

The turbulator is one of the special products made by Van Dijk heating.

The turbulator are delivered in large numbers to manufacturers of boilers, water heaters and air heaters. Installation companies often apply the Van Dijk turbulator to replace other types of turbulators.

Van Dijk heating is the leader in turbulator sales on the European market.

Retarders

Turbulators

5.01 EN

Van Dijk Turbulators

Operating principle

The turbulators are positioned in the fire tube to create turbulence. Consequently the heat transfer and the output increase considerably. At the same time the temperature of the chimney decreases.

Construction

The turbulators are produced by means of hydraulic deep drawing. In this process the base material, thin metal sheets or strips, is formed as desired. The elongation at rupture of the material must at least be 20%. Depending on the application, a wide range of corrosion and heat resistant materials can be used.

Application

Practice shows that our special turbulators increase the output of the installations considerably. This also applies to the replacement of old turbulators by Van Dijk-turbulators. Years of experience and a flexible production method enable Van Dijk heating to produce the best type of turbulator for each application. Both large and small series can be delivered quickly.

Advantages

- inexpensive
- generally applicable
- special models available
- large increase in heat transfer
- low resistance
- made of corrosion and heat resistant materials
- can be delivered in all lengths
- easy assembly
- material and dimensions according to the customer's wish
- stackable, therefore little store room is needed.

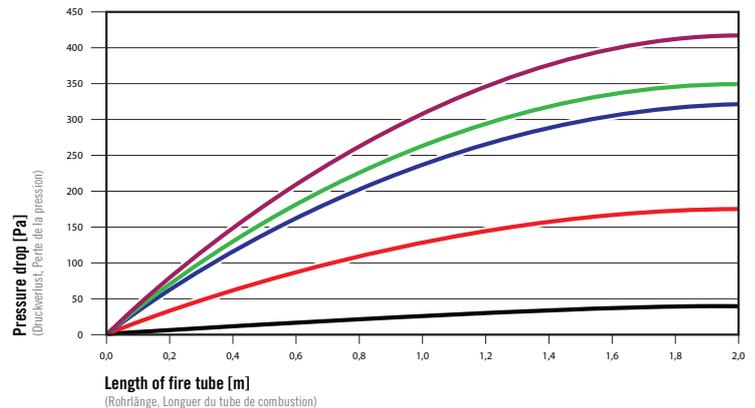
Heat transfer through convection in pipes

Many factors influence the heat transfer. In addition to the flow rate, there are major influences of temperature, material properties and pipe dimensions.¹

Turbulators in various versions were placed in the stainless steel fire tubes. For the measurements flue gas was used with an input temperature of approx. 800 °C. The heat was transferred to the water with a temperature of approx. 70 °C.

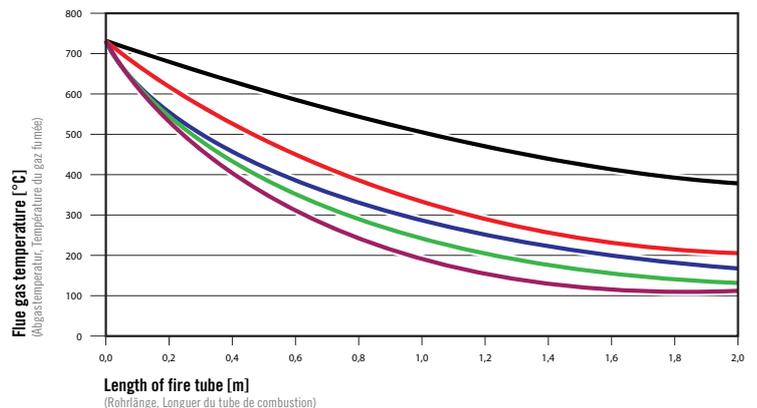
1) Taschenbuch für Heizung + Klima 94/95 page 132-138

Chart: Pressure drop



"The length of the fire tubes can be reduced when turbulators are used."

Chart: Course of temperature



Measuring results show the considerable influence which turbulators have on the heat transfer through convection in pipes. As the deformation of the turbulator increases (pitch smaller), the heat transfer and the resistance increase. The coefficient of heat transfer (α) becomes three times greater than in a smooth pipe. The coefficient of friction (λ) becomes up to eight times greater.

Conclusion: In practice the length of the fibre tubes can be reduced to between 35 and 50% of the smooth pipe length when turbulators are used.