Bredel

ATEX Instruction manual

Additional information for product use in a potentially explosive environment

CONTENTS

1 ABOUT THIS MANUAL

1.1 How to use this manual

This manual is intended as an additional reference for qualified users to install, commission and maintain the product according to ATEX guidelines.

Before reading this manual, make sure to have read the user manual of the product supplied. The user manual contains all the information needed to start, operate and maintain the pump unit. Additionally, this ATEX manual highlights some topics that need extra attention for safe operation in a potentially explosive environment.

1.2 Original instructions

The original instructions for this manual have been written in English. Other language versions of this manual are a translation of the original instructions.

1.3 Other supplied documentation

Documentation of components such as:

- Pump,
- Gearbox,
- Electric motor,

are not included in this manual. However if additional documentation is supplied, you must follow the instructions in this additional documentation first. The manuals of the listed components are available on the Internet or are supplied with the product. In case of doubt, contact your representative of Watson-Marlow Bredel B.V. (hereafter called Bredel).

1.4 Symbols

In this manual the following symbols are used:

	**WARNING** Procedures which, if not carried out with the necessary care, may result in serious bodily harm.

	**CAUTION** Procedures which, if not carried out with the necessary care, may result in serious damage to the hose pump, the surrounding area or the environment.

	**CAUTION** Remarks on environment and disposal of waste.

	Remarks, suggestions and advice.

2 ATEX

2.1 Introduction

There are two ATEX (ATmopsheres EXplosives) Directives:
Directive 1999/92/EC – also referred to as ATEX 153 – deals with the minimum requirements to improve the safety and health protection of workers potentially at risk of explosive atmospheres.
Directive 2014/34/EU – also referred to as ATEX 114 – deals with equipment and protective systems intended for use in potentially explosive atmospheres. This manual is applicable to ATEX 114.

This ATEX manual covers the main issues concerning explosion protection and must be used in combination with the other manuals supplied with the product.

WARNING
Explosive gas mixtures or concentrations of dust, in conjunction with hot, live and moving parts on the product, can lead to severe or fatal personal injuries.

Installation, operation and maintenance actions may only be performed by qualified personnel while taking the following into account:

- These instructions, together with all other available instructions for the product;
- Warning and information signs on the product;
- The specific regulations and requirements for the system in which the product will operate.

2.2 ATEX code

The ATEX code consists of the group, category, ignition protection marking and temperature class.
An example of an ATEX code is *II 2GD ckb T4*. This example is explained in the table below.

Item	Example	Explanation	Refer to
Group	II	Group II equipment	§ 2.4
Category	2GD	Category 2 for G(as) and D(ust)	§ 2.5
Ignition protection marking	ckb	Ignition protection by: c = constructional safety k = liquid immersion b = monitoring	§ 2.7.1
Temperature class	T4	Maximum surface temperature < 135 °C	§ 2.6

2.3 Zone classification

Areas with an explosive environment are classified into zones (0, 1, 2 for gas-vapour-mist and 20, 21, 22 for dust) and must be protected from effective sources of ignition.
The zone determines which product categories are permitted here.

The zone classifications are:

Zone	Description	Category
	Gasses and vapours	
0	An explosive gas mixture is present for > 1000 hrs/year	1G
1	An explosive gas mixture is present between 10 - 1000 hrs/year	2G
2	An explosive gas mixture is present for < 10 hrs/year	3G
	Dust	
20	An explosive dust cloud is present for > 1000 hrs/year	1D
21	An explosive dust cloud is present between 10 - 1000 hrs/year	2D
22	An explosive dust cloud is present for < 10 hrs/year	3D*

* 2D for conductive dust

2.4 Group

Within the ATEX 114, there are two equipment groups:

- Group I: equipments used underground.
- Group II: equipment used in all other locations

The groups are sub-divided into categories, distinguishing between ignition prevention under normal and exceptional circumstances.

2.5 Category

The zone in which the pump will be used determines the category to which the pump must comply.

Category 2 comprises products designed to be capable of remaining within their operational parameters, stated by the manufacturer, and based on a high level of protection for their intended use, in areas in which explosive atmospheres caused by mixtures of air and gases, vapours, mists or air/dust mixtures are likely to occur. The explosion protection relating to this Category must function in such a way as to provide a sufficient level of safety even in the event of equipment with operating faults or in dangerous operating conditions which normally have to be taken into account.

2.6 Temperature class

The temperature class defines the maximal surface temperature of the product. This temperature must be less than the ignition temperature of the flammable environment in which the product is operating.

