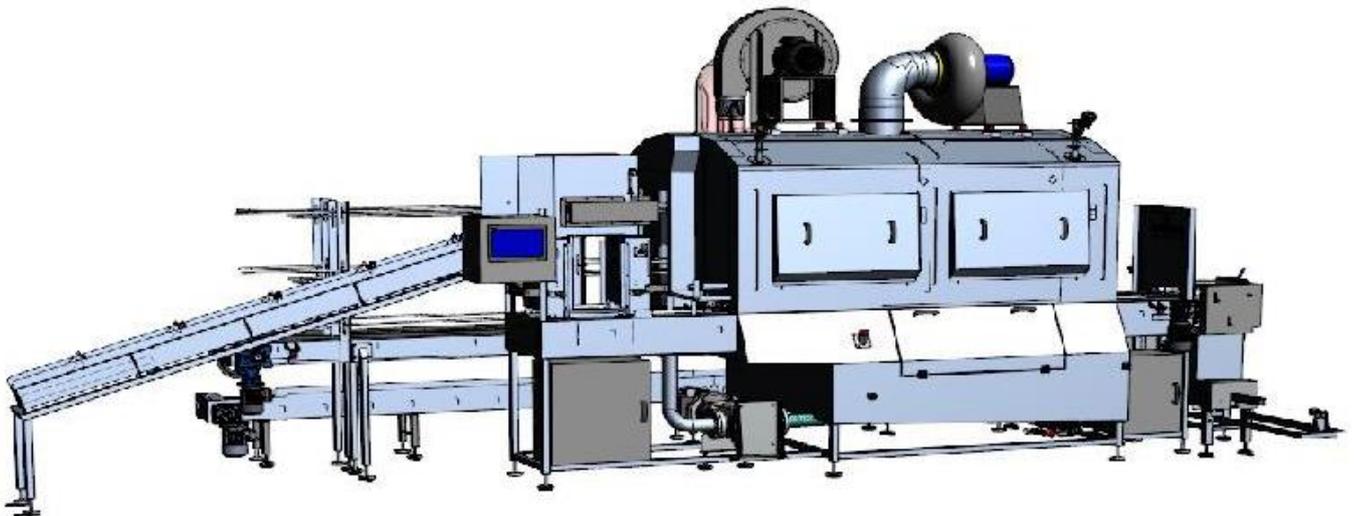


Project 3269

User Manual



Washing machine

Producer: Echberg Manutech A/S, Søvej 16 8680 Ry, Denmark
Project number: 3269

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1. Main technical data:

Power consumption : max: 64A

Air pressure: 6 bar

Voltage: 3x400 VAC

Control voltage: 24V DC

PLC S7-1200 DC/DC/DC

Panel: Weintek Mt8102iE with Ethernet

Internet connection information:

PLC : 192.168.1.30

Panel : 192.168.1.31

AirBlock : 192.168.1.32

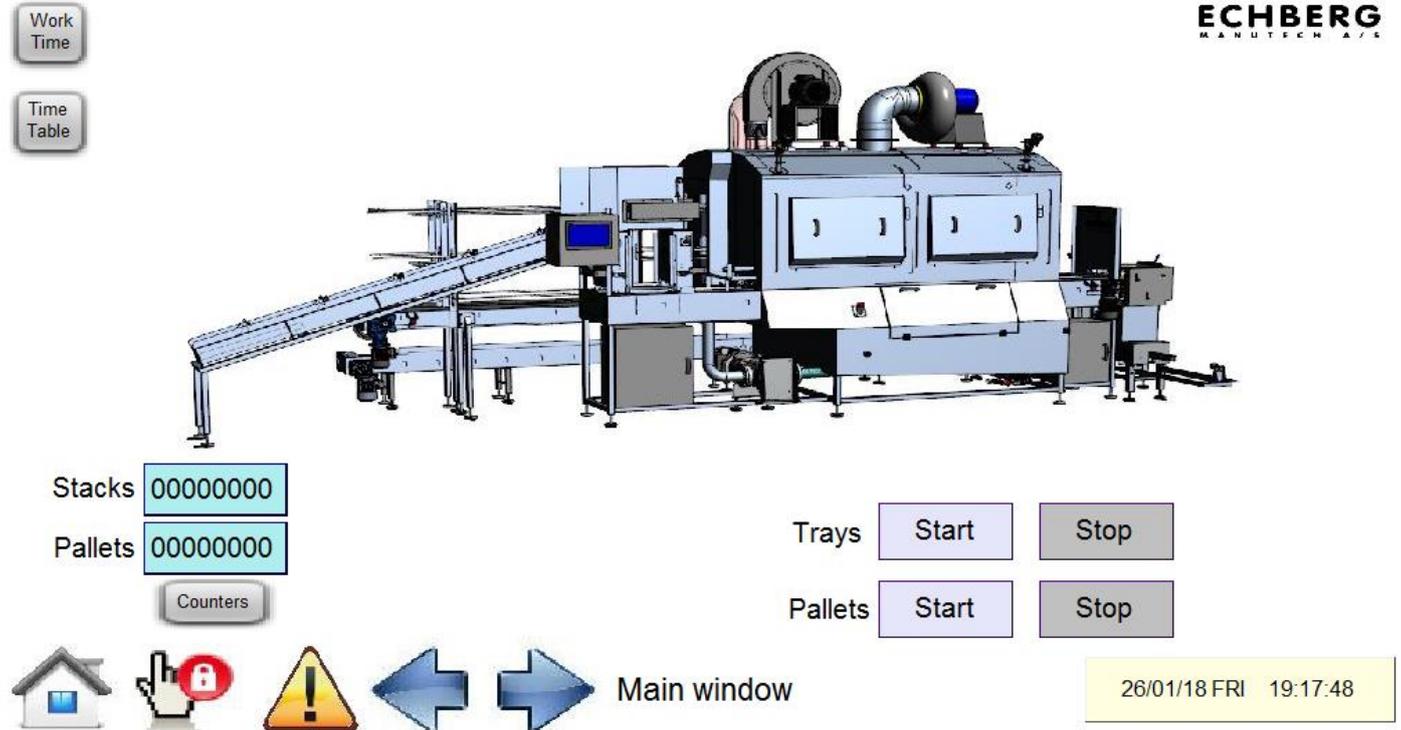
Subnet: 255.255.255.0

Gateway: 192.168.1.1

DNS: 192.168.1.1

2. Main window screen

Current user:



Main window

The main window as the first screen shown after start-up shows the complete machine with counters for stacks and pallets and start and stop buttons. There is a date and time, panel settings (after login as ADMIN), alarm icons and left and right arrows to jump between screens.

