Operation Instruction FX 2004
Hopper loader FX 2504

CE

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File : J:\Wamser\FX2504_GB

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1 Safety

1.1 Correct Usage

Pneumatic feeding of plastic granules or other dry bulk materials.
The machine is only intended for use of this type.
If the machine is used outside its field of application, SIMAR GmbH is not liable for damage or faults arising during operation.
Before commissioning the drying machine, the Operating Manual must be read carefully. The notes on safety information must be followed to the letter.
Only trained and fully inducted operating personnel are qualified to operate the machines and to carry out maintenance work.
Correct usage also involves compliance with inspection and maintenance work schedules.

1.2 Safety Markings

In this document the following signal words are used in combination with safety signs to represent potential hazards.

	**Danger !** Fatality, serious injury or extensive damage to property **will occur** if the relevant precautionary measures are not taken.
	**Warning !** Fatality, serious injury or extensive damage to property **may occur** if the relevant precautionary measures are not taken.
	**Beware !** Slight injury **may occur** if the relevant precautionary measures are not taken.
	**Caution !** Damage to property **may occur**, if the relevant precautionary measures are not taken.

1.3 Safety Information

Knowledge of basic safety information and safety in the workplace instructions is a precondition for safe handling and problem-free operation of the machine.

This Operating Manual includes all the important information needed to operate the machine safely.
The in-house safety in the workplace regulations must be followed.

	**Caution !** Conveying hose and suction pipe necessarily earthing!
	**Warning !** Unless indicated otherwise, do not operate on voltages other than 230V/50Hz or 60 Hz
	**Caution !** See technical data sheet !
 	**Danger !** Touching live parts is potentially fatal. Always keep control cabinets locked. Do not carry out any work on live parts. Work on the electrical fittings may only be carried out by authorised electrical specialists. Access to the control cabinets is only permitted for authorised personnel with a key or tools. Cables may not become trapped or squashed. Cables must be laid in such a way that they do not constitute a trip hazard nor are liable to be damaged.
	**Danger !** Do not work in explosive areas. No conveying explosive materials. No conveying liquids .

	**Danger !** The machine is only safe if all safety devices are properly installed and in operation. Do not operate the Drier without safety devices, or with faulty devices, or with safety devices that have been bridged. Safety devices may only be removed once the main switch is disabled. Refit all safety devices once repair work is completed and test them for proper functioning. Anyone working on the machine must be informed prior to the start of maintenance work of any imminent movements on the machine.
	**Warning !** Risk of injury due to improper handling of compressed air. Never direct the outlets of compressed air lines towards people – serious injury may result. Do not pressurise any loose compressed air hoses. Any people who may be in their vicinity may be hit. Never hold compressed air hoses on loose objects. Work on the compressed air devices may only be carried out by authorised specialists.
	**Warning !** Risk of the pallet falling during transport. Ensure equal loading of the pallet and that suitable means of transport are used.
	**Caution !** Risk of injury due to incorrect programming. Do not make any changes to the software on programmable systems.

1.4 Protective Measures

	**Warning !** Never make any unauthorised modifications to nor deactivate safety devices. These may result in serious injury.

The warning and safety signs fitted to the machine must be observed.
They may not be changed or removed.
Damaged signs must be immediately replaced.
Protective measures may not be circumvented during operation.

1.5 Residual Hazards

During operation of the systems, further hazards may arise that can be prevented through safety-conscious working procedures.

 	**Danger !** Touching live parts is potentially fatal. Observe the warning notices fitted. Do not remove any covers on the control cabinet. Work on the electrical fittings may only be carried out by authorised electrical specialists.
	**Caution !** Parts of the blower unit heat up during operation.

1.6 Requirements on personnel and duty of care

Work on the system may only be carried out by reliable, trained and fully inducted personnel.

Only authorised personnel may work at the machine.
Never allow machine components to be operated by personnel who are under the influence of sedatives, or who for health reasons are not in a fit state to operate them.

Any personnel who are under training, induction, or who are involved in general training, may only work at the machine under the constant supervision of a qualified and experienced person.

Work on the electrical fittings of the individual machines may only be undertaken by authorised electrical specialists and in compliance with the operating manual of the electrical fittings supplier.

Only fully inducted personnel with special knowledge and experience of pneumatics may work on compressed air devices.

	**Caution !** The Operating Manual must always be available at the place of use. The operating personnel must know where it is kept.

2 Transport

	**Danger !** Touching live parts is potentially fatal.
	Even when making small changes in position, isolate the machine from any external power source. Before recommissioning the machine, it must be properly reconnected to the mains.
	**Warning !** Risk of the pallet falling during transport. Ensure equal loading of the pallet and that suitable means of transport is used. Ensure it is securely attached and that the load is distributed horizontally. Never stand under a suspended load. Nominate a competent banksman for the lifting operation.
	Pay attention to protect against external influences as hits, moisture, dirt etc.

Only use a suitable transport vehicle with adequate load bearing capacity. Ensure the load is reliably secure.

Prior to recommissioning, carefully fit and secure any parts that have had to be removed for transport purposes.

On recommissioning, always power up in line with the Operating Manual.

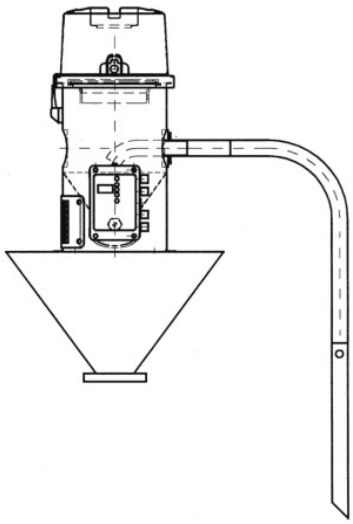
Commissioning may only be undertaken by specially trained operating and maintenance personnel.

3 Commissioning

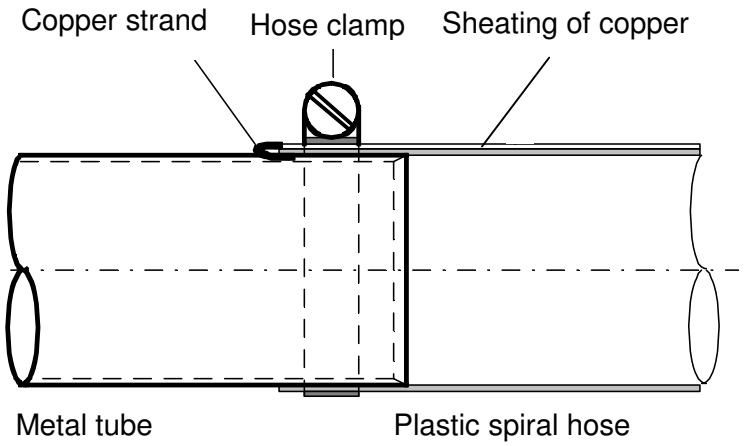
1. After unpacking check the separator for transportation damage.
2. Prepare the cover of the machine hopper:
   Mount opening Ø202mm respectively Ø242mm and drill 4 holes for screws M6 according to dimension sheet (sheet 19 and 20).
   Alternately assembling with clamping ring.
3. Check the inside of the separator for residues of packing.
   Remove adhesive tape from flap.
4. Mount the separator on lid of machine hopper,
   mount seal between lid and separator (included in scope of delivery).
5. Mount feeding hose and suction pipe and connect to earth.
6. Connect air hose DN13 for filter cleaning,
   do not use smaller diameter because of insufficient filter cleaning.
7. Max. 2,5bar !
8. Install fan, connect separator to fan; the unit is ready for operation now.

The following is to be observed:

1. Use Cekon plug for connection. Slow blowing fuse 10A.
2. All pipe joints and hose couplings to be leak proof.
3. Arrange piping vertically or horizontally; not inclined, if possible.
   Never use bends with radius less than 500 mm.
4. Do not push the suction pipe into the material hopper; it will be pulled in automatically during the first conveying processes.
5. Prevent filling through air inlet openings.

