VB4 BRICK PLANT

Operator Manual

Profile Cutting • CNC Plasma Cutting • Bending • Fabrication • Brick Plant Manufacturing Crane Truck Repairs • Trailer Repair s

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## OVERVIEW OF A FULLY AUTOMATED BRICK PLANT

The plant is fully automated from the input of raw materials to the completed product of bricks exiting the brick machine on a pallet.

The plant is divided into two main sub systems and can operate together or individually.

The operation of the batching system and brick machine are displayed on a 10" HMI.

All parameters and settings for both the batching and brick machine are made via the HMI.

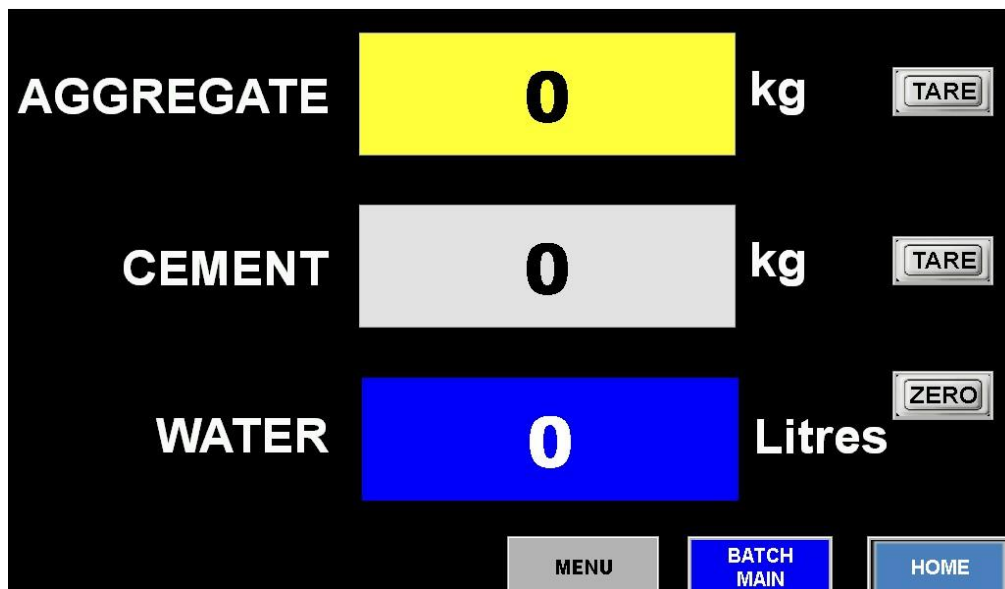The control panel has manual override for all functions.
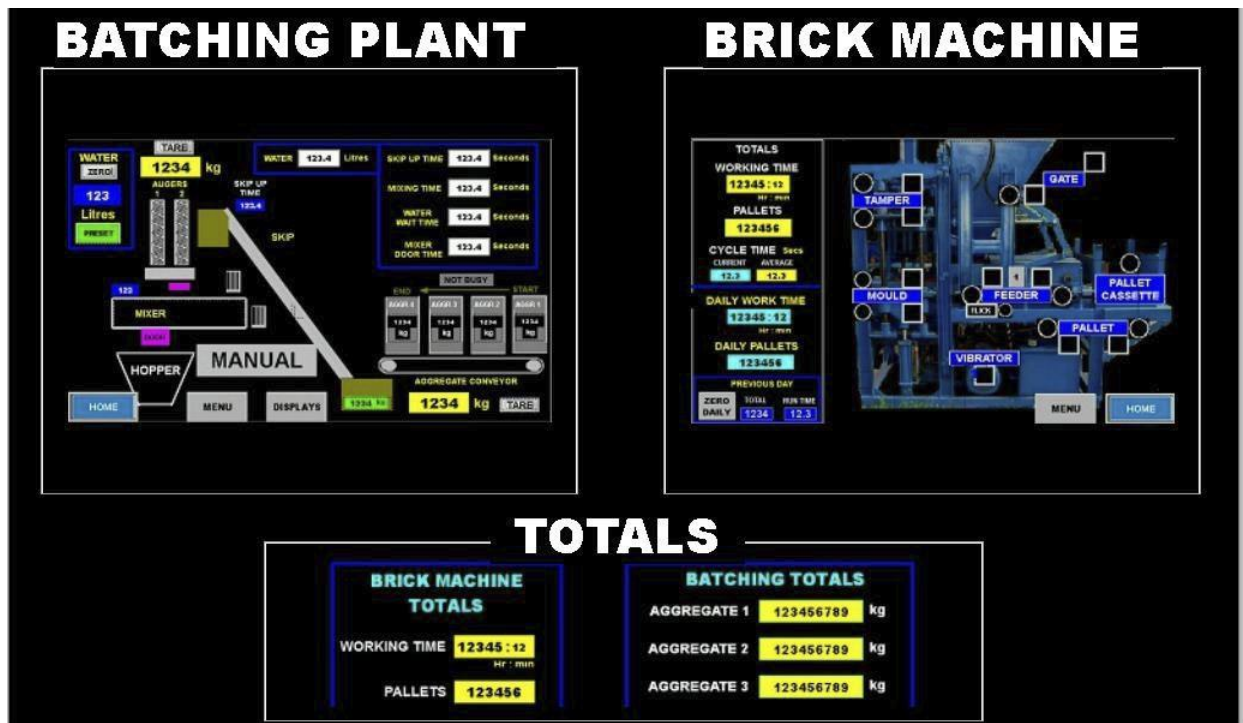
Accumulative totals indicating amount of aggregate used and brick machine working time and number of pallets produced is displayed.
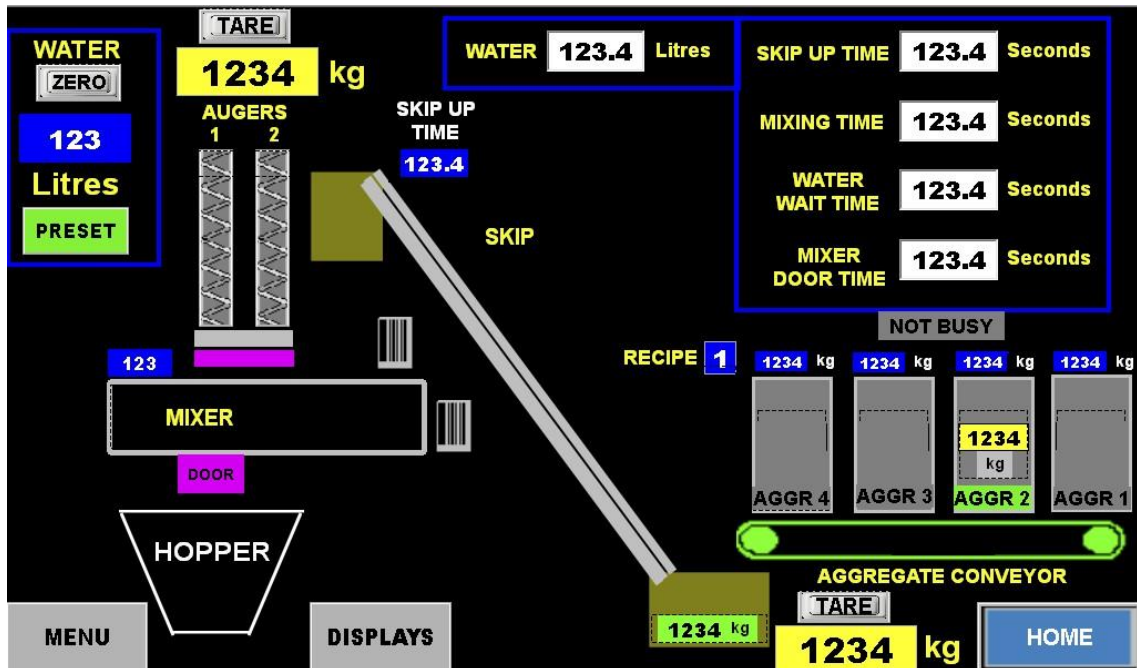
These totals are fixed from time of commissioning and cannot be cleared.
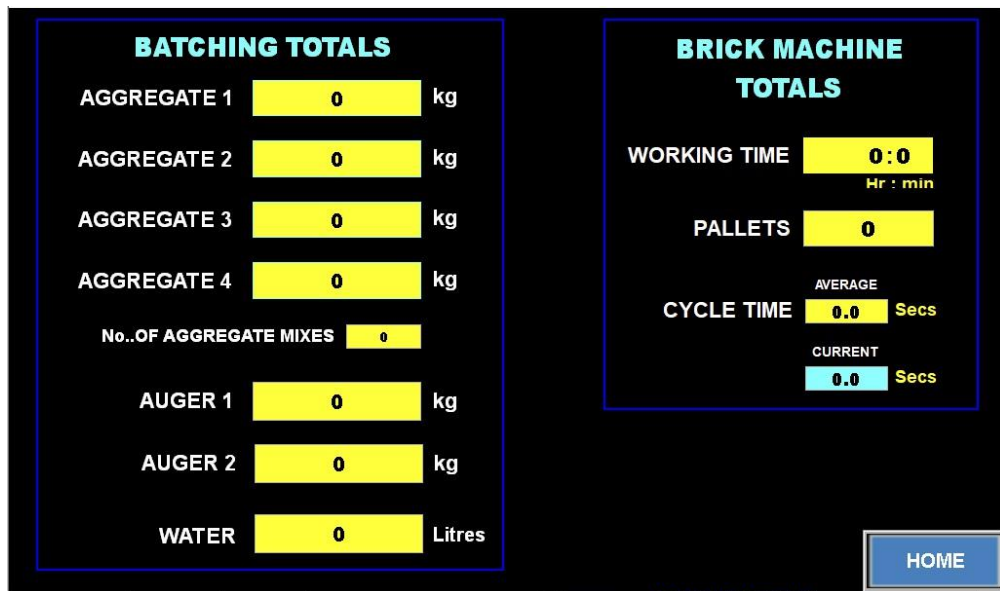
A facility to view the weights is provided for as the loadcells feed directly into the PLC and therefore no need for loadcell indicators.

