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MIXER APPLICATION SHEET no. 6:

VP Gas Mixers for SCR DeNOx Plants

The purpose of the VP type gas mixer is to mix ammonia and flue gas in order to achieve, even at extreme volume flow ratios (1:10.000) uniform concentration and temperature profiles. This problem can be solved successfully by using one pre-mixer and one main mixer.

a) Pre-mixer

Flue gas or air is mixed with ammonia and forwarded to the main mixer as a carrier.



b) Main mixer

The carrier gas is blown in via a dosing system upstream of the first mixing element. The dosing system is matched to the geometric requirements of the main mixer and correspondingly designed. The required mixing elements provide a homogeneous mixture and, in the presence of an optimum channel configuration, attain the degree of homogeneity upstream of the first catalyst layer, requested by the catalyst manufacturer.



Construction and functional mode of the VP gas mixer

A VP type gas mixer consists of bended plates which form open, intersecting channels. The mixing effect takes place between two neighbouring plates by a relative displacement of part flows, as well as due to the increased turbulence at the open channel intersections. A further intensive homogenization takes place in the empty tube immediately downstream of the mixing element. This is due to the fact that flows leave the mixer with diagonal velocity vectors and intersect with each other. The geometry of the mixer can be matched to the channel cross section, which can be circular, square or rectangular.

Pittaluga Static Mixers VP main features:

- ✓ Excellent, predictable homogeneity, in very short spaces
- ✓ Minimum Pressure Drop: a few millimeters of water column
- ✓ Great performance, constant in the whole plant flow rates range
- ✓ Proven also with A.I.G. (Ammonia Injection Grid) spraying liquid NH₃ solution