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Instructions

UNIVERSAL MACHINE

VCM 44 A/1

Exemplary illustration. Delivery item can vary.

Stephan

Information page

Machine type	Universal machine
Type designation	VCM 44 A/1
Serial number	
Year of manufacture	2022
Manufacturer	Stephan Machinery GmbH Stephanplatz 2 31789 Hameln Germany
Service / Sales	+49 5151 5830
Manual version	A.1
This documentation is a translation of the original operating instructions.	

Fitted modifications

Title | Model no.	Modification carried out | Operator	Date

Table of contents

1. General information

1.1 List of abbreviations

Term	Definition
AFS	Axial face seal. Seal used to seal machine housings or process vessels at protruding shafts.
at	Describes a pressure indication in relation to the ambient pressure.
Emulsion O/W	Oil-in-water emulsion A mixture of water and oil with proportionally more water. See also definition of **Emulsion**.
Emulsion W/O	Water-in-oil emulsion A mixture of water and oil with proportionally more oil. See also definition of **Emulsion**.
IP	**I**nternational **P**rotection The abbreviation IP and a two-digit figure indicate the protection rating of a housing.
LED	**L**ight **E**mitting **D**iode
MMC	Multimedia card A digital storage medium.
MV	Manual version
P_{abs}	The absolute pressure is described as P_{abs}. Absolute pressure is assumed to start at 0 bar. This is also the maximum (theoretical) negative pressure possible. Atmospheric pressure measured at sea level is 1 bar. All measuring instruments and values in the system indicate relative pressure. This is based on atmospheric pressure. P_{abs} > 1 bar = Overpressure P_{abs} > 1 bar = Negative pressure
WDR	Shaft sealing ring. Seal used to seal machine housings or process vessels at protruding shafts.

1.2 Definition of terms

Term	Definition
Authorised specialist	An authorised specialist is a specialist who has been trained by an authorised service dealer or a company that has been commissioned by the manufacturer.
Contamination	The contamination of rooms, objects, foodstuffs, ground, air and water by microorganisms and other contaminants.
Cursor	Marks the current position being processed. Shows the position on the screen where inputs can be entered.

Term	Definition
Cyclone principle	The cyclone principle is a method of removing particulates from a gas by establishing a high speed rotating flow and, therefore, increasing the centrifugal force affecting the particles. This accelerates them radially outward and separates them from the gas flow that is sucked inward.
Disinfection	Kills off bacterial pathogens or other harmful microorganisms using chemical agents and/or heat treatment.
Emulsion	An emulsion is a finely distributed mixture of two or more immiscible liquids. In the process, a liquid is dispersed in the other one in small droplets. Droplets are broken down by intensive shearing; the two liquids are dispersed by agitating vigorously.
F insulation H insulation	Classification of the insulation classes F stands for the normal version with an excess temperature limit of 105 °K and a maximum permissible constant temperature of 155 °C. H stands for the tropic-proof version with an excess temperature limit of 125 °K and a maximum permissible constant temperature of 180 °C.
Instructed persons	An instructed person is a person who has been instructed on the possible risks resulting from improper behaviour when carrying out an assigned task. They are also informed regarding the necessary protective equipment and protective measures, and have been trained for the task concerned, if necessary.
Machine safety	The term “machine safety” refers to all the measures used to prevent injury to persons. The basis for machine safety are national and EU-wide directives and laws for protecting users of technical devices and systems.
Microorganisms	Micro-organisms are microscopically small, unicellular lifeforms. Microorganisms are also referred to as germs.
pH value	The pH value describes the acid content of substances. The range between pH 0 and pH 6 describes acid substances and the range between pH 8 and pH 14 describes basic (alkaline) substances. Water with a pH value of around pH 7 is neutral.
Pressure Equipment Directive	The European Pressure Equipment Directive 2014/68/EU. This directive regulates the technical dimensioning and documentation of vessels, pipelines, equipment parts with a safety function and pressure maintaining parts that are exposed to a permissible overpressure of more than 0.5 bar.
Production safety	The term of production safety defines measures that are necessary to guarantee adequate safety of the quality when processing with systems and machines. Furthermore, the term “production safety” includes measures to ensure the safety of these products for consumers.
Sinner's circle	A circular diagram that illustrates how the cleaning process can be organised by means of the factors: chemical action, mechanical action, temperature and time.
Specialist	A specialist is a person who can assess work assigned to them and recognise any potential hazards of their own accord thanks to their professional training, knowledge, experience and familiarity with the relevant regulations.
Sterilisation	The objective of sterilisation is to destroy or neutralise all microorganisms that are capable of reproducing in or on a substance.
Viscosity	The term “viscosity” describes the resistance of liquid, semi-fluid or dough-like masses to their movement. Generally, viscosity determines the behaviour of the liquid in pipelines when pumping, stirring and filling.

1.2.1 IP protection type

The abbreviation IP stands for ingress protection. The abbreviation IP and a two-digit figure determine the protection rating of a housing.

1. Figure (protection against contact and the ingress of foreign objects)

2. Figure (protection against the ingress of water)

First digit: Protection against solid foreign objects		Second digit: Protection against water	
0	No protection against contact, no protection against the ingress of solid foreign objects.	0	No protection against water.
1	Protection against large-area contact with the hand, protection against foreign objects with a diameter >50 mm.	1	Protection against vertically falling water drops.
2	Protection against contact with fingers, protection against foreign objects with a diameter >12 mm.	2	Protection against water dropping at an angle (at any angle up to 15° from the vertical).
3	Protection against contact with tools, wires, etc. with a diameter >2.5 mm, protection against foreign objects with a diameter >2.5 mm.	3	Protection against water at any angle up to 60° from the vertical.
4	Protection against contact with tools, wires, etc. with a diameter >1 mm, protection against foreign objects with a diameter >1 mm.	4	Protection against splashing water from any direction.
5	Protection against contact. Protection against dust deposits in the interior.	5	Protection against water jets (projected by a nozzle) from any angle.
6	Complete protection against contact; protection against the ingress of dust.	6	Protection against temporary flooding.
		7	Protection against ingress of water during temporary immersion.
		8	Protection against pressurised water during continuous immersion.

The protection type provided for this machine can be found in the table in the Technical data [► 20].

1.3 Orientation guide

Front: the main operating side or the main work area.

Rear: the opposite side to the main operating side.

Top and bottom: referred to the main operating position, which is also described as the basic position. The lid in its closed position covering the bowl referred to as the basic position. Further meanings of “top” and “bottom” are derived from the basic position.

1.4 Instructions on using the manual

This manual is structured in functional and task-oriented sections.

Facts that have been previously explained are not repeated, unless the repetitions are important for safety.

1.5 Indications and Images used throughout the manual

DANGER	Brief description of the hazard
	There is a high risk to life and limb of the user and/or third parties if the instructions are not followed in detail or the circumstances described are not taken into account. The type of hazard is marked by a symbol and described in more detail in the accompanying text.

WARNING	Brief description of the hazard
	There is a moderate risk to life and limb of the user and/or third parties when the instructions are not followed in detail or the circumstances described are not taken into account. The type of hazard is marked by a specific symbol and described in more detail in the accompanying text.

CAUTION	Brief description of the hazard
	There is a low risk of injury or a risk of damage to property or to the production conditions if the instructions are not followed in detail or the situations described are not followed correctly. The type of hazard is marked by a general symbol and described in more detail in the accompanying text.

IMPORTANT NOTICE	Brief description of important additional information
	Attention is drawn to special conditions or additional important information on the respective subject.

NOTICE	Brief description of additional information
	Contains additional information on making work easier or recommendations on the respective subject.

1.6 Warning symbols used

The relevant points on the machine are marked with warning symbols if there is or may be a threat to life and physical well-being for the system/machine operator and/or third parties when they are performing tasks.

Warning symbols are also used in these operating instructions to indicate hazards that may occur during different operating steps or maintenance procedures. In both cases, the warning symbol provides information about the hazard type and situation.

The following warning symbols are used:


General hazardous area


Warning of electrical voltage


Warning of hand injuries


Warning of automatic start-up


Warning of heavy loads


Warning of hazardous substances


Warning of cutting injuries


Warning of hot surfaces

1.7 Prohibition signs used

Prohibition signs are safety signs that prohibit behaviour that may result in a hazard. The following prohibition signs may be used:


Do not spray with water

2. Safety instructions

The following safety instructions are intended to make the use of the machine safer for the operating and maintenance personnel. This prevents faults in advance and ensures an optimal working process.

2.1 Technical modifications

IMPORTANT NOTICE	**Technical modifications to the machine**
	If the operator or a third party makes any modifications to the machine without the manufacturer's prior consent, there is no liability on the part of the manufacturer for any resulting consequences. If the operator makes any technical modifications to the machine that may lead to new risks of damage, this will invalidate the CE marking. If it is a “significant modification”, the modified machine is treated as a new one. This requires a new CE marking. The person who makes the significant modifications becomes the manufacturer and accepts liability for the product. Any modifications to the safety equipment may be carried out by the manufacturer only.

2.2 Safety instructions for general machine safety

The following points must be observed to comply with the machine safety requirements:

- All modifications or retrofits to the machine are only permitted after receipt of the manufacturer's written agreement.
- The safety instructions given in these operating instructions must be observed.
- The details and contents of the operating instructions, such as applicable local legal regulations and in-house safety guidelines, must be observed.

2.3 Safety instructions for general production safety

Pay attention to the following points to ensure production safety:

- Optimum production safety can only be achieved if the details and contents of the operating instructions, such as applicable local legal regulations and in-house safety guidelines have been read, understood and are complied with.
- Hygiene is a decisive factor in the quality of foodstuffs. Each person involved in the production process significantly contributes to production safety by careful behaviour and compliance with the regulations and guidelines.
- All modifications or retrofits of the machine are only permitted in consultation with the manufacturer.
- The use of substances that have not been specified in these operating instructions may pose a significant safety hazard for persons and the machine.

- Using unsuitable spare and wearing parts may pose a significant safety hazard for persons and the machine. Only the use of spare and wearing parts provided by the machine manufacturer ensures optimum safety.
- Avoid standing in the working area of the bowl and lid.

2.4 Instructions on personal safety equipment

It may be necessary to wear safety goggles and gloves.

2.5 Safety instructions for handling and operation

Pay attention to the following points when operating the machine:

- The machine must only be operated by personnel who have respective qualifications or after a training course given by professional staff.
- The safety equipment on this machine must not be deactivated. Safety systems protect against accidents and injury.
- The messages on the display devices must be observed.
- Pressure states must be checked and observed. There must be no overpressure in the product vessel before the lid is opened.
- Reaching into the bowl can lead to severe injury caused by machine tools with sharp edges.
- Incorrectly or only partially fixed tools and machine parts increase the safety risk. Rotating blades may loosen and become a hazard.
- When switching on the machine, no foreign objects are allowed to be located in the machine. This may cause damage to machine parts.
- The limit values listed in the machine specifications must be observed and not exceeded under any circumstances.
- Make sure adequate ventilation is provided for blind double jackets. It is not permitted to fill blind double jackets with liquids (e.g. for the purpose of insulation), because due to heating of the product an impermissible high pressure can be built up in the double jacket.

2.6 Safety instructions on maintenance and care

Pay attention to the following points during maintenance and care:

- It must be ensured that the machine and the peripheral devices are switched off and disconnected from the mains during maintenance and care.
- Never spray the machine with water, even after disconnecting it from the mains. Only clean the machine frame using a cloth moistened with cleaning agent.
- Reaching into the bowl can lead to severe injury caused by machine tools with sharp edges.
- Only use soft mechanical cleaning aids such as brushes and soft scrapers that cause no damage.
- Do not use intensive corrosive cleaning solvents.

2.7 Safety instructions on fault repair

Pay attention to the following points during fault repair:

- Only authorised specialists may carry out fault repairs.
- When performing maintenance and fault repair, make sure that the machine and peripheral devices are switched off. Disconnect the machine from the mains and secure it against reactivation when working on the electrical system.
- The EMERGENCY STOP switch is only to be used in “Emergency” situations, such as processes or movements that may result in a hazard. The EMERGENCY STOP switch must not be used as a main switch.
- Activating the EMERGENCY STOP switch stops all mechanically operated parts of the machine in order to put the machine in a safe condition.
- After actuating the EMERGENCY STOP switch, parts of the control system are still live.
- The machine does not restart automatically after the EMERGENCY STOP switch has been released. The machine must be restarted for a new production run.
- Pressure states must be checked and observed. There must be no overpressure in the product vessel before the lid is opened.
- Close the on-site media inlet during fault repair.
- Observe the applicable local regulations for accident prevention.
- Observe the fault messages of the machine.
- All inspection and maintenance work must be carried out by authorised specialists only.
- Avoid standing in the working area of the bowl and lid.
- Observe the fault messages of the machine.
- Check all the safety systems and protection equipment to ensure that they are complete and function correctly after fault repair.
- Before the production operation is released, the instructions for commissioning must be observed and a functional check must be carried out.

2.8 Information on specific hazards

Electrical energy

- Disconnect the machine immediately from the mains at the main switch if disturbances in the electrical power supply occur.
- All work on electrical systems and equipment is to be carried out only by a qualified electrician or by instructed staff under supervision and monitoring of a qualified electrician according to the relevant electro-technical regulations.
- All parts of the machine requiring inspection, maintenance work or troubleshooting must be de-energised before starting work if power is not required for such tasks. This must only be carried out by a qualified electrician.

3. Machine hygiene

3.1 Microorganisms

3.1.1 Definition

Microorganisms are microscopically small, mostly unicellular lifeforms. Microorganisms are also referred to as germs.

The following are differentiated:

- Bacteria
- Fungi (yeasts)
- Viruses

Microorganisms multiply by dividing cells. Under certain conditions, bacteria may divide and reproduce about every 20 minutes. This means that a single bacterium can increase the number of bacteria to over 8 million in 8 hours (exponential growth of 2^{23}) when it divides.

