



SMARTWELD **RECORD**

Handle with integrated measurement technology

INSTRUCTION MANUAL

RAIL JOINING

RAIL SERVICES

MEASUREMENT

TOOLS & MACHINES

EQUIPMENT

MEMBER OF



GOLDSCHMIDT
THERMIT GROUP

Revision history

Revision	Date	Comments, affected chapters	Changes made by
01	31.08.2017	Revision LED indicators, chapter 3.3	Measurement
02	14.09.2017	Revision chapter 4.1	Quality Assurance



EC Declaration of Conformity

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Description and identification:

Product: SMARTWELD RECORD
Function: Record of preheating for Thermit®-welding

It is expressly declared that the handle fulfils all relevant provisions of the following EU Directives:

2004/108/EC	(Electromagnetic Compatibility) Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004
2014/53/EC	(Radio Equipment) Directive 2014/108/EC of the European Parliament and of the Council of 16 April 2014
2001/95/EC	(General Product Safety) Directive 2001/95/EC of the European Parliament and of the Council of 03 December 2001

Halle, 31st January, 2017

Place and date of issue

.....
Dr. J. Keichel (Managing Director)

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Date of publication: 19/05/2017
Documentation version: 14/09/2017

1 For your information

1.1 About this instruction manual

This instruction manual includes all the information required for use as intended by trained personnel. Amongst other things, they contain information about commissioning, operation, maintenance and disposal of the SMARTWELD RECORD. Additional information can be requested from the manufacturer.

Please note the following points:

- This instruction manual is part of the SMARTWELD RECORD.
- They must be available to the user at all times.
- If the SMARTWELD RECORD is transferred to other operators, they must also be handed over, after operator-specific details have been added.
- This instruction manual doesn't replace the work instruction for the welding processes in question.
- The information in these operating instructions is binding in nature.
- Every user must have read and fully understood the entirety of these operating instructions before use.
- Follow the instructions, prohibitions and commands in the operating instructions at all times.
- Pay attention to all the safety information.

1.2 Product identification

The following information is provided on the SMARTWELD RECORD (Figure 1):

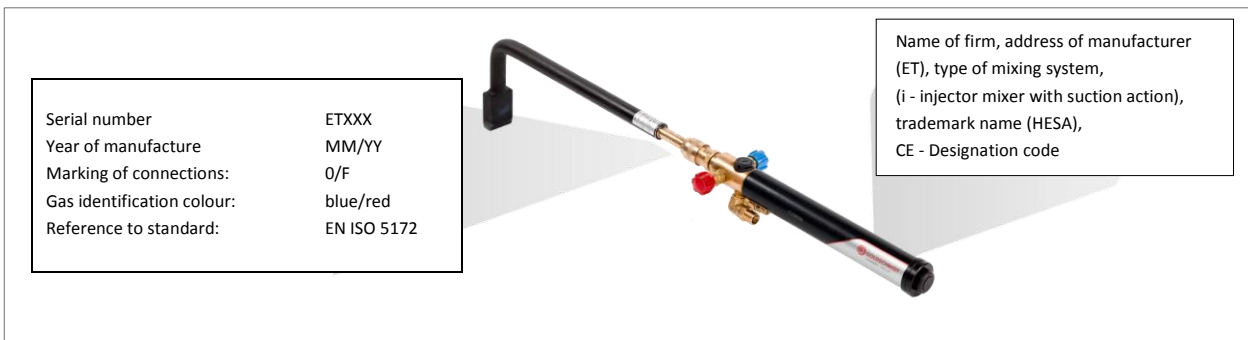


Figure 1: Product identification


The serial number must always be quoted in any correspondence with the manufacturer or with customer service.

1.3 Supplementary documents

- The work instruction for the respective THERMIT® welding process. This includes important information on execution of the welding process.
- The operating instructions for the autogenous devices. These include important information on handling the preheating burners.
- The software instructions for the SMARTWELD APP. These contain important notes on how to use the app.

1.4 Liability

The user is responsible for failure to comply with the instruction manual. The warranty does not cover damage to the SMARTWELD RECORD or to accessories or disruptions to business where the said damage is the failure to comply with the or misuse by the user. Unauthorised conversion or modification of the SMARTWELD RECORD or accessories are not permitted and invalidate the warranty.

 Elektro-Thermit GmbH & Co. KG is not liable for personal injury or damage to property caused by use of the SMARTWELD RECORD or accessories for anything other than the intended purpose (*see chapter 3.2 "Intended use"*).

1.5 Copyright

This instruction manual is protected by Elektro-Thermit GmbH & Co. KG copyright.

1.6 Warranty

The legally stipulated obligation governing the warranty period applies.

The batteries are not covered by the warranty.

2 Notes for your safety

2.1 Symbol Explanation



Symbol	Description
	Warning: risk of injury
	General note for helpful tips and additional information.

Table 1: Symbols

2.2 Safety instructions


This chapter contains all the information relating to safety. Read all safety information thoroughly before use and follow it carefully when using the device.

