The operation of the chemical liquid mixing process:
There are 4 main parts in this process:

- 1 powder distributing tank with the conveyor motor
- 1 mixing tank with the stirring motor
- 1 storage tank
- 1 pump with the speed drive

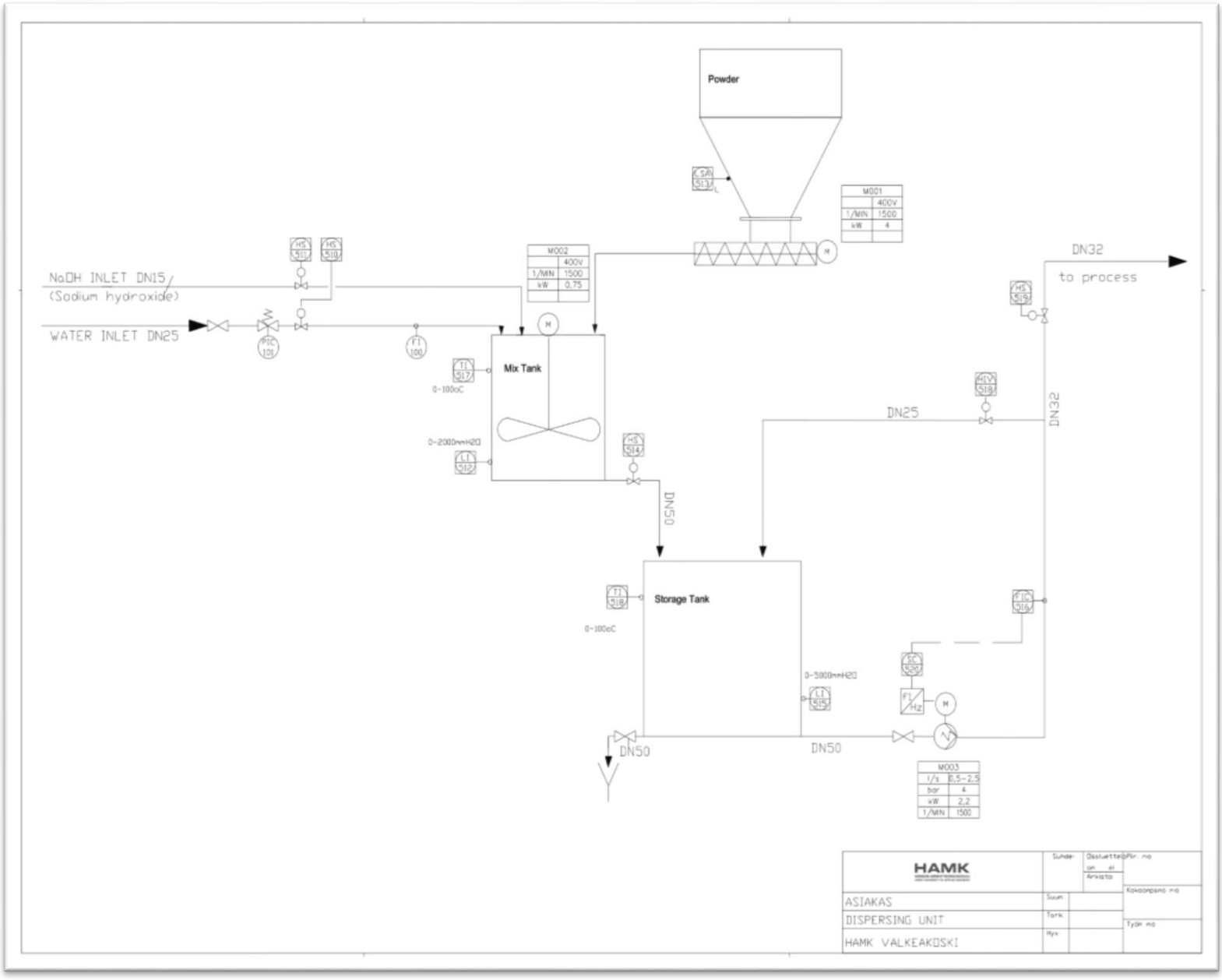


Figure 1: Chemical liquid mixing process

At the beginning, both the NaOH liquid and the water are conducted into the mixing tank simultaneously through the DN15 and DN25 alternately. To control the flow rate in each pipe, there are two hand valve HS-511 and HS-510 corresponded to DN15 and DN25 which are also managed in the control room. Besides that, the pressure relief valve with the pressure indicator PIC-101 and flow meter FI-100 are located on the pipe DN25 controlling on the field individually.

