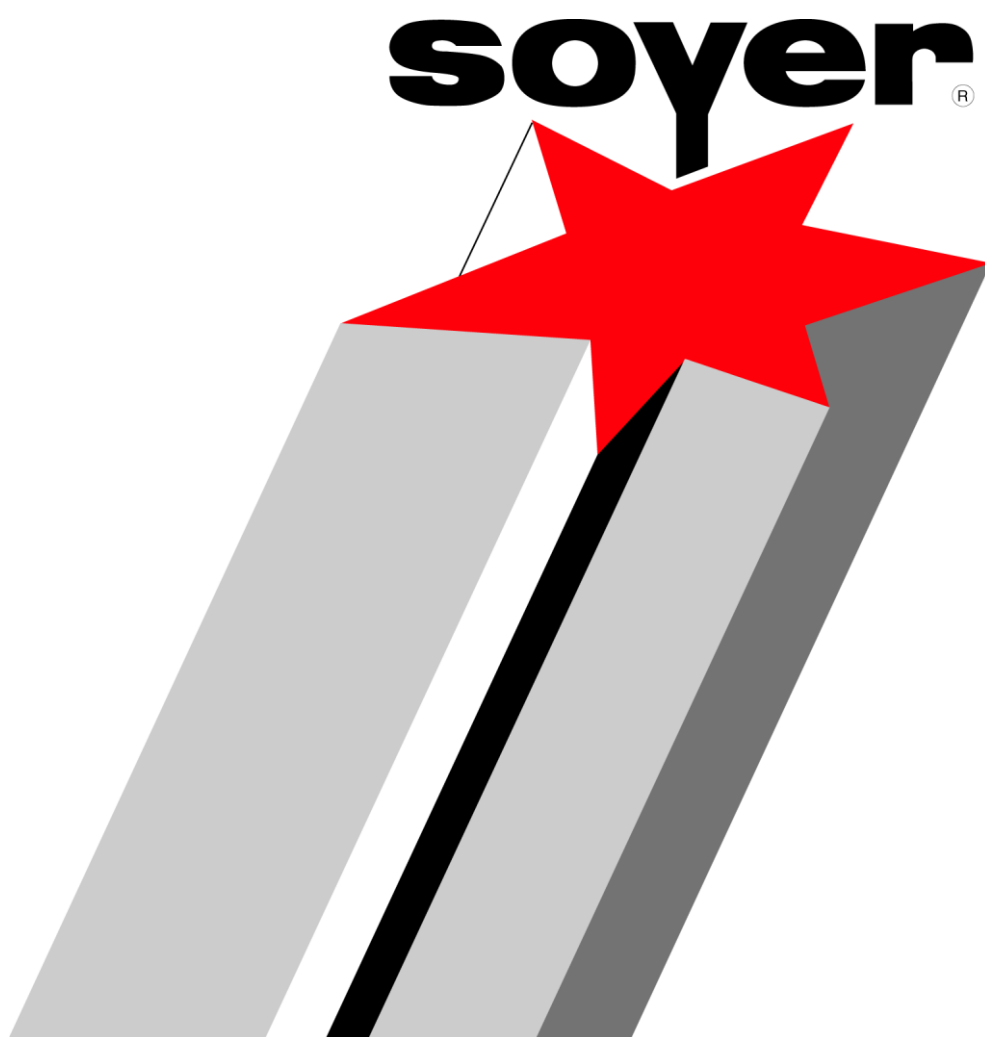




Operating Instructions

BMS-4 Akkumat **Stud Welder**







Operating Instructions

BMS-4 Akkumat Stud Welder

Serial number*

BMS-4 Akkumat Stud Welder

Please enter the serial number here to have it immediately available if you need service support.

Order No.	Code designation	Note
P01135	BMS-4 Akkumat	Standard device

Thank you!

Congratulations on purchasing the BMS-4 Akkumat SOYER stud welder. You have made an excellent choice. Your BMS-4 Akkumat SOYER stud welder was specially developed for the high-speed fastening of SOYER welding studs in compliance with **DIN EN ISO 13 918** on metallic, weldable workpieces.

Our devices have been tested with regard to safety requirements and correspond to the currently valid European and national guidelines. Proof of conformity has been established and the manufacturer is in possession of the corresponding documents.



FOR YOUR SAFETY

Read all of these operating instructions prior to start-up. Please follow all safety precautions as well as all chapters of these operating instructions before starting to weld. Non-compliance with the safety precautions can result in serious personal injuries or death.

SOYER® is a registered trade mark of Heinz Soyer Bolzenschweißtechnik GmbH.

It is prohibited to transmit or reprint this document, as well as to utilize or disclose its contents, unless this has been expressly granted.

Non-compliance with this regulation is liable to compensation. All rights reserved, particularly in the case of a patent grant or a GM registration.

