



MiniGran Lab Granulator

Superior quality product that meets the
most rigid technical requirements

Operating Manual



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Preface

The DYNISCO granulator you have purchased is a superior quality product that meets the most rigid technical requirements.

This operating manual is a translation. To get the original operating manual, please contact the customer service.

The intention of this manual is to introduce you to the granulator and its designated fields of use, for instance as an auxiliary or small central granulator in connection with injection molding or blowing machines.

The operation manual contains important technical and safety-related information to ensure economical and trouble-free operation. It will help you to avoid hazards, minimize repair and down-time costs, and maintain the machine's reliability and durability. You will also find detailed information on maintenance and servicing procedures.

This manual also contains technical regulations which may not be distributed, in whole or in part, or used for competitive purposes without our permission.

Customers of Dynisco Inc. are entrusted with an exclusive copyright limited to their personal use. The copyright as such is reserved by:

Dynisco
38 Forge Parkway
Franklin, MA 02038, USA

1 Safety

1.1 General safety considerations

DYNISCO granulators are built in accordance with recognized rules of engineering. The latest safety standards have been taken into account in order to avoid any dangers to the operator's life or health when the machine is used for its designated purposes.

Ideally, the operator should be a professional tradesman. The owner of the machine should also provide in-depth training for the operator, focusing on the general technical and, more specifically, the safety-relevant functions of the machine.

The operator should be obliged to read the operating manual before starting up the machine. The manual must always be at hand during operation, maintenance and servicing.



The manual must be attached or kept close to the machine and be readily available to the operators at all times.

It is the operator's responsibility to observe the safety-relevant regulations and standards. The accident prevention rules of the trade associations must be observed.

1.2 EC standards and national regulations for the prevention of accidents

DYNISCO granulators are designed and built to meet the following European standards and national (German) laws and regulations for the prevention of accidents.

- 3rd *Gerätesicherheitsgesetz* (Technical Devices Safety Act)
- European Machine Guideline (2006/42/EG) and its amendments
- EC Low Voltage Guideline (2014/35/EG) and its amendments
- DIN EN 1037: 2008-11 Safety of machinery - Prevention of unexpected start-up
- DIN EN 1088: 2008-10 Safety of machinery - Interlocking devices associated with guards - Principles for design and selection
- DIN EN 60204-1: 2011-01 Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 44/617/CD:2010)
- DIN EN ISO 12100: 2011-03 Safety of machinery - General principles for design - Risk assessment and risk reduction
- DIN EN ISO 13849: 2008-12 Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design DIN EN
- ISO 13850: 2008-09 Safety of machinery - Emergency stop - Principles for design
- DIN EN ISO 13857: 2008-06 Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs
- VBG 1 General Regulations
- VBG 4 Electrical Facilities and Equipment
- VBG 5 Powered Working Equipment
- VBG 22 Working Machines in the Chemical Industry

1.3 Occupational safety

The DYNISCO granulator with its innovative knife design and low rotor speed is designed for low noise levels. Especially when granulating brittle and impact resistant plastics, all personnel working in the direct vicinity of the granulator should wear ear protectors.

The measurement of emissive sound pressure levels (to DIN EN ISO 11202: 2010-10) when granulating high-tenacity, reinforced, thick-walled hollow parts at maximum performance yielded a value of approx. $L = 80 \text{ dB (A)}$.



Under regular operating conditions the emissive noise pressure level is usually lower, below 80 dB(A) depending, among other factors, on the type, temperature and amount of plastic material that is fed into the granulator.

The primary hazard area of the granulator is the cutting chamber with the rotating rotor. The entire safety design of how to open the machine ensures that this hazard area can only be accessed when the rotor is stationary.

When opening the granulator, the time that is necessary to open the quick release catches makes sure, that the rotor has stopped completely before the cutting chamber can be accessed.

The safety features also ensure that the granulator can only be activated when the cutting chamber is completely closed by the cutting chamber cover together with the suction box.

A final limit switch located at the cutting chamber cover disconnects the machine's power supply as soon as the cover is going to be removed from the granulator.

1.4 General safety instructions

Before undertaking any service or cleaning activities, be sure that the main switch (on the control box) has been switched off.

When working on the motor or the electrical control system, the power supply must be disconnected.

Be sure to wear leather gloves when working in the grinding chamber or on the knives. The knives have sharp edges and can easily cause injury.

Use caution when opening and closing the grinding chamber and when removing and inserting the hopper, to avoid catching and pinching the extremities.

Be sure to wear safety goggles when resharpening the knives and when using pressurized air for cleaning.

Examine the mains power cable and control box regularly for damage. Machines with damaged power wiring or control systems must be disconnected from the power line immediately and must not be operated again until they have been repaired by qualified personnel.

The castors on the granulator base must be examined regularly for damage and secure fit, damaged castors are to be replaced immediately.

