

# Operating and installing instructions



## Dosing system Granudos 10 and 15

without control unit for:

### GRANUDOS

#### 10-CPR Touch XL



Operating instructions of the measuring and control unit CPR Touch XL: No. BA MR 001

### GRANUDOS

#### 10-Touch



Operating instructions of the control unit: No. BA SW 010

### GRANUDOS

#### 10-S5



Operating instructions of the control unit GRANUDOS S5: No. BA SW 014

### GRANUDOS

#### 15-S5



Operating instructions of the control unit GRANUDOS S5: No. BA SW 014

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### Imprint

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Subject to technical changes

These operating instructions are based on the German original provided by the WDT Company.

Responsible for the content:

WDT - Werner Dosiertechnik GmbH & Co. KG

Hettlinger Str. 17

D-86637 Wertingen-Geratshofen

Tel.: +49 (0) 82 72 / 9 86 97 – 0

Fax: +49 (0) 82 72 / 9 86 97 – 19

E-mail: [info@werner-dosiertechnik.de](mailto:info@werner-dosiertechnik.de)

## 1 Information regarding these instructions / general information

### 1.1 Scope of validity

These instructions describe the function, installation, commissioning and operation of the GRANUDOS 10-CPR, 10-Touch, 10-S5 and 15-S5 dosing system with appropriate accessories.

These operating instructions must be carefully read before use and must be stored near the device for immediate use.

**These operating instructions are only valid together with the operating instructions**

- “CPR-Touch XL Measuring and Control Unit” no. BA MR 001 or
- “GRANUDOS Touch Control Unit” no. BA SW 010 or
- “GRANUDOS S5 Control Unit” no. BA SW 014.

### 1.2 Target group

Only our authorised partners and persons who were instructed regarding the device functions and have read and understood the operating instructions may work on the system.

Electro technical connection work may only be performed by appropriately trained specialist staff!

### 1.3 Symbols used

The following types of safety instructions and general instructions are used in this document:



**DANGER !**

**"DANGER"** indicates a safety instruction that must be adhered to at the risk of death or severe injury!



**CAUTION !**

**"CAUTION"** indicates a safety instruction that must be adhered to at the risk of light to medium injuries!



**ESD-SENSITIVE !**

**"ESD SENSITIVE"** identifies electronic components that can be damaged by electrostatic discharge. The generally known precautions regarding ESD-sensitive devices must be adhered to when handling these devices!



**ATTENTION !**

**"ATTENTION"** indicates a safety instruction that must be adhered to at the risk of damage to goods breakdowns!



**HIGH VOLTAGE !**

**"HIGH VOLTAGE"** indicates a safety instruction that is neglected during working on electrical components may lead to death or severe injury!



**CAUSTIC !**

**"CAUSTIC"** identifies a safety instruction that is neglected during handling of chemicals at the risk of injuries or damage to goods.



**Hint !**

A **"Hint"** characterises information that may help to improve the operation.



### **Mandatory sign**

Use face protection!



### **Mandatory sign**

Use protective gloves! According EN 374



### **Mandatory sign**

Use protective apron!



### **Mandatory sign**

Use protective boots!

## 1.4 Warranty

All devices and systems of the WDT Company are produced using the latest production methods and comprehensive quality control. Please send your warranty claims according to the general warranty conditions (see below) to WDT should there nevertheless be a reason for complaint.

### **General warranty conditions**

WDT provides a warranty for 2 years from the date of commissioning, a maximum period of 27 months after delivery, assuming correct installation and commissioning with completed and signed commissioning protocol.

Wearing parts such as seals, hoses, membranes, dosing screw conveyors, electrodes, roller carriers and other parts that are subject to mechanical or chemical wear are excluded. We provide a warranty for half a year on those parts.

Our ERP program requires an invoice for each delivery (also for warranty services). Customers will receive a credit note after returning the faulty part and its inspection as required. Please return goods within 14 days.

Costs for consequential damage and costs resulting from handling warranty claims are excluded.

Warranty claims are not valid when the damage was caused by frost, water, over-voltage, or inappropriate handling.



Tipp

### **Hint !**

**Please send a completed commissioning protocol together with the defective part to WDT to maintain your warranty claims. We reserve the right to settle the warranty claim when no completed commissioning protocol is available.**



Achtung!

### **ATTENTION !**

**Modification of the device is not permitted. Warranty and product liability claims become void when this requirement is not fulfilled.**

## 1.5 Further information

Further information regarding specific topics such as layout of the dosing performance or description of the operating parameters is available from your specialist dealer or directly from:

Company WDT Werner Dosiertechnik GmbH & Co KG

Hettlinger Straße 17

86637 Wertingen - Geratshofen

Tel. +49 8272 98697-0, Fax. +49 8272 98697-19

<http://www.werner-dosiertechnik.de>

## 2 Safety

### 2.1 Appropriate use

The GRANUDOS 10 may only be used for the purposes specified in Section 3.2 of the product description! The locally applicable regulations regarding accident prevention, worker safety and drinking water protection must be adhered to.

### 2.2 Safety instructions

The operating instructions must be carefully read and considered before installation and use! Work on the system and changes to the settings may only be performed by instructed persons!

#### Take note of the warning information on the device!



#### 2.2.1 Handling of chemicals, risks to persons and the environment

**Important information on the handling is provided in the safety data sheets of the chemicals manufacturers!**

In emergencies relating to the handling of chemicals, you can contact a Poison Emergency Call Centre!

#### Emergency call number:

#### Poison Emergency Call Munich (or any other poison centre)

#### Telephone: +49 89 19240

#### Extract from the GUV-V D 5 accident prevention regulations

Installation rooms for chlorination systems and storage rooms

§ 3a. (1) Chlorination systems must be installed in lockable rooms and the chemicals intended for chlorination must be installed in lockable rooms.

To § 3a Section 1:

These requirements are intended to protect the chlorination systems and chemicals against weather effects and access by unauthorised parties.

(2) Rooms according to Section 1 may not be intended for permanent use by people.

To § 3a Section 2:

..... "Permanent" use is given when persons remain longer than 2 hours per day in a room. Repair and maintenance work on the chlorinating system are exempt.

### 2.2.2 Protective measures and behavioral rules



#### **CAUSTIC ! PROTECTIVE EQUIPMENT !**

The GRANUDOS 10-CPR dosing system doses the calcium hypochlorite granulate (generally called: chlorine granulate) as well as the pH-reducer from the dosing canister.



These substances react strongly on contact and produce chlorine gas when combined outside of water. It is therefore essential to perform all work with these chemicals very diligently and to wear personal protective equipment:

Face protection, protective gloves, protective apron, and boots.

The chlorine granulate and the sulphuric acid may not be mixed with each other or with other chemicals and substances!

Store the chemicals to ensure that unauthorised persons cannot access them.

The information in Section 3.4.3, Storage of chemicals must be taken in account when storing chemicals.

**More information is provided in the safety data sheets of the chemical substance producers!**



#### **ESD-SENSITIVE !**

The electrical components in the control units of the systems are sensitive towards electrostatic discharge. The generally known precautions regarding ESD-sensitive devices must be adhered to when handling these devices!

Disconnect the system from the power supply

Discharge the personal static charge

### **3 Product description - delivery scope**

#### 3.1 Delivery scope / accessories

The delivery scope includes the "GRANUDOS 10" dosing system consisting of the following components:

- Housing with collecting tray made of rotation-sintered PE in blue
- Dosing device for chlorine granulate
- Dosing device for acid
- Dosing system for flocculant (**CPR Touch XL** only)
- Dissolving system for chlorine and acid

#### **The following options are available for the dosing system**

- a) Adapter for larger funnel
- b) Adapter for various 10 kg buckets

#### 3.2 Product description

The GRANUDOS dosing system is intended for disinfecting swimming pool water with calcium hypochlorite.

##### 3.2.1 The function of the GRANUDOS 10 dosing unit

The GRANUDOS10 is a device for dosing calcium hypochlorite granulate. The chemical is dissolved and fed into the pipe through an injector by a booster pump. The acid dosing required to regulate the pH of the swimming pool water is integrated and controlled by software and a relay system to ensure that chlorine and acid cannot be dosed at the same time. The GRANUDOS 10 dosing device is particularly suitable for swimming pools with a water volume of 50-400m<sup>3</sup>

#### **The functions of the GRANUDOS 10-CPR-Touch XL**

- Measuring free chlorine with an open, potentiostatic measuring cell. pH-value, redox voltage and temperature
- Regulating chlorine dosing based on the measuring value for free chlorine or the redox voltage
- Dosing chlorine granulate from a 5kg filling hopper or directly from the 10kg delivery bucket (optional) using a dosing screw and knocker.
- Dosing flocculant from the delivery canister using a rotation-speed-controlled hose dosing pump
- Filling a buffer tank with chlorine solution to disinfect additional small pools with dosing pumps (option)

#### **The functions of the GRANUDOS 10-Touch**

- Dosing of chlorine granule from the filling hopper or the delivery bucket using the dosing screw and the knocker
- Dosing of acid (pH reducer) from the delivery canister using the peristaltic pump
- Filling a buffer tank with chlorine solution for disinfecting additional small basins using dosing pumps (optional)

#### **The functions of the GRANUDOS 10-S5**

- Dosing of chlorine granule from the filling hopper or the delivery bucket using the dosing screw and the knocker
- Dosing of acid (pH reducer) from the delivery canister using the peristaltic pump

#### **The functions of the GRANUDOS 15-S5**

- Dosing of chlorine granule from the filling hopper using the dosing screw and the knocker
- Dosing of acid (pH reducer) from the delivery canister using the peristaltic pump

Functional principle of the GRANUDOS 10-CPR Touch XL dosing system

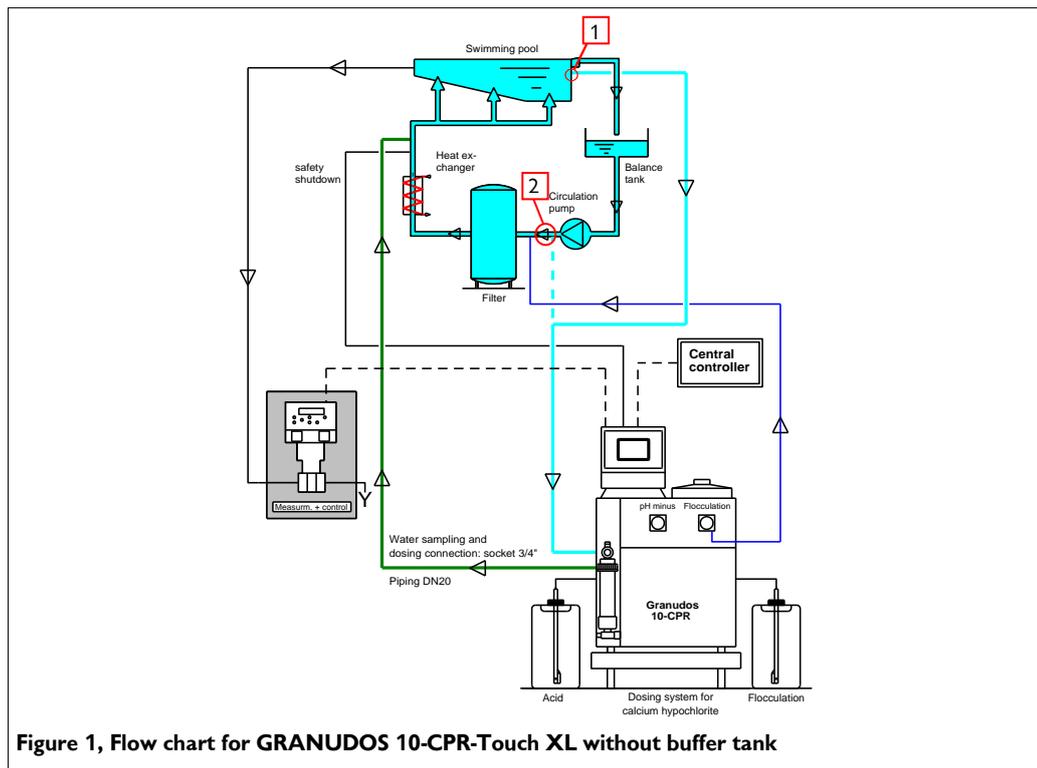


Figure 1, Flow chart for GRANUDOS 10-CPR-Touch XL without buffer tank

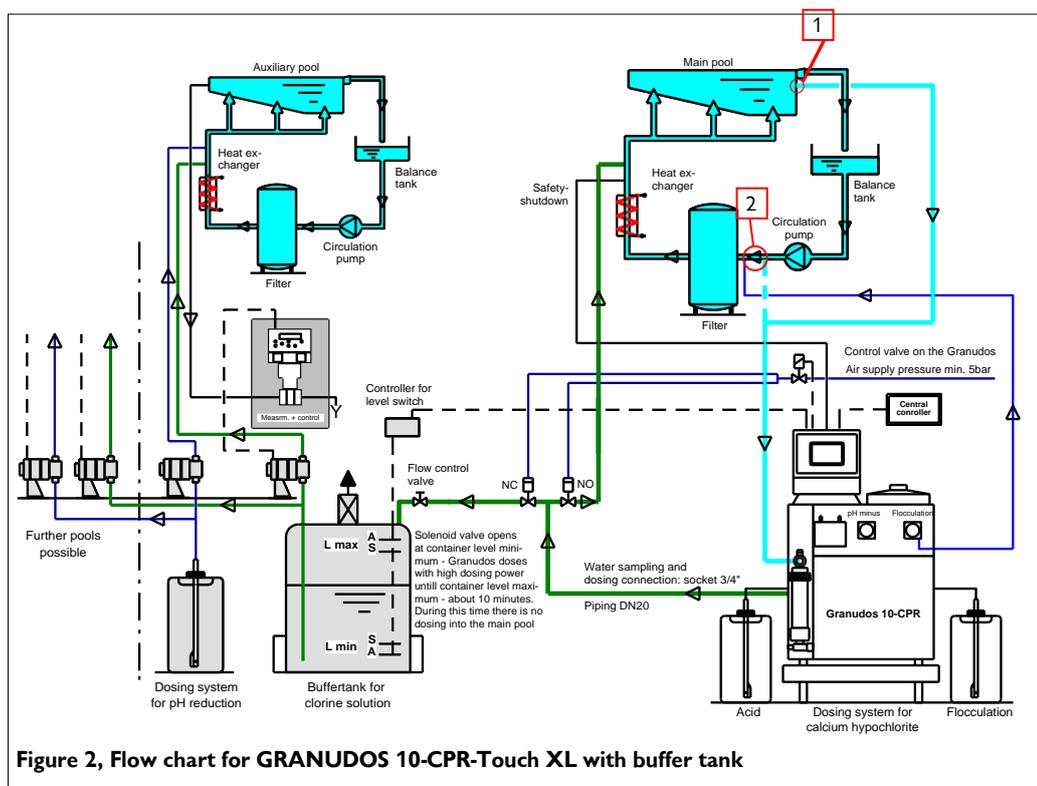


Figure 2, Flow chart for GRANUDOS 10-CPR-Touch XL with buffer tank

### **ATTENTION!**

The locally valid regulations must be adhered to during installation. E.g. for Germany DIN 19643.

Function principle of the GRANUDOS 10-Touch, 10-S5 and 15-S5 dosing system

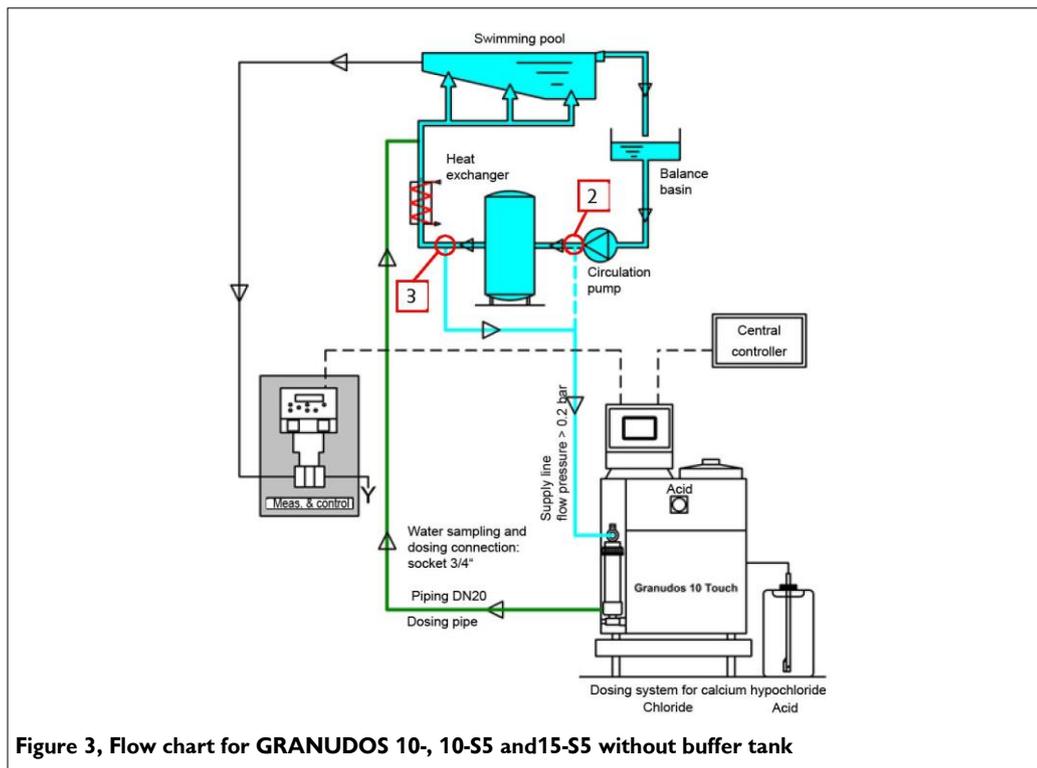


Figure 3, Flow chart for GRANUDOS 10-, 10-S5 and 15-S5 without buffer tank

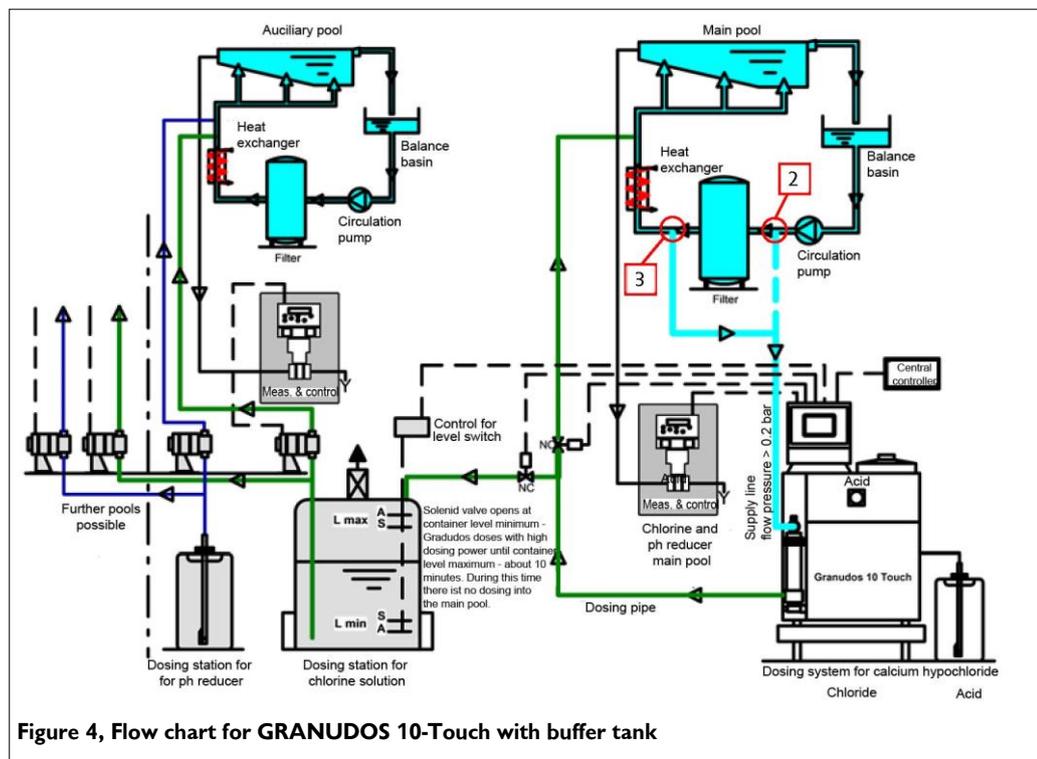


Figure 4, Flow chart for GRANUDOS 10-Touch with buffer tank



### **ATTENTION!**

The locally valid regulations must be adhered to during installation. E.g. for Germany DIN 19643.

