



**Arcotec GmbH**  
**Rotweg 24**  
**71297 Mönshheim, Germany**

## **Information for use**

English version: V6, Date: 09 July 2025

### **Important!**

Read carefully before use.

Keep a copy of this information for use clearly visible at the system.

## **Flame Treatment System**

---

**FTM 101**

**Serial no.:**

## EC Declaration of Conformity

In accordance with Machinery Directive 2006/42/EC, Annex II Part 1, Section A

The Manufacturer: **Arcotec GmbH**  
**Rotweg 24**  
**71297 Mönsheim, Germany**

hereby declares that the following product

Product designation: Flame treatment system with manual burner handling

Type: FTM 101

Serial numbers: Burner control unit FTM 101 SN:

Burner head B1M-100 SN:

Year of manufacture:

Function: Surface pre-treatment to improve adhesion

complies with all relevant provisions of the Machinery Directive 2006/42/EC. In addition, the following EU directives have been applied and fulfilled:

2014/30/EU EMC Directive

2014/35/EU Low Voltage Directive

The following harmonized standards have been applied:

EN 12100:2011-03/  
B1:2013-08 Safety of machinery – General principles for design – Risk assessment and risk reduction

EN 746-1:2010-02 Industrial thermoprocessing equipment – Part 1: Common safety requirements

EN 13577-2:2024-09  
(ex EN 746-2:2011-02) Industrial furnaces and associated processing equipment – Safety – Part 2: Combustion and fuel handling systems

EN 60204-1:2007-06/  
A1:2009-10/B1:2010-05 Safety of machinery – Electrical equipment of machines – Part 1: General requirements

EN 61000-6-2:2006-03/  
B1:2011-06 Electromagnetic compatibility (EMC) – Generic standards – Immunity for industrial environments

EN 61000-6-4:2011-09 Electromagnetic compatibility (EMC) – Generic standards – Emission standard for industrial environments

Name and address of the person who is authorized to compile the technical documents:

Jens Peter Schmidt, Arcotec GmbH, Rotweg 24, 71297 Mönsheim, Germany

This declaration is made for and on behalf of the manufacturer by

Mönsheim,

---

Sebastian Bloss  
CEO of Arcotec GmbH

## Table of Contents





<b>1</b>	<b>General Information</b> .....	<b>5</b>
<b>2</b>	<b>Safety Instructions</b> .....	<b>6</b>
2.1	Requirements for the operator and operating personnel .....	6
2.2	Requirements for the installation site .....	6
2.2.1	Set-up surface and surroundings .....	6
2.2.2	Safe air supply .....	6
2.3	Safety during installation, maintenance and repairs.....	7
2.4	Electrical hazards .....	7
2.5	Behaviour in case of smell of gas.....	7
2.6	Explosion hazard .....	8
2.7	Burn hazard .....	8
2.8	Fire hazard.....	8
2.9	Information to prevent a damage to the system .....	8
<b>3</b>	<b>Usage and Technical Specifications</b> .....	<b>9</b>
3.1	Intended use .....	9
3.2	Improper use.....	9
3.3	Technical specifications.....	10
<b>4</b>	<b>Functional Description</b> .....	<b>11</b>
<b>5</b>	<b>System Description</b> .....	<b>12</b>
5.1	Controls .....	12
5.2	Handgriff mit Piezozünder .....	12
5.3	Mechanical cabinet.....	13
5.4	Connections.....	14
<b>6</b>	<b>Packaging and Transport</b> .....	<b>15</b>
6.1	Packaging .....	15
6.2	Transport .....	15
6.3	Scope of delivery .....	15
<b>7</b>	<b>Installation / Commissioning</b> .....	<b>16</b>
7.1	Setup .....	16
7.2	Electrical connection.....	16
7.3	Connecting the gas supply .....	16
7.4	Installation of the burner .....	17
7.5	Installation of the air-gas mixture hose.....	17
7.6	Filling in the start-up report.....	17
<b>8</b>	<b>Operation of the System</b> .....	<b>18</b>
8.1	Making the system ready for operation .....	18
8.2	Adjusting the burner output (air flow) .....	18
8.3	Starting the burner .....	18
8.4	Flame treatment process.....	18
<b>9</b>	<b>Switching off the system</b> .....	<b>19</b>
9.1	Short-term inactivity.....	19
9.2	Shutdown.....	19
<b>10</b>	<b>Maintenance and Inspection</b> .....	<b>20</b>
10.1	Leak testing .....	20
10.2	Safety inspection .....	20
10.3	Replacement periods.....	20

