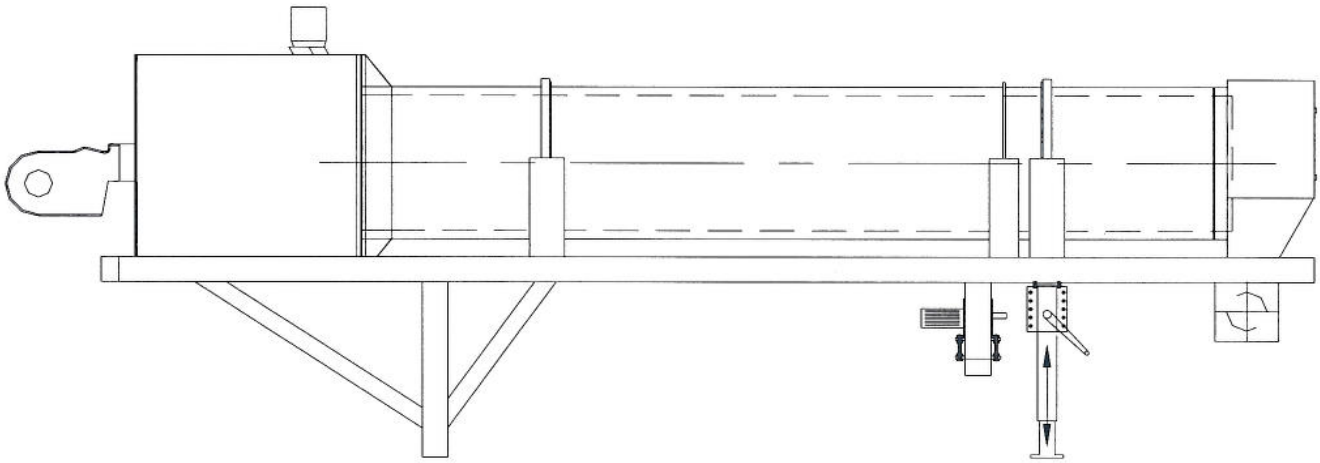
Toaster

Instructions manual



Toaster

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Toaster

EU – Certificate of agreement

Manufacturer:

Crocus
Assentoft
DK-8960 Randers SØ

Hereby declare that the following machines:

Type: **Crocus Toaster**

Model: **CR200, CR350, CR550,CR800, CR1500, CR2500**

which are covered by this declaration are manufactured in accordance with the EU- directive of 14th June 1989 concerning mutual rapprochement of legislation for machinery (89/392/EØF) in all member countries and with especial reference to the directives appendix 1 regarding health and safety requirements during the construction and manufacture of machines.

4/12 03
Dato

Ejvind Møller (fabrikant)

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Toaster

Safety regulations

Please observe the following safety regualtions for prevention of accidents:

The toaster must be equipped with an electronic safety cut-off switch.

Turn off and lock the electronic switch during inspection/repair of the toater. Please note that some parts of the toaster will be very warm during operation.

Always close the inspection hatch immediately after inspection/repair even when the toater is not in use.

Shielding of flexible parts is always to be mounted during operation.

All electrical installation/repair must be carried out according to the regulations applicable for high voltage installations and should be carried out by an authorised electrician.

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Toaster

Usage

1. Usage in general

The Crocus Toaster is designed for the production of heat-treated feed products – mainly for mink, pigs, horses and calfs and for drying of difficult wet particular products.

The Crocus Toaster is manufactured in an industrial design, which guarantees efficient function and long life time of the machine.

2. Function

The Crocus Toaster makes it possible to supply a particular material - like grain – with a given amount of heat within a given time.

Particular material is a uniform, running and clean material (under 1% w/w dirt with a particle size between 25 µ and 10 µ and not over 0,25% w/w under 10 µ and a density of not under 2,75 g/cm³) with a particle size between 1-10 mm.

Please note that it takes a longer time to warm up larger particles than smaller particles.

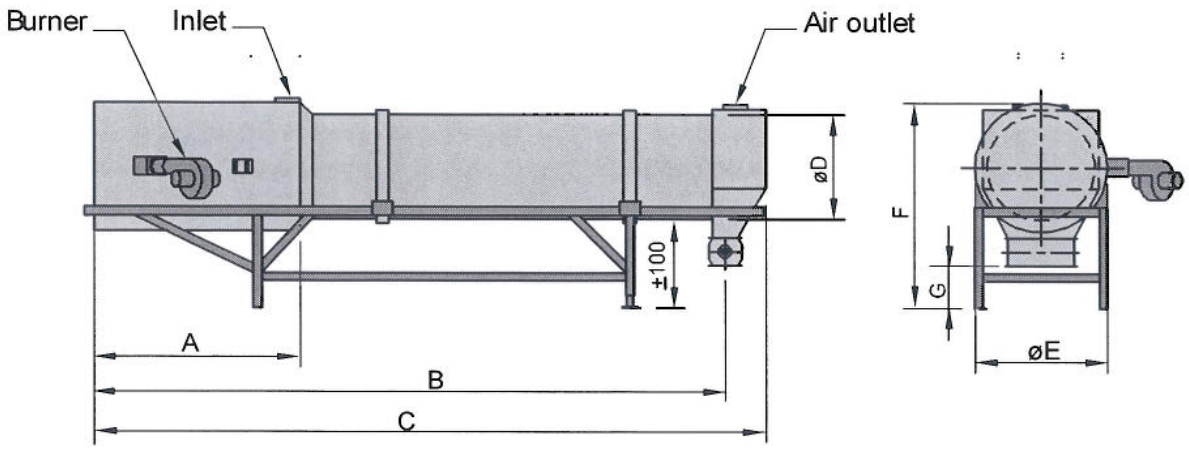
An identifying feature of the Crocus Toaster are the high air temperatures and the intense heat radiation, which the product is exposed to within a short time. The heating proceeds in a coherent flow with at low surplus of air.

Four different types of heat treatment are available:

- drying (by temp. between 65°-110°)
- heat treatment or sterilisation (by temp. between 100°-120°, where bacteria and fungal counts are reduced significantly
- toasting (by temp. between 135° - 145°)
- gelatinisation (by temp. between 145°-155°), which breaks down complex starches and protein – adding to the nutritional value of the treated product.

Thus the temperature of the treated product varies between 40°C-160°, while the process time varies from approx. 3 Min. to approx. 30 Min. with a small variation, i.e. that light particles with less heat demand, will need short treatment, while heavier particles with lager heat demand need longer treatment.

Toaster



Type	A	B	C	D	E	F	G
CR 800	1350	6600	6980	ø900	ø1270	2430	800
CR 1500	2470	7800	8250	ø1200	ø1620	2690	800
CR 2500	2300	8900	9600	ø1360	ø1860	2910	800
CR 2500 +	3000	10900	11.150	Ø1608	Ø2130	3210	800

Type	CR 800	CR 1500	CR 2500	CR 2500S
Required effect (kW)	800	1500	2500	2700
Water evaporating capacity (kg/h)	800	1500	2500	2700
Process air 110° C CR2500S 85 -95° C (m^3/h)	7000	11000	16000	22000

Crocus reserve the right of amendment

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Maintenance and lubrication

The crocus Toaster is a simple mechanical construction, that only requires minimum maintenance.

