

Stephan

Microcut

MCH 20 K

***Betriebsanleitung - Ersatzteile
Operating Instructions - Spare Parts
Manuel d'utilisation - Pieces de rechange***

***Maschine nur in Betrieb nehmen wenn Betriebsanleitung bekannt ist !
Do not switch on machine unless you are conversant with operating instruction !
Ne mettre la machine en service qu'après avoir pris connaissance du manuel d'utilisation !***

1. Safety instructions

STEPHAN machines are constructed for effective and safe use in the food and processing industry.

Conditions for the successful and safe operation of these machines are that:

- The machine is installed and commissioned only by appropriately trained personnel.
- The enclosed operation and maintenance instructions for the machine are followed exactly and maintained under all circumstances.
- Any person working with the machine should be thoroughly acquainted with the health and safety instructions.

1.1 Correct usage

- STEPHAN machines are intended for mechanical and industrial manufacture of products according to the procedures indicated and the specifications detailed for the machine and peripheral equipment supplied.

the following are not permitted:

- Operation and maintenance of the machine by unauthorised and not properly trained personnel.
- Inappropriate or improper use of the machine.
- Alteration of safety devices such as switches, locks, covers, guards, seals etc., or making them inoperative.
- Contravention of local safety and accident prevention regulations.

1.2 Explanation of symbols and signs

A number of signs are used in these operating instructions which must be observed under all circumstances in order to avoid risks to personnel and machines.

These signs have the following symbols:



WARNING
Sign which must be observed, can lead to injury



WARNING
Sign which must be observed, can lead to damage to the machine



NOTE
Notes, do not have to be observed with the machine

1.3 General working safety

Improper operation of the machine can lead to personal injury, damage to the machine and interruptions to the production process.

The management responsible must therefore ensure that operating personnel are properly trained and that only qualified and authorised personnel work on machine.



SAFETY LOCKING DEVICES
 Mechanical and electrical safety devices located on the cover and in the discharging area must not be bypassed, anyone from reaching into the machine while it is running. These safety devices must not be tampered with or modified in any way.



SAFETY DEVICES
 Safety devices must be checked and maintained regularly and the manufacturer. Only trained and authorised personnel are permitted to carry out safety work. Selection and use of these devices depends on many of the management approval of PPE and safety devices must be checked and replaced in the machine used.



PROTECTIVE DEVICES AND SAFETY DEVICES
 If protective devices are required, they are subject to regular inspections according to the manufacturer's requirements. If necessary, this must be done by the manufacturer or a qualified person. All safety devices must be checked and replaced in the machine used.



SAFETY DEVICES
 The safety devices must be checked and maintained regularly. The safety devices must be checked and maintained regularly. The safety devices must be checked and maintained regularly. The safety devices must be checked and maintained regularly.



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1.4 Operation

Operators must be thoroughly trained in handling the machine and its processes.



WARNING: MOVING PARTS, CUTTING EDGES, PIPES, BURNERS, ETC.
 The operator must be trained in handling the machine and its processes. The operator must be trained in handling the machine and its processes. The operator must be trained in handling the machine and its processes.



TECHNICAL LIMITING VALUES
Observe the limiting values for the technical parameters that are specified.

1.5 Maintenance and repairs

All maintenance and repair work may only be carried out by specially trained personnel.



PLACING THE MACHINES OUT OF OPERATION
- Always place the machine out of operation and repair work to prevent further damage, such that it is safe to work on. This applies to all work on the switch cabinet and control cabinet.
- For systems with pumps: The pump equally must be switched off and must be de-energized before working. The pressure and all electrical parts must be de-energized.
- For hydraulic systems with an accumulator the system must be de-pressurized at the upper limit release valve.
- For pneumatic systems: The system must be de-pressurized and the stop valve closed.



Qualified persons only
All work on the machine must be carried out by qualified personnel. The operator and specialist personnel responsible for repairs must be instructed during the repair work.



System safety labels
When carrying out safety devices the repair and maintenance work, the machines must be protected by a safety net. The safety devices must be protected against fire. The safety devices must be repaired and maintained in a safe condition for further use.



Protective equipment
The use of protective equipment must be observed during the repair and maintenance work.



Electrical safety
A shock hazard exists from the electrical parts of the machine. The operator must always be informed of the electrical safety risks in the machine and must observe the safety rules and instructions.



Electrical safety
The operator must be informed of the electrical safety risks in the machine and must observe the safety rules and instructions.

1.6 Service and guarantee



WARRANTY
The manufacturer's warranty is limited to defects caused by the manufacturer's own work. The warranty does not cover damage to the machine and its peripheral equipment caused by the use of non-approved components or parts and without consulting STEPHAN. The warranty is void if the machine is used for purposes other than those intended. The manufacturer's warranty is void if the machine is used for purposes other than those intended.



REPLACEMENT PARTS

A stock of the most important replacement and wearing parts at the machine's location is important for its continued operation.



ORDERING REPLACEMENT PARTS

STEPHAN require the following information to process replacement parts orders:

- machine type from the cover of the operating instructions
- machine number from the machine type plate (e.g. K 720 000)
- order number in the replacement parts list in the operating instructions

This information avoids the need for any further questions from our Service Department and speeds up delivery.

We will be pleased to assist you with any questions at your workplace.

At Stephan, we speak German & English.
Servicezentrum Stephanstraße 3 7280 Heimer

Telephone: +49 71 08 90 1 20 00 3 00 1 1 2
E-mail: stephan@stephan.de service@stephan.de

2. Preface

The MCH 20 is a robust and durable multipurpose machine for the industry and production technology, that is to say, this machine type may be used in almost all areas of food production, depending on configuration.

The vast number of available equipment allows many different variants. For this reason, we are not able to discuss your particular application in this manual.

We will, however, describe the basic machine and the available equipment in this operating manual.

Our technical advisors will recommend to you the most economic equipment for your product.

Those described variants which are not part of your machine have not been ordered and / or are not required for your product.

Should you have questions about your machine or the equipment which are not answered by this operating manual, or wish to enquire about the manufacture of a particular product, please get in touch with one of our technical advisors for your technical area:

A. Stephan und Söhne GmbH & Co., Hameln Tel. 051 51 / 583-0 or get in touch with one of our dealers.

2.1 Please bear in mind the following points:

This operating manual is intended to be read, understood and followed in every detail by those who are responsible for, and work with, the MCH 20

In particular, the general safety precautions at the front (See "Safety instructions" on page 3.), should be observed.

The complete documentation should always be kept at the place of installation of the MCH 20.

Only with full knowledge of the operating manual can mistakes of the multipurpose machine be prevented and a trouble-free operation guaranteed. Thus it is most important that the responsible persons are really familiar with this operating manual.

Please read these operating instructions through thoroughly before starting the machine, as we accept no liability for damage and operating errors which result from the non-observation of these operating instructions.

If, however, problems should ever arise, please get in touch with our customer service and spares department or with one of our dealers, who will gladly assist you (see address list on last page).

