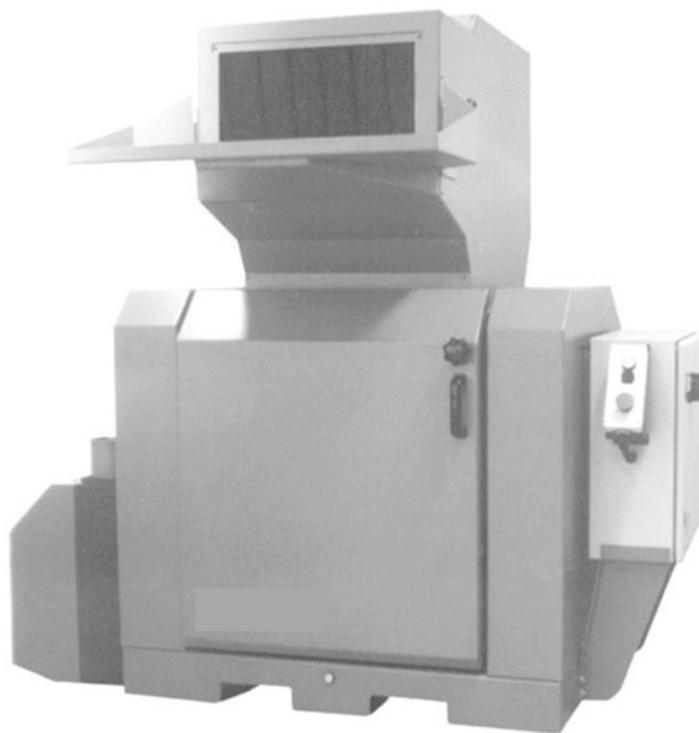


INSTRUCTION MANUAL

CK-1018



WARNING - Reliance on this Manual Could Result in Severe Bodily Injury or Death!

This manual is out-of-date and is provided only for its technical information, data and capacities. Portions of this manual detailing procedures or precautions in the operation, inspection, maintenance and repair of the product forming the subject matter of this manual may be inadequate, inaccurate, and/or incomplete and cannot be used, followed, or relied upon. Contact Conair at info@conairgroup.com or 1-800-654-6661 for more current information, warnings, and materials about more recent product manuals containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

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MNL-00095/0596

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1. Introduction

This manual applies to CONAIR's granulation mill, model 1018.

Supplementary designations are:

- K – noise encapsulated machine
- KU – noise encapsulated machine with extraction fan
- KB – noise encapsulated machine with conveyor



Read the manual before installing and using the machine.

Be careful when the knives are accessible, they are sharp and can cause injury!

CONAIR's mills are designed for granulating injection moulded, blow moulded and extruded plastics waste. The size and capacity of the mill is designed to suit the type of waste material.

Approval must be obtained from the head office for granulating other products and materials, for the guarantee to apply.

The mill is designed for quick and simple maintenance and cleaning, both routine service and material change.

All service must be carried out by trained service personnel.

This manual contains instructions for both operation and service.

Chapter 7 contains instructions aimed at service personnel.

Chapter 11 contains optional equipment for the machine.

The other chapters contain instructions aimed at the operator.

The mill is delivered with an instruction manual, tool kit and touch-up paint.

Grinding and pre-setting fixtures for knives are two practical accessories which are not included when the machine is delivered, but can be ordered separately.

Any modifications or conversion of the machine must be approved by CONAIR

This is because of preventing injuries, the validity of the guarantee and the application of producer responsibility.

If you have any questions, please contact your local distributor or CONAIR

We retain the right to make changes to design, specifications
and material without prior notice.

2. Technical specification

Dimensions

Overall dimensions of machine

1018 (l x w x h) 1440 x 1300 x 1630 mm

Data

Serial number _____

Motor power _____

Belts _____

Voltage _____

Fan (1018)

F7 _____

F15 _____

Roterande knivar _____

Rotating knives _____

Screen _____

Weight -K ca. 800 kg

..... -KU ca. 850 kg

Other

The tool box of the machine contents:

6 pcs allen keys – 4, 5, 6, 8, 12 and 14 mm.

4 pcs block keys – 10, 12, 13 and 24 mm.

2 pcs feeler gauges – 0,20 and 0,30 mm.

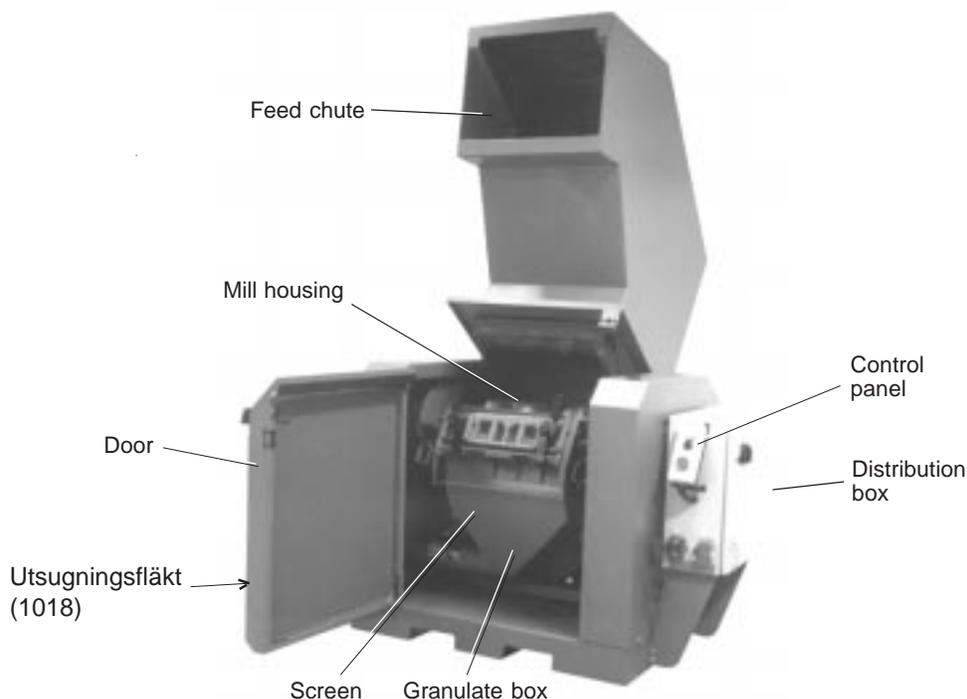
The machine has been equipped with this special modules

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3. Function description

General

Granulation mill 1018 is designed for milling plastics waste.



The mill is controlled by start/stop controls on a control panel.

The plastics waste is put into the feed chute and falls down into the mill body, where rotating knives cut the plastics waste against fixed knives.

The knives cut the plastics waste into granulate, down to a size which can pass through the holes in the screen in the lower part of the mill housing.

The size of the holes in the screen determines the size of the granulate. Screens are available in various sizes, and can easily be changed to provide the size of granulate desired.

Once the granulate has passed the screen, it is collected in a box. This granulate box is emptied manually in the model 1018. If the mill has an exhaust fan 1018, the fan sucks the granulate away to a cyclone, where air and dust are separated.

After this, the granulate can be sent back to the plastic machine, injection moulding machine or to a container for later use.

The outlet pipe stub, screen and screen box have been designed for easy cleaning.

The feed chute can be folded up for good access for cleaning and maintenance. The knives can be sharpened. Grinding is best done in a special jig. (The jig is not included when the machine is delivered, but is a very practical accessory which can be ordered.)

Safety System

There are heavy rotating knives in the mill.
For this reason, there is a safety system to prevent personal injury.

Emergency stop.

The mill has an emergency stop located on the control panel.

The mill may be equipped with further emergency stops.

The emergency stops are activated by pressing the button.

Resetting is done by twisting the button in the direction of the arrow (anti-clockwise).

Safety circuit breaker.

The mill has two safety circuit breakers.

The breakers stop the mill if doors or the feed chute change position.

Location/function:

1. Safety breaker/Knob (1 no.), combined with a door lock (S6).
 - The door lock has a fine thread.
It should take time to open the door, using the lock knob, so that the mill has time to stop before the door can be opened.
 - The safety breaker senses that the door is properly shut.
 - The knob must be screwed down to its end position for the mill to start.
2. Key switch (1 no.) between the mill housing and the feed chute (S5).
 - The key switch stops the mill if the feed chute is not properly shut.

Before the machine can start, the:

- Feed chute must be folded down and locked.

NOTE! The feed chute must be locked and seal tightly against the mill housing during operation.

- The doors must be closed.

NOTE! The screen box must be folded up and the granulate box must be in place. The knob which locks the door must be screwed down to its end position.

4. Safety rules

General

CONAIR granulation mills are designed for moulding injection moulded, blow moulded or extruded plastics waste.

The technical data of this machine, as regards capacity, power, performance etc, are specified in chapter 2.

The mill is equipped with a safety circuit breaker, which stops the machine if the doors, inlet chute or screen box are opened during operation.

The following safety rules must be observed when the mill is operated:



- **Electrical installation must only be carried out by competent personnel!**
- **Always break the current with both the main switch and the switch on the mill, when the mill has been opened for service and maintenance.**
- **Never put any part of your body into openings in the mill, unless both the main switch and the switch on the mill are in the "OFF" (0) position.**



- **Be careful when the knives are accessible, they are sharp. If the rotor has to be turned manually, do this VERY carefully.**
- **Be careful when the feed chute and screen box are opened or closed, to avoid crushing any part of your body.**
- **It should not be possible to start the mill until all doors and the feed chute are closed.**



= **WARNING! Dangerous voltage**

This sign is located on the door of the distribution box and any junction boxes.



= **WARNING! Pinch point. Cutting and crushing hazard.**

This sign is located anywhere there is a risk of cutting or crushing, at the feed chute and screen box.

Observe the instructions in this manual to avoid personal injury and machinery damage.

5. Installation

All instructions must be followed in sequence to avoid injury.



Be careful with knives, they are sharp and can cause injury.

The mill must only be connected to the mains by a competent electrician.

Measures before the first start

The mill does not have to be fastened solidly to the floor, but adjust it so that it rests stably and horizontally.

The un-painted components of the mill are given a protective coating of oil before delivery and transport. Clean rust preventer off the machine before it is taken into service.

Check the knife clearance and tightening torque on the attachment bolts for the knives.

Two hours after first start

Check the knife clearance again and tightening torque of the attachment screws for knives; check the attachment screws for both the fixed and rotating knives.

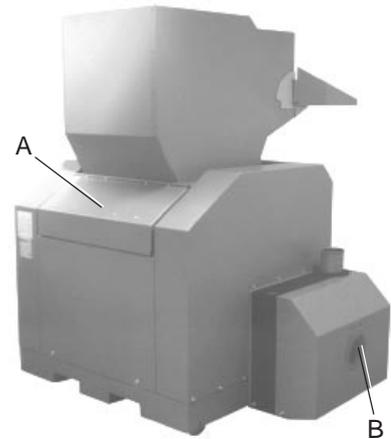
Electrical connection.

The mill must be connected by a competent electrician.

- Connect the mill to the mains. The fuse ratings are specified in the wiring diagram, see chapter 9.
- The mill is delivered with the electrical equipment connected for clockwise turning fields. Check with a phase sequence indicator, and connect the mill to a clockwise turning field. This makes the mill motor rotate the correct way round.

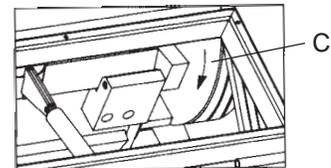
Check the direction of rotation of the mill motor and fan (KU):

- Remove the cover (A) on the rear of the mill.
- Make sure that the main switch on the distribution box is "ON" (1).
- Press the start button.
- Check that the direction of rotation of the vee-belt pulley corresponds with the arrow on the pulley.
Do not put any objects into the hole.
- Check that the direction of rotation of the fan (B) corresponds with the arrow on the motor housing (1018).



If the motor or fan turns in the wrong direction:

- Press the stop button
- Switch the main switch off.
- Switch two of the incoming phases over.
- Re-install the protective cover on the rear.



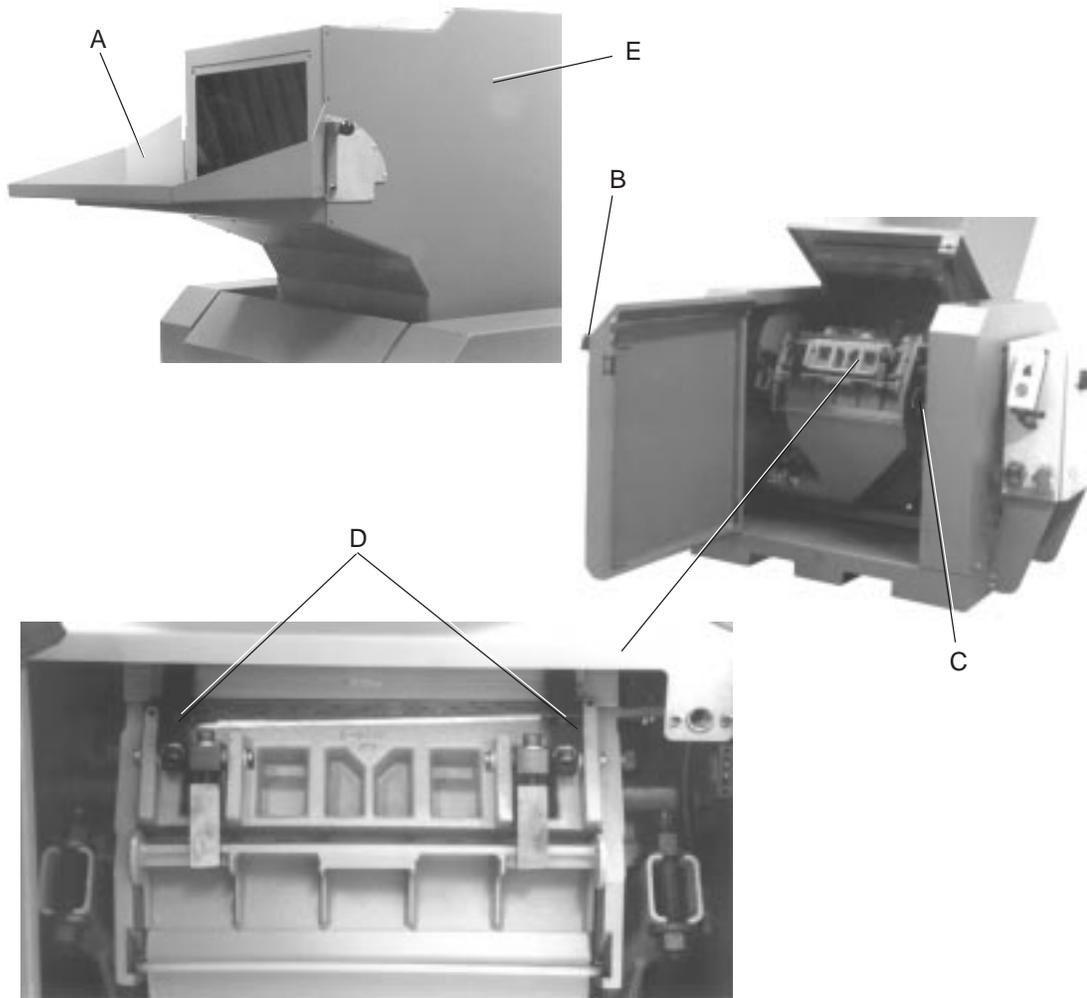
Checking the knife clearance



Be careful with knives, they are sharp and can cause injury.

