MANUAL
CR-69A

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This manual is out-of-date and is provided only for its technical information, data and capacities.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containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

MNL-00092/0596

Contents

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 15 series are built for granulation of injection molded 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 15 series is adapted for quick and simple cleaning of the rotor when changing colour or material. When changing knives, the knife setting can be carried out directly in the granulator.

This manual is for the 69 where A (=Auger) indicates that the granulator is equipped with a screw-driven feed.

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.

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Parts and Service
24 Hours a Day,
7 Days a Week
Tel: 800-458-1960
814-437-6861

2. Technical specifications

2.1 Dimensions

See chapter 10, Layout.

2.2 Data

Serial Number _____

Motor power ..... _____

Blower type ..... _____

V-belts ..... _____

Voltage ..... _____

Rotating knives ..... _____

Fixed knives ..... _____

Screen ..... _____

Weight ..... =225 kg

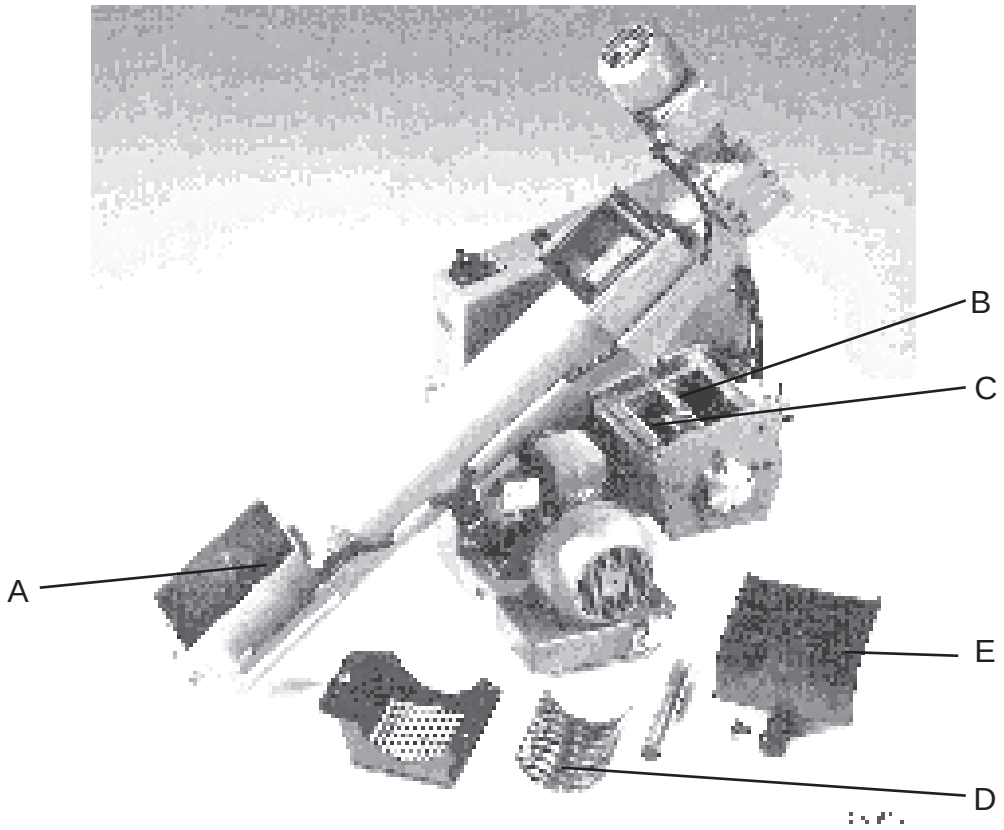
3. Functional description

3.1 Overview

The 69 granulator is designed for grinding different types of plastic waste. The waste is fed in using a screw conveyor (A=Auger).

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

As an option, the screw feeder can be supplied with a forward/back function, which should be used if the screw feeder becomes stuck due to overfilling.



The material is fed in with a screw (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, but screens can be obtained with various hole sizes depending on the required degree of coarseness of the granulate.

The granulated material is then collected in the granule bin. As an optional extra, the granulator can be supplied with a suction blower which sucks the granulate out of the granule bin.

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).

Loop switch: To prevent personal injury when resetting and servicing, 3 loop switches are built into the electrical system.

One loop switch is mounted on the screw feeder above the cutter housing and one is on the screenbox. The third loop switch is on the screw feeder's hopper side.

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

- Equivalent continuous A-weighted acoustic pressure level.. 79.5 dBA.

Value measured using B&K2225 sound intensity meter during sampling for 60 seconds at a distance of 1.5 m from the surface of the machine while grinding mixed material.

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

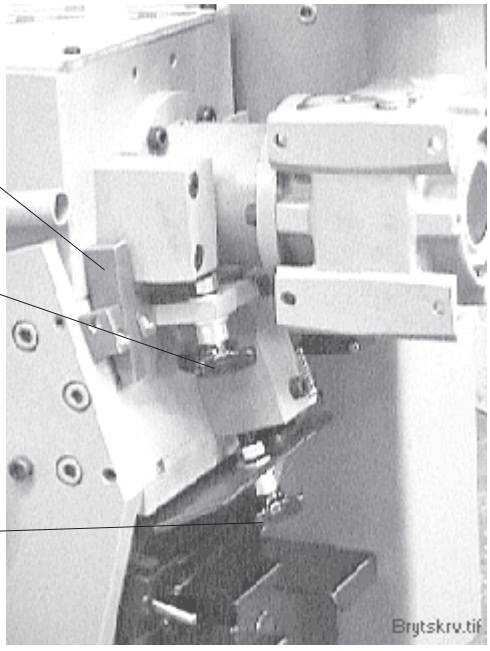
- Before the granulator is installed, the rust preventive should be carefully cleaned from the parts which are not painted or rustproof.
- Set up the enclosed parts in the intended places.
- Lock the wheels by stepping on the arm of the foot-operated brake.
- For reasons of personal safety, the loop to the screw feeder's safety switch **must** be mounted on the moulder nozzle's reject ejector in such a way that the screw feeder's opening is completely covered by the ejector. The opening between the ejector and screw feeder **must not** exceed 8 mm in any place.

