SENSOFIT RET 5000  Supplementary Instructions

Manual retractable assembly

Category
II 2 G
# CONTENTS

1 Safety instructions .......................................................... 3
   1.1 General notes .............................................................. 3
   1.2 Safety instructions ...................................................... 3

2 Device description ............................................................ 4
   2.1 Device version ............................................................ 4
   2.2 Description code ........................................................ 5
   2.3 Nameplate ................................................................. 6
   2.4 Flammable products .................................................... 7
   2.5 Device category ........................................................ 7
   2.6 Protection types ........................................................ 8
   2.7 Surface temperature .................................................. 8
   2.8 Ambient temperature / temperature classes ..................... 8

3 Installation ........................................................................ 9
   3.1 Mounting ...................................................................... 9
   3.2 Special conditions ...................................................... 9

4 Electrical connections ....................................................... 10
   4.1 Electrical connection of a SMARTPAT sensor ................ 10

5 Operation .......................................................................... 11
   5.1 Start-up ...................................................................... 11
   5.2 Operation .................................................................... 11

6 Service ............................................................................. 12
   6.1 Maintenance ............................................................... 12
   6.2 Dismantling ............................................................... 13

7 Notes ................................................................................ 14
1.1 General notes

These additional instructions apply to explosion-protected versions of the retractable assembly with the marking II 2 G. They supplement the installation and operating instructions for the non-explosion-protected versions. The information given in these instructions contains only the data relevant to explosion protection. The technical details given in the installation and operating instructions for the non-explosion-protected versions still apply unless they are excluded or superseded by these instructions. The retractable assembly has been tested in accordance with

EN ISO 80079-36:2016  Non-electrical devices for use
EN ISO 80079-37:2016  in hazardous areas

by the manufacturer.

The testing documentation has been stored in accordance with item 13, section 1b (ii) of the directive 2014/34/EU (ATEX) at the Physikalisch-Technischen Bundesanstalt (PTB), Braunschweig, Germany under the registration number:

PTB 03 ATEX D127 X

1.2 Safety instructions

If these instructions are not followed, there is a risk of explosion.

Assembly, installation, start-up and maintenance may only be performed by personnel trained in explosion protection!

CAUTION!
The operator or his agent is responsible for observing any additional standards, directives or laws if required due to operating conditions or place of installation. This applies in particular to the use of easily detachable process connections when measuring flammable media.
2.1 Device version

Figure 2-1: RET 5000 with flange connection

Figure 2-2: RET 5000 with screw fitting
2.2 Description code

<table>
<thead>
<tr>
<th>Coding example:</th>
<th>VGHE 4</th>
<th>2</th>
<th>1</th>
<th>1</th>
<th>3</th>
<th>•</th>
<th>4</th>
<th>1</th>
<th>2</th>
<th>7</th>
<th>•</th>
<th>•</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*) Positions in the type code which are not needed are omitted.

The description code • consists of the following elements:

1. Type
   1. SENSOFIT RET 5000
2. Approvals
   0. Standard device
   1. ATEX explosion-protected version
3. Material
   1. Stainless steel 1.4404/316L
4. Gaskets
   1. EPDM
   2. FPM
   3. FFKM
5. -
6. Process connection
   1. Flange DN32 PN16
   2. Flange DN50 PN16
   3. Flange ASME 1 1/4”
   4. Flange ASME 2”
   5. Thread G 1 1/4” male
   6. Thread NPT 1 1/4” male
7. Shut-off Valve
   1. Ball cock
8. Purge port
   0. No purge port
   1. G 1/8” female with blind plug
   2. NPT 1/4” female with blind plug
   3. NPT 1/4” Female with blind plug
9. Immersion tube length
   3. 300 mm
   7. 700 mm
2.3 Nameplate

**INFORMATION!**
Before installing the device, make sure that the information on the nameplate corresponds to the ordering data.