The Dynisco plastic granulators of the *Baby* - Series are designed as slow-running, quiet granulators. Nevertheless, when plastic materials of especially high impact strength are being ground up, personnel who are working in direct proximity to the granulator should wear hearing protection.

For more detailed information on sound levels please see the Technical Data.

When moving the granulator around on its castors, there is danger that it could suddenly stop sharply when it rolls over uneven floor surfaces or other obstructions (screws, granules), and could tip. Appropriate caution must therefore be taken - roll the unit slowly!

To avoid accidents or damages of the machine, all modifications of the granulator may only be carried out after consulting Dynisco Inc. with regard to the planned modification. Otherwise the modification of the granulator will lead to expiry of warranty and product liability - in this case Dynisco will not take any responsibility for damages or injuries caused by accidents.





2 Transportation, handling, storage

2.1 Transportation

The machine is usually placed on a pallet or inside a cardboard box for shipping. The dimensions ensure that no damage can occur under normal shipping conditions. The granulator is wrapped in plastic sheeting for transportation – for overseas transport the pallet is covered in addition with a suitable wooden or a cardboard box.

Because of the low weight of the granulator the machine can be removed manually from the pallet or the cardboard box.

When moving the granulator on castors, watch out for unevenness and obstacles on the floor. Sudden stops can cause the machine to tip over!

2.2 Inspection upon receipt

Check the delivery for completeness and signs of shipping damage. Any shipping damages must be confirmed to the customer in writing by the carrier.

Immediately submit any claims in writing to the following address:

For Americas and APAC:
Dynisco
38 Forge Parkway
Franklin, MA 02038, USA
Fax: +1 508 541 6206

For EMEA:
Dynisco Europe GmbH
Pfaffenstrasse 21
74078 Heilbronn, Germany
Fax: +49 (7131) 297 166

2.3 Storage conditions

When intermediate storage is required upon delivery, be sure to:

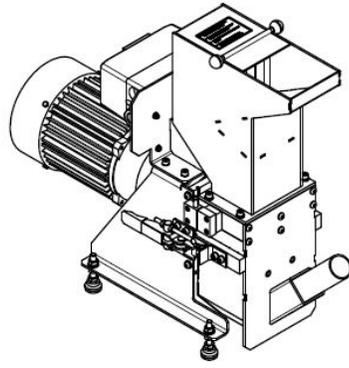
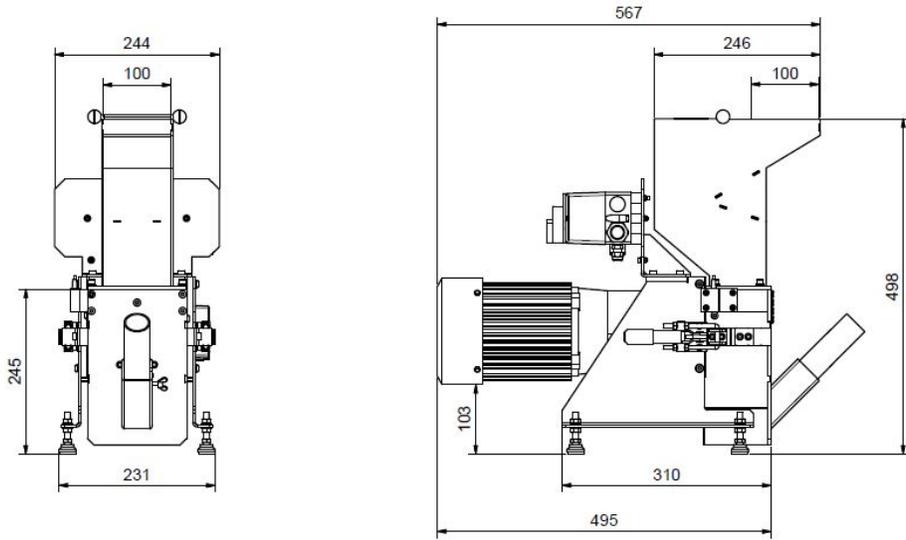
- choose a dry room with a moderate temperature (approx. 18° C)
- leave the granulator in the plastic sheeting
- avoid storing the granulator outside. If this is inevitable, be sure to:
 - leave the granulator in its original packaging
 - provide an additional rain cover for the granulator
 - repair any defective paint work immediately
 - position the granulator on squared timber or a pallet.



As a rule, damages caused by inadequate storage will void any claims under the warranty

3 Technical data

Type:	MiniGran-400
Motor:	3-phase gear motor
Power rating:	0,75 kW
Supply voltage:	400 V / 50 Hz
Rotor rpm:	112 rpm
Stator knives:	2
Rotor knives:	6 + 3
Cutting chamber size:	80 mm x 100 mm
Screen size:	Ø 3, 4 or 5 mm
Throughput:	< 10 kg/h
Weight:	30 kg (depend. on accessories)
Suction box volume	ca. 2 l
Noise emission:	< 85 dB(A)



MiniGran
w/ suction port

4 Initial start-up

4.1 Setting up the granulator

There must be sufficient space at the location of the granulator for feeding, vacuuming and bagging the material.