Please check the following during continuous operation:

- daily lubrication of the big rings - e.g. type BP MOG 222
- wipe off the extra lubricant on the big rings
- the bearings of the track rollers requires lubrication every 200 hours operation
- frequently check of motor oil
- frequently cleaning of dirt and dust

The lock bearings are to be lubricated every 3. day.

Especially the exhaust chamber should be cleaned inside frequently – thereby removing the layers of dust. Do also frequently check that the connecting pipe from the vacuum guard is not blocked.

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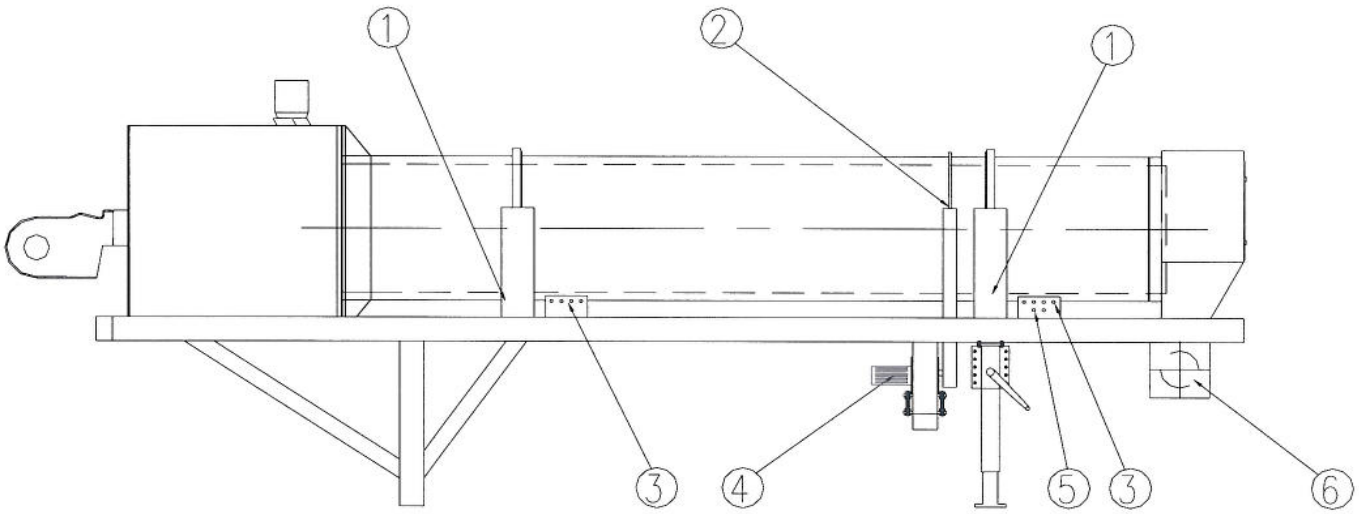
Interval	Pos.	Pos. description	Procedure	Pc.
As necessary	1	Graphite blocks f. big rings	Is to be replaced by when it gets worn	2 pc.
50 hours	2	Chain	Is to be lubricated with grease (Shell Kuggfett, 10 % grafit) etc.	1 pc.
200 hours 200 hours	3 5	Bearing f. bearing rolls Stear bearings for drum	Is to be lubricated with ord. Grease for bearings Is to be lubricated with ord. Grease for bearings	8 pc. 2 pc.
6 months	6	Bearing f. rotary valves	Is to be lubricated with ord. Grease for bearings	2 pc.
36 months/ 8.000 hours	4	Drive for motor	Oil is to be changed	1 pc.



Especially the exhaust chamber should be cleaned inside frequently – thereby removing the layers of dust. Do also frequently check that the connecting pipe from the vacuum guard is not blocked.

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Toaster

Smøring

Lubrication

Gearmotorerne bliver standard leveret med olie påfyldt. Ved bestilling skal oplyses byggeform (se afsnit byggeform) og omgivelsestemperatur. Såfremt intet oplyses, leveres gearene påfyldt industri gearolie ISO 220 for byggeform B3

In general, the gear motors are supplied with oil filled in. When placing an order, please indicate the mounting position (see chapter Mounting positions) and the ambient temperature. If such information given, the geared motor are filled with oil of viscosity 220 and a quantity which is normally filled in for mounting position B3.
The gear unit sizes ZG0, ZG1 and ZG2 are provided with permanent lubrication.

Smøremiddel type **Type of lubricant**	**Betegnelse** **Designation**	**Viskositet ved 40°C** **kin. Viscosity at 40°C** **[mm²/s]**	**Omgivelsestemperatur** **Ambient temperature** **[°C]**
Mineralsk olie Mineraloil	ISO VG 220	198 ... 242	-5 ... +40
Høj viskositets fedt (mineral olie basis) Fluid grease (Mineral oil base)	GP 00 H-20	–	-20 ... +100
Fedt (lejer) Grease (Bearings)	K 2 N-30	–	-30 ... +100

Smøremiddel mængde (l)
Quantities of lubricant [l]

Gearstørrelse **Gear unit size**	**Byggeform** **Mounting positions**											
	B3	B5	B6	B5/90°	B7	B5/270°	B8	B5/180°	V5	V1	V6	V3
ZG0	0.4	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.7	0.7	0.7
ZG1	0.4	0.3	0.5	0.5	0.5	0.5	0.6	0.6	1.0	0.8	0.9	0.8
ZG2	0.8	0.6	1.0	0.8	1.0	0.8	1.0	1,0	1.9	1.4	1.5	1.4
ZG2/3	1.4	1.0	1.2	1.2	1.2	1.2	1.0	1.0	2.3	1.7	1.7	1.6
ZG 3	1.6	1.2	2.0	2.2	2.0	1.4	2.2	2.2	3.2	2.6	3.4	2.8
ZG 3/3	2.5	1.6	2.7	2.2	2.2	1.8	2.2	2.2	3.7	3.2	3.9	3.3
ZG4	3.0	2.0	5.7	3.0	5.7	3.0	4.7	4.5	7.1	5.5	6.2	6.0
ZG4/3	4.9	3.5	5.7	4.0	5.7	4.0	4.7	4.5	8.5	6.5	6.5	6.5
ZG5	5.5	3.8	8.0	6.0	8.0	6.0	5.5	8.0	12	11	7.2	12
ZG5/3	8.5	6.8	8.0	7.0	8.0	7.0	5.5	11	14	13	7.5	13

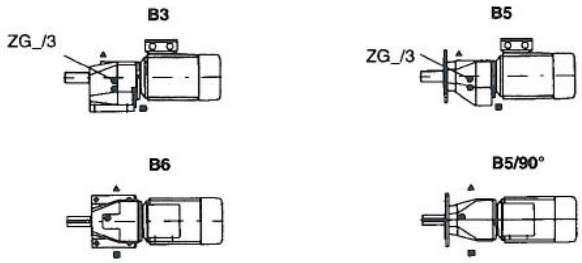
Yderligere smøremiddelmængder kan oplyses ved forespørgsel

Other quantities of lubricants are available on request.

