

Original Operating Manual

English Version

Gas Fired Igniter
For Hazardous Areas
Zone 1 or Zone 21
ZAVEXPT2-361M/0A0XM

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1 General

1.1 Information on the Operating Manual

This operating manual provides important information on working with the gas fired igniter. Safe working can only be ensured by adhering to all the safety remarks and instructions provided.

In addition, the locally applicable accident prevention legislation and general safety regulations with validity for the place of operation must be adhered to.

Read through the operating manual carefully before starting any work. These instructions form a constituent part of the product and must be kept in the immediate vicinity of the equipment at all times within easy reach for personnel.

When the gas fired igniter is passed on to third parties, it must always be accompanied by the operating instructions.

The illustrations in this operating manual are intended to aid understanding of the content. They are not necessarily true to scale and may differ slightly in some details from the actual configuration of the gas fired igniter.

1.2 Explanation of Symbols

Warning instructions are indicated in this operating manual by symbols. The remarks are introduced by the use of signal words indicating the degree of severity of the hazard.

The instructions must be adhered to without fail and acted upon prudently in order to prevent accidents, personal injury or material damage.



DANGER

... denotes a hazardous situation which results in death or serious injury unless prevented.



WARNING

... denotes a hazardous situation which could result in death or serious injury unless prevented.



CAUTION

... denotes a hazardous situation which could result in minor or slight injury unless prevented.



NOTE

... denotes a hazardous situation which could result in material damage unless prevented.



REMARK

... highlights useful recommendations and information designed to permit efficient, trouble-free operation.



DANGER

Fatal danger due to electrical current!

... denotes a potentially fatal situation due to electrical current. Failure to adhere to the safety instructions can give rise to the danger of serious injury or death.

The work to be performed may only be carried out by a suitably qualified electrician.

1.3 Liability Disclaimer

All instructions and remarks contained in this operating manual are collated taking into account applicable standards and regulations, the state of the art and our many years of experience and expertise.

The manufacturer is consequently unable to accept any liability for damage caused as a result of:

- Failure to adhere to the instructions
- Use for any other than the designated purpose
- Deployment of untrained personnel
- Internally executed modifications or conversion work
- Technical modifications
- Use of unapproved spare parts

The actual scope of the delivery may differ in some details from the explanations and illustrations provided here in the case of special versions, where additional optional features are made use of or due to the latest technical modifications.

Otherwise, the obligations agreed in the Supply Agreement, the General Terms and Conditions and the Manufacturer's Conditions of Supply and the statutory regulations in force at the time of conclusion of contract shall be applicable.

1.4 Copyright Protection

These operating instructions must be treated in confidence. They are exclusively intended for the persons operating the gas fired igniter and may not be made available to third parties without the prior written consent of the manufacturer.



REMARK

The information, texts, drawings, illustrations and other representations are protected by copyright and are subject to industrial property rights. Utilization for any other than their intended purpose renders the perpetrator liable to prosecution.

The contents of all or part of these operating instructions may not be duplicated in any form, nor may they be used and/or communicated to any third party without the written consent of the Manufacturer. Any breach of this obligation shall render the perpetrator liable to compensation of damages, without prejudice to any further-reaching claims.

1.5 Spare Parts



WARNING

Danger of injury due to the use of incorrect spare parts!

Incorrect or faulty spare parts can result in damage, malfunctions or total failure of the equipment as well as posing a safety hazard.

- Only ever use original spare parts from the manufacturer.

Order spare parts through your authorized dealer or directly from the manufacturer (for address, see cover sheet).

1.6 Warranty Regulations

The warranty regulations are provided as a separate document in the General Terms and Conditions.

1.7 After-Sales Service

For any technical information, consult our after-sales service.

Information can be obtained through the responsible contact at any time by phone, fax, e-mail or Internet (for address, see cover sheet).

Our employees are always interested to receive any new information or experience arising from application which could be of use in the further development of our products.

2 Safety

This section provides an overview of all important safety aspects for optimum protection of personnel as well as safe, trouble free operation.

Failure to observe the operating instructions and safety remarks contained in this manual can cause serious injury.

2.1 Owner's Responsibility

As the gas fired igniter is used commercially, the owner of the gas fired igniter is obliged to adhere to occupational safety regulations as well as any other applicable directives, legislation and standards.

Alongside the occupational safety remarks contained in these operating instructions, the safety, environmental and accident prevention regulations governing the field of application of the gas fired igniter must be adhered to, whereby the following regulations in particular apply:

- The operator shall record in the document on the protection from explosions all measures taken to protect the employees.
- The owner must be aware of the valid occupational safety regulations and also determine any additional potential hazards arising as a result of the specific working conditions applicable at the location in which the igniter is used, by performing a risk assessment. This must be implemented in the form of operating instructions governing operation of the gas fired igniter.
- The owner must test, throughout the service life of the gas fired igniter, whether the operating instructions drawn up by him still correspond with the latest revision of the relevant rules and regulations, and must update these where applicable.
- The owner must clearly regulate and define fields of responsibility for installation, operation, maintenance and cleaning.
- The owner must ensure that all employees involved in working with the gas fired igniter have read and understood the operating instructions.

Furthermore, the owner must provide personnel training at regular intervals and inform staff of potential hazards.

As the owner is also responsible for ensuring that the gas fired igniter is always in good technical working order the following requirements additionally apply:

- The owner must ensure that maintenance work is performed regularly.
- The owner must regularly check that all safety devices are fully functional and complete.
- The owner must provide the necessary protective gear for personnel.

2.2 Operating Personnel

2.2.1 Requirements



WARNING

Danger of injury due to insufficient qualification

Incorrect handling of the equipment can result in severe personal injury and material damage.

- Only allow activities to be performed by suitably qualified specialist personnel.

The following qualifications are required for the various fields of activity:

■ **Qualified personnel**

are capable on the basis of their specialist training, knowledge and experience as well as their knowledge of the applicable regulations of executing the work assigned to them and of independently recognizing possible hazards.

■ **Electrical specialists**

are capable on the basis of their specialist training, knowledge and experience as well as their knowledge of the applicable regulations of working on electrical installations and of independently recognizing possible hazards.

Electrical specialists have received training specifically for the work environment in which they are employed and are familiar with the relevant standards and regulations.

■ **Gas specialists**

are capable on the basis of their specialist training, knowledge and experience as well as their knowledge of the applicable regulations of working on gas installations and of independently recognizing possible hazards.

Gas specialists have received training specifically for the work environment in which they are employed and are familiar with the relevant standards and regulations.

Only persons who may be expected to perform their task reliably may be authorized to use the equipment. Persons whose reaction capacity is impaired, for example due to drugs, alcohol or medicine use, may not be authorized.

When selecting suitable personnel, observe the age and profession-specific regulations applicable at the place of use.

2.2.2 Unauthorized Persons



WARNING

Danger for unauthorized persons!

Persons who do not comply with the requirements described here are not aware of the dangers inherent in the work area.

- Keep unauthorized persons away from the work area.
- In case of doubt, approach the person in question and direct them out of the work area.
- Interrupt work for as long as any unauthorized person remains in the work area.

2.3 Intended Purpose of the Equipment

The gas fired igniter is exclusively designed to perform the intended purpose described here.

The gas fired igniter is a piece of equipment that has to be integrated into a gas-consuming installation. It must not be operated without an overriding safety control system.

According to the current directive the gas fired igniter must only be operated in hazardous area zone 1 or zone 21.

It is designed for ignition and warm-up of boilers according to American standard.



WARNING

Danger due to use not in accordance with the intended purpose!

Any application beyond and/or not in accordance with the intended purpose of the gas fired igniter can result in the occurrence of hazardous situations.

- Only operate the gas fired igniter when in a mounted condition. Ensure that the combustion points created by the flame are fitted with a suitable extraction facility over the exposed flue gas channel throughout the plant.
- Only operate the gas fired igniter according to the specifications indicated on the rating plate. Otherwise, potential danger of personal or material damage can arise.
- Adhere to all the instructions provided in this operating manual without fail.

The manufacturer can not be held liable for physical or material harm caused by misuse of equipment or use for anything other than its intended purpose.

2.4 Personal Protective Gear

Personal protective gear must be worn while working with the equipment in order to minimize potential health hazards.

- Wear the protective gear necessary for performance of the relevant task at all times while working.
- Observe all signs relating to personal protective gear in the work area.

Wear the following for the performance of all work:



Protective work clothing

This comprises tight-fitting work clothes which are resistant to tearing, have tight-fitting sleeves and no projecting parts. This is required primarily to protect against burns.



Safety shoes

To protect the feet against heavy falling articles and to prevent slipping on floors.



Protection helmet

Protection helmets protect the head from falling parts, swinging loads or bumping it against stationary equipment.

To be worn for special types of work

When performing special types of work, special safety equipment is required. This is covered in depth in the individual chapters of this instruction manual. These types of special protective gear are described in the following:



Face protection

To protect one's eyes and face from flames, sparks or embers as well as hot particles or flue gases.



Protective gloves

To protect one's hands from rubbing, chafing, puncturing or deeper injuries and from contact with hot surfaces.

2.5 Special Dangers

Remaining dangers are listed in the section below.

The remarks provided here and the safety instructions in the subsequent chapters of this operating manual must be observed in order to reduce the possible risk to health and prevent the occurrence of dangerous situations.



DANGER

Danger to life due to electrical current!

When touching with current conducting parts, there is a danger to life. Damage to the insulation or individual components can have potentially life-threatening consequences.

- In the event of damage to the insulation of the power supply, switch off immediately and arrange for repairs to be carried out.
- Work on the electrical system may only be carried out by suitably qualified electricians.
- Before starting work, switch off the power supply and make sure it cannot be inadvertently switched back on.
- Observe the 5 safety rules:
 - De-energize.
 - Secure against reconnection.
 - Ascertain de-energized condition.
 - Earth and short-circuit.
 - Cover or block off adjacent live parts.
- Never bypass or decommission fuses. When changing fuses, adhere to the correct amperage and the correct characteristics.
- Only connect the gas fired igniter to the permitted operating voltage/load according to the technical data.
- The operator/installer is responsible for adherence to the permitted environmental conditions and/or ambient atmosphere in accordance with the technical data.
- Keep moisture away from live components. This can create a short circuit.



