

STEAM COIL SPECIFICATION



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1.0 GENERAL

Non-distributing steam coils can be used in applications where freeze protection is not a concern. These should be used when entering air temperatures are a minimum of 40°F taking into consideration any outside air dampers being in the incorrect position.

- a. Provide separate supports and hangers for the coils and for the piping.
- b. Be certain that adequate piping flexibility is provided. Stresses resulting from expansion of closely coupled piping and coil arrangement can cause serious damage. Coils having opposite end connections must be piped with expansion joints.
- c. Standard coils are pitched in the casings when installed for horizontal airflow. The installation should be checked to ensure that the casing is level. On vertical airflow applications, the coils must be pitched when installed.
- d. Do not reduce pipe size at the coil return connection. Carry return connection size through the dirt pocket, making the reduction at the branch leading to the trap.
- e. Install vacuum breakers on all applications to prevent retaining condensate in the coil. Generally, the vacuum breaker is to be connected between the coil outlet and the return main. However, for a system with a flooded return main, the vacuum breaker should be open to the atmosphere and the trap design should allow venting of large quantities of air.
- f. Do not drip supply mains through the coil.
- g. Do not attempt to lift condensate when using modulating or on-off control.

Traps

- a. Size traps in accordance with trap manufacturer's recommendations. Be certain that the required differential will always be available. DO NOT UNDERSIZE.
- b. Float and thermostatic or bucket traps are recommended for low-pressure steam. On high-pressure systems, bucket traps are normally recommended. The thermostatic traps should be used only for air venting.
- c. Bucket traps are recommended for use with on-off control only.
- d. Locate traps at least 12 inches below the coil return connection.
- e. Multiple coil installation:
 - a. Each coil or group of coils that is individually controlled must be individually trapped.
 - b. Coils in series – separate traps are required for each coil, or bank of coils, in series.
 - c. Coils in parallel – a single trap may generally be used but an individual trap for each coil is preferred.

Controls

- a. With coils arranged for series airflow, a separate control is required on each bank, or coil, in the direction of airflow.
- b. On high-pressure installations, a two-position steam valve with a face and bypass arrangement is preferred where modulating control is required.
- c. Modulating valves must be sized properly. DO NOT UNDERSIZE.

Freezing Conditions (Entering air temperatures below 35°F)

- a. 5JA, 8JA and 8RA coils are recommended.
- b. For optimum results, 10 psig steam must be supplied to coils at all times.
- c. A minimum of 5 psig is required for proper coil operation.
- d. Steam distributing coils should not be used in instances where there is a high condensate load.
- e. Modulating valves are not recommended. Control should be by means of face and bypass dampers.
- f. Consideration should be given to the use of two or three coils in series with two-position steam control valves on that coil or coils which will be handling 35° F or colder air. The desired degree of control can be attained with a modulating valve on the downstream coil.
- g. Provision should always be made to thoroughly mix fresh air and return air before it enters coil. Also, temperature control elements must be properly located to obtain true air mixture temperatures.
- h. As additional protection against freeze-up, the trap should be installed sufficiently far below coil to provide an adequate hydrostatic head to help remove of condensate during an interruption in the steam pressure. Estimate 3 feet for each 1 psi of trap differential required.
 - i. On startup, admit steam to coil ten minutes before admitting outdoor air.
 - j. Provisions must be made to close fresh air dampers if steam supply pressure falls below minimum specified.