Montage, drifts og vedligeholdelsesvejledning findes sammen med betjeningsvejledningen, der leveres med alle gearmotorer.

Information on the installation, commissioning and maintenance of geared motors is given in the operating instructions supplied together with each geared motor.

Mounting positions



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Fault finding

Symptom	Reason
The machine won't start start	transport system behind the toaster won't
The machine won't start	power failure
The machine won't start	emergency stop device is activated
The machine won't start	fan thermal declutched
Fan starts, indication shows lack of low pressure	inspektion hatch is open
Fan starts, indication shows lack of low pressure	break in suction pipe
Fan starts, indication shows lack of low pressure	rotary valve is not tight inside cyklone
Fan starts, rotary valve won't start, Thermal declutched	rotary valve by exhaust chamber is blocked by a foreign body or by packing of material not being removed from the rotary valve
Ventilator starts, rotary valve starts, drum falls thermal	the drum ***"is stuck"***, non-lubrication of track rollers
Ventilator starts, rotary valve starts, drum guard indication	chain is broken
Ventilator starts, rotary valve starts, drum starts, error message related to burner	no supply of fuel
Ventilator starts, rotary valve starts, drum starts, error message related to burner	photo cells in burner are dirty
Ventilator starts, rotary valve starts, drum starts, error message related to burner	flame is blown out, incorrect adjustment of the proportion of air/fuel
Ventilator starts, rotary valve starts, drum starts, error message related to burner	loose connections related to the electric connections of the burner

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Ventilator starts, rotary valve starts, drum starts, error message related to burner	flame is blown out, incorrect adjustment of the proportion of air/fuel
Ventilator starts, rotary valve starts, drum starts, error message related to burner	loose connections related to the electric connections of the burner
Machine starts, but stops due to lack of filling	feeding device is thermal disconnected material is stuck lack of material
Machine starts, but stops due to lack of filling	no material present – neither before or after the toaster
Current temperature too low in proportion to the adjusted temperature	the feeding of the toatster is too powerful (please open the slides by the exhaust chamber a bit more).
	the piping system is blocked
The temperature in the burner chamber is to high over a longer period (1200°C)	the amount of air sucked through the furnace is insufficient (please open the slides by the exhaust chamber a bit more).

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Toaster

General Information

The switch board for the machine is provided with a lockable main switch – the function of this main switch is to cut of the electricity of all the machines linked to the switch board. The switch board is provided with an emergency stop device – this makes it possible to cut off the control voltage to switch board by pressing the red emergency stop device button

When the internal emergency stop device has been activated, the PLS controller and the indicators on the flow diagram of the switch board are disconnected.

The emergency stop device will be reconnected by turning the red button to the left in order to open the lock mechanism. It is not possible to reconnect the control voltage manually, this means that the machines will be ready for operation when the emergency stop device and the power supply have been reconnected.

The machines can be hand operated with separate control switches placed on the front of the board. The automatic operation and the alarm handling is controlled by the logic sequence control system and by the Smart PLC relay of the system.

Defect motors

All motors are overload protected and every motor is equipped with a combination of a maximum switch and a contactor.

In case of a defect motor, the motor in question will stop. In connection with mechanical operation, all the motors, that are mechanical connected will stop, while turning on the button indicating a defect motor.
Reconnection of this motor guard is made inside the switch board on the motor relay in question. (All motor relays are marked with motor number and name referring to flow diagram and plate by the operation switch.

Manual operation

All motors, magnetic coils, 2-way valves etc. can be activated manually with separate operation switches, placed in the switch board. The automatic sequence control system is not working during manual operation – therefore this type of operation should only be used in connection with testing or emergency operation.

Toaster

Mechanical operation

In connection with mechanical operation all motors and coils are controlled by the logic sequence control system and by the Smart relay. But it is also possible to disconnect every single motor etc. on the operation switch.

Operation

The operation status is shown on the Flow-diagram placed on the door of the panel. The Flow-diagram shows the present machine schematic - including text - and it is equipped with lamps in different colors according to the following guidelines

- red lamp = malfunction
- yellow lamp = level and position indication
- green lamp = operation of motors etc.
- flashing lamp = malfunction

Time relay

Time relay for cooling time, delays in start up between motors etc. are placed inside the switch board and equipped with a label that shows the function of the relay. It is possible to change the time on these relays using the turn button.

Velocity guard relay

The drum motor is equipped with a velocity guard, that stops the key motor in case the chain breaks or any other operations disruption occurs. This relay is only active by mechanical operation.

Operation hours

The operation hours are registered on the hour counter inside the switch board.

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Door contact

The toaster is equipped with a door contact and a time relay in connection with the inspection door of the toaster outlet. The relay will be activated by opening the door and the drum motors stop immediately. The burner and the outlet rotary valve will also stop, when the door is opened. This safety function is also active by manual operation.

When the door is opened, a red lamp on the Flow-diagram will start glowing – function of the press button placed near the lamp is to restart the safety relay when the door is closed.

Mechanical operation of toaster

- turn all operation switches to AUT
- regulate the operation temperature to the desired value on the digital thermostat
- regulate the start temperature on the digital operation thermostat (approx. 20-30 under the operation temperature).
- start the toaster on the start/stop switch
- start the conveyor from the toaster from another switch board
- the "Toaster-Start-Switch" can be activated when all motors are running, whereas the burner starts.
- when the burner is in operation and the start temperature has been reached, a start signal will be given to the feed device (will be operated by another switch board).
- subsequently the toaster will be in operation.

The function of the temperature regulator placed separately on the door of the switch board is to maintain the choosen temperature and the machine will be in operation until the stop switch is activated or one of the following malfunctions will occur:

- the transport from the toaster is disconnected
- one of the motors stops accidental
- the safety switch in the toaster outlet is activated
- the partial vacuum in the suction pipe from the toaster is too low
- the high temperature limit thermostate in the suction pipe disconnects (is to be reconnected manually on the thermostate).
- velocity guard malfunction
- feeding disconnected
- malfunction burner (reset on the burner automat)

In case of malfunction is the burner immediately to be disconnected – the alarm button will start to flash and at the same time the button related to the item causing the malfunction either glows red or starts to flash. It is possible to connect an external alarm system to the switch board. If the toaster was in operation, when the malfunction occurred, the green operation button of the toaster will flash.
Restart of the machine: it is neccessary to remove the cause of disconnection and reset – either by pressing the start – or stop button, before the machine is being restarted. Any disconnection/breakup will cause the burner to stop and after approx. 20 minutes all motors will automatically stop.

