

OPERATING MANUAL



CHEMDIP 910/920

CHEMDIP 915/925

DIP 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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Printed in Germany.

1 Security and safety measures

1.1 General safety instructions

The CHEMDIP dip holder has been designed in such a way that the product is not dangerous to customers when used in compliance with the operating manual.

- ▶ Read the operating manual first.
- ▶ Only assemble and operate the dip holder if you have read and understood all instructions on secure and proper use.
- ▶ Keep the operating manual in a safe place in order to consult if required.
- ▶ Only operate the dip holder and accessories when in perfect condition.
- ▶ Comply with all laws, regulations, policies and standards applicable at the place and site of operation.

1.2 Intended use

The CHEMDIP dip holder can be connected to containers or open channels.

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

The dip holder must be maintained at regular intervals.

- ▶ Prepare a maintenance schedule for the respective process.
- ▶ Only perform maintenance works described in the operating manual!
- ▶ Changes to the holder may only be done after consulting the manufacturer.



The manufacturer is not liable for damages arising from improper or unintended use.

1.3 Danger zones and residual dangers

Dip holders are very often installed in containers which can be under pressure. Process liquid can only leak in case of negligent act or improper use.

- ▶ Before start-up and after each maintenance, make sure all seals and connections are complete and fully functional.
- ▶ Never loosen screws of the process connection casing brackets while operating the holder.
- ▶ Before touching the holder, take appropriate safety measures since parts of the dip holder can reach process temperature.

1.4 Equipment

Only use tested and approved accessories and equipment.

- Seals** ▶ Choose material properties of the process and O-ring seals depending on the process medium and rinsing liquid.
 - ▶ Consider the swelling capacity and acid or base resistance of the sealing material.
- Sensor** ▶ Choose an appropriate sensor and observe information given in chapter 7 (technical data).
- Pressurised air** ▶ If air rinsing is applied, only use filtered (40 µm), cleaned and de-oiled pressurised air.
 - ▶ Make sure pressure does not exceed 6 bar.
- Rinsing liquid/
cleaning solution** ▶ Choose rinsing liquid and cleaning solution according to process, holder and sealing material and dispose both in an environmentally sound manner.

1.5 Staff

Only trained staff is allowed to assemble and maintain the dip holder!

When starting-up or maintaining, the operating staff must wear safety goggles and appropriate protective clothing.

Accident prevention regulations

Comply with the regulations concerning operational safety applicable at the place and site of operation!

1.6 Disposal

Observe the regulations and rules concerning waste disposal applicable at the place and site of operation.

1.7 Symbols and pictographs

In the operating manual, pictographs and symbols are used for better orientation.

DANGER!



The **DANGER!** symbol refers to dangers to life and limb as well as substantial damages to property when the instructions given are ignored.

WARNING!



The **WARNING!** symbol refers to damages to property when the instructions given are ignored.



Important notes are given!



This sign means performing procedures in the given order.

