

Online Analytics

Online analytics automatic devices for the determination of water constituents



Security reliably produced.

 **RLS Wacon**
analytics GmbH

Content

Analyzers

Limit value device for water hardness

LIMESBASE	6
LIMESPLUS	8
SYCON 2602	10

Titration device for water hardness

SYCON 2702	12
SYCON 2802	12
SYCON BoB	14

Analyzer for carbonate hardness

SYCON 2602	16
SYCON 2702	17
SYCON 2802	17

Iron analyzer

SYCON Fe	18
----------	----

Analyzer for p-value

SYCON P	20
---------	----

Analyzer for silicate

SYCON SiO ₂	22
------------------------	----

Reagents

Water hardness

LIMESBASE / LIMESPLUS	24
SYCON 2500 / 2602 / 2702 / 2802 / BoB	26

Carbonate hardness

SYCON 2500 / 2602 / 2702 / 2802	28
---------------------------------	----

Iron

SYCON Fe	29
----------	----

p-value

SYCON P	30
---------	----

Silicate

SYCON SiO ₂	31
------------------------	----

Accessories

Coolers	32
Accessoires for LIMES and SYCON devices	34

Spare parts

LIMESBASE / LIMESPLUS	36
SYCON 2602	37
SYCON 2702 / 2802 / Fe / P	38
SYCON BoB	39
SYCON SiO ₂	40

Manual analysis

CALDUR test sets	42
------------------	----

Guide ...

... through our online analyzers

With our online analyzers various parameters can be monitored continuously in an automated way. Our devices can be used in a variety of ways in water treatment for the measurement and control of water parameters.

Common application fields of the online analyzers include:



Drinking water



Raw water



Boiler water



Cooling water

All devices can be programmed via an integrated control system. Via different inputs and outputs you can seamlessly integrate all our instruments into your plant technology.

The measurement in all devices is done by adding reagents to the automatically taken water sample. The reagents cause a color reaction from which the measured value is determined by means of a color sensor.

The table below assigns the devices to the respective parameters. Details about the devices can be found on the respective page.

	Total hardness	Carbonate hardness	Iron	p-value	Silicate
LIMESBASE	Page 6				
LIMESPLUS	Page 8				
SYCON 2602	Page 10	Page 16			
SYCON 2702	Page 12	Page 17			
SYCON 2802	Page 12	Page 17			
SYCON BOB	Page 14				
SYCON Fe			Page 18		
SYCON P				Page 20	
SYCON SiO ₂					Page 22

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Our competence and our claim

We have been developing and producing measurement and sensor technology for over 40 years. More than 15 years ago, we entered the field of water analysis and, with the knowledge and skills of our team, we have brought new products for water analysis to the market, offering innovations that had not existed before. Our claim is to constantly rethink every newly set standard and thus continue to distribute innovative products.

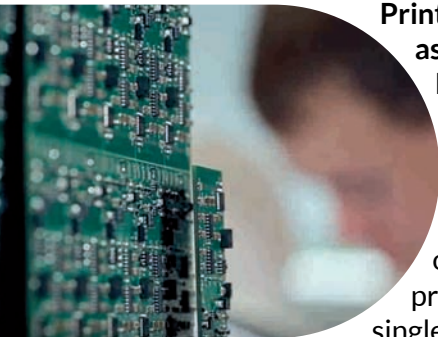


Chemistry production

How good can measuring instruments be in water analysis? Of course, they are only as good as the reagents used to measure them. That is why we manufacture all chemical products for our analytics in-house according to our own specially developed recipes.

Printed circuit board assembly and testing

Equipped with a modern SMD assembly line consisting of a paste printer, fully automatic assembler and a reflow oven, we are able to produce everything from single boards to small series and large series in-house. The automatic line is rounded by skilled employees with many years of experience who can assemble large components by hand. Finally, all boards are tested for complete functionality on an automatic test facility.



Equipped with a modern SMD assembly line consisting of a paste printer, fully automatic assembler and a reflow oven, we are able to produce everything from single boards to small series and large series in-house. The automatic line is rounded by skilled employees with many years of experience who can assemble large components by hand. Finally, all boards are tested for complete functionality on an automatic test facility.

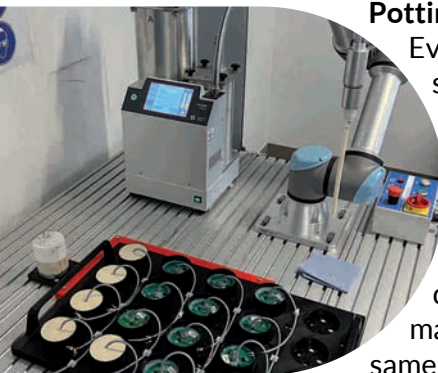
Filling

We are ready to fill any quantity. From manual filling of individual bottles to fully automatic filling, labeling and capping of 1,000 bottles per hour.



Potting and device assembly

Everything from a single source - that is our strategy in manufacturing. All the necessary components are cast and the assemblies are professionally assembled in-house. In doing so, we rely on proven manual techniques and at the same time use state-of-the-art cobot systems for device assembly. This enables us to produce high-quality products at competitive prices.



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Product testing and certification

For more than 30 years, we have successfully registered products at accredited bodies. Our first products with type approval were safety-relevant measurement and control technology for escalators operated in public areas and subject to intensive environmental influences. With this experience, we have approved our SYCON BoB for 72-hour operation in steam boiler systems without any complications.



And this is your added value



Framework contracts with callable inventories

Sometimes things just have to happen fast. We are happy to offer our partners framework agreements in which it can also be agreed that we hold your products ready for call-off in our warehouse. The devices are ready for direct shipment to you or your customer.

With our competences we do not only offer you products with our label. Rather, we also make your product range.

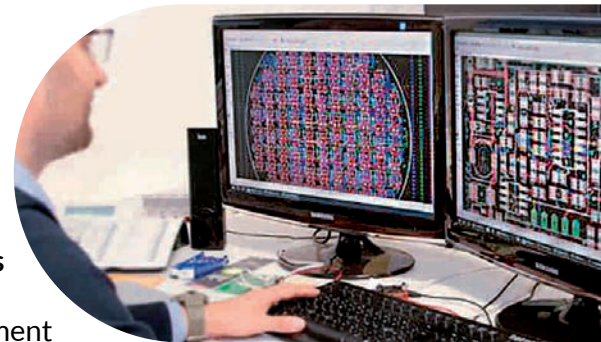


Service & Support

We train your team on products and provide reliable advice and assistance in case of service. Spare parts and replacement equipment are in stock with us, so that you and your customer can be helped quickly even with major problems.

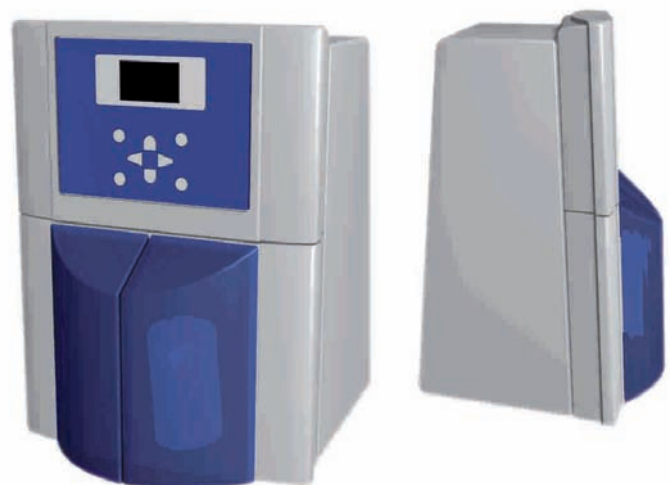
Influence new products and features

Our development department continuously expands the portfolio and improves the products. Your feedback is a great help in this process. Therefore, we are very happy to receive suggestions for improvement, which we can put into practice and test together with you.



Individualization

With enthusiasm down to the last detail, we implement "your" new product together with you. According to our understanding, an absolutely perfect OEM product also includes that it integrates seamlessly into your corporate identity and that your company is directly recognizable. Therefore, in addition to the technical solution, we also offer individual solutions with our programmers, developers and product designers, from the wording of the menus in our analysis devices to the design of the front foils or a completely independent housing or packaging.





The innovative hardness control device

Like in a chemical laboratory, the Limes devices independently take a water sample from the sample line. Reagent is then added to the water sample and the hardness is determined.

Laboratory analysis for the price of a swelling resin sensor

The **LIMES** hardness control devices enable cost-effective monitoring of reverse osmosis systems with reliable chemical analysis. Unlike the swelling resin sensor, the **LIMES** analyzers detect any hardness breakthrough. And even after a hardness breakthrough, the instruments remain operational and do not need to be regenerated or flushed each time.

General product information of the **LIMES** hardness control devices

- Reliable and accurate monitoring of water hardness using a laboratory-calibrated reagent
- Monitoring of a defined limit value determined by the LHV reagent used
- No delayed response compared to a swelling resin sensor
- No calibration and no drift effects compared to electrode measurement
- No wear
- Regeneration of the sensor not necessary
- Separate connection cables for power supply, relay and input contact
- Status display by four LEDs for limit value compliance, analysis status, device status and upcoming service

LIMESBASE



The **LIMESBASE** is the most affordable model in the **LIMES** series for entry-level online water hardness monitoring.

- Continuous monitoring of the soft water for a softening or a reverse osmosis system
- Fault signal as potential-free changeover contact in case of hardness breakdown (e.g. for automatic regeneration triggering)

Other features of the **LIMESBASE**:

- LED status display
- Language neutral
- Initial value suppression to prevent false alarms
- Automatic interval operation: limit value check of the system at intervals of 10 minutes
- Connections:
2 potential-free outputs:
- Limit value exceeded
- Device fault
- Easily upgradeable to **LIMESPLUS** if required

Article	Art. no.
Analyzer LIMES BASE 110/230 V with lid	30-003511
Maintenance set LIMES	33-030135

Analysis properties

Measuring principle	Colorimetric with white light LED and full color sensor generation 1
Measuring range	4 limit values (0.1 / 0.5 / 3 / 7 °dH)
Measurement Accuracy	±15 % of the limit value of the respective reagent used
Water connection	0.5 - 5.0 bar Operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	1/4" outer diameter
Water drain	1/4" outer diameter
Water temp.	5 - 40 °C
Comment	Upgradeable to LIMES Plus at any time

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz)
Power consumption	25 W (in operation)
Protection class	IP54
Ambient temp.	10 - 45 °C
Dimensions	250 x 360 x 110 mm (W x L x D)
Weight	2,1 kg

Interfaces / Functions

Digital input	no
Digital output	2 relays
Analog output	no
Modbus	no
SD card	no



The differences between the two LIMES models ...

... enable optimal use in your application

You can't go wrong when choosing the right device from the **LIMES** series. With all types, you have a wet-chemical measuring device that monitors the total hardness in the water using the limit value method. A fixed amount of reagent is added to the water sample. Depending on the concentration of water hardness, the sample turns either green or red. The limit value to be monitored is determined by the choice of reagent. You do not have to adjust anything on the device if you want to monitor a different limit value.

The two models of the **LIMES** series are modular. A **LIMESBASE** device can be converted to a **LIMESPLUS** device at any time. This is done by plugging in a plug-in board, which is located behind the logo. So, you can start with the low-cost model first. If your needs have changed, you can use the plug-in board to turn any **LIMESBASE** into a **LIMESPLUS**.