The feed chute box must be open when the clearances between the fixed and rotating knives are checked.

- Fold up feed tray (A).
- Open the door with the locking knob (B)
- There is an Allen key (10 mm) for the lock clasps, in holder (C) on the right-hand stand leg.
- Undo the outer/upper lock clasps (D) on the feed chute (2 no.) and fold them out.
- Fold up/open feed chute (E). The feed chute is supported on gas springs to help opening/closing.



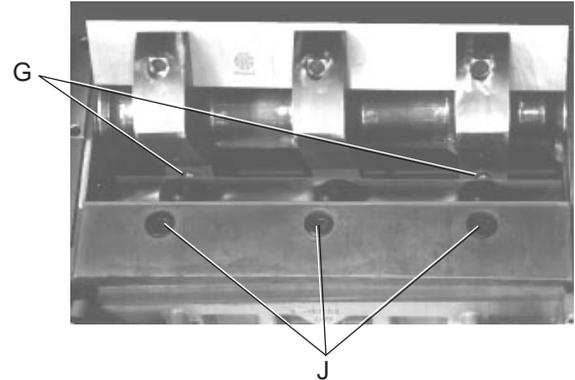
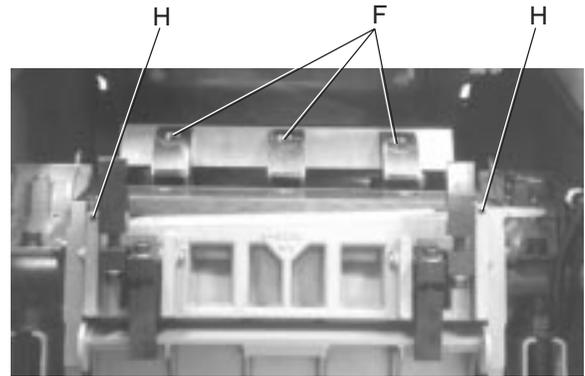
Check the knife clearance

1. Use a feeler gauge to check that the clearance between the front fixed knife and the rotating pairs of knives is 0.30 - 0.50 mm (foil 0.15 - 0.30 mm). This dimension applies to both the front and rear fixed knives.
2. If the clearance is correct, go directly to point 7.
If not, adjust the rotating knives.



NOTE! Do not adjust the fixed knives.

3. Undo the screws (F) which hold the rotating knife (3 no.)
4. Adjust the clearance using the adjustment screws (G) - use the enclosed key.
5. Tighten the screws on each knife (torque 220 Nm).
6. Check that the adjustment screws (H) butt up against the rear of the fixed knives.
7. Check the tightening torque of the screws (J) on the front fixed knives (torque 220 Nm).



Check the fastening screws for the rear fixed knife.

(1018) Undo clasp (K) on the outlet pipe stub and move it to one side.

Undo granulate box (L).

Undo the two inner/lower lock clasps (M).



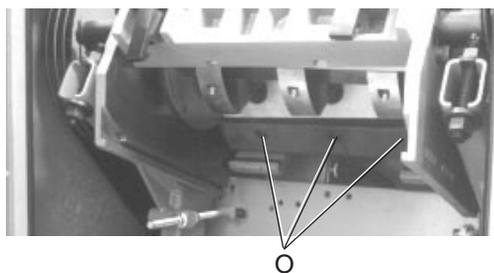
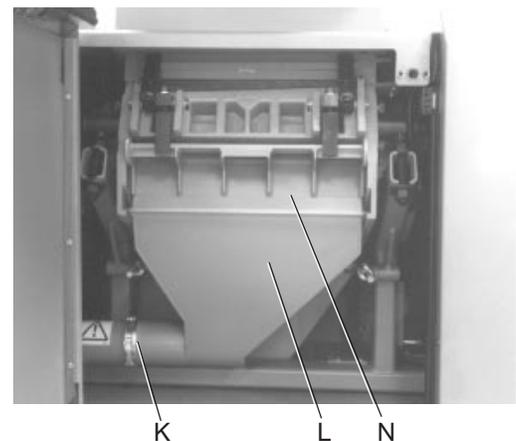
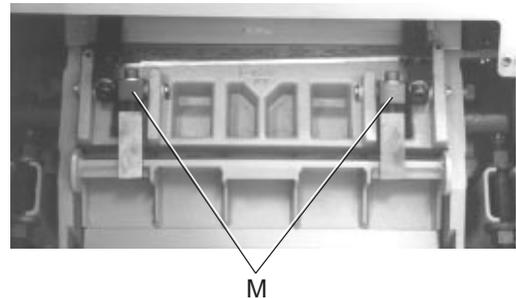
NOTE! Hold the screen box and unfold the lock clasps.

Pull the screen box forwards and fold it down (N).

Lift the screen out.

Remove the screen box.

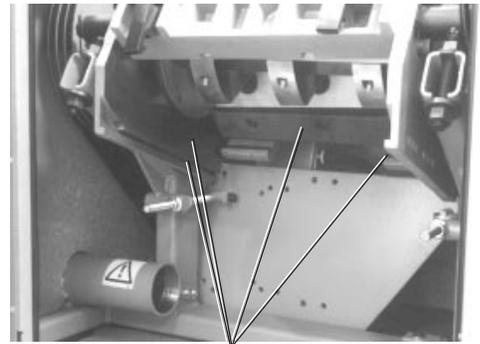
Check the tightening torque of the screws (O) on the rear fixed knife (torque 220Nm).



Closing:

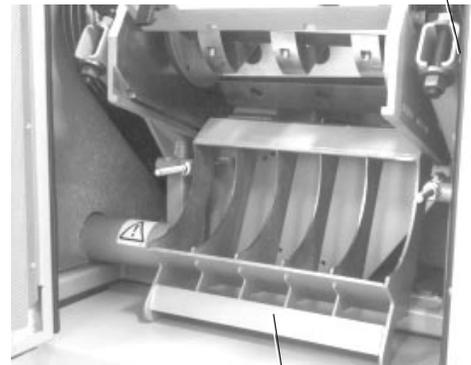
Make sure that the mating surfaces are clean and free of granulate.

- The mill housing lower section, its surfaces and the slides for the screen box sides, the inner surfaces against the rear of the screen box and the support rail for the rear knife.
- The upper section of the mill, and the frame of the feed chute.
- Install screen box (N). Fit the screen box guide dowels into the slides in the mill housing, lift and slide the screen box in until it stops.
- Fit the screen into the screen box.
- Lift up the screen box and fold the lock clasps in.
- The Allen key for the lock clasps is in holder (C) on the right hand leg of the stand.
- Lock the screen box with lock clasps (M). NOTE! Press the lock clasps in towards the screen box when tightening the socket cap screws.
- (1018) Fit clamp (K) to the outlet pipe stub.
- Install granulate box (L) and lock the clasp on the connection to the outlet pipe stub.
- Fold down/shut the feed chute. The feed chute is counterbalanced on gas springs to aid closing.
- Lock the feed chute with lock clasps (D). NOTE! Press the lock clasps in towards the screen box when tightening the socket cap screws.
- Put the Allen key for the lock clasps in holder (C) on the right-hand leg of the stand.
- Lock and shut the door with the locking knob. NOTE! The knob is combined with a safety circuit breaker and must be screwed in until it stops, otherwise the mill will not start.
- Pull the clasp out and fold the feed tray down.

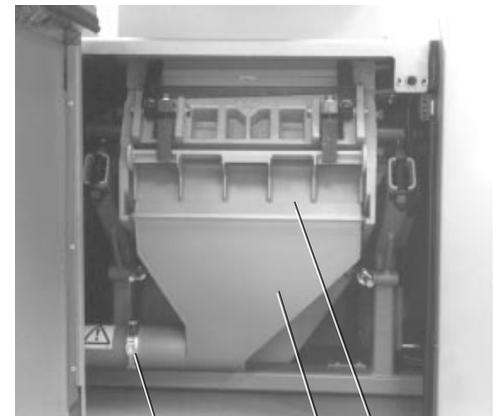


Make sure that the surfaces are clean

C



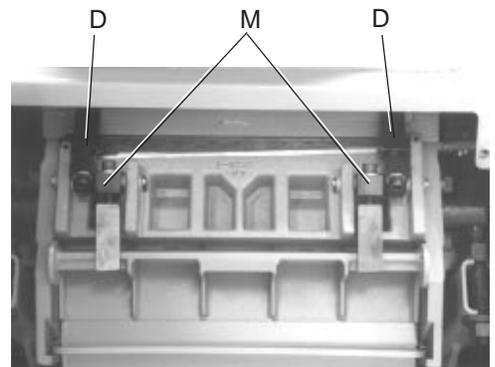
N



K

L

N



D

M

D

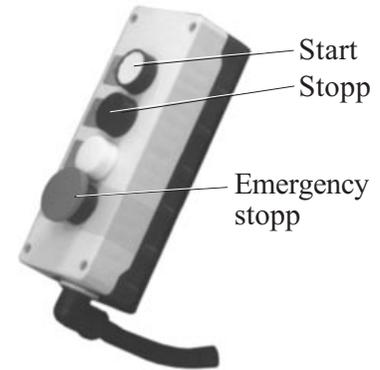
6. Operation and daily maintenance

Starting and stopping

Starting and stopping is done with the press switch on the control panel.

NOTE! Never stop the mill before all material in the feed chute and mill housing has been ground up.

Material which is left behind can brake the rotor when it is re-started, and the overload breaker on the motor will then trip.



Inspection

No plastics material must be left behind in the mill when an inspection is done.

Daily inspection

- **Flaps in the feed chute.** Check that the flaps are intact. Replace damaged flaps at once! Damaged flaps can fall down into the mill housing and damage the knives. Damaged knives also increase the risk of material ejection.
- **Emergency stop.** Check the emergency stop function. Start the mill and then stop it with the emergency stop button.

Reset by turning the reset knob in the direction of the arrow (anti-clockwise).

Weekly inspection

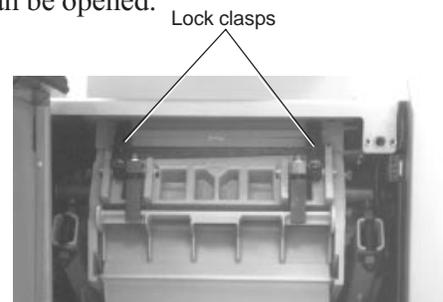
Cables. Check all electrical cables on the machine for wear and other damage. Damaged cables must be replaced at once.

Safety circuit breakers, 2 no. The safety circuit breakers are located at:

- Feed chute, at the front edge between the feed chute and the mill housing.
- Doors
 - Start the mill, unscrew the knob for the door. The door lock has a fine thread. This is so that it will take such a long time to open the door that the mill will have time to stop before the doors can be opened.

Check that the feed chute is shut and that the lock clasps hold securely.

Shut the door and screw the knob in until it stops.



Monthly inspection

Vee belts: Check the tension of the vee belts and that all the belts are intact

Cleaning

Clean monthly or at least once/300 hours.



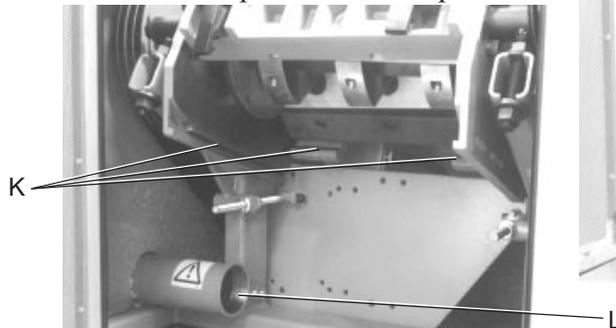
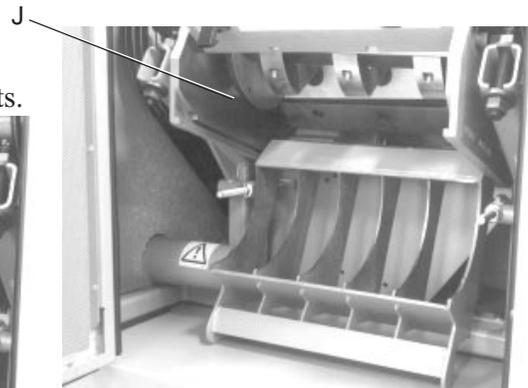
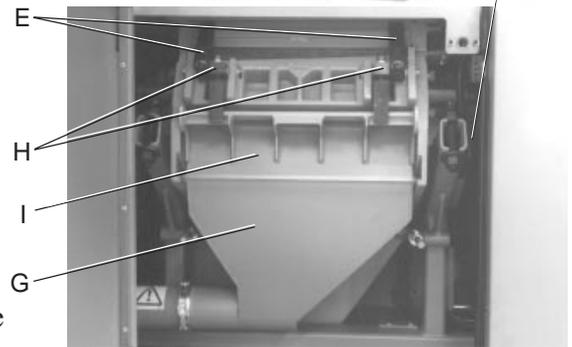
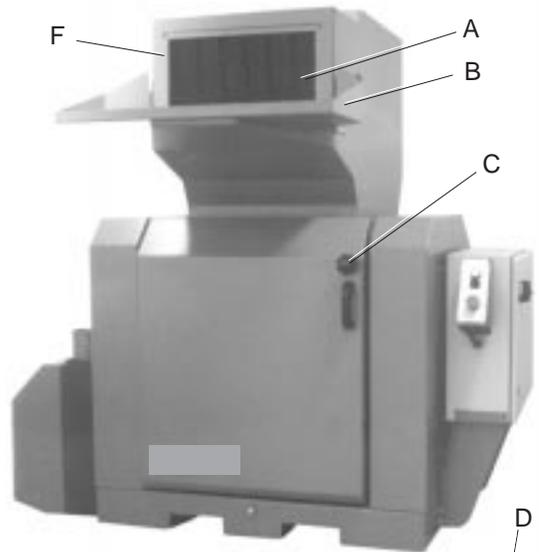
NOTE! Put both the main switch and the switch on the mill in the "0" position before the feed chute and screen box will be opened for cleaning.



