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1. Introduction

1.1 The User Manual

This user manual is applicable for UniSoft 4 – 6 – 12. Guldager A/S has aimed to provide an adequate survey and thorough information about the use of this plant. The user manual should be carefully read, before the plant is put into service. Please, note that the enclosures at the rear of this manual give important information about copyright, guarantee e.a. as well as safety directions.

Should you still have questions to this manual or the use of the plant after reading this material, please do not hesitate to contact us:

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1.2 Technological background

Soft water is a pre-requisite for professional dishwashing with a shining result and no calcium stains.

The Guldager UniSoft softening units consist of elements thoroughly tested in all types of large-scale kitchens over many years. The filters are made of glass-fibre reinforced polyester. The housing has been moulded in dyed material with a cleaning-friendly surface. Guldager UniSoft softening filters are available in sizes and capacities adapted to all types of dishwashers and water-consuming ovens.

Via ion exchange the UniSoft softening filters remove all the calcium and magnesium salts which would otherwise accumulate as a greyish-white deposit on the inside surface of the dishwasher and ruin the heating elements. UniSoft prevents calcium stains on glasses and keeps tableware shiny.

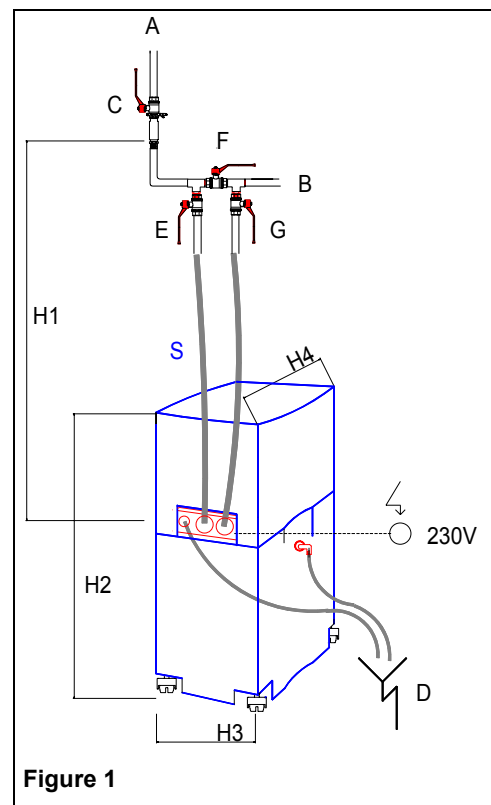
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When the plant has softened a certain amount of raw water, the filter materials will be saturated with lime and magnesium salts. The system must then be cleaned with a salt solution to remove the lime and magnesium salts, which have been collected. These salts may then be drained off. At the same time, the filter materials are recharged, and thus again capable of softening a certain amount of calcareous raw water.

2. Plant Description

2.1 Installation Diagram

- | | |
|---------------------------------|---------------------------------------|
| A. Inlet raw water | F. Check valve, circulation raw water |
| B. Discharge soft water | G. Check valve, discharge soft water |
| C. Non-return valve | |
| D. Outlet | |
| E. Check valve, inlet raw water | |



2.2 Technical Data

	UniSoft 4	UniSoft 6	UniSoft 12
Capacity at 1°dH	8.000 l	12.000 l	30.800 l
Capacity at 20°dH	400 l	600 l	1.200 l
Salt consumption per regeneration	0,5 kg	0,75 kg	1,5 kg
Max. flow rate	15 l/minute	20 l/minute	30 l/minute
Filter mass	4 l	6 l	11 l
Pressure loss by max. flow rate	0,8	0,7	1,1
Water consumption per regeneration	55 l	55 l	55 l
Litre, max.	20	20	25
Litre, max. (short term)	30	30	30
Regeneration time, min.	30 minutes	30 minutes	30 minutes
Water consumption	50 l	50 l	50 l
Temperature, max.	65°C	35°C	65°C
Water pressure min.	2 kg/cm ²	2 kg/cm ²	2 kg/cm ²
Water pressure max.	7 kg/cm ²	7 kg/cm ²	7 kg/cm ²
Pipe connection	¾"	¾"	¾"
Dimension, depth (H4, see section 2.1)	400 mm	400 mm	530 mm
Dimension, width (H3, see section 2.1)	220 mm	220 mm	320 mm
Dimension, height (H2, see section 2.1)	580 mm	580 mm	725 mm

3. Instructions for Installation

3.1 Pipe connections

- Inlet
 - It is recommended to connect the filter to the piping system with flexible hoses (S), see section 2.1, figure 1.
- Discharge
 - A ½" discharge hose is connected to the discharge elbow placed on the left side of the valve (front view). The discharge hose is placed in the floor funnel.

