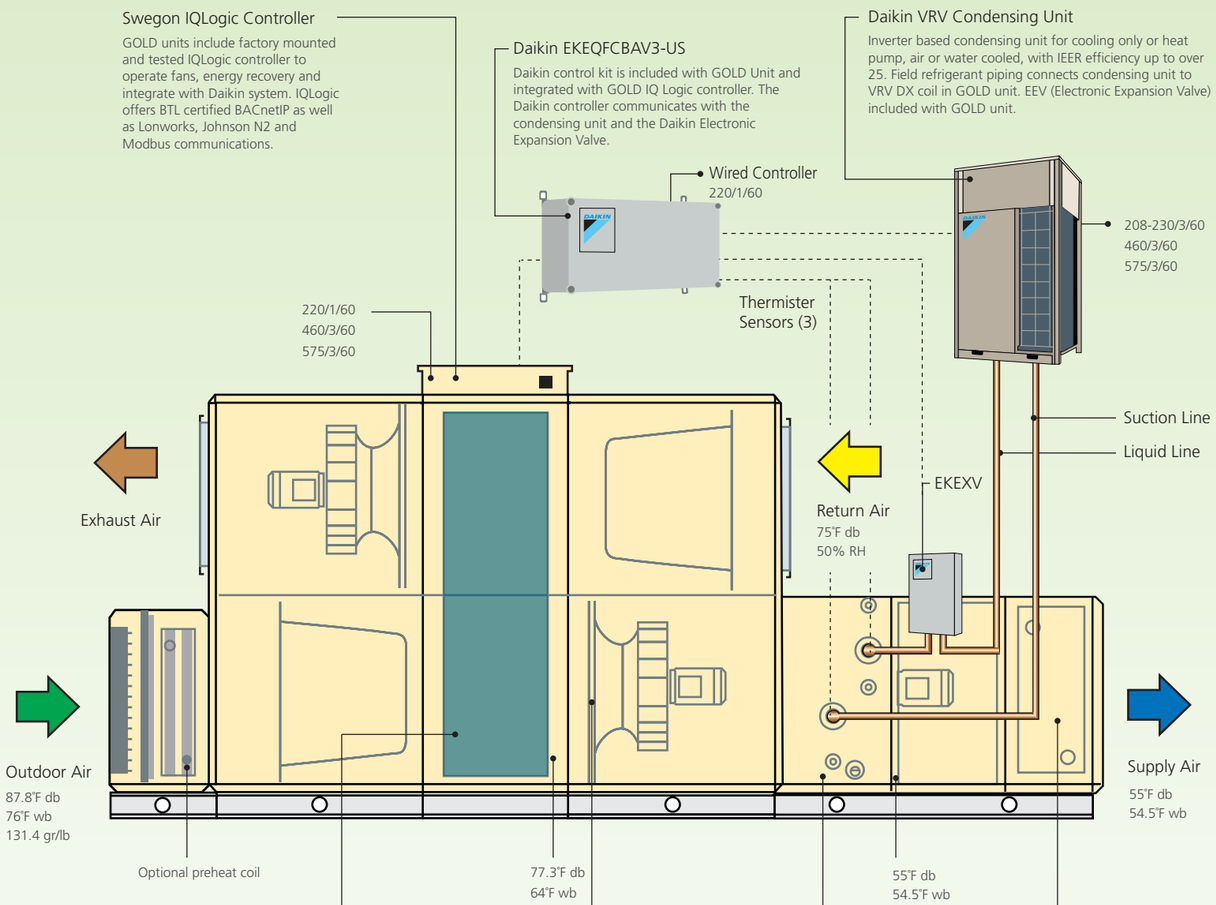
GOLD SYSTEM APPLICATION DAIKIN VRV

SUMMER



Energy Recovery

Plates, runaround coils and enthalpy wheels available. Standard GOLD RX AHRI 1060 certified 3 ang. enthalpy wheel recovers 80% + of the total energy. Optional PassiveHouse certified GOLD RX models use special enthalpy wheel and recover 80% + of the total energy.

Fans

Special plenum fans design for high efficiency and low sound, direct driven by 220, 460 or 575 volt EC motors. Fans are variable flow and include airflow monitors. Variable airflow arrangements are limited to 50% turndown with DX cooling. Models are available from 500 to 16,000 cfm.

