

**HUMIDI-MIZER[®] ADAPTIVE
DEHUMIDIFICATION SYSTEM
FOR APPLIED ROOFTOP UNITS**

WeatherMaker[®] 48/50A

WeatherMaster[®] 48/50P

WeatherExpert[®] 48/50N

**Expanded Applications for
Packaged Rooftop Units**



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**Carrier Corporation
Syracuse, New York**

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SUMMARY COMPARISON

The chart below compares Carrier's Humidi-MiZer® adaptive dehumidification system to the hot gas reheat concept employed by some competitors. The performance of the applied rooftop units equipped

with the Humidi-MiZer adaptive dehumidification system option provides unprecedented flexibility to meet year-round comfort conditions.

CHARACTERISTIC	COMPETITOR HOT GAS REHEAT CONCEPT	HUMID-MIZER® ADAPTIVE DEHUMIDIFICATION SYSTEM USING TWO-PHASE MIXTURE REHEAT CONCEPT	HUMIDI-MIZER SYSTEM ADVANTAGE
Modes of operation	<ul style="list-style-type: none"> Two modes of operation: <ul style="list-style-type: none"> Conventional cooling Dehumidification (hot gas) 	<ul style="list-style-type: none"> At least three modes of operation: <ul style="list-style-type: none"> Conventional cooling Dehumidification (<u>hot gas and two-phase mixture capability</u>) Cooling and enhanced dehumidification (warm liquid) 	
Variable performance	<ul style="list-style-type: none"> System performance at the design point cannot be varied without altering the components Overheating and overcooling may occur at off design performance 	<ul style="list-style-type: none"> System performance at the design point is adjusted by accurate control of refrigerant bypass around and into the condenser. Both cooling and reheat supply air set points can be met at varying entering and outdoor air conditions. <ul style="list-style-type: none"> Variable sensible heat ratio 	
Charge migration	<ul style="list-style-type: none"> Design is less stable due to charge migration System operation is more sensitive to charge migration 	<ul style="list-style-type: none"> Design is stable, minimal charge migration. System operation is not altered 	
Latent capacity maximization	<ul style="list-style-type: none"> Latent performance of the reheat cycle slightly exceeds latent capacity of the conventional system (ambient temperature limitation is restrictive) 	<ul style="list-style-type: none"> Latent performance of the dehumidification cycle can significantly exceed latent capacity of the conventional system (ambient temperature has insignificant impact on latent capacity) 	
Operation at higher ambient temperatures	<ul style="list-style-type: none"> May overheat the space at higher ambient temperatures Switching to the conventional cooling mode of operation at high ambient temperatures reduces dehumidification capability of the system 	<ul style="list-style-type: none"> Switching to the enhanced dehumidification mode of operation at high ambient temperatures enhances dehumidification capability of the system Unique modulating valve system allows unit to adjust the quality of the refrigerant entering the Humidi-MiZer system coil; unit will not overheat the space as outdoor temperatures rise 	
Ambient temperature	<ul style="list-style-type: none"> System performance degrades with the ambient temperature elevation: <ul style="list-style-type: none"> Sensible capacity (↓) Latent capacity (↓) 	<ul style="list-style-type: none"> System performance improves at high ambient temperatures <ul style="list-style-type: none"> Sensible capacity is reduced at a lower rate (relative to the hot gas reheat concept) Latent capacity is augmented 	



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