

OPERATING MANUAL



CHEMTRAC 840M

MANUAL RETRACTABLE PROCESS HOLDER

SI Analytics

a xylem brand

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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.si-analytics.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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1 Security and safety measures

1.1 General safety instructions

The CHEMTRAC 840M retractable holder is constructed in such a manner that it presents no risks provided that the operation instructions are observed.

- ▶ Read the operating instructions first.
- ▶ Install and use the retractable holder only if all information regarding safe and appropriate use has been read and understood.
- ▶ Keep the operating instructions so that you can refer to them at any time.
- ▶ Only use the retractable holder and accessories in good order and condition.
- ▶ Please also follow the applicable laws, regulations, guidelines and standards in the country and place of use.

1.2 Intended use

The CHEMTRAC 840M retractable holder is designed to be fixed to containers or pipelines. Manual operation introduces a sensor into the process fluid in order to measure chemical or physical properties.

The choice of material properties for the valve and operating materials is determined by the process characteristics.

The retractable holder must be serviced regularly.

- ▶ Establish a maintenance plan which is adjusted for your process.
- ▶ Only carry out maintenance work which is described in the operating instructions!
- ▶ Modifications may only be made to the valve following consultation 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 containers and pipelines which may be under pressure. Process fluid can only escape in the event of negligent action and improper use.

- ▶ Check before putting the valve into services and after any servicing that all seals and connections are complete and are functioning properly.
- ▶ Do not remove the screws in the lower and upper housing clamps while the valve is in operation under any circumstances.
- ▶ Take the appropriate protective measures before touching the valve because parts of the retractable holder can take on the temperature of the process.

1.4 Equipment

Use only the tested and approved accessories and operating material.

Seals Choose the material properties for the process seal and the O rings depending on the process medium and the rinsing liquid.

Take into account the seal material's swelling capability and resistance to acids and alkalis.

Sensor Choose an appropriate sensor and observe the specifications in section 8 "Technical details".

**Rinsing liquid /
cleaning agent** Rinsing liquid/ cleaning agent

Select a rinsing liquid and cleaning agent which are appropriate for the process, valve and seal material and dispose of these properly.

1.5 Safety equipment

"Service" position	The retract protection prevents the immersion tube from being retracted during the process without manual release and thus prevents the process fluid from escaping. You can only release and withdraw the sensor when the valve is in the "service" position. To take the retract protection out of operation or put it to the "measuring" position with a sensor installed is to act negligently.
"Measuring" position	In the "measuring" position, the sensor is sunk into the valve. You cannot withdraw the sensor. To attempt to withdraw the sensor while in the "measuring" position is to act negligently.

1.6 Staff

Qualification	Only trained experts may install and service the retractable holder!
Protective clothing	The operating personnel must wear safety glasses and appropriate protective clothing when the valve is put into operation and during maintenance work.
Accident prevention regulations	Please observe the rules and regulations for occupational safety which apply in the country and place of use.

1.7 Disposal

Observe regulations and rules for waste disposal applicable in the operator's country and at the site of use.

1.8 Symbols and pictograms

Pictograms and symbols are used in the operating instructions for better orientation.

DANGER!



Safety information with the signal word **DANGER!** indicates a risk of danger to life and limb and significant damage to property should the instructions be disregarded.

CAUTION!



Safety information with the signal word **CAUTION!** indicates a risk of damage to property should the instructions not be followed.



This gives you important information!



When you see this sign, the steps of the procedure must be executed in the specified order.