2 Product description

2.1 CHEMDIP dip holder

components

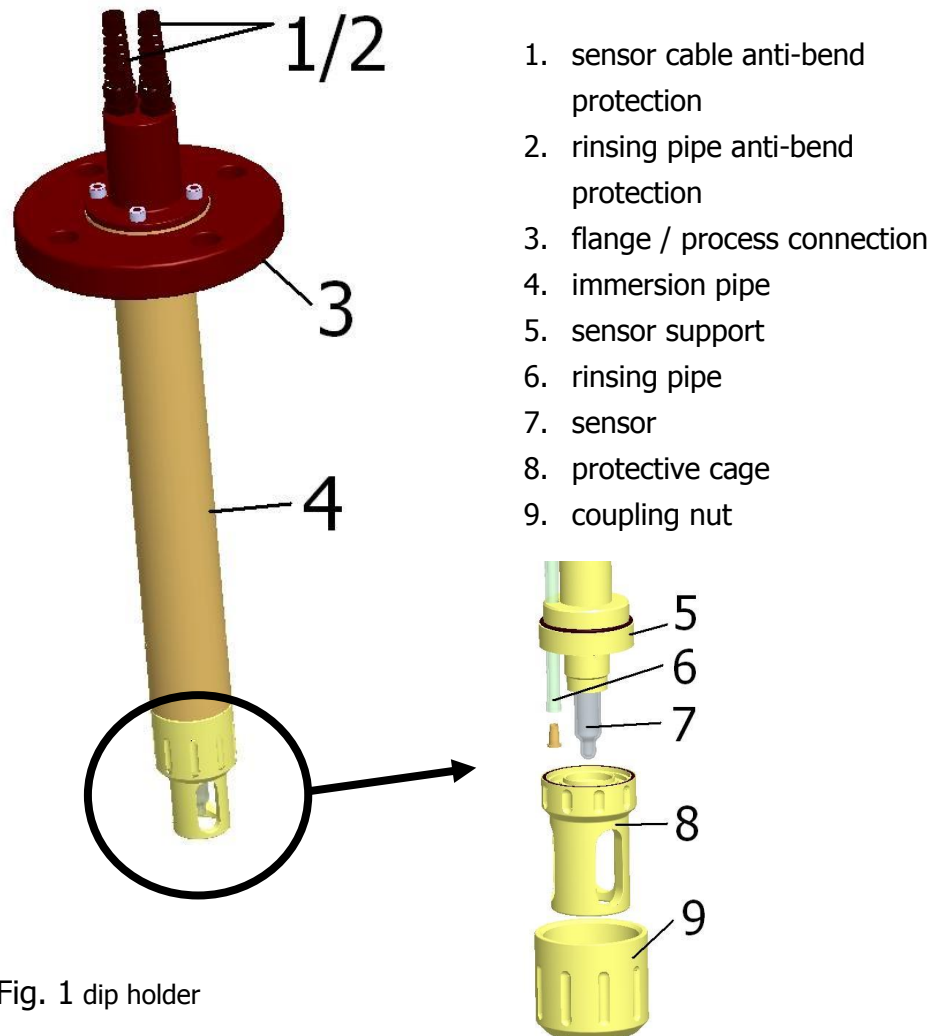


Fig. 1 dip holder

Versions Dip holders are mounted to containers or channels by means of a flange or support bracket (only plastics). In order to cope with the versatile process properties, the CHEMDIP dip holder is made of stainless steel or plastics. Furthermore, you can choose between different immersion lengths, sealing materials and sensors.

Rinsing (option) The rinsing nozzles integrated into the protective cage offer effective mechanical rinsing of the sensor by means of incoming air or rinsing liquid. The rinsing agent is continuously being distributed into the racks of the protective cage and, thus, directly hits the sensor. The cleaning efficacy is very good according to construction.

2.2 Process integration

- Control unit** The automatic rinsing procedure of the CHEMDIP dip holder can be controlled by means of a corresponding cleaning contact in the respective transmitter. No additional control unit is required.
- Transmitter** The dip holder dips a sensor into the process liquid which transfers its measurement results to a transmitter.

