

Column Dryers and Coolers

Column Dryers

These are normally used for drying essentially free flowing materials such as amorphous or crystalline powders and granules to very low residual moisture or volatile content. Due to the long retention times possible, these columns are frequently used for diffusion controlled processes or purging products (e.g. catalysts) of residual monomers.

Many units have been supplied for drying of polyester and nylon chips.

Column dryers have been designed for plug flow and have a special gas distribution cone to ensure uniform counter-current gas flow up through the material. The effectiveness of the Barr-Rosin design allows us to specify very low gas flow rates thereby achieving extremely low operating costs. This is especially important when the process gas is nitrogen, steam or other treated gas. Residence time can vary from 1 to 24 hours, depending on the diffusion rate of moisture through the material. Heating coils may be incorporated to enhance thermal input to the material.

Column coolers

Column coolers are similarly suitable for free-flowing powders, crystals and granules.

Barr-Rosin Column Coolers transfer 90-100% of the heat to cooling water flowing through tubes suspended across a vertical column of slowly moving hot material. In some cases, the heat transferred to the cooling medium can be utilised elsewhere in the plant. The column is designed as a mass flow vessel giving uniform residence time and even cooling to all the solids. A small counter-current flow of gas passing up through the material can add a convective component to increase the overall process efficiency and provide a smooth running operation.

The Column Dryer and Cooler has no moving parts, other than the feed and discharge conveyors and the water recirculation pump. It is simple and reliable – an ecological and economical answer to the problem of cooling hot bulk solids.