2 Product description

2.1 CHEMTRAC840M manual retractable holder

Components

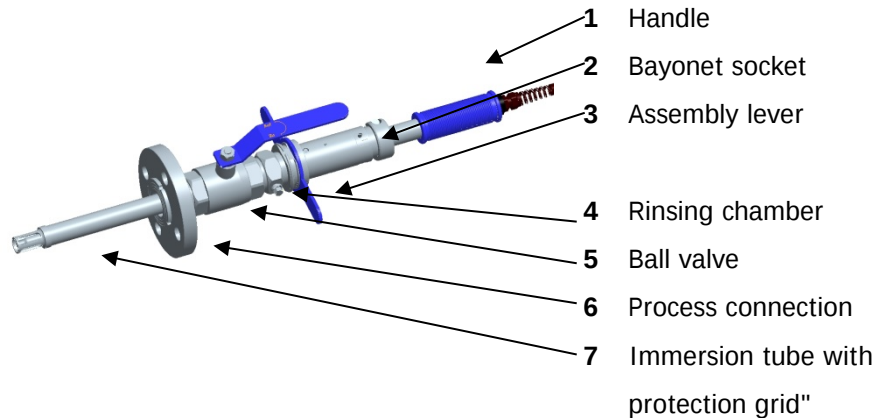


Fig. 1 Retractable holder

Variants Retractable holders are fixed to containers or pipelines using an appropriate process connection. In order to meet the demands of diverse process characteristics, the CHEMTRAC840M retractable holder is made from stainless steel. In addition, you can choose between a variety of process and rinsing connection and seal materials.

CHEMTRAC840M The CHEMTRAC840M valve is a manually operated retractable holder made from stainless steel for installing Ø 12 mm sensors on tanks or pipelines.

- For all Ø 12 mm/120 mm sensors with PG13.5 thread (pH glass and ISFET sensors, conductivity, temperature, turbidity or optical sensors)
- Chemicals
- Water / waste water
- For particularly harsh processes
- With secure ball valve closing

Actuation Manual actuation of the valve is a mechanical linear actuation which immerses the sensor in the medium through movement of the immersion tube.

- Immersion depth** The sensor immersion depth can be freely selected using the movable bayonet socket on the immersion tube.
- Measuring** When the stop position for the "measuring" position is reached, this can be locked using the bayonet socket. In this position, the sensor is permanently mounted on the immersion tube and cannot be withdrawn. The sensor measures the chemical or physical properties of the process fluid.
- Servicing** The sensor can be removed for cleaning or servicing while the process is running. For this purpose, the valve must be switched to the "service" position.
In order to unlock the bayonet socket, a short movement in the process direction is required. If the process pressure is so high that the immersion tube cannot be manually removed then the sensor cannot be withdrawn without reducing the process pressure.
In the "service" position, the ball valve can be closed thereby safely sealing the sensor off from the process. The sensor can be cleaned in the rinsing chamber without further removal thanks to the rinsing connection.

2.2 Process integration

Transmitter The retractable holder introduces a sensor into the process fluid. The sensor transmits its measurements to a transmitter.

PCS The transmitter can be connected to a process control system. Depending on the measurement results, a rinsing request can be issued which then needs to be carried out manually.

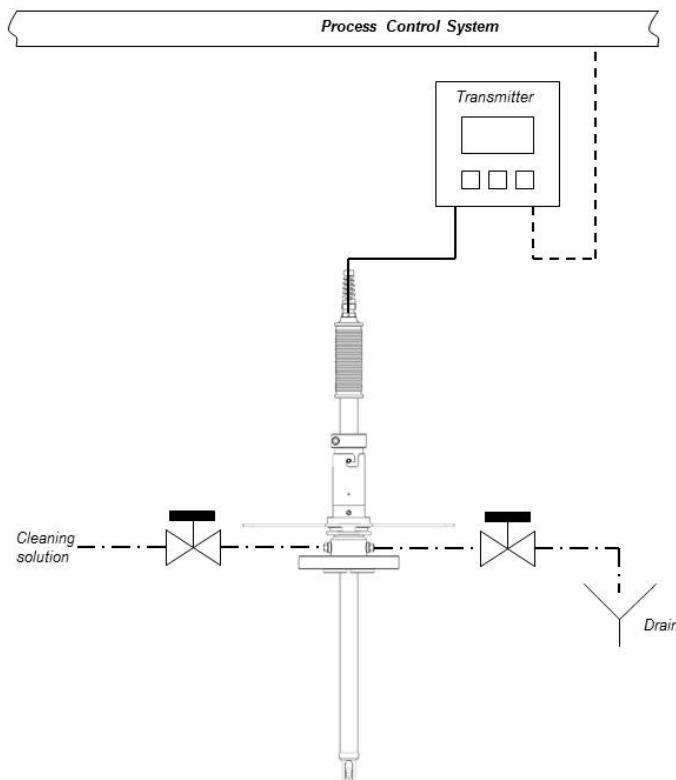


Fig. 2 Process flow

Pressure The pressure and temperature conditions for the process are critical for the selection of the appropriate valve. Depending on the temperature, the retractable holder can be operated up to a pressure of 12 bar, operation is possible to a process pressure of 4 bar! The process temperature must be between -10° and 130°C.