Temperature class	Max. surface temperature [°C]
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

WARNING
In case there is a significant risk of dust formation on the pump housing, gear box and/or motor, make sure the surface temperatures do not exceed any limit that is set by the dust.

2.7 Control of ignition sources

2.7.1 Introduction

In the European ATEX directive, an effective ignition source is an event, which, in combination with sufficient oxygen and fuel in gas, mist, vapour or dust formation, can cause an explosion. Methane, hydrogen or coal dust are examples of possible fuels.
Possible ignition sources are:

- mechanically-generated sparks
- sparks caused by static electricity
- hot surfaces

If you remove these ignition sources, ignition can be prevented.
A risk analysis has been carried out according to NEN-EN-13463 to identify the potential ignition sources and define mitigation.
The following standards are used in the risk assessment:

- NEN-EN 1127-1
- NEN-EN 13463 part 1, 5, 6 and 8
- NPR-CLC/TR 50404

The chosen construction methods (protection class) to reduce the residual risks to an acceptable level are:

- b, ignition prevention by monitoring
- k, ignition prevention by liquid immersion
- c, ignition prevention by constructional safety

2.7.2 Ignition prevention by monitoring (b)

It is highly recommended to use sensors to detect a potentially dangerous situation in time.
Sensors or other prevention systems must not be an ignition source themselves.

WARNING
Only use sensors that are approved by ATEX standards!
The classification should be similar or higher than that of the pump. Please check the category and temperature class. In case of doubt, contact your Bredel representative.

In many industries the term SIL (Safety Integrity Level) is used. However, the ATEX standard refers to IPL (Ignition Prevention Level) classes.
The relationship between IPL and SIL classes is:

- IPL1 is similar to SIL1 equipment;
- IPL2 is similar to SIL2 equipment.

The IPL classes are described in NEN-EN 13463-6.
IPL1 systems are based on proven technology and methods. In addition to that IPL2 systems also function in case of a single fault in the ignition prevention system (redundancy).
The high and low level switches available on Bredel pumps are IPL1 class.

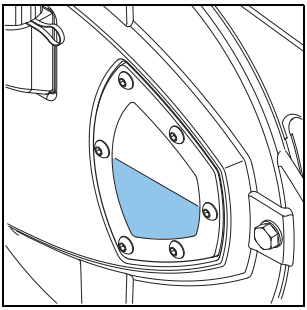
The table below shows per equipment category which IPL class is required.

Ignition prevention (b)	Category 3	Category 2	Category 1
Normal operation	IPL1	IPL2	not applicable
Expected malfunctioning	not applicable	IPL1	IPL2
Rare malfunctioning	not applicable	not applicable	IPL1

2.7.3 Liquid immersion (k)

WARNING
During the operation of the pump, the lubricant level in the pump housing must be above a minimum fluid level.

The minimum fluid level can be determined at standstill. At standstill, the fluid level should be above the minimum fluid level as indicated at the inspection window.



There is a special situation in which the inspection window cannot be used to check the lubricant level.
This is the case:
- For medium- and large-sized pumps with a hose bore of 40 mm and larger; and
- When the orientation of the pump-head is in position 3 or 4, the hose connection flanges are facing towards the top or bottom respectively. Refer to § 3.2.

It is advised to use a level sensor to monitor the minimum fluid level. Refer to § 2.7.2 and § 3.2.

Not all pump types offer the option of minimum level detection. In case of doubt, contact your Bredel representative.

2.7.4 Constructional safety (c)

The pumps are designed with various constructional safety measures, such as:

- Internal moving parts are greased or lubricated to prevent frictional heating to unacceptable levels.
- Pump parts are engineered and dimensioned to prevent fracture under severe operating conditions.
- Where possible conductive materials are applied and non-conductive materials are used for small parts and are not capable of accumulating any capacitive charge.
- The pump hoses are of the semi-conductive type. No charge is built up. Any potential charge is conducted via the piping and pump to the ground.

2.8 Monitoring

If good functioning and maximum allowable surface temperatures cannot be ensured by regular inspection by the operator, suitable monitoring devices must be used, such as temperature and liquid level sensors.

2.9 Ordering spare parts

In case the pump is an ATEX version this must be mentioned explicitly when ordering spare parts.

2.10 Environment and disposal of waste

	**CAUTION** Always observe the local rules and regulations with respect to processing (non reusable) parts of the hose pump.

Enquire within your local government about the possibilities for reuse or environment-friendly processing of packaging materials, (contaminated) lubricant and oil.

