

2014 TEC Product Offerings

Presented by:

From:

Temperature Equipment Corporation (TEC)

www.tecmungo.com



TEC is your one stop for most HVAC products!!!

- * Carrier Commercial Products
- * Tower Tech Cooling Towers
- * Carrier Residential Products
- * Carrier Commercial Controls
- * Hydronics and Boilers
- * Energy Recovery
- * Custom Air Handling Units
- * Modular Chiller Plants / Pumping Systems
- * Variable Refrigerant Systems (VRF)
- * Indoor Air Quality
- * PoolPak International dehumidification systems for indoor pools
- * Equipment Screens
- * And More....

Training

- * Design / Engineer Training
 - * PDH classes also available for IL PE
- * Webinar Training
- * Hands-on Technician Labs
- * Mobile Showcase Truck
- * Special classes upon request



TEC/Carrier

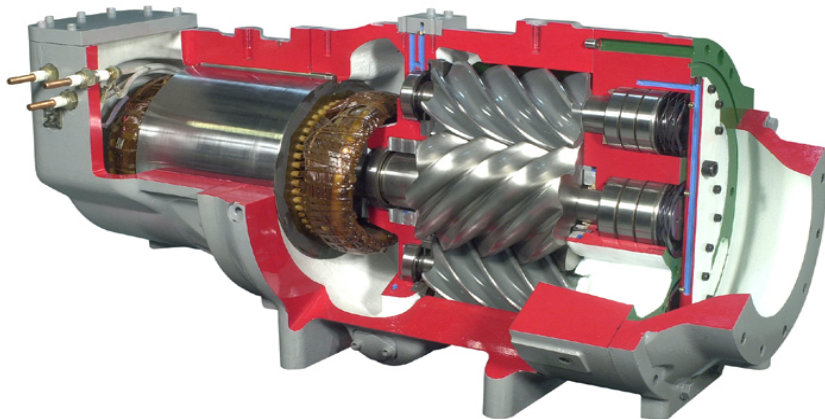
Unique Product Offerings

- * Highest efficiency chiller in the industry – 23XRV @ 0.299 IPLV
- * Modular chillers up to 360 tons
- * Heat recovery chillers (15 Tons to 400 Tons)
- * Tower Tech Cooling Towers
- * Induction beams with sensible and **latent** capability
- * Packaged rooftop units up to 150 tons
- * HumidiMiZer adaptive dehumidification system
- * Staged Air Flow for energy savings
- * 48/50LC Packaged Rooftop Units 3-23 Tons – Up to 21 SEER
- * Micrometl ERV's

23XRV - The Most Efficient Chiller

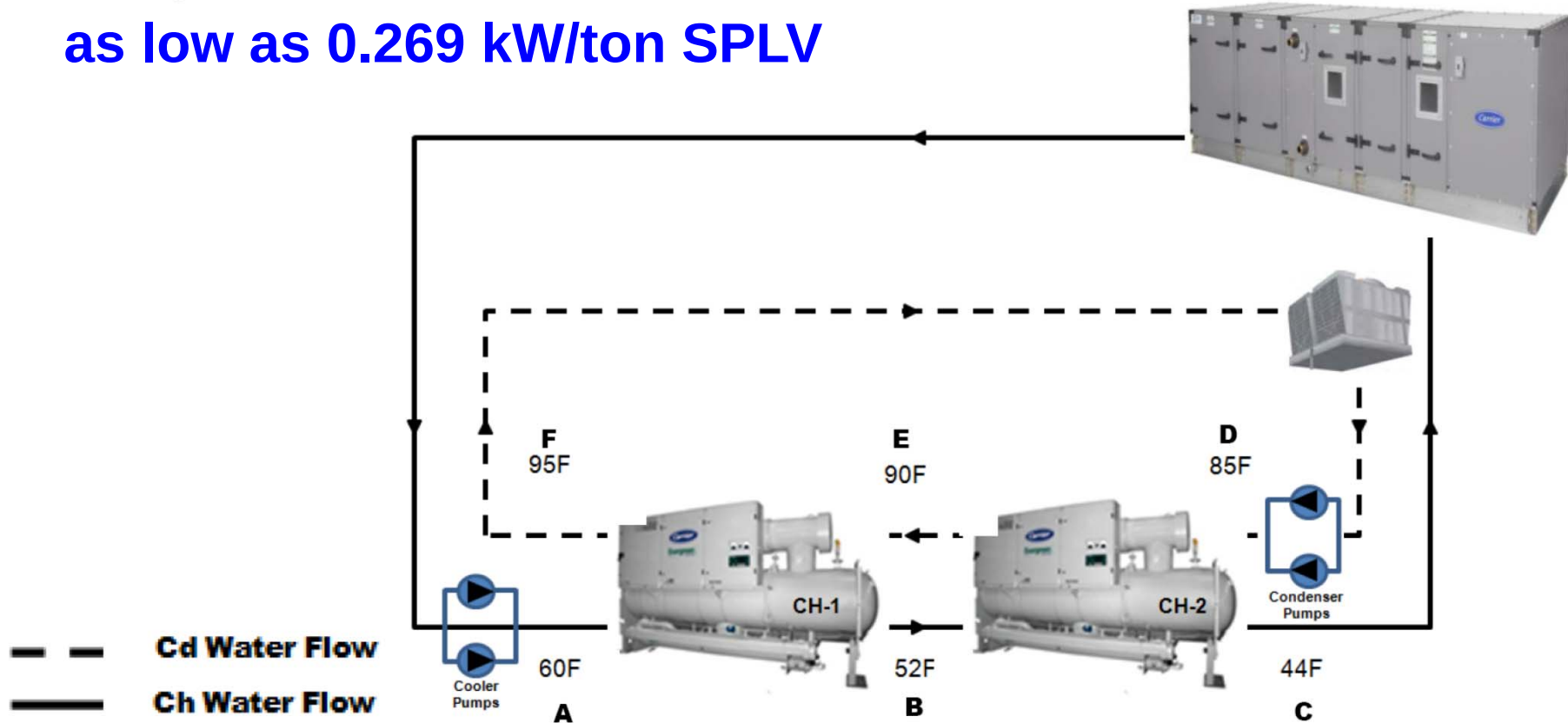
Top Reasons to Use 23XRV.

1. Does not require a 10 or 20 year teardown – 500,000 hour bearing life
2. More efficient than the frictionless chillers in the industry
3. The 23XRV can't surge like a centrifugal chiller
4. The 23XRV can operate with cold condenser water
5. It has a 5 year refrigerant warranty
6. It can handle 80% rate of change in flow per minute
7. The 23XRV IPLV -0.299 kW/Ton
8. The 23XRV can handle up to 75% speed reduction



23XRV - The Most Efficient Chiller

**Series Counterflow Chiller Plants
as low as 0.269 kW/ton SPLV**



30MP Modular Chiller

Multistack Type Chiller

- Up to 140 deg water (Heat reclaim)
- Water cooled 30MPW
- Air cooled 30MPA
- 15-45 tons
- Modular piping package w/ Iso valve
 - Up to 8 chillers – (360 tons)



Heat Reclaim Chillers

- * 15-400 Tons
- * Up to 140 deg water (30XW)
- * Air Cooled version (30RB)
- * Leaving hot water control