The following malfunctions will glow light red:

- door contact
- safety switch outlet of toaster
- high temperature limit thermostate
- burner malfunction
- velocity guard
- safety switch for auger
- motor malfunction

The following malfunctions will flash light yellow:

- partial vacuum alarm (pressure switch) – button glows constantly by partial vacuum OK.
- feeding has stopped – button glows constantly when feeding device is in operation

BURNER –(in this case delivered by end user)

The oilburner is controlled by another switch board, but the following connection/linking to the Crocus Switch Board has been made:

Safety chains with the high temperature limit thermostate as 1. priority, then it is necessary that the fan and the drum are in operation while the door contact is "OK" and the temperature of the burner chamber doesn't exceed the on "out1" adjusted maximum value (approx. 900 gr).

By mechanical operation it is also important, that there are no malfunction in the rest of the plant in order to release for operation of the burner.

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Adjusting the maximum temperature on the thermostate of the burner chamber

The present temperature of the burner chamber is shown during operation. In order to change the maximum value, please press the "P-button" briefly. Then the "out1-lamp" will start flashing and by activating the UP/DOWN arrow a change in maximum value will occur. After approx. 4 sec the value is stored in the memory of the thermostate and the display will switch back to the present measured temperature.

OUT 1 temperature = safety thermostate for the oil burner
OUT 2 temperature = high temperature safety device of burner chamber

Adjustment of the operation temperature of the exhaust temperature of the toaster is made on the temperature regulator. Press the arrow UP/DOWN to the desired temperature and then press "Entr."

Adjustment of the start temperature, (when the release signal to feeding is activated, this guarantees that the feeding is stopped, when there ist no drying effect in the toaster) – This temperature is also adjusted on the regulator (adjusted to 50 gr and this limit activates LED 3 on the switch board).

Configuring of KS40-regulator

P100 0-200gr – 420
PB1..... – 20
tL1..... – 50
td1..... – 20
SH3..... – 2
Sd1..... – 2
TP..... – oFF
tt..... – 5
Hi..... – -15
Hys..... – 0

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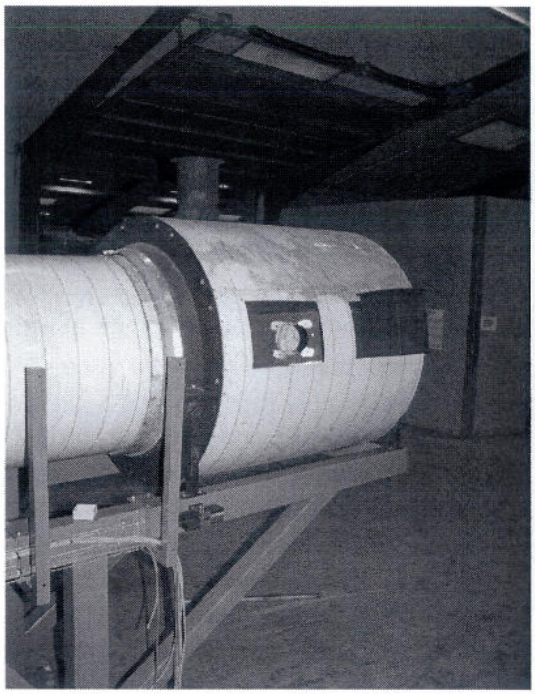
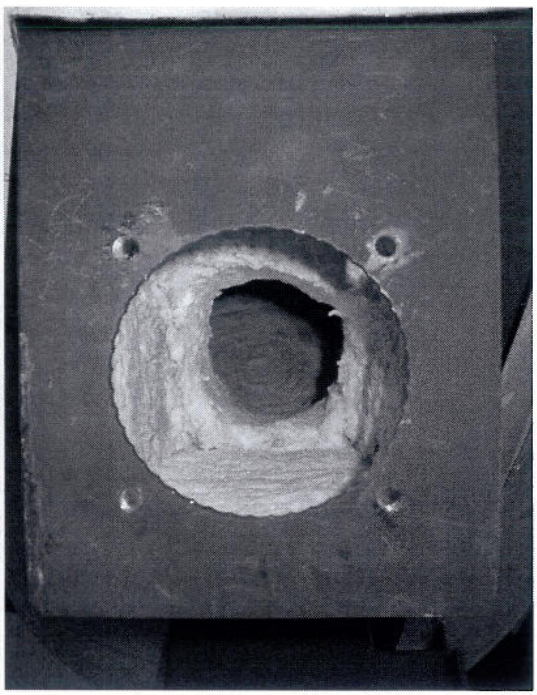
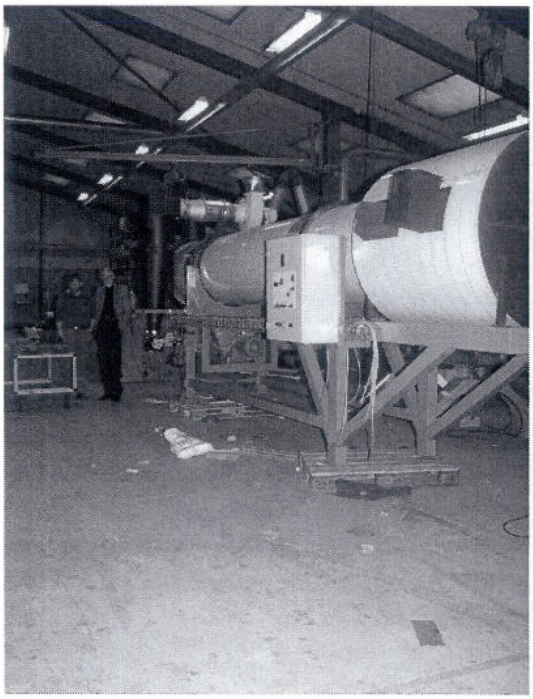


