

Beside the Press Granulators

CR Series Models

Installation

Operation

Maintenance

Troubleshooting



***Instant Access
Parts and Service***

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This manual is out-of-date and is provided only for its technical information, data and capacities.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containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

CONAIR

MANUAL
CR-series

Contents

1.	Introduction	3
2.	Technical specifications	4
2.1	Dimensions	4
2.2	Data	4
3.	Function description	5-6
3.1	Overview	5
3.2	Safety system	6
4.	Safety regulations	7
4.1	Overview	7
4.2	Sound level	7
5.	Installation	8-9
5.1	Pre-start checks	8
5.2	Opening and closing the hopper and screenbox	9
5.3	Electrical connection	9
6.	Operation and daily maintenance	10-12
6.1	Starting and stopping	10
6.2	Inspection	10
6.2.1	Daily inspection	10
6.2.2	Weekly inspection	10
6.3	Cleaning	11
6.4	Trouble-shooting	12
6.4.1	If the rotor does not start	12
7.	Service	13-16
7.1	Changing the knives	13
7.1.1	Changing the rotating knives	13
7.1.2	Changing the fixed knives	14
7.2	Inspecting and adjusting the belts	14-15
7.2.1	Inspecting the belt tension	14-15
7.2.2	Adjusting the belt tension	15
7.3	Lubrication	16
7.3.1	Granulator	16
7.4	Mounting/demounting the rotor pulley	16
7.4.1	Demounting	16
7.4.2	Mounting	16
8.	Spare parts list	17-22
8.1	Overview	17
8.2	Modules	17-22
9.	Wiring diagram	23
10.	Layout	24
11.	Options	25-27

1. Introduction

To avoid personal injury and damage to the machinery, you should study this manual carefully before installing and using the equipment.



Always take great care when the knives are within reach, since they are very sharp and can cause personal injury.

CONAIR granulators in the CR-series are built for granulation of injection moulded or extruded plastic waste where the rotor's size and performance corresponds to the waste. For any other products or materials, approval must be obtained from the dealer or head-office in order for the conditions of the guarantee to be valid.

The CR-series is adapted for quick and simple cleaning of the rotor when changing colour or material.

This manual is for the CR-series.

All servicing work should be carried out by a person with technical training or corresponding professional experience. The manual contains instructions for both handling and servicing the rotor. Chapter 7, which contains servicing instructions, is intended for service engineers. Other chapters contain instructions for the daily operator.

Delivered with the rotor are a tool kit, manual, and touch-up paint.

Any modifications, changes, or rebuilding of the rotor must be approved by CONAIR in order to avoid personal injury and damage to machinery and to ensure that the documentation remains correct.

If you have any questions, please contact your local dealer or our head-office.

2. Technical specifications

2.1 Dimensions

See chapter 10, Layout

2.2 Data

Dim. (mm)\ Rotor Type	Knife fixed	Knife rot.	Motor power (kW)	RPM	Sound level dBA*	Weight kg
66 standard	2 x 1	3 x 2	1,5	190	80	160
66: 2,2 kW	2 x 1	3 x 2	2,2	195	80	175
69 standard	2 x 1	3 x 3	2,2	195	81	175
69: 4 kW	2 x 1	3 x 3	4	290	81	190
611 standard	2 x 1	3 x 4	2,2	195	82	190
611: 4 kW	2 x 1	3 x 4	4	290	82	205
614 standard	2 x 2	3 x 5	2,2	195	82	205
614: 4 kW	2 x 2	3 x 5	4	290	82	220
617 standard	2 x 2	3 x 6	2,2	195	82	220
617: 4 kW	2 x 2	3 x 6	4	290	82	235

* Values measured using sound-intensity meter B&K2225 by sampling for 60 seconds at a distance of 1.5 m from the machine when grinding polyethylene (PE) capsules.

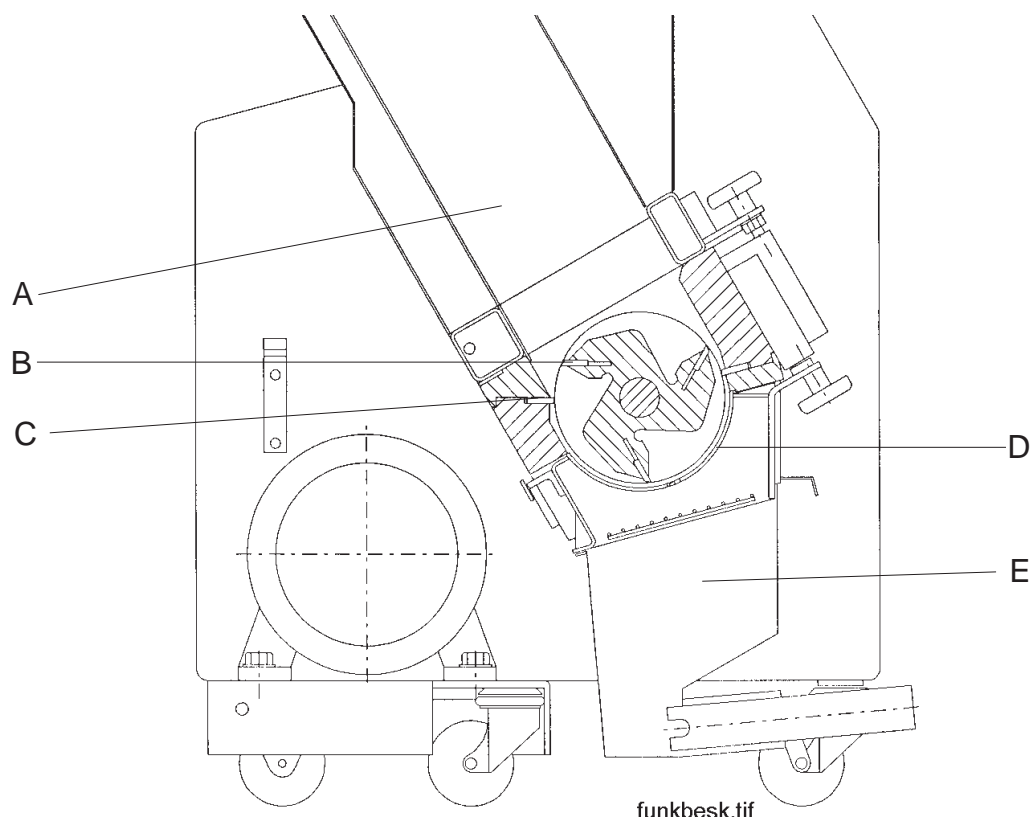
Serial number _____

3. Function description

3.1 Overview

Granulators in the CR-series are designed for grinding different types of plastic waste.

The granulator is controlled from a front panel with a start/stop function and an emergency stop button.



The material is fed in via a funnel (A) and falls down to the rotor. The rotor's knives (B) grind the material against the fixed knives (C) in the cutter housing. Both the fixed and rotating knives can be changed when necessary.

Underneath the rotor is a screen (D) which the granulate passes through before it is gathered in the granule bin (E). The standard hole size is 5 mm.

The granule bin, screen and screen box are designed for easy removal when cleaning. The hopper can be opened up to provide improved access for cleaning and maintenance.