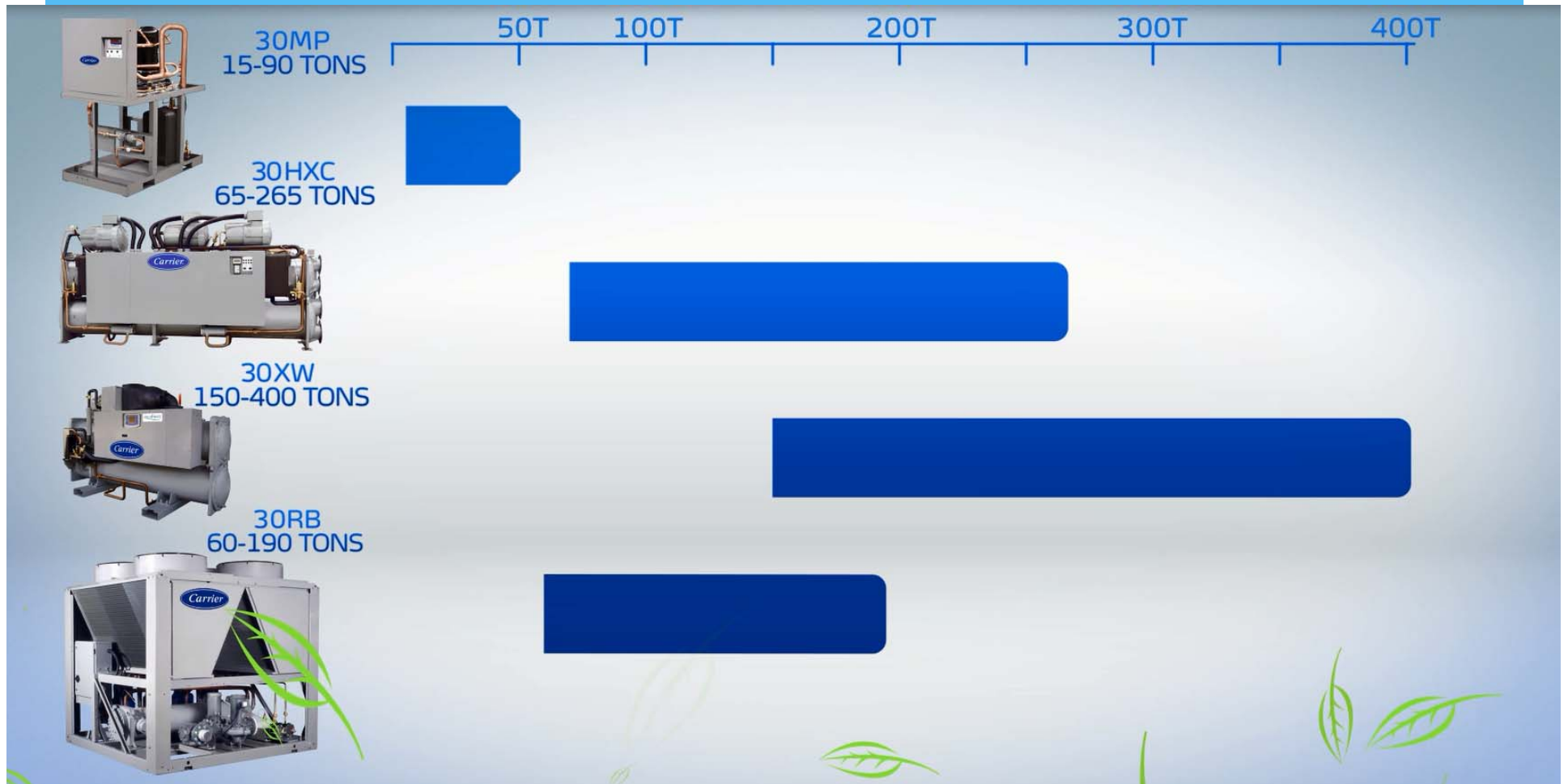
HR MULTI-CHILLER PLANT

COPs > 5.0

TYPICAL BOILER
COPs < 1.0

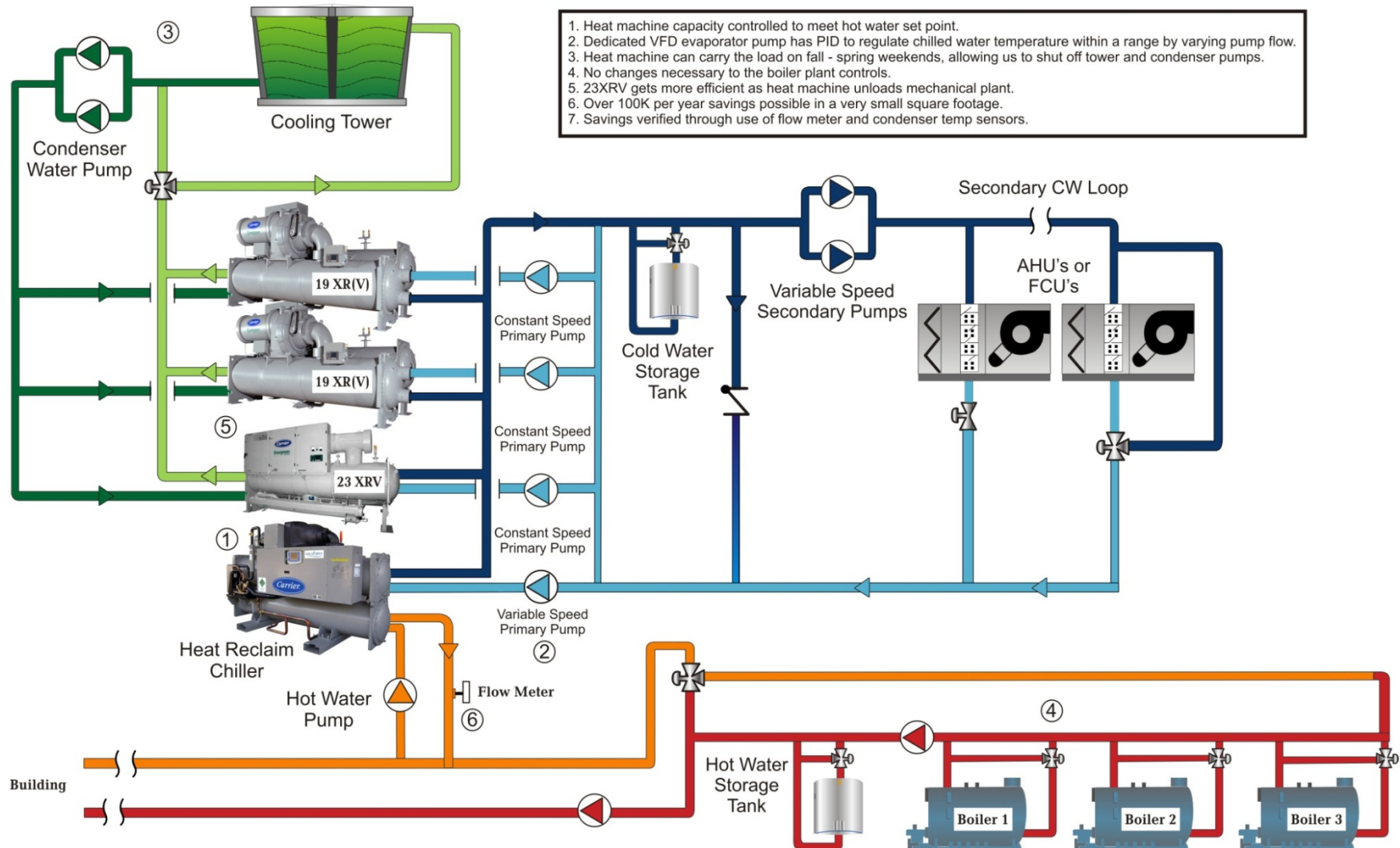


HR MULTI-CHILLER PLANT



HR MULTI-CHILLER PLANT

Chiller Room Piping Layout Diagram



30RB with Greenspeed Technology

- * New technology for 30RB air-cooled chiller - 080 to 390 Tons
- * Most efficient air cooled scroll chiller in the industry
- * **Up to 17.1 IPLV**

- * Improvements
 1. New scroll compressor
 2. New software
 3. Variable condenser fans



Carrier Summary on Air-Cooled Chillers

AIR-COOLED CHILLERS

Air-cooled Product Portfolio



10

30RAP

150



70 RTPF 150

AQUASNAP™



60

30RB

390

AQUASNAP™



80

Greenspeed

390

AQUASNAP™ greenspeed



80

30XA

500

30XA - Ext 501

AQUAFORCE™

Carrier Summary on Water-Cooled Chillers

WATER-COOLED CHILLERS

Product Portfolio

■ Q2 - 2013 ■ Q2 - 2014

0 100 250 500 1,000 1,500 1,875 2,250 3,000



30MP 15-45 Tons



30HX 75-265 Tons



30XW
150-300 Tons Single Circuit
325-400 Tons Dual Circuit



23XRV 275-550 Tons



23XRV 200-550 Tons



19XR(V) Single Stage 200-1,600 Tons



19XR(V)E Two Stage 800-1,600 Tons



19XR6 Two Stage 1,600-2,250 Tons

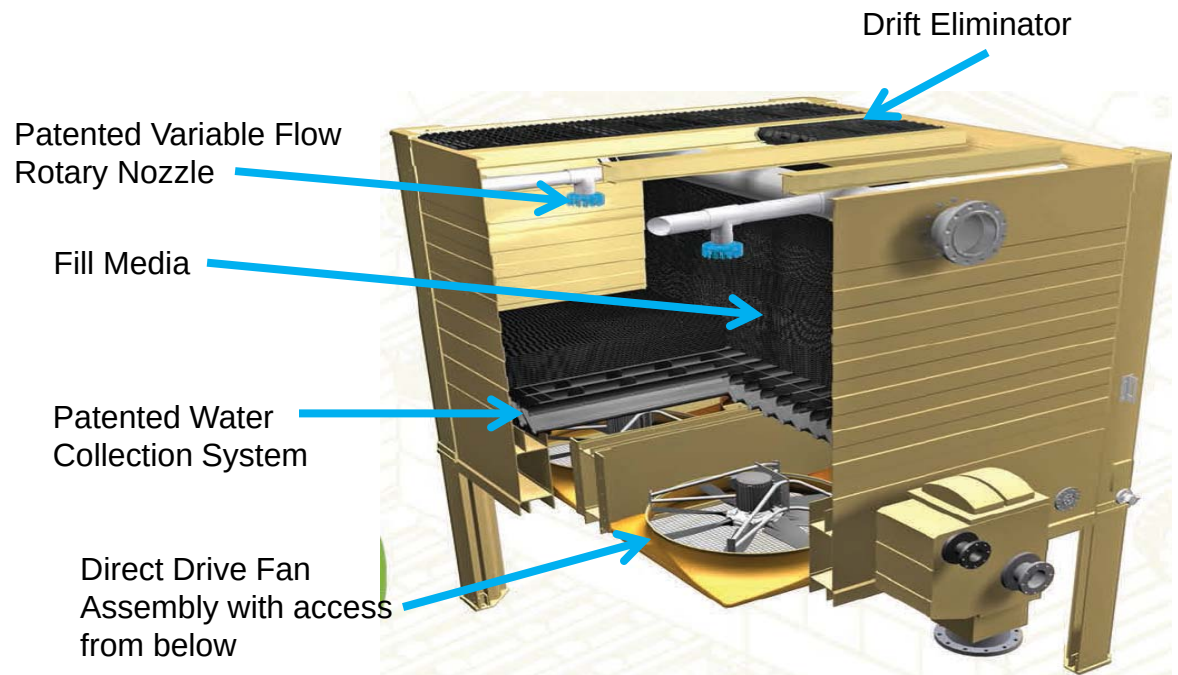


United Technologies
turn to the experts



Tower Tech Cooling Towers

- * 2-3 year payback versus traditional towers
- * 35+ year life expectancy with 15 year warranty
- * Energy efficient with 13' pump head and true variable flow capability for ultra low energy at part-load conditions
- * Forced draft, counter-flow
- * Six Sigma Factory



Tower Tech Cooling Towers

* 400 Ton Tower Example – Payback Instantly.

<i>Tower Only</i>	Tower Tech	Opposition
Total Operating Cost	\$316,350	\$418,777
Number of Replacements	0	2
Total Capital Cost for outlook period	\$150,000	\$450,000
Total Capital and Operating Cost for outlook period	\$466,350	\$868,777
Savings	<u>\$402,427</u>	



Racan



- * Custom Central Station AHUs: 1,000 cfm to 250,000 cfm (and above)
- * High quality manufacturing
- * Load bearing panelized construction and double wall panel assembly (no overlapping panels) for TRUE wash down construction
- * Structurally reinforced floors (no bounce or oil canning)
- * Fiberglass or foam insulation
- * Desiccant dehumidification
- * DOAS & Energy Recovery
- * IAQ engineered base
- * Service vestibules
- * 2in or 4in walls
- * Made in Canada





Air Flow Equipment

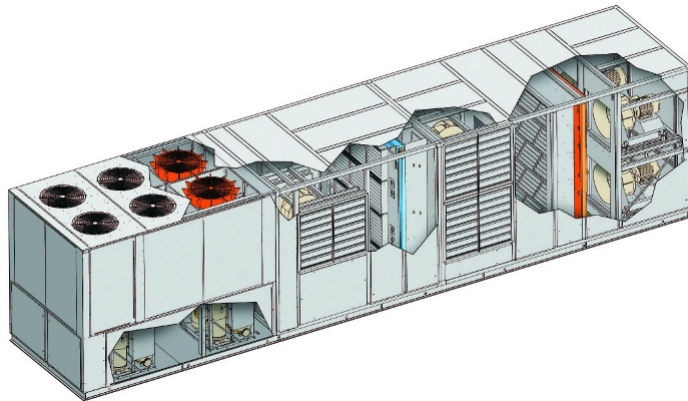


- * Custom Central Station AHUs: 1,000 cfm to 250,000 cfm (and above)
- * Many of the same features as Racan
- * Sidings & special finishes available
- * 4in, 4lb rigid mineral wool standard
- * Controls & pre-piped vestibules
- * Made in Kalamazoo, Michigan, USA

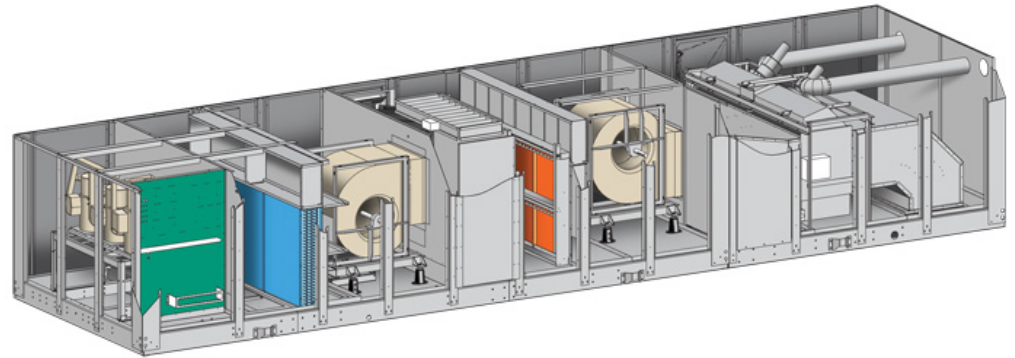


PoolPak International

PoolPak MPK Series



PoolPak Model SR



- * Over 25 years experience in dehumidification for indoor pools
- * Dehumidification through heat pump technology
- * Dehumidification through 100% OA
- * COP = 5
- * Average 40 to 60% savings over conventional OA dilution & 3 to 5 year payback
- * Prevents condensation from damaging interior of building
- * All units built using copper construction in critical areas & vital components located out of airstream
- * Insulated cabinet coated with corrosion-resistant epoxy

Weather Series		Gas & Electric (Tons)	Heat Pump (Tons)	Target Descriptor
 WeatherExpert™	 48/50N	75 – 150	-	Ultra High Performance/ Feature Life Cycle Cost
	 48/50LC	3 – 23	-	 CEE 
 WeatherMaster®	 48/50P	30 – 100	-	High Performance Payback / High Features
	 48/50HC-Q	3 – 25	3 – 10	 CEE  
 WeatherMaker®	 48/50A	20 – 60	-	Value Base Performance Base Features
	 48/50TC-Q	3 – 27.5	3 – 20	

SAV™ System Overview

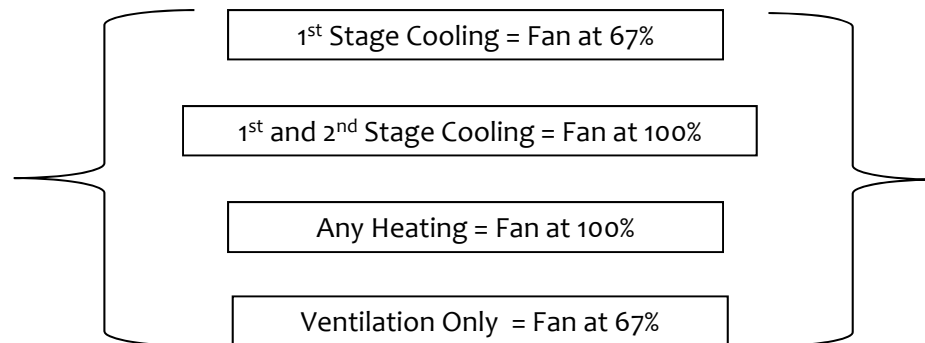
- * Standard and High Efficiency units
- * Electro-mechanical or Digital Controls
- * VFD: pre-configured and adjustable
- * ★ Adaptive Integrated Economizer Control:
 - * Prevents over/under ventilation

