

DIRECT FIRED UNITS

Roof Top Units (Make-up Air)



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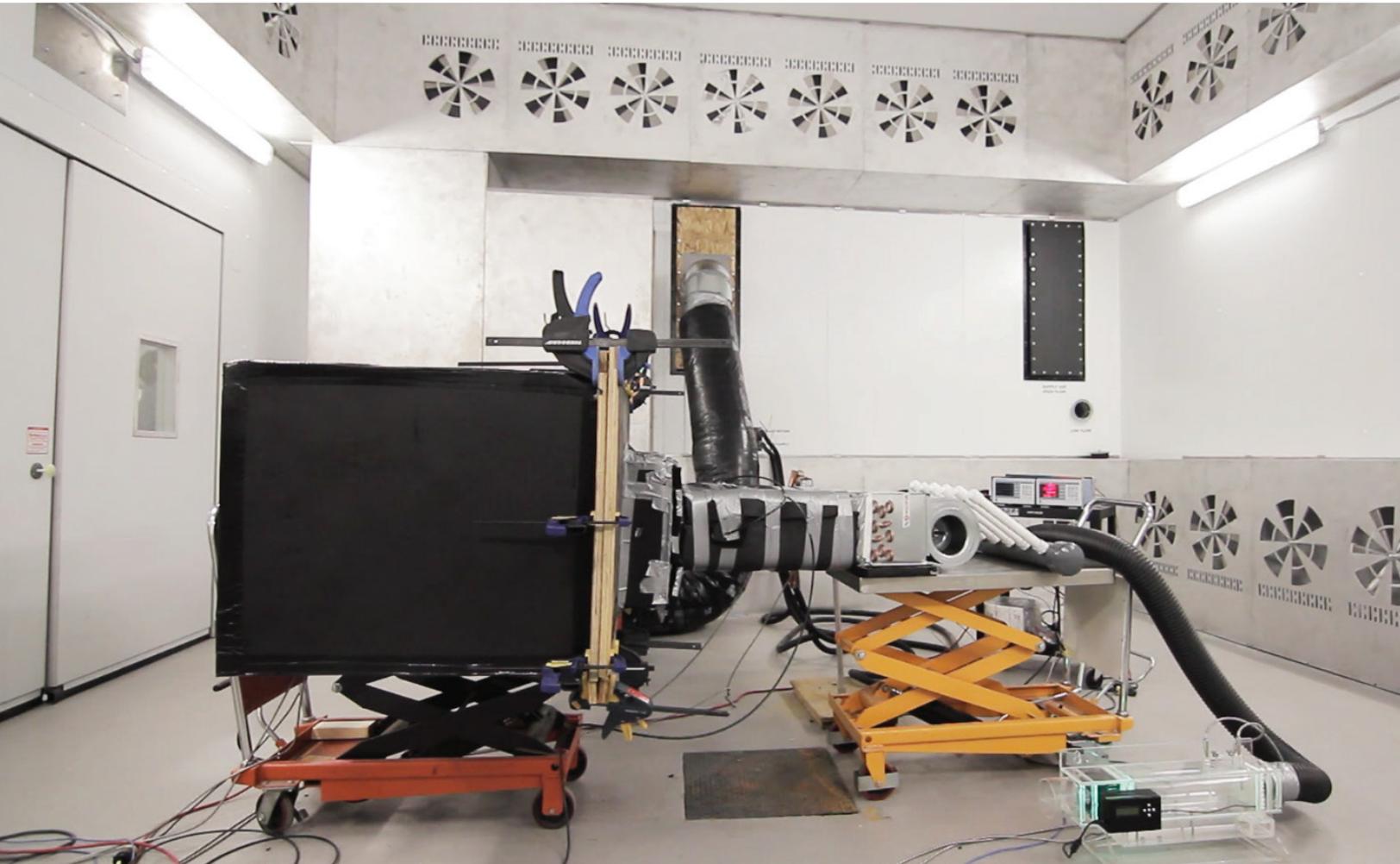
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SolutionAir direct fired units use ultra-efficient direct-fired burners allowing better control over discharge temperature. This method eliminates the use of a heat exchanger by burning the combustible directly in the airstream, achieving 100% combustion efficiency and a 92% overall thermal efficiency (8% of the total heat goes into the latent heat of water formed by combustion).

