

GEA Cleaning Technology

Inline Sprayer IS 25 ATEX Version

Operating instruction (Translation from the original language)
430BAL013085EN_4

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1 General Information

1.1 Information about this document

The present Operating Instructions are part of the user information for the component.

1.1.1 Binding Character of These Operating Instructions

These Operating Instructions contain the manufacturer's instructions to the operator of the product and to all persons who work on or use the product regarding the procedures to follow.

Carefully read these Operating Instructions before starting any work on or using the product. Your personal safety and the safety of the product can only be ensured if you act as described in the Operating Instructions.

Store the Operating Instructions in such a way that they are accessible to the operator and the operating staff during the entire life cycle of the product. When the location is changed or the product is sold make sure you also provide the Operating Instructions.

1.1.2 Validity of the Instruction manual

The instruction manual is valid exclusively for cleaners which are to be used in explosive atmospheres.

The approved cleaners are suitable for operation in potentially explosive atmospheres, taking into account the relevant regulations and the manufacturer's declaration or declaration of conformity.

Use in potentially explosive atmospheres must be specified when ordering, as the ATEX cleaners may be slightly modified in this regard and are labelled accordingly.

Their conformity, and therefore, their suitability for the intended purpose with regard to the safety of the product in which they are installed must be assessed in the conformity assessment of the entire product.

The ATEX version of the cleaner may only be safely used in hazardous areas for the intended area. This manual contains basic instructions for the use of the cleaner in potentially explosive atmospheres. This document is a supplement to the general standard operating instructions for the cleaner and is therefore to be considered part of it. These additional operating instructions must be observed before installation and commissioning. The operating instructions must always be available at the cleaner/system site.

1.2 Manufacturer address

GEA Tuchenhausen GmbH
Am Industriepark 2-10
21514 Büchen

1.3 Contact

Tel.: +49 4155 49-0
Fax: +49 4155 49-2035

flowcomponents@gea.com

www.gea.com

2 Safety

2.1 Intended use

The cleaner is intended for the cleaning of tanks and vessels. This cleaner was designed for the installation and operation at any angle. Using the device for any other purpose is considered contrary to its designated use.

The cleaner is intended only for operation with supply of liquid medium. Exposure to air, other gaseous media or steam is also not permitted, even for a short time.



Hint!

The manufacturer will not accept any liability for damage resulting from any use of the cleaner which is not in accordance with its designated use. The risk is borne solely by the operating company.

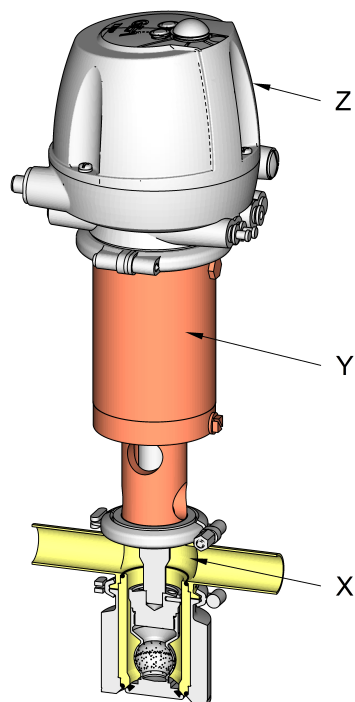


Fig.1

Interior (X):	Does not have its own potential ignition source and do not fall within the scope of 2014/34/EU
Exterior (Y):	Has its own potential ignition source and falls within the scope of 2014/34/EU
Control top (Z):	Not part of these operating instructions. The selectable explosion-proof control top has its own conformity within the sense of 2014/34/EU.

2.1.1 Ex-version and marking

The ignition hazard assessment has shown that the interior devices - area in contact with the product, such as housing and cleaner insert - do not have their own potential ignition source. Therefore, the interior of the cleaner does not fall within the scope of ATEX 2014/34/EU (ATEX).

In very rare cases, the drive unit - pneumatic drive, lantern - can pose an ignition risk. Therefore, the drive unit falls under directive 2014/34/EU and is marked accordingly. ATEX classification in accordance with directive 2014/34/EU is confirmed with the declaration of conformity (page XY ..). A corresponding ATEX marking can be found on the type plate. This marking is valid for the complete cleaner.