!!!

Please observe the pressure and temperature chart in section 8!

Mounting position In principle, the valve can be operated in any position. In order to obtain reliable measurement results, the properties of the sensor selected are crucial.

3 Delivery

3.1 Scope of delivery

The retractable holder is tested in the factory and is delivered ready-to-install in packaging which offers optimal protection for the valve.

The delivery contains:

- CHEMTRAC840M valve
- Operating instructions
- Material certificate (optional)

!!!

Keep the valve in the packaging. It is best protected there until installation.

3.2 Checking the delivery



Before you release the valve for installation, you must make sure of the following:

The packaging and device are in good order and condition.

The type label for the retractable holder corresponds to the specifications in the order.

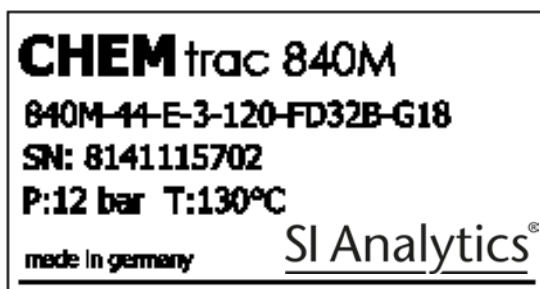


Fig. 3: Data plate

In case of further inquiries please directly contact your dealer.

4 Installation

4.1 Preparing the system



Ensure that

there is sufficient working space available for operation of the retractable holder.

the process is switched off.

containers or pipelines are depressurised, empty and clean.

the connection flange and the retractable holder's process connection fit together.

the process seal is lying on the connection flange.

4.2 Preparing the valve



The ball valve must be closed and the sliding device is separated from the rinsing chamber

Close the ball valve and remove the sliding device.



Fig. 4 Prepared valve

4.3 Installing the process connection with rinsing chamber



First make sure of the following:

The system is prepared (section 4.1).

The valve is prepared (section 4.2).

The valve is installed as follows:

1. Put the ball valve onto the process connection (place any seals between them).
2. Tighten the process connection securely.

4.4 Installing the sensor

Sensors with a diameter of 12 mm and a connection thread of PG 13.4 must be used with the CHEMTRAC840M retractable holder.



Please observe the specification in section 8.4 "Sensors"!

At the bottom end of the immersion tube there is a protection grid with a sensor holder. Remove this by turning it in an anti-clockwise direction.



Fig. 5 Sensor holder with immersion tube

The sensor is installed in the valve as follows:

1. Unscrew the sensor holder from the immersion tube.



2. Screw the sensor into the sensor holder.



3. Screw the cable onto the sensor
4. Screw the sensor holder into the immersion tube and tighten it securely.



4.5 Adjusting the immersion depth

The valve's immersion depth can be steplessly adjusted in order to achieve the optimal measuring position for the sensor.

DANGER!



The immersion tube can be unscrewed by the process pressure if the bayonet unit is not correctly installed!

Risk of injury to the user caused by the immersion tube springing out

The bayonet unit must be properly installed.

The immersion depth is adjusted as follows:

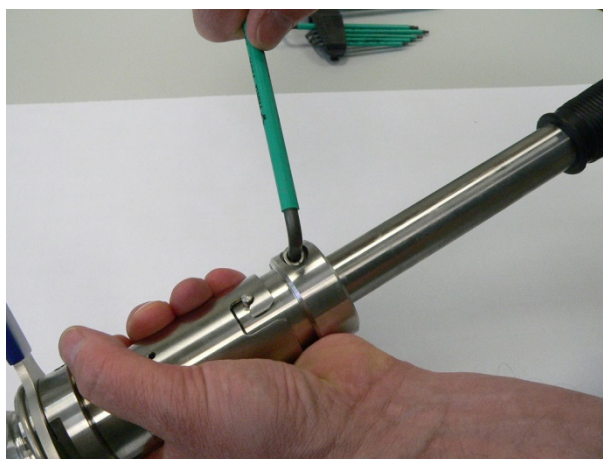
1. Open the socket head screw on the bayonet socket.



2. Move the immersion tube until the desired immersion depth has been reached.



3. Tighten the socket head screw on the bayonet socket firmly.



4.6 Installing the sliding device into the rinsing chamber

In order to install the sliding device into the rinsing chamber, a sensor must already be installed (see section 4.4)

DANGER!