Industry Acronym	Definition	Application Need
VAV	Variable Air Volume	Typically multi-zone, large applied systems
SAV	Staged Air Volume	Single zone VAV, simple, saves energy!
CAV	Constant Air Volume	Traditional System

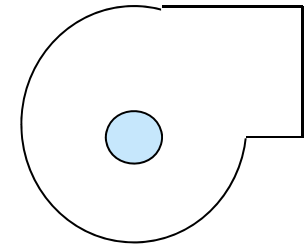
(VFD)
Speed Controller



Fan Automatically Adjusts To Unit
Operation Per New Standard



Indoor Fan Motor
Belt Drive 2 Speed



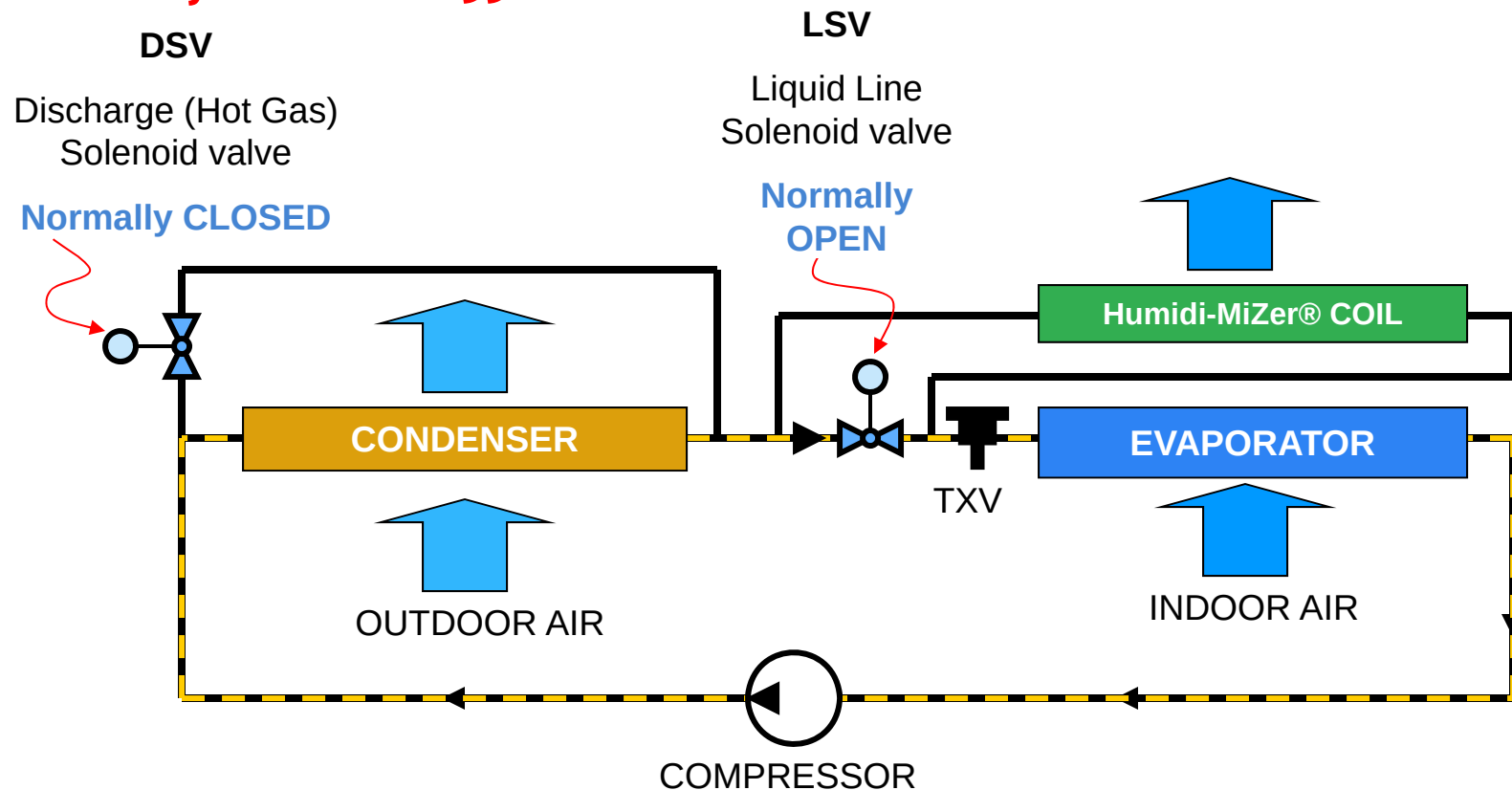
Humidi-MiZer® SYSTEM Adaptive Dehumidification

ROOFTOP TIER	CARRIER ROOFTOP PRODUCT LINE	
Payback	 WeatherExpert™	48/50 N-Series: 75 – 150 tons 48/50 LC: 3 to 23 tons
	 WeatherMaster®	48/50 P-Series: 30 – 100 tons 48/50 HC: 3 – 25 tons
Value	 WeatherMaker®	48/50 TC: 3 – 28 tons

Humidi-MiZer[®] SYSTEM Adaptive Dehumidification

Normal Mode = call for cooling only

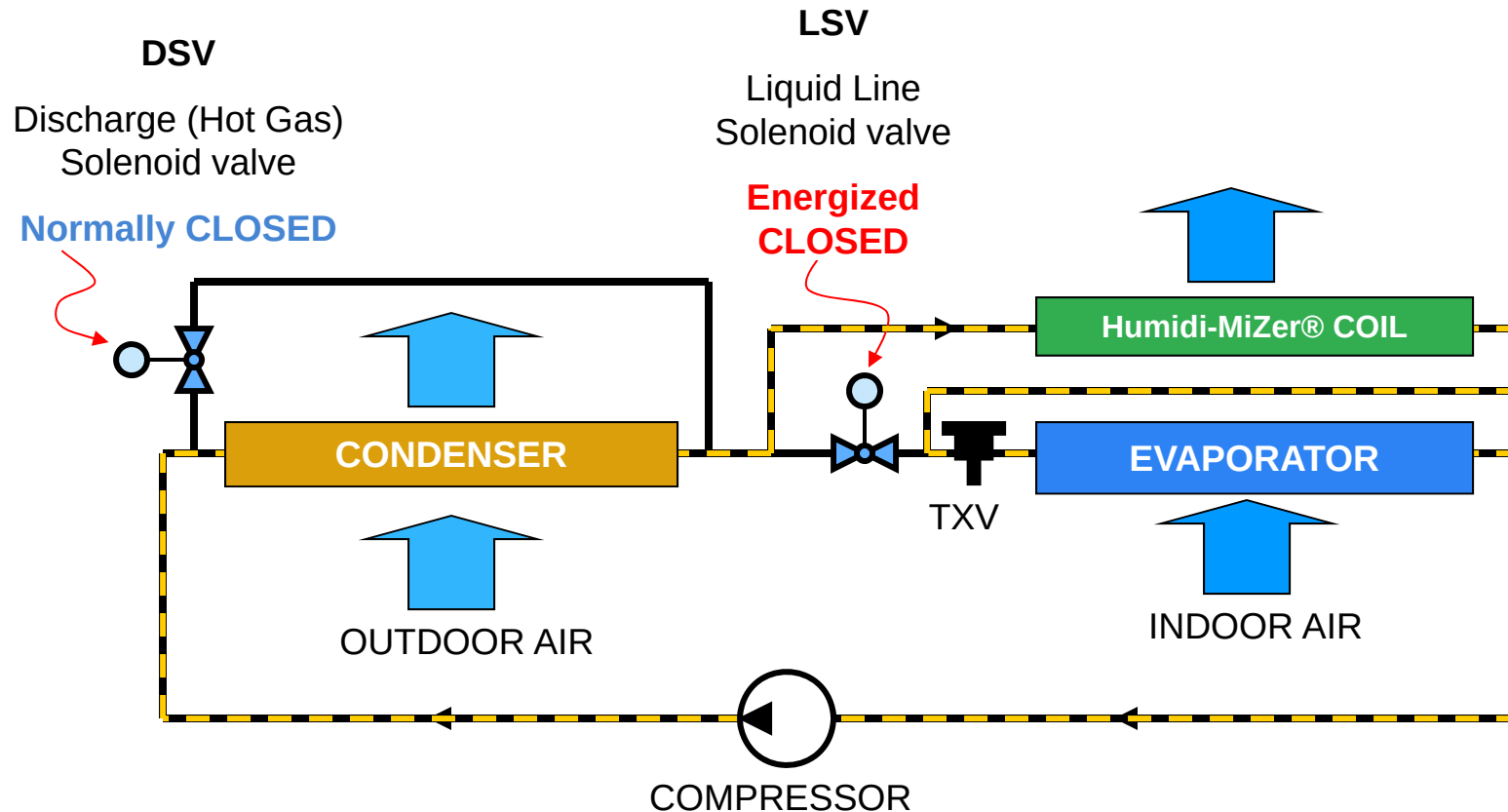
- Mostly sensible cooling, low latent capability desired
- System LAT ~ 55° F db



Humidi-MiZer[®] SYSTEM Adaptive Dehumidification

Sub-Cooling Mode = cooling and dehumidification call

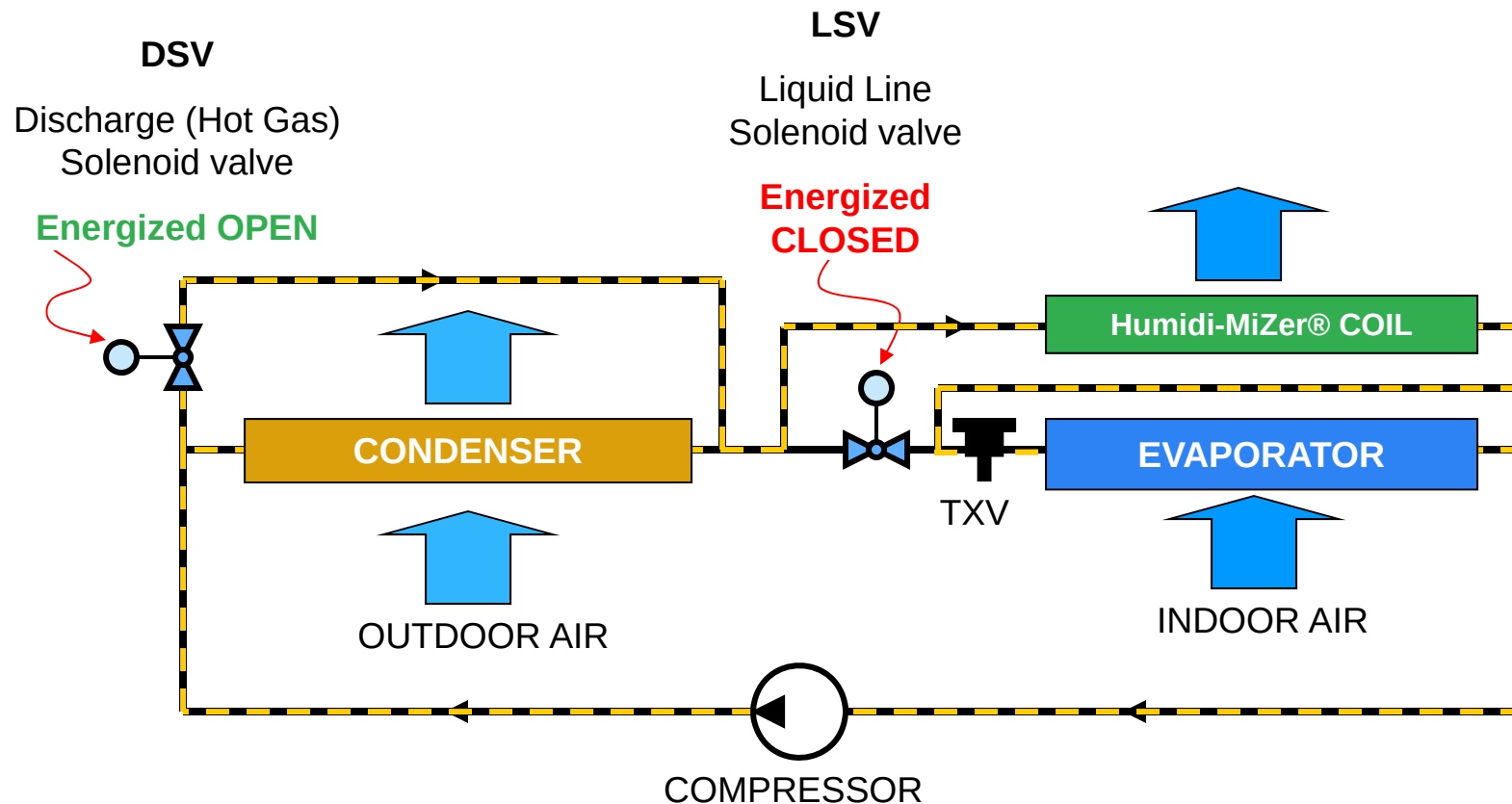
- More latent capacity and less sensible capacity
- System LAT ~ 60-65° F dB



