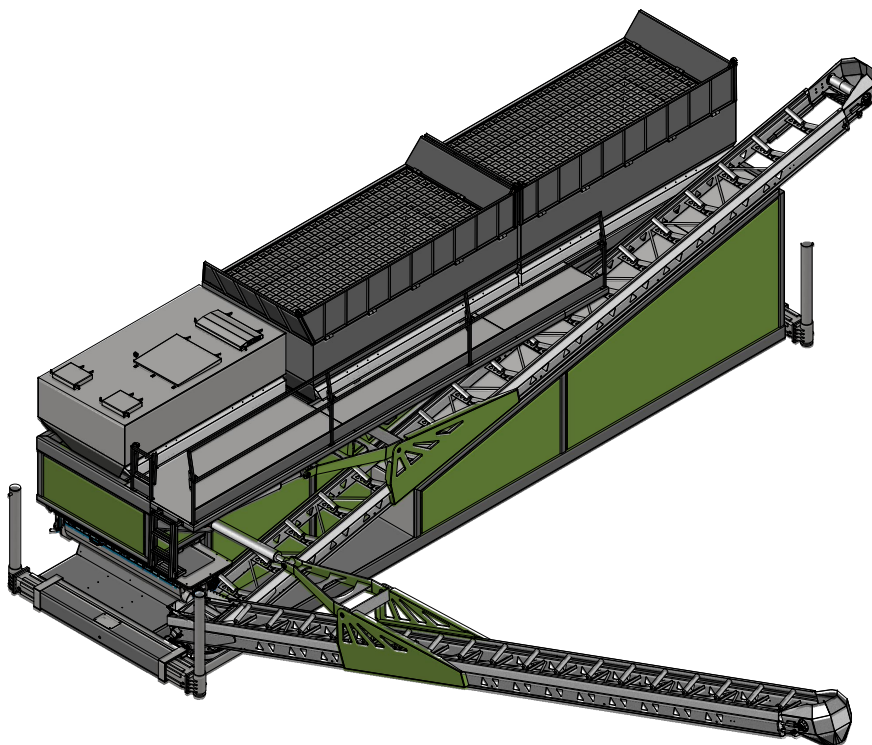


Use and maintenance manual



Mobile mixing plants for concrete
and other mineral mixture

A240

Review 2 of 19/09/2020

Declaration of Conformity



Manufacturer: FBG S.r.l.

Address: Via Castegnato, 19 25050 Rodengo Saiano (BS)

The **Blend** machine has been designed and built in conformity to the "Machine" directive 2006/42/CE of 17th May 2006 and to the directive 2014/30/UE and 2014/35/UE and subsequent amendments concerning the electromagnetic compatibility.

The **Blend** machine has been designed and built following the "guidelines on concrete" as written by the technical office of CSLP in compliance to UNI EN 206-1: 2006.

The conformity has been verified based on the following laws or law documents:

- UNI EN ISO 12100: 2010 – Safety of machinery. General principles for design. Risk assessment and risk reduction.
- UNI EN 953: 2009 – Guards.
- UNI EN 4413: 2012 – Safety requirements for Fluid Power Systems.
- EN 60204-1:2006 – Safety of machinery – Electrical equipment of machines.
- CEI EN 61439-4 (CEI 17-117) Particular requirements for assemblies for construction sites (ASC)
- DLgs 4 September 2002, n. 262 – Implementation of directive 2000/14/CE concerns the noise emission in the environment by equipment for use outdoors.

It is also in conformity to the directive 2000/14/CE:

- Measured sound power level: 101.7 dB(A)
- Ensured sound power level: 103.0 dB(A)
- Used evaluation procedure: microphonic battery on the hemispherical measurement surface

Rodengo Saiano,

The manufacturer

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1. Introduction



PLEASE READ ACCURATELY THIS INSTRUCTION MANUAL BEFORE USING THE MACHINE



THE MANUAL MUST BE ALWAYS NEARBY THE MACHINE

Before operating any activity, assembly or installation, use or maintenance, reparation or adjustment, disassembly or elimination, read carefully this manual. If the plant is used by more than one operator, they need to read this manual they have to have it at disposal for consultation being an essential part for the operator's safety. Keep this manual with care to preserve its readability. The plant utilisation for the professionals. The plant utilisation is therefore allowed to operators trained and informed about the actual safety and security working laws. If sold this manual has to follow the plant being an integral component.

2. Intended use

The **BLEND** machine is designed to carry, store, mix and discharge of construction materials.



THE MANUFACTURER CANNOT BE HELD RESPONSIBLE FOR ANY MISUSE OF THE MACHINE OR ANY CHANGES OR ALTERATIONS MADE

Contact the manufacture before any modifications of the plant designed use.

The plant works with energy self-produced by a diesel engine and electrical accumulators. **Do not link the plant to any external power source.**

2.1. Installation conditions

Characteristic of a Blend is the possibility to be carried on a truck of appropriate dimension to carry the mass of the plant when fully loaded. **No other type of movementation is allowed** (contact the manufacture before any different use).

When working the plant must stay fix on a stable support of adequate dimensions. In its hook lift version it can be lifted only empty, for storage or waiting the truck to set up. The plant working can work at temperature between **41 °F and + 104 °F** and max 3280,84 ft asl.



ATTENTION: The plant must work on a plane only with $\leq 5^\circ$ slope in any direction.

ATTENTION: With temperature lower than 32°T purge the water in the tanks, in the pump and in the piping to avoid the freezing and breaking of the water equipment.

2.2. Conditions of use

The plant is designed to carry, store, mix and discharge all the **construction materials suited for producing concretes**. Any other use may lead to malfunction and/or affect the safety requirements.

Do not introduce for any reason other materials or substances, liquids, solids or gases different to the ones described in this manual. In particular do not introduce toxic substances. Always be informed about the source, suitability and properties of each materials. The plant is not suitable for treatment and containment of human or animal food.