The main window is always as a first screen to appear also called as home window. From this level there is access for Counters, Time Table for Scheduler for start filling machine and Work Time of each line. There is also possible to start and stop Tray line and Pallet line. At the top left side You can see what user is current log in. Is it no user logged in, USER, or ADMIN logged in.

3. How to move in the panel.



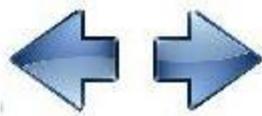
Home button – goes into the main window no matter what window You current are.



Login icon – access to the parameters of the machine which are protected by password. Operator can log in as USER to operate the main functions and parameters of the machine. There is also possibility to log in as an ADMIN to change the software panel settings and to work with the machine with a “bypass” function.



Alarm icon – opens window with current alarm state.



Arrows – left and right to jump between screens.



Safety bypass Switch allows to work with door open or emergency button pushed.

Warning !!! is shown only after password. Be careful when using this function, because it may be dangerous for operators. Always be sure that You use this function with special careful.

Bypass switch is shown in “washing module” screen only after login as an ADMIN



Icon safety bypass on. This icon show that the machine works in Safety Bypass ON. This situation must be use careful. Only for testing motors, cylinders etc. For regular work this icon must be OFF.



Icon “Water bypass ON” is shown when switch Water Bypass in turned into ON position. This is also only for testing proper work of pump when there is no water in the tank.

Icons Start and Stop



Start and stop trays line or start stop pallets line. It gives the same result as pushing buttons on the cabinet or in the consoles when it comes about the tray line.

Panel Settings

Panel settings icon allows to enter the parameters of the panel. Like IP address, time and date etc. It is protected by password. Only as an ADMIN access is possible.



Work time and Time table icon. Work time shows working time of the machine. Time table is used to set up time of each day of the week for start up the machine. Fill the tank with the water and start heating up the water after it was being filled.



Y103 Push button icon. This kind of button allows to turn on and off motors and cylinders in the machine in manual mode. Manual mode is when the machine is in stop mode. In auto mode icon shows if the cylinder or motor is running.



B109 Lamp object show if the current sensor is On or Off.

4. How log in.

Operator can Log in as USER or as an ADMIN

For USER:

