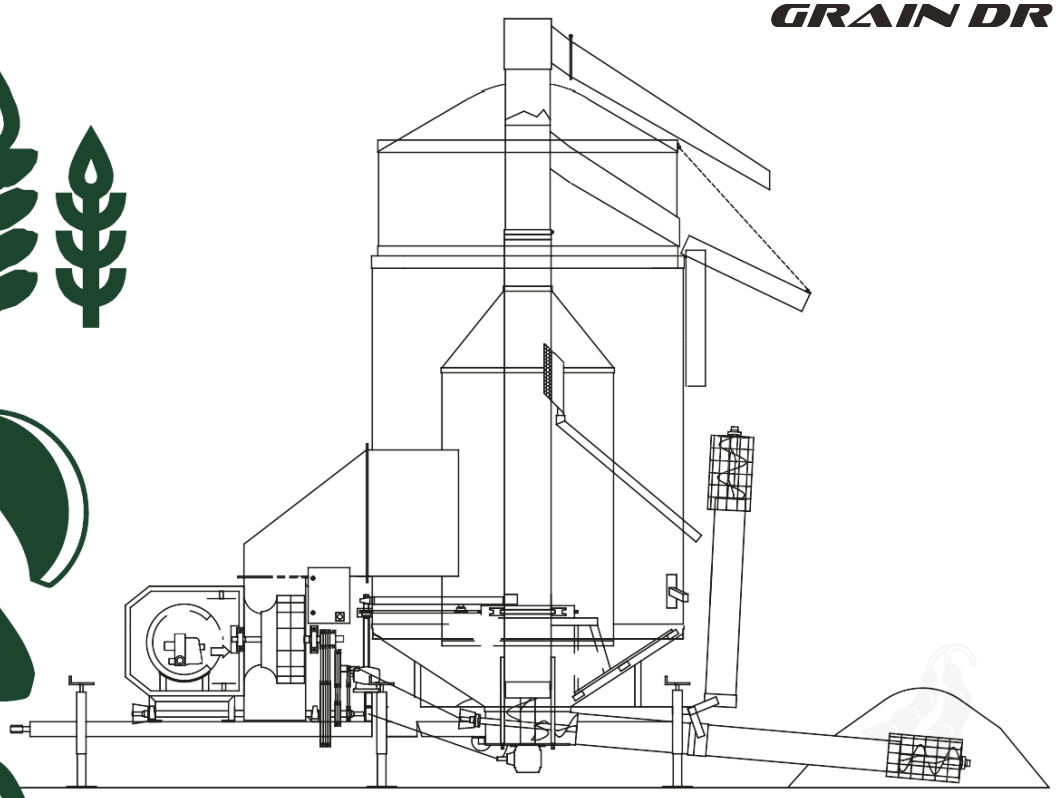
STRAHL
GRAIN DRYERS



MOBILE GRAIN DRYERS

INSTRUCTIONS FOR POSITIONING, USE AND MAINTENANCE

Before installing and using the grain dryers, read this manual carefully and keep it together with the product.

TRANSLATION OF THE ORIGINAL INSTRUCTIONS

Release: Rev.03 (2024-07)
Total number of pages: 70

HEADQUARTER AND STATIONARY GRAIN DRYER PRODUCTION PLANT
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MANUFACTURER IDENTIFICATION DATA

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PRODUCT IDENTIFICATION DATA

Commercial name: Grain Dryer

Type/Model:

Serial number:

Year of construction:

MODEL RANGE

TURBODRY	BIODRY
AS 400	ES 400
AS 500	ES 500
AS 600	ES 600
AS 900	ES 900
AS 1000	ES 1000
AS 1150	ES 1150
AS 1350	ES 1350
AS 1550 EVO	ES 1550
AS 1750 EVO	ES 1750
AS 2250	ES 2250
AS 2550	ES 2550
AS 2650	ES 2650
AS 3150	ES 3150
AS 3550	ES 3550
AS 3750	ES 3750
MAGNA 120E	-
MAGNA 1200	-
MAGNA 2000	-
MAGNA 2910	-
MAGNA 3810	-
MAGNA 4810	-

The **BIODRY (ES)** series is the line of Strahl S.r.l. dryers. which works with clean energy deriving from the use of the heat exchanger. The indirect drying of these models is recommended for drying cereals for human consumption, such as wheat or rice.

The **TURBODRY (AS)** series is the line of Strahl S.r.l. dryers designed for direct drying using pre-heated air inside a combustion chamber lined with highly insulating refractory material, allowing the maintenance of constant temperatures and a very high energy yield.

COMPLIANCE

The machine named **Grain Dryer** complies with the legislative provisions of the following Directives:
- Directive 2006/42 EC: Machinery Directive
- Directive 2014/30/EU: Electromagnetic Compatibility Directive
- Directive 2014/35/EU: Low voltage Directive

The following harmonized standards have been applied:
- EN 12100:2010 standard: General design principles – Risk assessment and risk reduction
- EN 60204-1 standard: Safety of machinery.

CE MARKING PLATE

The identification plate on the line shows its identification data and fundamental technical characteristics.

CE plate for dryers not provided with road circulation approval.

SYMBOLS USED IN THE MANUAL AND THEIR MEANING

For optimal use of the manual and consequently of the line, it is advisable to have a good knowledge of the terms and typographical conventions used in the documentation.
To mark and allow recognition of the various types of danger, the following symbols are used in the manual:

a **CAUTION/DANGER:** To indicate actions which, if not carried out correctly, can cause injuries of general origin or can generate malfunctions or material damage to the machine and which therefore require particular attention and adequate preparation.

d **PROHIBITION:** To indicate actions that MUST NOT be performed

¡ **WARNING:** To indicate important information

STRAHL GRAIN DRYERS

CONTENTS

1 GENERAL INFORMATION

The positioning, use and maintenance manual (hereinafter called manual) provides the user with useful information to work correctly and safely and to facilitate the use of the machine.

The following must not be considered as a long and burdensome list of warnings, but rather as a series of instructions aimed at improving the performance of the machine in all aspect and **above all to avoid the occurrence of damage to people, things or animals resulting from incorrect use and operating procedures.**

It is very important that each person responsible for the transport, positioning, commissioning, use, maintenance, repair and dismantling of the machine consults and reads this manual carefully before proceeding with the various operations, for the purpose to prevent incorrect manoeuvres and inconveniences which could compromise the integrity of the machine or be dangerous for the safety of people.

It is also important that the manual is always kept available to the operator and is carefully stored at the machine's operating site so that it is easily and immediately accessible to be consulted in case of doubts and in any case whenever the circumstances require it.

If after reading this manual any doubts or uncertainties still persist, immediately contact the Manufacturer, who will be available to ensure prompt and accurate assistance for better operation and maximum efficiency of the machines

Finally, please remember that, during all phases of use of the machine, the regulations in force regarding safety, hygiene at work and environmental protection must always be observed.

It is therefore the user's responsibility to check that the machine is operated and used only in optimal safety conditions for both people and things.

i The instructions contained in this manual do not replace but complement the obligations regarding compliance with current legislation on accident prevention safety standards.

a The selection of personnel is an important point for the purposes of performance and safety at work.

a This equipment is not intended for use by people (including children) with reduced physical, sensory or mental capabilities

a The equipment is not intended for use by persons without experience and knowledge, unless a person responsible for their safety provides them with adequate supervision or instruction regarding the use of the machine.

a Respect the program of checks reported in the machine's user manual.

a Archive the machine final testing report and keep it together with the register of checks and maintenance.

a It is the user's obligation to make the register of checks and maintenance for the last 3 years available to the supervisory bodies.

1.1 INFORMATION PROPERTY

- This manual contains confidential property information. All rights are reserved.
- This manual cannot be reproduced or photocopied, in whole or in part, without the prior written consent of Strahl S.r.l.
- The use of this documentary material is permitted only to the customer to whom the manual was supplied, and only for installation, use and maintenance purposes of the machine to which the manual refers.
- Strahl S.r.l. declares that the information contained in this manual is consistent with the technical and safety specifications of the machine to which the manual refers.
- Strahl S.r.l. does not assume any responsibility for direct or indirect damage to people, things or domestic animals resulting from the use of this documentary material or of the machine in conditions other than those foreseen.

- Strahl S.r.l. reserves the right to make changes or improvements without notice to this documentary material and to the machines, possibly also to the marketed systems of the same model as the one to which this manual refers but with a different serial number.

1.2 TERMINOLOGY AND DEFINITIONS

To facilitate understanding of some topics covered in this manual, some of the terminologies used are reported below:

OPERATOR USER
Responsible for the installation, adjustment, use, maintenance, cleaning and repair of the line.

QUALIFIED PERSONNEL
Operators who, based on their professional training, experience, knowledge of the relevant regulations and accident prevention regulations, are able to evaluate the work entrusted to them and recognize and avoid any dangers (e.g.: electrician technicians)

AUTHORIZED PERSONNEL
Qualified personnel, appointed by the Customer/Manufacturer to carry out certain tasks

MANUFACTURER
Strahl S.r.l. or any other assistance centre authorized by Strahl S.r.l.

DANGER
Source of possible injury or damage to health.

RISK
Combination of probability and severity of possible injury or damage to health in a hazardous Situation.

CUSTOMER
The subject who purchased the machine and/or who manages and uses it (e.g. company, entrepreneur, enterprise).

DANGEROUS ZONE
Any area inside and/or near a machine in which the presence of a person constitutes a risk to his safety and health.

DANGEROUS SITUATION
Any situation in which an Operator is exposed to one or more Hazards.

ORDINARY MAINTENANCE
All the operations foreseen by the manufacturer and detailed in the instruction booklet, which serve to keep the machine and its components efficient and prevent the onset of faults or anomalies (e.g. cleaning operations, adjustments, lubrication, etc.)

EXTRAORDINARY MAINTENANCE
All repair or replacement interventions that allow the machine to continue to function in normal conditions of use. The installed components must be identical to the previous ones, or equivalent in performance, dimensions, etc., according to the specifications provided by the manufacturer.

SUBSTANTIAL MODIFICATION
All interventions carried out on a machine to adapt its productivity to new needs or to allow its functioning after having replaced a part with a non-equivalent one and therefore with the need for adaptations or interventions that lead to a change in the methods of use or changes in performance foreseen by the manufacturer or introduction of additional risks.

SERVICE CENTER
The technical service center is the provider of repair, maintenance and post-sales installation services for spare parts and accessories for products, equipment and systems authorized by the manufacturer. The service center is bound to the use of original spare parts/accessories, has special equipment or technical specifications of the product, supplied by the manufacturer.

NUMBER OF OPERATORS

Adequate number of operators to optimally carry out the operation described and deriving from a careful analysis carried out by the manufacturer, therefore the use of a different number of operators could prevent the expected result from being obtained or endanger the safety of the personnel involved.

MACHINE - MACHINERY - PRODUCTION LINE

The machine covered by this user instruction manual.

PARTLY COMPLETED MACHINE

Assembly that almost constitutes a machine, but which cannot in itself perform a specific application. The partly completed machine is solely intended to be incorporated or assembled with other machine(s) or equipment to constitute a machine governed by the current directive.

MACHINE STATUS

The machine status includes the operating mode, for example automatic running, jog command, stop, etc. the condition of the safety devices present on the machine such as protectors included, protectors excluded, emergency stop pressed, type of isolation of energy sources, etc.

FIXED GUARD

Fixed guard kept in position (i.e. closed), either permanently (by welding, etc.) or by means of fastening elements (screws, nuts, etc.) which make it impossible to remove/open without the aid of tools

MOBILE GUARD

Guard generally connected mechanically (for example by hinges or guides) to the machine frame or to a nearby fixed element and which can be opened without the use of tools.

INTERLOCKED GUARD

The interlock is a device associated with a guard, which has the purpose of preventing the functioning of dangerous parts when the guard itself is not closed.

- The dangerous functions of the machine "subjected" to the guard cannot be carried out until the guard has been closed.
- If the guard is opened while the machine is carrying out dangerous functions, a stop order is given.
- Closing the guard allows the execution of the dangerous functions of the machine "subjected" to the guard, but does not command their start-up.

INTERLOCKED GUARD WITH GUARD LOCKING

The interlock is a device associated with a guard, which has the purpose of preventing the functioning of dangerous parts when the guard itself is not closed.

When the component to be protected is equipped with dangerous inertia, the interlocking device is, in turn, associated with a guard locking device. The guard locking device keeps the guard closed and allows it to be opened only when the parts protected by the guard itself have not exhausted their dangerous inertia.

- The dangerous functions of the machine "subjected" to the guard cannot be carried out until the guard has been closed and locked.
- The guard remains closed and locked until the risk of injury resulting from the dangerous functions of the machine has ceased.
- Closing and locking the guard allows the execution of the dangerous functions of the machine "subjected" to the guard, but does not command their start-up.

PROTECTIVE DEVICE

Any equipment intended to be and held by the worker for the purpose of protecting him against one or more risks to his safety or health during work, as well as any complement or accessory intended for this purpose.

EMERGENCY STOP DEVICE

The device is activated with a single action and avoids or reduces damage to people/machines/things/animals.

INTENDED USE

Use of the machine in accordance with the information provided in the operating instructions.

REASONABLY FORESEEABLE MISUSE

Use of the machine in a way other than that indicated in the instructions for use, but which may result from easily foreseeable human behaviour.

1.3 LIFE STAGES

The definitions of the machine life stages are described in the following table.

STAGES OF THE LIFE CYCLE	OPERATIONAL STAGES
TRANSPORT	- Lifting - Loading - Packaging - Transport - Unloading - Unpacking
ASSEMBLY AND POSITIONING / COMMISSIONING	- Adjustment of the machine and its components - Positioning of the machine - Connection to power sources (electrical, mechanical) - Connection to accessory fluid circuits (if applicable) - Functional tests, checks
SETUP / TRAINING / PROGRAMMING AND/OR PROCESS CHANGE	- Adjustment and set-up or verification of the functional parameters of the machine (e.g. temperature) - Loading/unloading of processing products - Functional tests, checks - Verification of the final product
OPERATION	- Check/inspection - Loading/unloading - Small adjustments and setting of the machine's functional parameters (for example pressure) - Operation of manual controls - Restarting the machine after a stop/interruption - Surveillance - Verification of the final product
CLEANING / MAINTENANCE	- Cleaning - Dismantling of parts, components, devices of the machine - Ordinary maintenance - Insulation and energy dissipation - Replacement of worn parts - Verification of parts, components, devices of the machine
FAULT SEARCH AND ELIMINATION	- Adjustments - Dismantling of parts, components, devices of the machine - Fault search - Insulation and energy dissipation - Restoration after failures of the control and protection devices - Repair - Replacement of parts, components and devices of the machine - Verification of parts, components, devices of the machine
DECOMMISSIONING	- Disconnection and energy dissipation - Decommissioning
DISPOSAL	- Lifting - Loading - Packaging - Transport - Unloading

1.4 CONSTRUCTION MODIFICATIONS

The Manufacturer does not foresee the possibility of carrying out construction modifications which fall within the ordinary or extraordinary maintenance of the machine. For any request or further clarification, please contact Strahl S.r.l.

1.5 CEASED USE

If you decide to no longer use the machine, it is recommended to make it inoperative by removing the power supply wiring from the electrical mains and inserting any safety devices.

1.6 WARNINGS

- Use and maintenance are permitted ONLY TO PROFESSIONALLY QUALIFIED or AUTHORIZED PERSONNEL, trained with specific training courses
- The machine must be intended for the use for which it was expressly designed and built by Strahl S.r.l.
- This manual is an integral part of the machine and therefore must be carefully preserved and must ALWAYS accompany the machine even in the event of its transfer to another owner or user or transfer to another location. In case of damage or loss, request another copy from Strahl S.r.l.
- Keep the workplace tidy and clean. Clutter and dirt can constitute a danger and therefore it is recommended to periodically clean the access routes. During electrical maintenance, avoid working in direct contact with wet or highly conductive surfaces
- All maintenance or assembly operations must be carried out by interrupting the power supply to avoid the risk of electric shock or mechanical impact. If this is not possible, suitable isolating devices (such as switches) must be provided. In any case, maintenance operations must be carried out with the line stopped
- Provide adequate lighting in the workplace. Correct lighting is very important to ensure satisfactory working safety conditions
- Use PPE (=Personal Protective Equipment). Each operator should be equipped with appropriate clothing and appropriate devices, according to the task assigned to him

1.7 PROHIBITIONS

- IT IS FORBIDDEN for people (including children) with reduced physical, sensory or mental capabilities to use the machine.
- IT IS FORBIDDEN to modify the safety or adjustment devices without the authorization and indications of the machine manufacturer
- IT IS FORBIDDEN to carry out any technical or cleaning work before having disconnected the machine from the power supply and positioned the main switch on "0 - OFF"
- IT IS FORBIDDEN to pull, detach or twist the electrical cables protruding from the machine, even if it is disconnected from the electrical mains, except for scheduled maintenance operations, using exclusively the means of access provided or indicated in this manual
- IT IS FORBIDDEN to get onto the machine. It is forbidden to climb onto the machine during normal operating conditions. It is also forbidden to build walkways or other precarious structures over it. During maintenance operations, access to the operations area must be limited by surrounding it with a fence or by means of appropriate signage
- IT IS FORBIDDEN to wear loose clothing or untied hair to avoid the risk of dragging/entanglement.
- IT IS FORBIDDEN to take alcohol or drugs that may cause fatigue and/or drowsiness before and during work shifts.

d IT IS FORBIDDEN to use the machine in the presence of explosive or potentially explosive substances, or of multiple substances which combined together could activate such a risk

d IT IS FORBIDDEN to operate inside closed environments or shelters that are not sufficiently open

d IT IS FORBIDDEN to throw objects of any kind:
- inside the dryer;
- inside the heating group;
- inside the air duct.

d IT IS FORBIDDEN
- test the dryer empty without first having released the cardan that operates the central auger;
- load the dryer from above;
- load the dryer without the grid on the loading auger mouth;
- obstruct the heat unit air intake in any way;
- open the heat unit door when the dryer is in operation;
- open the inspection doors with the cylinder full of cereal;
- stand under the discharge section when it is unloading the cereal;
- introduce any part of the body inside the heat unit when it is in operation;
- leave the dryer full of cereal, especially if humid.

d IT IS FORBIDDEN to work:
- with the fuel level inspection valve on the tank open;
- by operating any part of the dryer if unstable
- with the dryer on soft, unstable or uneven ground which could cause it to overturn.

d IT IS FORBIDDEN to move the dryer with:
- the drawbar not perfectly inserted into the tow hook of the driving machine and/or loaded with cereal;
- loaded with cereals;
- the cardan hooked to the tractor;
- the loading auger engaged;
- the discharge device inserted;
- the mobile telescopic riser extended;
- flat or damaged tyres;
- people staying on the machine;
- fuel in the tank on public roads.

1.8 RESPONSIBILITY

The manual supplied with the machine takes into account the experience and knowledge gained by Strahl S.r.l. until today. It is updated as of the date shown on the back cover. The edition corresponds to the revision number of the manual. Each new edition replaces and cancels the previous ones.
The Manufacturer declines all responsibility for damage and operating anomalies caused by:

- maneuvering errors;
- non-compliance with the instructions contained in this manual;
- repairs carried out incorrectly (the use of non-original spare parts and accessories can negatively affect the functioning of the system);
- damage caused by arbitrary modifications by the user or unauthorized interventions;
- lack of maintenance;
- power supply defects;
- improper use of the machine;
- exceptional, unpredictable events;
- use of the machine by untrained personnel;
- non-application of the provisions on safety, hygiene and health in the workplace.

a Responsibility for identifying and choosing the category of PPE. adequate/suitable (Personal Protective Equipment) is the responsibility of the Customer.

a Strahl S.r.l. declines all responsibility for possible inaccuracies contained in the manual, if attributable to printing, translation or transcription errors. Any additions to the instruction manual that the manufacturer deems appropriate to send to the Customer must be kept together with the manual, of which they will form an integral part.

1.9 RECIPIENTS OF THE INSTRUCTION MANUAL

This manual is intended:

- for the transporter and handling workers;
- for personnel responsible for positioning, commissioning and maintenance;
- for the employer of the users of the machine and for the person responsible for the workplace;
- for operators assigned to ordinary use of the machine.