---

10.4	Replacing the filters .....	21
10.5	Replacing the air-gas mixture hose .....	21
<b>11</b>	<b>Adjusting the Air and Gas Quantity .....</b>	<b>22</b>
11.1	Air quantity .....	22
11.2	Gas quantity .....	22
<b>12</b>	<b>Troubleshooting.....</b>	<b>23</b>
12.1	Error on the burner system .....	23
12.2	Checking the control circuit components.....	23
<b>13</b>	<b>Forms .....</b>	<b>24</b>
<b>14</b>	<b>Circuit Diagram, Pneumatic Diagram .....</b>	<b>37</b>

## 1 General Information

The following symbols are used in this information for use:

 <b>WARNING</b>	Indicates a risk that may result in death or serious injury if not avoided.
 <b>CAUTION</b>	Indicates a risk that may result in minor injury if not avoided.
	Warning of hazardous voltage
	Warning of hot surfaces
<b>NOTICE</b>	Indicates a warning of material damage that may occur if the information is not complied.
<b>Important!</b>	Indicates important information.
<ul style="list-style-type: none"> <li>• Instructions that should be carried out in the specified order.</li> </ul>	
<ul style="list-style-type: none"> <li>→ Result of an instruction</li> </ul>	
<ul style="list-style-type: none"> <li>■ List of instructions in safety and warning information</li> </ul>	

## 2 Safety Instructions

### 2.1 Requirements for the operator and operating personnel

- Only allow trained personnel to operate the flame treatment system who knows all hazards and faults that may occur during operation.
- Comply with the manufacturer's written information for use.
- Comply with all safety and warning instructions on the system and in the information for use.
- Comply with all relevant national safety regulations.
- Only operate the flame treatment system in safe and good condition.
- Make sure that all protective devices are present and effective.
- Never bypass, disable or remove protective devices.
- If the system cannot be shut down to remedy a fault, it may be necessary to bypass protective devices for maintenance, inspection and servicing purposes. Only allow qualified personnel to do so. In this case, use safe work plans to ensure an equivalent safety level.
- After the maintenance work reinstall safety devices immediately.
- Knowledgeable personnel should be responsible for the effective operation of the safety and control equipment. Allow knowledgeable personnel to instruct the supervising and operating personnel about all hazards and faults that may occur during operation.
- If a safety device induces a shut down, only allow authorized personnel to operate the equipment again after having corrected the fault.
- In case of malfunction, switch off the system immediately and secure it against switching it on again. Correct the fault as soon as possible.
- Update the information for use if the original system is changed.

### 2.2 Requirements for the installation site

#### 2.2.1 Set-up surface and surroundings

- Make sure that the flame treatment system is standing on a stable surface.
- Keep the flame treatment system far enough away or shielded from flammable material so that it cannot reach temperatures higher than 85°C.
- Before starting up the system, lock the wheels so that the flame treatment system cannot roll away accidentally.

#### 2.2.2 Safe air supply

- Ventilate the room, in which the flame treatment system is used, so that a sufficient supply of fresh air is ensured and the currently applicable workplace exposure limits are observed.
- If there is insufficient fresh air supply, provide an air extraction system.

## 2.3 Safety during installation, maintenance and repairs

**The system may only be installed, maintained and repaired by trained and qualified personnel, for example by Arcotec service technicians. Work carried out by unauthorized, untrained personnel can cause dangerous situations.**

- Make sure that the safety of the system is not impaired.

**The system has to be secured against being inadvertently switched on again before carrying out installation, maintenance and repair work:**

- Turn off the main switch and attach a warning sign to the main switch.
- Check that the system is voltage-free.
- After carrying out the repair work, check the operational safety of the system by means of a test run.

**Changes to the system are only permitted after written consultation with Arcotec. Only original spare parts may be used.**

## 2.4 Electrical hazards

**There are live high-voltage parts in the electrical housing. There is a risk of electric shock if live parts in the housing are touched, which is life-threatening.**

- Do not open the electrical housing during operation.

**The air-gas mixture is ignited by the ignition electrode on the burner by means of a piezoelectric igniter. The ignition voltage can be painful.**

- Do not touch the ignition electrode during ignition.

## 2.5 Behaviour in case of smell of gas

**Explosion hazard!** In case of smell of gas, take the following safety measures:

- Avoid naked flames and sparks.
- Do not switch lights on or off.
- Do not use electrical devices.
- Open doors and windows.
- Close the gas valve (possible leak in the gas flame system).
- Shut off the gas supply (e.g. gas line) (possible leak in the external gas line).
- Check the system for leaks.
- Arrange for the gas installation to have checked by authorized gas fitters and plumbers or by relevant regional gas distribution agencies.