User name: USER

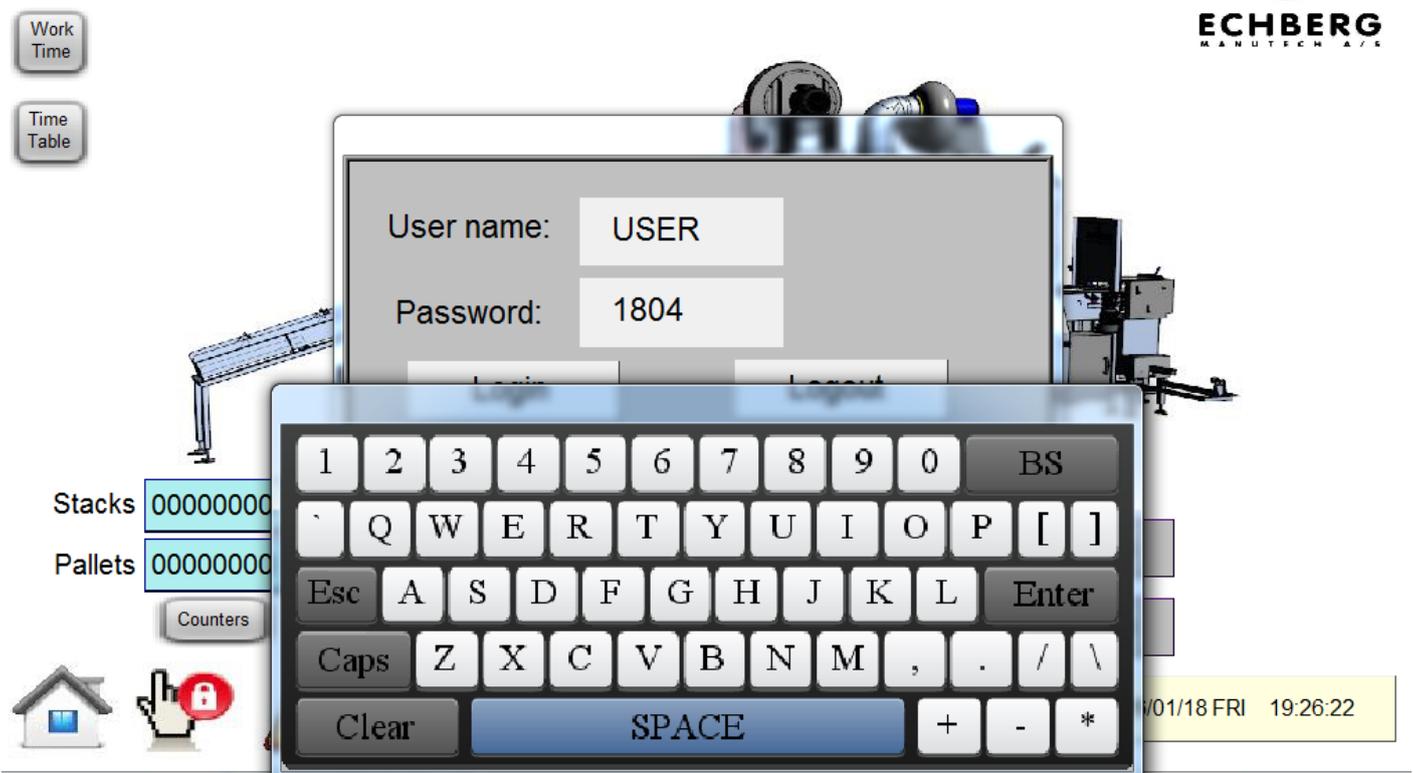
Password: 1804

For ADMIN

User name: ADMIN

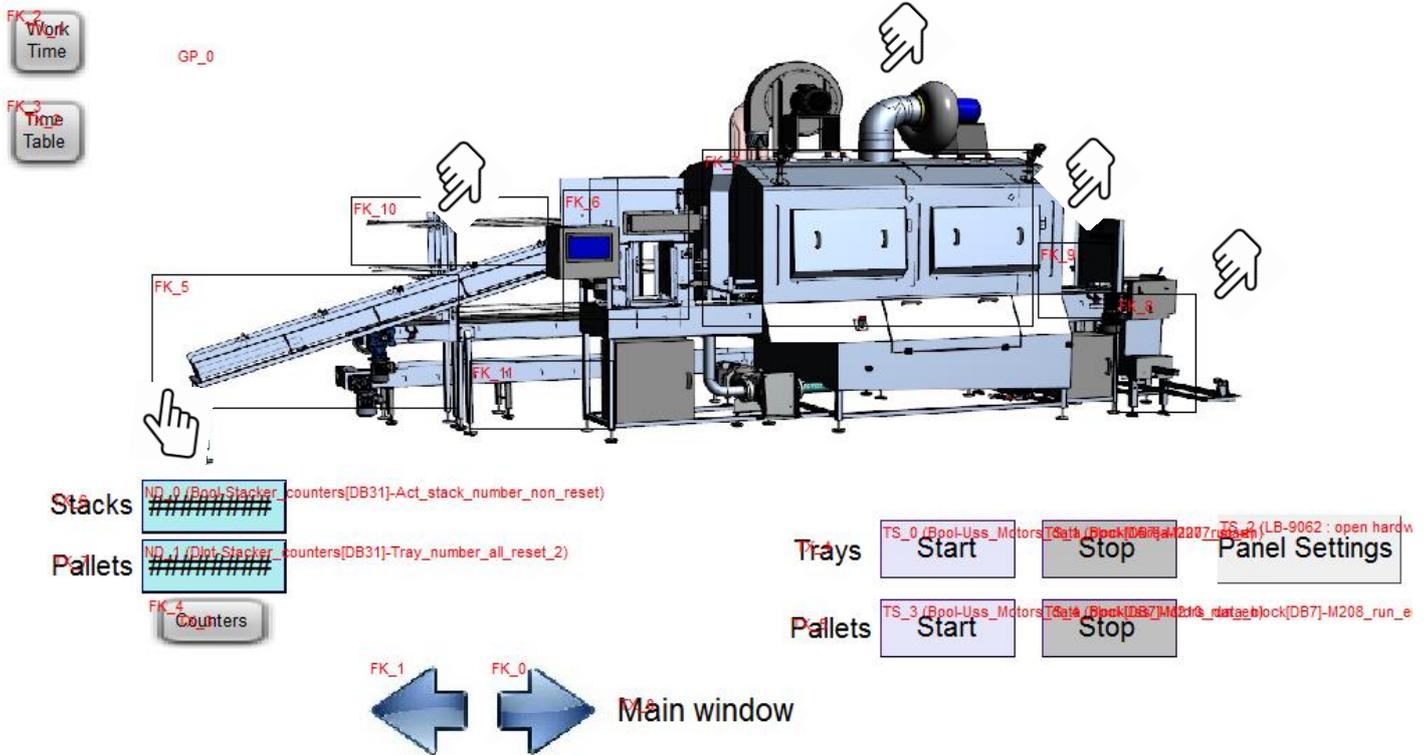
Password: *maintenance password*

Current user:



After changing ADMIN parameters and there is no need to be in Admin mode any longer please remember to log out.

5. Functionality

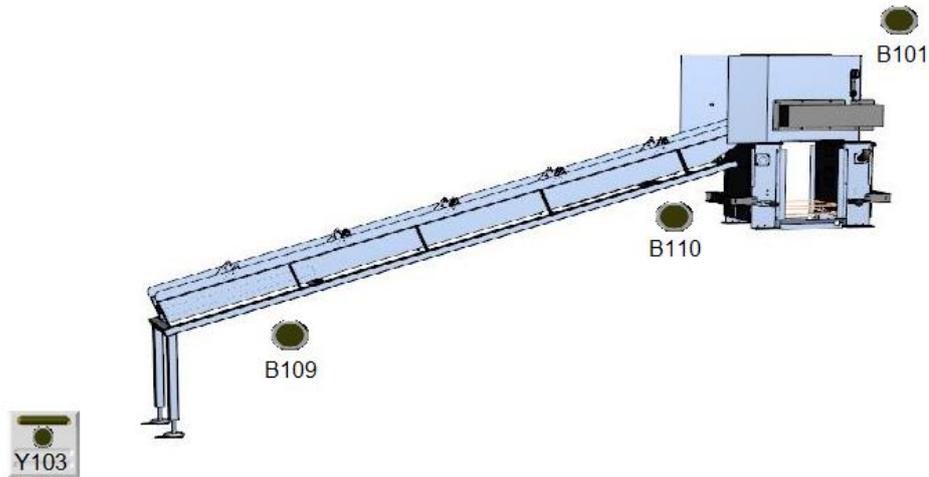


Main window functionality

Touching the screen in places show by  , the operator can easily jump strait to the part of the machine he is interested.