The overview on this page shows you the functional scope of both devices. In addition, we offer interesting accessories that can make commissioning even more convenient. You will find the accessories starting on page 34.

	LIMESBASE	LIMESPLUS
Parameter		
Limit value Total hardness	0.1/0.5/3.0/7.0 °dH	
Bottle size reagent (ml)	750 ml	750 ml
Shelf life of reagent in months	24	24
Contacts		
Input contacts (INPUT, start or stop analysis interval)	<input type="checkbox"/>	<input type="checkbox"/>
Relay output 1 (limit value alarm)	<input type="checkbox"/>	<input type="checkbox"/>
Relay output 2 (device fault or reagent message BoB)	<input type="checkbox"/>	<input type="checkbox"/>
Functions		
Adjustable flushing time	fixed 50 sec.	<input type="checkbox"/>
First value suppression	<input type="checkbox"/>	<input type="checkbox"/>
Adjustable analysis interval	<input type="checkbox"/>	<input type="checkbox"/>
Available analysis intervals in min	10	5/10/20/30
Diagnosis mode	<input type="checkbox"/>	<input type="checkbox"/>
Technical data		
IP protection class without lid	IP43	IP43
IP protection class with lid	IP54	IP54
Protection class	SKII	SKII

= available = not available



The **LIMESPLUS** offers the following additional features:

- Digital input control
- Adjustable flushing time
- Adjustable analysis interval with the options of 5, 10, 20 or 30 minutes
- Diagnostic mode

Article	Art. no.
Analyzer LIMES PLUS 110/230 V with lid	30-003512
Maintenance set LIMES	33-030135

Analysis properties

Measuring principle	Colorimetric with white light LED and full color sensor generation 1
Measuring range	4 limit values (0.1 / 0.5 / 3 / 7 °dH)
Measurement accuracy	±15 % of the limit value of the respective reagent used
Water connection	0.5 - 5.0 bar Operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	1/4" outer diameter
Water drain	1/4" outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz)
Power consumption	25 W (in operation)
Protection class	IP54
Ambient temp.	10 - 45 °C
Dimensions	250 x 360 x 110 mm (W x L x D)
Weight	2,1 kg

Interfaces / Functions

Digital input	1
Digital output	2 relays
Analog output	no
Modbus	no
SD card	no



Anything but
borderline ...

... the analyzer SYCON 2602

Two instrument lines are available for the determination of the limit value for the total hardness.

In addition to the **LIMES** series, we also offer the SYCON series, which has been well-known for years, as an analyzer for good/bad measurement.

With the **SYCON 2602**, additional comfort features such as an illuminated display or a bigger selection of reagents are available.

While you can choose between four different limit values for the **LIMES** devices, the gradation is much finer with eleven limit values for the **SYCON 2602**.

In addition, the **SYCON 2602** can also be used for carbonate hardness (for details see page 16).

The transparent measuring cell on all SYCON devices can be serviced without tools.

SYCON 2602



Highlights

- Compact design with easily accessible components
- Tool-free maintenance of the measuring cell
- Simple and intuitive operation via 8 keys and large display
- Durable and accurate analysis technology
- Extensive standard equipment

Functions

- Automatic zero point adjustment before each measurement
- Measurement method based on ISO 6332 (colorimetric method)
- An individually adjustable limit value for alarm function by means of relay
- Interface for measured value output and protocol on SD card
- Three relay outputs for individual alarms, warnings and for the control of additional components (e.g. sample pump for cooler)
- One programmable digital input

Article	Art. no.
Analyzer SYCON 2602	
110/230 V on wall mounting plate	30-110160
110/230 V in housing	30-310160
24 V on wall mounting plate	30-111160
24 V in housing	30-311160
Housing for SYCON device	33-099005
Maintenance set SYCON 2602	33-090028

Analysis properties

Measuring principle	Colorimetric with white light LED and full color sensor generation 2 with integrated noise suppression
Measuring range	11 limit values (0.02 / 0.05 / 0.1 / 0.2 / 0.3 / 0.5 / 1 / 2 / 3 / 5 / 10 °dH)
Measurement accuracy	Deviation of the measured value $\pm 5\%$ of the upper measured value of the respective reagent used Repeatability $\pm 10\%$
Water connection	0.5 - 5.0 bar operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	6 mm outer diameter
Water drain	6 mm outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz) altern. 24 V (AC/DC $\pm 10\%$ at 50 Hz)
Power consumption	25 W (in operation)
Protection class	IP43 / with housing IP54
Ambient temp.	10 - 45 °C
Dimensions	On wall mounting plate: 274 x 275 x 130 mm (W x L x D) With housing: 330 x 300 x 185 mm (W x L x D)
Weight	On wall mounting plate: 1.7 kg With housing: 3.7 kg

Interfaces / Functions

Digital input	1
Digital output	3 relays
Analog output	no
Modbus	no
SD card	yes

Exact determination of the total hardness ...



*By precise dosing of the reagent,
the titration devices achieve very high
measurement and repeatability accuracy.*

... with titration devices of the SYCON series

The titration devices are characterized by the following features:

- Freely selectable limit values in the measuring range of the reagent
- Reagent shortage alarm
- Graphic display (illuminated)
- Multilingual menu navigation
- Analysis start:
 - automatically after time interval
 - Suppression of the analysis by means of flow switch
 - Analysis via external control
 - according to water quantity (water meter)
- Digital inputs and outputs (number depends on model)
- 4 ... 20 mA analog output for measured value output

SYCON 2702

The entry-level model for high demands: For optimum use in a softening plant or for protecting a reverse osmosis system, the limit value to be monitored and the measuring interval can be freely programmed.

In addition, relay contacts and a 4 ... 20 mA interface allow connection to a wide range of control systems. The measured values stored on the internal SD card can be used as a digital boiler log.

SYCON 2802

The plus for connection and monitoring options: Due to the additionally programmable second limit value, the monitoring of a water overlap is possible. The additional relay contacts allow the control of an external cooling water valve for a sample cooler.

The integrated MODBUS-RTU interface enables easy integration into the plant control system for reading out measured value and status messages.

SYCON 2702



Analysis properties

Measuring principle	Colorimetric with white light LED and full color sensor generation 2 with integrated noise suppression
Measuring range	0.02 to 30 °dH with 11 different reagents with fixed measuring ranges
Measurement accuracy	Deviation of the measured value ±5 % of the upper measured value of the respective reagent used Repeatability ±10 %
Water connection	0.5 - 5.0 bar operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	6 mm outer diameter
Water drain	6 mm outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz) altern. 24 V (AC/DC ±10 % at 50 Hz)
Power consumption	25 W (in operation)
Protection class	IP43 / with housing IP54
Ambient temp.	10 - 45 °C
Dimensions	On wall mounting plate: 274 x 275 x 130 mm (W x L x D) With housing: 330 x 300 x 185 mm (W x L x D)
Weight	On wall mounting plate: 1.7 kg With housing: 3.7 kg

Interfaces / Functions

Number of limit values	1
Digital input	1
Digital output	2 relays
Analog output	0/4 to 20 mA
Modbus	no
SD card	yes

Article	Art. no.
Analyzer SYCON 2702	
110/230 V on wall mounting plate	30-110162
110/230 V in housing	30-310162
24 V on wall mounting plate	30-111162
24 V in housing	30-311162
Housing for SYCON device	33-099005
Maintenance set SYCON 2702	33-090034

SYCON 2802



Analysis properties

Measuring principle	Colorimetric with white light LED and full color sensor generation 2 with integrated noise suppression
Measuring range	0.02 to 30 °dH with 11 different reagents with fixed measuring ranges
Measurement accuracy	Deviation of the measured value ±5 % of the upper measured value of the respective reagent used Repeatability ±10 %
Water connection	0.5 - 5.0 bar operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	6 mm outer diameter
Water drain	6 mm outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz) altern. 24 V (AC/DC ±10 % at 50 Hz)
Power consumption	25 W (in operation)
Protection class	IP43 / with housing IP54
Ambient temp.	10 - 45 °C
Dimensions	On wall mounting plate: 274 x 275 x 130 mm (W x L x D) With housing: 330 x 300 x 185 mm (W x L x D)
Weight	On wall mounting plate: 1.7 kg With housing: 3.7 kg

Interfaces / Functions

Number of limit values	2
Digital input	2
Digital output	4 relays
Analog output	0/4 to 20 mA
Modbus	no
SD card	yes

Article	Art. no.
Analyzer SYCON 2802	
110/230 V on wall mounting plate	30-110164
110/230 V in housing	30-310164
24 V on wall mounting plate	30-111164
24 V in housing	30-211164
Housing for SYCON device	33-099005
Maintenance set SYCON 2802	33-090034



Certified 72 hours operation of your steam boiler ...

The SYCON BoB monitors the level with a probe and does not only rely on internal calculations.

... with the analyzer for water hardness: SYCON BoB

The TÜV-approved **SYCON BoB** analyzer is used to monitor boiler feed water, boiler water and condensate returns. The additional relay contacts allow the control of an external cooling water valve for a sample cooler.

- Multilingual menu navigation
- Setup wizard for easy commissioning
- Level monitoring of the reagent bottle
- TÜV approval for 72 hours BoB operation
- Two inputs for flow monitor and remote reset
- Four relay outputs for limit value, fault, cooling water and reagent message
- Modbus RTU
- SD card with measured value log and error log

SYCON BoB



**Approval according to VdTÜV data sheet
Water monitoring device 100 with the
component identification number
TÜV.WÜH.22-027**

The **SYCON BoB** is a reliable, accurate and fully automatic water hardness analyzer.

- Use in large capacity water boiler with saline, low-salt or salt-free operation with a limit value of 0.01 mmol/l or 0.05 °dH according to EN12953-10 (reagent H25-0.1)
- Use in a circulating boiler with a limit value of 0.005 mmol/l or 0.03 °dH according to EN12952-12 (reagent H25-0.05)

Other features of the **SYCON BoB**:

- Simple commissioning by configuration wizard
- Self-calibrating and self-monitoring
- Easy cleaning and inexpensive maintenance
- Large graphic display
- Relay outputs for
 - Limit value
 - BOB/Reagent alarm
 - Fault message
 - Feed pump or cooling water valve
 - Analysis active
- Analog output 0/4 -20mA for status message
- SD card for
 - Measured data memory
 - Measurement data log
 - Software update

Analysis properties

Measuring principle	Colorimetric with white light LED and full color sensor generation 2 with integrated noise suppression
Measuring range	0.05 °dH according to EN12953-10 or 0.025 °dH according to EN12952-12
Measurement accuracy	Deviation of the measured value $\pm 5\%$ of the upper measured value of the respective reagent used Repeatability $\pm 10\%$
Water connection	0.5 - 5.0 bar operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	6 mm outer diameter
Water drain	6 mm outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz) altern. 24 V (AC/DC $\pm 10\%$ at 50 Hz)
Power consumption	25 W (in operation), 3.5 W (stand-by)
Protection class	IP54
Ambient temp.	10 - 45 °C
Dimensions	330 x 300 x 185 mm (W x L x D)
Weight	3.9 kg

Interfaces / Functions

Digital input	2
Digital output	4 relays
Analog output	0/4 to 20 mA
Modbus	yes
SD card	yes

Article	Art. no.
Analyzer SYCON BoB 110/230 V in housing	30-610164
Maintenance set SYCON	33-090034



SYCON 2602



Fully automatic monitoring of carbonate hardness ...

