



**Gebrüder Heyl**  
Analysentechnik  
GmbH & Co. KG

# PRODUCT CATALOG 2022



**Analysis Instruments, Controllers, Indicators, Analysis Kits and Test Kits**

|   |  |    |
|---|--|----|
| ■ | Applications   | 3  |
|   | <b>Online Analysis Instruments</b>                         |    |
| ■ | Testomat® Family   | 13 |
| ● | Testomat® 808  | 13 |
| ● | Testomat® Modul  | 14 |
| ● | Testomat® ECO  | 18 |
| ● | Testomat® EVO  | 19 |
| ● | Testomat 2000®   | 20 |
| ■ | Titromat® Family   | 29 |
| ■ | Selection Help   | 31 |
| ■ | Plug-in Cards  | 32 |
| ■ | Accessories  | 34 |
| ■ | Spare Parts  | 41 |
| ■ | Dosing pumps   | 46 |
| ■ | Indicators/Reagents  | 47 |
| ● | Our fundraising campaign with the Neven Subotic Foundation | 47 |
|   | <b>Controllers</b>   |    |
| ■ | Softmaster® Family   | 50 |
| ■ | MultiControl   | 53 |
| ■ | Accessories/probes   | 54 |
| ■ | Pilot Distributors   | 57 |
|   | <b>Analysis Systems</b>                                    |    |
| ■ | Limit Value Test Kits                                      | 58 |
| ■ | Quick Titration Test Kits                                  | 59 |
| ■ | Colorimetric Test Kits                                     | 64 |
| ■ | Analysis Kits  | 69 |
| ■ | Bioresin®  | 70 |
| ■ | Chemical Accessories                                       | 70 |
|   | <b>Services</b>  |    |
| ■ | Replacement Instruments                                    | 71 |
| ■ | Contract Development                                       | 72 |
| ■ | Contract Manufacturing                                     | 73 |
| ■ | General Terms and Conditions                               | 74 |
| ■ | Heyl Network   | 75 |

**Our new e-mail and web address:**

[www.heylanalysis.de](http://www.heylanalysis.de)  
[info@heylanalysis.de](mailto:info@heylanalysis.de)

To make it easy for you to find our products quickly, we've marked off our product sectors with different colors. This shows you at a glance what product area you're in.

**Selection help**

Since our selection of Testomat devices has gotten quite large, we offer you our selection help table on page 31 as a special overview which will tell you what device is especially appropriate for what application

Gebrüder Heyl process photometers and titration instruments have been putting their reliability and practicality to the test since 1958.

With improved accuracy and resolution, in combination with analysis functions that have undergone consistent further development, the current generation of instruments helps water treatment system operators reduce costs and guarantee optimal water quality.

**Improve your water treatment process with online analysis instruments**

Plant operators and plant technicians can increase the efficiency of the water softening process with constant water quality monitoring.

This enables operators to recognize whether the regeneration process is running correctly, the resin quality is still sufficient, and sufficient regeneration conditioning agents are present in the right consistency.

The combination of **Testomat 2000®**, **Softmaster® MMP2** and **MultiControl CT** leads to less waste water, low conditioning agents use, and cost savings thanks to low energy requirements.

**Which companies can benefit from online analytical devices?**

Every company that has to monitor its process water cycle. We offer analytical devices for 14 different parameters including water and carbonate hardness, phosphate, sulphite, chromium VI, chlorine and chlorine dioxide.

Each of these parameters can be monitored continuously with one device. The data is then stored to provide documented evidence of the monitoring.

- bakeries
- meat processing plants
- steam generation sterilization
- laundry companies
- food and beverage industry (breweries, dairies)

- pulp and paper industry
- chemical industry
- pharmaceutical industry
- construction materials industry

For plant operators who want to comply with increasingly stringent process and effluent limit values, continuous online monitoring of their water treatment process is the safest solution.

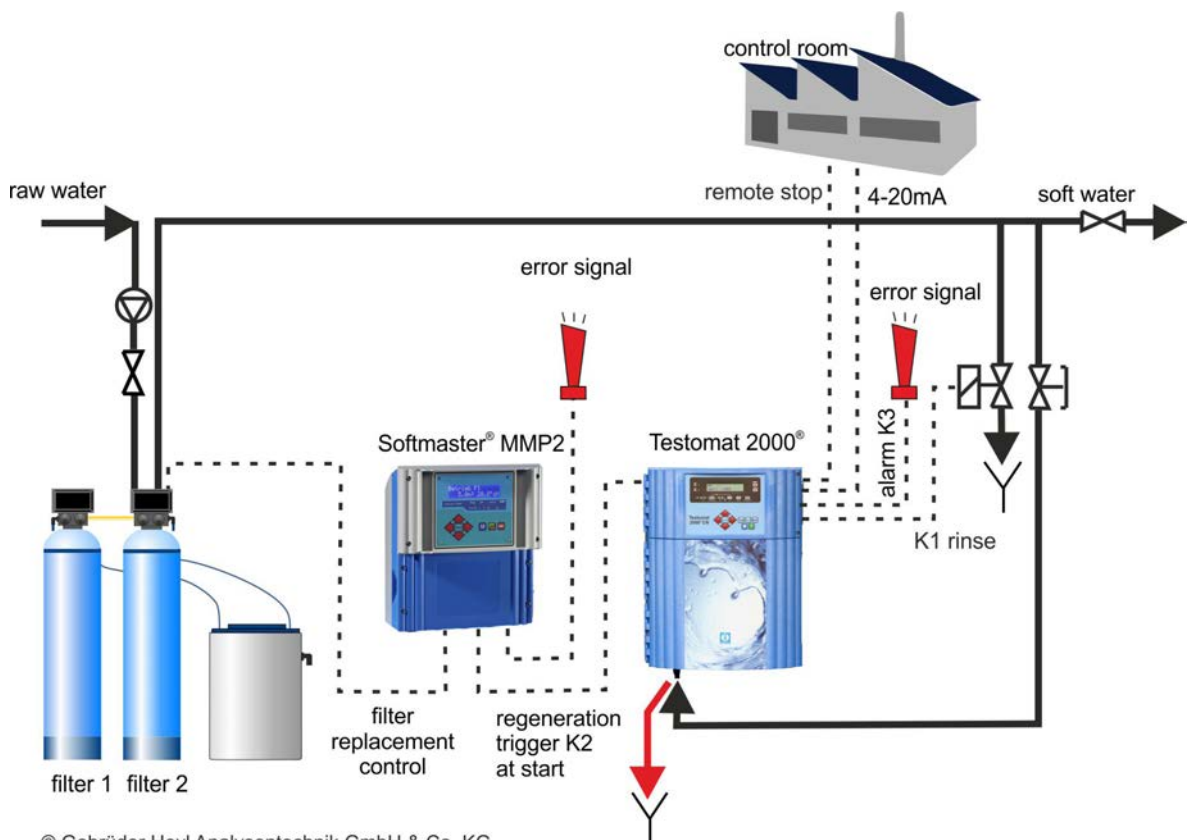
Technical information:

**Energy cost reduction through online water quality monitoring**

This technical information concerns the effect of calcium and other deposits in steam boiler plants and cooling towers. Problems that arise from deposits and possible solutions are highlighted.

The complete technical information can be found under Applications on our homepage, [www.heylanalysis.de](http://www.heylanalysis.de).

**Online monitoring of water quality with Gebrüder Heyl instruments**



**Desalination**

To prevent corrosion caused by salt, the conductivity of the feed water is controlled by the MultiControl monitoring instrument.

The MultiControl monitoring instrument controls the desalination of boiler water with a high salt concentration and regulates the water supply as needed in order to maintain the correct salinity.

The desalination electrode is located in the upper region of the steam generator at the height of the lower water level.



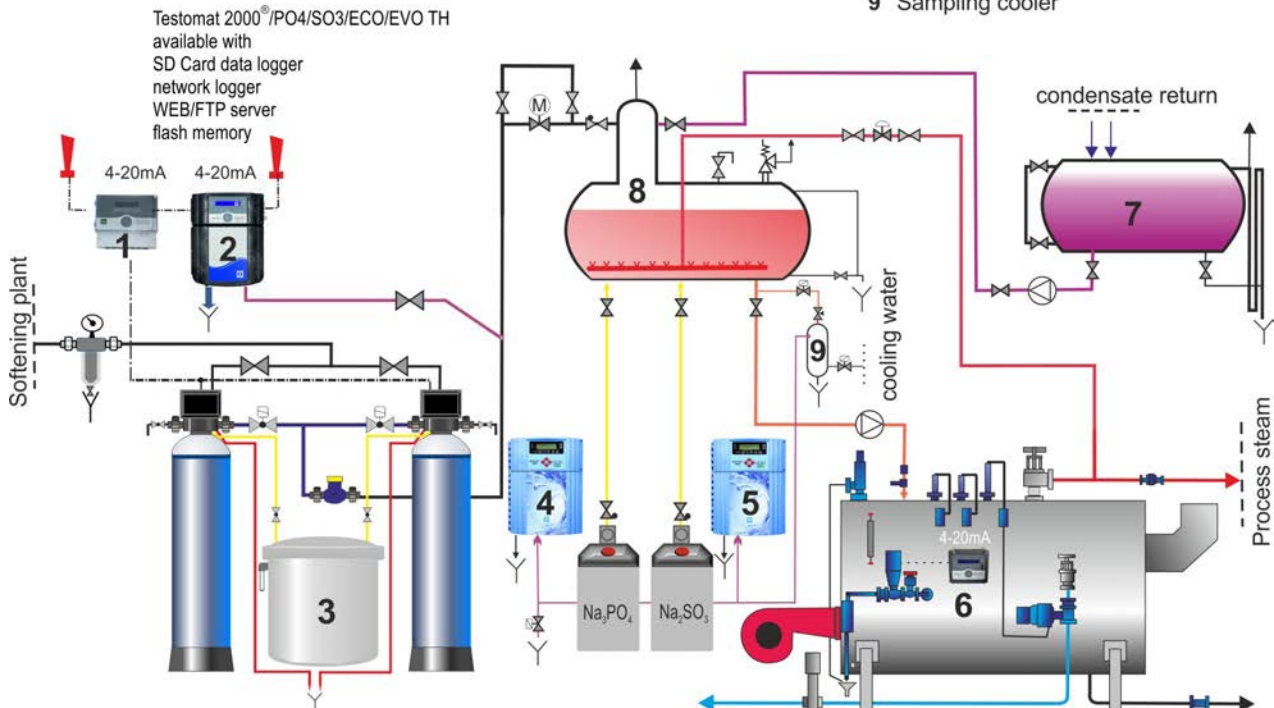
© Fotosearch.de



Our **Testomat 2000®** checks the hardness of your feed water and condensate water in your hot water boiler and steam boiler systems according to the current **TÜV WÜ 100** regulation and supports you in maximizing the cost-efficiency of your system.

**Boiler house concept with Heyl measuring and control devices**

- 1 Softmaster® MMP compact control of softening plant
- 2 Testomat® 2000/ECO/EVO hardness measurement
- 3 Softening plant
- 4 Testomat® PO4 phosphate dosing
- 5 Testomat® SO3 sulfite dosing
- 6 MultiControl
- 7 Condensation collector
- 8 Feed water tank
- 9 Sampling cooler



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Precise control attuned to the application can contribute to a significant improvement of the entire production process.

Therefore, we made it our mission decades ago to provide our customers with application-oriented solutions in which every individual component is attuned exactly to every other.



**Monitoring and control of water treatment example: softening plant**

The following Parameters must be monitored:

- quality
- salt deficiency in the brine tank
- correct regeneration cycle

Result:

- less waste water
- lower salt use
- cost savings thanks to lower energy requirements

- Autotrol
- Fleck
- Siata

You can achieve this by using our controllers and measuring instruments in combination:

- Testomat 2000®**
- + Softmaster® MMP2**
- + Softmaster® ROE1 and ROE2**

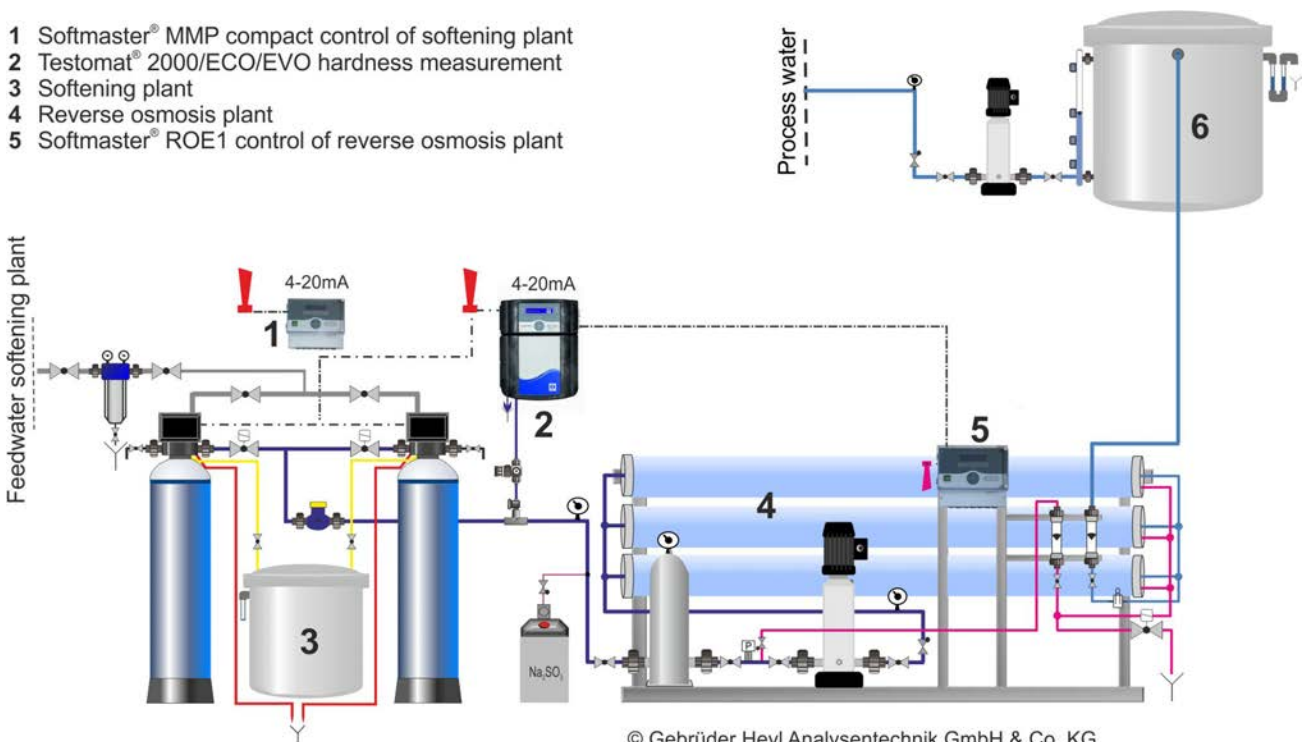
**1- and 2-filter systems**

All Softmaster® MMP controllers can be connected to many current valves of 1- and 2-filter systems, e.g., valves from

To support you, you can request connection diagrams for various valves from us or download the current operating instructions from our homepage [www.heylanalysis.de](http://www.heylanalysis.de).

**Softmaster® controllers monitoring a reverse osmosis system together with Testomat 2000®**

- 1 Softmaster® MMP compact control of softening plant
- 2 Testomat® 2000/ECO/EVO hardness measurement
- 3 Softening plant
- 4 Reverse osmosis plant
- 5 Softmaster® ROE1 control of reverse osmosis plant



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© Kurita Europe GmbH, Viersen, Germanland



Mobile monitoring system for cooling towers with integrated Testomat 2000® Polymer for monitoring the conditioning agent.

**Control and monitoring of recooling plants**

Today, cooling water controlling and monitoring are indispensable components of advanced energetic and hygiene-compliant operation of cooling towers according to VDI 2047-2 and VDI 3803-3.4.

A wide variety of recooling plants exists worldwide:

- Closed cooling systems
- Semi-open cooling systems
- Continuous flow cooling systems

More than 100,000 recooling plants of the above categories are installed in Germany.

**What is the responsibility of the plant operator according to the new VDI 2047-2 directive?**

Recooling plants and cooling towers are required in the industry and with large buildings to allow for the quick dissipation of excess heat in production processes or buildings.

Although measures have been employed over the past few years to operate these systems more economically and more safely in terms of hygiene, malfunctions and downtime still often occur due to deposits, corrosion or even

legionella. Because of the design, they consequently spread quickly.

Operators of evaporative cooling systems must therefore still act promptly to avoid mineral-based, corrosive and biological accumulations (such as legionella and pseudomonads).

The legislator has therefore issued a new hygiene directive, VDI 2047 Sheet 2 "Recooling plants - Ensuring the hygiene-compliant operation of evaporative cooling plants". This directive is also referred to as the VDI cooling tower rule.

The duties of the operating company for the prevention of legionella are specifically regulated by this directive.

All plant operators are advised familiarise themselves with the new VDI 2047-2 directive and take the required measures – disregarding the operator's duties may be punishable by law.

To be able to continually ensure the economic, troublefree and – according to the new VDI 2047-2 directive – hygiene-compliant operation of a cooling tower, system conditioning and continuous monitoring of the water are absolutely essential.

**What are the main focuses of monitoring?**

Part of the cooling water regularly evaporates in open, semi-open and

also closed cooling systems. As a result, the salt concentration in the circulating water rises constantly.

However, the increased salt and mineral content in the circulating water causes limescale buildup, corrosion and mineral deposits in the cooling tower and circulating water system. Drip collectors, trickling filters and distribution channels as well as the heat exchangers in the system are especially affected by this.

This is compounded by biological problems, such as from the formation of algae and biofilms introduced from the supply water and the ambient air.

VDI 3803 stipulates in section 3.4 for evaporative recooling plants that the water condition of the circulating water must be adapted to the building materials of the cooling circuit.

This means that the cooling water should be conditioned without fail to prevent corrosion, inorganic deposits (calcium and magnesium carbonates) as well as organic deposits (algae and bacteria strains) – also called biofilms – from causing major damage in the cooling circuits.

Biofilms, however, can not only cause blockages of fittings and pumps but also constitute the germ cell for legionella or pseudomonas bacteria, which

are very dangerous for humans.

Biofilms are also energetically equivalent to mineral deposits such as calcium or silicate deposits. A layer of only 1 mm thickness can cause a loss of efficiency up to 30% with both types of deposits. This, in turn, results in additional energy costs of up to 12%.

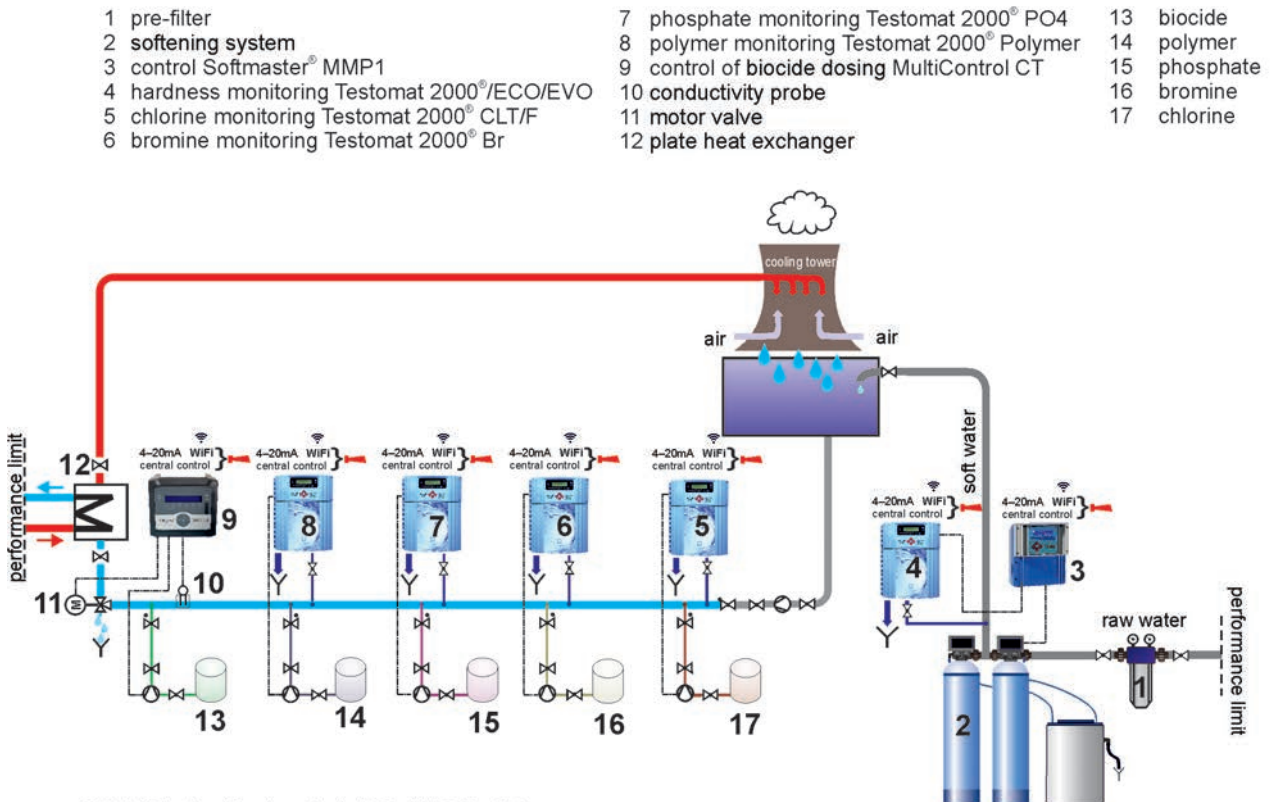
**Conclusion:**

**A controlled cooling tower system monitored online works in a hygienically compliant manner (according to VDI 2047-2), economically and without malfunctions (according to VDI 3803).**



**A cooling circuit concept, featuring Heyl analyzers and control devices**

Many parameters can be measured in the cooling circuit. Our example shows some of them that you can measure with our measuring instruments. It depends on the application and the parameters to be monitored. You can find an example for desalination in the cooling circuit on page 8.





Using untreated or partially softened water as the feed water for cooling water circuits or air washers usually causes problems such as:

- Limescale,
- Biological deposits by myxobacteria and algae (bacterial contamination)
- Corrosion of metallic materials.

Automatic monitoring and conditioning of the circulating water is important to prevent this from happening. We have developed the automatic desalination device **MultiControl CT** according to VDI 2047 part 1 and 2 for this application.

- **Desalination** can be controlled either by conductance or by TDS. There is a locking mechanism to stop desalination after a biocide dosing. The duration of desalination can be monitored.
- The **biocide dosing** may either take place after a certain number of days or regularly on certain days of the week at a fixed time. Preliminary desalination is available as an option.
- For quantity-based **inhibitor dosing**, there are various adjustment options available for the dosing point and dosing period.

- **Circulation** may either take place after a certain number of days or regularly on certain days of the week at a fixed time.
- In addition, **limit values**, for example for temperature (min and max) or pH value (min and max) can be monitored.

By using different plug-in cards on the two existing slots in the device, various sensors, a process controller with 0/4-20 mA input or a curve tracer can be connected.

The following plug-in cards are available in particular:

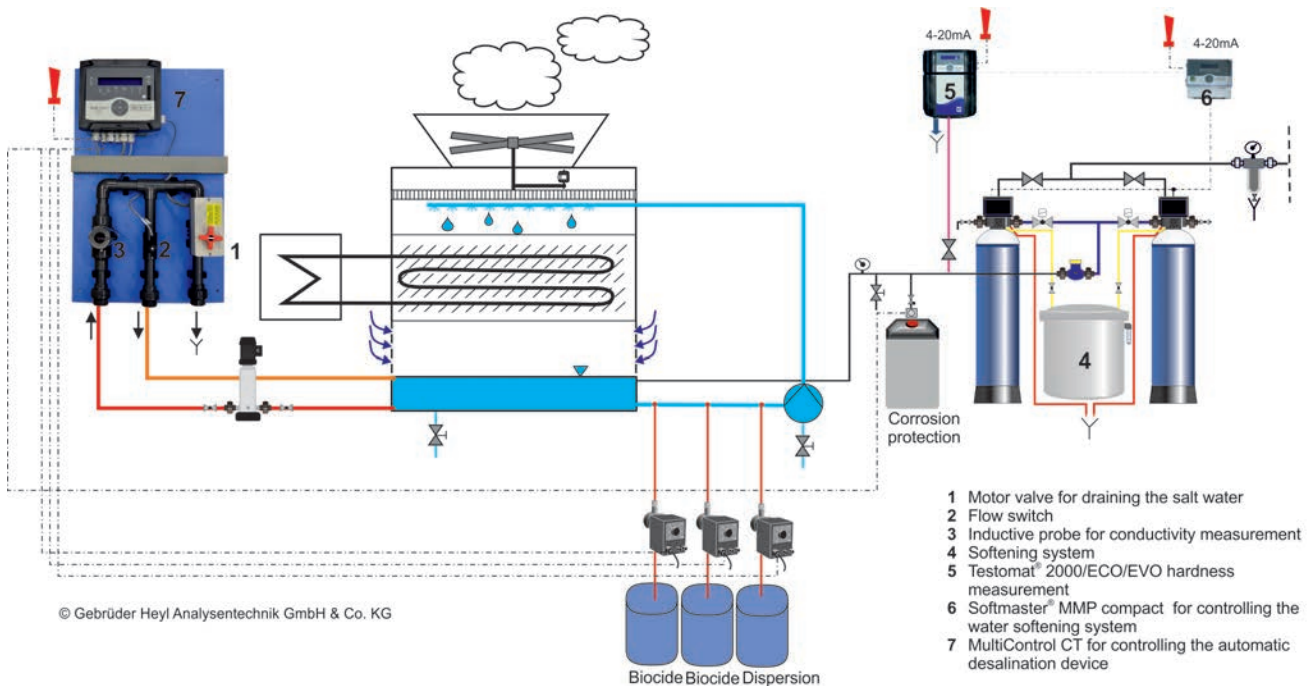
- Plug-in card for connecting a probe with two current outputs for measuring the inductive conductivity and temperature and for connecting a combination electrode for measuring the pH value.
- Plug-in card for connecting a probe with RS232 interface for measuring the inductive conductivity and temperature.
- Plug-in card for connecting a conductive conductivity probe, a PT100 or PT1000 temperature sensor with 2-, 3- or 4-wire technology

and a combination electrode for measuring the pH value.

- Plug-in card with two 0/4-20 mA outputs for outputting the measured values and one RS232 interface for connecting an inductive conductivity probe.

A SD card is used to log measured values, messages, alarms and status changes. Even the firmware can be updated in this way.

Water treatment of feed water in cooling circuits with measuring instruments from Gebr. Heyl





The effect of a too low acid capacity on the water treatment facility and water quality is often underestimated.

Low acid capacity makes it difficult for the pH value in the swimming pool water to stabilize. The pH value in turn affects the filtration effect and therefore the disinfecting potential.

Acid capacity also strongly influences the occurrence of corrosion in parts of the facility that are in contact with water. The water is more aggressive the lower the acid capacity is.

This leads to corrosion on metal components such as pump drives and fiber backstops, untreated concrete water tanks and on gaps between tiles.

DIN 19643 recommends a weekly inspection of acid capacity in order to be able to permanently control the water quality and the state of the surfaces that are in contact with water.

It also recommends a maximum lower limit value of 0.3 mmol for the acid

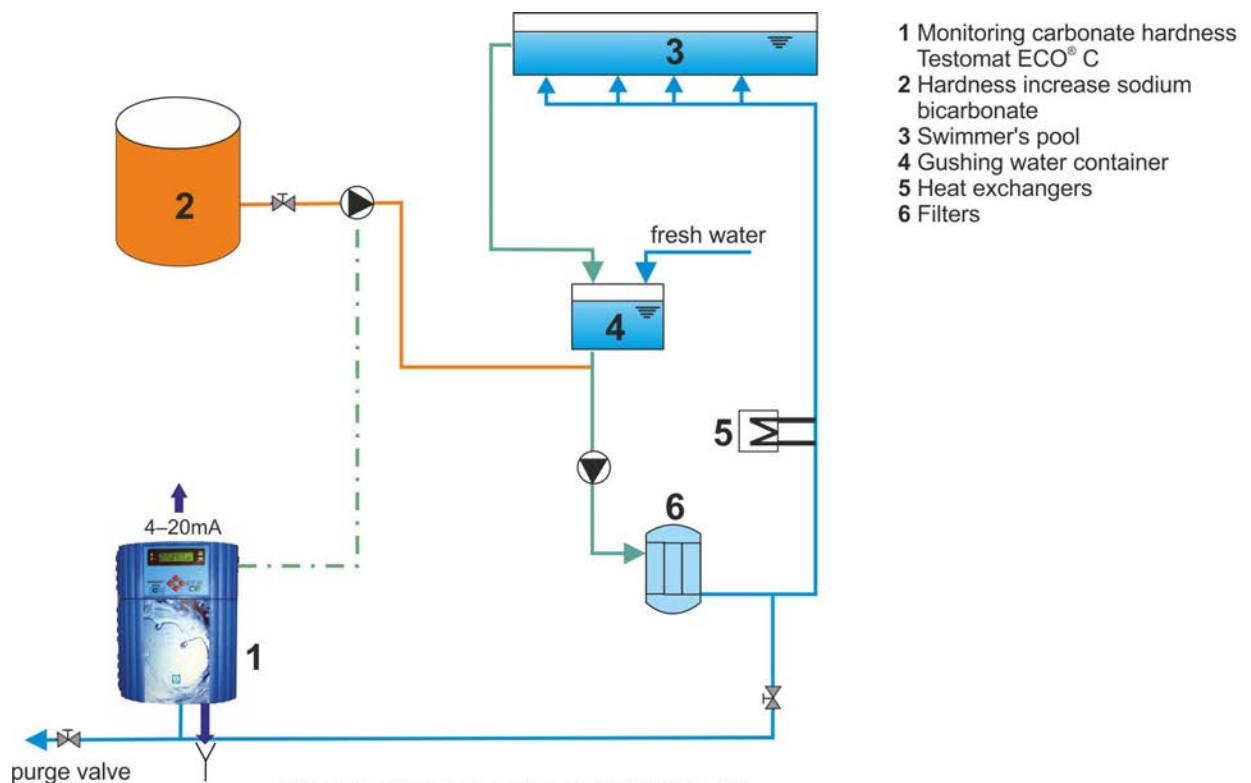


capacity in Jacuzzis and 0.7 mmol in swimmer's pools.