2.3. Modifications or repairs

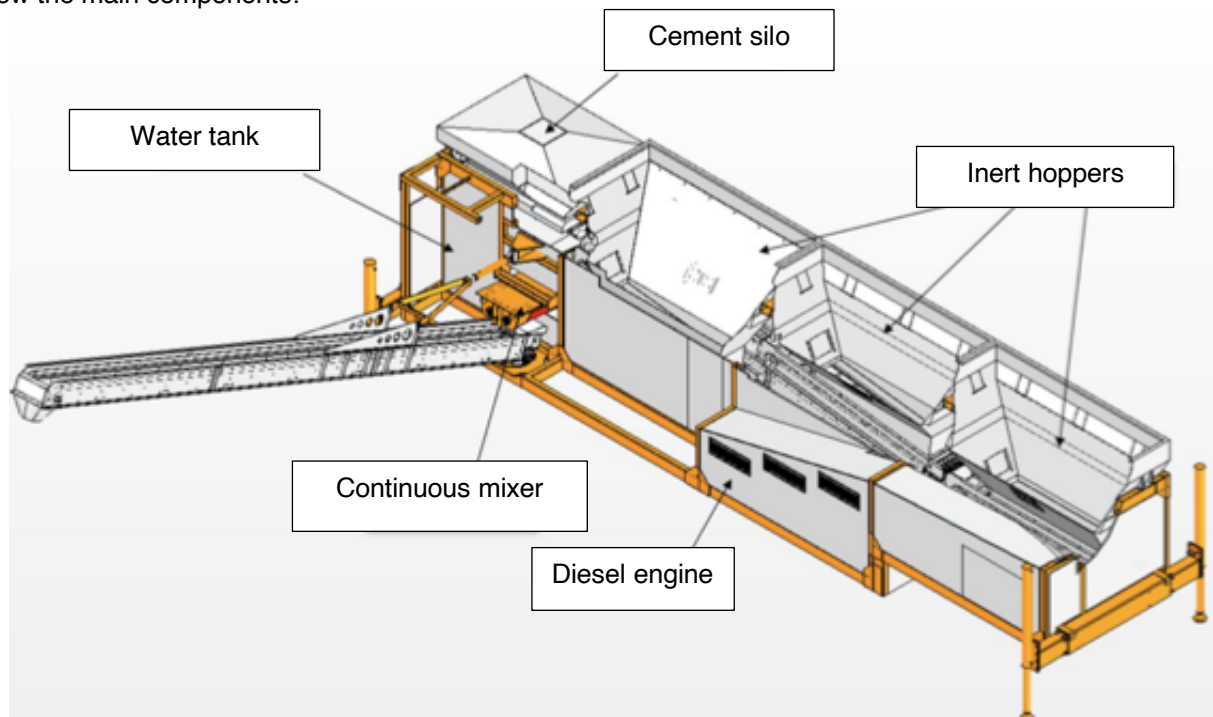


THE MANUFACTURER CANNOT BE HELD RESPONSIBLE FOR ANY UNAUTHORISED CHANGE OR REPARATION

Descriptions and illustrations in this manual correspond to the machine as it was sold for the first time: if any change is made, the user must integrate this manual and the technical dossier under the law applicable at the time of the change. **In particular, it is not allowed to make changes that increase the production capacities of the machine: this could reduce the life of the plant and increase the risks associated with its use.**

3. Components

Here below the main components:



3.1. CE components identification

Description	Scope	Identification	Notes & Availability
Diesel Engine	Mechanical power source	<i>Manufacturer:</i> see the respective manual <i>Assembled by:</i> FBG	Use and maintenance manual. Certificate of origin attached
Equipment	Power source for orbital motors for augers (cement and mixer), aggregate belt, conveyor belt and water pump	<i>Manufacturer:</i> REXROTH, META <i>Assembled by:</i> FBG	Statement of compliance, components list and diagram
Electrical system	Feed hydraulic actuators	<i>Manufacturer:</i> INNOVAL SRL <i>Assembled by:</i> FBG	Electrical diagram
Water pump	Water distribution with pressure	<i>Manufacturer:</i> SYDEX <i>Assembled by:</i> FBG <i>Model:</i> BK052	Use and maintenance manual with statement of compliance

Radio control (optional)	Remote control	Manufacturer: IMET Model: M550S-WAKW S8 –KDC-1135-OGH	Use and maintenance manual with statement of compliance
Automatic greasing system (optional)	Automatic greasing of bearings	Manufacturer: CIAPONI Assembled by: FBG	User manual

4. CE Marking: general requirements

The CE marking is usually put by the manufacturer in the back left side panel.



PLEASE DON'T REMOVE THE IDENTIFICATION PLATE. IT MUST BE ALWAYS LEGIBLE. IF YOU NEED A NEW ONE, PLEASE CONTACT THE MANUFACTURER.



 FBG srl Via Castegnato, 19 25050 Rodengo Saiano Italia		
TIPO / TYPE	PESO MAX / MAX WEIGHT	
MATRICOLA N° / SERIAL N°	TENSIONE / VOLTAGE	
ANNO / YEAR	FREQUENZA / FREQUENCY	
POTENZA MAX / MAX POWER		

Manufacturer name and address	FBG S.r.l. VIA CASTEGNATO N.19 2550 RODONGO SAIANO ITALY TEL. 030 7689730 - FAX 030 315579
Model and – or type	A240
Serial number	
Construction year	
Electrical system	On board system fitted: 24 V
Hydraulic system	Nominal pressure max 150 bar
Special conditions	Do not use the machine in areas where there is a risk of explosion or fire
Total mass> empty weight	About 48501.6 lb

Total mass > full load	Charge: 8487.79 lb cement 49604 lb aggregates 4409.24 lb water
Noise level	LWA 101.7 dB(A)

5. Warning and suggestion



IT IS STRICTLY FORBIDDEN TO TAMPER WITH OR DISABLE THE SECURITY SYSTEMS

Below are listed the safety devices provided by the machine for protection and safety of the operator. For safety devices of individual components (engine, pumps, etc), please see the relative guide of maintenance.

5.1. Main rules to keep

Refer to the analysis of residual risks contained in this manual.

Remember that any activity of verification, monitoring, adjustment and cleaning must be done after extracting the key engine start!



NEVER ACCESS TO MECHANICAL PARTS WITHOUT HAVING EXTRACTED THE KEY FROM THE PANEL AND DISCONNECTED THE BATTERY.

**SOMEONE COULD ACCIDENTALLY START THE MACHINE
INSPECTIONS AND ADJUSTMENTS MUST BE MADE WITH A
FULLY ARRESTED MACHINE!**



5.2. Removable protections of moving parts

5.2.1. Mixer: Rubber cover

The mixer coverture is placed at the bottom back of the plant. For cleaning and maintenance of the mixer remove the coverture by unscrewing the safety bolt of the handle.



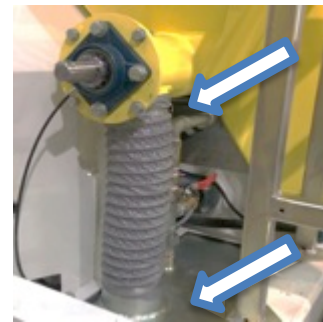
Always shut down the plant and remove the key before opening the coverture as it may result projections of materials or contact with moving parts. Never restart the without the cover closed.

5.2.2. The cement auger

The cement auger mixer is placed in the left back of the plant. For its cleaning and maintenance remove the pipe by removing the locking clips.

Always shut down the plant and remove the key before opening the pipe as it may result in projections of materials or contact with moving parts.

Never restart the machine without the protection pipe.

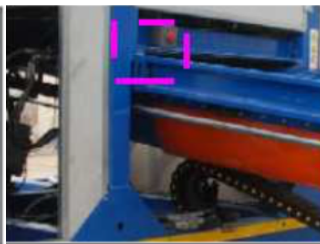


5.3. Protections in emergency situations

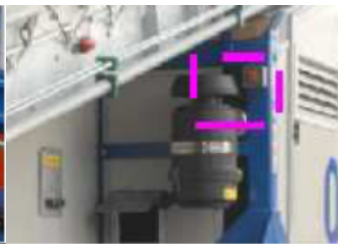
In case of emergency press the button on the control panel. This button switches off the power supply of all the mobile parts.



Emergency bottom on the control panel



Emergency bottom near the mixer extraction control



Emergency bottom near the diesel engine



Emergency bottom on the control console

5.4. Residual Risk

The operator should follow the typical rules of conduct laid down by the job site security regulations with particular regard to the use of personal protective equipment and clothing. The following are, however, recommendations to manage the residual risks of the machine. For the specific risks of individual components (diesel engine, augers, conveyors, system coverage, etc), please refer to relative user manuals and maintenance.



THE MANUFACTURER CANNOT BE HELD RESPONSIBLE FOR ANY MISUSE OF THE MACHINE, REMOTION OF PROTECTIVE EQUIPMENT OR FOR NEGLIGENCE OF THE ACTIONS HERE DESCRIBED!

When	What	Type of risk and danger	Safety devices available	Preventive actions
ALWAYS	It is forbidden the use of the machine by unauthorised and/ or not appropriately trained personal.			Do take all preventive measures for access to work sites provided by law. Use suitable work clothing. 