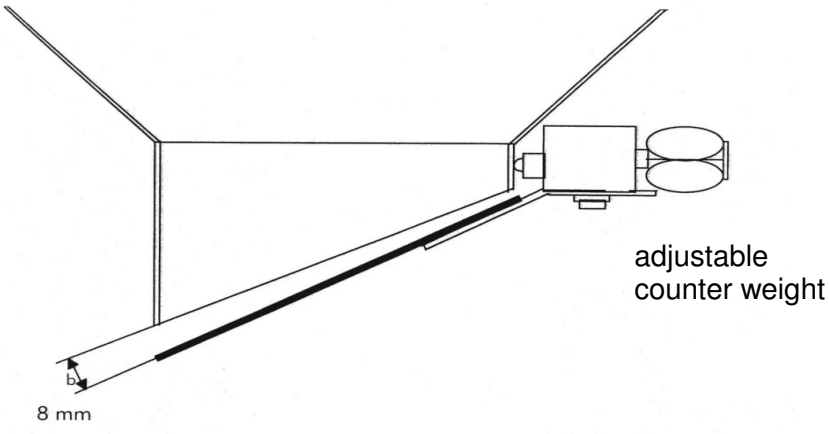


3.1 Feeding hose



Pull out **copper strand** for earthing approx. 20-30mm from the **sheathing** and fold it back inside the **plastic spiral hose.**
When hoses with **earthing spiral** are used, make sure that there is a metallic contact to the socket. Slip **hose** onto the bright **metal tube** and fasten the hose to the metal tube by means of a **hose clamp.**

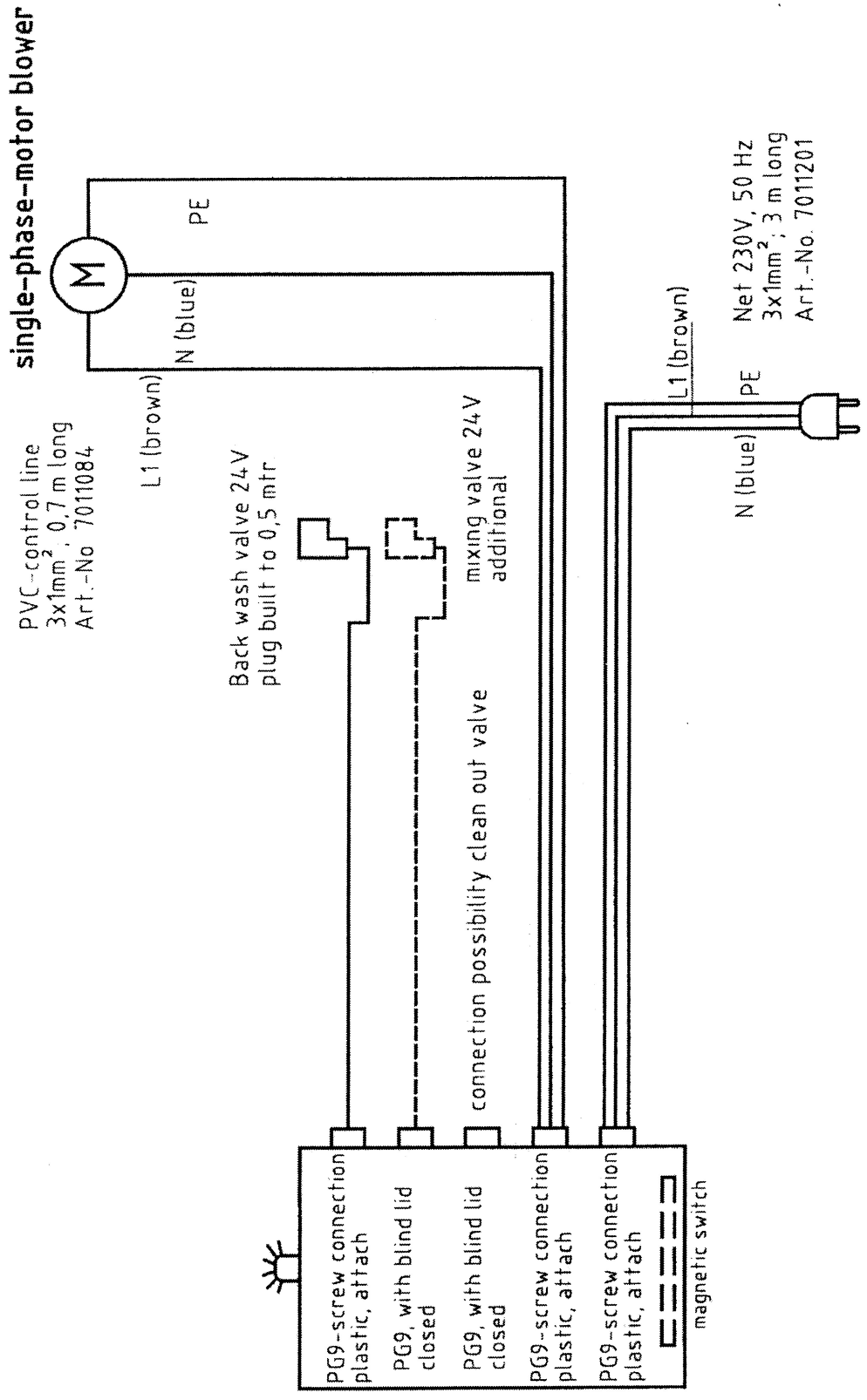
3.2 Flap



Correct settings of the discharge flap:

The air gap **„b“** is adjust able by turning the counter weight.
The discharge flap should have an air gap **„b“** of 8 mm, as shown in the illustration.

3.3 Connection FX- controller to EKO - blow unit



4 Technical Data

Hopper

	FX 2004	FX 2504
Material	1.4301	1.4301
Diameter	∅200 x 330 mm	∅250 x 407 mm
Feeding volume	2,5l	5 l
Material outlet	DN 100	DN 100
Feeding pipe	DN 38 oder DN 50	DN 38 oder DN 50
Weight	9,2 kg	11,4 kg

Filter

	FX 2004	FX 2004 optional	FX 2504	FX 2504 optional
Filter size	0,06m²	0,06 m²	0,08 m²	0,08 m²
Material	Polyamid	PE- needle felt	Polyamid	PE- needle felt
Size	∅210 x 90 conical	∅210 x 90 conical	∅240 x 140 conical	∅240 x 140 conical
Weight	0,160 kg	0,160 kg	0,190 kg	0,190 kg

Valve filter backwash

	FX 2004
Designation	2/2 WSV
Connection	1/2“
Control voltage	24 V

Blower unit EKO

	FX 2004/ 2504
Designation	EKO
Power	1,0kW
Operating voltage	240V
Weight	2,05kg

Pneumatic

	Mixing valve - option	Clean out valve - option
Designation	5/2 way solenoid valve	5/2 way solenoid valve
Connection	1/8“	1/8“
Control voltage	24 V	24 V
Weight	0,273 kg	0,273 kg

5 Trouble shooting

Repair work is to be carried out only with mains plug and compressed air disconnected from supply !

Trouble	Possible Cause	Possible trouble shooting
No conveying although vacuum pump in operation.	Discharge flap does not close.	Clean and adjust discharge flap.
	Separator full	Set conveying time is too long. Set shorter conveying time.
	Conveying piping clogged.	Clean conveying piping; Change setting of suction pipe, if necessary.
Vacuum pump does not operate although discharge flap is closed	Magnetic switch on flap is defective or maladjusted.	Replace or readjust magnetic switch on flap.
	Mains fuse released	Measure current consumption and check fan for overload.
	Blower unit defective	Replace fan. Check motor brushes.
	Current supply interrupted	Check fuse of socket
	Control unit defective.	Require spare control unit.
Unit works at reduced conveying capacity	Conveying air filter clogged	Check function of filter cleaning. Clean conveying air filter, replace if necessary.
	Conveying piping too long or arranged adversely	Check piping arrangement; void sharp bends and height differences. Use cleanout valve, if necessary
	Conveying time set too short or too long.	Set the conveying time so that the separator is just filled
	Conveying filter is clogged	Clean and check conveying air filter for damage

☎ **Our service phone: + 49 (0)7042 / 903 17**

6 Maintenance

6.1 Safety Information for Maintenance and Repairs

Regular maintenance and service is a precondition for reliable use of the machine.
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	**Warning !** Only carry out maintenance and repair work on the machine when the machine is switched off at the main switch. Repair work is to be carried out by skilled personal only!
	**Warning !** Risk of injury due to improper handling of compressed air. Before commencing repair work, depressurise the system sections and pressure lines that need to be opened. Never hold compressed air hoses on loose objects.
	**Warning !** The use of unauthorised spare parts may result in injury to people and damage to the machine. Only use original spare parts !

Please observe the details from the relevant manufacturers relating to maintenance of the individual machine components. You can find the maintenance details in the accompanying documentation supplied.

6.2 Filter cleaning

Depending on the dust contents of the materials, the filter should be cleaned with compressed air at regular intervals oil and water free.
In case the desired conveying capacity is not obtained even after cleaning, the filter may be clogged.
The old filter must be replaced by a new one.

6.3 Electronic control unit

The control unit needs no service.
Adjustments see chapter „FX-controller“.

Please do not intervene in the control unit since otherwise the warranty claim will extinguish.

7 Dismantling and Disposal

When replacing machine components and disposing of them, statutory regulations must be followed.