Generally valid type plate

GEA Tuchenhagen GmbH
Am Industriepark 2-10, 21514 Büchen, Germany

CE Ex II 2G Ex h IIB T6...T3 Gb X
II 2D Ex h IIB T135°C Db X

GEA

Type

Serial

Mat.

Air bar/psi min. / max. / 2022

PS bar/psi 1 / 2 / 3 /

CE

Fig.2

2.1.2 Restrictions on usable substances

The cleaner is intended only for operation with supply of liquid medium. Exposure to air, other gaseous media or steam is also not permitted, even for a short time. The operation and the cleaning with substances of explosion subgroup IIC and isolating materials is not permitted. The restriction according to the marking still applies.

2.1.3 Requirements for operation

The prerequisite for reliable and safe operation of the component is proper transportation and storage as well as professional installation and assembly. Operating the unit within the limits of its designated use also involves adhering to the operating, inspection and maintenance instructions.

2.1.4 Special attention

The following must be observed for the intended use in potentially explosive atmospheres:

- Hot surfaces are created only by the medium itself. The resulting ignition risks must be determined, assessed and remedied by the user with regard to the potentially explosive atmosphere.
See also chapter "temperature classes" (Section 3.2, Page 14).
- Media reacting exothermally or that ignite themselves must not be used.

- Sensors, electric attachments or other attachments must be suited for the existing zone and must be subjected independently to an ATEX ignition risk analysis. These attachments are not part of the cleaners evaluated here.



Hint!

All attachments that are not part of the cleaner, must be subjected to an own assessment according to the directive 2014/34/EU.

- The entire environment and the installation of the cleaner must be carried out by the user according to the provisions and regulations in force and in particular be equipped with a suitable potential equalisation.
- Ignition risks due to lightning strikes, electromagnetic waves affecting the device and other radiation that affect the device from the outside must be taken into consideration by the user.
- When closing the valve in the direction of the flow, the valve disk can be pressed abruptly into the valve seat. The resulting pressure peaks/pressure shocks can damage plant components.

The operator must ensure that the cleaner is closed only against the direction of flow. If closing the cleaner in the direction of flow is necessary, the cleaner must be switched to a flow-free or depressurised state. Any pressure shocks in the system must be avoided.

2.1.5 Servicing

Authorized personnel / OEM replacement parts

The cleaners may only be serviced and repaired by authorized personnel. Only OEM spare parts intended for use in explosion-hazarded zones must be used. These must be requested with a note on ATEX use from GEA Tuchenhagen.

If OEM spare parts are not used for applications in explosion-hazarded zones, the enclosed ATEX declarations lose their validity and their use in explosion-hazarded zones is no longer permitted.

If the approval for use in explosion hazard zones is on the type plate, please specify this on your spare parts order.

Service life of the actuator

The actuator is designed according to constructive safety. The actuator must be replaced after 500,000 switching operations, however after 5 years at the latest. The operator must monitor the switching number control using appropriate measures.

Maintenance must be performed at regular intervals. Worn parts must be replaced with Tuchenhagen genuine spare parts.

Ensure that liquids and cleaning media cannot seep inside the actuator.

The type plate is usually on the actuators. When ordering spare actuators, always request a new type plate. The type plate includes the corresponding serial number as well as the corresponding ATEX marking. See also Section 2.1.1, Page 8.

2.1.6 Improper operating conditions

The operational reliability of the cleaner cannot be ensured under improper operating conditions. Therefore avoid improper operating conditions.

Operating the cleaner is not permitted if

- Persons or objects are in the danger zone.
- Safety devices are not working or were removed.
- Malfunctions have been detected on the cleaner.
- Damage has been detected on the cleaner.
- Maintenance intervals have been exceeded.

2.1.7 Conversion Work

You should never make any technical modifications to the cleaner. Otherwise you will have to undergo a new conformity process in accordance with the EC Machinery Directive on your own.

In general, only genuine spare parts supplied by GEA Tuchenhausen GmbH should be fitted.

