

OPERATING MANUAL

CHEMTRAC

PROCESS RETRACTABLE HOLDER

SI Analytics
a **xylem** brand

Status at time of printing

Advanced technology and the high quality of our products are guaranteed by a continuous development. This may result in differences between this operating manual and your product. We cannot exclude mistakes. We are sure you understand that no legal claims can be derived from the information, illustrations and descriptions.

A potentially more recent version of this manual is available on our internet website at www.XylemAnalytics.com. The German version is the original version and binding in all specifications.

Guarantee

We provide guarantee for our process holders of one year from the date of purchase. This guarantee covers manufacturing faults being discovered within the mentioned period of one year. Claim under guarantee covers only the sensor itself, not any further claim for damages or financial loss. Warranty claims shall not include minor deviation from the agreed quality, of only minor impairment of usefulness, of usual wear and any damage that occurs after the transfer of risk from faulty handling, excessive strain, unsuitable equipment or due to special external influences.

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Printed in Germany.

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1 Security and safety measures

1.1 General safety instructions

The CHEMTRAC retractable holder is designed in a way that when the operation manual is observed the product does not present any hazards.

- ▶ Read the operation manual before use.
- ▶ Do only install and operate the retractable holder after having read and understood all notes on the safe and proper use.
- ▶ Keep the operation manual for future reference.
- ▶ Do operate the retractable holder only in trouble-free condition.
- ▶ In addition, observe laws, regulations, guidelines and standards applicable in the operator's country and at the site of use.

1.2 Bestimmungsgemäße Verwendung

The CHEMTRAC retractable holder is attached to tanks or tubing. A sensor is inserted in the process liquid by the drive unit in order to measure chemical or physical properties. The procedure is controlled automatically and cannot be operated manually.

The choice of material properties of holder and equipment depends on the process properties.

The retractable holder should be serviced on a regular basis.

- ▶ Establish a service plan adapted to your process.
- ▶ Do only perform the service works described in the operation manual!

- ▶ Modifications to the holder must be agreed with the manufacturer.



The manufacturer is not liable for any damages resulting from improper or inappropriate use.

1.3 Danger zones and residual dangers

Retractable holders are connected to tanks and tubing that may be under pressure. Leaking of process liquid only occurs in case of negligence and improper operation.

- ▶ Prior to commissioning and after every servicing, ensure that all seals and connections are complete and in working order.
- ▶ Never remove the lower and top housing cramp screws during operation of the holder.
- ▶ Take applicable protection measures prior to touching the holder as parts of the retractable holder may adopt the process temperature.

1.4 Equipment

Do only use certified and approved accessories and equipment.

- | | |
|----------------------------------|--|
| Seals | <ul style="list-style-type: none">▶ Choose material properties of process seals and O rings according to process medium and cleaning liquid.▶ Observe swelling ability and acid and alkaline resistance of seal material. |
| Sensor | <ul style="list-style-type: none">▶ Choose a suitable sensor and observe information in chapter 8 "technical specifications". |
| Pressure air | <ul style="list-style-type: none">▶ Filter (40 µm), clean and deoil compressed air.▶ Ensure that the pressure is between 4 and 6 bar. |
| Cleaning liquid/detergent | <ul style="list-style-type: none">▶ Choose cleaning liquid and detergent according to process, holder, and seal material and dispose off in an appropriate way. |

1.5 Safety equipment

Position "service"	<p>The retract protection prevents the insertion rod from retracting without sensor in the process as this would cause a leakage of process liquid.</p> <ul style="list-style-type: none"> ▶ The sensor can only be installed/removed when the holder is in the "service" position. ▶ Disabling the retract protection is considered as negligence.
Position "measuring"	<p>In the "measuring" position the sensor is immersed in the drive unit.</p> <ul style="list-style-type: none"> ▶ You cannot remove the sensor. ▶ Trying to remove the sensor in the "measuring" position is considered as negligence!
Protection cage	<p>You may adjust the protection cage at the end of the insertion rod in order to protect the sensor from mechanical impacts.</p>

1.6 Staff

Qualifications	<p>Leave installation and servicing of retractable holder to trained staff!</p>
Protective clothing	<p>The operation staff must wear goggles and applicable protective clothing during commissioning and servicing works.</p>
Accident prevention regulations	<p>Observe work safety laws and regulations applicable in the operator's country and at the site of use!</p>

1.7 Disposal



Please observe the applicable local or national regulations concerning the disposal of "waste electrical and electronic equipment"

1.8 Symbols and pictograms

Pictograms and symbols are used in the operation manual to provide better orientation.

DANGER!



The safety note with the **DANGER!** signal indicates the risk of personal danger and high material damage in case of failure to observe the instructions.

CAUTION!



The safety note with the **CAUTION!** signal indicates the risk of material damage in case of failure to observe the instructions.



Indicates an important note!



This sign indicates that the operations should be carried out in the specified order.

1.9 Reliable Use in Explosive Atmospheres

For a reliable use under potential explosive condition please regard the following remarks:

- ▶ Avoid electrostatic charges on the top of the drive unit. Wipe with an antistatic cloth only.
- ▶ The electrostatic charge must be taken into account in the case of parts not made of a conductive material and contacted with the medium. This applies particularly for non-conductive fluids.
- ▶ The sensor must conform to Directive 94/9EC and the ambient temperatures must be observed.
- ▶ It must be ensured that the compressed air does not contain a potentially explosive atmosphere.

- ▶ It must be ensured that the extension and retraction movements of the sensor do not damage the connection.
- ▶ The various temperature classes of the different materials must be observed.
- ▶ A potential equalisation must be ensured.

DANGER!



The Atex – Certificate regarding cap. 10.1 does not apply to CHEMtrac 830. Do not use holder CHEMtrac 830 under potential explosive atmosphere!

