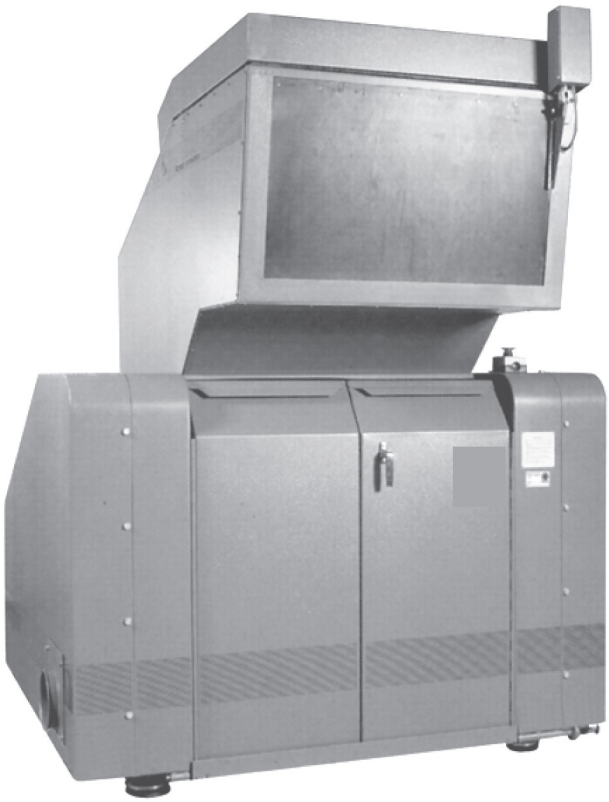
MANUAL

CK-1831

UGG007/0203



⚠ **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This manual is out-of-date and is provided only for its technical information, data and capacities.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containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

Contents

1. Introduction

This manual applies to CONAIR MARTIN'S granulation mill, model 1831

Supplementary designations are:

K	– noise encapsulated machine
KU	– noise encapsulated machine with extraction fan
KB	– noise encapsulated machine with conveyor
KURF	– noise encapsulated machine with extraction fan and roll feed.

Read the manual before installing and using the machine.

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

CONAIR MARTIN'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 . 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 head office.

2. Technical specification

Dimensions

Overall dimensions of machine

1831 (l x w x h) ..... 1940 x 1890 x 2040 mm

Data

Serial Number _____

Motor power ..... _____

Belts ..... _____

Voltage ..... _____

Fan ..... _____

Rotating knives ..... _____

Screen ..... _____

Weight ..... -K app. 2300 kg

..... -KU app. 2400 kg

..... -KB app. 2500 kg

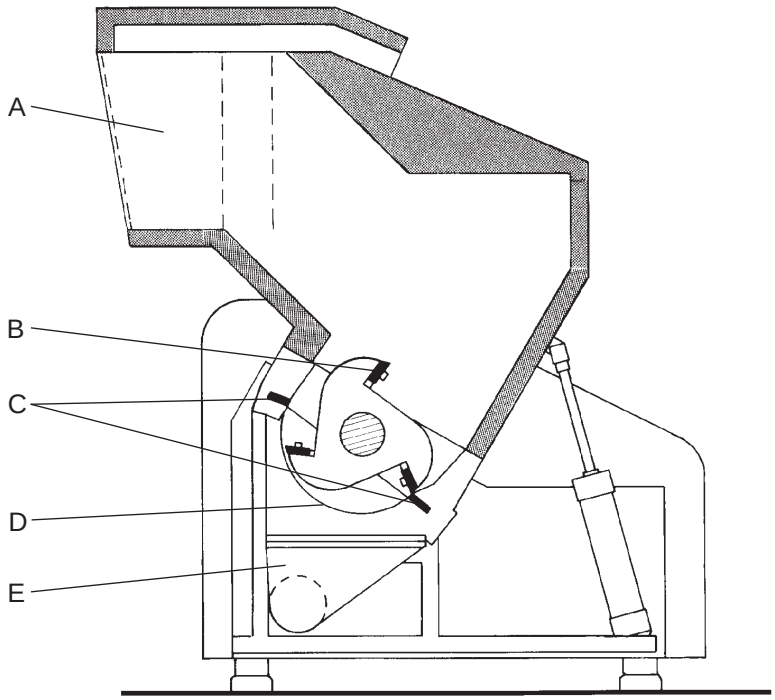
..... -KURF app. 2600 kg

3. Function description

General

Granulation mill 1831 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 (A) and falls down into the mill body, where rotating knives (B) cut the plastics waste against fixed knives (C).

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 determine 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 (E) is emptied manually in the model 1831. If the mill has an exhaust fan 1831, the fan sucks the granulate away to a cyclone, where air and dust are separated.

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

The granulate box, 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 rotating knives in the mill, and a safety system to prevent personal injury.

Emergency stop. The mill has an emergency stop located on the control panel by the distribution box. 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.

The circuit breakers are located in the following places:

1 at the bottom underneath the right-hand side cover

1 behind the lift piston of the inlet chute.

For the machine to start, the:

feed chute must be folded down and locked and the doors closed (screen box folded up).

Knob for safety circuit breaker on doors.

4. Safety rules

General

CONAIR MARTIN 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

- Install the mill and adjust the machinery feet until the mill is level.
- The feed chute and screen box can not be opened before electricity and air have been connected.
- Clean the mill from rust preventer before it is taken into service. The un-painted components of the mill are given a protective coating of oil before delivery and transport.
- 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.

Check the direction of rotation of the mill motor:

- Remove the screws (16 no.) from the lower protective cover on the rear of the mill.
- Remove the cover.
- Make sure that the main switch on the distribution box is "ON".
- Check that the emergency stop is not activated.
- Check that the feed chute is closed and that the knob on the door safety circuit breaker is well screwed down.
- Press "START".
- Check that the direction of rotation of the vee-belts corresponds with the arrow on the motor housing.
- On the 1831, check that the direction of rotation of the fan corresponds with the arrow on the motor housing.

If the motor or fan turns in the wrong direction:

- Switch two of the incoming phases over.

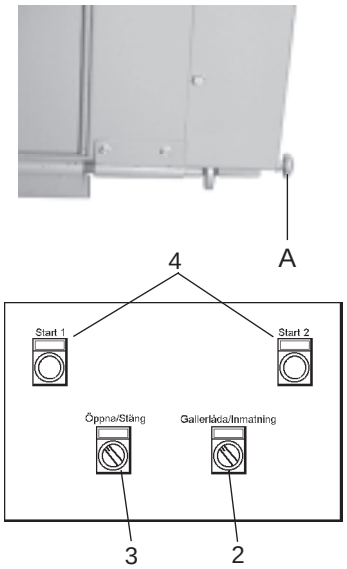
Air connection

Connect the mill to filtered compressed air ..... 0.6 - 0.8 MPa / 6 - 8 kg/cm2.

Make the connection to the hose located to the right behind the knob for the safety circuit breaker for the doors.

Opening/Closing the feed chute and screen box

The control buttons are on the distribution box.



Door opening

- Unscrew knob (A) for the safety circuit breaker for the doors, beneath the right-hand end.
- Turn the door handle up 180°.
- Open the doors.

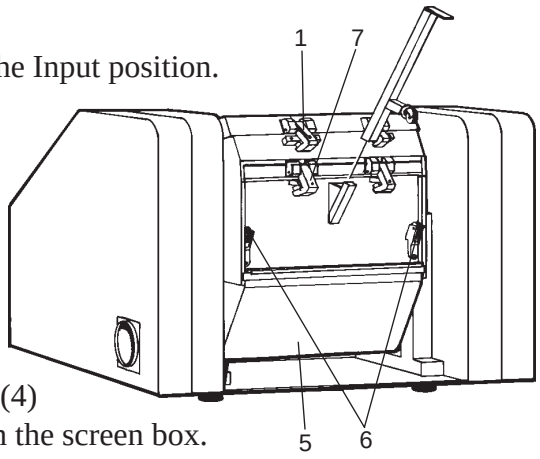
Opening the feed chute

1. Check that the feed chute is empty.
2. Undo the clasps on the feed chute (1).
3. Put the Screen Box/Feed chute knob (2) in the "Input" position.
4. Put the Open/Close knob (3) in the "Open" position.
5. Press both switches (4) and the feed chute will open (pneumatic).

Opening the screen box

1. Undo the fan connection and pull out the outlet pipe stub from the side of the mill.
2. Remove – pull out the granulate box (5).
3. Put knob (2) Screen Box/Feed chute in the Input position.

   NOTE! The screen box is opened and closed by two pneumatic jacks.



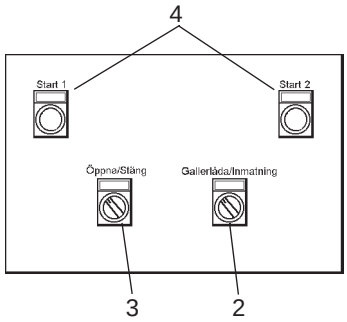
4. Set the jacks in their highest position, make sure that the arms of the jacks engage on the screen box.
   - Put knob (3) in the "Close" position
   - At the same time, press both switches (4) so that the arms of the jacks engage on the screen box.
5. Undo, pull out, and fold the wheels down (6).
   - Lock the wheels down.
6. Undo and fold out the clasps for the screen box (1)
7. Put the Open/Close knob (3) in the "Open" position.

8. Press both switches (4) to open the screen box.
9. Install handle (8), - make sure that the lock button engages. The wheels beneath the handle should be adjusted so that it does not touch the floor.
10. Press the handle down so that the rear edge of the screen box is lifted up and the guide dowels can pass the stop blocks on the track. Pull and roll the screen box out.

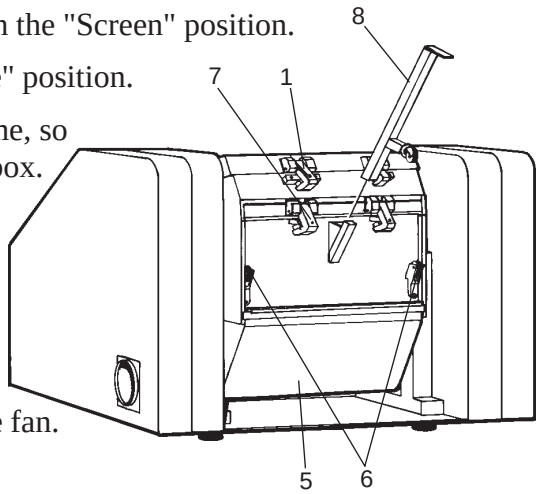
Changing the screen

1. Open the doors and feed chute.
2. Remove the granulate box.
3. Open and remove the screen box.
4. Undo the front lock moulding in the screen box, 5 screws.
5. Change the screen. **NOTE!** The sides of the screen are not the same.

Close the screen box



1. Press the handle down so that the rear edge of the screen box is lifted up and the guide dowels can pass the stop blocks on the track.
2. Roll the screen box in, so that the lifting arms on the jacks are centred in front of the lifting handles.
3. Remove handle (8).
4. Put the Screen Box/Feed chute knob (2) in the "Screen" position.
5. Put the Open/Close knob (3) in the "Close" position.
6. Press both the switches (4) at the same time, so that the jacks lift up and close the screen box.
7. Undo, pull out and fold the wheels up (6).
   - Lock the wheels up.
8. Lock the screen box with the clasps (7).
9. Install the granulate box (5).
10. Install the outlet pipe stub and connect the fan.



Close the feed chute

1. Check that the feed chute is empty.
2. Put the Screen Box/Feed chute knob (2) in the "Input" position.
3. Put the Open/Close knob (3) in the "Close" position.
4. Press both the switches (4) at the same time, and the feed chute will close.
5. Lock the feed chute with the clasps
6. Close the doors.
7. Screw in the knob for the safety circuit breakers on the doors.

Checking the knife clearance

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

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

1. Check that the rear edge of the rotating knives rests against the adjustment screws at the rear edge of the knife fixture.

   Or: Cutters with knives which can be pre-set.
   – Check that the knife adjustment screws are in contact with the welded setting screws at the rear of the knives.

2. Check that the fixed knives are extended, in the fixed setting positions, in the short sides of the mill housing.

3. Check the clearance between the front fixed knife and the rotating pairs of knives - use a feeler gauge. Recommended clearance is 0.30 - 0.50 mm (foil 0.15 - 0.30 mm).

4. Then check the clearance between the rear fixed knife and the rotating pairs of knives.

   If the clearance needs adjustment:

   3-blade cutter:
   – Adjust the rotating knives in accordance with "Installing knives", see pages 15-16.

   • If the mill has rotating knives which can be pre-set.
   – Do a new pre-set adjustment and fit the knives in accordance with "Pre-setting and installation of pre-set knives – 3-blade rotor", see page 36.

   5-blade cutter:

   – Adjust the rotating knives in accordance with "Installing knives", see pages 39-40.

   • If the mill has rotating knives which can be pre-set.
   – Do a new pre-set adjustment and fit the knives in accordance with "Pre-setting and installation of pre-set knives – 5-blade rotor", see page 43.

5. Check the tightening torque of the rotating knives - 600 Nm.

   If the fastening screws for the rotating knives need further tightening:
   – then check the clearance between the knife blades.

6. Check the tightening torque of the fixed knives – 300 Nm.

7. Shut the screen box, feed chute and doors.

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.

Checking after the first start:

Check two hours after the first start

- That the adjustment screws butt up against the rear of the knives and the lock nuts are tightened.
- The clearance between the fixed and rotating knives.
- The tightening torque of the knife bolts.

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(s).

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

Weekly inspection

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

Safety circuit breakers. The mill has two safety circuit breakers:

1 for the doors (lock bracket beneath the doors).

1 by the feed chute.

Doors – start the mill. Unscrew the knob beneath the right-hand side casing. – The mill must have time to stop before the knob has been unscrewed so far that the doors can be opened.

Feed chute – Leave the feed chute shut but not locked (clasps). Shut and lock the doors. Screw in the knob for the safety circuit breakers on the doors. Try to start the mill. – It should not be possible to start the mill unless the feed chute is securely closed and locked.

Lifting cylinder for feed chute. Check that the cylinder stays at its end positions, "Open" and "Shut".

Screen box jacks. Check that the jacks stay at their end positions, "Open" and "Shut".

Monthly check

Vee belts: Check the tension of the vee belts and that all the belts are intact (vee belt tension, see page 19).

Pneumatic system mist lubrication: Check the oil level and empty the water separator.

Cleaning

Clean after material or colour change, monthly or at least once/300 hours.

NOTE! Put both the main switch and the switch on the mill in the "OFF" position when the feed chute and screen box have been opened for cleaning.

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

1. Open doors, feed chute and screen box.
2. Remove the rigid flap. Fold the horizontal one up and pull it straight out. The inner flaps are flexible.
3. Clean the feed chute, flaps, screen, screen box and outlet pipe stub.
4. Clean the mill housing and stand.
5. Clean the conveyor, fan and cyclone.
6. Restore. The mill must be emptied from all plastics waste, before re-starting.

WARNING!

Never attempt to make it easier to clean between the knives, by changing or increasing the clearance between the pairs of knives on the rotor.

The knives are centred in pairs against the centre of the mill housing. Maximum clearance between each pair of knives is 0.50 mm.

If the knife setting is changed, the mill can be badly damaged!

Cleaning the screen box jacks.

It can be necessary to clean the air cylinder used to open/close the screen box. Particles of dirt can accumulate between the inner seal and the mating surface of the cylinder tube. These particles cause leakage and must be removed.

NOTE: Use protective goggles

1. Remove condensate.
2. Connect compressed air to the cylinder.
3. Undo the inner and outer strap locking screws and pull the strap out from one of the end pieces.
4. Localise any leakage.
5. Lower the air pressure to 1 bar.

6. Lower the cleaning tool into the slit and press against the seal. The compressed air will blow out any particles of dirt.
7. Lock the seal after cleaning.

Fault finding

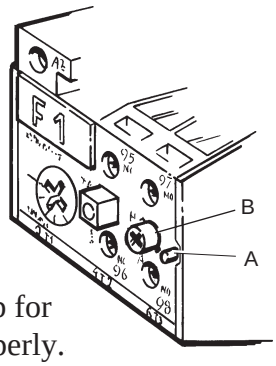
If the mill does not start.

- Check that the emergency stops are not activated. Reset them by turning the button(s) 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 "Reset" button (B).