Through online analysis with the **Testomat ECO® C** the acid capacity can be stabilized automatically

Regular inspection also helps to reduce consumables such as disinfectants and stabilizers and thus helps to save costs.

Monitoring carbonate hardness in a swimming pool's water cycle with Gebr. Heyl measuring devices



**When is it necessary to measure phosphate levels?**

The measurement of the phosphate content in the wastewater of industrial processes becomes more and more important, because the phosphate values must be lower than the legally permitted values if the wastewater is discharged into the sewer system.

In accordance with § 11 of the German drinking water ordinance of 2001, the limits are 2,2 mg / l phosphorus (6.75 mg / l PO<sub>4</sub>) for phosphates added to the drinking water.

**Where do phosphates come from?**

Phosphates are mainly found in fertilizers and detergents. They are released into the groundwater by agricultural fertilizers in the soil or by domestic wastewater with phosphate detergents. In industrial plants, orthophosphates (PO<sub>4</sub>) are directly fed into the processing water to prevent corrosion in their piping systems.

Industrial and agricultural discharges in rivers and lakes lead to a nutrient

surplus in the waters. This results in undesirable algae growth and a falling oxygen content in the water. The ecological balance suffers sustained damage.

Through the water cycle, high amounts of phosphates and nitrates also enter the ground water.

In order to prevent this environmental hazard, policies for the concentration of phosphates and nitrates in water have been established.

**Phosphates in Sewage Treatment Plants**

In waste water treatment plants, phosphate concentration must be measured in order to ensure effective wastewater treatment. Phosphates are removed either by chemical precipitation or biological elimination from wastewater.

By feeding in dissolved iron salts (ferrous chloride), most of the phosphorus from wastewater is precipitated and deposited along with the contaminants from the primary settlement tank to the bottom of the basin.

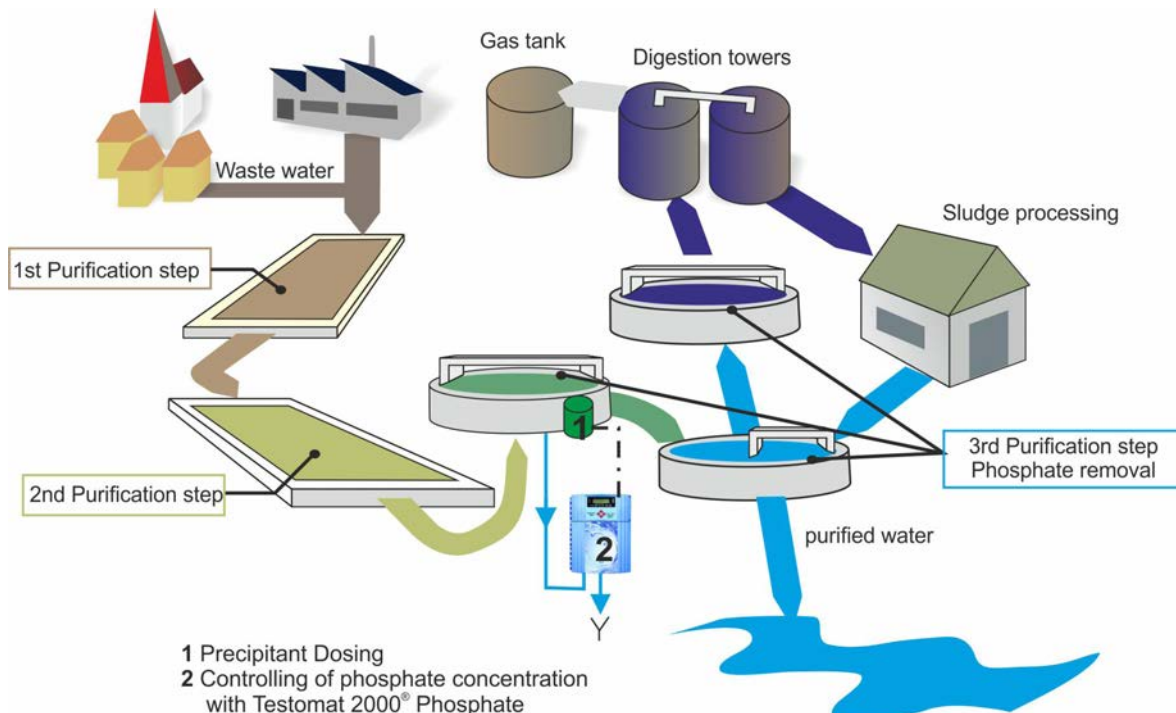
Increasingly important in wastewater treatment plants is the phosphate recovery from wastewater and sludge, since phosphorus is an important and finite raw material.

All these processes require an inspection of the phosphate content, which must be either conducted manually or continuously.

The **Testomat 2000® PO4** was developed for the online analysis of orthophosphate and operates within a measuring range of 0 - 10 mg/l PO<sub>4</sub>.

Find the complete technical information on phosphate measurement with the **Testomat 2000® PO4** in the download section of our website [www.heylyanalysis.de](http://www.heylyanalysis.de).

**Phosphate measurement at the water treatment plant with the Gebr. Heyl phosphate measuring instrument**



During galvanic processes such as copper plating, chromium plating or nickel plating or during surface treatment before painting (phosphating), large amounts of rinsing water are required after each process step.

Since the disposal of these process waters is very expensive, it makes sense for a company to process and reuse the process waters. The amount of waste water and fresh water can thus be limited.

Heavy metals and toxic constituents are removed during the on-site treatment.

In many cases, a chemical-physical process is used, e.g. ion exchangers. Regeneration of ion exchangers produces solutions with a high concentration of heavy metal salts, from which the metals are either deposited electrolytically or, in some cases, recycled directly to the galvanising baths.

The process water is neutralised with the help of acid or lye. Auxiliary substances and additional reaction steps eliminate any existing critical constituents such as cyanides or chromic acid.



Afterwards, sludge is produced with a flocculant, which removes oils, fats and heavy metals from the water.

The resulting clear phase can then be discharged into the sewer in consideration of the legal limit values.

**Limit values for chromium**

The Drinking Water Ordinance (TrinkwV 2001/amendment November

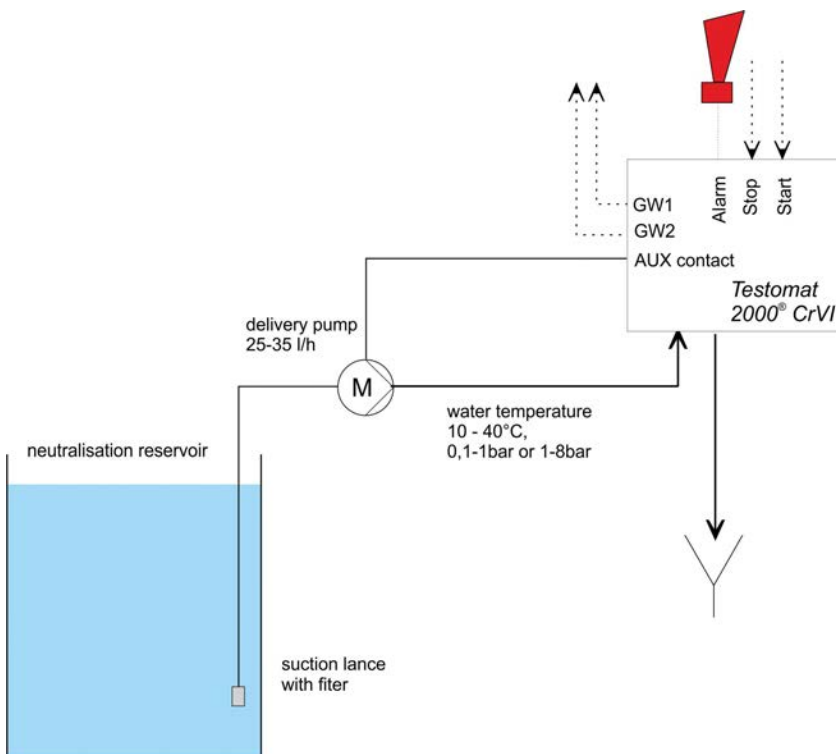
2011) prescribes a limit value of 0.05 mg/l chromium in drinking water.

The Waste Water Ordinance (AbwV) sets a limit of 0.05 mg/l chromium in the waste water of chemical industrial companies and a limit value of 0.25 g/t chromium for the iron, steel and malleable-iron foundry.

With a measuring range of 0.0-2.0 mg/l (chromate) and 0-1.0 mg/l (chromium VI), the **Testomat 2000® CrVI** is ideally suited for the required monitoring of these limit values.

Since the monitoring of limit values by the Testomat device takes place automatically online, the level of supervision required by personnel is low and the legal requirements are reliably and demonstrably adhered to and documented through data storage via SD card data loggers.

The analytical result is displayed after a reaction time of approx. 2 minutes. The **Testomat 2000® CrVI 0-5 ppm** can also be used for a broader monitoring range. The measuring range is 0.0-5.0 ppm (chromium VI) and 0.0-11.15 ppm (chromate).





The sterilisation of surgical instruments now plays a central role when it comes to quality assurance in hospitals.

The treatment process is subject to the requirements of the standard DIN EN 285 for steam sterilisation, among others. The steam or water used must not exceed the specified limit values, otherwise deposits and corrosion can occur on the metal surfaces of the instruments.

Demineralised water is therefore generally used for the sterilisation process. This process water (demineralised water) is produced in a water treatment system in the hospital.

DIN EN 285 stipulates the following limit values for the feed water quality to generate pure steam:

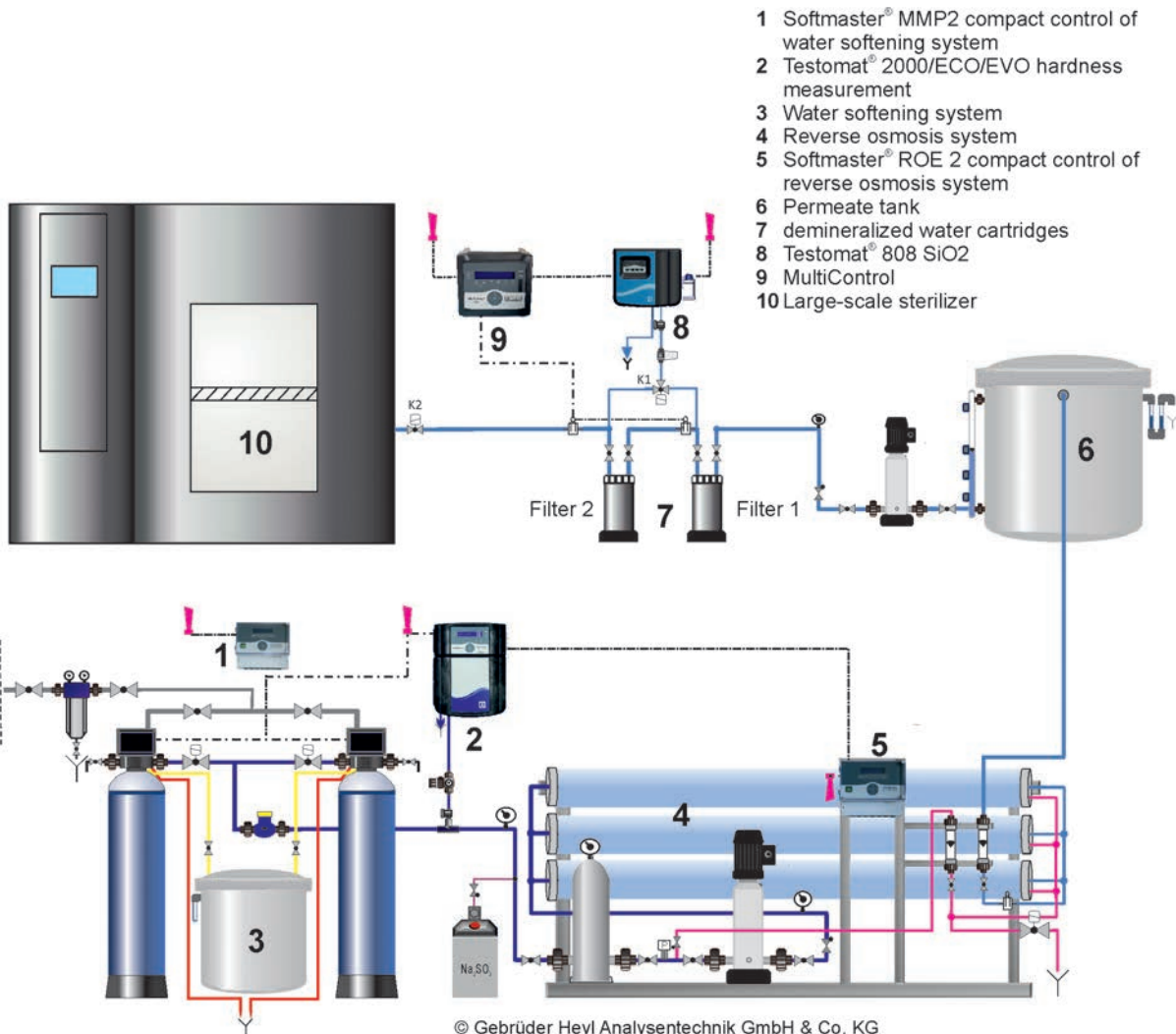
- Conductivity: < 15  $\mu\text{S}/\text{cm}$
- pH-value: 5 – 7
- Total hardness: < 0,02 mmol/l
- Salt content: < 10 mg/l
- Phosphate: < 0,5 mg/l
- Silicate ( $\text{SiO}_2$ ): < 1 mg/l
- Chloride: < 2 mg/l



To meet the need of hospitals for a simple, reliable silicate measuring device, Gebr. Heyl Analysentechnik has developed the **Testomat® 808 SiO<sub>2</sub>**.



This limit value measuring device can determine silicates in the measurement range from 0.3 to 1.2 ppm and thus corresponds to the specifications of the DIN standard EN 285 for a silicate monitoring device.

Find the complete technical information on **water treatment in hospitals** in the download section of our website [www.heylandalysis.de](http://www.heylandalysis.de).



Water treatment for the central sterilization with Gebr. Heyl measuring and control devices





|  |  |   |              |            |              |              |
|--|--|---|--------------|------------|--------------|--------------|
|  |   |    |              |            |              |              |
| <b>Description</b>                           | limit value monitoring instrument for water hardness   | limit value monitoring instrument for silica  |              |            |              |              |
| <b>Parameters</b>                            | water hardness   | silica SiO <sub>2</sub>   |              |            |              |              |
| <b>Monitoring range</b>                      | 0,02-5 °dH (0,4...89 ppm CaCO <sub>3</sub> )   | 0,3-1,2 ppm   |              |            |              |              |
| <b>Indicators</b><br>Limit values on page 49 | Type 300, 300 S, 301, 302, 303, 305, 310, 320, 330, 350  | Type A + B for Testomat® 808 SiO <sub>2</sub>   |              |            |              |              |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>• low water consumption</li> <li>• state-of-the-art electronics</li> <li>• modern indicator pump system</li> <li>• error display</li> <li>• indicator quantity display</li> <li>• external rinsing valve control</li> <li>• limit value evaluation/external control</li> <li>• alarm processing</li> <li>• internal and external rinsing via manual control</li> <li>• 72 hours without supervision possible (in BOB mode)</li> <li>• selector switch for pause interval; selector switch for adjusting the behavior of the relay when the limit value is exceeded</li> </ul> | <ul style="list-style-type: none"> <li>• Offering all the benefits of the Testomat® 808 - 2019</li> </ul> <p>in addition:</p> <ul style="list-style-type: none"> <li>• 2 selector switches for measuring intervals and evaluating limit values</li> </ul> |              |            |              |              |
| <b>Application</b>                           | <p>applications of continuous residual hardness monitoring, e.g.:</p> <ul style="list-style-type: none"> <li>• reverse osmosis plants</li> <li>• soft water for commercial purposes</li> <li>• pure water production plants</li> <li>• galvanization</li> </ul>  | <ul style="list-style-type: none"> <li>• Water treatment of sterilizations in hospitals</li> <li>• Monitoring of silicate content in industrial waters</li> </ul> <p>Application example on page 12</p>   |              |            |              |              |
| <b>Protection type/class</b>                 | IP44 / I   | IP44 / I  |              |            |              |              |
| <b>Supply voltage</b>                        | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz  | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz   |              |            |              |              |
| <b>Power consumption</b>                     | max. 16 VA   | max. 16 VA  |              |            |              |              |
| <b>Dimensions</b>                            | approx. 14.3" x 12.4" x 5.4" (W x H x D)<br>364 x 314 x 138 mm   | approx. 14.3" x 12.4" x 5.4" (W x H x D)<br>364 x 314 x 138 mm<br>with side pocket: 17.4" x 12.4" x 5.4"<br>442 x 314 x 138 mm  |              |            |              |              |
| <b>Weight</b>                                | approx. 9.6 lbs (4.35 kg)  | approx. 9.6 lbs (4.35 kg)   |              |            |              |              |
| <b>Operating pressure</b>                    | 14.5 to 58 psi (1 to 4 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)   | 14.5 to 58 psi (1 to 4 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)  |              |            |              |              |
| <b>Menu languages</b>                        | —  | —   |              |            |              |              |
| <b>Order numbers</b>                         |  |   |              |            |              |              |
|  | <b>24V</b>   | <b>115 V</b>  | <b>230 V</b> | <b>24V</b> | <b>115 V</b> | <b>230 V</b> |
| 1-4 bar                                      | 100652   | 100651  | 100650       | 100662     | 100661       | 100660       |
| 0,3-1 bar                                    | 100655   | 100654  | 100653       | 100665     | 100664       | 100663       |

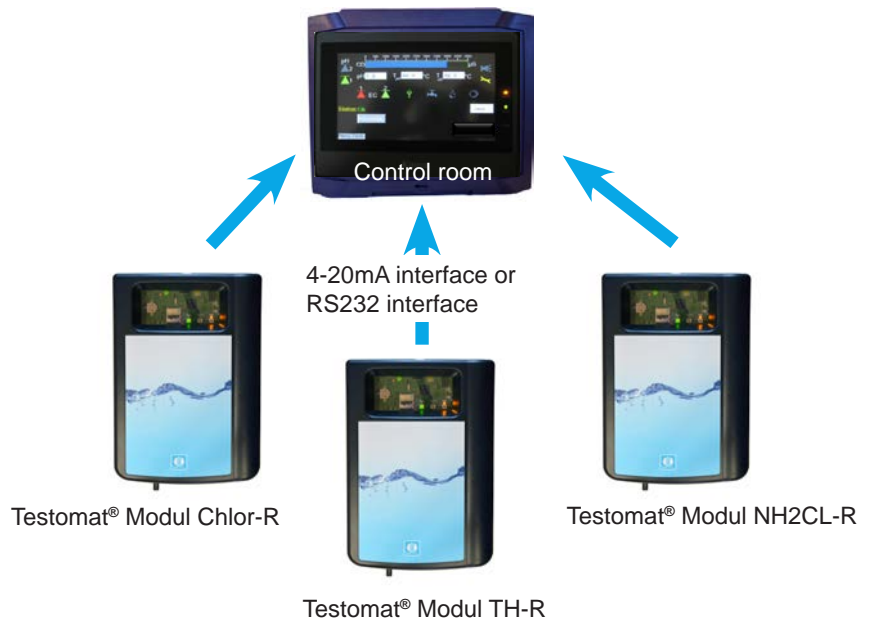
| Product                                      | Testomat® Modul TH  | Testomat® Modul TH-R   |        |  |        |        |
|--|---|--|--------|--|--------|--------|
|  | <br><div style="text-align: right; background-color: #003366; color: white; padding: 2px;">New</div>   | <br><div style="text-align: right; background-color: #003366; color: white; padding: 2px;">New</div>  |        |  |        |        |
| <b>Description</b>                           | measuring converter for residual total hardness   | measuring converter for residual total hardness  |        |  |        |        |
| <b>Parameters</b>                            | water hardness  | water hardness   |        |  |        |        |
| <b>Measuring range</b>                       | 0,05-25 °dH   | 0,05-25 °dH  |        |  |        |        |
| <b>Indicators</b><br>Limit values on page 47 | TH 2005, TH 2025, TH 2050, TH 2100, TH 2250   | TH 2005, TH 2025, TH 2050, TH 2100, TH 2250  |        |  |        |        |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>• device can be connected to an overriding control system</li> <li>• operation via function keys, which also serve as display elements</li> <li>• parameterisation with the Service Monitor program</li> <li>• output of measurement values via a 4-20 mA interface and a RS232 interface</li> <li>• 3 types of analysis triggers</li> <li>• shared output for the alarm</li> <li>• logging of error and maintenance messages with the SD card</li> <li>• firmware update with the SD card</li> <li>• USB connection for service purposes</li> </ul> | <ul style="list-style-type: none"> <li>• Offering all the benefits of the Testomat® Modul TH</li> <li>• The RS232 interface can also be used to set the parameters of the device. It receives defined commands from a higher-level control system for this purpose.</li> </ul> <p>Please note that it is not possible subsequently to change a Testomat® Modul TH into a Testomat® Modul TH-R.</p> |        |  |        |        |
| <b>Application</b>                           | Monitoring and checking of water quality e.g.: <ul style="list-style-type: none"> <li>• water treatment facilities</li> <li>• industrial boilers</li> <li>• process water monitoring</li> </ul>   | Monitoring and checking of water quality e.g.: <ul style="list-style-type: none"> <li>• water treatment facilities</li> <li>• industrial boilers</li> <li>• process water monitoring</li> </ul>  |        |  |        |        |
| <b>Protection type/class</b>                 | IP43/40 (with/without cover) / I  | IP43/40 (with/without cover) / I   |        |  |        |        |
| <b>Supply voltage</b>                        | 24 VDC  | 24 VDC   |        |  |        |        |
| <b>Power consumption</b>                     | max. 1 A  | max. 1 A   |        |  |        |        |
| <b>Dimensions</b>                            | approx. 10.6" x 13.8" x 5.8"<br>270 x 350 x 147 mm W x H x D  | approx. 10.6" x 13.8" x 5.8"<br>270 x 350 x 147 mm W x H x D   |        |  |        |        |
| <b>Weight</b>                                | approx. 11.7 lbs (5.3 kg)   | approx. 11.7 lbs (5.3 kg)  |        |  |        |        |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)   | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)  |        |  |        |        |
| <b>Relay contact load</b>                    | max. 35 VAC / 60 VDC; max. 4 A  | max. 35 VAC / 60 VDC; max. 4 A   |        |  |        |        |
| <b>Order numbers</b>                         | <div style="background-color: #003366; color: white; padding: 2px; margin-bottom: 5px;">24 V</div> <table border="1" style="margin: auto;"> <tr><td style="text-align: center;">116101</td></tr> <tr><td style="text-align: center;">116102</td></tr> </table>  | 116101   | 116102 | <div style="background-color: #003366; color: white; padding: 2px; margin-bottom: 5px;">24 V</div> <table border="1" style="margin: auto;"> <tr><td style="text-align: center;">116111</td></tr> <tr><td style="text-align: center;">116112</td></tr> </table> | 116111 | 116112 |
| 116101                                       |   |  |        |  |        |        |
| 116102                                       |   |  |        |  |        |        |
| 116111                                       |   |  |        |  |        |        |
| 116112                                       |   |  |        |  |        |        |
|  | with cover<br>without cover   |  |        |  |        |        |



| Product                                      | Testomat® Modul NH2CL   | Testomat® Modul CL  |        |   |        |        |
|--|---|---|--------|---|--------|--------|
|  |  <div style="text-align: right; background-color: #003366; color: white; padding: 2px 5px; font-weight: bold;">New</div>   |  <div style="text-align: right; background-color: #003366; color: white; padding: 2px 5px; font-weight: bold;">New</div> |        |   |        |        |
| <b>Description</b>                           | measuring converter for monochloramine  | measuring converter for total chlorine  |        |   |        |        |
| <b>Parameters</b>                            | monochloramine  | total chlorine or free chlorine   |        |   |        |        |
| <b>Measuring range</b>                       | 0 - 5 ppm (resolution 0,1)  | 0 - 5 ppm (resolution 0,1)  |        |   |        |        |
| <b>Indicators</b><br>Limit values on page 48 | Testomat Chlorine Reagent Kit M (Monochloramine)  | Chlorine reagent set F (free) or Chlorine reagent set T (total)   |        |   |        |        |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat® Modul TH</li> </ul>   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat® Modul TH</li> </ul>   |        |   |        |        |
| <b>Application</b>                           | Monitoring the decay behaviour in cooling towers after shock chlorination   | Monitoring the decay behaviour in cooling towers after shock chlorination   |        |   |        |        |
| <b>Protection type/class</b>                 | IP43/40 (with/without cover) / I  | IP43/40 (with/without cover) / I  |        |   |        |        |
| <b>Supply voltage</b>                        | 24 VDC  | 24 VDC  |        |   |        |        |
| <b>Power consumption</b>                     | max. 1 A  | max. 1 A  |        |   |        |        |
| <b>Dimensions</b>                            | approx. 10.6" x 13.8" x 5.8"<br>270 x 350 x 147 mm W x H x D  | approx. 10.6" x 13.8" x 5.8"<br>270 x 350 x 147 mm W x H x D  |        |   |        |        |
| <b>Weight</b>                                | approx. 11.7 lbs (5.3 kg)   | approx. 11.7 lbs (5.3 kg)   |        |   |        |        |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or 4.4 to 14.5 psi (0.3 to 1 bar)  | 14.5 to 116 psi (1 to 8 bar) or 4.4 to 14.5 psi (0.3 to 1 bar)  |        |   |        |        |
| <b>Relay contact load</b>                    | max. 35 VAC / 60 VDC; max. 4 A  | max. 35 VAC / 60 VDC; max. 4 A  |        |   |        |        |
| <b>Order numbers</b>                         | <div style="text-align: center;"><b>24 V</b></div> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 2px;">116108</td></tr> <tr><td style="padding: 2px;">116109</td></tr> </table> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span>with cover</span> <span>without cover</span> </div> | 116108  | 116109 | <div style="text-align: center;"><b>24 V</b></div> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 2px;">116105</td></tr> <tr><td style="padding: 2px;">116106</td></tr> </table> | 116105 | 116106 |
| 116108                                       |   |   |        |   |        |        |
| 116109                                       |   |   |        |   |        |        |
| 116105                                       |   |   |        |   |        |        |
| 116106                                       |   |   |        |   |        |        |

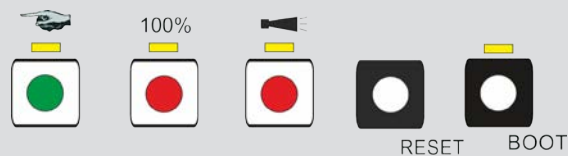
| Product                                      | Testomat® Modul NH2CL-R   | Testomat® Modul CL-R   |        |   |        |        |
|--|---|--|--------|---|--------|--------|
|  |  <div style="text-align: right; background-color: #003366; color: white; padding: 2px;">New</div>  |  <div style="text-align: right; background-color: #003366; color: white; padding: 2px;">New</div>   |        |   |        |        |
| <b>Description</b>                           | measuring converter for monochloramine  | measuring converter for total chlorine   |        |   |        |        |
| <b>Parameters</b>                            | monochloramine  | total chlorine or free chlorine  |        |   |        |        |
| <b>Measuring range</b>                       | 0 - 5 ppm (resolution 0,1)  | 0 - 5 ppm (resolution 0,1)   |        |   |        |        |
| <b>Indicators</b><br>Limit values on page 48 | Testomat Chlorine Reagent Kit M (Monochloramine)  | Chlorine reagent set F (free) or Chlorine reagent set T (total)  |        |   |        |        |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat® Modul NH2CL</li> <li>The RS232 interface can also be used to set the parameters of the device. It receives defined commands from a higher-level control system for this purpose.</li> </ul> <p>Please note that it is not possible subsequently to change a Testomat® Modul NH2CL into a Testomat® Modul NH2CL-R.</p> | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat® Modul CL</li> <li>The RS232 interface can also be used to set the parameters of the device. It receives defined commands from a higher-level control system for this purpose.</li> </ul> <p>Please note that it is not possible subsequently to change a Testomat® Modul CL into a Testomat® Modul CL-R.</p> |        |   |        |        |
| <b>Application</b>                           | Monitoring the decay behaviour in cooling towers after shock chlorination   | Monitoring the decay behaviour in cooling towers after shock chlorination  |        |   |        |        |
| <b>Protection type/class</b>                 | IP43/40 (with/without cover) / I  | IP43/40 (with/without cover) / I   |        |   |        |        |
| <b>Supply voltage</b>                        | 24 VDC  | 24 VDC   |        |   |        |        |
| <b>Power consumption</b>                     | max. 1 A  | max. 1 A   |        |   |        |        |
| <b>Dimensions</b>                            | approx. 10.6" x 13.8" x 5.8"<br>270 x 350 x 147 mm W x H x D  | approx. 10.6" x 13.8" x 5.8"<br>270 x 350 x 147 mm W x H x D   |        |   |        |        |
| <b>Weight</b>                                | approx. 11.7 lbs (5.3 kg)   | approx. 11.7 lbs (5.3 kg)  |        |   |        |        |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)   | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)  |        |   |        |        |
| <b>Relay contact load</b>                    | max. 35 VAC / 60 VDC; max. 4 A  | max. 35 VAC / 60 VDC; max. 4 A   |        |   |        |        |
| <b>Order numbers</b>                         | <div style="text-align: center;"><b>24 V</b></div> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>116118</td></tr> <tr><td>116119</td></tr> </table> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>with cover</span> <span>without cover</span> </div>  | 116118   | 116119 | <div style="text-align: center;"><b>24 V</b></div> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>116115</td></tr> <tr><td>116116</td></tr> </table> | 116115 | 116116 |
| 116118                                       |   |  |        |   |        |        |
| 116119                                       |   |  |        |   |        |        |
| 116115                                       |   |  |        |   |        |        |
| 116116                                       |   |  |        |   |        |        |

The equipment of the Testomat® Modul series has been developed to jointly monitor various parameters such as chlorine, water hardness or monochloramine in a networked system and to forward the measurement results to a control room.



