

Technical specification



Reconditioning kit for DC Welding Machines with Weld Processor SWEP 05 Thyristor switch 3 x ES130

Application

This reconditioning kit is designed to replace the weld processor of Schlatter DC-welding machines equipped with weld processors of the design DU122; DU124; DU222 und DU224.

Content	page
1. Abstract	2
2. Technical Description	3
3. Scope of Supply	5
4. Delivery terms	6

1. Abstract

Concept:

The reconditioning kit described serves as a replacement for the welding processor on Schlatter DC welding machines. It fits to the following processor types: DU122; DU124; DU222 und DU224.

This kit contains the equipment including the interfaces to the existing machine control. The equipment, including weld processor rack, operating unit, power stage, etc., is mounted into a small free standing cabinet (except power contactor) and is factory tested. The terminals in the cabinet form the electrical interface to the existing machine.

The transformer power connections have to be converted from Delta to Super-Delta configuration. The AC primary power feeding lines as well as the machine power contactor remain in place.

Advantages of the new weld processor generation:

- Improved process safety of the welds due to optimum programmability and store capabilities of once determined weld parameters in the weld program memory
- Increased electrode lifetime due to a stepwise weld current increase to compensate electrode deterioration (stepper-functionality)
- Shorter machine down times due to an automatic malfunction diagnosis for the weld processor and its peripherals. (i.e. mains voltage monitoring).

Advantages of the new power stage generation

- Increased reliability due to a fully encapsulated thyristor contactor block.

Scope of Supply:

- 1 free standing cabinet containing:
- 24V-power supply
- Weld Processor type SWEP 05
- Integration material for SWEP 05
- Control elements
- 3 power stages type ES130
- 3 base loads for power stages
- 3 ignition cables
- Wiring and factory testing
- Wiring diagram of the control cabinet
- Wiring and installation hints for control cabinet - machine(Interface)
- Operation manual for SWEP05 and ES130

Not included are:

- Any customer specific adaptations outside the standard kit.
- Any modifications (electrical, mechanical) on the existing machine
- Power contactor (protection of the incoming feeder)
- Wiring between control cabinet - machine
- Recommissioning of the supplied material together with the machine
- Any software adaptations to integrate the machine into an existing PLC control.

2. Technical Description

2.1 Control cabinet

Free standing control cabinet to be placed besides the machine, containing:

2.2 Weld Processor Type SWEP 05C

Programmable weld processor for control of complex DC-welding applications for general resistance welding.

The following typical applications are available:

- Single spot, stitch and projection welds with or without pulsation
- Seam welding with constant current, current program or current/break program.

Special features

The "Superdelta"-power circuit for the generation of welding current results in a smaller load on the mains supply and less harmonic waves compared to the usual current sources.

Flexible welding program formation with the following welding processes:

- | | |
|----------------------------|----------------------|
| • lowering of electrodes | 01 - 99 x time basis |
| • squeeze sequence | 00 - 99 x time basis |
| • up-slope time I, II, III | 00 - 09 x time basis |
| • current time I, II, III | 00 - 99 x time basis |
| • hold sequence | 00 - 99 x time basis |
| • off sequence | 00 - 99 x time basis |

Pulsation is possible between current time I and II and/or current time II and III.

Complex welding tasks can be carried out by means of cascade programming.

Customer Benefit:	welding programs can be tailor made exactly to the respective welding tasks
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Input of welding parameters

- | | |
|-----------------|---|
| Welding time | in cycles, half cycles, 1/6 cycles |
| Welding current | linear adjustment of % via keyboard |
| Welding force | 2 forces preset at pressure gauges can freely be coordinated |
| | In % of max. weld force (in case a proportional valve is fitted). |

Memory for 99 welding programs which can be selected via keyboard.

Constant voltage control

with input of the welding voltage in ‰ of the maximum secondary voltage.

This means a steady welding quality can be achieved even during mains voltage fluctuation.

The constant voltage control is made simultaneously for all three mains power lines. Every 3.3 ms (50 c/s) respectively 2.8 ms (60 c/s), mains voltage and frequency are measured and the phase control for the thyristors are recalculated.

Automatic diagnostic system

supervises not only weldprocessor electronics, but also input and output conditions as well as voltage and frequency.