5.2 Opening and closing the screw feeder and screenbox

- Loosen the star knobs to the screw feeder's and screenbox's safety switches.

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

- Open up the screw feeder by loosening the star knob (A) on the front of the rotor housing. Lift up the worm gear unit until the catch on top of the stand engages. Check that the catch has actually engaged by trying to move the screw feeder back to the closed position.



- Lower the screw feeder back down by releasing the catch on top of the stand. At the same time, hold onto the worm gear unit so that the screw feeder does not fall back. Lower and simultaneously move aside the stopper (C) on the front of the rotor housing so that the star knob's threads engage.

- Tighten the star knobs to the screw feeder's and screenbox's (B) safety switches by screwing them clockwise as far as they can go.
- Completely screw in the star knob to the safety switch next to the hopper end of the screw feeder.

5.3 Electrical connection

The granulator should be connected up by an authorised electrician.

- Connect the granulator's electrical cable to the mains supply.

Check the cutter motor's and screw motor's rotation directions as follows:

- Switch on the main circuit-breaker on the top of the stand.
- Check that 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 star knobs to the three safety switches are completely tightened.
- Press in the change-over button "START".
- Check that the granulator motor's and screw feeder motor's rotation directions are consistent with the arrow on the hood.

If the rotation direction is not correct:

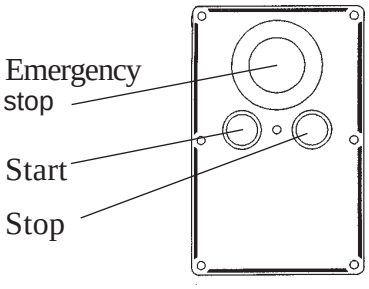
- Change the incoming phases.

6. Operation and daily maintenance

6.1 Starting and stopping

The start and stop functions are controlled by change-over buttons on the electrical cabinet.

NOTE: The granulator should not be stopped until it is empty, that is before all material has come out. Material remaining in the granulator can cause problems when it is to be re-started (see section 6.4).



6.2 Inspection

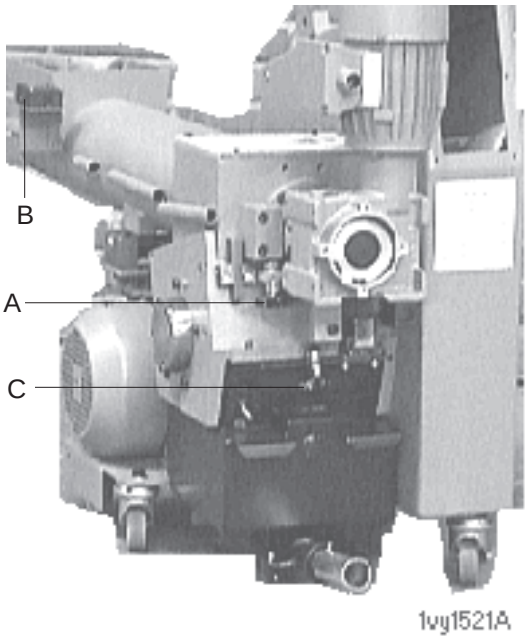
There should **not** be any material in the granulator when the inspection is to be carried out.

6.2.1 Weekly inspection

- **Emergency stop**. Check the emergency stop function by starting the granulator and then stopping it using the emergency stop button.
- **Cables**. Carry out a visual inspection of all cabling in the granulator.
- **Safety switches**. There are three safety switches, two for the screw feeder and one for the screenbox.

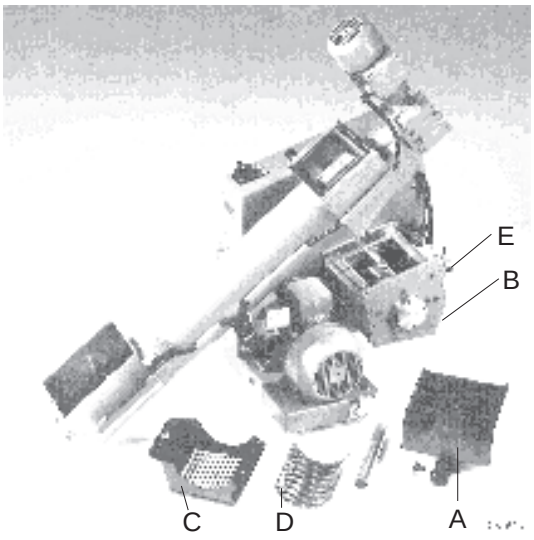
  Auger hopper: Check the switch by the cutter housing by starting the granulator and then unscrewing the star knob (A). The granulator should have stopped before you are able to lift the hopper. Reset it.

  Pull out the loop (B) from the safety switch by the screw feeder's hopper opening. The granulator should have stopped before you are able to lift the Auger 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 Auger hopper (E).
6. Open up the screw feeder by lifting the worm gear unit until the catch above the stand engages. Check that the Auger hopper is locked in the upper position.