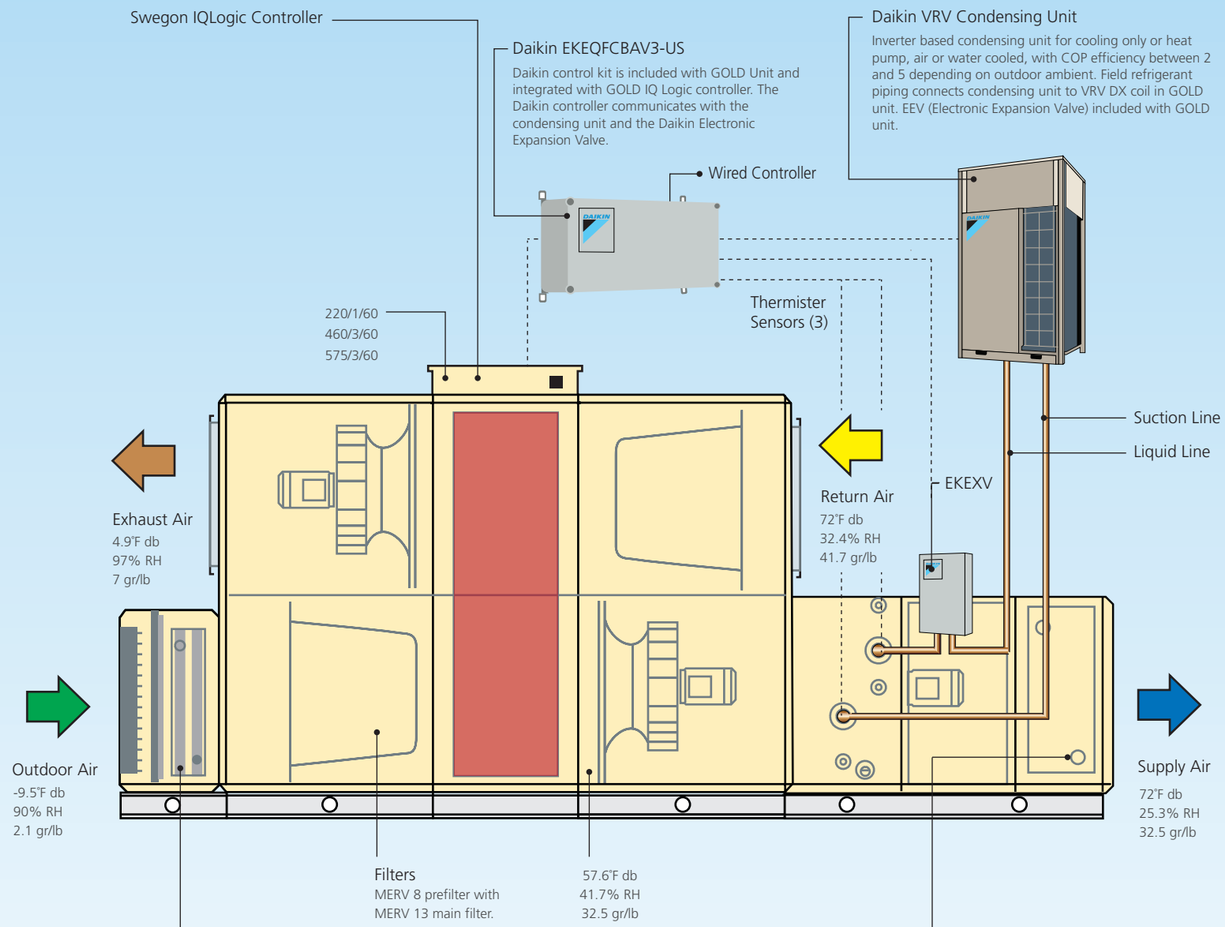
DX Coil

Daikin approved DX coil is factory mounted in GOLD unit, matched to Daikin condensing units. Actual capacity and leaving air conditions are customer selected based on project requirements. Coil includes stainless steel double sloped drain pan.

Optional Heating Coil

Optional passive reheat is available using a wraparound coil around the DX coil. Reheat allows dry air at neutral temperatures to be delivered to the space using recovered heat.

WINTER



Optional Preheat

Optional preheat for very cold climates. Preheat outdoor air to avoid Hoar frosting and improve energy recovery. Preheat can be water (glycol) or electric. Winter filters available.

TIP: If chilled water is being produced in winter, use chilled water to preheat outdoor air.

