.1	60
460/3/60	11.3	10.7	11.5	13.3	15	17.8	16.7	18.1	21.5	25	19.6	18.2	20	23.5	30
575/3/60	N/A	N/A	N/A	N/A	N/A	14.5	13.6	14.7	16.6	20	15.9	14.8	16.3	19.8	25
COOLING ONLY, w	vith or v	vithout	Hot Ga	s, Hot \	Nater o	r Stean	n Rehea	t							
208/3/60	16.2	15	16.7	19.5	25	21.4	19.6	21.9	29.2	45	27.2	23.9	28.2	33.8	50
460/3/60	7.6	7	7.8	9.6	15	10.4	9.3	10.7	14.1	20	12.2	10.8	12.6	16.1	25
575/3/60	N/A	N/A	N/A	N/A	N/A	8.6	7.7	8.8	10.7	15	10	8.9	10.4	13.9	20

Model	COS-	096-A	R, W,	G-FC/	AWS	COS-	120-A	R, W,	G-FC/AWS		
	FLA	(OEM ra	ited)	MCA	MFS	FLA	(OEM ra	ated)	MCA	MFS	
	AR	W	G			AR	W	G			
COOLING and ELECTRIC REHEAT/HEAT and HUMIDIFIER											
208/3/60	57.2	53.1	58.4	75.3	100	64.5	59.0	66.1	87	110	
460/3/60	28.2	26.4	28.8	39.3	50	31.6	29.1	32.3	42.8	50	
575/3/60	22.8	21.3	23.2	30.3	40	25.4	23.4	26	32.5	40	
COOLING and ELE	CTRIC R	EHEAT/	HEAT o	nly, (No	o Humio	difier)					
208/3/60	61.8	57.7	63	81.1	100	64.5	59	66.1	87	110	
460/3/60	28.2	26.4	28.8	39.3	50	31.6	29.1	32.3	42.8	50	
575/3/60	22.8	21.3	23.2	30.3	40	25.4	23.4	26	32.5	40	
COOLING w/HUMI	DIFICAT	FION (N	o Electi	ric Heat	/Reheat	t)					
208/3/60	51	46.9	52.2	64	90	58.3	52.8	59.9	75.7	110	
460/3/60	23.3	21.5	23.9	31.6	45	26.7	24.2	27.4	35.1	50	
575/3/60	18.9	17.4	19.3	24.1	35	21.5	19.5	22.1	26.4	40	
COOLING ONLY, w	ith or v	vithout	Hot Ga	is, Hot \	Nater o	or Steam	n Rehea	ıt			
208/3/60	36.8	32.7	38	49.8	80	44.1	38.6	45.7	61.5	100	
460/3/60	16.9	15.1	17.5	25.2	40	20.3	17.8	21	28.7	45	
575/3/60	13.8	12.3	14.2	19	30	16.4	14.4	17	21.3	35	

Model	COS-024-/	AHU		COS-042-	AHU		COS-060-	AHU		
	FLA (OEM rated)	MCA	MFS	FLA (OEM rated)	MCA	MFS	FLA (OEM rated)	MCA	MFS	
COOLING and ELECTRIC REHEAT/HEAT and HUMIDIFIER										
208/3/60	30.5	38.1	40	45.4	56.7	60	45.4	56.7	60	
460/3/60	15.4	19.3	20	22.9	28.6	30	22.9	28.6	30	
575/3/60	12.8	16	20	18.5	23.1	25	18.5	23.1	25	
COOLING and	ELECTRIC REHEAT/H	IEAT on	ly, (No	Humidifier)						
208/3/60	22.3	27.9	30	29.1	36.4	40	29.1	36.4	40	
460/3/60	11.7	14.6	15	15.5	19.4	20	15.5	19.4	20	
575/3/60	9.8	12.2	15	12.6	15.8	20	12.6	15.8	20	
COOLING and	HUMIDIFIER only, w	ith or v	vithout	Hot Gas, Hot Water	or Stea	am Rehe	eat (No Electric Reh	eat/Hea	t)	
208/3/60	16.9	21.1	25	25	31.3	35	25	31.3	35	
460/3/60	7.9	9.9	15	11.6	14.5	15	11.6	14.5	15	
575/3/60	6.6	8.3	15	9.5	11.9	15	9.5	11.9	15	
COOLING ONI	Y, with or without H	lot Gas,	, Hot W	ater or Steam Rehea	at					
208/3/60	8.7	10.9	15	8.7	10.9	15	8.7	10.9	15	
460/3/60	4.2	5.3	15	4.2	5.3	15	4.2	5.3	15	
575/3/60	3.6	4.5	15	3.6	4.5	15	3.6	4.5	15	



Physical Data

"Index"

(Drwg. #) MODEL TYPE page

Vertical Floor System Dimensions

2-5 Ton: COS-024/060-AR, AHU, W, G, FC, AWS -EC

8-10 Ton: COS-096/120-AR, W, G, FC, AWS -EC



COS-024/060-()-EC - "Up-Flow"





COS-024/060-()-EC - "Down-Flow"





29.00″

24"

23.0"

26.0*

COS-096/120-()-EC - "Up-Flow"





COS-096/120-()-EC - "Down-Flow"







Notes









1572 Tilco Drive, Frederick, Maryland 21704 Phone: 301.620.2033, Fax: 301.662.5487 E-mail: info@stulz-ats.com

www.stulz-ats.com

ISO-9001:2001 Quality Registered Copyright, July 2011 QE-COS0063 REV A Specifications subject to change without notice.