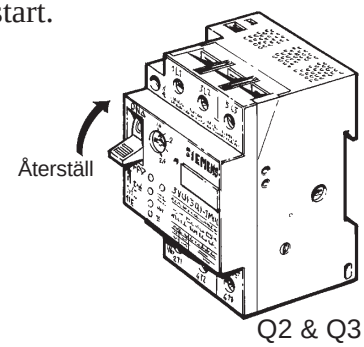
- Check that the doors are properly shut and that the knob for the safety circuit breaker on the doors is screwed in properly.
- Check that the feed chute is completely folded down.

  The mill will not start if the feed chute is not completely shut. The safety circuit breaker will then break the current. Shut the feed chute - see page 11.
- Check the motor protection circuit breaker on the fan (1831).

  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 (1831).

  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

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

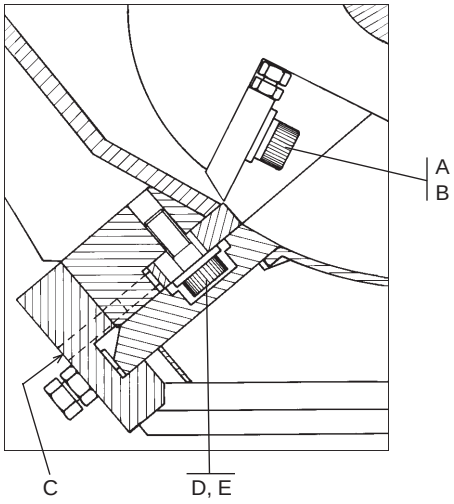
Open the front doors, feed chute and screen box.

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.

Removing the rotating knives.

1. Remove screws (A) and washers (B). The pairs of knives are now loose.



Removing the fixed knives.

1. Undo adjustment screws (C). There are 3 socket cap screws per knife. The screws are undone from outside the mill housing.
2. Remove screws (D) and washers (E).

NOTE! Hold the knife before removing the last screws. It is heavy.

3. Remove the fixed knife.
4. Clean the surfaces where the knife was located.

Installing knives

First install the front, fixed knife

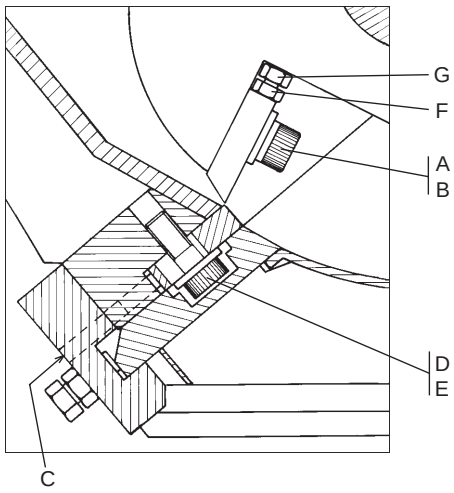
(Please refer to chapter 11, options, for installation of the third and fourth fixed knives.)

1. Check that the surfaces have been cleaned, where the knives are to be installed.
2. Install the front knife, with screws (D) and washers (E) loose.
3. Screw in the adjustment screws (C), so that the knife is in its fixed setting position. The knife has a fixed position on the side walls of the mill housing. Check that the knife is straight.
4. Tighten screws (D) and washers (E), tightening torque 300 Nm.

Installing a pair of rotating knives

1. Clean the knife beds.
2. Install a pair of knives. Use two screws with washers (A, B) for each knife, and install loosely.

3. Set the knives. Please refer to chapter 11 for pre-set knives.
   - Undo the lock nuts (G).
   - Screw in adjustment screws (F) in the cutter, so that the pair of knives can pass the front fixed knife freely.
   - Make sure that the knives butt up against the adjustment screws.
   - Set the clearance to the front knife to 0.30 - 0.50 mm (foil 0.15 - 0.30 mm).
   - Hold a feeler gauge between 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. The setting is then correct.



   - Install both the remaining fastening screws for the pair of knifes.
   - Centre the pair of knives in the centre of the mill housing.

NOTE! The maximum clearance in the centre between the pairs of knives is 0.50 mm.

4. Tighten the knife fastening screws, tightening torque 600 Nm.
5. Check that the rear edges of the knives are in contact with their adjustment screws.
6. Tighten the lock nuts (G).
7. Install the two remaining pairs of knives in the same way.

Fitting the rear fixed knife

1. Check that the surfaces have been cleaned, where the knives are to be installed.
2. Install the rear knife, with screws (D) and washers (E) loose.
3. Screw in the adjustment screws (C), so that the knife is in its fixed setting position. The knife has a fixed position on the side walls of the mill housing. Check that the knife is straight.
4. Tighten the screws, tightening torque 300 Nm.

NOTE! Do a final check of the knife clearance and centring.

5. Check the knife clearance again. Check the clearance of all the rotating knives against both the front and the rear fixed knives.
   The clearance should be 0.30 - 0.50 mm (foil 0.15 - 0.30 mm).
6. Do a final check of the centring of the rotating knives in the centre of the mill housing. The clearance between the pairs of knives should not exceed 0.50 mm.

Please refer to chapter 11 if the mill is equipped with a third and fourth fixed knife.

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 looses its efficiency otherwise.

The CONAIR MARTIN grinding jig 1831 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 loose 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.

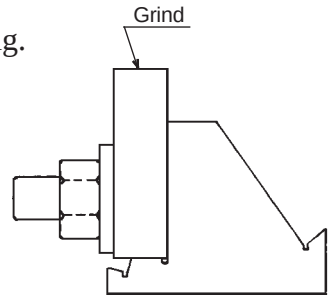
NOTE! Only grind the marked surface.

Pay attention to the specified dimensions when sharpening the knives.

- Fix the knife in the left-hand position in the jig.

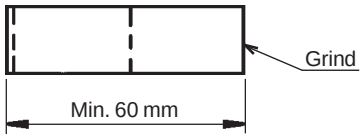
  Use a surface grinder to make the cutting angle exactly 90°.

  After this, two edges can be used for cutting before the next re-sharpening.



- The knives can be ground up to the limits 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 MARTIN grinding jig 1831 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 1831 gives the exact cutting and relief angles.

Grind the relief angle of the worst knife first.

Grind until all the unevenness on the knife has gone.

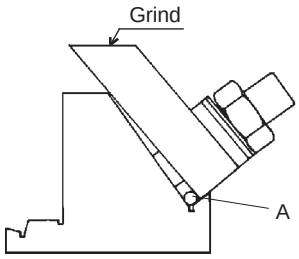
Keep this setting of the surface grinder, and grind all the other knives exactly the same.

- Remove the adjustment screws.

  Tighten the knife in the right-hand position in the jig, using spacer "A" beneath the rear of the knife (see illustration).

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

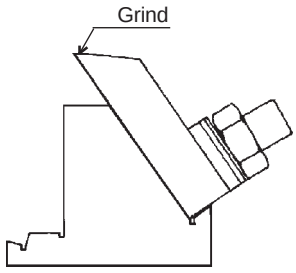
  Use a surface grinder, to make the relief angle exactly 40°.



- Undo the knife and remove spacer "A" from beneath the rear of the knife.

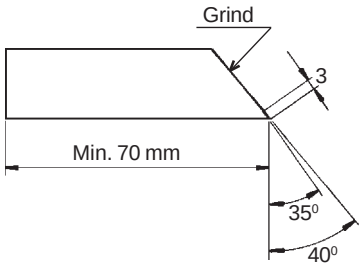
  Tighten the knife down again and grind the knife edge.

  Use a surface grinder, to make the cutting angle exactly 35°.



- 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.



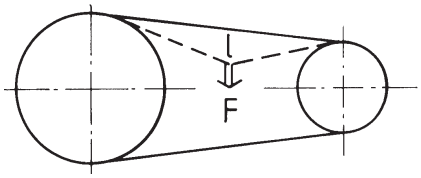
Vee belts, inspection and adjustment

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

After this, check the vee belts once a month.

WARNING! Pinch point. You can trap and crush hands, objects etc. between the belts and the pulleys.

Inspection

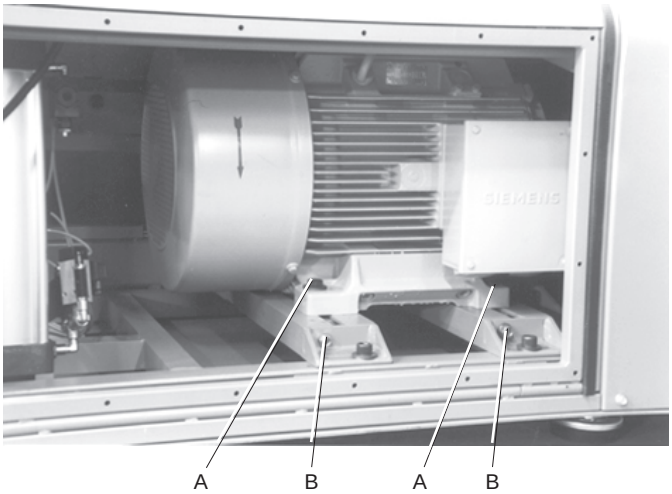


F = 75 Nm
l = 12 mm

- Open the feed chute.
- Remove the granulate box and screen box.
- Crawl in and check the vee belts.
- Load the vee belts between the cutter and motor pulleys with a 75 kg weight.
- Measure the hang. It should be possible to deflect the vee belts 12 mm.
- Adjust the distance between the pulleys to give the correct belt tension.

Adjusting belt tension

- Remove the lower protective cover on the rear of the mill.
- Undo the motor fixing screws (A) slightly, 4 no. (Two in front, two at rear.)
- Adjust the belt tension with adjustment screws (B), 2 no. to the correct belt tension.
- Tighten the motor fixing screws (torque 220 Nm)
- Put the protective cover back.



Lubrication

On delivery, the plummer blocks are filled with grease, Castrol Spherol APS 3.

CONAIR MARTIN recommends the following lubricants for installation and lubrication of bearings.

Plummer blocks:	SKF SH 522TG
Bearings:	SKF 23222 CCK
Qty. of grease	850 g grease for bearing changes. 100 g grease per bearing/grease nipple for subsequent greasing. NOTE! Wipe off excess grease.
Lubrication interval.	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:	**Bearing housing:** 2 grease nipples, 1 grease nipple on each plummer block **Input chute cylinder:** 1 grease nipple at the top of the cylinder attachment by the inlet chute. **Electric motor:** Depending on motor size and make, 2 grease nipples (front and rear motor bearings)

Pneumatic system

The pneumatic system has oil mist lubrication. Metering is set by CONAIR MARTIN.

At the lower right on the granulate box, there is a compressed air valve with two containers. The inner one is the oil container for oil mist lubrication (the outer one is the water separator).

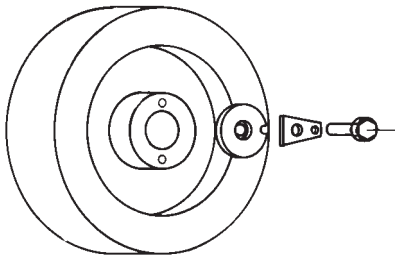
Check:	Oil level monthly. The level should be at least 80% of the volume of the container.
Lubricant	Atlas Copco 9721 400-283.
Filling:	- Open the mill, remove the granulate and screen boxes. - Shut off and evacuate the compressed air. - Unscrew and fill the container up to the screwed flange. - Check the gasket. - Put the container back again.

Cutter pulley, removal and replacement

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

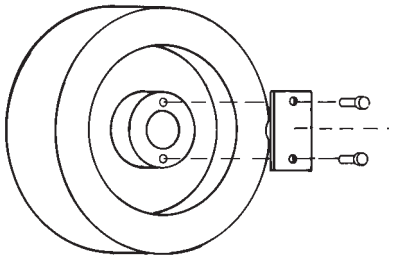
1. Open the doors and inlet chute.
2. Remove the fan connection and outlet pipe stub.
3. Lock the cutter with a block of wood between the knives and the mill housing.
4. Remove the screws which hold the left-hand side cover.
5. Lift the side cover off.
6. Undo the vee-belt tensioner and remove the vee belts.

The cutter and motor pulleys are now accessible.



Removing the cutter pulley

- Open the lock tab, undo and remove the centre screw. (Spanner size 55 mm.)
- Remove the centre washer and lock washer.
- Put a drop of oil into the extractor hole.
- Fit the extractor, using M16 screws. Use screws of at least strength class 10,9.
- Tighten the screws, using alternately increased torque to a maximum of 120 Nm.



- Release the pulley with a sharp blow to the centre of the extractor.

  If the pulley does not come loose:
  – increase the tightening torque on the screws of the extractor and give the centre of the extractor another sharp blow.

  Maximum tightening torque on the screws of the extractor:
  M 16, strength class 10,9 - 180 Nm.

- Lift the cutter pulley away, using a hoist.

Fitting the cutter pulley

- Lift the cutter pulley back, using a hoist.
- Install the centre washer and lock washer.
- Tighten the centre screw (M36), torque 800 Nm.
- Lock the centre screw, fold a new lock washer towards the centre screw.
- Install the pulleys and adjust the vee belt tension.
- Install the left-hand side cover, fan connection and outlet pipe stub.
- Remove the block of wood from the mill housing.
- Shut the feed chute and doors.

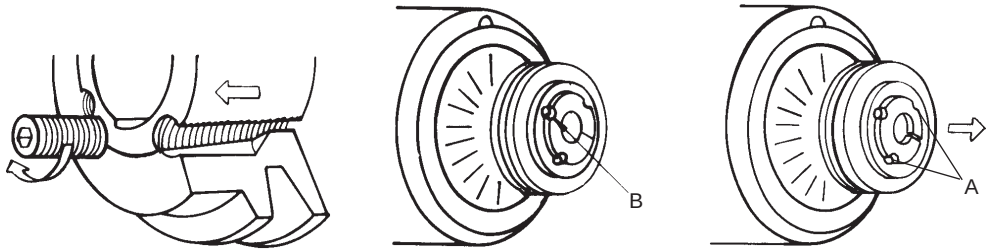
Motor pulley, removal/installing

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

Removing the motor pulley

The pulley is attached by means of a compression bush.

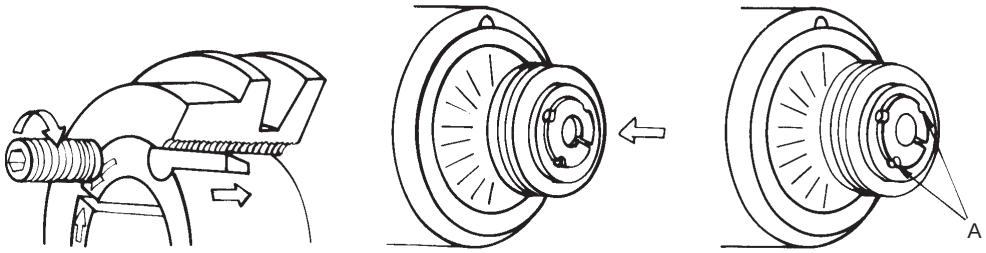
- Undo and remove the two screws (A).
- Put a drop of oil into the extractor hole (B) (The hole with a half thread in the bush). Screw in a screw and tighten - the compression bush will then come undone.



- Lift off the compression bush and pulley from the shaft by hand, without tools, blows etc.

Installing the pulley

The pulley is fitted with a compression bush.



- Clean and degrease the motor pulley.
- 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 45 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 90 Nm.