These units can provide a fully modulating turn down ratio of up to 30:1. Providing this high of turndown and a fully modulating system, the unit will provide precise temperature control to the space which results in the highest quality IAQ and comfort. This smooth operation also maximizes the life of the equipment in lieu of constantly staging valves and stopping and starting fans.

Psychrometric Chamber

SolutionAir has built a state-of-the-art psychrometric lab to test heating and cooling for rooftop units and several complementary mechanical products. The lab offers precise performance and longevity testing on configured rooftop units with packaged DX up to 26 tons and cooling/heating cool capacity testing in accordance with AHRI 400 and AHRI 410. The Psychrometric Chamber's room conditioning equipment can condition to a wide range of temperature and humidity set-points, and the water supply has an expanded range of temperature, flow and pressure capable of exceeding any of our products' fluid supply requirements.



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Additional Industry-Leading Test Facilities

Gas Testing Laboratory

A CSA certified Gas Laboratory allows SolutionAir to conduct product testing and safety certification in-house without the need for CSA personnel to be on site, resulting in:

- + Faster product development cycle.
- + Testing and certification of new products.
- + High quality results for customer demonstrations, configured units & control testing, training and site issue analysis.



Environmental Chamber

RegenCore units are tested to the highest industry standards in the Environmental Chamber.

- + Maintains temperatures from $-40^{\circ}\text{C}/\text{F}$ to $+40^{\circ}\text{C}$ (104°F).
- + Paired with a configured SolutionAir air handling unit to simulate building return air (heating, cooling and introducing humidity).
- + Enables precise energy balances and accurate efficiency measurement, making RegenCore the industry's only product with fully-tested indoor and outdoor performance data.



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Typical Applications

The SolutionAir Direct Fire Unit series provides continuous superior control for maintaining space temperature for demanding ventilation applications.

The high turndown ratio makes these units ideal for commercial and industrial applications, while its configurable flexibility provides the perfect retrofit solution by fitting directly on existing curbs and ducts.

Features

- + Output Range: 42 - 6,500 MBH
- + Airflow Range: 1,950 - 50,000 CFM
- + Turndown: From 6:1 to 30:1
- + Minimum Thermal Efficiency: 92%
- + Design temperature rises from 120°F to 20°F
- + Maximum discharge temperatures of 160°F
- + Factory tested
- + Automatic season changeover
- + CSA approved design
- + CSA certified in accordance with ANSI Z83.25/CSA 3.7, ANSI 83.18

Components

1 Inlets

- + 100% Outdoor Air Hood
 - Half inch expanded metal bird screen
 - Motorized two position damper
 - Optional modulating inlet damper
 - Optional inlet louver

2 Filters

- + 2" MERV 8, 11 or 13
- + 12" MERV 13, 14, 15, or 16

3 Fans

- + High efficiency forward curved DWDI fans
- + Greasable pillow block bearings
- + Adjustable motor mount base
- + Fan skid mounted on RIS isolators, spring isolation optional
- + Available VFD's