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

7. Clean the equipment using compressed air. Make sure that no material gets blown into the safety switches.

NOTE: Use protective glasses!

8. The feeder screw can be turned manually by rotating a socket-head key placed in a hole on the upper side of the motor.
9. Loosen the blue screws in the cleaning hole on each side.
10. Using compressed air, blow through the hole to clean the cutter while it rotates completely at least once.

    Note: Steps 9 - 10 should be carried out every time the machine is cleaned, or at least once every 300 hours.

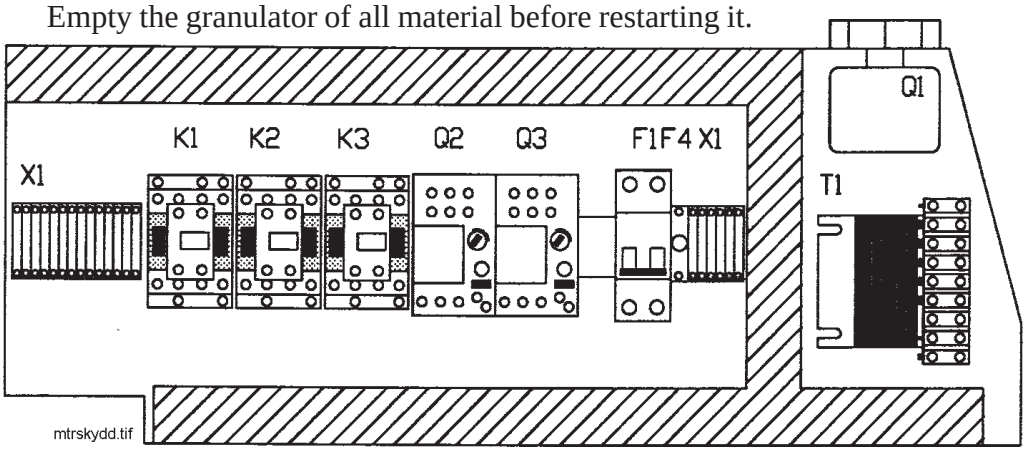
11. Replace all parts in reverse order.

6.4 Trouble-shooting

6.4.1 If the rotor does not start

- Check that the saftey 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.
- Check that the safety disconnection switches (Q2) and/or (Q3) in the electrical cabinet, as shown in the diagram below, are not released; they 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.



6.4.2 If the feeder screw gets stuck

The feeder screw can be turned manually by rotating a socket-head key placed in a hole on the upper side of the motor.

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.

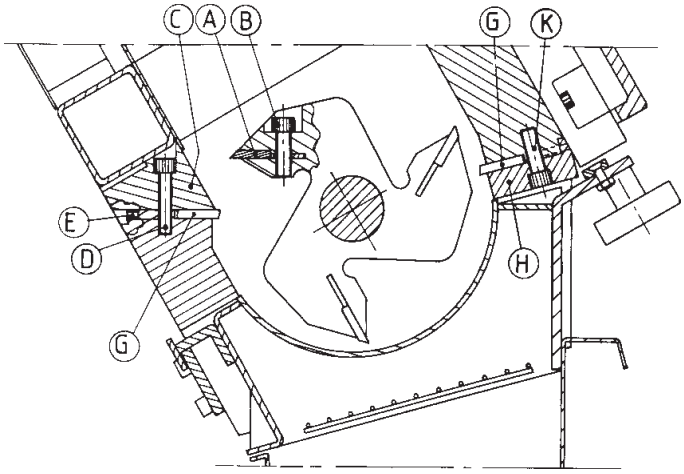
7.1 Changing the knives

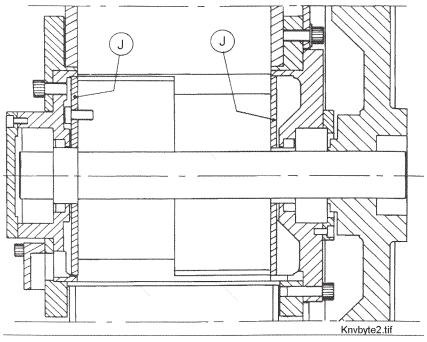
When changing the knives, also check for any wear to the screen. For safety reasons, this should be replaced when the holes in the screen become drop-shaped.

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

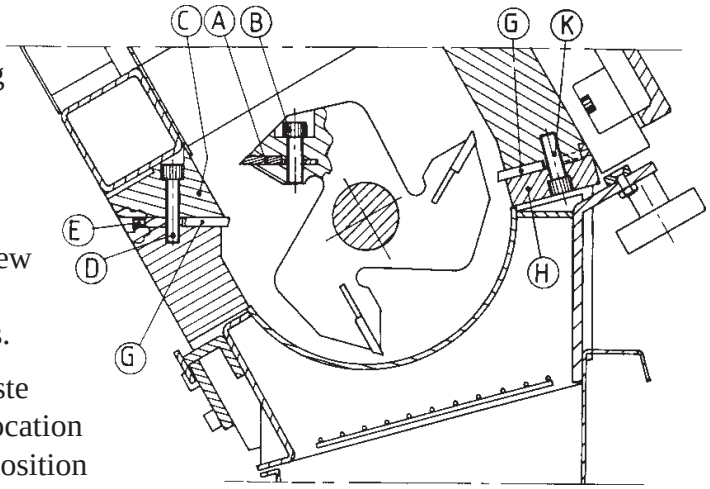
1. Loosen the screws (B).
2. Remove the knife (A). If the knife does not come loose, tap it gently on the top.
3. Make sure that the new knife is free from grease and impurities.
4. Clean any plastic waste and so on from the location for the new knife.





