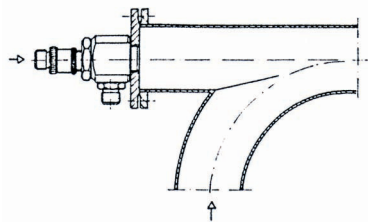
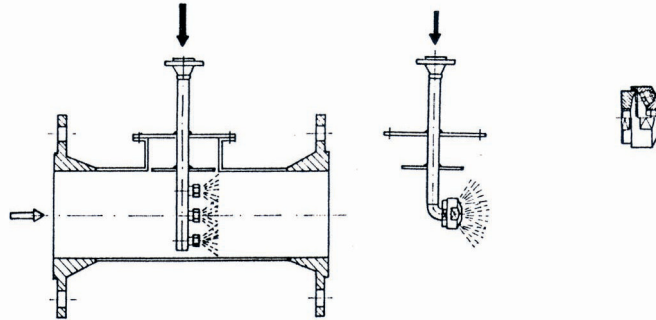


Superheated steam is cooled when high steam temperatures are impermissible for processing reasons, or when heated steam has to be saturated or cooled. Steam cooling is possible if superheated steam is available as live steam from a boiler with superheater or as low-pressure steam resulting from a throttling of high-pressure steam.

A. Unary nozzles

The easiest way to desuperheat steam is by means of unary, full cone or hollow cone nozzles.

However, it has to be seen to it that all water evaporates completely and that no droplets reach the pipe walls.

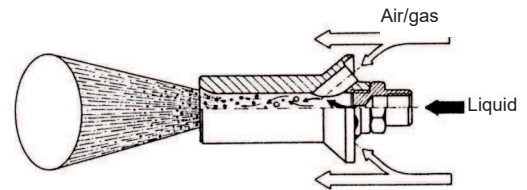


C. Orifice plate principle

The orifice plate principle is a special form. Through an orifice plate, superheated steam is directed into the nozzle, where water and cold condensate are atomized. In the nozzle's forking section all media are mixed and fog the droplets.

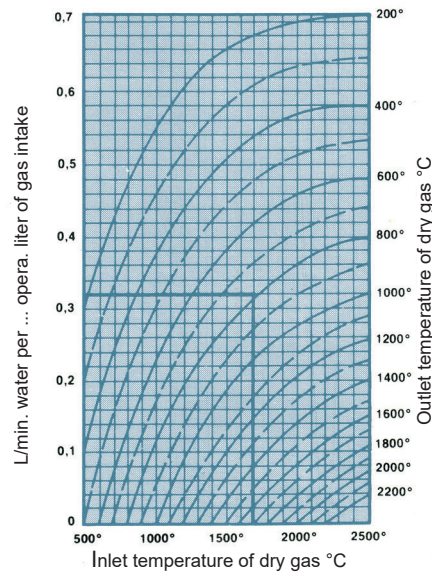
B. Binary fuel aggregate

Water, or preferably cold condensate, is micro-atomized with the help of atomizing steam. Droplets turn nebular and are smaller than the ones produced by unary nozzles. Heat transfer improves, and condensate generation is prevented.



Temperature and specific gravity of water		
Condensate temperature °C	Specific gravity t/m ³	Conversion factor
65	0.9806	1,010
80	0.9718	1,015
95	0.9619	1,020
110	0.9510	1,025
130	0.9351	1,030
140	0.9263	1,040
150	0.9172	1,045
160	0.9076	1,050
180	0.8866	1,065
190	0.875	1,070
210	0.850	1,085
230	0.823	1,102
250	0.794	1,122
270	0.765	1,145
290	0.720	1,180
300	0.700	1,200

Amount of water injected at gas in- and outlet temperatures for evaporative cooling



Example: dry gas at ...°C to be cooled to ...°C outlet temperature requires ... l/min. injection amount per ... operating liter of gas intake