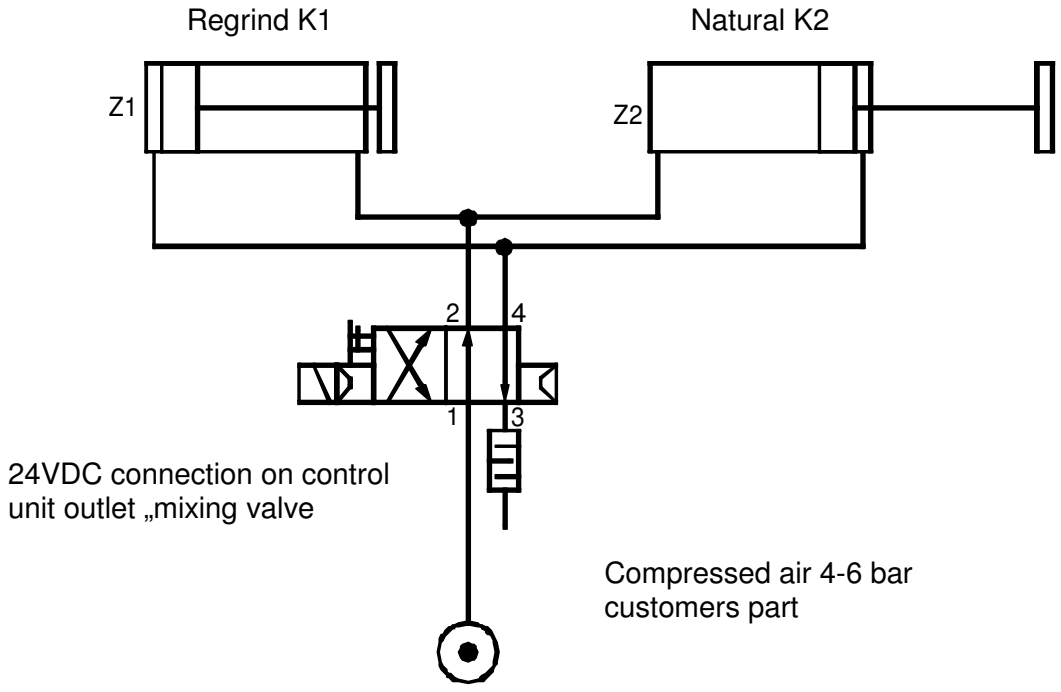
8 Accessories

8.1 Mixing valve

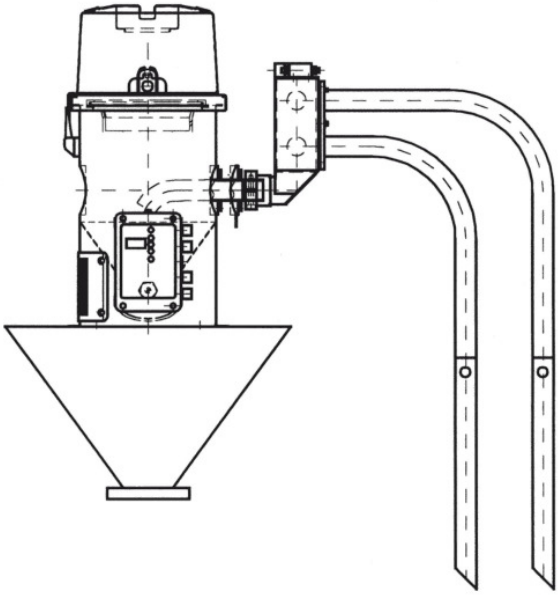
Design and function

In conjunction with hopper loaders, the mixing valve MZX provides for automatic metered addition of a second material, e.g. regrind material. The desired additional quantity can be pre-selected digitally in percentages at the control unit. (Refer also to operating instructions of control unit).
A separator conveying pipe is connected to the mixing valve for each component. The pneumatically actuated mixing valve is controlled by the electronic control unit of the hopper loader.
There by the mixing valves are opened automatically within a dosing interval in accordance with the set percentages.
The accuracy of the set percentages also depends on the length of the conveying line. Optimum values are obtained with a conveying line length up to 5m.
It is preferred to select the lower percentage as component K1 (e.g. regrind material).
In the event of only one component required, set k1 to „0“.

Mixing valve



Construction

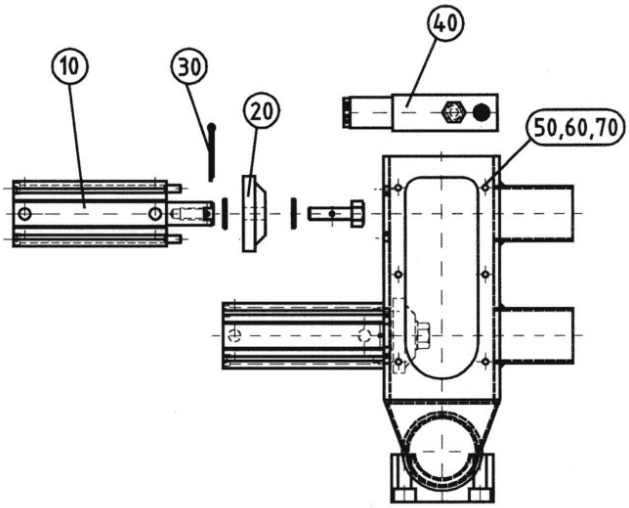


Assembly

Normally the mixing valve is delivered assembled ready for operation, together with hopper loader.
If added to existing hopper loader please observe separate mounting instructions.

Connection of the conveyor piping

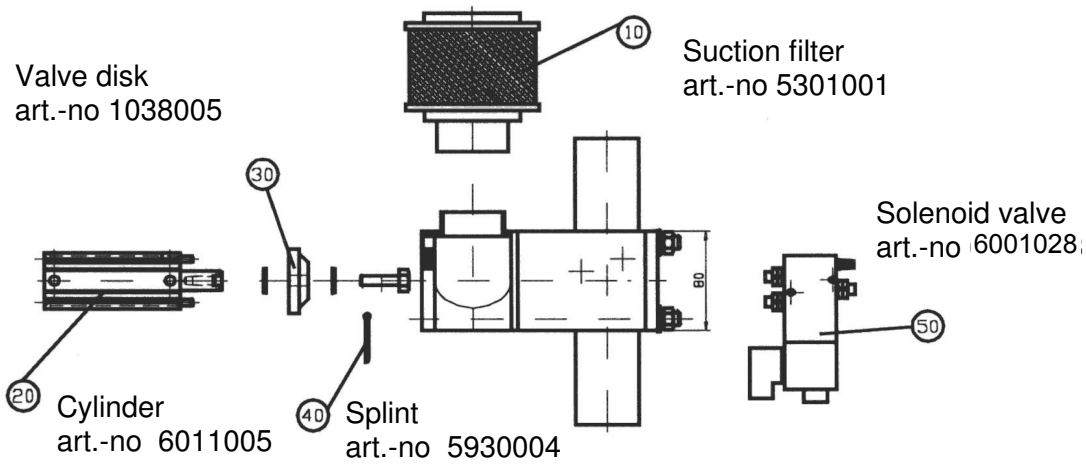
Make sure that both pipes are of approximately the same length.
The number of pipe bends shall also be the same.
If not appropriate allowance, which have to be determined by test, have to be set when setting the percentages.



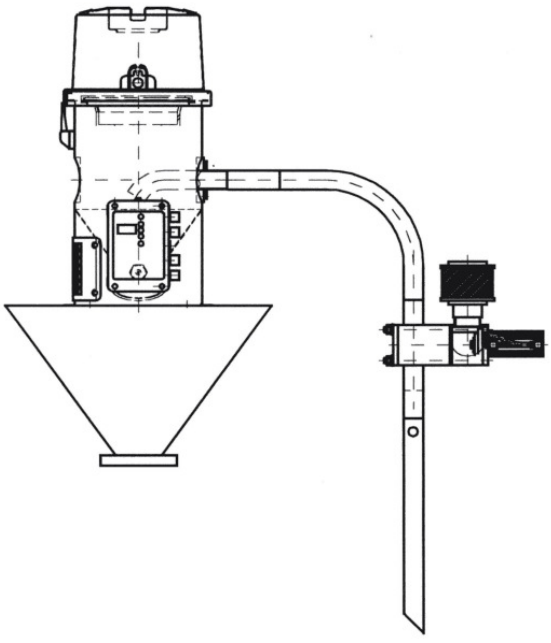
Pos	Art.- no.	Mixing valve
10	60-11005	Cylinder
20	10-38003	Valve disk MZX 38
o.20	10-38005	Valve disk MZX 50
30	59-30004	Split pin
40	60-01028	Solenoid valve 24V
50	87-00026	Flat sealing SBR MZX 38/50
60	93-00095	Cover plate plexiglass for MZX 38/50
70	98-00094	Distance bush for MZX 38/50 Al

8.2 Clean out valve

The clean out valve is used to evacuate the conveying line after each conveying cycle. It is necessary used in case where vertical conveying line of more than 5 m difference in height are required. It is also used in connection with driers, in order to avoid pre-dried materials remain in the conveying line.
The clean out valve should be installed at the beginning of the conveying line; i. e. directly at the suction pipe or fixed the suction point.
Electric connection to terminals LS- and LS+.