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. Position the new knives and retaining ruler and gently tighten the fastening screws (D), (K).
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 **must** 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!

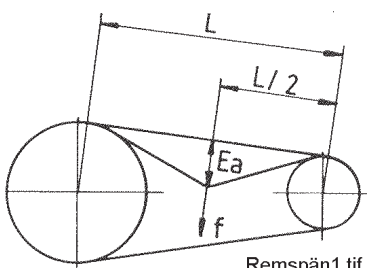
7.2.1 Inspecting the belt tension:

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.

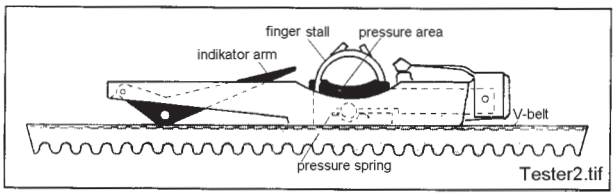
A Load the belt according to the diagram.

Min. belt tension during operation: f_{min} = 100 N

E_a = 7 mm

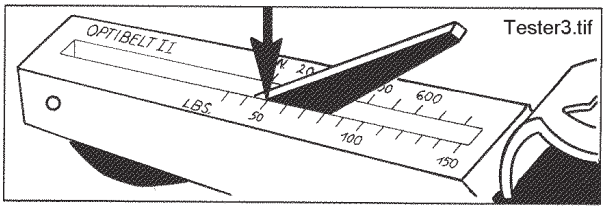


B Check the tension using the belt-tension meter "Optibelt II" (optional extra). The belt tension during operation should be between: f_{min} = 720 N and f_{max} = 900 N.



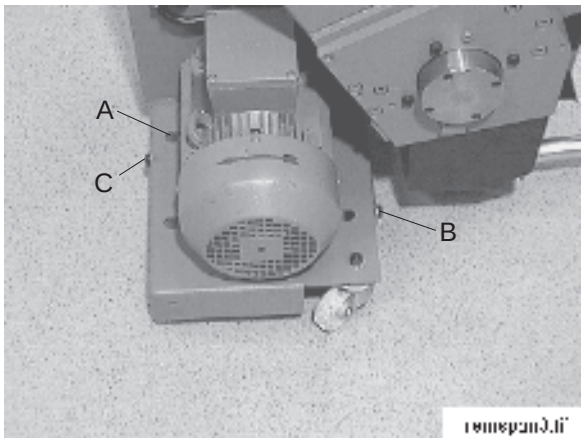
The measuring tool is designed to measure the belt tension in belt drives with one V-belt.

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.

7.3.2 Worm gear unit

When delivered, the worm gear unit is filled with **synthetic** oil. For normal operating conditions this oil does not need to be changed. If, for some reason, the oil must be topped up, oil of the same quality must be used.

Oil quantity: 0.15 l.

The following makes are recommended by the manufacturer:

BP Energol SGR 150

Mobil Glygoyle 30

Shell Tivela WB

Statoil ESL 812

Texaco Synlube SAE 90

Oil temperature in the gear: max. permitted 90 ^{0}C.

NOTE: Do not mix different lubricants — especially not synthetic oil and mineral oil.

7.3.3 Electric motor

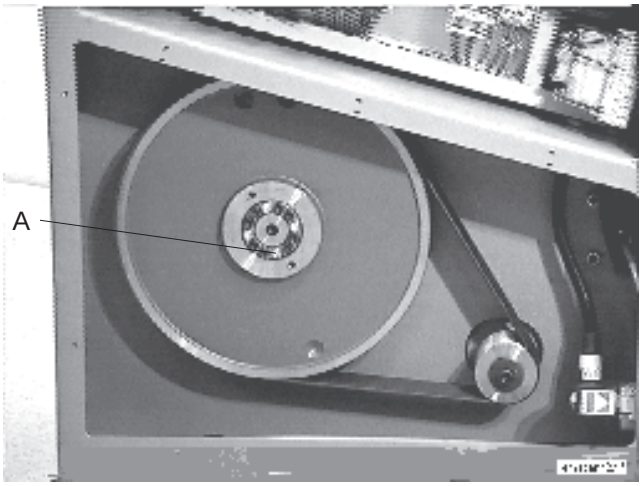
The electric motor's bearing is permanently lubricated and does not need to be re-lubricated.

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:

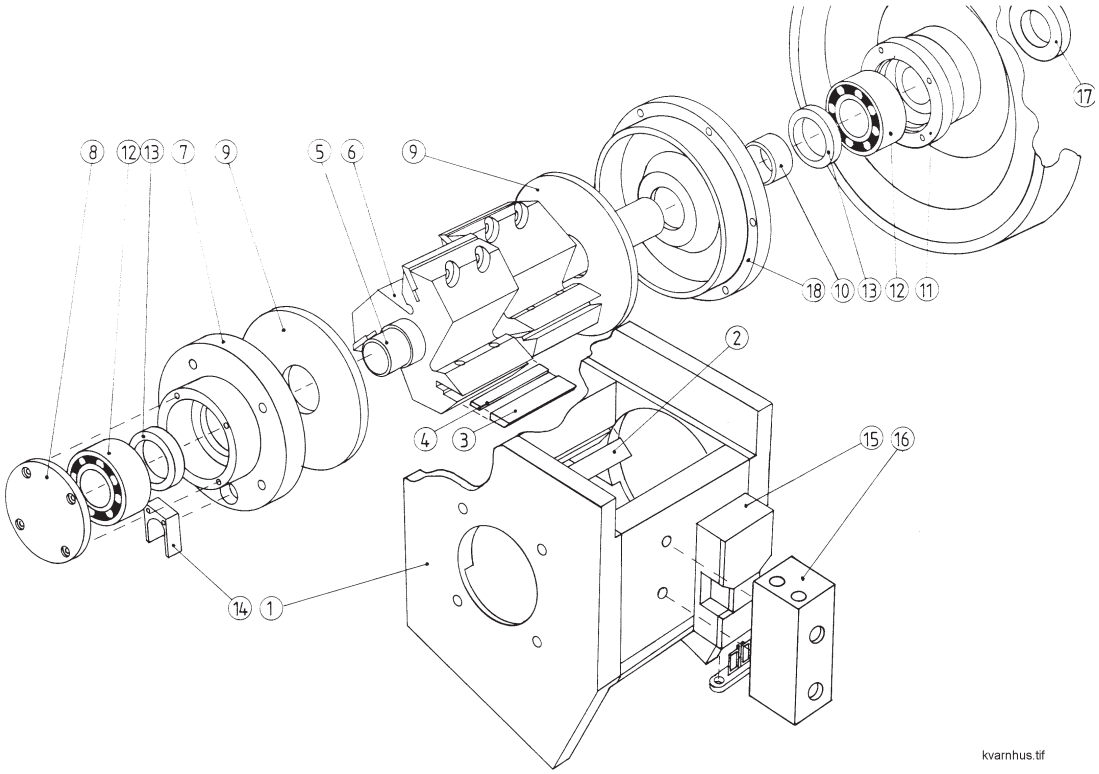
Ordering spare parts

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:

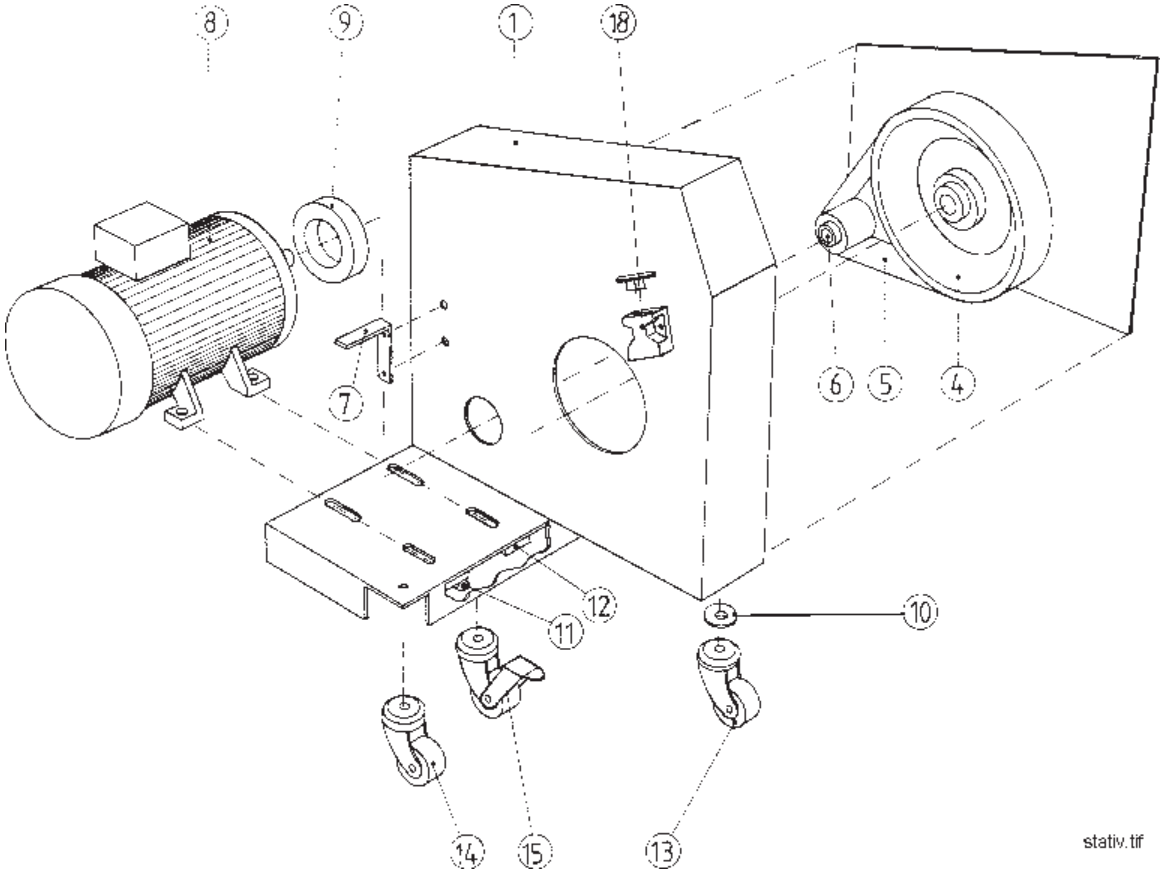
- machine designation, as specified on the machine plate
- serial number, as specified on the machine plate
- article number, as specified in the spare parts list
- quantity, as specified in this spare parts list.