These operating instructions apply only to the product range MCH 20

3. Technical data

Machine-type	MCH 20
Customer	
Comm.-no.	729.724-728
Wiring-diagram-no.	see switch cabinet
Year of construction	2003

3.1 Machine Data

Output depending (on product and process) kg/h approx. 1.000

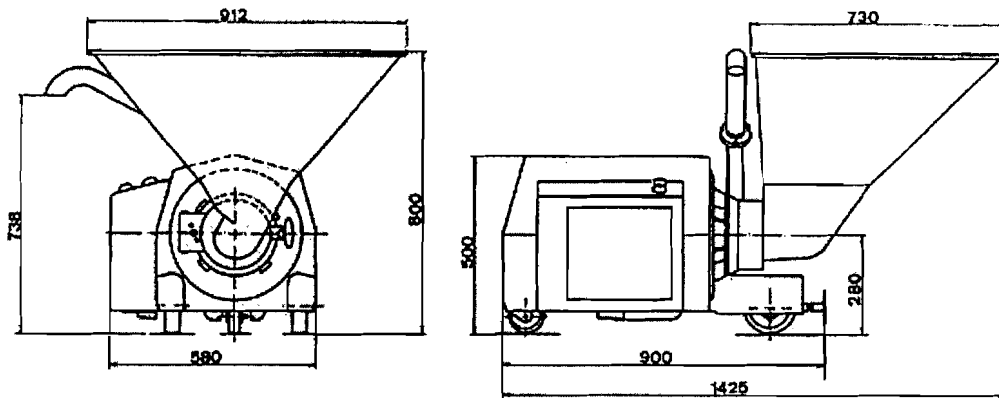
3.2 Energy consumption

Main motor	Typ	160 M-2-A
	kW	15
	rpm ⁻¹	approx. 3600

3.3 Electric

Supply voltage	V	220/440
frequency	Hz	60
Threephase AC control voltage	V	110
Fuse protection at 400 V (slow-blow)	A	63

3.4 Dimensional drawing MCH 20



3.5 Area of application and intended usage

The MCH 20 is exclusively designed for the mixing, chopping, cutting, slicing, kneading of products.

The Motor performance and the Implements must be compatible with the process and the product to be processed; the technical limit values of the machine should not be exceeded. (Siehe "Machine Data" auf Seite 8.)




Any further consultation to the machine's manufacturer. The manufacturer accepts no liability for any damage resulting therefrom.

3.6 Summary

The MCH 20 is a multipurpose machine for the manufacture of products. It combines high performance with attractive design in the most compact form. It conforms to the most modern hygiene regulations.

All parts coming into contact with the product consist of non-rust stainless steel or other physiologically harmless materials.

4. Installation and starting work

What you do first...	...and then note and check!
The machine is placed where it is intended to operate, and the electrical supply lines are connected following the circuit diagram (in the switch box).	All electrical work is only to be carried out by a qualified electrician.
Remove all loose parts from the machine.	 Loose parts flying about in the machine may damage the tools and the motor shaft.

4.1 Direction-of-rotation check

The direction-of-rotation check has already been carried out during test running before the delivery of the MCH 20. Should, on new installation, a drive have a direction of rotation different to that given in the table below, the polarity of the phase supply must be reversed.



All electrical work is only to be carried out by a qualified electrician.

Only briefly start the motor. In the following table, direction of rotation is always with respect to the view from above the machine.

Mechanism	Where to check?	Direction of rotation
Main motor	Look into the funnel from above	Towards the right



The machine is not to be touched with the water with the motor running. Air release is fully operational and may be out of use.

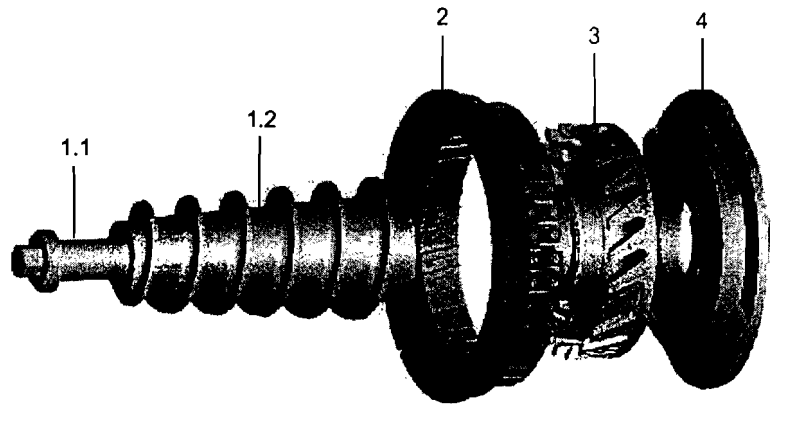
5. Daily cleaning and maintenance







Cleaning, disinfection, and sterilization are basic requirements of every process in the food production industry. Additionally, thorough cleaning considerably extends the life of the machine and particularly the seals. Complete instructions for cleaning and disinfection processes are to be found in the technical appendix. See *Cleaning and Disinfection* on page 20.

After the end of production, cleaning the MCH 20 should restore it to a ready-to-use, germ-free condition. The frequency and intensity of the required cleaning and disinfection basically depend on the degree of contamination arising from the production process.

5.1 Cleaning procedure



What you do first...	...and then note and check!
Screw off the feeding pipe.	Pull out the rest of the cutting implements with the pipe cleaner. See "Accessories" on page 32.
Swing open the housing cover and screw off the feed screw (pos. 1.1+1.2) by turning to the right with the ring wrench.	
Loosen the thumb screw and cutting ring (pos. 2). See "Maintaining and disassembling the cutting set" on page 17.	 Use the lifter. See "Accessories" on page 32. Cutting rings and cutter heads have to be protected against striking or impact damage. During handling, protect the metal carbide cutters from impact.
Pull the cutter head (pos. 3) from the shaft and the transport plate (pos. 4).	

What you do first...	...and then note and check!
The completely disassembled cutting set is then cleaned with a brush and warm water. A neutral cleaning compound with disinfectant action is added to the water.	 Be careful when handling the cutting elements.
The reassembly is done in the opposite order as the disassembly.	
After screwing off the feeding pipe, the running machine is rinsed with water.	 Motor protection system IP 54. The motor and the integrated control box may not be sprayed with water, cleaning compounds, or high-pressure cleaner.

6. Description of the MC

The machine is especially designed for extremely fine cutting and for the manufacture of dispersions and emulsions.

With the cutting set the prepared material will be chopped up very finely in a single operation.



Selecting cutting rings with larger cutting holes will result in the material being cut more coarsely and will require less time. The material to be prepared might have to be pre-cut to the necessary degree of pre-cutting should be determined by experimenting.

6.1 Setting up the Machine

There is a robust and completely enclosed special motor mounted into the machine housing, which is made of CrNi steel.

The seal between the motor shaft and the A end shield is done according to the principle of a contactless and wear-resistant labyrinth seal. The cutting mount is screwed onto the A end shield.