DANGER

Danger of an explosion caused by an escaping spark!

If the enclosure is opened by removing the junction room or the gas flange, a spark might escape. This could lead to an explosion.

- In order to retain the explosion protection rating "flameproof enclosure" according to the current directive, the enclosure holding the transformer must only be opened by the manufacturer's employees. Any infringement on this instruction or any damage to the guarantee/warranty seal will entail the entire loss of all warranty and guarantee claims.
- Only the junction room of the spark transformer unit may be opened to connect the control cables.



DANGER

Danger of explosion due to flammable atmosphere!

Atmospheres susceptible to explosions can endanger the staff's protection of health and safety.

- The operator shall define zones in such areas where a flammable atmosphere might be prevalent at times. Further to that he shall make sure that the organizational and technical minimum requirements outlined in the directive are adhered to.



WARNING

Danger of injury as a result of incorrect transport!

In the case of incorrect transport, considerable material damage can occur.

- Note the intrinsic weight of the gas fired igniter or the components. If necessary, use suitable hoisting gear.
- From an outer tube length of 3 m use several lashing points or a suitable hoisting gear with supports.
- Please mind the center of gravity.
- Secure the gas fired igniter from dropping down or falling over.
- Do not stand under the load while lifting or lowering it and stay out of the danger zone.



WARNING

Danger of burns due to flammable materials!

Highly flammable materials, liquids or gases can catch fire and cause serious to fatal injuries.

- Do not smoke in the danger area and in the close vicinity. Do not use any naked flames or ignition sources.
- Keep a fire extinguisher on hand.
- Report suspicious substances, liquids or gases immediately to the responsible officer.
- In case of fire, stop work immediately. Leave the danger area until the all-clear is given.



CAUTION

Danger of injury on edges and corners!

Sharp edges and pointed corners can cause chafing of the skin and cuts.

- Take particular care when performing work near to sharp edges and pointed corners.
- In unsure, wear safety gloves.



CAUTION

Damage of electronic components due to electrostatic discharge (ESD)!

Electronic components become steadily smaller and more complex. This also increases the susceptibility to electrostatic discharging.

- Take measures to protect the components against electrostatic discharge.
- Take measures to prevent static charging of the human body.



CAUTION

Danger of burns due to hot surfaces!
Contact with hot components can cause burns.

- When carrying out any work near hot components, always wear protective work clothing and safety gloves.
- Before performing any work, ensure that all components have cooled to ambient temperature.



NOTE

Danger of damage due to special environmental influences!
Vibrations affecting the gas fired igniter or welding work performed in the area of the gas fired igniter can result in damage.

- In order to prevent damage to the gas fired igniter, it must not be exposed to any vibrations.
- When carrying out any welding work in the area of the gas fired igniter, it must be electrically disconnected and removed.
- Before welding work on the outer tube of the gas fired igniter can be carried out, this must first be disconnected from the power head.

2.6 Securing Against Unauthorized Switching Use



DANGER

Risk of fatal injury due to unauthorized use!
When working in the danger area, there is a risk that the energy supply could be switched on by an unauthorized person. This creates a potentially fatal hazard for persons working in the danger area.

- Observe the instructions provided on securing against unauthorized switching back on in the chapters of this operating manual.
- Always observe the procedure described below to secure against unauthorized switching back on.

Switch safeguarded by lock on: athours DO NOT SWITCH ON The lock may only be removed by: once steps have been taken to ensure that no persons are located in the danger area.	Switched off on: athours DO NOT SWITCH ON The lock may only be removed by: once steps have been taken to ensure that no persons are located in the danger area.
--	--

BA-K26

Securing against unauthorized use

1. Switch off the power supply.
2. If possible, secure the switch with a lock and attach a sign in an easily visible location at the switch.
3. Have the key looked after by the employee named on the sign.
4. Should it not be possible to secure a switch using a lock, set up a sign.
5. Once all the work has been carried out, ensure that there are no longer any persons located in the danger area.
6. Ensure that all safety devices are installed and are fully functional.
7. Only then may the sign be removed.

2.7 Response in Case of Danger or Accident*Preventive actions*

- Always be prepared for accidents and for fires!
- Keep first aid equipment (first aid kit, blankets etc.) and a fire extinguisher on hand.
- Familiarize personnel with accident alarm, first aid and rescue facilities.
- Ensure that access paths for emergency vehicles are kept unobstructed.

*In case of accident:
React correctly*

- Initiate first aid measures.
- Evacuate any persons located in the danger area.
- Inform those responsible at the incident location.
- Alert the emergency medical/fire services.
- Clear access paths for emergency vehicles.

3 Transport, Packaging and Storage

3.1 Safety Instructions for Transport



WARNING

Danger of injury as a result of incorrect transport!

In the case of incorrect transport, considerable material damage can occur.

- When unloading packaged items on delivery, and when transporting within the premises, take extreme care and observe the symbols and instructions on the packaging.
- Depending on the length of the product and the scope of delivery suitable lifting equipment should be used for unloading. The load capacity of the lifting equipment should exceed the total weight of the delivery.
- Please mind the center of gravity.
- Only use the provided lashing points.
- Do not stand under the load while lifting or lowering it and stay out of the danger zone.



REMARK

Extreme vibration or shock may cause damage to electrical components.

3.2 Transport Inspection

Check the delivery on receipt without delay for completeness and transport damage.

In the case of externally recognizable transport damage, report the damage immediately, adopting the following procedure:

- Only conditionally accept the delivery.
- Note the extent of the damage on the transport documents or on the shipping agent's delivery note.
- Initiate a complaint.

Concealed transport damage must be reported within seven days.



REMARK

Report any defect immediately it is noticed. Claims for damages can only be asserted within the applicable deadlines for the filing of complaints.

3.3 Packaging

The individual products are packaged in accordance with the transport conditions expected for the consignment. Exclusively environmentally friendly materials are used for the packaging.

The packaging should protect the individual components from transport damage, corrosion and other damage up until such time as they are assembled. For this reason, do not destroy the packaging and only remove it shortly before assembly.

If no outline agreement has been reached for packaging, separate the materials according to type and size, and send for re-use or recycling.



NOTE

Environmental damage due to incorrect disposal!

Packaging materials are valuable raw materials and in many cases can be reused or usefully processed and recycled.

- Ensure environmentally responsible disposal of packaging materials.
- Observe locally applicable disposal regulations.

3.4 Storage Conditions

Store the gas fired igniter and the spare parts under the following conditions:

- The unit shall be stored neither outdoors nor in the hazardous area.
- Store in dry, dust-free conditions.
- Do not expose to any corrosive substances.
- Avoid any drop in temperature below the dew point.
- Protect the gas fired igniter from mechanical damage.
- Storage temperature: 0 °C...60 °C
- Relative humidity: max. 60 %
- When storing for longer than 3 months, regularly check the condition of all parts and the packaging. If necessary refresh or replace the conservation.



REMARK

The packaging units may come with storage instructions applicable in addition to the requirements outlined here. These must be adhered to.

4 Specifications

4.1 Type Key of Gas Fired Igniter

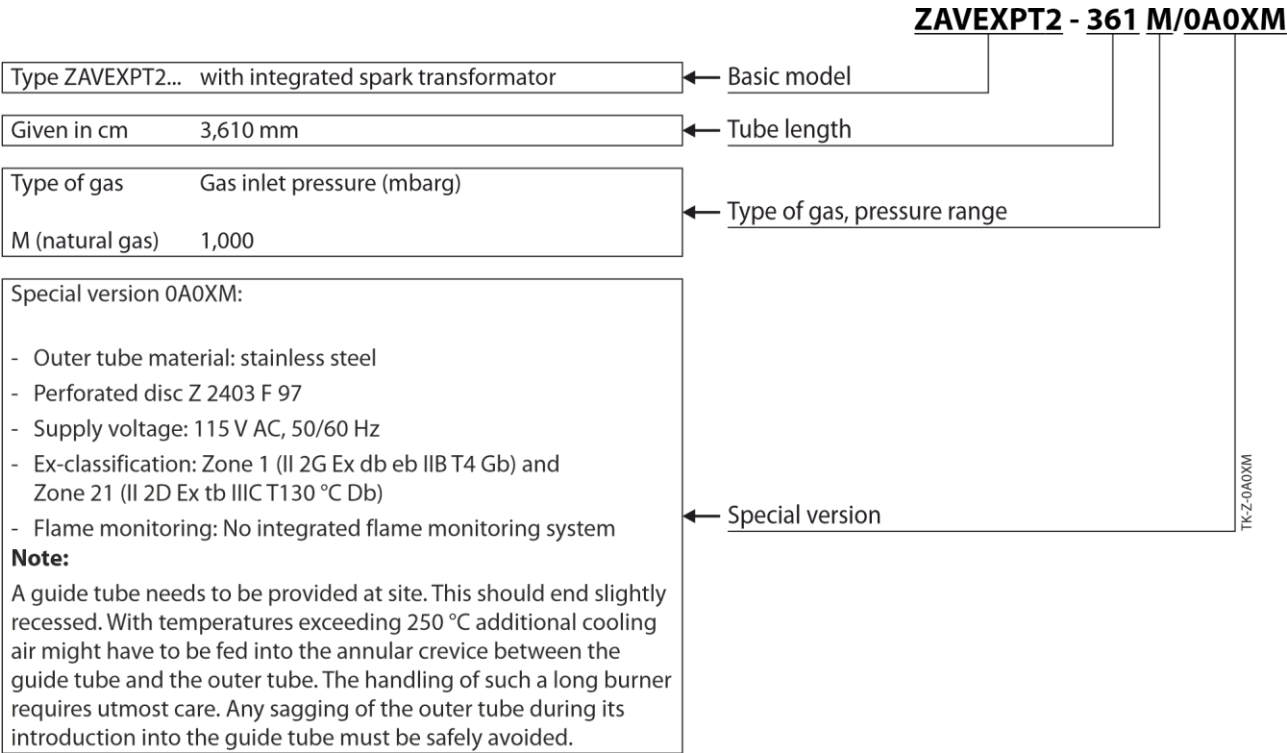


Fig. 1: Type key of gas fired igniter

4.2 Data Sheets

4.2.1 Data Sheet of Gas Fired Igniter

Characteristic		Value
Heat release		Max. 1,100 kW
Flame length (depending on the gas)		Max. 4,000 mm
Outer tube	Length	3,610 mm
	Diameter	90 mm
Design pressure gas flange		Max. 10 bar
Gas port		Rp 2, top or bottom
Maximum counter pressure in gas fired igniter housing		200 mbarg overpressure
Air port		Rp 2, rotatable 4 x 90°
Air volume		Max. 300 m ³ /h
Air temperature		Max. 80 °C
Relative humidity		Max. 70 %
Air quality		Free of dust, oil, grease and aerosols
Air coefficient The remaining air volume must be made available in the combustion chamber.		0.03...0.05
Maximum ambient temperature of the outer tube		See chapter 6.2 "Installation and Electrical Connection"
Dimensions (depending on scope of delivery)	Length	Approx. 4,156 mm
	Weight	Approx. 53 kg