Be careful when the feed chute is opened.

The knives are then accessible, they are sharp and can cause injury.

1. Remove and clean flaps (A) on the feed chute.
2. Clean the feed chute. Do not forget the air hole on the top of the feed chute.
3. Fold up the feed tray (B).
4. Open the door with locking knob (C).
5. Remove the Allen key (D).
6. Remove and fold out the outer/up lock clasps (E) on the feed chute.
7. Fold up the feed chute (F).
8. (1018) Undo and remove the clasp on the outlet pipe stub. Pull the granulate box (G) out.
9. Undo and fold out the inner/lower lock clasps (H).
10. Hold and fold the screen box down (I).
11. Lift and clean the screen, screen box and outlet pipe stub.
Be careful to make sure that:
 - You clean between the screen and the mill side insert (J).
 - The groove for the screen box (K) is clean.
 - There is no granulate left in the outlet pipe stub (L), between the pipe stub and the fan.
12. Clean the conveyor, fan and cyclone.
13. Reinstall and put back all components.



Fault finding

If the mill does not start.

- Check the safety circuit breakers for the door and feed chute.
The mill will not start if the door and feed chute are not properly shut.
Open the door and check that the feed chute and lock clasps are locked properly.
Shut the door and screw the lock knob in all the way.

- Check that the emergency stop is not activated.

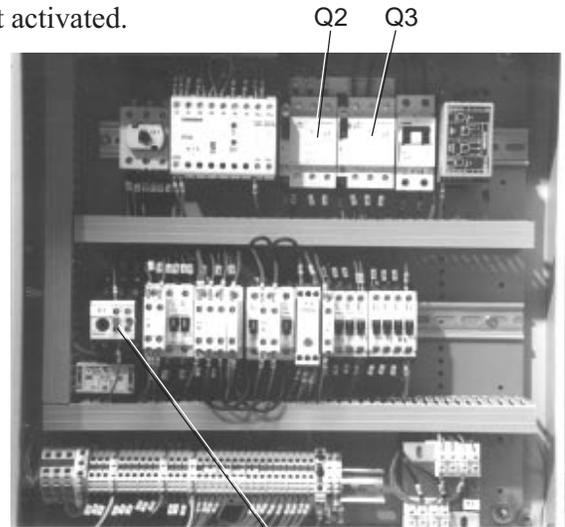
Reset it by turning the button in the direction of the arrow (anti-clockwise).

- Check the overload protection on the motor.

A bimetal strip (F1) in the distribution box will trip if you block or overload the mill.

This is indicated by a small green pin (A), which projects from the front of the relay.

Reset by pressing the blue "Reset" button (B).

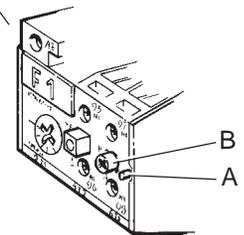


- Check the motor protection circuit breaker on the fan (1018).

The mill will not start if the exhaust fan does not start. Check the motor protection circuit breaker Q2 in the distribution box. *)

If the motor protection circuit breaker has tripped, the switch will be in the "0" position.

Reset - move the switch to position "1".

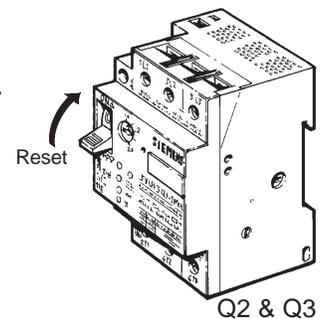


- Check the conveyor belt motor protection circuit breaker (1018).

The mill will not start if the conveyor belt does not start. Check the motor protection circuit breaker Q3 in the distribution box. *)

If the motor protection circuit breaker has tripped, the switch will be in the "0" position.

Reset - move the switch to position "1".



- Check the knives and knife clearance in the mill.

If the knives in the mill have lost their sharpness and are blunt, or if the knife clearance is incorrect, it can cause a stoppage. The mill motor protection circuit breaker will trip. Check the knives. Sharpen or replace the knives, or adjust the knife clearance. See the next chapter.

*) Also check the wiring diagram in chapter 9, additions or deletions may occur.

7. Service

All service must be carried out by trained personnel, to avoid personal injury and damage to machinery.

Knife replacement

Open the front doors and feed chute.



Be careful with knives, they are sharp and can cause injury.

Please use protective gloves!

Each time the knives are changed, the knife fastening screws must be replaced by new screws.

Check the screen for wear when the knives are changed. Change the screen when the holes begin to assume a teardrop shape.

Replacing fixed knives

Remove the granulate box, screen and screen box.

Front fixed knife

- Undo adjustment screws (A).
(On the rear of the knife).
- Remove the fastening screws (B).
- Remove the support rail and knife.
- Clean the surfaces where the knife was located.
- Install the new knife and support rail.
- Fit the fastening screws loosely.
- Adjust the front knife with the adjustment screws – adjust as far out as possible.

Two cutouts in the mill side inserts determine the forward position of the knife.

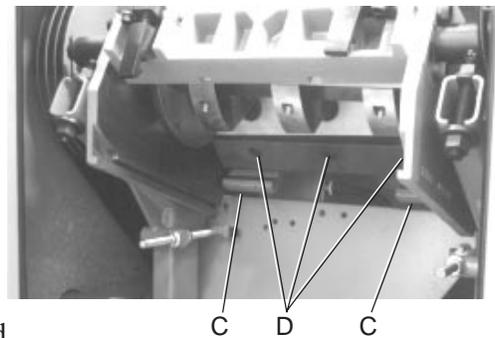
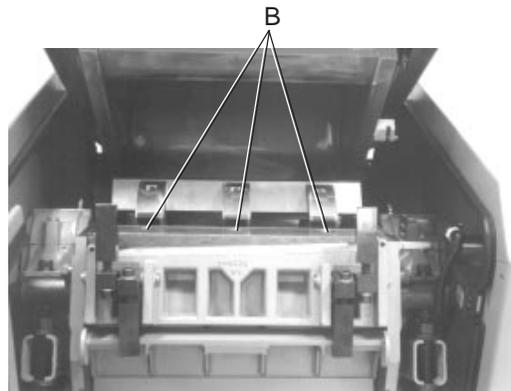
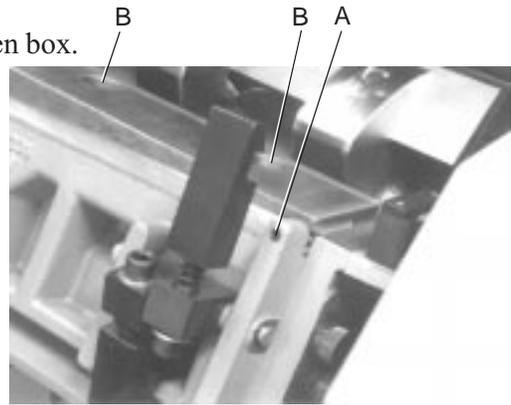
- Torque the fastening screws (torque 220 Nm).

Rear fixed knife

- Undo the knife adjustment screws (C) (on the rear of the knife).

The screws are removed from the rear of the two heels which come down from the mill housing.

- Undo and remove the fastening screws (D).
- Remove the knife and support rail.
- Clean the surfaces where the knife rested.





- Install the new knife and support rail.

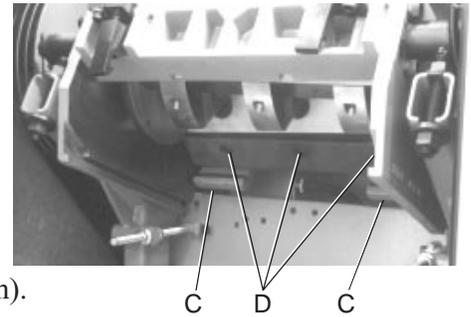
Each time the knives are changed, the knife fastening screws must be replaced by new screws.

- Fit the fastening screws (D) loosely.
- Adjust the knife forwards using the adjustment screws – adjust until all movement is taken up.

Two cutouts in the mill side inserts determine the forward position of the knife.

- Torque the fastening screws (torque 220 Nm).

Install the screen box, screen and granulate box.



Changing the rotating knives

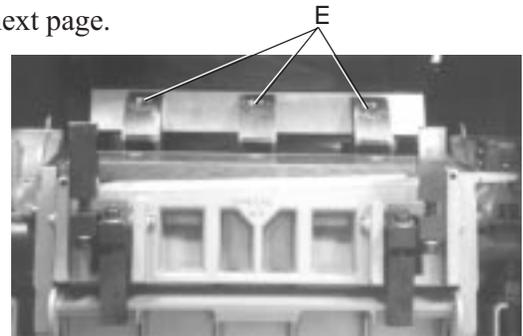


Each time the knives are changed, the knife fastening screws must be replaced by new screws.

NOTE! The knives are sharp – please use protective gloves!

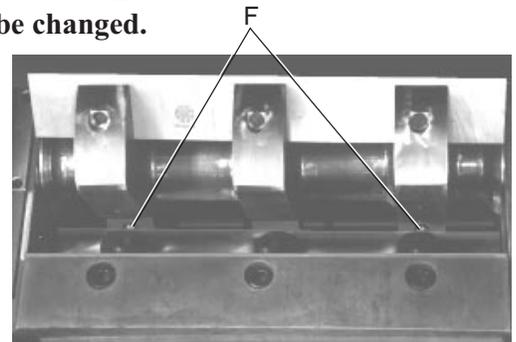
It is easiest to install pre-set knives, see the next page.

- Undo attachment screws (E) on a rotating knife and remove the knife.
- Clean the surfaces where the knife was located.
- Install a new knife in the cutter. Make sure that the adjustment screws of the knife (F) butt up against the setting screws of the cutter.



NOTE! The setting screws on the cutter are set at the factory and locked. This setting must not be changed.

- Screw in the adjustment screws on the rotating knives. The knife must be able to pass the front fixed knife without obstruction.
- Install the fastening screws loosely.
- Adjust the knife clearance with the adjustment screws.
- Adjust against the front fixed knife.
The clearance should be 0.15 - 0.30 mm (foil 0.10 - 0.20 mm).



Use a feeler gauge. Put the feeler gauge alternately in the right and left hand sides between the edges of the fixed and rotating knives. Screw the adjustment screws out until the feeler gauge starts to bind. The setting is then finished.

- Check the knife clearance between the installed rotating knife and the rear fixed knife.
- Tighten the fastening screws (torque 220 Nm).
- Replace and adjust each of the rotating knives in the same way.

Pre-setting rotating knives

Pre-set rotating knives are easier to install, and knife changes are much quicker. Knife setting is done on a jig.

The jig is not included when the mill is delivered, but is a very practical accessory which can be ordered.

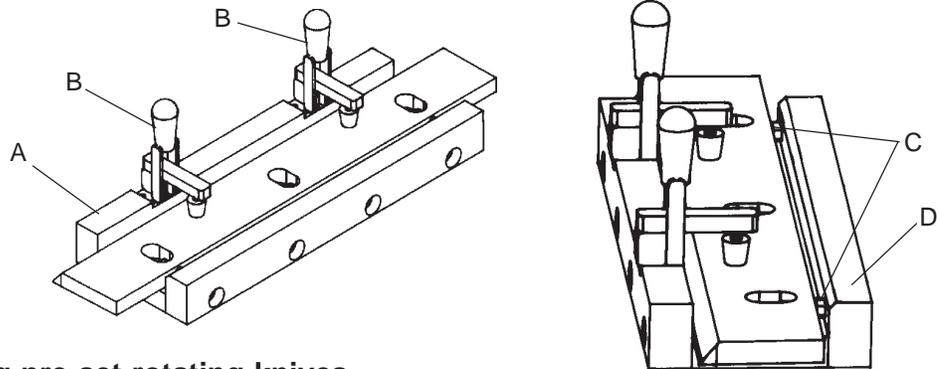


NOTE! The knives must be sharpened before the pre-setting is done.

- Screw in the adjustment screws on a rotating knife.
- Then put the knife in the jig, with the edge downwards towards the stop (A), see illustration.
- Fix the knife with the clasps (B), see illustration.
- Hold a feeler gauge (0.20 mm) between the adjustment screw of the knife (C) and the rear edge of the jig (D).
- Unscrew the adjustment screws until the feeler gauge starts to bind. The pre-setting is now finished.



NOTE! When pre-setting is done, the adjustment screws are always turned outwards from the knife!



Changing pre-set rotating knives



Each time the knives are changed, the knife fastening screws must be replaced by new screws.

NOTE! The knives are sharp - please use protective gloves!

- Remove - undo the fastening screws on a rotating knife and remove the knife.
- Clean the surfaces where the knife was located.
- Install a new knife in the cutter. Make sure that the adjustment screws of the knife (F) butt up against the setting screws of the cutter.



NOTE! The setting screws on the cutter are set at the factory and locked. This setting must not be changed.

- Install the fastening screws loosely.
- Check the clearance against the front and rear knives. The clearance should be 0.15 - 0.30 mm (foil 0.10 - 0.20 mm).

Use a feeler gauge. Put the feeler gauge alternately in the right and left hand sides between the edges of the fixed and rotating knives.

- Tighten the fastening screws (torque 220 Nm).
- Replace and adjust each of the rotating knives in the same way.

Sharpening knives



Be careful with knives, they are sharp and can cause injury.

**NOTE! Get an experienced craftsman to sharpen the knives.
Only sharpen the marked surfaces!**

The knives must be sharpened exactly, to get the correct cutting and relief angles. The mill loses its efficiency otherwise.

The CONAIR grinding jig 1018 and a surface grinder with magnetic bed must be used for knife sharpening. The jig is not included when the mill is delivered, but is a very practical accessory which can be ordered.

The knife must be cooled during sharpening. The knife must not be burned or blued in any circumstances, since it will then lose its hardness and durability.

If the knife is blued or burned, it can not be repaired by grinding down the blued or burned colour. The hardened knife is then completely spoiled and has lost all its hardness and durability.

Sharpening fixed knives.



NOTE! Only grind the marked surfaces and respect the dimensions given.

It is a good idea to grind the front and rear knives to the same dimensions.

Grind every knife on two sides. The knives can then be turned – 2 edges can be used before re-grinding.

Grind the knife edge first, cutting angle 90°.

Grind the edge of the worst knife first.

Fasten the knife vertically in the left-hand position of the jig, see the illustration.

Use the surface grinder and grind until all unevenness in the knife edge has disappeared.