4 Burner

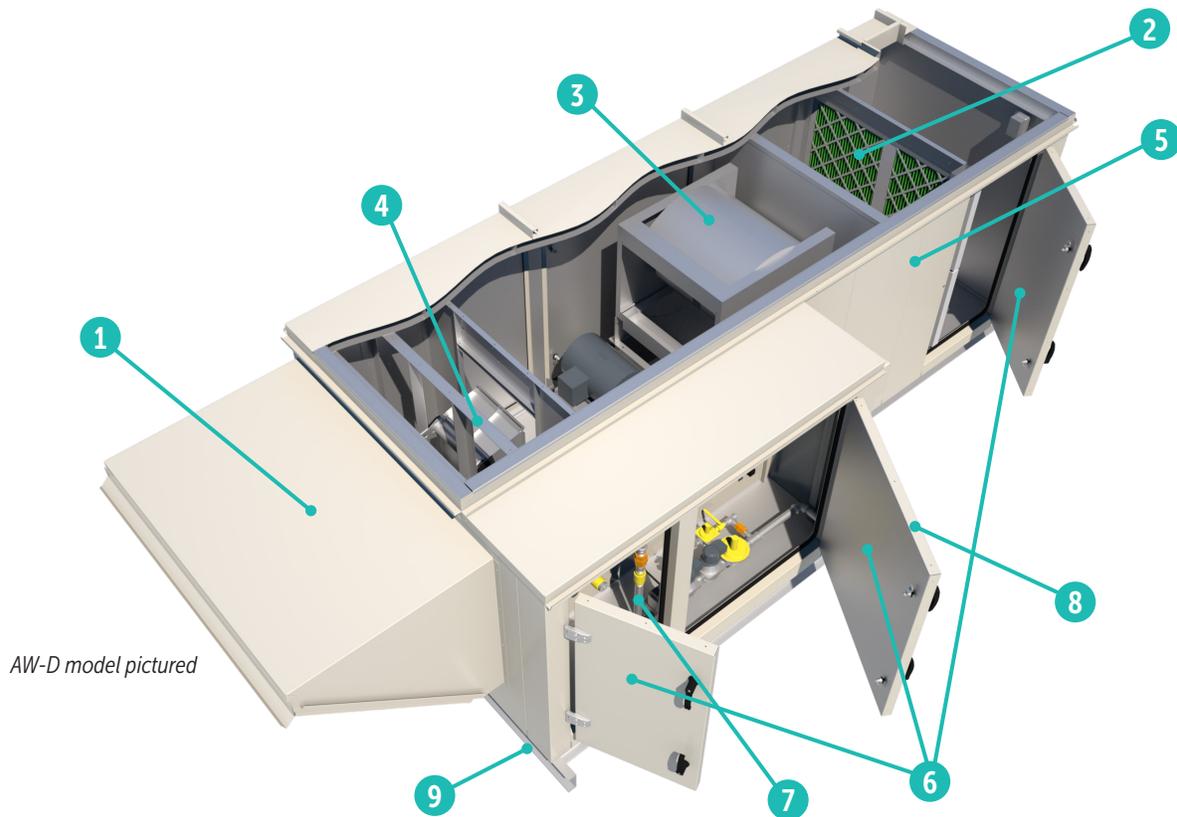
- + Stainless steel construction
- + Up to 30:1 turndown
- + Operates down to -40°F ambient
- + Single point piping connection
- + CSA certified for Canada and USA

5 Cabinet

- + Double wall construction
- + 1" or 2" polyurethane foam or fiberglass insulation
- + Multiple inner and outer liner options
 - 16 to 18 gauge galvanized, 304 stainless or 1500 hour salt spray painted galvaneal steel exterior liners
 - 18 to 22 gauge galvanized or 304 stainless steel inner liner
 - 22 gauge perforated galvanized steel inner liner
- + Available washdown construction and checker plate floors
- + Optional acoustic liner

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AW-D model pictured

6 Doors

- + Double walled construction designed with similar construction to unit cabinet
- + Hinged doors and/or lift-off panels

7 Controls

- + Standard unit mounted controls
- + Unit controls provide:
 - Dynamic operational limit control
 - Independently configurable I/O pins
 - Integrated energy saving management
- + Optional BACnet MS/TP or BACnet IP communication

8 Disconnect

- + Non-fused and fused disconnect available
- + Single point power connection

9 Base

- + 6" and 8" formed steel base frame
- + 4" and 6" structural steel base frame

Dampers (not shown)

- + Triple-vee roll formed galvanized steel blades
- + Optional low leak aluminum airfoil or insulated airfoil dampers