4.2.2 Data Sheet of Power Head

Characteristic		Value	
Operational prerequisites		Monitoring of the gas and air pressure	
Kind of ex-protection (see chapter 12.1 "EU-Type Examination Certificate (IBExU)")		"flameproof enclosure" "increased safety"	
Ex-rating	Gaseous atmosphere	 II 2G Ex db eb IIB T4 Gb	
	Dusty atmosphere	 II 2D Ex tb IIIC T130 °C Db	
Supply voltage spark transformer		Primary: 115 V AC, 50/60 Hz	Secondary: 2 x 5 kV, electrode against electrode
Protection rating		IP66	
Connection type Design with terminal strip and a PE terminal		Junction room with two Ex-rated cable glands (M20x1.5) for cable diameter 7...13 mm Terminal strip, 12-pin: spring-type terminal 1...2.5 mm ² , it is recommended to strip the insulation at a length of 8...9 mm (WAGO, CAGE CLAMP®) PE terminal: line-/screw connection max. 4 mm ²	
Power consumption spark transformer		100 VA (fusing 2 A slow blowing, external fuse)	
Duty cycle spark transformer		Actuation via control unit, 100 % duty cycle	
Ambient temperature		-30 °C...+60 °C (avoid condensation)	
Interconnection		With Hegwein control units (see chapter 5 "Structure and Functional Characteristics")	

4.3 Dimensional Drawing of Gas Fired Igniter

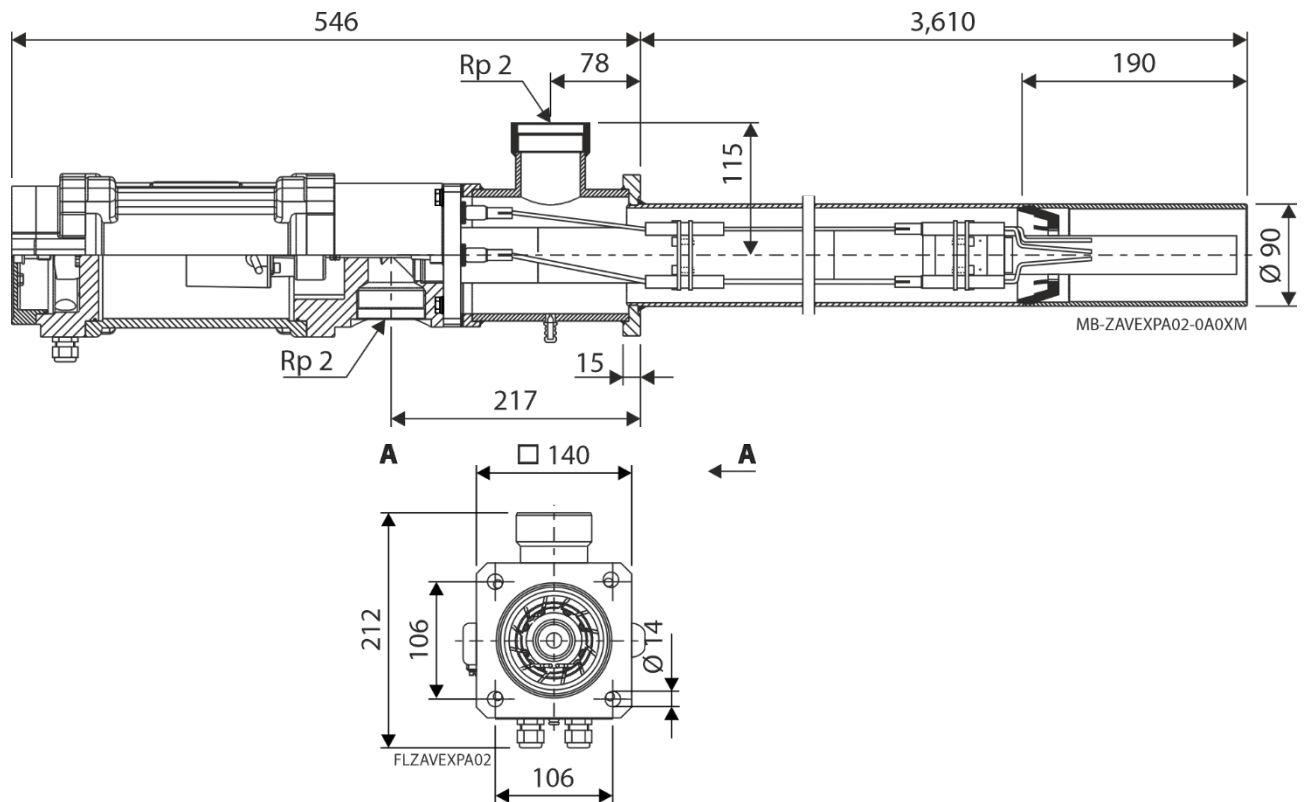


Fig. 2: Dimensional drawing of gas fired igniter

4.4 Rating Plate of Gas Fired Igniter

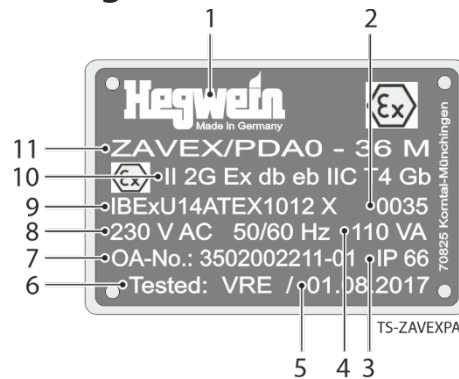


Fig. 3: Example of rating plate of gas fired igniter

The rating plate is located on the housing of the power head and contains the following information:

- | | |
|----------------------------------|---|
| 1 Manufacturer | 7 Order confirmation number (with consecutive unit no.) |
| 2 ID-number of the notified body | 8 Supply voltage |
| 3 Protection rating | 9 EC type examination certificate number |
| 4 Maximum power consumption | 10 Ex-rating |
| 5 Date of manufacture | 11 Type |
| 6 Tester | |

4.5 Service Life



NOTE

This product does not have an unlimited service life!

It has been designed for a maximum service life at nominal load. In applications involving 50 switching processes per day, this service life is set at around 10 years. This period can be substantially reduced in the event of increased stress (temperature, vibrations, dirt etc.).

- System operators and owners must take the steps to ensure that regular safety checks are performed depending on the actually occurring degree of stress.
- Exchange the gas fired igniter after it has exceeded the specified service life. After expiry of the maximum operating period, functional defects can occur more frequently.
- Check wearing parts independently of actual stress levels and exchange if required.

5 Structure and Functional Characteristics

5.1 Structure of Gas Fired Igniter

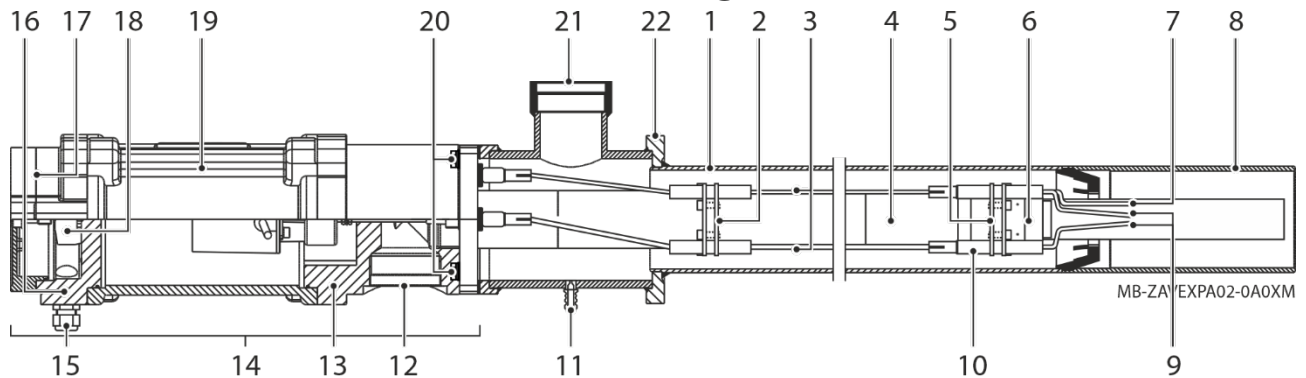


Fig. 4: Gas fired igniter (sectional drawing)

- | | |
|---|-------------------------|
| 1 Outer tube | 12 Gas port |
| 2 Intermediate support ring with two ceramic insulators | 13 Gas flange |
| 3 Connecting rods | 14 Power head |
| 4 Gas tube | 15 Ex-rated cable gland |
| 5 Final electrode support ring | 16 Junction room |
| 6 Nozzle unit | 17 Junction room cover |
| 7 Flame rod | 18 Terminal strip |
| 8 Mixing chamber | 19 Enclosure |
| 9 Ignition electrodes | 20 Allen screws |
| 10 Ceramic insulator | 21 Air port |
| 11 Air pressure test nipple | 22 Mounting flange |

The gas fired igniter comprises the following main components:

- the power head (14), in which the spark transformer is mounted,
- the junction room (16) which holds the terminal strip (18), where the control cable has to be hooked up,
- the complete outer tube (1), incl. mixing chamber (8) and mounting flange (22) with air port (21),
- the gas tube (4) and the nozzle unit (6) (consisting of gas nozzle, slotted disk and threaded sleeve),
- the final electrode support ring (5) with three ceramic insulators (10), two ignition electrodes (9) and one flame rod (7).