2.2 Safety precautions

Please heed the following notes

- Conformity applies only to cleaners without electrical components.
- Before putting the cleaner into operation, make sure that nobody can be endangered by the cleaner's running.
- Never operate the cleaner outside the object to be cleaned.
- Squirting cleaning liquids can endanger people and cause damage to property.
- The cleaners may only be operated if cleaning fluid is supplied.
- The cleaner must not be exposed to gas and vapour instead of liquid, not even briefly when starting the cleaning process and emptying pipes.
- The cleaners must be filled unpressurised with cleaning liquid. A sudden start can lead to damage and thus to an ignition source. Pressure surges are to be avoided.
- In the event of malfunctions, shut down the cleaner (disconnect from the power, air and fluids supplies) and secure it against further use. Defects are to be rectified immediately.
- The maximum operating conditions must be observed and monitored. There is the risk of excessive charge formation, increased wear and leakages, see Section 5.2, Page 19.
- Observe the safety data sheets supplied by the detergent manufacturers. The cleaner must only be operated with such cleaning detergents and used in such mediums against which all materials used are sufficiently resistant. The sealing materials must always be matched to the type and temperature of the cleaning medium.

- During cleaning, liquids must be discharged from the tank so that no electrostatic charges form in the liquid which could potentially accumulate. During cleaning, do not add any liquids in the container.
- At the start of tank or container cleaning, atmospheric conditions must be present inside, see table "Conditions for starting tank cleaning" (Page 11).
- The cleaning medium must be removed after spraying and must not be pumped through the cleaner again.
- The cleaner must be regularly checked for damage and function, taking into account the operating conditions. GEA recommends a visual inspection at every cleaning process.
- Maintenance of the ATEX cleaner is mandatory after a maximum of 150 operating hours. Depending on the operating conditions, the operator must specify shorter maintenance intervals or inspection intervals.
- The performed maintenance must be logged.
- The user must ensure a loss-proof lead connection into the tank. For this, GEA offers, among other things, suitable components and a mounting system.

Conditions when starting the tank cleaning	
Designation	Size
Absolute pressure	0.8...1.1 bar
Ambient temperature	See the instruction manual of the cleaner
Operating temperature	See the instruction manual of the cleaner
Temperature in the tank	See the instruction manual of the cleaner
Acidity content	Maximum of 21% by volume
Relative ambient humidity	until saturation

2.2.1 The operator

The operator is obliged to comply with the applicable laws, directives and regulations for explosion safety for the installation, assembly work and operation. (Guideline on operator responsibility RL 1999/92/EC).

The operator determines the classification according to group, category, zone, temperature class and protection principle.

The user must ensure that the cleaner is grounded. The cleaner must only be operated in approved ranges of application (EX zone, media and ambient temperature, medium, resistance, pressure).

When switching the valve and in case of a defect at the sealing materials, medium can spread into the atmosphere from the valve inside. The operator must take this into consideration when allocating zones to the installation.

The operator must ensure that the valve remains in proper condition and must therefore carry out regular maintenance adapted to the operating conditions.

2.2.2 Safety instructions for cable glands

Screwed cable glands must only be installed, operated and maintained by qualified specialists. They must be used properly in an undamaged and clean state. No changes may be effected to the screwed cable glands that are not listed expressly in this instruction manual. In particular, the replacement of the standard sealing insert with a different size is not permitted.

The cables used must be approved for the ATEX area, must not have any kinks and must be undamaged. The national installation, safety and accident prevention regulations and the safety precautions in this instruction manual must be observed for all applications with the screwed cable glands.

2.2.3 Tools

The tools used in potentially explosive zones must comply with the ATEX guidelines. The operator is responsible for this.

3 Cleaning

3.1 Basics

In the European Union, directive 2014/34/EU, also known as the ATEX directive, applies. It regulates the suitability and the putting into circulation of devices for use in potentially explosive areas.

Whereas electrical devices have always been subject to regulation in the past, non-electrical (mechanical) devices are now also covered. The manufacturer determines the suitability of the device for use in hazardous areas. If the device falls within the scope of the directive, it is classified according to its suitability, if necessary also subjected to a type examination by an appointed body and marked.

Due to the device category, the device is assigned to the ex-zone. The ex-zone is determined by the operator. The following table shows the relationship between device group, device category, device protection level and zone. A complete overview of the structure of the ex-marking can be found on the following page.

