

# COIL INPUT SCREENS

## Example of a Water Coil Input Screen:

(*please see the appendix for an example of an Evaporator, Steam or Condenser Coil input screen*)

The screenshot shows the 'Coil Input' screen in the 'Coil Suite - [Fluid Selection v2.1.1]' application. The interface is organized into several sections:

- Physical Data:** Includes fields for Item Number, Coil Tag, Mode (set to 'Cooling'), Fin Type (set to '58 1.50 x 1.3 Waffle'), Fin Height (set to '30'), Fin Length (set to '60'), Rows (set to 'Auto-Select'), FPI (set to 'Auto-Select'), Feeds (set to 'Auto-Select'), Num. of Feeds, and Allow Opp End (set to 'No').
- Materials:** Includes dropdowns for Fin Material (set to 'Aluminum'), Fin Thickness (set to '0.0060'), Tube Material (set to 'Copper'), and Tube Thickness (set to '0.020').
- Airside:** Includes fields for SCFM (set to '5000'), Altitude, Ft. (set to '0'), Ent Air DB (set to '80'), Ent Air WB (set to '67'), Btu/h Req'd, Lvg DB Req'd (set to '55'), and Lvg WB Req'd (set to '54').
- Internal Fluid:** Includes a dropdown for Fluid (set to 'Water'), Pct. Glycol, Ent Fluid Temp (set to '45'), Lvg Fluid Temp (set to '55'), GPM, and Max PD (set to '20').
- Construction:** Includes dropdowns for Coil Hand (set to 'Right'), Casing Type (set to 'Flanged'), Coil Coating (set to 'None'), Conn. Mat'l (set to 'Copper'), Casing Mat'l (set to 'Galvanized Steel'), and Conn. Type (set to 'MPT').
- Details:** Displays calculated values: Face Area = 12.5 Sq. Ft. and Face Velocity = 400.0 SFPM.

## PHYSICAL DATA

**ITEM NUMBER:** Always use a 1 through ?  
In this field you might also use a dash and place quantity of coils here.

**COIL TAG:** System tag, etc... Qty can also be placed here.

**MODE:** Type of coil – Heating, Cooling, Standard Steam, Steam Distributing, etc...(Based on the application of the coil)

**FIN TYPE:** Tube – Fin Pattern – The most efficient are the waffle and sine patterns. Flat fins should only be used where air pressure drop or cleanability dictate their use.

🌀 5/8" Waffle – High Efficiency

- ☪ 1/2" Waffle – High Efficiency
- ☪ 3/8" Sine – High Efficiency
- ☪ 5/8" Flat – Low Efficiency, very cleanable, low air resistance
- ☪ 1/2" Flat – Low Efficiency, very cleanable, low air resistance
- ☪ 3/8" Waffle [1 X .866] – High Efficiency
- ☪ 3/8" Waffle [1.25 X 1.082] – High Efficiency
- ☪ 5/8" Steam – 5/8" OD Outer Tube [3/8" inner tube if steam distributing]
- ☪ 1" Steam – 1 1/8" OD Outer Tubes [5/8" inner tube] always steam distributing

**FINNED HEIGHT** (inches) Fin Height is the distance of the front face perpendicular to the tubes. This dimension can only be in multiples of the vertical tube spacing for the fin type selected.

**FINNED LENGTH** (inches) Finned Length is the distance of the front face parallel to the tubes. This dimension can be entered to the second decimal place (e.g. 100.25).

*\*When you have selected your fin tube type pattern, only finned heights for that pattern can be selected in the drop box. Always try to select a finned height that has an even number of tubes for maximum circuiting options.*

**ROWS, FPI, FEEDS, NUMBER OF FEEDS, ALLOW OPP. END:**

If selecting a coil, always have these sections (rows, FPI, and feeds) in the auto select. The condenser coil module is a rating only module (i.e: it requires the rows, FPI, and feed fields to be specified.) There is no auto-select for rows, FPI and feeds. If you have a maximum number of fins per inch, then you can place that in the FPI column and all selections will be at or below that figure.