The granulator must be positioned on a plane and rigid surface, such as a paved or concrete floor, in order to ensure stability and easy operation. If the granulator is placed onto a desk or a framework make sure that the load bearing capacity is sufficient. After setting up the granulator, actuate the optional lock-type castors for retention.

4.2 Inspection prior to initial start-up



- Examine the granulating chamber and feeding hopper for foreign objects.
- Remove the anti-corrosive agent from the blank parts of the granulator.
- Turn the rotor manually to make sure that it runs smoothly.
- Power on the granulator for just a moment to check the rotational direction. (for units without a phase controller)

Caution! Always wear protective gloves when working inside the granulating chamber. The cutting knives may cause injuries!

4.3 Electrical connection

The granulator is supplied with a power cable (4 m) and a CEKON / CEE16 connector. The CEKON socket used for connecting the unit with the power supply must be installed with a positive (clockwise) phase-sequence.

Following are the power requirements of the granulator (depending on the type of motor that is installed):

- For 0,75 kW motor the following power outlet is required: 400V, 16A

The protective arrangements meet DIN EN 60204-1; VDE 0113-1: 2011-01.

The fuses of the power outlet needs to be adapted to the wiring of the granulator (16Amp)

To start the granulator, move the main switch to position (1) (= ON).
To switch off the granulator, move the main switch to position (0).



5 Product description

5.1 Technical description of the machine

The granulator consists of the following assemblies:

- Granulator drive unit, cutting chamber with rotor, including rotor knives, stator knives and a screen
- Cutting chamber cover with feeding hopper fitted on top and integrated suction box.
- stand with vibration pads or castors

The material can be fed into the hopper via conveyors, manually, with handling devices or robots.

5.2 Operational characteristics

The sprue material is cut by sharp knives inside the granulator. This cutting takes place between the revolving rotor knives and the static stator knives.

The cutting geometry of the rotor and stator knife, as well as the size of the cutting gap, depend on the material that is to be processed; in most cases a **cutting gap distance of 0.2 mm** is ideal for thermoplastic parts and sprues.

In order to keep the throughput rate constant and preserve the quality of the granulator, the condition of the screen must be checked regularly.

5.3 Working procedures

5.3.1 Sequence for powering the granulator ON and OFF

Provided the granulator is fully functional, observe the following sequences when powering the machine ON/OFF:

Power ON sequence:

1. Switch on vacuum device to clear any residual granulate (if present)
2. Switch on granulator by moving main switch to position (I)
3. Start feeding material

Power OFF sequence:

1. Stop feeding material
2. Wait until granulator runs idle, taking after-run into account, then switch off
3. Switch off vacuum device.



5.3.2 Rotor

The design of the rotor plays a decisive role in the performance and throughput of the granulator. The experience and expertise of Dynisco are your guarantee for an ideal cutting geometry and non-vibrating performance of the rotor. Alterations to the rotor leading to out-of-balance behavior are inadmissible and may cause breakage of the bearings and knives.

The rotor can be accessed by removing the cutting chamber cover fixed with two screws with hand grip from the front.

5.3.3 Opening and closing the granulator

To open the granulator:

1. Switch off granulator - main switch (position O), disconnect power plug
2. Open the two quick release catches located on the side of the cutting chamber. By doing this the cutting chamber can be pressed of the cutting chamber slowly.
3. Remove the cutting chamber cover together with the integrated hopper and suction box and put aside. The screen is placed inside the cutting chamber cover and can be removed from there.

The cutting chamber is now accessible. Remove the screen from the cutting chamber cover by tipping the cover over or manually by using a screw driver or a pair of pliers.

To close the granulator:

1. Clean the cutting chamber, the rotor and rotor knives, as well as the stator knives and the screen, ideally with the help of a vacuum cleaner.
2. Check the condition of the cutting knives and their attachments.
3. Put back the screen into its place inside the cutting chamber cover. Slide the cutting chamber cover onto the knife supports until the locking screws can be operated.
4. Close the cutting chamber completely by screwing in the two screws with hand grip simultaneously.
5. Connect the granulator to the power supply.
6. Activate the main switch (position I).

5.3.4 Knives

The cutting knives become blunt after a certain service time. Therefore you should check them regularly. Blunt knives may cause several effects, such as:

1. Reduced throughput
2. Increasing temperature of regrind material
3. Higher power consumption of the motor
4. Increasing amounts of dust in regrind material.

Resharpener the cutting knives

The following section describes the procedure for disassembling and reassembling the cutting knives.