3.1.2 Multiplication factors

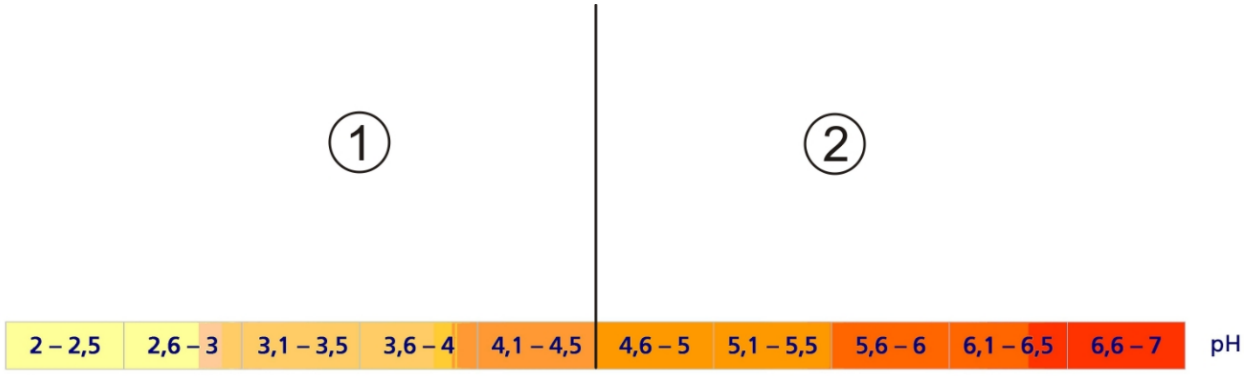
The following multiplication factors play a significant role in helping microorganisms to spread:

- High level of moisture
- Temperature (20 °C to 60 °C)
- pH value

3.1.3 Effect of pH value on the growth of microorganisms

Bacteria prefer a neutral or slightly acidic environment (pH value between 4.5 and 7) These conditions are present in foods such as milk, meat, poultry, fresh fish and many types of vegetables. Yeasts and fungi prefer a highly acidic environment (pH value under 4.5). These conditions are present in many fruits and juices.

Different products have different pH values.



1 High Acid e.g. iced tea, sport drinks, fruit juice and nectar

2 Low Acid e.g. milk, milk-based drinks, probiotic drinks

Changes in the pH value inhibit the growth of microorganisms (the pH value changes to one adversely affecting survival). As a result, the entire pH range must be covered during cleaning.

3.2 Production hygiene

The machine may become contaminated by germs during production or maintenance work. The following factors can cause germs:

- poor hygiene on the part of operating and maintenance personnel
- product and recipe ingredients
- packaging materials
- insects
- rinsing water
- unrestricted entry of external air, or in the supply or exhaust air
- leakage spots (damage caused during operation).

Germs multiply particularly well in the following areas:

- in hollow spaces
- in the supply and waste disposal lines (contamination against the flow direction)
- in accumulated liquids (condensate)
- on rough surfaces
- in cracks and cavities of all types
- on or in product residues and miscellaneous impurities

3.3 Cleaning, disinfection and sterilisation

A prerequisite for germ-free, high-quality production is that the machine and the production environment are spotlessly clean. Before commencing and after ending production, the machine and the production area must be cleaned, disinfected and, if necessary, sterilised.

Follow the steps below to ensure optimal cleaning:

1. Physical cleaning (rinsing with water and removing loosely stuck impurities from the surfaces).
2. Chemical cleaning (removing visible and microscopically small residues, fats and proteins using cleaning agents).
3. Bacteriological cleaning (disinfection).
4. Sterile cleaning (killing all microorganisms).

Thanks to the sequence of steps, there is no contamination from cleaning materials already used, such as sponges, brushes or washing solutions. This guarantees optimal machine cleaning and sterilisation.

3.3.1 Basic information on cleaning

Cleaning removes coarse and fine dirt, even in difficult-to-access spots. Auxiliary materials such as brushes, scrapers or sponges can be used to help with cleaning. Auxiliary materials must not damage the machine's surface.

Observe the following points when cleaning:

- The cleaning water must be drinking water quality.
- Commercial cleaning agents enhance the cleaning effect.
- Rinse the bowl out to remove any product residues loosely attached.
- Clean the production environment using water in accordance with the given conditions.
- Loosen impurities that are stuck persistently using a brush or a scraper.
- Then rinse with hot water (75 °C to 85 °C or 167 °F to 185 °F).

3.3.2 Basic cleaning procedure

Manual cleaning is generally only suitable for surfaces that do not come into contact with the product. Auxiliary materials such as brushes, scrapers or sponges pose a risk to hygiene. Exceptions to this are smaller machines and machine parts which are cleaned manually in connection with the use of chemical cleaning agents (foam cleaning).

Observe the following points when cleaning:

- All equipment and rooms must be cleaned after completion of production.
- The water used for cleaning must have drinking water quality.
- Cleaning agents and disinfectants must not be used at the same time. The effect of the disinfection agent may be reduced by the cleaning agent.
- Then rinse with hot water (80 °C to 85 °C / 176 °F to 185 °F).
- Use auxiliary materials for manual cleaning just once per clean (contamination).

Observe the following points when cleaning with chemicals:

- Only use chemical cleaning agents within the specifications provided.
- Use a brush to remove stubborn stains.
- Then rinse with hot water (75 °C to 85 °C or 167 °F to 185 °F).

The type of impurity is decisive when selecting the cleaning procedure. Cold milk, for example, can be rinsed off relatively easily from surfaces. In contrast, product residues that have been burnt on or dried on cannot be removed that easily. Heating the product has a great impact on deposits. The higher the temperature, the higher the probability that product residues are deposited. Deposits depend on the nature of the product.

A few examples that can lead to deposits:

- Heating speed (heating is carried out as fast as possible to avoid burning on, etc. Local overheating must be prevented in this process).
- Flow speed (the slower the product is agitated, the easier deposits can form).
- Surface roughness (the rougher the surfaces, the better deposits can stick).
- Viscosity (the thicker the product, the easier deposits can form).

Various impurities of the machine are also subject to different cleaning procedures.

The basic elements of the cleaning procedures are explained in the following tables:

A) Cleaning procedure	Can be used with/on
Manual cleaning (cleaning done by hand)	Removal of coarse and fine impurities, even at locations difficult to reach. Cleaning is effective even on rough surfaces. The additional use of suitable cleaning agents enhances the cleaning effect.
Machine-aided cleaning (circulating the cleaning liquid in the process vessel with the help of the mixing blade*)	Standard cleaning procedure for daily bowl cleaning

B) Cleaning process (in principle)	Can be used with/on
Rinse with water 50 °C to 60 °C / 122 °F to 140 °F*	Removal of coarse impurities. Water temperatures > 50 °C / 140 °F dissolve most food greases.
Leaching (for thick deposits)	Removal of ingrained product residues (swelling and dissolving). Loosening fat and greases (emulsifying and saponifying fatty residues).
Intermediate rinsing with water* 50 °C to 60 °C / 122 °F to 140 °F	Removal of cleaning agents and dissolved product residues*.
Acid rinsing (for thick deposits, lime, etc.)*	Removing mineral product residues and product remains (e.g. milk stone).
Final rinsing with water*	Removal of cleaning agents and dissolved product residues.

* depending on the production process

3.3.3 Basic information on cleaning agents

Various impurities in the machine require different cleaning agents. The highest possible degree of effectiveness of chemical cleaning is achieved by using specific cleaning agents in their recommended levels of concentration.

The following table lists different cleaning procedures.

Impurity	Group	Cleaning agent
Proteins	Alkalis	Caustic soda
Fats	Soaps Tensides	Soft soap Rinsing agent
Mineral product residues (e.g. milk stone, lime)	Acids	Acetic acid, tartaric acid, phosphoric acid, citric acid

3.3.4 Basic Information on Disinfection

Disinfection is effective only after thorough cleaning. Disinfectants react with any remaining impurities, thus reducing or even cancelling out the effect of the disinfecting agent.

Observe the following points when disinfecting:

- Cleaning agents and disinfectants must not be used at the same time. The effect of the disinfection agent may be reduced by the cleaning agent.
- Ensure that you use the correct concentration and exposure times for the disinfectant.
- Premix cleaning media and never put them into the machine undiluted.
- Only rinse off with water after the required exposure time.
- Do not dry surfaces with cloths (contamination).
- Dry surfaces by rinsing with hot water.

3.3.5 Basic information on sterilisation

Sterilisation is more comprehensive compared to disinfection, i.e. almost all microorganisms are killed – by the effect of heating, for example. A maximum of one germ out of 100,000 survives after disinfection. A maximum of one germ in a million survives after sterilisation.

These are standard procedures which do not substitute the other mandatory procedures!

3.4 Impact of operating staff behaviour

3.4.1 Information on hygiene criteria

The correct behaviour of the operating staff is decisive for optimal hygiene.

- All persons must be adequately informed of the hygiene criteria applicable on site. Observe and follow all hygiene regulations.
- Wear clean protective covering (head cover, work coat, gloves and indoor shoes).

3.4.2 Impact of non-compliance with hygiene criteria on production

Harmful microorganisms may spread across the entire production batch. The risk to health does not lie in the mere presence of a low number of microorganisms, but in the fact that they multiply exponentially under favourable conditions.

3.5 Impact of machine upkeep and maintenance

Ensure that the working environment is left clean after undertaking upkeep and maintenance work. Contaminants that are not present directly on the machine (unclean floors, dust deposits, etc.) can be introduced into the production loop under certain circumstances. Clean the machine and the surrounding area after maintenance work.

Areas exposed that are otherwise difficult to access can be cleaned during maintenance work.

4. Technical data and brief description

4.1 Brief description

The VCM 44 A/1 is a universal machine particularly for the manufacture of foodstuffs, pharmaceuticals and cosmetics. Processes such as mixing, chopping, cutting, emulsifying or kneading are possible with the help of appropriate tools. The VCM 44 A/1 complies with the current hygienic guidelines and the applicable technical regulations.

All product-carrying parts are made of stainless steel or other physiologically harmless materials.

The product vessel with directly driven working tools can be swivelled and is mounted in the machine stand. The tilting of the bowl and lid opening are carried out manually.

4.2 Intended use

The VCM 44 A/1 is intended for commercial and industrial production. Intended use includes the specified process, adherence to the specified specifications and the use of the original accessories that are provided or can be ordered separately. Damage caused by non-intended use will lead to the loss of liability and guarantee claims.

4.2.1 Reasonably foreseeable misuse

The following is regarded as misuse:

- Modifications and/or deactivation of safety equipment, such as switches, locking mechanisms, covers, locking, seals, etc.
- Operation without fitted connection nozzles and locking mechanisms (such as inspection glass, hoses, valves, funnels and similar).
- Improper or the non-intended use of the machine.
- Use of accessories that are not original.
- Modifications of the performance parameters beyond the guaranteed values.
- Processing of products that have not been agreed.
- Processing of highly flammable and explosive materials.
- Processing of substances listed in the EC directive on classification, identification and packaging of substances and mixtures, such as inflammable, explosive, toxic substances or substance mixtures; equivalent also to the substances assignable to Fluid Group 1 on the basis of the Pressure Equipment Directive.
- Use of dry ice or other expanding substances.
- Operation of the machine beyond the inspection and maintenance cycles.

4.3 Operating and ambient conditions

The dead weight and the low-vibration operation of the machine allow it to be set up standing free.

The following ambient conditions are required for the machine:

- The machine must be installed on a stable floor space.
- The floor space must be level.
- The machine must be installed in closed rooms.
- The premises must be clean.
- The installation location is exposed to the machine vibrations, lateral loads can achieve 30% of the machine weight and have an effect in any direction.
- The installation area must be able to absorb all the machine vibrations and loads, and channel them directly into the foundations.

4.4 Machine data

Designation	Unit	Value
Bowl volume	l	45
Batch size, depending on the production (max.)	l	up to approx. 30
Maximum operating temperature	°C (°F)	95 (203)
Main motor speed	n/min	1800
Operating voltage	V / Hz	220 / 60
Control voltage	V / Hz	110 / 60
Fuse protection, gL/gG slow-blow, max. 17kA forward current	A (slow-blow)	35
Total weight of the machine (net)	kg	approx. 150
Dimensions	mm (L x W x H)	590x860x1090

4.5 Performance data

4.5.1 Energy requirement

Description	Unit	Value
Motor	kW	5.5
Total machine power	kW	5.5

4.5.2 Electrical data

Description	Unit	Value
Supply voltage	V/Hz	220 / 60
Control voltage	V	110 AC
Rated current	A	25
Fuse protection, gL/gG slow-blow, max. 17kA forward current	A	35

4.5.3 Emissions

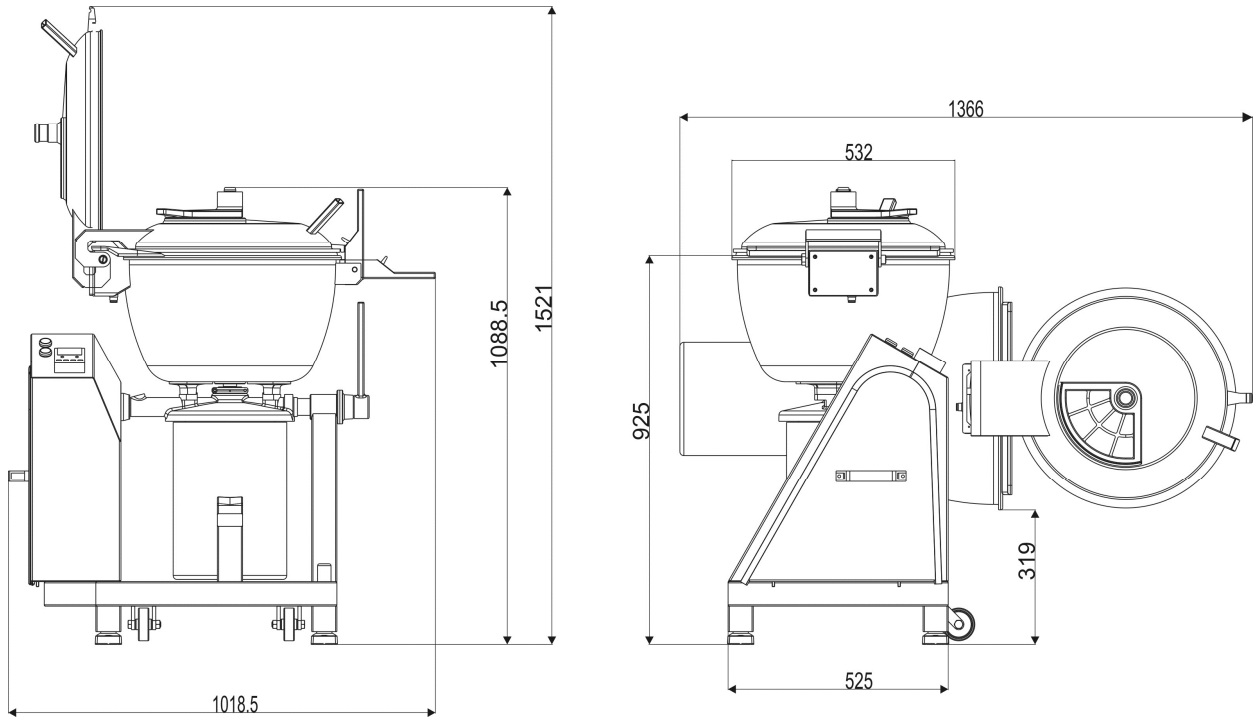
Description	Unit	Value
Acoustic pressure level of machine	dB(A)	70

4.6 Operating materials

Specifications and legal requirements for lubricants and oils can be found in the relevant data sheets of the respective manufacturer. If substances that do not comply with these specifications are to be used, this must be clarified with the machine manufacturer.