Keep this setting of the surface grinder, grind the worst edge of the other knife.

Now check and grind the worst of the two remaining knife edges.

Keep this setting of the surface grinder, grind the remaining knife edge.

Grind the relief angle of the knives - 15°.

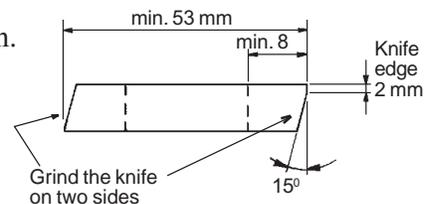
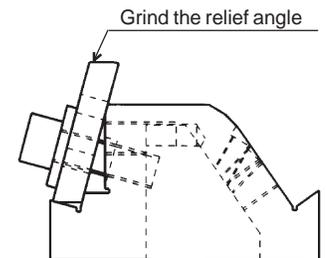
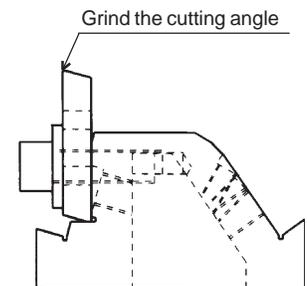
Fix the knife in the jig as shown in the illustration.

Grind the relief angle until the knife edge is 2 mm wide.

Keep this setting of the surface grinder, grind the relief angles of the remaining knife edges.

The knives can be ground down to the dimensions shown in the adjacent illustration.

After this, the knives are used up and must be replaced by new ones.



Sharpening the rotating knives



NOTE! Only sharpen the marked surfaces and pay attention to the specified dimensions!

The rotating knives must be ground exactly equal. Otherwise there will be unbalance in the cutter.

The CONAIR grinding jig 1018 and a surface grinder with magnetic bed must be used for knife sharpening. The jig is not included when the mill is delivered, but is a very practical accessory which can be ordered.

Keep the complete set of knives in good order. Grinding jig 1018 gives the exact cutting and relief angles.

First grind the cutting angle to 55° .

Remove the adjustment screws.

Grind the worst knife first.

Tighten the knife in the right-hand position in the jig, see the illustration.

Spherical washers must be used when the knife is tightened down.

Grind until all unevenness on the knife edge has disappeared.

Use a surface grinder, to make the relief angle exactly 55° .

Keep this setting of the surface grinder, grind all the other rotating knives exactly equally.

Then grind the relief angle of the knives to 50° .

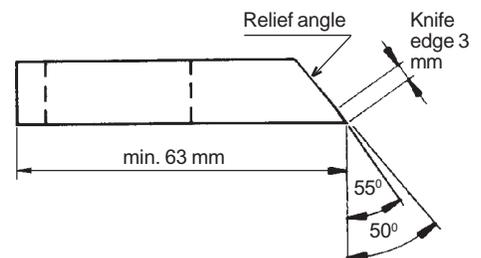
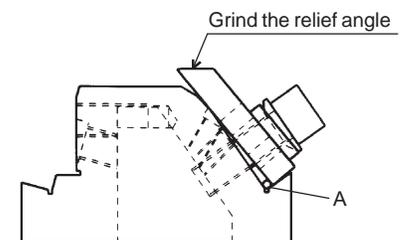
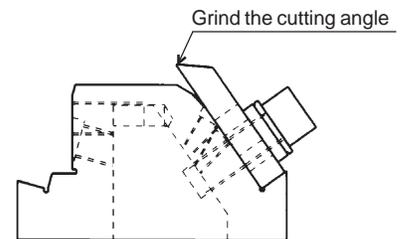
Undo the knife and install the spacer (A) beneath the lower part of the knife, see the illustration.

Grind until the width of the knife edge is 3 mm.

Keep this setting of the surface grinder, grind all the other rotating knives exactly equally.

The knives can only be ground down as far as the dimensions shown.

After this, the knives are used up and must be replaced by new ones.



Vee belts, inspection and adjustment

The vee belts must be checked after 30 hours of operation.

After this, check the vee belts once a month.

The door and feed chute must be open to check the vee belts.

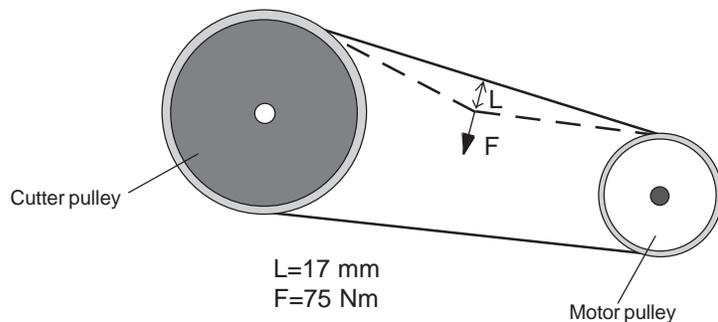
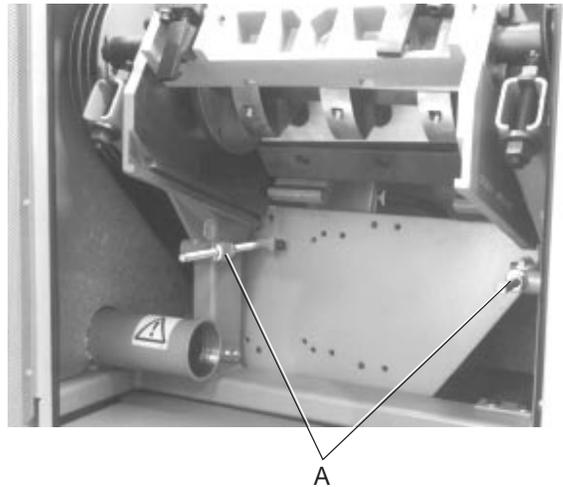
- Fold up the feed tray.
- Open the door with the locking knob.
- Take out the Allen key, undo and fold down the lock clasps on the feed chute.
- Fold up the feed chute. The fee chute is counterbalanced on gas springs to aid opening.
- Check the vee belts.

Load the vee belts between the cutter and motor pulleys with about 75 Nm each, in the centre between the cutter and motor pulleys. It should be possible to deflect the vee belts about 17 mm.

- Adjust the distance between the pulleys as necessary, to give the correct belt tension.

If the vee belt tension needs adjustment:

- Remove the granulate box.
- Undo the outer flange screws (A) slightly, (24 mm spanner)
- Adjust the belt tension with the inner flange nuts.
- Tighten the outer flange nuts.
- Put the granulate box back.
- Shut the feed chute and the door.



Lubrication

On delivery, the plummer blocks are filled with Castrol Spherol APS 3 grease. CONAIR recommends the following lubricants for installation and lubrication of bearings.

Plummer blocks: SKF SNH 213

Bearings: SKF 23222

Qty. of grease: 190 g grease for bearing changes.

20 g grease (for subsequent greasing)

Lubricants: Suitable lubricants:

- SKF; SKF Grease LGEP 2
- BP; BP Grease XRB2-DP
- Chevron; Dura-Lith Grease EP2
- Chevron; Alexol HMP 1 EP, Alexol HMP 2 EP
- ESSO; Beacon EP1, Beacon EP2
- FINA; Marson HFF 2 EP
- Gulf; Synthetic Grease Gulflex MP
- Mobil; Mobilux EP2
- Nynäs; L62 EP
- OK; Oktosol Grease EP2
- Shell; Shell Alvania EP2
- Texaco; Multifak EP2, Novotex Grease EP2

Lubrication intervals:

1000 hours of operation or annually.

Lubrication points:

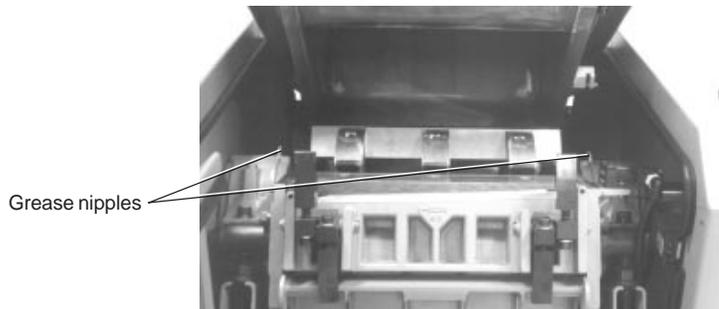
2 grease nipples on the cutter shaft bearings, 1 grease nipple on each plummer block, see the illustration below.

Wipe off any surplus grease. Also wipe the drain hole on the lower side of the plummer blocks.

(Opening the mill, see chapter 5).



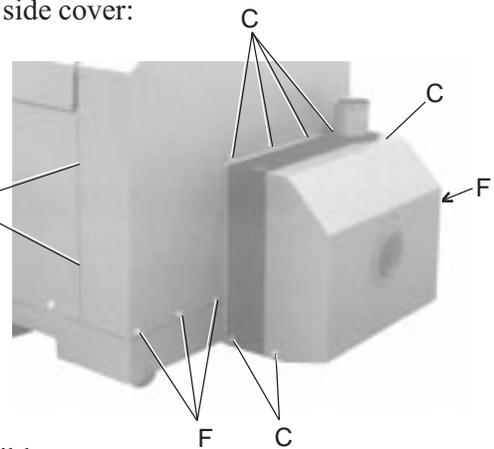
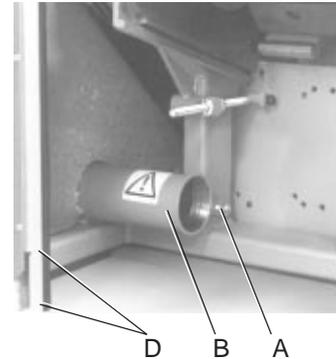
NOTE! Be careful when the feed chute is folded up and the knives are accessible.



Removing the cutter/motor pulleys

The left-hand side cover must be removed to remove the cutter pulley and motor pulley.

1. Open the doors and inlet chute.
2. (1018) Remove the outlet pipe stub.
3. Remove the granulate box.
4. Undo the two screws (A) which hold the outlet pipe stub (B).
5. Remove the outlet pipe stub.
6. Undo the 7 screws (C) which hold the fan housing (4 smaller and 3 larger screws).
Lift the fan housing away.
7. Remove the 8 screws which hold the left side cover:
 - the two lower socket cap screws (D) for the door hinges.
 - two screws (E) against the rear/lower protective cover (on the inside).
 - 4 screws (F) at the lower edge of the side cover.
8. Lift the side cover off.



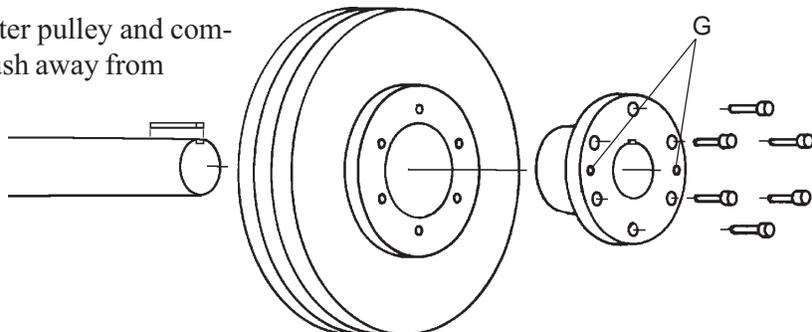
NOTE! Be careful with the electric cable for the fan.

The cutter and motor pulleys are now accessible.

Removing the cutter pulley

The pulley is mounted on a compression bush.

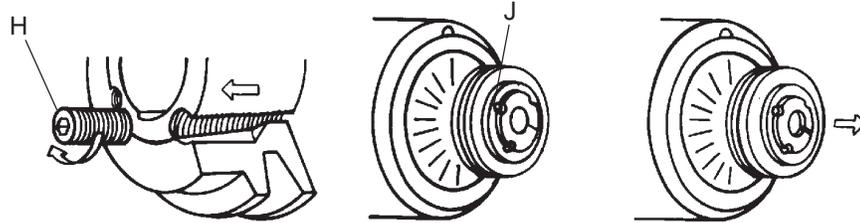
- Undo all screws a couple of turns (6 no.)
- Remove two screws.
- Put a drop of oil into the extractor hole (G), and insert the two screws.
- Tighten the screws, using alternately increased torque until the compression bush comes away from the shaft.
- Lift the cutter pulley and compression bush away from the shaft.



Removing the motor pulley

The pulley is attached by means of a compression bush.

- Undo and remove the two screws (H).
- Put a drop of oil into the extractor hole (J) (The hole with a half thread in the bush). Screw in a screw and tighten - the compression bush will then come undone.
- Lift off the compression bush and pulley from the shaft by hand, without tools, blows etc.



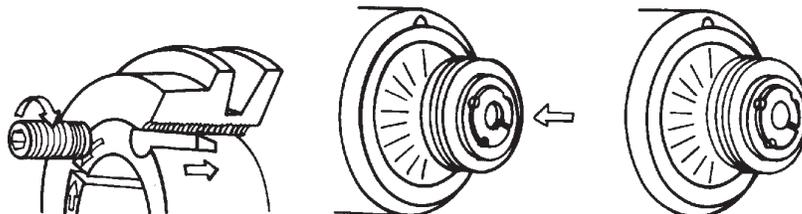
Installing the motor pulley / cutter pulley

The left-hand side cover must be removed to install the motor and cutter pulleys.

Installing the motor pulley

The pulley is fitted with a compression bush.

- Clean and degrease the motor pulley.
- Oil the motor shaft.
- Oil in the screws and fit the compression bush lightly on the pulley.
- Fit the key to the motor shaft.
- Lift the pulley on to the motor shaft. Make sure that the key fits into the compression bush.
- Tighten the screws in the compression bush.
Tighten the screws alternately, tighten in stages and increase the tightening torque to 25 Nm.
- Tap the compression bush between the shaft and the screws. Use a block of wood or plastic.
- Tighten the pulley, using the screws in the compression bush. Tighten the screws alternately, tighten in stages and increase the tightening torque to 50 Nm.

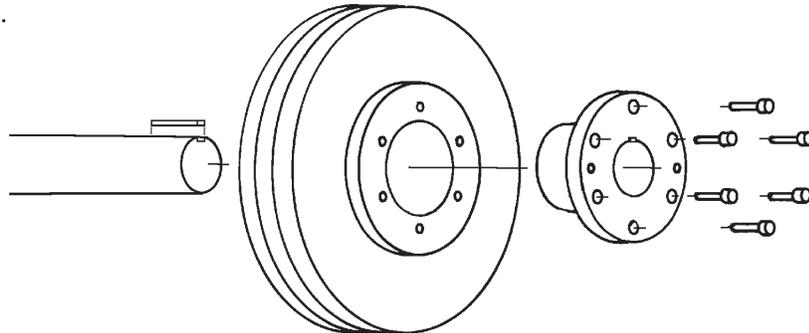


Installing the cutter pulley

The pulley is fitted with a compression bush.

