GOLDSCHMIDT
Smart Rail Solutions

SMARTWELD PETROL

PREHEATING BLOWER (PETROL/COMPRESSED AIR)

TRANSLATION OF THE ORIGINAL INSTRUCTIONS

GOLDSCHMIDT
Smart Rail Solutions

EC Declaration of Conformity

in accordance with EC Machinery Directive 2006/42/EC, Appendix II, No. 1 A.

Manufacturer:

ELEKTRO-THERMIT GMBH & CO. KG
A GOLDSCHMIDT COMPANY
Chemiestr. 24
06132 Halle (Saale)
Germany

hereby declares that the following product

Trade designation:	Preheating blower (petrol/compressed air)
Product name:	SMARTWELD PETROL
Function:	Preheating of rail ends
Serial number:	T NNNN (T type, N serial number)

corresponds to all relevant provisions of EC Machinery Directive 2006/42/EC.

The machine additionally complies with the following directives:
2014/30/EU of the European Parliament and Council on 26 February 2014 on the harmonisation of legal stipulations of member states in relation to electromagnetic compatibility
Related harmonised standards
EN ISO 12100: 2010 Safety of machinery - General principles for design - Risk assessment and risk reduction

Mr Ingolf Schöniger, Chemiestr. 24, 06132 Halle (Saale), Germany, is authorised to submit the technical documents.

Halle, 13 February 2023

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1. General

1.1 About these instructions

These instructions include all the information required for use as intended of the Smartweld Petrol including its accessories. Amongst other things, they contain information about commissioning, operation, transport and troubleshooting.

Please note the following points:

- These instructions are a component of the Smartweld Petrol.
- They must be available to the user at all times.
- The instructions must be kept close to the Smartweld Petrol at all times throughout the service life of this equipment.
- The instructions must be given to other operators if the Smartweld Petrol is passed on or sold to them.

1.2 Symbols in these instructions

When using these instructions, pay attention to the symbols used. Failure to comply may cause the following things to occur:

- risks of injury to personnel,
- damage to the Smartweld Petrol or the surrounding area,
- loss of warranty cover or
- the manufacturer may decline to accept liability.

These instructions use the following symbols.

SYMBOL	DESCRIPTION
DANGER	The signal word DANGER indicates a hazard with a high level of risk that, if not avoided, will result in death or serious injury.
WARNING	The signal word WARNING indicates a hazard with a moderate level of risk that, if not avoided, may result in serious injury.
CAUTION	The signal word CAUTION indicates a hazard with a low level of risk that, if not avoided, can result in minor or moderate injury.
NOTE	The signal word NOTE indicates a hazard that, if not avoided, can result in material or environmental damage.
	The Info symbol indicates information (tips, recommendations, comments, etc.) that can be useful when dealing with the product.
	Situations with a risk of injury are additionally marked with a warning sign.

Signal words and symbols

1.3 Using these instructions

The information in these instructions is binding in nature. Every user of the Smartweld Petrol must read entirely these instructions before use and have understood them. Follow the instructions, prohibitions and commands in these instructions, as well as all safety instructions.

1.4 Product identification of type plate

Type plate (Fig. is similar)

1.5 The Smartweld Petrol

The Smartweld Petrol comprises a mobile preheating blower with a petrol compressed air burner and torch for igniting the burner. It serves to preheat rail ends prior to Thermit® welding.

1.6 Supplementary documents

The applicable documents are the code of practice for the respective Thermit® welding processes. These contain important information about carrying out the welding process and about the preheating process.

1.7 Liability

The user is responsible for failure to comply with the instructions. The warranty does not cover damage to the Smartweld Petrol and its accessories or disruptions to operation caused by a failure to comply with the instructions or misuse by the user.

The manufacturer cannot be held liable for conversions, changes or the use of devices not certified by the manufacturer. The granted CE conformity loses its validity as a result.

1.8 Copyright

2. Notes for your safety

This chapter contains all the information relating to safety.

Read this chapter thoroughly before using the Smartweld Petrol and follow its instructions when using the device.

2.1 Intended use

The Smartweld Petrol comprises a mobile preheating blower with a petrol compressed air burner and torch for igniting the burner. Its purpose of use is described in Point 1.5. Always use torch 256814 to ignite the burner.

Elektro-Thermit GmbH & Co. KG cannot be held liable for personal injury or damage to equipment caused by anything other than the intended use of the Smartweld Petrol.

2.2 Predictable misuse

A predictable form of misuse occurs whenever the Smartweld Petrol is used for anything other than its intended purpose.

