

G. A. KIESEL

Operating Instructions

KIESEL - FLOATCLEAR®

B 50

B 55

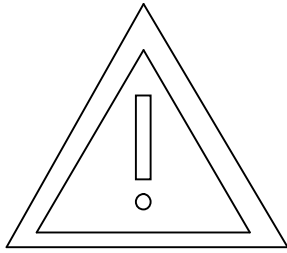
G.A. Kiesel GmbH
Wannenäckerstraße 20
D-74078 Heilbronn
Tel. (49) 0 71 31 / 28 25-0
Fax (49) 0 71 31 / 28 25-50
Web: www.Kiesel-Online.de

Table of contents

1	General.....	4
1.1	Development.....	4
1.2	Application.....	4
1.3	Warranty.....	4
2	Safety.....	5
2.1	Reference symbols found in the operating manual.....	5
2.2	Personnel qualification and training.....	6
2.3	Dangers due to disregard of safety guidelines.....	6
2.4	Safety-conscious work.....	6
2.5	Safety guidelines for operating company/ operator.....	6
2.6	Safety guidelines for maintenance, inspection and connection work.....	7
2.7	Arbitrary alterations and replacement part manufacturing.....	7
2.8	Impermissible operating methods.....	7
3	Consignment and Storage.....	7
3.1	Unpacking.....	7
3.2	Interim storage / Long-term storage.....	7
4	Specifications.....	8
4.1	Flotation process.....	8
4.2	Tools for Flotation Clarifying.....	8
4.4	Manufacturing process for must clarifying.....	10
4.5	Insertion of Flotation Gases.....	11
4.6	Liquid pumps.....	11
4.7	Insertion of Polishing mediums.....	11
4.8	Tanks.....	12
5	Set-up.....	13
5.1	Installation site details.....	13
5.2	Supply Connections.....	13
5.3	Electrical Connections.....	13
5.4	Hose line / Pipe line.....	13
6	Initial Operation / Shutdown.....	14
6.1	Preparation for Operation.....	14
6.2	Polishing Mediums.....	14
6.2.1	Enzymes.....	14
6.2.2	Bentonite / Activated Carbon.....	15

6.2.3	Gelatine	15
6.3	Pumps.....	16
6.4	Air Transfer.....	16
6.6	Inspection of the Flotation Process.....	17
6.7	Seperation of the Sediment Layer and Clear Must	17
6.8	Shutting down Flotation Equipment	18
6.9	Cleaning the Flotation Equipment.....	18
7	Maintenance / Upkeep	18
7.1	General Information	18
7.2	Monitoring during the whole process.....	18
7.3	Disassembly / Assembly	19
7.4	Replacement Parts	19
8	Trouble shooting	20
8.1	Problems and causes	20
8.2	Contact person.....	21
9	Electric pumps	22
9.1	General information	22
9.2	Maintenance and Repair.....	22
9.3	Technical Data	23
9.4	Disassembly Plan – Electric pumps.....	24

1 General



This operating manual contains fundamental references, which must be considered during operation and maintenance. Therefore, this operating manual must absolutely be read by qualified personnel/ operator before connection and start-up and must always be available at the site of the machine/ installation.

1.1 Development

G. A. Kiesel was founded in 1846 and has built, for approx. 70 years, a wide variety of pump models. Kiesel Flotation Installations Floatclear® have been offered in a variety of sizes since 1999.

The name FLOATCLEAR® is copyrighted.

These Flotation installations have proven themselves to be the best for the transfiguration of grape must.

1.2 Application

KIESEL – Floatclear® are flotation installations which are used for must clarifying in white and red grape must.

Attention:

Use Kiesel – Floatclear® only in accordance to design, i.e. use only for the purpose for which the installation was intended.

Any other type of inappropriate use can be regarded as dangerous.

In order to make changes to the nominal width or length of suction and pressure line, a function guaranty must be obtained from the supplier.

The manufacturer is not responsible for damages, which are caused by improper usage.

The flotation installation and the corresponding parts can not, for any reason, be in anyway modified, without first consulting the supplier. Otherwise the manufacturer will not take responsibility for each case where the efficiency and security of the installation is concerned.

1.3 Warranty

The installations are carefully manufactured and are subject to a detailed shop test (quality assurance according to DIN EN ISO 9001-2000).

The inspection entails the materials, the machining, suction and pressure levels of the pumps and the impermeability and function of the installation as well.

With attention paid to the operating instructions, the manufacturer grants a 1 year warranty, starting from the date of distribution. On wearing parts, no guaranteed benefits will be assumed.

Guaranteed benefits are provided only by the manufacturer and must be approved before the benefits are granted by the manufacturer.

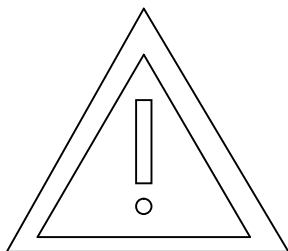
The approved delivery conditions of the manufacturer must to be considered with purchase.

2 Safety

Not only should general safety instructions be considered under the main point of “Safety”, but also those references which fall under other special safety instruction main points, e.g. “Do not let the pump run dry.”

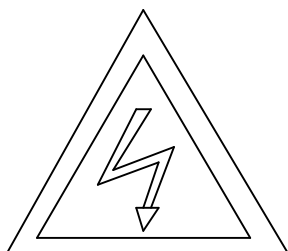
2.1 Reference symbols found in the operating manual

The safety instructions contained in this manual, which are hazardous due to neglect, are specially marked with a general hazard symbol



Safety Symbol DIN 4844 - W8

and high-voltage warnings with this symbol



Safety Symbol DIN 4844 - W9

Safety instructions, which are marked with the word “**Attention**”, mean that neglect is hazardous to the machine or its functions.