2 Product description

2.1 CHEMTRAC automatic retractable holder

Components

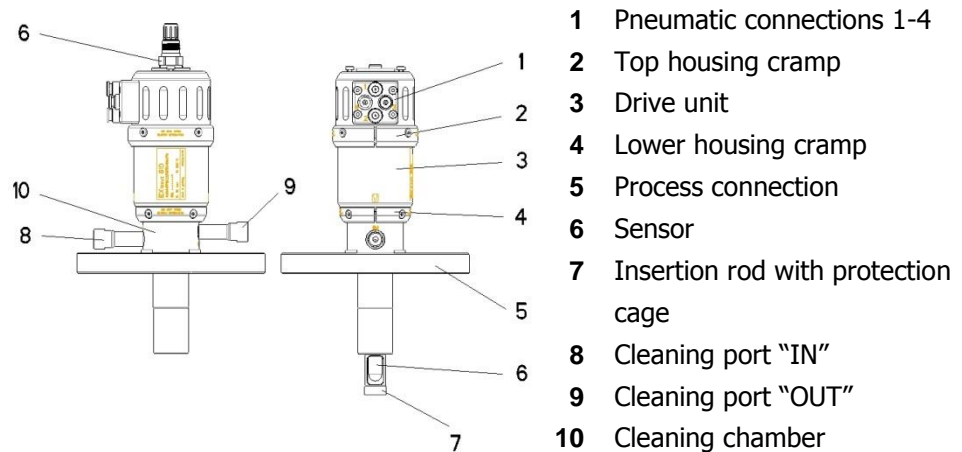


Fig. 1 Retractable holder

Variations

Retractable holders are attached to tanks or tubing by an applicable process connection. In order to comply with the various process properties the CHEMTRAC retractable holder is fabricated of stainless steel or plastic. You can further choose between different process and cleaning ports, sealing materials, and sensors.

CHEMtrac 810 / 820

CHEMtrac 810 / 820 is a retractable holder made of stainless steel (810) or plastic (820) for installation of Ø12mm sensors on tanks or pipelines.

- For all kind of Ø12/225mm or Ø12/280mm sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
- Chemicals
- Water treatment
- Rough processes
- Requirement of automated sensor cleaning or calibration

CHEMtrac 811 / 821

CHEMtrac 811 / 821 is a retractable holder made of stainless steel (811) or plastic (821) for installation of Ø12mm sensors on tanks or pipelines, with an extended immersion length up to 207mm.

- CHEMtrac 830** CHEMtrac 830 is a retractable holder made of stainless steel for hygienic installation of Ø12 sensors on tanks or pipelines
- For all kind of Ø12/225mm or Ø12/280mm sensors with thread PG13.5 (pH-glass- and ISFET sensors, conductivity- or temperature sensors, turbidity and other optical sensors)
 - Food
 - Pharmaceuticals
 - Requirement of automated sensor cleaning or calibration
- Drive** Compressed air is supplied via the pneumatic connections on the drive unit. The drive unit inserts the insertion rod in the process medium up to the maximal insertion depth. For safety reasons this is only possible with a sensor installed.
- Measuring** When reaching the final position of the "measuring" position, the control receives a pneumatic position signal. In this position the sensor head is immersed in the drive unit and cannot be removed. The sensor measures the chemical or physical properties of the process liquid.
- Service** Cleaning, rinsing and calibration of the sensor is possible while the process is running. For this purpose the holder must be moved to the "service" position. Another pneumatic position signal is caused when the final position is reached. In the "service" position the insertion rod seals the cleaning chamber against the process to prevent leakage of process liquid. The required liquid is introduced into the cleaning chamber via the cleaning port "IN" and subsequently drained via the cleaning port "OUT".

2.2 Process integration

- Control** The CHEMTRAC retractable holder can be operated by the automatic control CHEMtrol. It optimally matches the functions of the holder.
- Transmitter** The retractable holder inserts a sensor in the process liquid transmitting its measuring results to a transmitter.
- Process control** The external control and the transmitter can be connected to a process control. The measuring and cleaning intervals are then controlled automatically according to the measuring results.

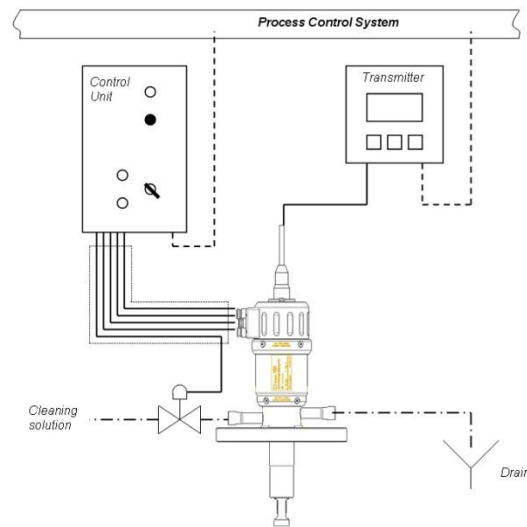


Fig. 2 Process flow

- Pressure** The choice of the applicable holder is subject to the pressure and temperature conditions of the process. The retractable holder of stainless steel can be used for a pressure of up to 16 bar and the plastic model up to 10 bar according to the temperature. The process temperature should be between -10° and 140°C.
- Temperature**



Observe pressure and temperature charts in chapter 8!

- Installation position** The operation of the holder is generally possible in any position. The reliability of the measuring results depends on the properties of the selected sensor.

3 Delivery

3.1 Scope of delivery

The retractable holder is inspected at the factory and delivered ready for installation in a packaging providing optimal protection for the holder.

Package contents:

- CHEMTRAC holder
- hexagon key 2.5mm
- 4 spare screws M 4 x 8 (DIN 912)
- 2 spacer for sensors
- operation manual

For the CHEMTRAC 810/ 811 and 830 holder you will additionally receive a

- material certificate (option)

!!!

Store the holder in the packaging. This ensures optimal protection until the installation.