BATCHING AND MIXING

The screen displays the following elements:

- WATER — ZERO — 123 Litres — PRESET
- TARE — 1234 kg — AUGERS 1 2 — 123
- SKIP UP TIME — 123.4
- SKIP
- MIXER — DOOR — 123
- HOPPER
- WATER 123.4 Litres
- SKIP UP TIME 123.4 Seconds
- MIXING TIME 123.4 Seconds
- WATER WAIT TIME 123.4 Seconds
- MIXER DOOR TIME 123.4 Seconds
- NOT BUSY
- RECIPE 1
- AGGR 4 1234 kg — AGGR 3 1234 kg — AGGR 2 1234 kg (1234 kg) — AGGR 1 1234 kg
- AGGREGATE CONVEYOR
- TARE — 1234 kg — 1234 kg
- MENU — DISPLAYS — HOME

- Batching - up to 4 different aggregates (up to 8 recipes) are weighed into a hopper or onto a conveyor.
- Simultaneously the cement auger fills the cement hopper to the required weight.
- When the skip reaches the down position and the aggregate weighing is complete, the aggregate hopper / conveyor empties its contents into the skip.
- Once emptied the aggregate batching cycle is then started again in order for the aggregate hopper / conveyor to be ready for the next time the skip arrives empty.
- If the mixer is empty the skip goes up and dispenses its contents into the mixer and proceeds to go down for the next aggregate batch.
- Once the skip has discharged into the mixer, the cement hopper empties its content into the mixer. (Discharging both simultaneously causes too much dust).
- The cement auger then starts to run for the next batch.
- After a pre-set delay (dry mixing) a predetermined amount of water is added to the mixer.
- The mixing time is pre-set and once completed the mixer door opens and the mix is dispensed to either the brick machine's hopper or to a feed conveyor.