The left-hand side cover must be removed to install the motor and cutter pulleys.

- Clean and degrease the motor pulley.
- Oil the cutter shaft.
- Oil in the screws and fit the compression bush lightly on the pulley.
- Fit the key to the cutter shaft.
- Lift the cutter pulley on to the shaft. Make sure that the key fits into the compression bush.
- Adjust the pulley axially, so that it lines up with the motor pulley.
- Tighten the screws in the compression bush.
Tighten the screws alternately, tighten in stages and increase the tightening torque to 25 Nm.
- Tap the compression bush between the shaft and the screws. Use a block of wood or plastic.
- Tighten the pulley, using the screws in the compression bush. Tighten the screws alternately, tighten in stages and increase the tightening torque to 50 Nm.



Replacing the left-hand side cover.



1. Lift the side cover into place and install all 8 screws loosely.

NOTE! Be careful with the electric cable for the fan.

2. Tighten the two lower socket cap screws for the door hinges and the screws against the rear protective cover.
3. Shut the door and screw in the locking knob.
4. Tighten the 4 fastening screws at the lower edge of the side cover.
5. Install the fan housing (3 larger + 4 smaller screws)
6. Open the door and install the outlet pipe stub, 2 screws.
7. Install the granulate box.
8. (1018) Install the clasp for the outlet pipe stub.
9. Shut the inlet chute and the door.

8. Spare parts list

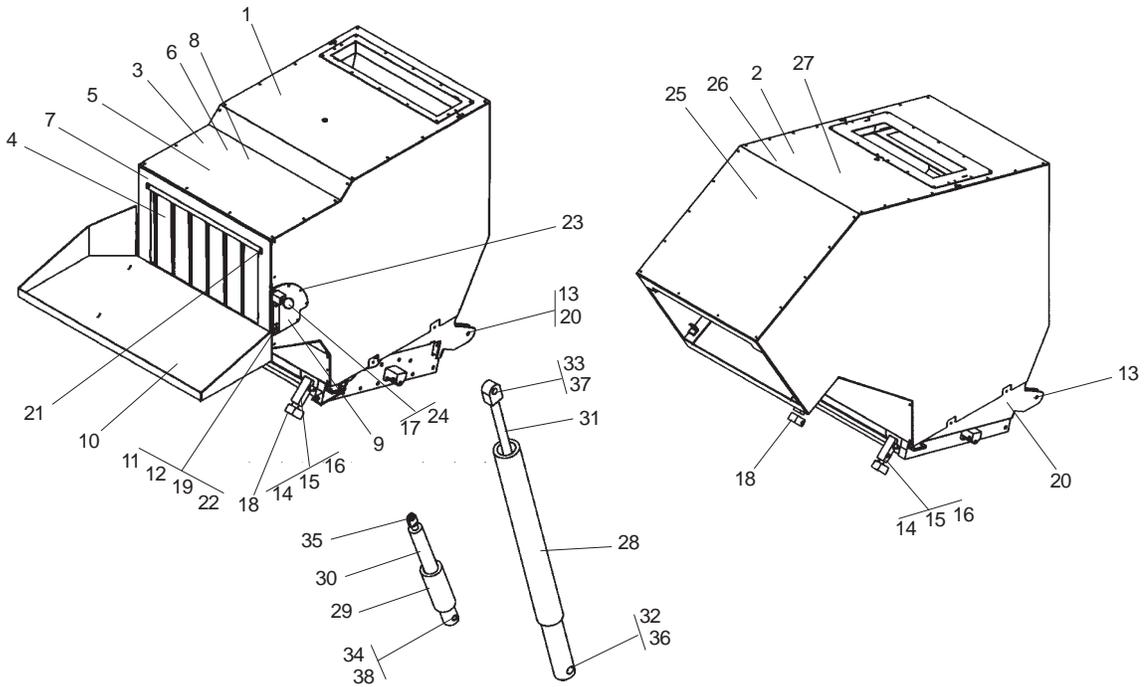
Only use original CONAIR spare parts when you replace machinery components. Orders should be sent to the representative in the country where the machine was purchased.

When you order spare parts, please specify:

- Machine type/designation, on the sign on the machine.
- Serial number, from the sign on the machine.
- Part number, from this parts list.
- Number of components.

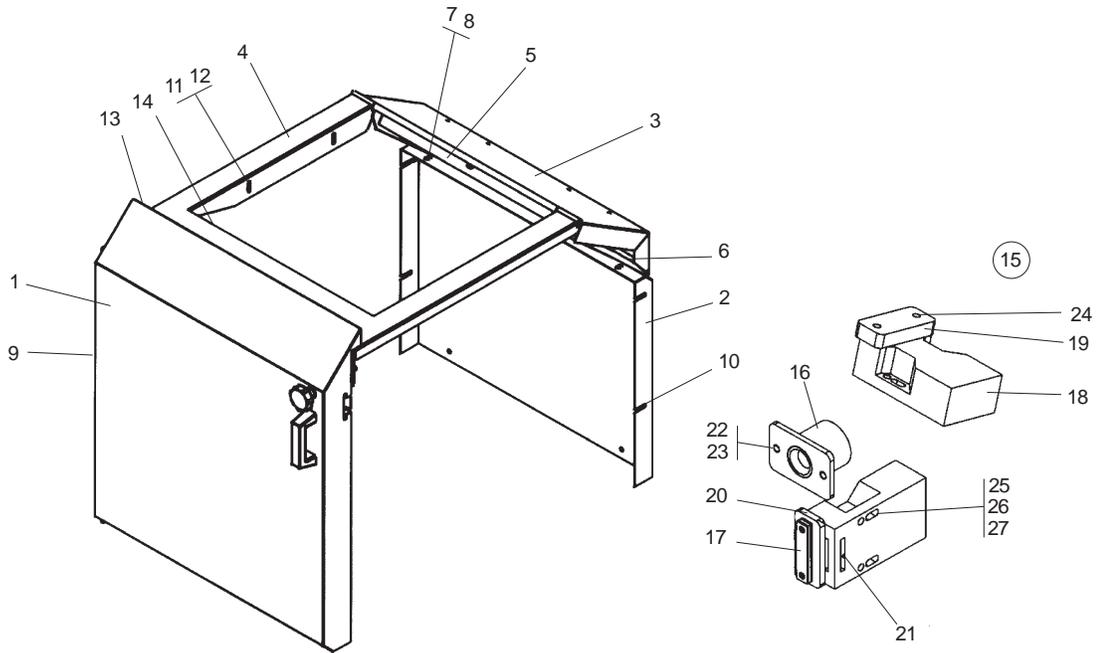
The spare parts list covers the following:	Page
Hopper	27
Cover, door and safety circuit breaker	28
Outlet	29
Knives, cutter och cutteraxle	30
Mill housing, millhousing with 3:rd fixed knife	31
Screen box	32
Stand and transmission	33
Distribution box	34
Blower with cyclone	35

Hopper



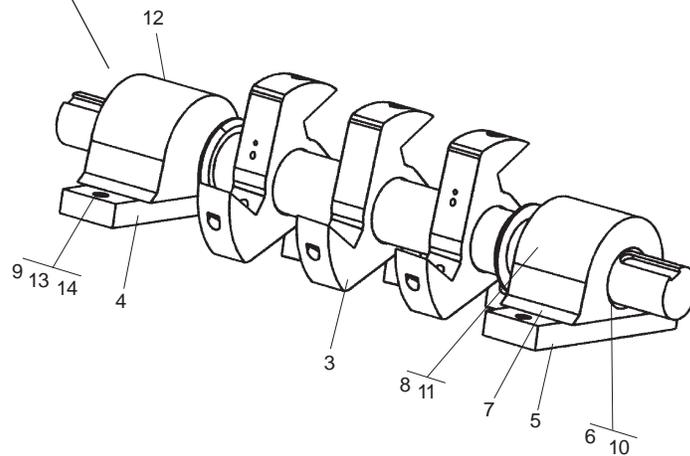
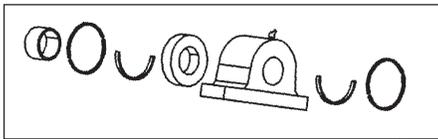
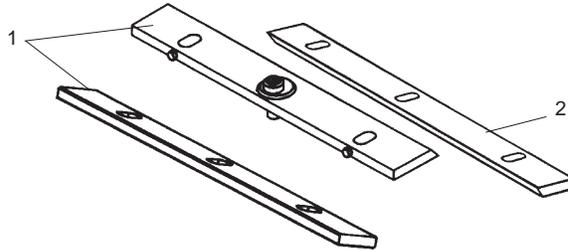
Pos	Qty.	Art.No.	Description	
1	1	1-023970	Hopper front	
	alt.	1-024654	Hopper front harded	
2	1	1-024313	Hopper front	
	alt.	1-024313	Hopp front 3:d fixed knife	
3	1	2-018971	Flap frame	
4	1	3-020129	Flap 454 x 335	
5	1	2-024650	Flap 455 x 360	Flap
6	1	2-024651	Flap 455 x 510	Flap
7	1	4-018973	Flap shaft	
8	2	4-018972	Flap shaft	
9	2	3-019984	Holder	
10	1	1-018975	Hopper table	
11	1	4-011013	Shaft 14 x 60	
12	2	4-006369	Bushing 10/6	
13	2	4-024646	Shaft 16 x 95	
14	2	4-018937	Latch screen	
15	2	4-018938	Locking arm	
16	2	4-002789	Compr spring	
17	1	4-008831	Spring lock	
18	2	9-940125	Socket screw M12	
19	6	9-940348	Socket screw M6	
20	2	9-940551	Grub screw M6	
21	2	9-940102	Grub screw M6	
22	2	9-950241	Nut blind riv	
23	12	9-940261	Riv	
24	1	9-950278	Manuel ball	
25	1	2-020894	Flap 454 x 695	
26	1	3-020895	Flap 454 x 800	
27	1	3-020896	Flap 454 x 700	
28	1	4-022847	Sleeve	
29	1	3-022995	Sleeve	
30	1	9-920655	Gas spring	
31	1	9-920656	Gas spring	
32	1	9-940056	Screw M12	
33	1	9-940141	Screw M10	
34	1	9-940323	Screw M8	
35	1	9-940044	Screw M8	
36	1	9-940059	Screw locking M12	
37	1	9-940015	Screw locking M10	
38	1	9-940317	Screw locking M8	

Cover, door and safety circuit breaker



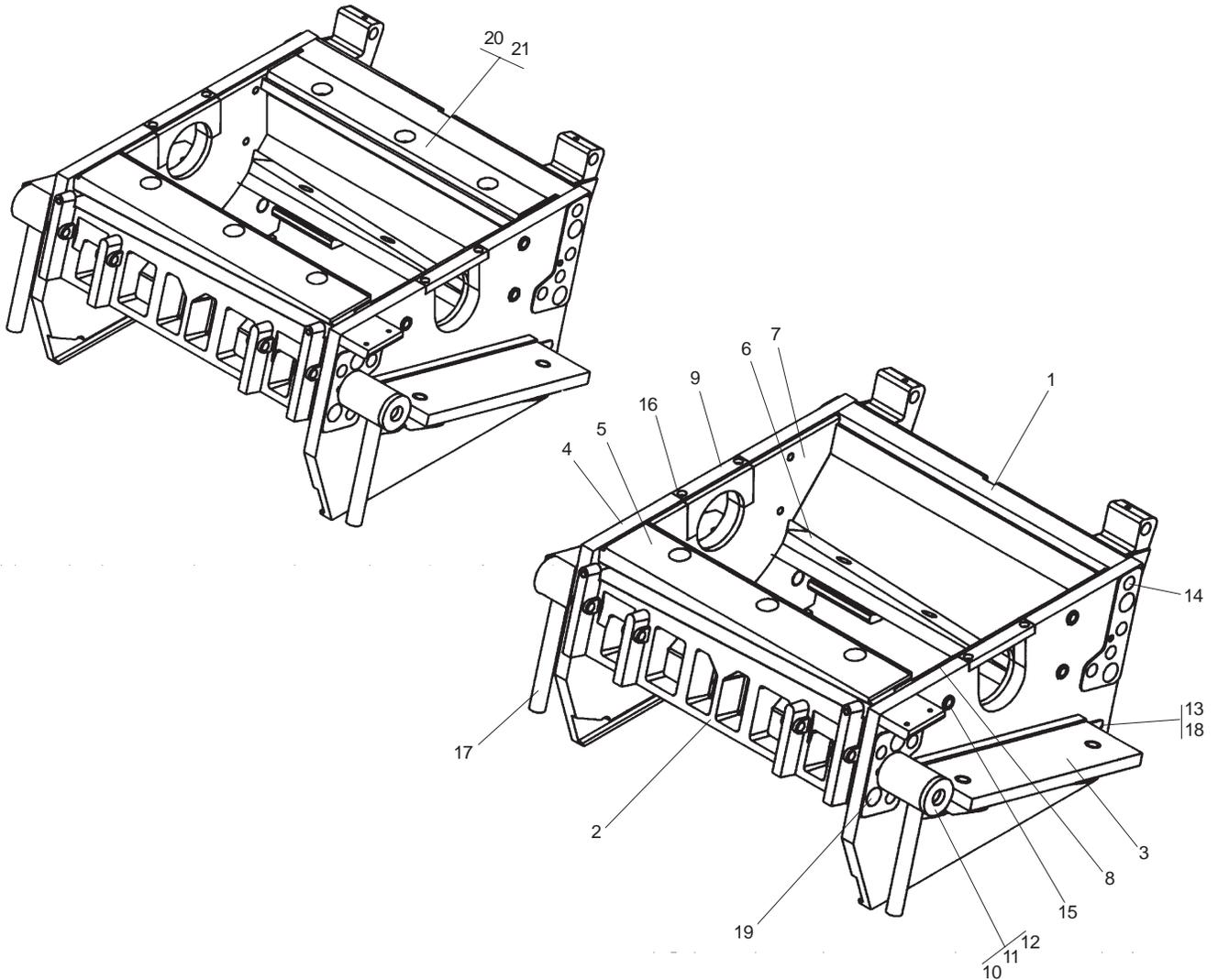
Pos	Qty.	Art.No.	Description
1	1	1-022843	Door
2	1	2-022832	Cover rear lower
3	1	2-022831	Cover rear upper
4	1	1-022826	Frame sealing
5	1	2-022833	Frame
6	2	4-023005	Shaft
7	2	9-950066	Eye bolt
8	4	9-940030	Nut M10
9	5	9-940579	Socket screw M8
10	4	9-940057	Screw M8
11	4	9-940439	Washer
12	4	9-940039	Socket screw M6
13	1	9-970040	Clip list, rubber
14	1	9-970003	List
15	1	3-025158	Security switch complete
16	1	4-022844	Bracket, shaft
17	2	4-024329	Holder, key
18	2	9-911002	Switch
19	1	9-911004	Key switch
20	1	9-911003	Key switch
21	6	9-911005	Cover plug
22	2	9-940394	Screw M6
23	2	9-940169	Washer
24	4	9-940250	Socket screw M5
25	4	9-940206	Socket screw M5
26	2	9-940267	Nut locking M5
27	2	9-940243	Washer