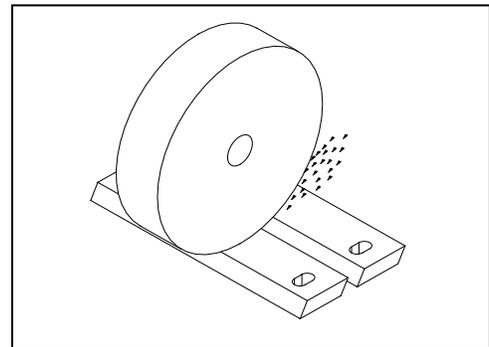
Cutting knives, especially the rotor knives, must always be resharpened or replaced as a complete set of knives with equal lengths. The cutting knives must be resharpened very carefully by a specialist using a surface grinding machine. We recommend using grinding wheels (grade 40 H or 46 K). Make sure that only a small grinding allowance and sufficient cooling agent is used in the sharpening process.

Cutting knives with grinding cracks must not be reused, as they may break during operation. If you are unable to sharpen the knives in the proper manner, we will gladly do this for you.

Important:

The rotor knives must be resharpened on the flat side as shown on the picture. All rotor knives must be resharpened at the same time to make sure that all the knives have the same length.

The stator knives should be grinded on the angled face of the knives.



Caution! Always wear protective gloves when working inside the cutting chamber. The cutting knives may cause injuries!

Disassembly:

1. Open the granulator (see 5.3.3).
2. Stall the rotor e.g. by using a solid piece of wood
3. Untighten the knife fastening screws.
4. Remove the knife (and its cover in the case of the stator knife) (you may have to knock slightly).

Assembly:

1. Clean the knife seats and thread holes.
2. The rotor knives are mounted to stop in the knife seats. For the stator knives, apply the knife cover and hand-tighten the screws.
3. Adjust the cutting gap (0.2 mm) and ensure good clearance.
4. Tighten the knife fastening screws with a torque wrench (required torque: 15 Nm.)
5. Finally, slowly turn the rotor to make sure that there is enough clearance between the knives.

Readjusting the cutting gap

The cutting gap is adjusted by repositioning the stator knives.

1. Untighten the fastening screws of the stator knives.
2. Insert a 0.2 mm feeler gauge between the stator knives and rotor, and reposition the stator knives.
3. Hand-tighten the screws, and slowly turn the rotor knives backwards.
4. Check for good clearance.
5. Tighten the fastening screws of the stator knife with a torque of 18 Nm.



5.4 Monitoring the filling level

Granulators with a built-in filling level control are equipped with a capacitive level sensor inside the suction box. With most plastic materials, the preset sensitivity of the sensor ensures that the granulator shuts down before granulate can build up in the cutting chamber. Check to see if the sensitivity of the sensor is still adequate before attempting to grind other materials or when servicing and cleaning the granulator.

Please refer to the operating manual for the level sensor for details on how to adjust its sensitivity.

The following control variants can be purchased optionally

Fill level

As soon as the preset fill level is reached, the granulator shuts down automatically. You will be alerted to this condition by an indicator light on the control panel. To restore normal functionality, you must empty the suction box and restart the machine.

Fill level with switchable 230V output (refers to supply voltage 400V/50Hz)

A switchable 230V output is optionally available for fill level control purposes. It can be accessed via a shock-proof plug on the outside of the control panel and allows you to operate a vacuum conveyor or alerting device that is controlled via the fill level.

The total current consumption of all devices connected to this output must not exceed 10A.

When the fill level is reached, the output socket is activated with a voltage of 230V so that a vacuum conveyor or similar device connected to it will start running.

If the vacuuming process does not cause the fill level to be lowered and the output socket to be disabled within 3 minutes after the preset level has been reached, the granulator shuts off automatically, and the alert signal on the granulator (a flashing lamp and/or horn) is activated.

To restore normal functionality, you must empty the suction box and restart the machine.

Please refer to the manual of the time lag relays for details on how to change the appropriate time settings. The preset times should only be adjusted by qualified electrical technicians. The timing relays are located in the switch-box of the granulator. Before opening the switch-box, make sure to disconnect the mains plug to deenergize the granulator.



6 Usage

6.1 Area of use

The DYNISCO granulators of the *Baby Series* are suitable for processing hard, soft to brittle and tenacious plastics such as TPE, PP, PE, PB, PVC, ABS, PA, etc. They are designed to be used as auxiliary granulators, with sprues fed to the granulator from the molding cycle, or as laboratory granulators to granulate small quantities of sample materials.

The specific application, as well as the size and amount of the sprues or parts must be in line with the granulator's specifications in order to ensure trouble-free operation.

The performance of the granulator matches the requirements that were indicated by the buyer. The buyer is liable for consequences arising from inadequate use of the granulator. **Such inadequate use leads to the expiry of the**

Product Liability.