Humidi-MiZer[®] SYSTEM Adaptive Dehumidification

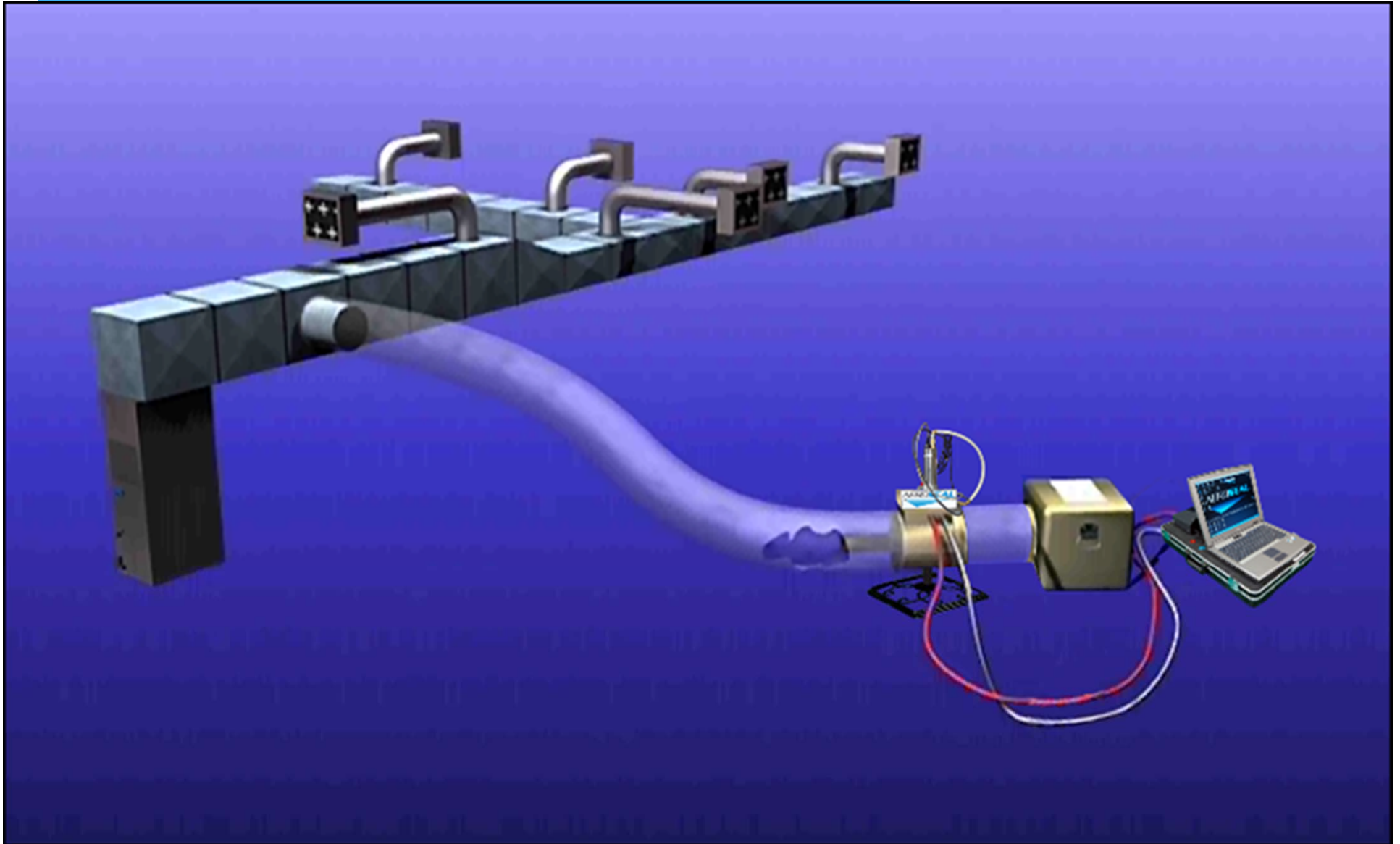
Hot Gas Reheat Mode = call for dehumidification only

- Up to 100% latent capacity
- System LAT ~ 70-75° F dB



Aeroseal

AEROSEAL[®]
Duct Sealing From The Inside



Aeroseal



1. **Light Commercial duct leakage is typically 30% or more⁽¹⁾**
2. **On average, 10-20% of air provided by supply fans does not reach the occupied space⁽²⁾**

Sources:

(1) Florida Solar Energy Center, California Energy Commission Studies

(2) Lawrence Berkeley Nat'l. Laboratory Studies



Aeroseal



1. **System leakage significantly increases building energy leakage⁽¹⁾**
2. **A leaking VAV system uses 20%-35% more fan energy than a tight system⁽²⁾**
3. **A fan exhaust system with 20% leakage causes fan power to increase 95%⁽²⁾**

Source:

(1) ASHRAE Handbook, Duct Design

**(2) ASHRAE SPC 215P: MOT to Determine
Leakage Airflows and Fractional Leakage of
Operating Air Handling Systems**



Aeroseal

AEROSEAL®
Duct Sealing From The Inside

Certificate of Completion

Duct Sealing Performed for:
Licking Heights W Elem Sup Sec B-1
1490 Climbing Fig Rd
Blacklick, OH 43004
(614)334-9000

Overall Sealing Results

When we arrived,
YOUR DUCTS HAD:

3317 CFM of Leakage, equivalent to a
124 Square Inch Hole

After we finished,
YOUR DUCTS HAVE:

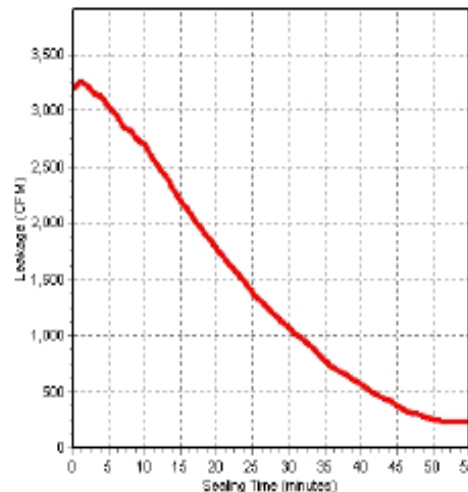
178 CFM of Leakage, equivalent to a
7 Square Inch Hole

This corresponds to a **95%**
Reduction in Duct Leakage

Note: Duct leakage results are calculated in cubic feet per minute (CFM) measured at your reported duct OPERATING PRESSURE of 375 Pa.

AEROSEAL®
Certified Duct Diagnostics & Sealing

Aerosol Sealing Profile



The flow capacity improvement for
this duct system was
314%
of fan flow based upon measured
leakage and operating pressure.

Aeroseal Technician: Tyler Smith
Aeroseal Equipment Serial #: 2153
Saturday, December 21, 2013

When we arrived
YOUR DUCTS HAD:
3,317 CFM of Leakage equivalent

After we finished
YOUR DUCTS HAVE
178 CFM of Leakage equivalent

This corresponds to a **95%**
Reduction in Duct Leakage

RenewAire ERV's



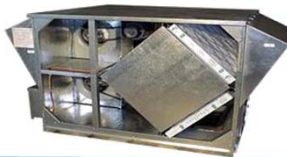
Residential and Small Commercial

- ◆ 5 models ◆ 100-500 CFM
- ◆ Built-in 24 volt transformer/relay package



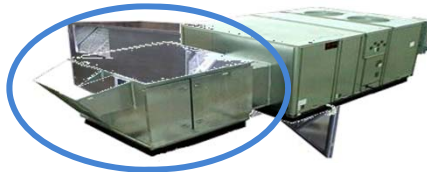
Indoor Commercial

- ◆ 11 models ◆ 250-7,950 CFM
- ◆ 1 or 3 phase multi-voltage
- ◆ 24/120/230 volt control



Outdoor Commercial

- ◆ 7 models ◆ 250-7,950 CFM
- ◆ 1 or 3 phase multi-voltage ◆ 24/120/230 volt control
- ◆ Available vertical or horizontal duct connections



RTEC – Roof Top End Connect

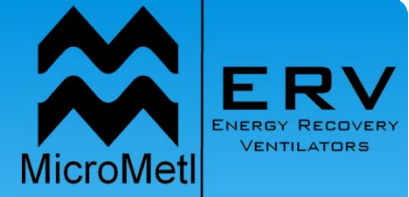
- ◆ 5 models ◆ 250-3,700 CFM
- ◆ 1 or 3 phase multi-voltage ◆ 24 volt control
- ◆ Available transition for various brand rooftop units

Applied Products

- ◆ “C” - Series (cabinet) ◆ 500-20,000 CFM
- ◆ “P” – Series (panelized) ◆ 1,500-unlimited CFM
- ◆ Requires blowers and manifolds by others



MicroMetl ERV



- * 200 - 30,000 CFM
- * 1-3yr energy payback
- * Total enthalpy wheel or fixed plate core (with Microban)
- * 2yr cabinet / 5yr wheel warranty
- * Stand-alone, ducted, combo-curb, or integrated
- * EzERV controls – airflow monitoring, self-balancing, open protocol



www.micrometl.com

Carrier Induction Beams



Description	36IBAC – All Way Discharge	36IBAN – 1-way Narrow	36IBAS – 1-way Square
Size (ft)	2 x 2 4 x 4	1 x 4 2 x 4	2 x 2
System Types	2-Pipe Or 4-Pipe		
Cooling Capacity (Btu/hr)	12,000 to 48,000	2,000 to 16,000	1,200 to 8,100
Ventilation Air (CFM)	185 to 450	25 to 200	39 to 100
Total Air (CFM)	500 to 1215	100 to 550	115 to 250

- Sensible and latent capability – 2" Drain Pan
- Great energy savings when used with series counterflow 23XRV chillers



Carrier Controls

- * I-Vu Full building automation system
- * Controls can be installed by any contractor in the marketplace
- * Parts and support are available locally
- * Controls are “plug and play”
- * “Parts and Smarts” installation save on average 20-30% over the industry leaders
- * www.open.ivudemo.com user: demouser, no pass

Details

State-of-the-Art Graphics

i-Vu's superb floor plan graphics display the status of multiple zones from a single view. Dynamic color ovals are provided as a standard means for providing a visual representation of the comfort level in each zone. Temperature values, zone names, and links to zones are automatically created for ease of navigation. In addition, i-Vu's animated, interactive, and intuitive equipment graphics are just part of the package. Adjust setpoints via editable fields and graphical controls directly on the graphic. Real-time status values are updated regularly without having to refresh the page.

Flexible Scheduling

i-Vu's superior scheduling interface is both graphical and hierarchical in nature. Define or view occupied, unoccupied, holiday, or override schedules by simply pointing and clicking on an area or piece of equipment in the navigation tree. Schedule groups can be defined for added flexibility.