We have verified that the contents of this pamphlet correspond to the hard- and software described. Deviations, however, cannot be excluded so that we cannot warrant for absolute compliance.

The illustrations contained in this instruction manual may vary in some details from your product. This, however, has no influence on the handling of the machine.

The data in this documentation have been verified regularly and necessary corrections will be incorporated in future impressions. Any suggestions for improvement will be appreciated.

Date of issue: April 03, 2006

Revision: -----

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**Heinz Soyer Bolzenschweißtechnik GmbH
Inninger Straße 14
82237 Wörthsee**

CE Declaration of Conformity

We herewith declare that the machine described in the following and the version available on the market correspond in design and construction to the safety and health requirements of the listed guidelines and standards. Any unauthorised modification to this machine automatically annuls this declaration.


Designation of machine	:	<u>Stud welding device</u>
Machine type	:	<u>BMS-4 Akkumat</u>
Machine no.	:	_____
Applicable EU directives	:	RoHS Directive (2011/65/EU) Low Voltage Directive (2014/35/EU) EMC Directive (2014/30/EU)
Applied harmonised standards, in particular	:	EN 60 974-1:2012 EN 60 974-10:2008
Applied national standards	:	DGUV Regulation 1
Date	:	16 July 2015
Producer's signature	:	 _____
Signer's function	:	Managing Director



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1 Safety precautions

These safety precautions are for your safety.



General safety instructions

Become trained and read and follow all safety precautions listed below as well as all chapters of this manual before starting to weld.

Non-compliance with the safety precautions can result in personal injuries or death.



Only qualified persons are allowed to install, operate and maintain the equipment.

Keep away children and juveniles under the age of 16 years from the equipment.



WARNING

It is prohibited to open the stud welder.

The service personnel are required to meet special qualifications.

Our after-sales service has adequately trained personnel, suitable service equipment and the means to carry out all necessary works.



Warning of electromagnetic fields

Keep sufficient distance from electronic devices. When stud welding, highly intensive electromagnetic fields are created which may permanently damage these devices (e.g. television sets, airbags).



Ensure that the welding equipment is not operated near electronically sensitive life-supporting equipment, such as in intensive care units in hospitals.

Persons with pacemakers must neither operate the stud welding equipment nor stay near it while it is running.



Electric shock can cause death

Prevent electric shock by insulating your body from work and ground. Stand on dry insulating material and wear rubber soled shoes.



Inspect all cables including power cord for damage, wear or bare wiring. Immediately replace damaged or worn cables.

Always ensure the correct supply voltage in accordance with the data plate. Never connect the battery charger to a power supply network with incorrect supply voltage.

Always disconnect the battery charger from the mains supply before starting any cleaning works. Only trained and appropriately qualified personnel are allowed to carry out works at the electric mains supply and welding system.

Do not touch live electrical parts with bare hand. Wear dry, hole-free insulating gloves.

Do not wear rings, watches or electrically conductive jewellery.

Keep the work area, studs, stud holders, guns, cables, power source as well as your clothes dry.



Fumes and gases can cause damage to your health

Fumes and suspended matters may be generated during welding. Beware of fumes detrimental to health, particularly when using surface treated materials. Please also observe the safety regulations applicable for your country.

Do not breathe fumes and gases. Use adequate ventilation in the work area to remove fumes and gases.



Welding can cause fire and explosions

Welding sparks and heat from flames and arcs can cause fires. Have a portable fire extinguisher handy for immediate use. Be sure you are trained for properly using it.



When welding, do not wear clothes soiled with easily combustible substances such as oil, grease and paraffin oil etc.



Comply with the fire regulations and do not weld, for instance, in hazardous locations.

Pay attention to flammable objects at the welding place. All flammable materials and liquids, such as oil, fuel, etc. must be removed prior to the start of work.

Electronic equipment (e.g. airbags) and the use of explosive substances for fuel supply require further safety precautions when carrying out welding operations on cars. Appropriate information can be obtained from the trade associations or the car manufacturers.



Skin and eye protection

Arc rays and welding spatters can injure eyes and skin.

Wear safety glasses with side shields and protective goggles with correct shade of filter to protect your eyes from welding spatters and flashes of light that are generated during the welding process.



Wear gauntlet gloves made of leather and non-combustible closed working clothes such as heavy long-sleeve shirts, cuffless pants and safety shoes.



Wear a leather apron to protect your clothes from welding spatters. Keep sleeves and collars buttoned and remove open pockets from the front side of your clothing.



We recommend using ear protection. Some welding and working processes may generate loud noises.

1.1 Description of reference signs in the operating instructions

The non-observance of safety instructions such as pictographs and warning words can cause damage to persons. The safety instructions of this manual describe the following:

Safety instructions



Danger! Immediate hazards which could result in serious personal injuries or loss of life.

Warning! Potential hazards which could result in serious personal injuries or loss of life.



Caution! Potential hazards which could result in minor personal injuries.