3.2 Safety system

Since there are rotating knives inside the granulator, there is a built-in safety system to prevent personal injury.

Emergency stop: The equipment is fitted with an emergency stop switch at the top of the control panel. The emergency stop is released by pushing in the button. It is reset by turning the button in the direction of the arrow (anti-clockwise).

Safety switch: To prevent personal injury when cleaning and servicing the equipment, 2 safety switches are built into the electrical system.

One loop is mounted on the hopper by the cutter housing, and one on the screenbox.

The loops slot into the safety switches. When one of the loops is removed by unscrewing the locking screws, the current is broken so that the granulator stops. The star knobs force open the hopper and screenbox; their thread length is such that the granulator is able to stop before the hopper or screenbox can be freed and released. The granulator cannot be started again until the hopper and screenbox are completely closed. The loops should be inspected regularly, as described in chapter 6.2.

4. Safety regulations

4.1 Overview

The following safety measures should always be followed when handling the granulator:

- **Always switch off the main circuit-breaker (on top of the stand) before opening the granulator.**
- **Never put any part of your body into any openings on the granulator unless the main circuit-breaker has been switched off.**
- **Always be careful when the knives are in reach since they are very sharp. When the rotor has to be turned manually, this must be done with the greatest care!**
- **Be careful when opening or closing the hopper so that no part of your body gets caught.**
- **The granulator cannot be started until all the star knobs that slot into the safety switches are completely tightened.**

4.2 Sound level

- See chapter 2.2 Data
- Sound effect level Not measured

5. Installation

All instructions must be carried out in the order described, to prevent personal injury or damage to machinery.



Always take great care when handling the knives since they are very sharp and can cause personal injury.



The granulator should be connected to the mains supply by an authorised electrician.

5.1 Pre-start checks

- Before the granulator is installed, the rust preventive should be carefully cleaned from the parts which are not painted or rustproof.
- Lock the wheels by stepping on the arm of the foot-operated brake on each wheel.

5.2 Opening and closing the hopper and screenbox

Opening:

- Loosen the break screws to the hopper's and screenbox's safety switches.

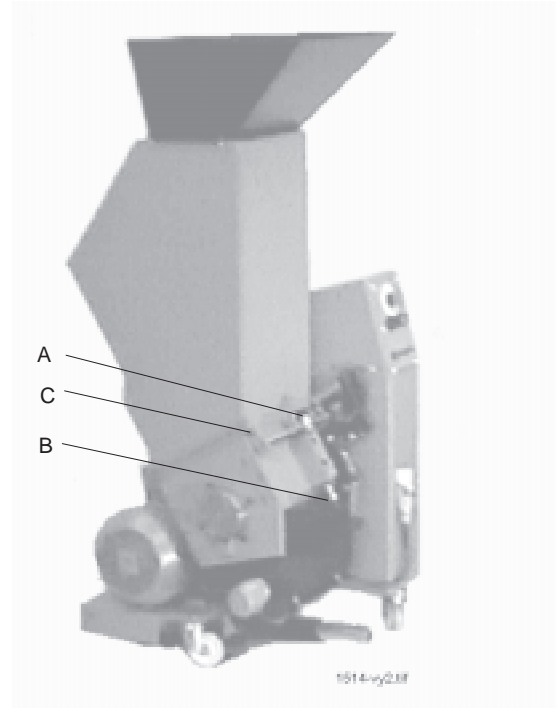


Warning! Be careful not to get caught in the machinery when performing the following:

- Open the hopper by loosening the star knob (A).

Closing:

- Lower the hopper onto the stopper (C). Move the stopper aside and lower the hopper further so that the star knob's threads engage.
- Tighten the star knobs to the hopper's (A) and screenbox's (B) safety switches by screwing them clockwise as far as they can go.



5.3 Electrical connection

The granulator should be connected up by an authorised electrician.

- Connect the granulator to the mains supply. See Electrical scheme, chapter 9, connecting (Q1).

Check the granulator motor's rotation direction as follows:

- Switch the main circuit-breaker (on top of the stand) to position (1) = "On".
- Check the emergency stop switch is not activated. It can be reset by turning the knob in the direction of the arrow (anti-clockwise).
- Check that the break screws to the two safety switches are completely tightened.
- Press in the change-over button "START".
- Check the granulator motor's rotation direction is consistent with the arrow on the hood.

If the rotation direction is not correct:

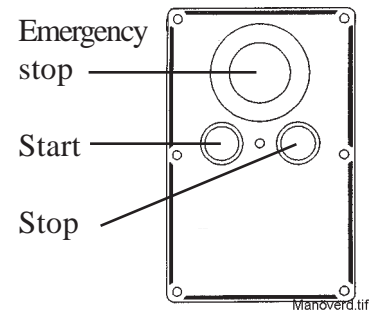
- Change the incoming phases.

6. Operation and daily maintenance

6.1 Starting and stopping

The start and stop functions are controlled by change-over button on the front panel.

NOTE: The granulator should not be stopped until it has finished grinding all the material in the hopper and cutter housing. Any remaining material can slow down the rotor when it is re-started which can overload the motor and trigger the overload protector. (See 6.4)



6.2 Inspection

There should **not** be any material in the granulator when the inspection is to be carried out.

6.2.1 Daily inspection

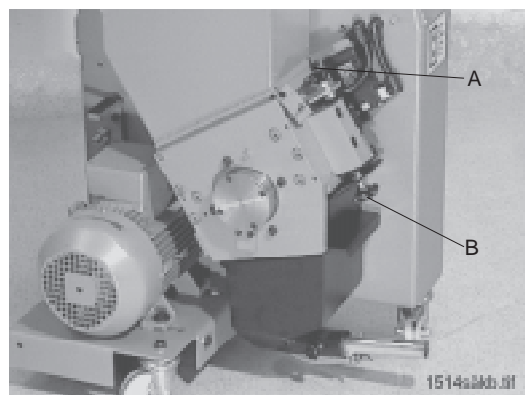
- **Flaps in the hopper.** Check that the flaps are not damaged. Damaged parts should be replaced immediately to prevent bits of the flaps from falling into the cutter housing and damaging the knives.
- **Emergency stop.** Check the emergency stop function by starting the granulator and then stopping it using the emergency stop button. The emergency stop is reset by turning the emergency stop button in the direction of the arrow, after which the machine can be re-started by pressing “START”.

6.2.2 Weekly inspection

- **Cables.** Inspect all cabling in the machine to see that there is no wear or other damage. For reasons of personal protection, damaged parts should be replaced immediately.
- **Safety switches.** There are two safety switches, one for the hopper and one for the screenbox.

Hopper: Check the switch by the cutter housing by starting the granulator and then unscrewing the star knob (A). The granulator should have stopped before you are able to lift the hopper. Reset it.

Screenbox: Check the switch by starting the granulator and then unscrewing the star knob (C). The granulator should have stopped before you are able to loosen the screen box. Reset it.



6.3 Cleaning

1. Pull out the granule box (A)
2. Loosen the locking screw (B)
3. Pull out the screenbox with the screen (C)
4. Lift out the screen (D)
5. Loosen the locking screw for the hopper (E)
6. Open up the hopper. The granulator is now ready for cleaning.