## 2.6 Explosion hazard

**In case of uncontrolled gas leakage, an explosive mixture of gas and air can form in the ambient air. This can cause an explosion in the presence of an ignition source.**

- If the system is not used, always close the gas ball valve.
- Keep the ambient air free of flammable gases.
- Always ensure good ventilation.
- Regularly check the gas-carrying hose lines for leaks by authorized specialist personnel, at least every 2 weeks (depending on the use of the hose).
- Arrange for authorized specialist personnel to carry out an annual safety inspection of the safety-relevant components.
- Replace the air-gas mixture hoses depending on the wear, though at least every 5 years.
- Do not change the diameter of the air-gas mixture hose.
- When supplying gas in cylinders, the connection must be checked for leaks every time the cylinder is changed.

## 2.7 Burn hazard

**The burner flame causes high temperatures of approximately 1800°C. As a result, the burner housing and the electrode become very hot.**

**The burner flame is unprotected. The operator is responsible for handling of the burner flame carefully.**

- Do not touch the hot burner and the hot flame.
- Do not aim the flame at body parts or persons.

**Even after switching off, the burner housing still has a high temperature. Direct contact with the hot burner housing can cause burns.**

- After switching off the flame treatment system, do not touch the burner housing before it has cooled down.

## 2.8 Fire hazard

**If the flame remains too long on a combustible material, there is a risk of fire.**

- Adjust the burner output and processing speed so that the material will not be damaged or set on fire by excessive heat.
- Keep a fire extinguisher ready close to the flame treatment system.

## 2.9 Information to prevent a damage to the system

**Comply with the maximum permissible gas pressure of 100 mbar.**

---

## 3 Usage and Technical Specifications

### 3.1 Intended use

The flame treatment system is only intended for the physical pre-treatment of plastic, metal and glass surfaces to improve the bonding capabilities of printing ink, paint, adhesives, foam etc. This flame treatment system is intended **only for manual use with two-hand control** by trained users or supervisors.

The system may only be operated within the limits specified in the technical specifications. It has been factory pre-set for use with propane gas. The air/gas mixture ratio was adjusted accordingly by an Arcotec technician. The burner may only be operated in the specified output range.

The gas supply (distribution system, pressure tank) has to be provided by the customer. The burner has to be set according to the treatment length and the required treatment performance. It is important to ensure an optimal distance from the surface of the material to be treated.

The system produces a defined air-gas mixture for combustion. The resulting flame plasma activates the surface with excess oxygen of the burner air so that the molecules of printing inks, paints and adhesives can bond to the surface. Test inks can be used to verify the treatment effect. In individual cases, you can investigate which ink values are binding for optimum bonding capabilities.

### 3.2 Improper use

The flame treatment system must not be used for purposes other than those intended, such as heating, warming food, etc. The burners must not be operated with hydrogen or other flammable gases for which the system is not pre-configured. The system may not be used as an ignition source for other combustion processes.

Any modifications and changes to the system are not authorized without written permission from Arcotec.

The manufacturer assumes no liability for damage resulting from improper use.

### 3.3 Technical specifications

System type	Flame treatment system with manual burner handling
Type	FTM 101
Serial number	
Year of manufacture	
Operating voltage	230 V / 50 Hz / N / PE
Electrical power consumption	400 VA
Permissible atmosphere	free of flammable gases
Gas type	<b>Propane (preset)</b>
Gas flowmeter scale	<b>0.8 – 4.8 l/min (propane)</b> / 1 – 7 l/min (methane)
Air flowmeter scale	10 – 100 l/min
Total heat output	max. 6.5 kW
Gas consumption	0.5 kg/h (propane) / 0.6 m <sup>3</sup> /h (methane)
Net calorific value	12.87 kWh/kg (propane) / 9.97 kWh/m <sup>3</sup> (methane)
Min./max. gas pressure	50 – 100 mbar / 5 – 10 kPa
Burner head	B1M-100
Burner operating range (air)	50 – 100 l/min
Working width	100 mm
Kind of ignition	Piezoelectric ignition with battery
Air-gas-mixture hose	LPG 1/2" – 3 m
Blower	Rubin 40 (single phase)
Housing: width x height x depth	550 mm x 524 mm x 525 mm
Net weight	51 kg
Total weight	61 kg

## 4 Functional Description

The flame treatment system consists of the control cabinet, the mechanical cabinet, the burner with hand grip and the hand switch. Air and gas are fed separately to the mechanical cabinet and mixed in a defined ratio. The air-gas mixture is supplied to the burner via an air-gas mixture line. If the gas content is too low, the air-gas mixture will not be ignitable. If the gas content is too high, the flame will become extremely long, greenish or yellowish.