### 3.2.2 Plastic housings with additional fittings (standard)

The elegant housing (5) is sintered from a piece of blue PE and therefore extremely rugged. The dosing hopper (7) with a filling volume of 5, 10 or 15 kg (optionally also with adapter for 10 kg bucket) is inserted into the housing from the top and can therefore also easily be removed, e.g. for maintenance work. Dosing unit (11), dosing motor with dosing screw, and heated downpipe are screwed into the dosing hopper from the bottom. The controller (1) is located on top of the housing. The dosing hopper is protected against splashing water by a transparent lid. The bottom section of the housing contains the dissolving and rinsing system (12) for the chlorine granulate.

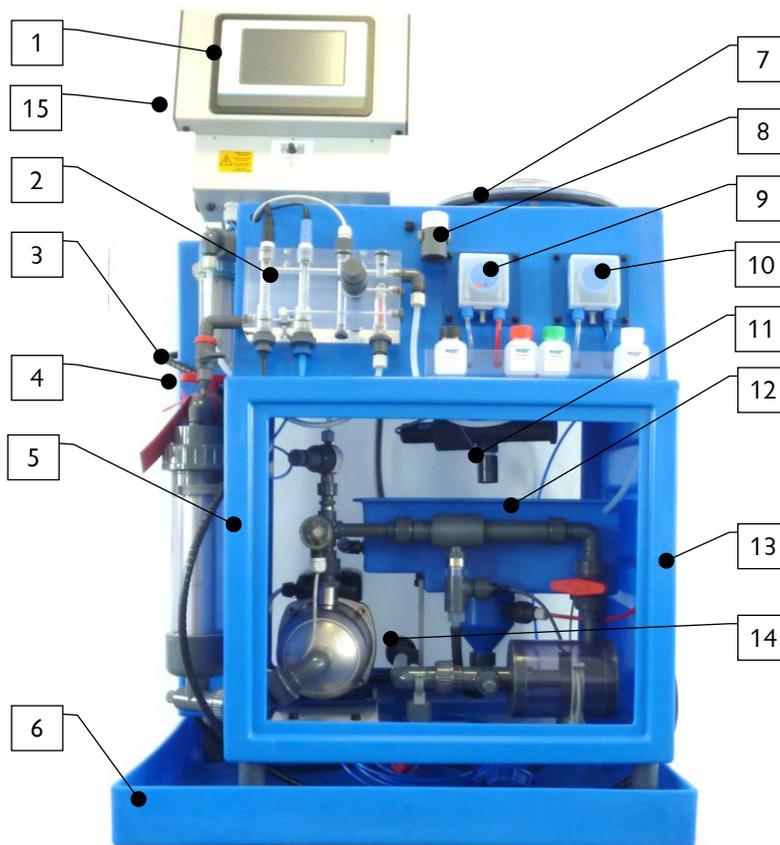
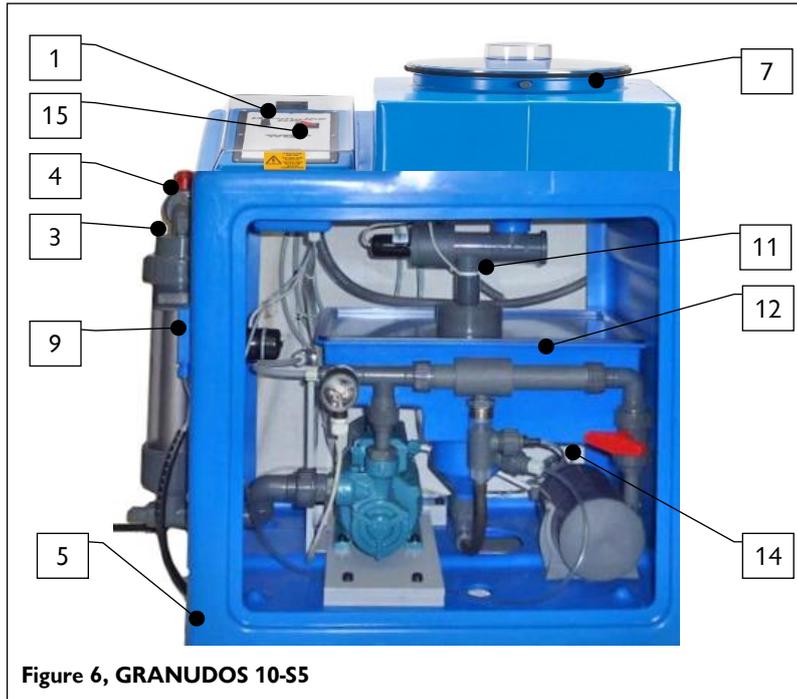


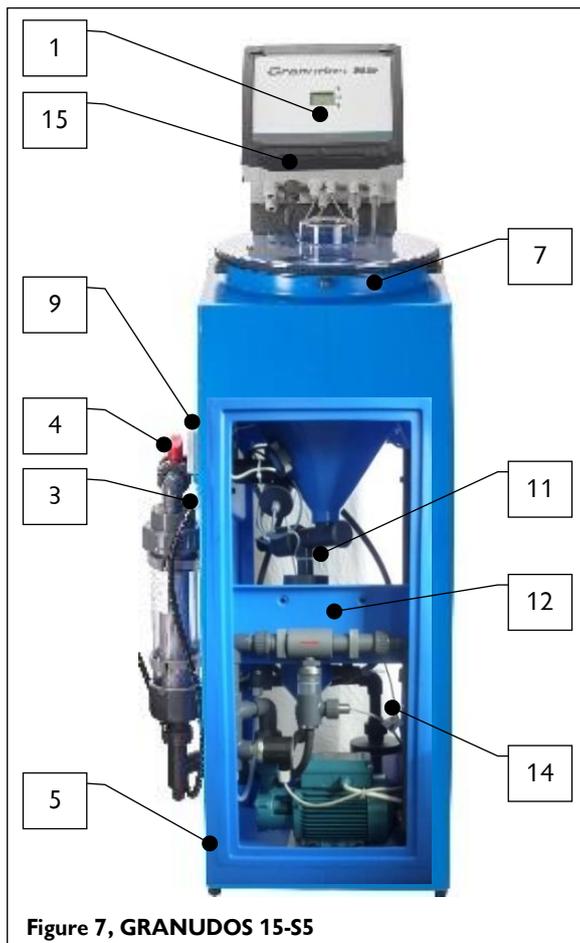
Figure 5, GRANUDOS 10-CPR Touch XL

The dosing unit GRANUDOS **10-CPR-Touch XL** and **10-Touch** consists of:

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Control unit             <ol style="list-style-type: none"> <li>a) for GRANUDOS <b>10-CPR-Touch XL</b> with measuring cell block</li> <li>b) for GRANUDOS <b>10-Touch</b> without measuring cell block</li> </ol> </li> <li>2. Measuring cell block (<b>CPR-Touch XL</b> only)</li> <li>3. Suction lance for pH reducer (not visible)</li> <li>4. Ball valve inlet</li> <li>5. Housing</li> <li>6. Collecting tray with drain</li> <li>7. Dosing hopper with lid</li> </ol> | <ol style="list-style-type: none"> <li>8. Holder for redox test cylinder</li> <li>9. Dosing pump for pH reducer (acid)</li> <li>10. Dosing pump for flocculant (<b>CPR Touch XL</b> only)</li> <li>11. Dosing unit for chlorine</li> <li>12. Dissolving and rinsing system for chlorine granulate</li> <li>13. Suction lance for flocculant (not visible)</li> <li>14. Outlet to the swimming pool</li> <li>15. Main switch (not visible, left on the controller housing)</li> </ol> |
|---|--|



**Figure 6, GRANUDOS 10-S5**



**Figure 7, GRANUDOS 15-S5**

**The dosing unit GRANUDOS 10-S5 and 15-S5 consists of:**

1. Control unit 10-S5
2. —
3. Suction lance for pH reducer (covered)
4. Ball valve inlet
5. Housing
6. —
7. Dosing hopper with lid
8. —
9. Dosing pump for pH reducer (acid)
10. —
11. Dosing unit for chlorine
12. Dissolving and rinsing system for chlorine granulate
13. —
14. Outlet to swimming pool (covered)
15. Main switch

3.2.3 Chlorine dosing (standard)

The dosing funnel shown (7) is hooked onto the plastic housing and is used for dosing chlorine granulate into the dissolving and rinsing system (12).



- The chlorine hopper (7) consists of:
- 7. Dosing hopper
  - 22. Magnetic knocker (with clamping housing)
  - 23. Dosing motor
  - 24. Motor support
  - 25. Chlorine empty switch (optional)
  - 26. Cleaning plug
  - 27. Dosing screw (not visible)
  - 28. Dosing pipe (with heating)

The dosing system consists of a dosing hopper (7) with a capacity of approx. 5 kg and a dosing unit that includes the dosing motor (23) with flange, the dosing screw (27), the motor holder (24), and the heated dosing pipe (28) with dosing outlet.

Heating the dosing pipe prevents condensation of water vapour that might otherwise cause a blockage in the dosing system. The dosing unit is screwed into the bottom of the dosing hopper.

The dosing hopper is either tightly sealed with a lid or provided with a transparent adapter ring, so that a 10 kg bucket can be directly placed onto the dosing hopper, see Figure 9.

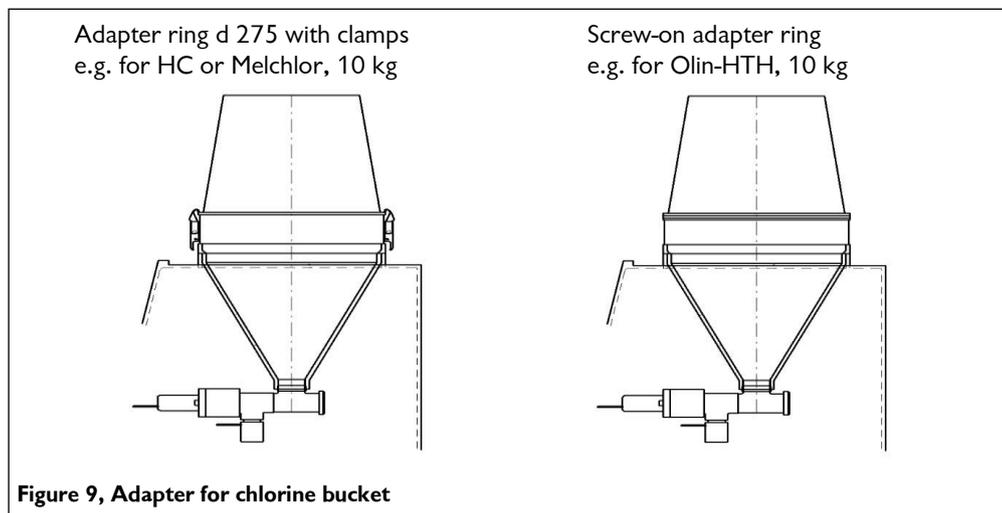
The complete dosing system is removed from the housing in an upward direction for bucket changes or maintenance work on the dosing system.

The dosing screw (27) transports the calcium hypochlorite granulate from the dosing hopper into the rinsing pipe (46) of the dissolving system located below it. A solenoid knocker (22) has been installed to loosen up the chlorine granulate. It provides a brief tap on the dosing hopper at every dosing process to prevent the granulate from forming bridges in the dosing line.

The chlorine dosing is arranged alternately with the acid and is monitored.

**Adapter for chlorine buckets**

Adapters for different types of chlorine buckets are available so that the buckets can be directly placed onto the dosing hopper and no refilling is required.



### 3.2.4 Dissolving system (standard)

The dissolving system is installed in a plastic housing and is used for separate dissolution of the chemicals.

#### Overview of dissolving system type **CPR-Touch XL and Touch**



#### Overview dissolving system type **10-S5**

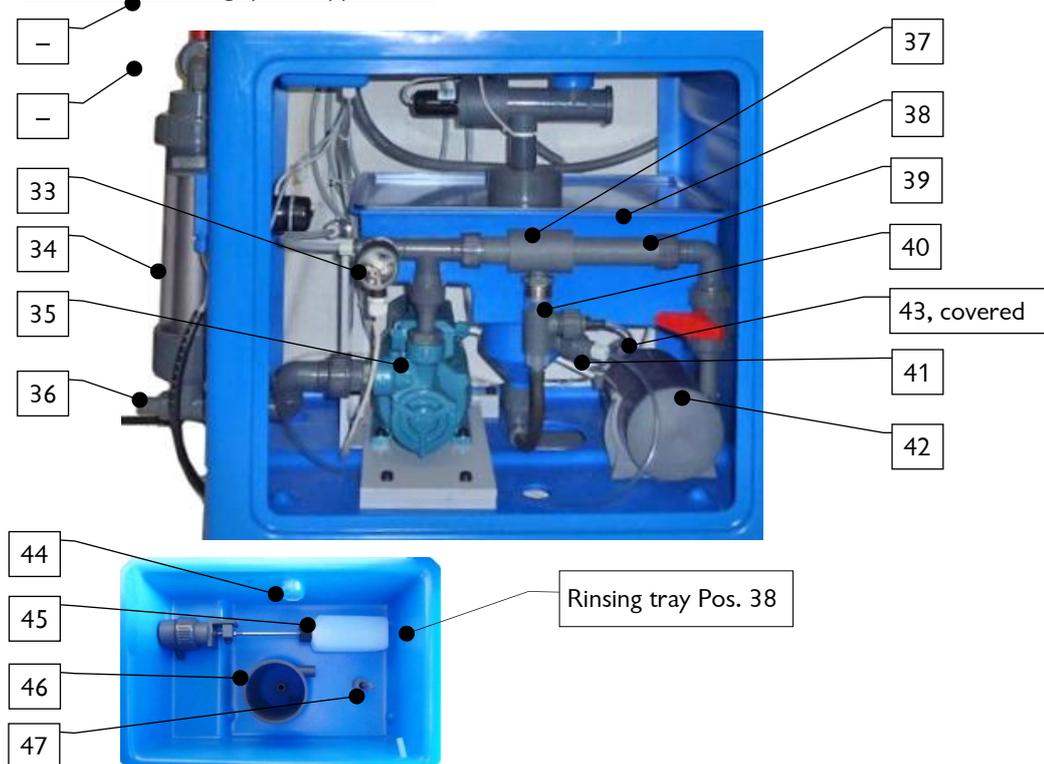


Figure 10, Dissolving system

#### The dissolving system consists of:

- |   |  |
|---|--|
| 31. Outlet for supplying the measuring system                   | 40. Suction pipe flow switch                                   |
| 32. Pressure retention valve for supplying the measuring system | 41. pH-reducer dosing valve                                    |
| 33. Pressure switch   | 42. Dissolving and mixing cyclone                              |
| 34. d75mm dirt filter with bleeding facility                    | 43. Connection for manometer                                   |
| 35. Operating water pump (different versions)                   | 44. Rinsing tray overflow                                      |
| 36. Connection for manometer                                    | 45. Rinsing tray inlet float regulator valve                   |
| 37. Injector  | 46. Rinsing pipe   |
| 38. Rinsing tray  | 47. Rinsing tray min/max level switch                          |
| 39. Screw connection with hole washer                           | 48. Lid for rinsing tray with dust protection pipe (not shown) |

## Dissolving system (15-S5)

The dissolving system is installed in a plastic housing and is used for separate dissolution of the chemicals.

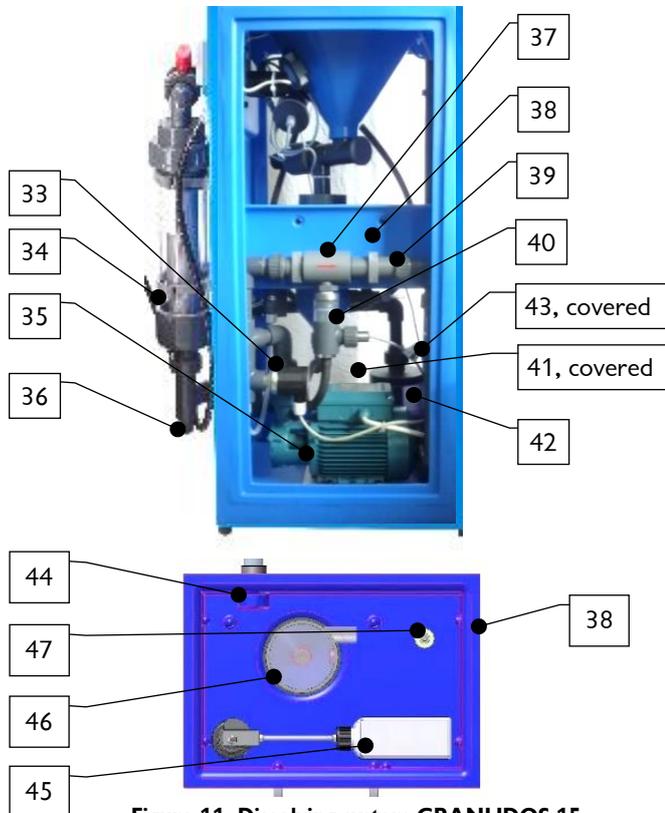


Figure 11, Dissolving system GRANUDOS 15

### Overview dissolving system type 15-S5

#### The dissolving system consists of:

- |   |  |
|---|--|
| 31. —   | 41. pH-reducer dosing valve                  |
| 32. —   | 42. Dissolving and mixing cyclone            |
| 33. Pressure switch                           | 43. Connection for manometer                 |
| 34. d75mm dirt filter with bleeding facility  | 44. Rinsing tray overflow                    |
| 35. Operating water pump (different versions) | 45. Rinsing tray inlet float regulator valve |
| 36. Connection for manometer                  | 46. Rinsing pipe                             |
| 37. Injector                                  | 47. Rinsing tray min/max level switch        |
| 38. Rinsing tray                              | 48. —  |
| 39. Screw connection with hole washer         |  |
| 40. Suction pipe flow switch                  |  |

The dissolving system splits the dissolving water from the filter cycle after the operating water pump (35) and the chemicals are dissolved separately from each other. The particle stream is ducted via the float regulator valve (45) into the rinsing tray (38). The water, together with the chemicals dosed through the rinsing pipe (46), is sucked off by the injector (37). The chlorine granulate and the pH reducer (liquid) are dosed into the water flowing through the rinsing pipe, following an alternating pattern with intermediate breaks. Approx. 50% of the chlorine granulate are dissolved in the injector; the remainder is kept in circulation in the dissolving cyclone (42) until it is fully dissolved. The chlorine granulate can be seen in the cyclone shortly after the start of dosing.

Changes in the water supply of the dosing system that prevent appropriate functioning of the dissolving system are detected by the level switch (47), the flow switch (40) and the pressure switch (33). The chemical dosing or the operating water pump are in such cases switched off to prevent consequential damage. For more detailed information see operating instructions

- “CPR-Touch XL Measuring and Control Unit” no. BA MR 001 or
- “GRANUDOS Touch Control Unit” no. BA SW 010 or
- “GRANUDOS S5 Control Unit” no. BA SW 014.

The pressure switch installed on the pressure side of the operating water pump is intended to switch off the GRANUDOS in the event of a pressure drop or aspirated air, to ensure that the pump cannot run dry. An additional monitoring switch can be connected to switch off the dosing system in the event of a fault in the filter system, e.g. no flow in the clean water pipe.

The flow switch (40) installed in the suction pipe of the injector (37) is very important for the operating safety of the GRANUDOS! When the suction performance of the injector (at least 150 l/h) is too low, the switch body in the suction pipe, which is pushed up by the upwards flow, drops and switches off the chemical dosing. This ensures that only strongly flowing water is dosed and that the two chemicals do not mix in the accessible area.

The floater regulation valve (45) also blocks this feed to the rinsing tray when the device stands still or in the event of operating faults. However, these measures do not ensure absolute separation from the circulation system. Where this is required, appropriately sealing isolation valves are to be installed in the supply and dosing line, i.e. reflux valves or self-closing pneumatic valves, depending on the pressure conditions. The pressure loss during operations due to those fittings has to be considered.

In the event of a "Water max" fault, the overflow (44) will transport the chlorine-free excess water to the drain.

The pressure retention valve (32) is used to supply the measuring system with constant pressure and prevents overflow of the rinsing tray when suction is not active. It is pre-set at the factory.

The following safety package is installed to ensure that chlorine granulate and acid cannot mix and react with each other in the open part of the dissolving system:

- The dosing of the two chemicals takes place in fixed cycles with pauses between the dosing steps. The power supplies of the two dosing motors are interlocked by a relay system that ensures that **the two motors can never operate at the same time!**
- The water supply and the water flow is monitored by pressure switch (33), level switch (47) and flow switch (40).
- Dosing only takes place when the water flow is ensured.
- The dosing system is stopped and an appropriate fault message is generated when a deviation from the set target values occurs.