Always take great care when handling the knives since they are very sharp and can cause personal injury.

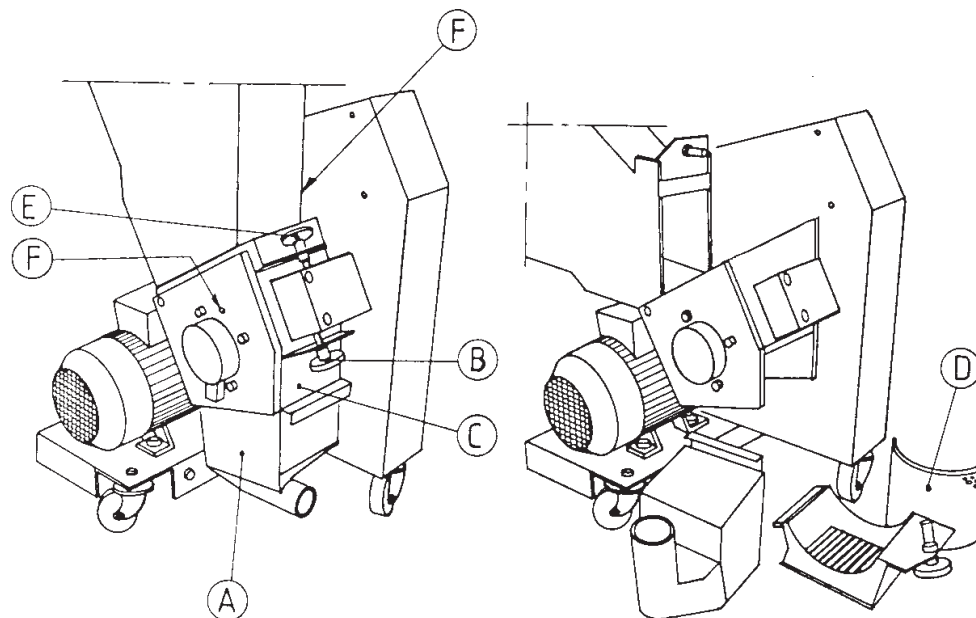
7. Remove the blue-painted screws (F) to the cleaning hole.

NOTE: Use protective glasses!

8. Using compressed air, blow through the hole to clean the cutter while it rotates completely at least once. Make sure that no material gets blown into the safety switches.

Note: Steps 7 - 8 should be carried out every time the machine is cleaned, or at least once every 300 hours.

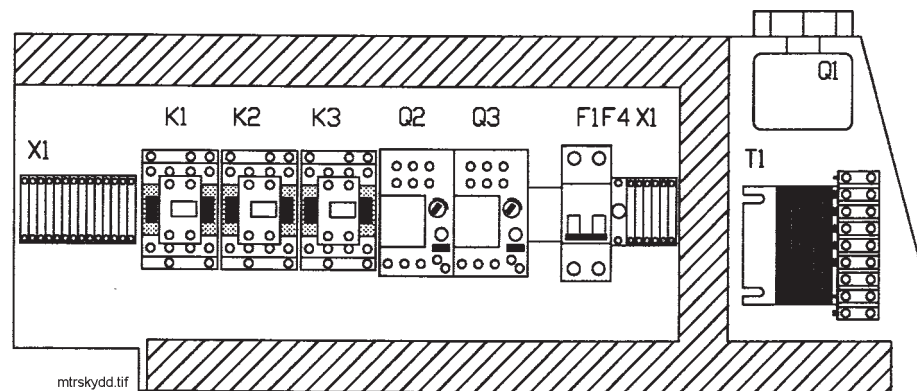
9. Replace all parts in reverse order.



6.4 Trouble-shooting

6.4.1 If the rotor does not start

- Check that the safety switches' star knobs are turned fully clockwise. It is not possible to start the granulator unless the star knobs are screwed in.
- Check that the emergency stop is not activated. It can be reset by turning the button in the direction of the arrow.
- The safety disconnection switches (Q2) and/or (Q3) in the electrical cabinet, according to the diagram below, are released if you press stop or overload the granulator. The safety disconnection switches are reset automatically after approximately two minutes.



NOTE: Switch off the main circuit-breaker when cleaning the granulator. Empty the granulator of all material before restarting it.

7. Servicing

All servicing work should be carried out by a qualified service engineer and in the order described, to prevent personal injury or damage to machinery.

7.1 Changing the knives

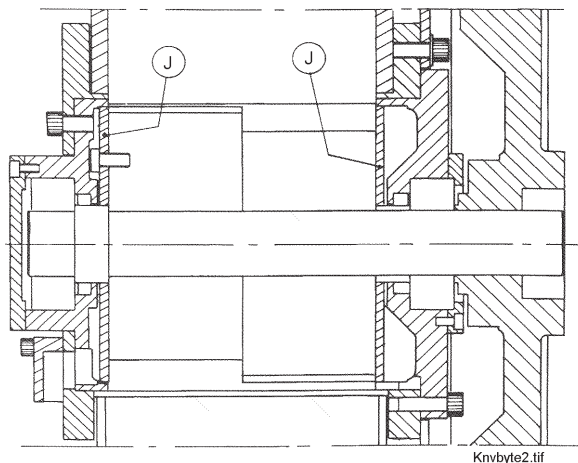
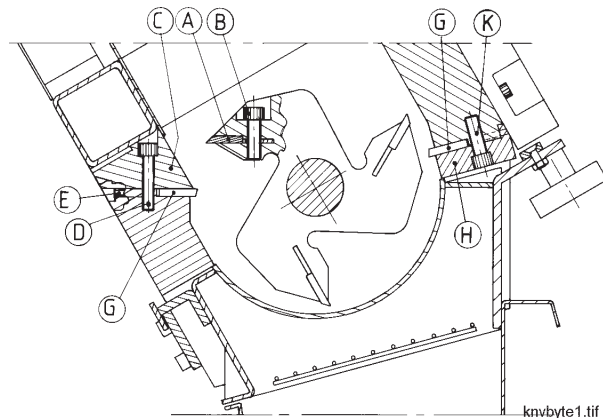
When changing the knives, also check for any wear to the screen. For safety reasons, this should be replaced when the holes in the screen become drop-shaped.



Always take great care when handling the knives since they are very sharp and can cause personal injury. Use protective gloves!

7.1.1 Changing the rotating knives

1. Loosen the screws (B)
2. Remove the knife (A). If the knife does not come loose, tap it gently on the top.
3. Make sure that the new knife is free from grease and impurities.
4. Clean any plastic waste and so on from the location for the new knife.



5. Push the new knife down to the bottom.

NOTE: The outer knives must sit tight against the ring (J).