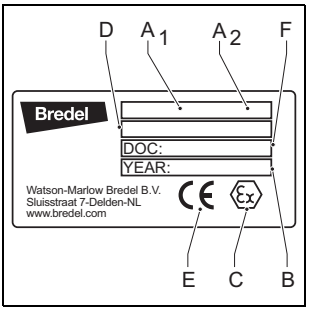
3 ATEX EFFECTS ON PUMPS AND DRIVES

3.1 ATEX classification on the pumphead

3.1.1 Pump size 25 - 2100

	Each ATEX pump drive selection will be carried out by Bredel.

A1: Pump type
A2: Serial number
B: Year of manufacture
C: Ex: protection according to EN 13463-1
D: ATEX code (refer to § 2.2)
E: CE mark
F: Construction file

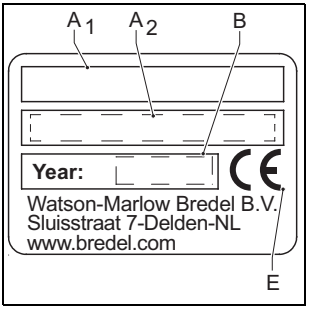


3.1.2 Pump size 10 - 20

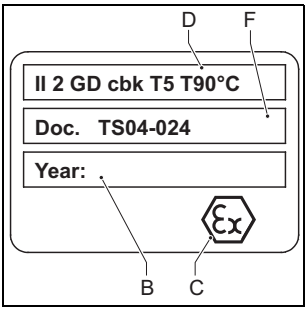
	Each ATEX pump drive selection will be carried out by Bredel.

On small pumps, the additional ATEX classification is indicated on a separate name plate.

A1: Pump type
A2: Serial number
B: Year of manufacture
E: CE mark



B: Year of manufacture
C: Ex: protection according to EN 13463-1
D: ATEX code (refer to § 2.2)
F: Construction file



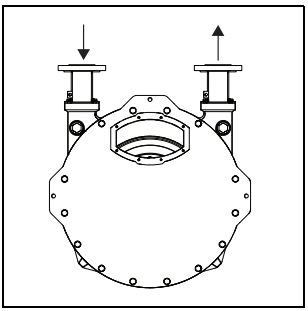
3.2 Lubricant level detection

3.2.1 Normal situations

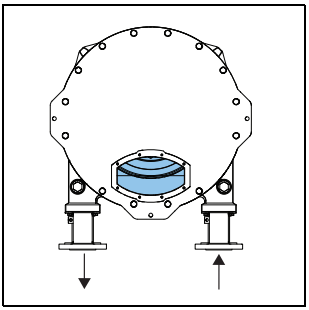
It is strongly advised to use lubricant level detection by means of a low-level switch. However, it is not mandatory for Group II, category 2 equipment.
The minimum requirement is the monitoring of the fluid level via the inspection window in the pump cover.
In case of using lubricant level detection, the minimum allowable lubricant level is below the minimum level as indicated on the inspection window on the cover.

3.2.2 Special situations

For the Bredel pumps it is possible to place the pumphead with the hose connection facing upward or downwards (+/- 90° rotated from the default position).
In case of the Bredel 40 - 2100, the cover has to rotate 90° as well and the inspection window is no longer suitable for visual inspection of the lubricant level. Refer to the figures.



For these positions, the pump must be equipped with low- and high-level switches for detecting the fluid level (limits).



3.3 Lubricant

The special Genuine Bredel hose lubricant has a flashpoint well above 150 °C and an auto ignition temperature of more than 300 °C.

3.4 Drive

Typical modifications to a drive to make it suitable for use in a potentially explosive environment are:

- A strengthened construction;
- Power derating; or
- Increase of ingress protection class (IP rating).

	Refer to the documentation of the drive for specific product information about operating in a potentially explosive environment.

3.5 Gearbox

Typical modifications to a gearbox to make it suitable for use in a potentially explosive environment are:

- Increased oil level;
- Use of low friction seals; and
- Monitoring with extra sensors.

Sometimes no special measures are needed.

	Refer to the documentation of the gearbox for specific product information about operating in a potentially explosive environment.

3.6 Sensors

	**WARNING** When using sensors for speed detection and/or level detection, make sure these are properly connected according to the local regulations applicable to electrical systems in an explosive environment.

The speed sensors are available in special Ex version to make them suitable for use in a potentially explosive environment. This type of speed sensors is to be used in combination with an additional isolating switching amplifier.

The sensors used for level detection are suitable for use in an explosive environment, but these sensors operate at a lower voltage: 28 V instead of 230 V. In case of doubt, contact your Bredel representative.