References indicated directly on the installation , such as e.g.:

- Rotating direction arrow
- Operating symbols

must be implicitly observed and must be kept in a clearly readable condition.

2.2 Personnel qualification and training

The personnel used for operating, maintenance, inspection and assembly of the installations must exhibit the appropriate qualification for this work. The areas of responsibility, competence and monitoring of personnel must be exactly regulated by the operating company. If the personnel do not have the necessary knowledge, then they must be trained and/ or instructed. This can take place on behalf of the operating company of the installation via the manufacturer/supplier, if necessary.

Furthermore, the operating company must guarantee that the contents of the operating instructions are fully understood by the personnel.

2.3 Dangers due to disregard of safety guidelines

Neglect of the safety instructions can entail both hazard to people and to the installation. Neglect of the safety instructions leads to the loss of any claims of damage.

In detail, neglect can involve the following hazards:

- Hazardous for people due to electrical, mechanical or chemical exposure.
- Failure of important installation functions.
- Failure to use the mandatory methods of maintenance and upkeep.

2.4 Safety-conscious work

Attention should be paid to the safety instructions (consisting of the existing national regulations for accident prevention, as well as possible internal work, operating and safety regulations of the operating company) specified in this operating manual.

2.5 Safety guidelines for operating company/ operator

- The outlet of the relief valve may not be locked.
- Safety devices of any kind must always be in normal, functioning condition (e.g. manometer).

- Protection against contact with moving parts (eg. coupling) are not allowed to be removed from installation during use.
- Electrical hazards are excluded (for details about this see; e.g. the regulations of the German Electrical Engineering Association and the local energy supply companies).

2.6 Safety guidelines for maintenance, inspection and connection work

The operating company has to make sure that all maintenance, inspection and connection work is implemented by authorized and qualified technical personnel, which are sufficiently informed via a detailed study of the installation operating manual, as well as the accessory equipment manual, eg. Pumps.

Fundamentally, work on the installation can only be implemented if it is done in an electric-free, pressure-free condition.

Electrical work (e.g. electrical connection work) should only be done by a professional electrician.

2.7 Arbitrary alterations and replacement part manufacturing

Alterations or changes to the installation are permissible only after an arrangement with the manufacturer has been made. Original replacement parts from manufacturer and authorized accessories can be used, in order to maintain safety.

The manufacturer is not liable for consequences due to the use of unauthorized parts.

2.8 Impermissible operating methods

Operating safety of the delivered installation is only guaranteed through conventional use according to section "1 General" of the operating manual.

The limit values indicated on the data sheet may not, in any case, be crossed.

3 Consignment and Storage

The installation is carefully packed and sent to dispatch.

3.1 Unpacking

The delivery is examined for integrity and intactness. Immediately inform us about any damages by way of the original - waybill confirmation.

3.2 Interim storage / Long-term storage

- The suction and pressure connections are sealed with a cap, blank flange or stopper and after installation must be thoroughly cleaned.
- Storage space: dust-free, dry and secured against heat and frost.

4 Specifications

4.1 Flotation process

Flotation – flotation comes from the english language and means „swim – float – buoying upwards.“ The closer meaning is: grape pieces swim upward to the top of a liquid, thus a clean separation of the sediment from the clear liquid can be obtained.

The clarifying procedure is based on the insertion of small gas vesicles into the liquid. These attach themselves to the sediment pieces in the must and drive them to the surface.

The sediment stays there and builds a solid layer. This layer can be continually scraped from the top or the clear liquid can be extracted by suction from the residual drain of the holding tank.

Flotation clarifying has been a common procedure in waste water treatment for a long time. In the past few years, it has been used more intensively in the preliminary sedimentation of wine musts. Today, it can be used as a proven process for improving the quality of wine.

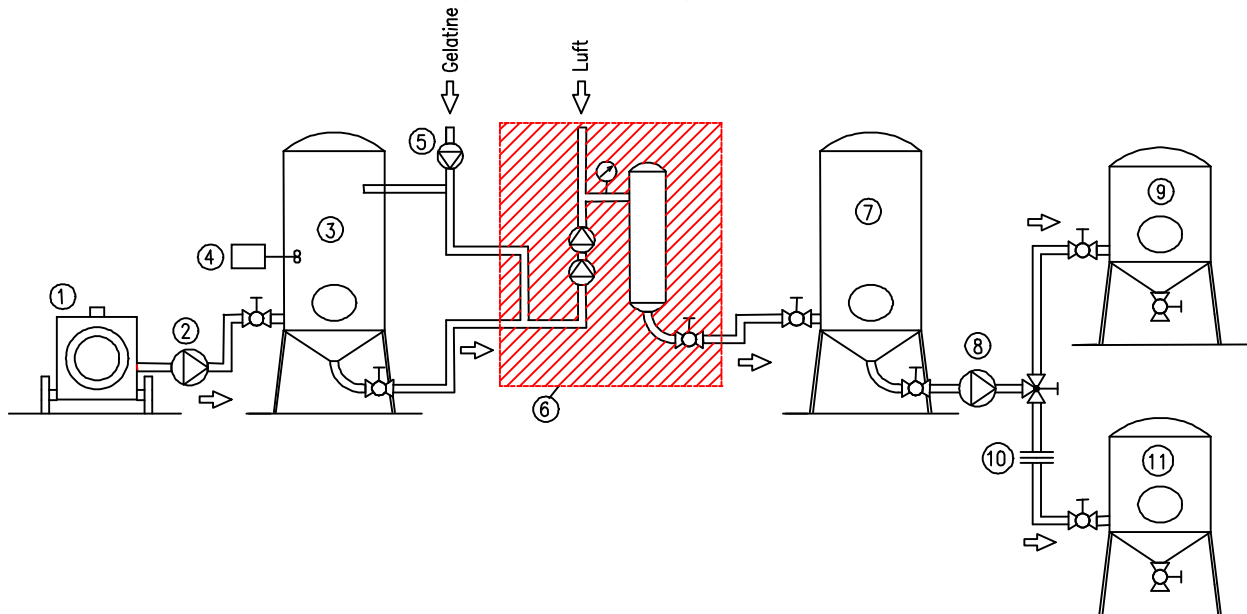
4.2 Tools for Flotation Clarifying

The following tools are needed for the implementation of flotation clarifying:

1. Flotation installation
2. 1 tank for sediment (must tank) and 1 tank for floating wine must (flotation tank).

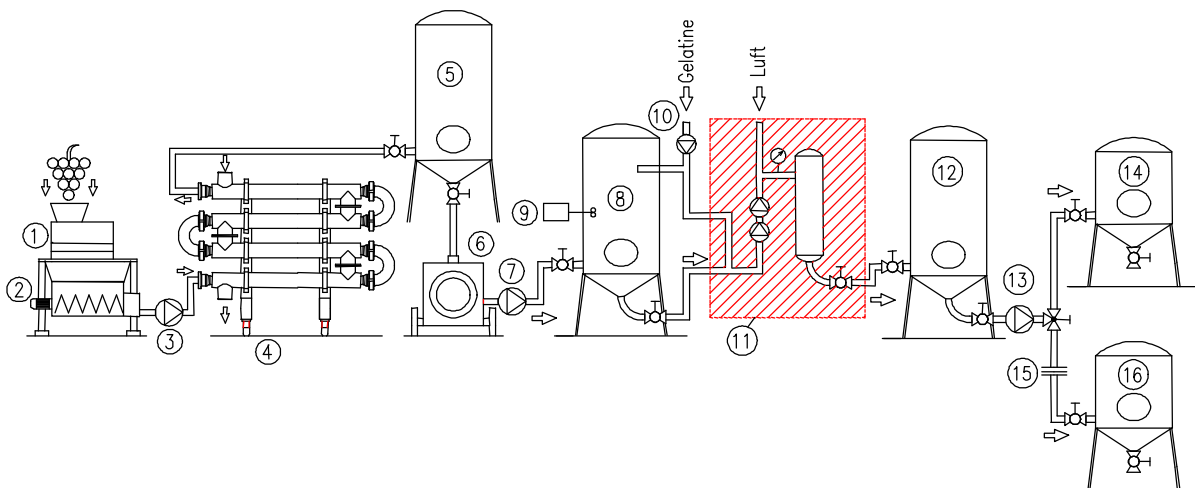
4.3 Flotation process with KIESEL-FLOATCLEAR®-Installation

Flotation for the clarifying of white wine grape must



- | | |
|---|--|
| (1) Press | (6) KIESEL- FLOATCLEAR® |
| (2) Must pump | (7) Flotation tank |
| (3) Must tank with raw grape must | (8) Wine pump for the extraction of clear must |
| (4) Mixer | (9) Fermentation tank |
| (5) Polishing medium dosage in the must tank or continuous in flotation equipment | (10) Sterile filtration (eg. Crossflow) |
| | (11) Sweet reserve tank / Container |

Flotation for the clarifying of red wine grape must



- | | |
|------------------------------|--|
| (1) De-berrying maching | (9) Mixer |
| (2) Funnel with spiral screw | (10) Polishing medium dosage in the must tank or continuous in flotation equipment |
| (3) Mash pump | (11) KIESEL- FLOATCLEAR® |
| (4) Mash boiler | (12) Flotation tank |
| (5) Mash tank (resting tank) | (13) Wine pump |
| (6) Press | (14) Fermentation tank |
| (7) Must pump | (15) Sterile filtration (eg. Crossflow) |
| (8) Must tank | (16) Sweet reserve tank / Container |

4.4 Manufacturing process for must clarifying

In principle, white and red grape must can be clarified.

Simple air is used as flotation gas, but nitrogen can also be used at any time.

Flotation clarifying must begin directly after pressing. Fermentation is not allowed to begin. As soon as CO₂ accumulates during fermentation, flotation is no longer feasible.

In order to bond the grape pieces in the wine must and let the compact floating sediment layer develop, it is essential to use polishing mediums. Gelatin, bentonite, casein fining and enzymes act as polishing mediums.

The gas for flotation is inserted into the wine must with pressure. Thereby, a large absorption of gas vesicles in the liquid is guaranteed.

In the liquid stream (grape must), an positive pressure of approx. 6, with the help of a compressor in the flotation equipment, continually inserts air into the wine must. This is extracted by suction out of the storage tank (must tank num. 3) with freshly pressed wine must and then pumped through the flotation equipment in another tank (flotation tank num. 7).

The clarifying procedure in the flotation tank is carried out very quickly, due to the immediate reaction of the polishing medium and the inserted air vesicles.

After a short waiting time (approx. 1-2 hrs.), the clear must is pumped out of the bottom of the tank.

One can see the the line between the clear liquid and the sediment layer through a lighted inspection glass.

The consistency of the sediment layer is very dependent upon the polishing medium dosage and the waiting period. Further liquid extraction, eg. through a yeast filter, is normally not necessary.

Except for the slight residue that sticks to the tank inner-wall, the sediment can be pumped out of the tank with positive displacement pumps/eccentric screw pumps. The tank can then be cleaned out with a water hose and used again for flotation.

Adding fresh pressed must in the must tank is always possible with larger amounts. An adequate size has to be choosen for the flotation tank, so an approx. 1 hour operating life is ensured. The above mentioned flotation process runs discontinuously. This is the most economical way for clarifying grape must.

The flotation procedure is simple to implement.

Product and flotation pumps for grape must are commissioned. The flow rate, for which the installation is set up for, has to be adjusted on the ball valves. The conveyance-mass can be read on the quantity flow meter for must.