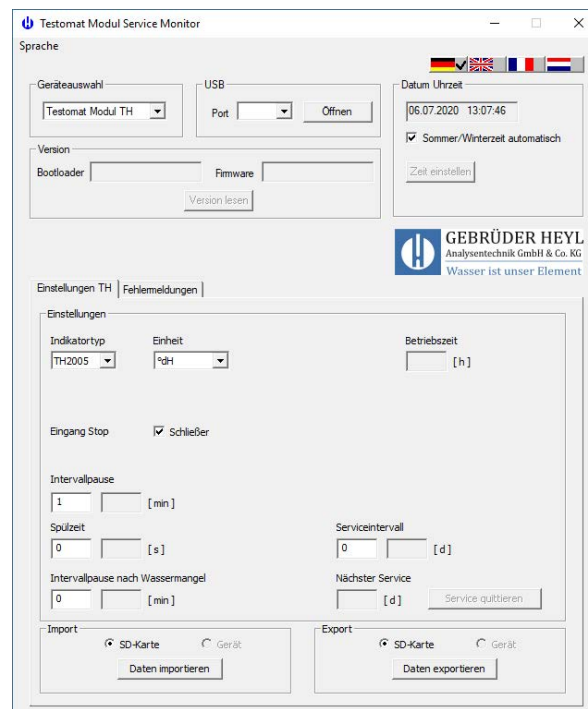
### Operation via function keys

Using the function keys on the equipment, basic functions such as alarm acknowledgement, reset and standby operation can be carried out.





### Parameterization via PC program

The transducer settings can be displayed and changed using the Service Monitor program (for operating systems starting with Windows 7). The program is part of the scope of delivery.



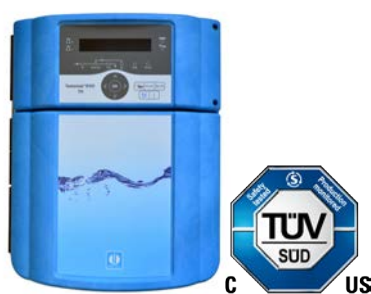
Example of the Service Monitor software for the Testomat® Modul TH



| Product                                      | Testomat ECO®  | Testomat ECO® C  |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
|--|--|--|--------|-------|-------|--|--------|--------|--------|-----------------------|--------|--------|--------|---|--|-----|-------|-------|--|--------|--------|--------|
|  |   |   |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Description</b>                           | automatic online analysis units for water hardness   | automatic online analysis units for carbonate hardness   |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Parameters</b>                            | Water hardness   | Carbonate hardness<br>Acid capacity  |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Measuring range</b>                       | 0,05-25 °dH  | 0,18-3,58 mmol/l / 0,36-7,16 mmol/l<br>0,5-10,0 °dH / 1,0-20,0°dH  |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Indicators</b><br>Limit values on page 47 | TH 2005, TH 2025, TH 2100,<br>TH 2250  | TC 2050, TC 2100   |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>• freely selectable hardness unit: °dH, °f, ppm CaCO<sub>3</sub> or mmol/l</li> <li>• high measurement accuracy thanks to precise piston dosing pump</li> <li>• two independent limit values (choice of 1, 2, or 3 bad analyses before the limit value relay switches) and adjustable switching functions</li> <li>• reliable, low-maintenance operation</li> <li>• very simple menu-driven operation and programming via plain-text display</li> <li>• two neutral changeover contacts</li> <li>• error message output (neutral changeover)</li> <li>• current output 0/4–20 mA</li> <li>• BOB function</li> </ul> | <ul style="list-style-type: none"> <li>• Offering all the benefits of the Testomat ECO®</li> </ul> <p>deviating from this:</p> <ul style="list-style-type: none"> <li>• determinable measuring of carbonate hardness/acid capacity in mmol/l via indicator selection</li> <li>• no BOB function</li> </ul> |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Application</b>                           | <p>monitoring and control of water quality, e.g.:</p> <ul style="list-style-type: none"> <li>• water treatment plants</li> <li>• drinking water plants</li> </ul>  | <p>monitoring and control of water quality, e.g.:</p> <ul style="list-style-type: none"> <li>• water treatment plants</li> <li>• drinking water plants</li> <li>• Swimming pool water automatic hardness increase of swimming pool water via online analysis (application page 9)</li> </ul>               |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Protection type/class</b>                 | IP65 / I   | IP65 / I   |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Supply voltage</b>                        | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz  | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz  |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Power consumption</b>                     | max. 30 VA   | max. 30 VA   |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Dimensions</b>                            | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)  | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)  |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Weight</b>                                | approx. 19.8 lbs (9.0 kg)  | approx. 20.9 lbs (9.5 kg)  |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)  | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)  |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Menu languages</b>                        | German, English, French, Italian,<br>Polish, Dutch, Spanish  | German, English, French,<br>Dutch  |        |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| <b>Order numbers</b>                         | <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td></td> <td>100112</td> <td>100117</td> <td>100122</td> </tr> <tr> <td>without front sticker</td> <td>100430</td> <td>100431</td> <td>100432</td> </tr> </tbody> </table>  |  | 24V    | 115 V | 230 V |  | 100112 | 100117 | 100122 | without front sticker | 100430 | 100431 | 100432 | <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td></td> <td>100115</td> <td>100116</td> <td>100121</td> </tr> </tbody> </table> |  | 24V | 115 V | 230 V |  | 100115 | 100116 | 100121 |
|  | 24V  | 115 V  | 230 V  |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
|  | 100112   | 100117   | 100122 |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
| without front sticker                        | 100430   | 100431   | 100432 |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
|  | 24V  | 115 V  | 230 V  |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |
|  | 100115   | 100116   | 100121 |       |       |  |        |        |        |                       |        |        |        |   |  |     |       |       |  |        |        |        |

Testomat® EVO TH

Testomat® EVO TH CAL



|  |   |   |              |                    |
|--|---|---|--------------|--------------------|
| <b>Description</b>                           | automatic online analysis units for water hardness  | Online-Analysenautomat für Wasserhärte mit Kalibrierfunktion  |              |                    |
| <b>Parameters</b>                            | Water hardness  | Water hardness  |              |                    |
| <b>Measuring range</b>                       | 0,05-25 °dH   | 0,05-25 °dH   |              |                    |
| <b>Indicators</b><br>Limit values on page 47 | TH 2005, TH 2025, TH 2100, TH 2250  | TH 2005, TH 2025, TH 2100, TH 2250  |              |                    |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>• Offering all the benefits of the Testomat ECO®</li> </ul> in addition: <ul style="list-style-type: none"> <li>• built-in SD card for                             <ul style="list-style-type: none"> <li>– recording data, alarm, errors</li> <li>– firmware updates</li> <li>– importing and exporting settings</li> </ul> </li> <li>• transfer of measurement data and status via the RS232 port</li> <li>• there is also scope to connect a field bus converter or a converter for telecommunication networks</li> <li>• Operation &lt;0.3 bar with MepuClip®</li> </ul> | <ul style="list-style-type: none"> <li>• Offering all the benefits of the Testomat® EVO TH</li> </ul> in addition: <ul style="list-style-type: none"> <li>• with calibration function</li> </ul>                                  |              |                    |
| <b>Application</b>                           | Monitoring and checking of water quality e.g.: <ul style="list-style-type: none"> <li>• water treatment facilities</li> <li>• industrial boilers</li> <li>• process water monitoring</li> <li>• drinking water systems</li> </ul>   | Monitoring and checking of water quality e.g.: <ul style="list-style-type: none"> <li>• water treatment facilities</li> <li>• industrial boilers</li> <li>• process water monitoring</li> <li>• drinking water systems</li> </ul> |              |                    |
| <b>Protection type/class</b>                 | IP44 / I  | IP44 / I  |              |                    |
| <b>Supply voltage</b>                        | 100-240 VAC/ 100-353 VDC  | 100-240 VAC/ 100-353 VDC  |              |                    |
| <b>Power consumption</b>                     | max. 30 VA  | max. 30 VA  |              |                    |
| <b>Dimensions</b>                            | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)   | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)   |              |                    |
| <b>Weight</b>                                | approx. 19.8 lbs (9,0 kg)   | approx. 19.8 lbs (9,0 kg)   |              |                    |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or 4.4 to 14.5 psi (0.3 to 1 bar)  | 14.5 to 116 psi (1 to 8 bar) or 4.4 to 14.5 psi (0.3 to 1 bar)  |              |                    |
| <b>Menu languages</b>                        | German, English, French, Dutch, Spanish (more upon request)   | German, English, French, Dutch, Spanish (more upon request)   |              |                    |
| <b>Order numbers</b>                         |   |   |              |                    |
|  |   |   |              |                    |
|  | <b>24V</b>  | <b>100-240 VAC</b>  | <b>24V</b>   | <b>100-240 VAC</b> |
| housing black                                | upon request  | 100701  | upon request | upon request       |
| housing blue                                 | upon request  | 100704  | upon request | 100712             |







|  |  |                    |              |              |
|--|--|--------------------|--------------|--------------|
| <b>Description</b>                           | automatic online analysis units for water hardness   |                    |              |              |
| <b>Parameters</b>                            | water hardness, carbonate hardness, p-value, minus m-value   |                    |              |              |
| <b>Measuring range</b>                       | 0,05-25 °dH  | water hardness     |              |              |
|  | 0,5-20 °dH   | carbonate hardness |              |              |
|  | 0,1-15 mmol/l  | p-value            |              |              |
|  | 0,05-0,5 mmol/l  | minus m-value      |              |              |
| <b>Indicators</b><br>Limit values on page 47 | TH 2005, TH 2025, TH 2100, TH 2250<br>TC 2050, TC 2100, TM 2005, TP 2010, TP 2100  |                    |              |              |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>• freely selectable hardness unit: °dH, °f, ppm CaCO<sub>3</sub>, or mmol/l</li> <li>• high measurement accuracy thanks to precise piston dosing pump</li> <li>• monitoring of two measuring points (switching via external magnet valves)</li> <li>• reliable, low-maintenance operation</li> <li>• very simple menu-driven operation and programming via plain-text display</li> </ul> <ul style="list-style-type: none"> <li>• BOB function</li> <li>• two independently programmable limit value contacts for monitoring and control tasks</li> <li>• recording of analysis results with optional plug-in card (SK910 current interface) for a point or line recorder (0/4–20 mA), SD card, or printer</li> </ul> |                    |              |              |
| <b>Application</b>                           | <ul style="list-style-type: none"> <li>• water treatment plants</li> <li>• water blending plants</li> <li>• drinking water plants</li> <li>• water softening plants</li> </ul> <ul style="list-style-type: none"> <li>• decarbonization plants</li> <li>• desalination plants</li> <li>• boiler houses</li> <li>• cooling towers</li> </ul>  |                    |              |              |
| <b>Protection type/class</b>                 | IP65 / I   |                    |              |              |
| <b>Supply voltage</b>                        | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz  |                    |              |              |
| <b>Power consumption</b>                     | max. 30 VA   |                    |              |              |
| <b>Dimensions</b>                            | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)  |                    |              |              |
| <b>Weight</b>                                | approx. 20.9 lbs (9.5 kg)  |                    |              |              |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar)<br>or<br>4.4 to 14.5 psi (0.3 to 1 bar)   |                    |              |              |
| <b>Menu languages</b>                        | German, English, French, Italian, Polish, Dutch  |                    |              |              |
| <b>Order numbers</b>                         |  | <b>24V</b>         | <b>115 V</b> | <b>230 V</b> |
|  | German   | 100090             | 100100       | 100095       |
|  | German without front sticker   | 100420             | 100421       | 100422       |
|  | English  | 100091             | 100101       | 100096       |
|  | French   | 100092             | 100102       | 100097       |
|  | Italian  | 100093             | 100103       | 100098       |
|  | Polish   | 100094             | 100104       | 100099       |
|  | Dutch  | 100011             | 100012       | 100013       |
|  | Spanish  | 100014             | 100015       | 100016       |



Testomat 2000® Antox

Testomat 2000® CAL

|  |   |                    |              |  |                    |              |              |
|--|---|--------------------|--------------|--|--------------------|--------------|--------------|
|  |    |                    |              |   |                    |              |              |
| <b>Description</b>                           | automatic online analysis units for hardness of water with elevated chlorine or H <sub>2</sub> O <sub>2</sub> content   |                    |              | automatic online analysis unit for water hardness with additional calibration function   |                    |              |              |
| <b>Parameters</b>                            | water hardness, carbonate hardness, p-value, minus m-value  |                    |              | water hardness, carbonate hardness, p-value, minus m-value   |                    |              |              |
| <b>Measuring range</b>                       | 0,05-25 °dH   | water hardness     |              | 0,05-25 °dH  | water hardness     |              |              |
|  | 0,5-20 °dH  | carbonate hardness |              | 0,5-20 °dH   | carbonate hardness |              |              |
|  | 0,1-15 mmol/l   | p-value            |              | 0,1-15 mmol/l  | p-value            |              |              |
|  | 0,05-0,5 mmol/l   | minus m-value      |              | 0,05-0,5 mmol/l  | minus m-value      |              |              |
| <b>Indicators</b><br>Limit values on page 47 | TH 2005, TH 2025, TH 2100, TH 2250, TC 2050, TC 2100, TM 2005, TP 2010, TP 2100   |                    |              | TH 2005, TH 2025, TH 2100, TH 2250, TC 2050, TC 2100, TM 2005, TP 2010, TP 2100  |                    |              |              |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000® in addition:</li> <li>pump for dosing a reducing agent<br/>By adding the Antox solution before determining the hardness, the interference by oxidising agents (for example chlorine) is reliably eliminated up to a concentration of 10 mg/l (Antox solution, see page 45).</li> </ul> |                    |              | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000® in addition:</li> <li>with calibration function</li> </ul>                        |                    |              |              |
| <b>Application</b>                           | <ul style="list-style-type: none"> <li>control of water quality in areas where measurement errors can arise due to oxidizing agents</li> </ul>  |                    |              | control of water quality for which calibration of the measuring instrument is important, e.g.: <ul style="list-style-type: none"> <li>pharmaceutical industry</li> </ul> |                    |              |              |
| <b>Protection type/class</b>                 | IP65 / I  |                    |              | IP65 / I   |                    |              |              |
| <b>Supply voltage</b>                        | 230–240 VAC, 115 VAC, 24 VAC all 50–60Hz  |                    |              | 230–240 VAC, 115 VAC, 24 VAC all 50–60Hz   |                    |              |              |
| <b>Power consumption</b>                     | max. 30 VA  |                    |              | max. 30 VA   |                    |              |              |
| <b>Dimensions</b>                            | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)   |                    |              | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)  |                    |              |              |
| <b>Weight</b>                                | approx. 20.9 lbs (9.5 kg)   |                    |              | approx. 20.9 lbs (9.5 kg)  |                    |              |              |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar)<br>or<br>4.4 to 14.5 psi (0.3 to 1 bar)  |                    |              | 14.5 to 116 psi (1 to 8 bar)<br>or<br>4.4 to 14.5 psi (0.3 to 1 bar)   |                    |              |              |
| <b>Menu languages</b>                        | German, English   |                    |              | German, English, French, Italian, Dutch  |                    |              |              |
| <b>Order numbers</b>                         |   | <b>24V</b>         | <b>115 V</b> | <b>230 V</b>   | <b>24V</b>         | <b>115 V</b> | <b>230 V</b> |
|  | German  | 100440             | 100450       | 100460   | 100210             | 100215       | 100220       |
|  | English   | 100441             | 100451       | 100461   | 100211             | 100216       | 100221       |
|  | French  |                    |              |  | 100212             | 100217       | 100222       |
|  | Italian   |                    |              |  | 100213             | 100218       | 100223       |
|  | Dutch   |                    |              |  | 100214             | 100219       | 100224       |

| Product                                      | Testomat 2000® self clean   | Testomat 2000® V   |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
|--|---|--|--------|-------|-------|--------|--------|--------|--------|------------------------------|---|---|--------|---------|--------|--------|--------|--------|--------|--------|--------|---------|--|--|--|--|--|-----|-------|-------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|
|  |    |   |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Description</b>                           | automatic online analysis units for water hardness with cleaning function for difficult water   | automatic online analysis unit for water hardness for regulating blending water  |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Parameters</b>                            | water hardness, carbonate hardness, p-value, minus m-value  | Water hardness, Carbonate hardness   |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Measuring range</b>                       | 0,05-25 °dH      water hardness<br>0,5-20 °dH      carbonate hardness<br>0,1-15 mmol/l    p-value<br>0,05-0,5 mmol/l   minus m-value  | 1,0–25,0 °dH      water hardness<br>1,0–20,0 °dH      carbonate hardness   |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Indicators</b><br>Limit values on page 47 | TH 2005, TH 2025, TH 2100,<br>TH 2250, TC 2050, TC 2100,<br>TM 2005, TP 2010, TP 2100   | TH 2005, TH 2025, TH 2100,<br>TH 2250, TC 2050, TC 2100,   |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000®</li> </ul> <p>in addition:</p> <ul style="list-style-type: none"> <li>with dosing pump for dosing our cleaning agent for cleaning the measuring chamber after analysis<br/>For the cleaning solution see page 40</li> </ul>  | <p>Offering all the benefits of the Testomat 2000®</p> <p>in addition:</p> <ul style="list-style-type: none"> <li>suitable in connection with a 3/2-way motor valve with 0/4–20 mA interface as a control system for water hardness and carbonate hardness of blending water</li> <li>the selection of the reagent determines the working range of the controller (= measuring range)</li> </ul> |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Application</b>                           | <ul style="list-style-type: none"> <li>use for difficult water, e.g. calcium, biofims, various other deposits</li> <li>extending service life</li> <li>reducing contamination in the measuring chamber</li> </ul>   | <ul style="list-style-type: none"> <li>regulation of water blending systems (cooling circuits, process water)</li> </ul>   |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Protection type/class</b>                 | IP65 / I  | IP65 / I   |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Supply voltage</b>                        | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz   | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz  |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Power consumption</b>                     | max. 30 VA  | max. 30 VA   |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Dimensions</b>                            | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)   | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)  |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Weight</b>                                | approx. 20.9 lbs (9.5 kg)   | approx. 20.9 lbs (9.5 kg)  |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)   | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)  |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Menu languages</b>                        | German, English, French   | German, English, French,<br>Italian  |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| <b>Order numbers</b>                         | <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>German</td> <td>100380</td> <td>100390</td> <td>100370</td> </tr> <tr> <td>German without front sticker</td> <td>—</td> <td>—</td> <td>100365</td> </tr> <tr> <td>English</td> <td>100381</td> <td>100391</td> <td>100371</td> </tr> <tr> <td>French</td> <td>100382</td> <td>100392</td> <td>100372</td> </tr> <tr> <td>Italian</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> |  | 24V    | 115 V | 230 V | German | 100380 | 100390 | 100370 | German without front sticker | — | — | 100365 | English | 100381 | 100391 | 100371 | French | 100382 | 100392 | 100372 | Italian |  |  |  | <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>German</td> <td>100170</td> <td>100175</td> <td>100180</td> </tr> <tr> <td>English</td> <td>100171</td> <td>100176</td> <td>100181</td> </tr> <tr> <td>French</td> <td>100172</td> <td>100177</td> <td>100182</td> </tr> <tr> <td>Italian</td> <td>100173</td> <td>100178</td> <td>100183</td> </tr> </tbody> </table> |  | 24V | 115 V | 230 V | German | 100170 | 100175 | 100180 | English | 100171 | 100176 | 100181 | French | 100172 | 100177 | 100182 | Italian | 100173 | 100178 | 100183 |
|  | 24V   | 115 V  | 230 V  |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| German                                       | 100380  | 100390   | 100370 |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| German without front sticker                 | —   | —  | 100365 |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| English                                      | 100381  | 100391   | 100371 |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| French                                       | 100382  | 100392   | 100372 |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| Italian                                      |   |  |        |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
|  | 24V   | 115 V  | 230 V  |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| German                                       | 100170  | 100175   | 100180 |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| English                                      | 100171  | 100176   | 100181 |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| French                                       | 100172  | 100177   | 100182 |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |
| Italian                                      | 100173  | 100178   | 100183 |       |       |        |        |        |        |                              |   |   |        |         |        |        |        |        |        |        |        |         |  |  |  |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |         |        |        |        |

**Testomat 2000® DUO**

**Testomat 2000® DUO CN**

**Testomat 2000® CN**



automatic online analysis units for water hardness for monitoring two measuring points

automatic online analysis units for water hardness for monitoring two measuring points for the Chinese market

automatic online analysis unit for water hardness for the Chinese market, with Chinese menu navigation

water hardness, carbonate hardness, p-value, minus m-value

water hardness, carbonate hardness, p-value, minus m-value

water hardness, carbonate hardness, p-value, minus m-value

0,05-25 °dH      water hardness  
0,5-20 °dH      carbonate hardness  
0,1-15 mmol/l    p-value  
0,05-0,5 mmol/l    minus m-value

0,05-25 °dH      water hardness  
0,5-20 °dH      carbonate hardness  
0,1-15 mmol/l    p-value  
0,05-0,5 mmol/l    minus m-value

0,05-25 °dH      water hardness  
0,5-20 °dH      carbonate hardness  
0,1-15 mmol/l    p-value  
0,05-0,5 mmol/l    minus m-value

TH 2005, TH 2025, TH 2100,  
TH 2250, TC 2050, TC 2100,  
TM 2005, TP 2010, TP 2100

TH 2005, TH 2025, TH 2100,  
TH 2250, TC 2050, TC 2100,  
TM 2005, TP 2010, TP 2100

TH 2005, TH 2025, TH 2100,  
TH 2250, TC 2050, TC 2100,  
TM 2005, TP 2010, TP 2100

- Offering all the benefits of the Testomat 2000® in addition:
- monitoring of two different measuring points with different indicator types, e.g. water hardness with different measurement ranges or water hardness and carbonate hardness
- automatic switching between measuring points
- one input available for limiting measuring point 1

- Offering all the benefits of the Testomat 2000® DUO in addition:
- Chinese menu navigation for the Asian market

- Offering all the benefits of the Testomat 2000® in addition:
- Chinese menu navigation for the Asian market

- use in two circuits with different hardnesses
- measurement of inlet and outlet hardness

- use in two circuits with different hardnesses
- measurement of inlet and outlet hardness

- the same areas of application such as Testomat 2000®

IP65 / I

IP65 / I

IP65 / I

230–240 VAC, 115 VAC, 24 VAC  
all 50–60Hz

230–240 VAC, 115 VAC, 24 VAC  
all 50–60Hz

230–240 VAC, 115 VAC, 24 VAC  
all 50–60Hz

max. 30 VA

max. 30 VA

max. 30 VA

approx. 15" x 18.9" x 11"  
380 x 480 x 280 mm (W x H x D)

approx. 15" x 18.9" x 11"  
380 x 480 x 280 mm (W x H x D)

approx. 15" x 18.9" x 11"  
380 x 480 x 280 mm (W x H x D)

approx. 20.9 lbs (9.5 kg)

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14.5 to 116 psi (1 to 8 bar) or  
4.4 to 14.5 psi (0.3 to 1 bar)

14.5 to 116 psi (1 to 8 bar) or  
4.4 to 14.5 psi (0.3 to 1 bar)



14.5 to 116 psi (1 to 8 bar) or  
4.4 to 14.5 psi (0.3 to 1 bar)

German, English, French,  
Italian, Polish

Mandarin and English

Mandarin and English

|         | 24V    | 115 V  | 230 V  |          | 24V    | 115 V  | 230 V  |                                      | 230 V  |
|---------|--------|--------|--------|----------|--------|--------|--------|--------------------------------------|--------|
| German  | 100290 | 100295 | 100300 | Mandarin | 110219 | 110220 | 110221 | Mandarin incl. SD card data logger   | 110212 |
| English | 100291 | 100296 | 100301 |          |        |        |        | Mandarin without SD card data logger | 110215 |
| French  | 100292 | 100297 | 100302 |          |        |        |        |                                      |        |
| Italian | 100293 | 100298 | 100303 |          |        |        |        |                                      |        |
| Polish  | 100294 | 100299 | 100304 |          |        |        |        |                                      |        |

| Product                                      | Testomat 2000® THCL  | Testomat 2000® CLO2   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
|--|--|---|--------|-------|-------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--|--|-----|-------|-------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|
|  |   |    |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Description</b>                           | automatic online analysis unit for determining total chlorine and water hardness   | automatic online analysis unit for determining chlorine dioxide content   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Parameters</b>                            | total chlorine<br>water hardness   | chlorine dioxide ClO <sub>2</sub>   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Measuring range (resolution)</b>          | 0,00-0,99 mg/l (0,01)<br>1,0-2,5 mg/l (0,1)<br>0,25-2,5°dH (0,05) } total chlorine<br>water hardness   | 0,00-1,88 mg/l (0,02)<br>1,9-4,7 mg/l (0,2)   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Indicators</b><br>Limit values on page 48 | TH 2025,<br>CL 2250 A, CL 2250 B, CL 2250 C  | CLO2 reagent set A and B  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000®</li> <li>in addition:</li> <li>combination of total chlorine and hardness measuring instrument</li> </ul>   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000®</li> <li>in addition:</li> <li>the analysis result is displayed after a reaction time of approx. one minute</li> </ul> |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Application</b>                           | <ul style="list-style-type: none"> <li>medical technology (dialysis)</li> <li>corrosion protection</li> <li>protection for reverse osmosis membranes</li> <li>monitoring of softener and chlorination systems for drinking water or swimming pools</li> </ul>  | <ul style="list-style-type: none"> <li>disinfectant monitoring for drinking water and process water</li> </ul>  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Protection type/class</b>                 | IP65 / I   | IP65 / I  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Supply voltage</b>                        | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz  | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Power consumption</b>                     | max. 30 VA   | max. 30 VA  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Dimensions</b>                            | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)  | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Weight</b>                                | approx. 20.9 lbs (9.5 kg)  | approx. 20.9 lbs (9.5 kg)   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)  | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Menu languages</b>                        | German, English, French  | German, English, French   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Order numbers</b>                         | <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>German</td> <td>100270</td> <td>100275</td> <td>100280</td> </tr> <tr> <td>English</td> <td>100271</td> <td>100276</td> <td>100281</td> </tr> <tr> <td>French</td> <td>100272</td> <td>100277</td> <td>100282</td> </tr> </tbody> </table> |   | 24V    | 115 V | 230 V | German | 100270 | 100275 | 100280 | English | 100271 | 100276 | 100281 | French | 100272 | 100277 | 100282 | <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>German</td> <td>100500</td> <td>100505</td> <td>100510</td> </tr> <tr> <td>English</td> <td>100501</td> <td>100506</td> <td>100511</td> </tr> <tr> <td>French</td> <td>100502</td> <td>100507</td> <td>100512</td> </tr> </tbody> </table> |  | 24V | 115 V | 230 V | German | 100500 | 100505 | 100510 | English | 100501 | 100506 | 100511 | French | 100502 | 100507 | 100512 |
|  | 24V  | 115 V   | 230 V  |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| German                                       | 100270   | 100275  | 100280 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| English                                      | 100271   | 100276  | 100281 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| French                                       | 100272   | 100277  | 100282 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
|  | 24V  | 115 V   | 230 V  |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| German                                       | 100500   | 100505  | 100510 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| English                                      | 100501   | 100506  | 100511 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| French                                       | 100502   | 100507  | 100512 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |



**Testomat 2000® CLF**

**Testomat 2000® CLT**

**Testomat 2000® CLT  
self clean**



automatic online analysis unit for determining chlorine content

automatic online analysis unit for determining chlorine content

automatic online analysis unit for determining chlorine content with cleaning function for difficult water

free chlorine

total chlorine or free chlorine

total chlorine

0,00-0,99 mg/l (0,01)  
1,0-2,5 mg/l (0,1)

total chlorine or free chlorine  
0,00-0,99 mg/l 0,00-0,99 mg/l  
1,0-2,5 mg/l 1,0-2,5 mg/l

0,00-0,99 mg/l (0,01)  
1,0-2,5 mg/l (0,1)

CL 2250 A, CL 2250 B

CL 2250 A, CL 2250 B, CL 2250 C

CL 2250 A, CL 2250 B, CL 2250 C

- Offering all the benefits of the Testomat 2000®
- in addition:
- the analysis result is displayed after a reaction time of approx. one minute

- Offering all the benefits of the Testomat 2000®
- in addition:
- the analysis result is displayed after a reaction time of approx. one minute
- can be converted for CLF (free chlorine)

- Offering all the benefits of the Testomat 2000®
- in addition:
- the analysis result is displayed after a reaction time of approx. one minute
- with dosing pump for dosing our cleaning agent for cleaning the measuring chamber after analysis (see page 39)

- monitoring of chlorination systems for drinking water/swimming pool water
- protection for reverse osmosis membranes
- monitoring of biocides and conditioning agents containing chlorine

- monitoring of chlorination systems for drinking water/swimming pool water
- protection for reverse osmosis membranes
- monitoring of biocides and conditioning agents containing chlorine

- disinfectant monitoring for drinking water and process water
- medical technology (dialysis)

IP65 / I

IP65 / I

IP65 / I

230–240 VAC, 115 VAC, 24 VAC  
all 50–60Hz

230–240 VAC, 115 VAC, 24 VAC  
all 50–60Hz

230–240 VAC, 115 VAC, 24 VAC  
all 50–60Hz

max. 30 VA

max. 30 VA

max. 30 VA

approx. 15" x 18.9" x 11"  
380 x 480 x 280 mm (W x H x D)

approx. 15" x 18.9" x 11"  
380 x 480 x 280 mm (W x H x D)

approx. 15" x 18.9" x 11"  
380 x 480 x 280 mm (W x H x D)

approx. 20.9 lbs (9.5 kg)

approx. 20.9 lbs (9.5 kg)

approx. 20.9 lbs (9.5 kg)

14.5 to 116 psi (1 to 8 bar) or  
4.4 to 14.5 psi (0.3 to 1 bar)

14.5 to 116 psi (1 to 8 bar) or  
4.4 to 14.5 psi (0.3 to 1 bar)



14.5 to 116 psi (1 to 8 bar) or  
4.4 to 14.5 psi (0.3 to 1 bar)