... with the analyzers of the SYCON series

The SYCON series is suitable for the determination of total water hardness as well as for the determination of carbonate hardness. By using the respective reagent and the corresponding selection of the chemistry used in the device menu, the desired parameter is then determined. Further modifications to the device or the software are not necessary.

All the advantages of the SYCON devices for total hardness are also available when used to determine carbonate hardness.

The **SYCON 2602** is available as a limit value device for the carbonate hardness.

For the exact determination of the concentration we offer the titration devices **SYCON 2702** and **SYCON 2802**.

Analysis properties

Measuring principle	Colorimetric with white light LED and full color sensor generation 2 with integrated noise suppression
Measuring range	4 limit values (1 / 1.5 / 2 / 3 °dH)
Measurement accuracy	Deviation of the measured value ±5 % of the upper measured value of the respective reagent used Repeatability ±10 %
Water connection	0.5 - 5.0 bar operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	6 mm outer diameter
Water drain	6 mm outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz) altern. 24 V (AC/DC ±10 % at 50 Hz)
Power consumption	25 W (in operation)
Protection class	IP43 / with housing IP54
Ambient temp.	10 - 45 °C
Dimensions	On wall mounting plate: 274 x 275 x 130 mm (W x L x D) With housing: 330 x 300 x 185 mm (W x L x D)
Weight	On wall mounting plate: 1.7 kg With housing: 3.7 kg

Interfaces / Functions

Digital input	1
Digital output	3 relays
Analog output	no
Modbus	no
SD card	yes

Article	Art. no.
Analyzer SYCON 2602	
110/230 V on wall mounting plate	30-110160
110/230 V in housing	30-310160
24 V on wall mounting plate	30-111160
24 V in housing	30-311160
Housing for SYCON device	33-099005
Maintenance set SYCON 2602	33-090028

SYCON 2702



Analysis properties

Measuring principle	Colorimetric with white light LED and full color sensor generation 2 with integrated noise suppression
Measuring range	0.3 to 22.5 °dH with 4 different reagents with fixed measuring ranges
Measurement accuracy	Deviation of the measured value ±5 % of the upper measured value of the respective reagent used Repeatability ±10 %
Water connection	0.5 - 5.0 bar operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	6 mm outer diameter
Water drain	6 mm outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz) altern. 24 V (AC/DC ±10 % at 50 Hz)
Power consumption	25 W (in operation)
Protection class	IP43 / with housing IP54
Ambient temp.	10 - 45 °C
Dimensions	On wall mounting plate: 274 x 275 x 130 mm (W x L x D) With housing: 330 x 300 x 185 mm (W x L x D)
Weight	On wall mounting plate: 1.7 kg With housing: 3.7 kg

Interfaces / Functions

Digital input	1
Digital output	2 relays
Analog output	0/4 to 20 mA
Modbus	no
SD card	yes

Article	Art. no.
Analyzer SYCON 2702	
110/230 V on wall mounting plate	30-110162
110/230 V in housing	30-310162
24 V on wall mounting plate	30-111162
24 V in housing	30-311162
Housing for SYCON device	33-099005
Maintenance set SYCON 2702	33-090034

SYCON 2802



Analysis properties

Measuring principle	Colorimetric with white light LED and full color sensor generation 2 with integrated noise suppression
Measuring range	0.3 to 22.5 °dH with 4 different reagents with fixed measuring ranges
Measurement accuracy	Deviation of the measured value ±5 % of the upper measured value of the respective reagent used Repeatability ±10 %
Water connection	0.5 - 5.0 bar operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	6 mm outer diameter
Water drain	6 mm outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz) altern. 24 V (AC/DC ±10 % at 50 Hz)
Power consumption	25 W (in operation)
Protection class	IP43 / with housing IP54
Ambient temp.	10 - 45 °C
Dimensions	On wall mounting plate: 274 x 275 x 130 mm (W x L x D) With housing: 330 x 300 x 185 mm (W x L x D)
Weight	On wall mounting plate: 1.7 kg With housing: 3.7 kg

Interfaces / Functions

Digital input	2
Digital output	4 relays
Analog output	0/4 to 20 mA
Modbus	yes
SD card	yes

Article	Art. no.
Analyzer SYCON 2802	
110/230 V on wall mounting plate	30-110164
110/230 V in housing	30-310164
24 V on wall mounting plate	30-111164
24 V in housing	30-311164
Housing for SYCON device	33-099005
Maintenance set SYCON 2802	33-090034



Continuous and fully automatic monitoring of dissolved iron Fe (II + III) ...

... with the SYCON Fe analyzer

Unlike the SYCON devices for determining the total hardness, the **SYCON Fe** uses two different color LEDs. Depending on the measuring range, a wavelength-optimized light source is then used for measurement. Both LEDs are included with each instrument. This makes it very easy to switch between the LRS and HRS measuring ranges at any time if the reagents are exchanged at the same time.

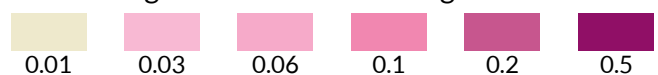
Otherwise, the **SYCON Fe** is compatible with the titration devices of the SYCON series. All wearing parts, which are replaced as part of the usual maintenance measures, are identical. Thus, the analyzer fits seamlessly into your existing measurement

technology if you use other analyzers of the SYCON series.

Measuring ranges

Two reagents with different measuring ranges are available for selection. This enables the monitoring of limit values individually adapted to the application.

- Low Range – LRS: 0.01 bis 0.5 mg/l



- High Range – HRS: 0.2 bis 6 mg/l





Highlights

- Compact design with easily accessible components
- Tool-free maintenance of the measuring cell
- Simple and intuitive operation via 8 keys and large display
- Durable and accurate analysis technology
- Extensive standard equipment

Functions

- Automatic zero point adjustment before each measurement
- Measurement method based on ISO 6332 (colorimetric method)
- An individually adjustable limit value for alarm function by means of relay
- Interface for measured value output
 - Measured values and log on SD card
 - Modbus RTU
 - Analog output 0/4 - 20 mA for measured value or detailed status messages
- Four relay outputs for individual alarms, warnings and for controlling other components (e.g. sample pump for cooler)
- Two programmable digital inputs

Analysis properties

Measuring principle	Colorimetric with white color LED and full color sensor generation 2 with integrated noise suppression
Measuring range	0.01 to 6 mg/l
Measurement accuracy	Deviation of the measured value $\pm 10\%$ of the upper measured value of the respective reagent used Repeatability $\pm 5\%$
Water connection	0.5 - 5.0 bar operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	6 mm outer diameter
Water drain	6 mm outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz) altern. 24 V (AC/DC $\pm 10\%$ at 50 Hz)
Power consumption	25 W (in operation)
Protection class	IP43 / with housing IP54
Ambient temp.	10 - 45 °C
Dimensions	On wall mounting plate: 274 x 275 x 130 mm (W x L x D) With housing: 330 x 300 x 185 mm (W x L x D)
Weight	On wall mounting plate: 1.7 kg With housing: 3.7 kg

Interfaces / Functions

Digital input	2
Digital output	4 relays
Analog output	0/4 to 20 mA
Modbus	yes
SD card	yes

Article	Art. no.
Analyzer SYCON Fe	
110/230 V on wall mounting plate	30-700164
110/230 V in housing	30-710164
24 V on wall mounting plate	30-701164
24 V in housing	30-701064
Housing for SYCON device	33-099005
Maintenance set SYCON Fe	33-090034

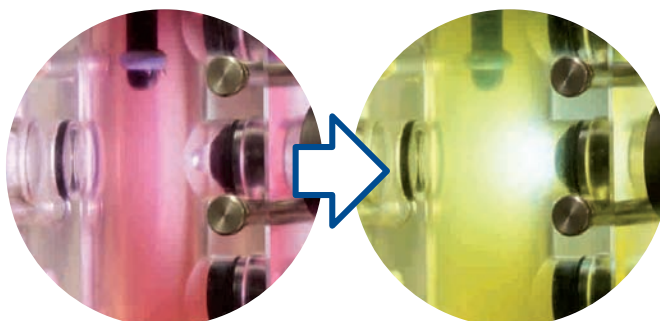


Continuous and fully automatic monitoring of the +p value (OH^- ions) ...

... with the SYCON P analyzer

The **SYCON P** is a titration device for measuring the +p value. This analyzer uses the proven measurement, sensor and control technology from the SYCON series to monitor the total hardness.

The term p-value is derived from the originally used reagent phenolphthalein, which changes its color from pink ($\text{pH} > 8.2$) to colorless ($\text{pH} < 8.2$) when alkaline samples are titrated with an acid. OH^- ions and hydroxide ions are detected during titration. Their determination is used in boiler feed and boiler water to estimate the corrosion behavior. The measured value is given in mmol/l.



The measurement method is a titration with a clear color change from red to yellow.



Highlights

- Compact design with easily accessible components
- Tool-free maintenance of the measuring cell
- Simple and intuitive operation via 8 keys and large display
- Durable and accurate analysis technology
- Extensive standard equipment

Functions

- Automatic zero point adjustment before each measurement
- An individually adjustable limit value for alarm function by means of relay
- Interface for measured value output
 - Measured values and log on SD card
 - Modbus RTU
 - Analog output 0/4 - 20 mA for measured value or detailed status messages
- Four relay outputs for individual alarms, warnings and for controlling other components (e.g. sample pump)
- Two programmable digital inputs

Article	Art. no.
Analyzer SYCON P	
110/230 V on wall mounting plate	30-410211
110/230 V in housing	30-410210
24 V on wall mounting plate	30-411211
24 V in housing	30-411210
Housing for SYCON device	33-099005
Maintenance set SYCON P	33-090034

Analysis properties

Measuring principle	Colorimetric with white color LED and full color sensor generation 2 with integrated noise suppression
Measuring range	0.2 to 20 mmol/l with two different reagents with fixed measuring ranges
Measurement accuracy	Deviation of the measured value $\pm 5\%$ of the upper measured value of the respective reagent used Repeatability $\pm 10\%$
Water connection	0.5 - 5.0 bar operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	6 mm outer diameter
Water drain	6 mm outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz) altern. 24 V (AC/DC $\pm 10\%$ at 50 Hz)
Power consumption	25 W (in operation), 3.5 W (stand-by)
Protection class	IP54
Ambient temp.	10 - 45 °C
Dimensions	On wall mounting plate: 274 x 275 x 130 mm (W x L x D) With housing: 330 x 300 x 185 mm (W x L x D)
Weight	On wall mounting plate: 1.7 kg With housing: 3.7 kg

Interfaces / Functions

Digital input	2
Digital output	4 relays
Analog output	0/4 to 20 mA
Modbus	yes
SD card	yes



Continuous and fully automatic monitoring of silicate (SiO₂) ...

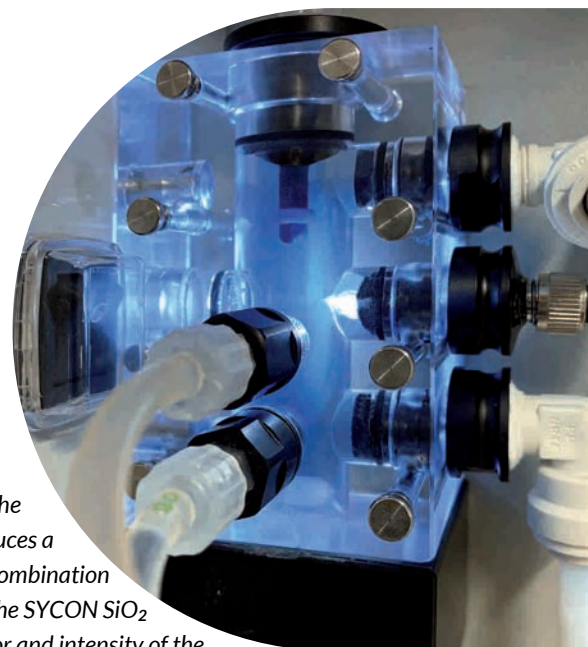
... with the SYCON SiO₂ analyzer

The **SYCON SiO₂** is an analyzer for monitoring silicate/silica on a mixed bed filter. In contrast to the other analyzers of the SYCON series, the **SYCON SiO₂** is operated with three dosing pumps. Otherwise, the scope of functions of this analyzer does not differ from the SYCON 2802 in terms of operation and interfaces.

