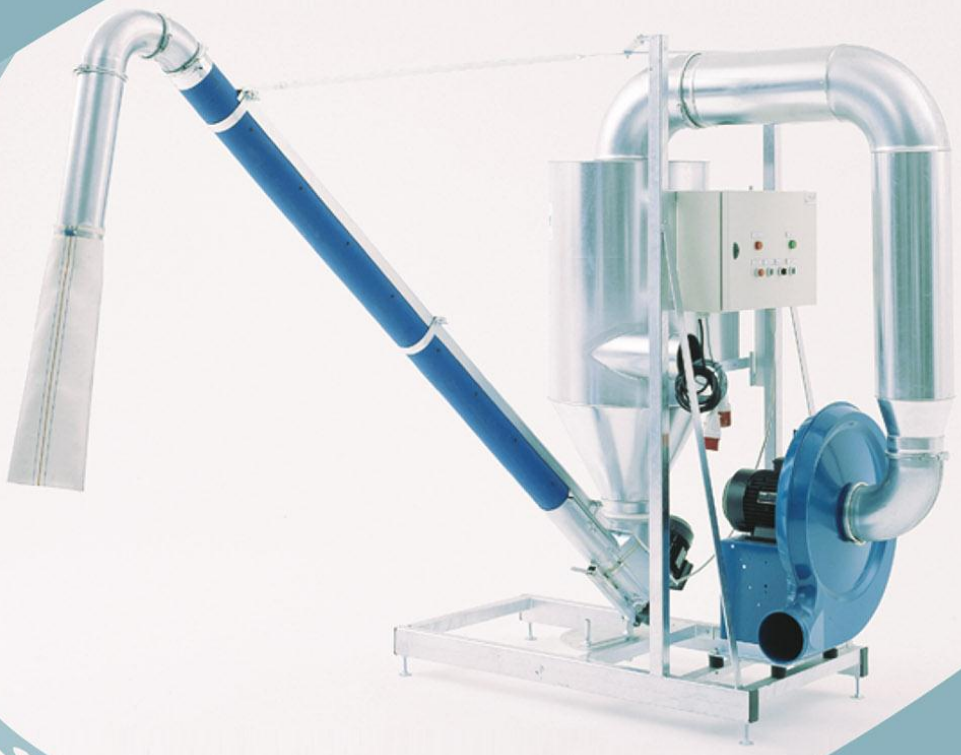
USER MANUAL

FAT CONVEYOR



Jasopels
–professionel til skindet

1. Declaration of Conformity

EU Declaration of Conformity

Manufacturer:	Jasopels Production A/S tel. +45 76 94 35 00
Address:	Hammeren 3 DK-6800 Varde
Machine:	Fat Conveyor
Type :	80-0000

Jasopels Production A/S declares that this product is in accordance with the following EU Directives:

89/336 EEC

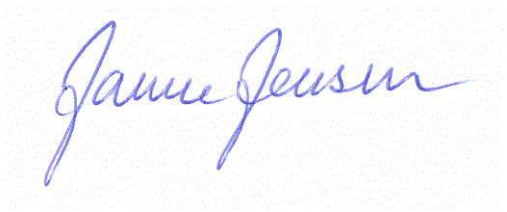
98/37 EEC

Furthermore, we declare that the following harmonized standards have been applied:

EN 60204-1

EN 983

Place and date:	Varde, May 1, 2005
Name:	Managing Director Janne Jensen



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2. Table of contents

3. Preface

- This User Manual is an important part of your new machine. Read the manual thoroughly and use it as a reference book.

- This manual contains important information about safety and the correct use of the machine.

- The manual should be stored with the machine. It is important that the user manual is supplied with the machine upon resale and lending.

- The user of the machine must make sure that the operator, service personnel and others who have access to the machine have been instructed in the correct use and handling of the machine. Refer to this user manual for further information.

4. Symbol explanation

Please read this user manual and follow the included instructions. In order to emphasize certain information, the following expressions are used:

- Note!

A triangle containing an exclamation mark is a symbol that warns you of important instructions or information concerning this machine.