1.10 CHARACTERISTICS OF PERSONNEL AUTHORIZED TO CARRY OUT INTERVENTIONS ON THE MACHINE

The Customer must ensure that the Authorized Personnel working on the machine for ordinary use, maintenance and cleaning is adequately trained and demonstrates competence in carrying out their duties, taking care of both their own safety and that of third parties.
Based on the type of assignment and tasks, the operators must also be appropriately trained on the functions of the machine in order to use and manage it correctly and guarantee its efficiency.
The Customer must verify that their staff has understood the instructions given, in particular those concerning aspects relating to safety in the use of the machine.

d IT IS FORBIDDEN to carry out operations outside of one's duties

d IT IS FORBIDDEN to deposit materials or bulky objects that obstruct the operator's escape route.

2 DESCRIPTION

2.1 GENERAL DESCRIPTION AND FEATURES

2.1.1 DESCRIPTION

The machine has the function of drying various types of cereals through the action of the hot air supplied by the heat unit. To obtain the result, the product is kept in continuous movement by the mixer and the central auger which guarantee homogeneous and uniform drying.

- the mobile feeding auger draws the right amount of product from the grain pile. Alternatively, grain is loaded from the loading hopper;
- the following supplies are ensured:
  - mechanical energy, connecting the cardan shaft to the power take-off transmission;
  - electrical power derived from the mains or auxiliary generator;
  - thermal energy derived from the burner;
- the feeding auger conveys the grain into the central auger which will lift it to its top to let it rain out into the annular space existing between the external layer and the air expansion bell;
- the loading action from the outside stops and the product recirculation process starts; the central auger continues the work by drawing the product from the part of product returning to its lower end and the scraper helps to keep all the product in circulation;
- the heat generator produces the drying fluid, automatically kept at the right temperature by sensors, which is forced, through a special duct, by the action of the same fan into the expansion bell;
- the dust produced is expelled outside pneumatically;
- once the desired humidity level has been reached, the product, which can even reach 55-60°C, is left to cool;
- a diverter places in sequence, at the top of the central auger, an outward discharge duct.

2.1.2 INTENDED USE AND LIMITS OF USE

a The machine is designed exclusively to be used with intact and perfectly functioning guards and safety devices. Only when this eventuality is respected, the production line can be considered safe in accordance with what is indicated in the relevant EC declaration of conformity

a The machine can only be used by operators who are adequately informed and trained on the correct methods of use

a Cereals that are too moist and/or very dirty must not be processed as they compromise the mechanical parts of the machine.

2.1.3 FORESEEABLE MISUSE

a Strahl S.r.l. declines any responsibility and the warranty becomes void in the event of negligence when using the machine or failure by the operator to comply with the instructions for use

d The machine **must not be used** for purposes other than those for which it is intended. Any use other than those permitted can lead to dangers as some of the safety measures envisaged in the design phase may fail.

2.1.4 IDENTIFICATION PLATES

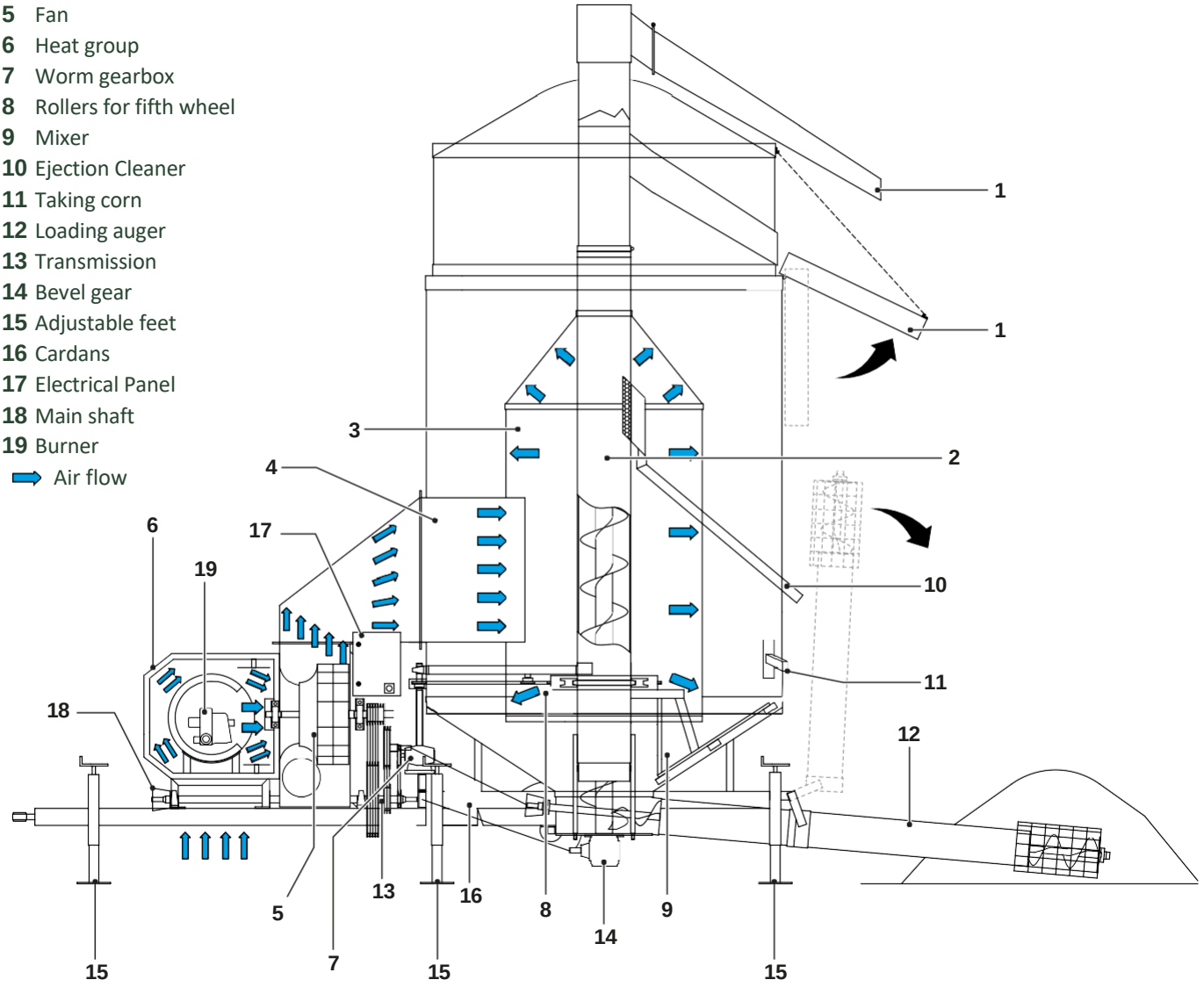
The machine identification and CE marking plate is fixed on the left spar of the drawbar.
The plate must remain unchanged over time and maintain all its original characteristics.

a Do not remove, tamper with or make the identification plates illegible

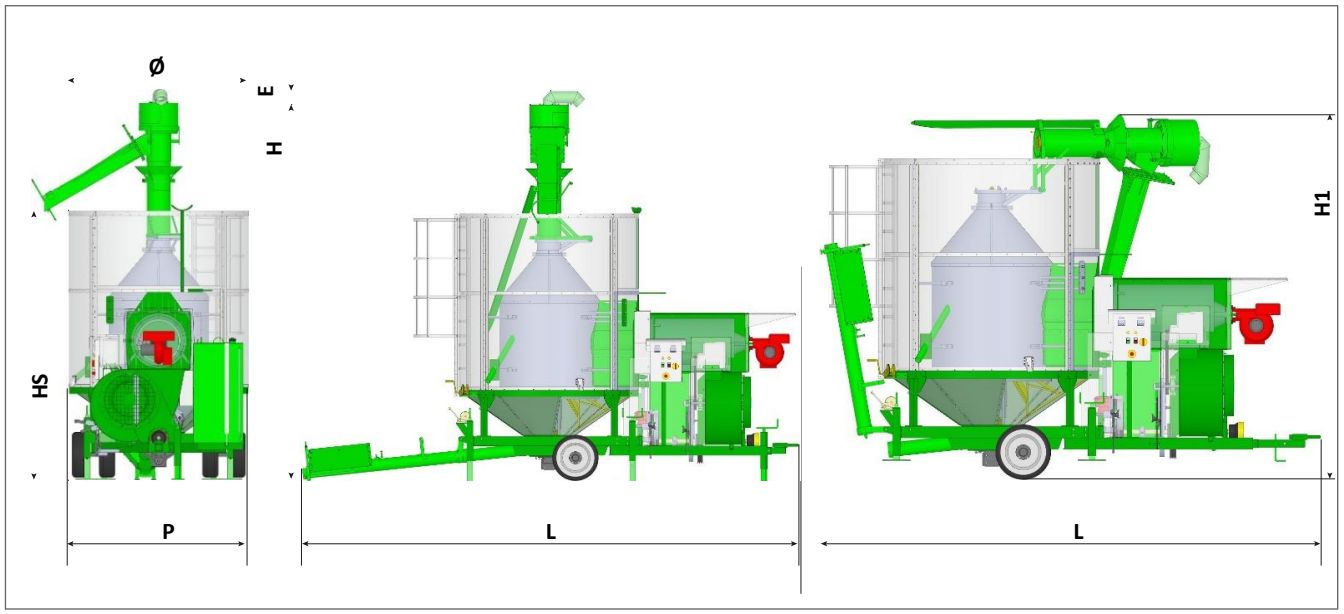
a When the production line is demolished, the identification plates must be returned to the manufacturer with the information that the line has been demolished

2.2 STRUCTURE

1 Discharge device
2 Central auger
3 Expansion bell
4 Air duct
5 Fan
6 Heat group
7 Worm gearbox
8 Rollers for fifth wheel
9 Mixer
10 Ejection Cleaner
11 Taking corn
12 Loading auger
13 Transmission
14 Bevel gear
15 Adjustable feet
16 Cardans
17 Electrical Panel
18 Main shaft
19 Burner
⇨ Air flow



2.3 DIMENSIONS



Description		AS 400	AS 500	AS 600	AS 900	AS 1000	AS 1150	AS 1350	AS 1550 EVO	AS 1750 EVO	AS 2250	AS 2550	AS 2650	AS 3150	AS 3550	M.U.
Height	Open (H+E)	480 +16	520 +16	553 +16	613 +16	660 +16	717 +16	647 +16	710 +16	760 +16	778 +16	779 +21	854 +21	951 +21	1100 +21	cm
	Closed (H1)	385	385	442	454	430	480	450	486	505	507	-	-	-	-	cm
Length (L)	Open	625	625	752	782	782	782	857	857	857	975	975	975	975	975	cm
	Closed	525	525	640	640	640	640	715	715	715	920	-	-	-	-	cm
Depth (P)		225	225	255	255	255	255	320	320	320	400	400	400	400	400	cm
Weight (empty)		2,4	2,7	3,3	3,6	3,7	3,9	4,3	4,6	4,8	5,8	6,2	6,4	9,7	9,8	t
Tank diameter (ø)		225	225	255	255	255	255	320	320	320	400	400	400	400	400	cm
Tank Height (HS)		340	380	370	454	430	434	450	440	457	445	635	695	805	952	cm

Description		ES 400	ES 500	ES 600	ES 900	ES 1000	ES 1150	ES 1350	ES 1550	ES 1750	ES 2250	ES 2550	ES 2650	ES 3150	ES 3550	M.U.
Height	Open (H+E)	480 +16	520 +16	553 +16	613 +16	660 +16	717 +16	647 +16	710 +16	760 +16	778 +16	779 +21	854 +21	951 +21	1100 +21	cm
	Closed (H1)	385	385	442	454	430	480	450	486	505	507	-	-	-	-	cm
Length (L)	Open	625	625	780	780	780	780	862	862	861	975	975	975	975	975	cm
	Closed	525	525	675	675	675	675	782	780	770	920	-	-	-	-	cm
Depth (P)		225	225	255	255	255	255	320	320	320	400	400	400	400	400	cm
Weight (empty)		2,4	2,7	3,3	3,6	3,7	3,9	4,3	4,6	4,8	5,8	6,2	6,4	9,7	9,8	t
Tank diameter (ø)		225	225	255	255	255	255	320	320	320	400	400	400	400	400	cm
Tank Height (HS)		340	380	370	454	430	434	450	440	457	445	635	695	805	952	cm

Description		MAGNA 120E	MAGNA 1200	MAGNA 2000X	MAGNA 2910	MAGNA 3810	MAGNA 4810	M.U.
Height	Open (H+E)	613 +16	662 +16	760 +16	778 +21	842 +21	951 +21	cm
	Closed (H1)	455	467	505	507	-	-	cm
Length (L)	Open	880	880	970	1070	1070	1070	cm
	Closed	640	640	715	920	-	-	cm
Depth (P)		255	255	320	400	400	400	cm
Weight (empty)		3,6	4,0	4,8	5,8	9,3	9,7	t
Tank diameter (ø)		255	255	320	400	400	400	cm
Tank Height (HS)		454	507	457	445	696	805	cm

All data are just indications. They can be modified by the manufacturing company without prior notice.

2.4 TECHNICAL DATA

Description		AS 400	AS 500	AS 600	AS 900	AS 1000	AS 1150	AS 1350	AS 1550 EVO	AS 1750 EVO	AS 2250	AS 2550	AS 2650	AS 3150	AS 3550	M.U.
Capacity		8	10	11,5	15	17	19	21	28,5	31	44	52	58	61	71	m^3
Power		17	17,5	21	25	27	31	37	39	42	54	55	57	85	85	kW
Production max 24h	Corn	36	45	52	68	77	86	95	128	144	198	220	235	252	293	t
	Rice	10	12	14	18	20	23	25	34	38	53	62	70	73	85	t

Description		ES 400	ES 500	ES 600	ES 900	ES 1000	ES 1150	ES 1350	ES 1550	ES 1750	ES 2250	ES 2550	ES 2650	ES 3150	ES 3550	M.U.
Capacity		8	10	11,5	15	17	19	21	28,5	31	44	52	58	61	71	m^3
Power		17	17,5	21	25	27	31	37	39	42	54	55	57	85	85	kW
Production max 24h	Corn	33	41	47	62	70	78	86	111	131	179	200	214	229	266	t
	Rice	13	16	19	25	28	31	34	44	52	60	67	73	83	97	t

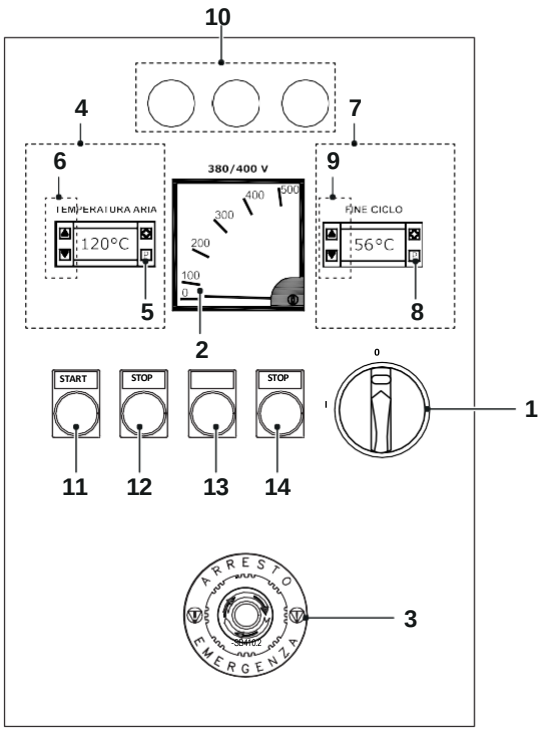
Description		MAGNA 120E	MAGNA 1200	MAGNA 2000X	MAGNA 2910	MAGNA 3810	MAGNA 4810	M.U.
Capacity		15	16	31	42	51	65	m^3
Power		25	30	42	54	85	85	kW
Production max 24h	Corn	68	72	144	198	220	252	t

Production data are indicative and very variable according to the qualitative characteristics, the degree of the impurity of the grain and environmental conditions.

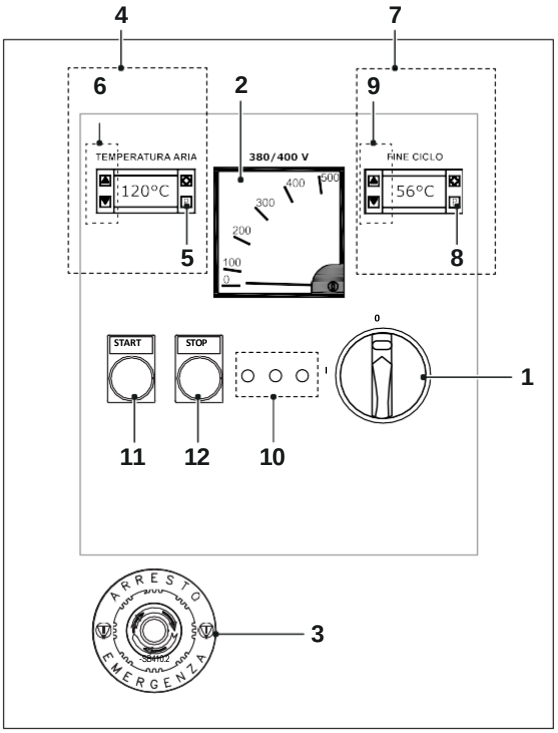
a Strahl S.r.l. declines all responsibility for inconveniences, faults or malfunctions that may occur as a result of failure to comply with the power supply values provided

2.5 CONTROL PANELS AND COMMANDS

from mod. 400 to mod. 2650



from mod. 3150 to mod. 3550



1	Main switch	6	Air temperature adjustment buttons	11	Burner start
2	Voltmeter	7	End of cycle thermostat (product temperature)	12	Burner stop
3	Emergency stop	8	Set button	13	Aspirator Start
4	Thermoregulator (air temperature)	9	Product temperature adjustment buttons	14	Aspirator Stop
5	Set button	10	Mains power supply presence		

3 SAFETY INFORMATION

3.1 GENERAL PRESCRIPTION

i It is the responsibility of the buyer/final user the implementation of the applicable laws on safety at work

d Prohibition of access to unauthorized people within the work areas.

a Strahl S.r.l. assumes no responsibility for any damage to people, domestic animals or things resulting from failure to comply with the prescribed RESIDUAL RISK MANAGEMENT ACTIONS or from failure to use the prescribed personal protective equipment

a Respect the plan of checks reported in the line user manual.

a Archive the final testing report of the line and keep it together with the checks and maintenance records

a The user of the line has the obligation to make the checks and maintenance records for the last 3 years available to the supervisory bodies.

3.1.1 PERSONNEL

a Only authorized personnel can operate the machine

a Do not underestimate the risks associated with using the machine and concentrate your attention on the work you are doing

a It is recommended to instruct operators so that they know how the machine works before using it. Operations and maneuvers carried out with **limited knowledge of the machine could compromise the operator's safety** as well as damage the machine itself

a It is the responsibility of the purchaser/end user to ensure that the personnel in charge of operating the machine:

- have read and understood this manual in all its parts;
- is aware of the potential risks that exist while operating the machine;
- have a thorough understanding of how the machine works
- knows perfectly all the safety devices, their position and their functioning

i Strahl S.r.l. assumes no responsibility for any damage to people, things or domestic animals resulting from use of the machine by unqualified (unauthorised) operators.).

3.1.2 WORK ENVIRONMENT

- Keep children, outsiders and animals out of the work environment.
- Keep the workplace tidy and free from obstacles: disorder causes accidents.

3.1.3 BEFORE STARTING

Before connecting the system to the electrical power supply:
- make sure the switch is in the OFF '0' stop position.

Before starting work:
- check the efficiency and integrity of the machine;
- check the presence and integrity of the protections;
- check the correct functioning of the safety devices;
- no foreign bodies must be in the path of the parts that will be set in motion;
- all utilities (accessories) must be connected and in the correct position;
- the personnel assigned to the work must be warned of the start of production.

a In case of anomalies, stop the machine immediately.

a Personnel must immediately report any inefficiency of the safety systems or dangerous conditions of which they become aware

a Do not use the machine if you find any defects.

3.1.4 INTERVENTIONS ON THE SYSTEM

PROHIBITION OF MODIFICATIONS

- Do not modify or replace any part of the machine without the manufacturer's approval.

a Any modifications to the machine carried out by the purchaser/end user must be considered the sole responsibility of the same.

ELECTRICAL SYSTEM

- Do not modify the electrical system in any way.
- Work on the electrical system must be carried out exclusively by specialized and authorized personnel.
- The power supply voltage must correspond to that declared in the technical characteristics. Do not use any other type of power supply.
- Periodically check the electrical components, making sure they do not come into contact with hot objects, damp, oiled surfaces and/or surfaces with sharp edges.