When	ALWAYS	CONVEYOR BELT MOVEMENT	ACCESS TO THE TOP OF THE PLANT	POSITIONING THE MACHINE IN THE WORK SITE
What	Never use nor stay near the plant, in case of inclement weather. It is forbidden to keep flammable materials nearby. Use the conveyor belt when there are no electric cables overhead. Never connect the battery to other electrical systems.	It is forbidden to stay in the action radius of the conveyor belt. It is forbidden to enter in the range of the conveyor belt with the remote control. 	It is forbidden to climb on the machine. Do not get on and stay on top of the machine if not for extraordinary maintenance. Never walk on the tarpaulin!	Place the machine on flat, compact and stable ground.
Type of risk and danger	It can attract lightning. The metal shell conveys electrical energy. 	 Danger of a hits with risk of severe trauma. <u>WARNING THE BELT IS CONTROLLED BY A REMOTE CONTROL!</u>	Danger of falling down with risk of severe trauma. 	Danger of plant rollover. Risk of serious injury 
Safety devices available		Work area for the operator outside the action radius.		
Preventive actions	In case of inclement weather cover all the machine. To garby the machine if you think it could be put under tension. Do not modify the electrical system without authorization.	Enclose the action radius with a temporary fence. The operator must ensure that nobody stands or enters the area 	If you must climb FOR EXTRAORDINARY MAINTENANCE to the hoppers for internal inspection, use suitable equipment for work at height as required by law.	Placement of the plant shall be managed by the site manager in ACCORDANCE WITH THE INSTRUCTIONS OF THIS MANUAL. Never move the plant without authorization. Use only trailers with the right capacity. Do not use overhead cranes.

When	LOADING AND UNLOADING FROM THE TRUCK AND TRANSPORTATION	LOADING THE HOPPERS	LOADING AND UNLOADING THE MATERIALS	ALWAYS
What	Empty the hoppers before loading or unloading. Block mechanically the plant on the truck with elements of appropriate strength.	NEVER hit the plant while loading.	It is forbidden to enter or to stay in the loading/ unloading areas. It is forbidden to start discharging before fencing the area.	It is forbidden to intervene on moving parts (engine belts, conveyors, etc). Turn off the engine before any maintenance adjustments, intervention or control.
Type of risk and danger	Danger of plant rollover and leakage of materials. Risk of serious injury. 	Danger of plant rollover and leakage of materials. Risk of serious injury. 	Danger of falling material from height and risk of excoriation. Danger of air dust and general risk to health. 	Danger of moving parts. Risk to be restrained and crushed 
Safety devices available				The moving parts are protected by fixed or mobile protections. Some moving parts are in areas not directly accessible.
Preventive actions	The plant loading shall be managed by trained operators in ACCORDANCE WITH THE INSTRUCTIONS OF THIS MANUAL. Never load and unload the plant without authorization. Use only trailers with the right capacity. Do not use overhead cranes. Do not drag or lift the plant with unsuitable machinery!	Loading the plant shall be managed by trained operators in ACCORDANCE WITH THE INSTRUCTIONS OF THIS MANUAL. Never load or unload the plant without authorization.	Signal the loading and unloading area with a temporary fence. All operators must also be kept at a distance to avoid breathing dust that is raised. 	Respect the rules expressed in the engine use and maintenance manual 

When	MAINTENANCE Changing filters Filling the diesel	MAINTENANCE Access to the moving parts Access to the hoppers	WITH MOTOR TURNED ON AND HOT	ALWAYS: Elements in pressure	ALWAYS	ALWAYS
What	Use protective gloves during operations with petroleum derivatives. Always perform engine maintenance when the engine is turned off and cold.	Disconnect the engine battery cables before entering the machine to scrape or remove impediments! Someone might accidentally restart the plant!	Never touch the muffler, any metal parts of the engine compartment and do not open the radiator water tank.	Shut down the plant if you notice an abnormal pressure. Never intervene on elements in pressure without having depressured the plant	It is forbidden to use open flames or smoke near the plant.  	It is forbidden in any case the use of the plant in an explosive atmosphere or near the possible leakage of flammable materials . 
Type of risk and danger	Presence of oils and greases, risk of contact with harmful substances. Presence of high temperatures. Risk of burns.	Danger of serious injury 	Presence of high temperatures. Risk of burns. 	Danger of serious injury 	The plant uses potentially flammable oils and fuels. Fire risk. 	Danger of ignition in explosive atmospheres. 
Safety devices available			Carter of engine compartment. Never work with the carter removed or damaged!	Safety valves rated at 180 bar		
Preventive actions	In case of contact wash with soap and water. 	Protect hands with gloves to avoid cuts. 	If you need to act on the hot parts use specific gloves (EN 407).	Do not remove or loosen tubes or open caps without verifying the absence of pressure.	Make sure that there is a powder or CO2 extinguisher. Never extinguish the fire using water.  	

When	WITH THE ENGINE RUNNING AND WHILE LOADING	WITH THE DIESEL ENGINE RUNNING
What	To protect from long exposure to noise use ear defenders. Use hearing protectors while loading the hoppers.	Oil leak with running plant. Turn off the engine and remove keys. Close the valve under the oil tank.
Type of risk and danger	Noise presence.	Presence of high temperatures. Risk of burns. 
Safety devices available	Sound absorbing carter. Never work with sound-absorbing carter removed or deteriorated.	
Preventive actions	Always check the noise level on site! 	

6. Maintenance instructions

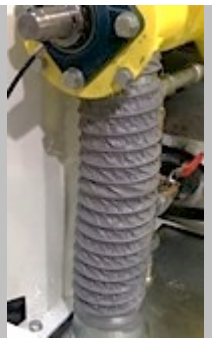
The frequencies of inspection and maintenance as specified in the manual are to be considered as the minimum necessary to ensure the proper working, safety and durability of the plant under normal conditions of work. Control must be constant; intervene promptly in case of anomalies.

Regarding the diesel engine, the air filter, the augers and the safety valves here is mentioned only the main maintenance to be carried out. It is recommended to refer the use and maintenance manuals. As for the whole plant, you must follow scrupulously the following table controls.

N.B. Follow the maintenance of machinery components as their manuals and maintenance

6.1. Check list before each use

Check that the structure is not damaged, that all the carters are mounted, that there are no leakages of oil or fuel. Verify the presence and the condition of sliding cylinders.

Check	Repair hints
Verify that there are no dismantled mechanical parts or protections	Restore the mechanical fixings before work.
Plates and control panel readability	Restore readability
Tightness of the pipe for cement drain	Replace the cement sleeve by involving maintenance staff. 
Cleaning	Manually remove possible encrusted material in the cement drain, in the mixer, in the conveyor belt and in every other part by using protective gloves

Operation of safety devices:	
- Emergency button	In case of malfunction contact the maintenance staff
- Flashing lights	
Electrical system	If the electrical panel is damaged or if it contains water contact the maintenance staff
Check the oil system	Check that the aspiration taps of the oil tank are opened
Utilities	Check the correct operation of each utility

6.2. Maintenances and replacements



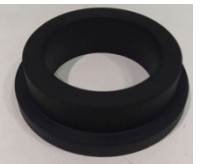
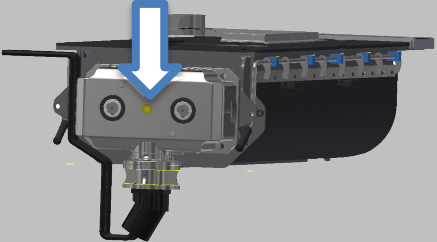
DO NOT MAKE ANY MAINTENANCE OR REPLACEMENT ON THE MOVING COMPONENTS WITHOUT REMOVING THE KEY OF THE ENGINE ON THE CONTROL PANEL AND DISCONNECTING THE BATTERY CABLES.



