

### **Customized design of Reverse Flow Cyclone**

Reverse flow cyclone separators are commonly used to separate particulate matter from gas streams. Conventional design procedure of cyclone is based on 'standard design ratios', where all the dimensions and the pressure drop are decided by the gas flow rate, alone.

Customized cyclone design procedure developed by Leith & Mehta allows more flexibility and several dimensions and the pressure drop is decided based on the requirements. In this work MS excel work sheet has been prepared for customized design of cyclones. Graphically presented data necessary for design has been converted equations using non-linear regression.

A pilot scale cyclone separator was fabricated based on the dimensions obtained from the developed program. Series of experiments were conducted for air streams containing tea dust, saw dust, cement dust, talc etc. Experimentally obtained fractional efficiency curves comply with the predicted fractional efficiency curves. Complete particle separation was achieved for the systems containing coarse particles ( $> 40 \mu\text{m}$ ).

Hence the developed MS excel sheet for the novel customized design procedure can be used for cyclone design. The design is more flexible, since the dimensions can be decided to suit application requirements, space available and the allowable pressure drops across the cyclone.