Installation of clean out valve



9 Connecting terminal control unit FX

230 VAC in/outputs (6,3 mm flat connectors)

X1	L1	
X2	PE	
X3	PE	
X4	Motor N	1,0kVA
X5	Motor L	1,0kVA
X6	N1	

24V DC outputs (2,8mm flat connectors)

ST 1 and ST 2	Backwash valve	12W
ST 3 and ST 4	Mixing valve	12W
ST 5 and ST 6	Clean out valve	12W
ST 7 and ST 8	Fault lamp,internal	2W
ST 9 and ST10	Fault lamp,external	12W

24V DC inputs (2,8mm flat connectors)

ST11	Light barrier input
ST12	0V
ST13	Reed contact input
ST14	0V
ST15	+24V
ST16	0V
ST17	+24V
ST18	0V

If box XD1 is used, following wiring is valid

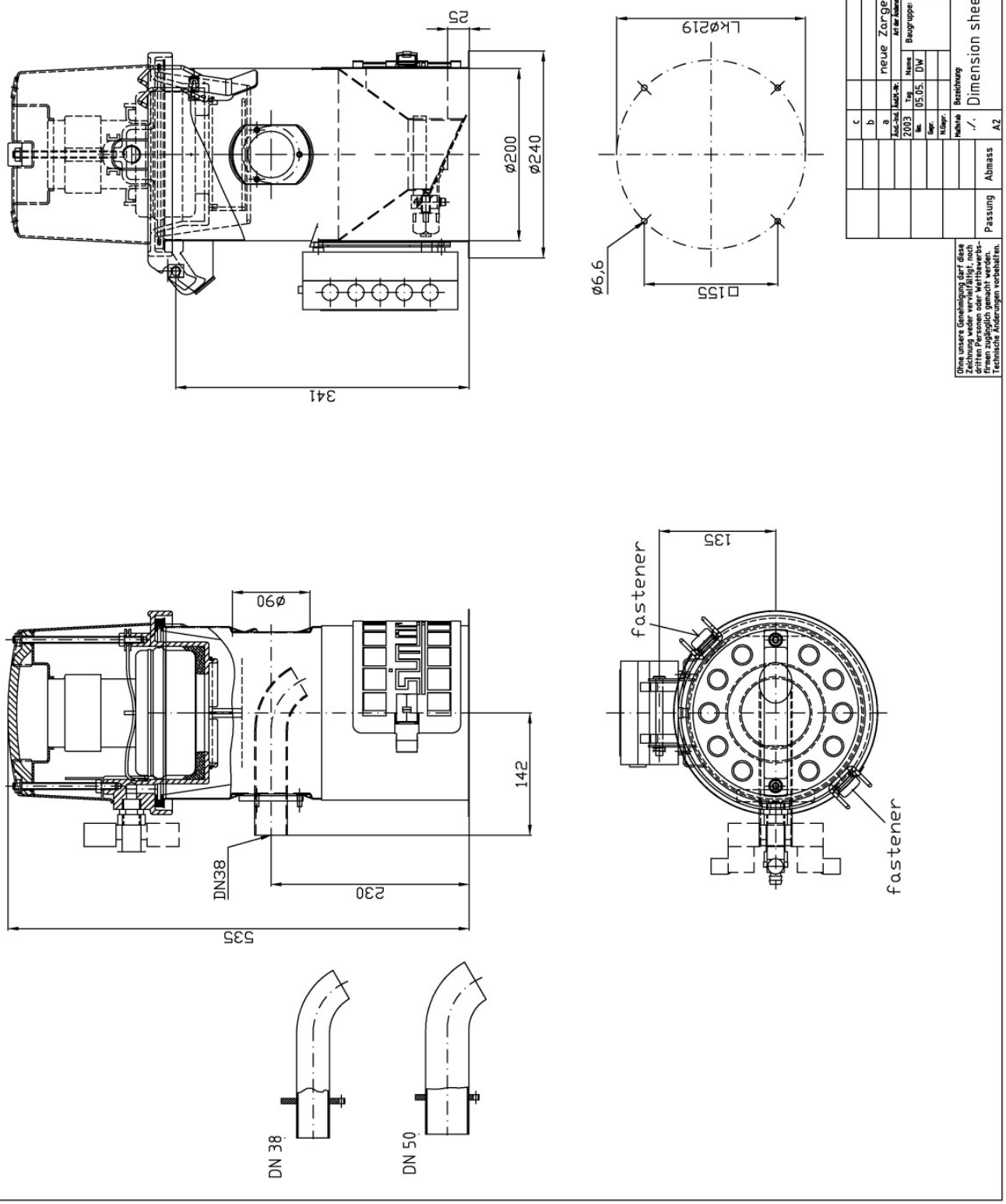
Cable no.	to control unit-FX
1	ST15
2	ST13
3	ST 2
4	ST 1
5	ST 5
6	ST 3
7	ST 9
PE	X 2

Walther-plug-wiring

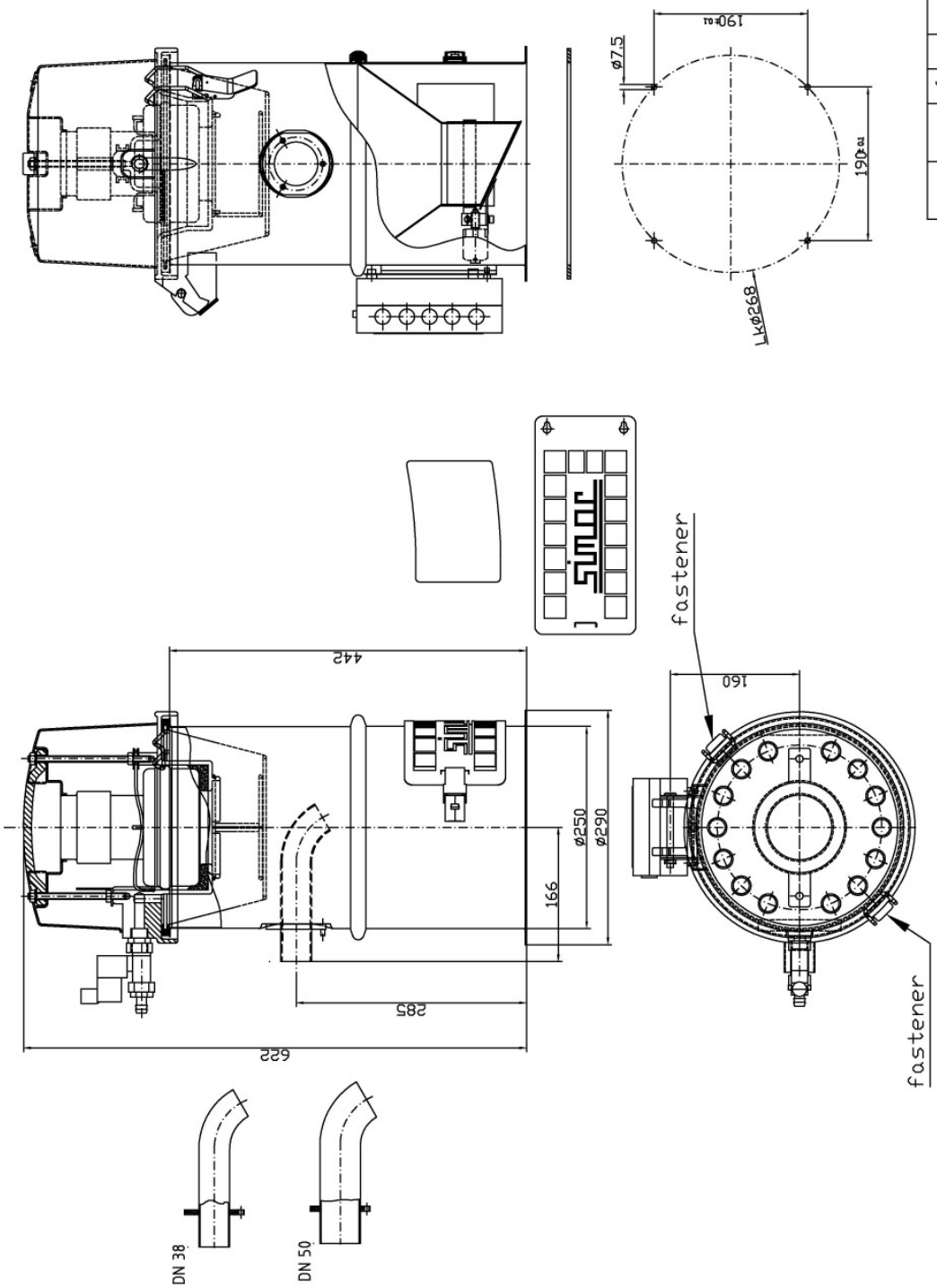
Cable no.	
1	to 1
2	to 2 etc.