The outer tube (1) is screwed to the power head (14) and can be removed or depending on the position of the air supply pipe can be turned by 90°.

The gas port (12) can be made from the bottom. The unused opening is sealed off by a sealing screw.

The final electrode support ring (5) is fastened on the nozzle unit (6).

The flame rod (7) and the ignition electrodes (9) are extended by connecting rods (3). These connecting rods are guided through the floor of the transformer housing and are supported around every 300 mm by intermediate support rings (2).

5.2 Functional Characteristics

The gas fired igniter is a device whose flame is designed to ignite and support a main burner. A high voltage is generated from an input voltage (mains voltage), which generates an ignition spark at the gas nozzle. The resulting flame generates a flame signal via the flame rod. This flame signal is amplified in the external flame monitor or the automatic burner control system and enables the main burner.

5.3 Ionization Flame Monitor

5.3.1 Flame Monitoring

The flame is monitored by the flame rod, which must immerse in the direction of the flame. This flame rod will be supplied with changing voltages through the external flame monitor or the automatic burner control system. The burning flame creates an electrically conductive connection to the igniter earth and at the same time acts as a rectifier for the ionization current. This DC signal will be evaluated through the external units.

5.3.2 Safety Time (Flame Failure Detection Time FFDT)

The safety time is the response time of the external flame monitor or the automatic burner control system as the reaction to a failure of the flame signal (flame sensor current) and as a result of that the clearing switch of the terminals for the „flame-on“ signal. The standard safety time is ≤ 1 s, a modification is not possible.

5.4 Air and Gas Adjusting Components (Accessories)



REMARK

Order accessories and special tools separately.

Air regulating sleeve Z 945 Z 6/0FV

- Housing: Malleable cast iron, galvanized
 - Taper: Brass Ms 58
 - Lid: Brass Ms 58
 - Max. temperature range $-20\text{ °C} \dots +60\text{ °C}$
 - Max. pressure 300 mbarg
- Special version (e.g. free of non-ferrous metal) on request

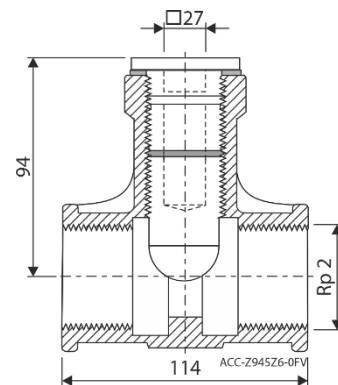


Fig. 5: Air regulating sleeve

Reducing nipple Z 946 F 10/00V

- Malleable cast iron, galvanized
- Max. temperature range $-20\text{ °C} \dots +60\text{ °C}$
- Max. pressure 300 mbarg

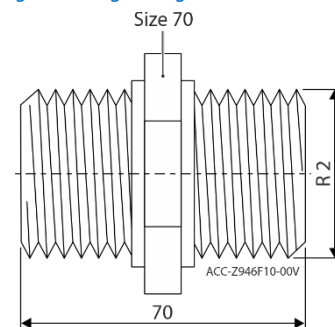


Fig. 6: Reducing nipple

5.5 Electrical Wiring Versions

The gas fired igniter can be interconnected with the following units:

- **Flame monitor AAL 76 P0...**
 - for continuous or intermittent operation
 - top hat rail mounting
 - 230 V AC, 50/60 Hz, (special voltages possible)
 - see relevant Hegwein operating manual
- **Flame monitor AAC 76 P0... with flame signal converter**
 - for continuous or intermittent operation
 - top hat rail mounting
 - 230 V AC, 50/60 Hz, (special voltages possible)
 - see relevant Hegwein operating manual
- **Burner control D-GF 75-...**
 - for continuous or intermittent operation
 - top hat rail mounting
 - 230 V AC, 50/60 Hz (special voltage possible)
 - see relevant DURAG operating manual
- **Suitable other brand**

6 Installation and Initial Commissioning

6.1 Safety

- Installation may only be performed by suitably qualified specialist staff of the plant installer.
- Initial commissioning may only be performed by employees of the manufacturer or by trained personnel.



DANGER

Explosion risk due to leaking fuel or release of additional units!

Downstream units (e.g. burner/igniter) can be connected via incorrect operation of the gas fired igniter.

- The gas fired igniter, and the external flame monitor signal of the gas fired igniter should be incorporated into an overriding safety controller.
- On commissioning, it must be ensured that in the case of a flame signal breakdown, the flame signal contact opens within 1 s, and leads to the safety and fault shutdown via the overriding safety controller.



DANGER

Danger of explosion due to faulty monitoring of the gas and air volume flow!

Faults in the monitoring of the gas and air volume flow can lead to extremely dangerous situations or entail considerable damage to property.

- The gas and air volume flow at site must be monitored according to the current regulations.
- Make sure that forced draught combustion air is supplied to the gas fired igniter and that it is sufficiently purged prior to every re-start.
- Any failure of the forced draught air must lead to an immediate shut down.
- Even after a shut-down of the gas fired igniter a minimum flow of combustion air shall pass through the igniter. This prevents the accumulation of a flammable mixture in the air flange or in the igniter tube.



WARNING

Danger of injury due to faulty installation and initial commissioning!

Errors during installation and initial commissioning can result in potentially fatal situations or entail substantial material damage.

- Prior to any commissioning/maintenance work that part of the plant where the gas fired igniter is installed must be switched off and secured against accidental restart. All feedlines to the gas fired igniter must be blocked, emptied and cleaned, if necessary.
- Before starting work, ensure that there is sufficient freedom of movement for the installation work.
- Take care when handling open, sharp-edged components.
- Ensure that the installation site is clean and tidy. Loose components and tools lying around or piled on top of each other are a possible cause of accidents.
- Assemble components professionally and correctly, observing prescribed screw tightening torque levels.
- Secure components so that they cannot drop down or fall over.

**REMARK****Air inlet pressure/gas inlet pressure:**

Air pressure, respectively gas pressure at the gas fired igniter's air or gas port.

Air operating pressure/gas operating pressure:

Permissible air pressure or gas pressure to operate the gas fired igniter. Pressure to be picked up at the air or gas pressure test nipple.

6.2 Installation and Electrical Connection

- Ensure that the following tasks are only performed by suitably trained personnel.

**DANGER****Danger to life due to electrical current!**

When touching with current conducting parts, there is a danger to life.

- Only pull out or unplug the connecting plug or connector, when the operating current of the gas fired igniter is switched off.

**REMARK**

Before connection, check whether the gas fired igniter is suitable for the mains voltage provided.

The installer/operator is responsible for the installation of the gas fired igniter into a system, which fulfils the stated system specific standards and guidelines.

The operator/installer is responsible for adherence to the permitted environmental conditions and/or ambient atmosphere, in accordance with the technical data.

1. Prepare the installation location and installation opening.
- ! From an outer tube length of 3 m observe the following:
 - Use a guide tube to prevent sagging of the outer tube.
 - The end of the outer tube must project 30...80 mm over the guide tube.
 - The annular gap between the outer tube and the guide tube must be 10...30 mm.
2. Push the gas fired igniter into the installation opening.
3. Tighten the mounting flange using four suitable screws (observe the max. torque specified in the table, use a suitable tool). Select the screw lengths in line with the wall thickness.

Thread size	M4	M5	M6	M8	1/8"	1/4"	1/2"	3/4"	1"	1 1/2"	2"
Tightening torque (Nm)	2,5	5	7	15	5	7	10	15	15	20	25

4. At the air port, connect an air regulating sleeve for air volume setting.
5. Connect the combustion air to the air regulating sleeve.

**REMARK**

Permanent cooling must be provided. At an ambient temperature of the outer tube between 300...500 °C, the combustion air shall be partly (> 20 %) switched as cooling air.

At an ambient temperature between 500...700 °C, proceed as follows:

- switch combustion air completely as cooling air,
- use stainless steel outer tube,
- provide additional cooling air in the annular gap between the guide and the outer tube.

In the case of an ambient temperature > 700 °C, contact Hegwein.

**WARNING****Danger of burns due to wrong type of gas!**

Using an incorrect gas type can cause too large an ignition flame to emerge from the gas fired igniter. This entails a risk of fatal injury due to serious burns and danger of fire.

- Only connect the gas fired igniter to the gas type indicated on the rating plate.

6. At the gas port, connect a pressure setting device (by customer) for gas volume setting.
7. Connect the gas line to the pressure setting device (by customer).
8. Loosen the two Allen screws in the junction room cover.
9. Insert two screw drivers into the two recesses to lever off the junction room evenly and carefully.

**REMARK**

The gas fired igniter must be connected by the owner to the plant control system in accordance with the terminal diagrams.

The high-voltage ignition spark can suppress the ionization signal to such a degree that the flame relay is not able to pick up. For this reason, the plant control system must ensure that the ignition voltage ("spark transformer" terminal) is switched off before the end of the ignition safety period (see EN standard 298). This ensures a short ignition-free period (approx. 0.5 s).

10. Wire the control cables to the terminal strip as indicated in the wiring diagram. WAGO recommends to strip the insulation of the wires at a length of 8...9 mm.

**REMARK**

The two EX-cable glands have been loosely screwed in only and need to be tightened at site.

If only one of the two EX-cable glands installed is to be used, the unused EX cable gland should be removed and the free issue EX plug screwed in instead.

The EX-cable glands used must be suitable for the special conditions prevailing at site.