The cutting mount and the motor shaft are sealed with two special seals. A running sleeve is mounted on the motor shaft near the seals and is protected against torsion by a feather key.



Before operating the shaft sealing rings always the running sleeve to retain cracks and prevent the material to be prepared from leaking outwards by the shaft sealing rings.

6.2 Cutting Set

A cutter head and a cutting ring make up a cutting set.

The cutter head is pushed over the motor shaft and is protected against torsion with a feather key. It is possible to re-sharpen a cutter head in the factory up to three times.

6.3 Cutting ring

The cutting ring consists of a basic frame and individual, metal-carbide cutting plates, which are riveted to the basic frame. The air space between these cutting plates forms the cutting gap. The size of the cutting gap largely determines how finely materials will be cut. When cutting rings become dull, they have to be sent in to the factory to be refitted.



Warning: Only use cutting rings that are protected against cutting of sharp plates like for high speed, e.g. metal particles, stones, etc., into the machine.



Since it takes 3-5 weeks for cutter rings to be refitted or for cutter heads to be re-sharpened, it is recommended to procure at least one additional complete cutting set.

6.3.1 Electrical System

There are On / Off Switches on the front and the side of the machine. The automatically functioning motor starter is mounted in the connection box. The standard equipped machine comes with start-up stage (star-delta switching).

A safety cut-off switch prevents switching the motor on when the housing cover is open and the cutting set is open. The motor will automatically shut down when it becomes overheated.

Temperature sensors at the cutting mount outlet nozzle measure the temperature of the product being cut. These values can be read on the temperature display next to the On/Off switch.

The sealed control box space is electrically heated by an adjustable thermostat in order to prevent water condensation on the switch elements.



For the reason that the shaft of the drive motor is not protected from the 2-axis driving wheel, it is recommended to use a safety cage.

6.4 Process procedure

The material will be pressed by the rotating cutter head against the metal carbide cutters on the cutting ring. The processed material comes out of the outlet tube and goes into a container or wagon.

7. Correcting problems



All repair work is to be carried out by persons who are trained to the work. General and special safety instructions have to be observed during such work. This applies especially to all electrical work for correcting problems which appear on the following tables. (See: maintenance and repair safety instructions)

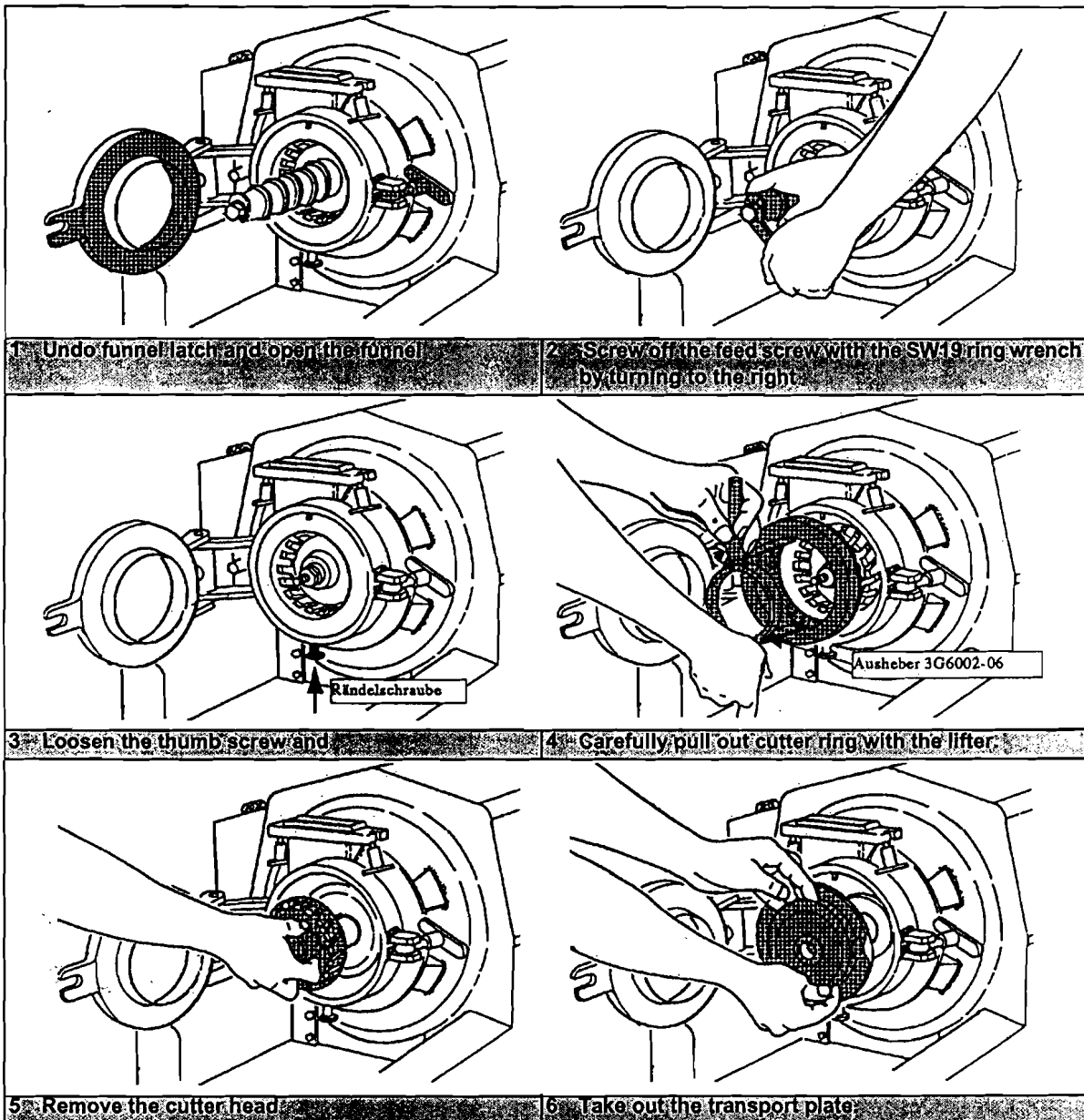
7.1 Problems of the drive motors

Problems	...their possible causes	...and the solution.
Motor will not start	Power is not connected or incorrectly connected Loose contact	Check voltage across supply and correct. Remedy loose contact.
	Fuse has blown	install new fuse (of correct rating).
	Motor protector has operated	Allow motor to cool, switch on motor protector check motor protector settings.
	Motor protector will not switch. Control is faulty	have specialists test and repair.
Motor starts with difficulty	Motor is designed for delta connection but is star connected	Check and correct the control of motor protector.
	Voltage or frequency vary greatly from rated values, at least when starting. <i>See "Technical data" on page 8.</i>	Correct connection.
Fuses blow or the motor protector cuts out immediately	Winding is faulty	Motor must be sent for repair
	Short circuit in motor or wiring	Remove short circuit
	Motor has short to frame or winding short circuit	have specialists test and repair.
Motor runs in wrong direction	Motor is incorrectly connected. <i>See "Direction-of-rotation check" on page 10.</i>	Have 2 phases exchanged.
	Motor is incorrectly connected	have specialists test and repair.