Alarm Management

i-Vu's powerful alarming capabilities allow you to see alarm events in your entire system from a single screen. View, acknowledge, print, or delete alarms with ease. Send an e-mail, print, play an audio file, or pop-up a message when an alarm occurs. Alarms are easily sorted by date, type, or incident, allowing you to respond quickly to critical alarms while filtering out nuisance alarms.

Historical Trending

i-Vu's automatic trending capabilities mean that a history of your equipment's operation is being saved automatically without any special setup. Trends can be easily configured to sample at different intervals or on change of value. Generate trend graphs for individual points, or view multiple points on one graph. Copy trend data from the graph and paste it into Excel. With i-Vu's extensive trend capabilities, troubleshooting your system has never been easier.

Integration

i-Vu's seamless integration capabilities allow you to tie in ancillary devices that compliment your Carrier system. i-Vu supports the most popular open protocols in use today... BACnet, Modbus, and LonWorks. So whether you need to integrate to the systems that you already have in place, or the systems that you'll acquire in the future, you'll be able to manage all of them through i-Vu.

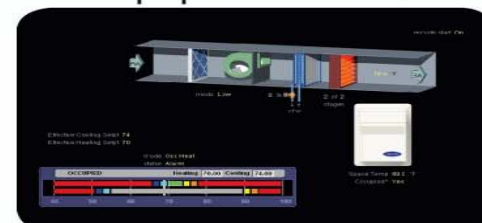
Tenant Billing

Built-in tenant billing reports allow you to monitor, store, and bill tenants for after-hours energy consumption. This after-hours energy consumption is based on override events that can be initiated by the tenant inside of their controlled space. Each override event is captured by the Tenant Billing application, allowing the building owner to invoice the tenant for their energy usage during that time period. As a result, after-hours energy costs are easily tracked and distributed to the tenants in your facility.

Floor Plan Views



Equipment Views



Historical Trending



Integration

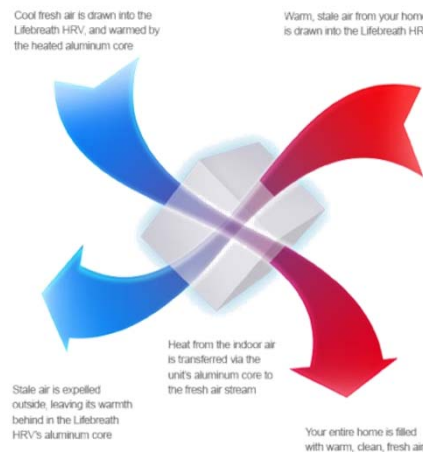


Carrier Residential

- * TEC has more stock than anyone else in Chicago
- * Ultra high efficient residential furnaces and fan coils with ECM Motors
- * Ultra high efficient residential split systems and heat pumps
- * Duct Free split systems – Carrier / Panasonic
- * Residential zoning controls

Lifebreath

- * 95 – 2500 CFM
- * HRV and ERV
- * Pool Units
- * Clean Air Furnaces (DX w/ Hydronic or Electric Htg)
- * “Model TFP” Air Cleaners w/ HEPA



www.lifebreath.com



Honeywell

Honeywell

- * Whole House Air Quality
 - * Air Purifiers
 - * Filtration
 - * Steam Humidification
 - * Return-duct Dehumidification
 - * HRV
 - * Alarms/Detectors
 - * UV Treatment
- * Commercial
 - * CO₂ Sensors for DCV



<http://customer.honeywell.com>

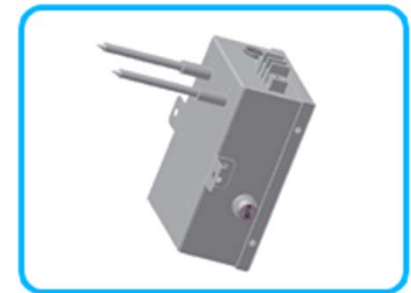
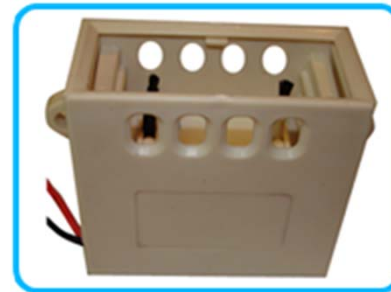


Global Plasma Solutions

Global Plasma Solutions

What it does...

- * Neutralizes VOC's
- * Increases Filter Efficiency
- * Kills microbes on surfaces



How it works...

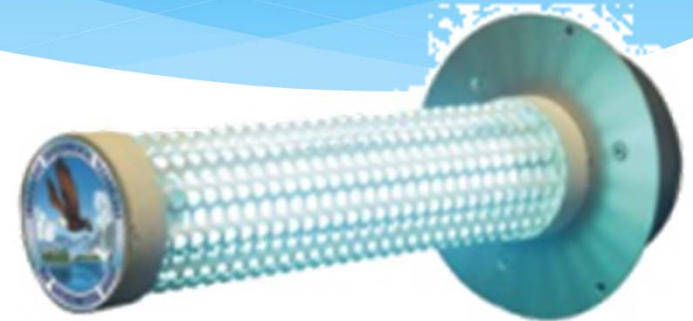
- * Uses bi-polar ionization to create a plasma field used to split molecules
- * The molecules are reformed to harmless water, nitrogen, and oxygen molecules
- * Reduces static electricity



RGF Guardian Air

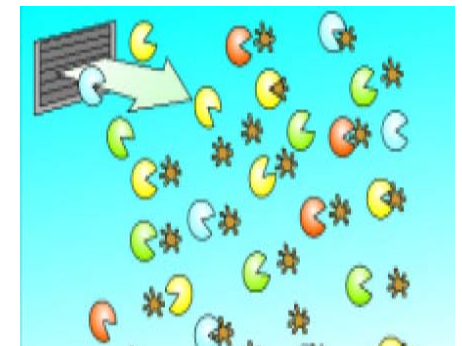
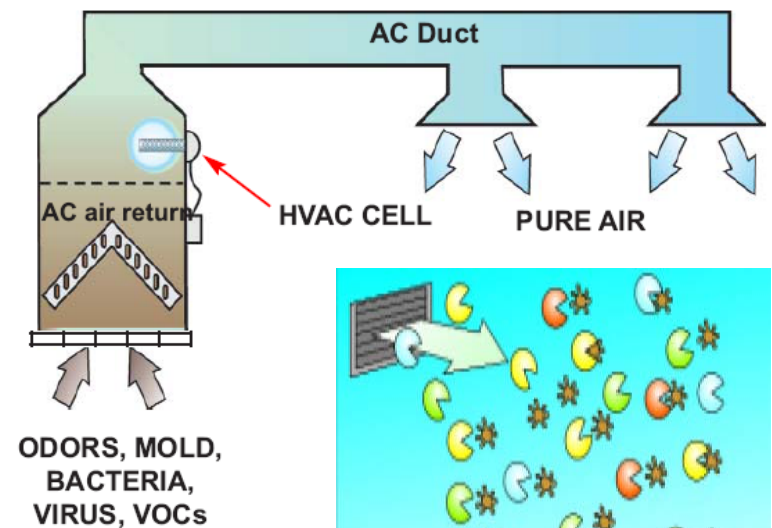
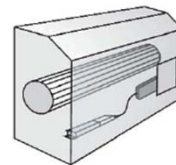
PHI-Cell

- * Designed to reduce odor, air pollutants, smoke, mold, bacteria and viruses from air
- * Utilizes PHI-Cell technology to clean air on supply side



Applications:

Homes, Schools, Restaurants, Salons, Vet Clinics, Hospitals, Assisted Living Facilities, Fitness Gym, Ice Machine, etc.



Secure Aire



- * Proven to reduce airborne infections in hospitals
- * Captures and Kills bacteria, viruses, fungi, etc.
 - * 99.9% kill rate of toughest germs*
- * Can be installed in Carrier, RACAN, XeteX, or other AHUs
- * MERV 13 & MERV 15 available with low pressure drop reduces energy consumption

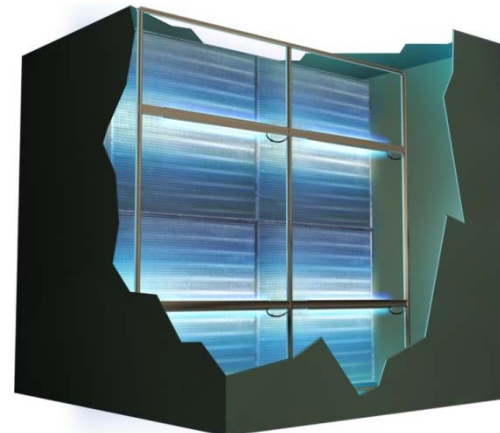


*3rd party tested by CDC, Univ. of Colorado, LMS, SBR, and RTI

APCO

NEXT GENERATION **PCO** TECHNOLOGY
APCO
FRESH-AIRE UV[®]

- * UV Lights
- * APCO
- * Commercial



Aprilaire

Aprilaire®

- * Bypass and fan powered humidifiers
- * Dehumidifiers
- * Media/electronic Filters



Carel USA

CAREL USA

Commercial Humidification

- * Adiabatic
- * Isothermic
- * Atomizing

Applications:

- * Printing
- * Woodworking
- * Cleaning Rooms & Static Cntrl
- * Textiles
- * Museums & Libraries
- * Offices & Schools
- * Hospitals
- * Wine Industry

www.carelusa.com



Sterling HVAC

- * Indoor and Outdoor Make-up Air Units
 - * DX cooling available with Carrier ACCU
- * Air Handlers
- * Unit Heaters
 - * Commercial Gas
 - * Residential Garage
 - * Steam/Hot Water
- * Indoor and Outdoor Gas Fired Duct Furnaces



Weather-Rite

Weather-Rite™

- * 100% make-up air, 80/20, and air turnover units
- * Direct & Indirect Fired
- * 20,000 to 9 MBTUh
- * 1,000 to 100,000 CFM
- * Indoor & Outdoor Units
- * Evaporative, DX, CW cooling
- * Standard and semi-custom
- * Food grade units
- * Standard ANSI compliant (FM & IRI options)



www.weather-rite.com

XeteX DOAS

- * Custom indoor or outdoor dedicated outside air units
 - * 500 to 100,000 CFM
- * AIRotor total enthalpy wheel or fixed plate core
- * Integrated air-cooled condensing units up to 200 tons
 - * Air-cooled heat pump
 - * Geothermal
- * Direct fired up to 3 MBTUh
- * Indirect fired up to 4 MBTUh
- * Dehumidification
- * Pool units

www.xetexinc.com



Calcana



Low Intensity Infrared Gas Fired Tube Heaters

Up to 33% less fuel energy than unit heaters

- * Commercial
 - * Warehouses, Docking Bay
- * Residential
 - * Garages, Workshops, Barns
- * Restaurant
 - * Patio areas, Open Air Restaurants
Tents



www.calcana.com

National Comfort Products

- * Gas/Electric through-the-wall packaged units
 - * Matches Magic Pak HWC wall opening
 - * Better service features
- * Through-the-wall Condensers
 - * Three sizes to match any wall opening



AeroSys

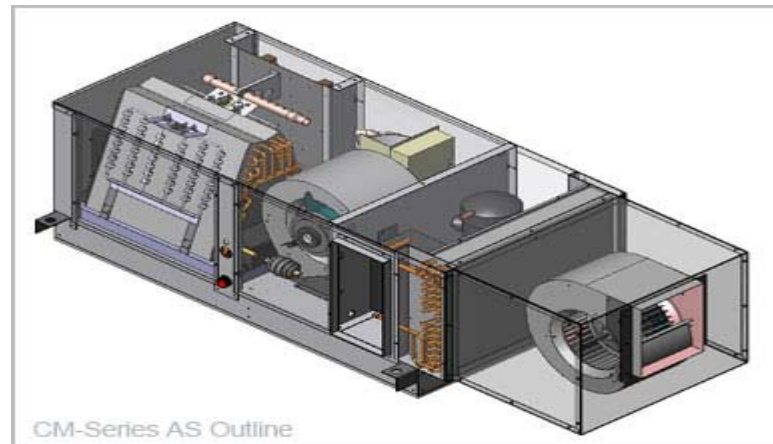


AeroPak

- * Direct Replacement to: Armstrong (Magic-Pak)
- * Adapter for Skypak
- * Modular Design to allow equipment to be upgraded without the cost of complete equipment replacement

