Table of contents page

Table of contents page

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:

DANGER
Sign which, when ignored, can lead to injury.

WARNING
Sign which, when ignored, can lead to damage to the machine.

NOTE
Notes and advice on working 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 and emptying area prevent anyone from reaching into the machine while it is running. These safety devices must under no circumstances be made inoperative.

OILS, LUBRICANTS AND COOLANTS
Some of these agents endanger personal health and the environment. Only materials recognised as being physiologically safe should be used. Selection and use of these materials depends entirely on the management, although STEPHAN can make recommendations with respect to the materials used.

PRESSURE VESSEL REGULATIONS
If pressure vessels are installed, they are subject to regular inspections according to the pressure vessel regulations. If necessary, the vessel may need to be tested in the location where the machine is to be installed. All inspection certificates must be stored carefully. All working and inspection instructions in the pressure vessel regulations must be observed.

SAFETY VALVE
If the STEPHAN machine works with overpressure, the safety valve is protected in the works so that the permissible pressure cannot be exceeded. The valve is fitted with a lead seal so that the release pressure cannot be adjusted. Manipulating the valve can lead to fatal injuries. Removal of the lead seal also invalidates the guarantee.Material drained from the safety valve must be disposed of properly and safely.
Safety valves should be checked regularly for proper functioning and signs of dirt. After a safety valve has been actuated, it must be cleaned immediately in order to prevent malfunctions, e.g. from sticking.

Avoid entering the swing area of tanks and lids; these must be supported during extended maintenance.

SAFETY AWARENESS
- Management must ensure that operating and maintenance personnel are thoroughly acquainted with all safety instructions and that all safety instructions are actually observed. The operating instructions should be readily available for reference in the workplace.
- All working procedures which reduce safety at the machine must be avoided.
- Operators are obliged to announce at once every alteration to the machine which reduces its safety.
- The machine's safety can be reduced by:
* reconfiguration or alteration of the machine
* use of accessories other than those provided by STEPHAN
* use of non-original replacement and wearing parts
Avoid entering the swing area of tanks and lids; these must be supported during maintenance..

1.4 Operation

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

The operator must ensure, by checking the manometer and the indicating devices, that the tank is not pressurized before opening the lid.

CONCEALED KNIVES, CUTTING RINGS, FEED SCREWS, ETC.
Do not reach into full or partially full machine bowls or funnels, as there is risk of injury from concealed sharp-edged cutting tools and machine parts.

TECHNICAL LIMITING VALUES
Observe the limiting values for the technical machine data specified.

1.5 Maintenance and repairs

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

PLACING THE MACHINE OUT OF OPERATION
- Switch off the main switch before maintenance and repair work to prevent it from being switched on inadvertently. This applies to all work on the switch cabinet and peripheral units.
- For steam installations the steam supply must be switched off and must be secured before re-starting. The machine and all pipelines must be depressurised.
- For hydraulic systems with an accumulator the system must be depressurised at the accumulator release valve.
- For pneumatic systems, the system must be depressurised and the stop valve closed.

The operator must ensure, by checking the manometer and the indicating devices, that the tank is not pressurized before opening the lid.

When performing maintenance under opened lids or in the swing area of tanks, they must be supported..

ELECTRIC SYSTEMS
All electrical work must only be carried out by qualified electricians. The general and specific accident prevention regulations must be observed during electrical repair work.

SAFETY DEVICES
When dismantling safety devices for repair and maintenance work, the machine must be placed out of operation. The safety devices must be connected again immediately after completion of repair and maintenance work and checked for perfect operation.

SAFETY VALVE
If the STEPHAN machine works with overpressure, the safety valve is protected in the works so that the permissible pressure cannot be exceeded. The valve is fitted with a lead seal so that the release pressure cannot be adjusted. Manipulating the valve can lead to fatal injuries. Removal of the lead seal also invalidates the guarantee.Material drained from the safety valve must be disposed of properly and safely.
Safety valves should be checked regularly for proper functioning and signs of dirt. After a safety valve has been actuated, it must be cleaned immediately, in order to prevent malfunctions, e.g. from sticking.

COMMISSIONING
The operation of the safety devices must be checked before commissioning the machine.

It should be checked that the work tools are properly attached and that there are no foreign bodies in the machine, as loose parts in the machine can damage the work tools and motor shaft

MOTOR PROTECTION IP 54 AND SWITCH CABINET PROTECTION IP54
Washing the motor or switch cabinet with pressurised water or cleaning agent is not permitted.

1.6 Service and guarantee

INVALIDATION OF GUARANTEESTEPHAN
will accept no responsibility or guarantee claims for damage caused by:
· not observing the operating instructions,
· improper operation and maintenance of the machine and its peripheral equipment,
· technical and functional modifications carried out without consulting STEPHAN,
· use of parts other than original STEPHAN parts and accessories,
· disconnecting, dismounting or otherwise making safety devices inoperative.

REPLACEMENT PARTS
A stock of the most important replacement and wearing parts at the machine's location is important for its continual 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 numberin 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 on your machine

Stephan Food Service Equipment GmbH
Serviceabteilung
Kuhlmannstr. 10
31789 Hameln

Telefon: +49 5151/583-0
Telefax: +49 5151/583-110

Email: vertrieb@stephan-foodservice.com
info@stephan-foodservice.com

2. Preface

The VCM 44 A/1 is a robust and durable multipurpose machine for the food production industry and food production technology, that is to say, this machine type may be used in almost all areas of food production, depending on configuration.

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:

Stephan Machinery Corp.
7200 Alum Creek Drive
Suite I
Columbus/Ohio 43217-1349
001 / 614 / 497-8951
001 / 614 / 497-9123
sales@stephan-usa.com

or get in touch with one of our dealers.
(See ” Serviceadressen / Service adresses / Adresse du SAV” on page 48.)

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 VCM 44 A/1

In particular, the general safety precautions on the colored pages at the front should be observed.

The complete documentation should always be kept at the place of installation of the VCM 44 A/1.

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 VCM 44 A/1

3. Technical data

Machine-type	VCM 44 A/1
Customer	
Comm.-no.	see cover
Wiring-diagram-no.	see sticker in the cabinet
Year of construction	2005

3.1 Machine Data

Bowl capacity (to bowl rim)	l	ca. 45
Load size (depending on product)	l	max. 30
Machine weight (net)	kg	120
Max. permissible operating excess pressure in bowl	bar PSI	0.0 0.0
Max. permissible operating temperature in bowl	°C / °F	95 / 203