ALL THE MAINTENANCE AND REPLACEMENTS MUST BE DONE WITH STOPPED AND COLD ENGINE



Control	Description	
Belt containment sides	If material falls out from the sides of the hopper regulate the belt containment sides until reaching a correct position over the belt	
Aggregate belt	Check periodically the aggregate belt correct tension and centring. Regulate it through the idler roller bolts on the front part of the plant. (see page 18 for more details)	
Aggregate belt scraper	Check periodically and regulate the scraper of the aggregate belt through its bolts for it to have a correct position on the belt	
Conveyor belt	Check periodically the correct tension and centring of the conveyor belt tension. Regulate it through the bolts of the idler rollers at the end of the belt.	
Conveyor belt scraper	Check periodically and regulate the belt scraper through its fixing bolts to have a correct position on the belt	
Water pump filter	Clean periodically the water pump filter on the left front side of the plant	

Grease level of the automatic greaser	Check periodically the grease level on the right side of the plant. Grease Type: 00	
Mixer sealing ring	Check once a month the wear of the sealing ring of engine and bearing side	
Mixer Auger	Check periodically the wear of the mixer auger	
Mixer Cover	Check periodically the mixer cover wear	
Rubber Cover	If materials fall out from the side of the mixer engine, adjust the cover tightness. The belt needs also be inside the shield when it is correctly closed.	
Oil level	Check periodically the oil level through the mark on the tank side. Add more oil if the level is less than the mark. Oil type ESSEX YDROLEX 46 Change the oil after about 1000 working hours . Choice of the oils divided into viscosity classes: - 22 Artic conditions - 32 European winter conditions - 46 Summer conditions in European zones or in closed environments - 68 Tropical conditions or very hot environments - 100 Extremely high temperature conditions	
Reducer oil level	Check periodically the oil level of the gearbox of the pulling roller of the aggregate belt on the rear right side of the plant. Keep level half full Oil type Eni Telium VSF 320 Change the oil after about 1000 working hours	
Cooling level	Check periodically that the cooling fluid level is always between the min. level and the max level. The outside bowl is only for the surplus and not a level indicator	
Shield	Remove the shield once a week to clean, check the correct function and grease the mixer bearing.	
Air filter	Remove the dust in the air filter every week	

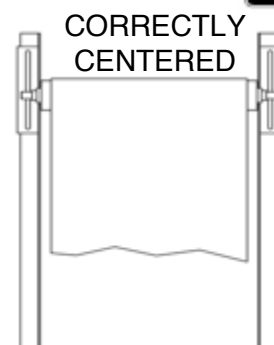
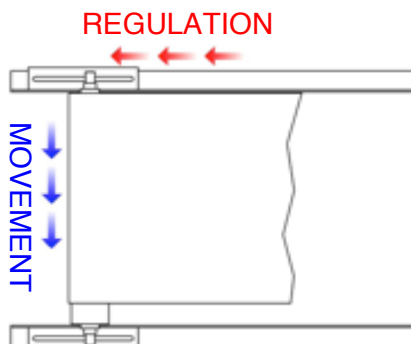
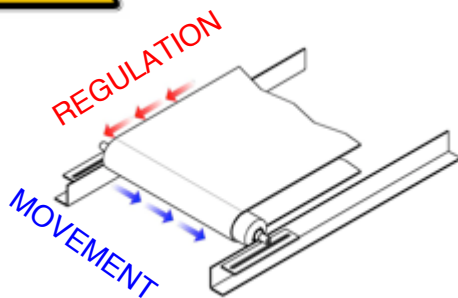
Oil filter	Change the oil filter after 500 working hours of the engine	
Diesel cartridge	Change the Diesel cartridge after 500 working hours of the engine.	
Oil filter in oil circuit	Change the oil filter after about 1000 working hours , check the visual signal on the filter. The filter is in the right rear side of the plant	
Return oil filter	Change the return oil filter after about 1000 working hours . The filter is on the oil tank on the side of the plant.	
Diesel Filter	Check once a month if there is water in the diesel. If there is the water, purge it through the tap under the filter. Open the filter cover and clean the filter cartridge	
Tarpaulin bearings	Grease at least once a year the bearings in the rear left and right part of the plant. Grease Type 00 .	
DIESEL ENGINE	For a correct maintenance please refer to the engine manual	
Welding and fastening of bolts of conveyor belt	Periodical visual inspection on welding and fastening of bolts of conveyor belt. (Every day).	

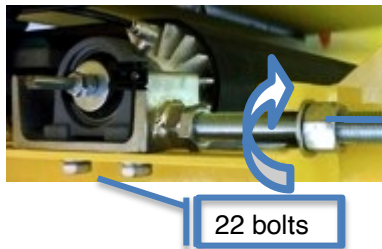
6.3. Belts tensioning and tracking

DO NOT MOVE THE BELTS IF THEY ARE NOT TENSIONED AND CENTERED

Tension the belts only when they slide on the pulling roller: Pull the idler roller evenly from both sides until it doesn't slide anymore.

DON'T LET THE PULLING ROLLER SLIDE UNDER THE BELT. RISK OF DAMAGING THE RUBBER COVER IRREVERSIBLY.



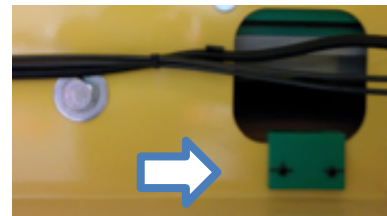


ATTENTION: There are 2 fixing bolts of 22 to loose before adjusting the bolt of 32. After any operation return them to their original position

Regulate through the bolts of the idler roller in order to tension/ centre the belts. Move only a quarter – turn each time. Let the belt turn before any other intervention. **ATTENTION:** Belts move towards the less tightened side.

Regulate only exceptionally on the adjustment of the idler rollers.

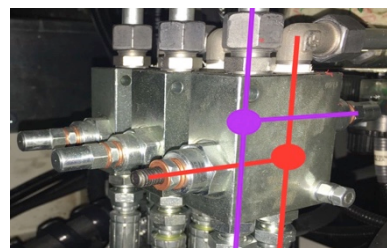
Remove the guides on the frame to correctly centre the aggregates belt. Put back the guides only when the belt is back in the centre.



6.4. Hydraulic regulation of conveyor belt

It is possible to regulate the shockproof valve for the conveyor belt movements: up/ down, right/ left and take in/ out. Through the set screw increase or decrease the maximum pressure and the relating speed according to the scheme showed in this photo. Screw clockwise to increase pressure of a movement, unscrew anticlockwise to decrease pressure. **Hold the set screw with the L wrench when you screw or unscrew the locking nut in order not to lose the adjustment.**

ATTENTION: DO NOT EXCEED 110 MAXIMUM BAR.



6.5. Regulation on the load cells for aggregates

1. Choose a recipe with two materials already calibrated (A and B);
2. Put water, cement, admixtures etc. to 0, now we have only the values: Aggregate A and Aggregate B;
3. Start 6 productions with different speeds (10, 15, 20, 25, 30, 35 m3/h) for 1min 30 each;
4. Recover the 3 data from the black box and the measurements on USB. Send them to technical service in order to calculate the calibration line.

ATTENTION: You need a lot of time to recover the data of Production Control. Do not stop that process.

5. Set the regulations specified by BLEND technicians.

6.6. Alarm resolution/ Production problems

In case of alarms not described in this manual, stop and restart the plant. If the problem persists contact the after sales service.

6.6.1. Aggregate absence

Code: 114, 141 (A), 142 (B), 147 (A2)

1. Is the aggregate hopper full?
 - 1.1. **No:** recharge the material in the hopper.
 - 1.2. **Yes:** Does the material flow correctly if you activate the belt?
 - 1.2.1. **Yes:** Wait for it to reach the sensor, if necessary repeat until the material reaches the sensor. If the alarm persists even when the sensor is reached intervene in maintenance in order to check the correct position and the configuration of the aggregate sensors.
 - 1.2.2. **No:** Activate the vibrators to help the material descend. Check that the used materials are suitable for the plant

6.6.2. Cement regulation error

Code: 119

2. Is the cement silo loaded?
 - 2.1. **No**: recharge the material in the silo.
 - 2.2. **Yes**: Check that the plant is turned on correctly and the engine working. Check that the emergency buttons are armed and if necessary restart the plant. Check that the cement descends freely (pipe, mixer entrance) and try the correct functioning, if not keep on reading.
 - 2.3. If you command the movement at < 40%, does the auger shaft turn correctly?
 - 2.3.1. **Yes**: Check that the requested quantity is suitable with the plant. If the quantity is suitable, but the cement doesn't descend correctly, check that the cement has not been in the silos for too long and verify that the cement quantity is not under the minimum level. Put in the correct material and retry the movement.
 - 2.3.2. **No**: There could be an obstruction on the auger movement, if the movement is activated at 100% does the shaft move?
 - 2.3.2.1. **Yes**: Check the correct functioning otherwise keep on reading.
 - 2.3.2.2. **No**: Try the movement repeatedly at 100% if the auger doesn't move intervene in maintenance with the engine turned off. Rotate the cement auger anticlockwise by using the reverse button or a long 27 wrench until reaching the stress point. Try to reactivate the movement at 100% movement. Does it move?
 - 2.3.2.2.1. **Yes**: Check the normal functioning.
 - 2.3.2.2.2. **No**: Intervene in maintenance. If you activated the movement check the led light on the movement coil. Does it light up?
 - 2.3.2.2.2.1.1. **No**: Electrical fault. Check the correct fixing of cables to the coil and the panel, if the problem persists change the solenoid coil.
 - 2.3.2.2.2.1.2. **Yes**: Try to activate the coil manually and check its correct functioning. In alternative call the support staff to check the hydraulic motor.

