

Introduction

Many of the earliest chamber designs for the Biomedical and Pharmaceutical market were based around single operating temperatures of 4°C and 37°C. Environmental Specialties' WRS product line offers the flexibility of depressed or elevated temperature and humidity conditions from one chamber installation. The WRS chambers offer the expanded range of temperature and humidity to supply all markets that demand quality and rugged construction. Like the CRS models, the sizes vary from mobile step-in units to large stability storage areas with multiple air handlers.



Applications

- Stability and shelf life studies
- Cell and tissue culture
- Raw material, bulk product storage and conditioning
- General laboratory incubation and pharma sterility studies
- Animal holding chambers
- Insect rearing and controlled growth
- Thermal cycling
- Product stress testing and burn in
- Tappi / ASTM product test chambers

WRS - Standard Features

- Modular metal skinned panels with urethane insulated tongue and groove construction for chamber enclosure.
- "Cam-locking" construction with vinyl gasketed seams.
- Low height aluminum ceiling plenum housing.
- Totally accessible hinged drain pan for maintenance and cleaning of all interior plenum components.
- PSC fan motors for energy efficiency. All fan motors rated for operating temperatures of chamber. Motors are remoted from chamber interior where application exceeds rating.
- Automatic defrosting with refrigerant hot gas and/or electric heat for quick and efficient operation.
- Semi hermetic continually operating compressors for extended equipment life and maximum chamber temperature control and uniformity.
- Uniform horizontal and vertical air distribution through a lay-in ceiling air distribution system with anodized aluminum support.
- Fully accessible control panel to efficiently and securely house all controls, alarms, and recording devices.
- Microprocessor based control of chamber parameters.
- Vapor proof fluorescent or incandescent light fixtures.
- Factory leak testing of all refrigeration assemblies prior to shipment.
- Bench testing of complete control panel and electrical devices performed prior to shipment.
- Applicable ISO listing 9001:2000 applies.

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WRS Options – Structure / Electrical

- Stainless wall, ceiling and floor finishes.
- Electrical wiring to NEC standards for CLASS I DIV 1 or 2 environments.
- Maximum product security through dead-bolts or locking bars. All security locking mechanisms are furnished with internal emergency relief.
- Standard and custom shelving, casework and chromatography support racking.
- Thermopane view window in door or wall panels.
- Access ports and pass throughs.
- Surface mounted vapor proof duplex outlets, anodized aluminum plug mold or recessed.
- Vinyl floor mat runners in open areas or seamless floor covering over complete area.
- Exterior/interior door ramps.
- Remote light ballasts for chambers above 40°C.
- Emergency lighting systems.
- PLC upgrade available replacing all micro-processor based controls and alarms.
- RS 232 / 485 or 4-20 mA comms available.

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WRS Options - Mechanical

- Perforated lexan ceiling designed to deliver low velocity air uniformly through-out the entire chamber. This approaches laminar flow. Lay-in tiles are prismatic for light diffusion.
- Complete stainless steel finish for ceiling plenum housing including drain pan.
- Exhaust fans with stainless steel filtered air intake or dampered connection ports for host building supply and return air.
- Base level dehumidification with a proportional reheat package.
- Extended range dehumidification by ES developed and field proven proportional air volume regenerative desiccant drier. This design allows close tolerance control and extended life of drier components.
- Low range humidity supplementation with mechanical atomizer or ultrasonic generator.
- Extended range humidification by independent passivated stainless steel steam generator designed for pure water supply.
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- Point of use water purification system for steam generator supply water.
- Copper or phenolic coated evaporator fin construction for protection in corrosive environments.
- Complete 100% redundant backup refrigeration systems with automatic switch over.
- Vertical wall plenum configuration for increased chamber loads requiring greater evaporator coil surface area typical of industrial applications.
- Available designs for temperature uniformity throughout entire chamber to $\pm 0.3^{\circ}\text{C}$.
- Available designs for humidity uniformity throughout entire chamber to $\pm 1\%$ RH.
- Conditioning packages designed to use host building chilled water systems for chamber cooling.
- Non-refrigerated cooling using building ventilation available for certain applications.
- Hermetic compressor packages for low capacity cooling applications.
- Remote air handlers to remove mechanical components from chamber interior and increase air volume.



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