- Danger!

A triangle containing a flash of lightning is a symbol that warns you of “High Voltage”.

- Warning!

A triangle warning you of entanglement and crush hazard.

5. Introduction of the machine

- The fat conveyor is designed to transport fat from the BS Teknik fleshing machine to a container.

- The machine is a combination of the already known fat suction device with an integrated transport unit. One of its many advantages is that it makes it possible to continue the fleshing process while the fat container is being replaced.

- While developing the fat conveyor's control system, we have managed to reduce the energy consumption considerably in comparison to previously known systems. We have achieved that by having the conveyor run in a pulse-pause sequence.

- The machine's construction makes it very easy to operate it. During normal operation the fat conveyor is controlled via the control panel on the fleshing machine.

Note!

- The user of the machine must make sure that the operator, service personnel and others who have access to the machine have been instructed in the correct use and handling of the machine. Refer to this user manual for further information.

- The machine may only be used for the purpose it has been designed for.

- If any problems should occur with the machine or its operation, they must not be fixed before the machine is properly switched off, unless a correction can be made via the machine's control buttons.

- The user manual should always be kept available for the operator.

6. Start-up

- Before start-up the machine has to be placed on a firm and stable base. The adjustable feet of the machine need to be adjusted so that the machine is properly leveled up.

- The machine is delivered with two CEE wall plugs (4- and 7-pin, respectively). The user has to arrange for the installation of the mentioned plugs as well as for the cabling between the fat conveyor and the automatic fleshing machine.

- The fat conveyor has been equipped with 3 CEE plugs, which are to be connected in the following way:
- the 7-pin CEE plug is to be connected to the wall socket and used to connect the fat suction device with the start-up and surveillance devices in the automatic fleshing machine.
- the 4-pin CEE plug is to be connected to the wall socket that the automatic fleshing machine uses to monitor and operate the fat conveyor.
- the 5-pin CEE plug 5 is to be connected to a standard wall socket, 3 * 400 V+N+PE, and protected with at least 16 A.

- The automatic controller and monitoring system of the fat conveyor is not activated until the included K09 relay has been installed in the PLC cabinet on the automatic fleshing machine.

- The automatic fleshing machine and the fat suction device have to be connected using a 160 mm suction line. In order to obtain optimal suction, make sure that the line is installed with as gentle swings and rising as possible. Avoid sharp turns right after the fleshing machine.

- The fat conveyor is now ready to be used.

Note!

In order to avoid potential damage to the control system's micro controls and the rest of the machine's electrical system due to thunderstorms, it is recommended to disconnect the machine from its electrical power source whenever it is not being used.

7. Operation

7.1 Preparation for start-up

- The control buttons on the control cabinet have to be set as follows:

- The **STOP** button must be NOT pressed in.
- The **MAN- 0- AUTO** switch must be set to **AUTO.**
- If the control buttons are not set in the described positions, it will not be possible to start the fleshing machine and the error light on the PLC cabinet will be on.
- Make sure that the auger is fastened in the fittings under the cyclone and that the discharge pipe with fire hose has been installed at the end of the auger. The fat conveyor is now ready and you can start the fleshing machine.