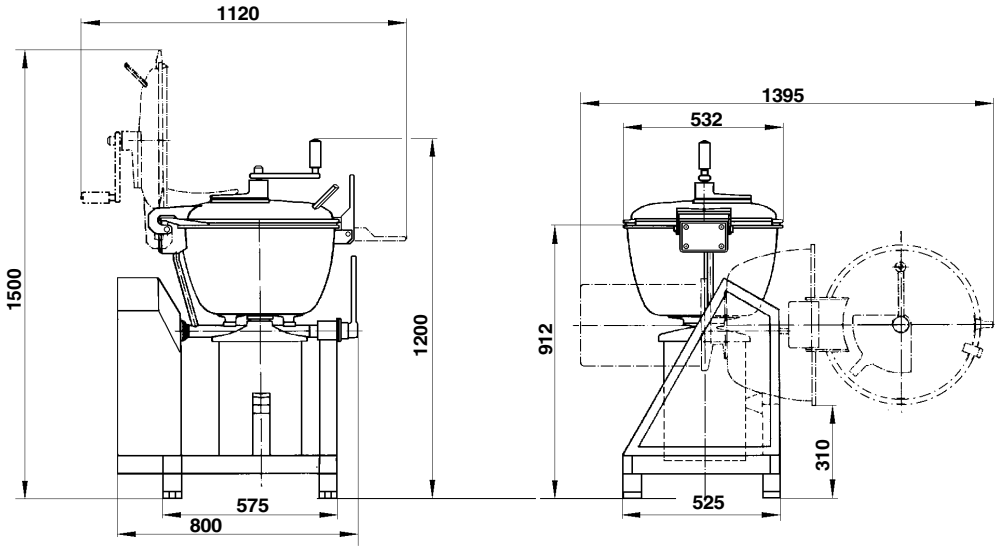
3.2 Energy consumption

Main motor type 132 S-4 n = 1800	kW	5.5

3.3 Electric

Supply voltage / frequency	V / Hz	208 / 60
Control voltage	V	~~110 DC~~ Λ
Fuse protection at 208 V (slow-blow)	A	35

3.4 **Dimensional drawing** VCM 44 A/1



3.5 Area of application and intended usage

The VCM 44 A/1 is exclusively designed for the mixing, chopping, cutting, slicing, kneading of food products.

The Motor performance and the working inserts must be compatible with the process and the product to be processed; the technical limit values of the machine should not be exceeded. (See ” Machine Data” on page 9.)

Any use beyond this is not regarded as normal use. The manufacturer will not be liable for resulting damage. The user only will bear the risk.

3.6 Summary

The VCM 44 A/1 is a multipurpose machine for the manufacture of food 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.

The process container with the direct-driven working inserts is swivel-mounted on the machine base; bowl tipping and lid opening are performed by hand operation.

The following machine functions are available:

Loading	manually via opened lid
Processes	Mixing, chopping, slicing, cutting, emulsifying, kneading
Emptying	manually via opened lid by tipping the container
Control	manually via pushbuttons.

4. Set-up and starting

What to do first..	...and then carry out and double check!
Due to its own weight and low-vibration operation, the multi-purpose machine may be installed without additional fastening.	However, it requires a firm surface to stand on.
Before starting up, you should check that the supply voltage conforms to the operating voltage specified on the VCM 44 A/1 rating plate. The stipulated fuse protection must be provided.	 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 working inserts and the motor shaft.

4.1 Rotational direction check

The direction of rotation check has already been carried out during test running before the delivery of the VCM 44 A/1. 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.

The motor connections are only to be altered if, after the replacement of a motor, gear or pump, the direction of rotation requires correction according to the following table.

To check rotational direction, disconnect the working insert from the main motor shaft, close and lock the lid. Only start individual drives for a short time. In the following table, rotational direction is always with respect to the view from above the machine.

Drive	Where to test?	Direction of rotation	Arrow towards
Main motor	Spin plate beneath the bowl floor	Towards the right	End shield

4.2 Function testing and test run

The basic functions of the VCM 44 A/1 have been factory tested. In order to ensure, however, that no damage has arisen during transport or installation, a test run of the machine should be carried out shortly after its setting-up.

We emphasis once more that only persons properly familiar with the functioning of the machine are permitted to operate the VCM 44 A/1

What to do first..	**...and then carry out and double check!**
Attach the cutting insert to the tool holder of the machine base with the wing nut pointing upwards and ensure that the nut is tight. If necessary, tighten firmly with the open-end spanner supplied.	 The knives must be absolutely securely mounted. The slanting edge of the blade must be towards the bowl base to obtain optimal circulation of the material.
Three quarters fill the bowl with warm water (ca. 50°C / 122°F).	 The VCM 44 A/1 requires headroom for perfect product processing, i.e., the bowl must not be filled beyond 3/4 capacity.
Close the lid and lock the toggle seal.	
Switch on main motor. Allow the machine to run for five minutes.	
Unlock the toggle seal and then open the lid. Tip and empty the container.	Wait until the contents of the bowl are stationary to avoid the danger of splashing. Always wear protective safety gloves if surfaces are hot.

5. Operating the machine

5.1 Working insert fitting

Caution! Danger of injury when handling sharp blades and working inserts.

What should happen	What to do	Key	The result!
Open container	Unlock toggle seal Open lid.		Lid is open
Working inserts fitting	Pull the tool carefully over the motor shaft and turn clockwise to secure it. Remounting is done vice-versa.		working inserts are ready for use.

5.2 Loading the machine.

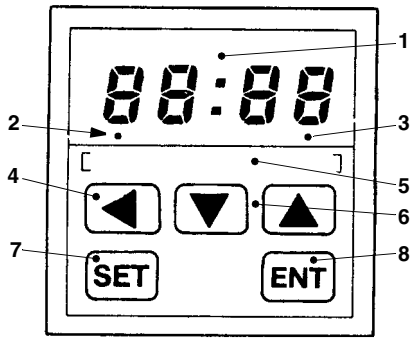
The VCM 44 A/1 requires headroom for perfect product processing, i.e., **the bowl must not be filled beyond 3/4 capacity.**

What should happen	What to do	Key	The result!
Manual loading	Unlock toggle seals Open lid.		Lid is open
	Put in product.		
Close container	Close the lid and lock the toggle seal.		The machine is ready to process.
Manual measuring via opened sight glass.	Open sight glass.		Fill in ingredients

5.3 The electronic timer SX 200

The built in timer is a microprocessor based digital timer housed in a standard DIN style case with a 72 mm (2.83 inch) square front bezel and a .3 inch high LED display.

The programmable features of the timer include eight time ranges and eight output operating modes. These operating modes, and all other set-up functions are programmed with miniature rocker switches located on the back of the housing.



1. 8-digit LED-display

2. LED annunciator steady on when programmed contacts are energized

3. LED annunciator flashes when timing, steady on when timed out.

4. Position key
5. Marking surface
6. Up- and down key to set the terms.
7. Set key
8. Enter key

5.3.1 Entering and Display Setpoints

To create or change a setpoint, press the set key. The display will either show zeros or the set point (if one exist) in memory. The other keys will also be active.

If the unit is operating when the set key is pressed, the timing operation and outputs are not affected.

When the set key is pressed, the display will show the least significant digit at the right of the display flashing in cursor fashion. The flashing digit is the one which can be changed using the up and down keys.

Pressing the position key moves the position of the flashing cursor digit to the left so thatany digit can be changed individually. The flashing cursor digit will return to the far right position if the position key is pressed repeatedly.

The flashing cursor digit can be changed by pressing the up and down keys.

Pressing the up and down keys changes the display digit once per key actuation. if the up and down key are held continuously, the display digits will change every .5 second until the key is released.

Note that the display changes will carry to the digit on the left on 9 to 0 transitions using the up key.
The display will substract from the digits on the left on the 0 to 9 transitions when using the down key.
On time ranges 7 and 8, the display will carry on the 59 to 00 transitions and subtract on the 00 to 59 transition.