8.2.1 69, Cutter housing



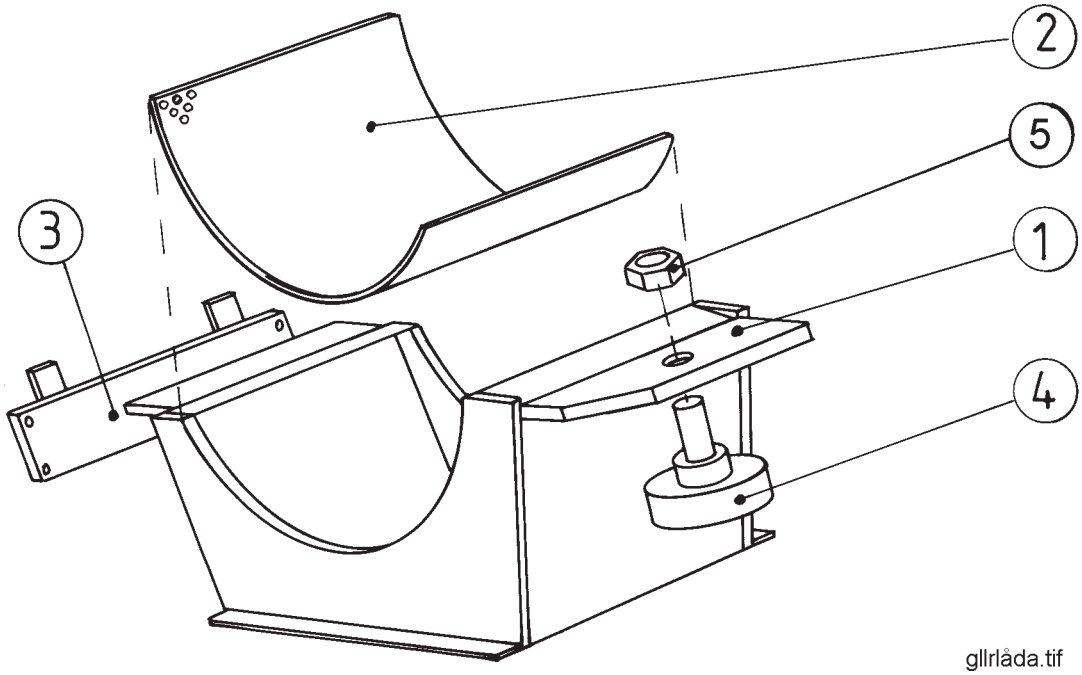
Pos.	Qty.	Part no.	Pos.	Qty.	Part no.
1	1	4–22185	10	1	4–18391
2	2	4–19213	11	1	4–18387
3	9	4–18362	12	2	9–60149
4	9	4–17158	13	2	9–60148
5	1	3–18396	14	1	4–18499
6	3	2–18388	15	1	9–11002
7	1	3–18384	16	1	3–21436
8	1	9-40644	17	1	9–30190
9	2	3–18389	18	1	2–18386

8.2.2 69, Stand with transmission



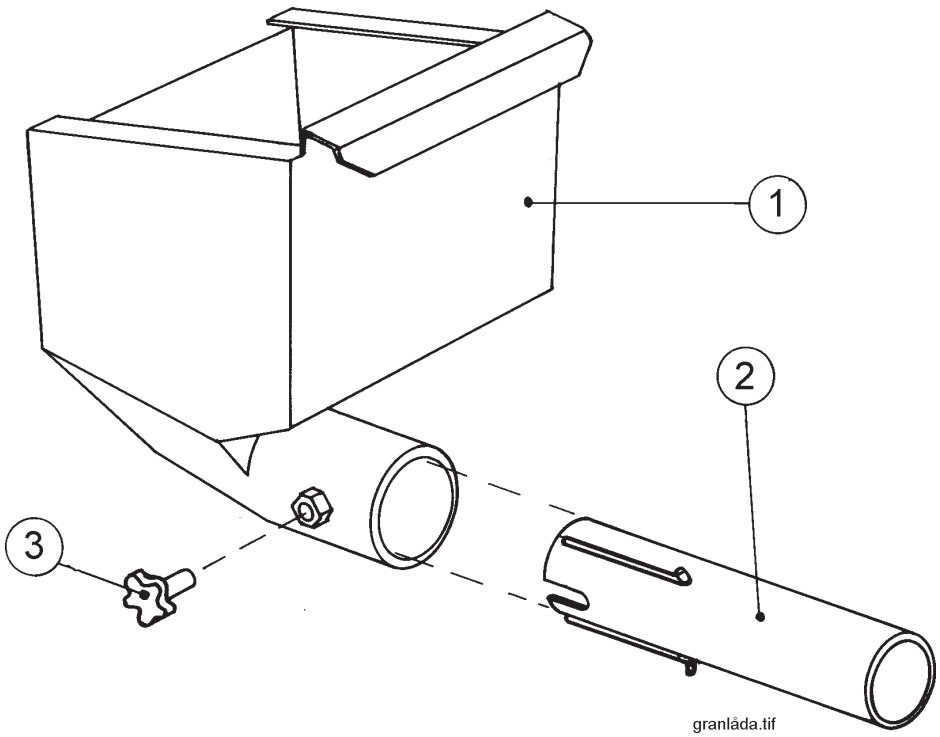
Pos.	Qty.	Part no.	Pos.	Qty.	Part no.
1	1	1–23206	10	1	9-40648
			11	1	3–17161
			12	1	3–16818
4	1	9–30187	13	1	9–50464
5	1	9–30189	14	1	9–50463
6	1	9–30188	15	2	9–50465
8	1	9–10651			
9	1	9–70143			