6.2 Do not use on these applications

You are not allowed to use the DYNISCO granulator for the following purposes:

- recycling waste
- breaking up wood
- processing building materials
- explosive materials



6.3 Troubleshooting

Problem	Possible causes	Solutions
Granulator does not start up after connecting to the power supply	<ul style="list-style-type: none"> Not all 3 phases available in the socket Wrong phase sequence (if equipped with phase detection relay) Cutting chamber cover not closed completely (safety limit switch is not operated) 	<ul style="list-style-type: none"> Check phases one by one Swap phases in socket Close cutting chamber cover firmly
Granulator blocks, jams or shuts off	<ul style="list-style-type: none"> Excess scrap material Foreign object in scrap 	<ul style="list-style-type: none"> Clean granulator, revolve rotor to check for unhindered movement of knives. Reduce amount of material or portions fed to the granulator. Open granulator to remove foreign object from cutting chamber. Check knives, screen and screen clamp for damage and replace, if necessary.
Granulator produces granulate with too much dust content.	<ul style="list-style-type: none"> Knives are blunt or damaged Cutting gap not appropriate Screen clogged 	<ul style="list-style-type: none"> Resharpener or replace knives altogether. Check cutting gap and readjust to 0.15mm, if necessary. Clean or replace screen.
Granulate contains splinters and large parts.	<ul style="list-style-type: none"> Holes in screen too big <u>Rule for selecting screen size:</u> Measure sprue size 5mm above the thinnest sprue location. Use rounded up value as the hole diameter for the screen. Screen defective or badly worn. 	<ul style="list-style-type: none"> Insert screen with smaller holes. Replace screen.
Front and back walls of cutting chamber show signs of excessive wear (pitting).	<ul style="list-style-type: none"> Abrasive materials have caused excessive wear of the cutting chamber walls. 	<ul style="list-style-type: none"> Replace cutting chamber cover against such with inserted wear-resistant parts. Replace rotating disc in the rear wall.



7 Maintenance and servicing

Clean the granulator prior to any maintenance or servicing procedures. When cleaning the granulator, always wear protective gloves and use a vacuum cleaner. To clean the granulator, first remove the suction box, fold open the hinged part of the cutting chamber and remove the screen. Tough material should be removed with the help of a tool.

Maintenance should be performed by the operating personnel after adequate training. Major servicing work should be done by Dynisco.

The electrical system must be serviced by a qualified electrical technician.

If the granulator is completely powered off for maintenance or service work, you must prevent it from restarting unexpectedly by shutting off the main control unit or pulling out the power plug. If necessary, clear the entire maintenance area.

See section 9 for recommended replacement parts. You may only use original replacement parts from Dynisco.

Maintenance plan

Component	Maintenance procedure	Maintenance interval
Safety devices	Functional control	Twice a month
Knife fastening screws	Check for tightness with a torque wrench (15 Nm)	Once a month
Screen	Wear inspection	Once a quarter, but also with every change of material
Side and rear plates	Wear inspection	Twice a year
General inspection of the granulator	Condition and mounting of castors, quick release latches, connecting cable, control box	Twice a year but also when other service works are done
Gear motor	Oil change of the gear motor	The gear motor is lubricated for 20.000 hour of operation if machine is used inside at room temperature. Following oils can be used : ARAL Degol GS 220 ESSO Glycolube 220 AGIP Precis PGLP 22 Attend capacity: ABM: G100 0,75 kW 0,25 ltr.

8 Placing out of service and disposal

8.1 To stop and isolate granulator

Use the master switch (which also serves as an EMERGENCY OFF switch) to place the granulator out of service.

8.2 Useful information in case of an emergency

Please proceed as follows in the event of malfunctions that might be dangerous:



- Immediately stop the machine by activating the EMERGENCY OFF switch (master switch) and disconnect the power plug.
- Never attempt to extinguish a cable fire with water or foam. Instead, use a powder or carbon dioxide extinguisher (follow the instructions of the fire extinguisher!).

8.3 Disposal

At the end of the granulator's life cycle, all its individual components and materials must be properly disposed of or recycled.

Disposal of waste oil:

Waste oils, transmission oils and lubricants (machine greases) must be brought to an authorized waste disposal company.



Do not, under any circumstances, release these materials into the local sewage system or environment.

The following materials should be recycled:

- All ferrous, non-rusting sheetmetals, screws, bolts and similar assembly parts
- Electric and electronic components
- All types of plastic
- Wooden palettes or crates (boards and squared timber).



9 Recommended replacement parts / list and drawings of replacement parts

To maximize the service life of your granulator, use only original replacement parts from Dynisco.

In the Appendix to this operating manual you will find a drawing and list of replacement parts to facilitate their identification.

Please indicate the machine number, the construction year and the ordering number and position of the replacement parts in your order. This allows us to send you the requested replacement parts faster.