Ceiling Mate

- 1 to 5 tons
- Self contained
- Remote condenser
- Water/Glycol cooled
- Chilled water



Magic Air Self-Contained Unit Ventilators

- * Removable Top
- * Double Sloped Drain Pan Improved IAQ
- * 2" Deep Filter Option on Vert Unit
- * Improved Outdoor/Return Air Damper
- * DX Coils Rated for 410A w/ Factory & optional Modulating HGRH
- * Optional Insulated OA/RA Damper section
- * ECM Motor Option
- * Electric Heat in RH Position only
- * Packaged cooling / Heating units
- * Variable speed compression & quieter
- * AHRI 840 & 310/380 Certified

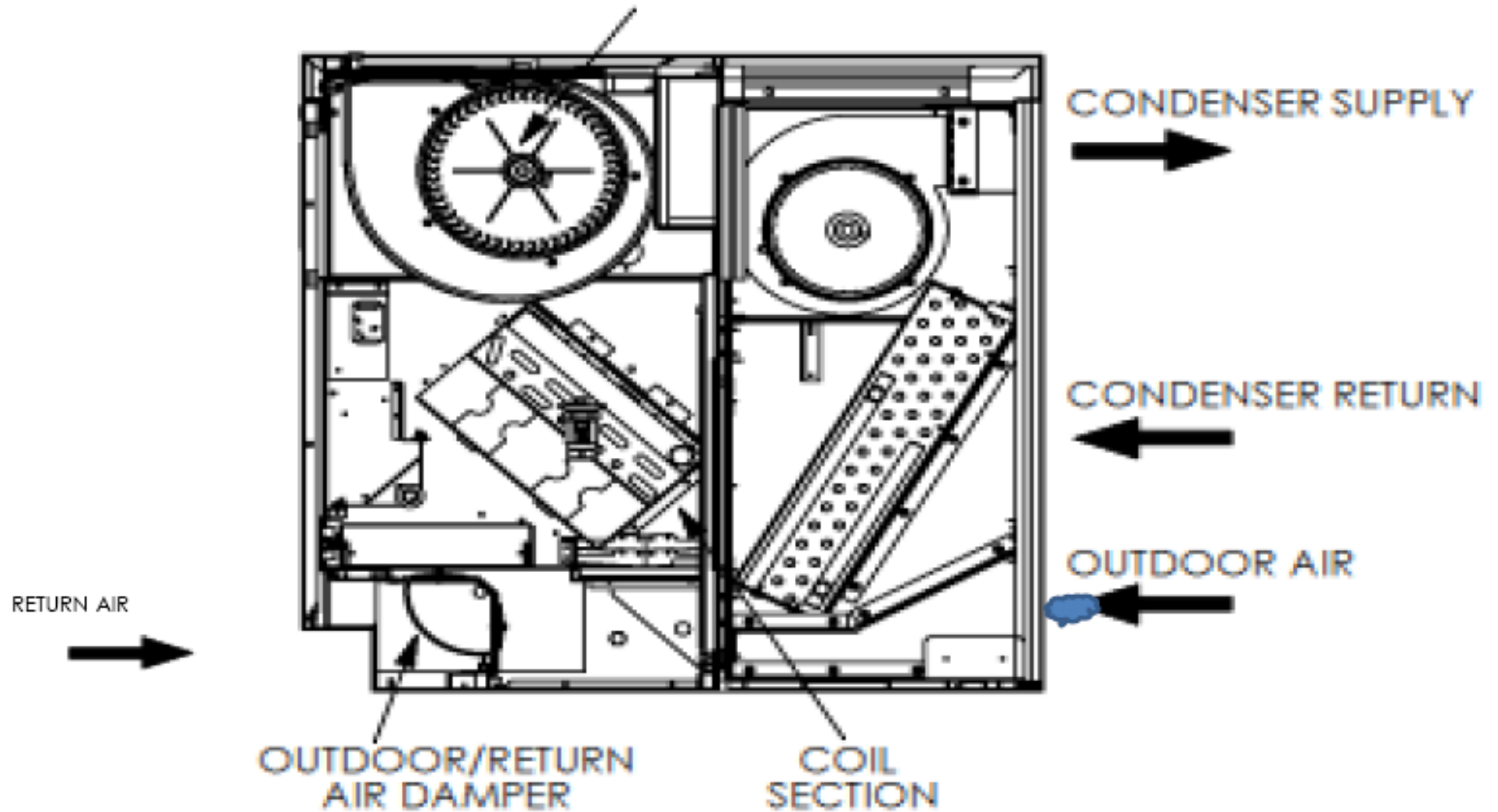




Magic Aire Model MASCB – Airflow

Draw Thru Design

BLOWER SECTION



Venstar Thermostats

- * 3rd largest stat manufacturer in the world
- * Programmable relay, humidity control, phone module, handheld IR remote
- * Programming tool (copy stat function)
- * Wireless stats and sensors



www.venstar.com





Honeywell Generators



FRIGIDAIRE®

Frigidaire

- * Duct Free Splits
- * PTACs
- * Room Air Conditioners
- * TTW Units



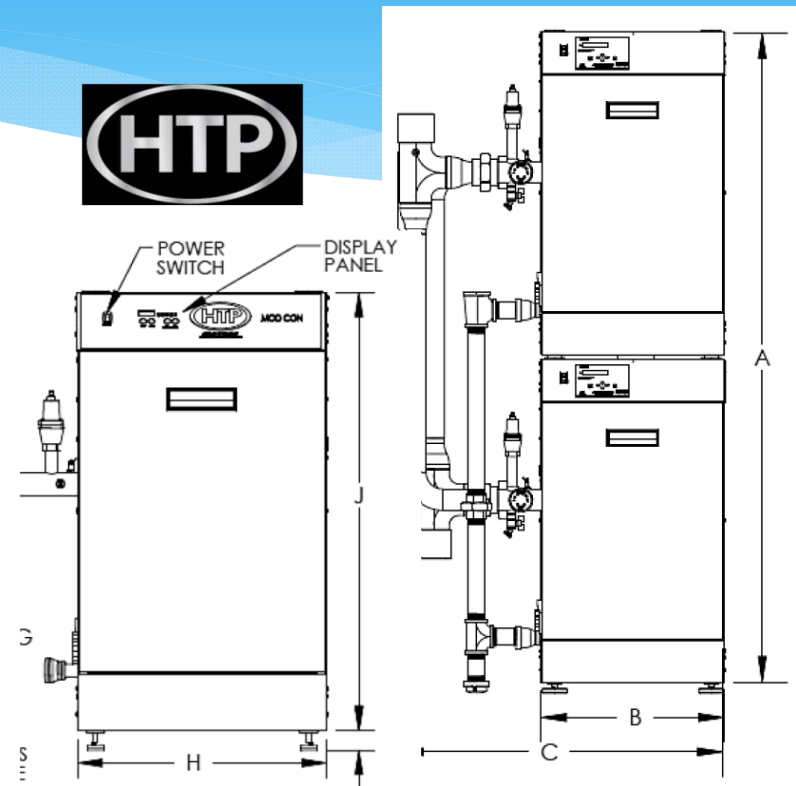
Honeywell

- * Wireless Controls
- * VFDs from ¼ hp to 400 hp
- * Remote Temperature Controllers
- * Thermostats & Zoning
- * HD Thermostat
- * Economizers
- * CO2 Sensors for DCV
- * Electronic Combustion Controls
- * Actuators and Motors
- * Sensors and Timers
- * Pneumatics
- * Hydronics Accessories
- * Contractor PRO Program



Hydronics And Boilers

- * Rehau Radiant products
- * Grundfos, B&G, and Paco Circulating Pumps
- * HTP condensing boilers (50 to 1700 MBH)
- * Bosch / Buderus condensing boilers (Up to 5 Million Btu/h)
- * Bradford white water heaters and storage tanks
- * Utica cast iron hot water boilers
- * Sterling Unit Heaters



Buderus

Buderus



Buderus

Buderus



Buderus

Buderus



Bradford White

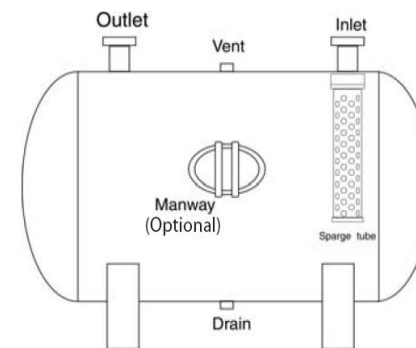
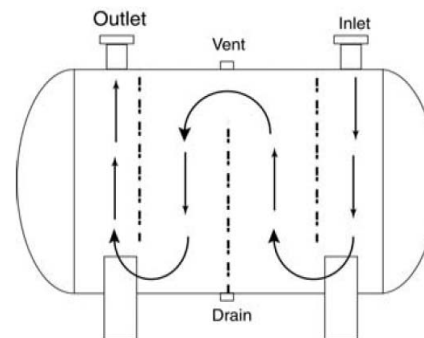
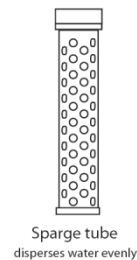
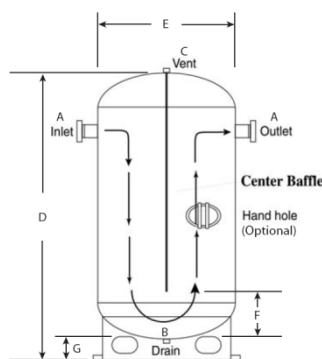
Bradford White Goes To Market With Key Advantages:

- * A dedicated, hard working, experienced workforce who takes pride in the quality of the product they build.
- * Ranked “Highest In Subcontractor Satisfaction Among Water Heater/Boiler Manufacturers”
- * Proudly Made in Middleville, Michigan USA!



Bradford White & Niles Steel Tank

- * Water Heaters
 - * Residential and Commercial
 - * Gas, LP, or Electric
 - * Icon controls & accessories
- * Chilled Water Storage Buffer Tanks 40 to 1040 gallon
- * Other Larger vessels ASME tested and certified



Utica Boilers



SSC Modulating/Condensing 95/94% AFUE

- * Built-In Primary/Secondary Piping
- * Built-In Low Water Cut Off
- * 5:1 Turn Down Ratio
- * Approved for PVC, CPVC and Polypropylene venting
- * Original Heat Exchanger
 - * Low Maintenance, Self-Cleaning
 - * Designed in the US, for the US
 - * 150 psi MAWP

UB90 & UB95 Condensing

- * UB 90's 50 to 200 MBH, 90% AFUE
- * UB95 200 MBH, 92.5% AFUE, modulating, integral OA reset
- * Aluminum block heat exchanger

Cast Iron, 50 to 3000 MBH, water/steam

- * MGB / MGC water , PEG steam – atmospheric
- * DV/ USC – direct vent
- * JD – light commercial modular base

www.utica boilers.com





Bosch

Gas Tankless Commercial & Residential

- * Up to 98% thermal efficiency
- * Up to 225,000 BTU maximum input
- * Minimum activation flow rate of 0.5 gallons per minute
- * Electronic ignition and patented burner design
- * Exclusive safety and precision controls
- * Built in freeze protection
- * Direct vent, vertically or horizontally with PVC, CPVC or ABS-DWV
- * Concentric and twin pipe venting options
- * Built for durability and serviceability with 15-year warranty and 20+ year life expectancy



Electric Tankless Commercial & Residential

- * 99% efficient with minimal stand-by loss
- * Ultra compact and lightweight, saving valuable space
- * Copper heat exchanger with copper-sheathed heating elements
- * Units can be mounted horizontally or vertically (except model US12)
- * No temperature / pressure relief valve is necessary (check local codes)
- * 5-year limited warranty
- * Commercial tenant improvements (i.e.: office suite with a sink or an attached bathroom)
- * Garage apartments
- * In-law suites



Bosch



GreenStar Gas-Fired Residential Condensing Boilers

- * Aluminum-Silicon heat exchanger delivers high efficiency – 95% AFUE
- * Low NOx emissions ahead of 2012 SCAQMD regulations
- * Simple, intelligent control options optimize efficiency and fuel consumption
- * Low electrical consumption when the boiler is in standby mode
- * Electronic ignition
- * Anti-cycle and modulation control
- * Limited lifetime heat exchanger and 5-year parts & labor warranty
- * Special insulation ensures ultra-quiet operation
- * Compact dimensions and built-in frost protection offer flexibility for location of installation
- * ECO mode for energy saving fuel consumption
- * Exclusive safety feature - keypad safety lock prevents unwanted tampering with heating controls