![Nameplate Image](image-url)

**Figure 2-3: Nameplate on the retractable assembly**

1. Website, observe the operation and installation instruction
2. Max. static pressure / max. retractable operation pressure, max. test pressure, max. temperature, TAG
3. Order code, serial number
4. Ex marking (refer to Protection types on page 8)
5. Reg.No. - registration number of notified body
6. Device name
7. Manufacturer address
8. Manufacturing date
9. Warning

**Informations:***

- Do not open above 2.5 bar / 34 psi process pressure!
- Do not operate without sensor!
- Do not operate over 2.5 bar / 34 psi process pressure!
- Do not operate without sensor!
2.4 Flammable products

**Atmospheric conditions:**
The ATEX directive does not stipulate values for atmospheric conditions. However, for determining the explosion characteristic parameters of temperature and pressure range, the following is assumed as a basis:

\[ T_{\text{atm}} = -20^\circ\text{C}...+60^\circ\text{C} / -4^\circ\text{F}...140^\circ\text{F} \text{ und } P_{\text{atm}} = 0.8...1.1 \text{ bar / 11.6...15.9 psi} \]

Outside of these ranges, for most mixtures no key figures are available for the ignition behaviour.

**Operating conditions:**
The retractable assembly operate outside of atmospheric conditions, which means that explosion protection according to the ATEX directive, regardless of the zone assignment, is fundamentally not applicable due to the lack of key safety data for the interior of the measuring section.

**WARNING!**
Operation with flammable products is only permissible if no explosive fuel/air mixture is formed on the interior of the retractable assembly under operating conditions. The operator is responsible to ensure that the retractable assembly is operated safely in terms of the temperature and pressure of the products used. In case of operation with flammable products the measuring units must be included in the periodic pressure tests of the system.

2.5 Device category

The retractable assembly is designed in category II 2 G for use in zone 1 or zone 2.

**INFORMATION!**
*Definition of zone 1 according to EN 1127-1:*
An area in which an explosive atmosphere, as a result of the mixture of flammable substances in the form of gas, steam or mist with air, under normal operation may occasionally occur.

**INFORMATION!**
*Definition of zone 2 according to EN 1127-1:*
An area in which an explosive atmosphere as a result of the mixture of flammable substances in the form of gas, steam or mist with air is not expected to occur under normal operation. If, however, such an atmosphere does occur it only lasts for a brief period of time.
2.6 Protection types

The non-electrical retractable assembly is designed with protection type “design safety ‘c’” in accordance with EN 13463-5.

The marking is: II 2G Ex h IIC T6...T4

<table>
<thead>
<tr>
<th>The marking contains the following information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>G</td>
</tr>
<tr>
<td>Ex h</td>
</tr>
<tr>
<td>IIC</td>
</tr>
<tr>
<td>T6...T4</td>
</tr>
</tbody>
</table>

2.7 Surface temperature

It is to be assumed that a combustible fuel / air mixture can be in contact with the outer wall of the measuring tube and process connections. Any temperature gradient between the internal wall in contact with the product (product temperature) and the outer surface is not taken into consideration.

The actual maximum surface temperature does not depend on the device itself, but instead on the operating conditions. The device itself does not generate heat and, for this reason, the surface temperature is determined by the product temperature and, in versions with heating jackets, by the heating medium temperature as well.

The nameplate shows the maximum values of the temperature classes and the maximum surface temperature. Depending on the device version, these values may not be reached. The maximum permitted ambient and product temperatures can be found in the standard manual.

2.8 Ambient temperature / temperature classes

The maximum ambient temperatures of the separately certified SMARTPAT® sensors¹ must also be observed. Due to the influence of the product temperature, SMARTPAT® sensors are not assigned to a fixed temperature class. The assignment of product and ambient temperatures is explained in the documentation for the sensors; the supplementary instructions for explosion protection must be observed in this respect.

¹(Or separately certified sensors of the same dimensions, see “Installing the sensor” in installation and operating instructions.)
3.1 Mounting

Mounting and setup must be carried out according to the applicable installation standards (e.g. EN 60079-14) by qualified personnel trained in explosion protection. The information given in the installation and operating instructions and the supplementary installation instructions must always be observed.

Install retractable assembly so that:
- no external forces are affecting the instrument.
- the device is accessible for any necessary visual inspections and can be viewed from all sides.
- the nameplate is clearly visible.
- It can be operated from a location with secure footing.

During installation and operation of the retractable assembly, the operator must take appropriate measures to ensure that:
- No charge is applied to the surface of the housing.
- No charge is applied to the inner surfaces of the housing.

**CAUTION!**
The manufacturer is not liable for any damage resulting from improper use or use other than the intended purpose. This applies in particular to hazards due to insufficient corrosion resistance and suitability of the materials in contact with product.