### **ATTENTION!**

**The use of sulphuric acid up to a concentration of 50% is generally possible. Changes in the dosing performance and/or increased corrosiveness have to be considered when a higher concentration or other acids (e.g. hydrochloric acid, dissolved Na-bisulphate, or others) are used! It is recommended to contact the manufacturer!**

The dissolving water supply should be separated from the filter function of the swimming pool. This can be done in 2 ways: (also see presentation under *Section 4.4.1, Installation of the dissolving and measuring water supply*).

1. Water sampling from the swimming pool
2. Water sampling between the circulation pump and the filter before chemical dosing. **Only use this alternative in exceptional cases when Possibility 1 cannot be implemented!**

### 3.2.5 Acid dosing (standard)

The acid dosing of the GRANUDOS **10** is used to ensure complete dissolution of the chlorine granulate and to correct the pH value of the pool water. Each kg chlorine granulate requires the supply of approx. 0.5-1.0 litres of 37% sulphuric acid. A hose pump (Pos. 9, Page 11) is installed as a standard for this purpose. Acid dosing is automatically controlled by the controller.

However, acid dosing for filling the buffer tank must be adjusted. Chloride dosing must be adjusted during commissioning to ensure that the pH value of the chloride solution in the buffer tank is 6.8 - 7.2. The calcium hypochlorite is then completely dissolved. The solution is clear for practical purposes and has no strong chlorine smell. The solution smells strongly of chlorine and is more corrosive when the pH value is too low. The solution is murky and forms sediments or deposits in the buffer tank and the dosing lines when the pH is too high. The correct dosing ratio is set after measuring the pH value.

Hose pumps can transport very small dosing amounts in a reliable and continuous manner, even when air or gas bubbles are included in the suction line. Rotating rollers press the dosing hose against the housing wall, squeeze out the liquid in front of the rollers, and aspirate new liquid behind them. Hose pumps are extremely reliable and easy to operate.

The hose pump aspirates the acid out of the acid canister through a suction lance (Pos. 3, Page 11). The filling level in the acid canister is measured by a level switch for the empty message.

Use sulphuric acid with a saturation level of 37-50% as pH-reducer. Concentrated hydrochloric acid destroys the hose pump - dilute to below 10%. Sodium bisulphate "dry acid" solutions should not have concentrations higher than 20% (corresponds to 10% sulphuric acid). It must be considered whether this acid performance is sufficient for neutralisation.



Figure 12, Acid dosing pump



#### **Hint !**

**In special cases, e.g. when water is very hard and/or has a high pH value and/or a very high dosing performance is required, it is recommended to use hydrochloric acid instead of sulphuric acid in order to prevent possible formation of gypsum residues due to high sulphate concentrations in the buffer tank.**

### 3.2.6 Flocculant dosing (standard), (CPR Touch XL only)

The flocculant acts on very fine impurities in the swimming pool water, which are otherwise not retained by the filter, to make them suitable for filtering.

Flocculant dosing is performed with a hose dosing pump (Pos 10, Page 11) that is identical to the one used for acid dosing, but has rotation speed control and a smaller hose diameter. The flocculant is sucked out of the flocculant canister with a suction lance (Pos 13, Page 11). The filling level in the canister is measured by a level switch for the empty message.



Figure 13, Flocculant dosing pump

3.2.7 Buffer tank with / without protection tray (CPR Touch XL and Touch only) (Option)

- 81. Active carbon filter
- 82. Collecting tray PP, not shown
- 83. 4-stop level switch,  
Level minimum alarm;  
  
Level minimum;  
Level maximum;  
Level minimum alarm;
- 84. Alarm switch in collecting tray (not shown)
- 85. Buffer tank 300 l PE

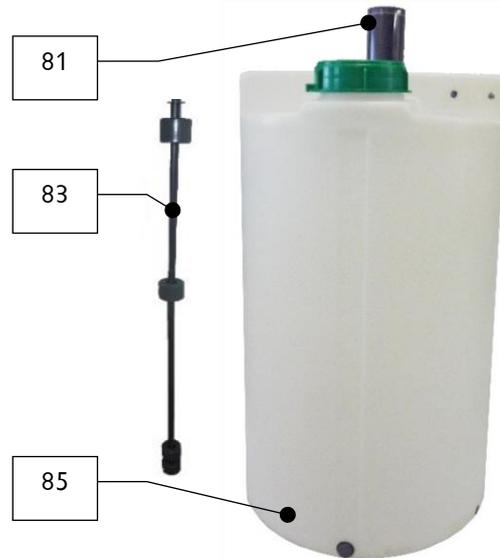


Figure 14, Buffer tank without protective tray

1. Buffer tank filling is started at the minimum buffer tank control level.
2. Buffer tank filling is stopped at the maximum buffer tank control level. This is followed by a rinsing cycle to clean the dissolving system: First 20 seconds with acid, then another 20 seconds with plain water.
3. An alarm message is shown on the display at minimum alarm level.
4. An alarm message is shown on the display at maximum alarm level.

**Contact positions**

The contacts of the level switches are set as follows when the container is half full:

<u>Level position</u>	<u>Contact</u>
Level minimum	opened
Level minimum alarm	opened
Level maximum	opened
Level maximum alarm	closed

An active carbon filter (81) is screwed on top of the buffer tank. It is used to clean the chlorine-polluted air during filling of the buffer tank and for ventilating and bleeding.

3.2.8 Control GRANUDOS

- See operating instructions “Measuring and control unit **CPR-Touch GRANUDOS CPR Touch XL**“, no. **BA MR 001**.
- See operating instructions “Control unit **GRANUDOS Touch**“, no. **BA SW 010**.
- See operating instructions “Control unit **GRANUDOS S5**“, no. **BA SW 014**.

### 3.3 Identification of the device / name plate

Enter the data on the name plate of your device here.

Array 1: Enter code number

Array 2: Enter the serial number

Array 3: Enter the production date

#### Name plate GRANUDOS 10-CPR Touch XL

**Typ: GR 10 CPR-Touch**  
**Art.:**  **Serien Nr.:**   
230V/AC 1Ph~ 50Hz I<sub>max</sub> 3,15 A  
Dosierleistung CI 0,5kg/h pH 1,25 l/h  
Herstellung   
 WDT - Werner Dosiertechnik GmbH & Co. KG  
Hettlinger Str. 17  
D-86637-Wertingen

#### Name plate GRANUDOS 10-Touch

**Typ: GR 10-Touch**  
**Art.:**  **Serien Nr.:**   
230V/AC 1Ph~ 50Hz I<sub>max</sub> 3,15 A  
Dosierleistung CI 2. kg/h- pH 1,25 l/h  
Herstellung   
 WDT - Werner Dosiertechnik GmbH & Co. KG  
Hettlinger Str. 17  
D-86637-Wertingen

#### Name plate GRANUDOS 10-S5

**Typ: GR 10-S5**  
**Art.:**  **Serien Nr.:**   
230V/AC 1Ph~50Hz I<sub>max</sub> 3,15A  
Dosierl. CI 2 kg/h - pH 1 l/h  
Herstellung   
 WDT - Werner Dosiertechnik GmbH & Co. KG  
Hettlinger Str. 17  
D-86637-Wertingen

#### Name plate GRANUDOS 15-S5

**Typ: GR 15-S5**  
**Art.:**  **Serien Nr.:**   
230V/AC 1Ph~ 50Hz I<sub>max</sub> 3,15 A  
Dosierleistung CI 2,0kg/h-pH 1,0l/h  
Herstellung   
 WDT - Werner Dosiertechnik GmbH & Co. KG  
Hettlinger Str. 17  
D-86637-Wertingen

### 3.4 Technical data

	GRANUDOS 10-CPR Touch XL	GRANUDOS 10-Touch
<b>Dimensions and weights:</b>		
Device dimensions	W 80cm, D 60cm, H 130cm	W 80cm, D 60cm, H 130cm
Space requirements for the device (pedestal)	W 160cm, D 65cm, H 180cm	W 160cm, D 65cm, H 180cm
Space requirements incl. operation and maintenance	W 160cm, D 145cm, H 210cm	W 160cm, D 145cm, H 210cm
Empty weight / operating weight	approx. 40kg / 60kg	approx. 35kg / 60kg
<b>Connection data</b>		
Electrical connection data	230VAC/50Hz ± 10%, 350W, I max. 3.15A, two-pin earthed plug	230VAC/50Hz ± 10%, 350W, I max. 3.15A, two-pin earthed plug
Protection class	IP54	IP54
Hydraulic connection data	Inlet DN 25 Outlet DN20 Overflow dissolving system DN20 Drain collecting tray DN25/32	Inlet DN20 Outlet DN20 Overflow dissolving unit DN20 Drain collecting tub DN25/32
Drain connection required	Minimum DN25	At least DN25
Operating pressure	max. 2.5 barg	max. 2.5barg
Required inlet pressure	min. 0.2 barg	min. 0.2barg
Back pressure	0 - 1.4 barg (depending on the inlet pressure)	0 - 1.5barg (depending on inlet pressure)
Water supply	From the swimming pool with operating water pump: Flow pressure at least 0.2barg  <u>In exceptional cases:</u> Between circulation pump and filter, before chemical dosing with operating water pump Flow pressure min. 0.2barg	Between circulation pump and filter, or filter and heat exchanger, before chemical dosing using the booster pump;  Flow pressure min. 0.2barg
<b>Operating data:</b>		
max. dosing performance	Chlorine: • with motor PLG30-12; approx. 0.5kg/h <sup>(1,3)</sup> • with motor PLG30-35; approx. 2kg/h <sup>(1)</sup> Acid: max. approx. 1.3l/h <sup>(2)</sup> Flocculant: max. 50ml/h	Chlorine: • with motor PLG30-12; approx. 0.5kg/h <sup>(1)</sup> • with motor PLG30-35; approx. 2kg/h <sup>(1,3)</sup> Acid: max. approx. 1,3l/h <sup>(2)</sup>
Water throughput	approx. 800 - 1000l/h	approx. 800 - 1000l/h
Operating water pump	0.33kW, 230V, 1.95A	0.33kW, 230V, 1.95A
Medium temperature	5 °C to 35 °C	5 °C to 35 °C
Ambient temperature	5 °C to 35 °C	5 °C to 35 °C
Humidity in utility room	Max: 70%	Max: 70%
Concentration of hypochloric acid	max. 0.2%	max. 0.2%
Ventilation of the room	According to the locally valid regulations, e.g. for Germany DIN 19643	
Material	Housing: PE sintered Other functional parts: PVC or PE Seals: EPDM, Viton	Housing: PE sintered Other functional parts: PVC or PE Seals: EPDM, Viton

#### Footnotes to technical data

- (1) The dosing performance for chlorine granulate is dependent on the type of granulate: A high dust component in the granulate or very coarse material > 3 mm or elongated grains can strongly reduce the dosing performance. Granulate with a low dust component is required when maximum dosing performance is needed.
- (2) High chlorine dosing performance requires equivalent neutralisation performance using 37% or 50% sulphuric acid.
- (3) Standard design

	GRANUDOS 10-S5	GRANUDOS 15-S5
<b>Dimensions and weights:</b>		
Device dimensions	W 80cm, D 60cm, H 130cm	W 50cm, D 65cm, H 130cm
Space requirements for the device (pedestal)	W 160cm, D 65cm, H 180cm	W 130cm, D 70cm, H 180cm
Space requirements incl. operation and maintenance	W 160cm, D 145cm, H 210cm	W 130cm, D 150cm, H 210cm
Empty weight / operating weight	approx. 30kg / 55kg	approx. 30kg / 55kg
<b>Connection data</b>		
Electrical connection data	230VAC/50Hz ± 10%, 350W, I max. 3.15A, two-pin earthed plug	230VAC/50Hz ± 10%, 350W, I max. 3.15A, two-pin earthed plug
Protection class	IP54	IP54
Hydraulic connection data	Inlet DN20 Outlet DN20 Overflow dissolving unit DN20	Inlet DN20 Outlet DN20 Overflow dissolving unit DN20
Drain connection required	At least DN25	At least DN25
Operating pressure	max. 2.5barg	max. 2.5barg
Required inlet pressure	min. 0.2barg	min. 0.2barg
Back pressure	0 - 1.5barg (depending on inlet pressure)	0 - 1.5barg (depending on inlet pressure)
Water supply	Between circulation pump and filter, or filter and heat exchanger, before chemical dosing using the booster pump;  Flow pressure min. 0.2barg	Between circulation pump and filter, or filter and heat exchanger, before chemical dosing using the booster pump;  Flow pressure min. 0.2barg
<b>Operating data:</b>		
Dosing performance GR 10	Chlorine: • with motor PLG30-12; approx. 0.5kg/h <sup>(1)</sup> • with motor PLG30-35; approx. 2kg/h <sup>(1,3)</sup> Acid: max. approx. 1.3l/h <sup>(2)</sup>	Chlorine: • with motor PLG30-12; approx. 0.5kg/h <sup>(1)</sup> • with motor PLG30-35; approx. 2kg/h <sup>(1,3)</sup> Acid: max. approx. 1.3l/h <sup>(2)</sup>
Capacity	—	—
Water throughput	approx. 800 - 1000l/h	approx. 800 - 1000l/h
Operating water pump	0.33kW, 230V, 1.95A	0.33kW, 230V, 1.95A
Medium temperature	5 °C to 35 °C	5 °C to 35 °C
Ambient temperature	5 °C to 35 °C	5 °C to 35 °C
Humidity in utility room	Max: 70%	Max: 70%
Concentration of hypochloric acid	max. 0.2%	max. 0.2%
Ventilation of the room	According to the locally valid regulations, e.g. for Germany DIN 19643	According to the locally valid regulations, e.g. for Germany DIN 19643
Material	Housing: PE sintered Other functional parts: PVC or PE Seals: EPDM, Viton	Housing: PE sintered Other functional parts: PVC or PE Seals: EPDM, Viton

### Footnotes to technical data

- (1) The dosing performance for chlorine granulate is dependent on the type of granulate: A high dust component in the granulate or very coarse material > 3 mm or elongated grains can strongly reduce the dosing performance. Granulate with a low dust component is required when maximum dosing performance is needed.
- (2) High chlorine dosing performance requires equivalent neutralisation performance using 37% or 50% sulphuric acid.
- (3) Standard version

	Buffer tank GRANUDOS-PB (optional) for type <b>CPR-Touch XL and Touch</b>
<b>Dimensions and weights:</b>	
Device dimensions	D 80cm, H 130cm
Space requirements for the device (pedestal)	W 90cm, D 90cm, H 180cm
Space requirements incl. operation and maintenance	W 90cm, D 170cm, H 210cm
Empty weight / operating weight	10/210kg (200l) 15/315kg (300l)
<b>Connection data</b>	
Electrical connection data	—
Protection class	—
Hydraulic connection data	Inlet DN 20 DN15 (suction lance) outlet
Drain connection required	—
Operating pressure	Pressureless
Required inlet pressure	
Back pressure	
Water supply	—
<b>Operating data:</b>	
Dosing performance GR 10	—
Capacity	200l/300l
Water throughput	—
Operating water pump	—
Medium temperature	5 °C to 35 °C
Ambient temperature	5 °C to 35 °C
Humidity in utility room	Max: 70%
Concentration of hypochloric acid	max. 0.2%
Ventilation of the room	According to the locally valid regulations, e.g. for Germany DIN 19643
Material	Tank: PE Connections: PVC

Connectiondata pneumatic: At least 5 bar overpressure permanently

### **Footnotes to technical data**

- (1) The dosing performance for chlorine granulate is dependent on the type of granulate: A high dust component in the granulate or very coarse material > 3 mm or elongated grains can strongly reduce the dosing performance. Granulate with a low dust component is required when maximum dosing performance is needed.
- (2) High chlorine dosing performance requires equivalent neutralisation performance using 37% or 50% sulphuric acid.
- (3) Standard version

### 3.4.1 Requirements for the calcium hypochlorite granulate

Based on the experience gained in the past 30 years with the dosing of calcium hypochlorite granulate using the GRANUDOS we discovered that the quality of the granulate has a significant impact on the dosing safety. Since safety is of extraordinary importance in swimming pool technology, we define here our minimum requirements for the calcium hypochlorite granulate. If these quality criteria are met, a proper dosing operation can be assumed.

The following can be checked upon delivery to gain an initial impression of the quality:

The granulate must be white, free of clumps, and no strong chlorine smell must be present when opening the drum.

#### **Specification:**

- Calcium hypochlorite concentration: higher than 70 %
- Water-insoluble (Ca(OH)<sub>2</sub>, CaCO<sub>3</sub>): less than 4 %
- Water (crystal water due to safety): higher than 10 %

#### **Grain size:**

- Dust: smaller than 0.15 mm (100 mesh) and smaller than 1 %
- Fraction of coarse particles: smaller than 2.5 mm (8 mesh) and smaller than 5 %

### 3.4.2 Transport / storage

The devices must be checked for possible transport damage immediately after receipt.



#### **ATTENTION !**

**The systems and devices can be damaged by frost or high temperatures. Prevent exposure to frost during transport and storage!**

**Do not store systems and devices next to objects with high heat radiation or directly exposed to sunlight. The device may only be transported and stored in its original packaging. Careful handling must be ensured.**

### 3.4.3 Storage of chemicals



#### **DANGER !**

**The safety data sheets of the chemical substance suppliers must be adhered to!**

The TRGS 515 regulations for the storage of chemical must be considered in addition.

#### **General**

- Storage of chlorine dry and cool
- Keep chlorine stock for less than 6 months

## 4 Assembly

### 4.1 Selecting the place of installation

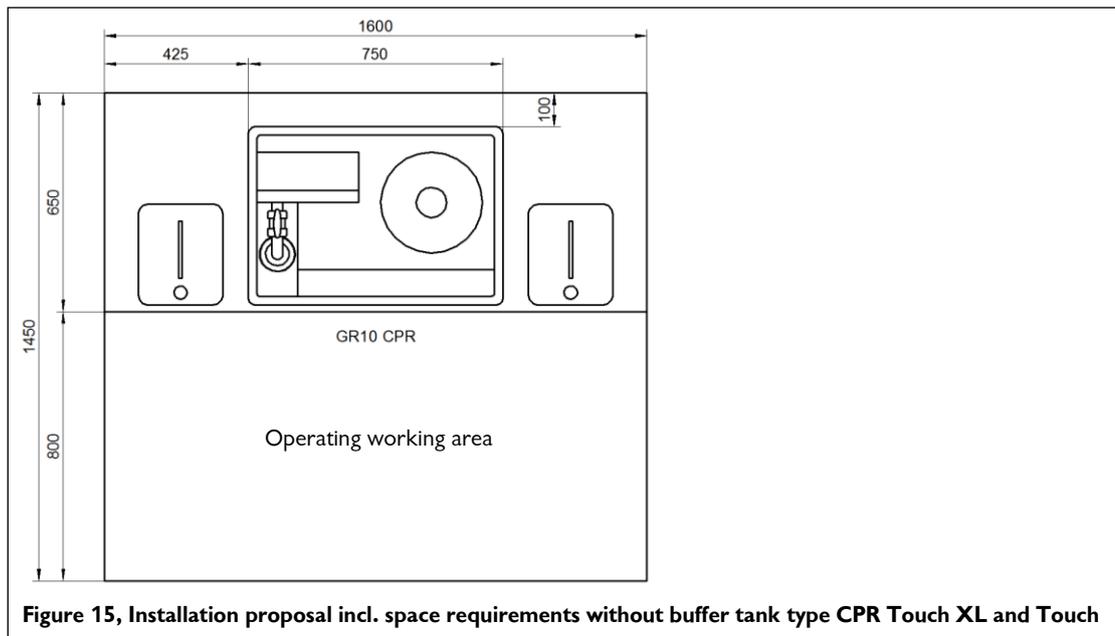
#### **The following is to be considered regarding the place of installation:**