3.2 Checking the delivery



Before approving the retractable holder for installation the following should be ensured:

packaging and device are in apparent good order.

the data plate of the retractable holder corresponds to the specifications on the order.

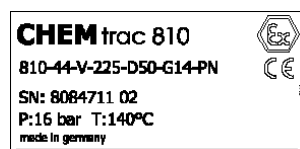


Fig. 3 Data plate

In case of further inquiries please directly contact your dealer.

4 Installation

4.1 Preparing the system



Ensure that

Sufficient working space for operation of the retractable holder is available.

The process is shut off.

Tank and tubing are pressure-free, empty and clean.

Connection flange and process connection of the retractable holder fit together.

The process seal is positioned on the connection flange.

Ensure that there is no potentially explosive atmosphere

4.2 Preparing the holder



The holder must be in the "service" position!

The insertion rod is completely inserted in the cleaning chamber.



Fig. 4 "service" position

4.3 Installing the holder



Prior to installation, ensure the following:

The system is prepared (chapter 4.1).

The holder is prepared (chapter 4.2).

How to install the holder:

1. Position retractable holder on process seal.
2. Tighten process connection.

4.4 Adjusting the protection cage

A protection cage is fitted to the lower end of the insertion rod and can be adjusted with the flow direction. The symbol on the drive unit cylinder indicates the position of the opening in the insertion rod. If the symbol is parallel to the flow direction the insertion rod is fully flown through. If the symbols are vertical to the flow the sensor is fully protected from direct flow. The insertion rod can be adjusted in any intermediate position.



A Sensor maximally streamed

B Sensor minimally streamed

Fig. 5 Protection cage

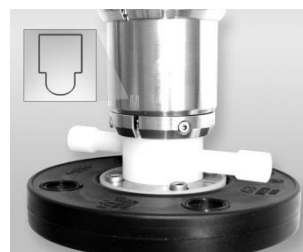


Fig. 6 Symbol



Ensure that:

The process is shut off.

Tank and tubing are pressure-free, empty and clean.

There is no potentially explosive atmosphere

DANGER!



Leakage of process liquid when housing cramp is opened during running process!

Burns or cauterization depending on process liquid property.

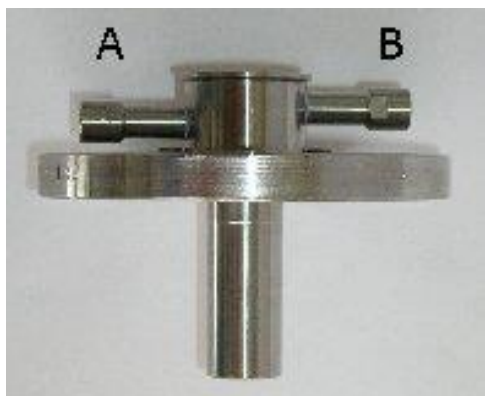
- ▶ Stop process!
 - ▶ Tanks and tubing must be pressure-free!
-

How to adjust the protection cage:

1. Loosen screws of lower housing cramp.
2. Rotate drive unit and adjust symbol in flow direction.
3. Tighten screws of lower housing cramp.

4.5 Installing the cleaning pipes

Cleaning of the sensor is possible while the process is running. This requires supply and draining of cleaning liquid to the cleaning chamber. If cleaning of the sensor is not desired the cleaning ports must be sealed by pegs.



A Cleaning port "IN"

B Cleaning port "OUT"

Fig. 7 Cleaning ports

DANGER!**Leakage of process liquid through the open cleaning port!**

Burns or cauterization depending on process liquid property.

- ▶ Cleaning pipes must be installed
or
- ▶ cleaning ports "IN" and "OUT" must be sealed by pegs!

CAUTION!**If the process pressure is higher than the cleaning pressure**

process liquid enters the cleaning pipes while the holder is moving to the service position.

- ▶ A cleaning pipe with valve must be installed at the cleaning ports "IN" and "OUT"!

CAUTION!**If the cleaning liquid pressure exceeds 6 bar**

holder and sensor may be damaged.

- ▶ Install a pressure reducer, if necessary!

CAUTION!**Contaminated cleaning liquid**

can cause damage to the holder.

- ▶ Install a cleaning pipe with dirt trap at the cleaning port "IN"!

**How to install the cleaning pipes:**

1. Install valve and dirt trap in the cleaning pipe for the cleaning liquid supply.
2. Attach supply cleaning pipe to the cleaning port "IN". .
3. Install valve in cleaning pipe for drainage of the cleaning liquid.
4. Attach cleaning pipe to the cleaning port "OUT".
5. Check all connections for tightness.

!!!

To avoid premature contamination of the sensor the pressure of the cleaning liquid should be at least 1 bar!

4.6 Installing the pneumatic tubes

The CHEMTRAC retractable holder is operated with compressed air. The extension of the cylinder of the drive unit is fitted with four compressed air connections.

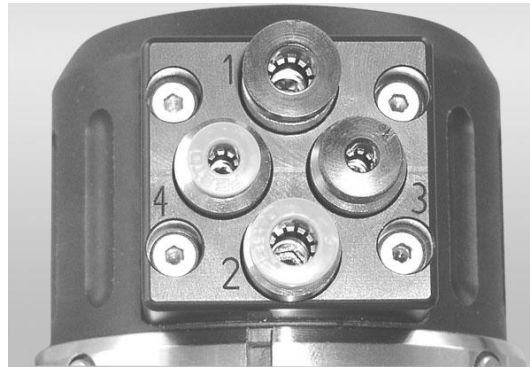


Fig. 8 Pneumatic connections 1 - 4

CAUTION!**Emitted compressed air**

can cause material or personal damage.

- ▶ Ensure tightness of pneumatic tubes before supplying compressed air.

CAUTION!**Contaminated compressed air**

causes damages to the drive unit!

- ▶ Use filtered (40 μm), water-free and deoiled compressed air!