Operating materials	Component	Specification
Oil	Additional gear	DIN 51517 Part 3 ISO CLP PG VG
Oil	Vacuum pump	DIN 51506
Oil	Gear for mixing operation	DIN 51517 Part 3 ISO VG 220
Oil	Reduction gear	DIN 51517 Part 3 ISO VG 220
Oil	Mixing baffle drive	DIN 51517 Part 3 ISO VG 220
Grease	Seals	Suitability for foodstuffs (e.g. according to NSF H1) Soap-based aluminium
		Flow pressure: DIN 51805 at – 30 °C, <1000 mbar
		Water resistance, DIN 81 807 3 h at 50 °C Evaluation level 1-50 3 h at 90 °C Evaluation level 1-90
		Consistency, NLGI Class, DIN 51 818 / 1

4.7 Dimensions and configuration



5. Technical description

5.1 Arrangement of assembly groups and control elements

1	Timer	3	Transport rollers
2	Locking lever	4	Lid latch

5.2 Technical description

5.2.1 Functional Description

The VCM 44 A/1 is a universal machine particularly for the manufacture of foodstuffs. Processes such as mixing, chopping, cutting, emulsifying or kneading are possible with the help of appropriate tools. During processing, the product is agitated optimally through the tools.

5.2.2 Constructional description

The VCM 44 A/1 consists of the machine frame, the drive and the bowl with lid. The extended motor shaft of the motor protrudes into the bowl and serves as a holder and drive for the working tool. All parts of the VCM 44 A/1 that come into contact with the product are made of stainless steel (rust free) or other physiologically harmless materials.

5.3 Description of the assembly groups

5.3.1 Machine frame

The machine frame made of stainless steel holds the drive of the VCM 44 A/1. The drive can be swivelled towards the front along with the product vessel lying above it.

Rollers have been provided at the bottom of the side of the machine frame. By tilting the VCM 44 A/1 these rollers serve as a transport aid.

5.3.2 Drive

Motor, shaft, shaft bearing and centrifugal disc make up the drive unit of the VCM 44 A/1. The motor is a three-phase, low wear motor designed with insulation class F/H. A safety device prevents the motor from overheating. The centrifugal disc protects the motor from ingress of foreign objects.

The main motor is fitted with a disc brake. The brake pads are pressed onto the brake disc with the help of compression springs. The brake is actuated electro-magnetically.

5.3.3 Tools

WARNING	**Risk of injury when working with tools owing to sharp cutting edges**
	There is a risk of injury when working with the tools owing to their sharp cutting edges. Handle the tools with care and do not touch the cutting edges of the tools.

The shape and size of the tools have been optimally adapted to the shape of the bowl. Depending on the tool, various processes can be carried out and the product can be processed optimally. The product can be chopped, cut, mixed, emulsified or kneaded.

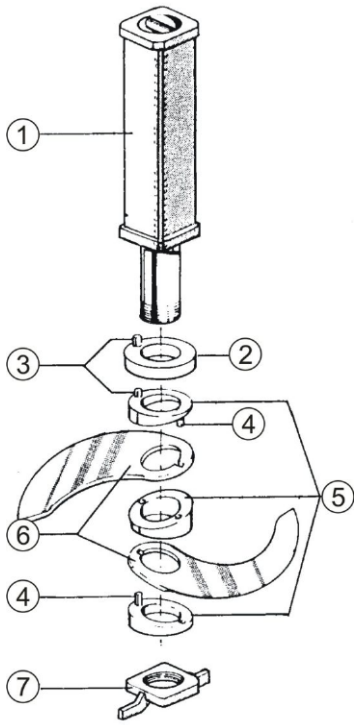
CAUTION	**Risk of damage**
	If the tools are not installed properly in the machine or if they are assembled incorrectly, then this leads to considerable damage to the bowl and the tool itself. Please ensure that the tools are installed properly in the machine. Please also always assemble the tools correctly.

Cutter insert

The sequenced described must be maintained when assembling the cutter insert. The cutter insert consists of two blades that vary in shape and size. The polished bevelled area of the blades must be positioned to the base of the bowl, so that the product is agitated optimally.

You can fit the thrust ring either on the blade mount or immediately before the wing nut. In the result, you will get different installation heights of the blades.

The following processes are possible:



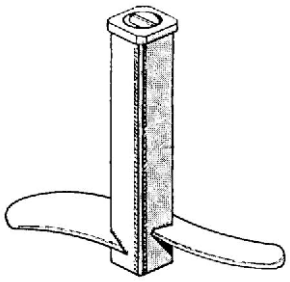
- Chopping
- Cutting

1 Blade mount
2 Thrust ring
3 Upper guide pins
4 Lower guide pins
5 Bevelled washer set
6 Blade
7 Wing nut

Mixing insert

The mixing insert has been optimised for products that are mixed. Processes such as, for example, cutting and grating are not possible with this tool. The two slanted mixer blades are arranged at different heights. In this manner the products are agitated well and the processing time is reduced.

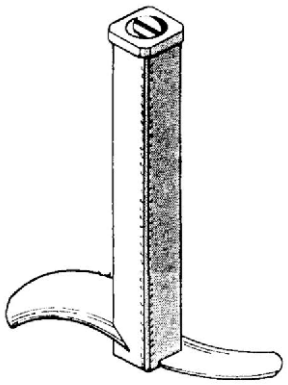
The following processes can be carried out using the mixing insert:



- Mixing
- Stirring
- Homogenisation
- Emulsifying

Stirrer and Kneader Insert

The working insert made of stainless steel is such that the wings operate at a particularly low level above the base of the bowl. Thus, this tool is specially suitable for processing small quantities. The following processes can be carried out using the stirrer and kneader insert:



- Stirring
- Kneading
- Homogenisation
- Emulsifying
- Mixing

5.3.4 Product vessel

The product vessel consists of the bowl and lid. The detailed description is given in the following sections.

Lid

The lid locks the bowl. A silicone seal in the lid seals the bowl in a pressure-tight manner. A safety device prevents the machine from being switched on when the lid is open. A safety switch scans the lid to check whether it is in the open or closed condition.

The lid is equipped as follows:

- Rotatable filling window cover

5.3.5 Electrical system

NOTICE	Description of assembly groups of the electrical system
	Partially, the assembly groups falling under the category of electrical systems have been described in other parts of this documentation in accordance with their function.

The electrical equipment conforms to the Directive UL 508A. The control cabinet and the machine are pre-wired and ready for connection.

The mains connection to the control cabinet must be laid and connected by a locally certified electrician in accordance with the circuit diagrams. The installation of the motor, control and pneumatic lines is included in the scope of supply of the VCM 44 A/1.

6. Installing, commissioning and decommissioning

6.1 Transport

WARNING	Use suitable means of transport
	The machine has considerable weight. In order to prevent work accidents and health risks when transporting the machine, please use aids such as carrying straps, transport rollers or platform trolleys.

During transport of the VCM 44 A/1 please pay attention to the following points:

- The VCM 44 A/1 may only be lifted on the machine frame.
- Do not use the bowl to lift it.
- Do not use any handles to lift it.
- Do not use the mixing baffle to lift it.
- Tighten the conveyor belts in such a manner that the bowl and the lid are not loaded.

The VCM 44 A/1 has two transport rollers fixed to the machine frame. For easier transport, the VCM 44 A/1 can be tilted so that the weight of the machine is supported on both rollers.

6.2 Installation

The VCM 44 A/1 must be placed on a hard and level surface. A separate fastening of the VCM 44 A/1 is not necessary.

IMPORTANT NOTICE	Only specialists may install the machine.
	Only specialists may carry out any measures required for installation and initial operation. This applies especially to all electrical work.

Pay attention to the following points:

- Please read the operating instructions, particularly the chapter Safety Instructions .
- Observe the ambient conditions described in the section ‘Use and Ambient Conditions’ [► 21].
- Remove any foreign objects from the bowl.
- Before connecting the machine to the mains ensure that the connection parameters are suitable.
- Connect the power supply line.
- Install the machine in such a way that it is possible to operate it ergonomically.

6.3 Commissioning

6.3.1 Functional check

IMPORTANT NOTICE	**Commissioning may only be carried out by specialists**
	All commissioning work must be carried out only by specialists. This applies especially to all electrical work.

The basic functions of the VCM 44 A/1 have already been checked at the factory prior to delivery. However, under certain circumstances, it is possible that the machine may have been damaged during its transport. In order to detect these early, the VCM 44 A/1 should be subjected to a functional check. Moreover, the functional check subsequent to commissioning provides information regarding the effects of the energy and medium supplies on-site. The functional check also identifies other faults and functional restrictions caused by local conditions at an early stage.

During the functional check, the sequence listed must be complied with and carried out up to the last step. This is the only way to successfully complete the functional check.

a Preparing for functional check

Before the VCM 44 A/1 is subjected to the respective functional check, the notes and instructions on handling given below must be followed.

- Please read and follow the operating instructions, specially the chapter Safety Instructions and the section on Commissioning in this chapter.
- Please ensure that supply line connections are fitted properly and securely. Check the water supply lines to ensure that there are no leakages.

WARNING	Risk of damage
	Remove all loose parts from the bowl! Loose parts may become a risk for both human beings and the machine when it is switched on.

- Remove any foreign objects from the bowl.
- Place the tool over the motor shaft (Operation: Assembly/disassembly of working inserts [► 34]) and close the lid.

b Checking the direction of rotation of the motor

DANGER	Hazardous electrical voltage
	If the mains voltage polarity needs to be reversed, only a qualified electrician may undertake this task. Hazard caused by electric shock. Only qualified electricians may carry out electrical work on the machine.

Procedure for checking the direction of rotation:

1. Allow the drive to run for a short time.
2. The direction of rotation is to be checked at the motor shaft / at the centrifugal disc below the base of the bowl.
3. If the rotation is clockwise it means that the machine has been connected correctly.
4. If the rotation is anti-clockwise then the polarity of the mains supply phase has to be reversed.
5. Switch off the drive.

NOTICE	Orientation guide
	The direction of rotation is always specified viewing the machine from above. An arrow on the bearing plate indicates the desired direction of rotation.

c Check the safety shut-down

WARNING	Automatic start
	The machine can start running in the event of a fault! Serious hand injuries can occur. Never put your hand into the bowl!

Procedure for checking the safety shutdown:

1. Switch on the drive.
2. Open the lid.
3. Try to switch on the main motor.
4. The drive must not start running.

WARNING	In case of faulty safety equipment
	Immediately switch off the machine and disconnect the power supply line from the mains. The machine may no longer be put in operation. Please contact the service department.

d Trial run

In order to ensure that during transport and installation of the VCM 44 A/1 no damage has occurred, immediately after installation of the VCM 44 A/1 a trial run should be carried out.

Before the trial run, make sure that the VCM 44 A/1 is connected correctly and the tools are inserted appropriately (Assembly/disassembly of working inserts). The blades must fit absolutely tightly. The bevelled polished area of the blades must be positioned to the base of the bowl for optimal material agitation.

	Fill the bowl up to ¾ with warm water (approx. 50 °C / 122 °F).
	Close and lock the lid.
I	Switch on the main motor and allow it to run for 5 minutes.
	Slightly open the inspection lid in order to equalise the pressure in the machine.
	Unlock the lid latch and open the lid. Tilt the vessel to empty it.

e End functional check

At the end of the checks remove all tools and other equipment not belonging to the machine. Wipe the outer surfaces of the VCM 44 A/1 dry.

6.3.2 Check list

This check list sums up the functional check. For inspection purposes, please mark all steps carried out correctly during commissioning.

Check list	O.K. (in order)
Check the direction of rotation of the motor (clockwise)	o
Check the safety shutdown when the lid is open	o

6.4 Storage, recycling

6.4.1 Storage

In order to maintain the functionality of the VCM 44 A/1 the following points must be observed during storage:

- Store the machine in a closed room.
- The premises must be as clean and dry as possible.
- The storage temperature must not be less than 0 °C / 32 °F and not more than 50 °C / 122 °F.
- Protect the machine against dust using suitable packing material.
- Liquids in lines and vessels can lead to bursting of the lines under frosty conditions.
- For longer storage periods, place a collection tank under the machine in order to collect any escaping liquid media.
- If the machine is to be stored outdoors for a short time, it must be placed on a solid, level surface and protected from the impact of the weather.