8. Spare parts list

Summary

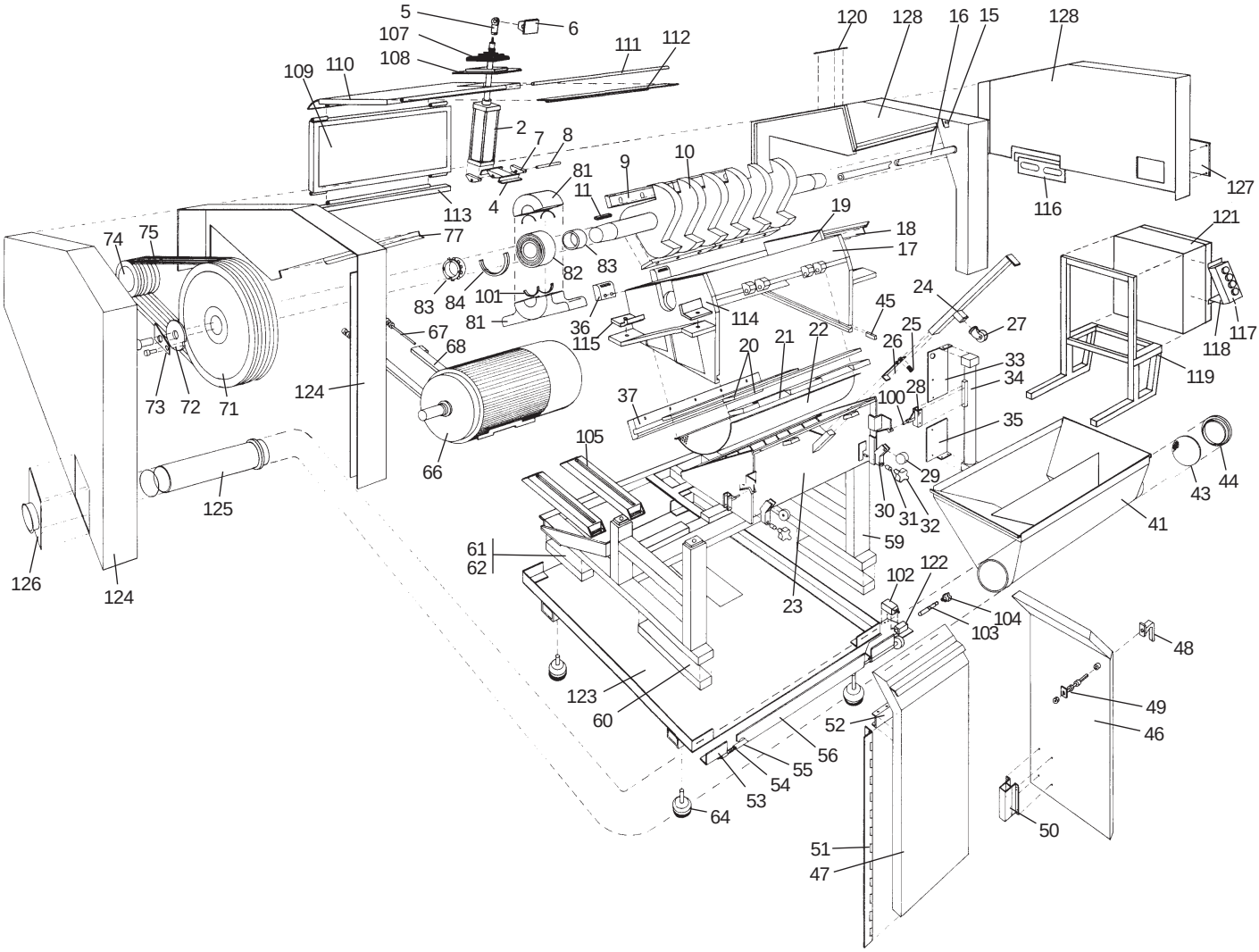
Only use original CONAIR MARTIN spare parts when you replace machinery components. Orders should be sent to the representative in the country where the machine was purchased.

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:

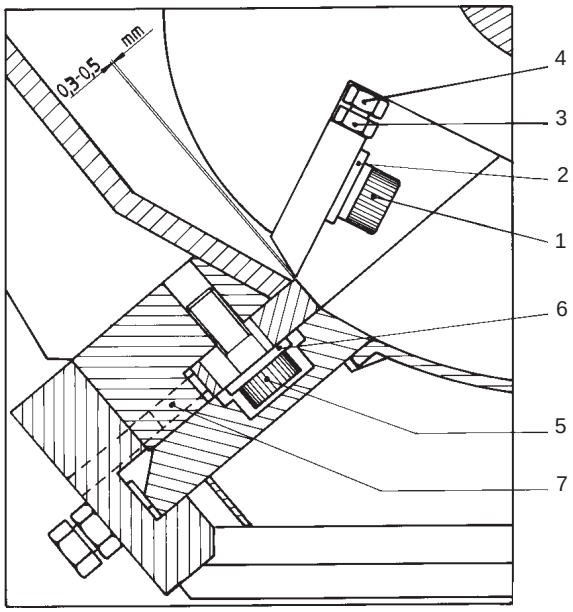
1831, 3-blade rotor



Pos.	Qty.	Art.No.	Pos.	Qty.	Art.No.	Pos.	Qty.	Art.No.	Pos.	Qty.	Art.No.
2	1	9-20537	29	2	4-05042	55	1	4-05755	105	2	3-14156
4	1	3-17927	30a	1	3-05041	56	1	4-05756	107	1	9-50319
5	1	9-20538	30b	1	3-05742	59	1	2-17925	108	1	3-16601
6	1	9-20539	31	2	4-08313	60	2	4-05058	109a	1	3-13395
7	2	4-13236	32	2	9-50144	61	1	4-05730	109b	1	4-13391
8	1	4-14969	33a	1	4-05710	62	1	4-05731	110a	1	3-13389
9	6	3-07434	33b	1	4-05735	64	4	4-08342	110b	1	4-13393
10	1	1-16967	34	2	9-20235	66	1	*	111	3	4-13861
11	2	9-50078	35a	1	4-05711	67	2	4-05736	112	1	4-13390
15	2	4-02154	35b	1	4-05734	68	2	3-18033	113	1	4-13394
16	2	4-17437	36	2	3-05020	71	1	9-30099	114	2	3-13854
17	1	1-11113	37	1	2-05005	72	2	4-05045	115	2	3-13855
18a	1	4-05740	41	1	1-11062	73	2	4-05046	116	1	3-23382
18b	1	4-05741	43	1	4-11103	74	1	9-30100	117	1	9-90161
19a	1	2-05750	44	1	3-13000	75	6	9-30097	118	1	3-20942
19b	1	2-05004	45	2	4-05024	77	2	4-05739	119	1	1-23457
20	2	3-07433	46	1	2-05744	81a	1	3-08288	120	1	4-21982
21	1	2-05013	47	1	2-05040	81b	1	3-07429	121	1	*
22	1	2-05044	48	1	3-05076	82	2	9-60053	122	1	2-23448
23	1	1-05009	49	1	4-05745	83	2	9-60052	123	1	1-23377
24	1	2-11115	50	1	3-11121	84	1	9-60054	124	1	2-23380
25	1	9-50290	51	2	3-05747	100	2	9-60056	125	1	4-18190
26	1	4-11116	52	1	4-05025	101	8	9-60109	126	1	3-23383
27	1	9-50071	53	1	3-05753	102	1	9-10570	127	1	4-23384
28a	1	3-05713	54a	1	9-50138	103	1	4-04229	128	1	2-23379
28b	1	3-07380	54b	1	9-50181	104	1	4-02292			

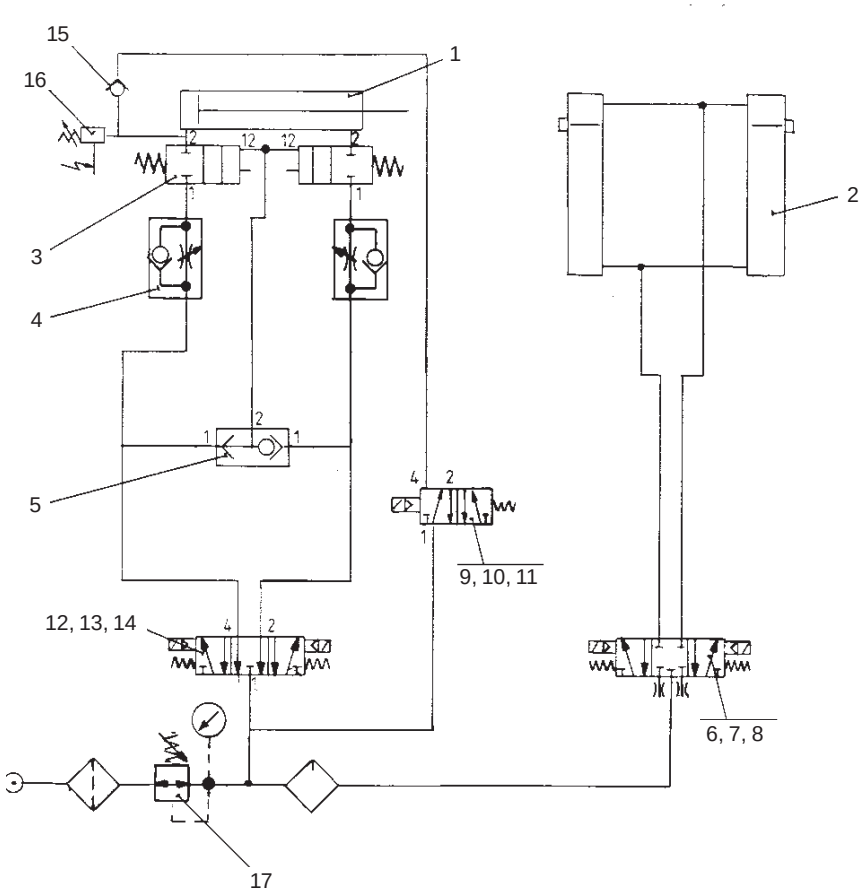
* = See chapter 9

1831, 3-blade rotor, fixed & rotating knives



Pos	Qty.	Art.No.
1	18	9-40096
2	18	4-07390
3	18	9-40228
4	18	9-40344
5	8	9-40365
6	8	4-12916
7	6	9-40361

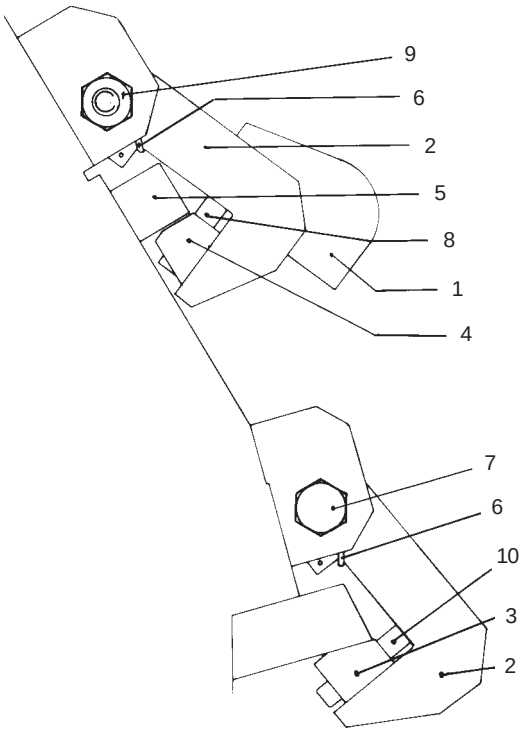
1831, Pneumatics



Pos	Qty.	Art.No.	Pos	Qty.	Art.No.
1	1	9-20537	11a	2	9-20686*
2	2	9-20235	11b	2	9-20691**
3	2	9-20248	12	1	9-20682
4	2	9-20447	13a	2	9-20685*
5	1	9-20449	13b	2	9-20690**
6	1	9-20683	14a	2	9-20686*
7a	2	9-20685*	14b	2	9-20691**
7b	2	9-20690**	15	2	9-20687
8a	2	9-20686*	16	1	9-20689
8b	2	9-20691**	17a	1	9-20242
9	1	9-20684	17b	1	9-20272
10a	2	9-20685*	17c	1	9-20413
10b	2	9-20690**			

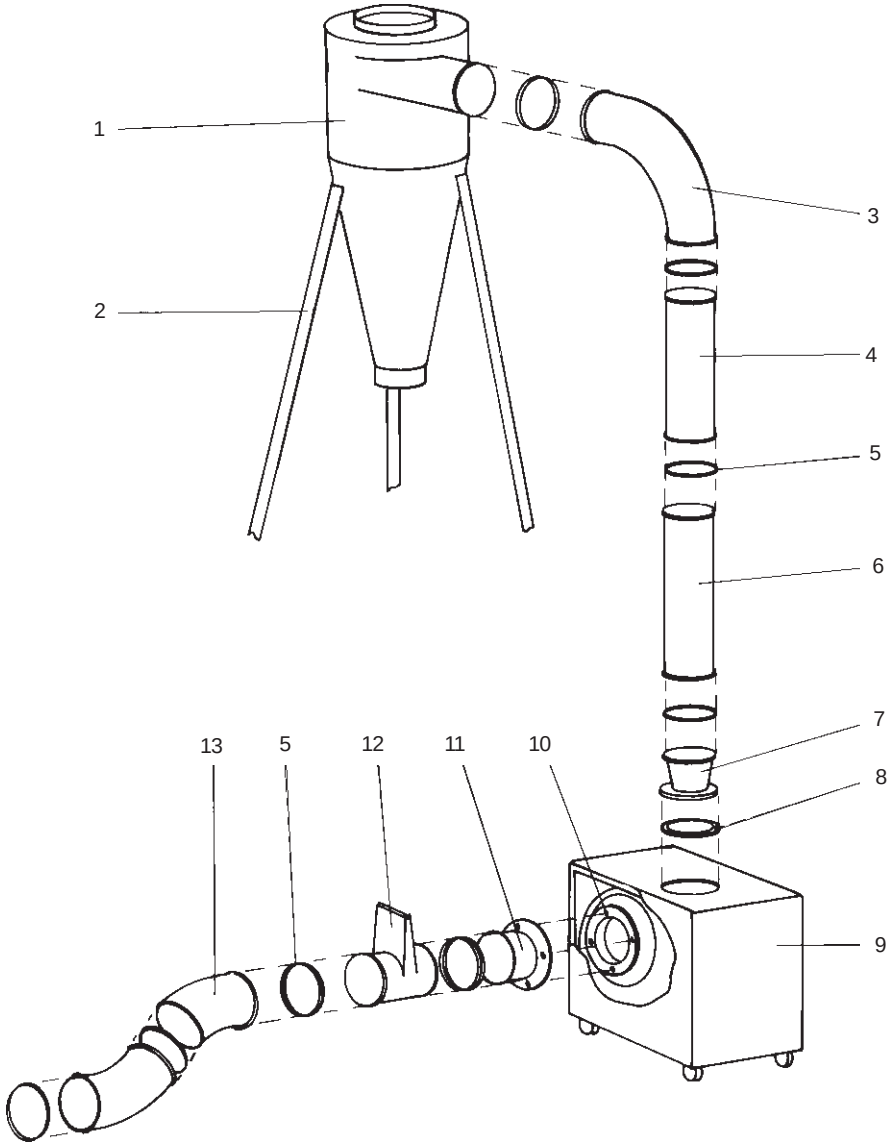
* = 220 VAC
** = 110 VAC

1831, Clasps, screen box, feed chute



Pos	Qty.	Art.No.	Note
1	1	4-05078	
2	4	4-05063	machine no. – 70.649
	4	3-25608	machine no. 70.650 –
3	2	4-05065	
4	2	4-05729	
5	2	4-05021	
6	4	9-50137	machine no. – 70.649
		4-25609	machine no. 70.650 –
7	4	9-40247	
8	2	4-40605	
9	4	9-40078	
10	2	9-40476	

1831, Fan F-25/AX-16



Pos	Qty.	Art.No.
1	1	3-03037
2	3	4-00448
3	1	4-11769
4	1	4-11766
5	9	9-20107
6	1	9-20105
7	1	2-08684
8	2	9-10989
9	1	2-06036
10	1	9-20210
11	1	2-08679
12	1	9-20197
13	2	4-17781
14	1	4-11767

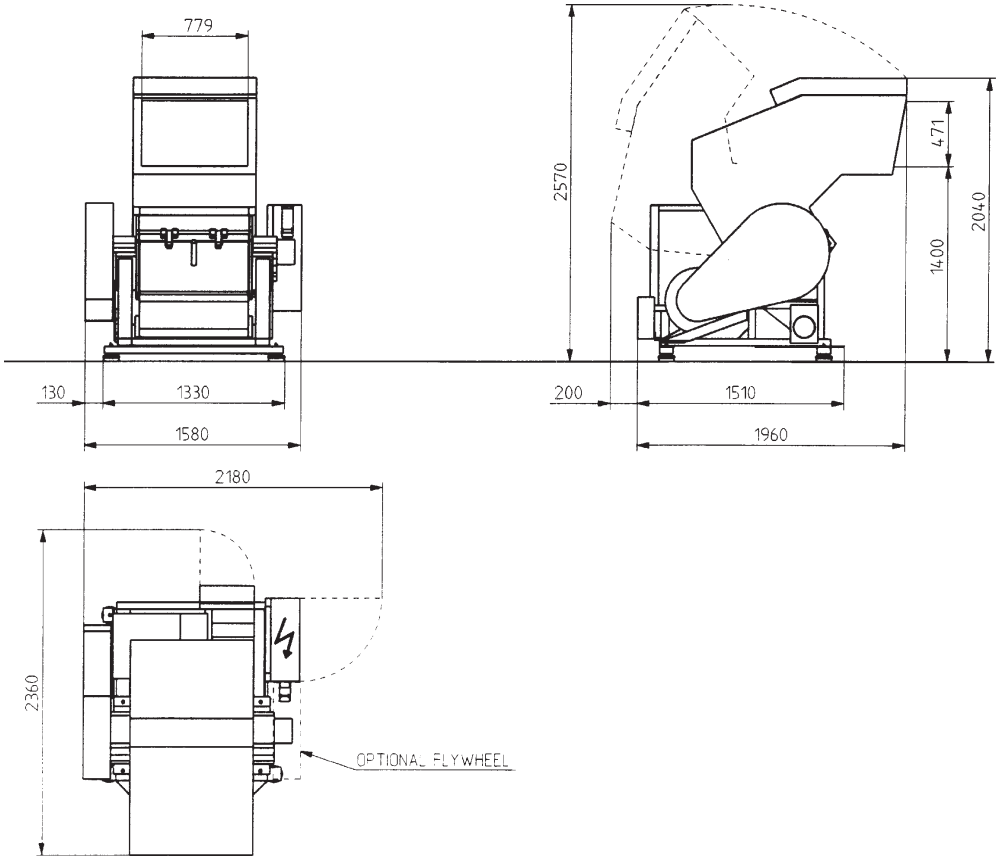
9. Wiring diagram

These standard components may be found in the electrical equipment for the 1831 mill.