The pressure gauge has to be at approx. 4.8 – 5.0 bar positive pressure. The required amount of air can also be read on a air-flow sensor and is precisely adjusted by way of a fine metering valve.

The flotation procedure is finished after the tanks (must tank) filled with unclarified must are emptied. The pump(s) are switched off and the air supply is shut off. After a short waiting time (approx. 1 – 2 hrs.), grape pieces and clear liquid separate in the tank (flotation tank), which is filled with floating wine must. A solid sediment layer floats on the clear liquid.

The clarified must is then pumped, with the help of a wine pump (eccentric screw pump), to another tank for fermentation.

The KIESEL-FLOATCLEAR®-installation is so designed, that work can be done without supervision. Once set, you are guaranteed an absolutely failure-free preliminary sedimentation procedure.

4.5 Insertion of Flotation Gases

Air is normally used for flotation gas when clarifying white or red grape must. The air is inserted into the must by way of the flotation installation ((KIESEL-FLOATCLEAR®).

The air is metered, completely oil-free, through a filter system. The amount of air which can be brought in depends on the flow direction (approx. 1.5-2 l/min.).

It is also possible to use nitrogen as a flotation gas for the flotation procedure.

This is added to the wine must through a pressure-reducing valve in the flotation installation with a positive pressure of approx. 6 bar.

The necessary amount of gas is dependent on the size of the wine must volume stream.

The dosing amount for the air is described in pos. 6.4

No color loss occurs when air is used as flotation gas for clarifying red grape must.

Color changes, due to oxidation with air, are again omitted in the fermentation process.

4.6 Liquid pumps

A minimum pressure of 5 bar is necessary in order to insert a large amount of gas and high-pressure pumps are used with this feed pressure.

4.7 Insertion of Polishing mediums

Polishing mediums are necessary for flotation, in order to get a better separation of the grape sediment and the clear liquid.

They ensure that the floating sediment doesn't sink, instead it swims upwards and forms a solid floating sediment layer.

Gelatin, bentonite, casein fining and enzymes act as the best mediums.

The addition of these clarifying mediums result from

- a) continuous or
- b) discontinuous

An adjustable metering pump with a separate mixing container is necessary for continuous dosing. Therein, the gelatine is dissolved and continually inserted into the volume stream of the must pump, with the help of a pump. An secure separation process is possible through the immediate effect of the medium.

Discontinuous insertion of the polishing medium also guarantees a secure flotation process for the processing of smaller must quantities.

Traditionally, polishing can be manually inserted into the tank with unclarified wine must. Polishing is evenly distributed in the tank, with the help of a mixer in the must tank. The entire tank contents stay in motion through repeatedly switching on the mixer.

The must is pumped out of the tank and fed through the flotation equipment with the product pump. Smaller flotation installations with an hourly capacity of up to 10,000 ltr./h have traditionally proved the insertion of polishing mediums directly in the must tank. Continuous dosing, however, brings about the most consistent results.

Please notice that when enzyming the mash or must, the temperature dependent waiting time must be adhered to.

4.8 Tanks

For flotation clarification, any usable container in the wine cellar can be used as a flotation or must tank.

The tank for unclarified must (must tank) should have a connection for attaching a mixer and liquid level indicator as well.

Any wine storage tank can be used as a tank (flotation tank), in which the floating must would be fed.

A smooth surface inside the tank simplifies cleaning.

Further requirements for the tanks are not needed.

Only an extra free tank is required for discontinuous flotation.

The floating must has to be fed through the waste drain or clear drain in the flotation tank.

The clear must is extracted from the waste drain in the flotation tank.

5 Set-up

5.1 Installation site details

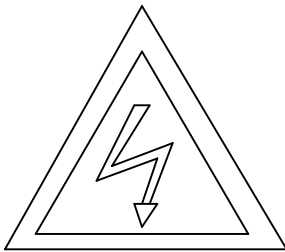
Attention:

- Protect aggregate from weather influences.
- Pay attention to ventilation and exhaust and possible noise control regulations.
- Check to make sure that transportation / evacuation of the flotation installation or its components to / from the installation site is possible without the danger of accidents.

5.2 Supply Connections

Check to make sure that the necessary type and amount of supply connections, eg. electric or air, for the installation and/or operation are available.

5.3 Electrical Connections



Electrical connections, as well as electrical protection and control equipment are to be installed, according to VDE and EVU regulations, by a qualified electrician.

Attention:

- Power supply voltage and frequency have to comply with required data.

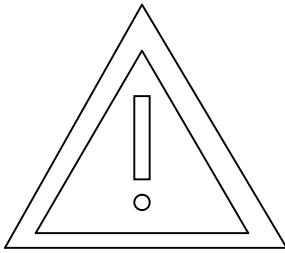
5.4 Hose line / Pipe line

Attention:

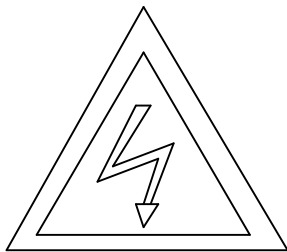
- Please contact the manufacturer when modifying or laying out pipe line sections of the flotation installation!
- The hose and/or pipe line system on the flotation installation has to be cleaned of welding beads and foreign bodies, etc. before connection, thus damage and malfunction can be avoided.

KIESEL-FLOATCLEAR® Gr. B50 / B55 = Nominal width DN32

6 Initial Operation / Shutdown



During initial operation, please remember all factory safety regulation, as well as the Government Safety Organization's Accident Prevention Regulation.



Electrical protection equipment is to be installed, according to VDE and EVU regulations.

6.1 Preparation for Operation

Attention:

It has to be ensured that the following points must be checked and implemented, before switching on the pump:

- Rotation direction of the pump is the same as the arrow direction! The rotation direction can be seen through a window on the back of the flotation pump(6).
- Hose and/or pipe lines on the suction and pressure sides must be attached.
- Make sure suction lines are sealed well during initial operation.
- Make an inspection to see if all shut-off valves in the lines are open.