Problems	...their possible causes	...and the solution.
Motor overheats (only verifiable by measurement)	Mains voltage deviates by more than 5% from motor nominal voltage. <i>See "Machine Data" on page 8.</i> Higher voltages are particularly unsuitable for high polarity motors, since their no-load current is close to the rated current even at normal voltages.	provide correct mains voltage.
	Motor is delta connected but designed for star connection	Install connections correctly
	Motor overloads	Reduce motor overloading by lessening loads.
	Rated operating time is exceeded.	observe permissible operating time.
	Intended operational range is exceeded. For example, if the motor overheats because of too frequent switching, it is not enough to simply use a larger motor, since the same conditions will reoccur.	Restrict operation to the prescribed conditions of operation. Consult Stephan servicing personnel to determine the appropriate drive.
	Not enough cooling air. e.g., the cooling air paths are blocked.	ensure unimpeded cooling air flow. Clean cooling fins
	Cooling air has been preheated.	provide fresh air, repair fan.
Motor drones	Motor is incorrectly connected.	have specialists test and repair.

8. MC Maintenance

8.1 Maintaining and disassembling the cutting set



The three cutters are not completely quite safe. The procedure shown is still applicable, however, that essentially is done in the opposite order as the disassembly with cleaning procedure on page 11.

8.2 Sharpening the cutting elements

Cutter head: It is possible to re-sharpen the cutter head in the factory up to three times.

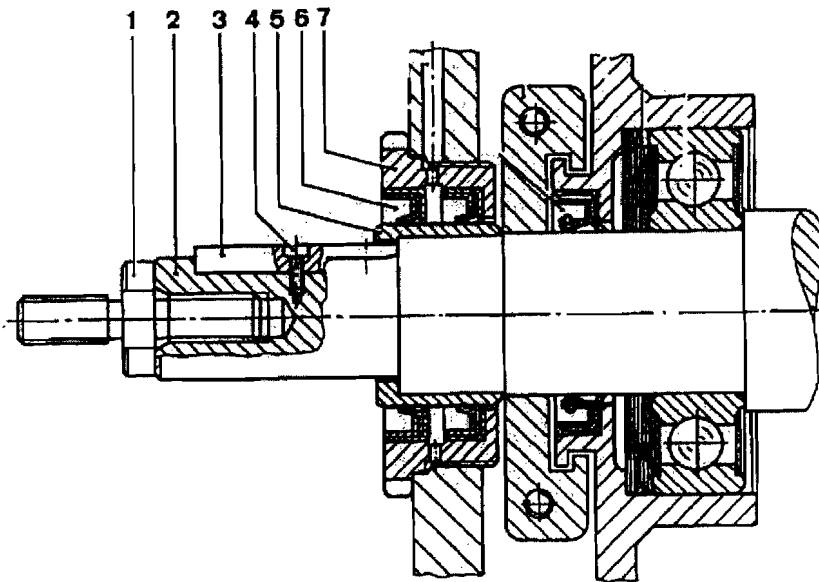
Cutting rings which have become dull and OT be re-sharpened. They have to be sent to the factory for refitting.



Since it takes too long to sharpen rings to be refitted or for cutter heads to be re-sharpened, the machine has to produce at least one additional complete cutting set.

8.3 Seals

Damaged seals have to be replaced by new ones.



Changing the seals

- Screw out the receiving sleeve (pos. 7) with the special wrench.
- Remove sealing rings (pos. 6).
- Clean receiving sleeve and grease the sealing rings.
- Mount both sealing rings with the sealing lip facing outwards.
- Rear sealing ring to the stop limit, the front flush with the receiving sleeve (pos. 7).
(comp. to illustration on page 18)
- Afterwards, fill the space between the sealing rings with grease.

- Clean the running sleeve (5). If input tracks can be felt, the running sleeve should also be replaced.
- Cover the running sleeve with film of grease.
- Carefully push the receiving sleeve over the shaft and secure it with the wrench.



The main motor is pre-lubricated regularly (at least every 300 hours of operation). You may adjust the track tension (greasing, depending on the temperature, the pressure and the amount).
The amount of grease is about 10 g per roller.



Use a biologically compatible grease which is approved for use in food processing procedures.

8.4 Main motor

The main motor is equipped with prelubricated bearings and is therefore maintenance-free.

9. Cleaning and Disinfection

Cleaning and disinfecting is intended to interrupt infection chains in processing.

- Cleaning deprives microorganisms of their breeding medium by removing contamination (including food remains).
- Disinfection inactivates or reduces the number of microorganisms that cause rotting or poisoning of foodstuffs.

9.1 Stages of the cleaning and disinfection process

The precondition for an effective disinfection is always a thorough cleaning. Only in exceptional cases and slightly soiled areas may a combined disinfection and cleaning be carried out, for example with a mixture of aldehydes and surface-active quarternary (mineral) compounds.

In general, the cleaning and disinfection process follows the following stages:

- Precleaning with 40 to 50 °C warm water for removal of most of the dirt.
- Cleaning with a cleaning solution heated to 60 to 80 °C.
- Intermediate rinsing with warm water to remove cleaning solution and dirt remnants.
- Disinfection.
- Rinsing with microbiologically pure water to remove remaining disinfectant.

9.1.1 Factors affecting the effectiveness of cleaning

The effectiveness of a cleaning process depends on the type of cleaning solution, the type of dirt, and the surfaces to be cleaned, as well as the working temperature, duration, and cleaning procedure.



More information on the appropriate cleaning procedure for your products is available in the manual for the cleaning and disinfection systems. See "Daily Cleaning and Disinfection" on page 15.

Cleaning solutions

Water: The cleaning effectiveness of water may be significantly increased by numerous factors. These include increased temperature, pressure, duration, and mechanical dissolution of dirt or through the addition of cleaning solutions.

During the removal of protein-containing dirt with water over 60 °C, coagulated protein may burn in on surfaces and should therefore quickly be removed with the appropriate cleaning materials.

Alkaline cleaning solutions: Soda lye, phosphates, Sodium hydroxide silicate. Soda lye has a strong cleaning action against high-protein dirt and is therefore preferable for use in protein production processes (meat, cheese etc.) The disadvantage of soda lye is its poor ability to emulsify fat. The weaker alkaline reacting silicates have a better emulsifying capability.

Acid cleaning solutions: are predominantly used for the removal of mineral deposits (calcium or scale, milk scale, beer scale etc.) Acids such as hydrochloric acid, tartaric acid, citric acid transform non-water soluble salts into a soluble and rinsable state.

Commercial cleaning solutions apart from their cleaning effects usually also contain foam inhibitors, complexing agents, and tensides.

9.2 Disinfection

The most important requirement of a disinfectant for use in a food production process is that it be toxicologically harmless at the required level of dilution.