3.7 Pulsation damper

	**WARNING** When operating a pump with a pulsation damper in an explosive environment, make sure this part is not electrically isolated from the piping. The resistance to earth must be less than 1 MOhm.

The pulsation damper is not classed as ATEX equipment since it contains no ignition sources. It is considered as part of the pump and the ATEX code for the pump is applicable, which means it can operate under the same ATEX environment as the pump it is attached to.
Make sure the pulsation damper is installed, operated and maintained according to the instructions as supplied with the pulsation damper.

4 INSTALLATION AND COMMISSIONING

4.1 Working environment

Before installing the pump, always check the identification plate of the pump. The ATEX classification must correspond with the conditions of the working environment.

4.2 Installing the motor

1. Make sure the motor is suitable for use in a potentially explosive environment.

2. Make sure that the motor is properly connected to the mains power supply. Refer to the motor manual for the appropriate instructions.

3. Make sure the ingress protection level (IP class) is sufficient.

	**WARNING** The power supply must include an earth connection.

	Refer to the motor manual for specific instructions.

4.3 Installing the gearbox

1. Check the product documentation of the gearbox for any additional instructions for use in an explosive environment.

	Refer to the gearbox manual for specific instructions.

4.4 Pumphead

There are no isolated conductive parts in the pump. By construction, all parts are electrically connected. The pump should be connected to the earth/ground via the earth connection of the electric motor.

	**WARNING** When using another type of drive or in case it is not possible to create an earth/ ground connection with less than 1 MOhm, one should make an additional PE (protective earth) connection with the pump unit. Refer to § 4.5.

1. Check the type plate on the pumphead. The Ex code should match (or exceed) that of the zone requirements.

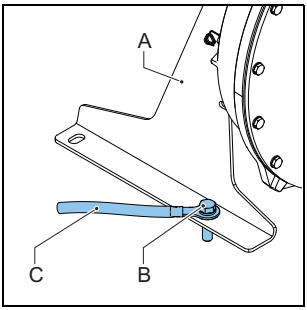
2. Remove any dust from the surface.

3. Check the lubricant level in the pump.

4.5 Grounding the pump unit

If you need to make a PE connection from the pump to the ground other than by using the earth/ground connection of the motor terminal box, carry out the following procedure.

1. Use the base frame (A) to make the PE connection.
2. Slightly loosen one of the bolts (B) that attaches the pump unit to the surface.
3. Connect the PE wire (C) to the bolt.
4. Fasten the bolt.
5. Connect the PE wire to earth.

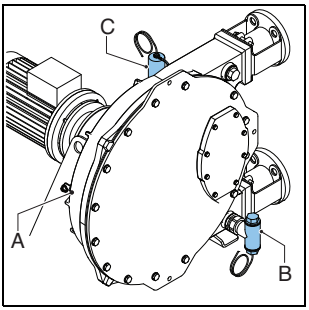


5 OPERATION

5.1 Start-up

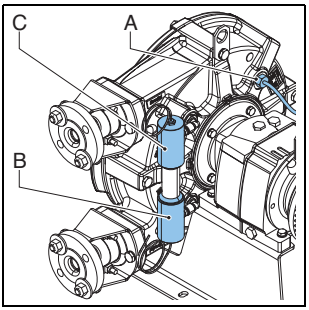
5.1.1 Sensors

1. Check if the revolution counter (A), the low level switch (B) and the high level switch (C) are connected to the Programmable Logic Controller (PLC) or directly hardwired to the drive to make sure that the pump remains within the safe working limits.



	The specific conditions in which the pump must operate determine the need for any of the sensors A, B and/or C.

2. Check if the level switches function properly. Refer to § 6.2.



5.1.2 Lubricant

1. Check the lubricant level.

	The fluid level must be within the range as indicated by the minimum and maximum indicators on the inspection window. Refer to the product manual for further details. Also refer to § 3.2.

5.1.3 The hose

A pump with a new hose will initially heat up to a temperature of 10 °C to 20 °C above the longterm average pump temperature for that specific running condition. After a while the temperature stabilizes. The effect takes place within several hours up to one day. This is a normal process and is covered within the temperature class of the pump.
The hoses are made of rubber and are all semi-conductive. These hoses can be used for group II equipment in category 2.

5.1.4 Before starting up the pump unit

1. Before starting up the system, check if:
   1 Nothing obstructs the flow line;
   2 The flow direction is correct;
   3 The pump is installed correctly and according to the instructions. Refer to the product manual.