You will need:

2 pneumatic tubes $\varnothing = 4\text{mm}$

2 pneumatic tubes $\varnothing = 6\text{mm}$.

How to install the pneumatic tubes:

1. Insert pneumatic tube $\varnothing = 6\text{mm}$ in connection 1 (black) for air supply "position service".
2. Insert pneumatic tube $\varnothing = 6\text{mm}$ in connection 2 (blue) for air supply "position measuring".
3. Insert pneumatic tube $\varnothing = 4\text{mm}$ in connection 3 (black) for the reply signal "service" position.
4. Insert pneumatic tube $\varnothing = 4\text{mm}$ in connection 4 (blue) for the reply signal "measuring" position.

4.7 Installing the sensor

Sensors with a diameter of 12mm and a connection thread PG 13.5 must be used in the CHEMTRAC retractable holder.

The length of the sensor depends on the sensor type and the selected holder.



Observe information in chapter 8.4 "Sensors"!



Fig. 9 Sensor filled with gel (top), sensor filled with liquid (bottom)

CAUTION!



To long Sensors

could be damaged during installation

- ▶ Check the sensor length and use delivered spacer if necessary!

Ensure that

the holder is in the "service" position.

all seals connected to the sensor are available.

- the sensor is not longer than the specified length.



Wrong!



Right!

How to install the sensor:

1. Insert sensor and tighten screws
2. Attach sensor cable

The retractable unit is now ready for operation.

5 Operation

5.1 Commissioning the holder

DANGER!**Risk of injury by leaking process liquid!**

Burns or cauterization depending on process liquid property.

- ▶ Wear goggles and protective clothing!
- ▶ Check all seals and connections of holder before starting the process.



Wear goggles and protective clothing during commissioning of the holder!

Prior to the commissioning ensure the following:

Seals are complete and in good working condition.

Sensor is installed and tightened.

Cleaning ports are sealed with pegs.

or:

Cleaning pipes are installed and tight.

Pneumatic tubes are installed and tight.

Protection cage is adjusted correctly.

5.2 Automatic operation of the holder



An external control is required for automatic operation of the retractable holder.

Observe the functions of the pneumatic connections!

1. Connection 1: Air supply "measuring" position.
2. Connection 2: Reply "measuring" position.
3. Connection 3: Air supply "service" position
4. Connection 4: Reply "service" position

Use the external control to move the retractable holder from the “service” position to the “measuring” position and vice versa.

6 Maintenance

6.1 Important maintenance instructions

- Establish a service plan adapted to your process!
- Leave servicing works to qualified staff.
- Always wear applicable protective clothes when performing servicing works.
- Do only perform the service works described in the operation manual!
- Constructional modifications must be agreed with the manufacturer!
- Tubing and tanks must be pressure-free, empty and clean before disconnecting the holder from the process
- Ensure that there is no potentially explosive atmosphere

6.2 Checking wetted sealings

The retractable holder is fitted with an inspection window situated between the lower housing cramps.



Check inspection window for leaking process liquid on a regular basis.



Fig. 10 Inspection window on lower housing clamp

WARNING!



Process liquid leaking on the inspection window!

Risk depending on process liquid property!

- ▶ Replace wetted sealings.
 - ▶ Observe instructions in chapter 6.5!
-

6.3 Removing the sensor



How to remove the sensor:

1. Move holder to "service" position.
 2. Remove sensor cable.
 3. Remove PG cable gland.
 4. Remove sensor.
-

DANGER!



Broken glass sensor!

Broken glass may damage the wetted sealings.

- ▶ Check wetted sealings and replace if necessary.
 - ▶ Observe instructions in chapter 6.5!
-

6.4 Removing the pneumatic tubes



How to remove all four pneumatic tubes:

1. Move holder to "service" position.
2. Stop compressed air supply.
3. Depress plastic ring "A" on pneumatic connection.
4. At the same time pull pipe "B".

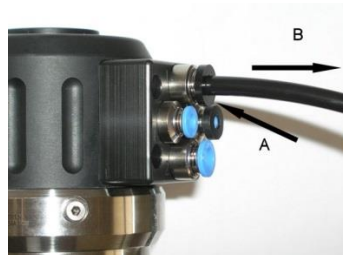


Abb. 11 Removing the pneumatic tubes

6.5 Removing the cleaning chamber with process connection

DANGER!



System is under pressure.

Process liquid will leak when holder is disconnected from process in an inappropriate way.

- ▶ Tubing or tanks must be pressure-free, empty, clean and without potentially explosive atmosphere.



Interrupt the process.

Ensure that the system is pressure-free, empty, clean and without potentially explosive atmosphere.

How to remove the cleaning chamber:

1. Move holder to "service" position.
2. Switch off compressed air supply.

WARNING!

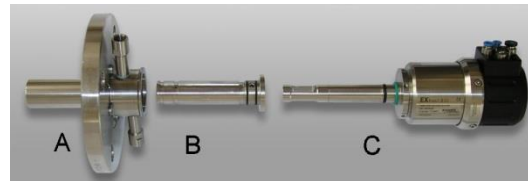


Emitted compressed air

can cause material damage or personal injury.

- ▶ Switch off compressed air supply before removing the pneumatic tubes.

3. Remove pneumatic tubes (chap. 6.4).
4. Remove sensor (chap. 6.3).
5. Loosen process connection.
6. Remove process seals and holder.
7. Loosen lower housing cramp screws (Fig. 10).
8. Disconnect cleaning chamber with process connection "A" from drive unit "D".
9. Remove cleaning cartridge from insertion rod "C".



- C Cleaning chamber with process connection
- D Cleaning cartridge
- E Insertion rod
- F Drive unit

Fig. 12 Removing the cleaning chamber and process connection (refer to image!)

6.6 Replacing the wetted sealings

DANGER!



System is under pressure.

Process liquid will leak when holder is disconnected from process in an inappropriate way.