German, English, French,

German, English, French,

German, English, French

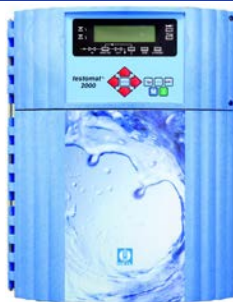
|         | 24V    | 115 V  | 230 V  | 24V    | 115 V  | 230 V  | 24V          | 115 V        | 230 V  |
|---------|--------|--------|--------|--------|--------|--------|--------------|--------------|--------|
| German  | 100230 | 100235 | 100240 | 100130 | 100135 | 100140 | upon request | upon request | 100245 |
| English | 100231 | 100236 | 100241 | 100131 | 100136 | 100141 | upon request | 100256       | 100246 |
| French  | 100232 | 100237 | 100242 | 100132 | 100137 | 100142 | upon request | upon request | 100247 |

| Product                                      | Testomat 2000® Br   | Testomat 2000® CrVI<br>Testomat 2000® CrVI 0-5ppm  |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
|--|---|--|-------------|----------|----------|--------|--------|------------------------|-------------|-------------|----------------|------------------------|--------------|-------------|--------|--------|--------|---|------|-----|-------|-------|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|---------|---------|--------|---------|---------|--------|---------|---------|---------|
|  |    |   |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Description</b>                           | automatic online analysis unit for determining bromine content  | automatic online analysis unit for determining chromate or chromium VI content   |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Parameters</b>                            | bromine Br <sub>2</sub>   | chromate (CrO <sub>4</sub> <sup>2-</sup> ) or chromium VI (CrVI)   |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Measuring range (resolution)</b>          | 0,00-2.23 mg/l and 2.3-5.6 mg/l   | <table border="1"> <thead> <tr> <th>Type</th> <th>Chromate</th> <th>Chromium</th> <th>resol.</th> </tr> </thead> <tbody> <tr> <td>CrVI</td> <td>0,00 - 0,99<br/>1,0-2,0</td> <td>0,00 - 0,99</td> <td>0,01<br/>0,1</td> </tr> <tr> <td>CrVI<br/>0-5ppm</td> <td>0,0-4,0<br/>4,00 - 5,00</td> <td>0,00 - 11,15</td> <td>0,1<br/>0,25</td> </tr> </tbody> </table> | Type        | Chromate | Chromium | resol. | CrVI   | 0,00 - 0,99<br>1,0-2,0 | 0,00 - 0,99 | 0,01<br>0,1 | CrVI<br>0-5ppm | 0,0-4,0<br>4,00 - 5,00 | 0,00 - 11,15 | 0,1<br>0,25 |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| Type   | Chromate  | Chromium   | resol.      |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| CrVI   | 0,00 - 0,99<br>1,0-2,0  | 0,00 - 0,99  | 0,01<br>0,1 |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| CrVI<br>0-5ppm                               | 0,0-4,0<br>4,00 - 5,00  | 0,00 - 11,15   | 0,1<br>0,25 |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Indicators</b><br>Limit values on page 48 | bromine reagent set   | CrVI 2100 A, CrVI 2100 B   |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000®</li> <li>in addition:</li> <li>the analysis result is displayed after a reaction time of approx. one minute</li> </ul>   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000®</li> <li>in addition:</li> <li>the analysis result is displayed after a reaction time of approx. 2 to 3 minutes</li> </ul>  |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Application</b>                           | <ul style="list-style-type: none"> <li>monitoring the dosing of disinfectant</li> </ul>   | <ul style="list-style-type: none"> <li>monitoring of chromate content waste water in galvanization plants</li> <li>control of waste water in the metalworking industry</li> </ul> <p>Application example on page 11</p>  |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Protection type/class</b>                 | IP65 / I  | IP65 / I   |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Supply voltage</b>                        | 230–240 VAC, 115 VAC, 24 VAC all 50–60Hz  | 230–240 VAC, 115 VAC, 24 VAC all 50–60Hz   |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Power consumption</b>                     | max. 30 VA  | max. 30 VA   |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Dimensions</b>                            | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)   | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)  |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Weight</b>                                | approx. 20.9 lbs (9.5 kg)   | approx. 20.9 lbs (9.5 kg)  |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or 4.4 to 14.5 psi (0.3 to 1 bar)  | 14.5 to 116 psi (1 to 8 bar) or 4.4 to 14.5 psi (0.3 to 1 bar)   |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Menu languages</b>                        | German, English, French   | German, English, French,   |             |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| <b>Order numbers</b>                         | <table border="1"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>German</td> <td>100520</td> <td>100525</td> <td>100530</td> </tr> <tr> <td>English</td> <td>100521</td> <td>100526</td> <td>100531</td> </tr> <tr> <td>French</td> <td>100522</td> <td>100527</td> <td>100532</td> </tr> </tbody> </table> |  | 24V         | 115 V    | 230 V    | German | 100520 | 100525                 | 100530      | English     | 100521         | 100526                 | 100531       | French      | 100522 | 100527 | 100532 | <table border="1"> <thead> <tr> <th>Type</th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td rowspan="3">CrVI</td> <td>100310</td> <td>100315</td> <td>100320</td> </tr> <tr> <td>100311</td> <td>100316</td> <td>100321</td> </tr> <tr> <td>100312</td> <td>100317</td> <td>100322</td> </tr> <tr> <td rowspan="3">CrVI<br/>0-5ppm</td> <td>request</td> <td>request</td> <td>100640</td> </tr> <tr> <td>request</td> <td>request</td> <td>100641</td> </tr> <tr> <td>request</td> <td>request</td> <td>request</td> </tr> </tbody> </table> | Type | 24V | 115 V | 230 V | CrVI | 100310 | 100315 | 100320 | 100311 | 100316 | 100321 | 100312 | 100317 | 100322 | CrVI<br>0-5ppm | request | request | 100640 | request | request | 100641 | request | request | request |
|  | 24V   | 115 V  | 230 V       |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| German                                       | 100520  | 100525   | 100530      |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| English                                      | 100521  | 100526   | 100531      |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| French                                       | 100522  | 100527   | 100532      |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| Type   | 24V   | 115 V  | 230 V       |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| CrVI   | 100310  | 100315   | 100320      |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
|  | 100311  | 100316   | 100321      |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
|  | 100312  | 100317   | 100322      |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
| CrVI<br>0-5ppm                               | request   | request  | 100640      |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
|  | request   | request  | 100641      |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |
|  | request   | request  | request     |          |          |        |        |                        |             |             |                |                        |              |             |        |        |        |   |      |     |       |       |      |        |        |        |        |        |        |        |        |        |                |         |         |        |         |         |        |         |         |         |

Testomat 2000® Fe

Testomat 2000® PO4

Testomat 2000® Polymer



enhanced



automatic online analysis unit for determining iron content

automatic online analysis unit for determining phosphate content

automatic online analysis unit for determining polyacrylate content

iron (Fe (II), Fe (III))

phosphate PO<sub>4</sub>

anionic polyacrylates

0,00-0,65 mg/l and  
0,7-1,0 mg/l

0,0 - 7,0 mg/l (0,1)  
7,0 - 10,0 mg/l (0,25)

customer-specific, e.g.  
0,0-50,0 mg/l

FE 2005 A, FE 2005 B

PO4 reagent set 2100

It is necessary to customize the Testomat 2000® Polymer because of the large amount of polyacrylates, which can be measured with this unit. Either use your existing reagents or use our polymer reagents.

- Offering all the benefits of the Testomat 2000®
- in addition:
- the analysis result is displayed after a reaction time of approx. 7 minutes

- Offering all the benefits of the Testomat 2000®
- in addition:
- the analysis result is displayed after a reaction time of approx. 10 minutes
- choose between the 500 ml bottles or the large reagent containers (20 and 5 litre containers)

- Offering all the benefits of the Testomat 2000®
- in addition:
- the analysis result is displayed after a reaction time of approx. 7 minutes
- scaling factor adjustable from 0.01 to 99,99 to accommodate the reagents used

- monitoring of systems for removing iron from well water
- controlling industrial or drinking water

- monitoring of process water
- conditioning of production water
- treated wastewater (sewage treatment plants, biogas plants)
- online – environmental analysis

- monitoring of conditioning agents in cooling and heating circuits

Application example on page 10

IP65 / I

IP65 / I

IP65 / I

230–240 VAC, 115 VAC, 24 VAC  
all 50–60Hz

230–240 VAC, 115 VAC, 24 VAC  
all 50–60Hz

230–240 VAC, 115 VAC, 24 VAC  
all 50–60Hz

max. 30 VA

max. 30 VA

max. 30 VA

approx. 15" x 18.9" x 11"  
380 x 480 x 280 mm (W x H x D)

approx. 15" x 18.9" x 11"  
380 x 480 x 280 mm (W x H x D)

approx. 15" x 18.9" x 11"  
380 x 480 x 280 mm (W x H x D)

approx. 20.9 lbs (9.5 kg)

approx. 20.9 lbs (9.5 kg)

approx. 20.9 lbs (9.5 kg)

14.5 to 116 psi (1 to 8 bar) or  
4.4 to 14.5 psi (0.3 to 1 bar)

14.5 to 116 psi (1 to 8 bar) or  
4.4 to 14.5 psi (0.3 to 1 bar)

14.5 to 116 psi (1 to 8 bar) or  
4.4 to 14.5 psi (0.3 to 1 bar)

German, English, French, Dutch,  
Italian, Polish


German, English, French, Dutch,  
Spanish

German, English, French

|         | 24V    | 115 V  | 230 V  | 24V    | 115 V        | 230 V        | 24V          | 115 V        | 230 V  |
|---------|--------|--------|--------|--------|--------------|--------------|--------------|--------------|--------|
| German  | 100150 | 100155 | 100160 | 100560 | 100565       | 100570       | upon request | upon request | 100470 |
| English | 100151 | 100156 | 100161 | 100561 | 100566       | 100571       | upon request | 100472       | 100473 |
| French  | 100152 | 100157 | 100162 | 100562 | 100567       | 100572       | upon request | upon request | 100471 |
| Italian | 100153 | 100158 | 100163 | —      | —            | —            |              |              |        |
| Polish  | 100154 | 100159 | 100164 | —      | —            | —            |              |              |        |
| Dutch.  | 100186 | 100187 | 100188 | 100563 | upon request | 100573       |              |              |        |
| Spanish | —      | —      | —      | 100564 | 100568       | upon request |              |              |        |



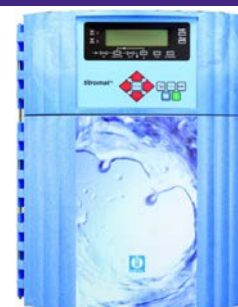
| <b>Description</b>                           | automatic online analysis unit for determining sulfite content   |  |        |     |       |       |        |        |        |        |         |        |        |        |
|--|--|--|--------|-----|-------|-------|--------|--------|--------|--------|---------|--------|--------|--------|
| <b>Parameters</b>                            | sulfite SO <sub>3</sub> <sup>2-</sup>  |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Measuring range (resolution)</b>          | 0,0-5 mg/l (0,1)<br>5 - 10 mg/l (0,5)<br>10-50 mg/l (1)  |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Indicators</b><br>Limit values on page 48 | Sulfite reagent A<br>Sulfite reagent B   |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000®</li> </ul> in addition: <ul style="list-style-type: none"> <li>the analysis result is displayed after a reaction time of approx. 3 minutes</li> </ul> |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Application</b>                           | <ul style="list-style-type: none"> <li>monitoring of boiler feed water in steam boiler systems (sulfite for oxygen binding)</li> </ul> Application example on page 4   |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Protection type/class</b>                 | IP65 / I   |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Supply voltage</b>                        | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz  |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Power consumption</b>                     | max. 30 VA   |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Dimensions</b>                            | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)  |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Weight</b>                                | approx. 9,5 kg   |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)  |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Menu languages</b>                        | German, English  |  |        |     |       |       |        |        |        |        |         |        |        |        |
| <b>Order numbers</b>                         |  |  |        |     |       |       |        |        |        |        |         |        |        |        |
|  |  | <table border="1"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>German</td> <td>100350</td> <td>100355</td> <td>100360</td> </tr> <tr> <td>English</td> <td>100351</td> <td>100356</td> <td>100361</td> </tr> </tbody> </table> |        | 24V | 115 V | 230 V | German | 100350 | 100355 | 100360 | English | 100351 | 100356 | 100361 |
|  | 24V  | 115 V  | 230 V  |     |       |       |        |        |        |        |         |        |        |        |
| German                                       | 100350   | 100355   | 100360 |     |       |       |        |        |        |        |         |        |        |        |
| English                                      | 100351   | 100356   | 100361 |     |       |       |        |        |        |        |         |        |        |        |

| Product                                      | Titromat® TH   | Titromat® KH  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
|--|--|---|--------|-------|-------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--|--|-----|-------|-------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|
|  |   |    |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Description</b>                           | automatic titration unit for determining water hardness  | automatic titration unit for determining carbonate hardness   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Parameters</b>                            | water hardness   | carbonate hardness  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Measuring range (resolution)</b>          | 2,5-50,0 °dH (2,5)   | 5-150 °KH (5)<br>2-60 °KH (2)   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Indicators</b><br>Limit values on page 47 | TH 2500 reagent A,<br>TH 2500 reagent B  | TC 2150 reagent A,<br>TC 2150 reagent B   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000®</li> </ul>  | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000®</li> <li>special for high hardness measuring ranges</li> </ul> |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Application</b>                           | <ul style="list-style-type: none"> <li>drinking water production and supply,</li> <li>raw water monitoring</li> </ul>  | <ul style="list-style-type: none"> <li>alkalinity of open coolant circuits</li> </ul>   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Protection type/class</b>                 | IP65 / I   | IP65 / I  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Supply voltage</b>                        | 230–240 VAC, 115 VAC, 24 VAC all 50–60Hz   | 230–240 VAC, 115 VAC, 24 VAC all 50–60Hz  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Power consumption</b>                     | max. 30 VA   | max. 30 VA  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Dimensions</b>                            | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)  | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Weight</b>                                | approx. 9,5 kg   | approx. 9,5 kg  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)  | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Menu languages</b>                        | German, English, French  | German, English, French   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Order numbers</b>                         | <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>German</td> <td>110110</td> <td>110115</td> <td>110120</td> </tr> <tr> <td>English</td> <td>110111</td> <td>110116</td> <td>110121</td> </tr> <tr> <td>French</td> <td>110112</td> <td>110117</td> <td>110122</td> </tr> </tbody> </table> |   | 24V    | 115 V | 230 V | German | 110110 | 110115 | 110120 | English | 110111 | 110116 | 110121 | French | 110112 | 110117 | 110122 | <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>German</td> <td>110190</td> <td>110195</td> <td>110200</td> </tr> <tr> <td>English</td> <td>110191</td> <td>110196</td> <td>110201</td> </tr> <tr> <td>French</td> <td>110192</td> <td>110197</td> <td>110202</td> </tr> </tbody> </table> |  | 24V | 115 V | 230 V | German | 110190 | 110195 | 110200 | English | 110191 | 110196 | 110201 | French | 110192 | 110197 | 110202 |
|  | 24V  | 115 V   | 230 V  |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| German                                       | 110110   | 110115  | 110120 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| English                                      | 110111   | 110116  | 110121 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| French                                       | 110112   | 110117  | 110122 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
|  | 24V  | 115 V   | 230 V  |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| German                                       | 110190   | 110195  | 110200 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| English                                      | 110191   | 110196  | 110201 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| French                                       | 110192   | 110197  | 110202 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |  |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |



**Titromat® M1**

**Titromat® M2**









| <b>Description</b>                           | automatic titration unit for determining carbonate hardness   | automatic titration unit for determining carbonate hardness   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
|--|---|---|--------|-------|-------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|---|--|-----|-------|-------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|
| <b>Parameters</b>                            | carbonate hardness (m-value)  | carbonate hardness (m-value)  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Measuring range (resolution)</b>          | 0,05-1,00 °dH (0,025)<br>0,09-1,80 °f (0,045)   | 0,05-2,00 °dH (0,05)<br>0,09-3,60 °f (0,09)   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Indicators</b><br>Limit values on page 47 | TC 2010 reagent A,<br>TC 2010 reagent B   | TC 2020 reagent A,<br>TC 2020 reagent B   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Performance profile</b>                   | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000®</li> <li>special for low hardness measuring ranges</li> </ul>  | <ul style="list-style-type: none"> <li>Offering all the benefits of the Testomat 2000®</li> <li>special for low hardness measuring ranges</li> </ul>              |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Application</b>                           | <ul style="list-style-type: none"> <li>corrosion monitoring in boiler feed water,</li> <li>residual alkalinity after decarbonization (e.g., breweries)</li> </ul>   | <ul style="list-style-type: none"> <li>corrosion monitoring in boiler feed water,</li> <li>residual alkalinity after decarbonization (e.g., breweries)</li> </ul> |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Protection type/class</b>                 | IP65 / I  | IP65 / I  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Supply voltage</b>                        | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz   | 230–240 VAC, 115 VAC, 24 VAC<br>all 50–60Hz   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Power consumption</b>                     | max. 30 VA  | max. 30 VA  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Dimensions</b>                            | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)   | approx. 15" x 18.9" x 11"<br>380 x 480 x 280 mm (W x H x D)   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Weight</b>                                | approx. 9,5 kg  | approx. 9,5 kg  |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Operating pressure</b>                    | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)   | 14.5 to 116 psi (1 to 8 bar) or<br>4.4 to 14.5 psi (0.3 to 1 bar)   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Menu languages</b>                        | German, English, French   | German, English, French   |        |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| <b>Order numbers</b>                         | <table border="1"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>German</td> <td>110150</td> <td>110155</td> <td>110160</td> </tr> <tr> <td>English</td> <td>110151</td> <td>110156</td> <td>110161</td> </tr> <tr> <td>French</td> <td>110152</td> <td>110157</td> <td>110162</td> </tr> </tbody> </table> |   | 24V    | 115 V | 230 V | German | 110150 | 110155 | 110160 | English | 110151 | 110156 | 110161 | French | 110152 | 110157 | 110162 | <table border="1"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>German</td> <td>110130</td> <td>110135</td> <td>110140</td> </tr> <tr> <td>English</td> <td>110131</td> <td>110136</td> <td>110141</td> </tr> <tr> <td>French</td> <td>110132</td> <td>110137</td> <td>110142</td> </tr> </tbody> </table> |  | 24V | 115 V | 230 V | German | 110130 | 110135 | 110140 | English | 110131 | 110136 | 110141 | French | 110132 | 110137 | 110142 |
|  | 24V   | 115 V   | 230 V  |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| German                                       | 110150  | 110155  | 110160 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| English                                      | 110151  | 110156  | 110161 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| French                                       | 110152  | 110157  | 110162 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
|  | 24V   | 115 V   | 230 V  |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| German                                       | 110130  | 110135  | 110140 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| English                                      | 110131  | 110136  | 110141 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |
| French                                       | 110132  | 110137  | 110142 |       |       |        |        |        |        |         |        |        |        |        |        |        |        |   |  |     |       |       |        |        |        |        |         |        |        |        |        |        |        |        |

## Selection help

Our Testomat devices have many uses in water analysis. This table will help you find the Testomat device suited to your needs.



|                               | chlorination systems | decarbonization systems | iron removal systems | water softening systems | galvanization | boiler feed water | sewage treatment plants | cooling towers | medical technology | with dosing of antioxidants | with calibration function | with self-cleaning measuring chamber | osmosis systems | swimming pool | sterilisation/hospitals | drinking water supply | monitoring disinfectant dosing | monitoring chromate content | monitoring conditioning agents | monitoring two measuring points | water treatment | water blending |
|-------------------------------|----------------------|-------------------------|----------------------|-------------------------|---------------|-------------------|-------------------------|----------------|--------------------|-----------------------------|---------------------------|--------------------------------------|-----------------|---------------|-------------------------|-----------------------|--------------------------------|-----------------------------|--------------------------------|---------------------------------|-----------------|----------------|
| Testomat® 808                 | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat® 808 SiO2            | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat ECO®                 | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat® EVO TH              | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat® EVO TH CAL          | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat ECO® C               | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000®                | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® Antox          | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® BR             | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® CAL            | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® CLO2           | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® CLF            | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® CLT            | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000 CLT self clean® | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® CN             | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® CrVI           | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® DUO            | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® DUO CN         | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® Fe             | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® PO4            | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® Polymer        | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® self clean     | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® SO3            | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® THCL           | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat 2000® V              | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat® Modul TH            | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |
| Testomat® Modul CL/ NH2CL     | 👉                    | 👉                       | 👉                    | 👉                       | 👉             | 👉                 | 👉                       | 👉              | 👉                  | 👉                           | 👉                         | 👉                                    | 👉               | 👉             | 👉                       | 👉                     | 👉                              | 👉                           | 👉                              | 👉                               | 👉               | 👉              |

👉 especially appropriate    👉 appropriate    🚫 not appropriate

| Plug-in Cards         |  | SK 910<br>current interface   | RS 910<br>interface card   | UK 910<br>voltage interface   |
|-----------------------|--|---|--|---|
|                       |  |    |    |    |
| <b>Is used</b>        |  | for Testomat 2000® devices, Titromat  | for Testomat 2000® devices, Titromat   | for Testomat 2000® devices, Titromat  |
| <b>Order number</b>   |  | 270305  | 270310   | 270315  |
| <b>Description</b>    |  | plug-in card current interface  | RS232 plug-in card (serial interface)  | plug-in card voltage interface  |
| <b>Technical data</b> |  | <ul style="list-style-type: none"> <li>• output current: 0–20mA or 4–20mA</li> <li>• maximum load: 500 Ohm</li> <li>• galvanic isolation</li> </ul>   | <ul style="list-style-type: none"> <li>• for connecting a log printer or protocol converter (field bus, Ethernet, etc.)</li> </ul> | <ul style="list-style-type: none"> <li>• output voltage: 0/2–10V</li> <li>• galvanic isolation</li> </ul>   |
|                       |  | Network logger  | Switching power supply board   | SD card data logger   |
|                       |  |    |    |    |
| <b>Is used</b>        |  | for Testomat 2000®  | for Testomat® EVO  | for Testomat 2000® devices, Titromat  |
| <b>Order number</b>   |  | 100492  | 32394  | 100490  |
| <b>Description</b>    |  | Plug-in card with a 100 MBit network connection   | Switching power supply unit for the power supply of Testomat® EVO devices  | plug-in card for storing measurement results and error messages on an SD card   |
| <b>Technical data</b> |  | <ul style="list-style-type: none"> <li>• Web server, FTP server and built-in Flash storage</li> <li>• 8 MB Flash storage for 400,000 measurement values and notifications (around 5 years)</li> <li>• Generation of measurement and alarm data on a monthly basis</li> <li>• Files saved in "CSV" format and can be subsequently processed with Office packages.</li> </ul> | <ul style="list-style-type: none"> <li>• power supply 100-240 VAC / 100-350 VDC, 47-63 Hz</li> </ul>                               | <ul style="list-style-type: none"> <li>• now available for all Testomat 2000® and Titromat devices (after software update of older units)</li> <li>• including standard SD card up to 2GB</li> <li>• the data are available in CSV format and can be further processed or analyzed easily in a spreadsheet program</li> </ul> |

USB data logger

OLED display module

|                       |   |   |  |
|-----------------------|---|---|--|
|                       |    | <br><b>New</b>  |  |
| <b>Is used</b>        | for Testomat® 808   | for Testomat® Moduls  |  |
| <b>Order number</b>   | 100493  | 37764   |  |
| <b>Description</b>    | Data logger with USB connection   | Plug-in card with OLED display for the measurement on Testomat modules  |  |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>• The data logger stores the measurement values via the 20mA port at regular intervals. Data can be accessed by the integrated USB port</li> <li>• sufficient storage capacity for 32,768 values.</li> <li>• comes complete with driver and applications</li> <li>• Cannot be used in the Testomat® 808 SIO2!</li> </ul> | <ul style="list-style-type: none"> <li>• Permanently plugged into the control board.</li> <li>• Measurement display only, no menu for programming. The unit is always programmed via the Service Monitor programme, which is stored on an SD card in the Testomat® module.</li> </ul> |  |





|                       |   |   |  |
|-----------------------|---|---|--|
| <b>Is used</b>        | for Testomat® and Titromat® devices   |   |  |
| <b>Order number</b>   | 270337  |   |  |
| <b>Description</b>    | Service case for regular maintenance of a Testomat 2000® device   |   |  |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>• 10 20x2 O-rings</li> <li>• 10 10.82x1.78 O-rings</li> <li>• 5 4.47x1.78 O-rings</li> <li>• 5 18x2 EPDM O-rings</li> <li>• 20 24x2 flat gaskets</li> <li>• 5 x filter screen for inlet, 19.5dx25</li> <li>• 5 flow regulator cores</li> <li>• 2 springs for inlet</li> <li>• 10 stoppers for measuring chamber</li> </ul> | <ul style="list-style-type: none"> <li>• 6 fuses, T 0.08A</li> <li>• 6 fuses, T 0.1 A</li> <li>• 6 fuses, T0.16 A</li> <li>• 6 fuses, T 0.2 A</li> <li>• 6 fuses, T 0.315 A</li> <li>• 6 fuses, T 1.0 A</li> <li>• 6 fuses, M4A</li> <li>• 20 30x3 sight glasses</li> <li>• 3 screw caps with T2000 insert</li> <li>• 4 M3x40 screws</li> </ul> | <ul style="list-style-type: none"> <li>• 1 suction hose</li> <li>• 1 pressure hose</li> <li>• 6 different pipes</li> <li>• 1 cleaning brush set</li> <li>• 2 push-in angle joints</li> <li>• 2 magnetic stirring bars</li> </ul> |

Repair and service case



|                       |  |  |   |
|-----------------------|--|--|---|
| <b>Is used for</b>    | Testomat® 808  | Testomat® 808 SiO2   |   |
| <b>Order number</b>   | 270342   | 270343   |   |
| <b>Description</b>    | Case for regular maintenance of a Testomat® 808 / 808 SiO2 and on-site service   |  |   |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>• 8 3.68x1.78 O-rings</li> <li>• 8 1.78x1.78 O-rings</li> <li>• 8 4.5x1.5 O-rings</li> <li>• 8 24x2 flat gaskets</li> <li>• 1 pump head</li> <li>• 4 500ml inserts with screw cap</li> <li>• 1 100ml insert with screw cap</li> <li>• 1 cleaning brush set</li> <li>• 4 angle screw connectors</li> <li>• 6 fuses, T 0.1 A</li> </ul> | <ul style="list-style-type: none"> <li>• 6 fuses, T 0.2 A</li> <li>• 6 fuses, T 1.0 A</li> <li>• 6 fuses, T4A</li> <li>• 6 30x3 sight glasses</li> <li>• 2 pipes, l = 53 mm</li> <li>• 2 pipes, l = 140 mm</li> <li>• 1 SUB-D null modem cable</li> <li>• 1 USB serial adapter</li> <li>• 2 dosing needles</li> <li>• 4 hose adapters</li> <li>• 2 magnetic stirring bars</li> </ul> | <ul style="list-style-type: none"> <li>• 8 M3x12 screws</li> <li>• 4 M3x40 screws</li> <li>• 1 magnetic valve</li> <li>• documentation/software (1)</li> </ul> <p>Testomat® 808 SiO2 differing:</p> <ul style="list-style-type: none"> <li>• 1 double pump head</li> <li>• 6 fuses T0.315A</li> <li>• 8 fuses T4A</li> <li>• 2 100ml insert with screw cap</li> </ul> |

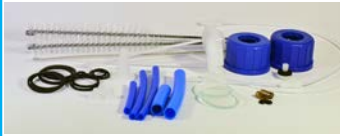


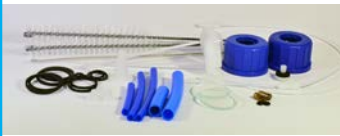

No longer included:  
Optics board + LED holder  
The optic set can be found on page 44.