6.6.3. Absence of water / admixture

Code: 129 Water, 116 Admixture 1, 140 Admixture 2

3. Is the water tank full?
 - 3.1. **No**: Fill the water tank.
 - 3.2. **Yes**: Check that the plant and the engine are correctly switched on. Check that the emergency buttons are armed and if not restart the plant. Check that the water circuit isn't closed (valves under the tank and at the mixer entry) or stopped (filter, mixer entry, foreign objects in the tank) and try its correct functioning, otherwise keep on reading.
 - 3.3. If you activate the movement, does the water flow out of the mixer?
 - 3.3.1. **Yes**: Is there a reading from the flow meter when water flows out from the mixer?
 - 3.3.1.1. **Yes**: Verify the correct movement calibration and verify that the requested water quantity is compatible with the hydraulic system
 - 3.3.1.2. **No**: Check the rotation of the flow meter, the connections and the fuses, otherwise call the support staff because of a flow meter fault.
 - 3.3.2. **No**: If the movement is activated at 100%, does shaft of the pump move correctly?
 - 3.3.2.1. **Yes**: Drain the air from the water pump and verify that the requested water quantity fits the hydraulic system. If the problem persists check the rotor wear.
 - 3.3.2.2. **No**: Intervene in maintenance with the engine turned off, is the pump shaft blocked?
 - 3.3.2.2.1. **Yes**: Call the support staff for a pump problem.
 - 3.3.2.2.2. **No**: Intervene in maintenance. With the activated movement check that the led lights on the solenoid valve coil of the movement. Does it light up?
 - 3.3.2.2.2.1. **No**: Electrical fault. Check the correct fixing cables to coil and to the dashboard, if the problem carries on change the solenoid valve coil.
 - 3.3.2.2.2.2. **Si**: Try to activate the coil manually and verify the correct working, otherwise call the assistance staff to check the hydraulic engine state and check the centrifugal pump wear

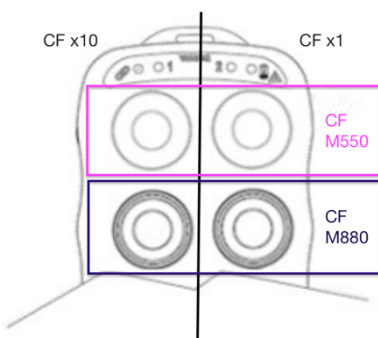
6.6.4. Blocked mixer

4. During the production does the conveyor belt take out all the material that comes from the mixer?
- 4.1.1. **No:** Verify that the rotation belt speed fits with production speed by using the F2/F5 controls in page F3 or the potentiometer from the remote control and that the conveyor belt inclination doesn't let the material accumulate out of the mixer. Check that the production speed in MC/H fits with the machine configuration.
- 4.1.2. **Yes:** Is the mixer clogged?
- 4.1.2.1. **Yes:** Activate the mixer movement from the "Manual Movement" page. Does the mixer unblock?
- 4.1.2.1.1. **Yes:** Completely empty the mixer and the belt. Make the controls described in point 4.1.1. before restarting the production. If the problem persists call the assistance staff.
- 4.1.2.1.2. **No:** Is the conveyor belt full of materials?
- 4.1.2.1.2.1. **Yes:** Empty the conveyor belt through the button F4 in page F3 and keep on reading.
- 4.1.2.1.2.2. **No:** Move the conveyor belt to the transport position and activate repeatedly the mixer from the page "Manual movements". If the mixer doesn't unblock intervene in maintenance and open the mixer cover removing all the materials inside. Before restarting its movement check the mixer wear and its correct working speed. Verify that the discharge hole of the mixer cover is correct and check the suitability of materials in the plant.
- 4.1.2.2. **No:** Check the correct setting of the mixer's speed and that the hydraulic circuit is open. Activate the movement and check the led light on the movement solenoid valve. Does it light up?
- 4.1.2.2.1. **No:** Electrical fault, check the correct fixing cables to coil and to the dashboard, if the problem persists change the solenoid valve coil.
- 4.1.2.2.2. **Yes:** Try to activate the coil manually and verify the correct working, otherwise call the support staff to check the hydraulic engine condition.

6.6.5. Problems on remote control

Code: 110

5. Check the correct setting of plant and engine. Check that the emergency buttons are armed and in case restart the plant.
- 5.1. If I push the button does the green light up?
- 5.1.1. **No:** Check that emergency button is not pressed and that emergency key is placed in the remote control, then try again.
- 5.1.2. **Yes:** If the light is flashing change the battery
- 5.1.3. If the light is on, check the connection remote control/ panel in the page movements of conveyor belt pushing buttons on remote control. If movements don't start try to rearm the remote control. The light RF BUSY is flashing in red?
- 5.1.3.1. **Yes:** Change the communication frequency as follows:



MODEL M550 - With the remote control turned off and the emergency button not pressed, push at the same time the two CF buttons for two seconds, keep pushed the green button; when the light on the remote control is flashing, release the buttons in the same sequence and push the green button while the light is flashing. If you have done it in the correct way, the lights on receiver have to change.

MODEL M880 - Be sure that the transmitter battery is charged, control that the receiving is powered by closing the receiving to the transmitter as much as possible. Follow the radio link between the two units doing the procedure of key card (if activated). Activate, at the same time, the two commands CF to exchange frequency, press and release the button START: the yellow LED starts to flash with an interval of 1 second. Release the two buttons CF. In order to set one of the possible channel, act with the command for tens (CF x10) and with the command for units (CF x1). Press the button START to memorize a new channel.

No: Please refer to the remote control manual or contact the Customer Service

RECEIVING UNIT: LED MEANING

Waiting / Remote not connected	Operating / Remote connected
Data Error ch. B Passive Emergency ch. B Data Error ch. A Passive Emergency ch. A RF Busy Power Supply Working	Data Error ch. B Passive Emergency ch. B Data Error ch. A Passive Emergency ch. A RF Busy Power Supply Working

6.7. Ensure the security of the electrical system

To ensure the security of the electrical system from interventions based on external energy sources, as weldings, in addition to attach the grounded as near as possible to the welding, you need to cut off:

Batteries	Control Unit	S – box	Humidity probe	Other close electrical components
With motor: Remove all the batteries poles.  Without motor: Disconnect from the power source.	Disconnect the control unit 	Disconnect all the connectors of all S-boxes 	Disconnect and remove the humidity probe.	Disconnect and remove all the nearby electrical components

If the **batteries are low**, remove the batteries and charge them, or if you want to use a jump starter you have to connect it only to the **big** battery

7. Use instructions

7.1. Operator working position.



IT IS FORBIDDEN TO CLIMB ON THE MACHINE!
IT IS FORBIDDEN TO STAY IN THE CONVEYOR BELT ACTION RADIUS



The operator that uses the remote control can walk around the plant keeping the safety distance from the conveyor belt when checking concrete distributions. The main working area is in front of the control panel as shown here below.



During the plant loading with loaders keep the safety distance from the machine-working radius.
Do not climb on the machine when in function or during loading, the working area is on the ground!