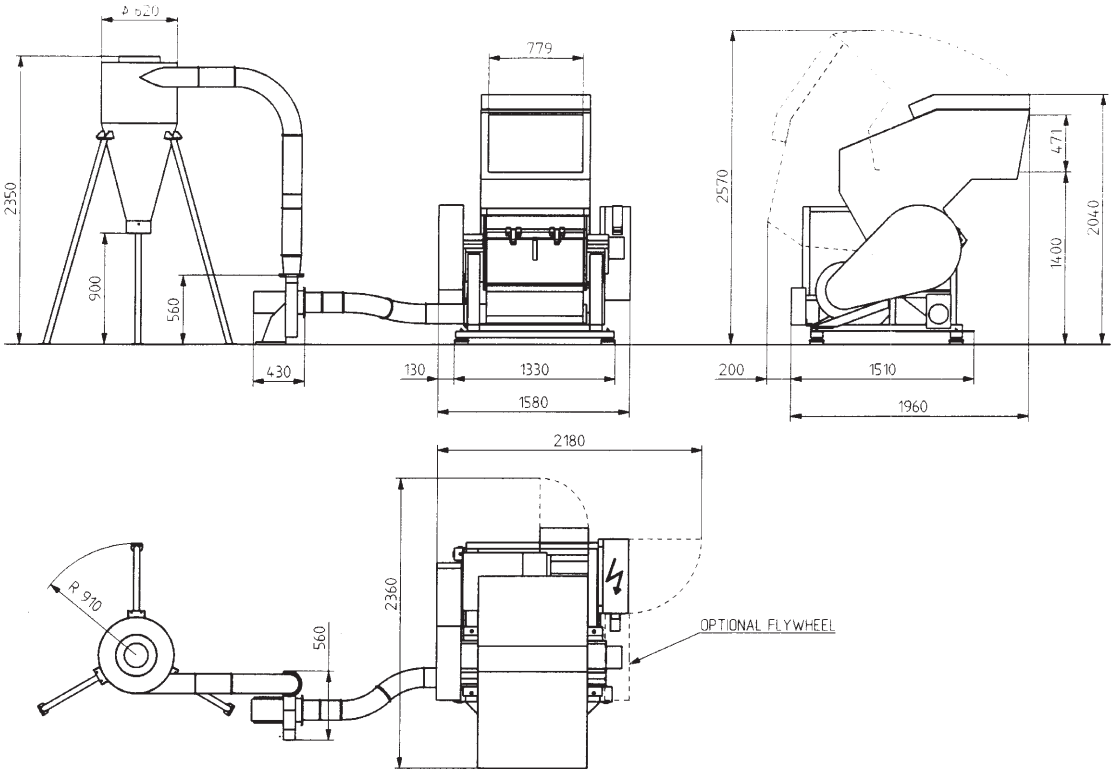
F1	Overcurrent relay, mill motor
F14	Circuit breaker, control transformer
F15	Fuse, control voltage (glass fuse)
H1	Operation indication lamp
K1	Mains contactor
K2	Contactor, delta D
K3	Contactor, star Y
K4	Time relay Y/D connection
K5	Contactor, fan motor
K6	Contactor, conveyor belt
K7	Overcurrent relay
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
S7	Safety circuit breaker
S8	Motor speed monitor
S9	Press button, open/close, screen box/input chute
S10	Press button, open/close, screen box/input chute
S11	Switch, screen box/input chute
S12	Switch, open/shut
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

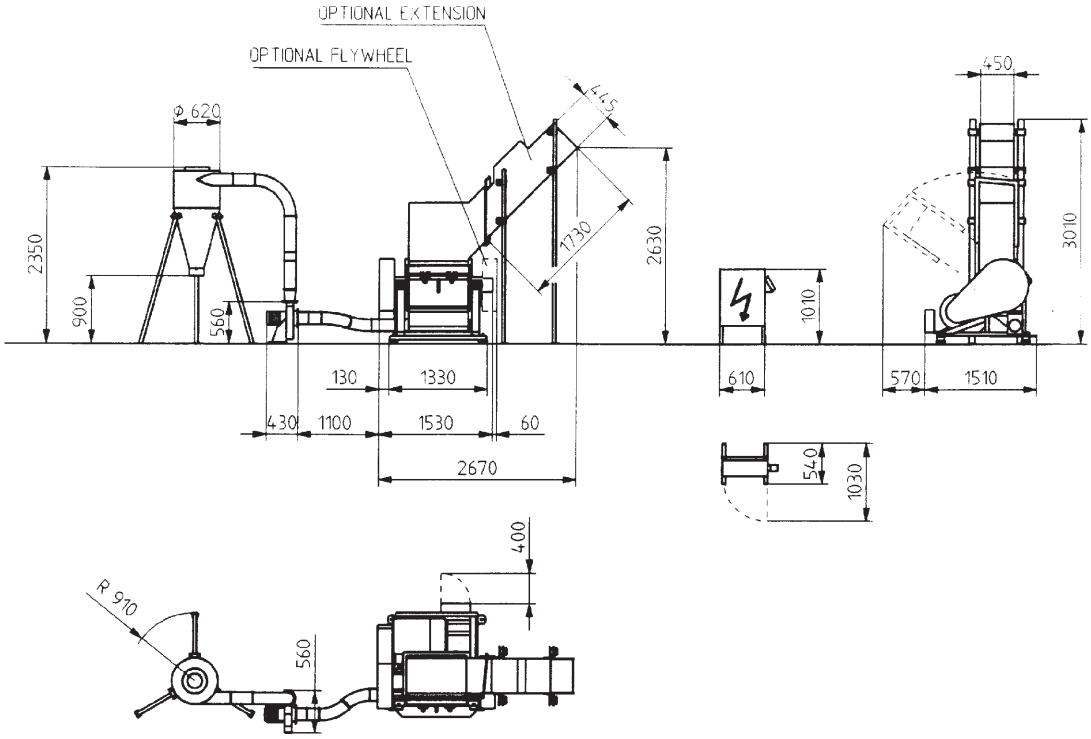
1831



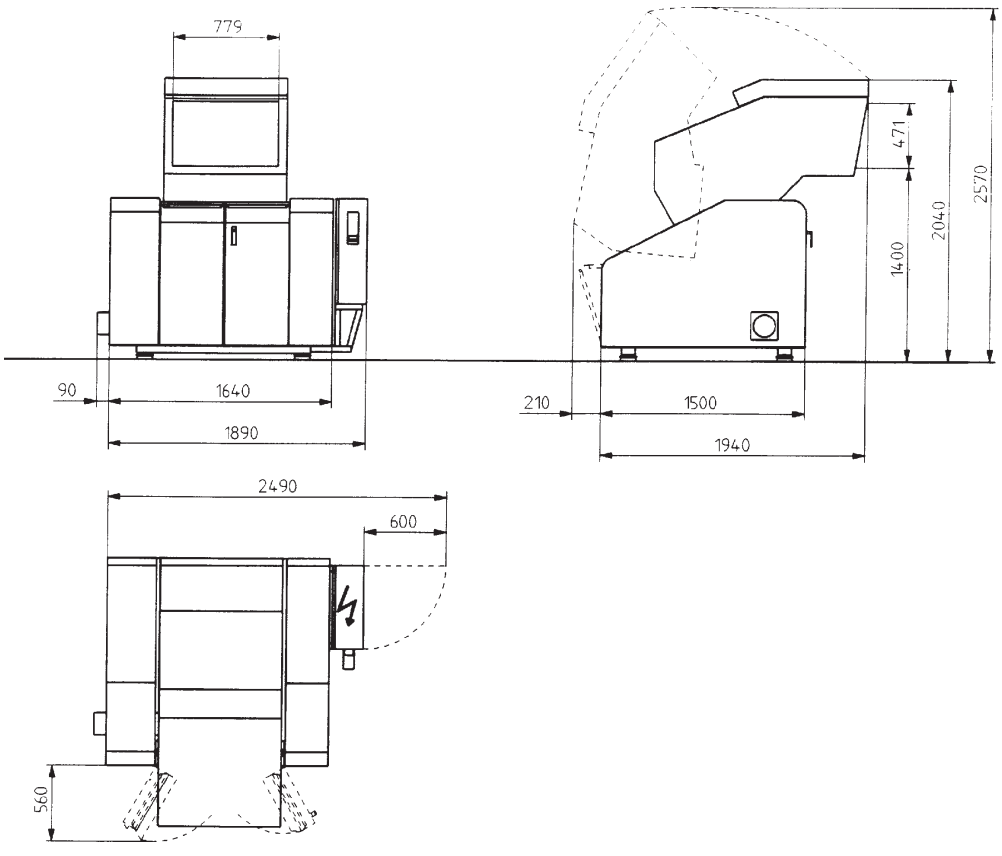
1831 with fan F-25 and cyclone AX-16.



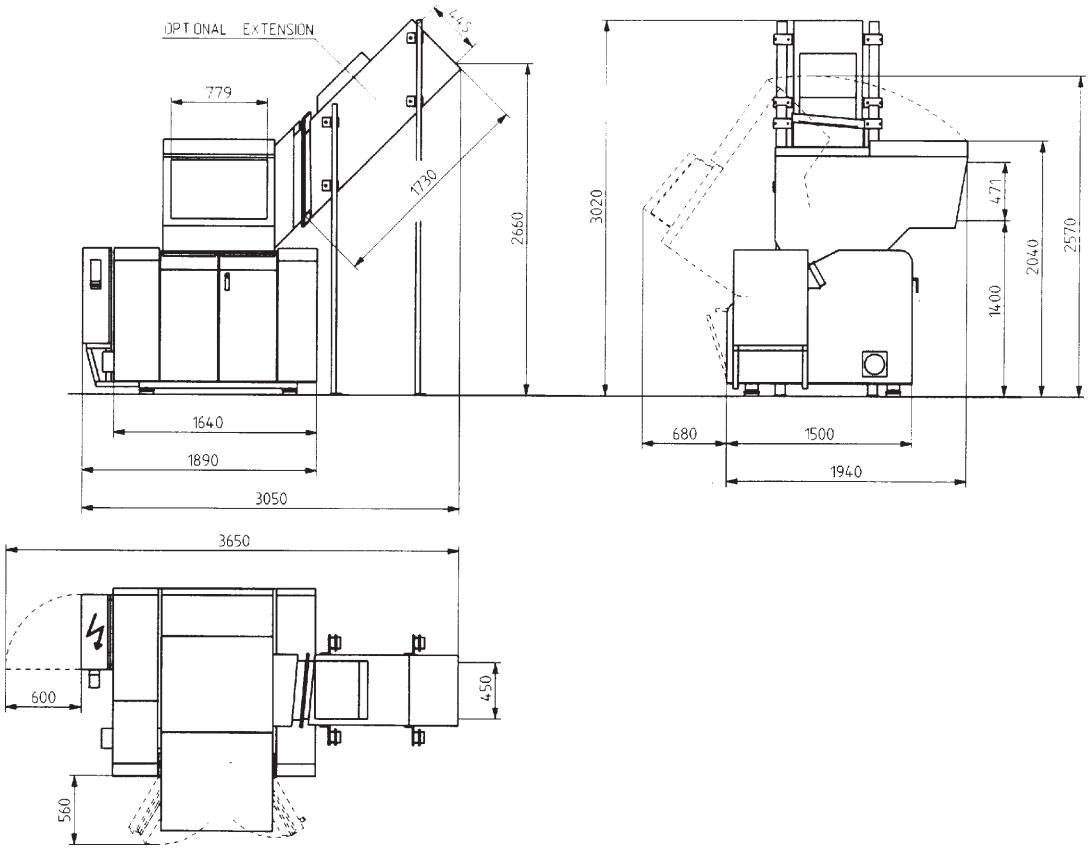
1831 with side feed, fan F-25 and cyclone AX-16.