6. Tray buffer line

Current user:



26/01/18 FRI 19:29:47

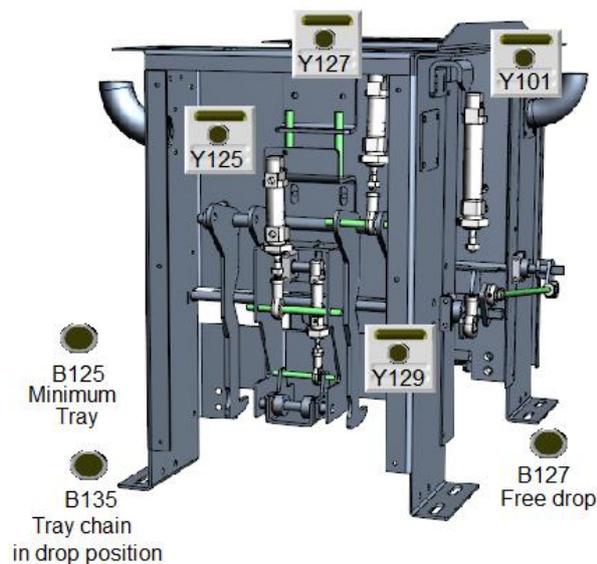
Tray buffer line window

Tray buffer line window shows inlet of the trays to the machine. Whether the machine is working or what sensors are actually in high position.

7. Destacker

Current user:

Destacker
Parameters



Destacker

26/01/18 FRI 19:31:22

Destacker window

Destacker window shows the actual position of cylinders and what sensor is actual in high level. In this window the operator can easily change times of each cylinder for destacking what shows the window below.

Current user: USER

Destacker Parameters

Destacker parameters		
<input type="text" value="0.000"/>	Cylinder Y127 out	<input type="text" value="000.0"/> min M207 delay off time for no trays
<input type="text" value="0.000"/>	Cylinder Y129 down	
<input type="text" value="0.000"/>	Cylinder Y127 in	<input type="text" value="000.0"/> s Stop from stuck in destacker
<input type="text" value="0.000"/>	Cylinder Y125 in	
<input type="text" value="0.000"/>	Cylinder Y129 up	<input type="text" value="00"/>
<input type="text" value="0.000"/>	Cylinder Y125 out	Set number of trays for dropping when waiting for new ones
<input type="text" value="0.000"/>	Destacker cycle time	

Destacker

26/01/18 FRI 19:32:23

Destacker parameter popup window

8. Washing unit

Next window in the panel is detailed washing unit. With this window the operator can setup the main parameters of the washing unit.

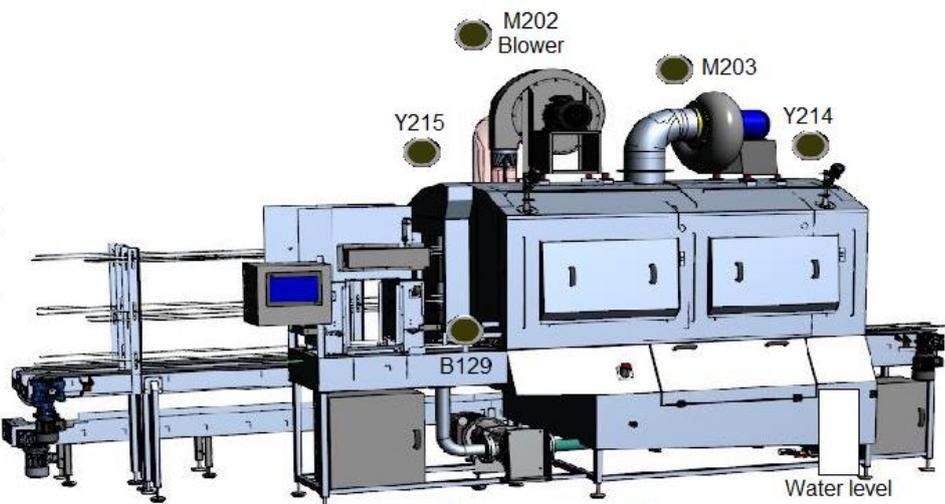
Also motors and valves are shown at this window which are running or active.

The main information about the washing unit are:

What motor is on or off, is the valve for water filling or tap cold water on and position of the proportional valve with is controlled with PID regulator in the PLC.

Depending on set point of the temperature we would like to have in the washing unit it is set in the washing module parameters.

Current user: USER



Washing module Parameters

Motor M207 Parameters

M201 Pump 000.0 C
 Water temperature
 000 %
 Hot water valve act position



Washing

26/01/18 FRI 19:33:33

Main washing module

Current user: USER

Wash module parameters


Main Pump - Motor M201 manual On
 s Main Pump - set delay off time


Side blower on pallet/divider
M202 manual ON
 min Set delay OFF time from sensor B137


Exhaust motor - Motor M203 manual On
 min Exhaust motor - set delay OFF time

Off
 On



Clean tap water after rinse manual On

Off
 On



Water filling main wash manual On

PID water temperature regulator

Auto
Manual

%
 Hot water valve act position



°C
 Set water temperature

Set hot water valve in maual position 0-100%

Off
 On


Water bypass



Washing module main parameters

Operator can turn on and off main motors in the wash unit, set delay times of each motor, set the maximum filling time for water in the tank, and set the regulator for hot water for auto mode or manual mode.