In addition, the following conditions must be met:

- Fatty contamination is only removed by water temperatures over the melting point of fat (50 °C).
- The disinfectant at the level of dilution employed must effect a rapid and irreversible destruction of the microorganisms which have the most damaging effects on the foodstuff produced.
- The efficiency should not be fundamentally affected by the technological process (degree of contamination, type of contamination, pH level, temperature).
- Tolerance of materials and cost efficiency
- Currently, halogens (active chloride, iodine agents), hydrogen peroxide, peracetic acid, quaternary ammonium compounds, and aldehydes are predominantly used as disinfectants.

9.2.1 Factors affecting the effectiveness of the disinfection process

A variety of factors play a role in the disinfection process and not only affect the procedures and effectiveness of the whole process but can also strengthen or weaken each other.

Application duration

Disinfectant does not work suddenly, but rather by an exponential inactivation or killing of microorganisms. The longer the disinfectant has to work, the better will be the disinfection result. Disinfection of hands generally requires 0.5 to 3 minutes, while disinfection of surfaces requires 1 to 6 hours.

Initial germ level

The greater the initial germ level, the longer the application duration has to be to achieve a particular disinfection goal.

Concentration

The speed of germ killing can be significantly increased by using a higher concentration of disinfectant. The use of higher concentrations is limited by problems of toxicity during use, the increased danger of affecting foodstuffs (see safety precautions below), as well as the increased corrosive effect on metals.

Temperature

An increase in temperature promotes anti-microbial effectiveness while a temperature reduction lowers it. Some disinfectants, such as peracetic acid or some iodine products, are less affected by temperature changes than other media and may therefore also be used at low temperatures.

Protein errors

Disinfectants react not only with the organic components of microorganisms, but also with organic contaminants, in particular with protein chains. The action of certain disinfectants, such as chlorine and iodine products, is particularly strongly affected.



Some disinfectants are highly corrosive and may cause damage to surfaces. They may also cause damage to certain materials, such as plastics, and should not be used on them.

9.2.2 Disinfection procedure

Fluid preparations of the disinfectant may be applied to surfaces manually with a cloth or with a brush (scouring disinfection), or mechanically, with or without pressure.

Removable short tube lengths, valves, hoses, or other small parts (implements, blades, seals) may be filled with the disinfectant solution in use or immersed in the solution. (Filling and immersion disinfection.)

10. Spare parts



The installation and use of non-original parts may have a negative influence on the safety and functionality of the machine. We accept no liability for any resulting damage or injury.

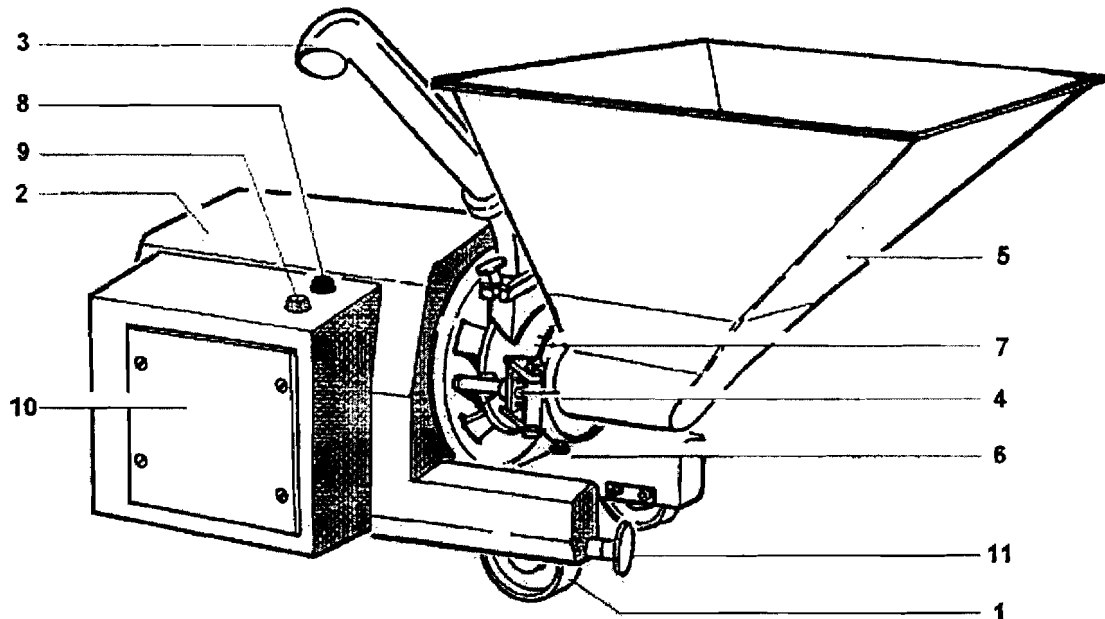


When placing orders for replacement parts, we require the following information:

1. the machine model number
2. the order number = 709 724 726
3. the name, design, part, and order number from the replacement part list

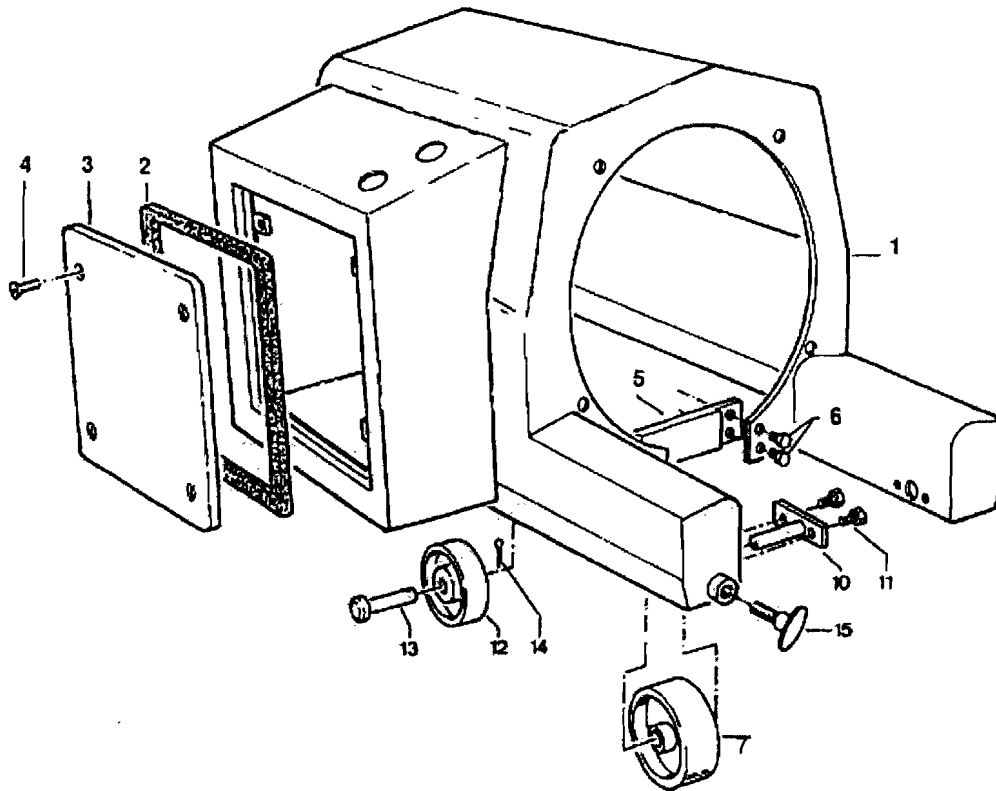
During the order process, we require the field for our assembly service to make inquiries to our 24-hour service center.