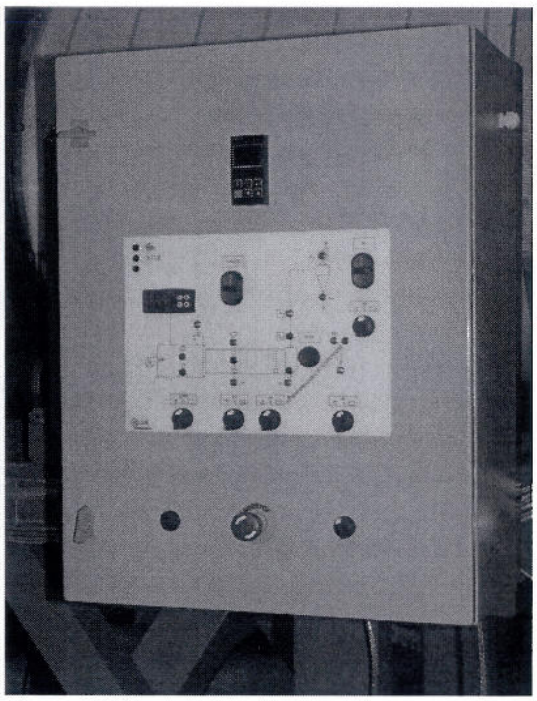
Burner.jpg



Flange for burner.jpg



Dryer leftside.jpg



Control panel with PID regulation.jpg

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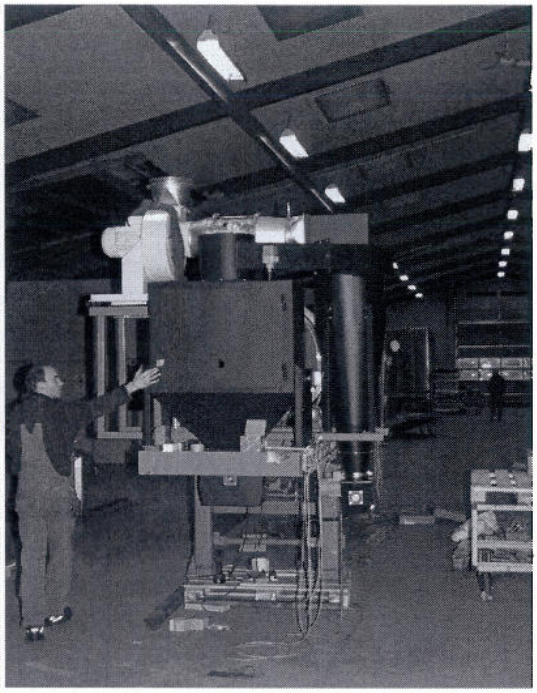
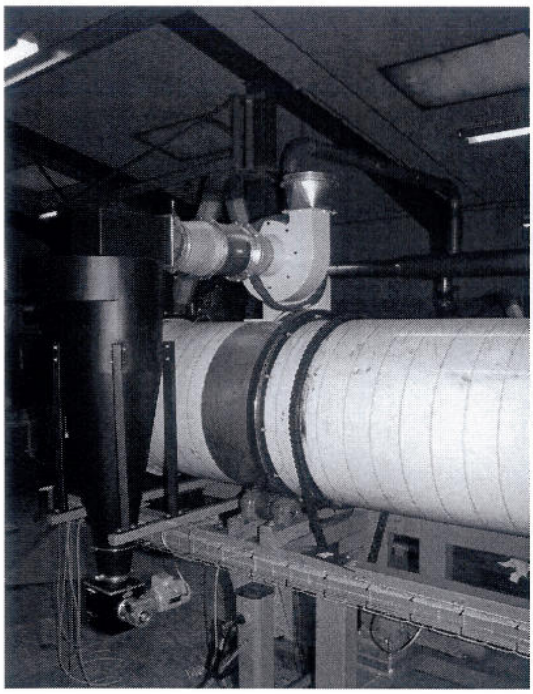
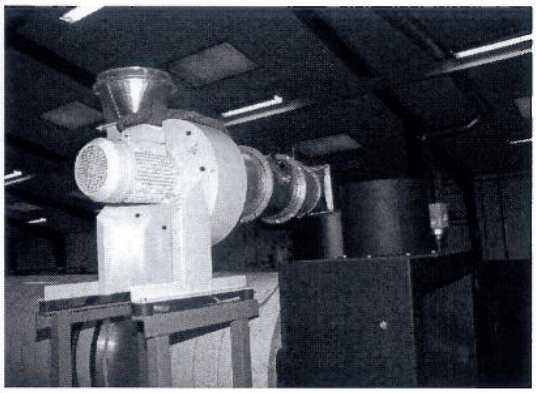
Dryer right side.jpg



Dryer, exhaustend rotary valves, outlet for dryed shells.jpg



Dryer exhaustend.jpg



Core up air exhaustend.jpg

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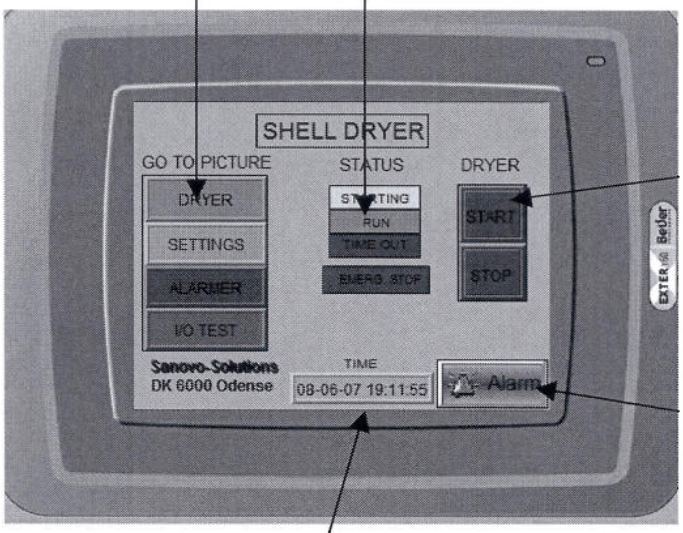
DESCRIPTION OF EXTER TOUCH SCREEN
(Shell dryer Plant CR-0801)

APENDIX:

-1 When powering up of the panel the Main picture is shown on the touch screen. From each of the other pictures you have to go "HOME" to the starting page before you can select a new page.

-2 From this picture it is possible to switch to any of the other 4 pictures – just push the button on the screen with a finger

On the status buttons it is possible to see the status on the dryer:
"STARTING" is blinking during starting of the dryer and until the feeding auger is running.
"RUN" turns to green when the dryer is running and the feeding auger is running.
"TIME OUT" will start blinking if the feeding auger is not running within 5-10 minutes from starting the dryer. (The time out value can be changed on the "SETTINGS" page.



"START/STOP" of the dryer can be operated by these buttons

"ALARM and RESET" button
If an alarm occurs the button starts flashing. The button can be used to reset a fault by activating of the button with a finger.

"TIME and DATE" are indicated here.