When the desired setpoint is displayed, press the ent key. The new setpoint will be entered into memory, and the up and down keys will become inoperative.

If the unit is in the reset or timed out states, the display will show either zeros or the setpoint value depending on programming.

If the unit is in the timing mode the display will show the actual time value. If a new setpoint has been entered while the unit is in the timing or timed out operating states, the new setpoint will not become effective until the unit is reset.

The setpoint may be displayed at any time without disturbing the timing operation by pressing the set key.

5.3.2 Keypad Lock

The timer has a keypad lock function accessible on the front panel.

To actuate the lock, make sure that the display shows the actual value, then press and hold the ent key for 5 seconds.

The setpoint and pulse lenght value can be displayed while the keypad is locked by using the set key as dicribed previously.

When either of these setpoints is displayed with the keypad lock on, the least significant digit at the right of the display will flash in cursor fashion. However, the keypad lock disables the position, up and down keys so that no changes can be made.

To unlock the keypad, make sure the display is showing the actual value, then press and hold the the ent key for 5 seconds.

5.4 Mechanical product treatment.

What should happen	What to do	Key	The result!
Process product mechanically, i.e. slice, cut, mix, stir, emulsify, etc.	Switch on main motor	I	
	Turn mixing baffle slowly clockwise	**manual**	Product circulates to the working insert

5.5 Discharging the machine

If work is done under pressure or vacuum conditions you must equalize pressure via the aeration valve. Check the vacuum manometer to ensure that the machine is no longer under pressure before opening the machine lid.

What should happen	What to do	Key	The result!
Manual discharging via opened lid.	Unlock toggle seal Open lid Tip container	manual	
	Remove remains with a spatula.		Watch out for hidden knives.

6. Daily cleaning and maintenance

Cleaning, disinfection and sterilization are basic requirements of every process in the food production industry and technology. Additionally, thorough cleaning extends the life of the machine and in particular the seals considerably. Complete instructions for the cleaning and disinfection processes are to be found in the technical appendix. (See ” Cleaning and disinfection” on page 27.)

After production has been ended, cleaning the VCM 44 A/1 should should restore it to a germ-free condition ready for use. The frequency and intensity of cleaning and disinfection required depend fundamentally on the degree of contamination arising from the production process.

6.1 Cleaning procedure

Cleaning may be carried out manually with scrubbing brushes or with the assistance of machine functions according to the following table. High pressure hoses should not be used.

What to do first..	...and then carry out and double check!
Fill bowl to 2/3 full with warm water and add neutral detergent with disinfectant action. .	Fatty contamination is removed by water temperatures over the melting point of fat (50°C).
Close and lock lid. Turn mixing baffle slowly clockwise.	
Switch on main motor at low revs. to start with and then run for ca. 2-3 minutes at highest speed.	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.
Open toggle seal, open lid, tip and empty bowl. Rinse with clean water.	manual Wait until the cleaning water has come to rest to avoid splash danger.
Remove working insert from the motor shaft and clean working inserts separately. Clean the drill holes of the working insert should be cleaned with a bottle brush. Remove lid seal from the lid nut, clean and replace.	Take care when handling blades and working inserts. Never put bare hands into a full bowl. Concealed blades carry a high risk of cuts and injury.
Lacquered machine parts should be cleaned with a sponge and mild soapy water.	Never spray down motor, motor casing, switching cabinet etc., with water or cleaning solutions.
Use only a dry cloth to clean the electric equipment.	Electric equipment should only ever be cleaned dryly.

6.2 Maintenance work for 8 hour operation Maintenance work

When?	Where?	What to check...	...and what to do.	Page
Daily	**Shaft seals**	of the bowl/motor	Sight control of leakage once daily and after every cleaning	25
	Bowl and lid	Seals and running sleeves in the bowl	replace damaged seals clean running sleeves and replace them if wear is noticeable on the upper surface.	25
	working inserts	working inserts must be sharp and undamaged, if not,	they should be replaced. Blades should be sharpened. *(See " Sharpening the blades" on page 25.)*	20

7. Machine description

All parts of the VCM 44 A/1 which come into contact with food products are of non-rust stainless steel or other physiologically harmless material.

7.1 Motors

7.1.1 Main Motor

The main motor is a high-performance motor with a F/H insulation.

The main motor is directly flanged below the bowl. The processing insert is fitted onto the motor shaft and is locked in place by turning- like a bayonet locking.

The motor bearing shield B is designed as a counterweight to achieve a weight balance between bowl and main motor.

The motor shaft may be damaged if the main motor is switched on when working inserts or foreign bodies are in the machine. The use of force may damage the motor shaft and should therefore be avoided.

7.1.2 Shaft sealing of the main motor

The sealing of the main motor shaft is done by means of an integral seal system with two radial shaft seals (vacuum and pressure).

Axial immobilization is by means of 2 thread bolts with nuts.

Only the use of a completely undamaged sealing flange guarantees a perfect adjustabled bowl seal. A faulty seal must be replaced immediately, since it may damage the main motor. *(See " Daily cleaning and maintenance" on page 17.)*

We recommend you to store a complete replacement sealing system including running sleeves.

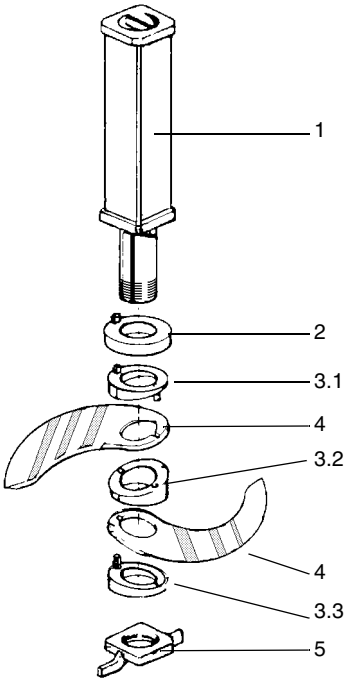
7.1.3 Mixing baffle

The manual moved mixing baffle promotes product circulation and scrapes the bowl and lid clean.

7.2 Working inserts

The working inserts are manufactured from highly resistant alloyed stainless steel. Their form and size are optimally suited to the motor performance, bowl shape and the process to be carried out.

7.2.1 Cutting insert



The cutting insert consists of:

PosNo.	Description
1	the knife shaft
2	a pressure ring
3	the slant ring set 1-2 3
4	two knives
5	the wing nut

The order-no. of the above stated parts you will find in the spare parts list.

The pressure ring (2) may be mounted over or under the slant ring set. This enables the higher or lower positioning of the knife set.
The slant rings (3) determine the angle of the knives. They are numbered from the top downwards and supplied with connecting pegs and drill holes.

Assembly and mounting of the cutting insert:

The following procedure is to be observed when assembling the cutting insert. The sharp beveled edge of the knife must always point towards the bowl floor to enable the required material circulation

After assembling the cutting insert, attach it to the insert holder of the machine frame with the wing nut (5) on top. Tighten the wing nut to the right with the specially designed spanner supplied.