Measuring ranges

As with the proven manual CALDUR test sets, the coloration of the sample depends on the silicate concentration in the sample. After addition of the reagents, different color shades arise in a chemical reaction.

• Measuring range: 0.3 bis 10 mg/L



Silicate present in the sample water produces a blue coloration in combination with the reagent. The SYCON SiO₂ determines the color and intensity of the sample and calculates the current silicate content.

SYCON SiO₂



Highlights

- Compact design with easily accessible components
- Tool-free maintenance of the measuring cell
- Simple and intuitive operation via 8 keys and large display
- Durable and accurate analysis technology
- Extensive standard equipment

Functions

- Automatic zero point adjustment before each measurement
- An individually adjustable limit value for alarm function by means of relay
- Interface for measured value output
 - Measured values and log on SD card
 - Modbus RTU
 - Analog output 0/4 - 20 mA for measured value or detailed status messages
- Four relay outputs for individual alarms, warnings and for controlling other components (e.g. sample pump in the case of unpressurized sample water)
- Two programmable digital inputs

Analysis properties

Measuring principle	Colorimetric with white light LED and full color sensor generation 2 with integrated noise suppression
Measuring range	0.3 to 10 mg/L
Measurement accuracy	±0.2 mg/L or ±10 % (whichever is greater)
Repeatability	±0.1 mg/L or ±2.5 % (whichever is greater)
Water connection	0.5 - 5.0 bar operating pressure Recommendation 1.0 - 2.0 bar
Water inlet	6 mm outer diameter
Water drain	6 mm outer diameter
Water temp.	5 - 40 °C

Technical data

Mains connection	230 V (100 - 240 VAC at 50/60 Hz) altern. 24 V (AC/DC ±10 % at 50 Hz)
Power consumption	25 W (in operation)
Protection class	IP54
Ambient temp.	10 - 45 °C
Dimensions	490 x 600 x 260 mm (W x L x D)
Weight	9.2 kg

Interfaces / Functions

Digital input	2
Digital output	4 relays
Analog output	0/4 to 20 mA
Modbus	yes
SD card	yes

Article	Art. no.
Analyzer SYCON SiO ₂ 110/230 V in housing	30-100178
Maintenance set SYCON SiO ₂	33-030197

Reagents for online analyzers ...



... of the LIMES and SYCON series

High-quality chemicals such as reagents and test kits are available to match our hardware and are developed and manufactured in-house.

The reagents are all optimally matched to the online analyzers of the LIMES and SYCON series. Our reagents are characterized by a particularly long shelf life of 24 months.

We use only raw materials of high purity in the production process. Each batch produced is tested in our laboratory.

The advantages at a glance:

- Reagent-based measurements are less expensive and more reliable than electrode measurements because they are already factory calibrated and are not affected by sample temperature.
- In conjunction with the online analyzers of the SYCON series, as little as 40 µl is sufficient for a measurement to analyze a water sample for soft water.
- The buffer components included in our reagents allow water samples to be measured over a wide pH range.
- The solvents contained in the reagent are easily biodegradable and can be 100% degraded in wastewater treatment plants. They therefore do not represent a burden for humans and the environment.

		°dH	°e	°fH	ppm	mval/l	mmol/l
German degrees	1 °dH =	1	1.253	1.78	17.8	0.357	0.1783
English degrees	1 °e =	0.798	1	1.43	14.3	0.285	0.142
French degrees	1 °fH =	0.56	0.702	1	10	0.2	0.1
ppm CaCO ₃ (USA)	1 ppm =	0.056	0.07	0.1	1	0.02	0.01
mval/l Alkaline earth ions	1 mval/l =	2.8	3.51	5	50	1	0.5
mval/l Alkaline earth ions	1 mmol/l =	5.6	7.02	10	100	2	1

The unit 1 ppm is used here contrary to the actual literal sense in the sense of 1 mg/l CaCO₃.

LIMES Total hardness



Four different reagents are available for the LIMES series:

Use the **LHV 0.1** and **LHV 0.5** reagents to monitor your reverse osmosis and ensure that you always run your system on soft water.

The **LHV 3.0** and **LHV 7.0** reagents are intended for process water monitoring. Thus, these reagents are used in hotels or in the catering industry.

Article	Art. no.
Reagent LHV-0,1	
1x 750 ml	32-074135
Value pack 4x 750 ml	32-474135
Reagent LHV-0,5	
1x 750 ml	32-074165
Value pack 4x 750 ml	32-474165
Reagent LHV-3,0	
1x 750 ml	32-074195
Value pack 4x 750 ml	32-474195
Reagent LHV-7,0	
1x 750 ml	32-074210
Value pack 4x 750 ml	32-474210

Features

Limit value	depending on reagent 0,1 °dH or 0,5 °dH or 3,0 °dH or 7,0 °dH
Compatible devices	LIMES Base, LIMES Plus

Technical data

Shelf life	24 months
Quantity	1x 750 ml alternatively 4x 750 ml
Bottle	angular, 140 x 45 x 170 mm (with lid)



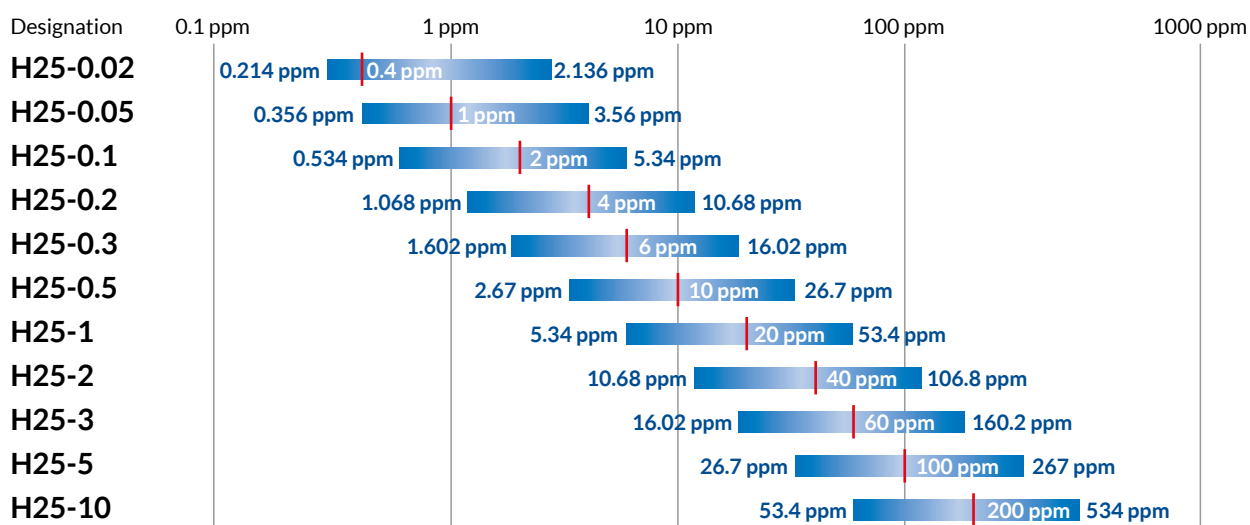
The comprehensive reagent program for SYCON devices

The SYCON series offers you analyzers for limit value monitoring and titration devices for determining the exact measured value. Both types are operated with the same reagents. The use of eleven different reagents results in advantages for instrument types. The limit value devices benefit from a finer adjustment of the limit value to be measured.

This is because with these analyzers, the limit value is determined by the choice of reagent. For the titration instruments, the correct choice of reagent can reduce consumption more significantly than it is the case with commercially available analyzers. A saving of over 50% is quite realistic.

This not only saves your wallet, but also the environment. The measuring range of each reagent for a titration device of the SYCON series is represented by the bar in the overview. If the reagents are used in the limit value devices of the SYCON series, that limit value is determined which is shown as a red line.

Reagents for measuring total hardness (the measuring range and the limit value are shown)



SYCON - Total hardness



Technical data

Shelf life	24 months
Quantity	1x 500 ml alternatively 4x 500 ml
Bottle	round, 85 x 130 mm (with lid)

Compatible	0.02	0.05	0.1	0.2	0.3	0.5	1	2	3	5	10
SYCON 2500	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SYCON 2501	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SYCON 2502	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SYCON 2602	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SYCON 2702	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SYCON 2802	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SYCON BoB	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SYCON 3000	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

☐ = compatible ☐ = not compatible

Article	Art. no.
Reagent H25-0,02	
1x 500 ml	32-084115
Value pack 4x 500 ml	32-484115
Reagent H25-0,05	
1x 500 ml	32-084125
Value pack 4x 500 ml	32-484125
Reagent H25-0,1	
1x 500 ml	32-084135
Value pack 4x 500 ml	32-484135
Reagent H25-0,2	
1x 500 ml	32-084145
Value pack 4x 500 ml	32-484145
Reagent H25-0,3	
1x 500 ml	32-084155
Value pack 4x 500 ml	32-484155
Reagent H25-0,5	
1x 500 ml	32-084165
Value pack 4x 500 ml	32-484165

Article	Art. no.
Reagent H25-1	
1x 500 ml	32-084175
Value pack 4x 500 ml	32-484175
Reagent H25-2	
1x 500 ml	32-084185
Value pack 4x 500 ml	32-484185
Reagent H25-3	
1x 500 ml	32-084195
Value pack 4x 500 ml	32-484195
Reagent H25-5	
1x 500 ml	32-084205
Value pack 4x 500 ml	32-484205
Reagent H25-10	
1x 500 ml	32-084215
Value pack 4x 500 ml	32-484215

SYCON - Carbonate hardness

Technical data

Shelf life	24 month
Quantity	1x 500 ml alternatively 4x 500 ml
Bottle	round, 85 x 130 mm (with lid)

Compatible	1	1.5	2	3
SYCON 2500	☐	☐	☐	☐
SYCON 2501	☐	☐	☐	☐
SYCON 2502	☐	☐	☐	☐
SYCON 2602	☐	☐	☐	☐
SYCON 2702	☐	☐	☐	☐
SYCON 2802	☐	☐	☐	☐
SYCON BoB	☐	☐	☐	☐
SYCON 3000	☐	☐	☐	☐

☐ = compatible ☐ = not compatible



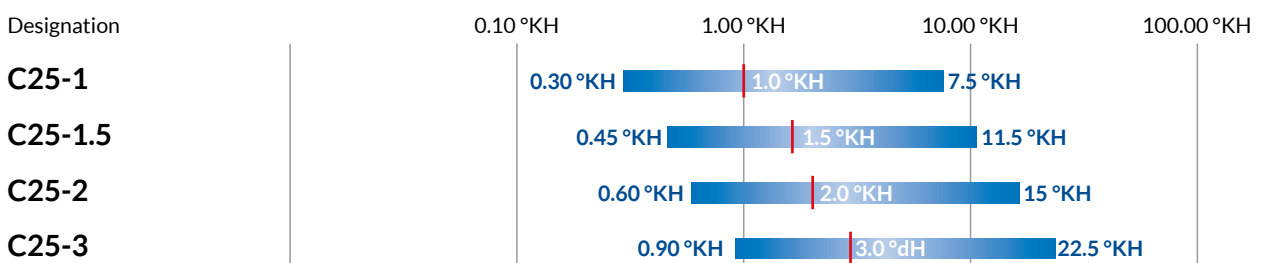
Article	Art. no.
Reagent C25-1	
1x 500 ml	32-086125
Value pack 4x 500 ml	32-486125
Reagent C25-1.5	
1x 500 ml	32-086135
Value pack 4x 500 ml	32-486135
Reagent C25-2	
1x 500 ml	32-086145
Value pack 4x 500 ml	32-486145
Reagent C25-3	
1x 500 ml	32-086155
Value pack 4x 500 ml	32-486155

Four different reagents are available for analyzing the carbonate hardness (or also called total alkalinity). These reliably determine the exact value of your water between 0.3 and 22.5 °KH.