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3.2 Non Return Valve

The non-return valve must be placed 150 mm above the inlet of the following system (H1), see section 2.1, figure 1.

4. System Operation

4.1 Standard application

This plant has been designed especially for the softening of industrial water. Any other application is considered non-standard. The company, Guldager A/S is not responsible for damages caused by such application. See appendix A.

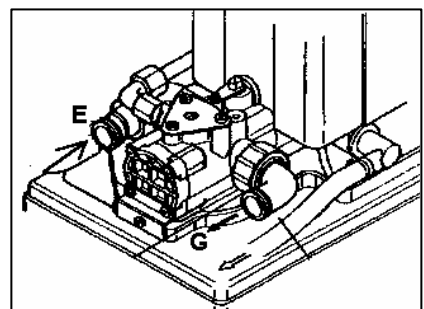
Note!

Authorized staff must inspect the plant in case of fractures on pressurized parts or other similar elements of danger.

4.2 Actuation

Once the plant has been connected according to the installation diagram, see section 2.1, the following is to be done:

1. The valves on the in- and outlet pipes (E and G) as well as the circulation valve (F) to be shut.
2. The inlet valve (E) is to be opened a little in order to fill the filter with water, and at the same time water will flow to the brine tank.
3. Push the drain valve button. Now water and air will flow from the outlet pipe. Let go of the drain valve button, when the air is out of the system.
4. Now open the valves (E and G) completely.
5. Make sure that water flows to the cabinet until the level control shuts off.
6. Push once again the drain valve button, and make sure that water is being drawn into the cabinet.

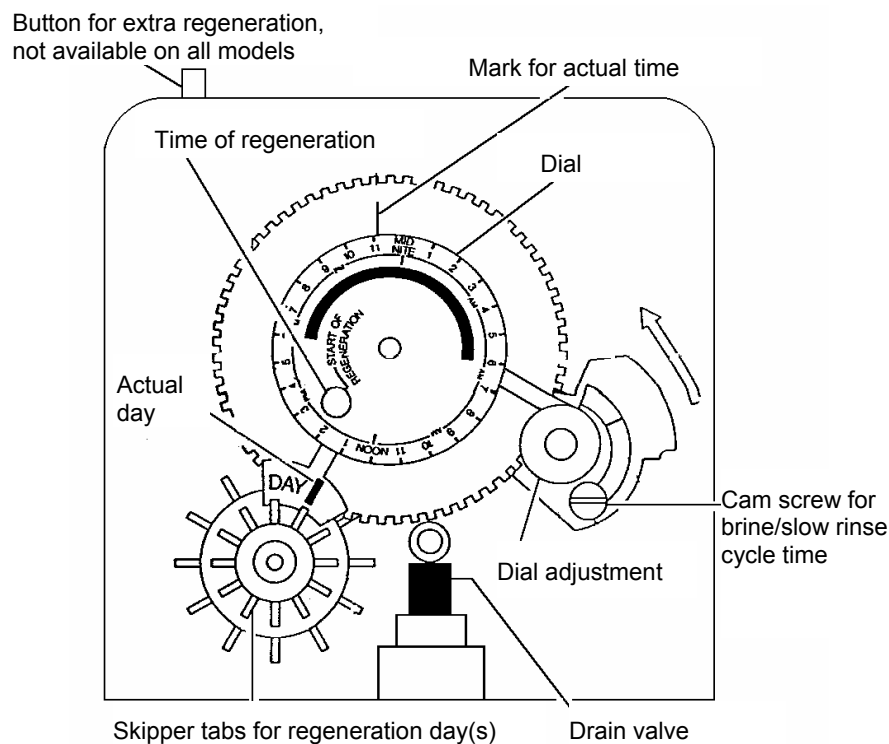


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7. When the water in the cabinet has reached a level of 5 cm from the bottom, the outlet valve is to be released.
8. Fill with salt tablets.
9. Connect the filter to 230 V.
10. Adjust the automatic for regeneration as described in section 5.