- The use of preheating burners and handling of fuel gases and oxygen requires specialist knowledge and compliance with these operating instructions. Operating personnel must receive training and safety instruction.
- Before commissioning, please note any potential hazards in the workplace, e.g. risk of fire due to highly flammable solids, liquids or gases. When preheating, please ensure that the heat produced spreads outward and upward. We recommend cooling any heat-conducting materials.
- A mixture of fuel gas and oxygen or fuel gas and air must not be allowed to escape from the burner **unignited**.
- All preheating burners and the SMARTWELD RECORD meet the requirements of EN ISO 5172 and have been manufactured and tested in accordance with the latest technical standards. No modifications or repairs may be carried out without the approval of the manufacturer.
- Improper use or use for anything other than the intended purpose can lead to risks for the operator and others and may cause damage to the equipment and the system.
- The operator has a duty to provide sufficient personal protective equipment (PPE) for the operating personnel.
- The accident prevention regulations of the relevant insurer are binding for the execution of all work.
- Use in combination with competitor products is not permitted.

3 Product description and use characteristics

This chapter illustrates the most important components of the SMARTWELD RECORD and explains their functions.

3.1 Scope of delivery

 On receipt of the SMARTWELD RECORD, check that all the items have been received and are in good condition.

Included in the scope of delivery:

- SMARTWELD RECORD,
- Charging cable (micro-USB)
- Brief instructions SMARTWELD RECORD

3.2 Intended use

The SMARTWELD RECORD is a handle piece with integrated measuring technology for electronic recording of the preheating of a THERMIT® weld. The SMARTWELD RECORD may only be used with the preheating burner inserts and parameters stated in the work instruction for the respective THERMIT® welding process.

The SMARTWELD RECORD is technically designed for this use only and may only be used and operated for this purpose. Any other use of the SMARTWELD RECORD or of its accessories, or any use that goes beyond this, does not constitute 'intended use'.

The SMARTWELD APP, which communicates with the SMARTWELD RECORD via Bluetooth, can be used to display and document the preheating time, gas pressures and individual process steps of the THERMIT® weld, among other things.

3.3 Structure of the SMARTWELD RECORD with preheating burner insert

The burner insert is selected in accordance with the welding process and connected to the SMARTWELD RECORD by means of the terminal nut.

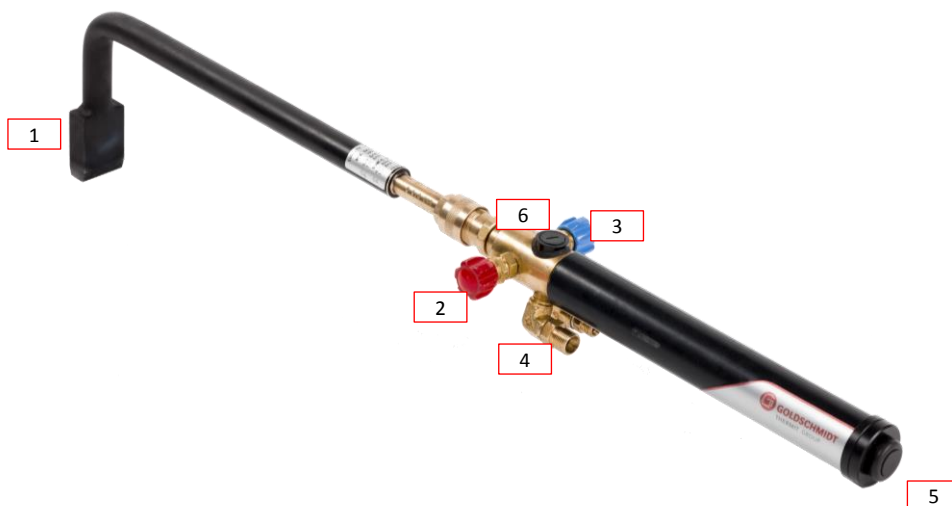


Figure 2: SMARTWELD RECORD

number	Control element
1	Preheating burner insert (not part of the SMARTWELD RECORD)
2	Gas pressure valve, fuel gas
3	Gas pressure valve, oxygen
4	Gas connections
5	Button
6	Micro-USB chargers

The LEDs on the SMARTWELD RECORD indicate the following:




LED lamp	Function	Description
	LED is lit in blue.	Bluetooth connection is established between the SMARTWELD RECORD and the SMARTWELD APP.
	LED is lit in green.	The charging cable is connected.
	LED is flashing red.	The SMARTWELD RECORD is switched on. Bluetooth connection between the SMARTWELD RECORD and the SMARTWELD APP is not yet established.
	LED is lit in red.	The Batteries are almost empty. Connect the charging cable and charge the SMARTWELD RECORD.