6.2 Polishing Mediums

6.2.1 Enzymes

Dosing and mode according to manufacturer's instructions. Enzyming should not be passed over at the beginning of harvest time.

Allowance:

2-5 g / 100 ltr. must (Notice manufacturer's instructions!)

Waiting time at the harvest temperature

approx. 20 - 25°C

1 hour exposure time

approx. 15 - 17°C

approx. 2 hours exposure time

below 15°C

approx. 3 hours exposure time

below 12°C

heat must (eg. in double pipe heat exchanger).

6.2.2 Bentonite / Activated Carbon

Both mediums can be used for flotation. The manufacturer dosing instruction must be followed carefully. Course grained bentonite should be used. It must swell up for 10 hours and then directly stirred for approx. 20 minutes before the flotation procedure. Bentonite mixes, which are older than 5 days, are not allowed to be used for flotation clarifying.

6.2.3 Gelatine

Only warm soluble high blooming gelatine is allowed to be used for flotation. Bloom values of 160 – 180 are ideal. Do not use a cold soluble gelatine. A 2% solution should be mixed. (2kg gelatine / 100 ltr. water ratio) higher percent solutions can be used at any time.

Gelatine dosing 5 - 15g / 100 ltr. must. The more the gelatine, the firmer the sediment layer and the better the clarifying.

Attention: Do not set the clarifying level too high, because then failures during the fermentation process can occur, due to missing “inner-surfaces” in the must.

Example of batch moderate dosing

5,000 ltr. must	=	10g / 100 ltr. must
	=	25 ltr. / 2% solution
	=	500g gelatine

Continuous dosing at an hourly capacity of 10,000 ltr./h

10,000 ltr./h must	=	10g / 100 ltr. must
	=	50 ltr. / 2% solution
	=	1,000g gelatine

The gelatine should be held at approx. 40 – 50 °C during the whole processing time, (see accessories for KIESEL-FLOATCLEAR® Installation – dosing units for flotation dosing pumps with heatable containers and mixers).

The gelatine is mixed with cold water for approx. 30 minutes and left to swell (ratio 1:5 ; gelatine / water). Afterwards, hot water (approx. 60°C) is mixed in under constant stirring until a solution ratio of 2:10 (gelatine / water) is reached. The temperature can not drop below 50°C during this time.

Attention! Keep unnecessary gelatine warm, since it tends to quickly dry out and stop-up pumps and lines. The container, pumps and lines must be cleaned with water (approx. 50°C) after use.

Attention: Preparation for flotation
high gelatine dosing - firmer sediment layer
high bentonite dosing - firmer sediment layer

The sediment layer should be easily pumped out of the flotation tank with the help of an eccentric screw pump.

6.3 Pumps

By the connection of the power supply plug (Ceekonstecker 32A) to the control cabinet on the mains. Consider security:

$$\text{KIESEL - FLOATCLEAR® Gr. B 50} = 16\text{A}$$

6.4 Air Transfer

The fine dosing valve for air transfer is opened after the pump has been switched on. Air, with a positive pressure of approx. 7 bar, is blown into the flotation installation. The air amount is adjusted according to the floating must quantity.

$$\frac{\text{KIESEL-FLOATCLEAR® B 50 max. } 1.5 - 3 \text{ ltr./min.}}{\text{KIESEL-FLOATCLEAR® B 50 max. } 180 \text{ ltr./h}}$$

$$\frac{\text{KIESEL-FLOATCLEAR® B 55 max. } 5 \text{ ltr./min.}}{\text{KIESEL-FLOATCLEAR® B 55 max. } 300 \text{ ltr./h}}$$

The pressure of the inserted air pressure (nitrogen) has to be at a basic level of 6 bar. The pressure is adjusted on the compressed air regulator. The pressure can be increased by turning the adjustment knob clockwise.

When turning the adjustment knob counter-clockwise, this decreases the pressure.

6.5 Flotation process

The pressure relief valve (4) is completely opened before the pump is switched on. Turn on the pump (1). Close the pressure relief valve until approx. 5.7 bar is shown on the manometer (3). Afterwards, the flotation gas is inserted. For this, the valve (8) behind the air-flow meter is opened, so that the flotation gas can steam in.

1. Compressor air or nitrogen:
The air hose is connected to the air unit (12).
2. Ambient air
Is independently drawn in through the valve (7).

Gas insertion is controlled by way of the air-flow meter (6). Pressure should stay at approx. 5.2 bar during the flotation process. The amount of inserted gas can vary from must to must. Depending on pump type, from 1.5 up to 6 ltr./min. of air and/or nitrogen flotates. The vent (8) is first closed when ending flotation and afterwards the pump is shut-off.

The KIESEL-FLOATCLEAR-Installation had the best flotation performance when the exiting must looks very "milky". This can be recognized after a running time of approx. 30 seconds and the correction of the pressure control valve and/or the air inlet.

6.6 Inspection of the Flotation Process

The effects of the polishing should be tested in a barrel before the flotation installation start-up.

The unflotated must is filled into a 100ml glass cylinder with the polishing medium.

After approx. 5 – 10 min., one can notice flakes setting on the bottom of the glass, when the polishing is „pulling“. This function has to be ensured before flotation, otherwise a small volumen sediment layer will not build up during flotation. After the flotations process has ran for approx. 2 – 3 minutes, a sample (5) of the must can be taken from the pressure relief valve and also put into a glass cylinder.

An ideal flotation process can already be seen in a glass cylinder after a short period of time, the “upward movement” of the grape sediment and the fine air vesicles are noticeable.

After about 15 minutes, the must has to be clarified, that means a sediment layer (with a maximum of 10% of the whole volume) has build up and is floating on the surface.