	**CAUTION** Avoid dry running! The pump must not operate without the process flow going through the pump. Dry running is only allowed for short periods of time, such as when exchanging the hose.

5.2 Operating range of the pump

1. Make sure that the pump operates within the allowable limits as stated in the user manual of the pump.

	In case of intermittent operation, stick to the indicated periods for operation and standstill. This to make sure that the operating temperatures remain within the allowable limits.

	**WARNING** The operating range of the pump must not exceed the allowable limits.

6 MAINTENANCE

6.1 Periodic inspection

6.1.1 Introduction

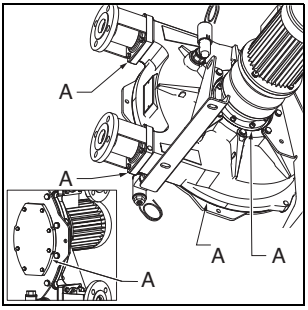
1. Carry out the periodic inspections as given in the user manual of the pump. In case of doubt, contact your Bredel representative.

2. In case of operating the pump in a potentially explosive environment, pay extra attention to:
   - Fluid leakage
   - Leakage zone
   - Lubricant detection level
   - Surface temperatures
   - Dust deposits
   - Bearings

   Refer to the next paragraphs on how to carry out this specific maintenance work.

6.1.2 Fluid leakage

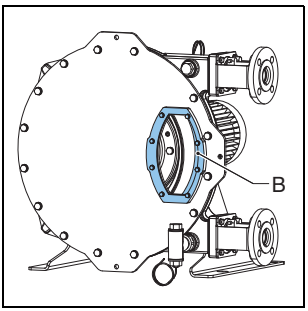
1. Daily check the pump unit for signs of lubricant leakage at positions A.



2. In case of lubricant leakage, immediately check the lubricant level (B).

3. Shut down the pump if the lubricant level is too low.

4. Add new lubricant.



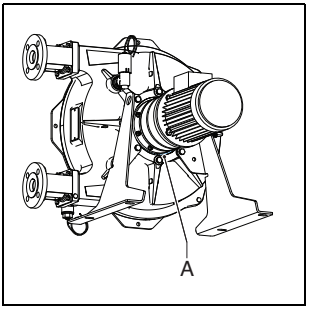
5. Determine the size of the leakage. If the pump needs to be filled up weekly, this is a sign of a worn seal.

ℹ	The pump can operate with a worn seal, but it is not recommended due to the increasing risk of dry running and the risk of consequential damage to the bearings.

6. In case of a worn seal, replace the seal. Refer to the instructions in the product manual.

6.1.3 Leakage detection zone

1. Make sure the leakage detection zone (A) is free from obstructions and is not clogged with dirt.



2. If necessary, clean the holes of the leakage detection zone.

3. Check if drops of lubricant are visible at the exit of the leakage detection zone. This can indicate a worn or damaged seal.

⚠	**CAUTION** The replacement of seals must be done by well-trained personnel only.

6.1.4 Lubricant detection level

1. Check the lubricant level through the inspection window daily or use a low-level switch.

ℹ	It is advised to use a level switch to continuously monitor the fluid level. Refer to § 3.2 and § 6.2.

2. If a level switch is used, check the condition and operation of this sensor monthly. Refer to § 6.2.

6.1.5 Surface temperatures

1. Check the surface temperature of the pumphead daily.
   The pump is designed to make sure the surface temperatures under normal operating conditions remain below 90 °C. This limit is set by the material of the hose.

WARNING
The surface temperatures may not exceed 90 °C. Stop the pump if the temperature exceeds this temperature.

2. Check the surface temperatures of the drive and gearbox daily. The drive and gearbox temperatures should remain below the temperature limit as indicated on the identification plate. If the temperatures exceed that limit:
   1. Check if the pump operates within the allowable limits of speed and pressure.
   2. Check the condition of the gearbox, drive and pumphead. Refer to the relevant product manuals for details on the necessary inspections.

3. Check the oil level of the gearbox. Refer to the gearbox manual for adviced inspection intervals.

6.1.6 Bearings

	Bearings are greased for life and have integrated seals to prevent ingress of dirt. These bearings do not need maintenance during their operating life.

1. It is adviced to check the condition of the bearings during each seal replacement. Check the bearings for strange noises, clearance and wear.

2. If necessary, replace the bearings.

6.1.7 Level detection

The configuration of the level detection systems depends on the pump type. All Bredel pumps offer the possibility for a separate high level detection switch. However in case of low level detection, the Bredel 25-32 series has a combined high and low level detection assembly. The small pumps up to size 20 do not have the option of low level detection.
If available, the use of a low level switch is recommended. Refer to § 6.2.