The air-gas mixture is ignited by means of piezoelectric ignition. For correct operation, the electrode and burner body should be 2 mm apart.

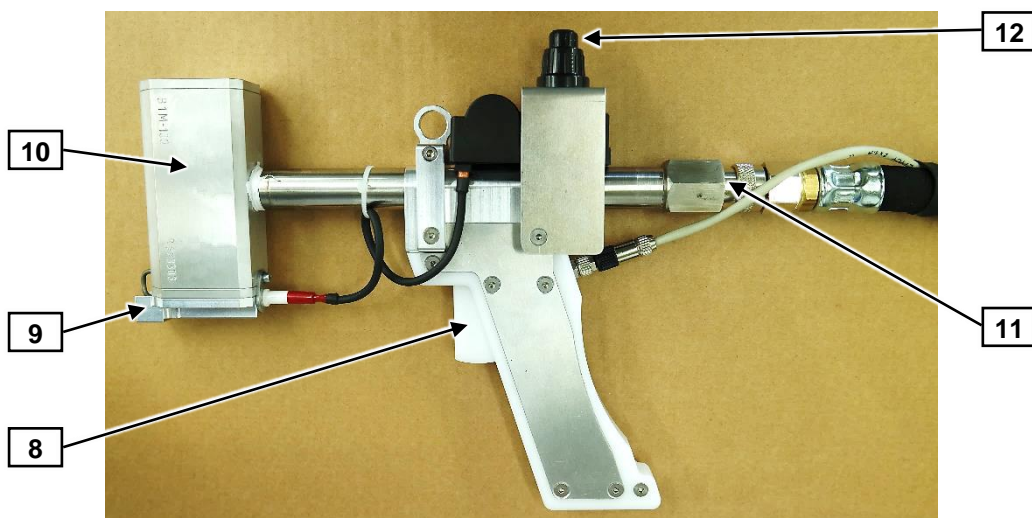
## 5 System Description

### 5.1 Controls



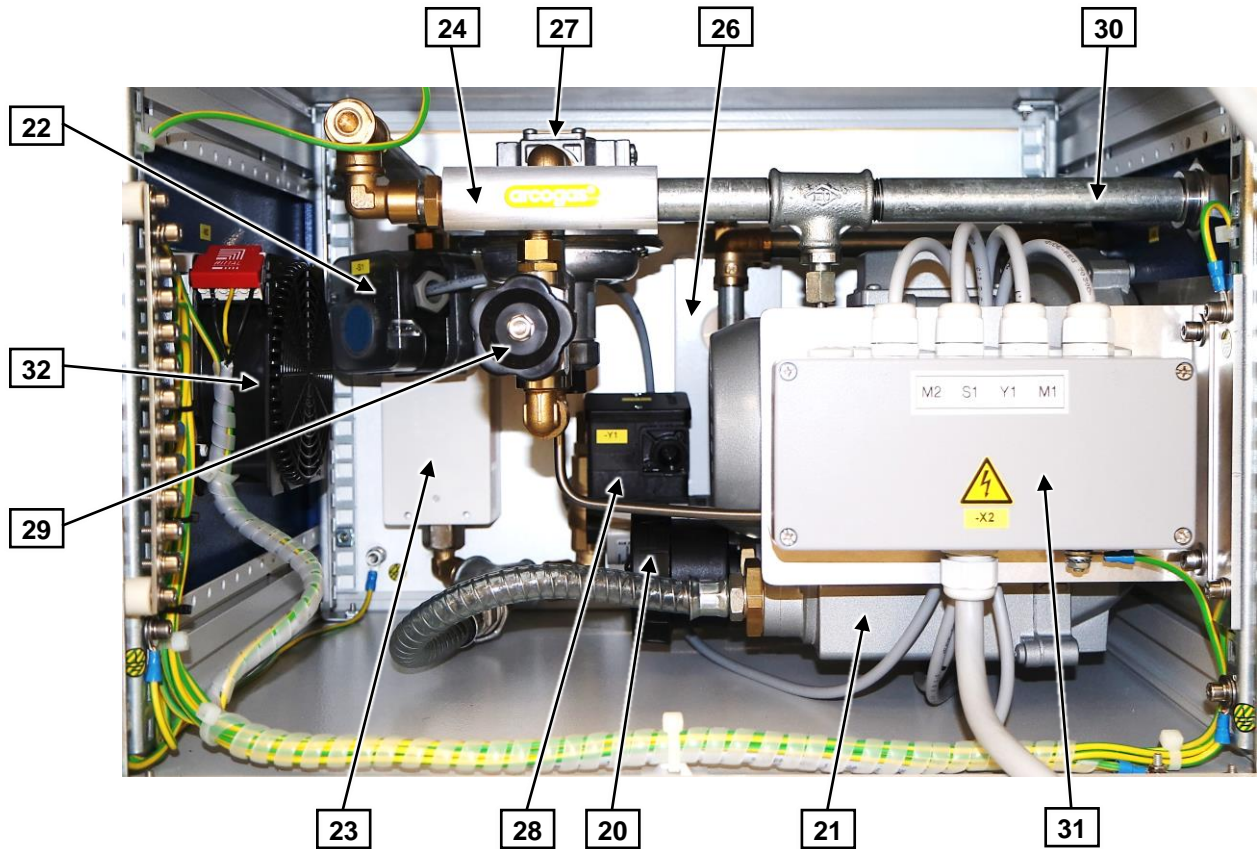
- 1 Main switch
- 2 Indicator light "Air ON"
- 3 Indicator light "Gas ON"
- 4 Handwheel for adjusting the burner output (air flow)
- 5 Air flowmeter
- 6 Gas flowmeter

