

Operation Parameters of Vacuum Cleaned Filters

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Abstract : For vacuum cleaned dust filters, used e. g. in textile industry, there exist no calculation methods to determine design parameters (e. g. traverse speed of the nozzle, filter area...). In this work a method to calculate the optimum traverse speed of the nozzle of an industrial-size flat dust filter at a given mean pressure drop and filter face velocity was elaborated. Well-known equations for the design of a cleanable multi-chamber bag-house-filter were modified in order to take into account a continuously regeneration of a dust filter by a nozzle. Thereby, the specific filter medium resistance and the specific cake resistance values are needed which can be derived from filter tests under constant operation conditions. A lab-scale filter test rig was used to derive the specific filter media resistance value and the specific cake resistance value for vacuum cleaned filter operation. Three different filter media were tested and the determined parameters were compared to each other.

Keywords : design of dust filter, dust removing, filter regeneration, operation parameters

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