Process fluid can escape through the immersion tube if no sensor is installed!

Burns or chemical burns depending on the properties of the process fluid.

A sensor must be installed!

The sliding device is installed as follows:

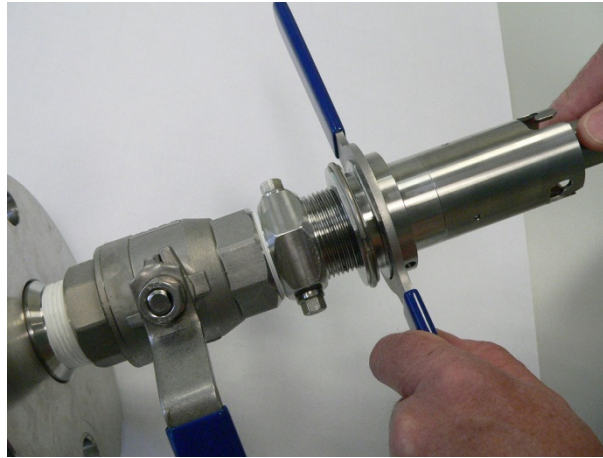
1. Pull the immersion tube out to the end stop in the sliding device



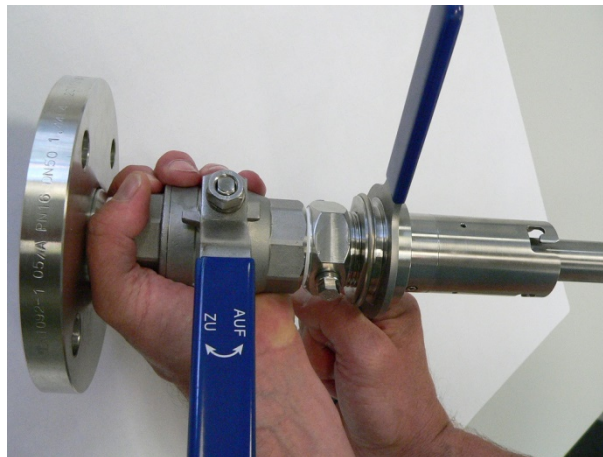
2. Screw the immersion tube into the rinsing chamber,



Make sure that the ball valve remains closed.



3. Tighten the sliding device with the help of the assembly lever!



The sliding device is now installed and the retractable holder is ready for use.

4.7 Installing the rinsing lines

The sensor can be rinsed without the need to remove it from the valve. For this purpose, rinsing fluid must be supplied to and drained out of the rinsing chamber. If no rinsing lines are installed then the rinsing connections must be closed using blind plugs.

DANGER!



Process fluid can escape through an open rinsing connection!

Burns or chemical burns depending on the properties of the process fluid.

Rinsing lines must be installed

or

the rinsing connections must be closed using blind plugs!

CAUTION!



If the process pressure is higher than the rinsing pressure then the process fluid can run into the rinsing lines.

The rinsing lines must be installed with a shut-off valve at the rinsing connections!

CAUTION!



If the rinsing fluid pressure rises to more than 6 bar then the valve and sensor may be damaged.

If required, install a pressure regulator!

CAUTION!



Dirty rinsing fluid

can damage the sensor.

Install a rinsing line with dirt trap at the rinsing connection!



The rinsing lines are installed as follows:

1. Install a valve and dirt trap in the rinsing line for the intake of the rinsing fluid.
2. Remove the blind plug installed at the factory and install the rinsing line for intake on a rinsing connection.



3. Install a valve in the rinsing line for the draining of the rinsing fluid.
4. Remove the blind plug installed at the factory and install the draining pipe on a rinsing connection.



5. Check whether all connections are tight.



The rinsing fluid pressure must be at least 1 bar in order to ensure that the sensor is properly cleaned!

5 Operation

5.1 Putting the valve into operation

DANGER!



Risk of injury caused by escaping process fluid!

Burns or chemical burns depending on the properties of the process fluid.

Wear safety glasses and protective clothing!

Check all seals and all connection to the valve before starting the process.



Wear safety glasses and protective clothing when putting the valve into operation!

Make sure of the following before start-up:

Seals are complete and are functioning properly.

Sensor is installed and securely tightened.