Now the system is ready for use.

5. Adjusting the Regeneration



To avoid engaging the drain valve when making program adjustments, make sure that all skipper tabs are pulled outwards.

1. Adjust the length of the time of regeneration (normally done before delivery).
 - Loosen the cam screw and set the desired brine/slow rinse cycle time. Moving the cam plates does this. Further, adjust the quantity in the brine valve.

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2. Set the time of regeneration
 - Turn the clock dial until the desired time of regeneration appears in the time of regeneration window. It is easier to turn the dial, if the screw in the middle is loosened a little – tighten (not too hard) when the adjustment has been made.
 - Be aware of AM and PM.
AM = From hrs. 24.00 to 12.00
PM = From hrs. 12.00 to 24.00

3. Set time of day
 - Turn the timer knob until the correct time of day on the clock dial appears in the time of day window.
 - Be aware of AM and PM.
AM = hrs. 24.00 to 12.00
PM = hrs. 12.00 to 24.00

4. Set Regeneration Frequency
 - With all skipper tabs pulled out, rotate the skipper wheel until day '1' is aligned with the day indicator.
 - Push in the skipper tabs for the desired days of regeneration. No regeneration will be made for the days with pulled out skipper tabs.
 - Note: 7-days-week or 12-days-week.

5. Manual Regeneration
 - Turn the timer knob counter clockwise, until the time of day in the time-of-day-window equals the time of regeneration.

6. Service and maintenance

6.1 Inspection, service and maintenance

We recommend a yearly service inspection. The staff working with the plant is to be informed before the service work is carried out.

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6.2 Cleaning of the System and Disposal

The plant, the brine tank, and especially movable parts of the plant should be kept clean. Please, note that the water supply and the power should be shut off before cleaning and repair of pressurized equipment can take place.

The brine tank must be emptied and rinsed once or twice a year. Remains of plastic, salt and resin are to be disposed of according to national waste regulations.

6.3 Troubleshooting

Problem	Possible cause	Rectification
Wash water keeps running out of the drain after regeneration or Leak at drain	<ul style="list-style-type: none"> Filth or hole in drain valve, or deformed drain valve Filthy automatics 	<ul style="list-style-type: none"> Try to flush by starting a regeneration. Disassemble automatics and clean Exchange drain plunger
Water leaks during regeneration	<ul style="list-style-type: none"> Too high pressure Diaphragm spring (no. 10) is loose or defective Drain clogged up 	<ul style="list-style-type: none"> Reduce inlet pressure Make spring fit or replace it Clean drain
Too much salt is used	<ul style="list-style-type: none"> Brine valve does not close Wrong adjustment of brine valve Leak between tank and automatics Brine tank overflows 	<ul style="list-style-type: none"> Clean/exchange brine valve Check salt filling as compared to °dH Check for leaks

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Problem	Possible cause	Rectification
Low or insufficient capacity after regeneration	<ul style="list-style-type: none"> • Increased water consumption • Brine concentration low because of clogged up drain, brine valve or screen • Clogged up injector or screen • Too little resin in tank 	<ul style="list-style-type: none"> • Set the clock to increase frequency of regeneration • Clean drain • Clean injector and screen • Check/add resin
Filter uses no salt	<ul style="list-style-type: none"> • No salt in brine tank • Clogged up injector/screen • Injector/packing incorrectly fitted • Brine valve adjusted too low • Brine valve clogged up 	<ul style="list-style-type: none"> • Add salt • Clean injector/screen • Take injector/packing out and refit it • Adjust brine valve higher • Clean brine valve
Valve "whistles" during regeneration	<ul style="list-style-type: none"> • O-rings or packings in automatics leak 	<ul style="list-style-type: none"> • Clean or exchange packings and O-rings in the automatics
Salt in the softened water after regeneration	<ul style="list-style-type: none"> • Too much salt used 	<ul style="list-style-type: none"> • Adjust brine valve • Is drain hose broken/clogged up?
No regeneration	<ul style="list-style-type: none"> • Too high or low inlet pressure • Wrong electricity connection • Motor seized • All skipper tabs pulled out 	<ul style="list-style-type: none"> • Possibly adjust the pump to hold min. 1,8 and max. 8,3 bar at the filter • Check 230 V/12 V connection • Replace • Push in all tabs for the days where regeneration is wanted