Clockwise = tight Counterclockwise = Loosen

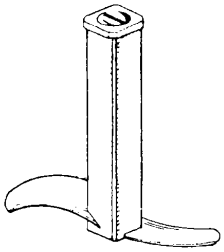
Do not put hands into the filled bowl!
Hidden knives - Cause of injury!

Use only sharp knives when processing with the cutting insert.

Dull knives should be sharpened on special sharpening machines using a wet honing technique. Remove grinding burr with a wet sharpening stone.

If it is not possible to sharpen the knives locally, please return it to the factory for sharpening.

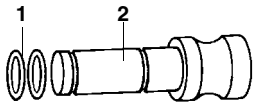
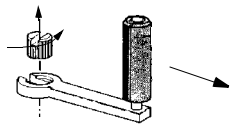
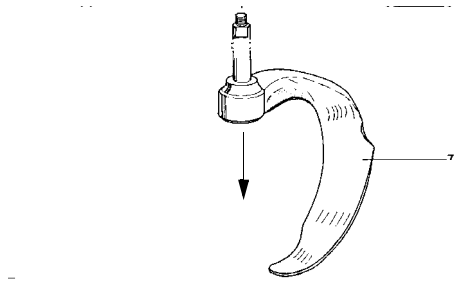
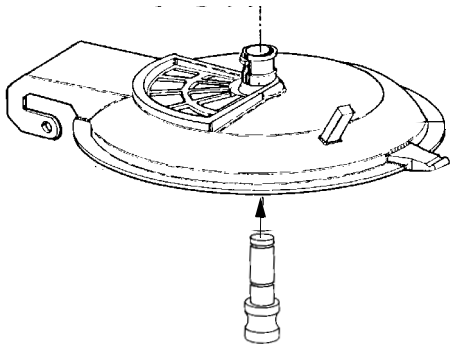
7.2.2 Stirring and Kneading insert



Using the stirring and kneading insert permits processing according the STEPHAN-Intensive-Kneading -Principle.
This principle permits achieving a higher mixture yield.
The mixture or dough can be processed further immediately without resting times (floor time).
The knife inclination is designed especially for this process
Loading capacity: 30kg, kneading time:
approx 2 minutes.

7.2.3 The white nylon stopper

This plug prevents any product leakage through the baffle hole when the mixing baffle is not used. It also prevents possible vertical movement of the inserts on the motor shaft.

How to use the stopper:	
	1 O-ring 3I0003-30 2 White nylon stopper 3K2629-10
	**Remove the mixing baffle from the bowl cover:** 1. Unscew knurled nut completely 2. Remove crank handle
	3. Pull out the mixing baffle downwards
	4. Insert the white nylon stopper, o-ring first from the inside of the bowl cover into the mixing baffle hole

7.3 Bowl

The bowl is the working space of the machine. The lid is secured to the bowl by 1 locking lever for safety. The seal between bowl and lid is by means of a specially designed silicon-rubber ring.

The machine can only be switched on if the lid is completely fastened since the lid safety switch mounted beneath the lid torsion of the bowl blocks all processing functions when the lid is open. This safety switch must not be removed.

7.3.1 Sight glass

The sight glass mounted on the lid permits dosing of liquid and powdery ingredients and to observe the production process during operation.

7.4 Safety features

Prevention of	Prevention by
Switching on of processing functions when lid is open	Limit switch in bowl hinge; pressing of "lid closed" key

7.5 Electronic equipment

The electronic equipment conforms to VDE-regulations 0113 and IEC 204-1. The switch cabinet and the machine are wired ready to be connected and conform to protection type IP 54.

Pressure spraying of the motor or the switch cabinet with water or cleaning solution is not permissible.
The mains connection to the switch cabinet must be laid and connected by a locally **authorized** electrician according to the wiring diagram.

The delivery and installation of the motor, control and pneumatic piping is included in the delivery of the machine.

7.5.1 Control

Control is manual by means of the push buttons.

Green buttons = ON

Red buttons = OFF

Control lamps indicates the function are switched on.

8. Fault repair

All repair work is only to be carried out by the appropriately trained specialists, who should observe both the general and specific accident prevention regulations. This particularly applies to all electrical work referred to in the following fault repair tables.
(See “5. Maintenance and repair, colored safety instructions iii)

8.1 Faults in the drive motors

Faults	Possible reasons	Repair
Motor will not start	Supply is not connected or wrongly connected, e.g., a 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	call in specialists to 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 nominal values, at least on starting. *(See ” Machine Data” on page 9.)*	Correct switching.
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 interturn short circuit	call in specialists to test and repair.
Motor runs in wrong direction	Motor is wrongly connected. *(See ” Rotational direction check” on page 12.)*	Exchange phases.
	Motor is wrongly switched.	call in specialists to test and repair.

Faults	Possible reasons	Repair
Motor overheats (only verifiable by measurement)	Mains voltage deviates by more than 5% from motor nominal voltage. *(See " Machine Data" on page 9.)* Higher voltages are particularly unsuitable for high polarity motors, since their no-load current is close to the nominal current even at normal voltages.	provide correct mains voltage.
	Motor is delta connected but designed for star connection	Install switching correctly
	Motor overloads	Reduce motor over-load by lesser loads.
	Nominal operating time is exceeded.	observe permissible operating time.
	Nominal duty type is exceeded. If for example the motor overheats because of too frequent switching, it is not sufficient to use a larger motor, since the same conditions will occur.	Restrict operation to the prescribed conditions of operation. Consult Stephan servicing personnel to determine the appropriate drive.
	Cooling air mass is too low, e.g., the cooling air paths are blocked.	ensure unimpeded access and exit for cooling air. Clean cooling fins
	Cooling air has warmed up.	provide fresh air, repair aerator.
Motor growls	Motor is wrongly connected.	call in specialists to test and correct.

8.2 Faults in the electronic equipment

Faults	Possible reasons	Repair
Machine won't switch	main switch is switched off	switch the main switch on
	safety limit switch is switched on	close the lid
	operating voltage is wrong	test the operating voltage
	control fuse is damaged	replace control fuse
Functions won't switch	excess-current cut-out works	reset excess current cut-out; call in specialists to test and repair the machine.

9. Maintenance

9.1 Sharpening the blades

Only sharpened blades should be installed. Blunt blades must be sharpened on special blade grinding machines. Blades should be wet-ground to prevent oxidation or drawing temper. Burrs should be removed wet with a whetstone.

Should competent grinding work not be possible on site, blades may be sent to Stephan for regrinding.

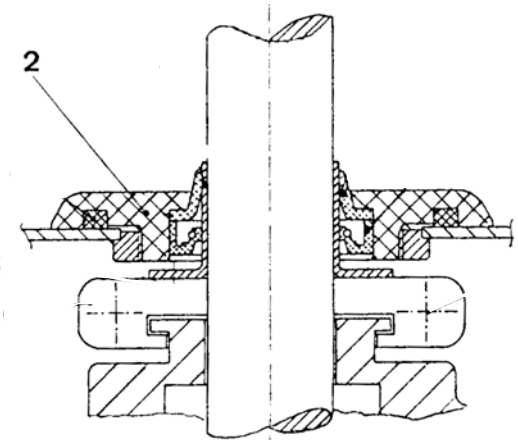
9.2 Changing the seals

If the machine may run under vacuum conditions, the pressure chamber must always be hermetically sealable. Leakage to the motor bearing shield may damage the motor. Therefore, the seals must be checked and cleaned daily.