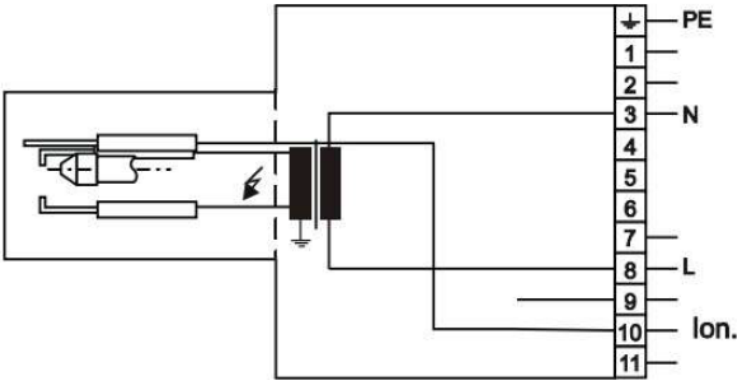
11. Tighten the cable glands for stress relief once the control cables have been introduced into the junction room.

i

REMARK

If several identical gas fired igniters are being used, the junction room cover must not be mixed up with that of another igniter. The unit no. (punched figure) on the junction room cover must correspond with that on the enclosure.

12. In order to retain the protection from explosions the junction room cover must be re-inserted carefully.
- ! Make sure that the O-ring is not damaged.
13. Tighten the two Allen screws.



Design IP66, with terminal strip and a PE terminal

Fig. 7: Terminal diagram

Terminal	Designation	Meaning
Green/yellow	PE	Protective earth conductor internal/external
Blue/3	N	Spark transformer (primary)
Brown/8	L	
9		Shielding*
10	Ion.	Flame signal cable*

* If wired to flame monitors or automatic burner control systems consider the relevant wiring schedule.

i

REMARK

The diagram shows a top-down view of a circular terminal block with six mounting screws. Inside the block is a rectangular array of 12 small, square terminals. A label 'PE' points to one of these terminals. Below the main block are two additional terminals with screw-on connectors.

Do not use the ionization signal as a measurement device output for remote or continuous displays.

6.3 Electrical Function Test

- This test must only be carried out by a specialist trained in the handling of the plant and its components.
- Additionally required protective gear:
 - Face protection
 - Safety gloves
- Required special tools:
 - Test diode A10Z2 (accessory part)



DANGER

Fatal danger due to electrical voltage or high voltage!

High voltage is present in the ignition electrode for ignition purposes. Due to the supply voltage of the ionization flame monitor, electrical voltage is also applied to the flame rod. Contact with the electrodes could be fatal.

- Never come into contact with the ignition electrode or the flame rod.



DANGER

Danger of explosion by formation of sparks caused by the visual check of the ignition spark or when applying the test diode!

The formation of sparks in a flammable atmosphere can result in an explosion or in severe burns!

- Any checks should be carried out outside of the hazardous area!
- Avoid flammable atmospheres!



DANGER

Escaping fuel or the release of other devices may cause an explosion!

A release of the gas fired igniter can cause the start of subsequent devices (burners).

- Any other devices such as burners and valves shall therefore be blocked.



DANGER

Risk of explosion due to leaking gas!

Accidental gas leaks can cause an explosion or serious burns!

- Before testing, shut off the gas valve!
- Ensure that no residual gas remains, if necessary inert the gas lines.

With the aid of the optional test diode A10Z2, it is possible to simulate the flame signal.

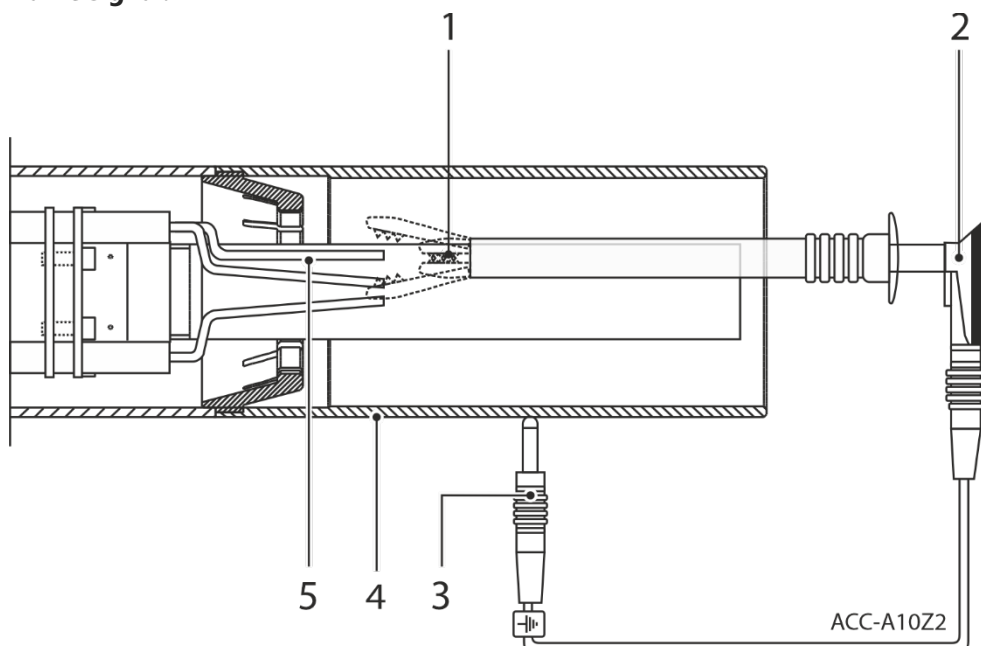


Fig. 8: Test diode

1. Switch off the power (after recommissioning).
2. Open the red terminal (1) of the test diode by pressing the button (2).
3. Apply the red terminal (1) of the test diode to the flame rod (4).
4. Release the button (2) in order to clamp the red terminal.
5. Release the voltage to the ionization flame monitor.
6. Bring the yellow plug (3) of the test diode briefly into contact with the outer tube (5).
 - ✓ After contact with the test diode a flame signal at the external flame monitor or the automatic burner control system must be measurable.
7. If no flame signal is produced, check the following:
 - Is mains voltage present at terminal 1-2?
 - Is the polarity of the test diode correct?
 - Are ceramic insulators damp, soiled or broken?
 - ▶ If so, clean or exchange these or if necessary replace the power head.
8. Connect the flame rod to the power head.



REMARK

In case of function problems, turn to the chapter 9 "Troubleshooting".

6.4 Required Air and Gas Volume

6.4.1 Setting the Required Air Volume

- This may only be performed by trained personnel.
- Required special tools:
 - Customarily available pressure gauge with a measurement range of 0...200 mbar



REMARK

The required air operating pressure depends - among other things - on the desired gas operating pressure.

The calculation formula outlined in step 1 refers to a normal case, i.e. the gas operating pressure is 1,000 mbar above the combustion chamber back pressure.

Any gas operating pressure deviating from this standard case will require an adaptation of the air operating pressure.

1. Define the air operating pressure:
 - ! An air inlet pressure of 10 mbar plus another 10 mbar for every m of tube length is required. A gas fired igniter with a tube length of 3,610 mm should therefore be supplied with
 $10 \text{ mbar} + (3.61 \times 10 \text{ mbar})$, i.e. 46.1 mbar
 in total (any backpressures need to be taken into account).
2. Turn the Allen screw (size 2.5) in the center of the air pressure test nipple 1½ turns counterclockwise in order to open the air pressure test nipple.
3. Connect the pressure gauge to the air pressure test nipple .
4. Open the air supply (only on initial commissioning).
5. Reduce the air operating pressure/the air volume using the air regulating sleeve to the length-dependent value, so at the same time also compensating for any combustion chamber back pressure.



REMARK

In case of a varying combustion chamber back pressure with fluctuations greater than 20 %, integrate an air-side differential pressure regulator.

6. After measurement, remove the pressure gauge.
7. Close the Allen screw.

6.4.2 Setting the Required Gas Volume

- This may only be performed by trained personnel.
- Additionally required safety equipment:
 - Face protection
 - Protective gloves
- Required special tools:
 - Customarily available pressure gauge with a measurement range of 0...2,000 mbar



DANGER

Risk of explosion due to gas leaks!

An accidental gas leak can cause an explosion or serious burns!

- Never allow any naked flame or ignition source to enter the danger area.



DANGER

Fatal danger when executing ignition tests!

When executing ignition tests, a large ignition flame emerges from the gas fired igniter, which could fatal burns and also fire.

- Ignition tests must be performed when the equipment is in a mounted status.
- Ensure that the combustion products generated by the flame are extracted via the opened flue gas path of the entire plant.



DANGER

Fuel leaks or the release of other devices may cause an explosion!

A release of the gas fired igniter can cause the start of subsequent devices (burners).

- Any other devices such as burners and valves shall therefore be blocked.

1. Open the gas supply (only on initial commissioning) and enable the tested plant by means of the control system.
 - ! The measuring must be executed at a place close to the gas port.
2. Set the previously selected gas operating pressure of 1,000 mbar at the pressure setting device (by customers).



REMARK

In order to achieve a stable flame the air flow needs to be adapted according to the gas operating pressure.

6.5 Checking the Setting Result

If correctly set, the following setting results should be in place following initial commissioning:

- Immediate ignition
- Optically good flame pattern/flame signal
- Flame length max. 4,000 mm at max. output of 1,100 kW and free burn-out

7 Operation

7.1 Safety

- To be executed by suitably trained personnel only.



WARNING

Danger of injury due to incorrect operation!

Incorrect operation can result in serious personal injury or material damage.

- Before starting work, ensure that all covers and safety devices are installed and in correct working order.
- Never disable safety devices during operation.
- Only operate the gas fired igniter in installed condition.
- Ensure order and cleanliness in the work area. Loose components and tools lying around or piled on top of each other are a possible cause of accidents

7.2 Operation



REMARK

Operation of the gas fired igniters takes place at the plant control system in which the device is integrated. Manual operation at the gas fired igniter itself is not required.

8 Maintenance

8.1 Safety

- To be executed by suitably trained personnel only.



WARNING

Danger of injury due to incorrectly executed maintenance work!

Incorrectly done maintenance work can result in serious personal injury or material damage.

- Before starting work, ensure that there is sufficient freedom of movement for the installation work.
- Ensure that the installation site is clean and tidy. Loose components and tools lying around or piled on top of each other are a possible cause of accidents.
- When components are removed, ensure correct reassembly. Remount all fastening components and adhere to specified screw tightening torque levels.