7.2. Unmount and transport



THE TRANSPORT IN AND OUT THE WORKING SITE MUST BE DONE BY TRAILERS WITH THE RIGHT CAPACITY AND WITH THE MACHINE EMPTY.

The **conveyor belt** has to be folded in its resting position, vertical and parallel to the plant (see the picture) before any movement.

Transport in the work site has to be done by equipment of the right capacity and dimension, and always below the maximum speed in accordance to the working area regulations.

The transport out of the working site has to be done with the machine empty. Before putting the plant on or off a trailer remove the aggregates. For road transport always put the plant on a vehicle that fits with the machine weight and dimensions. The transport has to be organized in accordance to the rules of the road concerning lights, dimensions and maximum weights transportable.

7.3. Working instructions

7.3.1. Set up



BEFORE STARTING THE PLANT PUT IT ON A STABLE SUPPORT AND PREPARE THE MATERIALS LOADING AREA!

Before the set up the plant has to be put on a stable support at minimum height of 1 meter from the ground to the frame.

The plant must overhang maximum 50 cm from the support points on the front and the rear.

7.3.1.1. Work site set up

In accordance to the work site safety regulations, secure the load and unload areas in order to avoid possible interference with the aggregates and cement loading machines.

Carry out the following operations:

- Choose flat and compact ground that will not collapse even in case of inclement weather (The ground has to support the total weight of the full plant).
- Clear and verify the absence of obstacles on the ground and up to 5 meters that can be a danger.
- The plant should be used with natural light. If you use lamplights, they should be at least 200 lux on a surface 2 meters wider than the plant.
- Clearly signal and forbid the entrance in the conveyor belt working radius.
- Clearly signal and forbid the entrance in the loading area.

7.3.1.2. Fill the hopper aggregates

The engine is not required to be running to fill the hopper aggregates you don't have to start the plant.

Fill the hopper by mechanical means avoiding materials falling out and the overloading plant beyond its capacity. The operators on ground must keep away from the area while loading.

Do not use the loader to compress the aggregates in the hopper.



7.3.1.3. Fill the cement silo

To fill the cement silo open the trapdoor with caution, to avoid falling.

If it is necessary to work at height, prepare the working site securing the operator with suitable equipment required by law.

At the end of the loading operation close the silo trapdoor. If the silo is empty or under stocks level, it is necessary to block cement way out to avoid the leakage.



CAUTION: Do not introduce in the silo anything but powders:

DANGER of malfunction and/ or breaking of the extraction auger.

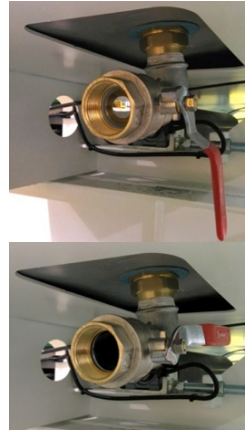
CAUTION: If it is possible fill the cement with the engine turned off in order to avoid the obstruction of the engine air filters



7.3.1.4. Fill the water tank

In order to fill the water tank connect the loading valve under the tank to a system with a suitable hydraulic pump:

- Connect the pump to the loading valve.
- Open the valve tap.
- Turn on the pump checking the tank level.
- When the tank is full stop the pump
- Close the tap and remove the pumping system



It is possible to fill the water tank from above through the manhole.

Caution: Do not keep the tank open in order to avoid the entrance of foreign materials.

Caution: Prepare the suitable equipment for working at height as required by law.

7.3.1.5. Machine starting

The plant works with the power supplied by the diesel engine installed on the machine, start the diesel engine with the starting key.

7.3.1.6. Positioning in the work site

Once you prepare the plant and the work site, place the conveyor belt where there aren't obstacles like trestles or shelters that can create a danger to the movement.

To do so use the remote control keeping outside the conveyor belt movement area.

This operation is possible only with the engine running.

7.3.2. Cleaning and washing



The correct functioning of the machine is possible by cleaning all hardened materials.

The lack of washing loads to the creation of dangerous deposits. The plant has an automatic washing cycle.

The plant has also a manual cleaning hose.

CAUTION: do not put the water jet on the electrical parts or on the diesel engine!



7.3.3. Repairs

If you need to make repairs call the manufacturer. We are not responsible for electrical, mechanical and hydraulic interventions made by untrained people. We suggest you to call the manufacturer for any repairs and components replacement.

If you decide to operate directly use only original components following the mark and the model included in this manual.

7.3.4. Inspection

For the hoppers inspection you can use the access stepladder that is usually used only for the maintenance.

CAUTION: When you go on the stepladder keep with you always the starting engine keys and disconnect the starting battery cables!

For the battery compartment inspection open the doors on the plant front side.

When you open the doors always remove the starting engine keys!

7.3.5. Parking

In case you need to park the plant for a long time, keep it in a covered place.

Empty all the hoppers, the augers and the water system. If you haven't done it recently grease the bearings and the moving mechanical parts.

This will preserve the plant efficiently.

7.3.5.1. Drain the hydraulic oil

In you need to drain the hydraulic oil detach the connection fitting under the tank.

If you need to isolate the hydraulic system from the tank, use the tap.



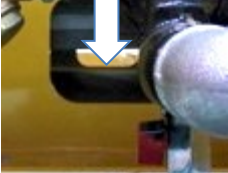
7.3.5.2. Drain the water system

If you need to drain the water system, there are discharge taps on the water pump and under the tank.

If you want to drain only the tank or isolate it, for example for water pipes replacement, close the interception valve and work on the discharge tap.

If emptied to use the water system again purge the air in the pump:

- Fill the water tank and check that the interception valve is open
- Start the water pump
- Open the air purge valve in the pump until water comes out.

	Load/ unload water tank tap
	Interception valve tank – water circuit
	Purge valve for air in the water pump
	Discharge tap of the water pump

8. Training instructions

Even if the plant is built in accordance to the accident prevention and job security laws, the maintenance operators have to respect all the European community, national and work site safety laws.

The training of the operator and of the maintenance man is to be done by the employer that has to inform the operator about accident risks, safety devices, general accident laws scheduled by the international directives and the Country legislation where the machine is used.

The operator and the maintenance man have to know all the contents of this manual.

The most expert operator has to teach the other operator. Maintenance can be done only by expert maintenance men with experience in industrial machines maintenance.

The attached quick instructions book is intended to be helpful for the training in the plant utilization, but it doesn't replace the training by qualified operators.

9. Elimination and environmental laws

The plant has to be used only in open space because it issues exhaust gas and dust. Possible leakage of petrol derivate substances (oils and fuels) content into the tanks and into the tubes can damage the environment. Keep

on the work site the suitable absorbent substances to use in case of leakage and make sure to provide for all the suitable containers in case of maintenance, emptying of tanks and plant.

For the plant disposal you have to respect the European Community law, national and local laws for the environment protection. Pay attention to the disposal of used oil and fuel that have to be removed before moving to another site. For a correct disposal you need to separate the plant components into homogeneous materials (iron, electrical material, plastic, etc).

Do not dispose the plant or part of it into the environment.

10. Ambient noise

Applied laws:

- LEGISLATIVE DECREE of 4th September 2002, n. 262 – Directive actuation 2000/14/CE concerning the environmental noise emission of machines and plants intended for outdoor uses.
- ISO 3744: 1995 –Definition of the power sound levels of noise sources through the sound pressure –Control method with a wind surface on a reflecting level.