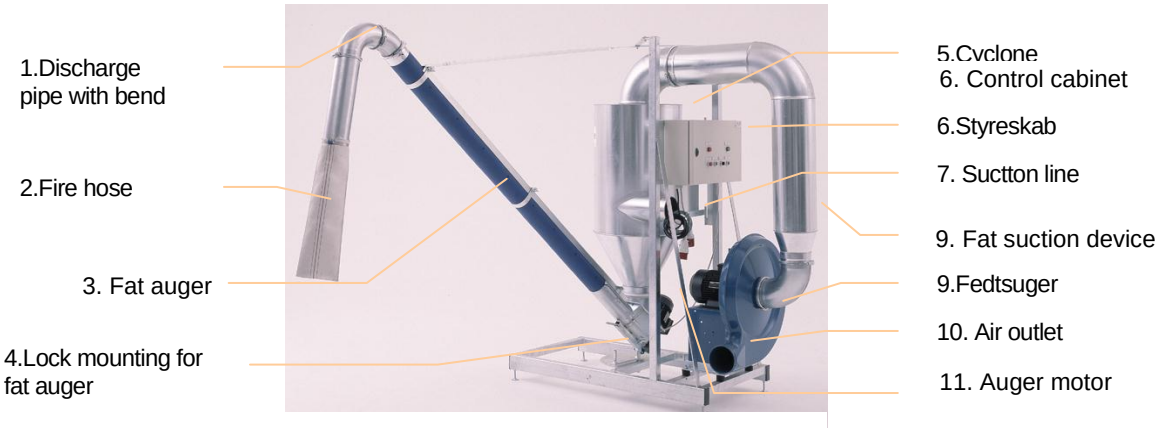


Fig. 1. Fat conveyor

- As the first part of the starting sequence, the star triangle automatic control in the fleshing machine will start the fat suction motor and the pulse/pause timer for the fat auger will be activated. Because of this the auger motor does not run continuously but starts and stops with intervals set on the timer in the control cabinet.

Danger !
The machine must never be started when discharge pipe is not installed properly.
The cyclone has to be closed at start-up.

Never stick your fingers into the fat auger or the fat suction device.

7.2 Setting the timer

The auger's pulse/pause interval is set on the timer that is installed in the control cabinet's lower part, on the left side, see fig. 2.1.

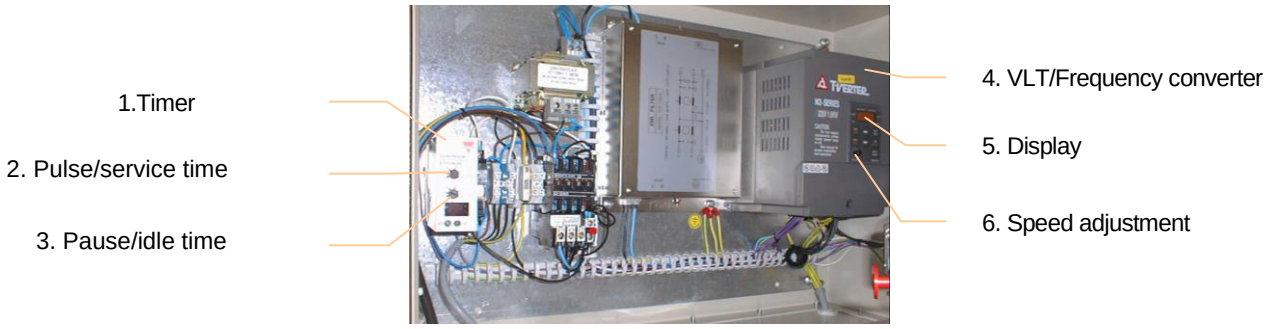


Fig. 2. Control cabinet.

- Use the top potetntiometer (fig. 2.2) to set the auger's pulse/service time. The available range of time adjustment is from 5 to 100 sec.

- Use the bottom potentiometet (fig. 2.3) to set the auger's pause/idle time. The available range of time adjustment is from 5 to 100 sec.

- The machine's timer has been preset to 40 seconds of service time and 100 seconds of idle time. The user can adjust these values if they do not fit into the fleshing rhythm.

7.3 Setting the auger speed

Use the adjusting knob (fig. 2.6) on the control panel in the frequency converter (fig. 2.4) to adjust the auger motor's number of revolutions and with it the fat auger's speed. The number of revolutions is shown on the display (fig. 2.5) located in the upper part of the control panel. During normal operation the number of revolutions should be set to about 3100 rpm.

7.4 When the auger is stuck

If the fat auger is entangled with skin or sinew residue, there is a risk of it getting stuck and thereby triggering the electronic overload protection in the frequency converter (fig. 2.4), which will then signalize an **Error** and stop the fleshing machine. You can try to loosen the jammed objects in the following way:

- Remove the discharge pipe with bend (fig. 1.1).
- Set the switch (fig. 3.5) to **MAN.**
- The frequency converter will now be blinking and showing an error code on the display (fig. 2.5), which can be read when the door to the control cabinet is opened.