8.2 Maintenance, General

The gas fired igniter should be function tested at regular intervals (e.g. every 3 months).

If the gas fired igniter is operated with air containing dust, checks must be performed at shorter intervals, as electrically conductive dirt deposits or moisture on the ceramic insulators of the igniter can result in malfunctions.

The inner resistance of the ionization path is MΩ. These high resistance levels call for the ceramic insulators to be in perfect working order.

Only a few parts are subject to wear in normal operation (see chapter 11 "Spare Parts List"). These parts must be exchanged if defects and malfunctions occur with increased frequency.

8.3 Conditions for Maintenance Work

Take care of the following warnings before carrying out any maintenance work:



DANGER

Fatal danger due to electrical voltage or high voltage!

High voltage is present in the ignition electrode for ignition purposes. Due to the supply voltage of the ionization flame monitor, electrical voltage is also applied to the flame rod. Contact with the electrodes could be fatal.

- Never come into contact with the ignition electrode or the flame rod.

Performing work at the spark transformer entails a risk of fatal injury due to electric shocks!

- Before starting work, switch off the power supply and make sure it cannot be inadvertently switched back on.
- Observe the 5 safety rules.
- Before touching parts carrying voltage, ensure that no residual voltage remains



DANGER

Risk of explosion due to leaking gas!

Accidental gas leaks can cause an explosion or serious burns!

- When carrying out maintenance work, shut off the gas valve!
- Ensure that no residual gas remains, if necessary inert the gas lines.
- Completely separate the gas fired igniter from the power supply and disconnect the gas/air supply.

8.4 Maintenance Works

8.4.1 Exchanging the Outer Tube

- This may only be performed by suitably qualified personnel.

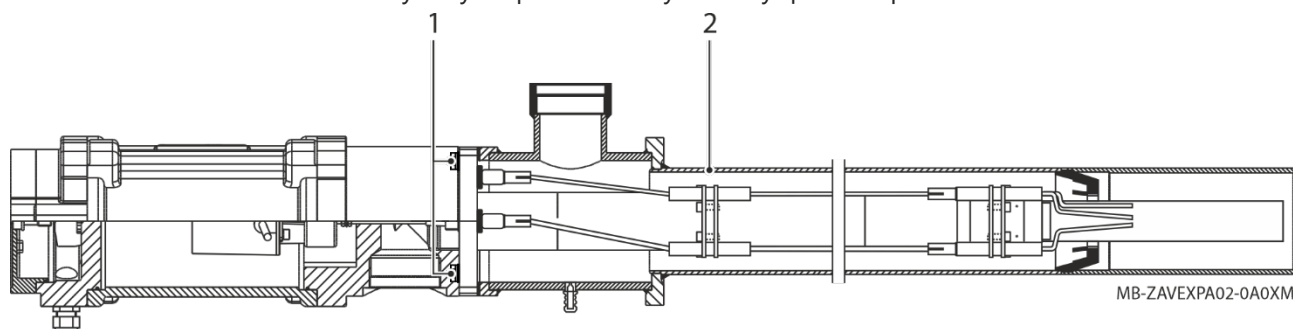


Fig. 9: Exchanging the outer tube

1. Release the four hexagon screws (1).
2. Pull off the outer tube (2).
3. Position the new outer tube (2).
4. Tighten the four hexagon screws (1).



REMARK

Depending on the position of the air port, the outer tube can be turned into 4 x 90° increments and tightened.

8.4.2 Exchanging the Power Head

- This may only be performed by suitably qualified personnel.

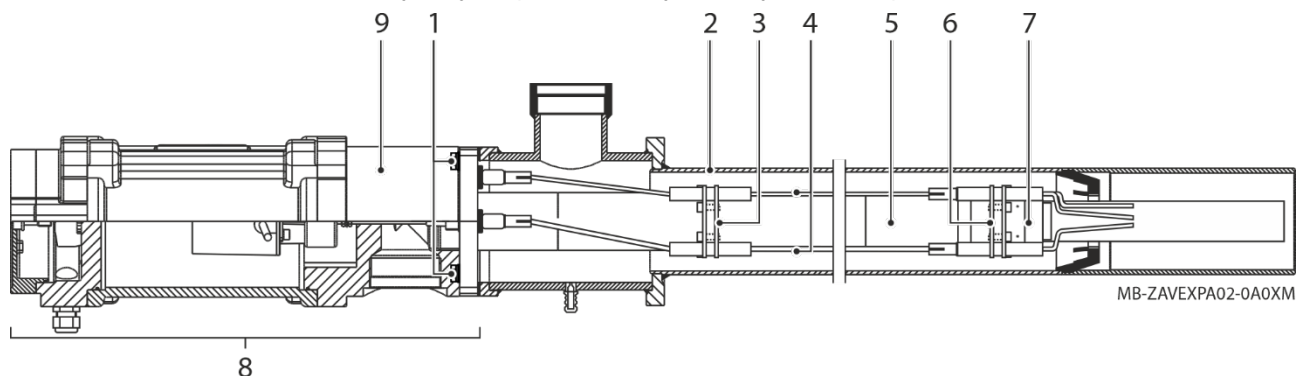


Fig. 10: Exchanging the power head

1. Release the four hexagon screws (1).
2. Pull off the outer tube (2).
3. Remove the final electrode support ring (6) and the connecting rods (4).
4. Unscrew the nozzle unit (7) from the gas tube (5).
5. Remove any existing intermediate support rings (3).
6. Unscrew the gas tube (5) from the gas flange (9).
- ! Assembly takes place in reverse order.
7. Mount the rating plate on the new power head (8).

8.4.3 Exchanging the Final Electrode Support Ring

- This may only be performed by suitably qualified personnel.

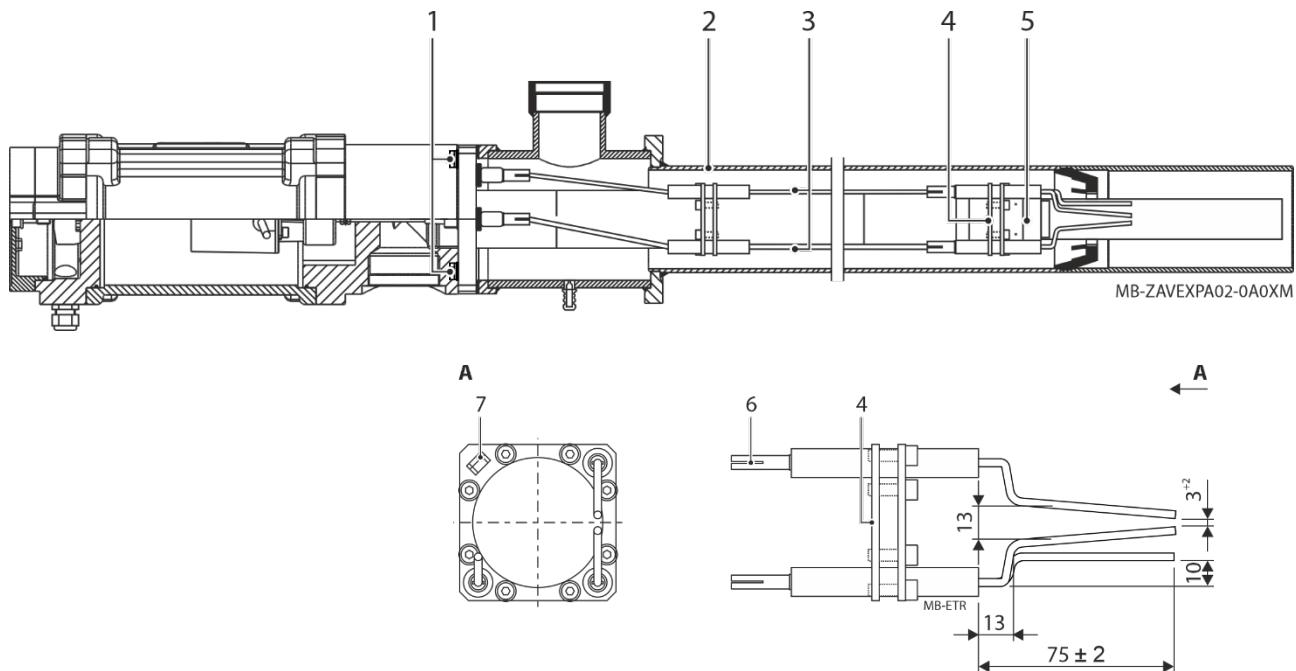


Fig. 11: Exchanging the final electrode support ring



REMARK

The final electrode support ring counts as a wearing component and is not included in the warranty cover.

Order the complete electrode support rings with ready pre-bent and adjusted electrodes from Hegwein (for address, see cover sheet).

1. Remove the four hexagon screws (1).
2. Pull off the outer tube (2).
3. Release the clamping screw (7) of the final electrode support ring (4).
4. Pull the ring off the nozzle unit (5).
5. Position the new final electrode support ring (4).
 - ! Squeeze all plug-in sleeves (6) with a pair of pliers to ensure a tight fit of the connecting rods (3) in the plug-in sleeves.
6. Insert the connecting rods (3) into the plug-in sleeves at the igniter head and into the plug-in sleeves (6) of the final electrode support ring (4).
 - ! Ensure that the connecting rods (3) are not twisted or bent.
7. Check the distances at the final electrode support ring (4) and align if necessary.
8. Tighten the clamping screw (7).
9. Mount the outer tube (2).

8.4.4 Exchanging the Intermediate Support Rings

- This may only be performed by suitably qualified personnel.