6.4.2 Disposal

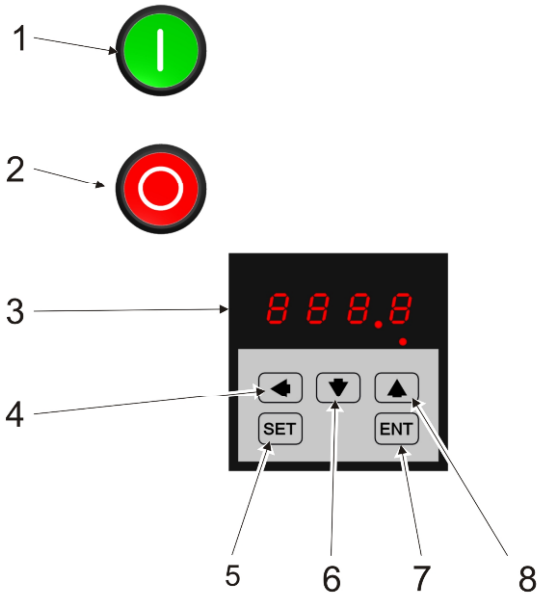
During disposal, the different materials and substances must be separated from one another. Information regarding the disposal of hazardous substances can be found in the relevant data sheets of the respective manufacturers. During disposal, substances that can be hazardous to humans may escape. Safety instructions and legal requirements regarding substances that pose a risk to humans, the environment and machinery are also provided in the data sheets of the respective manufacturer.

7. Operation

7.1 Layout and function of the control elements

7.1.1 Electric timer

The built-in timer is a microprocessor-based device that is installed into a housing together with an LED display.



1	'Start' key	5	'SET' key
2	'Stop' key	6	'Arrow down' key
3	Display	7	'ENT' key
4	'Arrow left' key	8	'Arrow up' key

After pressing the 'Start' key, the machine starts and the timer initiates a countdown. The machine will stop once the set time period comes to an end.

The machine can be stopped at any time by pressing the ‘Stop’ key, even before the timer has finished its countdown.

The factory setting of the timer is 90 seconds. This value can be changed. To set a different value on the timer, proceed as follows:

- Press the ‘SET’ key. The digit on the right-hand side of the display will start to flash. The ‘Arrow up’ and ‘Arrow down’ key function becomes active.
- With the 'Arrow up' and 'Arrow down' keys the flashing digit can be set to a new value. If you change the digit from 9 to 0, the left-hand digit, the tens, will increase by one. If you change the digit from 0 to 9, the left-hand digit, the tens, will decrease by one.
- Use the 'Arrow left' key to change to the digit on the left. The digit will start to flash. To change back to the right-hand digit, press the ‘Arrow left’ key until the right-hand digit starts flashing.

- With the 'Arrow up' and 'Arrow down' keys the flashing digit can be set to a new value. If you change the digit from 9 to 0, the left-hand digit, the tens, will increase by one. If you change the digit from 0 to 9, the left-hand digit, the tens, will decrease by one.
- Repeat the process for the other digits.
- Once the required value is reached, press the ‘ENT’ key to save the value. The 'Arrow up' and 'Arrow down' key functions become inactive again.

At standstill, the setpoint is shown on the display. When the machine is operating, the current value reached is shown on the display.

If the setpoint is modified while the machine is in operation, the new value does not become active until the timer is reset.

The setpoint can be displayed while the machine is in operation by pressing the 'SET' key. The current value can be displayed again by pressing the 'ENT' key.

7.2 Operation

WARNING	**Risk of bursting**
	Significant pressure differences can occur in the bowl during production. The bowl may burst if the permitted operating pressure is exceeded. This can result in severe injuries. Operate the machine only at the permitted operating pressure and with intact safety equipment.

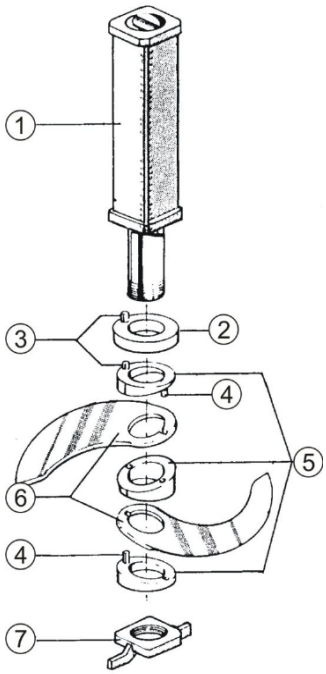
7.2.1 Assembly/disassembly of working inserts

WARNING	**Risk of injury when working with tools owing to sharp cutting edges**
	There is a risk of injury when working with tools due to their sharp cutting edges. Handle tools with care and do not touch cutting edges on tools.

WARNING	**Insert the working tools properly**
	Working tools that are not inserted and installed correctly can lead to considerable damage of the machine and the tools. The bevelled polished area of the blades must always point to the base of the vessel. The wing nut must always be tightened.

NOTICE	**Use only sharp blades**
	Blades that have become blunt can affect the working process disadvantageously. Thus, the product would not be cut properly and thus, under certain circumstances, changes its structure and appearance.

The blade mount consists of the blade mount (pos. 1), the blade set (pos. 6), consisting of two blades, the thrust ring (pos. 2), the bevelled washer set (pos. 5) and the wing nut (pos. 7).



The sequence shown must be observed during assembly: The guide pins (3+4) must fit into the bore holes provided for them.

The correct sequence of the bevelled washer set (pos. 5) can be read off the digits engraved. The digits engraved on the individual bevelled washers specify the sequence for their assembly (starting from 1).

Place the working tool on the motor shaft. Make sure that the driver of the motor shaft grips into the notch of the working tools, otherwise the machine or the working tool may be damaged.

7.2.2 Feeding the machine

WARNING	**Risk of explosion**
	Risk due to flammable production goods. Thermal energy is produced as a result of mechanical product processing that can ignite easily inflammable substances. This can lead to explosion of the product vessel. Do not process any easily combustible substances. Do not fill the machine with combustible or explosive products.

CAUTION	**Do not operate when empty.**
	To prevent damage to the shaft seals, do not operate the machine when it is empty. Before switching on the main motor always check to see if there is any product in the bowl.

CAUTION	**Observe the filling level!**
	Exceeding the maximum batch amount leads to damages to the machine. Do not exceed the maximum filling amount.

CAUTION	Non-stirrable product
	A non-stirrable product can impede the rotation of the mixing baffle. This can result in damages to the mixing baffle and the mixing baffle drive. Chop the non-stirrable product sufficiently before switching on the mixing baffle drive.

In order to make the VCM 44 A/1 first equalise the pressure in the product vessel. Depending on the configuration, the VCM 44 A/1 is equipped with a vent valve or a transparent dosing lid, using which the pressure can be equalised.

To open the VCM 44 A/1 unlock the lid latch and open the lid. The machine can now be filled.

To close the VCM 44 A/1 press the lid lightly against the vessel, hang in the locking hook and pull the latching lever upwards.

7.2.3 Switching on and off

The VCM 44 A/1 is filled and closed. There is a working insert on the motor shaft.

7.2.4 Production

a Tips for product manufacture

For optimal agitation:

- First fill the bowl with liquid constituents.
- Then add the more solid constituents.

For all products:

- Use only those working inserts that are suitable for the product.
- It is possible to stop the machine at any time, e.g. to add other recipe ingredients.

7.2.5 Draining the machine

In order to make the VCM 44 A/1 first equalise the pressure in the product vessel. Depending on the configuration, the VCM 44 A/1 is equipped with a vent valve or a transparent dosing lid, using which the pressure can be equalised.

Switch off the main motor.

To open the VCM 44 A/1 pull down the latch on the right side of the vessel. The lid is lifted slightly by the torsion spring built in and can now be opened.

The product vessel is secured by means of an arresting mechanism on the right side of the machine. To empty out the contents of the bowl, first loosen the arresting mechanism. The bowl can now be tilted forward.

7.2.6 Cleaning

a Basic instructions on cleaning

WARNING	Corrosive and harmful substances
	Health hazards caused by handling corrosive and harmful chemicals. DO NOT work with chemicals unprotected. DO NOT store chemical vessels open. Wear protective clothing. Avoid contact with the eyes and skin. Observe the data sheets of the chemicals. Take particular care when opening and handling vessels, pumps and lines. Carefully close opened vessels, lines, etc. after use. Drain lines and flush with water prior to maintenance work.

IMPORTANT NOTICE	Resistance against cleaning agents
	The hoses which are used are resistant to the following cleaning agents and temperatures: NaOH (caustic soda), 2-2.5%, max. 85°C HNO_3 (nitric acid), 1-1.5%, max. 70 °C Suitability must be checked in advance in the case of other cleaning agents, higher concentrations or temperatures. Working tools are hardened and have low corrosion resistance. Service life is reduced in case of higher concentrations.

IMPORTANT NOTICE	Cleaning after completion of production
	After completion of production, the machine has to be put back into a hygienic condition. A cleaned machine is the basic requirement for any production. Thorough cleaning enhances the service life of the machine and seals.

These cleaning instructions for the machine are the basis of a cleaning program that may deviate from the actual operation process. The intensity and kind of raw materials that are used fundamentally influence the cleaning processes.

We recommend working with your hygiene product suppliers to ensure an optimal outcome from cleaning results, which depend on how efficiently you clean. They can optimally advise you on the choice and concentration of the cleaning agent to use and its suitability for the whole product and raw material range. During the process, the principles of the Sinner's circle should be observed.

A typical cleaning of the machine is performed at various stages:

- Pre-rinsing
- Leaching
- Rinse with cold water 1
- Acid rinsing (if necessary)
- Rinse with cold water 2 (if necessary)
- Chemical disinfection (if necessary)

Pre-rinsing

Hereby, coarse residues in the machine shall be dissolved and discharged.

Temperature	max. 50 °C
Duration	10 to 15 minutes
Medium	clean water

Leaching (main cleaning)

Hereby, all residues in the machine shall be dissolved and the surfaces of the machine parts be cleaned thereby. The cleaning medium may not produce any foam.

Temperature	70 to 80 °C
Duration	min. 30 minutes
Medium	NaOH (caustic soda), 2% to 2.5%

Rinse with cold water 1

Hereby, all remaining loose residues and alkaline solution shall be discharged from the machine.

Temperature	50 to 60 °C
Duration	5 minutes (without acid rinsing: 10 minutes)
Medium	clean water

Acid rinsing

During acid rinsing, all mineral residues (scale) shall be removed from the machine.

Temperature	70 to 80 °C
Duration	min. 30 minutes
Medium	HNO_3 (nitric acid), 1 to 1.5%

Rinse with cold water 2

Hereby, all remaining loose residues and acid solution shall be discharged from the machine and the pipelines.

Temperature	cold
Duration	15 minutes (without acid rinsing, this step is omitted)
Medium	clean water

Chemical disinfection

Chemical disinfection is aimed at reducing the total bacterial count.

Temperature	cold
Duration	10 to 15 minutes
Medium	H_2O_2 (hydrogen peroxide), max. 0.2%

After rinsing, the pH value should be 6.5 to 7.

b Internal cleaning in the machine

WARNING	**Risk of injury due to residual pressure and high temperatures**
	The machine may still be subject to residual pressure and high temperatures due to hot media. This can result in injuries. The operator must comply with the coupling function safety functions before the coupling of the lines is changed.

CAUTION	**Cleaning medium being spurted out**
	To prevent the cleaning medium from spurting uncontrollably out of open connections, cleaning may only be carried out with hot water up to max. 50 °C.

CAUTION	**Risk of chemical burns**
	There is a risk of chemical burns from manually dosing cleaning media, such as lye and acids, through the opened lid. Wear protective clothing, take care in handling them. Observe safety instructions.

The cleaning media is prepared and tempered in the process vessel of the machine. Cleaning can be carried out manually or using the machine functions. High-pressure cleaner must not be used.

The following cleaning steps are carried out:

1. Dosing of the basic recipe water quantity.
2. Depending on the cleaning step, opening of the lid and addition of cleaning media.
3. Topping up of recipe water to the total quantity.
4. Switch on mixing baffle, main motor and vacuum pump.
5. Heat up the cleaning liquid. The vacuum pump switches off automatically after reaching the desired temperature.
6. Draining of the cleaning liquid via the drain valve or by tilting the bowl.

c Manual post-cleaning

WARNING	Pressurised lines
	The remaining residual pressure in the system may result in liquids being spurted out when the lid or pipe connections are opened. Open the vent valve to adjust the pressure in the process vessel to the ambient pressure. Check the unpressurised condition at the manometer and the operator panel. Empty process vessel and pipelines by draining all residues beforehand. Slowly open the pipe connections and product filter to gradually reduce the residual pressure.

WARNING	Risk of injury when working with tools owing to sharp cutting edges
	There is a risk of injury when working with the tools owing to their sharp cutting edges. Handle the tools with care and do not touch the cutting edges of the tools.

CAUTION	Clean working tools
	Working tools are hardened and have low corrosion resistance. Completely dismantle working tools after the cleaning process and clean manually. Dry all parts thoroughly after cleaning and store them in a dry place. Clean the working tools only with non-metallic cleaning tools (brush, plastic scraper). Not observing the cleaning instructions reduces the service life of the working tools.

CAUTION	Do not remove the seal
	Do not remove or damage the seal that secures the outlet pressure settings.

Even in an automatic cleaning process, the following cleaning processes must be carried out manually in any case:

- Check the pressure relief valve by manually ventilating it and check for impurities.
- Dismantle ventilation elbow and check for impurities and clean.
- The lacquered machine parts are cleaned with a sponge and mild soap suds.
- Clean manually the dosing funnel, brush its surfaces and wash it several times using various cleaning media.
- Dismantle and clean the dosing hoses. Hang the hoses in a suitable place to let them dry.
- Dismantle working tools and clean. Dry thoroughly afterwards.

- Dismantle the lid seals and clean by brushing. When reinserting, make sure that the seal edge remains undamaged.

A visual check must be made after the cleaning process. Quality Management is to carry out micro-biological examinations. The pH value should also be determined with an indicator paper or a pH meter and, if necessary, adjusted by rinsing again.

8. Fault description and repair

8.1 Information on STEPHAN Service and Customer Services

Our service department will be happy to help if any questions or problems arise during fault repair.

If you have any questions, please provide the following details:

- the machine type
- the serial number of the machine
- customer number

These details avoid further inquiries by our service and speed up the whole process. These details can be found in the chapter Machine information and can also be read from the machine rating plate.