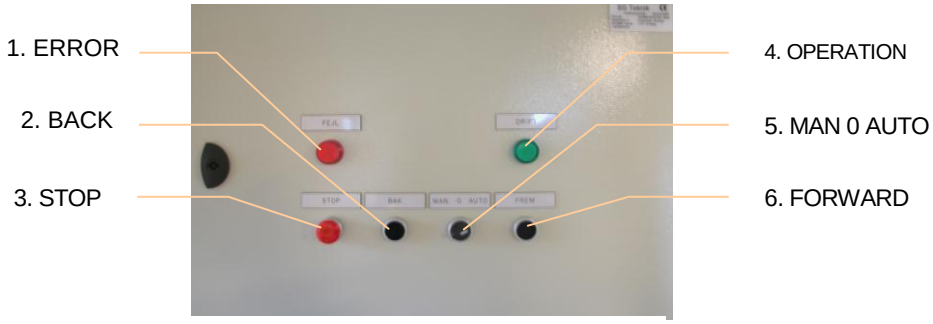


Fig. 3. Front plate of the control cabinet

- In order to reset the error in the frequency converter, press the **RESET** button on the control panel (fig. 2.5).
- The auger will run slightly backwards when you press the **BACK** button (fig. 3.2). If the objects are severely jammed, the electronic overload protection in the frequency converter will disconnect the motor again.
- If the frequency converter has disconnected, reset the error. After that you can try to loosen the jammed objects by pressing the **FORWARD** button.
- Repeat this procedure until the jammed objects are loosened. If the frequency converter is disconnected repeatedly, you must keep an eye on the motor's temperature as the motor can easily overheat and get damaged due to this heavy strain.

- In certain cases the objects may be jammed so severely that it may be necessary to remove the auger (see chapter 7.6).

- If you suspect that the auger may have frozen, you should try to thaw whatever is jammed with hot water before activating the **FORWARD** and **BACK** buttons.

- After the auger has been emptied, install the discharge pipe again and set the switch (fig. 3.5) to **AUTO.**

7.5 Emptying the auger

After the day's fleshing work is over, the cyclone and the fat auger should be emptied manually, especially when there is a risk of temperatures dropping below zero at night. This is done in the following way:

- The fat suction device should not be stopped until all cleaning of the fleshing machine has been finished.

- Set the function switch (fig. 3.5) to **MAN**.

- Turn the speed adjustment knob (fig. 2.6) on the frequency converter clock-wise all the way. This will increase the speed to about 5100 revolutions.

- Press the **FORWARD** button until the auger is completely empty.

- Set the speed adjustment knob back to about 3100 revolutions.

- Close the cabinet and set the function switch to **AUTO**.

7.6 Removing the auger

In certain cases the auger may be so jammed that the jammed objects cannot be loosened by using the **FORWARD/BACK** functions. In such cases it is necessary to remove the auger. This is done in the following way:

- Remove the discharge pipe with bend (fig. 1.1).
- At the bottom of the gear remove the bolt that holds the through-going shaft.
- The auger can now be removed from the pipe for cleaning. If it is difficult to remove the through-going shaft from the gear, it is recommended to screw a somewhat longer 8 mm bolt to the end of the shaft and knock on it. Pay attention to the little wedge located between the shaft and the gear.
- After all cleaning has been finished, install all the parts in reverse order. Remember the wedge by the gear.
- Set the speed adjusting device on the frequency converter (fig. 2.6) to about 3100, close the control cabinet door and set the function switch (fig. 3.5) to **AUTO**.

8. Maintenance

DANGER!

Disconnect the machine's power supply before maintenance, cleaning and other services are performed on the machine.

It is ESSENTIAL that all 3 CEE plugs are removed from the wall sockets.

8.1 Daily maintenance

The daily maintenance is limited to emptying the cyclone and the fat auger, as described in chapter 7.5.

