Instruction Manual

EXAtrac RF20H (Extract 810 and 820)
Process retractable holder
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1. Safety and protection measures

1.1 General safety instructions

The RF20H (Extract 810 and 820) retractable holder is designed in a way that when the operation manual is observed the product does not cause any hazards.

• Read the operation manual before use.
• Do only install and operate the retractable holder before having read and understood all notes on the safe and proper use.
• Keep the operation manual for future reference.
• 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 Proper use

The RF20H (Extract 810 and 820) retractable holder is attached to tanks or piping. 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 can not 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.
• Only perform the service, maintenance 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 Hazard areas and residual hazards

Retractable holders are connected to tanks and piping 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

Only use certified and approved accessories and equipment.

Seals Choose material properties of process seals and O rings according to process medium and cleaning liquid(s). Observe swelling ability and acid and alkaline resistance of seal material.

Sensor Choose a suitable sensor and observe information in chapter 8 “technical specifications”.

Pressure air Filter (40 µm), clean and deoil compressed air. Ensure that the pressure is between 4 and 6 bar.

Cleaning Choose cleaning liquid and detergent according to process, holder, and seal material and dispose it an appropriate way.
1.5 Safety equipment

**Position**

The retract protection prevents the insertion rod from retracting without sensor in the process as this would cause a leakage of process liquid.

- The sensor can only be installed/removed when the holder is in the “service” position.
- Disabling the retract protection is considered as negligence.

**Position**

In the “measuring” position the sensor is immersed in the drive unit.

- You cannot remove the sensor.
- Trying to remove the sensor in the “measuring” position is considered as negligence.

**Protection**

You may adjust the protection cage at the end of the insertion rod in order to protect the sensor from mechanical impacts.

1.6 Staff

**Qualifications**

Leave installation and servicing of the retractable holder to trained staff!

**Protective clothing**

The operation staff must wear goggles and applicable protective clothing during commissioning and servicing works.

**Accident prevention regulations**

Observe work safety laws and regulations applicable in the operator’s country and at the site 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 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 conditions 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 case of parts not made of a conductive material. 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 liquid potential equalisation must be ensured.
2. Product description

2.1 RF20H (Extract 810 and 820) automatic retractable holder

Variations
Retractable holders are attached to tanks or piping by an applicable process connection. In order to comply with the various process properties the RF20H (Extract 810 and 820) retractable holder is fabricated of stainless steel, Alloy C-22 or plastic. You can further choose between different process and cleaning ports, sealing materials, and sensors.

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 feedback 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 feedback is given 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”.

Fig. 1: Retractable holder

Components

1. Pneumatic connections 1-4
2. Top housing cramp
3. Drive unit
4. Lower housing cramp
5. Process connection
6. Sensor
7. Insertion rod with protection cage
8. Cleaning port “IN”
9. Cleaning port “OUT”
10. Cleaning chamber
2.2 Process integration

Control
The RF20H (Extract 810 and 820) retractable holder can be operated by the automatic control EXmatic. 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.

Fig. 2: Process flow

Process control
The external control and the transmitter can be connected to a process control unit. The measuring and cleaning intervals are then controlled automatically according to the measuring results.

Pressure Temperature
The choice of the applicable holder is subject to the pressure and temperature conditions of the process. The retractable holder of stainless steel or Alloy C-22 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.

Install 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. The sensor should be connected in a position less than 15° to the horizontal plane.

Observe pressure and temperature charts in chapter 8!
3. Delivery

3.1 Package contents

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

**Package contents:**
- RF20H (Extract 810 and 820) holder
- hexagon key 2.5mm
- 4 spare screws M 4 x 8 (DIN 912)
- 2 spacer for sensors
- operation manual

For the RF20H (Extract 810) S.S./Hastelloy holder you will additionally receive a material certificate

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.

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**Fig. 3a: Data plate Alloy C-22**

**Fig. 3b: Data plate Plastic**

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 (process end) is completely inserted in the cleaning chamber.