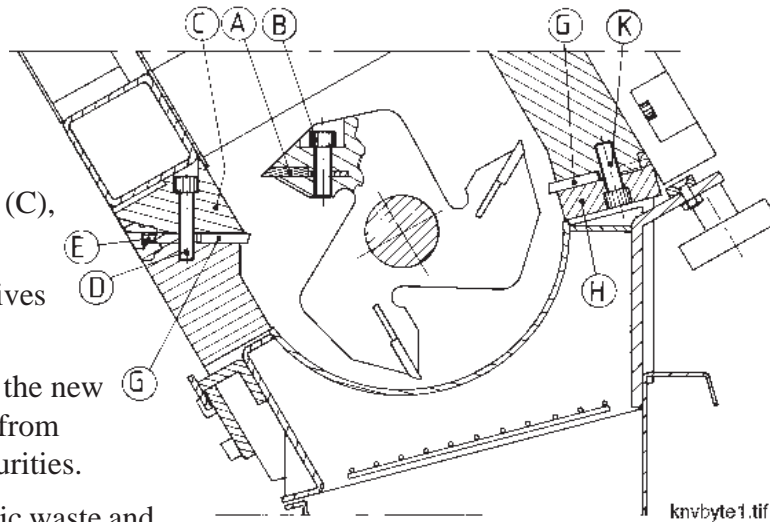
6. Screw in and tighten the fastening screws (B) with the correct torque: 38 Nm.

For safety reasons, damaged screws must be replaced.

7. Turn the rotor and change the other rotating knives in the same way.

7.1.2 Changing the fixed knives

1. Loosen and remove the screws (D), (K).
2. Remove the retaining rulers (C), (H).
3. Remove the knives (G).
4. Make sure that the new knives are free from grease and impurities.
5. Clean any plastic waste and so on from the location for the new knives.



6. Locate the knife against the stop screws (E). **NOTE:** The stop screws are pre-installed at the factory and must not be changed.
7. Locate the retaining rulers (C), (H) on the knife.
8. Screw in the screws (D), (K).

For reasons of safety, damaged screws should be replaced!

9. Push the knife in against the stop screws (E) and tighten the screws (D) and (K) with a torque of 38 Nm.

**CHECK THAT ALL KNIVES MOVE FREELY
BY ROTATING THE CUTTER.**

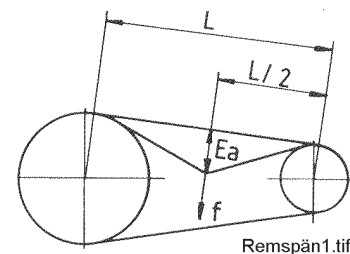
7.2 Inspecting and adjusting the belts

The V-belts must be inspected initially after 30 hours' operation. After that, the wear and tension on the belts should be checked after every 1000 hours' operation or depending on circumstances.

NOTE: Switch off the main circuit-breaker!

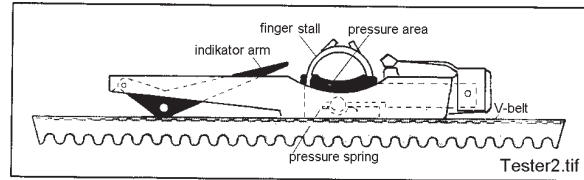
7.2.1 Inspecting the belt tension:

1. Remove the granule bin.
 2. Unscrew the lower-right side plate on the granulator stand.
 3. Check that the belt and pulleys are free from dirt and dust.
- A** Load the belt according to the diagram.



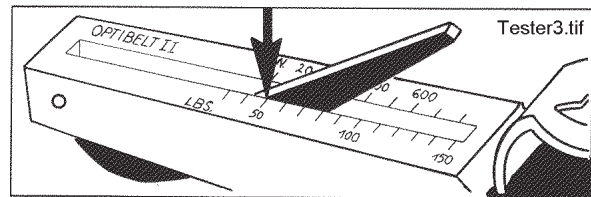
Min. belt tension during operation: $f_{\min} = 100 \text{ N}$; $E_a = 7 \text{ mm}$

- B** Check the tension using the belt-tension meter "Optibelt II" (optional extra). The belt tension during operation should be between: $f_{\min} = 720$ N and $f_{\max} = 900$ N.



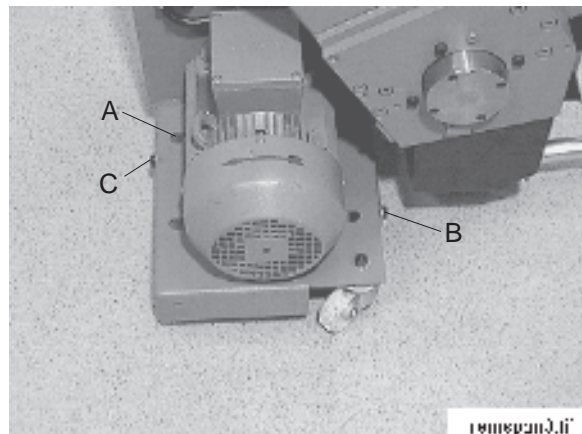
The measuring tool is designed to measure the belt tension in belt drives with one V-belt.

1. Put your index finger into the rubber finger-stall.
2. Press the indicator arm back so that it lies below the scale's surface.
3. Without pressing, place the measuring tool in between the pulleys, in the middle of the belt and parallel to it.
4. Press slowly with only your index finger until you hear or feel a "Click". Then, immediately stop pressing so that the indicator arm remains in the position shown.
5. Without moving the indicator arm, lift away the measuring device and read off the value against the point where the indicator arm meets the surface of the scale.



7.2.2 Adjusting the belt tension:

1. Lightly loosen the four screws (A) that attach the motor to the lock rulers.
2. Loosen the screw to the motor ruler (B).
3. Tighten the screw to the motor ruler (C) as much as the previous one was loosened.
4. Check the belt tension according to 7.2.1 A or B.
5. Tighten the four screws that attach the motor to the lock rulers.



7.3 Lubrication

7.3.1 Granulator

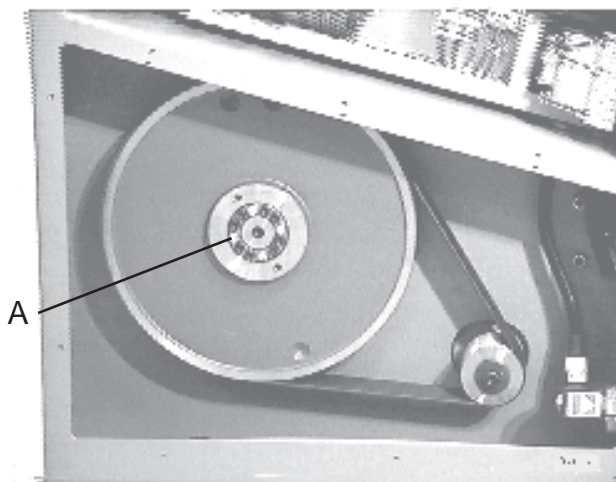
All bearings in the granulator have been lubricated, and cannot be re-lubricated.

7.4 Mounting/demounting the rotor pulley

To be able to mount/demount the rotor pulley, the lower-right side plate must first be removed.

7.4.1 Demounting

1. Loosen the belt according to 7.7.2
2. Loosen the 12 screws (A) on the tension element. Carefully tap the screws so that the element comes loose.
3. Remove it.
4. Remove the pulley.



7.4.2 Mounting

1. Mount the pulley tightly against the bearing.
2. Mount the tension element.
3. Carefully screw the 12 screws (A) crosswise.
4. Tighten the screws with a torque of 15 Nm. It is very important that the screws are tightened crosswise.
5. Tension the belt according to 7.7.2.

8. Spare parts list

8.1 Overview

The spare parts list is divided into modules. Each module illustrates a particular part of the granulator.