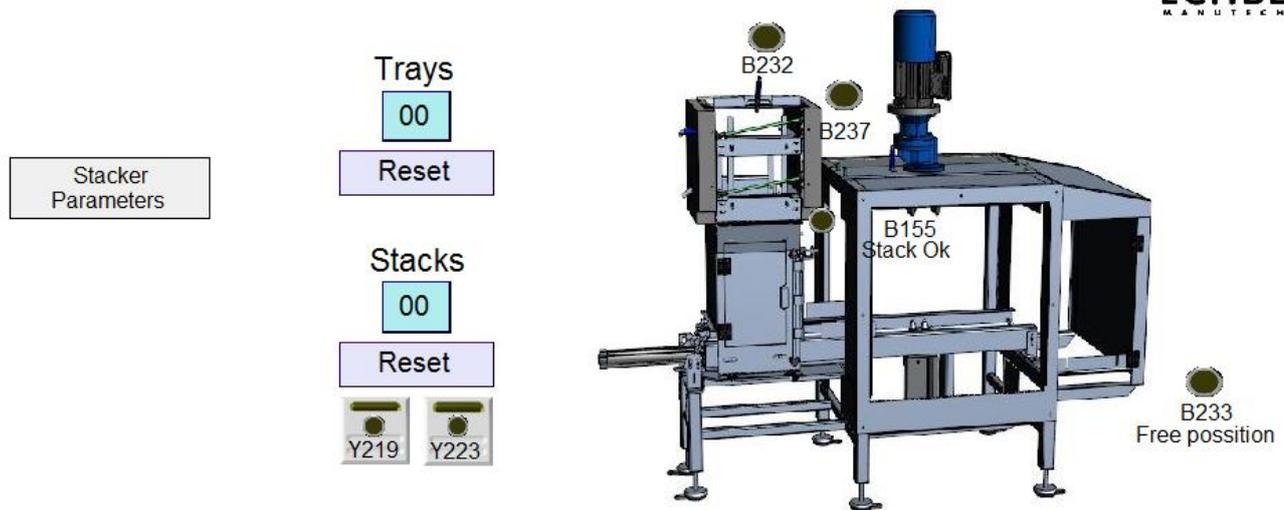
PID regulator works only when the tank is filled with water level with at least second level of water, or when operator sets a water bypass. Bypass is protected by password.

If we would like to set the hot water valve in set position, we need to set the regulator in manual mode.

Each motor can be turn on manual only when machine is in stop mode. We cannot turn on motors when the machine is regular working mode.

9. Stacker

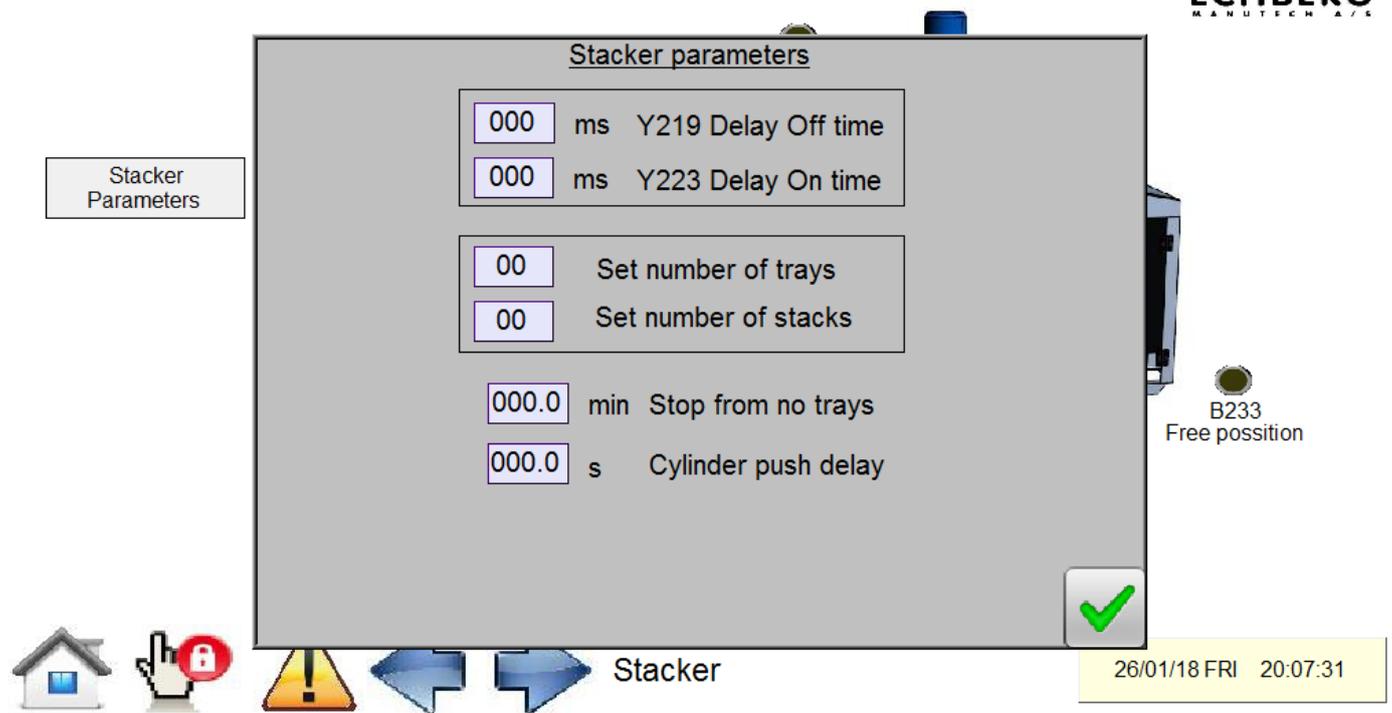
Current user: USER



Stacker window

Within stacker window, operator has a possibility to see what sensor is on and off, check the value of tray and stack. As in the whole machine the each cylinder can be moved in stop mode of the machine. Then we can check where cylinder are working correctly. More detailed parameters can be found at the popup window below.