4.3 Installing the holder

Prior to installation, ensure this:
- The system is prepared (chapter 4.1).
- The holder is prepared (chapter 4.2).

How to install the holder:
- Position retractable holder on process seal.
- 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 piping 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 tissue destruction depending on process liquid property.
- Stop process!
- Tanks and tubing must be pressure-free!

How to adjust the protection cage:
- Loosen screws of lower housing cramp.
- Rotate drive unit and adjust symbol in flow direction.
- 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.

Fig. 7: Cleaning ports
A Cleaning port “IN”
B Cleaning port “OUT”

⚠️ Leakage of process liquid through the open cleaning port!
Burns or tissue destruction depending on process liquid property.
- Cleaning pipes must be installed
- cleaning ports “IN” and “OUT” must be sealed by pegs!

⚠️ 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”!

⚠️ If the cleaning liquid pressure exceeds 6 bar
Holder and sensor may be damaged.
- Install a pressure reducer, if necessary!

⚠️ 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 RF20H (Extract 810 and 820) 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

⚠️ Emitted compressed air
can cause material or personal damage.
Ensure tightness of pneumatic tubes before supplying compressed air.

⚠️ Contaminated compressed air
causes damages to the drive unit!
- Use filtered (40 µm), water-free and decoiled compressed air!

⚠️ You will need:
- 2 pneumatic tubes ø = 4mm
- 2 pneumatic tubes ø = 6mm.
How to install the pneumatic tubes:

1. Insert pneumatic tube ø = 6mm in connection 1 (blue) for the air supply “service” position.
2. Insert pneumatic tube ø= 6mm in connection 2 (black) for air supply, “measuring position”.
3. Insert pneumatic tube ø = 4mm in connection 3 (blue) for the reply signal “service” position.
4. Insert pneumatic tube ø = 4mm in connection 4 (black) 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 RF20H (Extract 810 and 820) 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)

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
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 tissue destruction 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.
- 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!**
- Connection 1: Air supply “service” position
- Connection 2: Air supply “measuring” position.
- Connection 3: Reply “service” position
- Connection 4: Reply “measuring” position.

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

6.1 Servicing 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 cramp](image)

**WARNING!**
Process liquid leaking on the inspection window!
Risk depending on process liquid property!
- Replace wetted sealings.
- Observe instructions in chapter 6.6!

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 6.6!

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) Press plastic ring “A” on pneumatic connection.
  4) At the same time pull pipe “B”.

![Fig. 11: Removing the pneumatic tubes](image)
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”.

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

A) Cleaning chamber with process connection
B) Cleaning cartridge
C) Insertion rod
D) Drive unit

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.

**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.

**Fig. 13: O rings on insertion rod**

| O rings ø in [mm] | A 18.72 x 2.62 | B 10.77 x 2.62 | B is left out |

3) Remove and replace O rings “D” on cleaning cartridge.

**Fig. 14: O ring on cleaning cartridge**

| O ring ø in [mm] | D 21.95 x 1.78 |
4) Remove PTFE scraper “E” on cleaning chamber
5) Remove and replace O ring “F”.
6) Position PTFE scraper “E” on O ring “F”.

**Fig. 15: O rings/scraper on cleaning chamber**

**Scaper ø in [mm] E 19 x 6 x 1
O ring ø in [mm] F 21.89 x 2.62**

Remove the PTFE scraper (E) as follows:

6) Position PTFE scraper “E” on O ring “F”.
5) Remove and replace O ring “G”.
4) Remove cylinder “D” from cylinder extension “A” (Fig. 17).
3) Remove top housing cramp screws.
2) Remove outer O rings on insertion rod (Fig. 13: “A” and “B”).
1) Remove cleaning chamber and process connection (chap. 6.5).

**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.
- 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 cramp screws.
4) Remove cylinder “D” from cylinder extension “A” (Fig. 17)
5) Loosen screws “E” and remove pins “F” (Fig. 18).
6) Remove insertion rod “C” from piston “B”.