### 5.2 Handgriff mit Piezozünder



- 8 Start switch on the hand grip
- 9 Ignition electrode
- 10 Burner
- 11 Quick connector
- 12 Button for ignition

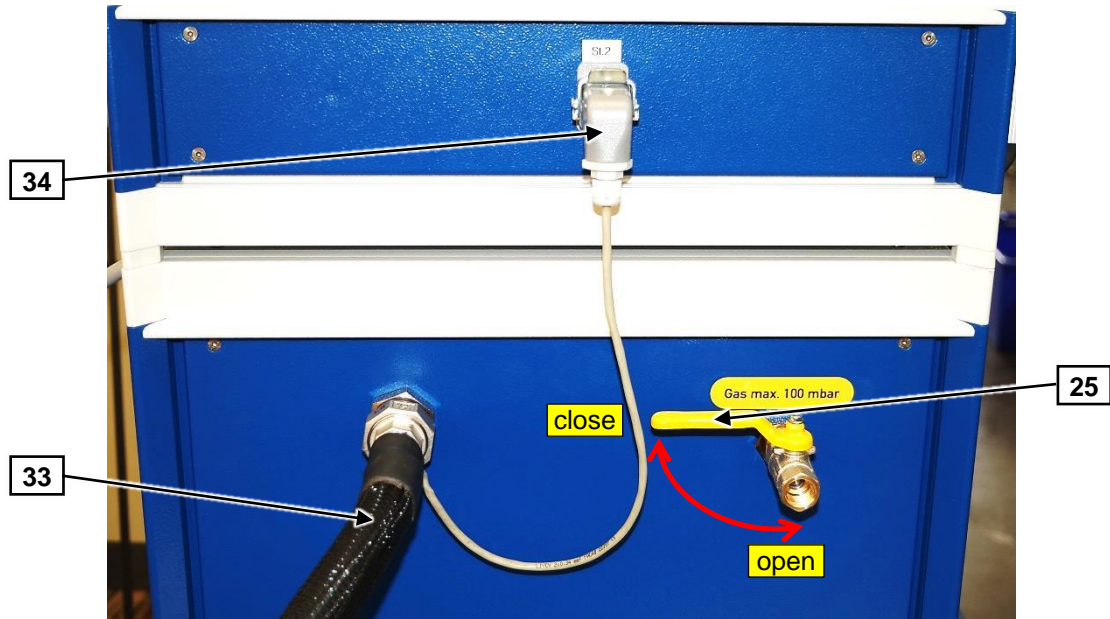
### 5.3 Mechanical cabinet



- 20 Air filter
- 21 Blower
- 22 Air pressure switch (S1)
- 23 Air flowmeter
- 24 Mixing chamber
- 25 Gas ball valve (outside) \*
- 26 Gas flowmeter
- 27 Air/gas mixture ratio control
- 28 Gas solenoid valve (Y1)
- 29 Gate valve for gas
- 30 Air-gas mixture pipe to the burner
- 31 Distribution box
- 32 Case fan

\* = not visible in the picture

### 5.4 Connections



- 25 Gas ball valve
- 33 Air-gas mixture hose
- 34 Connector St 2 (female)

## 6 Packaging and Transport

### 6.1 Packaging

- Dispose of the used packaging according to the official regional regulations.