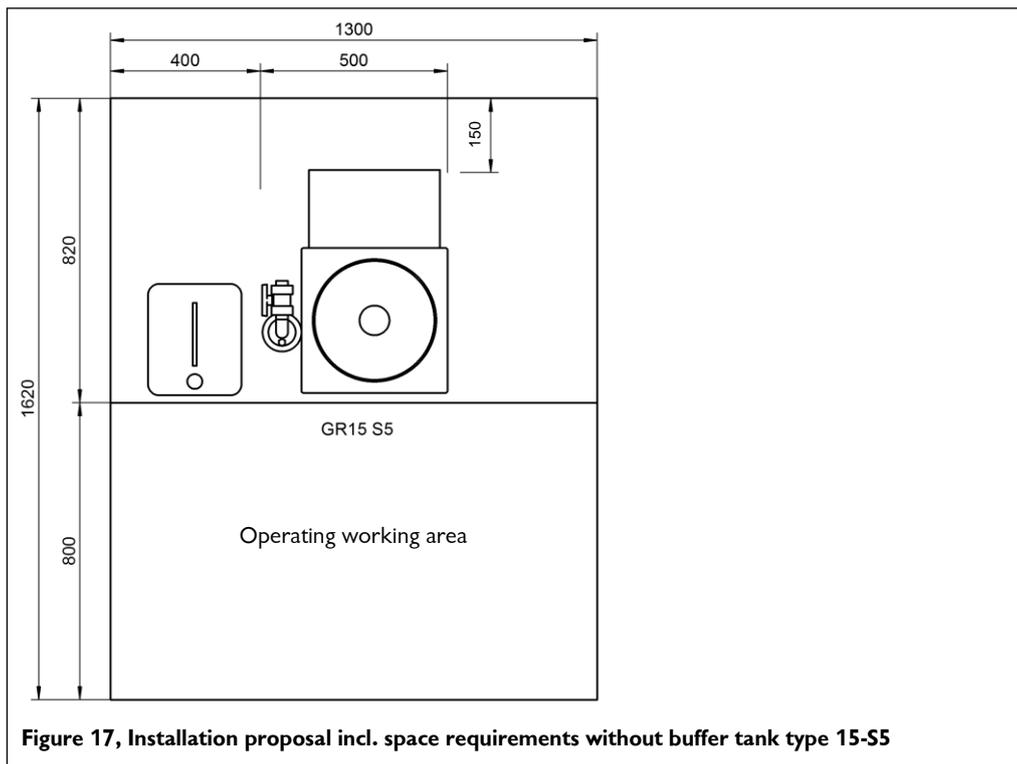
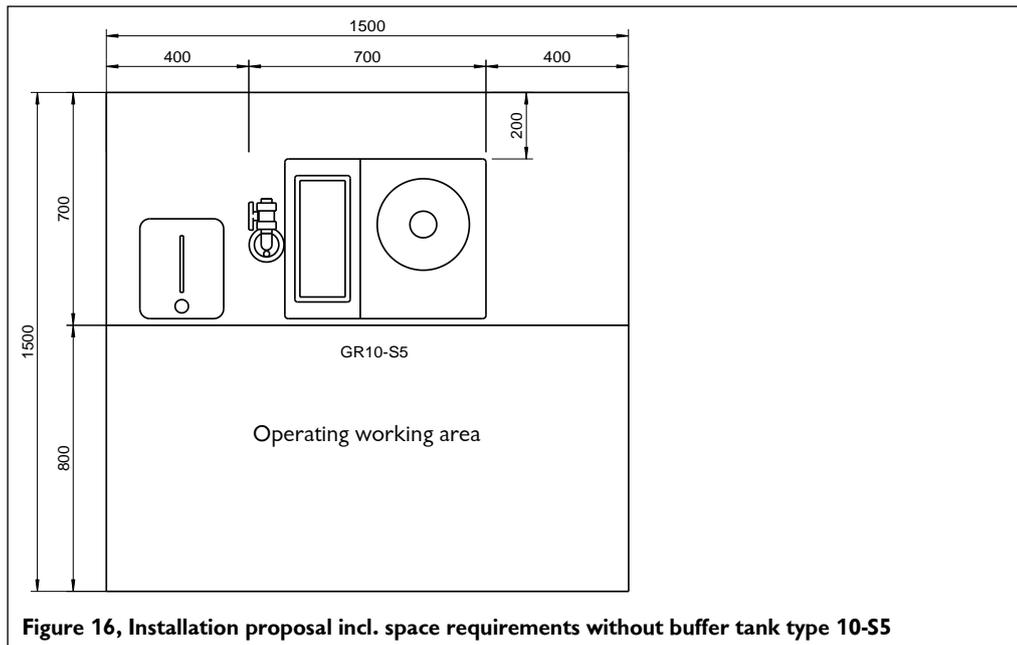
1. A freely accessible installation space should be chosen for easier operation and later maintenance work.
2. The dimensions for the floor drain and the temperature specifications for the environmental air and the medium according to the specifications in *Section 3.4 Technical data* are to be adhered to. The device may not be operated in the proximity of flammable fumes, dusts, or gases.
3. The device may not be exposed to weather effects. It may not be installed in the open. The system must be protected against frost and direct sunlight.
4. A mains connection and a drain connection must be provided. Depending on the device configuration, an Internet connection may also be required.
5. The operating room may not be used as a permanent work room. (max. 2 hours per day) also see the locally valid accident prevention regulations (Germany BGR-GUV-R 108)...
6. Equipment areas must be ventilated to ensure that hazardous substances cannot reach concentrations that are detrimental to health (accident prevention regulations BGR-GUV-R 108)...
7. Collecting trays for the chemical canisters and the buffer tank must be provided.
8. It must comply with the accident prevention regulations and may not be accessible to unauthorised persons. A separate storage room for chemicals must be provided.

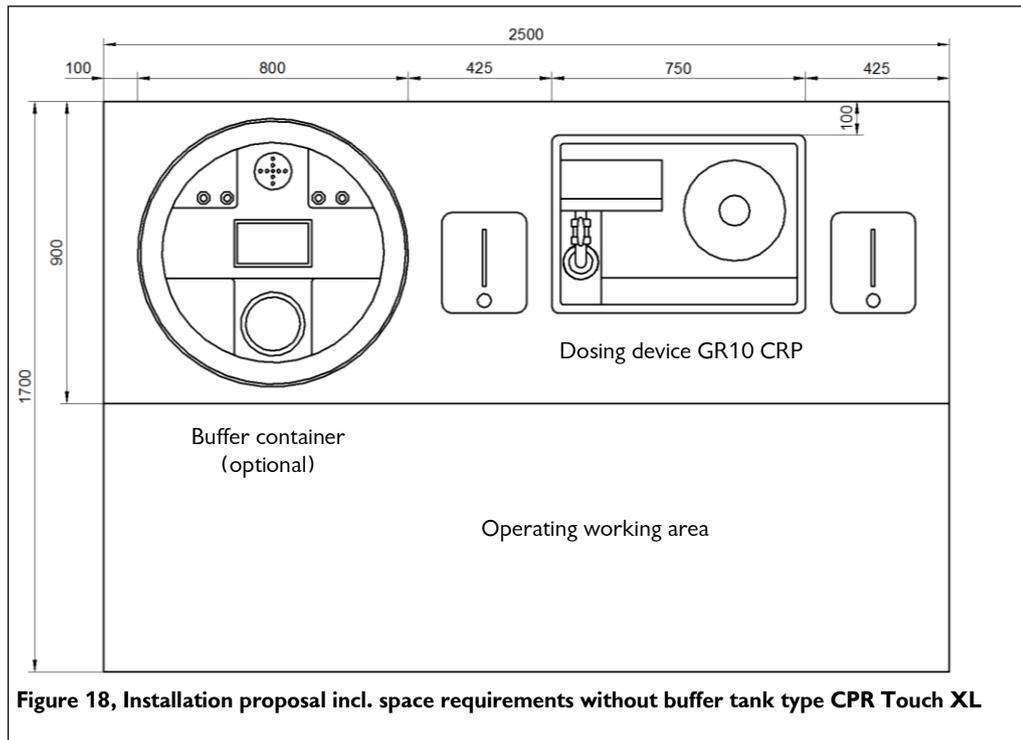
### 4.2 Assembly information / installation suggestion

- Remove transport locks
- Warning and information signs according to the locally valid accident prevention regulations (Germany: BGR-GUV-R 108) are to be provided at the intended positions.

#### **Layout suggestions:**







**Figure 18, Installation proposal incl. space requirements without buffer tank type CPR Touch XL**

4.3 Mechanical installation

The dosing device is delivered in completely pre-assembled form with mounted collecting tray, controller and dirt filter. Unpack the GRANUDOS, place it on a suitable, level foundation in a utility room and align it. Proceed in a similar way with the dosing canisters, the buffer tank and the respective collecting trays as required.

Ensure that there is sufficient free space for operation and maintenance of the device!

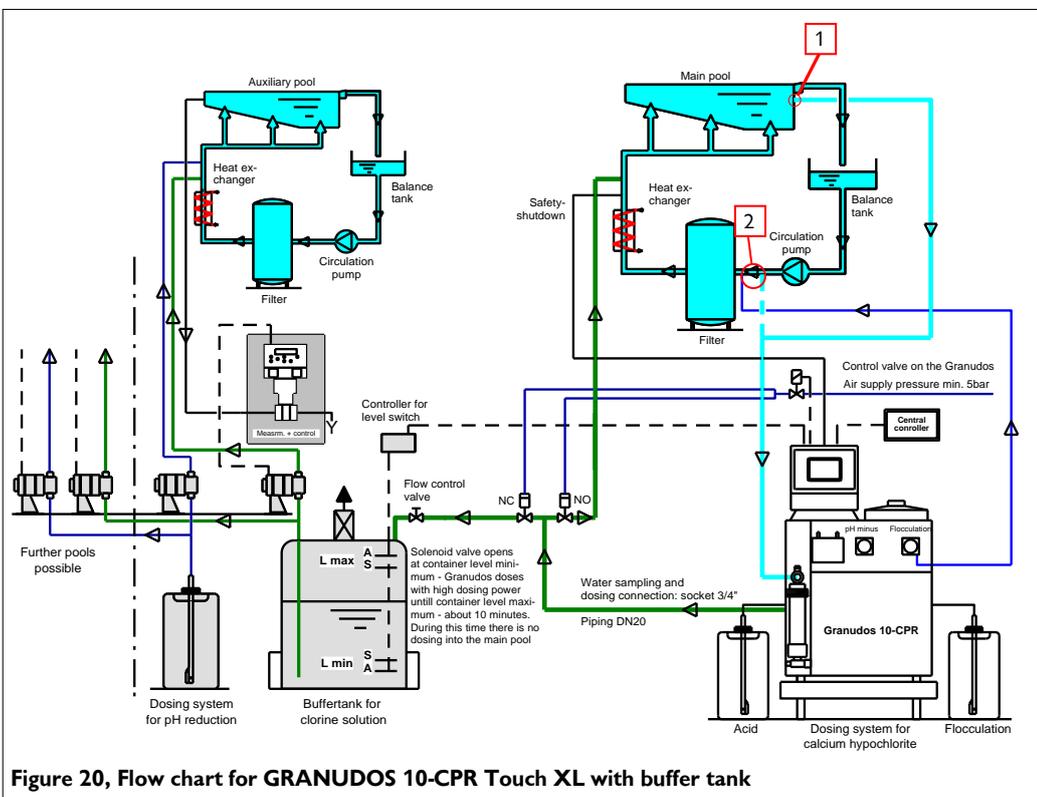
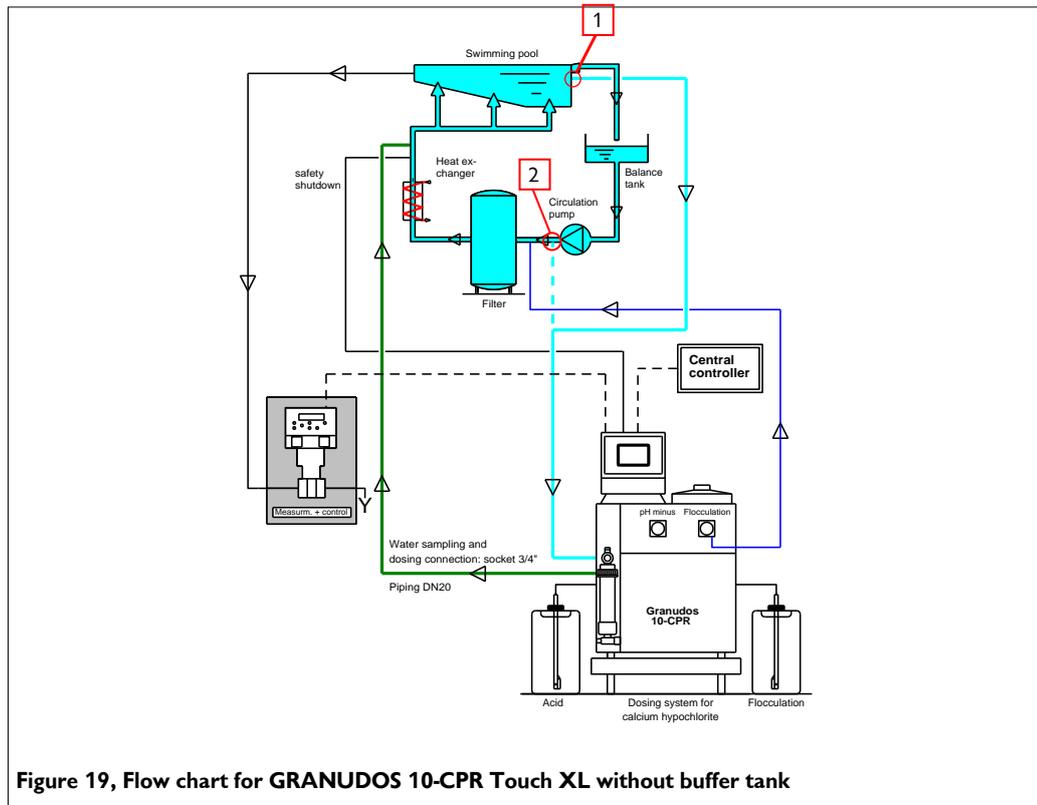
**Installation material**

<p>Overflow connection for the rinsing tray</p>
<p>Feet</p> 
<p>Spare parts bag with manometer, seals, membranes</p> 
<p>Maintenance set for dosing motor</p>
<p>2 ball valves d25 with adhesive connector d25-3/4"</p> 

<p>Accessories for acid pump</p> 
<p>Collecting tray including 4 feet with M6 screw thread and 4 sealing washers</p> 
<p>Collecting tray overflow connection</p> 
<p>Accessories for flocculant pump</p> 
<p>Dosing lance type 1SK (optional)</p> 

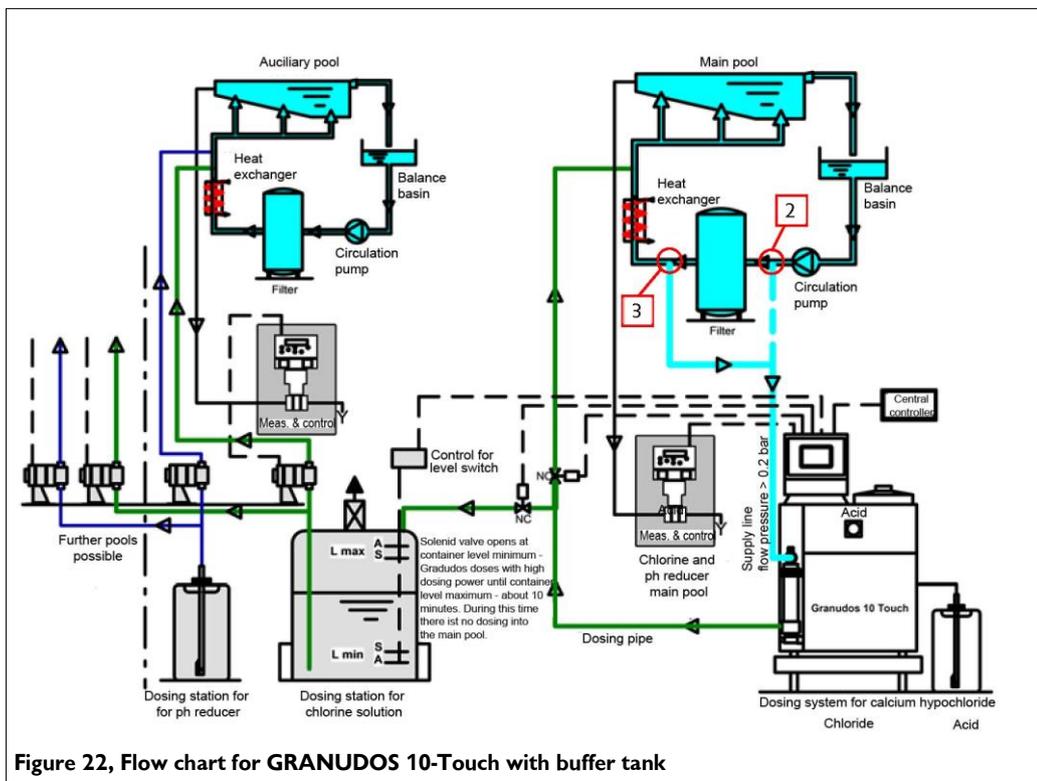
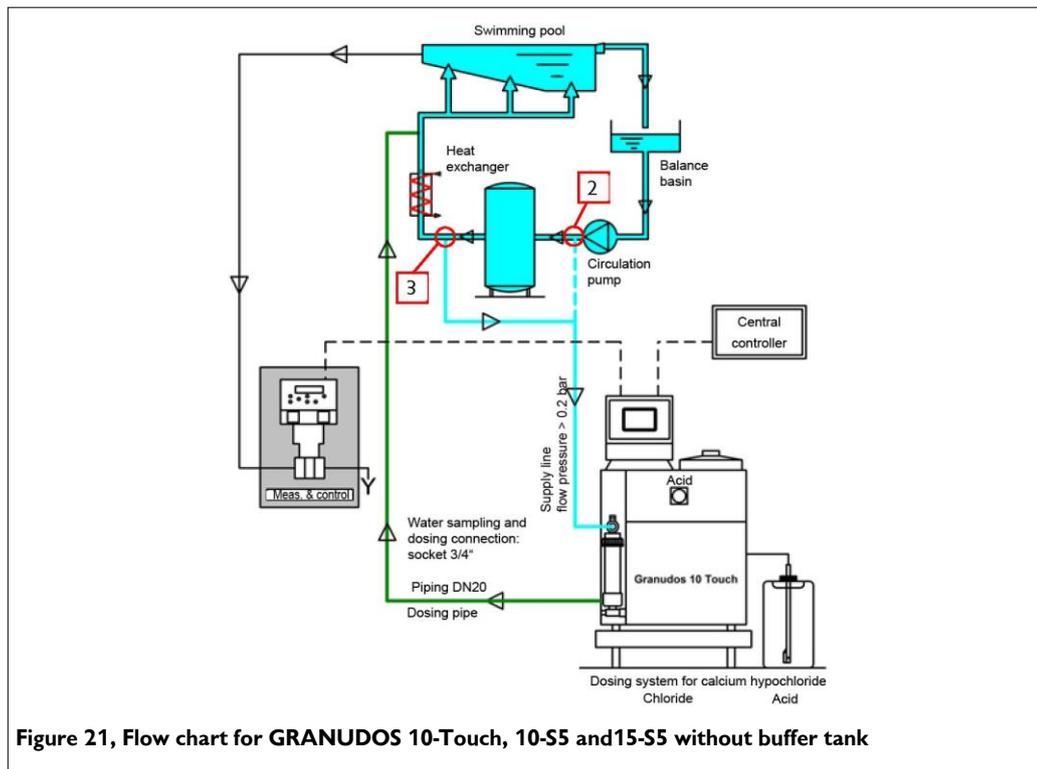
### 4.4 Hydraulic installation

#### Integration into the water circulation: **CPR Touch XL**



No. **1** and **2** see explanation to the water sampling Page 29.

**Integration into the water circulation: 10-Touch, 10-S5 and 15-S5**



No. 2 and 3 see explanation to the water sampling Page 29.



### **ATTENTION !**

**The locally valid regulations must be adhered to during installation. For example, for Germany DIN 19643.**

Pressure conditions require special attention when connecting the GRANUDOS **10-CPR** to the water circulation in order to avoid effects of the swimming pool circulation on the supply of dissolving water.

### **The GRANUDOS was tested under the following conditions:**

With pre-pressure:	1.2 bar	Possible counter-pressure:	1.4 bar
	0.6 bar		1.1 bar
	0.3 bar		0.9 bar

These pressures without a throttle valve inserted are shown on the dosing device. Pressure losses in the piping must be considered as well. Pressure losses should therefore be kept as low as possible. Hose connectors that allow measurement of pressure during operation using the manometer supplied are to be installed at the inlets and outlets of the dosing system. A stronger pump can be used in the event of a higher counter-pressure.



### **ATTENTION !**

**Take note that all ball valves of the measuring cell block must be closed before starting the connecting work.**

#### 4.4.1 Installation of the dissolving and measuring water supply

The supply of the GRANUDOS 10-CPR with dissolving and measuring water should be separated from the filtering cycle of the swimming pool, to avoid effects of the swimming pool circulation on the supply with dissolving water.

### **Circulation**

Only sufficient pool circulation can achieve satisfactory control of the auxiliary hygiene parameter free chlorine, pH value and redox voltage. The dosed chemicals must all reach all pool areas within a short time. The concentrations measured in the pool must be approximately equal, even under load.

### **Water sampling**

The correct selection of the measuring water sampling points is essential for the effect of the measuring and control system. The measuring water should be as similar as possible to the pool water, so that changes in the pool water quality can be measured as quickly as possible. This is essential for fast compensation of changes in the pool water quality by dosing additional chemicals. Measurement of the chlorine concentration at different points (e.g. behind the circulation pumps, mixed water, etc.) and comparison with the values of the pool water at different operating conditions is necessary to find the best possible sampling point.