	**WARNING** Make sure that the level switch is suitable for use in a potentially explosive environment. In case of doubt, contact your Bredel representative.

6.2 Inspection of the level switches

6.2.1 Introduction

The procedure of the inspection of the level switches depends on the type of Bredel pump.
All Bredel pumps offer the option for high lubricant level detection.

- The Bredel 40-2100 series offers the option of a separate high and low lubricant level detection.
- The Bredel 25-32 series only offers the low lubricant level detection in combination with the high lubricant level detection.

Inspection of the high level switch

Check the functioning of the high level switch every two months.
Refer to § 6.2.2 and § 6.2.3 (Bredel series 25-32).

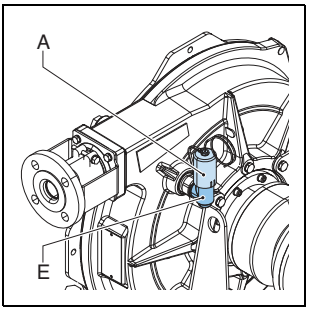
Inspection of the low level switch

Check the functioning of the low level switch every two months. This inspection can be done whilst draining the pump housing.
Refer to § 6.2.4 (Bredel series 40-2100) and § 6.2.5 (Bredel series 25-32).

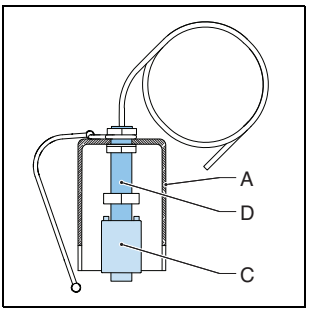
	In case the service interval on hose exchanges does not exceed a period of two months, the inspection of the low level switch can be combined with the hose replacement. Refer to the product manual.

6.2.2 Inspection of the high level switch

1. Remove the sensor cap (A) and the sensor from the sensor housing (E).



2. Move the floater body (C) to trigger a trip signal.



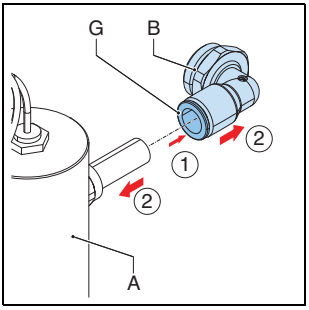
	The floater body should move easily along the sensor stem (D).

3. In case of strong fouling, it is advised to remove the sensor (C, D) from the sensor cap (A). Clean the sensor. Use some water and a dry cloth.

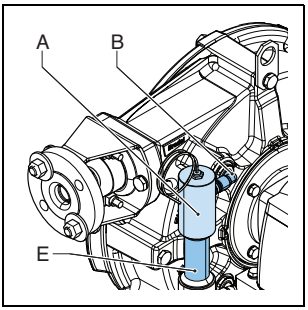
4. Place the sensor (C, D) and sensor cap (A) back on the sensor housing (E).

6.2.3 Inspection of the high level switch (Bredel series 25-32 with combined high and low level switch)

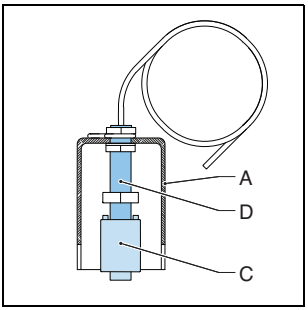
1. Disconnect the sensor cap (A) from the elbow fitting (B) by pushing back the spring supported ring (G) and simultaniously pulling the sensor cap to the side.



2. Remove the sensor cap (A) and sensor from the sensor housing (E).



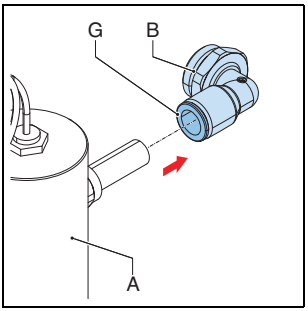
3. Move the floater body (C) to trigger a trip signal.



	The floater body should move easily along the sensor stem (D).

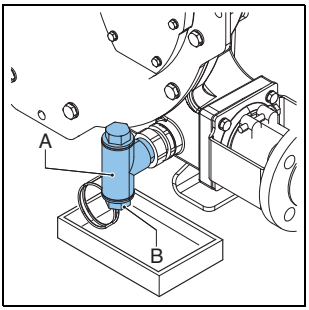
4. If necessary, clean the sensor (C, D), the sensor cap (A) and the sensor housing (E). Use some water and a dry cloth.