Utica Boilers



- * SSC Modulating/Condensing
 - * 50 to 200 MBH, 96% AFUE
 - * Condensing, modulating 5:1 turndown
 - * Stainless steel heat exchanger
 - * Integral OA reset and DHW controls
 - * Built-in Primary/Secondary piping
 - * Built-in Low-water cut-out
- * ECR 97gb Modulating/Condensing
 - * Branded ECR (Utica's parent company)
 - * All features of SSC plus 97% AFUE and floor mounting option
- * UB90 & UB95 Condensing
 - * 50 to 200 MBH, 90% AFUE
 - * 200 MBH, 95% AFUE, modulating, integral OA reset
 - * Aluminum block heat exchanger
- * Cast Iron, 50 to 3000 MBH, water/steam
 - * MGB, PEG – atmospheric
 - * DV/ USC – direct vent
 - * JD – light commercial

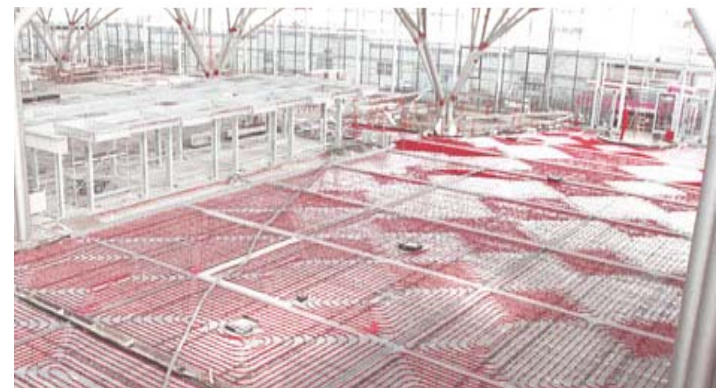


www.utica boilers.com

REHAU



- * PEX Tubing
 - * PEX-A 3/8" thru 2"
 - * Radiant floor heating
 - * Snow melt systems
 - * Radiant cooling
 - * INSULPEX - pre-insulated PEX for heat transfer (hot or chilled water)
- * Accessories
 - * Manifolds
 - * Color coded valves
 - * Available with balancing valves and flow meters
 - * Compatible with 3/8", 1/2", 5/8", & 3/4"
 - * EVERLOC fittings, RAUPanel, RAUPLATE
- * ECOAIR earth tubes
- * RAUGEO geothermal pipe



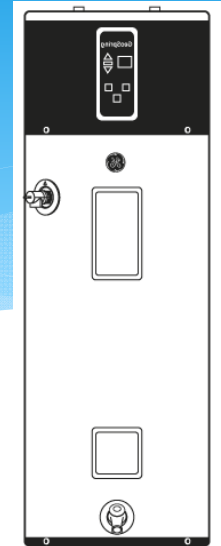
www.rehau-na.com

General Electric



GeoSpring™ Hybrid Water Heater

- * Saves \$325 every year* in water heating expenses
- * Uses up to 62% less energy than a standard electric 50-gallon water heater
- * Proudly assembled in Louisville, KY
- * Provides the same hot water recovery as a traditional 50-gallon standard electric water heater with 65 gallons first hour rating
- * Installs like a standard electric water heater with the same water and electrical connections
- * Limited 10 year warranty provides peace of mind and dependability
- * ENERGY STAR® qualified – exceeds federal guidelines for energy efficiency and provides year-round energy and money savings
- * Offers remote functionality to control modes and temperatures when connected to a GE Nucleus™ energy manager
- * * Based on DOE test procedure and comparison of a 50-gallon standard electric tank water heater using 4879 kWh per year vs. the GeoSpring hybrid water heater using 1830 kWh per year.



Heliodyne Solar Thermal

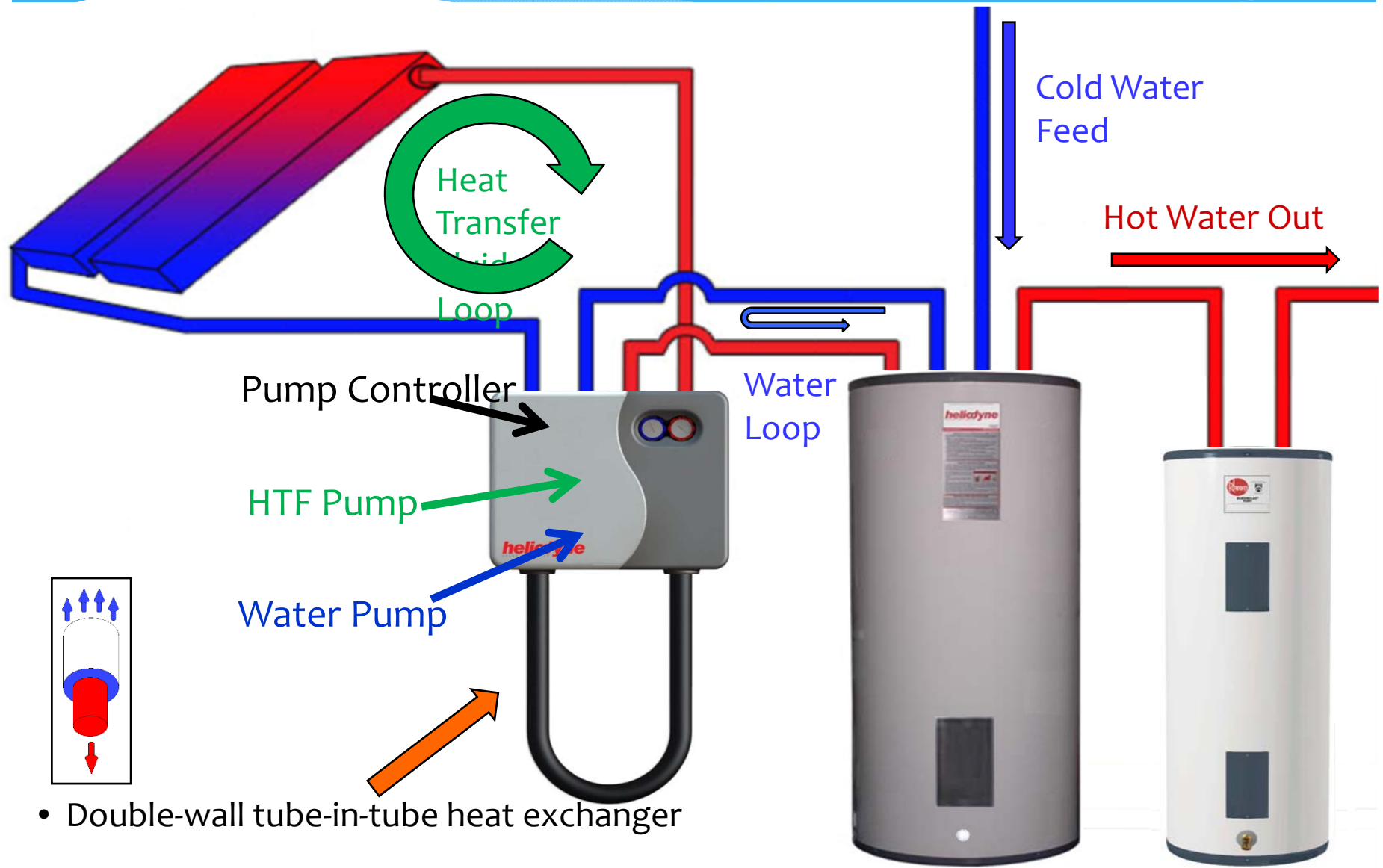
Residential / Light Commercial
Application



Commercial Application

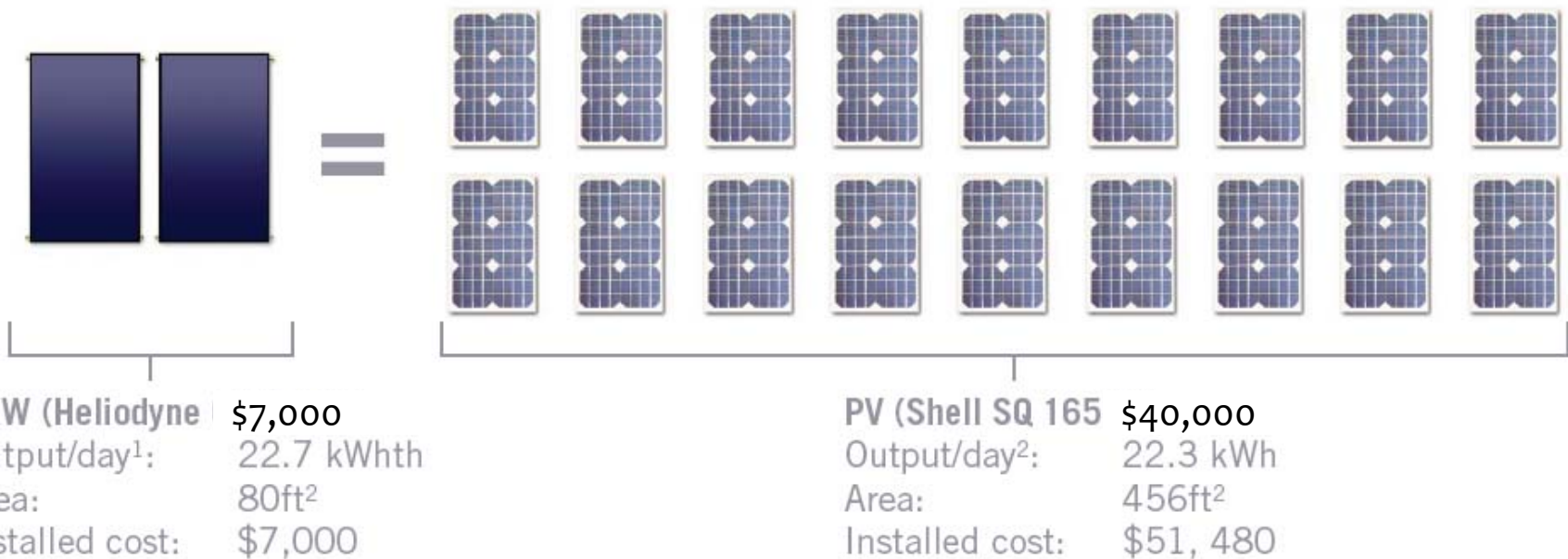


Heliodyne Schematic



About Solar Hot Water

- * Solar Hot Water systems are by far the most cost-efficient use of solar energy
- * A typical residential SHW systems costs a fifth of a residential PV system
- * SHW collectors take up far less roof space than PV panels

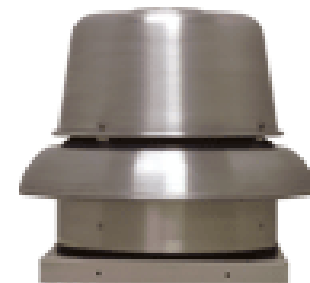
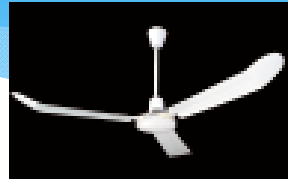


1. Peak output based on SRCC Category C Clear Sky for SHW (Equivalent kWh derived using 3,414 Btu/kWh)

2. Manufacturer's spec sheet for PV at standard test conditions (5.28kW array rating x 5.8 peak sun-hrs/day)

* Commercial Fans

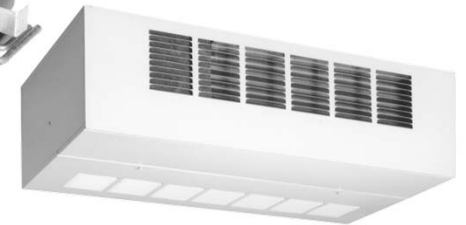
- * Exhaust Fans
- * Utility Fans
- * Ventilating Fans
- * Kitchen Exhaust
- * Inline Fans
- * Air Circulators