Current user: USER



Stacker parameters

000	ms	Y219 Delay Off time
000	ms	Y223 Delay On time
00		Set number of trays
00		Set number of stacks
000.0	min	Stop from no trays
000.0	s	Cylinder push delay

Stacker Parameters

Stacker

B233 Free position

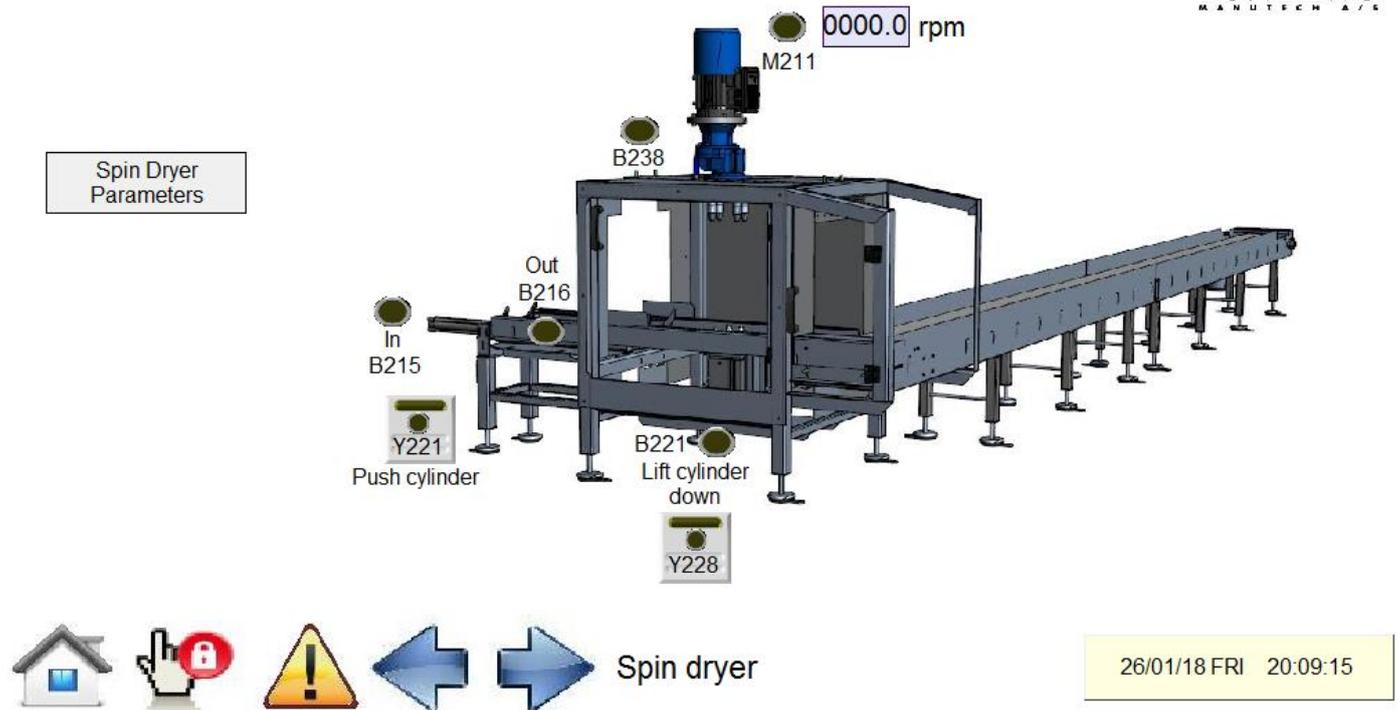
26/01/18 FRI 20:07:31

Stacker parameters window

Stacker parameters popup window allows to set times of delay of each cylinder in the stacker. There is a possibility to set number of trays and stack to by pushed out from the stacker into the spin dryer. In this window, operator can also set the delay time if the tray stuck in the stacker. After this time main chain motor will stop and the machine goes into an alarm – stop from stuck in the stacker.