- ▶ Ensure that system is pressure-free before replacing the sealings.
- ▶ Drain and clean tubing or tanks.
- ▶ Ensure that there is no potentially explosive atmosphere.

WARNING!



Emitted compressed air

can cause material damage or personal injury.

- ▶ Switch off compressed air supply before removing the pneumatic tubes.

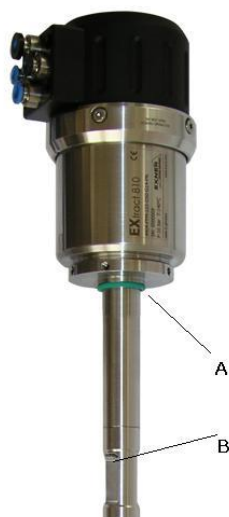


Install the seals chosen according to the holder and the process!

Do only use original parts!

How to replace the seals:

1. Remove cleaning chamber with process connection (chap. 6.5).
2. Remove and replace outer O rings "A", "B" and inner O ring "C" on insertion rod.



O rings

Ø in [mm]

G 18.72 x 2.62

H 10.77 x 2.62

Fig. 13 O rings on insertion rod

B is left out

3. Remove and replace O rings "D" on cleaning cartridge.



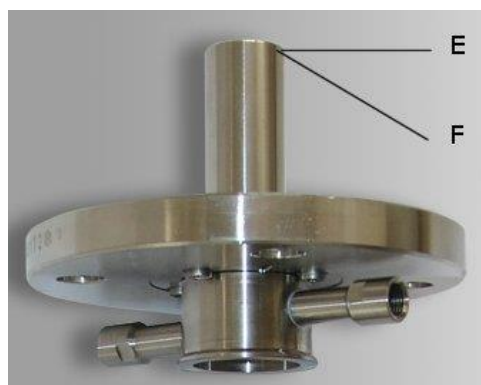
O ring

Ø in [mm]

D 21.95 x 1.78

Fig. 14 O ring on cleaning cartridge

4. Remove PTFE scraper "E" on cleaning chamber
5. Remove and replace O ring "F".



Scraper

Ø in [mm]

E 19 x 6 x 1

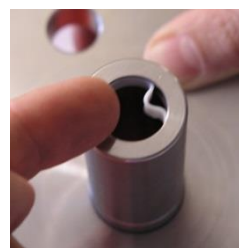
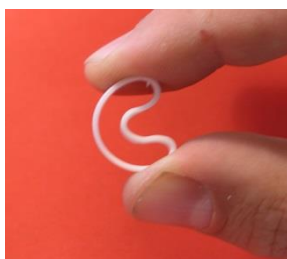
O ring

Ø in [mm]

F 21.89 x 2.62

Fig. 15 O rings/scrapper on cleaning chamber

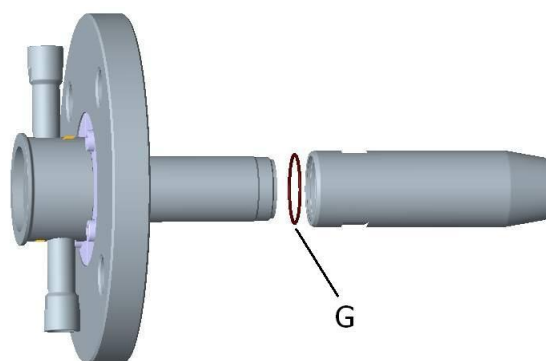
6. Position PTFE scraper "E" on O ring "F".



!!!

Only applicable for CHEMtrac 811/812 with separated cleaning chamber:

7. Separated cleaning chamber: Remove and replace O ring "G".



O ring

Ø in [mm]

G 30 x 1.5

Fig. 16 Cleaning chamber 811/821



Only applicable for CHEMtrac 830 without PTFE scraper:

7. Cleaning chamber CHEMtrac 830 without PTFE scraper, exchange O-ring „H“ and „I“.



Fig. 17 Cleaning chamber 830

O-Ring

Ø in [mm]

H 21,95 x 1,78

I 18,77 x 1,78

6.7 Removing the insertion rod

DANGER!



System is under pressure.

Process liquid will leak when holder is disconnected from process in an inappropriate way.

- ▶ Ensure that system is pressure-free before removing the insertion rod.
- ▶ Drain and clean tubing or tanks.

WARNING!



Emitted compressed air

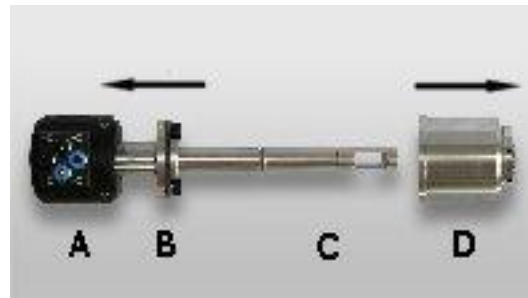
can cause material damage or personal injury.

- ▶ Switch off compressed air supply before removing the pneumatic tubes.



How to remove the insertion rod from the drive unit:

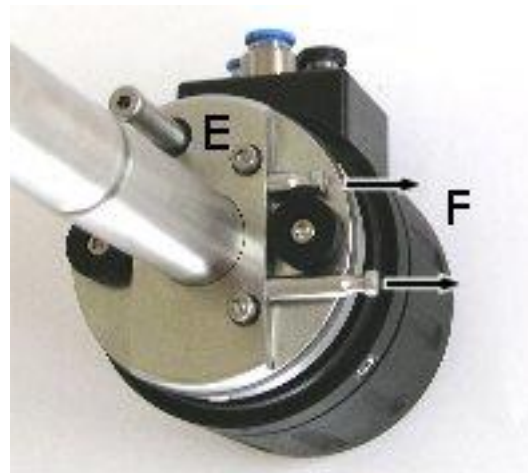
1. Remove cleaning chamber and process connection (chap. 6.5).
2. Remove outer O rings on insertion rod (Fig. 13: "A" and "B").
3. Remove top housing clamp screws.
4. Remove cylinder "D" from cylinder extension "A" (Fig. 18)



- I Cylinder extension
- J Piston
- K Insertion rod
- L Cylinder

Fig. 18 Removing the cylinder

5. Loosen screws "E" and remove pins "F" (Fig. 19).



- M 2 x M4 x 8
- N 2 x pins

Fig. 19 Removing the fixing elements

6. Remove insertion rod "C" from piston "B".

6.8 Installing the insertion rod



The descriptions refer to Fig.18 and Fig.19 in chap. 6.7 Removing the insertion rod!