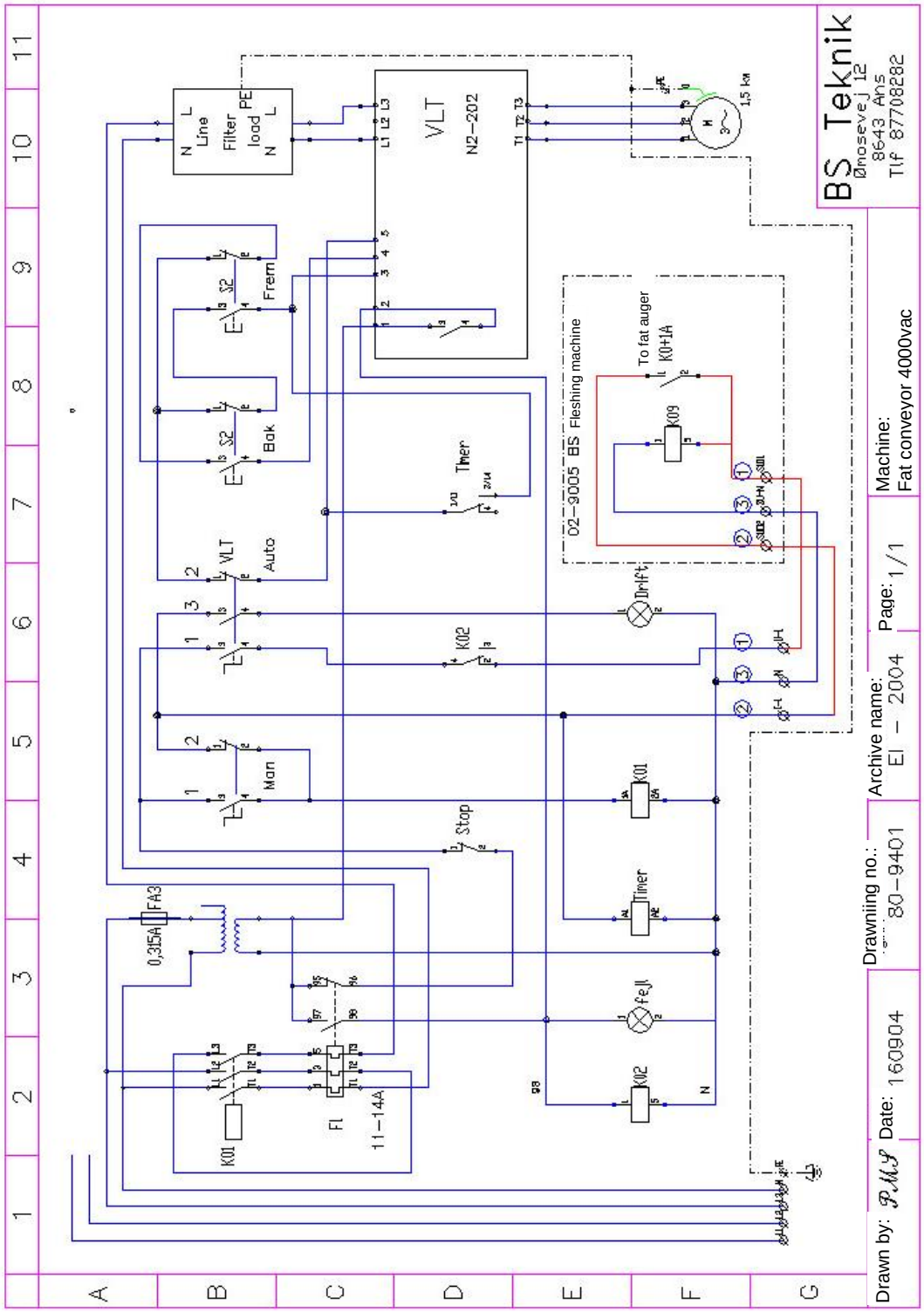
8.2 End-of-season maintenance

- At the end of the season the inside of the cyclone needs to be washed with a high-pressure washing device. When the clamps at the top and bottom have been removed, you can remove the cyclone from its frame in the hinge mounting.
- All suction pipes and bends between the fleshing machine and the fat conveyor need to be taken apart and cleaned on the inside so that maximum suction can be maintained.
- When cleaning is finished, remove the drain plug in order to remove any water that may be left in the fat conveyor.
- When all the end-of-season cleaning has been finished, store the fat conveyor indoors until the next season.