Knives, cutter and cutter axle



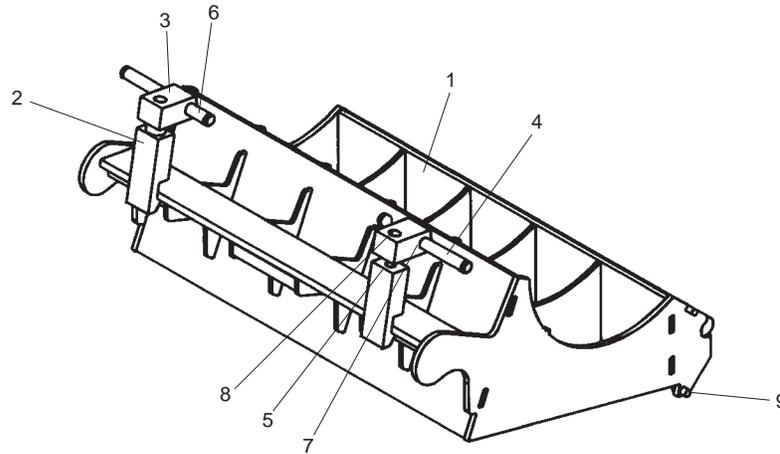
Pos	Qty.	Art.No.	Description
1	1	3-025142	Knives complete with screws
2	1	3-025143	Knife third complete with screws
3	1	1-023018	Cutter
4	1	3-007539	Bearing housing left
5	1	3-007573	Bearing housing right
6	1	4-012892	Bearing ring D75
7	1	9-950458	Parallel pin
8	2	9-960063	Ball bearing
9	1	9-950369	Insert thread
10	1	9-960064	Bearing guide
11	2	9-960110	Bearing sealing
12	2	9-950062	Lubricant nip
13	2	9-940435	Washer
14	2	9-940506	Socket screw M16

Mill housing, mill housing with 3:rd fixed knife



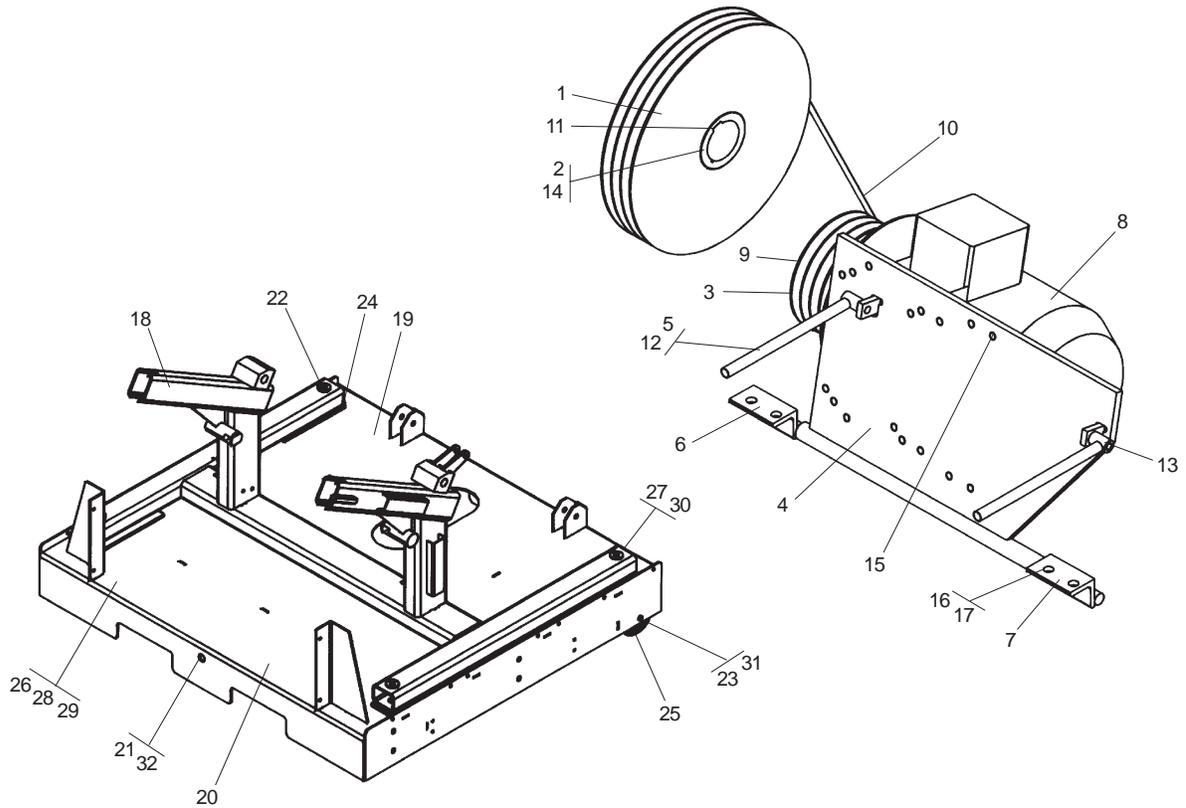
Pos	Qty.	Art.No.	Description
1	1	1-023514	Back side
	alt.	4-023517	Back side, hardened
2	1	1-023513	Front side
	alt.	4-023516	Front side, hardened
3	1	1-021715	Side right
4	1	1-021714	Side left
5	1	3-021502	Support rule front
6	1	3-018875	Support rule back
7	1	2-021508	Side inner left
	alt.	4-023521	Side inner left, hardened
8	1	2-021506	Side inner right
	alt.	4-023522	Side inner right, hardened
9	2	3-021503	Sealing upper
10	2	3-023003	Bracket
11	6	4-001063	Washer
12	2	9-940600	Socket screw M20
13	2	9-940583	Socket screw M20
14	14	9-940506	Socket screw M16
15	8	9-940007	Socket screw M8
16	4	9-940039	Socket screw M16
17	4	9-940079	Nut M20
18	4	9-940313	Washer
19	8	9-950437	Parallel pin
20	1	1-023515	Back side, for third fixed knife
21	1	3-021107	Support rule - " -

Screenbox



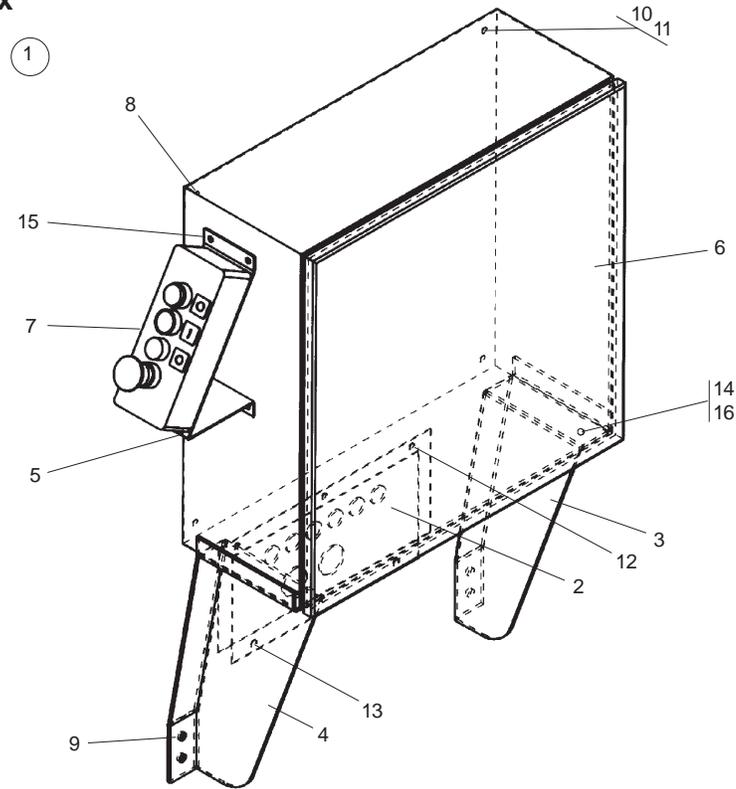
Pos	Qty.	Art.No.	Description
1	1	1-021705	Screen box
	alt.	1-024644	Screen box stitch reduced
2	2	4-018937	Latch
3	2	4-018938	Locking arm
4	2	4-006390	Shaft
5	2	4-002789	Compression spring
6	4	9-950025	Retaining ring
7	2	9-940301	Spring washer
8	2	9-940125	Socket screw M12
9	2	9-940070	Socket screw M8

Stand and transmission



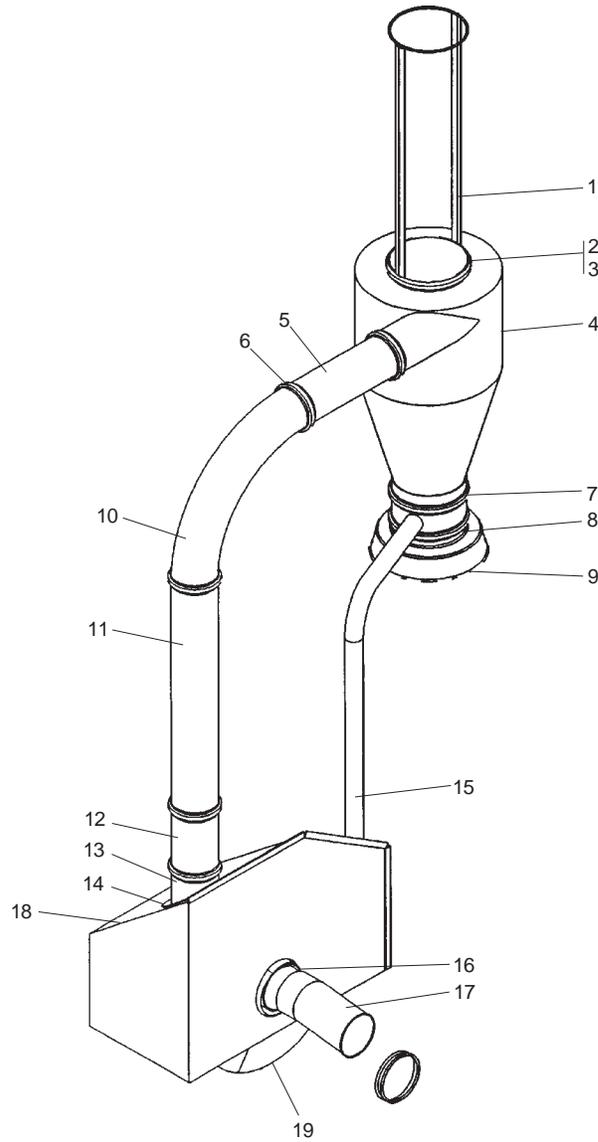
Pos	Qty.	Art.No.	Description
1	1	2-006306	Pulley cutter
2	1	2-015659	Flange bushing
3	1	3-007527	Pulley motor 7,5 kW
	alt.	3-006344	Pulley motor 11 kW/15 kW
4	1	1-018921	Motor mounting 7,5 kW
5	2	4-018885	Belt stretcher
6	1	3-018922	Bracket left
7	1	3-018923	Bracket right
8	1	9-910331	Motor 7,5 kW
	alt.	9-910010	Motor 11 kW
	alt.	9-910911	Motor 15 kW
9	1	9-930118	Taper-lock 7,5 kW
	alt.	9-930119	Taper-lock 11 kW/15kW
10	3	9-930130	Vee-belt SPB
11	1	9-950182	Key
12	4	9-940148	Flange nut M16
13	2	9-940050	Socket screw M12
14	6	9-940005	Socket screw M10
15	4	9-940026	Screw M12
16	4	9-940306	Screw M12
17	10	9-940155	Washer
18	1	1-021719	Stand
19	1	1-022813	Bottom plate
20	1	2-018935	Rail holder
21	1	4-018936	Shaft
22	4	4-018925	Damper stand
23	2	4-018942	Shaft
24	4	4-018941	Vibrations damper
25	2	9-950435	Wheel
26	2	9-950056	Wheel turnable
27	4	9-940154	Socket screw M12
28	2	9-940519	Socket screw M10
29	2	9-940368	Nut locking M12
30	4	9-940060	Washer
31	4	9-950025	Retaining ring
32	2	9-950024	Retaining ring

Distribution box



Pos	Qty.	Art.No.	Description
1	1	3-025152	Electrical box complete 1018 7,5 kW 230 V
	1	3-025153	Electrical box complete 1018 11 kW 230 V
	1	3-025154	Electrical box complete 1018 15 kW 230 V
	1	3-025155	Electrical box complete 1018 7,5 kW 110 V
	1	3-025156	Electrical box complete 1018 11 kW 110 V
	1	3-025157	Electrical box complete 1018 15 kW 110 V
	1	3-025163	Electrical box complete 1018 7,5 kW 230 V
	1	3-025164	Electrical box complete 1018 11 kW 230 V
	1	3-025165	Electrical box complete 1018 15 kW 230 V
	1	3-025166	Electrical box complete 1018 7,5 kW 110 V
	1	3-025167	Electrical box complete 1018 11 kW 110 V
	1	3-025168	Electrical box complete 1018 15 kW 110 V
2	1	3-031717	Flange cable
3	1	2-022829	Bracket elect
4	1	2-022830	Bracket elect
5	1	3-020942	Bracket start
6	1	9-910914	Electrical box 1018 7,5 kW 230 V
	1	9-910920	Electrical box 1018 11 kW 230 V
	1	9-910926	Electrical box 1018 15 kW 230 V
	1	9-910913	Electrical box 1018 7,5 kW 110 V
	1	9-910919	Electrical box 1018 11 kW 110 V
	1	9-910925	Electrical box 1018 15 kW 110 V
	1	9-910916	Electrical box 1018 7,5 kW 230 V
	1	9-910922	Electrical box 1018 11 kW 230 V
	1	9-910928	Electrical box 1018 15 kW 230 V
	1	9-910915	Electrical box 1018 7,5 kW 110 V
	1	9-910921	Electrical box 1018 11 kW 110 V
	1	9-910927	Electrical box 1018 15 kW 110 V
7	1	9-990161	Push-button box
8	2	9-950055	Vibration damper
9	4	9-940008	Screw M10
10	2	9-950241	Nut blind rivet M6
11	4	9-940316	Nut locking M6
12	3	9-940057	Screw M8
13	2	9-940444	Screw M8
14	6	9-940104	Socket screw M6
15	4	9-940638	Socket screw M4
16	4	9-940027	Nut M6