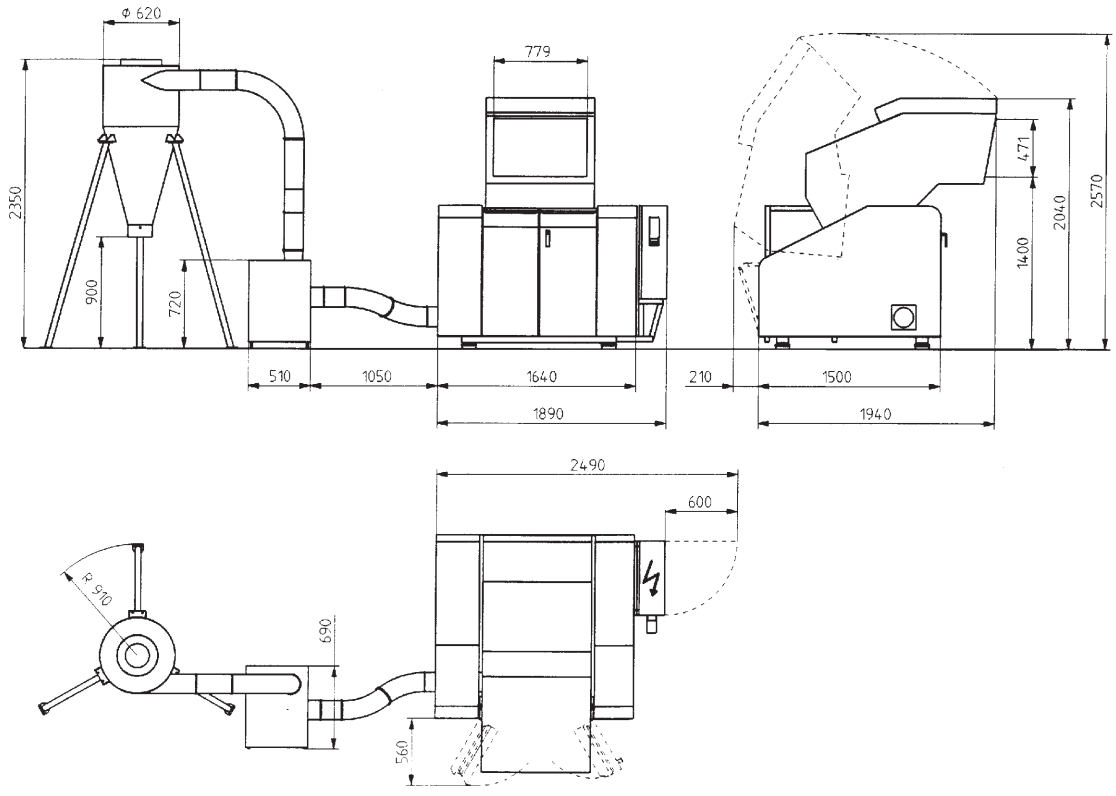
1831



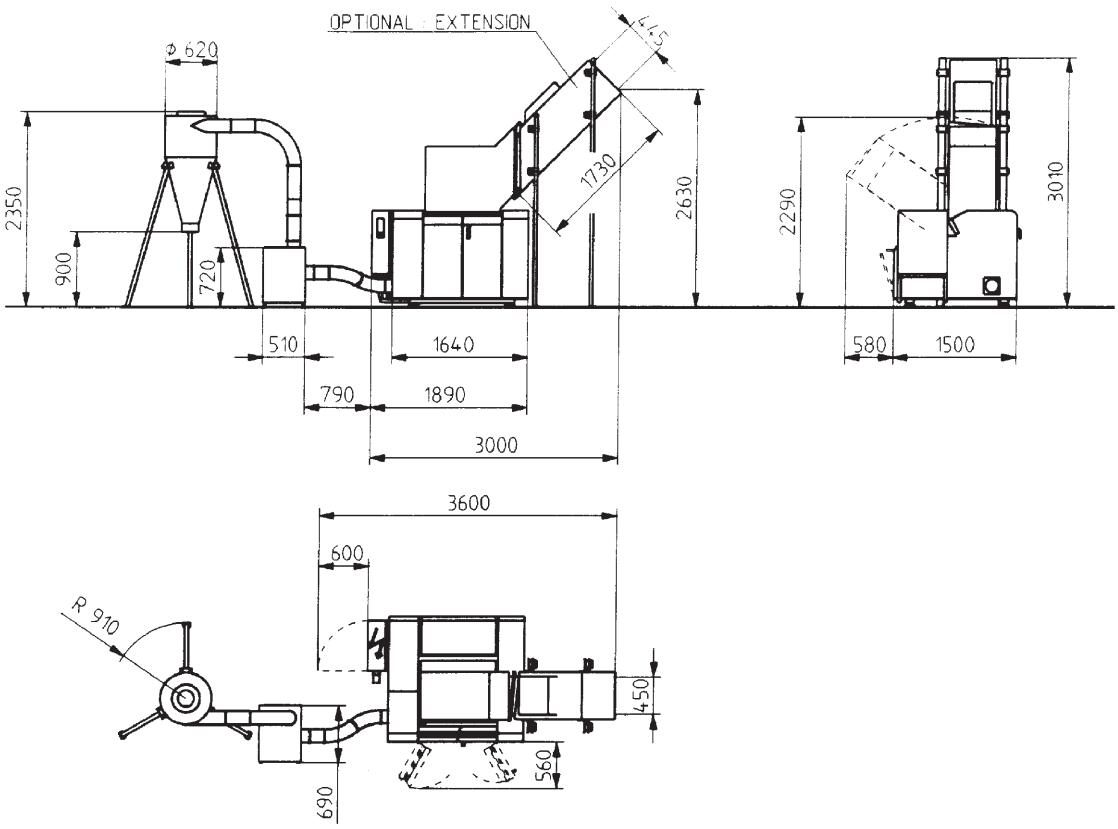
1831 with side feed



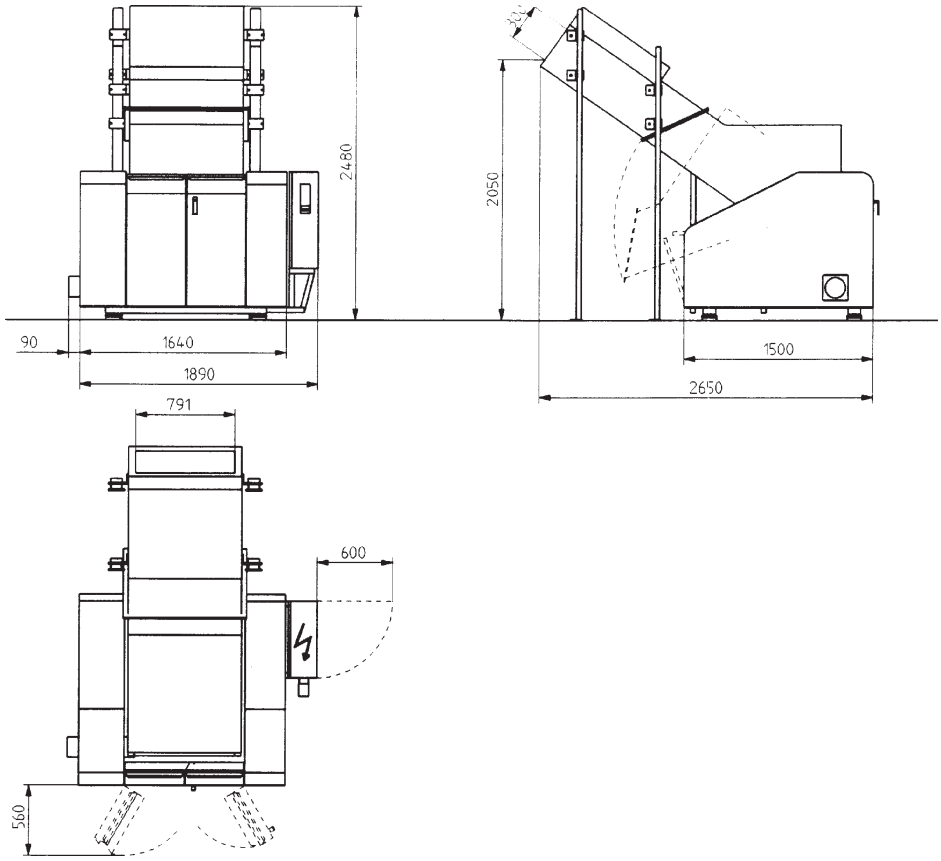
1831 with fan F-25 and cyclone AX-16.



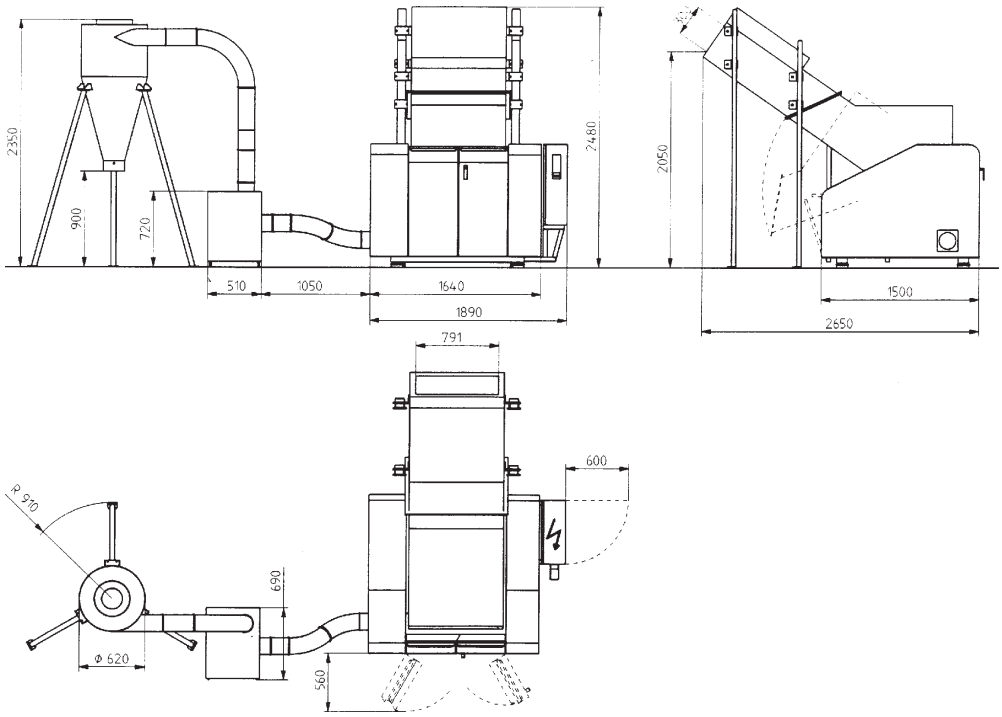
1831 with side feed, fan F-25 and cyclone AX-16.



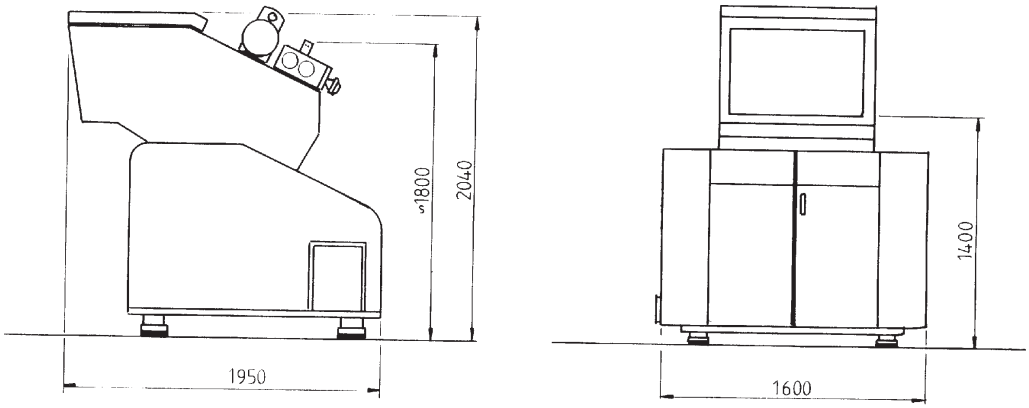
1831 with profile feed



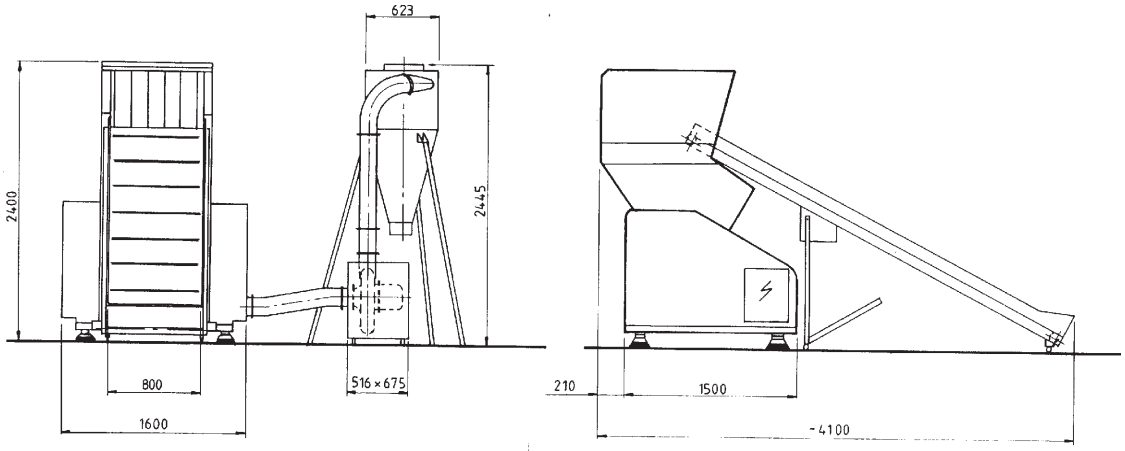
1831 with profile feed, fan F-25 and cyclone AX-16.



1831 with roll feed



1831 with conveyor belt feed



11. Options

Summary

The mill is subdivided into the following modules:

Ordering spare parts

Only use CONAIR MARTIN 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.

Pre-setting and assembly of pre-set knives - 3-blade rotor

The knives are pre-set on a jig. The jig is not included when the mill is delivered, but is a very practical accessory which can be ordered.

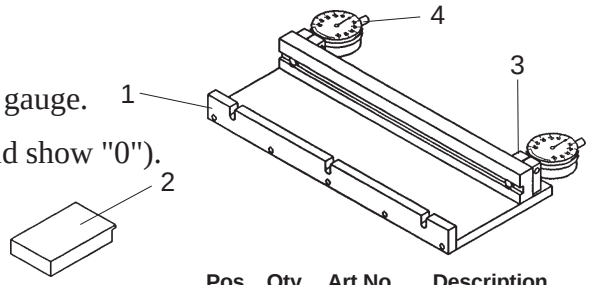
Do a basic set-up of the knife jig.

– Put knife gauge (2) in the jig.

– Adjust the dial gauge against the knife gauge.

– Zero the dial gauge (4) (The dial should show "0").

– Remove the knife gauge.



Pos.	Qty.	Art.No.	Description
1	1	3-16511	Knifefixtur
2	1	3-16516	Knife gauge
3	2	4-16515	Bracket
4	2	9-70129	Gauge

If you want a narrower knife clearance, 0.15 - 0.30 mm when grinding foil material, for example, do the basic setting as above but set the dial gauge to -10 on the knife jig.

Knife setting

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 upwards towards the dial gauge.
- Screw out the outer adjustment screws until both the dial gauges show "0".
- Then screw out the centre knife adjustment screw until the dial gauge registers. Then turn the screw back until both the dial gauges show "0".
- The pre-setting is now finished and the knife can be installed in the cutter.

Installation of rotating knives.

NOTE! Each time the knives are changed, the fastening screws must be replaced by new ones.

Install one pair of knives at a time.

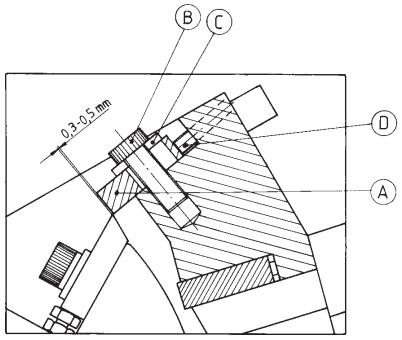
- Clean the knife attachments.
- Install one pair of knives
- Install the attachment screws with washers loosely.
- Centre the pair of knives in the centre of the mill housing.

  NOTE! The maximum clearance between the pairs of knives is 0.50 mm.
- Make sure that the knives butt up against the rear of the knife attachment.
- Tighten the fastening screws, tightening torque is 600 Nm.
- Make another check that the knife clearance is 0.30 - 0.50 mm (foil 0.15 - 0.30 mm). Check both the front and rear knives.
- Make another check of the centring of the pairs of knives in the centre of the mill housing. The clearance must not exceed 0.50 mm.

Install the two remaining pairs of knives in the same way.

Third fixed knife

Knife change



Pos.	Qty.	Art.No.
A	1	3-13274
B	4	9-40365
C	4	4-12916
D	3	9-40361

Removal

- Remove screws and washers (B, C), the knife is then free.

Installation

- Clean the surfaces where the knife will be located.
- Install the knife loosely, with screws and washers.
- Set the knives.
  - Screw in adjustment screws (D), so that the cutter and the rotating knives can pass the knife without catching.
  - Make sure that the rear edge of the knives rest against the adjustment screws.
  - Set the knife clearance to 0.30 - 0.50 mm (foil 0.15 - 0.30 mm) against a pair of rotating knives. Check against the other pairs of rotating knives.
  - Hold a feeler gauge between 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. The setting is then correct.
- Tighten the knife screws, torque 300 Nm.

Sharpening

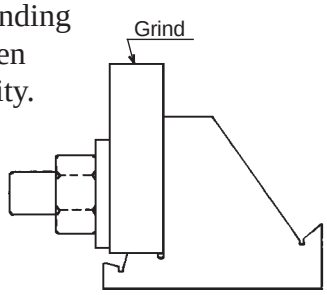
NOTE! Get an experienced craftsman to sharpen the knives.
Only sharpen the marked surfaces!

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

The CONAIR MARTIN grinding jig 1831 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 loose its hardness and durability.

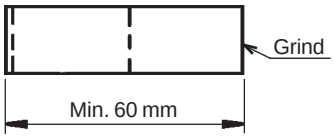
If the knife is blued or burned, it can not be repaired by grinding down the blued or burned colour. The hardened knife is then completely spoiled and has lost all its hardness and durability.



NOTE! Only sharpen the marked surface!

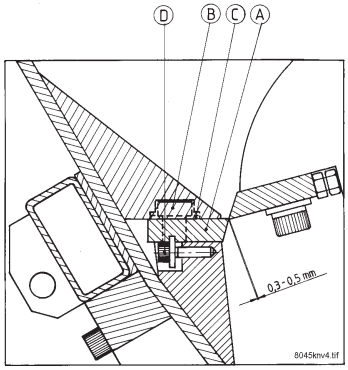
Pay attention to the specified dimensions when sharpening the knives.

- Fix the knife in the left-hand position in the jig. Use a surface grinder to make the cutting angle exactly 90°.
- The knives can be ground up to the limits shown in the adjacent illustration.