MAINTENANCE

- For any extraordinary maintenance or for any other particular problem that is not explained in this manual, we recommend contacting Strahl S.r.l.
- Before starting any maintenance work, isolate the system from its energy sources.

3.2 ENERGY SOURCE INSULATION

3.2.1 PRESCRIZIONI GENERALI

- Before carrying out any adjustment, maintenance or repair work, make sure that the system cannot restart accidentally by isolating it from energy sources. The energy source consists of the engine-alternator unit installed on the machine.
- Make sure that the main switch is in the OFF '0' stop position; implement a LOTO procedure (lockout/tagout).
- Make sure that all machine devices are stopped.
- Disconnect the power.
- Once the operations described above have been completed, indicate not to switch on the power supply for the entire duration of the work, displaying a sign in a visible position, with the indication SYSTEM UNDER MAINTENANCE.

d Prohibition of access to unauthorized persons inside the electrical cabinets arranged along the line; access to the Electrical Panels only to authorized and trained personnel who possess the professional qualification required by current legislation (PES, PAV PEI etc.).

d Prohibition to extinguish any fire starting with water

a Danger of electrocution inside the Electrical Panels of the line

3.2.2 LOTO PROCEDURE (LOCKOT/TAGOUT)

A Lockout/Tagout (LOTO) system is a safety procedure used to ensure that dangerous machines are properly shut down and cannot be restarted before maintenance or repair work is completed.
This prevents a machine from being accidentally started while it is in a dangerous state or while a worker is in direct contact with it.
The lockout/tagout procedures define operating methods for:
- identify the energy sources present that may constitute a danger to people;
- determine the devices to carry out the sectioning of these energy sources;
- block the disconnecting devices so that energy cannot be unexpectedly restored;
- identify any accumulated potential energy (for example elements that remain under pressure even after the isolation of external energy sources) and define the methods for their safe containment or release;
- define the procedures to ensure the actual absence of energy that can be released.

The procedures for controlling energy sources apply to all dangerous energy sources present, including, for example, electrical, mechanical, hydraulic, pneumatic, elastic, chemical and thermal energy.

LOCKOUT

In practice, lockout is the isolation of electrical energy from the system (machine, equipment, or process) that physically locks the system securely.

TAGOUT

Tagout is a tagging process that is always used when lockout is required.
The process of labelling a system involves posting or using an indicator (usually a standardized label) that includes the following information:
- The reason why the lockout/tagout is necessary (repair, maintenance, etc.).
- Block/label application time.
- The name of the authorized person who performed the lockout procedure.
- Affixing the label to the system.

Each person, after finishing the intervention, removes his personal warning and blocking device.

3.3 SAFETY DEVICES PRESENT ON THE MACHINE

a Whenever the protections are removed to carry out any maintenance or cleaning, they must be reassembled correctly in their original position before putting the dryer back into operation

a Do not use the dryer without protections.

d It is absolutely forbidden to alter the shape, dimensions or resistance characteristics of safety devices. The Manufacturer is not responsible for damage to things and/or people resulting from use of the dryer without emergency devices

3.3.1 EMERGENCY BUTTON

Red mushroom head push buttons are used for emergency control on the machine.

Emergency push button: 

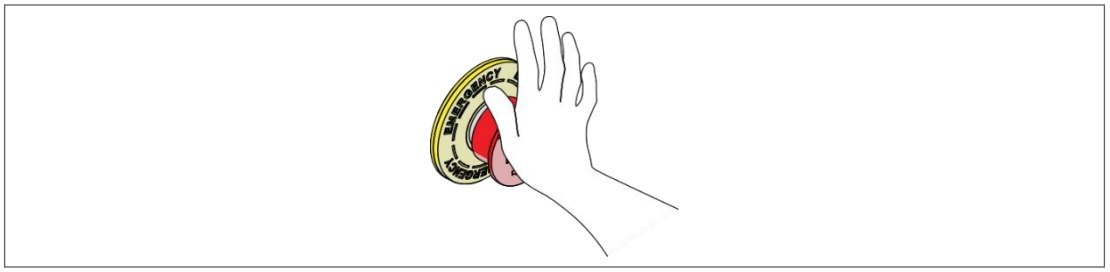
Consents and conditions: Machine Stopped in Operator Stop.

Effect: once pressed it stops the machine, the button remains in emergency conditions until it is reset.

Reset:

- Eliminate the causes of the emergency stop.
- Check that in the area where the safety device intervened there are the necessary conditions to reset the safety devices.
- Reset the emergency device.

To reset the mushroom head button after pressing in an emergency, rotate the button in the direction indicated by the arrow stamped on the head of the button itself.



a Use emergency device only in case of real danger and not for normal stops of ongoing operations.

a Periodically check the correct functionality of the emergency buttons

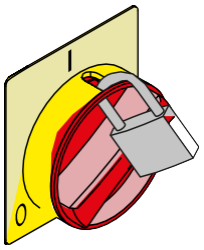
3.3.2 MAIN SWITCH

Disconnector: 

Operation: manual.

Effect: in the "0" position (padlocked) it interrupts the electricity supply

Reset: return the switch to the "I" position.".



3.3.3 FIXED PROTECTION

The machine is equipped with casings which prevent access, even if involuntary, to the moving parts and the hot parts of the heating unit.

Fixed ladders must be equipped with a metal protective cage that prevents accidental falling outwards.

A grid is installed on the loading auger on the dryer to prevent access to the moving parts.

3.4 PERSONAL PROTECTIVE EQUIPMENT

Do not wear ties, chains, rings or watches that could get caught in machine parts.
A summary table of the Personal Protective Equipment (PPE) to be used during the various life stages of the line is shown below.

Stage	Protective clothing	Protective shoes	Protective gloves	Eyeglasses	Safety helmet	Dust mask
						
Movement		▯	▯	▯	▯	
Assembly Disassembly	▯	▯	▯	▯	▯	
Ordinary use			▯	▯		▯
Adjustments	▯	▯	▯	▯		▯
Cleaning Maintenance Disassembly	▯	▯	▯	▯	▯	▯
Legend:						
▯	PPE REQUIRED					
	PPE AVAILABLE OR TO BE USED IF NECESSARY					
	PPE NOT REQUIRED					

¡ Please remember that failure to use personal protective equipment by operators, specialized technicians or in any case by those responsible for using the equipment may result in exposure to risk and possible damage to health

3.5 RESIDUAL RISKS

The machine highlights risks that have not been completely eliminated from a design perspective or with the installation of adequate protections. However, steps have been taken to inform the Customer, through this manual, of these risks, carefully reporting which P.P.E. must be used by the employees.
Sufficient spaces are provided during the system installation phases to limit these risks. To preserve these conditions, the areas surrounding the plant and accesses to the work positions must always:

- be kept free from obstacles;
- be clean and dry;
- be well illuminated.

For the complete information of the Customer, the residual risks that remain on the system during all phases of the life cycle are reported below.

COUPLING THE DRYERS TO THE TRACTOR

Risk		Management
Crushing during coupling caused by machine instability		• The machine must be installed in such a way as to avoid shaking or vibrations which could compromise the stability of the tractor-operating machine group. • Provide suitable means of support. • Use the required PPE.
Dangers arising from hydraulic systems		• The oil inlets and quick couplings of the machines must be equipped with a recognition code to avoid connection errors. • Hydraulic hoses must be protected to prevent liquid leaks in the event of breakages. • Use the required PPE.
Electrical system breakdown		• When the machine is not coupled to a self-propelled vehicle, it must be equipped with suitable devices to support hanging electrical cables. • Use the required PPE.

CONNECTION TO THE MOTION TRASMISSION

Risk		Management
Entanglement, dragging		• Fit casings and suitable protections along the entire length of the shaft and cardan joints. • Fasteners and guards must not be broken. • All protections must prevent contact with moving parts. • Use the required PPE.

USE OF THE MOBILE GRAIN DRYING SYSTEM

Risk		Management
Entanglement, dragging		• Shafts, pulleys, belts, transmission chains and all other transmission parts or elements must be protected. • The working parts of the machines and the related operation areas must be protected or segregated or provided with a safety device. • Use the required PPE.
Cutting and shearing		• The moving parts of the fan must be protected through closed guards or grilles when air passage is necessary or if frequent visual checks must be carried out. • Use the required PPE.
Falls from fixed or portable ladders		• Fixed ladders must be equipped with a metal protective cage that prevents accidental falling outwards. • Alternatively, use two-post ladders equipped with non-slip devices at the lower ends and retaining hooks at the upper ends. • Use the required PPE.

Risk		Management
Atmospheric discharges.		• When located outdoors, the metal structure of the system, by itself or through conductors and special earth electrodes, must be electrically connected to earth in order to guarantee the dispersion of atmospheric discharges. • Periodically check the protection device against atmospheric discharges. • Use the required PPE.
Intoxication and burns		• Before allowing workers access inside the cylindrical chamber, make sure there are no harmful temperatures. Carry out efficient ventilation or other suitable measures. • If there are flammable dust inside, precautions must also be taken to avoid the risk of fire and explosion, excluding the presence of open flames, incandescent bodies, tools made of ferrous material, footwear with nails and using safety lamps with voltage not > 25 V. • Use the required PPE.
Noxious dust		• The system must be equipped with means for conveying dust to places where it does not constitute a damage to the health of the population or deteriorate the external environment. • Workers must be provided with individual protection masks with dust filters.
Noise		• In processes that produce noise, the measures recommended by the technique must be adopted to reduce its intensity. • The employer must provide workers with personal protective equipment appropriate to the risks inherent to the work. • Use the required PPE.
Burns		• The external walls of the parts subject to heating due to the hot air produced and which is used, must be effectively covered with thermally insulating material or protected against accidental contact. • Use the required PPE.

LIQUID FUEL BURNERS

Risk		Management
Explosions and fires		• Ventilation of fireplaces and ensuring that nearby there are no vapours, gases or mixtures capable of causing explosions. • Make sure the smoke regulator is open. • Use electric ignition systems. • Make sure that there is no spillage of fuel in the firebox or in the combustion chamber around the burner or in the area in front of it. • Use the required PPE.

ELECTRICAL EQUIPMENT OF THE MACHINE

Risk		Management
Accidental contact with live elements		• Live parts must be placed in enclosures that provide a degree of protection against direct contact. • Use the required PPE.
Indirect contacts with masses that are live due to a fault		• Electrical connection to earth. • Installation of a protective differential switch. • Use the required PPE.
Wear or damage to the electrical conductors and risk of direct contact with live parts.		• Check the integrity of the conductors. • Use the required PPE.

ADJUSTMENTS, REFUELING, CLEANING AND MAINTENANCE

Risk		Management
Dangers related to maintenance operations		• It is forbidden to intervene on moving mechanical parts. • For maintenance and repairs at heights, use appropriate means such as ramps, walkways, ladders, pole-mounting brackets or crampons or other suitable devices. • Use the required PPE.
Crushing and shearing		• It is forbidden to intervene on moving mechanical parts. • For maintenance and repairs at heights, use appropriate means such as walkways, walkways, ladders, pole-mounting brackets or crampons or other suitable devices. • Use the required PPE.
Entrapment		• The access openings to the cylindrical chamber of the dryer must be adequately large to operate safely. • Use the required PPE.
Accidental contact with fluids		• Filling, draining and recovery of service fluids must take place in safe conditions. • Use the required PPE.
Entanglement, dragging and cutting		• Do not remove the protections of the transmission elements such as pulleys, shafts, gears, flywheels, fans and even transmission belts and chains. • The protections must be blocked with systems that require the use of special tools to open. • Use the required PPE.

 Prohibition to remove shelters and protections	 Prohibition of intervening on moving parts	 No access to unauthorized persons
 Prohibition of introducing hands	 No climbing	 No open flames

4 TRANSPORT AND HANDLING

a The use of work overalls, safety footwear, gloves, caskets is mandatory

i Do not make any modifications to the parts supplied with the machine. Any lost or faulty parts must be replaced with identical ones. Contact Strahl S.r.l. for any information

a **The machine must be moved only by authorized personnel. If the movement is carried out in the presence of several people, make sure that no one remains in an area that is not clearly visible to the person in charge of the movement operations**

4.1 TRANSPORT

DRYER TRANSPORT BY TOWING

The dryer can be brought to the work area hooked to the tractor.
The machine approved for road circulation has appropriate road signs such as lights, reflectors and tables. Make sure they work properly and are clearly visible before proceeding on public roads.

a Before proceeding with the movement, make sure that the coupling between the machine and the vehicle has taken place successfully to avoid dangers of uncoupling once the maneuver has started

a Check tire pressure

DRYER TRANSPORT ON TRAILER

The dryer can be brought to the work area by truck or other means of transport.

a Whenever maneuvers are started, make sure that there are no people, animals or things present, in the path or in any case nearby, which could be in danger or cause a danger such as the overturning of the machine itself

VERIFICATION OF DAMAGE CAUSED DURING TRANSPORT

Check the condition of the machine by visual inspection.
Any deformations of the visible parts indicate impacts suffered by the machine during transport, which could compromise normal operation.

In particular, check the good condition of the following parts:
- Electrical connectors.
- Details that protrude from the shape of the machine.
- Check the tightness of the screws, bolts and fittings.

a Damages due to transport must be reported immediately to Strahl S.r.l.

4.2 STORAGE

The indications contained in this section must be respected during periods of temporary storage of the machine which may occur in the following situations:

- Machine installation not immediately following its supply.
- Uninstallation of the machine and its storage pending relocation.

The machine must be stored and transported in the following safety conditions:

- Isolation from power sources.
- Remove dust and foreign bodies.
- Protect machined metal parts that are not painted with protective liquid and/or grease.
- Cover with plastic sheets.
- Store in a dry place, away from dust and contaminants.

4.3 HANDLING

a Before starting handling operations, make sure that the handling and installation area is free of obstacles and that there is sufficient space to move the machine and its accessories safely

a If it is necessary to lift the machine, check that the load capacity of the means used for handling is adequate for the mass to be lifted. Check that the lifting accessories (ropes, steel cables or straps) have sufficient length and capacity and are in good condition

Before starting to move the machine, check:

- that there are no cables, casings, panels or other parts of the machine that are not perfectly fixed;
- that there are no machine parts fixed precariously or that could move or fall during movement.

5 POSITIONING AND ASSEMBLY

a **All installation, mounting, dismounting and reassembly operations must be carried out only by qualified personnel.**

a All machines are tested and set-up by the manufacturing company before shipping and delivery to the user.

a Following installation, assembly and/or reassembly operations, it is necessary to restore the conditions and settings made during testing

a These operations must be carried out by specialized personnel authorized by the manufacturing company who have had the necessary training and setup of the machine

a The machine is designed, built and tested to meet all specific standards (see the declaration of conformity), when installed properly

a If positioning and/or maintenance are not carried out properly, dangers may arise when using the machine. Improper installation and maintenance will void the warranty terms

5.1 CHARGES TO THE BORNE BY THE CUSTOMER

The following are the responsibility of the customer, unless otherwise established in the contract:
- Guarantee the minimum space necessary for moving the equipment around the machine.
- Provision of an adequate electrical power supply.
- Lighting of work areas (of sufficient intensity and distribution, as required by current legislation).
- Connection of the earth ring with the metal structure of the unit (to protect operators from the risk of indirect electrical contacts) using a copper cable of adequate section.

5.2 PLACEMENT AND LIGHTNING

i Before starting the operation, identify and check the entire machine movement and positioning area, in order to detect the possible presence of dangerous points

a Check that no person not involved in the work or unauthorized is for any reason in the area of transport and handling operations, outside and inside the work environment in which the machine will be positioned

a Provide adequate maneuvering space for the support means intended for handling the product before/after the dryer

a Position the dryer outdoors, on a floor that is as flat as possible and suitable to support the load. If necessary, place sturdy wooden boards between the feet and the ground to distribute the loads, to prevent one or more feet from sinking into the ground

a Check that there are no live power lines that could interfere with the movement

You are required to:
- maintain the minimum average illuminance value in the installation environment, in this case 300 lux;
- use portable lighting devices, in case it is necessary to operate (for adjustments or maintenance), in poorly lit or hidden points such as inspection and maintenance pits (UNI EN 12464-1: Light and lighting. Lighting of workplaces: indoor workplaces).

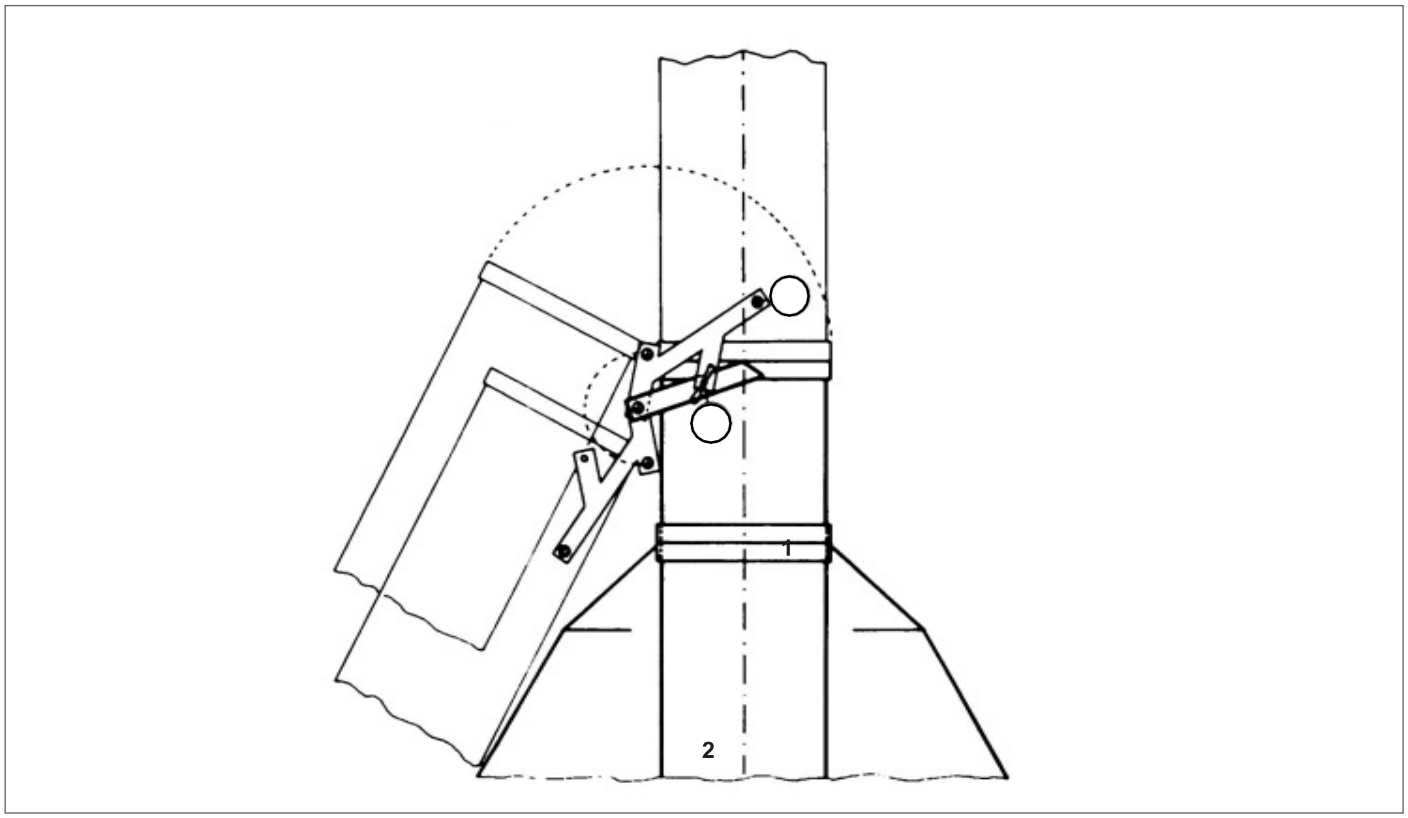
5.3 INSTALLATION OF TELESCOPIC EXTENSION

5.3.1 INSERTION OF THE CENTRAL TUBE EXTENSION

Before starting the operations of connecting the extension to the central tube of the machine, you must proceed with the preparation of the connection.

a The preparation operations must ALWAYS be carried out before raising the telescopic part of the external cylinder. Otherwise, you risk damaging its sheet metal.