### **ATTENTION !**

**No chemicals may be dosed upstream of the measuring water sampling point. This would distort the measuring results!**

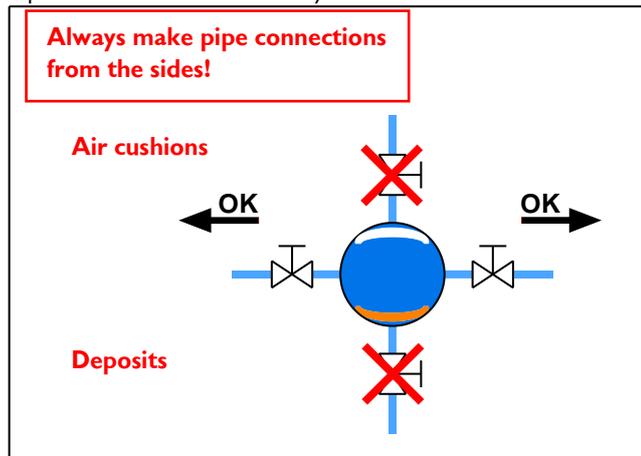
Only measuring water samples taken directly from the swimming pool will result in satisfactory measuring and control results when the pool water flows through a drainage channel and a compensating tank (surge tank), into which fresh water may also be fed.

Water sampling directly from the pool according to DIN 19643 is prescribed for new pools! Ensure that any connections already installed are not blocked. The pipes must be kept as short as possible. The piping of the supply lines made of PVC must be implemented using dimension d25-3/4". Increase the nominal width when the cable length is more than 20 m or when unfavourable pressure conditions occur.

Ensure that the connecting sockets for water sampling and the dosing point are completely open (metal sockets could may be clogged by corrosion)

### Implementation of pipe connections

Pipe connections should always be installed on the sides.



Connect the supply ball valve (Pos 4, Page11) of the GRANUDOS 10-CPR to the water sampling point. The separation of dissolving and measuring water takes place in the dosing system.

Possibilities for the water sampling point:

#### **Possibility 1**, Swimming pool water directly from the pool (**CPR Touch XL** only)

- Water sampling at least 80 cm below the upper water edge. The flow pressure at the GRANUDOS inlet must be at least 0.2 barg. Installation of the GRANUDOS **10-CPR** at a short distance below the sampling point. The height difference between GRANUDOS and the water surface should be at least 2 m.
- Changes in the incline and decline of the supply line piping to the GRANUDOS 10 must be avoided. This may lead to trapped air that can reach the pump during operation.

#### **Possibility 2**, Swimming pool water before the swimming pool filter (for **CPR Touch XL + Touch and S5**)

**This alternative should only be used in exceptional cases, when Option 1 cannot be implemented!**

- Water sampling between circulation pump and filter, upstream of the chemical dosing system, with 3/4"- socket. The flow pressure at the GRANUDOS inlet must be at least 0.2barg. The measuring water must be separately collected when the sample is too strongly affected on the way through the surge tank. Check the water quality!

#### **Possibility 3**, Swimming pool water upstream of the swimming pool filter (for **Touch + S5**)

**Only use this alternative in exceptional cases when Possibility 1 cannot be realised!**

- Water withdrawal between filter and heat exchanger, before chemical dosing with 3/4" sleeve. The flow pressure at the GRANUDOS inlet must be at least 0.2barg.

#### **If the dosing system has to be installed above the pool level**

- A free-flowing reflux valve must be installed in the supply line to the GRANUDOS.
- A spring-loaded reflux valve must be installed in the dosing pipe to the clean water supply in order to prevent the rinsing tray from being drained after switching off. (also see installation drawing above - appropriate reflux valves are available).

#### **When overflow after switching off the machine or in the event of a fault is to be prevented**

- Install a 3/4" solenoid valve in the feed line and a d25 or d32 reflux valve in the outlet line. Take note of minor pressure losses! A supply pressure greater as 0.4barg is therefore required for commissioning!

#### **Measuring water return flow (CPR Touch XL only)**

The measuring water is automatically ducted to the rinsing unit of the dosing system and is thus returned to the water cycle.

## Dosing unit

### 4.4.2 Installation of the dosing line for chlorine solution

Install the dosing lines and connect them to the injection point (ball valve) downstream of the heat exchanger and the outlet of the GRANUDOS.

#### **With buffer tank (option)**

Also duct the dosing line to the buffer tank and install two solenoid valves and a flow control valve. (see Figure 20, Page 28)

### 4.4.3 Buffer tank (option)

The buffer tank is connected to the chlorine dosing line. 2 pneumatic valves are installed downstream of the branch of the chlorine dosing line according to the flow diagram. These are supplied with air and controlled by a solenoid valve. Connect the control lines of the pneumatic valves to the solenoid valve. The solenoid valve is connected to the on-site compressed air supply.

The chlorine solution can be dosed from the buffer tank through on-site pumps to an auxiliary pool.

### 4.4.4 Installation of an overflow pipe from the rinsing tray to the collecting tray

The screw the two overflow sockets into the rinsing tray and the collecting tray.

Duct pipes from the overflow socket of the rinsing tray and the collecting tray of the GRANUDOS to the gully.

### 4.4.5 Flocculant dosing (CPR Touch XL only)

The GRANUDOS 10-CPR is equipped with a flocculant pump. Screw the dosing fitting into the injection point and route the dosing line from the dosing pump to the injection point. Install the injection point as far from the filter and as close to the circulation pump as possible. Measuring water **may never be sampled downstream of the injection point.**



Figure 23, Dosing unit

The 4x1mm dosing line made of blue PE is part of the delivery scope.

## 4.5 Electrical installation



### **DANGER DUE TO HIGH VOLTAGE !**

**Risk of death due to high voltage. All electrical work on the device may only be carried out by trained electricians in accordance with the applicable safety regulations!**

**Before any electrical work is carried out, the power supply must be switched off and secured against being reactivated!**

**Fuses inside the control housing may only be replaced by maintenance or repair personnel.**



### **ESD-SENSITIVE !**

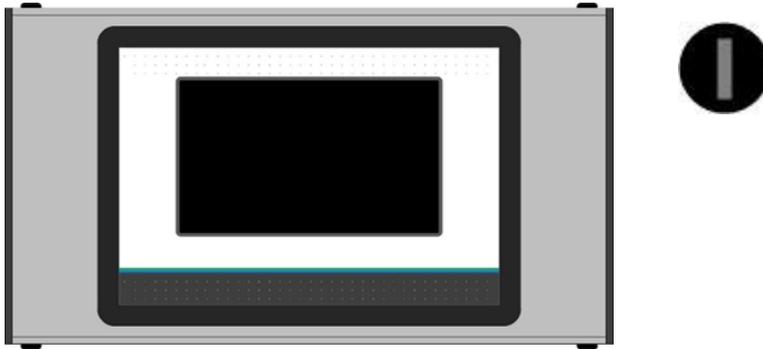
**The electronic components of the devices are sensitive to electrostatic discharge. The generally known precautions regarding ESD-sensitive devices must be adhered to when handling these devices!**

### The following needs to be considered:

- Do not pull or insert a live connector.
- Discharge your body for at least 5 seconds before you touch the devices, e.g. by touching a grounded part of the system or by wearing an ESD ground strap that is connected to ground.

### Electrical connection

#### 4.5.1 Open and close the housing, GRANUDOS 10-CPR Touch and 10-Touch:



The display lid can be swivelled to the right or left, depending on the device type, to facilitate installation and service work.

The locking axle has to be removed before swivelling. The locking axle can be recognised by the plastic slot screws on both sides. The other side is provided with two expanding rivets as rotating pivots.

Close the housing in reverse sequence

The device must be supplied with permanent voltage. This means, that the voltage supply may not be interlocked with the filter system. A digital input is available for interlocking the dosing device with the swimming pool filter system.

Also see the terminal plans in the terminal boxes of the control or in *Section 9.2* with regard to the electrical installation.

**For signals to the outside and from the outside, see terminal plans.**



### **ATTENTION !**

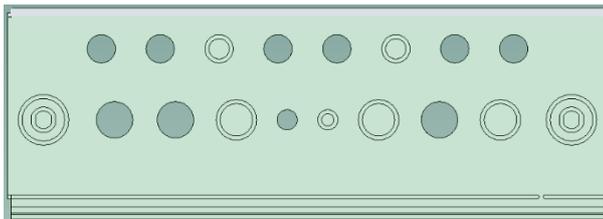
**The external control of the inputs must be floating.**

**The maximum contact load of the relay contacts must be considered.**

The electrical supply of the dosing device must always be ensured.

The external control inputs and outputs (switching off in the event of faults, disinfection dosing during backwash, etc.) must be connected to the clamp terminals on the base plate in the control housing.

### Insert cables



The housing is provided with some screw connections from the factory. Several push-outs for metric cable screw glands are available for additional inlets.

The two outer M25 screw glands are intended for inserting a pre-assembled interface cable with JR45 connector.

Dosing unit



**ATTENTION !**

Please take note of the spatial separation of energy and signal cables when inserting further cables. Crossing of energy and signal lines is to be avoided!

The housing must be appropriately closed once the work has been completed!

The device is equipped with a temperature controller. This temperature controller can be used to control the pool water temperature. When pool heating is achieved by a flow heat exchanger, it must be ensured that control of the relevant heating circuit pump is only possible when the filter system is running.

Please consider that pool temperature control can only be ensured when the filter running times chosen are sufficiently long.

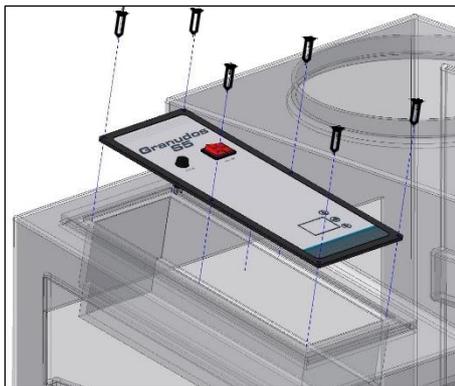
The sensor should be installed in an immersion sleeve into the swimming pool pipe upstream of the filter to get an accurate measuring result.



**ATTENTION !**

Immersion sleeves that come into contact with the swimming pool water must be corrosion-resistant.

4.5.2 Opening and closing the housing, GRANUDOS 10-S5

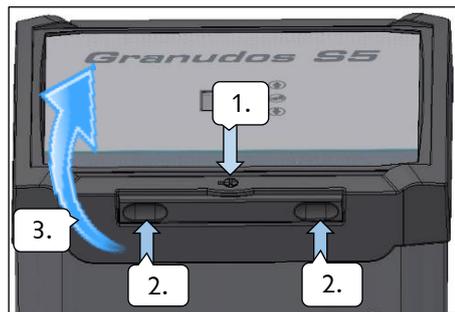


1. Unscrew the 6 screws
2. Carefully lift off the housing. Pay attention to the cable connections.

Close the housing in reverse sequence

Figure 24, Control housing, type 10-S5

4.5.3 Opening and closing the housing, GRANUDOS 15-S5



**Open housing:**

1. Unlock the screw cap
2. Press down on both recessed grips until the housing snaps open.
3. Fold the lid upward

Close the housing in reverse sequence. The housing lid will close with a soft, audible click. Ensure that the housing lid is securely locked.

Figure 25, Control housing GR 15-S5

## 5 Commissioning

### 5.1 Commissioning - comments



#### **ATTENTION!**

This chapter must also be considered when operations are resumed after an operating break. Only switch on the GRANUDOS 10-CPR when the rinsing tray has been filled.

The work described here may only be performed by trained, specialised staff of a specialist company who have read and understood the operating instructions. The systems installed must be inspected for appropriate installation and tightness before commissioning.

Use the commissioning protocol in Section 9.3 for the commissioning procedure. The device was delivered with specific factory settings. The setting values are provided in the operating data sheet in Section 9.4.



#### **ATTENTION!**

Alien objects that may have fallen into the rinsing device during the installation of the piping and electrical system may cause failure of the floater valve or the suction pipe of the flow switch. Remove alien object!

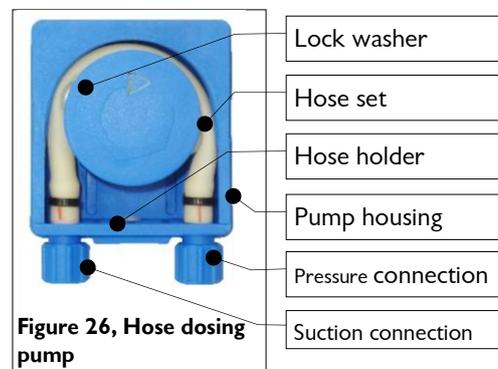
### 5.2 Commissioning

Ensure that the ball valves at the measuring cell block (2) are closed before starting operations.

#### 5.2.1 Install the hose pumps and roller carriers

The acid and flocculation pumps are mounted on the front or the side of the GRANUDOS housing.

1. Pull the hose holder towards the front and out of the guide in the housing.



2. Push the blue roller carrier onto the axle.



Figure 27,  
Insert the roller carrier

3. Place the hose holder into the guides inside the housing until it clicks in.



Figure 28,  
Insert the hose carrier

4. Turn the roller carrier anticlockwise while carefully pushing the hose into the housing until it is completely within the housing.



Figure 29,  
Turn the roller carrier

Then re-attach the safety disk and the transparent pump cover. The roller carrier installation is then completed.

Proceed in reverse order to de-install the roller carrier and the hose holder. Insert the safety connector into an appropriate mains socket and switch on the device at the main switch.

### 5.2.2 Prepare acid dosing for operation



**The specifications in the safety data sheets for the respective chemicals must be adhered to, e.g. protective clothing:**

**Personal protective clothing must be put on before starting work with chemical substances: Protective gloves, apron, face protection, boots.**



Figure 30, GRANUDOS 10-CPR Touch XL with acid and flocculant canister and 10-S5 with acid canister

### Connect the acid canister

Poisonous fumes may be created when handling acids. Do not inhale fumes.

1. Unscrew the **red screw lid** with acid lance from the empty acid canister, place the suction lance into the collecting tray and immediately close the empty canister with the original screw lid.
2. Lift the empty canister out of the collecting tray.
3. Place a full acid canister into the collecting tray
4. Unscrew the screw lid from the full acid canister and immediately insert the suction lance of the GRANUDOS 10-CPR dosing system and screw it tight.
5. Keep the original screw lid of the acid canister until the next acid change.

### 5.2.3 Prepare flocculant dosing for operation (CPR Touch XL only)



**The specifications in the safety data sheets for the respective chemicals must be adhered to, e.g. protective clothing.**

### Connecting the flocculant canister

The flocculant may not come into contact with other chemicals!

1. Unscrew the **blue screw lid** with acid lance from the empty acid canister, place the suction lance into the collecting tray and immediately close the empty canister with the original screw lid.
2. Lift the empty canister out of the collecting tray.
3. Place the full flocculant canister into the collection container.
4. Remove the screw lid from the full flocculant canister, immediately insert the suction lance of the GRANUDOS 10-CPR dosing system into the canister and screw it tight.
5. Retain the original screw lid of the flocculant canister until the next flocculant change takes place.

### 5.2.4 Filling the filling hopper with chlorine granulate



### **PROTECTIVE CLOTHING!**

**Personal protective clothing must be put on before the work is started: Tightly fitting protective goggles, protective gloves, apron, face protection, boots**  
**The safety data sheets for the respective chemicals must be adhered to.**



### **ATTENTION!**

**Chlorine granulate and acid may not be mixed with each other or with other chemicals and substances!**

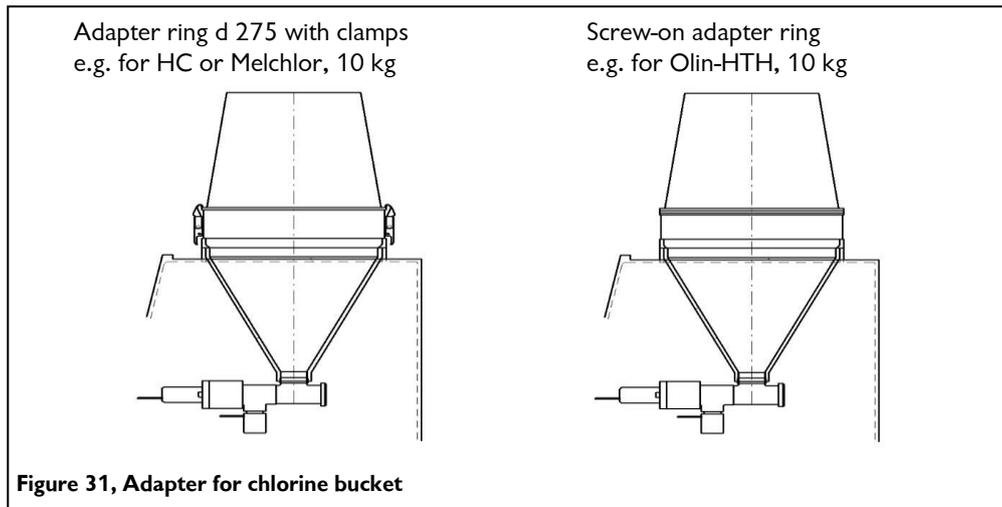
**Remove potential encrustations from the *dosing hopper* to avoid faults in the chlorine dosing.**

#### 5.2.4.1 Filling without bucket adapter

Remove the lid. Carefully pour the chlorine granulate along the wall into the filling hopper using a cup, so that no chlorine dust is generated (do not tip!). Only fill in the amount needed for approx. 1-2 weeks to ensure that the chlorine granulate will not react with air, form lumps or flow less easily. Thereafter, close the lid.

#### 5.2.4.2 Filling with bucket adapter for 10kg bucket

Place the new, full chlorine bucket in front of the device, unscrew the lid (for HTH) or pull off the lid (for HC and Melchlor). Pull the dosing hopper with the empty bucket upwards out of the GRANUDOS housing and place it on the floor next to the full bucket. Hold the empty bucket with your feet, screw the dosing hopper off the bucket and place it onto the floor. Slowly empty the remaining chlorine into the new bucket (chlorine dust) and screw the dosing hopper onto the full bucket or close the catch fasteners. Take the dosing hopper with the full bucket, slowly turn it and insert it into the housing so that the cable at the back and the centring bolt in front fit into the respective recesses.



### 5.2.5 Bleeding the operating water pump and the to GRANUDOS 10

The pump and the piping must be carefully bled before each start of the GRANUDOS 10. The following must be considered during installation and commissioning to prevent the operating pump from running dry:

1. It must be manually checked whether the rotary pump can easily be turned. After removing the fan hood, the ease of movement of the shaft can be tested by turning the fan wheel with a screwdriver. The floating ring seal is clogged when the shaft cannot be easily turned. Try to loosen it by jerking it backwards and forwards. The pump must be removed and disassembled in case this is not possible.



#### **ATTENTION !**

**Failure of the pump is inevitable when the pump is switched on while the floating ring seal is blocked.**

2. Open the ball valve at the water sampling point and the dosing point as well as the supply valve at the pre-filter and wait until the rinsing tray is half full before commissioning. This ensures that water has run through the pump and that the pump is bled. Thereafter, open the stop valve upstream of the cyclone. Only thereafter, switch on the GRANUDOS 10 at the main switch (15).
3. The pipes to the GRANUDOS must be carefully bled. The d75 pre-filter must be monitored for this purpose. When the water level in the filter drops significantly after the pump is switched on, switch off the GRANUDOS, open the bleeding screw on top of the filter, let water run into the filter and then switch on the machine. It might be necessary to repeat the process a few times until the filter remains filled, a few air bubbles in the upper area of the filter are not relevant.

**ATTENTION !**

**If the pump draws air during the operation or when it is switched on without monitoring, the floating ring seal of the pump will run dry, overheat and start to leak. This may happen when the system is installed above the swimming pool level, when the supply line is emptied or when the filter system is switched off. The following installation instructions must be adhered to in such cases.**

1. A free-flowing reflux valve is to be installed into the supply line to the dosing device.
2. A spring-loaded reflux valve must be installed in the dosing pipe to the clean water supply to prevent draining of the rinsing tray after switching off. Appropriate reflux valves are available.
3. Install a 3/4" solenoid valve in the feed line and a d25 or d32 reflux valve in the outlet line when overflowing is to be prevented once the system has been switched off or in the event of a fault. Take note of minor pressure losses! A supply pressure of greater than 0.4 barg is required for safe operation!
4. A bleeding valve that is to be connected to the bleeding connector is optionally available. The outgoing water is ducted back to the dissolving tray.

### 5.2.6 Setting the water flow in the dissolving system (rinsing tray)

Further procedures are only possible when the system is switched on.