2.3 Further regulations

In addition to the information in these instructions, due compliance is mandatory with the statutory regulations for accident prevention and environmental protection as well as the accident prevention regulations of the operating company.
The operating company is the party that operates the Smartweld Petrol or allows it to be operated by suitably trained personnel.
Compliance is also required with the safety regulations issued by the railway authorities for working on and near the tracks. Work is not allowed to start until the responsible safety officers have granted their approval.

2.4 General sources of hazard

Pay attention to the following safety instructions. The safety instructions draw attention to hazards of possible personal injury, property damage and environmental damage and contain information on how to avoid and prevent hazards.

2.4.1 Risk of workplace injury

Preheating work for Thermit® welding takes place in a construction site environment on which several welding operations and other work may be in progress at the same time and in the immediate area. The potential risk of injury is therefore greater, examples being:

- rail traffic on adjacent tracks,
- getting run over by construction site vehicles,
- getting snagged on construction site vehicles and other moving items of machinery,
- loss of footing on slippery, wet or oily surfaces,
- stumbling over obstacles,
- falling onto pointed or sharp objects,
- getting burned on hot surfaces.

Pay attention to the following precautionary measures:

- comply with all construction site regulations;
- ensure that no other people are standing within effective range of the Smartweld Petrol;
- always work with sufficient lighting;
- always be careful and pay attention;
- ensure sufficient ventilation;
- never leave this device running without supervision.

2.4.2 Risk of injury during operation

The Smartweld Petrol must only be operated by trained personnel. Improper use can result in serious injuries such as severe burns.

Pay attention to the following precautionary measures:

- Guard the construction site to prevent access by unauthorised persons. Coordination of this must be performed by the construction site management team.
- Protect the Smartweld Petrol against unauthorised use.
- Ensure the device is set up horizontally to prevent fuel and motor oil from running out.
- Ensure that there are no highly flammable or explosive substances near the Smartweld Petrol.
- If necessary, remove combustible substances from the workplace and provide sufficient ventilation.
- Wear personal protective equipment (see chapter 2.9 ’Personal protective equipment’).
- Do not place the Smartweld Petrol in water and do not spray it clean with water.
- Route the hoses to prevent them being a trip hazard.
- Ensure that the engine functions in accordance with the accompanying maintenance instructions.
- When filling the tank with petrol:
  - Use automobile fuel (unleaded) only.
  - Stop the engine.
  - As a matter of principle, only add fuel after the device has cooled down.
  - Do not smoke.
  - Do not refill near open flame.
  - Avoid spilling petrol; use a funnel.
  - Make sure the grounding cable is intact.
  - Do not inhale petrol vapours.
  - Do not overfill the tank.
  - Close tank cap properly.

2.5 Safety signage

NOTE
Keep safety signage legible. If safety signage gets damaged or goes missing, the operating company must provide for proper replacement.

SYMBOL	MEANING	SYMBOL	MEANING
	Pay attention to the instructions.		Wear ear defenders.
	Warning! If not properly operated, the machine can cause injury to the user.		No naked flame, fire, open ignition source, and smoking is prohibited.

Safety signage

2.6 Behaviour in case of an emergency

If an emergency occurs, shut down the preheating immediately by closing the cock on the fuel tank and vacate the danger area as quickly as possible.

- Immediately initiate first aid measures in the event of **personal injury**.
- **In the event of a fire**, immediately initiate the required steps for fire-fighting.

2.7 Obligations of the operating company

The operating company is the entity that operates the Smartweld Petrol for commercial or business purposes or permits a third party to use and operate it. The operating company is also legally responsible for the protection of the personnel or third parties.

Obligations of the operating company:
The operating company must know and implement the regulations governing health & safety at work and accident prevention.

2.8 Personnel skills levels

2.8.1 General

All work must be carried out by appropriately trained personnel!
Without exception, all people working on or with the Smartweld Petrol must satisfy the following requirements.

- Before using the machine, they must have read and fully understood the entire scope of these instructions.
- To assure work safety, they wear the requisite personal protective equipment (see chapter 2.9 ’Personal protective equipment’).
- They always observe the operating company’s safety and accident prevention regulations and all statutory provisions relating to personal safety and to the safety of others.

2.8.2 Operating personnel (users)

The following definition describes the operating personnel of the Smartweld Petrol permitted to carry out the tasks described in these instructions:

- Personnel are trained continuously in relation to technical innovations and have the necessary basic understanding of how to work with the Smartweld Petrol and its accessories.
- At the first training session, personnel must receive instruction in the following main points:
  - description of function of the Smartweld Petrol;
  - explanation of its components;
  - explanation of the potential hazards;
  - use of the Smartweld Petrol;
  - detection of faults and malfunctions.