5. Connect the sensor cap (A) and sensor by pushing the sensor cap into the elbow fitting (B).



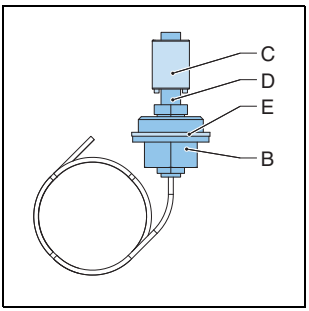
6.2.4 Inspection of the low level switch

1. Place a tray under the sensor. Drain the lubricant from the pump housing by removing the sensor and nut (B) from the sensor housing (A).



	This should trigger a trip signal from the low level switch.

2. Move the floater body (C) to trigger a trip signal.



	The floater body should move easily along the sensor stem (D).

3. If necessary, clean the sensor (C, D) and the sensor housing (A) Use some water and a dry cloth.

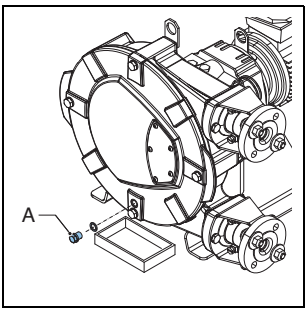
4. Inspect the seal (E). If necessary, replace the seal.

5. Place the sensor and nut (B) back. If necessary, apply some sealant to the thread.

6. Fill the pump with Genuine Bredel Lubricant (see the product manual for details).

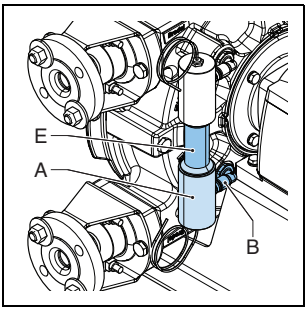
6.2.5 Inspection of the low level switch (Bredel series 25-32 with combined high and low level switch)

1. Place a tray under the pump housing. Drain the lubricant from the pump by removing the drain plug (A).



	This should trigger a trip signal from the low level switch.

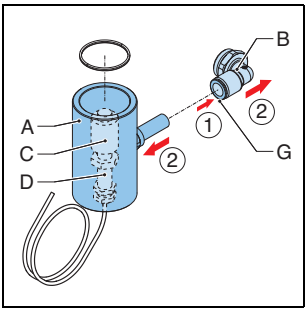
2. If necessary, remove the sensor for cleaning and inspection.



3. Remove the sensor cap (A) by pushing back the spring supported ring (G) on the coupling (B) and simultaniously pull the sensor cap (A) to the side.

4. Remove the sensor cap (A) and the sensor (C, D) from the sensor housing (E).

5. In case of strong fouling, it is advised to remove the sensor (C, D) from the sensor cap (A). Clean the sensor. Use some water and a dry cloth.

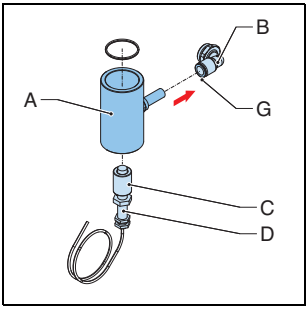


6. Move the floater body (C) to trigger a trip signal.

	The floater body (C) should move easily along the sensor stem (D).

7. Place the sensor (C, D) and sensor cap (A) back by pushing the sensor cap into the elbow fitting (B).

8. Fill the pump with Genuine Bredel Lubricant (see the product manual for details).



6.3 Cleaning instructions

6.3.1 Cleaning the exterior of the pump

	**WARNING** Make sure to comply with the company rules for ATEX and make sure to avoid any static electricity during the cleaning.

	It is adviced to use (hot) water for cleaning. If necessary, it is possible to use mild cleaning agents. Please make sure these agents do not chemically attack the pump hose. In case of doubt, contact your Bredel representative

1. Wipe off dust deposits with a wet cloth. The dust layer must be less than 5 mm during operation.

2. Clean the exterior of the pump unit. Refer to the user manual of the pump.

3. Hose the pump with clean water.

	**CAUTION** Do not use high-pressure cleaning.

	**CAUTION** Do not aim the water jet directly on the hole for the leakage zone. This could lead to a fouled bearing cavity.

	**CAUTION** Do not use cleaning agents that may damage the pump hose.

6.3.2 Cleaning the interior of the pump

1. Clean the interior of the pump. Depending on the pumped process fluid, use clean water or a standard cleaning agent. Refer to the product manual.