10.1 Replacement parts plan



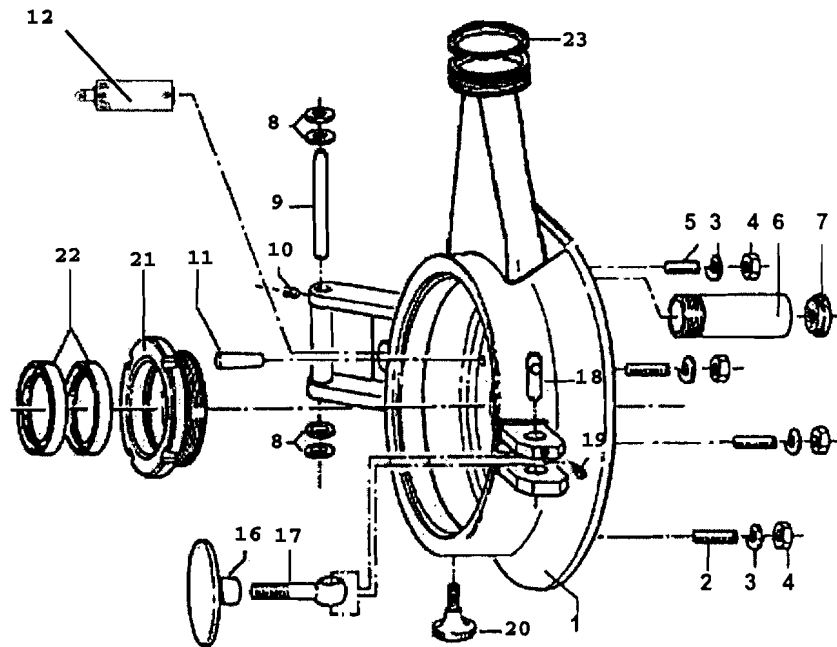
Pos. No.	Qty	Description	Reference	Part No.
1	2	Caster	DM 150	3K0706-03
	1	Caster		3B4004-10
2	1	Machine housing	MCH 20	3A2315-51
3	1	Removable feeding pipe	DN 50	3M0620-05
	1	Removable feeding pipe	DN 50 (special design 1.000 mm)	3M0620-06
	1	Seal G	DN 50 Silikon	3I0130-07
4	1	Magnet limit switch	MAN 1612-F-1	3Q6003-01
	1	Magnet	T-62N/S	3Q6005-02
5	1	Funnel	MCH 10/15/20	3E0151-01
6	1	Knurled screw	M8*1	3K2008-01
7	1	Cutting housing	MCH 10/15/20	3B2021-01
8	1	Push botton red	XB2-MP41	3Q6032-31
9	1	Push botton green	XB2-MP31	3Q6032-30
10	1	Terminal box cover	MCH 20	3I0440-03
	1	Switch box gasket		3T4004-21
11	1	Toggle screw	M12*77*90	3K2067-01

10.2 Stand, Housing



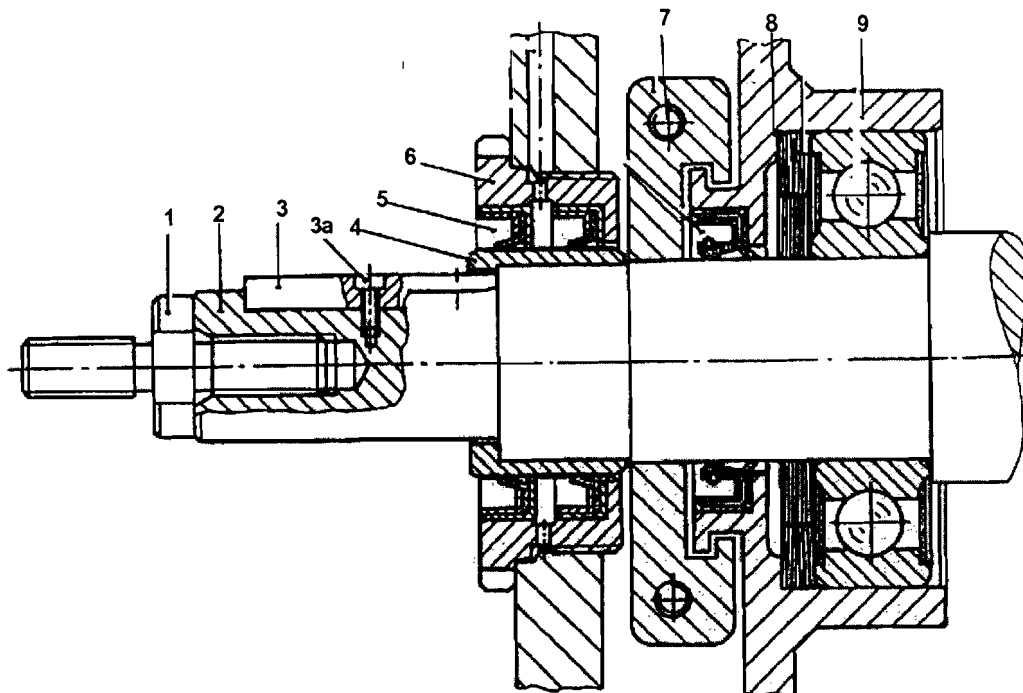
POS. NO.	QTY	Description	Dimensions	Part No.
1	1	Machine housing for rollers		3A2315-51
2	1	Switch box gasket	20 x 6 x 1060 made of	3T4004-21
3	1	Terminal box cover	258*291	3L0440-04
3a	1	Terminal box cover	big	3L0440-03
4	4	Countersunk screw	M8 x 16 DIN 966	3S0102-02
5	1	Dust hood rear		3L4460-02
6	4	Hex. screw	M8 x 16 DIN 933	3S0094-09
	4	Lock washer	A8 DIN 127	3S0246-04
7	2	Caster	DM 150	3K0706-03
10	2	Axle bolt		3K2411-01
11	4	Hex. head screw	M6*12 DIN 933	3S0002-03
	4	Spring washer	B6 DIN 127	3S0246-03
12	1	Caster	A100-3	3S4004-10
13	1	Axle bolt, rear		3K2522-03
14	1	Splint pin	3,2*25 DIN 94	3S0262-06
15	1	Toggle screw	M12*77*90	3K2067-01