8.2.3 69, Screenbox



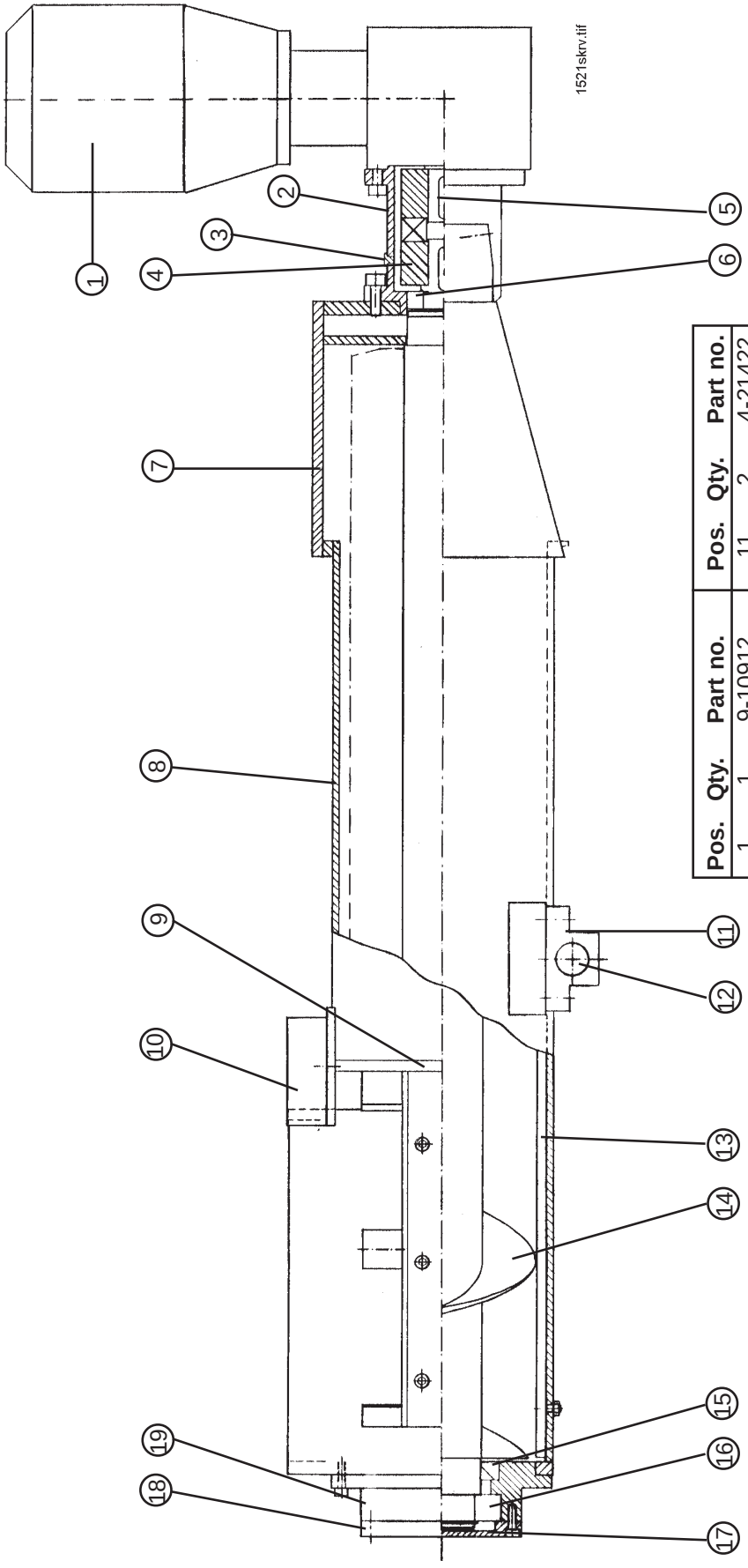
Pos.	Qty.	Part no.
1	1	1-22188
2	1	3-18418
3	1	4-18497
4	1	9-50393
5	1	4-19396

8.2.4 69, Granule bin



Pos.	Qty.	Part no.
1	1	1-20923
2	1	3-20920
3	1	9-50353

8.2.5 69, Auger hopper



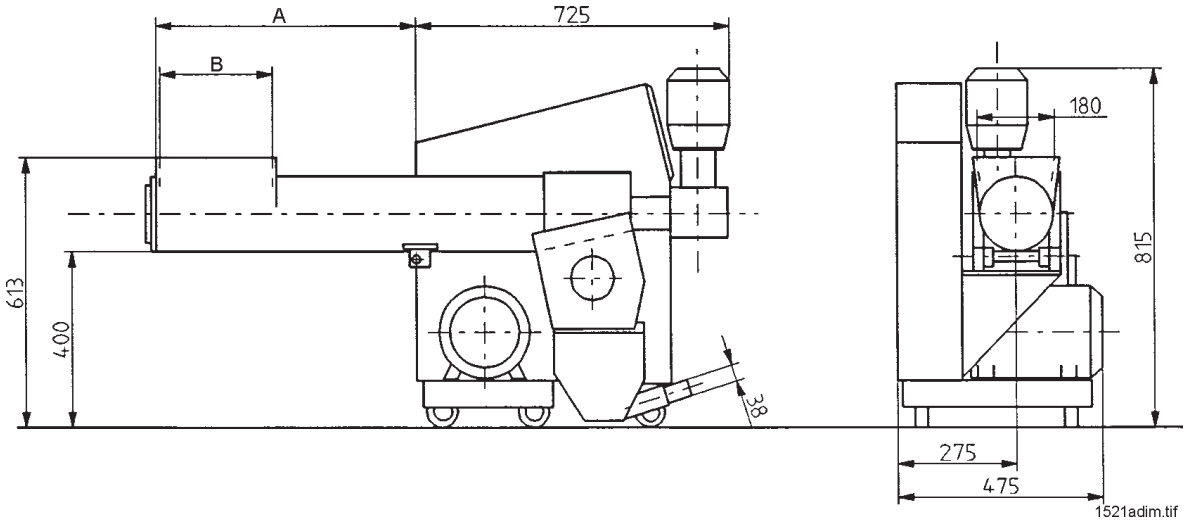
Pos.	Qty.	Part no.
1	1	9-10912
2	1	2-20601
3	1	9-50440
4	1	4-20603
5	2	9-50442
6	1	9-60029
7	1	4-20606
8	1	1-21401
9	1	2-22630
10	1	9-11002