### 6.2 Transport

- The system may only be transported and installed by the trained personnel.
- When transporting the system, make sure not to damage it.
- Comply with the accident prevention regulations.
- Report transport damage immediately.

### 6.3 Scope of delivery

Pos.	Quantity	Item	Designation
1	1	62352	Burner control FTM 101
2	1	62326	Burner B1M-100
3	1	61318	Air-gas mixture hose LPG 1/2" – 3 m
4	1	61407	Hand grip with battery piezoelectric igniter, cable and quick connector
5	1	62699	Reduction 3/8" OT x 1/4" IT, brass
6	1	63086	Six-square nips 1/4" right/left, brass
7	1	64827	Technical documentation in English

## 7 Installation / Commissioning



### **WARNING! Risk of injury due to improper handling!**

The installation and commissioning may only be carried out by authorized specialist personnel who is capable of identifying risks and preventing possible dangers, for example by a service technician from Arcotec.

### 7.1 Setup

The system is delivered completely and ready for connection. It may only be used in closed rooms with a normal ambient temperature. It is generally not suitable for installation outdoors.

- Ensure adequate ventilation to comply with the currently applicable occupational exposure limits. Otherwise, oxygen deficiency may occur in the air.
- When using the system, make sure that there is enough space for operation.
- Before using the system, lock the wheels so that the flame treatment system cannot roll away unintentionally.

### 7.2 Electrical connection

- Connect the system in accordance with the local regulations.
- Make sure that the operating voltage and mains power are the same.
- Connect connector St2 (34) of the air-gas mixture hose (33) to the burner control.

### 7.3 Connecting the gas supply

Comply with the national accident prevention regulations and the national guidelines for the use of liquefied gas in commercial undertakings.

Only authorized gas fitters and plumbers or regional gas distribution agencies are allowed to install and check the gas installation.



### **WARNING**

**The flame treatment system must not be operated without gas ball valve connected to the gas input.**

- Connect the enclosed gas ball valve to the gas input of the mechanical cabinet (see section 5.4).

### **NOTICE**

- **Comply with the maximum permissible gas pressure of 100 mbar / 10 kPa.**

- Comply with the factory-set gas type specified in the technical specifications.
- Connect the enclosed gas ball valve to gas input of the mechanical cabinet.
- Connect the flame treatment system to the gas supply via a gas pressure regulator. In case of doubt, use an additional gas overpressure protection.
- Check the gas connection for leaks on both sides.
- In case of using gas cylinders, check the connection for leaks after every exchange of gas cylinders, e.g. by means of leakage spray.

## 7.4 Installation of the burner



**WARNING. Risk of hazardous situations due to unauthorized modifications.**

**The mechanical modification of the burner (e.g. by drilling new holes) is not allowed.**



**WARNING. Fire hazard due to excessive heat if the permissible output range is ignored or if the burner is used improperly.**

- Only operate the burner within the permissible output range (see Technical specifications)
- Consider the distance between the burner and the surface to be treated and the processing speed so that the material will not be set on fire or damaged.

- Attach the exchangeable burner with the quick coupling to the pistol grip (see section 5.2).

## 7.5 Installation of the air-gas mixture hose



**WARNING**

**Unsuitable or defective hoses can lead to an explosion hazard due to the flammable air / gas mixture.**

- Only use suitable cables and air –gas mixture hoses in perfect condition. In case of doubt, contact Arcotec.
- Do not change the diameter of the air-gas mixture hose.
- Before commissioning check the connections for leaks, e.g. with leakage detection spray.

- Connect the air-gas mixture hose (33) to the mechanical cabinet.
- Do not modify the prefabricated air-gas mixture hose without consulting Arcotec. Keep the supply of the air-gas mixture as short as possible. If another hose length is required, contact Arcotec.
- As a pressure test is not possible for technical reasons, check the connections of the control cabinet and burner for leaks under normal operating conditions, e.g. with leakage detection spray.

## 7.6 Filling in the start-up report

- Fill in the start-up report (see in chapter 13) after commissioning.

## 8 Operation of the System



**WARNING. The escape of unburnt gas can form an explosive gas-air mixture in the ambient air. Explosion hazard!**

- If the burner has not ignited after 5 seconds, release the start button (8) on the pistol grip.
- If the system is not used (even during short breaks), always close the gas ball valve.