Sliding device is installed and securely tightened.

Rinsing connections are closed with blind plugs.

or:

Rinsing lines are installed and closed with valves.

5.2 Switching the valve manually

!!!

Wear safety glasses and protective clothing when operating the valve!

- Switch the immersion tube to the "measuring" position

Open the ball valve fully



DANGER!

Under high process pressure, the immersion tube can spring out with a high degree of force!

Risk of injury to the user caused by the immersion tube springing out.

Use the bayonet socket carefully

If the bayonet socket can only be pressed against the process using a high degree of force then leave the valve in the "measuring" position and first reduce the process pressure!

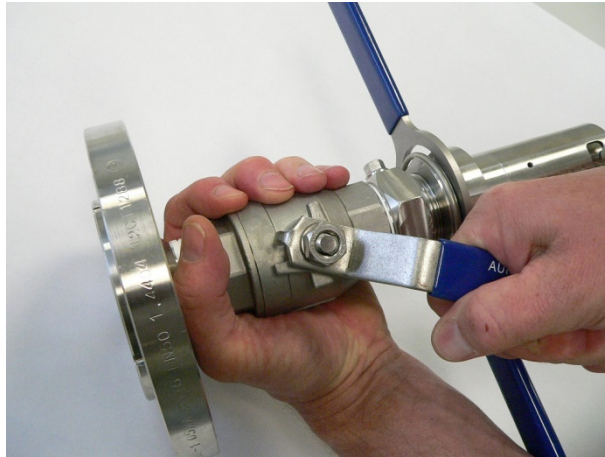
Unlock the bayonet socket by pushing it in the process direction first



Move the immersion tube in the service direction by the handle.



Close the ball valve fully



5.3 Removing the sensor

There may be residual fluid in the rinsing chamber when removing the sensor!

DANGER!



Risk of injury caused by escaping process fluid!

Burns or chemical burns depending on the properties of the process fluid.

Wear safety glasses and protective clothing!

Check all seals and all connections to the valve before starting the process.

!!!

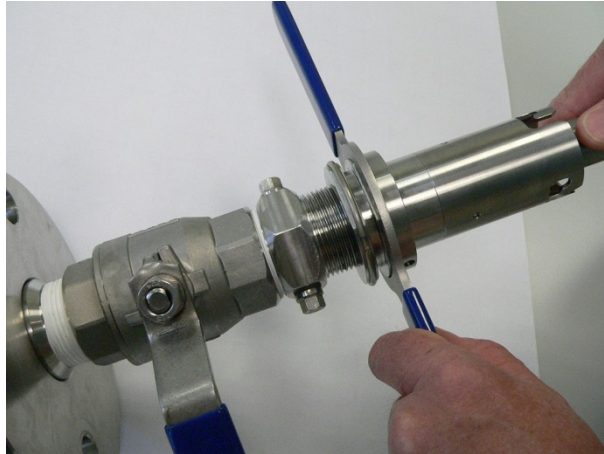
Wear safety glasses and protective clothing when removing the sensor!

Make sure of the following first:

The immersion tube is pulled out of the process up to the stop.
The ball valve is completely closed.

➤ Removing the sensor

Remove the sliding device from the rinsing chamber.
This is done with the aid of the assembly lever.



Unscrew the sensor holder from the immersion tube



Remove the sensor



Re-installation of the sensor occurs in reverse order, cf. section 4.4

6 Maintenance

6.1 Important information about maintenance

Establish a maintenance plan which is adjusted for your process!

Only qualified personnel may carry out maintenance work.

Always wear suitable protective clothing while carrying out maintenance work.

Only carry out maintenance work or repairs which are described in the operating instructions!

Structural modifications may only be made following consultation with the manufacturer.

The pipelines or containers must be depressurised, empty and clean before you disconnect the valve incl. ball valve and process connection from the process.

No explosive atmosphere should be present.

6.2 Changing wetted seals

DANGER!



The system is under pressure.

Process fluid will leak if the valve is improperly disconnected from the process.

Ensure beforehand that the system is depressurised.

Empty and clean the pipelines or containers.

Ensure that no explosive atmosphere is present

The seals on the valve can be changed without disassembling the ball valve and process connection.