Required marking of the equipment to be used					
Potentially explosive atmosphere	Zone classification	Potentially explosive atmosphere available	Device group	Device category	EPL (device protection level)
Gas	Zone 0	Permanently, long term, often	II	1G	Ga
	Zone 1	occasionally	II	2G (1G)	Gb (Ga)
	Zone 2	Never, rarely or short-term	II	3G (2G+1G)	Gc (Ga, Gb)
Dust	Zone 20	Permanently, long term, often	II	1D	Da
	Zone 21	occasionally	II	2D (1D)	Db (Da)
	Zone 22	Never, rarely or short-term	II	3D (2D+1D)	Dc /Da, Db)

Explosion groups and examples for gases and vapours						
Explosion group	Gases and vapours - examples depending on explosion group and temperature class					
II A	Ammonia Methane Ethane Propane	Ethyl alcohol Cyclohexane n-Butane	Gasoline Diesel Fuel oil n-Hexane	Acetaldehyde		
II B	City gas Acrylonitrile	Ethylene Ethylene oxide		Ethyl ether		
II C	Hydrogen	Acetylene				Carbon disulphide
Temperature class	T1	T2	T3	T4	T5	T6
Temperature	450°C	> 300°C < 450°C	> 200°C < 300°C	> 135°C < 200°C	> 100°C < 135°C	> 85°C < 100°C

3.2 Temperature classes

The maximum surface temperature depends mainly on the operating conditions and not on the device itself.

A specification of the temperature class T1 to T6 is therefore not permissible. Therefore, the device is characterized for a range of temperature classes or a temperature range, e.g. T3 ...T6

The temperature classes define ignition ranges, according to which combustible gases and flammable liquids are classified according to their specific ignition temperature. The ignition temperature of the media can be determined from relevant tables, e.g. International Chemical Safety Cards (ICSC) <http://biade.itrust.de>.

To comply with the required temperature class, the respective maximum operating and ambient temperatures must be strictly observed and monitored:

Temperature class	Calculation	Operating conditions
T3 = 200°C	200°C – 5°C = 195°C	Operating / surface temperature: max.150°C/ (30 min.) otherwise 135°C Ambient temperature: max.45°C
T4 = 135°C	135°C – 5°C = 130°C	Operating / surface temperature: 130°C Ambient temperature: max.45°C
T5 = 100°C	100°C– 5°C = 95°C	Operating / surface temperature: 95°C Ambient temperature: max.45°C
T6 = 85°C	85°C– 5°C = 80°C	Operating / surface temperature: 80°C Ambient temperature: max.45°C

3.3 Example for an ATEX marking

The marking is carried out only if the ATEX directive can be applied, i.e. if potential ignition sources are present.

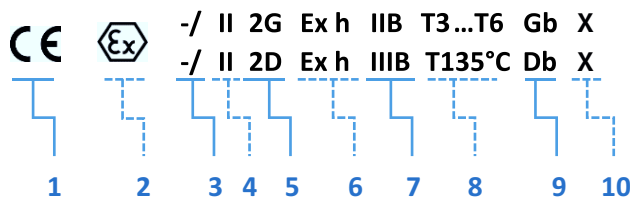


Fig.3: Example for an ATEX marking

Explanation of the example of the ATEX marking	
No	Explanation
1	CE conformity of the device / autonomous protective system (not for components intended for devices)
2	EX mark ATEX directive is applied
3	-/ Inside area does not fall within the scope of ATEX 2014/34/EU
4	Device group II (not mining)
5	Device group 2 for gases/vapours G and dusts D
6	Ex h applied ignition protection classes

Explanation of the example of the ATEX marking	
No	Explanation
7	Explosion group IIB (not mining; sub-group B)
8	T6 ...T3 temperature range (see Section 3.2, Page 14) max surface temperature +135°C (dust) see Section 3.2, Page 14
9	Gb device protection level
10	X Specific operating conditions such as operating and surface temperatures as well as switching interval of the drive