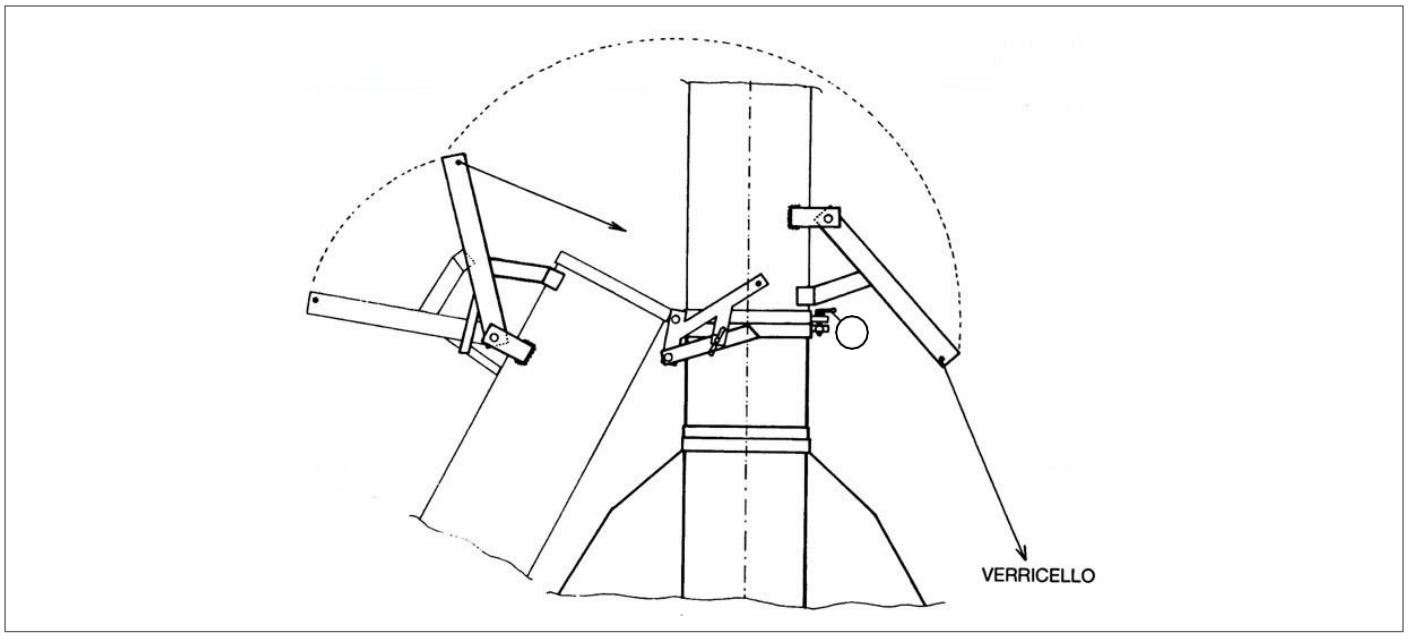
- Raise the mobile telescopic cylinder with the appropriate winch until the extension of the central tube is approximately 5-6 cm from the perforated sheets of the same;
- Rotate the crank (1) until the hinge connecting the central tube is brought to the highest position (almost at stroke-end);
- Lock the fixing wing nut (2).



To bring everything back to the starting condition, carry out the procedure in reverse order.

5.3.2 INSERTION OF THE CENTRAL TUBE EXTENSION BY COMPOUND HINGE

- Prepare the connection of the central tube extension;
- Raise the external telescopic cylinder up to approximately 10 cm from the stroke-end;
- Raise the rod that controls the discharge up to the stroke-end and lock it with the appropriate hook;
- Raise the extension of the central tube by rotating it on the appropriate hinge until it reaches a vertical position, simultaneously checking that the discharge closing throttle valve enters perfectly into its slot and that the augers engage correctly (this operation, on some models can be carried out via winch mounted at the base of the external cylinder);
- Raise the external telescopic cylinder further up to the stroke-end, without excessive force, then firmly lower the discharge rod and lock the safety wing nut (3), taking the necessary precautions to avoid slipping;
- Firmly lower the discharge rod and lock the safety wing nut (3).
- The winch rope, when working, must not be too tight so as not to bring the tube out of axis.

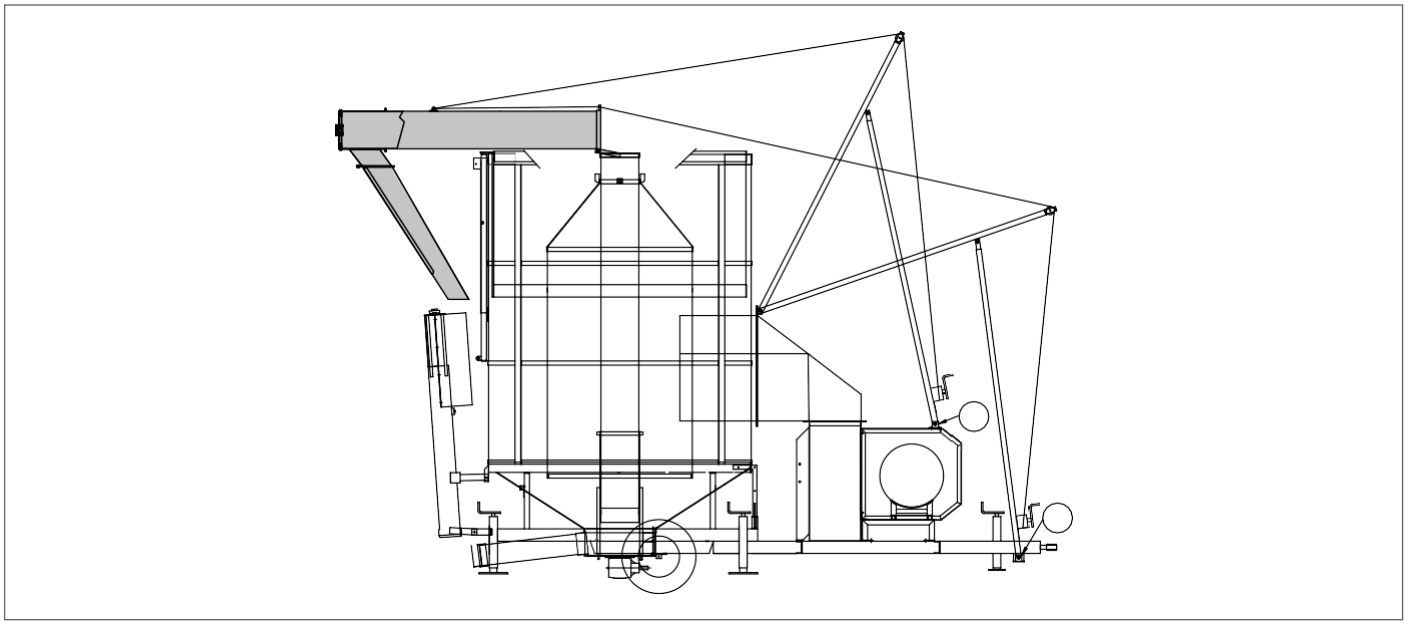


To lower everything carry out the procedure in reverse order, pulling the rope opposite to that of the winch to begin lowering the tube.

5.3.3 INSERTION OF THE CENTAL TUBE EXTENSION WITH SIMPLE HINGE

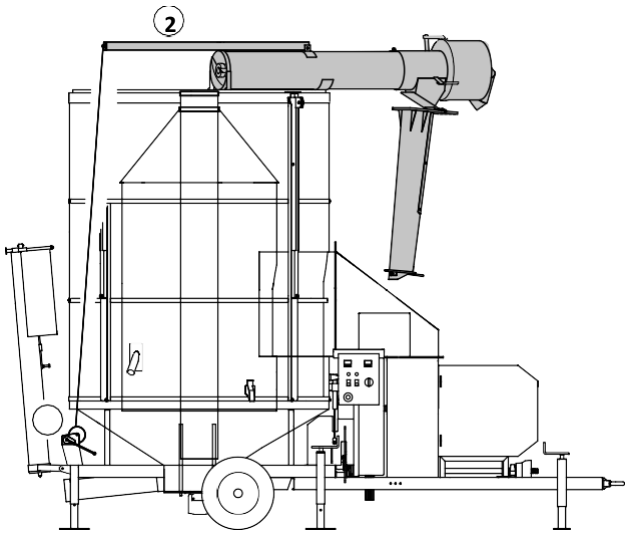
WITH SWIVEL DISCHARGE DEVICE TIPPED BEHIND

- Operate the appropriate winch, after hooking it in position (2) above the heat unit, to the appropriate pylon, both to lift and lower the central pipe with relative discharge device (be careful not to hook the adjustment ropes).
- Lock the safety wing nut on the hinge of the central tube and loosen or detach the rope.
- When moving on the road, return the pylon to position (1) to reduce the overall height



WITH SWIVEL DISCHERGE DEVICE TIPPED FRONTALLY

- Use the appropriate winch (1) positioned under the rear panel of the dryer to raise and lower the central tube with relative discharge (2) (be careful not to hook the chute adjustment ropes).
- When starting the lifting operation of the central tube, be careful to wind the steel rope avoiding anomalous overlaps.
- Lock the safety wing nut on the hinge of the central tube and loosen or detach the rope.



5.4 ELECTRICAL CONNECTION

a Before carrying out work on the machine, disconnect the power supply

a Work on electrical equipment must be carried out exclusively by Strahl S.r.l. personnel.

a The user's electrical systems must comply with local laws and regulations

5.4.1 BURNER POWER SUPPLY WITH ALTERNATOR

The energy source consists of the engine-alternator unit installed on the machine.
Protection against indirect contact occurs by electrical separation, residual-current protection devices are not necessary.

a The masses of the separate circuit must not be intentionally connected either to earth or to the masses of other circuits, or to extraneous masses.

5.4.2 BURNER POWER SUPPLY FROM FIXED MAINS

The connection to the fixed mains energy source must be carried out by a competent technician.
The machine must be earthed using the same power cable which must in any case be mechanically protected.

a The power supply of the line must be protected from overcurrents (with fuses or magnetic thermal switches sized for the maximum expected absorption).

5.5 NOISE

The listed airborne noise emission levels do not necessarily imply safe exposure levels for the worker. Worker exposure levels are obviously related to machine emission levels, however other factors also influence worker exposure levels.
Factors include the duration of exposure, the characteristics of the environment, the presence of other machines. The emission levels of the machine allow the purchaser/end user to estimate the dangers due to airborne noise.

If the machine is used for work in an environment in which the daily noise exposure level of the operators is higher than 80 dBA, the employer must ensure that all safety measures are applied to safeguard the health of the operators. In particular, the operator must use individual accessories to protect against noise if necessary.

If the machine is inserted into a work environment in which other operating systems are already installed, it will be the customer's responsibility to have the overall maximum noise levels detected.

6 USE

a The operations must be carried out only by professionally qualified or authorized personnel, equipped with adequate personal protective equipment and suitable tools and auxiliary means

6.1 PRELIMINARY CHECKS

Before commissioning the machine, you must check:

- That the electrical connections have been made correctly.
- The conformity of the mains voltage and frequency.
- That all protections and safety devices are correctly installed and functioning.
- That there are no damaged components.
- That the machine's earth connections have been carried out correctly.
- That there are no foreign bodies inside the machines and work areas (e.g. tools, rags, etc.).
- In case of ambient temperatures below 0° C, the diesel fuel must be additived.

d Prohibition of access to unauthorized persons within the line work areas

6.2 ROAD CIRCULATION

When road circulation of mobile dryers is possible, they are classified as towed agricultural machinery and are also subject to the following requirements:

- If put into circulation after 6 May 1997 they must be accompanied by a Certificate of Technical Suitability for Circulation;
- If the size is greater than one of the following parameters they must be accompanied by circulation permit issued by the Management Bodies of the road network concerned:
  - height: 4 meters;
  - width: 2.55 meters;
  - length: 12 meters;
- As regards the mass, if the following parameters are not respected, it is necessary to pay compensation for increased wear of the road surface to the Management Bodies of the road network concerned:
  - in the case of an average unit load exerted by the tires on the road surface not exceeding 8 dN/cm2

1 axle	6
2 axles with distance greater than 1.2 m	14
2 axles with distance less than 1.2 m	11

  - in the case of an average unit load exerted by the tires on the road surface exceeding 8 dN/cm2

1 axle	5
2 axles	8

d It is not possible to circulate with the product inside the machine.

6.3 COMMISIONING

6.3.1 PREPARING THE MACHINE FOR WORK

a The machine must carry out its work outdoors, far from any accumulations of flammable materials

d Do not use the machine near high voltage overhead power lines

a Handle the dryer ONLY in the closed configuration, its dimensions make it easy to tip sideways. Avoid sudden steering or acceleration

a Provide adequate maneuvering space for the support means intended for handling the product before/after the dryer.

a Position the dryer upwind in order to limit the suction and recycling of the dust produced during the process

HANDLING OF THE GRAIN DRYER TO TOW

After reaching the work area:
- Unhook the tractor and unload the wheels of the load-bearing axle
- Use the appropriate adjustable stabilizing feet for greater stability of support on the ground and correct leveling of the machine.
- Place sturdy wooden boards with a load-distributing function between the stabilizing feet and the ground, to prevent one or more feet from sinking into the ground.

HANDLING OF THE GRAIN DRYER ASSEMBLED ON A TRAILER

The grain dryer, not assembled, can be brought to the work area by truck or other means of transport. Once you reach the work area:
- unload the dryer from the vehicle used for transport;
- assemble the machine using suitable auxiliary means, in particular lifting means.

Note: to get on and off the machine, use only the designated access routes and carry out the work while standing on the appropriate platforms or from the ground.

a Ensure that the machine's electrical system and the metal masses of the dryer are earthed. The operations must be carried out only by professionally qualified or authorized personnel equipped with adequate personal protective equipment and suitable tools and auxiliary means

a Position the tractor in such a way as to allow correct operation of the motion transmission.

- insert the cardan shaft with the tractor's power take-off disengaged and with the tractor's engine stopped;
- check that the stops are locked, use the appropriate chains to prevent the protection from rotating

a The cardan shaft must:
- be CE marked;
- be correctly fixed to the power take-off, respecting the direction of rotation and fixing the retaining devices
- have the telescopic tubes, in the position of maximum extension, overlapped for at least 1/3 of their length

a The regularity and precision of the rotation speed of the cardan shaft conditions the voltage of the current produced by the alternator, the regular operation of the burner and the precision of the sensors.

- check the condition of the fan protection grille; replace it if necessary;
- check the oil level in the transmission boxes and proceed to greasing the points where it is required;
- provide the necessary fuel supplies for both the tractor and the heat unit.

Note: if electric motors are used, a connection to the company electricity mains is required; use cables compliant with standards complete with suitable plugs and sockets. The connection must be carried out by expert personnel. The layout of the power line must take into account the maneuvering needs of the auxiliary vehicles.

- turn on the tractor, operate the clutch and the accelerator to gradually activate the transmission;
- turn on the power supply by turning the main switch to ON "I";
- check that the desired voltage is reached;
- set the desired temperature.

a With the dryer powered by the mains, check that the desired voltage reaches the panel and adjust the sensors.
- turn on the fan;
- start the burner; in case of ignition failure, check the correct position of the ignition electrodes before attempting the starting operation again

a Temperatures are usually over 120°C, so proceed with caution to avoid possible burns or fires.

6.3.2 LOADING

The mobile feeding auger is placed in a position to draw the right quantity of product from the pile of grain prepared for drying.
Alternatively, grain loading is carried out by a trailer which directly unloads the product into the loading hopper.
Loading:

- Feed the feeding auger in advance to fill the dryer;
- Insert the feeding auger control lever and lock it with the appropriate fixing wing nut;
- Turn the PTO gradually and decisively at approximately 450 rpm until the voltmeter reaches 400 V; continue to feed the feeding auger regularly until it is completely filled. In machines with a telescopic riser you must be ready to feed the feeding auger to quickly fill the central one.

a When the central auger is empty, dangerous vibrations can occur as it is broken and not supported in the joint.

- When the internal bell is completely covered by cereal, engage the fan clutch, lowering the tractor rpm by approximately 25-30%;
- With the feeding auger empty, engage the lever gradually, without jerking and firmly lock the fixing wing nut without over-tightening the belts, promptly bring the rpm back to speed. In electric version machines, keep the rpm constant;
- Complete the filling leaving the loading auger free and disengage it using the appropriate lever;
- The central auger recirculates the product inside the bell.

a Access to the machine during operation, in particular for reading process data and taking samples, must be possible without operators coming into contact with dangerous areas

6.3.3 OPERATING TEMPERATURE BY TYPE OF CEREAL

The following table shows indicative data of the operating temperatures of the hot air produced by the heating unit, measured in degrees centigrade, to be set in the electrical panel depending on the type of cereal to be dried and the atmospheric conditions of the external environment.

	Rice	Sunflower	Soy	Sorghum Barley Wheat Millet	Corn	Rapeseed	M.U.
Starting temperature	43	50	70	100	90	75	°C
Operating temperature (Room temperature >15°C)	43	50	70	100	110-130	75	°C
Operating temperature (Room temperature ⩽ 15°C)	73	50	70	100	100-120	75	°C

- The operating temperature must never exceed a difference in level of more than 110°C compared to the external ambient temperature with a maximum as indicated in the table
- In the case of overheated rapeseed, before turning on the burner, it is necessary to ventilate for approximately 10-15 minutes to allow the removal of the gas present in the product to avoid the risk of fire. In the event of a fire starting (due to an incorrect setting of the operating temperatures, a malfunction of the control instruments, etc.) the ventilation must be stopped as soon as possible and the product must be unloaded
- In the case of sunflower, before turning on the burner, it is always necessary to ventilate for approximately 10-15 minutes to allow the removal of the gas present in the product to avoid the risk of fire
- In addition to correctly setting the operating temperature suitable for the cereal to be dried, it is equally important to check that this does not exceed the desired value (due to a malfunction of the thermoregulator and/or probe, due to burner nozzles of inadequate section, due to exceptional atmospheric conditions, etc.) otherwise there is a risk of compromising the drying result or even the product catching fire.

6.3.4 DRYING TEMPERATURE ADJUSTMENT

- Press the burner ignition button with alternating pulses for approximately 10 seconds until the flame lights up.
- In case of ignition failure it is absolutely necessary to press the burner stop button.
- Adjust the temperature on the thermoregulator as per the table in paragraph 3.2.3 using the buttons ▲▼

AUTOMATIC OPERATION

Adjust the air temperature thermoregulator with the burner on:

- Set the starting temperature value to **out 1** (see "6.3.3 Operating temperatures by type of cereal" page 32) using the buttons ▲▼
- Set the operating temperature value to **out 2** (see "6.3.3 Operating temperatures by type of cereal" page 32), press the set button P twice and then use the buttons ▲▼.

Adjust the cycle-end thermostat and the final product temperature:

- Set to **out 1** the temperature value at which you want the air thermoregulator temperature to pass from the initial value to the operating value by acting on the buttons ▲▼.
- Set the cycle-end temperature to **out 2**; press the set button P twice and then use the buttons ▲▼.

When the product temperature reaches the programmed temperature, the burner turns off and the cereal begins to cool.

To be stored, the product must reach a temperature at least 6-10°C higher than the atmospheric temperature at the time. If stored at different temperatures, humidity could occur.
Orient the unloading head located at the upper end of the vertical auger and proceed with unloading the product.

6.3.5 CASUAL OR FORCED STOP OF THE FAN

In the event of a casual or forced stop of the fan with the burner in operation, promptly open the burner by acting on the nuts that block the flange, to avoid compromising the efficiency of the internal parts such as tips, high voltage cables, deflector and photo-resistor.

d This operation must be carried out in case of absolute necessity and is not to be considered a usual working procedure

6.3.6 CASUAL OR FORCED STOP OF THE CENTRAL AUGER

In the event of a casual or forced stop of the central auger, it is necessary to avoid leaving the dryer loaded for long periods because upon restarting the transmission components could be compromised (cardans and bevel reduction gear). Empty the central auger by opening the door at the base of the central cone for at least ten seconds, close the door and start the machine again.

a In the event of a fire starting, stop the burner by acting on the emergency button and stop the fan by using the appropriate lever.

a It is also advisable to download the product to check the efficiency of the machine components and understand the problem before setting off again.

6.4 ANOMALY DETECTION

a If an anomaly is detected, the operator stops the WORK CYCLE:
- stop the working cycle (burner) with normal shutdown;
- stop the electricity generator (main switch OFF);
- stop the processing cycle with an emergency safety stop;
- in the case of a cardan machine, stop the tractor which provides the driving force.

a Do not use the machine if it is in conditions of misuse or malfunction.

a For any problem or fault, please refer to the company Strahl S.r.l.; each repair action is the complete responsibility of the person carrying it out and must be reported, accurately described, in the maintenance report.

