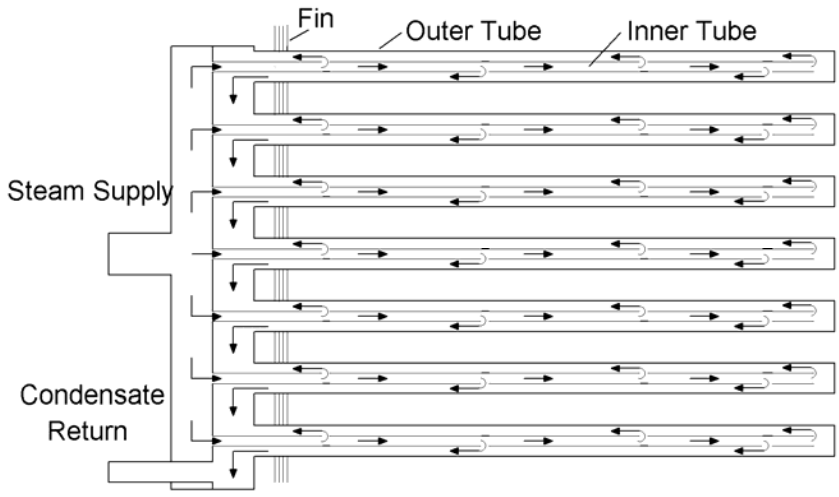
STEAM DISTRIBUTING COIL

Technical Sheet

Steam Distributing (SD) type coils are specially designed to minimize the potential freeze up of steam condensate when the coil is used as a pre-heater for extremely cold fresh air. Sub freezing air going through a steam coil sized for a larger than required heat load, and provided with low pressure or modulated steam, can cool the resulting steam condensate to the freeze point. This results in an erratic temperature swing of the heated air, blocks critical condensate removal from the coil tubes, and eventually swells the tubes until a rupture occurs.

A Steam Distributing coil uses a unique tube inside a coil tube design. It contains an inner tube that is perforated and runs the length of the coil. The number, size and placement of the perforations create the desired amount of restriction, forcing the steam to flow the full finned length of the coil. The steam then escapes through the perforations into the space between the inner and outer coil tubes (the “annulus”), and condenses. The released heat of condensation is transferred through the outer tube wall to the attached fins and ultimately the air. This results in an even temperature distribution along the finned length of the coil, even when supplied with low pressure steam. The steam condensate residing in the annulus area drains back to the coil condensate return header, staying warm as it touches the outside of the inner tube carrying steam. This style coil can *still* freeze up if the steam pressure modulated too low and/or the finned length is too long for the amount of steam provided.

A longer the steam condensate volume in the tubes gets large. This volume can reach a point where the annulus area cannot dispel all the condensate. A low steam pressure aggravates this situation by its inability to assist forcing the condensate out. To ensure Steam Distributing coils can sufficiently handle the condensate load they are built using a 5/8”, 7/8” or 1” OD size outer tubes with 3/8”, 1/2” or 5/8” OD size inner tube respectively.



The larger inner tubes allow more steam flow into the coil. The larger outer tubes create more annulus area to drain way the condensate from longer coil finned lengths and/or larger steam loads. Contact a Super Radiator Coils facility as to which tube size is best for your particular application.

Steam Distributing coils come with the steam supply and condensate return connections on the same end of the coil as standard. In certain coil installations, this may be more desirable than having these connections located at opposite ends of the coil (which is the normal design found on standard steam coils). Steam Distributing coils can be supplied with optional opposite end connections and steam supply/condensate return headers at both ends for extremely long coils or high condensate loads.

It is recommended that steam coil tubes be pitched to drain toward the condensate header with an approximate drop rate of 1/8" per foot of finned tube lengths. The standard coil design does not provide this: Super RC suggests the pitch be achieved when mounting the coil. SRC does offer an option to incorporate this pitch in the coil, but it must be part of the request for quote.