In case of questions regarding your machine, we are at your service:

Stephan Machinery GmbH
Service department

Stephanplatz 2
31789 Hameln
Germany

Tel.: +49 5151 583-0
Fax: +49 5151 583 110

E-mail: info@stephan-machinery.com
service@stephan-machinery.com

8.2 Instructions on fault repair

All maintenance and repair work must only be carried out by specialists. This applies especially to all electrical work.

DANGER	**Hazardous electrical voltage**
	Hazard caused by electric shock. All work on electrical systems is to be carried out only by qualified electricians.

WARNING	**Risk of injury when working with tools owing to sharp cutting edges**
	There is a risk of injury when working with the tools owing to their sharp cutting edges. Handle the tools with care and do not touch the cutting edges of the tools.

IMPORTANT NOTICE	Safety interlock of individual functions
	In case of an overpressure in the bowl and/or temperatures above 95°C, individual functions of the machine are interlocked. If it is not possible to start individual functions, first unpressurise the bowl and allow it to cool down to below 95 °C.

8.3 Recommissioning after emergency stop

DANGER	Reset the safety equipment
	Generally, the safety equipment gets triggered when there is a hazardous situation. Carelessly reset safety equipment can become a danger to life and limb of the user and can lead to damages to the system. Before resetting safety equipment, make sure that the reason for triggering the safety equipment has been rectified. Never reset safety systems without due care.

By activating an emergency stop switch, it snaps and needs to be unlocked to bring the VCM 44 A/1 back into operation. After an emergency stop has been triggered, proceed as follows:

- Make sure that the cause of the emergency stop has been eliminated and that the machine can be safely operated again.
- Unlock the emergency stop switch.
- Put the machine back into operation.

8.4 Table of faults and corrective measures

The following tables of faults and corrective measures contain information on possible malfunctions, causes and their rectification.

Fault	Cause	Rectification
The motor does not start	The supply line is either not connected or connected incorrectly	Check the voltage at the supply line. Connect supply line or correct detected errors
	The supply line has a loose contact	Replace the supply line
	The motor protection has triggered Display: LID OPEN	Allow the motor to cool down
	The motor contactor does not switch The control is defective	Have it checked and rectified by specialists
	The lid does not have any contact with the safety switch Display: LID OPEN	Open the lid and close it again
	The limit switch is not mounted correctly	Check the position of the limit switch

Fault	Cause	Rectification
The motor does not run smoothly	The voltage of the machine does not match that of the mains voltage	Check the voltage
	The voltage or the frequency deviates considerably from the nominal value when switching on See Machine data	Rectify the circuit
The fuse blows or the motor protection gets triggered immediately	The winding is defective	The motor must be sent for repair
	There is a short-circuit in the motor or in the line	The motor must be sent for repair
	Body fault or coil short-circuit in the motor	Have it checked and rectified by specialists
The motor runs in the wrong direction of rotation	The motor has been connected incorrectly. See Checking the direction of rotation	Change the two phases
The motor becomes too warm (can only be determined by measurements)	The mains voltage deviates by more than 5% from the rated motor voltage. Higher voltages have an unfavourable effect on multipolar motors. For these motors, even at normal voltage, the no-load current is close to the rated current. See Machine data	Ensure that the correct rated voltage is fed
	The motor is getting overloaded	Reduce the filling quantity
	The motor is too weak	Involve Stephan Service to determine the correct drive
	The quantity of cooling air is too low The cooling air paths are blocked.	Ensure unhindered inflow and outflow of the cooling air Clean the cooling fins
	The cooling air is pre-heated	Ensure availability of fresh air
The motor hums	The motor has been connected incorrectly	Have it checked and rectified by specialists
	The bearings are defective	Have it checked and rectified by specialists
	One phase has been connected incorrectly	Have it checked and rectified by specialists
The system does not switch	The safety switch is activated Display: LID OPEN	Close the lid
	The operating voltage is incorrect	Check the operating voltage
	The control fuse is defective	Replace the fuse with a new one
Individual functions do not operate	The overcurrent protection has triggered	Have the switchgear checked by specialists reset the overcurrent protection

8.5 Faults in the switchgear

Fault	Cause	Rectification
The system does not switch	Safety switch is activated	Close lid.
	Operating voltage is incorrect	Check the operating voltage
	Control fuse is defective	Replace the fuse
Individual functions do not operate	The overcurrent protection has triggered	Reset the overcurrent protection. Have the switchgear checked by qualified electricians.

9. Care and maintenance

9.1 Information on customer care and service

Our customer service department is available if any queries or problems arise during service and maintenance work. Information on services is provided in the chapter Troubleshooting and fault elimination [► 42].

9.2 Safety measures

DANGER	**Hazardous electrical voltage**
	Hazard caused by electric shock. All work on electrical systems is to be carried out only by qualified electricians.

WARNING	**Mechanical hazards**
	Hazards caused by incorrect handling of mechanical components. All maintenance and repair work carried out on the machine may only be performed by professionally suitable and trained personnel.

WARNING	**Risk of injury when working with tools owing to sharp cutting edges**
	There is a risk of injury when working with the tools owing to their sharp cutting edges. Handle the tools with care and do not touch the cutting edges of the tools.

9.3 Care and maintenance schedule

Only by regular care and maintenance the safety and function of the VCM 44 A/1 are guaranteed. It is particularly important to ensure that the maintenance cycles are adhered to. The cleaning schedule provides an overview of all cleaning measures and plannable maintenance activities.

Only by regular care and maintenance the safety and function of the VCM 44 A/1 are guaranteed. It is particularly important to ensure that only specialists carry out maintenance work and that the maintenance cycles are observed. The cleaning schedule provides an overview of all cleaning measures and plannable maintenance activities.

Interval	Measure	Contents	Carried out by
Daily	Visual inspections, cleaning	Visual inspection of the assembly groups, checking of filling levels, cleaning	Operator
Weekly	Visual inspections, cleaning, maintenance	Thorough visual inspection of the assembly groups, checking of filling levels, cleaning, checking the state of hygiene	Specialist/service
Monthly	Visual inspection, maintenance	Intensive visual inspection of the assembly groups, replacement of parts/lubricants	Specialist/service
Semi-annual	Component testing, maintenance	Intensive visual inspection of the assembly groups, replacement of parts/lubricants	Specialist/service
Annually	Maintenance	Replacement of parts/lubricants	Specialist/service

9.3.1 Daily inspection during operation

Assembly group/part	Action	Result/measure
Overall machine	Pay attention to any unusual noise generation	Excessive noise generation or unusual noises often indicate that defects are beginning to appear. If such symptoms are found, a specialist must be involved for further assessment.

9.3.2 Weekly maintenance

NOTICE	Carrying out maintenance work
	These maintenance measures must be performed by specialists. Please observe the description of the maintenance measures.

Assembly group/part	Action	Result/measure
Safety equipment	Inspection	Inspect the cover, insulation and protective grids for damage. Check that the warning and instructions labels are legible.
Machine in general	Inspection	Check all accessible assembly groups for visible signs of damage.
	Inspection	Pay attention to any unusual noise generation during operation.
	Inspection	Assess the state of hygiene of the assembly groups, especially of the surfaces coming into contact with the product
Control elements	Inspection	Check the screens and other control elements for damage and incorrect display. Check lamps and LEDs to see that they are working.
Shaft seal, main drive	Dismantling, inspection	Dismantle, clean and check for damages. Replace the damaged shaft seals.
	Assembly	Grease and assemble.
Lid seal	Cleaning, inspection	Dismantle it, check for damages and replace damaged lid seals.
Tools	Inspection	Check cutting tools for bluntness, deformation and breakages.
	Inspection	Check the remaining tools for deformation and breakages
Steam transfer station	Cleaning, inspection	Check the steam filter for impurities. Replace very dirty and worn filters.

9.4 Specific maintenance instructions

9.4.1 Clean/replace lid seal

1. Open the lid and remove the lid seal from the lid groove by hand.
2. Clean the lid seal using a grease-dissolving cleaning agent (rinsing agent) and finally rinse the seal with clear water.
3. Check the lid seal for traces of wear. If there are any signs of wear, the lid seal must be replaced with a new one.
4. Insert the lid seal into the lid groove. In the process, ensure that the seal does not twist and is inserted smoothly.

9.4.2 Sharpening the blades

Ground blades must not tarnish or wear out due to regrinding. Always use wet grinding for this purpose.

Grinding burr must be removed while wet using a grind stone.

WARNING	**Risk of injury when working with tools owing to sharp cutting edges**
	There is a risk of injury when working with the tools owing to their sharp cutting edges. Handle the tools with care and do not touch the cutting edges of the tools.

CAUTION	**Have the grinding work done only by specialists**
	The blades may be ground only on blade grinding machines, which are suitable for the blade type and material without any limitations. The blades should be ground exclusively by specialists or the manufacturer.

NOTICE	**Maintenance work on tools**
	Depending on the conditions of use and the product condition, the blades of the tool can become blunt. An optimal work process is guaranteed only with sharp cutters.

9.4.3 Maintenance of the main motor shaft seal

The product vessel is sealed against the motor shaft with the help of a flange seal. To change the seals, the entire flange with fitted seals is replaced.

1. Remove the working tools.
2. Loosen and unscrew the sealing flange using the special spanner provided.
3. Remove the old flange.
4. Grease the shaft and the seals in the new flange carefully.
5. Slide the new sealing flange carefully over the shaft and screw it on by hand. In the process ensure that the flange does not twist and the threads get damaged.
6. Use the spanner to tighten the flange until it rests completely on the surface.

10.Spare parts

The spare parts section is arranged according to the assembly groups and includes:

- Instructions on handling.
- Figures and bills of materials for identifying spare parts, tools and accessories.
- Instructions on the applicable documents for the components.

IMPORTANT NOTICE	Instructions on the use of spare parts and operating materials
	The manufacturer is liable for damage only if the machine has been properly operated, i.e. as specified in the operating instructions. There is no liability when either the manufacturer or the operator has installed components or used auxiliary or operating materials that do not conform to the agreed quality requirements.

The contents of the bills of materials have the following meaning:

Item	Description	Type	Item no.	Quantity	Dim.	OI	Other	E&V
1	2	3	4	5	6	7	8	9

1 = Position number in the figure

2 = Item name/designation

3 = Further item specifications

4 = Item number

5 = Quantity of items in this assembly group

6 = Unit/Dimension

7 = Link to the operating instructions of selected components if provided

8 = Link to other documents for selected components if provided

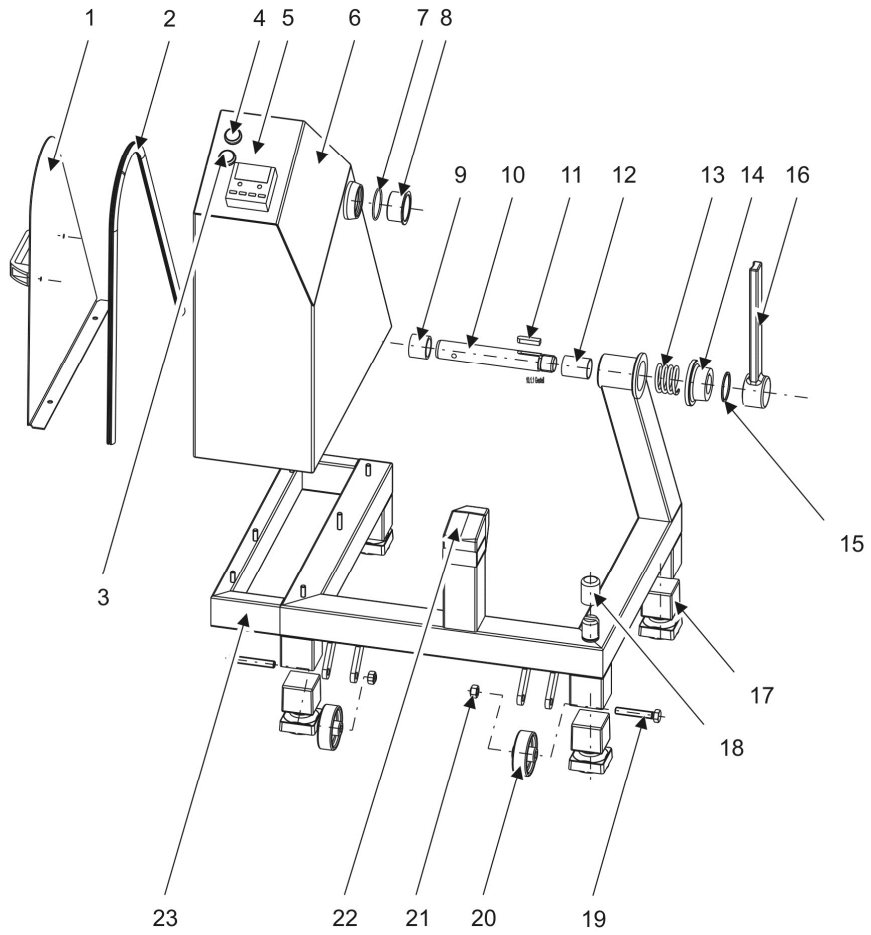
9 = Spare part (E) and wearing part (V) abbreviation

Always provide the following information when ordering spare parts:

- the machine number (commission number)
- the type designation
- the item designation
- the item number
- the number of required items