Heatpump Heating

For improved energy savings, a Daikin Heat Pump condensing unit can be utilized to reduce the cost of heat. For typical applications the Daikin Heat Pump can deliver all required heating and at COPs well above 2 even with negative ambient temperatures (°F).

Air cooled heatpumps will require periodic defrost. Air cooled heat pumps will require periodic defrost. During these periods the unit can be programmed to slow the supply fan, or a supplemental heat source can be added, such as hot water, electric or any other source that can accommodate a 0-10 vdc control signal. Daikin condensing units composed of 2 or more modules can provide continuous heating during defrost to alleviate these issues.

Final Heating

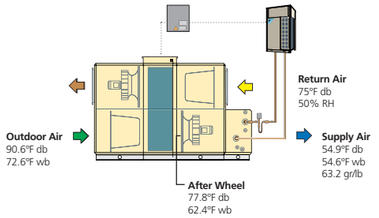
Enthalpy wheel will recover most of the necessary heat to delivery neutral air. Using Swegon RecoFROST control, the supply air is typically 58 °F leaving the enthalpy wheel. Some defrost may occur lowering the supply air temperature to 30 °F while defrosting.

Final heating can be accomplished with hot water coil, electric heat or any other heat source that can accommodate a 0-10 vdc control signal.

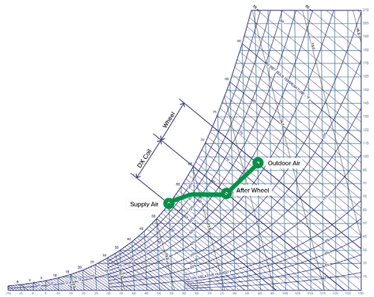
DAIKIN

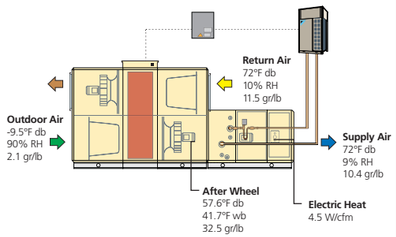
Swegon

Swegon Performance - BOSTON		COOLING/HEATING	COOLING/HEATING WITH ELECTRIC AUX HEAT	COOLING/HEATING WITH WRAP AROUND HEAT PIPE	COOLING/HEATING WITH CONDENSER WATER REHEAT	COOLING/HEATING WITH ELECTRIC PRE-HEAT
Model	RX-25					
Supply Air	4,500 CFM					
Exhaust Air	4,500 CFM					
SA External Static	1.5-2.2" e.s.p.					
EA External Static	1.5-2.2" e.s.p.					
Supply Fan	4.6 HP					
Exhaust Fan	4.6 HP					
Rotary Wheel Sensible Efficiency	82.5%					
Summer Wheel Performance						
OA EDB Temp (F)	90.6					
OA EWB Temp (F)	72.6					
RA EDB Temp (F)	75					
RA EWB Temp (F)	62.4					
Summer Off Wheel DB	77.8					
Summer Off Wheel WB	64.8					
Rotary Wheel Latent Efficiency	75.0%					
Winter Wheel Performance						
OA EDB Temp (F)	13.4					
RA EDB Temp (F)	72					
RA EWB Temp (F)	54.4					
RA EDB Temp (F) (Defrost Mode)	72					
RA EWB Temp (F) (Defrost Mode)	60.1					
Winter Off Wheel DB	61.7					
Winter Off Wheel WB	48.6					
Rotary Wheel Latent Efficiency	80.5%					
Package Performance						
Reheat Method		None	None	Heat Pipe	Hot Water Reheat	None
Cooling LAT DB		54.9	54.9	64.1	72.6	54.9
Cooling LAT WB		54.6	54.6	58.1	61	54.6
Grains		63.2	63.2	62.7	61.8	63.2
Heating LAT		72	72	72	72	72
Dimensions						
Cabinet Length		110.65”	155.85"	144.59"	144.59”	139.12”
Cabinet Width		62.99”	62.99"	62.99"	62.99"	62.99”
Cabinet Height		70.71”	70.71"	70.71"	70.71"	70.71”
Air Cooled Unit Solution						
Condensing Unit		RXYQ144T	RXYQ144T	RXYQ120T	N/A	RXYQ144T
Branch Controller		N/A	N/A	N/A	N/A	N/A
Water Cooled Solution						
Condensing Unit		RWEQ144T	RWEQ144T	RWEQ120T	RWEQ144T	RWEQ144T
Branch Controller		N/A	N/A	N/A	N/A	N/A