9. Technical data

- Electrical connection: 5-pin CEE plug 1 X 240V+N+PE
- Power consumption: Max. 16 A
- Dimensions: Height: 220 cm
  Length: 350 cm
  Width: 80 cm

10. Circuit diagram



11. Spare parts list

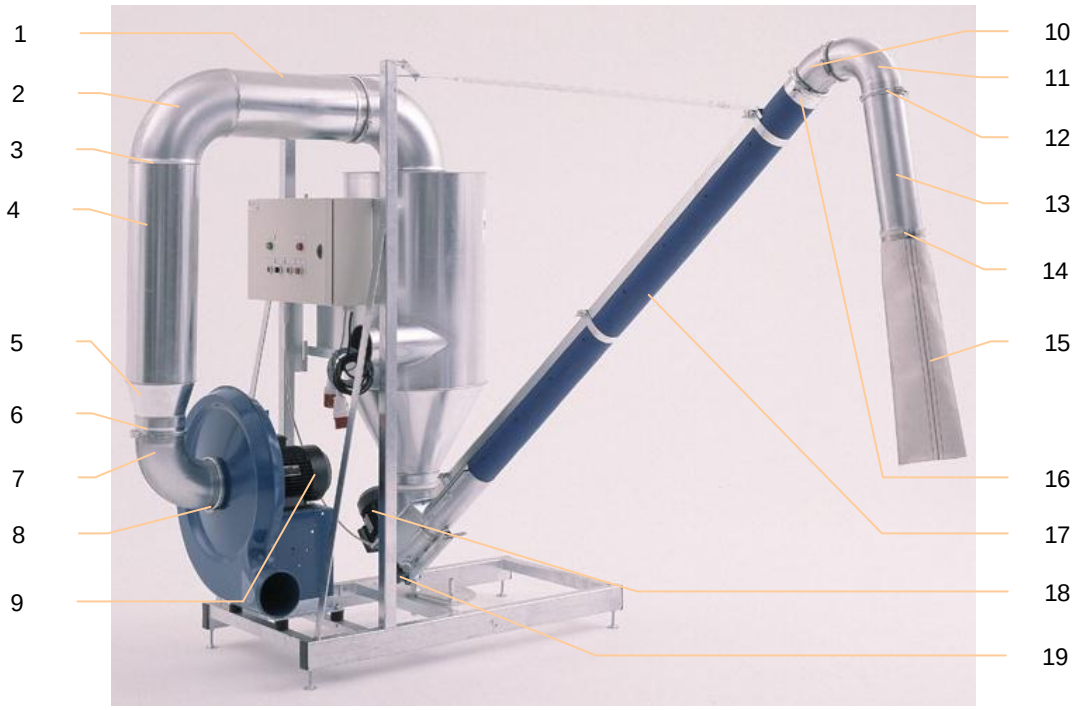


Fig. 4

Fig no.	Item no.	Spare part no.	Name_
4.1	5200-00803120	Ø 250*500mm	Longitudinally folded pipe
4.2	5200-00803100	BU.250.90	Bend, pressed
4.3	5260-12505000	TKS.200.250	Clamp Ø250mm
4.4	5200-00803130	Ø 250*780mm	Longitudinally folded pipe
4.5	5200-00803110	RCLU 250.180	Centrical reduction
4.6	5260-11806000	MFTR 180	Pivotal section with coupler measurements
4.7	5260-11803090	BTR 180.90	Bend, pressed
4.8	5260-21805001	SB 180	Clamp Ø180mm
4.9	5931-10400203	4,00 kW 2800 o/min B3 680v	TRL 55 Fan engine 4kW
4.10	5260-11253030	BTR 125.30	Bend, pressed
4.11	5260-11253090	BTR 125.90	Bend, pressed
4.12	5260-11255000	SB 125	Clamp
4.13	5260-11251050	LRTR 125.500	Longitudinally folded pipe
4.14	5290-9104138	3230101138	Clamp Ø 104-138mm
4.15	5200-00801110		Fire hose 5" 700mm
4.16	5260-11257160	I LTR 125	Inlet pipe with connector
4.17	5200-00801100		Screw tube plastic complete 2800mm
4.17	5200-00801200		Auger and feed shaft