After about 30 –40 minutes, one can see, in comparison to the first glass cylinder, that a sedimentation depot of approx. 30% of of the whole volume has built up on the bottom.

If the test shows the above mentioned results, then all of the must quantity can be “flotated” in the flotation tank.

6.7 Seperation of the Sediment Layer and Clear Must

As soon as the complete must quantity is pumped through the flotation equipment in the flotation tank (7), a waiting time of approx. 1 to 2 hours begins. During this time, all grape material rises with the air vesicles to the surface. The layer sets itself until a volume of approx. 5 to 15% of the whole volume is reached. The longer the waiting time, the more solid the sediment layer.

However, a waiting time of approx. 4 hours should not be exceeded, because pieces can settle again.

The clear must is extracted from the flotation tank underneath from the waste drain through an inspection glass or sediment measuring device. The pump is manually switched off after the first sign of the sediment in the inspection glass. This process is can be automated with the use of a sediment measuring device. Depending on the sediment ratio of the must, the pump switches automatically off.

The clarified must is provided with pure yeast cultures in the fermentation tank and the fermentation process is set into operation. Alternatively, the must can be pumped through a sterile filter and stored as a sweet reserve.

The sediment layer can still be processed through the yeast filter.

Attention, the sediment layer can not be, for any reason, disposed of into city sewage or trash pick-up. Please notice the local disposal regulations.

After the extraction of the sediment layer out of the flotation tank, waste sediment will be freed by way of spraying out the tank. Afterwards, it is again ready for further flotation processes.

6.8 Shutting down Flotation Equipment

The flotation installation is shut down in the following order, with KIESEL – FLOATCLEAR® Gr.1 and Gr.2:

1. Shut down the polishing medium dosing
2. Shut down the air supply (6)
3. Shut down the flotation pump (1)

This order must be followed, in order to simplify priming during the next flotation process. Old gelatin waste is disposed of. Gelatine should not be older than one day.

6.9 Cleaning the Flotation Equipment

KIESEL – FLOATCLEAR® is cleaned by rinsing with clear water and afterwards the last must waste is blown out with air pressure.

Cleaning should be done after every work day.

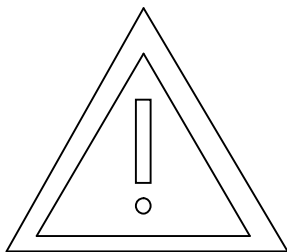
If the equipment will not be in operation after the harvest season, then the equipment should be completely emptied of waste water.

It is advised to clean the equipment with an acid solution (max 2% tot.) before storage.

The equipment should be rinsed out again (approx. 20 – 30 minutes), before start-up in the next autumn.

7 Maintenance / Upkeep

7.1 General Information



- Work on machine should only be done when the plug is no longer in the electrical socket.
- Make sure the pump motor is protected against accidental and unwarranted starting.
- Notice that when detaching lines, the lines are in a non-pressure condition.
- Shut-off valves on the suction and pressure sides, have to be closed.
- Instructions can be found in chapter 6 for the restarting operation.

7.2 Monitoring during the whole process

Pump information notifications on stocked manometers, flow meters etc. notify and compare with other readings under the same operating conditions.

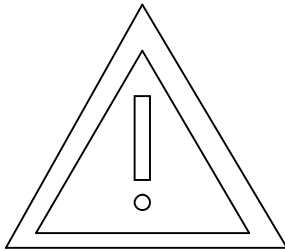
The cause of noticeable deviations can be determined.

Pressure parts have to be regularly inspected.

It is understood that that flotation equipment must be cleaned via the recycling of water or cleaning agents. Left over waste from the fed medium should be removed from the equipment.

When cleaning the equipment, it should be noticed that no water gets into pump motors, switch cabinets or other electrical parts. Damage to electrical parts, which occur due to water or liquids, cannot be liable.

7.3 Disassembly / Assembly



Disassembly and assembly can only be done by qualified technicians, and under the consideration of the Government Safety Organizations' factory safety regulations.

A replacement part list, piece list and other instructions, in chapter 8 of the operating instructions, are attached in order to help when assembling the flotation installation.

7.4 Replacement Parts

The following replacement parts should always be in stock:

- 1 Sealing kit for the installation
- 1 Set of control leakage shaft seals for pump
- 1 Charcoal filter replacement (a new filter every season)
- 1 Micro filter replacement (a new filter every season)

All replacement part orders should include the installation type and number. The replacement part numbers can be found in the catalogue.

8 Trouble shooting

8.1 Problems and causes

Problem	Causes
Pump doesn't prime alone.	Place the pump under or at the same height as the waste outlet of the must tank. Waste outlet valve open! Rotation direction of the pump is wrong!
Pumps don't have suction and drip	Slip-rings on the must pumps are damaged. Do not let pumps dry-run! Replace slip-ring. Rotation direction of the pump is wrong!
Pumps do not reach positive pressure	Pumps are sucking in air through the suction hose, inspect seals and suction hose. Slip-ring destroyed – replace. Rotation direction of the pump is wrong!
Flotation effect changes. Lack of air pressure	Check compressor to see if too much air is entering from other equipment, eg. press. Do not interrupt flotation until enough air pressure has built-up.
Polishing mediums don't "pull"	Waiting time for enzyming was not observed. For temperatures over 15°C approx. 1 hour waiting time, under 15°C (bis 12°C) approx. 2 hours waiting time. At temperatures under 10°C – heat mustg (Double pipe heat exchanger). Use only high blooming gelatine (160 – 180 bloom) eg. Erbigel - Flot. Discard old gelatine, Alte Gelatine verwerfen, mix in new gelatine according to instructions. Bentonite must be steeped for at least 10 hours. Bentonite new agitate.
No flotation effects, sediment flakes are not going to the top – staying in abeyance	Check amount of air and pressure. Check amount of gelatine. Concentration 2%=2 kg to 100 ltr. water, dosing 5 – 15 g to 100 ltr. must. Dosage of enzymes. Dosing approx. 2g to 100 ltr. must imperatively at harvest beginning, as must or mash polishing, stick to waiting time. Must fermentation has already started. After the beginning of the fementation procedure, flotation