7 MAINTENANCE, REPAIR, INSPECTION AND CLEANING

a Archive the final testing report of the line and keep it together with the inspection and maintenance records.

a The user of the line has the obligation to make the inspection and maintenance records for the last 3 years available to the supervisory bodies.

a Maintenance depends on the use of the line.

7.1 INTRODUCTION

The dryer is a machine for purely seasonal use (from a week to a month during the harvest period) and will have a long period of non-use.
Scrupulous maintenance of the machine at the end of the season is strongly recommended, because it allows you to keep it efficient and limit any damage or malfunctions to a minimum.
The Customer must ensure that the inspection, repair and maintenance operations of the machine are carried out exclusively by professionally qualified personnel with:

- specific technical training and experience;
- knowledge of general safety requirements;
- ability to recognize and avoid any possible danger.

7.2 GENERAL USE

Before carrying out any inspection, cleaning or maintenance operation it is mandatory to adopt all useful measures to avoid accidental start-up of the system:

- ensure that the system cannot restart accidentally by isolating it from energy sources;
- make sure that all system devices are stopped;
- disconnect the system from the electrical power supply by positioning the main switch on the control panel in the "0-OFF" position";
- block the main switch with a padlock that prevents its use during maintenance phases;
- hang a sign on the Control Panel indicating the prohibition on carrying out maneuvers as the system is undergoing maintenance.

Once maintenance operations have been completed, it is necessary to ensure that the system is able to work safely and in particular that the protection and safety devices are functioning.
For good maintenance:

- use only original spare parts and tools suitable for the work to be done and kept in good condition;
- respect the intervention frequencies suggested in the manual.

a Respect the skills for the various ordinary and extraordinary maintenance interventions. Failure to comply with the warnings may cause risks for personnel.

a Maintenance, verification and adjustment operations must be carried out only by qualified personnel, equipped with adequate personal protective equipment, suitable tools and auxiliary means.

d IT IS FORBIDDEN to carry out work on live elements.

7.3 ORDINARY MAINTENANCE

a For interventions not listed, in particular for those on the electrical and heating systems, please refer to the company Strahl S.r.l

a Any unauthorized intervention is the complete responsibility of the person carrying it out and must be reported, carefully described, in the maintenance report

7.4 CLEANING AND REFUELLING TANK

a During cleaning it is necessary to always wear personal protective equipment (work clothing, non-slip footwear, gloves and protective glasses); check the safety data sheets of the products used for cleaning for any requirements regarding the use of specific PPE

To ensure the longevity of the machine over time, its cleaning and maintenance is essential:

- Thorough cleaning is recommended every time the machine is stopped (end of season). After a prolonged stop, before restarting production it is necessary to carefully clean the entire machine with adequate cleaning systems and products;
- Clean the machine in all its parts from any product sediments/powders/liquids and production residues;
- Prevent electrical/electronic devices from coming into contact with liquids, vapors and dust;
- Make sure on a daily basis that all filters (compressed air, water, etc.) are clean. Otherwise proceed with emptying and cleaning them;
- Keep the fan impeller clean;
- Keep the fan, air damper, burner deflector and generator clean;
- Clean the perforated mesh of the internal expansion bell as necessary;
- Clean the burner nozzles and filters;
- Empty and clean the under-cone box as needed from stagnation of dirty cereal hardened by dust and humidity - otherwise the circulation of the cereal will be compromised and anomalous stresses will be created on the mixer and the loading auger.

In general, it is recommended:

- not to use detergents containing aggressive, irritating and non-biodegradable chemicals;
- non to use jets of water, steam or high-pressure cleaners on electrical components and electrical panels;
- not to use jets of compressed air, as they generate dust and are harmful to your health;
- transparent plastic materials (Polycarbonates, Plexiglas, etc.) must not come into contact with synthetic oils or thinners. Cleaning must be carried out with water and detergents.

a At the end of each washing operation with detergent it is necessary to rinse thoroughly in order to eliminate any residue of detergent on the washed parts.

a The use of compressed air is permitted only when wearing suitable PPE eye protection and work clothing.

d Do not use compressed air towards people or yourself

REFUELLING TANK

Refill the fuel tank only when the system is stopped and after having carefully cleaned the inlet nozzle.

7.5 CHECK AND ADJUSTMENT

a **Adjustments are carried out by Strahl S.r.l.**

7.5.1 PERIODIC CHECKS

a Operate with the machine stopped, with the guards (casings) restored to their intended position before restarting the machine.

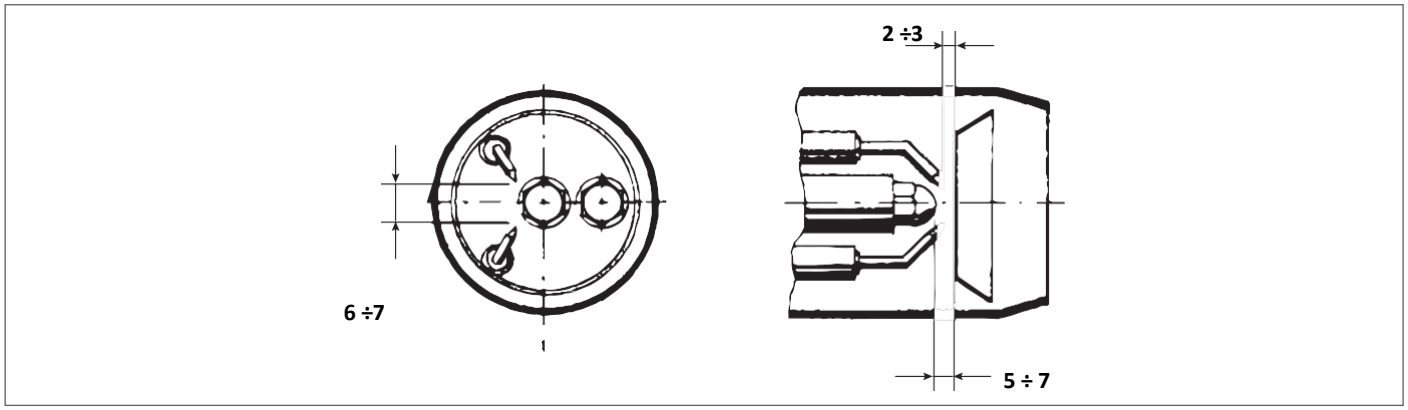
- Periodically check the tension of the belts that transmit motion to the fan, generator etc., in compliance with the timing and methods provided for in the instruction manual supplied with the individual components;
- Check the lubricant levels in the gear cases and grease the bearings, according to the schedule and to the methods provided for in the instruction manual supplied with the individual components;
- Periodically check the correct fixing and the state of wear of the cardan shaft.

7.5.2 CHECKING SAFETY COMPONENTS

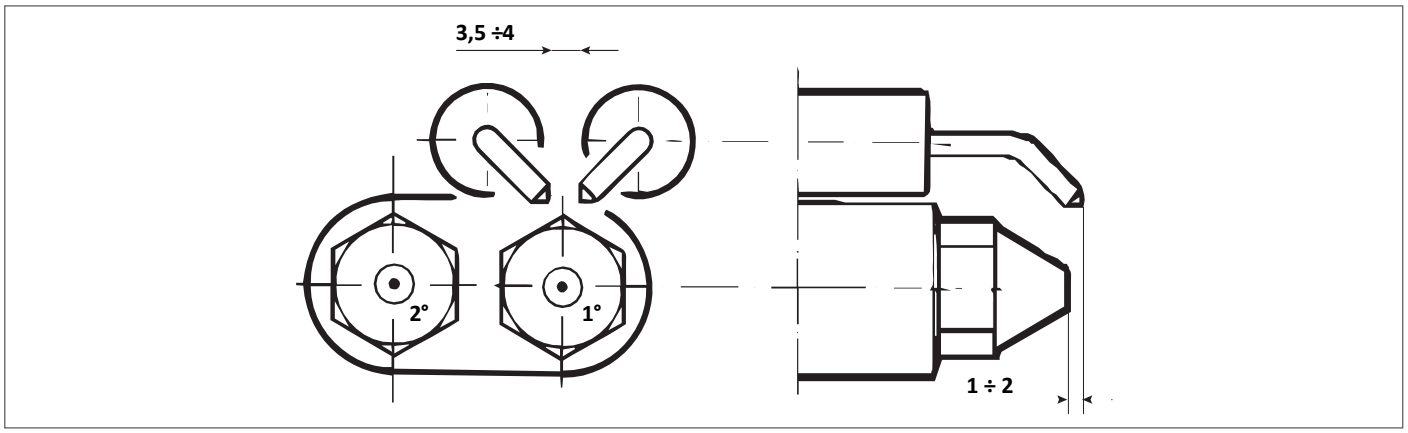
The functioning of safety devices (emergency buttons) is essential for the health and protection of people.
It is therefore advisable to carry out periodic intervention tests on the devices in order to exclude any defects of the same or of their components.
Carry out the tests at least once a month and check the correct release of the dedicated safety equipment

7.5.3 CHECKING THE POSITION OF DEFLECTOR AND ELECTORDES ON THE BURNERS

Location of the Lamborghini burner deflector and electrodes

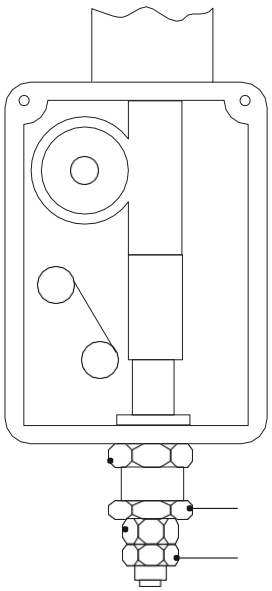


Location of the Riello burner deflector and electrodes



7.5.4 BURNER AIR DUMPER ADJUSTMENENT

- To open the air on the second flame, turn the screw (1) anticlockwise
- To open the air on the first flame, turn the screw (3) clockwise
- If you only act on the 1st flame there is no need to adjust the 2nd
- If you change the adjustment of the 2nd flame it is necessary to also check the 1st



1 *2 nd flame air calibration screw*

2 *2 nd flame air adjustment screw locking nut*

3 *1st flame air calibration nut*

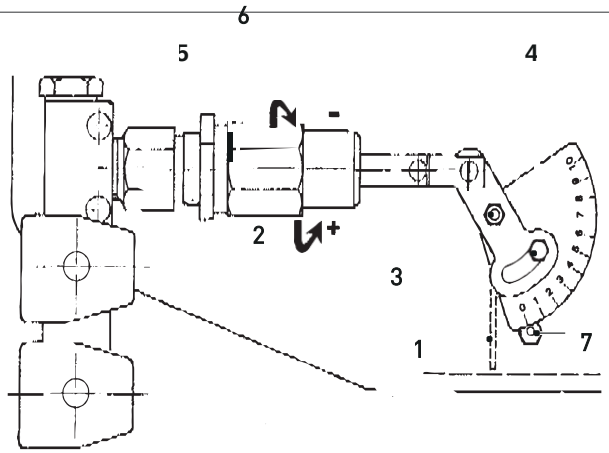
4 *Locknut for the1st flame adjustment nut*

Note: LAMBORGHINI burner air damper

7.5.5 PUMP ADJUSTMENT

No pre-adjustment is required.
The pump leaves the factory calibrated at 12 bar; this pressure must be checked and if necessary modified after the burner is turned on.
At this stage simply apply a pressure gauge to the appropriate connection.

7.5.6 DAMPER ADJUSTMENT



1 *Damper*
2 *Nut*
3 *Screw*
4 Graduated sector
5 Jack screw
6 Jack
7 Index

Nota: *RIELLO burner air damper*

1st Stage:

The damper (1) is adjusted by acting on the graduated sector (4).

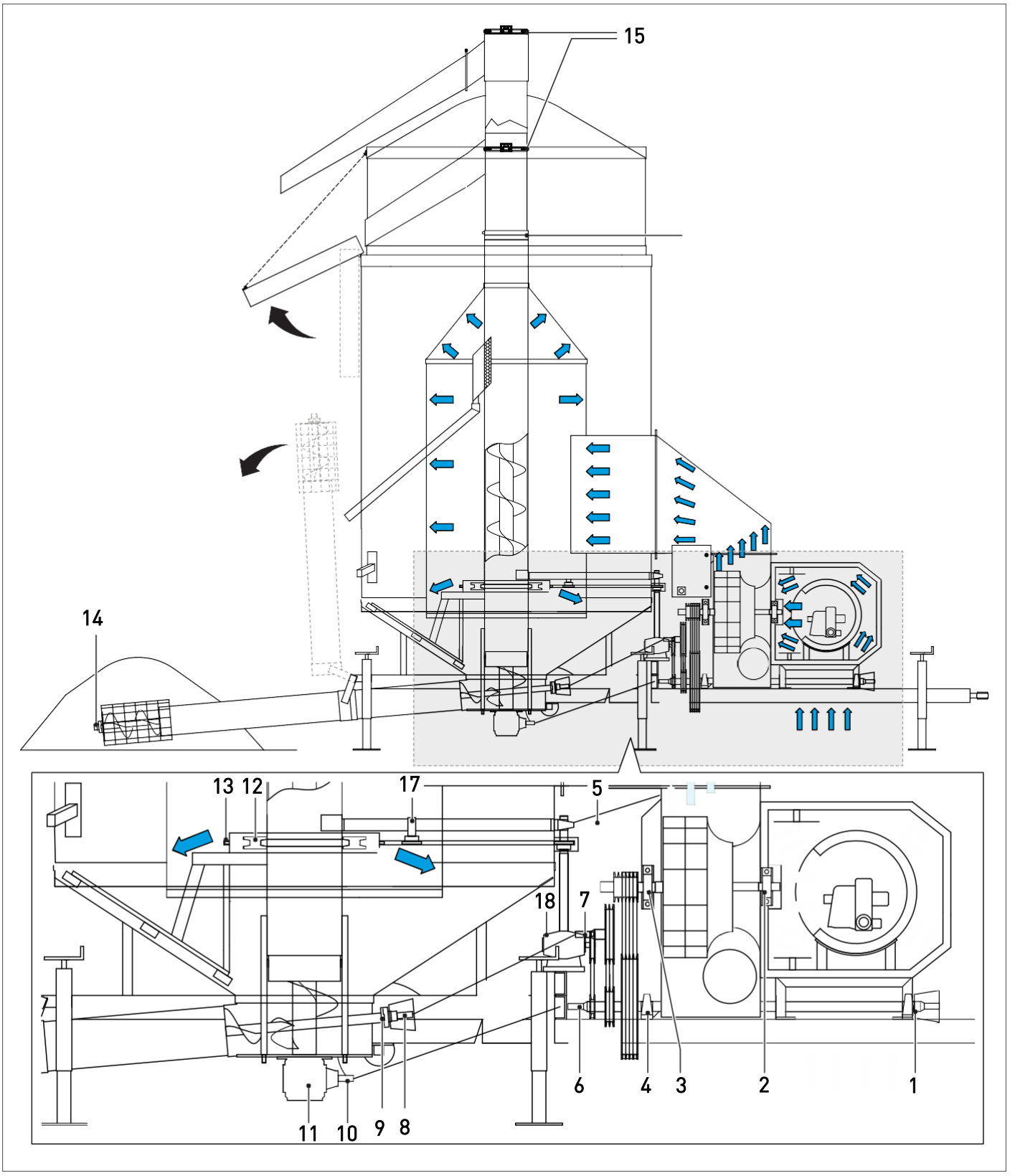
- Loosen the screw (3) and the nut (2)
- Move the graduated sector (4) so that the index 7) is in correspondence with the desired notch in relation to the flow rate of the 1st stage nozzle.

2nd Stage:

The adjustment of the damper (1) is carried out by acting on the jack (6).
The adjustment must be adapted from time to time to the burner flow rate and the combustion chamber pressure.

7.6 LUBRIFICATION

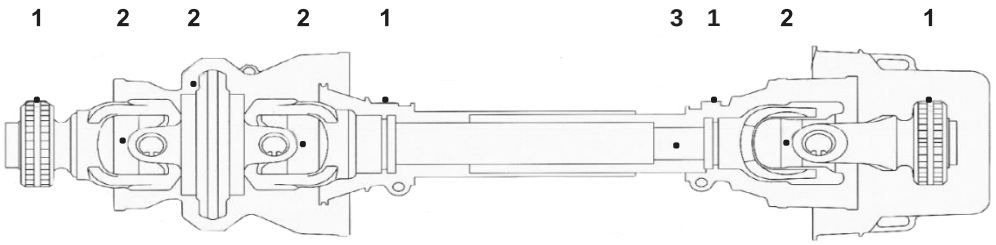
All the waterproof supports present in the dryer must be lubricated with greases which maintain their lubricating characteristics over time.
Under normal operating conditions the quantity of grease that the supplier company puts in the bearings is sufficient for the entire lifespan of the support.
When unfavourable external conditions or high thermal variations occur, additional lubrication is required. The lubrication periods of the supports must therefore be adapted to the respective operating conditions of said bearings.



Zone		Intervention	Frequency
1	"UK" type main shaft and fan supports	Grease with common grease in doses of 5 g	240 hours approx.
2	"UK" type main shaft and fan supports	Grease with common grease in doses of 5 g	240 hours approx.
3	"UK" type main shaft and fan supports	Grease with common grease in doses of 5 g	240 hours approx.
4	"UK" type main shaft and fan supports	Grease with common grease in doses of 5 g	240 hours approx.
5	Other supports	Grease with common grease in doses of 5 g	240 hours approx.
6	Cardans	Grease with common grease	8 hours plenty
7	Cardans	Grease with common grease	8 hours plenty
8	Cardans	Grease with common grease	8 hours plenty
9	Other supports	Grease with common grease in doses of 5 g	300 hours approx.
10	Cardans	Grease with common grease	8 hours plenty
11	Central auger reduction gear	Controllare olio	300 hours approx.
12	Fifth wheel rollers	Grease with plenty of common grease	500 hours approx.
13	Chain	Oil and grease	end-of-season
14	Other supports	Grease with common grease in doses of 5 g	300 hours approx.
15	Triangle	Check the efficiency of the bearing and oil seal. Restore with common grease in case of extraordinary maintenance. When changing the auger, replace the bearing.	end-of-season
16	Mixer worm screw reduction gear	Check oil seals and grease	for the entire life
17	Chain tensioning pinion	Grease with common grease in doses of 2 g	300 hours approx

- The supports are waterproof, DO NOT put too much grease; there is a risk of bursting the seals and compromising their efficiency
- Intervene only when the machine is stopped and reposition the mobile protections if they are removed

CARDAN



Zone	Interval
1	40 hours
2	8 hours
3	16 hours

7.7 PERIODIC MAINTANANCE TABLE

The dryer is a machine for purely seasonal use (from a week to a month during the harvest period) and will have a long period of non-use.

Zone/Equipment	Intervention	Frequency
All electrical parts	Cover or protect from moisture	at end of season
Chain and chain tensioner	Check voltage and efficiency	at end of season
V-belts	Check voltage and efficiency	at end of season
Bearings and/or supports	Check and replace if worn	at end of season
Greasers	Check efficiency	at end of season
Oil seals	Check the efficiency of the oil seals	at end of season
Central auger bevel reduction gear	Check the quality of the oil on the central auger bevel reduction gear	at end of season
Fan and burner filters	Clean	at end of season
Central auger and central tube	Check the wear	at end of season
Diesel fuel tank	Empty and clean thoroughly	at end of season
Refractory and boiler head	Check the condition	at end of season
Stainless steel and boiler mouth bottom.	Check the condition	at end of season
Internal fan bearing cover	Check the condition	at end of season
Ropes, swivels and winches	Check efficiency	at end of season
Cardans and protections	Check efficiency	at end of season

8 SPARE PARTS

Any replacements must be made by authorized and competent personnel and must be reported in the Machine's Inspection Register, provided by the manufacturing company Strahl S.r.l.
All spare parts necessary for authorized maintenance personnel must be requested in writing from the manufacturing company Strahl S.r.l. with precise reference to the coding shown in the drawings attached to the manual (all the diagrams are useful for this function).

a The use of only original spare parts is permitted, any other non-compliant or unauthorized spare parts are considered unsuitable

a The Manufacturer declines all responsibility for damage to things, people and animals and operating anomalies caused by repairs carried out with non-original spare parts and accessories.

