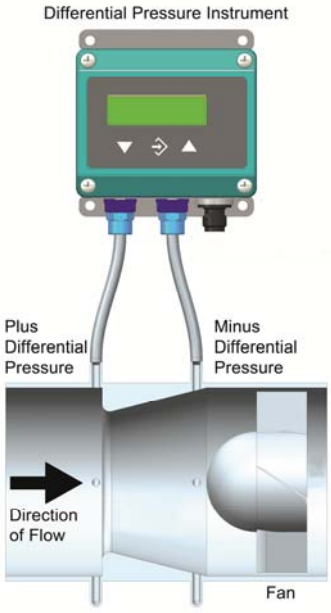
Energy Optimization of Ventilation Systems

GENERAL SITUATION:

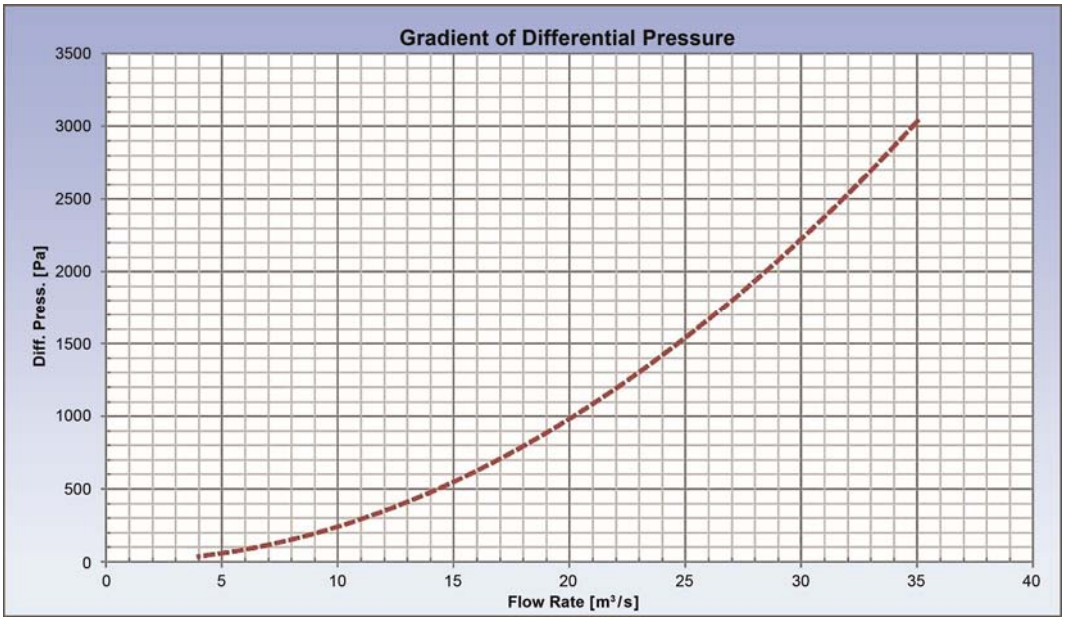


The issue of energy management is increasingly gaining importance. The need for action by the respective industrial company is not only prompted due to rising energy costs but also due to the standards of the Europe wide applicable standards of the DIN EN ISO 50.001 norm in which methods for the collection of energy data und energy management are described. Therefore, with regard to building technology, the monitoring of volume flow rates and optimum layout of ventilation systems is of great significance.

SOLUTION APPROACH:

The major part of existing industrial ventilation systems operates under unregulated full load conditions. In the context of energy optimization the obvious choice is, instead of the unregulated mode of operation of the system, to decide in favor of the regulated mode by means of the volume flow. Currently, ventilation fans are for the most part equipped with a circular lead allowing the effective pressure to be assigned to the volume flow of the ventilation fan and enabling the ventilation system to be controlled in accordance with the required air volume.

Example of curve characteristics of a conventional ventilation fan:



FISCHER Mess- und Regeltechnik GmbH • Bielefelder Str. 37a • 32107 Bad Salzuflen • Tel. +49 5222 9740 • Fax +49 5222 7170
eMail: info@fischermesstechnik.de • www.fischermesstechnik.de

MEASUREMENT TECHNOLOGY:

FISCHER Mess- und Regeltechnik GmbH is in a position to offer a range of various measuring devices allowing the storage of the characteristic curves of the according ventilation fans in the form of so-called value pairs (K-value) by means of a table function. The respective K-values can be illustrated in up to 30 value pairs ensuring a precise definition of the curve characteristics.

PRODUCT RANGE OVERVIEW:

Differential pressure switch / transmitter

Type DE44:

- 2 channel differential pressure transmitter with 2 analog outputs and 2 relay contacts
- output signals optionally 0...10V, 0.. .20mA or 4., .20mA
- 6 digit LC color change display, color change adjustable according to limit values (red, yellow, green)
- possibility of permanent monitoring of filter unit and, in parallel, the ventilator fan operation
- possibility of additional signaling of V-belt function and filter replacement by means of integrated relays
- possibility of double line or, alternatively, single line display (alternating display of channel 1 and channel 2)

Type DE45:

- single channel design
- optional operation of permanent filter monitoring or of ventilation fan operation control
- possibility of additional signaling of V-belt function and filter replacement by means of two integrated relays

Fig. Application example DE 44

Further options for both units:

- designed for use in Ex-zone 2 (neutral gases and aerosols) or for Ex-zone 22 (dusty media)
- parameterization directly on unit or optionally via PC adapter and PC software