Measurement conditions:

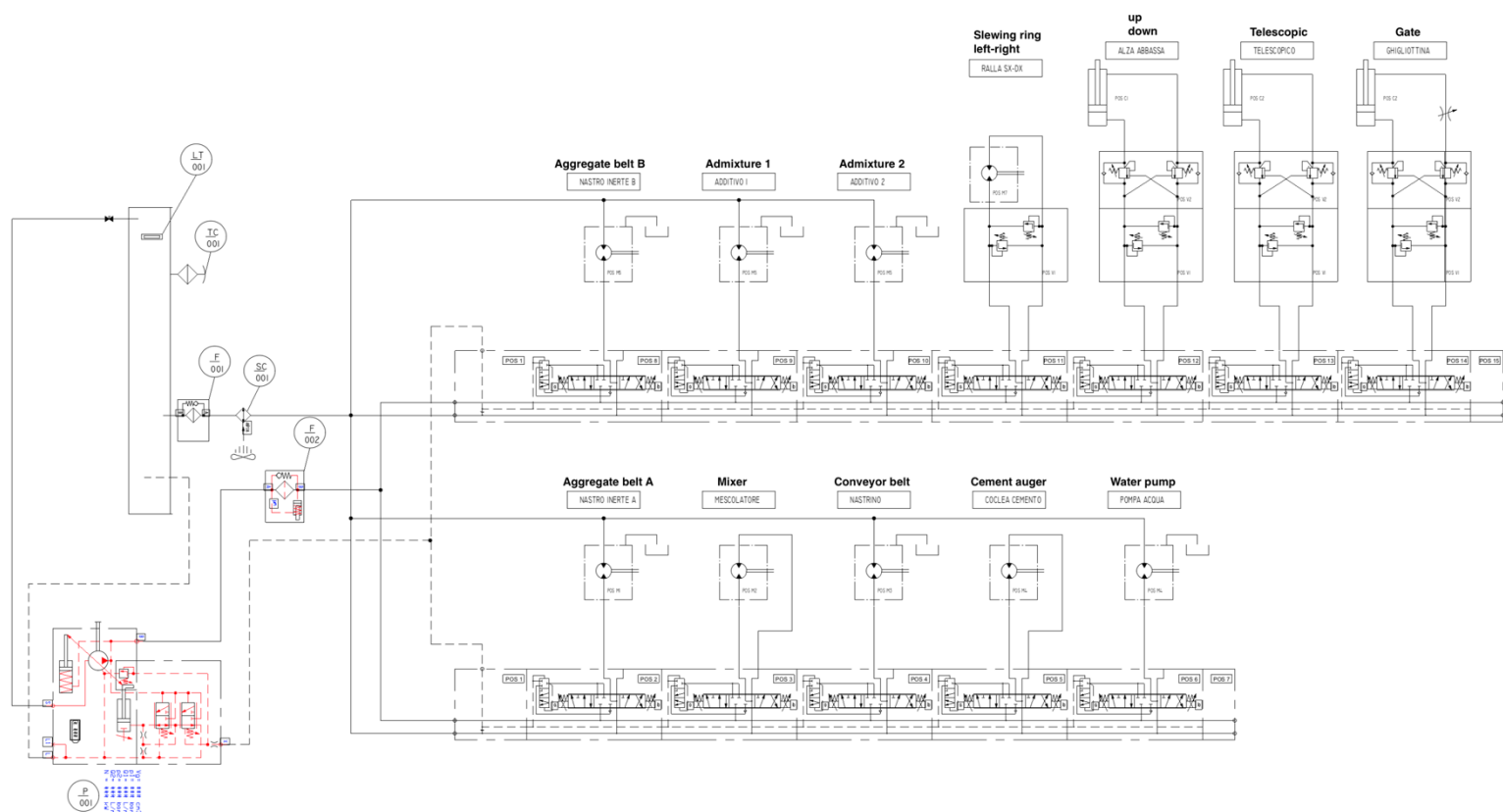
- o Open field
- o Full power at 2800 RPM at constant speed.
- o Closed doors.
- o Machine at standstill.
- o Observation period longer than 15s.
- Level of continuous acoustic pressure weighted A near to the control panel (About 1,75 m from the main sound source): 91.0 dB(A)
- Level of peak acoustic pressure weighted C near to the control panel (About 1,75 m from the main sound source): 111.9 dB(C)
- Level of continuous acoustic pressure weighted A at 7 meters from the main sound source: 73.8 dB(A)

11. Terms and definitions

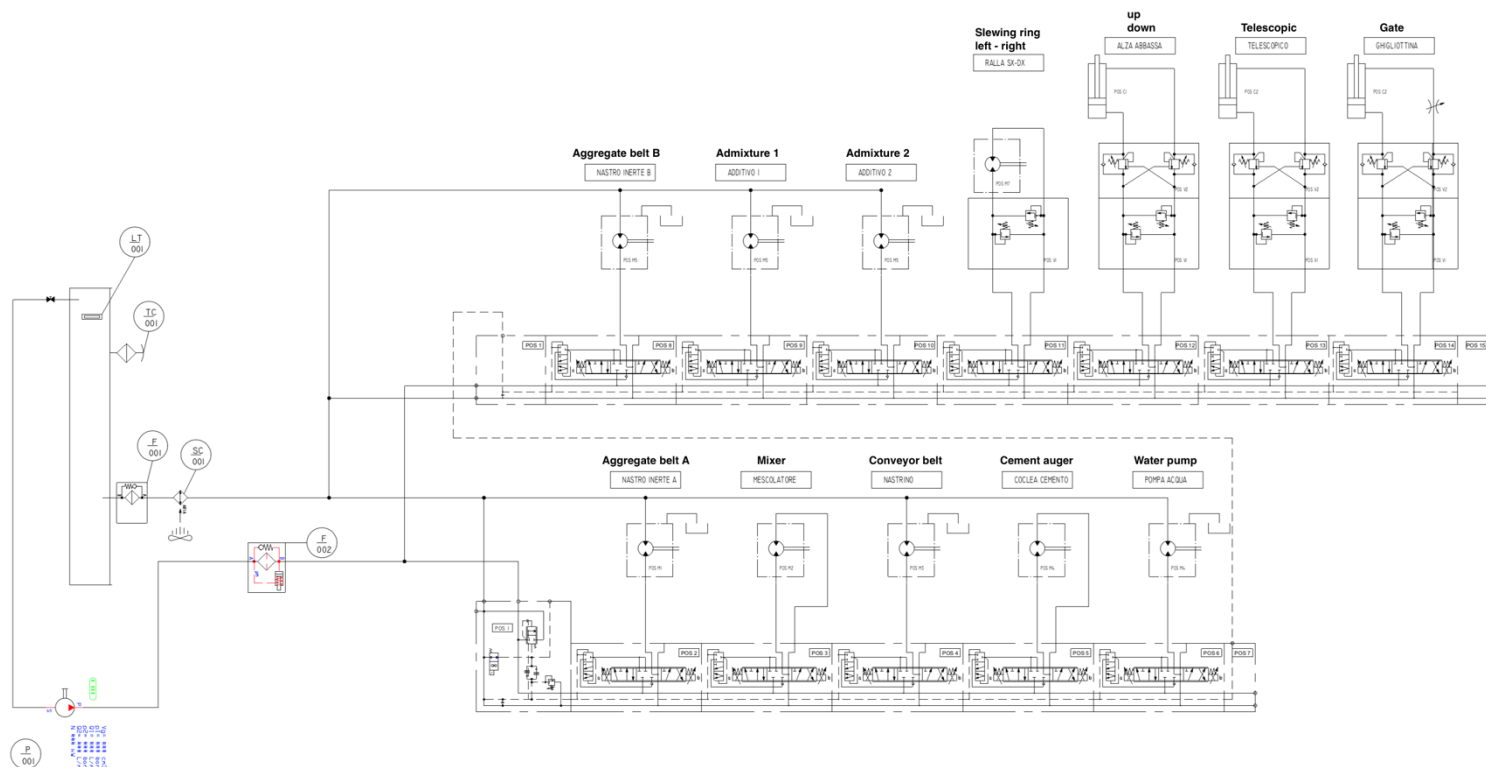
Plant	Mobile mixing equipment for concrete production
Manufacturer	Subject that puts the plant on the market for the first time and applies the CE mark
User	Every trained person that uses the plant