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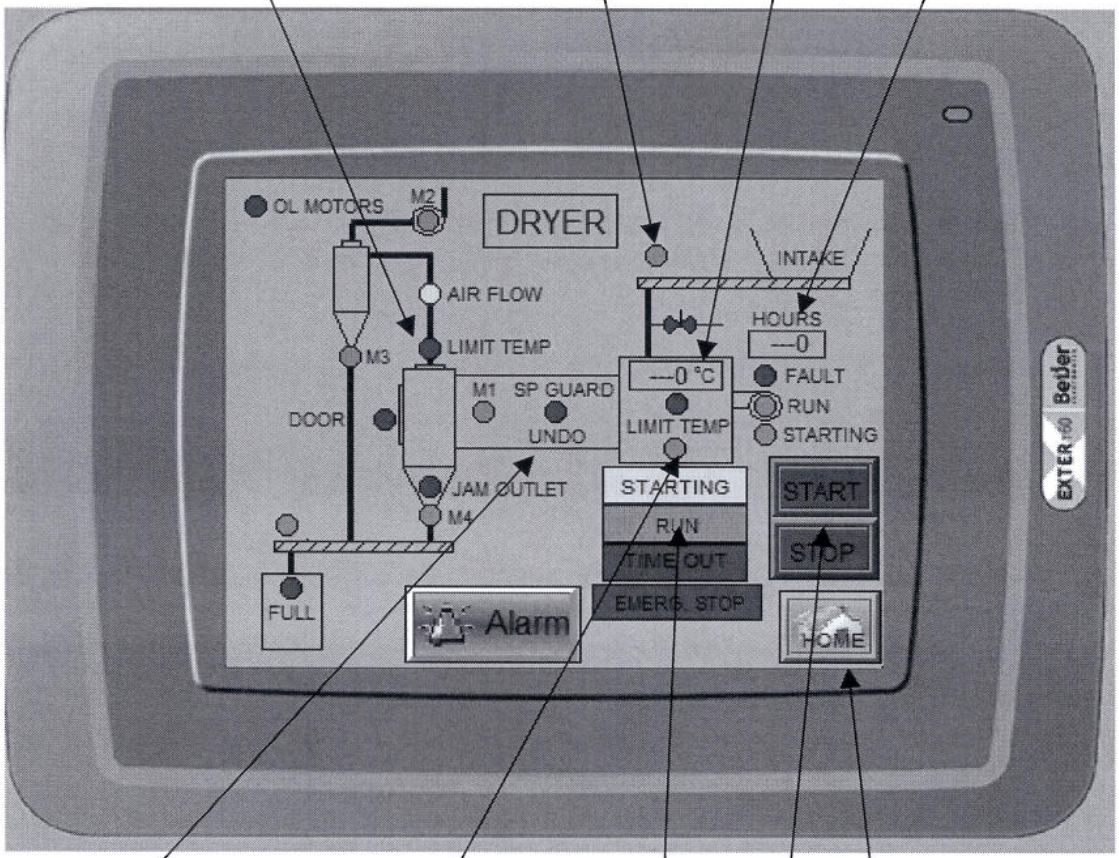
-3 Dryer picture

Motors are indicated with green light when operating
Faults are indicated with red blinking lamps

Furnace temp.
Hour counter burner



Return to main picture with your finger touch.

Release temperature for start feeding when On

"Start/Stop" of dryer

Status of dryer sequence

Alarm indicating and Fault reset button

Fault speed guard = red blinking light
If the speed guard sensor is damaged and a new one is not available, please undo the function by disconnecting the wires to the sensor and hereafter start the drum motor manually. During the manual run press the Reset button for at least 4 sec. until the "UNDO" text is indicated blinking on

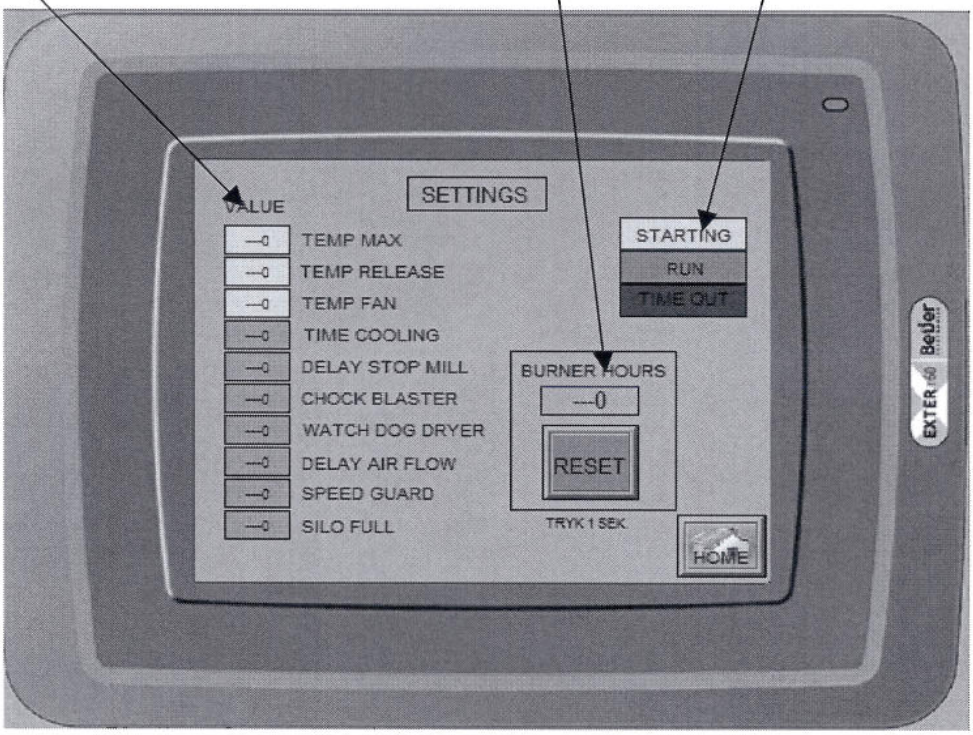
the screen. Now the drum will be possible to operate in Auto mode - but without the speed guard safety function.

-3 Settings picture

To change the values of the set point of temperatures and timers please select the item you want to change by touching the box. Now a numeric key-board will pop-up on screen and you just type the new value on the key-board. Store the value with the Enter button.

Status indication of the dryer

Read out of operating hours for the burner Reset the counter by Touching the "Reset" button for 1 sec.



Description of the settings: (Please notice that the timer values are written in 1/10 seconds)

Temp max	The limit temperature of the furnace to cut off the burner.
Temp release	The temperature of the furnace to release for starting the feeding auge.r
Temp fan	The low temperature of the furnace to stop the burner fan (to prevent an overheating of the gas burner by shut down)
Time cooling	The cooling time of the furnace and drum by stopping.
Delay stop mill	Delayed stop of the mill in the outlet of the dryer.
Chock blaster	Time delay between 2 shots of the cleaning blaster in the inlet pipe.

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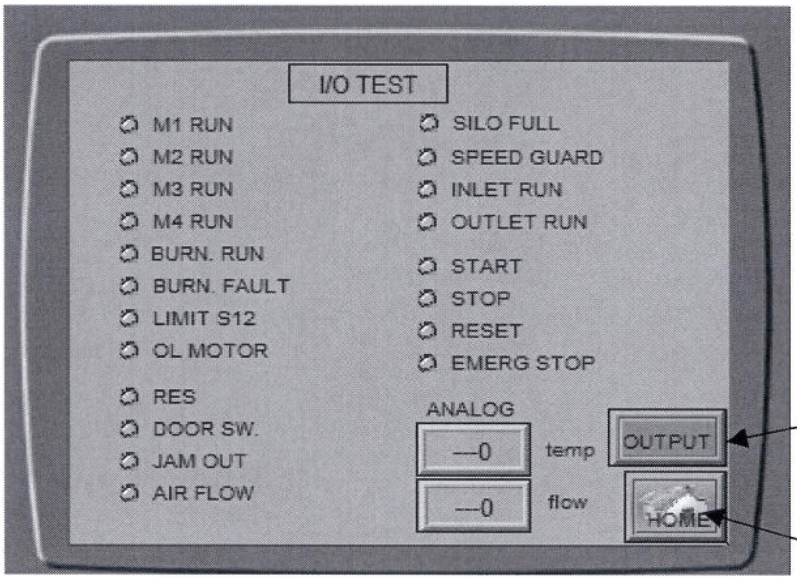
Watch dog dryer	The time from starting to a "Time-Out" stop if the feeding auger has not started.
Delay air flow	Delay time for alarm if there is too low air flow in the exhaust pipes. The timer is delaying the signal from the air pressure switch placed inside the panel
Speed guard	The time delay between 2 speed guard pulses from the drum
Silo full	Delay of the full level signal from the outlet silo or mashinery