First Company



- * Belt Drive Air Handlers
 - * Double wall option
 - * 400 - 12,000 CFM
 - * Hydronic/DX coils
 - * Electric heat option
- * Thru the wall condensing units
 - * 1.5, 2, 2.5 tons, R-22 and R-410a
 - * Architectural louver grilles available
- * Fan Coils
 - * Hydronic, DX, Heat Pump
 - * Stacked vertical for high rise
- * Water Source Heat Pumps (WSHP)
- * Many specialty niche units



www.firstco.com

Toshiba Carrier Mini Splits

- * Single zone up to 5 tons
- * -20 degrees low ambient cooling with some models
- * Multi Zone up to five zones
- * High Wall up to 3 tons
- * Cassette up to 3.5 tons
- * Ducted: 9 – 24k (late 2013)
- * Up to 23 SEER
- * Mix and Match Fan Coils



Panasonic

Panasonic

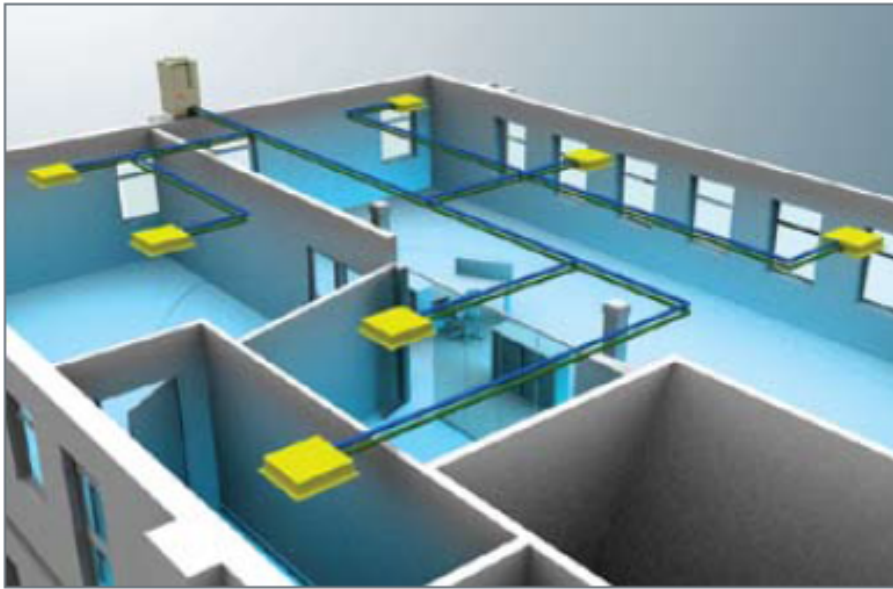
- * Duct Free System (DFS)
 - * Cooling only
 - * Low ambient to 0F
 - * Heat pump
- * Single Zone
- * Multi Zone (up to 4 zones)
- * Hi-wall Units
- * Ceiling Cassette
- * Ducted Units
- * 7 Yr Compressor Parts Warranty
- * 5 Yr Complete Unit Parts Warranty
- * 1 Yr Parts on Controller



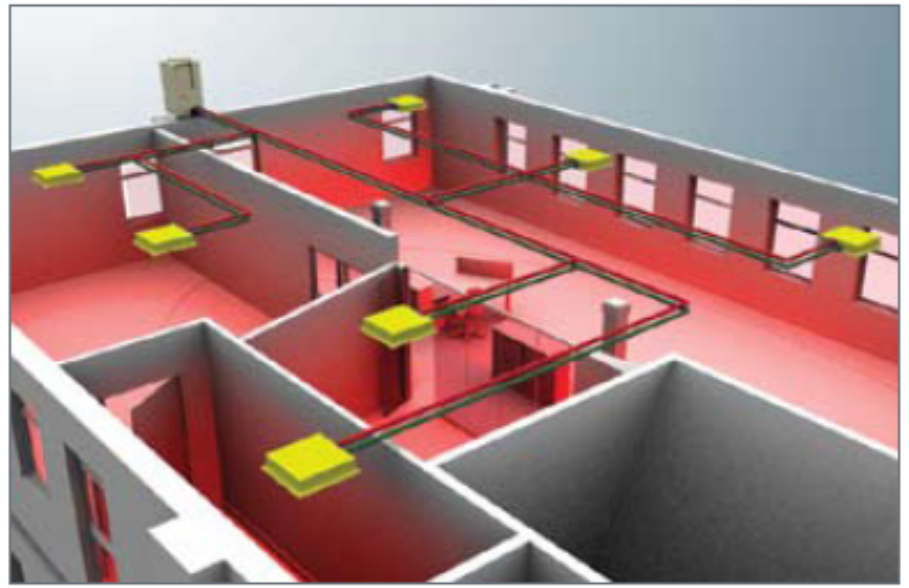
www.us.sanyo.com/hvac

Heat Pump VRF

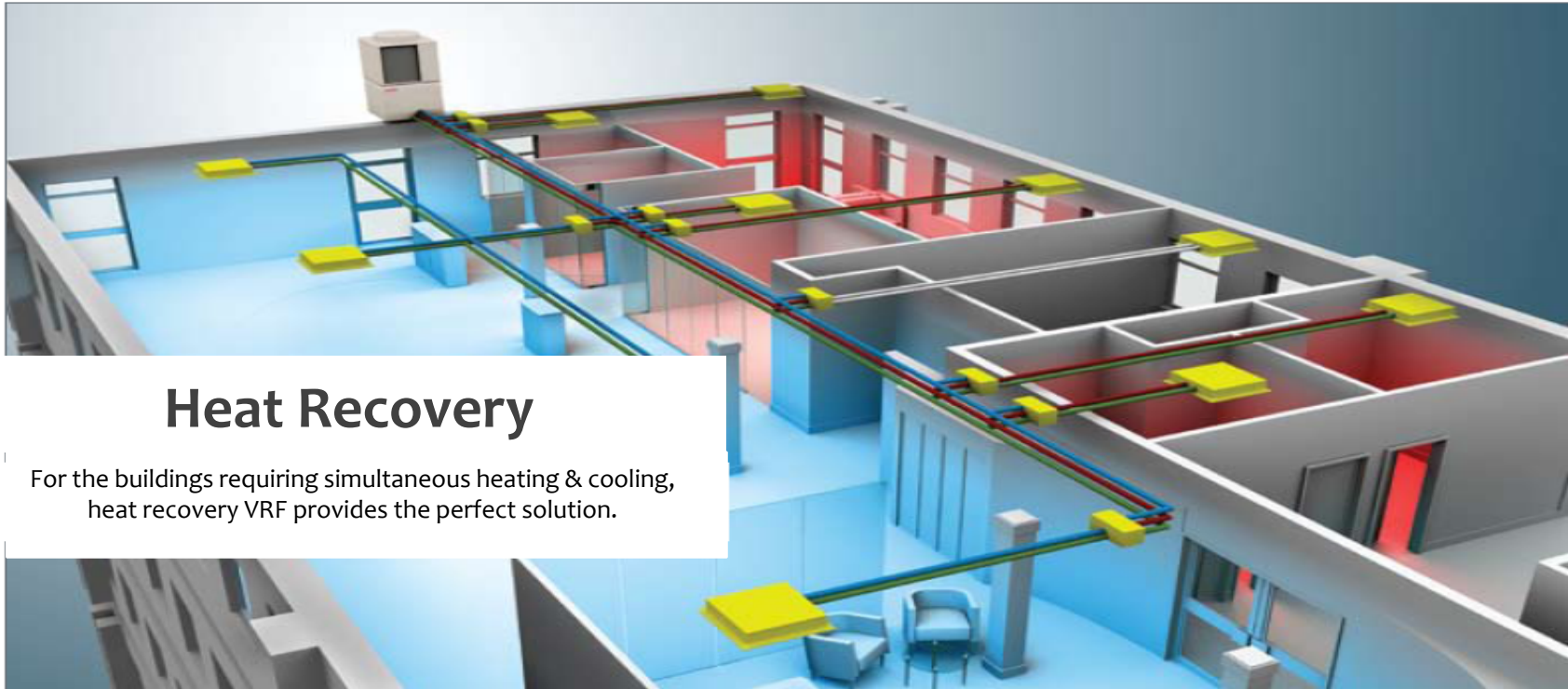
■ Cooling



■ Heating



Heat Recovery VRF



Heat Recovery

For the buildings requiring simultaneous heating & cooling, heat recovery VRF provides the perfect solution.

Toshiba Carrier VRF

Heat Pump and Heat Recovery

- * 7 Fan Coil Types
- * 41 Unique Models
- * 7k - 48k BTU (model dependent)
- * Easy Carrier controls integration



6, 8, 10-ton



12, 14, 16, 20-ton



Panasonic

Panasonic ECO-i



- * Variable Refrigerant Flow (VRF) Systems
- * Up to 40 indoor units on single/dual condensing unit
- * ECOi 2-way heat pump system and ECOi 3-way recovery system
- * Very high heating COP
- * Individual zone control
- * Improved humidity control
- * Lower initial cost than 4-pipe fan coil

www.us.sanyo.com/hvac



Multiagua



Air-cooled Chillers

- * 3, 4, and 5 ton w/ integral pump
- * 2-stage 10 ton
- * 480v/3p, 208/230v/1ph or 3p
- * Bankable for larger tonnage
- * R-407C (R-22 *also available in stock*)
- * Copeland scrolls
- * Optional low ambient to -20F

Hydronic and DX fan coils

- * Ceiling concealed
- * High wall
- * Universal mount
- * Air Handlers



Comfort-Aire



- * Packaged Terminal A/C (PTAC)
 - * Cooling only & heat pump
 - * Random restart, setpoint limiting, room freeze protection
 - * Wall stat option
 - * Front desk control
 - * Volume project pricing
- * Room Air Conditioners also available

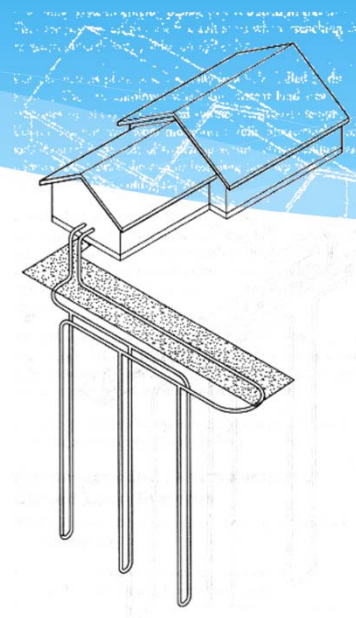


www.heatcontroller.com

Geothermal Heat Pumps

Residential Heat Pumps

- * 2-6 Tons
- * Water to Water
- * Water to Air
- * Packaged (horz. or vert.), Split
- * Single or 2 stage
- * R-410a
- * ECM Motors
- * Hot Water Generation
- * Design Software



www.bryantgeo.com

www.carriergeo.com

Grundfos Pump Systems

- * UP/UPS Wet Rotor
 - * Small residential up to 270 gpm
 - * Most multi speed
 - * Maintenance free
 - * Cast iron, bronze, and stainless options
- * TP, LM/LP
 - * In line direct and close coupled
 - * Up to 600 gpm
 - * Boilers, chilled water, cooling towers, other industrial applications
- * CR
 - * Pressure boosting
 - * Boiler and chiller systems; steam condensate
 - * Industrial fluid transfer
 - * Up to 790 gpm; 350 psi
- * E Solutions
 - * Self contained variable speed versions of TP and CR
- * ECM Technology
 - * Alpha, Magna, Magna 3
 - * Self contained variable speed with ECM motors
 - * Magna 3
 - * Multiple control modes including AutoAdapt
 - * Up to 570 gpm
 - * Radio controlled



EnviroSep

EnviroSep
FLUID & HEAT RECOVERY SYSTEMS

- * Modular Chiller and Hot Water Plants
- * Commercial HVAC Pumping
- * Industrial Process
- * Domestic Water Boosting
- * Wastewater Heat Recovery
- * Custom Solutions



www.envirosep.com

Aermec Integral Free Cooling Chillers

- * Air Cooled and Water Cooled
- * Sizes up to 265 Tons
- * Heat Pump Option
- * Integral Free Cooling
- * Less than 36" Wide
- * Energy savings reports can be provided from the manufacturer
- * www.aermec.com/us-en





TEC

Questions?

Thank you for your time!