Please contact:

For Americas and APAC:

Dynisco

Phone: +1 508 541 9400

Fax: +1 508 541 6206

For EMEA:

Dynisco Europe GmbH

Phone: +49 (7131) 297 0

Fax: +49 (7131) 297 166

10 Customer service

Replacement part orders and service procedures are handled by our Customer Service department.

Please contact:

Dynisco

38 Forge Parkway

Franklin, MA 02038, USA

Phone: +1 508 541 9400

Fax: +1 508 541 6206

E-mail: infoinst@dynisco.com

Dynisco Europe GmbH

Pfaffenstrasse 21

74078 Heilbronn

Germany

Phone: +49 (7131) 297 0

Fax: +49 (7131) 297 166

Email: dyniscoeurope@dynisco.com

Please inform us immediately if you need the help of a service technician on site.



11 Warranty

DYNISCO guarantees, that each product has been developed and produced in accordance with the current state of technology. DYNISCO guarantees, that each individual product at the time of delivery is free of errors in manufacturing or material and meets the specifications and performance standards described in the applicable documents and data sheets under the operating conditions described for each case.

As the guarantee period, DYNISCO grants a 12-month guarantee from the date of delivery, when the cutting granulator is used in single-shift operation. If it is used in multiple-shift operation, the duration of the guarantee is reduced to 6 months.

The guarantee covers - assuming appropriate usage and excluding willful damage - the primary design and error-free manufacture of the product, but not wearing parts such as knives, screens, power supply cables and connectors, etc.

The guarantee is void if the operator makes changes on the cutting granulator which DYNISCO has not specifically approved, or if the cutting granulators are used for other purposes than those described in Chapter 1.

Dynisco Inc



12 Declaration of conformity in reference to the EC machine guideline 2006/42/EG, Appendix II A

We hereby declare that the machine described below conforms, on the basis of its concept and design and in the version which we have put into circulation with the applicable safety and health requirements of the EC guideline.

In the event of any change to the machine which has not been cleared with us, this declaration becomes invalid.

Manufacturer of the machine: Dynisco, 38 Forge Parkway, Franklin, MA 02038, USA

Name of the machine:	MiniGran
<div style="border: 1px solid black; height: 150px; width: 100%;"></div>	

Relevant guidelines: EC Machine Guideline (2006/42/EG)
EC Low Voltage Guideline (2014/35/EG)

Applied harmonized standards

- DIN EN 12012-1: 2010-02
- DIN EN 60204-1: 2011-01
- DIN EN ISO 12100: 2011-03
- DIN EN ISO 13850: 2008-09
- DIN EN ISO 13857: 2008-06

Date / Signature

Place: **Franklin**

Date:

.....

(Manufacturer's signature)



Anhang:

Appendix:

Ersatzteilverzeichnis

List of spare parts

Als Ersatzteile sind hier nachfolgend solche Teile bezeichnet, die ohne spezielle Werkzeuge einfach zu demontieren und montieren sind.

Teile, für deren Demontage/Montage spezielle Werkzeuge, Hilfsmittel oder Kenntnisse erforderlich sind, sind zu einfach handhabbaren Baugruppen zusammengefasst, die im Fehlerfall abmontiert und komplett ins Werk zurückgeschickt werden und nur im Werk demontiert/montiert werden sollen.

The here listed spare parts can be assembled easily without special tools. Spare parts for which special tools or knowledge is required for refitting are listed as module (e. g. gear motor) which is easily to strip from the machine. These modules should only be disassembled in our factory.

Position	Beschreibung	Description
1	Standard Aufgabeschacht	standard infeed - hopper
2	Steuerung mit Anschlusskabel	control with connector cable
3	Mahlraumabdeckung mit Absaugtrichter	Cutting chamber with integrated suction box
4	Getriebemotor komplett	geared motor
5	Endschalter	safety limit switch
6	Stellfüße oder Rollen	Vibration feet or castors
7	Kabel mit Stecker	connecting cable including socket
8-10	Rotorscheiben 1 2 3	rotor disc 1 2 3
11	Rotormesser	rotor knife
12	Messerabdeckung	stator knife cover
13	Statormesser	stator knife
14	Unterlegleiste	support bar
15	Sieb (erhältlich 3, 4 mm Lochung)	screen (available 3, 4 mm holes)