T2000 service case  
Variant 2






|                       |  |   |  |
|-----------------------|--|---|--|
| <b>Is used</b>        | for Testomat® and Titromat® devices  |   |  |
| <b>Order number</b>   | 270338   |   |  |
| <b>Description</b>    | Service case for regular maintenance of a Testomat 2000® device  |   |  |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>• 4 20x2 O-rings</li> <li>• 4 10.82x1.78 O-rings</li> <li>• 2 4.47x1.78 O-rings</li> <li>• 2 18x2 EPDM O-rings</li> <li>• 4 24x2 flat gaskets</li> <li>• 2 x filter screen for inlet, 19.5dx25</li> <li>• 2 flow regulator cores</li> <li>• 2 springs for inlet</li> <li>• 6 stoppers for measuring chamber</li> <li>• 1x push-in connector for the drain hose</li> </ul> | <ul style="list-style-type: none"> <li>• 2 fuses, T 0.08A</li> <li>• 2 fuses, T 0.1 A</li> <li>• 2 fuses, T0.16 A</li> <li>• 2 fuses, T 0.2 A</li> <li>• 2 fuses, T 0.315 A</li> <li>• 2 fuses, T 1.0 A</li> <li>• 2 fuses, M4A</li> <li>• 4 30x3 sight glasses</li> <li>• 3 screw caps with T2000 insert</li> <li>• 2 M3x40 screws</li> <li>• 2 suction hose</li> <li>• 2 pressure hose</li> </ul> | <ul style="list-style-type: none"> <li>• 6 different pipes</li> <li>• 1 cleaning brush set</li> <li>• 2 push-in angle joints</li> <li>• 2 magnetic stirring bars</li> <li>• 2x valve set for dosing pump</li> <li>• 1x inlet connection</li> <li>• 1x screw-in connector G1/4"-6</li> <li>• Angled plug-in connector G 1/8"</li> </ul> |

|                       | Service set   | Service set   | 1-Year service set   |
|-----------------------|---|---|--|
|                       |   |   |  |
| <b>Is used</b>        | for Testomat® 808/808 SiO2  | for Testomat 2000®, Testomat ECO®, EVO and Titromat®  | for Testomat 2000®, Testomat ECO®, EVO, Modul TH and Titromat®   |
| <b>Order number</b>   | 270351  | 270352  | 270360   |
| <b>Description</b>    | Set for regular maintenance   | spare part kit for maintenance  | small spare part kit for maintenance   |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>• 15 24x2 flat gaskets</li> <li>• 6 sight glasses</li> <li>• 6 3.68x1.78 O-rings</li> <li>• 6 4.5x1.5 O-rings</li> <li>• 6 1.78x1.78 O-rings</li> <li>• 1 pipe, l = 53 mm / 2"</li> <li>• 1 pipe, l = 140 mm / 5.5"</li> <li>• 1 cleaning brush set</li> </ul> | <ul style="list-style-type: none"> <li>• 1 T2000 gasket kit</li> <li>• 2 30x3 sight glass</li> <li>• 1 flow regulator cores</li> <li>• 3 stoppers for measuring chamber</li> <li>• 1 valve kit for injection pump</li> <li>• 1 filter screen for intake 19.5 d x 25</li> <li>• 3 different pipes</li> <li>• 1 cleaning brush set</li> </ul> | <ul style="list-style-type: none"> <li>• 1 T2000 gasket kit</li> <li>• 2 30x3 sight glass</li> <li>• 1 flow regulator cores</li> <li>• 3 stoppers for measuring chamber</li> <li>• 1 valve kit for injection pump</li> <li>• 1 filter screen for intake 19.5 d x 25</li> </ul> |

| Accessories<br>Testomat® / Titromat® | Service set<br>Testomat® Modul TH   | Service set<br>Testomat 2000® Polymer  | Service set<br>Testomat 2000® PO4  |
|--------------------------------------|---|--|--|
|                                      | <br><div style="background-color: #00a0e3; color: white; padding: 2px 5px; display: inline-block;">New</div>   |    |   |
| <b>Is used</b>                       | for Testomat® Modul TH/TH-R   | for Testomat 2000® Polymer   | for Testomat® PO4  |
| <b>Order number</b>                  | 270357  | 270353   | 270354   |
| <b>Description</b>                   | spare part kit for maintenance of Testomat® Modul TH  | spare part kit for maintenance of Polymer device and PeriClip pump   | spare part kit for maintenance of PO4 device and PeriClip pump   |
| <b>Technical data</b>                | <ul style="list-style-type: none"> <li>• 1 T2000 gasket kit</li> <li>• 2 30x3 sight glass</li> <li>• 1 flow regulator cores</li> <li>• 3 stoppers for measuring chamber</li> <li>• 2 x screw cap with insert for 500 ml bottle</li> <li>• 1 filter screen for intake 19.5 d x 25</li> <li>• 5 different pipes</li> <li>• 1 cleaning brush set</li> <li>• 1 valve set for pump</li> <li>• 1 suction hose</li> <li>• 1 pressure hose</li> </ul>   | <ul style="list-style-type: none"> <li>• 1 T2000 gasket kit</li> <li>• 2 30x3 sight glass</li> <li>• 1 flow regulator cores</li> <li>• 3 stoppers for m . chamber</li> <li>• 2 x pump head</li> <li>• 1 filter screen for intake</li> <li>• 3 different pipes</li> <li>• 1 cleaning brush set</li> <li>• 2 x tube connection</li> <li>• 2 x seal for tube connection</li> <li>• 2 x screw cap with insert</li> </ul> | <ul style="list-style-type: none"> <li>• 1 T2000 gasket kit</li> <li>• 2 30x3 sight glass</li> <li>• 1 flow regulator cores</li> <li>• 3 stoppers for m . chamber</li> <li>• 2 x pump head</li> <li>• 1 filter screen for intake</li> <li>• 3 different pipes</li> <li>• 1 cleaning brush set</li> <li>• 2 x tube connection</li> <li>• 2 x seal for tube connection</li> <li>• 2 x screw cap with insert</li> </ul> |
| Service set<br>Testomat® Modul CL    |   | Service set<br>Testomat® EVO   |  |
|                                      | <br><div style="background-color: #00a0e3; color: white; padding: 2px 5px; display: inline-block;">New</div>   | <br><div style="background-color: #00a0e3; color: white; padding: 2px 5px; display: inline-block;">New</div>   |  |
| <b>Is used</b>                       | for Testomat® Modul CL and NH2CL  | for Testomat® EVO TH and EVO TH CAL  |  |
| <b>Order number</b>                  | 270356  | 270358   |  |
| <b>Description</b>                   | spare part kit for maintenance of Testomat® Modul CL and NH2CL  | spare part kit for maintenance of Testomat® EVO TH and EVO TH CAL  |  |
| <b>Technical data</b>                | <ul style="list-style-type: none"> <li>• 1 T2000 gasket kit</li> <li>• 2 30x3 sight glass</li> <li>• 1 flow regulator cores</li> <li>• 3 stoppers for measuring chamber</li> <li>• 2 x screw cap with insert for 500 ml bottle</li> <li>• 1 filter screen for intake 19.5 d x 25</li> <li>• 5 different pipes</li> <li>• 1 cleaning brush set</li> <li>• 1 pump head</li> <li>• 2 hose connection</li> <li>• 2 seal for hose adapter</li> </ul> | <ul style="list-style-type: none"> <li>• 1 T2000 gasket kit</li> <li>• 2 30x3 sight glass</li> <li>• 1 flow regulator cores</li> <li>• 3 stoppers for measuring chamber</li> <li>• 1 valve kit for injection pump</li> <li>• 1 filter screen for intake 19.5 d x 25</li> <li>• 4 different pipes</li> <li>• 1 cleaning brush set</li> </ul>  |  |




| Accessories<br>Testomat 808/808 SiO <sub>2</sub>                                  | Testomat 2000®<br>connection kit   | Connection set   | Conversion kit<br>for water connection   |
|---|--|--|--|
|  |    |   |   |
| <b>Is used</b>  | for Testomat 2000®, Testomat ECO®, EVO and Titromat®   | for Testomat® 808  | for Testomat® 808  |
| <b>Order number</b>   | 040187   | 37610  | 37576  |
| <b>Description</b>  | connection kit with ball valve, pipes, and reducing pieces for the water connection  | for the water connection   | conversion kit for converting the water connection from Testomat® to BOB Testomat 808®   |
| <b>Technical data</b>   | <ul style="list-style-type: none"> <li>• 5 m (16.4 ft) pipe, plastic PE 6/4x1, blue</li> <li>• 2 m (6.6 ft) drain hose, d=12 mm i</li> <li>• 1 ball valve, PPSV 011223W</li> <li>• 1 10-6 reducing connector</li> <li>• 1 3/8"-1/2" reducing nipple</li> </ul> | The kit consists of: <ul style="list-style-type: none"> <li>• plastic hose, 6/4 x 1; length 5 m / 16.4 ft</li> <li>• 10 to 6 mm reducer</li> <li>• 3/8"a to 6 mm stopcock</li> </ul> | The kit consists of: <ul style="list-style-type: none"> <li>• plug connection G1/4" DN6</li> <li>• pipe, PE, D=6; length 5 m / 16.4 ft</li> <li>• screw-in connection G1/4"-6</li> </ul> |




|                       | Conversion kit pump head   | Conversion kit double pump head   | SiO <sub>2</sub> cartridge   |
|-----------------------|--|---|--|
|                       |   |   |   |
| <b>Is used</b>        | for Testomat® 808 (up to device number 253060)   | for Testomat® 808 SiO <sub>2</sub>  | for Testomat® 808 SiO <sub>2</sub>   |
| <b>Order number</b>   | 040363   | 040395  | 270344   |
| <b>Description</b>    | Conversion kit for replacing the old pump head (37578) in the new version (37562)  | Conversion kit for replacing the old double pump head (37859) in the new version (37801)  | Silicate filter for calibration after changing the double pump head  |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>• 1 x pump head Testomat 808</li> <li>• 1 x shaft extension for pump head</li> <li>• 1 x spacer plate for pump head</li> <li>• 1 x screw M3x20</li> <li>• 1 x screw M3x25</li> <li>• 1 x threaded pin M3x3</li> <li>• 1 x 1,5 mm hexagon socket wrench</li> </ul> | <ul style="list-style-type: none"> <li>• 1 x double pump head Testomat 808 SiO<sub>2</sub></li> <li>• 1 x shaft extension for pump head</li> <li>• 1 x spacer plate for pump head</li> <li>• 1 x screw M3x40</li> <li>• 1 x screw M3x50</li> <li>• 1 x threaded pin M3x3</li> <li>• 1 x 1,5 mm hexagon socket wrench</li> </ul> | <ul style="list-style-type: none"> <li>• Filled with strongly alkaline anion exchanger</li> <li>• Following initial use it can be used for calibration 10 more times within one year</li> <li>• Rinse with 10 litres of demineralised water before each use</li> <li>• Store the cartridge in the dark at temperatures from 5 to 20°C</li> </ul> |

The current testomat® 808 2019 and Testomat® 808 SiO<sub>2</sub> 2019 devices do not require the conversion kit, as they are factory equipped with the new pump head.

New



| Accessories<br>Testomat® / Titromat® | Conversion kit<br>for water inlet   | Conversion kit for<br>water connection USA   | Conversion kit for<br>100ml-bottle   |
|--------------------------------------|---|--|--|
|                                      |    |      |   |
| <b>Is used</b>                       | for Testomat 2000®, Testomat ECO®, EVO and Titromat®  | for Testomat 2000®   | for Testomat 2000®, Testomat ECO®, EVO and Titromat®   |
| <b>Order number</b>                  | 040123  | 40345  | 040143   |
| <b>Description</b>                   | conversion kit for the water inlet for connecting a fabric hose   | Conversion kit for converting water connections from 6 mm to 1/4"                      | for using 100 ml / 3.4 oz bottles instead of the 500 ml / 16.9 oz bottles included in the delivery   |
| <b>Technical data</b>                | <ul style="list-style-type: none"> <li>• 1/4" quick-connect plug</li> <li>• 1/4" quick-connect coupling to hose with d = 6 mm i</li> <li>• lock on the hose side</li> </ul> | <ul style="list-style-type: none"> <li>• Reducing adaptor from 6 mm to 1/4"</li> </ul> | <ul style="list-style-type: none"> <li>• 100 ml / 3.4 oz bottle</li> <li>• used for screw cap with suction tube for 100 ml / 3.4 oz bottle</li> <li>• screw cap GL32 hole</li> </ul> |

|                       | Tool kit   | Pressure regulator   | Suction lance PO4  |
|-----------------------|--|--|--|
|                       |   |    |   |
| <b>Is used</b>        | for all Testomat and Titromat devices  | for Testomat® 808  | for Testomat 2000®   |
| <b>Order number</b>   | 040138   | 37602  | suction lance (20 l container) 40535<br>suction lance (5 l container) 40536  |
| <b>Description</b>    | tool kit for maintenance work on Testomat 2000®  | the pressure regulator is used for pressures over 4 bar / 58 psi   | long suction lances for large reagent containers   |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>• 1 Torx TX20 20x100 screwdriver</li> <li>• 1 Torx TX10 10x80 screwdriver</li> <li>• 1 Torx TX8 8x60 screwdriver</li> </ul> | <ul style="list-style-type: none"> <li>• max. inlet pressure 8 bar/116 psi</li> <li>• ambient temp. 0–50°C / 32-122°F</li> <li>• manometer connection, G1/8 on both sides</li> <li>• non-reversible</li> <li>• Particularly suitable for permeate and deionised water</li> </ul> | <ul style="list-style-type: none"> <li>• suction lances with different lengths for 20-litre containers and 5-litre containers</li> </ul> |



|                       |   |   |
|-----------------------|---|---|
| <b>Is used</b>        | for Testomat 2000®/Testomat ECO®, EVO, 808  | for Testomat® 808   |
| <b>Order number</b>   | 130010  | candle filter 37583<br>filter insert 37584  |
| <b>Description</b>    | small aerator to reduce CO <sub>2</sub> content   | candle filter with filter insert for filtering sample water before analysis   |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>• max. 12 l/h of water throughput when reducing the free carbon dioxide from max. 200 mg/l to under 20 mg/l</li> <li>• dimensions (W x H x D): 150 x 500 x 100 mm<br/>5.9" x 19.7" x 3.9"</li> <li>• line voltage: 230 V/50 Hz</li> <li>• Installation 3 m above device</li> </ul> | <ul style="list-style-type: none"> <li>• max. pressure: 10 bar/145 psi</li> <li>• max. temperature: 50°C/122°F</li> <li>• filter fineness: 100 µm</li> <li>• 1/4" inlet/outlet</li> </ul> |

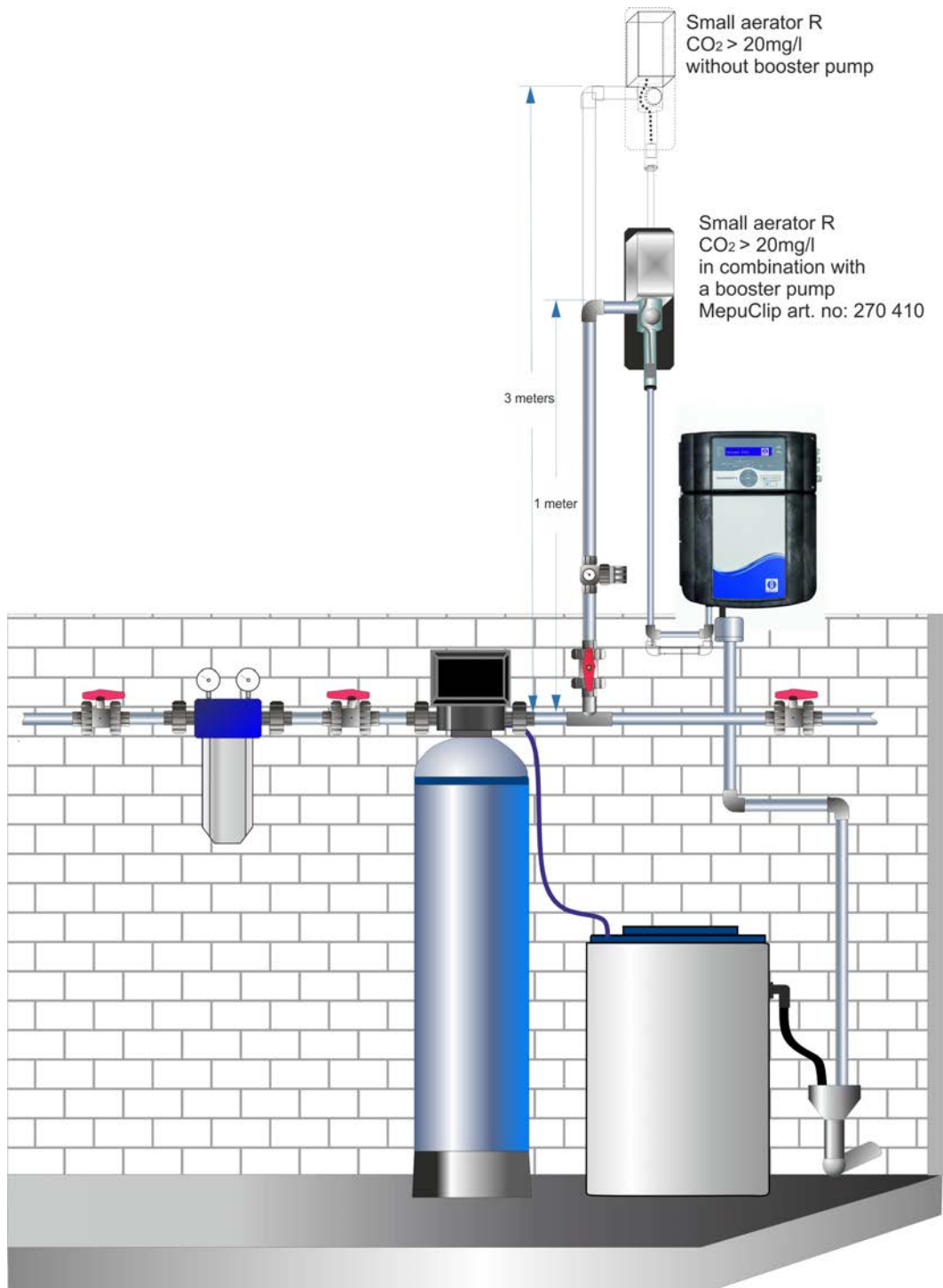
Example for assembly of aerator type R

The water intake connection of the small aerator can withstand a maximum of six bar. The water outlet from the small aerator is unpressurised. Therefore, the small aerator must be slotted in ahead of the Testomat device at least 3 m / 9,8 ft (0.3 bar / 4,35 psi) above the Testomat device.

During operation within a pressure range from 0.3 to 1 bar / 4,35 - 14,5 psi, or when supplied via a booster pump, please remove the valve body from the controller and filter housing of the Testomat device (see operating instructions for the Testomat device).

For installation heights lower than 3 m / 9,8 ft, use our booster pump MepuClip® in the Testomat 2000® or Testomat® EVO TH.


Testomat® ECO and Testomat® 808 cannot be fitted with the MepuClip® booster pump.













Article no. of the measuring chamber holder


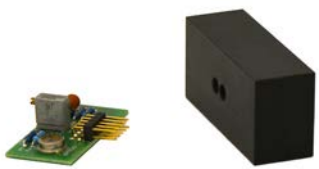




|                               | DUO<br>40370 | DUO<br>40371 | Trio<br>40372 | Quad<br>40373 | DUO<br>40375 | DUO<br>40379 | DUO<br>40382 | DUO<br>37856 |
|-------------------------------|--------------|--------------|---------------|---------------|--------------|--------------|--------------|--------------|
| Testomat 2000® Antox          | X            |              |               |               |              |              |              |              |
| Testomat 2000® Br             |              | X            |               |               |              |              |              |              |
| Testomat 2000® CLF            |              | X            |               |               |              |              |              |              |
| Testomat 2000® CLT            |              |              | X             |               |              |              |              |              |
| Testomat 2000® CLT self clean |              |              |               | X             |              |              |              |              |
| Testomat 2000® CLO2           |              | X            |               |               |              |              |              |              |
| Testomat 2000® CN DUO         | X            |              |               |               |              |              |              |              |
| Testomat 2000® Cr VI          |              | X            |               |               |              |              |              |              |
| Testomat 2000® Cr VI 0-5ppm   |              |              |               |               |              | X            |              |              |
| Testomat 2000® DUO            | X            |              |               |               |              |              |              |              |
| Testomat 2000® Fe             |              | X            |               |               |              |              |              |              |
| Testomat 2000® Polymer        |              | X            |               |               |              |              |              |              |
| Testomat 2000® PO4            |              |              |               |               |              |              | X            |              |
| Testomat 2000® self clean     | X            |              |               |               |              |              |              |              |
| Testomat 2000® SO3            |              |              |               |               | X            |              |              |              |
| Testomat 2000 THCl®           |              |              |               | X             |              |              |              |              |
| Testomat® Modul CL            |              |              |               |               |              |              |              | X            |
| Testomat® Modul NH2CL         |              |              |               |               |              |              |              | X            |
| Titromat M1                   | X            |              |               |               |              |              |              |              |
| Titromat M2                   | X            |              |               |               |              |              |              |              |
| Titromat KH                   | X            |              |               |               |              |              |              |              |
| Titromat TH                   | X            |              |               |               |              |              |              |              |



| Spare parts Testomat® | Bottle connection/<br>suction device  | Device spare parts  |   |
|-----------------------|---|---|---|
|                       |    |   |    |
| <b>Is used</b>        | for Testomat 2000®, Testomat ECO®, EVO and Titromat®  | for Testomat 2000® /Testomat ECO® and Titromat®   |   |
| <b>Order number</b>   | screw cap with T2000 insert for 500 ml bottle 040131<br><br>consists of:<br>GL32 screw cap — hole 040130<br><br>insert for screw cap with suction pipe 040135 | cable feedthrough, 5-7 040190<br>cable feedthrough, 7-10 040191<br>T2000 mains switch cover for mains 040197<br>switch 040198<br>ribbon cable, 10-pole, with ferrite ribbon cable, 26-pole, with ferrite 031713<br>loom 2V, complete (for valves) 040096 040060 | loom 2P, complete (for max two dosing pumps) 040062<br>loom for main switch complete 040200<br>fuse T 0.08 A 031596<br>fuse T 0.315 A 031585<br>fuse T 0.1 A 031595<br>fuse T 0.16 A 031622<br>fuse T 1.0 A 031592<br>fuse M4 A 031582<br><br>drain funnel T2000 040315 |

|                     | PMMA sight glasses   | Sight glasses for shortened measurement section   |  |
|---------------------|--|---|--|
|                     |   | <br><span style="background-color: #0070C0; color: white; padding: 2px;">New</span> |  |
| <b>Is used</b>      | for Testomat® 808  | for Testomat 2000® Cr VI 0-5ppm, Testomat 2000® PO4, Testomat® Modul CL/NH2CL   |  |
| <b>Order number</b> | 37653  | 40244   |  |
| <b>Description</b>  | PMMA sight glasses are used when the silicate content in the measuring water exceeds 15 mg/l and prevent silicates clogging up the sight glasses.<br><br>The kit consists of: <ul style="list-style-type: none"> <li>• 2 24x2 flat gaskets</li> <li>• 2 sight glasses</li> </ul> | The sight glasses are designed for use in the measuring chamber with a shortened measurement section.   |  |




| Spare parts<br>Testomat® / Titromat® | Pressure regulator  | Measuring chamber   | Measuring chamber holder   |
|--------------------------------------|---|---|--|
|                                      |    |   |   |
| <b>Is used</b>                       | for Testomat 2000®, Testomat ECO®, EVO, Modul, Titromat®  | for Testomat 2000®, ECO®, EVO, Modul TH, Titromat®  | for Testomat 2000®, Testomat ECO®, EVO, Modul TH, Titromat®  |
| <b>Order number</b>                  | regulator/filter holder, complete 040125<br><br>consists of:<br><br>regulator/filter holder 040120<br>regulator stopper T2000, complete 040129<br>flow regulator core (1–8 bar/14.5-87 psi) 011225<br>holding pin for regulator stopper 011230<br>filter screen for inlet 011217<br>spring for inlet 011218<br>inlet connector 040121<br>G ¼" - 6 screw-in connector 040153 | measuring chamber, complete 040022<br><br>consists of:<br><br>30x3 sight glass pane with gasket 040173<br>30x3 sight glass pane 040170<br>sight glass holder 040176<br>M 3x40 screw 033253<br>TL 800-7-1 040032<br>tenterhook 011210<br>plate stopper 24x2 flat gasket 033777<br>sight glass holder set with 2 screws (2 sight glass holders and 2 M3x40 screws) 040510 | measuring chamber holder, complete (without valves) 040029<br><br>and accessories:<br>magnetic rod 040050<br>plug connection for drain hose 040186<br>magnet valve, 2/2-ways 040018<br>pin for chamber holder, 5x60 mm 040181<br><br><i>For further article numbers for DUO , TRIO, and QUAD measuring chamber holders, see pageSeite 41</i> |
|                                      | Measuring chamber with double glazing   | Measuring chamber with shortened measurement section  | Gear motor   |
|                                      |    |   |   |
| <b>Is used</b>                       | for Testomat 2000® and Testomat® 808  | for Testomat 2000® Cr VI 0-5ppm, Testomat 2000® PO4, Testomat® Modul CL/NH2CL   | for Testomat® 808 / 808 SiO2   |
| <b>Order number</b>                  | Measuring chamber for Testomat 2000® 40559<br>Measuring chamber for Testomat® 808 37863<br><br>for both:<br>sight-glass window 30x1,6 37833<br>sight-glass window holder 37806<br>seal 37808  | 40378   | gear motor 12 V DC for the dosing pump of Testomat® 808 with installation guide 100494<br><br>for Testomat 2000®<br>gear motor 12 V DC for the dosing pump PeriClip 39906  |
| <b>Description</b>                   | The measuring chamber with double glazing can be used in the event of strong temperature differences between air and test water. Problems caused by steaming up in a humid environment are thus prevented in many applications.   | Special measuring chamber for some Testomat devices. Cannot be used in all Testomat® devices  |  |

| Spare parts<br>Testomat® 808/808 SiO2   | Devices spare parts<br>Testomat® 808 SiO2   | Set optical board +<br>LED socket   | Measuring chamber<br>Testomat® 808 SiO2   |
|---|---|---|---|
|   |    |   |    |
| <b>Is used</b>  | for Testomat® 808 SiO2  | for Testomat® 808 / 808 SiO2  | for Testomat® 808 / 808 SiO2  |
| <b>Order number</b>   | magnet valve 37570<br>double pump head* 37859<br>fuse, T1,0A 31592<br>fuse, T0,315A 31585<br>fuse, T0,2A 31584<br>fuse, T0,1A 31595<br>fuse,GS-T, 5x20, T A4 31666<br>cable ducting M16 x 1,5 37734<br>Nut for cable ducting M16 x 1.5 37735<br>Blanking plug for cable ducting 37736 | Testomat® 808 - 2019:<br>Full set with optics board and LED holder, 40393 synchronized by the factory<br>Testomat® 808 SiO2 - 2019<br>Full set with optics board and LED holder, 40394 synchronized by the factory<br><u>For older instruments:</u><br>Testomat® 808:<br>Full set with optics board and LED holder, 40364 synchronized by the factory<br>Testomat® 808 SiO2<br>Full set with optics board and LED holder, 40365 synchronized by the factory | 24x2 flat gasket 33777<br>30x3 sight glass pane 40170<br>sight glass holde 40176<br>M3x40 screw, A2, DIN 965 33253<br>M3x12 screw 33246<br>T808 SiO2 measuring chamber, complete (1-4 bar/14.5-58 psi) 37784<br>T808 SiO2 measuring chamber, complete (0.3-1 bar/4.4-14.5 psi) 37785<br>magnetic rod 40050<br>G1/8"-6 screw-in angle joint 40157      |
| <p>*New pump heads for the Testomat® 808-2019 and Testomat® 808 SiO2-2019 device generation. For older devices up to serial number 253060, the conversion kit on page 37 must also be used.</p> |   |   |   |
| Devices spare parts<br>Testomat® 808  |   | Measuring chamber   | Bottle connection/<br>suction device  |
|   |    |   |    |
| <b>Is used</b>  | for Testomat® 808   | for Testomat® 808   | for Testomat® 808 / 808 SiO2  |
| <b>Order number</b>   | magnet valve 37570<br>pump head* 37562<br>fuse, T1.0A 31592<br>fuse, T0.8A 31593<br>fuse, T0.2A 31594<br>fuse, T0.1A 31595<br>fuse, GS-T, 5x20, T A4 31666<br>cable ducting M16 x 1,5 37734<br>Nut for cable ducting M16 x 1.5 37735<br>Blanking plug for cable ducting 37736         | 24x2 flat gasket 33777<br>30x3 sight glass pane 40170<br>sight glass holder 40176<br>M3x40 screw, A2, DIN 965 33253<br>T808 measuring chamber, complete (1-4 bar/14.5-58 psi) 37615<br>T808 measuring chamber, complete (0.3-1 bar/4.4-14.5 psi) 37616<br>magnetic rod, processed 40050<br>G1/8"-6 screw-in angle joint 40157   | Testomat® 808:<br>bottle insert with screw cap and suction tube, tube connection ø 2.4 mm<br>500 ml bottle 37579<br>100 ml bottle 37580<br>hose adapter ø 2.4 mm 37538<br>Testomat® 808 SiO2:<br>bottle insert with screw cap and suction tube, tube connection ø 3.5 mm<br>500 ml bottle 37644<br>100 ml bottle 37645<br>hose adapter ø 3.5 mm 37643 |

| Spare parts<br>Testomat® | Device spare parts<br>Testomat® EVO  |       |                                  | Bottle connection/<br>suction device  |  |       |
|--------------------------|--|-------|----------------------------------|---|--|-------|
|                          |  |       |                                  |  |  |       |
| <b>Is used</b>           | for Testomat® EVO TH   |       |                                  | for Testomat 2000® Polymer/<br>Testomat 2000® PO4                                   |  |       |
| <b>Order number</b>      | Cable ducting<br>M16x1,5   | 37734 | fuse<br>GS-M 5x20E 4A MT         | 31582   | screw cap with insert<br>for 500 ml bottle | 37644 |
|                          | Nut for cable ducting<br>M16x1,5   | 37735 | fuse T0,315 A                    | 31585   | screw cap with insert<br>for 100 ml bottle | 37645 |
|                          | Blanking plug for<br>cable ducting   | 37736 | fuse T0,16 A                     | 31622   |  |       |
|                          | Blanking plug for<br>cable ducting   | 37736 | fuse T1,6 A                      | 12140   |  |       |
|                          | ribbon cable, 10-pole,<br>with ferrite   | 31713 | fuse T2,0 A                      | 31655   |  |       |
|                          | loom 2V, complete<br>(for valves)  | 40060 | standard SD card<br>2 GB         | 37320   |  |       |
|                          | loom 2P, complete<br>(for max two dosing<br>pumps)                                 | 40062 | Lithium backup battery<br>CR2032 | 31999   |  |       |
|                          |  |       | drain funnel                     | 32187   |  |       |

**Device spare parts  
Testomat® Moduls**

|                     |  |       |                                  |       |  |
|---------------------|--|-------|----------------------------------|-------|--|
|                     |  |       |                                  |       |  |
|                     |  |       | New                              |       |  |
| <b>Is used</b>      | for Testomat® Moduls TH/CL/NH2CL   |       |                                  |       |  |
| <b>Order number</b> | Cable ducting<br>M16x1,5   | 37734 | Pump head<br>PeriClip SP         | 40362 | Spare parts for the Testomat® BOB can only be supplied to a limited extent. Please contact your distributor if you need spare parts. |
|                     | Nut for cable ducting<br>M16x1,5   | 37735 | fuse<br>GS-M 5x20E 2A MT         | 10843 |  |
|                     | Blanking plug for<br>cable ducting   | 37736 | standard SD card<br>2 GB         | 37320 |  |
|                     | Ribbon cable<br>2 x 7 pole   | 37832 | Lithium backup battery<br>CR2032 | 31999 |  |
|                     | loom 2V, complete<br>(for valves)  | 40060 | Cover                            | 37798 |  |
|                     | loom 2P, complete<br>(for max two dosing<br>pumps)                                   | 40062 |                                  |       |  |

Dosing pumps  
Testomat® / Titromat®

DOSIClip®

MEPUClip®

FLOWClip®



|                       |  |  |  |
|-----------------------|--|--|--|
| <b>Is used as</b>     | dosing pump for Testomat devices   | booster pump for Testomat 2000®/Titromat®  | dosing pump for Testomat 2000® self clean  |
| <b>Order number</b>   | 270470<br>as spare part 40001  | 270410   | 270440   |
| <b>Description</b>    | electromagnetically driven piston dosing pump for dosing aqueous media that are free of suspended matter   | installation of the membrane pump is necessary for water inlet pressure under 0.3 bar  | membrane pump for dosing cleaning agent into the measuring chamber also possible for other reagents  |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>• pump volume: 30 µl/stroke</li> <li>• max. suction height: approx. 0.5 m with water and 0.8 mm hose ID</li> <li>• max. pump pressure: approx. 1 bar /4.5 psi with water and 0.8 mm hose ID (max. 0.5 m length)</li> <li>• ambient temperature: 10–45°C / 50-113°F</li> <li>• mounting: on 35 mm / 1.4" DIN top-hat rail</li> </ul> | <ul style="list-style-type: none"> <li>• Flow rate at atmospheric pressure : 0.6 l/min</li> <li>• Maximum suction head: 3m H<sub>2</sub>O self-priming</li> <li>• ambient temperature: 10–45°C / 50-113°F</li> <li>• mounting: on 35 mm / 1.4" DIN top-hat rail</li> </ul> <p>When a „Testomat® with pump“ is ordered, installation occurs at the factory.</p> | <ul style="list-style-type: none"> <li>• Flow rate at atmospheric pressure : 0.1 l/min</li> <li>• Maximum suction head: 3m H<sub>2</sub>O self-priming</li> <li>• ambient temperature: 10–45°C / 50-113°F</li> <li>• mounting: on 35 mm / 1.4" DIN top-hat rail</li> </ul> |

PERIClip®

DOSIClip® Vi



New

|                       |   |  |  |
|-----------------------|---|--|--|
|                       | dosing pump for Testomat 2000® Polymer / PO4 / Modul CL/NH2CL   | dosing pump for Titromat® and Testomat devices that measure carbonate hardness                                     |  |
| <b>Order number</b>   | 270430  | 270471   |  |
| <b>Description</b>    | hose pump for aqueous media   | electromagnetically driven piston dosing pump for dosing aqueous media that are free of suspended matter           |  |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>• pump volume: 400–500 µl/min</li> <li>• ambient temperature: 10–45°C / 50-113°F</li> <li>• mounting: on 35 mm / 1.4" DIN top-hat rail</li> <li>• dimensions: 75 x 45 x 110 mm (HxWxD)<br/>3" x 1,8" x 4.3"</li> </ul> | <ul style="list-style-type: none"> <li>• as with DosiClip</li> <li>• for use with strongly acidic media</li> </ul> |  |

## Indicators/reagents

Together for the Heyl Well (Our second fundraising campaign with the Neven Subotic Foundation)

We at Gebrüder Heyl Analysentechnik GmbH & Co. KG take our social commitment very seriously, with a particular focus on supporting young people. But we want to do even more.