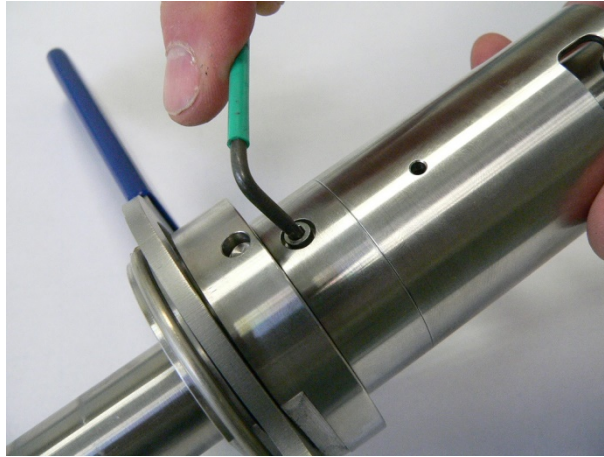


Install seals which are suitable for the valve and the process!

Only use original parts!

The seals are changed as follows:

1. Move the immersion tube to the "service" position.
(Section 5.2)
2. Close the ball valve.
3. Remove the sliding device from the rinsing chamber and the process connection.
(Section 5.3)
4. Remove the sensor.
5. Loosen the socket head screw on the sliding device



6. Remove the immersion tube from the sliding device and slide it back in. You can thus remove the sealing material.



Change the seals on the sensor holder and switch the sealing material



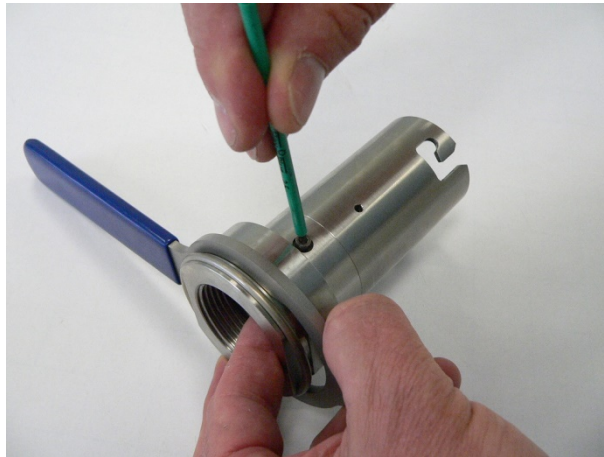
7. Re-install the sealing material into the sliding device.



8. Push the sealing material in to the end stop in the sliding device.



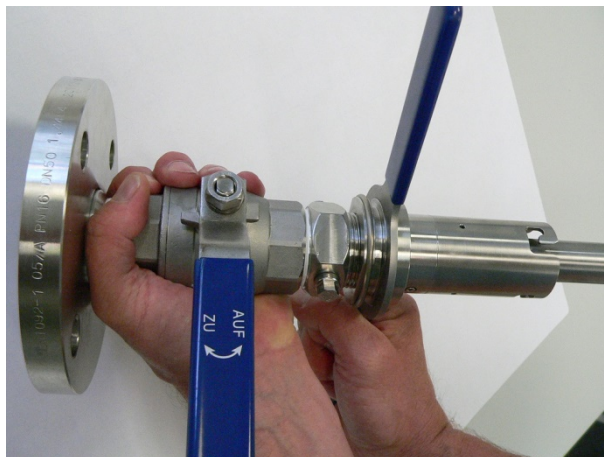
9. Secure the sealing material to prevent it from accidentally falling out using the socket head screw.



10. Install the immersion tube into the sliding device.



11. Install a sensor (section 4.4) and fit the sliding device into the rinsing chamber (section 5.5).



The valve can now be brought back into the process.

6.3 Checking the functionality and for leakage

A functionality and leak test must be carried out following any changing of the seals. To do this, proceed as follows:

- | | |
|---------------------------|--|
| Functionality test | In order to carry out a simplified functionality test, screw a sensor into the valve and move the immersion tube to the "measuring" position and back again without having the sliding device installed in the rinsing chamber and process connection. Repeat this process several times and watch out for unusual resistance or noises. |
| Leak test | You can accomplish a simplified leak test by installing the sliding device into the rinsing chamber, holding the ball valve closed and running water into the rinsing chamber at a water pressure of about 4 bar via the rinsing lines for about 10 minutes. No water should escape from the valve at any point. |

6.4 Maintenance plan

Carry out maintenance work at the recommended intervals!