The content of this chapter is not exhaustive, but tries to provide information on the most common problems to help specialized technicians in troubleshooting.

9 ANOMALIES AND REMEDIES

d The indications in the "REMEDIES" item in the following tables DO NOT AUTHORIZE interventions that may compromise the safety of the operator and the machines

Carry out a careful assessment of the operating conditions of the machines at the time of shutdown, and/or the presence of an error or anomaly.

The following checks must be carried out:
- that there are no tools or other foreign bodies accidentally left inside the machine during maintenance and/or format change operations;
- if there were jams or interventions of safety devices in the minutes preceding the onset of the problem;
- there are no deformed or broken parts;
- the mobile parts do not present excessive play or irregular movements;
- the transmission belts are compliant and not excessively worn or loose;
- the machine phase references are all correct;
- the product and/or any accessory materials if present are regular;
- the feeding of the product and/or materials functions optimally;
- the various units of the machines are adequately cleaned;
- all photocells and proximity sensors are adequately positioned and clean;
- the power supply voltage is correct;
- no anomalous odors are perceived near the electrical cabinet;
- no protection element (fuses, etc.) has tripped or blown;
- there are no command or control elements out of order (relays, microswitches, photocells, sensors, etc.);
- there are loose connections on the equipment or on the terminal blocks and/or connectors not inserted correctly;
- the presence of alarm messages on the operator panel; in this case take note of the code and description of the alarm
- and communicate it to the Manufacturer.

a After a stop resulting in an alarm/warning situation, before restarting the machine, check that all the causes of the alarm have been eliminated and that the safety conditions are all restored

a In the event that one of the mobile elements blocks, the operator must stop the machine (possibly by pressing the emergency button) and inform those responsible for maintenance

The interventions for finding faults or failures and unlocking mobile elements which can be carried out by maintenance workers are indicated below.

a Before proceeding with any intervention or investigation:
- ensure that the system cannot restart accidentally by isolating it from energy sources.
- indicate, with a sign, that maintenance is being carried out on the machine
- make sure that the machines connected upstream and downstream do not cause danger or hinder maintenance operations; turn them off using the appropriate procedures
- before restarting the machine, always make sure that there are no personnel still carrying out maintenance operations
- for checks and small electrical repairs, only have qualified and authorized electricians intervene
- for mechanical repairs contact the manufacturer
- always and in any case consult the manufacturer of the product in the ways indicated in the first pages of this manual
- do not reset the safety devices automatically via an external sequence without verifying the cause that determined the shutdown.

i Any replacements must be made by SPECIALIZED TECHNICAL PERSONNEL and must be reported in the Inspection Register provided by the manufacturing company Strahl S.r.l.

9.1 TABLE OF ANOMALIES

a If the problem is not described in the following table or you cannot find a solution even if you follow what is indicated, contact Strahl S.r.l. assistance.

a Before resuming normal production operation, the maintenance service must check the integrity and functionality of the mechanical and electrical parts, possibly contacting the machine manufacturer.

a Only the use of the original spare parts is allowed, any other non-genuine or unauthorized is considered unsuitable.

a The manufacturer declines all responsibility for damage to things, people and animals and operating anomalies caused by repairs performed with non-genuine spare parts and accessories.

Failure	Cause	Action
The burner does not turn on	Photoresistance or photocell dirty with soot or dust	Clean
	Check the electrodes	Correct the distance of the ignition electrodes Clean the insulator so that it does not discharge to ground
	Ignition transformer	Check the ignition transformer, replace if burnt **Contact Strahl S.r.l. Assistance**
	Start button on the electrical panel	Check, replace if damaged **Contact Strahl S.r.l. Assistance**
	Connections and anchoring of conductors	Tighten the connections **Contact Strahl S.r.l. Assistance.**
	Thermostat at minimum or faulty	Adjust or replace
	Emergency button inserted	Reset the emergency button
Lack of diesel fuel at the nozzle	Dirty or deteriorated nozzle	Cleaning the nozzle using gasoline, DO NOT use needles or pins for the orifice
	Solenoid valve malfunction	Check the diesel fuel circuit
	Clogged filter	Clean the line filter
	Lack of diesel fuel	Check that there is diesel fuel and that any shutters are open
	Presence of air in the diesel fuel intake pipes	Tighten all gaskets and seals
	Clogged pipes or hoses	Check and clean
The burner emits smoke or produces a flame that is too dark	The nozzles are dirty	Clean
	The nozzle screw is loose	Tighten the nozzle screw
	The tapered needle inside the nozzle is dirty	Clean
	The burner deflector is dirty or dislodged	Resolve
	Insufficiency of air in the flame	Clean the fan and burner baffle and/or adjust the air damper
	The nozzles are broken	Replace them
The burner goes out or does not reach the desired temperature	The filter on the diesel fuel intake pipe is dirty	Clean it
	The burner pump has low pressure	Adjust the pump at a pressure of 12-14 bar
	The nozzles are dirty	Clean the nozzle filters
The burner does not turn off the second flame and exceeds the set temperature	The air temperature thermoregulator does not work	Check wire connection
The drying of the product is not uniform	The mixer does not work properly	Verify the efficiency of the mixer transmission bodies.

10 DECOMMISSIONING

The dryer is a machine for purely seasonal use (from a week to a month during the harvest period) and will have a long period of non-use.
At the end of the work session or in any case when you plan not to use the machine, it is necessary to turn it off and store it.

Necessary conditions to proceed are:
- no processing must be in progress;
- the machine must have been emptied of all products;
- all moving parts must be stationary;
- the machine must be lifted on the appropriate feet, unloading the tyres
- loosen the drive belts.
- protect the electrical panel and the burner with waterproof sheets
- protect the screws and auger ducts with a drizzle of oil.
- carry out a complete extraordinary cleaning of the machine.

10.1 RESTART AFTER A LONG PERIOD OF INACTIVITY

To put the dryer back into operation, carry out the following:
- check that all protections have been removed (sheets, nylon, etc.);
- check the state of conservation of the machine and its equipment;
- check that all excess protective grease has been carefully removed from the machine;
- check that the energy supply is correctly restored;
- check the lubricants and the lubrications of the whole machine;
- adjust the transmission belts;
- proceed with a complete extraordinary cycle of inspections, checks and controls before resuming activity.

11 DEACTIVATION AND DISPOSAL

a Before working on the machine, disconnect the electrical power from the relevant power lines.
In case of transfer to another site or once the end of the technical and operational life has been reached, the machine must be deactivated. Turn off the machine, isolate it from power sources and disconnect the energy supply source

a **Transfer, deactivation and dismantling work must be carried out by Strahl S.r.l. personnel**

11.1 DEACTIVATION

In case of transfer to another site, storage or once the end of the technical and operational life has been reached, the machine must be deactivated.

It is therefore required to:
- turn off the machine.
- disconnect the machine from the electricity and water supply mains. Proceed to empty the fuel tank and the relative fuel supply pipes towards the burner. Collect the fuel in appropriate containers.
- disassemble and separate the different units that make up the machine.

11.2 STORAGE PRECAUTIONS

Place the production line or its components in adequately protected environments, with a maximum relative humidity of 70% and a temperature between 0°C and +35°C.

After recovery from the warehouse, before proceeding with the new installation, it is recommended to:
- check the status of electrical equipment;
- have the machine checked by the authorized Technical Assistance Service, request the updated checks and maintenance reports and attach them to the Checks and Maintenance Register.

¡ Never leave the machine exposed to the elements

¡ In case of doubts regarding transport and storage, contact the authorized Technical Assistance Service

11.3 DECOMMISSIONING THE MACHINE

Every element, object, or substance resulting from human activities is destined, following the natural biological cycle, to transform into "waste".
Waste is divided into three main categories:

Solid urban waste
This category includes all waste resulting from human activities such as paper, rags, plastic, cans, bottles, etc..

Special waste
This category includes all waste resulting from processes of the transformation industry (chemical industry, refineries, tanneries, etc.), from artisanal activities (car repair shops, artisan laboratories, etc.), agricultural activities (animal breeding, feed mills, etc.) which for quantity and quality cannot be considered similar to municipal waste.

Toxic-hazardous waste:
This category includes all toxic or harmful waste that is contaminated by or partially contains all the substances listed in Presidential Decree 915/82.

In case of decommissioning, dismantling, demolition and scrapping of the machine - contact the manufacturer's technical office.

11.3.1 DEMOLITION

The machine can be dismantled and scrapped. In this case the operation must be carried out in accordance with the local legislation on disposal, as well as with the provisions of community laws for environmental protection.

¡ Strahl S.r.l. assumes no responsibility for damage to people, pets or things resulting from the reuse of individual parts of the machine for functions or assembly situations different from the original ones

¡ the machine is made with non-biodegradable materials

a The uninstallation and disposal of the machine must be carried out by specialized personnel.

a The Manufacturer is not responsible for damage to things and/or people resulting from interventions carried out by unqualified or unauthorized personnel.

For demolition and subsequent scrapping of the machine, follow the following procedure:
- Disconnect the machine from the electrical and pneumatic power supply. With the machine without power, check that the pneumatic circuit is not under pressure.
- Consult the body responsible for recording and certifying the demolition of the machine, in accordance with the laws in force in the country in which the machine is installed.
- Carry out the unloading, storage and subsequent disposal according to the law of the "Special" and "Toxic-harmful" substances (*oils, greases, coolant and lubricant liquid, etc.*), present in the lubrication and mechanical refrigeration tanks *(reducers, variators, gear boxes, etc.*). Disassemble the machine taking care to divide the materials that compose it according to their chemical nature (*iron, aluminium, bronze, plastic, wood, etc.*). Following the legal provisions in force in the country in which the machine is installed, proceed with the scrapping of the various materials and the disposal of the various "Special" and "Toxic-harmful" type components.

11.3.2 DISPOSAL

The Grain Dryer machine - is subject to the treatment referred to in art. 13 "Implementation of, 2002/96/EC and 2003/108/EC, relating to the reduction of the use of dangerous substances in electrical and electronic equipment, as well as the disposal of waste".

The separate waste collection of this machine at the end of its life is organized and managed by the manufacturer.

The user who wishes to get rid of this machine must therefore contact the manufacturer and follow the system adopted by the manufacturer to allow separate collection of the machine at the end of its life.

The adequate separate collection for the subsequent sending of the decommissioned machine for recycling, treatment and environmentally compatible disposal contributes to avoiding possible negative effects on the environment and on health and favours the reuse and/or recycling of the materials of which the equipment consists.

¡ Illegal disposal of the product by the holder entails the application of the administrative sanctions provided for by current legislation.

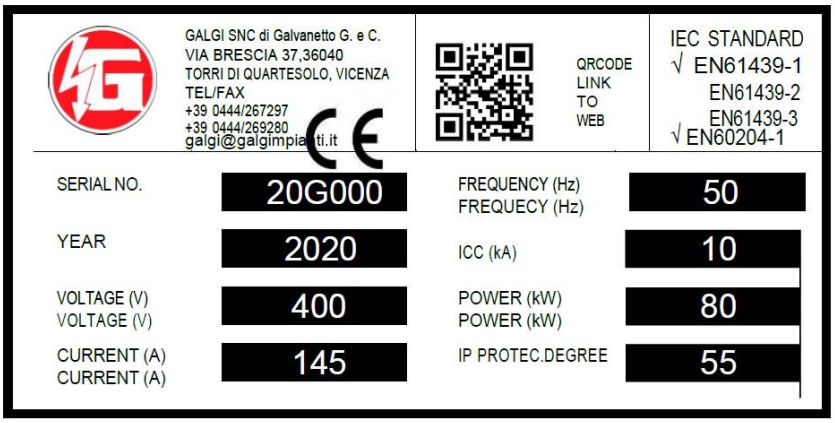
12 USER MANUAL FOR AUTOMATIC MOBILE DRYERS

This section is valid only for dryers with SMART automatic version.

12.1 GENERAL INFORMATION

POWER SUPPLY

A CE plate is affixed to the inside of the switchboard, where the order details are indicated, asshown in the example below.



To request any information about the switchboard, the serial number of the order (20G000, forexample) must be given.

The CE plate shows the nominal electrical data.

The switch cabinet must be supplied with a three-phase 3P+N+E line with a nominal voltage of400V 50Hz from the electricity distribution network or generator set (G.E.).

For mains-powered operation, the required contracted power, as indicated on the CE plate (e.g.80kW), must be available.

For operation with G.E. supply, an G.E. with an active power (kW) at least twice as high as indicated on the CE plate must be available (e.g. 80kW * 2 = 160kW, which corresponds to 200kVA). This over-dimensioning is necessary due to the machine's starting power. With an G.E. of active power (kW) less than twice the nominal nameplate power of the machine, correct operation of the machine is not ensured and faults may occur due to under-voltage during motor start-up.

It should be noted that the power of generators is normally expressed in apparent power (kVA), which is always greater than the active power (kW). See table 1 below:

KVA (APPARENT POWER)	KW (ACTIVE POWER)
130	104
150	120
170	136
200	160
250	200
275	220
300	240

Table 1

The cross-section of the power supply line from the point of delivery of the electrical energy (mains or G.E.) must be carried out according to the rated current of the switchgear, as indicated on the CE plate (e.g. 145A).

The power supply cables, both multi-wire and single-wire, must be double-insulated FG16R16 0.6-1kV type, while the protective conductor must be single-insulated FS17 450-750V type, yellow/green in colour.

The cable capacity must be greater than or equal to the rated current indicated on the CE plate (e.g. 145A), as per table 2 below:

SECTION FG16R16 (mmq)	RECOMMENDED CURRENT (A)
25	80
35	100
50	130
70	150
95	200
120	240
150	300

Table 2

The recommended cross-sections are approximate, for cable lengths up to approx. 30 metres. For longer cable lengths, please choose the next section.

Neutral and protective conductors can have a cross-section of half that of the phase (e.g. if the phase conductors chosen are 70 sq. mm, the neutral and earth conductors can be 35 sq. mm).

12.2 FIRST START-UP

Connect the power cables (3P + N) under the main switch inside the control cabinet (see photo1).

Connect the protective conductor (T) to the copper bar below the terminal block (see photo 2).

Photo1

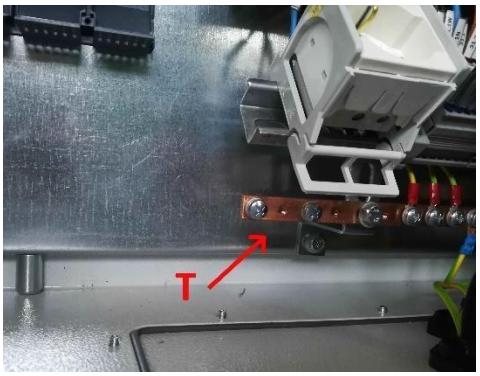


Photo2

Then you can close the switchboard door and operate the main switch, turning it to the '1' / 'ON' position (see photo 3).

After powering up the switchgear, the voltage present lamp in the upper part and the auxiliary voltage present lamp in the lower part of the switchgear front come on.

The cyclic connection direction of the phases is correct if the 'voltage OK' light comes on when themain switch is operated (see photo 3).

The operator panel is switched on and the main 'HOME' page is displayed, from which you can check the operation of the machine and access the various setting pages.

When starting up for the first time, check the direction of rotation of the motors in manual mode, as explained below. If the direction of rotation is wrong, two phases of the 400V power supply must be reversed.

On the front of the switchboard, there are some buttons and indicator lights (see photo 3).

Photo 3

After the electrical panel has been powered up, the blue light on the AUXILIARY INSERT button will be on. The blue AUXILIARY INSERT button must be pressed in order to operate the machine(the light on the button will go out if the operation is successful). If the light on the AUXILIARY INSERT button remains on, check that the emergency button is unlocked, that the door limit switch is operated and that the safety thermostats have not tripped.

After inserting the auxiliaries, the yellow ALARM RESET button is pressed and, if there are no alarms present, the yellow alarm indicator light goes out (if there are active alarms, they can be identified via the operator panel, as explained below).

The machine can operate in either automatic or manual mode.

To select the operating mode, the CUSTOMER SETTINGS page on the operator panel must be accessed, as explained below.

IMPORTANT:

THE MACHINE USED IN 'MANUAL' PERFORMS OPERATIONS WHERE THE PRESENCE OFTHE OPERATOR IS REQUIRED.

THE OPERATOR ASSUMES FULL RESPONSIBILITY FOR THE OPERATIONS HE MAKES THEMACHINE PERFORM.

THE MACHINE USED IN "AUTOMATIC" PERFORMS AN OPERATING CYCLE IN WHICH THE PRESENCE OF AN OPERATOR IS NOT NECESSARY. THE MATERIAL TO BE PROCESSED MUST BE PRESENT TO COMPLETE THE LOAD AND THE MACHINE CAN BE UNLOADED SAFELY.

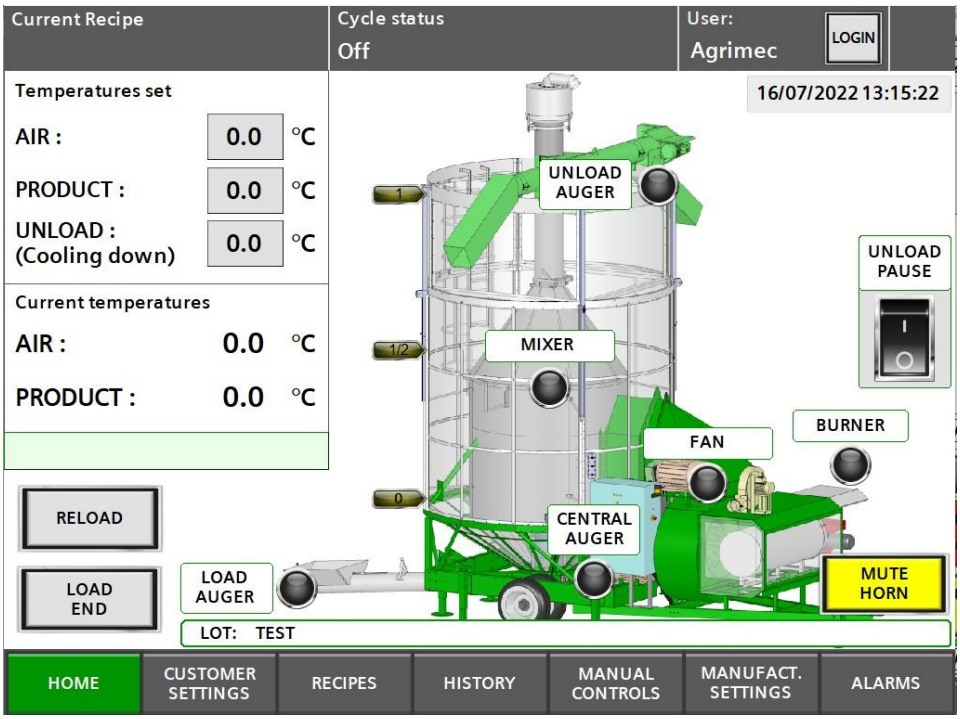
IF SAFE UNLOADING IS NOT POSSIBLE, AUTOMATIC UNLOADING MUST BE PAUSED FROM THE MAIN (HOME) PAGE AFTER THE CYCLE HAS STARTED. THE MACHINE THEN STOPS AT THE END OF THE COOLING CYCLE BY SWITCHING OFF THE FAN, AND KEEPS THE CENTRAL AUGER AND MIXER RUNNING UNTIL THE OPERATOR ARRIVES FOR UNLOADING. THERE IS NO SIGNALLING OF THE END OF THE AUTOMATIC CYCLE UNTIL UNLOADING IS COMPLETE.