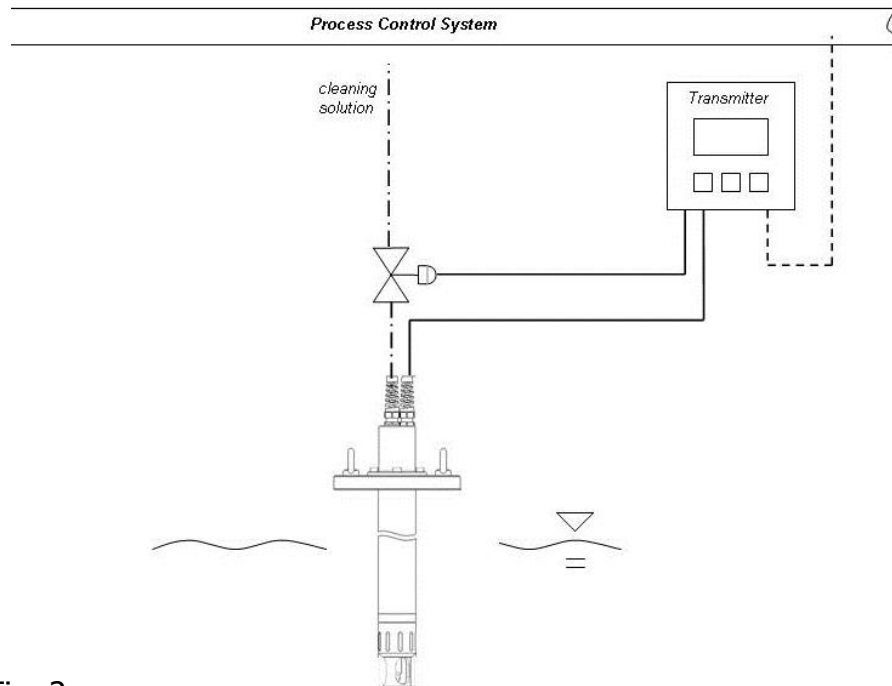


Fig. 2 process sequence

- pressure** For choosing the appropriate holder, pressure and temperature conditions of the process are of particular importance. Depending on the temperature, the stainless steel dip holder can be used for a pressure of up to 8 bar and the plastics version for a pressure of up to 6 bar. The process temperature must be between -10° and 90°C .
- temperature**



Observe the pressure and temperature diagrams in the chapters 7.8 and 7.9!

- installation position** Basically, the holder can be operated in any position. In order to obtain reliable measurement results, the sensor properties are of particular importance.

3 Delivery

3.1 Scope of delivery

The dip holder is tested in the factory and is delivered ready to be installed in a packaging which offers best protection for the holder.

The delivery includes:

- CHEMDIP holder
- Operating manual



Keep the holder in the packaging as it offers best protection until installation.

3.2 Inspection of delivery



Before approving the dip holder for assembly, make sure:

The packaging and device are in perfect condition.

The name plate of the automatic dip holder complies with the order data.

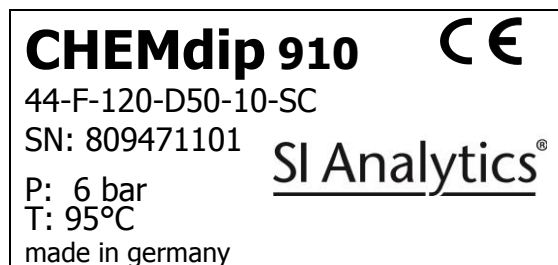


Fig. 3 name plate (example)

In case of further inquiries please directly contact your dealer.

4 Installation

4.1 Preparation of the equipment



Stellen Sie sicher, dass

- there is enough space for operating the dip holder.
- the process is switched off.
- the containers are not under pressure.
- the connection flange and process connection of the dip holder are compatible.
- the process sealing is on the connection flange.

4.2 Installation of sensor



Unscrewing coupling nut

Loosen coupling nut and pull out sensor support.



Installation of sensor and connection of cable plug!

Install sensor and connect cable plug





Observe information given in chapter 7.4 "sensors"!

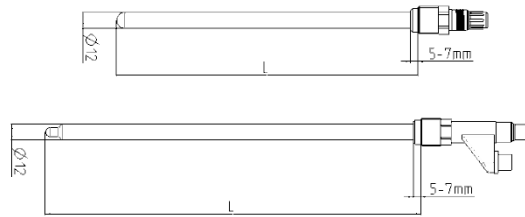


Fig. 4 gel-filled sensor (upper figure), liquid-filled sensor (bottom figure)

WARNING!



Sensors too long

may be damaged when installed.

