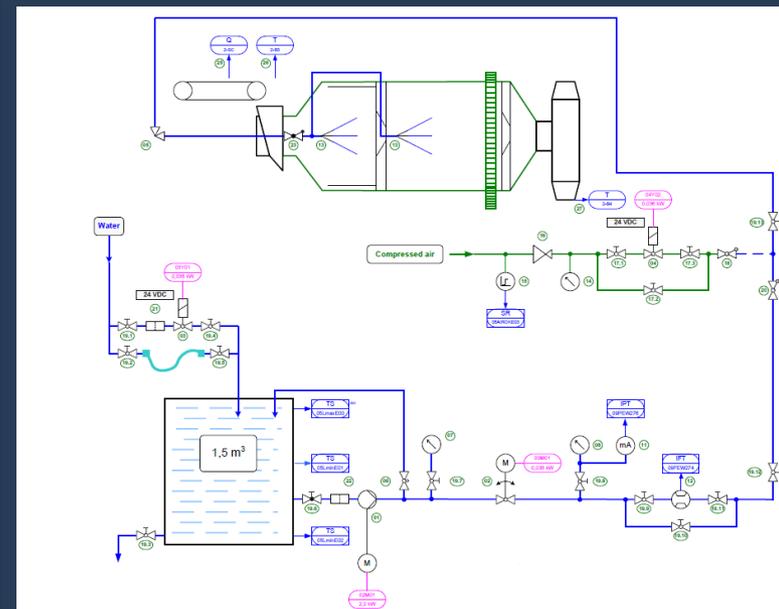
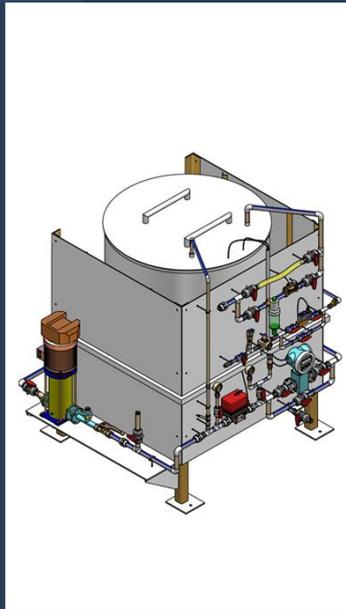


CMP AG

„Water injection“

# Detail process flow sheet water injection



## General description of water injection

The water is pumped from a supply tank via pipelines to the mill. The water is mixed with compressed air and then sprayed into the mill under high pressure via an atomizer nozzle **while it will be injected into the mill in gas-flow direction!** Inside the mill, the grinding heat causes that the injected water evaporates directly. The change of the aggregation state and the so originating vapour volume causes a high reduction of the grinding heat and thereby prevents an agglomerate formation of the grinding material. Thus beside the heat reduction, an increase of the grinding capacity is achieved. The resulting mixture of air and water escapes from the mill and is discharged via a dust filter. It is important for this procedure, that the proportioned quantity of water and compressed air pressure are optimally adapted to the process and that the pressure parameters of the atomizing firing nozzles are kept over a large quantity range. The injected water must evaporate immediately, since otherwise incrustation can be caused at the nozzles due to drop formation as well as gluing of grinding media and lining plates. This would lead to an impairment of the grinding capacity.

# Water injection

## Realisation of water injection

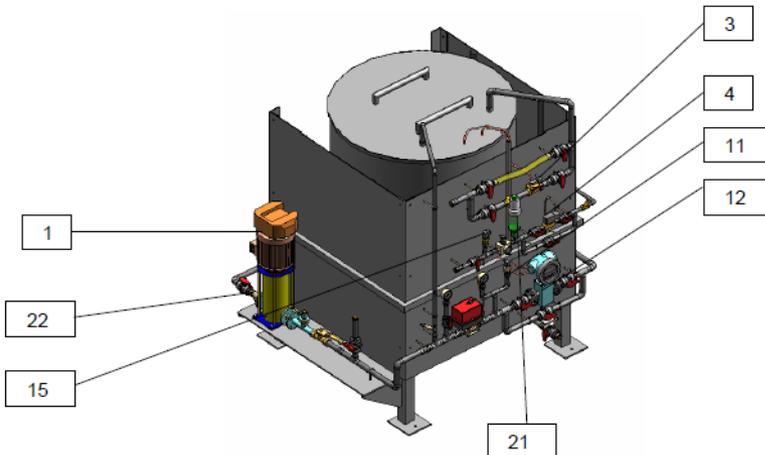
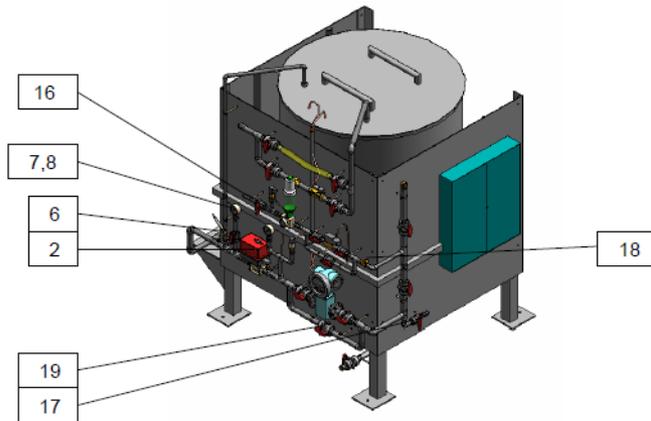
The water injection comprises two main groups: the internal and external zone. The external area consists of a water tank mounted on a frame with all appropriate components. The water tank is filled with normal tap water. By means of a pump unit, the required water quantity is taken from the tank, supplied with pressure and conveyed into the piping system. If a too large quantity of water reaches the piping, it is led back to the tank via a discharge valve. In addition, the pressure and flow rate are measured.

The compressed air lines are supplied via the locally existing compressed air ductwork system. The air pressure is controlled by manometers and regulated by manometric switches. A solenoid valve releases the compressed air for its way to the mill. The position of the check valve after the solenoid valve prevents the intrusion of water into the compressed air branch. Water and air are now merged. Through this, the water is additionally supplied with pressure and is conveyed from the outside area to the mill. This is the interface between internal and external zone. The connection to the rotating mill is effected by a rotary transmission feedthrough. The pipelines are fed into the mill inlet where they are branched out in the grinding chambers 1 and 2. A filling jet nozzle is mounted at the end of each pipe line that effects the requested injection.

## Introduction into the electrical control for the water injection system

The CMP program control for water injection has been especially developed for an appropriate injection of water or other fluid grinding aid into the cement grinding process, either directly into the tube mill or into peripheral devices, according to specific requirements.

The CMP water injection system offers a complete solution, both by its approved mechanical installation and its process control, exactly adapted to different variations.



### Parts list - electrical components

item	description
1	water pump
2	control valve
3	solenoid valve water
4	solenoid valve air
11	pressure transducer
12	flow meter
15	pressure switch air
16	pressure reducer air
	temperature sensor
	floating switch

### Parts list instruments

item	description
6	overflow valve
7,8, 14	manometer
17	ball stop-valve air
18	non-return valve
19	ball stop-valve water
21	reversible flow filter
22	splash guard