3.4 Ignition protection types

Ignition protection types		
Possible ignition protection types	Device protection levels	Standard
Basic method and requirements		DIN EN ISO 80079-36
Safety design	Ex h	DIN EN ISO 80079-37
Ignition source monitoring	Ex h	DIN EN ISO 80079-37
Liquid encapsulation	Ex h	DIN EN ISO 80079-37
Pressurised enclosure	Ex pxb; (Ex pyb; Ex pzc)	DIN EN ISO 80079-2
Protection by housing	Ex ta, (Ex tb; Ex tc)	DIN EN ISO 80079-31
Pressure-resistant enclosure	Ex da, (Ex db; Ex dc)	DIN EN ISO 80079-1

Declaration of Conformity

Translated copy of the EU Declaration of Conformity according to ATEX 2014/34/EU

4 Declaration of Conformity



EU Declaration of Conformity according to ATEX 2014/34/EU

Manufacturer: **GEA Tuchenhagen GmbH**
Am Industriepark 2-10
21514 Büchen, Germany

We hereby declare that the devices named below

Model: Retractor

Type: In-line Sprayer IS25

Design: Valid for all types without control module and without proximity switch

due to their design and construction as well as in the versions sold by us, meet the basic safety and health requirements of the following guideline:

Relevant EC directives: 2014/34/EU ATEX

Identification:

  -/II 2G Ex h IIB T3...T6 Gb X
-/II 2D Ex h IIB T135°C Db X

In the inner valve housing (product area) the equipment does not have a potential ignition source and ATEX 2014/34/EU is not applicable. In the outside area (e.g., lantern, actuator) the equipment may be used only up to the Ex-range mentioned.

Applicable harmonized standards: EN 1127-1:2019
EN ISO 80079-36:2016
EN ISO 80079-37:2016

Other applied standards and technical specifications: TRGS 727:2016

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Remarks:

- The ATEX operating instructions including the intended use and safety instructions defined therein must be observed.
- Electrical / electronic and other devices and components in connection and application with the above devices must undergo a separate conformity assessment according to ATEX.
- Substances of the explosion subgroup IIC and insulating substances are not allowed.
- X: Specific operating conditions such as operating and surface temperatures as well as change intervals for the actuator must be observed and can be found in the operating instructions.

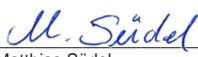
Person authorized for compilation and handover of technical documentation:

GEA Tuchenhagen GmbH
CE-Documentation officer
Am Industriepark 2-10
21514 Büchen, Germany

Büchen, 25 May 2022



Franz Bürmann
Managing Director



i.V. Matthias Südel
Senior Director Engineering/ ATEX Inspector

1/1

4.1 Translated copy of the EU Declaration of Conformity according to ATEX 2014/34/EU


Manufacturer: **GEA Tuchenhagen GmbH**
Am Industriepark 2-10
21514 Buchen, Germany

We hereby declare that the devices named below

Model: Retractor®
Types: In-Line Sprayer IS 25
Types: Valid for all types without control module and without feedback initiator

due to their design and construction as well as in the versions sold by us, meet the basic safety and health requirements of the following guideline:

Relevant EC directives: 2014/34/EU ATEX

Identification:   -/II 2G Ex h IIB T3...T6 Gb X
-/II 2D Ex h IIIB T135°C Db X

Inside the housing (areas in contact with the product), the devices do not have their own potential ignition source and do not fall within the scope of ATEX 2014/34/EU.

In the outdoor area (e.g. lantern, actuator) the devices may be used only up to the specified ex-area.

Applicable harmonized standards, in particular: EN 1127-1:2019
EN ISO 80079-36:2016
EN ISO 80079-37:2016

Other applied standards and technical specifications: TRGS 727:2016

The manufacturer bears the sole responsibility for the issuing of this declaration of conformity.

-
- Remarks:
- The ATEX operating instructions including the intended use and safety instructions defined therein must be observed.
 - Electrical / electronic and other devices and components in connection and use with the above devices must undergo a separate conformity assessment according to ATEX.
 - Substances of explosion group IIC and isolating substances are not permitted.
 - X: Specific operating conditions such as operating and surface temperatures as well as switching interval of the drives must be observed and can be found in the operating instructions.