		clarifying is no longer possible. Must weight is too heavy. With Eis wine, flotation clarifying is provisorily possible through high sugar and pectin content.
Feed amounts are falling		Pre-filter, clean corner pipe sieve(1). Clean rotating brush sieve.
Pressure control valve blows off, must trickles out		Set ball-valve according to instructions, pressure and feed amount are to high
Strong foam buil-up		Air dosing too high, check air pressure and amount of dosing. Defective ball-valve setting, readjust ball-valve.

8.2 Contact person

Should further problems arise, ask a professional!

Your dealer:

Address:

Tele:

Manufacturer:

G.A. KIESEL GmbH
Wannenäckerstr. 20
D- 74078 Heilbronn

Contact person:

Herr Heim
Herr Mertz

Tele. Num.:0 71 31/ 28 25 – 39
Tele. Num.:0 71 31/ 28 25 - 26

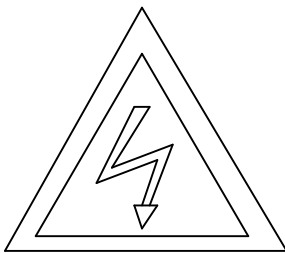
Mobile: 01 72/ 7 26 50 76
Mobile: 01 72/ 7 26 50 98

9 Electric pumps

9.1 General information

- The electric pump can never be allowed to operate without liquid. Lack of liquid can cause serious damage to internal components.
- When the electric pump operates for a longer time with a closed ball-valve on the outlet pipe, damage can occur.
- It is recommended to turn off the switch during a power outage.

9.2 Maintenance and Repair



All maintenance must be made unplugged or with power main switched off.

Only qualified technicians are allowed to disassemble the electric pump. The same applies to repairs and/ or replacement parts. Disregard to this provision, makes the warranty null and void.

When the pumps are not used for a longer period of time, they should be rinsed with water and emptied. Make sure that there is not any water deposits on the inside. This is especially important, because of frost danger, in order to prevent damage to the pump body.

Periodical Inspection:

Pressure and voltage fluctuations, abnormal vibrations or sounds indicate a malfunction. It is advisable to log operating conditions periodically, so that the first signs of malfunctions can be noticed.

9.3 Technical Data

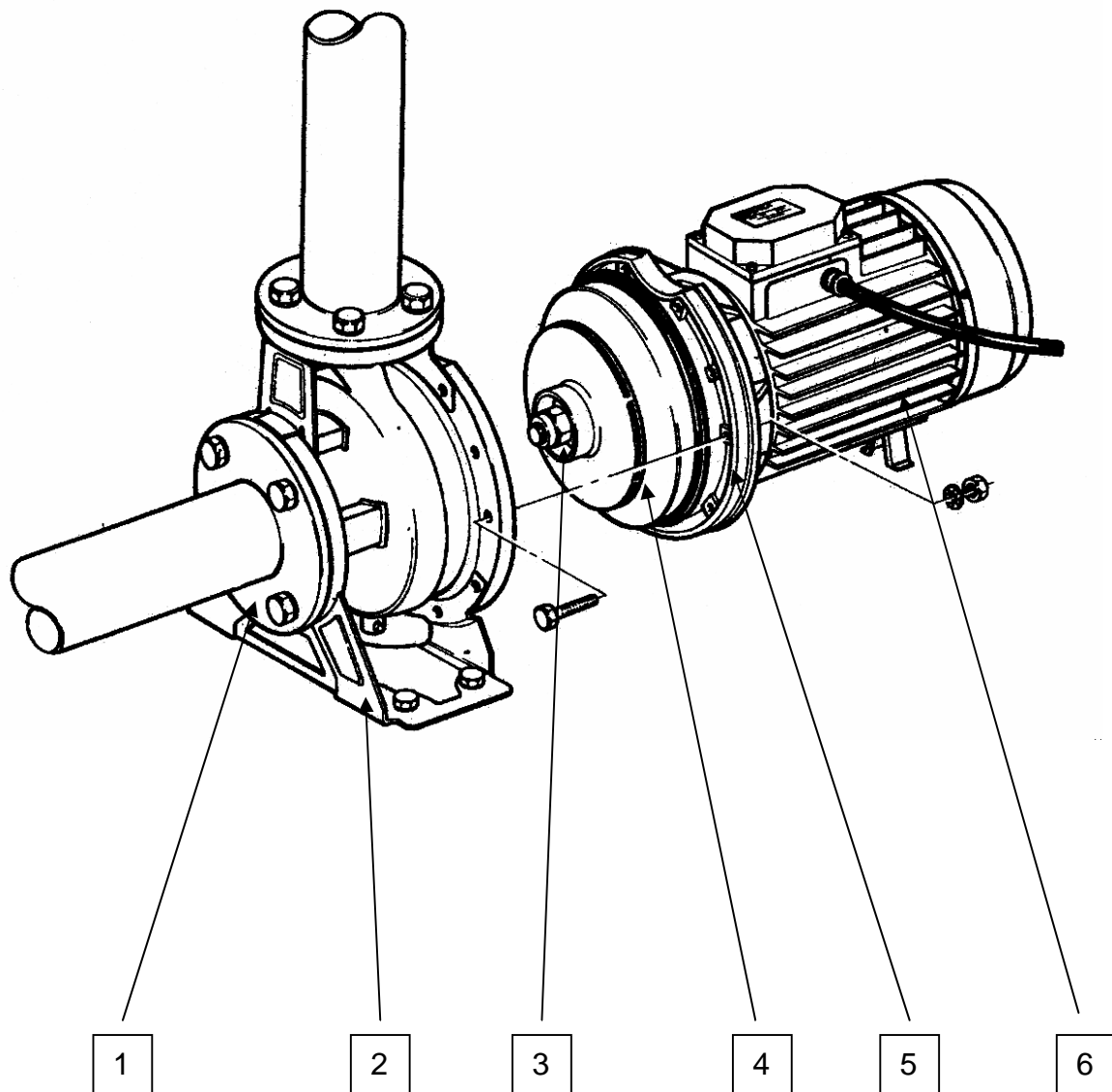
Pumps:

Highest pumped liquid temperature	°C	90
Max. Intake level	m	6 (at 35°C)
Max. Operating pressure	Bar	10
Rotor disk type		closed
Shaft seal		mechanical
Storage type		covered ball-bearing
Intake diameter	mm	50
Outlet diameter	mm	32
Rotor disk material		stainless steel
Pump body material		stainless steel
Gasket cover material		stainless steel

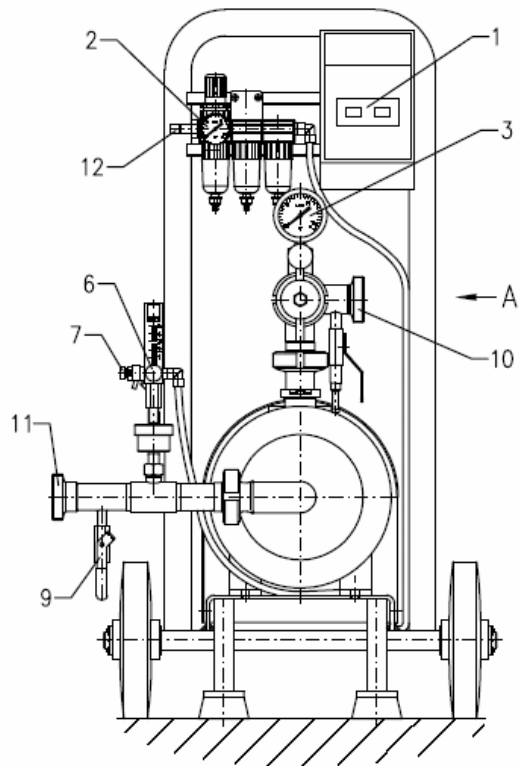
Motors:

Capacity	KW	see type plate
Type		with forced air circulation T.E.F.C
Insulating class		F
Degree of protection		IP55
Operation mode		continuous operation

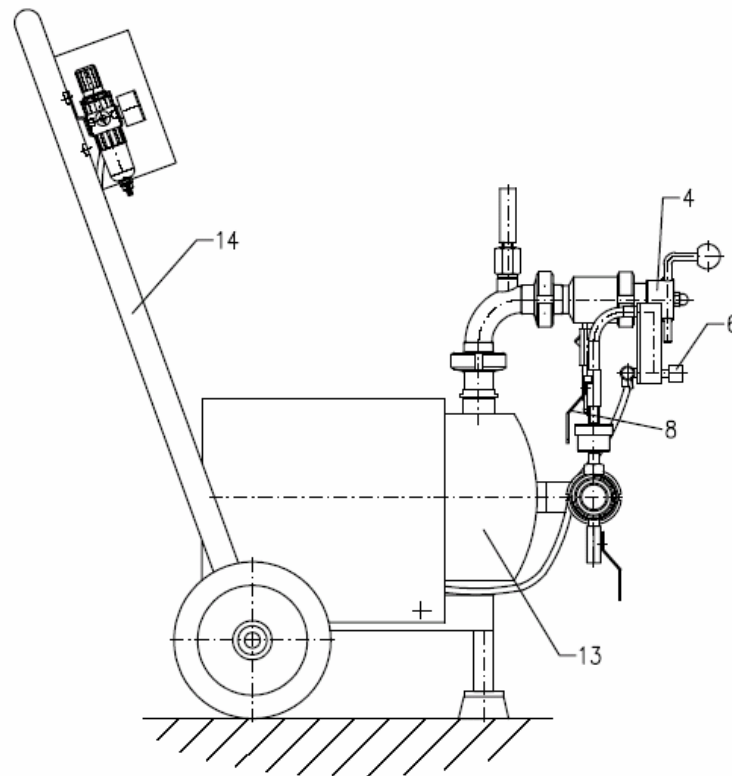
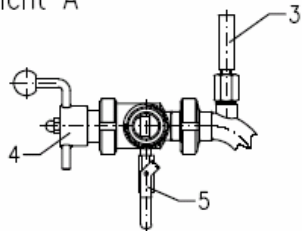
9.4 Disassembly Plan – Electric pumps



1. Flange seal
2. Housing
3. Floating ring type shaft seal
4. Rotor disk
5. Gasket
6. Motor



Ansicht A



Ohne unsere ausdrückliche Genehmigung darf diese Zeichnung weder kopiert, vervielfältigt, noch Dritten zugänglich gemacht werden.

F				Ersatz für:	KIESEL Wannenackerstr. 20 Tel.: 07131/2825-0	
E				Ersatz durch:	74 078 Heilbronn Fax.: 07131/282550	
D				Dat.: 26.09.03	Gez.: Nan	Benennung: Zusammenstellzeichnung Floatclear® B50 (Ebara 3,0 kW)
C				Dat.: 26.09.03	Gepr.: JS	
B						
A						
Rev.	Datum	Name	Änderung	Maßstab:	—:—	A4
Art.-Nr.:			Art.-Nr.:	Art.-Nr.:	Art.-Nr.:	Art.-Nr.:
				Wkst.:	Zeichn.Nr.:	A032N0010
						DN32