Damaged seals must be replaced immediately. The running sleeve should be carefully cleaned at the same time. Should traces of broaching be detected, the running sleeves should also be replaced.

9.2.1 Construction of the motor shaft seal, standard

Shaft seal bowl/motor



Pos. No.	Description	Part No.
2	Sealing flange, complete	3K1012-03

Exchange the bowl seal

- Remove insert
- Unscrew complete sealing flange with the special wrench supplied with the machine.
- Loosen both countersunk screws and pull shaft sleeve over main motor shaft.
- It is recommended always to exchange sealing flange and shaft sleeve.
- Lubricate running surface of shaft sleeve with a food grade lubricant.
- Put new shaft sleeve over motor shaft and secure by means of countersunk screws.
- Pull new sealing flange over main motor shaft and secure by srewing it into the bowl bottom.
- Ensure that O-ring remains in its position, then tighten.
- Mount cutting or processing insert.

If major traces of wear on the sleeve are detected, the sleeve (3K0502-01) and the sealing flange (3K1012-03) must be replaced.

Special wrench for screwing the sealing flange

10. Cleaning and disinfection

The purpose of cleaning and disinfection is to break infection chains in the operation.

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

10.1 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 the worst 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-remains
- Disinfection.
- Rinsing with microbially pure water to remove remaining disinfectant.

10.1.1 Factors affecting the effectiveness of cleaning

The effectiveness of a cleaning process depends on the type of cleaning solution, the type of dirt and that of the surfaces to be cleaned, as well as the effective temperature, effective time and the relevant cleaning procedure.

The cleaning procedure appropriate to your machine has been described in the first part of the operating instructions. (See "Daily cleaning and maintenance" on page 15.)

Cleaning solutions

Water: The cleaning power of water may be fundamentally increased by numerous factors such as high temperature, pressure, efficient time, 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 (calc 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 rinsible state.

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

10.2 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, predominantly halogens (active chloride, iodine agents), hydrogen peroxide, peracetic acid, quaternary ammonium compounds and aldehydes are used as disinfectants.

10.2.1 Factors affecting the effectiveness of the disinfection process

A variety of factors play a role in the disinfection process and not only affect the duration and effectiveness of the whole process but also strengthen or weaken each other as the case may be.

Efficient time

The functioning of a disinfectant involves an exponential, rather than sudden, inactivation or extinction of microorganisms. The longer the disinfectant has to work, the better will be the disinfection result. Disinfection of the hands generally requires 0.5 to 3 minutes, while the disinfection of surfaces requires 1 to 6 hours.

Initial germ level

The necessary efficient time to achieve a particular disinfection result is lengthened by the extent of the initial germ level.

Concentration

The speed of germ killing can be fundamentally increased by the use of a higher concentration of the disinfectant. The use of higher concentrations is limited by problems of toxicity on 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 while a temperature reduction lowers the anti-microbial effectiveness. 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

The 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 products and iodine products is particularly strongly affected.

Always observe the manufacturer´s usage and safety instructions when using cleaning and disinfecting agents! Misuse may cause: serious damage to health, increased residues in foodstuffs and corrosion of the machine.

10.2.2 Disinfection procedure

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

Removable short pipe 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).

11. Replacement and spare parts

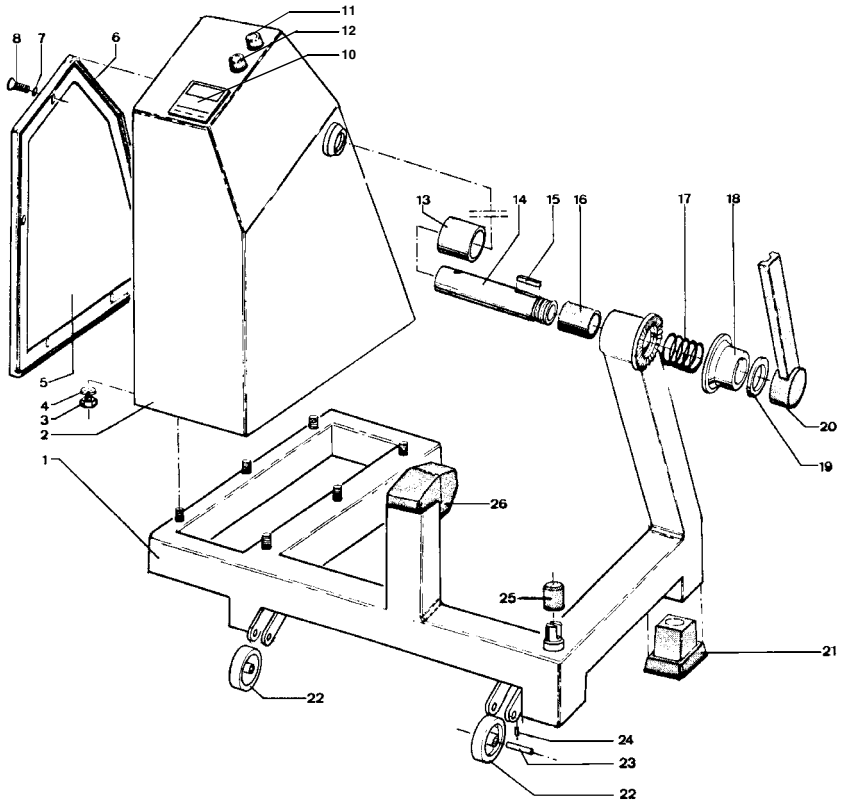
The installation and use of non-Stephan parts may reduce the safety and functioning of the machine. We accept no liability for any resulting damage or injury.

When taking orders for spares, we require the following information:

1. the machine type = VCM 44 A/1,
2. the order number= see cover,
3. module, description and order number from the spares lists.

These data reduce the need for inquiries by our customer services and speed up delivery. You should store replacements in readiness.