Caution! Warning of damage



















Note! Potential detrimental situation which may cause damage to the product or to an object surrounding it.

Important! Instructions for application and other useful information facilitating the proper use of the product.

Safety symbols

The following pictographs for warnings, bans and decrees are used in this manual:

			
Ban for persons with pacemakers	Ban (only in combination with an additional safety symbol)	Do not touch Housing is current-carrying	Fire extinguisher
			
Warning of a danger spot	Warning of dangerous electric voltage	Warning of electromagnetic field	Warning of moving parts
			
General ban (only in combination with an additional safety symbol)	Warning of inflammable substances	Warning of explosive substances	
			
Eye protection required	Protective clothing required	Ear protection required	Protective gloves required
 General instructions are marked with the hand symbol.			

1.2 Staff qualification and training



The staff responsible for operation, maintenance, inspection and assembly must have the respective qualification for carrying out these works. Field of responsibility, competence and the supervision of staff have to be exactly regulated by the user. If your personnel do not have the necessary knowledge, they have to be trained and instructed. If necessary, this can be done by the manufacturer/supplier on behalf of the user. Furthermore, the user must ensure that the contents of the operating instructions are fully understood by the staff.

The society of welding institutes (GSI: Gesellschaft der Schweißtechnischen Institute mbH) offers the appropriate training courses for your personnel.

For information on branches, please refer to website <http://www.dvs-ev.de>.

1.3 Dangers in the case of non-compliance with safety instructions

The non-compliance with safety instructions may not only endanger persons, but also the equipment and its environment. Any non-compliance with safety instructions may result in a complete loss of damage claims.

Non-compliance with safety instructions may have the following consequences:

- Failure of important system functions
- Failure of prescribed methods for maintenance
- Danger of persons through electric, mechanic, thermal and acoustic influences

1.4 Before starting to weld...

- Check the state of all cables and cable connections before starting to weld.
- Immediately replace defective cables and cable connections.

1.5 Working with the stud welding equipment

- Comply with all accident prevention regulations which apply to the operation of your welding device.

If an accident happens,

- switch off the welding device and disconnect it from the mains supply and
- call a doctor.

1.6 Inadmissible operating methods

Limit values

Working safety of the stud welding equipment supplied can only be guaranteed when the system is used in accordance with its purpose. The limit values indicated in the chapter "Technical data" must never be exceeded.

1.7 Stopping the stud welder

- Press the red OFF button "0"
- If need be, disconnect the mains plug of the external battery charger from the mains socket.
- Check welding cable and connections of the stud welder for damage such as burn-off, mechanical wear etc. and have damaged parts replaced by the SOYER customer service.

1.8 Utilisation of the rechargeable battery (accumulator)

1.8.1 Environment / Disposal

Batteries and accumulators must not be disposed of with the household waste. Spent batteries and accumulators must be disposed of in appropriate collection boxes. If there is no collection box nearby, spent batteries and accumulators can also be handed over to the collection points for problematical substances provided by the communities.

Accumulators purchased from our company can of course be returned to us after usage.

By doing so, you will fulfil legal regulations (battery ordinance) and contribute to the environmental protection.



Batteries and accumulators containing harmful substances are marked with the symbol of a crossed-out garbage bin. Below the garbage bin symbol you will find the chemical marking of the harmful substances: "Cd" stands for cadmium, "Pb" for lead, "Hg" for mercury.

For further information on the disposal of batteries and accumulators, please refer to

<http://www.grs-batterien.de>

1.8.2 Maintenance instructions and safety instructions for accumulators

Keep accumulators and battery chargers away from children.

Accumulators must always be charged prior to the first use.

The full capacity of accumulators can only be reached after several charging and discharging cycles. Accumulators should be fully discharged after approximately 10 charging cycles and then be recharged again.

Accumulators have a self-discharging effect. If the accumulator has been stored for a longer period of time, it has to be recharged prior to use.

The optimal room temperature for charging the accumulator is between 15° and 30° Celsius.

Store the accumulator at room temperature and keep it in a dry place.

Keep the charging process always under surveillance. Never leave the accumulator unguarded in the battery charger as there is the risk of leakage when being overheated!! We do not assume any liability for consequential damage.

Accumulators must never be burnt, polarised, short-circuited or opened.

Leaking or damaged accumulators may cause chemical burns after contact with skin. Use safety gloves when handling leaking or damaged accumulators.

Accumulators are consumables (such as batteries) which we do not warrant for.



2 General

2.1 The following should be principally observed...

With this stud welder you have purchased a product which

- is state-of-the-art technology
- fully complies with the current safety requirements and
- enables successful working.

Before installing the stud welder, please observe the following:

- Store the operating instructions in a place accessible to every operator.
- Ensure that the respective operator has read and understood the operating instructions prior to start-up. Each operator should confirm this per signature.
- Prevent the stud welder being operated by unauthorized personnel.
- Only trained personnel may operate the stud welder.
- Call a doctor in case of an accident.