How to assemble the insertion rod and the drive unit:

1. Adjust slots in insertion rod "C" to piston "B" and put together.
2. Insert pins "F"
3. Tighten screws "E".
4. Grease inside wall of cylinder "D".
5. Slide cylinder "D" over insertion rod "C".
6. Adjust cylinder "D" to cylinder extension "A".
7. Squeeze until cylinder snaps into place.
8. Bring top housing cramp in position and tighten screws.
9. Insert O rings at insertion rod (Fig. 13: "A" and "B").

6.9 Assembling the drive unit and cleaning chamber



Ensure that

all seals are installed and in good working condition.

insertion rod and drive unit are assembled (chap. 6.8).

How to install the cleaning chamber:

1. Insert cleaning cartridge in cleaning chamber until it snaps into place.
2. Insert drive unit with insertion rod.
3. Press both components tightly together.
4. Adjust drive unit until it snaps into place in the cleaning chamber.
5. Adjust protection cage (chap. 4.4).
6. Bring lower housing cramp in position and tighten.

The holder can now be reinstalled in the process.

Also observe the instructions in chapter 4:

4.4 Adjusting the protection cage

4.5 Installing the cleaning

4.6 Installing the pneumatic

4.7 Installing the sensor

6.10 Replacing the drive unit

DANGER!



System is under pressure.

Process liquid will leak when holder is disconnected from process in an inappropriate way.

- ▶ Ensure that system is pressure-free before replacing the drive unit.
- ▶ Drain and clean tubing or tanks.
- ▶ Ensure that there is no potentially explosive atmosphere

WARNING!



Emitted compressed air

can cause material damage or personal injury.

- ▶ Switch off compressed air supply before removing the pneumatic tubes.

The new drive unit can now be installed:



Prior to installation,

remove cleaning chamber with process connection (chap. 6.5).

remove insertion rod (chap. 6.5).

Clean and dispose off cylinder, cylinder extension, pivot, housing cramps, if required.

How to install the new drive unit:

1. Remove screws from top housing cramp.
2. Remove cylinder "D" from cylinder extension "A" (Fig. 18).
3. Install insertion rod (chap.6.8).

6.11 Servicing plan

Carry out the servicing works in the recommended intervals!

- | | |
|----------------------|---|
| weekly | <ul style="list-style-type: none">▶ wetted sealings (chap.6.6)▶ Check process connection.▶ Check cleaning pipes.▶ Check pneumatic connections. |
| quarterly | <ul style="list-style-type: none">▶ Check and tighten screws of top and lower housing cramps. |
| once a year | <ul style="list-style-type: none">▶ Replace wetted sealings (chap. 6.6).▶ Remove and inspect insertion rod (chap. 6.7). |
| every 3 years | <ul style="list-style-type: none">▶ Replace drive unit (chap. 6.10). |

6.12 Disposal

- | | |
|------------------|---|
| Holder | <p>Ensure that the holder is free from hazardous and toxic substances. Depending on your material the individual components must be disposed off separately.</p> <p>Observe regulations and rules for waste disposal applicable in the operator's country and at the site of use.</p> |
| Packaging | <p>The packaging is made of card board and can be disposed off with the waste paper.</p> |

7 Trouble shooting

Refer to the instructions and warnings in the specified chapters.

7.1 Holder does not move from "service" position to "measuring" position

▪ possible reason	▶ measure
▪ no compressed air	▶ check pneumatic tubes (chap. 6.4, 4.6)
▪ pressure too low	▶ pressure must be between 4 and 6 bar (chap. 4.6)
▪ no sensor	▶ Installing the sensor (chap. 4.7)
▪ loose sensor	▶ tighten sensor (chap. 4.7)

7.2 Holder does not move from "measuring" position to "service" position

▪ possible reason	▶ measure
▪ no compressed air	▶ check pneumatic tubes (chap. 6.4, 4.6)
▪ pressure too low	▶ Pressure must be between 4 and 6 bar (chap. 4.6)
▪ Insertion rod or protection cage are blocked.	▶ Preparing the system (chap. 4.1) Holder remains in "measuring" position ▶ Removing the cleaning chamber with process connection (chap. 6.5)

7.3 Incorrect position reply

▪ possible reason	▶ measure
▪ pneumatic tubes are connected incorrectly	▶ check pneumatic tubes (chap. 6.4, 4.6)

7.4 No position reply

▪ possible reason	▶ measure
▪ no compressed air	▶ check pneumatic tubes (chap. 6.4, 4.6)
▪ pressure too low	▶ pressure must be between 4 and 6 bar (chap. 4.6)
▪ drive unit defect	▶ Replacing the drive unit (chap. 6.10)

7.5 Frequent contamination of sensor

▪ possible reason	▶ measure
▪ cleaning pipes incorrectly connected	▶ check cleaning pipes (chap. 4.5)
▪ cleaning liquid pressure too low	▶ raise cleaning pressure.
▪ cleaning chamber is blocked	▶ pressure must be between 1 and 4 bar (chap. 4.6)
▪ cleaning liquid not adequate	▶ choose adequate cleaning liquid
▪ cleaning period too short	▶ extend cleaning period
▪ cleaning interval too long	▶ reduce cleaning interval