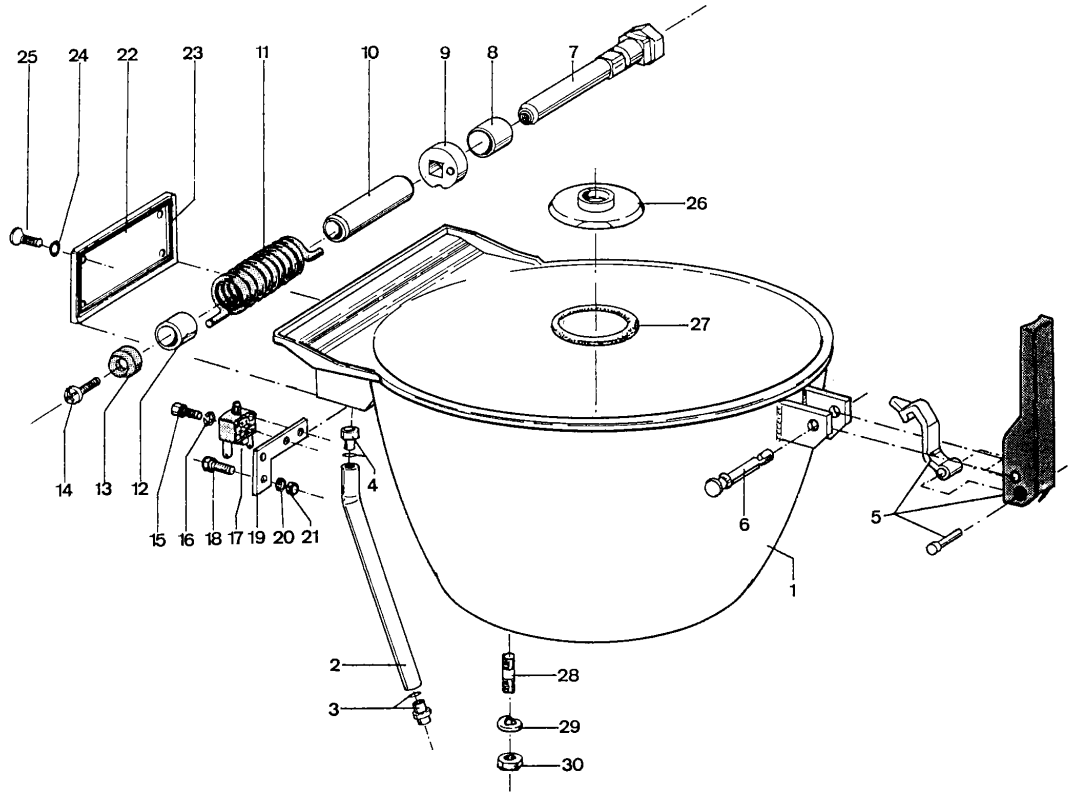
11.1 Stand



Pos. No.	Qty.	Description	Dimensions	Part No.
1	1	support	with rolls	3A2010-05
2	1	switch cabinet	Polyamid	3F0032-01
3	6	hex. nut		
4	6	spring washer		
5	1	door f. switch housing		
6	2	cellular rubber sealing		
7	5	O-ring		
8	5	countersunk screw		
9	2	cap for pushbuttons		
10	1	timer digital	SX 200 A6	3Q4021-01
11	1	pushbutton	D3A 1 GG/DA 11	3Q6032-11
12	1	pushbutton	D3A 1 GR/DA 11	3Q6032-10
13	1	distance piece		3K0532-26
14	1	bearing bolt		3K2591-01
15	1	feather key	AB 10 x 8 x 40	3S0284-02
16	1	bearing bush		3K0535-03
17	1	pressure spring f.locking		3M6001-22
18	1	locking disc		3K0738-01
19	1	distance disc		
20	1	locking lever		3M2450-02
21	4	rubber foot		3M4057-03
22	2	pevolon wheel		3S4004-10
23	2	hexagon head screw		
24	2	hexagon nut	M10, self-locking	3S0205-06

Pos. No.	Qty.	Description	Dimensions	Part No.
25	1	cap f.tool holding fixture		3M4072-02
26	1	rubber buffer		3M4065-02

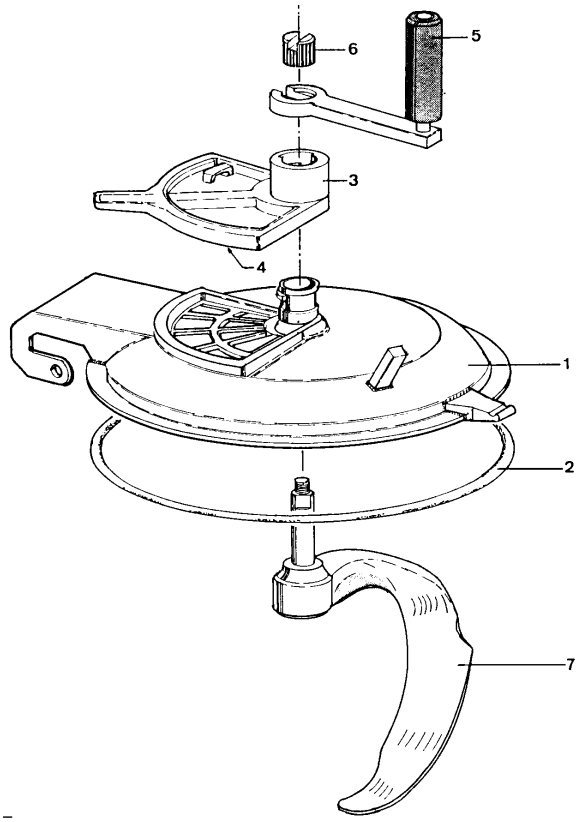
11.2 Bowl, standard



Pos. No.	Qty.	Description	Dimensions	Part No.
1	1	Bowl, ceramic-blasted		3B0210-01
2	1	Cable tube		3M0020-01
3	1	Guide bush		3K0401-03
3		O-ring für Pos. 3	2-014	3I0001-06
4	1	Bush		3K0401-04
5	1	Locking lever , compl.		3G0025-01
6	1	Bolt for locking lever		3K2556-01
7	1	Lid bolt		3K2426-01
8	1	Bearing bush for Pos. 7		3K0401-04
9	1	Curved disc		5K0712-00
10	1	Bush for lid bolt		3K0531-02
11	1	Torsion spring		3M6003-04
12	1	Bearing bush for lid bolt		3K0401-03
13	1	Cap for lid bolt		3K0307-01
14	1	raised countersunk screw		
15	2	Socket head cap screw		
16	2	Spring washer		
17	1	Position switch	TI2-U12 W	3Q6021-02
18	2	Hex.nut		
19	1	Holding plate for limit switch		3L0806-02
20	2	Spring washer		
21	2	Hex. nut		
22	1	lid for terminal box		3M2282-02
23	1	Lid seal		3I0115-01
24	4	O-ring	2-009	3I0001-02

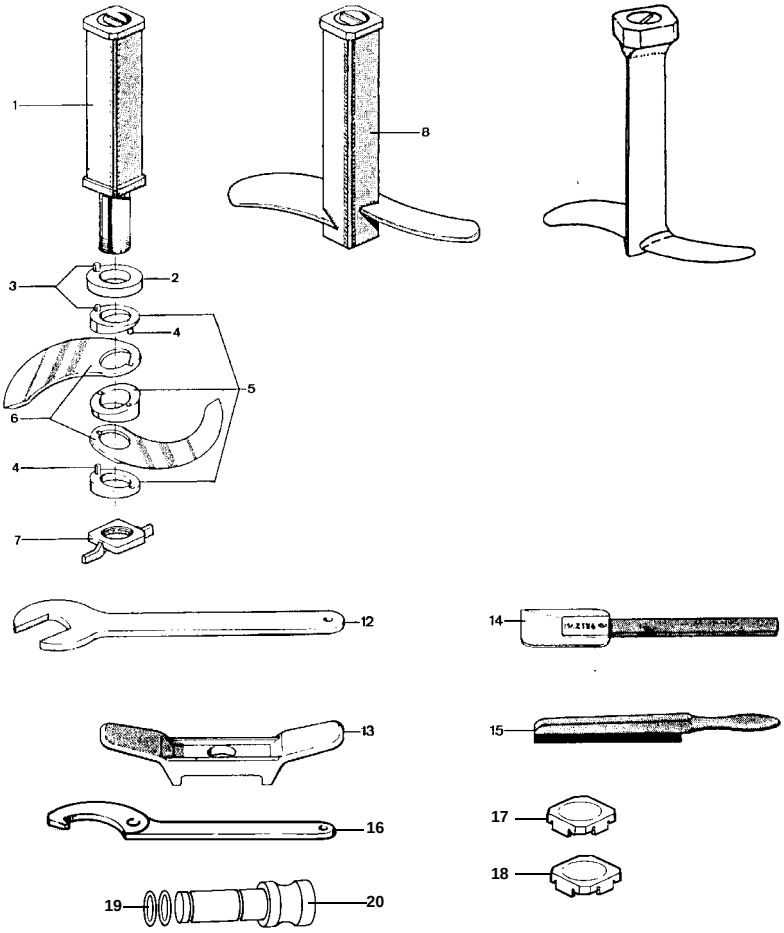
Pos. No.	Qty.	Description	Dimensions	Part No.
25	4	Countersunk screw		
26	1	Sealing flange, complete		3K1012-03
27	1	O-ring	75 x 5/55 shore	3I0007-04
28	4	Threaded pin	M 10 x 20, DIN 939	3S0122-07
29	4	Spring washer		
30	4	Hex. nut		