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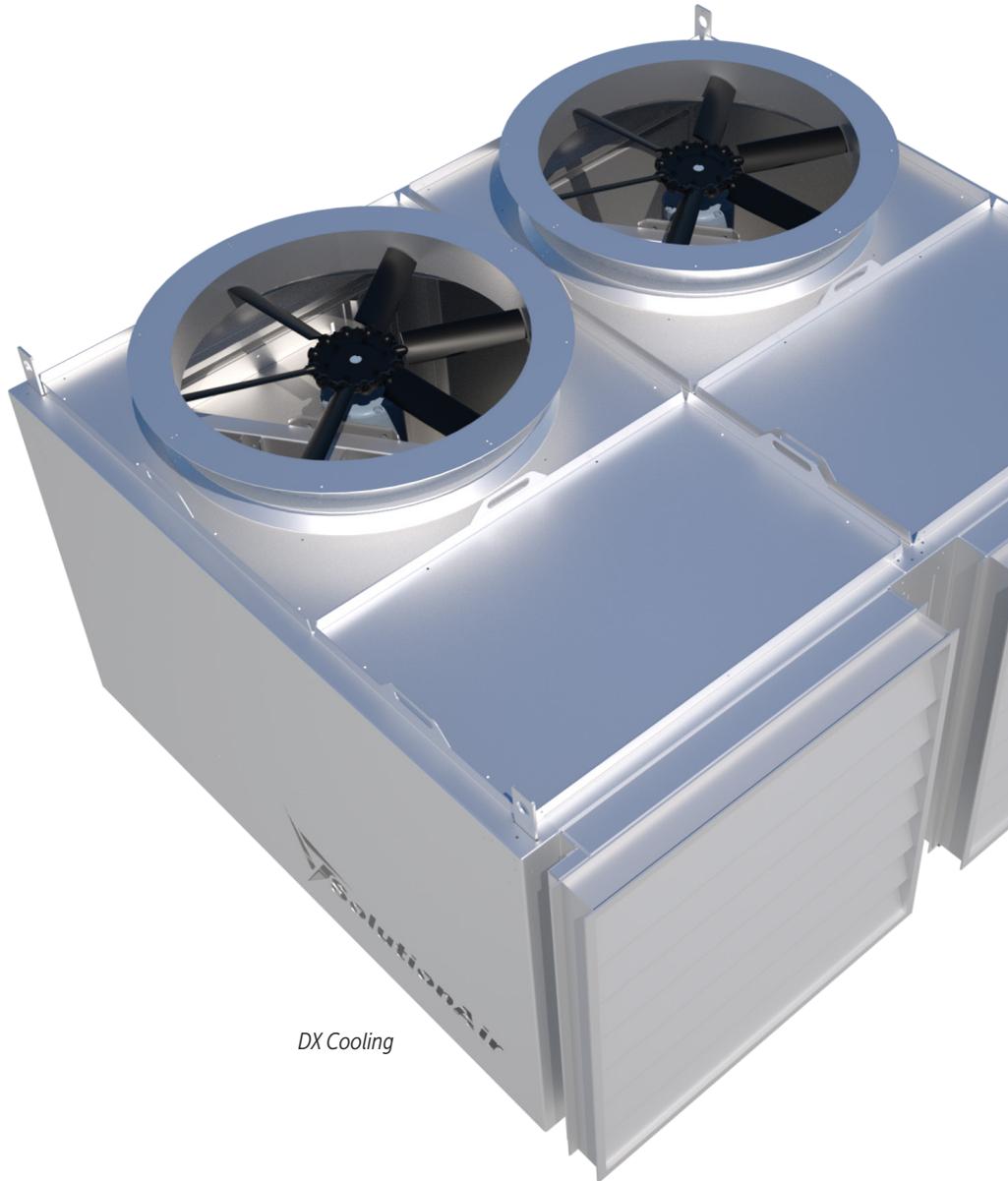
Packaged DX Cooling & Dehumidification