Table 2: LED indicators

4 Technical data

4.1 Technical data SMARTWELD RECORD

Category	Data	Value (Wert)
General	Operating temperature	-20 °C to +50 °C
	Bearing temperature	-20 °C to +50 °C
Dimensions and weight	Height	70 mm
	Width	122 mm
	Length	387 mm
	Diameter	40 mm
	Weight (incl. batteries)	1,350 g
Pressure sensors	Resolution	1 kPa
	Precision	1 kPa
	Measuring range for oxygen	0 to 1,000 kPa
	Measuring range for fuel gas	0 to 500 kPa
Batteries	Internal NiMH batteries (standard AAA cells)	4
	Operating time (in continuous operation)	8 h
	Charging up	Compatible with Micro-USB chargers
	Water-tight protective cap	IP54
Data transfer	Bluetooth 4	BT Low Energy

Table 3: Technical data SMARTWELD RECORD


4.2 Marking gas type

Type of gas	Designation code	Identification colour
Oxygen	O	blue green (USA)
Acetylene	F	red
Propane	F	red

Table 4: Marking gas type

5 Commissioning

- 1) Check the SMARTWELD RECORD and its components for signs of damage, such as cracks and fractures.
- 2) Check the charge state of the batteries.
- 3) Check that all threaded connections and seals are clean and undamaged.

	DANGER
	<p>Ensure that all parts coming into contact with oxygen are free of oil and grease! Danger of explosion!</p>

- 4) The connection of hoses and selection of suitable preheating burner insert for the SMARTWELD RECORD must be carried out in accordance with the operating instructions for autogenous devices and the THERMIT® welding process.
- 5) Press the button to start up the SMARTWELD RECORD so that it is ready for operation.
- 6) Launch the SMARTWELD APP and proceed as set out in the SMARTWELD APP operating instructions.
- 7) Set the operating pressures in accordance with the operating instructions for autogenous devices.
- 8) Ignite and adjust the flame in accordance with the operating instructions for autogenous devices.
- 9) Connect the SMARTWELD RECORD to the SMARTWELD APP.
- 10) Check the flow pressures and adjust the fuel gas if necessary.
- 11) Execute and terminate the preheating process according to the SMARTWELD APP.

i When installing the burner insert on the SMARTWELD RECORD, ensure the parts and seals are clean and undamaged. The terminal nut on the torch insert should be tightened by hand. If necessary, a key can be used.

i The SMARTWELD RECORD must always be operated in technically perfect condition. If the SMARTWELD RECORD is not in perfect condition, restore normal condition and/or inform the authorised service partner.


6 Taking out of service

1. On the SMARTWELD RECORD, first close the gas pressure valve for the fuel gas, then the gas pressure valve for the oxygen.
2. Press and hold the button on the SMARTWELD RECORD for approx. 3 seconds to switch off the SMARTWELD RECORD. The red LED will go out.
3. Subsequent procedure as set out in the operating instructions for autogenous devices or the work instruction for the respective THERMIT® welding process.

7 Notes for operation and maintenance

To make sure that functionality and safety are not impaired, the devices should be handled with care and protected from mechanical damage and contamination.


7.1 Charging the batteries

 Always charge the batteries in a dry environment. The batteries are charged using the micro-USB interface.

7.2 Troubleshooting

Fault	Possible cause	Remedy
Lack of leak-tightness on the SMARTWELD RECORD	Screw connections are not leak-tight	Take out of service or do not commission. Have repairs carried out by the manufacturer.
	Blowback into the SMARTWELD RECORD	Take out of service or do not commission. Have repairs carried out by the manufacturer.
Mechanical damage	Incorrect handling	Have repairs carried out by the manufacturer.
LED indicator does not work	Batteries are empty, operating or storage temperature not observed	Bring the device to the operating temperature and recharge the batteries; if this does not work, send the device to the manufacturer for repair.
	LEDs faulty	Have repairs carried out by the manufacturer.
Flow pressures cannot be set	Canister pressures not correctly set	Check canister pressures
	Pressure sensors faulty	Send the device to the manufacturer for repair
Bluetooth connection cannot be established	Batteries do not have sufficient charge	Charge batteries and start again
	App terminates without executing preheating	Terminate app, switch off the SMARTWELD RECORD and restart both

Table 5: Remedying problems

 More information on troubleshooting can be found in the SMARTWELD APP software instructions.

8 Service and repair

8.1 Service and repair workshop

i The SMARTWELD RECORD must be checked annually by Elektro-Thermit GmbH & Co. KG.

8.2 Spare parts

The SMARTWELD RECORD may only be operated with original spare parts. In this context, spare parts also includes the batteries.

i The spare parts may only be replaced by Elektro-Thermit GmbH & Co. KG.

9 Disposal/recycling

This chapter contains all information necessary for the proper disposal of all components of the SMARTWELD RECORD.

i You must ensure that the SMARTWELD RECORD and its components are disposed of in an environmentally responsible manner.

At the end of the service life of the SMARTWELD RECORD, the operator must ensure that each component of the SMARTWELD RECORD is scrapped and disposed of in accordance with the regulations in force at that time.
The SMARTWELD RECORD must be treated as waste electronic and electrical equipment.