4.18	5931-10150214	ST 80 L2 1,5KW 2800 o/m	Auger engine
4.19	5935-11490512025	LAC 49 -5-120-Ø19-Ø25	Flange gear

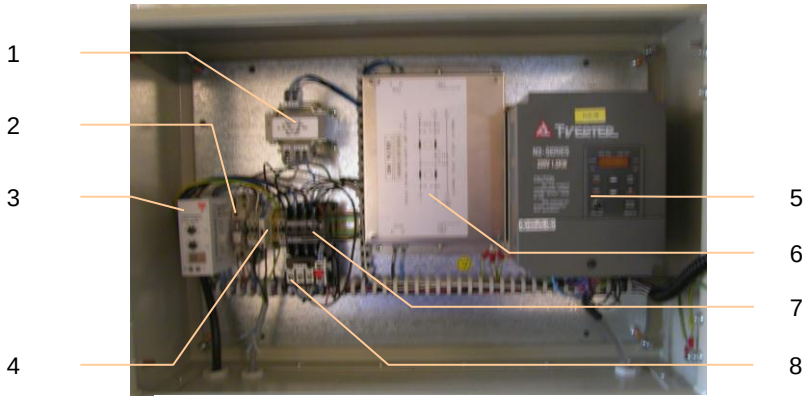


Fig. 5 Control cabinet

Fig no.	Item no.	Spare part no.	Name_
5.1	5922-34001950	DT10941-1	DE Transformer 230+230V 50VA
5.2	5925-44023440	700 -HN 121	AB Screw base for 1-pin relay
5.2	5925-44023410	700-HK 36 A 2-4L10A 240V	AB Mini relay w. LED 1P
5.3	5922-43109978	9623109978 S113-166-230	Electromatic timer 800 sec.
5.4	5927-14080062	SIST	Fuse holder
5.4	5922-54005040	500mA 5*20 flink	Fuse
5.5	5921-24000260	N2-202 M 1,5 Kw	Taian Frequency Converter
5.6	5921-24000265	N2F-2202A-T for 202	Taian Netfilter
5.7	5925-14020030	K2-12A01-230V	B&J Contactor
5.8	5925-34022110	U12/16e 14,0 A 10-14 A5,5kw	B&J Thermo Overload relay

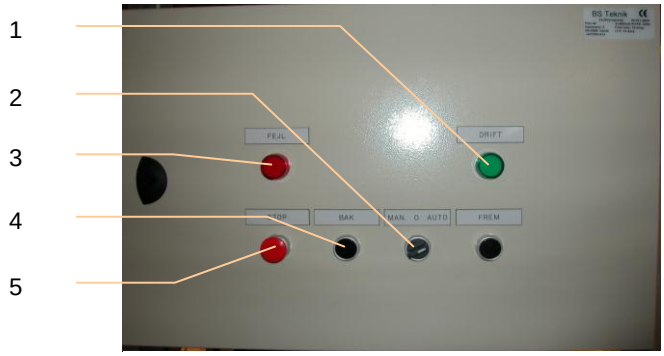


Fig. 6 Control cabinet door

Fig no.	Item no.	Spare part no.	Name
6.1	5924-74010250	B3-MB 230 GRØN	B&J LED lamp green 240V
6.2	5924-74010110	B4KN3	B&J handle 1-0-2
6.3	5924-74010240	B3-MB 230 RØD	B&J LED lamp red 240V
6.4	5924-74010060	B4D sort	B&J press. head flat black
6.5	5924-74010050	B4P3 rød 28mm	B&J mushroom-shaped Red Stop