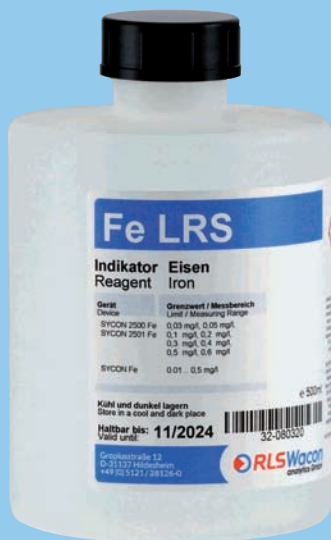
The measuring range of each reagent for a titration device of the SYCON series is represented by the bar.

If the reagents are used in the limit value devices of the SYCON series, that limit value is determined which is shown as a red line.

Reagents for measuring carbonate hardness (the measuring range and the limit value are shown)



SYCON - Iron



Features

Measuring range when used in SYCON Fe
0.01 - 0.5 mg/l

possible limit values when used in SYCON 2500 / 2501 Fe
0.03 mg/l
0.05 mg/l
0.1 mg/l
0.2 mg/l
0.3 mg/l
0.4 mg/l
0.5 mg/l
0.6 mg/l

Compatible devices SYCON 2500 Fe, SYCON 2501 Fe
SYCON Fe

Technical data

Shelf life 24 months
Quantity 1x 500 ml
Bottle round, 85 x 130 mm (with lid)

Article	Art. no.
Reagent Fe LRS 1x 500 ml	32-080320

Features

Measuring range when used in SYCON Fe
0.2 - 6.0 mg/l

possible limit values when used in SYCON 2500 / 2501 Fe
0.3 mg/l
0.5 mg/l
1.0 mg/l
2.0 mg/l
3.0 mg/l
4.0 mg/l
5.0 mg/l
6.0 mg/l

Compatible devices SYCON 2500 Fe, SYCON 2501 Fe
SYCON Fe

Technical data

Shelf life 24 months
Quantity 1x 500 ml
Bottle round, 85 x 130 mm (with lid)

Article	Art. no.
Reagent Fe HRS 1x 500 ml	32-080330

The reagents Fe HRS and Fe LRS are reagents for the determination of dissolved iron depending on the SYCON series analyzer used.

These reagents are used in the current SYCON Fe as well as in the discontinued models SYCON 2500 Fe and SYCON 2501 Fe.

These reagents are not suitable for the SYCON 3000 Fe. Please contact our sales department for the suitable reagent.

SYCON p-value



Features

Measuring range 0.2 - 5 mmol/l

Technical data

Shelf life 12 months
 Quality 1x 500 ml, alternatively 4x 500 ml
 Bottle round, 85 x 130 mm (with lid)

Article

Art. no.

Reagent P25-5	
1x 500 ml	32-086335
Value pack 4x 500 ml	32-486335



Features

Measuring range 0.8 - 20 mmol/l

Technical data

Shelf life 12 months
 Quality 1x 500 ml, alternatively 4x 500 ml
 Bottle round, 85 x 130 mm (with lid)

Article

Art. no.

Reagent P25-20	
1x 500 ml	32-086345
Value pack 4x 500 ml	32-486345

SYCON Silicate



Features

Measuring range 0.3 - 10 mg/l

Technical data

Shelf life 12 months
 Quality in set 2x 500 ml Silicate-A
 1x 500 ml Silicate-B
 1x 500 ml Silicate-C
 Bottle round, 85 x 130 mm (with lid)

Article

Art. no.

Reagent set Silicate 2x Silicate-A, 1x Silicate-B, 1x Silicate-C in total 4x 500 ml	32-010100
Reagent Silicate-A 1x 500 ml	32-010101
Reagent Silicate-B 1x 500 ml	32-010102
Reagent Silicate-C 1x 500 ml	32-010103

The reagent set SYCON SiO₂ A, B, C contains all reagents for operating the multi-pump analyzer SYCON SiO₂.

Content of a set:

- 2 x 500 ml reagent Silicate-A
- 1 x 500 ml reagent Silicate-B
- 1 x 500 ml reagent Silicate-C

Such a set is sufficient for approx. 1,000 analyses. You can order the reagents as a set or each component individually.

Coolers ...

... suitable for your applications with our analyzers

The flow-through coolers / heat exchangers for cooling the sample water are ideally matched to the online analyzers from RLS Wacon.

We provide two different types of coolers. We also offer sample coolers for manual water sampling in the boiler house.

All models are available as single units or, on request, with connection set and valves. We will be happy to advise you on the design of the right type.



PC 200

Article

Art. no.

Pre-cooler type PC 200

Cooler optimally matched to prepare process water to the necessary temperature for the analytical equipment.

30-015100

Pre-cooler type PC 400

Cooler optimally matched to prepare process water to the necessary temperature for the analytical equipment.

30-015200

	PC 200	PC 400
Maximum pressure (hot water)	16 bar	16 bar
Maximum pressure (cooling water)	8 bar	8 bar
Temperature range (hot water)	0 - 120 °C	0 - 80 °C
Dimensions (H x Ø)	375x128 mm	546x128 mm
Inlet (cooling water)	8 mm	1/2"
Output (cooling water)	8 mm	1/2"
Inlet (hot water)	8 mm	8 mm
Output (hot water)	8 mm	8 mm
Cooling coil length	2,6 m	5,1 m
Weight (empty)	1,7 kg	2,3 kg



AC 100



Sampling valve

Article	Art.- no
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Sample cooler type AC 100 without valves For taking water samples and cooling them for manual determination of water parameters. Dimensions 100 x 225 mm, weight 3.3 kg	30-011100
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Sample cooler type AC 100 with hot and cold water valves For taking water samples and cooling them for manual determination of water parameters. Dimensions 100 x 225 mm, weight 3.5 kg	30-011110
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Hot water valve type HWV 100 for sample cooler AC 100	30-012110
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Cold water valve type KWV 150 for sample cooler AC 100	30-012121
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Sample cooler type AC 400 without valves For taking water samples and cooling them for manual determination of water parameters. Dimensions 100 x 448 mm, weight 4.0 kg	30-011200
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Sample cooler type AC 400 with hot and cold water valves For taking water samples and cooling them for manual determination of water parameters. Dimensions 100 x 448 mm, weight 4.2 kg	30-011210
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Hot water valve type HWV 400 for sample cooler type AC 400	30-012115
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Sampling valve 1/4" The flammable sampling valve enables the professional collection of water samples for regular manual chemical and microbiological analysis.	37-010965
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Accessories ...

... for our LIMES and SYCON analyzers

To make installation or commissioning as easy as possible for you, we offer accessories for our analyzers. The selection is based on field experience and consists of high-quality products that fit seamlessly with the quality of our analyzers.

Article

Art. no.

Reagent bearing (Fibox) for wall mounting

High-quality box for storing reagent bottles, cleaners and maintenance sets of the SYCON and LIMES series.

Dimensions 300 x 200 x 180 mm

37-010866

LED signal lamp acts as an optical signal generator for analyzers.

The optical signal can be used for reagent deficiencies, instrument malfunctions or limit value violations in plant halls to visualize status messages of an analyzer.

LED signal lamp version 230 V

37-010964

LED signal lamp version 24 V

37-012964

SYCON tool kit, contains the necessary tools for the installation and maintenance of all analyzers.

37-010966

Drainage ventilation

When the analyzer is at a great distance to the drain, the drain vent reduces pressure surges in the analyzer, ensuring trouble-free operation.

37-010970

System separator with controllable differential pressure type CA

The system separator prevents the process water from flowing back in case of a pressure drop. If there are impurities or foreign substances in the process water, the contamination of sensitive components can thus be avoided. The system separator is made of brass and functions according to a three-chamber principle:

- two backflow preventers
- a drain valve
- an integrated dirt trap sieve (inflow)

Protection against backflow, backpressure and backsiphonage of liquids of hazard class 3 (according to DIN 1988, part 4 and DIN EN 1717)

Dimensions 115 x 110 x 47 mm

37-010962

Coupling relay 24 V

The coupling relay doubles the contacts of a relay for an analyzer with 24 V supply voltage.

Additionally, it can be used to separate the contacts of a water meter for simultaneous connection to the analyzer and softener control.

Dimensions 31 x 87 x 96 mm

37-010982

Coupling relay 230 V

The coupling relay doubles the contacts of a relay for an analyzer with 230 V supply voltage.

Additionally, it can be used to disconnect the contacts of a water meter for simultaneous connection to the analyzer and softener control.

Dimensions 31 x 87 x 96 mm

37-010983

Cam load break switch 16A

With this 2-pole cam switch, it is possible to completely de-energize your analyzer. After switching off the supply voltage, safe working on the analyzer is guaranteed.

Dimensions 76 x 76 x 46 mm

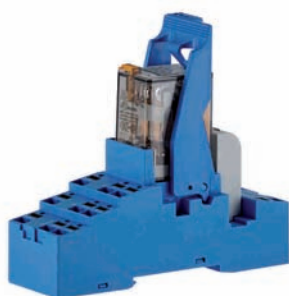
37-010961



Drainage ventilation



System separator



Coupling relay



Cam load break switch



LIMES connection unit

Article

Art. no.

LIMES connection unit

With the connection unit, no further hardware is required for commissioning a LIMES device. The unit contains an illuminated on/off switch and a terminal strip for contacting the supply voltage and all inputs and outputs of the LIMES device.

30-035200

Upgrade Kit from LIMES Base to LIMES Plus

With the upgrade kit, you upgrade a LIMES Base to a LIMES Plus. The upgrade can be performed at any time. If necessary, the device can be reset to a LIMES Base by reconnecting the circuit board.

30-035205

LIMES connection set

The connection set contains the usual utensils for connecting a LIMES device on the water side. It also facilitates work that is carried out as part of maintenance.

33-080701



Flow-through fitting 1"

Flow-through fitting for LIMES 3/4"

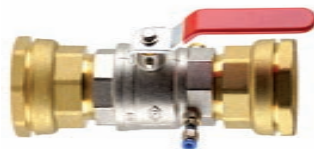
T-piece fitting for a 3/4" PE pipe with matching outlet for easy connection of a LIMES device

33-080601

Flow-through fitting for LIMES 1"

T-piece fitting for a 1" PE pipe with matching outlet for easy connection of a LIMES device

33-080602



Flow-through fitting 2"

Flow-through fitting for LIMES 1 1/2"

T-piece fitting for a 1 1/2" PE pipe with matching outlet for easy connection of a LIMES device

33-080604

Flow-through fitting for LIMES 2"

T-piece fitting for a 2" PE pipe with matching outlet for easy connection of a LIMES device

33-080605



Pressure regulator

... and for our SYCON analyzers

Article

Art. no.