11.3 Lid, standard



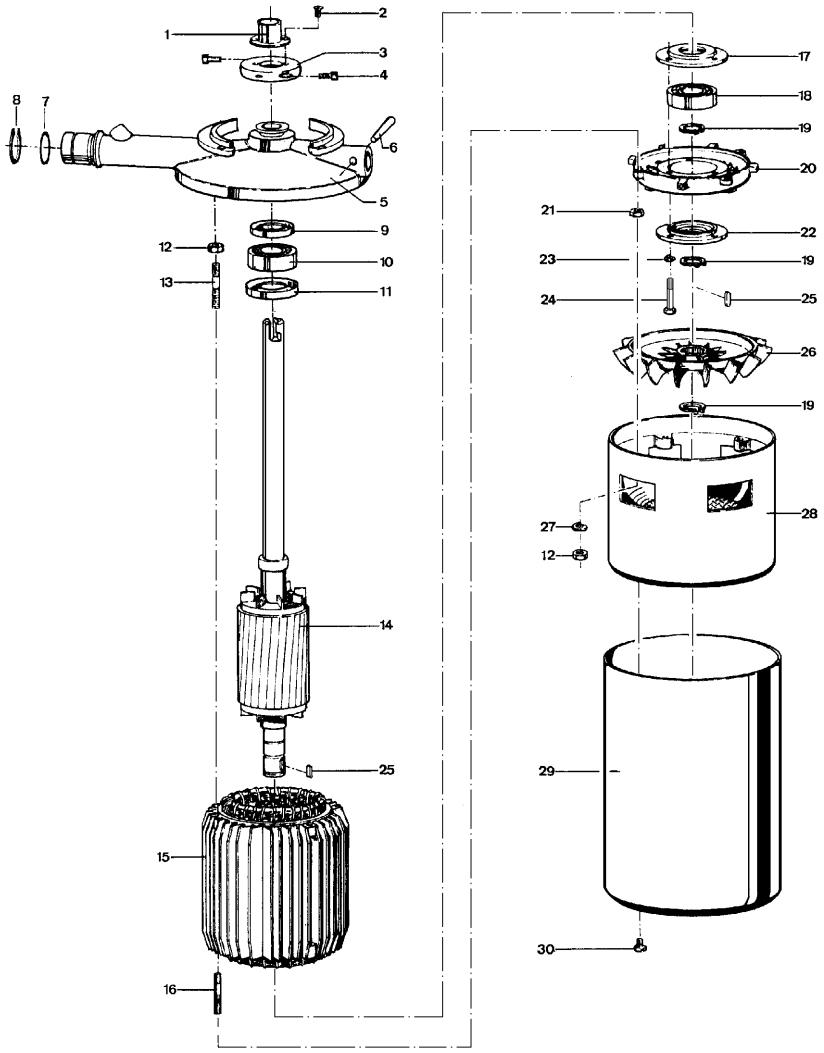
Pos. No.	Qty.	Description	Dimensions	Part No.
1	1	Lid with sight glass	stainless steel, ceramic-blasted	3B6220-02
2	1	Lid seal	13,5 x 449,5	3I0100-01
3	1	Cover of sight glass, complete		3M4023-03
4	1	Lid seal for sight glass		3I0112-02
5	1	Crank handle, complete		3G0051-02
6	1	Knurled nut		3K0027-01
7	1	Mixing baffle, complete	vacuum execut.	3D2022-03
8	1	bearing bush (without ill.)	28-33-73	3K0535-02

11.4 Working inserts



Pos. No.	Qty.	Description	Dimensions	Part No.
1	**1**	Knife shaft, complete, without knives	ceramic-blasted	**3D0150-02**
2	**1**	Pressure ring	UM 44.05-10 217, 1.4571 V4A	**3K0310-02**
3	**2**	Pin		**3**
4	**2**	Pin		
5	**1**	Slant ring set complete. with pins	SKU 40.05-16, 1.4571 V4A	**3K0315-01**
6	**1**	**Set = 2 pc. small knives**	**SKU 40.05-13**	**3D0006-07**
7	**1**	**Wing nut for knife shaft**		**3K0008-05**
8	**1**	**Mixing insert**		**3D4038-02**
Tools:				
12	**1**	Open-end spanner	SW 50	**3H6002-02**
13	**1**	Wrench	SKU 25.02-32	**3G6015-02**
14	**1**	Dough scraper	No. 2134	**3H6000-01**
15	**1**	Whet-stone		
16	**1**	Hook wrench, variable		
17	**1**	Cap for stainless steel inserts	15x1,5x65	**3M4072-01**
18	**1**	Cap for aluminium inserts	20x2x45	**3M4072-03**
19	**1**	O-ring for stopper	3-119	**3I0003-30**
20	**1**	Stopper, white, polyamide	40x148	**3K2629-10**

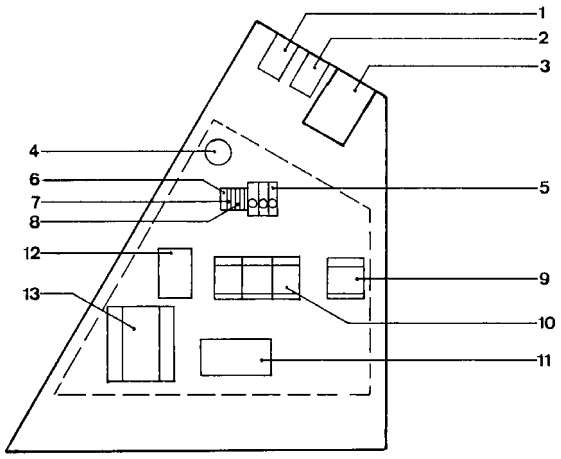
11.5 Motor Type 132



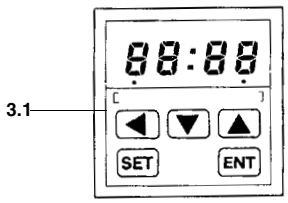
Pos. No.	Qty.	Description	Dimensions	Part No.
	1	Motor kompl.	FD132 S/4	3C0133-19
1	1	Shaft sleeve		3K0502-01
2	2	Countersunkscrew	M 5 x 8, DIN 963	3S0092-01
3	1	Splash disc		3K1101-05
4	2	Socket head cap screw	M 6 x 25, DIN 912	3S0062-04
6	1	Taper pin	10 x 40, DIN 1	3S0275-10
7	1	O-ring	2-029	3I0001-10
8	1	Securing ring	42 x 1,75, DIN 471	3S0290-02
9	1	Shaft seal	BA 30 x 50 x 7	3I0051-15
10	1	Ball bearing	6306-2RS	3S2001-23
11	1	Shaft seal	BA 45 x 72 x 10	3I0050-30
12	8	Hex.nut	M 8, DIN 934	3S0200-05
13	4	Threated pin	M 8 x 22, DIN 939	3S0121-01
14	1	Rotor		
15	1	Stator		3C4008-0X