Appendix A. General Information

Copyright

This user manual is intended solely for buyers of CalcFree systems and their staff. All copyrights belong to the company Guldager A/S. Replication is allowed for internal use only. This permission applies for the safety directions exclusively. Copying of drawings, diagrams and spare parts lists is NOT allowed.

Guarantee and Responsibility

For a period of 12 months, Guldager A/S guarantees all the mechanical and electrical parts of the system as well as its mechanical construction. This guarantee is valid from the date of transfer. Within this period all parts that cannot be used because of faulty construction, defective material, or defective condition are repaired or replaced.

Guldager A/S cannot be held responsible for damages, caused by the delivery after the transfer:

- a. on real property or movables that occur while the delivery is in buyers possession.
- b. on products, which have been produced by the buyer, or on products, of which these are a part, or for damages on real property or movables, caused by these products as a consequence of the delivery.

In no case the supplier can be held responsible for loss of profits, or other financial consequential losses.

Staff Obligations

Before work is started, anyone, who has been charged with working with this system, is under the obligation to

- observe the basic instructions for working security and the prevention of accidents.
- read Appendix B.

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Fulfilment of CE-labelling

If Guldager A/S is to have status as producer, this system is only to be installed by trained and authorized staff in accordance with the "purposive application" of the system and in order to meet the demands in the European Parliament and Counsel directive no. 98/37/EF (Machine directive) and directive no. 97/23/EF (pressurized equipment). Consequently, only Guldager A/S can confirm conformity with the directives in a "Declaration of Conformity" and place the CE-label for the control purposes of the authorities.

In any other case Guldager A/S is solely producer of "the original plant", which is to be considered as single components after changes. The responsibility for the plant including all legal consequences is thus transferred to the company or installation business that has added the mentioned "normal application" to the plant. It is important to stress, that a new, complete technical dossier with updated risk estimation, list of components e.a. should be prepared, after changes to the plant have been carried out.

By changes of the construction, use of other components, or safety relevant components, the "Declaration of Conformity" no longer applies.

Appendix B. Fundamental Safety Regulations

Observe the Instructions in the User Manual

In order to be in a position to handle the plant in a correct and safe way, and to make sure that it will work to the utmost without interruption, you must possess knowledge of the fundamental safety regulations and instructions.

This appendix lists the most important precautions for a correct and safe handling of the system. This user manual incl. its safety regulations must be observed by anyone, working with or near the plant. Safety regulations – including the company's own – that supplement these, must also be observed.

The user manual must be stored in visible distance to the area, where the operators control the plant, and safety regulations and warnings must be placed close to the plant on a permanent and visible spot.

The Company's Obligations

The company is under the obligation to let only personnel that meet with the following demands work with and around the system, i.e. personnel that has

- been instructed in the use of the system.
- read this appendix about fundamental safety regulations.

Constructional Changes of the plant

- No changes, additions or reconstructions of the plant are to be made without the producer's written permission.
- Only original spare parts and abrasive parts are to be used.
- If unoriginal parts are built in, the guarantee no longer applies.

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Inspection of the Plant

On demand, the employer must take care that the device undergoes a safety inspection. This, however, must be done at least once a year. The inspection is to be carried out by an expert and a report on the inspection results must be written.

An expert is defined as somebody, who, on the basis of his professional education and knowledge, possesses thorough knowledge of the tool in question, and who is familiar with the relevant national occupational safety regulations, regulations for the prevention of accidents, directives, safety rules, and technical rules, which have been generally approved (i.e. DIN norms, VDE rules) to such an extent that he/she is able to estimate the safety condition of the tool. These demands are met by e.g. the service staff from Guldager A/S and by personnel with corresponding education.