**Fig. 17: Removing the cylinder**

**Fig. 18: Removing the fixing elements**

**A Cylinder extension
B Piston
C Insertion rod
D Cylinder**

E 2 x M4 x 8
F 2 x pins
6.8 Installing the insertion rod

The descriptions refer to Fig. 17 and Fig. 18 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) Press until cylinder snaps into place.
8) 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:
• 4.3 Installing the holder
• 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

System is under pressure. Process liquid will leak when holder is disconnected from process in an inappropriate way.
• 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:
1) Remove screws from top housing cramp.
2) Remove cylinder “D” from cylinder extension “A” (Fig. 17).
3) Install insertion rod (chap. 6.8).
4) Assemble the drive unit and cleaning chamber (chap. 6.9).

6.11 Servicing plan

Carry out maintenance works in the recommended intervals!
weekly
Checking wetted sealings (chap. 6.2)
Check process connection.
Check cleaning pipes.
Check pneumatic connections.
quarterly
Check and tighten screws of top and lower housing cramps.

once a year
Replace wetted sealings (chap. 6.6).
Remove and inspect insertion rod (chap. 6.7).

every 3 years
Replace drive unit (chap. 6.10).

6.12 Disposal

Holder
Ensure that the holder is free from hazardous and toxic substances. Depending on your material the individual components must be disposed off separately.

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

Packaging
The packaging is made of card board and can be disposed off with the waste paper.
7. Trouble shooting

Refer to the instructions and warnings in the specified chapters.

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

<table>
<thead>
<tr>
<th>possible reason</th>
<th>measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>no compressed air</td>
<td>check pneumatic tubes (chap. 6.4, 4.6)</td>
</tr>
<tr>
<td>pressure too low</td>
<td>pressure must be between 4 and 6 bar (chap. 4.6)</td>
</tr>
<tr>
<td>no sensor</td>
<td>Installing the sensor (chap. 4.7)</td>
</tr>
<tr>
<td>loose sensor</td>
<td>tighten sensor (chap. 4.7)</td>
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7.2 Holder does not move from the "measuring" position to the "service" position

<table>
<thead>
<tr>
<th>possible reason</th>
<th>measure</th>
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</thead>
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<tr>
<td>no compressed air</td>
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</tr>
<tr>
<td>pressure too low</td>
<td>Pressure must be between 4 and 6 bar (chap. 4.6)</td>
</tr>
<tr>
<td>Insertion rod or protection cage is blocked.</td>
<td>• Preparing the system (chap. 4.1)</td>
</tr>
<tr>
<td></td>
<td>• Holder remains in &quot;measuring&quot; position</td>
</tr>
<tr>
<td></td>
<td>• Removing the cleaning chamber with process connection (chap. 6.5)</td>
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<tr>
<td></td>
<td>• Removing the insertion rod (chap. 6.7)</td>
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7.3 Incorrect position reply

<table>
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<th>possible reason</th>
<th>measure</th>
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<tbody>
<tr>
<td>pneumatic tubes are connected incorrectly</td>
<td>check pneumatic tubes (chap. 6.4, 4.6)</td>
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7.4 No position reply

<table>
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<td>no compressed air</td>
<td>check pneumatic tubes (chap. 6.4, 4.6)</td>
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<tr>
<td>pressure too low</td>
<td>pressure must be between 4 and 6 bar (chap. 4.6)</td>
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<tr>
<td>drive unit defect</td>
<td>Replacing the drive unit (chap. 6.10)</td>
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7.5 Frequent contamination of sensor