7.6 Sensor breaks frequently

▪ possible reason	▸ measure
▪ sensor too long	▸ choose adequate sensor (chap. 4.7)
▪ seals on sensor are missing	▸ insert seals on sensor (chap. 4.7)
▪ process liquid contains solids	▸ Adjusting the protection cage(chap. 4.4)

7.7 Leakage of process liquid at inspection window

▪ possible reason	▸ measure
▪ wetted sealings are defect	▸ Replacing the wetted sealings (chap. 6.6)

7.8 Compressed air emitted at inspection window

▪ possible reason	▸ measure
▪ drive unit defect	▸ Replacing the drive unitit (chap. 6.10)

8 Technical specifications

8.1 Standards

Pressure equipment directive

8.2 Material properties

Wetted components						
Holder						
CHEMTRAC	stainless steel		plastic			seals
810	1.4404/316L	Alloy C22, 2.4602				- EPDM - FPM - FFKM
811	1.4404/316L	Alloy C22, 2.4602				
820			PVDF	PEEK	PP	
821			PVDF	PEEK		
830	1.4404/316L					- EPDM FDA - FPM

Drive unit			
CHEMTRAC	cylinder	cylinder extension	seals
All types	1.4404/316	PA66 GF30	EPDM

8.3 Cleaning ports

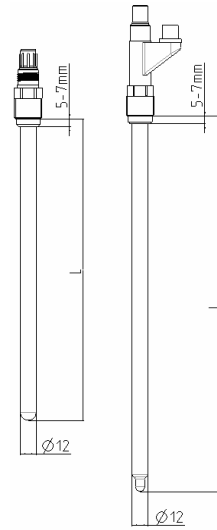
Thread	
without gland	- G 1/8" (internal)
with gland	- G 1/4" (internal)
with gland	- NPT 1/4" (internal)

Cleaning pressure	
	1 - 4 bar

8.4 Sensors

Gel filled sensor			
CHEMTRAC	l [mm]	d [mm]	PG
810 / 820	225	12	13.5
811 / 821	325	12	13.5
830	225	12	13,5

Sensor filled with liquid with refill connection			
CHEMTRAC	l [mm]	d [mm]	PG
810 / 820	280	12	13.5
811 / 821	380	12	13.5
830	280	12	13,5

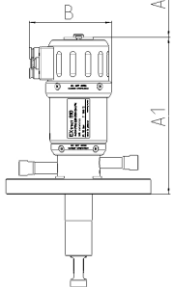
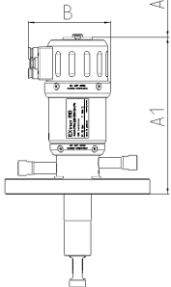
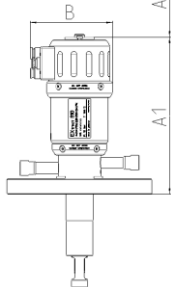


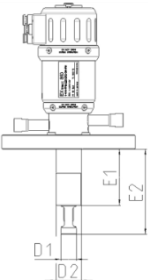
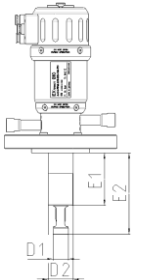
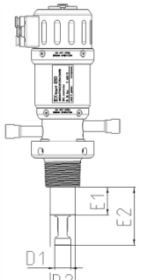
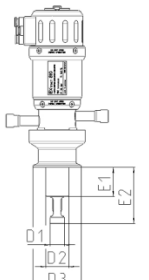
8.5 Pneumatic equipment

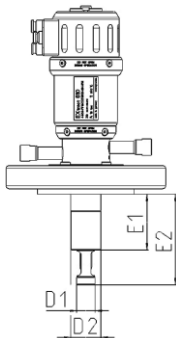
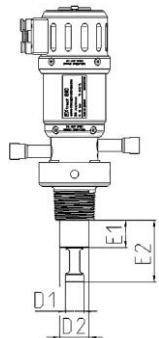
Pneumatic tubes		
	Ø - external	Ø - internal
for control air	6 mm	4 mm
for position reply	4 mm	2 mm

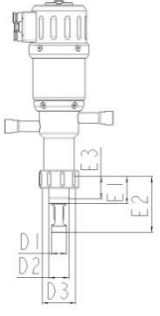
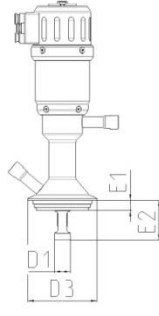
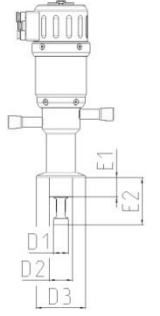
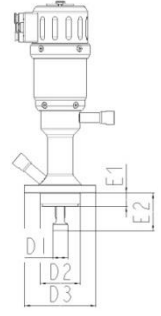
Compressed air	
	<ul style="list-style-type: none"> - Filtered 40nm, water- and oil free - 4 - 6 bar - no continuous air consumption!

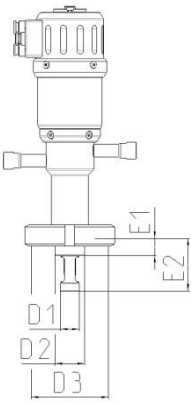
8.6 Dimensions

Holder					
					
Dimensions	CHEMTRAC		CHEMTRAC		EXTRACT
	810	811	820	821	830
A ₁ [mm]	180	180	180	180	180
A ₂ [mm]	350	480	350	480	480
B [mm]	95	95	95	95	95

Process connections CHEMTRAC 810/811								
	A		B		C		D	
	Flange 4404		Flange C22		NPT		TriClamp	
								
Dimensions	CHEMTRAC		CHEMTRAC		CHEMTRAC		CHEMTRAC	
	810	811	810	811	810		810	
E1 [mm]	71	171	66	166	34		39	
E2 [mm]	107	207	102	202	70		75	
D1 [mm]	19	19	19	19	19		19	
D2 [mm]	31	36	31	36	31		31	
D3 [mm]	-	-	-	-	-		64	