Standard Features

- + Packaged cooling from 8 to 128 tons
- + Factory tested cooling and controls
- + Electronic expansion valves
- + Remote operable digital controller
- + Detect + Protect monitoring system
- + 2-stage capacity control from 8 to 12 tons
- + 4-stage capacity control from 14 to 128 tons
- + Aluminum fin, aluminum frame, and copper tube evaporator and condenser coils
- + Low fin per inch evaporator (10 FPI) and condenser (12 FPI) coils
- + 70°C/154°F high temperature rated condenser motors

Additional Options

- + Split cooling from 8 to 128 tons
- + Variable capacity cooling control with digital compressors
- + 7°C/45°F low ambient and -40°C/F extreme low ambient cooling
- + Hot gas reheat



Detect + Protect Monitoring System

- + Actively monitors:
 - Refrigerant cycle operation (sub cool, superheat, line pressures)
 - Electronic expansion valves
 - Refrigerant charge
 - VFD operation
 - Cooling capacity
- + View live performance and access logged data on the controller. No refrigerant gauges required.
- + Permanently connect to your system via LAN or when necessary via cellular modem.

	Cool CIRCUIT A EEV 1		
	LP	HP	↑
	Temp 55.4°F	116.3°F	
	Pres 135 PSI	197 PSI	
Prg	SUPHT 8.8°F	47.9°F	←
	SubCooling	10.6°F	
Esc	Liquid Line Temp	58°F	↓
	EEV: 58.0%	EVP Δ 20°F	

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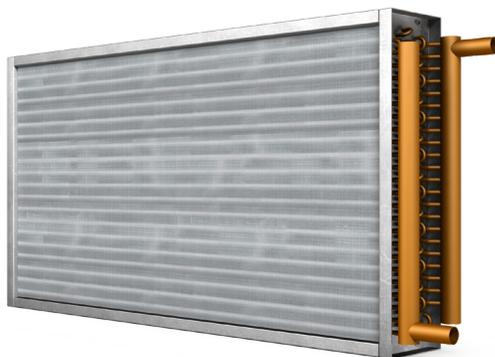


Exhaust air energy recovery

Additional Options

- + Exhaust air energy recovery from 3,000 to 20,000 CFM
 - Heat wheels
 - Sensible plates
 - Heat pipes
- + Chilled water coils
- + Two-Speed Operation
 - Modulating dampers to maintain the appropriate air velocity over the burner.
 - Air modulation down to 50% of design airflow.
- + 80/20 mixing box (only in USA)
- + FM manifold requirements
- + Vertical construction
- + Safeties by SolutionAir, controls by others
 - Exclusively for gas heat units, no cooling or energy recovery.

Energy Recovery Options



Chilled water coil

	Heat Wheel	Sensible Plates	Heat Pipe
Recovery Type	Sensible & Latent	Sensible	Sensible
Sensible Effectiveness	Up to 85%	Up to 70%	Up to 60%
Carry-Over Leakage	1 - 3%	0%	0%
Airflow Range (CFM)	2,000 - 20,000	2,000 - 20,000	2,000 - 20,000
Preheat	Below -5°C/23°F	Below -5°C/23°F	Below -5°C/23°F

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Performance Data

Single Fan Configuration

Model Number	Maximum Design Airflow (cfm)	Gas Inlet Size (NPT)		Turn Down Up To
		7-14 in. w.c.	1-5 psi	
AW-D-1-10	2,000	0.75	0.5-0.75	30:1
AW-D-1-12	4,000	0.75-1	0.5-1	30:1
AW-D-1-15	7,000	1-1.25	0.75-1	30:1
AW-D-1-18	10,000	1-1.25	1	30:1
AW-D-1-20	13,000	1-1.5	1-1.25	30:1
AW-D-1-22	18,000	1.25-2	1-1.5	30:1
AW-D-1-25	22,000	1.5-2.5	1-2	30:1
AW-D-1-27	25,000	1.5-2.5	1.25-2	30:1
AW-D-1-30	32,000	2-2.5	1.25-2	30:1
AW-D-1-33	35,000	2-2.5	1.5-2	30:1
AW-D-1-40	50,000	2 - NA	1.5-2.5	30:1

Performance and Dimensions subject to change.

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