- ▶ Check sensor length before installing



Unscrewing coupling nut

Re-install sensor support in immersion pipe and tighten coupling nut.



4.3 Installation of rinsing pipe

The sensor may be rinsed while the process is running (option). For doing so, the rinsing solution must be connected to the rinsing pipe.



Connection of rinsing pipe to rinsing valve

Connect 6/4mm rinsing pipe to an external rinsing valve.

DANGER!**Process liquid leaks through open rinsing connection!**

Skin burns and chemical skin burns depending on the properties of the process liquid.

- ▶ Either connect the rinsing pipes or
- ▶ Close the rinsing connection!

Now the dip holder is ready to be installed!**4.4 Installation of dip holder****Install the dip holder as follows:**

1. Mount sealing to process connection.
2. Put dip holder to process connection.
3. Tighten screws.

DANGER!**Process liquid may leak without a sealing mounted to the process connection!**

Skin burns and chemical skin burns depending on the properties of the process liquid.

- ▶ Install a sealing between holder and process connection.

5 Operation

5.1 Start-up of holder

DANGER!



Risk of injury due to leaking process liquid!

Skin burns and chemical skin burns depending on the properties of the process liquid.

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



Wear safety goggles and protective clothing when putting the holder in operation!

Before putting in operation, make sure:

- Seals are complete and fully functional.
- Sensor is integrated and tightly fastened.
- Rinsing connection (option) is installed and leakproof.
- Dip holder is installed.

5.2 Automatic rinsing operation (option)



An additional rinsing valve is required for automatic operation of the dip holder.

1. Connect rinsing solution via an additional rinsing valve to the rinsing pipe.
2. Control rinsing valve by means of pH transmitter or process control system.

6 Maintenance

6.1 Important maintenance instructions

- Prepare a maintenance schedule for the respective process!
- Only trained staff is allowed to perform maintenance works.
- Always wear appropriate protective clothing when performing maintenance works.
- Only perform maintenance works or repairs described in the operating manual!
- Structural changes may only be done after consulting the manufacturer.
- Before removing the holder from the process, make sure pipes or containers are not under pressure, empty and clean.
- Beware of explosive atmospheres.

6.2 Removal of dip holder

Make sure the holder can be moved without any dangers.

- Loosen the process connection.
- Remove the holder from the process.

6.3 Removal of sensor



Remove the sensor as follows:

1. Remove dip holder from process and loosen coupling nut.
2. Remove sensor support.
3. Disconnect sensor cable.
4. Loosen high-strength cable gland.
5. Remove sensor.



DANGER!



Broken glass sensor!

The broken pieces may damage the wetted seals.

- ▶ Check wetted seals and replace them if required.
-

6.4 Removal/ replacement of rinsing pipe



Remove the rinsing pipe as follows:

1. Remove dip holder from process.
2. Remove sensor.
3. Unscrew protective cage.
4. Press out rinsing pipe, remove clamping piece.
5. Install new rinsing pipe and mount clamping piece in rinsing pipe.
6. Screw on protective cage.



6.5 Maintenance schedule

Perform the maintenance works at recommended intervals!

- quarterly** ▶ Check process connection for tightness.

- yearly** ▶ Remove sensor and check/ replace wetted seals.

6.6 Disposal

- Holder** Make sure the holder is free from hazardous and toxic substances. Components must be disposed according to their respective materials.

Observe the regulations and rules concerning waste disposal applicable at the place and site of operation.