We firmly believe that our fundraising activities with the Neven Subotic Foundation make a positive contribution to people who, due to various factors, do not have it as easy as we do.

This is why we donate a small amount from every 500 ml bottle of Testomat® hardness indicator sold to provide people with clean drinking water. After all,

water is our element and we want to contribute to ensuring that everybody has access to clean drinking water.

Our 2019 fundraising campaign for the Neven Subotic Foundation was successfully completed in early 2020. 10,086.60 euros were collected for the construction of the well.

Find out more about our fundraising campaign at: [www.heylandalysis.de](http://www.heylandalysis.de) or scan the QR code.



### Testomat 2000® indicators (500 ml bottle)

| Indicator type | Unit °dH<br>(resolution) | °f<br>(resolution) | ppm CaCO <sub>3</sub><br>(resolution) | mmol/l<br>(resolution) | Order number |
|----------------|--------------------------|--------------------|---------------------------------------|------------------------|--------------|
| TH 2005        | 0,05-0,50 (0,01)         | 0,09-0,89 (0,02)   | 0,89-8,93 (0,2)                       | 0,01-0,09 (0,01)       | 152005       |
| TH 2025        | 0,25-2,50 (0,05)         | 0,45-4,48 (0,10)   | 4,48-44,8 (0,9)                       | 0,04-0,45 (0,01)       | 152025       |
| TH 2050*       | 0,50-5,00 (0,10)         | 0,89-8,90 (0,10)   | 8,90-89,0 (0,1)                       | 0,09-0,89 (0,10)       | 152050       |
| TH 2100        | 1,00-10,00 (0,20)        | 1,79-17,9 (0,40)   | 17,9-179 (3,8)                        | 0,18-1,79 (0,04)       | 152100       |
| TH 2250        | 2,50-25,00 (0,50)        | 4,48-44,8 (1,00)   | 44,8-448 (10)                         | 0,45-4,48 (0,10)       | 152250       |
| TC 2050        | 0,50-5,00 (0,50)         | 0,90-8,96 (0,90)   | 8,9-89,5 (8,9)                        | 0,18-1,79 (0,18)       | 153050       |
| TC 2100        | 1,00-20,00 (1,00)        | 1,79-35,8 (1,79)   | 18-358 (18)                           | 0,36-7,14 (0,36)       | 153100       |
| TM 2005        |                          |                    |                                       | 0,05-0,50 (0,05)       | 154005       |
| TP 2010        |                          |                    |                                       | 0,1-1,5 (0,10)         | 155010       |
| TP 2100        |                          |                    |                                       | 1-15,0 (1,00)          | 155100       |

\*Only for Testomat® EVO TH and Testomat® Modul TH/TH-R

### Testomat 2000® indicators (100 ml bottle)

| Indicator type       | Unit °dH<br>(resolution) | °f<br>(resolution) | ppm CaCO <sub>3</sub><br>(resolution) | mmol/l<br>(resolution) | Order number |
|----------------------|--------------------------|--------------------|---------------------------------------|------------------------|--------------|
| TH 2005 (2 x 100 ml) | 0,05-0,50 (0,01)         | 0,09-0,89 (0,02)   | 0,89-8,93 (0,2)                       | 0,01-0,09 (0,01)       | 151005       |
| TH 2025              | 0,25-2,50 (0,05)         | 0,45-4,48 (0,10)   | 4,48-44,8 (0,9)                       | 0,04-0,45 (0,01)       | 151025       |
| TH 2050*             | 0,50-5,00 (0,10)         | 0,89-8,90 (0,10)   | 8,90-89,0 (0,1)                       | 0,09-0,89 (0,10)       | 152050       |
| TH 2100              | 1,00-10,00 (0,20)        | 1,79-17,9 (0,40)   | 17,9-179 (3,8)                        | 0,18-1,79 (0,04)       | 151100       |
| TH 2250              | 2,50-25,00 (0,50)        | 4,48-44,8 (1,00)   | 44,8-448 (10)                         | 0,45-4,48 (0,10)       | 152250       |

\*Only for Testomat® EVO TH and Testomat® Modul TH/TH-R

**Please note that a different bottle insert is required for the 100 ml from the insert included in the delivery. (T2000 conversion kit, art. no. 40143)**

### Testomat 2000® special solutions

| Reagent type  | Device            | Order number |
|---|-------------------|--------------|
| self clean cleaning solution (500 ml)                                   | T 2000 self clean | 151105       |
| Antox solution (2 x 100 ml) for eliminating oxidant-related disruptions | T 2000 Antox      | 151107       |



## Testomat 2000® reagents (500 ml bottle)



| Reagent type                   | Parameters   | for device                    | Measuring range [mg/l] | Order number                                  |
|--------------------------------|--|-------------------------------|------------------------|---|
| CL 2250 A**                    | total chlorine + free chlorine                         | CL T + CL F                   | 0-2,5                  | 156230  |
| CL 2250 B**                    | total chlorine + free chlorine                         | CL T + CL F                   | 0-2,5                  | 156231  |
| CL 2250 C**                    | total chlorine   | CL T                          | 0-2,5                  | 156232  |
| chlorine reagent set T*        | total chlorine + free chlorine                         | CL T + CL F                   | 0-2,5                  | 156235  |
| chlorine reagent set T 50%*    | total chlorine + free chlorine                         | CL T + CL F                   | 0-2,5                  | 156237  |
| chlorine reagent set F*        | free chlorine  | CL F                          | 0-2,5                  | 156233  |
| chlorine reagent set F 50%*    | free chlorine  | CL F                          | 0-2,5                  | 156236 <span style="float: right;">new</span> |
| Chlor reagent set T            | total chlorine   | Modul CL                      | 0-5                    | 156239 <span style="float: right;">new</span> |
| Chlor reagent set F            | free chlorine  | Modul CL                      | 0-5                    | 156234 <span style="float: right;">new</span> |
| Chlor reagent set M            | monochloramine   | Modul NH2CL                   | 0-5                    | 156238 <span style="float: right;">new</span> |
| CLO2 reagent set A u. B*       | chlorine dioxide                                       | ClO <sub>2</sub>              | 0-4,7                  | 156265  |
| CrVI 2100 A                    | chromate CrO <sub>4</sub> <sup>2-</sup> or chromium VI | CrVI                          | 0-5,0<br>0-1,0         | 156220  |
| CrVI 2100 B                    | chromate CrO <sub>4</sub> <sup>2-</sup> or chromium VI | CrVI                          | 0-5,0<br>0-1,0         | 156221  |
| FE 2005 A                      | iron dissolved ( II ) u. ( III )                       | Fe                            | 0-1,0                  | 156250  |
| FE 2005 B                      | iron dissolved ( II ) u. ( III )                       | Fe                            | 0-1,0                  | 156251  |
| Sulfite reagent A              | sulfite  | SO <sub>3</sub> <sup>2-</sup> | 0-50                   | 156240  |
| Sulfite reagent B              | sulfite  | SO <sub>3</sub> <sup>2-</sup> | 0-50                   | 156241  |
| Brom reagent set*              | bromine  | Br                            | 0-5,6                  | 156295  |
| Polymer reagent A              | polymer  | Polymer                       | 0-50                   | 156271  |
| Polymer reagent B              | polymer  | Polymer                       | 0-50                   | 156272  |
| PO4 reagent set 2100           | phosphate  | PO <sub>4</sub>               | 0-10                   | 156264  |
| PO4 reagent 2100 A (20 litres) | phosphate  | PO <sub>4</sub>               | 0-10                   | 156281  |
| PO4 reagent 2100 B (5 litres)  | phosphate  | PO <sub>4</sub>               | 0-10                   | 156282  |

\*The reagent sets are designed for the uniform consumption of reagents; the capacities of the individual reagent bottles are therefore not identical.

\*\* Only reagents CL 2250 A and B are required for measuring free chlorine. All three reagents CL 2250 A, B and C are required for measuring total chlorine.

## Titromat® reagents (500 ml bottle)

| Reagent type      | for | Parameters         | Measuring range | Resolution | Order number |
|-------------------|-----|--------------------|-----------------|------------|--------------|
| TH 2500 reagent A | TH  | Water hardness     | 2,5-50 °dH      | 2,5 °dH    | 155160       |
| TH 2500 reagent B | TH  | Water hardness     | 2,5-50 °dH      | 2,5 °dH    | 155161       |
| TC 2010 reagent A | M1  | Carbonate hardness | 0,05-1 °dH      | 0,025 °dH  | 155172       |
| TC 2010 reagent B | M1  | Carbonate hardness | 0,05-1 °dH      | 0,025 °dH  | 155173       |
| TC 2020 reagent A | M2  | Carbonate hardness | 0,05-2 °dH      | 0,05 °dH   | 155170       |
| TC 2020 reagent B | M2  | Carbonate hardness | 0,05-2 °dH      | 0,05 °dH   | 155171       |
| TC 2060 reagent A | KH  | Carbonate hardness | 2-60 °dH        | 2 °dH      | 155176       |
| TC 2060 reagent B | KH  | Carbonate hardness | 2-60 °dH        | 2 °dH      | 155177       |
| TC 2150 reagent A | KH  | Carbonate hardness | 5-150 °dH       | 5 °dH      | 155178       |
| TC 2150 reagent B | KH  | Carbonate hardness | 5-150 °dH       | 5 °dH      | 155179       |



|           | Type            | Limit value                | Bottle | Order number | Packaging unit |
|-----------|-----------------|----------------------------|--------|--------------|----------------|
| 808/F-BOB | 300             | 0,02 °dH residual hardness | 100 ml | 140001       | 2 x 100 ml     |
|           | 300S            | 0,05 °dH residual hardness | 100 ml | 140002       | 2 x 100 ml     |
|           | 301             | 0,1 °dH residual hardness  | 100 ml | 140003       | 2 x 100 ml     |
|           | 302             | 0,2 °dH residual hardness  | 100 ml | 140004       | 2 x 100 ml     |
|           | 303             | 0,3 °dH residual hardness  | 100 ml | 140005       | 2 x 100 ml     |
|           | 305             | 0,5 °dH residual hardness  | 100 ml | 140006       | 2 x 100 ml     |
|           | 310             | 1 °dH residual hardness    | 100 ml | 140007       | 2 x 100 ml     |
|           | 320             | 2 °dH residual hardness    | 100 ml | 140008       | 2 x 100 ml     |
|           | 330             | 3 °dH residual hardness    | 100 ml | 140009       | 2 x 100 ml     |
|           | 350             | 5 °dH residual hardness    | 100 ml | 140010       | 2 x 100 ml     |
| C-BOB     | C 5             | 0,5 °dH carbonate hardness | 100 ml | 140020       | 2 x 100 ml     |
|           | C 10            | 1 °dH carbonate hardness   | 100 ml | 140021       | 2 x 100 ml     |
|           | C 15            | 1,5 °dH carbonate hardness | 100 ml | 140022       | 2 x 100 ml     |
|           | C 20            | 2 °dH carbonate hardness   | 100 ml | 140023       | 2 x 100 ml     |
|           | C 30            | 3 °dH carbonate hardness   | 100 ml | 140024       | 2 x 100 ml     |
|           | C 40            | 4 °dH carbonate hardness   | 100 ml | 140025       | 2 x 100 ml     |
| M-BOB     | M 1             | 0,1 mmol/l minus m-value   | 100 ml | 140040       | 2 x 100 ml     |
|           | M 3             | 0,3 mmol/l minus m-value   | 100 ml | 140041       | 2 x 100 ml     |
|           | M 5             | 0,5 mmol/l minus m-value   | 100 ml | 140042       | 2 x 100 ml     |
| 808/F-BOB | 300             | 0,02 °dH residual hardness | 500 ml | 141001       | 500 ml         |
|           | 300 S           | 0,05 °dH residual hardness | 500 ml | 141002       | 500 ml         |
|           | 301             | 0,1 °dH residual hardness  | 500 ml | 141003       | 500 ml         |
|           | 302             | 0,2 °dH residual hardness  | 500 ml | 141004       | 500 ml         |
|           | 303             | 0,3 °dH residual hardness  | 500 ml | 141005       | 500 ml         |
|           | 305             | 0,5 °dH residual hardness  | 500 ml | 141006       | 500 ml         |
|           | 310             | 1 °dH residual hardness    | 500 ml | 141007       | 500 ml         |
|           | 320             | 2 °dH residual hardness    | 500 ml | 141008       | 500 ml         |
|           | 330             | 3 °dH residual hardness    | 500 ml | 141009       | 500 ml         |
|           | 350             | 5 °dH residual hardness    | 500 ml | 141010       | 500 ml         |
| C-BOB     | C 5             | 0,5 °dH carbonate hardness | 500 ml | 141020       | 500 ml         |
|           | C 10            | 1 °dH carbonate hardness   | 500 ml | 141021       | 500 ml         |
|           | C 15            | 1,5 °dH carbonate hardness | 500 ml | 141022       | 500 ml         |
|           | C 20            | 2 °dH carbonate hardness   | 500 ml | 141023       | 500 ml         |
|           | C 30            | 3 °dH carbonate hardness   | 500 ml | 141024       | 500 ml         |
|           | C 40            | 4 °dH carbonate hardness   | 500 ml | 141025       | 500 ml         |
| M-BOB     | M 1             | 0,1 mmol/l minus m-value   | 500 ml | 141040       | 500 ml         |
|           | M 3             | 0,3 mmol/l minus m-value   | 500 ml | 141041       | 500 ml         |
|           | M 5             | 0,5 mmol/l minus m-value   | 500 ml | 141042       | 500 ml         |
| 808 SiO2  | A               | 0,3 - 1,2 ppm SiO2         | 500 ml | 141808       | 500 ml         |
|           | B               | 0,3 - 1,2 ppm SiO2         | 500 ml | 141809       | 500 ml         |
|           | reagent set A+B | 0,3 - 1,2 ppm SiO2         | 100 ml | 140808       | 100 ml         |

Product

Softmaster® ROE compact

Softmaster® ROE1



| <b>Description</b>           | Controller for reverse osmosis systems  | Controller for reverse osmosis systems   |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
|------------------------------|---|--|--------|-------|-------|-----------------------|--------|--------|--------|------------------------|---|---|---|--------------|--------------|--------|--|---|---|---|---|--|-----|-------|-------|--------------|--------------|--------|--|--|---|---|---|--------------|--------------|--------|--|--|---|---|---|
| <b>Advantages</b>            | <ul style="list-style-type: none"> <li>• multilingual menu navigation</li> <li>• large LCD with 2 lines x 16 characters and backlight</li> <li>• real-time clock</li> <li>• three potential-free relay outputs for pump, inlet valve and flushing valve</li> <li>• two potential-free relay outputs for measuring and error message output</li> <li>• 5 inputs: water deficiency message, concentrate monitoring, overpressure message, storage tank FULL / EMPTY, external motor protection switch, system stop</li> </ul> | <ul style="list-style-type: none"> <li>• variable multi-purpose body for control panel and wall installation</li> <li>• multilingual menu navigation</li> <li>• large blue LCD with 2 lines x 16 characters and backlight</li> <li>• error messages and operating mode displays are displayed alternately and stored in the error history</li> <li>• real-time clock</li> <li>• connection for conductivity probe with temperature sensor for permeate</li> </ul> <p>In addition, the following inputs and outputs:</p> <ul style="list-style-type: none"> <li>• 5 potential-free relay outputs: pump, inlet valve, flushing valve, dosing, and error message output</li> <li>• 5 inputs: water deficiency message, overpressure message motor protection, storage tank FULL /EMPTY, system stop</li> <li>• 12 V-power supply</li> </ul> |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| <b>Protection type/class</b> | IP54 / I  | IP65 / I   |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| <b>Mains connection</b>      | 230–240V, 115V, 24V +/-10%<br>50–60Hz   | 230–240V, 115V, 24V +/-10%<br>50–60Hz  |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| <b>Power consumption</b>     | max. 9 VA   | max. 9 VA  |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| <b>Dimensions</b>            | approx. 357 x 214 x 135 mm<br>14" x 8.4" x 5.3" (W x H x D)   | approx. 270 x 295 x 130 mm<br>10.6" x 11.6" x 5.1"(W x H x D)<br>262 x 146 mm / 10.3" x 5.7", +1 mm<br>control panel cut-out<br>approx. 90 mm / 3.5" installation depth<br>270 x 155 mm / 10.6" x 6.1" front<br>frame dimensions   |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| <b>Weight</b>                | approx. 1.6 kg / 3.5 lbs  | approx. 2.3 kg / 5 lbs   |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| <b>Measuring range</b>       | 0,1-50.000 µS/cm<br>0,01-5,0 cm <sup>-1</sup> cell constant   | 0.1–50,000 µS/cm<br>0.01–5.0 cm <sup>-1</sup> cell constant  |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| <b>Application</b>           | <ul style="list-style-type: none"> <li>• reverse osmosis plants with 1 conductivity measurement</li> </ul>  | <ul style="list-style-type: none"> <li>• reverse osmosis plants with 1 conductivity measurement</li> </ul> <p>Application example on page 5</p>  |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| <b>Menu language</b>         | D, GB, F, I, NL, PL   | D, GB, F, I, NL, PL  |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| <b>Order numbers</b>         | <table border="1"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>attachable with RS232</td> <td>601225</td> <td>601226</td> <td>601227</td> </tr> <tr> <td rowspan="2">installable with RS232</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>upon request</td> <td>upon request</td> <td>601112</td> </tr> <tr> <td></td> <td>—</td> <td>—</td> <td>—</td> </tr> </tbody> </table>  |  | 24V    | 115 V | 230 V | attachable with RS232 | 601225 | 601226 | 601227 | installable with RS232 | — | — | — | upon request | upon request | 601112 |  | — | — | — | <table border="1"> <thead> <tr> <th></th> <th>24V</th> <th>115 V</th> <th>230 V</th> </tr> </thead> <tbody> <tr> <td>upon request</td> <td>upon request</td> <td>601102</td> <td></td> </tr> <tr> <td></td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>upon request</td> <td>upon request</td> <td>601112</td> <td></td> </tr> <tr> <td></td> <td>—</td> <td>—</td> <td>—</td> </tr> </tbody> </table> |  | 24V | 115 V | 230 V | upon request | upon request | 601102 |  |  | — | — | — | upon request | upon request | 601112 |  |  | — | — | — |
|                              | 24V   | 115 V  | 230 V  |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| attachable with RS232        | 601225  | 601226   | 601227 |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| installable with RS232       | —   | —  | —      |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
|                              | upon request  | upon request   | 601112 |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
|                              | —   | —  | —      |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
|                              | 24V   | 115 V  | 230 V  |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| upon request                 | upon request  | 601102   |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
|                              | —   | —  | —      |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
| upon request                 | upon request  | 601112   |        |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |
|                              | —   | —  | —      |       |       |                       |        |        |        |                        |   |   |   |              |              |        |  |   |   |   |   |  |     |       |       |              |              |        |  |  |   |   |   |              |              |        |  |  |   |   |   |

### Softmaster® ROE2



Controller for reverse osmosis systems

like Softmaster® ROE1, but with the following inputs and outputs:

- eight potential-free relay outputs for two pumps, programmable function output, inlet valve, outlet valve, flushing valve, by-pass valve, and error message output
- output for metering pulse
- eight inputs for concentrate monitoring, emergency operation (bypass) and external motor protection switch, water deficiency message, overpressure message, storage tank FULL /EMPTY, system stop
- two inputs for water flow meter
- 12 V power supply for water turbine
- 4–20 mA input for a pressure transducer

IP65 / I

230–240V, 115V, 24V +/-10%  
50–60Hz

max. 9 VA

approx. 270 x 295 x 130 mm  
10.6" x 11.6" x 5.1"(W x H x D)  
262 x 146 mm / 10.3" x 5.7", +1 mm  
control panel cut-out  
approx. 90 mm / 3.5" installation depth  
270 x 155 mm / 10.6" x 6.1" front  
frame dimensions

approx. 2.3 kg / 5 lbs

0,1-50.000 µS/cm  
0,01-5,0 cm<sup>-1</sup> cell constant

- reverse osmosis plants with 1 conductivity measurement

D, GB, F, I, NL, PL

### Softmaster® ROE2/S5



Controller for reverse osmosis systems with programmable controller for water deficiency

like Softmaster® ROE2, but in addition:

- programmable function for control for water deficiency. You determine how often and after how much time the system should be turned back on.
- interval for restart after water deficiency message between 1 and 99 minutes can be selected

IP65 / I

230–240V, 115V, 24V +/-10%  
50–60Hz

max. 9 VA

approx. 270 x 295 x 130 mm  
10.6" x 11.6" x 5.1"(W x H x D)  
262 x 146 mm / 10.3" x 5.7", +1 mm  
control panel cut-out  
approx. 90 mm / 3.5" installation depth  
270 x 155 mm / 10.6" x 6.1" front  
frame dimensions

approx. 2.3 kg / 5 lbs

0,1-50.000 µS/cm  
0,01-5,0 cm<sup>-1</sup> cell constant

- reverse osmosis plants with 1 conductivity measurement

D, GB, F, I, NL, PL

### Softmaster® ROE3



Controller for reverse osmosis systems

like Softmaster® ROE1, but with the following inputs and outputs:

- eight potential-free relay outputs for two filters, service valves, two add-on programs, and error message, synchronizing contact
- output for metering pulse
- 12 V power supply for water turbine
- inputs for 2 water flow meters
- 8 inputs: water deficiency message, concentrate monitoring, overpressure message, storage tank FULL / EMPTY, external motor protection switch, system stop

IP65 / I

230–240V, 115V, 24V +/-10%  
50–60Hz

max. 9 VA

approx. 270 x 295 x 130 mm  
10.6" x 11.6" x 5.1"(W x H x D)  
262 x 146 mm / 10.3" x 5.7", +1 mm  
control panel cut-out  
approx. 90 mm / 3.5" installation depth  
270 x 155 mm / 10.6" x 6.1" front  
frame dimensions

approx. 2.3 kg / 5 lbs

0,1-50.000 µS/cm  
0,01-5,0 cm<sup>-1</sup> cell constant

- reverse osmosis plants with second conductivity measurement for controlling an EDI module

D, GB, F, I, NL, PL



| 24V     |         |         |         | 115 V |   |   |              | 230 V        |              |              |              | 230V/24 V |   |   |              |
|---------|---------|---------|---------|-------|---|---|--------------|--------------|--------------|--------------|--------------|-----------|---|---|--------------|
| request | request | request | request | —     | — | — | upon request | upon request | upon request | upon request | upon request | —         | — | — | upon request |
| request | request | request | request | —     | — | — | —            | upon request | upon request | upon request | 603202       | —         | — | — | —            |
| 602010  | request | 602012  | —       | —     | — | — | upon request | upon request | upon request | upon request | 603012       | —         | — | — | —            |
| 602210  | 602211  | 602212  | —       | —     | — | — | —            | upon request | upon request | upon request | 603212       | —         | — | — | —            |

**Product**

**Softmaster® MMP1**

**Softmaster® MMP2**



|                              |                        |   |            |              |  |            |              |              |                 |
|------------------------------|------------------------|---|------------|--------------|--|------------|--------------|--------------|-----------------|
|                              |                        |    |            |              |   |            |              |              |                 |
| <b>Description</b>           |                        | Controller for water softening plants   |            |              | Controller for water softening plants  |            |              |              |                 |
| <b>Pluspunkte</b>            |                        | <ul style="list-style-type: none"> <li>• variable multi-purpose housing for control panel installation and wall installation</li> <li>• multilingual menu navigation</li> <li>• large blue LCD with 2 lines x 16 characters and backlight</li> <li>• error messages and operating mode displays are displayed alternately and stored in the error history</li> <li>• real-time clock</li> <li>• five potential-free relay outputs for two filters, service valves and error message, synchronizing contact</li> <li>• 12 V power supply for water turbine</li> <li>• 5 inputs: water flow meter, regeneration start/regeneration stop, salt and brine monitoring, and additional external program start</li> <li>• connection to various valves such as Autotrol, WWWS, Fleck, Siata</li> </ul> |            |              | <p>like Softmaster® MMP1, but with the following inputs and outputs:</p> <ul style="list-style-type: none"> <li>• eight potential-free relay outputs for two filters, service valves, two additional programs, and error message, synchronizing contact</li> <li>• output for metering pulse</li> <li>• 12 V power supply for water turbine</li> <li>• inputs for 2 water flow meters</li> <li>• 8 inputs: regenerationsstart/ regenerations-stop, brine level – empty/full, synchronous messages from valves, and error messages from Testomat instruments</li> </ul> |            |              |              |                 |
| <b>Protection type/class</b> |                        | IP65 / I  |            |              | IP65 / I   |            |              |              |                 |
| <b>Mains connection</b>      |                        | 230–240V, 115V, 24V +/-10%<br>50–60Hz   |            |              | 230–240V, 115V, 24V +/-10%<br>50–60Hz  |            |              |              |                 |
| <b>Power consumption</b>     |                        | max. 9 VA   |            |              | max. 9 VA  |            |              |              |                 |
| <b>Dimensions</b>            |                        | approx. 270 x 295 x 130 mm<br>10.6" x 11.6" x 5.1" (W x H x D)<br>262 x 146 mm / 10.3" x 5.7", +1 mm control panel cut-out<br>approx. 90 mm / 3.5" installation depth<br>270 x 155 mm / 10.6" x 6.1" front frame dimensions   |            |              | approx. 270 x 295 x 130 mm<br>10.6" x 11.6" x 5.1" (W x H x D)<br>262 x 146 mm / 10.3" x 5.7", +1 mm control panel cut-out<br>approx. 90 mm / 3.5" installation depth<br>270 x 155 mm / 10.6" x 6.1" front frame dimensions  |            |              |              |                 |
| <b>Weight</b>                |                        | approx. 1.3 kg / 2.9 lbs  |            |              | approx. 1.3 kg / 2.9 lbs   |            |              |              |                 |
| <b>Measuring range</b>       |                        | —   |            |              | —  |            |              |              |                 |
| <b>Application</b>           |                        | <ul style="list-style-type: none"> <li>• fully automatic regeneration of water softening systems</li> <li>• suitable for central control valves or pilot distributors, controlled via electrical toggle or pulse switch for single and double softening systems</li> <li>• quantity, time, or quality controlled activation of regeneration</li> </ul>  |            |              | <ul style="list-style-type: none"> <li>• like Softmaster MMP1</li> </ul> <p>in addition:</p> <ul style="list-style-type: none"> <li>• parallel and serial connection</li> </ul>  |            |              |              |                 |
| <b>Menu language</b>         |                        | D, GB, F, I, NL, PL   |            |              | D, GB, F, I, NL, PL  |            |              |              |                 |
| <b>Order numbers</b>         |                        |   | <b>24V</b> | <b>115 V</b> | <b>230 V</b>   | <b>24V</b> | <b>115 V</b> | <b>230 V</b> | <b>230V/24V</b> |
|                              | attachable with RS232  |   | 610100     | 610101       | 610102   | 620000     | 620001       | 620002       | 620003          |
|                              | installable with RS232 |   | —          | —            | —  | 620200     | 620201       | 620202       | 620203          |
|                              |                        |   | 610110     | 610111       | 610112   | 620010     | 620011       | 620012       | —               |
|                              |                        |   | —          | —            | —  | 620210     | 620211       | 620212       | —               |