2.2 Intended use

The BMS-4 Akkumat capacitor discharge stud welder with battery operation allows two M3 studs manufactured from steel and stainless steel to be simultaneously welded without earth connection. It is specifically used for attaching heating costs meters and suchlike.

2.3 Marketing and service

If you have any questions regarding the operation of the BMS-4 Akkumat stud welder, retrofits for special applications or if you require service, please contact your responsible service office or the following address:

Heinz Soyer Bolzenschweißtechnik GmbH

Inninger Straße 14

D-82237 Wörthsee

Telephone +49 8153-885-0

Telefax +49 8153-8030

www.soyer.de

info@soyer.de

2.4 Information on the documentation

The following operating instructions are supplied with the BMS-4 Akkumat stud welder:

- Operating instructions for BMS-4 Akkumat stud welder **Order no. P00242**

2.4.1 Information on operating instructions

Legal relationship

We draw your attention to the fact that the contents of these operating instructions are neither part of any former or existing arrangement, pledge or legal relationship nor are designed for modifying the latter. All obligations of **Heinz Soyer Bolzenschweißtechnik GmbH** result from the respective contract of purchase which also comprises the complete and generally valid warranties. These contractual warranty terms are neither extended nor restricted by the implementation of these operating instructions.

**CAUTION**

Do not carry out any actions on the stud welding equipment without specifically knowing the operating instructions or the respective part. Ensure that only qualified personnel familiar with the operating instructions and the necessary technical activities (training!) operate the system.

2.4.2 Conduct in the case of malfunctions

If malfunctions occur, first try to detect and eliminate the causes according to the "Troubleshooting" list in chapter 9 of these operating instructions. In all other cases, please contact our service department.

If you require our service, please make sure that you supply us with the following information:

- Customer number
- Serial number
- Stud and workpiece material
- Product designation / options
- Year of construction
- Stud dimensions

This information will help us both to save time and unnecessary costs, e.g. caused by delivering the wrong spare parts.

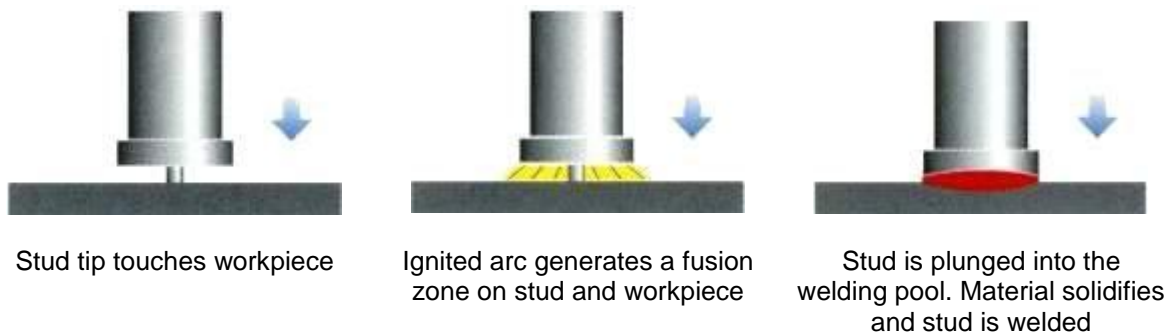
3 Description of stud welder

3.1 Description

The BMS-4 Akkumat stud welder allows two M3 studs to be simultaneously welded without earth connection and is specifically used for attaching heating costs meters and suchlike. It is possible to variably adjust stud distances. The BMS-4 Akkumat stud welder is suitable for mobile application and enables you to carry out welding operations without using a mains cable. An external 12 V battery charger required for charging the battery is included in delivery.

3.2 Capacitor discharge stud welding technology

The BMS-4 Akkumat SOYER stud welder runs according to the principle of capacitor discharge with tip ignition as defined in DVS Leaflet 0903 (DVS = German Welding Society). This system uses the sudden discharge of a capacitor battery to generate arc energy.



For further information, please refer to www.soyer.de



IMPORTANT INFORMATION

Ensure that the surface is electroconductive.
Grind coated parts.

3.3 Technical data

Description	BMS-4 Akkumat
Welding process	Capacitor discharge stud welding
Standard gun	PS-0DV double welding gun, stud distance adjustable from 20 - 40 mm
Welding range	2 x M3, steel and stainless steel
Power source	Capacitor 44,000
Charging voltage	Max. 110 volts DC
Welding sequence	2 – 3 double welds /min
Battery	12 V / 4.0 Ah
Battery capacity	approximately 150 M3 double welds at 20°C ambient temperature
Power supply	External battery charger 100 – 240 volts, 50 – 60 Hz
Protection system	IP 21
Dimensions	230 x 95 x 295 mm (w x h x d)
Weight*	7 kg including battery and welding gun
Colour	RAL 5009 azure
Subject to technical changes	



WARNING

The "S" symbol is the symbol for welding current sources permitted for operation with increased electrical danger. The "S" symbol on our stud welders refers exclusively to the welding current circuit and not to the complete stud welder.