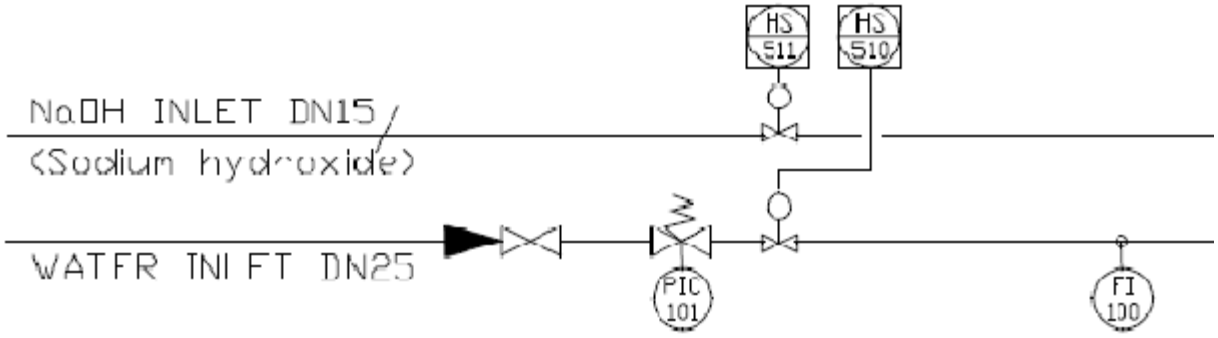
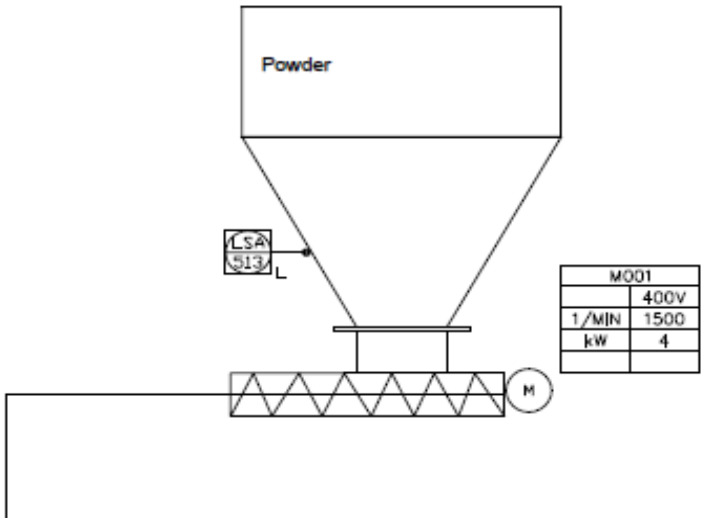


Figure 2: Beginning of the process

Concurrently the powder from the powder tank is dispatched by the conveyor motor MO-01 with the mixing liquid NaOH and water into the mixing tank. On the



side of the power tank, the low level switch alarm LSA-513 is adjusted for operating the powder level.

Figure 3: Powder tank with dispatching part conveyor

The following stage of the process is all the materials is leaded into the mixing tank and stirred by the stirring motor MO-02. The temperature transmitter TI-517 for the set point range 0-100℃ and the hydrostatic low level transmitter LI-512 for the setpoint range 0-2000mmH_2O are merged on the side of the tank indicating the temperature and level of the mixed liquid to the control room.

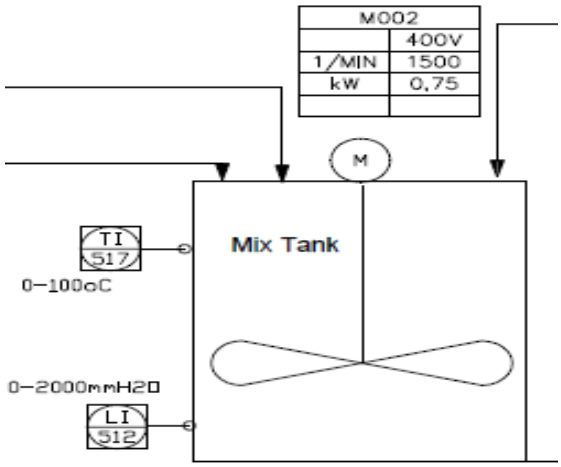


Figure 4: Mix tank with stirring motor

After the mixing stage, the result liquid is released into the storage tank via the pipe DN50 with the control of the hand valve HS-514. Concerning the storage tank, also the temperature transmitter for the set point range 0-100°C TI-518 and hydrostatic low level transmitter LI-515 for the set point range 0-5000mmH_2O are attached on the side of the tank indicating the temperature and level of the liquid mixture to the control room.