- | | |
|---------------------------|--------------------------------------|
| Every three months | Visually check the general tightness |
| Annually | Change wetted seals (section 6.2). |

6.5 Disposal

- | | |
|------------------|--|
| Valve | <p>Make sure that the valve is free from hazardous and toxic substances. The individual parts must be disposed of separately according to your material.</p> <p>Please observe the rules and regulations for waste disposal which apply in the country and place of use.</p> |
| Packaging | <p>The packaging is made from cardboard and can be disposed of as waste paper</p> |

7 Trouble shooting

Observe the operating instructions and warnings in the indicated sections.

7.1 The valve will not move

▪ Possible causes	► Remedial action
▪ Ball valve is closed	► Open the ball valve (section 5.2)
▪ Process pressure is too high	► Reduce the process pressure
▪ Immersion depth for the immersion tube is too great, the immersion tube is hitting components in the process.	► Reduce the immersion depth (section 4.5)

7.2 Frequent contamination of the sensor

▪ Possible causes	► Remedial action
▪ The pressure for the rinsing fluid is too low ▪ The rinsing chamber is blocked	► Increase the rinsing pressure. ► The pressure must be between 1 and 4 bar.
▪ The rinsing fluid is not suitable	► Choose suitable rinsing fluid
▪ The rinsing time is too short	► Increase the rinsing time
▪ The rinsing interval is too long	► Reduce the rinsing interval

7.3 The sensor breaks frequently

▪ Possible causes	► Remedial action
▪ The sensor is too long	► Install a suitable sensor (section 8.4)
▪ The immersion depth is too great	► Reduce the immersion depth (section 4.5)

8 Technical details

8.1 Standards

Pressure Equipment Directive

8.2 Material properties

Wetted parts			
Material			
CHEMTRAC	Valve	Ball valve	Seals
840M	1.4404 / 316L	1.4408 / 316L	PTFE EPDM / FPM / FFKM

8.3 Rinsing connections

Thread	
without nozzle	- G $\frac{1}{8}$ " (internal)
with nozzle	- G $\frac{1}{4}$ " (internal)
with nozzle	- NPT (internal) $\frac{1}{4}$ "

Rinsing pressure	
	1 – 4 bar

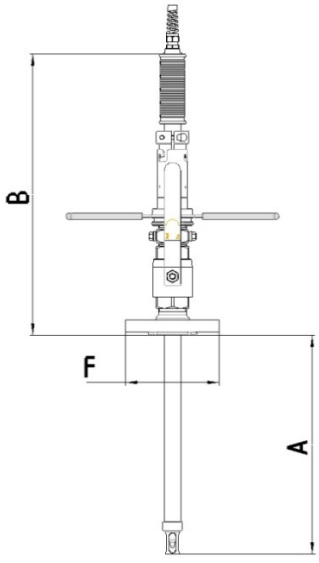
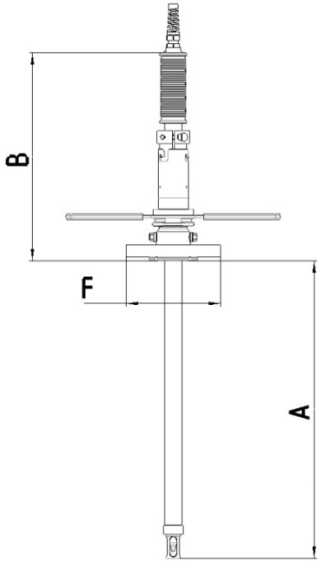
8.4 Sensors

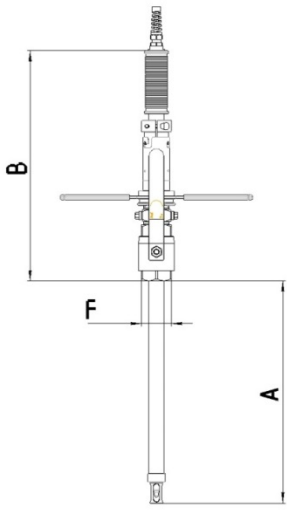
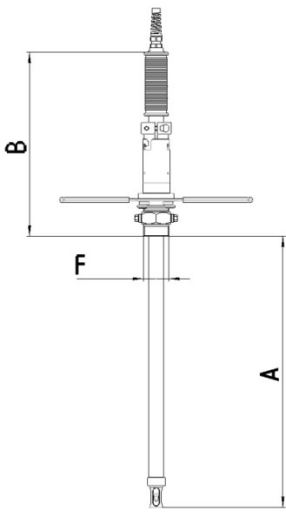
Gel-filled sensor			
CHEMTRAC	l [mm]	d [mm]	PG
840M	120	12	13.5