10.3 Cutting housing



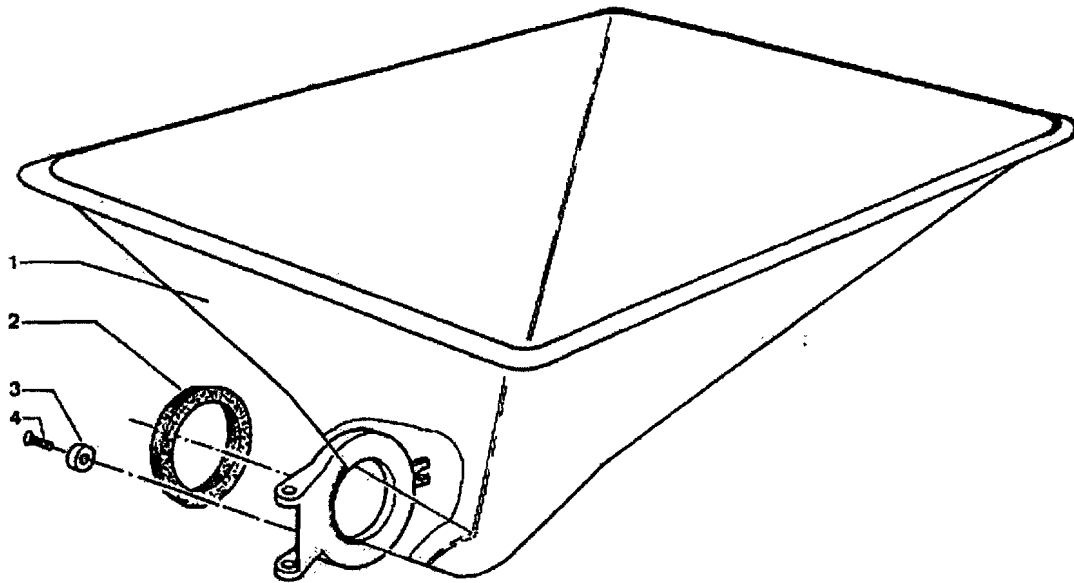
Pos. No.	Qty.	Description	Dimensions	Part No.
1	1	cutting housing		3B2021-01
2	3	threaded pin V2A	M 10 x 35 DIN 551	3S0162-02
3	4	spring washer	B 10 DIN 127	3S0246-05
4	4	hex. nut	M 10 DIN 934	3S0200-06
5	1	threaded pin V2A	M 10 x 30 DIN 551	3S0162-01
6	1	protection tube for limit switch		3K0405-01
7	1	sealing disc	7 x 27 x 5	3K0204-02
8	x	washer	13 mm	3S0231-06
9	1	lid bolt	12 x 110	3K2222-04
10	1	threaded pin	M 6 x 12 DIN 914	3S0178-01
11	2	taper pin	6 x 26 DIN 1	3S0275-15
12	1	Limit switch with roll		3Q6011-12
16	1	locking nut	M 12 x 40	3K0005-02
17	1	eye bolt	M 12 x 65 DIN 444	3S0140-13
18	1	bearing bolt	12 x 36	3K2222-02
19	1	threaded pin	M 6 x 16 DIN 914	3S0178-02
20	1	knurled screw	M 8 x 21	3K2008-01
21	1	receiver bushing		3K0605-05
22	2	shaft seal ring	45 x 62 x 10 PS-Seal	3I0054-28
23	1	seal G	DN 50	3I0131-07

10.4 Shaft seal



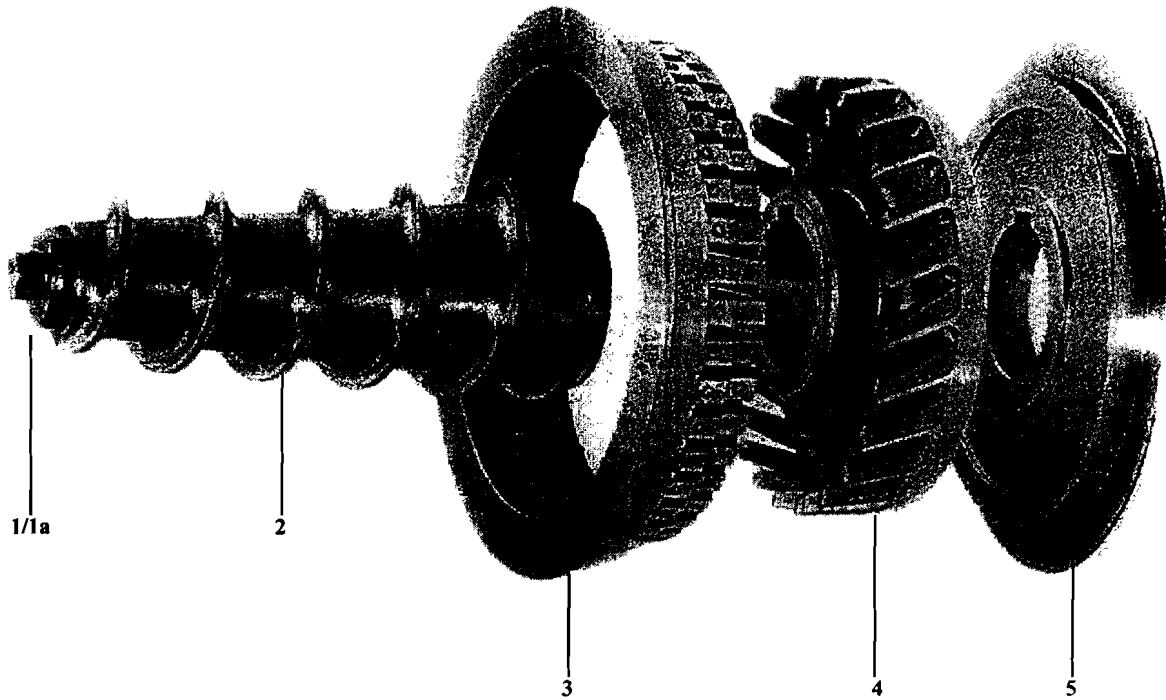
Pos. No.	Qty.	Description	Dimensions	Part-No.
1	1	screw SW 24	MCV10.15-14	3K2060-01
2	1	motor shaft	-	-
3	1	featherkey	-	3S0285-01
3a	1	cylinder screw	-	-
4	1	sleeve	MCV10.10-55	3K0500-04
5	2	shaft seal ring	-	3I0054-28
6	1	receiver bushing	-	3K0605-05
7	1	cutting housing	-	-
8	1	spin off disc	-	3K1101-01
9	1	motor end plate	-	-