10 Dimension sheet

10.1 Dimension sheet FX 2004

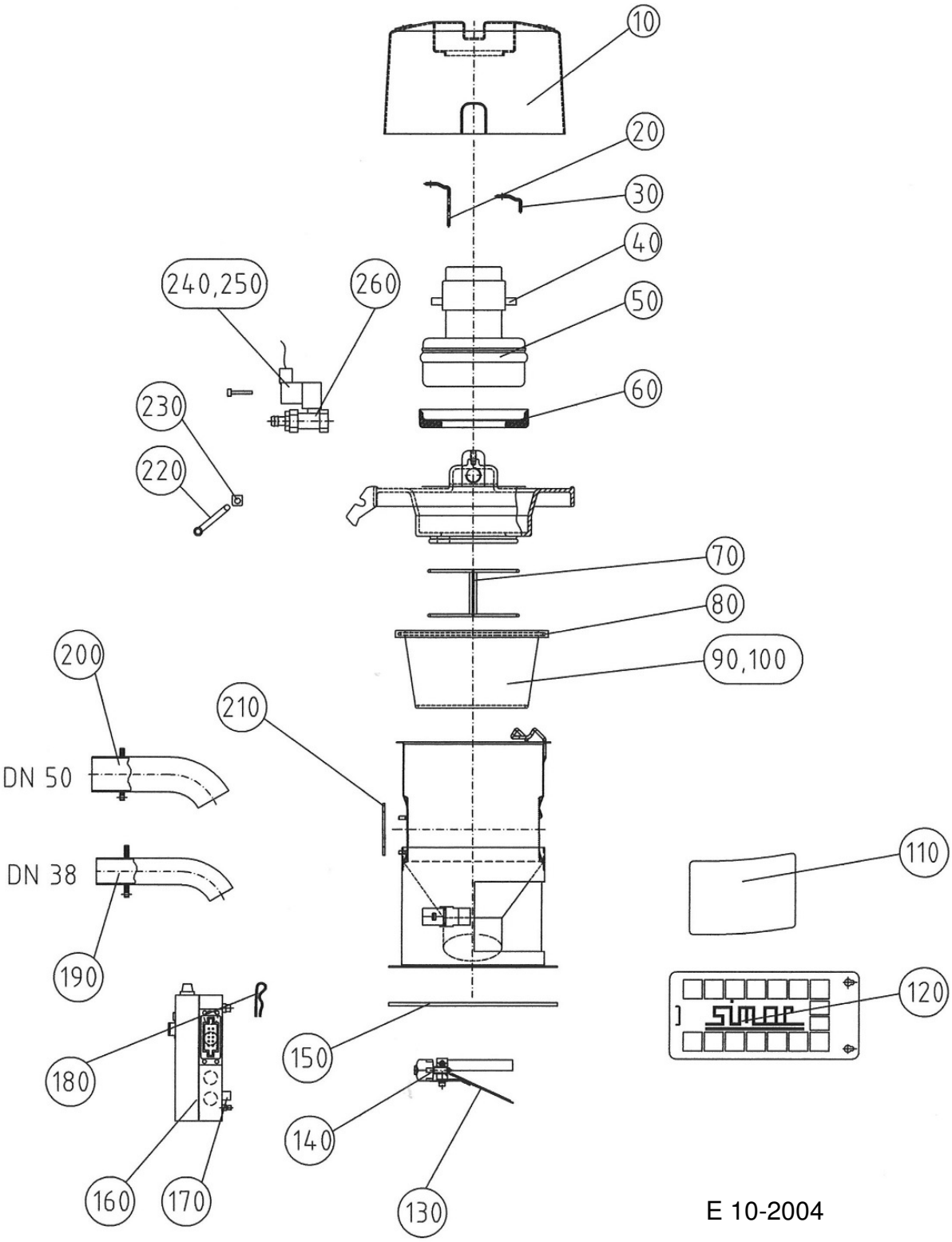


10.2 Dimension sheet FX 2504



11 Spare parts

11.1 Spare parts FX 2004



E 10-2004

OA T/TG-Nr : 1 E1020004
Description1 : Spare part list FX2004 Draw.no. E10-20004 "a"
Description2 Klassifiz : Ersatz

Part list no.: 1 Gült-Los : 1,000 - 999999,999
Description : Standard Gült-Dat : 17.02.2011 - 31.12.2199

Pos	OA	T/TG-Nr	Bezeichnung	Z-Pos	BA	A	AVO	F	P	KB	LB	L	Menge	ME
10	1	1051075	Sound proof hood FX 2004 complette		2		0		1	0	0	0	1,000	pc
20	1	9600147	Fixing bolt for EKO 86		1		0		1	0	0	0	1,000	pc
30	1	9600146	Fixing bolt for EKO Draw.no. 9600146		1		0		1	0	0	0	1,000	pc
40	1	5401105	Interruptor brushes with shutoff contakt No. 333 77- yellow		1	X	0		1	0	0	0	1,000	pc
50	1	1051007	EKO 86 compl. with grounding plug f. F2100/2600/FX		2	X	0		1	0	0	0	1,000	pc
60	1	8700062	sealing with safety sieve 155x90x25mm HE/EPDM dark MO-FT No.0520		1	X	0		1	0	0	0	1,000	pc
70	1	1051201	support frame da=126mm 35mm high Draw.no. 1051201		1	X	0		1	0	0	0	1,000	pc
80	1	8700017	U-ring sealing D216 mm F21/FX20		1	X	0		1	0	0	0	1,000	pc
90	1	1701039	filter hood 108 mm high, Poyamid;for FX2004-24		1	X	0		1	0	0	0	1,000	pc
100	1	1701015	Filter F 2100 nylon	OPTION	1	X	0		1	0	0	0	1,000	pc
110	1	1701018	Backwash filter 220x125, FX2000/2500		1	X	0		1	0	0	0	1,000	pc
120	1	1051265	Backwash Filter Cover new, without fastener		1		0		1	0	0	0	1,000	pc
130	1	1052108	Flap disc F2100/FX2000		2	X	0		1	0	0	0	1,000	pc
140	1	1052201	Discharge flap F2100/FX2000/AX2000 compl.		2	X	0		1	0	0	0	1,000	pc
150	1	8700014	Sealing, flat d=235/200x4 FX2000		1	X	0		1	0	0	0	1,000	pc
160	1	7103104			1		0		1	0	0	0	1,000	pc

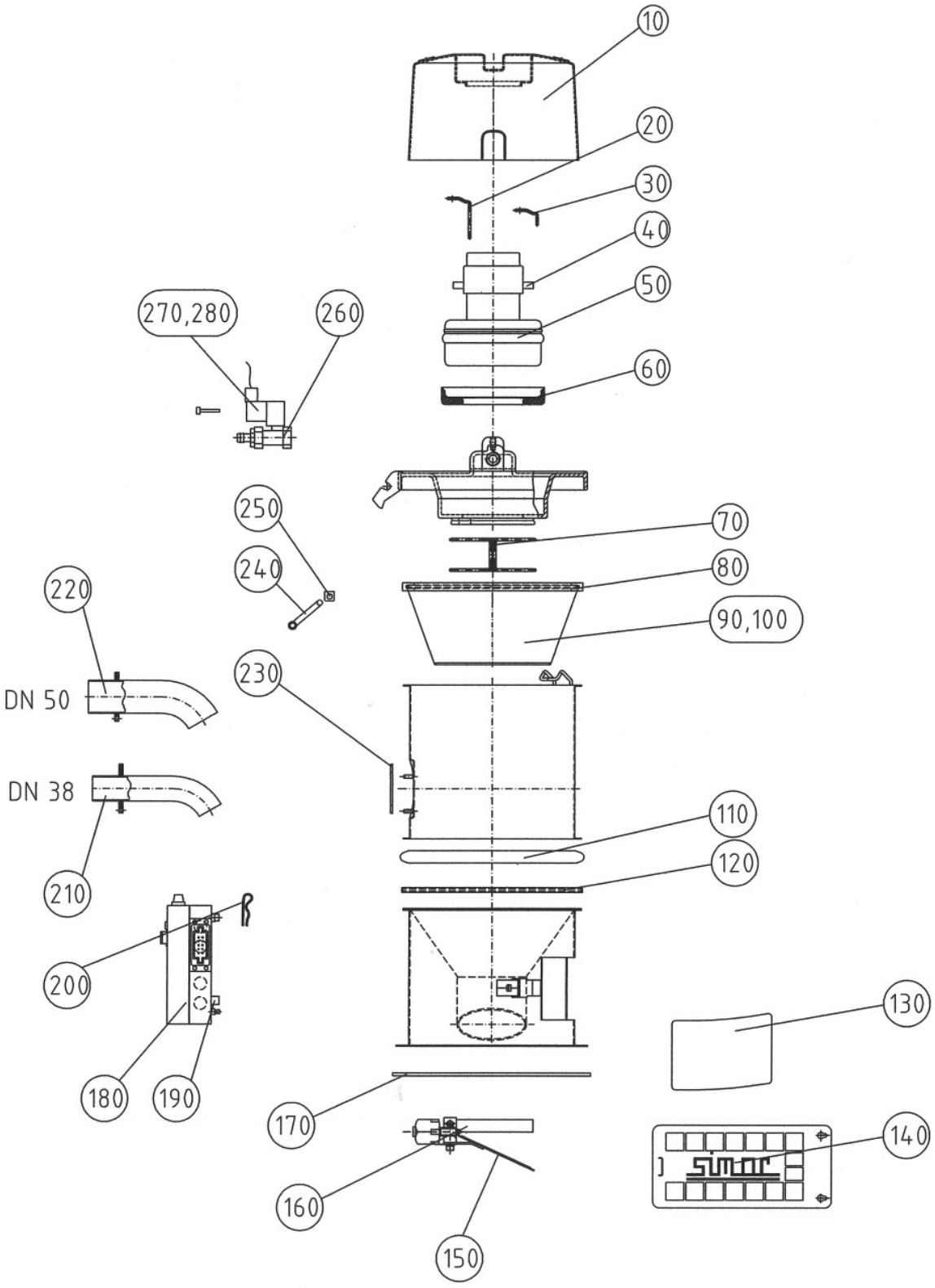
OA T/TG-Nr : 1 E1020004
Description1 : Spare part list FX2004
Description2
Draw.no. E10-20004 "a"
Klassifiz : Ersatz

Part list no.: 1
Description : Standard
Gült-Los : 1,000 - 999999,999
Gült-Dat : 17.02.2011 - 31.12.2199