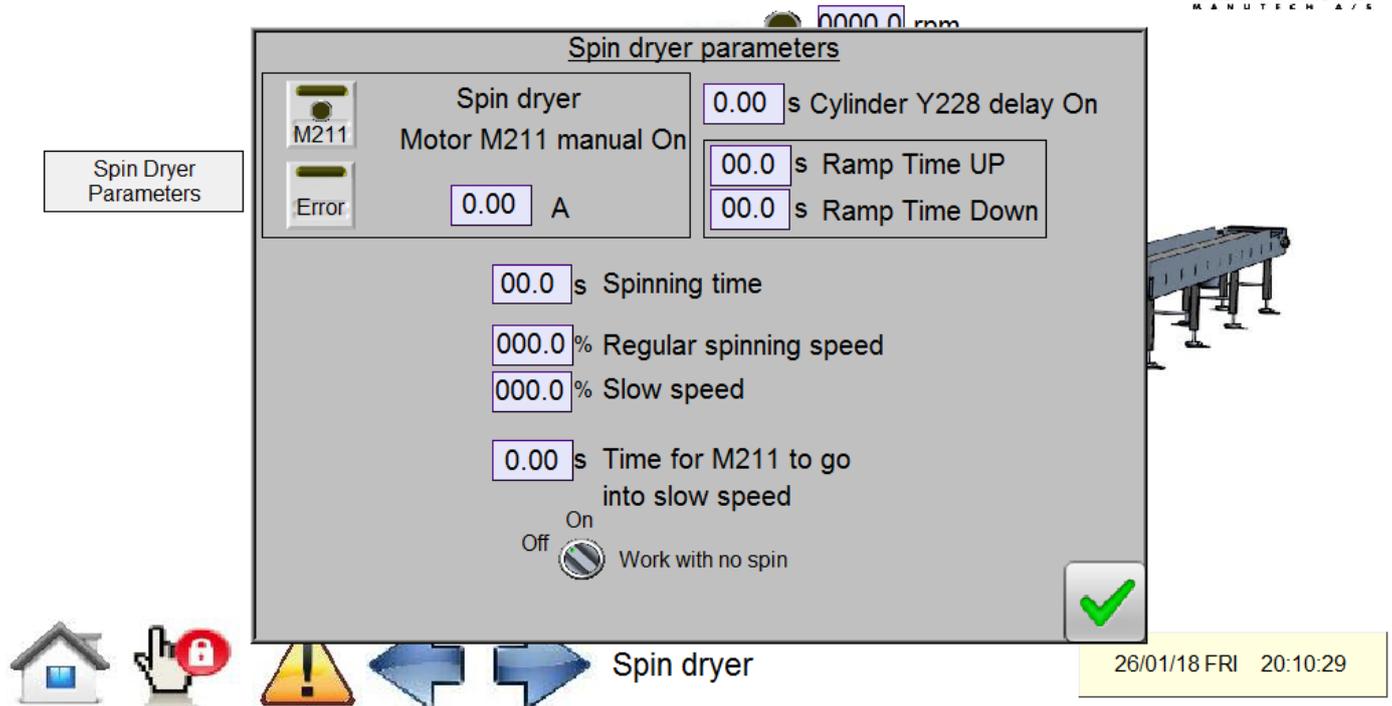
10. Spin dryer

Current user: USER



Spin dryer window

Spin dryer is the last stage where stacks of trays are going. This windows shows each sensors is on or off, lifting cylinders are they up or down and if the spin dryer motor is running. After touching the Spin Dryer Parameters icon, a new popup windows will be displayed. See picture below.



Spin dryer parameters window

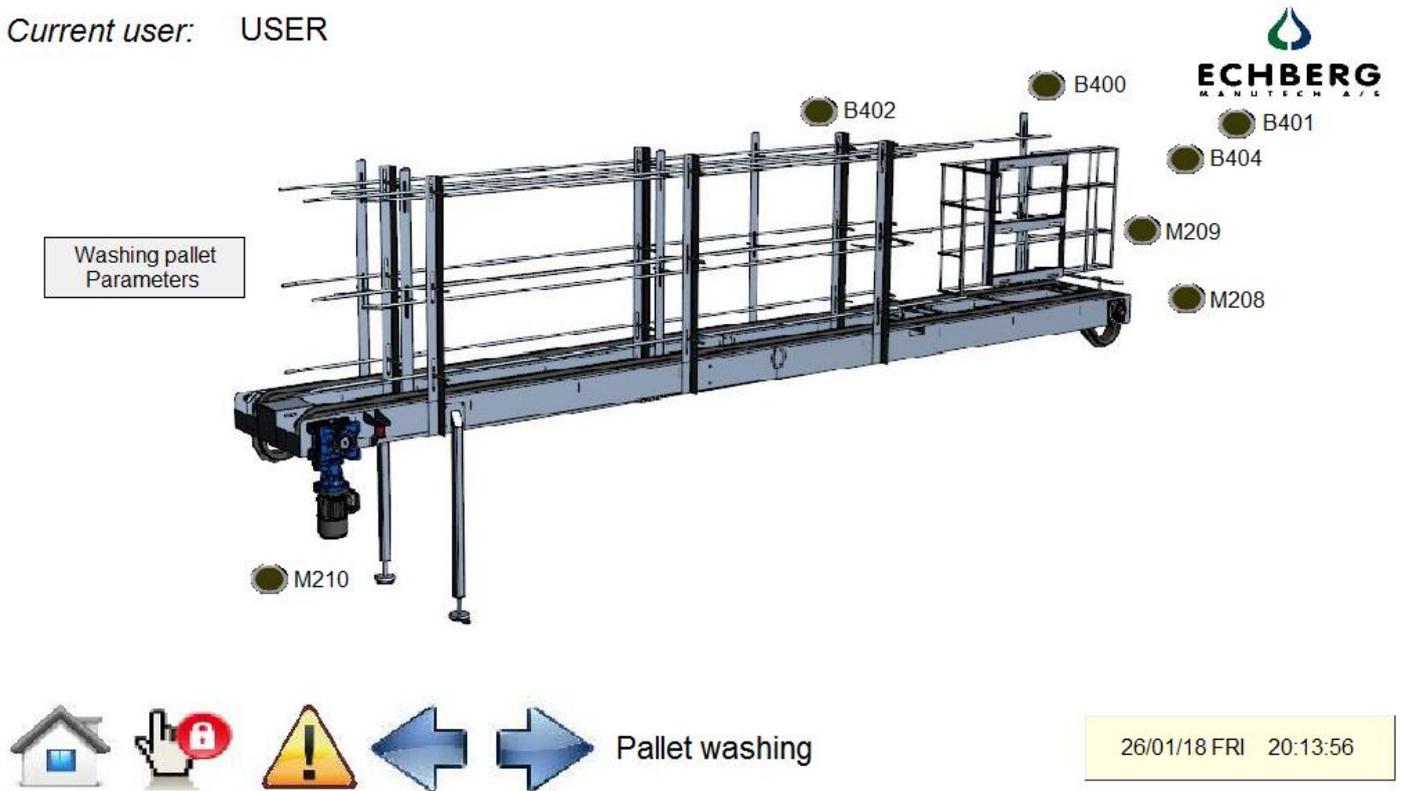
Spin dryer parameters windows allows operator to set up the most important parameters of the spinning module for the line. Motor can be start and stop in manual mode (when machine is stopped). If an inverter goes into alarm the light error will go on. The error of the inverter can be easily reset by touching the Error button.

Cylinder for lifting the stack can be lifted in manual mode, spinning time can be set, ramp time up and down. Also the option to work without spin. After setting this into ON, the spin dryer will not spin. The stack will just go throught.

11. Pallet washing

Pallet washing window shows the position of the pallet inside the module. Each sensor can be checked, and both motors if there are running.