10.1 Machine housing, Assembly Group

10.1.1 Frame

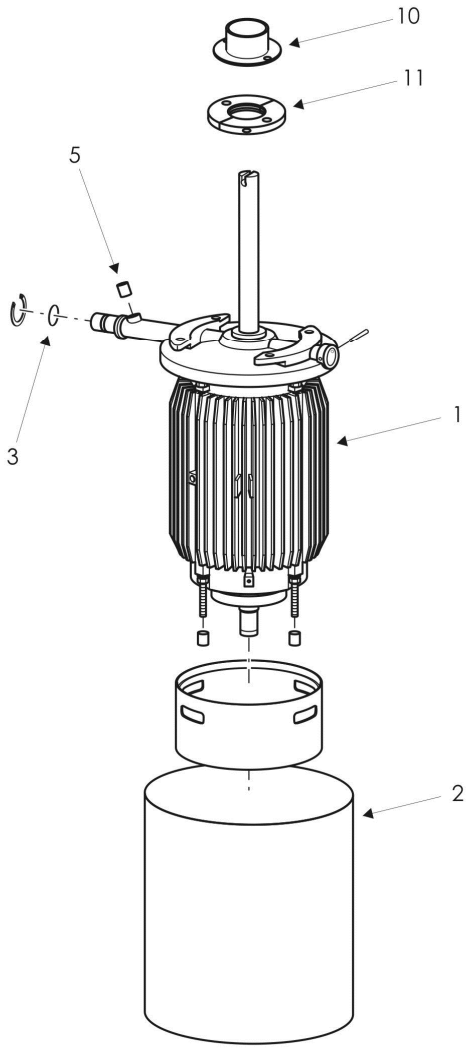


Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
1	Handle		3S2050-30	1	ST			E
2	Seal profile		3T4011-06	1	MM			E
3	Pushbutton, green		3Q6073-02	1	ST			E
4	Pushbutton, red		3Q6073-01	1	ST			E
5	Counter	SX210	3Q4021-01	1	ST			E
6	Control cabinet		3F0030-08	1	ST			E
7	O-ring	2-136---50,47*2,62	3I0004-08	1	ST			V
8	Bushing		3K0540-76	1	ST			E
9	Bushing		3K0532-26	1	ST			E
10	Bolt		3K2591-01	1	ST			E
11	Feather key	10 x 8 x 40, DIN 6885	3S0284-02	1	ST			E
12	Bushing		3K0535-03	1	ST			E
13	Compression spring		3M6001-22	1	ST			E

Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
14	Bushing		3K0738-01	1	ST			E
15	Washer		3K0200-44	1	ST			E
16	Lever		3M2450-02	1	ST			E
17	Rubber foot		3M4057-03	4	ST			E
18	Cap		3M4072-02	1	ST			E
19	Screw	M12* 70 A2 DIN 933	3S0005-10	2	ST			E
20	Castor		3S4004-07	2	ST			E
21	Hexagon nut	M12 A2 DIN 985	3S0205-07	2	ST			E
22	Limit stop		3M4065-02	1	ST			E
23	Stand		3A2010-07	1	ST			E

10.2 Drive, Assembly Group

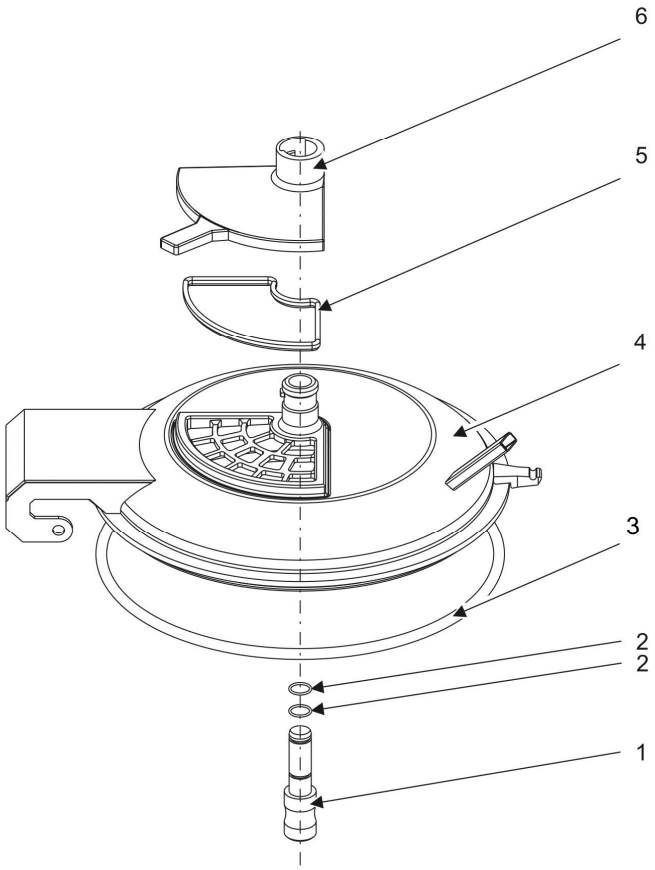
10.2.1 Main Drive



Pos.	Designation	Type	Item No.	No.	Dim.	Ol	Other	
1	Motor	132S 220 V 60 Hz 1800 U/min 5,5 kW	3C0133-17	1	ST			E
2	Covering hood		3L0003-01	1	ST			E
3	Washer		3K0200-44	1	ST			E
5	Bushing		3K0530-52	1	ST			E
10	Cylinder sleeve		3K0502-01	1	ST			V
11	Centrifugal disc		3K1101-05	1	ST			E

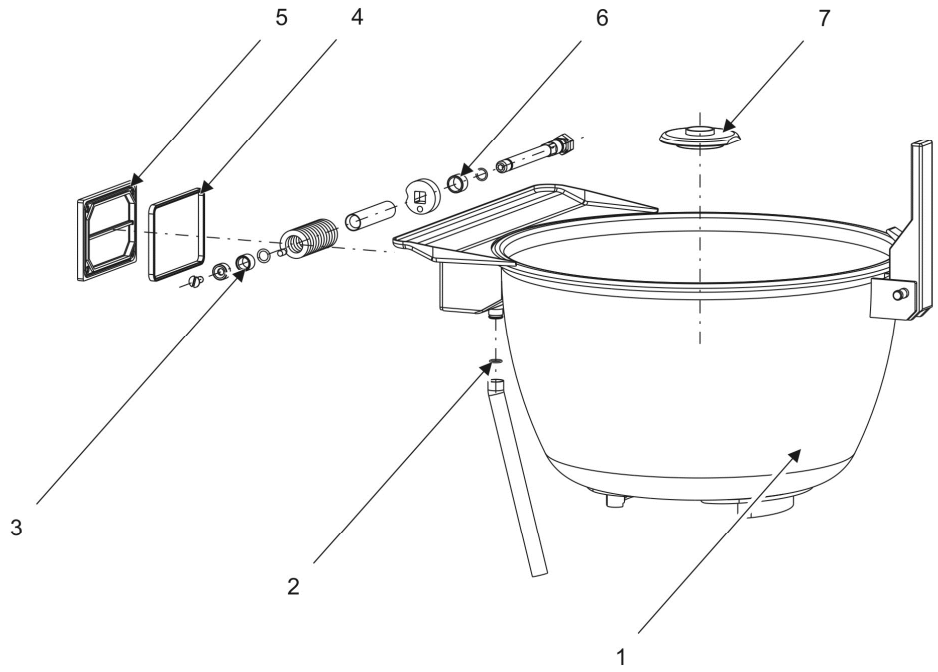
10.3 Container, Assembly Group

10.3.1 Lid



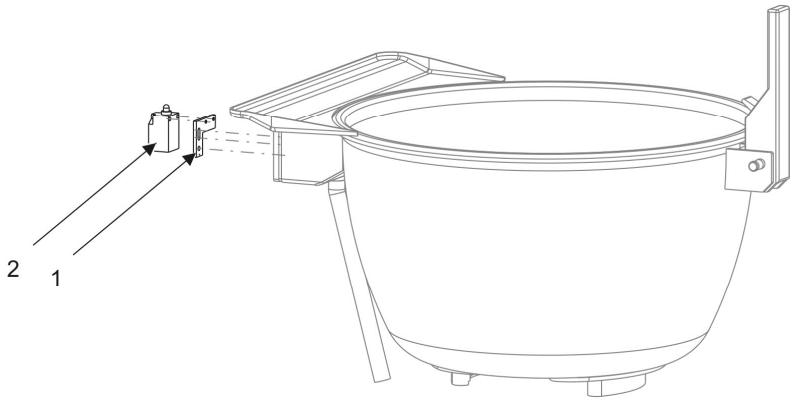
Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
1	Plug		3K2629-10	1	ST			E
2	O-ring	2-119	3I0003-30	2	ST			V
3	Lid seal		3I0100-01	1	ST			V
4	Lid		3B6220-02	1	ST			E
5	Sealing ring		3I0112-02	1	ST			V
6	Inspection lid		3M4023-03	1	ST			E

10.3.2 Bowl



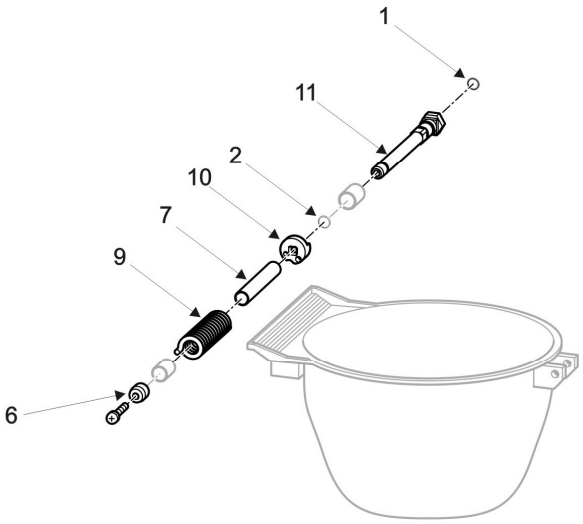
Pos.	Designation	Type	Item No.	No.	Dim.	Ol	Other	
1	Bowl		3B0210-01	1	ST			E
2	O-ring	2-014---12,42*1,78	3I0001-06	2	ST			V
3	Bearing bush	Di15xDa20xL15	3K0401-03	1	ST			V
4	Seal	3,8x6,8x90x146	3I0115-01	1	ST			V
5	Lid, Terminal box		3M2282-02	1	ST			E
6	Bearing bush		3K0401-04	1	ST			V
7	Sealing flange		3KP000-23	1	ST			E

10.3.3 Switch



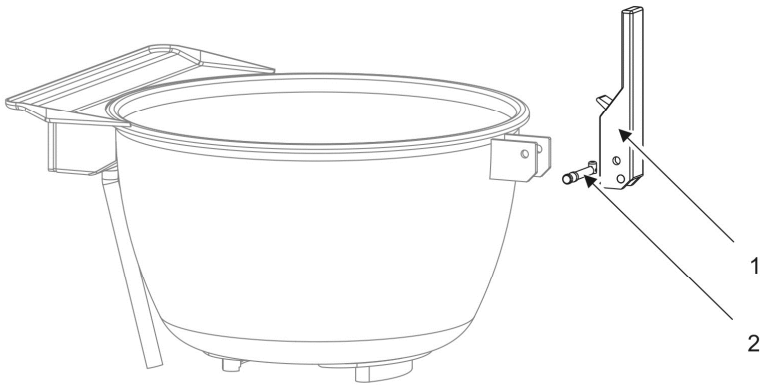
Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
1	Angle		3L0806-02	1	ST			E
2	Switch		3Q6021-02	1	ST			E

10.3.4 Lid opening



Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
1	O-ring	2-112---12,37*2,62	3I0004-01	1	ST			V
2	O-ring	2-014---12,42*1,78	3I0001-06	1	ST			V
6	Cap		3K0307-01	1	ST			E
9	Spring		3M6003-04	1	ST			E
10	Cam disc		3K0712-01	1				E
11	Lid axle		3K2426-01	1	ST			E

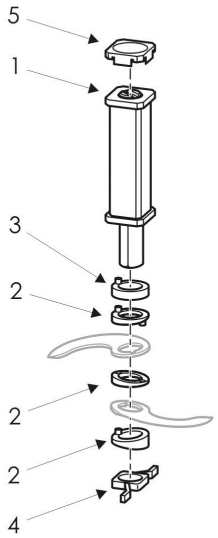
10.3.5 Fastening



Pos.	Designation	Type	Item No.	No.	Dim.	Ol	Other	
1	Lever		3G0025-01	1	ST			E
2	Threaded rod		3K2030-13	1	ST			E

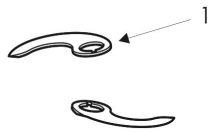
10.4 Machine Tools

10.4.1 Blade mount



Pos.	Designation	Type	Item No.	No.	Dim.	Ol	Other	
1	Blade mount		3D0150-02	1	ST			E
2	Washer set		3K0315-01	1	ST			E
3	Thrust ring		3K0310-26	1	ST			E
4	Nut		3K0008-05	1	ST			E
5	Cap		3M4072-01	1	ST			E

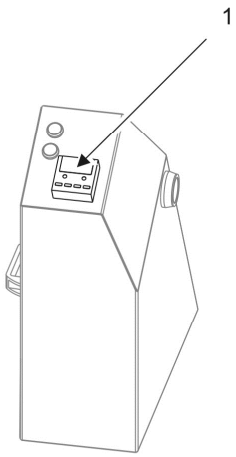
10.4.2 Blade set



Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
1	Knife, wide blade		3D0007-05	2	ST			V

10.5 Electrical Engineering and Installation

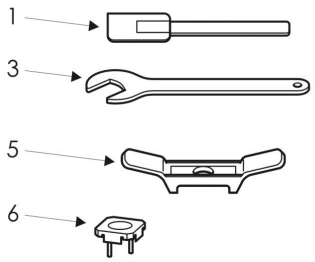
10.5.1 Electrical Parts



Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
1	Counter	SX210	3Q4021-01	1	ST			E

10.6 Accessories and supplied parts

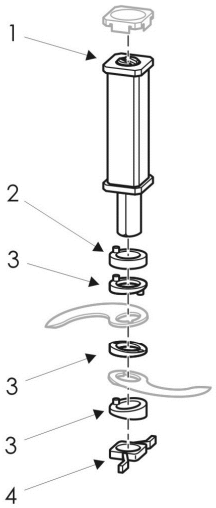
10.6.1 Tools



Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
1	Scraper		3H6000-01	1	ST			E
3	Open-end spanner	SW 50	3H6002-02	1	ST			E
5	Bowl		3G6015-02	1	ST			E
6	Cap		3M4072-01	1	ST			E

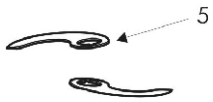
10.7 Optional Equipment

10.7.1 Blade Mount, Assembly Group



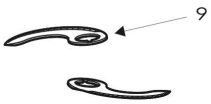
Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
1	Blade mount		3D0150-02	1	ST			E
2	Washer set		3K0315-01	1	ST			E
3	Thrust ring		3K0310-26	1	ST			E
4	Nut		3K0008-05	1	ST			E