All spare parts are specified with their article number and quantity.

8.2 Granulator modules

The granulator is divided into the following modules:

1. Cutter housing page 18
2. Stand with transmission page 19
3. Screenbox with granule bin page 20
4. Granule bin page 21
5. Hopper page 22

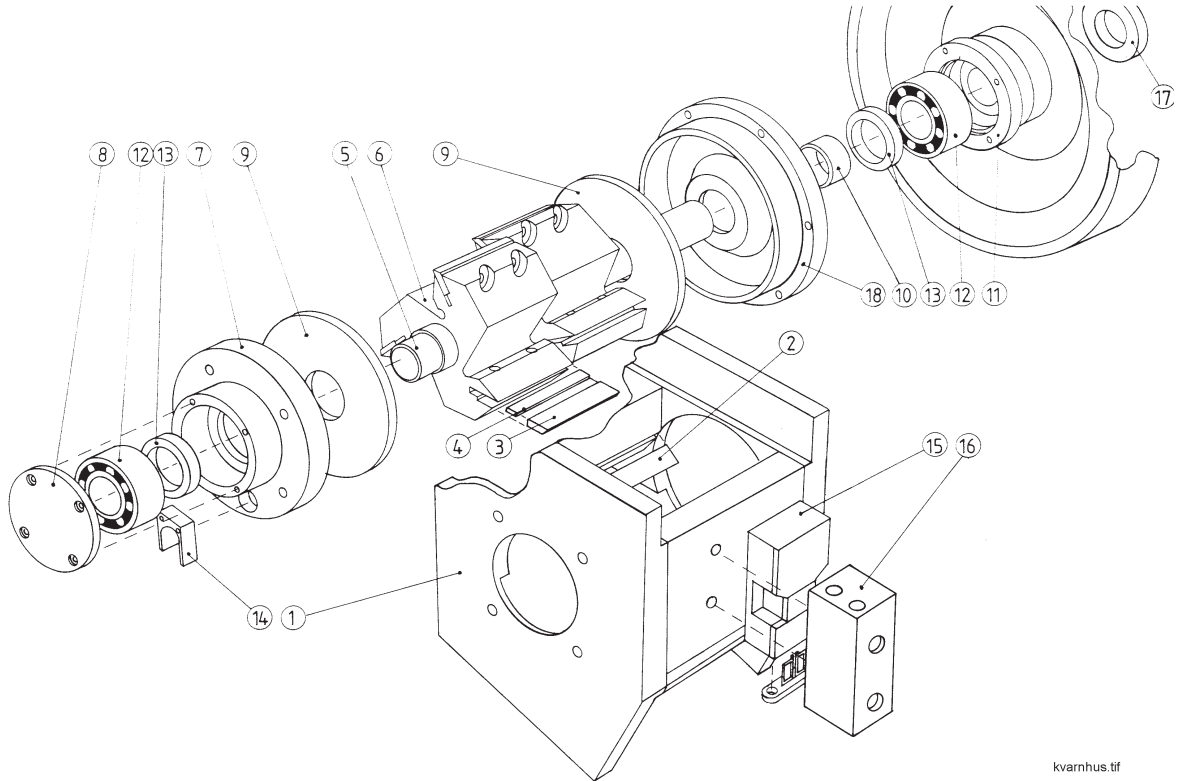
8.3 Ordering spare parts

Only use spare parts from CONAIR when replacing machine parts. Orders should go to the representative in the country where the machine was purchased.

When ordering, the following should be specified:

- machine designation, as specified on the machine plate
- serial number, as specified on the machine plate
- article number, as specified in the spare parts list
- quantity, as specified in this spare parts list.