* Slight deviations are possible depending on accessories.



4 Installation of stud welder

- Only install the stud welder on an even surface. The anti-vibration pads located on the bottom of the welding equipment guarantee its anti-skid position and serve as vibration dampers.
- Although the stud welder is resistant to environmental influences, it should be protected against dampness and dust.
- Please pay particular attention to the bearing strength of the workshop furniture and ensure a safe and stable position of the welding equipment.
- Make sure there is sufficient free space around the air apertures, otherwise the device safety mechanism will respond and interrupt the welding process.
- Install the stud welder close to the welding location.
- Ensure sufficient ventilation of the working room when operating the welding system.



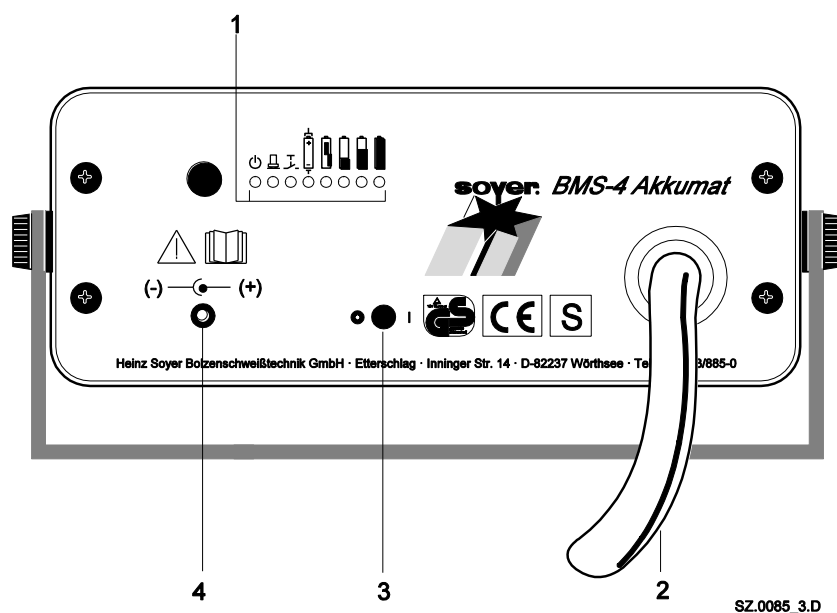
NOTE

The housing of the stud welder corresponds to safety class IP 21. Please observe that this system of protection is not suitable for being operated or transported in the rain.

- **Ensure correct connected loads for electrical connections as indicated on the type plate and/or battery charger.**

5 Start-up

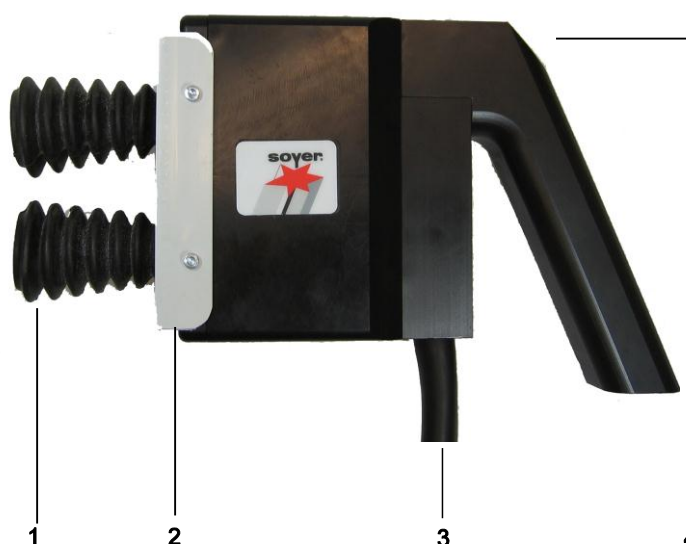
5.1 Front view



1 LED displays
2 Gun cable with stud welding
gun

3 On/Off switch
4 Connecting socket for battery
charger

5.2 PS-0DV gun



1 Bellows (stud holder not visible)
2 Protective plate

3 Gun cable
4 Release button

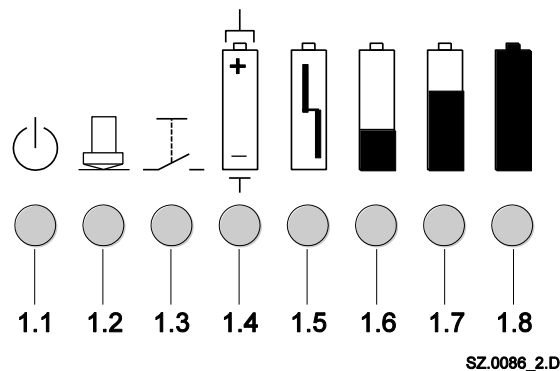
5.2.1 Operating elements

• On/Off switch

- This switch serves to turn the stud welder on and off.
- Briefly press switch to turn the stud welder on
- Briefly press switch to turn the stud welder off

5.2.2 Display elements

The BMS-4 Akkumat stud welder is equipped with eight LED displays.