10.7.2 Knife Set, Narrow Blades



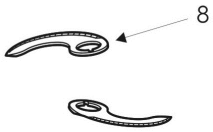
Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
5	Blade		3D0006-07	2	ST			V

10.7.3 Shaft grind blade, narrow



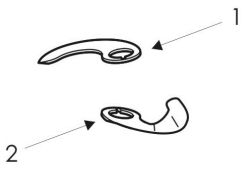
Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
9	Shaft grind blade, narrow		3D0006-08	2	ST			V

10.7.4 Shaft grind blade, wide blade



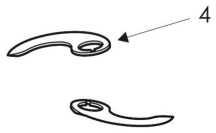
Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
8	Shaft grind blade, wide blade		3D0007-07	2	ST			V

10.7.5 Knife, straight and cranked blade



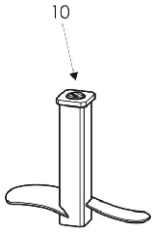
Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
7	Blade, cranked blade		3D0115-05	1	ST			V

10.7.6 Knife Set, Wide Blades



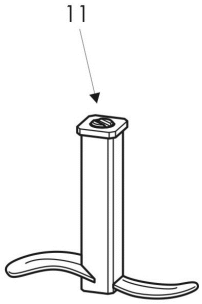
Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
4	Knife, wide blade		3D0007-05	1	ST			V

10.7.7 Mixing insert



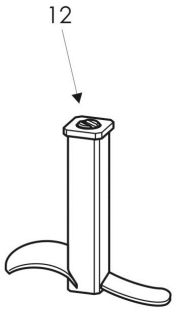
Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
10	Mixing insert		3D4038-03	1	ST			E

10.7.8 Stirrer and kneader insert



Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
11	Stirrer and kneader insert		3D4038-01	1	ST			E

10.7.9 Kneader element



Pos.	Designation	Type	Item No.	No.	Dim.	OI	Other	
12	Kneader element		3D4038-02	1	ST			E

11.Appendix

11.1 Service addresses

MAIN FACTORY

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Fax +7 812 7071187

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Fax +44 845 4560824

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61-441 Poznań
POLAND

Phone +48 618 171201

info.pl@proxes-group.com

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#03-12 Tagore 23 Warehouse
Singapore 787601
SINGAPORE

Phone +65 6455 7670
Fax +65 6455 6220

info.sg@proxes-group.com

SWITZERLAND

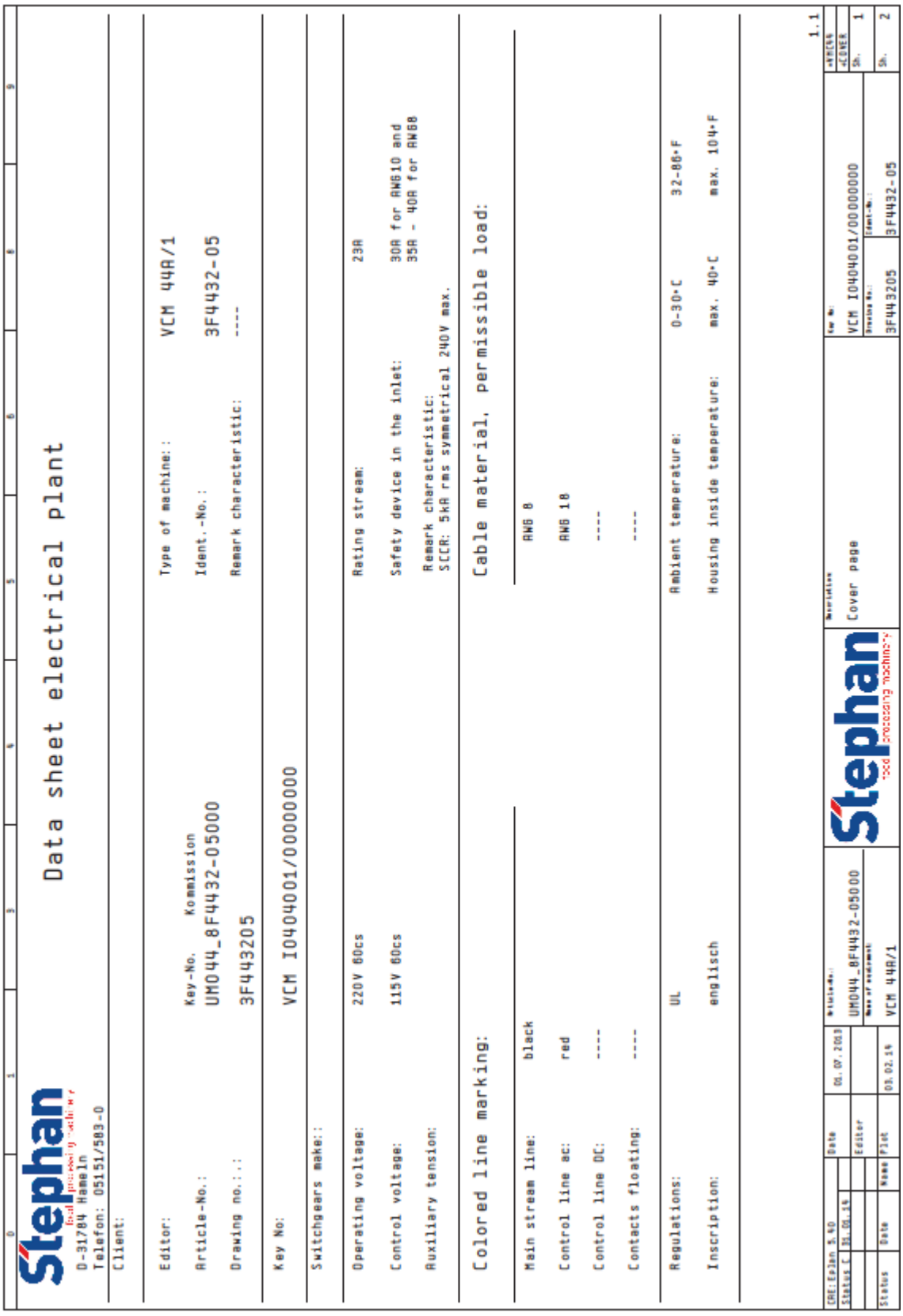
Stephan Machinery GmbH
Verkaufsrepräsentation Schweiz
Gewerbestraße 115
5314 Kleindöttingen
SWITZERLAND

Phone +41 44 9550608
Fax +41 44 9550688

stephan-machinery@bluewin.ch

Representatives in more than 40 countries. Addresses provided upon request.

11.2 Circuit Diagram



Engine rated current according to vehicle identification plate machine

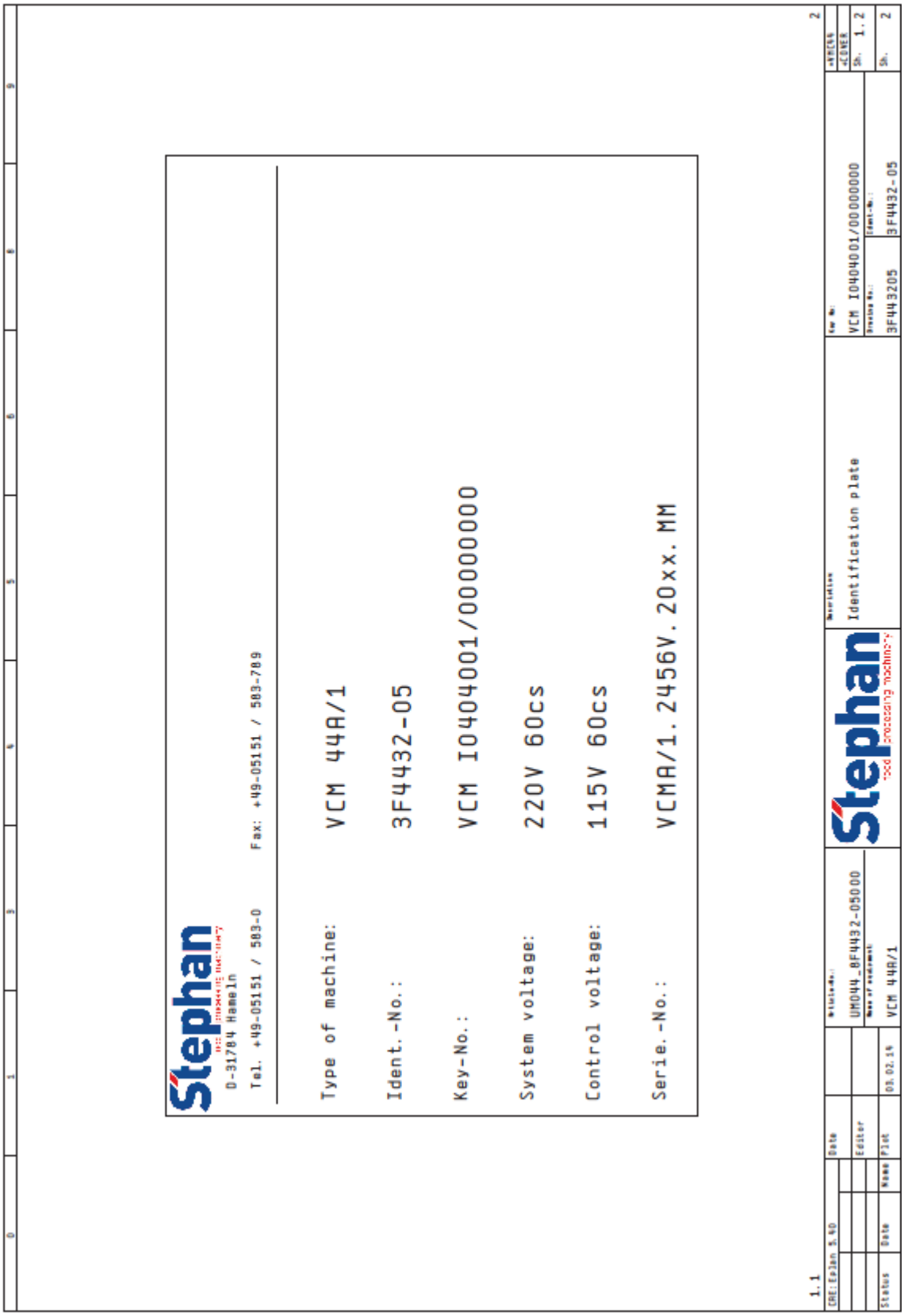
Pos.:	Designation:	Power:	Current:	Voltage:	Type:	ID No.:
1	MAIN MOTOR	5,5kW-7,4 HP	23,0A	220 V D / 60 cs	132S/40	3C0133-17

Stephan

Motor list

VCM 1040401/000000000

3F443205 | 3F4432-05


Stephan
D-31784 Hameln
Tel. +49-05151 / 583-0
Fax: +49-05151 / 583-789
Type of machine: VCM 44A/1
Ident.-No.: 3F4432-05
Key-No.: VCM I0404001/00000000
System voltage: 220V 60cs
Control voltage: 115V 60cs
Serie.-No.: VCMA/1.2456V.20xx.MM
Stephan
Identification plate
VCM I0404001/00000000
3F443205
3F4432-05
UM044_0F4432-050 00
VCM 44A/1

0 1 3 4 5 6 8 9

Table of contents

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Plant	Location	Page	Page Designation	Date	Editor	X
VMC44	COVER	1	Cover page		MRZ	
VMC44	COVER	1.1	Motor list		MRZ	
VMC44	COVER	1.2	Identification plate		MRZ	
VMC44	COVER	2	Contens		MRZ	
VMC44	DIAGRAM	1	Connection diagram 4AM		MRZ	
VMC44	DIAGRAM	2	Main motor		MRZ	
VMC44	DIAGRAM	3	Layout		MRZ	
VMC44	DIAGRAM	4	Terminal diagram	17. Mär. 2005	MRZ	
VMC44	BILL	1	Bill of materials	22. Dez. 2006	MRZ	
VMC44	BILL	2	Bill of materials	22. Dez. 2006	MRZ	

1.2 +DIAGRAM/1

CAE: Eplan 5.40 | Date | Editor | Status | Date | Name | Plot | 03.02.14

UM044_8F4432-05000

VCM 44A/1

Contens

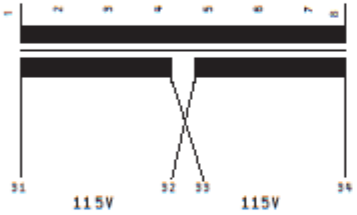
VCM I0404001/00000000

3F443205 | 3F4432-05

+VMC44 +COVER Sh. 2 Sh. 2

Anschlußplan
Connection diagram
Steuertransformator 100VA
Control transformator

Primäranschluß an 2-4
Line Connection to 2-4
durch Starterlieferant
through starter supplier



115 Sekundär

Anschluß Steuertransformator -1T1 Primär
Connection control transformator -1T1 primery

Anschluß durch Stephan-Endmontage
Connection through Stephan-production
Nach Anschlußplan Steuertransformator 4AM für
According to connection plan control transformer 4AM, universal for
die Betriebsspannung laut Stephan-Auftrag,
the operating voltage acc. Stephan order,