12.3 OPERATOR PANEL

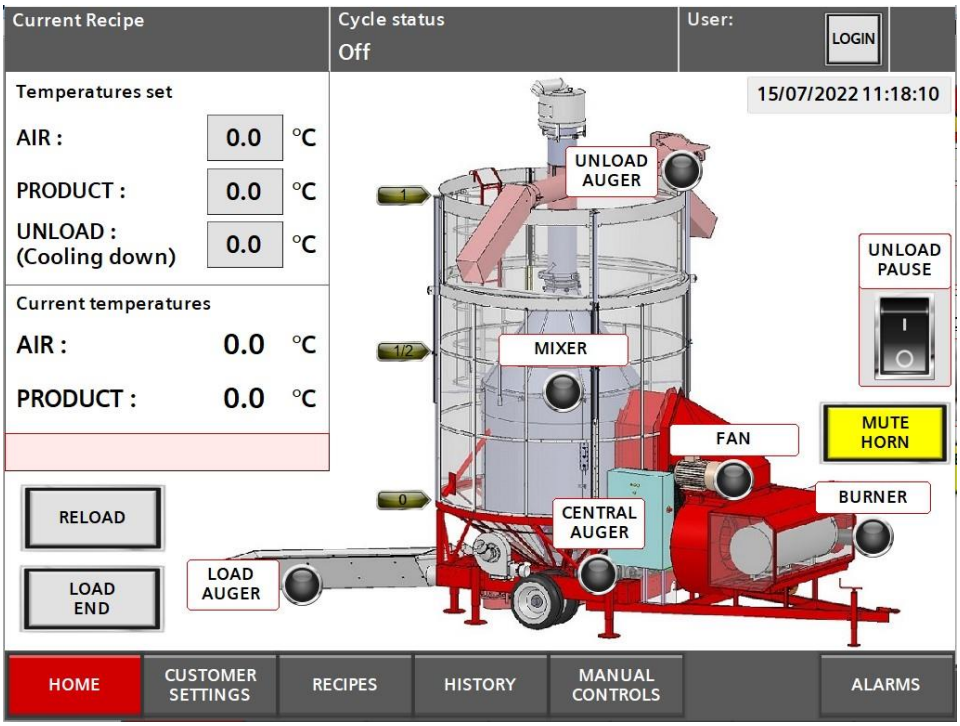
On all pages, there are buttons at the bottom to move between pages: the one corresponding to the page currently in use is green, the others are in grey.

The only page accessible only by the manufacturer (Agrimec) is the 'CONSTRUCTOR SETTINGS' page. Only the manufacturer can access it via the password-protected "LOGIN" button.

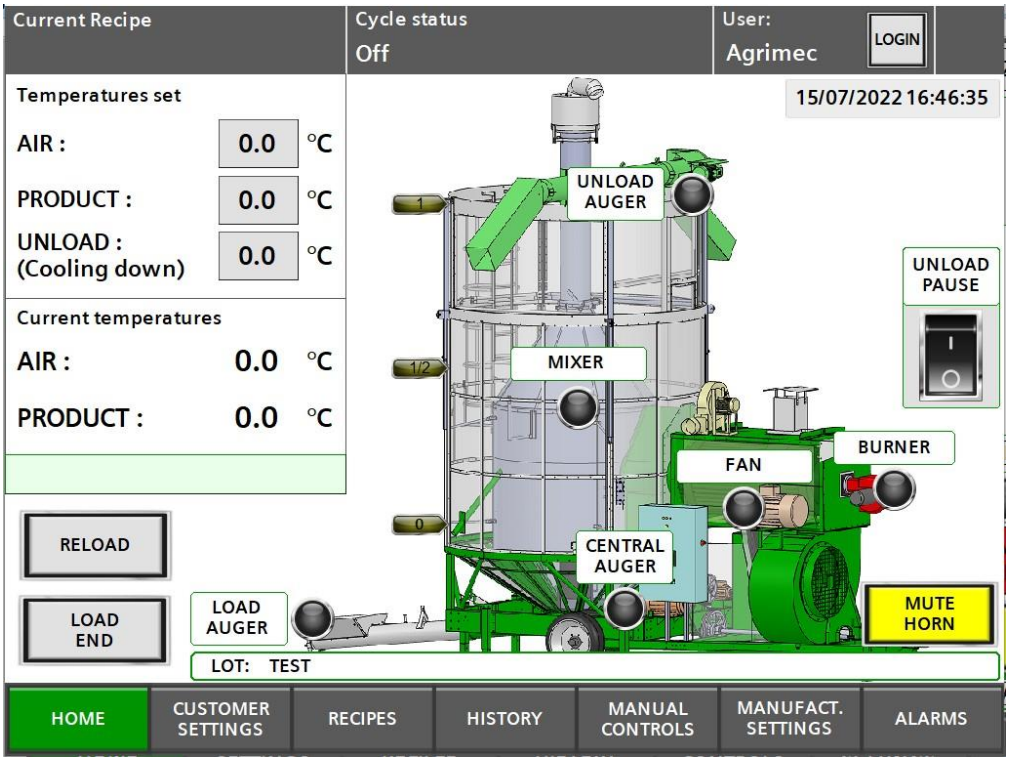
12.3.1 MAIN PAGE



Synoptic panel AS version



Synoptic panel MAGNA version



Synoptic panel for version ES.

The main page shows the current situation of the dryer and provides data on the current processing.

The top left-hand corner displays the current recipe set in the machine with the relevant working temperatures set: the air temperature, the product temperature and finally the cooling temperature. It will be on these temperatures that the burner will work during the automatic cycle. Below this, the actual measured internal air and product temperatures are displayed.

Below the temperatures we find the RECHARGE button to perform any refilling of the material, which is only possible automatically during the drying phase and only if the dryer is not full.

To the right of the screen is a switch to pause the unloading phase.

In the top right-hand corner is the user login box, with which you can change your buildersettings.

In the centre is displayed the machine synoptic with the various functions that change state whenthe various organs are activated or deactivated.

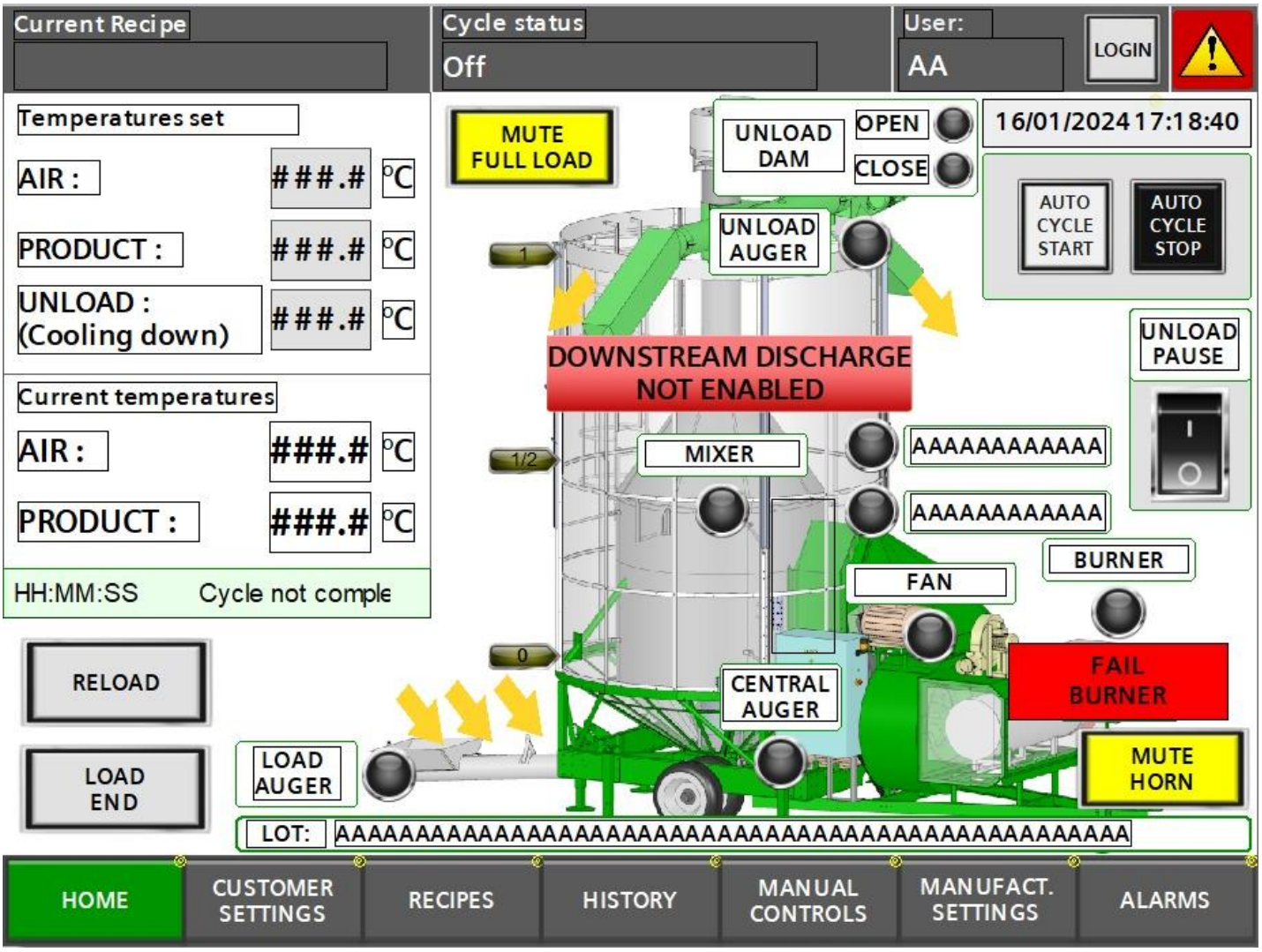
To the left of the screen of the dryer, there are three dark green markers (labelled '0', '½', '1') indicating the status of the product presence sensors inside the dryer: they represent empty ('0'), half-loaded ('1/2'), and full ('1'). When the sensors are engaged by the product, the markers turn yellow.

If there are moving parts, graphics will appear on the screen, showing the indicators light up from black (STOPPED) to green (MOVING), to indicate for example that the loading auger is loading, that the burner is running. The same will happen for the fan, the central screw, the mixer and the discharge screw.

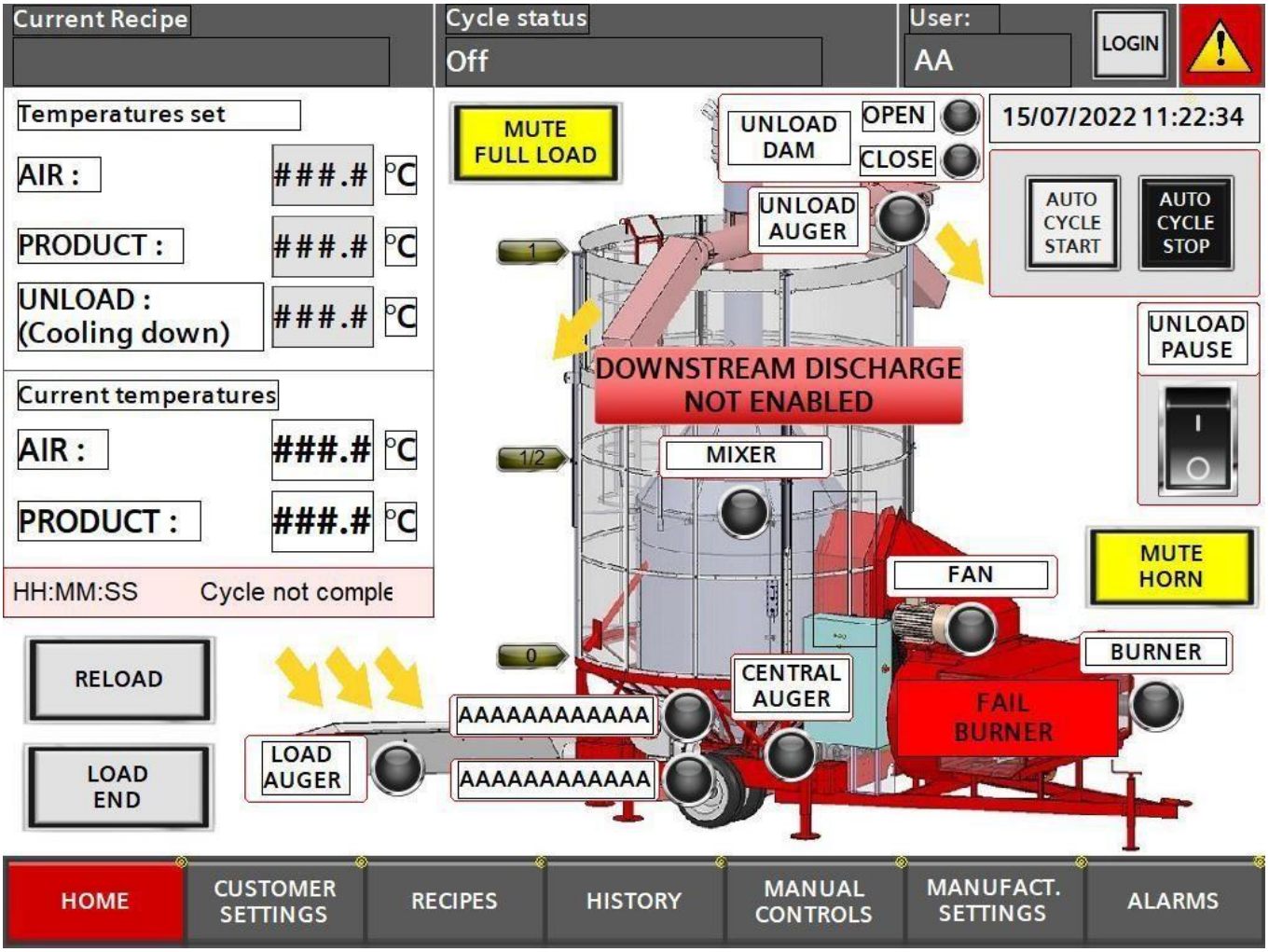
In the event of an alarm, a flashing yellow warning triangle appears in the top right-hand corner. The flashing light on the side of the control panel lights up and sounds until the 'siren silencing' button is pressed.

In the event of a voluntary automatic cycle stop (by pressing the stop button) or due to various alarms (as shown on the alarm screen) during the drying cycle with the burner active, the fan will run for a fixed time of about 15 minutes (in order to cool the combustion chamber and burner), before stopping the machine.

To signal that the boiler has cooled down and the current cycle has not finished, 'Cooling' is indicated on the cycle status bar.



FOR AS AND ES MODELS

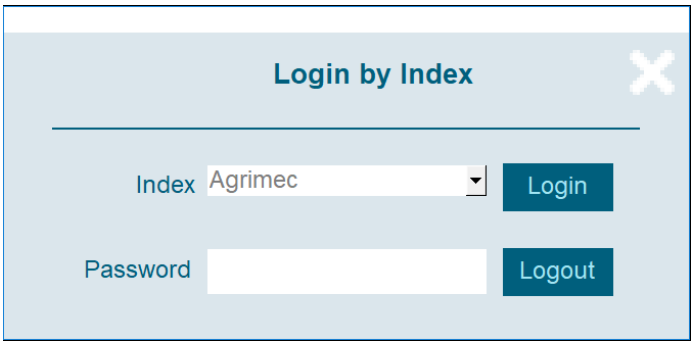


FOR MAGNA MODELS

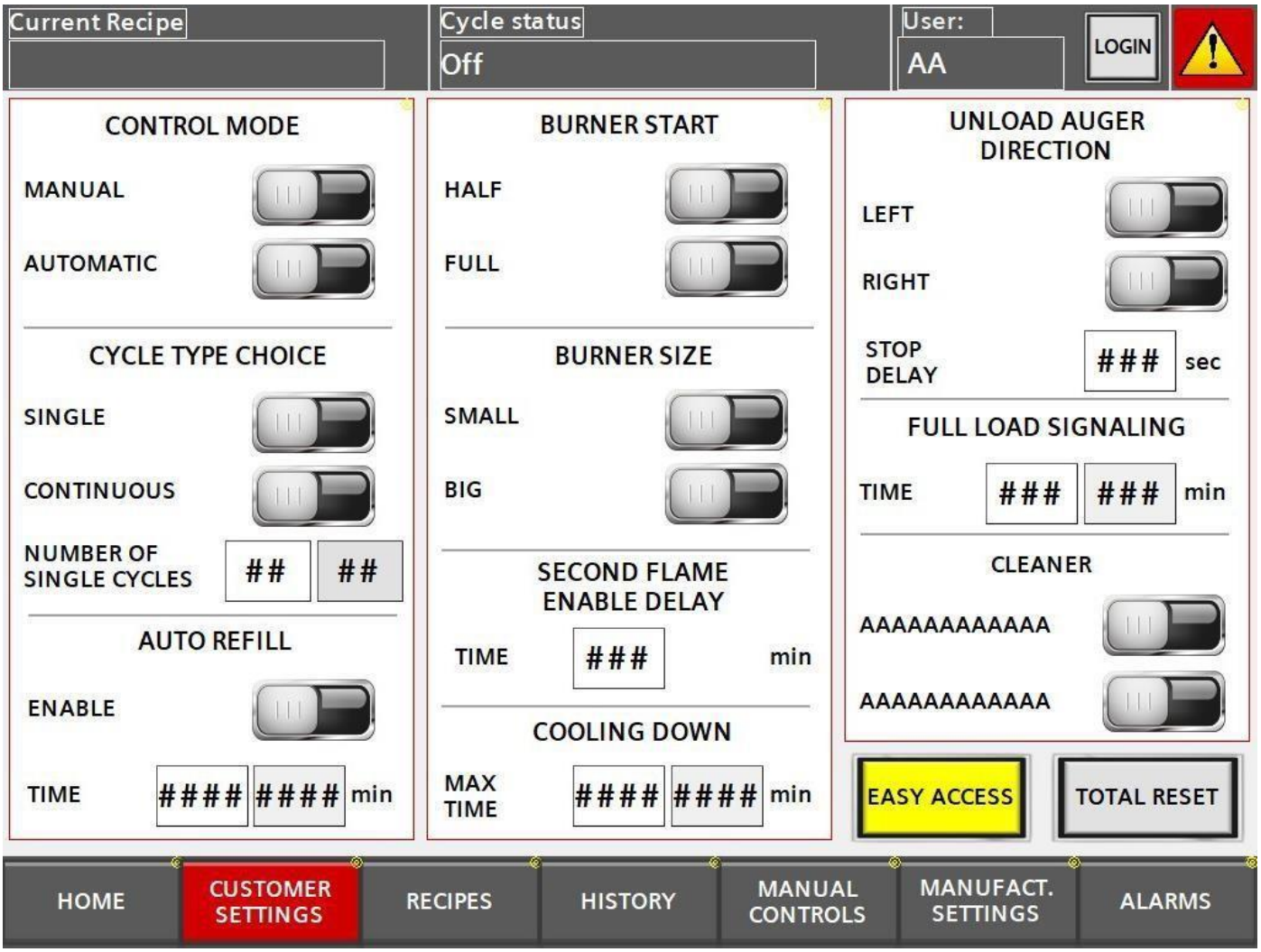
12.3.2 MANUFACTURER SETTINGS

Only the manufacturer is authorised to LOGIN from the main HOME page, to makechanges in the MANUFACTURER SETTINGS.

Pressing the top right button will display the screen below.



12.3.3 CUSTOMER SETTINGS



On this page you have the general machine settings and the choice of recipe to load.

THESE SETTINGS CAN ALSO BE CHANGED DURING THE CURRENT CYCLE, EXCEPT FORTHE RECIPE SETTING AND THE REGENERATION CYCLE, WHICH MUST TAKE PLACE WHEN THE CYCLE IS STOPPED.

In the 'OPERATION MODE' section, you can select whether to switch the dryer on in MANUAL orAUTOMATIC operation. One of the two cycles must be selected.

In the 'BURNER IGNITION' section, there is the possibility to select whether to ignite the burner when the intermediate sensor is reached (HALF) or when the load is completed (FULL).

In the 'DISCHARGE DIRECTION' section, you can select the discharge direction, if it is bi- directional.

In the section 'CHOOSE CYCLE TYPE' there is the choice of continuous or single cycle: if single,below is the number of single cycles to be executed (white) with the number of cycles executedso far (grey). If you want to set the current cycle as the last cycle, changing from continuous to single, you can set 0 or 1 in the number of single cycles. If on the other hand you set the single cycle when the machine is stopped, you have to set the desired number of cycles and then start the cycle.

In the 'BURNER CUT' section, one of the burners is enabled if the customer has more than one burner.

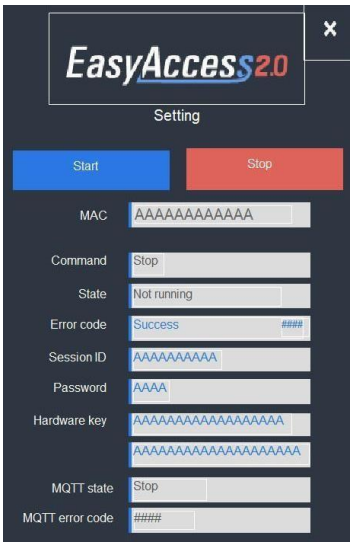
In the 'COOLING' section, there is the setting of the maximum cooling time (in white) with the elapsed cooling time so far (grey) next to it. This time decrees the end of cooling, if thetemperature never reaches the end of cooling (e.g. if it is set lower than the ambient temperature).