Person authorised for compilation and handover of technical documentation: **GEA Tuchenhagen GmbH**
CE Documentation Officer
Am Industriepark 2-10
21514 Büchen, Germany

Büchen, 25. May 2022

Franz Bürmann
Managing Director

i.V. Matthias Südel
Senior Director Engineering / ATEX
Inspector

5 Cleaning

5.1 The cleaning of the tanks in explosive atmospheres

5.1.1 Basics

When cleaning containers, especially when blasting and spraying liquids, high and dangerous electrostatic charges may occur, resulting in spark discharge processes.

Impacting cleaning jets form droplets or mists during dicing that may be charged and then generate electrical charges in the container. Existing turbulences distribute the charged mist throughout the container and thus can create high space charge density with high field strengths.

At the same time, the cleaning liquid itself or the medium in the tank can be combustible and thus form an explosive atmosphere.

Thus, the three basic conditions for explosions with dangerous effects are created:

- Flammable gas / flammable dust
- Effective ignition sources
- Acid.

5.1.2 Guidelines

If there is a risk of explosion with dangerous effects, the following guidelines must be applied in all EU countries, among others: see table "Guidelines to be applied".

Applicable guidelines	
Manufacturer responsibility	Operator responsibility
Directive 2014/34/EU.	Directive 1999/92/EG.
Explanation of ATEX conformity for a product or declaration that the product has no potential sources of ignition ATEX conformity includes: Determination of the category and additional limits of use Category 1 *) ==> Category 2 *) ==> Category 3 *) ==>	Preparation of the explosion protection document for an installation: This includes: Definition of the explosion zones and the additional plant conditions For Zone 0 *) For Zone 1 *) For Zone 2 *)

*) Particular limitations must always be considered, e.g. Temperature classes.

In addition, the regulations of the local supervisory authority apply.

Outside the EU, separate and divergent regulations apply to protect against explosions and their damaging effects, e.g. in the US, the NEC National Electric Code set of rules along with the UL standards. These regulations must be applied in these countries. Some of them require their own approval procedures.

5.2 Selection of the cleaning parameters according to TRGS 727:2016

For the information, GEA Tuchenhagen GmbH assumes no responsibility. If there is a risk of explosion due to the use of cleaners, all current ATEX relevant standards and regulations must always be applied.



Hint!

The accumulation of liquid in the container during cleaning should be avoided.



Hint!

Low-conductivity liquids, such as hydrocarbons, are less charged during spraying than water because they contain only a small concentration of dissociated ions.

5.2.1 Cleaning with water jets with pressures of up to 12 bar

When cleaning with water jets up to 12 bar and with up to 20 nozzles, no dangerous charges are to be expected as long as the liquid flow rate does not exceed 7 l/s and the tank volume does not exceed 10 m³.

5.2.2 Clean with solvents of low and medium conductivity from pressures up to 12 bar

(1) When cleaning liquids of low and medium conductivity, e.g. organic solvents, are used, the proportion of a second phase, e.g. water or solid, may not exceed 1%.

(2) Cleaning agents may only be run in a closed circuit if the impurities are kept below 1%.

5.2.3 Cleaning with water jets with pressures over 12 bar

When cleaning metallic tanks covered with hydrocarbons with water jets, hazardous charges are not to be expected, as long as the working pressure falls below 500 bar, the liquid throughput is less than 5 l/s and the container diameter does not exceed 3 m.

5.2.4 Clean with solvents of medium conductivity from pressures over 12 bar

(1) When cleaning metallic containers with solvents of medium conductivity from pressures over 12 bar, hazardous charges are not to be expected, as long as the working pressure falls below 50 bar, the liquid throughput is less than 1 l/s and the container diameter does not exceed 3 m.

(2) The cleaning liquids must not contain more than 1 % liquid or solid components that could form a second phase. They must be drained during cleaning.

6 Maintenance

6.1 Putting cleaner in the tank - mechanically generated sparks

If the cleaner is not permanently installed in the tank, but is retracted or retracted automatically or manually, there is a risk of mechanically generated sparks during collisions.

To avoid sparks,

- the lowering and lifting speed must not exceed 1 m/s
- the impact energy does not exceed 500 J
- It must be avoided that the cleaner comes into contact with aluminium and other light metals.