Blower with cyclone



Pos	Qty.	Art.No.	Description	Note
1	1	9-20481		
2	1	2-10594		
3	1	3-10590		
4	1	4-11770		
5	1	3-12733		
6	6	9-20415		
7	2	9-20107		
8	1	4-10790		
9	1	3-10787		
10	1	4-11768		
11	1	4-11762		
12	1	9-20423		
13	1	3-13138		
14	1	9-70152		
15	1	1-20285		
16	1	3-14771		
17	1	2-21920		
18	1	1-18969		Blowersyst. F7
	1	1-20901		Blowersyst. F15
19	1	9-20206		Blowersyst. F7
	1	9-20421		Blowersyst. F15

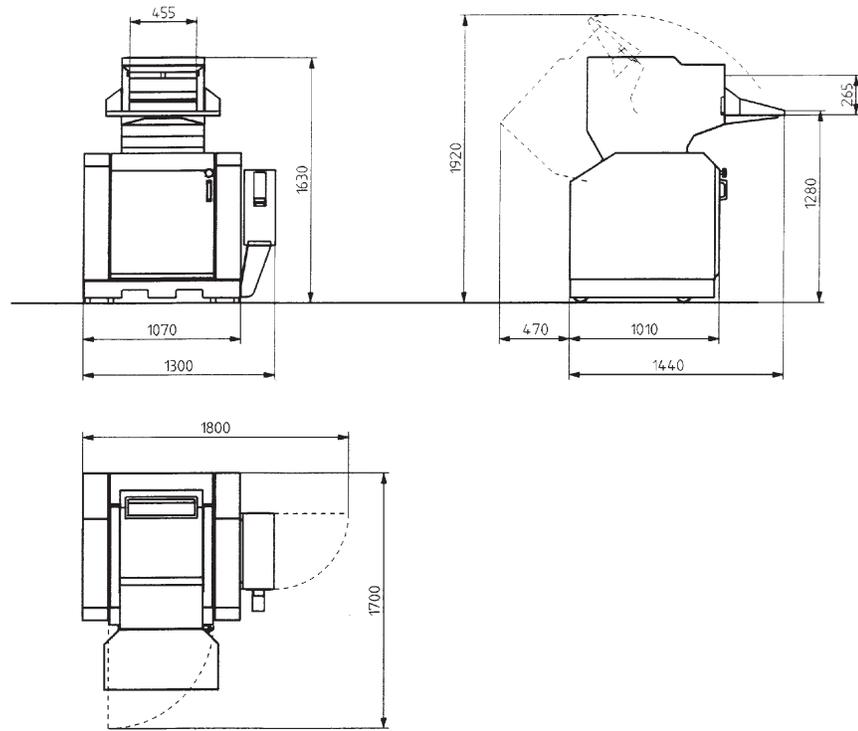
9. Wiring diagram

These standard components may be found in the electrical equipment for the 1018 mill.

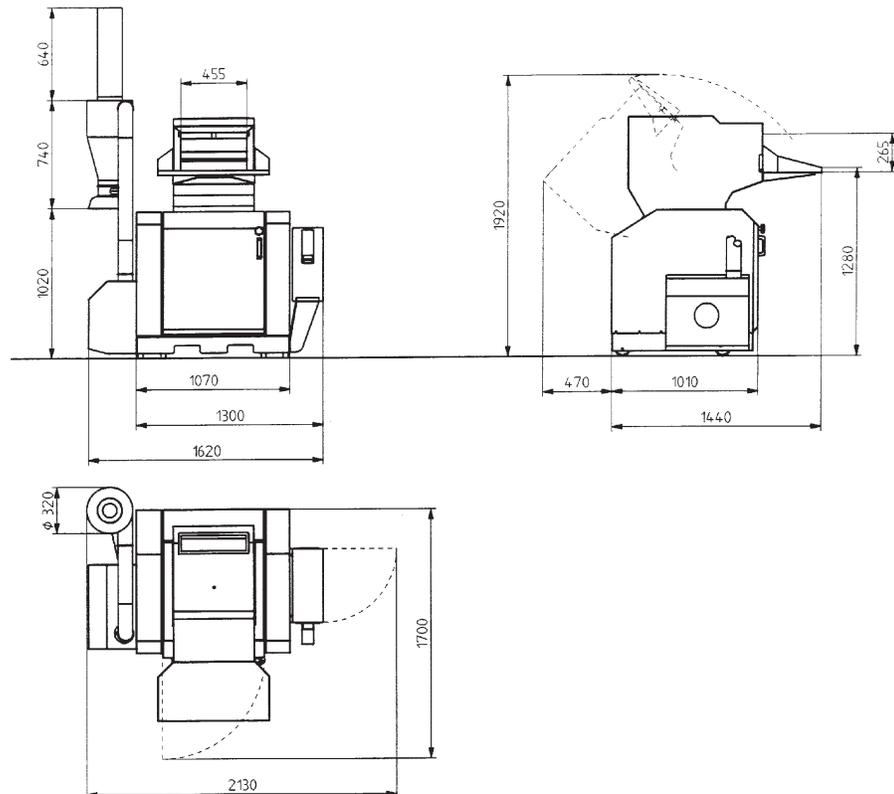
F1	Overcurrent relay, mill motor
F14	Circuit breaker, control transformer
F15	Fuse, control voltage (glass fuse)
H1	Operation indication lamp
K1	Mains contactor
K2	Contactor, delta D
K3	Contactor, star Y
K4	Time relay Y/D connection
K5	Contactor, fan motor
K6	Contactor, conveyor belt
K7	Overcurrent relay
K8	Motor speed monitor
M1	Mill motor
M2	Fan motor
M3	Motor, conveyor belt
Q1	Main switch
Q2	Motor protection circuit breaker, fan
Q3	Motor protection circuit breaker, conveyor belt
S1	Emergency stop
S2	Stop button, mill
S3	Start button, mill
S4	Extra emergency stop
S5	Safety circuit breaker
S6	Safety circuit breaker
P1	Hours counter
T1	Control transformer
T2	Current transformer
U1	Metal detector
X1	Connection terminals
X2	Terminals, fan
X3	Terminals, conveyor belt
X4	Terminals, metal detector

10. Layout

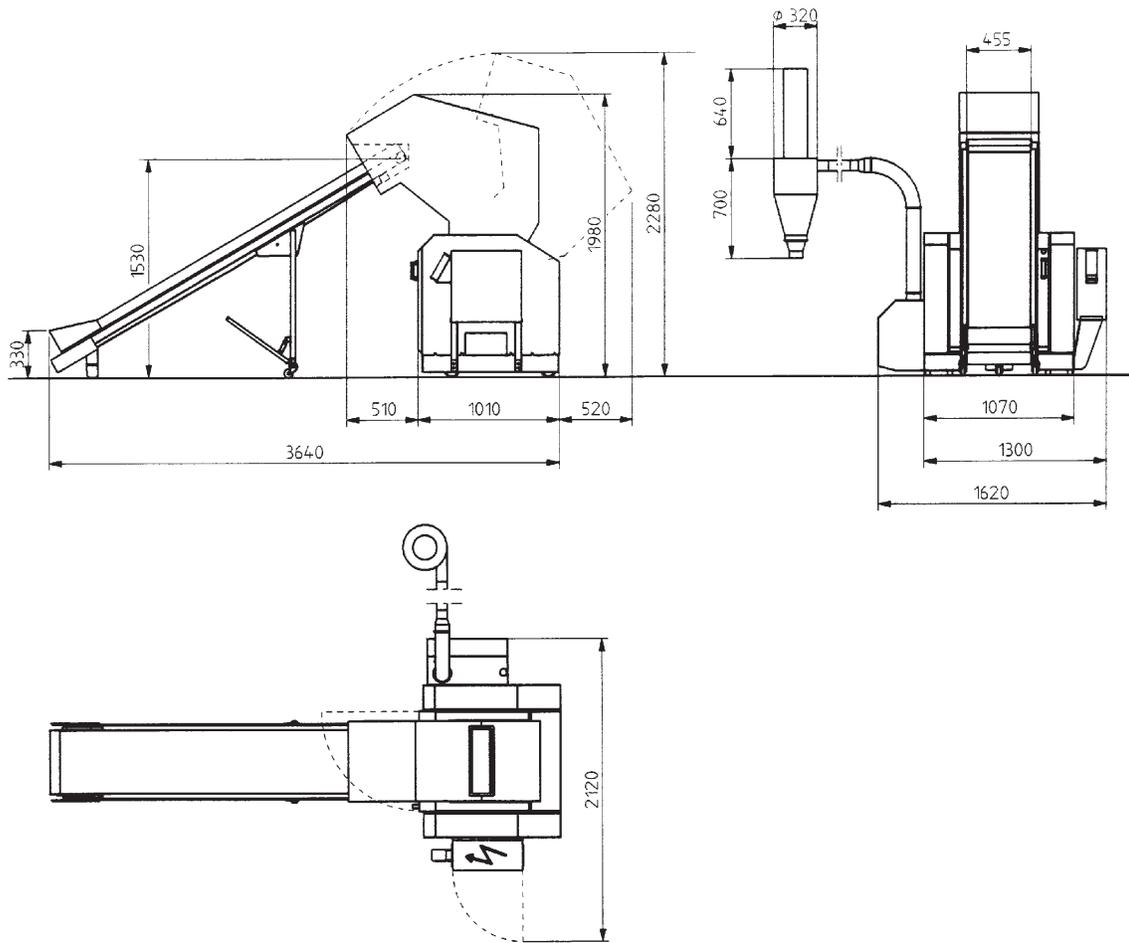
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1018



1018



11. Options

The mill can be equipped with the following optional extras:

	Page
Third fixed knife, knife change, sharpening	40 - 41
Conveyor belt	42 - 44

Ordering spare parts for options

Only use CONAIR original spare parts to replace machinery components.

Orders should be sent to the representative in the country where the machine was purchased.

When you order spare parts, please specify:

- Machine type/designation, on the sign on the machine.
- Serial number, from the sign on the machine.
- Part number, from this parts list.
- Number of components.

Third fixed knife

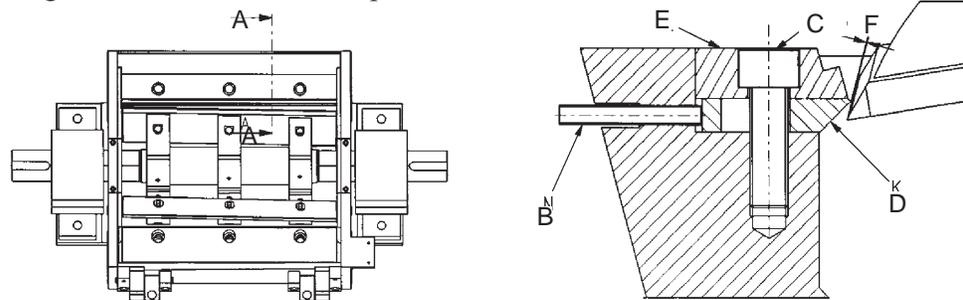
This mill can be equipped with a third, fixed knife (option). The third fixed knife is used to increase the efficiency of the mill, or for grinding foil material etc.

Removal/installation

- Loosen the fastening screws (B) at the rear of the knife.
- Loosen and undo the fastening screws (C).
- Remove support rail (D) and knife (E).
- Clean the surfaces where the knife was located.
- Install the new knife with the support rail
- Screw in the adjustment screws and press the knife back against the rear edge of the knife socket. Check that the cutter and the rotating knives can pass the knife without catching.
- Install the fastening screws loosely.
- Set the knife clearance (F), screw in adjustment screws (B). The clearance should be 0.15 - 0.30 mm (foil 0.10 - 0.20 mm)

Use a feeler gauge. Hold the feeler gauge alternately between left and right hand sides of the rotating knife and the fixed knife. Screw the adjustment screws out against the rear edge of the knife, until the feeler gauge starts to bind.

- Check the knife clearance against all the rotating knives.
- Tighten the knife screws, torque 300 Nm.



Sharpening the third, fixed knife

Be careful with knives, they are sharp and can cause injury!

NOTE! Get an experienced craftsman to sharpen the knives.

Only sharpen the marked surfaces!



The third, fixed knife must be sharpened exactly, to get the correct cutting and relief angles.

The mill loses its efficiency otherwise.

The CONAIR grinding jig 1018 and a surface grinder with magnetic bed must be used for knife sharpening. The jig is not included when the mill is delivered, but is a very practical accessory which can be ordered.

The knife must be cooled during sharpening. The knife must not be burned or blued in any circumstances, since it will then lose its hardness and durability.

If the knife is blued or burned, it can not be repaired by grinding down the blued or burned colour. The hardened knife is then completely spoiled and has lost all its hardness and durability.



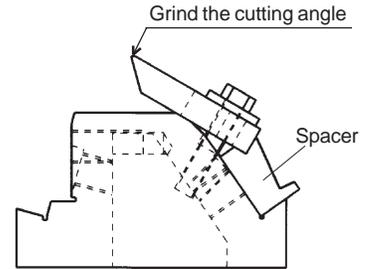
NOTE! Only sharpen the marked surface, and respect the specified dimensions!

Grind the knife edge first, cutting angle 30°.

Fasten the knife in the right-hand position of the jig, with a spacer beneath the rear edge of the knife.

The spacer must be aligned as shown in the illustration. This gives the third knife the correct cutting angle.

Use the surface grinder and grind until all unevenness in the knife edge has disappeared.



Grind the relief angle of the knives to 45°.

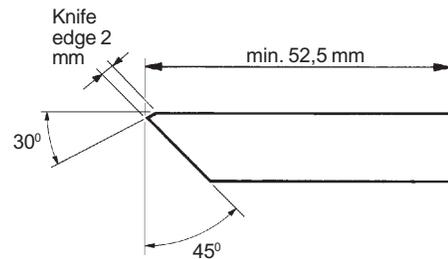
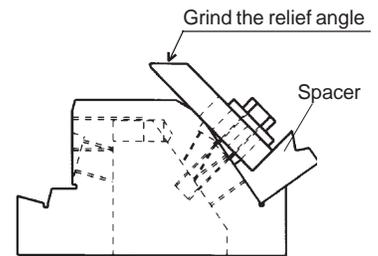
Undo the knife and take it out.

