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.

Use:
Gas cooling in medium-sized and large gas cooling towers

Properties

- **Spray angle of the individual nozzles** 90° or 60° as hollow cone
- **Low operating costs** as no atomizing air required
- **High turn-down ratio** of up to 12:1
- **Even and fine liquid atomization** over the entire control range
- **Execution** as single or cluster nozzle lances possible
- **Typical pressure range** of 35 bar, g in the supply line at the nozzle

![Diagram of spillback nozzle and its atomization process](image-url)

- **Constant feed pressure** $p_1 = 35$ bar, g
- **Flow rate** $V_1$: flow rate
- **Return flow** $V_2$: return flow
- **Atomized liquid** $V_3 = V_1 - V_2$
- **Min. atomized liquid** $V_{3,\text{min}}$ (return line open)
- **Max. atomized liquid** $V_{3,\text{max}}$ (return line closed)
- **Return pressure** $p_2$
- **Turn down ratio**: $V_{3,\text{max}}/V_{3,\text{min}}$