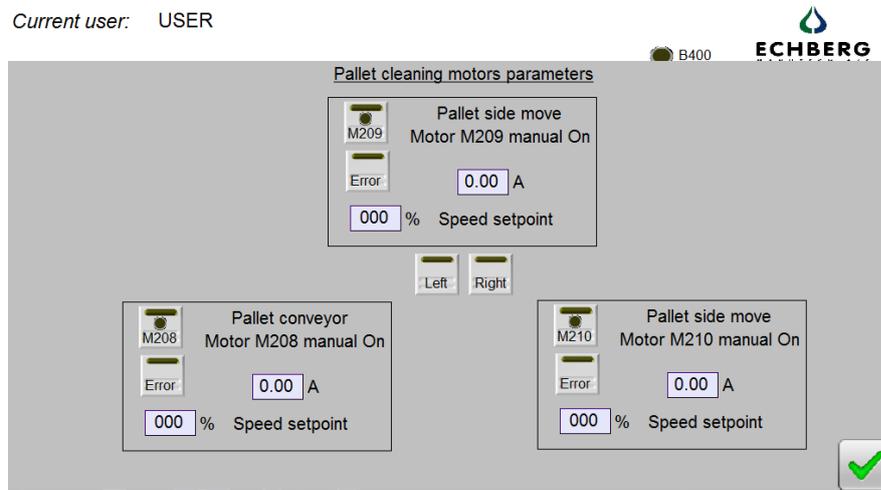
Current user: USER



Pallet washing window

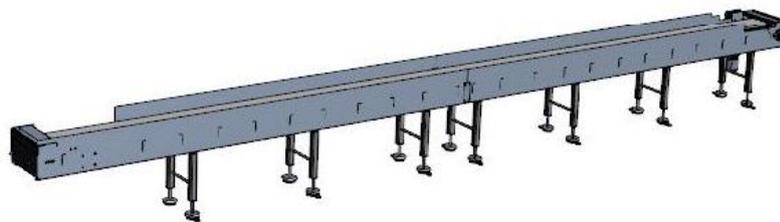
Pallet window popup for parameters looks below:

Current user: USER



12. Convey

Current user: USER



M204

000.0 s
Off delay

000.0 s
On delay



26/01/18 FRI 20:16:49

Outlet convey window

Pushing button M204 in stop mode operator can test the proper order of conveyer. After pushing



the round lamp should be on. This is an information that the button is pressed. If the long upper lamp is on it means the motor is running. If not an alarm should go on.

13. Safety

Safety window shows an information about the safety doors of each part of the machine, about the emergency buttons, or about the reset button if it works ok.

Current user: USER



Emergency main buttons Ok

Main Emerg Ok

Spin Dryer door Ok

Reset button check

Safety doors closed

Emerg Ok

Washer safety door Ok

Wash module Emerg Ok

Home icon, Lock icon, Warning icon, Left arrow, Right arrow

Safety

26/01/18 FRI 20:19:29

Safety window

14.Scheduler

Scheduler is use to set time and day of a week when operator wants the machine to start filling the tank with water. To set up the day just put a “OK” sign next to the time of proper day. As it is shown on picture below. The “OK” sign needs to be lighted up.

The time is take from the PLC. If the date is different then it really is it needs to be setup by clicking button Change. It will be in the memory of PLC.

The valve for water will be open at the set time and date, and will start filling the tank for the time which is set up in the parameters. If after this time the water will not fill enough the tank it will close and show an alarm saying *Water filling error - water did not fill in the set point time limit.*

Today is :

0000	Y	00	M	00	D	Change
00	H	00	M			

Monday	00	h	00	min	<input type="checkbox"/>
Tuesday	00	h	00	min	<input type="checkbox"/>
Wednesday	00	h	00	min	<input type="checkbox"/>
Thursday	00	h	00	min	<input type="checkbox"/>
Friday	00	h	00	min	<input type="checkbox"/>
Saturday	00	h	00	min	<input type="checkbox"/>
Sunday	00	h	00	min	<input type="checkbox"/>

Scheduler



15. Alarm window

Alarm window shows actual pending alarms. Thermal protection of each motors, inverters, Missing signal from cylinder sensors, any stops from sensors, water protection, air pressure protection etc.

After the alarm is repaired it will disappear from the list. You can always reset all the alarms to check if anything from new alarm is coming.

Current user: USER



19:29:42	Safety doors open. Check the doors
19:29:42	B125 - trays at minimum level
19:29:42	Spin dryer door open.
19:29:42	Safety wash door open. Check washer windows.
19:29:42	Stack no good for pushing. Check sensor B155.
19:29:41	Main emergency buttons activated - check the safety buttons.
19:29:41	No water. Fill the tank with water.



Alarms

Reset

Back

26/01/18 FRI 20:25:01

Alarms window

16. List of alarms

Spin Dryer not in position to start. Correct the position or check sensor B238
No Air. Check the air pressure.
Water filling error. Water did not fill in the set time limit.
Water pump M201 thermal protection. Check pump motor temperature.
Check module CR-810
Water pump M201 thermal protection. Thermal protection unit tripped.
Motor M203. Thermal protection unit tripped.
Motor M202. Thermal protection unit tripped.
Motor M204. Thermal protection unit tripped.
Cylinder Y103 - push inlet error.
Cylinder Y221 - push out under the spin dryer error.
M207 - error
M207 - fault
M207 - inhibit.
M208 - inhibit.
M208 - fault
M208 - error
M209 - error
M209 - fault
M209 - inhibit.
M210 - inhibit.
M210 - error
M210 - fault
M211 - fault
M211 - error
M211 - inhibit- check spin dryer door.
Lifting Cylinder Alarm - cylinder did not go down.
Stacker error. Clean the stacker and press start
Stop from pushing stack error. Please check the pushing cylinder under stacker
Stop from dropping stack limit. Check if the pushing cylinder is at the right place
Water level sensor alarm. Clean the water level sensor.
No signal form chain sensor. Check the B135 sensor.
No water. Fill the tank with water.
Stack no good for pushing. Check sensor B155.
Tray inlet into washing machine error. Check sensor B129.
Stuck in the destacker. Clean the destacker area.
B125 - trays at minimum level
Main emergency buttons activated - check the safety buttons.
Safety doors open. Check the doors
Safety wash door open. Check washer windows.
Spin dryer door open.
Sensor B233 - block. Check the sensor. Outlet conveyer