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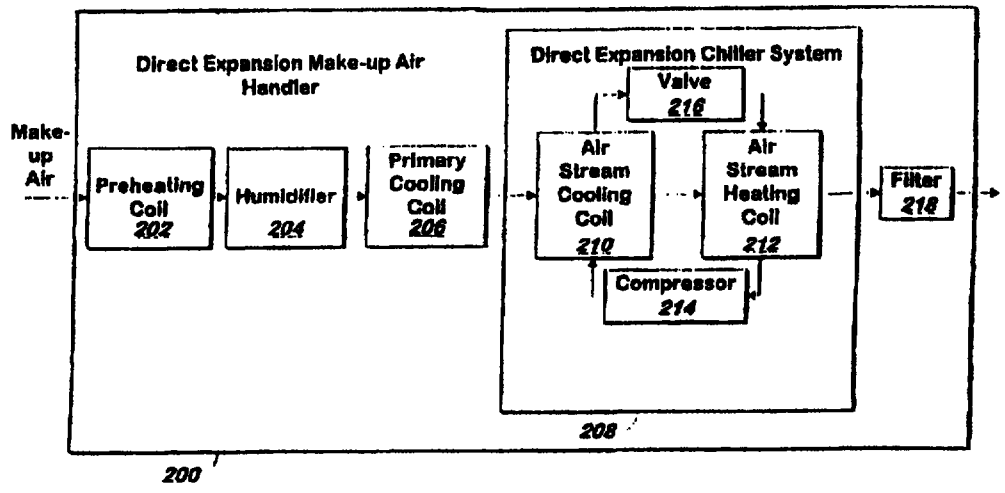
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(54) Title: MAKE-UP AIR HANDLER WITH DIRECT EXPANSION DEHUMIDIFICATION



(57) Abstract

A make-up air handler (200) controls temperature, humidity and/or cleanliness of air. The make-up air handler (200) includes a direct expansion chiller system (208). The direct expansion chiller (208) may be integral to the make-up air handler or remote. A clean room facility (300) uses the make-up air handler (200) to supply air to a clean room (306). The make-up air handler (200) includes a primary cooling coil (206) and a direct expansion chiller system (208), and may include a humidifier (204) and a filter (218). The direct expansion chiller system (208) includes an air stream cooling coil (210) and an air stream heating coil (212). The heating and cooling coils (210, 212) use a refrigeration fluid which is compressed and circulated by a compressor (214). Humidity is controlled by removing moisture which is condensed from the air stream by a primary cooling coil (206) and the air stream cooling coil (210) of the direct expansion chiller system (208). The energy removed by the air stream cooling coil (210) is reintroduced to the air stream by the air stream heating coil (212). The process of removing moisture directly removes contamination. The process of lowering humidity causes contaminant particles to form which can be removed by a filter (218).