At the bottom is the 'TOTAL RESET' button. This button resets the cycle and returns the machine to its starting conditions, in order to start again with a new automatic cycle. This operation must always be carried out before starting with a new automatic cycle, even after a prolonged shutdown of the machine, as the system keeps the settings of the last cycle performed in its memory. This function does not reset recipe temperatures and system settings made by the manufacturer and the customer such as times and various options.

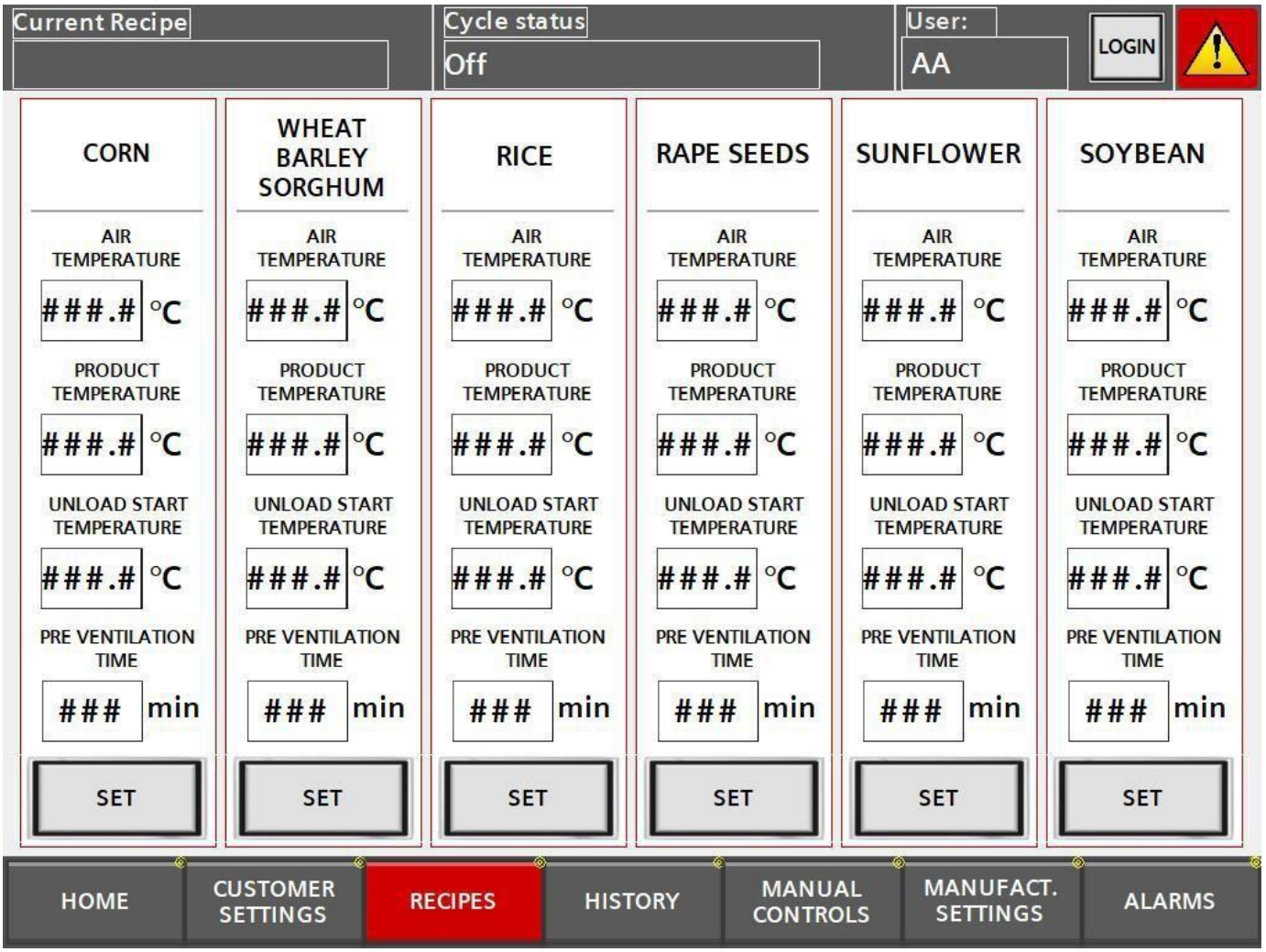
In the 'REGENERATION CYCLE' section, the regeneration cycle can be enabled with the appropriate switch, and the time in minutes for its completion can be set.

The regeneration cycle executes the set recipe for a certain time (once the cycle has started, the burner brings the air temperature up to the set recipe temperature and maintains it for the set time, independent of the product temperature).

EASY ACCESS' settings are for remote communication, and are set during programming.



12.3.4 RECIPES



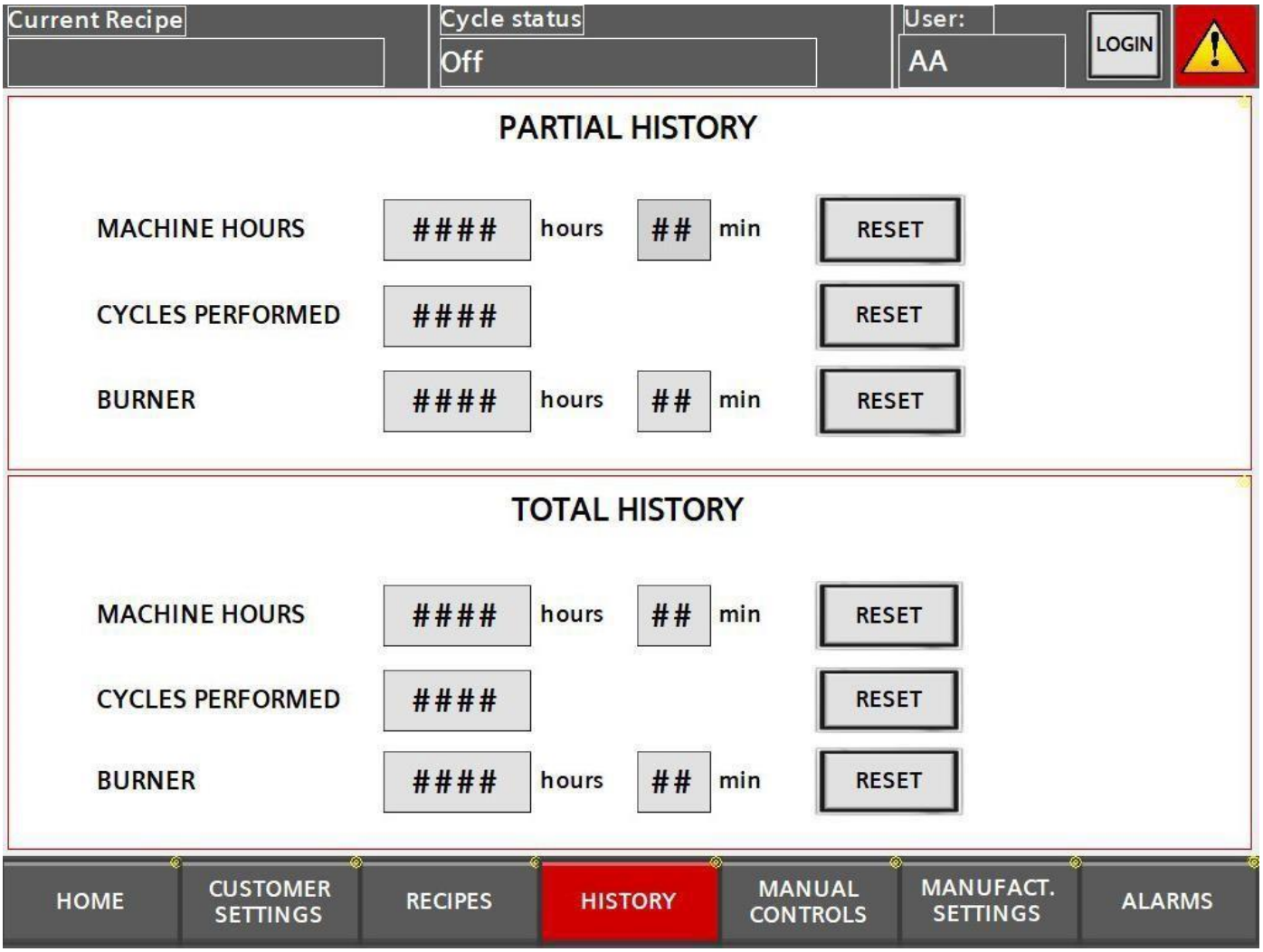
On the recipe page, the set temperatures of air, product and end of cooling (start of discharge) canbe changed for each recipe.

The settings made are kept in memory by the system. Temperaturesabove 140°C cannot be entered.

If the product temperature is higher than the air temperature, the cycle does not start and therelevant alarm appears.

THESE SETTINGS CAN ALSO BE CHANGED DURING THE CURRENT CYCLE, WITHIMMEDIATE EFFECT ON THE CYCLE.

12.3.5 TOTALIZERS

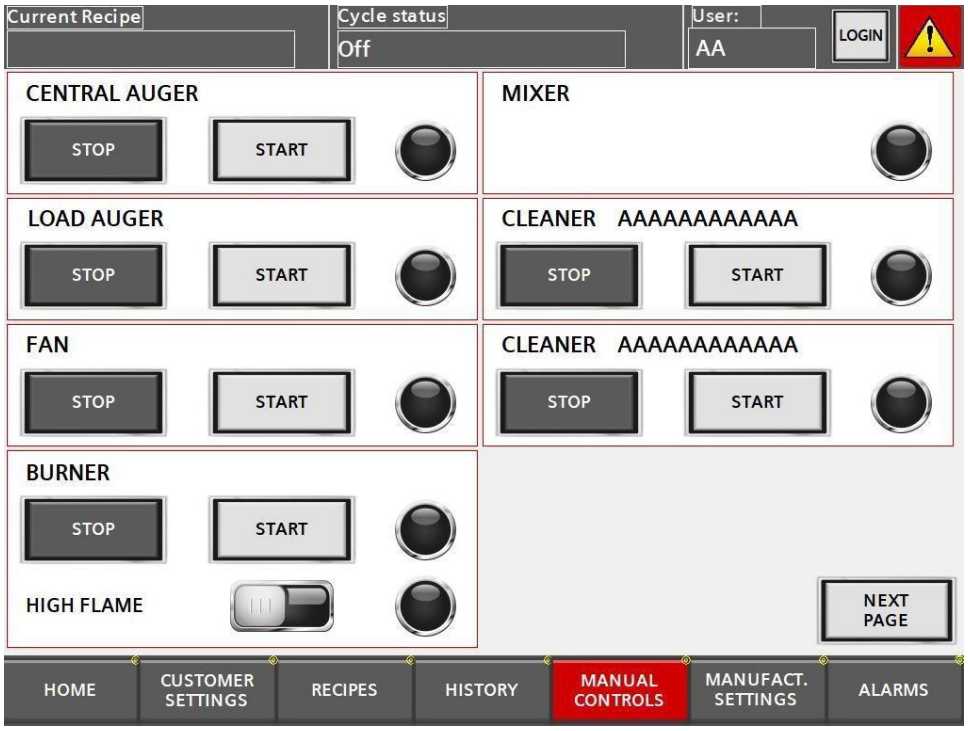


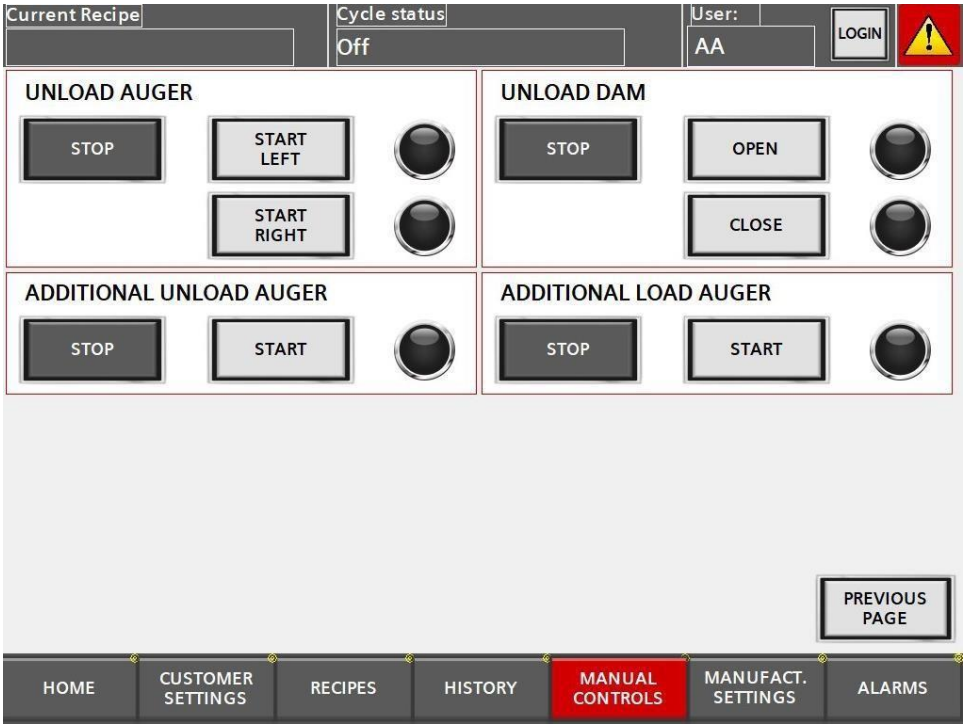
The totalisers page is divided into two boxes, at the top the partial totalisers, resettable by the endcustomer; and at the bottom the totalisers, resettable only by the manufacturer.

There are 3 totalisers:

- "MACHINE HOURS" indicates the operating hours of the automatic cycle (green "start"light on);
- "CYCLES PERFORMED" indicates the number of cycles executed;
- "BURNER" indicates the number of operating hours of the burner.

12.3.6 MANUAL MOVEMENTS





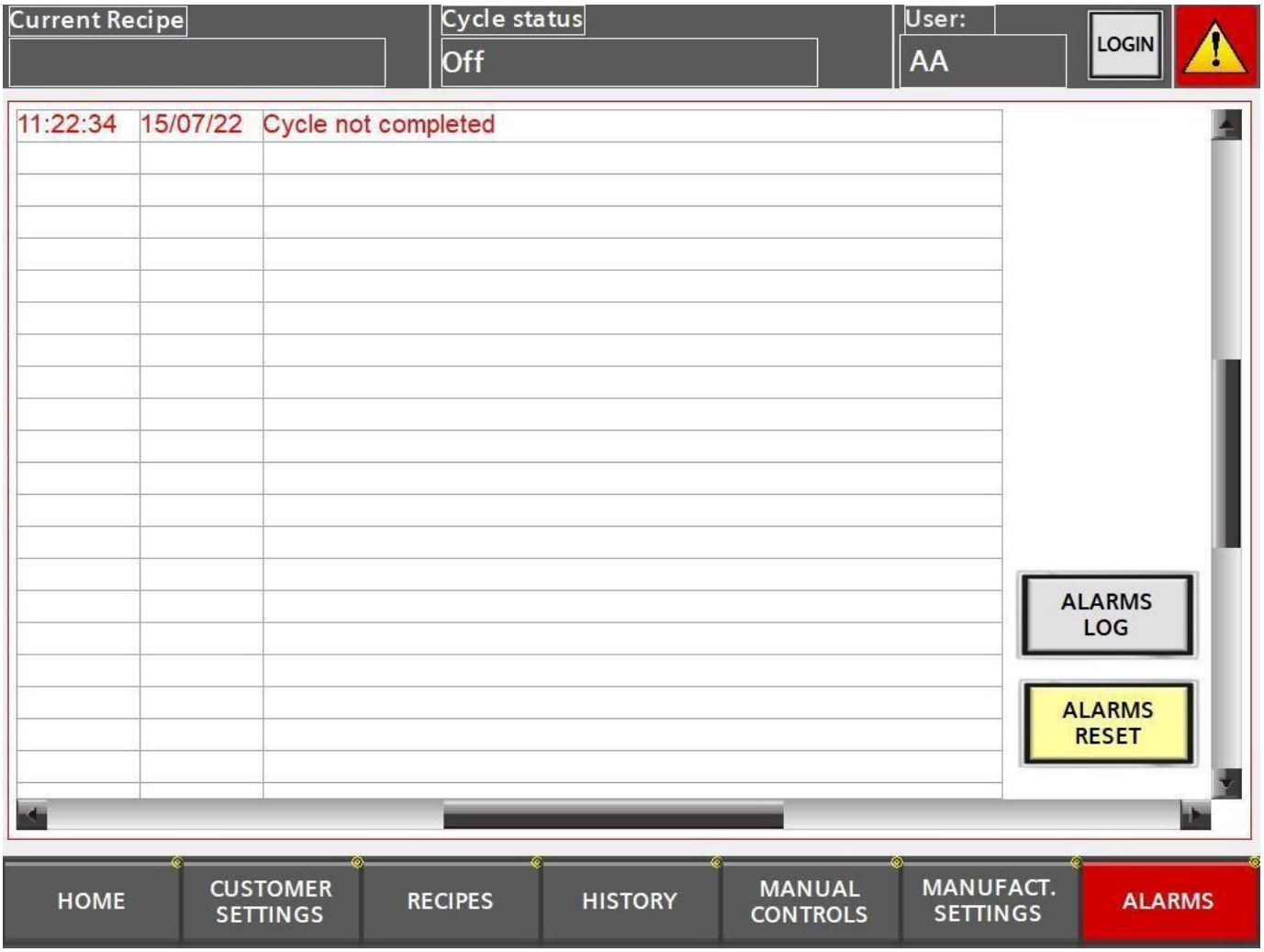
The manual movement page is only accessible when the cycle is stopped.This page is used to test the various engines, or to run them individually.

The boxes are used to indicate the status of the engine. The indicators are dark grey when theengine is not running and turn green when the engine is running.

The start-up of some engines is always subordinate to the start-up of others. This rule also appliesin manual operation.

For example, the burner cannot start if the fan and central screw are not started. Or the loading screw and mixer cannot start if the central screw is not started, and they cannot run at the sametime.

12.3.7 ALARMS AND ALARM HISTORY



The alarms page displays in red the text of the alarms present, with the time at which theyoccurred.

The 'ALARM HISTORY' button on the right leads to a similar page, but where the alarm history ofthe last 7 days is displayed instead.

To reset alarms, once the cause of the alarms has been resolved, press the yellow RESETALARMS button on the front panel.

12.4 OPERATING CYCLES

12.4.1 MANUAL CYCLE

Once MANUAL operation has been selected on the CUSTOMER SETTINGS page, switch to the MANUAL MOVEMENTS page and activate the motors to carry out the desired operations,remembering that some safety interlocks listed below are present in manual operation:

1. the central auger must be active, otherwise no motor starts;
2. the mixer always works with the central auger and only switches off when the loadingauger starts;
3. the burner does not start if the fan is not switched on;
4. the burner switches off when it reaches the SET PRODUCT T° and adjusts the secondflame or modulation according to the SET PRODUCT T°;
5. the loading auger stops with the full sensor, when the machine is full;
6. the discharge screw stops with the vacuum sensor, when the machine is empty.

12.4.2 AUTOMATIC CYCLE

AUTOMATIC operation is enabled on the CUSTOMER SETTINGS page.

You select the desired recipe on the RECIPES page and switch to the main HOME page. You then check the recipe and temperatures set on the left-hand side of the operator panel.

The START CYCLE button is pressed. The light on the button will start flashing and a request for recipe confirmation will appear on the operator panel. Once the recipe is confirmed, the loading cycle begins and the green light on the START CYCLE button remains lit.

At any time, you can switch to the RECIPES page and change the operating temperatures of the current recipe.

The red STOP CYCLE button can be used to stop the cycle at any time. The machine will switch off automatically depending on the status of the cycle. When the machine is stopped, the cycle can be resumed from where it stopped by pressing the START CYCLE button (the machinekeeps the processing status in memory).

If you want to totally reset the cycle and start again, perhaps with another recipe, enter the CUSTOMER SETTINGS page and press TOTAL RESET. This resets the loaded settings to zero and you can proceed to make the new settings, starting the automatic cycle again.

13 ATTACHMENTS

Attached to this manual are:

1. Wiring diagrams
2. Declaration of conformity of the electrical pannel
3. User manual of the burner

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