8.2.1 Cutter housing

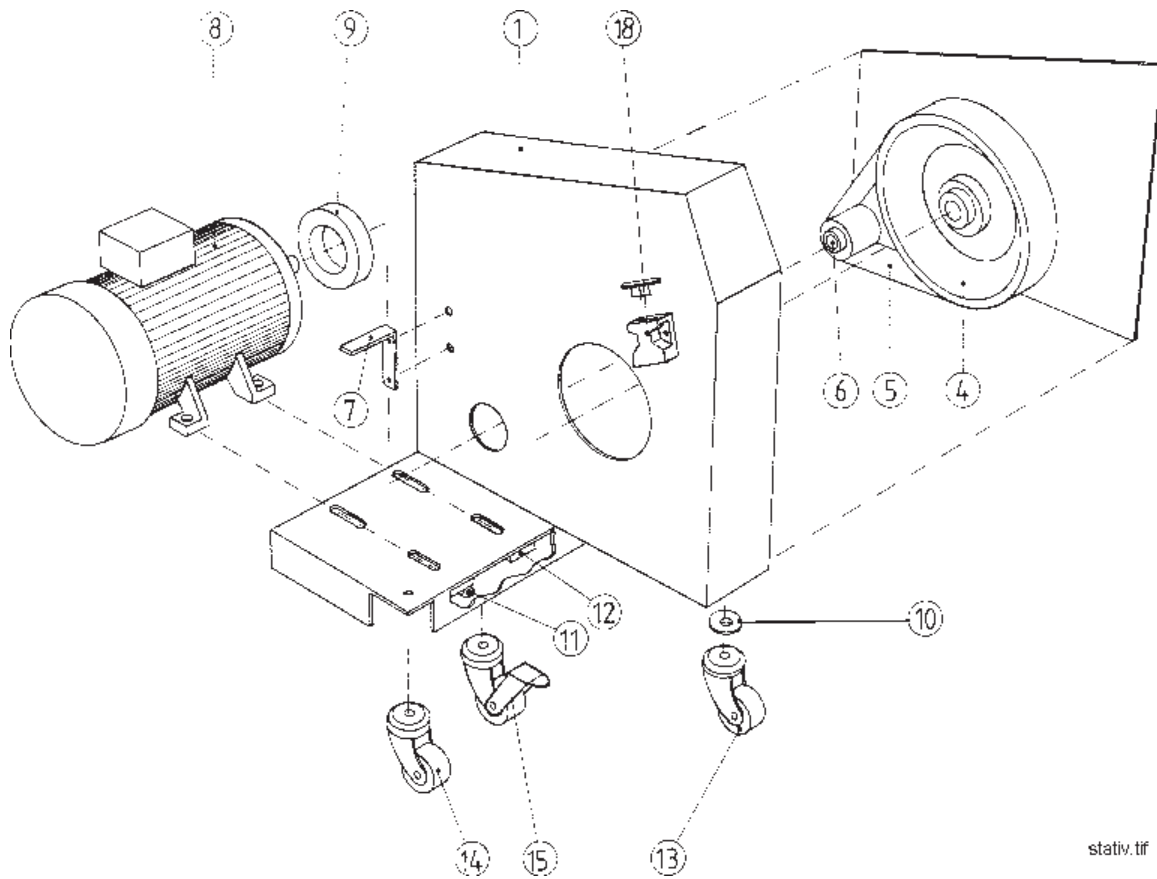


kvarnhus.tif

Pos	66	Q'ty	69	Q'ty	611	Q'ty	614	Q'ty	617	Q'ty
1	4-22102	1	4-22103	1	4-22104	1	4-22105	1	4-23214	1
2	4-19212	2	4-19213	2	4-19214	2	4-20398	4	4-22224	4
3	4-18362	6	4-18362	9	4-18362	12	4-18362	15	4-18362	18
4	4-17158	6	4-17158	9	4-17158	12	4-17158	15	4-17158	18
5	3-18395	1	3-18396	1	3-18397	1	3-20396	1	3-22222	1
6	2-18388	2	2-18388	3	2-18388	4	2-18388	5	2-18388	6
7	3-18384	1	3-18384	1	3-18384	1	3-18384	1	3-18384	1
8	9-40644	1	9-40644	1	9-40644	1	9-40644	1	9-40644	1
9	3-18389	2	3-18389	2	3-18389	2	3-18389	2	3-18389	2
10	4-18391	1	4-18391	1	4-18391	1	4-18391	1	4-18391	1
11	4-18387	1	4-18387	1	4-18387	1	4-18387	1	4-18387	1
12	9-60149	2	9-60149	2	9-60149	2	9-60149	2	9-60149	2
13	9-60148	2	9-60148	2	9-60148	2	9-60148	2	9-60148	2
14	4-18499	1	4-18499	1	4-18499	1	4-18499	1	4-18499	1
15	9-11002	1	9-11002	1	9-11002	1	9-11002	1	9-11002	1
16	3-22126	1	3-22126	1	3-22126	1	3-22126	1	3-22126	1
17	9-30190	1	9-30190	1	9-30190	1	9-30190	1	9-30190	1
18	2-18386	1	2-18386	1	2-18386	1	2-18386	1	2-18386	1

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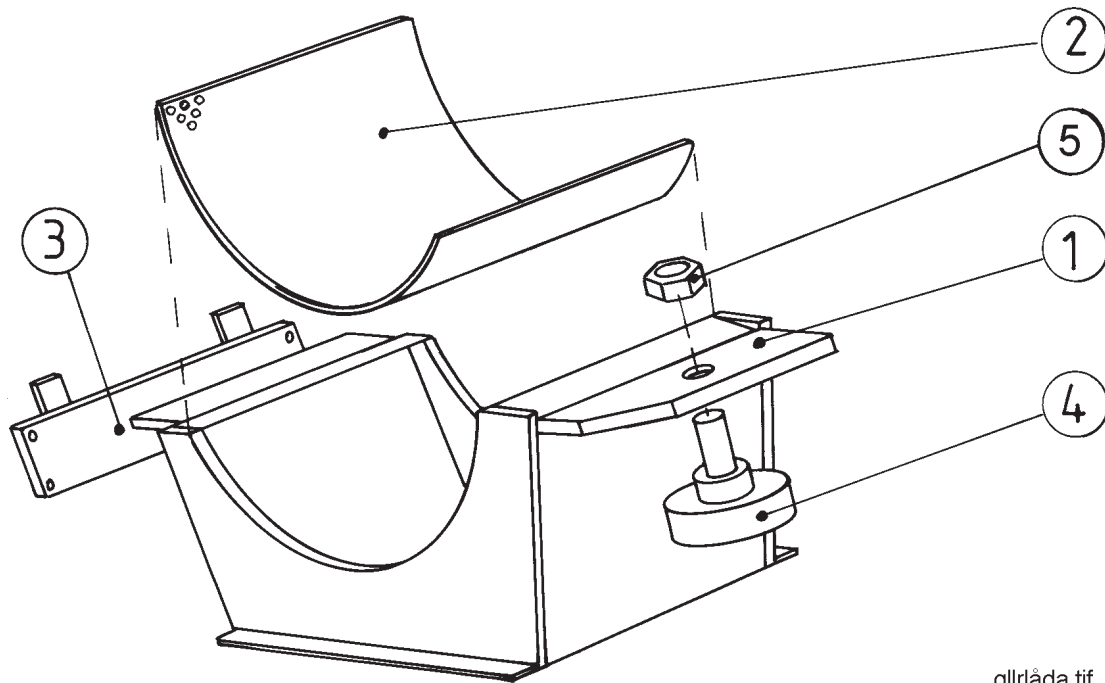
8.2.2 Stand with transmission



stativ.tif

Pos	Q'ty	66	69	611	614	Q'ty	617	Q'ty
1	1	1-22100	1-22100	1-22100	1-22101	1	1-22101	1
4	1	9-30187	9-30187	9-30187	9-30187	1	9-30187	1
5	1	9-30189	9-30189	9-30189	9-30189	1	9-30189	1
6	1	9-30188	9-30188	9-30188	9-30188	1	9-30188	1
7	1	4-19543	4-19543	4-19543	4-19543	1	4-19543	1
8	1	9-10815	9-10651	9-10651	9-10651	1	9-10651	1
9	1	9-70143	9-70143	9-70143	9-70143	1	9-70143	1
10	1	9-40648	9-40648	9-40648	9-40648	1	9-40648	1
11	1	3-17161	3-17161	3-17161	3-17161	1	3-17161	1
12	1	3-16818	3-16818	3-16818	3-16818	1	3-16818	1
13	1	9-50410	9-50410	9-50410	9-50410	2	9-50410	2
14	1	9-50411	9-50411	9-50411		0		0
15	1	9-50412	9-50412	9-50412	9-50412	2	9-50412	2
18	1	9-11002	9-11002	9-11002	9-11002	1	9-11002	1