<table>
<thead>
<tr>
<th>possible reason</th>
<th>measure</th>
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<tr>
<td>cleaning pipes incorrectly connected</td>
<td>check cleaning pipes (chap. 4.5)</td>
</tr>
<tr>
<td>cleaning liquid pressure too low</td>
<td>raise cleaning pressure.</td>
</tr>
<tr>
<td>cleaning chamber is blocked</td>
<td>pressure must be between 1 and 4 bar (chap. 4.6)</td>
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<tr>
<td>cleaning liquid not adequate</td>
<td>choose adequate cleaning liquid</td>
</tr>
<tr>
<td>cleaning period too short</td>
<td>extend cleaning period.</td>
</tr>
<tr>
<td>cleaning interval too long</td>
<td>reduce cleaning interval</td>
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### 7.6 Sensor breaks frequently

<table>
<thead>
<tr>
<th>possible reason</th>
<th>measure</th>
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<tr>
<td>sensor too long</td>
<td>choose adequate sensor (chap. 4.7)</td>
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<tr>
<td>seals on sensor are missing</td>
<td>insert seals on sensor (chap. 4.7)</td>
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<tr>
<td>Process liquid contains solids</td>
<td>Adjusting the protection cage(chap. 4.4)</td>
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### 7.7 Leakage of process liquid at inspection window

<table>
<thead>
<tr>
<th>possible reason</th>
<th>measure</th>
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<tbody>
<tr>
<td>wetted sealings are defect</td>
<td>Replacing the wetted sealings (chap. 6.6)</td>
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</tbody>
</table>

### 7.8 Compressed air emitted at inspection window

<table>
<thead>
<tr>
<th>possible reason</th>
<th>measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>drive unit defect</td>
<td>Replacing the drive unit (chap. 6.10)</td>
</tr>
</tbody>
</table>
8. Technical specifications

8.1 Standards

Pressure equipment directive

8.2 Material properties RF20H (Extract 810 and 820)

<table>
<thead>
<tr>
<th>Wetted components</th>
<th>metal</th>
<th>plastic</th>
<th>seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holder</td>
<td>RF20H</td>
<td>1.4404/316L</td>
<td>Alloy C22, 2.4602</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drive unit</th>
<th>cylinder</th>
<th>cylinder extension</th>
<th>seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF20H</td>
<td>1.4404/316</td>
<td>PA66 GF30</td>
<td>EPDM</td>
</tr>
</tbody>
</table>

8.3 Cleaning ports

<table>
<thead>
<tr>
<th>Thread</th>
<th>without gland</th>
<th>G 1/8” (internal)</th>
<th>G 1/4” (internal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>thread with gland</td>
<td>NPT 1/4” (internal)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Cleaning pressure       | 1 - 4 bar     |

8.4 Sensors RF20H (Extract 810 and 820)

<table>
<thead>
<tr>
<th>Gel filled sensor</th>
<th>l [mm]</th>
<th>d [mm]</th>
<th>PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF20H</td>
<td>225</td>
<td>12</td>
<td>13.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sensor filled with liquid with refill connection</th>
<th>l [mm]</th>
<th>d [mm]</th>
<th>PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF20H</td>
<td>280</td>
<td>12</td>
<td>13.5</td>
</tr>
</tbody>
</table>

8.5 Pneumatic equipment

<table>
<thead>
<tr>
<th>Pneumatic tubes</th>
<th>ø - external</th>
<th>ø - internal</th>
</tr>
</thead>
<tbody>
<tr>
<td>for control air</td>
<td>6 mm</td>
<td>4 mm</td>
</tr>
<tr>
<td>for position reply</td>
<td>4 mm</td>
<td>2 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compressed air</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Filtered 40µm, water- and oil free</td>
</tr>
<tr>
<td>• 4 - 6 bar</td>
</tr>
<tr>
<td>• no continuous air consumption!</td>
</tr>
</tbody>
</table>
8.6 Dimensions

Holder

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>RF20H Metal (Extract 810)</th>
<th>RF20H Plastic (Extract 820)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁ [mm]</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>A₂ [mm]</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>B [mm]</td>
<td>95</td>
<td>95</td>
</tr>
</tbody>
</table>