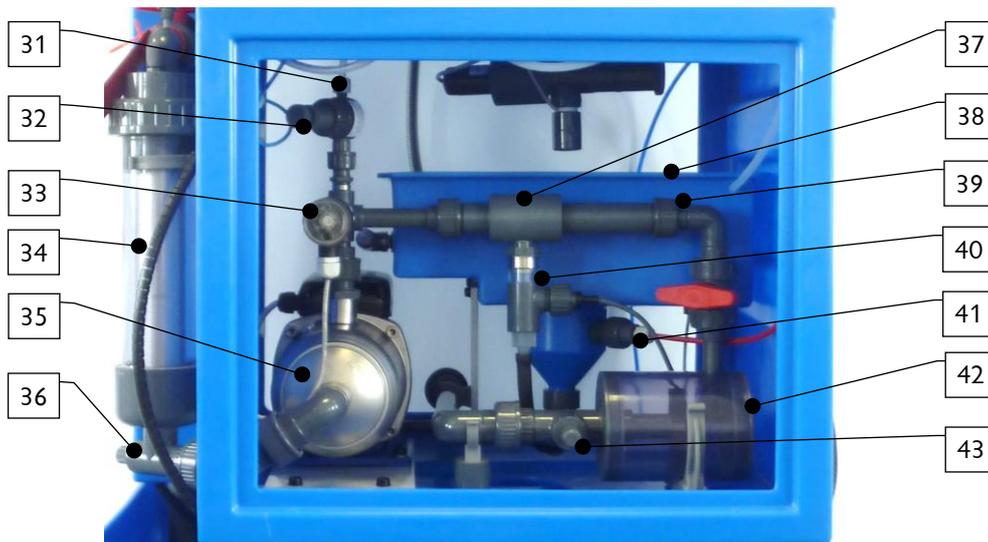
Switch on the system at the main switch, located on the left side of the control unit. The operating water pump starts up. The pump is always in operation when the device is switched on, except when the pressure switch (33) or the level switch min (47) is triggered.

The hole washer in the screw connection (39) downstream of the injector (37) adapts the suction performance of the injector to the pressure conditions. A drop of the water level in the rinsing tray (38) during the initial operation implies that a diaphragm with a smaller hole must be inserted into the screw connection.

A diaphragm with a larger hole is required or the diaphragm must be removed, when the water level increases or the switch body of the flow switch (40) is not clearly pushed upwards.

A 6mm diaphragm is installed ex-factory; diaphragms with 5.5mm and 7mm are included in the spare parts bag attached.

### Overview dissolving system type 10-CPR Touch XL and 10-Touch



### Overview dissolving system type 10-S5

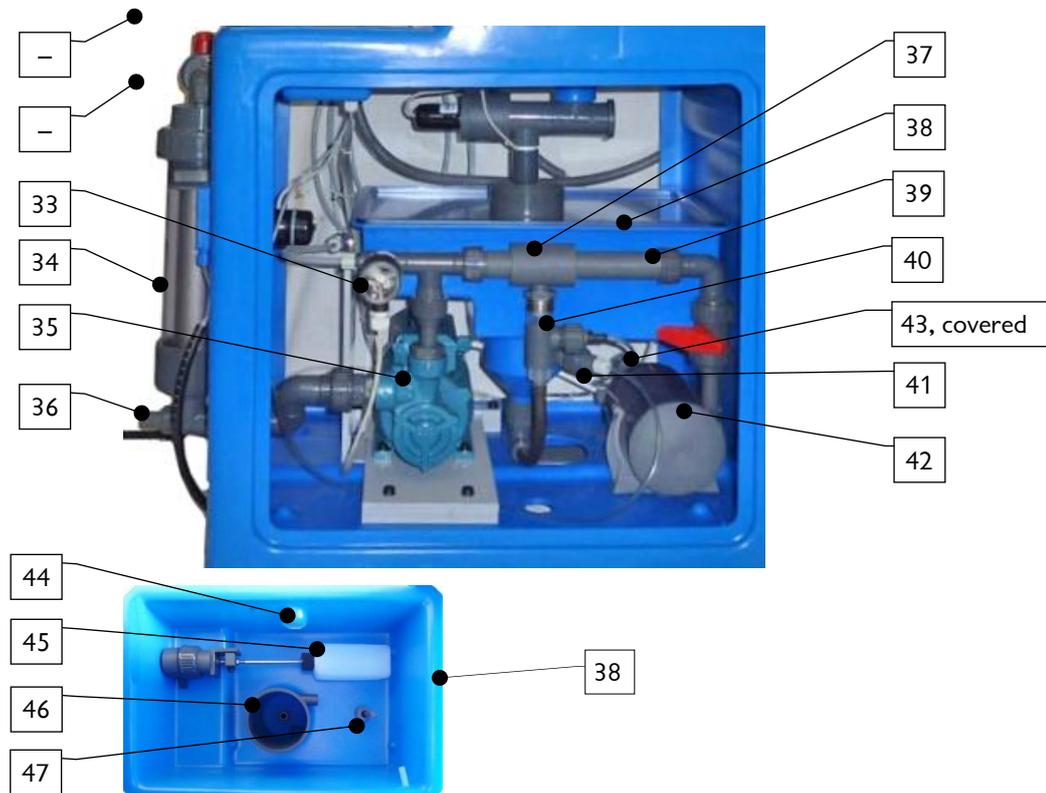


Figure 32, Dissolving system

#### The dissolving system consists of:

- |   |  |
|---|--|
| 31. Outlet for supplying the measuring system                   | 40. Suction pipe flow switch                                   |
| 32. Pressure retention valve for supplying the measuring system | 41. pH-reducer dosing valve                                    |
| 33. Pressure switch   | 42. Dissolving and mixing cyclone                              |
| 34. d75mm dirt filter with bleeding facility                    | 43. Connection for manometer                                   |
| 35. Operating water pump (different versions)                   | 44. Rinsing tray overflow                                      |
| 36. Connection for manometer                                    | 45. Rinsing tray inlet float regulator valve                   |
| 37. Injector  | 46. Rinsing pipe   |
| 38. Rinsing tray  | 47. Rinsing tray min./max level switch                         |
| 39. Screw connection with hole washer                           | 48. Lid for rinsing tray with dust protection pipe (not shown) |

Overview dissolving system type **15-S5**

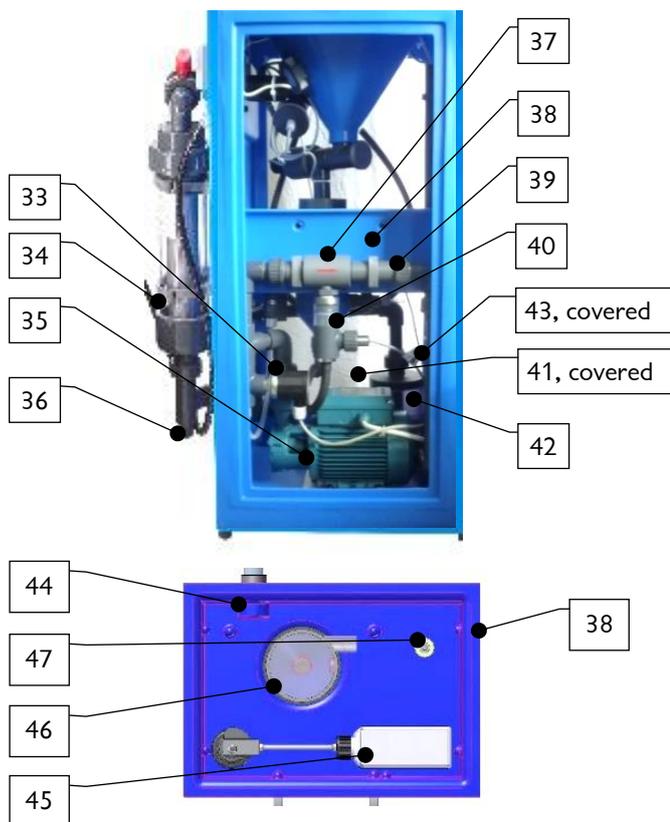


Figure 33, Dissolving system GRANUDOS 15

**The dissolving system consists of:**

- |   |  |
|---|--|
| 31. —   | 41. pH-reducer dosing valve                  |
| 32. —   | 42. Dissolving and mixing cyclone            |
| 33. Pressure switch                           | 43. Connection for manometer                 |
| 34. d75mm dirt filter with bleeding facility  | 44. Rinsing tray overflow                    |
| 35. Operating water pump (different versions) | 45. Rinsing tray inlet float regulator valve |
| 36. Connection for manometer                  | 46. Rinsing pipe                             |
| 37. Injector                                  | 47. Rinsing tray min/max level switch        |
| 38. Rinsing tray                              | 48. —  |
| 39. Screw connection with hole washer         |  |
| 40. Suction pipe flow switch                  |  |

**Set the pressure switch**

The pressure switch installed (33) registers the effective pressure of the operating water pump (35). The GRANUDOS system switches off when the switching power is not reached after air was aspirated or a pressure drop in the water supply. This ensures, in addition to the electrical interlock, that:

- Dosing is switched off when the operating water pump delivers too little water.
- The operating water pump is not exposed to cavitation risk.

The dosing device must operate in automatic mode in order to set the switching point. Remove the lid from the pressure switch for this purpose, turn the adjustment button by 0.25 bar to the right and wait for 6 seconds. In case the dosing system continues running, repeat the process until the dosing device stops

and the "Pressure min." alarm  message is shown. The GRANUDOS dosing system stops. Now turn the adjustment button to the left by 0.25 bar and acknowledge the alarm message. The dosing device will start up again. The dosing system will show a fault when the pressure drops by 0.25 bar.

The switching point is set to 1.5 barg ex-factory.

### 5.2.7 Adjustment of the water level in the rinsing tray

The water level in the rinsing tray is changed by turning the floater at the floater control valve (45) in or out. Turning the floater out results in a higher level, turning it in results in a lower level. One rotation corresponds to approx. 1 cm. Set the floater in the rinsing tray so that the water level is approx. in the middle of the rinsing tray.

#### **NOTICE !**

**This competes commissioning of the dosing unit.**

**For GRANUDOS Touch and GRANUDOS S5: Continue with Section 6.**

**For GRANUDOS CPR Touch XL: For further commissioning, and the operation and setting of the control unit, please consult the Operating Instructions, "CPR Touch XL Measuring and Control Unit" no. "BA MR 001."**

## 6 Operation / handling

The nationally valid accident prevention regulations in Germany: Operation of baths BGR/GUV-R 108 must be taken into account.

### 6.1 General

More information regarding operation and setting of the dosing device is provided in the operating instructions of the control unit:

- “CPR-Touch XL Measuring and Control Unit” no. BA MR 001 or
- “GRANUDOS Touch Control Unit” no. BA SW 010 or
- “GRANUDOS S5 Control Unit” no. BA SW 014.

### 6.2 Top up consumables



#### **PROTECTIVE CLOTHING!**

**Personal protective equipment must be used when handling chemicals; Tightly fitting protective goggles, protective gloves, apron, face protection, boots**  
**The safety data sheets for the respective chemicals must be adhered to.**

- Refilling acid  
For exchanging the acid canister see *Section 5.2.2*, Connect the acid canister.  
The specifications in the safety data sheets for the respective chemicals must be adhered to!
- Topping up the flocculant (CPR Touch XL only)  
For exchanging the acid canister, see *Section 5.2.3*, connecting the flocculant canister.  
The specifications in the safety data sheets for the respective chemicals must be adhered to!
- Refilling chlorine granulate  
For exchanging the chlorine granulate, see *Section 5.2.4*, Filling the filling hopper

## 7 Maintenance, service, faults

### 7.1 Device maintenance

It is recommended to task a specialist company with maintenance.



#### **Hint !**

The maintenance work required for smooth operation is described in the maintenance protocol in **Section 9.5**.

For opening the controller housing, see **Section 4.5**.



#### **DANGER DUE TO HIGH VOLTAGE !**

The device must be switched off and secured against re-operation before any electrical work is carried out!

#### 7.1.1 Clean the dirt filter

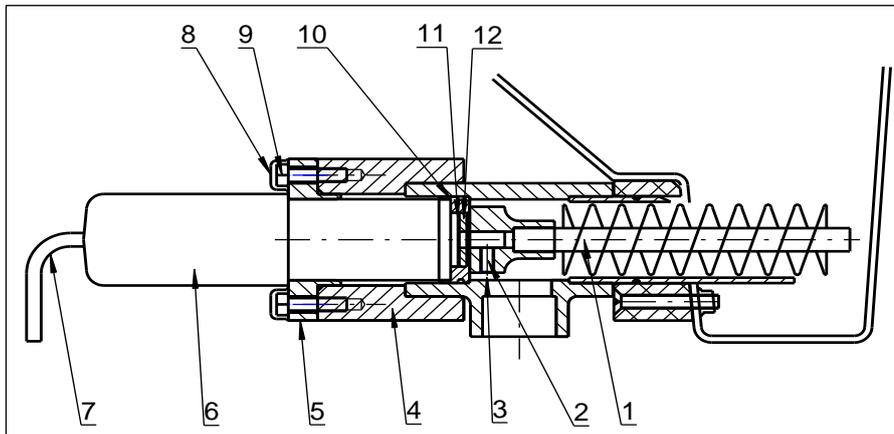
Always close the inlet and outlet valves when working on water-conducting lines. A clean preliminary filter is important for appropriate operation. A dirty filter may cause cavitation at the operating water pump and thus damage the pump.

Loosen the upper and lower union nut at the filter and remove the filter from the holder to clean it. Pull out the filter insert under running water. Clean the filter hood and the filter insert under running water.

#### 7.1.2 Exchanging the dosing screw and the dust seal

##### Exchanging the dosing screw

When only the dosing screw is to be exchanged, the seal in the dust protection cap should be exchanged as well. The sealing rings made of EPDM and felt are part of the delivery scope.



**Figure 34, Dosing motor with dosing screw**

##### Tool for exchanging the dosing screw or the dosing motor:

- a) 8 mm spanner to loosen the dosing motor
- b) Measuring device (multimeter) for voltage measurement
- c) Small blade or small screw driver to clean the headless screw
- d) 2.5 mm Allen screw for the headless screw of the dosing screw

7.1.2.1 Removal of the dosing motor and the dosing screw



**PROTECTIVE CLOTHING!**

**Put on personal protective equipment before starting the work.**

- a) Remove the lid from the dosing hopper.
- b) Lift the dosing hopper with dosing motor and dosing screw upwards and remove it. Fill all of the chlorine granulate in the dosing hopper into a bucket and close it.
- c) Opening the terminal box at the dosing hopper.
- d) Remove the protective caps from the M5x20 fastening screws (8) and undo the screws (9) with an SW 8 spanner.
- e) Pull the motor with the dosing screw out of the holder - while holding a flat collection container under the motor holder to ensure that no chlorine granulate is dispersed. Immediately clean the motor holder on the inside and remove dispersed chlorine granules.
- f) Clean the screw - Observe whether the chlorine granulate is strongly compacted inside the screw or whether it drops off easily when the screw is pulled out. The granulate may be humid or its dust component may be too high when it is solidified. The dosing screw may also be worn so that the granulate is no longer appropriately transported.

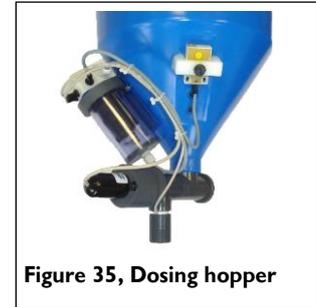


Figure 35, Dosing hopper

7.1.2.2 Maintenance of the dosing motor

- a) Disconnect the motor cable at the terminal box on the hopper and pull the cable out of the bushing
- b) Use a small screwdriver, knife or similar to scrape out the sealing putty from the threaded hole of the fastening screw (3) at the PVC flange of the dosing screw.
- c) Loosen the fastening screw with the SW 2.5 Allen key and pull the dosing screw off the shaft.
- d) Pull the dust cap off the dosing motor and remove the old sealing rings
- e) Grease the felt disk on both sides with silicone grease
- f) Fill the bearing recess of the dosing motor with silicone grease
- g) First slide the EPDM (rubber) sealing disk and then the greased felt disk onto the shaft and then firmly slide on the dust cap
- h) Take the old O-ring out of the groove of the dust cap, insert a new O-ring and apply approx. 2 layers of Teflon tape
- i) Grease the face sides of the dosing motor / PVC dust cap and the dosing screw with silicon grease
- j) Slide the dosing screw onto the shaft, so that the fastening screw sits on the flattened part of the motor shaft
- k) Press the dosing screw against the motor and tighten the threaded pin.



**ATTENTION!**

**Do not tighten too strongly, as the PVC thread may otherwise be stripped.**

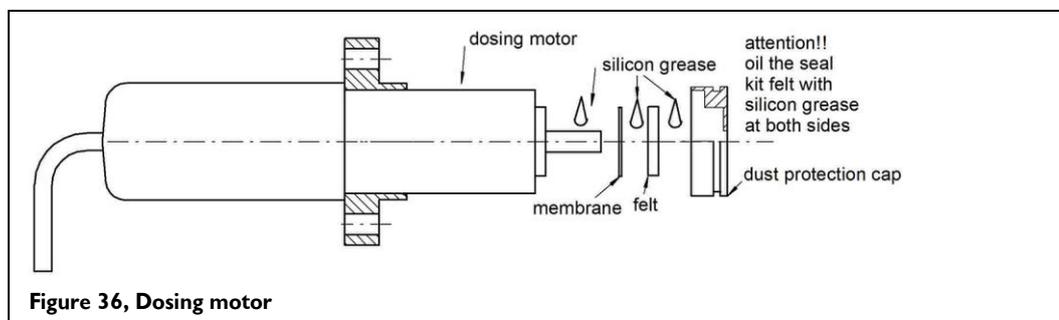


Figure 36, Dosing motor

- l) Thoroughly seal the threaded hole using sealing material.
- m) Insert the cable into the terminal box - maybe apply some silicone grease to the end of the cable - and attach the cable: white on white, brown on brown
- n) Check the function of the dosing motor.
- o) Slide the dosing motor into the - cleaned - motor mount, evenly fasten it with new M5x20 screws and press on the protective flaps.

**ATTENTION !**

**When no sealing material is used, the screw will strongly corrode within a short time and can then no longer be loosened. It will only be possible to exchange both parts together in case the dosing screw or the motor must later be exchanged again!**

#### 7.1.2.3 Exchanging only the dosing motor

---

- a) Completely unscrew the threaded pin and insert a new threaded pin.
- b) Clean the front side of the adapter of the old dosing screw and grease it with silicone grease
- c) Open the terminal box on the dosing hopper, loosen the dosing motor cables (brown-white), insert a new motor cable and fasten it (brown on brown, white on white).
- d) Slide the dosing screw onto the motor shaft so that the threaded pin rests on the flat part of the motor shaft, press the screw firmly against the motor and tighten the threaded pin.
- e) Slide the motor with screw back onto the cleaned holder, fasten the flange - not too tightly - and press the protective caps onto the screw heads.
- f) Place a new O-ring onto the screw guidance pipe, wrap it with Teflon tape (approx. 3 layers), grease and slide the dosing unit into the holder

#### 7.1.2.4 Exchanging only the dosing screw

---

- a) Pull the dust cap off the dosing motor, remove the old set of seals from the dust cap, properly clean the dosing motor shaft, apply fresh silicon grease to the ball bearing, press the sealing washer 19/4x0.5 EPDM (11, Figure ) onto the shaft. Thoroughly grease the felt disk (12, Figure 33) and slide it on, slide the dust cap on top of it, detach the old Teflon tape and put on new tape in approx. 3 layers.
- b) Grease the front of the adapter of the new dosing screw with silicone grease
- c) Slide the dosing screw onto the motor shaft so that the threaded pin rests on the flat part of the motor shaft, press the screw firmly against the motor and tighten the threaded pin.
- d) Slide the motor with dosing screw back into the cleaned (!) Slide the holder, screw the flange tight - not too tightly - and press the protective caps onto the screw heads.

7.1.3 Injector with flow switch

**Flow switch overview**

- 81. Flow switch with LED
- 82. Union nut for flow switch
- 83. Viton hose to rinsing tray
- 84. — not available
- 85. Switching body (in suction pipe)
- 86. Suction pipe
- 87. Union nut injector inlet
- 88. Injector
- 89. Injector nozzle with integrated flow diaphragm
- 90. Union nut and injector outlet

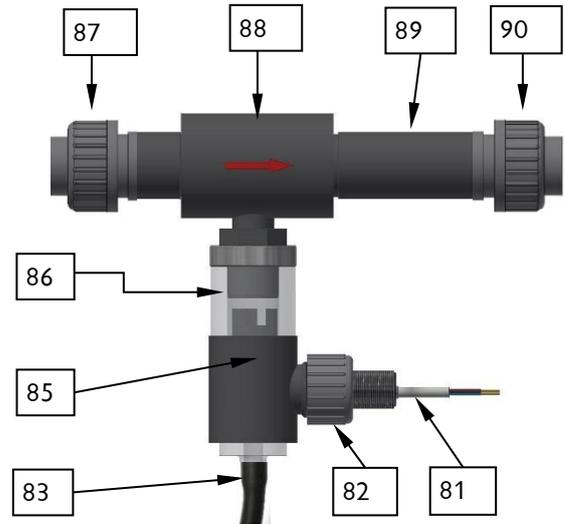


Figure 37, Flow switch d 40

**Exchanging the diaphragm**

Loosen the union nuts (87 + 90) and take out the injector (88). The nozzle is sealed with an O-ring at the end of the internal thread of the injector nozzle (89). Lift the disk with a small screw driver and insert another one or do not install a diaphragm as required.