- Packaging** The packaging is made of cardboard and can be disposed with used paper

7 Technical data

7.1 Standards

Pressure equipment directive

7.2 Material properties

Wetted components						
holder						
CHEM _{DIP}	CHEM _{DIP}		CHEM _{DIP}			CHEM _{DIP}
910 / 915	1.4404/316L					EPDM FPM
920 / 925			PVDF			
			PP			

7.3 Rinsing connection (option)

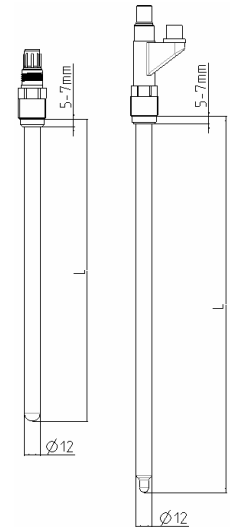
Connections	
dip holder	6 / 4 mm PTFE pipe

Rinsing pressure	
	1 - 6 bar

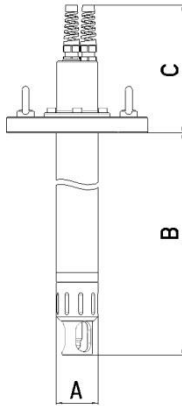
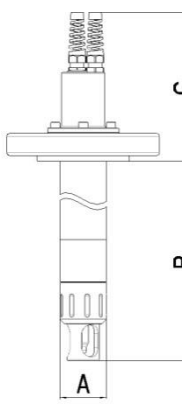
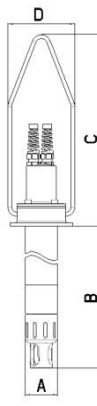
7.4 Sensors

Gel-filled sensor			
CHEMDIP	l [mm]	d [mm]	PG
910 / 920	120	12	13,5

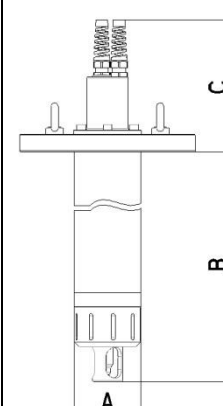
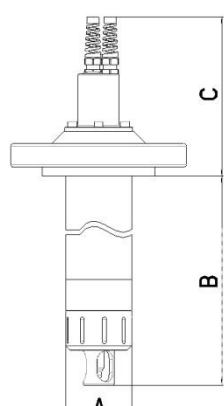
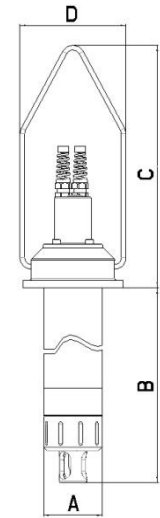
Liquid-filled sensor with nozzle			
CHEMDIP	l [mm]	d [mm]	PG
915 / 925	120	12	13,5



7.5 CHEMDIP 910 / 920 dimensions

CHEMDIP 910/920 dimensions			
	910	920	920
	4404 flange	PP/PVDF flange	PP/PVDF support bracket
			
	CHEMDIP	CHEMDIP	CHEMDIP
Dimensions	910	920	920
A [mm]	49	50	50
B [mm]	500 - 2500	500 - 2500	500 - 2500
C [mm]	150	161	302
D [mm]	-	-	108

7.6 CHEMDIP 915 / 925 dimensions

CHEMDIP 915/925 dimensions			
	915	925	925
	4404 flange	PP/PVDF flange	PP/PVDF support bracket
			
	CHEMDIP	CHEMDIP	CHEMDIP
	915	925	925
Dimensions			
A [mm]	76	75	75
B [mm]	500 - 2500	500 - 2500	500 - 2500
C [mm]	150	181	310
D [mm]	-	-	136