Anschluss Connection	für Primär: for primary:
3-4	200V
2-4	230V

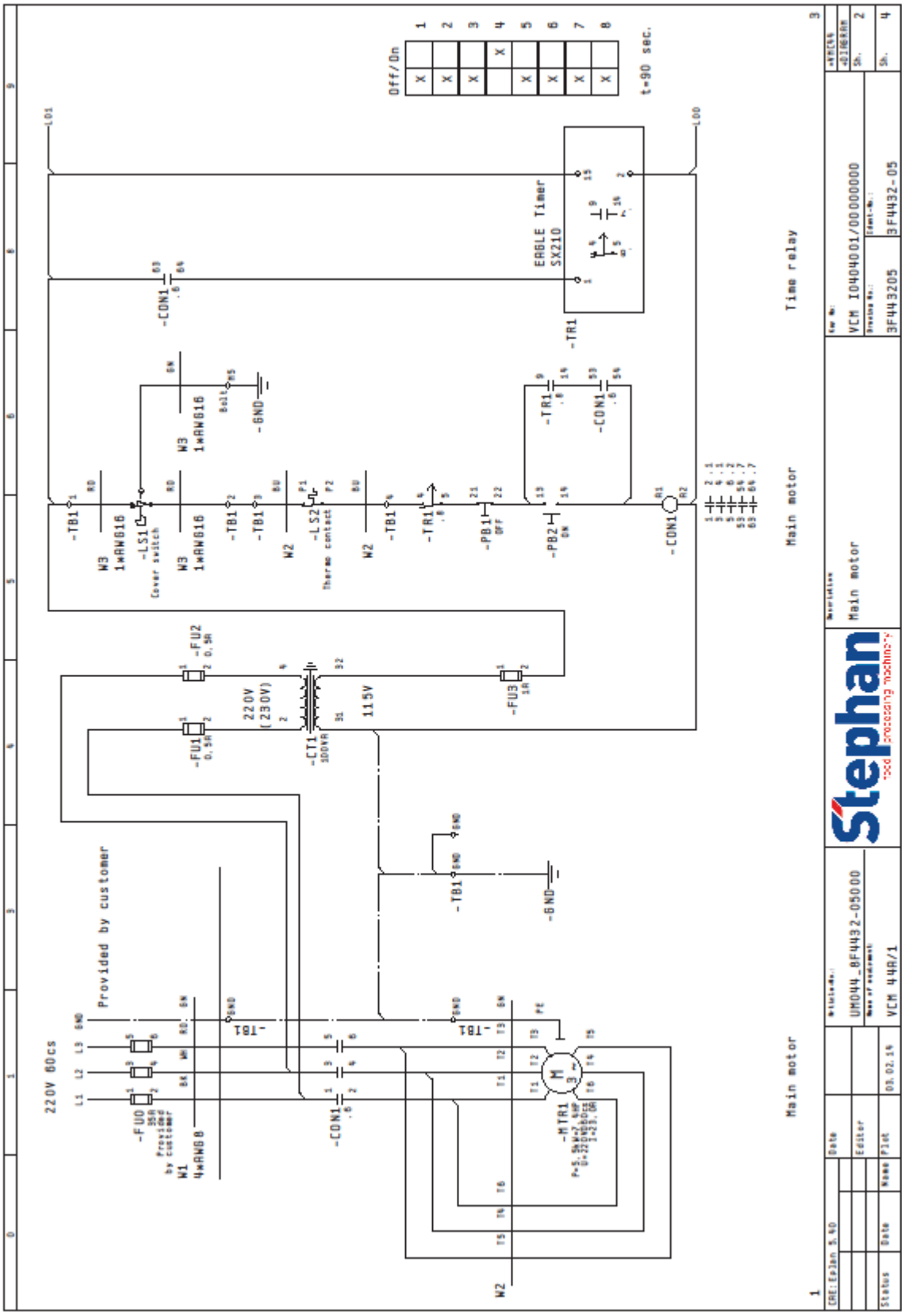
Einstellwert Transformatorschutzschalter -1Q1T
Current setting control Transformator protective circuit-breaker

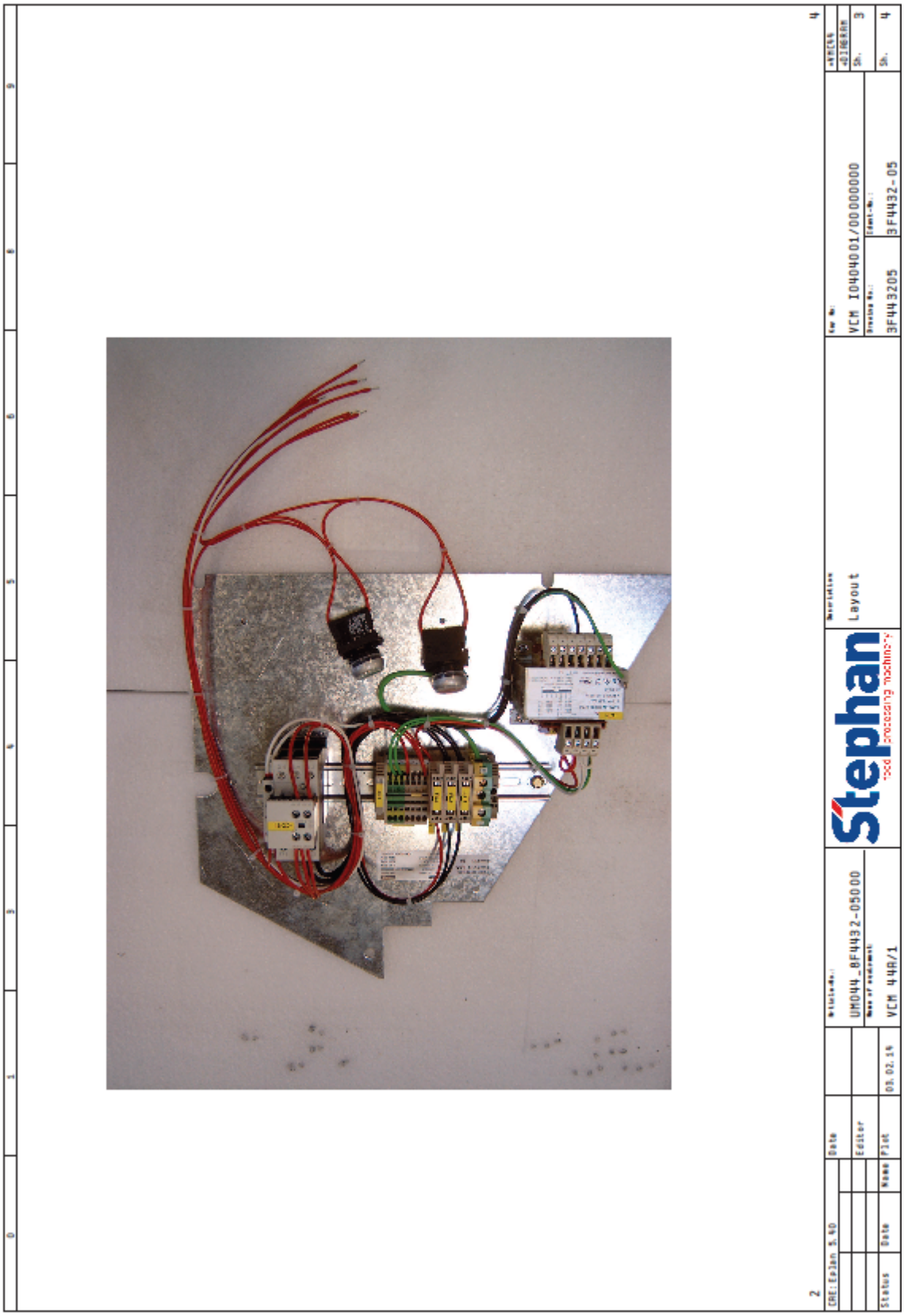
Einstellung durch Stephan-Endmontage
Adjusted through Stephan production
Nach Absicherungstabelle Steuertransformator 4AM für
Acc. protection device settings control transformer 4AM, universal for
die Betriebsspannung laut Stephan-Auftrag.
the operating voltage acc. to Stephan order.

Einstellwert: Current setting:	für Primär: for primary:
1,8DA	200V
1,5DA	230V

+COVER/2 2

CRE: Eplan 5.40			Date		Artikelnr.: UM044_0F4432-05000	Stephan food processing machinery	Description: Connection diagram 4AM	Kom Nr: VCM I0404001/00000000	+KMC%% +DIAGRAM Sh. 1
			Editor		Name of equipment: VCM 44A/1			Drawing No.: 3F443205 / Ident-No.: 3F4432-05	Sh. 4
Status	Date	Name	Plot	03.02.16					


Off/On
t=90 sec.
EAGLE Timer SX210
-TR1
-CON1
-TB1
-LS1
Cover switch
-LS2
Thermo contact
-PB1
-PB2
-GND
-FU1
-FU2
-FU3
-CT1
220V (230V)
115V
-FU0
Provided by customer
220V 60cs
-MTR1
Time relay
Main motor
Stephan
VCM 1040401/000000000
3F443205
3F4432-05
UM044_0F4432-050 00
VCM 44A/1


Stephan
Layout
VCM 1040401/000000000
3F4432-05
3F443205
UM044_0F4432-05000
VCM 44A/1

Terminal diagram

Strip designation

=VMC44+DIAGRAM-TB1

Function text	Cable type	Target design.	Connection	Terminal number	Jumpers	Target design.	Connection	Cable type	Page/Path
Cover switch		-VMC44+DIAGRAM-LS1		1		-VMC44+DIAGRAM-FU3	2		/2.5
						-VMC44+DIAGRAM-CON1	83		
Cover switch		-VMC44+DIAGRAM-LS1		2					/2.5
Thermo contact		-VMC44+DIAGRAM-LS2		3					/2.5
Thermo contact		-VMC44+DIAGRAM-LS2		4		-VMC44+DIAGRAM-TR1	4		/2.5
Supply				GND		GND			/2.1
Main drive		-VMC44+DIAGRAM-MTR1	PE	GND					/2.1
Main drive		-VMC44+DIAGRAM-GND		GND		-VMC44+DIAGRAM-CT1	120V		/2.2
Main drive				GND					/2.2

CAE: Eplan 5.40

Plot 09.02.14

Date 17.03.05

VCM 44A/1

UM044_BF4432-05000

Terminal diagram

VCM I0404001/00000000

3F443205

3F4432-05

=VMC44 +DIAGRAM

+BILL/1

Parts list

QTy	Desc-No..	Article-no.	Ident.-No.	Article destription		Manufacturer
1	VMC44+DIAGRAM-TB1	WPE 35		Schutzleiter-Reihenklemme	40000584	Weidmüller Interface GmbH & Co
3	VMC44+DIAGRAM-TB1	ZPE 2,5	300511-20	Durchgangs-Reihenklemme	40001807	Weidmüller Interface GmbH & Co
2	VMC44+DIAGRAM-TB1	WEW 35/2		Endwinkel	40000514	Weidmüller Interface GmbH & Co
1	VMC44+DIAGRAM-TB1	ZAP/TW 1		Abschlussplatte	40001806	Weidmüller Interface GmbH & Co
2	VMC44+DIAGRAM-TB1	EM 8/30		Verbindermarkierer	40000763	Weidmüller Interface GmbH & Co
4	VMC44+DIAGRAM-TB1	ZDU 2,5	300511-20	Durchgangs-Reihenklemme	40001804	Weidmüller Interface GmbH & Co
1	VMC44+DIAGRAM-FU1	WSI 6/2 GZ/DEF63		Sicherungsklemme	40001808	Weidmüller Interface GmbH & Co
1	VMC44+DIAGRAM-FU1	UL632.314		Feinsicherung	40001417	ESKA
1	VMC44+DIAGRAM-CT1	4AM3442-8DD40-0FA0		Steuertransformator 100VA UPR[V]208_230_380_415_440_460_480_500_525_550	40001803 USE[V]2x115	Siemens
1	VMC44+DIAGRAM-FU2	WSI 6/2 GZ/DEF63		Sicherungsklemme	40001808	Weidmüller Interface GmbH & Co
1	VMC44+DIAGRAM-FU2	UL632.314		Feinsicherung	40001417	ESKA
1	VMC44+DIAGRAM-FU3	WSI 6/2 GZ/DEF63		Sicherungsklemme	40001808	Weidmüller Interface GmbH & Co
1	VMC44+DIAGRAM-FU3	UL632.317		Feinsicherung	40001418	ESKA
1	VMC44+DIAGRAM-PB1	M22-D-R-X0	306073-01	Drucktaster	40000041	Moeller GmbH
1	VMC44+DIAGRAM-PB1	M22-T-D	306072-02	Tastmenbrane	40000045	Moeller GmbH
1	VMC44+DIAGRAM-PB1	M22-A	306074-01	Befestigungsadapter	40000032	Moeller GmbH

+DIAGRAM/4

CAE: Eplan 5.40	Date 19.01.07	Article-No.: UM044_8F4432-05000	Description: Bill of materials
	Editor	Name of equipment: VCM 44A/1	Key-No.: VCM I0404001/00000000
Status / Date / Name	Plot 03.02.14	Stephan food processing machinery	Drawing-No.: 3F443205 / Ident-No.: 3F4432-05
=VMC44 +BILL	Sh. 1	Sh. 2	2

Parts list

QTy	Desc-No..	Article-no.	Ident.-No.	Article destription		Manufacturer
1	=VMC44+DIAGRAM-PB1	M22-CK01	3Q6075-02	Kontaktelement	40000034	Moeller GmbH
1	=VMC44+DIAGRAM-PB2	M22-D-G-X1	3Q6073-02	Drucktaster	40000500	Moeller GmbH
1	=VMC44+DIAGRAM-PB2	M22-T-D	3Q6072-02	Tastmenbrane	40000045	Moeller GmbH
1	=VMC44+DIAGRAM-PB2	M22-A	3Q6074-01	Befestigungsadapter	40000032	Moeller GmbH
1	=VMC44+DIAGRAM-PB2	M22-CK10	3Q6075-01	Kontaktelement	40000035	Moeller GmbH
[illegible]	=VMC44+DIAGRAM-CON1	DILM32-10(110V50HZ,120V60		Leistungsschütz	40002011	Moeller GmbH
[illegible]	=VMC44+DIAGRAM-CON1	DILA-XHI20		Hilfsschalterbaustein	40001992	Moeller GmbH
1	=VMC44+DIAGRAM-TR1	SX210 (110-120V 50/60HZ)	3Q4021-01	Digital Timer	3Q4021-01	Eagle Signal Contro
	J1	MP_3L4426-24	3L4426-24	Montageplatte		

1

CAE: Eplan 5.40	Date	19.01.07	Article-No.: UM044_8F4432-05000	Stephan food processing machinery	Description: Bill of materials	Ker-No.: VCM I0404001/00000000	=VMC44 +BILL Sh. 2
Status / Date / Name	Editor		Name of equipment: VCM 44A/1			Drawing No.: 3F443205 / Ident-No.: 3F4432-05	Sh. 2
	Plot	03.02.14					