Turn the spacer round as shown in the illustration.

Turn the knife round.

Fasten the knife in the jig, with a spacer beneath the rear edge of the knife as shown in the illustration.

Grind the relief angle until the knife edge is 2 mm wide.

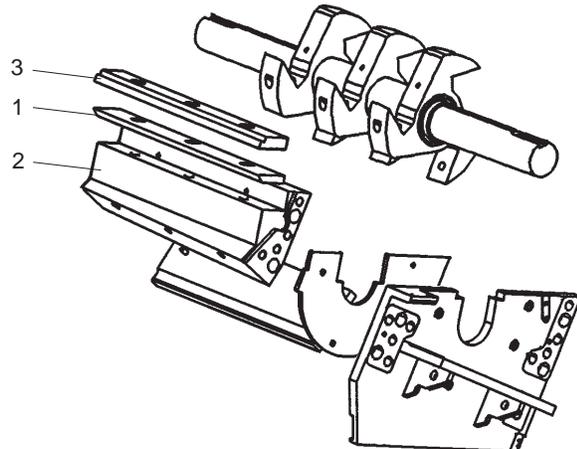


The third knife can be ground down to the dimensions shown in the adjacent illustration.

After this, it is used up and must be replaced by a new one.

Ordering spare parts

Pos	Qty	Art.No.	Description
1	1	3-21108	o Knife
	3		oo Socket screw
2	1	3-21916	o Back side
3	1	1-21107	oo Support rule



Conveyor belt

The conveyor belt LD/AL is intended for transporting plastics waste. The conveyor is made from aluminium extrusions, with T-grooves. The framework beams are joined together by cross members and screws in the T-grooves. The return section of the conveyor is built into the framework.

The conveyor has a metal-free zone and can be equipped with a metal detector.

Safety

In all work on the conveyor, put both the main switch and the switch on the mill in the "OFF" position. As an alternative, you can pull out the plug on the mains outlet on the mill distribution box.

The conveyor is intended for transporting plastics waste. Do not use the conveyor for other purposes than the intended.

No person may travel on the conveyor, or walk on it during operation.

If the conveyor stops because of faults, or the emergency stop, it must not be started until the reason has been discovered and attended to.

Mobile conveyors must always be transported folded down.



Warning! When a conveyor with dogs is used. Be careful to make sure that a dog does not catch on a foot, arm or clothing.

Installation

Align the conveyor with the feed chute on the mill. Adjust the height of the stand so that when the conveyor is pushed into place, it slides up by itself and is then retained by the stop heels on the feed chute.

Then adjust the stand so that the conveyor is level, when measured on the diagonal.

If the floor of the storage location is very uneven, it should be evened off before the conveyor is set up.

Electrical connections

The conveyor must be connected by a competent electrician.

Connect the conveyor by means of a plug to the distribution box on the mill.

Alternatively, connect the cables to the distribution box in accordance with the markings and the wiring diagram of the mill, see chapter 9.

Switch on the main switch on the distribution box. Press the start button and check that the conveyor goes in the correct direction.

If the conveyor goes the wrong way.

Switch two phases in the connection to the contactor for the conveyor (K6) in the distribution box. Alternatively, switch two phases in the plug connection.

Starting

When the conveyor is started the first time, check the position of the belt on the rollers. The belt must not run off-centre!

If the belt runs off-centre

To gain access to the adjustment screws, remove the covers by the returning roller. The covers are held in place by 2 socket cap screws (3 mm Allen key) underneath.

- Remove the socket cap screws.
- Undo the lock nuts (spanner width 17 mm).
- Adjust - only turn one adjustment screw at a time. Only turn a ¼ turn. Wait, and let the belt run for a few minutes.

Check, adjust, wait and check again until the belt runs straight!

- Tighten the lock nuts.
- Install the covers and the socket cap screws.

Belt tension

The length of the conveyor belt has 1% tolerance. Never tighten the adjustment screws on the conveyor belt with greater torque than 5 Nm.

When the belt is adjusted, stop the conveyor and put the covers back again.

Maintenance

In all maintenance work on the conveyor, put both the main switch and the switch on the mill in the "OFF" position. As an alternative, you can pull out the plug on the mains outlet on the mill distribution box.

Regularly check belt wear and the position of the belt on the rollers.

The belt must not run off-centre!. Adjust as necessary as in "Start - If the belt runs off-centre" in the previous chapter.

Clean the belt with a mild detergent. Do not use sharp tools, strong cleaners or chemicals, they can damage the belt.

Fault-finding

If the conveyor does not start.

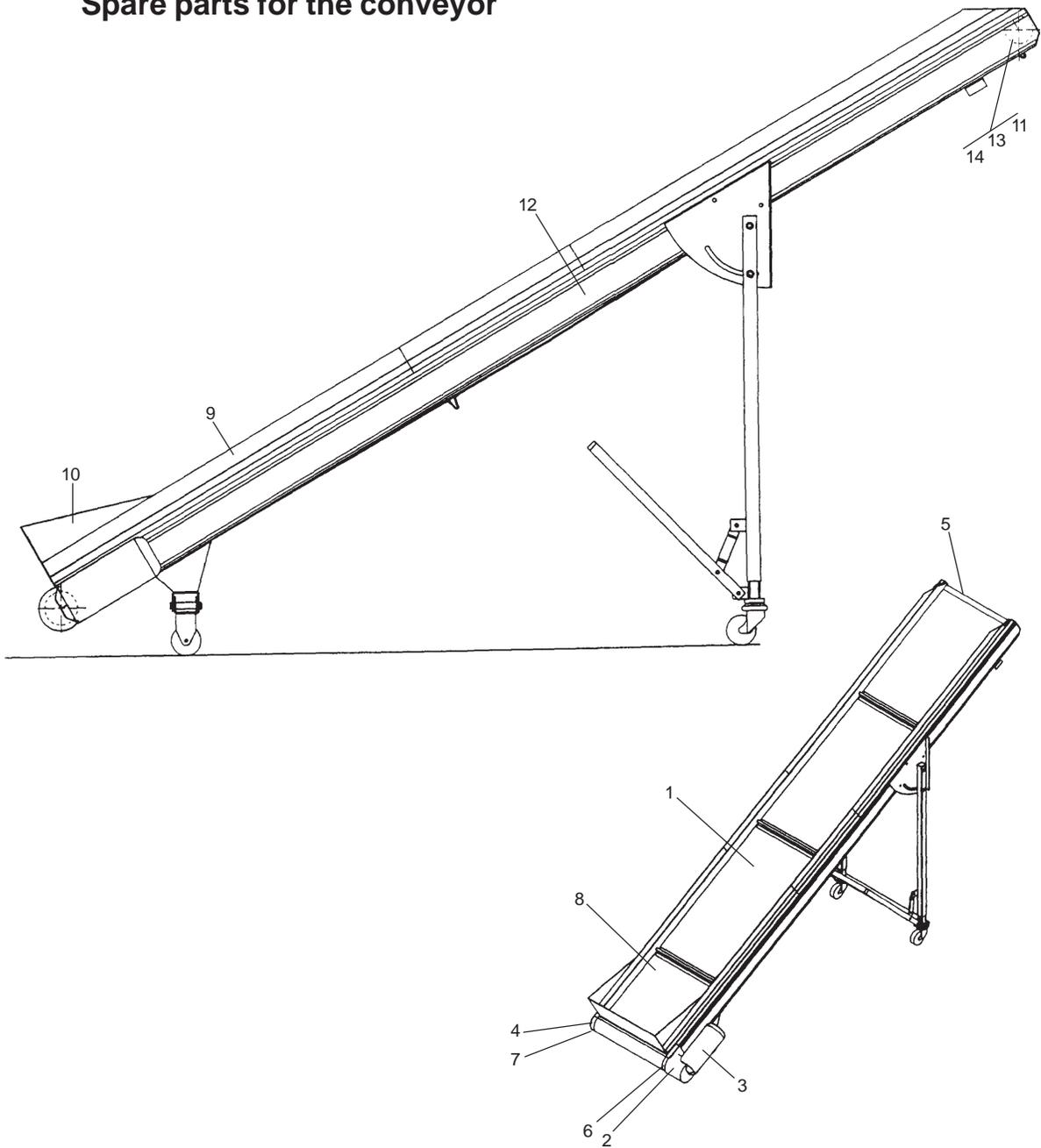
The belt has a motor protection circuit breaker, which protects against overload. This is contactor Q3 in the distribution box.

If the contactor has switched "off", the switch is in the "0" position.

Reset - move the switch button on the contactor to the "1" position.

Also check the wiring diagram in chapter 9 of the instruction manual, additions and deletions may occur.

Spare parts for the conveyor



Pos	Qty.	Art.no	Description
1	1	*)	Belt
2	1	1-20118	Gearbox
3	1	1-10310	Electric motor
4	1	1-20112	Drive roller
5	1	1-20080	End roller
6	1	1-20131	PU-belt T30 flights
7	2	1-10269	Bearings BLF 204
8	1	1-20143	Sheet
9	2	1-20144	Side edges
10	1	1-20145	Hopper
11	2	1-20146	Cover
12	2	1-20147	End
13	2	1-20148	Extension screw
14	2	1-20149	Lock plate

*) Specify the machine type, serial number and belt when ordering.

12. Transport and storage

General

All transport of the machine must be carried out by trained personnel.

The machine is wrapped in protective plastic foil on delivery, and attached to a pallet by lashing straps.

Removal of packaging and reception inspection

- Check that the mill has not been damaged during transport.

NOTE! Report any transport damage to the freight agent.

- Do not remove the transport packaging from the mill until it has been transported to its installation site.
- Check the packing note to ensure that the consignment is complete.

Lifting and transporting to storage location

The mill weighs 800 - 8500 kg.

Please refer to Layout, chapter 10, for the space required.

The mill can be lifted and handled by means of a fork lift truck, if the truck has an extra long fork.

NOTE! The fork length on the truck must be at least 2300 mm.

Location at installation site

Please refer to installation, chapter 5.

Storage

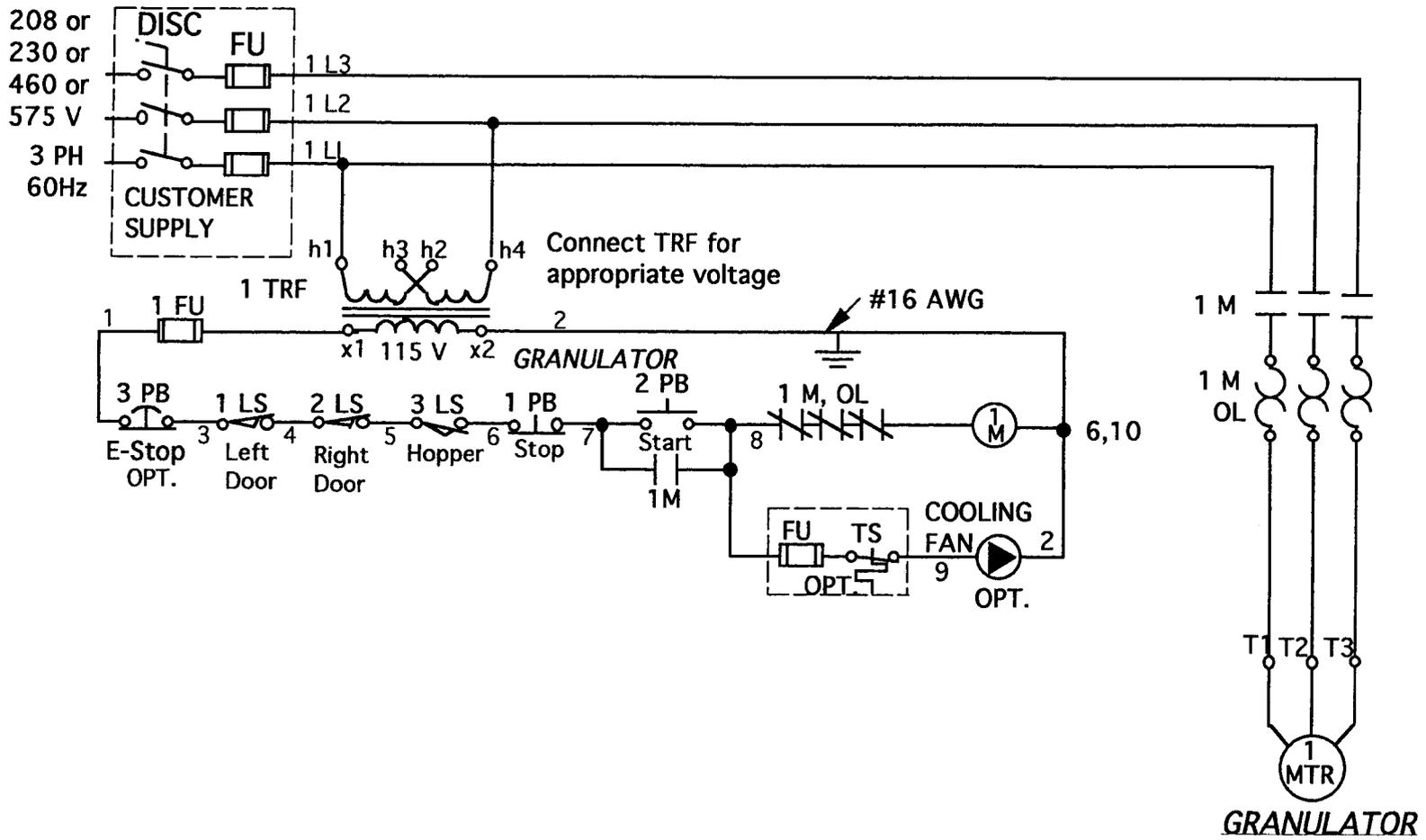
The mill is packaged for transport to the place where it will be taken into service.

On delivery, it is rust-proofed with Castrol DWX 22 rust prevention oil.

Long term storage / Conservation

- Store the machine in a dry warehouse with even temperature.
- Treat the un-painted surfaces of the machine with rust-preventer, such as Castrol DWX22. DWX22 protects the machine for up to 12 months. As an alternative, DWX160 can be used, which gives protection for 24-36 months.

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CONAIR MARTIN <small>Part of The Conair Group CONAIR, INC. 1984</small>			
NAME ELECTRICAL SCHEMATIC			
MACHINE SIZE 1 MTR, 208 THRU 575V,W/FAN			
MACHINE SIZE 1018K			
DR. BY TK	DATE 8-21-97	CHK. BY	SCALE 1:1
DWG NO. C-201-00-0706			SHEET 1 OF 1