If this can not be avoided, further requirements from the standards must be met, see EN ISO 80079-36:2016. The risk of sparks generated by single strikes must always be considered in the ignition hazard analysis of the cleaning system.

For cleaning, the cleaner must be firmly connected to the tank via a mounting flange or via a manhole cover plate.

Additional safety measures must be taken so that the cleaner starts only in the container.

Proper condition and safe handling of the device must be ensured by the operator.

6.2 Manhole cover

If a cleaner in a potentially explosive area is placed in a tank with a manhole cover plate, it must rest flat. Open ventilation holes must not be installed.

It must be taken into account that the cleaner has no flame arrester and the connection of the cleaner housing ==> Cleaner lance and container interior is not flame-proof.

6.3 Electric functions

If the cleaner is equipped with electrical components, e.g. sensors and motors, they must have their own ATEX approval. The operator must ensure the correct connection and secure cable routing.

In particular, cable entry points must comply with the valid technical regulations and must not show any kinks or sharp edges.

6.4 Grounding - electrical load

Tanks must be grounded. Tankers must be grounded via copper cable and connectors.

The cleaner (orbital cleaner, rotating and static cleaners) must be introduced into the system via the grounded piping.

The operator is obliged to ensure equipotential bonding with the tank for the cleaner. All conductive parts of the system must be grounded.

6.5 Filling the tanks

The container outlet must be open during the cleaning process. Thus, it is not a filling process.

6.6 Inerting

In the case of an explosive atmosphere in the tank and tank dimensions that exceed the container diameter of 3 m, an inert gas, for example, may only be introduced so that a formation of mist or sublimate is avoided. Wet steam and CO₂ are not suitable. Nitrogen and noble gases, for example, are suitable. The inert gas must be introduced solids-free and slowly through the largest possible openings.

6.7 Foreign material in the fluids.

There is a risk that a foreign body shoots out of the nozzle when the mesh size of the sieve has fallen or the sieve is defective (torn). The foreign bodies are embedded in the liquid, since the operation of the device is only allowed when liquid is present.

The following applies: The operator must ensure that only permissible media are used that contain no solids.

Before putting the system into operation, all foreign objects such as screws, nuts and welding beads must be removed.

The cleaning medium must be removed after spraying and must not be pumped through the cleaner again. Corresponding preparation is acceptable, the quality of the medium must be guaranteed and is the duty of care of the operator.

6.8 Petroleum vehicles

The hazardous area for petroleum vehicles is defined in the Ordinance on Flammable Liquids (TRbF).

6.9 Maintenance / servicing

6.9.1 Authorized personnel / OEM replacement parts

The cleaners may only be serviced and repaired by authorized personnel. Only OEM spare parts intended for use in potentially explosive atmospheres must be used, which must be requested from GEA Tuchenhagen GmbH.

Changes to the cleaners are not permitted without the consent of the ATEX officer of GEA Tuchenhagen GmbH.

If changes are made or if OEM spare parts are not used for applications in potentially explosive atmospheres, the enclosed ATEX declarations lose their validity and their use in potentially explosive atmospheres is no longer permitted.

6.9.2 Maintenance

The cleaner must be regularly checked for damage and function, taking into account the operating conditions. GEA recommends a visual inspection at every cleaning process.

Maintenance of the ATEX cleaner is mandatory after a maximum of 150 operating hours. Depending on the operating conditions, the operator must specify shorter maintenance intervals.

The performed maintenance must be logged.

Only original GEA Tuchenhausen maintenance and wear kits intended for ATEX may be used.

If the maintenance instructions are not followed, the cleaner loses its ATEX conformity and must not be used in explosive areas.

6.10 Service life of the actuator

Actuator sprayer IS 25:

In addition to the servicing prescribed in the corresponding instruction manual, the actuator must be replaced after 500 000 switching operations or every 5 years.

Maintenance must be performed at regular intervals. Worn parts must be replaced with GEA Tuchenhausen genuine spare parts.

Ensure that liquids and cleaning media cannot seep inside the actuator.