Pressure regulator with mounting plate and filter incl. pressure gauge

An upstream pressure reducer with filter protects your instrument from pressure surges and foreign bodies in the measuring cell, thus extending the lifespan of the analyzer.

33-090738

Connection set SYCON

With the connection set, a SYCON analyzer can be connected to a 3/4" or 1/2" pipeline. It also includes a stopcock and 5 meters of flexible plastic hose for inlet and outlet on the device. It thus facilitates work that is carried out as part of maintenance.

33-000701



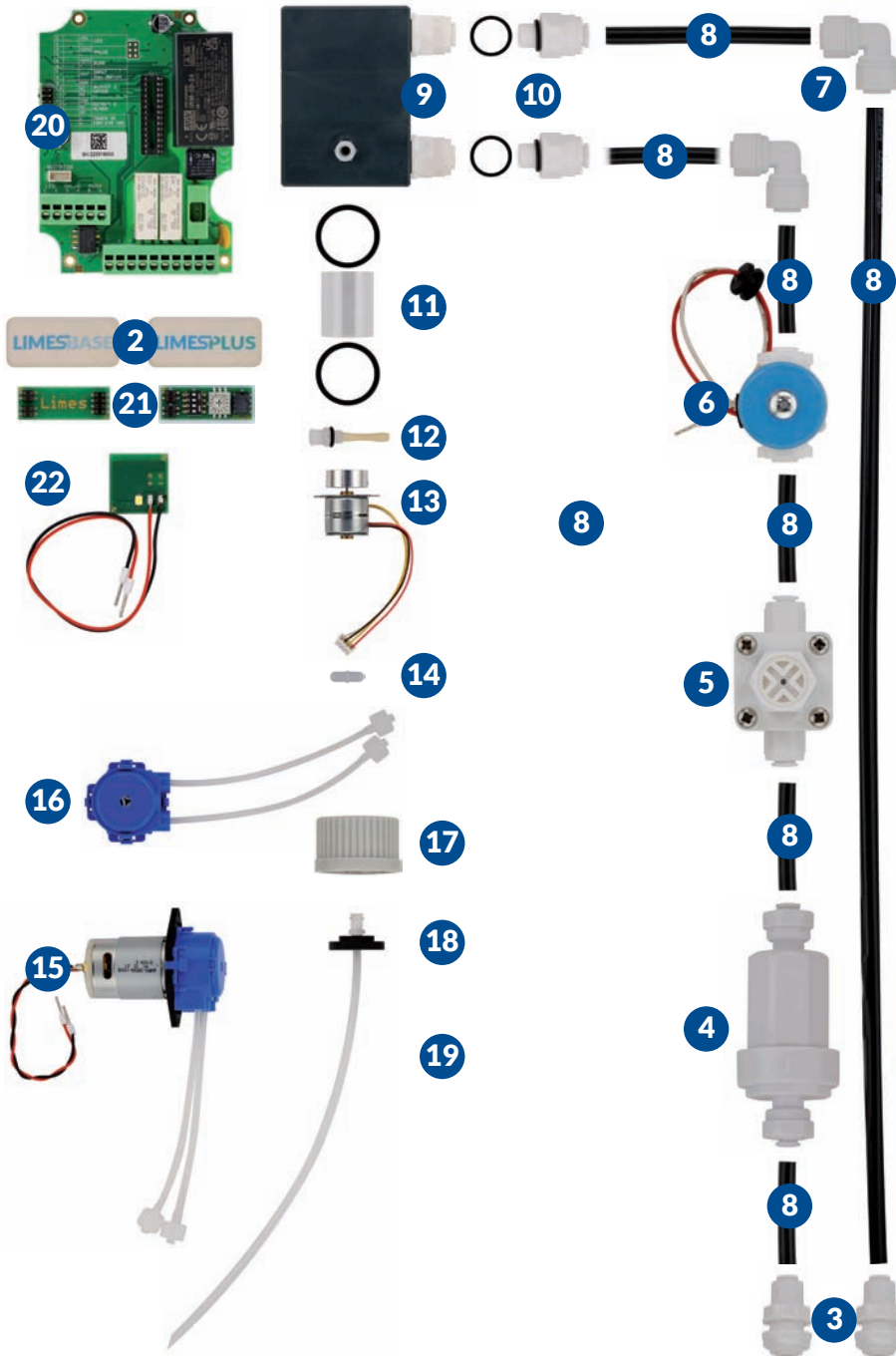
Connection set SYCON

SYCON drain ventilation

If the hose length of the drain line on the analyzers exceeds 2 meters, the drain vent must be installed to prevent pressure surges in the measuring cell.

37-010970

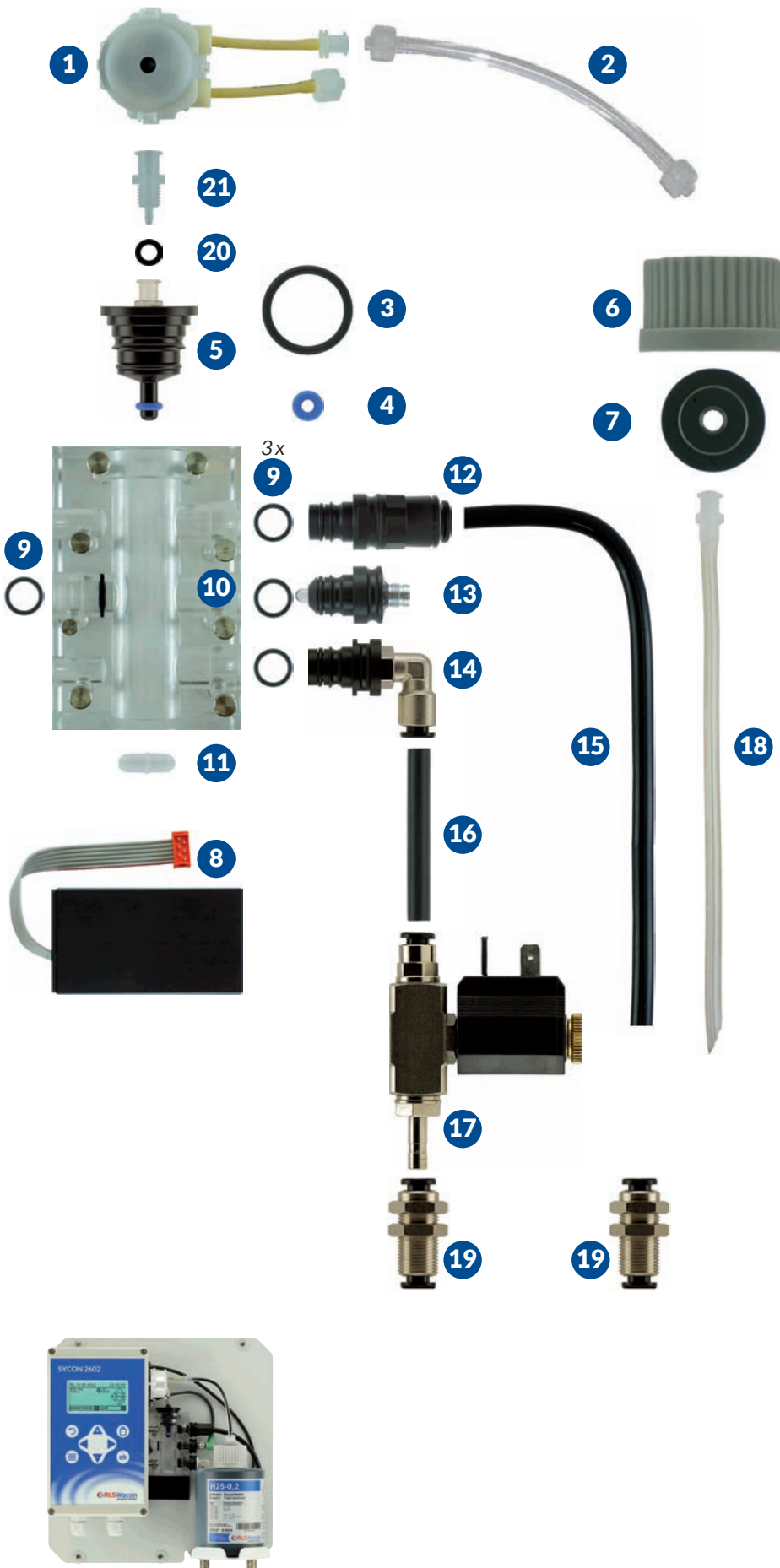
LIMES Base / LIMES Plus



Article	Art. no.
1 LIMES housing cover transparent	30-035109
2 LIMES Base rubber cap	30-035012
2 LIMES Plus rubber cap	30-035112
3 Bulkhead fitting white 1/4 inch (2x)	30-093202
4 LIMES filters	30-093218
5 Pressure regulator LIMES	30-093079
6 LIMES solenoid valve	30-035004
7 Angle connection white 1/4 inch (1x)	30-093216
8 Hose set 1/4 inch (7 parts)	30-035201
9 Measuring chamber complete LIMES	30-035104
10 Screw-in connection 1/4 inch LIMES including O-ring (2x)	30-055203
11 LIMES tube measuring chamber incl. O-rings	30-055204
12 LIMES injector including O-ring	30-035006
13 Stepper motor with magnet mount cpl. LIMES	30-035108
14 Stirrer blade	33-090002
15 Peristaltic pump cassette incl. motor cpl. LIMES	33-035106
16 Peristaltic pump cassette complete LIMES	33-035107
17 Bottle cap, screw connection GL 32 grey	33-093060
18 Bottle adapter	33-090009
19 Suction lance cpl. LIMES	30-035005
20 Mainboard LIMES 110/230 V	30-072004
21 LIMES Base plug-on board incl. mounting tool	30-035202
21 LIMES Plus plug-on board incl. mounting tool	30-035203
22 LIMES actuator board (LED)	30-090182