Pos. No.	Qty.	Description	Dimensions	Part No.
16	4	Threated pin	M 8 x 45, DIN 939	3S0122-02
17	1	Bearing cover	WSK 3563-09	3K4550-04
18	1	Ball bearing	6306 Z, DIN 625	3S2001-22
19	3	Securing ring	30 x 1,5 DIN 471	3S0290-16
20	1	Bearing shield	WSK 3598-07	3K4634-04
21	4	Hex.nut	M 8, DIN 439	3S0203-01
22	1	Bearing cover	WSK 3563-08	3K4634-04
23	3	Spring washer	B 5, DIN 127	3S0246-02
24	3	Hex.screw	M 5 x 45, DIN 931	3S0011-01
25	1	Feather key	A 8 x 7 x 30	3S0280-05
26	1	Cooling fan	MV 132 R / 30 PPN	3C6001-01
27	4	Spring washer	B 8, DIN 127	3S0246-04
28	1	Fan cover		3C6054-02
29	1	Cover for motor	lacquered	3L0003-01
30	3	Flat head screw	M 6 x 12, DIN 85	3S0056-01

11.6 Electrical equipment VCM 44 A/1



Machines with push buttons



Pos. No.	Qty.	Description	Dimensions	Part No.
1	1	**Control lamp**	**RLF-ws / BF 110**	3Q0600-10
1		**Spare lamp for Pos. 1**	**GL 130**	
2	1	**Push-button - ON**	**D3A 1GG/DA 11**	3Q6032-11
2		**Contact block**	**DA 11**	3Q0094-05
2	1	**Push-button - OFF**	**D3A 1GR/DA 11**	3Q6032-10
2		**Contact bock**	**DA 11**	3Q0094-05
		(Optional) Additional equipment:		
3.1	1	**Digital timer**	**SX 200 A6**	3Q4021-01
	1	Two step controller	DMP 96 A, 230V	3Q2024-10
	1	Two step controller	DMP 96 A, 115V	3Q2024-11
	1	Two step controller	DMP 96 A, 24V	3Q2024-12
4	1	insulating sleeve	423	
5	2	Fuse terminal	SAK 53/32	
6	1	Earth terminal	EK 4/35	3Q0515-21
7				
8	4	Terminal	SAK 4/35	3Q0520-09
9	1	Control relay	DIL R 31	
12	1	Heater	SK 3105 / 10 W	3H2170-03
14				
15	1	Motor protection switch	PK M1-4.0/Hi 10	3H6007-11
16	1	Cooling fan SK 3165	110V/ 50/60Hz	3H2180-03
		Magnet switch	MAK 1212 F	3Q6003-05
		Switch magnet	TK 21	3Q6005-01
The electrical equipment of your machine is made according to the machine type and the order confirmation. The wiring diagram of your machine you will find separately in the switch board				

12. Serviceadressen / Service adresses / Adresse du SAV

Stammwerk:
Stephanplatz 2
31789 Hameln
GERMANY
Telefon: 05151 / 583-0
Telefax: 05151 / 583-110
Email: Vertrieb@stephan-machinery.com
Service@stephan-machinery.com

Ausländische Tochtergesellschaft / Foreign Subsidiaries / Filiales à l´étranger:

Frankreich
France
France
Sympak France S.A.R.L
ZAC du Madinet
Parc d'affaires SILIC
Rue de Campanules
F-77185 LOGNES
phone. +33 (1) 64 80 54 30
fax+33 (1) 60 06 74 14
stephan@stephan-france.fr

Stephan UK Ltd.
Regus House
Herons Way
Chester Business Park
Chester
CH4 9QR
UK
phone. +44 (0)12 44 89 32 23
fax +44 (1244) 89 31 01
info@stephan-uk.co.uk

Die Niederlande
The Netherlands
Les Pays-Bas
Stephan Nederland B.V.
Plesmanweg 15
Postbus 441
NL-7602 PD Almelo
phone. +31/546/ 87 41 11
Telefax+31/546/ 86 45 46
info@stephan.nl

Schweiz
Switzerland
Suisse
Stephan Machinery GmbH & Co.
Verkaufsrepräsentation Schweiz
Gewerbehaus Tüfiwies
Schickmattweg 8
CH-8332 Russikon
phone. 0041/1/955 06 08
fax 0041/1/955 06 88
Mobil 0041/079/355 90 92
a.stephan@bluewin.ch

OOO Sympak St. Petersburg Branch Office-Stephan Division-
Business Center "Evro-Auto" 3rd Floor, Office 332
Levashovskiy Pr. Dom 13, Litera G
197110 St. Petersburg
RUSSIA
phone. 007 /812/1 02 11 84
fax 007 /812/ 1 02 11 87
stephan@infos.ru

Belgien
Belgium
Belgique
Stephan bvba
Sluis 11
B-9810 Eke/Nazareth
phone. +32 (9) 385 83 55
fax +32 (0) 385 81 87
info@stephan-belgium.be

Sympak Inc.
-Stephan Division-
1385 Armour Boulevard
Mundelein, IL 60060
USA
phone.001/847/ 2470233
fax. 001 / 847 / 2 47 02 32
sales@stephan-usa.com

Singapore
Stephan Machinery
Singapore Pte.Ltd.
23 Tagore Lane #03-12
Tagore 23 Warehouse
Singapore 787 601
phone. +65 /6455 / 76 70
fax +65/6455 / 62 20
sympak-asiapacific@sympak.com

OOO Sympak Moscow Head Office-Stephan Division-
Sretenskiy Boulevard 6/1,
Korpus 2, Office 101
101000 Moscow
RUSSIA
phone. 007 /095/9 37 59 25
fax 007 /095/ 9 37 59 26
sympak-russia@sympak.com

Office Poland
Company Konsultingowa
Ul. Paslecka 14
PL-60-454 Poznan
phone. 0048 / 61 / 848 92 52
fax 0048 / 61 / 848 92 52
jan.danielewski@neostrada.pl

Vertretungen in über 40 Ländern. Anschriften auf Anfrage
Agencies in more than 40 countries, details on request.
Des agences dans plus de 40 pays. Adresses additionelles sur demande

Index