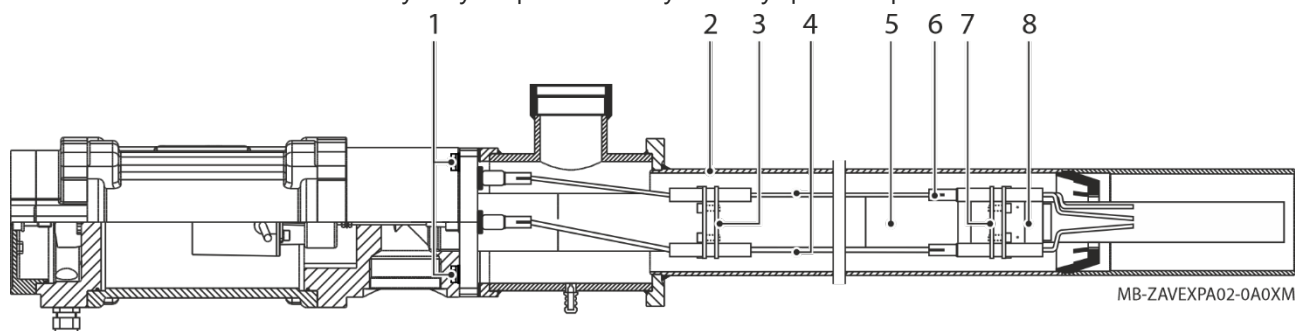


Fig. 12: Exchanging the intermediate support ring



REMARK

Intermediate support rings are used from a tube length of 600 mm. Insert new intermediate support rings at the previous position.

1. Release the four hexagon screws (1).
2. Pull off the outer tube (2).
3. Release the clamping screw of the final electrode support ring (7).
4. Pull off the final electrode support ring (7) from the nozzle unit (8).
5. Unscrew the nozzle unit (8) from the gas tube (5).
6. Pull out the connecting rods (4).
7. Release the clamping screws of the intermediate support rings (3).
8. Pull the intermediate support rings (3) off the gas tube (5).
9. Push the new intermediate support rings onto the gas tube (5).
10. Screw on the nozzle unit (8) to the gas tube (5).
11. Push on the final electrode support ring (7).
 - ! Squeeze all plug-in sleeves (6) with a pair of pliers to ensure a tight fit of the connecting rods (4) in the plug-in sleeves.
12. Insert the connecting rods (4) into the plug-in sleeves at the igniter head and into the plug-in sleeves of the final electrode support ring (7).
 - ! Ensure that the connecting rods (4) are not twisted or bent.
13. Mount the final electrode support ring (7) and align.
14. Tighten all clamping screws of the intermediate support rings (3).
15. Mount the outer tube (2).

8.5 Actions Following Completed Maintenance Work

After completing the maintenance work and before switching on, carry out the following steps:

1. Check all previously released screw connections for a firm fit.
2. Check whether all previously removed protective devices and covers have been correctly replaced.
3. Ensure that all used tools, materials and other equipment have been removed from the work area.
4. Clean the work area and remove any spilt substances such as fluids, processing materials or similar.
5. Ensure that all safety devices are in perfect working order and that the correct function of the equipment is guaranteed.

9 Troubleshooting

The following chapter provides information on possible causes for faults and describes the work required to remedy them.

If faults occur on a more frequent basis, reduce the maintenance intervals in line with the actual degree of stress on the system.

In case of faults which cannot be remedied following these instructions, contact Hegwein (for address, see cover sheet).

9.1 Safety

- This may only be performed by trained personnel.



WARNING

Danger of injury due to incorrectly performed maintenance work!

Incorrectly executed maintenance work can result in serious personal injury or material damage.

- Before starting work, ensure that there is sufficient freedom of movement for the installation work.
- Ensure that the installation site is clean and tidy. Loose components and tools lying around or piled on top of each other are a possible cause of accidents.
- When components are removed, ensure correct reassembly. Remount all fastening components and adhere to specified screw tightening torque levels.

Basic rules of procedure:

1. Determine the cause of the fault.
2. Before starting work, switch off the power supply and make sure it cannot be inadvertently switched back on.
- ! Observe the 5 safety rules.
3. Completely disconnect the gas fired igniter from the energy supply and disconnect the gas/air supply.
4. Inform the person in charge at the site immediately about the fault.
5. Depending on the type of fault, have it remedied by authorized specialist personnel.

9.2 Troubleshooting Table

Fault	Possible cause	Solution	To be done by
Spark does not form (Note: Carry out optical check of ignition spark with gas valve closed in darkened room)	Gas fired igniter is not receiving any voltage	Check wiring Check control system	Qualified electrician
	Ignition electrode is burned out	Clean the inside of the gas fired igniter and replace ignition electrode, bend to original position	Qualified personnel
	Electrode distance is too large or electrode has short circuited	Clean inside of gas fired igniter if necessary and bend ignition electrode to distance of 2...3 mm	Qualified personnel
	Spark transformer defective	Exchange power head	Manufacturer/qualified electrician
	Layer of scale on spark electrode or earth rod/bolt	Clean inside of gas fired igniter and remove deposits using emery paper	Qualified personnel
	Ceramic insulator broken	Exchange ceramic insulator, intermediate support ring or final electrode support ring	Qualified personnel
Flame fails to form	No combustion air available due to defective air flap or valve	Exchange air flap or valve	Qualified personnel
	No combustion air available due to closed throttle organs	Open throttle organs	Operator
	No combustion air available due to blocked supply line	Unblock line	Qualified personnel
	No gas available because supply line is too long	Dimension supply line accordingly, if necessary change the position of the gas fired igniter	Qualified personnel
	No gas available, as gas supply line still inert with N ₂	Carry out several ignition attempts until line has filled with gas	Operator
	No gas available, as gas valve defective	Exchange gas valve	Gas specialist/owner
	Gas to air ratio is incorrect	Check settings of the gas and air operating pressure. Check values and correct on the basis of the diagrams	Qualified personnel
	Wrong gas	Only use gas specified on the rating plate	Qualified personnel
	Combustion air contaminated	If necessary use a filter or clean/replace existing filter	Qualified personnel

Fault	Possible cause	Solution	To be done by
	No gas available, as gas supply line closed	Check function and position of all gas valves in the gas supply line. Reset safety shut-off valve if necessary	Gas specialist/owner
The flame comes on for a short time, but trips once the ignition safety time has elapsed	Flame rod is burned out, deformed or has short circuited	Exchange the flame rod and bend back to original position Clean any scale/internal burner parts	Qualified personnel
	Ceramic insulator of flame rod broken	Exchange ceramic insulator or electrode support ring	Qualified personnel
	When switched together with the Hegwein control unit, operating voltage is enabled at the same time as the bias voltage	As the operating voltage must lag behind the bias voltage by at least 5 s, always leave the bias voltage switched on	Qualified electrician
	When using control unit from a different manufacturer, the ignition spark always disturbs the ionization feedback	Switch off ignition voltage approx. 0.5 s before expiry of the ignition safety time	Qualified electrician
	Gas fired igniter was exposed to excessively high temperature in the combustion chamber when switched off. Ceramic insulators too hot, the insulation resistance has dropped too far	Leave fan air running when the gas fired igniter is switched off for cooling purposes	Qualified personnel
	The setting of the gas and air operating pressures at the gas fired igniter is not correct, flame root not in the area of the flame rod	Check settings and correct	Qualified personnel
	Wrong connection	Check complete wiring, carry out electrical function test	Qualified electrician
Fault shutdown takes place during operation	Fluctuating combustion chamber of supply pressure levels, resulting in flame blow-off	Check the pressure settings at the test nipples. If necessary provide a differential pressure regulation system for gas and air	Qualified personnel
	Pilot flame highly subject to influence by the main flame or is suffocated	Change the position of the gas fired igniter Use more powerful gas fired igniter	Qualified personnel
Lock-out because a flame is signaled at the start before the gas valve has opened	Flame was not extinguished when switching off due to a leaking valve, and is already present when restarting	Replace the gas valve	Gas specialist personnel/owner

10 Dismantling/Disposal

Once it has reached the end of its service life, the gas fired igniter has to be dismantled and sent for ecologically responsible disposal.

10.1 Safety

- This may only be performed by trained personnel.



WARNING

Danger of injury due to incorrect dismantling!

Residual stored energy, sharp components, pointed corners and edges on or in the gas fired igniter or on the required tools can cause injury.

- Before starting work, ensure that there is sufficient space available.
- Take particular care when dealing with sharp-edged components.
- Ensure that the installation site is clean and tidy. Loose components and tools lying around or piled on top of each other are a possible cause of accidents.
- If any points are unclear, consult the manufacturer.

10.2 Dismantling

Before starting to dismantle it, carry out the following steps:



DANGER

Potentially fatal injury due to electrical current!

Contact with live components can cause fatal injury.

- Before starting dismantling work, switch off the electrical supply and finally disconnect.



DANGER

Risk of explosion due to leaking gas!

Accidental gas leaks can cause an explosion or serious burns!

When dismantling, shut off the gas valve!

- Ensure that no residual gas remains, if necessary inert the gas lines.
- If gas is unintentionally released into the atmosphere, immediately shut off the gas flow. Prevent gas entering drainage systems, basements, work pits or other locations in which collected gas could cause a hazard.

1. Switch off the gas fired igniter and secure it against being switched back on.
 2. Completely disconnect the gas fired igniter from the energy supply and gas/air supply.
 3. Remove operating and auxiliary materials as well as residual processing materials and ensure their ecologically responsible disposal.
- The gas fired igniter can now be cleaned for separation and dismantled in compliance with applicable occupational safety and environmental protection legislation.

10.3 Disposal

Provided no return acceptance or disposal agreement has been concluded, the components once dismantled can be sent for recycling:

- Send metals for recycling.
- Send plastic elements for recycling.
- Dispose of the remaining components separated according to material properties.



NOTE

Environmental damage due to incorrect disposal!

Electric scrap, electronic components, lubricants and other auxiliary materials are subject to special waste treatment and may only be disposed of by authorized specialist companies!

The local authorities or specialist disposal companies can provide information on environmentally responsible disposal.