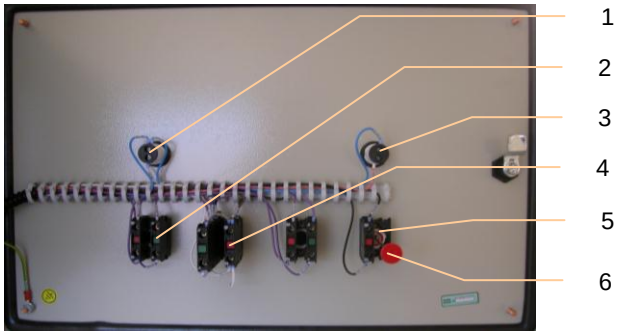


Fig. 7. Control cabinet door

Fig no.	Item no.	Spare part no.	Name
7.1	5924-74010250	B3-MB 230 GRØN	B&J LED lamp green 240V
7.2	5924-74011030	5924-74011030	B&J plug element 1NO
7.3	5924-74010240	B3-MB 230 RØD	B&J LED lamp red 240V
7.4	5924-74011020	B3T01	B&J plug element 1 NC
7.5	5924-74011010	B3M	B&J coupling element
7.6	5924-74010160	P253-1	B&J extension press. base red
7.6	5924-74010170	B2-B4	B2B4 extension

12. Troubleshooting

This part shows how some general problems can be solved by the user. This is not an actual description of how the machine as such is to be repaired but simply basic information on how to fix some minor problems so that you can quickly resume fleshing work. In the case of complicated problems, which cannot be fixed by the user, it is recommended to contact the BS Service Department for further assistance.

DANGER!

Switch off the machine's power supply before maintenance, cleaning and other service activities are performed on the machine.

It is ESSENTIAL that all 3 CEE plugs are removed from the wall sockets.

12.1 When the error lamp is on

If a lump is created around the fat auger, it can cause the conveyor to run very slowly and even to stop completely. When this happens, the electronic overload protection in the frequency converter will be activated, which will switch the error lamp on in the front panel of the control cabinet. The frequency converter can be reset by pressing the **RESET** button on the frequency converter's control panel (fig. 2.4). If the error is caused by a complete blockage in the fat auger, it needs to be removed as described in chapters 7.4 and 7.6 before fleshing work can be resumed.

12.2 Poor suction capability

If the fat suction device's suction capability is not sufficient, there is a risk that the suction tubes between the fleshing machine and the fat suction device will stop. Reduced suction capability can be caused by:

- Insufficient amount of vacuum in the cyclone caused by wear/leakage on the bend of the discharge pipe or insufficient tightness of the fire hose at the end of the discharge pipe caused by dirt or ageing.

- It can also be caused by the fact that the suction device is ”breathing incorrectly”, i.e. if a leakage has occurred in the suction tube between the fleshing machine and the suction device.

12.3 There is fat coming out of the air outlet

If the timer’s basic setting has been altered significantly, there is a risk that the fat content in the cyclone becomes too big before the auger starts.

- The pulse/pause timer (fig. 2.1) should be set as described in chapter 7.2 – to about 40 seconds of service time and 100 seconds of idle time.

12.4 The FORWARD/BACK functions are not working

If the **FORWARD** and **BACK** functions are not working when the function switch is set to **MAN** and when it has been confirmed that the overload circuit in the frequency converter has not been activated, you need to examine the following:

- Is the light in the frequency converter’s display on? If this is not the case, the thermo relay (fig. 5.8) can be disconnected. Press the red button in order to reset the thermo relay. The error can also be caused by a defect in the frequency converter, in which case you should contact the BS Teknik Service Department.

- If the auxiliary switches (fig. 7.4) have been removed from their fixture (perhaps while the auger’s speed was being adjusted), the **FORWARD/BACK** function will not work in the manual setting. The auxiliary switches can be pushed back in over the contact element, after which the function can be tested.