10.5 Housing cover with funnel



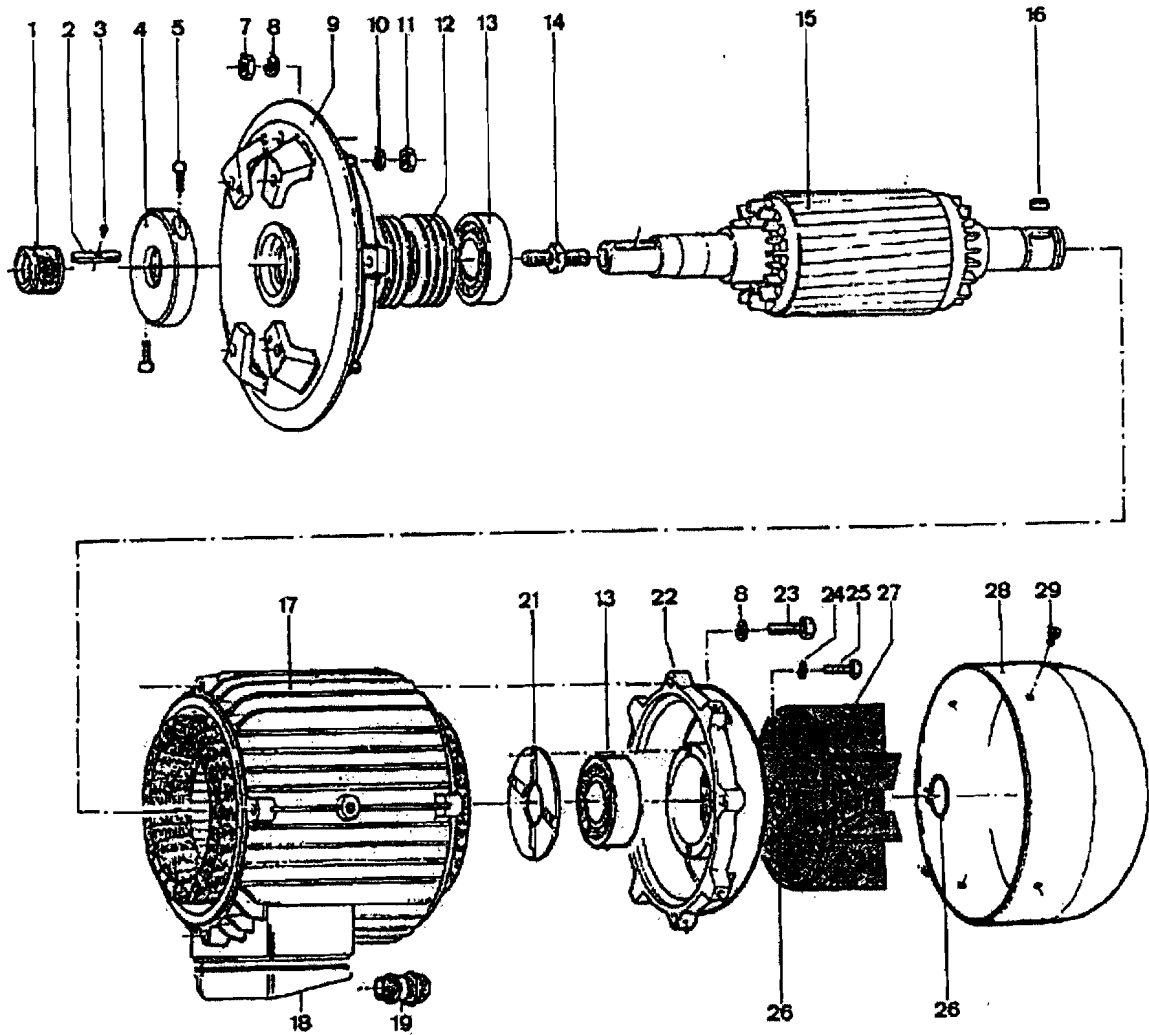
Pos. No.	Qty.	Part description	Dimensions	Part No.
1	1	Housing cover with funnel		380151-01
2	1	Sealing ring, silicone	MCV 10.10-127	310103-01
3	1	Magnet	T-62 N	306005-02
4	1	Countersunk screw	M 4 x 16 DIN 963	380091-03

10.6 Cutting set



Pos. No.	Qty.	Description	Dimension	Part No.
1	1	Spindel for feeding spiral	MCV10.10-59	3K2104-04
1	1	O-Ring 2-225	3,53*47,2	3I0006-05
2	1	Feeding spiral	3K1200-05-A102	3K1200-05
		Cutting rings	mm	
	1	Cutting ring	0,05-01	3D0208-08
	1	Cutting ring	0,2	3D0208-02
	1	Cutting ring	0,35	3D0208-03
	1	Cutting ring	0,5	3D0208-04
	1	Cutting ring	0,7	3D0208-05
	1	Cutting ring	0,9	3D0208-06
	1	Cutting ring	1,3	3D0208-07
	1	Cutting ring	1,5	3D0208-09
	1	Cutting ring	1,8	3D0208-10
		Cutting heads	mm	
	1	Cutting head	6	3D0400-11
	1	Cutting head	12	3D0400-08
	1	Cutting head	19	3D0400-07
5	1	Feeding disc with feeding elements		3K1115-03




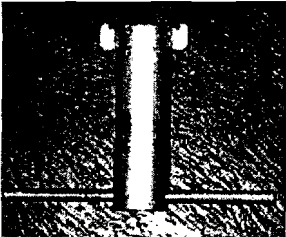
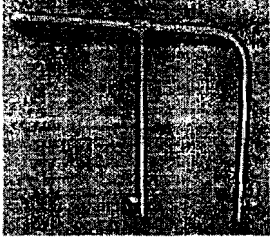
10.7 Motor



Pos. no.	Amount	Description	Size, design	Stk./P. No.
	1	Motor	FD 160 M/2A	3C0011-35
1	1	sleeve		3K0500-04
2	1	feather key	8 x 7 x 50 DIN 6885	3S0285-01
3	1	cheese head cap screw	3 x 8 DIN 84	-
4	2	plash disc		3K1101-01
5	2	socket head cap screw	M6 x 20 DIN 912	-
6	-	-		-
7	4	hex. nut	M8 DIN 934	3S0200-05
8	8	spring washer	B8 DIN 127	3S0246-04
9	1	bearing shield A	FD 132 M	3K4602-02
10	1	spring washer	B10 DIN 127	3S0246-05
11	1	hex. nut	M8 DIN 934	-

Pos. no.	Amount	Designation	Size / form	Order no.
12	6-8	spacer disc	-	-
13	2	ball bearing	6309 C3	-
14	1	threaded bolt	-	-
15	1	rotor	-	-
16	1	pin screw	-	-
17	1	stator	-	-
18	1	terminal cover	M 102-11 337 81	-
19	3	socket head cap screw	-	-
20	-	-	-	-
21	1	cover	-	-
22	1	bearing shield B	012728-7	-
23	4	hex. head screw	M8	-
24	4	spring washer	M6 DIN 127	-
25	4	hex. head screw	-	-
26	2	circlip	-	-
27	1	cooling fan	-	-
28	1	cover for cooling fan	-	-
29	4	cheese head cap screw	-	-

10.8 Accessories

	Description - Dimensions	Part No
	Grease pump G60/1	3H6009-01
	Sickle spanner	3H6010-02
	Fork spanner SW 19 SW 19	3H6004-07
	Box spanner MCV10.10-72	3G6008-04
	Lifter, complete	3G6002-10

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