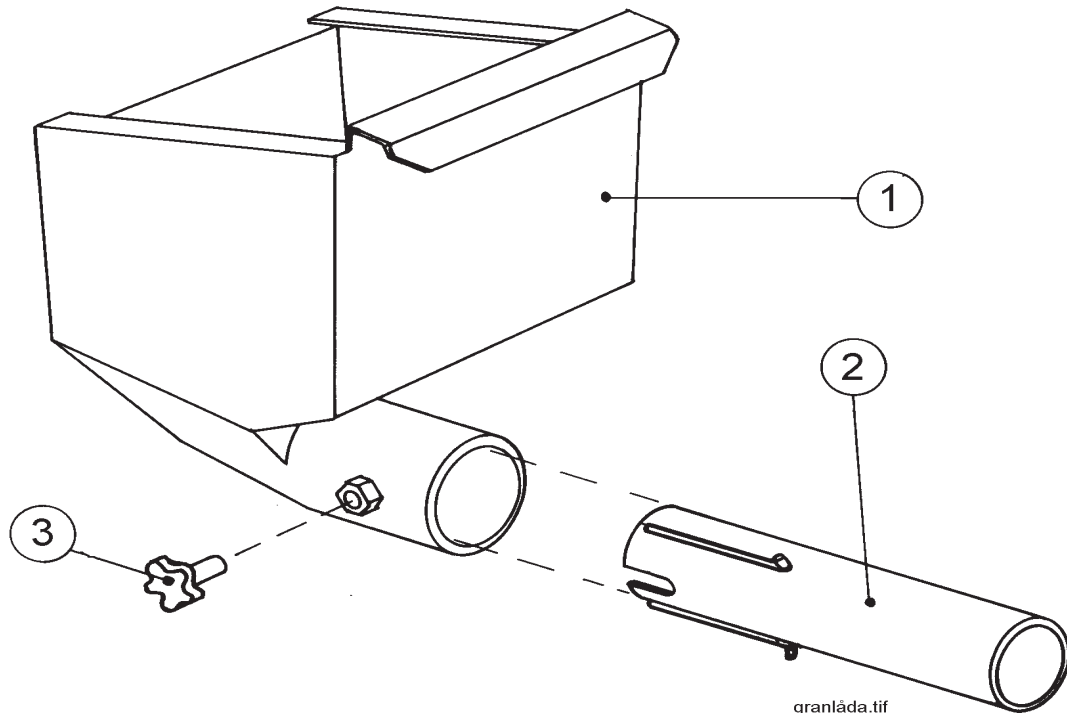
8.2.3 Screenbox



gllrláda.tif

Pos	Q'ty	66	69	611	614	617
1	1	1-22110	1-22111	1-22112	1-22113	1-23217
2	1	3-18417	3-18418	3-18419	3-20402	3-22228
3	1	4-18496	4-18497	4-18498	4-20399	4-22225
4	1	9-50393	9-50393	9-50393	9-50393	9-50393
5	1	4-19396	4-19396	4-19396	4-19396	4-19396

8.2.4 Granule bin

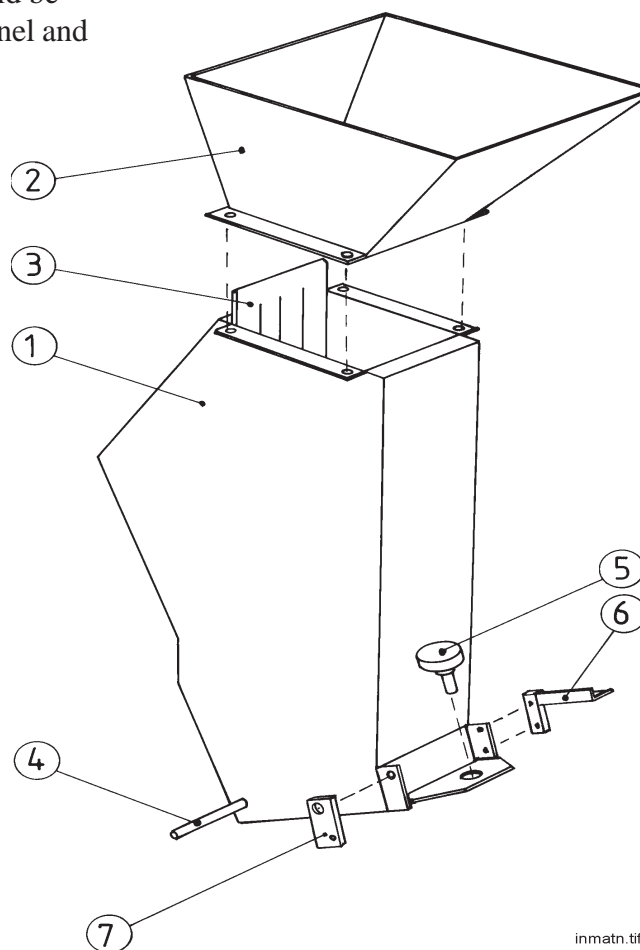


Pos	Q'ty	66	69	611	614	617
1	1	2-18422	2-18509	2-18513	1-20405	1-22231
2	1	3-18390	3-18390	3-18390	3-18390	3-18390
3	1	9-50413	9-50413	9-50413	9-50413	9-50413

8.2.6 Hopper with funnel

- The funnel (2) to the hopper (1) can be mounted in two ways. Changing between these two alternatives is done by unscrewing the funnel's four fastening screws (4 x M6) and turning the funnel 180°.

Note: The valve (3) should be mounted between the funnel and hopper.



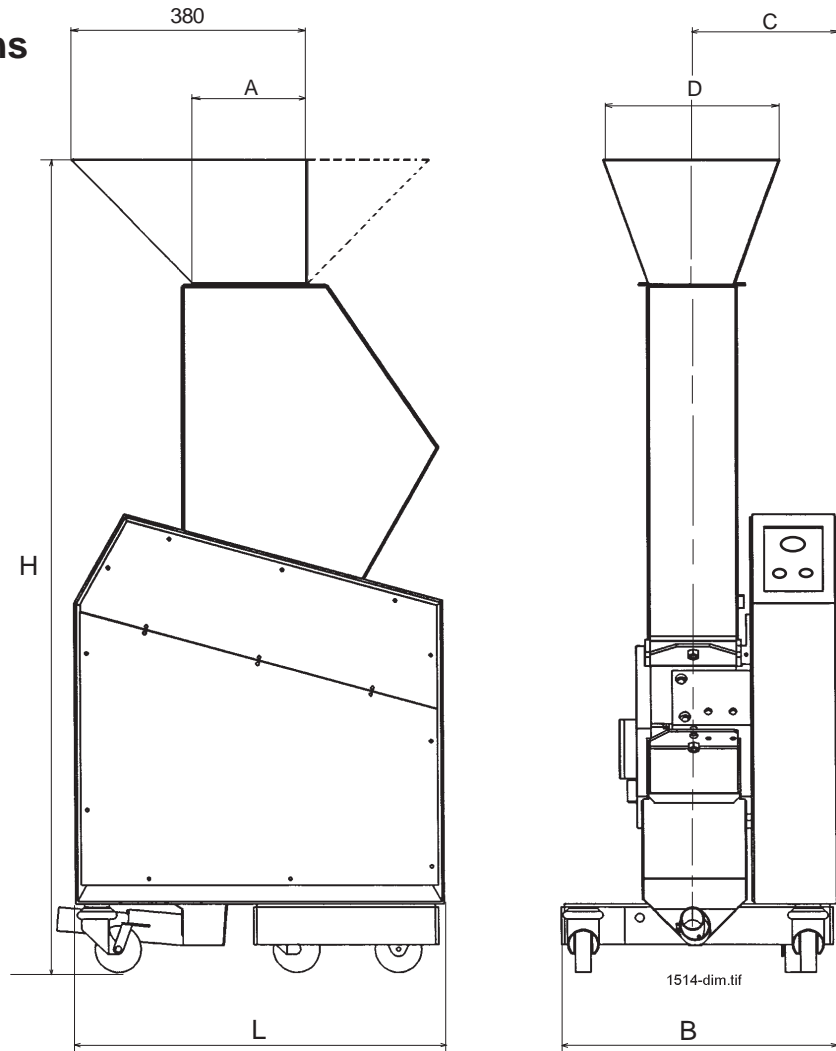
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Pos	66	Q'ty	69	Q'ty	611	Q'ty	614	Q'ty	617	Q'ty
1	1-22114	1	1-22115	1	1-22116	1	1-22117	1	1-23108	1
2	2-18409	1	2-18410	1	2-18411	1	1-20412	1	2-22196	1
3	4-19196	1	4-19197	1	4-19196	2	4-19196	1	4-19197	2
							4-19197	1		
4	4-18490	1	4-18491	1	4-18492	1	4-20397	1	4-22223	1
5	9-50393	1	9-50393	1	9-50393	1	9-50393	1	9-50393	1
6	4-22130	1	4-22130	1	4-22130	1	4-22130	1	4-22130	1
7	4-22128	1	4-22128	1	4-22128	1	4-22128	1	4-22128	1