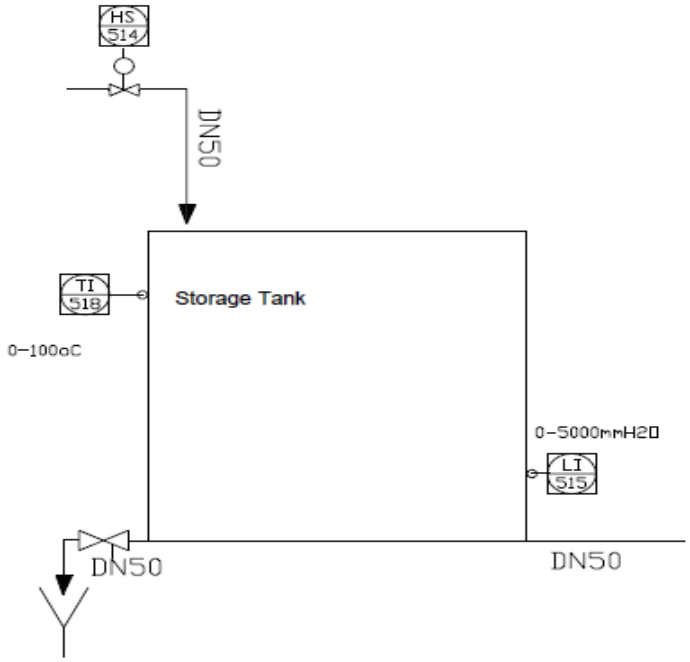


Figure 5: Storage tank

There is the pump motor MO-03 connected with the speed drive SC-520 drains the liquid mixture from the storage tank through the pipe DN50 to the pipe DN32. Based on the database signal from the FIC-516 flow transmitter measures the flow rate in the pipe DN32 indicating to the control room, the speed drive is adjusted to control the pump motor speed reasonably.

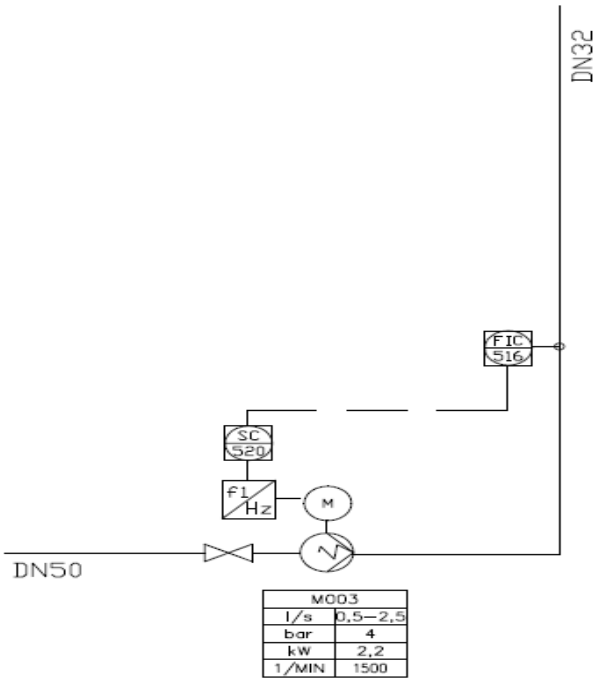


Figure 6: Pump motor with speed drive control

On the pipe DN32 to the next stage, the hand valve HS-519 commanded from the control room is combined. Another direction flow is the displacement of liquid back to the storage tank via the pipe DN25 and also operated by the hand valve HIV-518.

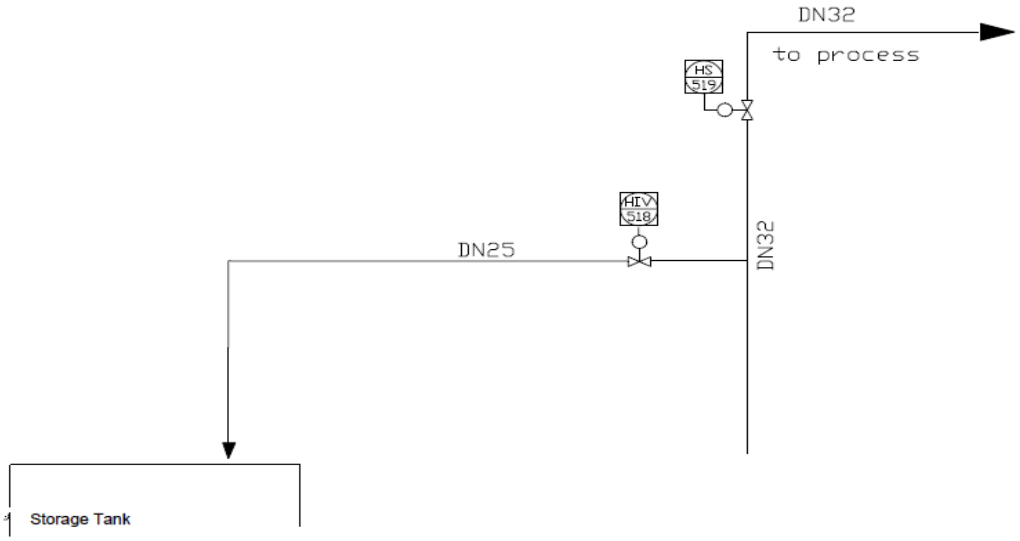


Figure 6: Mixture direction