3.2 Special conditions

**Operation in media carrying voltage**

**WARNING!**
Retractable assemblies are not suitable for media carrying voltage, e.g. systems with electrochemical corrosion protection.

**CAUTION!**
Please move the immersion tube slowly when pulling it out for adjustment or maintenance work!
4.1 Electrical connection of a SMARTPAT sensor

Electrical connection of separately certified SMARTPAT® sensors or sensors of the same dimensions (Ø 12mm/120mm, PG 13.15) is explained in the documentation for the relevant sensor; the supplementary instructions for explosion protection must be observed in this respect.
5.1 Start-up

Make the following checks before starting up the device:

- Suitability of the materials used for the retractable assembly and for the gaskets for adequate resistance to corrosion from the process product.
- Check the retractable assembly is correctly mounted on the process connection, including any auxiliary equipment such as the purge ports.
- Check that the electrostatic ground is connected properly.
- Blind plugs are secure, fasteners are tightened.
- Instrument is correctly and completely sealed.

**WARNING!**

Never operate without a sensor!

5.2 Operation

Retractable assemblies must be operated in such a way that the temperatures and pressures do not exceed or fall short of the permitted values.

Retractable assembly may only be operated if the equipment parts necessary for safety are effective in the long run, and are not rendered inoperable during operation.

**WARNING!**

Ignition risks caused by pressure surges, impact or friction must be avoided.
6.1 Maintenance

Maintenance work of a safety-relevant nature within the meaning of explosion protection may only be carried out by the manufacturer, his authorised representative or under the supervision of authorised inspectors.

The retractable assembly requires no maintenance under normal operating conditions and when used for the intended purpose, subject to the maintenance plan under "Maintenance" in the installation and operating instructions.

For systems in hazardous areas, regular tests are required in order to maintain the proper condition.

The following checks are recommended:

- Checking the housing for corrosion and/or damage.
- Check the retractable assembly for leaks.
- Check the retractable assembly for dust deposits.
- Including the retractable assembly in the regular pressure test of the process line (only for flammable process products).

When reinstalling the retractable assembly following maintenance work (replacing gaskets etc.), the operator must take appropriate measures to ensure:

- That no charge is applied to the surface of the retractable assembly.

**WARNING!**
*Never open above 2.5 bar / 36 psi process pressure! Never operate without a sensor!*

Cleaning

Depending on the application, worst-case operating conditions may lead to reduced measuring performance as a result of fouling of the measuring system. Clean the sensor in accordance with the installation and operating instructions for non-explosion protected versions. This cleaning will need to be coordinated with operating conditions [e.g., check for existence of a flammable liquid or explosive atmosphere in or at the tank or pressurized tank] and is within the responsibility of the operator.

Follow the instructions for exchanging of the entire device (refer to Dismantling on page 13).

**CAUTION!**
*Beware of sparking from individual metal parts during dismantling and maintenance work.*
6.2 Dismantling

**General notes**
The dismantling and installation is within the responsibility of the operator.

Only identical components from the manufacturer may be used.

**Replacing gaskets**
Due to the modular design of the retractable assembly, gaskets can be replaced with identical spare parts from a safety perspective. The ball cock does not need to be removed from the process connection. This also applies to pressurised processes.

To replace a gasket, remove the immersion tube. The retractable assembly should be put together again as soon as the spare parts have been replaced. Ensure that the gasket is correctly positioned.

**Exchanging the entire device**
The same requirements as described under “Replacing gaskets” apply when replacing the entire retractable assembly.

---

**CAUTION!**
Pressurised process connections have to be depressurised before removing the retractable assembly.
Avoid uncontrolled discharge of residual fluid from the retractable assembly.
Where environmentally critical products are concerned, carefully decontaminate the wetted parts of the retractable assembly after dismantling.
The dismantling and installation is within the responsibility of the operator.
KROHNE – Process instrumentation and measurement solutions

- Flow
- Level
- Temperature
- Pressure
- Process Analysis
- Services

Head Office KROHNE Messtechnik GmbH
Ludwig-Krohne-Str. 5
47058 Duisburg (Germany)
Tel.: +49 203 301 0
Fax: +49 203 301 10389
info@krohne.com

The current list of all KROHNE contacts and addresses can be found at:
www.krohne.com