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

Fourth fixed knife



Pos.	Qty.	Art.No.
A	1	2-13719
B	4	9-40062
C	4	4-12916
D	2	4-13725

Knife change

Removal

- Remove screws and washers (B, C), the knife is then free.

Installation

- Clean the surfaces where the knife will be located.
- Install the knife loosely, with screws and washers.
- Set the knives.
  - Screw in adjustment screws (D), so that the cutter and the rotating knives can pass the knife without catching.
  - Make sure that the rear edge of the knives rest against the adjustment screws.
  - Set the knife clearance to 0.30 - 0.50 mm (foil 0.15 - 0.30 mm) against a pair of rotating knives. Check against the other pairs of rotating knives.
  - Hold a feeler gauge between 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. The setting is then correct.
- Tighten the knife screws, torque 300 Nm.

Sharpening

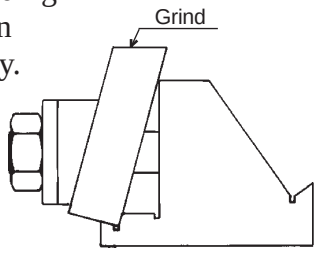
NOTE! Get an experienced craftsman to sharpen the knives.
Only sharpen the marked surfaces!

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

The CONAIR MARTIN grinding jig 1831 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 loose its hardness and durability.

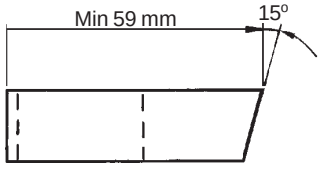
If the knife is blued or burned, it can not be repaired by grinding down the blued or burned colour. The hardened knife is then completely spoiled and has lost all its hardness and durability.



NOTE! Only sharpen the marked surface!

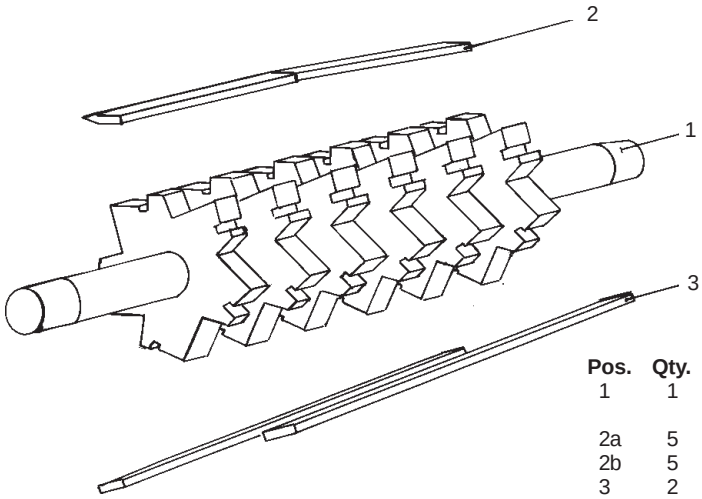
Pay attention to the specified dimensions when sharpening the knives.

- Fix the knife in the left-hand position in the jig. Use a surface grinder to make the cutting angle exactly 15°.
- The knives can be ground up to the limits shown in the adjacent illustration.



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

5-blade rotor



Pos.	Qty.	Art.No.
1	1	10-20047
2a	5	3-11108
2b	5	3-11109
3	2	3-07433

Knife change

Check wear on the screen when you change the knives.
Change the screen when the holes begin to assume a teardrop shape.

Open the front doors, feed chute and screen box.

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.

Removing the rotating knives.

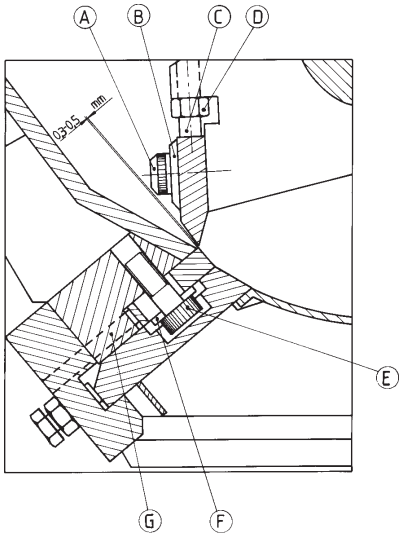
1. Remove screws (A) and washers (B). The pairs of knives are now loose.

Removing the fixed knives.

1. Undo adjustment screws (G). There are 3 socket cap screws per knife. The screws are undone from outside the mill housing.
2. Remove screws (E) and washers (F).

NOTE! Hold the knife before removing the last screws. It is heavy.

3. Remove the fixed knife.
4. Clean the surfaces where the knife was located.



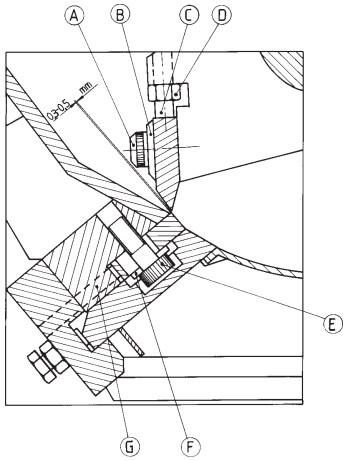
Installing knives

First install the front, fixed knife

1. Check that the surfaces have been cleaned, where the knives are to be installed.
2. Install the front knife, with screws (E) and washers (F) loose.
3. Screw in the adjustment screws (G), so that the knife is in its fixed setting position. The knife has a fixed position on the side walls of the mill housing. Check that the knife is straight.
4. Tighten screws (E), tightening torque 300 Nm.

Pos.	Qty.	Art.No.
A	30	4-11123
B	30	4-07390
C	30	4-11105
D	30	9-40103
E	8	9-40365
F	8	4-12916
G	8	9-40361

Installing a pair of rotating knives



Pos.	Qty.	Art.No.
A	30	4-11123
B	30	4-07390
C	30	4-11105
D	30	9-40103
E	8	9-40365
F	8	4-12916
G	8	9-40361

1. Clean the knife beds.
2. Install a pair of knives. Use two screws with washers (A, B) for each knife, and install loosely.
3. Set the knives.
   Please refer to page 43 for pre-set knives.
   - Undo the lock nuts (D).
   - Screw in adjustment screws (C) in the cutter, so that the pair of knives can pass the front fixed knife freely.
   - Make sure that the rear edges of the knives are in contact with their adjustment screws.
   - Set the clearance to the front knife to 0.30 - 0.50 mm (foil 0.15 - 0.30 mm).
   - Hold a feeler gauge between 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. The setting is then correct.
   - Install both the remaining fastening screws for the pair of knifes.
   - Centre the pair of knives in the centre of the mill housing.

NOTE! The maximum clearance in the centre between the pairs of knives is 0.50 mm.

4. Tighten the knife fastening screws, tightening torque 600 Nm.
5. Check that the rear edges of the knives are in contact with their adjustment screws.
6. Tighten the lock nuts (D).
7. Install the four remaining pairs of knives in the same way.

Fitting the rear fixed knife

1. Check that the surfaces have been cleaned, where the knives are to be installed.
2. Install the rear knife, with screws and washers (E, F) loose.
3. Screw in the adjustment screws (G), so that the knife is in its fixed setting position. The knife has a fixed position on the side walls of the mill housing. Check that the knife is straight.
4. Tighten the screws, tightening torque 300 Nm.

NOTE! Do a final check of the knife clearance and centring

5. Check the knife clearance again. Check the clearance of all the rotating knives against both the front and the rear fixed knives.
   The clearance should be 0.30 - 0.50 mm (foil 0.15 - 0.30 mm).
6. Do a final check of the centring of the rotating knives in the centre of the mill housing. The clearance between the pairs of knives should not exceed 0.50 mm.

Sharpening knives - 5 blade rotor

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 looses its efficiency otherwise.

The CONAIR MARTIN grinding jig 1831 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.

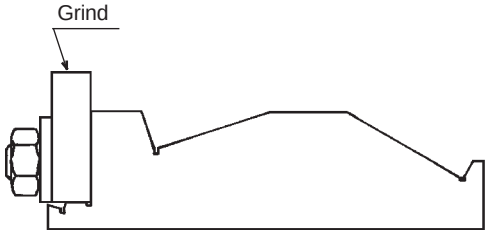
The knife must be cooled during sharpening. The knife must not be burned or blued in any circumstances, since it will then loose its hardness and durability.

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.

Grinding fixed knives.

Front, rear and third fixed knife

NOTE! Only grind the marked surface.



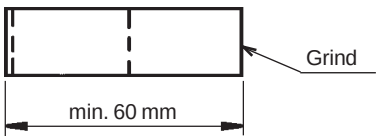
Pay attention to the specified dimensions when sharpening the knives.

- Fix the knife in the left-hand position in the jig, see the adjacent illustration.

  Use a surface grinder to make the cutting angle exactly 90°.

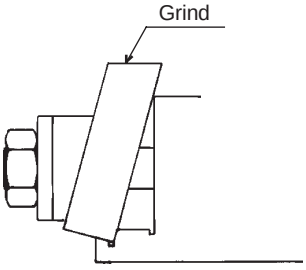
- The knives can be ground up to the limits shown in the adjacent illustration.

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



Fourth fixed knife

NOTE! Only grind the marked surface.

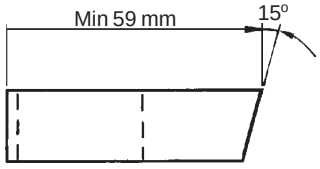


Pay attention to the specified dimensions when sharpening the knives.

- Fix the knife in the left-hand position in the jig, see the adjacent illustration.

  Use a surface grinder to make the cutting angle exactly 15°.

- The knives can be ground up to the limits 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.

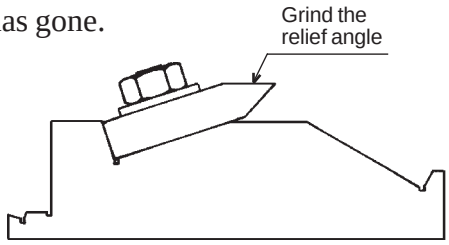
The CONAIR MARTIN grinding jig 1831 and a surface grinder with magnetic bed must be used for knife sharpening. The jig is not included when the mill is delivered, but is a very practical accessory which can be ordered.

Keep the complete set of knives in good order. Grinding jig 1831 gives the exact cutting and relief angles.

Grind one knife at a time.

Grind the relief angle of the worst knife first.

Grind until all the unevenness on the knife edge has gone.



Keep this setting of the surface grinder, and grind all the other knives exactly the same.

- Grind the relief angles on the knives.

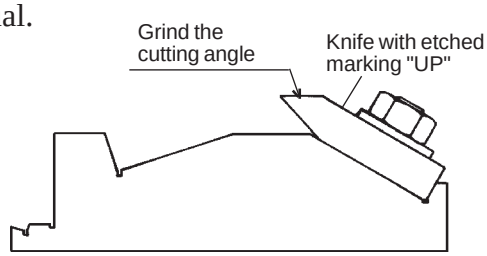
  Remove the adjustment screws.

  Fix the worst knife in the left-hand position in the jig.
  The etched "UP" marking should be down, against the jig.

  Use a surface grinder to grind the relief angle until all unevenness on the knife edge has disappeared.

  Using a surface grinder, the relief angle will be exactly 18°.

  Retain this setting of the surface grinder and grind the relief angles on all the knives exactly equal.



- Grind the cutting angles on the knives.

  Fix the a knife with newly-ground relief angle in the right-hand position in the jig.

  The etched "UP" marking should be clearly visible.

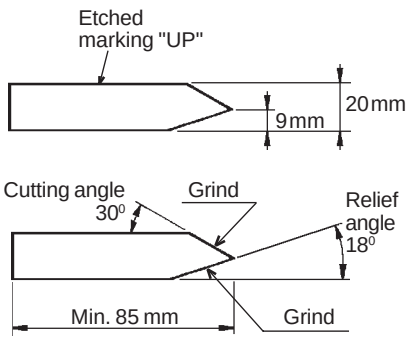
  Using a surface grinder, the relief angle will be exactly 30°.

  Grind until the knife edge is exactly 9 mm up from the lower face of the knife.

  Undo the knife and check its measurement.

  NOTE! Tolerance ± 0.10 mm.

  When the dimension of the first knife is exact, retain the setting of the surface grinder and grind the cutting angles of all the rotating knives exactly equal.



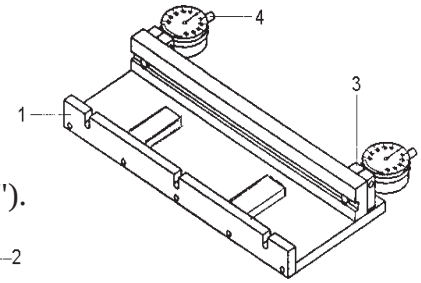
- The knives can only be ground down as far as the dimensions shown.

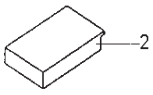
  After this, the knives are used up and must be replaced by new ones.

Pre-setting and assembly of pre-set knives - 5-blade rotor

The knives are pre-set on a jig. The jig is not included when the mill is delivered, but is a very practical accessory which can be ordered.

Do a basic set-up of the knife jig.





Pos.	Qty.	Art.No.
1	1	3-16524
2	1	3-16526
3	2	4-16515
4	2	9-70129

– Put knife gauge (2) in the jig.

– Adjust the dial gauge against the knife gauge.

– Zero the dial gauge (4) (The dial should show "0").

– Remove the knife gauge.

If you want a narrower knife clearance, 0.15 - 0.30 mm when grinding foil material, for example, do the basic setting as above but set the dial gauge to -10 on the knife jig.

Knife setting

NOTE! The knives must be sharpened before the basic setting is made.

- Screw in the adjustment screws on a rotating knife.
- Then put the knife in the jig, with the edge upwards towards the dial gauge.
- Screw out the outer adjustment screws until both the dial gauges show "0".
- Then screw out the centre knife adjustment screw until the dial gauge registers. Then turn the screw back until both the dial gauges show "0".
- The pre-setting is now finished and the knife can be installed in the cutter.

Installation of rotating knives.

NOTE! Each time the knives are changed, the fastening screws must be replaced by new ones.

Install one pair of knives at a time.

- Clean the knife attachments.
- Install one pair of knives
- Install the attachment screws with washers loosely.
- Centre the pair of knives in the centre of the mill housing.

NOTE! The maximum clearance between the pairs of knives is 0.50 mm.

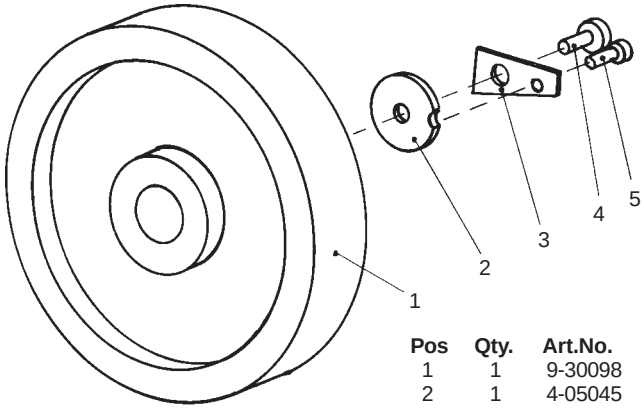
- Make sure that the knives butt up against the rear of the knife attachment.
- Tighten the fastening screws, tightening torque is 600 Nm.
- Make another check that the knife clearance is 0.30 - 0.50 mm (foil 0.15 - 0.30 mm). Check both the front and rear knives.
- Make another check of the centring of the pairs of knives in the centre of the mill housing. The clearance must not exceed 0.50 mm.

Install the four remaining pairs of knives in the same way.

Flywheel, removal and replacement

The right-hand side cover must be removed to remove the flywheel.

1. Open the doors and inlet chute.
2. Remove the fan connection and outlet pipe stub, if installed.
3. Lock the cutter with a block of wood between the knives and the mill housing.
4. Remove the screws which hold the right-hand side cover.
5. Lift the side cover off.
6. Undo the vee-belt tensioner and remove the vee belts.

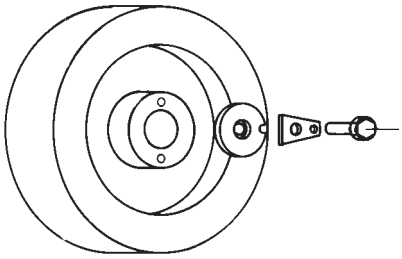


Pos	Qty.	Art.No.
1	1	9-30098
2	1	4-05045
3	1	4-05046
4	1	9-40229
5	1	9-40033

The flywheel is now accessible.

