

STANDARD OPERATION PROCEDURE: BATCH PLANT

For training and beginner operators

Last update: 08/06/2022

System start-up

1	Open the mixer and ensure that the chamber is clean of concrete	
2	Apply form release oil inside the mixer	
3	Ensure the cement feeding tube inside the mixing chamber is build-up free	
4	Inspect the aggregate conveyor belts	
5	Inspect gate from outside, remove build-up, check rubber seal	
6	Grease according to the maintenance guide	
7	Check cement and aggregate silo levels	
8	Check admixture levels	
9	Open water supply and power on the batch plant	
10	Activate mixing. Ensure mixing arms rotate without any collisions	
11	Ensure the gate opens and closes fully, this can be seen by the green light on the screen	
12	Test emergency stop. Activate mixer again	
13	Manually add gravel, sand, cement, and water to the mixing chamber individually, monitor mixer weight to ensure entry	
14	Manually add admixtures to the mixing chamber, monitor the flow meter to ensure entry	

15	Open gate and dump test material. Rinse mixing chamber with water and do a quick clean with pressure washer	
16	Ensure water tank is full (>80%)	
17	You will need: fibers, powder accelerator, scale, measuring cups, shear vane, trowel, empty pail, and water pail during mixing	

Operation

1	Login under Settings -> General settings, password is 6920	
2	Clear active order	
3	Adjust mix design according to aggregate moisture content	
4	Load slurry recipe. Cement 1300 kg/m ³ , water ± 500 kg/m ³ , 100-150 l batch	
5	Ensure the gate closed, water tank is full, mixer is empty, and all motors are in auto, start mixing	
6	Start mixing slurry. Continues mixing will keep slurry fluid for several hours	
7	Check consistency before dumping. You want it to be similar to mayonnaise	
8	Open the gate to dump slurry in the pump hopper	
9	Load mix adjusted for moisture content	
10	Adjust water correction to -5 l and batch size to 100 l	
12	Start mixing	
13	After 180 sec mixing time, stop mixing	
14	Check shear vane, target value is 500-700 Pa (10-14 mm)	
15	If OK, do a slump flow test and note slump flow	

16	If OK, dump mix in pump. Immediately start next mix	
17	If not, start mixer and add additional water (using water correction function) until target values are reached	
18	Shear vane. If OK, note slump flow	
19	Adjust mix recipe to account for additional water added. Remember, water correction is per batch size (100/200 l), while the recipe is for 1000 l	
20	Increase batch size to 200 l and start mixing	
21	Check shear vane and slump flow	
22	If OK, note mixer load	
23	Dump mix in pump 150-200 kg at a time, be careful with filling the pump hopper above agitators	
24	Start new mixing immediately after	
25	If delays occur at printer, stop the mixer. Plasticizer of 0.2% (per cement weight) can be added for every 20-30 min of delay. Remix for 60 sec every 10 min. Add according to mixer load, but check shear vane before dumping. DO NOT add more water	
26	Use the water correction to adjust the mix from batch to batch, look for the mixer load, this is your main similarity	
27	Regularly check admixture, cement and aggregate levels	

Cleaning

1	For the last batch, dump all the material in the pump	
2	Start mixer	
3	Add 50 kg gravel and 10 kg water manually	
4	After the pump is removed, dump gravel and water mix	

5	Pressure wash the inside of the mixing chamber	
6	Manually turn mixing arms to clean	
7	Remove build-up with jackhammer	
8	Pressure wash the gate piston and clean outside of mixer unit	
9	Pressure wash the gate from discharge side	
10	Apply concrete remover is needed	
11	Run mixer while opening in closing gate. Stop mixer, open gate	

Shut-down

1	Check material stockpiles, request next shipment if running low	
2	Close and cover cement silo	
3	Cover aggregate silos	
4	Close admixture containers	
5	Close water supply	
6	View day's mixes in Computer>C:>PLC-Data>Report	
7	Shut down PLC	

Maintenance

Daily

- Control the emergency stops

Weekly

- Check the belts and belt pulleys, inspect for damages
- Grease spindles by belt pulleys
- Grease the bearings by discharge gate

Monthly

- Check oil level on gearbox
- Grease supporting legs
- Check bolted connections and tighten if necessary