11 Spare Parts List

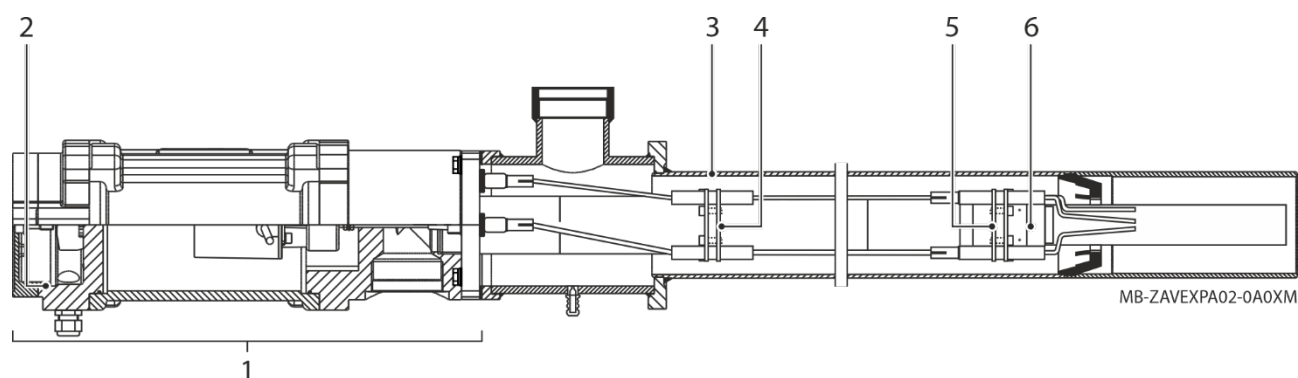


Fig. 13: Spare parts drawing

Item	Qty.	Designation	Part number	Voltages, material/configuration, remarks
1	1	Flameproof power head II 2G Ex db eb IIB T4 Gb and II 2D Ex tb IIIC T130 °C Db	Z199KB/0XM2	115 V, IP66, "flameproof enclosure" (enclosure) and "increased safety" (junction room), integrated spark transformer
2	1	Gasket	W677F1	NBR/Ø 98 x 2
3	1	Complete outer tube, incl. mixing chamber (heat resistant tube 1.4841) and mounting flange with air port	Z1445Z0361	Length 3,610 mm, diameter 90 mm, stainless steel
4	9	Intermediate support ring with 3 ceramic insulators	Z387K4	Stainless steel, wearing part
5	1	Final electrode support ring with 3 ceramic insulators and 3 electrodes	Z387K5	Stainless steel, wearing part
6	1	Gas nozzle unit natural gas	Z2402F13	Stainless steel

12 Annex

12.1 EU-Type Examination Certificate (IBExU)

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[1] EU-TYPE EXAMINATION CERTIFICATE - TRANSLATION



- [2] Equipment and protective systems intended for use in potentially explosive atmospheres, directive 2014/34/EU
- [3] EU-Type Examination Certificate Number **IBExU14ATEX1012 X** | Issue 1
- [4] Equipment: **Pilot burner**
Type: ZAVEX
- [5] Manufacturer: **Hegwein GmbH**
- [6] Address: **Kornwestheimer Straße 47**
70825 Korntal-Münchingen
GERMANY
- [7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- [8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential test report IB-20-3-0003.
- [9] Compliance with the essential health and safety requirements has been assured by compliance with:
EN IEC 60079-0:2018 EN 60079-1:2014 EN IEC 60079-7:2015+A1:2018 EN 60079-31:2014
Except in respect of those requirements listed at item [18] of the schedule.
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.
- [11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the product shall include the following:
- | | |
|-----------------------|-----------------------------|
| Type ZAVEX.../I.0000: | II 2G Ex db eb IIB T4 Gb |
| Type ZAVEX.../I.00C0: | II 2G Ex db eb IIC T4 Gb |
| Type ZAVEX.../I.0H00: | II 2G Ex db IIB T4 Gb |
| Type ZAVEX.../I.0HC0: | II 2G Ex db IIC T4 Gb |
| Type ZAVEX.../I.0**0: | II 2D Ex tb IIIC T130 °C Db |
- 30 °C or -20 °C ≤ T_a ≤ +60 °C or +75 °C

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Fuchsmühlenweg 7
09599 Freiberg, GERMANY

By order

A. Henker

Dipl.-Ing. (FH) Henker



(Notified Body number 0637)

Phone: +49 (0)3731 3805-0
Fax: +49 (0)3731 3805-10

Certificates without seal and signature are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2020-12-07

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[13]

Schedule

[14]

Certificate Number IBExU14ATEX1012 X | Issue 1

[15]

Description of product

The Pilot burner type ZAVEX is used for ignition and monitoring burner installations for boiler furnaces or process plants. It consists of a flameproof enclosure from aluminium or stainless steel with integrated ignition transformer and ionisation amplifier, the terminal compartment (optional in type of protection increased safety or flameproof enclosure) and the pilot burner tube. The sparking plug is located in non-hazardous area.

Technical data:

- | | |
|---|--|
| - Nominal voltage flame detector: | max. 250 VAC |
| - Power input flame detector: | 10 VA |
| - Operating time flame detector: | arbitrary |
| - Nominal voltage ignition transformer: | primary max. 250 VAC; secondary max. 2 x 7.5 kV |
| - Power input ignition transformer: | max. 200 VA |
| - Operating time ignition transformer: | via controller, max. 180 sec. |
| - Property class fastening screws: | A2-70 |
| - IP-Degree of protection acc. to EN 60529: | IP66 |
| - Ambient temperature range: | -20 °C up to +60 °C (standard)
-30 °C up to +75 °C (special design) |

Variations compared to the EC-Type Examination Certificate:

- Adaptation to the current editions of the EN 60079 standards
- Use of an alternative material for the enclosure
- Modification of non-ex-relevant components (without changing the max. power) and adaptation of the design drawings
- Change of the manufacturer address

[16] **Test report**

The test results are recorded in the confidential test report IB-20-3-0003 of 2020-12-07.
The test documents are part of the test report and they are listed there.

Summary of the test results

The Pilot burner type ZAVEX fulfils the requirements of explosion protection for equipment of Group II, Category 2G, type of protection flameproof enclosure "db" in combination with increased safety "eb" and Category 2D, type of protection dust explosion protection by enclosures "tb".

[17] **Special conditions for use**

- The Pilot burner type ZAVEX may only be operated in a built-in condition according to operating instruction. The sparking plug may not be located in hazardous area.
- Repairs of the flameproof joints must be made in compliance with the constructive specifications provided by the manufacturer. Repairs must not be made on the basis of values specified in tables 2 and 3 of EN 60079-1.
- The Pilot burner can be used in an increased ambient temperature range from -20 °C up to +60 °C or from -30 °C up to +75 °C, depending on type.
- For the special design for low temperatures, the cable entry and the connection cable must be suitable for the reduced ambient temperature of -30 °C.
- Unused openings for cable entries have to be closed durably with suitable screw plugs, which are tested and confirmed for the respective type of protection.

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- Only fastening screws, specified by the manufacturer, shall be used (Property class mind. A2-70) be used.
- The Pilot burner, provided with type EMD 47 CHING-EP top coat as special finish for C 4/C5 areas, must not be used in areas in which highly charge-generating processes, mechanical friction and separation, discharge of electrons (e.g. in the vicinity of electrostatic coating devices), or pneumatically conveyed dust may occur.

[18] Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:

- not applicable -

[19] Drawings and documents

The documents are listed in the test report.

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Fuchsmühlenweg 7
09599 Freiberg, GERMANY

By order



Dipl.-Ing. (FH) Henker

Freiberg, 2020-12-07

Fig. 14: EU-type examination certificate (IBExU)

12.2 EU Declaration of Conformity



EU-Konformitätserklärung EU Declaration of Conformity

**Hersteller
Manufacturer** Hegwein GmbH

**Anschrift
Address** Kornwestheimer Str. 47, 70825 Korntal-Münchingen,
Germany

Produktbezeichnung
Gaszündbrenner
ZAVEX..., ZAVEX/PA..., ZAVEX/PDA...

Product description
Gas fired igniter
ZAVEX..., ZAVEX/PA..., ZAVEX/PDA...

Die alleinige Verantwortung für die Ausstellung dieser
EU-Konformitätserklärung trägt der Hersteller.

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

**Das oben bezeichnete Produkt erfüllt die ein-
schlägigen Harmonisierungsrechtsvorschriften
der Europäischen Union**

EU/2016/426 (Gasgeräteverordnung)
2014/30/EU (EMV-Richtlinie)
2014/35/EU (Niederspannungsrichtlinie)
2014/34/EU (ATEX Richtlinie/Anhang IV)

**The product of the declaration described above
is in conformity with the relevant European
Union harmonisation legislation**

EU/2016/426 (Gas Appliances Regulation)
2014/30/EU (EMC directive)
2014/35/EU (Low voltage directive)
2014/34/EU (ATEX directive/appendix IV)

Angewandte harmonisierte Normen

DIN EN 298:2012-11
DIN EN 13611:2011-12
DIN EN 50156-1:2016-03
DIN EN 60730-2-5:2015-10
DIN EN 60730-1:2012-10
DIN EN 60730-1:2017-05
EN IEC 60079-0:2018
EN 60079-1:2014
EN IEC 60079-7:2015+A1:2018
EN 60079-31:2014

Applied harmonised standards

DIN EN 298:2012-11
DIN EN 13611:2011-12
DIN EN 50156-1:2016-03
DIN EN 60730-2-5:2015-10
DIN EN 60730-1:2012-10
DIN EN 60730-1:2017-05
EN IEC 60079-0:2018
EN 60079-1:2014
EN IEC 60079-7:2015+A1:2018
EN 60079-31:2014

Baumusterprüfung

EG-Baumusterprüfbescheinigung
IBExU14ATEX1012 X | Ausgabe 1

Type examination

EC-type examination certificate
IBExU14ATEX1012 X | Issue 1

Qualitätssicherung 2014/34/EU

TÜV Rheinland Industrie Service GmbH
Am Grauen Stein, D-51105 Köln
Kennnummer: 0035

Quality management 2014/34/EU

TÜV Rheinland Industrie Service GmbH
Am Grauen Stein, D-51105 Köln
ID-number: 0035

**Unterzeichnet für und im Namen von
Signed for and on behalf of**

Hegwein GmbH

**Ort, Datum
Place, date**

Korntal-Münchingen, 28.02.2022

**Unterschrift
Signature**


Rainer Böcher
Geschäftsführer
Managing Director

Fig. 15: EU declaration of conformity