- 1.1 LED "Ready"
- 1.2 LED "Stud on Workpiece"
- 1.3 LED "Release"
- 1.4 LED "Supply voltage on"

- 1.5 "Failure" – accumulator is dead
- 1.6 "Accumulator capacity" up to approx. 20%
- 1.7 "Accumulator capacity", approx. 20 -90%
- 1.8 "Accumulator capacity", approx. 90-100%

5.3 Preparation for start-up

5.3.1 Charging the accumulator




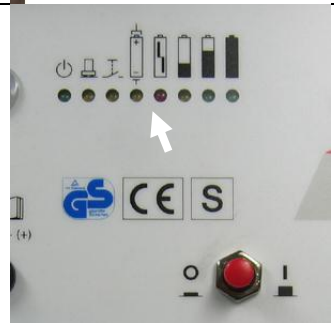


Instructions for the accumulator used (lead gel battery)

- The accumulator is not always completely charged when the stud welder is delivered.
- Prior to the first use, the accumulator should be charged for 12 hours.
- The accumulator has to be recharged after every discharge. This also applies to partial discharge.
- The accumulator must NEVER be stored in a discharged condition.
- A completely discharged accumulator has to be recharged for at least 12 hours.
- Charging times of less than twelve hours require the accumulator to be fully charged after three days at the latest.

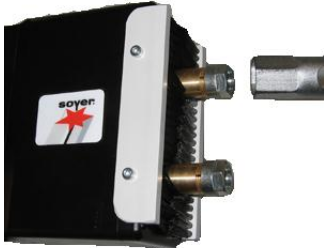

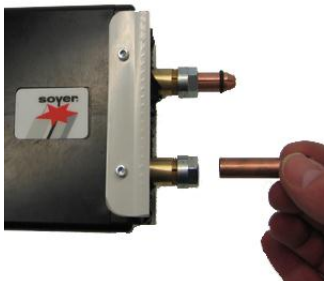
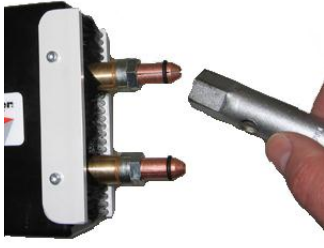




Note

Always connect battery charger to the stud welder's accumulator before connecting it to the mains supply. Ensure correct polarity as indicated on the front panel. Please also refer to the instruction manual of the external battery charger.

	<p>Insert connecting plug of the external battery charger into the connecting socket located at the stud welder's front panel.</p>
	<p>Use mains cable to connect external battery charger to power supply.</p> <div data-bbox="560 674 667 770" data-label="Image">  </div> <p>Ensure correct connected loads for electrical connections as indicated on the type plate and/or battery charger.</p>
	<p>The LED "Supply voltage on" lights up when power is supplied via the external battery charger.</p> <p>The accumulator is automatically charged. The LED "Supply voltage on" lights up at the stud welder to check proper operation. The LEDs 1.6 - 1.8 show the state of charge.</p>
	<p>The current state is indicated by a light-emitting diode located on the external battery charger.</p> <ul style="list-style-type: none"> • Red LED: Charge with maximum charging current • Green LED: Accumulator is fully charged <div data-bbox="564 1442 644 1487" data-label="Image">  </div> <p>Please also refer to the instruction manual of the external battery charger.</p>

5.3.2 Installation of stud holder into stud welding gun

	 <p>The stud welding system must be switched off when installing the stud holder.</p> <p>Loosen sleeve nut by means of SW 14 socket wrench.</p> <p>Bellows not pictured</p>
	<p>Insert stud holder into spring piston until stop.</p> <p>Bellows not pictured</p>
	<p>Tighten stud holder by means of sleeve nuts.</p> <p>Bellows not pictured</p>
	 <p>The bellows (splash guard) was removed to achieve a better view. In practice, the bellows is not removed when installing or replacing stud holders.</p>

5.3.3 Setting the stud distance

The PS-0DV stud welding gun allows stud distances of approximately 20 – 60 mm to be adjusted depending on the respective requirements.




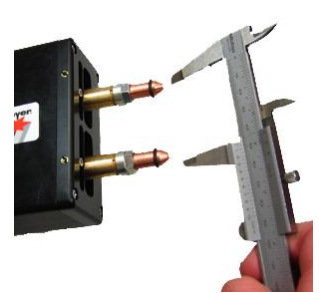



NOTE

Make sure that the **stud distance** is adjusted according to your requirements **before starting the welding process**.