Removing the flywheel

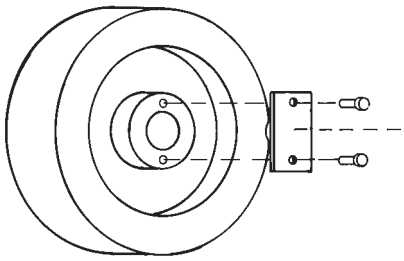
- Open the lock tab, undo and remove the centre screw. (Spanner size 55 mm.)
- Remove the centre washer and lock washer.
- Put a drop of oil into the extractor hole.
- Fit the extractor, using M16 screws.
  Use screws of at least strength class 10,9.
- Tighten the screws, using alternately increased torque to a maximum of 120 Nm.



- Release the flywheel with a sharp blow to the centre of the extractor.

  If the flywheel does not come loose:
  – increase the tightening torque on the screws of the extractor and give the centre of the extractor another sharp blow.

  Maximum tightening torque on the screws of the extractor: M16, strength class 10,9 - 180 Nm.



- Lift the flywheel away, using a hoist.

Fitting the flywheel

- Lift the flywheel back, using a hoist.
- Install the centre washer and lock washer.
- Tighten the centre screw (M36), torque 800 Nm.
- Lock the centre screw, fold a new lock washer towards the centre screw.
- Install the right-hand side cover, fan connection and outlet pipe stub.
- Remove the block of wood from the mill housing.
- Shut the feed chute and doors.

Conveyor belt

The conveyor belt is intended for transporting plastics waste. The conveyor construction includes framework beams with bolted-on cross member profiles.

The conveyor 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

During installation, 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

Remove the cover by the returning roller to gain access to the adjustment screws.

When the belt runs off-centre, adjust one adjustment screw at a time. Only turn it a 1/4 turn. Wait and let the belt run for a few minutes. Check, adjust, wait and check again until the belt runs straight!

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.

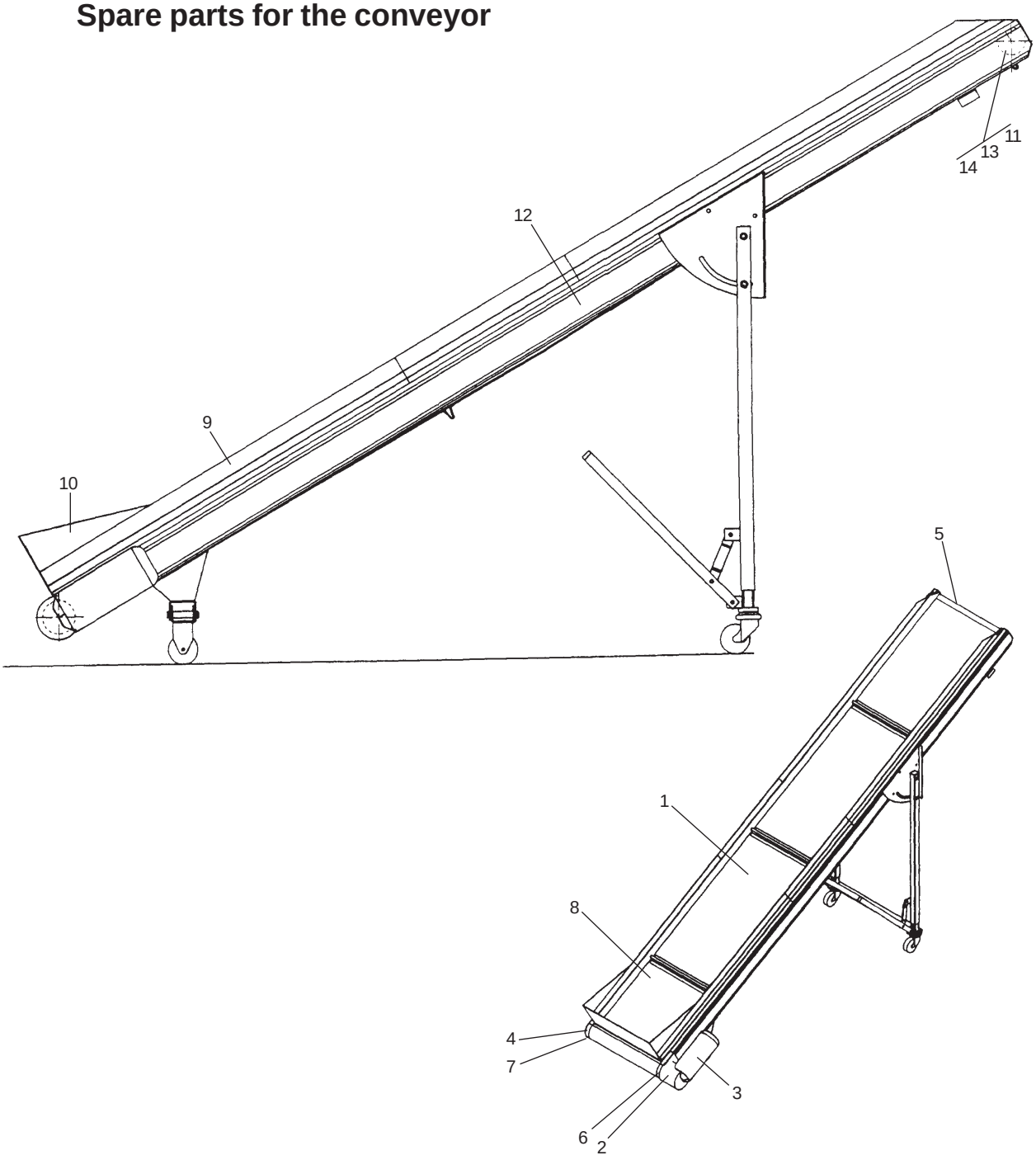
The belt has a motor protection circuit breaker, which protects against over-load. This is contactor Q3 in the distribution box.

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

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.

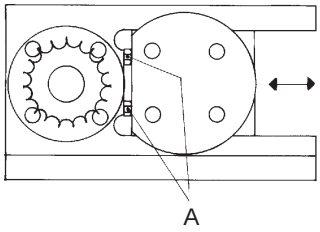
Spare parts for the conveyor



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

*) Note the machine type, serial number and belt when ordering spare parts.

Roll feed RF800 – roll feed with single drive



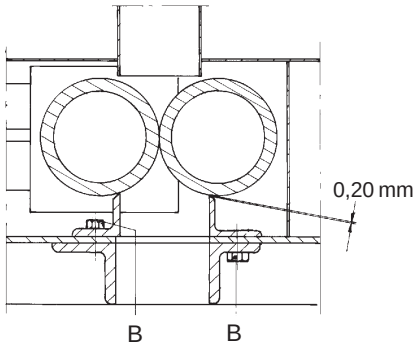
If the "Roll feed" knob on the distribution cabinet is in the "On" position, the roll feed will start automatically when the mill starts.

Material feed on start

Open the rollers with the button on the compressed air cabinet.

Feed the material in so far that the rollers can grasp it.

Close the rollers with the button on the compressed air cabinet.

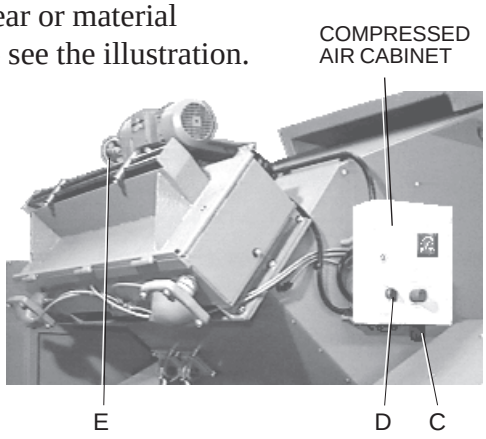


Service

Setting the roller clearance

The gap between the rollers is set in the factory, and does not normally need any subsequent adjustment.

If the setting needs to be adjusted, because of wear or material thickness, there are four adjustment screws (A) - see the illustration.



NOTE! When the roller clearance has been adjusted, the scrapers must also be adjusted.

The steel rollers and the knurled rollers must not touch each other.

Adjustment of roller pressure

Roller pressure is set by pressure regulator (C).

Setting the pressure roller

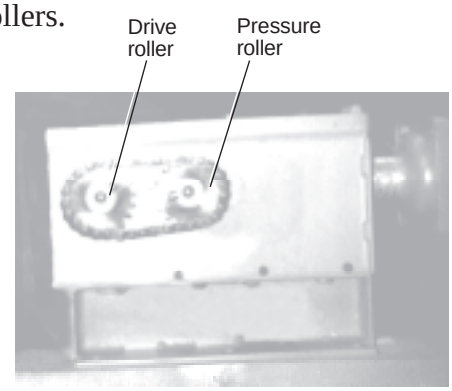
If the rollers do not grip the material, or if the material wants to stick, the distance between the rollers can be increased/reduced by valve (D).

Scraper setting

If the pressure roller setting is changed, the scraper must be adjusted.

Check the clearance between the scrapers and the rollers once a month.

The scrapers must not come into contact with the rollers.



1. Undo screws (B).
2. Adjust the clearance to 0.20 mm between the scraper and the roller, use a feeler gauge.
3. Fasten the scrapers with the screws.

Speed adjustment

The speed is adjusted with knob (E) on the variator. When the correct speed has been set, lock the knob with the lock knob.

If the roller speed has a frequency controlled motor, there is a potentiometer in the distribution box which controls the speed.

Lubrication

Every second month:

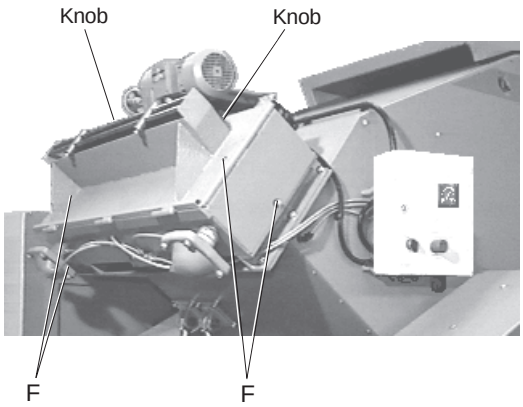
Lubricate the chain and pressure roller guides.

The pressure roller guides have 4 grease nipples (F).

NOTE! Lubricate sparingly and wipe off any surplus grease.

Chain

The chain does not normally need any subsequent adjustment.

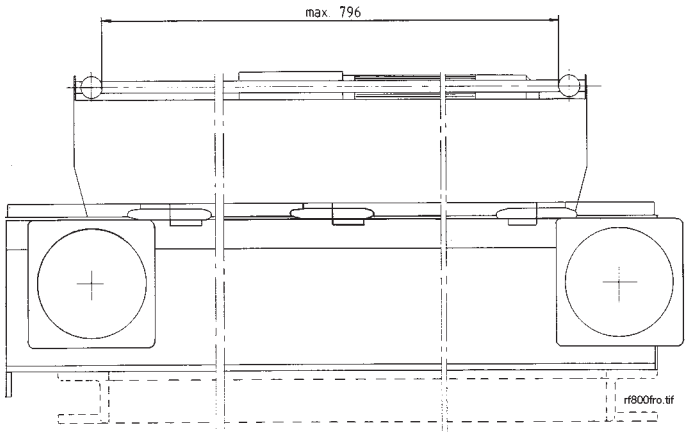


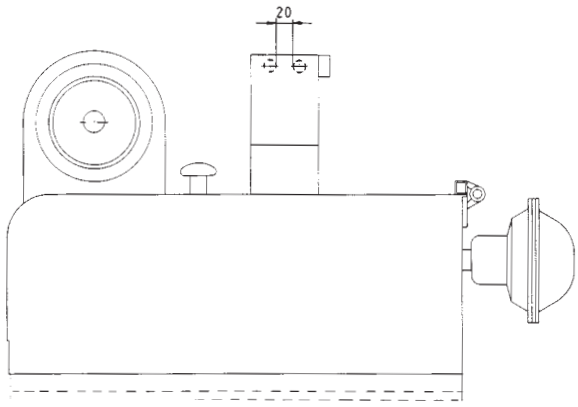
Cleaning

If the roll feed has a noise cover
– remove the noise cover first.

1. Undo the two knobs which hold the lid.
2. Open the lid.
3. Clean.
4. Reinstate.

Dimensions



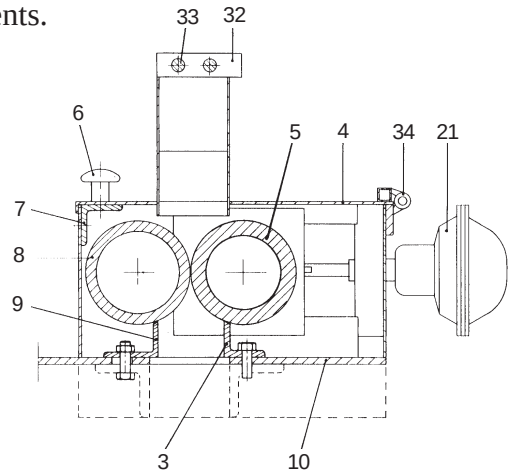


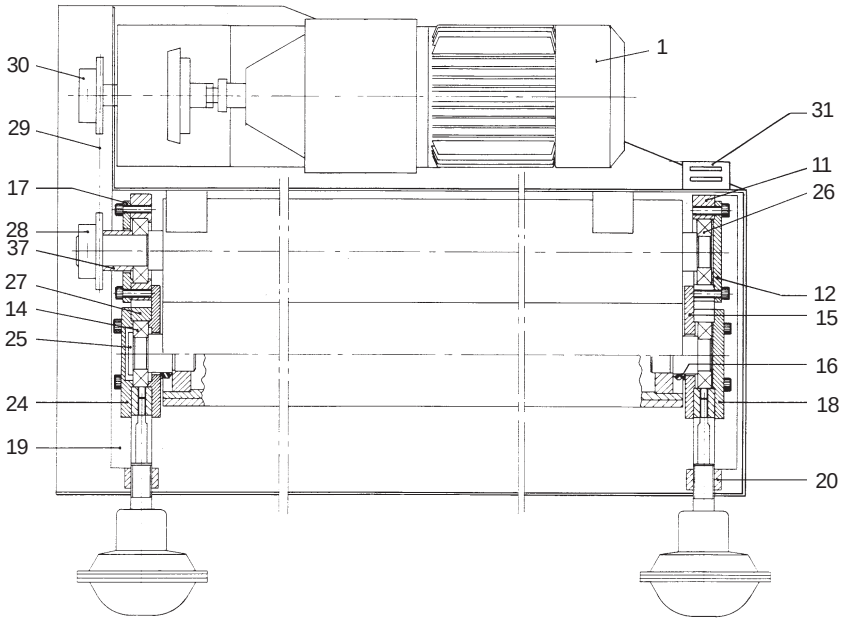
Spare parts

Only use CONAIR MARTIN 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.

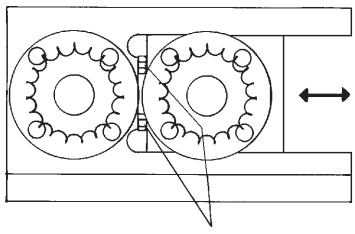




Pos.	Qty.	Art.No.	Pos.	Qty.	Art.No.	Pos.	Qty.	Art.No.
1	1		14	2	9-60018	27	2	4-01501
2	1	2-14734	15a	1	3-01497	28	1	4-01503
3	1	4-14407	15b	1	3-01498	29	1	9-30043
4	1	1-16076	16	2	9-60031	30	1	4-17207
5	1	2-14405	17	1	4-01495	31	1	9-10972
6	2	9-50095	18	1	3-01500	32	2	4-03993
7	2	4-04042	19	1	2-01482	33	2	4-14409
8	1	2-16952	20	2	4-01502	34	3	9-50096
9	1	4-14406	21	2	9-20088	37	1	4-01494
10	1	2-14710	24	1	3-01499			
11	1	2-01483	25	1	4-01505			
12	1	4-01496	26	2	9-60004			

Roll feed RF800 – roll feed with twin drive

If the "Roll feed" knob on the distribution cabinet is in the "On" position, the roll feed will start automatically when the mill starts.