SYCON 2602

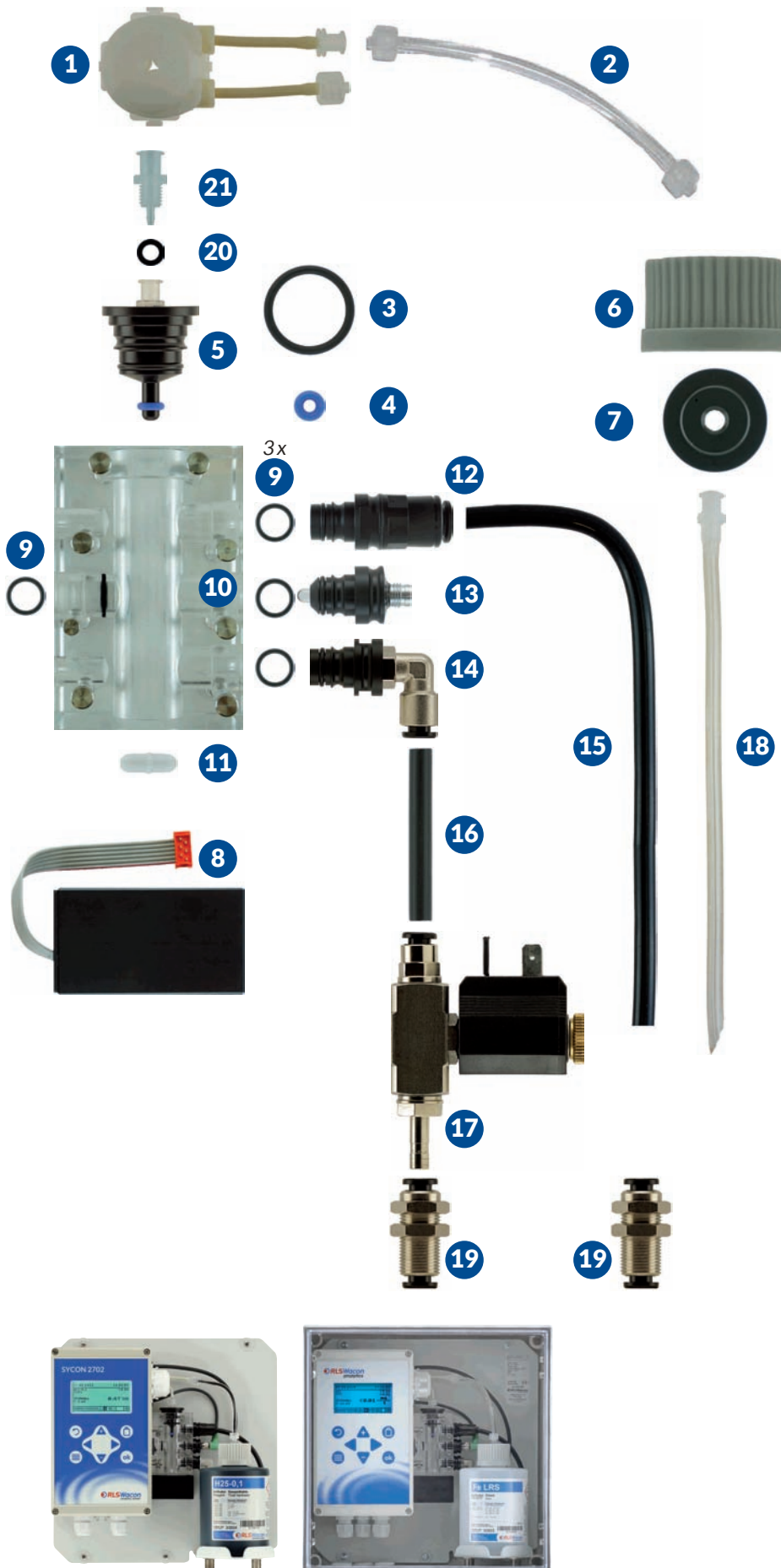


Article	Art. no.
1 Peristaltic pump cassette complete	33-090038
2 Bottle connector	33-090008
3 O-ring 16 x 2	33-090217
4 Metering O-ring 3.2 x 2.5 blue	33-090218
5 Reagent plug incl. position 3, 4, 20, 21	33-090716
6 Bottle cap	33-093060
7 Bottle adapter SYCON	33-090009
8 Agitator	33-090056
9 O-ring 9 x 1.5	33-090210
10 Measuring chamber preassembled	33-090731
11 Stirrer blade	33-090002
12 Drain plug 6 mm incl. O-ring	33-090712
13 Actuator plug (LED) incl. O-ring	33-090713
14 Inlet plug with angle connection incl. O-ring	33-090156
15 Drain hose 200 mm long Ø 6 x 4 mm	33-090124
16 Supply hose 50 mm long Ø 6 x 4 mm	33-090112
17 Solenoid valve SYCON 24 V	33-090157
18 Suction lance	33-090011
19 Bulkhead connector straight	33-090116
20 O-ring 5.28 x 1.78	33-090215
21 Luer connection	33-090414

Spare parts without picture

Article	Art. no.
Measuring chamber incl. positions 5, 11, 12, 13, 14	33-190700
Display board	33-033607
Main board SYCON 2602 230 VAC	33-030647
Main board SYCON 2602 24 VAC/DC	33-030655
Hose pump cassette with motor compl., SYCON 2602	33-090227
Connecting cable solenoid valve SYCON series	33-090079
Connecting cable actuator	33-090074
Maintenance set SYCON 2602 incl. positions 1, 2, 3, 4, 18, 4x 9, 11	33-090028
Cleaning set SYCON Clean	30-010900
FIT 3000 cleaner (1000 ml) for measuring chamber cleaning	32-089100

SYCON 2702 / 2802 / Fe / P

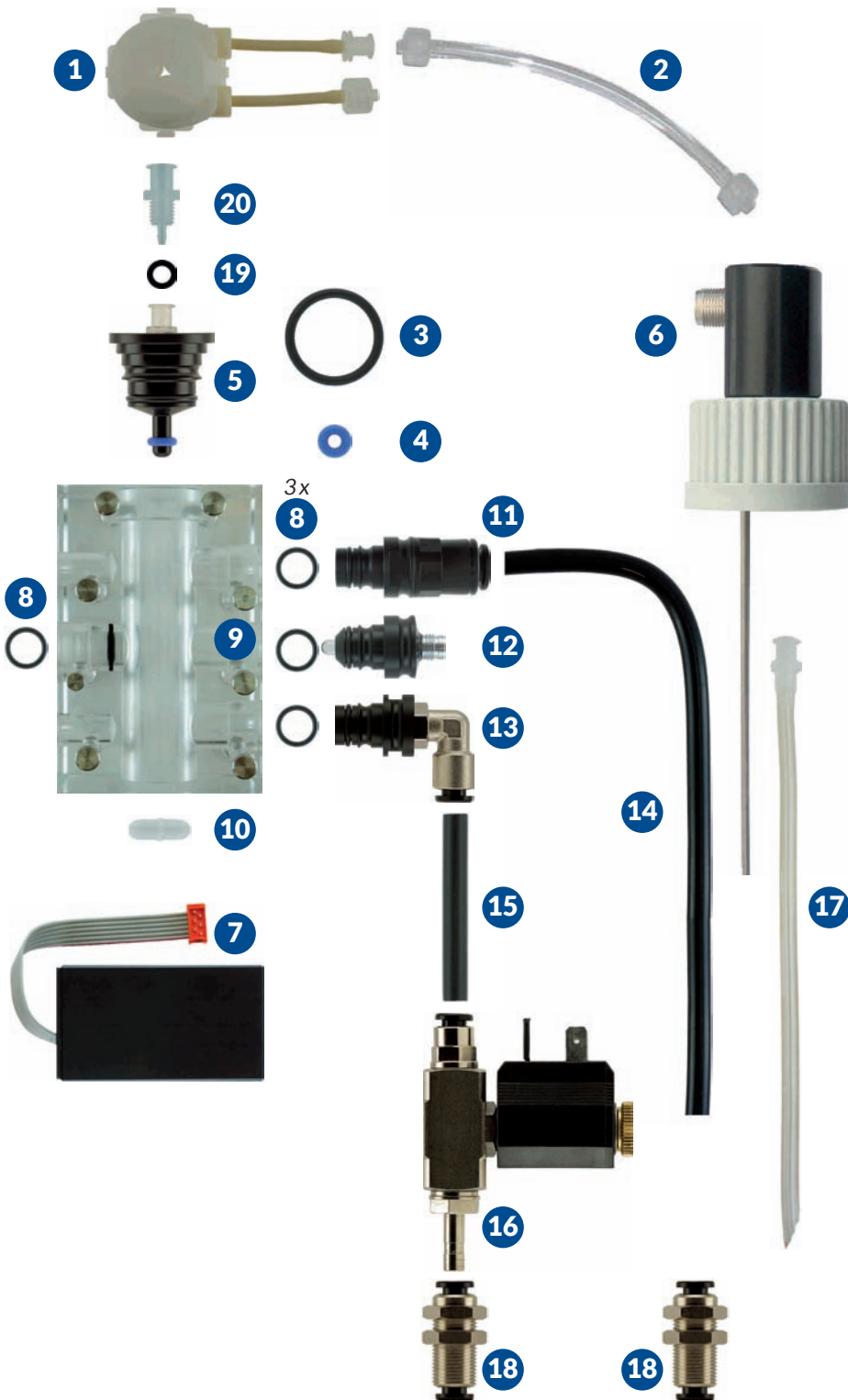


Article	Art. no.
1 Peristaltic pump cassette complete	33-030614
2 Bottle connector	33-090008
3 O-ring 16 x 2	33-090217
4 Metering O-ring 3.2 x 2.5 blue	33-090218
5 Reagent plug incl. position 3, 4, 20, 21	33-090716
6 Bottle cap	33-093060
7 Bottle adapter SYCON	33-090009
8 Agitator	33-090056
9 O-ring 9 x 1.5	33-090210
10 Measuring chamber preassembled	33-090731
11 Stirrer blade	33-090002
12 Drain plug 6 mm incl. O-ring	33-090712
13 Actuator plug (LED) incl. O-ring	33-090713
14 Inlet plug with angle connection incl. O-ring	33-090156
15 Drain hose 200 mm long Ø 6 x 4 mm	33-090124
16 Supply hose 50 mm long Ø 6 x 4 mm	33-090112
17 Solenoid valve SYCON 24 V	33-090157
18 Suction lance	33-090011
19 Bulkhead connector straight	33-090116
20 O-ring 5.28 x 1.78	33-090215
21 Luer connection	33-090414

Spare parts without picture

Article	Art. no.
Measuring chamber incl. positions 5, 11, 12, 13, 14	33-190700
Display board	33-033607
Main board SYCON 2802 230 VAC	33-030649
Main board SYCON 2802 24 VAC/DC	33-030657
Hose pump cassette with motor compl., SYCON 2802	33-090625
Connecting cable solenoid valve SYCON series	33-090079
Connecting cable actuator	33-090074
Maintenance set SYCON 2802 incl. positions 1, 2, 3, 4, 18, 4x 9, 11	33-090034
Cleaning set SYCON Clean	30-010900
FIT 3000 cleaner (1000 ml) for measuring chamber cleaning	32-089100