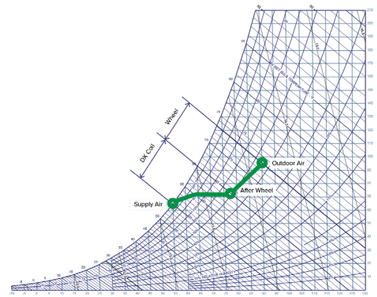


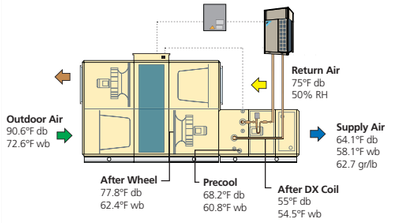
DX Cooling Operation



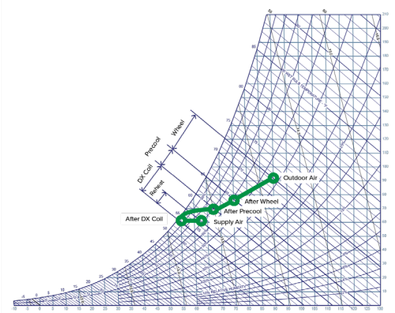


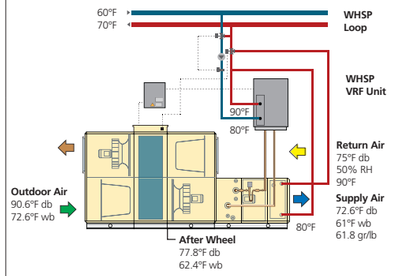
DX Cooling with Electric Heat



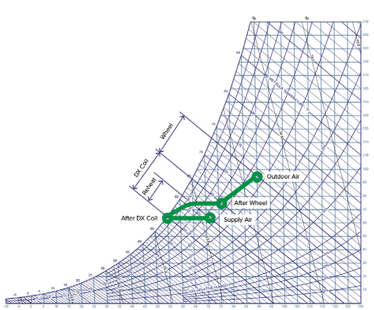


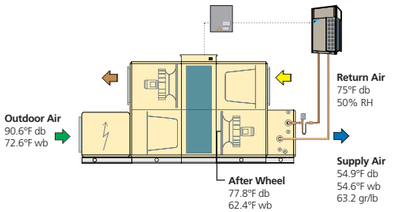
DX Cooling with Wrap Around Heat Pipe



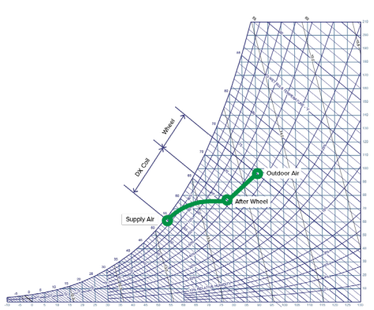


DX Cooling with Condenser Water Reheat





DX Cooling Operation



Key Specifiable Standard Features:

1. ECM Motors, direct drive plenum fans, CFM airflow station on supply and return fans.
2. Enthalpy wheel is aluminum substrate with 3 angstrom molecular sieve desiccant, energy recover carry-over shall not exceed 0.45% as certified by a third party test agency.
3. Enthalpy wheel shall have stepper motor allowing speed control from 0.5 – 20 rpm. Unit controller shall manage rotor speed to optimize energy transfer, purge sector airflow, and avoid frosting.
4. Unit shall include factory installed and tested controls, field configurable to achieve specified operating functions. Controls shall maintain the airflow setpoint regardless of air density, filter loading or ESP.
5. Units shall be service accessible from one side. Filters shall be side loaded and seal against fixed frame on all four sides of each filter.
6. Cooling coil shall have minimum turndown of 7 – 15% based on Outdoor Unit Selection.
7. EKEXV-AHU Kit shall be able to accept entering air temps down to 41 Deg F to the Coin in Heat Pump operation.
8. Unit shall include factory engineered integration between AHU and Daikin EKEXV Kit. EKEXV Kit and EKEQMCBAV3 (Control Kit) shall be factory installed, including refrigerant piping of EXV and wiring of thermistors, EXVs, and controls.
9. Factory installed controlls shall provide BMS integration capability with BTL Certified BACnet, Lon, Modbus or N2.