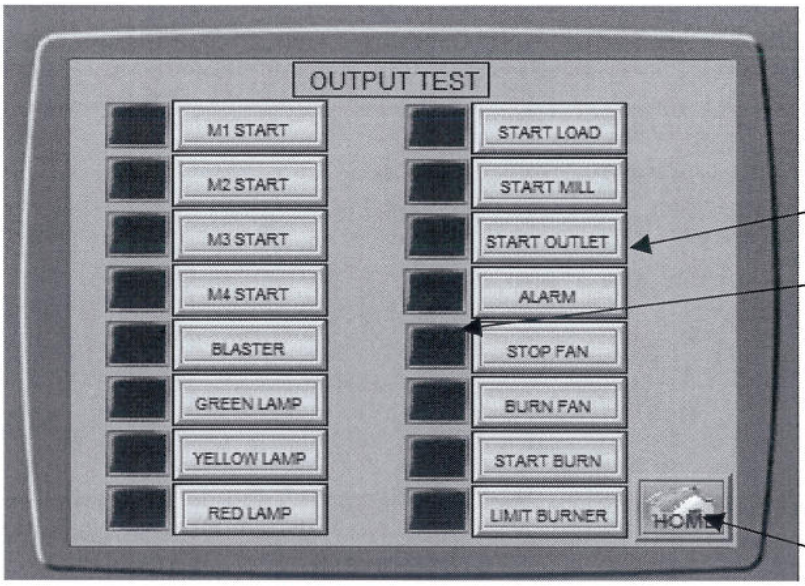
-5 Input test picture

In this picture all the input signal can be tested. The signals are all linked directly to indicating lamp on this picture. The analog signal from the temperature sensor/transmitter of the dryer furnace is written in a value 0-4095 compared to 0-1000 deg. C.



-6 Output testing window

Each of the outputs from the PLC can be tested by pressing the operating key each of them named regarding to their function



Buttons to activate the output relays of the PLC momentary

Indicator lamps for the output relays
Red = Off
Green = On

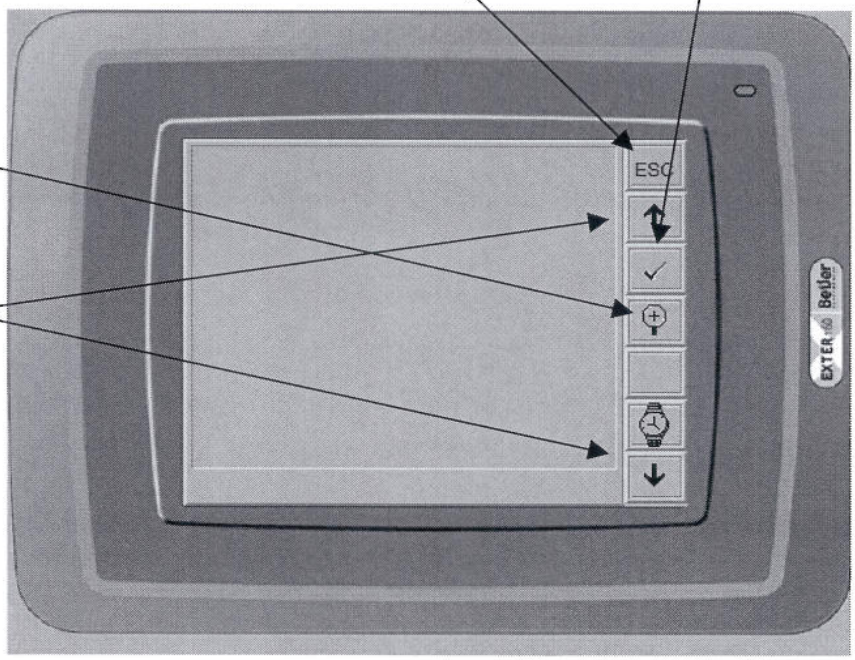
Return to the Main window

-7 Alarm picture

In this picture all alarms will be stored together with the time when the alarm occurs.
In the picture it is possible to navigate in the Log file with the arrow Up/Down buttons
You can zoom in and out and the alarms can be acknowledged with this button.
When acknowledged the colour of the text will change from red to black.
If there is an alarm which is not acknowledged a "bell" symbol in the upper right corner of all screen pictures will be flashing.
To go back to the main picture touch the "ESC" button

Zoom button

Navigate buttons



Toaster

GENEREL INFORMATION ABOUT THE SWITCH BOARD:
The control panel to the machinery is supplied with a Main switch placed on the left panel wall. This lockable switch will deenergize the whole mashinery by operating. The emergency stop button on the panel door will switch off the pilot voltage to the plant at operating. The emergency stop button have to be reset by turning the button clockwise and pull.
Please notice that there is no restart button for the panel, and it means that immediately after the emergency stop button the plant is ready for operating again.
All the motors are possible to operate manually each with a separate operating switch placed on the on the panel door.
The Automatically operation is controlled by the logic interlockings of the motors and by the PLC relay placed inside the panel.

OVERLOAD MOTORS. Each of the motors is supplied with a circuit breaker and a switch gear to secure that the motor will not be damaged by any overload.
If an overload occurs the motor is switched off immediately and the "OL lamp" will turn on. To reset the circuit breaker open the panel and turn on the breaker manually.
Notice that all the breakers are labelled with No and name according to the Flow-sheet.

MANUEL OPERATING: All the motors could be operated manually each with their own operating switch located on the panel door.
Please notice that by manually operating there are no interlockings between the motors, and in this situation working with the machinery is only allowed during test or if there is an operator monitoring the plant.

AUT. OPERATION: By automatic operation the motors, valves and the burner is controlled by the logic program in the controller placed inside the panel. In this situation it is possible to interrupt every motor in the plant, without damaging the machinery as the motors automatically will stop if necessary.

SUPERVISION OF THE PLANT: All the activity of the plant is indicated by the touch screen on the panel door. The screen is supplied with displays and lamps indicating the run and the fault conditions compared to the below mentioned table:
Red lamp = Fault
Yellow lamp = level and Pos. indicating
Green lamp = Run motors burner etc.

TIMERS AND TEMPERATURE VALUES: Changing of values on timers for cooling, watch-dogs, cleaning etc., and changing of values dor furnace temperatures have to be carried out from the Touch screen. See the instruction later in this manual.