If rating a coil, then fill in the ROWS, FPI and FEEDS (as required by type of coil). Place the proper circuitry in the FEEDS column. If you don't know the proper circuitry by the names shown, then go to "CUSTOM" and complete the NUMBER OF FEEDS column below with the number of feeds (the number of tubes connected to the supply header or manifold – if no manifold. The number will be one tube feed or two tube feed).

**ALLOW OPP. END:** Most of the time, same end connections are required. If this column says "No", the selections or the drawings issued will not allow for opposite end connections. Some steam coils have opposite end connections – make sure you change the box to "Yes" to obtain this type of coil.

## CONSTRUCTION

Every input screen has six fields in this section, except for DX Evaporator Coils which have eight fields.

**COIL HAND:** Coil hand can sometimes be confusing...different manufacturers have different ways of referencing the coil hand. Our standard reference is looking downstream of the airflow (Coil hands are always right or left when looking in the direction of airflow with air on back of head). Technically, coils that are one or two rows are universal, but you must select anyway.

**COIL COATINGS:** NOT APPLICABLE IN THIS PROGRAM. Tab may say "Yes" but the spec. must be supplied by the factory.

**CASING MATERIAL:** Casing material refers to the end plates, tube supports and top & bottom plates. We offer the following materials: Galvanized Steel, 304 Stainless Steel or Aluminum.

**CASING TYPE:** Standard is Sheet Metal mounting flanges around entire periphery, but there is a drop down for inverted [top and bottom casing turned down into the fin surface to save space and end plates only meaning there is no top and bottom casing, but casing at each end]

**CONNECTION MATERIAL & TYPE:** Valid connection materials and types are as follows:

- Ⓒ DX & Condenser Coils
  - Copper SWT Only
- Ⓒ Water & Steam Coils
  - Copper SWT, MPT or FPT
  - Steel MPT

\*Flanged Connections available, but not shown on this program.

DX Coils have a field for **COIL STYLE** which refers to the circuiting arrangement of a DX coil. Available styles include:

- Ⓒ Standard (single circuit)
- Ⓒ Face Split (dual circuit)
- Ⓒ Interlaced (dual circuit)
- Ⓒ Face Split, Interlaced (4 circuits)

The coil style is a function of the application. Feel free to contact us if you need help making a selection.

**HOT GAS BYPASS BOX.** The user can select the number of HGBP, or Auxiliary Side Connectors, to be included with the DX coil. These connectors are used to bypass gas around the high-side heat exchanger and inject it directly into the distributor. It is important to have these set correctly because the program selects hardware and supplies drawings that are derived from this information.

## **MATERIALS**

Every input screen has four boxes and they are self explanatory. This is where you can select Heavier Tubes, Fins or even change the fins from aluminum to copper.

Steam Coils have an extra box - the **DUAL SUPPLY BOX.** If you have a coil that is steam distributing, air below freezing and over 72" long, it is recommended to select a dual feed coil. This requires two supply connections (one at each end) and one common return. To find out more about this coil, please contact our Engineering Department.

## **AIRSIDE INPUT**

**SCFM:** [Standard Air] @ 70 degrees and Standard Pressure

**ALTITUDE, FT:** Since the thermal performance of the heat exchanger is a function of mass flow rate, increased altitudes (thus lower air densities) will affect the coil performance. If coil is operating above sea level, then place how far above in this field.

**ENTERING AIR DB and WB and LEAVING AIR DB and WB:** All Heating Coils require only Dry Bulb Entry, but coils that dehumidify need Dry Bulb and Wet Bulb Entry.

As an alternative, place a complete [Full **BTUH**] into the box in lieu of Leaving Air Temperatures. You must enter either leaving air temperature or BTUH. The program will not allow entry of both.

## **INTERNAL FLUID**

The Internal Fluid section basically covers Water, Glycols, Steam and Refrigerant.