An alternative to having a conveyor under the aggregate bins is to have a cart running under the bins and discharging into the skip.
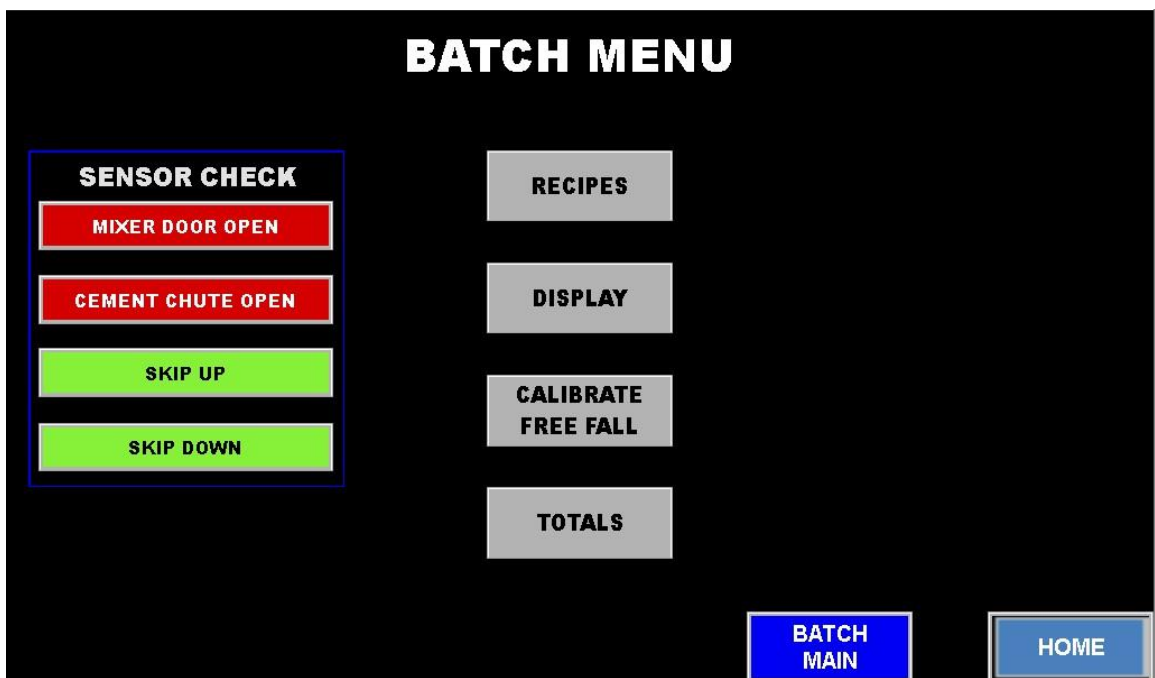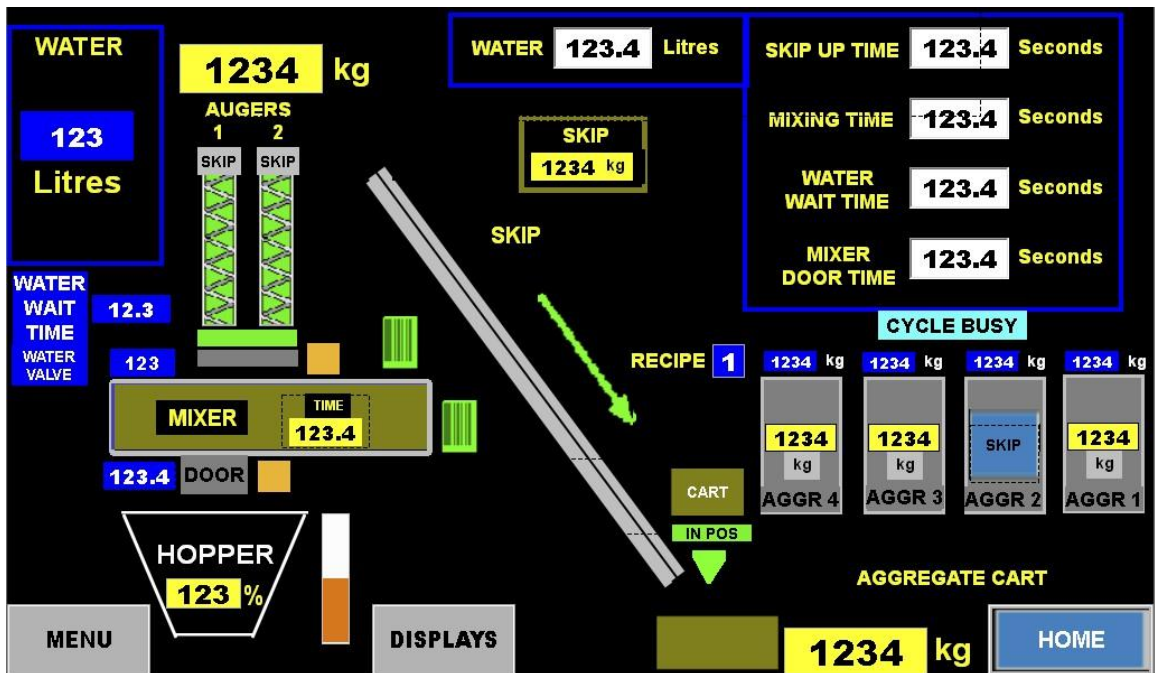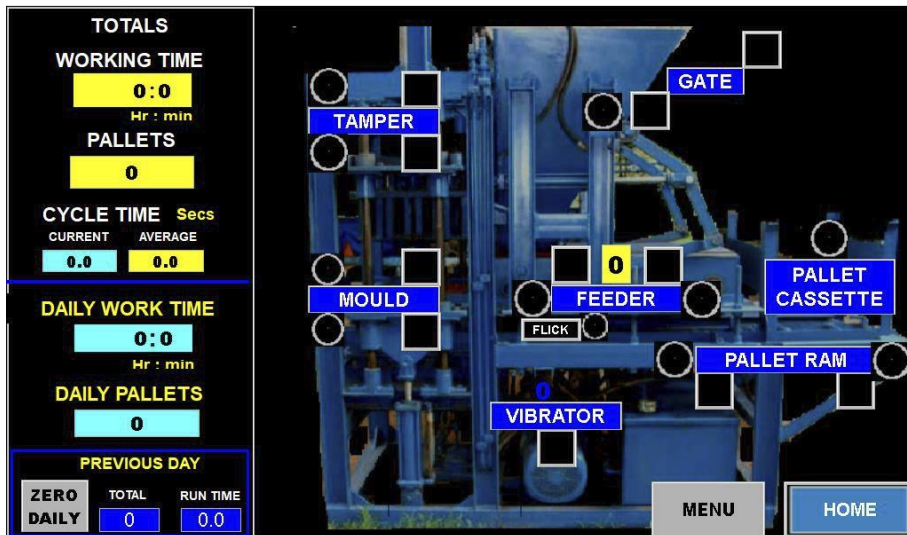
RECIPES