8.5 Dimensions

Dimensions		
	IMMERSION DEPTH 300 MM	IMMERSION DEPTH 700 MM
A [mm]	variable 0 - 300 mm	variable 0 - 700 mm
B [mm]	420 – 880 mm	420 – 1280 mm
C [mm]	750 mm	1150 mm
D [mm]	Ø 30 mm	Ø 30 mm
E [mm]	320 mm	320 mm

Process connection flange				
				
	with ball valve		without ball valve	
	ET 300 mm	ET 700 mm	ET 300 mm	ET 700 mm
A [mm] variable	0 - 370 mm	0 - 770 mm	0 - 440 mm	0 - 840 mm
B [mm] variable	420 - 880 mm	420 - 1280 mm	310 - 770 mm	310 - 1170 mm
F [mm]	DN32 PN16 / ANSI1 ¼" 150 lbs		DN32 PN16 / ANSI1 ¼" 150 lbs	

Process connection thread				
				
	with ball valve		without ball valve	
	ET 300 mm	ET 700 mm	ET 300 mm	ET 700 mm
A [mm] variable	0 - 370 mm	0 - 770 mm	0 - 445 mm	0 - 845 mm
B [mm] variable	380 - 840 mm	380 - 1240 mm	300 - 765 mm	300 - 1163 mm
F [mm]	female G 1 ¼" / NPT 1 ¼"		male G 1 ¼" / NPT 1 ¼"	

8.6 Ambient conditions

Ambient temperature - 10 - 70 °C

Transportation and storage temperature - 20 - 80 °C

8.7 CHEMTRAC 840M process conditions

Max. permissible pressure PS: 12 bar Manually operable up to 4 bar

Max. permissible temperature TS: 130 °C

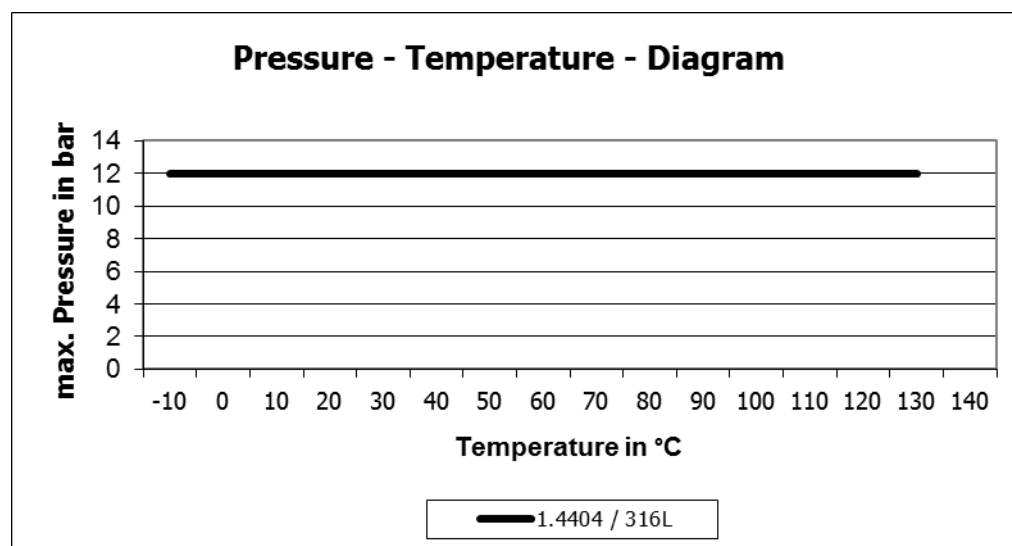


Fig. 5 Pressure temperature diagram CHEMTRAC 840M

Drive unit with pneumatic position reply		
CHEMTRAC	Part	Item number
810M/811M / 820M/821M / 830M	Drive unit for sensor L = 225/325 mm	285077540
810M/811M / 820M/821M / 830M	Drive unit for sensor L = 280/380 mm	285077550

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