9. Wiring diagram

10. Layout

10.1 Dimensions



10.2 Data

Dim. (mm)	A	C	D	L	B	H
66	150x140	240	280	600	455	1300
69	150x210	275	350	600	475	1300
611	150x280	310	420	600	500	1300
614	150x350	345	490	600	620	1300
617	150x420	380	560	600	660	1300

11. Spare parts list

- 11.1 Air veyor page 26
- 11.2 Pause/pulse relay when emptying with air veyor page 27

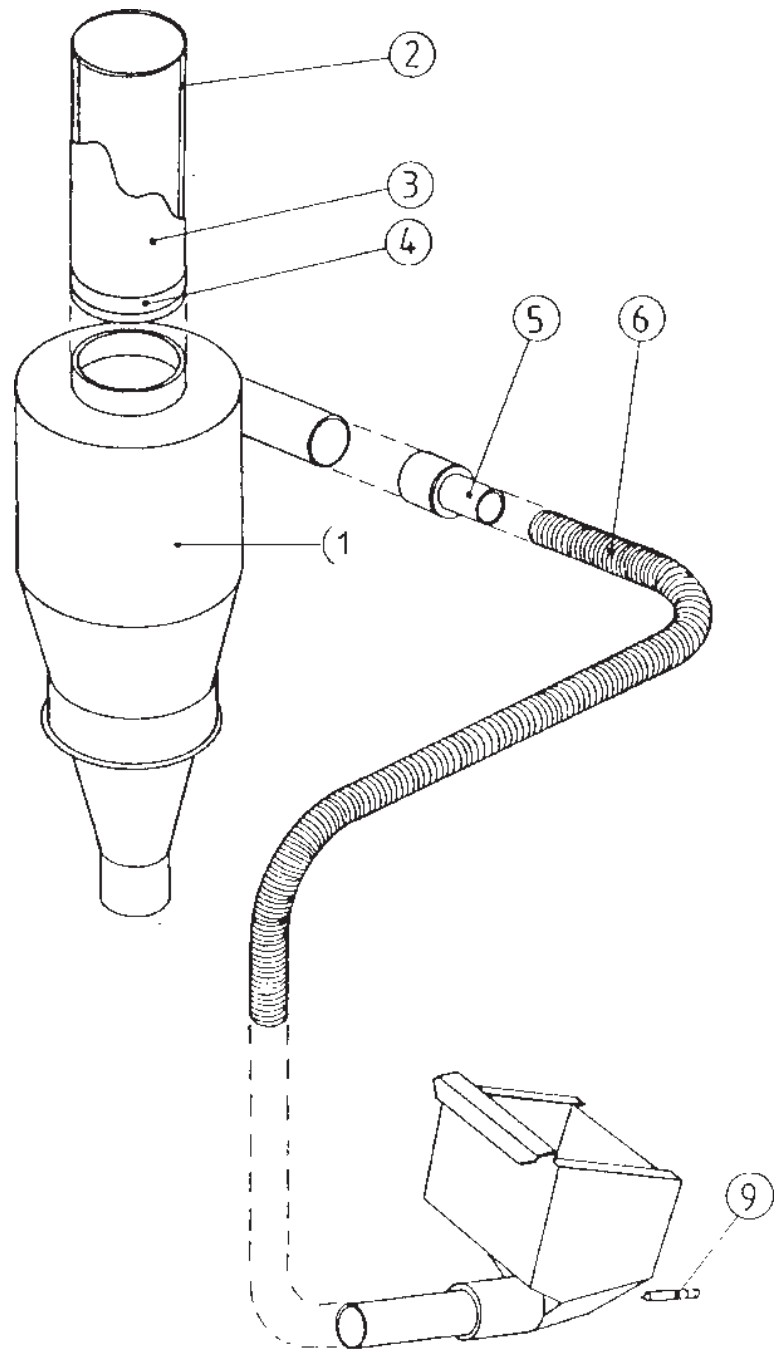
Ordering spare parts

Only use spare parts from CONAIR when replacing machine parts.
Orders should go to the representative in the country where the machine was purchased.

When ordering, the following should be specified:

- machine designation, as specified on the machine plate
- serial number, as specified on the machine plate
- article number, as specified in the spare parts list
- quantity, as specified in this spare parts list.

11.1 Air veyor



airveyor.tif

Pos	Qty	Art.nr
1	1	3-11772
2	1	2-10593
3	1	9-20480
4	1	3-10589
5	1	4-5894
6	4 m	9-20258
9	1	4-17117

11.2 Pause/pulse relay when emptying with air veyor

In those cases when emptying of the granule bin with a cyclone has been chosen, the pause/pulse relay should be cancelled to prevent a glut in the granule bin.

When delivered, the relay is preset as follows:

T1 = range 1—10 min

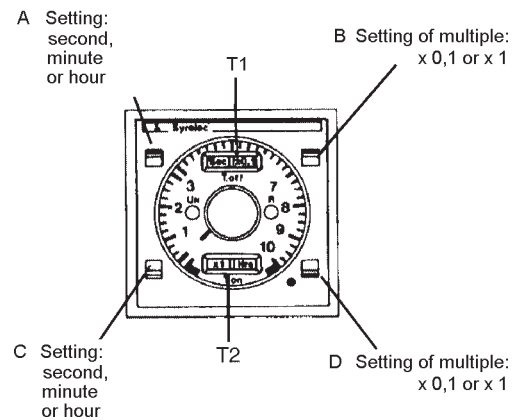
T2 = range 6—60 s

TIMER SETTING:

where

Pause time T1 (the time the air veyor is idle) is selected using the dials (A) and (B).

Delay time interval T2 (the time the air veyor is working) is selected using the dials (C) and (D).



12. Transporting and storing

12.1 Overview

Handling and transporting of the machinery should be carried out by specially trained personnel.

The machine is packed in weather-proof and partly shock-proof plastic sheeting. It is fixed with straps to a pallet for transportation.

12.1.1 Unpacking and checking

- Check that the machine has not been damaged in transit. Report any damage to the forwarder.
- Do not unpack the machine until it has been moved to its installation location.
- After unpacking, check that the delivery is complete by checking against the delivery note.

12.1.2 Lift and transport to installation location

For information about the machine's weight, refer to chapter 2, Technical data.

For information about the space required, refer to chapter 10, Layout.

The machine can be lifted and handled using a fork-lift truck.

12.1.3 Placing at the installation location

See chapter 5, Installation.

12.2 Storing

Normally, the machine is pre-packed for transport to the installation location where it is to be put into operation immediately. Therefore, it is only protected with rust-preventive oil.

12.2.1 Long-term storage

- The machine should be kept in a storage area with constant temperature and humidity.
- Before storing for a long time, the machine should be given a coating of long-term rust preventive, for example Castrol DWX 160 with durability 24 - 36 months in a suitable storage area.

12.2.3 Preservation

The machine is protected with rust-preventive oil Castrol DWX 22 on all surfaces which are not painted or rust-free.

12.2.4 Durability

The rust protection from the rust-preventive oil Castrol DWX 22 is effective for up to 12 months if the conditions described in 12.2.1 are fulfilled.