2.9 Personal protective equipment

Unless the operating company specifies otherwise, the protective equipment listed in the following table is mandatory when working with the Smartweld Petrol.

SYMBOL	PROTECTIVE EQUIPMENT	WORKING
	Protective work clothing (protective clothing for welders in accordance with EN 470-1, if necessary hi-visibility safety clothing in accordance with EN 471)	Transport, commissioning, operation, decommissioning, maintenance, cleaning/care
	Work footwear (safety footwear S3 in acc. with EN ISO 20345, ankle-high footwear)	Transport, commissioning, operation, decommissioning, maintenance, cleaning/care
	Protective goggles	Operation
	Work gloves (serious mechanical hazard in acc. with EN 388 (4242), EN 402; if required, protective gloves against thermal risks in accordance with EN 407).	Transport, commissioning, operation, decommissioning, maintenance, cleaning/care

Personal protective equipment

3. Layout and function

3.1 Building

The preheating blower consists of a base frame (frame, protective plate, driving unit), a drive unit (motor, blower, fuel tank) and a burner unit (preheating burner and hoses).

The list of spare parts provides more precise details and pictures.

3.2 Function

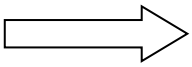
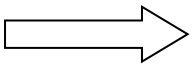
A 4-cycle petrol engine drives the blower via a V-belt. The air sucked via an air filter is then compressed and conveyed to the preheating burner via a compressed air hose. A branch flow presses petrol out of the petrol tank through a petrol hose to the preheating burner. The burner is then lit using the torch provided and preheating can commence.

4. Inspection before commissioning

- Oil fill level, motor and blower (oil amount and quality are to be taken from the manufacturer's manual).
- Belt tension.
- Air and petrol lines for firm fit and intact condition.
- Petrol tap on tank and fine adjustment valve on burner are closed.
- Safety plate present and firmly screwed on.

5. Starting the preheating operation

1.				• Position burner over mould and align it.
2.		→		• Before starting motor, make sure that it is full of petrol. • Pull out the choke (only if the engine is cold) • Open fuel tap on motor. • Open speed regulator by 1/3.
3.		→		• Switch on motor (0 to I).

4.				• Start motor by pulling the starter cable.
5.		• Close choke slowly. • Set maximum speed.		
6.				• Open the ball cock on the fuel tank.
7.				• Light the torch and place it near the burner and the mould.
8.				• Open fine adjustment valve on burner.
9.		• When fuel mist escapes, ignite burner with the torch. (Ignition only possible in the form, since back pressure must be present).		
10.		• Optimise the flame by adjusting the fine adjustment valve. ○ Steady flame ○ Orange flame about 10 to 15 cm over the form		
11.		• Preheating operation (the preheating time depends on the welding process and can vary).		

6. Stopping the preheating operation

1. After preheating has finished, close ball valve on fuel tank.
2. Remove burner from the mould and close the precision control valve.
3. Close speed controller.
4. Switch off motor (I to O).
5. Close fuel tap on motor.

7. Maintenance instructions

- Motor: Observe the manufacturer's maintenance instructions.
- Blower: Observe the manufacturer's maintenance instructions.
- Air filter: Remove wing nut, take off protective cap, check condition of air filter.
- Petrol filter: unscrew a section of the aluminium housing; check condition of the petrol filter.
- Burner: Clean burner bores regularly, since they oxidise over time.
- Belt tension: check after 2 hours in operation (device is switched off). With your finger, apply moderate pressure to the centre of the belt. If the belt can be pressed down more than 10 mm, it needs to be retensioned.
- Hoses: if in porous or brittle condition, they need to be replaced.

8. Technical data

CATEGORY	DATA	
Dimensions	Total length	890 mm
	Total width	600 mm
	Total height	720 mm
Weights and volumes	Frame and cover	20.0 kg
	Drive unit	48.0 kg
	Burner unit	5.5 kg
	Drive unit	7.5 kg
	Drive unit tank capacity	8 l
Motor	Manufacturer:	Honda GX160
	Displacement	163 cm^3
	Rating	3.6 kW (4.9 PS)
	Speed	3600 rpm
	Fuel	Unleaded automobile fuel
	Tank contents	3.1 l
	Weight	15.1 kg
Blower unit	Manufacturer:	Gardner Denver
	Model	Sutorbilt 2MVP - THC
	Pressure	0.8 bar
	Weight	16.4 kg
Sound pressure level	The sound pressure (noise level) during preheating is 98 dBA; it varies depending on the welding process.	
Fuel consumption	Motor	1.4 l/h
	Torch	12.2 l/h