Pos.	Qty.	Part no.
11	2	4-21422
12	1	4-21424
13	1	4-21415
14	1	1-21414
15	1	9-60160
16	1	9-60037
17	1	9-50491
18	1	4-20600
19	1	3-22190

9. Electrical scheme

10. Layout

10.1 Dimensions



10.2 Data

Standard:	**Option:**
A = 600 mm	A = 750 mm
B = 260 mm;	B = 410 mm;
	or:
	A = 600 mm
	B = 410 mm.
Screw feeder opening:	
260 x 180 mm.	410 x 180 mm.
Cutter-housing opening:	
210 x 150 mm.	
Granulator motor:	
2.2 kW.	4.0 kW.

11. Options

Ordering spare parts

Only use spare parts from CONAIR when replacing machine parts.
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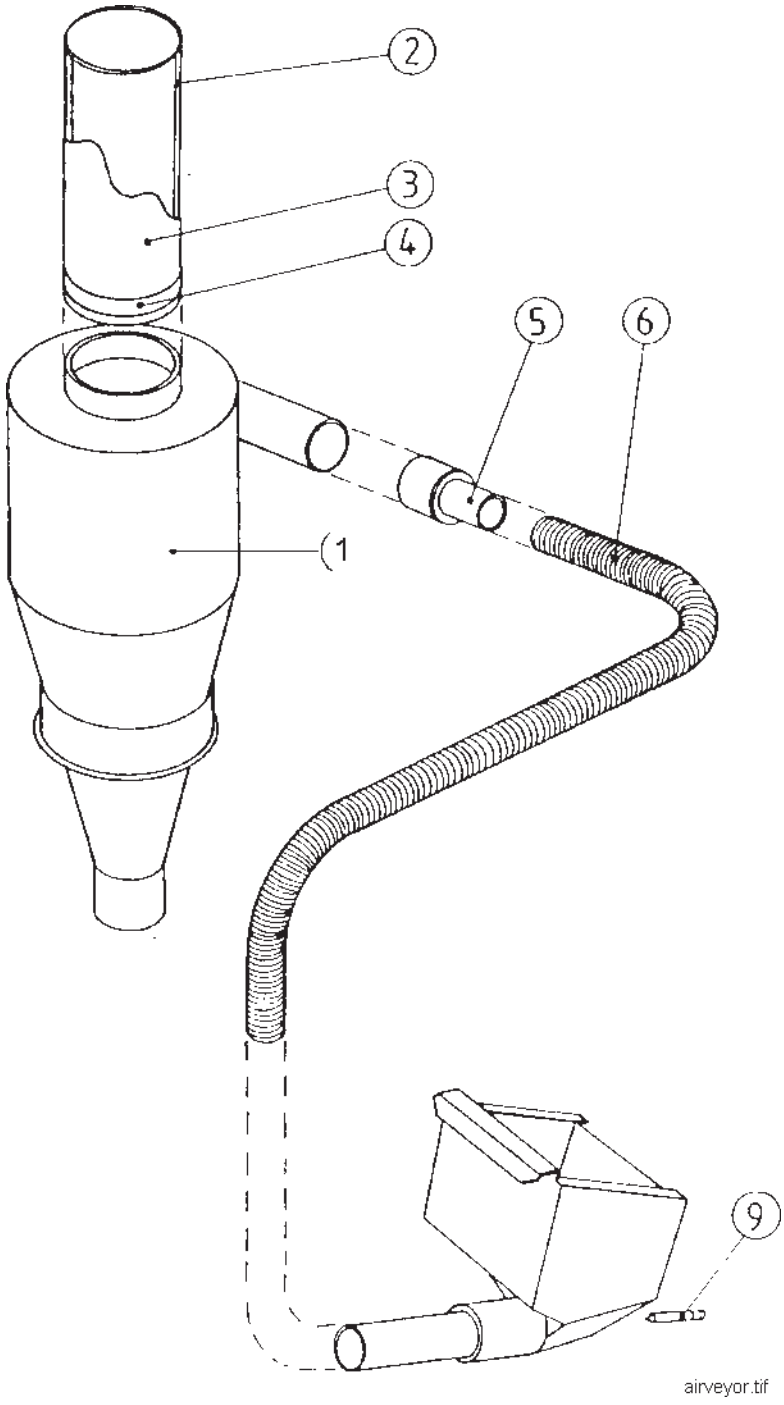
11.1 Air veyor



Pos	Ant.	Art.nr
1	1	3–11772
2	1	2–10593
3	1	9–20480
4	1	3–10589
5	1	4–05894
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 an air veyor 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 m

T2 = range 6 - 60 s

where

Pause time T1 (the time the air veyor is idle) is selected using switches (A) and (B). Then the time is set using the handwheel $T_{off} = T_1$.

Delay time interval T2 (the time the air veyor is working) is selected using switches (C) and (D). Then the time is set using the handwheel $T_{on} = T_2$.