Process connections RF20H Metal (Extract 810)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange 4404</td>
<td>Flange C22</td>
<td>NPT</td>
<td>TriClamp</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>A1</th>
<th>B1</th>
<th>C1</th>
<th>D1</th>
<th>E1</th>
<th>E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 [mm]</td>
<td>71</td>
<td>66</td>
<td>34</td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2 [mm]</td>
<td>107</td>
<td>102</td>
<td>70</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1 [mm]</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2 [mm]</td>
<td>31</td>
<td>31</td>
<td>31</td>
<td>31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D3 [mm]</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Process connections RF20H in Plastic (Extract 820)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 [mm]</td>
<td>58</td>
<td>29</td>
</tr>
<tr>
<td>E2 [mm]</td>
<td>94</td>
<td>65</td>
</tr>
<tr>
<td>D1 [mm]</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>D2 [mm]</td>
<td>31</td>
<td>30.5</td>
</tr>
</tbody>
</table>

#### 8.7 Ambient conditions
- Ambient temperature: -10 - 70 °C
- Transport and storage temperature: -20 - 80 °C

#### 8.8 Process conditions RF20H in Metal (Extract 810)
- max. allowed pressure PS: 16 bar
- max. allowed temperature TS: 140 °C

![Pressure temperature diagram RF20H Metal (Extract 820)](Fig. 19)

#### 8.9 Process conditions RF20H in Plastic (Extract 820)
- max. allowed pressure PS: 10 bar
- max. allowed temperature TS: 140 °C

![Pressure temperature diagram RF20H in Plastic (Extract 810)](Fig. 20)
8.10 Ordering structure RF20H (Extract 810 and 820) S.S./Hast.

RF20H (Extract 810 and 820)

<table>
<thead>
<tr>
<th>RF20H</th>
<th>pH-Retractable Holder RF20H</th>
<th>remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material (wetted parts)</td>
<td>-PP PP</td>
<td>Extract 820</td>
</tr>
<tr>
<td></td>
<td>-PF PVDF</td>
<td>Extract 820</td>
</tr>
<tr>
<td></td>
<td>-PK PEEK</td>
<td>Extract 820</td>
</tr>
<tr>
<td></td>
<td>-SS Stainless Steel 1.4404 / 316L</td>
<td>Extract 810</td>
</tr>
<tr>
<td></td>
<td>-HC Alloy C22 2.4602</td>
<td>Extract 810</td>
</tr>
<tr>
<td>Sealing Material</td>
<td>-EPD EPDM</td>
<td></td>
</tr>
<tr>
<td>(wetted sealings)</td>
<td>-FPM FPM (Viton)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-FKM FFKM (Kalrez)</td>
<td></td>
</tr>
<tr>
<td>Sensor</td>
<td>-225 Suitable for 225mm PG13.5 Gel-filled</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-280 Suitable for 280mm PG13.5 Liquid-filled</td>
<td></td>
</tr>
<tr>
<td>Process Connection</td>
<td>-D32 Flange DN32 PN16</td>
<td>SS/Hast only</td>
</tr>
<tr>
<td></td>
<td>-D40 Flange DN40 PN16</td>
<td>SS/Hast only</td>
</tr>
<tr>
<td></td>
<td>-D50 Flange DN50 PN16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-A14 Flange ANSI 1 ¼&quot; 150lbs</td>
<td>SS/Hast only</td>
</tr>
<tr>
<td></td>
<td>-A12 Flange ANSI 1 ½&quot; 150lbs</td>
<td>SS/Hast only</td>
</tr>
<tr>
<td></td>
<td>-A20 Flange ANSI 2&quot; 150lbs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-N14 NPT M 1 ¼&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-T20 Tri Clamp 2&quot;</td>
<td>SS/Hast only</td>
</tr>
<tr>
<td>Cleaning Connection</td>
<td>-G18 G ¼” thread female</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-G14 G ½” thread female</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-N14 ¼” NPT female</td>
<td></td>
</tr>
<tr>
<td>Position switch</td>
<td>-PN Pneumatic</td>
<td></td>
</tr>
</tbody>
</table>