7.1.4 Maintenance of the floater control valve for the feed of the rinsing tray

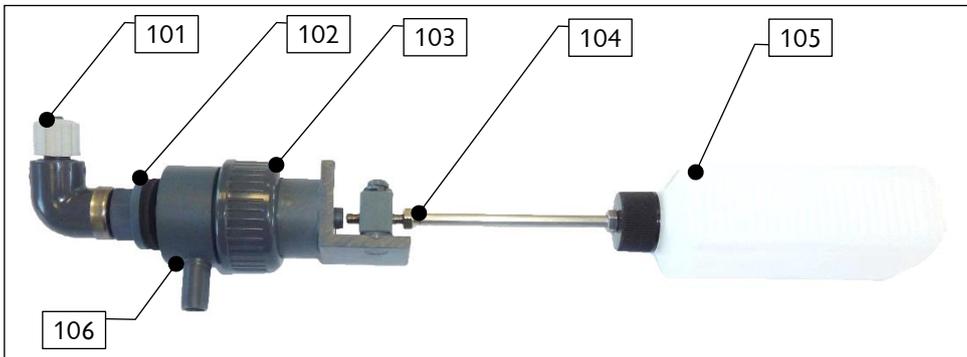


Figure 38, Floater control valve for **GRANUDOS 10**, complete

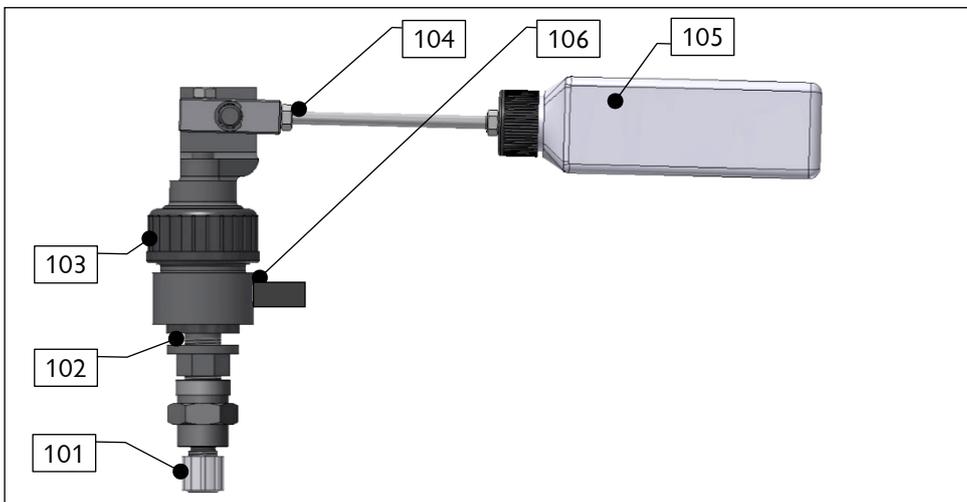


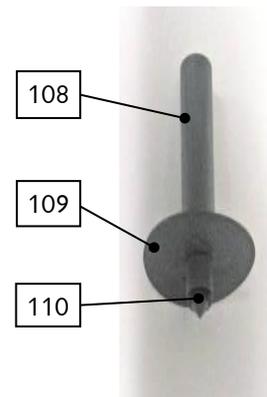
Figure 39, Floater control valve for **GRANUDOS 15**, complete

### Overview of floater valve, complete

- 101. 6 x 1 mm rinsing water hose connector
- 102. 3/8" nut with seal
- 103. Union nut for floater assembly
- 104. Water level adjustment screw
- 105. 250ml floater
- 106. Floater valve body

### Overview of floater valve tappet

- 108. Membrane piston
- 109. Sealing membrane
- 110. Valve cone with O-ring seal



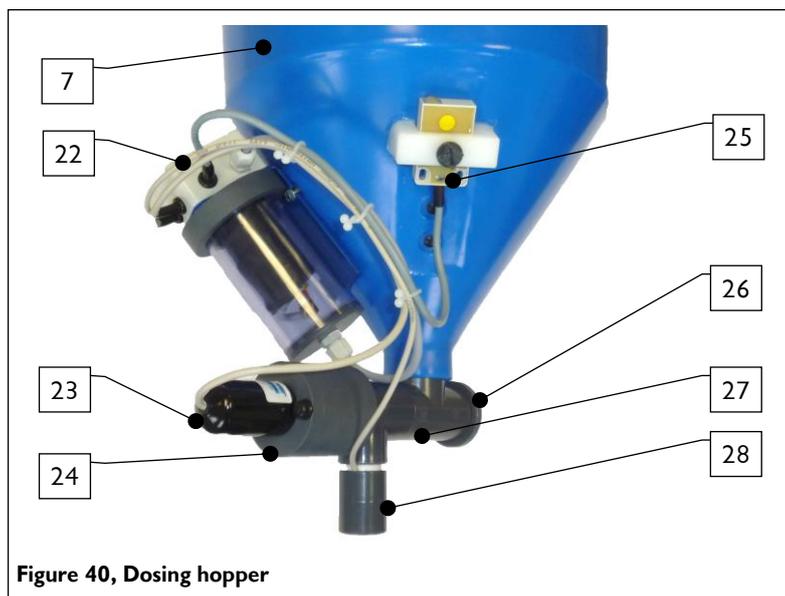
### Exchanging the sealing membrane

Loosen the union nut (103) and remove the upper part of the floater valve. Take out the inner membrane valve assembly (108-110), pull the valve cone from the membrane piston (108) and install a new sealing membrane (109) in the valve cone. Also exchange the O-ring on the valve cone (110). Assemble in reverse order. Set the water level in the rinsing tray: See Section 5.2.7.

### 7.1.5 Exchanging and setting the "Chlorine empty" switch at the dosing hopper (option)

The display at the controller lights up, although there is chlorine granulate in the hopper.

The dosing funnel shown (7) is hooked onto the plastic housing and is used for dosing chlorine granulate into the dissolving and rinsing system (11).



### The chlorine hopper consists of:

- |  |                                |
|--|--------------------------------|
| 7. Dosing hopper                             | 25. Empty switch (option)      |
| 22. Magnetic knocker (with clamping housing) | 26. Cleaning plug              |
| 23. Dosing motor                             | 27. Dosing screw (not visible) |
| 24. Motor support                            | 28. Dosing pipe with heating   |

The empty switch (25) is accessible once the housing front lid has been removed. The adjustment screw with switch LED can be seen on the narrow side on top of the GRANUDOS 10. This LED should not light up when the dosing hopper is empty, the display **must show "Chlorine empty"** .

When the switch LED is on, turn the adjustment screw to the left until the LED goes off. The fault indicator at the controller responds with a delay of 6 seconds. A new switch must be installed when the switch does not respond to the adjustment potentiometer or when the adjustment screw is destroyed.

### Adjusting the switch

Turn the adjustment screw to the right until the switch LED lights up, then carefully turn it back until the switch LED goes off, then continue turning it approx. by a further 10°. The fault indicator on the display lights up. After filling the dosing hopper past the switching level, the fault indicator on the display goes off.

### Exchange the empty switch:

1. The switch is inserted into a holder.
2. Open the terminal box, detach the 3 switch wires and pull out the cable.
3. Press out the old switch.
4. Slide the new switch into the holder.
5. Insert the cable into the terminal box and attach according to the terminal plan.
6. Close the terminal box and fill the screw heads with grease to prevent corrosion.
7. Adjusting the switch - see above

### 7.1.6 Exchanging the dosing hose of the dosing pump

Further steps, see Section 5.2.1, *Install the hose pumps and roller carriers*

### 7.2 Fault removal



### Hint !

The faults are indicated on the display in the IN and OUT list by the appropriate symbol or as text in the status line. For this see operating instructions of the control unit:

- **For GRANUDOS CPR Touch XL, “CPR-Touch XL Measuring and Control Unit” no. BA MR 001 (with measuring cell block), in Section 7.3.**
- **For GRANUDOS Touch, “GRANUDOS Touch Control Unit” no. BA SW 010, in Section 7.3.**
- **For GRANUDOS S5, “GRANUDOS S5 Control Unit” no. BA SW 014, in Section 7.3.**

The rinsing tray should not overflow when the GRANUDOS is switched off. If this happens, one of the following elements is leaking:

- Floater valve → Exchange membrane
- Switch body in the suction pipe → Replace seal
- Pressure retention valve in the measuring water pipe upstream of the operating water pipe → Adjust the valve, exchange the membrane as required



### Hint !

**Incrustations of chloride granulate at the hopper can cause functional failures. Clean the hopper according to the maintenance protocol**

## 8 Shutting down - Storage - Disposal

### 8.1 General

The systems must be completely drained or protected against frost when they are shut down and there is a risk of frost!

#### Disposal of old part and operating materials

De-installed, contaminated parts must first be thoroughly cleaned and then disposed of according to the regulations valid at the place of operation or recycled. The instructions on the packaging of operating materials must be complied with. In case of doubt obtain information from the authority responsible for disposal at your location.

The parts/substances must be disposed of as special waste when this is not possible.

### 8.2 Decommissioning the GRANUDOS 10/15 dosing device

1. Remove the suction lances from the dosing canisters and put them into a bucket with clean water.
2. Thoroughly remove the calcium hypochloride residues in the device and let the system run for an additional 10 minutes for rinsing and cleaning purposes.
3. Stop the dosing via the  button (**CPR Touch XL and Touch**) or via the arrow keys (**S5**) (DOS OFF)
4. The dosing hopper must be emptied and thoroughly cleaned.
5. Remove the dosing motor with dosing screw from the dosing hopper, thoroughly clean the dosing motor with dosing screw and store the dosing screw in a dry place as required – no chlorine granules may remain in the vicinity!
6. Remove the roller carrier from the hose dosing pumps to release the dosing hoses.
7. Thoroughly clean all parts of the GRANUDOS 10.
8. All water-conducting parts are to be drained when there is a risk of frost, in particular the suction pipe and the pump may not be forgotten.
9. Switch off the GRANUDOS 10 at the main switch.

Also see Section 8.3



#### **ATTENTION !**

**The instructions in the "Commissioning" chapter must be adhered to and the steps in the commissioning protocol must be performed when re-operating the device.**

### 8.3 Buffer tank (optional)

Empty and clean the buffer tank.

The bottom sediments of the buffer tank must be sucked out. Possible resilient deposits can be dissolved with diluted hydrochloric acid.

9 Documents

9.1 Declaration of conformity

**WDT Werner Dosiertechnik GmbH & Co. KG**  
 Hettlinger Straße 17 | D-86637 Wertingen  
 Tel. 0049 8272 98697-0 | Fax 0049 8272 98697-19  
 info@werner-dosiertechnik.de | www.werner-dosiertechnik.de

  
**Werner Dosiertechnik**

**EG-Konformitätserklärung**  
**EC declaration of conformity**  
**Déclaration de conformité UE**

im Sinne der EG-Maschinenrichtlinie 2006/42/EG, Anhang II 1.A  
 as defined in the EC Machinery Directive 2006/42 / EC, Annex II, Part 1A  
 selon la directive européenne machines 2006/42 / CE, annexe II 1.A

**Hersteller**

WDT - Werner Dosiertechnik GmbH & Co. KG

**Manufacturer**

Hettlinger Str. 17

**Fabricant**

866637 Wertingen-Geratshofen

**Beschreibung und Identifikation des Produktes:**  
**Description and identification of the product:**  
**Description et identification du produit :**

Typenbezeichnung:	Art:
<ul style="list-style-type: none"> <li>Granudos 10, Granudos 10-CPR Touch, Granudos 10-Touch, Granudos 10-S5</li> <li>Granudos 15, Granudos 15-PC, Granudos 15-S5</li> <li>Granudos 45/100-PB, Granudos 45/100-S4, Granudos 45/100-Plus V70 Touch, Granudos 45/100-CPR Touch, Granudos 45/100-Touch, Granudos 45/100-S5</li> <li>Granudos FB</li> </ul>	Maschine

**Funktion:** Das Dosiersystem dient zur Desinfektion von Schwimmbadwasser mit Calciumhypochloridgranulat.  
**Function:** The dosing system is intended for swimming pool disinfection using calcium hypochlorite granules  
**Fonction:** Le système de dosage est utilisé pour la désinfection des piscines avec des granulés d'hypochlorite de calcium

**Es wird ausdrücklich erklärt, dass das Produkt allen einschlägigen Bestimmungen der folgenden EG-Richtlinien entspricht:**  
**It is expressly stated that the product complies with all relevant provisions of the following EC directives:**  
**Il est explicitement dit que le produit est conforme à toutes les dispositions pertinentes des directives CE suivantes :**

2006/42/EG RICHTLINIE 2006/42/EG DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 17. Mai 2006 über Maschinen und zur Änderung der Richtlinie 95/16/EG (Neufassung)

**Die folgenden harmonisierten Normen nach Artikel 7 (2) wurden angewandt:**  
**The following harmonized standards as defined in Article 7 (2) were applied:**  
**Les normes harmonisées suivantes selon l'article 7 (2) ont été appliquées :**

EN ISO 12100:2010 Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und Risikominderung  
 EN 60204-1:2006 Sicherheit von Maschinen – Elektrische Ausrüstung von Maschinen – Teil 1: Allgemeine Anforderungen  
 EN ISO 14120:2015 Anforderungen an Gestaltung und Bau von feststehenden und beweglich trennenden Schutzeinrichtungen

**Die in der Gemeinschaft ansässige Person, die für die Zusammenstellung der technischen Unterlagen bevollmächtigt ist:**  
**The designated person who is authorized to draw up the technical documentation:**  
**La personne établie dans la communauté qui est autorisée à constituer le dossier technique:**

Name: Werner Dosiertechnik GmbH & Co KG  
 Straße/Nr.: Hettlinger Straße 17  
 PLZ Stadt: 86637 Wertingen

  
 Dosiertechnik GmbH & Co KG  
 86637 Wertingen-Geratshofen  
 Tel. 0 82 72 9 86 97-0 - Fax 9 86 97-19

Wertingen, 04.04.2019  
 Ort/City/Place, Datum/Date

  
 Unterschrift/signature Jochen Rieger, Director



CE SW 001 Konformitätserklärung Granudos.docx

Index: 03

Change date: 15/04/2019

Ol no.: BA SW 002-03 Granudos 10-15 CPR Touch+Touch+S5-Dosiereinheit EN.docx

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### 9.2 Terminal diagrams

Terminal diagrams of the standard version of the device see operating instructions of the respective control unit:

- For GRANUDOS **CPR Touch XL**, “CPR-Touch XL Measuring and Control Unit” no. **BA MR 001** in Section 9.2.
- For GRANUDOS **Touch**, “GRANUDOS Touch Control Unit” no. **BA SW 010** in Section 9.2.
- For GRANUDOS **S5**, “GRANUDOS S5 Control Unit” no. **BA SW 014**, in Section 9.2.

The special terminal plans adapted to the optional equipment of the dosing device can be found in the terminal box of the device.

### 9.3 Commissioning report

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The commissioning protocol is included in the documents attached.

### 9.4 Operating data sheet

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The operating data sheet can be found in the terminal box of the device.

- For GRANUDOS **CPR Touch XL**, “CPR-Touch XL Measuring and Control Unit” no. **BA MR 001** in Section 9.2.
- For GRANUDOS **Touch**, “GRANUDOS Touch Control Unit” no. **BA SW 010** in Section 9.2.
- For GRANUDOS **S5**, “GRANUDOS S5 Control Unit” no. **BA SW 014**, in Section 9.2.

### 9.5 Maintenance protocol

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The maintenance protocol is included in the documents attached.

### 9.6 Spare parts list, wearing parts list, consumables

The following shown spare and wear parts can be bought at your dealer. Please indicate for each order the exact product name and the serial number of the device. The device serial number can be found on the housing of the control. Wearing parts are excluded from the warranty of 2 years. We provide a warranty for half a year on those parts.

#### Spare parts list GRANUDOS 10-CPR Touch XL, 10-Touch, 10-S5 and 15-S5

Component	Foot note	Description	Item no.
Chlorine dosing	1/2/3	Dosing hopper 5 kg with lid	12798
	1/2/3/	Lid for dosing hopper GR 10	12353
	4	Lid for dosing hopper GR15	18467
	0	Dosing motor PLG 30-12 with maintenance set	13811
	0	Dosing motor PLG 30-35 0.6m with maintenance set	11676
	0	Motor support GR 10 PLG-d25	12799
	0	Dosing screw GR10 d6/D19 with maintenance set	12320 (X)
	0	Dosing pipe heated GR10 cable 0.5m	11556
	0	Magnetic knocker GR 10 with terminal housing complete	12868
	Acid dosing	1/2/4	Acid pump GR10-Top/GR15-PR complete
3		Acid pump GR10 Sa complete	12374
0		Geared motor acid pump Sa	13557
0		Pump housing SA blue	14140
0		Roller carrier Sa blue	13039 (X)
0		Hose set 3.2 x 1.6 N Sa	12782 (X)
1/2/4		Suction set GR red	17662 (X)
3		Suction set N 30I GR10 complete	12523 (X)
0		Dosing valve acid GR	15099 (X)
0		Maintenance set for acid valve 3/8" KF+KFa	16370 (*)
Additional for flocculation	1	Hose set Sa 0.8 x 1.6 Ph 2x	13482 (X)
	1	Suction set NF d16-500 GR10T blue	17644
	1	Dosing fitting 1SK-S-4x1	12774
	1	Dosing lance 1SK-S-4x1 365mm	12657
	1	Valve rubber 4.2x1.6x20mm 2pieces	12230 (X)
Filter	1/2/3	Filter housing d75 GR	12746
	4	Filter housing d75 GPL/PAK/GR15	15407
	0	Top part of d75 filter with d25 ball valve	12304
	0	O-Ring filter d75	11258 (*)
	Control	1/2	Power supply SCHW-8, complete
1/2		Control board IO-SCHW-8, complete	26940
3/4		Control board GR-S5 as of 09-2018	26672
3/4		Control board, HMI NT35 complete	26538
3/4		Ribbon cable 10pol connector NT35	25320
1/2		Control panel Touch 7", resist.	22747
1		Measuring amplifier CPRT PR CL complete	24736
1/2/4		Main switch GR 2xE/A 16A IP65	21839
3		Main switch GR 2xE/A 16A 250V	11338
1/2/4		Fuse holder FPG1 5x20 IP67	21899
3		Front panel fuse holder GR/PAK	13960
Floater valve	1/2/3	Floater valve d25 GR10 complete	12916
	4	Floating valve d25 GR15 complete	18361
	0	Membrane for floater valve	16367 (*)
	0	Floater 0.25 l for floater valve	11621
	1/2/4	Level switch 3/8" 1.85 m	10497-1
	3	Level switch 3/8" - 1.5m flushing tub GR10/20/HT	10497
Pump	1/2/3	Booster pump 1HM04 GR/PAK-SIC/SIC	24618-1
	4	Booster pump B-TM 61E 230V 0,33KW	10332-1
	1/2/3	Mechanical seal for 2HMS3/4-A, 1HM04, 1HM06 SIC/SIC FPM	12800-1 (X)
	4	Mechanical seal for Calpeda 12mm	14848 (X)
	1/2	Pressure switch M10 1-3b V70T complete	23364
	3/4	Pressure switch M10 1-3b V70T complete	17275

Suction pipe	0	Suction pipe 1/2" d40 with switch body	25659
	1/2/4	Flow switch -2.1m GR10	26299
	3	Flow switch -1,6m GR10 d40	26300
	0	Hose to suction pipe 10x2x180 Vi	11565-1 (*)
Injector	1/2/3	Injector Ti 1/2" GR/PAK/HT complete	24997
	4	Injector Ti 1/2" GR15 complete	21216-1
	0	Diaphragm set for injector	11594
Cyclone	1/2/3	Dissolving cyclone GR 10/20	12329
	4	Dissolving cyclone GR 15 complete	21572
Maintenance set	0	Seals, fuses, maintenance protocol	12631

### Footnotes to spare parts list:

Parts marked with "0" are suitable for **all GRANUDOS 10** types.

