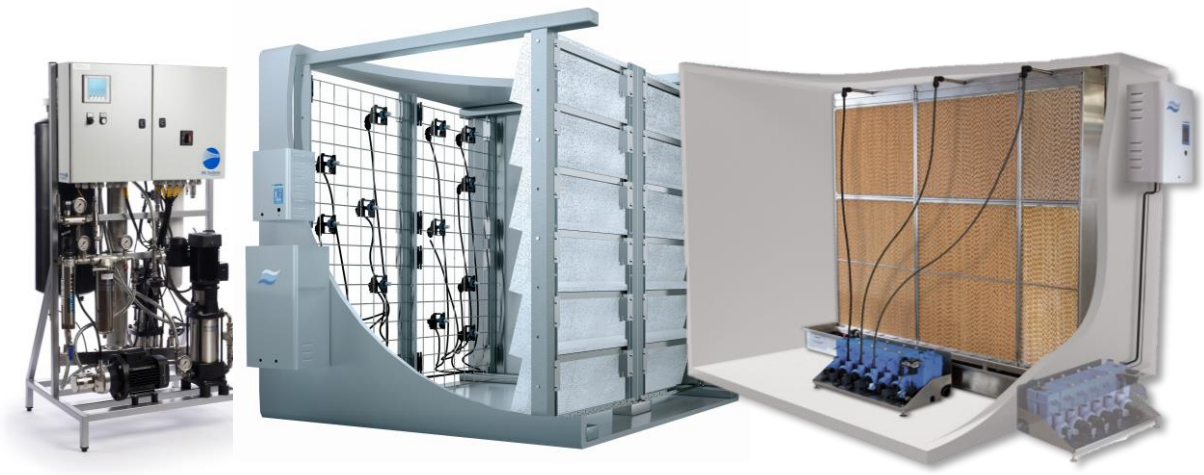


Adiabatic - Load Sizing

BEST PRACTICES GUIDE

Humidification, Dehumidification and Evaporative Cooling

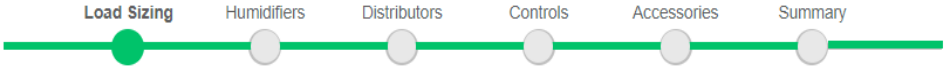
condair

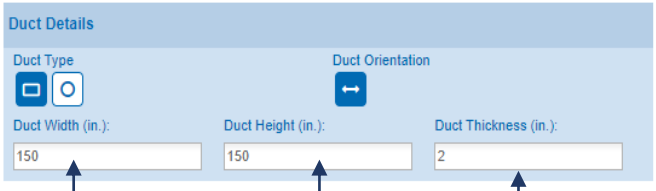
Contents

1

What values do I need to size the humidification load?

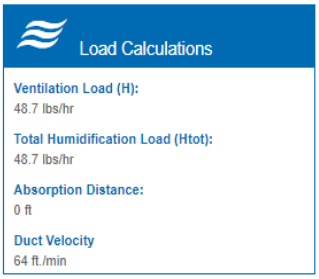
1. What values do I need to size the humidification load





Enter the internal dimensions of the duct, **not** the size of desired humidifier.

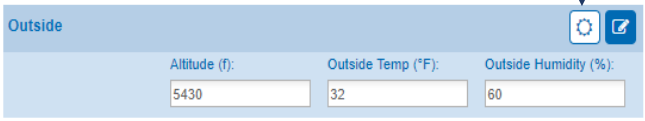
Determines the length of feedthroughs, applicable for **DL only**.



See Page 2. For min/max duct velocities.

Outside Air % (OA%) is directly related to the humidification load. An **increase** in OA% will result in an **increase** in humidification load.

Default pulls **ASHRAE BIN** weather data for your opportunity location.



Override to enter **custom** weather conditions.

Entering air temperature (EAT) is the air temperature entering the humidifier. If there is a preheating coil upstream of the humidifier the EAT is the leaving air temperature of the heating coil.

Toggle between inputting the EAT or LAT

Adiabatic humidification results in adiabatic cooling. An increase in EAT may be required to account for the cooling.

For agent selection the leaving humidity is restricted to **<75%** to reduce excessive waste water. For applications that required a leaving humidity over 75% please contact na.applications@condair.com

2

Considerations for Each System

2. Considerations for Each System

Considerations for Each System

	ME	MC	HP	DL
Capacity	Up to 2200 lbs/hr	Up to 790 lbs/hr	Up to 2860 lbs/hr	Up to 2200 lbs/hr
Max Duct Velocity **Without** Droplet Separator	689 ft/min (3.5 m/s)*	689 ft/min (3.5 m/s)*	N/A	492.13 ft/m (2.5 m/s)
Max Duct Velocity **With** Droplet Separator	886 ft/min (4.5 m/s)*	886 ft/min (4.5 m/s)*	780 ft/min (4 m/s)	787.40 ft/min (4 m/s)
Max Duct Width	167 in	118 in	236.2 in	330.7 in
Max Duct Height	157 in	118 in	173.2 in	157.5 in
Water Quality	Potable or RO <650 µS/cm	Potable or RO <650 µS/cm	RO or DI 5-50 µS/cm	RO or DI 0.5-15 µS/cm