On Water Coils, try to complete the **ENTERING FLUID TEMP** field and the **GPM** field if it is specified. As an alternative, the **ENTERING FLUID TEMP** and **LEAVING FLUID TEMP** fields can be completed, but the program will not allow entry of both GPM and leaving air temperature.

Water Coils have a drop down **FLUID** box for selecting Water, Ethylene, or Propylene Glycol. If Ethylene or Propylene Glycol are selected, the concentration of the solution (%) must be completed.

Refrigerant Coils [DX Evaporator or Condenser] have a drop down box for different types of **REFRIGERANT** and they also have boxes for **CONDENSING TEMP.** and **SUBCOOLING** for Condenser Coils, and **EVAPORATOR TEMP** and **LIQUID TEMP** for Evaporator Coils.

## Example of an Evaporator Coil Input Screen:

**DX Evaporator Selection v2.1.1**

General | **Coil Input** | Performance | Dimensions

**Physical Data**

Item Number:

Coil Tag:

FinType: 12 1.25 x 1.08 Waffle

Fin Height: 30

Fin Length: 60

Rows: Auto-Select

FPI: Auto-Select

Feeds:

**Materials**

Fin Material: Aluminum

Fin Thickness: 0.0060

Tube Material: Copper

Tube Thickness: 0.016

**Details**

Face Area = 12.5 Sq. Ft.  
Face Velocity = 400.0 SFPM

**Airside**

SCFM: 5000

Altitude, Ft.: 0

Ent Air DB: 80

Ent Air WB: 67

Btu/h Req'd:

Lvg DB Req'd: 55

Lvg WB Req'd: 54

**Construction**

Coil Style: Standard

HGBP: 0

Coil Hand: Right

Coil Coating: None

Casing Mat'l: Galvanized Steel

Casing Type: Flanged

Conn. Mat'l: Copper

Conn. Type: SWT

**Internal Fluid**

Refrigerant: 22

Liquid Temp: 110

Evap Temp: 45

## Example of a Steam Coil Input Screen:

**Coil Suite - [Steam Selection v2.1.1]**

File Print Help

General | **Coil Input** | Performance | Dimensions

**Physical Data**

Item Number:

Coil Tag:

Coil Type: Non-Freeze

FinType: 58 1.50 x 1.3 Waffle

Fin Height: 30

Fin Length: 60

Rows: Auto-Select

FPI: Auto-Select

Opp End Conn: No

**Materials**

Fin Material: Aluminum

Fin Thickness: 0.0060

Tube Material: Copper

Tube Thickness: 0.025

Dual Supply: No

**Details**

Face Area = 12.5 Sq. Ft.  
Face Velocity = 400.0 SFPM

**Airside**

SCFM: 5000

Altitude, Ft.: 0

Ent Air DB: 0

Btu/h Req'd:

Lvg DB Req'd: 90

**Construction**

Coil Hand: Right

Coil Coating: None

Casing Mat'l: Galvanized Steel

Casing Type: Flanged

Conn. Mat'l: Copper

Conn. Type: MPT

**Internal Fluid**

Steam Press: 5

## Example of a Condenser Coil Input Screen:

**Coil Suite - [Condenser Rating v2.1.1]**

File Print Help

General **Coil Input** Performance Dimensions

**Physical Data**

Item Number:

Coil Tag:

FinType: 38 1.25 x 1.08 Waffle

Fin Height: 30

Fin Length: 60

Rows: 1

FPI: 12

Feeds: 2

**Materials**

Fin Material: Aluminum

Fin Thickness: 0.0060

Tube Material: Copper

Tube Thickness: 0.014

**Details**

Face Area = 12.5 Sq. Ft.  
Face Velocity = 400.0 SFPM  
Coil Dry Weight = 46 Lbs.

**Airside**

SCFM: 5000

Altitude, Ft.: 0

Ent Air DB: 95

**Construction**

Coil Hand: Right

Casing Type: Flanged

Coil Coating: None

Conn. Mat'l: Copper

Casing Mat'l: Galvanized Steel

Conn. Type: SWT

**Internal Fluid**

Refrigerant: 22

Cond Temp: 125

Subcooling: 0