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SPEED GUARD RELAY:
The toaster drum is supplied with a speed guard function to secure that the plant is shut-down by a broken chain or similar. The time-out level of the pulses will be set in the program. By means of a male function of the speed guard sensor it is possible to override the fault function by pressing the reset button for more than 5 sec while the drum is operating manually.

HOUR COUNTER: The operating hours of the burner is recorded on the hour counter on the touch screen.

DOOR SWITCH
The inspection door of the dryer is supplied with a door switch connected to a safety relay in the panel to secure against an accident during inspection or maintenance of the drum. If the door is opened the drum, the cell-wheel and the burner will automatically be interrupted both in manually and in automatically mode. The red indicating lamp on the flow-sheet will be turned on when the door is opened. To reset the safety relay it is necessary to close the door and then activate the reset button on the panel door until the red lamp turn off.

LIGHT INDICATING TABLEAU
The toaster is supplied with a light tableau to inform the operators during operation
The red lamp indicates a fault. Each time an fault occurs the fault lamp and the "Alarm" push button on the screen starts flashing. When resetting on the panel door or on the screen the red lamp turns to steady light as long as a fault is detected.
The yellow lamp indicates that the toaster is starting automatically. (it means that the toater has been started but the feeding auger is not operating.
The green lamp turns on as soon as the toaster is operating and the feeding auger is operating too.

ALARM SYSTEM
When an alarm occurs the red alarm lamp starts flashing (together with the "Alarm" push button on the screen) As soon as the fault is Reset (by using the Reset button or the "Alarm" button on the screen The alarm lamp turns to steady light. When no alarms are detected the red lamp turns off. Please notice that some of the alarms are reset when the Reset button is activated (the speed guard and the air flow) Some other alarms have to be reset manually on the equipment (Burner fault, circuit breakers and overheating of exhaust air)

AIR FLOW GUARD
The value of the air flow through the toaster is measured by a diff. pressure transmitter and the value is indicated on the screen at the outlet housing of the toaster. The value of shut down of the burner at too low air flow is to be set on the Screen "Settings" The measuring range is 0-500 Pa (0-50 mm w/s) The low alarm is not in use before the release temperature of the furnace is reached.

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Toaster

AUTOMACALLY RUN OF THE TOASTER

- Turn all the motors to Auto Pos.
- Set the value of the hot-air temperature on the Temp. controller placed on the panel door.
- Set the value of the release temperature of the furnace temperature for starting of the feeding auger on the touch screen to about 100-300 C deg.
-Turn on the fan on the screen or on the panel door.
- Turn on the outlet conveyors from the toaster (from another panel, if not supplied from this panel)
- When all the motors are running, turn on the "Drying sequence" by operating the "Start/Stop" button on the screen or on the panel door. After a short time the burner will be switched on.
- When the burner is running and the release temperature is reached, starting signal to the feeding auger is given and the toaster is now working (the green "Run" lamp will turned on).

The release temperature limit is indicated on the toaster screen with a separate lamp – yellow blinking is starting and violet steady light is release temp.)

The temperature controller will regulate the burner to keep the exhaust air at set value. The dryer will now be operating until you push the "Stop" button or if one of the following faults occurs:

- Outlet conveying is stopped.
- One of the dryer motors is stopping.
- The jamming switch in the toaster outlet hopper is activated.
- The vacuum of the exhaust air is too low.
- The Limit thermostat at the exhaust pipe has switched off (This thermostat have to be reset manually directly on the Thermostat).
- Fault speed guard.
- Safety switch on the inspection door has switched off.
- The feeding system has been interrupted.
- Fault burner (Fault have to be reset on the burner panel – here you also can identify the reason for the fault.

Fault displaying: On the Touch screen you are able to se the actual fault in English language. On a separate picture all the faults will be stored in a Log memory with the time for recorded and the time for reset.

As soon as a fault occurs the burner will stop immediately, and at the same time the red "Fault" lamp will start flashing. Together with the fault lamp, the actual fault lamp coursed for the stopping will turn on. If the toaster were running when the fault occurred the green "Run" lamp for the toaster will switch to flashing mode. To restart after a fault it is necessary to find the course of the shut down, press the "Reset" button on the panel and then restart the toaster.

STOPPING SEQUENCE.

At each stop (manually or automatically) the feeding plant and the burner stops immediately and after app. 20 minutes the remaining motors will be switched off

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The below mentioned faults will turn on a red light added with a text message:

- Door switch
- Jamming outlet hopper of the toaster
- Overheating of the exhaust air
- Burner fault
- Overload motors
- Jamming switch outlet auger
- Receiving bin is full

The below mentioned faults will turn on flashing of the actual indicator lamp:

- Low pressure exhaust air – lamp is on at pressure OK.
- Speed guard drum.
- Low level in the feeding bin

It is a possibility to connect an external warn device to the panel – volt free or for 24VAC supplied from the panel.

BURNER:

The gas burner is controlled by its own panel interlocked with the dryer panel
The safety chain for the burner includes the door switch, the drum motor, the exhaust fan and the limit thermostat on the dryer. Additional there is a limit temperature for the burner chamber (must not exceed more than max 800 Deg) and a limit value of the burner controller.
To be able to start the burner you must turn the "Burner" operating switch to MAN or AUT pos.
In the MAN mode all the safety chains above mentioned is linked and during the automatically operation additional there must be no fault from the toaster plant.

Set-up the limit value of the burner chamber temperature controller

The measured value in the chamber is displayed on the touch screen.
Changing of the limit value (to cut off the burner) and the cooling temperature of the chamber - go to the page "Settings" on the Touch screen and select the 2 values for high and low limit.

How to set the temperature controller for the exhaust air – see additional in the manual belonging to the installed controller.
To set a new value press the arrow "up" or "down" to the new value and press the "enter" button.

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STARTING. OF THE TOASTER

To prevent an overheating during the starting of the dryer it could be necessary to follow the instruction mentioned here below.
But – however - if the settings of the controller have been configured in order to the operation for this dryer, there should be no further problems during the starting procedure.

Loading and unloading the Toaster

The dryer controller automatically will start the inlet conveyor when needed.
The outlet conveyor and the mill is also supplied with a volt free contact from this panel each separated and with auto Start/Stop function included with separate cleaning timers.

CHANGING OF TIMER VALUES.

Normally it should not be necessary to change the timers for this machinery, but in case it is necessary just go to the page "SETTINGS" and select the timer you want to change.
Activate the timer and write the new value in the window and store the value with the "enter" button.

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KS40-1 Weisshaupt controller:

Configuration:

Press Entr for 3 sec.	→ Para
Press Down	→ Config
Press Entr	→ Quick
Press Entr	→ Con 1

Press Up/Down to code "0420" identical with Pt100 (0-200Deg) and 3-step controller

Press Entr	→ done

Setting of PDI parameters

Press Entr	→ Para				
Press Entr	→ Cntr				
Press Entr	Pb1..20	Ti1..20	Td1..20	SH..2	Sd1..0
	Tp..off	tt..45			

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