**WARNING. The burner flame causes high temperatures. Burn hazard!**

**The burner housing still has high temperatures even after the flame has gone out.**

- Do not aim the flame at body parts or other people.
- After switching off the flame, do not touch the burner housing before it has cooled down.

**NOTICE! Fire hazard if the flame remains too long on a flammable material.**

- Adjust the burner output and handle the burner so that the material will not be damaged by excessive heat or set on fire.

### 8.1 Making the system ready for operation

- Turn on the main switch (1).
  - The blower is running and the indicator lamp “Air ON” (2) lights up.
- Open the gas supply from the gas cylinder or gas line (**Maximum gas pressure 100 mbar**).
- Open the gas ball valve (25).

### 8.2 Adjusting the burner output (air flow)

The burner output is essentially controlled by the air quantity supplied to the mixture line, to which the gas quantity is automatically added corresponding to the necessary and pre-set ratio. The air flow can be read from the air flowmeter (5).

- Adjust the air flow to the required value by means of the handwheel (4) on the front panel of the mechanical cabinet.

### 8.3 Starting the burner

- Press the start button (8) of the hand grip.
  - The gas valve opens. The air-gas mixture is streaming out of the burner.
  - The yellow indicator lamp „Gas ON“ lights up.
  - The gas flow is indicated at the gas flowmeter.
- Press the button for ignition (12) to ignite the air-gas mixture.

### 8.4 Flame treatment process

- Keep the start button (8) on the hand grip pressed during flame application.
- In order to extinguish the flame, release the start button (8).

## 9 Switching off the system



### CAUTION!

**Burn hazard due to hot surfaces on the burner after the flame has extinguished.**

- Allow the burner to cool down first.

### 9.1 Short-term inactivity

- In order to extinguish the flame, release the start button (8) of the handgrip.
- Close the gas ball valve (25).

### 9.2 Shutdown

In order to prepare the system for a long period of inactivity (e.g. several hours or overnight), follow these steps:

- First, press the start button (8) to release the air-gas mixture and then press the button for ignition (12) to ignite the air-gas-mixture.
- Keep the start button (8) pressed.
- Close the gas ball valve (25) while the flame is burning.
- Keep the start button (8) pressed, until the flame burns out.
  - The flame goes out after the gas remaining in the tubes has completely burned. This ensures that no flammable gas remains in the pipeline.
- Switch off the main switch (1).
- Disconnect the power plug from the mains.

## 10 Maintenance and Inspection



### WARNING

Only trained specialist personnel are allowed to work on the pipelines and safety-relevant parts.



### CAUTION! Hot surfaces.

**Burn hazard from hot surfaces in the area around the burner after switching off the system.**

- Allow the burner and heated neighbouring parts to cool down first.

The following checks have to be carried out in accordance with the accident prevention regulations:

### 10.1 Leak testing

At least once every six months, check the gas-conveying hose for leak tightness.

The inspection takes place under normal operating conditions. Use a leakage detection spray or similar as a test medium. A pressure test is not possible.

Use the leakage test form (see form in chapter 13) to enter the inspection date, the results, the person performing the inspection and the date of the next inspection.

### 10.2 Safety inspection

**The safety inspection may only be carried out by authorized specialist personnel.**

At least once a year, check the following components or safety devices:

- Gas solenoid valve \*
- Air/gas ratio control valve
- Air-gas mixture hose (regular visual check, at least every 2 weeks)
- Filters (see section 5.3)

The components marked with \* are safety components.

Depending on the level of use, a visual inspection of the mixture hoses should be carried out regularly, but at least every 2 weeks.

### 10.3 Replacement periods

Mixture hose, LPG-type	depending on wear, but at least every 5 years
Filters	depending on the degree of contamination

## 10.4 Replacing the filters

Replace the filters depending on the degree of contamination.

The filters are located in the mechanical cabinet (see section 5.3):

- Case fan filter
- Air filter
- Loosen the fixing screws
- Remove the cover
- Replace the filter
- Mount the cover

## 10.5 Replacing the air-gas mixture hose

- Only use air-gas mixture hoses that are suitable and approved for the corresponding media.
- Check the connections for leaks before commissioning, e.g. use a leakage spray.

## 11 Adjusting the Air and Gas Quantity



### WARNING

Improperly executed work can pose a significant safety risk.

Only allow Arcotec technicians or authorized specialist personnel to adjust the settings.

### NOTICE

Only allow Arcotec technicians or authorized specialist personnel to adjust the gas quantity or change the gas type. Otherwise, the proper functioning of the system cannot be granted.