Process connections CHEMTRAC 820/821				
	A		B	
	Flange		NPT	
				
	CHEMTRAC		CHEMTRAC	
	820	821	820	821
E1 [mm]	58	158	29	
E2 [mm]	94	194	65	
D1 [mm]	19	19	19	
D2 [mm]	31	36	30.5	

Process connections CHEMTRAC 830					
	A	B	C		D
	Ingold DN 25	Varivent N	TriClamp		Neumo
					
Dimens.	O-RINGPOS. 28MM	DN40 - 125	1,5"	2"	DN50
E1 [mm]	34	12,3	22	25	17
E2 [mm]	70	48,3	58	61	48
E3 [mm]	28	-	-	-	-
D1 [mm]	19	19	19	19	19
D2 [mm]	25	-	30	30	50
D3 [mm]	G 1 1/4"	84	50,5	64	89,5

Process connections CHEMTRAC 830		
	E	
	DIN 11851	
		
Dimens.	DN50	
E1 [mm]	18	
E2 [mm]	54	
D1 [mm]	19	
D2 [mm]	30	
D3 [mm]	Rd78 x 1/6"	

8.7 Ambient conditions

Ambient temperature	- 10 - 70 °C
Transport and storage temperature	- 20 - 80 °C

8.8 Process conditions CHEMTRAC 810/811 / 830

max. allowed pressure PS: 16 bar

max. allowed temperature TS: 140 °C

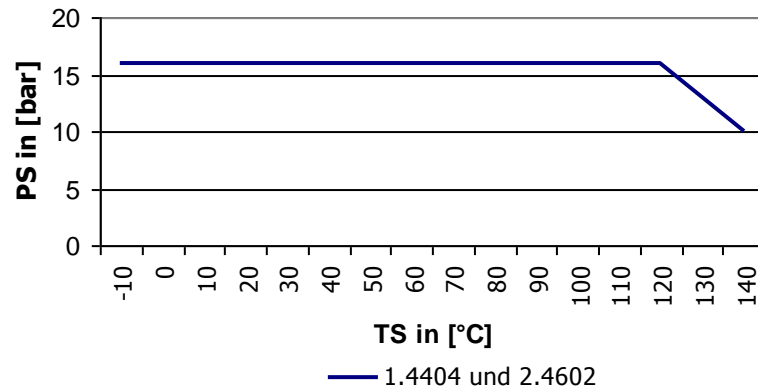


Fig. 20 Pressure temperature diagram CHEMTRAC 810/811 / 830

8.9 Process conditions CHEMTRAC 820/821

max. allowed pressure PS 10 bar

max. allowed temperature TS 140 °C

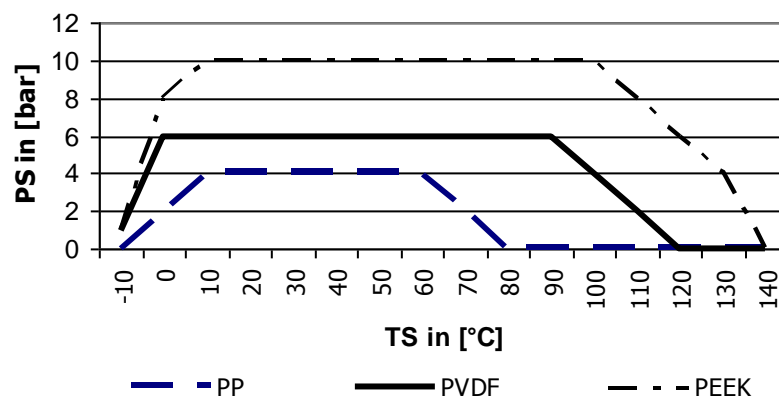


Fig. 21 Pressure temperature diagram CHEMTRAC 820/821

9 Parts and accessories

Drive unit with pneumatic position reply		
CHEMTRAC	Part	Item number
810/811 / 820/821 / 830	Drive unit for sensor L = 225/325 mm	285063520
810/811 / 820/821 / 830	Drive unit for sensor L = 280/380 mm	285063530

Seal kits		
CHEMTRAC	Part	Item number
810 / 820	Seal kit EPDM	285063660
	Seal kit FPM	285063680
	Seal kit FFKM	285063700
811 / 821	Seal kit EPDM	285063670
	Seal kit FPM	285063690
	Seal kit FFKM	285063710
830 IN28	Seal kit EPDM FDA	
	Seal kit FPM	
830 VARN + BCT5	Seal kit EPDM FDA	
	Seal kit FPM	
830 TC15/TC20 + MV50	Seal kit EPDM FDA	
	Seal kit FPM	



Please state serial number of your holder when ordering parts and accessories.

Insertion rods		
CHEMTRAC	Part	Item number
810	Insertion rod 1.4404 / 316L	285063480
	Insertion rod 2.4602 / Alloy C22	285063500
811	Insertion rod 1.4404 / 316L	285063490
	Insertion rod 2.4602 / Alloy C22	285063510
820	Insertion rod PP	285063530
	Insertion rod PVDF / Alloy C22	285063430
	Insertion rod PEEK / Alloy C22	285063440
821	Insertion rod PEEK / Alloy C22	285063450
	Insertion rod PVDF / Alloy C22	285063470
830	Insertion rod 1.4404 / 316L	285063480



Please state serial number of your holder when ordering parts and accessories.

10 Certificates

10.1 Atex approval 810/811 820/821

In accordance with test report No. 194/Ex 482.00/07, of TÜV Rheinland dated 15.05.2007, the holder CHEMtrac 810/811 820/821 does not fall within the scope of directive 94/9/EG.

In case of intended use the equipment does not have own potential ignition sources and is thus for use in potentially explosive atmospheres.

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