**Product**

**Softmaster® MMP compact**

**MultiControl CT**



**Description**

Controller for water softening systems

Controller for cooling systems

**Advantages**

- multilingual menu navigation
- large LCD with 2 lines x 16 characters and backlight
- error messages and operating mode displays are displayed alternately and stored in the error history
- real-time clock
- 4 non-potential-free relay outputs: 2 filters, service valves, and synchronous contact
- one potential-free relay output for error message/additional program
- 12 V power supply for water turbine
- 5 inputs: water flow meter, regeneration start/regeneration stop, brine monitoring – empty and additional external program start
- connection to various valves such as Autotrol, WWWS, Fleck, Siata

- LCD graphic display with background lighting
- multi-language menu (DE, GB, FR, NL, PL, ES, TR)
- relay outputs for attaching up to three pumps (dosing pump, circulation pump)
- alarm output
- inputs for external engine protection, water flow meter, biocide monitoring
- two slots for conductivity probes and interface card
- Error indicator on the display
- error history for 20 notifications measurements and error notifications can be stored on SD card
- ring buffer with 50 storage spaces
- calibrating function for the conductivity probe
- biocide metering dependent on time
- 1 output for desalting valve (engine or magnet valve)

**Protection type/class**

IP65 / I

IP54 / I

**Mains connection**

230–240V, 115V, 24V +/-10% 50–60Hz

230VAC, 24VAC +/-10% 50–60Hz or 100-240VAC, 100-353 VDC (wide-range power supply)

**Power consumption**

max. 9 VA

max. 25 VA (without external load)

**Dimensions**

approx. 257 x 214 x 135 mm  
10.1" x 8.4" x 5.3" (W x H x D)

approx. 229 x 205 x 117 mm  
8" x 9" x 4.6" (W x H x D)

**Weight**

approx. 1.6 kg / 3.5 lbs

approx. 1,5 kg / 3.3 lbs

**Measuring range**

—

0-199,9 µS/cm bis 0-199,9 mS/cm (depending on cell constants)

**Application**

- fully automatic regeneration of water softening plants
- suitable for central control valves or pilot distributors, controlled via electrical toggle or pulse switch for single and double softening systems
- quantity, time, or quality controlled activation of regeneration

- Control of desalting and metering in cooling circuits  
Application example on page 7

**Menu language**

D, GB, F, I, NL, PL

D, GB, F, NL, PL, ES, TR

**Order numbers**

attachable

| 24V    | 115 V  | 230 V  |
|--------|--------|--------|
| 610225 | 610226 | 610227 |

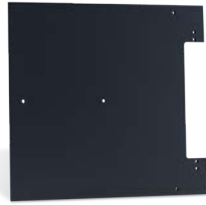
|               | 24 V   | 100-240V | 230V   |
|---------------|--------|----------|--------|
| inductive/PH  | 341010 | 341020   | 341030 |
| conductive/PH | 341070 | 341080   | 341090 |

Accessories  
Softmaster®

Adapter plate

RS232 interface

Current interface



**Is used**

for Softmaster® devices

for Softmaster® 2 devices

for Softmaster® 2 devices

**Order number**

130011

037259

037309

**Description**

With the help of the adapter plate, you can easily replace your old Heyl controller with a Softmaster® controller without drilling

plug-in card for one RS232 interface and one current interface

plug-in card for one current interface

**Technical data**

- The old holes can be used for mounting the adapter plate. The Softmaster® device is then attached to the adapter plate.
- dimensions (W x H x D):  
264 x 280 x 8 mm  
10.4" x 11" x 0.3"

- current output: 0–20mA
- RS232 serial interface

- current output:  
• 0–20mA or 4–20mA
- maximum load: 500 Ohm
- galvanic isolation

Inductive  
conductivity probes

ADI plug-in card



**Is used**




for MultiControl




**Order number**

37342

**Technical data**

Plug-in card  
Analog Digital Interface  
  
equipped with:  
• RS232 Interface  
• 2 x 20mA current output

| Accessories measuring instruments | pH combination electrodes   | ESA screw-in fittings  | pH-probe for measuring probe  |
|-----------------------------------|---|--|---|
|                                   |    |    |    |
| <b>Is used</b>                    | for MultiControl, EcoControl pH to replace devices purchased prior to 05/2013.  | for EMK 20 and EMK 50  | for MultiControl, EcoControl pH   |
| <b>Order number</b>               | EMK 20      320301<br>EMK 50      320302  | 320310   | 310137  |
| <b>Technical data</b>             | <ul style="list-style-type: none"> <li>EMK 20:               <ul style="list-style-type: none"> <li>measuring range 1–12 pH</li> <li>temperature 0–80°C / 32–176°F</li> <li>pressure 10 bar / 145 psi</li> </ul> </li> <li>EMK 50 with PT 100:               <ul style="list-style-type: none"> <li>measuring range 0–14 pH</li> <li>temperature 0–135°C / 32–275°F</li> <li>pressure 16 bar / 232 psi</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>stainless steel</li> <li>max. medium temperature: 130°C / 266°F</li> <li>connection: R ¼ external thread</li> </ul> | <ul style="list-style-type: none"> <li>with PT 100</li> <li>measuring range 1–14 pH</li> <li>temperature – 5 ... 135°C (23 ... 275°F)</li> <li>pressure 10 bar / 145 psi</li> </ul> |

|                       | Cable for combination electrode  | Conductivity probe connection cables   | pH probe connection cables   |
|-----------------------|--|--|--|
|                       |   |    |   |
| <b>Is used</b>        | High-impedance coaxial cable, pre-made with screw and BNC connectors   | Probe cable with STE5 cable socket   | Probe cable with pH VarioPIN cable socket  |
| <b>Order number</b>   | KOAX 5      320320<br>KOAX 10     320321<br>KOAX/PT 5   320325<br>KOAX/PT 10 320326  | 310136   | 310138   |
| <b>Technical data</b> | <ul style="list-style-type: none"> <li>KOAX 5: for EMF 20/RMK 20, length 5 m / 16.4 ft</li> <li>KOAX 10: for EMK 20/RMK 20, length 10 m / 32.8 ft</li> <li>KOAX/ PT 5: for EMF 50 with potential matching line, length 5 m / 16.4 ft</li> <li>KOAX/ PT 10: for EMF 50 with potential matching line, length 10 m / 32.8 ft</li> </ul> | <ul style="list-style-type: none"> <li>length 10 m / 32.8 ft</li> <li>4-lead for probes with PT 100</li> <li>with STE5 plug for conductivity probes</li> </ul> | <ul style="list-style-type: none"> <li>length 10 m / 32.8 ft</li> <li>4-lead for probes with PT 100</li> <li>with VarioPin plug for pH probes</li> </ul> |

**Conductive conductivity probes  
without temperature sensor**



We also construct special versions of our probes for your specific application upon request.  
All probes are suitable for applications up to 6 bar / 87 psi.

**Controllers**

|                            | Material  | Cell constants [1/cm] | Maximum medium temp. [°C] | Connection design           | Measuring range [µS/cm] | Order no. |
|----------------------------|-----------|-----------------------|---------------------------|-----------------------------|-------------------------|-----------|
| <b>Normal probes:</b>      |           |                       |                           |                             |                         |           |
| SO 1                       | PVC-U     | 0,10                  | 40                        | PVC union nut Rp 1¼         | 1-2000                  | 310001    |
| SO 5                       | PVC-U     | 0,50                  | 40                        | PVC union nut Rp 1¼         | 5-10000                 | 310003    |
| SO 10                      | PVC-U     | 1,00                  | 40                        | PVC union nut Rp 1¼         | 10-20000                | 310014    |
| <b>Screw-in probes:</b>    |           |                       |                           |                             |                         |           |
| SOE 0                      | V4A steel | 0,01                  | 130                       | external thread R ¾         | 0,1-200                 | 310005    |
| SOE 1                      | V4A steel | 0,10                  | 130                       | external thread R ¾         | 1-2000                  | 310002    |
| SOE 5                      | V4A steel | 0,50                  | 130                       | external thread R ¾         | 5-10000                 | 310004    |
| <b>Submersible probes:</b> |           |                       |                           |                             |                         |           |
| SEI 5                      | PVC-U     | 0,50                  | 40                        | DN 20, connection cable 5 m | 5-10000                 | 310103    |

**Conductive conductivity probes  
with temperature sensor**



We also construct special versions of our probes for your specific application upon request.  
All probes are suitable for applications up to 6 bar / 87 psi.

|                                    | Material  | Cell constants [1/cm] | Maximum medium temp. [°C] | Connection design           | Measuring range [µS/cm] | Order no. |
|------------------------------------|-----------|-----------------------|---------------------------|-----------------------------|-------------------------|-----------|
| <b>Normal probes:</b>              |           |                       |                           |                             |                         |           |
| ST 1 / PT 100                      | PVC-U     | 0,10                  | 40                        | PVC union nut Rp 1¼         | 1-2000                  | 310120    |
| ST 5 / PT 100                      | PVC-U     | 0,50                  | 40                        | PVC union nut Rp 1¼         | 5-10000                 | 310121    |
| <b>Screw-in probes:</b>            |           |                       |                           |                             |                         |           |
| STE 0 / PT 100                     | V4A steel | 0,01                  | 130                       | external thread R ¾         | 0,1-200                 | 310110    |
| STE 1 / PT 100                     | V4A steel | 0,10                  | 130                       | external thread R ¾         | 1-2000                  | 310125    |
| STE 5 / PT 100                     | V4A steel | 0,50                  | 130                       | external thread R ¾         | 5-10000                 | 310126    |
| STE 5 / PT 100 for measuring probe | V4A steel | 0,50                  | 130                       | Vario Pin                   | 5-10000                 | 310135    |
| <b>Submersible probes:</b>         |           |                       |                           |                             |                         |           |
| SEI 5 / PT 100                     | PVC-U     | 0,50                  | 40                        | DN 20, connection cable 5 m | 5-10000                 | 310131    |



**Description**

Pilot distributor with 4 switch settings

- **PVH / PVH 4:** toggle switch for 8 bar (116 PSI) hydraulic pressure or 4.5 bar (65.3PSI) pneumatic pressure
- **PVP / PVP 4:** toggle switch for 8 bar (116 PSI) pneumatic pressure

- **PVH I / PVH I4:** pulse switch for 8 bar (116 PSI) hydraulic pressure or 4.5 bar (65.3 PSI) pneumatic pressure
- **PVP I / PVP I4:** pulse switch for 8 bar (116 PSI) pneumatic pressure
- without screw connections

**Description**

control of individual valves in automatic water treatment systems

**Mains connection**

230–240 V, 24 V +/-10% 50–60 Hz

**Protection type/class**

IP44 / I

**Power consumption**

max. 5 VA

**Dimensions**

approx. 125 x 120 x 210 mm  
4.9" x 4.7" x 8.3" (W x H x D)

**Weight**

approx 1.6 kg / 3.5 lbs

**Ambient temperature**

0–45 °C / 32–113 °F

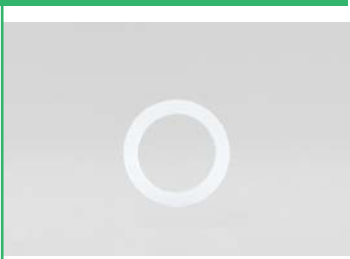
**Order numbers**

| Typ            | 24V                               | 24V                               | 230V                              | 230V                              |
|----------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
|                | valves, opened when depressurized | valves, closed when depressurized | valves, opened when depressurized | valves, closed when depressurized |
| PVH / PVH 4    | 250002                            | 250004                            | 250001                            | 250003                            |
| PVP / PVP 4    | 250011                            | 250013                            | 250010                            | 250012                            |
| PVH I / PVH I4 | 250006                            | 250008                            | 250005                            | 250007                            |
| PVP I / PVP I4 | 250015                            | 250017                            | 250014                            | 250016                            |

**Program disc**

**PVH/PVP screw connector**

**Seal for screw connector**



**Is used**

for pilot distributor

for pilot distributor

for pilot distributor

**Order number**

PV S1 250031  
PV S2 250032  
PV S8 250038  
PV S9 250039

033900

033475

**Description**

PV S1 : additional disc and neutral contact for controlling a valve or a relay of a guard during the course of the program.  
PV S2 : like S1 but with two additional discs  
PV S3 : automatic return movement thanks to the upstream programming unit  
PV S9 : freely configurable program disc, e.g. for gravel filter systems

screw connector for pilot distributor (8 pieces required)

seal for screw connector (8 pieces required)






Limit value kits

DUROGNOST® I



DUROGNOST® SR 0




DUROGNOST® SR




|                     |   |   |  |
|---------------------|---|---|--|
|                     |    |   |   |
| <b>Is used als</b>  | quick colorimetric determination of residual hardness   | limit value test for quick determination of residual hardness   | limit value test for quick determination of residual hardness  |
| <b>Order number</b> | 400050  | 400056  | 400055   |
| <b>Description</b>  | special indicator in powder form for quick colorimetric determination of minimum hardness traces in the range of 0–0.1°dH or 0–2 ppm CaCO <sub>3</sub> or 0,2 °f (French hardness)<br>complete with measuring tube and spoon<br>analyses: approx. 700<br>measuring time: approx. ½ minute | special liquid indicator in a dropper bottle for monitoring the residual hardness of softened water, adapted for limit values of 0.1 and 0.05 °dH.<br>complete with measuring tube and stopper<br>analyses: approx. 250<br>measuring time: approx. ½ minute | equipped like DUROGNOST® SR 0, but adapted for limit values of 0.5 and 0.25 °dH<br><br>analyses: approx. 250<br>measuring time: approx. ½ minute |







DUROGNOST® SR 1




DUROGNOST®  
special buffer solution




|                     |   |   |  |
|---------------------|---|---|--|
|                     |    |   | A company logo on the supplement is free with purchase of more than 100 Duroval® or Durognost® articles. |
| <b>Is used als</b>  | limit value test for quick determination of residual hardness   | buffer solution for alkaline water samples  |  |
| <b>Order number</b> | 400054  | 400016  |  |
| <b>Description</b>  | equipped like DUROGNOST® SR0, but adapted to limit values of 1 and 0.5 °dH<br><br>analyses: approx. 250<br>measuring time: approx. ½ minute | for buffering strongly alkaline water samples (pH over 10) for determining total and residual hardness with DUROGNOST® and DUROVAL® kits (8 ml dropper bottle)<br><br>analyses: approx. 200 |  |

| Titration quick test kits | DUROVAL®<br>1 drop = 1 °dH  | DUROVAL®<br>1 drop = 1 °f   | DUROVAL® 1 Tr.<br>= 10 ppm CaCO <sub>3</sub>  |
|---------------------------|---|---|---|
|                           |    |   |    |
| <b>Is used as</b>         | titration kit for determining water hardness via complexometric titration   | titration kit for determining water hardness via complexometric titration   | titration kit for determining water hardness via complexometric titration   |
| <b>Order number</b>       | 1 piece            400010<br>50 pieces        400110<br>neutral inlays without folding box<br>50 piece kit     400112<br>neutral inlays without folding box<br>50 pieces        400118<br>neutral inlays with folding box | 1 piece            400011<br>50 pieces        400111<br>neutral inlays without folding box<br>50 piece kit     400113<br>neutral inlays without folding box<br>50 pieces        400119<br>neutral inlays with folding box | 400012  |
| <b>Description</b>        | 1 drop corresponds to 1 degree of German hardness<br><br>analyses: approx. 30 (with an average hardness of 10 °dH).   | 1 drop corresponds to 1 degree of French hardness<br><br>analyses: approx. 30 (with an average hardness of 10 °f)   | 1 drop corresponds to 10 ppm CaCO <sub>3</sub><br>analyses: approx. 30 (with an average hardness of 10 °f)<br>approx. 30 (with an average hardness of 100 ppm CaCO <sub>3</sub> ) |

|                     | DUROVAL®<br>1 drop = 1 °KH   | DUROVAL®<br>1 drop = 0,1 °dH   | DUROVAL® AP  |
|---------------------|--|--|--|
|                     |                                     |                                  |   |
| <b>Is used as</b>   | titration kit for determining carbonate hardness via acidimetric titration   | titration kit for determining water hardness via complexometric titration  | titration kit for determining water hardness via complexometric titration  |
| <b>Order number</b> | 1 piece            400015<br>50 pieces        400120   | 400007   | 400021   |
| <b>Description</b>  | 1 drop corresponds to 1 degree of carbonate hardness<br><br>analyses: approx. 30 (with an average hardness of 10 °dH). | 1 drop corresponds to 0.1 degree of German hardness<br><br>analyses: approx. 30 (with an average hardness of 1 °dH). | <ul style="list-style-type: none"> <li>• measuring tube</li> <li>• powder indicator</li> <li>• dosing pipette calibrated 0–30 °dH</li> <li>• 50 ml titration solution</li> </ul><br>analyses: approx. 100 (with an average carbonate hardness of 15 °dH)<br>measuring time: approx. 2 minutes<br>measurement accuracy: 0.5 °dH |

|                     | DUROVAL® A   | DUROVAL® A<br>with pipette 0-60°F   | DUROVAL AF  |
|---------------------|--|---|---|
|                     |   |   |    |
| <b>Is used as</b>   | titration kit for determining water hardness via complexometric titration  | titration kit for determining water hardness via complexometric titration   | titration kit for determining water hardness via complexometric titration   |
| <b>Order number</b> | 400020   | 400018  | 400022  |
| <b>Description</b>  | <ul style="list-style-type: none"> <li>• measuring tube</li> <li>• liquid indicator</li> <li>• dosing pipette calibrated 0–30 °dH</li> <li>• 50 ml titration solution</li> </ul> <p>analyses: approx. 100 (with an average carbonate hardness of 15 °dH)<br/>measuring time: approx. 2 minutes<br/>measurement accuracy: 0.5 °dH</p> | <ul style="list-style-type: none"> <li>• measuring tube</li> <li>• powder indicator</li> <li>• dosing pipette calibrated 0–60 °f (French hardness)</li> <li>• 50 ml titration solution</li> </ul> <p>analyses: approx. 100 (with an average carbonate hardness of 26.7 °f)<br/>measuring time: approx. 2 minutes<br/>measurement accuracy: 1 °f</p> | <ul style="list-style-type: none"> <li>• measuring tube</li> <li>• powder indicator</li> <li>• dosing pipette calibrated 0–30 °dH</li> <li>• 50 ml titration solution</li> </ul> <p>analyses: approx. 100 (with an average carbonate hardness of 15 °dH)<br/>measuring time: approx. 2 minutes<br/>measurement accuracy: 0.5 °dH</p>            |
|                     | DUROVAL® B   | DUROVAL® BP   | DUROVAL® BF   |
|                     |   |   |    |
| <b>Is used as</b>   | titration kit for determining water hardness via complexometric titration  | titration kit for determining water hardness via complexometric titration   | titration kit for determining water hardness via complexometric titration   |
| <b>Order number</b> | 400030   | 400031  | 400032  |
| <b>Description</b>  | <ul style="list-style-type: none"> <li>• measuring tube</li> <li>• liquid indicator</li> <li>• dosing pipette calibrated 0–2 °dH</li> <li>• 50 ml titration solution</li> </ul> <p>analyses: approx. 100 (with an average hardness of 1 °dH)<br/>measuring time: approx 2 minutes<br/>measurement accuracy: 0.05 °dH</p>             | <ul style="list-style-type: none"> <li>• with measuring tube</li> <li>• powder indicator</li> <li>• dosing pipette calibrated 0–2 °dH</li> <li>• 50 ml titration solution</li> </ul> <p>analyses: approx. 100 (with an average hardness of 1 °dH)<br/>measuring time: approx 2 minutes<br/>measurement accuracy: 0.05 °dH</p>                       | <ul style="list-style-type: none"> <li>• with measuring tube</li> <li>• powder indicator</li> <li>• dosing pipette calibrated 0–60 °f (French hardness)</li> <li>• 50 ml titration solution</li> </ul> <p>analyses: approx. 100 (with an average hardness of 1.78 °f)<br/>measuring time: approx 2 minutes<br/>measurement accuracy: 0.1 °f</p> |

| Titration quick test kits | Water hardness DUO  | DUROVAL® C  | DUROVAL® CPM   |
|---------------------------|---|---|--|
|                           |    |   |   |
| <b>Is used as</b>         | titration kit for determining water hardness  | titration kit for determining carbonate hardness/m-value  | kit for determining the carbonate hardness (m-value) and p-value   |
| <b>Order number</b>       | 400005  | 400060  | 400065   |
| <b>Description</b>        | determining the hardness of raw water (0–30 °dH) and water after treatment (0–2 °dH)<br>measuring range: 0–30 °dH<br>resolution: 0,5 °dH<br>measuring range: 0–2 °dH<br>resolution: 0,025 °dH<br>complete with all reagents and accessories | acid capacity up to pH 4,3;<br>$K_{S4,3}$<br>analyses: approx. 100 (with an average carbonate hardness of 10 °dH)<br>measuring time: approx. 2 minutes<br>measurement accuracy: 0.5 °dH/0.25 mmol/l<br>complete with measuring tube, dosing pipette with calibration 0–20 °dH and 0–7 mmol/l, special connection stopper, indicator, and 50 ml titration solution | equipped like Duroval® C above, but with an additional p-value indicator<br>m-value: acid capacity up to pH 4,3; $K_{S4,3}$<br>p-value: acid capacity up to pH 8,2; $K_{S8,2}$<br>measuring time: approx. 2 minutes<br>measurement accuracy: 0.5 °dH/0.25 mmol/l |

|                     | DUROVAL® Chlorid   | DUROVAL® CO <sub>2</sub>  | DUROVAL® $K_{S4,3}$  |
|---------------------|--|---|--|
|                     |   |   |   |
| <b>Is used as</b>   | kit for determining the chloride content of water  | test kit for the determination of free carbon dioxide in water via drop titration   | titration kit for determining acid capacity up to pH 4.3   |
| <b>Order number</b> | 400090   | 400070  | 400067   |
| <b>Description</b>  | complete with all reagents and accessories<br>analyses: approx 200<br>measuring time: approx. 2 minutes<br>titration pipette: calibrated 0–300 mg/l Cl <sup>-</sup><br>measurement accuracy: 10 mg/l Cl <sup>-</sup> | complete with measuring tube, stopper. and three reagents<br>analyses: approx. 200 (with an average concentration of 100 mg/l CO <sub>2</sub> ) | Acid capacity up to pH 4,3;<br>$K_{S4,3}$<br>analyses: approx. 100 (with an average acid capacity of 1 mmol/l)<br>measuring time: approx. 2 minutes<br>resolution : 0.05 mmol/l<br>complete with measuring tube, dosing pipette with calibration 0–2 mmol/l, special connection stopper, indicator, and 50 ml titration solution |

**DUROVAL® K<sub>B8,2</sub>**

**DUROVAL® Sulfate**

**DUROVAL® TF**



**Is used as**

titration kit for determining base capacity up to pH 8.2

kit for determining the sulfate content of water

industrial kit for water treatment plants

**Order number**

400077

400080

400042

**Description**

base capacity up to pH 8,2;  
K<sub>B8,2</sub>  
analyses: approx. 100 (with an average base capacity of 1 mmol/l)  
measuring time: approx. 2 minutes  
resolution : 0.05 mmol/l  
complete with measuring tube, dosing pipette with calibration 0–2 mmol/l, special connection stopper, indicator, and 50 ml titration solution

complete with all reagents and accessories

analyses: approx 30  
titration pipette: calibrated 0–300 mg/l SO<sub>4</sub><sup>2-</sup>  
measurement accuracy: 10 mg/l SO<sub>4</sub><sup>2-</sup>

- measuring tube
- powder indicator
- dosing pipette calibrated 0–60 °f (French hardness)
- 30 ml titration solution

analyses: approx. 60 (with an average carbonate hardness of 26.7 °f )

**DUROVAL® TI**

**DUROVAL® TI with pipette 0–60 °f**

**DUROVAL® TP**



**Is used as**

industrial kit for water treatment plants

industrial kit for water treatment plants

industrial kit for water treatment plants

**Order number**

400040

400038

400041

**Description**

- measuring tube
- liquid indicator
- dosing pipette calibrated 0–30 °dH
- 30 ml titration solution

analyses: approx. 60 (with an average carbonate hardness of 15 °dH)



- measuring tube
- liquid indicator
- dosing pipette calibrated 0–60 °f (French hardness)
- 30 ml titration solution




analyses: approx. 60 (with an average carbonate hardness of 26.7 °f )

- measuring tube
- powder indicator
- dosing pipette calibrated 0–30 °dH
- 30 ml titration solution

analyses: approx. 60 (with an average carbonate hardness of 15 °dH)



| Titration quick test kits | KSS titration kit   | Polyamine test kit   |  |
|---------------------------|---|--|--|
|                           |                    |    |  |
| <b>Is used as</b>         | measuring kit for simple monitoring of cooling lubricant content                                    | test kit for determining the polyamine concentration of circulating water  |  |
| <b>Order number</b>       | 400280  | polyamine CCOH 400165<br>polyamine V 15/30 400166<br>polyamine K 26 400167<br>polyamine B42/C71 400168<br>polyamine A-853R 400169  |  |
| <b>Description</b>        | complete with all reagents and accessories<br>concentration range and accuracy are customerspecific | product-specific adaptation of the titration solution, complete with all reagents and accessories<br><br>analyses: approx. 100 (with an average concentration of 30 mg/l)<br>measuring time: approx. 3 minutes<br>resolution: 1 mg/l |  |







|                     | Polyamine reagents  | Polyamine titration solution  | Polyamine NI / NT refill pack  |
|---------------------|---|---|--|
|                     |    |   |   |
| <b>Is used as</b>   | reorder polyamine reagents  | reorder polyamine titration liquid  | polyamine NT refill package (reagents C and titration solution)  |
| <b>Order number</b> | reagentien A 400185 (10 bottles with 8 ml)<br>reagentien B 400186 (10 bottles with 8 ml)<br>reagentien C 400187 (10 bottles with 50 ml) | Polyamine CCOH 400188 (10 bottles with 50 ml)<br>Polyamine V 15/30 400189 (10 bottles with 50 ml)<br>Polyamine K 26 400190 (10 bottles with 50 ml)<br>Polyamine B42/C71 400191 (10 bottles with 50 ml)<br>Polyamine A-853R 400192 (10 bottles with 50 ml) | Polyamine CCOH 400175<br>Polyamine V 15/30 400176<br>Polyamine K 26 400177<br>Polyamine B42/C71 400178<br>Polyamine A-853R 400179<br><br>polyamine NI refill pack<br>reagents A+B 400170<br>can be used universally for all polyamine products |







**DUROVAL® refill pack**




|   | <b>Hardness grade</b> | <b>Quantity</b>                            | <b>Order number</b> |
|---|-----------------------|--|---------------------|
| DUROVAL® A titration solution                 | 0–30 °dH (0–60 °f)    | bottle with 50 ml<br>50 bottles with 50 ml | 400023<br>400123    |
| DUROVAL® B titration solution                 | 0–2 °dH (0–4 °f)      | bottle with 50 ml                          | 400033              |
| DUROVAL® TI titration solution                | 0–30 °dH (0–60 °f)    | bottle with 25 ml                          | 400043              |
| DUROVAL® indicator fluid, 8 ml                |                       | liquid, 8 ml                               | 400024              |
| DUROVAL® indicator, 3 g (powder)              |                       | powder, 3 g                                | 400025              |
| DUROVAL® C titration solution                 |                       | bottle with 50 ml                          | 400061              |
| DUROVAL® C indicator, 8 ml                    |                       | bottle with 8 ml                           | 400062              |
| DUROVAL® P indicator, 8 ml                    |                       | bottle with 8 ml                           | 400066              |
| DUROVAL® SO <sub>4</sub> ion exchanger        |                       |  | 400081              |
| DUROVAL® SO <sub>4</sub> reagent A            |                       | 2 bottles with 50 ml each                  | 400082              |
| DUROVAL® SO <sub>4</sub> reagent B            |                       | bottle with 8 ml                           | 400083              |
| DUROVAL® SO <sub>4</sub> titration solution C |                       | bottle with 50 ml                          | 400084              |
| DUROVAL® chloride reagent A + B               |                       | 2 bottles with 17 ml each                  | 400091              |
| DUROVAL® chloride titration solution          |                       | 2 bottles with 50 ml each                  | 400092              |
| DUROVAL® KS 4,3 indicator,                    |                       | bottle with 8 ml                           | 400068              |
| DUROVAL® KS 4,3 titration solution            |                       | bottle with 50 ml                          | 400069              |
| DUROVAL® KB 8,2 indicator,                    |                       | bottle with 8 ml                           | 400078              |
| DUROVAL® KB 8,2 titration solution            |                       | bottle with 50 ml                          | 400079              |