Pos	OA	T/TG-Nr	Bezeichnung	Z-Pos	BA	A	AVO	F	P	KB	LB	L	Menge	ME
			Microprozessor-Controller for FX-hopper loader, compl.with all cableconnections,											
170	1	7001062	Solenoid switch for FX-controller		1	X	0	1	0	0	0		1,000	pc
180	1	5912071	Clip d=2 galv.Fa.Würth no. 47321		1		0	1	0	0	0		1,000	pc
190	1	2409109	Inlet-pipe DN 38 with bend f.FX Draw.no. 24-09109a		2		0	1	0	0	0		1,000	pc
200	1	2409108	Inlet-pipe DN 50 with bend for FX/AX Draw.no. 24-09108a stainless steel version		2		0	1	0	0	0		1,000	pc
210	1	8700071	Flat sealing D74 x54x2 EPDM-kautschuk		1		0	1	0	0	0		1,000	pc
220	1	5930201	Bolt d=8mm, 95mm long galv.		1	X	0	1	0	0	0		1,000	pc
230	1	5930202	Duo-clip f.bolt d=8mm galv.white		1	X	0	1	0	0	0		1,000	pc
240	1	7002001	Female plug GM 209 N,3-connected		1	X	0	1	0	0	0		1,000	pc
250	1	2011002	Cable with plug for solenoid valve GDM 209-650		1	X	0	1	0	0	0		1,000	pc
260	1	6001008	2/2 way valve EGV-211-A79-1/2BN-00 61 + magnetic coil E22-024/=L0 24V 720066		1	X	0	1	0	0	0		1,000	pc

End of partlist

11.2 Spare parts FX 2504



E 10-2504

OA T/TG-Nr : 1 E1025004
Description1 : **Spare part list FX2504** Draw.no. E10-25004"b"
Description2 Klassifiz : **Ersatz FX2504**

Part list no.: 1 Gült-Los : 1,000 - 999999,999
Description : **Standard** Gült-Dat : 24.02.2011 - 31.12.2199

Pos	OA	T/TG-Nr	Bezeichnung	Z-Pos	BA	A	AVO	F	P	KB	LB	L	Menge	ME
10	1	1051076	Sound proof hood FX 2504 complette		2		0		1	0	0	0	1,000	pc
20	1	9600147	Fixing bolt for EKO 86		1		0		1	0	0	0	1,000	pc
30	1	9600146	Fixing bolt for EKO Draw.no. 9600146		1		0		1	0	0	0	1,000	pc
40	1	5401105	Interruptor brushes with shutoff contakt No. 333 77- yellow		1	X	0		1	0	0	0	2,000	pc
50	1	1051007	EKO 86 compl. with grounding plug f. F2100/2600/FX		2	X	0		1	0	0	0	1,000	pc
60	1	8700062	sealing with safety sieve 155x90x25mm HE/EPDM dark MO-FT No.0520		1	X	0		1	0	0	0	1,000	pc
70	1	1051200	support frame da=126mm,50mm highte Draw.no. 1051200		1	X	0		1	0	0	0	1,000	pc
80	1	8700004	Seal for conveying air filter F 25/F26 d 240mm		1	X	0		1	0	0	0	1,000	pc
90	1	1701016	Filter F 2600/FX2500 polyamide	OPTION	1	X	0		1	0	0	0	1,000	pc
100	1	1701044	Conveying air filter F2600/FX2500 Po-Na-Fi		1		0		1	0	0	0	1,000	pc
110	1	1051299	clamping ring FX25xx below , stainless sted d250		1		0		1	0	0	0	1,000	pc
120	1	1051293	Seal U-Profil D250 for FX25xx below		1		0		1	0	0	0	1,000	pc
130	1	1701018	Backwash filter 220x125, FX2000/2500		1	X	0		1	0	0	0	1,000	pc
140	1	1051265	Backwash Filter Cover new, without fastener		1		0		1	0	0	0	1,000	pc
150	1	1052608	flap disc F 2600		1	X	0		1	0	0	0	1,000	pc

OA T/TG-Nr : **1 E1025004**
Description1 : **Spare part list FX2504** Draw.no. **E10-25004"b"**
Description2 Klassifiz : **Ersatz FX2504**

Part list no.: **1** Gült-Los : **1,000 - 999999,999**
Description : **Standard** Gült-Dat : **24.02.2011 - 31.12.2199**

Pos	OA	T/TG-Nr	Bezeichnung	Z-Pos	BA	A	AVO	F	P	KB	LB	L	Menge	ME
160	1	1052202	Discharge flap F 2600, FX/AX 2500, FX/AX3500 compl., Draw.no. 1052202 new design		2	X	0	1	0	0	0		1,000	pc
170	1	8700015	Flat sealing d285/250x4mm FX25xx		1	X	0	1	0	0	0		1,000	pc
180	1	7103104	Microprozessor-Controller for FX-hopper loader, compl.with all cableconnections,		1		0	1	0	0	0		1,000	pc
190	1	7001062	Solenoid switch for FX-controller		1	X	0	1	0	0	0		1,000	pc
200	1	5912071	Clip d=2 galv.Fa.Würth no. 47321		1		0	1	0	0	0		1,000	pc
210	1	2409109	Inlet-pipe DN 38 with bend f.FX Draw.no. 24-09109a		2		0	1	0	0	0		1,000	pc
220	1	2409108	Inlet-pipe DN 50 with bend for FX/AX Draw.no. 24-09108a stainless steel version		2		0	1	0	0	0		1,000	pc
230	1	8700071	Flat sealing D74 x54x2 EPDM-kautschuk		1		0	1	0	0	0		1,000	pc
240	1	5930201	Bolt d=8mm, 95mm long galv.		1	X	0	1	0	0	0		1,000	pc
250	1	5930202	Duo-clip f.bolt d=8mm galv.white		1	X	0	1	0	0	0		1,000	pc
260	1	6001008	2/2 way valve EGV-211-A79-1/2BN-00 61 + magnetic coil E22-024/=L0 24V 720066		1	X	0	1	0	0	0		1,000	pc
270	1	7002001	Female plug GM 209 N,3-connected		1	X	0	1	0	0	0		1,000	pc
280	1	2011002	Cable with plug for solenoid valve GDM 209-650		1	X	0	1	0	0	0		1,000	pc

End of partlist

Operating Instructions
Control Unit FX

CE

Article Number: 5080101_GB
Edition: 1/07
Datei: J:\Wamser\FX Steuerung_GB

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Attention !

If the controller ist opened without our permission the warranty will expire !

Control unit

1 Keys

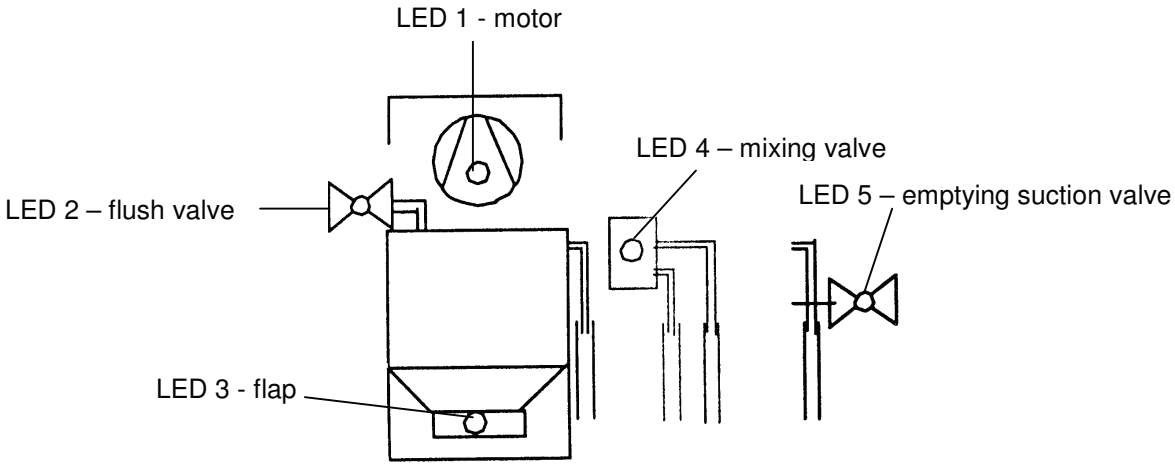
	ON/OFF- key
	Changing, increasing settings The value is increased by one digit per key depression. A quicker change is possible by keeping the key depressed.
	Changing, reducing settings The value is reduced by one digit per key depression. A quicker change is possible by keeping the key depressed.
	Adopting and storing changes The display flashes briefly indicating that the changed valuehas been stored correctly.
	Selecting setting ranges The function number or parameter number is displayed by pressing the key and keeping it depressed. The set value is displayed on releasing the key. Every key depression effects a jump to the next function/parameter mode. It is not possible to jump back. The functions (C) already have a works setting which can be changed (refer to page 6 - 8).

The parameters (P) appear when the control unit is energized. They must be entered by the customer. The plant is then ready to convey on pressing the key. The maximum setting range lies between 0.00 and 300.

2 Display and LEDs

The individual operating states are indicated on the display with 2-seven segment displays and LEDs 1 - 5.

Display with seven segments
The first two digits can be changed.
The third digit is static.



Display	**Significance**
All displays off	Unit not connected to mains
– –	Unit in standby mode Possible to change the function and parameter
| |	Unit switched on
LED 1 on	Motor on
LED 2 on	Flush valve active
LED 3 on	Flap closed
LED 4 on	Mixing valve active
LED 5 on	Emptying suction valve active
EE (static)	Fault during conveying sequence (Fault lamp flashes)
EE (flashing)	Persisting fault under consideration of the fault behavior (Function C8 for standard control unit) (Function C4 for FX2002 control unit) (Fault lamp flashes)
OL	Fault Overload of output (e.g. flush valve)

The fault status is displayed until the control unit is switched off.
The “fault behavior“ function can be used to select whether or not the control unit is to switch off in the event of a fault.