SYCON BoB

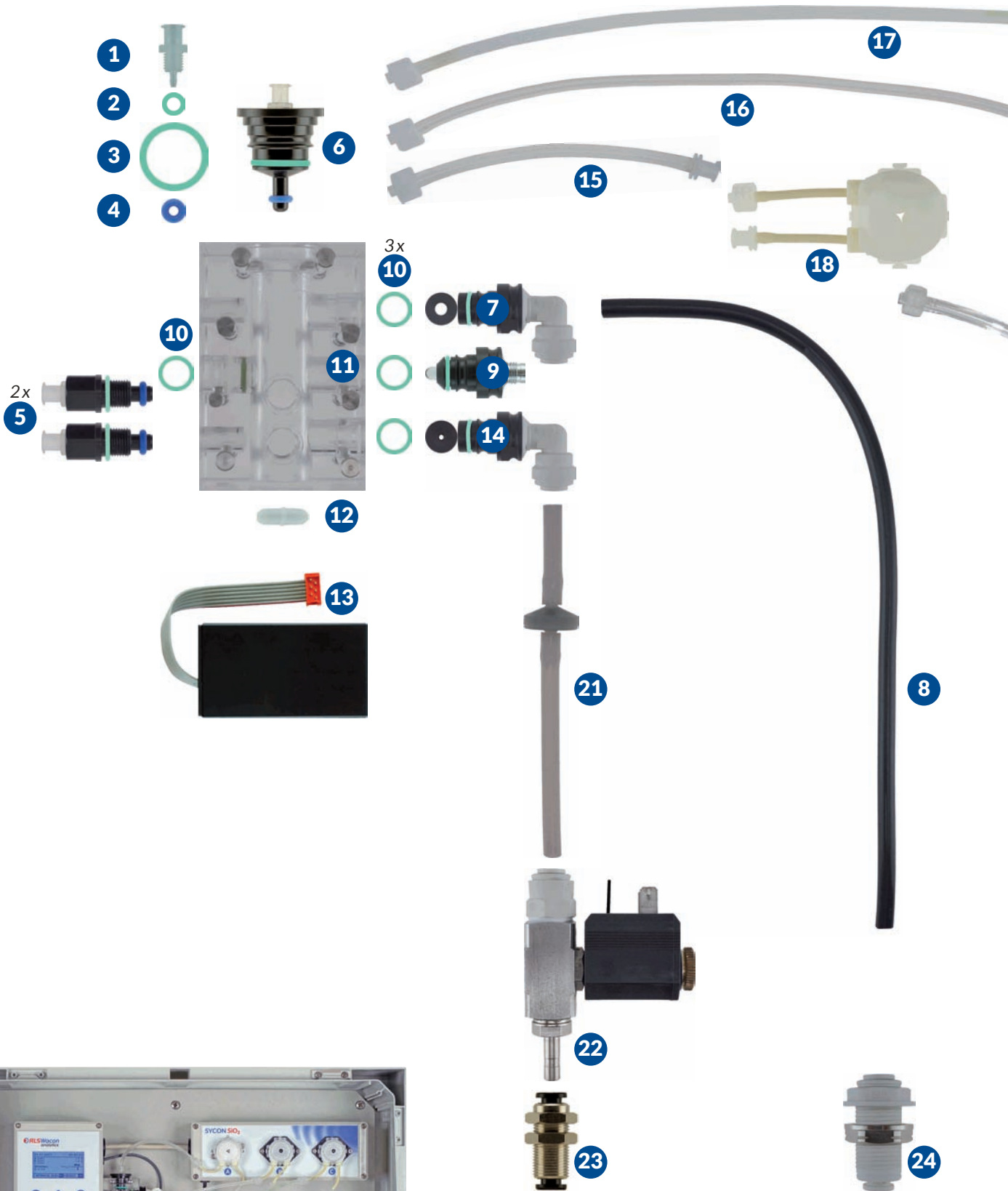


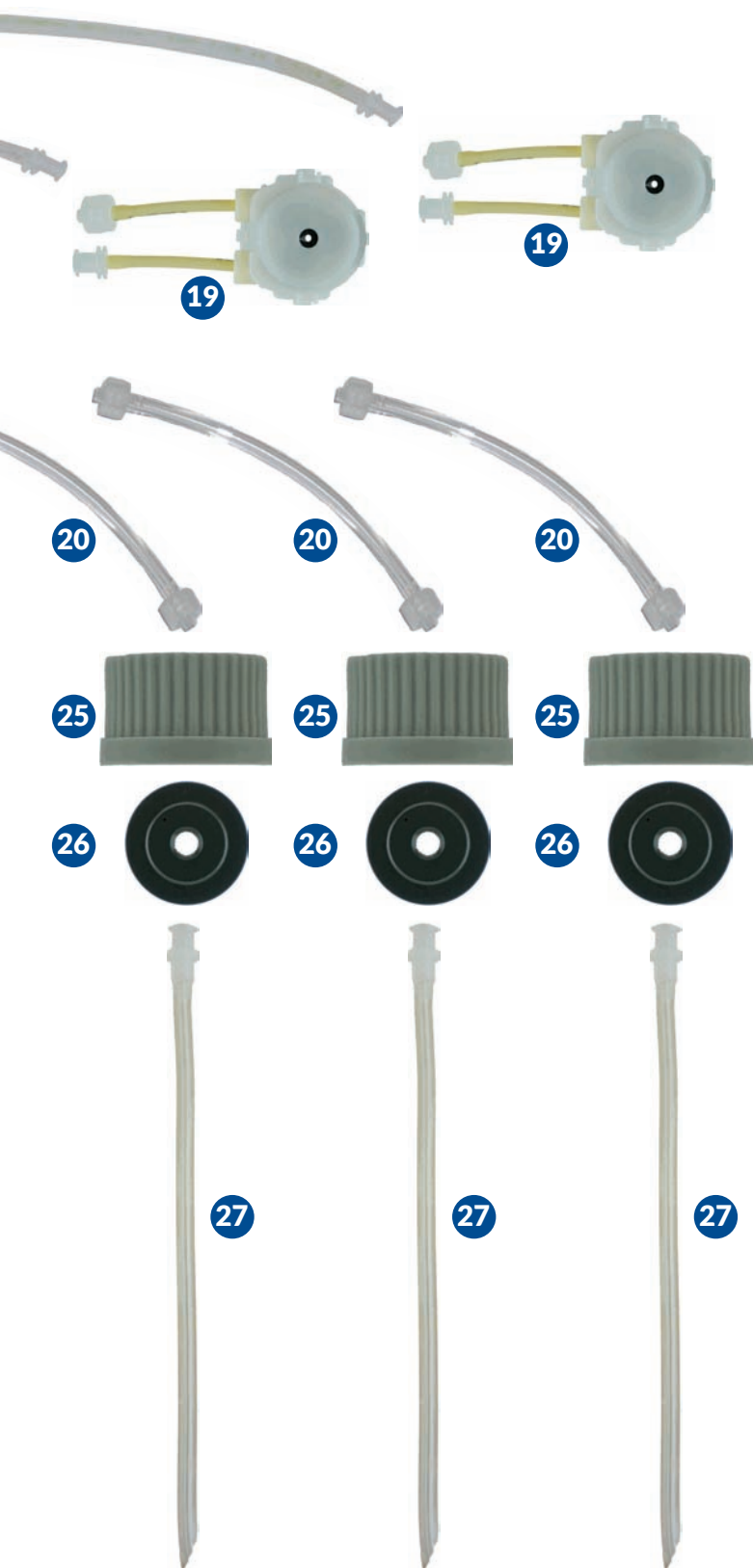
Article	Art. no.
1 Peristaltic pump cassette complete	33-090614
2 Bottle connector SYCON BoB	33-090011
3 O-ring 16 x 2	33-090217
4 Metering O-ring 3.2 x 2.5 blue	33-090218
5 Reagent plug incl. position 3, 4, 19, 20	33-090716
6 SYCON BoB Probe incl. bottle cap	33-010130
7 Agitator	33-090056
8 O-ring 9 x 1.5	33-090210
9 Measuring chamber preassembled	33-090731
10 Stirrer blade	33-090002
11 Drain plug 6 mm incl. O-ring	33-090712
12 Actuator plug (LED) incl. O-ring	33-090713
13 Inlet plug with angle connection incl. O-ring	33-090156
14 Drain hose 200 mm long Ø 6 x 4 mm	33-090124
15 Supply hose 50 mm long Ø 6 x 4 mm	33-090112
16 Solenoid valve SYCON 24 V	33-090157
17 Suction lance BoB	33-030002
18 Bulkhead connector straight	33-090116
19 O-ring 5.28 x 1.78	33-090215
20 Luer connection	33-090414

Spare parts without picture

Article	Art. no.
Measuring chamber incl. positions 5, 10, 11, 12, 13	33-190700
Display board	33-033607
Main board SYCON BoB 230 VAC	33-010128
Main board SYCON BoB 24 VAC/DC	33-030164
Hose pump cassette with motor complete, SYCON BoB	33-030625
Connecting cable solenoid valve SYCON series	33-090079
Connecting cable actuator	33-090074
Connecting cable SYCON BoB probe	33-000038
Maintenance set SYCON BoB incl. positions 1, 2, 3, 4, 17, 4x 8, 10	33-030099
Cleaning set SYCON Clean	30-010900
FIT 3000 cleaner (1000 ml) for measuring chamber cleaning	32-089100

SYCON SiO₂





Article	Art. no.
1 Luer connection	33-090414
2 O-ring 5.28 x 1.78 green	33-000065
3 O-ring 16 x 2 green	33-000063
4 Metering O-ring 3.2 x 2.5 blue 3	3-090218
5 Dosing plugs screwable complete including positions 1, 2, 4, 10	33-000085
6 Reagent plug complete including positions 1, 2, 3, 10	33-009833
7 Drain plug with 1/4 inch connection and 5 mm hole incl. position 10	33-091021
8 Drain connection 1/4 inch	33-090013
9 Actuator plug (LED) complete including position 10	33-000010
10 O-ring 9 x 1.5 green	33-000066
11 Measuring chamber preassembled without plug	33-000159
12 Stirrer blade 3	3-000002
13 Agitator	33-090056
14 Inlet plug with 1/4 inch connection and 2 mm bore incl. item 10	33-000060
15 Pump connector silicate A 130 mm	33-000175
16 Pump connector silicate B 250 mm	33-000176
17 Pump connector silicate C 300 mm	33-000177
18 Peristaltic pump cassette A complete (white rollers)	33-000024
19 Peristaltic pump cassette B/C complete (black rollers)	33-000025
20 Bottle connector SYCON Silicate	33-000201
21 Supply hose with one-way valve SYCON Silicate	33-030199
22 Solenoid valve complete SYCON Silicate	33-000027
23 Bulkhead connector straight 6 mm metal version	33-090116
24 Bulkhead connector 1/4 inch straight plastic	33-000023
25 Bottle cap	33-093060
26 Bottle adapter	33-000021
27 Suction lance complete SYCON Silicate	33-030196

Spare parts without picture

Article	Art.no.
Measuring chamber incl. all plugs and green O-rings as well as positions 11, 6, 2x 5, 7, 9, 14, 12	33-100160
Display board	33-000016
Main board complete SYCON Silicate	33-030651
Peristaltic pump cassette A with motor complete	33-000014
Peristaltic pump cassette B/C with motor complete	33-000015
Connecting cable solenoid valve multi-pump system	33-000036
Connecting cable pump unit multi-pump system	33-000037
Connecting cable actuator	33-000013



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... the CALDUR® test sets

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Special bottling of a test set for the determination of total hardness, where 1 drop corresponds to 1 °dH.



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The CALDUR® **photometric test sets** are specially adapted to the WINLAB Data Line photometer. This part of the CALDUR® program perfectly combines the high quality of the reagents with the automatic determination of the concentration of the water constituents.



With the **Scientific program** line from CALDUR® we offer you manual test sets with a very high accuracy. At the same time, the operability of these test sets is much more comfortable than that of the other test sets.



Test set residual hardness RG 50

Art. no. 31-070260

This test set is suitable, for example, for fast and inexpensive monitoring of the residual hardness of ion exchangers with a limit value of 0.5 °dH.



Test set total hardness GH 100

Art. no. 31-071310

The "standard" for fast and inexpensive monitoring of the total hardness with one measured value per drop: 1,0 / 0,5 °dH.



Test set chlorine (free)

Art. no. 31-072275

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WINLAB Data Line Photometer in case

Art. no. 37-000100

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Scientific test set Total hardness 0 - 20 °dH

Art. no. 31-075100

With one syringe filling a measuring range from 0 to 20 °dH is covered. If you want to measure further, fill the syringe a second time. Then, you can also measure above 20 °dH. Thus, you "extend" the measuring range to 40 °dH. The accuracy which is given by the scaling of the syringe is 1 °dH.



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