ANNEX 1: Hydraulic system

A) Variable displacement pump *

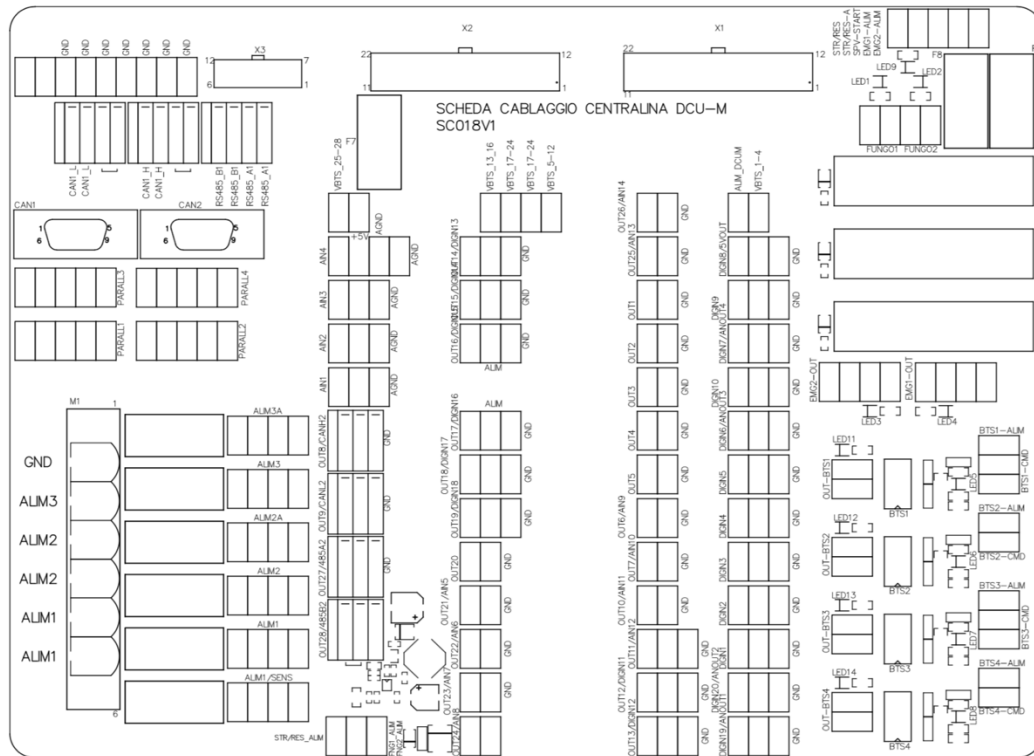


B) Fixed displacement pump *



* Functions and positions in the hydraulic system may differ according to the machine and to the optional installed.

ANNEX 2: Electrical system



Pin-out connettore DCU-V

Pin	Risorsa Collegata
1	---
2	CAN-bus J1939/FMS, polo H
3	CAN-bus J1939/FMS, polo L
4	CAN-bus 3xS (CANOpen), polo H
5	CAN-bus 3xS (CANOpen), polo L
6	---
7	---
8	---
9	---
10	---
11	---
12	---
13	---
14	Connector USB-host female to panel
15	---
16	---
17	Connector USB-host female to panel
18	---
19	---
20	Serial printer connected and powered
21	Flow meter admixture 3
22	GND
23	Powered by main switch
24	---
25	---
26	---
27	---
28	GND
29	---
30	---
31	Connector USB-host female to panel
32	Connector USB-host female to panel
33	---
34	Current Source for environmental temperature probe
35	GND
36	Environmental temperature probe (PT100)
37	---
38	---
39	---
40	N.C.
41	---
42	---
43	---
44	Serial printer
45	Serial printer
46	Powered by serial printer
47	E.V. pump admixture 3
48	Powered by main switch
49	Powered by main switch
50	Positive battery
CASE	N.C.

Pin-out connettore DCU-M n.1 (Node-ID 0x03)

Pin	Funzione principale	Funzione Second.	Risorsa collegata
1	OUT1		B_X1-001 E.V. aggregate belt
2	OUT2		B_X1-002 E.V. cement auger
3	OUT3		B_X1-003 E.V. water pump
4	OUT4		B_X1-004 E.V. pump admixture 1
5	OUT5		B_X1-005 Function under recipe n.1
6	OUT6	ANIN9	B_X1-006 Function under recipe n.2
7	OUT7	ANIN10	B_X1-007 E.V. Gate up
8	OUT8	CANH2	D_X3-001 E.V. Gate down
9	OUT9	CANL2	D_X3-002 Greasing pump
10	OUT10	ANIN11	B_X1-008 E.V. rotation RIGHT conveyor belt
11	OUT11	ANIN12	B_X1-009 E.V. rotation LEFT conveyor belt
12	OUT12	DIGIN11	B_X1-010 E.V. horizontal auger auto-charging of cement from external silo
13	OUT13	DIGIN12	B_X1-011 E.V. vertical auger auto-charging of cement from external silo
14	OUT14	DIGIN13	C_X2-001 E.V. accelerator
15	OUT15	DIGIN14	C_X2-002 E.V. pump admixture 2
16	OUT16	DIGIN15	C_X2-003 E.V. aggregate belt B
17	OUT17	DIGIN16	C_X2-004 E.V. filler auger
18	OUT18	DIGIN17	C_X2-005 E.V. mixer
19	OUT19	DIGIN18	C_X2-006 E.V. down conveyor belt
20	OUT20		C_X2-007 E.V. out conveyor belt
21	OUT21	ANIN5	C_X2-008 E.V. in of conveyor belt
22	OUT22	ANIN6	C_X2-009 E.V. pressure
23	OUT23	ANIN7	C_X2-010 Vibrators aggregate A
24	OUT24	ANIN8	C_X2-011 Vibrators aggregate B
25	OUT25	ANIN13	B_X1-012 E.V. conveyor belt speed
26	OUT26	ANIN14	B_X1-013 E.V. up conveyor belt
27	OUT27	RS485A2	D_X3-003 Preheating Diesel engine
28	OUT28	RS485B2	D_X3-004 enable Diesel engine to turn on
29	VBATOUT01-04		B_X1-014 Powered by emergency circuit
30	VBAT		B_X1-015 Powered by main switch
31	GND		B_X1-016 GND
32	CANH1		D_X3-005 CAN-bus 3xS (CANOpen), polo H
33	CANL1		D_X3-006 CAN-bus 3xS (CANOpen), polo L
34	RS485A1		D_X3-007 ---
35	RS485B1		D_X3-008 ---
36	DIGIN19	ANOUT1	B_X1-017 Emergency push button
37	DIGIN20	ANOUT2	B_X1-018 low fuel
38	VBATOUT05-12		B_X1-019 Powered by emergency circuit
39	DIGIN1		B_X1-020 Revolution counter of aggregate belt
40	DIGIN2		B_X1-021 Flow meter admixture 2
41	DIGIN3		B_X1-022 Revolution counter of aggregate belt B
42	VBATOUT13-16		C_X2-012 Powered by emergency circuit
43	DIGIN4		C_X2-013 Low pressure of engine oil
44	DIGIN5		C_X2-014 High temperature of engine coolant
45	DIGIN6	ANOUT3	C_X2-015 Alternator doesn't charge
46	DIGIN7	ANOUT4	C_X2-016 Flow meter admixture 1
47	DIGIN8	5VOUT	C_X2-017 Water flow meter
48	IDCAN0	DIGIN9	C_X2-018 GND
49	IDCAN1	DIGIN10	C_X2-019 N.C.
50	VBATOUT17-24		C_X2-020 Powered by emergency circuit
51	ANIN1		D_X3-009 Humidity probe /Aggregate B presence sensor
52	ANIN2		D_X3-010 Aggregate A presence sensor
53	ANIN3		D_X3-011 Livello min. pump sensor
54	ANIN4		D_X3-012 Livello max. pump sensor
55	ANGND		C_X2-021 Analog GND
56	VBATOUT25-28		C_X2-022 Powered by main switch