Parts marked with "1" are specifically designed for type **10-CPR Touch XL**.

Parts marked with "2" are special for type **10-Touch XL**.

Parts marked with "3" are special for type **10-S5**.

Parts marked with "4" are special for type **15-S5**.

Parts marked with "\*" are included in the **maintenance set item no. 12631**.

Parts marked with "X" are **wear parts**.

### Consumables

The safety data sheets of the chemical producers must be adhered to!



# Commissioning protocol IP 21 Granudos 10-CPR Touch XL



This protocol is to be completed by the commissioning technician!  
All warranty claims expire when no completed and signed commissioning protocol is available!

Object: ..... Date: \_\_.\_\_.\_\_\_\_

City, Street, Street number: .....

Device type: ..... Year of construction: ..... Serial no.: .....

	Activity	Completed	Comment
<b>1</b>	<b><u>Dissolving system and measuring cell block (consider 6 seconds switching delay!)</u></b>		
1.1	Close the ball valve at the measuring cell feed (upstream of pre-filter)	<input type="checkbox"/>	
1.2	Install the roller carriers of the hose pumps	<input type="checkbox"/>	
1.3	Connect dosing canisters and fill in chlorine granulate	<input type="checkbox"/>	
1.4	Bleed the operating water pump	<input type="checkbox"/>	
1.5	Adjust the water flow in the dissolving system	<input type="checkbox"/>	
1.6	Set the water level in the rinsing tray	<input type="checkbox"/>	
1.7	Check pressure switch: Ball valve intake closed, GR stopped, fault display	<input type="checkbox"/>	
1.8	Adjust the pressure switch (33)	<input type="checkbox"/>	
1.9	Check flow switch: Valve outlet closed, dosing stopped, fault indication	<input type="checkbox"/>	
1.10	Check the level switch: Switching body high - dosing stopped, fault indication	<input type="checkbox"/>	
1.11	Check the level switch: Switching body low - GR stopped, fault indication	<input type="checkbox"/>	
1.12	Check the floater function: The flow responds gently	<input type="checkbox"/>	
<b>2</b>	<b><u>Chlorine dosing technology</u></b>		
2.1	Check the heating: Dosing pipe warm?	<input type="checkbox"/>	
2.2	Check the empty switch: Pull the empty switch out of the holder	<input type="checkbox"/>	
2.3	Check the dosing motor: Chlorine starting test program	<input type="checkbox"/>	
<b>3</b>	<b><u>pH-reducer dosing system</u></b>		
3.1	Check the empty switch: Pull the suction lance out of the canister, display	<input type="checkbox"/>	
3.2	Check the dosing pump: Acid starting test program	<input type="checkbox"/>	
<b>4</b>	<b><u>Flocculant dosing system</u></b>		
4.1	Check the empty switch: Pull the suction lance out of the canister, display	<input type="checkbox"/>	
4.2	Check the dosing pump: Flocculant starting test program, suction on	<input type="checkbox"/>	
<b>5</b>	<b><u>Control - after opening the controller</u></b>		
5.1	Connectors firmly latched	<input type="checkbox"/>	
<b>6</b>	<b><u>Buffer tank (optional)</u></b>		
6.1	Check function of the control and alarm switches in the tank: Display	<input type="checkbox"/>	
6.2	Check prevention of dosing pump reflux (on site)	<input type="checkbox"/>	
6.3	Check the reflux prevention in filling system	<input type="checkbox"/>	

# Commissioning protocol IP 21 Granudos 10-CPR Touch XL



<b>7</b>	<b>Measuring cell block (see Operating Instructions, Part 2, Measuring and Control Unit No.: MR 001 )</b>		
7.1	Fill in cleaning beads	<input type="checkbox"/>	
7.2	Insert electrodes	<input type="checkbox"/>	
7.3	Open the ball valve at the measuring cell feed, set the measuring cell flow	<input type="checkbox"/>	
7.4	Adjust control parameters (as required)	<input type="checkbox"/>	
<b>8</b>	<b>Other</b>		
8.1	Clean the GRANUDOS system	<input type="checkbox"/>	
8.2	Discuss the operating instructions and hand them over	<input type="checkbox"/>	

Other comments:

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Commissioning and instruction performed: .....

Persons instructed: .....

Signature of commissioner: .....

Countersigned by operator: .....

# Maintenance protocol WP 27

## Granudos 10 CPR-Touch XL



This protocol must be completed by the maintenance technician! We reserve the right to determine the warranty conditions when no completed and signed maintenance protocol is available.

Object: ..... Year of maintenance: 20\_\_

City, Street, Street number: .....

Device type: ..... Year of construction: ..... Serial no.: .....

Activity	Maintenance interval in months	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Comment / additional work
<b>1 Dissolving system</b>														
1.1 Check the level switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.2 Check the pressure switch, adjust as required	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.3 Check the flow switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.4 Clean the switching unit	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.5 Replace the sealing ring of the switching unit	12												<input type="checkbox"/>	
1.6 Replace the floater valve membrane and cone seal	12												<input type="checkbox"/>	
1.7 Check and adjust floater valve function	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.8 Replace the hose to the suction pipe	12												<input type="checkbox"/>	
1.9 Check the pump impeller and lid (only for Calpeda pumps)	12												<input type="checkbox"/>	
1.10 Check floating ring seal for tightness	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.11 Check pump roller bearings for noises	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.12 Clean the dirt filter	3			<input type="checkbox"/>										
1.13 Replace all O-rings	12												<input type="checkbox"/>	
1.14 Check nozzle diameter diffuser, smaller 6mm; (use 5.5mm drill piece to inspect passage)	12												<input type="checkbox"/>	
<b>2 Chlorine dosing device</b>														
2.1 Heating function: Dosing pipe warm	6						<input type="checkbox"/>						<input type="checkbox"/>	
2.2 Check the chlorine-empty switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
2.3 Clean and check the dosing screw	6						<input type="checkbox"/>						<input type="checkbox"/>	
2.4 Measure the dosing motor power uptake: I <sub>max.</sub> : 150 ± 30mA	12												<input type="checkbox"/>	
2.5 Dosing motor: Replace the seals	12												<input type="checkbox"/>	
2.6 Replace the dust cap seal	12												<input type="checkbox"/>	
<b>3 Acid dosing system</b>														
3.1 Check the hose pump for humidity and corrosion	1	<input type="checkbox"/>												
3.2 Check function of the empty switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
3.3 Replace dosing hose	12												<input type="checkbox"/>	
3.4 Replace the seals of the acid dosing valve	12												<input type="checkbox"/>	

# Maintenance protocol WP 27

## Granudos 10 CPR-Touch XL

Activity	Maintenance interval in months	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Comment / additional work
<b>4</b>	<b><u>Flocculant dosing system</u></b>													
4.1	Check the hose pump for humidity and corrosion	1	<input type="checkbox"/>											
4.2	Check function of the empty switch	6					<input type="checkbox"/>						<input type="checkbox"/>	
4.3	Replace dosing hose	12											<input type="checkbox"/>	
4.4	Replace the seals of the flocculant dosing valve (on-site)	12											<input type="checkbox"/>	
<b>5</b>	<b><u>Buffer tank (optional)</u></b>													
5.1	Check function of the level switch	6					<input type="checkbox"/>						<input type="checkbox"/>	
5.2	Clean the buffer tank with water and diluted acid	12											<input type="checkbox"/>	
5.3	Replace the active carbon filter	12											<input type="checkbox"/>	
<b>6</b>	<b><u>Control</u></b>	12											<input type="checkbox"/>	
6.1	Check all inputs	12											<input type="checkbox"/>	
6.2	Check all outputs	12											<input type="checkbox"/>	
6.3	Check parameter settings and correct it if required	12											<input type="checkbox"/>	
<b>7</b>	<b><u>Measuring cell block</u></b>													
7.1	Chlorine electrode, replace seal set	12											<input type="checkbox"/>	
7.2	Replace redox electrode, seal set	12											<input type="checkbox"/>	
7.3	Replace flow controller, maintenance set	12											<input type="checkbox"/>	
7.4	Check and clean preliminary filter	12											<input type="checkbox"/>	
7.5	DPD1 measurement, adjust free chlorine	12											<input type="checkbox"/>	
7.6	pH measurement, adjust the pH electrode	12											<input type="checkbox"/>	
<b>8</b>	<b><u>Other work</u></b>													
8.1	Thoroughly clean the dosing system.	1	<input type="checkbox"/>											
<b>9</b>	<b><u>Maintenance work due at each granulate filling</u></b>													
9.1	Check function of the monitoring switch													
9.2	Test chlorine, flocculant and acid dosing	F	<input type="checkbox"/>											
9.3	Take note of pumping noises	F	<input type="checkbox"/>											
9.4	Check the system for tightness	F	<input type="checkbox"/>											

Other comments:

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Maintenance performed by: .....Date: .....

Countersigned by operator: .....

# Commissioning protocol IP 59

## Granudos 10-Touch



This protocol must be completed by the commissioning technician!  
 All warranty claims expire when no completed and signed commissioning protocol is available!

Object: \_\_\_\_\_ Date: \_\_.\_\_.\_\_\_\_  
 City, Street, Street number: \_\_\_\_\_  
 Device type: \_\_\_\_\_ Year of construction: \_\_\_\_\_ Serial no.: \_\_\_\_\_

	Activity	Completed	Comment
<b>1</b>	<b><u>Dissolving system (consider 6 seconds switching delay!)</u></b>		
1.1	Install the roller carriers of the hose pumps	<input type="checkbox"/>	
1.2	Connect dosing canister and fill in chlorine granulate	<input type="checkbox"/>	
1.3	Bleed the booster pump	<input type="checkbox"/>	
1.4	Adjust the water flow in the dissolving system	<input type="checkbox"/>	
1.5	Check pressure switch: Ball valve inlet closed, GR stopped, fault display	<input type="checkbox"/>	
1.6	Adjust the pressure switch	<input type="checkbox"/>	
1.7	Set the water level in the flushing tub	<input type="checkbox"/>	
1.8	Check flow switch: Valve outlet closed, dosing stopped, fault indication	<input type="checkbox"/>	
1.9	Check the level switch: Switching body high - dosing stopped, fault indication	<input type="checkbox"/>	
1.10	Check the level switch: Switching body low - GR stopped, fault indication	<input type="checkbox"/>	
1.11	Check the floater function: The flow responds gently	<input type="checkbox"/>	
<b>2</b>	<b><u>Chlorine dosing technology</u></b>		
2.1	Check the heating: Dosing pipe warm?	<input type="checkbox"/>	
2.2	Check the empty switch: Pull the empty-switch out of the holder	<input type="checkbox"/>	
2.3	Check the dosing motor: Chlorine starting test program	<input type="checkbox"/>	
<b>3</b>	<b><u>pH-reducer dosing system</u></b>		
3.1	Check the empty switch: Pull the suction lance out of the canister; display	<input type="checkbox"/>	
3.2	Check the dosing pump: Acid starting test program	<input type="checkbox"/>	
<b>4</b>	<b><u>Control - after opening the controller</u></b>		
4.1	Connectors firmly latched	<input type="checkbox"/>	
<b>5</b>	<b><u>Buffer tank (optional)</u></b>		
5.1	Check function of the control and alarm switches in the tank; Display	<input type="checkbox"/>	
5.2	Check prevention of dosing pump reflux (on site)	<input type="checkbox"/>	
5.3	Check the reflux prevention in filling system	<input type="checkbox"/>	
<b>6</b>	<b><u>Other</u></b>		
6.1	Clean the GRANUDOS system	<input type="checkbox"/>	
6.2	Discuss the operating instructions and hand them over	<input type="checkbox"/>	



# Maintenance protocol WP 65

## Granudos 10 Touch



This protocol must be completed by the maintenance technician! We reserve the right to determine the warranty conditions when no completed and signed maintenance protocol is available.

Object: ..... Year of maintenance: 20\_\_

City, Street, Street number: .....

Device type: ..... Year of construction: ..... Serial no.: .....

Activity	Maintenance interval in months	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Comment / additional work
<b>1 Dissolving system</b>														
1.1 Check the level switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.2 Check the pressure switch, adjust as required	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.3 Check the flow switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.4 Replace the floater valve membrane and cone seal	12												<input type="checkbox"/>	
1.5 Check and adjust floater valve function	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.6 Replace the hose to the suction pipe	12												<input type="checkbox"/>	
1.7 Check the pump impeller and lid (only for Calpeda pumps)	12												<input type="checkbox"/>	
1.8 Check floating ring seal for tightness	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.9 Check pump roller bearings for noises	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.10 Clean the dirt filter	3			<input type="checkbox"/>										
1.11 Replace all O-rings	12												<input type="checkbox"/>	
1.12 Check nozzle diameter diffuser, smaller 6mm; (use 5.5mm drill piece to inspect passage)	12												<input type="checkbox"/>	
<b>2 Chlorine dosing device</b>														
2.1 Heating function: Dosing pipe warm	6						<input type="checkbox"/>						<input type="checkbox"/>	
2.2 Check the chlorine-empty switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
2.3 Clean and check the dosing screw	6						<input type="checkbox"/>						<input type="checkbox"/>	
2.4 Measure the dosing motor power uptake: I <sub>max.</sub> : 150 ± 30mA	12												<input type="checkbox"/>	
2.5 Dosing motor: Replace the seals	12												<input type="checkbox"/>	
2.6 Replace the dust cap seal	12												<input type="checkbox"/>	
<b>3 Acid dosing system</b>														
3.1 Check the hose pump for humidity and corrosion	1	<input type="checkbox"/>												
3.2 Check function of the empty switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
3.3 Replace dosing hose	12												<input type="checkbox"/>	
3.4 Replace the seals of the acid dosing valve	12												<input type="checkbox"/>	

# Maintenance protocol WP 65

## Granudos 10 Touch



Activity	Maintenance interval in months	Month												Comment / additional work
		1	2	3	4	5	6	7	8	9	10	11	12	
<b>4</b> <b><u>Buffer tank (optional)</u></b>														
4.1 Check function of the level switch	6						<input type="checkbox"/>							<input type="checkbox"/>
4.2 Clean the buffer tank with water and diluted acid	12													<input type="checkbox"/>
4.3 Replace the active carbon filter	12													<input type="checkbox"/>
<b>5</b> <b><u>Control</u></b>	12													<input type="checkbox"/>
5.1 Check all inputs	12													<input type="checkbox"/>
5.2 Check all outputs	12													<input type="checkbox"/>
5.3 Check parameter settings and correct it if required	12													<input type="checkbox"/>
<b>6</b> <b><u>Other work</u></b>														
6.1 Thoroughly clean the dosing system.	1	<input type="checkbox"/>												
6.2 Check dosing line for strength and wall thickness, renew if necessary	12													<input type="checkbox"/>
<b>7</b> <b><u>Maintenance work due at each granulate filling</u></b>														
7.1 Check function of the monitoring switch	F	<input type="checkbox"/>												
7.2 Clean dosing hopper from incrustations	F	<input type="checkbox"/>												
7.3 Test chlorine, flocculant and acid dosing	F	<input type="checkbox"/>												
7.4 Take note of pumping noises	F	<input type="checkbox"/>												
7.5 Check the system for tightness	F	<input type="checkbox"/>												

Other comments:

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Maintenance carried out and system checked for correct working: \_\_\_\_\_ Date: \_\_\_\_\_  
Signature

Countersigned by operator: \_\_\_\_\_  
Signature

# Commissioning Protocol IP 58

## Granudos 10-S5 / 15-S5



This protocol has to be completed by the commissioning technician! Without a completed and signed commissioning protocol, all warranty claims become void!

Object: \_\_\_\_\_ Date: \_\_.\_\_.\_\_\_\_

City, street, house number: \_\_\_\_\_

Device type: \_\_\_\_\_ Year of manufacture: \_\_\_\_\_ Serial number: \_\_\_\_\_

	Activity	Completed	Comment
<b>1</b>	<b><u>Dissolving Unit (observe a 6 second delay with the switches!)</u></b>		
1.1	Install the roller carrier for the peristaltic pump	<input type="checkbox"/>	
1.2	Connect the pH (acid) dosing canister and fill it with chlorine granule	<input type="checkbox"/>	
1.3	Vent the booster pump	<input type="checkbox"/>	
1.4	Adjust the water flow in the dissolving unit	<input type="checkbox"/>	
1.5	Check pressure switch (item 33): Ball valve intake closed, GR stops, fault display	<input type="checkbox"/>	
1.6	Adjust pressure switch (item 33)	<input type="checkbox"/>	
1.7	Adjust the water lever in the flushing tub	<input type="checkbox"/>	
1.8	Check flow switch: Ball valve outlet closed, dosing stops, fault display	<input type="checkbox"/>	
1.9	Check level switch: Switch body up – dosing stops, fault display	<input type="checkbox"/>	
1.10	Check level switch: Switch body down – GR stops, fault display	<input type="checkbox"/>	
1.11	Check the function of the floating valve: Flow reacts gently	<input type="checkbox"/>	
<b>2</b>	<b><u>Dosing Technology for Chlorine</u></b>		
2.1	Check heating: Dosing pipe warm?	<input type="checkbox"/>	
2.2	Check empty switch: Pull the empty switch from the bracket, display view	<input type="checkbox"/>	
2.3	Check the function of the dosing motor: Program output test chlorine	<input type="checkbox"/>	
<b>3</b>	<b><u>Dosing Technology for pH Reducer</u></b>		
3.1	Check empty switch: Pull the suction lance from the canister, display view	<input type="checkbox"/>	
3.2	Check dosing pump: Program output test pH	<input type="checkbox"/>	
<b>4</b>	<b><u>Control Unit - after Opening the Control Unit</u></b>		
4.1	All connector plugs are securely engaged	<input type="checkbox"/>	
<b>5</b>	<b><u>Other</u></b>		
5.1	Clean the GRANUDOS system	<input type="checkbox"/>	
5.2	Discuss and hand over operating instructions	<input type="checkbox"/>	

Additional remarks:

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Commissioning and instruction carried out by: \_\_\_\_\_

Instructed persons: \_\_\_\_\_

Signature of commissioner: \_\_\_\_\_

Operator's counter-signature: \_\_\_\_\_



# Maintenance Protocol WP 64

## Granudos 10-S5 / 15-S5



This protocol has to be completed by the maintenance technician! Without a completed and signed maintenance protocol, we reserve the right to assert a warranty regulation.

Object: \_\_\_\_\_ Date: \_\_.\_\_.\_\_\_\_

City, street, house number: \_\_\_\_\_

Device type: \_\_\_\_\_ Year of manufacture: \_\_\_\_\_ Serial number: \_\_\_\_\_

	Activity	Maintenance interval in	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Comment / additional tasks
<b>1</b>	<b><u>Dissolving Unit</u></b>														
1.1	Check the level switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.2	Check the pressure switch, adjust, if necessary	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.3	Check the function of the flow switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.4	Replace the floating valve diaphragm and the conical seal	12												<input type="checkbox"/>	
1.5	Check and adjust the function of the floating valve	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.6	Replace the hose to the suction pipe	12												<input type="checkbox"/>	
1.7	Check the pump impeller and lid (only for Calpeda brand pumps)	12												<input type="checkbox"/>	
1.8	Mechanical seal - check for leaks	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.9	Check pump ball bearings - noise	6						<input type="checkbox"/>						<input type="checkbox"/>	
1.10	Clean dirt filter	3			<input type="checkbox"/>										
1.11	Replace all O-rings	12												<input type="checkbox"/>	
1.12	Diffuser nozzle diameter, 6mm - check (check passage with a 5.5 mm drill)	12												<input type="checkbox"/>	
<b>2</b>	<b><u>Dosing Device for Chlorine</u></b>														
2.1	Heating function: Dosing pipe warm	6						<input type="checkbox"/>						<input type="checkbox"/>	
2.2	Check chlorine empty switch	6						<input type="checkbox"/>						<input type="checkbox"/>	
2.3	Clean and check dosing screw	6						<input type="checkbox"/>						<input type="checkbox"/>	
2.4	Dosing motor: Replace gaskets	12												<input type="checkbox"/>	
2.5	Replace the dust cover gasket	12												<input type="checkbox"/>	
<b>3</b>	<b><u>Dosing Device for Acid</u></b>														
3.1	Check peristaltic pump for humidity and corrosion	1	<input type="checkbox"/>												
3.2	Check empty switch function	6						<input type="checkbox"/>						<input type="checkbox"/>	
3.3	Replace dosing hose	12												<input type="checkbox"/>	
3.4	Replace the gaskets of the acid dosing valve	12												<input type="checkbox"/>	
<b>4</b>	<b><u>Control Unit</u></b>													<input type="checkbox"/>	
4.1	Check all inputs	12												<input type="checkbox"/>	
4.2	Check all outputs	12												<input type="checkbox"/>	
4.3	Check and correct parameter settings	12												<input type="checkbox"/>	