7.7 Ambient conditions

ambient temperature	- 10 - 70 °C
transport and storage temperature	- 10 - 80 °C

7.8 CHEM_{DIP} 910 / 915 process conditions

max. permissible pressure PS: 10 bar

max. permissible temperature TS: 140 °C

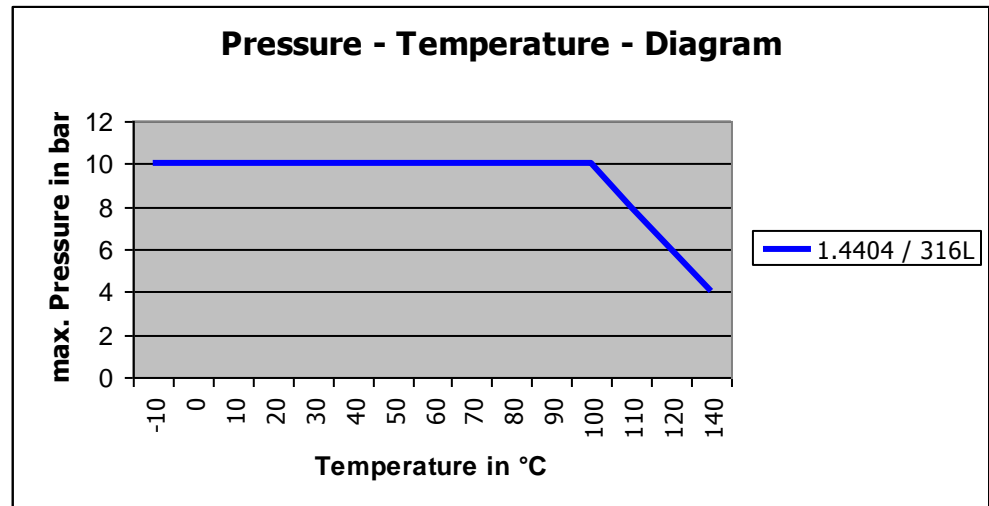


Fig. 5 CHEM_{DIP} 910 / 915 pressure-temperature diagram

7.9 CHEM_{DIP} 920 / 925 process conditions

max. permissible pressure PS: 6 bar

max. permissible temperature TS: 90 °C

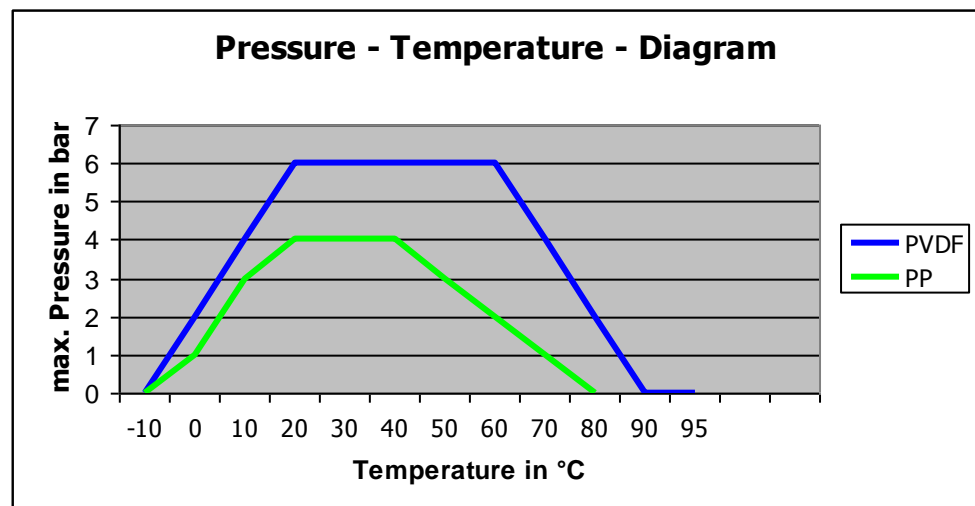


Fig. 6 CHEM_{DIP} 920 / 925 pressure-temperature diagram

8 Spare parts and accessories

Sealing kits		
CHEMDIP	spare part	order number
910	EPDM sealing kit	285077560
	FPM sealing kit	285077600
920	EPDM sealing kit	285077570
	FPM sealing kit	285077610

Sealing kits		
CHEMDIP	spare part	order number
915	EPDM sealing kit	285077590
	FPM sealing kit	285077630
925	EPDM sealing kit	285077590
	FPM sealing kit	285077630



Please always quote the serial number of your holder when ordering spare parts and accessories

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