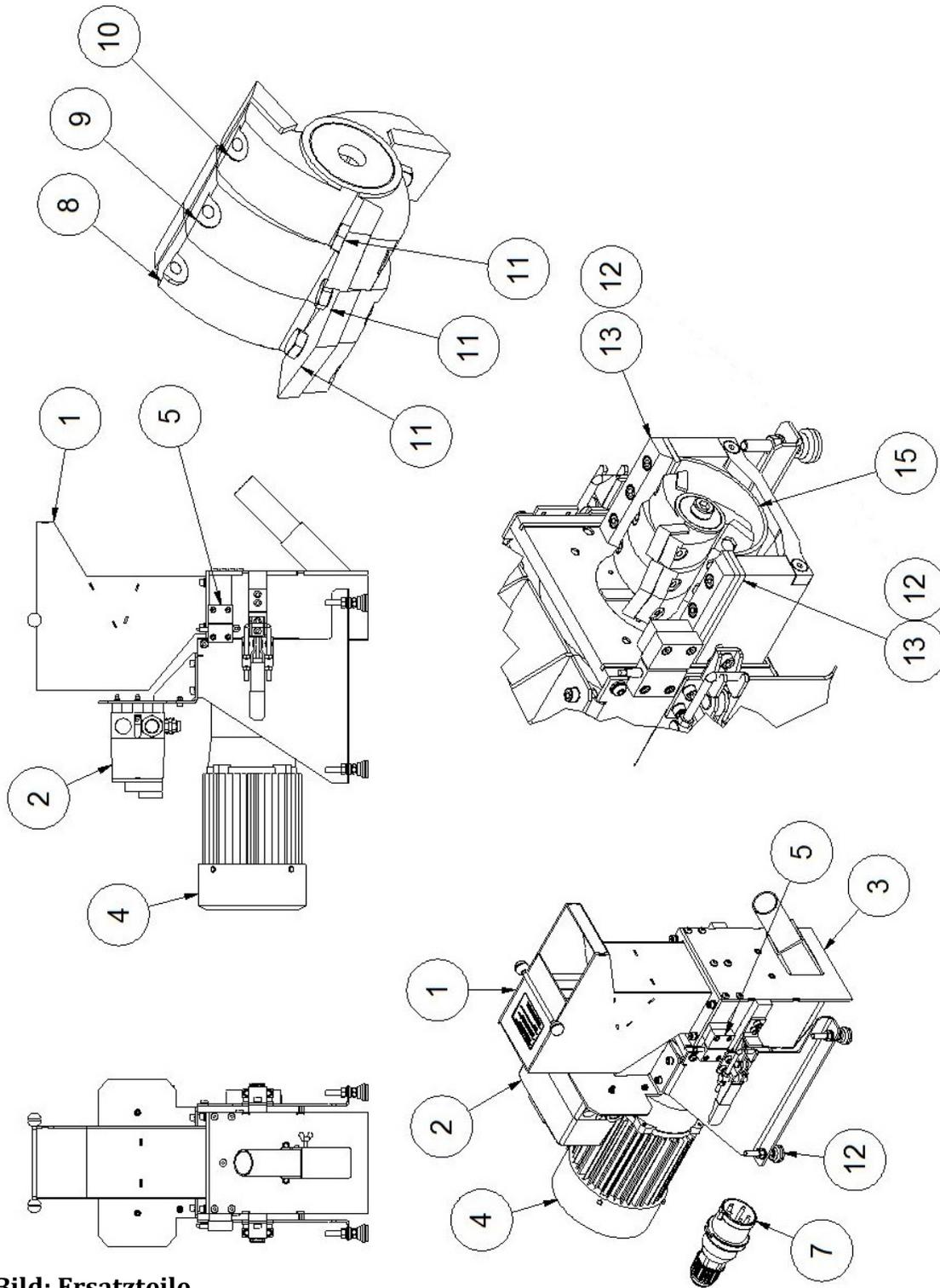
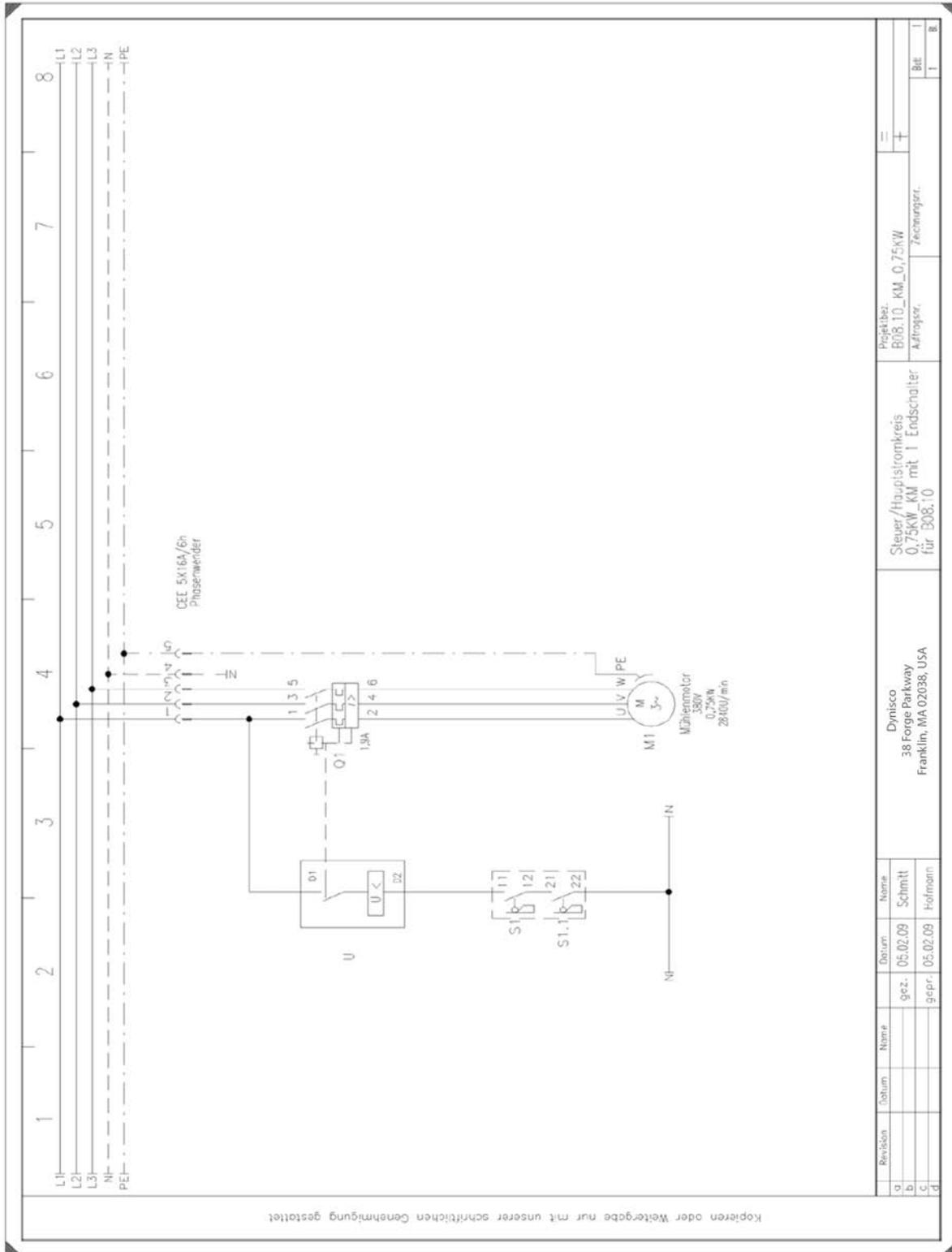