Spareparts

<table>
<thead>
<tr>
<th>Partnumber</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/2-123-40-001</td>
<td>Sealing Set EPDM</td>
</tr>
<tr>
<td>10/2-123-41-001</td>
<td>Sealing Set FPM</td>
</tr>
<tr>
<td>10/2-123-42-001</td>
<td>Sealing Set FFKM (Kalrez)</td>
</tr>
<tr>
<td>10/2-075-03-001</td>
<td>Drive Unit - sensor 225/325 pneum. position switch</td>
</tr>
<tr>
<td>10/2-075-03-002</td>
<td>Drive Unit - sensor 280/380 pneum. position switch</td>
</tr>
<tr>
<td>10/2-061-33-004</td>
<td>Insertion rod RF20H (Extract 810 and 820) 1.4404 / 316L</td>
</tr>
<tr>
<td>10/2-061-34-004</td>
<td>Insertion rod RF20H (Extract 810 and 820) 2.4602 / Alloy C22</td>
</tr>
<tr>
<td>10/2-061-22-004</td>
<td>Insertion rod RF20H (Extract 810 and 820) PP</td>
</tr>
<tr>
<td>10/2-061-23-004</td>
<td>Insertion rod RF20H (Extract 810 and 820) PVDF/Alloy C22</td>
</tr>
<tr>
<td>10/2-061-29-004</td>
<td>Insertion rod RF20H (Extract 810 and 820) PEEK</td>
</tr>
<tr>
<td>10/2-086-32-001</td>
<td>Set blind plug G¼” 1.4301/316 for cleaning chamber</td>
</tr>
</tbody>
</table>
9. Parts and accessories

<table>
<thead>
<tr>
<th>Drive unit with pneumatic position reply</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF20H (Extract 810 and 820)</td>
</tr>
<tr>
<td>Part</td>
</tr>
<tr>
<td>Metal and Plastic</td>
</tr>
<tr>
<td>Drive unit for sensor L = 225mm</td>
</tr>
<tr>
<td>10/2-075-03-001</td>
</tr>
<tr>
<td>Metal and Plastic</td>
</tr>
<tr>
<td>Drive unit for sensor L = 280mm</td>
</tr>
<tr>
<td>10/2-075-03-002</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seal kits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF20H (Extract 810 and 820)</td>
</tr>
<tr>
<td>Part</td>
</tr>
<tr>
<td>Metal and Plastic</td>
</tr>
<tr>
<td>Seal kit EPDM</td>
</tr>
<tr>
<td>10/2-123-40-001</td>
</tr>
<tr>
<td>Seal kit FPM</td>
</tr>
<tr>
<td>10/2-123-41-001</td>
</tr>
<tr>
<td>Seal kit FFKM</td>
</tr>
<tr>
<td>10/2-123-42-001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insertion rods</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF20H (Extract 810 and 820)</td>
</tr>
<tr>
<td>Part</td>
</tr>
<tr>
<td>Metal</td>
</tr>
<tr>
<td>Insertion rod 1.4404 / 316L</td>
</tr>
<tr>
<td>10/2-061-33-004</td>
</tr>
<tr>
<td>Insertion rod 2.4602 / Alloy C22</td>
</tr>
<tr>
<td>10/2-061-34-004</td>
</tr>
<tr>
<td>Plastic</td>
</tr>
<tr>
<td>Insertion rod PP</td>
</tr>
<tr>
<td>10/2-061-22-004</td>
</tr>
<tr>
<td>Insertion rod PVDF / Alloy C22</td>
</tr>
<tr>
<td>10/2-061-23-004</td>
</tr>
<tr>
<td>Insertion rod PEEK / Alloy C22</td>
</tr>
<tr>
<td>10/2-061-29-004</td>
</tr>
</tbody>
</table>

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

Statement of compliance

Atex certificate
Stellungnahme zur Anwendbarkeit der RL 94/9/EG (ATEX)

