Spillback nozzles

Atomization without compressed air



Lechler spillback nozzles atomize liquids as a fine hollow cone.

This special single-fluid nozzle works according to the pressure atomization principle. The water is sent to the nozzle with a relatively constant feed pressure, independent of the atomized flow rate.

The amount of liquid injected is adjusted via a control valve in the spillback line, whereby part of the flow is taken from the inlet flow rate and returned to the tank. The maximum atomized flow rate is achieved with the control valve closed.

Uniform and fine liquid atomization is achieved across the entire control range.

The atomized flow rate can be distributed over cluster heads with up to six small nozzles. This results in a total spray angle of approximately 120°.

This wide distribution of liquid over the entire duct is advantageous for reducing the number of lances.



Scheme of the spillback nozzle



Spray pattern of a single spillback nozzle



Spray pattern of a cluster spillback nozzle lance





V₃: atomized liquid

 $\dot{V}_{3} = \dot{V}_{1} - \dot{V}_{2}$

V_{3 min}: min. atomized liquid (return line open)

V_{3 max}: max. atomized liquid (return line

closed)

p1: constant feed pressure

p2: return pressure

Turn down ratio: $\dot{V}_{3 \text{ max}} / \dot{V}_{3 \text{ min}}$

Use:

Gas cooling in mediumsized and large gas cooling towers



 $\sqrt{\frac{V_1}{V_2}}$

Properties



High turn-down ratio

of up to 12:1







Execution

bar





pressure range of 35 bar, g in the supply line at the nozzle