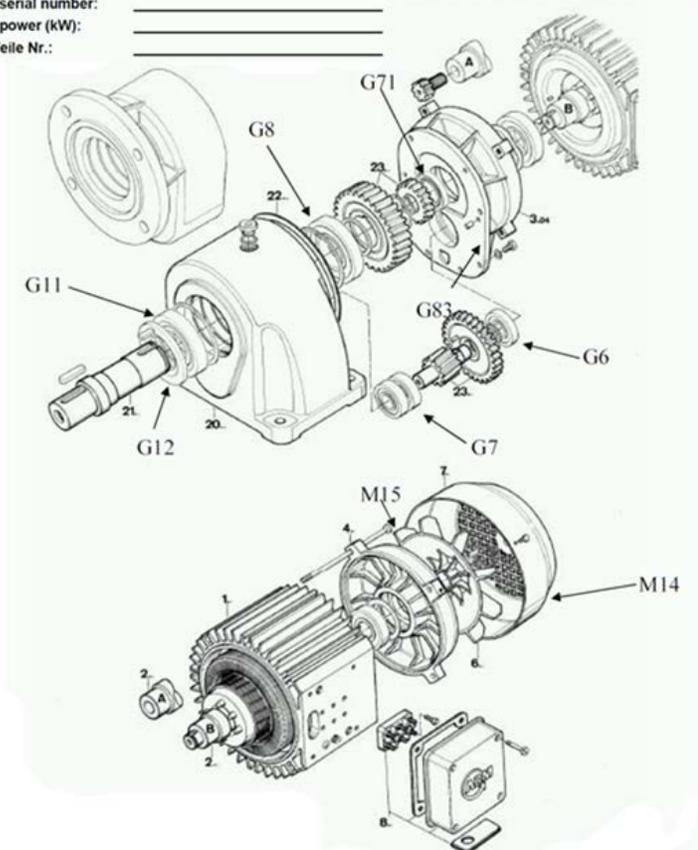
Bild: Ersatzteile
Picture: General spare parts



Geared motor (Pos. 4) – ABM:

→ customer: _____
 granulator: _____
 machine no.: _____

motor data – for inquiry essential:
 motor type: _____
 motor serial number: _____
 motor power (kW): _____
 ABM Teile Nr.: _____



	Description	Quantity
G71	Shaft sealing ring	
G8/G11	Deep groove ball bearing	
G83	Gasket transmission / cultivation engine	
G12	Shaft sealing ring	
G6/G7	Deep groove ball bearing	
M15	Plastic ventilator for motor	
M14	Fan cover for motor	