**Colorimetric test kits**
**Testoval® ammonium**
**Testoval® aluminum**
**Testoval® chlorine DPD method 0,1-1 mg/l**



|                     |   |   |  |
|---------------------|---|---|--|
| <b>Is used as</b>   | color comparison kit for the concentration range 0–10 mg/l NH <sub>4</sub> <sup>+</sup>   | color comparison kit for the concentration range 0–1,5 mg/l Al  | color comparison kit for concentration range 0.1–1 mg/l of free and total chlorine   |
| <b>Order number</b> | 410680  | 410650  | 410520   |
| <b>Description</b>  | individual values:<br>0.1–0.5–1–2.5–5–10 mg/l,<br>complete with 3 reagents<br>analyses: approx. 70<br>measuring time: approx. 4 minutes | individual values:<br>0–0,1–0,2–0,5–1–1,5 mg/l,<br>by diluting the water sample<br>1:10 the measuring range<br>can be extended to 10-times<br>concentrations; complete with<br>2 reagents<br>analyses: approx. 130<br>measuring time: approx. 6 minutes | individual values:<br>0,1–0,2–0,3–0,5–0,75–1 mg/l,<br>complete with 3 reagents<br>analyses: approx. 70<br>measuring time: approx. 1 minute |

| Colorimetric test kits | Testoval® chlorine DPD method 0,5-4 mg/l   | Testoval® chloride   | Testoval® chromate CrVI  |
|------------------------|--|--|--|
|                        |   |    |   |
| <b>Is used as</b>      | color comparison kit for concentration range 0.5–4 mg/l of free and total chlorine   | color comparison kit for concentration range 0–100 mg/l Cl <sup>-</sup>  | color comparison kit for concentration range 0–5 mg/l Cr   |
| <b>Order number</b>    | 411520   | 410526   | 410532   |
| <b>Description</b>     | individual values: 0,5–1–1,5–2–3–4 mg/l, complete with 3 reagents<br>analyses: approx. 70<br>measuring time: approx. 1 minute  | individual values: 1–5–10–25–50–100 mg/l, complete with 2 reagents<br>analyses: approx. 40<br>measuring time: approx. 3 minutes    | individual values: 0,1–0,25–0,5–1–2,5–5 mg/l, complete with 2 reagents<br>analyses: approx. 180<br>measuring time: approx. 3 minutes |
|                        |  |  |  |
|                        | Testoval® iron (II) + (III) dissolved, 0-1 mg/l  | Testoval® iron (II) + (III) dissolved, 0-10 mg/l   | Testoval® hydrazine  |
|                        |   |    |   |
| <b>Is used as</b>      | color comparison kit for concentration range 0–1 mg/l of Fe  | color comparison kit for concentration range 0–10 mg/l of Fe   | color comparison kit for concentration range 0–1 mg/l N <sub>2</sub> H <sub>4</sub>  |
| <b>Order number</b>    | 410547   | 410544   | 410556   |
| <b>Description</b>     | individual values: 0,05–0,1–0,25–0,5–0,75–1 mg/l, by diluting the water sample 1:10 the measuring range can be extended to 10-times concentrations; complete with 2 reagents<br>analyses: approx. 100<br>measuring time: approx. 7 minutes | individual values: 0,25–0,5–1–2,5–5–10 mg/l, complete with 3 reagents<br>analyses: approx. 60<br>measuring time: approx. 7 minutes | individual values: 0–0,05–0,1–0,25–0,5–1 mg/l, complete with reagent<br>analyses: approx. 100<br>measuring time approx. 2 minutes    |

| Colorimetric test kits | Testoval® copper  | Testoval® manganese 0-0,5 mg/l   | Testoval® manganese 0-20 mg/l  |
|------------------------|---|--|--|
|                        |    |    |   |
| <b>Is used as</b>      | color comparison kit for the concentration range 0–2 mg/l Cu  | color comparison kit for the concentration range 0–0,5 mg/l Mn   | color comparison kit for the concentration range 0–20 mg/l Mn  |
| <b>Order number</b>    | 410562  | 410660   | 410568   |
| <b>Description</b>     | individual values: 0,1–0,25–0,5–1,0–1,5–2 mg/l, complete with reagent<br>analyses: approx. 100<br>measuring time: approx. 2 minutes   | individual values: 0,05–0,1–0,2–0,3–0,4–0,5 mg/l, complete with 3 reagents<br>analyses: approx. 70<br>measuring time: approx. 17 minutes   | individual values: 0,5–1–2,5–5–10–20 mg/l, complete with 2 reagents<br>analyses: approx. 100<br>measuring time: approx. 1 minute                     |
|                        | Testoval® nitrite   | Testoval® Phosphate® (orthophosphate)  | Testoval® pH chlorine DPD  |
|                        |    |    |   |
| <b>Is used as</b>      | color comparison kit for the concentration range 0–1 mg/l NO <sub>2</sub> <sup>-</sup>  | color comparison kit for the concentration range 0–10 mg/l P <sub>2</sub> O <sub>5</sub>   | monitoring pH value and chlorine content in swimming pools   |
| <b>Order number</b>    | 410690  | 410592   | 410601   |
| <b>Description</b>     | individual values: 0,05–0,1–0,2–0,3–0,5–1 mg/l, by diluting the water sample 1:10 the measuring range can be extended to 10-times concentrations; complete with reagent.<br>analyses: approx. 100<br>measuring time: approx. 15 minutes | individual values: 0,25–0,5–1–2,5–5–10 mg/l, by diluting the water sample 1:10 the measuring range can be extended to 10-times concentrations; complete with 3 reagents.<br>analyses: approx. 180<br>measuring time: approx. 5 minutes | individual values: pH 6,8–7, 4–8, Chlor 0,1–0,5–1 mg/l, complete with a set of reagents<br>analyses: approx. 70<br>measuring time: approx. 3 minutes |

|                     | Testoval®<br>pH value 5,5-8   | Testoval®<br>pH value 8-12   | Testoval®<br>dissolved silicate   |
|---------------------|---|--|---|
|                     |    |    |    |
| <b>Is used as</b>   | color comparison kit for pH range 5,5–8   | color comparison kit for pH range 8–12   | color comparison kit for the concentration range 0–10 mg/l SiO <sub>2</sub>   |
| <b>Order number</b> | 410610  | 410616   | 410622  |
| <b>Description</b>  | individual values:<br>5,5–6–6,5–7–7,5–8,<br>complete with reagent<br>analyses: approx. 250<br>measuring time:<br>approx. 1 minute | individual values:<br>8–8,5–9–10–11–12,<br>complete with reagent<br>analyses: approx. 250<br>measuring time:<br>approx. 1 minute | individual values:<br>0,25–0,5–1,0–2,5–5–10 mg/l;<br>by diluting the water sample<br>1:10 the measuring range can<br>be extended to 10-times<br>concentrations; complete with<br>4 reagents<br>analyses: approx. 100<br>measuring time: approx. 19<br>minutes |




**Testoval®  
sulfite**



|                     |  |  |  |
|---------------------|--|--|--|
|                     |   |  |  |
| <b>Is used as</b>   | color comparison kit for the concentration range 0–20 mg/l SO <sub>3</sub> <sup>2-</sup>   |  |  |
| <b>Order number</b> | 410634   |  |  |
| <b>Description</b>  | individual values:<br>0,5–1–2,5–5–10–20 mg/l,<br>complete with 2 reagents<br>analyses: approx. 150<br>measuring time: approx. 3<br>minutes |  |  |





|                                       | Product  | Order number |
|---------------------------------------|--|--------------|
| aluminum                              | 1 set of reagents for approx. 130 analyses               | 410651       |
|                                       | replacement color comparison device, complete            | 410652       |
| ammonium                              | 1 set of reagents for approx. 70 analyses                | 410681       |
|                                       | replacement color comparison device, complete            | 410682       |
| chlorine DPD method 0.1–1 mg/l        | 1 set of reagents for approx. 70 analyses                | 410521       |
|                                       | replacement color comparison device, complete            | 410522       |
| chlorine DPD method 0,5-4 mg/l        | 1 set of reagents for approx. 70 analyses                | 410521       |
|                                       | replacement color comparison device, complete            | 410523       |
| chloride                              | 1 set of reagents for approx. 40 analyses                | 410527       |
|                                       | replacement color comparison device, complete            | 410528       |
| chromate CrVI                         | 1 set of reagents for approx. 70 analyses                | 410533       |
|                                       | replacement color comparison device, complete            | 410534       |
| dissolved iron (II) + (III) 0-1 mg/l  | 1 set of reagents for approx. 100 analyses               | 410548       |
|                                       | replacement color comparison device, complete            | 410549       |
| dissolved iron (II) + (III) 0-10 mg/l | 1 set of reagents for approx. 70 analyses                | 410545       |
|                                       | replacement color comparison device, complete            | 410546       |
| hydrazine                             | 1 set of reagents for approx. 100 analyses               | 410557       |
|                                       | replacement color comparison device, complete            | 410558       |
| copper                                | 1 set of reagents for approx. 100 analyses               | 410563       |
|                                       | replacement color comparison device, complete            | 410564       |
| manganese 0-0,5 mg/l                  | 1 set of reagents for approx. 70 analyses                | 410661       |
|                                       | replacement color comparison device, complete            | 410662       |
| manganese 0-20 mg/l                   | 1 set of reagents for approx. 100 analyses               | 410569       |
|                                       | replacement color comparison device, complete            | 410570       |
| nitrite                               | 1 set of reagents for approx. 100 analyses               | 410691       |
|                                       | replacement color comparison device, complete            | 410692       |
| Phosphatest®                          | 1 set of reagents for approx. 180 analyses               | 410593       |
|                                       | replacement color comparison device, complete            | 410594       |
| pH-chlorine DPD                       | 1 set of reagents for approx. 70 analyses                | 410602       |
|                                       | replacement color comparison device, complete            | 410603       |
| pH value 5,5-8                        | 1 set of reagents for approx. 250 analyses               | 410611       |
|                                       | replacement color comparison device, complete            | 410612       |
| pH value 8-12                         | 1 set of reagents for approx. 250 analyses               | 410617       |
|                                       | replacement color comparison device, complete            | 410618       |
| dissolved silicate                    | 1 set of reagents for approx. 100 analyses               | 410623       |
|                                       | replacement color comparison device, complete            | 410624       |
| sulfite                               | 1 set of reagents for approx. 150 analyses               | 410635       |
|                                       | replacement color comparison device, complete            | 410636       |
| cuvettes                              | replacement cuvette for color comparison devices         | 410001       |
|                                       | replacement cuvette for chloride color comparison device | 410529       |

| Analysis kits       | Standard analysis cabinet H   | Standard analysis cabinet S   | Analysis cabinet special version  |
|---------------------|---|---|---|
|                     |    |   |    |
| <b>Is used</b>      | for water analysis  | for water analysis  | for water analysis  |
| <b>Order number</b> | 410300  | 410305  | 410310  |
| <b>Description</b>  | <ul style="list-style-type: none"> <li>• titration kits:<br/>1 Duroval® A, 1 Duroval® B, 1 Duroval® CPM</li> <li>• Testoval® color comparison kits:<br/>1 hydrazine, 1 phosphate, 1 pH value 8–12</li> <li>• 1 aerometer,<br/>1 100 ml measuring cylinder, 1 500 ml sampling container, 1 100 ml measuring cup, 1 funnel, 50 folding filters</li> </ul> | <ul style="list-style-type: none"> <li>• titration kits:<br/>1 Duroval® A, 1 Duroval® B, 1 Duroval® CPM</li> <li>• Testoval® color comparison kits:<br/>1 sulfite, 1 Phosphatest, 1 pH value 8–12</li> <li>• 1 aerometer,<br/>1 100 ml measuring cylinder, 1 500 ml sampling container, 1 100 ml measuring cup, 1 funnel, 50 folding filters</li> </ul> | <p><b>Custom versions available upon request!</b><br/>example:</p> <ul style="list-style-type: none"> <li>• titration kits:<br/>1 Duroval® A, 1 Duroval® B, 1 Duroval® CPM</li> <li>• Testoval® color comparison kits:<br/>1 sulfite, 1 Phosphatest</li> <li>• 1 Durognost® special buffer solution</li> <li>• 1 DIST 4 conductivity tester</li> <li>• 1 pHep+ pH tester</li> <li>• 1 100 ml measuring cylinder, 1 500 ml sampling container, 1 100 ml measuring cup, 1 funnel, 50 folding filters</li> </ul> |

|                     | Boiler house analysis case   | Analysis case special version  |  |
|---------------------|--|--|--|
|                     |   |    |  |
| <b>Is used</b>      | for water analysis in boiler houses  | for water analysis in boiler houses  | Other combinations of analysis cases and cabinets are possible upon request. |
| <b>Order number</b> | 410320   | 410360   |  |
| <b>Description</b>  | <ul style="list-style-type: none"> <li>• titration kits:<br/>1 Duroval® A, 1 Duroval® B, 1 Duroval® CPM</li> <li>• Testoval® color comparison kits:<br/>1 sulfite, 1 Phosphatest</li> <li>• 1 pHep + pH tester,<br/>1 pH 7,01 buffer solution in pouch, 1 pH 10,01 buffer solution in pouch</li> <li>• 1 DiST 4 conductivity tester,<br/>1 5000 µS/cm conductivity solution</li> </ul> | <p><b>Custom versions available upon request!</b><br/>example:</p> <ul style="list-style-type: none"> <li>• titration kits:<br/>1 Duroval® A, 1 Duroval® B, 1 Duroval® CPM</li> <li>• Testoval® color comparison kits:<br/>1 sulfite, 1 Phosphatest</li> </ul> |  |

**Product**

**Bioresin® BW 05**



|                     |   |  |  |
|---------------------|---|--|--|
| <b>Is used als</b>  | special resin for protection against microbial contamination in softening plants in idle state  |  |  |
| <b>Order number</b> | 1 l Bioresin® BW 05   | 500002   |  |
|                     | 10 l Bioresin® BW 05  | 500001   |  |
|                     | 100 l Bioresin® BW 05   | 500006   |  |
| <b>Description</b>  | <p>The disinfection effect of Bioresin® BW 05 is based on metallic silver, which has been firmly attached to the exchanger resin balls in a special procedure.</p> <p>Metallic silver is practically non-watersoluble. The smell and taste of the water are not affected.</p> | <ul style="list-style-type: none"> <li>• effective against microbial recontamination of the resin at low flow rate and in idle state</li> <li>• does not negatively impact the disinfecting effect through backflushing and salting during filter regeneration, thus effective for a long time</li> <li>• existing systems can be retrofitted for use</li> </ul> | <ul style="list-style-type: none"> <li>• no need for expensive dosing equipment to disinfect the filter material</li> <li>• no premature regeneration of the softening system with sodium chloride necessary for disinfection, thus environmentally friendly and economical</li> <li>• maintenance-free</li> </ul> |

**Accessories  
Chemie**

| <b>Product</b>                              | <b>Order number</b> |
|---|---------------------|
| measuring tube 1+ 5 + 10 ml                 | 051010              |
| connecting plug, white                      | 051013              |
| pipette, 0-60 polyamine                     | 051101              |
| pipette, 0-4,0 °f                           | 051106              |
| pipette, 0-30 Duroval chloride and sulphate | 051109              |
| pipette, 0-30 °dH                           | 051110              |
| pipette, 0-2 °dH                            | 051112              |
| pipette, 0-20 °dH 0-7 mmol/l                | 051114              |
| pipette, 0-60 °f                            | 051116              |
| replacement cuvette, normal                 | 410001              |
| analysis cabinet, empty                     | 410301              |
| aerometer                                   | 410302              |
| folding filters (pack of 50)                | 410303              |
| 100 ml measuring cylinder                   | 410304              |
| 500 ml sampling container                   | 410306              |
| funnel                                      | 410307              |
| 100 ml measuring cup                        | 410308              |



We handle the development, production, bottling and shipment of our reagents and analysis kits in house.



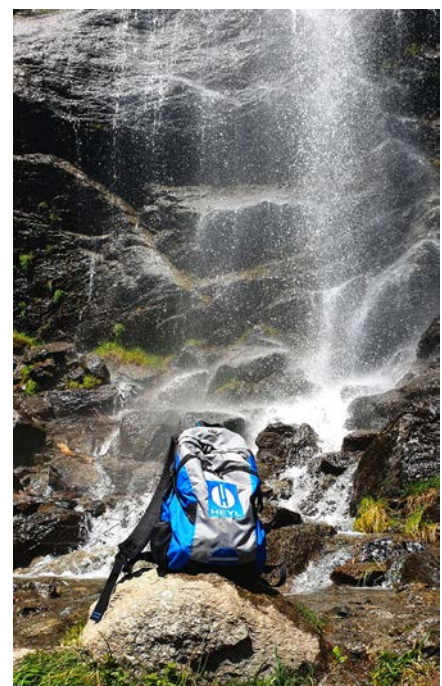
All our newly developed devices undergo thorough testing in the climatic chamber and test space. Upon customers request, we can also produce OEM devices featuring individual front foils.

### Water is our element

Our environmental policy specifies the principles of conduct for environmental protection that we follow at Gebr. Heyl Analysenteknik GmbH & Co. KG. It is determined by the management and generally applicable.

As a commercial enterprise, we are part of a society and also part of the environment and the ecosystem. Consciousness of our responsibility to society, the environment, and the ecosystem is necessary for our children to be able to experience a happy, prosperous future.

As a commercial enterprise, we accept our special responsibility to preserve our natural world. We're convinced that it is necessary to ensure that the free resources of water, air, and earth, as well as flora and fauna, be handled sparingly.

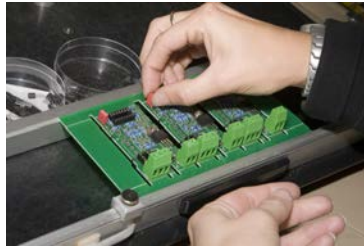






We develop innovative, customized designs ourselves. But that's not all: We provide an appropriate housing design, prepare technical documentation, and obtain the necessary sales permissions and certificates. And if you would like, we also handle series production.

You choose between our two options:



**1. From a „flash of inspiration“ to the prototype – we develop the product you want according to your specifications**

- We plan your product together and look for the best solution for you
- We develop the product according to your specifications
- We create prototypes
- We organize certificates (CE-marking, TÜV inspection, etc.)



**2. Whether Softmaster®, MultiControl®, or Testomat 2000® – we're happy to adapt our designs to your needs!**

- We select the basic instrument corresponding to your needs together with you
- We design additional modules corresponding to your needs
- We develop software according to your specifications
- We create prototypes
- We organize certificates (CE-marking, TÜV inspection, etc.)

Brief overview of our contract development services

- Hardware and software development (analysis instruments, control and measuring devices, dosing pumps)
- Indicator and reagent development (e.g. water analysis)
- Test kit development
- Mechanics construction
- Material logistics
- Layout design
- Prototype fabrication
- Model series production
- Preparing operating instructions, instruction manuals, and safety data sheets
- Organizing desired or required certificates (e.g., CE-marking, TÜV inspection, etc.)
- Product maintenance
- Training



Development of new indicators in our chemical laboratory





**We implement your idea!  
We produce your product!**

High quality, quick delivery times, customer orientation, and cooperative partnership are the foundations of our company, which operates in many countries. These maxims result in the continuous enhancement of our products and services and the continuous skill enhancement of our employees.



We attach great value to the reliability and durability of our products and have adapted the supply of spare parts to the long service lives of our instruments. In addition, we attach great value to multi-level 100% testing, only possible on the basis of small batch production. We test all assemblies separately before they are installed in our instruments and then subjected to a multi-day quality check in the instrument. Last but not least, we



develop and produce our own products in order to satisfy our own extremely high quality demands. Our mission includes consistently catering to our customers' needs and developing the best solution together with them!

**Brief overview of our contract manufacturing services**

We produce your product – in small batches too!

- Producing chemical formulations
- Filling into containers of any size
- Packaging
- Circuit board assembly
- Soldering
- Assembly
- Testing

We implement your idea!

You receive a final product from a single source:

- We optimize your product together and look for the best solution for you
- We look for the lowest-priced supplier
- We take care of purchasing all individual parts needed

- We coordinate cooperation with your partners
- We manufacture your product
- We subject the final product to extensive final checks
- We ship your finished product to the desired address in your name



All our newly developed devices undergo thorough testing in the climatic chamber and test space. Upon customer request, we can also produce OEM devices featuring individual front foils.

**§ 1 Validity of the conditions**

Our deliveries and services shall occur exclusively under these terms and conditions. At the same time, they are valid for all future business relations, even if they are not agreed expressly again. Customer's terms and conditions differing from them are not valid.

**§ 2 Conclusion of a contract**

- (1) Our offers are non-binding. Technical changes as well as changes in shape, color, and/or weight within the scope of what is reasonable are reserved.
- (2) Orders placed with us are binding offers which we can choose to accept within two weeks. Acceptance is declared either in writing or by delivery of goods to our customers.
- (3) If customers place an order electronically, we shall immediately confirm receipt of the order. Receipt confirmation does not constitute a binding acceptance of the order, but can be combined with the declaration of acceptance. We shall store the contractual text and send it to the customer via e-mail together with these terms and conditions if requested.
- (4) Conclusion of a contract occurs under reserve of the correct and timely delivery through our supplier, unless we are liable in the case of non-delivery, e.g. if a congruent hedging transaction has not been agreed with our supplier. We shall immediately inform the customer of any possible unavailability of the service and refund any service in return already received.

**§ 3 Prices**

- (1) Our quotation prices are valid for 30 days after the quotation date, unless otherwise stated. In case of doubt, the prices specified in our confirmation of order are decisive.
- (2) Our prices are valid, unless otherwise agreed, as net prices without cash discounts or any other allowances ex stock in Hildesheim, Germany, excluding packaging and shipping costs and plus the respective statutory VAT.
- (3) If there is any change in labor costs, material costs, purchase conditions, etc. between the date of contract conclusion and the agreed and/or actual delivery date, we shall be entitled to adjust our prices accordingly and, if an agreement cannot be reached, to withdraw from the contract. This only applies for non-trade operators if the time between the date of contract conclusion and the delivery is more than four months.
- (4) Our invoices are payable within 30 days of the delivery date with no deductions. In the event of default on payment, we are entitled, irrespective of the proof of greater damage caused by delay, to charge a higher default penalty interest at 8% points above the respective base rate.
- (5) The off-setting of any counter-claims by the purchaser is permissible only if such counterclaims are undisputed or established in law. Purchasers can only exercise their right of retention if it is based on claims contained in this contract.

**§ 4 Delivery**

- (1) Delivery and service delays due to instances of force majeure or circumstances which make delivery difficult or impossible – e.g. strike, lock-out, administrative regulations, natural disasters, business disruptions, power failure, etc. irrespective of whether we or our suppliers are affected by such circumstances – will exempt us from our contractual deadlines and obligations. We then have the right to postpone the delivery or the service for the period of the hindrance. If the delivery or service becomes impossible or unreasonable and this is not due to our fault, we shall be entitled to terminate the contract. In this case the customer has no right to make claims for damages.
- (2) We shall be entitled to carry out partial deliveries and partial services.

**§ 5 Transfer of risk**

- (1) The risk of accidental loss and accidental deterioration of the goods passes to the customer as soon as the consignment has been transferred to the freight carrier in the case of mail order purchase or other parties designated by the customer to carry out delivery. This applies irrespective of which party bears the transport costs.
- (2) Goods will still be delivered even if the customer is delayed in accepting the delivery.
- (3) We shall only take out transport insurance at the customer's request and expense.

**§ 6 Warranty against defect**

- (1) We provide warranty for two years at our own discretion via fault rectification or replacement delivery. If the fault cannot be eliminated within an acceptable time period or if rectification or replacement delivery is to be considered as failed due to other reasons, customers can, according to their choice, demand a reduction or terminate the contract. Failure can only be assumed if sufficient opportunity has been provided to us to rectify the fault or to deliver a replacement without the desired aim being achieved, if fault rectification or replacement delivery is impossible, if we refuse to rectify the fault of deliver a replacement or unacceptably delay fault rectification or replacement delivery, if there is justified doubt regarding the prospect of success, or if they are considered unacceptable due to other reasons. Cancellation is impermissible on the grounds of minor faults. Wear parts (e.g. seals, moving parts, etc.) are only guaranteed for one year. For such parts, deterioration due to proper use does not constitute a fault, We assume no liability for faults that arise due to improper use, nor for faults arising because the original HEYL Testomat® indicator is not used exclusively.
- (2) For a commercial transaction our customer must check that the goods conform to the contract immediately upon their receipt, immediately notify us in writing of any visible damages upon receipt of the goods, and notify us of any other defects immediately after their identification (§ 377 HGB); otherwise the goods are considered as accepted. Other business requires written notification of visible damage within two weeks upon receipt of the goods. The burden of proof of the fault, the time of its identification, and the timely receipt of the complaint rests with the customer.
- (3) Contrary to the aforesaid rules of warranty, we only sell used items, except in the case of fraudulent intent, with the exclusion of any form of warranty. This does not affect warranty commitments.

(4) If customers decide to terminate the contract due to a fault after an unsuccessful rectification of faults, they are not entitled to an additional claim for damages due to this fault; the customer is obliged to return the goods. If customers make a claim for damages after an unsuccessful rectification of faults, the goods remain with the customers if this is reasonable for them. The claim for damages is then limited to the difference between the purchase price and the value of the faulty item. This is not valid if we have fraudulently attempted to violate the contract.

**§ 7 Liability**

- (1) Our liability and the liability of our vicarious agents are hereby excluded for slight negligent breach of duty, provided that no contractual duties, damages to life, limb, or health, or agreed guarantees or claims in accordance with the German Product Liability Act are affected. In the case of violation of contractual duties our liability shall be limited to typical contractual losses which could have been reasonably foreseen.
- (2) The period of limitation of one year applies for claims for damages against us which are not based on willful conduct attributable to us. This does not include suppliers' claims for recourse in accordance with section 478 of the BGB.

**§ 8 Retention of title**

- (1) We retain the title to the goods until complete settlement of all claims against the customer that we are entitled to now or in the future.
- (2) Our customers shall be entitled to process and resell the conditional goods in the ordinary course of business, provided that they are not in default. The pledging of goods or security transfers of ownership is not permissible. Claims resulting with respect to the conditional goods (including all balance claims from the current account) resulting from the resale or any other cause in law (insurance, unlawful act) shall now be assigned by the customer to us as security up to the amount of our claim. We hereby accept the transfer and authorize the customers to collect the claims assigned to us for their account in their own name. This authorization can only be revoked if our customers do not fulfill their payment obligations.
- (3) Any adaptation and processing of the conditional goods by the customers shall always be carried out in our name and on our behalf. If processing occurs with goods which do not belong to us, we shall acquire co-ownership of the new goods in proportion to the value of the goods supplied by us to other processed goods. The same shall apply if the conditional goods are intermingled with other goods which do not belong to us.
- (4) The customers shall keep our retention of title free of charge. They are obliged to take out insurance in a reasonable and usual scope. In the case of an intervention or seizure of the conditional goods by a third party – in particular by a marshal – our customers are obliged to indicate our ownership and to notify us without delay.

**§ 9 Installation and maintenance**

- (1) If our customer asks us to carry out installation and maintenance work, which we do not carry out within the framework of our liability for defects, a separate contract for work and services comes into being. If not stated otherwise hereinafter these terms and conditions also apply for this contract for work and services. Payment takes place according to the respective valid prices for maintenance rates.
- (2) A written estimate is required if our customer desires a binding quote. We are bound to this estimate for one complete month after submission.
- (3) Customer rights due to defects of installation and maintenance work expire one year from acceptance of the repair item of work. This time limit does not apply if we acted with intent or gross negligence or if we are responsible for damages to life, limb, or health or for claims in accordance with the German Product Liability Act. In the case of contractors, we do not accept liability even for slight negligent breach of marginal contractual obligations.

**§ 10 Miscellaneous**

- (1) The exclusive place of jurisdiction for all disputes is Hildesheim, Germany, if our customer is a trader, a legal person governed by public law, or special public law funds. This shall also apply if our customers do not have a general place of jurisdiction in the Federal Republic of Germany or if their normal place or residence when legal action is brought is unknown.
- (2) Changes or additions to this contract have to be in writing. This also applies to the written form clause.
- (3) Our customers consent to storage of their personal data for the purpose of contract conclusion.
- (4) In the event that a provision of this contract or these terms and conditions is or becomes invalid or unenforceable, this shall not affect the validity of the remaining provisions.
- (5) Only the relevant laws of the Federal Republic of Germany shall apply; the UN Convention on the International Sale of Goods is hereby excluded, even if our customer's registered seat is abroad.



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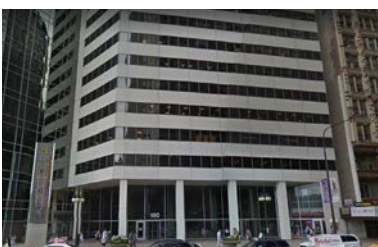
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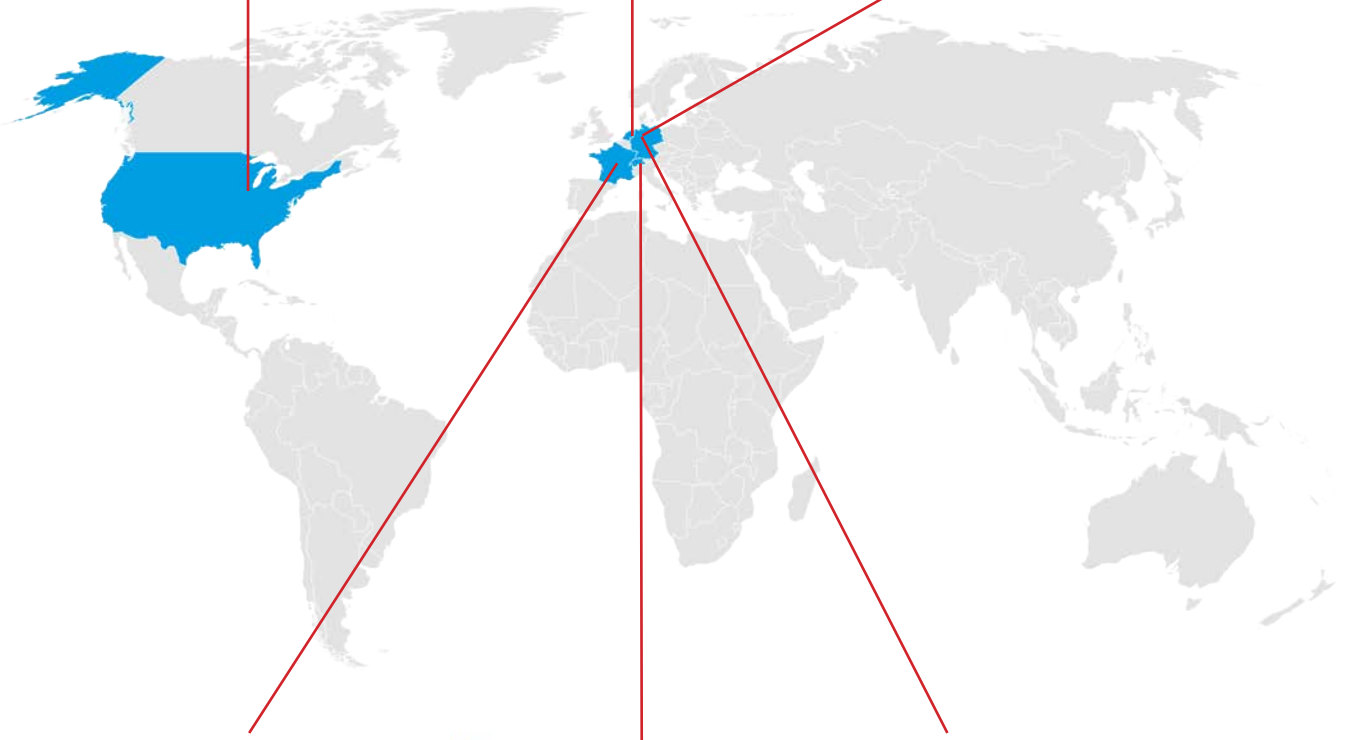
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