3 Selection of parameters for standard control unit FX2004 - FX5100 (C0 = 0.00)

P1 conveying time (10.0)

P1 = X.XX X.XX sec. conveying time
Works setting: 10.0 sec.

P2 mixture ratio (0.00)

P2 = X.XX X.XX % mixture ratio
Ratio of new material to regenerated material.
Set value = volume of regenerated material in %
Residual value = new material in %
Works setting: 0.00
(= 100 % new material; no regenerated material).

Example: Set value = 80 ➔80 % regenerated material; 20 % new material.

P3 pause time (0.00)

P3 = X.XX X.XX sec. pause time
until conveying is continued after the flap closes.
Works setting: 0.00 sec.

P4 emptying suction time 1 (0.00)

P4 = X.XX X.XX sec. emptying suction time 1
At the connection for regenerated material
Works settings: 0.00 sec.

P5 emptying suction time 2 (0.00)

P5 = X.XX X.XX sec. emptying suction time 2
At the connection for new material
Works settings: 0.00 sec.

P6 reserve (0.00)

P6 = X.XX Reserve; no function

The programming mode is quit on pressing the ON/OFF key once and the unit switches to standby mode.

P-parameters are entered between 0.0 and 600.

4 Programming of the functions (C)

If you wish to change the works setting for the functions (C) ,continue to press Parameter (P) until the number 23 appears. Change it to 22 and confirm it by pressing the ↵ key. The functions (C) are now accessible.

Note:
On the standard control unit (FX2004-FX5100), standard functions and parameters are stored before dispatch.
The values in brackets correspond to the presetting ex works.

For easier comprehension, the works settings are used in the elucidations given in these operating instructions. They are printed in bold type.

5 Selection of the functions (C) by pressing the ↻ key

C0=0.00 **Standard control unit (FX2004 – FX5100)**
C0=0.10 FX 2002 control unit

5.1 Selection for standard control unit (C0=0.00)

5.1.1 C1 flush function (0.10)

(also refer to C4 minimum flap opening time, C5 flushing delay and C6 flushing time)

C1 = 0.00	No flushing function.
C1 = 0.10	Flushing on opening the flap. Flushing is carried out for **1 sec.** (C6 flushing time) as soon as the flap opens.
C1 = 0.20	Flushing on closing the flap. Flushing is carried for **1 sec.** (C6 flushing time) as soon as the flap closes.
C1 = 0.30	Flushing on opening and closing the flap. Flushing is carried out for 1 sec. (C6 flushing time) as soon as the flap opens and for**1 sec.** (C6 flushing time) when the flap closes.

If there is a flap position failure, a flushing process is triggered for 1 sec.
(C6 flushing time) and a fault message is output.

Example:

C1 = 0.20 ➔ The conveying process has been completed. The granulates start to run out. The control unit now checks whether the flap opens for at least 0.20 sec. (C4 minimum flap opening time).
The time range in which the flap must open is set at 10 sec.
(C5 flushing delay). If the flap does not open, a forced flushing process is carried out after 10 sec. (C5 flushing delay) have lapsed and a fault message is output. If the flap has opened and the granulates have run out, then the flap closes again. A flushing process is carried out for 1 sec. (C6 flushing time) after the flap has closed. If the flap does not close again within 10 sec. (C5 flushing delay), then another forced flushing process is carried out followed by a fault message.

5.1.2 C2 Mixing function and emptying suction process (0.00)

	Mixing valve not active. No mixture ratio
C2 = 0.00	Only one type of material is conveyed during the set conveying time of 10sec. (P1 conveying time).
C2 = 0.10	1-to-1 mixture One charge of new material and one charge of regenerated material are conveyed per conveying cycle.
C2 = 0.20	2-to-2 mixture Two charges of new material and two charges of regenerated material are conveyed alternately per conveying cycle.
C2 = 0.30	3-to-3 mixture Three charges of new material and three charges of regenerated material are conveyed alternately per conveying cycle.
C2 = 0.40	4-to-4 mixture Four charges of new material and four charges of regenerated material are conveyed alternately per conveying cycle.
C2 = 0.90	Emptying suction process for new material; active for 1-to-1 mixture.
C2 = 1.00	Emptying suction process for regenerated material; active for 1-to-mixture.
C2 = 1.10	Emptying suction process for new material and regenerated material; active for 1-to-1 mixture.

5.1.3 C3 Pause time (0.00)

C3 = 0.00	No pause time input possible.
C3 = 0.10	Pause time input possible.

5.1.4 C4 Minimum flap opening time (0.20)

C4 = X.XX	X.XX sec. minimum flap opening time for the flap. Works setting: 0.20 sec.

5.1.5 C5 Flushing delay (10.0)

C5 = X.XX	X.XX sek. back wash delay time when flap does not operate correcty Works setting: 10,0 sec.

5.1.6 C6 Flushing time (1.00)

C6 = X.XX	X.XX sec. flushing time Works setting: 1,00 sec.

5.1.7 C7 Switch-on delay (0.50)

C7 = X.XX	X.XX sec. switch-on delay after closing the flap. Works setting: 0.50 sec.

5.1.8 C8 Fault behavior (300)

C8 = X.XX	X.XX sec. Switches off in the event of a fault Works setting: 0.50 sec.
C8 = 0.00	The control unit does not switch off in the event of a fault.
C8 = 300	**The conveying process is switched off after 300 sec. in the event of a fault**

5.1.9 C9 Programming parameters (22.0)

C9 = 22.0	**It is possible to select a function (C-function)** **It is <u>not</u> possible to change the parameters (P- function)**
C9 <> 22.0	It is **<u>not</u>** possible to select a function (C-function) . It is possible to change the parameters (P-function) .
C9 = 0.1	The works settings are loaded.

C-parameters are entered between 0.0 and 600.

5.2 Selection for FX 2002 control unit (C0 = 0.10)

Note: The FX2002 control unit does not have any presettings ex works.

5.2.1 C1 Waiting time

C1 = X.XX
X.XX sec. waiting time between 2 conveying cycles.
The fan switches on after the set waiting time if the detector (light barrier) is not active.

5.2.2 C2 Minimum operating time

C2 = X.XX
X.XX sec. minimum operating time for detectors (light barrier).
A grain flying past must not trigger a switching contact.

5.2.3 C3 Emptying suction time

C3 = X.XX
X.XX sec emptying suction time
If a timing valve is fitted, then the emptying suction time must be set to “0“. The timing of the valve is then set via P1 and P2.
P1 active = valve open.
P2 active = valve closed.
The timing valve is connected to the terminal for the emptying suction valve.

5.2.4 C4 Maximum fan running time

C4 = X.XX
X.XX sec. maximum fan running time.
If there is no material and the detector is not active, then the fan switches off on reaching the set value.

5.2.5 C5 Waiting time after conveying cycle

C5 = X.XX
X.XX sec. waiting time after conveying cycle.
If there is an interruption, a new conveying cycle starts after the set waiting time.

5.2.6 C6 – C8 Reserve

C6 –C 8 = X.XX Reserve, no function

5.2.7 C9 Programming parameters

C9 = 22.0
It is possible to select a function (C-function)
It is <u>not</u> possible to change the parameters (P-function)

C9 <> 22.0
It is <u>not</u> possible to select a function (C-function).
It is possible to change parameters (P-function).

C9 = 0.1 The works settings are loaded.

6 Selection of parameters for FX 2002 control unit (C0=0.10)

6.1 P1 Conveying time

P1 = X.XX X.XX sec. conveying time (without timing valve).
With connected timing valve. P1 active = valve open.

6.2 P2 Paus time

P2 = X.XX X.XX sec. pause time (without timing valve).
With connected timing valve. P2 active = valve closed.

6.3 P3 – P6 Reserve

P3 – P6 = X.XX Reserve, no parameter.

