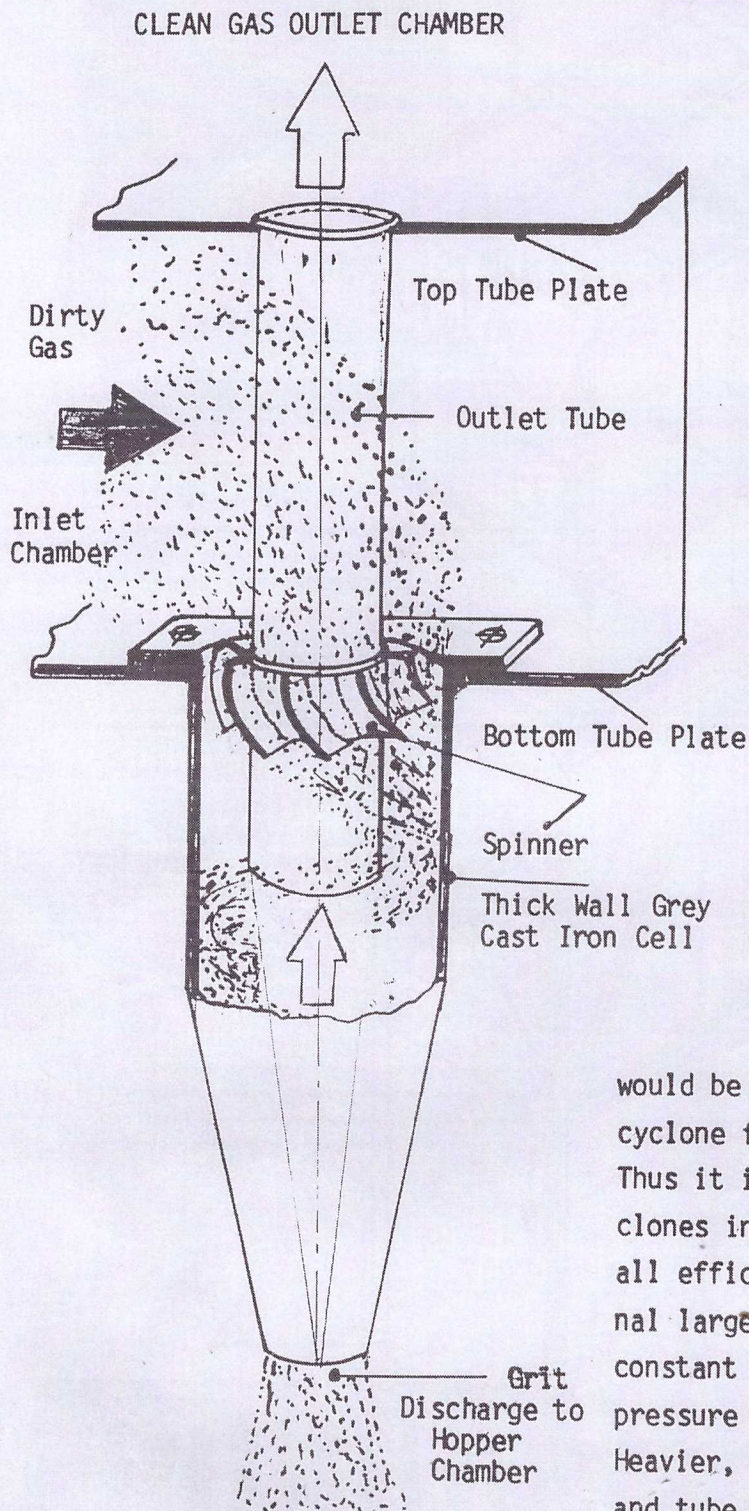


"ROTATUBE" DOUBLE VORTEX GRIT COLLECTOR



THE THEORY OF CYCLONES

A Cyclonic dust separator is an apparatus in which force (or velocity) is imposed upon gas containing grit particles. Centrifugal action is introduced to the trajectory of the particles, thus provoking radial movement toward the sides of the cyclone and causing separation of grits from the gas stream.

This force is defined by:-

$$F = \frac{M V_t^2}{r}$$

Where M = Mass of particle

r = Radius of gyration

V_t = Tangential velocity

It follows then, that the efficiency of a cyclone will improve as the velocity increases and the radius decreases.

Hence, a bank of small cyclones would be much more efficient than a large cyclone for an equivalent volume of gas. Thus it is possible to use many small cyclones in a single housing having an overall efficiency far greater than conventional larger cyclones. Efficiency remains constant since they are less affected by pressure drop than large cyclones. Heavier, cast wall thicknesses can be used and tube velocities can be better controlled by correct selection for given gas volumes.

Number of tubes is in direct relation to the required volume. Pressure drop for ideal velocity would be in the order of 1600 Pa at 1,2 Kg/M³

R.O.T. 103.