- Consult the manufacturer Arcotec, if you want to change the settings in the mechanical cabinet.

### 11.1 Air quantity

- Do not change the factory set air flow range.

The air flow value is shown on the air flow meter scale.

### 11.2 Gas quantity

#### NOTICE

The change of air-gas mixture ratio may only be made by a technician or under his guidance after consultation with the company Arcotec. Otherwise, proper operation of the system cannot be granted.

**Risk of damage to the air/gas control device if the adjusting screw is over-tightened.**

- Do not over-tighten the adjusting screw of the air/gas ratio control, otherwise the regulator can be damaged.

When adjusting the air and gas flow, use the original burner of this flame treatment system, because the flow depends on the used burner.

1. Increase the air flow to maximum by means of the handwheel (4) on the front panel.  
Use the black handwheel (29) inside the mechanical cabinet to set the gas flow to the desired ratio at the maximum air flow setting.  
Predefined air/gas mixing ratios are for propane (C<sub>3</sub>H<sub>8</sub>) 25:1 (air: Gas) and for methane (CH<sub>4</sub>) 10:1.
2. Set the lowest air flow and ignite the burner.  
Remove the black protective cap from the air/gas ratio control.  
Carefully adjust the gas flow at the adjusting screw with an Allen key / Phillips screwdriver from below to achieve the desired mixing ratio of air and gas.
3. Check steps 1 and 2 several times and readjust if necessary.
4. Check if the burner ignites safely at the lowest setting.

## 12 Troubleshooting

Only specialist personnel may be entrusted with the troubleshooting.

### 12.1 Error on the burner system

Blower does not work	– Check the motor protection switch or fuse for the blower.
No ignition spark	– Is the gas connection open (indicator light “Gas ON” lights up)? – Does the blower work (indicator light “Air ON” lights up)? – Is the spark plug connector properly fitted to the ignition electrode? – Has the ignition cable been installed correctly? – Is the ignition electrode OK? Replace the ignition electrode in case of doubt.
Ignition spark, but no flame	– Check the position of the ignition electrode. Distance to the burner body approx. 2mm. – Is gas available? If gas is flowing, the flow rate is indicated on the float-type flowmeter during ignition. If no gas is flowing, the gas safety valve may be defective, i.e. it fails to open. – Is the mixture too lean (i.e. gas content too low)? During ignition you can see the gas flow rate on the flowmeter. – If part of the control circuit is defective, the air and gas quantities will not reach the defined values. In this case, see “Checking the control circuit components.”
Overly long, yellowish or greenish flame	– The mixture is enriched too much (the gas content is too high). Adjust the mixing ratio accordingly (see “Adjustment of Air and Gas Quantity”). If an adjustment is not possible, part of the control circuit may be defective. In this case, see “Checking the control circuit components.”
Output fluctuations	– Is the blower contaminated, blocked or defective? – A fault may have occurred in the control circuit. See “Checking the control circuit components.”
The mixing ratio does not remain constant when the output is changed.	– The mixing ratio must be readjusted, see “Adjustment of Air and Gas Quantity”. – A fault may have occurred in the control circuit. See “Checking the control circuit components.”
The flame has an inhomogeneous appearance	– All of the small flame cones need to be visible on the nozzle exits along the entire length of the burner. If this is not the case, individual burner nozzles may be contaminated or jammed. If it is not possible to clean them by tapping or poking, it is necessary to disassemble the burner for thorough cleaning; only appropriately trained specialist personnel are allowed to perform the work.

### 12.2 Checking the control circuit components

The control circuit components mainly consist of the following:

- Air/gas ratio control,
- Flowmeter in the gas piping,
- Flow meter in the air piping.

In principle, the air-gas ratio control can only be checked by replacing the component with a new one. For this, the manufacturer Arcotec should be consulted.

Flowmeters are purely mechanical components that normally work either correctly or not at all.

## 13 Forms

Form	Relevant section	Page where form can be found
Start-up report 1 (for the initial start-up)	7.6 Filling in the start-up report	25, 27
Start-up report 2 (Entering basic settings and treatment results)		29, 31
Leak testing	10.1 Leak testing	33
Changes to the system		35





















### Form for Entering Modifications

**The following modifications have been performed on the system (e.g. repairs, parts replaced or substituted, modifications to the operating conditions):**

**Date of the modification:**

**Resulting in the following changes during use:**

**Signature:**

**Important!**  
**Staple this form onto the cover of the information for use.**



## 14 Circuit Diagram, Pneumatic Diagram