Material feed on start

Open the rollers with the button on the compressed air cabinet.

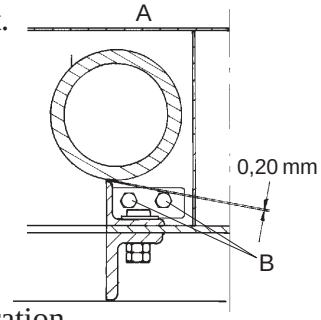
Feed the material in so far that the rollers can grasp it.

Close the rollers with the button on the compressed air cabinet.

Service

Setting the roller clearance

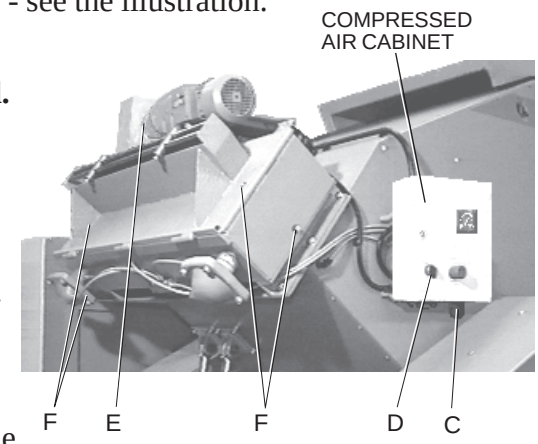
The gap between the rollers is set in the factory, and does not normally need any subsequent adjustment.



If the setting needs to be adjusted, because of wear or material thickness, there are four adjustment screws (A) - see the illustration.

NOTE! When the roller clearance has been adjusted, the scrapers must also be adjusted.

The steel rollers and the knurled rollers must not touch each other.



Adjustment of roller pressure

Roller pressure is set by pressure regulator (C).

Setting the pressure roller

If the rollers do not grip the material, or if the material wants to stick, the distance between the rollers can be increased/reduced by valve (D).

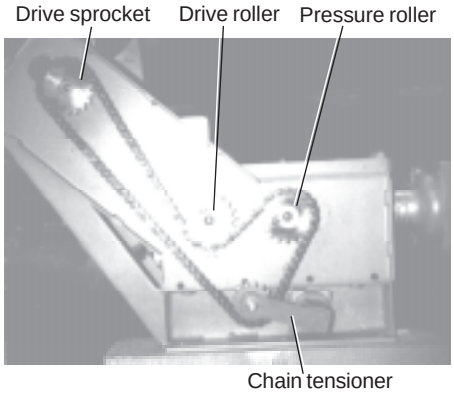
Scraper setting

If the pressure roller setting is changed, the scraper must be adjusted.

Check the clearance between the scrapers and the rollers once a month.

The scrapers must not come into contact with the rollers.

1. Undo screws (B).
2. Adjust the clearance to 0.20 mm between the scraper and the roller, use a feeler gauge.
3. Fasten the scrapers with the screws.



Speed adjustment

The speed is adjusted with knob (E) on the variator. When the correct speed has been set, lock the knob with the lock knob.

If the roller speed has a frequency controlled motor, there is a potentiometer in the distribution box which controls the speed.

Lubrication

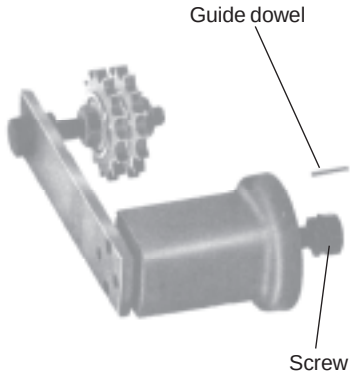
Every second month:

Lubricate the chain and pressure roller guides.

The pressure roller guides have 4 grease nipples (F).
NOTE! Lubricate sparingly and wipe off any surplus grease.

Chain tension

The chain tension is set at the factory and does not normally need any adjustment.

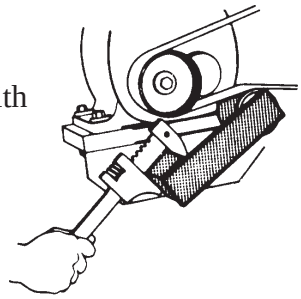


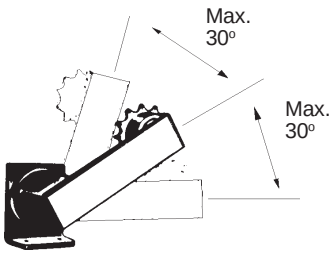
If the chain tension needs to be adjusted:

1. Undo the screw which holds the chain tensioner.
2. Remove the guide dowel.
3. Turn the chain tensioner with an adjustable spanner.

   Max. spring angle is ± 30°.
   Tension/arm angle:

10°	70 Nm
20°	150 Nm
30°	300 Nm





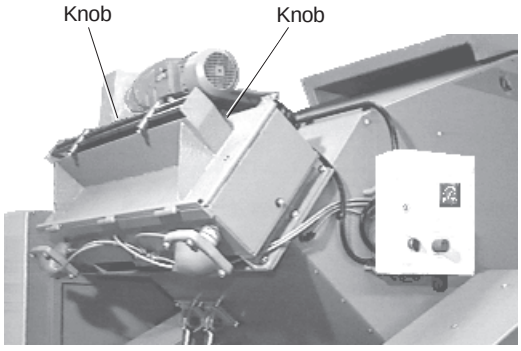
4. Tighten the chain tensioner (50 Nm).
5. Drill a new hole and insert the guide dowel.

Cleaning

If the roll feed has a noise cover – remove the noise cover first.

1. Undo the two knobs which hold the lid.
2. Open the lid.
3. Clean.
4. Reinstate.

NOTE! Wipe off surplus grease.

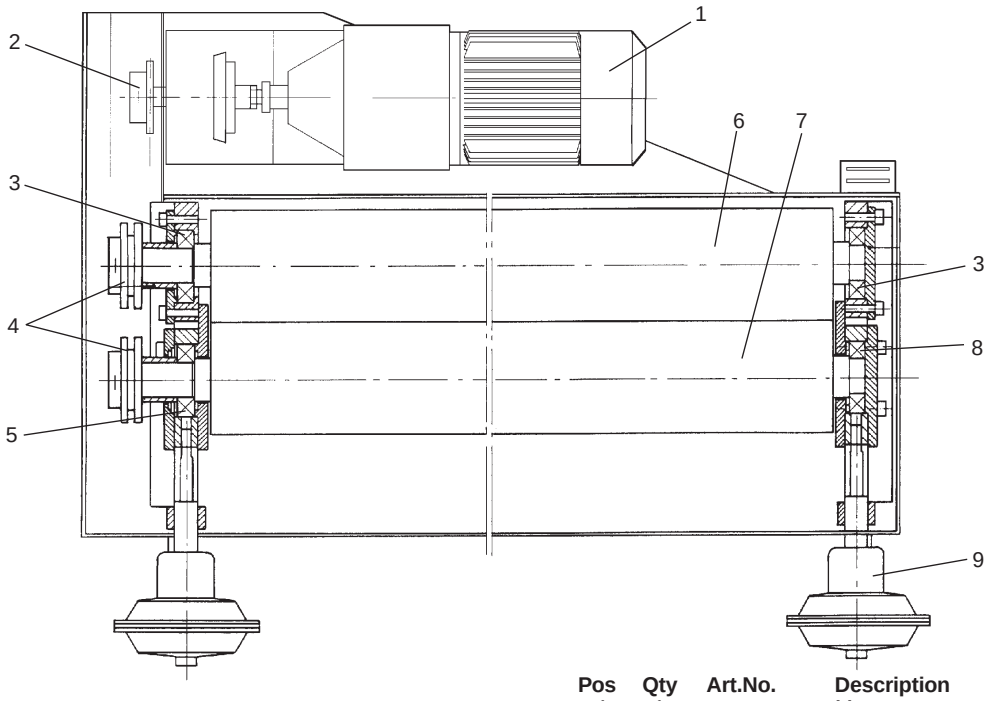


Spare parts

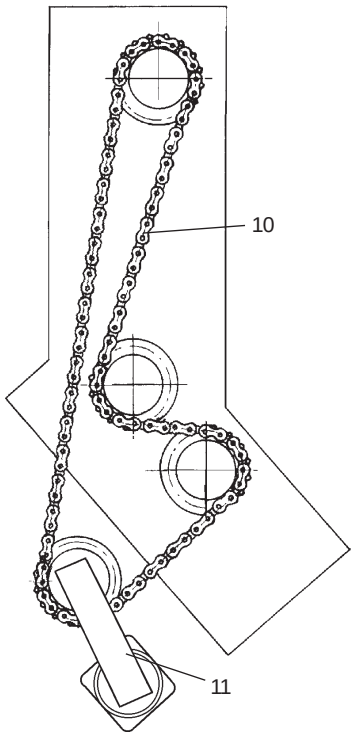
Only use CONAIR MARTIN original spare parts to replace machinery components.

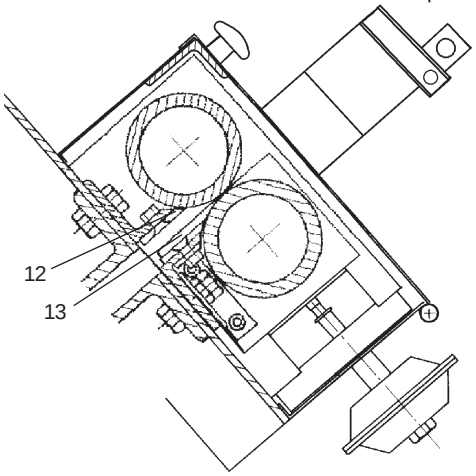
When you order spare parts, please specify:

- 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.



Pos	Qty	Art.No.	Description
1	1		Motor
2	1	4-25174	Chain wheel
3	2	9-60004	Bearing
4	1	4-11752	Chain wheel
5	1	9-60107	Bearing
6	1	2-25002	Roller
7	1	2-25001	Roller
8	1	9-60018	Bearing
9	1	9-20088	Air pressure vent
10	1	9-30159	Chain
11	2	9-30161	Chain stretcher
12	2	3-25052	Scrape
13	2	3-25053	Scrape

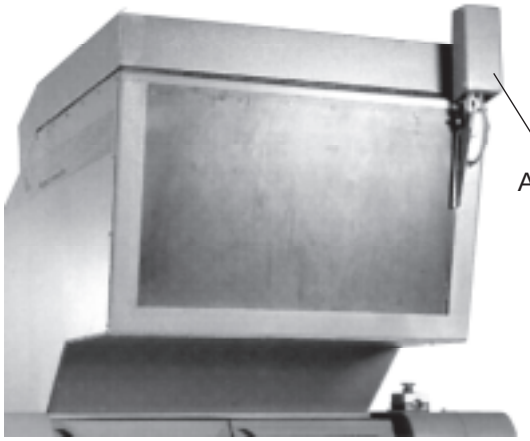


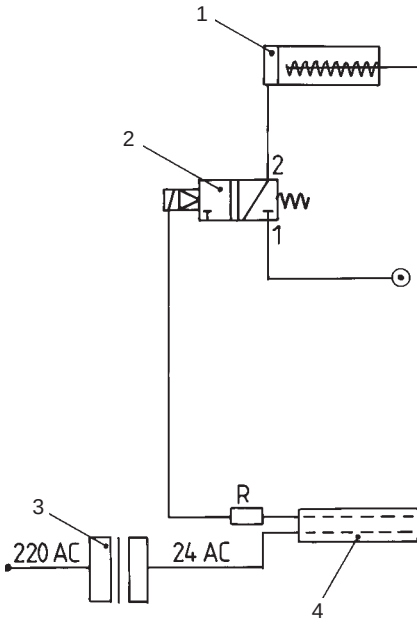


Autoflap

The autoflap is a pneumatically operated flap opener.

A pressure mat on the floor provides the impulse to open the flap on the input chute.





Pos	Qty.	Art.No.
1	1	9-20254
2	1	9-20252
3	1	9-10468
4	1	9-20253

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 2300 - 2600 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.

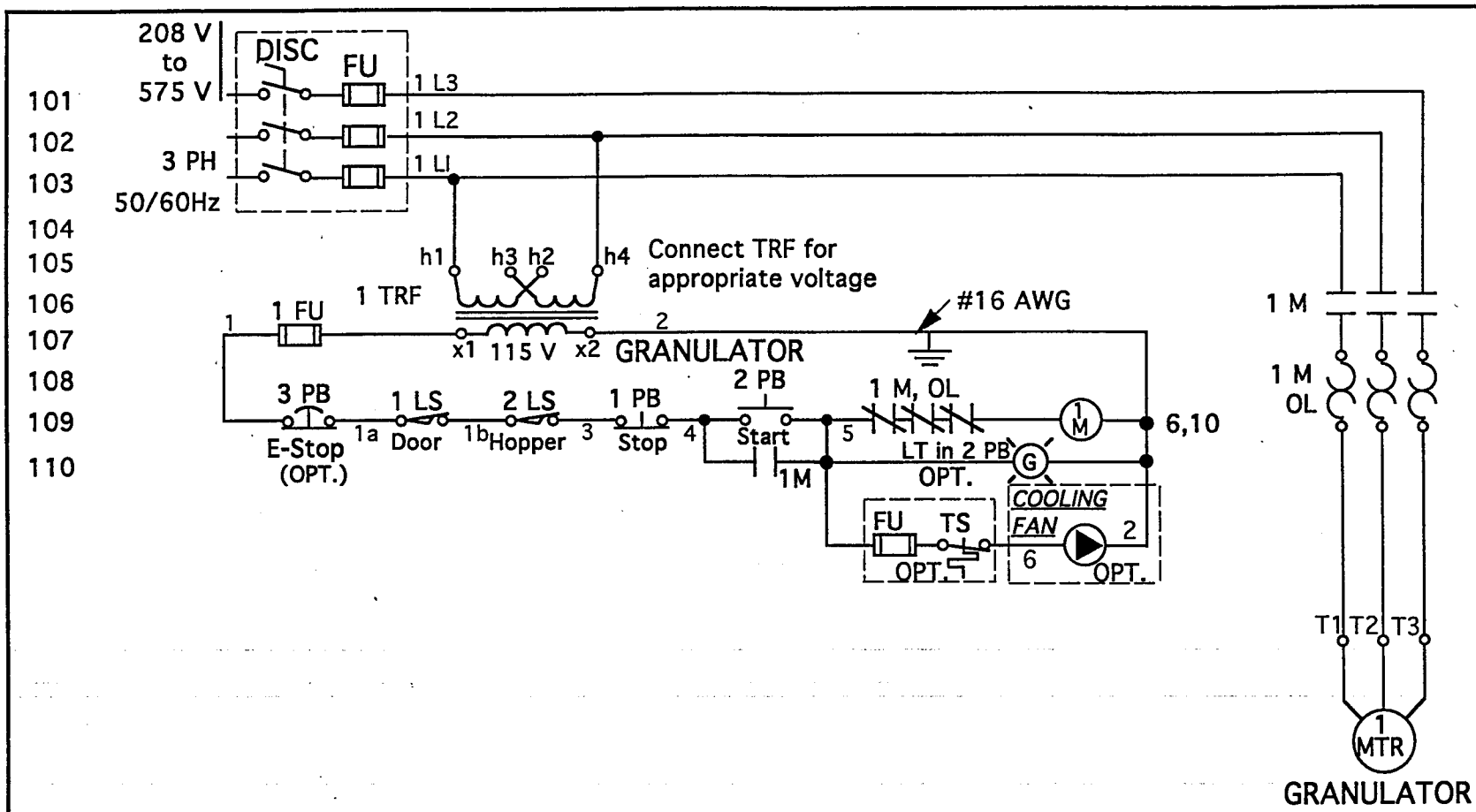
Storage

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.



REV NO.	LET.	DESCRIPTION	BY	DATE
4	D	UPDATE	J.T.	11/03/94
3	C	UPDATE	J.T.	04/09/94
2	B	UPDATE	H.O.	04/06/93
1	A	UPDATE	H.O.	02/01/93

CONAIR MARTIN
Part of The Conair Group

NAME
ELEC. SCHEMATIC

1 MTR, 208 Thru 575V, W/FAN

MACHINE SIZE
CK 1012/1418/1831

DR. BY	DATE	CHK. BY	SCALE
H.O.	10-01-91		NONE

DWG NO. C-201-00-0558 | A | SHT. 1 OF 1