Handling Dangers of the Plant

This plant has been constructed according to the present technological development and the present technical safety rules. In spite of this, by unskilled use situations that are dangerous to the operator and others and damages to the plant and other damages on material may occur.

The plant is only to be used

- for its normal purpose
- in good and safe condition

Defects, which have an influence on safety, must be repaired immediately in a professional, correct way.

Remaining risks

Should, in spite of all safety precautions, an accident occur, Guldager must be informed. In order to minimize potential remaining risks or completely eliminate these through technological progress we aim to react on even the smallest irregularity within the terms of our duty to supervise our products.

Appendix C. Declaration of Conformity

Overensstemmelseserklæring Konformitätserklärung

I henhold til maskindirektivet 98/37/EØF, Bilag II, A

According to the following directive: Machinery 98/37/EØF, Encl. II, A
gemäß den Richtlinien für Maschinen 98/37 EG, Anlage II, A

Guldager A/S
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erklærer på eget ansvar at følgende produkt:

declare, under own responsibility, that the following product:
bestätigt unter Eigenverantwortung, dass das folgende Produkt:

Produkt: UniSoft 4-6-12

(navn, type eller model, parti, portion eller serienummer, eventuelt kilde og antal emner)

(name, type or model, part, batch, or serial number, source, if any, and number of subjects)
(Name, Typenbezeichnung oder Modell, Partie, Portion oder Seriennummer, evtl. Quelle und Stückanzahl)

som er omfattet af denne erklæring, er i overensstemmelse med følgende standard(er) eller andre normative dokument(er)

which is covered by this declaration, complies with the following standard(s) or other normative document(s)
umfaßt von dieser Konformitätserklärung, in Übereinstimmung mit den folgenden Richtlinien oder anderen normativen Dokumenten ist.

EN 1050, EN 292-1, EN 292-2, EN 292-2/A1, EN 1708-1, EN 418, EN 954-1, EN 60439-1, EN 60204-1

(titel og/eller nummer samt udgivelsesdato for standard eller andre normative dokumenter)
(title and/or number and date of publication of standard or other normative documents)
(Titel und /oder Nummer sowie Erscheinungsdatum für Standards oder andere normativen Dokumente)

i henhold til bestemmelserne i Direktiv: Maskindirektivet (98/37/EØF), Trykbærende udstyr (97/23/EØF), Lavspændingsdirektivet (73/23/EØF) og EMC-direktivet (89/336/EØF)

As stated in the requirements of the following directives: Machinery (98/37/EF), Pressurised Equipment (97/23/EF), Low Voltage Electrical Equipment (73/23/EØF), and EMC (Electromagnetic Compatibility, 89/336/EØF)
gemäß den Bestimmungen der folgenden Richtlinien: Maschinen (98/37/EWG), Druckgeräte (97/23/EWG), elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen (73/23/EWG) und die elektromagnetische Verträglichkeit (89/336/EG).

Leverandørerklæringer er indhentet fra vore underleverandører – alle komponenter overholder nedenstående direktiver

Statements from sub-suppliers have been asked for – all components observe the directives mentioned below
Lieferantenerklærungen wurde von unseren Zulieferanten eingeholt – alle Komponente erfüllen die nachfolgenden Direktiven.

73/23/EC, 89/336/EC, 89/392/EC, 97/23/EF

(overensstemmelseserklæring, oversigt over normative dokumenter, direktiver og standarder benyttet til konstruktion af lev. komponenter)

(declaration of conformity, review of normative documents, directives, and standards used for construction of delivered components)
(Konformitätserklärung, Übersicht über normative Dokumente, Direktiven und Standards benutzt zur Konstruktion der gelieferten Komponenten)

Allerød, Per Jensen

(udstedelsessted og dato) (navn og underskrift eller tilsvarende identifikation af bemyndiget person)

(Place, date) (name, and signature of subscriber)
(Ort, Datum) (Name und Unterschrift des Unterzeichners)
Denne overensstemmelseserklæring følger DS/EN 45 014