Für Geräte und Komponenten zur Verwendung in explosionsgefährdeten Bereichen

Statement for application of directive 94/9/EC

for Equipment and Components intended for Use in Potentially Explosive Atmospheres

Gegenstand: Gerät/Komponente Typ
Subject: Equipment/Component type

EXTRACT Typ 810 / 811 / 820 / 821

Hergestellt und zur Prüfung vorgelegt
Manufactured and submitted for examination

EXNER PROCESS EQUIPMENT oHG

Anschrift
Address

76694 Forst ; Werner-von-Siemens-Straße 1

Prüfgrundlage
Basis for examination

Richtlinie 94/9/EG
Directive 94/9/EC

Verwendete Normen
Standard basis

EN 1127-1:1997, EN 13463-1:2001

Schutzartkennzeichen
Code for type of protection

Keine
None

Prüfergebnis
Examination result

Das Gerät fällt nicht in den Anwendungsbereich der Richtlinie 94/9/EG. Es hat keine eigenen Zündquellen.
The Equipment does not fall within the scope of Directive 94/9/EC. It does not have its own sources of ignition.

Prüfbericht-Nr.
Assessment number

194/Ex 482.00/07

TÜV Rheinland Indus trie Service GmbH

Wuppertal, 15.05.2007

Holger Wegener
Expert

Stefanie Schwarz
Expert

TÜV Rheinland Industrie Service GmbH
Zertifizierter Hersteller von explosionsgeschützte Produkte
Diese Stellungnahme darf nur vollständig und unverändert vervielfältigt werden.
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IM 12B06K05-E-E
1) Article and Type

EXTRACT 810 / 811 / 820 / 821

2) Description

The replacement fitting EXTRACT is installed on containers or pipes. The pneumatic drive inserts a sensor (tested in accordance with Directive 94/9/EC) into the process fluid in order to measure chemical or physical properties. The pneumatic drive inserts the tube into the process medium as far as the maximum depth of immersion. For safety reasons this is only possible with the built-in sensor. The sensor can be cleaned, flushed or calibrated while the process is in progress. The operating controls must be within the technical specifications of the particular fitting and of the built-in sensor.

3) Technical Data

Ambient temperature: -10°C to 70°C
Process pressure and temperature:
   Fitting 810/811
   at 16 bar 120°C max.
   at 10 bar 140°C max.
   Fitting 820/821
   PP at 4 bar 60°C max.
   PVDF at 6 bar 90°C max.
   PEEK at 10 bar 100°C max.
   Observe the table in the operating instructions

Material contacted by medium:
   Fitting 810/811
   1.4404 / 316L
   Alloy C22, 2.4602
   Fitting 820/821
   PVDF
   PEEK
   Fitting 820
   PP

Seals:
   EPDM, FPM, FFKM

Compressed air:
   4 to 6 bar, filtered, 40μm, oil- and condensate-free
Compressed air port:
   4 mm (position feedback) and 6 mm (pilot air)

4) Test Result

The fitting EXTRACT mentioned in section 1 does not fall within the scope of Directive 94/9/EC because, if used as intended, it does not have its own potential sources of ignition.
5) **ATEX Marking**

Not needed

6) **Conditions for Reliable Use or Remarks on Use**

1. A label reading: "Warning: Danger due to electrostatic charges. Wipe with an antistatic cloth only." must be affixed to the cap.

2. The electrostatic charge must be taken into account in the case of parts not made of a conductive material and contacted by the medium. This applies particularly for non-conductive fluids.

3. The sensor must conform to Directive 94/9EC and the ambient temperatures must be observed.

4. It must be ensured that the compressed air does not contain a potentially explosive atmosphere.

5. It must be ensured that the extension and retraction movements of the sensor do not damage the connection.

6. The various temperature classes of the different materials must be observed.

7. A potential equalisation must be ensured.

TÜV Rheinland Industrie Service GmbH

Zertifizierstelle für Ex-Produkte
Am Grauen Stein 1
D-51101 Cologne

Wuppertal, 15.05.2007

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