	**CAUTION** Make sure all dirt is removed since this can damage the seal.

6.4 Replacing parts of the pump

6.4.1 Hose exchange

1. Drain and clean the pump housing thoroughly after a hose failure.

2. Check the interior of the pump casing and the pressing shoes for signs of damage or wear.

	Excessive wear can be a sign that the pumping conditions are not optimal. This can possibly lead to higher thermal loads than necessary and shorten the hose life.

3. In case of positive suction pressure, carry out the hose clamping instructions. Refer to § 6.4.2.

	The following bolting torques must match the values as listed in the user manual of the pump: • Mounting bolts of the pressing shoes (not for all models) • Bolts of the hose clamps

6.4.2 Hose clamping instructions

1. Make sure that the hose connection is sealed and cannot be pulled off from the insert during normal operation.

2. Follow the standard instructions for fitting the pump hose and hose clamp in the user manual of the pump.

	The standard instructions are sufficient, however under conditions of positive suction pressure and very viscous fluids, it is advised to place a second hose clamp next to the first hose clamp. Contact your Bredel representative for details.

EU DECLARATION OF CONFORMITY

as defined by EU Directive 2014/34/EU

We,

Watson-Marlow Bredel B.V.,

herewith declare, on our own responsibility that the following machinery conforms with the provisions of Directive 2014/34/EU (ATEX) for Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres:

Peristaltic hose pump series:	Equipment group II, category 2
APEX10-20:	II 2GD ckb T5
Bredel 10-20:	II 2GD ckb T5
DuCoNite 10-20:	II 2GD ckb T5
APEX28-35:	II 2G ckb T4
Bredel 25-32:	II 2GD ckb T4
DuCoNite 25-32:	II 2GD ckb T4
Bredel 40-2100:	II 2G ckb T4

The documents according to Directive 2014/34/EU have been deposited with
DEKRA Certification, The Netherlands
Document numbers: TS03-008, TS03-009, TS04-024, TS13-019, TS14-021
Harmonised standards used:

EN 1127-1
EN 13463-1, EN 13463-5, EN 13463-6, EN 13463-8
NPR-CLC/TR50404
EN 50014
EN 50018
EN 50019

The undersigned is responsible for compilation of the technical file and makes this declaration on behalf of the manufacturer.

J. van den Heuvel
Managing Director

Watson-Marlow Bredel B.V.
Sluisstraat 7, 7491 GA Delden, The Netherlands
1 September 2016

SAFETY FORM

Product Use and Decontamination Declaration

A complaint will only be handled by Bredel if this Safety Form is fully completed and digitally send to Bredel before shipment is activated. A hardcopy of this form is to be attached to the outside of the packaging including MSDS sheet or similar safety information sheet if applicable for each item returned.

In compliance with our **Health & Safety Regulations**, the user is required to declare any substances that have been in contact with the item(s) being returned to Watson-Marlow Bredel B.V. or any of its subsidiaries or distributors. Not following these requirements may lead to delays in service and/ or response time. Full completion of this form assures we are provided with necessary information before receipt of the item(s) being returned. A hardcopy of the completed form must be attached to **the outside of the packaging** containing the item(s). The sender of the item(s) is responsible for cleaning and decontaminating of the item(s) before returning them in such way that it is safe for the receiver to open the packaging and handle the item(s).

Complaint number:.....

1 Company.....

Address..... Postal code.....

Contact person ..... Email address.....

Telephone..... Fax number .....

2. Product.....

2.1 Serial Number.....

2.2 Has the Product been used?

YES ☐ NO ☐

If yes, please complete all the following paragraphs.

If no, please complete paragraph 5 only.

3. Details of substances pumped

3.1 Chemical Names:

a) .....

b) .....

c) .....

d) .....

3.2 Precautions to be taken in handling these substances:

a) .....

b) .....

c) .....

d) .....

3.2 Action to be taken in the event of human contact:

a) .....

b) .....

c) .....

d) .....

3.4 Cleaning fluid to be used if residue of chemical is found during servicing:

a) .....

b) .....

c) .....

d) .....

4 I hereby confirm that the only substances(s) that the equipment specified has pumped or come into contact with are those named, that the information given is correct, and the carrier has been informed if the consignment is of a hazardous nature. All package content is 100% asbestos free.

YES ☐ NO ☐

5 Signed.....

Name.....

Position .....

Date.....

Note:

To assist us in our servicing please describe any fault condition you have witnessed.

.....

.....

.....

Quantity of sheets attached:.....

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