Stepper function

with the stepper function (in 5 steps) a current increase depending on the number of welds can be programmed.

Control of weld force

- Two preset weld forces can directly be called up from the weldprocessor (2 digital outputs).
- In case there is a proportional valve (not part of the supply) installed, it can directly be served from the weld processor via the D/A- interface card. The weld forces stored in the weld programme are directly set.

BCD Interface

Via the I/O-card no 2 there is a possibility to read in BCD format and call-up from externally (e.g. from a master control or an external manual input) a stored weld programme or a preset weld current value.

2.3 Power Stage Type ES 130

The hermetically sealed power stages are connected into the primary circuit of the weld transformers.

Features:

- Integrated overvoltage protection
- Thermal monitoring circuit
- Water cooling circuits fully separated from current conducting elements.
- Integrated base load
- Power stages are completely maintenance free.

Technical Data:

- | | |
|-----------------------------------|--------|
| • Current load at 100% Duty Cycle | 1300 A |
| • Voltage limit | 500 V |
| • Max. water inlet temperature | 35 °C |

Compulsory information when ordering

- | | |
|------------------------------------|---------------------------|
| • Machine type / Commission no. | type plate on the machine |
| • Type of control / Commission no. | type plate on the control |

3. Scope of Supply**Weld processor SWEP05 with power stages ES130**

1 Control cabinet, containing:

- 24V-power supply
 - Weld processor type SWEP 05
 - Add-on material for weld processor SWEP 05
 - Control elements
 - 3 Power stages type ES130
 - 3 Base loads for ES 130
 - 3 Ignition cables for ES 130
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- Circuit diagram for control cabinet, wiring modifications on the welding machine
 - Operation manuals SWEP05 and ES130

Conversion Effort (estimation)

The conversion of the machine is not included in the above price. Professional support can be provided on request (also refer to chapter 4.8. hereafter)

- | | |
|--|----------|
| • Adaptation, wiring of the machine | 1-2 days |
| • Connections control cabinet to machine | 1 day |
| • Re-commissioning | 1-2 days |

4. Delivery terms

4.1 Delivery Time

Approx. **3 months** after receipt of technically and commercially clarified order.
Subject to prior sale.

4.2 Packing

Included, packing is non-returnable.

4.3 Guarantee

The guarantee period is 12 months and ends latest 15 months from the date of our notification of readiness for dispatch. The guarantee is limited to the newly delivered equipment and excludes an overall guarantee on the modified machine.

4.4 Reservations in case of modifications on existing machines

The offered scope of supply has been carefully determined by H.A. Schlatter AG. Not explicitly mentioned components which have to be replaced in addition to the offered set, due to wear or other reasons, are not included. They can be ordered at H.A. Schlatter AG as ordinary spare parts.

4.5 Recommissioning

Installation, wiring and recommissioning of the machine are not included in the offer. Professional support can be provided at request. Services of our specialists such as consulting services, on site support, boarding and lodging as well as travel expenses will be charged according to our current rates, prevailing at that time.

The normal daily working time is 8 hours. For overtime hours (more than 8 hours/day) as well as night working hours (between 20.00 hours and 06.00 hours) special rates will be applicable.

4.6 Paint Finish

Machine and basic components light grey

light gray RAL 7035

4.7 Technical Modifications

Due to our policy of development and continuous improvement, changes in technical specification may occur. This will in no way diminish the agreed performance of the system

4.8 Delivery Exclusions

If not mentioned separately, the following does not belong to extent of delivery:

Foundations

Unpack, setting into operation and connecting

Setting into operation

Any lead-in and connection lines for electric energy, compressed air and cooling water

Cable channels and cable supports for lead-in and connection lines between separate machine components

ircuit breakers and fuses

User programs referring to workpieces.

4.9 General Conditions of Contract

The attached General Conditions of contract for the supply of plant and machinery published by The Swiss Association of Machinery Manufacturers (VSM) are an integral part. They are valid in every respect unless other agreements have been made in writing.

4.10 Place of jurisdiction

Zurich/Switzerland

The contract shall be governed by Swiss substantive law.

H.A. Schlatter AG

Appendix: General conditions of contract for plant and machinery (VSM 2001)