If required, a stud distance of 32, 40, 50, 52 or 57 mm can be permanently adjusted. The appropriate spacers can be obtained from our company.

If a distance has already been permanently set, remove both spacers or replace by another spacer, if need be.

	 <p>The stud welding system must be switched off when setting the stud distance.</p> <p>Dismantle plate.</p> <p>Bellows not pictured</p>
	<p>Loosen 2 x M3 screws.</p> <p>Bellows not pictured</p>
	<p>Set desired stud distance between 20 and 60 mm.</p> <p>Bellows not pictured</p>
	<p>Fix plate to housing.</p> <p>Bellows not pictured</p>

6 Operation

**NOTE**

The applicable accident prevention and safety regulations have to be complied with when operating the stud welder.

**NOTE**

The welding points must be free from rust/scale.
→ Grind welding positions if necessary.

6.1.1 Accumulator operation

- Briefly press on/off switch.

When switching the stud welder on, all LED displays light up briefly on the front panel to check proper operation.

Caution: The stud welder is ready for welding in about 20 seconds after the welding capacitor has been charged. This period of time can be used e.g. to insert the welding stud into the stud holder. By lightning up, the LED "Ready" indicates that the stud welder is ready for welding.

- Position PS-0DV stud welding gun with welding stud on the workpiece.
The LED "Stud on workpiece" lights up.
Keep the gun still and preferably at an angle of 90° to the welding surface.
- Press gun switch. The LED "Release" lights up. The welding process is effected immediately.
- After having completed the welding process, remove the gun evenly from the welding stud in a straight line motion. After the welding gun has been removed from the stud, the capacitor is recharged.

An acoustic warning signal announces that the accumulator is about to be discharged. When the accumulator has been discharged, the stud welder is blocked and the capacitor prevented from being recharged.



When the accumulator is discharged or its capacity is below 20%, you may also operate the stud welder with the connected battery charger.

"Standby" function with accumulator operation

If the stud welder is not used within 5 minutes after it has been switched on, it will automatically be switched to the "Standby" function. All displays are switched off and the stud welder is no longer ready for welding. The LED "Supply voltage on" starts blinking (item 1.4, chapter 5.2.2). As the current consumption is very low now, the stud welder can remain switched on for a longer period of time. The stud welder is ready for welding again when pressing the trigger switch of the welding gun. The stud welder will automatically be switched off after 10 minutes in the standby operation. The stud welder is operative again when briefly pressing the on/off switch.

7 Quality control (stud welding)

7.1 General

Provided that the SOYER stud welding system is properly used and the materials are appropriately selected, the strength of the welding joint (welding zone) will always be stronger than that of the stud or base material.

The following tests are carried out in general practice:

- Visual inspection
- Bend test

Please also refer to the following standard

- **DIN EN ISO 14555** Arc welding of metallic materials


or DVS information sheet

- **DVS 0902** Information on practical application – Arc stud welding


8 Maintenance


8.1 Important instructions

The stud welder is constructed in such a way that only a minimum of maintenance is required. It should, however, be cleaned by a specialist at regular intervals depending on the environmental conditions at the location of use.

	<p>WARNING</p> <p>The service personnel are required to meet special requirements. Our after-sales service has adequately trained personnel, suitable service equipment and the means to carry out all necessary works.</p>
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8.2 Important instructions for all service works

	<p>DANGER</p> <p><u>Always</u> disconnect the mains cable from the mains supply before starting any repair work, maintenance work or cleaning work.</p> <p><u>Always</u> disconnect the connecting plug from the mains supply socket before opening the housing of the stud welding system. Only trained and appropriately qualified personnel are allowed to carry out works at the electric mains supply and welding system.</p>
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	<p>NOTE</p> <p>Only use original SOYER[®] spare parts.</p>
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8.3 Cleaning


Cleaning works are to be carried out every now and then depending on how soiled the stud welder is.

8.3.1 Detergents for cleaning the housing

Almost every detergent without corrosive or acidic substances is suitable for cleaning purposes. However, please observe the manufacturer's specifications on the detergent you intend to use.

8.4 Replacement of components

Components may only be replaced by trained SOYER servicemen. Perfect function of your stud welder can only be guaranteed when original SOYER spare parts are used.

	<p>CAUTION</p> <p>Disconnect the mains cable from the mains supply before replacing any components. Electric and electronic components may only be replaced by the SOYER[®] customer service or by trained and appropriately qualified personnel.</p>
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CAUTION

Should it become necessary to replace fuses, only use fuses with the specified electrical values. Oversized fuses could either cause defects on the electrical system or a fire.


DANGER

Disconnect the mains plug from the mains supply when replacing fuses.