Up to 8 recipes can be stored and can be selected at any time.

READ RECIPE No.	WEIGHT SETPOINT	

SELECT RECIPE No.

WEIGHTS ARE DISPLAYED ON THE RIGHT HAND SIDE AND CAN BE TEMPORALLY MODIFIED BY SELECTING ITEM AND ENTERING VALUE

FOR PERMANENT CHANGES GOTO WRITE RECIPE

WRITE RECIPE

READ RECIPE No.		WEIGHT SETPOINT		
1	AGGREGATE 1	0	kg
2	AGGREGATE 2	0	kg
3	AGGREGATE 3	0	kg
4	AGGREGATE 4	0	kg
5	AUGER 1	0	kg
6	AUGER 2	0	kg
7	WATER	0	Litres
8	MENU	BATCH MAIN	

A calibration facility is provided for and incorporates a freefall allowance (the weight that falls when the doors are closing).

0 kg [TARE]

SET WEIGHT
0 kg
Switch to MANUAL
Set weight and press START

CANCEL CALIBRATE

			NEW VALUE			OLD VALUE	
AGGREGATE 1	START	FREE FALL	0	kg	ACCEPT	0	kg
AGGREGATE 2	START	FREE FALL	0	kg	ACCEPT	0	kg
AGGREGATE 3	START	FREE FALL	0	kg	ACCEPT	0	kg
AGGREGATE 4	START	FREE FALL	0	kg	ACCEPT	0	kg

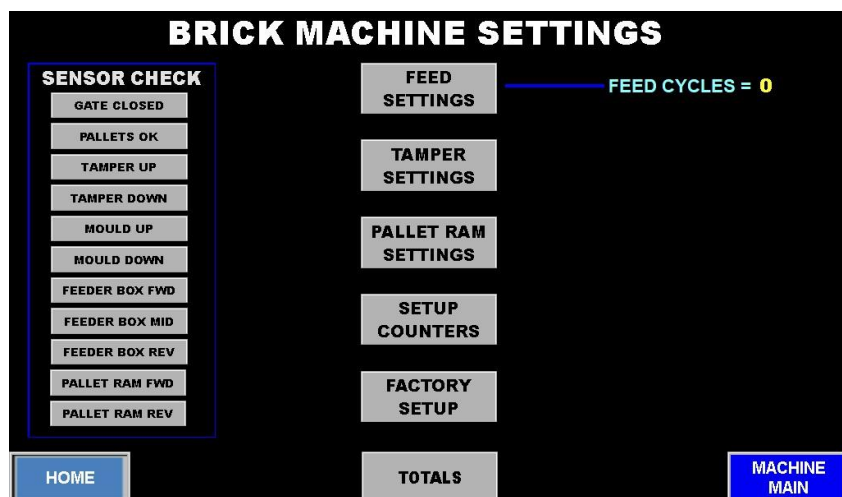| AUGER 1	0	kg	SET AUGERS FREEFALL MANUALLY
AUGER 2	0	kg	

RETURN

BRICK MACHINE

- When the brick machine's hopper has material in it the feeder box runs forward - up to 5 feed cycles and 5 flicks as well as pre-vibrate and time are selectable.
- Once the feeder has completed the tamper moves down and the vibrator starts. The vibrate time has selectable features such as vibrating time or stopping when size is reached, driving the mould down while vibrating, etc The vibrator is driven from a VSD to ensure correct vibration.
- Once the vibrate time has expired the tamper and mould lift and the pallet ram moves a new pallet into position and dispatches the completed pallet.
- The cycle then repeats.

All sensor inputs and solenoid valve outputs are displayed on the brick machine screen for easy troubleshooting.

Total working time (cannot be cleared) as well as daily working time and previous day totals (can be cleared by ZERO DAILY button) are displayed.

CONTROL PANELS