7 Additional information on cleaner selection

7.1 Possibilities of ATEX classification

7.1.1 Cleaner with its own potential ignition source

Ignition protection measures are required so that the cleaner is grouped into a category depending on the likelihood of a potential ignition hazard and other limiting factors.

This restricts the application to certain zones (Directive 1999/92/EC) and places additional restrictions on operation.



Hint!

The declaration of conformity according to 2014/34/EU must be available in any case and belongs in the explosion protection document.



Hint!

The maximum surface temperature depends mainly on the operating conditions. The allowable temperatures can be found in the chapter Operating Conditions.

7.1.2 Additional restrictions on usable substances

The operation and the cleaning with substances of explosion subgroup IIC and isolating materials is not permitted. The restriction according to the marking still applies, see Section 2.1.1, Page 8.

7.2 Instructions for the operation of the cleaner

On the operating side, a temperature limiter (temperature sensor) must be available for switching off of the system. The settings must be adjusted so that the maximum permissible temperatures are never reached.

See EN ISO 80079-36:2016 and other regulations that must be applied for cleaning with explosive mediums.

7.3 Explosion groups

The classification of gases is based on their specific ignitability, which is determined by standardized figures.

Explosion groups	Typical gas
IIA	Propane
IIB	Ethylene
IIC	Hydrogen

The danger increases for the explosion groups from IIA to IIC.

7.4 Substance classification

The substance classification depends on the temperature classes and explosion groups. Once all substance data has been recorded, a cleaner can be selected according to the specified temperature class and explosion group.

8 Further information sources

The table lists further information sources for explosion protection when cleaning containers.

Document	Contents
ATEX Directive 2014/34/EU.	Devices and protective systems intended for use in potentially explosive atmospheres
Directive 1999/92/EG.	Improvement of the health and safety of workers potentially at risk from explosive atmospheres
TRGS 727:2016	Technical regulations for hazardous substances Publisher: Federal Institute for Occupational Safety and Health
EN 1127-1:2011	Explosive Atmospheres - Explosion Protection, Part 1: Principles and Methodology
EN ISO 80079-36:2016	Non-electrical equipment for operation in explosive atmospheres - Basic method and requirements
EN 60079-0:2014-06	Electrical equipment for gas explosion hazard areas - Part 0: General requirements
EN ISO 80079-37:2016	Non-electrical equipment for operation in explosive atmospheres - Protection by design safety "c", Ignition source monitoring "b", Fluid encapsulation "k"

9 Appendix

9.1 Lists

9.1.1 Abbreviations and terms

Abbreviation	Explanation
ATEX	ATEX is a widely used synonym for the European Union ATEX directives. The designation ATEX is derived from the abbreviation of the French ATmosphère EXplosive.
BS	British Standard
bar	Unit of measurement of pressure [bar] All pressure data expressed in [bar/psi] is assumed to be gauge pressure [barg/psig] unless explicitly specified otherwise.
BSP	British Standard Pipe Thread
BSPT	British Standard Pipe Tapered Tread
approx.	approximately
°C	Unit of measurement of temperature [degree Celsius]
DN	DIN nominal width
DIN	German standard issued by DIN (Deutsches Institut für Normung e.V., German Institute for Standardization)
EN	European Standard
GEA	Company group GEA AG GEA stands for Global Engineering Alliance
h	Unit of measurement of time [hour]
ISO	International standard of the International Organisation for Standardisation
kg	Unit of measurement of weight [kilogram]
l	Unit of measurement of volume [litre]
min.	minimum
max.	maximum
mm	Unit of measurement of length [millimetre]
µm	Unit of measurement of length [micrometre]
M	Metric
NPT	National Pipe Thread
Nm	Unit of measurement of work [newton metre] TORQUE SPECIFICATION: 1 Nm = 0.737 lbft Pound-Force (lb) + Feet (ft)
PA	Polyamide

Abbreviation	Explanation
PEEK	Polyether ether ketone
C-PEEK	Polyether ether ketone containing carbon
PTFE	Polytetrafluoroethylene
C-PTFE	Carbonated polytetrafluoroethylene
SW	Indicates the size of spanners width across flats
Inch OD	Pipe dimension acc. to British standard (BS), Outside Diameter
Inch IPS	US pipe dimension Iron Pipe Size



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