9 Troubleshooting

The following list of errors, their causes and remedies is designed to help you eliminate any trouble immediately on the spot. If it is difficult or impossible to eliminate the trouble, please contact the SOYER customer service responsible for your area or Heinz Soyer Bolzenschweißtechnik GmbH.


DANGER

Before starting any repair work, maintenance work or cleaning work, always disconnect the mains cable from the socket.


CAUTION

Electric and electronic components may only be replaced by the SOYER[®] customer service or by trained and appropriately qualified personnel.



9.1 Malfunctions

Error	Cause → Elimination
System does not weld, no spark formation	System is not switched on: Switch system on. Green pilot lamp "Ready" must light up. If red pilot lamp lights up, press again on/off switch
	Welding points and/or earth connection points at the workpiece are not blank. Light emitting diode (item 1.2, chapter 5.2.2) does not light up: Prepare workpiece and studs accordingly. Grind contact points
Stud thread scorched	Stud is too loose in stud holder: Press stud holder together or tighten it
	Stud holder worn: Replace stud holder
Varying welding results	Stud too loose or not fully inserted into stud holder until stop: Insert stud into stud holder until stop. Replace stud holder, if necessary
	You have used low-quality studs e.g. with inaccurate dimensions: Only use SOYER® welding studs
Stud not welded with total flange surface, deficient weld joint strength	Workpiece surface too rusty: Clean or grind workpiece surface
	Stud weld base deformed: → Use new welding studs
	Welding gun in tilted position: Position welding gun with both stud holders simultaneously and evenly on the workpiece
Welding system generates an acoustic whistling signal	Charge of accumulator at minimum: Use mains cable and switch stud welder on or charge the accumulator

10 Transport and storage

The stud welder is robustly designed and has a two-piece metal housing with front and rear panel. Owing to electronic components it should be ensured, however, that transport is free from vibrations.

The BMS-4 Akkumat stud welder has a carrying handle on its top for easy transport and mobile use within short distances.

**NOTE**

Prevent unauthorized use of the stud welding system by children and unqualified personnel.

After long system standstill, we recommend having the stud welding system checked by SOYER® customer servicemen prior to start-up.

**NOTE**

The housing of the BMS-4 Akkumat stud welder corresponds to safety class IP 21. Please observe that this system of protection is not suitable for being operated or transported in the rain.

11 Terms of warranty

We warrant for this equipment for a period of 12 months in the case of commercial, professional or equivalent use. When repairs are necessary, we guarantee to undertake them in our factory in Etterschlag. Parts subject to wear and tear are excluded.

Any claim to a warranty will be forfeited if damage is caused by improper operation, or if repairs or interferences have been made by unauthorized personnel, or whenever accessories and spare parts have been used which do not match our equipment.

We cannot guarantee the perfect function of the stud welder and the quality of welded joints if welding studs acquired from another company are used.

12 Spare and wear parts

Abbildung Illustration	Pos. Nr. Ref. no.	Artikel Nr. Order code	Menge Quantity	Bezeichnung Designation
		E04012	1	External battery charger
		E04015	1	Mains cable (Europe) for battery charger
		E04016	1	Connecting socket for battery charger
		E03643	1	Lead gel battery (accumulator) 4Ah – 12 volts
		F01148	2	Stud holder 3 mm without cap (standard)
		F02795	2	Stud holder 3 mm with cap (option)
		F04671	2	Bellows
		F04670	2	Protective plate / brush
		F01469	2	Sleeve nut
		M01444	1	Socket wrench SW 14/17
		E04017	1	On/Off switch for front panel

		E04018	1	Panel jack for front panel
not pictured		F03856/FA	1	Printed circuit board SO-401 B
not pictured		F05119/FA	1	Printed circuit board SO-402 B
		E01897	1	Micro fuse 6.3 AT
		F04928	2	Spacer 32 mm
		F04929	2	Spacer 40 mm
		F04930	2	Spacer 50 mm
		F04931	2	Spacer 52 mm
		F04932	2	Spacer 57 mm

13 List of standards and guidelines

• 2014/35/EU	Directive on Low Voltage
• 2014/30/EU	Directive on Electromagnetic Compatibility
• EN 60974–1	Arc welding equipment - welding current sources
• EN 60974–10	Arc welding equipment - EMC requirements
• DVS Information Sheet 0901	Arc stud welding of metallic materials
• DVS Information Sheet 0902	Drawn arc stud welding
• DVS Information Sheet 0903	Capacitor discharge stud welding with tip ignition
• DVS Information Sheet 0904	Practical information – Arc stud welding
• EN 14555	Arc welding of metallic materials
• EN 13918	Studs and ceramic ferrules for arc welding
• DGUV Regulation 1	Principles of prevention
• 2006/42/EC	Machinery Directive
• EN 12100–1	Safety of machinery – Basic terminology, systems engineering
• EN 12100–2	Safety of machinery – Technical principles and specifications
• EN 60204–1	Electric equipment of machinery, general requirements

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