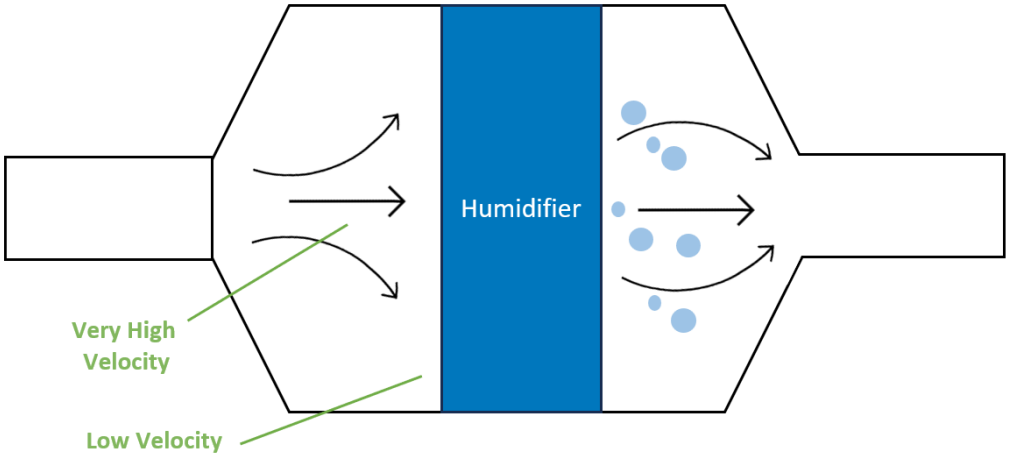
*Media Face Velocity

3

If my duct velocity is too large, can I use an expansion section

3. If my duct velocity is too large, can I use an expansion section?

Duct Transitions: DO NOT DO THIS



We do not recommend an expansion section. This will create a high velocity profile through the center while the edges have a low velocity profile. A majority of the air will follow the same cross section of the smaller duct and blow straight through the humidifier. The middle of the humidifier will be spraying water.

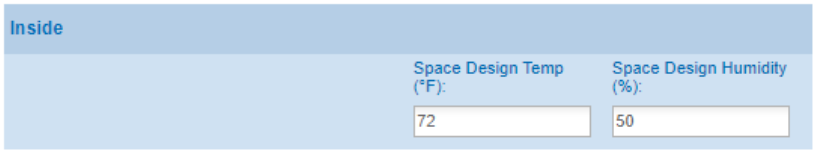
4

What should I adjust if my calculated load is lower than expected?

4. What should I adjust if my calculated load is lower than expected?

Do not change the OA% to increase your load. These values should be true to the site conditions.

Best practice is to increase the **space design humidity** if you need to increase your load to meet the schedule



5

What does meeting the larger load mean for my selection

5. What does meeting the larger load mean for my selection?

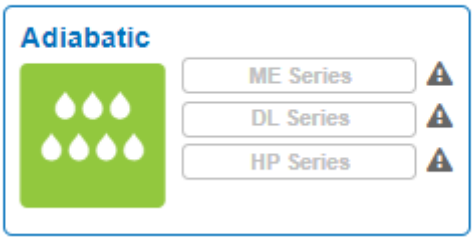
As a result of a higher load you may need to increase the EAT to offset the adiabatic cooling and ensure the leaving temperature is as desired.

Increasing the load will also increase the water usage of the system.

6

Help won’t let me select a humidifier, what is wrong with my selection?

6. Help won't let me selected a humidifier, what is wrong with my selection?



For agent selection the leaving humidity is restricted to **<75%** to reduce excessive waste water. The EAT will need to be increased to ensure the leaving humidity is <75%

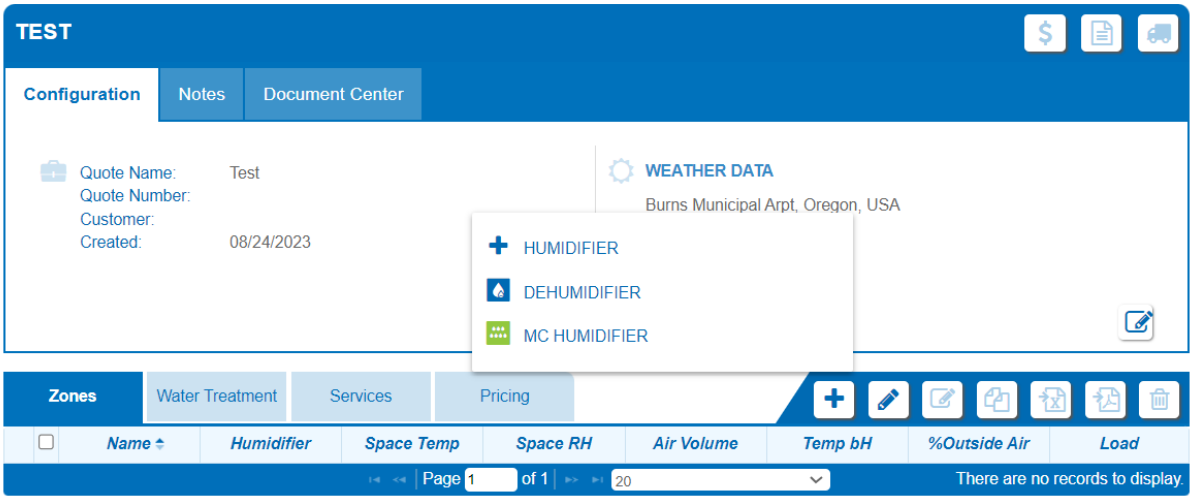
It is important that the EAT is not increased just to force the selection. That EAT is the new required temperature for the system and **must match realistic conditions**. A heating coil may be required.

7

I don’t have the option to select an MC? What do I do?

7. I don’t have the option to select an MC? What do I do?

The MC selection uses a new user interface (UI). Because of this, if your project has a selection started with the old UI (all other humidifiers) you will not be able to select an MC.



You will need to create a new quote and you will receive the option for the MC when adding a new zone.

Questions? For help with any of your humidification projects contact na.applications@condair.com

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