7 Terminals

230 VAC in/outputs (6,3 mm flat connectors)

X1	L1	
X2	PE	
X3	PE	
X4	Motor N	1,0kVA
X5	Motor L	1,0kVA
X6	N1	

24V DC outputs (2,8mm flat connectors)

ST 1 and ST 2	Back wash valve	12W
ST 3 and ST 4	Mixing valve	12W
ST 5 and ST 6	Clean out valve	12W
ST 7 and ST 8	Fault lamp,internal	2W
ST 9 and ST10	Fault lamp,external	12W

24V DC inputs (2,8mm flat connectors)

ST11	light barrier input
ST12	0V
ST13	Reed contact input
ST14	0V
ST15	+24V
ST16	0V
ST17	+24V
ST18	0V

If box XD1 is used, following wiring is valid

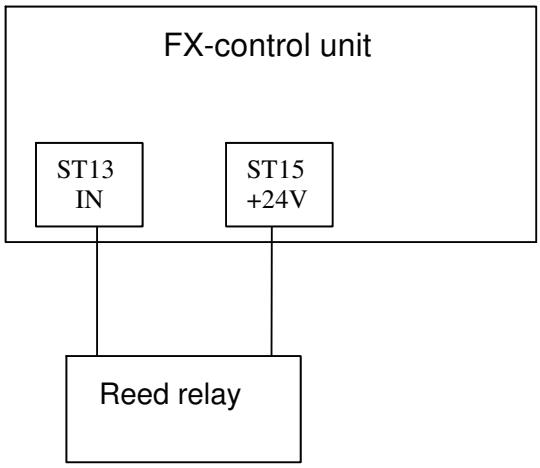
cable No.	to control unit-FX
1	ST15
2	ST13
3	ST 2
4	ST 1
5	ST 5
6	ST 3
7	ST 9
PE	X 2

Walther-plug-wiring

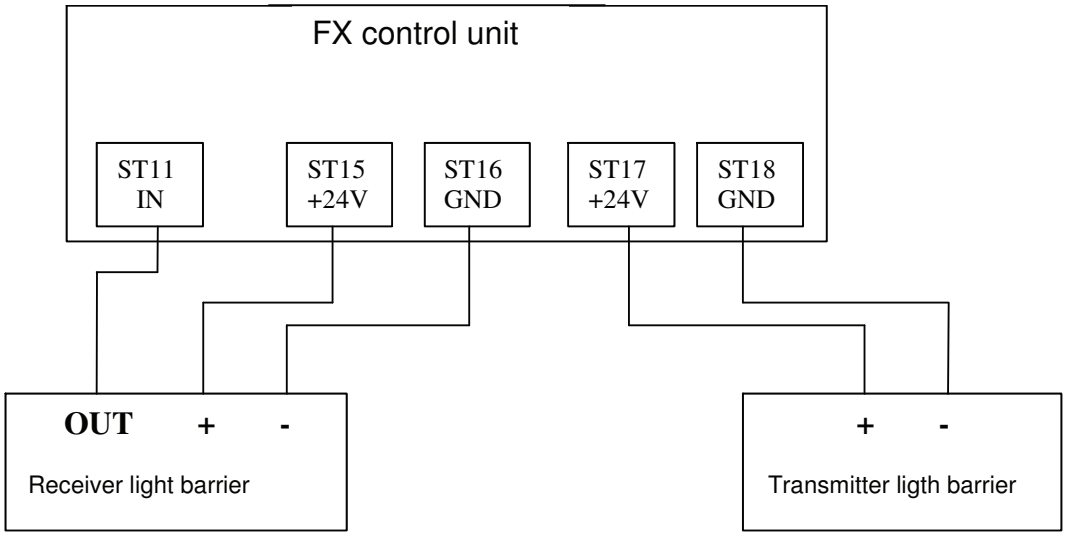
cable No.	
1	to 1
2	to 2 …etc.

8 Terminal connection diagram for standard control unit FX 2004 – FX 5100) (C0 = 0.00)

When using a reed relay (Standard)



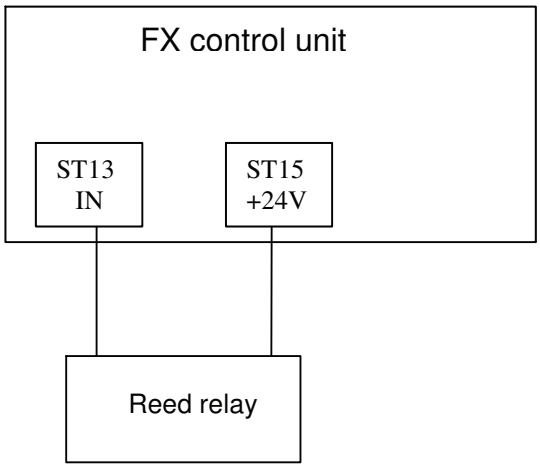
When using a light barrier



9 Terminal connection diagramm for FX 2002 control unit(C0 = 0.10)

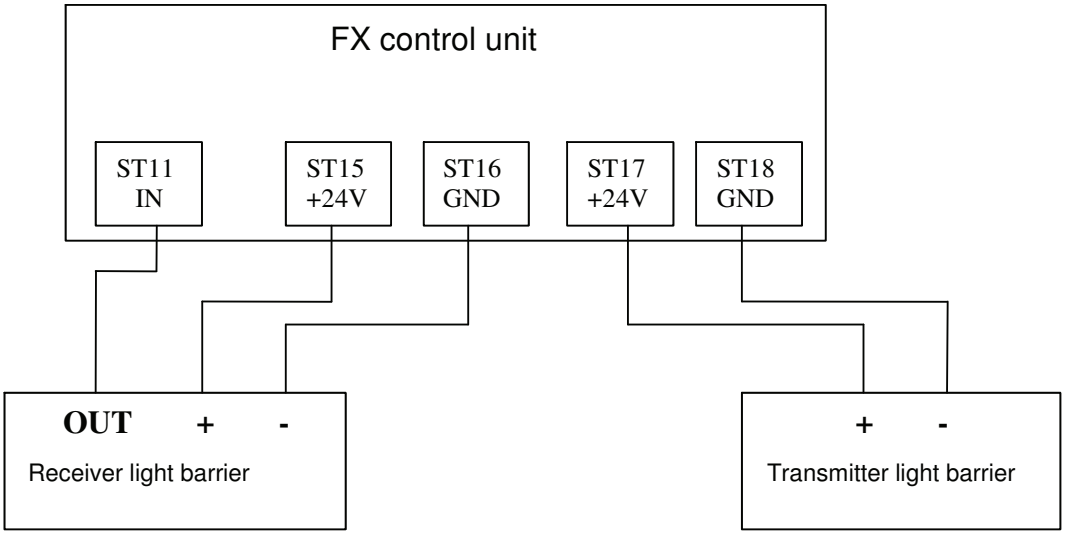
When using a reed relay (Standard)

C3 <> 0 P1 = conveying time
P2 = pause time

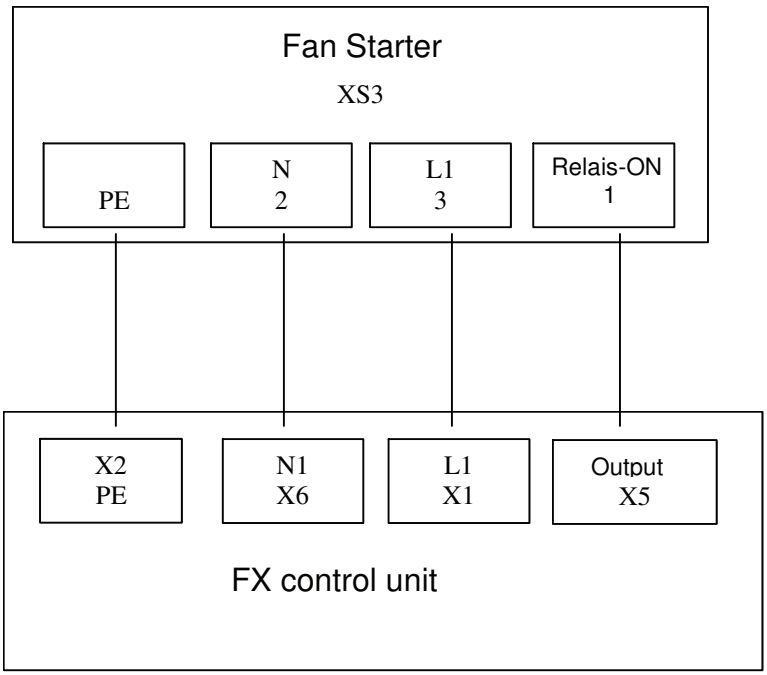


When using a light barrier (C3=0)

C3 = 0 P1 activ = timing valve open
P2 activ = timing valve closed



10 Terminal connection diagram for 3-phase motor



Attention: To prevent the risk of a short-circuit, terminals **L** and **N** must not be interchanged !

11 Fuse

SI 1 and SI 2	6,3A respectively (slow-blowing) 1 spare is added part.
SI 3	1,0A (slow-blowing)

12 Technical data

Supply voltage:	**230V AC / 50Hz** via a power supply cord with integral earthing-pin plug.
Motor connection:	**230V AC / 4A** via motor connection cable with fitted socket connector.
Valve connection:	**24 V DC / 0,5A** via valve cable with fitted solenoid valve connector (black)
Type of protection:	**IP54**

Subject to change

EC Attestation of Conformity

According to the EC guide line machines 2006/42/EG, appendix IIA

The legality of this attestation and the CE-sign on the name plate is valid for

Type designation: Hopper loader FX 2004 / 2504

Manufacturer: **SIMAR**

This machine is developed, designed, and manufactured according to the EC guide line 2006/42/EG as well as to the EC low voltage guide line 2006/95/EG and the electromagnetic compatibility guide line 2004/108/EG , in own responsibility of

Company: **SIMAR GmbH, Am Fuchsloch 7, D-71665 Vaihingen / Enz**

Following harmonized standards are applied

☒	DIN EN ISO 12100	security of machines
☒	DIN EN 60 204	electrical equipment for industrial machines
☐		
☐		
☐		
☐		
☐		

Following national standards, guide lines and specifications are applied

☐	
☐	
☐	
☐	
☐	

A complete technical documentation is available.
The operating instruction for this machine is available

☐	in the original version
☒	in the national language of the user

Vaihingen/Enz, 11.01.2010 — Place, date

Günter Owerfeldt — Managing Director — Information about the signatory